CHAPTER A8: ECOLOGY

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A.8. ECOLOGY

A.8.1 Executive Summary

A.8.1.1 Chapter 8 of the EIA Report (January 2019) assesses the potential effects on Important Ecological Features from the Proposed Varied Development. This Chapter updates these results where relevant in light of the changes to the Proposed Varied Development (Addendum), taking into account consultation feedback from SNH.

A.8.1.2 An updated otter survey was carried out to inform this Proposed Varied Development (Addendum). The results confirm that there would be no likely significant effect on this species, allowing the conclusion to be reached that it would have no adverse impact on the integrity of the Caithness and Sutherland Peatlands SAC.

A.8.1.3 Updated habitat surveys were completed in May 2019 to ground-truth previously collected habitat data. This updated habitat data has been used to inform the potential effects from the construction of the Proposed Varied Development (Addendum).

A.8.1.4 Consideration has been given to the potential effect of the construction and operation phases of the Proposed Varied Development (Addendum) to bat species. Appropriate mitigation will be implemented during the construction phase of the development to reduce potential effects to foraging and commuting bats using woodland edges and watercourses across the site. Consideration has also been given to the relocation of Turbine 4 (T4b) ensuring it is compliant with Natural England (2014) guidance and the updated SNH *et al.* (2019) guidance. As such, potential effects to bats remain as previously predicted in Chapter 8 of the EIA Report (January 2019) for the Proposed Varied Development.

A.8.1.5 Effects to habitats from the construction, operation and decommissioning of the Proposed Varied Development (Addendum) have been assessed and found to be the same as those detailed in Chapter 8 of the EIA Report (January 2019) for the Proposed Varied Development; not significant. However, whilst the potential effects from the development remain as previously predicted the overall area of habitat lost or altered by the development will increase from 23.55ha to 26.78ha including a c.0.4ha increase to bog habitats to 17.26ha. The supporting Gordonbush Wind Farm Extension Habitat Management Plan (see Appendix 8.2 of the EIA Report (January 2019) provided for restoration of 20ha of degraded blanket bog habitats; this remains sufficient to mitigate for the small potential increase in the affected area of bog habitats from the Proposed Varied Development (Addendum).

A.8.1.6 There would be no negative effect on implementation of the Gordonbush Estate Habitat Management Plan (GEHMP) and the proposed Gordonbush Wind Farm Habitat Management Plan would seek to supplement the GEHMP through an additional 20ha of blanket bog restoration on the Gordonbush Estate.

A.8.1.7 Overall, the effects of the Proposed Varied Development (Addendum) would remain as predicted for the Proposed Varied Development and Consented Development, with no significant impacts on designated sites, species or habitats.

A.8.2 Introduction

A.8.2.1 The aim of this Chapter is to assess the effect of the Proposed Varied Development (Addendum) upon ecological features associated with the development site and surrounding area; these include both terrestrial and aquatic species and habitats. The specific aims of the Chapter are to identify and assess potential construction effects, potential operational effects, and potential decommissioning effects.

A.8.2.2 This Chapter should be read in conjunction with Chapter 8 of the EIA Report (January 2019) supporting an application to vary the consent for the Gordonbush Extension Wind Farm (the Proposed Varied Development). Where information does not require updating between this document and the EIA Report (January 2019), this is stated, and the original information only reproduced where it provides context for the updated assessment.

A.8.2.3 This Chapter's assessment is undertaken under the 2017 EIA Regulations which require inclusion in the EIA Report of the main respects in which it is considered that the likely significant effects on the environment of the Proposed Varied Development would differ from those described in connection with the relevant section 36 consent. These differences are reported on within the EIA Report (January 2019). This Chapter provides an update on those previously identified likely significant effects considering the alterations to the Proposed Varied Development (Addendum) infrastructure. Cross references to Chapter 8 of the EIA Report (January 2019) are made where relevant.

A.8.2.4 This assessment has been completed by Chartered Ecologists with relevant accreditations (CEcol, MCIEEM) of RPS.

A.8.2.5 All of the proposed variations as detailed in Section 1.4, Chapter 1: Introduction and Paragraph 8.3.1 of this Chapter are relevant to this assessment.

A.8.3 Consented Development

A.8.3.1 Unchanged, please refer to Section 8.2 of the EIA Report (January 2019).

Summary of Effects

A.8.3.2 A summary of the effects of the Consented Development are provided in Section 8.2 of the EIA Report (January 2019).

Consultation Responses

A.8.3.3 No objections to the application for the consent of the Consented Development were received.

A.8.3.4 Of relevance to this Chapter, Scottish Natural Heritage (SNH) considered the 2015 ES and 2016 FEI Report in respect of potential impacts on the Caithness and Sutherland Peatlands Special Area of Conservation (in relation to otter), peatlands and protected species. Effects in relation to the HMP for the existing Gordonbush Wind Farm were also considered. SNH did not object to the Consented Development, but recognised the requirement for certain mitigation measures, such as pre-construction surveys.

Relevant Mitigation Measures and Conditions of Consent

A.8.3.5 The 2015 ES identified mitigation measures in the form of pre-construction surveys, the employment of an Ecological Clerk of Works (ECoW), micro-siting and the production of a Construction Environmental Management Plan (CEMP) including relevant protected species protection plans. These measures remain relevant to this document.

A.8.3.6 The Conditions of Consent relevant for ecological matters are provided in full in the EIA Report (January 2019).

A.8.4 Scope of Assessment

Study Area

A.8.4.1 As shown on Figure A1.4: Proposed Varied Development - Addendum, the site application boundary for the Proposed Varied Development (Addendum) has been revised compared with that shown for the Proposed Varied Development in the EIA Report (January 2019).

A.8.4.2 The changes introduced as a result of the Proposed Varied Development (Addendum) are as follows:

- Relocation of T4 by 113m to grid reference 285796 913484, and renaming to T4b;
- Construction of an additional c.300m section of access track between the proposed Lidar station and T12;
- Removal of Borrow Pit Search Area (2) from beside T4;
- Creation of new a new Borrow Pit Search Area in the Bullburn plantation to the west of the Allt a Mhuilinn;
- Installation of a temporary bailey bridge at the water crossing on the Allt a Mhuilinn to access the Bullburn borrow pit; and
- Relocation of the concrete batching plant.

A.8.4.3 As such, the resulting assessment relating to habitat loss, the effects of the turbines on foraging and commuting bats, and effects on the local otter population are reconsidered in this document. For context, details of the changes introduced by the Proposed Varied Development (Addendum) compared with the Proposed Varied Development, as reported within the EIA Report (January 2019), are illustrated in Figure A1.4: Proposed Varied Development.

Consultations

A.8.4.4 Pre-application consultation with relevant stakeholders was undertaken in August and September 2018 for the Proposed Varied Development. Please refer to Table 8.1 in Chapter 8 of the EIA Report (January 2019).

A.8.4.5 Since submission of the Section 36C Application in January 2019 for the Proposed Varied Development, further consultation responses have been received. Those relevant to this Chapter are summarised in Table A8.1, below.

Table A8.1: Relevant Consultee Responses Following Submission of the EIA Report (January 2019)

Consultee	Summary Response	Comment/Action Taken
RSPB (28.03.19)	Welcome the proposed 20ha of bog restoration to help mitigate the impact of the Proposed Varied Development. Noted that the Proposed Varied Development will cause a reduction of 7ha of ground under the management of the Gordonbush Estate Habitat Management Plan and suggest an additional provision of bog restoration should be made to offset this.	The Gordonbush Extension Wind Farm Habitat Management Plan has been provided to reflect the predicted effects from the Proposed Varied Development's infrastructure to bog habitats. An increase in potential effects to bog habitats of c.0.4ha is predicted by the Proposed Varied Development (Addendum). The Gordonbush Extension Wind Farm Habitat management is deemed sufficient to mitigate for the potential effects to bog habitats.
SNH (06.03.19)	**Caithness and Sutherland Peatlands SAC** Stated that the development is likely to have a significant effect on SAC otter and an appropriate assessment will be required by the Scottish Government. Based on the appraisals to date, if mitigation as detailed in the response is implemented, the proposal will not adversely affect the integrity of the site.	Relevant mitigation as recommended by SNH will be incorporated into the Otter Species Protection Plan provided as Appendix A8.1 of this submission. Consequently no further information is considered necessary to allow the Scottish Government to complete their Appropriate Assessment.

	Habitat Management Plan SNH welcome the additional bog restoration to help mitigate impacts from the development and do not consider that the proposal would prevent the Gordon Bush Estate's HMP objectives from being achieved.	The Gordonbush Extension Wind Farm Habitat Management Plan has been provided to reflect the predicted effects from the Proposed Varied Development's infrastructure to bog habitats. An increase in potential effects to bog habitats of c.0.4ha is predicted by the Proposed Varied Development (Addendum). The Gordonbush Extension Wind Farm Habitat management is deemed sufficient to mitigate for the potential effects to bog habitats.

A.8.5 Legislation, Policy & Guidance

A.8.5.1 Section 8.4 and Table 8.2 of the EIA Report (January 2019) provide updates to legislation, policy and guidance between the 2015 Consented Development and the Proposed Varied Development EIA Report (January 2019.)

A.8.5.2 Updated guidance relating to bats and onshore wind turbines has been produced in 2019; SNH *et al.* (2019) Bats and Onshore Wind Turbines: Survey Assessment and Mitigation. This document supersedes Natural England (2014) guidance on the subject. Consideration has been given to the information provided in this guidance in the assessment of the Proposed Varied Development (Addendum) to bat species.

A.8.6 Methodology

A.8.6.1 Please refer to Section 8.5 of the EIA Report (January 2019).

A.8.6.2 Additional otter surveys of a known otter holt have been completed on 25 April and 17 May 2019. Camera trapping of the holt has been completed between 17 and 25 May 2019.

A.8.6.3 Ground truthing of habitat survey data for areas of revised infrastructure was completed in May 2019. These surveys ensure that the changes introduced by the Proposed Varied Development (Addendum) are assessed against an up to date baseline. The data collected for the 2015 ES was used to guide this assessment.

A.8.6.4 As part of pre-application advice for the Proposed Varied Development (see EIA Report (January 2019) Appendix 6.1: Pre-Application Advice Pack (1803782PREAPP)) SNH stated that no further field work was required for bat species but did request consideration be given to the turbine locations and their proximity to features potentially used by bats for foraging, commuting and roosting, following Natural England (2014) guidance. Further consideration has been given to the updated SNH *et al.* (2019) Bats and Onshore Wind Turbine guidance. These documents will be considered for the revised location of turbine T4; now referred to as T4b.

A.8.6.5 In addition to the species above, the 2015 ES considered the potential impact of the development on water voles, badgers, pine martens, wild cats, reptiles, fish and fresh water pearl mussels. No significant effects were concluded for these species. With the exception of fish, further assessments of any likely significant effect of the Proposed Varied Development or the Proposed Varied Development (Addendum) on these species, has not been requested during pre-application discussions or post-submission consultation responses. Given the reduced scale of the Proposed Varied Development (Addendum), it is considered that effects to the above receptors will be similar or reduced compared with the Consented Development. Consequently, as no significant effects were predicted for the Consented Development, no further assessment is necessary within this document.

A.8.6.6 Marine Scotland Science (MSS) in their consultation response to the Proposed Varied Development EIA Report (January 2019) (reference FL/19-7, dated 11.03.19) requested additional surveys were completed to assess fish populations within and downstream of the

development. SSE have responded to MSS' response providing clarification to points raised and confirming their commitment to undertaking monitoring of water quality pre, during and post construction, coupled with an updated fish population survey in autumn of 2019. Consequently, effects to fish are not considered further in this document.

A.8.7 Assessment of Effects

A.8.7.1 The assessment process will follow that as detailed in Section 8.6 of the EIA Report (January 2019) for the Proposed Varied Development. The Important Ecological Features (IEFs) which will be considered in the assessment are habitats, bats and otters. These features are considered to be those which the Proposed Varied Development (Addendum) may have a significant effect on during Construction, Operation or Decommissioning phases.

A.8.8 Baseline Conditions

Desk Based Assessment

A.8.8.1 No update to the desk-based assessment has been completed, and the results of this remain as documented in Paragraph 8.7.1 of the EIA Report (January 2019) for the Proposed Varied Development.

Field Based Assessments

Habitats

A.8.8.2 A summary of the habitats present on site is provided in Paragraph 8.7.2 of the EIA Report (January 2019) for the Proposed Varied Development. Both Phase 1 Habitat survey and National Vegetation Classification (NVC) survey data were compiled for the 2015 ES. The habitats and vegetation communities recorded during the ground-truthing exercise completed in May 2019 found little change to those previously reported in the EIA Report (January 2019) for the Proposed Varied Development. Figure A8.1 provides an overview of the Phase 1 habitats present within the Proposed Varied Development (Addendum) site boundary, with Table A8.2 providing an updated summary of those habitats and communities present.

Table A8.2: Phase 1 Habitats & Principal NVC Communities within the Proposed Varied Development (Addendum) Site Boundary

Phase 1 Habitat code	Phase 1 Habitat	Associated NVC communities	Hectares / % area of the Study Area
A1.1.1	Semi-natural Broadleaved Woodland	-	0.05 / 0.01%
A1.2.2	Coniferous Plantation	-	21.87 / 2.78%
A2.1	Continuous Scrub	-	0.22 / 0.03%
A4.2	Recently Felled Woodland - Coniferous	-	25.61 / 3.26%
B1.1	Unimproved acid grassland	**U4a** *Festuca ovina - Agrostis capillaris-Galium saxatile* grassland, typical sub-community	8.76 / 1.11%
		U6 *Juncus squarrosus - Festuca ovina* grassland	
B1.2	Semi-improved Acid Grassland	**U4a** *Festuca ovina - Agrostis capillaris-Galium saxatile* grassland, typical sub-community	0.47 / 0.06%
		U6 *Juncus squarrosus - Festuca ovina* grassland	
B4	Improved grassland/pasture	**U4a** *Festuca ovina - Agrostis capillaris-Galium saxatile* grassland, typical sub-community	1.20 / 0.15%
B5	Marsh/Marshy grassland	**M25** *Molinia caerulea – Potentilla erecta* mire	19.96 / 2.54%
C1.1	Bracken	**U20** *Pteridium aquilinum – Galium saxatile* community	8.04 / 1.02%

Phase 1 Habitat code	Phase 1 Habitat	Associated NVC communities	Hectares / % area of the Study Area
D1.1	Dry acid heath	**H12a** *Calluna vulgaris – Vaccinium myrtillus* heath, *Calluna vulgaris* sub-community	66.31 / 8.43%
		H10a *Calluna vulgaris - Erica cinerea* heath, typical sub-community	
		H10b *Calluna vulgaris - Erica cinerea* heath *Racomitrium lanuginosum* sub-community	
D2	Wet heath	**M15b** *Trichophorum germanicum - Erica tetralix* wet heath, typical sub-community	182.53 / 23.21%
		M15c *Trichophorum germanicum - Erica tetralix* wet heath, *Cladonia spp*. sub-community sub-community	
D5	Dry heath/acid grassland	**H10a** *Calluna vulgaris - Erica cinerea* heath, typical sub-community	5.24 / 0.67%
		H12a *Calluna vulgaris – Vaccinium myrtillus* heath, *Calluna vulgaris* sub-community	
		U4a *Nardus stricta –Galium saxatile* grassland, species-poor sub-community	
E1.6.1	Blanket bog	**M17a** *Trichophorum germanicum-Eriophorum vaginatum blanket* mire*, Drosera rotundifolia - Sphagnum spp.* sub-community	391.06 / 49.74%
		M17b *Trichophorum germanicum-Eriophorum vaginatum blanket* mire*, Cladonia spp.* sub-community	
		M18a *Erica tetralix-Sphagnum papillosum* raised and blanket mire, *Sphagnum magellanicum-Andromeda polifolia* sub-community	
		M18b *Erica tetralix-Sphagnum papillosum* raised and blanket mire, *Empetrum nigrum ssp. nigrum-Cladonia spp* sub-community	
		M20 *Eriophorum vaginatum* blanket mire	
E.1.7	Wet modified bog	**M17a** *Trichophorum germanicum-Eriophorum vaginatum blanket* mire*, Drosera rotundifolia - Sphagnum spp.* sub-community	35.05 / 4.46%
E2.1	Acid/neutral flush	**M6c** *Carex echinata - Sphagnum recurvum/ auriculatum* mire, *Juncus effusus* sub-community	15.16 / 1.93%
G1	Standing Water	-	0.05 / 0.01%
I2.1	Quarry	-	4.08 / 0.52%
J3.6	Built up (existing) infrastructure)	-	0.60 / 0.08%
			Total Area: 786.26

Otters

A.8.8.3 Figure 8.1 and Table 8.6 of the EIA Report (January 2019) for the Proposed Varied Development provide the results of the 2018 otter surveys. This information is deemed to remain relevant.

A.8.8.4 Further surveys have been completed on 25 April and 17 May 2019 to assess the utilisation of a known otter holt and the use of the watercourses within the vicinity. A single spraint was recorded during these surveys on 25 April at grid reference NC 84259 13928.

A.8.8.5 Camera trapping of the otter holt has been completed between 17 and 24 May 2019. No activity has been recorded.

Bats

A.8.8.6 Additional bat surveys were not completed for this assessment. Surveys completed for the 2015 ES are deemed still relevant in providing information regarding the use of the Proposed

Varied Development (Addendum) by bat species. Paragraph 8.7.5 of the EIA Report (January 2019) provides a summary of the information provided to support the 2015 ES. This information will be used to update the assessment of effect for the Proposed Varied Development (Addendum) infrastructure, particularly in relation to turbine T4b.

A.8.9 Potential Effects

A.8.9.1 Please refer to Section 8.8 of the EIA Report (January 2019). Changes introduced by the Proposed Varied Development (Addendum) and summarised in Paragraph 8.3.1 of this Chapter should be noted.

A.8.10 Mitigation and Enhancement

A.8.10.1 Mitigation of the potential effects of the Proposed Varied Development on Important Ecological Features (IEFs) present within the site would be achieved through the careful management of the Construction and Operational phases of the development. Mitigation and Enhancement measures detailed in Section 8.9 of the EIA Report (January 2019) for the Proposed Varied Development remain relevant to the Proposed Varied Development (Addendum) and for brevity are not repeated in this document.

A.8.10.2 A detailed Otter Protection Plan was provided as Appendix 8.1 of the EIA Report (January 2019) for the Proposed Varied Development. This has been updated to include additional mitigation as required by SNH in their 6 March 2019 consultation response. This updated Otter Protection Plan now forms Appendix A8.1 of this submission.

A.8.10.3 The Gordonbush Extension Wind Farm Habitat Management Plan was provided as Appendix 8.2 of the EIA Report (January 2019) for the Proposed Varied Development to mitigate the predicted effects of the development to c.17ha of bog habitat through 20ha of degraded bog restoration. This is deemed sufficient to mitigate the potential effects of the Proposed Varied Development (Addendum).

A.8.11 Residual Effects

A.8.11.1 Residual effects are assessed for those habitats and species that have been scoped in to the assessment (defined as Important Ecological Features) and are predicted to be affected by the construction and operation of the Proposed Varied Development (Addendum); these are habitats, otters and bats.

Construction Phase

Habitat Loss and Change

A.8.11.2 As described in the EIA Report (January 2019), the construction of the Proposed Varied Development would cause the permanent loss of habitats beneath its footprint. Temporary loss of habitats from areas in which construction machinery would operate surrounding permanent infrastructure would occur, along with the use of Construction Compounds, Batching Plants and Borrow Pits. However, these areas would be restored during or at the end of the construction process. In addition, where permanent infrastructure would be present within peatland habitats, permanent habitat change is likely to affect habitats through alterations to the hydrological regime which their vegetation communities rely on. This would likely alter any bog habitat to that of a heath rather than causing habitat loss. Heath habitats are still listed as Annex 1 Habitats under EU legislation, and so whilst alterations to habitat types may occur, valuable habitat assemblages would still remain.

A.8.11.3 In considering the predicted habitat loss and change from the construction of the Proposed Varied Development to the Proposed Varied Development (Addendum), the footprint has

been calculated for each segment of both permanent and temporary infrastructure. To account for temporary habitat loss from machinery during the construction process a 4m buffer has been added to this footprint. Where peatland habitats are present surrounding areas of permanent infrastructure, an additional 10m buffer has been added to account for the potential habitat change.

A.8.11.4 Table A8.3 provides the updated predicted permanent and temporary habitat loss from the construction of the Proposed Varied Development (Addendum), along with the predicted permanent habitat change to peatland habitats.

Table A8.3: Predicted Permanent and Temporary Habitat Loss, and Permanent Habitat Change Resulting from the Construction of the Proposed Varied Development (Addendum)

Habitat	Total area of habitat in Site Boundary (ha)	Total area of permanent loss (ha)	Total area temporary loss (ha)	Total area of habitat change (ha)	Total affected area (ha)	% of total habitat in Site Boundary affected
E1.6.1 Blanket bog	391.06	4.24	0.88	9.30	14.42	3.69%
D2 Wet heath	182.53	1.35	1.22	3.68	6.25	3.42%
E.1.7 Wet Modified Bog	35.05	1.28	-	1.56	2.84	8.10%
D1.1 Dry heath	66.31	0.42	2.08	-	2.50	3.77%
B4 Improved Grassland	1.20	0.08	0.10	-	0.18	15.00%
C1.1 Continuous Bracken	8.04	0.02	0.07	-	0.09	1.12%
B5 Marsh Grassland	19.96	0.01	-	0.11	0.12	0.60%
B1.2 Acidic Grassland (Semi-Improved)	0.47	0.01	0.01	-	0.02	4.26%
B1.1 Acidic Grassland (Unimproved)	8.76	<0.01	0.09	-	0.09	1.03%
E.2.1 Flush / Spring	15.16	<0.01	0.15	0.12	0.27	1.78%
Totals	**728.54**	**7.41**	**4.60**	**14.77**	**26.78**	**3.68%**

A.8.11.5 As with the Proposed Varied Development (EIA Report, January 2019), borrow pit search areas have been excluded from the above assessment. These are large areas and the total area which would be required is currently unknown.

A.8.11.6 Table A8.3 details the habitat loss and change predicted during the construction phase of the Proposed Varied Development (Addendum). The overall total habitats affected by the Proposed Varied Development (Addendum) have increased to 26.78ha from the previous predicted 23.55ha for the Proposed Varied Development (see Table 8.7 in the EIA Report, January 2019). As for the Proposed Varied Development bog, wet heath and dry heath habitats are predicted to incur the greatest habitat loss or change with 17.62ha, 6.25ha and 2.5ha respectively being affected during construction of the Proposed Varied Development (Addendum). Minimal habitat loss is predicted to other habitats on site and consequently these are not considered further in this assessment.

A.8.11.7 Table A8.4 provides the conservation value of the three habitats principally affected by the Proposed Varied Development (Addendum) and the percentage area that would be lost of each respective habitat in the Site Boundary, plus equivalent percentages for the Caithness and Sutherland Peatlands Natural Heritage Futures zone to allow a comparison with regional peatland resources and the overall Scottish peatland and heath habitats as a national resource.

Table A8.4: Conservation Value of Affected Habitats and Percentage Loss for the Proposed Varied Development and Proposed Varied Development (Addendum)

Development	Habitat	Habitat Designation	Total affected area (ha)	% of total habitat in Site Boundary affected	Loss & change of bog as % of peatland habitat in C&S NHFZ[1]	Loss & change bog of as % of total Scottish peatland habitat	Loss & change of heath as % of Scottish heath habitat[2]
Proposed Varied Development	E1.6.1 Blanket bog	Annex 1 Habitat, Scottish Biodiversity List and LBAP Priority habitat	16.87	3.65%	0.0042	0.0009	-
	D2 Wet heath		4.38	2.93%	-	-	0.0003
	D1.1 Dry heath		1.71	3.12%			
Proposed Varied Development (Addendum)	E1.6.1 Blanket bog and E1.7 Modified bog		17.62	4.13%	0.0044	0.0009	-
	D2 Wet heath		6.25	3.42%	-	-	0.0005
	D1.1 Dry heath		2.50	3.77%			

[1] C&S NHFZ = Caithness & Sutherland Peatlands Natural Heritage Futures Zone (400,000ha)

[2] Using the mean hectarage of area quoted in the UKBAP (1,700,000ha)

Blanket Bog

A.8.11.8 Blanket bog is the most extensive habitat in the study area, with 54.19% of the total area comprising bog (see Table A8.2). This value takes into account the total quantity of blanket bog and modified bog present within the Proposed Varied Development (Addendum) site boundary. The total area of bog habitats within the Proposed Varied Development (Addendum) is reduced against that of the Proposed Varied Development following updates of the 2014 habitat data to support this submission, with some of the previously mapped bog habitats now categorised as wet heath. The revised mapping is provided in Figure A8.1.

A.8.11.9 Blanket bog is a globally restricted peatland habitat confined to cool, wet, typically oceanic climates and for this reason is an Annex 1 Habitat. It is the most extensive semi-natural habitat in Scotland (which accounts for around 10% of the world total), covering 1,800,000ha and about 23% of the land area (Bruneau, P.M.C & Johnson, S.M. 2014). Taken together, the peatlands within Caithness and Sutherland National Heritage Future (NHF) zone comprise about a quarter of this area at 400,000ha.

A.8.11.10 Within Britain 350,000ha of blanket bog has been designated as a SAC (JNCC website – Habitat Account – Raised bogs and mires and fens), including much of the Caithness and Sutherland peatlands (in the Caithness and Sutherland Peatlands SAC), but not the Proposed Varied Development (Addendum) Site Boundary. A value level of International is not therefore appropriate to the habitat in the study area. The combined area of bog in the study area comprises just 0.11% of the peatland area in the Caithness and Sutherland Peatlands NHF zone and is therefore too small an area to be considered either of Regional or County value. The blanket bog is therefore assessed as being of Local conservation value.

A.8.11.11 Total loss and change to bog habitats amounts to 4.13% of the total bog habitat in the Site Boundary. This habitat loss is therefore assessed as being a permanent and / or long-term negative effect of low magnitude, resulting in **minor** impact.

A.8.11.12 The effect results in loss/damage to 0.0044% of the peatland habitat in the Caithness and Sutherlands NHF zone and 0.0009% of the overall Scottish peatland area, neither of which are significant at these geographical scales.

Heath

A.8.11.13 Dwarf shrub heaths are recognised as being of international importance because they are largely confined within Europe to the British Isles and the western seaboard of mainland Europe. Upland heathland is the characteristic vegetation of podsolised, free-draining, acid mineral soils (dry heath) and also shallow peat up to about 50cm deep (wet heath). It is characterised by the presence of dwarf shrubs at a coverage of at least 25%. The habitat is widespread in the cool, wet climate of the uplands, where it generally occupies land which was once woodland. It is common throughout the uplands of Scotland and covers between 21% and 31% of the area of Scotland, covering between 1,700,000 and 2,500,000ha (UK Biodiversity Action Plan Priority Habitat Descriptions Upland Heathland From: UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock 2008).

Wet Heath

A.8.11.14 Wet heath is the second most extensive habitat in the study area, covering 182.53 ha (23.21%) of the area (see Table 8.2A). This value differs from that provided in the the EIA Report for the Proposed Varied Development (149.64ha / 20.50%) following alterations to the Proposed Varied Development (Addendum) Site Boundary and the update of habitat surveys for the development in May 2019.

A.8.11.15 The NVC community M15, as found in the study area, is the most extensive form of wet heath in Scotland. The 2010 Site Condition Monitoring undertaken across the Gordonbush Estate in 2010 (the most up to date data available) showed wet heath to be in the least favourable condition of the habitats on the estate, being most affected by grazing and burning and it is thought that some areas are converting to dry heath. It is assessed as being of Local conservation value.

A.8.11.16 Total loss and damage to the wet heath habitat amounts to 3.42% of the habitat type in the study area. This is assessed as being a permanent and long-term negative effect of low magnitude, resulting in **minor** impact.

Dry Heath

A.8.11.17 Dry heath habitats cover 8.43% of the area. The NVC communities found on site, H10a, H10b and H12a, are common forms of dry heaths in Scotland, and together they cover substantial areas of upland ground and are the predominant element in many upland landscapes. This is a species poor habitat on the study area, affected by burning. Due to its small extent in the study area it is assessed as being of Site conservation value.

A.8.11.18 Total loss and damage to the dry heath amounts to 2.50ha of the habitat type in the study area. This is assessed as being a permanent and / or long term negative effect of low magnitude, resulting in a **negligible** impact.

Otters

A.8.11.19 Table 8.6 of the EIA Report (January 2019) for the Proposed Varied Development provides the survey results from the 2018 assessment of otter activity along watercourses associated with the Proposed Varied Development. Figures A8.2 and A8.3 provide the results of the 2013 and 2018 otter surveys respectively, including the locations of the revised infrastructure for the Proposed Varied Development (Addendum). Surveys completed in May 2019 of the known otter holt and a surrounding 150m area found a single otter spraint.

A.8.11.20 The 2013 and 2018 data highlights that the Allt a Mhuilinn watercourse provides a well-used resource for the local otter population. The consistent use of this watercourse suggests that it is important in a local context to the otter population in providing a dependable food resource and an abundance of shelter opportunities. As such, it is likely to be important in supporting the otter population associated with the bordering Caithness and Sutherland Peatlands SAC, of which otters are a qualifying interest.

A.8.11.21 As detailed in the EIA Report (January 2019) for the Proposed Varied Development, no otter activity was found in watercourses associated with the eastern area of the Proposed Varied Development (Addendum), as shown in Figure A8.2 and A8.3, including the Alt Smeorail and associated tributaries. It is suggested that the impassable gorge-like lower reaches of this watercourse inhibits the use of sections in proximity to the Proposed Varied Development (Addendum).

A.8.11.22 The Proposed Varied Development (Addendum) infrastructure now includes a new borrow pit search location in the Bullburn plantation to the west of the Allt a Mhuilinn and provision of a temporary bailey bridge spanning the watercourse to provide access to this area. Current tracks accessing the Bullburn plantation are deemed sufficient for construction phase use and will not need widening. Whilst the conclusions of the Proposed Varied Development's EIA Report (January 2019) with respect to otters remain relevant for the majority of the Proposed Varied Development (Addendum) (minor impacts from both the direct and indirect effects of construction), further consideration is given to the effects of construction and use of the temporary bailey bridge and use of access tracks and borrow pit in this area on otters.

A.8.11.23 Otters using the Allt a Mhuilinn for foraging, commuting or breeding may potentially be affected during the construction phase of the development via either direct or indirect impacts. Direct impacts include disturbance from construction either during rest periods at holts or couches, or during foraging activities along watercourses. Similarly, the potential for fatalities from road traffic accidents on site or becoming trapped within open works could pose a direct impact.

A.8.11.24 The increase in construction activities surrounding the Allt a Mhuilinn without suitable mitigation in place would increase the likelihood of such events occurring, i.e. from low as predicted in the EIA Report (January 2019) for the Proposed Varied Development to moderate. However, when considered with the proposed mitigation as outlined in Section 8.9 of the EIA

Report (January 2019) for the Proposed Varied Development (e.g. maintenance of buffer zones around watercourses and sensitive undertaking of night time works), implementation of the Construction Environment Management Plan (CEMP) (Appendix 4.1 of the EIA Report (January 2019) for the Proposed Varied Development) and of the updated Otter Protection Plan (Appendix A8.1), the likelihood remains **low**.

A.8.11.25 The magnitude of such impacts to the local otter population is likely to be **low** (as predicted in the EIA Report (January 2019) for the Proposed Varied Development), as any individuals temporarily displaced are likely to return or be replaced through either migration of other individuals into the area or from births within the population itself. The otter population utilising the watercourses surrounding the Proposed Varied Development (Addendum) is a qualifying feature of the Caithness and Sutherland Peatland SAC, as well as being a European protected species. Consequently, the population's conservation value is assessed as being nationally important. Taking the above parameters into account, it is assessed that the effect of any direct impacts from construction related activities to the local otter population would continue to be **minor** as predicted in the EIA Report (January 2019) for the Proposed Varied Development.

A.8.11.26 Indirect impacts may occur through pollution related events associated with the construction phase of the development, such as sedimentation or fuel or oil spillages. If not controlled, pollutants have the potential to enter watercourses which will in turn affect the habitat and food resources on which the local otter population depends. With the proposed mitigation outlined in the Draft CEMP for the Proposed Varied Development (Appendix 4.1 of the EIA Report (January 2019)) which remains relevant for the Proposed Varied Development (Addendum), the likelihood of such events occurring are **low.** The magnitude of such a pollution event if it did occur is likely to be **low** and short term in nature. Consequently, the likely effect of any indirect impacts upon the local otter population is assessed as **minor**.

Bats

A.8.11.27 The EIA Report (January 2019) for the Proposed Varied Development detailed the direct impacts to bats were predicted to be negligible from the Proposed Varied Development. It is recognised that alterations to the Proposed Varied Development (Addendum) infrastructure will cause an increase in construction activities in proximity to watercourses and woodland edge habitats; these were identified in the 2015 ES as important foraging and commuting routes to bat species present within the proposed development area.

A.8.11.28 Consideration has been given to the locations of construction related infrastructure, locating this wherever possible away from habitats likely to be utilised by foraging and commuting bats. Similarly, mitigation outlined in Section 8.9 of the EIA Report (January 2019) for the Proposed Varied Development seeks to reduce any impacts to bat species by sensitive timings of works and direct lighting away from features used by bats, focusing on works areas only.

A.8.11.29 Taking the above into account, direct impacts to the species during the Construction Phase of the Proposed Varied Development (Addendum) are predicted to remain as **negligible**.

A.8.11.30 No indirect effects from the construction of the Proposed Varied Development (Addendum) have been identified.

Operational Phase

Habitat Loss and Damage

A.8.11.31 No changes to the potential impacts to habitats as detailed in the EIA Report (January 2019) for the Proposed Varied Development are predicted; these continue to be assessed as **minor**.

Otters

A.8.11.32 No changes to the potential impacts to otters as detailed in the EIA Report (January 2019) for the Proposed Varied Development are predicted; these continue to be assessed as **minor**.

Bats

A.8.11.33 Consideration has been given to the relocation of Turbine 4 for the Proposed Varied Development (Addendum); referred to as T4b. The relocation has taken into account Natural England (2014) guidance for Bats and Onshore Wind Turbines and the updated SNH *et al.* (2019) guidance and ensures that the rotor-swept area is at least 50m from any features likely to be used by bats. Consequently, no changes to the potential impacts to bats as detailed in the EIA Report (January 2019) for the Proposed Varied Development are predicted; these continue to be assessed as **negligible**.

Decommissioning Phase

A.8.11.34 Decommissioning Phase Impacts and their associated effects to the IEFs identified are assessed as being similar to those considered for the Construction Phase of the development. As such, they are not considered any further in this document.

A.8.12 Cumulative Effects

A.8.12.1 No Cumulative Effects were identified during the 2015 ES or in the EIA Report (January 2019) for the Proposed Varied Development, and this continues to be the case for the Proposed Varied Development (Addendum).

A.8.13 Effects to Designated Sites

A.8.13.1 The Proposed Varied Development abuts the Caithness and Sutherland Peatland SAC on its western boundary. SNH in their pre-application response (see EIA Report (January 2019) Appendix 6.1: Pre-Application Advice Pack of the Proposed Varied Development) stated that consideration should be given to the designated site and the potential impacts of the development to otters; a qualifying feature of the SAC. Section 8.12 and Appendix 8.3 of the EIA Report (January 2019) for the Proposed Varied Development concluded that there would be no likely significant effect on the otter population and therefore the conservation objectives of the SAC as a result of the Proposed Varied Development.

A.8.13.2 Scottish Natural Heritage's consultation response to the Proposed Varied Development dated 6 March 2019 advised that:

"In our view, this proposal is likely to have a significant effect on SAC otter. Consequently, Scottish Government, as competent authority, is required to carry out an appropriate assessment in view of the site's conservation objectives for its qualifying interest. To help you do this we advise that in our view on the basis of the appraisal carried out to date, if the proposal is undertaken strictly in accordance with the following mitigation, then the proposal will not adversely affect the integrity of the site:

- The Allt a'Mhuillin otter holt should be monitored with remote cameras (under licence) to ensure that construction of the access track for T8 does not coincide with a female otter having dependant cubs (i.e. <10 months old)."

A.8.13.3 Monitoring of the otter holt under licence commenced in May 2019 in order to meet SNH's above requirements. This will continue through the Construction Phase of the development to ensure no disturbance occurs to breeding otters. Consequently, it is deemed that there will continue to be no likely significant effect on the otter population and therefore the

conservation objectives of the SAC as a result of the Proposed Varied Development (Addendum).

A.8.13.4 The information provided in this Proposed Varied Development (Addendum) and that within the Proposed Varied Development EIA Report (January 2019) is deemed sufficient to allow the Scottish Government to carry out an Appropriate Assessment of the development as the competent authority; no additional information is submitted to inform this process.

A.8.14 Assessment of Residual Effects

A.8.14.1 Table A8.5 summarises the effects assessed for IEF, the proposed mitigation and residual effect significance for the Proposed Varied Development (Addendum). These continue to be as predicted in the EIA Report (January 2019) for the Proposed Varied Development

Table A8.5: Summary of Negative Effects, Mitigation and Residual Effect Significance for the Proposed Varied Development (Addendum)

Effect	Receptor	Mitigation	Probability of Mitigation Success	Conservation Value	Effect Magnitude Following Mitigation	Residual Significance
Construction						
Habitat loss and damage	Blanket bog	Early restoration of habitats during the construction phase in areas of temporary loss as detailed in the CEMP.	Very High	Local	Low	Minor
	Wet heath		Very High	Local	Low	Minor
	Dry heath		-	Local	Low	Negligible
Construction disturbance	Otter	Pre-construction surveys and camera trap monitoring during construction, demarcation of exclusion zones, direction of lighting away from watercourses	Very high	National	Low	Minor
	Bats	Direction of lighting away from features used by bats for foraging and commuting	Very high	Local	Negligible	No impact
Faunal fatalities - works equipment etc.	Otter	Cap pipes, ramp pits	Very high	National	Low	Minor
Faunal fatalities - increased traffic	Otter	Speed limit on site. Infrastructure design.	Very high	Local	Low	Minor
Water pollution	Otter	Implementation of best practice water quality management	High	Local	Low	Minor
Operation						
Faunal fatalities - works equipment etc.	Otter	Cap pipes, ramp pits	Very high	Local	No impact	No impact
Faunal fatalities - increased traffic	Otter	Speed limit on site. Infrastructure design.	Very high	Local	Low	Minor
Faunal fatalities – barotrauma	Bats			Local	Low	Minor

A.8.15 Effect on the Existing Gordonbush Estate HMP Objectives

A.8.15.1 Effects on the Gordonbush Estate HMP management objectives were assessed as not significant in the 2015 ES. This was re-affirmed in the 2016 FEI Report. There is no change from these findings as a result of the Proposed Varied Development as detailed in the EIA Report (January 2019). SNH in their 06 March 2019 consultation response concurred with this assessment.

A.8.15.2 The Proposed Varied Development (Addendum) will require a small increase in the total infrastructure within the Gordonbush Estate HMP Habitat Management Area. However, infrastructure such as borrow pits are sought to be located in previously afforested habitats which are less sensitive to disruption. Consequently, it is considered that the Proposed Varied Development (Addendum) would have less of an impact on the Gordonbush Estate HMP than the Proposed Varied Development which was previously assessed as not significant.

A.8.16 Comparison of Effects

A.8.16.1 As detailed in Section 8.10 of this Chapter, no changes to the potential effects to Important Ecological Features have been identified between the Proposed Varied Development and the Proposed Varied Development (Addendum). Similarly, the comparative assessment documented within Table 8.10 of the EIA Report (January 2019) summarising the effects of the Consented Development with that of the Proposed Varied Development remains unchanged. No significant impacts on designated sites, species or habitats are identified from the Proposed Varied Development (Addendum).

A.8.17 Conclusion

A.8.17.1 The potential effects on Important Ecological Features from the Proposed Varied Development (Addendum) have been assessed, taking into account consultation feedback from SNH. All effects have been assessed as not significant as previously found in the EIA Report (January 2019) for the Proposed Varied Development and for the Consented Development.

A.8.17.2 At SNH's request, given the age of the original otter survey data, an updated otter survey was carried out to inform both the EIA Report (January 2019) assessment of the Proposed Varied Development and this Proposed Varied Development (Addendum). The results confirm that there would be no likely significant effect on this species, allowing the conclusion to be reached that it would have no adverse impact on the integrity of the Caithness and Sutherland Peatlands SAC with appropriate mitigation implement. This is the same conclusion as for the Consented Development and the view SNH have also provided in their 06 March 2019 consultation response.

A.8.17.3 There will be an Otter Species Protection Plan in place to ensure relevant protective measures are implemented during the Construction Phase, and its implementation will be overseen by an ECoW, in accordance with existing conditions of the relevant section 36 consent. The Otter Protection Plan incorporates the proposed mitigation detailed by SNH and is provided as Appendix A8.1 to this document.

A.8.17.4 Consideration has been given to the potential effect of the Construction and Operation Phases of the Proposed Varied Development (Addendum) to bat species. Appropriate mitigation will be implemented during the Construction Phase of the development to reduce potential effects to forage and commuting bats using woodland edges and watercourses across the site. Consideration has also been given to the relocation of Turbine 4 (T4b) ensuring it is compliant with both Natural England (2014) guidance and the updated SNH *et al.* (2019) guidance. As such, potential effects to bats remain as previous predicted for the Proposed Varied Development; negligible.

A.8.17.5 A pre-commencement water vole survey will ensure this species and its habitats are also suitably protected during construction, as requested by SNH.

A.8.17.6 Effects to habitats from the construction, operation and decommissioning of the Proposed Varied Development (Addendum) have been assessed and found to be the same as those detailed in the EIA Report (January 2019) for the Proposed Varied Development and similar or less than the Consented Development; all are not significant.

A.8.17.7 There would be no negative effect on implementation of the Gordonbush Estate Habitat Management Plan. A Habitat Management Plan for the Proposed Varied Development EIA Report (January 2019) (Appendix 8.2) has been provided to enhance the overall biodiversity of the area through an additional 20ha of blanket bog restoration, tying into that already completed through the Gordonbush Estate HMP.

A.8.17.8 Overall, the effects of the Proposed Varied Development (Addendum) would remain as predicted for the Proposed Varied Development and Consented Development, with no likely significant effects on designated sites, species or habitats.

A.8.18 References

Bruneau, P.M.C & Johnson, S.M. (2014) Scotland's peatland - definitions & information resources. Scottish Natural Heritage Commissioned Report No 701.

CIEEM (2018) Guidelines for Ecological Impact Assessment. Chartered Institute of Ecology and Environmental Management.

Scottish Natural Heritage, Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, University of Exeter, Bat Conservation Trust (2019) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation.

Marine Scotland Science (2019) Consultation response to the Proposed Varied Development EIA Report (January 2019) (reference CEA 154222, dated 11.03.19).

Natural England (2014) Bats and Onshore Wind Turbine Interim Guidance. Natural England Technical Information Note TIN051.

Scottish Natural Heritage (2019) Consultation response to the Proposed Varied Development EIA Report (January 2019) (reference FL/19-7, dated 06.03.19).

The Highland Council (2018) Gordonbush Wind Farm Extension Pre-Application Advice.