7 Forestry

7. Forestry

7.1. Executive Summary

7.1.1. The Proposed Varied Development is located within approximately 820.9 ha of privately owned commercial forestry comprising predominantly Sitka spruce woodland, together with areas of mixed conifer woodland, broadleaved woodland and open ground. The forestry assessment has identified that 54.4 ha of infrastructure felling and 171.7 ha of advanced felling would be required to facilitate construction of the Proposed Varied Development, resulting in total felling of 226.1 ha. The majority of advanced felling areas would be restocked following forestry operations.

7.1.2. The Proposed Varied Development would result in a net reduction of 119.9 ha of stocked woodland within the Forestry Study Area. Of this, 66.6 ha relates to Forest to Bog restoration proposed as part of the Habitat Enhancement and Management Plan. Consequently, the area of woodland loss requiring compensation is 53.3 ha and compensatory planting will be provided in accordance with the Scottish Government's Control of Woodland Removal Policy

7.1.3. The Proposed Varied Development reduces infrastructure-related woodland loss compared to the Consented Development. Whilst overall woodland loss increases due to the inclusion of 66.6 ha of Forest to Bog restoration, the compensatory planting requirement remains effectively unchanged at 53.3 ha.

7.2. Introduction

7.2.1. This Chapter considers the potential implications of the Proposed Varied Development on the woodland resource within the site and its long-term management. This Chapter was prepared by DGA Forestry LLP. The forestry assessment has identified that areas of forestry would require to be felled for the construction and operation of the Proposed Varied Development.

7.2.2. Forestry is not regarded as a receptor for Environmental Impact Assessment (EIA) purposes, however, woodland is a material environmental resource that is afforded protection through national and local planning policy and forestry legislation. This Chapter therefore considers the implications of the Proposed Varied Development on woodland cover, forest structure and long-term forest management, including woodland removal and compensatory planting, in accordance with the relevant statutory and policy framework. Potential secondary effects arising from changes to woodland structure (for example on ecology, peat, hydrology, cultural heritage and carbon balance) are assessed separately within the relevant EIA Report chapters.

7.2.3. Commercial forests are a dynamic environment, and their structure continually undergoes change due to the following:

- normal felling and restocking by the landowner;
- natural events, such as storm damage, pests or diseases; and

- external factors, such as wind farms or other development.

7.2.4. This Chapter therefore describes:

- the plans as a result of the Proposed Varied Development for felling, restocking and forest management practices;
- the process by which these were derived; and
- the changes to the physical structure of the forestry within the site boundary.

7.2.5. This Chapter also discusses the issue of forestry waste arising from the Proposed Varied Development.

7.2.6. The forestry proposals are interrelated with environmental effects, which are assessed separately in other chapters of the EIA Report. This chapter should therefore be read in conjunction with other EIA Report chapters, notably: **Chapter 5: Planning and Energy Policy Context**; **Chapter 9: Ecology**; **Chapter 10: Ornithology**; **Chapter 11: Cultural Heritage**; **Chapter 12: Geology and Peat**; **Chapter 13: Hydrology and Hydrogeology** and Chapter 18: Climate Change and Carbon Balance as they are interrelated to the proposed changes in the forest structure.

7.2.7. The responsibility for the management of the remainder of the forest out with the areas required for the construction and operation of the Proposed Varied Development lies with the landowners and therefore the wider felling operations, restocking, and aftercare operations within these areas do not form part of the Proposed Varied Development for which consent is sought.

7.2.8. The forestry proposals have been developed to:

- identify areas of forest to be removed for the construction and operation of the Proposed Varied Development;
- identify those areas which may or may not be replanted as part of the Proposed Varied Development forestry plans; and
- propose management practices for the forestry works.

7.2.9. In general, throughout this Chapter data labelled 'baseline' refers to the current crop composition and any existing plans without any modification as a result of the Proposed Varied Development. Data labelled 'Proposed Varied Development' refers to the forestry plans incorporating the Proposed Varied Development infrastructure.

7.2.10. This Chapter is structured as follows:

- Planning, Policy and Guidance;
- Forestry Study Area;
- Forest Plans;

- Development of a Wind Farm Forest Plan;
- Baseline;
- Proposed Varied Development Forest Plan;
- Requirement for Compensatory Planting;
- Forestry Waste;
- Forestry Management Practices;
- Conclusion; and
- Summary.

7.3. Planning, Policy and Guidance

7.3.1. Relevant overarching planning policies for the Proposed Varied Development are detailed within **Chapter 5: Planning and Energy Policy Context** of the EIA Report. A desktop study was undertaken drawing upon published National, Regional and local level publications, assessments and guidance to establish the broad planning and forestry context within which the Proposed Varied Development is located.

7.3.2. Forestry related policies and documents listed below have been considered within the forestry assessment. The following section provides an outline of those planning and other policies which are relevant to the Proposed Varied Development, and in particular to forestry.

Forestry and Land Management (Scotland) Act 2018

7.3.3. Until 1st April 2019, the Scottish Ministers owned the National Forest Estate (NFE), provided funding and had responsibility for forestry strategy and policy, but the management of the NFE and delivery of forestry functions had been the responsibility of the Forestry Commissioners.

7.3.4. The Forestry Commission was a cross-border public authority and a United Kingdom non-ministerial department with a statutory Board of Commissioners. The Commission was made up of a number of parts, including in Scotland:

7.3.5. Forest Enterprise Scotland (FES), which carried out forestry operations and managed the NFE on Scottish Ministers' behalf; and

7.3.6. Forestry Commission Scotland (FCS), which was responsible for the other forestry functions in Scotland.

7.3.7. When full devolution of forestry to the Scottish Government was completed on 1st April 2019, FCS and FES became two new agencies of the Scottish Government:

- Scottish Forestry (SF), responsible for regulatory, policy and support functions; and

- Forestry and Land Scotland (FLS), responsible for the management of the NFE and any other land managed for the purposes of the Forestry and Land Management (Scotland) Act 2018 (Scottish Government, 2018).

7.3.8. With the introduction of the Forestry and Land Management (Scotland) Act 2018 and its associated Regulations on 1st April 2019, the old regulatory regime of felling control under the Forestry Act 1967 was repealed in Scotland. From 1st April 2019, anyone wishing to fell trees in Scotland requires a Felling Permission issued by SF, unless an exemption applies or another form of felling approval such as a felling licence (including a forest plan) has previously been issued.

7.3.9. Under the new Regulations felling which is required for the purpose of carrying out development authorised by planning permission consent continues to be exempt from the Regulations and does not require a Felling Permission issued by SF (Scottish Government, 2018).

Scotland's Forestry Strategy 2019-2029

7.3.10. Scotland's Forestry Strategy 2019 - 2029 (SFS), was published in 2019 after a consultation period. The Strategy provides an overview of contemporary Scottish forestry; presents the Scottish Government's 50-year vision for Scotland's forests and woodlands; and sets out a 10-year framework for action.

7.3.11. The vision is that *"...in 2070, Scotland will have more forests and woodlands, sustainably managed and better integrated with other land uses. These will provide a more resilient, adaptable resource, with greater natural capital value, that supports a strong economy, a thriving environment, and healthy and flourishing communities."* (Scottish Government, 2019).

7.3.12. It lists a number of objectives summarised below:

- increase the contribution of forests and woodlands to Scotland's sustainable and inclusive economic growth;
- improve the resilience of Scotland's forests and woodlands and increase their contribution to a healthy and high quality environment; and
- increase the use of Scotland's forest and woodland resources to enable more people to improve their health, well-being and life chances.

7.3.13. It further describes the priorities as:

- ensuring forests and woodlands are sustainably managed;
- expanding the area of forests and woodlands, recognising wider land-use objectives;
- improving efficiency and productivity, and developing markets;
- increasing the adaptability and resilience of forests and woodlands;

- enhancing the environmental benefits provided by forests and woodlands; and
- engaging more people, communities and businesses in the creation, management and use of forests and woodlands.

7.3.14. There are ambitious targets included within the SFS for new woodland creation:

- 12,000 ha per year from 2020/21;
- 14,000 ha per year from 2022/23; and
- 15,000 ha per year from 2024/25.

7.3.15. The stated objective is to increase Scotland's woodland cover from the current 18.5% to 21% by 2032 (Scottish Government, 2019).

Scotland's Third Land Use Strategy 2021-2026

7.3.16. Scotland's Third Land Use Strategy 2021 – 2026 stresses the importance of forestry in the balancing the demands on land use in Scotland and its transition to a net zero economy. It states: *"…there will need to be a significant land use change from current uses to forestry and peatland restoration."* This will involve rapidly increasing the pace of woodland and forest creation. To support this, Scotland's Forestry Strategy 2019 – 2029 emphasises the continued protection of Scotland's forest resource (Scottish Government, 2021).

National Planning Framework 4

7.3.17. National Planning Framework 4 (NPF4) was adopted by the Scottish Ministers on 13 February 2023. NPF4 states that development proposals involving woodland removal will only be supported where they will achieve significant and clearly defined additional public benefits in accordance with relevant Scottish Government policy on woodland removal and, where woodland is removed, compensatory planting will most likely be expected to be delivered (Scottish Government, 2023).

7.3.18. It further states that development proposals on sites which include an area of existing woodland or land identified in the relevant Forestry and Woodland Strategy as being suitable for woodland creation will only be supported where the enhancement and improvement of woodlands and the planting of new trees on the site (in accordance with the Forestry and Woodland Strategy) are integrated into the design (Scottish Government, 2023).

Right Tree in the Right Place

7.3.19. 'Right Tree in the Right Place - Planning for Forestry & Woodlands' 2010 sets out detailed guidance to planning authorities when considering development proposals involving forestry and woodland. It advises that planning authorities should:

- assess the current and likely future public benefits (social, economic and environmental) deriving from the existing woodland;

- determine whether the development should be modified or the woodland redesigned to avoid or reduce woodland loss (e.g. by accommodating new development within 'open space' within woodlands);
- where woodland loss cannot be avoided, assess the public benefit of a proposed development to see if it would justify the loss of the woodland;
- consider whether any loss of woodland should be mitigated by compensatory planting; and
- consider whether any felling consent needs to specify the timing of forestry operations to avoid disturbance to wildlife present on the proposed development. (Scottish Government, 2010)

7.3.20. If an authority decides that a development proposal involving woodland loss should receive planning permission, it should specify the precise area of felling permitted and ensure that planning conditions and/or agreements would ensure the provision of any compensatory planting which is required (Scottish Government, 2010).

Control of Woodland Removal Policy

7.3.21. In parallel with the SFS and other national policies on woodland expansion, there is a strong presumption against permanent deforestation unless it addresses other environmental concerns. In Scotland, such deforestation is dealt with under the Scottish Government's 'Control of Woodland Removal Policy' 2009. The guidance relating to the implementation of the policy was revised and updated in 2019. (Scottish Government, 2009)

7.3.22. The purpose of the policy is to provide direction for decisions on woodland removal in Scotland. The policy document lays out the background to the policy, places it into the current policy and regulatory context, and discusses the principles, criteria and process for managing the policy implementation. The following paragraphs summarise the policy relevant to the Proposed Varied Development (Scottish Government, 2009).

7.3.23. The principal aims of the policy include:

- to provide a strategic framework for appropriate woodland removal; and
- to support climate change mitigation and adaptation in Scotland.

7.3.24. The guiding principles behind the policy include:

- there is a strong presumption in favour of protecting Scotland's woodland resources; and
- woodland removal should be allowed only where it would achieve significant and clearly defined additional public benefits. In appropriate cases, a proposal for compensatory planting may form part of this balance.

7.3.25. Woodland removal, without a requirement for compensatory planting, is most likely to be appropriate where it would contribute significantly to:

- enhancing priority habitats and their connectivity;
- enhancing populations of priority species;
- enhancing nationally important landscapes, designated historic environments and geological Sites of Special Scientific Interest (SSSI);
- improving conservation of water or soil resources; or
- public safety.

7.3.26. Woodland removal, with compensatory planting, is most likely to be appropriate where it would contribute significantly to:

- helping Scotland mitigate and adapt to climate change;
- enhancing sustainable economic growth or rural/community development;
- supporting Scotland as a tourist destination;
- encouraging recreational activities and public enjoyment of the outdoor environment;
- reducing natural threats to forests or other land; or
- increasing the social, economic or environmental quality of Scotland's woodland cover.

7.3.27. The consequences of the policy are stated as:

- minimising the inappropriate loss of woodland cover in Scotland;
- enabling appropriate woodland removal to proceed with no net loss of woodland -related public benefits other than in those circumstances detailed in the policy; and
- facilitating achievement of the Scottish Government's woodland expansion ambition in a way that integrates with other policy drivers (such as increasing sustainable economic growth, tackling climate change, rural/community development, renewable energy and biodiversity objectives).

7.3.28. Addressing the policy requirements can be met through changes to forest design, increasing designed open space, changing the woodland type, changing the management intensity, or completing off site compensation planting. (Scottish Government, 2009)

Dumfries and Galloway Forestry and Woodland Strategy

7.3.29. The Dumfries and Galloway Forestry and Woodland Strategy (2014) DGFWS) supports national policies whilst integrating with other Dumfries and Galloway Council (DGC) strategies and plans. It provides a framework for guiding forestry and woodland practice within Dumfries and Galloway. It is intended to guide both woodland creation and the

restructuring and management of existing forests and woodlands, to maximise the benefits for the local economy, communities and environment. The strategy supports Scottish Ministers' desire to see an expansion in woodland cover, delivering multiple benefits across the country.

7.3.30. The DGFWS forms Supplementary Guidance to the Dumfries and Galloway Local Development Plan 2 (2019) It supersedes the Dumfries and Galloway Indicative Forestry Strategy Technical Paper No. 4; the Forestry Strategy Diagram, which forms part of the Dumfries and Galloway Structure Plan (approved 1999); and the Galloway and Langholm/Lockerbie Local Forestry Framework (2000). It does not supersede the 'Landscape Design Guidance for Forests and Woodlands in D&G' (SNH/DGC 1998) (Dumfries and Galloway Council, 2014).

7.3.31. In DGFWS Paragraph 4.32, the DGFWS recognises that the region has attracted a lot of interest from wind energy developers and that many afforested areas are also potentially suitable locations for windfarms. It states that integrating wind energy developments into wooded areas can have advantages in that the visual impacts of infrastructure may be screened or softened by planting whilst contributing to overall forest design objectives (Dumfries and Galloway Council, 2014).

7.3.32. This has resulted in a policy within the DGFWS (page 23): LAN 9 *"Work with emerging guidance on integrating wind energy developments within forest landscapes."* (Dumfries and Galloway Council, 2014).

7.3.33. Under the Theme of 'Woodlands, Forestry and Climate Change' one of the key policy objectives, of the DGFWS, is to encourage effective development of renewable energy from forests in the form of biomass wood fuel and the integration of appropriate renewable energy schemes within forests and woodlands (Dumfries and Galloway Council, 2014).

7.3.34. Paragraph 6.13 of the DGFWS states that there may be potential within some of the existing forested areas for the siting of wind farms; however, this needs to be balanced against the loss of trees and carbon emissions from their construction. Both the Local Development Plan 2 Dumfries and Galloway Council (2019) and the Wind Energy Appendix C Supplementary Guidance Dumfries and Galloway Council (2025) emphasise the need for replacement planting of woodland lost as a result of development (Dumfries and Galloway Council, 2019) (Dumfries and Galloway Council, 2025).

7.3.35. Paragraph 6.14 of the DGFWS identifies that the access and transportation needs of both the timber industry and windfarm construction should be planned for in a comprehensive and inclusive manner (Dumfries and Galloway Council, 2014).

7.3.36. This has resulted in a policy within the DGFWS: DRE 2 (page 39): *"Develop effective local guidance and practice to minimise woodland loss from renewable energy developments."* The DGFWS goes on to state in Paragraph 8.5 that locating windfarms or turbines within woodland or productive forests can lead to a loss of woodland cover and refers specifically to the Scottish Government's policy on 'The Control of Woodland Removal' (Dumfries and Galloway Council, 2014).

7.4. Forestry Study Area

7.4.1. The Forestry Study Area (FSA), as shown on **Figure 7.1**, extends to approximately 820.9 ha and comprises of one privately owned and managed woodland. This woodland currently has an expired Long Term Forest Plan.

7.4.2. The forest contains a range of woodland types due to the previous forest plan restructuring programme together with areas of unplantable land and open ground. The crops are comprised largely of commercial conifers with areas of both mixed conifers and mixed broadleaves and open ground. Further information on the composition of the woodlands in the FSA is provided in the baseline description below.

7.5. Forest Plan

7.5.1. One of the original key objectives of the Forestry Commission was forest expansion, in both state and private forests, to produce a strategic reserve of timber, and consequently, a limited range of species was planted. More recently, greater emphasis has been placed on developing multi-purpose forests, which require a restructuring of age and species in existing woodlands. Restructuring is achieved through the forest planning process.

7.5.2. A Forest Plan relates to individual forests or groups of woodlands. It describes the woodlands, places them in context with the surrounding area, and identifies issues that are relevant to the woodland or forest. Forest Plans describe how the long-term strategy would meet the management objectives of the owner, the criteria of the UK 'Forestry Standard' (UKFS) and the UK 'Woodland Assurance Standard 4th Edition' (UKWAS), under which the woodlands would be managed if certificated.

7.5.3. The development of a Forest Plan involves a scoping exercise whereby the views of Statutory Consultees, neighbours and stakeholders are sought, resulting in an agreed Scoping Report. The results of the scoping exercise are incorporated into the Forest Plan. A Forest Plan covers social and environment aspects, such as conservation, archaeology, landscape and the local community, in addition to forestry and silvicultural considerations.

7.5.4. Restructuring of age class and species are important factors in this process to ensure proposals meet the current standards. A Wind Farm Forest Plan is prepared along the same principles with the relevant information being provided by other members of the project team. A baseline Forest Plan (without wind farm) will typically contain felling and restocking proposals covering a 10 year period in detail, with outline proposals for the remainder of the forest.

7.5.5. Restructuring presents forest managers with many challenges and opportunities, particularly in relation to the management of potential catastrophic windblow due to storm damage. The forest planning process allows forest managers to review and revise proposals in a structured way to take account of such external factors. The inclusion of a wind farm within the forest is an example of one such external factor.

7.5.6. The current guidelines require diversification of species and woodland types as part of the forest planning process, specifically an increase in the proportion of broadleaf woodland,

other conifers, and open ground. The incorporation of the Proposed Varied Development into the forest would result in further restructuring of the forest.

7.6. Development of a Forest Plan

Introduction

7.6.1. This Section describes the process by which a typical Wind Farm Forest Plan is prepared. Existing crop information is collated from the landowner including current forestry information on species, planting year and felling and restocking plans where available. This is followed by field surveys, in this case instance undertaken in 2026, and further desk-based assessment as necessary.

7.6.2. Details of wind turbine locations, new tracks, storage compounds, borrow pits, substation compound and other infrastructure are provided by other disciplines within the project team. This data would then be amalgamated with the forestry data to construct the forestry proposals for a proposed development.

7.6.3. The location of wind turbines and infrastructure is heavily influenced by environmental constraints and technical considerations (e.g. sensitive habitats, wind resource capture, ground conditions, etc). The final location of wind turbines and infrastructure takes the various site constraints into consideration. Land management requirements associated with the construction of a proposed development would also be incorporated into the forestry proposals, where appropriate.

7.6.4. Within forests and woodlands, areas of crop may require to be felled to accommodate the construction and operation of a proposed development. The felling programme would largely be driven by technical constraints relating to both forestry and development.

7.6.5. In this case, taking into account the ecological constraints as mentioned in **Chapter 9**, a 2 ha (85 metre (m) radius) 'keyhole' was adopted around wind turbines. These keyholes are areas that require to be felled for construction, operation and environmental mitigation.

7.6.6. A 10 m buffer has been applied around each other item of temporary and permanent infrastructure, in addition to the area required for the infrastructure. An indicative 30 m corridor has been applied to all new access tracks and upgraded existing tracks to be used for wind turbine delivery and construction purposes. This would be reviewed at the detailed design stage post consent and prior to construction.

Wind Farm Felling Plan

7.6.7. Felling required for a proposed development can be divided into two categories:

7.6.8. firstly, that required during the construction phase of a proposed development, which for the purposes of the Proposed Varied Development's assessment, has been anticipated as commencing in 2028; and

7.6.9. secondly, felling required during the operational period of a proposed development. In the case of the Proposed Varied Development there is no felling required out with that required for the construction phase.

7.6.10. The crops were assessed to identify those areas which would require to be felled for a number of reasons as described above. Due to the crop growth rates and current crop height, it has been assessed that the infrastructure within woodland areas would largely require keyholing into younger crops and, in a few small areas of mature crops, clear felling of entire coupes back to either a wind firm edge or management boundaries. Where entire coupes are to be felled, the infrastructure would be incorporated into a Wind Farm Restocking Species Plan as described below.

7.6.11. Additional minor felling may be required for forest management purposes, for example, to reduce the risk of subsequent windblow; to reduce coupe isolation and fragmentation; and to ensure access for future forest operations.

7.6.12. The resultant Wind Farm Felling Plan shows which woodlands within the FSA would be felled as a result of the proposed development and when this felling would take place.

Wind Farm Restocking Species Plan

7.6.13. A Wind Farm Restocking Species Plan shows which woodlands would be restocked and with which species. The majority of the areas to be felled for a proposed development would be restocked except for the areas detailed below:

- land required for permanent infrastructure subject to the buffer zones described above; and
- land to be left unplanted for forest management or forest design purposes.

7.6.14. It has been assumed that, where possible, some temporary infrastructure such as edges of re-profiled borrow pits would be re-instated and be available for restocking post construction. To ensure that the forestry establishes successfully, the soil should be restored to a depth of 1 m.

7.6.15. In preparing a Wind Farm Restocking Species Plan, a number of points would be considered as detailed below:

- fragmentation of coupes to be minimised as much as possible;
- coupe shapes would be modified to ensure that access for future forestry operations, principally harvesting, is maintained; and
- coupe shapes and edges would be modified to follow good practice.

7.6.16. Species composition was considered, taking into account the Proposed Varied Development's operational requirements such as separation distances between wind turbines and forest edges, landowner objectives and forestry policies.

7.6.17. The Proposed Varied Development's forestry felling and restocking proposals have been assessed by each of the separate environmental disciplines as part of the EIA process where required, and the effects are reported in the individual chapters of this EIA Report and their supporting appendices.

7.7. Baseline

Baseline Conditions

7.7.1. The site is located approximately 5 km to the east of Carsphairn and 10 km north of St John's Town of Dalry, in northern Dumfries and Galloway. The Site lies approximately 2 km to the north of the Glenken valley, which contains a sequence of lochs and associated hydro schemes and is adjacent to the upper valley of the Water of Ken which lies close-by to the east.

7.7.2. An initial desk-based assessment identified there is a small area of woodland within the site boundary recorded as native woodland in the Native Woodland Survey of Scotland (Forestry Commission Scotland, 2013). There are no areas identified in the Ancient Woodland Inventory Scotland (Scottish Natural Heritage, 2010). No physical infrastructure is located within these areas.

Baseline Planting Year/Age Class Structure

7.7.3. Many woodlands established in the mid to late 20th century, were planted in large contiguous blocks, often over a limited number of years and with a limited range of species. Such woodlands develop poor structural diversity, especially on upland sites. Restructuring the age class and species of such forests is desirable and would yield both forest management and environmental benefits.

7.7.4. The woodlands within the FSA are currently undergoing restructuring by felling and restocking and as a result the structural diversity of the woodlands is relatively diverse. Their age class is detailed below in **Table 7.1** and shown in **Figure 7.2**).

7.7.5. Please note there may be minor discrepancies in the totals within the tables contained in this Chapter. This is due to rounding of the individual values for the different parameters in the database.

Table 7.1 – Baseline Age Class Composition

Age	Area (ha)	Area (%)
N/A	138.8	16.9
Less than 10 years	252.9	30.8
11-20 years	229.7	28.0

Age	Area (ha)	Area (%)
21-30 years	0.0	0.0
31-40 years	0.0	0.0
41-50 years	42.3	5.2
51-60 years	157.2	19.2
Total	**820.9**	**100.0**

7.7.6. The current guidelines contained within the UKFS is that in forests characterised by a lack of diversity due to extensive areas of even-aged trees, stands adjoining felled areas should be retained for 7 years or until the restocking of the first coupe has reached a minimum height of 2 m. For planning purposes this is likely to be between 5 and 15 years depending on establishment success and growth rates. It is recognised that in large even-aged plantations, especially in the uplands, restructuring age class structure to meet this target may take more than one rotation. (Forestry Commission, 2024)

Species Composition

7.7.7. The current baseline species composition of the woodlands within the FSA is shown in **Figure 7.3** and illustrated in **Table 7.2** below.

Table 7.2 – Baseline Species Composition

Species	Area (ha)	Area (%)
Sitka spruce	589.5	71.8
Sitka spruce/Other conifer	45.5	5.5
Other conifer	27.6	3.4
Mixed broadleaves	26.1	3.2
Open ground	132.1	16.1
Total	**820.9**	**100.0**

7.7.8. The main species are commercial conifers, principally Sitka spruce, which in pure or mixed stands, accounts for approximately 77 % of the total FSA. Other conifers account for 3.4 % of the FSA and broadleaf woodland 3.2 %. Open ground and other land, accounts for approximately 16.1 %.

7.7.9. The species composition reflects the practice and guidance which prevailed at the time the woodlands were established. Restructuring as part of a long-term forest plan would aim to introduce an increased proportion of broadleaves and other conifers into the woodland composition.

Baseline Felling and Restocking

7.7.10. No baseline felling or restocking species data was made available. It has been assumed that any baseline restocking will be carried out in accordance with UKFS.

7.8. Proposed Varied Development Forest Plan

Introduction

7.8.1. Since the EIA undertaken for the Consented Development (2019), The Long Term Forest Plan for the forest has expired, therefore the effect of the Proposed Varied Development on the structure of the woodlands within the FSA has been compared against the current Baseline Species Plan. This has concentrated on the extent of woodland loss compared against the current baseline species plan.

Proposed Varied Development Felling Plan

7.8.2. The Proposed Varied Development's Felling Plan is shown in **Figure 7.4** and identifies the felling required for construction of the Proposed Varied Development and the advanced felling as a result of the Proposed Varied Development.

7.8.3. This data is summarised in **Table 7.3** below.

Table 7.3 – Felling Required for Construction

Felling Type	Area (ha)	Area (%)
No Felling – open ground	132.1	16.1
Infrastructure Felling	54.4	6.6
Advanced Felling	171.7	20.9
No Felling - woodland	462.7	56.4

Felling Type	Area (ha)	Area (%)
Total	**820.9**	**100.0**

Totals may not add due to rounding.

7.8.4. The total felling required to accommodate construction of the Proposed Varied Development, including infrastructure and advanced felling, totals 226.1 ha.

7.8.5. Felling is required for infrastructure and construction of the Proposed Varied Development. Where possible the Proposed Varied Development infrastructure will be "keyholed" into the crops, where only the crops required for the infrastructure and its associated buffer zones will be cleared as detailed earlier. Where this is not possible the crops will be felled back to the nearest wind firm edge or management boundary and the Proposed Varied Development infrastructure will be keyholed into the restocking.

Proposed Varied Development Restocking Species Plan

7.8.6. The Proposed Varied Development Restocking Species Plan is shown in **Figure 7.5** and summarised in **Table 7.4**. Proposed Varied Development open ground refers to the permanent loss of crop to permanent infrastructure only of the Proposed Varied Development.

Table 7.4 – Proposed Varied Development Restocking Species Plan Composition

Species	Area (ha)	Area (%)
Sitka spruce	445.2	54.2
Sitka spruce/Other conifer	40.5	4.9
Other conifer	27.5	3.4
Forest to Bog Restoration	66.6	8.1
Mixed broadleaves	55.9	6.8
Open ground	130.7	16.0
Proposed Varied Development Open ground	54.4	6.6
Total	**820.9**	**100.0**

Totals may not add due to rounding.

7.8.7. In the absence of a Baseline Restocking Species Plan, the Proposed Varied Development Restocking Species Plan has been compared against the current Baseline Species Plan.

7.8.8. The changes that construction of the Proposed Varied Development would have on the species composition of the forests is presented in **Table 7.5** below.

Table 7.5 – Comparison of Species Plans

Species	Baseline Species	Proposed Varied Development Restock Species	Variance	
	Area (ha)	Area (ha)	Area (ha)	Area (%)
Sitka spruce	589.5	445.2	-144.3	-17.6
Sitka spruce/Other conifer	45.5	40.5	-5.0	-0.6
Other conifer	27.6	27.5	-0.1	0.0
Forest to Bog Restoration	0.0	66.6	66.6	8.1
Mixed broadleaves	26.1	55.6	29.5	3.6
Open ground	132.1	131.0	-1.1	-0.1
Proposed Varied Development Open Ground	0.0	54.4	54.4	6.6
Total	**820.9**	**820.9**	**0.0**	**0.0**

Totals may not add due to rounding.

7.8.9. The change in area of stocked woodland in the forests due to the Proposed Varied Development is shown in **Table 7.6** below.

Table 7.6 – Stocked Woodland Area Comparison

Woodland Type	Baseline Species	Proposed Varied Development Restock Species	Variance	
	Area (ha)	Area (ha)	Area (ha)	Area (%)
Stocked	688.8	568.8	-119.9	-14.6
Unstocked	132.1	252.1	119.9	14.6
Total	**820.9**	**820.9**	**0.0**	**0.0**

Totals may not add due to rounding.

7.8.10. The changes in the structure of the woodlands due to the Proposed Varied Development can be summarised as follows:

7.8.11. the net reduction in stocked woodland area within the FSA would be 119.9 ha equivalent to 14.6 % of the FSA. This figure includes 66.6 ha of Forest to Bog restoration. The majority of this woodland loss consists of commercial conifer Sitka spruce crops.

7.9. Requirement for Compensatory Planting

7.9.1. As a result of the construction of the Proposed Varied Development, there would be a net loss of woodland area. The area of stocked woodland in the FSA would decrease by 119.9 ha. 66.6 ha of the total woodland loss is allocated to Forest to Bog restoration (refer to **Chapter 9, Chapter 12: Geology and Peat** and **Appendix 9.8** for further information on Forest to Bog enhancement proposals). Bog restoration is not deemed to require compensatory planting under the guidance for the Control of Woodland Removal Policy (Scottish Government, 2009).

7.9.2. Therefore, the total area of compensatory planting required is 53.3 ha.

7.9.3. In order to comply with the criteria of the Scottish Government's Control of Woodland Removal Policy, compensation planting would be required. The Applicant is committed to providing appropriate compensatory planting. The extent, location and composition of such planting to be agreed with SF, taking into account any revision to the felling and restocking plans prior to the commencement of construction of the Proposed Varied Development (Scottish Government, 2009).

7.10. Cumulative Assessment

7.10.1. In addition to the felling and woodland loss associated with the Proposed Varied Development, there will be a requirement to clear forestry for the Lorg Grid Connection Overhead Line which bisects the Forestry Study Area. This area is shown on **Figure 7.4**.

7.10.2. These areas of felling have been identified in a separate EIA Report and have been included in this Chapter as part of a cumulative assessment into the felling and woodland loss within the Forestry Study Area.

7.10.3. This felling and woodland loss is not directly associated with the Proposed Varied Development and is therefore not the responsibility of the Applicant.

7.10.4. **Table 7.7** below sets out the felling and restocking as a result of the Lorg Grid Connection Overhead Line. This is represented in the Chapter figures for the Proposed Varied Development.

Table 7.7 – Lorg Grid Connection Overhead Line Felling and Woodland Loss

Felling Type	Baseline Species	Area (ha)	Restock Species	Area (ha)
OHL Infrastructure	Mixed broadleaves/ Open ground	2.7	OHL Open Ground	2.7
OHL Infrastructure	Sitka spruce	4.9	OHL Open Ground	4.9
OHL Infrastructure	Sitka spruce/ Lodgepole pine	2.3	OHL Open Ground	2.3
Sub Total		**9.9**		**9.9**
OHL Advanced	Sitka spruce	4.1	Sitka spruce	4.1
Sub Total		**4.1**		**4.1**
Total		**14**		**14**

7.10.5. There are two types of felling associated with the Lorg OHL;

- OHL Infrastructure – Felling for the construction and operation of the Overhead line. This felling will not be restocked and therefore constitutes a loss of woodland; and
- OHL Advanced – Advanced felling as a result of the OHL Infrastructure felling. This felling is for forestry management purposes to prevent coupe fragmentation or future wind blow. This felling will be restocked.

7.10.6. There is a total of 14 ha of felling associated with the Lorg OHL. Of this felling;

- 9.9 ha is Infrastructure felling and will not be restocked; and
- 4.1 ha is advanced felling and will be restocked.

7.10.7. This will result in a 9.9 ha woodland loss for the Lorg Grid Connection Overhead Line which will require off-site compensatory planting. This is not the responsibility of the Applicant and does not count towards the Compensatory Planting requirements of the Proposed Varied Development.

7.11. Forestry Waste

7.11.1. The Scottish Environment Protection Agency (SEPA) guidance document WST-G-027, 'Management of Forestry Waste' (SEPA, 2017) highlights that all waste producers have a statutory duty to adopt the waste hierarchy as per the Waste (Scotland) Regulations 2012 (the Scottish Government, 2012), which amended Section 34 of the Environmental Protection Act (EPA) 1990 (duty of care) (UK Government, 1990). This places a specific duty on any person who produces, keeps or manages (controlled) waste to take all such measures available to them to apply the waste hierarchy in Article 4 (1) of the revised Waste Framework Directive (rWFD), which is:

- prevention;
- preparing for re-use;
- recycling;
- other recovery, including energy recovery; and
- disposal, in a way which delivers the best overall environmental outcome.

7.11.2. Further guidance is contained in the document LUPS-GU27, 'Use of Trees Clear Felled to Facilitate Proposed Development on Afforested Land'" (SEPA, 2014).

7.11.3. A hierarchy of uses for forestry materials is proposed, derived from the waste hierarchy contained within the Regulations, summarised as follows:

- prevention via the production of timber products and associated materials for use in timber and other markets;
- the re-use of materials on-site for a valid purpose, where such a use exists e.g. track construction including floating tracks;
- there is no valid re-cycling use for forestry residues;
- other recovery via collection and use as biomass for energy recovery or other markets, where not included above; and
- where no valid on-site or off-site use can be found for the material, disposal would be in a way that is considered to deliver the best overall environmental outcome.

7.11.4. Where no valid on-site or off-site use, or other disposal method, can be found for the material, it should be regarded as waste and handled accordingly. Disposal of timber residues as waste in or on land requires a landfill permit or a waste exemption licence and should be considered the option of last resort.

7.11.5. As discussed above, the crops will be replanted except where the land is required for infrastructure associated with the Proposed Varied Development. Brash would be left in situ to provide nutrients for the next rotation where the crops are being replanted as per standard forestry practice. Where crops are not being replanted brash would be removed and treated in line with the proposed hierarchy described above.

7.11.6. Stumps would be left in situ as per good practice guidance, except where excavated as part of the construction activities. Excavated stumps would be treated in line with the proposed hierarchy described above.

7.11.7. In areas of lower yielding crops, into which the Proposed Varied Development infrastructure would be keyholed, the objective would be to recover as much merchantable timber as possible. Failing that to treat them in line with the hierarchy outlined above. Where suitable, whole trees would be extracted and used in the biomass market. As a result, it is anticipated the forestry waste arising from the works will be minimal.

7.11.8. It is proposed that full consideration and further clarification on this issue would be included in a Forestry Waste Management Plan to form part of the Construction Environmental Management Plan (CEMP) following receipt of planning consent and prior to commencement of construction (SEPA, 2014).

7.12. Forestry Management Practices

Crop Clearance

7.12.1. Areas of crops of sufficient tree size and standing volume would be harvested conventionally. Timber operations would be undertaken with conventional harvesting and forwarding equipment utilising, as required, flotation tracks.

7.12.2. Stemwood down to 7 centimetres (cm) or below would be removed from site and sold into the timber markets. The harvester would maximise timber recovery wherever possible, this would result in the maximum timber volume being recovered to ensure the volume used in the brash mats is kept to a minimum. On wetter ground the harvester would build stronger brash mats to ensure there would be minimal damage to the peat and soil structure by the forwarder during extraction. On soft ground, the bottom layers of brash mats become embedded into the soil and removal could result in more environmental damage than leaving the material to naturally degrade.

7.12.3. In areas of young or lower yield class crops, where little or no merchantable timber would be recovered, a number of options could be utilised depending on the factors prevailing at the time of clearance. The methodology used would depend on tree size; site conditions; the availability of suitable equipment; and the markets prevailing at the time of the works being carried out. Where there is suitable access and ground conditions the trees could be whole tree harvested and extracted to roadside for chipping as biomass.

7.12.4. Where trees are very small due to age or poor growth it may be more viable to fell the crop manually using scrub cutters or chainsaws. The end use of the material would depend on the factors mentioned above but in some cases there would be no recoverable material. Where material was recoverable it could potentially be used on-site in the base of floating roads; extracted and processed for biomass; or used for ecological enhancement if applicable.

7.12.5. Stumps would be left in situ as per the guidance contained in the Forestry Commission Research Note '"Environmental effects of stump and root harvesting'" (Forestry Commission, 2011) except where they would be removed for borrow pits, excavated tracks, wind turbine foundations and other infrastructure requiring excavation. Such material would be treated as described above.

Restocking/Planting Methodology

7.12.6. The Proposed Varied Development's restocking would be carried out to current standard practice, the forest manager's internal guidance and practices and in accordance with the guidelines contained in the UKFS and UKWAS as a minimum, where applicable. The methodology would vary depending on the type of restocking being carried out. The following information is provided for guidance only as to the restocking methodology which may be adopted.

7.12.7. On commercial conifer areas the methodology would normally include:

- site preparation by machine cultivation and drainage;
- manual planting;
- subsequent follow-up establishment operations such as the replacement of failures, weeding and protection measures until the crops are satisfactorily established; and
- replanting would be carried out with the conifer species identified in the restocking plan at the minimum density of 2,500 trees per ha.
- Restocking within the broadleaf woodland areas would be carried out to the same specification with the following changes:
- a lower planting density of 1,600 trees per ha; and
- the principal species would be mixed native broadleaves including, for example, downy and silver birch with small components of other species as appropriate to site such as oak, rowan, hazel, gean, grey willow, goat willow, alder and woody shrubs. (Forestry Commission, 2024) (UKWAS, 2024)

Aftercare Works

7.12.8. Aftercare establishment works would normally include, but are not limited to, the following:

- the woodlands would be beaten up (replacement of failures) to ensure satisfactory stocking levels by year 5, broadleaf woodlands by year 10;

- the woodlands would be weeded as necessary to ensure satisfactory establishment by year 5 / year 10 for broadleaf woodlands;
- the woodlands would be protected against pine weevils by management inspections and remedial treatment as necessary;
- the woodlands would be protected against browsing damage from wild and domestic animals;
- the woodlands would be protected against fire;
- fertiliser would be applied as necessary to ensure satisfactory establishment and growth; and
- other works as reasonably required ensuring satisfactory establishment of the woodlands (Forestry Commission, 2024) (UKWAS, 2024).

Standards and Guidelines

7.12.9. All forestry operations would be carried out in strict accordance with current good practice and guidelines. This would include, but not be limited to:

- UK Forestry Standard (Forestry Commission, 2024);
- Forest Industry Safety Accord Guides (or equivalent) (FISA, 2014); and
- Current relevant legislation including, but not limited to, Health and Safety at Work Act 1974 (UK Government, 2014).

7.13. Development Changes Comparison

7.13.1. A comparison between the Consented Development and the Proposed Varied Development highlights changes to the overall woodland loss. These changes are due to several factors:

- changes to the infrastructure layout;
- changes to turbine tip height; and
- changes to infrastructure buffers.

7.13.2. A comparison between the construction felling of the Consented Development and the Proposed Varied Development is shown in **Table 7.8** below.

Table 7.8 – Construction Felling Comparison

	Consented Development		Proposed Varied Development		Variance	
Felling Type	Area (ha)	Area (%)	Area (ha)	Area (%)	Area ha	Area %
Infrastructure Felling	61.6	7.6	54.4	6.6	-7.2	-0.8
Advanced Felling	48.3	5.9	171.7	20.9	123.4	15
OHL Wayleave Felling	0.0	0	14	1.7	14	1.7

7.13.3. The changes in the construction felling from the Consented Development to the Proposed Varied Development can be summarised as follows:

- The infrastructure felling has been reduced by 7.2 ha in the Proposed Varied Development; this is as a result of fewer turbines and taller infrastructure reducing the area of felling required; and
- Due to the age of the Consented Development, the felling calculations were carried out in a different fashion. This combined with planned felling and restocking of commercial woodlands means that there is no real comparison for advanced felling between the Consented Development and the Proposed Varied Development, however at the time of submission, approximately 48.3 ha of mature woodland would have been required to be felled as advanced felling outwith of planned felling phases as a result of the infrastructure felling. There is an increase of 123.4 ha in the Proposed Varied Development due to a delay in planned felling within the woodlands and increased felling required for Forest to Bog proposals as part of the Habitat Enhancement and Management Plan (refer to **Appendix 9.8**).

7.13.4. A comparison between the previously Consented Development and the Proposed Varied Development in stocked and unstocked woodland is shown in **Table 7.9** below.

Table 7.9 – Compensatory Area Comparison

Woodland Loss/Compensatory Planting Requirement	Consented Development		Proposed Varied Development		Variance	
	Area (ha)	Area %	Area (ha)	Area %	Area (ha)	Area %
Woodland Loss	53.4	6.5	119.9	14.6	66.5	8.1
Compensatory Planting	53.4	6.5	53.3	6.5	-0.1	0

7.13.5. Stocked woodland has decreased by 66.5 ha from the Consented Development to the Proposed Varied Development, this is primarily due to the inclusion of Habitat Enhancement and Management Proposals consisting of Forest to Bog restoration, which do not require Compensatory Planting. As a result, the Compensatory Planting requirement reduces by 0.1 ha due to the redesign of the Proposed Varied Development infrastructure. As such, the requirement for compensatory planting remains effectively unchanged

7.14. Conclusion

7.14.1. The total study area extends to 820.9 ha and is comprised of a woodland which is privately owned and managed.

7.14.2. Felling would be advanced on 226.1 ha for construction of the Proposed Varied Development. A further 14 ha of felling on site has been identified for the construction of the Lorg Grid Connection Overhead Line.

7.14.3. The species composition of the forest would change as a result of the Proposed Varied Development forestry proposals. In particular, the area of Sitka spruce (whether pure or in a mix) would reduce by 157.5 ha.

7.14.4. The area of unplanted ground would increase and, as a result, there would be a net loss of woodland area of 119.9 ha. A total of 66.6 ha of this woodland loss is attributed to the Forest to Bog restoration and does not count towards the compensatory planting requirement.

7.14.5. There is a further 9.9 ha of woodland loss within the site associated with the Lorg Grid Connection Overhead Line. This woodland loss is not the responsibility of the Applicant and therefore does not contribute towards the compensatory planting requirement.

7.14.6. In order to comply with the Scottish Government's Control of Woodland Removal Policy, compensation planting totalling 53.3 ha would be required to mitigate for the loss of woodland area. The Applicant is committed to providing appropriate compensatory planting. The extent, location and composition of such planting to be agreed with SF, taking into account any revision to the felling and restocking plans prior to the commencement of construction.

7.14.7. The permanent woodland loss for the Consented Development has been reduced by 15 ha in the Proposed Varied Development; as a result of fewer more powerful turbines and taller infrastructure requiring reduced buffer zones.

7.14.8. Advanced felling has increased by 123.4 ha from the Consented Development, as a result of delayed felling from planned felling phases and increased felling to accommodate the Forest to Bog proposals as part of the Habitat Enhancement and Management Plan.

7.15. Summary

7.15.1. The Proposed Varied Development is largely located within commercial forestry. The forestry assessment has identified that areas of forestry would require to be felled for the construction and operation of the Proposed Varied Development.

7.15.2. Forestry is not being regarded as a receptor for EIA purposes. Commercial forests are dynamic and their structure continually undergoes change due to normal felling and restocking by the landowner; natural events, such as storm damage, pests or diseases; and external factors, such as a wind farm or other developments. The forestry proposals are interrelated with environmental effects, which are assessed separately in other chapters of the EIA Report.

7.15.3. The forestry proposals have been developed to identify areas of forest to be removed for the construction and operation of the Proposed Varied Development; and those areas which may or may not be replanted on site.

7.15.4. The Forestry Study Area (FSA) extends to approximately 820.9 ha and is comprised of a woodland which is privately owned and managed. The forest is comprised largely of commercial conifers with areas of mixed broadleaves planted in the late 1900s and open ground. The crops are in the mid restructuring phase and there have been recent felling and replanting programmes.

7.15.5. A total of 226.1 ha will require to be felled to enable the construction and operation of the Proposed Varied Development. The majority of the areas to be felled for the Proposed Varied Development would be restocked except for land required for the Proposed Varied Development's permanent infrastructure and land to be left unplanted for forest management; or forest design purposes.

7.15.6. On site replanting of felled areas within the woodland results in a decrease in the area of stocked woodland. There would be a decrease of 119.9 ha within the FSA for which 53.3 ha would require compensatory planting.

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Abbreviations

Abbreviations	Definition
FES	Forestry Enterprise Scotland
NFE	National Forest Estate
CEMP	Construction Environmental Management Plan
DGFWS	Dumfries and Galloway Forestry and Woodland Strategy
DGS	Dumfries and Galloway Council
DRE	Dumfries and Galloway Woodland Strategy Key Action
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Act
FCS	Forestry Commission Scotland
FISA	Forest Industry Safety Accord
FLS	Forestry and Land Scotland
FSA	Forestry Study Area
Ha	Hectares
Km	Kilometres
LUPS-GU27	Land Use Planning System SEPA Guidance Note
NPF4	National Planning Framework 4
OHL	Overhead Line
PVD	Proposed Varied Development
rWFD	revised Waste Framework Directive
SEPA	The Scottish Environment Protection Agency
SF	Scottish Forestry
SFS	Scotland's Forestry Strategy
SNH	Scottish Natural Heritage
SSSI	Site of Special Scientific Interest
UKFS	UK 'Forestry Standard'
UKWAS	UK 'Woodland Assurance Standard 4th Edition'