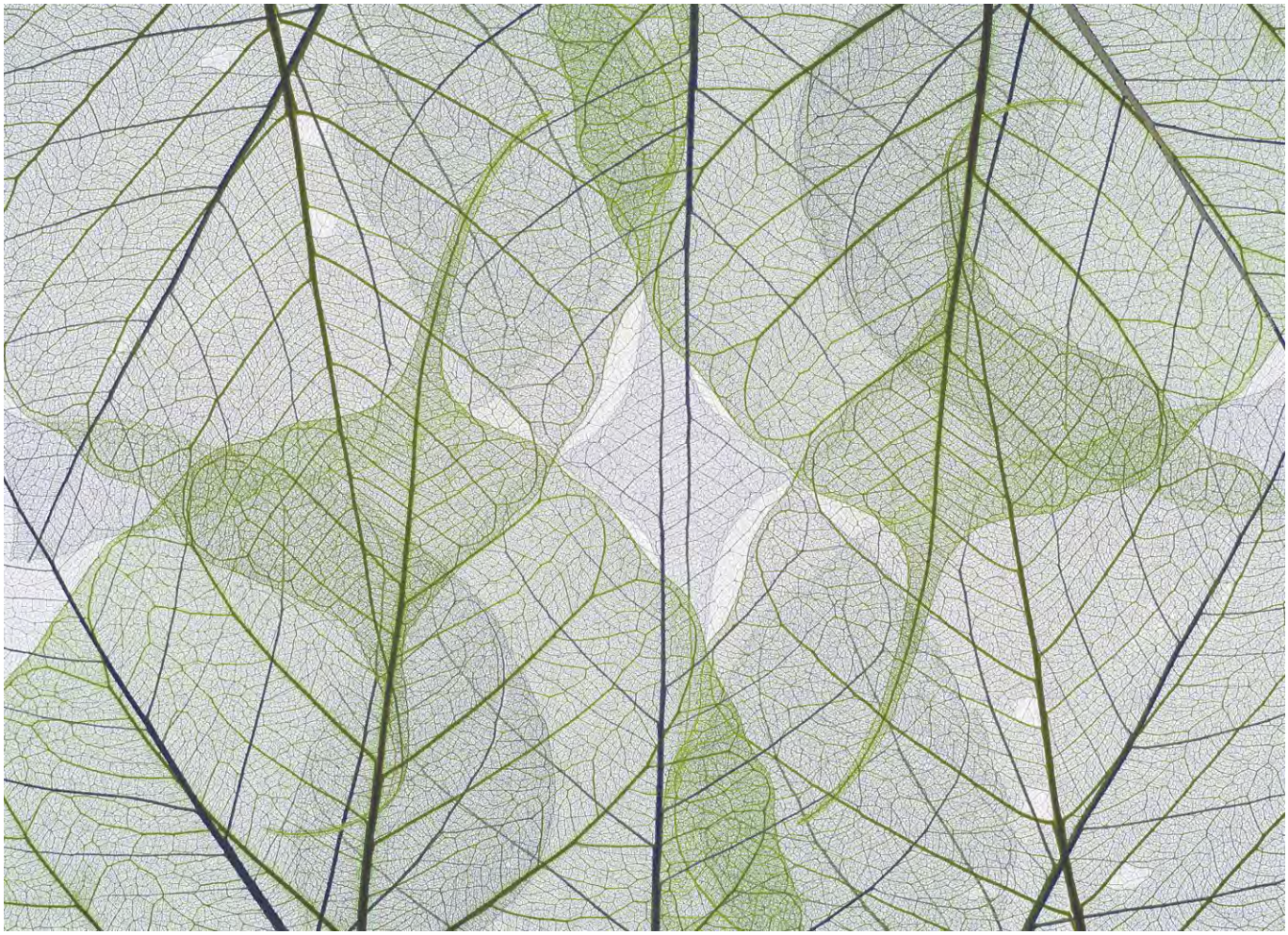

ScottishPower Renewables

Earraghail Renewable Energy Development: Forestry Assessment

Technical Appendix 15.1

P662817

FEBRUARY 2022

RSK GENERAL NOTES

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15.1 INTRODUCTION

This Technical Appendix provides all the forestry information required for the Environmental Impact Assessment (EIA) Report, including:

- a baseline forestry assessment;
- the effect of the proposed Development on the forestry plantations;
- full information on the areas to be felled and the timber volumes to be removed;
- how the waste will be dealt with to minimise its effect on the environment; and
- mitigation measures in place including Compensatory Planting.

This report is presented as **Technical Appendix 15.1** of **Chapter 15** of the Earraghail Renewable Energy Development EIA Report, and should be read in conjunction with the following EIA Report Chapters:

- Chapter 3 – Proposed Development
- Chapter 8 – Ecology
- Chapter 9 – Ornithology
- Chapter 14 – Socio-economics, Recreation and Tourism

15.1.1 Site context

The Site is located on the Kintyre Peninsula, between the village of Tarbert, to the north east, and the village of Skipness, to the south. The Site is located within the forestry areas of Skipness and Corranbuie, centred on National Grid Reference NR 88732 63637, as shown on **Figure 15.1.1** of **Chapter 1** of the EIA Report. The Site lies wholly within the administrative boundary of Argyll and Bute Council.

The Site is dominated by the Corranbuie Forest (1065ha) and the Skipness Forest (1165ha), and the land consists predominantly of commercial forestry.

Tarbert Woods is the closest natural heritage designation and is a Special Area of Conservation (SAC) (see **Figure 8.1** in **Chapter 8** of the EIA Report). The Local Nature Conservation Site West Loch Tarbert adjacent and to the west of the Site, while 0.8 km north west and 0.5 km to the west is the Glen Ralloch to Baravalla Woods Site of Special Scientific Interest (SSSI).

15.1.2 Development Proposals

The proposed Development includes the following key elements:

- 14 wind turbines, up to 180 m to blade tip, including foundations and aviation lighting;
- Ground-mounted solar PV arrays;
- Crane hardstandings for wind turbine installation;

- Transformer/switchgear housings located adjacent to turbines & solar arrays;
- New (14.2 km) and upgraded (12.9 km) access tracks including watercourse crossings where necessary, passing places and turning heads;
- Underground electrical cabling;
- Compound containing substation, control building and battery energy storage system (BESS);
- One main site construction and maintenance compound and a security compound;
- A permanent lattice construction meteorological mast, up to 105 m high;
- Three new borrow pit areas; and
- Additional development components to improve the overall ecological, environmental and social benefits accruing from the proposed Development, as follows:
    - Ecological and environmental: peatland restoration; habitat improvement; native woodland planting
    - Social: proposed new walking bothy on the Kintyre Way; circular walking route and viewpoint near Tarbert.

Full details of the project design are provided in **Chapter 3** of the EIA Report, with the areas of proposed Development and enhancements shown in **Figure 3.1**. Greater detail of the proposed Development in relation to the habitat improvements is provided in **Technical Appendix 8.5** of **Chapter 8**.

15.2 LEGISLATION, POLICIES AND GUIDANCE

15.2.1 Scottish Forestry Strategy (2019)

The Scottish Forestry Strategy (SFS) is the Scottish Ministers' framework for taking forestry through the first half of this century and beyond. The SFS sets out the following commitments:

- to increase Scotland's woodland cover to 21 % by 2032;
    - 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.
- Increase the contribution of forests and woodland to Scotland's sustainable and economic growth;
- Improve the resilience of Scotland's forests and woodlands and increase their contribution to a health 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.

15.2.2 Scottish Land Use Strategy (2016)

The Scottish Land Use Strategy (SLUS) is a strategic framework for achieving the *"best"* use from Scotland's land resource. It aims to achieve a more integrated approach to land use, maintaining the future capacity of the land resource and is based on the three pillars of sustainability: economy, environment and communities. Attaining multiple benefits from land is a key theme, and the focus on forestry is the identification of areas best for tree planting in an integrated land use system. To increase its role in addressing the challenge Scotland faces from climate change, a target of 100,000 ha of new woodland creation between 2012 - 2022 has been established. Regional Forestry and Woodland strategies developed by local authorities are identified as the delivery mechanism to promote good practice and multi benefit land use.

15.2.3 Scottish Planning Policy (2014)

Trees and woodlands are addressed in the Scottish Planning Policy (SPP), which recommends local authorities prepare woodland strategies to support the development of forestry and woodlands in their area (Section 201). The opportunities for woodland creation are highlighted in Section 217, along with the need for the Control of Woodland Removal Policy to be taken into consideration in relation to any development (Section 218), stating woodland removal should only be permitted where it would achieve significant and clearly defined additional public benefits. Where woodland is removed in association with development, developers would generally be expected to provide compensatory planting.

15.2.4 National Planning Framework for Scotland (2014)

The National Planning Framework for Scotland 3 (NPF3) acknowledges the economic value of woodlands and forestry in addition to their ecological value. NPF3 details the national woodland expansion target of 10,000 ha per annum from 2015 with a subsequent review of woodland expansion targets in the 2020s to ensure national objectives on omissions and land use are achieved. This target has been superseded by the targets in the SFS.

15.2.5 Forestry and Land Management (Scotland) Act (2018)

The ability of woodlands to sequester carbon, and hence their role in possible mitigation of climate change is an important factor in shaping regulatory mechanisms. The felling of trees is regulated under the Forestry and Land Management (Scotland) Act 2018. Woodland removal, defined as *"the permanent removal of woodland for the purposes of conversion to another land use"* falls within the scope of the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017, except in cases when woodland removal is associated with onshore renewables development. In such cases, any significant environmental effects of woodland removal are assessed by the Scottish Government or the Local Authority depending on the capacity of a development.

15.2.6 Policy on the Control of Woodland Removal (2009)

The Scottish Government's policy document on the Control of Woodland Removal (CWR) Policy and accompanying Implementation Guidance (2019) (Appendix A) provides guidance on the policy and process for managing the implementation of the CWR Policy in respect of forestry removal on development sites. The principal aims of the CWR Policy are to provide a strategic framework for appropriate woodland removal and to support climate change mitigation and adaptation. The CWR Policy is built on the following principles:

- A strong presumption in favour of protecting Scotland's woodland resource;
- Woodland removal should be allowed only where significant and clearly defined additional public benefit can be demonstrated. A proposal for compensatory planting may add additional public benefit;
- Approval for woodland removal should be conditional on the undertaking of actions to ensure full delivery of the defined additional public benefits;
- Planning conditions and agreements are used to mitigate the environmental impacts arising from development and Scottish Forestry (SF) would also encourage their application to development related woodland removal; and
- Where felling is permitted but woodland removal is not supported, conditions conducive to woodland regeneration should be maintained through adherence to good forestry practices as defined in the UKFS.

The CWR Policy identifies the following criteria for areas where woodland removal may occur without a requirement for compensatory planting:

- Enhancing priority habitats and their connectivity;

- Enhancing populations of priority species;
- Enhancing nationally important landscapes, historic environment and geological SSSIs;
- Improving conservation of water resources;
- Improving conservation of soil resources; and
- Public safety.

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

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

15.2.7 UK Forestry Standard

The overarching document for forestry management is the UK Forestry Standard (revised 2017) (UKFS). It is the reference standard for sustainable forest management in the UK. UKFS outlines the context for forestry, sets out the approach of the UK governments to forestry, defines standards and requirements and provides a basis for regulation and monitoring – including national and international reporting. UKFS's approach is based on applying criteria agreed at international and European levels to forest management in the UK. It has been endorsed by the UK and country governments and applies to all UK forests and woodlands. In its sustainable forest management guidelines with respect to climate change and soil, it advises that forest managers consider the balance of benefits of carbon and other eco system services before making the decision to restock on soils with peat depths exceeding 50 centimetres (cm). In general, there is a strong presumption against woodland removal, and restocking of harvested forests is a normal condition of felling approval being granted.

15.3 CONSULTATION UNDERTAKEN

Table 15.1.1: List of consultees and responses

Consultee	Response	Comment
Tarbert & Skipness Council	The Tarbert to Skipness Atlantic Oak wood habitat is a very rare and fragile SSSI woodland. What measures be taken to protect and preserve these woods?	No works are proposed to be undertaken within the SSSI. The application boundary has been revised to ensure this is clear. Any works undertaken outside of the SSSI would be in line with UKWAS guidance. FLS have undertaken felling of woodland outside of the SSSI.
Scottish Forestry	1. *We note the intention is to present a revised LMP with the EIA and application. The scope of the revised LMP should be further discussed – i.e does it relate to the full application area or a more focused development area.* 2. *The approved Land Management Plan should be used as a baseline.* 3. *Para 505 – habitat enhancement. While supportive of improvements to native woodland condition, SF advise that these cannot be offset against any compensatory planting requirement.* 4. *Any plans to enhance priority habitats or species, that may reduce CP area requirements must be discussed in advance and fully supported by a restoration plan.* 5. *Para 13.10.3 Policy and Guidance- Guidance to Forestry Commission Scotland Staff on implementing the Scottish Government Policy on control of woodland removal, March 2015; - now Feb 2019 control of woodland removal implementation guidance.*	Since this is a keyhole proposal and no large-scale felling is anticipated for wind flow enhancement, SF have accepted that forestry does not require a specific chapter within the EIA Report, but can be considered as a stand-alone section within **Chapter 15**.

15.4 BASELINE FORESTRY ASSESSMENT

15.4.1 Existing Forest Plans

The Skipness and Corranbuie forestry plantations are managed by Forestry and Land Scotland (FLS).

The Land Management Plan (LMP) for Corranbuie & Skipness was approved by Perth and Argyll Conservancy on 30/01/2017. The plan expires on 30/01/2027.

15.4.2 Detailed Forestry Assessment

A walkover Forestry site assessment was carried out on 12th November 2020.

Corranbuie Forest and Skipness Forest are owned and managed by FLS. The forests are comprised of two adjoining woodland areas partially separated by an area of open moorland. Corranbuie Forest extends to 1065ha and Skipness Forest extends to 1165 ha. The eastern coastal fringes are dominated by Atlantic oakwoods designated as the Tarbert to Skipness Coast SSSI and Tarbert Woods SAC. The northern part of Corranbuie backs onto Tarbert village, with an important recreational area, legacy of the Millennium Forest for Scotland Trust project and Corranbuie Oakwood. The Kintyre Way runs through both woodlands. Much of Corranbuie is a diverse matrix of conifers and open space. Skipness has more productive plantations, but also a significant area of windblow to clear.

The primary objectives for the LMP are: commercial conifer timber production including clearance of a significant area of windblow in Skipness; construction of new forest roads to access the forest for harvesting; enhancement and protection of designated sites; and certification under the UK Woodland Assurance Scheme.

Full details of the Corranbuie and Skipness LMP can be accessed via the following link:

https://forestryandland.gov.scot/what-we-do/planning/active/corranbuie-and-skipness.

The following information has been taken from the National Forest Inventory 2018.

This is reasonably up to date and gives a very good picture of the forestry and non-forestry categories throughout the Site as shown below.

In addition to **Figure 15.1.1**, **Table 15.1.2** below, shows the total area of each land use category and what this represents as a percentage of the Site. The total areas and percentages of the Site (Forestry Land Scotland), in relation to the forestry features are:

- 1,243 ha of conifers which cover 51.17 % of the Site.
- 5.26 ha of broadleaved trees.
- 56 ha of windblow, which covers 2.3 % of the Site. Although this is a small percentage of the whole site it equates to 4.2 % of the area of conifers (including the felled area). This does indicate that the Site is quite susceptible to windblow and this should be taken into account when planning any further site felling.
- The total area of woodlands (i.e. conifers, broadleaved, felled etc) is 1,592 ha which equates to 65.46 % of the total area of the Site.

- 714ha (29.39 %) of the Site is assumed to be open moorland (i.e. where the inventory did not register any specific feature). The majority of this is situated between the two forests, although there is a considerable amount of open space within Corranbuie Forest and in the south eastern half of Skipness Forest.

Table 15.1.2: Areas and percentages of features covered by the National Forestry Inventory

Category	Area in Application Boundary (Ha)	% of the Site
Assumed woodland	32.6605824	1.34
Broadleaved	127.7477768	5.26
Conifer	1243.7393836	51.17
Failed	1.2196343	0.05
Felled	92.1111872	3.79
Grassland	85.6712199	3.52
Ground prep	21.5467061	0.89
Low density	2.5396412	0.10
Mixed mainly broadleaved	2.3760203	0.10
Other vegetation	34.0264582	1.40
River	0.3268033	0.01
Road	5.1337816	0.21
Windblow	56.0058254	2.30
Young trees	11.0266329	0.45
No feature	714.3524009	29.39
Total area	**2430.4840540**	**100.00**
	Area (Ha)	**% of the Site**
Total Woodland Features	1590.9733901	65.46
Total Non-Woodland Features	125.1582630	5.15

15.4.2.1 Statutory Designations of Woodland

As shown in **Figure 15.1.2**, the woodland identified in light green is deemed to be Native woodland and the areas highlighted in pink are deemed to be Nearly Native Woodland.

15.4.2.2 Species

The Corranbuie and Skipness LMP includes the following table which shows the tree species mixture as it was in 2003 and 2017 and what it is predicted to be in 2026 and 2099.

It is clear from this that the long-term plan is to reduce the area of Sitka spruce and remove the Lodgepole pine plantations, presumably due to low productivity and also remove the larch due to the phytophthora threat. The area of Norway spruce would be increased and some areas of other species would be introduced subject to site suitability. The open space within the woodlands would also be increased from 11 % to 19 %.

Table 15.1.3: LMP proposed species and areas 2003 – 2099

WOODED AREAS	2003		2017		2026		2099	
SPECIES	**AREA (ha)**	**%**	**AREA (ha)**	**%**	**AREA (ha)**	**%**	**AREA (ha)**	**%**
Sitka spruce	1401.4	83	1439.4	70	1188.7	59	1054.5	49
Norway spruce	24.1	1	15.9	1	54.2	3	123.9	6
Lodgepole pine	62.8	4	60.9	3	56.0	3	-	-
Mixed conifer	3.8	-	0.9	-	16.8	1	21.5	1
Douglas fir	2.6	-	2.6	-	2.6	-	5.5	-
Noble fir	-	-	0.4	-	4.9	-	21.4	1
Western hemlock	-	-	-	-	1.0	-	0.6	-
Western red cedar	-	-	-	-	12.6	1	21.7	1
Scots pine	-	-	4.3	-	4.6	-	10.5	1
Larch	26.5	2	24.6	1	9.6	1	-	-
Oak	No info	-	140.1	7	140.1	7	140.1	7
Birch	No info	-	58.6	3	58.6	3	92.9	4
Native Broadleaves	162.6	10	47.3	2	129.2	6	244.6	11
Sycamore	-	-	-	-	5.0	-	6.4	-
Failed	No info	-	32.6	2	-	-	-	-
Internal open space	No info	-	221.7	11	347.4	16	402.1	19
SUB-TOTALS	**1683.8**	**100**	**2049.3**	**100**	**2031.3**	**100**	**2145.7**	**100**

There would appear to be a wide range of age classes in the sub compartments from young plantations (>11 ha) to some which have reached the end of their financial rotation (i.e. reached the point of Maximum Mean Annual Increment) and are due to be clear felled. **Figure 15.1.3** shows the planting years across the Corranbuie and Skipness forest and has been prepared by Forestry and Land Scotland.

The Climatic Site Suitability for tree species on the Scottish Forestry Map viewer, indicates that the Site is not suitable for Norway spruce, Scots pine or Douglas fir. The Site is however predominantly suitable for Sitka spruce, although there is a significant area that is marginal or unsuitable.

The suitability for Sitka spruce is shown on **Figure 15.1.4** with the colour coding being as follows:

- Unsuitable – Grey
- Marginal – Yellow
- Suitable – Red
- Very Suitable – Pink

This confirms the visual evidence from the aerial view and the National Forest Inventory, that in general Skipness Forest is more suitable for Sitka spruce than Corranbuie Forest. However, the bulk of the land which is either marginal or unsuitable is the bare area between the two forests.

The issue of site productivity for Sitka spruce is also referred to in the LMP which states in relation to the central area of poor Sitka spruce that – *"poorer areas of Sitka spruce need to be reassessed, changing either future species to more productive mixes with Lodgepole pine* (this conflicts with their species forecast shown in **Table 15.1.2***) or restored to priority open habitats, such as blanket bog by implementing the FCS Deep Peat Policy".*

The yield classes in Skipness Forest would therefore generally be higher than in Corranbuie Forest.

The broadleaved areas are thought to be dominated by native upland birch and are mostly situated along the coastal fringe, within the SSSI, although there are scattered blocks amongst the coniferous plantations, especially in Corranbuie Forest.

15.4.2.3 Yield classes

The sub compartment database spreadsheet provided by FLS has been used to provide information on plantation ages and yield classes. From an analysis of the available data the indications are that there is a wide range of age classes, but 67 % of the trees were planted between 1982 and 1989 and are therefore 31 – 38 years old.

Although there are some reasonable yield classes recorded (e.g. YC 16 – 18) most of the plantations have been assessed as YC12. Sitka spruce yield classes range from YC6 to YC24 and the average is YC14 – 16. This indicates that the trees are below average from a productivity point of view. See **Table 6.1** for further information

The normal age for felling Sitka spruce YC12 would be 58 – 60, so the majority of the plantations are considered to be mid to late age. The plantations are on a no thin management policy, it could be that the actual planned felling age would be less than the normal felling age, in order to fell the trees before they are windblown. However, more information is needed on this aspect.

The average yield classes are expected to be:

- Sitka Spruce - Yield Class 12 – 20.
- Other Conifers – Yield Class 12 – 16.
- Mixed Broadleaves – Yield Class 4 – 12.

15.4.2.4 Felling Phases

The FLS felling plans show the areas that are planned for felling over the next 5 years and the indication from the data is that most of this is clear felling. It is assumed that all the 2019 areas have already been felled and were earmarked for re-planting over the winter of 2019/20.

The Corranbuie and Skipness Land Management Plan states that for the period 2017 – 2026 the plan was to fell 574 ha. This equates to 46 % of the coniferous woodland area.

From proposed Development's design, the felling required would be as per **Table 15.1.4**. The information for each sub-compartment includes: area (ha); tree species, approximate age; and the volume of timber to be removed.

Once the final plans have been drawn up and the area of felling is known, a meeting with Scottish Forestry would be needed to establish whether CP is required. If CP is needed, a discussion with the appropriate landowner would be the next stage to identity a suitable planting site.

15.4.2.5 Timber Size

The mensuration data for the plantations can be found in the sub compartment schedule **Table 15.1.4** below.

15.4.2.6 Timber Quality

The quality of the timber is typical for these plantations' types of species and age.

The following photographs of the plantations are included to give the reader a better idea of the size and quality of the timber and are illustrative of the types of timber present on the Site.

Turbine 7

Figure 15.1.5: Compartment 2339 - Lodgepole Pine (Planting year 1998)

Turbine 10

Figure 15.1.6: Compartment 2349 Sitka Spruce (Planting year 1989)

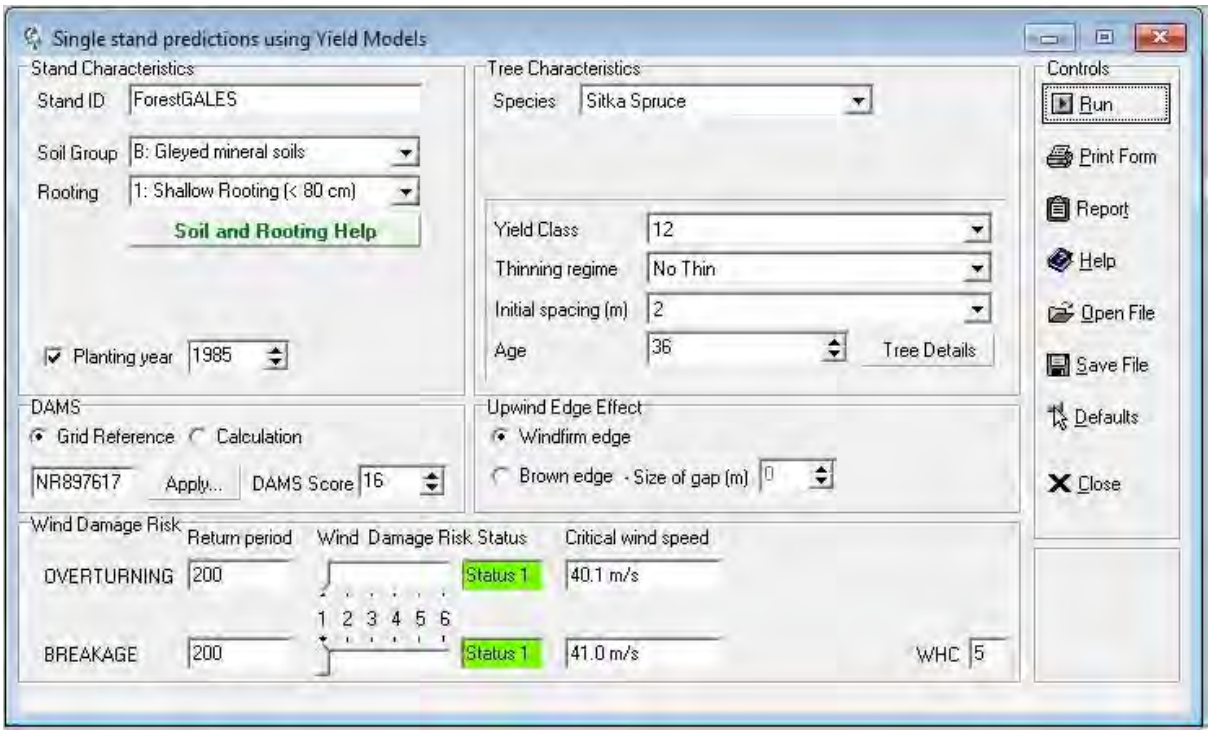
15.4.2.7 Windblow Risk

Windblow is prominent throughout the Site and operations have been undertaken in recent years to remove this in conjunction with clear-felling coupes back to 'windfirm' edges.

Any felling of trees around the proposed turbine locations would need to be felled back to a windfirm edge or more likely the edge of the compartment/sub-compartment boundary.

The following Figure shows the Windthrow Hazard Classification for 36-year-old Sitka Spruce with a Yield Class of 12 for the Site.

Figure 15.1.7: Windthrow Hazard Classification for 36 year old Sitka Spruce with a Yield Class of 12 for the Site



Windthrow Hazard Classification 5 indicates that trees reach their critical height at 16 m in a non-thinned stand of trees. Critical height means the onset of windblow. Trees would reach their terminal height (height at which 40 % of the stand is expected to be windblown) at 19.5 m.

The information that FLS has provided, shows the areas that are planned for felling over the next 35 years (see **Figure 15.1.8**) and the indication from the data is that most of this is clear felling. It is assumed that all the 2019 areas have already been felled and were earmarked for re-planting over the winter of 2019/20.

15.5 FORESTRY FELLING PLANS FOR THE PROPOSED DEVELOPMENT

15.5.1 Key Objectives

In relation to forestry, the key objective of the proposed Development Plan has been to minimise the amount of tree felling, and all felling for the installation of wind turbines would be based on keyhole felling. The area considered for Solar has recently been cleared of trees.

Figure 15.1.9a shows the minimum areas that would need to be felled to accommodate the transportation and construction of the proposed Development. **Figure 15.1.9b** shows the areas that would need to be kept clear of trees for the operation of the proposed Development.

15.5.1.1 Wind Turbine Buffers

Keyhole felling for each turbine location produces a buffer area with a radius of 108 m that would be felled for each wind turbine; this is the minimum area required for both ecological and turbine efficiency reasons. The circular buffers in relation to three of the turbines have been reduced slightly as the circular buffers extended beyond the Site. The objective has also been to retain the current windfirm edges of sub-compartments wherever possible and we have also taken into account the prevailing south westerly winds.

15.5.1.2 Access Tracks

Existing access tracks have been utilised wherever possible but where it has not been possible to use existing tracks the shortest possible route has been chosen subject to avoiding watercourses or other environmentally sensitive areas. The width of the access routes has been kept to the minimum required for the transportation of the construction materials. It would however be necessary to carry out some additional felling for passing places and on bends as required.

15.5.1.3 Other Areas to be Felled

There would be a relatively small amount of felling to provide clear areas for the battery energy storage system (BESS) and compounds. Based on a 12.5 m buffer zone, for the Proposed Construction Compound, Substation and Battery Energy Storage, the total area to be kept clear of trees is 1.3 ha

15.6 HARVESTING METHOD AND UTILISATION OF TIMBER

Forestry works would be conducted in line with the 'Scottish Environment Protection Agency's guidance note – Land Use Planning System', as well as 'SEPA's Guidance Note LUPS-GU27 – Use of Trees Cleared to Facilitate Development on Afforested Land'.

The document states that the best practice for dealing with forest materials at development sites is as follows:

- Professional forester input to quantify the likely volume, markets, and economic uses of trees to be exported from the site;
- Developer commitment to employ a professional forester to implement and maximise the removal of timber and forest residue on site;
- Quantify the likely volumes of material for which no economic off-site use can be found; and
- Identify if there are valid uses on site for material for which no economic off-site use can be found.

All forestry input in relation to the proposed Development EIA Report is being provided by Wayne Scurrah, who is an Associate Member of the Institute of Chartered Foresters and has experience in providing forestry support for windfarm and other renewables developments.

FLS would arrange and oversee the actual felling and utilisation of the timber.

The method of felling and utilisation at this site will be based on whole tree utilisation. All the timber and branchwood would be removed from site so there would minimal arisings left on site. The method would be as indicated below.

A conventional harvester and forwarder would be used to fell and extract the timber from all felled areas. A forwarder would then be used to gather the brash. It would then be taken to roadside and put through a chipper which would chip all the brash which is blown in walking floor type trailer on an articulated lorry.

The round timber is likely to be sent to local timber markets for onward processing with the wood chip element being sold for biomass.

In considering yield, where the Sitka spruce in mixture of was the dominant species, the Sitka spruce model was used. However, across the majority of the Site

Timber volumes are derived from using Forest Yield (Forest Research pc based yield model software for forest management in Britain) using the age of the tree crops and an average estimated Yield Class of General Yield Class for Lodgepole pine and Sitka spruce crops across the felling range.

The default yield models used were Sitka spruce, no thinning, 2 m initial planting spacing, and Lodgepole pine no thinning, 2 m initial planting spacing, as these reflect the dominant species types at the Site. The Sitka spruce model was also used where Sitka spruce had achieved full canopy dominance species in a mixed stand.

Net areas have been used for the purposes of this assessment. This was calculated by deducting 15 % of the gross area to account for drainage ditches and open spaces within the crop.

A conversion factor of 1.08 has been used to convert the net volume into tonnage. This conversion factor was used to determine the number of lorry movements associated with the forestry aspect of the proposed Development based on an average 25 tonne payload per lorry, detailed in full below

Table 15.1.4: Details of area and forestry removal as a result of the proposed Development

Comp No.	Area (Ha)	Area Lost to Turbines (Ha) - *does not include Windfirm edge or infrastructure*	Area Lost to Infrastructure (Ha) - *does not include Turbine or Wind fim edge*	Area Lost to Windfirm Edge (Ha) - *does not include Turbine or Infrastructure*	Nett Area Loss *(Turbine + Infrastructure + Windfirm Edge less 15% for open ground, rides etc)* (Ha)	Species	Planting Year	Yield Class	Age	Volume per Ha (m^3)	Approx Volume to be removed (m^3)	Approx Tonnage to be removed (Conversion factor of 1.08)	Wagon Loads (25T per load)	Wagon loads of Brash to be removed @ circa 25% of timber volume (25t loads)
2303	49.47		0.82		0.69	SS	83	16	37	477	331.35	306.80	12	3
2304	78.81		0.43		0.36	SS	84	12	36	318	115.95	107.36	4	1
2308	49.99		2.33		1.98	NS	83	14	37	293	580.29	537.30	21	6
2309	66.22		0.97		0.83	SS	88	16	32	369	304.67	282.10	11	3
2310	46.43		2.25		1.91	Bi	45	4	75	266	508.42	470.76	19	5
2311	25.72		0.93		0.79	LP	82	14	38	396	312.67	289.51	12	3
2312	36.41		1.10		0.94	JL	82	12	38	404	377.92	349.92	14	4
2313	91.62		1.49		1.27	SS	83	10	37	265	336.24	311.34	12	3
2314	85.06		2.52		2.14	NS	75	12	45	423	905.96	838.85	34	9
2315	44.39		1.34		1.14	SS	88	14	32	307	350.16	324.22	13	4
2319	107.33		1.05		0.89	SS	84	4	36	*No data <YC6*		0.00	0	0
2320	38.58		0.96		0.81	SS	82	12	38	352	286.76	265.52	11	3
2331	64.09		2.21		1.88	SS	89	16	31	346	648.90	600.84	24	6
2333	40.11	1.10	2.58		3.13	SS	84	12	36	318	994.98	921.28	37	10
2334	57.63	0.37			0.31	SS	87	14	33	327	102.02	94.47	4	1
2335	65.84		7.04		5.99	SS	60	2	60	*No data <YC6*		0.00	0	0
2335		4.35			3.70	*To be felled before construction*						0.00	0	0
2336	91.05		13.08		11.11	*To be felled before construction*						0.00	0	0
2337	50.26	2.66	3.16		4.94	SS	75	14	45	543	2684.46	2485.62	99	27
2338	75.85	3.13	3.46		5.60	SS	75	10	45	380	2129.25	1971.53	79	21
2339	43.66	2.19	5.09		6.19	LP	83	12	37	384	2376.46	2200.42	88	24
2340	53.53	2.43	7.00	11.13	17.47	*SS*	*84*	*12*	*36*	*318*	*5556.16*	5144.59	206	56
2341	37.62	2.49	3.23		4.86	SS	76	18	44	705	3429.32	3175.29	127	34
2342	34.47		0.14		0.12	SS	76	12	44	449	54.60	50.56	2	1
2343	45.54	2.06	5.70	4.58	10.49	SS	75	16	45	528	5539.52	5129.18	205	55
2344	44.33		1.88		1.60	SS	83	10	37	265	423.47	392.10	16	4
2344		3.08			2.62	Felled						0.00	0	0
2347	130.16		0.06	3.15	2.73	SS	82	14	38	423	1154.16	1068.66	43	12
2348	42.42	2.66	2.30	4.24	7.82	SS	76	12	44	449	3511.18	3251.09	130	35
2349	52.92	0.19	0.88	4.08	4.38	SS	83	10	37	265	1160.04	1074.11	43	12
2351	21.80		0.25		0.22	SS	82	12	38	352	75.87	70.25	3	1
2352	24.11		0.91		0.77	SS	82	2	38	*No data <YC6*		0.00	0	0
2353	22.41		0.14		0.12	SS	82	8	38	206	24.66	22.83	1	0
2366	45.05		1.15		0.98	SS	82	4	38	*No data <YC6*		0.00	0	0
		26.71	**76.45**	**27.18**	**110.79**						**34275.42**	**31736.50**	**1269**	342.8

15.7 RESTOCKING / PLANTING

The following areas would be kept clear of trees for the operation of the proposed Development:

- Areas within the 108 m-wide radii for keyholing around proposed turbines**.**
- New access tracks.
- Solar areas.
- Substation, BESS and control building compounds.

These are shown in **Figure 15.1.9b**.

Based upon felling only those areas required for the construction and operation of the proposed Development, SPR do not propose any restocking of those areas. Should further felling be required outside of the above areas and back to compartment boundaries then this will be recalculated. Windblow has the potential to occur irrespective of tree felling, however removing windfirm edges does increase the risk of windblow.

The following areas would potentially be available for restocking:

- Areas outside the above initially cleared of forestry to a compartment boundary or to create a windfirm edge, to facilitate the construction of the proposed Development.
- Areas cleared of trees for widening around bends and junctions for component delivery.
- Locations of temporary compounds.

15.7.1.1 Baseline Restocking Plan

Figure 15.1.10 shows the proposed future species following restocking as defined in the Land Management Plan prepared by Forestry Commission Scotland in 2016.

15.8 COMPENSATORY PLANTING

As this proposed Development involves the permanent removal of woodland for the purposes of conversion to another type of land use, the Scottish Government's Policy on Control of Woodland Removal (2009) has been fully considered to establish whether Scottish Forestry would require an area of new woodland establishment to compensate for the area felled.

The Scottish Forestry guidance to staff on implementing the Scottish Government's Policy on Control of Woodland Removal" states that:

"Options to avoid or reduce the need for Compensation Planting should always be fully considered as part of the decision making process. Compensation Planting should be seen as the final option once all other solutions have been exhausted".

The guidance also states the following in relation to windfarm developments:

"With regards to windfarm development, trees cleared for turbines bases, access roads and any other wind farm related infrastructure (infrastructure felling) should be considered as part of a planning application (under the Electricity Act 1989 or the Town and Country Planning Act 1997) and the felling should be consented with Compensation Planting requirements".

A fundamental policy that has been followed throughout in relation to the design of the proposed Development has been to minimise the amount of permanent felling. This would ensure compliance with the Scottish Government's Policy on Control of Woodland Removal.

It is not considered that the proposed Development would qualify for change of land use without compensatory planting, as it could not contribute significantly to any of the relevant criteria detailed in Appendix C of The Scottish Government's Policy on Control of Woodland Removal.

However, the proposed Development would meet the acceptability criteria for woodland removal as the change of land use with compensatory planting would contribute significantly to *"helping Scotland to adapt to climate change"* by providing facilities appropriate for the development of renewable energy projects and significantly reduce net greenhouse gas emissions.

The maximum area of land that would need to be planted (the SF default position) is an area equivalent to the area being kept clear of trees, which in this case is estimated to be 110.79 Ha, inclusive of any felling required out to windfirm edges.

The proposals for habitat management and peatland restoration identified in **Chapter 3** of the EIA Report and described in further detail in **Appendix 8.5** would form the basis of a restoration plan. As shown in **Annex 2** of this report, the area identified for peatland restoration is 213.1 Ha, of which 181.14 Ha is currently afforested. An area of 6.96 Ha of this forest has already been accounted for within the area requiring to be felled as part of the proposed Development; therefore, the area required to be kept clear of trees for the purpose of peatland restoration is 174.22 Ha. The area agreed with FLS for peatland

restoration in **Figure 1** of **Appendix 8.5** is also shown on **Figure 15.1.9b** of this document[1].

15.8.1 Need for CP

The Scottish Government's Control of Woodland Removal Policy (2009) states the following:

"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."*

In addition to the areas identified for peatland restoration (Unit 1, totalling 213.1 Ha, of which an estimated 181.14 Ha is currently afforested), the HMP also commits the applicant to the following:

- Unit 2 - Heathland restoration on shallow peat soils <30cm peat: total area 43.3 Ha
- Unit 3 - New native woodland creation on shallow peat/ mineral soils: total area 25.2 Ha

The areas for Units 1, 2 and 3 are shown in Figures 1 and 2 of **Appendix 8.5**. Based on the total areas of Units 1, 2 and 3, the total area set aside for delivery of the above criteria is 281.6 Ha. The area of felling required to accommodate the proposed Development infrastructure (i.e., all elements of the proposed Development other than habitat management, such as wind turbines, access tracks, compounds, crane pads and solar, as well as felling to windfirm edges) is 110.79 Ha.

The Applicant proposes that, subject to a restoration plan, there is no requirement for CP. The restoration plan, would be agreed with Scottish Forestry in advance of delivery.

[1] Identified in Figure 15.1.9b as "Peatland Restoration Area" as shown in Technical Appendix 8.5

15.9 MITIGATION

The following mitigation is committed to by SPR:

- All forestry plans and operations would fully comply with the UK Forestry Standard (2017);
- The plan to carry out keyhole felling for the wind turbine locations rather than clear felling would minimise the amount of felling required;
- The access roads have been designed to minimise the amount of tree felling, utilising existing tracks wherever possible;
- The extraction of the timber produce would be carried out after the access roads have been installed, so as all the felled trees would be very close to the access roads, most of the timber extraction would be carried out on the hard road and not over the bare ground. This would avoid/minimise any damage to the soil;
- All felling would be carried out outside the bird nesting season, which is normally March to August, except where otherwise approved by the Ecological Clerk of Works;
- Site refuelling and maintenance areas would be sited well away from watercourses and best practice measures would be taken to mitigate risks of spillages; and
- A restoration plan to confirm the location and areas of CP required would be agreed with Scottish Forestry in advance of delivery. The restoration plan would be informed by the Habitat Management Plan (**Appendix 8.5** of the EIA Report). Should further areas for CP be required, once the area(s) for CP has been chosen, a full specification would be drawn up to include ground preparation, drainage, planting technique, stocking density, species, maintenance and protection.

15.10 CONCLUSION

This document has been prepared as a Technical Appendix to accompany the EIA Report and application for consent documentation for the Earraghail Renewable Energy Development.

This Technical Appendix provides all the forestry information required for the Environmental Impact Assessment (EIA) Report, including:

- a baseline forestry assessment;
- the effect of the proposed Development on the forestry plantations;
- full information on the areas to be felled and the timber volumes to be removed;
- how the waste will be dealt with to minimise its effect on the environment; and
- mitigation measures in place including Compensatory Planting.

The Technical Appendix has been prepared on the basis of minimising to a practicable level the amount of forestry felling required to accommodate the proposed Development infrastructure, focusing on the proposed new access tracks, access tracks to be upgraded, area of search for solar PV, proposed turbines, BESS, substation and construction compounds.

As a result of the proposed Development, based on the parameters adopted up to 110.79 Ha of forestry would require to be felled, and require compensatory planting.

The proposed Development incorporates three areas of habitat improvement; details of which are provided in **Appendix 8.5.** The total area within the Site set aside for habitat improvement is 281.6 Ha. On this basis, the Applicant proposes that, subject to a restoration plan, there is no requirement for CP.

15.11 REFERENCES

Forestry Commission Scotland – Corranbuie & Skipness Land Management Plan

Scottish Executive (2006) Scottish Forestry Strategy

Forestry Commission (1996) Technical Paper 16: Designing Forest Edges to Improve Wind Stability

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

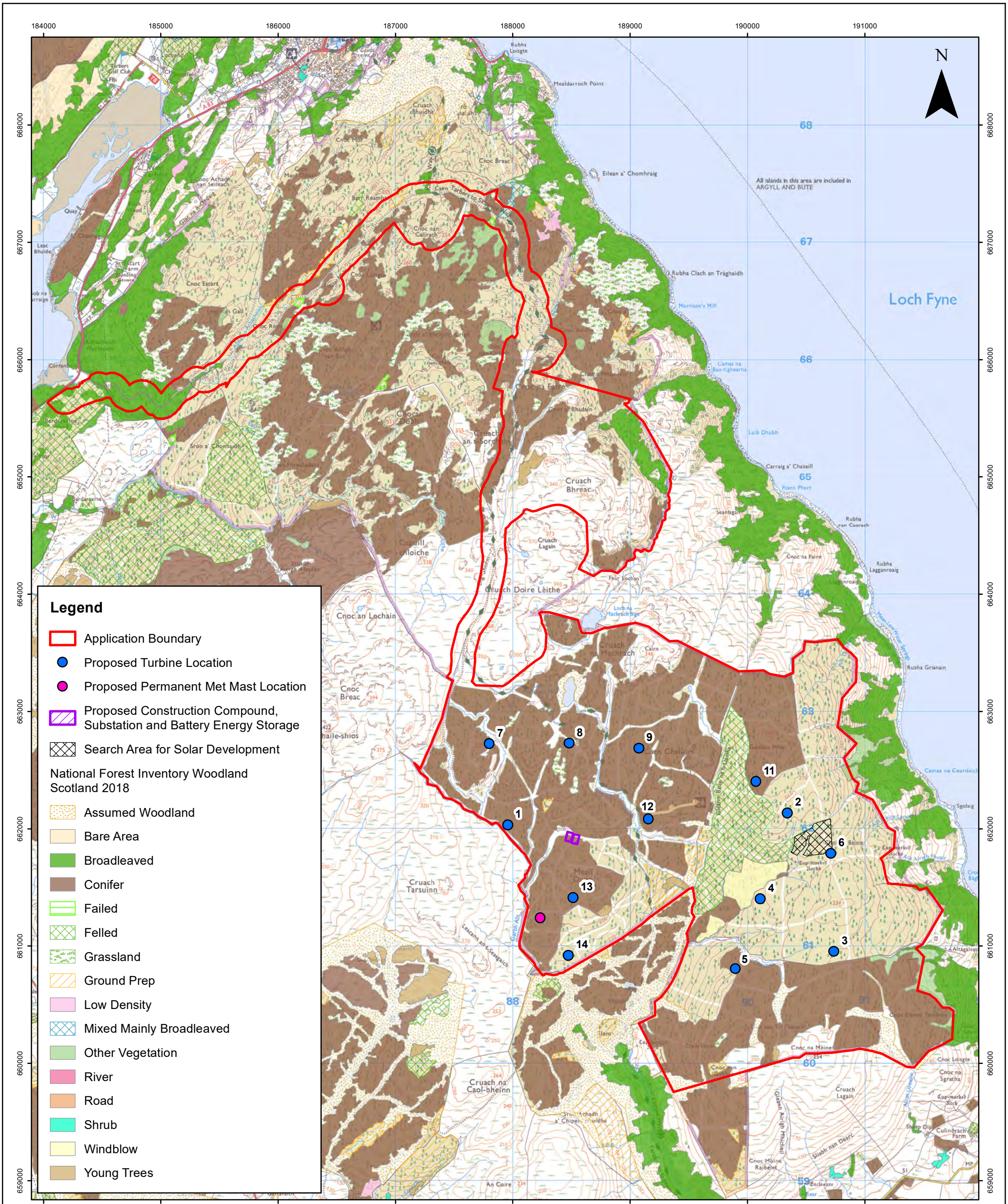
Forestry Commission (2015) Guidance to Forestry Commission Scotland staff on implementing the Scottish Government's Policy on Control of Woodland Removal

Scottish Environment Protection Agency (2014) Land Use Planning System SEPA Guidance Note LUPS-GU27 – Use of Trees Cleared to Facilitate Development on Afforested Land

Forestry Commission (2017) The UK Forestry Standard – The Government's Approach to Sustainable Forestry

Forestry Commission (1981) Yield Models for Forest Management

15.12 FIGURES



Earraghail Renewable Energy Development

Appendix 15.1 Forestry

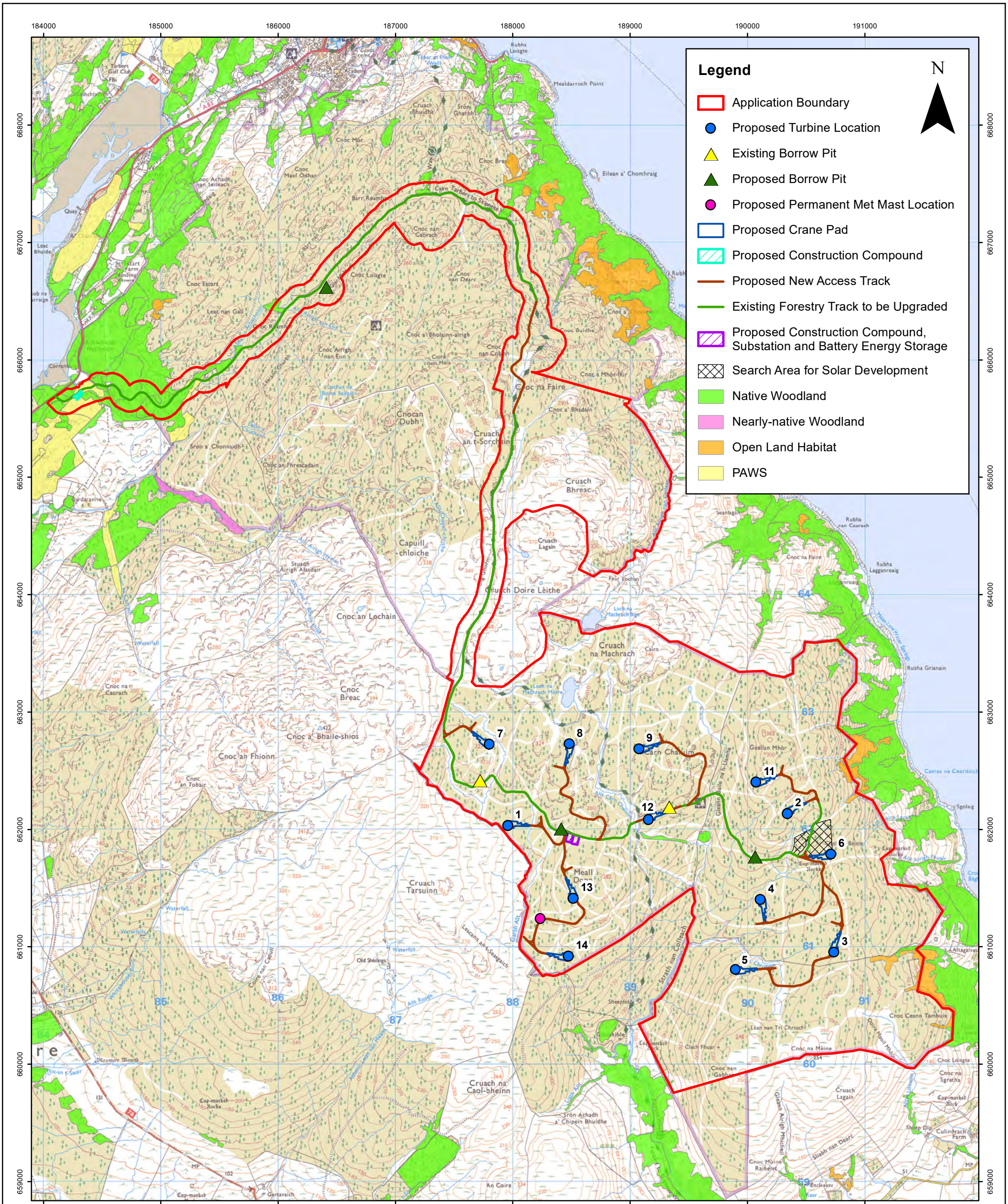
National Forest Inventory 2018

Rev	Date	By	Comment
C	16/12/21	DL	Revised Turbine Locations
B	26/11/21	DL	Revised Logo
A	14/10/21	DL	National Forest Inventory 2018

1:30,000 Scale @ A3

0 0.225 0.45 0.9 Km

Figure	Date	Rev	Dwg No.	Datum: OSGB36 Projection:TM
15.1.1	16/12/21	C	EHAIL-RSK-I-086	



Earraghail Renewable Energy Development

Appendix 15.1 Forestry

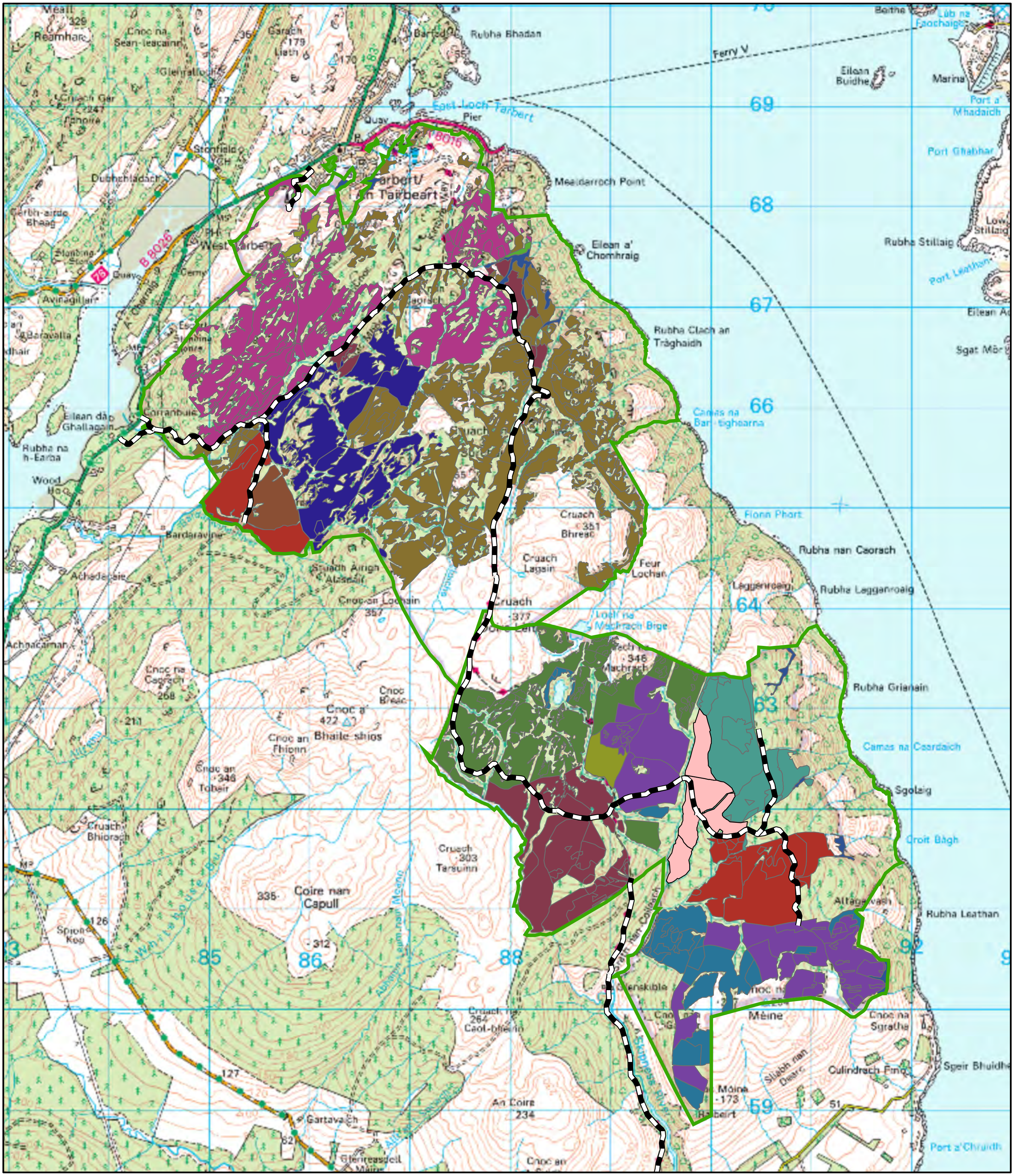
Native Woodland Survey of Scotland

Rev	Date	By	Comment
D	16/12/21	DL	Revised Turbine Locations and Infrastructure
C	26/11/21	DL	Revised Logo
B	14/10/21	DL	Revised Title Block

1:30,000 Scale @ A3

0 0.225 0.45 0.9 Km

Figure	Date	Rev	Dwg No.	
15.1.2	16/12/21	D	EHAIL-RSK-I-072	Datum: OSGB36 Projection:TM



Forestry and Land Scotland | Coilltearachd agus Fearann Alba

Document Name:Corranbuie-Skipness planting years

User Name: U321077

Date: 28/02/2020

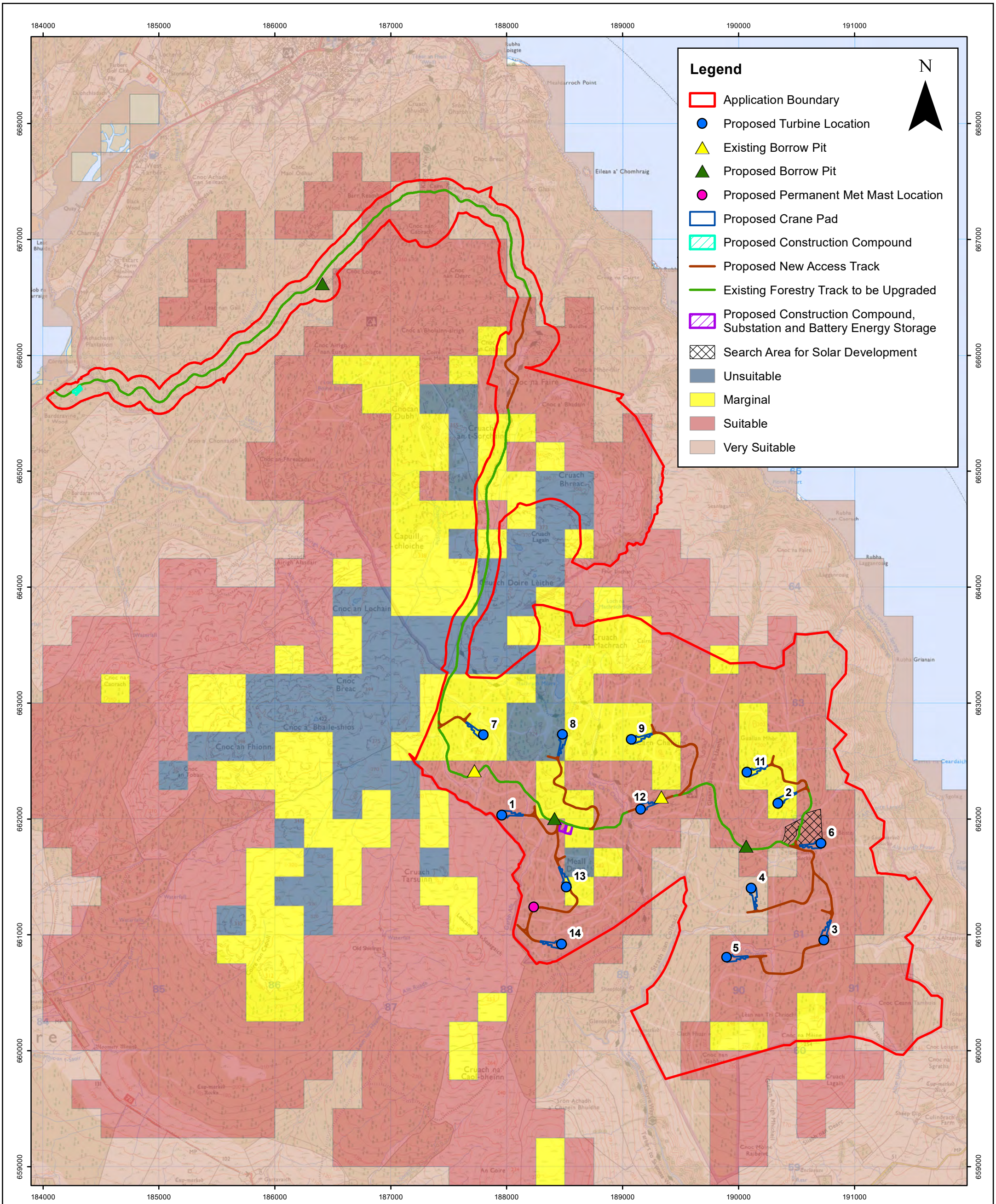
Legend

Blocks

Sub_Compts

plyr

1960	1970	1983	1989
	1975	1984	1990
	1976	1987	1992
	1982	1988	2018
			2019



Earraghail Renewable Energy Development

Appendix 15.1 Forestry

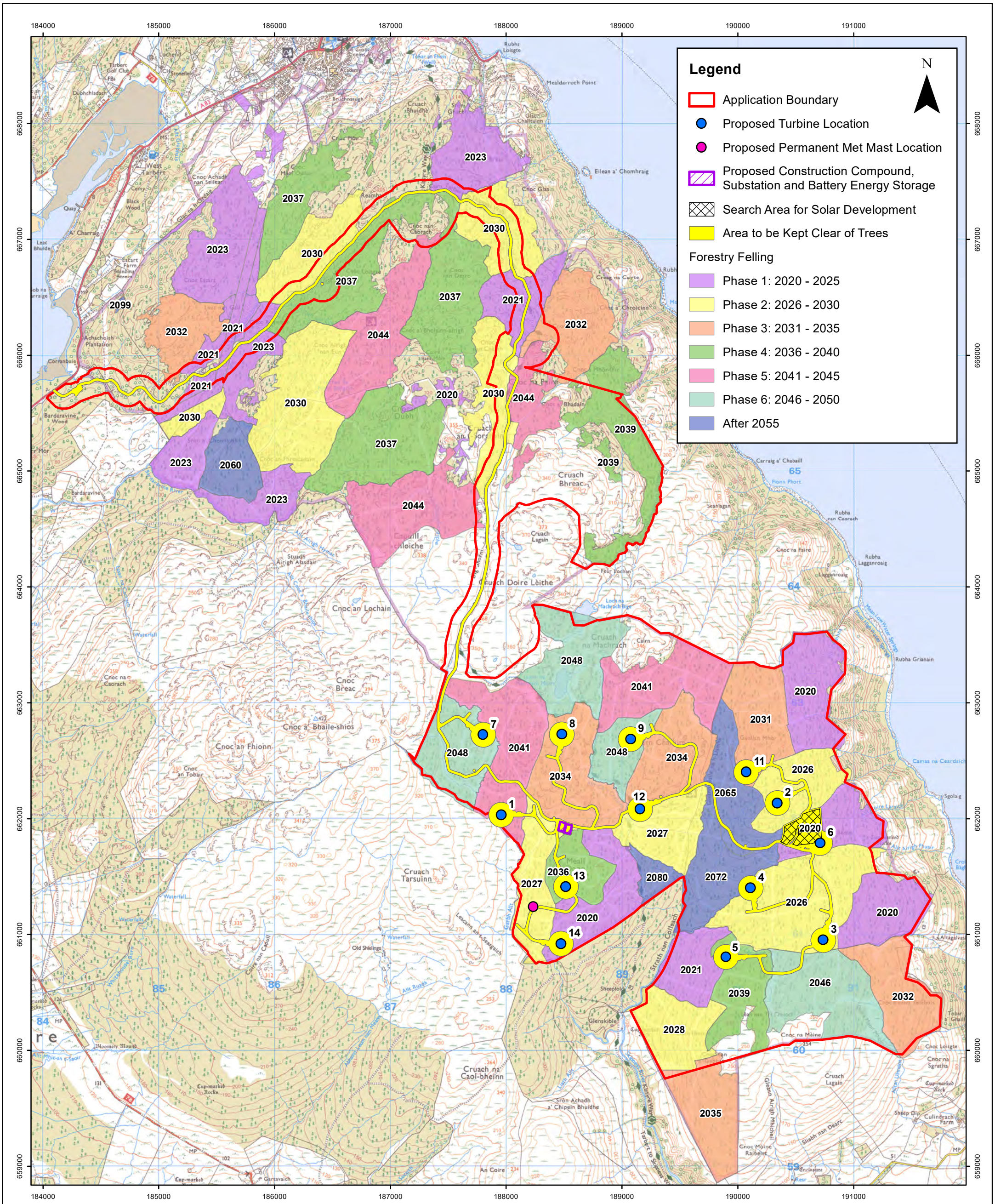
Climatic Site Suitability for Sitka Spruce

Rev	Date	By	Comment
E	16/12/21	DL	Revised Turbine Locations and Infrastructure
D	26/11/21	DL	Revised Logo
C	21/10/21	DL	Revised Legend

1:30,000 Scale @ A3

0 0.225 0.45 0.9 Km

Figure	Date	Rev	Dwg No.	
15.1.4	16/12/21	E	EHAIL-RSK-I-073	Datum: OSGB36 Projection:TM



Earraghail Renewable Energy Development

Appendix 15.1 Forestry

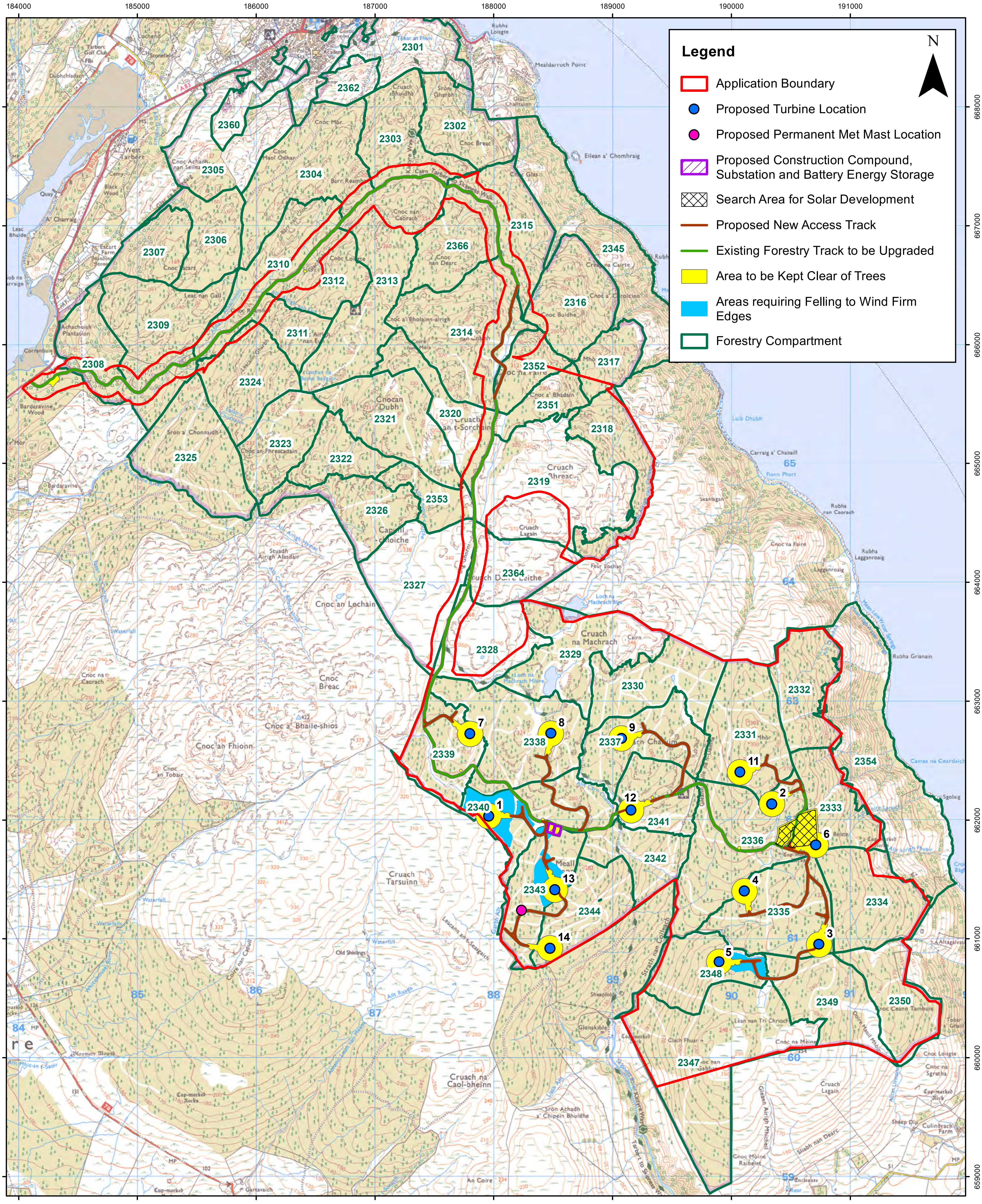
Areas for Proposed Felling 2019 - 2055

Rev	Date	By	Comment
E	16/12/21	DL	Revised Turbine Locations and Infrastructure
D	26/11/21	DL	Revised Logo
C	21/10/21	DL	Revised Felling Phases

1:30,000 Scale @ A3

0 0.225 0.45 0.9 Km

Figure	Date	Rev	Dwg No.	Datum: OSGB36 Projection:TM
15.1.8	16/12/21	E	EHAIL-RSK-I-077	



SCOTTISHPOWER RENEWABLES

Earraghail Renewable Energy Development

Appendix 15.1 Forestry

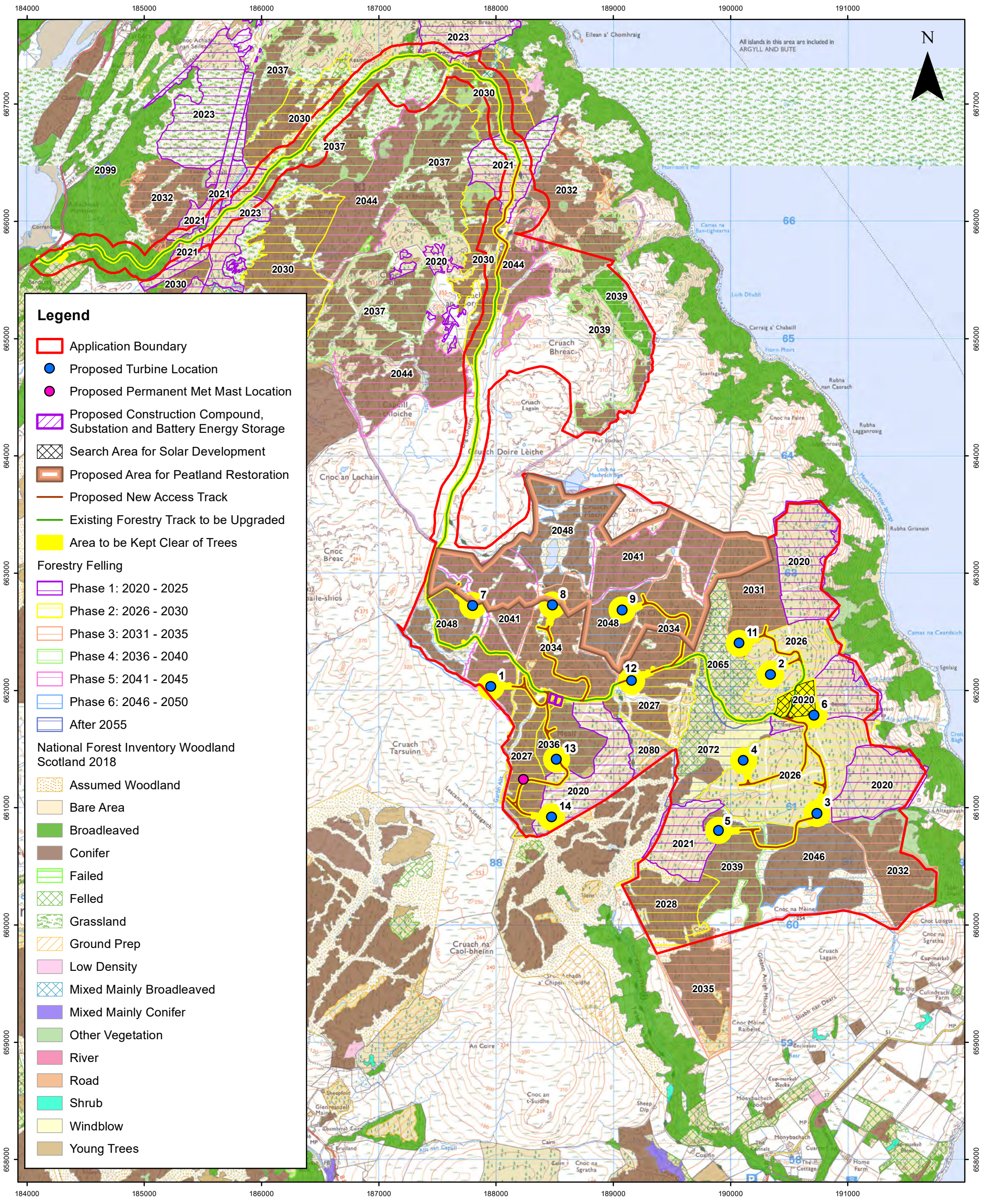
Construction Phase – Areas to be Kept Clear of Trees

1:30,000 Scale @ A3

0 0.225 0.45 0.9 Km

Rev	Date	By	Comment
G	16/12/21	DL	Revised Turbine Locations and Infrastructure
F	02/12/21	DL	Wind Firm Edges added
E	26/11/21	DL	Revised Logo

Figure	Date	Rev	Dwg No.	
15.1.9a	16/12/21	G	EHAIL-RSK-I-074	Datum: OSGB36 Projection:TM



G	16/12/21	DL	Revised Turbine Locations and Infrastructure
F	03/12/21	DL	Revised Site Boundary and Peatland Restoration
E	26/11/21	DL	Revised Logo
Rev	**Date**	**By**	**Comment**

SCOTTISHPOWER RENEWABLES

Earraghail Renewable Energy Development

Appendix 15.1 Forestry

Operational Phase – Areas to be Kept Clear of Trees

1:30,000 Scale @ A3

0 0.225 0.45 0.9 Km

Figure	Date	Rev	Dwg No.	
15.1.9b	16/12/21	G	EHAIL-RSK-I-076	Datum: OSGB36 Projection:TM

Some areas not visible from Tarbert but deforested under the MFST project will be restocked with adjoining coupes to balance further conifer removal from visible areas.

Conifers removed from Tarbert backcloth. Open space will exceed the area under tree cover to preserve open views fo amenity.

Mixed woodland serves as a transition between native woodland below and conifer forest above. Transition should improve as open areas regenerate with broadleaves and Norway spruce planting is extended to across forest road.

Sitka spruce will be the main commercial conifer most suited to the area. SS/LP self-thinning mixtures on poorer areas will be expected to yield pure SS crops at the end of the rotation.

Native woodland will extend around the northern and eastern edges of the forest to form a network, with associated benefits for landscape and wildlife. Rhododendron and other exotics will be removed from these areas.

Area of marginal value for commercial forestry that forms a buffer with the SSSI below, will be allowed to regenerate with a mixture of broadleaves and conifers. Future management wil depend on what regenerates.

Consolidation of open habitat corridors associated with felling for Black grouse habitat improvement.

Native woodland introduced, as edge woodland, for landscaping and to shorten required roading needed in the next rotation. Most exposed and poorest areas will be restored to Upland heathland.

Deep peats will require SS/LP self-thinning mixtures to establish. Some areas have achieved very poor growth in the first rotation and these have been returned o open space. This will also have landscape benefits, removing skyline conifers and straight forest edge.

Conifers have been kept extending down ridges, whilst broadleaves have been extended up watercourses to create an interlocking landscape, rather than a horizontal divide between broadleaves/open areas below and conifers above. Species choice is however limited by exposure and soils.

Opportunity to open up area between Kintyre Way and lochan at next rotation.

Better soils and less exposure will allow some increased diversity of conifers in views from the Kintyre Way. Planted broadleaves have however largely failed in the past, pehaps in part due to species choice and lack of maintenance.

Conifers removed from skyline in next rotation.

Straight edge scalloped in next rotation.

Coimisean na Coilltearachd Alba
Forestry Commission Scotland

West Argyll Forest District

Corranbuie & Skipness LMP

Map 5.5 Future habitats and species Concept Map

Scale: 1:22,191

Date: September 2016

Kilometers

0 0.5 1 2 3 4

Legend

- Sitka spruce (SS)
- Norway spruce (NS)
- Lodgepole pine (LP)
- Scots pine (SP)
- Larch sp (EL/HL/JL)
- Douglas fir (DF)
- Mixed/ other conifers (MC/XC)
- Birch (BI)
- Oak (OK)
- Ash (AH)
- Beech (BE)
- Mixed/ other broadleaves (MB/XB)
- Open land
- Species Mixture: Main colour = Dominant species; Dots = Secondary species; Sitka spruce with Birch shown here

Scotland's National Forest Estate is responsibly managed to the UK Woodland Assurance Standard.

FSC www.fsc.org FSC® C123223 The mark of responsible forestry

PEFC Promoting Sustainable Forest Management

15.13 ANNEXES

Annex 1: Sub-Compartment Schedule

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2301	Corranbuie	High Forest	JL	0	0	N/A	0.193
2301	Corranbuie	High Forest	BI	0	0	N/A	0.2798
2301	Corranbuie	High Forest	BI	0	0	N/A	0.2329
2301	Corranbuie	High Forest	BI	0	0	N/A	0.9317
2301	Corranbuie	High Forest	BI	0	0	N/A	5.6951
2301	Corranbuie	High Forest	BI	0	0	N/A	14.538
2301	Corranbuie	High Forest	XB	0	0	N/A	2.9965
2301	Corranbuie	High Forest	MB	0	0	N/A	7.6631
2302	Corranbuie	High Forest	BI	0	0	N/A	3.3456
2302	Corranbuie	High Forest	SS	0	0	N/A	2.6705
2302	Corranbuie	High Forest	NS	0	0	N/A	1.1846
2302	Corranbuie	High Forest	BI	0	0	N/A	2.3456
2302	Corranbuie	High Forest	SS	0	0	N/A	2.3295
2302	Corranbuie	High Forest	BI	0	0	N/A	2.5543
2302	Corranbuie	High Forest	BI	0	0	N/A	0.6093
2302	Corranbuie	High Forest	JL	0	0	N/A	0.4786
2303	Corranbuie	High Forest	SS	0	0	N/A	1.0804
2303	Corranbuie	High Forest	JL	0	0	N/A	1.239
2303	Corranbuie	High Forest	SS	0	0	N/A	0.3171
2303	Corranbuie	High Forest	SS	0	0	N/A	0.4597

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2303	Corranbuie	Windblow	SS	0	0	N/A	0.5603
2304	Corranbuie	Felled	N/A	0	0	N/A	3.6693
2304	Corranbuie	Felled	N/A	0	0	N/A	6.586
2304	Corranbuie	High Forest	AH	0	0	N/A	1.7474
2304	Corranbuie	High Forest	SS	0	0	N/A	1.1831
2304	Corranbuie	High Forest	SS	0	0	N/A	2.1346
2304	Corranbuie	Windblow	SS	0	0	N/A	1.2553
2305	Corranbuie	High Forest	SS	0	0	N/A	8.8912
2305	Corranbuie	High Forest	BI	0	0	N/A	0.6321
2305	Corranbuie	High Forest	SS	0	0	N/A	2.5978
2305	Corranbuie	Windblow	SS	0	0	N/A	0.4851
2306	Corranbuie	High Forest	SS	0	0	N/A	0.5001
2306	Corranbuie	High Forest	BI	0	0	N/A	0.3121
2306	Corranbuie	High Forest	SS	0	0	N/A	1.3559
2306	Corranbuie	High Forest	SS	0	0	N/A	14.923
2306	Corranbuie	High Forest	SS	0	0	N/A	5.4403
2307	Corranbuie	High Forest	BI	0	0	N/A	3.4554
2307	Corranbuie	High Forest	SOK	0	0	N/A	4.8559
2307	Corranbuie	High Forest	BI	0	0	N/A	3.3654
2307	Corranbuie	High Forest	SS	0	0	N/A	11.1297
2308	Corranbuie	Felled	N/A	0	0	N/A	9.606
2308	Corranbuie	High Forest	JL	0	0	N/A	1.2062
2308	Corranbuie	High Forest	MB	1910	0	110	67.7932
2308	Corranbuie	High Forest	MB	1920	0	100	2.6511
2308	Corranbuie	High Forest	SOK	1920	4	100	0.4561

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2308	Corranbuie	High Forest	BI	1920	2	100	8.2652
2308	Corranbuie	High Forest	SS	1925	12	95	0.2181
2308	Corranbuie	High Forest	NS	1925	12	95	0.4474
2308	Corranbuie	High Forest	SS	1930	0	90	2.4539
2308	Corranbuie	High Forest	NS	1930	0	90	1.5113
2308	Corranbuie	High Forest	SOK	1950	2	70	5.2682
2308	Corranbuie	Windblow	NS	1950	2	70	23.636
2308	Corranbuie	Windblow	SS	1950	2	70	0.1965
2308	Corranbuie	Windblow	NS	1950	0	70	60.0123
2309	Corranbuie	High Forest	SS	1950	2	70	5.5962
2309	Corranbuie	High Forest	MB	1960	2	60	1.964
2309	Corranbuie	High Forest	BI	1960	2	60	1.0117
2309	Corranbuie	High Forest	DF	1960	2	60	5.3677
2309	Corranbuie	High Forest	DF	1960	2	60	0.756
2309	Corranbuie	High Forest	JL	1960	2	60	0.7601
2309	Corranbuie	High Forest	BI	1960	0	60	0.4287
2309	Corranbuie	High Forest	SS	1960	2	60	1.8049
2309	Corranbuie	High Forest	SS	1960	2	60	1.559
2310	Corranbuie	Felled	N/A	1960	2	60	0.8057
2310	Corranbuie	High Forest	SS	1970	2	50	0.8776
2310	Corranbuie	High Forest	SP	1970	2	50	0.3338
2310	Corranbuie	High Forest	SS	1970	0	50	0.1998
2310	Corranbuie	High Forest	BI	1970	0	50	0.1821
2310	Corranbuie	High Forest	SS	1970	0	50	0.2682
2310	Corranbuie	High Forest	JL	1970	0	50	1.7841

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2310	Corranbuie	High Forest	BI	1970	2	50	0.8512
2311	Corranbuie	High Forest	JL	1975	6	45	0.3754
2311	Corranbuie	High Forest	LP	1975	16	45	0.441
2311	Corranbuie	High Forest	SS	1975	18	45	15.2355
2311	Corranbuie	Windblow	SS	1975	16	45	10.5279
2312	Corranbuie	High Forest	SS	1975	16	45	35.2756
2312	Corranbuie	High Forest	SS	1975	0	45	2.8129
2312	Corranbuie	High Forest	JL	1975	16	45	11.8231
2312	Corranbuie	High Forest	SS	1975	18	45	8.7865
2313	Corranbuie	High Forest	SS	1975	12	45	6.6831
2313	Corranbuie	High Forest	SS	1975	18	45	0.7877
2313	Corranbuie	High Forest	SS	1975	14	45	22.5613
2313	Corranbuie	High Forest	SS	1975	18	45	4.1934
2313	Corranbuie	High Forest	SS	1975	18	45	1.4446
2314	Corranbuie	High Forest	SS	1975	18	45	1.4378
2314	Corranbuie	High Forest	NS	1976	12	44	2.5609
2314	Corranbuie	Windblow	SS	1976	12	44	0.3956
2315	Corranbuie	Felled	N/A	1976	12	44	5.6995
2315	Corranbuie	High Forest	BI	1976	18	44	7.731
2315	Corranbuie	High Forest	SS	1976	18	44	0.463
2315	Corranbuie	High Forest	JL	1976	12	44	37.1384
2315	Corranbuie	High Forest	NS	1976	14	44	4.3233
2315	Corranbuie	High Forest	SS	1976	8	44	9.0936
2315	Corranbuie	High Forest	SS	1976	14	44	2.8552
2315	Corranbuie	High Forest	MB	1976	14	44	12.2832

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2315	Corranbuie	High Forest	SS	1976	16	44	0.3531
2315	Corranbuie	High Forest	BI	1980	2	40	0.6167
2316	Corranbuie	Felled	N/A	1982	12	38	0.8222
2316	Corranbuie	High Forest	JL	1982	6	38	0.9912
2316	Corranbuie	High Forest	SS	1982	2	38	0.6809
2316	Corranbuie	High Forest	SS	1982	12	38	1.4409
2316	Corranbuie	High Forest	SS	1982	6	38	0.8223
2316	Corranbuie	High Forest	BI	1982	12	38	22.0715
2316	Corranbuie	High Forest	NS	1982	2	38	1.4531
2317	Corranbuie	High Forest	SS	1982	8	38	1.7473
2317	Corranbuie	High Forest	SS	1982	0	38	0.887
2317	Corranbuie	High Forest	SS	1982	8	38	30.0781
2318	Corranbuie	High Forest	SS	1982	4	38	0.6073
2318	Corranbuie	High Forest	SS	1982	10	38	0.8992
2319	Corranbuie	Felled	N/A	1982	10	38	1.0123
2319	Corranbuie	High Forest	SS	1982	12	38	17.0853
2320	Corranbuie	High Forest	SS	1982	14	38	9.2953
2320	Corranbuie	High Forest	SS	1982	12	38	2.5984
2321	Corranbuie	High Forest	SS	1982	8	38	13.336
2321	Corranbuie	High Forest	SS	1982	14	38	0.6867
2321	Corranbuie	High Forest	SS	1982	14	38	20.0482
2321	Corranbuie	High Forest	SS	1982	4	38	3.7293
2322	Corranbuie	High Forest	SS	1982	14	38	1.406
2322	Corranbuie	High Forest	SS	1982	0	38	1.1765
2322	Corranbuie	High Forest	SS	1982	14	38	23.9814

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2323	Corranbuie	High Forest	SS	1982	14	38	0.851
2323	Corranbuie	Windblow	SS	1982	2	38	8.5437
2324	Corranbuie	High Forest	LP	1982	14	38	5.9352
2324	Corranbuie	High Forest	JL	1982	8	38	0.5507
2324	Corranbuie	High Forest	SS	1982	2	38	1.8392
2324	Corranbuie	High Forest	SS	1982	12	38	2.2485
2324	Corranbuie	Windblow	SS	1982	4	38	2.0421
2325	Corranbuie	High Forest	BI	1982	2	38	0.3438
2325	Corranbuie	High Forest	SS	1982	12	38	0.846
2325	Corranbuie	High Forest	SS	1982	6	38	1.6245
2325	Corranbuie	High Forest	SS	1982	2	38	9.0653
2325	Corranbuie	High Forest	SS	1982	12	38	12.1109
2326	Corranbuie	Felled	N/A	1982	12	38	19.162
2326	Corranbuie	High Forest	SS	1983	6	37	0.7066
2326	Corranbuie	High Forest	SS	1983	4	37	0.3652
2326	Corranbuie	High Forest	SS	1983	12	37	0.5883
2326	Corranbuie	High Forest	SS	1983	12	37	45.2916
2326	Corranbuie	High Forest	SS	1983	2	37	1.067
2326	Corranbuie	Windblow	SS	1983	8	37	1.0454
2329	Skipness	High Forest	LP	1983	4	37	2.8278
2329	Skipness	High Forest	LP	1983	8	37	0.3719
2329	Skipness	High Forest	LP	1983	6	37	0.4676
2329	Skipness	High Forest	LP	1983	12	37	14.2413
2329	Skipness	High Forest	LP	1983	8	37	5.2863
2329	Skipness	High Forest	SS	1983	10	37	8.5603

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2329	Skipness	High Forest	SS	1983	8	37	0.9566
2329	Skipness	High Forest	SS	1983	10	37	22.0401
2329	Skipness	High Forest	LP	1983	0	37	3.5905
2330	Skipness	High Forest	SS	1983	14	37	3.0539
2330	Skipness	High Forest	SS	1983	6	37	1.8828
2330	Skipness	High Forest	SS	1983	12	37	13.7188
2330	Skipness	High Forest	SS	1983	12	37	10.4303
2331	Skipness	High Forest	SS	1983	0	37	1.1952
2331	Skipness	High Forest	SS	1983	14	37	6.9731
2331	Skipness	High Forest	SS	1983	6	37	4.892
2331	Skipness	High Forest	SS	1983	6	37	10.8951
2332	Skipness	Felled	N/A	1983	2	37	2.2432
2332	Skipness	Felled	N/A	1983	0	37	0.5522
2332	Skipness	Felled	N/A	1983	8	37	3.0063
2332	Skipness	Felled	N/A	1983	8	37	2.7134
2332	Skipness	High Forest	BI	1983	12	37	16.097
2332	Skipness	High Forest	SS	1983	10	37	1.3023
2333	Skipness	Felled	N/A	1983	10	37	25.6846
2333	Skipness	Felled	N/A	1983	2	37	2.52
2333	Skipness	High Forest	BI	1983	16	37	1.6498
2333	Skipness	High Forest	SS	1983	14	37	0.3145
2333	Skipness	High Forest	SS	1983	14	37	1.4799
2333	Skipness	High Forest	SS	1983	12	37	2.652
2333	Skipness	Windblow	SS	1983	12	37	1.7219
2334	Skipness	Felled	N/A	1983	6	37	0.2437

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2334	Skipness	Felled	N/A	1983	6	37	4.3455
2334	Skipness	Felled	N/A	1983	6	37	2.352
2334	Skipness	Felled	N/A	1983	2	37	1.1926
2334	Skipness	High Forest	SS	1983	0	37	1.324
2334	Skipness	High Forest	SS	1983	12	37	8.7591
2334	Skipness	High Forest	BI	1983	12	37	6.6694
2334	Skipness	Windblow	SS	1983	6	37	3.1627
2335	Skipness	High Forest	SS	1983	6	37	0.5202
2335	Skipness	High Forest	SS	1983	6	37	7.3063
2335	Skipness	High Forest	SS	1983	12	37	5.595
2335	Skipness	High Forest	SS	1983	10	37	19.5664
2335	Skipness	Windblow	SS	1983	12	37	7.1742
2336	Skipness	Felled	N/A	1983	12	37	1.6429
2336	Skipness	Felled	N/A	1984	6	36	0.1922
2336	Skipness	High Forest	SS	1984	6	36	1.7769
2336	Skipness	High Forest	SS	1984	10	36	0.3104
2336	Skipness	High Forest	SS	1984	4	36	0.5431
2336	Skipness	High Forest	NS	1984	4	36	0.7729
2336	Skipness	High Forest	SS	1984	10	36	9.7461
2336	Skipness	High Forest	SS	1984	0	36	0.5485
2336	Skipness	High Forest	SS	1984	6	36	1.779
2336	Skipness	Windblow	SS	1984	10	36	11.3496
2336	Skipness	Windblow	SS	1984	12	36	15.5572
2336	Skipness	Windblow	SS	1984	12	36	0.661
2337	Skipness	High Forest	SS	1984	12	36	14.0003

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2337	Skipness	High Forest	SS	1984	12	36	1.0766
2337	Skipness	High Forest	SS	1984	12	36	0.5688
2337	Skipness	High Forest	SS	1984	12	36	0.6757
2338	Skipness	High Forest	SS	1984	0	36	0.6268
2338	Skipness	High Forest	LP	1984	16	36	10.134
2338	Skipness	High Forest	SS	1984	10	36	26.7187
2338	Skipness	High Forest	SS	1984	12	36	0.926
2338	Skipness	High Forest	SS	1984	12	36	29.7232
2338	Skipness	High Forest	LP	1987	0	33	0.2845
2338	Skipness	High Forest	LP	1987	6	33	1.3043
2338	Skipness	High Forest	LP	1987	14	33	0.5059
2339	Skipness	High Forest	SS	1987	10	33	0.3636
2339	Skipness	High Forest	LP	1987	2	33	0.7583
2340	Skipness	Felled	N/A	1987	8	33	0.2533
2340	Skipness	Felled	N/A	1987	2	33	0.5753
2340	Skipness	High Forest	LP	1987	12	33	10.5036
2340	Skipness	High Forest	SS	1987	20	33	2.7014
2341	Skipness	High Forest	SS	1987	18	33	4.3863
2341	Skipness	High Forest	SS	1987	16	33	4.9592
2341	Skipness	High Forest	SS	1987	10	33	0.9898
2342	Skipness	Felled	N/A	1987	12	33	2.3405
2342	Skipness	Felled	N/A	1987	18	33	21.658
2342	Skipness	Felled	N/A	1987	14	33	4.0897
2342	Skipness	Felled	N/A	1987	12	33	1.6843
2342	Skipness	High Forest	MB	1987	12	33	3.5321

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2342	Skipness	High Forest	SS	1987	12	33	16.183
2342	Skipness	High Forest	SS	1987	12	33	2.0179
2343	Skipness	High Forest	SS	1987	16	33	1.3256
2343	Skipness	High Forest	SS	1987	12	33	2.3907
2343	Skipness	High Forest	SS	1987	6	33	21.7222
2343	Skipness	High Forest	SS	1987	12	33	18.8902
2344	Skipness	Felled	N/A	1987	12	33	3.0247
2344	Skipness	Felled	N/A	1988	14	32	21.263
2344	Skipness	High Forest	SS	1988	4	32	0.3954
2344	Skipness	High Forest	NS	1988	6	32	4.3926
2344	Skipness	High Forest	JL	1988	20	32	7.4388
2344	Skipness	High Forest	SS	1988	8	32	2.3285
2344	Skipness	High Forest	SOK	1988	6	32	2.009
2344	Skipness	High Forest	SS	1988	10	32	4.252
2344	Skipness	High Forest	SS	1988	10	32	2.6299
2344	Skipness	High Forest	JL	1988	8	32	0.7491
2344	Skipness	High Forest	SS	1988	6	32	17.2814
2344	Skipness	High Forest	GF	1988	4	32	2.4826
2344	Skipness	High Forest	SS	1988	6	32	9.1984
2344	Skipness	Windblow	SS	1988	14	32	28.3327
2345	Corranbuie	High Forest	NS	1988	4	32	19.8407
2345	Corranbuie	High Forest	BI	1988	4	32	1.3519
2347	Skipness	Felled	N/A	1988	6	32	5.5456
2347	Skipness	Felled	N/A	1988	6	32	15.8344
2347	Skipness	Felled	N/A	1988	4	32	1.4332

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2347	Skipness	Felled	N/A	1988	6	32	1.9844
2347	Skipness	High Forest	SS	1988	4	32	1.9431
2347	Skipness	High Forest	SS	1988	4	32	0.8192
2347	Skipness	High Forest	SS	1989	8	31	1.0521
2347	Skipness	High Forest	SS	1989	16	31	22.9677
2347	Skipness	High Forest	SS	1989	12	31	11.1411
2347	Skipness	High Forest	SS	1989	16	31	26.0266
2347	Skipness	Windblow	SS	1989	10	31	7.6946
2348	Skipness	High Forest	SS	1989	12	31	7.0036
2348	Skipness	High Forest	SS	1989	12	31	2.5483
2348	Skipness	High Forest	HL	1989	14	31	13.5848
2348	Skipness	High Forest	SS	1989	2	31	3.7037
2348	Skipness	Windblow	SS	1989	20	31	6.2931
2349	Skipness	High Forest	SS	1989	6	31	7.1751
2349	Skipness	High Forest	SS	1989	8	31	27.1099
2349	Skipness	High Forest	SS	1989	12	31	20.2059
2349	Skipness	High Forest	SS	1989	16	31	10.1041
2350	Skipness	High Forest	MB	1990	6	30	1.5313
2350	Skipness	High Forest	SS	1990	10	30	2.7449
2350	Skipness	High Forest	BI	1990	24	30	1.1501
2350	Skipness	High Forest	SS	1990	20	30	10.5193
2350	Skipness	High Forest	SS	1990	24	30	2.746
2351	Corranbuie	High Forest	SS	1990	2	30	2.7063
2351	Corranbuie	High Forest	SS	1990	6	30	2.739
2352	Corranbuie	Felled	N/A	1990	12	30	2.5612

Compartment ID	Forest Name	Land Use	Species	Planting Year	Yield Class	Age	Sub-Compartment Area (Ha)
2352	Corranbuie	High Forest	SS	1990	20	30	17.4492
2352	Corranbuie	High Forest	SS	1990	20	30	6.3965
2353	Corranbuie	High Forest	SS	1990	14	30	29.451
2353	Corranbuie	High Forest	SS	1990	6	30	2.4493
2354	Skipness	High Forest	SOK	1990	6	30	0.7843
2360	Corranbuie	High Forest	MB	1991	26	29	0.7096
2360	Corranbuie	High Forest	XB	1991	20	29	27.2196
2360	Corranbuie	High Forest	MB	1992	0	28	0.34
2360	Corranbuie	High Forest	MB	1992	16	28	12.5513
2362	Corranbuie	High Forest	MB	1992	14	28	4.3784
2362	Corranbuie	High Forest	MB	1995	2	25	2.5488
2362	Corranbuie	High Forest	MB	1995	2	25	1.675
2366	Corranbuie	High Forest	SS	1995	2	25	0.151

Annex 2: Woodland lost to Habitat Management Plan

Comp No.	Forest Area Lost to Habitat Management Plan (Ha) - *does not include Turbine or Infrastructure*	Nett Area Loss *(Turbine + Infrastructure less 15% for open ground, rides etc)* (Ha)	Species	Planting Year	Yield Class	Age	Volume per Ha (m^3)	Approx Volume to be removed (m^3)	Approx Tonnage to be removed (Conversion factor of 1.08)	Wagon Loads (25T per load)	Wagon loads of Brash to be removed @ circa 25% of timber volume (25t loads)
2328	1.99	1.69	No Data					0.00	0.00	0	0
2329	52.47	44.60	No Data					0.00	0.00	0	0
2330	53.52	45.49	SS	89	12	32	248	11282.02	10446.31	418	113
2331	15.50	13.18	SS	88	10	33	205	2700.88	2500.81	100	27
2332	0.10	0.09	Felled					0.00	0.00	0	0
2337	42.86	36.43	SS	89	16	32	369	13443.04	12447.26	498	134
2338	37.95	32.26	No Data					0.00	0.00	0	0
2339	4.54	3.86	SS	83	12	38	352	1358.37	1257.75	50	14
2340	0.00	0.00	No Data					0.00	0.00	0	0
2341	4.17	3.54	No Data					0.00	0.00	0	0
	213.10	**181.14**						**28784.30**	**26652.13**	**1066**	287.8