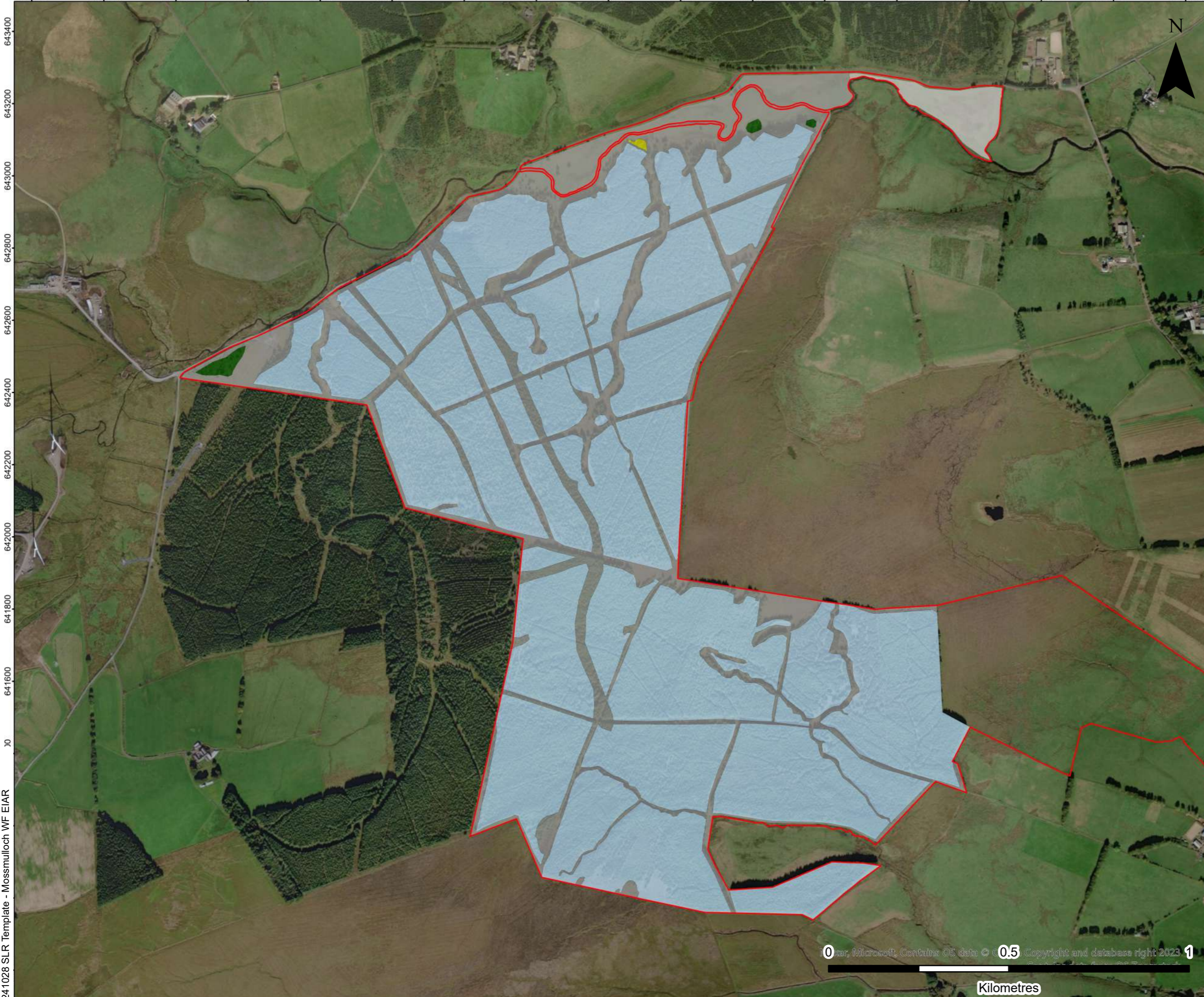


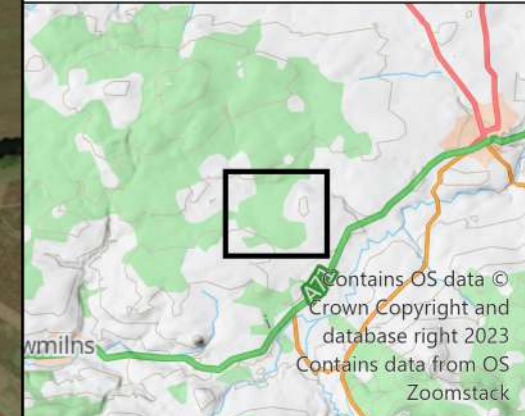
2411028 SLR Template - Mossmulloch WF EIAR

261800 262000 262200 262400 262600 262800 263000 263200 263400 263600 263800 264000 264200 264400 264600 264800 265000



**LEGEND**

- Proposed Site Boundary
- Sitka spruce
- Other conifer
- Native broadleaves
- Open ground
- Other land



**Vestas**



**FORCE 9 ENERGY**



**SLR**



MOSSMULLOCH WIND FARM EIAR  
FORESTRY  
**BASELINE SPECIES COMPOSITION**

**FIGURE 3.1.2**

Scale 1:10,000 @ A3 Date DECEMBER 2024

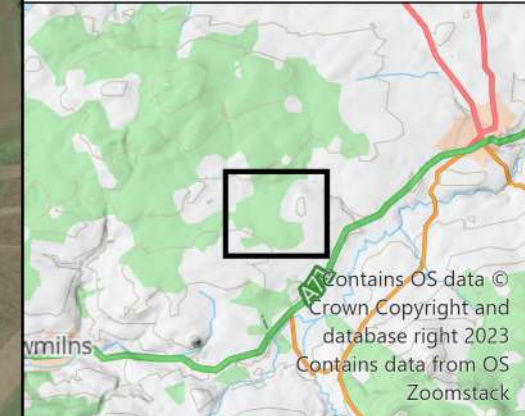


2411028 SLR Template - Mossmulloch WF EIAR



**LEGEND**

- Proposed Site Boundary
- Wind farm Infrastructure
- No Felling - open ground
- Infrastructure Felling
- Advanced Felling
- Habitat Restoration Felling
- Woodland retention



**Vestas**



**FORCE 9 ENERGY**



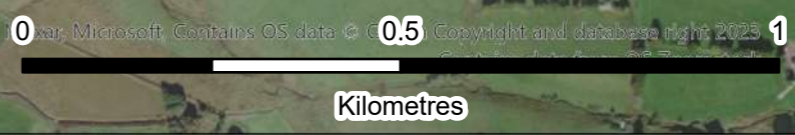
**SLR**



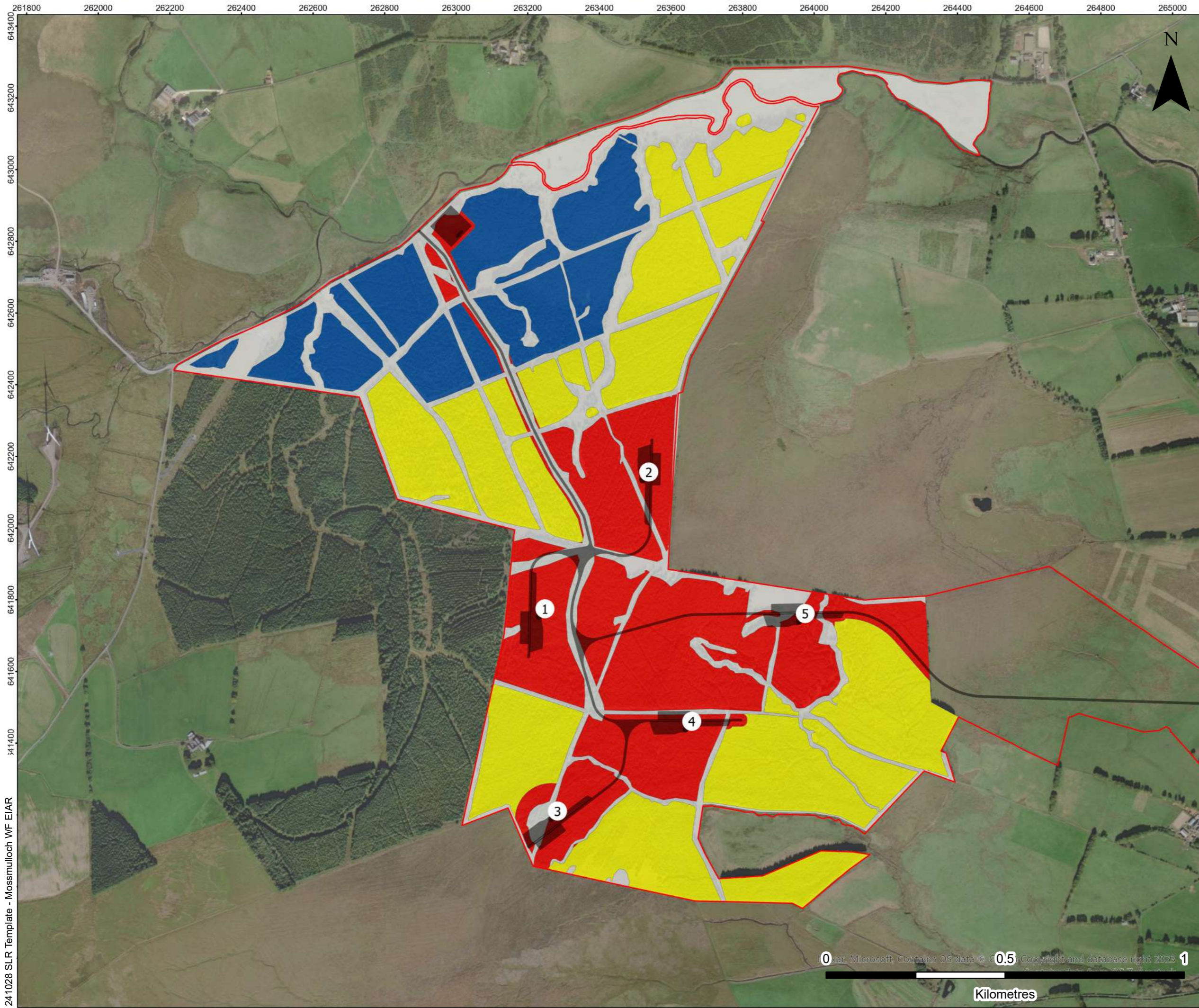
**MOSSMULLOCH WIND FARM EIAR  
FORESTRY  
WIND FARM CONSTRUCTION FELLING**

**FIGURE 3.1.3**

Scale 1:10,000 @ A3      Date DECEMBER 2024

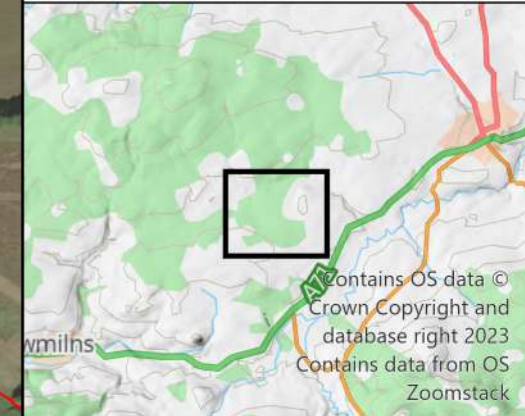


2411028 SLR Template - Mossmulloch WF EIAR



**LEGEND**

- Proposed Site Boundary
- Wind farm Infrastructure
- No Felling - open ground
- Development Felling Phase 1: Pre construction
- Development Felling Phase 2: Post construction
- Woodland Retention



**Vestas**



**FORCE 9 ENERGY**



**SLR**



MOSSMULLOCH WIND FARM EIAR  
FORESTRY  
WIND FARM PHASED FELLING

**FIGURE 3.1.4**

Scale 1:10,000 @ A3      Date DECEMBER 2024

2411028 SLR Template - Mossmulloch WF EIAR

## 3.1. FORESTRY

### 1.1 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.

Forestry is not regarded as a receptor for Environmental Impact Assessment (EIA) purposes but rather the proposed forestry works are treated as a part of the development proposal for the purposes of this application. Commercial forests are a dynamic environment and their structure continually undergoes change due to the following:

- normal felling and restocking by the landowner;
- natural events, such as storm damage, pests or diseases; and
- external factors, such as wind farms or other development.

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 also 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 2: Site Description and Design Evolution; Chapter 5: Landscape and Visual; Chapter 6: Ecology; Chapter 7: Ornithology; and Chapter 11: Geology, Hydrology, Hydrogeology and Peat** as they assess the environmental impact of the proposed changes in the forest structure.

The responsibility for the management of the remainder of the 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. This also applies to the area of forestry which is not proposed to be felled associated with the wind farm development proposals, as illustrated on Figure 3.1.3.

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. Such crops would typically be felled and replanted on the basis of a long term plan or licence by the land owner. 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;
- 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.

### **1.1.1 Planning Policy and Guidance**

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.

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.

### **1.1.2 Forestry and Land Management (Scotland) Act 2018**

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.

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 2018<sup>1</sup> and its associated Regulations on 1st April 2019, the old regulatory regime of felling control under the Forestry Act 1967<sup>2</sup> 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.

### 1.1.3 Scotland's Forestry Strategy 2019-2029

Scotland's Forestry Strategy 2019 - 2029 (SFS)<sup>3</sup>, 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:

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<sup>1</sup> 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 05.11.2024].

<sup>2</sup> UK Government (1967). Forestry Act 1967 (as amended). HMSO, London. Available at <https://www.legislation.gov.uk/ukpga/1967/10/contents> [accessed on 05.11.2024].

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

- 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.

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

#### 1.1.4 Scotland's Third Land Use Strategy 2021-2026

Scotland's Third Land Use Strategy 2021 - 2026<sup>4</sup> 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.

#### 1.1.5 National Planning Framework 4

National Planning Framework 4 (NPF4)<sup>5</sup> 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 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.

#### 1.1.6 Right Tree in the Right Place

'Right Tree in the Right Place - Planning for Forestry & Woodlands' 2010<sup>6</sup> 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);

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<sup>4</sup> 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 05.11.2024].

<sup>5</sup> The Scottish Government (2022). National Planning Framework 4 Revised Draft. Available at <https://www.gov.scot/publications/national-planning-framework-4-revised-draft/> [accessed 05.11.2024].

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

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

### 1.1.7 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' 2009<sup>7</sup>. The guidance relating to the implementation of the policy was revised and updated in 2019<sup>8</sup>.

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.

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

<sup>8</sup> 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 05.11.2024].

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.

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.

### 1.1.8 Forestry and Woodland Strategy for Glasgow City Region 2020

The main objective of the Forest and Woodland Strategy<sup>9</sup> is to guide woodland expansion and management of the woodlands within the Glasgow City Region area. To support this it specifically aims to:

- inform the design and management of woodland within the area;
- achieve ecosystem restoration; and
- inform woodland planting to secure positive effects for biodiversity and environmental net gain.

Chapter 9 of the strategy highlights that in areas of plateau moorland, where the site is located, there is an opportunity for peatland restoration in the areas with lowest forestry productivity, when restructuring.

The Forest and Woodland Strategy is supported by the South Lanarkshire Biodiversity Strategy 2024-2030<sup>10</sup>, which has a clear vision to restore and regenerate biodiversity by 2045. Priority actions have been put in place to achieve this vision:

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<sup>9</sup> Clydeplan (2020): Forestry and Woodland Strategy for Glasgow City Region 2020. Available at [https://glasgowcityregion.co.uk/wp-content/uploads/2021/04/Clydeplan\\_Forestry\\_and\\_Woodland\\_Strategy\\_2020\\_NEW\\_COVER.pdf](https://glasgowcityregion.co.uk/wp-content/uploads/2021/04/Clydeplan_Forestry_and_Woodland_Strategy_2020_NEW_COVER.pdf) [accessed 05.11.2024].

<sup>10</sup> South Lanarkshire Council (2024). South Lanarkshire Biodiversity Strategy 2024-2030. Available at <https://southlanarkshire.cmis.uk.com/southlanarkshire/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=TzWGYkHDGVkuxVWT5sKek0KNZ%2bSMEaktoFmQqp2F7onn3hbZTGh0Ag%3d%3d&rUzwRPf%2bZ3zd4E7Ikn8Lyw%3d%3d=pwRE6AGJFLDNlh225F5QMaQWctPHwdhUfCZ%2fLUQzgA2uL5jNRG4jdQ%3d%3d&mCTIbCubSFfXsDGW9IXnl g%3d%3d=hFfIUdN3100%3d&kCx1AnS9%2fpWZQ40DXFvdEw%3d%3d=hFfIUdN3100%3d&uJovDxwdjMPoYv%2bAjvYt yA%3d%3d=ctNJfF55vVA%3d&FgPIIEJYlotS%2bYGoBi5oIA%3d%3d=NHdURQburHA%3d&d9Qjj0ag1Pd993jjsyOJqFvmy B7XOCSQK=ctNJfF55vVA%3d&WGewmoAfeNR9xqBux0r1Q8Za60lavYmz=ctNJfF55vVA%3d&WGewmoAfeNQ16B2MH uCpMRKZMwaG1PaO=ctNJfF55vVA%3d> [accessed 05.11.2024].

- accelerate restoration and regeneration;
- expand and connect protected areas and improve their condition;
- nature-friendly farming, fishing and forestry;
- recover and protect vulnerable and important species; and
- generate the investment needed to support nature recovery.

## 1.2 FORESTRY STUDY AREA

The Forestry Study Area (FSA), as shown on **Figure 3.1.1**, extends to approximately 214.4 ha and comprises of privately owned and managed woodlands.

The forests contain a limited range of woodland types. The crops are comprised largely of commercial conifers with small areas of mixed broadleaves and open ground. The woodlands have been planted on areas of deep peat and as a result growth rates have been poor. Further information on the composition of the woodlands in the FSA is provided in the baseline description below.

### 1.2.1 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 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)<sup>11</sup> and the UK 'Woodland Assurance Standard 4th Edition' (UKWAS)<sup>12</sup>, 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

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

<sup>12</sup> UKWAS (2018). The UK Woodland Assurance Standard Fourth Edition, UKWAS, Edinburgh.

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.

## **1.2.2 Development of a Wind Farm Forest Plan**

### **1.2.2.1 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 undertaken in 2024, and further desk-based assessment as necessary.

Details of wind turbine locations, new tracks, 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.

Felling for the proposed wind turbines and most other associated infrastructure will be undertaken in a phased approach as set out below. In these areas, no replanting will take place due to forest to bog restoration proposals. A 10m buffer has been applied around each 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

Felling required for a Proposed Development can be divided into three categories as set out in Figure 3.1.4.

- firstly, that required in advance of the construction phase of the Proposed Development, which for the purposes of this assessment, has been anticipated as forestry felling commencing approximately 12 months ahead of construction commencing;
- 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; and

- felling required for habitat restoration purposes.

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 and in a few small areas of higher yielding mature crops, clear felling of entire coupes back to either a wind farm edge or management boundaries. Felling has also been identified across the commercial crop for habitat restoration purposes with a view to restore areas of poor yielding crops to blanket bog.

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.

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.

#### **1.2.2.2 Wind Farm Species Restocking Plan**

The Wind Farm Species Restocking Plan (**Figure 3.1.5**) shows which woodlands would be restocked and with which species. In principle the majority of the areas to be felled for the Proposed Development would normally be restocked except for the areas detailed below:

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

It has been assumed that, where possible, some temporary infrastructure would be re-instated and available for restoration post construction. To ensure that the forestry establishes successfully, where planting is proposed, 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.

## 1.3 BASELINE

### 1.3.1 Baseline Conditions

The study area consists of conifer forestry located approximately 7km south west of Strathaven in Lanarkshire.

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)<sup>13</sup>, or identified in the Ancient Woodland Inventory Scotland (Scottish Natural Heritage, 2010)<sup>14</sup> as Long Established or Plantation Origin.

Ecology surveys have identified that the woodlands were originally planted on deep peat. This has affected the growth rates across the forest with areas of checked crop and low density across the site.

#### 1.3.1.1 Baseline Planting Year / Age Class Structure

Many woodlands established in the mid to late 1990'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 have not yet entered the felling and restocking phase and as a result the structural diversity of the woodlands is poor. Their age class is detailed below in **Table 3.1.1 'Baseline Age Class Composition'**.

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 3.1.1: Baseline Age Class Composition**

Age	Area (ha)	Area (%)
n/a	48.8	22.7
41-50 years old	165.7	77.3
<b>Total</b>	<b>214.4</b>	<b>100.0</b>

#### 1.3.1.2 Species composition

The current baseline species composition of the woodlands within the FSA is shown in **Figure 3.1.2** and illustrated in **Table 3.1.2** below.

<sup>13</sup> 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: 05.11.2024].

<sup>14</sup> Scottish Natural Heritage. (2010) Ancient Woodland Inventory Scotland [Online] Available from - <https://map.environment.gov.scot/sewebmap/> [Accessed:05.11.2024].

**Table 3.1.2: Baseline Species Composition**

Species	Area (ha)	Area (%)
Sitka spruce	160.7	74.9
Other conifer	0.1	0.0
Native broadleaves	0.7	0.3
Open ground	49.7	23.2
Other land	3.3	1.5
<b>Total</b>	<b>214.4</b>	<b>100.0</b>

The main species are commercial conifers, principally Sitka spruce, which in pure or mixed stands, accounts for approximately 74.9% of the total FSA. Other conifers account for 0% of the FSA and broadleaf woodland 0.3%. Open ground and other land, accounts for approximately 23.2%.

The species composition reflects the practice and guidance which prevailed at the time the woodlands were established. If restructuring as part of a long-term forest plan, there would be an increased proportion of broadleaves and other conifers introduced into the woodland composition.

#### **1.3.1.3 Baseline Felling Plan**

There is currently no baseline felling plan in place.

#### **1.3.1.4 Baseline Restocking Species Composition**

There is currently no baseline restocking plan in place.

### **1.4 PROPOSED DEVELOPMENT FOREST PLAN**

#### **1.4.1 Introduction**

As there is no current baseline forest plan, the effect of the Proposed Development on the structure of the woodlands within the FSA has been compared against the existing Baseline Species Plan.

##### **1.4.1.1 Proposed Development Felling Plan**

The Proposed Development Felling Plan is shown across two figures. **Figure 3.1.3** which identifies the felling required for construction of the Proposed Development and the advanced felling as a result of the Proposed Development, and **Figure 3.1.4** which identifies the phases for the habitat restoration felling. These data are summarised below in Tables 3.1.3 and 3.1.4.

**Table 3.1.3: Felling Required for Construction**

Fell Phase	Area (ha)	Area (%)
No felling - open ground	53.0	24.7
Infrastructure felling	12.9	6.0
Advanced felling	42.7	19.9
Habitat Restoration felling	74.6	34.8
-Woodland Retention	31.2	14.6
<b>Total</b>	<b>214.4</b>	<b>100.0</b>

Felling required for construction of the Proposed Development can be broadly divided into three separate categories;

- Infrastructure Felling - felling required for the Proposed Development footprint;
- Advanced Felling - felling required as a result of the Infrastructure Felling, i.e. to consolidate coupe edges or prevent future windblow; and
- Habitat Restoration Felling - Felling required for proposed habitat restoration measures onsite.

**Table 3.1.4: Proposed Development Phase Felling**

Fell Phase	Area (ha)	Area (%)
No felling - open ground	53.0	24.7
Phase 1: Pre-Construction	55.6	25.9
Phase 2: Post Construction	74.6	34.8
Woodland Retention	31.2	14.6
<b>Total</b>	<b>214.4</b>	<b>100.0</b>

The total felling required to accommodate construction of the Proposed Development, including infrastructure and advanced felling, totals 55.6 ha. An additional 74.6ha have been identified for felling as part of a habitat restoration plan.

The felling required for the development has been split across two felling phases as is standard practice within the forestry industry. In this instance, the infrastructure and advanced felling will take place pre-construction and the habitat restoration felling will take place post-construction.

#### **1.4.1.2 Proposed Development Restocking Plan**

The Baseline Species 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 3.1.5** and summarised in **Table 3.1.5**. Wind farm open ground refers to the permanent loss of crop to permanent infrastructure only of the Proposed Development.

**Table 3.1.5: Proposed Development Restocking Plan Species Composition**

Species	Area (ha)	Area (%)
Sitka spruce	31.0	14.5
Other conifer	0.1	0.0
Native broadleaves	9.3	4.4
Mixed broadleaves/Open ground	9.9	4.6
Woodland Fringe	5.0	2.3
Open ground	44.0	20.5
Other land	3.3	1.5
Forest to Bog	99.0	46.2
Wind farm open ground	12.9	6.0
<b>Total</b>	<b>214.4</b>	<b>100.0</b>

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 3.1.6**. Due to there being no baseline restocking species data, a comparison has been made between the baseline species and the Proposed Development restock species.

Due to data collected during ecology surveys and highlighted in **Chapter 6: Ecology**, 99ha of woodland have been identified as suitable for Forest to Bog restoration. This will entail the removal of the trees within these areas and the restoration of the land to blanket bog through techniques such as ditch blocking and peat spreading. Full details of the works to be carried out can be found in **Technical Appendix 6.6: Outline Biodiversity Enhancement and Restoration Plan**.

The perimeter of the Forest to Bog area where it borders onto existing commercial forestry will see the creation of a Woodland Fringe. This area will consist of a low density mixed woodland matrix with higher density of trees towards the existing forestry with the density decreasing towards the open areas of bog restoration. This provides a feathered edge to the woodland which provides a transition habitat for a variety of different species.

**Table 3.1.6: Comparison of Restocking Plans**

Species	Baseline Species	Proposed Development Restock Species	Variance	Variance
	Area (ha)	Area (ha)	Area (ha)	Area (%)
Sitka spruce	160.7	31.0	-129.7	-60.5
Other conifer	0.1	0.1	0.0	0.0
Native broadleaves	0.7	9.3	8.7	4.1
Mixed broadleaves/Open ground	0.0	9.9	9.9	4.6
Woodland fringe	0.0	5.0	5.0	2.3
Open ground	49.7	44.0	-5.8	-2.7
Other land	3.3	3.3	0.0	0.0
Forest to Bog	0.0	99.0	99.0	46.2
Wind farm open ground	0.0	12.9	12.9	6.0
<b>Total</b>	<b>214.4</b>	<b>214.4</b>	<b>0.0</b>	<b>0.0</b>

The change in area of stocked woodland in the forests due to the Proposed Development is shown in Table 3.1.7 below.

**Table 3.1.7: Stocked Woodland Area Comparison**

Woodland Type	Baseline Species	Proposed Development Restock Species	Variance	Variance
	Area (ha)	Area (ha)	Area (ha)	Area (%)
Stocked woodland	161.4	55.3	-106.1	-49.5
Unstocked woodland	53.0	159.1	106.1	49.5
<b>Total</b>	<b>214.4</b>	<b>214.4</b>	<b>0.0</b>	<b>0.0</b>

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 129.7ha;
- there would be an increase in the area of broadleaf woodland of 19.2ha;
- there would be the creation of 5 ha of woodland fringe;
- there would be no change in the area mixed conifer woodland;
- wind farm permanent open ground would total 12.9ha;

- habitat restoration, in the form of forest to bog restoration, would total 99ha; and
- the net reduction in stocked woodland area within the FSA would be 106.1ha equivalent to 49.5% of the FSA.

#### 1.4.2 Requirement for Compensatory Planting

Section 1.1.7 sets out how the Scottish Governments Policy on Control of Woodland Removal should be applied in setting out requirements for compensatory planting. It lists criteria where woodland removal, without a requirement for compensatory planting, is most likely to be appropriate. This includes criteria which are applicable to the restoration proposals set out in **Technical Appendix 6.6: Outline BERP**, specifically ‘where it would contribute significantly to enhancing priority habitats and their connectivity’. The Proposed Development is set within a blanket bog habitat which has undergone significant modification due to commercial forest planting. Planting of trees on peat is known to degrade the blanket bog habitat, can reduce biodiversity, and cause release of greenhouse gases when tree growth is poor and peat soils are heavily drained and disturbed. Blanket bog restoration proposals for the site as set out in the Outline BERP will connect two areas of blanket bog to the east and the south west of the site that are currently separated by the plantation, creating a larger connected blanket bog unit.

In this case the wind farm development brings with it a forest to bog proposal (119ha) which will bring significant positive benefits in terms of enhancements to priority habitats and their connectivity. Additionally, the outline BERP includes proposals for 18.6ha of native tree planting and 5ha of feathered forest edge areas.

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 106.1ha. The removal of poorly growing commercial conifers as part of the habitat restoration and enhancement of 119ha of the site from forest to blanket bog as set out in **Technical Appendix 6.6: Outline BERP**, provides ecological and environmental enhancements to priority habitats and would connect two areas of blanket bog to the east and the south- west of the site that are currently separated by the plantation, creating a larger connected blanket bog unit. This area therefore meets the criteria in Annex B of the guidance for the Control of Woodland Removal Policy for a change of land use without compensatory planting. It is therefore proposed to remove the 99ha of Forest to Bog from the total area of woodland loss. The total area of compensatory planting will therefore be 12.9ha.

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.

#### 1.4.3 Forestry Waste

The Scottish Environment Protection Agency (SEPA) guidance document WST-G-027, 'Management of Forestry Waste' (SEPA, 2017)<sup>15</sup> highlights that all waste producers have a statutory duty to adopt the waste hierarchy as per the Waste (Scotland) Regulations 2012 (the

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<sup>15</sup> SEPA (2017): SEPA Guidance Notes WST-G-027 “Management of Forestry Waste”.  
[https://www.sepa.org.uk/media/28957/forestry\\_waste\\_guidance\\_note.pdf](https://www.sepa.org.uk/media/28957/forestry_waste_guidance_note.pdf) [accessed 05.11.2024].

Scottish Government, 2012)<sup>16</sup>, which amended Section 34 of the Environmental Protection Act (EPA) 1990 (duty of care) (UK Government, 1990)<sup>17</sup>. 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)<sup>18</sup>, 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)<sup>19</sup>.

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 onsite 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 onsite or offsite 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 onsite or offsite 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 or habitat restoration. In the areas where native planting is proposed, brash would be left in situ to provide nutrients for the replanting 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.

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<sup>16</sup> The Scottish Government (2012): The Waste (Scotland) Regulations 2012 No. 148 available at <https://www.legislation.gov.uk/sdsi/2012/9780111016657> [accessed 05.11.2024].

<sup>17</sup> 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 05.11.2024].

<sup>18</sup> EU Waste Legislation Waste Framework Directive <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098> [accessed 05.11.2024].

<sup>19</sup> 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\\_guidance-\\_april\\_2014.pdf](https://www.sepa.org.uk/media/143799/use_of_trees_cleared_to_facilitate_development_on_afforested_land_sepa_snh_fcs_guidance-_april_2014.pdf) [accessed 05.11.2024].

In areas of lower yielding crops, into which the Proposed Development infrastructure would be keyed, 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 Final Construction Environmental Management Plan (CEMP) following receipt of planning consent and prior to commencement of construction.

#### **1.4.4 Forestry Management Practices**

##### **1.4.4.1 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 onsite 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)<sup>20</sup> except where they would be removed for excavated tracks, wind turbine foundations and other infrastructure requiring excavation. Such material would be treated as described above.

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<sup>20</sup> 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](https://www.forestry.gov.uk/pdf/FCRN009.pdf/$FILE/FCRN009.pdf) [accessed 05.11.2024].

#### **1.4.4.2 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 2,500 trees per ha.

Restocking within the broadleaf woodland areas would be carried out to the same specification with the following changes:

- a lower planting density of 1,600 trees per ha; and
- the principal species would be mixed native broadleaves including, for example, downy and silver birch with small components of other species as appropriate to site such as oak, rowan, hazel, gean, grey willow, goat willow, alder and woody shrubs.

#### **1.4.4.3 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;
- fertiliser would be applied as necessary to ensure satisfactory establishment and growth; and
- other works as reasonably required ensuring satisfactory establishment of the woodlands.

#### **1.4.5 Standards and Guidelines**

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 (Forest Research, 2023);
- Forest Industry Safety Accord Guides (or equivalent) (FISA, 2014)<sup>21</sup>; and

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<sup>21</sup> Forest Industry Safety Accord (2014). FISA Safety Guides (various). Edinburgh.

- current relevant legislation including, but not limited to, Health and Safety at Work Act 1974 (UK Government, 2014)<sup>22</sup>.

## 1.5 CONCLUSION

The total study area extends to 214.4ha and is comprised of privately owned woodlands.

Felling would be advanced on 55.6ha for construction of the Proposed Development with a further 74.6ha requiring felled for habitat restoration.

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 129.7ha and 99ha of woodland has been identified as suitable for restoration to blanket bog.

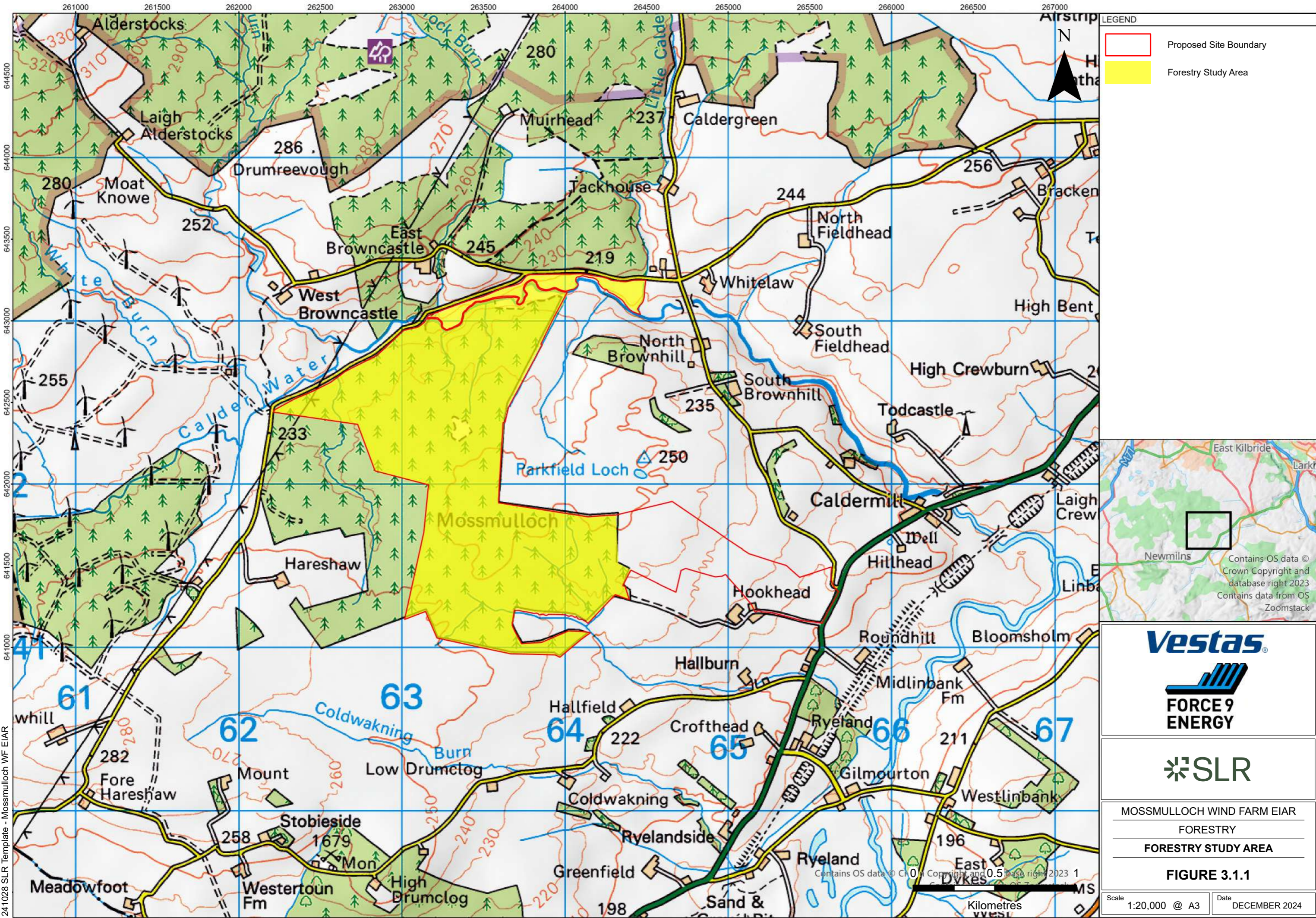
The area of unplanted ground would increase and, as a result, there would be a net loss of woodland area of 106.1ha.

Of this 106.1ha, 99ha is Forest to Bog restoration which does not require compensatory planting. Therefore, the compensatory planting requirement is 12.9ha.

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.

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<sup>22</sup> UK Government (1974): Health and Safety at Work etc. Act 1974 available at <http://www.legislation.gov.uk/ukpga/1974/37/contents> +[accessed 05.11.2024].



MOSSMULLOCH WIND FARM EIAR  
FORESTRY  
FORESTRY STUDY AREA

**FIGURE 3.1.1**

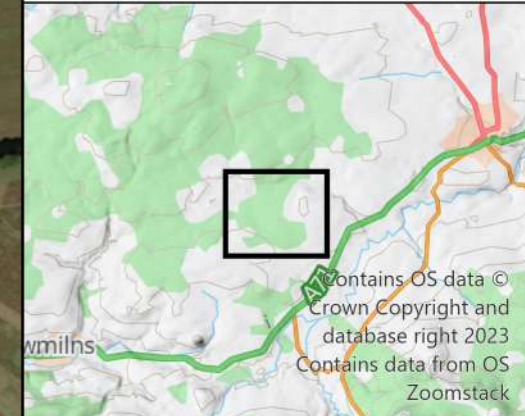
Scale 1:20,000 @ A3 Date DECEMBER 2024

2411028 SLR Template - Mossmulloch WF EIAR



**LEGEND**

- Proposed Site Boundary
- Sitka spruce
- Other conifer
- Native broadleaves
- Open ground
- Other land



**Vestas**



**FORCE 9 ENERGY**



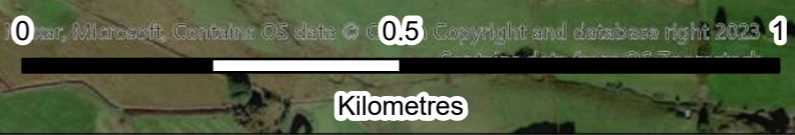
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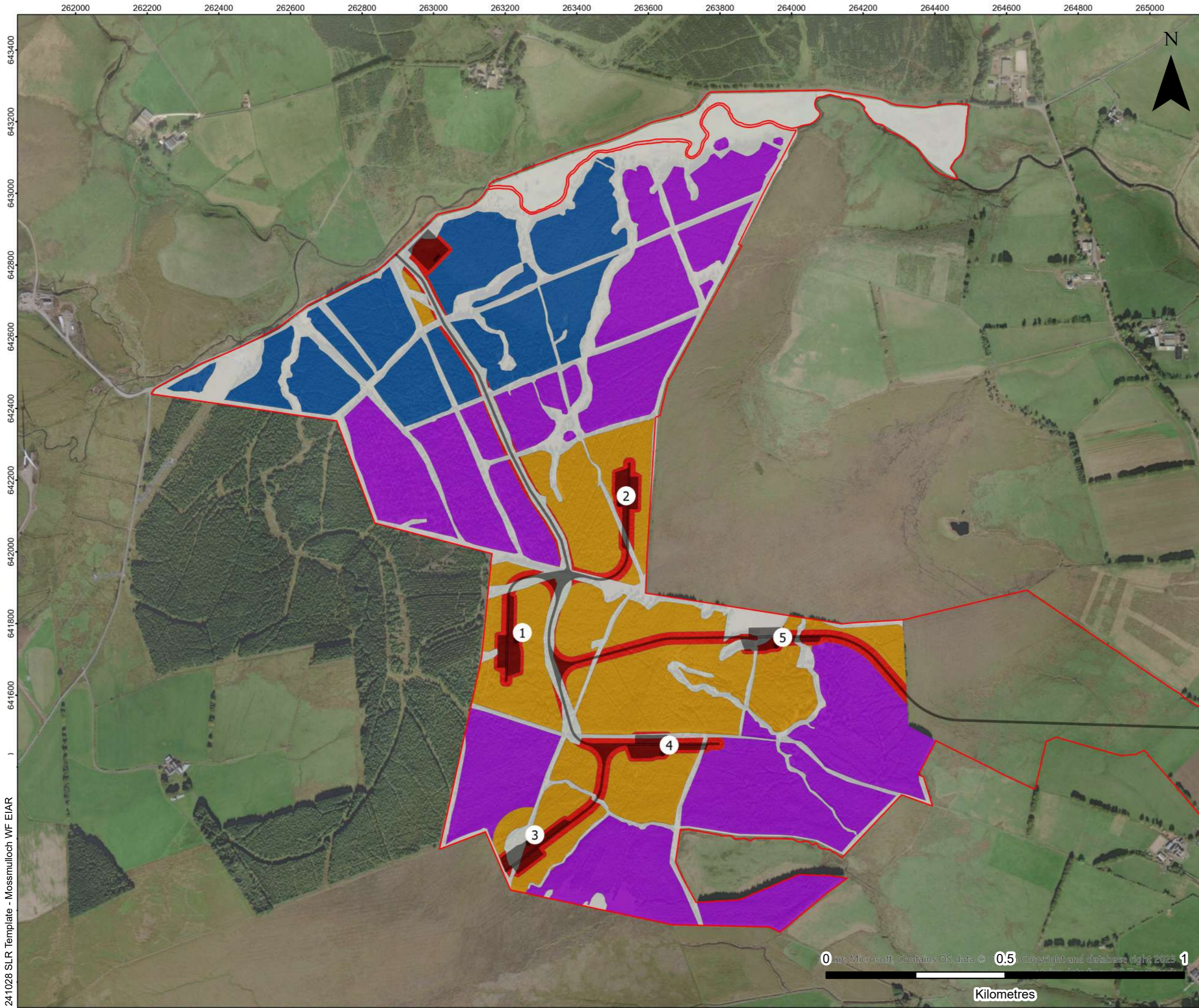
MOSSMULLOCH WIND FARM EIAR  
FORESTRY  
**BASELINE SPECIES COMPOSITION**

**FIGURE 3.1.2**

Scale 1:10,000 @ A3      Date DECEMBER 2024

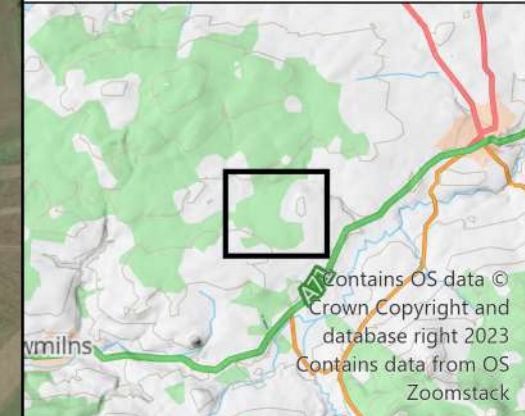


2411028 SLR Template - Mossmulloch WF EIAR



**LEGEND**

- Proposed Site Boundary
- Wind farm Infrastructure
- No Felling - open ground
- Infrastructure Felling
- Advanced Felling
- Habitat Restoration Felling
- Woodland retention



**Vestas**



**FORCE 9 ENERGY**



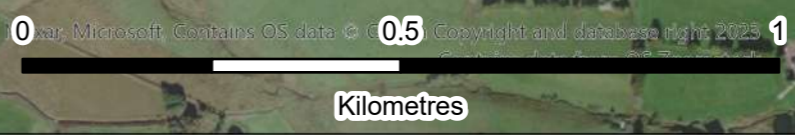
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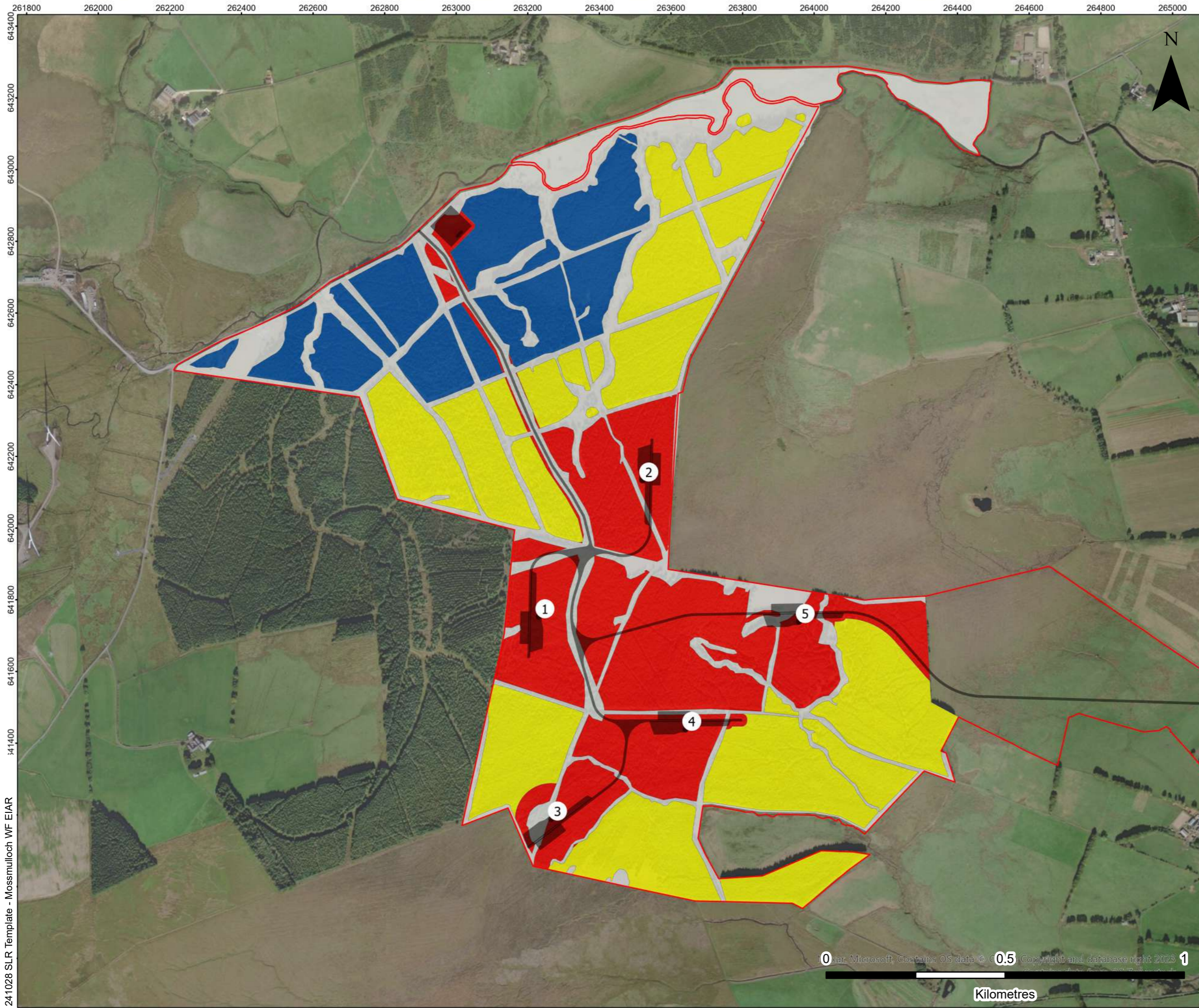
**MOSSMULLOCH WIND FARM EIAR  
FORESTRY  
WIND FARM CONSTRUCTION FELLING**

**FIGURE 3.1.3**

Scale 1:10,000 @ A3      Date DECEMBER 2024

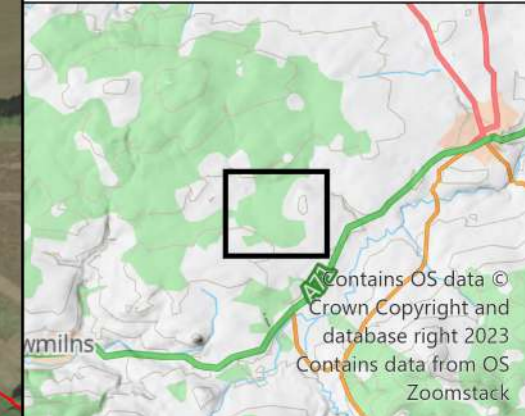


2411028 SLR Template - Mossmulloch WF EIAR



**LEGEND**

- Proposed Site Boundary
- Wind farm Infrastructure
- No Felling - open ground
- Development Felling Phase 1: Pre construction
- Development Felling Phase 2: Post construction
- Woodland Retention



**Vestas**



**FORCE 9 ENERGY**



**SLR**

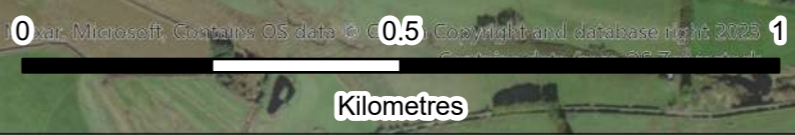


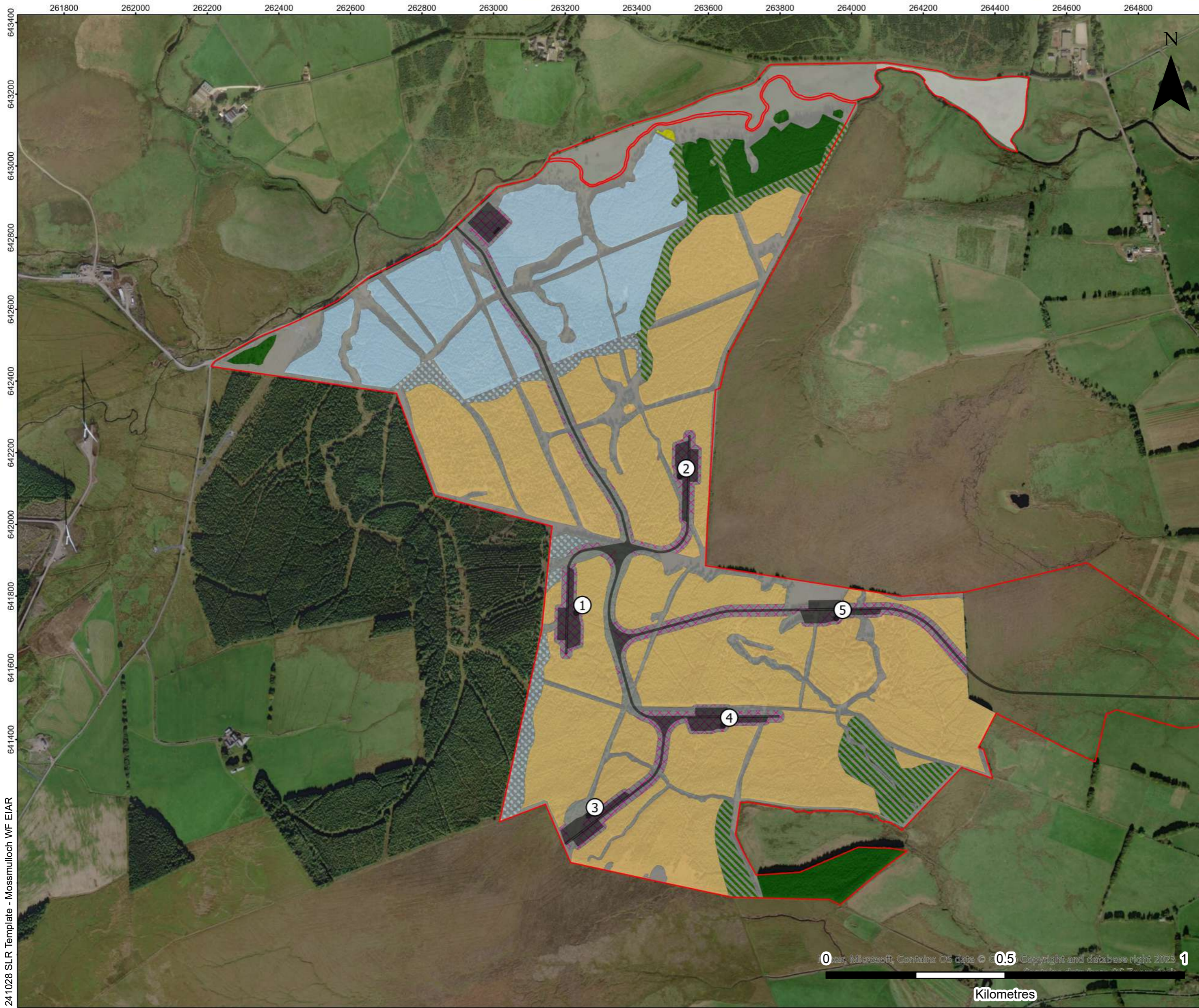
MOSSMULLOCH WIND FARM EIAR  
FORESTRY  
WIND FARM PHASED FELLING

**FIGURE 3.1.4**

Scale 1:10,000 @ A3 Date DECEMBER 2024

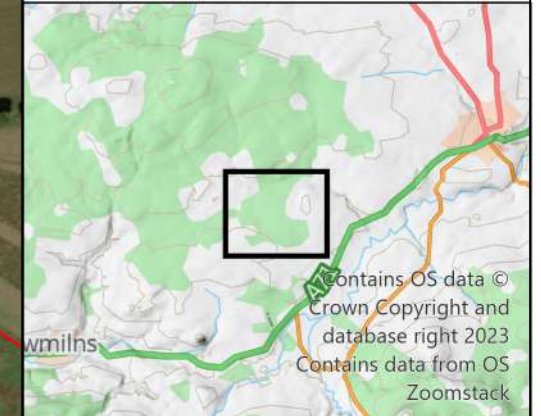
2411028 SLR Template - Mossmulloch WF EIAR





**LEGEND**

	Proposed Site Boundary
	Wind farm Infrastructure
	Sitka spruce
	Other conifer
	Native broadleaves
	Native broadleaves/Open ground
	Woodland fringe
	Open ground
	Other land
	Forest to Bog
	Wind farm open ground
	Hardstanding_DF_Expor_Buffer
	TrackPolygon_DF_Expor_Buffer

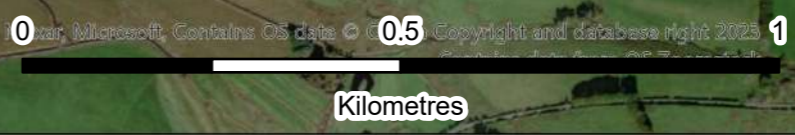


MOSSMULLOCH WIND FARM EIAR  
 FORESTRY  
 WIND FARM RESTOCKING  
 SPECIES COMPOSITION

**FIGURE 3.1.5**

Scale 1:10,000 @ A3 Date DECEMBER 2024

2411028 SLR Template - Mossmulloch WF EIAR





# Technical Appendix 3.2: Outline Construction Environmental Management Plan

**Mossmulloch Wind Farm EIA Report**

**Wind Power North 3 Limited**

Prepared by:

**SLR Consulting Limited**

Office 6.01, Clockwise Offices, Savoy Tower, 77  
Renfrew Street, Glasgow, G2 3BZ

SLR Project No.: 405.065072.00001

Client Reference No: 06026

3 December 2024

Revision: Final



## Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1 <sup>st</sup> Draft	29 November 2024	JH/TM	Darren Keogh	L Doherty
Final	3 December 2024	JH/TM	Darren Keogh	L Doherty

## Basis of Report

This document has been prepared by SLR Consulting Limited (SLR) with reasonable skill, care and diligence, and taking account of the timescales and resources devoted to it by agreement with Wind Power North 3 Limited (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

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## Acronyms and Abbreviations

CAR Regulations	The Water Environment (Controlled Activities) (Scotland) Regulations 2011 as amended
CDM	Construction (Design and Management)
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CMS	Construction method statement
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EIRP	Environmental Incident Response Plan
ECoW	Environmental Clerk of Works
EPPP	Emergency Pollution Prevention Plan
EPS	European Protected Species
EQS	Environmental Quality Standards
GPP	Guidance for Pollution Prevention
GWDTE	Groundwater Dependent Terrestrial Ecosystems
HGV	Heavy Goods Vehicle
NGR	National Grid Reference
NatureScot	Scottish Natural Heritage
PPE	Personal Protective Equipment
PPIP	Pollution Prevention and Incident Plan
PWS	Private Water Supply
QA	Quality Assurance
RAMS	Risk Assessment Method Statements
SEPA	Scottish Environment Protection Agency
SLC	South Lanarkshire Council
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System
SWMP	Site Waste Management Plan
TCC	Temporary Construction Compound
WMP	Waste Management Plan
WQMP	Water Quality Monitoring Plan
EQS	Environmental Quality Standards



## 1.0 Introduction

### 1.1 Background

- 1.1. This document presents an outline Construction Environmental Management Plan (CEMP) for Mossmulloch Wind Farm which sets out the principles and procedures for environmental management during construction of the wind farm (hereafter referred to as the Proposed Development).
- 1.2. Should consent be granted, this outline CEMP will be revised and updated to a CEMP, the content of which will be agreed with South Lanarkshire Council (SLC) through consultation and enforced via a planning condition. The CEMP will be used by the Contractor to ensure appropriate environmental management is implemented throughout the construction phase of the Proposed Development.
- 1.3. The outline CEMP has been prepared to take account of Good Practice during Windfarm Construction (NatureScot, 2019) [1], Guidelines for Onshore and Offshore Windfarms (RenewableUK, 2010) and Research and guidance on restoration and decommissioning of onshore windfarms (NatureScot, 2013) [2] and provides the construction activities methodology pertinent to the Environmental Impact Assessment (EIA).
- 1.4. The document should be read in conjunction with **Chapter 2: site Description and Design Evolution** and **Chapter 3: Description of the Development**, of the EIA Report and the required mitigation measures set out in **Chapter 13: Schedule of Commitments**.
- 1.5. The CEMP is a fluid document that will evolve during the different phases of the project. As such it will be subject to constant review in order to:
  - address any conditions required in the consent;
  - ensure it reflects best practice at the time of construction;
  - ensure it incorporates the findings of pre-construction site investigations;
  - address changes resulting from the construction methods used by the contractor(s); and
  - address unforeseen conditions encountered during construction.

### 1.2 Aims and Objectives

- 1.6. The CEMP will be maintained and updated on site and will be augmented by associated design specifications and Construction (Design and Management) (CDM) 2015 Regulations documentation such as the Principal Contractor's Construction Phase Plan.
- 1.7. Where appropriate, the CEMP, or plans within the CEMP, will form part of the site induction which will be mandatory for all employees, contractors and visitors attending the site. All employees and contractors will need to familiarise themselves with the relevant contents of the CEMP and supporting appendices as directed.
- 1.8. Management practices and mitigation measures have been developed for those aspects of the construction works that could potentially affect the environment. These have been identified through undertaking the EIA and are reported in **Chapters 5 to 12** of the EIA Report. A Schedule of Commitments and Mitigation is presented as **Chapter 13** of the EIA Report.



1.9. The objectives of the CEMP are to:

- outline the proposed mechanisms for ensuring the delivery of environmental measures to avoid or reduce environmental effects identified;
- ensure procedures are in place so that there is a prompt response to effects requiring remediation, including reporting and any additional mitigation measures required to prevent a recurrence;
- provide an outline of the content that will be supplied in the construction method statements and strategies that will be prepared in order to secure mitigation measures in relation to different design aspects of the Proposed Development;
- ensure compliance with legislation and identify where it will be necessary to obtain authorisation from relevant statutory bodies;
- ensure that appropriate Proposed Development monitoring and reporting will be in place;
- provide a framework for reporting, compliance auditing and inspection to ensure environmental aims will be met; and
- set out the Project Owner's expectations to guide contractors on their requirements with regards to environmental commitments and environmental management.

### 1.3 Site Setting

- 1.10. The Proposed Development is located on the eastern edge of Whitelee Forest approximately 7km to the south west of Strathaven, in South Lanarkshire. The site is centred on the National Grid Reference (NGR) 263443 642044 and covers an area of approximately 260 hectares, consisting of a mixture of commercial plantation forestry and rough grazing.
- 1.11. Ground elevations generally decrease radially from a high point within the centre of the site. Elevations within the site range from approximately 250m Above Ordnance Datum (AOD) within the centre of the site to approximately 210m AOD along the eastern boundary of the site, near the Calder Water and near the proposed site entrance off the A71.
- 1.12. There are three existing wind farms which lie in the vicinity of the Proposed Development. Whitelee Forest Wind Farm is located to the north of the site and comprises 140 turbines with 110m tip height. West Browncastle Wind Farm, comprising 12 turbines with 136.5m tip height is located to the west of the site, and Calder Water Wind Farm, comprising 13 turbines with 147m tip height is located to the west of the site.
- 1.13. The southern extent of the site lies within the catchment of Avon Water, with the northern extent within the catchment of Calder Water. Three watercourses run through the site, Rotten Burn, Calder Water and Hall Burn.
- 1.14. There are no landscape, ecological or cultural heritage designations within the site boundary.

### 1.4 Project Description

- 1.15. The Proposed Development will consist of the following main components:
- five wind turbines (with blade tip heights of up to 200m);
  - turbine foundations (approximately 30m diameter), including piled foundations where required;



- associated crane hardstandings (approximately 80m x 35m) including piled crane hardstandings where peat exceeds 5m, with associated laydown areas;
- up to 4.3km of new access tracks, and 1.6km of upgraded access tracks (0.6km of which may need to be upgraded) with a typical 5m running width and associated drainage. 3.2km of new track is anticipated to be floating track where consistent peat depths of 1-1.5m or greater are identified along with willow topography in the area (below 5%);
- underground cabling along access tracks to connect the turbine locations, and the onsite electrical substation;
- an onsite substation which will accommodate 33 Kilovolt (kV) switchgear to collect electricity from the wind turbines. The substation compound will have a typical area of 80m x 80m and will include a control and metering building;
- access junction to the site via the eastern boundary, approximately 60m south of the Ardochrig Road junction for construction and site traffic;
- four new watercourse crossings and one existing watercourse crossing which may be upgraded;
- a temporary construction compound (50m x 50m); and
- clearance of approximately 130ha of conifer forest in two phases to allow for construction and operation of the infrastructure and for habitat restoration and enhancement measures.



## 2.0 Schedule of Commitments - Mitigation and Implementation

### 2.1 Schedule of Commitments

- 1.16. **Chapter 13: Schedule of Commitments** summarises the various mitigation measures that have been proposed to offset the potential impacts of the Proposed Development.
- 1.17. Alongside each mitigation measure identified, the proposed mechanism by which it will be adopted, implemented or enforced has been provided as well as the period by which the mitigation measure will be undertaken.
- 1.18. These mitigation measures will be required to be implemented prior to and/or during construction of the Proposed Development.

### 2.2 Implementation and Control

- 1.19. Compliance with the CEMP is the key control measure required during construction to ensure mitigation is appropriately addressed. It documents the principles and processes to be followed to implement all relevant agreed environmental mitigation.
- 1.20. The Principal Contractor will be required to prepare a series of method statements in accordance with the Schedule of Commitments. These method statements will detail how the contractor intends to implement the mitigation set out in the CEMP and will be integrated with their detailed Construction Method Statements.
- 1.21. If any significant changes are required to mitigation due to changing environmental sensitivities, results of pre-construction surveys, unforeseen events or for any other reason, these will be discussed and agreed with statutory bodies in advance of any amended works being carried out. The Schedule of Commitments will be revised with any approved changes required resulting from the discussions with the relevant statutory bodies.



## 3.0 Roles and Responsibilities

- 1.22. During construction there will be key responsibilities for the Project Owner, the Principal Contractor and their teams. Establishing roles and responsibilities in relation to construction will be important in order to ensure the successful construction of the Proposed Development, including the implementation of the CEMP. The personnel who will implement, monitor and respond to the CEMP will be the Project Owner, construction team and the Principal Contractor.

### 3.1 Health and Safety

- 1.23. The construction works will be undertaken in accordance with primary health and safety legislation, namely:
- Health and Safety at Work Act 1974 [4]; and
  - Construction (Design and Management) (CDM) Regulations 2015 [5].
- 1.24. The construction works for the Proposed Development will fall under the CDM Regulations. SLR were appointed as Principal Designer for the Proposed Development under the CDM regulations up until the point of submission of the application. The Principal Contractor will provide a Construction Phase Plan (CPP) in accordance with the CDM regulations. This plan will include (but not be limited to) a construction programme, emergency procedures, site layouts and fire plans, method statements and details of the proposed induction programme. This induction programme will include both the Principal Contractor's site-specific rules as well as the Client's requirements and will include instructions to all staff regarding the emergency procedures within the Construction Phase Plan (including pollution prevention, waste, dust and noise management etc.) and relevant procedures.
- 1.25. An induction will be required for all workers (permanent/temporary/ contractor/subcontractor), site visitors, Project owner representatives or other third parties. Inductions will be documented.
- 1.26. Plant operators and construction staff will be inducted by the Principal Contractor regarding spill prevention/mitigation measures and procedures and in the use of relevant mitigation material (e.g. spill kits).
- 1.27. The Principal Contractor will ensure that all staff onsite have appropriate training for the works undertaken and certification for any plant, vehicle or use of specialist equipment such as electrical and hot works.

### 3.2 Principal Contractor

- 1.28. The Principal Contractor, appointed by the Project Owner and led by a Construction Manager, will be required to comply with and regularly review the CEMP throughout the construction period. This includes being aware of and implementing any updates or changes to the CEMP following the identification of new environmental sensitivities or changes to the Proposed Development. These updates will be controlled and implemented by the Principal Contractor as required.
- 1.29. Prior to the appointment of the Principal Contractor, the Project Owner will own the CEMP, and the document will become uncontrolled when printed. Upon appointment, the Principal Contractor and their team (including any sub-contractors) will assume responsibility for ensuring adherence to the principles of the CEMP and their Method Statements.



1.30. The Principal Contractor and their team (including any sub-contractors) will be responsible for:

- undertaking their duties in accordance with CDM 2015;
- liaising with the Project Owner's site Manager;
- completing the construction of the Proposed Development in a manner which complies with all relevant laws, rules and regulations;
- acquiring licenses and permits as necessary for their works;
- ensuring that all method statements in line with the principals set out in the CEMP have been provided;
- planning, managing, monitoring and coordinating all pertinent activities relating to construction;
- liaising with and providing justification to the regulators and consultees such as SEPA and SLC if any significant changes are required from the Schedule of Mitigation;
- developing and implementing an emergency procedure associated with construction related incidents as part of the Construction Phase Plan;
- adhering to the environmental incident response strategy which will be outlined in the Detailed CEMP and ensuring that all personnel (including sub-consultants and sub-contractors) understand and are aware of procedures to be undertaken should an environmental incident occur;
- ensuring that all personnel are made aware of the potential damage to sensitive environmental receptors and procedures required to be implemented to avoid, minimise and mitigate against such damage;
- verifying the competence and resources of all personnel working on the Proposed Development and any sub-consultants and sub-contractors that are engaged on the Proposed Development; and
- implementing the Schedule of Mitigation.

1.31. The Principal Contractor will have the power to stop works at any stage should it be deemed necessary, i.e. if there are risks posed to environmental receptors from construction that could not be mitigated immediately.

### **3.2.1 Environmental Clerk of Works (ECoW)**

1.32. A suitably qualified ECoW will be employed to oversee activity at key points for the duration of the construction and reinstatement periods (at a frequency to be agreed with SLC and NatureScot), to ensure natural heritage interests are safeguarded.:

1.33. The purpose of the ECoW will be to provide environmental advice and monitor compliance, not implement measures. The ECoW will have a number of different tasks and prior to the outset of each key construction phase. They will be required to keep an active register of all issues that arise during the works and report as required to SLC, NatureScot and SEPA.

1.34. In fulfilling their duties, the ECoW will have sufficient powers to:

- oversee construction work and identify where mitigation measures are required;
- authorise temporary stoppage of works if required; and



- review working methods and advise whether alternative or more appropriate working methods require to be adopted.

1.35. The ECoW will undertake the following activities:

- to give toolbox talks to all staff onsite, e.g. an ecological induction, so staff are aware of the ecological sensitivities on the site and the legal implications of not complying with agreed working practices;
- to undertake pre-construction surveys (otter, badger and pine marten) and advise on ecological issues where required; and
- to carry out pre-construction inspections of areas which require reptile mitigation (i.e. supervision during vegetation clearance).

1.36. The ECoW will also undertake additional roles such as assisting with hydrological measures or checking for nesting birds (see **Chapter 7: Ornithology** and **Chapter 12: Geology, Hydrology, Hydrogeology and Peat**).

1.37. All works will be undertaken in accordance with the SEPA guidance documents (Pollution Prevention Guidelines and Guidance for Pollution Prevention) and Prevention of Pollution from Civil Engineering Contracts (SEPA, 2006) [6]. In addition, the appointed contractor will be familiar with and take due regard to the other related guidance documents as listed in Section 13 of this report.

### **3.2.2 Project Owner's site Manager**

1.38. The Project Owner will appoint their own site Manager to supervise the construction of the Proposed Development. The Project Owner's site Manager will have a wide range of duties including but not limited to:

- reviewing construction works to ensure conformance with the specification, monitoring quality and progress and most importantly ensure that health, safety and the environment is given a high priority at all times. The Project Onwres site Manager will effectively be the Project Owner's eyes and ears on the site and will report directly to the Project Owner;
- authority to stop the construction works in the case of a health and safety, environmental or quality issue. This will be applicable where delay will cause additional or prolonged risk or damage;
- visual inspections of working areas to identify possible construction issues from a quality, environmental, programme and safety perspective. Any issues will be raised directly with the Principal Contractor;
- working closely with the ECoW to ensure that ecological and environmental requirements dictated by the CEMP, best practice and the planning conditions are adhered to by the works contractors;
- reviewing construction related documents from all contractors – including method statements and risk assessments and providing comments directly onsite to the Principal Contractor; and
- reporting all environmental or health and safety incidents and near misses to the Construction Manager in a form and timescale required by the Principal Contractor.



### **3.3 All Site Personnel**

- 1.39. All site personnel, including all members of the Project Owner and Principal Contractor's teams, all sub-contractors and sub-consultants will be required to:
- attend all inductions and site specific training including toolbox talks carried out by the Principal Contractor and/or ECoW; and
  - implement control measures throughout the site, as required.

### **3.4 Communication**

- 1.40. Prior to the commencement of construction, the Project Owner will inform SLC prior to any construction starting onsite and communication will be maintained with updates of any incidents or significant changes notified within one week of occurrence. The Project Owner will provide contact details to the SLC of key site personnel prior to the start of the works.
- 1.41. Any resident who has a question regarding the construction of the Proposed Development will be directed to the Project Owner's site Manager. All questions will be logged and responded to within a specified number of days.
- 1.42. Careful monitoring of any complaints received, including recording details of the location of the affected party, time of the disturbance and nature of the issue will assist with managing the works to reduce the likelihood of further incidents.



## 4.0 Phasing

### 4.1 Construction

- 1.43. The construction activities are anticipated to be completed within a period of up to 18 months. Construction will take place between the hours of 07:00 and 19:00 Monday to Friday, and between 07:00 and 13:00 on Saturdays, unless otherwise agreed with the Planning Authority. Activities outside these hours, such as concrete pours, turbine lifting, or abnormal load deliveries, will be scheduled with prior consent. Up to 60 personnel are expected onsite during peak construction periods.
- 1.44. The Principal Contractor will keep local residents informed about the proposed working schedule, including the times and duration of any abnormally noisy activity that may cause concern.
- 1.45. The following phases will be taken into consideration for the construction works:
- Phase 1 – Pre-Construction Forestry Felling
  - Forestry felling to allow turbines and infrastructure construction, to be commenced approximately 1 year prior to construction works commencing
  - Phase 2 – site set-up:
    - construction of site entrance, including junction enhancements;
    - site compound set-up, including installation of welfare facilities;
    - establishment of laydown areas for plant and equipment.
  - Phase 3 – Construction:
    - construction of access tracks;
    - construction of turbine foundations and crane hardstandings;
    - construction of substation, including all civil and electrical works;
    - installation of wind farm cabling;
    - turbine delivery and construction;
  - Phase 4 – Commissioning:
    - wind farm commissioning;
    - turbine and wind farm reliability run;
  - Phase 5 – Demobilisation:
    - take over;
    - snagging;
    - decommissioning of temporary compounds / structures and restoration of the site;
  - Phase 6 – Habitat Restoration Felling
    - Felling to be completed to facilitate forest-to-bog restoration proposals, to be commenced within 2-3 years post-construction



- 1.46. A detailed construction programme will be provided by the Principal Contractor as part of the CEMP and the Construction Phase Plan.

## 4.2 Tree Felling

- 1.47. Tree felling required for the Proposed Development will be undertaken in accordance with the approved Forestry Management Plan and any subsequent updates agreed upon with relevant authorities. The felling activities will align with best practices and Forestry and Land Scotland (FLS) standard procedures to minimize environmental impact and ensure compliance with regulatory requirements.
- 1.48. Felled areas will typically follow a 25m corridor for new access tracks, with stump removal carried out where necessary to facilitate construction. Additionally, a 10m buffer area will be established around crane pad areas.
- 1.49. All felling activities will prioritize safety, environmental protection, and efficient use of resources, including the removal and appropriate management of forestry waste. Replanting or habitat restoration measures will be implemented in line with the project's biodiversity and land-use commitments following the completion of construction activities.
- 1.50. Further information is set out **Technical Appendix 3.1**.

## 4.3 Post Construction Reinstatement

- 1.51. Good practice techniques for vegetation and habitat reinstatement will be adopted and implemented on areas subject to disturbance during construction as soon as practicable.
- 1.52. The following reinstatement works will be considered:
- re-use of turves;
  - re-use of topsoil/peat where appropriate; and
  - reseeding with appropriate species.
- 1.53. Restoration of blanket bog habitats onsite will be achieved through forest-to-bog restoration, removing plantation trees and rewetting the peatland below. Further information is set out in the **Outline BERP (Technical Appendix 6.6)**
- 1.54. Further information on peat management and mitigation is set out in Section 4 of the **Peat Management Plan (Technical Appendix 11.1)**.
- 1.55. For clarity, the following are definitions for the different soil make-up of the natural ground between the surface and rockhead (from top down):
- a) Vegetation: This is typically plant matter that can be removed/stripped above the ground level (i.e. does not include roots/topsoil). This can vary depending on the nature of the vegetation encountered on site.
  - b) Turf/Turves: This is typically a layer of matted earth formed by grass and plant roots. The matted earth layer will normally be 30-50mm thick.
  - c) Topsoil: The upper layer of soil usually containing significantly more organic matter than is found in lower layers. This can vary in depth but is typically 200mm thick. This can be



excavated with the turf and depends on whether the turf is required elsewhere, or the topsoil needs to exclude the turf.

- d) Peat: Peat is a naturally occurring, organic-rich material formed from the partial decomposition of plant matter in waterlogged conditions. Typically dark brown to black in colour, it is spongy and fibrous in texture, often retaining a high moisture content. Peat layers can vary significantly in depth and are commonly found in bogs or wetlands, where anaerobic conditions slow down the decay of vegetation. This material is softer and less stable than mineral soils, requiring specific considerations during excavation or construction activities.
- e) Superficial Soils: This is a generic term used for all material between peat and rockhead. This can vary in depth and content throughout the depth profile at any location.
- f) Weathered Rock: This is a layer that may exist above rockhead that is neither rock nor superficial material but a mixture of both. It can be mostly fractured rockhead as a result of physical and chemical weathering processes. When excavated it may have elements of fractured rock and superficial material as the boundary can be difficult to distinguish. In some cases this can provide suitable engineering material for construction of foundations, embankments, tracks etc.
- g) Rockhead: This is a naturally occurring solid aggregate of minerals which lies beneath the superficial soils.



## 5.0 General Construction Good Practice

### 5.1 Handling of Excavated Materials

- 1.56. The construction of tracks, turbine foundations and crane hardstanding areas as well as the establishment of the construction compound and substation compound will require the stripping and excavation of soil and its reuse or temporary storage. Excavations will generate material comprising peat, soil and rock. Management of soils and peat during the construction phase is discussed in **Technical Appendix 11.1: Peat Management Plan**. Soils and peat will be used for reinstatement works associated with access tracks, cable trenches, turbine foundations, crane hardstandings and the temporary construction area. The upper vegetated turves will be used to dress infrastructure edges and to replace stripped and stored turves.
- 1.57. Excavated material, deemed of acceptable quality, will be used as soon as practicable and as close as possible to the area it was excavated from. However, some temporary storage will be required. Soils in areas taken for temporary use will ideally be stockpiled close to the excavation location.

### 5.2 Materials Storage

- 1.58. Granular, non-organic material required to be stored temporarily will be compacted, to reduce the potential for erosion and transfer of sediment, and stockpiled in designated areas at least 50m from a watercourse. Temporary stockpiles will need to be appropriately sited away from marshy grassland, bog or heath where possible, with the locations agreed in advance with the ECoW.
- 1.59. It should be noted that much of the site is covered in peat and storage of materials on top of peat can lead to the underlying peat being displaced. Although the site is relatively flat, stockpiling of materials on top of peat should only be practised on flat ground, unless assessed for stability by a suitably experienced geotechnical engineer.
- 1.60. Where soils could not be transferred immediately to an appropriate restoration area, short term storage will be required. In this case, the following good practice will apply:
- soil will be stored around the turbine perimeters at a sufficient distance from the cut face to prevent overburden induced failure;
  - local gullies, diffuse drainage lines (or very wet ground) and locally steep slopes will be avoided for storage;
  - stored upper turves (incorporating vegetation) will be reinstated adjacent to similar habitats as advised by the ECoW;
  - monitoring of stockpiles/excavation areas will occur during and following rainfall events; and
  - if the material is stockpiled on a slope, silt fences will be utilised to reduce sediment transport in accordance with CIRA guidance C532 [7]. Additional measures may also be necessary to control flow of water and sediment transport on site in accordance with this guidance.
- 1.61. Material excavated during new and upgraded access track construction will be stored adjacent to the track and compacted in order to limit instability and erosion potential. Peat will not be allowed to dry out, through rewetting and monitored irrigation.



- 1.62. Silt fences will be employed in combination with the measures described in 'CIRA Control of water pollution from construction sites. Guidance for consultants and contractors (C532)' [7] where required to minimise sediment levels in run-off.

## 5.3 The Management and Movement of Concrete

### 5.3.1 Accidental Spillage

- 1.63. Appropriately sized spill kit(s) will be provided and maintained at suitable locations across the active areas of the site. These will contain materials, such as absorbent granules and pads, absorbent booms and collection bags. These are designed to halt the spread of spillages and will be deployed, as necessary, should a spillage occur within the construction site.
- 1.64. In the event of any spillage or pollution of any watercourse the emergency spill procedures as described in the Pollution Prevention and Incident Plan (PPIP) will be implemented immediately (refer to **section 6.1**).
- 1.65. A speed limit of 15mph will apply for vehicles onsite and will be monitored and enforced by the Principal Contractor. Maximum vehicle load capacities will not be exceeded.

### 5.3.2 Vehicle Washing

- 1.66. There will be a wash-out facility within the construction compound consisting of a sump overlain with a geosynthetic membrane. The geosynthetic membrane will filter out the concrete fines leaving water to pass through to the sump. The sump water will either be pumped to a licenced carrier and taken offsite for approved disposal, or it will be discharged to surrounding vegetated surfaces where such discharge meets the requirements of NatureScot and SEPA. No washing of concrete-associated vehicles will be undertaken outside the wash out facility, and the area will be signposted, with all site contractors informed of the locations.

### 5.3.3 Concrete Pouring for Turbine Foundations

- 1.67. To prevent pollution, it is important that all concrete pours are planned and specific procedures will be adopted in accordance with Construction Industry Research and Information Association (CIRIA) C532 Control of water pollution from construction sites: guidance for consultants and contractors [7]. These procedures will include:
- ensuring that all excavations are sufficiently dewatered before concrete pours begin and that dewatering continues while the concrete cures. Construction good practice will be followed to ensure that fresh concrete is isolated from the dewatering system; and
  - ensuring that covers are available for freshly placed concrete to avoid the surface of the concrete washing away during heavy precipitation; and
  - perimeter drains with silt traps are used to prevent any cement/fines washout entering watercourses.
- 1.68. The excavated area will be back-filled with compacted layers of graded material from the original excavation, where this is suitable, and capped with peat or soil. The finished surface around the base of the turbine, will be capped with crushed aggregate providing a walkway to allow for safe personnel access.



## 5.4 Surplus and Waste Material

### 5.4.1 Introduction

- 1.69. Initiated as part of the Defra Red Tape Challenge, aiming to reduce bureaucracy for business, the site Waste Management Plans Regulations 2008 (SWMP) were repealed on 01 December 2013. However, it has been adopted as good practice to produce a site Waste Management Strategy (SWMS) for large scale construction sites and to append planning applications and as such are recommended to be adopted in this project.
- 1.70. The SWMS will be included as part of the final CEMP. This will include appropriate level of detail on how construction waste materials will be managed, including the management and definition of excavated materials.
- 1.71. The Principal Contractor and any other contractors and subcontractors will take all reasonable steps to ensure that all waste from the site is dealt with in accordance with the requirements under the Environmental Protection (Duty of Care) (Scotland) Regulations 2014 (CAR Regs) and that materials will be handled efficiently and waste managed appropriately.
- 1.72. Appropriate waste management, disposal and waste carrier documentation and licences will be obtained (e.g. complete waste transfer notes prior to waste leaving site, ensure all waste carriers have a valid waste carrier's registration certificate, ensure wastes are disposed of at a correctly licensed site, complete notification for hazardous waste to SEPA).
- 1.73. Waste streams will include wastes generated by plant, machinery and construction workers over the period of the works, for example waste oils, sewage, refuse (paper, carton, plastic etc.), wooden pallets, waste batteries, fluorescent tubes etc.

### 5.4.2 Soils and Spoils

- 1.74. It is planned that any materials excavated onsite in the course of the construction works will be stored onsite ideally close to the excavation location and re-used where it is appropriate to do so. As such, offsite disposal of this material is not anticipated but when required will be disposed of appropriately.

### 5.4.3 Hazardous and Other Wastes

- 1.75. Table 5-1 lists some of the waste types that may be generated during the construction works. Although some waste types may be generated in locations other than the construction compounds such waste materials will be stored within the construction compounds only. Waste materials generated outside the construction compounds will be taken to the compounds on a daily basis to be managed thereafter.

**Table 5-1 Common Construction Wastes**

EWC Code	Description
13 01 10*	Used mineral hydraulic oil (non-chlorinated)
13 02 08*	Other waste engine, gear or lube oil
13 02 05*	Waste engine, gear or lube oil (non-chlorinated)
13 02 08*	Other waste engine, gear or lube oil
16 01 07*	Oil filters



EWC Code	Description
20 01 23*	Discarded equipment containing CFCs e.g. waste fridges & freezers
16 06 01*	Lead batteries
16 07 08*	Oily waste from transport and storage tanks
16 10 01*	Hazardous liquid wastes to be treated off-site
20 01 21*	Fluorescent tubes and other mercury-containing waste
20 01 33*	Hazardous batteries and accumulators that are collected separately
15 02 02*	Absorbents, filter materials, wiping cloths, clothing contaminated by dangerous substances
15 01 01	Cardboard or paper packaging
15 01 02	Plastic packaging e.g. toner & ink cartridges, polythene sheeting
15 01 03	Wooden packaging e.g. timber pallets
15 01 04	Metallic packaging e.g. drink cans, paint tins
16 01 03	Tyres
16 01 15	Antifreeze fluids that do not contain dangerous substances e.g. Coolants
16 01 17	Ferrous metal from vehicles e.g. car parts
16 02 14	Non-hazardous waste electricals e.g. washing machines, power tools
16 05 05	Gases in pressure containers i.e. gas cylinders
17 01 01	Concrete
17 02 01	Wood from construction or demolition e.g. timber trusses, supports, frames, doors
17 04 11	Cables that do not contain dangerous substances e.g. electric cabling
20 01 01	Paper & card similar to that from households e.g. office paper, junk mail
20 01 30	Non-hazardous detergent e.g. flushing agent/universal cleaner
20 01 39	Separately collected plastics e.g. plastic containers, bottles
20 03 01	Mixed waste similar to that from households e.g. mixed office, kitchen & general waste
20 03 04	Septic tank sludge

\*Denotes Hazardous Waste, as categorised by the European Waste Catalogue.

- 1.76. Foul water from the onsite facilities at the construction works compound will be removed from site by an appropriately licensed contractor (see also **Section 7.6**).

#### **5.4.4 Regulatory Compliance**

- 1.77. Waste will need to be transferred to a licensed waste management site or site with a waste exemption. The Principal Contractor will need to check that the site is licensed and that the licence permits the site to take the type and quantity of waste involved. Copies of the waste management licence or waste exemption license will need to be held on file.
- 1.78. A 'Waste Transfer Note' must be completed by all parties involved and must be retained for a period of two years. Sub-contractors excavating and hauling waste offsite must complete their own Waste Transfer Notes and copy them to the Principal Contractor. It is not necessary to



have a Waste Transfer Note for each load of waste and a Waste Transfer Note can be issued weekly or monthly as a season ticket.

- 1.79. It will be the responsibility of the Principal Contractor to ensure that other parties involved in the transport, storage and disposal of waste are legally entitled to carry out their duties.

## 5.5 Dust Mitigation

- 1.80. Good practice measures as listed in **Table 5-2** will be adopted during construction to control the generation and dispersion of dust such that significant impacts on neighbouring habitats should not occur. The hierarchy for mitigation will be prevention – suppression – containment.

**Table 5-2: Dust Mitigation Measures**

Task	Mitigation Measures
Excavation and Earthworks	<ul style="list-style-type: none"> <li>- working areas will be stripped as required in order to minimise exposed areas;</li> <li>- during excavation works drop heights will be minimised to control the fall of materials reducing dust escape; and</li> <li>- temporary cover may be provided for earthworks if necessary and completed earthworks and other exposed areas will be covered with topsoil and re-vegetated as soon as it is practical in order to stabilise surfaces.</li> </ul>
Stockpiling of loose materials	<ul style="list-style-type: none"> <li>- ensure that stockpiles exist for the shortest possible time;</li> <li>- material stockpiles will be low mounds without steep sides or sharp changes in shape;</li> <li>- material stockpiles will be located away from the site boundary, sensitive receptors, watercourses and surface drains; and</li> <li>- material stockpiles will be sited to account for the predominant wind direction and the location of sensitive receptors.</li> </ul>
Track works/ traffic movements	<ul style="list-style-type: none"> <li>- water bowsers will be available onsite and utilised for dust suppression where required;</li> <li>- daily visual inspections will be undertaken to assess need for use of water bowsers; and</li> <li>- vehicle loads to be covered.</li> </ul>

## 5.6 Noise Management

- 1.81. **Chapter 9: Noise** of the EIA Report sets out an assessment of the impacts of noise arising from construction and operation of the Proposed Development along with an overview of noise mitigation measures.
- 1.82. The sources of construction noise are temporary and vary both in location and their duration as the different elements of the site are constructed. Construction noise will arise primarily through the operation of large items of plant and equipment such as bulldozers, diesel generators, vibration plates, concrete mixer trucks, rollers etc. Noise also arises due to the temporary increase in construction traffic near the site. The level of noise varies depending on the different elements of the site being constructed.



- 1.83. BS 5228-1:2009 'Noise control on construction and open sites; Part 1 [10] – Noise' is identified as being suitable for the purpose of giving guidance on appropriate methods for minimising noise from construction activities.
- 1.84. For all activities, measures will be taken to reduce noise levels with due regard to practicality and cost as per the concept of 'best practicable means' as defined in. Section 72 of the Control of Pollution Act 1974 [11]

## 5.7 Site Lighting

- 1.85. Temporary site lighting may be occasionally required for specific activities to ensure safe working conditions, during periods of limited natural light but will be carried out within the limits of the permissible working hours. It is intended the type of lighting will be non-intrusive and specifically designed to negate or minimise any effect to local properties and any other environmental considerations.
- 1.86. The use of artificial lighting may be required in order to facilitate the works, such as vehicle and plant headlights; compound lighting; office complex lighting; and localised floodlights/mobile lighting units. There will be fewer requirements for artificial lighting in the summer months when natural lighting will be present during normal working hours. There are no known issues with regards to the limit of lighting levels in this area, but lighting will be provided to meet the required lighting levels for the respective works which are being undertaken, especially where there is plant and machinery involved. Any issues identified with regards to limiting the lighting levels, either the lux values, or the time/duration of the lighting will be taken into consideration as part of the developed construction method statement.
- 1.87. In accordance with embedded mitigation measures set out in **Chapter 6: Ecology**, site lighting will be minimised at night and dark corridors along woodland edges and watercourses will be maintained to reduce impacts on commuting and foraging bats.

## 5.8 Vehicle Storage

- 1.88. Appropriate areas will be provided adjacent to or within the site compound to allow staff and visitor vehicles to be parked. In addition, appropriate provision will be made for the layover of HGV traffic, to ensure that the adjacent road remains clear and available for use at all times. The track design incorporates spurs and crane pads which from time to time could be required to temporarily store vehicles i.e. as waiting areas.



## 6.0 Environmental Incident Prevention Measures

### 6.1 Environmental Incident Response Strategy

- 1.89. The Principal Contractor will be responsible for developing and implementing an Environmental Incident Response Plan (EIRP). The EIRP will provide reference to procedures to be followed in the event of a specific incident. In general, if an environmental incident was to occur, the following will take place immediately:
- mitigation will immediately be implemented to stop or reduce impacts from the incident always ensuring the health and safety of people;
  - if these are ineffective, work in the area will cease immediately;
  - if necessary, monitoring will be undertaken to identify the source of the incident;
  - work will only recommence once it is considered that it will not continue to adversely impact sensitive environmental receptors; and
  - provision of a full report by the Principal Contractor and separately by the ECoW to the Client following an incident occurring.
- 1.90. The Environmental Incident Response Strategy will reflect site-specific conditions/issues. The Principal Contractor will submit the detailed Strategy to the Client for approval prior to any construction works commencing onsite. The Strategy will provide:
- a summary of local environmental sensitivities, e.g. environmentally designated areas, protected species or habitats and high amenity areas;
  - an outline of the construction works and appropriate references to other environmental plans and construction method statements;
  - an inventory of stored materials and emergency response spill kits;
  - details on training requirements, evidence of training of site staff / plant operators in emergency response procedures including inclusion of Environmental Incident and Response training in site inductions and tool box talks; and key staff contacts for environmental management and emergency response;
  - detailed procedures to be taken in the event of an incident or emergency (including procedures for positioning and movement of plant) and identification of relevant personnel who will be responsible for implementing such procedures; and
  - contact telephone numbers for the emergency services and SEPA Pollution Hotline (0800 80 70 60).
- 1.91. A plan of the site will also be provided, detailing:
- all areas of potential pollution sources including the locations of car parks, delivery and fuel / chemical storage areas, oil separator equipment, excavations, and any other high risk areas that could give rise to pollution;
  - the location of potential sensitive environmental receptors, including sensitive habitats or species, surface watercourses, drains or culverts where pollution may travel to; and
  - the location of spill kits and other pollution control or emergency response equipment.
- 1.92. The procedures for responding to a major pollution incident will be a regular topic at onsite tool box talks and management meetings in order to ensure that the incident response plan is



fully understood by all personnel, and that all involved know their role in it. Any lessons learnt from any response to real incidents will be fed back into the plan to ensure that best practice is followed.

## **6.2 Re-Fuelling of Vehicles, Plant and Machinery**

- 1.93. Generally, re-fuelling of mobile plant and machinery will be carried out at a designated location within the site.
- 1.94. Vehicle re-fuelling will take place either at a dedicated impermeable refuelling pad or by mobile double bunded bowsters at their place of work. The refuelling pad will have an impermeable base and bund with a capacity of 110% such that they do not drain directly into the surface water drains. Where practicable, drainage will be passed through oil interceptors prior to discharge. Refuelling will be carried out using an approved mobile fuel bowser with a suitable pump and hose. Absorbent material (spill kits) will be available onsite and will be deployed to contain drips and small spillages.
- 1.95. All other fuels, oils and potential contaminants, as well as waste oils, will be stored in secure, fit for purpose containers within bunded containment as appropriate and in accordance with SEPA guidance. The bunded containment will have a capacity of 110% of the volume to be stored and will have impervious, secured walls and base. Maintenance of mobile plant will take place within the construction compounds only and will comply with SEPA PPG 7 [18] (The safe operation of refuelling facilities, July 2011).
- 1.96. There will be no fuel storage outside the contractor's designated site. Plant will be maintained in good operational order and any fuel/oil leaks recorded for attention. Absorbent pads/granules in the case of an accidental leak/spillage will be available at the construction compound.

## **6.3 Spillage**

- 1.97. Spillage of fuel, oil and chemicals will be minimised by implementation of an Emergency Pollution Prevention Strategy (EPPS) which will be prepared by the Principal Contractor as part of the CPP. In the event of any spillage or pollution of any watercourse the emergency spill procedures as described in the EPPS will be implemented immediately. Procedures developed in the EPPS will be adhered to for storage of fuels and other potentially contaminative materials to minimise the potential for accidental spillage.

## **6.4 Other Storage**

- 1.98. Stone material stockpiles will generally be limited to within work areas. This material will be transported and deposited directly to the point of use from the storage point.
- 1.99. Stripped topsoil/superficial soil will be stockpiled in a suitable location away from the area of movement of heavy vehicles, machinery and equipment, to minimise compaction of soil. Stockpiling of excavated material will be managed such that the potential contamination of down slope water supplies and/or natural drainage systems is mitigated / minimised.
- 1.100. Low mound stockpiles will be formed from excavated material, adjacent to construction areas, away from open drains.
- 1.101. Waste storage and raw material will be at the construction works compound and will be suitably stockpiled in a safe manner that prevents any migration of silts/contamination.



## **6.5 Prevention of Mud and Debris on Public Roads**

- 1.102. Plant and wheel washing facilities and road sweepers will be provided as required to prevent mud and deposits from being transferred from site onto the public roads.
- 1.103. Plant and wheel washing, where provided, will be located within the designated hard standings at least 10m from the nearest watercourse or surface water drain. Runoff from the facilities will be captured within a purpose designed system for recycling and re-use where possible within the site. Settled solids will be regularly removed and disposed of by an appropriately licensed contractor. This facility will be located and designed in consultation with SEPA.

## **6.6 Silt**

- 1.104. Silt laden runoff could be expected from any areas of recently exposed soil or rock and from access tracks in regular use. There will be no discharge or disposal of any material directly into any river, stream or drainage ditch. Further detail on control of silt entrained in surface water runoff will be contained within the Water Management Plan.

## **6.7 Hydrocarbon Contamination**

### **6.7.1 Vehicle Maintenance**

- 1.105. As noted in Section 5, plant and machinery will be regularly maintained to ensure that the potential for fuel or oil leaks/spillages is minimised. All maintenance will be conducted on suitable absorbent spill pads to minimise the potential for groundwater and surface water pollution. All machinery will be equipped with drip pans to contain minor fuel spillage or equipment leakages.

### **6.7.2 Chemical Storage**

- 1.106. All fuels, oils and other chemicals will be stored in secure, fit for purpose containers within bunded containment as appropriate and in accordance with SEPA guidance. The bunded containment will have a capacity of 110% of the volume to be stored and will have impervious, secured walls and base.
- 1.107. The bunded area will be underlain by an impermeable ground membrane layer to reduce the potential pathways for contaminants to enter watercourses and groundwater.
- 1.108. The Principal Contractor will ensure that a Control of Substances Hazardous to Health (COSHH) register is maintained for all storage and use of chemicals during the construction.



## 7.0 Drainage and Surface Water Management

### 7.1 Introduction

- 1.109. Control of water is of great importance during construction to prevent exposed soils eroding and silting up surrounding drainage channels and watercourses. It is essential that the works have little or no impact on the existing hydrology in order to minimise potential impact on ecology and environmental quality of the surrounding area.
- 1.110. The following principles are intended to demonstrate measures that could be used across the site to adequately protect hydrological, and related, resources. Detailed proposals for such measures will be documented prior to construction, and will provide the same or greater protection for the water environment as those described in this document. The measures are proportionate to the risk and, where greater risk is highlighted at specific locations prior to construction, specific measures will be agreed for those locations.
- 1.111. Legislation and Guidance that have informed the drainage and surface water management proposals includes those listed in Section 6.1, as well as:
- GPP 4 Treatment and Management of Wastewater where there is no connection to the public foul sewer [17].

### 7.2 Construction site Licence

- 1.112. In accordance with Controlled Activity Regulations (CAR) [24] prior to any construction at site, a Construction site Licence application will be made to SEPA. The Licence, which is regulated by SEPA, is used to ensure that runoff from a construction site does not cause pollution of the water environment. The Construction site Licence requires the development of pollution prevention measures, which once agreed with SEPA is adhered to onsite.

### 7.3 Site Induction and Training

- 1.113. The Principal Contractor will ensure that all employees and contractors will undergo a site induction to ensure that they are familiar with the site rules prior to any work commencing onsite. In addition, the Principal Contractor will ensure that all operatives and contractors responsible for handling fuel, oil, concrete or cement or other potential pollutants undergo a thorough induction programme with respect to the relevant proposed pollution control measures. The relevant programme will include, as a minimum, the following:
- waste management;
  - emergency response procedures;
  - materials management;
  - habitat and species protection,
  - surface water management;
  - potential sources of pollution and their effects on the environment;
  - requirements of the contract and legislation with respect to pollution;
  - traffic management and routing, including areas where access is not permitted; and
  - training in the use of pollution control equipment.



## 7.4 Site Drainage

- 1.114. During the construction phase of the Proposed Development, measures will be adopted, in order to prevent silt, chemicals and/or other contaminants from being washed into existing watercourses. Discharge into existing watercourses will require CAR authorisation under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) [24]. Areas exposed due to the removal of existing structures and/or vegetation are more susceptible to erosion during heavy rainfall so areas will be reinstated as soon as possible to minimise this effect.
- 1.115. This will include specific guidance in relation to drainage (and control of pollution to the water environment) around the following aspects of site infrastructure:
- access routes;
  - foundations;
  - hardstanding areas and new structures
- 1.116. The appropriate methodologies to cover water control and the means of drainage from all hard surfaces and structures within the site are described in the following sections.

## 7.5 Management of Sediment and Surface Waters

- 1.117. Good practice construction techniques will be adopted for the management of sediment and surface water run-off generated during the construction phase of the Proposed Development. Sustainable Drainage Systems (SuDS) will be used where applicable.
- 1.118. Drainage from the site will include elements of SuDS design. SuDS replicate natural drainage patterns and have a number of benefits:
- SuDS will attenuate run-off, thus reducing peak flow and any flooding issues that might arise downstream; and
  - SuDS will treat run-off, which can reduce sediment and pollutant volumes in run-off before discharging back into the water environment; and
  - SuDS measures, such as lagoons or retention ponds, where appropriate and correctly implemented will produce suitable environments for wildlife.
- 1.119. In addition, a wet weather protocol will be developed and implemented by the Principal Contractor to manage activities during periods of heavy and prolonged precipitation. The protocol will be approved by SLC in consultation with SEPA.
- 1.120. Heavy or prolonged rainfall during construction and operation may lead to sediment transport or vegetation causing blockage to infrastructure drainage channels or any temporary watercourse crossing structures. Regular monitoring and prompt maintenance of these assets will ensure that the drainage system continues to function as designed.

## 7.6 Foul Drainage

- 1.121. During the construction phase, effluent and waste from onsite construction personnel will be captured and stored for offsite disposal by a licensed contractor, as there is no connection to the public foul sewer.



- 1.122. For the permanent control building within the sub-station, any toilets installed will be connected to a septic tank that will be installed during the construction. This septic tank will be emptied and maintained by a licensed contractor.



## 8.0 Water Quality Monitoring and Contingency

### 8.1 Water Quality Monitoring

- 1.123. Water quality monitoring during the construction phase will be undertaken for the surface water catchments that serve the site, to ensure that none of the tributaries of the main channels are carrying pollutants or suspended solids. Monitoring will be carried out at a specified frequency (depending upon the construction phase) on these catchments.
- 1.124. Monitoring will continue throughout the construction phase and immediately post construction. Monitoring will be used to allow a rapid response to any pollution incident as well as assess the impact of good practice or remedial measures. Monitoring frequency will increase during the construction phase if remedial measures to improve water quality are implemented. Water quality monitoring plans will be developed during detailed design (SEPA and SLC, will be consulted on the plan) and will be contained within the final CEMP.
- 1.125. With regard to the protection of the water environment the following risks will be addressed:
- siltation of watercourses;
  - discolouration of raw water;
  - potential pollution from construction traffic due to diesel spillage or similar;
  - alteration of raw water quality resulting from imported track construction material;
  - excavation and earthworks
  - use of large quantities of concrete;
  - site compound and associated drainage/foul drainage and diesel spill issues; and
  - the Principal Contractor will compile a monitoring and maintenance plan for the drainage system and surface water runs which will as a minimum include visual monitoring/inspections.
- 1.126. A Water Quality Monitoring Plan (WQMP) will be developed to form part of the final CEMP, which will be submitted to the appropriate planning authorities and bodies such as SEPA prior to construction and development. The WQMP will be implemented to monitor surface water quality, fish populations and macroinvertebrate community prior to, during and post-construction. A robust baseline of water quality in surface watercourses / drainage channels downstream of construction works will be established prior to construction commencing and used as a benchmark of water quality for the construction phase monitoring.
- 1.127. The purpose of the WQMP is to:
- ensure that the commitments put forward in the EIA Report are fulfilled with regards to identified ground and surface water receptors;
  - provide a specification for monitoring prior to, during and after construction;
  - provide a record of water quality across the site that can be compared to rainfall and site activities;
  - provide reassurance of the effectiveness of pollution prevention measures installed to protect surface watercourses throughout the construction period; and
  - provide data to identify any potential pollution incidents, and to inform a structured approach to manage and control such incidences.



1.128. The WQMP will outline details for the monitoring of surface watercourses down gradient of works areas including watercourse crossings, access tracks, turbine foundations and at control sites (up gradient of works areas), and will include:

- indicative monitoring locations;
- frequency of monitoring prior to, during and after construction;
- parameters for field hydrochemistry testing and laboratory analysis including as a minimum pH, electrical conductivity, suspended solids, dissolved metals, nutrients and hydrocarbons;
- sampling and analysis protocols;
- relevant environmental quality standards (EQS);
- responsibilities for monitoring – it is expected that the ECoW will be responsible for daily monitoring of watercourses particularly around active works areas and watercourse crossings. Further monitoring on a less frequent basis (i.e. monthly) may be done by an external party;
- procedures to be followed in the event of an environmental incident; and
- recording and communicating of results.

1.129. There are no Private Water Supplies (PWS) at risk as a result of the Proposed Development, therefore, no additional mitigation measures have been proposed.

## 8.2 ECoW WQMP Duties

1.130. In addition to the monitoring and analysis, it is proposed that watercourse inspections will be undertaken by the ECoW determined by where construction is taking place.

1.131. Typical inspections will include, but not be limited to:

- regular visual inspection of the sediment control structures and oil interceptors;
- investigation of problem areas (e.g. those causing silty run-off) to try to establish the cause and locate the source;
- management of the Principal Contractor to comply with method statement activities;
- development of a clear line of communication with site staff to address issues promptly;
- prioritisation of issues so that site staff know how to react to incidents; and
- regular hydrological reporting – daily records and monthly reports.

## 8.3 Incident Response

1.132. Drainage networks provide a conduit for rapid transport of silty water and potential contamination from surface spills of fuels / oils, concrete or chemicals. A pollution incident will include any discharge to the drainage network that could potentially cause environmental damage. Examples of pollution incidents include:

- fuel drips or spills during refuelling;
- leaking plant or equipment;
- leaks from fuel or chemical containers;
- contaminated water or sediment / silt entering a watercourse or drainage network;



- windblown dust and waste;
- excess silt deposition in drainage ditches, channels, culverts following heavy rainfall events;
- operational failures of pumps and pipelines; and
- failures of treatment or sediment controls.

1.133. The Principal Contractor will be required to prepare an Environmental Incident Response Strategy which will be provided in the final CEMP and then adopted by the Principal Contractor during the construction phase. This will provide emergency response contacts, reporting procedures, and procedures for dealing with all potential pollution incidents during the construction of the Proposed Development.



## 9.0 Construction Phase

### 9.1 Introduction

- 1.134. This section describes in more detail the key components of construction, and the impact they may have on the environment.
- 1.135. The overall site design has been developed in accordance with recommendations adopted from the EIA Report and to reflect the requirements and specifications for transporting wind turbine components to the proposed turbine locations.

### 9.2 Proposed Construction Compounds

- 1.136. The construction project includes the establishment of one Temporary Construction Compound (TCC) to support the construction phase. The TCC will be located near the site entrance and will have a footprint of approximately 50m x 50m.
- 1.137. The TCC will be likely to contain the following:
- temporary modular building to be used for site offices, the monitoring of incoming vehicles and welfare facilities including toilets with provision for sealed waste storage and removal;
  - parking for construction staff, visitors and construction vehicles;
  - secure storage for tools and small parts;
  - reception area;
  - fuelling point, or mobile fuel bowser to comply with the SEPA PPG 7 [20] and GPP 2 [15]; and
  - wheel wash facilities.
- 1.138. Welfare facilities will be provided for the duration of the construction period in accordance with Schedule 2 of the Construction (Design and Management) Regulations 2015 [5]. Facilities for waste management, refuelling, power, water supply and chemical/material storage will be provided.
- 1.139. Where and when compound lighting is required, it will be designed to minimise light pollution to the surrounding area. All lights will face inwards.
- 1.140. The compounds will be built by stripping any topsoil and regrading, then laying geotextile and an imported stone layer. Any stripped topsoil will be stored adjacent to the compound in a linear bund typically no greater than 2m in elevation. Superficial soil will be stripped and stored separately from the topsoil. This will be stored in a similar manner to the topsoil but will depend on the volume which is required to be excavated.
- 1.141. It is proposed that uncontaminated surface run-off from the compound is accommodated in a swale or soakaway which will be constructed as a perimeter ditch to avoid contamination of watercourses should there be a spillage and from fines washout. All other run-off from the site will follow natural drainage patterns and newly installed drainage routes.



### 9.3 Welfare Facilities and Services

- 1.142. Welfare facilities will be provided in accordance with schedule 2 of the Construction (Design and Management) Regulations 2015 during the construction period and will include mobile toilets with provision for sealed waste storage and removal. Sewage waste will be either be tankered offsite by a licensed approved waste contractor. Alternatively, a septic tank could be installed and maintained for the duration of the works in accordance with the Environment Agency's GPP 4 [17] (see Section 5), including regular emptying by an approved contractor.
- 1.143. Potable water will be imported as bottled water. The water will be used for messing purposes during the construction phase.
- 1.144. The welfare facilities will most likely have in-built water bowsers to provide a water supply for sanitation etc.
- 1.145. Electricity will be provided by onsite generators. All electrical equipment and its installation and maintenance will be undertaken by a qualified and competent person.

### 9.4 Transport Routes

- 1.146. During the construction phase of the Proposed Development, construction workers and materials, including wind turbine components, will be transported to the site via pre-established and approved transport routes. The primary access to the site will be from the A71, approximately 180m south of the Ardochrig Road junction. From there, the route will extend westbound towards the site entrance.
- 1.147. The abnormal load route for transporting turbine components to the site is subject to confirmation but will likely originate at George V Docks on the River Clyde. The components will be transported via the M8 and M74/A74(M) network before connecting to the A71. This route has been assessed and verified, ensuring it is suitable for large loads, with any required road upgrades being identified during the planning stage (see **Technical Appendix 10.1: Abnormal Load Delivery Route Assessment**). All other HGV and wind farm construction traffic will also use the entrance off the A71.
- 1.148. To minimize disruptions, traffic management measures will be implemented, including the use of signage, road escorts, and temporary road closures where necessary. These measures will ensure safety and reduce the impact on local traffic. The condition of the access routes will be monitored and maintained in consultation with local authorities throughout the construction process. Full detail of the assessment of effects on the road network is provided in **Chapter 10: Traffic and Transport**.
- 1.149. Once consent has been received and prior to construction, the route will be further inspected by an abnormal loads haulier specialist, in coordination with the police and the relevant highway authorities as it may be necessary, with a view to finalising the TMP and to obtaining a suitable licence for the movement of abnormal loads.
- 1.150. The TMP will include (but not be limited to):
  - a delivery schedule to ensure impacts on the road network are minimised;
  - detailed design of temporary and permanent road improvements; and
  - assessment of existing street furniture and bridge classifications and preparation of a schedule of temporary works along the access route.



### 9.4.1 Material Storage

- 1.151. Prior to the importation of materials and following the construction of appropriate SuDS measures, vegetation and soils will be removed and stored in overburden stockpiles. These overburden stockpiles will be located in safe and stable designated areas approved by a qualified engineer, as indicated on a plan of the working area, and agreed with the ECoW. The stockpiles will be compacted to limit instability and erosion potential, and silt fences will be employed to minimize sediment levels in runoff from the stockpiles.
- 1.152. Overburden or rock stockpiles will be stored at least 50m from watercourses in order to reduce the potential for sediment to be transferred into the wider hydrological system.

## 9.5 Access Tracks

- 1.153. The Proposed Development site requires a network of access tracks to facilitate the construction and maintenance of turbines and associated infrastructure. Approximately 4.3km of access tracks will be established, including 0.6km of upgraded existing tracks. These tracks have been carefully designed to minimize environmental impact by following existing forest rides and avoiding sensitive areas where possible. The new tracks will typically have a running width of 5 metres, with additional widening at junctions and bends to accommodate large construction vehicles.
- 1.154. To mitigate environmental impacts, 3.2km of the new tracks will be constructed as floating tracks in areas with deep peat, reducing peat disturbance and maintaining site hydrology. Where tracks require construction on willower peat or mineral soils, a cut-and-fill method will be employed. Watercourse crossings along the track routes will be managed with the installation of culverts designed to accommodate natural water flow and minimize disruption to local hydrology.
- 1.155. During construction, strict traffic management protocols will be implemented, including onsite signage to guide drivers to access points and designated work zones. All vehicle movements will be confined to the established tracks to prevent damage to surrounding vegetation and minimize soil compaction. Upon completion of construction, the tracks will remain in place for maintenance and eventual decommissioning of the wind farm, with all edges restored using materials stripped during construction to blend with the natural landscape.
- 1.156. Track restoration works will be undertaken in accordance with NatureScot good practice guide *Constructed tracks in the Scottish Uplands 2<sup>nd</sup> Edition* [NatureScot, updated September 2016] [28].

### 9.5.1 Management of Surface Water

- 1.157. New access tracks will be designed to have adequate cross fall or camber to avoid ponding of rainwater and surface run-off. Run-off from the access tracks and existing drainage ditches will be directed into swales that will be designed to intercept, filtrate and convey the runoff.
- 1.158. Check dams will be installed within the swales and existing drainage ditches where required in order to increase the attenuation of run-off and allow sediment to drop out.
- 1.159. Permanent swales and drainage ditches adjacent to access tracks will have outlets at required intervals to reduce the volume of water collected in a single channel and, therefore, reduce the potential for erosion. Outfall pipes will drain into a bunded section of the drainage ditch to allow suspended solids to settle.



1.160. The Principal Contractor will be responsible for the management of all surface water runoff, including the design and management of a drainage scheme compliant with SuDS principles.

### **9.5.2 Protection of Watercourse Crossings**

1.161. Any new watercourse crossings will be appropriately designed so that they do not alter the natural drainage and can accommodate flow. Authorisation from SEPA under Controlled Activities Regulations (CAR) will be obtained prior to construction of the watercourse crossings. They will have a conveyance capacity of at least a 200-year flood.

### **9.5.3 Loose Track Material**

Loose material from the use of access tracks will be prevented from entering watercourses by utilising the following measures:

- silt fences will be erected between areas at risk of erosion and watercourses;
- silt fences and swales will be inspected daily and cleaned out as required to ensure their continued effectiveness;
- excess silt will be disposed of in designated areas at least 50m away from any watercourses or drainage ditches;
- water bars will be implemented on slopes greater than 1 in 20;
- culverts, swales and drains will be checked after periods of heavy precipitation;
- the inlets and outlets of settlement lagoons, retention basins and extended detention basins will be checked on a daily basis for blockages; and
- the access tracks will be inspected on a daily basis for areas where water collects and ponds.

### **9.5.4 Signage**

1.162. Sufficient signage will be employed onsite, for both site personnel and the public, to clearly define the boundary of the works where they coincide with areas accessible to the public.

## **9.6 Turbine Foundations**

1.163. The foundation for the Proposed Development will use a blended approach tailored to the specific ground conditions across the site. This has been done to ensure that the most suitable construction methods are applied, minimizing environmental impact while providing safe and stable foundations for the turbines.

1.164. Turbines 1, 2, and 3, located in areas where peat depths are typically less than 4-5 metres, will have their foundations and crane pads constructed using a traditional excavation method. This approach involves removing the peat to reach the underlying mineral soil, providing a stable base for the reinforced concrete foundations.

1.165. Conversely, Turbines 4 and 5, situated in areas with peat depths exceeding 5 metres, will utilise piled foundations and crane pads. This method minimizes peat disturbance by driving piles through the peat layer to reach stable strata below, significantly reducing the volume of peat excavation and the associated environmental impact



## 9.7 Crane Hardstandings

- 1.166. Crane pads will be constructed to facilitate the installation of turbine components. Their location and orientation will be optimized to utilize the existing topography, ensure safe lifting under prevailing wind conditions, and align with the chosen erection procedures. Environmental constraints, particularly the presence of peat, will be carefully considered in the orientation and design of the crane pads to minimize ground disturbance.
- 1.167. For Turbines 1, 2, and 3, where peat depths are typically less than 4-5 metres, crane pads will be constructed by removing and storing peat, topsoil and superficial soils nearby for later reinstatement. Excavation will proceed to a suitable formation, followed by the placement and compaction of coarse rock fill in layers. An assessment of the stability of the peat for the excavation will be made in advance of the construction by a suitably qualified engineer. This will determine how stable the peat excavation will be and the need for any remedial measures such as grading of slopes or sheetpiling.
- 1.168. For Turbines 4 and 5, where peat depths exceed 5 metres, areas of the crane pad that are not required to directly support loads imposed by the crane will be designed as floating pads, utilizing a combination of geogrid and crushed stone to create a stable platform.
- 1.169. For crane erection at Turbines 4 and 5, a piled crane pad will be constructed to support the main crane, with a designated area on the crane hardstanding identified for this purpose. This method will involve installing piles that extend to rock and construction of a pad supported on these piles. To minimise peat excavation and disturbance, the piled crane pad will be limited in size to include the crane with its outriggers. This design will be undertaken by a suitably qualified engineer and crane specialist to ensure it meets the requirements of the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER).
- 1.170. For the remainder of the crane pads, geotextile may be incorporated depending on the ground conditions, and the final surface will be formed using selected granular material, shaped to allow for effective surface water drainage.
- 1.171. Crane pads will remain in place for the operational life of the project, with stored topsoil used to restore the edges and integrate the pads with the surrounding environment. The final design will prioritize minimizing disruption to peat layers.

## 9.8 Substation Compound and Control Building

### 9.8.1 Substation Compound

- 1.172. The substation compound will serve as the central hub for the wind farm's electrical infrastructure. The compound will cover an area of approximately 80m x 80m and will include space for a control building, parking, and drainage systems.
- 1.173. The site will be prepared by removing superficial soils, followed by grading and compacting the area. The compound will be surfaced with durable materials to ensure a stable platform for heavy equipment and safe operational conditions. The compound's layout will be optimized to minimize environmental impacts and integrate effectively with the surrounding landscape.

### 9.8.2 Control Building

- 1.174. The control building, located within the substation compound, will house the operational and monitoring equipment for the wind farm. Designed as a single-story structure, it will typically measure around 25m x 15m and feature a durable, weather-resistant exterior finish.



1.175. A typical control building elevation is shown on EIA Report **Figure 3.11**.

1.176. Welfare facilities including a toilet will be provided in the control building for the duration of the operation of the Proposed Development. Sewage waste will be tankered offsite by a licensed approved waste contractor. Alternatively, a septic tank could be installed and maintained for the duration of the works in accordance with SEPA's GPP 4 (see Section 5), including regular emptying by an approved contractor.

## 9.9 Cable Laying

1.177. The cable layout for the Proposed Development will consist of underground 33 kV cables connecting each turbine to the onsite substation. Cables will primarily be routed alongside access tracks to minimize disturbance to the surrounding landscape and ecosystems.

1.178. In areas where access tracks are constructed as floating tracks due to deep peat, additional considerations will be required. Cables may need to be buried using methods that minimize peat disturbance.

1.179. Detailed construction methods and the final cable layout will be outlined in the final CEMP, incorporating measures to avoid impacts on sensitive habitats and to manage watercourse crossings.

## 9.10 Soil Storage

1.180. Superficial soils will be excavated and stored temporarily. It is anticipated that most of the soil resources within areas directly affected by construction activities will be able to be stored and reinstated as close as possible to where they are excavated in accordance with best practice; so that the site will be restored with minimal movement of material from its original location.

1.181. At turbine foundations topsoil will be stripped keeping the top 200mm of turf intact. This material will be stored adjacent to the base working area and will be limited in height to 2m to minimise the risk of overheating. Superficial soil will then be stripped and stored, keeping this material separate from the topsoil.

1.182. Following excavation of the turbine foundation area and construction of the foundation (concrete/reinforced steel) the area will be backfilled with spoil. The area will be reinstated using the retained topsoil/turf where appropriate materials are available. Where required a gravel area will be left around the tower base for access. Reinstatement at turbine foundations will begin as soon as possible after foundation and plinth installation is complete.

1.183. The risk of water pollution from excavation works in terms of sediment loss will be prevented / mitigated by the following measures:

- careful location of turbine bases and track line to minimise excavation where applicable;
- stripped topsoil/superficial soil will not be stored adjacent or in close proximity to watercourses, where a construction area requiring soil stripping is close to a watercourse the soil will be stored a suitable distance from the watercourse;
- soil will be stored in accordance with best practice in order to remain intact as the soil will be essential to the site reinstatement;
- where turf requires excavation for track construction an excavator will lift turf and place it to the side leaving space between the edge of the track and the embankment to be constructed. The excavator will then lift out the soil and will place it to the side



of the proposed track. The soil stored by the side of the access track will be graded by an excavator and the turves will be replaced by the excavator over the graded soil beside the track. The timescale for this operation is short and the methodology has been successfully applied at other wind farms; and

- excavated soil will not be placed onto water reservoirs or placed where it will block established surface or drainage channels.

## 9.11 Watercourses

### 9.11.1 General

- 1.184. As part of the design mitigation, all wind turbine locations, site compounds, and other permanent and temporary structures (with the exception of tracks) have been sited with a minimum separation of 50m from any watercourses and drainage runs where possible.
- 1.185. Tracks have been routed to minimise any crossing of watercourses, where possible. However, if track crossings are required, then these will be designed and constructed appropriately.
- 1.186. The Contractor is responsible for liaising with and obtaining from SEPA all relevant consents, licenses and authorisations relating to construction of the watercourse crossing at the site.
- 1.187. All construction works on the site, and specifically construction works to be undertaken within and in the vicinity of the watercourse, will be completed in compliance with current legislation and best practice as detailed within this document.
- 1.188. The ECoW will be consulted on all watercourse crossing works. Surveys by the ECoW will be carried out immediately prior to construction of the crossing to identify areas of ecological interest and more specifically, mammal and fish activity in watercourses to ensure that adequate mitigation is built into the design.

### 9.11.2 Design Philosophy

- 1.189. The Water Environment (Controlled Activities) (Scotland) Regulations 2011, as amended (CAR Regulations) require that all new river, loch and wetland engineering activities, including river crossings and culverting for the watercourse shown on the Ordnance Survey 1:50,000 scale map, will require authorisation by SEPA, which may include (depending on the nature of the works) Registration with, or a Licence from, SEPA. Even if a proposed crossing does not require a Registration or Licence, due to its compliance with a General Binding Rule (GBR), as defined in the CAR, SEPA are still required to be notified.
- 1.190. General good practice in watercourse crossing design is detailed below:
- where appropriate, the watercourse will be routed through culverts appropriately sized and designed not to impede the flow of water and will allow safe passage for wildlife, such as fish, water voles, otters etc. (i.e. the crossings will have a capacity well in excess of the design flow);
  - when installing culverts, care will be taken to ensure that the construction does not pose a permanent obstruction to migrating species of fish, or riparian mammals (i.e. the crossing will make provision for fish and wildlife migration);
  - culverts will be sized so that they do not interfere with the bed of the stream during construction, (i.e. the crossing will leave the watercourse in as natural condition as possible);



- culverts with a single orifice will be used in preference to a series of smaller culverts that may be more likely to become blocked with flotsam and create erosion (i.e. the crossing will not constrict the channel);
- ease and speed of construction are important to minimise disruption to the watercourse and surrounding habitat;
- designed for the life of the project;
- low maintenance; and
- visually in keeping with the surroundings.

1.191. In accordance with CAR guidance, the watercourse crossing will be designed on a case-by-case basis to be appropriate for the width of the watercourse being crossed and the prevailing ecological and hydrological situation (i.e. the “sensitivity” of the watercourse). A number of factors, both environmental and engineering will influence the selection of structure type and the design of the crossing.

1.192. The watercourse crossing will include splash boards and run-off diversion measures to prevent direct siltation of watercourses.

### **9.11.3 Structural Design**

Design of a watercourse crossing needs to consider:

- bearing capacity of foundations (and variability of capacity);
- design loadings; and
- design options such as bridges or culverts.

### **9.11.4 Culverts**

1.193. Medium to large culverts or large Armco culverts will be used where a culverted solution is desirable or where a small, piped culvert is not appropriate for environmental or capacity reasons.

1.194. Depending on size, a natural stone headwall will be provided upstream and downstream to protect the track embankment where necessary. Further protection will be provided to the banks using soft engineering techniques as much as possible.

### **9.11.5 Relevant Mitigation**

1.195. The following is a summary of the relevant mitigation measures and general good practice associated with the development of watercourse crossing:

- appropriate care will be given to the construction of the crossing and all loose materials left from construction will be collected and disposed accordingly;
- site track crossings will be constructed with granular materials, which will limit the production of surface runoff and the direct discharge of sediment into the watercourse;
- the methods of drainage proposed for the site tracks prevent the significant discharge of surface runoff and suspended solids into the watercourse adjacent to the tracks. This is owing to the runoff being collected within the upslope ditch, the presence of peat dams and culverts at appropriate intervals so as to limit longitudinal flow and the



discharging of water to the downslope ground. There will therefore be no long runs of ditches that directly discharge into watercourse;

- the watercourse crossing will be designed to avoid disruption and / or habitat loss to aquatic systems or to affect free passage of fish; and
- minimum buffer strip of 50m should be kept free from development from the top of the banks of any watercourse/waterbody.



## 10.0 Pre-Construction Surveys, Protected Species and Monitoring

### 10.1 Pre-Construction Surveys

1.196. Prior to the commencement of the construction of the Proposed Development, detailed site investigations will be undertaken to inform the designers/engineers of the development components. Preconstruction habitat and protected/ notable mammal surveys will be required to inform appropriate management and protection plans. Additional survey for protected species will be undertaken by the ECoW in tune with the locations and programme of works. Survey outcomes will inform the designers/engineers in selecting appropriate working methods.

#### 10.1.1 Water Quality Monitoring

1.197. Prior to the works commencing, baseline water quality monitoring will be undertaken by an appropriately qualified and experienced independent consultant to establish the water quality prior to any interference from the works.

1.198. This will be undertaken in accordance with the proposed water quality monitoring developed by the Principal Contractor and as detailed within **Section 8.0**.

1.199. This water quality monitoring is to be agreed and reviewed by the Project Owner in advance of the works commencing to ensure that the conditions during the monitoring and the testing undertaken are representative and allow a suitable benchmark to be established.

#### 10.1.2 Archaeology

1.200. An archaeological assessment, including both desk-based studies and field surveys, has been conducted for the Proposed Development to identify and record heritage assets within the project area. While no significant archaeological remains are identified within the site boundary, the potential for paleoenvironmental remains in areas of peat has been noted. The assessment also considered impacts on nearby cultural heritage assets, such as the Battle of Drumclog and Dungavel Hill Cairn, determining that no significant effects on these assets or their settings are expected.

1.201. During construction, an archaeologist may be employed to provide a watching brief in areas of archaeological sensitivity. This will involve overseeing marked-out infrastructure, identifying any additional mitigation measures, and supervising construction works in proximity to potential heritage assets. Any discoveries during construction will be managed in consultation with relevant authorities to ensure compliance with heritage preservation requirements.

1.202. Further details are provided in **Chapter 8: Cultural Heritage and Archaeology** of the EIA Report.

#### 10.1.3 Ecology

1.203. An ecological assessment, including desk-based studies and field surveys, has been conducted for the Proposed Development to evaluate the potential impacts of the Proposed Development on biodiversity. The assessment covered a wide range of habitats and species, including peatland, woodland, aquatic systems, and protected species such as bats, otters, and red squirrels. Measures have been integrated into the project design to minimize ecological impacts and protect sensitive habitats.



- 1.204. Mitigation measures include adherence to best practices for construction in peatland areas, pre-construction surveys to monitor protected species, and the establishment of buffer zones around sensitive habitats. Restoration efforts, including forest-to-bog restoration and habitat enhancements, are also planned to improve the ecological value of the site post-construction.
- 1.205. Further details can be found in **Chapter 6: Ecology** of the EIA Report.

## **10.2 During and Post Construction**

### **10.2.1 Species and Habitat Protection**

- 1.206. Habitat protection for the Proposed Development will focus on minimizing impacts during construction and supporting recovery post-construction. Construction activities will be restricted to designated areas to minimize habitat disturbance. Sensitive zones, such as watercourses and deep peat, will be protected by buffer zones. Drainage systems will be implemented to prevent sedimentation, while vegetation and topsoil will be carefully stripped and stored for future site restoration.
- 1.207. During construction, pre-works ecological surveys will be conducted to identify any protected or sensitive species present onsite, such as birds, bats, and amphibians. These surveys will inform mitigation strategies tailored to the specific requirements of each species. Where necessary, exclusion zones will be established around sensitive habitats to prevent disturbance, and construction activities will be scheduled to avoid key breeding or hibernation periods. An ECoW will be present to oversee compliance with species protection measures and to respond promptly to any wildlife-related incidents.
- 1.208. Post-construction, disturbed areas will be reinstated using stored materials to restore the landscape or enhance it where possible. Regular monitoring will ensure successful revegetation, with additional planting carried out as needed. Long-term management will align with broader habitat restoration objectives, enhancing biodiversity through measures such as peatland restoration and invasive species control. These efforts ensure the project leaves a positive environmental legacy.
- 1.209. Further details on species and habitat protection measures can be found in Chapter 6: Ecology of the EIA Report.



## 11.0 Reinstatement

### 11.1.1 General

- 1.210. Areas disturbed during construction, such as access tracks, crane pads, and temporary construction compounds, will be reinstated upon the completion of works. This will involve careful regrading of the land to blend with the surrounding landscape, followed by the reapplication of stored topsoil and vegetative turfs stripped during initial site preparation. Reinstated areas will be monitored to ensure successful re-vegetation, and additional seeding or planting will be carried out as needed to promote the recovery of native species.
- 1.211. Given the site's significant peat cover, measures have been outlined in **Technical Appendix 11.1: Peat Management Plan** to handle and restore peatland areas responsibly. Peat excavated during construction will be stored and reused in reinstatement wherever possible. Care will be taken to avoid unnecessary drying or degradation of stored peat by maintaining proper moisture levels and minimizing storage durations.
- 1.212. For floating tracks and piled foundation areas, reinstatement efforts will focus on stabilizing peat edges and ensuring hydrological continuity. This may involve reshaping peat to reduce erosion risk and promote natural water flow. In locations where peat cannot be reused onsite, it will be managed in line with waste regulations, ensuring no environmental harm.
- 1.213. Post-construction, regular inspections of reinstated areas will be conducted to assess the success of recovery efforts, particularly in peatland areas. Monitoring will focus on hydrological restoration, vegetation establishment, and the prevention of erosion. Any identified issues will be addressed promptly to ensure the long-term stability and ecological health of the site.



## 12.0 References

### 12.1 Reference Documents

Doc. Ref.	Reference Documents
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2.	RenewableUK, 2010. Guidelines for Onshore and Offshore Windfarms
3.	NatureScot, 2013. Research and Guidance on Restoration and Decommissioning of Onshore Windfarms.
4.	HSE, 1974. Health and Safety at Work Act.
5.	HSE. 2015. Construction (Design and Management) Regulations 2015. [online] Available at: <a href="http://www.hse.gov.uk/pubns/priced/l153.pdf">http://www.hse.gov.uk/pubns/priced/l153.pdf</a> [Accessed 17 November 2021].
6.	2006. Prevention Of Pollution From Civil Engineering Contracts: Special Requirements. 2nd ed. SCOTTISH ENVIRONMENT PROTECTION AGENCY. Available at: <a href="https://www.sepa.org.uk/media/152220/wat_sg_31.pdf">https://www.sepa.org.uk/media/152220/wat_sg_31.pdf</a> [Accessed 17 November 2021].
7.	Masters-Williams, H. et al, 2001. Control of water pollution from construction sites, C532. London: CIRIA.
8.	Defra, 2008. site Waste Management Plans Regulations.
9.	UK Government, 1991. Environmental Protection (Duty of Care) Regulations.
10.	BSI, 2009. BS 5228-1:2009 'Noise control on construction and open sites; Part 1 – Noise
11.	Control of Pollution Act 1974.
12.	SCOTTISH ENVIRONMENT PROTECTION AGENCY, 2017. Planning guidance on on-shore windfarm developments. Land Use Planning System SEPA Guidance Note 4. LUPS-GU4.
13.	mbec Environmental Consulting Protected Species – Pre-construction Survey Method Statement December 2023
	Guidance for Pollution Prevention (GPPs) <a href="http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/">http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/</a>
14.	PPG1 Understanding your environmental responsibilities – good environmental practices: PPG 1, July 2013
15.	GPP2 Above Ground Oil Storage Tanks: GPP 2, January 2018



Doc. Ref.	Reference Documents
16.	PPG3 Use and design of oil separators in surface water drainage systems: PPG 3, April 2006
17.	GPP4 Treatment and disposal of wastewater where there is no connection to the public sewer: GPP 4, November 2017
18.	GPP5 Works and maintenance in or near water: GPP 5, January 2017
19.	PPG6 Working at Construction and Demolition sites: PPG6, 2012
20.	PPG7 Safe Storage – The safe operation of refuelling facilities: PPG 7, July 2011
21.	GPP 8 Safe storage and disposal of used oils: GPP 8, July 2017
22.	GPP21 Pollution incident response planning: GPP 21, July 2017
23.	PPG26 Safe Storage – drums and intermediate bulk containers: PPG 26, March 2011
24.	Scottish Government (2011). The Water Environment (Controlled Activities) (Scotland) Regulations 2011. Edinburgh: The Stationery Office.
25.	Technical Flood Risk Guidance for stakeholders (section 4.3) [SEPA, 24/4/11].
26.	Technical Flood Risk Guidance for stakeholders (section 4.3) [SEPA, 24/4/11].
27.	Good Practice during Windfarm Construction, Version 4, September 2019 Scottish Renewables and Scottish Environment Protection Agency Guidance
28.	NatureScot (2016). Constructed Tracks in the Scottish Uplands, 2nd Edition. Edinburgh: NatureScot. Updated September 2016.



