Scottish & Southern Electricity Networks
TRANSMISSION

TG-NET-ENV-510

Environmental

General Environmental Management Plan (GEMP) – Oil Storage and Refuelling



TG-NET-ENV-510	General Environmental Management Plan (GEMP) – Oil Storage and Refuelling		Applies to
			Transmission ✓
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1 Introduction

1.1 Oil and fuel, inappropriately used, stored or disposed of, can give rise to pollution of the environment.

1.2 Oil and fuel can be released into the environment through:

- Spillages during delivery or use
- Spillages during refuelling operations
- Loss during attempted theft or vandalism
- Spillages from hose bursts
- Spillages from mechanical failure of plant and their components
- Inadequate or damaged storage facilities, or
- Being poured directly to drains or gullies or being burned.

1.3 Petrol, diesel and oil are all highly harmful to plants, animals and humans. If pollution is caused, prosecution may follow. The resultant cost of clean-up and legal proceedings following an incident is likely to far exceed the cost of putting proper control measures in place.

2 References

The documents detailed in Table 2.1 – Miscellaneous Documents, should be used in conjunction with this document.

Table 2.1 – Miscellaneous Documents

Reference	Title
https://www.sepa.org.uk/media/dw5de0kh/car-a-practical-guide.pdf	SEPA The Water Environment (Controlled Activities) (Scotland) Regulations 2011
CIRIA (2006) C648 - Control of water pollution from linear construction sites – Technical Guidance	Control of Water Pollution from Linear Construction Sites
https://www.hse.gov.uk/cdg/commonproblems/bowsers.htm	Bowser Regulations
https://www.gov.uk/government/publications/carriage-of dangerous-goods-guidance-note-23	Transporting Diesel, Petrol or Kerosene by Road
Ciria C741	Environmental Good Practice on Site Guide (fourth Edition)

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3 Legislation

3.1 The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) apply to any kind of oil including petrol, diesel, mineral oil, heating oil, lubricating oil, waste oil, vegetable and plant oil (except uncut bitumen) stored above ground at premises such as construction sites.

3.2 The relevant provisions of Waste Management Licensing Regulations 1994 (as amended) also apply to handling and storage of waste oil.

3.3 The carriage of diesel, kerosene and petrol by road is regulated by The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG 2009), as amended.

3.4 Petrol, diesel and oils are also covered under the Control of Substances Hazardous to Health Regulations 2002 (COSHH Regs) and need to be stored and used in compliance with these also.

4 General Compliance Requirements

4.1 General

4.1.1 Compile a protocol for oil and fuel storage & operations on site, including but not limited to, bulk fuel delivery procedure, refuelling procedure, fuel storage inspections (including spill kit & plant nappy provision and condition) & emergency response procedures.

4.1.2 All those undertaking, or involved in, refuelling operations should be nominated on the project as Refuelling Marshals and trained in the approved refuelling procedure.

4.1.3 Suitably sized and fully stocked spill kits of the appropriate type are to be located and maintained at all oil & fuel storage locations, refuelling locations and in all site vehicles. Consider the nature of surrounding area when specifying and checking spill kit contents to ensure they provide suitable materials and modify contents accordingly e.g. include floatation bunds if works are near watercourses or, consider inclusion of absorbent granules, shovel and impermeable sheet if the ground is very free draining. Provide suitably labelled plastic sacks for disposal of contaminated wastes arising from used spill kits.

4.1.4 Used spill kit materials should be removed as Special Waste. Stocks of spare material are required to be held on site to ensure restocking and replacement can occur in a timely manner.

4.1.5 Plant nappies must be available at all refuelling locations for use during refuelling procedure.

4.1.6 Where a plant nappy is of two part design the use of plant nappy liners without plant nappy base, or plant nappy base without liner, is not acceptable as their performance will be compromised.

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4.1.7 All oil loss events such as spillages, hose bursts etc must be reported in line with Scottish and Southern Electricity Networks (SSEN) reporting procedures.

4.2 Deliveries & Storage

4.2.1 Oil and fuel storage areas should be clearly designated and shown on site layout and drainage plans, clearly presented on site and briefed during site inductions. Tool Box Talks are to be used to communicate changes and periodically remind operatives on oil and fuel storage, refuelling procedures and emergency response requirements.

4.2.2 The following will be considered as a minimum when identifying the location for fuel storage:

- Maintaining a minimum of 30m from sensitive environmental receptors such as surface waters, surface drainage systems, wetlands, Groundwater Dependent Terrestrial Ecosystems (GWDTEs), drinking water or private water supply catchments.
- Fuel stores must be sited away from where they could be hit by moving vehicles and plant whilst ensuring ease of access to proposed storage area for oil deliveries / refuelling.
- Ensuring suitability of ground conditions e.g. can the area be protected against flood damage / inundation / subsidence.
- Use existing oil interceptor facilities, bunded storage areas or suitable areas of hardstanding, and
- Locate areas to prevent risk of theft or vandalism.

4.2.3 Clear signage should be provided at oil storage areas and designated fuelling areas.

4.2.4 Clearly identify any areas where fuelling or fuel storage is not permitted on site plans (e.g. within close proximity to watercourses). Where appropriate, consider additional signage highlighting and defining exclusion zones.

4.2.5 During delivery of fuel or oils by a supplier to site, the delivery vehicle must be supervised by a suitably trained Refuelling Marshal when on site. Volume and type of fuels delivered and stored on site should be recorded along with dates of delivery.

4.3 Fuel and Oil Storage Containers

4.3.1 All fuel or oil storage containers must:

- Adhere to all and any conditions of the Controlled Activities Regulations (CAR)
- Be of suitable type for that fuel or oil
- Be appropriately labelled identifying the contents
- Be of enough strength and structural integrity to ensure that it is unlikely to burst or leak in its ordinary use

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- Be maintained in good condition
- Not filled beyond design capacity
- Be impermeable to oil or water, and
- Positioned, or other steps taken, to minimise any risk of damage by impact so far as reasonably practicable.

4.3.2 Storage of fuel or oils within 50 gallon / 200 litre drums is not permitted on site. Where waste oil is stored in this equipment it should be for minimal duration and the drum should be placed within a suitably sized bund.

4.3.3 For fuel storage containers of 200 litres or greater these must be checked for compliance with General Binding Rule 28 of the Controlled Activity Regulations, and locked when not in use to prevent unauthorised use and potential spillages arising from such use.

4.3.4 Secondary containment or bunds are required where storage of oil or fuel is within containers over 200 litres. This secondary containment must be checked and maintained regularly, with any liquid or materials within emptied / removed and suitably disposed of to retain required volume.

4.3.5 The storage of oil or fuel in a portable container with a capacity of less than 200 litres must:

- Be securely sealed when not in use so as to contain the fuel in event of tipping of the container
- Be secured during transit within a vehicle so as not to slide, tip or otherwise be put at risk of damage
- Where being stored for any period longer than a day between use, be placed within suitable bunded Control of Substances Hazardous to Health (COSHH) containment when not in use, and
- When not stored within a bunded COSHH container, the container should be stored securely on a plant nappy, away from any sensitive receptors such as watercourses.

4.4 Refuelling

4.4.1 The following must be adhered to for refuelling operations:

- Refuelling operations are to be included within the preparation of a protocol for oil and fuel storage & operations on site
- Undertake refuelling at appropriately sited and set up designated refuelling bays
- Where this is not possible for operational reasons, refuelling should not be undertaken within 30m of surface waters and should follow the above guidance regarding location of any fuel related activities
- Suitably sized spill kits must be easily accessible for all re-fuelling operations and drip trays / plant nappies used during refuelling operations to catch drips and splashes.

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4.5 Construction Plant

4.5.1 Plant nappies should be placed under stationary plant and equipment such as oil powered pumps, generators, winches, hydraulic presses, compressors, lighting rigs (where these items are not "integrally bunded"). Hydraulic powered plant such as presses, winches or tensioners may require additional mitigation such as further plant nappies or impervious drip trays.

4.5.2 Whilst plant nappies do not provide significant containment capacity, they are easier to manage than impervious drip trays which require increased maintenance to ensure rain water is not contaminated and require to be regularly emptied of rainwater to ensure effectiveness.

4.5.3 Static plant should be located at least 30m from any watercourse (or other identified sensitive receptor). Where it is not possible, mitigation should be put in place to reduce the risk or impacts of a pollution incident occurring (including additional capture methods for losses, increased inspection visits of the plant or placement of oil booms).

4.5.4 Plant nappies are to be placed under mobile plant on site when parked up and operative is not within plant, for example during breaks, overnight or longer periods. A plant nappy will be assigned to each piece of plant and placed under the area of the plant considered the greatest risk, for example this may be under the engine bay (if unbunded) or under the hydraulic pumps or flexi hoses. Stones maybe placed on the plant nappy to prevent it being blown away in strong winds.

4.5.5 Plant nappies should be regularly inspected as part of plant pre-use checks and during other site inspections and should be replaced (or their liners replaced) when deterioration and/ or contamination is evident.

5 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New Document Created	N/A	1.00	Richard Baldwin
02	Reviewed and updated.	TG-NET-ENV-510 (Rev 1.00)	2.00	Richard Baldwin
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Environmental

General Environmental Management Plan (GEMP) – Soil Management



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Approved by	Richard Baldwin	Head of Consents and Environment

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1 Introduction

1.1 Soil is a precious resource and can provide the following functions:

- Supports a diverse ecological system and provide the growing medium for habitats, crops and timber;
- Provides a carbon sink and plays an important role in carbon sequestration;
- Absorbs rainfall, delaying its movement into watercourses; and
- Filters or transforms chemicals that pass through it, preventing them from ending up in water or air.

1.2 Any damage to soil quality affects the long-term functioning of the soils and has an impact not only on ecological diversity, performance and visual amenity, but can have impacts off-site such as on flooding, aquifer recharge and water quality.

1.3 It is therefore essential that impacts to the resource are reduced to the minimum necessary for the works and that all work is undertaken in accordance with best practice. The methods of stripping, storage, reuse and disposal of soil can have significant impacts on both the soil resource and other environmental receptors.

2 General Compliance Requirements

2.1 General Principles of Soil Management Process

2.1.1 All stripping should follow this process, except in agricultural fields whereby the method should be informed by landowner requirements, or where archaeological concerns exist and smooth buckets maybe preferable:

- Turves stripped to 300mm using large toothed bucket;
- Turves to be stored vegetation side up and watered if drying out;
- Any remaining topsoil and all subsoil layers to be removed and stored separately;
- Label stored soils with source of origin and material type if to be left for periods more than a month;
- If soil storage bunds to be left for duration of 6 months or more, consider placing top soil layer on subsoil bunds;
- Subsoil, topsoil and turves are to be replaced in same order as removed;
- Turves to be reinstated vegetation side up, and spread in a mosaic pattern if there is a shortfall;
- The toothed bucket should not be used to smooth over the excavation as it results in greater initial damage and slower recovery of the vegetation in the long run.

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2.2 Stripping

2.2.1 Plan soil stripping carefully in advance.

2.2.2 Check whether the project archaeologist should be on site during the soil stripping.

2.2.3 Check all necessary pre-construction surveys have been completed prior to stripping (e.g. preconstruction protected species surveys in line with Species Protection Plans).

2.2.4 Follow all identified mitigation requirements for the location and method of stripping.

2.2.5 Where possible, strip soil during drier periods. Do not strip soil during periods of very heavy rainfall.

2.2.6 Soil stripping should only be undertaken in manageable sections, to minimise open excavations, maximise chance of effective reinstatement and allow the installation of suitable silt mitigation (where necessary) for the area being stripped.

2.3 Storage

2.3.1 Topsoil should be stripped and stored within the pre-identified and agreed areas to ensure safe storage and swift and successful reinstatement.

2.3.2 If soil storage is being carried out on sensitive habitats, consideration should be given to storage on top of a geotextile mat with duration of storage minimised.

2.3.3 Topsoil must not be mixed with subsoil or other layers with a requirement for separate storage areas for each.

2.3.4 Record and 'signpost' where all removed soils are stored including the different subsoil layers (this is important as individual subsoil layers should be reinstated in the order in which they were removed).

2.3.5 If the storage is likely to be for an extended period (for example >6 months) it may be appropriate to store topsoil layered on top of subsoil bunds. Underlying turves (and topsoil) at the storage location should be removed in advance with turves stored on surface of the bund.

2.3.6 Soil storage areas should be located away from watercourses (minimum 10m) and protected from run-off from adjacent areas.

2.3.7 Storage bunds should be designed so the material is stable and unlikely to slip, slide or slump. Consider the risk of any adjoining topography, (e.g. avoiding storing soils near steep slopes or banks, or in areas at high risk of flooding).

2.3.8 Best practice should be applied in order to minimise the amount of compaction or other disturbance of the general structure of the superficial deposits.

2.3.9 Other site works should not impact on stored soil (e.g. Construction traffic must not track over stored soils).

2.3.10 Careful planning of storage areas and required works must be undertaken to avoid multiple handling of stored material and moving of stockpiles.

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2.3.11 The surface of material storage bunds (not turfed as detailed above) can be smoothed with bucket to aid surface water run off to reduce potential for erosion. If significant soil erosion is occurring from storage piles during periods of heavy rain, consideration should be given to covering the stockpiles with terram or other suitable material.

2.3.12 Seeding of soil storage bunds should not be undertaken in areas of sensitive habitats and should only be undertaken with agreement of landowner, but may help stabilise bunds if required to be in place for extended period. Consider an enhanced seed mix (with native wildflower for example) to give a temporary biodiversity benefit.

2.3.13 Noxious weed growth or Non-native invasive species on soil storage bunds must be treated/ controlled or otherwise removed. Seeding bunds may help hinder noxious weed establishment.

2.3.14 In periods of dry weather check the need for dampening down to reduce dust and potential nuisance.

2.3.15 If any stored soil is contaminated it should be managed in accordance with the Contaminated Land GEMP.

2.3.16 After removal of stored material, storage areas should be reinstated to the pre-existing condition.

2.4 Reinstatement

2.4.1 Reduce risk of soil storage being constrained by nesting birds through implementation of nesting bird deterrents/ programming reinstatement works outwith nesting bird season. Ensure soil stores are surveyed for nesting birds/ protected species in line with Species Protection Plans (SPPs).

2.4.2 Stripped soil should be reinstated as close to where it was removed as possible. This will help to maintain a local seed base and the local geological/ hydrological characteristics.

2.4.3 Unless otherwise agreed, turves should be reinstated following the works and orientated vegetation side up.

2.4.4 Where turves are not available, areas would be left to revegetate naturally unless circumstances dictate otherwise, e.g. where vegetation is unlikely to establish within a reasonable timescale, or where a Habitat Management Plan/ BNG commitment specifies. Any seeding or replanting must be agreed in advance, including details of seed mixes and management regimes. Other techniques maybe more appropriate depending on the habitat to be reinstated.

2.4.5 The reinstatement of the construction area is to be undertaken to a high standard, using the existing soil and vegetation material wherever possible, in accordance with best practice.

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3 Revision History

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01	New Document Created	N/A	1.00	Richard Baldwin
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Environmental

General Environmental Management Plan (GEMP) – Working in or Near Water



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1 Introduction

1.1 Construction activities in or near water have the potential to cause serious pollution or impact on the bed and banks of a watercourse and on the quality and quantity of the water.

1.2 Engineering works can cause damage to the habitat within rivers, lochs and wetlands, with associated impacts on invertebrates, plants, birds and mammals. Engineering works can also block the passage of migrating fish and damage spawning habitats during sensitive times.

1.3 Major causes of environmental harm associated with working in or near watercourses include:

- Silt e.g. disturbance of river bed or bank, dewatering and pumping of excavations, run-off from exposed ground, plant washing, roads and river crossings;
- Cement and concrete – which is very alkaline and corrosive and can cause serious pollution;
- Chemicals and solvents – oil storage, refuelling, trade materials etc;
- Herbicides – aerial and non-aerial applications; and
- Waste materials (including special waste) e.g. oily wastes, spent acids and solvents.

2 References

The document detailed below in Table 2.1 - Scottish and Southern Electricity Networks Documents, should be used in conjunction with this document.

Table 2.1 - Scottish and Southern Electricity Networks Documents

Reference	Title
SM-NET-ENV-500	Consents and Environment Manual

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3 Legislation

3.1 There are a number of activities which pose a risk to the water environment including:

- Discharges to the water environment;
- Abstractions; and
- Physical works within, and in proximity to, controlled waters.

3.2 The Water Environment (Controlled Activities) (Scotland) Regulations 2011 – more commonly known as the Controlled Activity Regulations (CAR) sets out authorisations that are required for different activities in or near the water environments (including rivers, lochs, estuaries and groundwater).

3.3 Levels of CAR authorisation include General Binding Rules (GBR), Registrations and Licences.

3.4 A Construction run-off licence is required for any project that:

- Exceeds 4 hectares in area;
- Contains a road or track length in excess of 5km;
- Includes any area of more than 1 hectare that has a slope more than 25 degrees; or
- Includes any road (or track) with a length greater than 500 metres that has a slope more than 25 degrees.

3.5 Large and complex construction project run-off licence may be required for project that undertake one or more controlled activities(including the discharge of water run-off from a construction site to the water environment) and are:

- A project (or part of a project) that is a National Development, as identified in the National Planning Framework; and/ or
- A linear project greater than 25km in length.

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4 General Compliance Requirements

4.1 General

4.1.1 Plan all works in accordance with best practice.

4.1.2 Ensure all necessary authorisations under the Controlled Activities Regulations (CAR) are in place.

4.1.3 Identify all activities that will be undertaken in or near watercourses (including all identifiable drainage paths).

4.1.4 Avoid works within 10m of a watercourse unless no other practical options exist and leave a vegetated buffer strip.

4.1.5 Where works are undertaken within 10 m of any watercourse or drain, ensure specific pollution prevention controls are in place.

4.1.6 Communicate risks associated with working in or near watercourses to all personnel and include control measures in the site-specific construction method statements.

4.1.7 Keep site tidy and do not store materials too close to watercourses or surface water features.

4.1.8 Ensure that all watercourses are routinely monitored for changes in water quality and keep a written record of monitoring. If water quality deteriorates, stop works, identify the source of the problem and implement appropriate mitigation measures. Ensure any potential pollution incident is reported in line with procedures, including to SSEN Transmission.

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4.2 Watercourse Engineering

4.2.1 Seek to avoid or minimise watercourse engineering works wherever possible.

4.2.2 Vehicles should not work within the water unless no other reasonable options exist.

4.2.3 All construction machinery operating in-stream should be mechanically sound to avoid leaks of oils, hydraulic fluid, etc.

4.2.4 Machinery should be thoroughly cleaned and checked prior to commencement of in-stream works.

4.2.5 All reasonable steps shall be taken to prevent the transport of sediments or other matter disturbed by the works.

4.2.6 Ensure all required pre-construction surveys have been completed before starting works (these will include, where appropriate, fresh water pearl mussels, otter, water vole).

4.2.7 Check if there are any timing restrictions to works because of protected species (e.g. spawning salmonids, otter, water vole etc) or landowner commitments.

4.2.8 Any temporary dams used should be designed to accommodate periods of high watercourse discharge and dried out sections of bed should be check for stranded fish. Any stranded fish or other wildlife must be immediately translocated to suitable nearby habitat.

4.2.9 Pumps should also be fitted with screens to prevent fish mortalities and ingress of debris, and the outfall to pumps be designed to prevent erosion of the receiving waters (i.e. by dissipating the flow). Back up pumps should be available.

4.2.10 Where stock has access to the works fencing may be necessary to allow the regeneration of native riparian and aquatic marginal vegetation.

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4.3 Surface Water Control

4.3.1 Locate areas of high-risk activities away from watercourses and drainage paths. Areas of high risk include:

- Fuel and chemical storage;
- Refuelling areas;
- Material stockpiles;
- Vehicle and equipment washing areas;
- Site compounds / parking areas.

4.3.2 Minimise the volume of contaminated run-off being created by:

- Diverting clean surface water away from areas using cut-off drains, catch pits and bunds (where necessary these can be lined);
- Do not allow water to drain down the length of a haul road. Roads should have adequate cambers to shed water quickly and if necessary cut-off drains installed across the road;
- Minimise erosion of exposed soils and working areas;
- Reduce the exposed working area through phased construction;
- Reinstate exposed soil as soon as practical;
- Roughen exposed surfaces to reduce rate of water run off;
- Prevent water from leaving site prior to treatment;
- Ensure adequate buffer zones are identified between working areas and surface waters;
- Diversion drains should be used to catch sediment laden run-off and direct it to treatment facilities such as settlement ponds (where necessary these can be lined), silt fences (not to be installed in watercourse), settlement tanks etc (see CIRIA C6848);
- Maintain all mitigation measures regularly to ensure their effectiveness;
- Depending on the level of contamination, silty water can be pumped over land to filter through vegetation and infiltrate into the ground provided it is carried out in line with the CAR regulations. An appropriate buffer distance must be maintained to allow sufficient distance for the vegetation to filter the silty water prior to reaching a watercourse;
- Ensure construction works minimise disturbance to the current run-off regimes.

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4.4 Vegetation Removal

4.4.1 Trees and shrubs should not be removed without agreement.

4.4.2 Avoid un-necessary vegetation removal.

4.4.3 Where necessary leave a vegetated buffer distance of 10m between works and a watercourse.

4.4.4 Only break the ground surface when works are required and initiate a phased approach.

4.4.5 Comply with agreed buffer zones of vegetation as this will allow further treatment of surface water.

4.4.6 Do not dispose of cleared vegetation into the watercourse and avoid debris from clearance.

4.4.7 Vegetation removal can impact on bank stability and increase erosion. Ensure that all banks are restored to a condition prior to works commencing and assess what further protection may be required.

5 Revision History

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Environmental

General Environmental Management Plan (GEMP) – Working in Sensitive Habitats



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1 Working in Peatland and Sensitive Habitats

1.1 Introduction

1.1.1 This General Environmental Management Plan concentrates on sensitive habitats associated with Peat, Blanket Bog, Wet Heath and Dry Heath habitats.

1.1.2 Section 3 of this General Environmental Management Plan includes guidance specific to peat management and the preparation of Peat Management Plans where on-site activities impact on peat. Site specific measures should be developed before construction begins at any location where working in peat is a constraint.

1.2 Legislation

1.2.1 Sensitive habitats may include those Scheduled under Annex 1 of the Habitats Directive. The Habitats Directive is more formally known as Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, a European Union Directive adopted in 1992. Sensitive habitats may more widely be defined as habitats where additional care is required to avoid permanent damage or to reinstate to the previous condition.

2 General Compliance Requirements

2.1 General

2.1.1 Whilst working within sensitive habitats or peatlands follow best practice from NatureScot and SEPA.

2.1.2 When working in areas with sensitive habitats, the hierarchy of avoid, minimise, mitigate, and manage must be applied.

2.1.3 Where possible areas of development such as cable routes, access tracks and tower positions, as well as permanent/ temporary compounds or laydown areas, should be micro-sited within permissible limits to avoid and minimise impacts on areas of sensitive habitat and areas of deep peat.

2.1.4 Stripping areas of sensitive habitat and peatland should be kept to an absolute minimum and done in consultation with the environmental representative.

2.1.5 During planning and implementation consider how the site will be restored or reinstated on completion of the works.

2.1.6 Ensure adequate corridors / areas are allowed for water management and reinstatement works which may include sourcing donor material from adjoining areas in some instances.

2.1.7 Consider effects of local hydrology factors (drainage, watercourses, flushes, bog pools, peatlands, etc.) on established habitats and seek to maintain hydrology regimes during the works.

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2.1.8 If hydrological impacts cannot be avoided, or significantly mitigated through design and implementation, ensure hydrological connectivity is re-stablished as soon as possible. Ensure developed or reinstated areas do not form preferential drainage.

2.1.9 Areas where rain water has been flowing over the ground surface should be identified in advance of works.

2.1.10 Design drainage channels or pipe systems to conduct water across cable trenches (or areas where tracks have been removed and ground reinstated). This will minimise post-construction damage and to allow better opportunities for re-vegetation and successful reinstatement. Any drainage pipes should be removed once vegetation and stabilisation of original drainage has been established. All temporary materials used for mitigation / drainage purposes during development must be removed on completion.

2.1.11 Undertake post-installation / restoration inspections to identify any areas where surface water flow is causing soil erosion.

2.2 Access

2.2.1 Access across sensitive habitats must be done as efficiently as possible, avoiding unnecessary movements back and forth.

2.2.2 Agree an Access Strategy and details of all access routes with the environmental representative ahead of works, avoiding impacts on peatland or sensitive habitats as far as possible. Where All Terrain Vehicles (ATVs) are used for multiple trips where there is no formally constructed access track, consider changing access route if ground shows evidence of becoming damaged (avoiding sensitive habitats), rather than repeated use of one route that subsequently requires more significant reinstatement / restoration. Any alternative route must be agreed with the environmental representative/ ECoW in advance of being used.

2.2.3 Where no existing access tracks exist, seek to use temporary trackway solutions including trackway panels (e.g. Terrafirma Dura-Base or Trackway), timber log mats or bog mats when transiting sensitive habitats or peatlands. Where plant and terrain do not suit the use of temporary access panels type solutions, temporary floating stone roads may be needed.

2.2.4 Access across unprotected peatland, or other sensitive habitats, should be restricted to low ground pressure vehicles and plant only (i.e. suitable ATV, Argocat or Softrack, or wide spread tracked machines), and should avoid rutting. Any damage caused must be reinstated to a high standard on cessation of the works.

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2.3 Access Track Construction

2.3.1 Design of works should avoid the potential for concentrated discharges of water onto the hill slopes. In particularly susceptible areas, the use of drainage ditches may be necessary upstream of the construction corridor (e.g. above access tracks). These should be installed following advice from hydrological specialists and in agreement with project environmental representative.

2.3.2 Ensure adequate cross track drainage is installed (temporary or permanent access tracks) through use of culverts at regular intervals, connecting track side ditches, minor watercourses and flow paths (where there may not be obvious watercourses) above the track to habitats beneath, ensuring hydrology is maintained as close to natural as possible. Increase frequency of cross track drainage where wetter habitats are transected by tracks, i.e. through peatlands, wet heath, flushes, etc. Avoid discharging track drainage ditch flow into watercourse crossings (maintain separate to cross track drainage).

2.3.3 Working in areas of peatland should be avoided, as far as practicable, during times of the year with the highest rainfall. Stripping of peat and reinstatement works should stop during periods of sustained heavy rainfall.

2.3.4 During the reinstatement of sensitive habitats, it may be necessary to utilise living donor turfs from land either side of the development and to rework acrotelm from land adjoining the works corridor to prevent formation of preferential drainage.

2.3.5 Across areas of deep peat, and other sensitive habitats, floating roads are generally preferable, especially where temporary. The formation of temporary access tracks should be underlaid with geotextile and geogrids. This should exceed the width of the track formation to avoid overspill of stone onto adjoining habitat and to assist in separation of the track construction materials from the underlying soils.

2.3.6 Where excavation is required, a tracked excavator should first remove turfs to a depth of 300 mm using as large a toothed bucket wherever possible. (This may not be appropriate where archaeological interest exists, and smooth buckets are specified).

2.3.7 Turfs, peat and subsoil should be stored separately in line with Soil Removal, Storage and Reinstatement General Environment Management Plan. Peat should be handled in line with any Peat Management Plan in place.

2.3.8 Turfs and soil should be stored to the side of the excavation. Where this is on good quality blanket bog, or other sensitive habitat, storage should be on top of a geotextile membrane.

2.3.9 Turfs should be stored root side down and should remain in the storage location until required for reinstatement (this is to avoid multiple handling and reduce the potential for turfs becoming unstable). If stored for longer drier periods, turfs may require watering to give vegetation the best chance of survival and improve eventual reinstatement chance of success. (Any water abstraction associated with this activity needs to be compliant with the Controlled Activities Regulations (CAR)).

2.3.10 Subsoil layers and peat layers should be reinstated in the order they were removed, and the turfs should be reinstated root side down, vegetative side up.

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3 Peat Management

3.1 General Peat Management Requirements

3.1.1 In addition to the unique habitats provided by peatlands, areas of deep peat have a significant global role in carbon sequestration. Disturbing peat can release CO_2 to the atmosphere as the peat is oxidised when exposed to air or dried out. Through proper management of peat these impacts can be reduced.

3.1.2 It is important to ensure the hydrological regime of peatland is maintained and that peat is not left unprotected to avoid erosion and degradation. Avoid unnecessary drainage of peatlands. Any temporary cut off ditches should be back filled as soon as practical on completion of works.

3.1.3 Ensure that large loads do not compress peat and create a barrier to water movement which could cause ponding at one side of the corridor and drying out at the other, or cause peat slump by displacement.

3.1.4 A Peat Landslide Hazard and Risk Assessment (PLHRA) may be required by the project, and should be agreed prior to the construction phase. The PLHRA should be undertaken, and updated to reflect any changes, in line with Scottish Government best practice. Mitigations identified within the PLHRA must be followed.

3.1.5 Existing degraded peatland can often be stabilised or re-established to active peatland with minimal effort, and opportunities to undertake such works should be investigated where possible. For example, reprofiling of peat hags and blocking of drainage channels within peatlands.

3.2 Peat Management Plans

3.2.1 Where significant impacts on peat are identified, or where peat depth is greater than 0.5 metres, a site or project specific Peat Management Plan (PMP) may be required and should be agreed prior to the construction phase. The PMP must be developed with input from the environmental representative and may require stakeholder input.

3.2.2 In certain circumstances a PMP may be required as a condition of consent or as specified as a contract deliverable. In these circumstances the content must reflect that required by the consent or contract.

3.2.3 The Peat Management Plan, as a minimum, should:

- Include and adhere to principles set out in best practice and guidance notes from NatureScot and SEPA, including SEPA's guidance note WST-G-052 -Developments on Peat and Off-Site Uses of Waste Peat.
- Include detailed 1:25k/ 1:10k OS background-based plans with site location insets (1:50k OS mapping), detailing peat depth maps, highlighting areas of deep peat, storage areas and any areas suitable for restoration / reinstatement.

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- Reference peat depth maps, identify how impacts on peat have been minimised and quantify types and volumes of peat anticipated to be disturbed by the project.
- Identify appropriate storage of peat for reuse (during reinstatement for example). In line with the Soil Removal, Storage and Reinstatement GEMP.
- Identify suitable areas for separate storage of excavated strata, including for example, turfs, peat and subsoil. It may also be appropriate to implement different management and storage strategies for the various strata of deep peat, including top vegetative layer and acrotelm, where fibrous living organic matter is still evident, separate to the catotelm, where the structure of the peat is more homogenous and loses its structure more easily
- Detail how the works have been planned to ensure minimal handling of peat. (In moving and reworking peat, the structure can easily be lost making storage and reuse more challenging). Turfs and other peat materials should be stored as close to origin as possible.
- Detail inspection regime to ensure peat is regularly checked for signs of drying out and detail planned measures to prevent this occurrence. (If drying out is occurring the storage areas may require to be sprayed with water. Any water abstraction associated with this activity needs to be compliant with the Controlled Activities Regulations (CAR)).
- Identify opportunities for reuse on and off site if required (in peatland restoration for example). Transport of peat significant distances must be avoided. Detail plans for reinstatement of stored material, including potential peatland restoration works. During implementation ensure that no bare (unvegetated) peat is exposed as this may take a long time to re-establish, and will be a high risk of degradation and erosion; and
- Include a water management strategy for minimising impacts of construction activities on the peatland.

3.2.4 The Peat Management Plan must be followed during the construction phase, with any required changes agreed as the project progresses. Changes may be required to be agreed with stakeholder such as local planning authority / SEPA.

4 Revision History

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01	New Document Created	N/A	1.00	Richard Baldwin
02	Reviewed and updated.	TG-NET-ENV-513 (Rev 1.00)	2.00	Richard Baldwin
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TRANSMISSION

TG-NET-ENV-514

Environmental

General Environmental Management Plan (GEMP) – Working with Concrete



TG-NET-ENV-514	General Environmental Management Plan (GEMP)-Working with Concrete		Applies to Transmission ✓
Revision: 2.00	**Classification:** Internal	**Issue Date:** March 2024	**Review Date:** March 2026

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1 Working with Concrete

1.1 Background

1.1.1 The chemical reactions that enable fresh concrete to cure are complex. A by-product of these reactions is the production of calcium hydroxide, a highly alkaline chemical that has a pH in excess of 12.

1.1.2 There are a number of sources of alkaline water on construction sites, which include:

- Concrete wash water from cleaning of machinery and tools used with fresh concrete – e.g. chutes, drums, pumps, hand tools
- Cutting or coring of concrete structures
- Hydro-demolition (high pressure water cutting)
- Surface water runoff from newly concreted areas
- The storage or use of Cement Bound Sand (CBS) in backfilling of cable works
- Leaching form installed cabling works utilising CBS backfill
- Crushed demolition materials, and
- Concrete installed below groundwater level (e.g. piled foundations)

1.1.3 The release of untreated highly alkaline water into the environment from any of the sources described above can have a significant environmental impact, including on the ecology of receiving waters. The following are potential impacts of concrete and cement born contamination if not properly treated:

- Increase in pH of the water environment to toxic levels
- Kill invertebrate and other aquatic life including plants
- Adversely impact on surrounding habitats
- Particles can impact the turbidity of receiving waters
- Smother the bed and kill aquatic life
- Block gills of fish
- Impact directly and indirectly protected species which may be present e.g. otters, freshwater pearl mussels, or salmon
- Increase flood risk or agricultural drainage by blocking of drains and other structures

1.2 Legislation

1.2.1 Under the Controlled Activities Regulations, it is on offence to discharge polluting substances to controlled waters (surface water and groundwater) without prior approval from the Regulator (SEPA). This includes any discharge of concrete/ cementitious materials or contaminated water.

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2 General Compliance Requirements

2.1 General use

2.1.1 Concrete shall not be used within 10m of any watercourse or loch. Should there be the requirement to use concrete and cement within 10m of a waterbody, this should be fully risk assessed and agreed in advance of the works.

2.1.2 Store bulk and bagged cement and concrete additives at least 30 metres away from watercourses, gullies and drains in properly secured, covered and bunded areas.

2.1.3 Ensure dust from storage areas is controlled. Securely cover stockpiles of cementitious materials such as CBS with a tarpaulin, or non-permeable sheeting.

2.1.4 Ensure all staff are briefed on the potential environmental risks of working with concrete.

2.1.5 Ensure that any residue from cutting/ coring/ hydro-demolition activities is correctly contained and treated where necessary.

2.1.6 Consider the materials being used e.g. recycled concrete aggregate may cause elevated pH levels as a result of run-off.

2.1.7 Recirculating systems should be used where possible to minimise the use of water resources and reduce volume of high pH waters produced requiring treatment.

2.2 Washout

2.2.1 Areas should be established for concrete washout which avoid important habitats and species.

2.2.2 Surplus concrete should be removed from equipment by scraping before washing down in order to minimise the volume of water required.

2.2.3 All concrete wash water should be contained for treatment on site or disposal off site. None shall be allowed to enter any drains, ditches or watercourses or land.

2.2.4 Concrete wash waters should be returned to batching plant as a first option (suitable temporary storage in IBCs or similar would be acceptable.) Where this is not an option, special wash water treatment units should be used, such as Roadside Concrete Washouts (RCWs) or similar. These units should filter/ separate solids from the wash water, and allow for pH treatment through CO_2 diffuser, using citric acid or similar to achieve a more neutral pH.

2.2.5 Discharge of treated wash waters to ground or other receiving environment should only be permitted when agreed with SEPA. The SSEN Environmental Representative is to be copied into all correspondence with the regulator in this regard, and consulted in the first instance of the intent to contact SEPA.

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2.2.6 Lined pits or lined skips are not acceptable, unless these can be fully demonstrated to be impermeable and a treatment/ removal procedure agreed. No overlapping plastic sheets can be relied on in their construction. Where more than one width of sheet is required these should be welded and tested to demonstrate sealing. Additionally, regular monitoring is required to ensure ongoing effectiveness and to ensure they do not become overloaded, resulting in the escape of wash water and cementitious fines. Written record of inspections must be maintained.

2.2.7 Discharge of small volumes to land should only take place where there is no connectivity to surface and ground waters and can be demonstrated to be fully compliant with legislative requirements.

2.3 Treatment Options on site

2.3.1 The pH scale is a logarithmic scale which means that each unit change in pH, for example pH 7 to 8, represents a tenfold increase in alkalinity. Because of this, attempting to treat concrete washout by dilution alone has the potential to increase the risk of a serious pollution incident.

2.3.2 Dilution of high pH water is ineffective due to the logarithmic scale of pH. For example, to dilute one IBC of concrete wash water at pH 12, the equivalent of four Olympic swimming pools of fresh water would be needed to bring it back to neutral (pH 7).

2.3.3 In order to adjust high pH wash water in line with acceptable levels, a process of neutralisation using controlled amounts of reagent may be required. Typical reagents include mineral acid (either sulphuric or hydrochloric acid), citric acid, carbon dioxide (CO_2) and self-buffering solutions. Propriety units for treatment of high pH water on site are available, some of which use CO_2 diffusers to neutralise the high pH water.

3 Revision History

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02	Addition of clauses 2.2.4,2.2.5, 2.2.6 Changes to job titles of author, checker & approver	TG-NET-ENV-514 General Environmental Management Plan (GEMP) – Working with Concrete (Rev 1.00)	2.00	Richard Baldwin
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TG-NET-ENV-515

Environmental

General Environmental Management Plan (GEMP) – Watercourse Crossings



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1 Introduction

1.1 The installation of structures for the purpose of crossing watercourses presents potential risks to the environment. These include:

- Obstruction to fish migration and spawning;
- Obstruction to mammal access;
- Impacts on aquatic flora and fauna;
- Loss or degrading of aquatic and riparian habitats;
- Alteration of the hydrological regime with associated impacts on habitats;
- Releases of substances to the water environment during construction and operation e.g. suspended solids, oils etc; and
- Impacts altering the natural geomorphological balance of the watercourse, leading to erosion and bank stability issues.

2 Legislation

2.1 All watercourse crossings will require some level of authorisation under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR). Levels of authorisation include General Binding Rules (GBR), Registrations and Licences.

2.2 It is essential that these legislative requirements are considered in the early stages of the planning and design process of a project.

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3 General Compliance Requirements

3.1 General

3.1.1 Seek to avoid watercourse engineering works wherever possible.

3.1.2 Where this is not possible, seek to use existing crossings, upgrading as required (e.g. installation of a bridge at a fording point). Note that replacement of watercourse crossings (bridges & culverts) are subject to CAR and may require CAR Registration/ Licence to undertake.

3.1.3 Plan all works in accordance with best practice, referring to SEPA guidance document 'WAT-SG-25 Engineering in the water environment: Good Practice Guide, River crossings'.

3.1.4 Design crossing to account for maximum flow conditions, in line with SEPA best practice and guidance documents.

3.1.5 Culverts should be dug into bed of watercourse, allowing for natural strata in the watercourse to form the new bed of the culverted watercourse (Note: This may reduce the hydraulic capacity of the culvert and should be allowed for when specifying diameter of culvert).

3.1.6 Ensure crossing or associated works do not impede fish passage through the system.

3.1.7 Do not use multi-piped culverts.

3.1.8 If the watercourse is wider than 1.5 m (measured top of bank to top of bank) use a clear span bridge as opposed to a culvert.

3.1.9 Ensure all necessary authorisations under the Controlled Activities Regulations (CAR) are in place and conditions (including GBR) are adhered to.

3.1.10 Ensure all required pre-construction protected species surveys have been completed before starting works (these will include, where appropriate, fresh water pearl mussel (FWPM), otter, water vole and beaver).

3.1.11 Do not undertake works during fish are likely to be spawning nor in the period between spawning and the subsequent emergence of juvenile fish.

3.1.12 Consult with local Fishery Board/ Fishery Trust and NatureScot for advice on the presence of fish in the catchment. However, such advice does not override conditions of CAR. Any works within a watercourse during fish spawning season (or period between spawning and the subsequent emergence of juvenile fish) should be agreed in writing with SEPA (with SSEN Environmental Representative copied into correspondence). Consider upper reaches of watercourse, potential habitats down stream of crossing as well as immediate habitats impacted.

3.1.13 Pump intakes must be fitted with screens to prevent fish mortalities and ingress of debris.

3.1.14 Where possible, flume pipes should be used for temporary works in areas where migratory fish are present, as an alternative to pumps.

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3.2 Construction

3.2.1 Where possible, works should be undertaken during drier periods (subject to other ecological timing conditions and constraints) and avoid periods of high rainfall. The weather forecast should be consulted 3 days in advance of works commencing the water crossing.

3.2.2 Vehicles should not work within the water unless no other reasonable options exist. If working within the watercourse, then plant must be thoroughly cleaned prior to use and vegetable based hydraulic oils specified in the plant.

3.2.3 During construction and use of the crossing, measures must be taken to prevent the transport of sediments or other materials into the watercourse, for example using correctly installed silt fencing.

3.2.4 Access across the watercourse crossing should be constructed of suitable material and in a manner that will not give rise to rutting, ponding or silt run-off (use of silt fencing along edges may be appropriate).

3.2.5 Vegetation removal should be minimised wherever possible. Any vegetation removed shall not be disposed of into any inland surface water.

3.2.6 Any length of bank with bare earth shall be re-established with an appropriate and agreed mix of riparian vegetation or with a fully biodegradable geotextile.

3.2.7 Where the channel, bed or banks immediately adjacent to the engineering works have been adversely impacted by the works, they must be restored to at least their previous condition as soon as reasonably practicable.

3.2.8 Any storage of material should be far enough away from the watercourse so as to prevent wash off entering the watercourse.

3.2.9 Any temporary dams used should be designed to accommodate periods of high flows.

3.2.10 Where pumps are used, back-up pumps should be available.

3.2.11 Any engine used to drive a pump must be located as far away from a watercourse as possible, in a location not susceptible to water inundation and placed on a plant nappy.

3.2.12 Any stranded fish or other wildlife should be immediately removed from de-watered sections of bed and translocated to suitable habitat.

3.2.13 All temporary crossings must be reinstated to a condition that existed prior to the works as soon as possible.

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3.3 Fording of Watercourses

3.3.1 Fording of watercourses is generally not acceptable and should be avoided if possible. However, depending on the activity it may be appropriate for limited access.

3.3.2 If fording is required, access should be restricted to one crossing point, using an existing / previous crossing point if available.

3.3.3 Scottish Environment Protection Agency (SEPA) must be consulted in order to obtain the relevant agreement or authorisations (as required).

3.3.4 A method statement for the use of the ford should be agreed ahead of works, identifying the crossing point, surveys undertaken ahead of crossing, frequency of use, and any required mitigation measures (e.g. wheel washing prior to entry into the watercourse).

3.3.5 If the crossing point is not an established ford, measures to protect the bed and bank should be implemented as appropriate.

3.3.6 After use, the watercourse must be reinstated to a condition that existed prior to the works as soon as possible.

4 Revision History

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01	New Document Created	N/A	1.00	Richard Baldwin
02	Document Reviewed and Updated	TG-NET-ENV-515 General Environmental Management Plan (GEMP) – Watercourse Crossings Rev 1.00	1.01	Richard Baldwin
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TG-NET-ENV-516

Environmental

General Environmental Management Plan (GEMP) – Waste Management



	Name	Title
Author	Dan Thomas	Consents and Environment Manager
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1 Introduction

1.1 Waste is defined in the in the Waste Framework Directive (75/442/EEC) as "any substance or object which the holder discards, intends to discard or is required to discard". This includes materials that other people want, or for which they can find a beneficial use i.e. material that is to be recovered / recycled.

1.2 In any construction project, there may be a variety of different wastes, from office and canteen waste to construction materials, waste aggregate from temporary tracks, waste oils, asbestos and clinical waste that will require management.

2 Legislation

2.1 Waste legislation and guidance is extensive, complex and works must comply with all the obligations they impose. Key guidance from the Scottish Environment Protection Agency (SEPA) can be found on their waste website (www.sepa.org.uk/regulations/waste). This includes information on core legislation including:

- Environmental Protection Act 1990 (as amended)
- Waste Management Licensing (Scotland) Regulations 2011 (as amended)
- The Waste (Scotland) Regulations 2012 (as amended)

3 General Compliance Requirements

3.1 Principles of Waste Management

3.1.1 Waste management priorities and practical actions that can be undertaken on site should follow the principles of the waste hierarchy as illustrated below:

- Eliminate - Design out waste
- Reduce - Minimise waste generation
- Reuse - Reuse materials on site if possible
- Recycle - Reprocess materials for off-site use
- Recover - Recovery of energy from waste sent off site
- Dispose - Least desirable option – last resort

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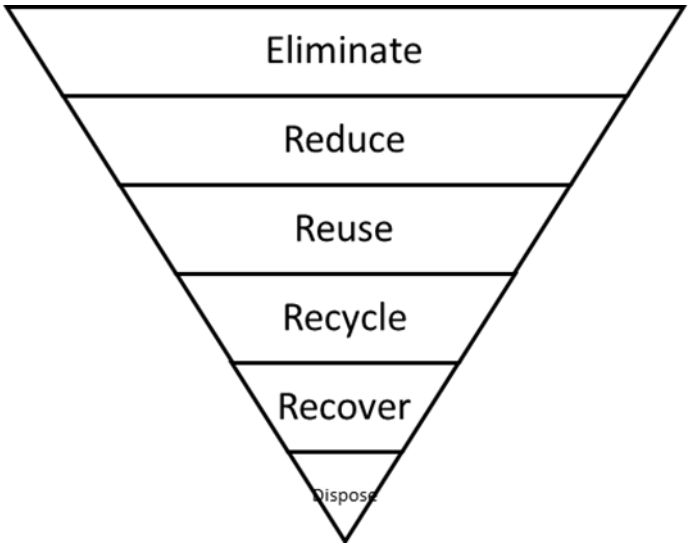


Figure 3.1 - Waste Hierarchy

3.1.2 A Site Waste Management Plan (SWMP) is required to be prepared and agreed prior to construction works starting. The SWMP should be kept up to date as the project progresses. This plan should be based on the above principles and include the following minimum requirements:

- Waste minimisation;
- Allocate a waste champion – who is responsible for the SWMP;
- Record types and quantities of waste that will be produced during the project;
- Decide how waste arising will be managed in line with the waste hierarchy;
- Plan for efficient materials and waste handling and set reduction targets (KPIs);
- Measure quantities and types of waste produced and compare against targets;
- Monitor the implementation of the SWMP and update as necessary; and
- Compile a waste budget.

3.1.3 The SWMP can be in electronic form provided the requisite information can be collated and reviewed, and that the data is readily available as required.

3.1.4 For further guidance on preparing and updating a SWMP, please refer to:

A simple guide to Site Waste Management Plans (netregs.org.uk)

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3.2 Duty of Care

3.2.1 All those who produce or handle waste have legal responsibilities, a 'Duty of Care', for its safe keeping, transport and subsequent recovery or disposal.

3.2.2 Failure to comply the 'Duty of Care' is an offence as it is a legal requirement under Section 34 of the Environmental Protection Act 1990 (as amended).

3.2.3 'Duty of Care' requires the producer to:

- Ensure those transporting waste are registered with SEPA;
- Ensure the waste is being treated, re-used or disposed of at a suitably licensed site in line with current legislation;
- Keep a Waste Transfer Note for all waste being transported off site;
- Ensure that all waste on site is properly stored and secured;
- Take all reasonable steps to prevent unauthorised handling or disposal by others;
- If you are dealing with hazardous / special wastes, such as asbestos, chemicals, oils or contaminated soils, you have extra legal responsibilities and are required to complete detailed 'Special Waste Consignment Notes'; and
- Should there be uncertainty over whether a waste is hazardous or special, advice should be sought.

3.3 Storage

3.3.1 The site should be kept tidy and free from litter at all times.

3.3.2 Segregation of waste (including metal, plastic, glass, paper and card) at the point of generation should be provided for site offices / welfare facilities and for construction activities by the use of designated storage areas / containers to ensure cross-contamination is reduced.

3.3.3 All storage areas / containers should be clearly labelled to identify the waste type and properties.

3.3.4 Waste storage areas should be appropriately secured to ensure to prevent pollution.

3.3.5 Controls should be in place to prevent wind blow (e.g. covered skips).

3.3.6 All wastes that could leach or be entrained in water should be stored in a sealed container or on an impervious surface with barriers to lateral flow.

3.3.7 Storage of liquid wastes should be stored in a sealed container within a secondary containment system (bund) with 110% capacity of the container.

3.3.8 Keep the duration of storage to the minimum required.

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3.4 Special Waste Storage

3.4.1 Containers used for storage of special waste should be inspected weekly for leaks and corrosion. A written record of inspections is be retained.

3.4.2 Take care to separate different types of special waste, e.g. different chemicals that, if mixed, could react.

3.4.3 Written instructions must be available on site for storing and disposing of each type of special waste.

3.4.4 An inventory must be maintained of all special wastes stored on site, detailing quantities and locations.

3.5 Movement

3.5.1 All movement of waste must be undertaken in line with the relevant waste regulations.

3.5.2 Any waste being transported off site must be done so by a registered waste carrier.

3.5.3 A Waste Transfer Note / Special Waste Consignment Note must be completed and retained prior to waste leaving the site.

3.5.4 Before waste is allowed to leave site, the producer must ensure that the site it is being transported to is appropriately licensed.

3.5.5 Vehicles transporting waste must be suitably secured so as not to allow waste to escape.

3.6 Reuse, Treatment, Disposal

3.6.1 All re-use, treatment and disposal of waste must be undertaken in line with an appropriate Waste Management Licence (WML) or an exemption to require a waste management licence (WMX), under the Waste Management Licensing (Scotland) Regulations 2011 (as amended).

3.6.2 If it can be proven that the material is not waste, it will not fall within these requirements.

3.6.3 A WML and WMX must be obtained from SEPA prior to undertaking the activity.

3.6.4 No burning of waste is permitted on site.

3.6.5 No fly-tipping is permitted.

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4 Further Information

Some useful sites on waste management are:

- www.sepa.org.uk
- www.zerowastescotland.org.uk
- www.wrap.org.uk
- www.bre.co.uk
- www.smartwaste.co.uk
- www.ciria.org.uk
- www.netregs.org.uk

5 Revision History

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Environmental

General Environmental Management Plan (GEMP) – Contaminated Land



	Name	Title
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1 Introduction

1.1 Previous land use can lead to ground becoming contaminated with substances which may be hazardous to health or the environment. During construction works there is potential for these materials to be exposed, disturbed and mobilised. It may be possible to identify this as a risk during appropriate assessments at the planning stage, or it may be encountered unexpectedly during site works.

1.2 Works in vicinity of existing or decommissioned substation sites may be at increased risk of contamination, depending on the age and history of the site. Linear developments have the potential to encounter old tips, gralloch pits, or other areas of discrete contamination which may be not have been recorded.

2 Legislation

2.1 Investigation and management of any potentially contaminated land must be undertaken in compliance with relevant Environmental and Health and Safety Legislation.

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3 General Compliance Requirements

3.1 Planning the works

3.1.1 Plan works taking account of recognised best practice and all relevant waste regulations.

3.1.2 Key stakeholders for contaminated land issues often include landowners / tenants, the local authority, and the Scottish Environment Protection Agency (SEPA).

3.1.3 Assess the risk of contaminated land issues at a site using historical land use checks and information from site walkovers, hydrological and geological mapping and other relevant data sources (sometimes referred to as Phase 1 Contaminated land assessments).

3.1.4 Check with the landowner whether they are aware of any historical land use which may give risk to contamination (e.g. old tips, middens, gralloch or stink pits).

3.1.5 Where a risk of contamination is identified, further site investigations may be appropriate, including analysis of soil and water samples for specific suites of potential contaminants and more detailed contaminated land assessments (which may consider source, pathway, receptor models).

3.1.6 Identified, high risk or known areas of contaminated land should be recorded and identified clearly in project documentation, including clear scaled plans with inset showing location context of plan.

3.1.7 Contamination could however be encountered in areas where it has not been expected and checks must be undertaken to ensure that any risks to the environment are identified and controlled.

3.2 During works

3.2.1 During works (including site investigation) keep a careful lookout for any signs of contamination during boring, excavating, soil stripping and similar operations.

3.2.2 Signs of potential contamination may include discoloured soil, unexpected odours, a fibrous texture to the soils (e.g. asbestos), or presence of foreign objects (e.g. chemical/oil, containers/waste).

3.2.3 Increased risks of contamination may exist if there is any evidence of previous soil workings, underground structures or waste pits, evidence of made ground, or old drain runs.

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3.3 If contamination is encountered

3.3.1 Stop work immediately.

3.3.2 Report the discovery to the site manager and project environmental representative within 30 minutes. An EcoOnline report should be raised to track the occurrence. Expert advice and guidance on required measures / mitigation should be implemented. Ensure the landowner / occupier is informed.

3.3.3 Seal off the area to contain spread of contaminants.

3.3.4 Undertake risk assessment to minimise the risk to health and safety of site workers. This should identify acceptable working methods, PPE, contact, and other required procedures.

3.3.5 Clear site to ensure there is nothing that could cause fire or explosion.

3.3.6 Ensure that the suspected contamination is tested and characterised, including any Waste Acceptance Criteria required if waste is to be disposed offsite and agree changes to the existing site proposals and method statements.

3.3.7 Avoid causing or spreading contamination.

3.3.8 Do not stockpile contaminated soil unless it cannot be avoided. If it is necessary, stockpile only on an area of hard standing to prevent contamination of the underlying area. If possible, place material on non-permeable geotextile or membrane.

3.3.9 Cover the stockpile with plastic sheeting to prevent infiltration of precipitation and spread of soluble contaminants and to prevent potentially contaminated wind-blown dust.

3.3.10 Control surface drainage from stockpiled area. Remember water draining from a stockpile may be contaminated and require controlled off-site disposal.

3.3.11 Where disposal of contaminated land is required, this should be done in accordance with current waste legislation.

4 Revision History

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TRANSMISSION

TG-NET-ENV-518

Environmental

General Environmental Management Plan (GEMP) – Private Water Supplies



	Name	Title
Author	Dan Thomas	Consents and Environment Manager
Checked by	Ian Williams	Lead Consents and Environment Manager
Approved by	Richard Baldwin	Head Of Consents and Environment

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1 Introduction

1.1 Many construction works, including site investigation works, have the potential to impact on private water supplies (PWS). This can be through either disturbing drainage patterns (horizontally or vertically) or impacting on the quality of the water source. There is also the potential to impact on infrastructure of PWS, with pipes and tanks possibly omitted from service plans.

1.2 Damaging a PWS can have impacts on the health of the users, as well as severe financial and reputational impacts.

1.3 It is required to comply with the following in addition to any specific measures identified associated with the site.

2 General Compliance Requirements

2.1 Pre-construction

2.1.1 Review any consent requirement for delivering the works and undertake all required actions in relation to PWS.

2.1.2 All PWS located within 250 m of the proposed works must be identified prior to commencement of any works.

2.1.3 A risk assessment should be undertaken to identify those PWS that have the potential to be affected by the works including consideration of:

- Type and depth of water supply source (e.g. borehole, spring or surface water abstraction);
- Catchment area;
- Nature of proposed works (e.g. depth and extent of any proposed excavations, potential for pollution incidents / spillage, etc.); and
- Proximity of works to PWS and related topography of area

2.1.4 Should the results of this assessment indicate a risk to the PWS, then mitigation shall be developed for inclusion in a site specific PWS Protection Plan that is discussed and agreed with the PWS owner.

2.1.5 In certain circumstances it may be appropriate to undertake water quality testing of the source or supply, to establish a baseline of current water levels and quality. It may be required to collect baseline water quality monitoring throughout the year to establish any seasonal fluctuations in existing quality and production of the source. Baseline water quality (and potentially production capacity) monitoring should be agreed as part of the PWS protection plan.

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2.1.6 Prepare a contingency plan to deliver an alternative water supply (on a temporary or permanent basis) in the event of an unforeseen problem with the existing supply. This may include ensuring provisions of bottled water, IBCs of potable water, fresh water bowers, replacement lengths of suitable piping and fittings to match existing infrastructure area available on site.

2.2 Construction

2.2.1 PWS requiring protection will have specific mitigation developed. Mitigation may include some / all of the following:

- Fence off the PWS intake (to avoid accidental damage and to deter animals) and identify relevant buffer distances;
- Installation of silt mitigation to prevent runoff from works areas entering the PWS. Use a precautionary approach as not all flow pathways may be immediately obvious;
- Avoid undertaking works within PWS catchments during wet weather or when wet weather is forecast as there will be increased surface water flows into the PWS which will be harder to control;
- Use low impact access methodologies including the use of track panels where access to works are within the PWS catchment;
- Survey and peg out the route of the distribution main in the vicinity of the construction works and avoid / minimise activity within this area; and
- Ensure all site operatives working in the area are made aware of the location of the PWS and catchment area, and mitigation measures required through toolbox talks or similar
- Signage should be considered to remind workers when works take place in these areas

2.2.2 Put in place measures to protect PWS distribution mains where they cross beneath roads / access tracks. These might include:

- Setting the existing pipe work within mass concrete;
- Upgrading or rerouting the existing pipe work;
- Ensuring that there are adequate pollution control and emergency response measures in place to deal with any accidents that could affect a water supply (e.g. spill response or sediment control);
- Implementation of regular, recorded checks on any pipework (visible signs of cracking or other damage); and
- Provision of an alternative supply (temporary / permanent), e.g. taking a surface water abstraction to a point above the works to prevent potential downstream contamination from works impacting upon the supply. (Ensure appropriate landowner agreement and CAR consent is in place.)

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2.2.3 Undertake regular health, safety and environment briefings to construction staff. Include information on:

- Presence and importance of water supply intake and distribution main nearby;
- Need to protect these from accidental damage;
- Need to act promptly if an accidental spill or pollution incident poses a threat; and
- Reporting requirements

2.2.4 Regularly monitor works and their impact on the PWS, ensuring appropriate mitigation is in place. Keep records of inspections and mitigation maintenance/ improvements. If the PWS is being impacted or has the potential to be impacted, stop those activities and seek specialist advice.

2.3 Unidentified Water Supplies

2.3.1 It is possible that previously unidentified PWS may be found during works.

2.3.2 If this happens, stop work in that location and seek specialist advice.

2.3.3 Necessary protection measures will need to be identified in consultation with the PWS owner, landowner, specialists and relevant authorities and implemented before work should resume in that location.

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TRANSMISSION

TG-NET-ENV-520

Environmental

General Environmental Management Plan (GEMP) – Dust Management



	Name	Title
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1 Introduction

1.1 There are many potential sources of dust from a construction site which need to be closely managed on an ongoing basis to ensure it is adequately controlled on site. Likely sources of dust include:

- Haul roads and access tracks;
- Yards and storage areas;
- Soil storage areas;
- Construction corridor (exposed areas following stripping);
- Material transportation;
- Transport of mud onto the public highway;
- Loading and unloading materials;
- Quarrying or blasting activities;
- Crushing / screening activities;
- Stone breaking;
- Concrete or stone cutting

1.2 Once dust particles are airborne, it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming airborne.

2 Legislation

2.1 In the event of dust becoming an issue there is potential for enforcement action from the Scottish Environment Protection Agency (SEPA) or the local authority. There is also the potential for legal action, which will have cost, programme and reputation implications.

2.2 Likely actions and implications include:

- Health and & Safety implications for operatives on site and wider public;
- Nuisance to neighbours and bad publicity for the site;
- Abatement notice or enforcement action from regulators;
- Impact on project programme and budget (e.g. compliance with statutory notices relating to dust levels / abatement notices);
- Under the Clean Air Act 1993 and Part 3 of the Environmental Protection Act 1990, local authorities can impose limits on dust generated from a site;
- Impacts on ecology (e.g. impacting on plant growth, smothering of habitats, watercourse pollution, local pH changes etc)

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3 General Compliance Requirements

3.1 Planning the Works

3.1.1 Where Dust has the potential to become an issue, a protection plan should be developed.

3.1.2 A Dust Management Plan should be incorporated into the CEMP under the Air Quality Management section.

3.1.3 Likely sources of dust should be identified ahead of works and appropriate mitigation measures put in place to minimise the risk of dust become an issue.

3.1.4 Nearby potential receptors such as residential dwellings or sensitive habitats should be identified, and the works planned minimise the risk of dust impacting on these, with the adoption of up-front appropriate mitigation measures.

3.2 Avoiding Dust Generating Activities

3.2.1 Plan activities to ensure that, as far as practical, particularly dusty activities are not carried out in unsuitable weather conditions (i.e. very dry / windy conditions) unless suppression is in place.

3.2.2 Store materials away from the site boundary.

3.2.3 Limit vehicle speeds along stone access tracks.

3.2.4 Vehicles carrying bulk materials should be sheeted if could give rise to dust.

3.2.5 Keep height of soil stockpiles to a minimum and gently grade the side slopes.

3.2.6 Minimise the height of fall of materials.

3.2.7 Reduce the height that materials are unloaded from.

3.2.8 Do not use drills that are powered by compressed air unless appropriate control measures are in place.

3.2.9 Ensure any tools or plant which have facilities for dust suppression utilise this function.

3.3 Management and Mitigation

3.3.1 Inspect high risk areas daily, especially during dry weather. Keep a record of inspections and any actions identified required.

3.3.2 Mud should not be deposited on roads. Where applicable, wheel cleaning facilities will be provided prior to vehicles leaving site.

3.3.3 Keep all public roads well swept and bowse if required. Ensure a road sweeper can be commissioned locally to the site in the event of an issue arising.

3.3.4 Suppress dust from soil stockpiles, haul roads, stripped working corridors and material storage areas, by bowsing with water, where required.

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3.3.5 Ensure the relevant permissions and consents have been obtained for water used for suppression activities (e.g. CAR authorisation from SEPA or Standpipe Licence from Scottish Water).

3.3.6 Ensure efficient use of water to dampen down dust (e.g. use of diffusers to suppress wide areas with a spray/mist rather than a standard hosepipe arrangement).

3.3.7 Any run-off from dust suppression activities shall be controlled in line with best practice to avoid creating sediment contaminated run off.

3.3.8 Communicate dust management procedures to all relevant personnel and provide suitable training if required. Keep a record of appropriate training and issue of tool box talks.

3.3.9 Follow-up any complaints immediately and take action to avoid a repeat complaint.

3.3.10 Further information available in:

- BRE (2003) Control of dust from construction and demolition activities;
- DETR (2000) Environmental handbook for building and civil engineering projects;
- CIRIA (2005) Environmental Good Practice – site guide

4 Revision History

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TRANSMISSION

TG-NET-ENV-522

Environmental

General Environmental Management Plan (GEMP) - Restoration



TG-NET-ENV-522	General Environmental Management Plan (GEMP) - Restoration		Applies to Transmission ✓
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	Name	Title
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1 Introduction

1.1 The way in which stripping, storage and replacement of soils / turfs is undertaken can significantly increase the successfulness of any reinstatement. The following guidance should form a basis of the restoration plan for the project.

1.2 Important guidance on soil management principles is contained in the Soil Removal, Storage and Reinstatement General Environmental Management Plan (GEMP) and should be followed in conjunction with this GEMP.

1.3 Reinstatement is the replacement of soils and vegetation set aside during works post construction, to a condition which can recover to the previous habitat present prior to works in a timely manner. Restoration is the enhancement of the ground to make good any failed reinstatement, or to enhance recovery of the habitat, or establishment of desired habitat, post construction and may include seeding / planting or other means to establish specific habitat, as may be required.

2 Legislation

2.1 Reinstatement and restoration obligations will be imposed on the works through the core consenting regimes, including:

- Planning permission under the Town and Country Planning (Scotland) Act 1997 (as amended);
- The Town and Country Planning (General Permitted Development) (Scotland) Order 1992;
- S37 consent under the Electricity Act 1998 (as amended);
- SSSI consent under Nature Conservation (Scotland) Act 2004 (as amended);
- Natura Consent under Conservation (Natural Habitats, &c.) Regulations 1994 (as amended); and
- CAR authorisations under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).

2.2 Any obligations imposed under these consents must be complied with.

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3 General Compliance requirements

3.1 Planning Construction Works

3.1.1 In planning construction works seek to avoid intrusive work wherever possible. As a result there will be less reinstatement and restoration required once construction is finished.

3.1.2 Seek to:

- Avoid major earthworks wherever possible;
- Retain natural features such as rocky outcrops;
- Avoid loss of mature trees; for example, remove young regenerating birch in preference to mature trees which may have biodiversity and landscape value and will give structure to the finished works;
- Site tracks and micro-site route around groups of trees to leave natural features rather than dissecting groups/copses;
- When crossing hedges, walls or watercourses plan to use existing gaps/ wayleaves;
- Design any permanent drainage ditches to be as natural as possible (sinuous with varied banks and alignments, etc.). Ensure Controlled Activity Regulations (CAR) compliance and that any CAR authorisations required are in place;
- Design drainage measures carefully to avoid unnecessary long-term effects on adjacent habitats which could be difficult to restore; and
- Plan all site activities to reduce the need for vehicle movements. This will help in final restoration by minimising compression etc.

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3.2 Planning Restoration

3.2.1 Restoration at the end of the works will always be more successful if planned in advance. A soil management and restoration plan should be developed in advance of the works.

3.2.2 Always:

- Plan restoration in advance of working on-site. This will save time and money at a later stage and will ensure that opportunities are not lost, and a more successful outcome is achieved;
- Ensure that detailed restoration plans take account of specific habitat types and locations, including those which may be identified within any Landscape & Habitat Management Plan, or BNG report, for the project;
- Identify where soils and peat and turfs will be stored;
- Take account of all agreements made during consenting process and with landowners;
- Take account of all environmental interests, for example, seek to enhance local biodiversity (avoiding planting on sensitive archaeological or geological sites);
- Plan how monitoring of restoration will be undertaken identifying when, how frequently and by whom;
- Consider how deer pressures (grazing and wallowing) or other grazing may affect the success of planting and plan restoration works accordingly; and
- Plan restoration taking account of run-off erosion risks on steep slopes in poor conditions; be aware of the potential for sediment rich run-off to smother sensitive or newly established vegetation in poor weather conditions and seek to minimise this.

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3.3 Early Works

3.3.1 Early works will help in achieving more successful final restoration. These include the following:

- Always take photographs of the site before works start to guide later restoration including of any drainage that will be disturbed;
- Strip turfs and vegetation carefully and use in temporary works to prevent erosion;
- Turfs can be stored successfully in temporary cut-off ditches in some locations which can aid water attenuation and prevent turfs / vegetation from drying out;
- Store top soil and subsoil separately according to best practice;
- Store stripped materials in the immediate vicinity (or as close as feasible) for future re-use in site restoration;
- Keep a record of where all soils and turfs are stored. Consider signage on storage areas to help identifying source and type of material storage, to assist in subsequent reinstatement;
- Remove large boulders (rather than cover) to replace in restoration works;
- Remove/ treat noxious weeds in accordance with best practice and legal requirements. Do not allow unnecessary spread or this will compromise the success of final restoration works;
- Seek to avoid compression of soils as much as possible on restoration. Drainage may be impeded and may result in extensive areas of rush being created; and
- During construction seek to avoid creating eroded areas which can be difficult to restore successfully.

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3.4 Final Restoration

3.4.1 At the end of construction in any area the land and vegetation must be restored to pre-construction conditions, or as otherwise specified in any Landscape and Habitat Management Plan or BNG report. This should be done carefully and sympathetically taking account of all required mitigation and of the conditions. The following principles should also be adopted where appropriate:

- Undertake restoration works in suitable weather conditions - wet ground conditions can be difficult as can hot dry and windy spells;
- Restoration should ensure the successful integration of the site with surrounding land uses and habitats;
- All field, roadside or other boundaries disturbed during construction operations would be reinstated using the original materials (in the case of stone dykes, this having been carefully set aside for re-use) or to the original specification, and to at least the pre-existing condition, or better;
- Natural regeneration of habitats should be promoted in all appropriate areas, or as otherwise specified in any Landscape and Habitat Management Plan or BNG report;
- Where hedgerow field boundaries are removed, they are to be replanted with the same species and at the same spacing intervals, or as otherwise specified in any Landscape and Habitat Management Plan or BNG report;
- Any required replanting and / or reseeding should be undertaken at appropriate times of the year and with the agreement of landowners / occupiers (and NatureScot if within designated sites);
- Identify the most appropriate machinery to use for restoration in any area (small digger or large machine, etc.) according to the sensitivity of the habitats and the extent of areas to be restored (take advice from the site ecologist);
- Undertake small sections of the site for restoration and monitor success with input from the site environmental representative(s) before restoring large areas;
- All temporary accesses are to be restored to original condition;
- A pro-active approach to restoration i.e. use of temporary access materials such as Trackway panels and appropriate low pressure construction vehicles, particularly in areas of wet ground, is encouraged; and
- Unless otherwise specified (e.g. in landowner commitments), all decommissioned tower foundations are to be removed to 1.5 m below ground level.

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TRANSMISSION

TG-NET-ENV-523

Environmental

General Environmental Management Plan (GEMP) – Bad Weather



TG-NET-ENV-523	General Environmental management Plan (GEMP) – Bad Weather		Applies to Transmission ✓
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1 Introduction

1.1 It is important to consider the implications of poor weather conditions and associated environmental risks.

1.2 Bad weather, particularly heavy rain, can increase the risk of significant environmental impacts during construction (for example, on sensitive habitats and increased risk of sediment laden run-off into surface waters).

1.3 Storm events can also impact oil storage areas and increase the risk of a loss of oil to the environment.

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2 General Compliance Requirements

2.1 General

2.1.1 This action plan can sit within the Emergency Response Plan section of the CEMP and should allow for occurrence of heavy rain, high winds, heavy snow, prolonged freezing condition and periods of dry weather.

2.1.2 The weather forecast should be checked daily and changes to work activities or mitigation requirements implemented on an ongoing basis.

2.1.3 Identify and communicate any areas of flood risk. SEPA flood mapping can assist in this but should not be the sole information used in any risk assessment.

2.1.4 Ground conditions should be checked regularly, and assessment made as to whether they are suitable for the proposed site activities.

2.1.5 Check whether plant is causing damage on site because of poor ground conditions exacerbated by bad weather.

2.1.6 Plan for high run-off in advance and Identify protection measures (silt traps, straw bales and booms, etc.).

2.1.7 Check for any materials stored close to watercourses during construction activities which could be washed into the water in times of storm.

2.1.8 During times of excessive rainfall and ground saturation, stripping and reinstatement works should not be undertaken.

2.1.9 Check any containment bunds (oil storage, concrete washout etc) have the appropriate capacity and empty if necessary, to prevent any un-controlled discharge.

2.1.10 Ensure all skips and waste containers are covered / closed to minimise water ingress.

2.1.11 Emergency response plans should take account of bad weather. Identify an action plan before construction starts that identifies measures to implement in times of extreme weather.

2.1.12 Consider the use of a visual display board which can be used to alert site staff to the expected weather and the necessary preparations that are required.

2.1.13 Keep site records of weather experienced through site diary, including through installation of weather station at site compound (or use of local nearby weather stations), to record such detail as temperature, wind speed and rainfall. Data should be made available to SSEN, along with any variation to planned activities due to weather/ forecast.

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3 Revision History

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TG-NET-ENV-500

Environmental

Freshwater Pearl Mussel Species Protection Plan



	Name	Title
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Appendix A Freshwater Pearl Mussel Decision Flowchart 9

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1 Introduction

1.1 Freshwater pearl mussel (FWPM) is one of the most endangered molluscs in the world. Scotland holds some of the largest remaining populations in the world. This Species Protection Plan (SPP) provides guidance and agreed procedures for the protection of FWPM and their habitat during construction works on SHE Transmission projects. It applies to all projects where FWPM may be present and is issued to *Contractors* as part of the Works Information. It outlines the responsibilities of SHE Transmission and the *Contractor* regarding protection of FWPM. It also details relevant legislation, survey requirements and mitigation measures to protect the species and its environment.

2 Background

2.1 Freshwater pearl mussels (*Margaritifera margaritifera*) are freshwater bivalves (a type of mollusc) which filter feed in clean, fast flowing waters.

2.2 Fertilised adult females eject millions of tiny larvae in the summer which must successfully attach to the gills of young salmon or trout, which they live on harmlessly, before dropping off onto the riverbed substrate the following spring. The juveniles usually establish themselves in coarse sand or fine gravel, though they are known to be found in finer substrates. It takes around 10-12 years for the young mussels to reach sexual maturity. Adults can live to over 100 years and grow to over 15 cm in length.

2.3 They are extremely vulnerable to changes in their environment, such as water pollution (including silt and sediment) and engineering works affecting mussel beds. Populations in Scotland are still illegally fished for pearls; therefore the precise locations of known populations are kept confidential.

2.4 Due to the dependency of its larval stages on fish hosts, activities which impact on local salmon and trout populations can potentially also have an impact on FWPM populations.

3 Responsibilities

3.1 It is the *Contractor's* responsibility to comply with all the requirements of this Protection Plan where FWPM may be present, and it is both the *Contractor's* and SHE Transmission's responsibility to monitor compliance with the Protection Plan.

3.2 It is **essential** that this plan is followed in advance of any works which could impact on FWPM or their habitat. Any river within the SHE Transmission licence area that is not ephemeral (short duration after precipitation or flooding), and which is not entirely bedrock should be treated as having potential for FWPM, unless this has been discounted through other assessments which may include FWPM surveys. Rivers without the presence of salmonids (salmon and trout), due to barriers obstructing the movement of the fish, will not have recruitment of juvenile FWPM due to

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the dependency the larval stage on attaching to the gills of the fish. This may not rule out the potential for adults which may have established before barriers became established.

4 Legislation

4.1 FWPM is afforded full protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended in Scotland). This makes it an offence to intentionally or recklessly[1] kill, injure, take or disturb FWMP when it is occupying a structure or place used for shelter or protection, or to damage, destroy or obstruct access to any structure or place it uses for shelter or protection. Knowingly causing or permitting any of the above acts to be carried out is also an offence. The protection of FWPM is a priority in the fight against wildlife crime.

4.2 Scottish Natural Heritage (SNH) can grant licences to enable certain activities that would otherwise be an offence, to be carried out in relation to FWPM and their places of shelter, subject to the following:

a) the activity authorised by the licence will contribute to significant social, economic or environmental benefit; and,

b) there is no other satisfactory solution

4.3 The critically endangered status of FWPM in Europe means that robust justifications and high burdens of proof should be expected to be provided by the applicant for both tests and that there should be no presumption that a licence would be forthcoming. Licences for this purpose will only be issued in *exceptional* circumstance *and* where the activities will not compromise the local population viability.

4.4 This Plan outlines the planning, assessments and mitigation expected to avoid the need for an application for a licence to undertake development activities.

5 Planning works close to or crossing freshwater

5.1 Activities which have the potential to affect FWPM where they are found include, but are not limited to, crossing watercourses, in watercourse engineering and bank works. The potential for harmful pollutants (including silt from site run off) to travel long distances downstream along water courses means that FWPM populations may be impacted far downstream from the sources of those pollutants.

[1] Reckless acts would include disregard of mitigation aimed at protecting FWPM, resulting in killing or injuring FWPM.

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5.2 The approach to FWPM protection will always be based on the 'avoidance' of impacts. Unlike other species covered in this SPP series, **'disturbance' is not a legal option** due to the sedentary lifestyle of adults and juveniles as this could result in them being killed or injured.

5.3 Avoidance of potential impacts on FWMP may be achieved through consideration of location, timing, methods or technology of the proposed works which could avoid impacts on FWPM completely, or at least minimise the likelihood of an offence occurring.[2]

6 General mitigation

6.1 All works

- Strict adherence to SEPA's '*The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended): A Practical Guide*' (which is mandatory to ensure legal compliance), the *Pollution Prevention Guidelines* (which are currently under review) and any additional best practice in SHE Transmission's *Generic Environmental Management Plans* should ensure that pollution pathways are eliminated.

- It should be remembered that water pollution incidents, whether they arise on land (such as site run off) or from works in the water or from directional drill frac-out, can have severe consequences long distances downstream in receiving waters which may contain FWPM.

6.2 Works within watercourses

- Any activities proposed in the water course (e.g. vehicular crossings and isolated open-cut trenches) must not be undertaken without an assessment being completed by the *Ecologist / Ecological Clerk of Works* of the potential of that watercourse to support FWPM. If this assessment determines that there is a potential for FWPM to be present at the location of works or within 0.1 km upstream or 0.5 km downstream then a survey must be undertaken which meets the requirements set out in this SPP. The *Ecologist / Ecological Clerk of Works* should also consider activities which may reduce water flow in suitable water courses.

6.3 Works outwith watercourses

- Where there are no pathways for pollution or works affecting the beds of watercourses and/or no reductions to water flow and/or no reductions in tree shading of watercourses there is need no need for further assessments.

[2] Please note that this document presumes that the '*do nothing*' option has already been eliminated from valid options through the Governance processes and that the need for undertaking works can be robustly defended and withstand scrutiny if required.

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7 Freshwater pearl mussel surveys

7.1 Field surveys will be required in the following circumstances

- When working within a watercourse within a designated site[3] for FWPM (Special Area of Conservation or Site of Special Scientific Interest) or otherwise identified as having FWPM populations (candidate Special Area of Conservation or Site of Community Importance) or the catchment of such sites.

- Where FWPM have previously identified through desk study or from prior surveys as being 0.1 km upstream or 0.5 km downstream and there is still a potential for a water pollution event even after adhering to the *Pollution Prevention Guidelines* and any additional best practice in *SHE Transmission's Generic Environmental Management Plans*.

- Where works will take place within a watercourse that is - i) not ephemeral (of short duration after precipitation or flooding), ii) which is not entirely bedrock and iii) where an assessment by an *Ecologist*[4] */ Ecological Clerk of Works* cannot robustly discount the possibility of their presence.

7.2 Detailed guidance on a survey methods to inform development and deep water survey methods can be found on the SNH website[5] and require a licensed FWPM surveyor to undertake them, so are not repeated.

1) Survey work must be undertaken in periods of low water flow. **This generally limits the survey season to between April and September**. Planning of works should allow sufficient time for a FWPM survey to be carried out and a report prepared.

2) The length of watercourse requiring to be surveyed will be dependent on the nature of the works and their potential impacts. The surveyor will adhere to the published survey guidance on the SNH website to identify extent of river to be surveyed and the techniques used.

8 Review of survey

8.1 The locations of any FWPM detected should be treated with the strictest confidentiality and only be released to the relevant competent authorities (SEPA, SNH and local planning authority) in reports or annexes clearly marked as sensitive.

---

[3] Scottish Natural Heritage – SNHi Information Service
https://www.nature.scot/information-library-publications-data-and-research

[4] Assessment of suitability may be undertaken as part of the surveys and assessments undertaken for Environmental Impact Assessment or other relevant environmental assessments.

[5] Scottish Natural Heritage – Freshwater pearl mussel
https://www.nature.scot/plants-animals-and-fungi/invertebrates/freshwater-invertebrates/freshwater-pearl-mussel

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8.2 The *Ecologist / Ecological Clerk of Works* will review the survey report to determine whether the proposed activities are likely to have a significant impact on any FWPM identified through the assessments.

8.3 If it is determined that there is a potential for negative impacts on FWPM then the Contractor should work with the *Ecologist / Ecological Clerk of Works* to identify any changes which can be made to the proposed works which will mitigate the risks to FWPM.

8.4 The approach to resolving any potential conflicts with FWPM protection identified will always begin with identifying options for '*avoidance*'. Avoidance solutions may be identified through consideration of alternatives with regards to location of the activity, timing (which may relate to water levels), materials, methods or technology used. This SPP presumes that detailed consideration will already have been given to the necessity of delivering a particular outcome and that the '*do nothing*' option will no longer be available.

8.5 If the *Ecologist / Ecological Clerk of Works* is not able to agree sufficient mitigation with the *Contractor*, or there is reasonable doubt about the sufficiency of the proposed mitigation, then the *Employer* should be informed before the *Ecologist / Ecological Clerk of Works* contacts SNH Licensing Team for further guidance.

9 Emergency procedure

9.1 The following procedure will be followed if FWPM are encountered unexpectedly.

1) An emergency procedure will be implemented by site workers if FWPM are encountered. All work within 0.1 km upstream and 0.5 km downstream on the water course will cease, and the *Ecologist / Ecological Clerk of Works* will inspect the site and define mitigation (if required) in line with this SPP.

2) Works within the area halted will not recommence until the *Ecologist / Ecological Clerk of Works* has agreed the mitigation with the *Contractor* and provided written approval.

3) An exceptional circumstance procedure will be implemented should mitigation not prove satisfactory in a particular case. Works will be halted whilst an appropriate course of action is determined (under consultation with SNH Licensing Team if required). If the *Ecologist / Ecological Clerk of Works* determine that FWPM are at risk then the *Contractor* and the *Employer* should be informed immediately and this should be prior to SEPA and the local wildlife crime officer being contacted.

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10 Revision History

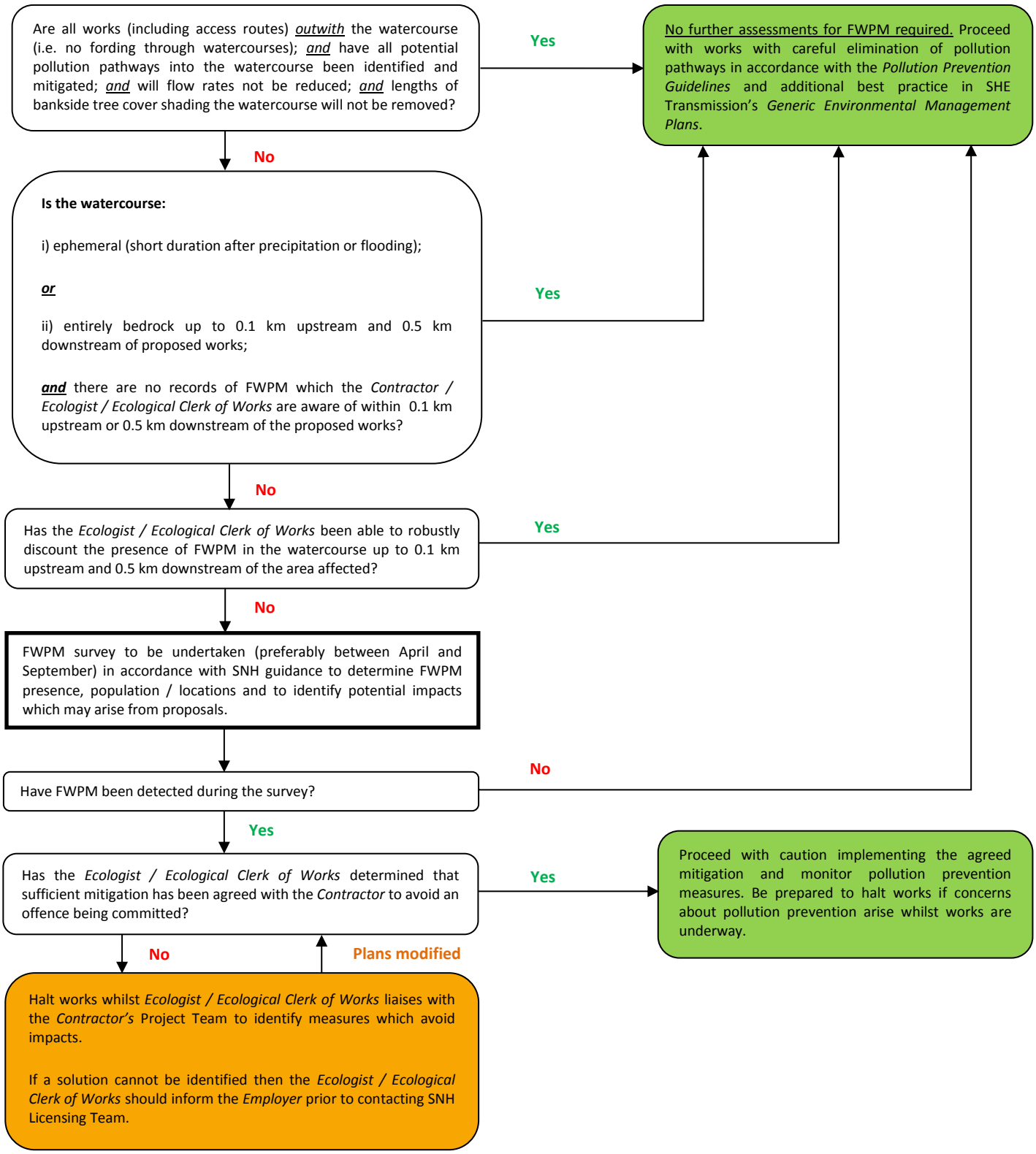
No	Overview of Amendment and Text affected	Previous Document	Revision	Authorisation
01	New Issue	TG-NET-ENV-001	1.00	R Baldwin
02	1.1: Replaced reference to CEMD with 'Works Information'. 9: Shortened title to 'Emergency Procedure'. Footnotes 3 and 5: Update of Scottish Natural Heritage hyperlinks.	TG-NET-ENV-001 (Rev1.00)	1.01	R Baldwin

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Appendix A Freshwater Pearl Mussel Decision Flowchart



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TG-NET-ENV-501

Safety, Health and Environment

Badger Species Protection Plan



	Name	Title
Author	Francis Williams	Environmental Project Manager
Checked by	Alistair Watson	Environmental Advisor
Approved by	Richard Baldwin	Head of Environment

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1 Introduction

Badger is a protected species under the Badger Protection Act and is afforded a high level of protection in Scotland. This Protection Plan provides guidance and agreed procedures for the protection of badgers and their shelters during construction works on SHE Transmission projects. The Plan contains two parts and details the procedures that must be followed where there is potential for badger to be present (Part 1), and where a Project Licence for badger has been issued by SNH to cover the project (Part 2):

1.1 Part 1: General Protection Plan

This Part applies to all projects where badger may be present). Part 1 outlines the responsibilities of SHE Transmission and the *Contractor* regarding protection of badger. It also details relevant legislation, survey requirements, general mitigation measures and the requirement for licensing and mitigation.

1.2 Part 2: Project Licence Protection Plan

This is provided to *Contractors* in addition to Part 1 for large projects where a Project Licence has been issued by SNH to cover the work and identifies those activities and protection / mitigation measures which are permitted under the Project Licence and those activities which require a Method Statement to be submitted to SNH for written approval before works can commence. This Part should be followed in conjunction with Part 1 and the relevant Project Licence to provide approved guidance and methodologies for carrying out work.

2 References

The documents detailed in **Error! Reference source not found.**, below should be used in conjunction with this document

Table 2.1- Miscellaneous Documents

Title
The Protection of Badgers Act 1992
https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing
SNH's "Scotland's Wildlife: Badgers and Development (2001)"

3 Part 1: General Protection Plan

3.2 Background

Badgers (*Meles meles*) are members of the weasel family with a very widespread distribution in Scotland. They normally live in small family groups (clans) in sometimes large underground structures called setts. Setts

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are closely associated with woodland and sloping ground, but badgers can exploit many diverse types of habitat including upland moorland. Although they typically consume large numbers of earthworms, they are omnivorous and will forage on a wide variety of foods including grains and carrion. The distance from the sett which they travel varies widely, with those in upland areas having to exploit large areas. Four kinds of setts are recognised – main, annexe, subsidiary and outlier although badgers are also known to use above ground nests and rock crevices.

The badger breeding season is generally acknowledged to run between 1st December and 30th June with cubs born in February.

Signs of badger:

- Dung heaps or latrines – small pits are dug and large faeces of variable consistency are deposited. Dung tends to have an inoffensive odour.
- Badger prints and tracks – badger paths are often well worn and lead from setts to and along boundaries such as fences. They may be marked at strategic points with dung heaps where they constitute the edge of a home range. Badger prints are about 4.5 – 6.5 cm wide and have five toes with very prominent claws.
- Guard hairs – stiff, long, elliptical, hairs with black and white bands.
- Setts – typically large D-shaped burrows with large spoil heaps of excavated soil often with discarded bedding mixed in.
- Snuffle holes – indentations in the ground where badgers have been rooting for food such as bulbs and invertebrates.

3.3 Responsibilities

It is the *Contractor's* responsibility to comply with all the requirements of this Protection Plan where badger may be present, and it is both the *Contractor's* and SHE Transmission's responsibility to monitor compliance with the Protection Plan. The responsibility for applying for any Licence, including a Project Licence, may vary from project to project, but all applications and mitigation works will adhere to this plan.

3.4 Legislation

Badger is protected under The Protection of Badgers Act 1992. Under this Act it is illegal to intentionally or recklessly[1] damage a badger sett or cause a dog to enter a sett, to obstruct access to a sett and to disturb a badger while occupying a sett, or for any person to kill, injure or take a badger. It is also an offence to cruelly ill-treat a badger, to dig for or to snare a badger.

[1] Reckless acts would include not having or disregarding a mitigation plan aimed at protecting badgers resulting in killing, injury, and/or disturbance of any badger or badger resting place, or carrying out an activity which would result in an offence where the presence of badger was foreknown.

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This legislation means that badgers are fully protected in Scotland. Under Section 10 (1) of The Protection of Badgers Act 1992, Licences may be granted to interfere with a badger sett within an area specified in the Licence by any means so specified.

3.5 Surveying for Badger

Surveys for badger must be undertaken in all works areas containing suitable badger habitat, a maximum of 12 months prior to the works commencing, (this includes site investigations), to ensure the availability of up-to-date information on shelter locations. A preconstruction check should also be made of works areas a maximum of three weeks prior to the start of works, to check for any changes to sett location / status.

Surveys must extend for a minimum of 30 m beyond working areas, including access tracks increasing to 100 m in areas of potential high noise and vibration (piling, blasting, etc.) for high noise activities.

The preconstruction surveys will be carried out by suitably qualified and experienced ecologists who will identify whether the setts are Active, Inactive or Defunct.

- Active - the presumption in Scotland is any suitable site that could be used for shelter in active badger territory is considered an active sett unless proven otherwise, through a lack of supporting evidence of current use, and by appropriate monitoring.

- Inactive - these can be characterised by tunnels looking disused (e.g. cobwebs and overgrown vegetation / leaves in the entrance) and no presence of signs of current use by badger (e.g. hairs, footprints, snuffle holes etc.). Appropriate monitoring is required to provide absolute certainty that the sett is not in current use by badger.

- Defunct - these are characterised by a loss of the structural integrity of the tunnel entrance (such as when they have been trampled by cattle) and/or roots growing through the tunnel, (i.e. the hole could not be used for shelter by a badger in its current state), and no other signs of current use by badger being present

Appropriate monitoring (e.g. the use of suitable camera traps) should be undertaken where required to determine if any sett is being used for breeding. Camera trap monitoring may also require a Licence from SNH.

3.6 Review of Badger Survey

Once a badger survey has been carried out, the ecologist / ECoW should review the survey results, apply the mitigation hierarchy outlined below and decide if a Licence is required (either Individual or Project) for the works.

Construction teams should be advised of existing / new constraints, together with mitigation and licensing requirements by the ecologist / ECoW.

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Relevant site documentation and project information sources should be updated with new and amended information on badger constraints as it is produced, with changes communicated to appropriate staff immediately.

3.7 Mitigation Hierarchy

There is a general presumption against works being carried out which could disturb badgers in their setts or to destroy / exclude any sett. A hierarchical approach to mitigation of Avoidance - Disturbance - Destruction will be applied to any sett that may be affected (See Figure 1):

Avoidance

This is the preferred option for active / inactive setts identified within 30 m of works (or 100 m for high noise / vibration activities), an initial protection zone of either 30 m (or 100 m) will be marked on the ground and appropriately signed to restrict work access.

Protection zones must be maintained until works are completed. Site staff should be briefed of their purpose through a Toolbox Talk and works micro-sited outwith the protection zone. If badger disturbance can be avoided in this way, there is no need to obtain a Licence from SNH for the works.

Disturbance

For any works required within 30 m of active setts, and for high noise / vibration activities such as pile driving or blasting within 100 m of setts, a Licence from SNH will be required (either Individual or Project).

Individual Licence applications to SNH should be accompanied by a Species Protection Plan which outlines how disturbance will be minimised and setts protected, for example through screening of works and modifying protection zones.

If a Project Licence is in place, and a breeding sett will be disturbed during the breeding season (1st December – 1st July), a Method Statement must be submitted to SNH licensing team for written approval in accordance with Part 2 of this document, prior to any works commencing.

Destruction

Destruction of setts should only be undertaken as a last resort. For destruction of active setts a Licence will be required from SNH (either Individual or Project) Individual Licence applications to SNH should be accompanied by a Species Protection Plan which outlines how disturbance will be minimised and individuals protected.

The plan should include appropriate monitoring to ensure breeding is not taking place and provision for the creation of an artificial sett if required. Any sett subject to works under Licence will be monitored during and after those works. If a Project Licence is in place, a Method Statement must be submitted to SNH licensing team in accordance with Part 2 of this document for written approval prior to any works commencing.

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3.8 Mitigation Measures

3.8.1 General Mitigation

- Any temporarily exposed pipe system should be capped when staff are off site to prevent badgers from gaining access.
- All exposed trenches and holes should be provided with mammal exit ramps e.g. wooden planks or earth ramps when Contractors are off site.
- An emergency procedure should be implemented by site workers if badger / badger setts are unexpectedly encountered. All work within 30 m (100 m for high noise/vibration activities) should cease until a suitably qualified and experienced ecologist has inspected the site and determined the appropriate course of action.
- An exceptional circumstance procedure will be implemented should mitigation options not prove satisfactory in a particular case. Works will be halted whilst mitigation is determined (under consultation with SNH licensing team if required).

3.8.2 Monitoring and Reporting

- The Environmental Representative will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to badger is delivered.
- Reports will be submitted to SNH as required by the relevant Licence.

3.8.3 Exclusion / Destruction of Inactive Setts at any time of year

Where there is a structure that requires to be excluded or destroyed which may be used by badger, a survey to determine whether the feature is in active use is required to determine whether a licence. For guidance see the SNH website (https://www.nature.scot/sites/default/files/2017-07/A1391121%20-%20Badgers%20-%20Current%20use%20-%20Guidance%20-%204%20September%202014.pdf).

Should the structure be deemed to be inactive the following methodology will be incorporated into a Site Specific Method Statement and issued prior to work commencing. A licence from SNH is not required.

Monitoring

a. Any potentially inactive sett must be monitored for a minimum of 14 days where weather conditions are favourable (up to 28 days if unfavourable) to check for current use by badger.

b. A combination of the following methods will be used, as appropriate:

- An appropriately positioned camera trap to monitor badger activity at the sett.
- Small pencil-sized sticks placed in the floor of the tunnel just inside the entrance(s), pointing upright.
- Checks for other badger sign (*e.g.* hair, snuffle holes, latrines and fresh scuff marks).
- Sand placed at the sett entrance(s).

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Exclusion

c. Following adequate monitoring, and where the named Agent is confident that there is no sign of use by badger, the sett will be excluded for 7 days using a gate[2] set in the one-way position.

d. Exclusions must be overseen by a named Agent on the Project Licence.

Monitoring Exclusion

e. The sett will be visited regularly through the exclusion process to check activity and to check on the integrity of the exclusion materials and make good any damage. If it is apparent that badger(s), or other animals, have breached the exclusion any necessary repairs will be made and exclusion period will be restarted.

Exclusion / Destruction of the Sett

f. Following exclusion, temporary blocking by wiring the gate shut, or destruction of the sett will be undertaken, where required, under the supervision of the Agent.

g. Where the sett is not required to be destroyed the exclusion gate / sheeting may be left whilst works proceed around the sett and removed once works have finished.

h. Where the inactive sett is required to be destroyed, this will be carried out using appropriate plant or hand tools.

i. For setts on distinct slopes, the excavation will start at least 1 m away from the entrance spoil heap on the down-slope side (up to 4-5 m in front of the entrance itself). For setts on flat ground the excavation will start in front of the entrance hole and hand digging will be utilised to assess the direction and number of tunnels in all directions. Once this has been established a appropriate plant can be used to further progress the excavation. A trench will be dug under direction of the Agent. In the unlikely event that badgers are found during this process all excavation will cease and the badger(s) will be allowed to freely move away from the area. The Agent / ECoW will decide on when the excavation can re-commence.

j. The excavation will continue slowly, working forwards into the tunnels and chambers until the Agent is satisfied the entire sett has been excavated. Once fully excavated the soil will then be backfilled and compressed to deter animals from excavating further holes.

k. Construction works will be programmed to commence as soon after this process as possible to reduce the probability of animals returning to the area.

3.9 Licensing Requirements

Licence applications must be sent into SNH licensing team sufficiently in advance of the project start date (approximately 40 days) to ensure the licence is in place prior to any work commencing.

[2] The specification of gates, fencing and materials would be in accordance with DMRB and the Natural England Technical Information Note 25 (Appendix 2). The badger mesh fence specification is as described in SNH's "Scotland's Wildlife: Badgers and Development (2001)".

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3.10 Project Licence

An SNH Project Licence is likely to be the most appropriate form of Licence for any large scale and / or long running Project, which may result in a large number of minor unavoidable badger offences.

For example, multiple instances of disturbance to a number of badger setts over several years. A Project Licence can be used to standardise protected species mitigation / compensation, creating consistency across the project area and throughout the Project's lifespan. Project Licences do not negate the need for thorough pre-development surveys within 12 months of the planned project start date, and pre-construction surveys within 3 weeks of works commencing. Any Project Licence application will need to be accompanied by the Mitigation Plan and procedures for badger included in Parts 1 and 2 of this SPP

3.11 Individual Licence

For small scale Projects expected to be completed over relatively short timescales, which will result in a low number of unavoidable badger offences an Individual SNH Licence is most likely to be appropriate. Licence applications should be accompanied by a Method Statement and should be sent sufficiently in advance of the Project start date to ensure the licence is in place prior to work commencing.

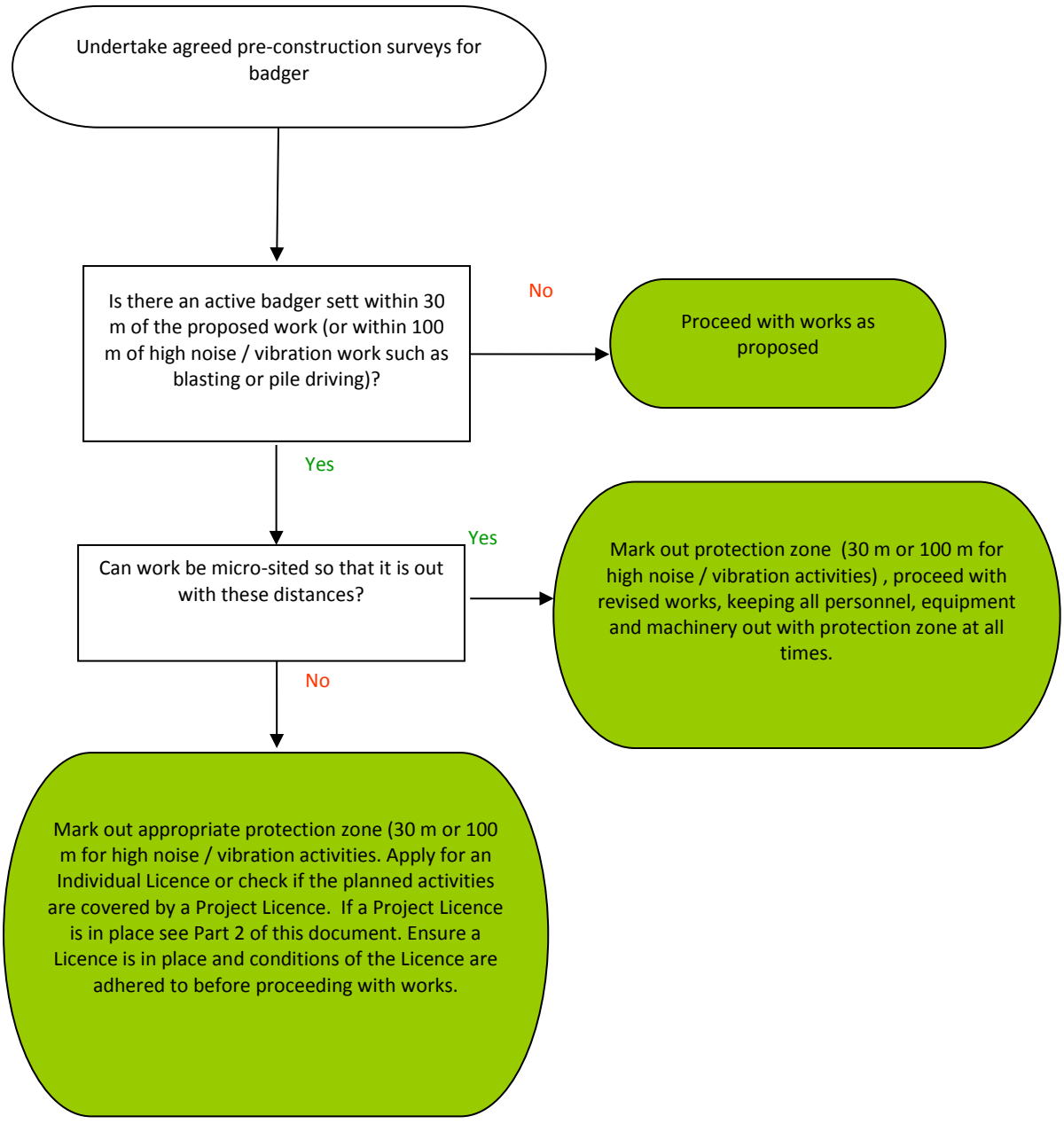
Further guidance and details of how to apply for a badger Licence can be found on the SNH website (https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing).

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Badger Mitigation Decision Tree



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4 Part 2: Project Licence Protection Plan

The following sections of this plan are to be read in conjunction with the Project Licence (insert Licence number) and its conditions.

As stated in the Project Licence, methodologies for certain mitigation activities permitted under the Licence are included in this Part of the SPP. More disruptive activities, listed in Section 1 below, will also require a specific Method Statement to be submitted to SNH licensing team for written approval (see Appendix A). It is the *Contractor*'s responsibility to submit these Method Statements to both SHE Transmission and SNH for written approval. No works shall proceed without this written approval.

Sufficient time should be allowed for in the programme to carry out any consultation work and obtain necessary approvals.

The Project Licence will specify reporting requirements detailing all disturbance and destruction works carried out.

4.1 Works Allowed under the Project Licence

Under the Project Licence there is a general presumption against works being carried out which could disturb badgers in their setts, or to destroy / exclude any sett unless it can clearly be demonstrated that either it is inactive (*i.e.* through monitoring) or that there is no alternative solution against Project timescales and requirements.

4.2 Activities requiring an SNH Approved Method Statement

The following activities require a formal Method Statement to be submitted and approved by SNH prior to any works commencing:

a. Destruction of any active setts within the breeding season (1st December – 30th June inclusive).
b. Destruction of a breeding sett, or a sett which cannot be discounted as a breeding sett, at any time of year.
c. Disturbance (*i.e.* works within 30 m, or 100 m for high noise / vibration works) to a breeding sett, or a sett which cannot be discounted as a breeding sett, during the breeding season.
d. Where it is proposed to exclude (even temporarily) such a proportion of setts in a given clan's territory as to cause a significant impact on the clan.
e. Any exceptional circumstances not covered in this SPP.

The Method Statement template in Appendix A has been developed in conjunction with SNH and should be used by the *Contractor / Named Agent* for all submissions.

Proposed mitigation works should be agreed with SNH.

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4.3 Activities not requiring additional SNH approval

The following works may be carried out under this SPP and / or specific Method Statements without the prior approval of SNH when a Project Licence is in place, using the prescribed methodologies:

4.3.1 Exclusion / Destruction of a non-breeding active sett from July – November inclusive

The following methodology will be incorporated into a Site Specific Method Statement and issued prior to work commencing:

Pre-works Assessment

a. In advance of any ground-breaking or use of construction machinery within 30 m of a sett entrance (or 100 m for blasting operations) an Agent on the Project badger licence will consider in detail the scope of the proposed works, type of sett and topographical location to determine if exclusions can be avoided without placing badgers at risk.

Exclusion

b. As agreed with SNH, badger gates and appropriate materials[4] will be used for the exclusion of setts, unless in rare circumstances, in which case SNH licensing team will be consulted beforehand. Exclusions must be overseen by a named agent on the Project badger licence.

c. The gate would be set to the two-way position for at least 7 days and then set to one-way for 14 days.

Monitoring Exclusion

d. To monitor use of the sett the a combination of the following methods may be used.

- An appropriately positioned camera trap to monitor badger activity at the sett.
- Small pencil-sized sticks placed in the floor of the tunnel just inside the entrance, pointing upright.
- Threads pinned to the gate and gate frame to confirm if the gate has been opened.
- Sand placed at the sett entrance (inside and outside the gate).

e. The sett will be visited regularly through the exclusion process to check activity and to check on the integrity of the exclusion materials and make good any damage. If it is apparent that badger(s) have breached the exclusion any necessary repairs will be made and exclusion period will be restarted.

Destruction of the Sett

f. Destruction will proceed as per the method outlined for destruction of inactive setts.

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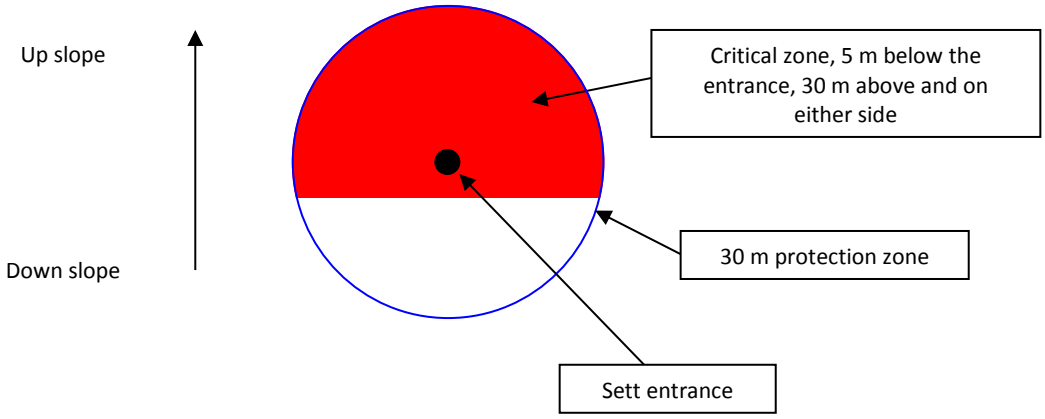
4.3.2 Disturbance to a non-breeding active sett from July – November inclusive

The following methodology will be incorporated into a Site Specific Method Statement and issued prior to work commencing:

Tree Felling and Scrub clearance

All tree and scrub clearance will be undertaken in accordance with the conditions of a Standard Forestry Operations Licence (see https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide/badgers-and-licensing/badgers-licences-land).

Track Construction



a. Track construction can be carried out within the 30 m protection zone under the Project Licence providing it does not impact on the "Critical Zone", as shown in the diagram above, and lie within 5 m of the sett entrance. An Agent / ECoW on the Project badger licence will carry out a risk assessment and mark out the maximum protection zone to ensure the integrity of the sett is protected. If works are proposed in the critical zone between 20 and 30m from an entrance, careful hand-digging of a cross trench at the edge of proposed access track route or tower compound will be performed to confirm the tunnels do not extend under the works.

b. The Agent / ECoW will be present immediately before construction starts to re-check for any ecological constraints including newly dug badger setts. Details of any ecological constraints, and associated mitigation, not related to badger will be communicated separately to this plan to all site workers.

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Tower Compound Establishment

c. A tower compound can intrude within the 30 m protection zone under the Project licence, where there is no alternative, providing it does not impact on the "Critical Zone" and the sett entrance is a minimum of 5 m out with the compound boundary. The An Agent / ECoW on the Project badger licence will carry out a risk assessment and mark out the maximum protection zone to ensure the integrity of the sett is protected.

d. Badger proof fencing / gates will be used for the compound to reduce the risk of badgers entering the works area. One-way badger gates will be installed at the nearest corner of the compounds to allow animals to escape.

e. The Agent / ECoW will be present immediately before construction starts to re-check for any ecological constraints including newly dug badger setts. Details of any ecological constraints, and associated mitigation, not related to badger will be communicated separately to this plan to all site workers.

5 Revision History

No	Overview of Amendment and Text affected	Previous Document	Revision	Authorisation
01	Transfer to new template and Nomenclature	TG-PS-LT-707 (Rev 1.00)	1.00	Richard Baldwin
02	Hyperlink to "Current use" guidance 'What is a badger sett?' has been added under newly created paragraph 3.8.3. 4.3.1 'Exclusion / Destruction of Inactive Setts at any time of year' (Rev 1.00) has been moved under 3.8.3 to represent Licensing Team changes in accordance with legislation.	TG-NET-ENV-501 (Rev 1.00)	1.01	Richard Baldwin

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Appendix A Project Licence Method Statement Template

<PROJECT TITLE>

METHOD STATEMENT FOR WORKS UNDER *(insert licence details)*

<insert species record reference>

<insert date>

Introduction

This document, prepared on behalf of SHE Transmission provides a Method Statement for ***<insert details of works>*** to be completed under ***<insert licence details>***. These works are required in order to facilitate the delivery of the *<insert Project details>* (the Project).

Condition ***<insert No.>*** of the above Licence states that a ***<insert species>*** Protection Method Statement be submitted to Scottish Natural Heritage (SNH) licensing team for written approval, under specific circumstances, prior to commencement of works which could affect ***<insert species>***. Therefore, no works which would *<insert licensed activity>* ***<insert species>*** shall take place without written confirmation of SNH approval of this method statement.

This Method Statement makes reference to the following documents:

- ***<insert licence details>***, SNH
- Species Protection Plan (SPP): ***<insert SPP No. and title>*** Rev. X *<insert date>*

Further information is provided in Table 1: Summary of Data.

Licensable Works

Introduction

<Insert details>

Baseline Description

<Insert description, including photographs / location plan>

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Table 1: Summary of Data

Reference	Easting	Northing	Date recorded	Description	Date works exclusion zone demarcated & distance

Survey Summary

<Insert details>

Description of the Proposed Licensable Works

<Insert details>

Works Duration

<Insert details>

Consideration of Alternatives

<Insert details>

Impact Assessment

<Insert details>

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Method Statement Site Briefing (to be delivered to relevant staff prior to works)

Site: *<insert description>*

Reference number: *<insert species record reference>*

Client: SHE Transmission

Task: *<insert description of works>*

Prepared by: *<insert individual or Company name>*

Licensed Agent: *<insert name>*

Method statement for *<insert works description>*

Before works commence:

All relevant personnel will be made aware of the presence and location of the constraint and mitigation.

<insert details of methodology>

During works:

<insert details of methodology>

<Insert Contractor's name>

I, the undersigned, confirm receipt of this method statement and fully understand and agree to work to the conditions therein.

Signature of *Contractor's* Representative:..... Date ..../ /

Print name in full: .....

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TG-NET-ENV-502

Safety, Health and Environment

Bat Species Protection Plan



	Name	Title
Author	Francis Williams	Environmental Project Manager
Checked by	Alistair Watson	Environmental Advisor
Approved by	Richard Baldwin	Head of Environment

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1 Introduction

All bat species occurring in Britain are European Protected Species (EPS), protected under Annex II and IV of EC Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive) and are afforded a high level of protection in Scotland. This Protection Plan provides guidance and agreed procedures for the protection of bats and their shelters during construction works on SHE Transmission projects. The Plan contains two parts and details the procedures that must be followed where there is potential for bats to be present (Part 1), and where a Project Licence for bats has been issued by SNH to cover the project (Part 2):

1.1 Part 1: General Protection Plan

This Part applies to all projects where bats may be present and is issued to Contractors. Part 1 outlines the responsibilities of SHE Transmission and the Contractor regarding protection of bats. It also details relevant legislation, survey requirements, general mitigation measures and the requirement for licensing and mitigation

1.2 Part 2: Project Licence Protection Plan

This is provided to *Contractors* in addition to Part 1 for large projects where a Project Licence has been issued by SNH to cover the work and identifies those activities and protection / mitigation measures which are permitted under the Project Licence and those activities which require a Method Statement to be submitted to SNH for written approval before works can commence. This Part should be followed in conjunction with Part 1 and the relevant Project Licence to provide approved guidance and methodologies for carrying out work.

2 References

The documents detailed in Table 2.1- Miscellaneous Documents, below should be used in conjunction with this document

Table 2.1- Miscellaneous Documents

Title
EC Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive)
Conservation (Natural Habitats &c.) Regulations 1994
Conservation (Natural Habitats &c.) Amendment (Scottish) Regulations 2007
https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing

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3 Part 1: General Protection Plan

3.2 Background

Bats are a diverse group of mostly nocturnal flying mammals of which there are generally recognised to be 9 different species in Scotland.. There are four more common or widespread species; common pipistrelle (*Pipistrellus pipistrellus*), soprano pipestrelle (*P. pygmaeus*), Daubenton's bat (*Myotis daubentonii*), and brown long-eared bat (*Plectotus auritus*). The two pipistrelle species mentioned above are the ones most likely to be encountered.

The other less common species are Natterer's bat (*M. nattereri*), Nathusis pipistrelle (*Pipistellus nathusii*), Leisler's bat (*Nyctalus leisleri*), whiskered bat (*M. mystacinus*), and Noctule bat (*N. noctula*).

Identification can be made by using bat detectors and recording devices to differentiate the characteristic echolocation signals (used to navigate and catch prey) as well as flight patterns, morphology and DNA analysis of droppings.

Bats exploit a wide variety of natural and semi-natural habitats such as woodlands, pasture, water and hedges in pursuit of insect prey such moths and midges. They use a variety of strategies to catch their prey. For example brown long-eared bats glean insects from foliage, whereas Daubenton's bats gaffe insects from near the surface of water.

Bats rest up during the day in roosts within sheltered voids or cavities. Although all bat species in Scotland rely heavily on man-made structures, roosts can be found in; buildings and ruins, trees (woodpecker holes, cracks, flaky bark and callused flush cuts), bridges, caves and tunnels. Signs of an active roost may include urine staining, presence of flies, scratch marks, strong odour and droppings, however not all roosts have such features. Tree roosts can be particularly difficult to identify.

Roosts are communal structures which are in use at different times and many different types of roosts exist varying from temporary day roosts to more permanent maternity and hibernation roosts. The most sensitive periods for maternity roosts are from early May to late August and hibernation roosts are in use from October until March. Bats are particularly vulnerable to disturbance during hibernation which could result in mortality due to cold temperatures and lack of food resource.

3.3 Responsibilities

It is the *Contractor's* responsibility to comply with all the requirements of this Protection Plan where bats may be present, and it is both the *Contractor's* and SHE Transmission's responsibility to monitor compliance with the Protection Plan. The responsibility for applying for any Licence, including a Project Licence, may vary from project to project, but all applications and mitigation works will adhere to this plan.

3.4 Legislation

All bat species *(Chiroptera)* in Britain are European Protected Species (EPS), protected under Annex II and IV of EC Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive). The Habitats Directive is transposed in Scottish law by the Conservation (Natural Habitats

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&c.) Regulations 1994, as amended by The Conservation (Natural Habitats &c.) Amendment (Scottish) Regulations 2007 and others. Bats are listed on Schedule 2 of the Habitats Regulations 1994.

The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2007 enhanced this protection. As EPS, it is an offence to deliberately or recklessly[1] kill, injure or take (capture) bats, deliberately or recklessly disturb or harass bats, and damage, destroy or obstruct access to a breeding site or resting place of any bat. It is important to note that bat roosts are protected even at times of year when not in use.

3.5 Surveying for Bats

1. Surveys for bats must be undertaken in all works areas containing suitable bat habitat, at a suitable time of year a maximum of 12 months[2] prior to the works commencing, (this includes site investigations), to ensure the availability of up-to-date information on shelter locations.
2. Surveys must extend for a minimum of 30 m beyond working areas.
3. Pre-construction surveys will be undertaken for all potential roosting features likely to be affected (i.e. built structures and trees). If evidence of roosting bats is encountered further survey may be required to confirm species, roost type and usage.

3.6 Review of Bat Survey

Once a bat survey has been carried out, the ecologist / ECoW should review the survey results, apply the mitigation hierarchy outlined below and decide if a Licence is required (either Individual or Project) for the works.

Construction teams should be advised of existing / new constraints, together with mitigation and licensing requirements by the ecologist / ECoW.

Relevant site documentation and project information sources should be updated with new and amended information on bats constraints as it is produced, with changes communicated to appropriate staff immediately.

3.7 Mitigation Hierarchy

There is a general presumption against works being carried out which could disturb bats or to destroy / exclude or obstruct access to any bat roost. A hierarchical approach to mitigation of Avoidance - Disturbance - Destruction will be applied to any roost that may be affected:

---

1 Reckless acts would include not having or disregarding a mitigation plan aimed at protecting Bats resulting in killing, injury, and/or disturbance of any Bat or Bat Roost, or carrying out an activity which would result in an offence where the presence of Bats was foreknown.

2 Note: Information from any previous surveys (e.g. surveys carried out to provide data for EIA or other Assessments) can be a useful guide to bats activity in an area, particularly if roosts were recorded. However, surveys will always require to be updated if carried out more than 12 months prior to works commencing.

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Avoidance

This is the preferred option for roosts identified within 30 m of works, an initial protection zone of either 30 m will be marked on the ground and appropriately signed to restrict work access.

Protection zones must be maintained until works are completed. Site staff should be briefed of their purpose through a Toolbox Talk and works micro-sited out with the protection zone. If bat disturbance can be avoided in this way, there is no need to obtain a Licence from SNH for the works.

Disturbance

Works required within 30 m of an active roost may constitute disturbance and therefore may require a Licence from SNH (either Individual or Project) this needs assessing on a case by case basis. In these circumstances the ecologist / EcoW must be tasked to assess the likelihood of disturbance to bats, and therefore the need for a licence (in consultation with SNH licensing team if required).Individual Licence applications to SNH should be accompanied by a Protection Plan which outlines how disturbance will be minimised and roosts protected, for example through timing works for when bats are least likely to be present, screening of works and modifying protection zones.

If a Project Licence is in place, part 2 of this document should be used to ascertain whether a formal Method Statement is required to be submitted for approval to SNH prior to works commencing which could disturb bats.

Roost Destruction

Destruction of roosts should only be undertaken as a last resort. For destruction of roosts a Licence will be required from SNH (either Individual or Project). Destruction of maternity roosts and hibernation roosts will only be licensed outside of the seasons when they are in use.

Individual Licence applications to SNH should be accompanied by a Protection Plan which outlines how disturbance of bats will be minimised, roosts compensated for, and individual bats protected. Roost destruction may not always be permitted; this will depend on roost type and rarity of species (see species matrix in part 2 of this document)

If a Project Licence is in place the following activities require a formal Method Statement to be submitted and approved by SNH in accordance with Part 2 of this document, prior to any works commencing:

- Destruction of a breeding / hibernation roost of a Brown long-eared or Daubenton's bat.
- Destruction of any roost of an uncommon species (Natterer's, Leisler's, Whiskered, Noctule, Narthusius's pipistrelle) at any time of year.

For all other scenarios (such a destruction of a non-breeding roost of a more common species outside of the active season) works should be carried out in accordance with part 2 of this document. Any roost subject to works under Licence will be monitored during and after those works.

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3.8 Mitigation Measures

3.8.1 General Mitigation

1. An emergency procedure will be implemented by site workers if signs of bat (*e.g*. urine staining, droppings or animals) are encountered. All work within 30 m will cease and the Ecologist / ECoW will inspect the site and define mitigation (if required) in line with this SPP.
2. An exceptional circumstance procedure will be implemented should mitigation options not prove satisfactory in a particular case. Works will be halted whilst mitigation is determined (under consultation with SNH if required).

3.8.2 Monitoring and Reporting

1. The Environmental Representative will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to bats is delivered.
2. Reports will be submitted to SNH as required by the relevant Licence.

3.9 Licensing Requirements

Licence applications must be sent into SNH species licensing team sufficiently in advance of the project start date (approximately 30 days) to ensure the licence is in place prior to any work commencing.

3.10 Project Licence

An SNH Project Licence is likely to be the most appropriate form of Licence for any large scale and / or long running Project, which may result in a large number of minor unavoidable bat offences.

For example, multiple instances of disturbance to a number of bat roosts over several years. A Project Licence can be used to standardise protected species mitigation / compensation, creating consistency across the project area and throughout the Project's lifespan. Project Licences do not negate the need for thorough pre-development surveys within 12 months of the planned project start date, and pre-construction surveys within 3 weeks of works commencing. Any Project Licence application will need to be accompanied by the Mitigation Plan and procedures for bats included in Parts 1 and 2 of this SPP

3.11 Individual Licence

For small scale Projects expected to be completed over relatively short timescales, which will result in a low number of unavoidable bats offences an Individual SNH Licence is most likely to be appropriate. Licence applications should be accompanied by a Method Statement and should be sent sufficiently in advance of the Project start date to ensure the licence is in place prior to work commencing.

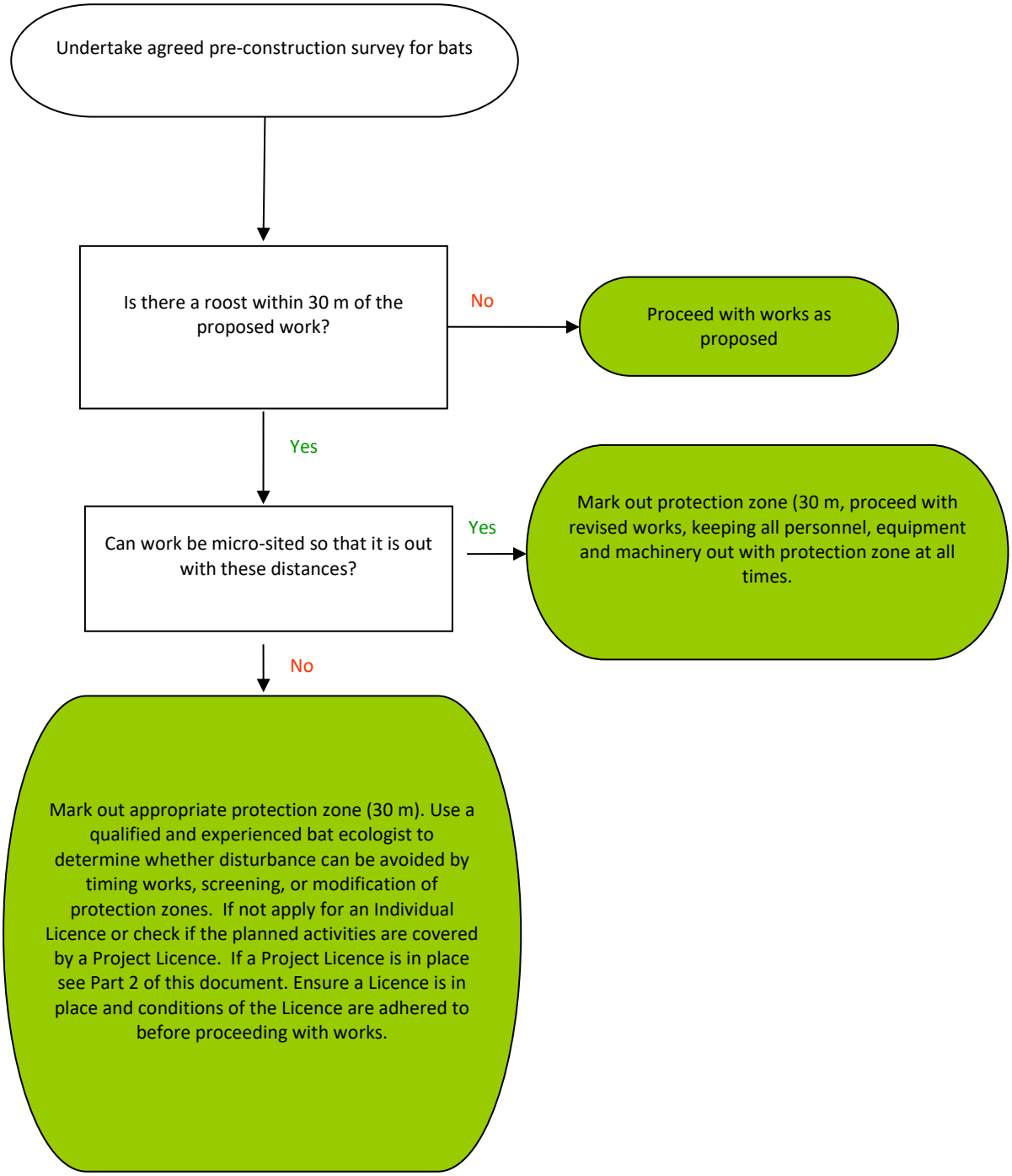
Further guidance and details of how to apply for a bat Licence can be found on the SNH website (https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing).

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Bat Mitigation Decision Tree



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4 Part 2: Project Licence Protection Plan

The following sections of this plan are to be read in conjunction with the Project Licence (insert Licence number) and its conditions.

As stated in the Project Licence, methodologies for certain mitigation activities permitted under the Licence are included in this Part of the SPP. More disruptive activities, listed in Section 1 below, will also require a specific Method Statement to be submitted to SNH licensing team for written approval (see Appendix A). It is the *Contractor*'s responsibility to submit these Method Statements to both SHE Transmission and SNH for written approval. No works shall proceed without this written approval.

Sufficient time should be allowed for in the programme to carry out any consultation work and obtain necessary approvals.

The Project Licence will specify reporting requirements detailing all disturbance and destruction works carried out.

4.1 Works Allowed under the Project Licence

Under the Project Licence there is a general presumption against works being carried out which could disturb bats, or to destroy / exclude or obstruct access to any bat roost unless it can clearly be demonstrated that either it is inactive (*i.e.* through monitoring) or that there is no alternative solution against Project timescales and requirements.

4.2 Activities requiring an SNH Approved Method Statement

The following activities require a formal Method Statement to be submitted and approved by SNH prior to any works commencing:

a. Disturbance of breeding or hibernation roosts of Common Pipistrelle, Soprano pipistrelle, Brown long-eared, and Daubenton's bat during the seasons when they are likely to be in use;

b. Disturbance of breeding or hibernation roosts of all non-common bat species (i.e. Natterer's, Leisler's, Whiskered, Noctule, Nathusius's, and any other species not normally found in Scotland) at any time.

c. Disturbance of non-breeding and non-hibernation roosts for all non-common bat species (i.e. Natterer's, Leisler's, Whiskered, Noctule, Nathusius's, and any other species not normally found in Scotland);

d. Destruction of a Brown Long-eared or Daubenton's breeding or hibernation roost

e. Destruction of any roosts for all non-common bat species (i.e. Natterer's, Leisler's, Whiskered, Noctule, Nathusius's, and any other species not normally found in Scotland)); and

f. Any exceptional circumstances not covered in this SPP or Points a to c above.

The Method Statement template in Appendix A has been developed in conjunction with SNH and should be used by the *Contractor / Named Agent* for all submissions.

Proposed mitigation works should be agreed with SNH.

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Species Matrix

This matrix summarises which activities at which time of year can be carried out under this SPP or require an approved method statement. For explanation see text of this SPP.

	Breeding / Hibernation Roosts		Non-breeding / non-hibernation Roosts	
Species	**Disturbance**	**Destruction**	**Disturbance**	**Destruction**
Common Pipistrelle	SPP (outwith seasons)	SPP (outwith seasons)	SPP	SPP
Soprano Pipistrelle	SPP (outwith seasons)	SPP (outwith seasons)	SPP	SPP
Brown Long Eared	SPP (outwith seasons)	Approved MS	SPP	SPP
Daubenton's	SPP (outwith seasons)	Approved MS	SPP	SPP
Natterer's	Approved MS	Approved MS	Approved MS	Approved MS
Nathusius's Pipistrelle	Approved MS	Unlikely to be allowed	Approved MS	Approved MS
Leisler's	Approved MS	Approved MS	Approved MS	Approved MS
Whiskered	Approved MS	Unlikely to be allowed	Approved MS	Approved MS
Noctule	Approved MS	Approved MS	Approved MS	Approved MS
Other species not normally found in Scotland	Approved MS	Approved MS	Approved MS	Approved MS

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4.3 Activities not requiring additional SNH approval

The following works may be carried out under this SPP and / or specific Method Statements without the prior approval of SNH, using the prescribed methodologies:

a. Disturbance to non-breeding (note according to European guidance mating roosts are considered to be breeding roosts) and non-hibernation roosts, and disturbance to maternity / hibernation roosts (outwith the seasons they are in use), for the more common species (i.e. common and soprano pipistrelle, Brown long-eared, and Daubenton's bats) Destruction of any common or soprano pipistrelle roosts (including breeding and hibernation) at an appropriate time of year for the type of roost (i.e. When bats are not likely to be present and avoiding sensitive seasons).

b. Destruction of non-breeding and non-hibernation roosts for brown long-eared and Daubenton's bats, at an appropriate time of year for the type of roost when bats are not present, or avoiding sensitive seasons.

4.3.1 1. Disturbance to non-breeding and non-hibernation roosts at any time of year, and disturbance to maternity and hibernation roosts outwith the seasons they are in use,

a) This methodology applies to the following:

- Disturbance to non-breeding and non-hibernation roosts of Common pipistrelle, Soprano pipistrelle, Brown long-eared and Daubenton's bats.

b) If works are to be completed within the protection zone when bats are present the following measures will be adopted in order to minimise potential disturbance to the roost:

- Works will be completed in a manner to reduce and ensure minimal disturbance;
- No use of directional lighting; and
- No site compounds and/or vehicle parking areas will be permitted within 30 m of the roost.

c) Prior to the commencement of Project works, a protection zone will be established to retain the maximum possible distance between Project works and the roost in order to prevent damage. In most cases this protection zone will be no less than 1 m from the drip line of the tree or 5 m for buildings or cave entrances, and will be set up by the Ecologist / ECoW who is an Agent on the Project bat Licence, or a suitably qualified bat worker under their supervision. No construction works will be completed within this zone.

d) All site construction staff will be made aware of the presence of the roost and the requirement to remain outwith the protection zone at all times through a Toolbox Talk and the site EMP.

e) A watching brief would be undertaken by the ECoW as required to ensure that the protection zone has not been breached and that the roost/roost feature has not been inadvertently damaged.

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f) No specific ecological mitigation is considered to be required for the disturbance to non-breeding and non-hibernation sites.

4.3.2 2 & 3. Destruction of roosts at an appropriate time of year

a) This methodology applies to the following:

- Destruction of roosts of Common and Soprano pipistrelle bats; and
- Destruction of non-breeding and non-hibernation roosts of Common pipistrelle, Soprano pipistrelle, Brown long-eared and Daubenton's bats.

b) Destruction of these roosts will only be completed at an appropriate time of year (dependent on roost status, avoiding sensitive seasons and if presence/absence of bats can be confirmed).

c) Prior to the commencement of Project works within 30 m of non-breeding and non-hibernation roosts, a protection zone will be set up by the ECoW. No works will be completed within this area until the roost has been destroyed in a controlled manner.

d) All site construction staff will be made aware of the presence of the roost and the requirement to remain out with the protection zone at all times through a Toolbox Talk and the site EMP.

e) Prior to licensed destruction of the roost, appropriate mitigation / compensation shall be provided on a like-for-like replacement basis (*e.g*. provision of roost features that would match the roost to be destroyed). Replacement roost features would be sited as close as possible to the roost to be destroyed but out with any potential disturbance distances. Compensatory roost provision would be agreed with SNH.

f) The destruction of the roost will be completed in a controlled manner under the supervision of the ECoW (who is an Agent on the Project Licence, or a suitably qualified bat worker under their supervision), in order to ensure that no bats are injured and/or killed. The following measures will be adopted during the controlled destruction of the roost:

- Prior to any works being completed that will result in the destruction of non-breeding and non-hibernation roosts, a survey will be completed to determine whether bats are present or absent, the status of the roost and the species involved (through visual or lab analysis of droppings).
- Where a roost is to be destroyed during the active period, and the presence of bats is confirmed or cannot be discounted, bats will be excluded from the roost using an appropriate exclusion device. (*e.g.* a cotton sleeve) which will be fitted to the observed entrance/exit point by the ECoW.
- A dawn survey will be undertaken on the day of the exclusion to confirm the absence of bats returning to the roost. These surveys will be undertaken when the dawn temperature is > 8° C. Should bats be seen entering the roost the exclusion will be postponed for 3 days and the process repeated.
- The exclusion device will remain in place for 7 days, unless this corresponds to a period of cold or adverse weather (where the temperature at dusk is < 8° C or heavy rain), then the excluder must stay in place for a further 7 days.

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- In the event of bats being identified within the roost during destruction, the ECoW is responsible for determining the best course of action with respect to the welfare of the animals.

5 Revision History

No	Overview of Amendment and Text affected	Previous Document	Revision	Authorisation
01	Transfer to new template and Nomenclature	TG-PS-LT-708 (Rev 1.00)	1.00	Richard Baldwin
02	Sentence 3.8.2 (1) has been replaced by the equivalent sentence of precursor TG-PS-LT-708. Paragraph 3.10 has been replaced by the equivalent paragraph of precursor TG-PS-LT-708. Paragraph 3.11 has been replaced by the equivalent paragraph of precursor TG-PS-LT-708 (with exception of update to SNH hyperlink)	TG-NET-ENV-502 (Rev 1.01)	1.01	Richard Baldwin

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Appendix A Project Licence Method Statement Template

<PROJECT TITLE>

METHOD STATEMENT FOR WORKS UNDER *(insert licence details)*

<insert species record reference>

<insert date>

Introduction

This document, prepared on behalf of SHE Transmission provides a Method Statement for ***<insert details of works>*** to be completed under ***<insert licence details>***. These works are required in order to facilitate the delivery of the *<insert Project details>* (the Project).

Condition ***<insert No.>*** of the above Licence states that a ***<insert species>*** Protection Method Statement be submitted to Scottish Natural Heritage (SNH) licensing team for written approval, under specific circumstances, prior to commencement of works which could affect ***<insert species>***. Therefore, no works which would *<insert licensed activity>* ***<insert species>*** shall take place without written confirmation of SNH approval of this method statement.

This Method Statement makes reference to the following documents:

- ***<insert licence details>***, SNH
- Species Protection Plan (SPP): ***<insert SPP No. and title>*** Rev. X ***<insert date>***

Further information is provided in Table 1: Summary of Data.

Licensable Works

Introduction

<Insert details>

Baseline Description

<Insert description, including photographs / location plan>

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Table 1: Summary of Data

Reference	Easting	Northing	Date recorded	Description	Date works exclusion zone demarcated & distance

Survey Summary

<Insert details>

Description of the Proposed Licensable Works

<Insert details>

Works Duration

<Insert details>

Consideration of Alternatives

<Insert details>

Impact Assessment

<Insert details>

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Method Statement Site Briefing (to be delivered to relevant staff prior to works)

Site: *<insert description>*

Reference number: *<insert species record reference>*

Client: SHE Transmission

Task: *<insert description of works>*

Prepared by: *<insert individual or Company name>*

Licensed Agent: *<insert name>*

Method statement for *<insert works description>*

Before works commence:

All relevant personnel will be made aware of the presence and location of the constraint and mitigation.

<insert details of methodology>

During works:

<insert details of methodology>

<Insert Contractor's name>

I, the undersigned, confirm receipt of this method statement and fully understand and agree to work to the conditions therein.

Signature of *Contractor's* Representative:..... Date ..../ /

Print name in full: .....

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TG-NET-ENV-503

Safety, Health and Environment

Otter Species Protection Plan



	Name	Title
Author	Francis Williams	Environmental Project Manager
Checked by	Alistair Watson	Environmental Advisor
Approved by	Richard Baldwin	Head of Environment

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1 Introduction

Otter is a European Protected Species and is afforded a high level of protection in Scotland. This Protection Plan provides guidance and agreed procedures for the protection of otters and their shelters during construction works on Scottish Hydro Electric (SHE) Transmission projects. The Plan contains two parts and details the procedures that must be followed where there is potential for otter to be present (Part 1), and where a Project Licence for otter has been issued by Scottish Natural Heritage (SNH) to cover the project (Part 2).

1.1 Part 1: General Protection Plan

This Part applies to all projects where otter may be present. Part 1 outlines the responsibilities of SHE Transmission and the Contractor regarding protection of otter. It also details relevant legislation, survey requirements, general mitigation measures and the requirement for licensing and mitigation.

1.2 Part 2: Project Licence Protection Plan

This is provided to Contractors in addition to Part 1 for large projects where a Project Licence has been issued by SNH to cover the work and identifies those activities and protection / mitigation measures which are permitted under the Project Licence and those activities which require a Method Statement to be submitted to SNH for written approval before works can commence. This Part should be followed in conjunction with Part 1 and the relevant Project Licence to provide approved guidance and methodologies for carrying out work.

2 References

The documents detailed in Table 2.1 below, should be used in conjunction with this document.

Table 2.1- Miscellaneous Documents

Title
EC Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive)
Conservation (Natural Habitats &c.) Regulations 1994.
The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2007
https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing

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3 Part 1: General Protection Plan

3.2 Background

Otters (*Lutra lutra*) are members of the weasel family with a widespread distribution in Scotland. They are largely solitary, semi-aquatic and obtain most of their food from rivers or the sea. Otters living on rivers may travel distances of 16 km or more at night. They use two kinds of shelter – underground holts and above ground couches. Otters may dig their own holts but they often enlarge existing structures such as rabbit holes so identification can be difficult. Couches may be nest-like structures or simply a depression in a stick pile or under a windblown tree. Each individual will use multiple shelters and holts can be located up to 500 m from watercourses. Otters may have cubs at any time of year.

Breeding sites are generally found in areas with the following characteristics:

- Relatively undisturbed by humans / ungrazed by stock.
- Close (<50 m) to water but rarely flooded or just above the floodplain level.
- Containing patches of dense cover (e.g. scrub thickets, deciduous woodland, young conifer plantation, heather, log piles, tree roots, rock piles, stands of tussocky tall fen vegetation, or reed beds).

Signs of otter:

- Spraints (droppings) which have a high mucus content and are often formless, generally black or greenish –black in colour and may contain obvious fish bones or scales.
- Otter prints and tracks – otter paths are 12-15 cm wide and normally connect with water and holts they are marked with spraints. Otter prints are about 6 cm wide and have five toes.
- Feeding remains – hard parts of crustaceans, unpalatable bits of amphibians and bony parts of fish.
- Otter shelters - holts or couches.

3.3 Responsibilities

It is the *Contractor's* responsibility to comply with all the requirements of this Protection Plan where otter may be present, and it is both the *Contractor's* and SHE Transmission's responsibility to monitor compliance with the Protection Plan. The responsibility for applying for any Licence, including a Project Licence, may vary from project to project, but all applications and mitigation works will adhere to this plan.

3.4 Legislation

Otter is a **European Protected Species (EPS)** protected under Annex II and IV of EC Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive). The Habitats Directive is transposed in Scottish law by the Conservation (Natural Habitats &c.) Regulations 1994. Otter is listed on Schedule 2 of the Conservation Regulations 1994. The Conservation (Natural Habitats, &c.)

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Amendment (Scotland) Regulations 2007 enhanced this protection. Current Legislation means that otters and their shelters are fully protected in Scotland. In summary it is illegal to:

- Deliberately or recklessly kill, injure or take (capture) an otter;
- Deliberately or recklessly disturb or harass an otter;
- Damage, destroy or obstruct access to a breeding site or resting place of an otter (i.e. an otter shelter).

3.5 Surveying for otter

1. Surveys for otter must be undertaken in all works areas containing suitable otter habitat, a maximum of 12 months[1] prior to the works commencing, (this includes site investigations), to ensure the availability of up-to-date information on shelter locations.
2. Surveys must extend for a minimum of 200 m beyond working areas, including access tracks.
3. Surveys must be carried out by suitably qualified and experienced ecologists and will identify whether any active holts or places of shelter are likely to be affected by the works. Normally work within 30 m of a non-breeding shelter is regarded as likely to cause otter disturbance and will therefore require to be covered by a licence from SNH. However, works generating high noise / vibration levels (such as pile driving or blasting) can cause disturbance to non-breeding sites up to 100 m. Any work within 200 m of a breeding otter holt / shelter should also be regarded as capable of causing disturbance.
4. Appropriate monitoring (e.g. the use of suitable camera traps) should be undertaken where required to determine if any holt / place of shelter is being used for breeding. Camera trap monitoring may also require a Licence from SNH.
5. Active shelters will be classified as:
    - **Holt:** Underground or other fully enclosed structure (can range from enlarged rabbit holes and cavities amongst tree roots to rock piles and man made structures).
    - **Place of Shelter:** Can be either a Couch / Lie-up - an above ground semi-enclosed resting place (*e.g*. under overhanging river banks / tree root plates); or Hover – a nest-like structures (0.3 -1 m in diameter) constructed from nearby vegetation or a depression in a stick pile or under a windblown tree.

3.6 Review of Otter Survey

Once an otter survey has been carried out, the ecologist /Ecological Clerk of Works (EcoW) should review the survey results, apply the mitigation hierarchy outlined below and decide if a Licence is required (either Individual or Project) for the works.

[1] Note: Information from any previous surveys (e.g. surveys carried out to provide data for Environmental Impact Assessment (EIA) or other Assessments) can be a useful guide to otter activity in an area, particularly if holts were recorded. However, surveys will always require to be updated if carried out more than 12 months prior to works commencing.

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Construction teams should be advised of existing / new constraints, together with mitigation and licensing requirements by the ecologist / ECoW.

Relevant site documentation and project information sources should be updated with new and amended information on otter constraints as it is produced, with changes communicated to appropriate staff immediately.

3.7 Mitigation Hierarchy

There is a general presumption against works being carried out which could disturb otters in their place of shelter or to destroy / exclude any holt. A hierarchical approach to mitigation of Avoidance - Disturbance - Destruction will be applied to any holt / place of shelter that may be affected (See Figure 1):

Avoidance

This is the preferred option for active holts / places of shelter identified within 30 m of works (100 m for high noise / vibration activities) or 200 m for confirmed breeding sites or. Protection zones of either 30 m, 100 m or 200 m should be marked and signed on the ground with appropriate material to restrict work access.

Protection zones must be maintained until works are completed. Site staff should be briefed of their purpose through a Toolbox Talk and works micro-sited outwith the protection zone. If otter disturbance can be avoided in this way, there is no need to obtain a Licence from SNH for the works.

Disturbance

For any works required within 30 m of active holts / places of shelter (or 200 m for confirmed breeding sites), and for high noise / vibration activities such as pile driving or blasting within 100 m of holts / places of shelter, a Licence from SNH will be required (either Individual or Project).

Individual Licence applications to SNH should be accompanied by a Protection Plan which outlines how disturbance will be minimised and holts protected, for example through screening of works and modifying protection zones.

If a Project Licence is in place, and a breeding holt will be disturbed, a Method Statement must be submitted to SNH for written approval in accordance with Part 2 of this document, prior to any works commencing.

Destruction

Destruction of holts / other places of shelter should only be undertaken as a last resort. For destruction of active holts / places of shelter a Licence will be required from SNH (either Individual or Project) Individual Licence applications to SNH should be accompanied by a Protection Plan which outlines how disturbance will be minimised and individuals protected.

The plan should include monitoring to ensure breeding is not taking place and provision for the creation of an artificial holt if required. Any holt / place of shelter subject to works under Licence will be monitored

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during and after those works. If a Project Licence is in place, a Method Statement must be submitted to SNH in accordance with Part 2 of this document for written approval prior to any works commencing.

3.8 Mitigation Measures

3.8.1 General Mitigation

1. All works close to waterbodies and watercourses showing signs of regular use by otters should not take place at night or within 2 hours of sunset / sunrise, if possible.
2. Where works close to waterbodies and watercourses are required at night, lighting should be directed away from riparian areas.
3. All works close to water courses and waterbodies must follow best practice measures to ensure their protection against pollution, silting and erosion.
4. Any temporarily exposed pipe system should be capped when staff are off site to prevent otters from gaining access.
5. All exposed trenches and holes should be provided with mammal exit ramps e.g. wooden planks or earth ramps when Contractors are off site.
6. An emergency procedure should be implemented by site workers if otter / otter shelters are unexpectedly encountered. All work within 30 m (100 m for high noise/vibration activities) or 200 m for breeding sites should cease until a suitably qualified and experienced ecologist has inspected the site and determined the appropriate course of action.
7. An exceptional circumstance procedure will be implemented should mitigation options not prove satisfactory in a particular case. Works will be halted whilst mitigation is determined (under consultation with SNH if required).

3.8.2 Monitoring and Reporting

8. The Environmental Representative will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to otter is delivered.
9. Reports will be submitted to SNH as required by the relevant Licence.

3.9 Licensing Requirements

Licence applications must be sent into SNH licensing team sufficiently in advance of the project start date (approximately 40 days) to ensure the licence is in place prior to any work commencing.

3.10 Project Licence

An SNH Project Licence is likely to be the most appropriate form of Licence for any large scale and / or long running Project, which may result in a large number of minor unavoidable otter offences.

For example, multiple instances of disturbance to a number of otter places of shelter over several years. A Project Licence can be used to standardise protected species mitigation / compensation, creating consistency

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across the project area and throughout the Project's lifespan. Project Licences do not negate the need for thorough pre-development surveys within 12 months of the planned project start date, and pre-construction surveys within 3 weeks of works commencing. Any Project Licence application will need to be accompanied by the Mitigation Plan and procedures for otter included in Parts 1 and 2 of this SPP

3.11 Individual Licence

For small scale Projects expected to be completed over relatively short timescales, which will result in a low number of unavoidable otter offences an Individual SNH Licence is most likely to be appropriate. Licence applications should be accompanied by a Method Statement and should be sent sufficiently in advance of the Project start date to ensure the licence is in place prior to work commencing.

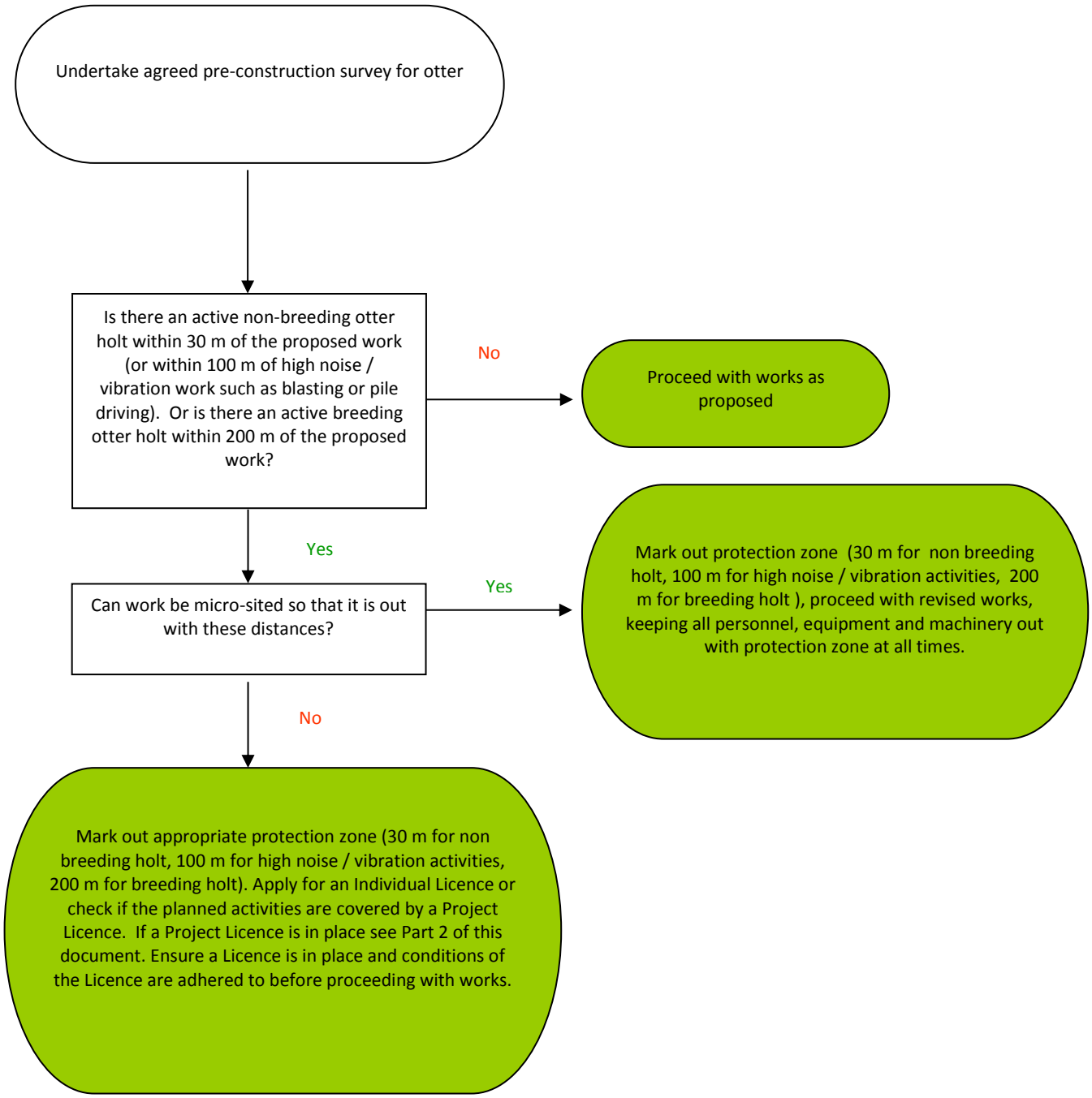
Further guidance and details of how to apply for an otter Licence can be found on the SNH website (https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing).

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Otter Mitigation Decision Tree



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4 Part 2: Project Licence Protection Plan

The following sections of this plan are to be read in conjunction with the Project Licence (insert Licence number) and its conditions.

As stated in the Project Licence, methodologies for certain mitigation activities permitted under the Licence are included in this Part of the SPP. More disruptive activities, listed in Section 1 below, will also require a specific Method Statement to be submitted to SNH licensing team for written approval (see Appendix A). It is the *Contractor*'s responsibility to submit these Method Statements to both SHE Transmission and SNH for written approval. No works shall proceed without this written approval.

Sufficient time should be allowed for in the programme to carry out any consultation work and obtain necessary approvals.

The Project Licence will specify reporting requirements detailing all disturbance and destruction works carried out.

4.1 Works Allowed under the Project Licence

Under the Project Licence there is a general presumption against works being carried out which could disturb otters in their place of shelter, or to destroy / exclude any holt unless it can clearly be demonstrated that either it is inactive (*i.e.* through monitoring) or that there is no alternative solution against Project timescales and requirements.

4.2 Activities requiring an SNH Approved Method Statement

The following activities require a formal Method Statement to be submitted and approved by SNH prior to any works commencing:

a. Destruction of a holt at any time of year.
b. Disturbance to a breeding holt at any time of year.
c. Any exceptional circumstances not covered in this SPP.

The Method Statement template in Appendix A has been developed in conjunction with SNH and should be used by the *Contractor / Named Agent* for all submissions.

Proposed mitigation works should be agreed with SNH.

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4.3 Activities not requiring additional SNH approval

The following works may be carried out under this SPP and / or specific Method Statements without the prior approval of SNH, using the prescribed methodologies:

4.3.1 Disturbance / Destruction of places of shelter at any time of year

The following methodology will be incorporated into a Site Specific Method Statement and issued prior to work commencing:

Disturbance to a non-breeding holt / place of shelter at any time of year

i. Appropriate monitoring will be undertaken to ensure the place of shelter is not being used for breeding.

ii. The Agent or their representative will check, prior to works each morning, that suitable access / egress between the holt / place of shelter and a watercourse is maintained. A check will also be made of the works area to check no otter is present within construction plant / materials.

iii. Works can commence once the Agent or their representative is satisfied that no otter is present within the works area.

iv. The Agent or their representative will set up a suitable protection zone as far from the holt/place of shelter as is reasonably practicable to prevent damage and minimise disturbance.

v. The Agent or their representative will monitor the works to ensure compliance with the licence conditions.

vi. The emergency procedure detailed will be implemented if an otter is found during works.

Destruction of a place of shelter at any time of year

i. Appropriate monitoring will be undertaken to ensure the place of shelter is not being used for breeding.

ii. The Agent or their representative will check to ensure that the place of shelter is not being used immediately prior to its destruction.

vii. If it can be determined that the place of shelter has not been used recently, no exclusion will be required prior to destruction.

viii. The Agent or their representative will monitor the destruction works to ensure compliance with the licence.

ix. The emergency procedure will be implemented if an otter is found during the works.

x. A report will be sent to SNH detailing the destruction works undertaken (in line with the reporting process outlined above).

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5 Revision History

No	Overview of Amendment and Text affected	Previous Document	Revision	Authorisation
01	Transfer to new template and Nomenclature	TG-PS-LT-709 (Rev 1.00)	1.00	Richard Baldwin
02	Updated links and replaced references to badger with otter. Other minor formatting issues corrected.	TG-NET-ENV-503 (Rev 1.00)	1.01	Richard Baldwin

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Appendix A Project Licence Method Statement Template

<PROJECT TITLE>

METHOD STATEMENT FOR WORKS UNDER *(insert licence details)*

<insert species record reference>

<insert date>

Introduction

This document, prepared on behalf of SHE Transmission provides a Method Statement for ***<insert details of works>*** to be completed under ***<insert licence details>***. These works are required in order to facilitate the delivery of the *<insert Project details>* (the Project).

Condition ***<insert No.>*** of the above Licence states that a ***<insert species>*** Protection Method Statement be submitted to Scottish Natural Heritage (SNH) licensing team for written approval, under specific circumstances, prior to commencement of works which could affect ***<insert species>***. Therefore, no works which would *<insert licensed activity>* ***<insert species>*** shall take place without written confirmation of SNH approval of this method statement.

This Method Statement makes reference to the following documents:

- ***<insert licence details>***, SNH
- Species Protection Plan (SPP): ***<insert SPP No. and title>*** Rev. X *<insert date>*

Further information is provided in Table 1: Summary of Data.

Licensable Works

Introduction

<Insert details>

Baseline Description

<Insert description, including photographs / location plan>

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Table 1: Summary of Data

Reference	Easting	Northing	Date recorded	Description	Date works exclusion zone demarcated & distance

Survey Summary

<Insert details>

Description of the Proposed Licensable Works

<Insert details>

Works Duration

<Insert details>

Consideration of Alternatives

<Insert details>

Impact Assessment

<Insert details>

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Method Statement Site Briefing (to be delivered to relevant staff prior to works)

Site: *<insert description>*

Reference number: *<insert species record reference>*

Client: SHE Transmission

Task: *<insert description of works>*

Prepared by: *<insert individual or Company name>*

Licensed Agent: *<insert name>*

Method statement for *<insert works description>*

Before works commence:

All relevant personnel will be made aware of the presence and location of the constraint and mitigation.

<insert details of methodology>

During works:

<insert details of methodology>

<Insert Contractor's name>

I, the undersigned, confirm receipt of this method statement and fully understand and agree to work to the conditions therein.

Signature of *Contractor's* Representative:..... Date ..../ /

Print name in full: .....

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TG-NET-ENV-504

Safety, Health and Environment

Red Squirrel Species Protection Plan



	Name	Title
Author	Francis Williams	Environmental Project Manager
Checked by	Alistair Watson	Environmental Advisor
Approved by	Richard Baldwin	Head of Environment

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1 Introduction

Red squirrel (*Scirius vulgaris*) is afforded a high level of protection in Scotland. This Protection Plan provides guidance and agreed procedures, for the protection of red squirrels and their shelters, during construction works on Scottish Hydro Electric Transmission (SHE Transmission) projects. The Plan contains two parts and details the procedures that must be followed where there is potential for red squirrel to be present (Part 1), and where a Project Licence for red squirrel has been issued by Scottish Natural Heritage (SNH) Licensing Team to cover the project (Part 2).

1.1 Part 1: General Protection Plan

This Part applies to all projects where red squirrel may be present. Part 1 outlines the responsibilities of SHE Transmission and the Contractor regarding protection of red squirrel. It also details relevant legislation, survey requirements, general mitigation measures and the requirement for licensing.

1.2 Part 2: Project Licence Protection Plan

This Part is provided to Contractors in addition to Part 1, for large projects where a Project Licence has been issued by SNH to cover the work, and identifies those activities and protection / mitigation measures which are permitted under the Project Licence and those activities which require an additional Method Statement to be submitted to SNH Licensing Team for written approval before works can commence. This Part should be followed in conjunction with Part 1 and the relevant Project Licence, to provide approved guidance and methodologies for carrying out work.

2 References

The documents detailed in Table 2.1 – Miscellaneous Documents below, should be used in conjunction with thius document

Table 2.1- Miscellaneous Documents

Title
Wildlife and Countryside Act 1981 (as amended)
The Nature Conservation (Scotland) Act 2004
Wildlife and Natural Environment (WANE) [Scotland] Act 2011
https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide

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3 Part 1: General Protection Plan

3.1 Background

Red squirrels are rodents with a widespread distribution in Scotland, although as they are predominately woodland animals they are largely absent from the Scottish islands (with the exception of Arran) and the far North West. They are currently under pressure, particularly in southern areas, due to a number of factors including competition from the non-native grey squirrel (*Scirius carolinensis*), disease (squirrel pox virus – SQPV), and habitat loss and fragmentation. Grey squirrels are not protected by law, and it is an offence to release them into the wild if caught.

Red squirrels are largely solitary, not strictly territorial, and generally arboreal, spending up to 70% of the time in the tree canopy. Densities generally vary from 1 per hectare, to 1 per 10 hectares of suitable habitat. They obtain most of their food from seeds or fruits from trees, although they are opportunistic. They build dense spherical nest structures called dreys, which are generally about 30cm in diameter and consist of an outer layer of twigs often with leaves still attached with an inner layer of softer materials such as moss and/or leaves. Dreys tend to be in the forks or against the trunks of trees such as spruce (*Picea abies*), Scots pine (*Pinus sylvestris*) or oak (*Quercus* spp.). Squirrels can also use holes in trees, nest boxes and other cavities as dreys. Several dreys may be in used at the same time, and it can take less than a day for a new drey to be built.

Red squirrels have two peak breeding seasons, the first litters being born between February and April with a second litter from May to August. The exact timing is however dependent on food availability and weather. In winter red squirrels do not hibernate, but are less active particularly in bad weather (high winds, heavy rain and cold). In summer, they have two periods of peak activity; one in the early morning and one in the evening, whereas in winter this shifts to one main activity peak earlier in the day.

Signs of red squirrel:

- Feeding signs – stripped cones or cleanly split nuts often in piles on tree stumps.
- Squirrel prints and tracks – characteristic squirrel tracks show the hind feet (with five toes) in front of the forefeet (four toes), in hops of less than 1 meter. Hind feet are 35mm wide and 40mm long.
- Squirrel shelters - dreys

It is not possible to distinguish between field signs of red and grey squirrels in the field therefore visual surveys, cameras and/or hair tubes (with appropriate biosecurity measures in place), may be required in areas where the two species are present. Red squirrels can vary in colour and there can be confusion with grey squirrels; adult grey squirrels are much larger and lack ear tufts.

3.2 Responsibilities

It is the *Contractor's* responsibility to comply with all the requirements of this Species Protection Plan where red squirrel may be present, and it is both the *Contractor's* and SHE Transmission's responsibility to monitor compliance with this Species Protection Plan. The responsibility for applying for any licence, including a

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project wide licence, may vary from project to project, but all applications and mitigation works will adhere to this plan.

3.3 Legislation

Red squirrel is afforded full protection under Schedule 5 of the Wildlife and Countryside Act 1981, (as amended), most recently by the Wildlife and Natural Environment (WANE) [Scotland] Act 2011. This makes it an offence to kill, injure or take a red squirrel or to intentionally or recklessly[1] damage, destroy or obstruct access to any place used for shelter or for breeding. Disturbance to this species in its drey also constitutes an offence.

SNH can grant licences to enable certain activities that would otherwise be an offence, to be carried out in relation to red squirrels and their dreys, subject to the following:

a) That undertaking the conduct authorised by the licence will give rise to, or contribute towards the achievement of, a significant social, economic or environmental benefit; and

b) That there is no other satisfactory solution.

In granting a licence SNH has to take into account the consequences for red squirrels at a local population level, to assist this assessment SNH will need to see maps of the area of operations and also surrounding areas of suitable red squirrel habitat.

3.4 Surveying for Red Squirrel

1. Surveys for red squirrel must be undertaken in all works areas containing suitable red squirrel habitat, a maximum of 12 months[2] prior to works commencing, (this includes site investigations). As squirrels can rapidly build new dreys, pre-felling surveys a maximum of 3 weeks prior to works commencing, must also be undertaken to ensure the availability of up-to-date information on squirrel drey locations.
2. Surveys must extend for a minimum of 50 m beyond working areas, including access tracks.
3. All drey trees must be marked to permit easy identification.
4. All dreys found must be assumed to be red squirrel, unless definitive evidence exists that they are grey squirrel only.
5. Surveys must be carried out by suitably qualified and experienced Ecologists and must identify whether any squirrel dreys are likely to be affected by the works.

If works during the breeding season (February to September inclusive) cannot be avoided, and dreys may be disturbed by works, it may also be important to establish if dreys are being used for breeding. The non-

[1] Reckless acts would include disregard of mitigation aimed at protecting red squirrels, resulting in killing, injuring and/or disturbance of any red squirrel or red squirrel resting place.
[2] Note: Information from any previous surveys (e.g. surveys carried out to provide data for EIA or other Assessments) can be a useful guide to red squirrel activity in an area, particularly if dreys were recorded. However, surveys will always require to be updated if carried out more than 12 months prior to works commencing. Pre-felling surveys a maximum of 3 weeks prior to works are recommended.

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invasive method must be used in the first instance: Visual observation and camera surveillance from the ground, for a period of three days used to establish if the drey is in regular use. If regular use is established the drey must be assumed to be being used for breeding purposes. Where this type of drey monitoring is not practical for example in situations of poor visibility it is recognised that more invasive methods may be required, if this situation arises SNH licensing team must be contacted for advice on whether a survey licence will be required: licensing@snh.gov.uk.

3.5 Review of Red Squirrel Survey

Once a red squirrel survey has been carried out, the Ecologist / Ecological Clerk of Works (ECoW) must review the survey results, apply the mitigation hierarchy outlined below and decide if a licence is required from SNH (either Individual or Project) for the works.

If required, licences (individual or project), must be obtained by SNH prior to any works commencing.

Construction teams should be advised of existing / new constraints, together with mitigation / compensation, and licensing requirements by the Ecologist / ECoW.

Relevant site documentation and project information sources should be updated with new and amended information on red squirrel constraints as it is produced, with changes communicated to appropriate staff immediately.

3.6 Mitigation Hierarchy

There should be a general presumption against works being carried out which will disturb red squirrels in their drey, or which will require the destruction of any red squirrel drey. A hierarchical approach to minimise the works impact on red squirrel should be established as follows:

Avoidance

This is the preferred option. Appropriately sized protection zones must be marked and signed on the ground by the Ecologist / ECoW, with appropriate material, around all squirrel dreys identified during the pre-works surveys. The breeding season (February to September inclusive) is the most sensitive time for disturbance, during this time a 50m radius protection zone must be established around all squirrel dreys. Out with the breeding season, a protection zone of one tree from the drey tree (or 5 metres radius - whichever is lesser) must be established. For high noise / vibration activities (pile driving or blasting) a 100m radius protection zone around drey trees must be established at any time of year.

All works personnel, machinery, vehicles and storage of materials must be restricted from entering protection zones. Protection zones must be maintained until all works are completed. Site staff must be briefed of their purpose through a Toolbox Talk by the Ecologist / ECoW. If red squirrel disturbance can be avoided in this way, there is no need to obtain a licence from SNH for the works.

Disturbance

If works within protection zones boundaries cannot be avoided, a Licence for disturbance from SNH will be required. For small scale projects the licence may be specific to the site, for larger scale works a Project Licence may be appropriate.

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Individual licence applications for disturbance must be accompanied by a Mitigation Plan which outlines how the disturbance will be minimised, and dreys protected from damage, for example through screening of works and modifying protection zones.

If a Project Licence is in place, and a drey being used in the breeding season will be disturbed, a Method Statement must be submitted to SNH for written approval in accordance with Part 2 of this document, prior to any works commencing. The Method Statement must state how works will be carried out in a way which ensures no abandonment of young.

Destruction

Destruction of dreys must only be undertaken as a last resort and requires a Licence from SNH. Individual Licence applications to SNH must be accompanied by a Mitigation / Compensation Plan which outlines how disturbance will be minimised and individual squirrels protected from injury, and may include provision for the creation of an artificial drey if appropriate. If destruction of a drey during the breeding season is required, the plan should include details of non-invasive monitoring which will take place to ensure breeding is not taking place prior to any drey destruction.

Any drey subject to works under Licence must be monitored during and after those works.

3.7 Mitigation Measures

3.7.1 General Mitigation

1. An emergency procedure will be implemented by site workers if squirrel dreys are encountered. All work within 5 m (non-breeding season) or 50 m (breeding season) will cease, and the ECoW will inspect the site and define mitigation (if required) in line with this SPP.
2. An exceptional circumstance procedure will be implemented should mitigation options not prove satisfactory in a particular case. Works will be halted whilst mitigation is determined (under consultation with SNH Licensing Team if required).

3.7.2 Monitoring and Reporting

3. The Ecologist / ECoW will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to red squirrel is delivered.
4. Reports will be submitted to SNH as required by the relevant Licence.

3.8 Licensing Requirements

Licence applications must be sent into SNH licensing team sufficiently in advance of the project start date (approximately 40 days) to ensure the licence is in place prior to any work commencing.

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3.9 Project Licence

An SNH Project Licence is likely to be the most appropriate form of licence for any large scale and / or long running project, in red squirrel areas. For example, where multiple instances of disturbance to a number of red squirrel dreys is anticipated over several months / years. A Project Licence can be used to standardise protected species mitigation / compensation, creating consistency across the project area and throughout the Project's lifespan. Project Licences do not negate the need for thorough pre-construction survey within 12 months and three weeks of the planned project start date.

Any Project Licence application will need to be accompanied by a red squirrel survey carried out within 12 months of the proposed works start date, and procedures for red squirrel included in Parts 1 and 2 of this SPP.

3.10 Individual Licence

For small scale projects expected to be completed over relatively short timescales, which will result in a low number of unavoidable red squirrel offences an Individual SNH Licence is most likely to be appropriate. All licence applications must be accompanied by a red squirrel survey carried out within 12 months of the proposed works start date, and a mitigation / compensation plan.

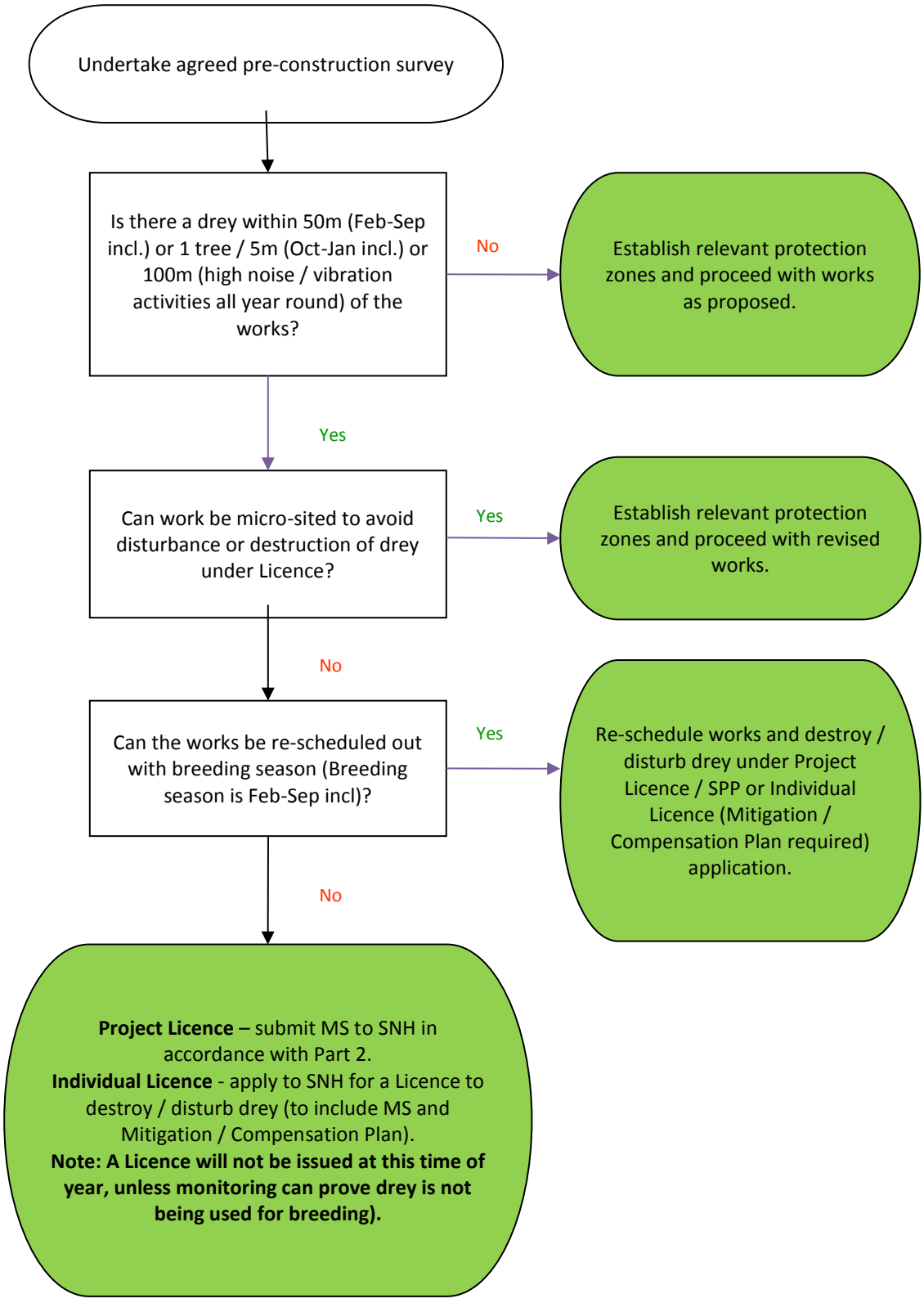
Further guidance and details of how to apply for a red squirrel Licence can be found on the SNH website https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide/red-squirrels-and-licensing.

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Red Squirrel Mitigation Decision Tree



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4 Part 2: Project Licence Protection Plan

The following sections of this plan are to be read in conjunction with the Project Licence (insert Licence number) and its conditions.

Mitigation activities permitted under Project Licence are included in this Part of the SPP (section A). More disruptive activities, listed in Section B below, will require a specific Method Statement to be submitted to SNH Licensing Team for approval, prior to works commencing (see Appendix A). It is the *Contractor*'s responsibility to submit these Method Statements to both SHE Transmission and SNH for written approval. No works shall proceed without this written approval.

Sufficient time should be allowed for in the programme to carry out any consultation work and obtain necessary approvals.

The Project Licence will specify reporting requirements detailing all disturbance and destruction works carried out.

In advance of, and during construction at any location where there is the potential for red squirrel to be present, it is **essential** that this plan is followed.

4.1 Works Allowed under this SSP

The following works may be carried out under this SPP without further approval from SNH, using the prescribed methodologies:

1. **Disturbance to red squirrel dreys out with the breeding season (October to January inclusive)**

   Red squirrel dreys must not be damaged or destroyed, but protected from potential damage by setting up a modified protection zone (size determined by the site Ecologist / ECoW). Protection zones must be clearly marked on the ground and signed, and must exclude all works personnel, machinery, vehicle and storage. The protection zone must be maintained until all works are finished.

   A licence return must be sent to SNH licensing team detailing all disturbance works under the Project Licence.

2. **Destruction of red squirrel dreys out with the breeding season (October to January inclusive)**

   Destruction of squirrel dreys must only be undertaken as a last resort. Prior to a drey being destroyed, the Ecologist / ECoW must satisfy themselves that no squirrel is present within the structure. Dreys must be destroyed in a controlled manner to ensure no injury or killing of animals. All works must be overseen by an experienced Ecologist / ECoW.

   A licence return must be sent to SNH Licensing team detailing all drey destruction works carried out under the Survey Licence.

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4.2 Activities requiring an SNH Approved Method Statement

The following activities require a formal Method Statement to be submitted and approved in writing by SNH licensing team prior to any works commencing:

a. Disturbance or destruction of a drey during the breeding season.
b. Any exceptional circumstances not covered in this SPP.

The Method Statement template in Appendix A has been developed in conjunction with SNH and should be used by the *Contractor / Named Agent* for all submissions. The methodology used should be based on the following:

A. Destruction or disturbance to a drey within the breeding season (February to September inclusive)

a. There must be a presumption against disturbance or destruction of a squirrel drey during the breeding season, if unavoidable this work requires that a detailed Method Statement is agreed in writing with SNH Licensing Team prior to works commencing.

b. Non-invasive survey methods must be used to establish if the drey is in regular use. An experienced and qualified Ecologist / ECoW must use visual observation and video surveillance from the ground for a period of three days of daytime observations, to establish if the squirrel drey is in regular use. If the drey is in regular use it must be assumed that it is being used for breeding purposes.

c. If the survey establishes that there is no regular use by squirrel, destruction of the shelter can be carried out as for during the non-breeding season.

d. Dreys being used for breeding must not be destroyed or disturbed and no works carried out within 50 m of the structure, until the site Ecologist / ECoW has confirmed that dependent young are no longer present. The young begin leaving the drey at *c.* 7 weeks and are weaned at 8-10 weeks old.

e. Once completion of breeding has been confirmed through monitoring, and the site Ecologist / ECoW has satisfied themselves that no squirrel are present within the structure, the drey can be destroyed in a controlled manner to ensure no injury or killing of animals.

f. A licence return must be sent to SNH Licensing team detailing all drey destruction works carried out under the Project Licence.

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4.3 SNH Survey Licence

The Ecologist / ECoW must obtain a survey licence from SNH licensing team prior to using the following invasive survey methods:

a. Where squirrel dreys are not clearly visible from the ground, and the Ecologist / ECoW needs to establish whether they are being used for breeding (i.e. non-invasive methods as described above cannot be used), camera traps mounted on adjacent trees may be employed (under survey licence from SNH) as an alternative in suitable weather conditions. Camera survey must be carried out for at least three consecutive days. The ECoW / Ecologist must be confident that this method is appropriate for detecting use at the given location.

b. Where the above survey methods are inappropriate, inspection of squirrel dreys may be undertaken by tree climbing or cherry picker and endoscopic inspection (under survey Licence from SNH) to confirm the presence/absence of young squirrels.

5 Revision History

No	Overview of Amendment and Text affected	Previous Document	Revision	Authorisation
01	Transfer to new template and Nomenclature	TG-PS-LT-710 (Rev 1.00)	1.00	Richard Baldwin
02	Author change, typos corrected and web links updated	TG-NET-ENV-504 (Rev 1.00)	1.01	Richard Baldwin

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Appendix A Project Licence Method Statement Template

<PROJECT TITLE>

METHOD STATEMENT FOR WORKS UNDER *(insert licence details)*

<insert species record reference>

<insert date>

Introduction

This document, prepared on behalf of SHE Transmission provides a Method Statement for ***<insert details of works>*** to be completed under ***<insert licence details>***. These works are required in order to facilitate the delivery of the *<insert Project details>* (the Project).

Condition ***<insert No.>*** of the above Licence states that a ***<insert species>*** Protection Method Statement be submitted to Scottish Natural Heritage (SNH) licensing team for written approval, under specific circumstances, prior to commencement of works which could affect ***<insert species>***. Therefore, no works which would *<insert licensed activity>* ***<insert species>*** shall take place without written confirmation of SNH approval of this method statement.

This Method Statement makes reference to the following documents:

- ***<insert licence details>***, SNH
- Species Protection Plan (SPP): ***<insert SPP No. and title>*** Rev. X *<insert date>*

Further information is provided in Table 1: Summary of Data.

Licensable Works

Introduction

<Insert details>

Baseline Description

<Insert description, including photographs / location plan>

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Table 1: Summary of Data

Reference	Easting	Northing	Date recorded	Description	Date works exclusion zone demarcated & distance

Survey Summary

<Insert details>

Description of the Proposed Licensable Works

<Insert details>

Works Duration

<Insert details>

Consideration of Alternatives

<Insert details>

Impact Assessment

<Insert details>

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Method Statement Site Briefing (to be delivered to relevant staff prior to works)

Site: *<insert description>*

Reference number: *<insert species record reference>*

Client: SHE Transmission

Task: *<insert description of works>*

Prepared by: *<insert individual or Company name>*

Licensed Agent: *<insert name>*

Method statement for *<insert works description>*

Before works commence:

All relevant personnel will be made aware of the presence and location of the constraint and mitigation.

<insert details of methodology>

During works:

<insert details of methodology>

<Insert Contractor's name>

I, the undersigned, confirm receipt of this method statement and fully understand and agree to work to the conditions therein.

Signature of *Contractor's* Representative:..... Date .... / /

Print name in full: .....

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TG-NET-ENV-505

Safety, Health and Environment

Bird Species Protection Plan



	Name	Title
Author	Francis Williams	Environmental Project Manager
Checked by	Alistair Watson	Environmental Advisor
Approved by	Richard Baldwin	Head of Environment

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1 Introduction

Construction works have the potential to negatively impact on breeding birds as a result of either direct destruction of nests or disturbance which may result in breeding failure. In addition, some particularly sensitive species are liable to disturbance outwith the breeding season.

This Species Protection Plan (SPP) outlines the procedures that must be followed where there is a potential for breeding birds to be affected. It explains the responsibilities of Scottish Hydro Electric Transmission (SHE Transmission) and its Contractors, the legislative protection for birds, and the measures required to minimise impacts on birds and thereby the risk of criminal offences being committed.

2 References

The documents detailed in Table 2.1 – Miscellaneous Documents below, should be used in conjunction with thius document

Table 2.1- Miscellaneous Documents

Title
Wildlife and Countryside Act 1981 (as amended)
The Nature Conservation (Scotland) Act 2004.
https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide/birds-and-licensing

3 Responsibilities

It is the Contractor's responsibility to comply with all the requirements of this plan and it is both the Contractor's and SHE Transmission's responsibility to monitor compliance with the plan.

4 Legislation

All wild birds

All wild birds are protected by law under the Wildlife and Countryside Act (WCA) 1981 (as amended). Recent and significant changes have been made to the protection of wild birds in Scotland by The Nature Conservation (Scotland) Act 2004.

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It is an offence to intentionally or recklessly[1]:

- kill or injure any wild bird;
- capture or keep [alive or dead] any wild bird;
- destroy or take the egg of any wild bird;
- sell or advertise for sale any wild bird or its eggs;
- destroy, damage, interfere with, take or obstruct the use of the nest of any wild bird while it is in use or being built.

Schedule 1 birds

Additional protection is given to rare breeding birds listed under Schedule 1 of the WCA. It is an offence to intentionally or recklessly;

- Disturb any Schedule 1 species while they are nest building, or at a nest containing eggs or young;
- Disturb the dependent young of such birds.

Also with specific reference to capercaillie the Act makes it an offence to:

- Intentionally or recklessly disturb capercaillie at lekking sites.

Schedule 1A and A1 birds

Further protection is given to birds listed on Schedule 1A and A1 of the Act, making it an offence **at any time of year** to:

- Harass a white-tailed eagle, golden eagle, hen harrier and red kite (1A); and
- Damage a nest of a white-tailed eagle or golden eagle (A1).

At present, it is not possible to obtain a derogation to disturb Schedule 1 breeding birds or destroy nests of any wild breeding birds for the purposes of development. However, the control of certain species is licensable in a restricted number of circumstances such as for reasons of public health and safety. A licensing system is also in place for surveying protected species if a disturbance offence is possible.

Further advice is available on the Scottish National Heritage (SNH) website: https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide/birds-and-licensing.

1 Reckless acts would include disregard of mitigation aimed at protecting birds, resulting in killing, injury, and/or disturbance of birds or their nests.

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5 Protection Plan

In advance of construction at any location where breeding birds may be present, it is **essential** that this plan is followed.

5.1 Pre-construction/dismantling surveys and data collation

1. Pre-construction / dismantling surveys for breeding birds will be completed a maximum of 12 months prior to start of any works in a particular area, and at an appropriate time of year, to ensure availability of up-to-date information to inform any mitigation measures required.
2. Surveys will be carried out by suitably experienced ecologists / ornithologists using methods agreed with SNH under Survey Licences where required.
3. Pre-construction / dismantling surveys will:
    - include up to 1000 m either side of Limits of Deviation (LOD's) / boundaries for substation construction areas and access tracks; and
    - be undertaken in accordance with SNH's Guidance on Assessing the Impact of Overhead Power Line Proposals on Birds for overhead lines.
4. Relevant local recorders/field workers, e.g. raptor workers, will be contacted at the pre-construction phase for recent records of sensitive species that might be affected.

5.2 Review of works and impact assessment

1. The Ecological Clerk of Works (ECoW) will review whether construction activities are likely to affect breeding birds and, if so, what mitigation options are available. A hierarchical approach to mitigation will be applied to any occupied bird habitat that may be affected under the Project works, as detailed in the "General mitigation" section below. Priority will be given to assessing and mitigating impacts to species listed on Schedule 1.
2. Construction teams will be advised of existing / new constraints together with mitigation options by the ECoW.
3. Project Geo-databases and / or relevant site documentation, e.g. Environmental Management Plans (EMP's), will be updated with new and amended information as it is produced, with changes communicated to appropriate staff as required.

5.3 General Mitigation

1. This SPP is designed to provide the Contractor and Ecological Clerk of Works (ECoW) with an approved methodology for protecting breeding birds.

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2. The ECoW will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to breeding birds is delivered.
3. A hierarchical approach to mitigation of Programme / Avoid / Risk Assess will be applied to any birds that may be affected under the Project works.
    - Where practicable, works will be programmed outwith breeding season see https://www.nature.scot/bird-breeding-season-dates-scotland for information on breeding seasons for areas likely to contain numerous breeding sites (e.g. forestry areas).
    - For key specially protected or sensitive species, appropriate protection zones (see table in Appendix A) will be established upon confirmation of nest building / breeding taking place. Protection zones will also be set out by a suitably qualified ECoW for all breeding birds and those species whose roost sites are also protected i.e. red kite and hen harrier. No works will be carried out within these zones whilst birds are:
        1. building or using their nest,
        2. still dependent on the nest site, or
        3. present at roost sites. The ECoW will advise when it is safe for works to be carried out.
    - During the breeding season (or whilst birds are roosting at other times of year) where programme critical works must be carried out within the protection zones, the ECoW will carry out a Protected Species Risk Assessment (Appendix B) to assess whether disturbance can be avoided during the works. Considerations will include the species involved, local topography, natural screening, type of works and existing levels of human activity, e.g. farming, forestry and habitation.
4. The protection zone may then be reduced if it can be demonstrated, and agreed by a Specialist Adviser and / or SNH as required, that works will not cause disturbance.
5. Monitoring will be undertaken by the ECoW or Specialist Adviser, where appropriate, to ensure no disturbance is caused.
6. An emergency procedure will be implemented by site workers if breeding birds are encountered. All work within 50 m (non-scheduled species) or the relevant maximum protection distance for species listed in Appendix A will immediately cease, and the ECoW will inspect the site and define any mitigation in line with this SPP.
7. In exceptional cases, standard mitigation measures (as outlined above) may be insufficient. In such scenarios, mitigation will be determined on a case- specific basis. No construction works would be undertaken within the protection zone until mitigation has been agreed (in consultation with SNH if required).

5.4 Specific Mitigation

1. Dissuasion Techniques

Dissuasion techniques may be used to make areas less attractive to nesting birds or birds returning back to a previous nesting location (dissuasion will not be carried out where there is potential to harass Schedule 1A

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species, or interfere with / damage a Schedule A1 nest). Dissuasion may include felling of trees / clearance of scrub prior to the breeding season commencing or placement of bird scarers / frightening devices.

Should any bird nesting attempts be found within the footprint of construction, an appropriate protection zone will be marked around the nest. A suitably qualified ecologist will then ensure that works do not affect any nest, bird, eggs or young at this location, through micro-siting or re-programming of works as per the general mitigation outlined in this SPP.

Habitat management

a) Scrub clearance / felling / strimming may be used to discourage birds nesting prior to the start of the breeding season in suitable areas. This method has a dual purpose in also in dissuading reptiles / small mammals. For strimming a sward is cut to a height of 2-5cm depending upon vegetation type and ground conditions and this can be achieved by hand strimmers or mechanical means depending upon the ground conditions. The advantage of this method is that the vegetation can be cleared in advance of the works and in slow growing areas, i.e. heath, there is a potential for the site to remain free of constraints for a longer period of time. The ECoW will advise on the potential for other ground nesting species to occupy these areas; in such instances, scaring may be appropriate in conjunction with the management of sward height.

b) Clearance of habitat will be undertaken outwith the breeding season; scarers will be placed no later than 10 days before construction commences. Weekly walkover checks by a suitably licenced and experienced ecologist shall then be undertaken to ensure that the mitigation measures are being effective.

Active dissuasion / disturbance

a) At sites where there will be a high level of human activity, noise and possible vibration from construction activities this should dissuade some nesting activities; and

b) Areas identified to be at risk of nesting birds will be identified and disturbance levels at these locations will be increased. Sites will be visited regularly to dissuade birds from nesting (this may include tower climbing on overhead line projects).

c) Several types of bird scarer/ frightening device can be used, and are detailed below. The use of each should be determined by the ECoW.

d) Hawkeyes are probably the most effective of the bird scarers that have been used on the previous projects. A small number of these have been effective in deterring birds from nesting within construction areas. These will be deployed prior to the start of the breeding season and moved around the compound to stop the birds becoming accustomed to them.

e) Ticker tape can be used in more sheltered areas and can work well however they can be difficult to attach to poles/canes and work best on fencing such as that for the compounds.

f) Scarecrows can be constructed using old PPE and are a cheap way to supplement the Hawkeyes.

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g) Once deployed, scarers will be kept on site for a period sufficient to minimize the risk of birds settling on site during the works.

h) As construction commences, suitable nesting sites within the construction footprint will normally be reduced. The frequency of ongoing checks will then be decided by the ECoW on a site by site basis.

2. Removing Disused Bird Nests

The objective of this mitigation is to provide specific guidelines for the protection of birds and their nesting places before and during construction works, but also to facilitate the removal of old or disused nests where required for construction or maintenance works, such as:

a) in substations where birds have nested on equipment causing a fire risk;

b) in order to allow dismantling of redundant towers; or

c) where the presence of a nest interferes with construction, maintenance or upgrading of overhead transmission lines.

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Not specially protected birds

a) It is an offence to remove any birds nest while it is being built or in use and it is an offence to take, destroy or possess the egg of a wild bird.

b) If a bird nest is to be removed, then it must be shown to be disused.

c) Before a nest of any species is removed, where there is any doubt as to whether the nest is in use or not, it will be monitored by the ECoW over a period of a week. Direct observations of nests will be made on the 1st, 3rd and 5th days as well as monitoring from suitable vantage points and where necessary with camera traps. The nest will be removed only when there is clear evidence that the nest is disused and no eggs are present.

d) Should eggs be found, the nest will not be moved until a licence has been obtained from SNH for the taking of the eggs.

Schedule 1 species

a) For white-tailed eagle and golden eagle (Schedule A1) it is an offence to remove or damage a nest at any time, regardless of whether it is currently in use.

b) The disused nests of any other Schedule 1 or Schedule A1 species needing to be removed will be subject to an assessment and agreed with SNH. The assessment will detail the needs case for removal, bird species involved, monitoring, information about the nest and clarification of whether it is in habitual use, habitat and any further nests within the area associated with that bird. Nest monitoring will be undertaken by a suitably licensed and experienced ecologist and / or Specialist Adviser.

6 Revision History

No	Overview of Amendment and Text affected	Previous Document	Revision	Authorisation
01	Transfer to new template and Nomenclature	TG-PS-LT-718 (Rev 1.00)	1.00	Richard Baldwin
02	Weblinks updated	TG-NET-ENV-505 (Rev 1.00)	1.01	Richard Baldwin

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Appendix A Summary Guidance on Species Specific Disturbance Distances

Note: the protection zone distances given here are indicative - specific distances will vary depending on individual sites and will require expert advice informed by information provided in Ruddock & Whitfield (2007).

Table 2

Species	Min-Max Protection Zone (m) (3,10,14)	Indicative Protection Zone dates	Notes
Black grouse	300 - 500	March – May (2)	Males lek mainly around dawn and dusk and therefore the presence of a lek would not necessarily represent a constraint. In terms of disturbance, avoid the two hours after sunrise and two hours before sunset.
Barn owl	50 - 100	Mid Feb - June (1) (see notes)	The period of mid Feb-June has been given to emphasise the fact that Barn Owls can begin nesting earlier than many other species and if eggs were laid in mid to late March the young would have left the nest by the end of June. Where barn owls are nesting in sites with a relatively high current level of human disturbance it may be possible to reduce the offset distance further.
Black-throated diver	500 - 750	April – Sept (see notes) (1)	This nesting season is slightly longer than that given in Currie and Elliott (1997) and includes the pre-egg-laying period when the birds arrive at the breeding lochs in April. Note that adults often remain at the lochs until September (some young may not fledge until September) and can arrive in March (2,4).
Capercaillie	500 – 750	March - August (1)	Capercaillie lekking takes place sporadically from January onwards increasing into late winter and peaking in spring. Males lek mainly around dawn and dusk and therefore the presence of a lek would not necessarily represent a constraint. In terms of disturbance, between the times of two hours after sunrise and two hours before sunset are best avoided. Eggs are laid usually from mid-April to early May and young fledge by mid-June to late July (1,4).
Crested tit	50 - 100	April - mid July (3)	The nesting period for this species is variable, being affected by factors such as spring temperatures, altitude and incidence of second broods (although these are rare in Scotland). The period given allows for this variability but generally chicks will have fledged by early June (1, 2, 4, 6).
Common crossbill	100 - 150	Feb - May (3)	It should be noted that this represents a typical peak nesting period but that the species can effectively nest all year round depending on the abundance of cone crops.
Scottish crossbill	100 - 150	Feb - May (1), (3)	The breeding season can occasionally be later than this with eggs recorded into June which could mean young not leaving the nest until early August, assuming a late June laying date and an incubation and fledging period of 13 days and 21 days respectively (1). Typically, however young would have fledged before the end of June (1 & 4).
Golden Eagle	750 - 1000	All year round	Golden eagles are present in their breeding territories all year round. Nest building takes place from autumn to late winter with mating occurring between January and April (mainly March). For non-breeding roosts the buffer should be maintained as a minimum 2 hours before and 2 hours after sunset and sunrise respectively to avoid disturbance.
Goldeneye	100 - 300	April - July (2)	The young of goldeneye leave the nest soon after hatching (in May) and are taken to the water by the female. They can often be taken a considerable distance from the nest site to the rearing area by the female (1, 2, 4).

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Species	Min-Max Protection Zone (m) (3,10,14)	Indicative Protection Zone dates	Notes
Goshawk	300 - 500	April-July (1), (3) (see notes)	This does not include the pre-egg-laying period with birds occupying their territories from March. Most young fledge in July and are independent at about 70 days (approximately one month after fledging) (1, 4).
Greenshank	300 - 400	April-July	Eggs are laid from late April to late May with the average around mid-May in Scotland. Incubation period is around 24 days and chicks fledge at between 25 and 31 days old (7).
Golden Plover	200 - 400	April - July (1)	In Northern Scotland, the first eggs are laid from mid-April but up to 2-3 weeks later. .
Hen Harrier	500 - 750	All year round (1), (8) (see notes)	The species is not fully migratory in Scotland and birds can be seen on breeding grounds in almost any month, although generally the return is in March. The first egg is usually laid between late April and mid-May but sometimes earlier. Early failures can see the replacement clutch not complete until mid-June. Non-breeding roosts are important in pair formation and the 750 m buffer should be maintained as a minimum 1 hour before and 1 hour after sunset and sunrise respectively to avoid disturbance. Sudden noisy works should also be avoided at these times.
Honey Buzzard	500 - 600	Mid May-Sept (1), (4)	Birds usually arrive on breeding grounds in mid- to late-May. Eggs are laid in June to July with incubation lasting up to 37 days and the fledging period 40-44 days, meaning young usually fledge in September. Young return to the nest for food until they are about 55 days old and become independent from 75-100 days (1, 4).
Kingfisher	50 - 100	April - July (1) (see notes)	The breeding season of kingfisher is prolonged by multiple broods (normally 1-2 in Britain). Incubation is 19-21 days and the fledging period 23-27 days with young independent within a few days (1).
Merlin	300 - 500	April - July (1)	Adults return to breeding sites in April (but sometimes earlier) with peak egg laying late May to early June in Scotland. Incubation is 28-32 days and fledging period 25-27 days, becoming independent two to four weeks later. This means young birds will often still be dependent on their parents for food in August (1, 10).
Osprey	500 - 750	March - August (2)	Birds arrive at the nest site in late March/early April with eggs typically laid from mid-April to mid-May, although they can be laid in early April. Incubation takes five to six weeks (35-43 days) and fledging 50-55 days, young being dependent for a further 10-20 days at least. Early nesters would therefore fledge in July with later birds fledging in August with young possibly still being dependent in early September (1,11,12).
Peregrine	500 - 750	March - June (1) (2)	Return to breeding areas in March to early May. Eggs are laid from mid-March to May. Incubation is 29-32 days per egg (clutch size 3-4 with an interval of 2-3 days between laying but hatching nearly synchronous) and fledging period is 35-42 days with young being dependent for at least two months. Late nesters could therefore fledge in July and still be dependent on their parents for food into September whereas early nesters could have fledged young in May (1,10).
Red Kite	150 - 300	March - August (1) (2) (9) See notes	Most British birds return to their breeding sites in March and lay during the first three weeks of April (Scottish birds on average towards the end of this period) but there is considerable variation with laying possible between late March and early May. Incubation is 31-32 days and fledging period is around eight weeks. Newly fledged young are dependent on their parents for several weeks and remain close to the nest. Late attempts could see young fledged in early August and not become dependent until early September (9). For non-breeding roosts the 300 m buffer should be maintained as a minimum 2 hours before and 2 hours after sunset and sunrise respectively to avoid disturbance.

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Species	Min-Max Protection Zone (m) (3,10,14)	Indicative Protection Zone dates	Notes
Red-backed Shrike	150	May - mid July (1)	Post fledging dependence is long in this species with young being dependent on parents for about 40 days (1).
Red-throated Diver	500 - 750	Apr - Aug (1) (2)	Birds usually return to their breeding lochs in April with peak egg laying from late May to early June (occasionally later). Incubation lasts around 27 days and fledging occurs after 34-48 days meaning most young fledge in August but occasionally into September. Pre-fledging movement of chicks to other nearby lochs occasionally occurs (1,2,4).
Redwing	50 - 100	Late April - August (1) (2) (4)	This species has a long nesting season due to the fact that it commonly has two broods in a year. Eggs are laid from early May to mid-July (occasionally earlier). Incubation is for 12-13 days and fledging takes around ten days with young dependent for a further two weeks. Young are usually fledged by early August (1, 4).
Short-eared owl	300 - 500	March - July (1) (2)	Eggs are laid from mid- to late-March to July with incubation taking 24-29 days and fledging 24-27 days with a period of post fledging dependence lasting several weeks. Late broods would therefore not fledge until August and early nesters could have chicks in the nest by mid-April (1,2).
White-tailed Eagle	500 - 750	All year round (14) See notes	The Ruddock & Whitfield report indicates 500-750 m buffer for the breeding season. Draft forestry guidance advocates 250 m for most activities near roosts outwith the breeding season, it should be noted that roosts of immatures can be all year. For non-breeding roosts the buffer should be maintained as a minimum 2 hours before and 2 hours after sunset and sunrise respectively to avoid disturbance.

References:

(1) Birds of the Western Palaearctic
Vols I-V, VII, VIII (1977-1994)
(2) Gilbert et al. (1998)
(3) Currie & Elliott (1997)
(4) Batten et al. (1990)
(5) Shawyer (1998)
(6) Perrins (1979)
(7) Nethersole-Thompson & Nethersole-Thompson (1979)
(8) Watson (1977)
(9) Carter (2001)
(10) Petty (1998)
(11) Dennis et al. (2004)
(12) Poole (1989)
(13) Watson (1997)
(14) Ruddock & Whitfield (2007)

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Appendix B Protected Species Risk Assessment Template

<Project name>: Protected Species Risk Assessment

<Title including record ID and location>

Scope of Work

This method statement is applicable for <insert details of works to be undertaken>. The work comprises of:

Location and Access/Egress

<Insert details including map / plan>

Description of species, distance from planned works and ground conditions

Reference Number	BNGR letters	OS Grid reference	Place	Description	Distance from project works	Predicted project impact

<Insert details>

Programme of Works

The following works are planned within the buffer distance:

<Insert details including timing and duration>

Planned Equipment and Manpower

The operation will be carried out by the following personnel and using the following equipment:

<Insert details>

Risk Assessment/ Supervision of Work

<Insert details of baseline conditions including topography, proximity to works, existing disturbance levels, mitigation measures and operational controls, likely levels of disturbance from works and summary of risk rating (Low / Medium / High)>

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TG-NET-ENV-506

Safety, Health and Environment

Water Vole Species Protection Plan



	Name	Title
Author	Francis Williams	Environmental Project Manager
Checked by	Alistair Watson	Environmental Advisor
Approved by	Richard Baldwin	Head of Environment

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1 Introduction

This Protection Plan provides guidance and agreed procedures for the protection of water voles and their shelters during construction works on Scottish Hydro Electric Transmission (SHE Transmission) projects. The Plan contains two parts and details the procedures that must be followed where there is potential for water vole to be present (Part 1), and where a Project Licence for water vole has been issued by Scottish Natural Heritage to cover the project (Part 2):

1.1 Part 1: General Protection Plan

This Part applies to all projects where water vole may be present. Part 1 outlines the responsibilities of SHE Transmission and the *Contractor* regarding protection of water vole. It also details relevant legislation, survey requirements, general mitigation measures and the requirement for licensing and mitigation.

1.2 Part 2: Project Licence Protection Plan

This is provided to *Contractors* in addition to Part 1 for large projects where a Project Licence has been issued by Scottish Natural Heritage (SNH) to cover the work and identifies those activities and mitigation measures which are permitted under the Project Licence and those activities which require a Method Statement to be submitted to SNH for written approval before works can commence. This Part should be followed in conjunction with Part 1 and the relevant Project Licence to provide approved guidance and the relevant Project Licence to provide approved guidance and methodologies for carrying out work.

2 References

The documents detailed in Table 2.1 – Miscellaneous Documents below, should be used in conjunction with this document.

Table 2.1- Miscellaneous Documents

Title
Wildlife and Natural Environment (WANE) [Scotland] Act 2011
Wildlife and Countryside Act 1981 (as amended)
www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide

3 Part 1: General Protection Plan

3.1 Background

Water voles (*Arvicola amphibius*) are rat sized members of the rodent family which are found in habitats closely associated with waterways such as rivers and canals as well as upland areas of bog. In Scotland, they

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are absent from the most of the islands and are under serious predation pressure from American mink (*Neovison vison*), which together with habitat loss have resulted in massive losses. They usually have black fur in Scotland as opposed to the brown form found in England and Wales and have a short hairy tail, small eyes, a stout body with a chubby face. As suggested by the name they swim frequently and are often first noticed as they noisily 'plop' into water. Water voles predominately eat sedges and rushes although they have been known to predate on fish and invertebrates. Tormentil (*Potentilla erecta*) is a favoured plant in upland areas.

Water voles do not hibernate, but are less active during the period October to Mid-March. Females actively defend exclusive territories particularly during the May – August breeding season, during which they have up to 5 litters. Males have not been shown to defend territories and have larger home ranges. In upland areas colonies are small and discrete with high levels of colony extinction and colonisation within a widely dispersed metapopulation.

Water vole colonies are generally found in habitats with the following characteristics:

- Watercourses with banks covered in tall grass or sedge vegetation and scrub tends to be avoided.
- Wet areas in uplands (up to 1000 m asl) often some distance away from 'typical' riparian habitats.

Signs of Water Vole:

1. Latrines – home ranges are marked by latrines near nests, burrows and where they enter or leave water. Faeces are characteristically 'tic-tac' shaped about 12mm long and 4mm wide.

1. Prints and tracks – water vole footprints are star shaped with four toes on the forefeet and five on the hindfeet. 4 – 9 cm broad paths though vegetation near water can also be an indication of water vole activity.

2. Feeding remains / feeding stations – although these can be confused with other species, neat piles of grasses, sedges or reeds about 10 cm long cut cleanly at a 45 angle can be evidence of water voles.

3. Water vole burrows – normally entrances have a diameter of between 4 and 8 cm and can be either above or below the water level along banks of watercourses. They are generally found within 2 – 5 m of the waters edge. but may be in places relatively far away from running water particularly in upland areas.

3.2 Responsibilities

It is the *Contractor's* responsibility to comply with all the requirements of this Protection Plan where water vole may be present, and it is both the *Contractor's* and SHE Transmission's responsibility to monitor compliance with the Protection Plan. The responsibility for applying for any Licence, including a Project Licence, may vary from project to project, but all applications and mitigation works will adhere to this plan.

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3.3 Legislation

Water vole is listed in Schedule 5 of the Wildlife and Countryside Act 1981, as amended, mostly recently by the Wildlife and Natural Environment (WANE) [Scotland] Act 2011. This legislation makes it an offence to recklessly[1]:

- Damage or destroy or obstruct access to, any structure or place which any water vole uses for shelter or protection.
- Disturb a water vole while it is occupying a structure or place which it uses for shelter or protection.

This legislation means that water vole habitat is fully protected in Scotland. The WANE Act permits derogation of disturbance and/or destruction of water vole places of shelter by SNH for development purposes. SNH can grant licences to enable certain activities that would otherwise be an offence, to be carried out in relation to water voles and their burrows, subject to the following:

a) that undertaking the conduct authorised by the Licence will give rise to, or contribute towards the achievement of, a significant social, economic or environmental benefit; and
b) that there is no other satisfactory solution.

In granting a licence SNH has to take into account the consequences for water vole at a local population level, to assist this assessment SNH will need to see maps of the area of operations and also surrounding areas of suitable water vole habitat.

3.4 Surveying for Water Vole

1. Initial survey for water vole must be undertaken in all works areas containing suitable water vole habitat, a maximum of 12 months[2] prior to the works commencing (this includes site investigations) to allow for pre-planning. In areas where water vole are identified, additional pre-works survey must be carried out a maximum of 2 months prior to works commencing to ensure the availability of up-to-date information.
   Survey must be carried out during the active season - between 1 April and 31 October (lowlands) and 1 May and 30 September (uplands) and ideally during the months of June, July or August.

2. Surveys must extend for a minimum of 10 m beyond working areas, including access tracks.

3. Surveys must be carried out by suitably qualified and experienced ecologists and will identify whether any water voles or places of shelter are likely to be affected by the works.

[1] Reckless acts would include not having or disregarding a mitigation plan aimed at protecting water vole resulting in damage, destruction or disturbance of any water vole place of shelter, or carrying out an activity which would result in an offence where the presence of water vole was foreknown.

[2] Note: Information from any previous surveys (e.g. surveys carried out to provide data for EIA or other Assessments) can be a useful guide to water vole activity in an area, particularly if burrows were recorded. However, surveys will always require to be updated if carried out more than 12 months prior to works commencing.

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4. Appropriate monitoring (e.g. the use of suitable camera traps) should be undertaken where required to determine if any place of shelter is being occupied.

3.5 Review of Water Vole Survey

Once a water vole survey has been carried out, the ecologist / ECoW should review the survey results, apply the mitigation hierarchy outlined below and decide if a Licence is required (either Individual or Project) for the works.

Construction teams should be advised of existing / new constraints, together with mitigation and licensing requirements by the ecologist / Ecological Clerk of Works (ECoW).

Relevant site documentation and project information sources should be updated with new and amended information on water vole constraints as it is produced, with changes communicated to appropriate staff immediately.

3.6 Mitigation Hierarchy

There is a general presumption against works being carried out which could disturb water voles in their burrows or to destroy an occupied burrow. A hierarchical approach to mitigation of Avoidance - Disturbance - Destruction will be applied to any burrow that may be affected by works (See Figure 1):

Avoidance

This is the preferred option for occupied burrows identified within 10 metres of works. A protection zone of 10metres should be marked and signed on the ground around each burrow or group or burrows with appropriate material to restrict work access.

All works personnel, machinery, vehicles and storage of materials must be restricted from entering protection zones. Protection zones must be maintained until works are completed. Site staff should be briefed of their purpose through a Toolbox Talk and works micro-sited outwith the protection zone. If water vole disturbance can be avoided in this way, there is no need to obtain a Licence from SNH for the works.

Disturbance

For works within 10 metres of occupied burrows which cannot be avoided, a Licence for disturbance from SNH will be required (either Individual or Project).

Individual Licence applications to SNH should be accompanied by a Species Protection Plan which outlines how disturbance will be minimised and burrows protected, for example through screening of works and modifying protection zones.

If a Project Licence is in place, the methodology detailed in Part 2 of this document must be followed.

Displacement of water vole and destruction of burrows

In some instances, displacement of water vole for example by close strimming around burrows, followed by destruction of burrows may be necessary to allow works to go ahead. This work will always require a licence for disturbance and burrow destruction from SNH (either individual or project). These actions must only be undertaken as a last resort and when there is no alternative. This methodology is only likely to be effective if

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proposed displacement distances are less than 50 metres, and only acceptable where an experienced ecologist has confirmed that there is suitable alternative habitat for water vole burrows within 50 meters of the original burrow location. Displacement work and destruction of burrows will not be licensed during the inactive or breeding periods. Suitable times for displacement work to be carried out is as follows: late February to early April (lowlands) and late March and April (uplands). Individual Licence applications to SNH must be accompanied by a Species Protection Plan which outlines timings of works, how impacts to watervole will be minimised, individuals protected, and loss of burrows compensated for.

If a Project Licence is in place, a Method Statement must be submitted to SNH in accordance with Part 2 of this document for written approval prior to any works commencing.

Any water vole place of shelter subject to works under a Licence must be monitored during and after those works.

Live trapping and translocation of water vole, and destruction of burrows.

This is a last resort action and a justification will be required as to why there is no alternative to translocation. This work will need significant pre-planning, and the identification of a receptor site for displaced animals. If this situation is likely to arise SNH licensing team should be contacted at the earliest opportunity to discuss timings, methodologies and licensing. This work will require an individual licence from SNH.

3.7 Mitigation Measures

3.7.1 General Mitigation

1. The ECoW will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to water vole is delivered.

2. All works in proximity to waterbodies / watercourses must follow measures outlined in the project environmental information and Contractors Environmental Management Plan (EMP) to ensure their protection against pollution, silting and erosion.

3. An emergency procedure will be implemented by site workers if signs of water vole (e.g. latrines or animals) are encountered. All work within 10 m will cease, and the ECoW will inspect the site and define mitigation (if required) in line with this SPP.

4. An exceptional circumstance procedure will be implemented should mitigation options not prove satisfactory in a particular case. In such a scenario, works will be halted whilst mitigation is determined on a case specific basis under consultation with SNH

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3.7.2 Monitoring and Reporting

1. The Environmental Representative will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to water vole is delivered.

2. Reports will be submitted to SNH as required by the relevant Licence.

3.8 Licensing Requirements

Licence applications must be sent into SNH licensing team sufficiently in advance of the project start date (approximately 30 days) to ensure the licence is in place prior to any work commencing.

3.9 Project Licence

An SNH Project Licence is likely to be the most appropriate form of Licence for any large scale and / or long running Project, which may result in a large number of minor unavoidable water vole offences. For example, multiple instances of disturbance to a number of water vole shelters over several years. A Project Licence can be used to standardise protected species mitigation / compensation, creating consistency across the project area and throughout the Project's lifespan. Project Licences do not negate the need for thorough pre-construction survey within 12 months of the planned project start date, and additional pre-construction survey within 2 months of works commencing, in areas where water voles have been found to be present. Any Project Licence application will need to be accompanied by a Mitigation / Compensation Plan and procedures for water vole included in Parts 1 and 2 of this SPP.

3.10 Individual Licence

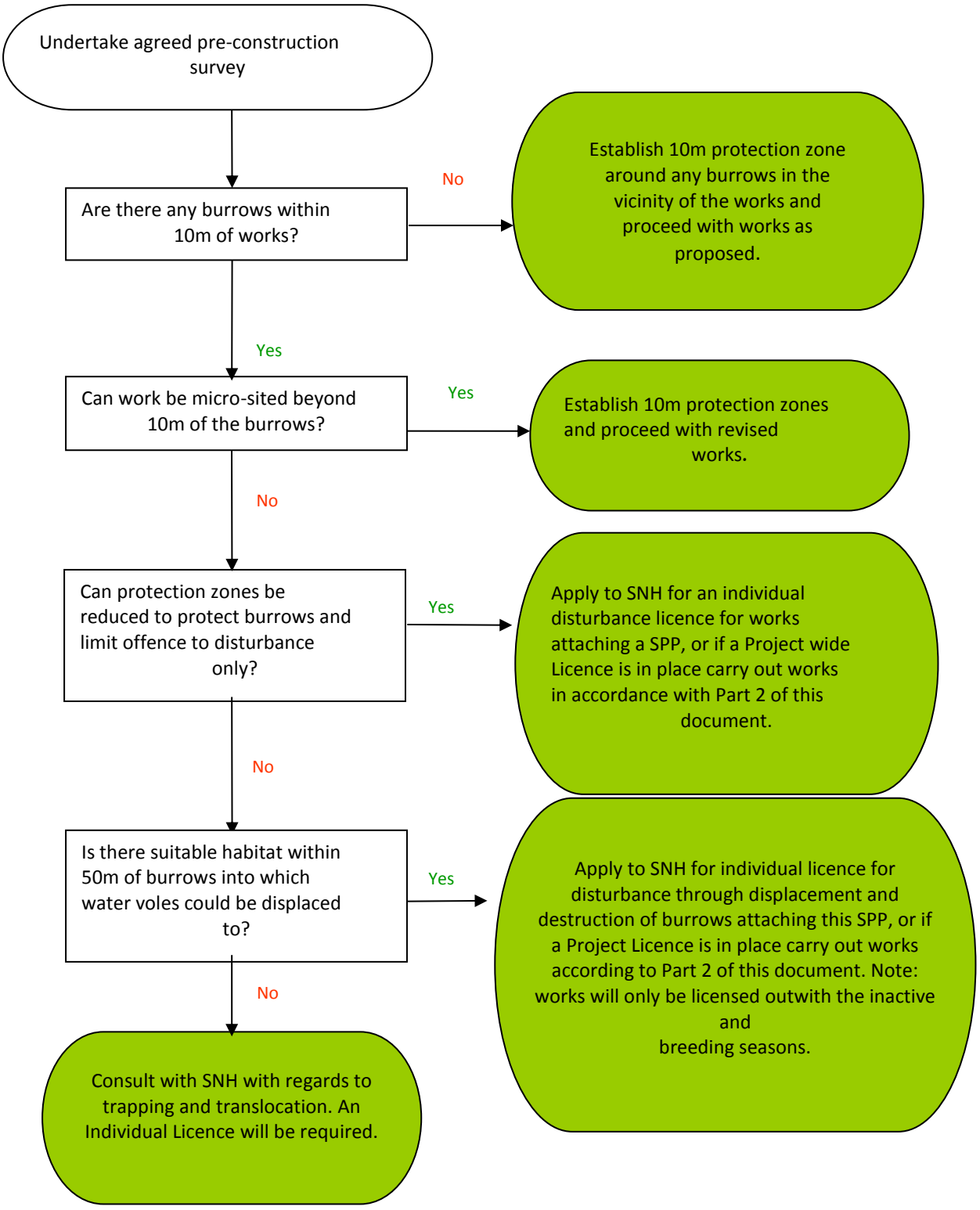
For small scale Projects expected to be completed over relatively short timescales, which will result in a low number of unavoidable water vole offences an Individual SNH Licence is most likely to be appropriate. Licence applications should be accompanied by a Method Statement / Mitigation Plan and should be sent sufficiently in advance of the Project start date to ensure the licence is in place prior to work commencing. Further guidance and details of how to apply for a water vole licence can be found on the SNH website https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide/water-voles-and-licensing.

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Watervole Decision Tree



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4 Part 2: Project Licence Protection Plan

The following sections of this plan are to be read in conjunction with the Project Licence (insert Licence number) and its conditions.

As stated in the Project Licence, methodologies for certain mitigation activities permitted under the Licence are included in this Part of the SPP. More disruptive activities, listed in Section 1 below, will also require a specific Method Statement to be submitted to SNH licensing team for written approval (see Appendix A). It is the *Contractor's* responsibility to submit these Method Statements to both SHE Transmission and SNH for written approval. No works shall proceed without this written approval.

Sufficient time should be allowed for in the programme to carry out any consultation work and obtain necessary approvals.

The Project Licence will specify reporting requirements detailing all disturbance and destruction works carried out.

In advance of, and during construction at any location where there is the potential for a water vole to be present, it is **essential** that this plan is followed:

4.1 Works Allowed under the Project Licence

The following works may be carried out under this SPP without further approval from SNH, using the prescribed methodologies:

Disturbance to water voles in their places of shelter

a. In situations where it is not possible to maintain a 10 m protection zone around a water vole burrow / place of shelter to avoid disturbance (*e.g*. upgrade of an existing track or watercourse crossing; or construction of temporary track or watercourse crossing), but it is possible to establish a smaller protection zone (no less than 5m in radius) which will prevent damage or destruction of the burrows. The ECoW must mark out the reduced protection zone on the ground using appropriate marking materials and signage and ensure that it remains in place for the duration of the adjacent works.

b. The ECoW must undertake a Toolbox Talk with all contractors before the start of works to raise awareness of the presence of water vole, locations of, and restrictions posed by protection zones and any required mitigation.

c. During the construction works the ECoW must ensure that no plant and/or work personnel enter the protection zone.

d. All construction works within a 10 m radius of water vole places of shelter must usually be completed within 1 day. Working methods must be adopted to reduce any unnecessary disturbance including the following:

· No parking of any plant or other vehicles.

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· No site compounds or welfare facilities.
· No use of static plant and/or generators.
· Artificial lighting, if required, is to directed away from water vole habitat and riparian habitats in general.
· No potential activities that may result in pollution, *e.g*. re-fuelling, will be allowed within the protection zone. Silt control measures will be agreed prior to works with the ECoW to ensure no adverse impact on water vole habitat.

e. Use of any constructed tracks will not be subject to any subsequent restrictions on use.

4.2 Activities requiring an SNH Approved Method Statement

The following works require a Method Statement to be approved in writing by SNH licensing team before works can commence:

1.Displacement of water vole and destruction of burrows. Please note these activities will only be licensed to take place at the following times: late February to early April (lowlands) or late March and April (uplands) to avoid inactive and breeding periods.

2.Translocation, live trapping and destruction of burrows. Please note these activities will only be licensed to take place during March and April to avoid inactive and breeding periods.

.

The Method Statement template in Appendix A has been developed in conjunction with SNH and should be used by the Contractor / Named Agent for all submissions.

Proposed mitigation works should be agreed with SNH.

5 Revision History

No	Overview of Amendment and Text affected	Previous Document	Revision	Authorisation
01	Transfer to new template and Nomenclature	TG-PS-LT-719 (Rev 1.00)	1.00	Richard Baldwin
02	Weblinks updated, typos corrected and decision tree corrected	TG-NET-ENV-506 (Rev 1.00)	1.01	Richard Baldwin

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Appendix A Project Licence Method Statement Template

<PROJECT TITLE>

METHOD STATEMENT FOR WORKS UNDER *(insert licence details)*

<insert species record reference>

<insert date>

Introduction

This document, prepared on behalf of SHE Transmission provides a Method Statement for ***<insert details of works>*** to be completed under ***<insert licence details>***. These works are required in order to facilitate the delivery of the *<insert Project details>* (the Project).

Condition ***<insert No.>*** of the above Licence states that a ***<insert species>*** Protection Method Statement be submitted to Scottish Natural Heritage (SNH) licensing team for written approval, under specific circumstances, prior to commencement of works which could affect ***<insert species>***. Therefore, no works which would *<insert licensed activity>* ***<insert species>*** shall take place without written confirmation of SNH approval of this method statement.

This Method Statement makes reference to the following documents:

- ***<insert licence details>***, SNH
- Species Protection Plan (SPP): ***<insert SPP No. and title>*** Rev. X *<insert date>*

Further information is provided in Table 1: Summary of Data.

Licensable Works

Introduction

<Insert details>

Baseline Description

<Insert description, including photographs / location plan>

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Table 1: Summary of Data

Reference	Easting	Northing	Date recorded	Description	Date works exclusion zone demarcated & distance

Survey Summary

<Insert details>

Description of the Proposed Licensable Works

<Insert details>

Works Duration

<Insert details>

Consideration of Alternatives

<Insert details>

Impact Assessment

<Insert details>

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Method Statement Site Briefing (to be delivered to relevant staff prior to works)

Site: *<insert description>*

Reference number: *<insert species record reference>*

Client: SHE Transmission

Task: *<insert description of works>*

Prepared by: *<insert individual or Company name>*

Licensed Agent: *<insert name>*

Method statement for *<insert works description>*

Before works commence:

All relevant personnel will be made aware of the presence and location of the constraint and mitigation.

<insert details of methodology>

During works:

<insert details of methodology>

<Insert Contractor's name>

I, the undersigned, confirm receipt of this method statement and fully understand and agree to work to the conditions therein.

Signature of *Contractor's* Representative:..... Date .... / /

Print name in full: .....

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TG-NET-ENV-507

Safety, Health and Environment

Wildcat Species Protection Plan



	Name	Title
Author	Francis Williams	Environmental Project Manager
Checked by	Alistair Watson	Environmental Advisor
Approved by	Richard Baldwin	Head of Environment

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1 Introduction

Wildcat is a European Protected Species and is afforded a high level of protection in Scotland. This Protection Plan provides guidance and agreed procedures for the protection of wildcats and their shelters during construction works on Scottish Hydro Electric (SHE) Transmission projects.

2 References

The documents detailed in Table 2.1 below, should be used in conjunction with this document

Table 2.1- Miscellaneous Documents

Title
Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive).
Conservation (Natural Habitats &c.) Regulations1994
Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2007
https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide/wildcats-and-licensing
https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/wildcats

3 General Protection Plan

3.1 Introduction

This Species Protection Plan applies to all projects where wildcat may be present. It outlines the responsibilities of SHE Transmission and the Contractor regarding protection of wildcat. It also details relevant legislation, survey requirements, general mitigation measures and the requirement for licensing and mitigation.

3.2 Background

Wildcats are a member of the felidae family with a population restricted to marginal areas predominantly in northern Scotland, in essence north of the Highland Boundary Fault. In the 19th century wildcats were heavily hunted and persecuted, this combined with habitat loss reduced their numbers dramatically. It is now estimated that approximately 400 wildcats remain in Scotland, although estimates do vary.

Domestic tabby cat strongly resemble wildcat, however they are smaller and less robust. Wildcats can easily hybridise with feral and domestic cats making it difficult to confidently identify wildcats. One diagnostic feature of a wildcat is the thick, bushy tail with black rings and a black blunt tip. Wildcats also have distinct

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stripes on their flanks that are less broken or spotty than on tabby cats and hybrid cats (see Kitchener *et al.* 2005 for details[1]). They also do not have white paws.

Wildcats are solitary animals that occupy their own exclusive home range, however the exclusive home range of a male wildcat my overlap with the territories of one or a number of female wildcats. These home ranges can be very large, up to 18 km^2, but can also be much smaller depending on the density of their prey - primarily rabbits and other small mammals. Male home ranges are usually larger than female home ranges.

Wildcats are an exclusively carnivorous species. They usually inhabit woodland areas but due to the lack of suitable habitat in the UK can also be found using more open habitats such as moorland or rough grazing. Wildcats have a number of dens throughout their home range that they have access to. These dens are usually among rocks and boulders and rocky cairns on hillsides and can also be in abandoned fox earths, badger setts and rabbit burrows as well as among tree roots. Females use different dens to give birth and rear kittens than they do to shelter in.

Wildcats breed predominantly between January and March and give birth to their young between April and May, however they can breed at any time during the year. The female is the sole provider for the kittens bringing live prey to the den from when they are 3 weeks old and she will stop producing milk at 6-7 weeks. The young usually leave their mothers and become independent at around 5-6 months old. Signs of wildcat include (although these can indistinguishable from feral and hybrid cats);

- Feeding signs – prey remains may be left inside or outside of dens
- Wildcat tracks and scats – wildcats may mark their home range on prominent features such as trees and boulders on tracks by spraying urine or leaving scats.
- Claw marks – wildcats scratch the bark of trees to mark their home range
- Places of shelter – dens are usually marked my urine sprays or scats.

Due to their nocturnal activity it can be difficult to confirm the presence of wildcats at suspected dens, and to be sure that the individual is a pure wildcat, therefore camera traps may be required to positively identify a wildcat and confirm its presence in the area.

3.3 Responsibilities

It is the *Contractor's* responsibility to comply with all the requirements of this Species Protection Plan where wildcat may be present, and it is both the *Contractor's* and SHE Transmission's responsibility to monitor compliance with this Species Protection Plan. The responsibility for applying for any licence, may vary from project to project, but all applications and mitigation works will adhere to this plan.

[1] *Kitchener AC, Yamaguchi N, Ward J and Macdonald DW. 2005. A diagnosis for the Scottish wildcat (Felis silvestris): a tool for conservation for a critically endangered felid. Animal Conservation (8): 223-237.*

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3.4 Legislation

Wildcat is a European Protected Species (EPS) protected under Annex II and IV of EC Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive). The Habitats Directive is transposed in Scottish law by the Conservation (Natural Habitats &c.) Regulations 1994. Wildcat is listed on Schedule 2 of the Conservation Regulations 1994. The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2007 enhanced this protection. Current Legislation means that wildcat and their shelters are fully protected in Scotland. Guidance on the protection given to wildcat and their shelters is available on the Scottish Natural Heritage (SNH) website https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/wildcats

In summary, it is illegal to:

- Deliberately or recklessly[1] kill, injure or take (capture) a wildcat;
- Deliberately or recklessly disturb or harass a wildcat; and
- Damage, destroy or obstruct access to a breeding site or resting place of a wildcat (*i.e.* a wildcat shelter).

Licences may be granted for certain purposes that would otherwise be illegal / cause an offence; such licences for development work must be applied for from SNH, licences may be granted for imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment. Further information on licensing and wildcats can be found on the SNH website https://www.nature.scot/professional-advice

3.5 Surveying for Wildcat

1. Surveys for wildcat must be undertaken in all works areas containing suitable wildcat habitat, a maximum of 12 months[2] prior to works commencing, (this includes site investigations).

2. Surveys must extend for a minimum of 200 m beyond working areas, including access tracks.

3. Surveys must be carried out by suitably qualified and experienced ecologists and must identify whether any wildcat and/or their places of shelter are likely to be affected by the works.

4. If wildcats are known to be in the area or evidence of wildcat is found during the initial survey this should alert surveyors and staff to the need for general mitigation measures. Where mammal dens or places of

[1] *Reckless acts would include not having or disregarding a mitigation plan aimed at protecting wildcat resulting in killing, injury, and/or disturbance of any wildcat or wildcat place of shelter, or carrying out an activity which would result in an offence where the presence of wildcat was foreknown.*

[2] *Note: Information from any previous surveys (e.g. surveys carried out to provide data for* Environmental Impact Assessment (EIA) *or other Assessments) can be a useful guide to wildcat activity in an area, particularly if dens were recorded. However, surveys will always require to be updated if carried out more than 12 months prior to works commencing. surveys a maximum of 3 weeks prior to works are recommended.*

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shelter are found during protected mammal surveys, unless the area can be avoided more detailed survey will likely be required to identify which species are using the den. This will usually involve the use of trail cameras at possible dens for a minimum of 1 month and / or DNA testing of scat or hairs found at the possible den site. If evidence of use by wildcat is established the structure must be assumed to be a den. Paired camera traps are normally required to adequately capture images of the pelage, which are crucial for correct identification of wildcats. The ecologist or EcoW should consult SNH Licensing Team regarding appropriate camera trapping methodology and a licence for disturbance will be required for any camera trapping. If possible wildcat scats or tracks are found away from possible den sites, use of trail camera could be useful to establish which species left them, but the priority should be on identification of potential wildcat dens.

5. It is important to note that some intrusive surveys may require a Licence from SNH.

3.6 Review of Wildcat Survey

Once a wildcat survey has been carried out, the ecologist / ECoW must review the survey results, apply the mitigation hierarchy outlined below and decide if a licence is required from SNH for the works. If required, a licence must be obtained from SNH prior to any works commencing. Construction teams should be advised of existing / new constraints, together with mitigation / compensation, and licensing requirements by the ecologist / ECoW. Relevant site documentation and project information sources should be updated with new and amended information on wildcat constraints as it is produced, with changes communicated to appropriate staff immediately.

3.7 Mitigation Hierarchy

There should be a general presumption against works being carried out which will disturb wildcat in their den, or which will require the destruction of any wildcat den. A hierarchical approach to minimise the impact on wildcat should be established as follows:

Avoidance

This is the preferred option. Appropriately sized protection zones must be marked and signed on the ground by the ecologist / EcoW, with appropriate material, around all wildcat dens identified during the pre-works surveys. A 200 m radius protection zone must be established around all wildcat dens at any time of year.

All works personnel, machinery, vehicles and storage of materials must be restricted from entering protection zones. Protection zones must be maintained until all works are completed. Site staff must be briefed of their purpose through a Toolbox Talk by the ecologist / EcoW. If wildcat disturbance can be avoided in this way, there is no need to obtain a licence from SNH for the works.

Disturbance

If works within protection zones cannot be avoided, a Licence for disturbance from SNH will always be required.

Individual licence applications for disturbance must be accompanied by a Mitigation Plan which outlines how the disturbance will be minimised, and dens protected from damage, for example through screening of works and modifying protection zones.

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Wildcat are currently in unfavourable conservation status in Scotland therefore it is unlikely that a licence will be issued by SNH for wildcat den destruction.

3.8 Mitigation Measures

3.8.1 General Mitigation – in all wildcat areas (i.e. where no specific signs found during surveys but known to be locally present)

1. Any temporarily exposed pipe system should be capped when staff are off site to prevent wildcats from gaining access and becoming trapped.

2. All exposed trenches and holes should be provided with mammal exit ramps e.g. wooden planks or earth ramps when Contractors are off site.

3. An emergency procedure will be implemented by site workers if wildcat dens are encountered. All work within 200 m will cease, and the ECoW will inspect the site and define mitigation (if required) in line with this SPP.

4. An exceptional circumstance procedure will be implemented should mitigation options not prove satisfactory in a particular case. Works will be halted whilst mitigation is determined (with consultation with SNH Licensing Team if required).

3.8.2 Mitigation where a wildcat den is subject to disturbance (under license)

Site specific conditions will be required but may include, protection zones, timing, limits on hours of operation, lighting, noise.

Monitoring and Reporting

1. The Ecologist / Ecological Clerk of Works (EcoW) will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to wildcats is delivered.

2. Reports will be submitted to SNH as required by the relevant Licence..

3.9 Licensing Requirements

Licence applications must be sent into SNH licensing team sufficiently in advance of the project start date (approximately 30 days) to ensure the licence is in place prior to any work commencing.

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4 Revision History

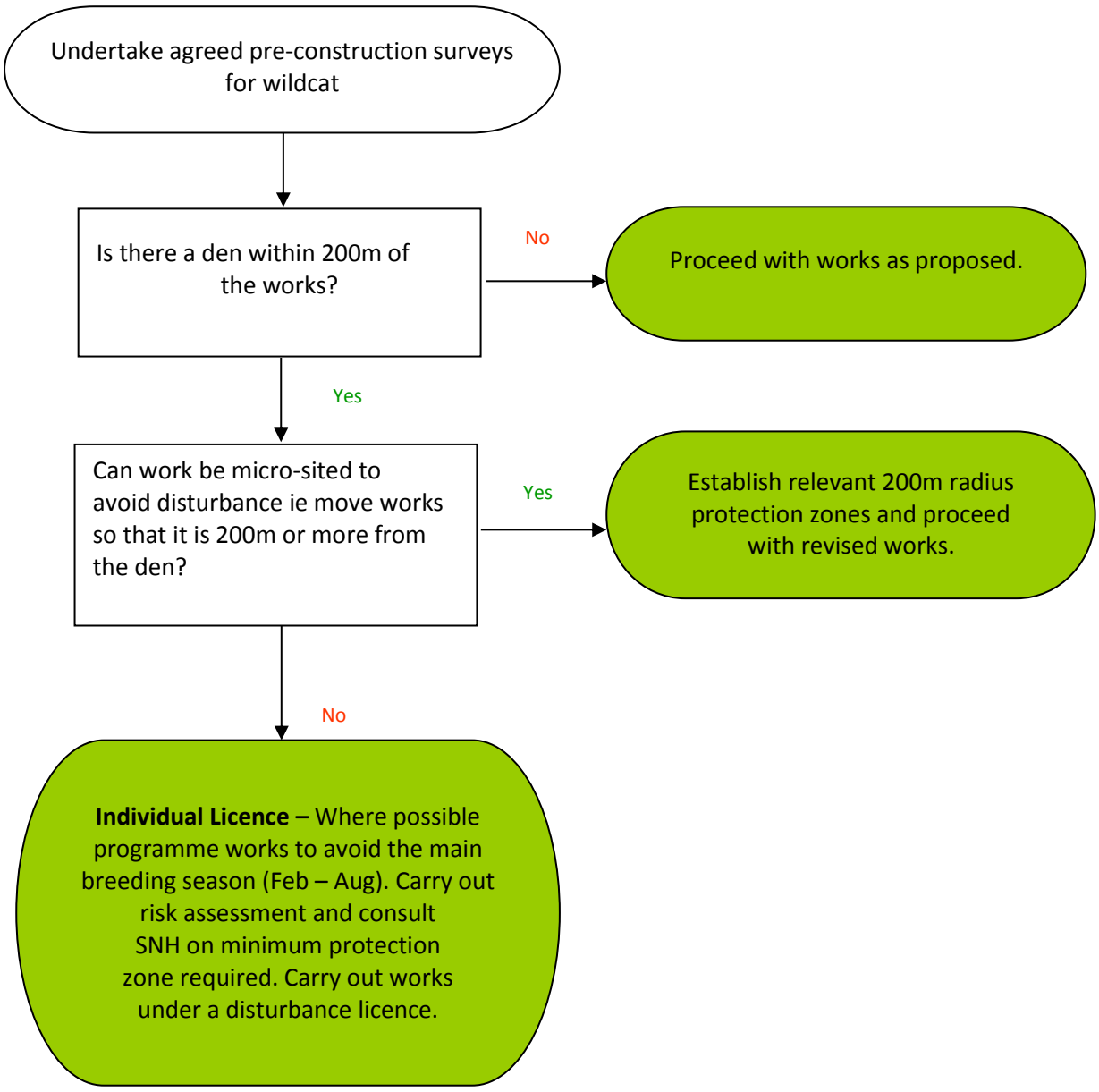
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01	Transfer to new template and Nomenclature	TG-PS-LT-720 (Rev 1.00)	1.00	Richard Baldwin
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03	Reworded introduction. Update to weblinks and typo changes. Changes to decision tree.	TG-NET-ENV-507 (Rev 1.01)	1.02	Richard Baldwin

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Wildcat Mitigation Decision Tree



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TG-NET-ENV-508

Safety, Health and Environment

Pine marten Species Protection Plan



	Name	Title
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Checked by	Alistair Watson	Environmental Advisor
Approved by	Richard Baldwin	Head of Environment

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1 Introduction

Pine marten (*Martes martes*) is listed in Schedule 5 of the Wildlife and Countryside Act 1981, as amended, most recently by the Wildlife and Natural Environment (WANE) [Scotland] Act 2011 and is afforded a high level of protection in Scotland. This Species Protection Plan provides guidance and agreed procedures, for the protection of pine marten and their shelters, during construction works on Scottish Hydro Electric (SHE) Transmission projects. The Plan contains two parts and details the procedures that must be followed where there is potential for pine marten to be present (Part 1), and where a Project Licence for pine marten has been issued by Scottish Natural Heritage (SNH) Licensing Team to cover the project (Part 2).

1.1 Part 1: General Protection Plan

This Part applies to all projects where pine marten may be present. Part 1 outlines the responsibilities of SHE Transmission and the Contractor regarding protection of pinemarten. It also details relevant legislation, survey requirements, general mitigation measures and the requirement for licensing and mitigation.

1.2 Part 2: Project Licence Protection Plan

This Part is provided to *Contractors* in addition to Part 1, for large projects where a Project Licence has been issued by SNH to cover the work, and identifies those activities and protection / mitigation measures which are permitted under the Project Licence and those activities which require an additional Method Statement to be submitted to SNH Licensing Team for written approval before works can commence. This Part should be followed in conjunction with Part 1 and the relevant Project Licence, to provide approved guidance and methodologies for carrying out work.

2 References

The documents detailed in Table 2.1 below, should be used in conjunction with this document.

Table 2.1- Miscellaneous Documents

Title
Wildlife and Countryside Act 1981
Wildlife and Natural Environment (WANE) [Scotland] Act 2011
https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide/pine-martens-and-licensing

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3 Part 1: General Protection Plan

3.1 Background

Pine martens are a member of the mustelid family with a population distributed throughout northern Scotland extending down to the northern boundary of the central belt and including a number of the islands including Mull and Skye. There is also a population in Dumfries and Galloway. Following the dramatic reduction in numbers of pine martens in the 19th century they are currently undergoing resurgence due in part to the legal protection they are afforded under the Wildlife and Countryside Act 1981.

Pine martens are solitary territorial animals. Although the edges of territories may overlap slightly, separate individuals are rarely found in close proximity to each other. They generally inhabit woodland or scrubby areas as they require a large amount of cover, and spend much of their time in the canopy. Pine martens are omnivorous, consuming a diet consisting of a wide variety of animals (predominantly small mammals) as well as berries and nuts allowing them to be active all year round. Both male and female pine martens have large territories of up to 8 km2 for females and 20 km2 for males. Due to the size of their territories pine martens have a number of dens (resting places) throughout their territory. They also make breeding nests, which can either be within rocks, in hollowed out trees or in bird nests / squirrel dreys. Increasing pine martens use human habitation such as attics, sheds and other farm buildings for both places of shelter and breeding dens.

Pine marten have two stages to their breeding behaviour with mating taking place in July – August but with the implantation of the fertilised egg delayed until February - March. The young are then born 1 month later and remain with the mother for approximately 12 weeks. Pine martens are mainly active at night and dawn/dusk times, although can also be seen during the day.

Signs of Pine marten:

- Pine marten prints and tracks – five toed slightly cat like footprints only of significant use in areas with snow cover. Tracks on the edge of territories are often marked with scat which can vary considerably in size and shape depending on contents.

- Pine marten shelters or dens can be either on the ground in rocky crevices or in elevated tree cavities, abandoned bird nests or owl boxes.

- Pine marten scat – is 4 – 12 cm long and 0.8 – 1.8 cm in diameter with often a narrow and twisted appearance. The scats may have a musky smell likened to Parma Violets, although this can vary and DNA analysis can be required to confirm identification.

Due to their nocturnal activity it can be difficult to confirm the presence of pine martens at suspected dens, therefore camera traps may be required to positively identify a pine marten and confirm its presence in the area.

3.2 .Responsibilities

It is the *Contractor's* responsibility to comply with all the requirements of this Species Protection Plan where Pine marten may be present, and it is both the *Contractor's* and SHE Transmission's responsibility to monitor

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compliance with this Species Protection Plan. The responsibility for applying for any licence, may vary from project to project, but all applications and mitigation works will adhere to this plan.

3.3 Legislation

Pine marten is afforded full protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), most recently by the Wildlife and Natural Environment (WANE) [Scotland] Act 2011. This makes it an offence to kill, injure or take a pine marten or to intentionally or recklessly[1] damage, destroy or obstruct access to any place used for shelter or for breeding. Disturbance to this species in any place used for shelter or breeding also constitutes an offence.

SNH can grant licences to enable certain activities that would otherwise be an offence, to be carried out in relation to pine martens and their places of shelter, subject to the following:

a) That undertaking the conduct authorised by the licence will give rise to, or contribute towards the achievement of, a significant social, economic or environmental benefit; and

b) That there is no other satisfactory solution.

In granting a licence SNH has to take into account the consequences for pine martens at a local population level, to assist this assessment SNH will need to see maps of the area of operations and also surrounding areas of suitable pine marten habitat.

3.4 Surveying for pine marten

1.Surveys for pine marten must be undertaken in all works areas containing suitable pine marten habitat, a maximum of 12 months[2] prior to works commencing, (this includes site investigations), to ensure availability of up to date information on place of shelter locations.

2. Surveys must extend for a minimum of 100 m beyond working areas, including access tracks.

3. All dens must be marked to permit easy identification.

4. Surveys must be carried out by suitably qualified and experienced ecologists and must identify whether any pine martens and/or their places of shelter are likely to be affected by the works.

[1] Reckless acts would include disregard of mitigation aimed at protecting pine martens, resulting in killing, injuring and/or disturbance of any pine marten or pine marten resting place.

[2] Note: Information from any previous surveys (e.g. surveys carried out to provide data for Environmental Impact Assessment (EIA or other Assessments)
can be a useful guide to pine marten activity in an area, particularly if dens were recorded. However, surveys will always require to be updated if carried out more than 12 months prior to works commencing. Pre-felling surveys a maximum of 3 weeks prior to works are recommended.

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If works during the breeding season (March to August inclusive) cannot be avoided, and breeding dens may be disturbed by works, it may also be important to establish if these dens are being used for breeding. The non- invasive method as follows must be used in the first instance: Visual observation and camera surveillance from the ground, for a period of a minimum of 14 consecutive days prior to works commencing, used to establish if the breeding den is in regular use. If regular use is established the den must be assumed to be being used for breeding purposes.

3.5 Review of pine marten Survey

Once a pine marten survey has been carried out, the ecologist / Ecological Clerk of Works (EcoW) must review the survey results, apply the mitigation hierarchy outlined below and decide if a licence is required from SNH (either Individual or Project) for the works.

If required, licences (individual or project), must be obtained by SNH prior to any works commencing.

Construction teams should be advised of existing / new constraints, together with mitigation / compensation, and licensing requirements by the ecologist / ECoW.

Relevant site documentation and project information sources should be updated with new and amended information on pine marten constraints as it is produced, with changes communicated to appropriate staff immediately.

3.6 Mitigation Hierarchy

There should be a general presumption against works being carried out which will disturb pine martens in their den, or which will require the destruction of any pine marten den. A hierarchical approach to minimise the works impact on pine marten should be established as follows:

Avoidance

This is the preferred option. Appropriately sized protection zones must be marked and signed on the ground by the ecologist / EcoW, with appropriate material, around all pine marten dens identified during the pre-works surveys. The breeding season (March to June inclusive) is the most sensitive time for disturbance, during this time a 100m radius protection zone must be established around all pine marten dens. Out with the breeding season, a protection zone of 30 metres radius must be established. For high noise / vibration activities (pile driving or blasting) a 100m radius protection zone around pine marten dens must be established at any time of year.
All works personnel, machinery, vehicles and storage of materials must be restricted from entering protection zones. Protection zones must be maintained until all works are completed. Site staff must be briefed of their purpose through a Toolbox Talk by the ecologist / EcoW. If pine marten disturbance can be avoided in this way, there is no need to obtain a licence from SNH for the works.

Disturbance

If works within protection zones boundaries cannot be avoided, a Licence for disturbance from SNH will be required. For small scale projects the licence may be specific to the site, for larger scale works a Project Licence may be appropriate.

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Individual licence applications for disturbance must be accompanied by a Mitigation Plan which outlines how the disturbance will be minimised, and dens protected from damage, for example through screening of works and modifying protection zones.
If a Project Licence is in place, and a den being used in the breeding season will be disturbed, a Method Statement must be submitted to SNH for written approval in accordance with Part 2 of this document, prior to any works commencing. The Method Statement must state how works will be carried out in a way which ensures no abandonment of young.

Destruction
Destruction of dens must only be undertaken as a last resort and requires a Licence from SNH. Individual Licence applications to SNH must be accompanied by a Mitigation / Compensation Plan which outlines how disturbance will be minimised and individual pine martens protected from injury, and may include provision for the creation of an artificial den if appropriate. If destruction of a den during the breeding season is required, the plan should include details of non-invasive monitoring which will take place to ensure breeding is not taking place prior to any den destruction.
Any den subject to works under Licence must be monitored during and after those works.

3.7 Mitigation Measures

3.7.1 General Mitigation

1.An emergency procedure will be implemented by site workers if pine marten dens are encountered. All work within 30 m (non-breeding season) or 100 m (breeding season) will cease, and the ECoW will inspect the site and define mitigation (if required) in line with this SPP.

2. Any temporarily exposed pipe system to be capped when contractors are off site to prevent pine marten from gaining access. Similarly, all exposed trenches and holes must be provided with mammal exit ramps when contractors are off site (i.e. at night time).

3. An exceptional circumstance procedure will be implemented should mitigation options not prove satisfactory in a particular case. Works will be halted whilst mitigation is determined (under consultation with SNH Licensing Team if required).

3.7.2 Monitoring and Reporting

5. The Ecologist / ECoW will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to Pine martens is delivered.

6. Reports will be submitted to SNH as required by the relevant Licence.

3.8 Licensing Requirements

Licence applications must be sent into SNH licensing team sufficiently in advance of the project start date (approximately 30 days) to ensure the licence is in place prior to any work commencing.

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3.9 Project Licence

An SNH Project Licence is likely to be the most appropriate form of licence for any large scale and / or long running project, in pine marten areas. For example, where multiple instances of disturbance to a number of pine marten resting places is anticipated over several months / years. A Project Licence can be used to standardise protected species mitigation / compensation, creating consistency across the project area and throughout the Project's lifespan. Project Licences do not negate the need for thorough pre-construction survey within 12 months and three weeks of the planned project start date.

Any Project Licence application will need to be accompanied by a Mitigation / Compensation Plan, and procedures for pine marten included in Parts 1 and 2 of this SPP.

3.10 Individual Licence

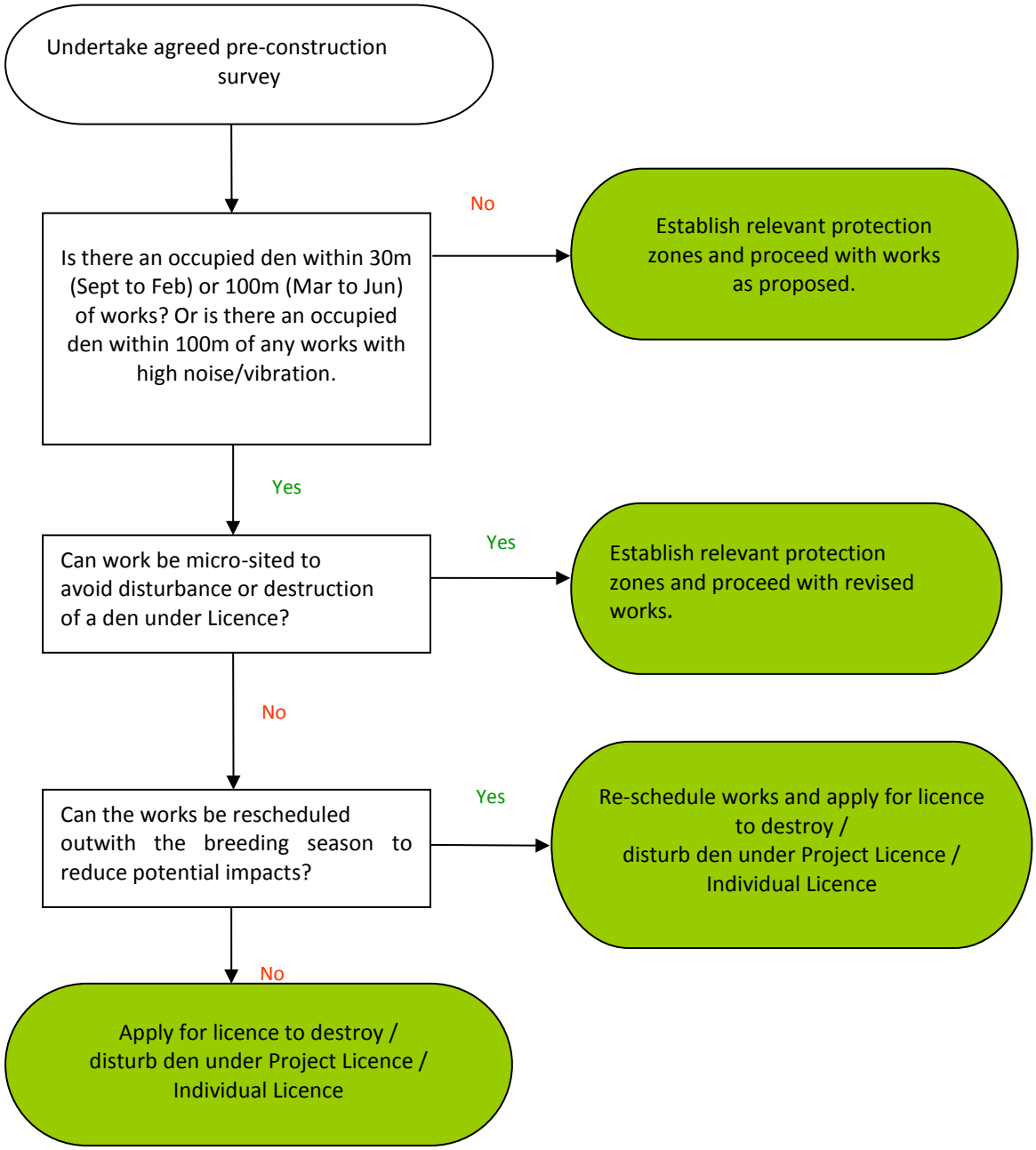
For small scale projects expected to be completed over relatively short timescales, which will result in a low number of unavoidable pine marten offences an Individual SNH Licence is most likely to be appropriate. Licence applications should be accompanied by a Mitigation Plan and should be sent sufficiently in advance of the project start date to ensure the licence is in place prior to work commencing. Further guidance and details of how to apply for a pine marten Licence can be found on the SNH website https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide/pine-martens-and-licensing.

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Pine marten Mitigation Decision Tree



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4 Part 2: Project Licence Protection Plan

The following sections of this plan are to be read in conjunction with Part 1 of this document, the Project Licence (insert Licence number) and its conditions.

Mitigation activities permitted under Project Licence are included in this Part of the SPP (section A). More disruptive activities, listed in Section B below, will require a specific Method Statement to be submitted to SNH Licensing Team for approval, prior to works commencing (see Appendix A). It is the *Contractor's* responsibility to submit these Method Statements to both SHE Transmission and SNH for written approval. No works shall proceed without this written approval.

Sufficient time should be allowed for in the programme to carry out any consultation work and obtain necessary approvals.

The Project Licence will specify reporting requirements detailing all disturbance and destruction works carried out.

In advance of, and during construction at any location where there is the potential for pine marten to be present, it is **essential** that this plan is followed:

A. Works allowed under the project licence without further approval from SNH Licensing Team

The following works may be carried out under this SPP without further approval from SNH, using the prescribed methodologies:

1. Disturbance to a den or place of shelter out with the breeding season. This includes ground and aerial dens, whether occupied, or unoccupied and located within known pine marten territory.

Methodology:

Pine marten dens must not be damaged or destroyed, but protected from potential damage by setting up a modified protection zone (size determined by the site ecologist / EcoW). Protection zones must be clearly marked on the ground and signed, and must exclude all works personnel, machinery, vehicle and storage. The protection zone must be maintained until all works are finished. Works will be undertaken in as short a period as possible to minimise the level of disturbance. A project licence return must be sent to SNH licensing team detailing all disturbance works under the Project Licence.

a. Before works commence, the ECoW will:

- Attend the site in order to check whether pine marten is present or not. If pine marten is present, then works may need to be delayed until the ECoW is satisfied suitable access / egress away from the place of shelter is safeguarded. If no pine marten is present, works can proceed.

- Brief the site personnel, including contractors and subcontractors, regarding the presence of the pine marten dens and the protected status of pine marten, their dens and the conditions

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of this Species Protection Plan, which allows for felling and construction within 30 m of the den

.

- Describe the actual den and state that no machinery must drive over it or if it is in a tree the den tree must not be cut down.

b. The den should be clearly marked with a blue tipped stick adjacent to the hole. For an aerial den the tree will be marked with a thick band of blue tape around the trunk.

c. For felling operations, the whole area within the 30 m protection zone, excepting the den tree itself, may be felled using a harvester.

d. Works within 30 m of the den will be undertaken within 1 day wherever possible. Where works take longer, the ECoW will carry out a pre-works check each morning for pine marten presence.

B. Activities requiring an SNH Approved Method Statement Prior to Works Commencing

The following activities require a formal Method Statement to be submitted and approved in writing by SNH licensing team prior to any works commencing:

a. Temporary or permanent exclusion or destruction of a den.

b. Any works within 100m of a breeding den during the breeding season.

c. Any exceptional circumstances not covered in this SPP.

The Method Statement template in Appendix A has been developed in conjunction with SNH and should be used by the *Contractor / Named Agent* for all submissions.

5 Revision History

No	Overview of Amendment and Text affected	Previous Document	Revision	Authorisation
01	Transfer to new template and Nomenclature	TG-PS-LT-721 (Rev 1.00)	1.00	Richard Baldwin
02	Typos, formatting and references to other species removed.	TG-NET-ENV-508 (Rev 1.00)	1.01	Richard Baldwin

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Appendix A Project Licence Method Statement Template

<PROJECT TITLE>

METHOD STATEMENT FOR WORKS UNDER *(insert licence details)*

<insert species record reference>

<insert date>

Introduction

This document, prepared on behalf of SHE Transmission provides a Method Statement for ***<insert details of works>*** to be completed under ***<insert licence details>***. These works are required in order to facilitate the delivery of the *<insert Project details>* (the Project).

Condition ***<insert No.>*** of the above Licence states that a ***<insert species>*** Protection Method Statement be submitted to Scottish Natural Heritage (SNH) licensing team for written approval, under specific circumstances, prior to commencement of works which could affect ***<insert species>***. Therefore, no works which would *<insert licensed activity>* ***<insert species>*** shall take place without written confirmation of SNH approval of this method statement.

This Method Statement makes reference to the following documents:

- ***<insert licence details>***, SNH
- Species Protection Plan (SPP): ***<insert SPP No. and title>*** Rev. X ***<insert date>***

Further information is provided in Table 1: Summary of Data.

Licensable Works

Introduction

<Insert details>

Baseline Description

<Insert description, including photographs / location plan>

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Table 1: Summary of Data

Reference	Easting	Northing	Date recorded	Description	Date works exclusion zone demarcated & distance

Survey Summary

<Insert details>

Description of the Proposed Licensable Works

<Insert details>

Works Duration

<Insert details>

Consideration of Alternatives

<Insert details>

Impact Assessment

<Insert details>

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Method Statement Site Briefing (to be delivered to relevant staff prior to works)

Site: *<insert description>*

Reference number: *<insert species record reference>*

Client: SHE Transmission

Task: *<insert description of works>*

Prepared by: *<insert individual or Company name>*

Licensed Agent: *<insert name>*

Method statement for *<insert works description>*

Before works commence:

All relevant personnel will be made aware of the presence and location of the constraint and mitigation.

<insert details of methodology>

During works:

<insert details of methodology>

<Insert Contractor's name>

I, the undersigned, confirm receipt of this method statement and fully understand and agree to work to the conditions therein.

Signature of *Contractor's* Representative:..... Date ..../ /

Print name in full: .....

All method statements must be submitted to, and agreed in writing by, SNH licensing team:
licensing@snh.gov.uk
Telephone 01463725364

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TRANSMISSION

TG-NET-ENV-527

Safety, Health and Environment

Wood Ant Species Protection Plan



	Name	Title
Author	Kenneth Reid	Consents and Environment Manager
Checked by	Alistair Watson	Consents and Environment Manager
Approved by	Richard Baldwin	Head of Environment

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1 General Protection Plan Introduction

This Protection Plan provides guidance and agreed procedures for the protection of wood ants during construction works on SSEN Transmission projects. The plan details the procedures that must be followed where wood ants have been observed within the construction area.

2 Background

2.1 There are three key species of wood ant, which are as follows:

Formica aquilonia (Scottish wood ant) This species has a fringe of hairs at the rear of the head which does not extend down to the compound eyes. Viewed from the side, it does not appear hairy. It builds very large mound nests, up to two metres in diameter and up to 1.5 m high. These nests are rarely isolated and are often linked by long trails to neighbouring mounds, effectively forming one huge colony.	 ©Gabor Pozsgai	 ©Jenni Stockan
Formica lugubris (Hairy or Northern wood ant) In *F. lugubris* the fringe of hairs at the rear of the head extends down to the compound eyes. There are also long hairs on the thorax and when viewed from the side, the top of the thorax looks very hairy. They build large mound nests about two metres in diameter and one metre high. Some nests exist in isolation, but large groups of interconnecting nests often occur, and may contain many hundreds of queens.	 ©Hayley Wiswell	 ©Hayley Wiswell
Formica exsecta (Narrow-headed ant)[1] The distinctive feature of this ant is the notch in the top of the head and the narrow appearance of the head. It is smaller in size compared to the other wood ants, with workers around seven millimetres long. Their nests are dome-shaped mounds, smaller in size than the other two species, about 30 cm in diameter. Note: Narrow-headed ant has a very restricted distribution: Abernethy, Glenmore, Carrbridge, Mar Lodge (all in the Cairngorms National Park), and Camghouran alongside Loch Rannoch. It's not known elsewhere in Scotland.	 © Alex Hyde	 ©Jenni Stockan

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[1]*Formica exsecta is not strictly speaking a wood ant however they share a common ancestor. Therefore, F. exsecta is being considered as a wood ant for the purposes of this plan.*

2.2 The nests of all three species offer opportunities for shining guest ant (Formicoxenus nitidulus) which is about 2.8 to 3.6 mm long and lives in the colonies of the much larger species. It is difficult to detect; therefore, all wood ant nests should be considered to be potential habitat.

2.3 Further information on wood ants can be found in a 'Guide to the Wood Ants of the UK and related species', published by the Cairngorms National Park Authority in 2021. A digital copy of this guide and further guidance on relocation of wood ant nests can be found at www.woodants.org.uk.

3 Responsibilities

It is the Contractor's responsibility to comply with all the requirements of this Protection Plan where wood ants may be present, and it is both the Contractor's and SHE Transmission's responsibility to monitor compliance with the Protection Plan.

4 Legislation

4.1 Narrow-headed ant and shining guest ant are both included on the Scottish Biodiversity List.

4.2 Section 1(2)(a) of the Nature Conservation (Scotland) Act 2004 requires every public body and office-holder to have regard to the Scottish Biodiversity List as a requirement of their biodiversity duty under section 1(1) of the Act. This requirement includes SSEN Transmission as the holder of a licence under section 6(1) of the Electricity Act 1989.

5 Surveying for Wood Ants

5.1 In advance of construction a walkover will be undertaken by a qualified and experienced ecologist to check construction areas for wood ants. Once the survey has been carried out, the ecologist / Environmental Clerk of Works (ECoW) shall review the survey results and apply the mitigation hierarchy outlined below.

5.2 Ongoing checks will be undertaken throughout construction by the project ecologist. Construction teams should be advised of existing / new constraints, together with mitigation requirements by the ecologist / ECoW.

5.3 Relevant site documentation and project information sources should be updated with new and amended information on constraints as it is produced, with changes communicated to appropriate staff immediately.

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6 Mitigation Hierarchy

There is a general presumption against works being carried out which could destroy wood ants. A hierarchical approach to mitigation of Avoidance – Relocation will be applied nest that may be affected (See Figure 2.1):

6.1 Avoidance

6.1.1 This is the preferred option for nests identified within construction areas. A protection zone of at least five metres around the nest should be marked and signed on the ground with appropriate material to restrict work access. This protection zone may need to be larger depending on size of nest and activity of workers around the nest. The protection zone should ideally take into consideration significant foraging routes, and 'foraged' trees if these are present to avoid a large number of workers being harmed.

6.1.2 Protection zones must be maintained until works are completed. Site staff should be briefed of their purpose through a Toolbox Talk and works micro-sited out with the protection zone.

6.2 Relocation

6.2.1 Where avoidance is not possible, the following wood ant relocation protocol shall be followed.

6.2.2 Wood ant species have different habitat requirements. The microhabitat of the affected site must be surveyed to include aspect, slope, elevation, hill-shading, canopy, location and size of trees etc. Potential receptor sites that match these requirements must be identified.

6.2.3 Wood ants are territorial and will compete with the same and other ant species. Territory differs between species but may be up to 100m from the nest. As such a survey for other ant nests within 100m of potential receptor sites will also be undertaken.

6.2.4 Wood ants are active throughout the summer, while queens hibernate during winter. These are sensitive times for the colony and relocation should not be undertaken at these times.

6.2.5 The relocation of narrow-headed ants should be avoided where at all possible as current evidence suggests a high risk or probability the nest will fail if it is relocated. Relocation should only be considered as an emergency last resort when a nest is threatened with likely imminent extinction if there is no intervention.

6.2.6 The optimum time for relocation of F. aquilonia and F. lugrubis is Spring, however it is possible in Autumn. The optimum time for relocation of F. exsecta is late summer (after August) to late autumn. The optimum temperature for relocations is between 5 to 10ºC.

6.2.7 Relocation must be carried out in fine weather and be followed by at least several days of similar weather, so that the ants can organise themselves and set about nest building. It is crucial therefore to watch for weather forecasts during the relocation season, so that optimum conditions prevail.

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6.2.8 All relocations must be supervised by the ecologist / ECoW to tackle any issues arising.

6.2.9 Prior to relocation preparations are essential and include:

- The ecologist / ECoW undertaking a site survey to identify a suitable resettlement location away from construction activities. The potential resettlement site(s) should be visited in advance at different times of the year. A site which appears suitable in winter may have a completely unsuitable state in summer, and vice versa. Unsuitable factors principally include excessive shading and/or potential water-logging due to poor drainage, lack of food-source trees etc
- When deciding on a new location the following factors should be considered:
  - It should preferably have an open southerly aspect, free from shading overgrowth and with good drainage. If necessary, any shading vegetation should be cleared or thinned. A focal point for nest building, such as an old stump or decaying tree trunk or boughs, should be present, or artificially added if not. Twiggy 'brash' added over the stump or boughs will serve to provide a framework for nest building
  - It should be as similar as possible to the source site
  - It should be in a location that facilitates monitoring for as long as possible
  - Suitable tree and shrub species must be present to provide enough food in the form of honeydew from aphids and other plant-lice
  - Prepare the resettlement site by excavating a hole to at least the same size (nests can extend one metre below ground depending on the size of the nest, and underground components usually mirror those above ground)
- The ecologist / ECoW undertaking a detailed Toolbox Talk in advance of the relocation works to all personnel involved

6.2.10 When planning for relocation there are two possible methods, as outlined in Table 6.1 and below.

Table 6.1 - Planning for Relocation Methods

Method	Strengths	Weaknesses
Hand Tool Method	Less reliance on retaining nest architecture. Can allow nests to be moved in a vehicle to a distance resettlement site. Can work for any size of nest and particularly useful for large nests where digging whole nest is not feasible. Can be done using hand tools and at sites when access for machinery is not possible	Results in total loss of nest architecture, though the "layers" of material are still retained. Relies on the ability of the ants to rebuild the nest structure and thatch which they can do surprisingly quickly depending on size of colony and time of year. Best timed to seasons when the ants are active and able to recover (i.e., not immediately before hibernation and cold spells of weather).

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Method	Strengths	Weaknesses
Excavator Method	Can retain nest architecture if done carefully Can make use of machinery that may already be on site.	Should only be used when nests are being moved very short distances, to avoid loss and damage to nest whilst being carried in excavator bucket. Best suited to small-medium sized nests.

6.3 Hand Tool Method

6.3.1 Tools to be used include spades, shovels, and possibly saws or axes (if roots etc are a problem). Nest transfer into the sack should preferably be done using wide, flat coal-type shovels, which are less potentially damaging than sharp digging spades. Organic Hessian-type potato sacks make the best containers, and the use of plastic sacks must be avoided. String or similar cord is necessary to tie up each sack as it is filled. Sixty litre plastic barrels with lids have also proven successful, and could be considered for this method.

6.3.2 When using hand tools shovel up as much of the massed ants and material as possible, in as few scoops as possible, in order to minimise the time taken and the disturbance to the ants. Work down as far as the soil structure will allow. Do not over-fill each hessian sack, which could lead to some crushing at the bottom, and try to include some small branches etc to alleviate pressure. Tie up each sack as quickly as possible after filling.

6.3.3 Keep the time between removal of the ants from the old location and their release at the new location as short as possible.

6.3.4 Untie the sack(s) and carefully tip the ants and nest material over the prepared nest site. After the bulk material is emptied, there will still be many ants clinging to the inside (and outside) surfaces of the sack, which should be shaken vigorously to dislodge as many as possible. The sack should be turned inside out, and then cut into two or three sections which can be placed and left on and around the nest heap. This will enable all the ants to keep together, and also ensure that any other small creatures, such as myrmecophilous beetles etc, which might be clinging to the sack, will be able to remain with the ants. The Hessian sack material will add to the overall nest framework and will eventually rot away.

6.4 Excavator Method

6.4.1 Prepare the route between the old location and resettlement site. A trial run should be undertaken to identify and remove hazards when not using existing roads or tracks prior to relocation.

6.4.2 Ensure the excavator slowly moves to the ant nest and excavates the entire nest using the bucket (ensuring minimal damage to the nests architecture occurs).

6.4.3 Care needs to be taken to ensure the nest is kept as intact as possible and where possible move the nest as one complete unit to maintain nest architecture.

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6.4.4 Once the nest has been excavated ensure the bucket is covered in thermal breathable fabric coverings to help retain heat within the nest, should the transport take longer than 30 minutes. This covering will assist in preventing any ant's falling out of the bucket during transit. The excavator shall move the nest as slowly and steadily as possible (around 2.5 miles per hour).

6.4.5 Ensure the excavator places the bucket containing the ant nest into the resettlement site, ensuring retention of the nest aspect. The bucket is to be retracted slowly, ensuring the nest is gently placed into the resettlement site and limits damage of the internal structure of the nest.

6.5 Post Excavation (either method)

6.5.1 After the nest has been excavated, the excavation site should be checked by the ecologist / ECoW for any significant number of ants, ant queens or signs of nest architecture (nests can extend one metre below ground depending on the size of the nest, and underground components of the nest usually mirror those above ground). These should be gathered and taken to the resettlement site.

6.5.2 If the relocation site is in proximity to construction activities a protection zone of at least five metres around the nest should be marked and signed on the ground with appropriate material to restrict work access. This protection zone may need to be larger depending on size of nest and activity of workers around the nest. The protection zone should ideally take into consideration significant foraging routes, and 'foraged' trees if these are present to avoid a large number of workers being harmed.. If the nest is out with the construction area it should be clearly marked so it can easily be located for monitoring.

6.5.3 Where badgers are known to be present physical barriers may be required for the first year after relocation to prevent the nest being damaged or destroyed.

6.5.4 Provide supplementary sugary food (e.g. bee food dough, honey-breadwater mash, or jam) at the receptor site daily for first two weeks post-move to ensure long term success in the new site.

6.5.5 During the initial days after the relocation the old location should be checked if possible, and if necessary, remaining ants should be collected and moved to the resettlement site.

7 Monitoring

The ecologist / ECoW will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to wood ants are delivered, including:

- food supply – have the ants set up foraging routes to a foraged tree(s), which may harbour an aphid colony?
- If not, then further supplementary feeding may be required
- are the ants active and remained where they were relocated with evidence of thatch repair and/or growth in the size of the nest?

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- have the ants moved to a new site of their own choosing? This often happens, sometimes after an initial period (lasting a few days to perhaps a week or so) of stability and is not a problem unless the uncertainty becomes prolonged
- where protection measures around the relocated nest have been installed, as described above, does this require to be modified and/or repaired?
- It is not unusual for the population to appear to be significantly reduced in the next season after relocation. This is due to losses during the previous year and over the winter, caused by physical injury, predators and/or 'shock' – older workers in particular may not adjust to their new surroundings. If all is well, however, losses are made up during the succeeding months and years. To ascertain success / failure, the nest shall be monitored through the first season and in the April of the following season. For the purposes of monitoring the following process is recommended as a minimum:
    - following relocation supplementary feeding should be undertaken daily for the first two weeks
    - in the third week following relocation check whether the ants have established foraging routes and decide whether to continue supplementary feeding or not
    - a month later check whether the nest has been damaged or had major disturbances
        - If so, protection measures to prevent further damage or disturbance should be considered
    - where protection measures to prevent damage by badgers are installed they can be removed after one year
    - in April of the season following relocation determine short-term success / failure to ascertain if there is any learning that can be used to update / amend the relocation process. If so, this should be reported to the SSEN Transmission Consents and Environmental Manager for the project

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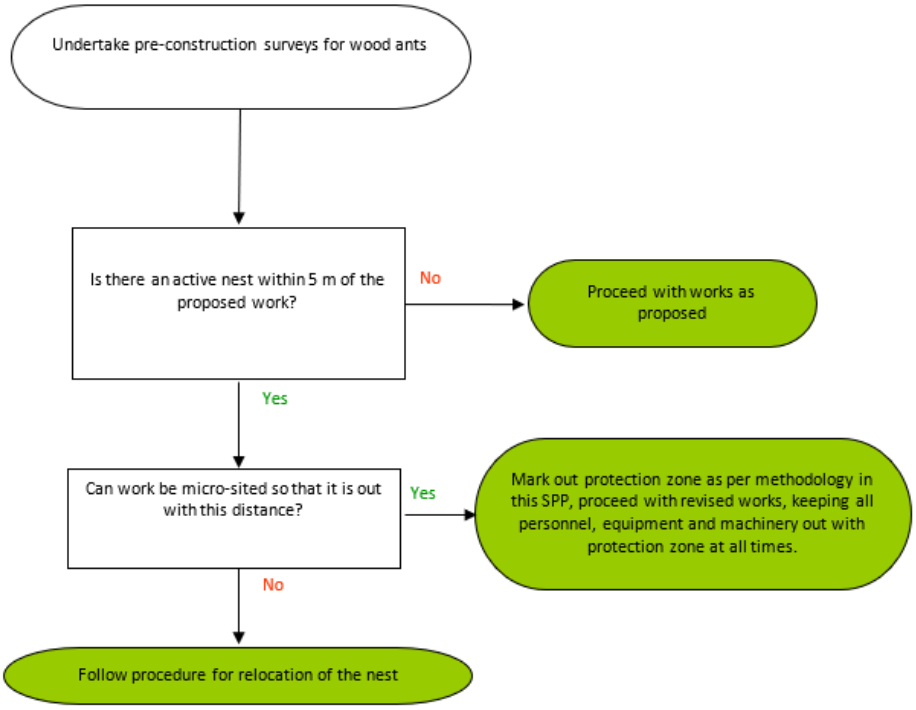


Figure 7.1 - Wood Ant Mitigation Decision Tree

8 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	Created after review by Hayley Wiswell (Cairngorms National Park), Athayde Tonhasca (NatureScot) and Jenni Stockan (James Hutton Institute)	n/a	1.00	Richard Baldwin
02				

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TG-NET-ENV-529

Environmental

Beaver Species Protection Plan



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Checked by	Sarah Rauch-Lynch	Consents & Environment Manager
Approved by	Richard Baldwin	Head of Consents & Environment

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1 Introduction

Beaver (Eurasian or European) is a European Protected Species and is afforded a high level of protection in Scotland. This Species Protection Plan (SPP) provides guidance and agreed procedures for the protection of beavers and their shelters during construction works on SSEN Transmission projects.

This SPP applies to all projects where beaver may be present. It outlines the responsibilities of SSEN Transmission and the *Contractor* regarding protection of beaver. It also details relevant legislation, survey requirements, general mitigation measures and the requirement for licensing and mitigation.

2 References

The documents detailed in

Table 2.1 - Scottish and Southern Electricity Networks Documents and Table 2.2 - Miscellaneous Documents, should be used in conjunction with this document.

Table 2.1 - Scottish and Southern Electricity Networks Documents

Reference	Title
TG-NET-ENV-512	General Environmental Management Plan (GEMP) - Working in or Near Water
TG-NET-ENV-515	General Environmental Management Plan (GEMP) - Watercourse Crossings
TG-NET-ENV-519	General Environmental Management Plan (GEMP) - Forestry

Table 2.2 - Miscellaneous Documents

Title
Campbell-Palmer, R. et al. (2016) The Eurasian Beaver Handbook: Ecology and Management of *Castor fiber*. Exeter: Pelagic Publishing, UK
The Conservation (Natural Habitats &c.) Regulations 1994 (as amended in Scotland)
The Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019
Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
NatureScot Standing advice for planning consultations - Beavers
NatureScot Management Framework for Beavers in Scotland
NatureScot Ecological and practical interpretation of legal definitions: disturbance, breeding sites and resting places of beavers (Updated: 7 March 2019)
NatureScot Managing the impacts of beavers in Scotland. Guidance for land, property and infrastructure managers
NatureScot Beaver Mitigation Practical Guides: Protecting trees using wire mesh
NatureScot Licensing
SEPA WAT-PS-14-01: (The Controlled Activities Regulations) CAR and the Management of Beaver Structures
SEPA Water levels

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3 General Protection Plan

3.1 Background

Beaver (*Castor fiber*) are mainly nocturnal, large, semi-aquatic rodents with a characteristic large, flattened, scale-covered tail. Although they occurred across Scotland in the past before being hunted to extinction, they now have a limited distribution in Scotland with known populations primarily in Tayside, as a result of probable escapes or unofficial releases and through a Scottish Government approved trial reintroduction project in Knapdale. Other populations may exist outwith these areas.

The most sensitive period for beavers is during the kit dependency period normally between the 1st April and 16th August. They form territorial family groups (typically a monogamous pair with a number of yearlings and kits) and are largely restricted to freshwater and associated riparian broadleaved woodland habitats. Territories are related to food resources and will change over time in relation to availability of suitable food sources. They are considered to be 'ecosystem engineers' - altering their environment to create ponds and wetlands, altering sediment transport, importing woody debris into aquatic environments, creating standing dead wood and coppiced stands. Whilst overall beavers may have a positive impact on biodiversity, there can be negative impacts on certain species and habitats. It can also lead to conflicts with other land uses such as forestry, agriculture and infrastructure. Beavers form lodge and chambered burrow structures for breeding and will also form simple burrow structures for shelter and protection. The majority of beaver activity is found within 20 m of the water's edge. Aspen and willow appear to be preferred food choice for beaver, whilst conifers are generally avoided. In Scotland ash, rowan and birch are also browsed or felled. Additionally, a wide variety of herbaceous materials are also foraged including arable crops and bracken.

Beaver activity has been recorded across large parts of Tayside, spreading from the catchments of the River Tay and the River Earn. More recently, beavers have expanded their range naturally from Tayside into the Forth catchment and the Loch Lomond / Leven catchment. Further expansion is likely, with a single animal known to be in the Clyde catchment. The Scottish Government announced on the 24th November 2021 that it will actively support the expansion of the beaver population, promoting translocation, helping beavers to establish beyond where natural expansion would be expected to reach in the short term

Signs of beaver:

- Feeding remains – chiselled stumps of felled/gnawed trees which may include relatively large trees (sometimes in excess of 1 m diameter), ring barked trees and wood chips are often the most obvious signs of beaver activity. Other feeding signs include closely 'grazed lawn' areas of vascular plants, cleared areas of root or cereal crops adjacent to watercourses and feeding stations where beavers return repeatedly, evidenced by piles of peeled sticks or other feeding remains
- Beaver shelters – burrows are preferred to 'true' free-standing lodges. Burrows may extend up to 20 m from the water's edge (usually starting with an underwater entrance); however, most burrows only extend to within 10 m of a watercourse. Each beaver family will have several shelters within their territory:

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- Free-standing lodges have the majority of their chambers within a woody stick pile, with below ground burrowing limited due to unsuitable ground conditions for digging or water level. A free-standing lodge will have underwater entrance(s). Free-standing lodges can be breeding sites or resting places
- Bank lodges are formed where beavers pile branches and other material on top of the bank where the depth of the bank is not great enough. The majority of chambers are within the chambered burrow below ground. Bank lodges will have underwater entrance(s). Bank lodges can be breeding sites or resting places
- Chambered burrows have multiple entrances (below the waterline) with multiple chambers dug into the riverbank. Those with a woody material roof or branches and other material piled on to top of the bank where the depth of the bank is not deep enough are bank lodges (see description above). Chambered burrows can be breeding sites or resting places
- Simple burrows are usually short (less than 5 m in length) and lack multiple chambers. They can have multiple entrances above or below the waterline (typically 2-3). NatureScot's published interpretation does not consider simple burrows to be breeding sites or resting places. However, beavers are protected from disturbance when using simple burrows for shelter and protection. In practical terms, a non-intrusive survey of a burrow that appears to have an end chamber is unlikely to be able to distinguish between burrows with a single end chamber (simple burrow) or multiple end chambers (chambered burrow). Furthermore, a burrow with a single end chamber could feasibly be used as a resting place. This Species Protection Plan proposes a precautionary approach of initially classifying any burrow that appears to have an end chamber as a chambered burrow and, where necessary, monitoring to establish if the burrow is being used a breeding site or resting place
- Short burrows with no end chamber are a type of simple burrow which may be identified if the whole burrow can be viewed (there are no bends) or if the top of the burrow collapses and the burrow can be viewed down to the water line. Short burrows with no end chamber are not considered to be breeding sites or resting places but beavers are protected from disturbance when using them for shelter and protection. They do not require a licence to destroy if monitoring establishes that a beaver is not in occupation so would not be disturbed
- Temporary nest (or couch) - temporary loose structure consisting of a small area of gathered vegetation and shredded woody material on land, used as a 'day rest' or bed or used by family group or individuals when lodge or permanent burrow is temporarily uninhabitable (e.g., as a result of flooding). Temporary nests or couches are not considered to be breeding sites or resting places but beavers are protected from disturbance when using them for shelter and protection. They do not require a licence to destroy if monitoring establishes that a beaver is not in occupation so would not be disturbed

- Dams – built from logs, branches, grass mud and stones. These are built in mainly narrow or shallow watercourses to raise water levels to protect lodges or burrows.

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Dams are largely unknown on larger watercourses (>10 m wide). They are often built at pinch-points in the flow, such as at culverts or where the channel narrows around an obstruction such as a boulder or tree. *Dams over two weeks old are considered part of a breeding site or resting place where they regulate the water level*

- Beaver prints and trails – beaver paws have five clawed toes and are of a typical rodent shape although the hind feet are webbed. Tracks can appear to be three or four toed and hind paw prints are often obscured by the dragging tail
- Foraging trails (sometimes referred to as slides) – well-worn trails and pathways connecting to areas where beavers repeatedly forage on land. These have a semi-excavated appearance and can develop into canals from digging
- Canals – actively excavated channels of around 30 – 60 cm width, radiating from a waterbody, used as navigation channels for food and materials for construction. These can also form from foraging trails filling with water
- Scent-mounds or marks – used to delineate territories and communicate within territories but may not always be present if unrelated beavers are not encountered regularly. These mounds are constructed of mud, sticks and stones can be detected from a camphor-like smell. Lots of scent marking at the borders of a territory will only be found if there is another beaver territory adjacent
- Food caches – winter food stores associated with overwintering resting places, collected in the autumn. Cut branches are secured in the substrate, often just outside the entrance of the main lodge or chambered burrow in a territory being used for overwintering, and may have other branches woven through or piled on to them. Not all beaver families will make caches every winter, therefore absence of this field sign is not evidence that a lodge/burrow is not active. *A food cache is considered to be an integral part of the overwintering resting place so interference with or prevention of access to a food cache during winter months (from November to March) is likely to cause disturbance and require a licence*

3.2 Responsibilities

It is the *Contractor's* responsibility to comply with all the requirements of this Protection Plan where beaver may be present, and it is both the *Contractor's* and SSEN Transmission's responsibility to monitor compliance with the Protection Plan.

3.3 Legislation

Beaver is a European Protected Species (EPS) protected under Annexes II and IV of EC Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive). The Habitats Directive is transposed into Scottish law by the Conservation (Natural Habitats &c.) Regulations 1994 (as amended in Scotland). The protection has remained operable in Scotland following amendments of the Regulations by the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019.

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Beaver, Eurasian or European, is listed on Schedule 2 of the Conservation (Natural Habitats &c.) Regulations 1994 (as amended in Scotland). Current legislation means that beaver and their breeding sites and resting places are fully protected in Scotland.

In summary it is illegal to:

- Deliberately or recklessly kill, injure, take (capture) a beaver
- Deliberately or recklessly harass a beaver or a group of beavers
- Deliberately or recklessly disturb a beaver whilst it is occupying a lodge, burrow or other place it uses for shelter or protection
- Deliberately or recklessly disturb a beaver while it is rearing or otherwise caring for its young
- Deliberately or recklessly obstruct access to a beaver breeding site or resting place, or otherwise prevent their use
- Deliberately or recklessly disturb a beaver in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species
- Deliberately or recklessly disturb a beaver in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young

It is also an offence (of strict liability) to:

- Damage or destroy a breeding site or resting place of a beaver

NatureScot considers the breeding sites and resting places of beavers to be lodges, and chambered burrows and they are protected whilst a territory is active, regardless of whether or not they are physically occupied at that point in time.

Reckless acts would include not having or disregarding a mitigation plan aimed at protecting beaver resulting in killing, injury, and/or disturbance of any beaver, or protection of a beaver shelter; or carrying out an activity which would result in an offence where the potential to cause damage or disturbance could have reasonably been expected to have been foreseen but no action was taken to assess the risk.

Removing, notching or installing flow devices to established dams (more than two weeks old at the time that the action is taken) should be presumed to require a licence from NatureScot. This is due to the difficulty in ascertaining whether those dams protect breeding sites or resting places, particularly as burrow entrances may be concealed below water level.

NatureScot's Management Framework for Beavers in Scotland guidance on 'Managing the impacts of beavers in Scotland Guidance for land, property and infrastructure managers' lists actions that do not require a licence (subject to the protections above) which includes:

- Destroying short burrows with no end chamber
- Bank protection from burrowing activity
- Filling in canals created by beavers
- Fencing off areas to keep beavers out and use of protectors for vulnerable trees

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- Removing, notching, or installing flow-devices to new dams less than two weeks old (at the time that the action affecting the dam is undertaken)

NatureScot advises that in most cases of development works a licence is unlikely to be required provided that the works will not damage lodges, breeding burrows or affect beaver dams; affect their access or access to associated foraging habitats, or otherwise interrupt normal ecological behaviour beyond a short-term temporary period.

3.4 Surveying for Beaver

1. Surveys for beaver must be undertaken in all works areas containing suitable beaver habitat within or with connectivity to recorded ranges. Initial surveys will be considered valid for a maximum of 12 months prior to the works commencing (this includes site investigations). Information from any previous surveys (e.g., surveys carried out to provide data for Environmental Impact Assessment (EIA) or other assessments) can be a useful guide to beaver activity in an area, particularly if lodges were recorded. Where beavers are a consideration, a preconstruction check must also be made of work areas a maximum of two weeks prior to the start of works, to check for new lodges, burrows or associated dams or changes in occupation of previously recorded shelters.
2. Surveys must include all suitable habitat within 50 m of working areas, including access tracks. This is increased to all suitable habitat within 100 m of when works have potential for high noise and/or vibration (piling, blasting etc.). If the works involve significant changes to hydrology (water levels or flow rates) then the survey should be extended to suitable habitat across all affected areas.
3. Surveys must be carried out by suitably qualified and experienced ecologists and will identify whether any beaver shelters or dams are likely to be affected by the works.
4. Where evidence of beavers is detected, the ecologist will provide a map showing beaver habitat and the location of beaver shelters, dams, food caches, feeding signs, beaver prints and trails, foraging trails (slides), canals and scent-mounds or marks in relation to the works.
5. Shelters will be classified as the following and will note the number of entrances identified, evidence of activity and any food caches:
    - **Lodge (free-standing / bank)**
    - **Chambered burrow**
    - **Short burrow with no end chamber**
    - **Temporary nest (or couch)**
6. Dams will each be classified as one of the following:
    - **Newly built dam:** This classification may only be used if the dam was not reported during a survey of the same extent less than two weeks before it was first detected. The survey report must specify the date and survey details of the prior survey which did not detect the dam for the avoidance of doubt and to

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inform implications of delays to any works impacting that dam. Newly built dams are not considered likely to protect water levels at associated natal lodges or chambered burrows. *This will need to be reassessed if works will commence more than two weeks after any survey has classified the dam as newly built.*

- **Established dam:** Interpreted as more than two weeks old or where no prior survey has taken place in the two weeks prior to demonstrate that the dam is less than two weeks old. The record can be supported by a surveyor opinion on the potential for maintaining water levels at a lodge or chambered burrow used either for birth and rearing kits (a 'natal dam') or as a resting place outside of the kit dependency period (such as an overwintering resting place).

7. Appropriate monitoring should be undertaken where required to determine if any beaver shelter is being used for breeding or otherwise in use. Camera trap monitoring may require a licence from NatureScot. In certain circumstances an evening watch of the entrance location(s) may be more effective. The potential that a well-insulated beaver may not trigger a Passive Infrared (PIR) sensor camera trap immediately after emerging from water should be considered if relying solely on camera trap monitoring.

    - **Camera trap monitoring of lodge or burrow with underwater entrances:** movement in and out of the lodges and burrows will be very difficult to establish where the entrance is underwater, therefore use should be presumed if a beaver is detected nearby. Beavers may not be active on the banks close to these structures, therefore a bait (e.g., carrots or castoreum) will be required to attract beavers to the camera over a deployment which should be no less than 2 weeks.
    - Camera trap monitoring of lodge or burrow with entrances above water or temporary nest (or couch): camera trap deployment should take place over 2 weeks.
    - **Evening watch of the entrance location(s):** Watches should take place over at least two nights, each for four hours beginning in the evening and ending at nightfall (the start time in Scotland can vary from 18:30 to 21:00 depending on the time of year). The two visits should be spaced sufficiently far apart so that factors arising from river or weather conditions are negated. A one-week gap should be reasonable in most circumstances but should be extended to two weeks if river or weather conditions are unfavourable. Lodge/burrow watches should not be undertaken when:
    - water levels are high relative to normal levels (because the beavers may have temporarily moved)
    - during heavy rain (which may mask the view of beavers in the water)
    - when visibility is restricted (e.g., fog, heavy rain or snow)
    - when the water in front of the lodge/burrow is iced over
    - when the air temperature is below about -5°C (due to the potential that beavers will not be very active)

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If a lodge or burrow shows signs of recent maintenance (fresh sticks placed on top, or mud plaster on it) then an evening watch will not be necessary to establish use since the shelter is clearly in-use. A food-cache located in front of a lodge or burrow during the winter is also evidence that the shelter is in-use.

3.5 Review of Beaver Survey

Once a beaver survey has been carried out, the ecologist / Ecological Clerk of Works (ECoW) should review the survey results, apply the mitigation hierarchy outlined below and decide if a licence is required for the works.

Construction teams should be advised of existing / new constraints, together with mitigation and licensing requirements by the ecologist / ECoW.

Relevant site documentation and project information sources should be updated with new and amended information on beaver constraints as it is produced, with changes communicated to appropriate staff immediately.

All records of beaver activity are required to be submitted to SSEN Transmission in a format compatible with SSEN Transmission's GIS and must comply with the current data standard.

3.6 Mitigation Hierarchy

There is a general presumption against works being carried out which could disturb beavers in their place of shelter or requiring the destruction or exclusion of any lodge or chambered burrow. A hierarchical approach to mitigation of Avoidance - Disturbance - Destruction will be applied to any lodge / place of shelter that may be affected (see Appendix A Beaver Mitigation Decision Tree).

Beavers demonstrate a particular tolerance to human activities and appear to be undisturbed by the presence of people, road traffic or land management activities. NatureScot are of the opinion that land-use practices and other activities that avoid damage to lodges and chambered burrows, or dams that protect them, are unlikely to result in an offence and that specifying disturbance-free protection zones is not necessary. This SPP considers high noise and vibration activities and other construction activities that may impact on the integrity of structures and shelters used by beavers so proposes the use of protection zones which are subject to Risk Assessment.

Avoidance

This is the preferred option for all lodges, burrows and temporary nest (or couch) identified. The default protection zone will be 50 m from the closest part of a lodge, the nearest detected entrance of a burrow or nearest part of a temporary nest (or couch); or 100 m from the closest part to high noise and vibration (piling, blasting etc.) activities. This larger protection zone considers not only the potential for disturbance, but also burrow collapse from vibration.

The default protection zones may be reduced if in the opinion of a suitably qualified ecologist it can be demonstrated that it will not result in damage or destruction of lodges or chambered burrows or dams protecting them; will not obstruct or otherwise deny access to the lodge or chambered burrow; and will not result in disturbance of a beaver occupying a lodge, burrow or temporary nest (or couch) or a beaver while it is rearing or otherwise caring for its young.

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- Default protection zones will not be reduced around lodges or chambered burrows during the young dependency period which is normally between 1st April and 16th August without monitoring in accordance with this Species Protection Plan (for no less than two weeks) prior to the works to demonstrate that the structure is not relied upon for breeding or dependent young and those findings being considered as part of the Risk Assessment. Monitoring will continue until works within the protection zone have been completed
- Default protection zones should not be reduced overnight or within two hours of sunset / sunrise
- Free-standing lodges and bank lodges are more likely to be resilient to collapse from high vibration activities due to their woody structure

If a reduction in the protection zone is proposed, the ecologist / ECoW must complete a Risk Assessment using the form in Appendix B 'Beaver Protection Zone Reduction Risk Assessment' to support the reduction and detail why it is considered that offences will be avoided and will specify any mitigations (which could include the consideration of low ground pressure vehicles, ground protection panels, bog mats etc.) to minimise the risk to structures. Although disturbance is unlikely, care should be taken if operating near the water's edge at night where beavers are active. Although beavers are quite resilient to disturbance, changes in noise and activity levels may solicit a change in behaviour (i.e., urban beavers are used to human disturbance but other groups may not be). They are also likely to be intolerant of people at close-proximity when outside of the lodge or burrow.

The Risk Assessment must be made available for inspection by SSEN Transmission if requested.

Protection zones should be visibly marked and signed on the ground with appropriate material to restrict work access and must be maintained until works are completed. Site staff should be briefed of the purpose of the protection zone via a Toolbox Talk. Works will be micro-sited outwith the protection zone.

Activities impacting on any beaver dams shall be avoided in the first instance. Where impacts on, or manipulation, of a dam (whether newly built or established) cannot be avoided then Appendix C 'Beaver Dam Risk Assessment' must be completed to assess the risks of works to the ecological functionality of lodges or chambered burrows. Work on any established dam i.e., those older than two weeks old at the time that the action will be taken or cannot otherwise be demonstrated to be less than two weeks old at that time, will be presumed to require a licence from NatureScot unless it can be demonstrated beyond reasonable doubt that the dam does not protect a breeding site or resting place. Where surveys have identified the beaver dam is less than two weeks old it will be important to understand the programme of works. A licence will be required if there are any delays to this programme resulting in manipulation of a dam which is more than two weeks old.

There is no need to obtain a licence from NatureScot if the following can be **avoided**:

- damage to or destruction of lodges or chambered burrows and dams protecting them;
- disturbance of beavers occupying a lodge, burrow or temporary nest (or couch);
- disturbance of beavers rearing or otherwise caring for young;
- obstruction or otherwise denial of use of lodges or chambered burrows

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Destruction, removal or preventing access to food caches should be avoided generally and **must be avoided** during the winter months (from November to March) when they are integral to an overwintering resting place as this could impair beaver ability to survive, breed or reproduce, or rear or otherwise care for its young.

Disturbance

If, following the advice of a suitably qualified ecologist, it is not possible to establish a protection zone which eliminates the potential for disturbance then a licence application to NatureScot will be required.

Manipulation of established dams (more than two weeks old when works commence) will be considered as capable of damaging the ecological integrity of lodges and chambered burrows (this extends to negative impacts on any food cache which is integral to an overwintering resting place between November and March inclusive) and therefore could disturb beavers so will be presumed to require a licence application to NatureScot, unless it can be demonstrated beyond reasonable doubt that the dam does not protect a breeding site or resting place (also see comments under Destruction about impacts on dams capable of resulting in the destruction of the ecological integrity of these sites in case that is also applicable).

There is a presumption against licensing disturbance to beaver lodges, natal burrows and associated dams while beavers have dependent young. The young dependency period is normally between 1st April and 16th August. Licensed activity in this situation would have to wait until the beavers had finished breeding and the young are fully mobile.

Licence applications to NatureScot should be accompanied by a Protection Plan which outlines how disturbance will be minimised and how lodges and chambered burrows and associated dams regulating their water levels will be protected. This could include screening of works and modifying protection zones.

Destruction

Destruction of lodges and chambered burrows or destruction of dams associated with these structures should only be undertaken as a last resort.

- A licence will be required from NatureScot for destruction of lodges or chambered burrows or for manipulation of a dam which is capable in resulting in the destruction of the ecological integrity of lodges or chambered burrows
- A short burrow with no end chamber or a temporary nest (or couch) will not require a licence to destroy, if monitoring demonstrates that the structure is not currently occupied by a beaver (or another protected species such as otter)

There is a presumption against licensing damage to beaver lodges, natal burrows and associated dams while beavers have dependent young. The young dependency period is normally between 1st April and 16th August. Licensed activity in this situation would have to wait until the beavers had finished breeding and the young are fully mobile.

Licence applications to NatureScot should be accompanied by a Protection Plan which outlines how impacts will be minimised and individuals protected (see NatureScot Standing advice for planning consultations – Beavers).

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The plan should include monitoring to ensure breeding is not taking place in the feature and that the group has more than one lodge/chambered burrow in the immediate vicinity to switch to. It is unlikely that surveys will be able to establish the extent of a beaver territory. Seek advice from NatureScot if no alternative lodge/chambered burrow is identified or if more than one lodge/chambered burrow would need to be destroyed. Any lodge or chambered burrow subject to works under licence will be monitored during and after those works. Techniques for exclusion of lodges/chambered burrows or the provision of artificial lodges have not yet been established.

3.7 Mitigation Measures

3.7.1 General mitigation

1. All works close to waterbodies and watercourses showing signs of regular use by beavers should not take place at night or within two hours of sunset / sunrise, if possible.
2. Where works close to waterbodies and watercourses are required at night, lighting should be directed away from riparian areas. Works of a prolonged nature should consider visual screening such as a solid ply fence around 2 m tall.
3. All works close to watercourses and waterbodies must follow best practice measures outlined in the GEMPs, Scottish Environment Protection Agency (SEPA) guidance and *Contractor's* EMP to ensure their protection against pollution, silt and erosion.
4. Any temporarily exposed pipes or ducts should be capped when staff are off site to prevent beavers from gaining access.
5. All exposed trenches and holes should be provided with mammal exit ramps e.g., wooden planks or earth ramps when *Contractor*s are off site.
6. An emergency procedure should be implemented by site workers if a beaver, beaver shelter or beaver dam is unexpectedly encountered. All work within 50 m (100 m for high noise/vibration activities) should cease until a suitably qualified and experienced ecologist has inspected the site and determined the appropriate course of action. *Burrows are easy to miss because the entrances are usually underwater. Therefore, vigilance is needed by all workers.*
7. An exceptional circumstance procedure will be implemented should mitigation options not prove satisfactory in a particular case. Works will be halted whilst mitigation is determined (under consultation with NatureScot if required).
8. Beavers can be excluded from stands of trees using specification C.8 Permanent exclusion fencing described in Campbell-Palmer *et al.* (2016) using galvanised high-tensile mesh (locked-joint or weldmesh) with mesh dimension of 10 cm or less, erecting a fence of a minimum of 120 cm above ground, pegging out a skirt of around 40 cm into the ground from the direction that beavers are likely to approach from and burying a section of fence vertically. Fences within 5 m of a watercourses with steep sides underwater may be burrowed under from the bank so would need the fencing to extend vertically 0.5-1 m below normal water level and not as a horizontal skirt (so not rocky channels or those with shallow margins). NatureScot has published 'Beaver

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Mitigation Practical Guides: Protecting trees using wire mesh' concerning protection of individual trees as part of their Management Framework for Beavers in Scotland.

9. Where dams are required to be removed, notched or a flow control device installed the Appendix C 'Beaver Dam Risk Assessment' must be completed and a record kept with site documents. Reducing water levels to depths of less than 70 cm at burrow or lodge entrances is likely to make the feature unsuitable for beavers. It should be presumed that this should be done in compliance with the relevant CAR guidance and strict adherence to GBRs. SEPA has published the position statement WAT-PS-14-01: (The Controlled Activities Regulations) CAR and the Management of Beaver Structures.
10. Hard bank reinforcement options may be suitable where flood defences have been compromised by burrowing. Discussion with SEPA would be required.
11. Design and locate culverts for future beaver resilience. This could include using square profiles, widths greater than 5.5 m and consideration of siting to avoid pooling of water at the inlet. Culverts should be of a specification which allows safe passage by beavers. These must also comply with CAR requirements.

3.7.2 Monitoring and Reporting

1. The Ecologist / ECoW will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to beaver is delivered.
2. Reports will be submitted to NatureScot as required by the relevant licence.

3.8 Licensing Requirements

Licence applications must be sent into NatureScot Licensing Team sufficiently in advance of the works start date (approximately 6 weeks) to ensure that the licence is in place prior to any work commencing. There is a presumption against licensing during the kit dependency period between 1st April and 16th August. Licensed activity in this situation would have to wait until the beavers had finished breeding and the young are fully mobile.

Licence applications should be accompanied by a Method Statement.

Further guidance and details of how to apply for a beaver licence can be found on the NatureScot website (https://www.nature.scot/professional-advice/protected-areas-and-species/licensing/species-licensing-z-guide/beavers-and-licensing).

4 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New document created	N/A	1.00	Richard Baldwin
02				

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Appendix A Beaver Mitigation Decision Tree

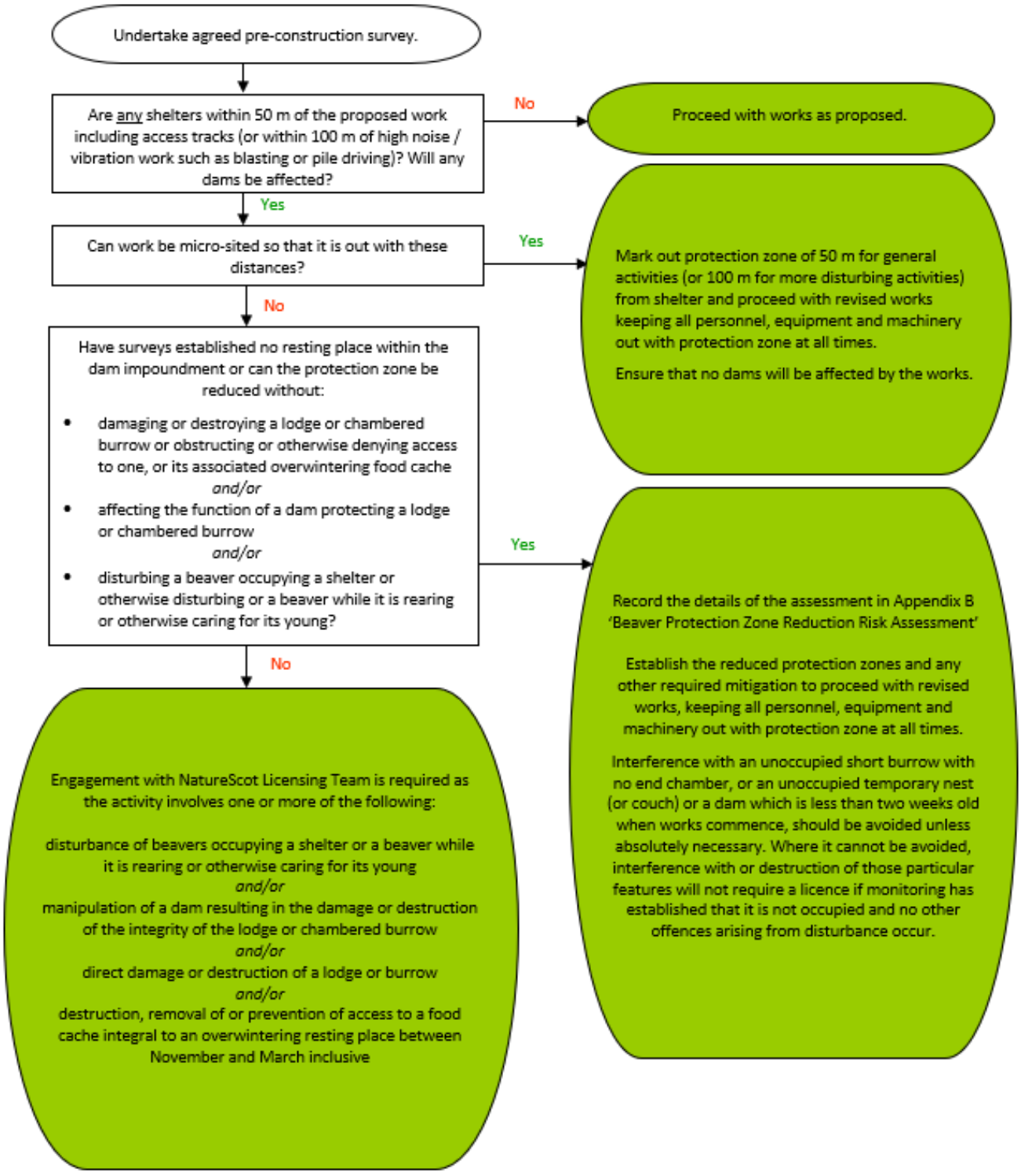


Figure A.1

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Appendix B Beaver Protection Zone Reduction Risk Assessment

<*Project name*>: Beaver Protection Zone Reduction Risk Assessment

<Title including record ID and location>

Scope of Work

This method statement is applicable for <*insert details of works to be undertaken*>. The work comprises of:

Location and Access/Egress

<*Insert details including map / plan showing beaver habitat and the location of signs, shelters and dams in relation to the works and access*>

Description of beaver shelter and relationship to works (including access routes)

Table B.1

Beaver shelter name	Type of shelter *Free-standing lodge / Bank lodge / Chambered burrow / Short burrow with no end chamber / Temporary nest (or couch)*	Photo reference	Shelter location and grid reference	Description of beaver shelter and justification for category assigned	Relationship with project works *Provide the distance in metres from works (including access routes) to closest visible part of beaver shelter (this may for example be an entrance on a bank)*

Programme of Works

The following works are planned within <*50 m, or 100 m for areas of potential high noise and vibration (piling, blasting etc.)*> of the beaver shelter:

<*Insert details including timing and duration*>

Planned Equipment and Labour

The operation will be carried out by the following personnel and using the following equipment

<*Insert details*>

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Risk Assessment / Mitigation / Supervision of Work

<Include:

- the details of the assessment (including the qualifications and experience of the Ecologist/ECoW undertaking the Risk Assessment);
- existing disturbance of the features (such as agricultural or forestry traffic, including any correspondence of their typical access routes with the proposed working area);
- detail the reduced protection zone extent (including distance from the nearest visible part of the beaver shelter);
- state why it has been assessed that damage to a lodge or chambered burrow will be avoided when the protection zone is reduced;
- state why it has been assessed that disturbance to a beaver occupying a shelter will be avoided when the protection zone is reduced (consideration should be given to avoiding activities with the potential to cause disturbance within a reduced protection zone overnight or within two hours of sunset / sunrise);
- state why it has been assessed that disturbance of a beaver rearing or otherwise caring for its young will be avoided when the protection zone is reduced (this should reference timing of potential disturbances with regards to any increased sensitivity to the proposed activities during the kit dependency period of 1st April to 16th August);
- explain why it has been assessed that the works will not obstruct or otherwise deny use of a lodge or chambered burrow;
- if the works are proposed to take place between November and March inclusive if a food cache is integral to the overwintering resting place and how it has been taken into account; and
- detail mitigation required to avoid offences.>

Summary of reduced protection zone distance and controls relating to beaver shelter

Table B.2

Beaver shelter name	Shelter location and grid reference	Proposed reduced protection zone distance (metres)	Mitigation measures	Proposed monitoring of shelter and controls

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Appendix C Beaver Dam Risk Assessment

<*Project name*>: Beaver Dam Risk Assessment

<Title including record ID and location>

Scope of Work

This method statement is applicable for <*insert details of works to be undertaken*>. The work comprises of:

Location and Access/Egress

<*Insert details including map / plan showing beaver habitat and the location of signs, lodges or burrows and dams in relation to the works and access*>

Description of beaver dam

Table C.1

Beaver dam name	Photo reference	Feature location and grid reference	Details of any beaver shelters with the potential of having water levels maintained by the dam	Dam manipulation works proposed and anticipated implications on water levels at associated beaver lodge or chambered burrow

Evidence that dam is newly built

Date that dam was first detected and details of surveyor: <*Include details of the surveyor*>

Description of dam and approximate water depth at any associated beaver lodge or chambered burrow: <*Include details of any associated overwintering food cache if the works are proposed to take place between November and March inclusive* >

Date and details any recent prior survey during which the dam had not been detected: <*Include details of the surveyor*>

Programme of Works

The following works are planned which will impact on the dam:

<*Insert details including timing and duration*>

Planned Equipment and Labour

The operation will be carried out by the following personnel and using the following equipment

<*Insert details*>

Risk Assessment / Mitigation / Supervision of Work

Removing, notching or installing flow devices to established dams (those more than two weeks old) is presumed to require a licence from NatureScot unless it can be demonstrated beyond reasonable doubt that the dam does not protect a breeding site or resting place. This is due to the

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difficulty in ascertaining whether those dams protect breeding sites or resting places particularly as burrow entrances may be concealed below water level.

<Include:

- the details of the assessment (including the qualifications and experience of the Ecologist/ECoW undertaking the Risk Assessment);
- an assessment of the relationship of the dam to any beaver lodge or chambered burrow (and any food cache integral to an overwintering resting place if the works are proposed to take place between November and March inclusive);
- if it has been assessed that manipulation of the dam will not affect water levels at an associated lodge or chambered burrow and damage or destroy the ecological functionality of the site then detail why, making reference to previous survey details if it is classified as a 'newly built dam' less than two weeks old;
- if a dam is more than two weeks old then the risk assessment should detail the assessment undertaken under appropriate field conditions (which avoids periods following prolonged heavy rainfall and/or high water levels) which detected no evidence of recent field signs and/or camera trap monitoring over a minimum of two weeks demonstrating that there is no occupancy of associated lodges or chambered burrows (taking into account that although beavers are active all year that they may be confined to lodges and burrows under ice during extreme winter conditions);
- reference to SEPA water level data (*www.sepa.org.uk/environment/water/water-levels*); and
- mitigation required to ensure that water levels at associated lodges and chambered burrows are not compromised.

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