Appendix 2.3 Forestry Report

2.3 Introduction

2.3.1 This report considers the potential implications of the Proposed Development on the woodland resource within the site boundary and its long-term management. The forestry within the site boundary is predominantly commercial. This report was prepared by DGA Forestry LLP.

2.3.2 Forestry is not being regarded as a receptor for EIA purposes. Commercial forests are a dynamic environment 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 farms or other development.

2.3.3 This report therefore describes:

- the plans as a result of the Proposed 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.

2.3.4 The report further discusses the issue of forestry waste arising from the Proposed Development. The forestry proposals are interrelated with environmental effects, which are assessed separately in the EIA Report. This report should therefore be read in conjunction with the following chapters of the EIA Report Volume 1, notably: Chapter 3: Design Evolution; Chapter 6: Cultural Heritage; Chapter 7: Ecology; Chapter 8: Ornithology; and Chapter 9: Geology, Hydrology and Hydrogeological assessment as they are interrelated to the proposed changes in the forest structure.

2.3.5 The responsibility for the management of the remainder of the commercial forest outwith the site boundary lies with the landowners and therefore the wider felling operations, restocking, and aftercare operations within these areas do not form part of the Proposed Development for which consent is sought.

2.3.6 The majority of the proposed wind turbines and associated infrastructure are located within existing commercial forestry plantations (as shown on Figure 1.3 (EIA Report Volume 2a) with areas of open hill to the east. The woodlands are privately owned and managed. The forestry proposals have been developed to:

- Identify areas of forest to be removed for the construction and operation of the Proposed Development;
- Identify those areas which are proposed to be replanted as part of the Proposed Development; and
- Propose management practices for the forestry works.

2.3.7 In general, throughout this report, data labelled 'baseline' refer to the current crop composition and any existing plans without any modification as a result of the Proposed Development. Data labelled 'wind farm' or 'Proposed Development' refer to the forestry plans incorporating the Proposed Development.

2.3.8 This report is structured as follows:

- Consultation;
- Legislation, Policy and Guidance;
- Forestry Study Area;
- Forest Plans;
- Development of the Wind Farm Forest Plan;
- Baseline Conditions;
- Wind Farm Forest Plan;
- Requirement for Compensatory Planting;
- Forestry Waste;
- Forestry Management Practices; and
- Summary.

2.3.9 This report is supported by the following figures :

- Figure 2.3.1: Forestry Study Area
- Figure 2.3.2: Baseline Age Class Composition

- Figure 2.3.3: Baseline Species Composition
- Figure 2.3.4: Baseline Felling Plan
- Figure 2.3.5: Baseline Restocking Plan
- Figure 2.3.6: Development Advanced Felling
- Figure 2.3.7: Development Felling Plan
- Figure 2.3.8: Development Restocking Plan

2.3.10 Figures are referenced in the text where relevant.

2.3.11 The assessment has been carried out by James Anderson (MSc), of DGA Forestry LLP. Details of qualifications and experience are included in Chapter 1: Introduction of the EIA Report (Volume 1).

2.4 Consultation

2.4.1 Table 2.3.1 summarises the consultation responses received regarding Forestry and provides information on where and/or how they have been addressed in this assessment.

2.4.2 Full details on the consultation responses can be reviewed in relevant chapters of the EIA Report (Volume 1).

Table 2.3.1: Consultation Responses

Consultee	Issue Raised	Response/Action Taken
Scottish Forestry SF), Scoping Response 04 October 2023	The Applicant should read and implement the Scottish Government's Control of Woodland Removal Policy. The following points should be noted: • SF will no longer permit wholescale removal of woodlands to enable wind farm development; • Only construction felling will be approved as part of the application; • All other felling should be approved as part of the Forest Plan or Felling Permissions; and • Where woodlands and forests are removed for developments and subject to	A forestry report will be prepared as part of the EIA Report detailing felling and restocking proposals. It will identify the proposed method of crop clearance, subsequent replanting and aftercare requirements. It will also identify changes to the pattern of timber harvesting and the effects on timber production. The Proposed Development will take into account the Scottish Government's Control of Woodland Removal Policy, and the associated implementation guidance; the UK Forestry

Consultee	Issue Raised	Response/Action Taken
	compensatory planting there must be no loss of productivity.	Standard and other legislation, policy and guidance as relevant. The proposals will identify the extent of any net loss of woodland and requirement for compensatory planting. SF comments are noted and will be taken into account within the EIA Report.
SEPA Scoping Response 26 September 2023	Minimising felling is one of their main comments.	Minimising felling, maximising replanting and thereby minimising the loss of woodland area is a key issue for the forestry proposals.
SEPA 26 September 2023	Forest removal and forest waste.	Where relevant the comments regarding forest waste and forest removal will be addressed through consultation within the wider EIA team including, ecology, ornithology and forestry. specialists.

2.5 Legislation, Policy and Guidance

2.5.1 Relevant overarching planning policies for the Proposed Development are detailed within the Planning Statement that accompanies the application. 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 Development is located.

2.5.2 Forestry related policies and documents listed below have been considered within the forestry assessment.

Forestry and Land Management (Scotland) Act 2018

2.5.3 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.

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

- Forest Enterprise Scotland (FES), which carried out forestry operations and managed the NFE on Scottish Ministers' behalf; and
- Forestry Commission Scotland (FCS), which was responsible for the other forestry functions in Scotland.

2.5.5 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.

2.5.6 Forestry practices in Scotland are controlled under the Forestry and Land Management (Scotland) Act 2018 and its associated Regulations introduced on 1st April 2019.

2.5.7 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.

2.5.8 Under the 2019 Regulations, felling which is authorised by planning permission consent continues to be exempt from the Regulations and does not require a Felling Permission issued by SF.

Scotland's Forestry Strategy 2019-2029

2.5.9 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.

2.5.10 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."

2.5.11 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.

2.5.12 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.

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

- 10,000 hectares (ha) per year in 2018;
- 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.

2.5.14 The stated objective is to increase Scotland's woodland cover from the current 18.5% to 21% by 2032.

Scotland's Third Land Use Strategy 2012-2026

2.5.15 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, the SFS emphasises the continued protection of Scotland's forest resource.

National Planning Framework 4 2023

2.5.16 The Scottish Ministers adopted and published National Planning Framework 4 (NPF4) on February 13 2023. NPF4 continues the theme of seeking to expand Scotland's woodland resource and the most relevant policy is Policy 6 'Forestry, Woodland and Trees', the intent of which is to "protect and expand forests, woodland and trees". It 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.

2.5.17 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 Planning Policy 2014 (now replaced by NPF4)

2.5.18 Although it has now been replaced by NPF4 The Scottish Planning Policy (SPP) included a section on woodlands (SPP Paragraphs 216 - 218). This referred to the Scottish Government's Control of Woodland Removal Policy (Forestry Commission Scotland, 2009) which is discussed in more detail below. The SPP stated that woodland removal should only be permitted where it would achieve significant and clearly defined additional public benefits. It further stated that where woodland is removed in association with development proposals, developers would generally be expected to provide compensatory planting and that the acceptability of woodland removal, in the context of the Control of Woodland Removal Policy, should

have been taken into account in determining applications. Reference to SPP is included in this document to provide context in relation to these issues.

Right Tree in the Right Place 2010

2.5.19 '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 the 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 Site.

2.5.20 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.

Control of Woodland Removal Policy 2009

2.5.21 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.

2.5.22 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 Development.

2.5.23 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.

2.5.24 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.

2.5.25 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.

2.5.26 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.

2.5.27 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).

2.5.28 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.

Argyll and Bute Woodland and Forestry Strategy 2011

2.5.29 The Argyll and Bute Woodland and Forestry Strategy was published in 2011. The vision for the strategy was defined as:

2.5.30 "*The woodlands of Argyll and Bute will make a significant contribution to climate change mitigation and adaptation, have significant levels of economic value retained locally, enhance biodiversity and environmental quality and support the further development of recreation opportunities, for the benefit and well-being of local people and visitors alike. Sustainable and responsible stewardship of the resource will enable communities to play an active role in the ownership and management of woodlands in their area, developing business opportunities and helping to maintain the viability of rural living.*"

2.5.31 The Strategy was developed as statutory supplementary planning guidance which will be adopted as part of the Argyll and Bute Local Development Plan. The Strategy integrates with other local strategies and action plans, including the Council's Core Path Plan, Economic Development Action Plan and the Argyll and Bute Renewable Energy Action Plan Strategy. It will primarily be used to guide woodland expansion within the region.

2.5.32 The Strategy is based on the following seven themes:

- Climate change;

- Timber;
- Business development;
- Community development;
- Access and health;
- Environmental quality; and
- Biodiversity.

2.5.33 Strategic priorities have been defined for each of the above themes which are translated into detailed priority actions.

2.5.34 Section 3.6 of the Strategy states that the net area of forest cover within the region is forecast to decrease due to forest restructuring as part of existing approved Forest Plans. The loss of woodland area is estimated at 7 - 8 %, equivalent to the removal of 15,000 ha of woodland. In Section 3.7, the Strategy refers to further woodland loss having arisen in recent years as a result of wind farm development in afforested areas and refers to the Scottish Government's Control of Woodland Removal Policy.

2.5.35 It noted that further wind energy development within the National Forest Estate may result in further woodland removal. Given the importance of maintaining and expanding total woodland cover, and in the light of the Control of Woodland Removal Policy, the Strategy states that any loss of woodland will require compensatory planting.

2.5.36 Where new wind farm development is proposed (particularly if woodland removal is required), the Strategy proposes that native woodland creation and habitat enhancement programmes could be delivered, at least in part, through developer contributions. Similarly, where important sites for timber production are likely to be lost or reduced in size in this way, appropriate provision for replanting should be secured to safeguard future timber resources.

2.5.37 Under the theme of Climate Change a key Strategic Priority is stated as:

- *"CC1: Encourage the net expansion of woodland cover in Argyll and Bute in order to further contribute to national targets for carbon sequestration."*

2.5.38 Priority Actions to support this include:

- *"CC1.1: Ensure that forest restructuring results in no net loss of woodland.*
- *CC1.2: Ensure that woodland removal associated with developments such as windfarms is compensated for at a ratio of at least 1:1 in terms of area and quality of woodland."*

2.5.39 The Strategy therefore supports and reinforces the aims of the Scottish Government's Control of Woodland Removal Policy.

2.6 Forestry Study Area

2.6.1 The Forestry Study Area (FSA), as shown on Figure 2.3.1, extends to approximately 633.7 ha and comprises of privately owned and managed woodlands. These woodlands are covered by a Forest Plan, reference: 3809898. This Forest Plan is due to expire in 2026.

2.6.2 The forests contain a limited range of woodland types due to the original planting programme together with areas of unplantable land and open ground. The crops are comprised largely of commercial conifers with small areas of both mixed conifers and mixed broadleaves and open ground. The woodlands are currently within the felling and restocking phase. Further information on the composition of the woodlands in the FSA is provided in the baseline description below.

2.7 Forest Plans

2.7.1 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.

2.7.2 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.

2.7.3 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.

2.7.4 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.

2.7.5 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.

2.7.6 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 Development into the forest would result in further restructuring of the forest.

2.8 Development of a Wind Farm Forest Plan

Introduction

2.8.1 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 and further desk-based assessment as necessary.

2.8.2 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 the proposed development.

2.8.3 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 the proposed development would also be incorporated into the forestry proposals, where appropriate.

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

2.8.5 In this case, taking into account the ecological constraints as mentioned in EIA Report Chapter 7: 'Ecology', a 3.1 ha (100 metre (m) radius) 'keyhole' was adopted around wind turbines. These keyholes are areas that require to be felled for construction, operation and environmental mitigation.

2.8.6 A 10m buffer has been applied around each other item of temporary and permanent infrastructure, in addition to the area required for the infrastructure. An indicative 30m 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

2.8.7 Felling required for a wind farm can be divided into two categories:

- Firstly, that required during the construction phase of a wind farm, which for the purposes of the assessment of this Proposed Development, has been anticipated as commencing in 2028; and
- Secondly, felling required during the operational period of a wind farm. In this case there is no felling required in respect of the operation of the Proposed Development outwith that required for the construction phase.

2.8.8 The felling required for construction purposes is split between infrastructure felling and advanced felling. Infrastructure felling is defined as the area to be felled specifically for any infrastructure and its associated buffers. Advanced felling is any additional felling required to ensure crop stability; this is usually advanced from is baseline felling phase within the forest plan so that the felling aligns with construction start dates. All infrastructure felling converts to permanent wind farm open ground and is a loss of forest and productive land. Advanced felling is usually restocked as per the restock plan.

2.8.9 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 require a combination of keyholing into younger crops and in the 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 the Wind Farm Species Restocking Plan as described below.

2.8.10 Additional minor felling would 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.

2.8.11 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 Species Restocking Plan

2.8.12 The Wind Farm Species Restocking Plan shows which woodlands would be restocked and with which species. The majority of the areas to be felled for the 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.

2.8.13 It has been assumed that, where possible, some temporary infrastructure such as edges of re-profiled borrow pits would be re-instated and available

for restocking post construction. To ensure that the forestry establishes successfully, the soil should be restored to a depth of 1m.

2.8.14 In preparing the Wind Farm Species Restocking 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.

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

2.8.16 The wind farm forestry felling and restocking proposals have been assessed by each of the separate environmental disciplines / consultants as part of the EIA process where required, and the effects are reported in individual chapters of this EIA Report and their supporting appendices.

2.9 Baseline Conditions

Baseline Planting Year/Age Class Structure

2.9.1 Many woodlands established in the mid to late 1900s, 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.

2.9.2 The woodlands within the FSA are currently going through restructuring by felling and restocking and as a result the structural diversity of the woodlands is starting to evolve. Their age class is detailed below in Table 2.3.2: 'Baseline Age Class Composition' and shown in Figure 2.3.2.

Table 2.3.2: Baseline Age Class Composition

Age Class (Years)	Area (ha)	Area (%)
n/a	157.0	24.8
0-5 years	131.7	20.8
6-10 years	42.4	6.7

Age Class (Years)	Area (ha)	Area (%)
40+ years	302.7	47.8
Total	633.7	100.0

2.9.3 The current guidelines contained within the UKFS are that in forests characterised by a lack of diversity due to extensive areas of even-aged trees, stands adjoining felled areas should be retained until the restocking of the first coupe has reached a minimum height of 2m. 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.

Species Composition

2.9.4 The current baseline species composition of the woodlands within the FSA is shown in Figure 2.3.3 and illustrated in Table 2.3.3 below.

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

Table 2.3.3: Baseline Species Composition

Species	Area (ha)	Area (%)
Sitka spruce	382.6	60.4
Other conifer	16.4	2.6
Mixed broadleaves	19.5	3.1
Open ground	165.0	26.0
Felled	50.2	7.9
Total	633.7	100.0

2.9.6 The main species are commercial conifers, principally Sitka spruce, which in pure or mixed stands, accounts for approximately 60.4% of the total FSA. Other conifers account for 2.6% of the FSA and broadleaf woodland 3.1%. Open ground accounts for approximately 26%.

2.9.7 The species composition reflects the practice and guidance which prevailed at the time the woodlands were established (the early 1980s for the older crops on site) . 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 Plan

2.9.8 The Baseline Felling Plan forms part of the current Forest Plans prepared by the forest managers.

2.9.9 The Baseline Felling Plan considers the requirement to restructure the age class of even aged forests as described above. The Baseline Felling Plan is illustrated in Figure 2.3.4 and presented in Table 2.3.4 below. The data is summarised in 5-year bands as per standard practice.

Table 2.3.4: Baseline Felling Plan

Felling Phase	Area (ha)	Area (%)
No Felling	214.3	33.8
Phase 2: 2021-2025	14.1	2.2
Phase 3: 2026-2030	107.1	16.9
Phase 4: 2031-2035	92.6	14.6
Natural Reserves	14.9	2.4
Outside Plan Period	190.7	30.1
Total	633.7	100.0

2.9.10 A proportion of the FSA is designated as 'No Felling'" due either to open ground, land awaiting restocking or crops with no felling year assigned.

2.9.11 A large area of the FSA is designated as '"Outside Plan Period"'. These areas are generally immature crops whose prospective felling year lies outside of the current Forest Plan period, which covers 10 years of felling and restocking from time of approval. Woodlands not covered by a current forest plan have been assigned to Outside Plan Period unless they have been previously identified as Long Term Retentions (LTR) or Natural Reserves (NR).

2.9.12 Other areas within the FSA have been designated as NR. These are areas which are considered of higher conservation interest than commercial species and are managed by minimum intervention unless alternative management has higher conservation or biodiversity value. The identification of NRs is part of the requirements of UKWAS and the UKFS.

2.9.13 The baseline felling programme is designed to provide the required separation between felling coupes, where possible. This may take more than one rotation to achieve, especially in the uplands where wind firm boundaries between felling coupes are limited.

Baseline Restocking Species Composition

2.9.14 The baseline restocking species composition as detailed in the baseline Forest Plans is illustrated in Figure 2.3.5 and outlined in Table 2.3.5 below.

Table 2.3.5: Baseline Restocking Plan Species Composition

Species	Area (ha)	Area (%)
Sitka spruce	421.2	66.5
Other conifer	17.6	2.8
Mixed broadleaves	20.9	3.3
Open ground	174.1	27.5
Total	633.7	100.0

2.9.15 The baseline restocking proposals illustrate how the forest would be structured at the end of the Forest Plan period if the entire plans were implemented. Table 2.3.6 below compares the baseline current species composition and the baseline restocking species composition at the end of the Forest Plan period without the implementation of the Proposed Development.

Table 2.3.6: Comparison of Baseline Species Composition

Species	Baseline Area (ha)	Restock Area (ha)	Difference Area (ha)	Difference Area (%)
Sitka spruce	382.6	421.2	35.6	5.6
Other conifer	16.4	17.6	1.2	0.2
Mixed broadleaves	19.5	20.9	1.4	0.2
Open ground	165.0	174.1	9.1	1.4
Felled	50.2	0.0	-50.2	-7.9
Total	633.7	633.7	0.0	0.0

2.9.16 The changes between the current baseline current species composition and that contained within the Baseline Restocking Plan are discussed below:

- The proportion of primary conifer crops (Sitka spruce) increases by 35.6ha;
- The area of other conifer increases by 1.2ha; and
- The area of mixed broadleaved woodland increases by 1.4ha.

2.9.17 The majority of these changes reflect the ongoing proposed restructuring of the first rotation crops to meet current guidelines and the restocking of land felled and awaiting restocking.

2.9.18 It should be noted that both the baseline and baseline restocking plan as they stand do not meet current UKFS requirements for species diversity. This will be rectified in future forest plans as progress is made towards meeting compliance requirements.

2.10 Proposed Development Forest Plan

Introduction

2.10.1 The effect of the Proposed Development on the structure of the woodlands within the FSA has been compared against the Baseline Forest Plan. This has concentrated on changes to the Felling Plan and Restocking Plan required to accommodate the Proposed Development.

2.10.2 Construction has been provisionally programmed for 2028, which falls within Phase 3: 2026-2030 of the Baseline Forest Plan.

2.10.3 There is felling included in the Forest Plan Phase 2: 2021-2025 which has not yet been carried out by the landowner prior to this report being prepared. This is not unusual. The decision to fell can be influenced by many factors such as market forces or changing objectives from the landowner.

Proposed Development Felling Plan

2.10.4 The Proposed Development Felling Plan is shown across two figures. Figure 2.3.6 identifies the felling required for construction of the Proposed Development and the advanced felling as a result of the Proposed Development, these data are summarised in Table 2.3.7 below. Figure 2.3.7 shows how this felling relates to the associated Forest Plans on the various properties, these data are summarised in Table 2.3.8 below.

Table 2.3.7: Felling Required for Construction

Felling Type	Area (ha)	Area (%)
No Felling – open ground	165.0	26.0
Infrastructure Felling	33.4	5.3
Advanced Felling	7.9	1.2
No Felling - woodland	427.4	67.8
Total	633.7	100.0

2.10.5 The total felling required to accommodate construction of the Proposed Development, including infrastructure and advanced felling, totals 41.3 ha.

Table 2.3.8: Proposed Development Felling Plan

Felling Phase	Area (ha)	Area (%)
No Felling	169.5	26.7
Phase 2: 2021-2025	13.3	2.1
Phase 3: 2026-2030	138.7	21.9
Phase 4: 2031-2035	83.9	13.2
Natural Reserves	11.6	1.8
Outside Plan Period	216.8	34.2
Total	633.7	100.0

2.10.6 The Baseline and Proposed Development Felling Plans are compared in Table 2.3.9 below.

Table 2.3.9: Comparison of Felling Plans

Felling Phase	Baseline Area (ha)	Proposed Development Area (ha)	Difference Area (ha)	Difference Area (%)
No Felling	214.3	169.5	-44.8	-7.1
Phase 2: 2010-2025	14.1	13.3	-0.8	0.0
Phase 3: 2026-2030	107.1	138.7	31.6	5.0
Phase 4: 2031-2035	92.6	83.9	-8.7	-1.4
Natural Reserves	14.9	11.6	-3.3	-0.5
Outside Plan Period	190.7	216.8	26.1	4.1
Total	633.7	633.7		

2.10.7 Of the 41.3 ha of felling required for construction of the Proposed Development, 0.8 ha was scheduled to take place in Phase 2 in the Baseline Felling Plan and 12.0 ha would be advanced from later phases. This is balanced out by reduced felling in other periods as detailed below:

- 0.8 ha is felling originally scheduled to have taken place in Phase 2;
- 8.7 ha advanced from Phase 4; and
- 3.3 ha advanced from Natural Reserves.

Proposed Development Restocking Plan

2.10.8 The Baseline Restocking Plan has been amended to integrate the Proposed Development infrastructure requirements into the forest design and to take account of the site conditions. The Proposed Development

Restocking Plan is shown in Figure 2.3.8 and summarised in Table 2.3.10. Wind farm open ground refers to the permanent loss of crop to permanent infrastructure only of the Proposed Development.

Table 2.3.10: Proposed Development Restocking Plan Species Composition

Species	Area (ha)	Area (%)
Sitka spruce	391.8	61.8
Other conifer	15.9	2.5
Mixed broadleaves	24.7	3.9
Open ground	167.3	26.4
Wind farm open ground	34.0	5.4
Total	633.7	100.0

2.10.9 The restocking plans for the Proposed Development are prepared on the same basis as those included in the baseline plans and therefore the levels of restocking in the baseline plans are carried over and any failure to meet UKFS requirements is not due to the introduction of the Proposed Development.

2.10.10 The Baseline and Wind Farm Restocking Plans have been compared to assess the changes that construction of the Proposed Development would have on the species composition of the forests. These data are presented in Table 2.3.11.

Table 2.3.11: Comparison of Restocking Plans

Species	Baseline Restock Area (ha)	Proposed Development Area (ha)	Difference Area (ha)	Difference Area (%)
Sitka spruce	421.2	391.8	-29.4	-4.6
Other conifer	17.6	15.9	-1.7	-0.3
Mixed broadleaves	20.9	24.7	3.8	0.6
Open ground	174.1	167.3	-6.8	-1.1
Wind farm open ground	0.0	34.0	34.0	5.4
Total	633.7	633.7		

2.10.11 The change in area of stocked woodland in the forests due to the Proposed Development is shown in Table 2.3.12 below.

Table 2.3.12: Stocked Woodland Area Comparison

Woodland Type	Baseline Restock Area (ha)	Proposed Development Area (ha)	Difference Area (ha)	Difference Area (%)
Stocked	459.7	432.4	-27.3	-4.3
Unstocked	174.1	201.3	27.3	4.3

Total	633.7	633.7		

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

- there would be a net reduction in the area of Sitka spruce of 29.4 ha;
- there would be an increase in the area of mixed broadleaved woodland of 3.8 ha;
- there would be a decrease in the area other conifer woodland of 1.7 ha;
- Wind farm permanent open ground would total 34 ha; and
- the net reduction in stocked woodland area within the FSA would be 27.3 ha equivalent to 4.3% of the FSA.

2.11 Requirement for Compensatory Planting

2.11.1 As a result of the construction of the Proposed Development, there would be a net loss of woodland area. The area of stocked woodland in the FSA would decrease by 27.3 ha.

2.11.2 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 Development.

2.12 Forestry Waste

2.12.1 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.

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

2.12.3 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.

2.12.4 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.

2.12.5 As discussed above, the crops will be replanted except where the land is required for infrastructure associated with the Proposed 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.

2.12.6 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.

2.12.7 In areas of lower yielding crops, into which the Proposed 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.

2.12.8 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.

2.13 Forestry Management Practices

Crop Clearance

2.13.1 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.

2.13.2 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.

2.13.3 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.

2.13.4 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.

2.13.5 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

2.13.6 Wind Farm 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 as to the restocking methodology which may be adopted.

2.13.7 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.

2.13.8 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.

Aftercare Works

2.13.9 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.

2.14 Standards and Guidelines

2.14.1 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 2017);
- 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).

2.15 Summary

2.15.1 The total study area extends to 633.7 ha and is comprised of privately owned and managed woodlands.

2.15.2 Felling would be advanced on 41.3 ha for construction of the Proposed Development.

2.15.3 The species composition of the forest would change as a result of the Proposed Development forestry proposals. In particular, the area of Sitka spruce would decrease by 29.4 ha.

2.15.4 The area of unplanted ground would increase and, as a result, there would be a net loss of woodland area of 27.3 ha.

2.15.5 In order to comply with the Scottish Government's Control of Woodland Removal Policy, compensation planting 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 Biodiversity Enhancement and Management Plan, and the felling and restocking plans prior to the commencement of construction.