A9 DUALLING
PERTH TO INVERNESS

Appendix 12.7

Great Crested Newts

Transport Scotland

August 2018

TRANSPORT SCOTLAND
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Tables

1. Introduction

1.1.1 This appendix details the findings of great crested newt (*Triturus cristatus*) surveys undertaken to inform the DMRB Stage 3 Assessment for the Proposed Scheme. The appendix also details the nature conservation valuation and impact assessment in relation to great crested newts.

1.1.2 The assessment of the impacts of the Proposed Scheme on great crested newts has been undertaken in accordance with standard methods (as detailed below).

2. Methodology

2.1 Desk Study

Biological Records

2.1.1 The following organisations were contacted for great crested newt records within 1km of the existing A9:

- Highland Biological Recording Group (HBRG);
- North East Scotland Biological Records Centre (NESBReC).

2.1.2 Records received prior to 2007 have not been included as records older than 10 years are not considered to be relevant.

Waterbodies

2.1.3 Ordnance Survey maps and the Where's the Path website[i] were used to initially identify the presence of waterbodies within 250m of the Proposed Scheme, in order to establish if the land within and immediately surrounding the Proposed Scheme could be used as terrestrial habitat for great crested newts. This is termed the Study Area, see Figure 12.16. This species typically uses suitable terrestrial habitat up to 500m from a breeding pond. However, there is a notable decrease in great crested newt abundance beyond a distance of 250m from a breeding pond and as such this was taken as the Study Area[ii].

2.1.4 Additional waterbodies discovered during site visits have also been considered and any waterbodies found to be no longer present were noted and removed from the list of ponds requiring survey.

2.1.5 Flowing watercourses (including rivers, burns and drainage ditches with obvious water movement) are considered unsuitable sites for breeding great crested newts and were excluded from the list of possible breeding sites.

2.2 Field Survey

Habitat Suitability Assessment

2.2.1 Each waterbody located within the Study Area was visited by two experienced ecologists[1] to assess their suitability to support great crested newts. Forty-four ponds within 250m of the Proposed Scheme were subject to a habitat suitability survey in 2015. An additional pond (Pond 72) was also identified in 2017 during the otter and water vole surveys.

2.2.2 This assessment followed the Habitat Suitability Index (HSI) methodology produced by Oldham *et al.* (2000)[iii] as amended by subsequent guidance by Amphibian and Reptile Groups UK[iv]. Each waterbody subject to HSI has been assigned a numerical score indicating the following suitability classes:

- poor < 0.5;
- below average 0.5 – 0.59;
- average 0.6 – 0.69;
- good 0.7 – 0.79; or
- Excellent > 0.8.

2.2.3 The HSI is a quantitative measure of habitat quality for great crested newts. The HSI is a numerical index between 0 and 1, derived from an assessment of ten habitat variables known to influence the presence of newts such as geographic location, waterbody size and permanence, the presence of predatory fish and wildfowl, availability of suitable terrestrial habitat and proximity to other waterbodies, and scores each factor based on its level of suitability. An HSI of 1 is optimal habitat (high probability of occurrence), while an HSI of 0 is very poor habitat (minimal probability of occurrence). The HSI is calculated on a single waterbody basis, but takes into account surrounding terrestrial habitat and local waterbody density. If a waterbody has a very low HSI score (<0.5) then there would typically be a minimal chance of great crested newt presence.

2.2.4 Six ponds were revisited in May 2017 to re-do the HSI assessment and record any changes since 2015. These were Ponds 6, 20, 58, and 70 which were dry in the original survey and Ponds 28 and 29 which had restricted access (Pond 29 was viewed from a distance in 2015 and appeared to be dry, this was confirmed in 2017 when the pond was accessed). The pond (Pond 72) identified in 2017 was subject to HSI in July 2017.

Environmental DNA (eDNA) Sampling

2.2.5 Thirty-seven accessible ponds within the Study Area (250m of the Proposed Scheme) were subject to eDNA survey to determine the presence or likely absence of great crested newts. eDNA surveys were undertaken in April and May 2016. Pond 28 was not accessible during 2016. However, access was granted in 2017 and the pond was subject to eDNA sampling in June 2017.

2.2.6 Environmental DNA sampling is a survey technique that uses DNA analysis of water samples collected from a waterbody to determine whether great crested newts are present/likely to be absent within the sampled waterbody. Environmental DNA sampling is valid between mid-April and June.

[1] Lucy Elliott (GCN licence 2015-7268-CLS-CLS), Rebecca Hill (GCN licence 2015-7704-CLS-CLS) of Mouchel Consulting and Scott Knowles (GCN Licence 28742) of Heritage Environmental Limited.

2.2.7 Water samples were taken from ponds where HSI field assessment had been undertaken and where access was possible. Waterbodies found to be dry during the eDNA site visits were excluded from the eDNA sampling. eDNA sampling was undertaken by suitably trained and experienced ecologists[2]. The eDNA sampling protocol used follows that in Biggs, *et al* (2014)[v].

Presence/Likely Absence Surveys

2.2.8 For ponds where a positive eDNA result was recorded, detailed presence/likely absence surveys were undertaken in May and June 2017. In addition, ponds that were located within 50m of ponds with a positive eDNA result were also subject to presence/ likely absence surveys.

2.2.9 The ponds were surveyed for great crested newts in accordance with the Natural England Guidelines, Great crested newt mitigation guidelines (Natural England 2001[vi]).

2.2.10 All surveys were led by experienced[3] ecologists holding current great crested newt survey licences.

Incidental Records

2.2.11 In addition to the above surveys, any sightings of great crested newts made during the other ecological surveys undertaken as part of the Stage 3 Assessment were recorded.

2.3 Limitations and Deviations

2.3.1 Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The absence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. Nevertheless, the results of this survey have allowed an evaluation of the likely presence/ absence of great crested newts on this site at the present time.

2.3.2 Due to the dry conditions in spring 2017, ponds that were previously suitable for great crested newts were dry during three of the four presence/likely absence surveys. However, even if the ponds are dry or shallow for several years in a row this does not preclude them as suitable breeding habitat for great crested newts in the future. In general, the periodic drying of a pond is beneficial for great crested newt populations as this will prevent fish (predator of great crested newts) establishing in the same pond.

2.3.3 Ponds identified as dry in 2015 (Ponds 6, 20, 29, 58 and 70) were revisited in 2017 to determine their condition and found to be dry.

2.3.4 A HSI was not undertaken on Pond 72 until July 2017. July is outside of the time period considered acceptable for eDNA surveys and is outside of the survey period for presence/likely absence surveys and as such further surveys on this pond were not completed in 2017. Pond 17 was identified as outside of the Study Area in 2017 as such no eDNA surveys or presence/likely absence surveys were undertaken in 2017. These ponds are now included within the Study Area due to changes in the design. A precautionary approach to the assessment is taken for these ponds with the assumption that great crested newts are present and pre-construction surveys (including eDNA surveys) for great crested newts will be undertaken, as discussed later in this document.

[2] Rebecca Hill and David Lovett (GCN licence 2015-11740-CLS-CLS) of WSP.
[3] Iain Adderton (GCN licence 29777) of Practecology, Scott Knowles (GCN Licence 28742) of Heritage Environmental Limited and Sarah Kydd (GCN licence 16723) of Atkins Limited.

Habitat Suitability Assessment

2.3.5 The HSI, whilst a useful tool for indicating likely breeding suitability of a waterbody, is not completely reliable as great crested newts may breed in ponds that HSI scores suggest may be unsuitable. Assessments made using the HSI can vary for subjective reasons where, for example, the judgement of the surveyor is important in assigning value to one of its dependent factors. Nevertheless, the HSI surveys undertaken provide valuable information about the waterbodies to inform further survey.

eDNA Sampling

2.3.6 Environmental DNA sampling was not undertaken on thirteen ponds. Ponds 6, 20, 29, 58 and 70 are late successional ponds with limited or no standing water. These ponds were not subject to eDNA surveys as there was insufficient water to sample.

2.3.7 Environmental DNA surveys were not undertaken on Ponds 38, 39 and 32 as they were infilled. Pond 26 and 27 were scoped out as no standing water was present.

2.3.8 At Pond 33, no further surveys could be undertaken for health and safety reasons; cows and calves prevented surveyors from entering the field. Pond 72 and Pond 17 were identified outside of the suitable eDNA survey window (after July 2017) and could not be surveyed.

2.3.9 Natural variability in the timing of great crested newt breeding at individual ponds along with geographic variation in weather conditions could mean that the presence of eDNA within ponds will vary throughout the great crested newt breeding season. A negative result from eDNA testing is not necessarily confirmation that great crested newts do not breed in a given pond. The assessment of the likelihood of a pond being used as a great crested newt breeding pond has been based on all available evidence including existing records and habitat suitability index scores.

Presence/Likely Absence Surveys

2.3.10 The temperatures towards the end of April 2017 were generally low as is common in the Highlands. However, surveys commenced as great crested newt activity had been recorded by surveyors within other ponds located in the region. It was considered necessary to start the surveys to ensure great crested newt activity was not missed. During the first survey on Pond 14, 15, 24, 44, 44a and 45, bottle traps could not be installed as freezing water was a risk due to the expected low temperatures overnight. This is not considered to be a limitation as an alternative method was used during this survey (torching, egg searching and netting).

2.3.11 Only one presence/likely absence survey was carried out at Ponds 15 and 24; the remaining three surveys could not be completed as the ponds were found to be dry during the subsequent visits. Both ponds tested positive for eDNA in 2016. However, due to the dry spring in 2017, these waterbodies were dry and did not provide suitable habitat for great crested newts.

2.3.12 Pond 44 and 44a are stocked with fish and as such the tenant requested that surveyors take measures to avoid potential damage to stock, as such netting was not undertaken at these ponds. The pond is stocked with fish to encourage osprey to feed at the pond and it is reported by the tenant that osprey visit the waterbody. The tenant agreed that bottle traps could be used for surveys. Additionally, the low water levels and identification of nesting birds (oystercatcher and ringed plover) on the east bank of Pond 44a between the second and fourth surveys prevented bottle trapping, egg searches or netting of this pond. However, Pond 44a was subject to a torch survey during all four

visits. It should be noted that surveyors only surveyed the pond margins from the west bank, well away from the east bank where the oystercatcher and ringed plover were nesting. The presence of fish and birds reduces the suitability of the ponds for great crested newts as they may predate newts.

2.3.13 Due to heavy rain during the surveys on the 22 May 2017, torch surveys of 44 and 45 was delayed until the following night. This is not thought to be a limitation as three methods were used over two days.

2.3.14 Presence/likely absence surveys were not undertaken at Pond 21. This pond is separated from the Proposed Scheme by the A95, and it is considered that this forms a barrier to dispersal of great crested newts to habitat within the Proposed Scheme. As such, presence/likely absence surveys were not undertaken in this location during the 2017 surveys. This was agreed with Scottish Natural Heritage (SNH) in April 2017 (see details in Annex A).

2.3.15 Pond 17 is located approximately 500m from Pond 21 (connected by woodland) and is also separated from the Proposed Scheme by the A95. No specific consultation has been undertaken with SNH for this pond. The precautionary principle is followed here and it is assumed that a population of great crested newts is present, however, as with Pond 21, the A95 forms a barrier to dispersal to habitat within the Proposed Scheme.

2.3.16 Presence/likely absence surveys were not undertaken at Pond 8. Pond 8 is located 7m from the Proposed Scheme. The results from the 2016 eDNA survey were inconclusive. This pond is considered sub-optimal habitat and has been assessed as having 'poor' suitability to support great crested newts; the 2015 HSI score was 0.44 and had reduced to 0.38 when re-surveyed in 2017. No desk study records were received for great crested newts within 500m of this pond. No further assessment has been undertaken for the pond as the pond is a bog pool and is situated within an area of blanket bog and as such is likely to be acidic. This combined with its isolation from other ponds and lack of open water is likely to preclude the presence of great crested newts.

3. Impact Assessment Methodology

3.1 Introduction

3.1.1 Ecological features have been subject to nature conservation evaluation. Impact significance has then been assessed taking into account the nature and magnitude of potential impacts (including duration, extent and reversibility) and their consequent effects on important ecological features. The approach to nature conservation evaluation and impact assessment was agreed across the wider A9 Dualling Programme.

3.2 Nature Conservation Evaluation

3.2.1 Individual ponds have been assigned levels of importance for nature conservation for great crested newts based on the criteria set out in Table 3.1.

3.2.2 The general approach to defining the importance of ecological features follows that of CIEEM (2016)[vii]. The approach is also in line with advice given in DMRB Interim Advice Note 130/10 'Ecology and Nature Conservation: Criteria for Impact Assessment'[viii].

3.2.3 Ecosystems, habitats and species within the Ecological Zone of Influence (EZoI[4]) are assigned levels of importance for nature conservation based on the criteria set out in Table 3.1.

3.2.4 The rarity, ability to resist or recover from environmental change, and uniqueness of an ecological feature, function/role within an ecosystem, and level of legal protection or designation afforded to a given ecological feature are all factors considered in determining its importance.

3.2.5 Only important ecological features are subject to impact assessment. Therefore, ponds that do not meet the criteria for at least local importance for great crested newts are not considered in detail in this assessment.

Table 3.1: Importance Criteria

Importance	Criteria
International	**Ecosystems and Habitats** Ecosystems or habitats essential for the maintenance of: • internationally designated areas or undesignated areas that meet the criteria for designation; and/or • viable populations of species of international conservation concern. **Species** Species whose presence contributes to: • the maintenance of qualifying habitats, communities and assemblages that occur within internationally designated sites or within undesignated areas that meet the criteria for such designation.
National	**Ecosystems and Habitats** Ecosystems or habitats essential for the maintenance of: • qualifying communities and assemblages that occur within nationally designated sites or within undesignated areas that meet the criteria for such designation; and/or • viable populations of species of national conservation concern. **Species** Species whose presence contributes to: • the maintenance of qualifying habitats, communities and assemblages that occur within nationally designated sites or within undesignated areas that meet the criteria for such designation; or • the maintenance and restoration of biodiversity and ecosystems at a national level, as defined in the Scottish Biodiversity Strategy (SBS) (Scottish Government 2013, 2015) [ix].
Regional	**Ecosystems and Habitats** Ecosystems or habitats essential for the maintenance of: • communities and assemblages that occur within regionally important sites or localities listed as being of conservation importance in the Highland Biodiversity Action Plan (BAP) or Cairngorms Nature Action Plan (CNAP) (including Local Nature Reserves (LNR)) or within undesignated areas that meet the criteria for such designation; and/or • viable populations of species of regional conservation concern. **Species** Species whose presence contributes to:

[4] EZoI is an area defined by the assessment in which there may be ecological features subject to impacts and subsequent effects as a result of the Scheme

Importance	Criteria
	• the maintenance and restoration of biodiversity and ecosystems at a regional level, as defined in the Highland BAP or CNAP.
Authority Area	**Ecosystems and Habitats** Ecosystems or habitats essential for the maintenance of: • populations of species of conservation concern within the authority area. **Species** Species whose presence contributes to: • the maintenance and restoration of biodiversity and ecosystems within a relevant area such as Aviemore in the CNAP.
Local	**Ecosystems and Habitats** Ecosystems or habitats essential for the maintenance of: • populations of species of conservation concern within the local area (for example a Local Nature Reserve). **Species** Species whose presence contributes to: • the maintenance and restoration of biodiversity and ecosystems at a local level.
Less than Local	**Ecosystems and Habitats** • Ecosystems or habitats that do not meet the above criteria, i.e., supporting at least populations of species of conservation concern within the local area. **Species** • Features that are considered to be absent or do not meet any of the above criteria.

3.3 Impact Assessment

3.3.1 For the purposes of this assessment, the impact descriptors in Table 3.2 are taken to summarise the overall characterisation of positive or negative impacts in accordance with CIEEM (2016)[vii], including:

- impact extent/scale (e.g. entire habitat loss, partial habitat loss or indication over specific area affected);
- direct or indirect impact (e.g. direct mortality of individuals from vehicle collisions, or indirect mortality of individuals from reduced prey resources due to pollution of watercourses);
- reversibility of impact (reversible or irreversible);
- frequency of impact (single event, recurring or constant);
- duration of impact (short-term, medium-term, long-term or permanent); and
- likelihood of occurrence (certain/near certain, probable, unlikely or extremely unlikely).

3.3.2 The character of impacts is defined using the criteria set out in Table 3.2. Impact character was identified as High, Medium, Low or Negligible, following the above impact characterisation approach.

Table 3.2: Impact Magnitude and Character for Ecological Features

Impact Descriptor	Impact Characterisation
High	An impact resulting in a permanent effect on the distribution and/or abundance of a habitat, species assemblage/community or population, in such a way as to alter the integrity of the feature and its conservation status. If negative, this type of effect would reduce the integrity of the feature and its conservation status. If positive, it would result in an improvement to the conservation status of the feature.
Medium	An impact resulting in a long-term but reversible effect on the distribution and/or abundance of a habitat, species assemblage/community or population. If negative, this type of effect would have neutral long-term implications for the integrity of the feature or its conservation status. If positive, it would not alter the long-term conservation status of the feature.
Low	An impact resulting in a short-term reversible effect on the distribution and/or abundance of a habitat, species assemblage/community or population.
Negligible	No discernible impact on the distribution and/or abundance of a habitat, species assemblage/community or population.

Impact Significance

3.3.3 Each feature's importance and the potential impacts upon it have been determined through surveys and consultation, to provide a robust basis for making a professional decision on the appropriate focus of the impact assessment. The assessment is then focused on those impacts that result in potentially significant effects on important ecological features. For example, an area of amenity grassland would not meet the criteria for local ecological importance and would not progress through the assessment process, as the assessment only includes features of local importance or above. However, any impact on a Site of Special Scientific Interest (SSSI) would progress through the assessment process as these sites are designated as nationally important. Habitats, species and species groups that are considered to have a nature conservation value of less than local are not considered important ecological features[5] in the context of this assessment. Any impact on such a feature as a result of the Proposed Scheme is considered unlikely to have a significant effect on the conservation status of such habitats or species on a local, regional, national or international scale. Therefore, features assessed to be of less than local nature conservation value have been scoped out of the ecological impact assessment (EcIA).

3.3.4 CIEEM (2016)[vii] notes that impacts that are likely to be relevant in an assessment are those that are predicted to lead to significant effects (negative or positive) on important ecological features. Significant effects are those that undermine the conservation status[6] of important ecological features. Knowledge and assessment of construction methods and operational activities, together with the ecological knowledge of ecologists with experience of similar large-scale infrastructure projects, has been used to identify the potential impacts of the project on ecological features.

3.3.5 Following the above approach, the assessment aims to characterise ecological impacts rather than placing a reliance only on magnitude. The character of an impact is used to

[5] An ecological feature is considered important based on many factors including its rarity, diversity, naturalness, context in the wider landscape, size and distribution as set out in A Nature Conservation Review (Ratcliffe, 1977).
[6] Conservation status for habitats is determined by the sum of the influences acting on the habitat and its typical species that may affect its long-term distribution, structure and function as well as the long-term distribution and abundance of its population within a given geographical area. Conservation status for species is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its population within a given geographical area.

inform the determination of whether or not the impact on the feature in question is a significant one.

3.3.6 Where impacts on internationally, nationally or regionally important ecological features are characterised as 'Medium' or 'High', they are considered to be potentially significant under the terms of the Environmental Impact Assessment (EIA) Regulations[x].

3.3.7 Impacts characterised as 'Low' on internationally important features, can be determined as potentially significant as can impacts characterised as 'High' on features of Authority Area importance. There may in addition be a number of impacts on a feature that, whilst not of a character to be significant in themselves, may cumulatively result in a significant effect on that feature.

3.3.8 Where significant impacts are identified, mitigation will be developed to reduce impacts where feasible and are taken into account in the assessment of residual effects.

3.4 Mitigation

3.4.1 The principles of the mitigation hierarchy[xi] have been applied when considering potential impacts and subsequent effects on ecological receptors within the EZoI. The principles of the mitigation hierarchy are that impacts on biodiversity should be subject to the following sequential mitigation actions:

- avoidance;
- mitigation;
- compensation; and
- enhancement.

3.4.2 For the purpose of this assessment, mitigation refers to measures that are considered essential to avoid and reduce negative impacts of the Proposed Scheme. Compensation refers to measures taken to make up for the loss of, or permanent damage to, biological resources through the provision of replacement areas. Unless otherwise stated, all compensatory measures are considered to be part of the essential mitigation package.

3.4.3 The mitigation measures described within this EcIA have been incorporated into the design and construction programme and taken into account in the assessment of residual effects. The mitigation aims to avoid or negate impacts on ecological features in accordance with best practice guidance and UK, Scottish and local government environmental impact, planning and sustainability policies. These mitigation measures include those required to achieve the minimum standard of established good practice together with additional measures to further reduce any negative impacts of the Scheme. The mitigation measures include those required to reduce or avoid the risk of committing legal offences.

3.4.4 Mitigation is also designed to produce a net gain for biodiversity where practicable in line with policy and guidelines[vii].

3.4.5 Mitigation measures set out in this environmental statement (ES) will be specified as environmental commitments in the contract documents to ensure implementation by the appointed Contractor.

3.4.6 Impacts that are not significant (including those where compliance with regulation is required) would be expected to be avoided or reduced through the application of a Construction Environmental Management Plan (CEMP) and best working practice (e.g. mitigation of potential pollution impacts through adherence to standard best practice and

guidelines). Significant ecological impacts are expected to be mitigated through a combination of best practice and typical, proven mitigation methods along with mitigation targeted to specific locations as described in the assessment.

4. Results

4.1 Desk Study

4.1.1 Three records of great crested newt dating from 2007 were provided by HBRG and NESBReC, details of which are provided in Table 4.1.

Table 4.1: Great Crested Newt Desk Study Results

X Ref.	Y Ref.	Location	Date	Distance from Proposed Scheme (m)	Source	Details
291100	817700	In the near vicinity of Loch Vaa	03/05/2014	115m	HBRG	Dead on road.
291200	817800	In the near vicinity of Loch Vaa	08/05/2014	212m	HBRG	Seen running across the road.
291100	817700	Lochan by Loch Vaa	15/04/2007	115m	NESBReC	1 adult female; 1 juvenile male; 2 adult males.

4.1.2 Forty-nine waterbodies were identified within the Study Area following a review of mapping and a further pond was identified during the 2017 otter and water vole surveys, bringing the total to 50; these ponds are shown on Figure 12.16.

4.2 Incidental Records

4.2.1 A single juvenile great crested newt was recorded on the bank of Pond 21 on the 27 April 2017 during the capercaillie surveys (OS Grid NH 91161 17691).

4.3 Field Survey

Habitat Suitability Assessment

4.3.1 Of the 50 waterbodies within the Study Area, three were filled in or vegetated to the extent that there was no indication that any water had been present for a long time (32, 38, 39). Ponds 26 and 27 identified from OS were found to be pools adjacent to a small burn with running water in them. These waterbodies were not subject to an HSI and were excluded from further assessment in relation to great rested newts.

4.3.2 The remaining 45 ponds were subject to HSI, in June 2015, April 2016 and between May-July 2017, the results of which are presented in Table 4.2 below.

eDNA Sampling

4.3.3 Of the 45 ponds subject to HSI assessment, 37 were subject to eDNA survey in 2016 and 2017. Five waterbodies were found to be dry (6, 20, 29, 58 and 70). One pond was not surveyed due to health and safety reasons and two ponds were only located after the survey window (full details on these ponds are provided in the limitations section above).

4.3.4 Pond 8, located 7m from the Proposed Scheme, was sampled during 2016 and the results were inconclusive. This pond is considered sub-optimal habitat and has been assessed as having 'poor' suitability to support great crested newts, with a HSI of 0.38 recorded in 2017. This pond is a bog pool located within an area of blanket bog and as such the water chemistry is likely to be very acidic which reduces it suitability to support great crested newts. This combined with its isolation form other ponds (there are none present within 500m), low HSI score, lack of open water and absence of any desk study records within 500m of this pond further reduces the likelihood of great crested newts being present.

4.3.5 The water sample from Pond 21 was negative for great crested newt DNA. However, an incidental record from 2017 of a juvenile great crested newt recorded on the banks of Pond 21 would indicate this was a false negative and desk study records also show presence of great crested newts at this location. This failure to detect newts can be attributed to a very small great crested newt population, practical difficulties in obtaining water samples from the entirety of the pond perimeter (due to its size and vegetation) and collecting water from broad and very shallow marginal zones.

4.3.6 The findings of the HSI surveys and eDNA analysis are shown in Table 4.2. Analysis of the samples collected has shown that three ponds are likely to support a breeding population of great crested newts: Ponds 15, 24, and 45 (highlighted in grey).

Table 4.2: Great Crested Newt HSI and eDNA Survey Results

Pond ID	X Ref.	Y Ref.	Distance from Proposed Scheme (m)	HSI score	eDNA result	Subject to Presence/Likely Absence Survey
2	283056	825837	140m	0.38	Negative	No
6	285481	823948	46m	0.36	Unsuitable for sampling at time of survey, as dry	No
8	286141	823803	8m	0.38	Inconclusive	No
14	291161	819053	29m	0.60	Negative	Yes
15	291097	819031	0	0.31	Positive	Yes
16	291191	818381	39m	0.58	Negative	No
17	291321	818387	106m	0.55	No data	No
18	289928	815326	0	0.39	Negative	No
19	290877	818046	78m	0.53	Negative	No
20	290959	817730	0	0.21	Unsuitable for sampling as dry at the time of survey	No
21	291138	817774	150m	0.36	Negative	No Incidental record of juvenile great crested newt recorded
22	290922	817505	0	0.45	Negative	No
23	290658	817098	0	0.45	Negative	No
24	290539	816612	78m	0.20	Positive	Yes
25	290453	816359	29m	0.39	Negative	No
26	290281	816345	0m	Excluded Running water habitat	Excluded	Excluded
27	290183	816411	13m	Excluded Running water habitat	Excluded	Excluded
28	290287	816153	43m	0.49	Negative	No

Pond ID	X Ref.	Y Ref.	Distance from Proposed Scheme (m)	HSI score	eDNA result	Subject to Presence/Likely Absence Survey
29	290334	816021	12m	0.29	Unsuitable for sampling at time of survey as dry.	No
30	290191	815537	52m	0.59	Negative	No
31	290934	818185	36m	0.50	Negative	No
32	290343	815120	129m	Excluded Pond no longer present	Excluded	Excluded
33	290348	815075	157m	0.44	Not sampled for health and safety reasons	No
34	290228	815023	113m	0.44	Negative	No
35	290102	814901	42m	0.59	Negative	No
36	290172	815564	21m	0.58	Negative	No
37	289797	814874	0	0.57	Negative	No
38	289305	814087	54m	Excluded Pond no longer present	Excluded	Excluded
39	289415	813311	201m	Excluded Pond infilled	Excluded	Excluded
42	288806	812391	204m	0.52	Negative	No
43	289076	812127	34m	0.47	Negative	No
44	289181	812144	19m	0.31 Pond 44 and 44a assessed together.	Negative Pond 44 and 44a assessed together.	Yes
44a	289200	812144				Yes
45	289199	812069	0m	0.33	Positive	Yes
50	288571	810373	267m	0.54	Negative	No
54	287609	810190	16m	0.37	Negative	No
57	286208	810084	165m	0.52	Negative	No

Pond ID	X Ref.	Y Ref.	Distance from Proposed Scheme (m)	HSI score	eDNA result	Subject to Presence/Likely Absence Survey
58	286162	810086	177m	0.34	Unsuitable for sampling at time of survey as dry.	No
59	286138	810131	226m	0.50	Negative	No
60	286096	810074	184m	0.38	Negative	No
61	286075	810055	175m	0.46	Negative	No
62	285935	810051	227m	0.47	Negative	No
63	285932	810023	205m	0.49	Negative	No
64	285856	810000	232m	0.31	Negative	No
65	285935	809968	159m	0.40	Negative	No
66	285948	809922	117m	0.38	Negative	No
67	285986	809949	113m	0.34	Negative	No
68	285859	809894	135m	0.48	Negative	No
69	285847	809856	107m	0.41	Negative	No
70	285789	809730	10m	0.30	Unsuitable for sampling at time of survey as dry.	No
72	290894	820765	33m	0.30	No data	No

Presence/Likely Absence Surveys

4.3.7 For ponds where a positive eDNA result was recorded (Pond 15, 24 and 45) detailed presence/likely absence surveys were undertaken. These surveys were also undertaken for ponds that were located within 50m of these ponds. Six ponds in total were subject to presence/likely absence surveys.

4.3.8 No great crested newts were recorded during the surveys.

4.3.9 Amphibians were recorded including low populations of palmate newts in Ponds 44, 44a and 45. Frog and toad tadpoles were recorded in Ponds, 44, 44a and 45 and two individual toads were recorded in Ponds 44 and 45.

4.3.10 Fish (minnows, stickleback and trout) were recorded in Ponds 44, 44a, and 45. Ponds 44 and 44a were stocked with trout.

4.3.11 The great crested newt presence / likely absence survey results are summarised in Table 4.3 below.

Table 4.3: Great Crested Newt Presence/Likely Absence Survey Results

Pond ID	Presence/Likely Absence Survey Date	Survey Methodology	Survey Results	Other Newt Species Recorded	Notes
14	25/04/2017	Torching Egg Searching Netting	0	0	N/A
	08/05/2017	Torching Bottle Trapping Egg Searching	0	0	
	22/05/2017	Bottle Trapping Egg Searching Netting	0	0	
	23/05/2017	Torching	0	0	
	30/05/2017	Torching Bottle Trapping Egg Searching	0	0	
15	25/04/2017	Torching Egg Searching Netting	0	0	N/A
	08/05/2017	Pond Dry	Pond Dry	Pond Dry	
	22/05/2017	Pond Dry	Pond Dry	Pond Dry	
	30/05/2017	Pond Dry	Pond Dry	Pond Dry	
24	25/04/2017	Torching Egg Searching Netting	0	0	N/A
	08/05/2017	Pond Dry	Pond Dry	Pond Dry	
	22/05/2017	Pond Dry	Pond Dry	Pond Dry	
	23/05/2017	Pond Dry	Pond Dry	Pond Dry	

Pond ID	Presence/Likely Absence Survey Date	Survey Methodology	Survey Results	Other Newt Species Recorded	Notes
	30/05/2017	Pond Dry	Pond Dry	Pond Dry	
44	25/04/2017	Torching Egg Searching	0	0	Tadpoles found in traps. Stocked pond - Trout and stickleback present.
	08/05/2017	Torching Bottle Trapping Egg Searching	0	Nine palmate newts	
	22/05/2017	Bottle Trapping	0	0	
	23/05/2017	Torching	0	Three palmate newts	
	30/05/2017	Torching Bottle Trapping Egg Searching	0	Five palmate newts	
44a	25/04/2017	Torching Egg Searching	0	0	Stocked pond - stickleback present.
	08/05/2017	Torching	0	One palmate newt	
	24/05/2017	Torching	0	0	
	30/05/2017	Torching	0	0	
45	25/04/2017	Torching Egg Searching Netting	0	0	A toad and toad and frog tadpoles were recorded. Numerous small fish, mainly sticklebacks were recorded. A single trout was also recorded.
	08/05/2017	Torching Bottle Trapping Egg Searching	0	One palmate newt	
	22/05/2017	Bottle Trapping Egg Searching	0	0	
	23/05/2017	Torching	0	0	

Pond ID	Presence/Likely Absence Survey Date	Survey Methodology	Survey Results	Other Newt Species Recorded	Notes
	30/05/2017	Torching Bottle Trapping Egg Searching	0	0	

4.3.12 In summary, four ponds have confirmed great crested newt presence: Ponds 15, 21, 24, 45.

4.3.13 Ponds 15, 24 and 45 were confirmed as supporting a great crested newt population through eDNA survey. Pond 21 was confirmed as supporting a great crested newt population through desk study and an incidental observation made during other ecological surveys.

4.3.14 Other amphibians (toads, frogs and frog tadpoles) were recorded in Ponds 44 and 45.

5. Nature Conservation Evaluation

5.1.1 The waterbodies surveyed for great crested newts have been assigned levels of importance for great crested newts based on the criteria set out in Table 5.1.

5.1.2 Given the variation in the waterbodies present across the Study Area, individual ponds have been assigned levels of importance rather than providing a Scheme wide valuation for great crested newts. Positive evidence of great crested newts was recorded using eDNA sampling in 2016 and a single great crested newt was identified during other ecology surveys. No evidence of great crested newts was found during the presence/likely absence surveys undertaken in 2017.

Table 5.1: Great Crested Newt Valuation

Pond ID	Valuation	Rationale for Valuation
Pond 15, 24 and 45	Local	The evidence recorded in 2016 during eDNA sampling indicates that great crested newts are using Ponds 15, 24 and 45. Analysis of the samples collected has shown that these ponds are likely to support breeding populations of great crested newts. No great crested newts were recorded during the presence/likely absence surveys. Given the positive eDNA results, it is likely that there are small populations of great crested newts at these ponds. The Cairngorms Nature Action Plan does not specifically mention great crested newts. However, one of the four aims that is discussed in the plan is the improvement of wetland connectivity and quality for biodiversity. Great crested newts are listed on the CNPA list of “medium and low” priority species.
Pond 21		Desk study records and an incidental record from 2017 confirm that great crested newts are using Pond 21. As such this pond, is considered to be of Local importance.
Pond 17, 33 and 72		These ponds were not subject to detailed survey (eDNA sampling or presence/likely absence surveys). As such a precautionary approach has been taken and a small population of great crested newts is assumed to be present. Pond 17 is located approximately 500m from Pond 21 which has a confirmed population. These ponds are connected by woodland.
Remaining ponds within the Study Area (refer to	Less than local	The ponds and the surrounding terrestrial habitat offer some suitable breeding, shelter and foraging habitat for great crested newts. However, no evidence of great crested newts was recorded during any of the surveys carried out.

Pond ID	Valuation	Rationale for Valuation
Table 4.2 for a list of ponds).		

6. Potential Impacts

6.1 Introduction

6.1.1 Great crested newts have been identified at Ponds 15 and Pond 45, both of which are located within the Study Area and have connectivity to the Proposed Scheme. It is considered that the populations present are small.

6.1.2 Ponds 21 and 24 have a known population of great crested newts and Pond 17 is connected to Pond 21 (approximately 500m away). However, the A95 forms a barrier separating these ponds from the Proposed Scheme. It is therefore considered unlikely that great crested newts using these ponds will be using terrestrial habitats within the Proposed Scheme and they are not considered further.

6.1.3 Ponds 33 and 72 were not subject to eDNA or presence/likely absence surveys. Suitable terrestrial habitat connects these ponds to the Proposed Scheme. A precautionary approach has been taken regarding these ponds, and it is assumed that they support small populations of great crested newts.

6.1.4 The impact assessment therefore considers impacts on small populations of great crested newts using Ponds 15, 33, 45 and 72 and suitable terrestrial habitats within the Proposed Scheme and within a 250m radius of these ponds.

6.2 Construction

6.2.1 During construction, great crested newts may be affected as a result of:

- loss of habitats through land-take;
- severance of habitat (i.e. between ponds and terrestrial habitat);
- mortality due to various construction related activities; and
- disturbance due to elevated levels of construction related disturbance, such as increased noise, lighting, and human presence.

6.3 Operation

6.3.1 It is not considered that there will be any potential effects on great crested newts during operation. The existing A9 already provides a barrier to movement and the Proposed Scheme will not result in any additional severance.

7. Mitigation

7.1.1 A list of standard mitigation measures has been developed for all projects within the A9 Dualling Programme; those related to great crested newt are detailed below in Table 7.1. In addition to these, Scheme specific mitigation measures have also been developed, as detailed in Table 7.2 below. Specific mitigation measures are presented in Figure 13.4, Landscape and Ecological Mitigation plan.

7.1.2 A full list of ecological mitigation measures is provided in Environmental Statement (ES) Chapter 12: Ecology and Nature Conservation; measures of relevance to great crested newt have been extracted and are detailed in Table 7.1. Some of these mitigation measures are relevant to a number of species; all species are referred to in the tables below for consistency between ES Chapter 12 and the other ES Appendices.

Table 7.1: A9 Standard Mitigation Commitments

Mitigation Item[7]	Approximate Chainage/ Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-E1	Throughout Proposed Scheme	Pre-Construction	Pre-construction surveys will be undertaken to verify and, where required, update the baseline ecological conditions set out in the ES. The scope of the pre-construction surveys will be confirmed with SNH prior to them being undertaken.	To update the baseline ecological conditions set out in the ES.	SNH
SMC-E2	Throughout Proposed Scheme	Pre-Construction	Prior to construction a suitably qualified (or team of suitably qualified) Ecological Clerk of Works (ECoW) will be appointed and will be responsible for implementation of the Ecological Management Plan. The ECoW will: • provide ecological advice over the entire construction programme, at all times as required; • undertake or oversee pre-construction surveys for protected species in the areas affected by the Proposed Scheme; and ensure mitigation measures are implemented to avoid and reduce impacts on ecological features; and • monitor the implementation of the mitigation measures during the construction phase to ensure compliance with protected species legislation and commitments within the ES. The ECoW will be a member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and will have previous experience in similar ECoW roles. All ECoWs will be approved by Transport Scotland to be appropriately qualified for the role. The ECoW will be appointed in advance of the main construction programme commencing to ensure pre-construction surveys are undertaken and any advance mitigation measures required are implemented.	To ensure the implementation of the Ecological Management Plan.	None required

[7] Only items relevant to great crested newts are listed

Mitigation Item[7]	Approximate Chainage/ Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-E6	Throughout Proposed Scheme	Pre-Construction	The Contractor will obtain and comply with the requirements of any protected species derogation licences in respect of works that have the potential to breach applicable conservation legislation necessary to construct the project. Licensing may be for the UK and/or protected species.	To comply with conservation legislation.	SNH
SMC-E9	Throughout Proposed Scheme	Pre-Construction, Construction & Post-Construction	Plant and personnel will be constrained to a prescribed working corridor through the use of, where practicable, temporary barriers to minimise the damage to habitats and potential direct mortality and disturbance to animals located within and adjacent to the Proposed Scheme working corridor.	To protect habitats and fauna.	None required
n/a (note)	Throughout Proposed Scheme	Construction	Best practicable means will be employed to avoid the disturbance of sensitive species and habitats with noise, dust and air pollution. The Standard Mitigation Measures as detailed in ES Chapter 11 (Road Drainage and the Water Environment), ES Chapter 13 (Landscape and Visual), ES Chapter 16 (Air Quality) and ES Chapter 17 (Noise and Vibration) will be implemented to protect aquatic and terrestrial habitats and species.	To protect aquatic and terrestrial habitats and species.	n/a

Table 7.2: Project Mitigation Commitments

Mitigation Item[8]	Approximate Chainage/ Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P11-E29	Throughout Proposed Scheme	Construction	Ponds of Local ecological importance or greater and lost to construction will be replaced as near to their original location as practically possible, or within the nearest suitable habitat, whichever is more ecologically advantageous. This will be undertaken at a ratio of 1 pond loss: 1 pond replacement. SuDS and drainage features shall not act to compensate for the loss of any pond; however, SuDS shall be designed to maximise their biodiversity value, in line with the CIRIA SuDS Manual[xii]. Replacement ponds will be designed following good practice principles as described by SEPA Guidance on good practice in the management and creation of small waterbodies in Scotland[xiii]. An ecological watching brief and fish rescue plan will be instigated in consultation with SNH and SEPA during pond dewatering activities.	To compensate for loss of ponds and maintain/enhance habitats for associated species (including fish and invertebrates).	SNH, CNPA and SEPA
P11-E32	Throughout Proposed Scheme	Construction	Mitigation measures to avoid or reduce potential impacts on surface waters will be employed, including adherence to Guidance for Pollution Prevention (GPP)[xiv] during construction, and appropriate road drainage and runoff treatment.	To protect fauna and habitats from pollution of surface waters during construction.	None
P11-E34	Throughout Proposed Scheme	Pre-Construction & Construction	Species Protection Plans to be produced pre-construction and agreed with SNH. Plans will be produced for great crested newts. Where appropriate, the Species Protection Plans will include monitoring plans.	To comply with conservation legislation and to protect fauna	SNH
P11-E35	Throughout Proposed Scheme	Construction	Appropriate exclusion zones in line with best practice and as agreed with SNH should be maintained. Where exclusion zones of the required size are not possible and if a licence is not needed the amended	To comply with conservation legislation and to protect fauna	SNH

[8] Only items relevant to great crested newts are listed

Mitigation Item[8]	Approximate Chainage/ Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			buffer zone should be agreed with the relevant statutory body.		
P11-E49	Ponds 15, 17, 24, 33, 45 and 72	Pre-Construction	eDNA testing should be undertaken on ponds 15, 17, 24, 33, 45 and 72 between 15th April to the 30th June in the year prior to construction commencing. If a positive eDNA result is recorded then the Species Protection Plan will be implemented.	To confirm presence/absence of great crested newts and, where present, protect individuals during construction.	None
P11-E50	Around Ponds 15, 17, 33, 45 and 72	Construction	All vegetation clearance within 250m of ponds 15, 17, 33, 45 and 72 will be undertaken following a Precautionary Method of Working (PMW) for great crested newts. This PMW will be produced by a suitability qualified ecologist and will include details on approaches and timings for vegetation clearance and methods for hand searches of vegetation by an ecologist. The mitigation measures for Pond 45 include the provision of egg laying plants and timing restrictions for in situ pond works (between November and late January when great crested newts are less likely to be in the pond). An EPS licence application with a detailed mitigation plan will be produced for Pond 15 and Pond 24. This mitigation measure may not be required and will depend on the outcome of the pre-construction eDNA surveys.	To comply with conservation legislation and to protect great crested newts and their habitat.	SNH

8. Residual Impacts

8.1 Construction

8.1.1 Great crested newts have been identified at Pond 15 and Pond 45. The impacts on these ponds are assessed in Table 8.1. Given that no great crested newts were recorded in Pond 15 or Pond 45 during the presence/likely absence surveys, pre-construction eDNA surveys are recommended at these locations. In the event that negative results are obtained from these surveys, then the recommended mitigation measures should be reviewed and revised accordingly by the ECoW, in consultation with SNH.

Table 8.1: Great Crested Newts – Specific Impacts, Mitigation and Residual Impacts - Construction

Pond Ref.	Potential Impact	Characterisation of Impact (Pre-mitigation)	Mitigation	Residual impact
Pond 15 – within Proposed Scheme footprint Value: Local	Loss of pond and surrounding terrestrial habitat	Extent: This pond will be permanently lost. Terrestrial habitat will be cleared extending to the north and south of the pond along its western side for the construction of the road and associated earthworks. Terrestrial habitat will remain present on the eastern side of the pond. Effect: Direct negative Duration: Permanent Frequency and timing: One off event Reversibility: Irreversible Likelihood: Certain Impact Descriptor: High	SMC-E1 SMC-E2 SMC-E6 SMC-E9 P11-E29 P11-E32 P11-E35 P11-E49 P11-E50	Not significant
	Mortality and disturbance	Extent: The movement of construction vehicles and machinery used to remove the pond and terrestrial habitat may result in the death or disturbance of individual great crested newts. Effect: Direct negative Duration: Permanent Frequency and timing: One off event Reversibility: Irreversible Likelihood: Certain Impact Descriptor: High	SMC-E1 SMC-E2 SMC-E6 SMC-E9 P11-E29 P11-E32 P11-E35 P11-E49 P11-E50	Not significant
Pond 45 Value: Local	Loss of terrestrial habitat	Extent: Terrestrial habitat on the western side of the pond, adjacent to the A9 will be lost. Terrestrial habitat will also be removed along the line of the proposed drainage ditch to the south of the pond. The pond will be retained; however, a small area of the bank will be modified where the outfall from the drainage is to be installed. There may be local de-watering to install the headwall and/or foundations for the headwall. Terrestrial habitat will remain present on the eastern side of the pond. The drainage ditch that will outfall into the pond, is unlikely to affect the water	SMC-E1 SMC-E2 SMC-E6 SMC-E9 P11-E29	Not significant

Pond Ref.	Potential Impact	Characterisation of Impact (Pre-mitigation)	Mitigation	Residual impact
		quality of the waterbody. The drainage channel is for pre-earthworks drainage assisting with catchment drainage only and will not take any run off from the new road. A Sustainable Urban Drainage System (SuDS) pond is to be installed on the western side of the road at this location. Currently, the road runoff drains into Loch Puladdern and is untreated. Pond 45 is connected to Loch Puladdern as water flows from the loch, through to Pond 44 and then into Pond 45. The introduction of the SuDS pond will remove this untreated run off and so ultimately the water quality of Pond 45 is likely to improve. Effect: Direct negative Duration: Permanent Frequency and timing: One off event Reversibility: Irreversible Likelihood: Certain Impact Descriptor: High	P11-E32 P11-E33 P11-E35 P11-E49 P11-E50	
	Mortality and disturbance	Extent: The movement of construction vehicles and machinery used to construct the drainage outfall and mainline may result in the death or disturbance of individual great crested newts. Effect: Direct negative Duration: Permanent Frequency and timing: One off event Reversibility: Irreversible Likelihood: Certain Impact Descriptor: High	SMC-E1 SMC-E2 SMC-E6 SMC-E9 P11-E29 P11-E32 P11-E35 P11-E49	Not significant

8.1.2 Pond 33, was subject to HSI, but not an eDNA survey. The HSI survey recorded very low habitat suitability with a score of 0.44. This pond is 120m from the Proposed Scheme. There were two ponds located adjacent to Pond 33: Pond 32 which is within 7m and Pond 34 which is within 79m, both of which had negative eDNA results, thus further reducing the likelihood that great crested newts are present in Pond 33. Considering the distance to the Proposed Scheme and the low risk of encountering great crested newts, based on the HSI score and the findings of other pond surveys in the wider area, it is considered unlikely that the Proposed Scheme will affect great crested newts using this pond or terrestrial habitat in the vicinity of this pond. Given this, the risks of direct mortality and disturbance to great crested newt is considered to be very low.

8.1.3 Pond 72 has not been subject to eDNA survey or presence/likely absence survey. The Proposed Scheme is located approximately 30m from this pond. The pond is separated from the Scheme by the Highland Mainline Railway, and whilst this is not considered to be a barrier to movement, given the suitability of the terrestrial habitat in the area immediately around the pond it is considered that the risk of encountering great crested newts at this location is very low.

8.1.4 Based on the current level of data for Ponds 33 and 72, a Precautionary Method of Working for great crested newts should be followed at these locations. With the adoption of this measure there will be no significant impacts on great crested newt, should they be present. The project specific mitigation measures include pre-construction eDNA surveys at these locations. If the result of these tests are negative, then no further mitigation will be required. If a positive result is obtained for either pond, then the impact assessment on these waterbodies will be reviewed and additional mitigation measures may be required.

9. Conclusion

9.1.1 Positive eDNA evidence for great crested newts was collected in Ponds 15, 24 and 45 in 2016 and Pond 21 has a known population of great crested newts. Pond 17 was not subject to eDNA survey, but taking the precautionary approach it is assumed that a population is present.

9.1.2 No impacts are predicted on the populations in Ponds, 17, 21 and 24 due to the degree of separation between the ponds and their surrounding terrestrial habitat and the Proposed Scheme, with the A95 acting as a likely barrier to movement.

9.1.3 Pond 15 will be lost as a result of the Proposed Scheme; mitigation measures are recommended which include the provision of a replacement pond and a European Protected Species (EPS) licence to include a detailed mitigation plan once exact construction proposals in this location are known. By following these mitigation measures no significant impacts are predicted on the great crested newt population using this pond and surrounding terrestrial habitats.

9.1.4 Pond 45 will be retained, but a new outfall installed from a drainage ditch, and clearance of terrestrial habitat will be undertaken around the pond. Mitigation measures are recommended which include approaches and timescales for works within the pond, for enhancements to be made to the pond to provide additional egg laying plants and an EPS licence application to include a detailed mitigation plan once exact construction proposals in this location are known. By following these mitigation measures no significant impacts are predicted on the great crested newt population using this pond and surrounding terrestrial habitats.

9.1.5 For Ponds 33 and 72, a precautionary approach to the assessment has been taken as no eDNA surveys or presence/likely absence surveys have been undertaken. Mitigation measures are proposed for these ponds and no significant impacts are predicted.

[i] Where's the Path (2017) Available at: https://wtp2.appspot.com/wheresthepath.htm (Accessed 14/06/2016)
ii English Nature (2004) An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt (ENRR576) http://publications.naturalengland.org.uk/publication/134002
[iii] Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal*. 10:143-155.
[iv] Amphibian and Reptile Groups of the UK (2010) Advice Note 5: Great Crested Newt Habitat Suitability Index.
[v] Biggs, J., Ewald, N., Valentini, A., Gaboriaud, C., Griffiths, R.A., Foster, J., Wilkinson, J., Arnett, A., Williams, P. and Dunn, F. (2014) Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.
[vi] English Nature (2001) Great Crested Newt Mitigation Guidelines.
[vii] Chartered Institute of Ecology and Environmental Management (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
[viii] Design Manual for Roads & Bridges (2010) Interim Advice Note (IAN) 130/10 - Ecology and Nature Conservation: Criteria for Impact Assessment.
[ix] Scottish Government (2013, 2015) Scottish Biodiversity Strategy. Available at: http://www.gov.scot/Publications/2013/06/5538 (Accessed 14/06/2016)
[x] http://www.legislation.gov.uk/uksi/2011/1824/contents/made (Accessed 18/04/2017)
[xi] Department for Communities and Local Development (2012). National Planning Policy Framework, Paragraph 118. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2 (Accessed 14/06/2016)
[xii] Construction Industry Research and Information Association (2015) SUDS Manual C753.
[xiii] Scottish Environment Protection Agency (2000) Ponds, Pools and Lochans: Guidance on good practice in the management and creation of small waterbodies in Scotland.
[xiv] http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/ (Accessed 13/04/2016)

Annex A - Consultation

A.1 Consultation with Scottish Natural Heritage

Sent: 18 April 2017 13:18
To: Keith.Duncan@snh.gov.uk
Subject: Stage 3 survey methods A9 Dualling

Hi Keith,

Thanks for taking the time to chat with me regarding the Stage 3 survey methods the other week.

Just to confirm our conversation, I have checked our eDNA survey records for the waterbody at NH911, 178 and this did come back negative although we do have desk study records confirming GCN presence. I suspect the negative result may have something to do with the size of the waterbody. We have reviewed the location against the design and the habitat in the surrounding area and we are not proposing to undertake GCN surveys at this location. Given the separation of the Scheme from the pond by the A95, it is considered that the risk of encountering any GCN within the Scheme footprint at this location is extremely low, especially when combined with the suitability of the terrestrial habitat around the pond thus reducing the likelihood of GCN travelling to the habitats within the Scheme. We shall detail mitigation in this location including the use of a Precautionary Method of Working document to manage the low risk of encountering any GCN in this location.

With respect to reptiles we propose to undertake an assessment of habitat suitability, based on the NVC data to identify the areas where reptiles are most likely to be present. Standard mitigation measures will then be recommended, i.e. Precautionary Methods of Working, to cover hand searching of vegetation and avoiding clearance of hibernacula. I have also now confirmed this approach with the CNPA and they are happy with this.

With respect to red squirrels, we propose to undertake a habitat suitability appraisal across the route, covering a 50m buffer either side of the road, this will also record dreys, feeding signs and any sightings made. On the Tomtain Moy scheme, we followed the Forestry Commission survey methodology of 4 visits over a 2 week period. We found that the data collected on visits 2-4, did not give us any additional valuable information that the was not already collected on the initial visit. With this in mind, we propose to undertake 1 survey visit rather than the 4. As discussed we will review the data collected on the first visit to see if this picks out any areas which may merit further investigation. On the phone you mentioned consideration of a later visit to pick up if second litters are occurring. It is very unlikely that this level of information would recorded if following the standard forestry commission method, as specific drey monitoring would likely be required. For the purposes of the Stage 3 assessment and impact assessment the key will be to identify areas of suitable habitat and squirrel presence. Specific pre-construction surveys will then investigate any drey locations where removal is required. The need for such pre-construction checks will be detailed within the Stage 3 mitigation measures. I have also now confirmed this approach with the CNPA and they are happy with this.

If you have any questions just let me know.

Kind regards