Scottish & Southern Electricity Networks
TRANSMISSION

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Environmental

Biodiversity Net Gain Assessment Report

Bingally 400 / 132 kV Substation – Version 2

Scottish & Southern Electricity Networks
TRANSMISSION

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Executive Summary

Scottish Hydro Electric Transmission Plc (operating and known as Scottish and Southern Electricity Networks (SSEN) Transmission) ('the Applicant') submitted an application (25/00592/FUL) seeking consent from The Highland Council for the Bingally 400 / 132 kilovolt (kV) Substation project ('the Revised Scheme') under the Town and Country Planning (Scotland) Act 1997 (as amended) ('the 1997 Act') in February 2025. A voluntary Environmental Appraisal (EA) was also submitted to support the planning application, as well as other supporting documents.

This report details the Biodiversity Net Gain (BNG) assessment for the Revised Scheme. This includes the BNG calculations and the approach to delivering on SSEN Transmission's BNG commitments for the Revised Scheme.

This report includes:

- A calculation of baseline area Biodiversity Units (BU) for the Revised Scheme, following the guidance outlined within SSEN Transmission's BNG Toolkit User Guide[1] (hereafter referred to as 'the User Guide')
- A calculation of the area of irreplaceable habitats which will be lost to the development and requirements to compensate for this loss;
- A prediction of the post development on-site BU, following successful implementation of a Landscape and Habitat Management Plan (LHMP);
- Overview of the proposed habitat creation and enhancements required to improve the biodiversity value of the Site as much as feasible post development; and
- A qualitative assessment against the BNG Good Practice Principles[2].

Irreplaceable habitats are habitats which are very difficult (or take a very significant time) to restore, recreate or replace once destroyed, and therefore, are acknowledged for their particular importance. As such, appropriate mitigation has been identified for any impacts on irreplaceable habitats separately to non-irreplaceable habitats, to ensure that an appropriate scale of compensation is recommended. SSEN Transmission consider irreplaceable habitats within their network to be Ancient Woodland (i.e. woodland mapped as 1a and 2a on the Ancient Woodland Inventory (AWI)), ancient or veteran trees, and blanket bog or raised bog in good or moderate condition. For the purposes of assessment, bogs and ancient woodland are quantified in area (hectares (ha)), whilst ancient and veteran trees are quantified as the number of individual trees.

The Revised Scheme will result in the loss of irreplaceable habitat, including 1.31 ha of blanket bog in good and moderate condition and areas listed as category 2a of the AWI of which 2.77 ha is considered irreplaceable habitat (a further area of 0.62 ha is also listed on the AWI, however this is now artificial unvegetated sealed surface and therefore is no longer considered to be ancient woodland. This area has been captured as a non-irreplaceable habitat).

Opportunities for off-site habitat creation and enhancement will be explored to ensure that compensation for the loss of blanket bog is achieved, targeting a 1:10 ratio, plus an

[1] SSEN (2022) Biodiversity Net Gain Toolkit User Guide (TG-NET-ENV-526)
[2] CIRIA/ CIEEM/ IEMA (2016) *Biodiversity Net Gain: Good practice principles for development* [Online]. Available at: https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf

additional 10% for enhancement, as per NatureScot standing advice[3]. Suitable compensation for the loss of ancient woodland will also be sought by the Applicant.

The baseline biodiversity value for the non-irreplaceable habitats is 1155.33 BU. The predicted biodiversity value of non-irreplaceable habitats post development is 1152.42 BU, meaning that the Revised Scheme is predicted to achieve a 0.25 % net loss on-site. Therefore, to achieve a 10% gain, 118.44 BU will be sought offsite.

[3] NatureScot (2023) Advising on peatland, carbon-rich soils and priority peatland habitats in development management [Online]. Available at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management

1 Introduction

1.1 Background of the Project

1.1.1 Scottish and Southern Electricity Networks (SSEN) Transmission, operating under licence held by Scottish Hydro Electric Transmission plc, to operate and develop the high voltage electricity transmission system in the north of Scotland and remote islands commissioned AECOM to undertake a Biodiversity Net Gain (BNG) assessment for Bingally 132 / 400 kilovolt (kV) Substation using the SSEN Transmission Biodiversity Project Toolkit Version 3.0 ('the Toolkit'). SSEN Transmission ('the Applicant'), propose to construct and operate a new 132 / 400 kV substation, and an approximately 9 kilometres (km) access track, south of Tomich (referred to hereafter as the 'Revised Scheme). The Revised Scheme will support the upgrading of the existing Beauly-Denny 275 kV circuit to a 400 kV circuit under the Accelerated Strategic Transmission Investment (ASTI) project. The purpose of this report is to assess the impact to the biodiversity value of the Revised Scheme site, as a result of the Revised Scheme.

1.1.2 The Applicant is seeking planning permission under the Town and County Planning (Scotland) Act 1997 (as amended) (hereafter the '1997 Act'), from The Highland Council. The application will be supported by a voluntary Environmental Appraisal (EA) and other supporting documents.

1.2 BNG Report Update

1.2.1 The existing BNG Assessment Report was submitted in March 2025, as part of the Bingally 400/132 kV Substation Application (reference 25/00592/FUL).

1.2.2 The Scottish Environment Protection Agency (SEPA) objected to the application in a response on 3 June 2025 (reference PCS-20005077), due to the "*…potential significant impact on watercourses*" and "*…disproportionate amount of excavated peat*".

1.2.3 Specifically in relation to this BNG report, SEPA notes "*We **recommend** Highland Council request a revised Biodiversity Net Gain Assessment Report and consequently a revised Habitat Management Plan which takes into account the significant impacts on watercourses*".

1.2.4 To address this objection, SSEN Transmission have submitted a Revised Scheme to minimise the potential impact on watercourses and to reduce the amount of excavated peat. This updated BNG Assessment Report considers the design updates to the Bingally Substation application, which comprise minor changes to substation platform and earthworks including peat cells, alterations to part of the access track, reconfiguration of temporary laydown and compound areas, alterations to drainage, landscaping proposals and borrow pits. The design changes are detailed in the Additional Information Report (AIR). Currently design elements with respect to watercourses are not finalised and as such are not considered within this BNG report and will be assessed separately once designs are completed. It is noted that the Revised Scheme reduces effects to watercourses as eight existing culverts will be retained and not affected by the scheme (the original Proposed Development had included changes to these culverts). In these locations, bridges will be used to cross the existing culverts. The designs for a further three watercourse crossings are being developed but not yet finalised and as such are excluded from this assessment. As a result of this there are no Watercourse Linear Units (LU (W)) within the Toolkit.

1.2.5 The Highland Council objected with respect to Biodiversity Enhancement, specifically stating:

"*This site does not comply with the requirements of NPF4 Policy 3.*

The Toolkit data has not been provided with the application and the BNG report only includes a summary, which is not sufficient for checking and assessing the results, as requested in Highland Council Biodiversity Enhancement Planning Guidance.

The BNG Assessment Report details that the proposed enhancements will still result in a 4% net loss post construction and that an additional 186.16 Biodiversity Units are required for to meet the 10% net gain. The offsite locations have yet to be explored and therefore we are unable to fully assess the enhancement measures against NPF4 Policy 3."

1.2.6 In response to this, this report update is accompanied by the Toolkit. Details within respect to the SSEN offset approach is set out in **Section 2.3** of this report and Appendix D SSEN Transmission's Biodiversity Net Gain and Irreplaceable Habitat Off-Site Strategy for Bingally 400/132 kV Substation.

1.3 Site Description

1.3.1 The extent of the wider 'Site' is defined by the 'Red Line Boundary' shown on the Baseline and Post Development habitat plans in Appendix B and Appendix C, respectively.

1.3.2 The Site is located in The Highland Council area, between the access track site entrance off the A831 east of Cannich, extending approximately 9.6 km south-west to the proposed substation site. The width of the Site is variable, from approximately 410 metres (m) at its narrowest and 1.2 km at its widest. The existing Fasnakyle substation is situated approximately 800 m west of the Site at its nearest point.

1.3.3 Within the Site, the location proposed for the substation platform is largely comprised of a commercial forestry plantation, which was formerly dominated by Sitka spruce (*Picea sitchensis*), however, is currently clear-felled. The felled woodland, has a topography of deep ridges and furrows, with drains and abundant stumps from felled trees. This has developed a form of species-poor habitat, which would be categorised as Upland heather within the UK Habitat Classification System[4] ('UKHab') (Level 4) (or classified as M15 on the National Vegetation Classification (NVC)) (hence, not considered a Scottish Biodiversity List (SBL) priority habitat). The vast majority of habitats within forestry plantation areas are subject to on-going negative impacts from drainage (caused by the presence of drainage ditches and deep ridges and furrows), nutrient-enrichment and disturbance from forestry activity (which has resulted in the presence of wood debris and tree stumps).

1.3.4 The area of the proposed access track is largely a near-natural mosaic of woodlands, which are split across upland birchwood, wet woodland, and other broadleaved woodland (often dominated by birch species (*Betula* spp.)), heaths and bogs in good condition. The area of the proposed access track includes large tracts of pristine blanket bog and wet heath, along with occasional patches of species-poor purple moor-grass (*Molinia caerulea*) dominated mires, dry upland acid grassland and bracken (*Pteridium aquilinum*)-dominated habitat in a mosaic with heathland. Much of the open ground and woodland in the first 4 km of the track (from north to south) were burnt in a fire in May/June 2023. The majority of burnt areas appeared to suffer only a light burn to vegetation (that did not burn peaty soils), however, impacts to vegetation composition and structure were prevalent. Fire damage in woodlands, at worst, included tree death, and the destruction of ground flora and upper soil

[4] Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). UK Habitat Classification V1.1 http://ukhab.org

horizons. However, regeneration of ground flora was noted in all areas (e.g. emergent bracken fronds). Bracken-dominated (non-wooded) habitats likely lost a once dense leaf litter, and such habitats were particularly bare of vegetation. Fire damage for purple moor-grass dominated mires was obscured by the rapid re-growth of purple moor-grass, however it is considered likely that forb and bryophytes abundance were severely reduced following the fire. Nutrient enrichment is likely to be an influence on the re-establishment of vegetation in burnt areas, as green algal blooms were noted in minor runnels on the hillsides (an indication of increased nitrogen and phosphorus load). Blanket bogs where burnt had lost heather, and very rarely the surface vegetation with sphagnum had suffered death, leading to a broken and drying surface. Likewise, heathlands often lost their dwarf shrub component and bryophytes were undoubtably reduced in abundance. All of the above had negative impacts on the condition of the habitats that were subject to burning, which were taken into account in condition assessments.

1.3.5 Other habitats within the Site, present in smaller extents, are upland flushes, fens and swamps; upland acid grassland; lowland heathland; bracken; mixed scrub (predominantly willow (*Salix* sp.)); other mixed woodland (typically birch and Sitka spruce); other coniferous woodland (Sitka spruce plantation); other Scots pine (*Pinus sylvestris*) woodland; and small areas of existing hardstanding (predominantly the existing access track). Aerial imagery[5] suggests that the wider landscape is of a similar composition, with many areas of conifer plantation (either felled or stocked).

1.3.6 No statutory designated sites are present within the Site; however, the Corrimony Royal Society for Protection of Birds (RSPB) reserve interacts with the north of the Site, and across part of the access track and associated verge.

1.4 Revised Scheme Description

1.4.1 Components of the Revised Scheme which are subject to the consent under the '1997 Act'[6] consists construction of a new 400/132kV outdoor Air Insulated Switchgear (AIS) substation comprising platform, plant and machinery, control buildings, access, temporary laydown and compound areas, drainage, landscaping and other ancillary works.

1.5 Scope of Study

1.5.1 This report sets out the results of the BNG assessment and the approach to delivering on SSEN Transmission's BNG commitments for the Revised Scheme. This report identifies the baseline biodiversity value measured in area BU, the change in BUs as a result of the Revised Scheme and details of measures to be implemented to ensure positive effects for biodiversity are achieved.

1.5.2 Design elements with respect to watercourses are not finalised and as such are not considered within this BNG report and will be assessed separately once designs are completed. It is noted that the Revised Scheme reduces effects to watercourses as eight existing culverts will be retained and not affected by the scheme (the original Proposed Development had included changes to these culverts). In these locations, bridges will be used to cross the existing culverts. The designs for a further three watercourse crossings are being developed but not yet finalised and as such are excluded from this assessment. As a result of this there are no LU (W) within the Toolkit.

[5] Google earth, 2024
[6] Town and Country Planning (Scotland) Act 1997

1.6 Policy and Legislation

1.6.1 National Planning Framework 4[7] (NPF4) requires biodiversity enhancements be provided in addition to any proposed mitigation stating that *"Development proposals for national or major development that require an Environmental Impact Assessment will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks, so that they are in a demonstrably better state than without intervention. This will include future management. To inform this, best practice assessment methods should be used"* (in (Policy 3b). By implementing measures to achieve net gain, the Revised Scheme will achieve compliance with this aspect of NPF4, and this BNG assessment provides details of how this will be achieved. This is aligned to the Scottish Government's NPF4 Policy 3 for proposed developments to contribute to biodiversity enhancement.

1.6.2 A biodiversity site optioneering assessment was undertaken early in the Project design to inform the site selection process based on the habitats identified through this assessment. The mitigation hierarchy has been applied to avoid impacts to biodiversity, where avoidance is not possible, these impacts have been minimised.

[7] Scottish Government (2023). National Planning Framework 4

2 Methodology

2.1 Area and Surveys

Desk Based Assessment

2.1.1 A desk study to help establish baseline conditions has been completed, this information was also used to inform strategic significance values. Ecological features searched for included:

- Any designated nature conservation sites, including locally-designated sites listed in The Highland Council Local Development Plan (LDP) [8] or Highland Nature: Biodiversity Action Plan 2021 – 2026 (HNBAP) [9];
- Priority habitats listed in the HNBAP or SBL that might reasonably occur within the Site; and
- Records of protected and/or notable habitats.

2.1.2 The following sources were used for the desk study:

- The Highland Council LDP;
- HNBAP;
- NatureScot SiteLink webpage[10];
- NatureScot Natural Spaces webpage[11];
- National Biodiversity Network (NBN) Atlas Scotland[12];
- Ordnance Survey (OS) 1:25,000 maps and aerial photography[13]; and
- Scottish Forestry Open Data[14].

2.1.3 The Information from The Highland Council LDP and HNBAP was obtained to assess the strategic significance scores. These have been assigned as follows, based on habitats identified of local importance:

- Woodlands (with the exception of non-native plantation), upland heath and blanket bog have been assigned high strategic significance;
- All habitats which are not formally identified but ecologically desirable have been assigned medium strategic significance; and
- Habitats which are neither formally identified nor ecologically desirable, such as urban habitats and plantation woodland (including felled plantation) have been assigned low strategic significance.

[8] The Highland Council (2012) *Highland-wide Local Development Plan* [Online]. Available at: https://www.highland.gov.uk/downloads/file/1506/proposals_map
[9] Highland Environment Forum (2021) *Highland Nature: Biodiversity Action Plan 2021-2026* [Online]. Available from: https://www.highlandenvironmentforum.info/biodiversity/action-plan/
[10] Nature Scot (2025) *Site Link* [Online]. Available at: https://www.nature.scot/information-hub/naturescot-data-services
[11] Nature Scot (2025). *NatureScot Open Data* [Online]. Available at: https://opendata.nature.scot/
[12] NBN Atlas Scotland (2024). *NBN Atlas Search* [Online]. Available at: https://scotland.nbnatlas.org/
[13] Bing Maps (2025) *OS 1:25,000 maps and aerial photography* [Online]. Available at: https://www.bing.com/maps/
[14] Scottish Forestry (2025) Scottish Forestry Open Data. [Online] Available at: https://open-data-scottishforestry.hub.arcgis.com/

Field Assessment

2.1.4 Baseline habitat data was recorded using the UKHab categories[15]. In addition, Phase 1 categories[16] and relevant habitat details (including dominant, characteristic, and notable flora and ecological characteristics, particularly those pertaining to condition), as well as NVC[17] types, were also recorded. The condition of baseline habitats was assessed in the field by the field surveyor using the condition criteria set out for Department for Environment, Food and Rural Affairs (DEFRA) Biodiversity Metric 3.1[18] (hereafter referred to as 'Metric 3.1').

2.1.5 Collection of habitat data was carried out between May and June 2024 by suitably experienced ecologists, using a Global Positioning System (GPS)-enabled tablet running ESRI FieldMaps loaded with recent aerial photography. The habitat data were refined as necessary using desktop ESRI ArcGIS and recent aerial photography, to maximise habitat mapping accuracy.

2.1.6 Relevant attribute data were extracted from ESRI ArcGIS, including area/length, habitat category and habitat condition, and entered into the Toolkit.

Evidence of Technical Competence

2.1.7 The habitat surveys were undertaken by two Associate members of the Chartered Institute of Ecology and Environmental Management (CIEEM), one with over 16 years' professional experience as an ecologist with specialism in habitats, and one with over 6 years' experience as an ecologist. The report was authored by a Qualifying member of CIEEM with over 3 years' professional experience as an ecologist and a Chartered Ecologist, with 20 years' professional experience. The report was checked by AECOM Technical Director, Tony Marshall. Tony is a Chartered Ecologist and full member of CIEEM, with over fourteen years' experience as a professional ecological consultant. It was verified by a full member of CIEEM and Chartered Environmentalist also specialising in functions of habitats, with over 20 years' professional experience.

2.2 Approach to Biodiversity Net Gain

2.2.1 A full BNG assessment was undertaken for the Revised Scheme. The BNG calculations to aid the assessment were completed within the Toolkit following the SSEN Transmission's BNG Toolkit User Guide[1] (hereafter referred to as the 'User Guide'). This method has been revised to align with Metric 3.1, adapted to reflect the requirements of Scottish habitats, to quantify losses and gains of biodiversity.

2.2.2 The Toolkit assesses changes to area and linear habitats separately. The Toolkit produces a unit score for three categories of habitat, including area habitats calculated as BU, linear hedgerow habitats calculated as Hedgerow Linear Units (LU (H)) and linear watercourse habitats calculated as LU (W). LU (H) and LU (W) are not relevant to this BNG assessment because there are no hedgerows or lines of trees in

[15] Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). *UK Habitat Classification V1.1* [Online]. Available at: http://ukhab.org

[16] Joint Nature Conservation Committee (2010). *Handbook for Phase 1 habitat survey – a technique for environmental audit* [Online]. Available at: https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf.

[17] Rodwell, J.S (1992) *British Plant Communities Volume 1 Woodlands and Scrub.* Cambridge University Press. Available at://doi.org/10.1017/9780521391665

[18] Natural England (2022). *Biodiversity Metric 3.1 - Habitat Condition Assessment Sheets* [Online]. Available at: https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides

the Site, and as discussed in **Section 1.5** of this report, watercourses are excluded as design details are not finalised.

2.2.3 Data collected during the field assessment on type, area, and condition of the habitats within the Site was incorporated into the Toolkit, to indicate the baseline biodiversity value of the Site. The predicted habitats post development were then inputted into the Toolkit to calculate the expected change in BU within the Site, as a result of the proposed built footprint, habitat restoration and habitat creation/enhancement. The outcomes have been used to ensure the biodiversity targets are being met for the Revised Scheme.

2.2.4 Appendix A sets out a qualitative assessment of the Revised Scheme against the UK Good Practice Principles for BNG[19].

2.3 Approach to Habitat Creation and Enhancement (Off-site)

2.3.1 If no on-site opportunities can be identified, off-site habitat creation will be undertaken but kept within the Local Planning Authority (LPA) of the Revised Scheme.

2.3.2 Off-site habitat creation is required to deliver BNG for the Revised Scheme. Compensation is targeted at delivering BNG that creates and improves natural habitats.

2.3.3 The required off-site habitat creation will be identified and assessed using the Toolkit to take into consideration the existing biodiversity present and aims to maximise benefits for biodiversity in accordance with local and national biodiversity strategies.

2.3.4 The Applicant will identify suitable offsite opportunities to deliver a 10% net gain. Additional information is set out in Appendix D SSEN Transmission's Biodiversity Net Gain and Irreplaceable Habitat Off-Site Strategy for Bingally 400/132 kV Substation.

2.4 Limitations and Assumptions

2.4.1 To produce this assessment, certain assumptions have been made:

- Only habitats to be directly affected by the Revised Scheme and associated landscaping are included within the BNG assessment;
- Habitats (that are not already hardstanding) within the Revised Scheme and Access Track elements of the Revised Scheme are assumed to be completely and permanently lost; and
- Part of the Site consists of an area of felled plantation. The habitat here is heavily modified and although the ground flora includes some species associated with heath habitat, to accurately reflect its current baseline value, it has been mapped as felled plantation, rather than as upland heath. As it is known that prior to felling, the woodland was a plantation of Sikta spruce, the condition for the felled plantation has been set at poor. This is a deviation from Metric 3.1 values, which the User Guide follows, which states that recently felled woodland should be valued as good condition. This is not considered appropriate in this instance as it would over-value the baseline habitat (following the condition assessment methodology, undertaking condition assessment of standing Sitka spruce plantation, typically records the woodland as being in poor condition).

19 CIRIA (2019) Biodiversity net gain. Good practice principles for development (Part A) (C776a) [Online]. Available at: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C776F&Category=FREEPUBS#:~:text=CIRIA%20C776a%20offers%20practical%20advice%20to%20achieve%20BNG,all%20stages%20in%20the%20life%20cycle%20of%20development.

2.4.2 The following assumptions have been applied to the post development habitats:

- Where habitats can be reinstated following the construction period the following approach has been taken:
  - Where habitats can be feasibly reinstated they will be returned to their baseline habitat type and condition. This is with the exception of felled conifer plantation. Areas currently comprised of felled conifer plantation, will be reinstated to either blanket bog or upland heath, based on the habitats present in the immediate area and the existing ground flora. Where blanket bog will be restored, the restoration will target good condition. For small fragments of ≤0.1 ha, poor condition is targeted, as given the small area, meeting the threshold for good condition is likely to be difficult to achieve.
  - The difficulty awarded for habitat creation/enhancement follows the Metric 3.1 values, with the exception of blanket bog. It is acknowledged that the values used within Metric 3.1, may not be fully applicable in Scotland, which is considered to be the case for the difficulty of blanket bog creation/enhancement. The draft planning guidance with respect to Biodiversity[20], notes that where a Metric or other BNG tool is used, it should be demonstrated how Scotland's habitats and environmental conditions are taken into account and where modifications are made, the reasons should be set out clearly. Scottish Government commissioned research into the use of Metrics in Scotland[21], which concluded that Metric 3.1 could be adapted for planning and development use in Scotland. Specifically for blanket bog, following consideration of the baseline conditions, difficulty has been set at medium (deviating from high in Metric 3.1), and time to target condition is set at 20 years, plus an additional 5 years to account for the construction period (where habitats will be removed and reinstated) (deviating from 30+ years in Metric 3.1). The rationale for this is set out in Appendix B.
  - The time to target condition awarded for habitat creation/enhancement follows the Metric 3.1 values. However, where habitats are to be reinstated following the construction (i.e. not including habitats which will not be impacted by development), an additional five years has been added to the time to target condition to account for the construction period.
  - Where habitat creation/enhancement to create woodland areas in proposed locations not affected by the Revised Scheme, the baseline distinctiveness (through change in habitat type) and/or condition, will be enhanced (as is feasible). The habitat creation/enhancement has considered the baseline habitat types in these locations, to ensure they are suitable for tree planting. For example, wet woodland creation will be located in areas with wetter baseline habitats, often dominated by purple moor-grass and located in proximity to watercourses. Scots pine

[20] Scottish Government (2023) *Biodiversity: draft planning guidance* [Online]. Available at: https://www.gov.scot/publications/scottish-government-draft-planning-guidance-biodiversity/

21 Scottish Government (2023) *Research into approaches to measuring biodiversity in Scotland* [Online]. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/research-and-analysis/2023/09/research-approaches-measuring-biodiversity-scotland/documents/research-approaches-measuring-biodiversity-scotland/research-approaches-measuring-biodiversity-scotland/govscot%3Adocument/research-approaches-measuring-biodiversity-scotland.pdf

woodland will be located in areas with heath and acid grassland understory.

- For peat management purposes, peat cells will be used to permanently store the peat. It is understood that these are to be managed to ensure the peat is kept wet (refer to the Bingally AIR Appendix F Peat Management Plan). These areas have been assigned as blanket bog in poor condition as a precautionary approach, as it is uncertain if the thresholds for moderate (or good) condition blanket bog could be achieved in these locations. Further details with respect to the peat cells are provided within the Peat Management Plan.
- In addition to this habitat creation and enhancement, habitats temporarily effected during the construction period will be reinstated.

- The following enhancements are proposed:
  - Blanket bog from poor to good condition through peatland restoration.
  - Scots pine woodland planting is proposed within existing areas of upland acid grassland, mixed scrub, upland heath and areas of existing broadleaved woodland. Low density Scots pine woodland is proposed in a number of locations, to provide both visual screening and also woodland habitat in keeping with the local area.
  - 1.55 ha of upland heath will also be planted, which will comprise a mix of Scots pine, downy birch (*Betula pubescens*), rowan (*Sorbus aucuparia)* and hazel (*Corylus avellana*). The current understory in the proposed planting locations contains common heather (*Calluna vulgaris*) and bog myrtle (*Myrica gale),* with purple moor-grass and bell heather (*Erica cinerea*), noting that these species may form the natural understory of a NVC W18 woodland. In these locations, it is therefore considered that the addition of tree planting is appropriate in the context of the Site. In these locations the baseline habitat will be retained, and the woodland is assigned in the Toolkit as an enhancement. The tree planting may alter one condition assessment criteria relating to the heath, criteria 8, which relates to tree cover. However, it is considered that the other criteria would remain passed and therefore good condition of the heath would be maintained. It is noted that this approach has been taken to allow better application of the Toolkit in a Scottish context, to reflect the nature of the habitats present, and acknowledge that target habitats may still retain much of the value of the baseline habitat, where it forms the natural understory. While recorded as enhancement, the time to target condition values that would usually be applied to create the habitat has been assigned to account for the time period required for the trees to grow to the necessary size and extent to classify the habitat appropriately. (It should be noted that this approach gives an overall loss of BU within the Toolkit for these locations, due to the time to target condition of these habitats which is factored into the Toolkit, and thus, clearly does not represent an overestimation in value).
  - The upland acid grassland to wet woodland enhancement areas have targeted locations where the grassland is damp/wetter in nature, and would naturally form the baseline habitat beneath this woodland type. Hence, tree planting will occur within the existing grassland, rather than requiring removal of the grassland habitat (therefore, within the Toolkit the grassland is recorded as retained and enhanced). Whilst both habitat types are of high distinctiveness, upland acid grassland is considered to

be a relatively common habitat within this area of the Scottish Highlands, whilst the provision of wet woodland is expected to provide additional benefits to biodiversity, through diversifying the habitats present (this is reflected in the strategic significance values, with upland acid grassland assigned medium strategic significance, while wet woodland is assigned high).

- In a small number of locations (totalling 2.59 ha), wet woodland is proposed where the current baseline habitat is heath, in areas adjacent to watercourses. The species mix currently present includes common heather, bog myrtle, purple moor-grass and deer grass (*Trichophorum cespitosum*). This species assemblage is considered appropriate for the creation of a NVC class W4 woodland type, as these species are typically present in the understory of this habitat type. In these locations, the baseline habitat type is recorded as retained, with the addition of trees recorded as an enhancement within the Toolkit. This is because these works would be considered to provide a benefit to biodiversity through diversification of the habitats present (although it should be noted that this approach gives an overall loss of BU within the Toolkit for these locations, and thus clearly does not represent an overestimation in value). Time to target condition is reflective of the time that will be required for trees to grow within the area.
- The rational applied for enhancements, has followed a tailored approach to take account of the nature of the habitats present, and to ensure it is appropriate in a Scottish context. This follows the requirements of Draft Planning Guidance: Biodiversity [20] which notes that where using a tool, the planning submission should demonstrate how Scotland's habitats and environmental conditions have been taken into account. The above approach detailed with respect to retention of baseline habitats and enhancement through woodland, aligns with this requirement.

2.4.3 Further details on the post development target conditions for all habitats are detailed in Appendix B.

2.4.4 The following minor limitations apply:

- All baseline habitat areas/lengths have been calculated in ESRI ArcGIS from the digitised features of the baseline habitat map. Where habitat boundaries coincided with discernible boundaries on aerial imagery available at the time of survey, accuracy is as determined by the accuracy and clarity of the aerial imagery. Otherwise, habitat boundaries are as estimated in the field. Note also that habitats often grade into each other without a sharp boundary, and in these cases best placement of the boundary has been estimated. For these reasons, baseline habitat areas/lengths are approximations only.
- A drainage/Sustainable Drainage System (SuDS) basin is proposed post development, in the southern part of the Site. However, there is no specific category within the Toolkit for SuDS basin. This will be planted with a wetland grassland mix, the water level will be variable within this and it is likely to be permanently wet ground, but not with open water. This is recorded in the Toolkit as 'other neutral grassland', as this is the best fit for the proposed grassland following UKHab definitions.
- Calculations involving habitat areas/lengths are rounded to two decimal places in the Toolkit, therefore the calculations are to that level of accuracy.
- Baseline habitats and conditions may change with further elapsed time since the field surveys informing this BNG assessment were completed. However, it is unlikely given the current ownership and management of the Site, and the nature of habitats present, that there would be significant changes to baseline habitats

for several years at least (with the exception of any proposed re-planting within felled conifer plantations).

3 Results

3.1 Baseline Biodiversity Value

3.1.1 The baseline habitats expected to be affected by development are shown in the Baseline Habitat Plan and Irreplaceable Habitat Plan (see Appendix B), detailed in the Toolkit and are summarised here in **Table 3-1**.

Table 3-1 Baseline Area Habitat Types, Condition and Extent[22]

Habitat Type	Area of each Condition (ha)				Total Area (ha)
	Good	Moderate	Poor	N/A	
Urban – Artificial vegetated, unsealed surface	-	-	-	4.09	**4.09**
Wetland – Blanket bog	1.25	0.06	34.85	-	**36.16**
Grassland – Bracken	-	-	3.19 (plus 0.10 ha on the AWI)	-	**3.29**
Heathland and shrub – Mixed scrub	-	-	0.08 (plus 0.32 on the AWI)	-	**0.40**
Woodland and forest – Other broadleaved woodland	-	0.02	1.46 (plus 0.31 on the AWI)	-	**1.79**
Woodland and forest – Upland birchwoods	-	2.97 (plus 0.26 ha on the AWI)	-	-	**3.23**
Woodland and forest - Other coniferous woodland	-	-	0.02	-	**0.02**

[22] Numbers are all rounded to 2 decimal places, as such due to rounding across the total area there maybe slight variations in totals, up to 0.1.

Habitat Type	Area of each Condition (ha)				Total Area (ha)
	Good	Moderate	Poor	N/A	
Woodland and forest - Felled	-	-	49.19 (plus 1.39 on the AWI)	-	**50.58**
Woodland and forest – Other mixed woodland	-	0.01	0.39 on the AWI	-	**0.40**
Grassland – Upland acid grassland	12.06 (plus 0.20 on the AWI)	10.61	-	-	**22.87**
Wetland – Upland flushes fens and swamps	0.04	-	0.74	-	**0.78**
Heathland and shrub – Upland heathland	13.45	0.08	1.88	-	**15.41**
Woodland and forest – Wet woodland	-	0.01	-	-	**0.01**

3.1.2 The baseline area of irreplaceable habitats comprises the following: 1.31 ha of blanket bog in good and moderate condition and 3.59 ha of habitat listed on the AWI.

3.1.3 Of the 3.59 ha of land listed as 2a woodland on the AWI, 0.62 hectares of this land have been assessed as non-irreplaceable habitat as the area was previously developed with a sealed surface and therefore classified as BU within the toolkit. This former development is considered to have permanently removed any ecological features associated with ancient woodland.

3.1.4 A further, 0.62 ha of the ancient woodland habitat consists of open land, including bracken, acid grassland, and scrub. These habitats are likely the result of woodland clearance in recent history, although this occurred sufficiently long ago for ground flora communities to begin re-establishing. It is acknowledged that this 0.62 ha could regenerate into woodland over time, and the land is expected to be restocked with native Scots pine and/or broadleaved species in accordance with the Land Management Plan[23]. Therefore, the long-term use of the land as woodland is

[23] Forestry Land Scotland (2021) *Glen Affric Land Management Plan 2020-2030* [Online}. Available at: https://forestryandland.gov.scot/media/xw5gfizf/glen-affric-lmp-full-text-170221.pdf

retained, and the area continues to be considered irreplaceable ancient woodland. (Due to its former use as plantation woodland and current status, the land was considered to be a Plantation on Ancient Woodland Site (PAWS)).

3.1.5 The remaining 2.35 ha of land listed on the AWI is also considered to be PAWS, the majority of which is comprised of recently felled coniferous woodland, along with areas of broadleaved and mixed standing woodland.

3.1.6 In summary, 2.97 ha is considered as irreplaceable ancient woodland.

3.1.7 The baseline biodiversity value for the non-irreplaceable habitats is 1155.33 BU.

3.2 Temporary Impacts

3.2.1 Impacts to habitats which are considered reversible are those where the habitat can return to the same extent and ecological condition within two years of the initial impact; these are considered temporary. There are no habitats which fall into this category, as any changes to habitats will not be reversed within two years.

3.3 Post Development Biodiversity Value

3.3.1 The post development biodiversity value has been calculated based on the Revised Scheme design, associated landscaping and proposed habitat restoration and creation/enhancement, as shown on the Post Development Habitat Plan in Appendix C.

3.3.2 The predicted post development biodiversity value is 1152.42 BU.

3.3.3 Opportunities for habitat creation and enhancement on Site have been identified as shown on the Post Development Plan in Appendix C, which contribute the expected biodiversity value post development.

3.3.4 There are five types of habitat creation and restoration proposed for the Site. This includes reinstatement of existing habitats, where they will be lost temporarily to facilitate construction and habitat creation and restoration within the wider Site.

Scots Pine Woodland Planting (UKHab type: Other Scot's Pine woodland)

3.3.5 Scots pine woodland planting to the south and west of the substation, and along certain sections of the proposed Bingally Substation access track where soil conditions are suitable. This woodland will include a mix of Scots pine, downy birch, silver birch (*Betula pendula)* and rowan.

Wet Woodland Planting (UKHab type: Wet woodland)

3.3.6 Wet woodland planting is proposed to support the transition from woodland and peatland restoration through creating habitat connectivity. The woodland will include a mix of common alder (*Alnus glutinosa)*, downy birch, grey willow (*Salix cinerea)* and goat willow (*Salix caprea)*.

3.3.7 With respect to the woodland planting, it is proposed as an enhancement to the Site. Trees will be planted into the existing baseline habitats, where appropriate to do so. The woodland has been designed in accordance with the current baseline conditions, with areas of proposed wet woodland (14.16 ha of habitat enhancement and 0.97 ha of habitat creation), targeting wetter areas of the Site, which are currently dominated by purple moor-grass, and Scots pine woodland (15.10 ha of habitat enhancement and 1.6 ha of habitat creation), targeting areas that have previously been subject to former conifer plantation, with heath ground flora. Additionally, it is proposed to enhance areas of broadleaved woodland with a more diverse mix of tree species. This woodland creation is in line with the HNBAP[9], which has an aim to protect, regenerate and restore native woodland.

Heathland Seeding (UKHab type: Upland heath)

3.3.8 Heathland seeding is proposed along the proposed access track, with the aim of establishing a diverse heathland sward. The species mix will include heather, crowberry (*Empetrum nigrum)*, bell heather, cross-leaved heath (*Erica tetralix)*, common cotton grass (*Eriophorum angustifolium)*, hare's tail cotton grass (*Eriophorum vaginatum)*, heath rush (*Juncus squarrosus)*, bilberry (*Vaccinium myrtillus)* and cowberry (*Vaccinium vitis-idaea)*.

Peatland Seeding and Peatland Restoration (UKHab type: Blanket bog)

3.3.9 Peatland seeding is proposed along areas where earthworks will occur within the Site. This is proposed as a seed mix informed by Site conditions and specialist ecologists and will include heather, crowberry, bell heather, cross-leaved heath, common cottongrass, hare's-tail cottongrass, heath rush, bilberry and cowberry. The areas proposed around the access track will help buffer the woodland planting and its low height will add structure to the landscape, ensuring the woodland planting integrates seamlessly into the landscape and habitat compensation.

3.3.10 Peatland habitats within the Site have been heavily disturbed by former forestry operations, leaving the land drained due to degradation of the microtopography from ploughing (resulting in ridges and furrows). Good condition blanket bog will be targeted through interventions using recognised best practice techniques (e.g. smoothing and/or drainage channel blocking (which would likely make use of excess peat won from the proposed substation platform area)), to bring the water table at/near the bog surface all year. In addition, there will be ongoing maintenance, including tree/scrub clearance, as set out in the Landscape and Habitat Management Plan (LHMP) (Bingally AIR Appendix G LHMP), which identifies that monitoring will be undertaken in years 1, 2, 3, 5, 10, 15 and 20 to check on progress towards achieving the targeted conditions. Further monitoring of peatland and Scots Pine woodland may be required through to year 30. This requirement will be determined following the review of the data from the monitoring survey in year 20, where progress towards the target condition is not on track, remedial measures will be recommended.

3.3.11 It is noted that an area of wet woodland is proposed, adjacent to the peatland restoration area, which includes downy birch in the mix. Downy birch can invade into poor condition blanket bog, if the hydrology allows (i.e. where blanket bog is drying out). However, the planting of wet woodland in this location is not considered to pose a risk of the peatland restoration, as methods will be employed to ensure the peatland is sufficiently wet, through the employment of Peatland Action[24] techniques to restore the hydrology.

3.3.12 The measures include a sizable area (50.96 ha) of peatland restoration, restoring the area previously used for forestry to bog habitat. This is in line with the HNBAP, which sets a vision to restore blanket bogs to their full function.

3.3.13 The predicted post development biodiversity value that can be achieved through the proposed on-Site habitat reinstatement, creation and enhancement of non-irreplaceable habitats is 1152.42 BU. This equates to a 0.25% net loss in BU for the Site, taking into account temporary and permanent habitat loss.

[24]NatureScot (2024) *Peatland ACTION – Technical Compendium* [Online]. Available at: https://www.nature.scot/doc/peatland-action-technical-compendium

3.4 Habitat Creation (Off-Site)

3.4.1 Off-site habitat creation is only acceptable when all options for on-site biodiversity enhancement provision has been explored. If no on-site opportunities can be identified, off-site habitat creation will be undertaken within the wider-locale of the Revised Scheme. Habitat creation and restoration should be targeted at delivering net gains that are ecologically equivalent in type and condition to the habitats lost, following the 'like for like or better' principle.

3.4.2 Locations for off-site habitat creation will be explored to provide the remaining BUs to achieve a 10% net gain. A total of 118.44 BUs will be required. Additional information is set out in Appendix D SSEN Transmission's Biodiversity Net Gain and Irreplaceable Habitat Off-Site Strategy for Bingally 400/132 kV Substation.

4 Summary

4.1.1 The post development biodiversity value is expected to be 1152.42 BU, meaning that the Revised Scheme will result in a 0.25% net loss. **Table 4-1**presents a summary of the results. To achieve a 10% gain, 118.44 BU are required offsite.

Table 4-1 Summary of Biodiversity Units from Non-irreplaceable Habitats

Habitat Type	Baseline Biodiversity Units	Post Development Biodiversity Units	Difference in Biodiversity Units	Difference in Biodiversity Units (%)	Biodiversity Units Required Off-site to Achieve 10% Gain
Area	1155.33	1152.42	-2.91	-0.25%	118.44

4.1.2 With respect to irreplaceable habitats 1.31 ha of blanket bog in good or moderate condition will be lost as a result of the Revised Scheme. This loss will need to be compensated for offsite.

4.1.3 Blanket bog will be permanently lost to the Revised Scheme, totalling 1.31 ha. NatureScot peatland guidance[3] states offsetting should be in the order of 1:10 (lost:restored) plus an additional 10% of the baseline area (in this instance this equates to 0.13 ha). Taking this into account, SSEN Transmission commit to providing an area of 13.23 ha of blanket bog restoration to provide this compensation.

4.1.4 2.97 ha of land within the site is considered to be irreplaceable ancient woodland (which is comprised of PAWS, including 0.62 ha of open land which has long-term land-use as woodland (currently comprising bracken, upland acid grassland and mixed scrub), 0.57 ha of standing broadleaved woodland, 0.39 ha of standing mixed woodland and 1.39 of recently felled coniferous plantation). The areas of open land currently classified as upland acid grassland (totalling 0.20 ha), will be planted with wet woodland. This woodland type is considered to be in-keeping with the existing ground flora and hydrological conditions of the land. Planting with appropriate tree species will retain the land use of longevity as an ancient woodland site (and hence will not be considered to be habitat loss, due to retaining the existing irreplaceable habitat).

4.1.5 The remaining 2.77 ha of irreplaceable ancient woodland will be considered to be lost due to the development, and hence appropriate compensation will be required. Options will be explored to identify a suitable location offsite to provide restoration of a greater area of ancient woodland than will be lost.

4.1.6 The habitat creation/enhancements have been designed to be achieved within a reasonable timeframe and with reasonable certainty, based on professional opinion and guidance associated with Metric 3.1. The restoration and enhancement of habitats will be conducted in accordance with local and national guidance, such as that developed by Peatland Action. It is considered that the measures provided are appropriate to the nature and scale of development. These enhancements have considered surrounding habitats and strengthening habitat connectivity, with wet woodland areas to be created alongside watercourses.

4.1.7 The Revised Scheme will achieve positive effects for biodiversity if sufficient off-site habitat measures are identified and implemented (the approach to this is set out in Appendix D SSEN Transmission's Biodiversity Net Gain and Irreplaceable Habitat

Off-Site Strategy for Bingally 400/132 kV Substation). This will ensure that the works associated with the Revised Scheme will leave the natural environment in a demonstrably better state for biodiversity than before.

Appendix A Good Practice Principles for Biodiversity Net Gain

The project has applied the UK Good Practice Principles for Biodiversity Net Gain (BNG) (Construction Industry Research and Information Association (CIRIA) C776a Biodiversity Net Gain. Good Practice Principles for Development. Part A: A Practical Guide) below:

Principle	Summary of Project Actions
Apply the mitigation hierarchy	The mitigation hierarchy has been followed through the design development and voluntary Environmental Appraisal (EA) undertaken as part of the planning application.
Avoid losing biodiversity that cannot be offset elsewhere	No designated sites interact with the Red Line Boundary, and therefore, no direct loss of habitat is expected to any designated sites. Irreplaceable habitat will be lost as a result of the Revised Scheme. 2.77 hectares (ha) of irreplaceable ancient woodland is expected to be lost due to the Revised Scheme. Suitable compensation will be sought to account for the 2.77 ha of irreplaceable habitat. 1.31 ha of irreplaceable blanket bog will be permanently lost. In order to compensate for this loss, in line with NatureScot recommendation, the Applicant will seek to compensate for this loss at a 1:10 ratio, with an additional 10% for enhancement. Taking this into account, Scottish and Southern Electricity Networks (SSEN) Transmission commit to providing an area of 13.23 ha of blanket bog restoration to provide this compensation.
Be inclusive and equitable	Through the Environmental Impact Assessment (EIA) Screening and voluntary EA process, discussions have been held with statutory bodies and stakeholders to explore and agree approaches for biodiversity.
Address risk	The habitat reinstatement in the areas of temporary loss will follow recognised best practice techniques to minimise the risk of damage to the soils and aid recovering habitats, as set out in the Landscape and Habitat Management Plan (LHMP), which has been produced for the Revised Scheme. Should habitat reinstatement or enhancement be unsuccessful in any location, the LHMP will include a feedback loop, to ensure that active management is undertaken, and remedial measures are implemented. The LHMP (Bingally Additional Information Report (AIR), Appendix G) sets out a monitoring plan, which identifies that monitoring will be undertaken in years 1, 2, 3, 5, 10, 15 and 20 to check on progress towards achieving the targeted conditions. Further monitoring of peatland and Scots Pine woodland may be required through to year 30. This requirement will be determined following the review of the data from the monitoring survey in year 20, where, if progress towards the target condition is not on track, remedial measures will be recommended.
Make a measurable net gain contribution	A clear goal has been made by SSEN Transmission in respect of BNG: to achieve net gain on all new infrastructure projects from May 2023. The Revised Scheme will result in a 0.25% net loss, and options will be explored off-site to ensure that the Revised Scheme achieves a 10% gain. The Toolkit has been used to demonstrate biodiversity value, which has allowed for a measurable quantification of the predicted loss, to identify the requirements needed to achieve a net gain.
Achieve the best outcomes for biodiversity	The landscape design sets out a detailed plan to create woodland habitats within the Site and restore areas of degraded blanket bog. These habitat restoration and creation measures are in line with local and national targets. Implementation of the LHMP will ensure that proposed landscaping is successfully implemented.

Principle	Summary of Project Actions
Be additional	The BNG assessment of the Revised Scheme demonstrates that additional positive outcomes will be achieved for biodiversity through the proposed habitat restoration and creation. Further to the measures to be implemented on Site, additional off-site habitat creation or enhancement will be sought to ensure a 10% gain is achieved.
Create a net gain legacy	The habitat creation and enhancement as part of the Revised Scheme will provide long-term benefits by adaptive management planning and dedicated funding for long-term management. Additionally, biodiversity benefits will extend beyond the Site by providing suitable foraging, resting, breeding habitats for notable or protected species within the wider landscape and provides higher distinctiveness habitats than the current baseline.
Optimise sustainability	BNG has been integrated from the start of the initial development design stages with input across multiple disciplines to optimise the sustainability of the Revised Scheme.
Be transparent	SSEN Transmission are keen to ensure that approaches following on from this Revised Scheme are shared to ensure that any lessons learnt through BNG assessment, habitat enhancement/creation and habitat management can be factored into future projects. Opportunities to share information on the Revised Scheme and its approach will be sought.

Appendix B Baseline Habitat Plan and Irreplaceable Habitat Plan

Appendix C Post Development Plan of Biodiversity Enhancement and Details on Post Development Habitat Target Condition Values

Table C.1 Rationale for condition habitats that will be created.

General LHMP Habitat	UKHab Type	Target Condition	Rationale / Description
Wet woodland mix	w1d	Moderate	Woodland comprising a mix of native species. After 15 years (up to 30 years) expected to be semi-mature birch (*Betula* spp.)/rowan (*Sorbus aucuparia*) with a grassy ground flora of acid species or a heathy ground flora dominated by dwarf shrubs. Moderate condition met through good diversity/cover of native tree species and controlling the extent and spread of Sitka spruce (*Picea sitchensis*). The habitat is unlikely to achieve good condition due to criteria that could only be met in long-established or ancient woodland (for example condition criteria 9, reflecting the presence of ancient woodland indicators, criteria 11, reflecting the presence of veteran trees, and criteria 12 reflecting the presence of deadwood.)
Woodland mix	w1g Other Broadleaved Woodland	Moderate	Woodland comprising a mix of native species. After 15 years (up to 30 years) expected to be semi-mature birch/rowan / with a grassy ground flora of acid species or a heathy ground flora dominated by dwarf shrubs. Moderate condition met through good diversity/cover of native tree species and controlling the extent and spread of Sitka spruce. The habitat is unlikely to achieve good condition due to criteria that could only be met in long-established or ancient woodland (for example condition criteria 9, reflecting the presence of ancient woodland indicators, and criteria 11, reflecting the presence of veteran trees, and criteria 12 reflecting the presence of deadwood.)
Wet meadow mix	g3c Other Neutral Grassland	Moderate	Grassland comprising a mix of native species (e.g. wet meadow seed mix). No active management is intended. Other neutral grassland is the most appropriate translation as the UK Habitat Classification System ('UKHab') definition for this habitat type includes wetter sites. Moderate condition considered achievable due to species richness greater than 9 per metres squared.
Heathland mix	h1b Upland Heathland	Moderate	Dominated by heather with one or more dwarf shrubs (e.g. bilberry (*Vaccinium myrtillus*)). Moderate condition targeted as unlikely to achieve good condition due to lack of structural diversity and age classes of heather within the timeframe.
Heathland mix with dwarf shrub planting	h1b Upland Heathland	Moderate	Dominated by heather with one or more dwarf shrubs (e.g. bilberry). Moderate condition targeted as unlikely to achieve good condition due to lack of structural diversity and age classes of heather within the timeframe.

Table C.2 Rationale for condition of each additional post intervention area-based habitat that will be created.

Proposed Habitat Restoration UKHab Type and Condition	Baseline UKHab Type and Condition	Baseline Condition	Predicted Condition and Rational for TTTC and Difficulty Multipliers.
f1a5 Blanket bog (priority) - poor **and Felled woodland**	f1a5 Blanket bog (priority) - good	The baseline habitats in the locations proposed for blanket bog restoration are blanket bog in poor condition and felled woodland in poor condition. The blanket bog present is in poor condition as failed on the following criteria: A – there is artificial drainage channels and the water table is not at the surface; B – The vegetation present does not match the UKHab description. The habitat is dominated by heather, with abundant purple moor-grass and *Polytrichum commune,* with limited cottongrass species and bog forming mosses; D – Scrub/tree <10% - currently there are tree stumps present throughout; and H – Sphagnum and cottongrass are not frequent - The felled woodland was previously a Sitka spruce plantation and as such was recorded as being in poor condition. For poor condition blanket bog around the Sites to achieve good condition, favourable hydrological conditions must be restored. Following this, it is reasonable to assume the successful promotion of peat bog indicator species (from occasional to frequent) and reduced cover of ericoid shrubs (which seldom exceed 75% cover), will both occur within the expected time frame of thirty years.	For the degraded blanket bog to achieve good condition, favourable hydrological conditions must be restored. Following this, it is reasonable to assume the successful promotion of peat bog indicator species (from occasional to frequent) and reduced cover of ericoid shrubs (which seldom exceed 75% cover), will both occur. The International Union for Conservation of Nature (IUCN) details that in many cases, rewetting brings back former peat forming vegetation within 5 to 10 years[25]. The IUCN report of forest to bog restoration also notes that it is possible to rehabilitate damaged areas of peatland and return beneficial and biodiversity functions even within a 10-20 year period[26]. Good condition blanket bog was recorded in the wider area, demonstrating the suitability of the Site to support good condition blanket bog. Taking a precautionary approach, it is therefore reasonable to predict that the proposed restoration will result in passes to all of the failed condition assessment criteria, within 20 years and this has been set as the time to target condition. The peatland restoration will follow best practice techniques to restore the water table through ditch blocking which, will likely make use of excess peat from the proposed substation platform area and methods such as smoothing to remove the current ridge and furrows in place from the historical forestry. With respect to the difficulty multiplier, this has been set at medium, based

[25] Cris,R.,Buckmaster,S.,Bain,C.&Bonn,A.(Eds.)(2011)(UK Peatland Restoration —(Demonstrating Success. IUCN UK National Committee Peatland Programme IUCN Demonstrating Success Booklet_UK.pdf

[26] Forest to Bog Restoration – Demonstrating Success'. 2024. IUCN UK Peatland Programme Demonstrating Success Forest to Bog_small.pdf

Proposed Habitat Restoration UKHab Type and Condition	Baseline UKHab Type and Condition	Baseline Condition	Predicted Condition and Rational for TTTC and Difficulty Multipliers.
			on the growing knowledge and experience of peatland restoration techniques in Scotland. For example, the Peatland ACTION programme has undertaken peatland restoration on over 51,000 hectares (ha) since 2012. The Scottish Government has committed investment in peatland restoration and as a result there is a greater industry knowledge and expertise amongst contractors who undertaken restoration. Detailed guidance on restoration techniques is available, which has been developed based on experience of restoration projects. It is considered that in light of the level of industry knowledge, which has learnt from success and failures on restoration projects, there can be confidence in methods to be used on the Site.

Appendix D SSEN Transmission's Biodiversity Net Gain and Irreplaceable Habitat Off-Site Strategy for Bingally 400/132 kV Substation