



Aultmore Wind Farm Redesign

Technical Appendix 2.2: Forestry

Vattenfall Wind Power Ltd

Prepared by: DGA Forestry Ltd

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Contents

1.0	Introduction	1
1.1	Planning Policy and Guidance	2
1.1.1	Forestry and Land Management (Scotland) Act 2018	2
1.1.2	Scotland's Forestry Strategy 2019 - 2029	3
1.1.3	Scotland's Third Land Use Strategy 2021 - 2026	4
1.1.4	National Planning Framework 4	4
1.1.5	Right Tree in the Right Place	4
1.1.6	Control of Woodland Removal Policy	5
1.1.7	Development Guidance - Moray Woodland and Forestry Strategy	6
2.0	Forestry Study Area	6
2.1	Forest Plan	6
2.2	Development of a Wind Farm Forest Plan	7
2.2.1	Introduction	7
2.2.2	Wind Farm Felling Plan	8
2.2.3	Wind Farm Species Restocking Plan	8
3.0	Baseline	9
3.1	Baseline Conditions	9
3.1.1	Baseline Planting Year/Age Class Structure	9
3.1.2	Species Composition	10
3.1.3	Baseline Felling Plan	10
3.1.4	Baseline Restocking Species Composition	11
3.2	Proposed Development Forest Plan	12
3.2.1	Introduction	12
3.2.2	Proposed Development Felling Plan	12
3.2.3	Proposed Development Restocking Plan	13
3.3	Requirement for Compensatory Planting	15
3.4	Forestry Waste	15
3.5	Forestry Management Practices	16
3.5.1	Crop Clearance	16
3.5.2	Restocking/Planting Methodology	17
3.5.3	Aftercare Works	17
3.6	Standards and Guidelines	18
4.0	Conclusion	18



1.0 Introduction

This Technical Appendix considers the potential implications of the proposed development on the woodland resource within the site boundary and its long-term management. This Technical Appendix 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 development. Proposed on site replanting and additional planting of native woodland results in an increase in the area of stocked woodland within the proposed development site boundary.

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 a wind farms or other development.

In this respect therefore, forestry is not regarded as a receptor for Environmental Impact Assessment (EIA) purposes. The forestry proposals will affect other receptors, for example ecological or hydrological, and this aspect is therefore interrelated with the environmental effects which are assessed separately in the relevant chapters of the Environmental Impact Assessment (EIA) Report (EIAR).

This Technical Appendix 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.

This Technical Appendix discusses the issue of forestry waste arising from the proposed development.

The forestry proposals are interrelated with environmental effects, which are assessed separately in other chapters of the Environmental Impact Assessment Report (EIAR). This Technical Appendix should therefore be read in conjunction with other EIAR chapters, for example: **Chapter 3: Site Selection and Design Alternatives**; **Chapter 6: Landscape and Visual**; **Chapter 8: Ecology**; **Chapter 9: Ornithology**; and **Chapter 10: Geology, Hydrology and Hydrogeology** as they are interrelated to the proposed changes in the forest structure.

The responsibility for the management of the remainder of the forest outwith the proposed 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 development for which consent is sought.

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 may or may not be replanted as part of the proposed development; and
- propose management practices for the forestry works.

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



This Technical Appendix is structured as follows:

- Planning, Policy and Guidance;
- Consultation;
- Forestry Study Area;
- Forest Plans;
- Development of the Wind Farm Forest Plan;
- Baseline;
- Proposed Development Forest Plan;
- Requirement for Compensatory Planting;
- Forestry Waste;
- Forestry Management Practices;
- Conclusion,
- Statement of Competence; and
- Non-Technical Summary.

1.1 Planning Policy and Guidance

Relevant overarching planning policies for the proposed development are detailed within **Chapter 4: Climate Change, Renewable Energy and Planning Policy** and 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.

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 development, and in particular to forestry.

1.1.1 Forestry and Land Management (Scotland) Act 2018

Until 1st April 2019, the Scottish Ministers owned the Scotland's National Forests and Land (SNFL), 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.

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:

- 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.

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.



With the introduction of the Forestry and Land Management (Scotland) Act 2018¹ and its associated Regulations on 1st April 2019, the old regulatory regime of felling control under the Forestry Act 1967² 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.

Under the new 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.

1.1.2 Scotland's Forestry Strategy 2019 - 2029

Scotland's Forestry Strategy 2019 – 2029 (SFS)³, 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.

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."

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.

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.

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.

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¹ The Scottish Government (2018). The Forestry and Land Management (Scotland) Act 2018, Edinburgh. Available at http://www.legislation.gov.uk/asp/2018/8/contents/enacted [accessed on 14.11.23].

² UK Government (1967). Forestry Act 1967 (as amended). HMSO, London. Available at https://www.legislation.gov.uk/ukpga/1967/10/contents [accessed on 14.11.23]

³ The Scottish Government (2019). Scotland's Forestry Strategy 2019 -2029, Edinburgh.

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

1.1.3 Scotland's Third Land Use Strategy 2021 - 2026

Scotland's Third Land Use Strategy 2021 – 2026⁴ 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.

1.1.4 National Planning Framework 4

National Planning Framework 4 (NPF4)⁵ was laid before the Scottish Parliament on 8th November 2022. The Scottish Parliament voted to approve NPF4 on 11 January 2023 and it was adopted by the Scottish Ministers on 13 February 13 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.

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.

1.1.5 Right Tree in the Right Place

'Right Tree in the Right Place - Planning for Forestry & Woodlands' 2010⁶ 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.

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

⁶ Forestry Commission Scotland (2010): Right Tree in the Right Place - Planning for Forestry & Woodlands. Forestry Commission, Edinburgh.



⁴ Scottish Government (2021): Scotland's Third Land Use Strategy 2021 - 2026 https://www.gov.scot/publications/scotlands-third-land-use-strategy-2021-2026-getting-best-land/ [accessed 10/11/2023)

⁵ The Scottish Government (2023). National Planning Framework 4. Available at https://www.gov.scot/publications/national-planning-framework-4/ [accessed 14/11/2023]

conditions and/or agreements would ensure the provision of any compensatory planting which is required.

1.1.6 Control of Woodland Removal Policy

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' 2009⁷. The guidance relating to the implementation of the policy was revised and updated in 2019⁸.

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.

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.

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.

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.

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

⁸ Forestry Commission Scotland (2019): Scottish Government's policy on control of woodland removal: implementation guidance. Available at https://forestry.gov.scot/publications/349-scottish-government-s-policy-on-control-of-woodland-removal-implementation-guidance [accessed 14/11/2023]



⁷ Forestry Commission Scotland (2009). The Scottish Government's Policy on Control of Woodland Removal. Edinburgh.

• increasing the social, economic or environmental quality of Scotland's woodland cover.

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).

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.

1.1.7 Development Guidance - Moray Woodland and Forestry Strategy

The 2018 Moray Woodland and Forestry Strategy ⁹ (MWFS) is one of a series of Development Guidance documents prepared by The Moray Council to support its 2020 Moray Local Development Plan (LDP)¹⁰.

The MWFS sets out the important roles that forestry will continue to play in delivering a wide range of sustainable economic and rural development, environmental, social and community benefits. It presents the key issues, challenges and opportunities, together with a refreshed vision, strategic aims and objectives for the future expansion and stewardship of the Moray forest and woodland resource and associated industries over the next 20 years.

2.0 Forestry Study Area

The Forestry Study Area (FSA), as shown on **Figure 2.2.1**, extends to approximately 2,415.2 ha and comprises of state owned and managed woodlands. The woodlands form part of the national forest estate and are managed by Forest and Land Scotland. These woodlands were previously covered by a Forest Design Plan, reference: FDP 18. This Plan has now expired and will be renewed prior to construction of the proposed development. For this reason there may be the requirement to revisit the wind farm felling proposals to ensure they are compliant with the new FDP.

The forests contain a range of woodland types due to the 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.

2.1 Forest Plan

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.

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

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⁹ http://www.moray.gov.uk/downloads/file117645.pdf

¹⁰ http://www.moray.gov.uk/moray_standard/page_133431.html

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)¹¹ and the UK 'Woodland Assurance Standard 4th Edition' (UKWAS)¹², under which the woodlands would be managed if certificated.

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.

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.

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.

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.

2.2 Development of a Wind Farm Forest Plan

2.2.1 Introduction

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 2023, and further desk-based assessment as necessary.

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.

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.

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.

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¹¹ Forestry Commission (2017). The UK Forestry Standard: The Government's Approach to Sustainable Forestry, Forestry Commission, Edinburgh.

¹² UKWAS (2018). The UK Woodland Assurance Standard Fourth Edition, UKWAS, Edinburgh.

In this case, taking into account the ecological constraints as mentioned in **Chapter 8: 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.

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.

2.2.2 Wind Farm Felling Plan

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

- firstly, that required during the construction phase of the proposed development, which for the purposes of this assessment, has been anticipated as commencing in 2027; and
- secondly, felling required during the operational period of the proposed development. In this case there is no felling required outwith that required for the construction phase.

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 the Wind Farm Species Restocking Plan as described below.

Additional minor felling would be required for forest management purposes (management felling), for example, to reduce the risk of subsequent windblow; to reduce coupe isolation and fragmentation; to ensure access for future forest operations; and for biodiversity enhancement and restoration proposals.

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.

2.2.3 Wind Farm Species Restocking Plan

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.

It has been assumed that, where practicable, some temporary infrastructure such as edges of reprofiled 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.

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.

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.



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.

3.0 Baseline

3.1 Baseline Conditions

The study area consists of conifer forestry located approximately 7km south of Buckie in the northeast of Scotland.

An initial desk-based assessment identified there are no woodlands within the proposed development area recorded as native woodland in the Native Woodland Survey of Scotland (Forestry Commission Scotland, 2013)¹³, there are areas (approx. 134ha) identified in the Ancient Woodland Inventory Scotland (Scottish Natural Heritage, 2010)¹⁴ as Long Established of Plantation Origin. No physical infrastructure in located within these areas, however buffer zones do overlap.

3.1.1 Baseline Planting Year/Age Class Structure

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

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 2.1.2** 'Baseline Age Class Composition' and shown in **Figure 2.2.2**.

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

Table 2.1.2: Baseline Age Class Composition

Age	Area (ha)	Area (%)
n/a	403.8	16.7
<5 years	36.2	1.5
5-10 years	759.6	31.4
11-20 years	339.9	14.1
21-30 years	142.6	5.9
31-40 years	0.0	0.0
41-50 years	32.4	1.3
51-60 years	581.5	24.1
60+ years	119.3	4.9

¹³ Forestry Commission Scotland. (2013) The Native Woodland survey of Scotland [Online] Available from - https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18 [Accessed: 14/11/23].



¹⁴ Scottish Natural Heritage. (2010) Ancient Woodland Inventory Scotland [Online] Available from - https://map.environment.gov.scot/sewebmap/ [Accessed:14/11/23].

Age	Area (ha)	Area (%)
Total	2415.2	100.0

3.1.2 Species Composition

The current baseline species composition of the woodlands within the FSA is shown in **Figure 2.2.3** and illustrated in **Table 2.1.3** below.

Table 2.1.3: Baseline Species Composition

Species	Area (ha)	Area (%)
Sitka spruce	1160.0	48.0
Other conifer	830.6	34.4
Mixed broadleaves	20.8	0.9
Open ground	98.2	4.1
Other land	13.2	0.5
Felled (awaiting restocking)	292.5	12.1
Total	2415.2	100.0

The main species are commercial conifers, principally Sitka spruce, which in pure or mixed stands, accounts for approximately 48% of the total FSA. Other conifers account for 34.4% of the FSA and broadleaf woodland 0.9%. Open ground and other land, including felled areas awaiting restock, accounts for approximately 16.7%.

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.

3.1.3 Baseline Felling Plan

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

Some felling has been shown as Phase 2: 2018-2022. It has been assumed that this felling will have been carried out by the time of construction, as will much of the Phase 3: 2023-2027 felling.

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 2.2.4** and presented in **Table 2.1.4** below. The data is summarised in 5-year bands as per standard practice.

Table 2.1.4: Baseline Felling Plan

Fell Phase	Area (ha)	Area (%)
No Felling	538.1	22.3
Phase 2: 2018-2022	133.6	5.5
Phase 3: 2023-2027	83.2	3.4
Phase 4: 2028-2032	120.2	5.0
Long Term Retentions	145.3	6.0
Outside Plan Period	1394.8	57.8
Total	2415.2	100.0



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.

An 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).

Some areas of crop in the baseline felling plan have been assigned a delayed felling age by the forest managers. These areas are Long Term Retentions (LTR), crops to be retained beyond their age of economic or silvicultural maturity for conservation and biodiversity purposes. These woodlands would otherwise be managed as normal and would in due course be felled and replanted. The identification of LTRs is part of the requirements of UKWAS and the UKFS.

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.

3.1.4 Baseline Restocking Species Composition

The baseline restocking species composition as detailed in the baseline Forest Plans is illustrated in **Figure 2.2.5** and outlined in **Table 2.1.5** below.

Table 2.1.5: Baseline Restocking Plan Species Composition

Species	Area (ha)	Area (%)
Sitka spruce	136.5	5.7
Sitka spruce/Other conifer	1408.5	58.3
Other conifer	474.1	19.6
Mixed broadleaves	216.2	9.0
Mixed woodland	9.5	0.4
Open ground	170.4	7.1
Other land	0.0	0.0
Total	2415.2	100.0

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 2.1.6** 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 2.1.6: Comparison of Baseline Species Composition

Species	Baseline Current Species Area (ha)	Baseline Restock Species Area (ha)	Variance Area (ha)	Variance Area (%)
Sitka spruce	1160.0	136.5	-1023.5	-42.4
Sitka spruce/Other conifer	0.0	1408.5	1408.5	58.3
Other conifer	830.6	474.1	-356.5	-14.8
Mixed broadleaves	20.8	216.2	195.4	8.1
Mixed woodland	0.0	9.5	9.5	0.4



Species	Baseline Current Species Area (ha)	Baseline Restock Species Area (ha)	Variance Area (ha)	Variance Area (%)
Open ground	98.2	170.4	72.2	3.0
Other land	13.2	0.0	-13.2	-0.5
Felled (awaiting restocking)	292.5	0.0	-292.5	-12.1

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, Sitka spruce/Other conifer) decreases by 385 ha;

2415.2

• the area of other conifer decreases by 356.5 ha; and

2415.2

• the area of broadleaf woodland increases by 195.4 ha.

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.

3.2 Proposed Development Forest Plan

3.2.1 Introduction

Total

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.

Construction has been provisionally programmed for 2027, which falls within Phase 3: 2023-2027 of the Baseline Forest Plan.

3.2.2 Proposed Development Felling Plan

The Proposed Development Felling Plan is shown across two figures. Figure 2.2.6 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 2.1.7** below. Figure 2.2.7 shows how this felling relates to the felling phases within the forest design plan (which has now expired), these data are summarised in **Table 2.1.8**.

Table 2.1.7: Felling Required for Construction

Fell Phase	Area (ha)	Area (%)
No felling (open ground)	518.7	21.6%
Infrastructure felling	122.2	5.1%
Advanced felling	36.9	1.3%
No felling (woodland)	1737.5	72.0%
Total	2415.2	100.0

The total felling required to accommodate construction of the proposed development, including infrastructure and advanced felling, totals 159.1ha.



31 January 2024

SLR Project No.: 405.03640.00016

0.0

0.0

Table 2.1.8: Proposed Development Felling Plan

Fell Phase	Area (ha)	Area (%)
No Felling	518.7	21.5
Phase 2: 2018-2022	128.3	5.3
Phase 3: 2023-2027	242.0	10.0
Phase 4: 2028-2032	109.7	4.5
Long Term Retentions	130.0	5.4
Outside Plan Period	1286.5	53.3
Total	2415.2	100.0

The Baseline and Proposed Development Felling Plans are compared in Table 2.1.9 below.

Table 2.1.9: Comparison of Felling Plans

Felling Phase	Baseline Felling Plan	Proposed Development Felling Plan	Variance	Variance
	Area (ha)	Area (ha)	Area (ha)	Area (%)
No Felling	538.1	518.7	-19.4	-0.8
Phase 2: 2018-2022	133.6	128.3	-5.3	-0.2
Phase 3: 2023-2027	83.2	242.0	158.8	6.6
Phase 4: 2028-2032	120.2	109.7	-10.5	-0.4
Long Term Retentions	145.3	130.0	-15.3	-0.6
Outside Plan Period	1394.8	1286.5	-108.3	-4.5
Total	2415.2	2415.2	0.0	0.0

Of the 159.1 ha of felling required for construction of the proposed development, 158.8 ha was advanced from later phases.

3.2.3 Proposed Development Restocking Plan

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 2.2.8** and summarised in **Table 2.1.10**. Wind farm open ground refers to the permanent loss of crop to permanent infrastructure only of the proposed development.

Table 2.1.10: Proposed Development Restocking Plan Species Composition

Species	Area (ha)	Area (%)
Sitka spruce	135.6	5.6
Sitka spruce/Other conifer	1299.4	53.8
Other conifer	445.1	18.4
Mixed broadleaves	206.0	8.5
Mixed woodland	9.5	0.4
Open ground	170.4	7.1
Other land	0.0	0.0



Species	Area (ha)	Area (%)	
Habitat restoration	29.5	1.2	
Wind farm Open ground	119.7	5.0	
Total	2415.2	100.0	

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 2.1.11.**

Table 2.1.11: Comparison of Restocking Plans

Species	Baseline Restock Species	Proposed Development Restock Species Area (ha)	Variance Area (ha)	Variance Area (%)
	Area (ha)			
Sitka spruce	136.5	135.6	-0.9	0.0
Sitka spruce/Other conifer	1408.5	1299.4	-109.1	-4.5
Other conifer	474.1	445.1	-29.0	-1.2
Mixed broadleaves	216.2	206.0	-10.1	-0.4
Mixed woodland	9.5	9.5	0.0	0.0
Open ground	170.4	170.4	0.0	0.0
Other land	0.0	0.0	0.0	0.0
Habitat restoration	0.0	29.5	29.5	1.2
Wind farm Open ground	0.0	119.7	119.7	5.0
Total	2415.2	2415.2	0.0	0.0

The change in area of stocked woodland in the forests due to the proposed development is shown in **Table 2.1.13**.

Table 2.1.13: Stocked Woodland Area Comparison

Woodland Type	Baseline Restock Species Area (ha)	Proposed Development Restock Species Area (ha)	Variance Area (ha)	Variance Area (%)
Stocked	2244.8	2095.6	-149.2	-6.2
Unstocked	170.4	319.6	149.2	6.2
Total	2415.2	2415.2	0.0	0.0

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 (whether pure or in a mix) of 110
 ha:
- there would be a decrease in the area of broadleaf woodland of 10.1 ha;
- there would be a decrease in the area mixed conifer woodland of 29 ha;



- 31 January 2024 SLR Project No.: 405.03640.00016
- 29.5 ha of woodland have been identified for habitat restoration, full details of which are included within **Chapter 6: Ecology**;
- Wind farm permanent open ground would total 119.7 ha; and
- the net reduction in stocked woodland area within the FSA would be 149.2 ha equivalent to 6.2% of the FSA.

3.3 Requirement for Compensatory Planting

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 149.2 ha.

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.

3.4 Forestry Waste

The Scottish Environment Protection Agency (SEPA) guidance document WST-G-027, 'Management of Forestry Waste' (SEPA, 2017)¹⁵ 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)¹⁶, which amended Section 34 of the Environmental Protection Act (EPA) 1990 (duty of care) (UK Government, 1990)¹⁷. 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)¹⁸, 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.

Further guidance is contained in the document LUPS-GU27, 'Use of Trees Clear Felled to Facilitate Proposed Development on Afforested Land'" (SEPA, 2014)¹⁹.

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;

¹⁹ SEPA (2014): LUPS-GU27 "Use of Trees Cleared to Facilitate Development of Afforested Land. https://www.sepa.org.uk/media/143799/use_of_trees_cleared_to_facilitate_development_on_afforested_land_sepa_snh_fcs_g_uidance_april_2014.pdf [accessed 14/11/2023]



¹⁵ SEPA (2017): SEPA Guidance Notes WST-G-027 "Management of Forestry Waste". https://www.sepa.org.uk/media/28957/forestry_waste_guidance_note.pdf [accessed 14/11/2023]

¹⁶ The Scottish Government (2012): The Waste (Scotland) Regulations 2012 No. 148 available at https://www.legislation.gov.uk/sdsi/2012/9780111016657 [accessed 14/11/2023]

¹⁷ UK Environmental Protection Act 1990 1990 c. 43 Part II Duty of care etc. as respects waste Section 34 available at http://www.legislation.gov.uk/ukpga/1990/43/section/34 [accessed 11/11/2023]

¹⁸ EU Waste Legislation Waste Framework Directive https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098 [accessed 11/11/2023]

- 31 January 2024 SLR Project No.: 405.03640.00016
- 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.

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.

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.

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.

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.

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.

3.5 Forestry Management Practices

3.5.1 Crop Clearance

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.

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.

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.



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.

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)²⁰ 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.

3.5.2 Restocking/Planting Methodology

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.

- 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 2,800 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.

3.5.3 Aftercare Works

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;

²⁰ Forestry Commission Research Note "Environmental effects of stump and root harvesting" (Forestry Commission, 2011). https://www.forestry.gov.uk/pdf/FCRN009.pdf/\$FILE/FCRN009.pdf [accessed 14/11/2023]



- fertiliser would be applied as necessary to ensure satisfactory establishment and growth;
- other works as reasonably required ensuring satisfactory establishment of the woodlands.

3.6 Standards and Guidelines

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

- UK Forestry Standard (Forestry Commission 2017);
- Forest Industry Safety Accord Guides (or equivalent) (FISA, 2014)²¹; and
- current relevant legislation including, but not limited to, Health and Safety at Work Act 1974 (UK Government, 2014)²².

4.0 Conclusion

The total study area extends to 2,415.2 ha and is comprised of woodlands within the National Forest Estate managed by Forest and Land Scotland.

Felling would be advanced on 158.8 ha for construction of the proposed development.

The species composition of the forest would change as a result of the proposed development forestry proposals. In particular, the area of Sitka spruce (whether pure or in a mix) would reduce by 110 ha.

29.5 ha of woodland have been identified for habitat restoration and as a result will be cleared of trees.

The area of unplanted ground would increase and, as a result, there would be a net loss of woodland area of 149.2 ha.

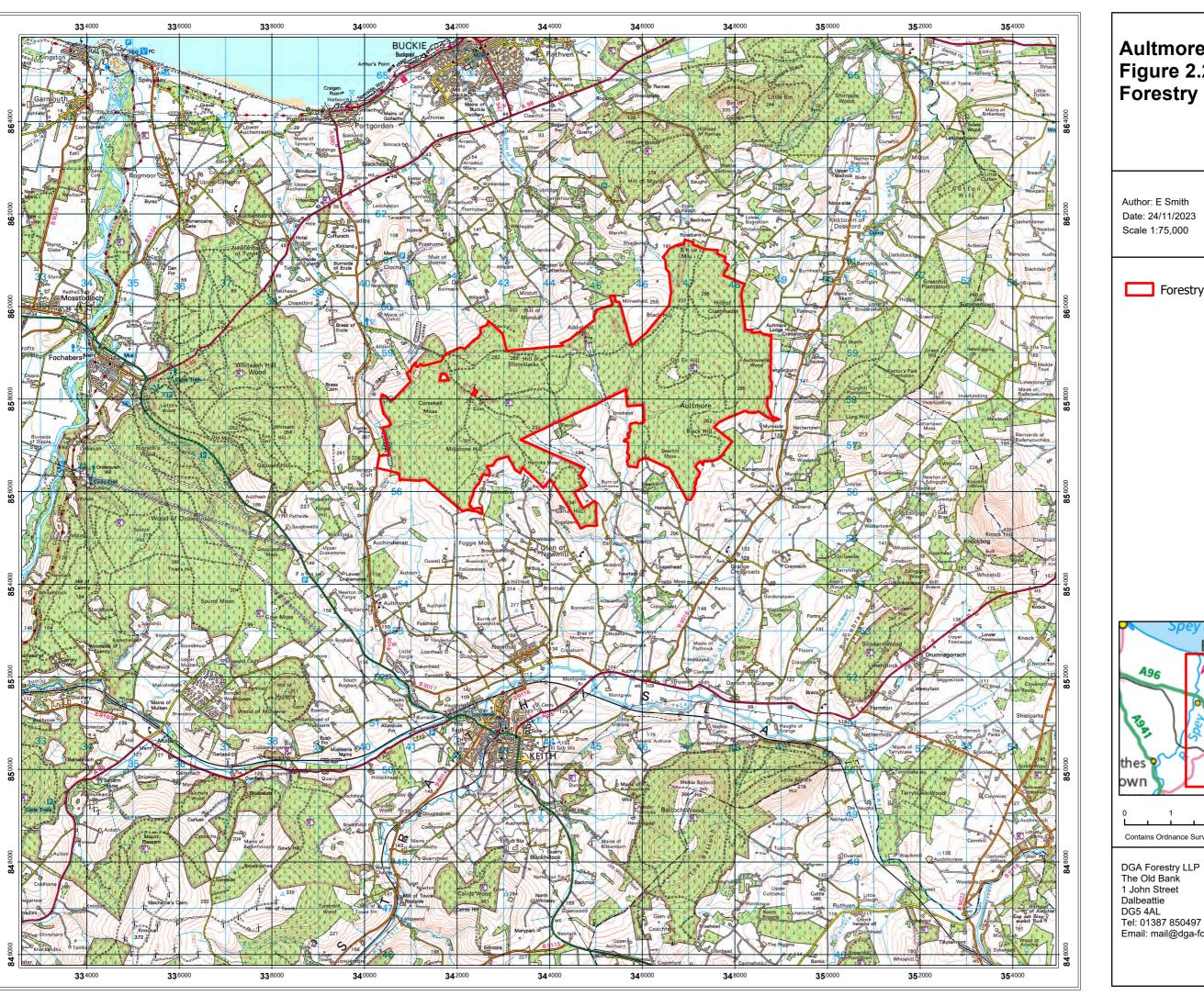
In order to comply with the Scottish Government's Control of Woodland Removal Policy, compensation planting would be required to mitigate for the loss of woodland area. The Applicant is committed to providing appropriate compensatory planting. The extent, location and composition of such planting to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



²¹ Forest Industry Safety Accord (2014). FISA Safety Guides (various). Edinburgh.

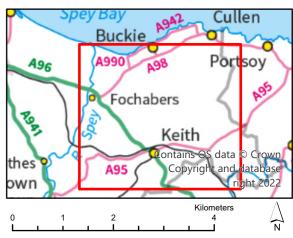
²² UK Government (1974): Health and Safety at Work etc. Act 1974 available at http://www.legislation.gov.uk/ukpga/1974/37/contents [access 14/11/2023]





Aultmore Wind Farm Figure 2.2.1 Forestry Study Area

Forestry Study Area



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Dalbeattie
DG5 4AL
Tel: 01387 850497
Email: mail@dga-forestry.co.uk



