Design Statement for Killean Wind Farm.

On behalf of Renewable Energy Systems Ltd.
Date: July 2024 I Pegasus Ref: P23-0967

Author: Pegasus Group

CONTENTS

LIST OF FIGURES

THIS DOCUMENT IS INTENDED TO BE PRINTED AT A3 SIZE

Cover image: Photograph taken from LVIA Viewpoint 8 - Creah Bhan

1.

INTRODUCTION

INTRODUCTION TO THE PROPOSED KILLEAN WIND FARM

Background

Renewable Energy Solution Limited (RES) ('the Applicant') is proposing to submit an application for consent under Section 36 of the Electricity Act 1989 for a wind farm development of up to 9 turbines of up to 180 m to tip (the "Proposed Development"), with associated infrastructure. The application site is approximately 1,052 hectares and is located on upland plateau moorland and conifer forest, locally known as the Killean Estate to the east of Tayinloan, on the Kintyre Peninsula in the Argyll and Bute Council (A&BC) local authority area.

Figure 1 illustrates the location of the Proposed Development and the theoretical visibility available with the introduction of turbines within this part of the landscape. Due to the location of the Site, visibility of the Proposed Development would extend to the adjacent Islands which include Isle of Arran to the east and the Isle of Gigha to the west.

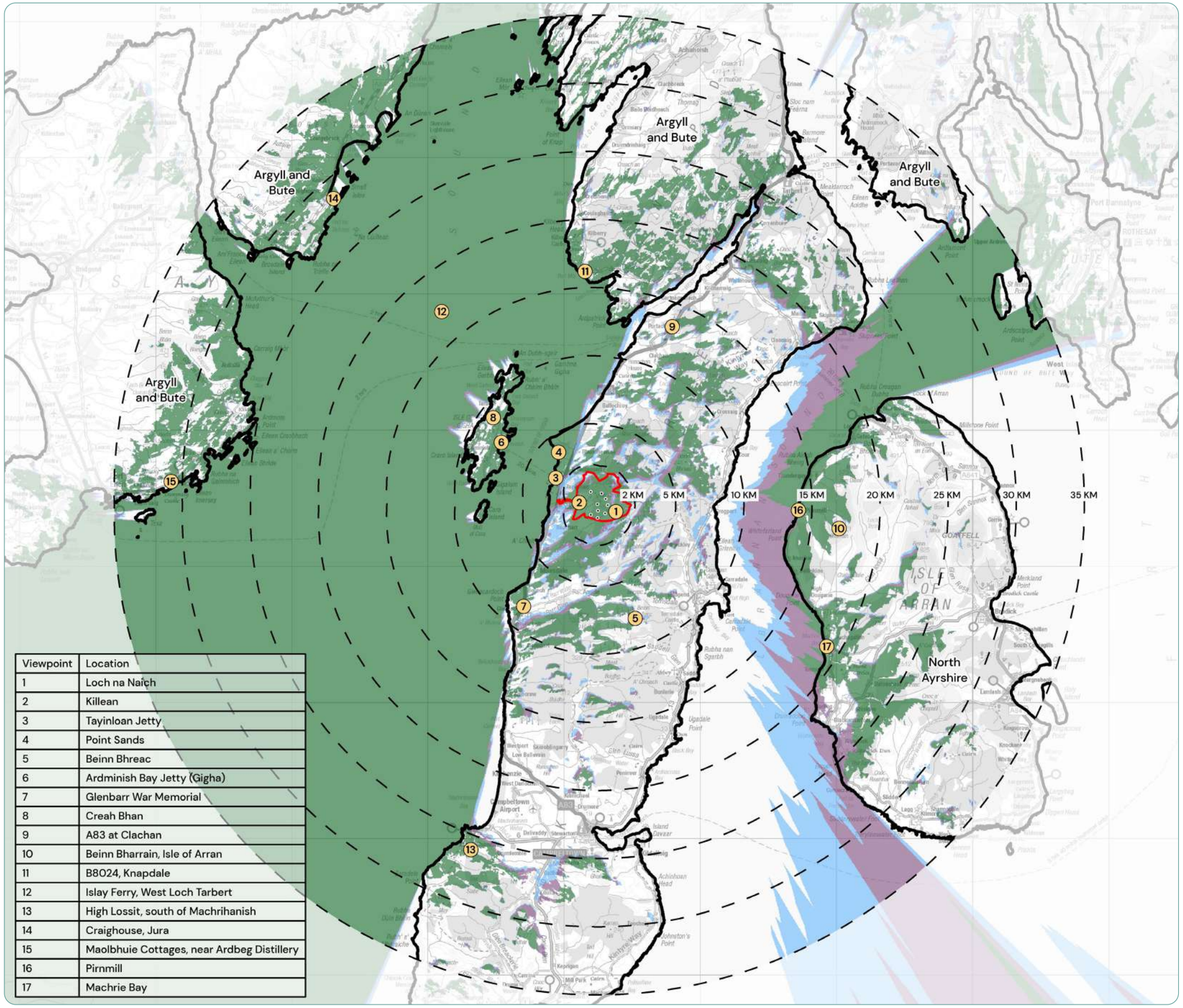
The Proposed Development would comprise the construction, 50 year operation and subsequent decommissioning of up to 9 turbines; together with wind turbine foundations, low to medium voltage transformers and related switchgear adjacent to each wind turbine, crane hardstand areas adjacent to each wind turbine, underground electrical and communication cabling, a substation compound containing electrical infrastructure, control building, welfare facilities and a communications mast, access tracks including watercourse crossings, turning heads and site entrances from the public road network.
The purpose of the Proposed Development would be to generate electricity from the 9 proposed wind turbines, giving a total maximum installed capacity from all of the wind turbines of around 59.4 MW.

The purpose of this Design Statement is to outline the opportunities, constraints and decision-making processes that have led to the design of the Proposed Development. The document accompanies the application for consent for the Proposed Development under Section 36 of the Electricity Act 1989, and describes the iterative design process undertaken for the Proposed Development, including the design principles that were established at the outset of the design process and the alternative turbine layouts that have been considered throughout the process.

An earlier wind energy scheme was proposed at the application site in 2016 which comprised of 15 no. turbines 149.9m to blade tip (subsequently reduced from an initial 17no. turbines in a 2018 amendment). This scheme was refused consent by the Scottish Government in 2019. Since that time there have been notable changes to Scottish Planning Policy with the adoption of National Planning Framework 4 (2023) and the Onshore Wind Policy Statement (2022), plus a new Argyll and Bute Local Plan (2024). There have also been notable advances in wind turbine technology, with turbines now commercially available with a much greater generating capacity than those available when the previous 2016 scheme was designed. This has presented the opportunity for a revised scheme to be developed with a similar generating capacity as the previous scheme, but with far fewer turbines.

It was recognised at the outset of the design process for the current scheme that the reasons for refusal of the previous scheme would remain important issues to be considered. The key matters being visual impacts on a number of surrounding locations in the landscape. It was also understood however, that it would not be possible to remove all visual impacts on these locations, given the height of modern commercial turbines. Indeed, in many instances the visual effects that would arise may be of a similar nature. However, these effects would be associated with a development with far fewer turbines. It was this objective of securing a similar level of energy generation, whilst reducing the number of turbines and avoiding notable increases to the level of visual impact, which underpinned the design process.

Image 1: Photograph taken from LVIA viewpoint 6 - Ardminish Bay Jetty (Gigha), looking towards the proposed Killean Wind Farm



Viewpoint	Location
1	Loch na Naich
2	Killean
3	Tayinloan Jetty
4	Point Sands
5	Beinn Bhreac
6	Ardminish Bay Jetty (Gigha)
7	Glenbarr War Memorial
8	Creah Bhan
9	A83 at Clachan
10	Beinn Bharrain, Isle of Arran
11	B8024, Knapdale
12	Islay Ferry, West Loch Tarbert
13	High Lossit, south of Machrihanish
14	Craighouse, Jura
15	Maolbhuie Cottages, near Ardbeg Distillery
16	Pirnmill
17	Machrie Bay

Figure 1: ZTV with LVIA Viewpoints to 35 km

Guidance

PAN 68: Design Statements.

1.1 The Design Statement has been prepared with regard to the guidance set out in Planning Advice Note (PAN) 68: Design Statements (2003). PAN 68 considers design statements, their purpose, use and presentation to review and set out the design principles which determine the design and layout of a development proposal. The content of the document covers the main issues which should be covered in a design statement, as recommended in PAN 68, to provide a clear design philosophy for the development. This approach provides an explanation of the design of the Proposed Development and seeks to demonstrate what has been done to appraise the site and its context, and how the design has taken account of it sensitively.

Siting and Designing Wind Farms in the Landscape.

1.2 NatureScot (previously known as Scottish Natural Heritage [SNH]) has produced guidance to aid the location of wind farms and their design principles. The most recent version of this guidance is 'Siting and Designing Wind Farms in the Landscape', Version 3a, August 2017.

1.3 The guidance acknowledges that wind turbines are generally large structures with the potential to have significant landscape and visual impacts, but that more wind farms will be needed to meet renewable energy targets and the challenge is to make sure these are sited and designed well in landscapes most suited to this form of development.

1.4 The guidance only concerns landscape and visual issues. It does not refer to wider technical design considerations (such as wind speed, access to grid) or to other natural heritage issues (such as impacts on birds, other wildlife and habitats) which are also of importance to the design process.

1.5 The content of the guidance therefore focuses on Landscape and Visual Impact Assessment (LVIA) matters with regard to wind farms, wind turbine design and layout, wind farmsiting and design, and designing in landscapes with multiple wind farms. Guidance is provided on the appropriate turbine form, size, scale, layout and on the siting and design of wind farms in relation to landscape character, landscape with scenic value, landscape pattern, landform, perspective and focal features. The guidance has informed the content of the Design Statement, which outlines the site context and design rationale for the Proposed Development, although it must be noted that the guidance is substantially that originally issued in 2009 and does not perhaps engage with the implications of the scale of wind energy development proposed in recent years or with the inevitabilities of scale comparisons between large modern turbines and existing older turbines.

Figure 2: 'Design Statements', Scottish Government, August 2003

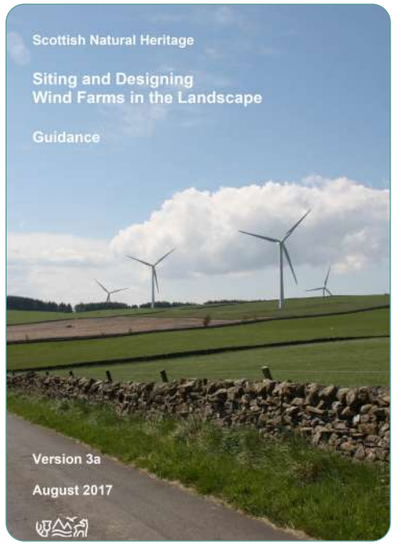


Figure 3: 'Siting and Designing Wind Farms in the Landscape' (Version 3a), SNH, August 2017

Image 2: Photograph from LVIA Viewpoint 9 with the existing Deucheran Hill featuring in the centre of the image.

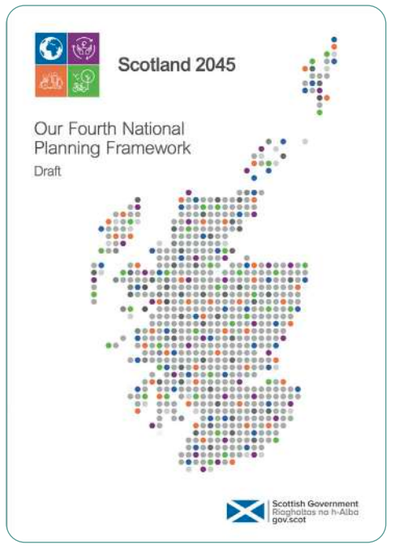


Figure 4: 'Scotland 2045: Our Fourth National Planning Framework - Draft', Scottish Government, 2021

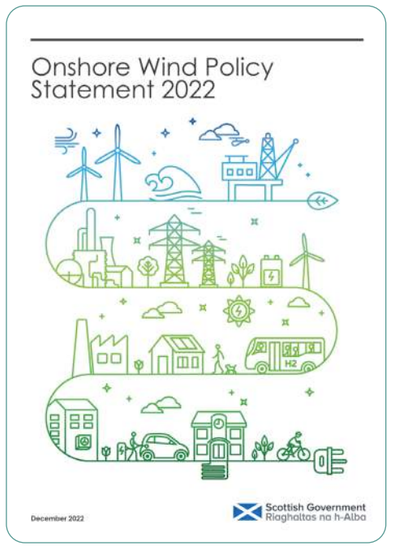


Figure 5: 'Onshore Wind Policy Statement', Scottish Government, 2022

Planning Policy Context

Overview

2.1 The Environmental Impact Assessment Report (EIAR) sets out the detailed policy context and the Planning Statement which accompanies the application provides an assessment of the extent to which the Proposed Development accords with planning policies and other material considerations.

National Planning Policy

2.2 National Planning Framework 4 (2023) (NPF4) is the national spatial strategy for Scotland. It sets out spatial principles, regional priorities, national developments and national planning policy and replaces National Planning Framework 3 (2014) and Scottish Planning Policy (2014). It represents a package of planning policies including a long-term spatial strategy to 2045, reflecting the spatial aspects of a range of Scottish Government policies, including the Infrastructure Investment Plan (IIP).

2.3 NPF4 is required by law to contribute to six outcomes, including meeting any targets relating to the reduction of emissions of greenhouse gases. It states that:

'The global climate emergency and the nature crisis have formed the foundations for the spatial strategy as a whole. The regional priorities share opportunities and challenges for reducing emissions and adapting to the long-term impacts of climate change, in a way which protects and enhances our natural environment.'

2.4 Part 1 of NPF4 - A National Spatial Strategy for Scotland 2045 sets out the six spatial principles which aim to influence plans and decisions. The following are of most relevance to wind energy development:

- Just transition
- Conserving and recycling assets
- Local Living
- Compact Urban Growth
- Rebalanced development
- Rural revitalisation

2.5 It also establishes the following three themes, linked to the United Nations (UN) Sustainable Development Goals (SDGs) and Scotland's national outcomes within the Scottish Government National Performance Framework:

- Sustainable places where we reduce emissions, restore and better connect biodiversity.
- Liveable places where we can all live better, healthier lives.
- Productive places where we have a greener, fairer and more inclusive wellbeing economy.

2.6 There are 17 UN Sustainable Development Goals. The following are of most relevance to wind energy developments:

- SDG 7 - Affordable and Clean Energy
- SDG 9 - Industry, Innovation and Infrastructure
- SDG 12 – Responsible Consumption and Production
- SDG 13 – Climate Action.

- *'This national development supports renewable electricity generation, repowering, and expansion of the electricity grid.*
- *A large and rapid increase in electricity generation from renewable sources will be essential for Scotland to meet its net zero emissions targets. Certain types of renewable electricity generation will also be required, which will include energy storage technology and capacity, to provide the vital services, including flexible response, that a zero carbon network will require. Generation is for domestic consumption as well as for export to the UK and beyond, with new capacity helping to decarbonise heat, transport and industrial energy demand. This has the potential to support jobs and business investment, with wider economic benefits.*
- *The electricity transmission grid will need substantial reinforcement including the addition of new infrastructure to connect and transmit the output from new on and offshore capacity to consumers in Scotland, the rest of the UK and beyond. Delivery of this national development will be informed by market, policy and regulatory developments and decisions.'*

2.7 Part 2 of NPF4 – National Planning Policy sets out 33 policies within three overarching themes (Sustainable Places, Liveable Places and Productive Places). Within 'Sustainable Places' the Energy Policy Intent is:

- *'To encourage, promote and facilitate all forms of renewable energy development onshore and offshore. This includes energy generation, storage, new and replacement transmission and distribution infrastructure and emerging low-carbon and zero emissions technologies including hydrogen and carbon capture utilisation and storage (CCUS).'*

Policy 11 - Energy

- *a) development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported. These include:*
- *i. wind farms including repowering, extending, expanding and extending the life of existing wind farms;*
- *ii. enabling works, such as grid transmission and distribution infrastructure;*
- *iii. energy storage, such as battery storage and pumped storage hydro;*
- *iv. small scale renewable energy generation technology;*
- *v. solar arrays;*
- *proposals associated with negative emissions technologies and carbon capture; and*
- *vii. proposals including co-location of these technologies.*
- *b) Development proposals for wind farms in National Parks and National Scenic Areas will not be supported.*
- *c) Development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.*
- *d) Development proposals that impact on international or national designations will be assessed in relation to Policy 4.*
- *e) In addition, project design and mitigation will demonstrate how the following impacts are addressed:*
- *i. impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker;*
- *ii. significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy. Where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable;*
- *iii. public access, including impact on long distance walking and cycling routes and scenic routes;*
- *iv. impacts on aviation and defence interests including seismological recording;*
- *v. impacts on telecommunications and broadcasting insallations, particularly ensuring that transmission links are not compromised;*
- *vi. impacts on road traffic and on adjacent trunk roads, including during construction;*
- *vii. impacts on historic environment;*
- *viii. effects on hydrology, the water environment and flood risk;*
- *ix. biodiversity including impacts on birds;*
- *x. impacts on trees, woods and forests;*
- *xi. proposals for the decommissioning of developments, including ancillary infrastructure, and site restoration;*
- *xii. the quality of site restoration plans including the measures in place to safeguard or guarantee availability of finances to effectively implement those plans; and*
- *xiii. cumulative impacts.'*

Locational Guidance

Scotland's Third Land Use Strategy 2021-2026: Getting the best from our land, March 2021

2.8 Scotland's Third Land Use Strategy sets out the vision, objectives and policy to achieve sustainable land use over a five year period.

2.9 In relation to semi-natural land, and specifically helping our land support climate change mitigation and adaptation, the strategy states that:

'Our land contributes to climate change mitigation in many ways. Scotland has a long and positive history of harnessing renewable energy and our capacity to generate it will need to be increased to meet our net-zero targets. Our energy will continue to be provided by a wide and diverse range of renewable technologies, including onshore wind. We will need to continue to develop wind farms, in the right places, and also look to the extension and replacement of existing sites.'

Onshore Wind Policy Statement 2022

2.1 The strategic approach to development set out within the OWPS states that :

'We believe that the current system, as described in our consultation as "business as usual", continues to represent an effective and efficient process for considering applications for developments in excess of 50 MW. However, we still expect developers of such projects to make every effort to find opportunities to collaborate, and to reduce potential local landscape impacts.'

Argyll and Bute Local Development Plan 2, 2024

2.10 The spatial strategy set out in the A&BLDP2 states that:

'In comparison with the first local development plan, the LDP2 spatial strategy seeks to promote a less prescriptive approach to new development in Argyll and Bute, whilst recognising the importance of ensuring all new development encompasses a sustainable approach'.

2.11 The key policies of relevant to the Proposed Development are:

<u>Policy 02 – Outwith Settlement Areas</u>

B – Remote Countryside Area

'Within the Remote Countryside Areas, only specific categories of development on appropriate sites will generally be supported. These comprise:

- *Renewable energy related development.'*

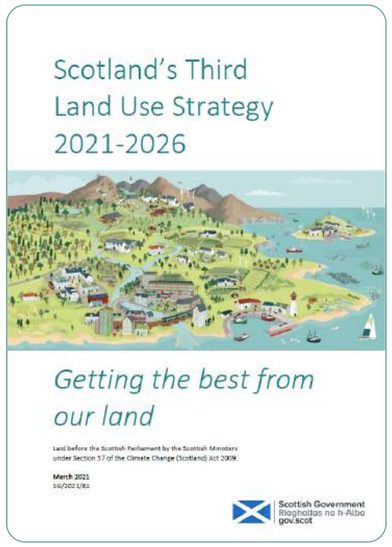


Figure 6: 'Scotland's Third Land Use Strategy 2021-2026 – Getting the best from our land', Scottish Government, 2021

Policy 03 – Simplified Planning Zones and masterplan Consent Areas

'Proposals for Development on any adopted Simplified Planning Zone or Masterplan Consent Area within 5 years of the adoption date will only be approved where:

- *Alternative uses to that contained within the adopted SPZ or MCA scheme are not proposed for all or any part of the site.*
- *A pre-application consultation process (PAC) following the procedures currently set out in Planning Circular 3/2013 has been carried out to the satisfaction of the Local Planning Authority.*
- *Any materially different design to the layout or design of the site from that set out in the adopted SPZ or MCA scheme is clearly demonstrated to be of equal or greater benefit to surrounding context of the site and fulfils a demonstrable need for the alternative design.*

'The proposal, where on part of an adopted SPZ or MCA site, would be compatible with the remaining adopted SPZ/MCA.'

Policy 04 – Sustainable Development

'In preparing new development proposals, developers should seek to demonstrate the following sustainable development principles, which the planning authority will also use in deciding whether or not to grant planning permission:

a) Maximise the opportunity for local community benefit, including the creation of district (renewable) heat networks, where viable;

f) Utilise public transport corridors and active travel networks;'

Policy 05 – Design and Placemaking

'To achieve good quality places proposals should endeavour to comply with all of the following placemaking criteria:

- *'The proposed use should be compatible with surrounding land uses.*
- *The proposal should, where practicable, be resource efficient by utilising existing infrastructure and facilities.*
- *The design should respect site topography and any surrounding important landmarks or views.*
- *The design should create and improve connectivity within, and where practical, beyond the site.*
- *Green and blue infrastructure should be an integral part of the design process from the outset.*
- *The design should develop the area's sense of identity by understanding and embracing the existing distinctive characteristics, with the design respecting and complementing its surroundings in terms of density, appearance, height, scale, massing, materials and finishes.*
- *Where the site contains existing buildings, structures and/or natural features that contribute to the character and identity of the wider area, these should be retained and sensitively integrated into the design unless it has been clearly demonstrated to the planning authority that it is not practicable.*
- *The siting and design should respond to the natural environment in a sustainable manner.*
- *The proposal should consider the design of active frontages, and create welcoming, inclusive places with a coherent structure of streets, spaces and buildings which are easy to move around, prioritising the needs of pedestrians and cyclists above motor vehicles.*
- *The access to and orientation of buildings should reinforce the street or open space to create safe and pleasant places.*

'The design should be sustainable in terms of materials and construction and should consider future adaptability, and climate change mitigation measures.'

Policy 07 – Provision of Temporary Green Infrastructure on Sites

'The temporary use of unused or underused land as green infrastructure will be encouraged where it would not prevent the land from being developed in the longer term.'

Policy 08 – Sustainable Siting

'The development should integrate into the landscape or existing built form to minimise detrimental effects on the environment. Particularly careful attention should be given to hilltop, skyline or ridge locations, where development will only be acceptable if such a location cannot be avoided and any significant adverse landscape and visual effects are clearly outweighed by social, environmental or economic benefits of community wide importance arising from the development proposal, and have been sufficiently mitigated through an environmental impact assessment or landscape and visual impact assessment.'

Policy 30 – The Sustainable Growth of Renewables

"The Council will support renewable energy developments where these are consistent with the principles of sustainable development and it can be adequately demonstrated that there would be no unacceptable environmental effects, whether individual or cumulative, on local communities, natural and historic environments, landscape character and visual amenity, and that the proposals would be compatible with adjacent land uses.

Applications for all wind turbine developments will be assessed against the following criteria:

- *'Impacts on communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker.*
- *Landscape and visual impacts.*
- *Effects on the natural heritage, including birds.*
- *Impacts on carbon rich soils, using the carbon calculator.*
- *Public access, including impact on long distance walking and cycling routes and those scenic routes identified in the NPF.*
- *Impacts on the historic environment, including scheduled monuments, listed buildings and their settings.*
- *Impacts on tourism and recreation.*
- *Impacts on aviation and defence interests and seismological recording.*
- *Impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised.*
- *Impacts on road traffic.*
- *Impacts on adjacent trunk roads.*
- *Effects on hydrology, the water environment and flood risk.*
- *Cumulative impacts arising from all of the considerations above.*
- *Net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.*
- *The scale of contribution to renewable energy generation targets.*
- *Effect on greenhouse gas emissions.*
- *Impacts on trees, woods and forests.'*

'In assessing any application the Council will additionally have

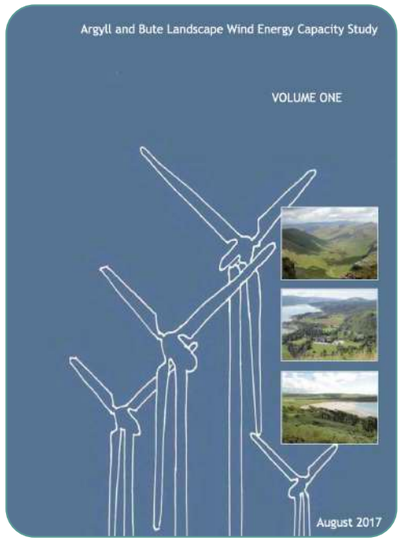


Figure 7: Argyll and Bute Landscape Wind Energy Capacity Study, August 2017

regard to the opportunities for energy storage, local energy networks, and long term environmental management of the site.'

Argyll and Bute Landscape Wind Energy Capacity Study, August 2017

2.12 The Argyll and Bute Landscape Wind Energy Capacity Study (ABLWECS) was undertaken in March 2012 and updated in August 2017. Its aim was to inform strategic planning for wind energy development in line with Scottish Planning Policy (SPP) and to also provide guidance on the appraisal of individual wind farm and wind turbine proposals in Argyll and Bute. The study draws from the 1996 Argyll and the Firth of Clyde Landscape Assessment but has revised some of the Landscape Character Types (LCTs). The scope of the ABLWECS to consider the capacity of different landscapes to accommodate wind development within Argyll and Bute is now outdated, however it still has some use as a relative landscape sensitivity study.

2.13 The Proposed Development lies on the western edge of Landscape Character Type (LCT) 6 – Upland Forest Mosaic where the study identifies a high sensitivity to the very large turbine typology.

2.14 The LCT's key constraints are identified as:

- *'The more complex landform of smaller interlocking hills and slopes which provide a backdrop to the settled coastal landscapes of the Rocky Mosaic (20) and the Bay Farmland (14) on the outer fringes of the Kintyre peninsula and which are prominent in views from roads and settlement.*
- *The rugged and remote coast between Skipness and Tarbert which has some qualities of wildness and is visible from the Tarbert-Lochranza ferry, outer Loch Fyne and the west coast of the Ardlamont peninsula.*
- *The more pronounced, rugged and higher hill summits, including Beinn Bhreac, and Beinn an Tuirc, which are particularly visible from the sea and Arran to the east, adding interest to the fairly uniform skyline of these uplands. The hill of Cnoc a Bhaile-shois at the northern end of the peninsula is also prominent, particularly in views from the west in the Knapdale area.*
- *The narrow, settled glens which extend into these uplands – for example Barr Glen and Glen Lussa – which would be sensitive to larger typologies sited on the edge hills and ridges which provide immediate skylines to these smaller scale landscapes.*
- *The edges of these uplands which form prominent skylines and containing ridges from the intimately scaled and richly diverse Hidden Valleys (3) and coasts around Carradale and Saddell on the east coast of Kintyre.*
- *The APQ covering the coastal fringes which abuts this character type and where turbines could potentially impact on special qualities if visible on prominent skylines.*
- *Views to the mountains of north Arran and Jura from the B8001.*
- *Potential cumulative effects with operational and consented wind farms seen from the A83, B842, B8001, from the Kintyre coast, Kilbrannan Sounds, Arran (including from the North Arran NSA and WLA) Gigha and the West Loch Tarbert area.'*

2.15 Since the ABLWECS was published in 2017, NatureScot has prepared revised guidance on sensitivity assessment and advises that updating of existing studies may be required as development patterns and technology change and that reference to 'capacity' should be removed. The guidance also notes that "a finding of 'high sensitivity' does not necessarily mean that there is no ability to accommodate development and 'low' sensitivity does not necessarily mean there is definitely potential for development.

The Changing Landscape

2.16 It is also important to acknowledge that landscape and visual effects arising from a Proposed Development are one factor weighed in the overall planning balance, set against the current renewable energy and planning policy context applicable at the time.

Overview

2.17 The Proposed Development is located off the A83, on the Kintyre Peninsula, with wind turbines proposed to occupy upland plateau moor and conifer forest locally known as the Killean Estate. The location is illustrated in Figures 5.1 and 5.2.

Landscape and Visual Context

2.18 The site is located in the Argyll and Bute Council (A&BC) area, centred at approximately Ordnance Survey (OS) Grid Reference NM 72668 44646. The closest settlements (identified in the A&BC LDP) include the villages of Killean, located approximately 2.6 km west south west, and Tayinloan located approximately 2.6 km west of the site.

2.19 There are no national landscape designations covering the site.

2.20 The main part of the Proposed Development is not located within a locally designated landscape, however the application boundary for the access track passes with the West Kintyre Local Landscape Area (WKLLA). The Proposed Development is not located within a locally designated landscape.

Topography

2.21 The topography of the site is characterised as a broad area of undulating upland lying within the interior of the Kintyre peninsula.

2.22 The elevation of the site ranges from approximately 15 m Above Ordnance Datum (AOD) in the western part of the site where the proposed access track meets the A83 to approximately 336 m AOD near the centre of the site and on the south-western site boundary near to the hilltop of Cnoc Odhar Auchaluskin. In the northern part of the site is the distinct hilltop of Cnoc nan Craobh (322 m AOD). A range of hills runs through the eastern part of the site, forming a ridge to the west of Glenn Drochairde.

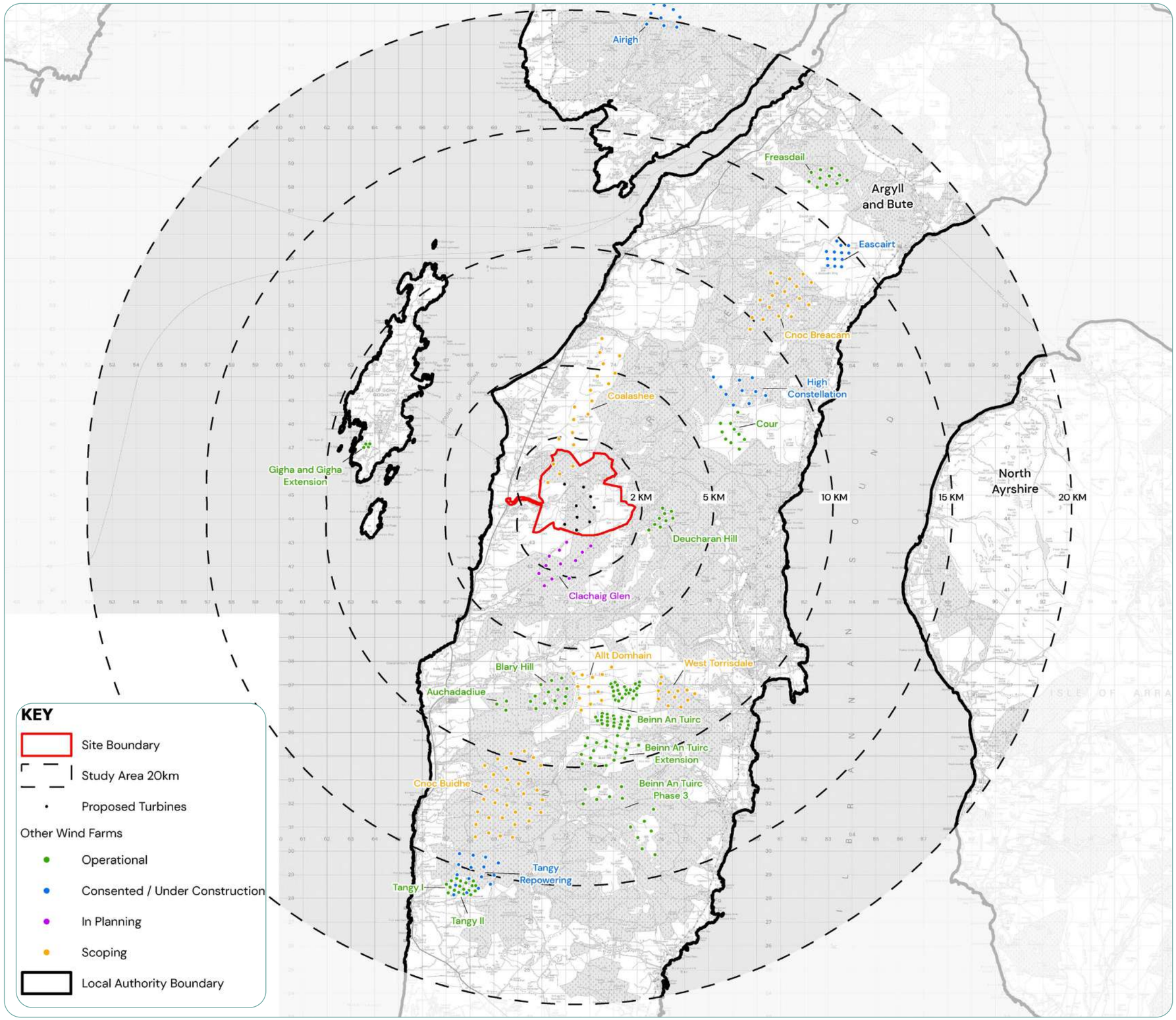


Figure 8: Other Wind Farms within 20 km

Image 4: Looking towards the Site from LVIA Viewpoint 2 Killean, beyond felled forestry plantation

Image 5: Long distance view from High Lossit, south of Machrihanish towards the Proposed Development beyond the existing Tangy and Beinn An Tuirc wind farms

2.23 The surrounding topography to the north, south and east of the site is generally undulating, with broad gentle slopes and rounded summits. Small interlocking knolly hills are a particular feature to the west of the site, close to the transition with the low-lying coastal plain to the west of the A83.

Watercourses and Drainage

2.24 Several small burns cross through the site. Killean Burn emerges close to the centre of the site and flows in a south-westerly direction through an area of forest. It then continues parallel with the access track to its northern side, flowing in a westerly direction towards the coast.

2.25 In the eastern part of the site, Allt Chaltuinn flows within a wide u-shaped valley in a northerly direction towards Loch Ulagadale. To the south of the site Allt Achadh a' Choirce flows in u-shaped valley in a south-westerly direction.

2.26 There are numerous loch and lochans within the site and in the wider surrounding landscape. Loch Dirigadale is located within the northern part of the site. Loch a' Ghlinn Bhig, Loch Luireach and Loch Fionn-Ghleann are located within the eastern part of the site. Loch na Naich is located within the southern part of the site. All of these lochs are fed by a broad network of burns.

Built Infrastructure

2.27 The majority of the site does not feature any built infrastructure, except for the forest access tracks that cross the upland plateau and a sheep wash near to the centre of the site. The A83 trunk road passes through the site boundary at its western end.

2.28 The closest operational wind farm to the site is Deucheran Hill Wind Farm, located approximately 2.5 km to the east of the site. Within the wider landscape there are several consented and operational wind farms.

2.29 Settlement close to the site is generally sparse. The closest residential property is Kilmory, situated adjacent to site boundary on the northern side of the Killean forest access track. There is a small group of properties adjacent to the site boundary on the southern side of the access track at Killean. Within the wider landscape settlement tends to be situated along the A83 within the lower-lying coastal landscape to the west of the site.

2.30 The nearest main transport route is the A83 between Lochgilphead (north) and Campeltown (south), situated approximately 1 km to the west of the main part of the site. The application boundary incorporates part of this road where the access track connects to it.

Sensory and Perceptual Characteristics

2.31 The site comprises a large-scale mosaic of coniferous forestry and open moorland set upon a broad undulating area of upland plateau. A sense of seclusion can be experienced within this landscape due to the lack of intervisibility with major roads or densely populated areas. However, the perception of naturalness is reduced by the extensive commercial forestry and existing operational wind farms.

2.32 Views from the settled coastal transport routes into the interior of the Kintyre peninsula are generally restricted by landform and forestry. More open views are available from the surrounding seascape and coastal areas of neighbouring islands of Gigha and Arran.

Forces for Future Change in the Landscape

2.33 The main foreseeable forces for change in the landscape surrounding the site relate to changes to the forest plantations with areas of felling and replanting in line with forest management plans. Further changes may also occur due to changes in agricultural land use and changes to traditional forms of moorland management, which may over time change such as by introducing longer rotations between burning, or changes to vegetation resulting from re-wetting or rewilding which encourage greater habitat diversity.

2.34 Within the wider landscape, there are several commercial wind energy developments, consented, in planning or being considered at scoping which, if consented, would influence the existing character of the wider landscape surrounding the Proposed Development. These include Clachaig Glen, approx. 0.7 km to the south, currently in planning, and Coalashee, approx. 0.5 km to the north, currently in scoping, which overlaps with the application boundary.

2.35 In addition to the consented or proposed developments within the vicinity of the site, it is widely recognised that climate change will have an impact on the future character of the Scottish landscape through changes to weather conditions that will in turn result in changes to vegetation that will affect the intrinsic character of the landscape.

3. DESIGN PROCESS

Image 6: Photograph taken from LVIA viewpoint 6 - Ardminish Bay Jetty (Gigha), looking towards the Site

Overview

3.1 The Proposed Development has taken into consideration a range of technical, environmental, planning and commercial factors. These factors have been considered from the initial Site selection of the 2016 scheme through the design process to the final layout of the Proposed Development. This section describes this design process and design considerations applicable to the Proposed Development.

Site Selection

3.2 Feasibility work was undertaken by RES, begining with the work undertaken for the 2016 scheme, drawing on specialist consultant input. The appraisal work undertaken at the feasibility stage covered a range of different issues, including:

- *Wind speed data;*
- *Distance to private dwellings;*
- *Natural and built heritage constraints and Archaeology;*
- *Slope, peat and soil constraints;*
- *Nearby wind farms;*
- *Grid connection distances and costs;*
- *Site access;*
- *Landscape and visual considerations;*
- *Ecology and ornithology;*
- *Local development plan policies;*
- *Electromagnetic links and utilities;*
- *Aviation and MOD tactical training areas; and*
- *local knowledge and other information about surrounding undesignated parks and tourist attractions etc.*

3.3 The site was progressed to the full EIA and project design stage during the preparation of the 2016 scheme for reasons that included the following:

- *Initial desk-based assessments and a review of wind resource suggest that there are high wind speeds;*
- *There are no planning policies which, in principle, preclude wind farm or renewable energy development;*
- *Good access to grid infrastructure; and*
- *The site is not located within any area of national environmental importance, and it was considered that a wind farm could be developed on the site with limited environmental effects.*
- *The site enables adequate separation to be achieved from the nearest residential properties;*
- *The site is large enough to accommodate sufficient and viable generating capacity; and*
- *The topography of the site is compatible with the construction of a commercial scale wind farm.*

3.4 These factors all remain applicable in relation the Proposed Development. In particular, the planning policy context has been updated since the progression of the 2016 scheme, and now further supports the development of wind energy.

Design Approach

Identification of constraints

3.5 Constraint information obtained from the baseline survey and extensive field survey and consultation (through the EIA scoping process) was collated and mapped to establish the potentially developable area for the siting of wind turbines within the site. The land within the site covered by the following constraints was taken out of the developable area where turbines could be sited:

- *Landscape designations and visual amenity and proximity of residential properties;*
- *Archaeological and cultural heritage assets;*
- *Sensitive fauna and habitats;*
- *Ornithology;*
- *Peat and soils;*
- *Watercourses, private water supplies and sensitive surface water features;*
- *Topography and ground conditions;*
- *Public road accessibility;*
- *Recreational and tourist routes;*
- *Acoustic;*
- *Shadow flicker;*
- *Aviation and defence constraints; and*
- *Presence of utilities.*

3.6 Each of the on site constraints were combined into a composite map to aid the design process, as shown on Figure 9.

Consultation

3.7 Consultation with key technical stakeholders has been integral to the design and development of the Proposed Development, identification of existing environmental constraints and sensitivities, and the identification and assessment of the likely environmental effects of the Proposed Development.

Technology, Size and Scale

3.8 The Scottish Government's Onshore Wind Policy Statement (2022) challenges the industry to develop the first 'subsidy free onshore wind farm' which is only possible if the Levelised Cost of Electricity (LCOE) of any development is low enough. Essentially the LCOE can be established by a number of factors:

- *Wind speed and wind flow across the site to determine the capacity factor;*
- *The cost of turbines;*
- *The cost of grid connection for the site;*
- *The potential for the highest wind speeds to be utilised most effectively;*
- *Improved project economics by creating the opportunity for larger rotor sizes to be delivered to site via main road networks;*
- *Efficiencies created by utilising existing tracks on site; and*
- *Close proximity to existing grid infrastructure.*

Efficiency Modelling

3.9 Efficiency modelling was undertaken at key stages throughout the design evolution process to ensure commercial viability of the scheme. For turbines to work effectively, they must be spaced relative to the expected prevailing wind direction. If they are too close together, the energy will be taken out of the wind at the front edge of the array and will create turbulent air for the next row and so on through the array. This is known as the wake effect.

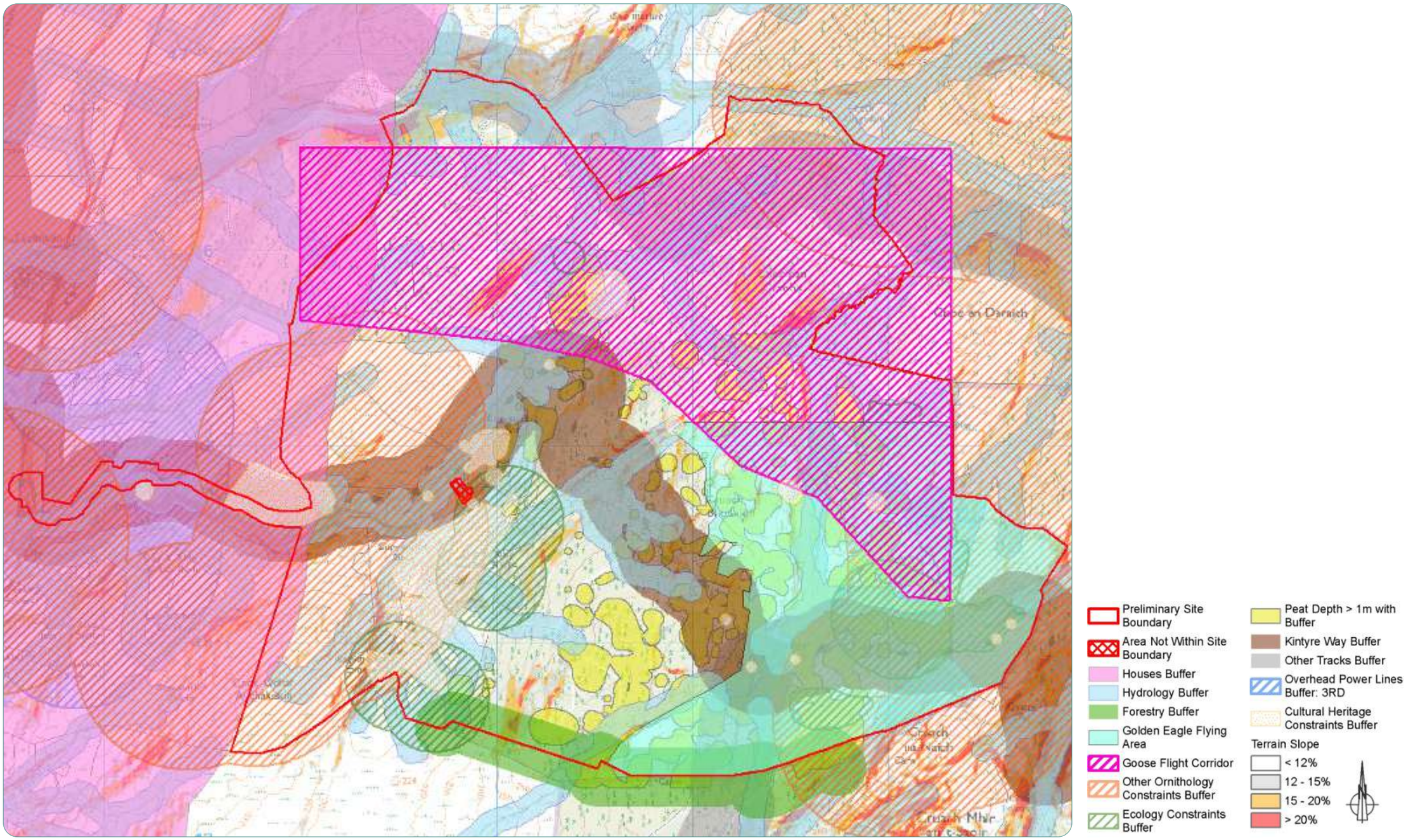


Figure 9: Combined On-site Constraints Map

Public Consultation

3.10 Although not a statutory requirement for S36 applications, the Applicant has undertaken two rounds of public consultation in the form of public exhibition events held in the local area. The first event took place at scoping stage in November 2023, with the second event held in March 2024 following the Design Chill milestone. Both events were held at Tayinloan Village Hall, 2km west of the Proposed Development site. Photomontages were presented from a range of local viewpoints and attendees were invited to give verbal and written feedback on the day, or submit comments through the project website. Full details of the consultation events and feedback received can be found in the Pre-Application Consultation (PAC) Report which accompanies the application.

3.11 In relation to design, the majority of respondents (58%) were "neutral" towards the preliminary design of the Proposed Development, with a further 14% saying they were "happy" with it. The reduction of the number of turbines from 12 to 10 (subsequently reduced to 9 turbines at design freeze) was welcomed and viewed as a positive. Attendees were pleased that ornithological surveys had been undertaken and influenced the site design and positioning of turbines.

Design Considerations

3.12 During the EIA process the following design considerations were determined, in addition to the site based constraints listed at paragraph 3.4 above. This section explains how these considerations have influenced the design through the layout iteration process.

3.13 Constraints analysis was undertaken using Geographical Information Systems (GIS). This allowed base-mapping to be overlaid with spatial data, such as environmental constraints and protected sites, and project-specific data to provide the project team with a means of interrogating environmental and project details in a single place at technical meetings and design workshops.

Technical and Environmental Considerations

Landscape and Visual Considerations

3.14 Potential landscape and visual impacts were a key issue for the design iteration process. This is discussed in further detail subsequently in Section 4, the Design Response. Amongst the landscape and visual matters considered during the design process were the following:

- *Views from nearby residential properties;*
- *Views from other settlements, roads and public rights of way;*
- *Potential effects on Landscape Character;*
- *Potential effects on Designated Landscapes*; and*
- *Additional and total cumulative effects.*

* Note - the Areas of Panoramic Quality (APQs) referred to in the ABLWECS are now known as Local Landscape Areas (LLAs) in the 2024 LDP.

3.15 Key design viewpoints were developed and were also included subsequently as LVIA Viewpoints reflecting the key visual receptors raised in the Reporter's Report and Decision of the Scottish Government in relation to the 2016 scheme.

Ecology and Ornithology

- *Ecological surveys have been carried out across the site and surrounding area from 2023 to 2024, including a Phase 1 and NVC habitat survey, bat surveys, protected species surveys and a fisheries survey. Sensitive and protected ecological features and appropriate buffers have been avoided. Sensitive habitats within the site have been avoided where possible, or where unavoidable the potential impacts reduced as far as practicable. Areas of priority peatland habitat have been avoided where possible, and the recommended habitat standoff distances from blade swept path to key habitat features have been incorporated into the design.*
- *Ornithology surveys have been carried out across the site and surrounding area during 2021 to 2023, including flight activity surveys; breeding bird surveys and wintering bird surveys. Suitable buffers were considered during the design evolution process and areas have been avoided owing to the presence of sensitive bird populations.*
- *Turbines have been moved from open land to forestry to reduce impacts on Golden Eagles.*
- *The two northernmost turbines were removed from the scoping layout in response to geese flightlines mapped during vantage point ornithology surveys to reduce potential impacts on Greenland White Fronted Geese.*
- *Access track layout has been designed to maximise the use of existing tracks. Floating tracks to be used where peat depth > 1m, where appropriate*
- *New watercourse crossings have been avoided in the design of the access track layout as far as possible.*
- *Minimum 50m buffer will be implemented between turbine blade tip and edge habitats.*

Archaeology and Cultural Heritage

- *The turbine layout has been designed to avoid heritage assets identified during the scoping assessment. The removal of the two northernmost turbines present on the scoping layout has extended the buffer between the nearest non-statutory register (NSR) asset and the Proposed Development from 145 m to over 400 m.*

Hydrology, Hydrogeology, Geology, peat and soils

- *Consideration has been made to the impacts on watercourses and the necessary 50 m buffers have been applied throughout the design process.*
- *Project design has been informed by an understanding of the ground conditions, which has evolved from baseline studies including an engineering site visit and peat depth surveys. The design has been iterated to minimise potential impacts on deep peat and areas of steeper slope to minimise disturbance.*
- *Turbine 3 of the scoping layout has been moved west from the open area overlying priority peatland into commercial forestry.*
- *A Phase 2 peat survey has been undertaken and has confirmed the presence of localised pockets of deep peat within the western area of the site and more extensive peat deposits with areas of deep peat within the eastern and south eastern areas of the site. The Phase 2 survey data has been used to support extensive design work to avoid areas of deep peat (>1.0m) and peatland in near natural condition.*

3.16 The following areas have been avoided:

- *Areas of deep peat, requiring potentially large volumes of excavation;*
- *Areas of very wet peat (such as flushes, pool and hummock complexes and gullied peatland) which might be important for hydrological connectivity;*
- *Areas of moderate to steep slopes (where site infrastructure might increase the chance of peat instability); and*
- *Areas of sensitive habitat.*

Traffic and Transport

- *Construction Traffic Management Plan (CTMP) which identifies measures to potentially reduce number of construction vehicles, consider construction programming, routing and identification of an individual with responsibility for managing traffic and transport effect.*

Acoustic

- *The Proposed Development has been designed to reduce the potential for noise effects by avoiding locating wind turbines within 1.050 m of residential properties or 750 m of financially involved properties.*

Aviation and Radar

- *Consideration has been made to the effects of wind turbine visibility on aviation radars.*

Forestry

- *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.*

Shadow Flicker

- *With an allowance for 100m micro-siting, there are no inhabited houses within 1,650m (ten-rotor diameters (1,550 = 10 * 155) +100m as shown in Figure 13.1); and thus no flicker is predicted.*

Utilities

- *The Proposed Development has been designed taking into consideration the location of alll identified utilities.*

Design Evolution

Layout Iterations

3.17 The turbine layout has undergone several principal iterations as part of the EIA and wind farm design process. The main iterations are described below and Figures 10 to 13 illustrate the progression through the Applicant's iterative design process.

3.18 With consideration to the key issues and constraints, up-to-date wind turbine technology and the design principles set out above, the final layout of the Proposed Development was the result of several iterations as outlined below:

The Scoping Layout (Layout A)

3.19 The 'scoping layout' for the Proposed Development was included in the Scoping Report as a useful focus for discussions with consultees and interested parties. This layout comprised 12 wind turbines of up to 180m to blade tip. This was based largely on future wind turbine availability, technical acceptability, and operational efficiencies. However, it was informed by preliminary landscape and visual analysis and high-level site constraints gathered from available desktop data sources.

3.20 Given there are no existing wind farms in close proximity, there was no requirement to consider potential energetic losses caused by neighbouring wind turbines. The Proposed Development would not therefore compromise the operation of any existing wind farms.

3.21 Ornithological surveys identified a golden eagle pair active in the territory around the site in 2022 and 2023. As coniferous woodland is of low habitat value to this species, it was decided to locate the majority of the turbines within the woodland area, with the exception of the easternmost turbine which was deemed to be a sufficient distance from the main eagle activity across the open moorland.

Design Stage - Layout B

3.22 Following scoping responses, the two northernmost turbines were removed from the layout due to geese flight lines mapped during vantage point ornithology surveys; to reduce potential impacts on Greenland white-fronted geese.

3.23 The removal of these turbines allowed for the previously easternmost turbine to be relocated into the coniferous woodland ensuring further mitigation for the golden eagles, with one turbine moving slightly outside of the woodland to the north-west.

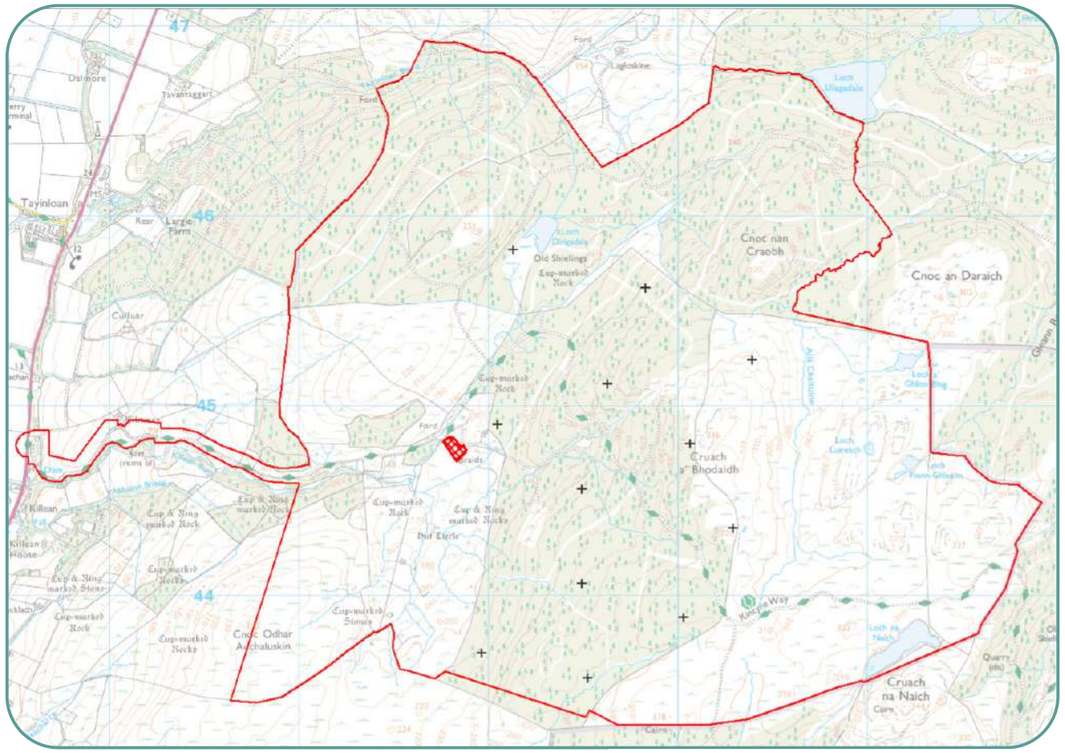


Figure 10: Scoping Layout - Layout A

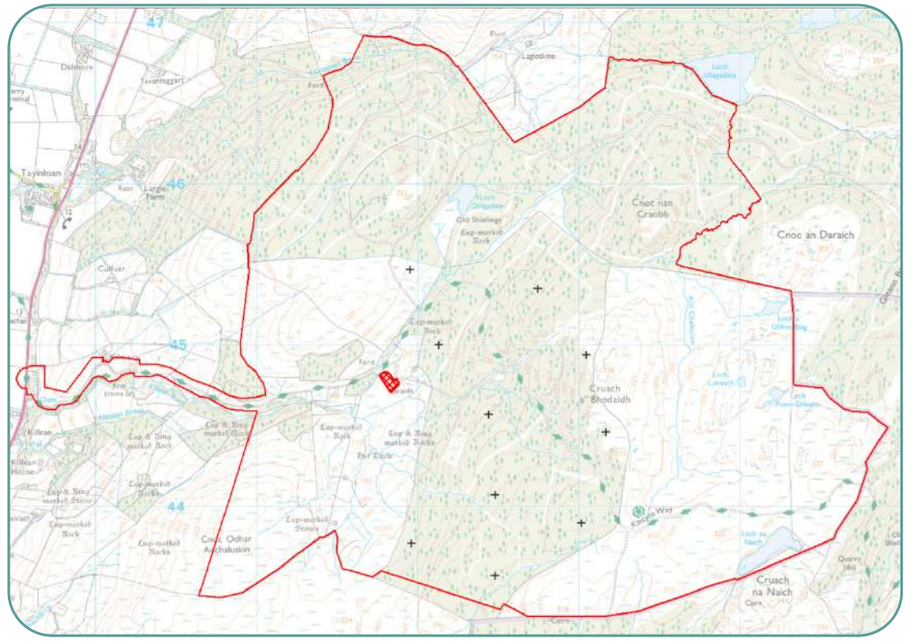


Figure 11: Design Stage - Layout B

Design Chill - Layout C

3.24 The loss of two turbines and 12MW of installed capacity led the Applicant to investigate the potential for a more powerful candidate turbine model. Once access studies had determined that a slightly longer blade length could be transported to the site, the candidate turbine was changed from a 6MW turbine to a 6.6MW turbine, resulting in a larger rotor diameter but no change to the overall tip height.

3.25 As a result, the Proposed Development's generating capacity increased from 60MW to 66MW, thus compensating for the loss of one of the two turbines. Due to the slightly larger rotor diameter, minor changes were made to some turbine locations in order to achieve optimal wind exposure. This layout was then confirmed as "Design Chill".

Design Freeze, Final Turbine Layout - Layout D

3.26 Following the Design Chill, infrastructure including the site access tracks, substation and construction compounds were added to the layout and phase 2 peat and hydrology surveys were undertaken. The aim was to ensure that turbines and infrastructure avoided peat depths greater than 1m and retained a 50m clearance from hydrological features where possible.

3.27 Following the survey results, one further turbine was removed from the layout due to unavoidable deep peat and hydrology constraints, leaving the final layout of nine turbines with an overall generating capacity of 59.4MW.

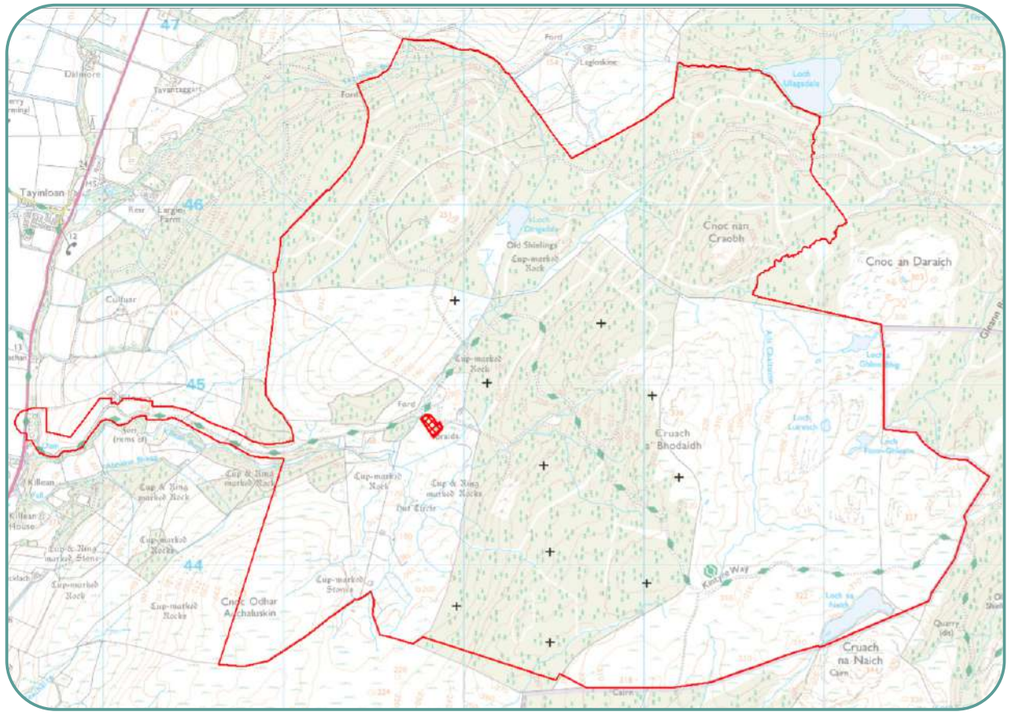


Figure 12: Design Chill - Layout C

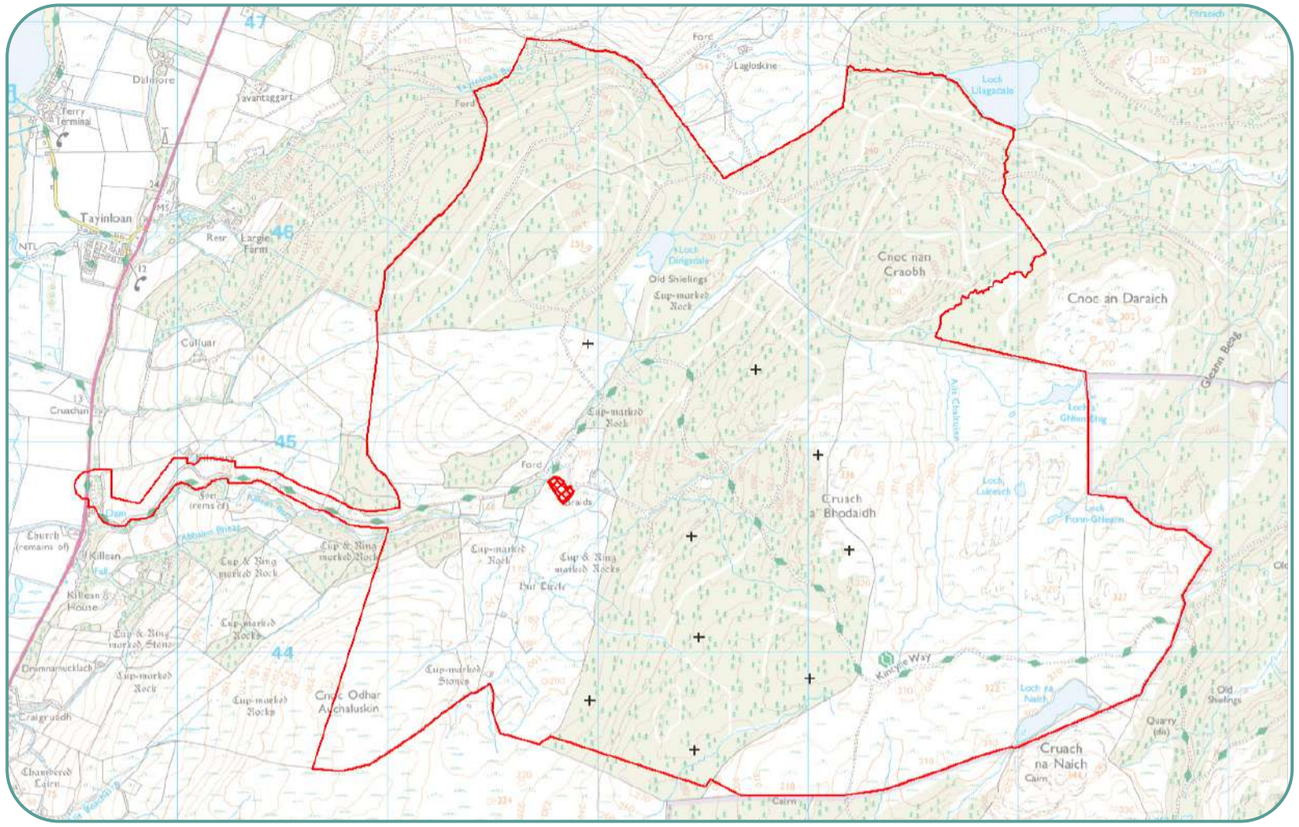


Figure 13: Design Freeze, Final Turbine Layout - Layout D

Site Infrastructure

Excavated Tracks, Hardstands and Compounds

3.28 The construction method for excavated tracks, hardstands and compounds would generally be as follows:

- The topsoil will be excavated and stored to one side for reuse during the reinstatement of the structure;
- Excavation will be undertaken to competent material. Excavated subsoil material may be stockpiled temporarily adjacent to the excavation for later use as backfill or stored elsewhere on the Proposed Development. Temporary and permanent drainage shall be installed at the same time as the excavation works for the structure.
- In the case where competent material is lower than the required formation level the foundation will likely be over-excavated to competent material and compacted engineering fill placed to the required formation level;
- Where excavation is required to extend below the water table or in material which does not drain freely, appropriate pumping will be employed to keep the excavation dry. Water pumped from an excavation shall not be discharged directly to any watercourse;
- If ground conditions dictate, a geotextile membrane will be applied;
- Crushed stone will be placed and compacted in layers to achieve the required structural dimensions;
- For the compounds, ducting and reinforced concrete foundations will be constructed at the required design level;
- Pre-fabricated buildings and electrical equipment will be delivered to site and lifted into place;.
- Drainage will be excavated adjacent to the structures where required. Surface water runoff will not be allowed to discharge directly into existing watercourses but will be routed through a sustainable drainage system (SuDS) in accordance with the Pollution Prevention Plan. An Outline Pollution Prevention Plan is provided as Technical Appendix 2.2;
- A surface water cut off ditch may be installed on the slope above the earthworks footprint where achievable given the topography; and
- Depending on depth and type of material, cut slopes are anticipated to be between 1:1 to 1:3.

Floated Track

3.29 Floated access track construction may be adopted where the ground conditions dictate. This system involves installing a geosynthetic reinforcement directly onto the organic vegetated layer and placing layers of crushed stone and additional geosynthetic reinforcement (if required by the design) above. If ground conditions require it, a geotextile membrane may be applied also.

Temporary Compounds

3.30 A temporary construction compound will be constructed to provide a secure area for office facilities and storage of materials and components. The temporary construction compound of 80 m x 50 m will be required in the western extent of the site boundary, at approximate Ordnance Survey grid reference E 171547, N 644787.

3.31 The temporary construction compound will be constructed of compacted stone bearing directly on a suitable formation strata. The temporary compounds will be constructed at the location indicated on Figure 14 below.

3.32 There will be a sealed bunded area where fuel and oil storage tanks will be situated, to prevent potential contamination. In accordance with SEPA guidance the bunded area will be situated a minimum of 50 m from any watercourse to reduce the risk of pollution entering watercourses.

3.33 Depending on the time of year and the stage of the construction programme, temporary lighting may be required at the temporary compounds and at work areas during working hours. It is not proposed that the lighting will be on outside of working hours.

3.34 The temporary compound will be used to accommodate a number of construction facilities including site offices and meeting rooms, staff welfare facilities, storage and laydown areas for construction vehicles, plant, equipment, wind turbine components, other materials and aggregate recycling. The compound will also provide sufficient parking for the on-site personnel, deliveries and visitors.

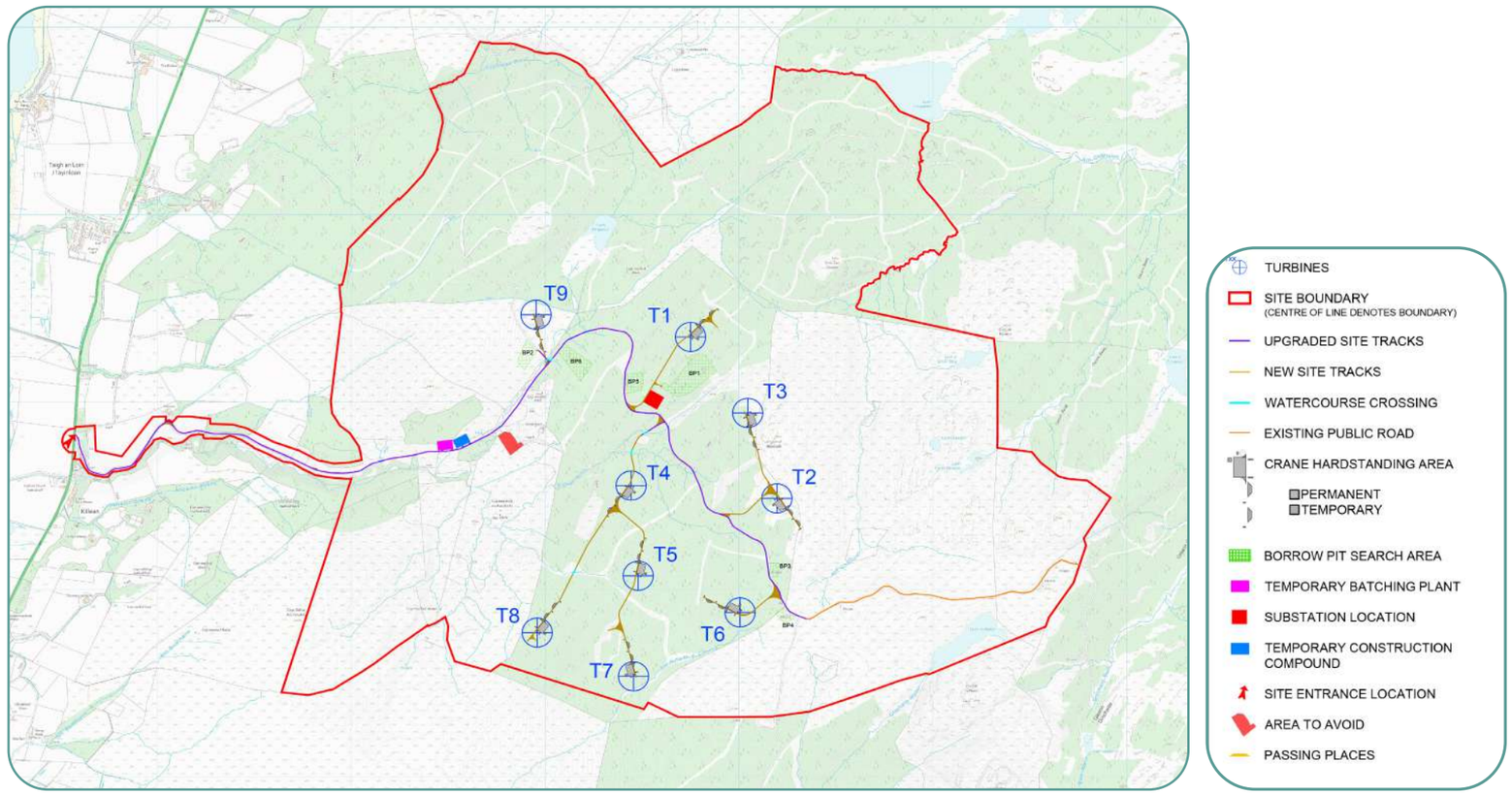


Figure 14: Internal Track Layout

Selection of the Borrow Working Search Areas

3.35 Borrow pits may be used to provide the stone for the construction of access tracks, compounds and hardstands, subject to sufficient quality and quantity of stone being available at the identified six borrow pit search areas, as indicated on Figure 1.3. These borrow pit search areas are shown as the maximum potential area of borrow pit extraction, but it is not anticipated that these areas would be fully exploited. Indicative borrow pit arrangements are shown in greater detail in Figure 15.

3.36 A total of six borrow pit search areas have been indicated, however, final borrow pit locations within the borrow pit search areas would be subject to detailed ground investigations to confirm suitability of material.

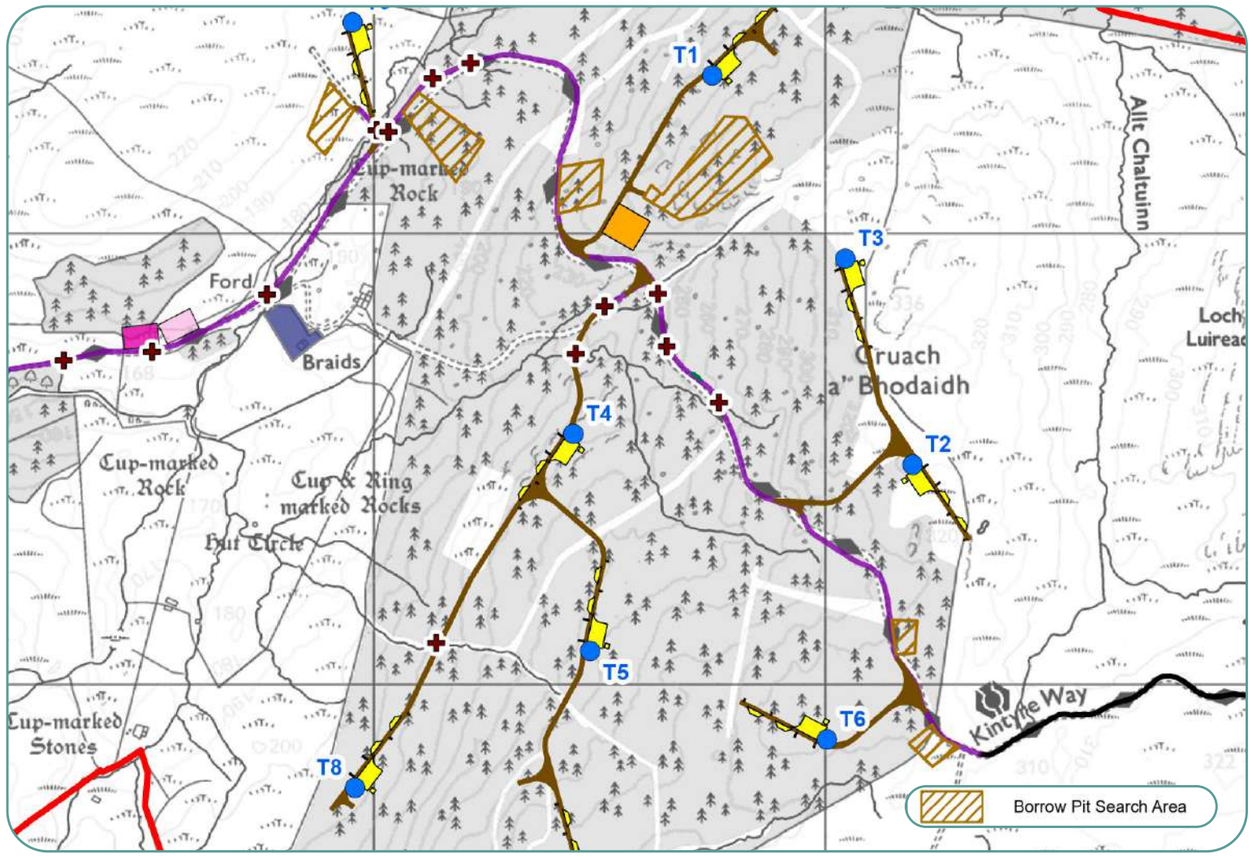


Figure 15: Location of Borrow Working Areas

Image 8: LVIA VP12 Photomontage - from Islay Ferry, West Loch Tarbert

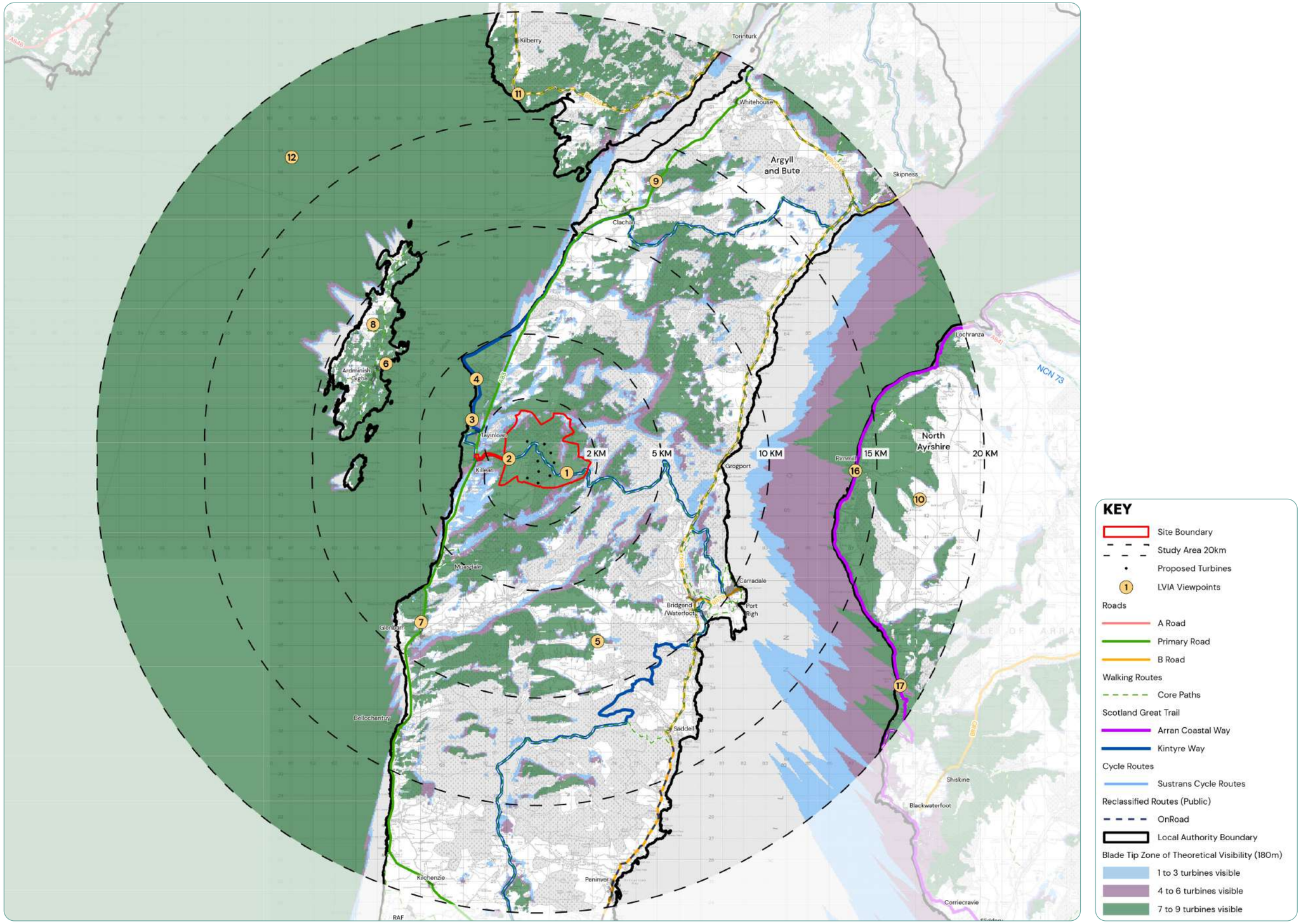


Figure 16: LVIA Principal Visual Receptors to 20 km with Blade Tip ZTV and Viewpoints

Landscape and Visual Design Response

4.1 The final design for the Proposed Development seeks to respond to the specific characteristics and qualities of the landscape and how these are experienced.

4.2 A key component of the design progression has been the consideration of landscape and visual effects. This process was informed by Pegasus' own observations and experience of key landscape and visual issues relating to wind energy development and the pre-application consultation responses. It also was informed by a review of the key landscape and visual matters raised in the Reporter's Report and Decision of the Scottish Government in relation to the previous proposed wind energy development at the site (WIN-130-3) which comprised of 15 no. turbines 149.9m to blade tip.

4.3 The output of the landscape and visual review was advice regarding where further design iteration to the scheme could further address the areas of potential landscape and visual concern. This included discussion of the relative merits of both potential turbine deletion and reduction in turbine height from the initial Scoping scheme and through the evolution of the scheme.

4.4 A summary of the key findings of the landscape design review, and how the feedback subsequently influenced the development is set out below.

4.5 Key matters of concern in relation to the previous scheme set out in the Report to the Scottish Ministers were:

- *Visual impacts in the context of the Kintyre Peninsula*
- *Visual effects to residents and visitors to Gigha*
- *Those walking in elevated areas on the west of North Arran*
- *Visual effects from the Islay ferries and the Sound of Gigha*
- *Visual effects from the Knapdale Peninsula*
- *Visual effects from the Kintyre Way.*

Key Landscape and Visual Design Considerations

4.6 It is generally accepted that it is a challenge for the design of a Wind Farm to achieve a layout that reduces, or minimises, the effects, or its appearance, for all landscape or visual receptors in all directions. The following aims for the design evolution of the scheme were therefore set out at an early stage within the design process to seek to ensure the landscapes or visual receptors most sensitive to the appearance of large-scale wind development were key considerations through the design evolution:

- *Seek to minimise the visual impact of the development when seen in the context of the Kintyre Peninsula as a whole*
- *Seek to minimise visual effects to residents and visitors to Gigha*
- *Seek to minimise visual effects to those walking in elevated areas on the west of North Arran*
- *Seek to minimise visual effects from the Islay ferries and the Sound of Gigha*
- *Seek to minimise visual effects from the Knapdale Peninsula*
- *Seek to minimise visual effects from the Kintyre Way.*

4.7 Each of these are discussed in turn below.

Seek to minimise the visual impact of the development when seen in the context of the Kintyre Peninsula as a whole.

4.8 A number of LVIA Viewpoints enable a consideration of how the development would be seen in the context of the Kintyre Peninsula as a whole and these have been used to aid the design process. These include viewpoints which show the context of the peninsula as viewed from Gigha (Vps 6 and 8) and Islay (VP15) to the west. Viewpoints which show the context of the peninsula as viewed from Arran (VPs 10, 16 and 17) to the west. There are also viewpoints which show the context of the peninsula as viewed from the north (VPs 9 and 11) and the south (VPs 5, 7 and 13), albeit these do not illustrate the linear profile of the peninsula and its relationship with the wider coastal landscape to the same degree as in the views from the east and west.

4.9 Important design considerations relevant to the perception of the development in the context of the Kintyre Peninsula as a whole included both the horizontal and vertical extent of the turbines in the view and the manner they would relate to the overall scale of the landscape of the peninsula, which is long but relatively flat in its profile. It was acknowledged

Viewpoint Number	Viewpoint Location
1	Loch na Naich
2	Killean
3	Tayinloan Ferry Terminal
4	Point Sands
5	Beinn Bhreac
6	Ardminish Bay Jetty, Gigha
7	Glenbarr War Memorial
8	Creag Bhàn
9	A83 at Clachan
10	Beinn Bharrain
11	B8024, Knapdale
12	Islay Ferry
13	High Lossit, south of Machrihanish
14	Craighouse, Jura
15	Maolbhuie Cottages, near Ardbeg Distillery
16	Pirnmill
17	Machrie Bay

Table 1: LVIA Viewpoint locations

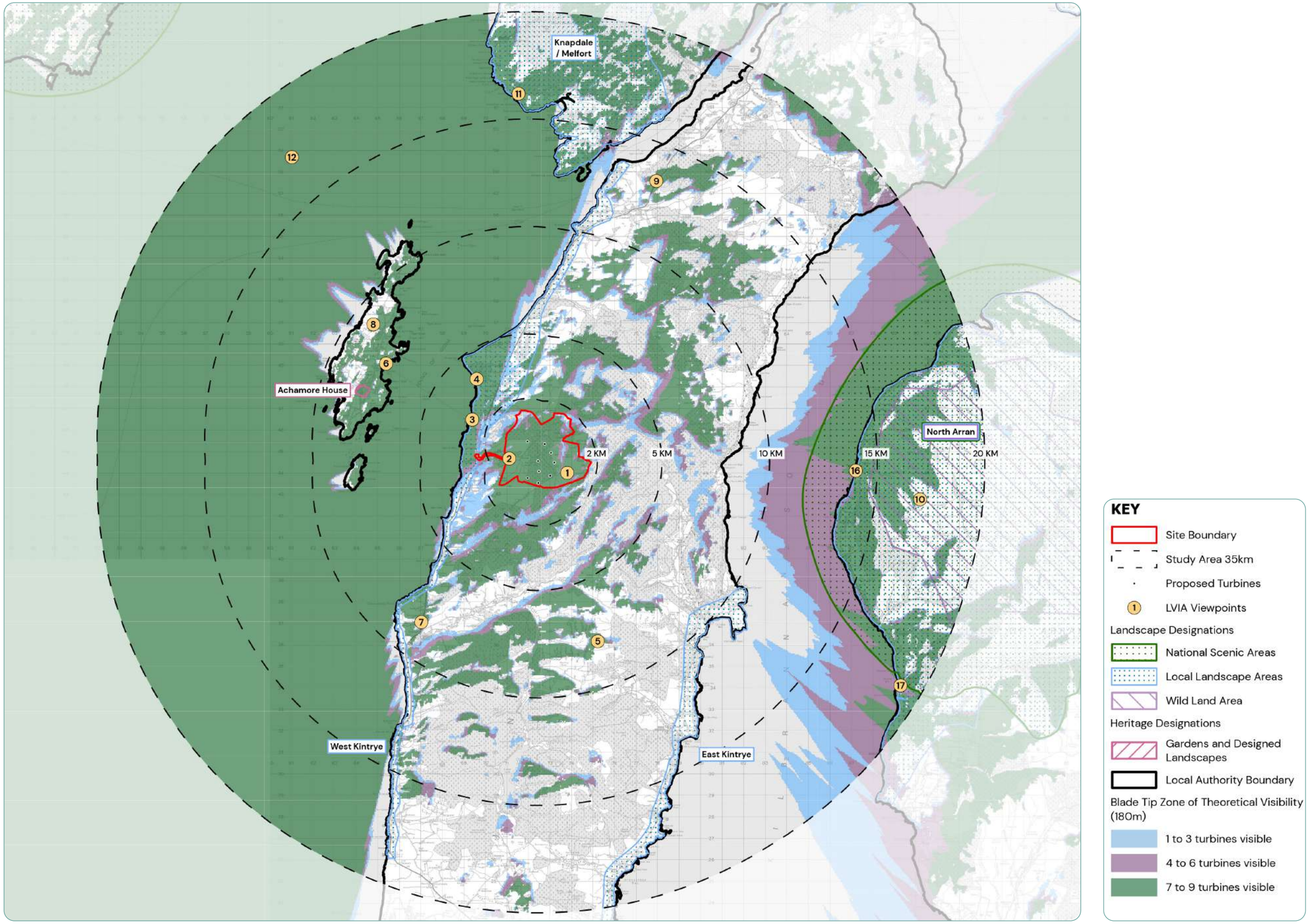


Figure 17: LVIA Landscape Designations to 20 km with Blade Tip ZTV and Viewpoints

that turbines of 149.9m to blade tip had previously been refused consent at the site, but that did not necessarily mean that turbines taller than this could not be successfully accommodated in the landscape, should the landscape and visual effects be sufficiently minimised through design iteration and consideration of the number of turbines proposed. The starting point for the design was three less turbines than had formed part of the refused scheme. Through the design process the number of turbines proposed has further reduced such that there are now six less turbines than were previously proposed.

4.10 Regarding turbine heights, it is noted that modern turbine technology means the greatest generation capacity can be delivered from taller turbines, with turbines taller than 200m now commercially available to deploy at the right locations. In this instance it was considered that turbines of 180m to blade tip were able to be deployed without giving rise to undue landscape or visual effects, particularly once the layout was reduced to nine turbines. This layout does give rise to similar levels of visibility of the development in the landscape as the previous scheme, but there would now be both fewer turbines and a similar level of generating capacity from the site.

Seek to minimise visual effects to residents and visitors to Gigha.

4.11 Two LVIA Viewpoints have been included from Gigha and used to aid the design process. Viewpoint 6 is from Ardminish Bay Jetty, where the ferry to and from the mainland arrives and departs. Viewpoint 8 is from Creah Bhan, a more elevated point in the landscape at the centre of the island.

4.12 Important design considerations relevant to minimising the visual effects of the development from receptors on Gigha included both the horizontal and vertical extent of the turbines in the view, plus the extent to which the turbines would overlap with each other. It was also considered important to ensure that turbines were seen to be located in the heart of the peninsula, rather than appearing to extend down into the lower lying landscape towards the shoreline.

Seek to minimise visual effects to those walking in elevated areas on the west of North Arran and to the North Arran National Scenic Area (NSA)

4.13 Two LVIA Viewpoints have been included from the North Arran NSA and used to aid the design process. Viewpoint 10 is from an elevated location (the summit of Beinn Bharrain) representative of those walking in the upland landscape. Viewpoint 16 is from a lower lying location (Pirnmill) representative of users of the coastal landscape.

4.14 The potential for visibility of aviation lighting was also an important consideration with regard to views from Arran and a night-time visualisation has been prepared from Viewpoint 16, Pirnmill to help aid the design process. This is shown at Figure 23 and illustrates that two of the four proposed lit turbines would be visible from this location only.

4.15 Important design considerations relevant to minimising the visual effects of the development from receptors on Arran included both the horizontal and vertical extent of the turbines in the view, plus the extent to which the turbines would overlap with each other. It was also considered important to ensure that turbines were seen to be located in the heart of the peninsula, rather than appearing to extend down into the lower lying landscape towards the shoreline.

4.16 Reducing the number of visible aviation lights was also an important matter, with a reduced lighting scheme an important element of the design process.

Seek to minimise visual effects from the Islay ferries and the Sound of Gigha.

4.17 LVIA Viewpoint 12 is representative of views experienced from the Kennacraig to Islay ferry routes. In addition, representative wirelines have been provided to illustrate the nature of views from the Ardminish to Tayinloan, Kennacraig to Islay and the Lochranza ferry routes. These have all been used to aid the design process with the aim being to ensure the prominence of the turbines from the ferry routes is minimised.

Seek to minimise visual effects from the Knapdale Peninsula.

4.18 LVIA Viewpoint 11 from the B8024 is representative of views experienced from the Knapdale Peninsula and used to aid the design process. Important design considerations relevant to minimising the visual effects of the development from receptors on the Knapdale Peninsula included both the horizontal and vertical extent of the turbines in the view.

Seek to minimise visual effects from the Kintyre Way.

4.19 Four LVIA Viewpoints have been included from the Kintyre Way and used to aid the design process. Viewpoint 1, from a location close to Loch na Naich in the upland centre of the Kintyre peninsula. Viewpoint 2 from close to the Killean Burn, as the route begins to head down the western flank of the peninsula. Viewpoint 3 from Tayinloan Jetty, at the western shoreline and Viewpoint 4 from Point Sands, also along the western shoreline of the peninsula.

4.20 Important design considerations relevant to minimising the visual effects of the development for users of the Kintyre Way included the offset distance between the turbines and the route and the resulting overall prominence of turbines in the view.

Key Landscape and Visual Design Considerations

4.21 A summary of the effects arising on the key visual receptors identified in the Decision for the 2016 scheme for both the Proposed Development and the earlier 2016 scheme is set out at **Appendix 1**. This confirms that following the landscape led design iteration process described above, the daylight hours visual effects associated with the Proposed Development would be largely the same as the 2016 scheme, with no further significant effects arising. This is in line with the stated design objective of securing a similar level of energy generation, whilst reducing the number of turbines and avoiding notable increases to the level of visual impact.

Landscape and Visual Illustrations

4.22 The following wirelines illustrate the benefit of the landscape and visual design considerations which have been made throughout the design process and evolution of the project.

4.23 The wirelines below show the evolving layouts from Scoping to Design Freeze, which consisted of the following:

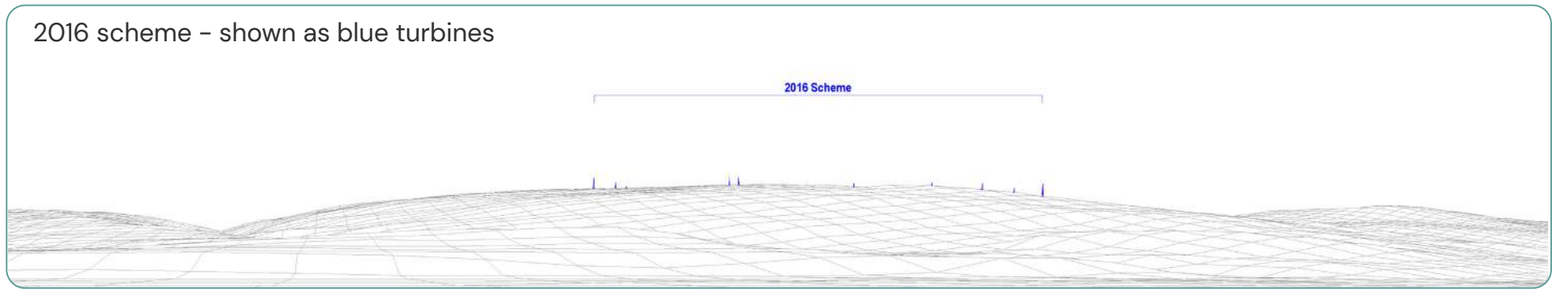
- *EIA Scoping Layout – 12 turbine initial layout, each with a maximum height to blade tip of 180 m;*
- *Refined Layout – 10 turbines, each with a maximum height to blade tip of 180 m;*
- *Design Chill Layout – 10 turbines, each with a maximum height to blade tip of 180 m; and*
- *Design Freeze Layout – 9 turbines refined layout with a maximum height of 180 m.*

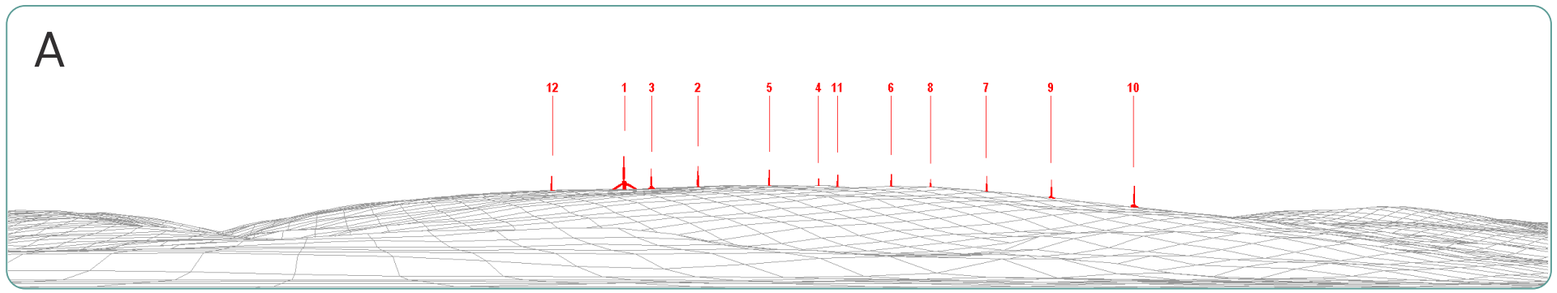
4.24 The wirelines below are a representation of 6 LVIA viewpoint locations that have formed part of the LVIA chapter, although it should be noted that an overall total of 17 Viewpoints are included within the LVIA and have all been used to help inform the design process. .

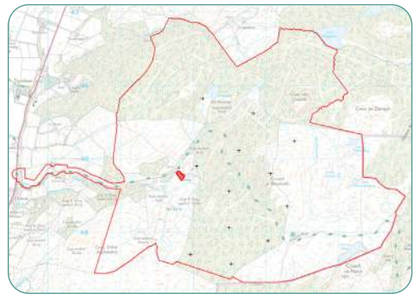
4.25 These locations are as follows:

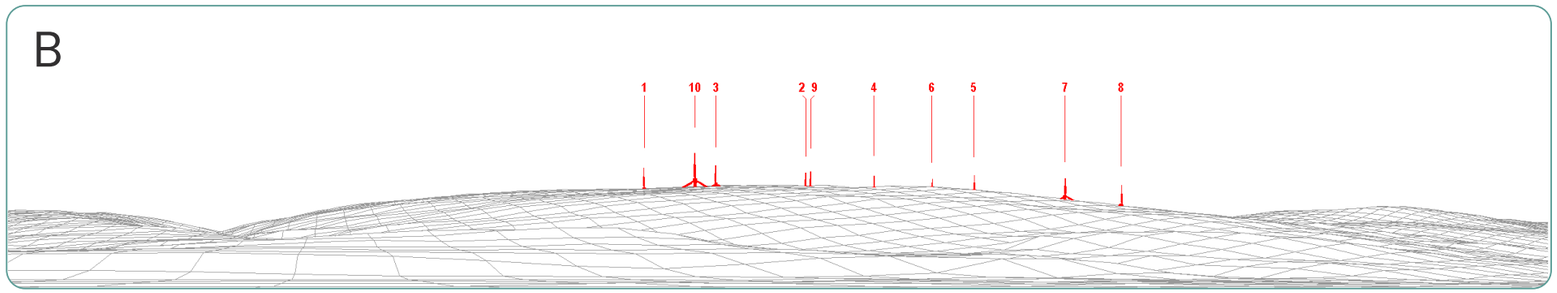
- Viewpoint 3 – Tayinloan Ferry Terminal
- Viewpoint 6 – Ardminish Bay Jetty, Gigha
- Viewpoint 8 - Creag Bhàn
- Viewpoint 10 – Beinn Bharrain
- Viewpoint 16 – Pirnmill

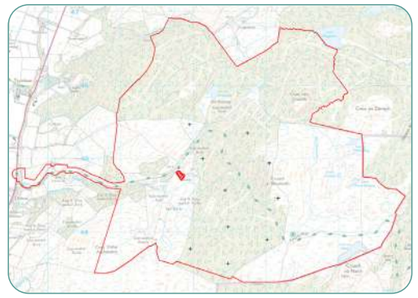
Figure 18: Layouts (2016 Scheme and A to D) - Viewpoint 3: Tayinloan Ferry

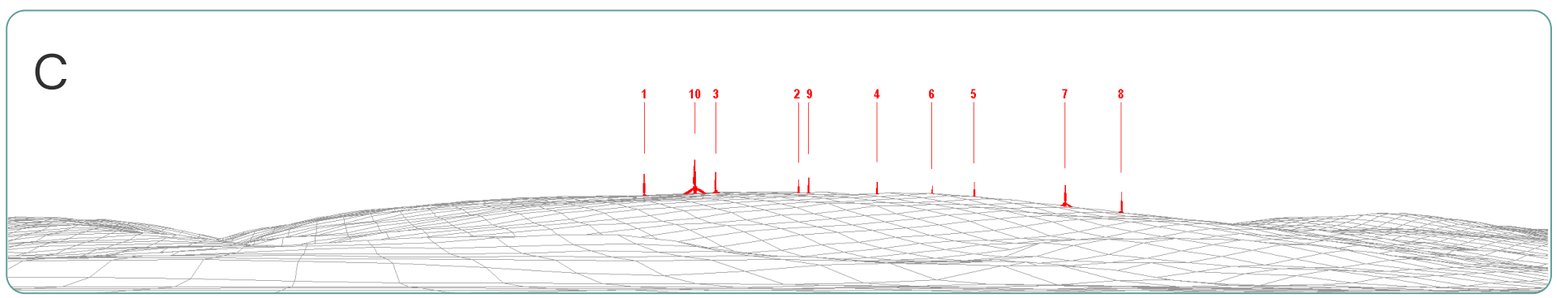


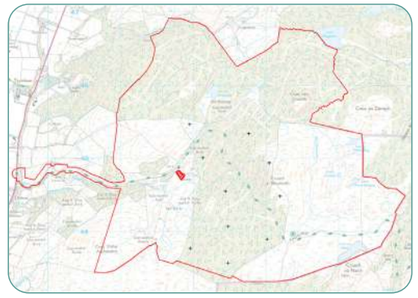


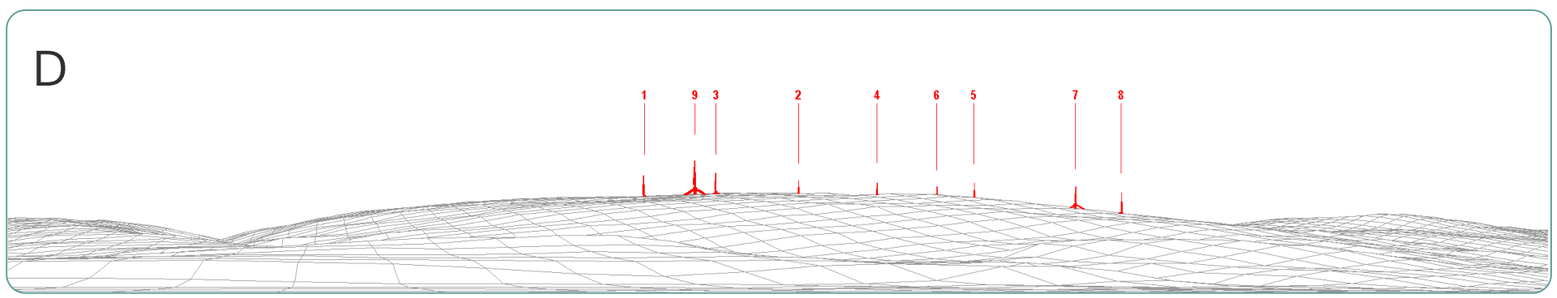












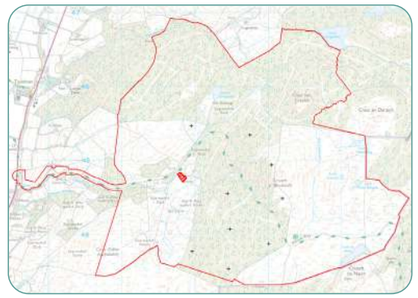
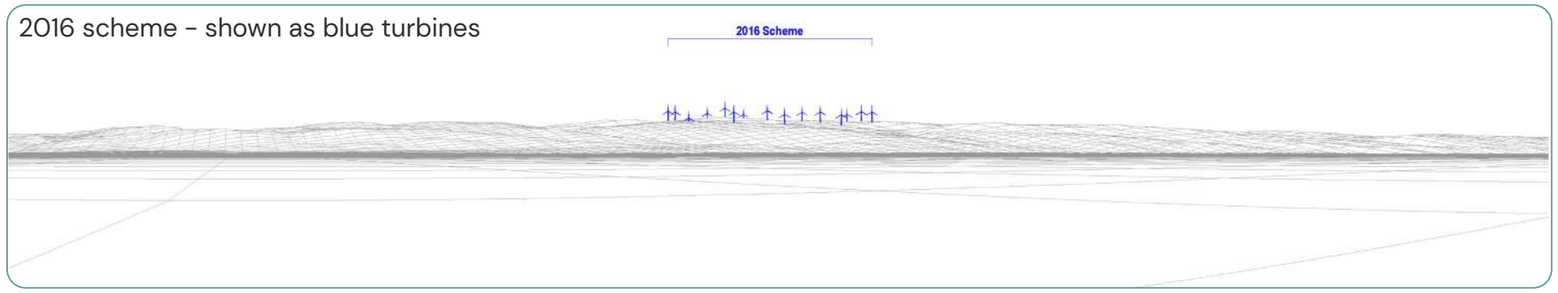
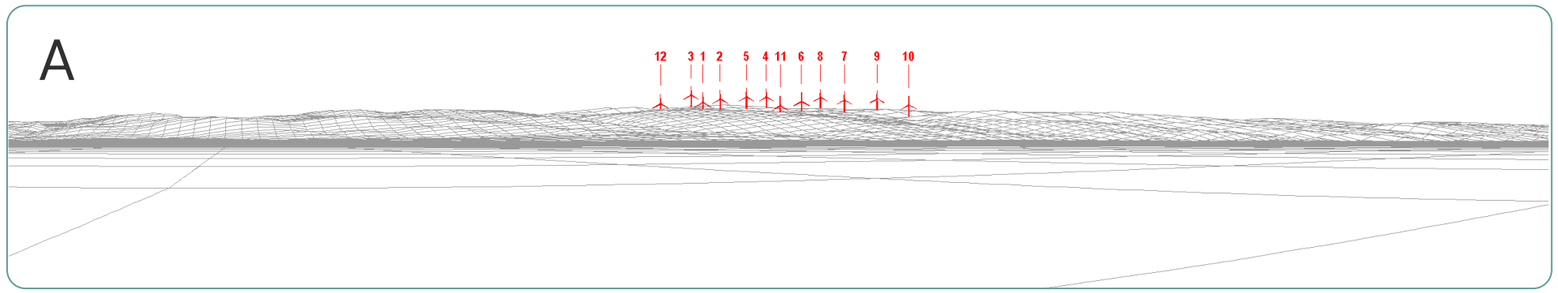
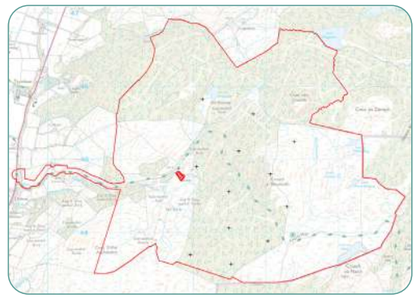
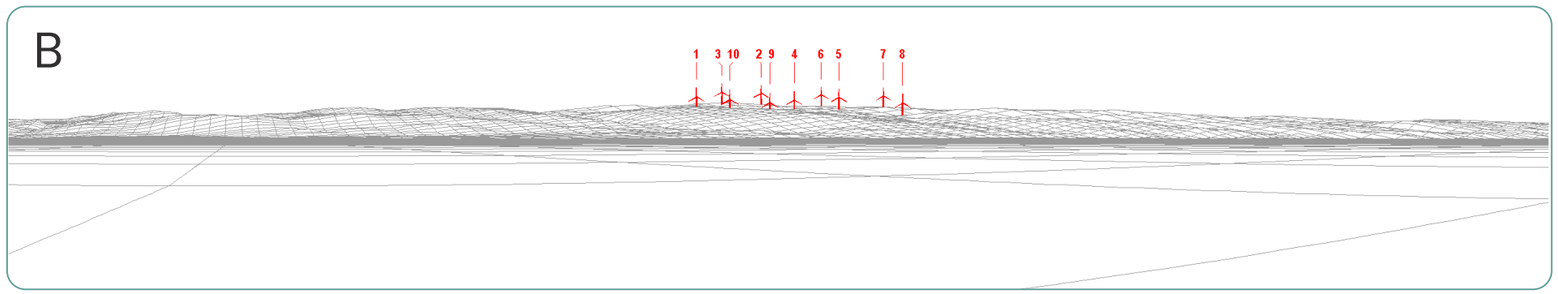


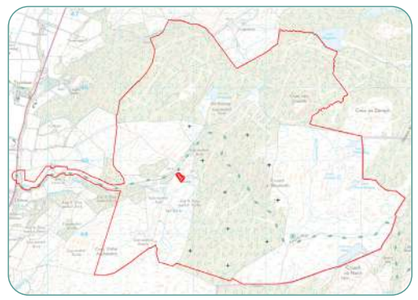
Figure 19: (2016 Scheme and A to D) - Viewpoint 6: Ardminish Bay Jetty, Gigha

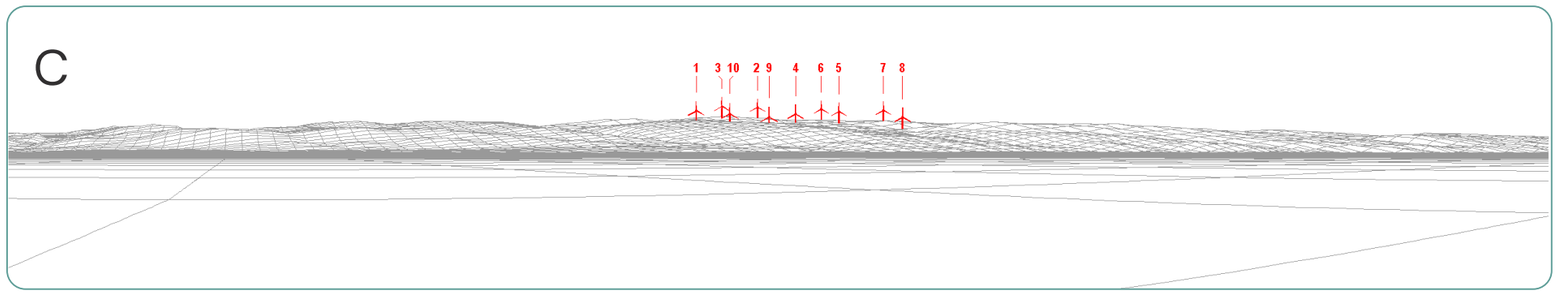


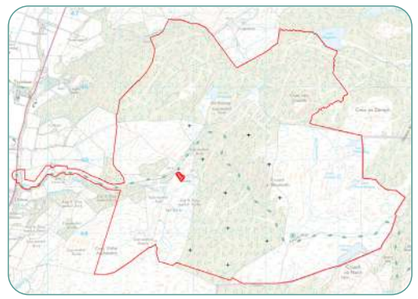


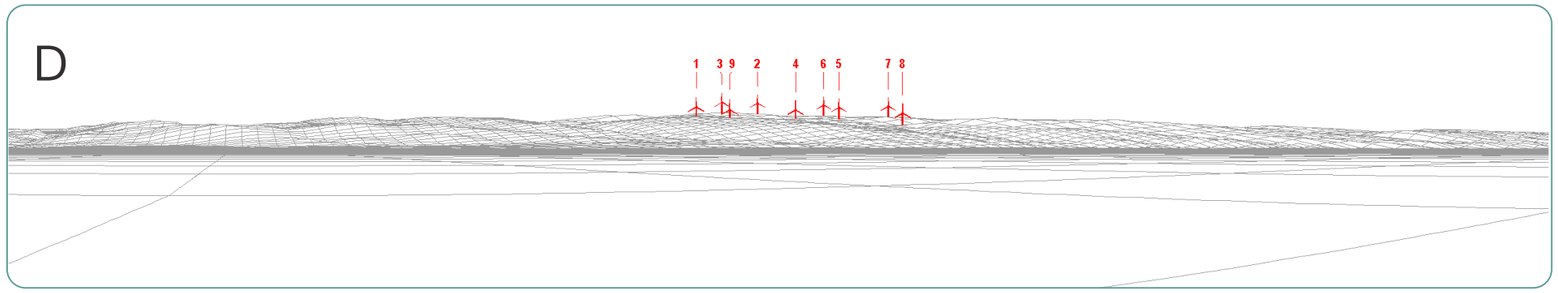












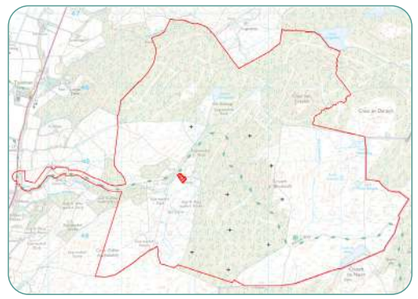


Figure 20: (2016 Scheme and A to D) – Viewpoint 8: Creag Bhan

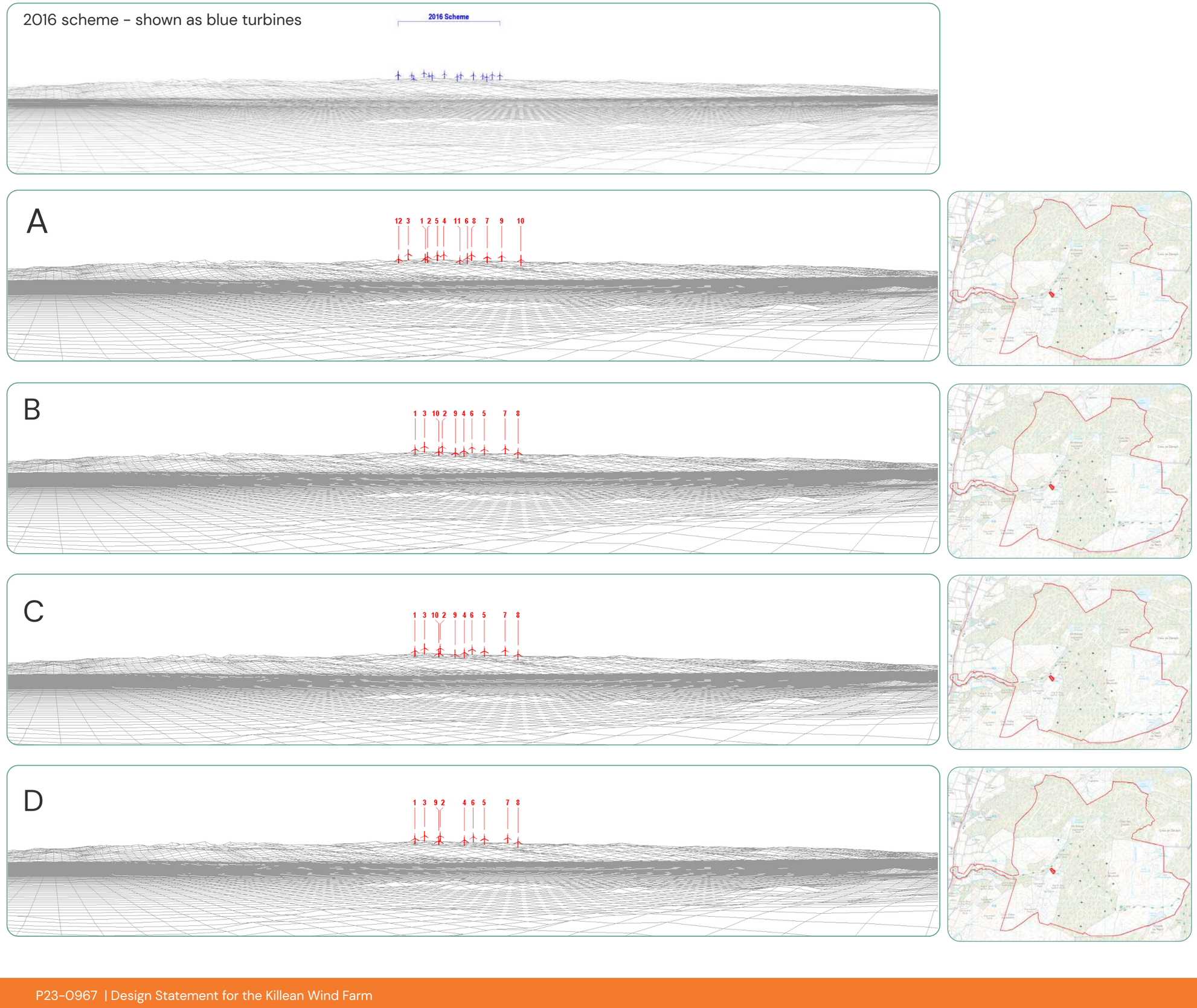
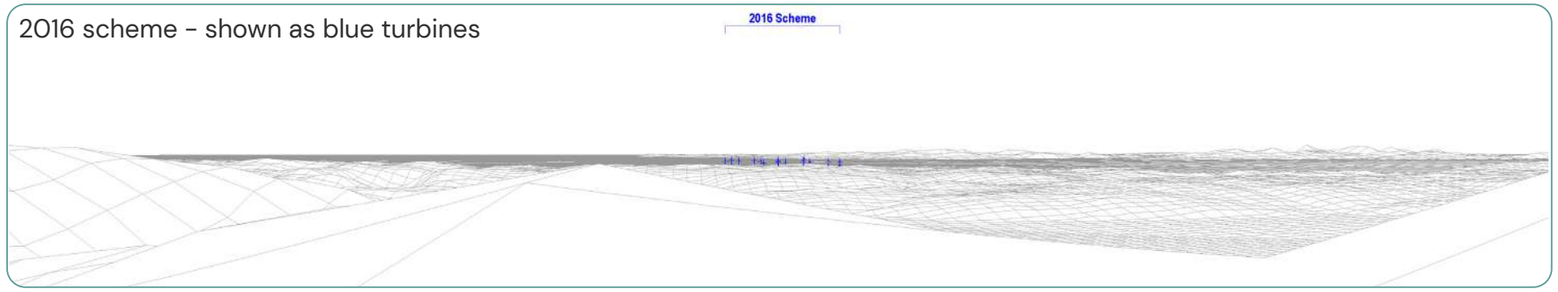
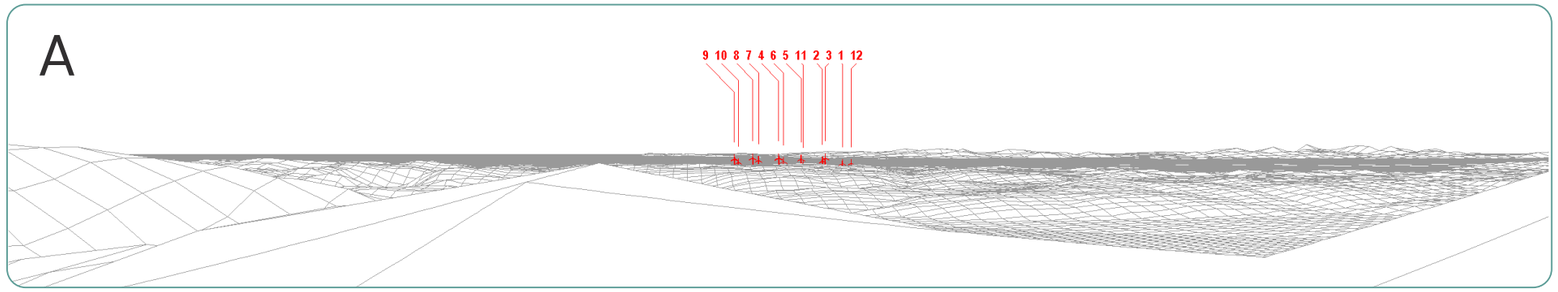
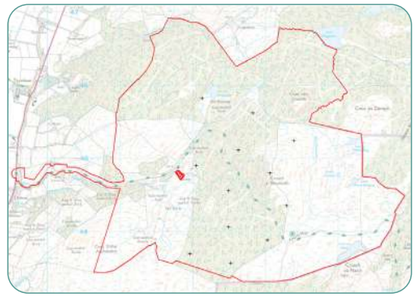
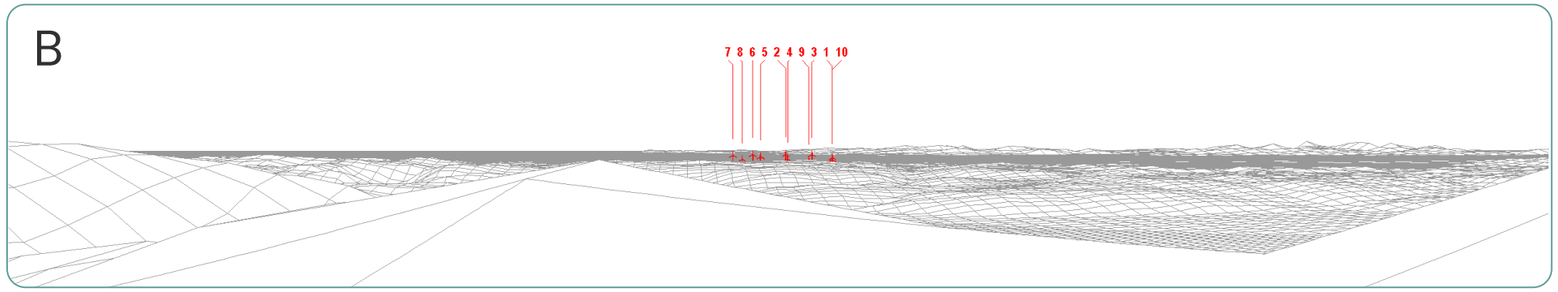


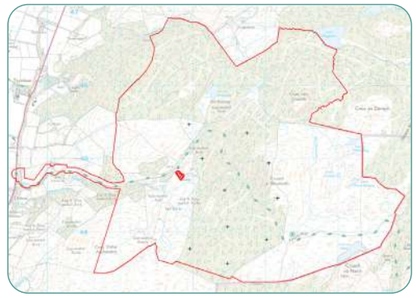
Figure 21: (2016 Scheme and A to D) - Viewpoint 10: Beinn Bharrain

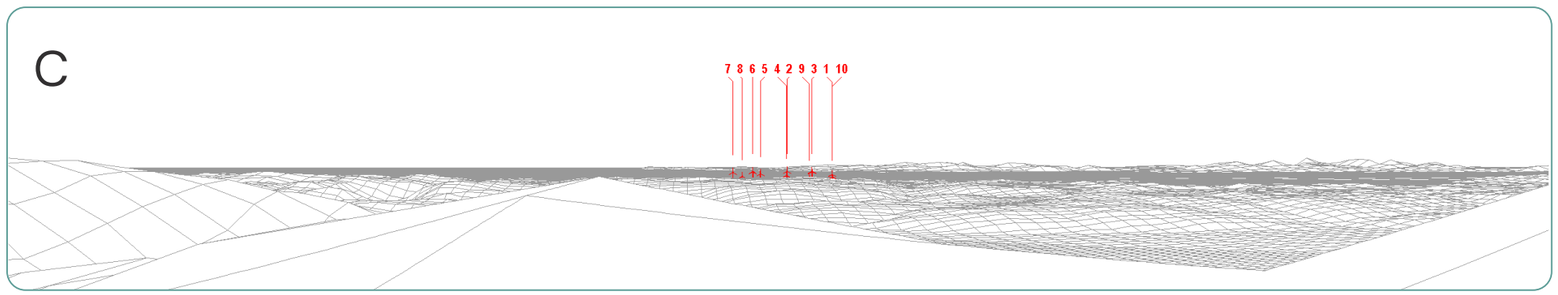


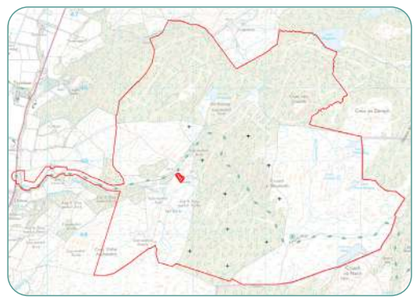


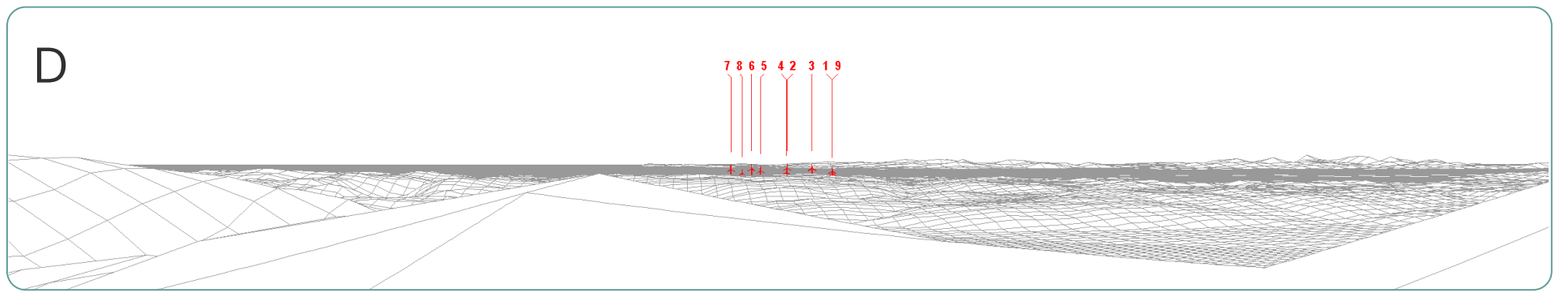












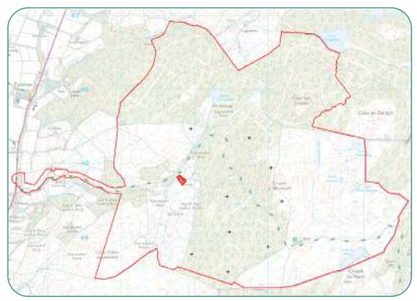
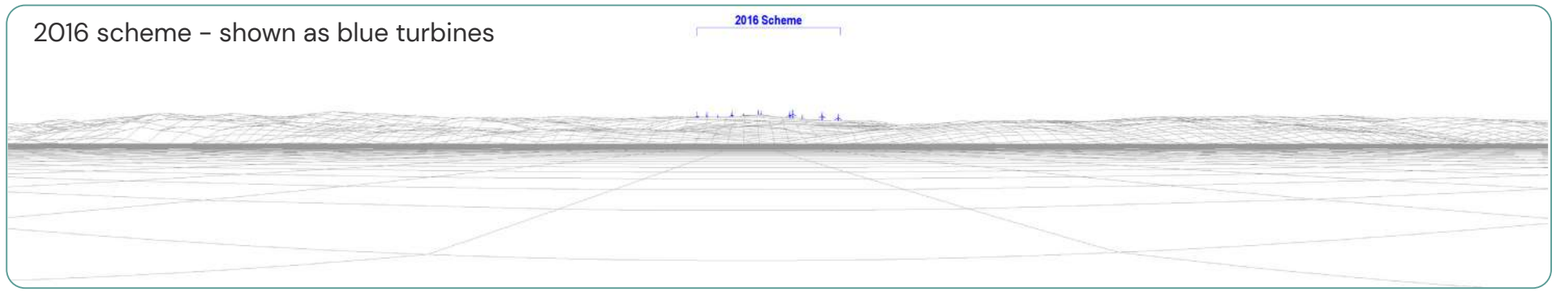
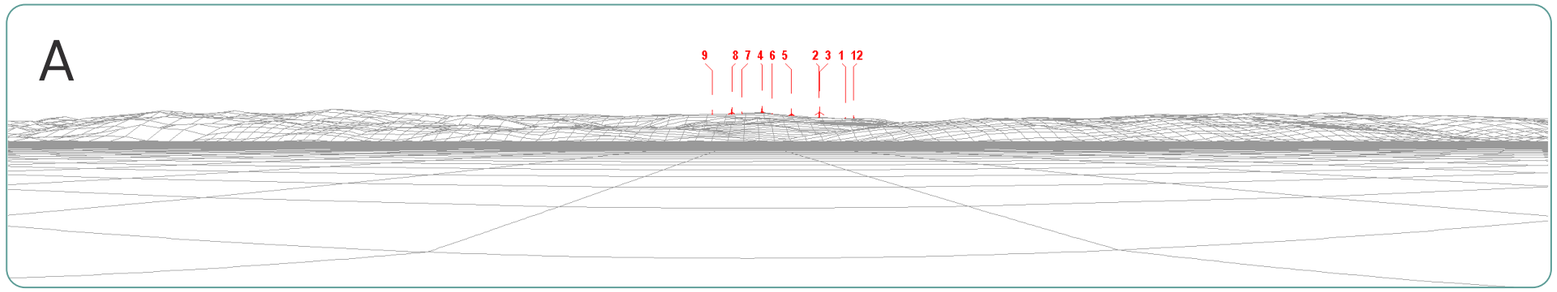
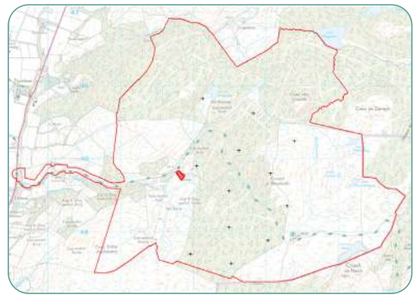
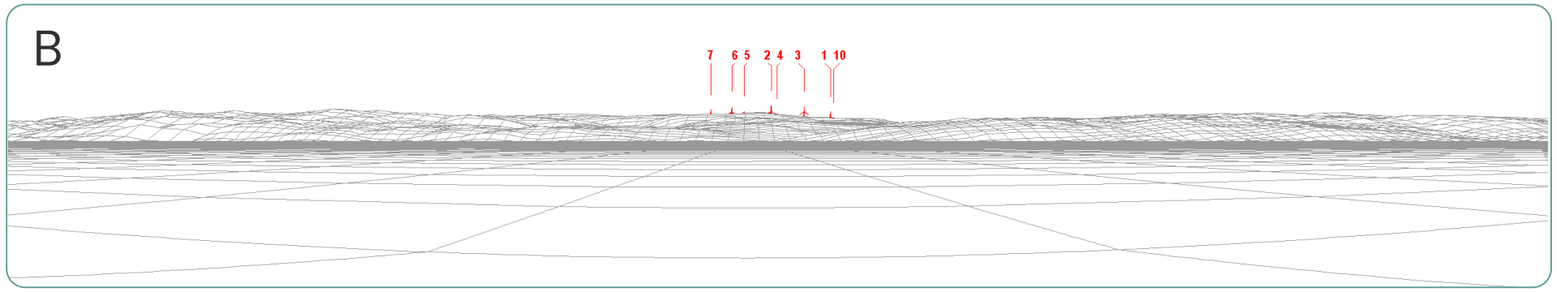


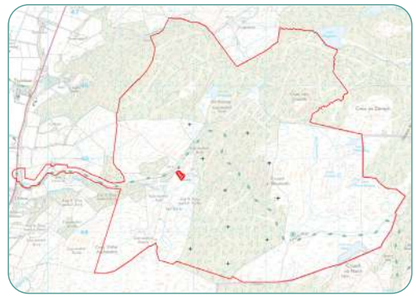
Figure 22: (2016 Scheme and A to D) – Viewpoint 16: Pirnmill

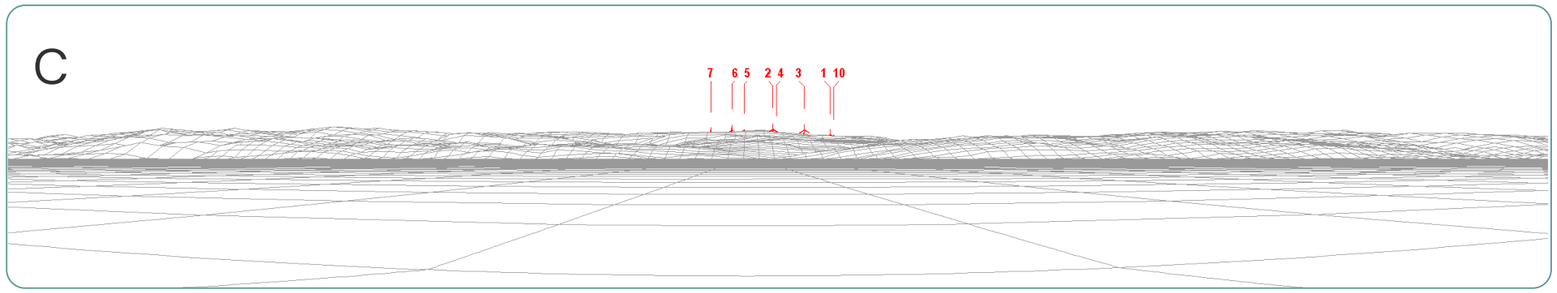


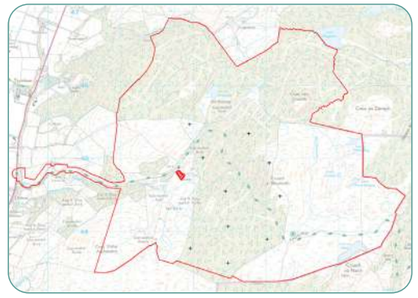


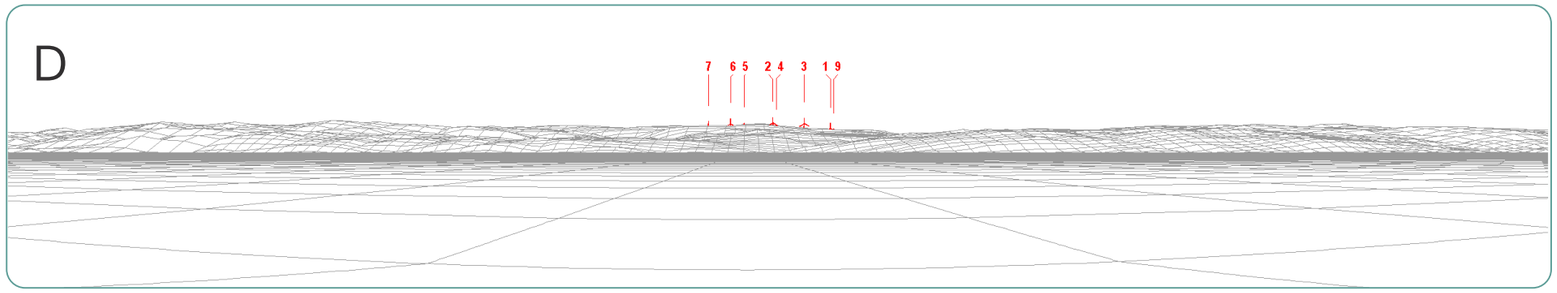












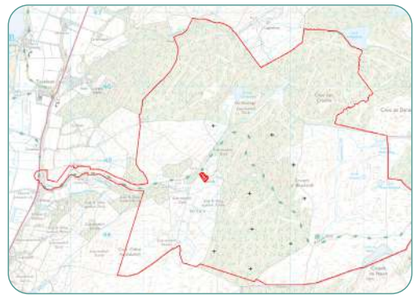
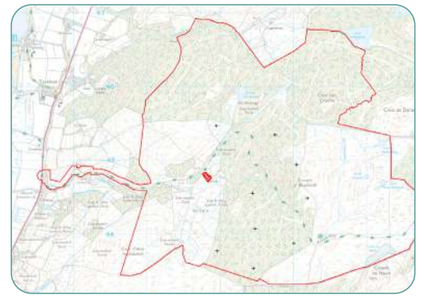


Figure 23: - Night-time Visualisation from Viewpoint 16: Pirnmill which shows the Design Freeze, Final Turbine Layout - Layout D



5. OTHER CONSIDERATIONS

Image 9: Typical image of a turbine blade delivery

Traffic and Transport

Abnormal Load Route

5.1 Due to the abnormal size and loading of wind turbine delivery vehicles, it is necessary to review the public highways that would provide access to the Site to ensure they are suitable and to identify any modifications required to facilitate access. A preliminary abnormal indivisible load route survey is included in EIA Chapter 10.

- The following abnormal loads delivery route has been identified:
- The route commences at Campbeltown Harbour in Argyll and Bute. This was highlighted by RES at the outset of the project as the preferred Port of Entry (PoE) for deliveries and is in-keeping with previous planning applications for wind farm development in the area. The Harbour Master at Campbeltown Harbour has confirmed that turbine components of the scale associated with the Siemens SG155 can be accommodated at Campbeltown Harbour.
- Following delivery to the harbour, the turbine components can be stored at Macrihanish Airbase until an appropriate delivery time is scheduled to the site.
- From the Harbour, abnormal load vehicles would travel through the town of Campbeltown, travelling along Hall Street before joining the A83 (T) at Kinloch Road and Millknowe Road. Approximately 3km northwest of Campbeltown the vehicles would take a left turn and travel towards the storage area set out at the airport.
- At scheduled site delivery times, the vehicles would then return from the storage area along the local roads, and take a left to join the A83 (T). From here the route continues on the A83 (T) northbound towards the site which is accessed via a private access road of off the A83 (T). The route is shown in it's entirety in Figure 2
- For the purposes of this ALRA, Transport Scotland (TS) have confirmed that only the transport of the blade component is required to be assessed at planning stage, but that assessment of the tower and nacelle components will be required prior to any deliveries.

5.2 A more detailed study would be carried out by the turbine supplier should the Proposed Development be granted consent. As the turbine delivery vehicles are abnormal indivisible loads, a Special Order is required under The Road Vehicles (Authorisation of Special Types) (General) Order 2003.

5.3 The detailed off-site access requirements would be confirmed with Transport Scotland and Moray Council's Roads Department once the exact requirements are established. A Traffic Management Plan would also be put in place to ensure safe operation, and this would also be established in conjunction with the aforementioned authorities.

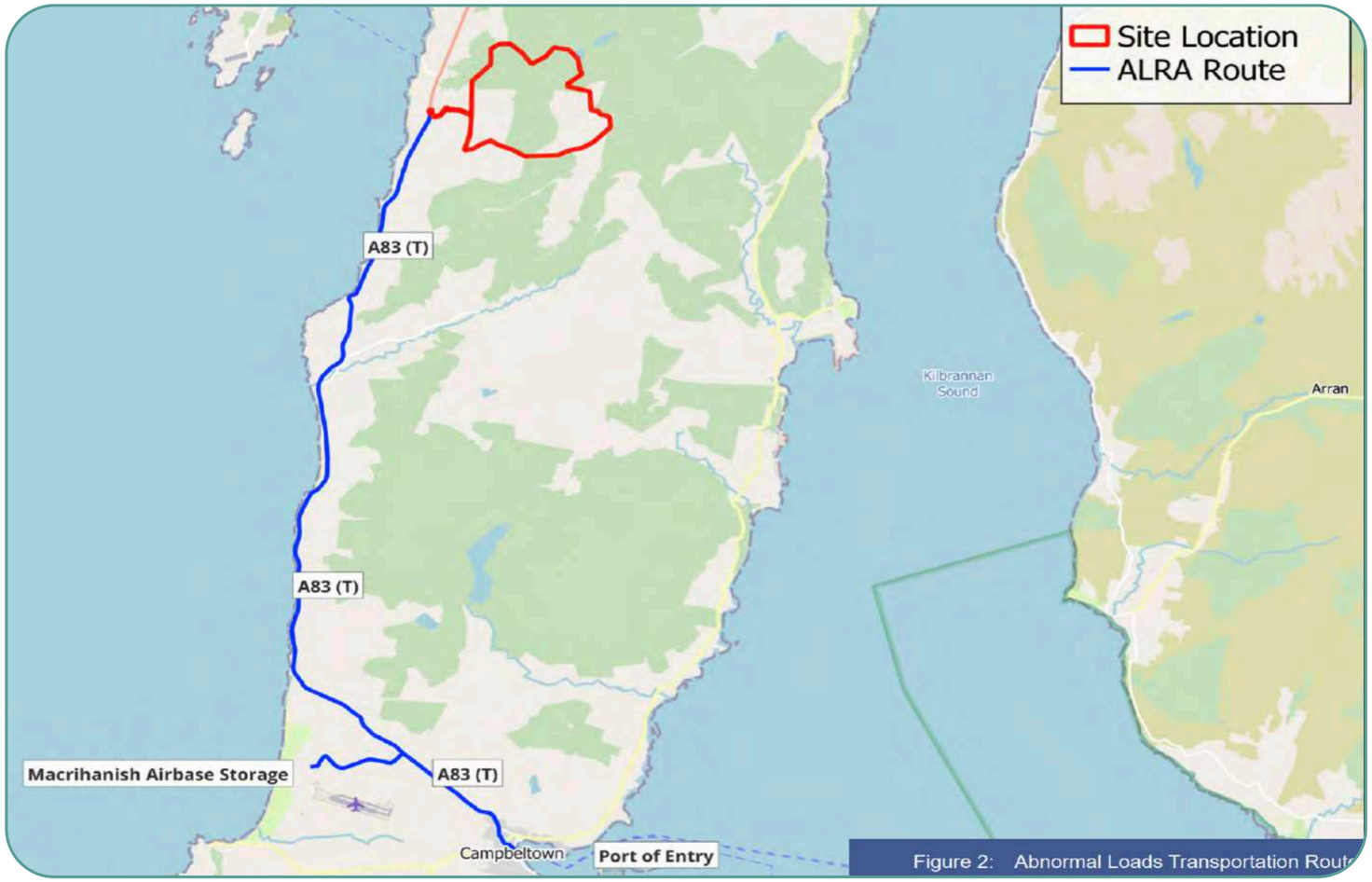


Figure 24: Abnormal Load Route

Site Access Junction

5.4 All traffic entering the Site would use the proposed Site entracne shown in Figure 24. Abnormal loads would be required to utilise proposed turning area to the west of the A83.

5.5 The construction method for site entrances would generally be as follows:

5.6

- *Traffic management to be installed;*
- *Topsoil shall be removed and carefully stockpiled;*
- *New drainage shall be installed taking care to ensure that existing drainage will not be compromised;*
- *Road pavement works to be completed to the design requirements; and*
- *Line marking, signage, fencing, visibility splay clearance and vehicle restraint systems required as part of the design will be installed.*

Internal Access Tracks

5.1 Approximately 10.50km of access track will be constructed for the proposed development as shown in Figure 1.3. This comprises 5.58km of new track construction and 4.92km of upgrade to an existing access track construction. The access track layout has been designed in order to maximise the use and upgrade of existing tracks as far as reasonably practicable.

5.2 For construction of access track, alternative methods would be utilised for different areas of the site, depending on site specific conditions. For each method, the access track running width shall be approximately 5m and will be constructed of compacted crushed stone. Access track widths may also be wider for short sections such as at passing places, at sharp bends or turning heads and junctions.3 full Abnormal Indivisible Load (AIL) turning heads have been proposed as presented on Figure 1.3. Full AIL turning heads are required to facilitate both forward and reverse delivery of wind turbine blades to each wind turbine location. This is required when constructing a rotor at ground level to perform a full rotor lift. Alternatively, wind turbine blades can be lifted individually to the hub, a single blade lift. Should the latter single blade lift be adopted then the full AIL turning heads can be reduced or removed.

5.3 It is expected that all access tracks would be excavated whereby overlying soil or peat material would be removed to a suitable formation strata from which the access track would be built in compacted stone.

5.4 Where peat depths are greater than 1m deep, it is generally more efficient to “float” the access track over peat using geogrid.

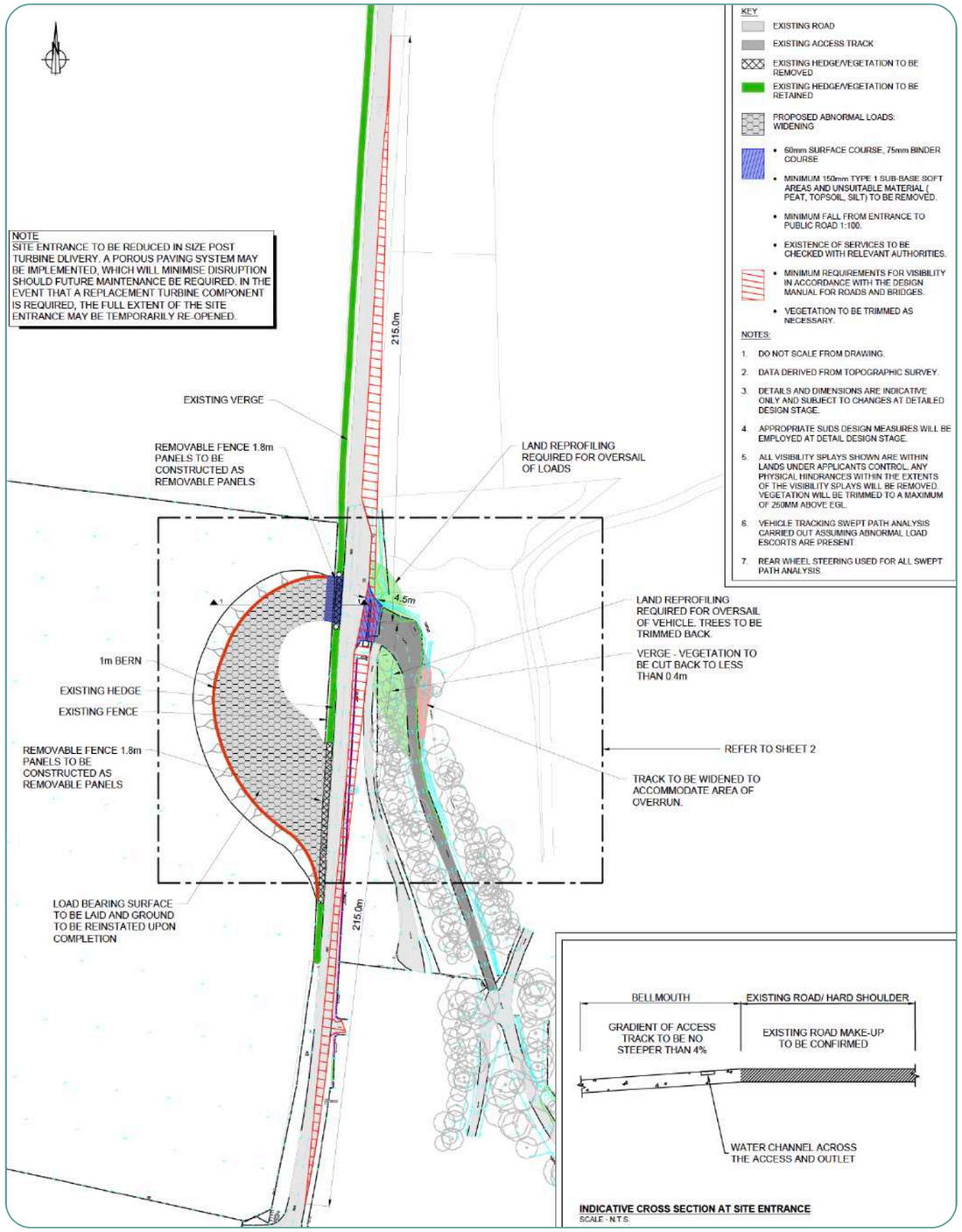


Figure 25: Site Access Detail

6.

CONCLUSION

Conclusion

This Design Statement explains the approach to design of the Proposed Development and illustrates how environmental effects have been avoided or reduced as far as reasonably possible. A detailed explanation of environmental effects resulting from the Proposed Development is set out in the Environmental Impact Assessment (EIA) Report that accompanies this application and sets out the mitigation measures to avoid or reduce the effects.

The design of the Proposed Development is the result of a considered design process that has evolved over the course of four proposed layouts, from an initial scoping layout comprising 12 turbines with a proposed blade tip height of up to 180 m, a layout consisting of 10 turbines with a blade tip height of up to 180 m and a further iteration iteration which sought to further reduce the potential impacts arising from the scheme. The final 9 turbine proposed layout has been designed to respond to character and scale of the landscape, in addition to other environmental and technical constraints. The associated infrastructure has also been sited sympathetically so as to limit its influence on the surrounding landscape.

Image 10: LVIA VP4 Photomontage - Point Sands

Appendix 1 - Comparison of LVIA Effects for the 2016 scheme and the Proposed Development.

The following Table sets out a comparison of the daylight hours visual effects which were identified in the LVIA undertaken for the 2016 scheme and those identified in the LVIA for the Proposed Development. This demonstrates that for the key visual receptors identified in the Decision for the 2016 scheme, the daylight hours visual effects associated with the Proposed Development would be largely the same as the 2016 scheme, with no further significant effects arising. It is acknowledged that during the hours of darkness there would also be a small number of significant visual effects associated with the Proposed Development, which were not applicable to the 2016 development. These significant effects would however be limited to a very small number of receptors, as discussed further in the LVIA.

Visual Receptor	Representative Viewpoints	Visual Effect of the 2016 scheme	Visual Effect of the Proposed Development
Residents and visitors to Gigha	Viewpoint 6 - Ardminish Bay Jetty	**Moderate** (significant)	**Moderate** (significant)
	Viewpoint 8 - Creah Bhan	**Moderate** (significant)	**Moderate** (significant)
Elevated areas on the west of North Arran	Viewpoint 10 - the summit of Beinn Bharrain	**Moderate** (significant)	**Moderate** (not significant)
	Viewpoint 16 - Pirnmill	**Minor** (not significant)	**Moderate/Minor** (not significant)
Islay ferries and the Sound of Gigha	Viewpoint 12 - Kennacraig to Islay ferry routes	**Moderate** (significant)	**Moderate** (not significant)
Knapdale Peninsula	Viewpoint 11 - the B8024	**Moderate** (significant)	**Moderate** (not significant)
Kintyre Way	Viewpoint 1 - close to Loch na Naich	**Major** (significant)	**Major** (significant)
	Viewpoint 2 - close to the Killean Burn	**Major** (significant)	**Major** (significant)
	Viewpoint 3 - Tayinloan Jetty	**Minor** (not significant)	**Moderate/Minor** (not significant)
	Viewpoint 4 - Point Sands	**Moderate** (significant)	**Moderate** (significant)

Table 2: Comparison of LVIA Effects for the 2016 scheme and the Proposed Development.

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