

March 2025

Glen Earrach Pumped Storage Hydro

Environmental Impact Assessment Report

Volume 5: Appendices
Appendix 7.5: Biodiversity Net Gain

Glen Earrach Energy Ltd

Quality information

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1. Introduction

1.1 Purpose

- 1.1.1 This appendix accompanies **Chapter 7: Terrestrial Ecology (Volume 2: Main Report)**. It describes an assessment of biodiversity net gain (BNG) for the Proposed Development and quantifies its overall effects on biodiversity.
- 1.1.2 This appendix is supported by and should be read in conjunction with:
- **Appendix 7.3: Habitats (Volume 5: Appendices);**
 - **Appendix 6.4: Outline Landscape and Ecology Management Plan (Volume 5: Appendices) (oLEMP);**
 - **Figure 6.4.1: Outline Landscape and Ecological Mitigation – Project Wide (Volume 3: Figures)** for post-intervention habitats; and,
 - **Figure 7.5: Habitats (Volume 3: Figures)** for baseline habitats.
- 1.1.3 The aims of this document are to:
- quantify the degree of biodiversity loss initially resulting from the Proposed Development without compensatory and enhancement measures; and,
 - quantify the degree of biodiversity net gain achieved through implementation of the proposed habitat measures.
- 1.1.4 **Appendix 7.3: Habitats (Volume 5: Appendices)** describes the full methods and results of the habitat surveys that were undertaken for the Proposed Development.
- 1.1.5 Details on how the above habitat creation, enhancement and reinstatement will be delivered are provided within **Appendix 6.4: Outline Landscape and Ecology Management Plan (Volume 5: Appendices)**.
- 1.1.6 Blanket bog habitats are not included within the BNG assessment. This is because blanket bog is dealt with separately in line with NatureScot guidance which stipulates that compensation for peatland loss should be in the order of 1:10 peatland lost to peatland restored¹. Refer to **Appendix 15.2: Outline Peat Management Plan (Volume 5: Appendices)** with regard to blanket bog compensation.
- 1.1.7 Throughout this appendix, species are given their common and scientific names when first referred to and their common names only thereafter. All distances are cited as the shortest distance ‘as the crow flies’, unless otherwise specified. Locations are given as Ordnance Survey Grid References (OSGR).

1.2 Policy Context

- 1.2.1 At the time of preparing this Report, there was no formal policy requirement in Scotland to undertake quantitative BNG assessment as part of the planning process for infrastructure developments. However, on 20 September 2023, Scottish Government published an independent research report² which supports the development of a Scottish metric for measuring biodiversity, to allow for consistent and comparable assessment of losses or gains in biodiversity. NatureScot was instructed by Scottish Government to commence work on developing a biodiversity metric that will be suitable for use in supporting the delivery of the Biodiversity (Policy 3) and Natural Places (Policy 4) policies in National Planning Framework 4 (NPF4)³, which, respectively, contain the following statements of policy intent: “*To protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks*” and “*To protect, restore and enhance natural assets making best use of nature-based solutions*”. NPF4 also states that major development will only be supported where nature

¹ NatureScot (2023) [Advising on peatland, carbon-rich soils and priority peatland habitats in development management](#) | NatureScot

² McVittie, A., Cole, L., Fisher, H, and Rudman, H. (2023) Research into Approaches to Measuring Biodiversity in Scotland, Final Report to Scottish Government, at the URL and ISBN (online). Available at: <https://www.gov.scot/publications/research-approaches-measuring-biodiversity-scotland/documents/>

³ Scottish Government (2023) National Planning Framework 4 (online) Available at: <https://www.gov.scot/publications/national-planning-framework-4/>

networks “*are in a demonstrably better state than without intervention*” using best practice and including future monitoring and management where appropriate.

1.2.2 The Proposed Development lies within the Highland Council local planning authority area. The following local policy documents are relevant to this assessment:

- Highland-wide Local Development Plan (LDP)⁴, adopted 2012;
- Inner Moray Firth LDP⁵, adopted 2015 and currently under review; and,
- Highland Nature Biodiversity Action Plan (2021-2026)⁶ (LBAP).

1.2.3 Relevant national and local planning policy is discussed in **Chapter 7: Terrestrial Ecology** of the EIAR (**Volume 2: Main Report**).

⁴ Scottish Government (2012) Highland Wide Local Development Plan (online) Available at: https://www.highland.gov.uk/info/178/local_and_statutory_development_plans/199/highland-wide_local_development_plan.

⁵ Scottish Government (2024) Inner Moray Firth Local Development Plan 2 (online) Available at: https://www.highland.gov.uk/info/178/local_and_statutory_development_plans/202/inner_moray_firth_local_development_plan.

⁶ Highland Environment Forum (2021) Highland Nature Biodiversity Plan 2021-2026 (online) Available at: <https://www.highlandenvironmentforum.info/wp-content/uploads/2021/07/Highland-Nature-Biodiversity-Action-Plan-2021-2026-compressed-.pdf>.

2. Methods

2.1 Nomenclature

- 2.1.1 Vascular plant species are given their common and scientific names when first referred to and their common names only thereafter. Common names of bryophytes are not well-known, and they are referred to by scientific names only. Nomenclature for vascular plants follows Stace (2019)⁷ and for bryophytes Atherton *et al.* (2010)⁸ unless otherwise stated.

2.2 Field Survey

- 2.2.1 The field survey methods used to collect the baseline habitat information are set out in **Appendix 7.3: Habitats (Volume 5: Appendices)**. In summary, habitat survey was carried out during the period between April 2024 and October 2024 and covered habitat within initially 500 m of the Proposed Development, and in general within 250 m for later amendments to the Proposed Development layout. UK Habitat Classification (UKHab) habitats and National Vegetation Classification (NVC) types were assigned following UK Habitat guidance (UKHab Ltd, 2023)⁹ and NVC guidance (Rodwell 1991a, 1991b, 1992, 1995 and 2000; Averis *et al.*, 2004; Hall *et al.*, 2004)¹⁰. The baseline habitats were assigned condition using the condition criteria set out in the Defra Statutory Metric – Technical Annex 1: Condition Assessment Sheets and Methodology¹¹. Watercourses were observed during field survey and noted to be highly natural in all cases, with the exceptions of a) localised hydrological modification by watercourse hydroelectric schemes, and b) despite location below the tree line, a lack of riparian shrubs/trees along the watercourses.
- 2.2.2 The habitat data were digitised using ESRI ArcGIS against recent aerial photography to maximise accuracy of habitat position and area.

2.3 Biodiversity Metric

Overview

- 2.3.1 In the absence of a formal requirement for BNG assessment in Scotland, and thus no obligation to use the Department for Environment, Food and Rural Affairs (Defra) Statutory Metric¹² used in England, the Scottish and Southern Energy Renewables (SSER) Biodiversity Toolkit (hereafter the 'SSER Toolkit') was adopted as the metric for BNG assessment for the Proposed Development. The SSER Toolkit¹³ has been adopted on projects across Scotland and is considered more effective in a Scottish context, with allowance for greater use of professional judgement to better cater for extensive upland environments in Scotland.
- 2.3.2 A full BNG assessment involves making a comparison between the biodiversity value of habitats present prior to development (i.e., the 'baseline') and the predicted biodiversity value of habitats following the completion of the development (i.e., 'post-intervention'). The comparison is made in terms of 'biodiversity units'. The SSER Toolkit calculates biodiversity units (and overall loss or gain of these where a development is proposed) by assessing the distinctiveness (type of habitat and its value), condition, connectivity, extent, and strategic significance of habitats (including both permanent and temporary land-take areas, and off-site areas where a development

⁷ Stace, C. (2019). New Flora of the British Isles, 4th edition. C&M Floristics

⁸ Atherton, I., Bosanquet, S. and Lawley, M. (2010). Mosses and Liverworts of Britain and Ireland – a Field Guide. British Bryological Society.

⁹ UKHab Ltd (2023). UK Habitat Classification Version 2.0 (online) Available at: <https://www.ukhab.org>

¹⁰ Averis, A.M., Averis, A.B.G., Birks, H.J.B., Horsfield, D., Thompson, D.B.A. and Yeo, M.J.M. (2004). An Illustrated Guide to British Upland Vegetation. Joint Nature Conservation Committee, Peterborough.; Averis, B. and Averis A., (2015) Plant Communities Found In Surveys By Ben And Alison Averis But Not Described In The UK National Vegetation Classification. Unpublished document; British Plant Communities Volume 3 Grassland and Montane Communities. Cambridge University Press, Cambridge.; Rodwell, J.S. (ed.). (1991a). British Plant Communities Volume 1 Woodlands and Scrub. Cambridge University Press, Cambridge; Rodwell, J.S. (ed.) (1991b). British Plant Communities Volume 2 Mires and Heaths. Cambridge University Press, Cambridge; Rodwell, J.S. (ed.) (1992). British Plant Communities Volume 3 Grassland and Montane Communities. Cambridge University Press, Cambridge; Rodwell, J.S. (ed.) (1995). British Plant Communities Volume 4 Aquatic Communities, Swamps and Tall-herb Fens. Cambridge University Press, Cambridge; Rodwell, J.S. (ed.) (2000). British Plant Communities Volume 5 Maritime Communities and Vegetation of Open Habitats. Cambridge University Press, Cambridge.

¹¹ Natural England (2023). Statutory Metric – Technical Annex 1: Condition Assessment Sheets and Methodology. (<https://publications.naturalengland.org.uk/publication/6049804846366720>)

¹² DEFRA (2023). The Statutory Biodiversity Metric. Available at: <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

¹³ <https://www.sserenewables.com/sustainability/nature-positive/>

proposes creation or enhancement of habitats outside the development site). For 'no net loss' in biodiversity to be achieved, the post-intervention score must be equal to or higher than the baseline score.

- 2.3.3 The SSER Toolkit includes a series of standard 'risk multipliers' to account for the inherent risk of creating and restoring habitats, the time taken to establish habitats and difficulty of delivery. The risk multipliers have the effect of reducing the value of the proposed habitats, which means habitats with larger areas, higher distinctiveness, higher strategic significance, higher connectivity and/or higher condition are required to achieve net gain.
- 2.3.4 The SSER Toolkit assesses and generates separate outputs for area-based habitats (measured in habitat units) and, where applicable, linear-based habitats (hedgerows, measured in hedgerow units, and rivers, measured in river units). To claim a net gain in biodiversity, there must be increases in habitat units and (where applicable) hedgerow and river units. The area, hedgerow and river units cannot be summed to give an overall biodiversity unit value, and an increase in one of these cannot be used to offset loss in another.
- 2.3.5 The SSER Toolkit also generates separate outputs for irreplaceable habitats, which include ancient semi-natural woodland (ASNW). The output is in terms of area rather than biodiversity units, and neither loss of ASNW nor enhancement of ASNW contribute to the BNG score. This is the same for irreplaceable blanket bog habitat (however as noted blanket bog is not accounted for in the BNG calculation but dealt with separately in **Appendix 7.6: Outline Peatland Restoration Plan (Volume 5: Appendices)** under the NatureScot 1:10 lost:restored ratio, plus 10% enhancement, or whatsoever other ratio may subsequently be agreed with NatureScot). The behaviour of the Defra Statutory Metric¹² is similar in that it does not allow calculations involving irreplaceable habitats.
- 2.3.6 In order to conclude that a net gain in biodiversity has been achieved, a target increase of 10% in biodiversity units was set for this assessment.
- 2.3.7 As discussed above at **Paragraph 2.2.1**, habitat data was collected using UKHab⁹ categories, and habitat data is displayed in this way on **Figure 7.5 Habitats** and **Figure 6.4.1: Outline Landscape and Ecological Mitigation – Project Wide (Volume 3: Figures)**. The SSER Toolkit has been designed to be compatible with data collected using UKHab, however, there are some slight differences in the names of habitats used in the SSER Toolkit compared to UKHab. Habitat categories in the SSER Toolkit tend to be broader than those of UKHab. For example, all wet and dry heaths is categorised as Upland heathland in the SSER Toolkit, and various types of wetland other than bog fall under Fens (upland and lowland). Regarding post-development habitats, the SSER Toolkit allows use of the habitat type Reservoirs for the proposed Headpond, which is not a UKHab category, and also includes the category 'Ponds (Priority habitat)' which is not a standard UKHab habitat primary habitat. These categories are however identical to those used in the Defra Statutory Metric. The relationships between SSER Toolkit habitats and UKHab types are included in **Table A1** and **Table A2** in **Annex A Habitat Condition Rationale**. To avoid possible confusion and for conformity with the SSER Toolkit for this project, where specific habitats on-Site are described below, the habitat names given are those used in the SSER Toolkit and are capitalised. UKHab types are preceded by the relevant UKHab code. When discussed more generally, habitat names are not capitalised.
- 2.3.8 For Upland birchwood, the baseline/proposed habitats vary within the SSER Toolkit and UKHab type. Some of the Upland birchwood is ASNW, and as noted previously, irreplaceable habitat ASNW is dealt with separately in the calculation and does not contribute to the BNG score, either for loss or enhancement. The birchwood which is ASNW has a Distinctiveness and Strategic significance (see below) greater than non-ASNW birchwood, and is labelled with an 'ASNW' suffix e.g. 'Upland birchwoods (ASNW)'.
- 2.3.9 For Mixed scrub, the surveyed habitat is not typical for this type, and specifically refers to dwarf birch on a heathy ground flora in an upland setting (and not to a mix of common lowland species), for which no other available category was considered appropriate. This habitat is therefore termed as Mixed scrub (dwarf birch) or h3h Mixed scrub (dwarf birch).

Baseline Habitats

- 2.3.10 Relevant GIS attribute data, including area/length, habitat category and habitat condition were entered into the SSER Toolkit, along with strategic significance and connectivity, to calculate the baseline biodiversity units.
- 2.3.11 **Figure 7.5 Habitats (Volume 3: Figures)** shows the baseline habitats within the survey area according to UKHab habitat type.
- 2.3.12 For the purposes of the calculation of baseline biodiversity units, only the areas that would be actually impacted by the Proposed Development were used. The baseline was therefore not taken to be the total number of biodiversity units present within the entire survey area or application boundary, most of which would be entirely

unaffected by the Proposed Development and associated habitat measures. This accords with the approach taken for Nationally Significant Infrastructure Projects (NSIPs) in England and Wales, which has been subject to legal test. It is appropriate and proportionate to adopt this approach in the case of the Proposed Development given that the Proposed Development Site is substantially larger than the area which will be occupied by infrastructure. To set the baseline as the biodiversity units within the Proposed Development Site would therefore substantially and artificially increase the number of units which would need to be provided by the Proposed Development in order to be recognised as a biodiversity net gain. The baseline does, however, include areas of land identified for habitat creation/enhancement which would not otherwise be impacted by the Proposed Development.

Habitat Changes

- 2.3.13 This section describes how the various types of habitat change were treated in the SSER Toolkit. The extent of habitats that would be changed as result of the Proposed Development itself or associated habitat mitigation and compensation measures can be seen on **Figures 7.5 Habitats** and **Figure 6.4.1: Outline Landscape and Ecological Mitigation – Project Wide (Volume 3: Figures)**.

Habitat Loss

- 2.3.14 Habitat loss refers to the complete and permanent destruction of a habitat (and any associated biodiversity units) to the Proposed Development. It was assumed that all habitat within the footprint of proposed infrastructure (excluding the Headpond – see Habitat Creation below) will be permanently lost to Urban habitat types (which are themselves of no biodiversity value). This includes localised tree felling where track widening is proposed.

Habitat Creation

- 2.3.15 Habitat creation refers to the establishment of habitats that were not present previously, with complete replacement of existing habitats and loss of existing habitat. However, for the Headpond, given that the Reservoir habitat associated with this change has some biodiversity value of its own, there will not be a 100% net loss of biodiversity units, and this change has been treated as for habitat creation, although for ease it is described as 'loss'.
- 2.3.16 The creation of proposed emerald dragonfly ponds (Pond (Priority habitat)) will necessarily involve the loss of existing Upland heathland.

Habitat Enhancement and Modification

- 2.3.17 Habitat enhancement refers to changes in habitat condition as a result of the Proposed Development.
- 2.3.18 Proposed native woodland and dwarf birch/montane willow scrub planting and natural regeneration (mainly on existing Upland heathland) has been entered in the SSER Toolkit as 'enhancement' rather than creation because the existing habitat will be in large part retained as the ground flora of the resulting woodland or montane scrub, and is fitting as the ground flora of these habitats. To do otherwise results in a net loss for these particular habitats, despite the retention of the ground flora, the fact that much upland heathland would under more natural circumstances be native woodland, and creation of native woodland in such circumstances is generally encouraged and desirable.
- 2.3.19 Enhancement in the SSER Toolkit allows for changes in condition to be positive or negative. Thus any reduction in condition through indirect modification of habitats has been entered into the SSER Toolkit under the Enhancement heading, but with a negative change. Modification will take place on habitats that will not be directly lost to the Proposed Development, but are of a type that is within 30 m of built infrastructure and has been assumed to be subject to a degree of adverse modification.

Distinctiveness

- 2.3.20 A distinctiveness score is automatically assigned to most habitat types by the SSER Toolkit. However, in the case set out in the below paragraphs the SSER Toolkit automatically assigns disproportionately high or low distinctiveness scores, or does not set a value, and these were overridden by professional judgement in the manner described.
- 2.3.21 Upland heathland is automatically assigned High distinctiveness by the SSER Toolkit. This was manually changed to Medium given that upland heathland is an extremely common and widespread habitat type in the Scottish Highlands, such that a distinctiveness of High for this habitat in Scotland is disproportionate.

- 2.3.22 Upland birchwood is automatically assigned High distinctiveness by the SSER Toolkit. For most of the upland birchwood present this is considered appropriate. However, locally there is Upland birchwood that is also ASNW. As irreplaceable habitat, the distinctiveness was manually raised in these instances to Very High.
- 2.3.23 Other Scots pine woodland is automatically assigned Medium distinctiveness by the SSER Toolkit. The Site is within the native range of Scots pine. Planted Scots pine is not considered w2a5 Caledonian pinewood (referred to in the SSER Toolkit as Native pine woodland), however, in the long-term this woodland will become similar to Native pine woodland, and will offer the many of the same biodiversity benefits within a native setting. Thus the distinctiveness for this habitat was manually raised to High.
- 2.3.24 Mixed scrub is automatically assigned Medium distinctiveness by the SSER Toolkit. However, within the calculation, Mixed scrub representing dwarf birch on a heathy ground flora in an upland setting does not resemble a typical mix of lowland scrub species, and dwarf birch montane scrub is a notable habitat. Thus the distinctiveness for this habitat was manually raised to High.
- 2.3.25 The SSER tool does not automatically assign a distinctiveness rating to Fens (upland and lowland) and this was manually assigned High distinctiveness.

Condition

- 2.3.26 Condition rationale for each baseline and post-intervention habitat is provided in **Annex A Habitat Condition Rationale**.
- 2.3.27 Any reduction in condition (hereafter “modification”) of habitats has necessarily been entered into the SSER Toolkit under the “Enhancement” After work action heading, which captures any change in condition, positive or negative.
- 2.3.28 Target condition scores for the proposed habitats were selected in accordance with Defra Statutory Metric – Technical Annex 1: Condition Assessment Sheets and Methodology¹¹, and adjusted, if required, using professional judgement to ensure the condition scores were realistic. Difficulty of creation and time to target condition is discussed further below.

Connectivity

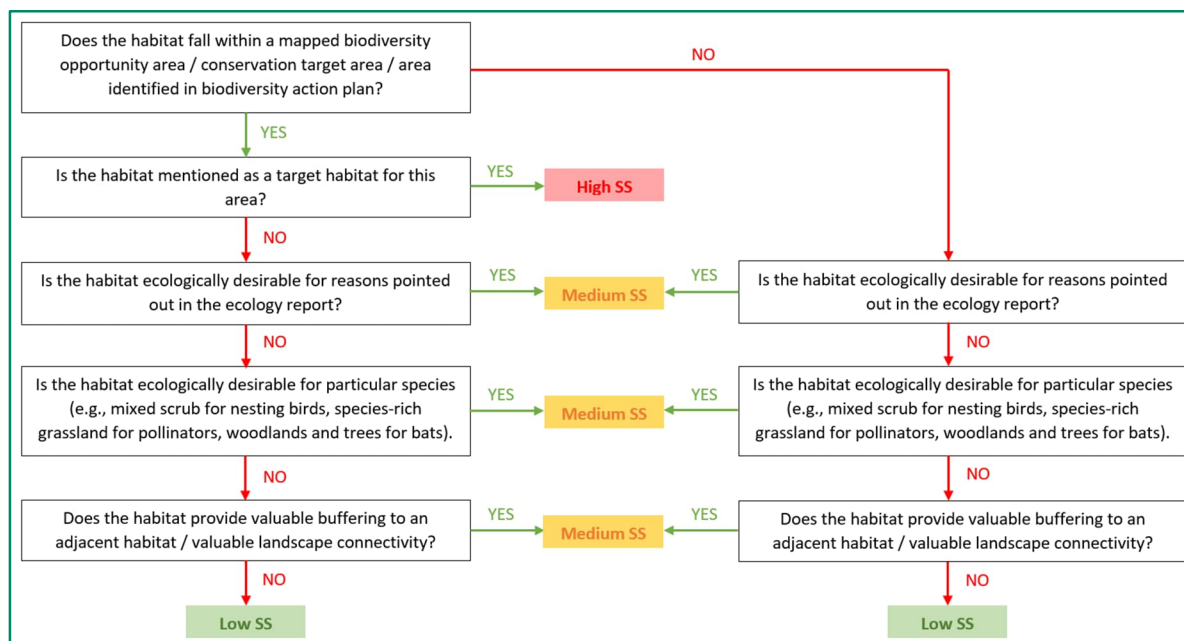
- 2.3.29 Although this function was removed from Defra Metric 3.0 onwards, the SSER Toolkit requires a connectivity value to be assigned to each habitat. Connectivity, in the context of BNG, refers to the proximity of a habitat patch to similar or related habitats, and thus potential for species dispersal.
- 2.3.30 The approach taken when assigning connectivity follows Defra Metric 2.0 guidance¹⁴ (the last Defra Metric that retained connectivity) as follows:
- High and Very High distinctiveness habitats were assigned ‘Moderate’ connectivity; and,
 - all other habitats were assigned ‘Low’ connectivity.

Strategic Significance

- 2.3.31 The SSER Toolkit requires that the strategic significance of all baseline and post-intervention habitats be defined, similarly to Defra Metric 4.0. Strategic significance refers to strategic locations for local biodiversity and nature improvements identified within local planning policies and strategies. The process of how the strategic significance of a habitat is assessed is shown in Plate 1 (noting however that there are no ‘mapped biodiversity opportunity areas’ in Scotland at this time).

¹⁴ Crosher, I., Gold, S., Heaver, M., Heydon, M., Moore, L., Panks, S., Scott, S., Stone, D., and White, N. (2019). The Biodiversity Metric 2.0: auditing and accounting for biodiversity value. User guide (Beta Version, July 2019). Natural England

Plate 1. Strategic Significance Guidance



2.3.32 Strategic significance concerns the achievement of objectives specifically for biodiversity, not (for example) for landscaping reasons.

2.3.33 As part of this assessment, the Highland-wide Local Development Plan⁴ and Inner Moray Firth LDP⁵ were reviewed to determine the strategic significance of habitats in within the Proposed Development area. It was determined that the Proposed Development Site does not fall within a mapped area identified as being of strategic biodiversity value.

2.3.34 Habitats listed on Annex I of the Habitats Directive, or considered of very high importance (such as ASNW), were considered to be of High strategic significance, except where sound reasons of professional judgement dictate otherwise, and based on the distribution, abundance and naturalness of the habitat in a specific regional and Scottish context. Other habitats, including those on the Scottish Biodiversity List (SBL) (and thus of principal importance for biodiversity conservation in Scotland) or within the local biodiversity plan, were assigned Medium strategic significance, except again where sound reasons of professional judgement dictate otherwise. The strategic significances assigned to the recorded habitats are set out in **Table 2-1: Strategic Significance**, along with rationale.

Table 2-1: Strategic Significance

Habitat	Strategic Significance	Rationale
Baseline habitats		
Fens (upland and lowland)	Medium	Listed on SBL. Localised wetland habitat restricted to upland areas which provides botanical diversity and is important to invertebrates.
Upland acid grassland	Low	This covers common types of low-diversity acid grassland that are common in the uplands and make up a significant proportion of the upland habitat in the Scottish Highlands. They are of low diversity and often derived from heathland or other habitats, and under more natural circumstances would often be native woodland.
Bracken	Low	Low diversity habitat of generally low ecological value, common.
Upland calcareous grassland	High	Listed on SBL. Very localised naturally occurring habitat.
Upland heathland	Low	Listed on SBL but extremely common in the uplands locally and regionally, occupying a large proportion of the Scottish Highlands. Additionally, much upland heathland below the tree line (as is mostly the case here) would under more natural circumstances be native woodland.
Low alkalinity lakes	Medium	Listed on SBL. Very localised naturally occurring habitat restricted to the uplands.

Habitat	Strategic Significance	Rationale
Upland birchwoods	Medium	Listed on SBL. A naturally occurring woodland type in the Scottish Highlands. Where not constituting ASNW it is not irreplaceable, but is still an important component of upland habitat mosaics, of a type that is far less abundant than would be the case under more natural circumstances.
Upland birchwoods (ASNW)	High	This concerns ancient semi-natural woodland, so is an important and irreplaceable resource as per Scottish planning policy.
Other coniferous woodland	Low	Low diversity habitat dominated mainly by non-native species and managed as commercial forestry.
Developed land, included tracks	Low	Sealed made ground and unsealed tracks with no biodiversity value.
Post-intervention habitats		
Reservoirs	Low	Man-made habitat, fairly common in the Scottish Highlands with limited biodiversity value owing to unnatural fluctuation.
Other Scots pine woodland	High	Listed on SBL. A naturally occurring woodland type in the Scottish Highlands. Not considered ASNW/Native pinewood (as will take many years to mature once planted/fenced) but still an important component of upland habitat mosaics and would be sourced from local Native pinewood.
Upland heathland with dwarf birch	High	Dwarf birch montane scrub is very localised and notable.
Montane heaths and willow scrub	High	Listed on SBL. Rare naturally occurring habitat.
Ponds (Priority habitat)	High	Listed on SBL. Declining habitat. Of importance botanically and for invertebrates, amphibians and other species, and in this case benefiting scarce emerald dragonfly species.
Rivers and lakes – Rivers (Priority Habitat; Low)	Medium	Listed on SBL. Many small to very small semi-natural watercourses in the uplands.
Rivers and lakes – Rivers (Priority Habitat; Medium)	Medium	Listed on SBL. Most semi-natural watercourses in the uplands.

Difficulty and Time to Target Condition

- 2.3.35 In the SSER Toolkit post-intervention habitats are assigned scores for how difficult they are to create, and the time in which they are expected to reach their target condition.
- 2.3.36 Difficulty levels and time for achieving target conditions for the proposed habitats were selected in accordance with Defra Statutory Metric – Technical Annex 2: Technical Information¹⁵, using professional judgement to adjust these where considered appropriate to ensure the condition scores and times selected were realistic.
- 2.3.37 The difficulty and time to target condition are described for each post-intervention habitat in **Section 3: Habitat Loss** and **Section 4: Loss of watercourses**
- 2.3.38 Watercourses are the only linear habitats present within the Proposed Development Site (there are no hedgerows).
- 2.3.39 There is expected to be loss (almost entirely to the Headpond) of 4 km of small to very small watercourses that are headwaters (within 2.5 km of source), and considered best assigned to the category 'Rivers (Priority Habitat; Low)', and are considered to be in Moderate condition owing to lack of riparian shrubs.

2.4 Habitat Creation and Enhancement Constraints and Limitations

- 2.4.1 In undertaking the BNG calculation, the following assumptions were made:

¹⁵ Natural England (2023). Statutory Metric – Technical Annex 2: Technical Information. (online) Available at: (<https://publications.naturalengland.org.uk/file/5749350878412800>)

- Habitat loss will be as described below in **Section 3: Habitat Loss and** ;
- In arriving at the post-intervention biodiversity units, it is assumed that the specified areas of suggested habitat creation and enhancement will be implemented, that the proposed target conditions will be achieved in the proposed times to target condition, and that the created or enhanced habitats will persist in perpetuity. This will require periodic monitoring and, potentially, management while habitats establish to target condition, and, in future, rectification when necessary of any failures (including of deer exclusions). It has been assumed that necessary remedial action will be taken to enable the assigned target conditions to be reached.

- 2.4.2 Retained and unaffected habitats have been omitted from the assessment. Only habitats that would be impacted directly or indirectly are included.
- 2.4.3 The very occasional 'loss' of existing Urban habitats (Developed land including tracks) to the Urban habitats of the Proposed Development infrastructure have also not been included. This does not affect the assessment given that in this case both the pre- and post-intervention habitats have no biodiversity unit value.
- 2.4.4 The baseline area habitat for proposed habitat measures beyond the habitat survey area (although still within the same estate) has been assumed to be Upland Heathland in Good condition. All Class 1 and Class 2 peatland areas from the NatureScot Peatland Carbon and Peatland 2016 dataset, which are likely to be mainly blanket bog on significant peat, were eliminated from proposed planting areas, and following also inspection of aerial photography it is very likely that the remaining baseline habitat in these areas is Upland Heathland, Upland Heathland and blanket bog being the dominant habitats in the locality.
- 2.4.5 Strict adherence to the UKHab methodology permits only one 'primary' habitat to be assigned per polygon. This is an over-simplification for a large and complex upland survey, where mosaic polygons comprising a mix of habitat types are very often more appropriate (as were used for the NVC survey). However, for the purposes of the UKHab survey and BNG assessment this simplification is not considered a significant limitation.
- 2.4.6 Further limitations relating to the collection of baseline habitat data are described in **Appendix 7.3: Habitats (Volume 5: Appendices)**.
- 2.4.7 The SSER Toolkit rounds habitat areas and lengths to two decimal places. Areas and lengths to further decimal places can be entered but are rounded by the SSER Toolkit.

3. Habitat Loss and Modification

- 3.1.1 As discussed above, the following habitat loss and modification will take place as a result of the construction of the Proposed Development and in the absence of proposed habitat creation/enhancement measures:
- Loss of existing habitats to the proposed Headpond; and,
 - Loss of existing habitats to permanent infrastructure;
 - Degradation of habitats in the vicinity of the Proposed Development.
- 3.1.2 Descriptions of habitats to be lost and modified are provided in the following Sections.

3.2 Loss to the Headpond

- 3.2.1 Existing habitat within the maximum standing water of the proposed Headpond is treated as replaced with artificial reservoir habitat.
- 3.2.2 A total area of 43 ha existing habitat will be lost to the Headpond (excluding extensive blanket bog, which as discussed in paragraph 2.3.5 are considered by all BNG metrics to be irreplaceable and do not contribute to the BNG score) , the post-intervention habitat type for which is Reservoirs. This comprises:
- 0.03 ha Fens (upland and lowland) of Good condition;
 - 0.51 ha Upland acid grassland of Poor condition;
 - 0.27 ha Upland calcareous grassland of Good condition;
 - 18.22 ha Upland heathland of Good condition;

- 24.16 ha Low alkalinity lakes of Good condition; and
- 0.02 ha Upland birchwood of Moderate condition.

3.2.3 It has been assumed that replacement of habitat by the Headpond will take approximately one year to be replaced by Reservoir habitat of Poor condition, once the Headpond is complete and is gradually filled in (and assigned Low difficulty since it will be merely the result of completed construction).

3.3 Loss to constructed permanent infrastructure

3.3.1 Existing habitat within the footprint of permanent infrastructure (access tracks, compounds etc) will be lost during construction of the Proposed Development.

3.3.2 A total area of 29 ha of area-based existing habitat will be lost to permanent infrastructure. This comprises:

- 0.01 ha Upland acid grassland of Moderate condition;
- 0.51 ha Upland acid grassland of Poor condition;
- 0.04 ha Bracken of Moderate condition;
- 0.01 ha Bracken of Poor condition;
- 9.77 ha Upland heathland of Fairly Good condition;
- 0.98 ha Upland birchwood of Moderate condition; and,
- 8.32 ha Other coniferous woodland of Poor condition (to track widening along the existing FLS track for the Balnain Main Access).

3.3.3 Additionally, with regard to irreplaceable habitat there would be a small loss of 1.3 ha of ASNW in Good condition, almost entirely to the Lower Control Works. A small proportion would be lost to minor track widening along the existing FLS track through commercial forestry for the Balnain Main Access, which would primarily impact coniferous plantation.

3.3.4 All permanent infrastructure assigned to the Urban / developed habitat types (including tracks) is counted as habitat loss (of the baseline habitats) in the SSER Toolkit. No difficulty or time scores are assigned for habitat loss.

3.3.5 Note that whilst the existing Loch nam Breac Dearga would remain during construction until shortly before inundation at completion of the infrastructure, the moorland habitats within the Headpond (with the exception of the lower slopes of Meall Fuar-mhonaigh that fall to Loch nam Breac Dearga) will be subject to quarrying, construction of Upper Control Works, construction of the Main Dam, Saddle Dams, and spillway, general plant movement, and construction of temporary track and unspecified temporary compound(s). Such disturbance would take place at various locations and times during the Headpond, until eventual replacement by the artificial reservoir habitat during inundation. Therefore aside from Loch nam Breac Dearga and the slopes of Meall Fuar-mhonaigh that fall to it, where time to target condition (of the Headpond reservoir in Fairly Poor condition) was set at 1 year, the time to target condition for other habitats in the Headpond area was set at 8 years.

3.4 Indirect habitat modification

3.4.1 Habitat within 30 m of proposed works is assumed to be modified hydrologically, or locally by the effects of vehicle movement.

3.4.2 A total area of 39 ha existing habitat will be degraded by adjacent works. This comprises:

- 0.01 ha Fens (upland and lowland) of Good condition assumed to be modified to Moderate condition;
- 0.21 ha of Upland acid grassland of Moderate condition assumed to be modified to Fairly poor condition; and,
- 38.93 ha of Upland heathland of Fairly good condition assumed to be modified to Moderate condition.

3.4.3 Modification of retained habitats within 30 m of the Proposed Development has been estimated to take one year (though this will vary depending on the exact nature and location of works), and has been assigned 'very low difficulty' (given that it is assumed to occur as a side effect of construction).

3.5 Loss of watercourses

- 3.5.1 Watercourses are the only linear habitats present within the Proposed Development Site (there are no hedgerows).
- 3.5.2 There is expected to be loss (almost entirely to the Headpond) of 4 km of small to very small watercourses that are headwaters (within 2.5 km of source), and considered best assigned to the category 'Rivers (Priority Habitat; Low)', and are considered to be in Moderate condition owing to lack of riparian shrubs.

4. Habitat Creation and Enhancement

4.1 Determining Creation/Enhancement Measures

- 4.1.1 The following habitat creation/enhancement measures have been developed to compensate for the habitat loss/degradation described in the previous section.

- 4.1.2 Appropriate habitat creation/enhancement measures to be delivered within the Site boundary were determined based on the results of field survey, considering the findings of desk study, and in consultation with other relevant parties such as the estate forestry advisor. The following habitat mitigation and compensation measures are proposed:

- ASNW enhancement in the River Coiltie vicinity by improved deer exclusion;
- natural regeneration within a 30 m ASNW buffer in the Coiltie vicinity;
- native woodland planting (including riparian planting along the side of appropriate watercourses);
- dwarf birch (supplemented with juniper in drier areas and occasional Scots pine) planting and regeneration on appropriate higher ground;
- montane willow scrub planting and regeneration zone; and,
- creation of three emerald dragonfly ponds.

- 4.1.3 These options have been selected as they individually provide some or all of the following benefits:

- they are appropriate to the location and enhance and/or increase the extent of these habitats already present in a complimentary and natural manner;
- they enhance habitat connectivity in the wider landscape;
- they do not interfere with compensatory peatland restoration dealt with separately (see **Appendix 15.2: Outline Peat Management Plan (Volume 5: Appendices)**);
- in addition to habitat compensation and enhancement, they provide benefits to important animal species known to be present (for example bats, pine marten and emerald dragonfly species); and,
- they deliver multiple ecosystem benefits, including carbon sequestration, water quality management, and species habitat creation/enhancement (e.g., shading of watercourses by native broadleaved shrubs/trees is likely to provide benefits to fish species).

- 4.1.4 These measures are more fully described in the **Appendix 6.4: Outline Landscape and Ecology Management Plan (Volume 5: Appendices)**, but summarised below.

- 4.1.5 Justification for target conditions is provided in **Annex A Habitat Condition Rationale**.

4.2 ASNW enhancement

- 4.2.1 Existing ASNW along the River Coiltie (54.23 ha) is proposed to be enhanced by improved and maintained deer exclusion, to allow regeneration and permit recruitment of new trees to replace older trees that will die in due course, and for which there is currently no generating replacement.

- 4.2.2 The construction and permanent monitoring and maintenance of deer exclusion fencing will result in enhancement of existing mature ASNW Upland birchwood from Moderate to Good over fifteen years, and is considered to be of Low difficulty. Defra Statutory Metric estimates a time of fifteen years for the enhancement of Moderate Upland birchwood to Good Upland birchwood. It does not specify a different time for Upland birchwood that is ASNW.

4.3 ASNW regeneration buffer

- 4.3.1 Permanently maintained deer exclusion will also encompass a 30 m buffer of currently unwooded habitat around a substantial part of the existing ASNW in the Coiltie area, in which natural regeneration is expected to occur. This comprises an area of 21.68 ha, considered to become in due course Moderate condition Upland birchwood, over 25 years and of Low difficulty. The baseline habitats where this is proposed comprise:

- 0.06 ha Upland acid grassland;
- 3.73 ha Bracken; and,
- 17.89 ha Upland heathland.

- 4.3.2 The natural woodland growth is considered enhancement rather than creation within the calculation because the heathland and other habitats will be retained in the ground flora. However, the Defra Statutory Metric estimate of 25 years for the creation of Moderate condition Upland birchwood is considered appropriate given the time required for appreciable young trees to develop naturally.

4.4 Native woodland planting

- 4.4.1 Native broadleaved tree species will be planted in appropriate areas, including along appropriate watercourses. Both Upland birchwood and Scots pine woodland are proposed.

- 4.4.2 A total area of 528.18 ha Fairly Good condition Upland birchwood is proposed, the baseline habitats of which comprise:

- 0.10 ha Upland acid grassland;
- 5.58 ha Bracken; and,
- 522.50 ha Upland heathland.

- 4.4.3 A total area of 18.72 ha Fairly Good condition Other Scots pine woodland is proposed, the baseline habitats of which comprise:

- 1.58 ha Bracken; and,
- 17.13 ha Upland heathland.

- 4.4.4 A total area of 24.17 ha Fairly Good condition riparian Upland birchwood is proposed along watercourses, the baseline habitats of which comprise:

- 0.61 ha Bracken; and,
- 23.56 ha Upland heathland.

- 4.4.5 The combined non-riparian and riparian Upland Birchwood planting amount to 552 ha, and together with the Scots pine planting gives 571 ha of native woodland planting.

- 4.4.6 Planted Upland birchwood and Other Scots pine woodland are expected to reach Fairly Good condition after 25 and 30 years, respectively. This will be of Low difficulty given that tree planting is a standard measure for biodiversity enhancement and is implemented frequently, and the suitability of the trees to local ground conditions.

- 4.4.7 The native woodland planting is considered enhancement rather than creation within the calculation because the existing heathland and other habitats will be retained in the ground flora. However, the Defra Statutory Metric estimate of 25 years for the creation of Moderate condition Upland birchwood is considered appropriate given that trees are being planted.

4.5 Dwarf birch/juniper/Scots pine planting

- 4.5.1 There are proposed moderate altitude zones in which it is proposed that existing heathland will be enhanced to heathland with dwarf birch (dwarf birch would also be planted in these zones on suitable blanket bog habitat, one

of the key habitats for this species, however as mentioned elsewhere blanket bog is irreplaceable habitat and is not accounted for in the BNG calculation, but rather addressed through separate peatland restoration as outlined in **Appendix 7.6: Outline Peatland Restoration Plan (Volume 5: Appendices)**. A total area of 75.57 ha Good condition Upland heathland with dwarf birch is proposed, the baseline habitat of which is Upland heathland.

- 4.5.2 Upland heathland with dwarf birch montane scrub, and locally juniper where drier and occasional Scots pine, is expected to reach Good condition after 30 years, and is considered of Low because dwarf birch is reportedly easy to harvest the seed of and to grow and plant.
- 4.5.3 The dwarf birch planting is considered enhancement rather than creation within the calculation. However, additional dwarf birch scrub will be created on this retained ground flora. Defra Statutory Metric estimates 10 years for the creation of Good condition Mixed scrub, the habitat type used in the calculation to represent dwarf birch. However this estimate is as for typical lowland scrub species. Enhancement of Upland heathland to Good condition Upland heathland with dwarf birch is considered by professional judgement to be more similar to creation of Good condition heathland, for which the estimate is 30 years.

4.6 Montane willow scrub

- 4.6.1 A montane willow scrub zone is proposed along the west side of Meall Fuar-mhonaidh, in which small amounts of existing known montane willow scrub will be supplemented by planting from as local sources as possible (including by translocating existing small amounts of montane willow (the nationally-scarce whortle-leaved willow *Salix myrsinites*) that would be subject to inundation by the Headpond). A total area of 27.45 ha Fairly Good condition willow scrub is proposed (the SSER category is 'Montane heaths and willow scrub'), the baseline habitat for which is treated as Upland heathland (it comprises forms of mainly heather heathland with frequent large cliffs).
- 4.6.2 Montane willow scrub is expected to reach Fairly good condition after 30 years. This is considered to be of High difficulty because of the likely difficulty of sourcing and sowing montane willow scrub, and the maintenance required to upkeep the deer exclusion.
- 4.6.3 The montane willow scrub planting is considered enhancement rather than creation within the calculation. However, additional montane willow scrub will be created on the retained ground flora. Defra Statutory Metric estimates 30+ years for the creation of Fairly Good condition Montane heaths and willow scrub. Given that the same estimate is quoted for Good condition, and some montane willow scrub is already present, the lower end of this estimate (30 years) was considered appropriate.

4.7 Emerald dragonfly ponds

- 4.7.1 Three sphagnum-rich ponds suitable for use by emerald dragonfly species are proposed on existing heathland. A total area of 0.93 ha Good condition Ponds (Priority habitat) is proposed, the baseline habitat for which is Upland heathland.
- 4.7.2 The ponds are expected to reach Good condition after 13 years. This is a conservation estimate based on the fact that two of the three ponds are located on temporary compounds and will therefore not be commenced until the compounds are removed, and allowing for a further five years for the pond to develop. This will be of Medium difficulty since initial excavation is not difficult but some effort will be required to transfer appropriate sphagnum, monitor for correct establishment and make rectifications if found necessary. The estimate of five years from establishment is as specified by Defra Statutory Metric guidance.

4.8 Watercourse enhancement

- 4.8.1 The habitat measures above will also effectively result in enhancement (through provision of native riparian trees/shrubs, absence of which is the only clear negative feature of much of the more natural watercourse stretches in the vicinity of the Proposed Development) along approximately 10 km of retained more natural watercourses (Rivers and lakes – Rivers (Priority Habitat; Medium)). The benefits of this, in addition to the botanical, include positive effects for fish and other aquatic species through provision of native broadleaved tree/shrub shading and leaf litter. As such, professional judgement indicates that there will be a substantial biodiversity gain for watercourses.
- 4.8.2 This enhancement is expected to be raise Moderate condition to Good condition over fifteen years. This is considered to be of Low difficulty given again that such tree planting is regularly undertaken and is not difficult,

and will involve species appropriate to local ground conditions. A period of fifteen years is considered adequate for planted riparian trees and shrubs to become sufficiently mature to provide ecological benefits to the watercourses.

5. Results

5.1 SSER Toolkit Calculation Output

- 5.1.1 The results of the assessment are summarised below and presented in **Table 5-1 to Table 5-4**.
- 5.1.2 Note that any minor discrepancies between the values provided by **Table 5-1 to Table 5-4** and those presented by the SSER Toolkit itself are due to rounding. These discrepancies do not impact the result.
- 5.1.3 The final summary output from the SSER Toolkit is shown in **Annex B SSER Toolkit Calculation Output**.

5.2 Baseline Biodiversity Units

- 5.2.1 A detailed description of the habitats within the Proposed Development Site is provided in **Appendix 7.3: Habitats (Volume 5: Appendices)** of the EIA Report. However, as stated in **Section 2: Methods (Baseline Habitats)**, the baseline biodiversity units are from areas that will be impacted in some way by the Proposed Development, rather than the for the entirety of the Proposed Development Site the majority of which will be unaffected. The baseline habitats are shown on **Figure 7.5 Habitats (Volume 3: Figures)**.

Baseline area-based biodiversity units

- 5.2.2 The baseline biodiversity values for area-based habitats are provided in **Table 5-1: Baseline Area-based Habitats that will be changed by the Proposed Development**. Note that the standard area-based biodiversity units and those of irreplaceable habitats (IRR) are presented separately in **Table 5-1**. This is because IRR units do not contribute to the overall calculation of biodiversity loss and gain.
- 5.2.3 In total, the baseline biodiversity value of area-based habitats is 8,251 biodiversity units, comprising 939 biodiversity units from baseline habitats that will be permanently lost or (to a much lesser degree) adversely modified by the Proposed Development, and 7,312 biodiversity units from baseline habitats in areas of proposed habitat measures to achieve compensation and enhancement.
- 5.2.4 The greatest single contribution to the baseline biodiversity units is 526 biodiversity units from the 24 ha of natural standing water (Low alkalinity lake habitat) represented almost entirely by Loch nam Breac Dearga, which will be lost to the Headpond (and therefore replaced by artificial reservoir habitat, which does offer some biodiversity value but considerably less). This is in Good condition and has High distinctiveness, Moderate connectivity, and Medium strategic significance and accounts for 56% of the 939 biodiversity units that will be lost to or modified by the Proposed Development. The remainder is largely Upland heathland, the majority of which is wet heath but including some dry heath. Most of the Upland heathland is in Fairly Good condition, with smaller extents of Good condition (corresponding to heathland with notably species-rich areas on the western side of Meall Fuar-mhonaidh) and occasionally Moderate condition with excessive bracken. Apart from aforementioned heathland with species-rich areas on the side of Meall Fuar-mhonaidh, which are assigned High distinctiveness, all other Upland heathland is assigned Medium distinctiveness by professional judgement, based on the great abundance of this habitat in northern and western Scotland including this region (in comparison to most of England where the Defra Statutory Metric would be correct in assigned High distinctiveness).
- 5.2.5 Very small contributions to baseline biodiversity units within the Proposed Development are made by Upland calcareous grassland (1%), Upland acid grassland (<1%), Upland birchwood (<1%), Fens (upland and lowland (<1%) and Bracken (<1%).
- 5.2.6 ASNW contributes 1,137 separate baseline IRR units, of which 39 IRR units will be lost to the Proposed Development and 1097 IRR units will be subject to enhancement.

Baseline linear-based biodiversity units

- 5.2.7 The details of the baseline linear-based biodiversity units are shown on

5.2.8 Table 5-2 Baseline Linear-based Habitats that will be changed by the Proposed Development.

The baseline biodiversity value for linear habitats is 276 linear-based biodiversity units from approximately 14 km of watercourse. Of this, 4 km (58 watercourse biodiversity units) is expected to be lost. 10 km (218 watercourse biodiversity units) will be enhanced from Moderate to Good condition by adjacent riparian shrub/tree planting within zones of wider native woodland establishment.

Table 5-1: Baseline Area-based Habitats that will be changed by the Proposed Development

Baseline area-based habitat	Area (ha)	Condition	Distinctiveness	Connectivity	Strategic significance	Baseline habitat units	Baseline IRR units
Permanent loss to Headpond reservoir (i.e. open fluctuating water habitat)							
Fens (upland and lowland)	0.03	Good	High	Moderate	Medium	0.65	0
Upland acid grassland	0.51	Poor	Medium	Low	Low	2.04	0
Upland calcareous grassland	0.27	Good	High	Moderate	High	6.15	0
Upland heathland	9.13	Fairly Good	Medium	Low	Low	91.30	0
Upland heathland	9.09	Good	High	Low	Low	163.52	0
Low alkalinity lakes	24.16	Good	High	Moderate	Medium	526.20	0
Upland birchwood	0.02	Moderate	High	Moderate	Medium	0.29	0
Permanent loss to infrastructure (Headpond dams, all compounds other than LCW, and tracks other than that along existing track through FLS forestry for the Balnain Main Access)							
Upland acid grassland	0.51	Poor	Medium	Low	Low	2.04	0
	0.01	Moderate	Medium	Low	Low	0.08	0
Bracken	0.04	Moderate	Low	Low	Low	0.16	0
	0.01	Poor	Low	Low	Low	0.02	0
Upland heathland	9.77	Fairly Good	Medium	Low	Low	97.6	0
Upland birchwood	0.09	Moderate	High	Moderate	Medium	1.31	0
Permanent loss to infrastructure (felling at LCW, and for local widening of existing track through FLS forestry for the Balnain Main Access)							
Upland birchwood (ASNW)	1.30	Good	Very High	Moderate	High	0	39.47
Upland birchwood	0.89	Moderate	High	Moderate	Medium	12.92	0
Other coniferous woodland	17.54	Poor	Low	Low	Low	35.08	0
Indirect modification							
Fens (upland and lowland)	0.01	Good	High	Moderate	Medium	0.22	0
Upland acid grassland	0.21	Moderate	Medium	Low	Low	1.68	0
Upland heathland	38.93	Fairly Good	Medium	Low	Low	134.7	0
Proposed ASNW enhancement							
Upland birchwood (ASNW)	54.23	Moderate	Very high	Moderate	High	0	1097.62

Baseline area-based habitat	Area (ha)	Condition	Distinctiveness	Connectivity	Strategic significance	Baseline habitat units	Baseline IRR units
Proposed natural woodland growth within ASNW buffer							
Upland acid grassland	0.06	Moderate	Medium	Low	Low	0.48	0
Bracken	3.73	Poor	Low	Low	Low	7.46	0
Upland heathland	17.02	Fairly Good	Medium	Low	Low	170.20	0
	0.87	Moderate	Medium	Low	Low	6.96	0
Proposed native woodland planting (including riparian planting)							
Upland acid grassland	0.10	Moderate	Medium	Low	Low	0.80	0
Bracken	0.93	Moderate	Low	Low	Low	3.72	0
	6.86	Poor	Low	Low	Low	13.72	0
Upland heathland	558.62	Fairly Good	Medium	Low	Low	5586.20	0
	4.57	Moderate	Medium	Low	Low	36.56	0
Proposed dwarf birch / juniper / Scots pine planting							
Upland heathland	75.57	Fairly Good	Medium	Low	Low	755.70	0
Proposed montane willow scrub planting							
Upland heathland	27.45	Good	Medium	Low	Low	329.40	0
Proposed emerald dragonfly ponds							
Upland heathland	0.93	Good	Medium	Low	Low	11.16	0
Total	863.44					8251.16	1137.09

Table 5-2: Baseline Linear-based Habitats that will be changed by the Proposed Development

Baseline area-based habitat	Length (km)	Condition	Distinctiveness	Connectivity	Strategic significance	Baseline habitat units	Baseline IRR units
Permanent loss to Headpond							
Rivers and lakes – Rivers (Priority Habitat; Low)	4.00	Moderate	Medium	Moderate	Medium	58.08	0
Enhanced by habitat creation/enhancement measures							
Rivers and lakes – Rivers (Priority Habitat; Medium)	10.00	Moderate	High	Moderate	Medium	217.80	0
Total	14.00					275.88	0

5.3 Post-intervention Biodiversity Units

- 5.3.1 The post-intervention habitats are shown on **Figure 6.4.1: Outline Landscape and Ecological Mitigation – Project Wide (Volume 3: Figures)**.

Post-intervention area-based biodiversity units

- 5.3.2 The proposed post-intervention area-based habitats and biodiversity units are set out in **Table 5-3 Post-intervention Area-based Habitats**.
- 5.3.3 Without any compensatory habitat creation/enhancement, the Proposed Development would result in loss of 939 area-based biodiversity units through direct loss or (to a much lesser extent) indirect modification (again, this excludes blanket bog and ASNW, which as irreplaceable habitats do not contribute to the BNG score in any BNG metric). The reservoir constituting the Headpond itself will have some biodiversity value, however its value is relatively low (as a reservoir rather than a natural waterbody, and given a Fairly Poor condition resulting from artificial dams and other unnatural characteristics, in particular very frequent and strong fluctuation), and can therefore only provide a small degree of compensatory biodiversity value.
- 5.3.4 39.47 IRR units (concerning ASNW) would also be lost by the felling of a small area of ASNW for the LCW and very locally along the Balnain Main Access within the FLS plantation.
- 5.3.5 Therefore, habitat mitigation is required to achieve net gain in area-based biodiversity units. All habitat proposed creation/enhancement measures fulfil the following criteria:
- with the exception of two of the proposed ponds, they are outside the Proposed Development Site (i.e. outside the construction footprint);
 - they are located within the estate that the Proposed Development is located within, i.e. within the same ownership and therefore viable; and,
 - they will not result in further loss or degradation of any retained irreplaceable habitats (ASNW and blanket bog).
- 5.3.6 A net gain of 22% is calculated by the SSER Toolkit by implementing and maintaining the above-described habitat measures to the extents shown on **Figure 6.4.1: Outline Landscape and Ecological Mitigation – Project Wide (Volume 3: Figures)**. It is important to note that the proposed enhancement of a substantial area of Upland birchwood ASNW does not contribute to this net gain score, because it is irreplaceable habitat. The proposed ASNW enhancement is intended as a compensation measure for the small loss of ASNW, and it is additional to the measures contributing to the net gain score (as is the very extensive peatland restoration outlined in **Appendix 7.6: Outline Peatland Restoration Plan (Volume 5: Appendices)**).

Post-intervention linear biodiversity units

- 5.3.7 The details of the post-intervention linear-based biodiversity units are shown in **Table 5-4 Post-intervention Linear-based Habitats**.
- 5.3.8 There will be a loss of 58 watercourse biodiversity units.
- 5.3.9 Riparian shrub/tree planting within the wider proposed native woodlands is expected to improve the condition of approximately 10 km of adjacent retained watercourses, thus resulting in a substantial biodiversity gain for watercourses, estimated at 303 watercourse biodiversity units, resulting in a 10% net gain for watercourses.

Trading rules

- 5.3.10 As a result of the creation (for the Headpond) of a large artificial reservoir, the habitats within it of Medium or higher distinctiveness are replaced with a different broad habitat. Similarly, the planting of woodland and montane scrub on Upland heathland (primarily) results in a change of broad habitat for the (generally) Medium distinctiveness baseline habitat. This constitutes a contravention of so-called 'trading rules' in the Defra Statutory Metric. The SSER Toolkit similarly indicates where this is occurring. However, it is entirely appropriate to plant native woodland on Upland heathland in the Scottish and regional context, in which much Upland heathland (an exceedingly widespread and ubiquitous habitat in this region) would under more natural circumstances be native woodland, and indeed this is encouraged generally. It is also not considered appropriate (nor feasible) to create

more Upland heathland to replace that lost, for the same aforementioned reasons. As such, the trading rules are not considered useful in this case, and are regarded as against best ecological practice.

Table 5-3: Post-intervention Area-based Habitats

Post-intervention area-based habitat	Area (ha)	Condition	Distinctiveness	Connectivity	Strategic significance	Post-intervention habitat units	Post-intervention IRR units
Permanent loss to Headpond							
Reservoirs	47.62	Fairly Poor	Medium	Low	Low	185.27	0
Permanent loss to infrastructure (Headpond dams, all compounds other than LCW, and all tracks other than existing track through FLS forestry for the Balnain Main Access)							
Artificial developed (including unsealed tracks)	19.43	N/A	Very Low	Low	Low	0	0
Permanent loss to infrastructure (local widening of existing track through FLS forestry for the Balnain Main Access)							
Artificial developed (unsealed tracks)	8.32*	N/A	Very Low	Low	Low	0	0
Indirect modification							
Fens (upland and lowland)	0.01	Moderate	High	Moderate	Medium	0.16	0
Upland acid grassland	0.21	Fairly poor	Medium	Low	Low	1.36	0
Upland heathland	38.93	Moderate	Medium	Low	Low	354.17	0
Proposed ASNW enhancement							
Upland birchwood (ASNW)	54.23	Good	Very high	Moderate	High	0	1419.22
Proposed natural woodland growth within ASNW buffer							
Upland birchwood	21.68	Moderate	High	Moderate	High	244.14	0
Proposed native woodland planting (including riparian planting)							
Upland birchwood	552.35	Fairly good	High	Moderate	High	7523.53	0
Other Scots pine woodland	18.72	Fairly good	High	Moderate	High	235.29	
Proposed dwarf birch planting							
Upland heathland	75.57	Good	High	Moderate	High	1086.71	0
Proposed montane willow scrub planting							
Mountain heaths and willow scrub	27.45	Fairly good	Very High	Moderate	High	370.72	0
Proposed emerald dragonfly ponds							
Ponds (Priority habitat)	0.93	Good	Medium	Moderate	High	8.92	0

Post-intervention area-based habitat	Area (ha)	Condition	Distinctiveness	Connectivity	Strategic significance	Post-intervention habitat units	Post-intervention IRR units
Total	857.13					10010.30	1419.22

**Excluding 0.03 ha Upland Birchwood ASNW*

Table 5-4: Post-intervention Linear-based Habitats

Post-intervention area-based habitat	Length (km)	Condition	Distinctiveness	Connectivity	Strategic significance	Post-intervention habitat units	Post-intervention IRR units
Enhanced by habitat creation/enhancement measures							
Rivers and lakes – Rivers (Priority Habitat; Medium)	10.00	Good	High	Moderate	Medium	302.89	0
Total	10.00					302.89	0

6. Summary and Conclusion

- 6.1.1 The summary dashboard from the SSER Toolkit is shown in **Annex B SSER Toolkit Calculation Output**.
- 6.1.2 Based on **Table 5-1 Baseline Area-based Habitats that will be changed by the Proposed Development** and **Table 5-3 Post-intervention Area-based Habitats** described above, the Proposed Development can achieve 22% net gain for area-based units if the proposed creation/enhancement is fully implemented as summarised in this Appendix and set out in more detail in **Appendix 6.4 Outline Landscape and Ecology Management Plan (Volume 5: Appendices)**.
- 6.1.3 In summary, 22% net gain can be achieved assuming the following for area-based biodiversity units:
- a baseline score calculated by the SSER Toolkit of 8,251 area-based biodiversity units (not counting blanket bog and ASNW which, as irreplaceable habitats, the SSER Toolkit and other BNG metrics including the Defra Statutory Metric do not include in BNG calculations);
 - a post-intervention score calculated by the SSER Toolkit of 10,010 area-based biodiversity units (not counting blanket bog and ASNW which as mentioned are not accounted for in BNG metrics), achieved by provision of the following where indicated on **Figure 6.4.1: Outline Landscape and Ecological Mitigation – Project Wide (Volume 3: Figures)**:
 - 22 ha of regeneration buffer around the Coiltie ASNW, largely on Upland heathland;
 - 552 ha Upland birchwood (including riparian planting along watercourses), and 19 ha Other Scots pine woodland, which is very largely on Upland heathland (mostly wet heath, but including some dry heath);
 - 76 ha of dwarf birch montane scrub, supplemented with small amounts of juniper and Scots pine;
 - A 27 ha zone for planting and regeneration of montane willow scrub on the west side of Meall Fuar-mhonaigh;
 - 0.93 ha of priority pond habitat at three ponds, in particular for the benefit of emerald dragonfly species. The required conditions of each of the above habitats and areas of specific habitats involved are given in **Table 5-3 Post-intervention Area-based Habitats**. Further detail on the habitat proposals are provided in **Appendix 6.4 Outline Landscape and Ecology Management Plan (Volume 5: Appendices)**.
- 6.1.4 There will be a loss of 39 IRR units due to the limited felling of ASNW. By nature this habitat is irreplaceable and cannot be fully compensated for in a like-for-like manner. However, the SSER Toolkit calculates that the proposed enhancement of a large area (54 ha) of retained ASNW by implementing deer exclusion to allow regeneration (hitherto lacking) results in a gain of 282 IRR units. In addition, reduced grazing pressure in the 22 ha regeneration buffer around the retained ancient semi-natural birchwood will, in time, allow it to naturally expand. The extensive native woodland planting also supplements and expands in a natural manner on the existing ASNW. Thus, although the loss of ancient semi-natural birchwood cannot be fully compensated for, the proposed habitat measures will provide biodiversity benefits to ancient woodland as a whole.
- 6.1.5 Loss of 58 watercourse biodiversity units owing to loss of lengths of small to very small watercourse (mainly to the Headpond) will be compensated, with further enhancement, by implementation of the above native woodland planting, which includes appropriate riparian planting along approximately 10 km of moderate-sized streams. This is considered to increase condition from Moderate to Good and thereby to result in a 10% gain for watercourses.
- 6.1.6 It should be noted that recovery of 100% of the biodiversity units that would be lost to the Proposed Development is no small achievement given its size. 10% gain is a considerable further achievement, and if all proposed habitat measures are implemented the calculated 22% gain represents approximately double the degree of gain stipulated by The Highland Council for large developments. Together with the extensive peatland restoration measures that the Applicant is committed to implementing (see **Appendix 7.6 Outline Peatland Restoration Plan (Volume 5: Appendices)**), to the required ratio stipulated by NatureScot or whatsoever other ratio may be agreed, and to appropriate high quality standards, the Proposed Development can be expected to deliver a substantial landscape-scale improvement to regional biodiversity and associated ecosystem services.

Annex A Habitat Condition Rationale

Baseline Area-based Habitats

Table A1 sets out the rationale for condition assigned to each area-based habitat.

Table A1. Condition Rationale for Area-based Habitats (Baseline)

SSER Habitat type	UKHab type	Condition	Rationale
Fens (upland and lowland)	f2c Upland flushes, fens and swamps	Good	All flushes, fens and swamps passed all relevant criteria for Wetlands.
Upland acid grassland	g1b Upland acid grassland	Moderate	This category comprises polygons of mainly purple moor-grass swards (which under UKHab are assigned to upland acid grassland rather than priority Purple Moor-grass and Rush Pasture), which often fail on sward height variability, and are species-poor and likely derived from better quality habitat. These polygons do however also include small amounts of other habitats that justify a condition of Moderate. Note as discussed in Appendix 7.3 Habitats (Volume 5: Appendices) the Defra Statutory Metric criterion for bare ground is not considered appropriate for upland Scotland and was amended to allow no bare ground similarly to JNCC Common Standards Monitoring (a minimum of 1% bare ground would in nearly all cases be adverse, not positive).
		Poor	Species-poor purple moor-grass overwhelmingly dominant, failing on sward height and species diversity, and likely derived from better quality habitat. Note as discussed in Appendix 7.3 Habitats (Volume 5: Appendices) the Defra Statutory Metric criterion for bare ground is not considered appropriate for upland Scotland and was amended to allow no bare ground similarly to JNCC Common Standards Monitoring (a minimum of 1% bare ground would in nearly all cases be adverse, not positive).
Bracken	g1c Bracken	Moderate	Small areas of better quality bracken where the bracken is not as dense as normal and ericoids are abundant. Bracken is normally assigned Poor condition by default, but this was locally overridden for this reason by professional judgement.
		Poor	Typical stands of dense bracken. Poor is the default for bracken.
Upland calcareous grassland	g2b Upland calcareous grassland	Good	All observed base-influenced grassland (which includes CG10, U4c and U5c) was in Good condition. Sward height was in places lacking sufficient variability in sward height, however, fail of this alone still achieves Good condition. Note as discussed in Appendix 7.3 Habitats (Volume 5: Appendices) the Defra Statutory Metric criterion for bare ground is not considered appropriate for upland Scotland and was amended to allow no bare ground similarly to JNCC Common Standards Monitoring (a minimum of 1% bare ground would in nearly all cases be adverse, not positive). There were no fails regarding undesirable species or damage. This is not surprising, given the highly natural state of these grasslands.
Upland heathland	h1b Upland heathland	Good	Good condition was assigned to heathland on the western side of Meall Fuar-mhonaidh which included a proportion of notably species-rich heath, and was considered to pass the relevant Defra statutory metric criteria generally. Although heather structure is in places uniform, this results from the accessibility of the more cliff-like parts of this slope and is therefore not considered a negative.
		Fairly Good	Upland heathland (both wet and dry) generally passed Defra statutory metric criteria. Appendix 7.3 Habitats (Volume 5: Appendices) mentions low grazing pressure reported for the estate, however it also notes that dwarf birch where occasionally present in wet heath (and more often in blanket bog) was frequently browsed and would likely achieve better stature and reproductive success under still lower grazing pressure. Also, whilst hillsides or management units were considered to pass the criterion for age range of <i>Calluna</i> (or <i>Erica</i> spp.), age structure was frequently rather uniform over appreciable areas. Also, excepting the lower western side of Meall Fuar-mhonaidh which included notably species-rich heath and was assigned Good condition), the heath was over large areas not of special floristic note. Consequently, on professional judgement a condition category of Fairly Good was considered most realistic for most of the Upland heathland. Note as discussed in Appendix 7.3 Habitats the Defra Statutory Metric criterion for bare ground is not considered appropriate for upland Scotland and was amended to allow no bare ground similarly to JNCC Common Standards Monitoring (a minimum of 1% bare ground would in nearly all cases be adverse, not positive). Note that planting areas beyond the detailed habitat

SSER Habitat type	UKHab type	Condition	Rationale
			survey were assumed to be Upland heathland (Class 1 and Class 2 peat classes having been removed from these planting areas, and following inspection of aerial photography for the remaining areas), and condition was assumed to be Fairly Good, in common with the majority of Upland heathland within the survey area.
		Moderate	Occasional areas of baseline Upland heathland in Moderate condition (rather than Fairly Good, which the majority of heathland was assigned) contains significant amounts of bracken. The extent of bracken in these areas was considered sufficient by professional judgement to warrant a condition of Moderate rather than a higher category.
Upland birchwoods	w1e Upland birchwoods	Moderate	The relevant woodlands generally failed on insufficient regeneration of native species, as well as typically (according to Defra Statutory Metric criteria) insufficient dead wood and veteran trees. Some are younger woodland, there is often a lack of ancient woodland indicators, and there is often a lower diversity of native woody species. Thus scores high enough to constitute Good condition were not reached, but this type of nevertheless native woodland was never poor enough to reach Poor condition.
Upland birchwoods (ASNW)	w1e Upland birchwoods (ASNW)	Good	Lost ancient woodland primarily concerns woodland at the Lower Control Works. Although few potential ancient woodland indicators were seen, regeneration was noted and there are occasional dead standing trees (often from ash-dieback) representing larger dead wood. It should be Baseline habitat for enhanced ancient woodland also suffers from lack of regeneration and moderate or low scores for other factors such as canopy structure, veteran trees, dead wood, etc.
		Moderate	Baseline habitat for proposed enhancement of Coiltie ancient woodland suffers from lack of regeneration and moderate or low scores for other factors such as canopy structure and dead wood.
Low alkalinity lakes and lakes	r1c Oligotrophic and dystrophic lakes	Good	This almost entirely concerns loss of the existing Loch nam Breac Dearga to the Headpond. This is a highly natural loch. The only failure is on fish barriers (downstream watercourse is dammed), however the loch supports native fish and all other hydrological aspects are completely natural, and criteria concerning physical, chemical and biological naturalness are all good. The Defra Statutory Metric score system for lakes therefore averages to be closest to Good than Moderate.

Baseline Linear Habitats

All linear habitats (there being no hedgerows) were assigned either Rivers and lakes (Priority Habitat; Low) or Rivers and lakes (Priority Habitat; Medium) SSER Toolkit habitat types, equivalent to r2a Rivers (priority habitat) under UKHab.

Full River Condition Assessment (RCA) under the Defra Statutory Metric in England/Wales requires detailed data collection by certified surveyors using the River MoRPH method. This is not mandatory in Scotland and was not undertaken; it is generally acknowledged that the system does not work well for upland sites with many small streams, survey of all of which by the MoRPH method would take an inordinate amount of time. However, observations of watercourses, of which there many small examples and fewer more substantial examples (as is typical in such upland terrain) were made. It was noted that the only clear negative features (given the high degree of naturalness of all watercourses) were a) very locally, hydrological modification by watercourse hydroelectric schemes, and b) in many cases, given locations below the tree line, an absence of riparian shrubs. All watercourses within the habitat survey area were assessed as having Moderate condition at baseline owing to this reasoning. For watercourses within proposed planting areas in parts of the estate beyond the extent of habitat survey, condition has been assumed to be Moderate for the same lack of riparian shrubs/trees (as appears to be the case from inspection of aerial photography).

Post-intervention Area-based Habitats

Table A2 sets out the rationale for condition of each post-intervention area-based habitat that will be created or enhanced. Other post-intervention habitats remain the same as the baseline (see **Table A1**).

Table A2. Condition Rationale for Area-based Habitats (Post-intervention)

SSER Habitat type	UKHab Type	Target Condition	Rationale
Lost to Headpond			
Reservoirs	N/A Best fit to r1g Other standing water	Fairly Poor	By the Defra Statutory Metric criteria, the Headpond achieves Fairly Poor condition. Chemical naturalness is rated as '1' (where '1' is very good and '5' is 'very bad'). Physical naturalness is poor and rated as '4' given a significant proportion of artificial sides formed by the dams. Biological naturalness is also rated as '4' because as reported in Chapter 9: Aquatic Ecology (Volume 2: Main report) there is a likelihood that the non-native North American flatworm <i>Phagocata woodworthi</i> will be introduced to the Headpond from Loch Ness, which predates native aquatic invertebrates; there is also a possibility of non-native waterweed <i>Elodea</i> spp. being introduced in the same way. However, hydrological naturalness must be rated '5' given the very frequent and strong fluctuation of the Headpond, and that passage of fish will be prevented. This results in a lake condition score that averages closest to Fairly Poor.
Lost to Infrastructure			
Developed land, including tracks	u1b Developed land; sealed surface, and u1c Artificial unvegetated, unsealed surface	n/a	No biodiversity value.
Within 30 m modification buffer			
Fens (upland and lowland)	f2c Upland flushes, fens and swamps	Moderate	Very small areas of mixed flush and flushed heath in the modification buffer, which by indirect modification would likely fail on type description, bare ground and/or undesirable species to fail (also possibly water quality), although most likely not all at any one location. Modification could be fairly substantial given high dependence on water, hence a full drop in condition from Good to Moderate was applied.
Upland acid grassland	g1b Upland acid grassland	Fairly poor	Small areas of acid grassland in the modification buffer, that are Moderate at baseline but liable to be slightly indirectly modified such that type description, bare ground and/or undesirable species could fail, although most likely not all at any one location and in general not to large degree.
Upland acid grassland	g1b Upland acid grassland	Poor	Concerns small areas of species-poor purple moor-grass that are Poor at baseline and would remain so.
Upland heathland	h1b Upland heathland	Fairly good	This category comprises polygons that contain much wet heath but also dry heath or other dry habitats. The wet heath is more liable to indirect modification (hydrologically) but the dry habitats are not and would probably not suffer much degradation in the modification buffer. Therefore this upland heathland was dropped from Good condition to Fairly good.
		Moderate	This concerns extensive upland heathland polygons overwhelmingly dominated by wet heath, with no or little extent of dry habitats amongst it. Therefore all or the great majority of these polygons would be liable to hydrological modification, and condition has thus been dropped a full step from Good to Moderate.
ASNW enhancement			
Upland birchwoods (ASNW)	w1e Upland birchwoods (ASNW)	Good	Development of regeneration within the Coiltie ancient woodland, as proposed, is considered to enable it to reach a woodland condition score above 32 and thereby Good condition, from current Moderate.
ASNW regeneration			
Upland birchwoods	w1e Upland birchwoods	Moderate	Development of regeneration from the ancient woodland in the 30 m ancient woodland regeneration buffer would be young and even-aged with limited structure and other insufficiencies, which would prevent it reaching Good condition, but (particularly given native species dominance) the woodland would not have as low a score as to result in Poor condition.
Native woodland planting (including riparian)			

SSER Habitat type	UKHab Type	Target Condition	Rationale
Upland birchwoods	w1e Upland birchwoods	Fairly good	Such woodland would score similarly to upland birchwood regeneration in the previous row, however in this case owing to planting it is taken as guaranteed that trees would be moderately mature after 30 years, and that there would also be higher diversity of woody species than might naturally arise through regeneration from local stock only. There would also automatically be an appropriate ericaceous ground flora, since upland heathland is the predominant baseline habitat that would be planted (and would under more natural circumstances likely be native woodland). The woodland would however be of insufficient quality after 30 years to reach Good condition. For these reasons, Fairly good condition was considered appropriate.
Other Scots pine woodland	w2b Other Scots pine woodland	Fairly good	Fairly good condition was applied for planted Scots pine woodland for similar reasons given for planted upland birchwood in the previous row. Although woody species diversity would be quite low, this is perfectly natural for native Scots pine woodland and on professional judgement there was not considered to be a failure of this criterion.
Dwarf birch (supplemented with juniper and Scots pine)			
Upland heathland	h1b Upland heathland	Good	This category represents mainly planted dwarf birch on heathland, supplemented by juniper in drier patches and occasional Scots pine (there is one existing mature Scots pine in this area), in a moderate altitude montane scrub scenario. Adding dwarf birch to the Upland heathland is considered on professional judgement (given that dwarf birch is notable) to increase Upland heathland condition from baseline Fairly Good to Good. Note that dwarf birch would also be planted in suitable (drier) areas of blanket bog, where it occurs most frequently in the surveyed area. This habitat will compensate for losses to dwarf birch to the Headpond. Growing and planting of dwarf birch is reported to be relatively easy by the Montane Scrub Action Group (https://www.msag.org.uk/best-practice-guides.html). The dwarf-birch montane scrub habitat, in which this species grows amongst ericaceous bog or heath, will be relatively easily achieved given that dwarf birch is easy to grow and the relevant species amongst which it grows are already present as bog or heath. Consequently, it is considered reasonable to expect Good condition to be reached.
Montane willow scrub			
Mountain heaths and willow scrub	h1c Mountain heaths and willow scrub	Fairly good	This category concerns proposed montane willow scrub on the west side of Meall Fuar-mhonaidh, where there is already at least a little montane willow scrub present. The Montane Scrub Action Group (https://www.msag.org.uk/best-practice-guides.html) gives details on how to best provide new or expanded montane willow scrub habitat. Appropriate sourcing and direct planting of the appropriate species should allow at least a moderate spread of montane willow scrub to develop in the time to target condition, especially given that there is existing montane willow scrub present and the wider habitat in the proposed deer-exclusion zone is suitable. Montane willows are however slow-growing, therefore Fairly good has been assigned.
Emerald dragonfly ponds			
Ponds (Priority habitat)	N/A Best fit to r1 Standing open water and canals	Good	The three created ponds are intended to be specially made to be suitable for scarce emerald dragonfly species, and are expected to pass all criteria for Ponds. The criteria are relatively easily achieved and some will be achieved automatically, including semi-natural surrounding habitat, no artificial connections to other waterbodies, lack of fish and invasive species, and water quality (which will be supplied by natural rainwater, and with an absence of livestock such as cattle and sheep). The ponds will be made shallow around the edges and seeded with sphagnum to encourage sphagnum-rich pond habitat favoured by emerald dragonflies.

Post-intervention Linear Habitats

However, it is expected that the habitat creation/enhancement measures will result in an enhancement from Moderate to Good condition of 10 km Rivers and lakes – Rivers (Priority Habitat; Medium) (r2a Rivers (priority habitat)).

This will be automatically achieved by the implementation of area-based habitat creation/enhancement including the provision of native riparian trees/shrubs in various places within the Proposed Development Site. As noted above, a shortage of native riparian trees/shrubs is the only clear negative feature seen along inspected more natural watercourses within the Proposed Development Site, with the exception of rare watercourse hydroelectric schemes (which are not within zones of planting).

Annex B SSER Toolkit Calculation Output

Shown below is the final summary output of the SSER Toolkit, showing the biodiversity units both of the baseline and post-intervention habitats.

