



# Dunside Wind Farm

Design & Access Statement

June 2023





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# Chapter 1

## Introduction

### Introduction

**1.1** This Design and Access Statement (DAS) has been prepared by LUC on behalf of EDF Energy Renewables Limited, (hereafter referred to as 'the Applicant'), to accompany an application for consent to construct and operate a wind farm (comprising of up to 15 turbines with associated infrastructure, including an energy storage facility) known as Dunside Wind Farm (hereafter referred to as 'the Proposed Development') within the Scottish Borders Council (SBC) administrative area. The nearest settlements are Westruther, located about 6 km to the south of the Proposed Development, and Longformacus, located about 7 km to the east, as shown in **Figure 1.1**.

**1.2** As the Proposed Development has a generating capacity in excess of 50 megawatts (MW), consent is required from Scottish Ministers under Section 36 of the Electricity Act 1989 (hereafter referred to as 'the Act'), in consultation with relevant statutory consultees, including SBC. In addition, a request is being made by the Applicant that planning permission is deemed to be granted under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended. As such, this DAS has been prepared in accordance with Regulation 13 of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 (as amended) as required for all major developments.

**1.3** The DAS comprises two parts, namely:

- The Design Statement, which describes the Proposed Development and how it has evolved through the design process; and
- The Access Statement, detailing how the Site will be accessed during construction and operation of the Proposed Development, and how any specific access requirements for disabled people have been addressed.

**1.4** This DAS should be read in conjunction with the Environmental Impact Assessment Report (EIA Report) submitted to accompany the application for consent.

### Purpose of the Design and Access Statement

**1.5** The purpose of this DAS is to provide information on the principles and approach that have guided the design process and to demonstrate observance of equal opportunity requirements for access. This DAS demonstrates how the Site and its surroundings have been fully appraised to ensure that the final design solution achieves a balance across the range of factors which require to be addressed. It describes the starting point for the Proposed Development's design, the factors which have driven the design process, and subsequent iterations to the layout that were made in response to the environmental and technical issues identified during the EIA process. Details are also provided on the access arrangements, both in terms of transport access for construction and maintenance works, and implications for public access and recreation, as well as any specific issues which might affect access to the Proposed Development for disabled people.

### The Proposed Development

**1.6** The Proposed Development is described in detail in **Chapter 2** of this DAS. In summary it will comprise:

- Up to 15 wind turbines, each with a maximum blade tip height of 220 metres (m) with an external transformer kiosk (the candidate turbine has a rated capacity of 7.2 megawatts (MW));
- Crane Hardstandings adjacent to each turbine position;
- Four new watercourse crossings and associated infrastructure;



- Approximately 15 kilometres (km) of proposed wind farm tracks and approximately 1.1 km of proposed light vehicle track;
- Approximately 17.5 km of existing access tracks (including areas of widening/upgrading);
- Onsite underground electrical cables and cable trenches;
- Control building and extension to Fallago Rig substation; and
- A 20 MW battery storage area.

**1.7** In addition to the above components associated with the operation of the Proposed Development, construction of the Proposed Development will also require the following components:

- Four construction compounds (two existing compounds which will remain in situ following completion of construction of the Proposed Development, and two proposed which will be restored post-construction), including laydown area(s) and car parking; and
- Up to three borrow pits, which will be closed and reinstated following completion of construction.

## The Applicant

**1.8** This application is being made by EDF Energy Renewables Ltd. (EDF-ER) (the Applicant), part of one of the world's largest electricity companies. The Applicant has an operating portfolio of 37 wind farms as well as battery storage units providing new affordable, low carbon electricity to the UK. EDF-ER is operated within the United Kingdom under the brand EDF Renewables.

# Chapter 2

## The Design Statement

### The Site and Its Surroundings

**2.1** The Site is located within the Lammermuir Hills in the northern part of the SBC local authority area. The Site is approximately 6 km north of the settlement of Westruther and 7 km to the west of the settlement of Longformacus (to the nearest proposed turbine). The topography of the Site consists of a plateau of rolling hills ranging between 300 m and 500 m Above Ordnance Datum (AOD), separated by the steep sided valley of the Dye Water which runs west-east through the Site. The Dye Water is a tributary of the River Tweed. Notable hills within the Site include: Meikle Law (468 m AOD) in the north-west; Byreclough Ridge (440 m AOD) in the north, Dunside Hill (437 m AOD) in the south-east, and Wedder Lairs (486 m AOD) in the west. Multiple smaller watercourses join the Dye Water and further dissect the Site. They are generally orientated north-south, and include Green Cleugh, Wood Cleugh, Kersons Cleugh, and Foul Cleugh.

**2.2** The landcover on the Site consists mainly of heather moor and acid grassland. Tree cover is sparse, especially so on the upper plateau where heather moorland vegetation dominates. Large areas of the Site have been managed for grouse, and the patchy growth pattern of the vegetation reflects the distribution of land management activity including muirburn. The Southern Upland Way runs approximately 860 m to the south of the nearest proposed turbine and passes through the Site boundary along the access track for approximately 700 m to the east of Twin Law.

**2.3** As noted above, the closest settlements to the Site are Westruther, which is on the route of the B6456 public road between Lauder and Duns to the south, and Longformacus, which lies to the east of the Site on the minor road which crosses the Lammermuir Hills between Duns and Gifford. There is a cluster of dwellings at Byreclough in the east of the Site, accessed via a private track and minor road from Longformacus. Other residential properties within 2-3 km of the Site include Trottingshaw and Dye Cottage to the east and Killpallet to the north.

**2.4** The operational Fallago Rig Wind Farm which comprises 41 turbines at 125 m height to tip, and seven turbines at 110 m to tip is located immediately north-west of the Site boundary. The access track to Fallago Rig runs through the Site, along the valley of the Dye Water and through Byreclough.

**2.5** The Site is located in the locally designated Lammermuir Hills Special Landscape Area (SLA) and borders the Lammermuir Moorland SLA immediately to the north. There are a number of other designated landscapes within the wider Study Area (45 km), including National Scenic Areas (NSAs) and SLAs.

### Site Selection Process

**2.6** National Planning Framework 4 (NPF4) was approved by the Scottish Parliament on 11<sup>th</sup> January 2023 and was adopted and published on 13<sup>th</sup> February 2023. However, the site selection exercise was undertaken under the planning policy in force at the time (i.e., Scottish Planning Policy (SPP) (June 2014)) which provided support for wind development in principle and encouraged local authorities to guide development towards appropriate locations within their boundaries. Paragraph 161 of SPP highlighted the requirement for planning authorities to define a “*spatial framework identifying those areas that are likely to be most appropriate for onshore wind farms*” based on the following criteria (set out in SPP Table 1, Page 39):

#### **Group 1: Areas where wind farms will not be acceptable**

- National Parks and National Scenic Areas.

#### **Group 2: Areas of significant protection**

- Recognising the need for significant protection, in these areas wind farms may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.

- Group 2 areas include World Heritage Sites; Natura 2000 and Ramsar sites; Sites of Special Scientific Interest; National Nature Reserves; Sites identified in the Inventory of Gardens and Designed Landscapes; Sites identified in the Inventory of Historic Battlefields; areas of wild land as shown on the 2014 SNH map of wild land areas; carbon rich soils, deep peat and priority peatland habitat; and an area not exceeding 2 km around cities, towns and villages identified in the local development plans.

### Group 3: Areas with potential for wind farm development

Beyond groups 1 and 2, wind farms are likely to be acceptable, subject to detailed consideration against identified policy criteria.

**2.7** SNH's (now NatureScot) Guidance 'Siting and Designing Wind Farms in the Landscape'<sup>1</sup> states that "*Developers and those involved in wind farm design should also refer to the Spatial Frameworks being developed by planning authorities in response to Scottish Planning Policy (SPP). When considering an individual application, the adopted development plan, relevant supplementary guidance, wind energy capacity studies and SPP provide the framework within which the application should be considered*".

**2.8** NPF4 forms part of the statutory Development Plan in addition to the Scottish Borders Local Development Plan ('the LDP') (May 2016) and the Renewable Energy Supplementary Guidance ('the SG') (July 2018) for this area of Scotland. The SG includes the Spatial Framework for Onshore Wind Energy<sup>2</sup> to provide further information and detail in respect of the main wind energy related policy of the LDP. NPF4 no longer contains a Spatial Framework for Onshore Wind Energy, as previously set out in Table 1 of the now superseded Scottish Planning Policy (SPP). At the time of site selection however, SPP and thus the Spatial Framework (set out in the SG) applied. In this respect, the SG Spatial Framework identified the Site as being located mainly within an area with potential for wind farm development (Group 3) (**Image 2.1**). Key outcome 10 of the LDP provides support for "*development of the area's full potential for electricity and heat from renewable sources, in line with national climate change targets, giving due regard to relevant environmental, community and cumulative impact considerations*". Policy EP5 also states that "*proposals that have a significant adverse impact will only be permitted where the landscape impact is clearly outweighed by social or economic benefits of national or local importance*".

**2.9** It should be noted that the next LDP (LDP2) is in development with the Main Issues Report being publicly consulted between November 2018 and January 2019. The LDP2 is set to guide development and inform planning decisions within the Scottish Borders over the next ten years. It was submitted to the Scottish Ministers in July 2022 and reporters have been appointed to carry out an examination of issues raised which commenced in September 2022. Examination of the LDP2 is scheduled to be completed in the summer of 2023. Policy ED9 of LDP2 which relates to Renewable Energy remains largely similar to the current Policy.

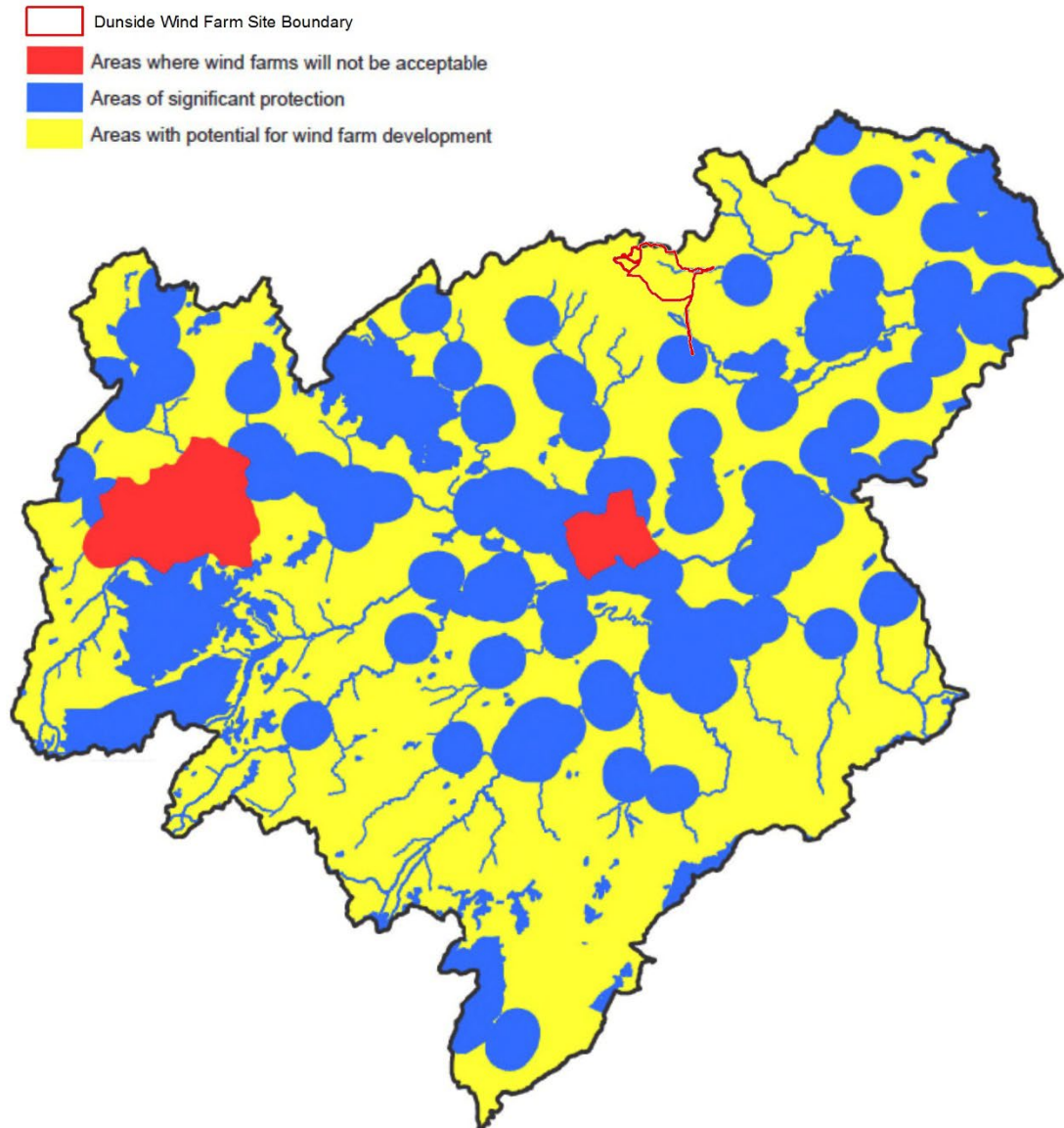
**2.10** It should be noted that, in relation to NPF4, the Site is not located within either a National Park or National Scenic Area, which are the only areas where NPF4 states explicitly that proposals for wind farms will not be supported (Policy 11). Further details in relation to the planning policy context and compliance associated with the Proposed Development are set out in the **Planning and Energy Policy Statement** accompanying the application.

<sup>1</sup> Scottish Natural Heritage (2017) Siting and Designing Windfarms in the Landscape (Version 3a)

<sup>2</sup> Scottish Borders Council (2018) Scottish Borders Local Development Plan Supplementary Guidance: Renewable Energy. Available [online] at: [https://www.scotborders.gov.uk/downloads/file/2757/renewable\\_energy\\_supplementary\\_guidance](https://www.scotborders.gov.uk/downloads/file/2757/renewable_energy_supplementary_guidance)



## Renewable Energy: Supplementary Guidance Wind Energy Spatial Framework



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**Image 2.1: Dunside Farm Site and Scottish Borders Council Supplementary Guidance: Renewable Energy Wind Energy Spatial Framework**

**2.11** The presence of the Site within a locally designated landscape (Lammermuir Hills SLA) has formed a key consideration in the design process as detailed further below.

**2.12** Further characteristics of the Site that make it suitable for the development and operation of a wind farm include the following:

- The Site has an excellent wind resource;
- The size of the Site allows for good opportunities to explore and provide habitat management and enhancement;
- There are no environmental constraints which cannot be avoided through careful design and proposed mitigation. The presence of the Site within a locally designated landscape (Lammermuir Hills Special Landscape Area (SLA)) also formed a key consideration in the design process, as detailed below;
- Existing land use and the adjacent land (Fallago Rig Wind Farm) is compatible with the development of a renewable energy scheme;
- There is good access to the Site from the B6456 public road for construction traffic and turbine deliveries, alongside existing infrastructure such as the use of the existing Fallago Rig Wind Farm access tracks, reducing the need for new tracks;
- The Site is at distance from main settlements, with the closest being the village of Westruther approximately 6 km to the south of the nearest proposed turbine;
- The distances from the nearest properties are such that noise limits and residential visual amenity threshold impacts can be avoided; and
- There is a feasible local electricity grid connection available.

## Design Strategy

**2.13** The design strategy sets out the overall approach to the design of the Proposed Development. It describes the starting point for design and subsequent alterations to the layout that were made in response to landscape and visual, hydrological, archaeological, ecological, ornithological, wind yield and ground condition considerations, as information emerged through the EIA process.

**2.14** The design strategy for the Proposed Development aimed to provide a balance between optimising energy yield through the use of modern, large wind turbines and creating a layout which relates to the landform and scale of the Site and surrounding area. The scale of the wind farm in relationship to other existing, consented and proposed wind farms in the Lammermuir Hills (including Fallago Rig Wind Farm) was a key consideration. Whilst Dunside will have larger turbines than Fallago Rig, it was important to examine how the two would look together, and to design a layout /specify a candidate turbine for Dunside that seeks to minimise cumulative effects.

**2.15** The starting point for the design was to maximise the potential output from the Site, which was subsequently informed by landscape and visual considerations, taking account of landform, scale, land use (including cumulative wind farm context) and key visual receptors. These factors influence how the Proposed Development will be perceived by people within the surrounding area, and to what extent the landscape is capable of accommodating the Proposed Development (including in combination with the adjacent Fallago Rig Wind Farm). Achieving an optimal balance between renewable energy generation and effects upon cultural heritage assets was also a key consideration, together with achieving acceptable noise emissions at nearby properties and minimising effects on ecological and hydrological receptors and the Site's peat resource to the greatest feasible extent. The design strategy also included a number of design objectives which are set out below. The design of the Proposed Development aimed to meet the guidance contained within NatureScot's Siting and Designing Wind Farms in the Landscape<sup>3</sup>, as far as possible.

**2.16** During each design iteration, careful consideration was given to minimising effects on environmental features, whilst maximising the renewable energy generation potential of the Site and maintaining the objectives of the design strategy.

**2.17** The general objectives of the design strategy were as follows:

- To maximise the potential yield, lifetime and efficiency of the project by maintaining suitable spacing between turbines;

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<sup>3</sup> Scottish Natural Heritage (2017) Siting and Designing Windfarms in the Landscape (Version 3a)

- To use latest wind turbine technology, consisting of fewer, more efficient and larger turbines where these can be reasonably accommodated within the landscape, as supported by the Onshore Wind Policy Statement<sup>4</sup> and NPF4;
- To select a maximum turbine blade tip height, and proportions that relate to the landscape scale of the Lammermuir Hills, as well as considering the existing Fallago Rig Wind Farm, and avoid having an overbearing dominance on the character of the Site and surrounding hills;
- To make use of natural topographical screening of turbines and other infrastructure in key views where possible, such as views from the settled East Lothian farmland to the north of the Lammermuir Hills;
- To seek to develop a turbine layout which minimises effects on the special qualities of local and more distant designated landscapes, including the Lammermuir Hills SLA, Lammermuir Moors SLA and Eildon and Leaderfoot NSA;
- To seek to limit the visual effects of turbine proposals on sensitive receptors including residents in nearby settlements such as Westruther and properties along the Dye Water Valley;
- To seek to minimise the horizontal spread of the Proposed Development, remove outlying turbines and reduce stacking, particularly in views from nearby residential properties and Twin Law Cairns on the Southern Upland Way;
- To use existing Fallago Rig Wind Farm tracks and grid connection where possible to minimise the need for new infrastructure;
- To explore opportunities within the Site to restore and enhance the landscape and biodiversity;
- To use available technology to minimise the effects of turbine lighting; and
- To develop a layout that fulfils the above objectives whilst respecting other environmental and technical constraints including cultural heritage; noise; ecological, ornithological; hydrological and ground conditions (including peat) related constraints identified during the EIA process.

**2.18** During the design process, computer modelling was used as a tool to aid design. In particular, Zone of Theoretical Visibility (ZTV) models were generated and used to aid understanding of potential visual effects, including cumulative visual effects of the Proposed Development with other wind farms within the Lammermuir Hills, including Fallago Rig Wind Farm. Wireframes were generated to illustrate views from key locations around the Site and to illustrate the cumulative effects with other nearby wind farm developments. The effects of proposed lighting at night were also considered.

**2.1** Minimising operational noise impacts and avoiding significant impacts on residential amenity were key design considerations. Throughout the design process, the layout of the Proposed Development was 'tested' in relation to noise limits and views from key locations, and the number of turbines and their locations were optimised to minimise adverse effects.

**2.19** The main components of the Proposed Development considered in the initial design iterations were the turbines. The location of other infrastructure components was largely dictated by the positioning of the turbines and designed around onsite environmental constraints. Later iterations to the turbine layout, following detailed engineering review, involved further alterations to turbine and infrastructure locations, which were reviewed against all constraints. For example, opportunities were taken to re-position turbine hardstandings and access tracks in areas where detailed peat probing has identified deeper peat deposits, to minimise the likelihood of peat disturbance onsite, as well as to avoid areas of more complex topography. The substation and battery storage are also located in the western portion of the Site, away from the closest visual receptors.

## Site Design Principles and Constraints

**2.20** The final design of the Proposed Development takes into account the design objectives and key considerations discussed above. A number of environmental and technical constraints have been identified and considered in the iterative design process and these guided the positioning of both turbines and infrastructure. They include, but are not limited to:

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<sup>4</sup> Scottish Government, Onshore Wind Policy Statement (2022). Available [online] at: <https://www.gov.scot/publications/onshore-wind-policy-statement-2022/documents/>



### Site-Specific Design Principles

- Reduction in turbine height from 260 m to 220 m (as compared with the Scoping layout) to relate better to the scale of the underlying landscape and the scale of operational (including Fallago Rig), consented and proposed wind farms in the surrounding landscape, and to minimise visibility from sensitive visual receptors including residents in Westruther;
- Removal or relocation of turbines in the south of the Site, to reduce effects on recreational receptors on the Southern Upland Way (including Twin Law Cairns) and reduce visibility from sensitive visual receptors to the south, including residents in Westruther;
- Removal or relocation of turbines in the north of the Site to reduce effects on residential receptors at Killpallet;
- To seek to minimise visual effects at the closest residential properties within the Site which have views of the turbines by applying a minimum 1.2 km buffer around properties;
- To protect the amenity of residents of the closest residential properties in relation to operational noise from turbines;
- To seek to avoid physical interaction with heritage assets and to limit the intervisibility between the turbines and key cultural heritage assets;
- Removal of the closest turbines to the Mutiny Stones and improvements to the turbine layout, and track infrastructure, to reduce effects on the setting of this Scheduled Monument;
- To avoid onsite constraints as far as possible, including hydrology (watercourses and private water supplies), deep peat, ecology, ornithology, archaeology, steep slopes, and telecommunications links;
- To strike a balance between maximising energy yield, minimising visibility from cultural heritage assets and maintaining a clear composition of the scheme (together with Fallago Rig where relevant) in key views; and
- To explore and identify an aviation lighting scheme which both satisfies the requirements of aviation policy and minimises the visual effects of such lighting at nearby receptors.

### Constraints

- Ecology: Avoidance of sensitive habitats; observing appropriate separation distances with respect to protected species and associated habitat features (including bats, otters and mountain hare, watercourses and key habitat features).
- Residential Properties: Maintaining a buffer around residential properties to avoid breaching of the residential visual amenity, noise and shadow flicker limits as expected to be defined through the consents process.
- Cultural Heritage: Avoiding designated cultural heritage assets within the Site which are considered to be nationally important including Scheduled Monuments (in particular, the Mutiny Stones), and any known non-designated heritage assets within the Site.
- Hydrogeology and Peat: Maintaining a 50 m buffer where possible from watercourses, designing site infrastructure to minimise the number of new watercourse crossings. Avoiding construction in areas identified as likely Groundwater Dependent Terrestrial Ecosystems (GWDTEs) as well as areas of deep peat (>1 m) where possible.
- Topography: Avoiding steeper slopes or more complex topography where feasible to ensure constructability and minimising the need for significant cut and fill engineering works.
- Recreation: Turbines were removed from the initial layout to improve separation distance and views from the Southern Upland Way and Twin Law Cairns. Buffers around grouse butts were adopted in areas where recreational shooting takes place on the estate.

**2.21** An illustrative constraints plan is shown in **Figure 2.1** to demonstrate the design process. This plan does not include all constraints that informed the design (e.g., confidential information on certain protected species) and is not presented at the level of detail at which certain constraints were reviewed. Furthermore, various key potential environmental effects of the Proposed Development, including landscape and visual effects, effects upon the settings of cultural heritage assets and effects on ornithology, could not influence design directly via constraints mapping. These effects influenced the design instead by iterative assessment (e.g., the generation of wireline visualisations).

**2.22** A number of the key constraints and considerations which fed into the design process are detailed below, including an explanation of where some compromises had to be made to design a viable scheme. Again, it should be noted that this information is intended to provide some illustrative examples of the changes made to the Proposed Development through the extensive design work undertaken and is not an exhaustive list. It provides a ‘snapshot’ of the design work and numerous modifications made to take account of the constraints onsite which were identified as the EIA progressed, and which were discussed by the relevant members of the team at a number of design workshops held throughout the EIA process.

### Landscape and Visual Amenity

**2.23** Potential landscape and visual effects were a key consideration within the design process and overall design strategy as noted above. A key aim of this process was to minimise potentially significant landscape and visual effects, whilst avoiding other key constraints onsite including those relating to peat, ornithology, hydrology and ecology.

**2.24** The Site is located within the locally designated Lammermuir Hills SLA and borders the Lammermuir Moorland SLA. Potential effects on the special qualities of the SLA were a key consideration within the design process. By virtue of location, it was not possible to avoid direct effects on the Lammermuir Hills SLA. Design considerations therefore focused on the scale of the turbines in relation to the “*large area of open upland...with remote, wild qualities*”<sup>5</sup> described as a key characteristic. It was considered that turbines in the order of 220 m height to tip could be accommodated within this large-scale landscape, which has summits rising to almost 500 m AOD within the Site. Consideration was also given to the composition of the layout in key views to and from the SLA, including with regard to features described in the SLA citation, including “*the striking conical Durrington Laws*”<sup>5</sup> and the relationship between the hills in forming a backdrop to the Leader and Whiteadder Valleys.

**2.25** The interactions and compatibility with nearby existing (including Fallago Rig) and proposed wind farms was a key consideration during design, and care was given to selecting an appropriate wind turbine for the Site (i.e. in terms of tower height and rotor diameter). The Proposed Development was originally scoped with turbines up to 260 m height to blade tip, however the final candidate turbine selected is up to 220 m to blade tip.

**2.26** Views from the closest settlement of Westruther were an important consideration during the design process. The main aim was to create a layout which appears evenly spaced, with minimal stacking and outlying turbines, set back from the settlement behind the farmed and forested slopes above the settlement. The layout sought to remove or relocate turbines in the south-east of the Site which were the most visible from Westruther. This also had the benefit of achieving a greater set back from the Southern Upland Way (and Twin Law Cairns), to reduce the dominance of turbines in views from this popular recreational route.

**2.27** To illustrate the changes that were made to the design of the Proposed Development and how this relates to potential effects on landscape and visual amenity, comparative wireframes are provided at the end of this chapter for key layouts as detailed below (provided as **Figures 2.2 to 2.4**). The wireframes are presented from the following three key viewpoints (VPs):

- Figure 2.2: LVIA Viewpoint: Twin Law Cairns;
- Figure 2.3: LVIA Viewpoint: B6456, Westruther; and
- Figure 2.4: Cultural Heritage Viewpoint: In combination view from Mutiny Stones (SM361).

### Peat

**2.28** Phase 1 and Phase 2 peat surveys were undertaken across the Site, and specifically at the infrastructure locations, in line with good practice guidance<sup>6</sup>. This confirmed that deep peat is sparse within the Site, and majority of the peat across the Site is in poor condition. In addition to the data collected by Kaya Consulting, peat survey data collected in 2015, in support of the EIA for the Fallago Rig Wind Farm development to the north-west, was also made available. 11 probe depth points from this survey - in the vicinity of the existing Fallago Rig substation - were merged with the 2022 Phase 1 dataset.

**2.29** The final layout has taken into consideration the pockets of deeper peat (>1 m) and has avoided siting turbines and associated infrastructure at these locations where feasible, although this has not been possible at all infrastructure locations due

<sup>5</sup> Scottish Borders Council (2012) Supplementary Planning Guidance: Local Landscape Designations.

<sup>6</sup> Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. Guidance on Developments on Peatland, on-line version only). Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2018/12/peatland-survey-guidance/documents/peatland-survey-guidance-2017/peatland-survey-guidance-2017/govscot%3Adocument/Guidance%2Bon%2Bdevelopments%2Bon%2Bpeatland%2B-%2Bpeatland%2Bsurvey%2B-%2B2017.pdf>

to the variability in peat depths and the need to consider other constraints. Extensive design work was undertaken to optimise the layout for peat, including adjustments to the locations of turbines, realigning tracks and re-orientating hardstandings.

## Hydrology

**2.30** From the outset of the design process, a 50 m buffer was applied to all mapped watercourses and water bodies across the Site. Where possible, this has been maintained for the siting of all turbines and infrastructure (with the exception of watercourse crossings). There are a number of locations where it has not been possible to maintain the 50 m buffer due to the presence of other constraints on the Site; these locations are detailed below, and further details are provided in **Chapter 8: Hydrology, Hydrogeology, and Peat** of the EIA Report. Where considered necessary, additional mitigation is proposed in some of these locations (shown on **Figure 8.2** of the EIA Report) to protect the watercourses as set out in **Chapter 8**.

- A – This is a small watercourse (labelled as Wester Black Burn/Shiel Burn on OS mapping). A buffer width of 32 m has been achieved. The proposed battery storage area is located on the other side of the existing wind farm track from the watercourse, close to watercourse crossing ID18, and is at the location of a former borrow pit which provides established flat ground thereby minimising earthworks required for the battery storage. The Wester Black Burn/Shiel Burn enters the Dye Water ~75 m downstream of the battery storage area.
- B – The proposed borrow pit 3 is just north of the access track and within the 50 m buffer of the Dye Water. A buffer width of 31 m has been achieved. The existing access track is located south of the proposed borrow pit and separates it from watercourse.
- C – The existing Fallago Rig access track requires some upgrades to facilitate the construction of the Proposed Development. Approximately 2.48 km of the proposed upgrades are where the existing track is within the 50 m buffer of the Dye Water and/or its' tributaries.

## Ornithology

**2.31** As a result of findings from the ornithological surveys, some areas of the Site were identified as 'no go' areas for turbines at an early stage due to the presence of a recorded merlin nesting location and breeding waders. These areas were maintained free from turbines throughout the design process.

## Cultural Heritage

**2.32** There is a designated heritage asset (Mutiny Stones) and a number of non-designated heritage assets within and immediately surrounding the Site and care has been taken to avoid these where possible. Design modifications include the removal of turbines T4 and T7 due to their proximity to the Mutiny Stones, and the realignment of the access track to the north-east cluster moved north slightly to avoid crossing an historic field boundary and to utilise existing tracks.

## Engineering Considerations

**2.33** Careful consideration has been given to the engineering constraints associated with the design. This has included utilising and reusing existing infrastructure associated with the existing Fallago Rig Wind Farm (such as access tracks, borrow pits and the extension to the existing substation), avoiding slope angles of more than 14 degrees, reducing the need for significant cut and fill engineering works and, where possible, designing tracks to follow the contours of the Site.

## Site Infrastructure

### Turbines

**2.34** It is recognised by the Scottish Government that there is a pressing need to produce considerably more energy from renewable sources. As such, there is a need to plan for considerably larger scale wind energy development, as well as other forms of renewable energy. With the need to 'think big', comes the need to think where development of such a scale could be accommodated. In addition, the scale of the Proposed Development's turbines has been dictated partly by the size of turbines available and emerging from manufacturers (designed for a global market), who are producing larger turbines in line with advances in technology that generate substantially lower cost renewable electricity than in the past. This will enable onshore



wind farms, such as the Proposed Development, to be cost competitive with conventional electricity sources including fossil fuels.

**2.35** As noted above, consideration has also been given to the pattern of development and the scale of the other operational and proposed wind farms in the wider area. The adjacent Fallago Rig Wind Farm has a 125 m turbine tip height, whereas other consented and proposed wind farms within the Lammermuir Hills would have tip heights of up to 220 m. Crystal Rig – Phase 4 Wind Farm in the eastern Lammermuir Hills has been consented at 200 m height to tip, whereas neighbouring operational schemes at Crystal Rig and Aikengall range between 100 m and 145 m height to tip. In this way, the extent of the Proposed Development and the size of turbines has been a consideration to seek to reduce cumulative effects with other nearby schemes whilst maximising energy generation and considering the availability of turbine models in the future.

**2.36** SNH (now NatureScot) guidance<sup>7</sup> states that “As a general rule for most rural areas of Scotland, a single colour of turbine is generally preferable ... a light grey colour generally achieves the best balance between minimising visibility and visual impacts when seen against the sky ... paint reflection should be minimised ... for multiple windfarm groups or windfarm extensions, the colour of turbines should generally be consistent”. The turbines proposed for the Proposed Development are to be a non-reflective pale grey colour, to be consistent with adjacent schemes and as per industry standard.

### Aviation Lighting

**2.37** One of the key considerations from a landscape and visual amenity perspective was designing an appropriate aviation lighting scheme which both satisfies the requirements of aviation policy and minimises the visual effects of such lighting at nearby receptors. Further details on the requirements for aviation lighting are provided in **Chapter 3: Development Description** and **Chapter 11: Aviation** of the EIA Report, and details of the proposed lighting scheme for the Proposed Development are set out in **Appendix 11.1: Wind Farm Aviation Lighting and Mitigation Report**. In summary, seven of the 15 wind turbines are proposed with Air Navigation Order (ANO) visible red lighting mounted on the turbine hubs. Infrared lights (invisible to the naked eye) will be installed on all of the 15 turbines. The ANO 2000/200cd visible red lighting will be controlled such that when the visibility is greater than 5 km in all directions from all turbine hubs, the lights will be reduced to 200cd (10 % of normal power). This reduced lighting scheme has been agreed with the Civil Aviation Authority (CAA) and Ministry of Defence (MOD) through pre-application consultation.

### Ancillary infrastructure

**2.38** As noted above, the infrastructure required was designed and arranged in such a way as to avoid the identified onsite constraints. Several infrastructure layouts have been progressed as the scheme evolved, with some minor iterations to turbine locations were necessary to facilitate the optimum onsite infrastructure requirements and respond to civil engineering constraints, such as topography. Access track routes in particular were designed to minimise watercourse crossings and to avoid constrained areas within the Site, including steep slopes and deeper peat.

### Design Evolution

**2.39** The development of the layout evolved through a number of design iterations. The design process involved multiple workshops with environmental and technical team members to address potential constraints associated with one or more of the turbines or elements of the associated infrastructure. Each team member also summarised feedback from the relevant technical stakeholders as appropriate to the design process, and comments received through consultation with the local community and organisations were given due regard during the evolution of the project design. The process is summarised as five discrete layout iterations (as shown in **Figures 2.5 - 2.7**), although a number of refinements were made in between. Various other detailed iterations and refinements were undertaken between the key design variants described below:

#### Preliminary Layout: Layout 1

The preliminary layout (Layout 1) for the Proposed Development, comprising up to 20 turbines of up to 250 m to blade tip, was developed by the Applicant, and this was based largely on technical and operational efficiency criteria i.e. wind yield. The layout also took account of key landscape sensitivities as well as other wind farms (e.g. Fallago Rig), and therefore

<sup>7</sup> Scottish Natural Heritage (2017) Siting and Designing Windfarms in the Landscape (Version 3a)

the potential for cumulative effects. This layout represented the 'maximum development scenario' in relation to turbine numbers considered to be possible on the Site. All 20 turbines were located within the SBC administrative area.

### Scoping Layout: Layout 2

Layout 2 was based largely on technical and operational efficiency criteria of the maximum parameters for the purpose of identifying a robust scope for the EIA. Known high-level constraints such as watercourses and cultural heritage features were avoided in developing this layout. Turbine height was increased to 260 m with a maximum number of 20 turbines. Turbines were moved to improve separation distance from the existing Fallago Rig Wind Farm which is immediately to the west and to make sure all potential oversail areas remained within the confines of the Site boundary. This layout was presented in the EIA Scoping Report and at the first public exhibition.

### Interim Layout: Layouts 3 - 4

Following refinement to the design strategy, landscape and visual modelling, emerging findings of the EIA process (including field survey findings), engineering analysis and responses received at Scoping, there were a number of design iterations which sought to design out likely significant environmental effects. The main change between Scoping and the second public consultation (layout 5 below) involved the removal of 3 turbines (T5, T14, and T15) to increase separation from the Southern Upland Way, while improving views from Twin Law Cairns and Westruther, and retain a 1.2 km buffer from properties at Byrecleugh. T4 was moved to reduce visibility from the property at Killpallet. Other changes included the movement of turbines to optimise the layout and address onsite constraints, such as:

- The consideration of views from the Mutiny Stones Scheduled Monument;
- Moving turbines to improve views and reduce visibility from nearby residential properties;
- Moving turbines to improve spacing and separation distances; and
- Composition of layout from key design viewpoints.

The maximum blade tip heights of all turbines were also reduced to 220 m to reduce the prominence of turbines in key views and to better reflect the underlying landscape scale and scale of neighbouring Fallago Rig Wind Farm and other consented and proposed wind farms within the Lammermuir Hills. These changes were captured in Layouts 3 and 4. These changes were reviewed from a landscape and visual perspective to ensure that the magnitude of visual effect would not increase at key viewpoints.

### Interim Layouts: Layouts 5-12

Following Layout 4, T7 was removed on heritage grounds due to its proximity to the Mutiny Stones Scheduled Monument. Layout 5 was presented at the second round of public exhibitions and comprised 17 turbines with a maximum height of 220 m. Following the public exhibitions, there were a number of further design iterations resulting in Layouts 6 – 12 which saw iterations of the removal and reinstatement of T4 and T10. These involved various adjustments of largely similar layouts to review and improve the design to take account of environmental considerations associated with layouts comprising 15 and 16 turbines. The principal changes between layout 4 and layout 12 included the removal of four turbines:

- The removal of T4 and T7 on heritage grounds (proximity to Mutiny Stones) and to reduce the horizontal field of view occupied by turbines from locations along the Southern Upland Way, including Twin Law Cairns;
- T10 was removed due to landscape and visual constraints. This allowed for other turbines in the south of the layout to move west, which helped to improve the composition of the layout in views from Twin Law Cairns and Westruther; and

- T8 was removed to enable improved inter-turbine separation in the north of the Site, whilst also improving views from key visual receptors.

Other minor changes were made to some turbine locations, primarily to improve spacing and thus turbine performance, avoid areas of peat identified in the phase 2 surveys and to maintain separation from existing shooting areas where practicable. Layout 12 was presented in the Gatecheck 1 Report.

### Final Layout: Layout 13

A number of design iterations took place between Layout 12 and Layout 13, the final Layout. This included the consideration of locations for supporting infrastructure and access tracks after taking into consideration the environmental constraints identified, including those associated with hydrology and peat, landscape and visual amenity and ornithology.

The final layout has taken account of the full range of design objectives described above considered in balance with each other and has taken into account all relevant detailed desk and field-based information onsite constraints and sensitivities identified through the developing EIA process.

**2.40** The Proposed Development is described in detail in **Chapter 3** of the EIA Report. In summary, it will comprise:

- Up to 15 wind turbines, each with a maximum blade tip height of 220 m with an external transformer kiosk (the candidate turbine has a rated capacity of 7.2 MW);
- Crane Hardstandings adjacent to each turbine position;
- Four new watercourse crossings and associated infrastructure;
- Approximately 15 km of proposed wind farm tracks and approximately 1.1 km of proposed light vehicle track;
- Approximately 17.5 km of existing access tracks (including areas of widening/upgrading);
- Onsite underground electrical cables and cable trenches;
- Control building and extension to Fallago Rig existing substation; and
- A 20 MW battery storage area.

In addition to the above components associated with the operation of the Proposed Development, construction of the Proposed Development will also require the following:

- Four temporary construction compounds (two existing compounds which will remain in situ following completion of the Proposed Development, and two proposed), including laydown area(s) and car parking; and
- Up to three new borrow pits (which will be closed and reinstated upon completion).

The Final Layout is provided in **Figure 2.8**, including all infrastructure.

## Design Conclusion

**2.41** The final layout takes into account the design objectives outlined in the design statement above. The Site has a number of competing technical and environmental constraints which were considered in the iterative design process, and which guided the positioning of turbines and associated infrastructure. The inherent nature of wind turbines as tall, modern structures means that the form of the Proposed Development as a whole is important, and a clear design strategy is necessary. The overall aim of the design strategy was to create a wind farm with a cohesive design that relates to its landscape context (including Fallago Rig Wind Farm) in line with appropriate published guidance, and which will be legible in key views such as Landscape and Visual Impact Assessment (LVIA) Viewpoints 1 (Twin Law Cairns, Southern Upland Way), Viewpoint 7 (B6456 Westruther), Viewpoint 9 (Darrington Great Law) and Viewpoint 21 (Eildon North Hill). This requirement had to be balanced against the need to minimise potential effects on other environmental conditions including ornithology and cultural heritage in particular.



**2.42** A number of iterations were considered throughout the design evolution, to develop a layout that fulfils the overarching design objectives, whilst maximising energy yield and also respecting and balancing the other technical and environmental constraints identified during the consultation and EIA process, including:

- Peat: Extensive design work was undertaken to optimise the layout for peat and the final layout has avoided siting turbines and associated infrastructure in areas of deeper peat where feasible. No significant effects on peat are predicted.
- Hydrology: Design work involved balancing the need for a 50 m buffer around watercourses while prioritising avoiding other constraints, including peat. Where considered necessary, additional mitigation is proposed in some of locations to protect the watercourses, with the result that no significant effects are predicted on hydrology.
- Ornithology: Balancing the design against the ornithology constraints.
- Cultural heritage: The design has taken consideration of the cultural heritage features identified within the Site and also sought to ensure compatibility with the adjacent wind farm, thereby reducing setting effects on cultural heritage assets in the vicinity of the Site.
- Ground conditions: The Site topography was accounted for, and careful engineering considerations were involved in the design progress.

**2.43** Overall, as a result of the iterative design approach, the adverse effects of the Proposed Development have been minimised, with the residual significant adverse effects being limited to effects on landscape and visual amenity and cultural heritage. The result of the design process is the final application layout, comprising up to 15 turbines not exceeding 220 m to blade tip height, with associated ancillary infrastructure, both permanent and temporary, which was carefully sited and designed to reflect economic, technical and environmental sensitivities.

# Chapter 3

## The Access Statement

### Access to the Site

**3.1** Access to the Site will utilise the access used for Fallago Rig Wind Farm, with access taken from the B6456 to the east of Westruther (**Figure 3.8a**) of the EIA Report) then by means of a short section of minor road to Wedderlie and then following the existing wind farm track north for approximately 6 km to the Dye Water valley. Access from the port of entry (currently assumed to be Rosyth) will be undertaken via the M90, A720, A68 and A697 joining the B6456 near Hyndsidehill. This will be used primarily for the delivery of wind turbine components, general construction traffic and as the Site access for construction workers.

**3.2** Details of the proposed vehicle movements during construction and operation of the Proposed Development are provided in EIA Report **Chapter 10: Access, Traffic and Transport**. **Chapter 10** also provides detail on the proposed abnormal loads' route to the Site which is supported by EIA Report **Appendix 10.1: Transport Assessment**.

**3.3** A junction upgrade is required to facilitate access to the Site. This will be undertaken to accommodate larger loads associated with the Proposed Development.

### Internal Access Tracks

**3.4** In total, approximately 33 km of track will be utilised for the Proposed Development. Approximately 15 km of proposed wind farm tracks and approximately 1.1 km of proposed light vehicle track will be constructed for the Proposed Development. While approximately 17.5 km of existing access tracks (including areas of widening/upgrading) will also be utilised for the Proposed Development. The nominal track running width will be approximately 6 m and existing tracks will be upgraded to this width. Adjacent to this track will be an assumed 1 m width verge at either side for cabling and appropriate drainage subject to local ground conditions. Track widths may be slightly wider in some sections to accommodate bends in the track alignment. Turning heads will be installed at appropriate locations to accommodate abnormal load turning.

### Access for All

**3.5** Resurfacing and upgrading of the existing tracks will ensure a suitable surface for all users who require to access the Proposed Development for construction or operational purposes.

**3.6** The only buildings proposed on the Site will be the substation and battery storage buildings/compounds. The structures will be provided in line with the relevant building regulations to accommodate the access needs of people with limited mobility.

**3.7** There will be no access provision for those with mobility disabilities to the wind turbines themselves due to their inherent design characteristics and for health and safety reasons.

### Public Access

**3.8** There are a number of Rights of Way (RoW) paths within the Site; and Core Paths which are located within / traversing the Site Access (which also form part of the Southern Upland Way, one of Scotland's Great Trails), these are described further below and shown on **EIA Report Figure 3.13**.

**Table 3.1: Core Paths Within / Traversing / within 50 m of the Site Access**

Path Name ScotWays Recreational Route Reference Codes (SBC Reference Code)	Location
Southern Upland Way (SUW) BB/196/1, BB/HP01/5  (LAUN/189/81, CREL/189R/8)	The Southern Upland Way is one of Scotland's Great Trails, running 341 km from Portpatrick on the west coast to Cockburnspath on the east. It is aligned along the south of the main development area, crossing from Braidshawrig 4.5 km south of the Proposed Development, across Twin Law and along the northern side of the Watch Water Reservoir in the east. A section of the path falls within the Site boundary, where it shares a 700 m section of the existing Fallago Rig access track, at Twinlaw Ford.
BB/HT720/8, BB/BB110/2  (GOWE/82R/3, GOWE/82R/4) (GOWE/BB110/10, GOWE/BB110/3, GOWE/BB110/4, GOWE/BB110/5)	Access routes located to the south of the Proposed Development, running from the B6456 junction to Wedderlie House access junction, on the proposed access track.
BB/BB109/1 CREL/BB109/1, CREL/BB109/2, GOWE/BB109/1, GOWE/BB109/2)	Core Path runs from off the existing access track to the south, in a north-westerly direction up through the Site ending at Byrecleugh. At the nearest point, this route is located about 850 m from the closest turbine
BB/BB113/1 (GOWE/82/3, GOWE/82/2)	Core Path, located to the south of the Proposed Development, running from Wedderlie Farmhouse for approximately 200 m, immediately to the west of the proposed access track.
BB/BB103/1 BB/BB104/1  (CREL/BB103/1) (CREL/BB104/1)	This PRoW runs east to west along the existing access route to Fallago Rig Wind Farm from Trottingshaw to Byrecleugh.
Herring Road Heritage Path No, BB/HP01/14  (CREL/BB110/3)	This track runs along the access track to the south-east of the Proposed Development.
Scottish Hill Track no. BB/HT525/17, Continuation of the Herring Road  (CREL/BB105/1)	This PRoW (also listed as Heritage Path BB/HP01/2) is located to the north-east of the Proposed Development Site, running in a north / south direction from Trottingshaw to the East Lothian Council boundary.
BB/HT712/1  (GOWE/82R/1, GOWE/82R/2, GOWE/80R/4)	Core Path link on main road (B6456), located to the south of the Proposed Development, running from the east of Eastfield to Westruther Primary School in Westruther.
BB/BB106/1	This PRoW runs north to south past the mutiny stones (Scheduled Monument) to Byrecleugh within the Site boundary.

Path Name	Location
ScotWays Recreational Route Reference Codes (SBC Reference Code)	
(CREL/BB106/2, CREL/BB106/3)	
BB/BB108/1  (CREL/BB108/1, CREL/BB108/2, CREL/BB108/3, CREL/BB108/4, CREL/BB108/5, CREL/BB108/6)	This PRoW runs from the Southern Upland Way approximately 1.1 km north-west of the cairns on Twin Law to Byrecleugh crossing between Phillip Knowe and Upper Knowe.  Photo: Gate on the Southern Upland Way / PRoW interface.
BB/143/1  (GOWE/BB143/2)	This PRoW is located off the existing access track south of the Site, running in an east / west direction, intersecting the proposed access track at Wedderlie Farmhouse.
BB/BB112/1  (GOWE/BB112/1)	This PRoW is located south of the Proposed Development, running off the access route in Wedderlie towards Eve Law.
BB/118/1  (GOWE BB118/1)	This core path runs from Westruther joining the southern-most access track leading into the wind farm.

**3.9** It is anticipated that these routes may be used recreationally by walkers, cyclists or horse-riders, by local residents including from Westruther and Longformacus or by visitors to the area. The routes may also be used by maintenance workers at Fallago Rig Wind Farm. Wider access rights apply across the Site and enable public access to recreational tracks.

**3.10** As there is potential for direct disruption to the use of these Core Paths during construction, a Site-specific Outdoor Access Management Plan (OAMP) will be prepared for use during construction to ensure that health, safety and public access is not adversely affected. An Outline OAMP has been provided, following the SNH (now NatureScot) *Guidance for the Preparation of Outdoor Access Plans*<sup>8</sup>, in EIA Report **Appendix 3.3: Outline Outdoor Access Management Plan**.

**3.11** There will be no restrictions on access and recreation within the Site during normal operation of the Proposed Development. There will be gates in situ along the newly constructed access tracks within the Site and access to the Site by vehicle will only be possible by persons who have a key/code. 'Right to roam' provisions as introduced by the Land Reform (Scotland) Act 2003 will remain.

<sup>8</sup> SNH (2010) Guidance for the preparation of Outdoor Access Plans. Available at: <https://www.nature.scot/sites/default/files/2017-06/B639282%20-%20A%20Brief%20Guide%20to%20Preparing%20Outdoor%20Access%20Plans%20-%20Feb%202010.pdf>

## Chapter 4

### Summary

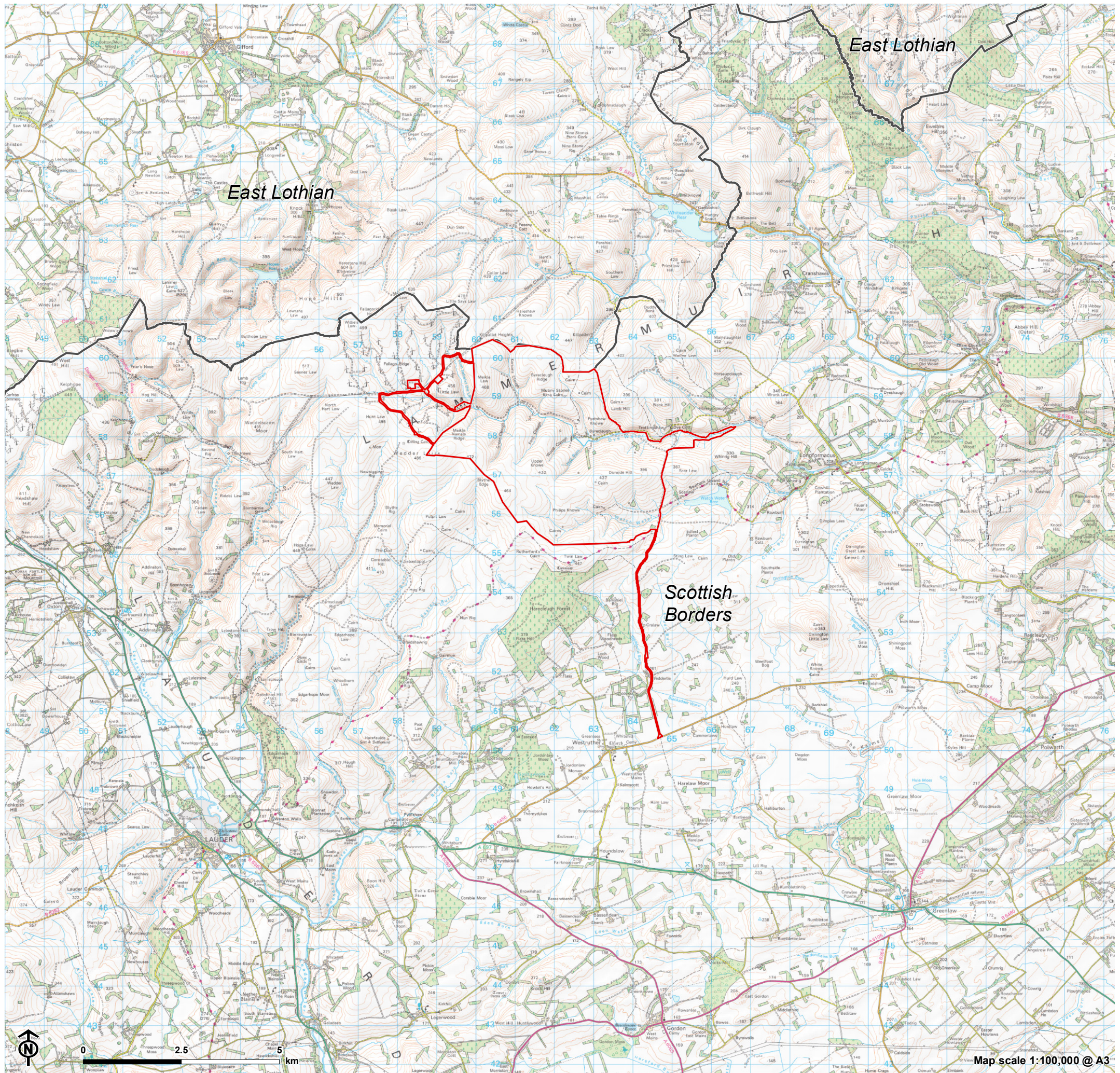
**4.1** Designing a large-scale renewables site is a complex process which often requires a compromise between competing environmental disciplines and commercial considerations. Therefore, it is necessary that the project design is driven by a clear, robust and effective design strategy.

**4.2** This DAS demonstrates that the siting and design of the Proposed Development was carefully considered, and the final design reached as a result of a number of stages of design iteration. The environmental effects associated with the Proposed Development have been avoided or mitigated through the EIA process, and this informed the design process. The layout evolved by responding to environmental and technical investigations and consultations carried out during the EIA process, and the final design was reached by balancing and responding to the constraints and considerations outlined in this DAS.

**4.3** The overall aim of the design strategy was to create a wind farm with a cohesive design that minimises environmental effects to the greatest feasible extent and is sympathetic in form and scale to the surrounding landscape and other wind developments within it, whilst achieving the greatest feasible proportion of the Site's renewable energy generation potential. The Applicant is of the view that the Proposed Development is appropriate in terms of its design and represents a sustainable development.

**4.4** The Access Statement in this DAS outlines the access routes and internal access tracks of the Proposed Development. It provides a summary of accessibility of the Site to the public and addresses key design considerations relating to disabled access of the Site.



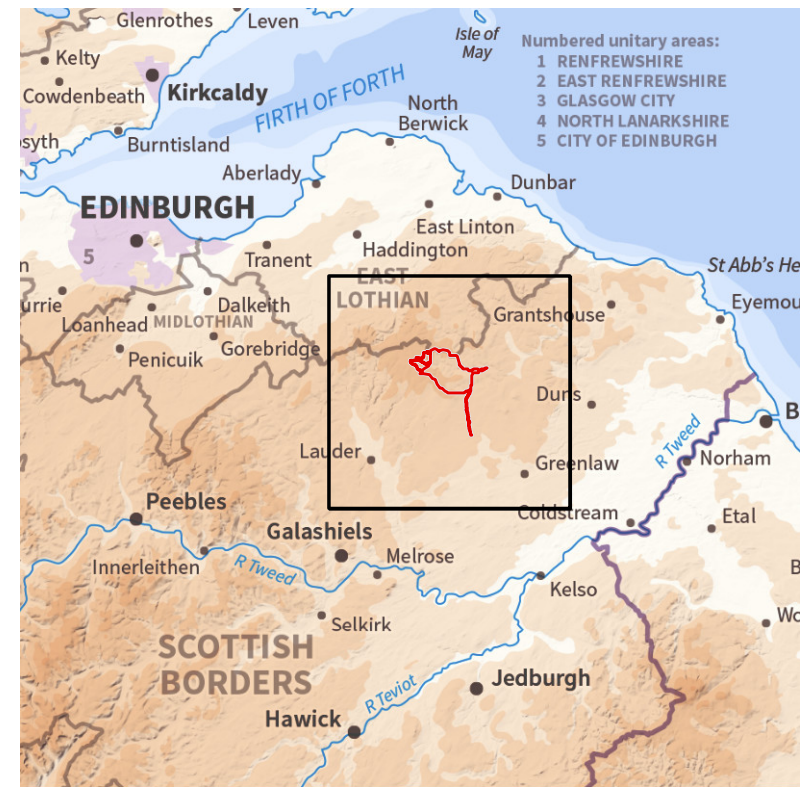


Dunside Wind Farm  
for EDF Renewables



Figure 1.1: Site Location

- Site Boundary
- Local Authority boundary

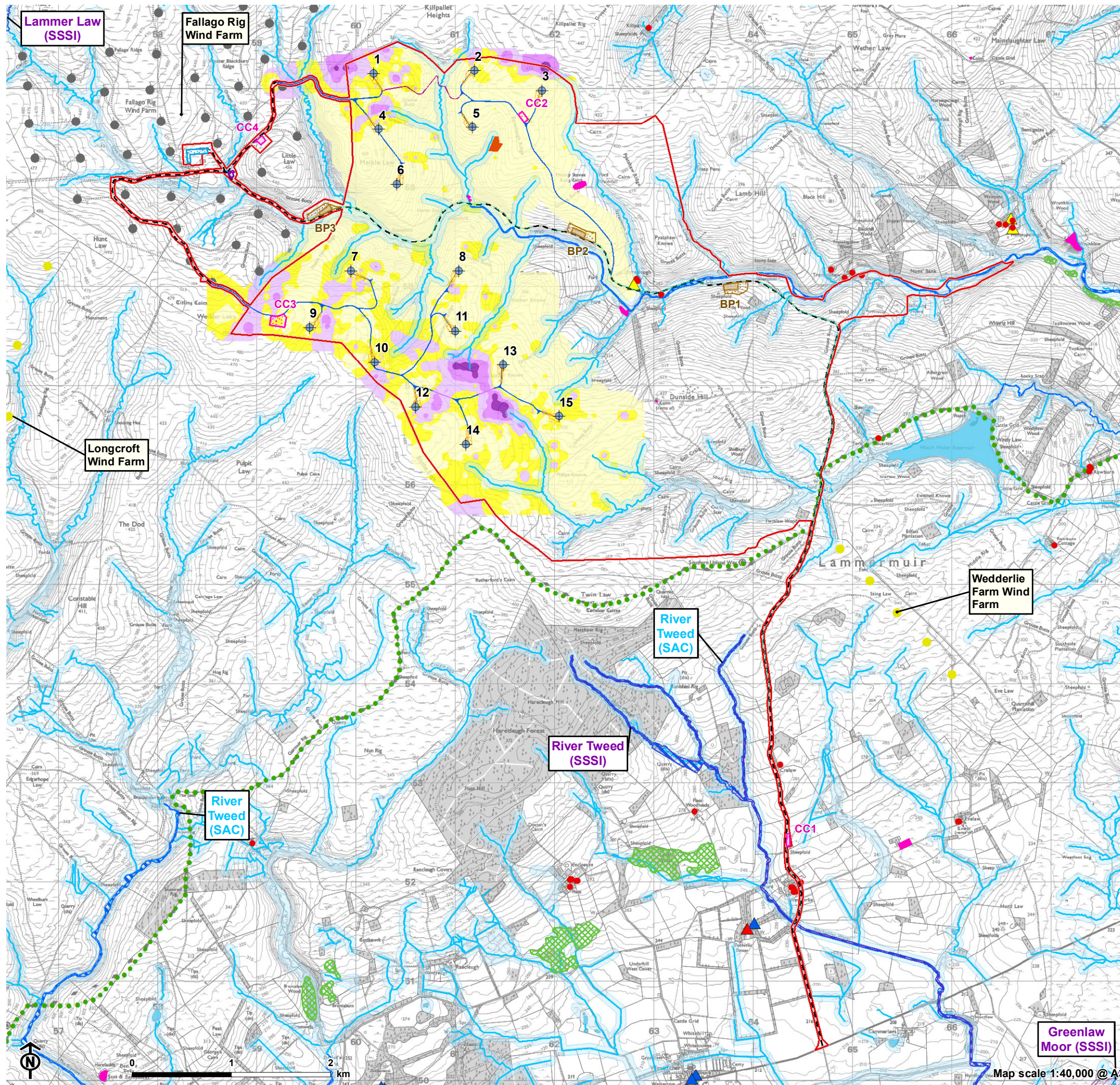


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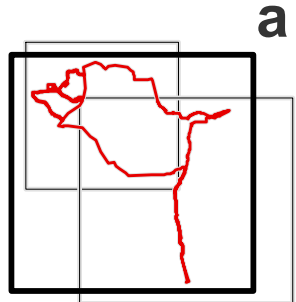




Figure 2.1a: Site Constraints



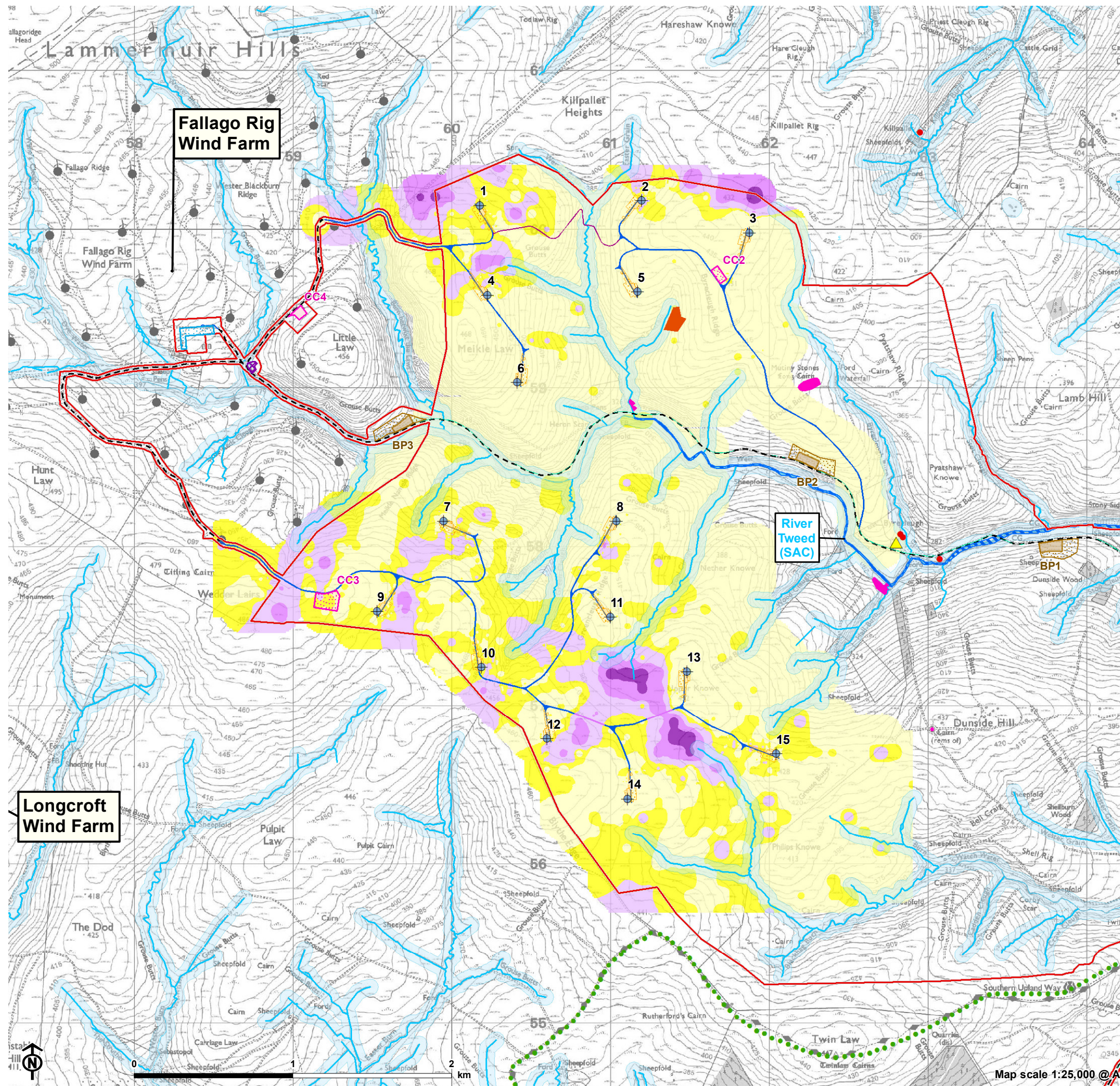
- Turbine
  - Site Boundary
  - Substation extension
  - Construction compound
  - Existing construction compound
  - Borrow pit
  - Borrow pit search area
  - Temporary hardstanding
  - Permanent hardstanding
  - Battery storage
  - Proposed new track (floating)
  - Proposed new track
  - Proposed light vehicle track (3m wide)
  - Proposed existing track upgrade
  - Existing track
- Site constraints**
- Site of Special Scientific Interest (SSSI)
  - Special Area of Conservation (SAC)
  - Ancient Woodland Inventory (AWI)
  - Listed Building: Category A
  - Listed Building: Category B
  - Listed Building: Category C
  - Scheduled Monument (SM)
  - Dwelling
  - Turbine - Operational
  - Turbine - Design/Scoping
  - GWDE moderate dependency
  - GWDE high dependency
  - Southern Upland Way
  - Watercourses/ waterbodies
  - 50m buffer of watercourses and surface water
- Interpolated peat depth (cm)**
- 0 - 35
  - 35 - 50
  - 50 - 100
  - 100 - 200
  - 200 - 300



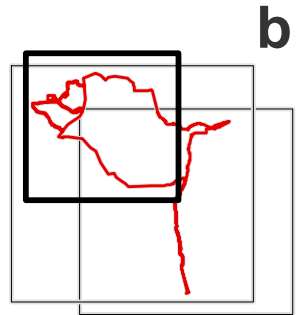
a



Figure 2.1b: Site Constraints



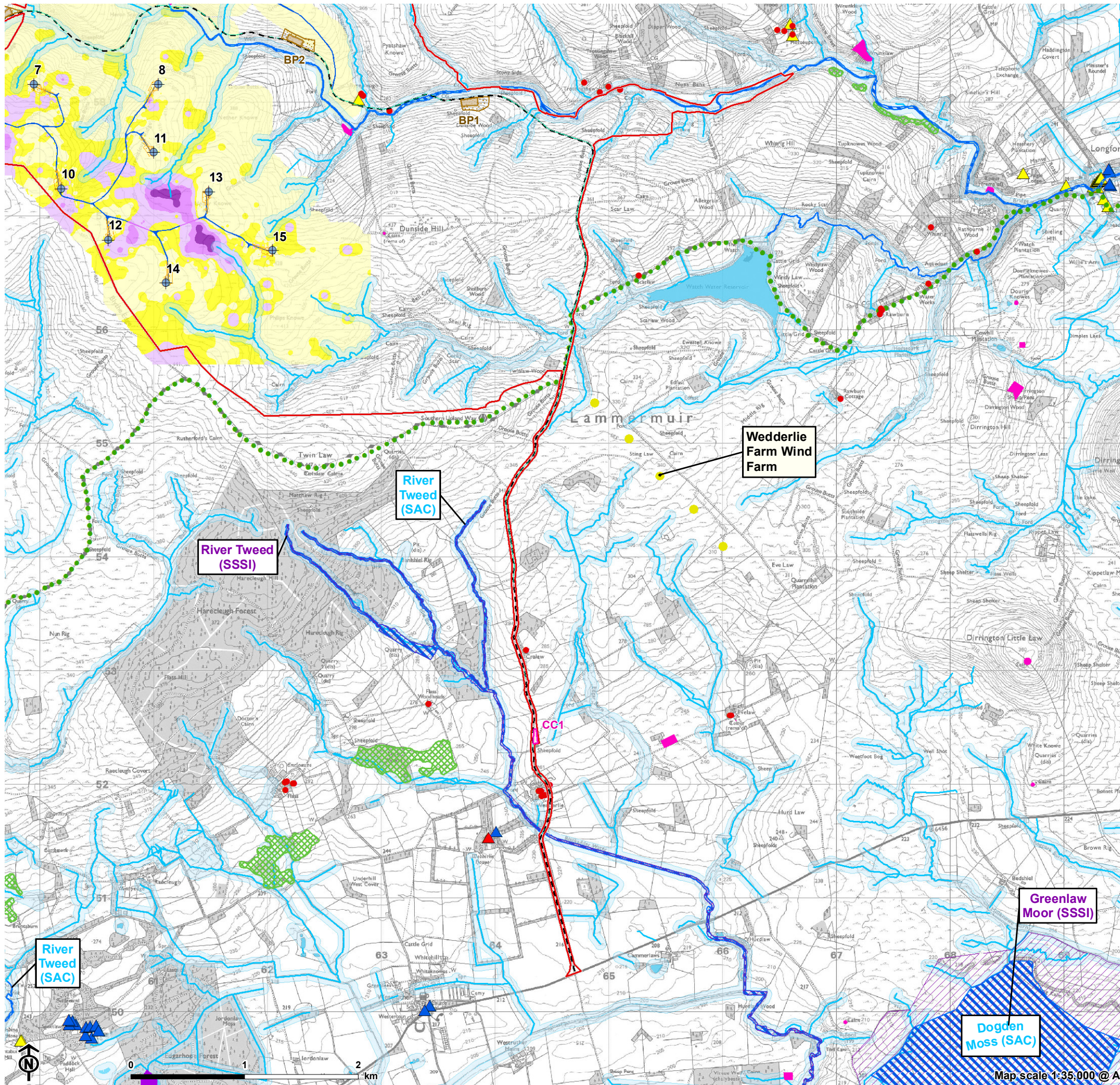
- Turbine
  - Site Boundary
  - Substation extension
  - Construction compound
  - Existing construction compound
  - Borrow pit
  - Borrow pit search area
  - Temporary hardstanding
  - Permanent hardstanding
  - Battery storage
  - Proposed new track (floating)
  - Proposed new track
  - Proposed light vehicle track (3m wide)
  - Proposed existing track upgrade
  - Existing track
- Site constraints**
- Special Area of Conservation (SAC)
  - Listed Building: Category C
  - Scheduled Monument (SM)
  - Dwelling
  - Turbine - Operational
  - GWLTE moderate dependency
  - GWLTE high dependency
  - Southern Upland Way
  - Watercourses/ waterbodies
  - 50m buffer of watercourses and surface water
- Interpolated peat depth (cm)**
- 0 - 35
  - 35 - 50
  - 50 - 100
  - 100 - 200
  - 200 - 300



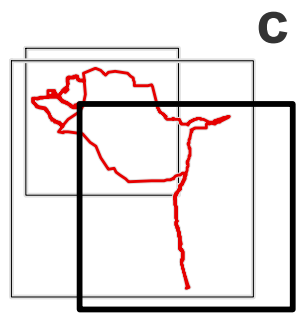
b



Figure 2.1c: Site Constraints



- Turbine
- Site Boundary
- Existing construction compound
- Borrow pit
- Borrow pit search area
- Temporary hardstanding
- Permanent hardstanding
- Proposed new track (floating)
- Proposed new track
- Proposed existing track upgrade
- Existing track



- Site constraints**
- 056\_Scottish\_Wildlife\_Sites
  - Site of Special Scientific Interest (SSSI)
  - Special Area of Conservation (SAC)
  - Ancient Woodland Inventory (AWI)
  - Listed Building: Category A
  - Listed Building: Category B
  - Listed Building: Category C
  - Scheduled Monument (SM)
  - Dwelling
  - Turbine - Design/Scoping
  - Southern Upland Way
  - Watercourses/ waterbodies
  - 50m buffer of watercourses and surface water
- Interpolated peat depth (cm)**
- 0 - 35
  - 35 - 50
  - 50 - 100
  - 100 - 200
  - 200 - 300

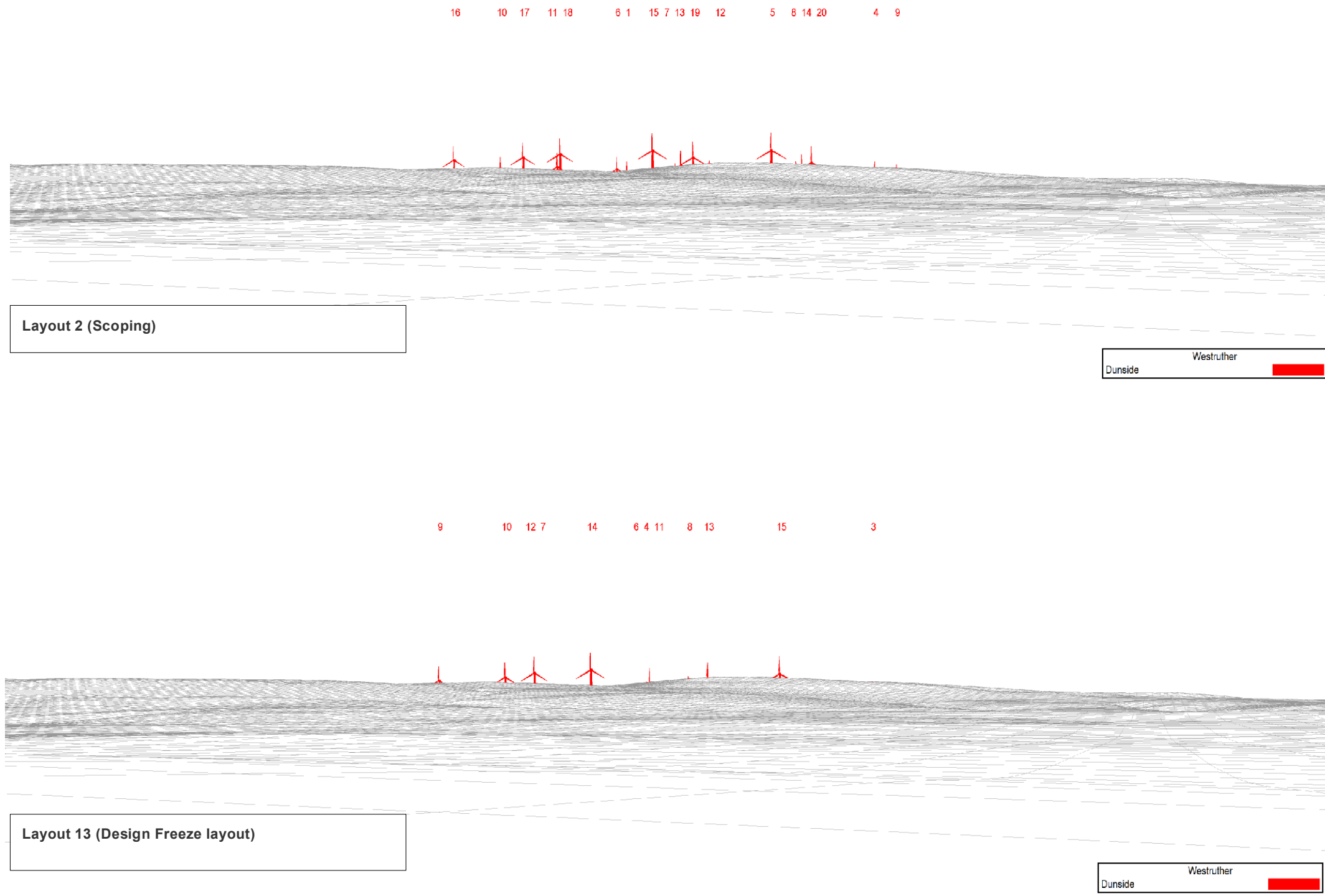
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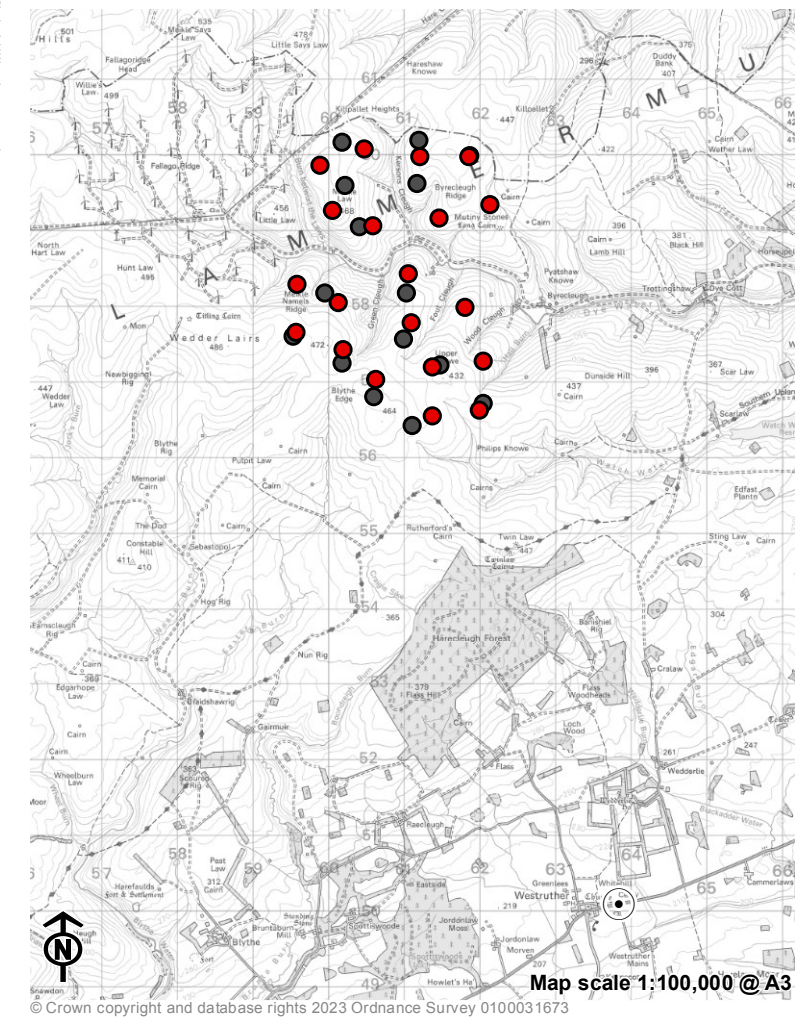
Figure 2.3: Comparison Wireframes - Scoping Westruther + Design Freeze Westruther

Viewpoint: B6456, Westruther

Horizontal Field of View: 53.5°  
Grid Reference: 363840, 650099



- Turbine (Layout 2 Scoping)
- Turbine (Design Freeze)
- Wireframe viewpoint location



Map scale 1:100,000 @ A3

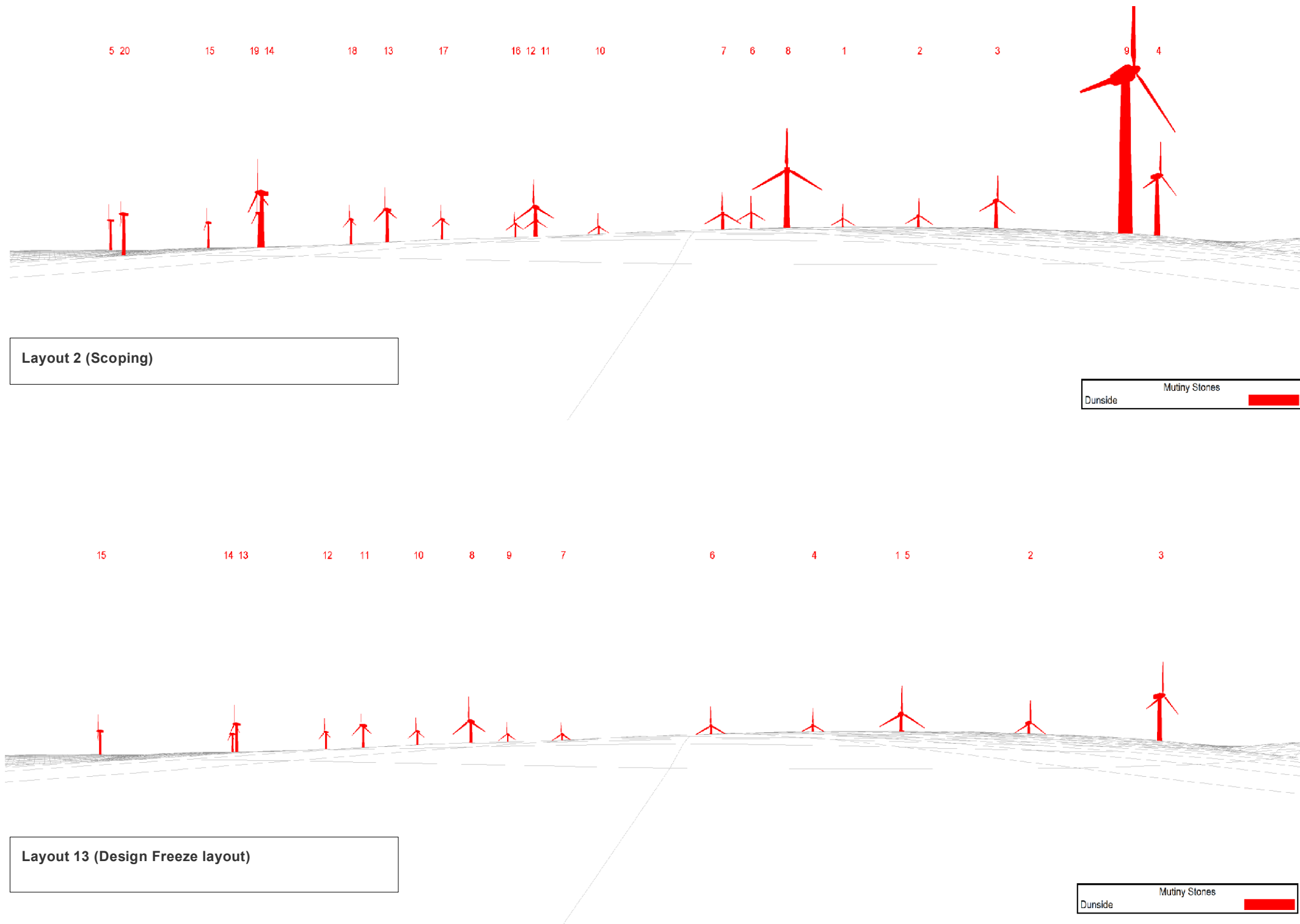
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Figure 2.4: Comparison Wireframes - Scoping Mutiny Stones + Design Freeze Mutiny Stones

Viewpoint: In-combination view from Mutiny Stones (SM361)

Horizontal Field of View: 180°  
Grid Reference: 362368, 658951



- Turbine (Layout 2 Scoping)
- Turbine (Design Freeze)
- Wireframe viewpoint location

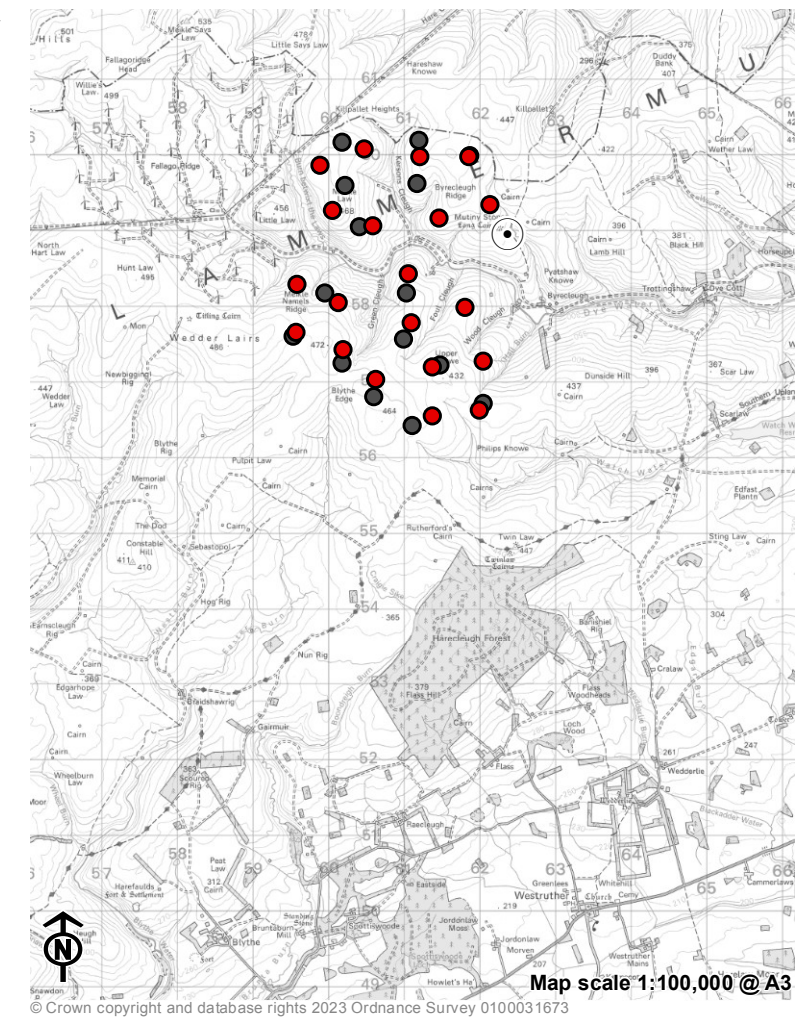
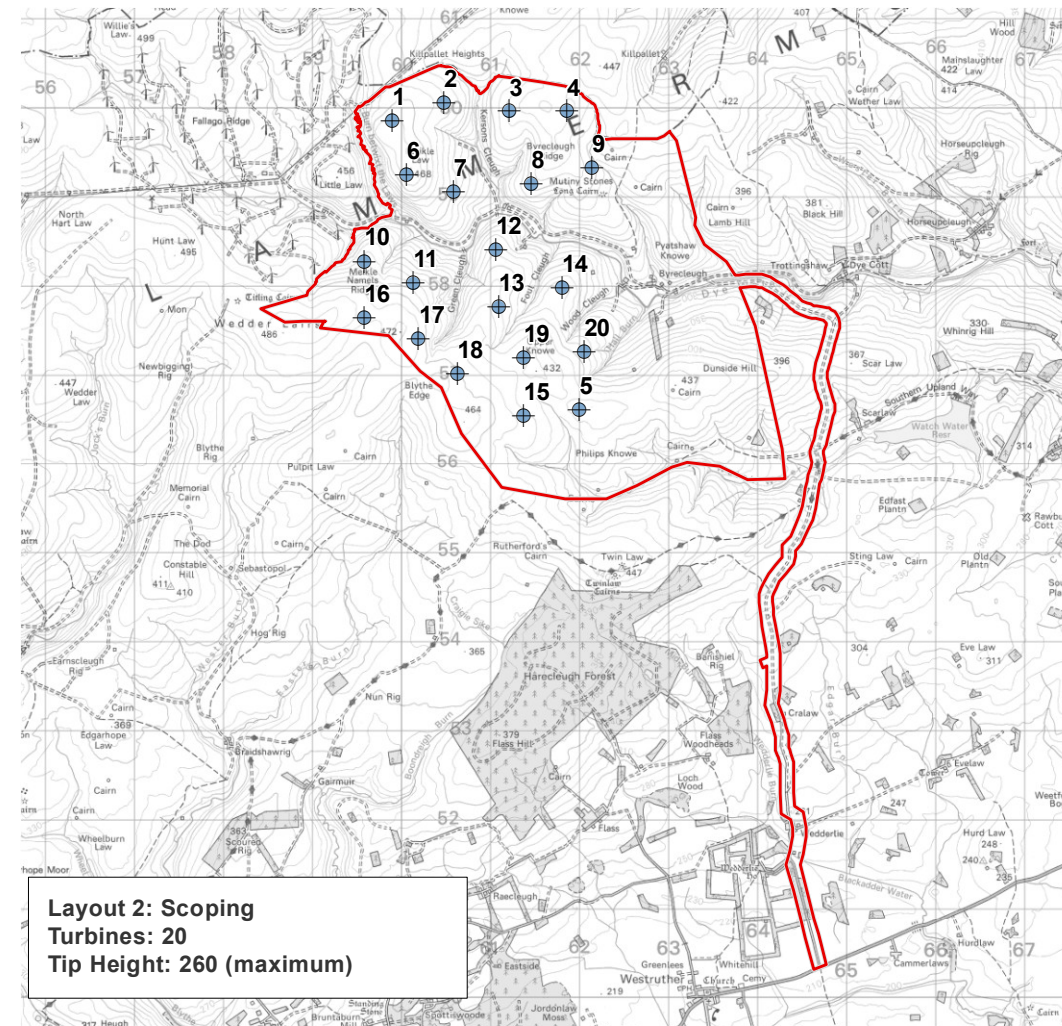
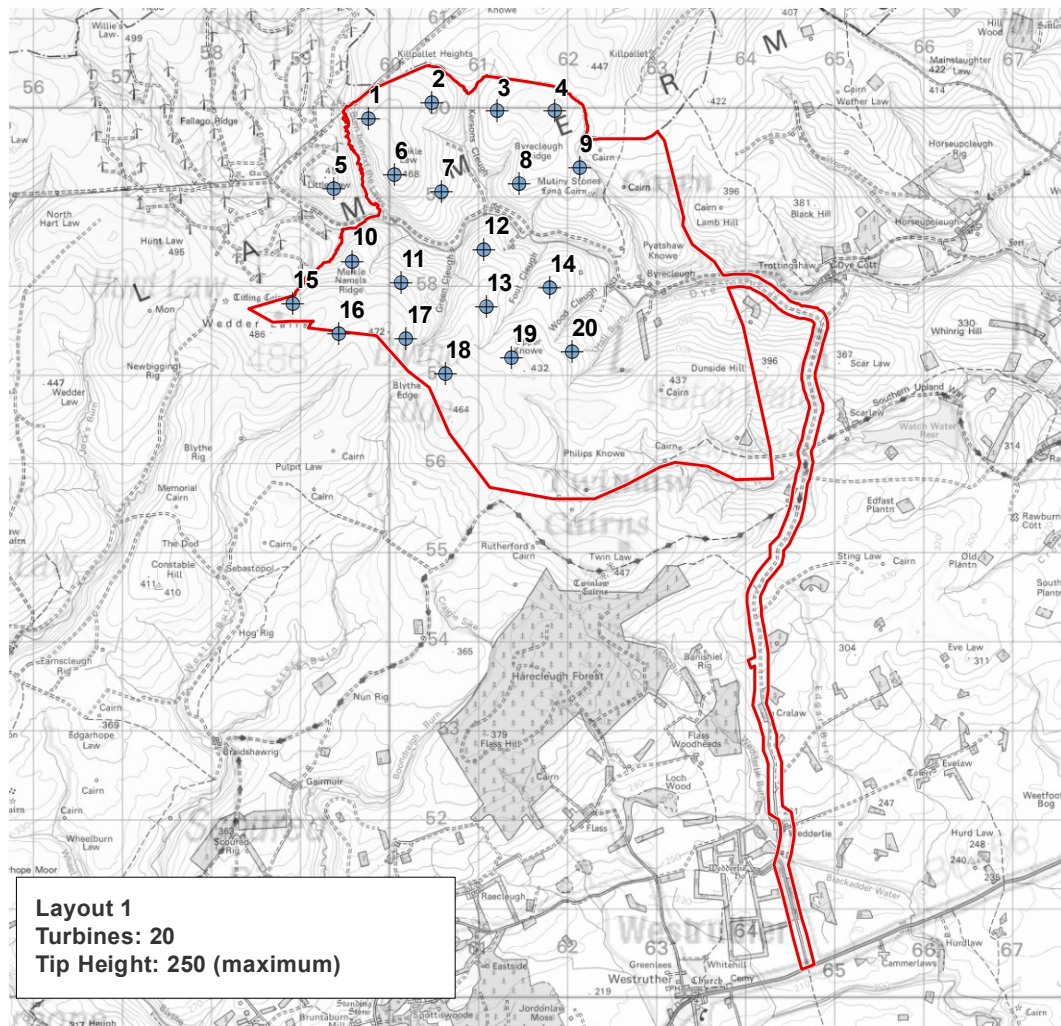
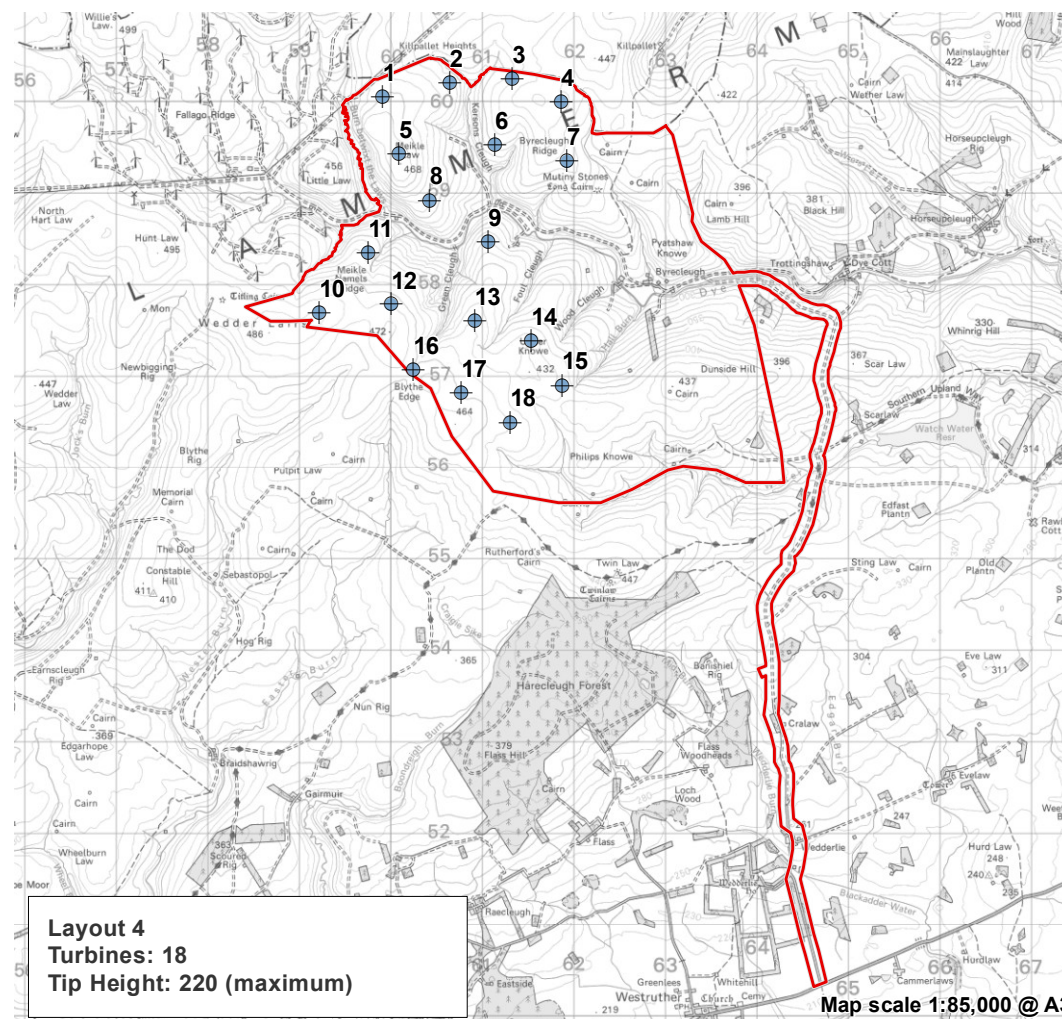
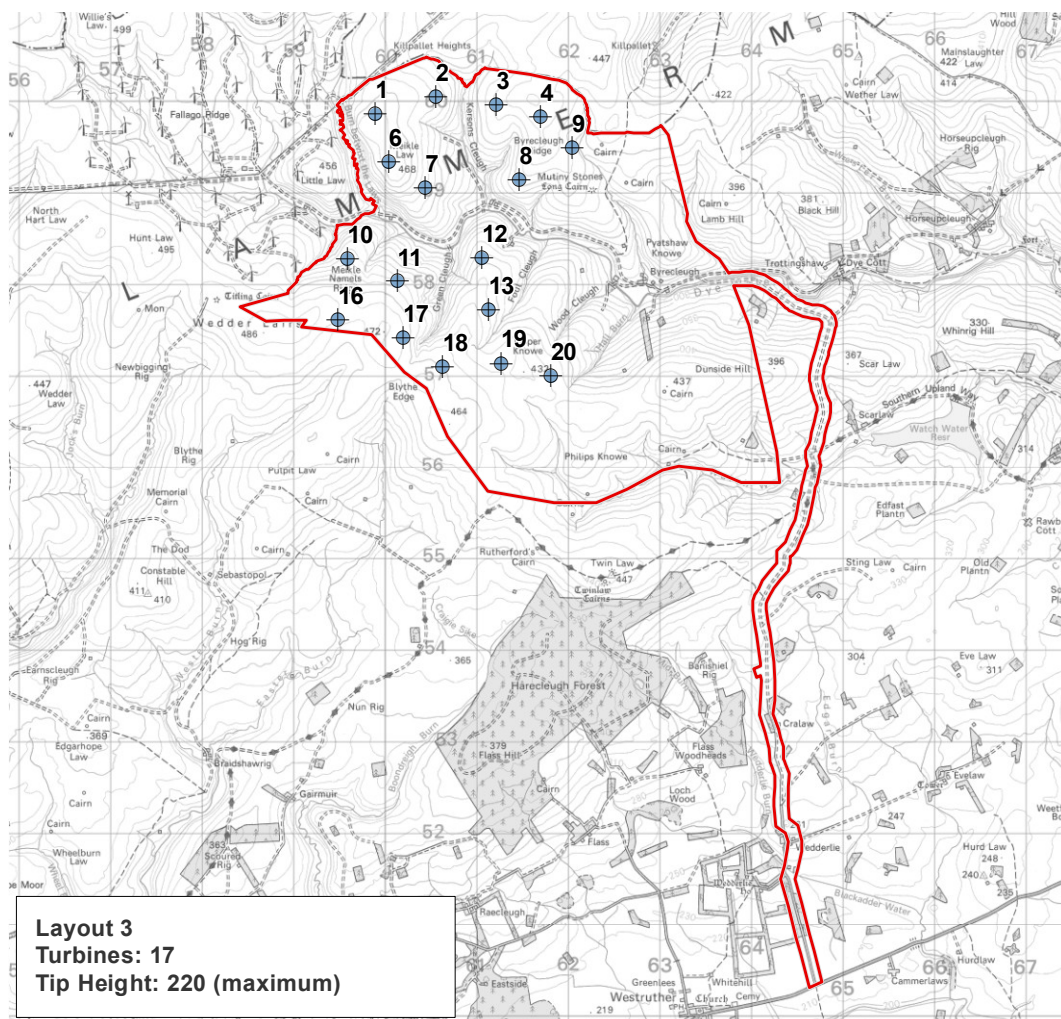




Figure 2.5: Layout 1 to Layout 4



Site Boundary  
Turbine

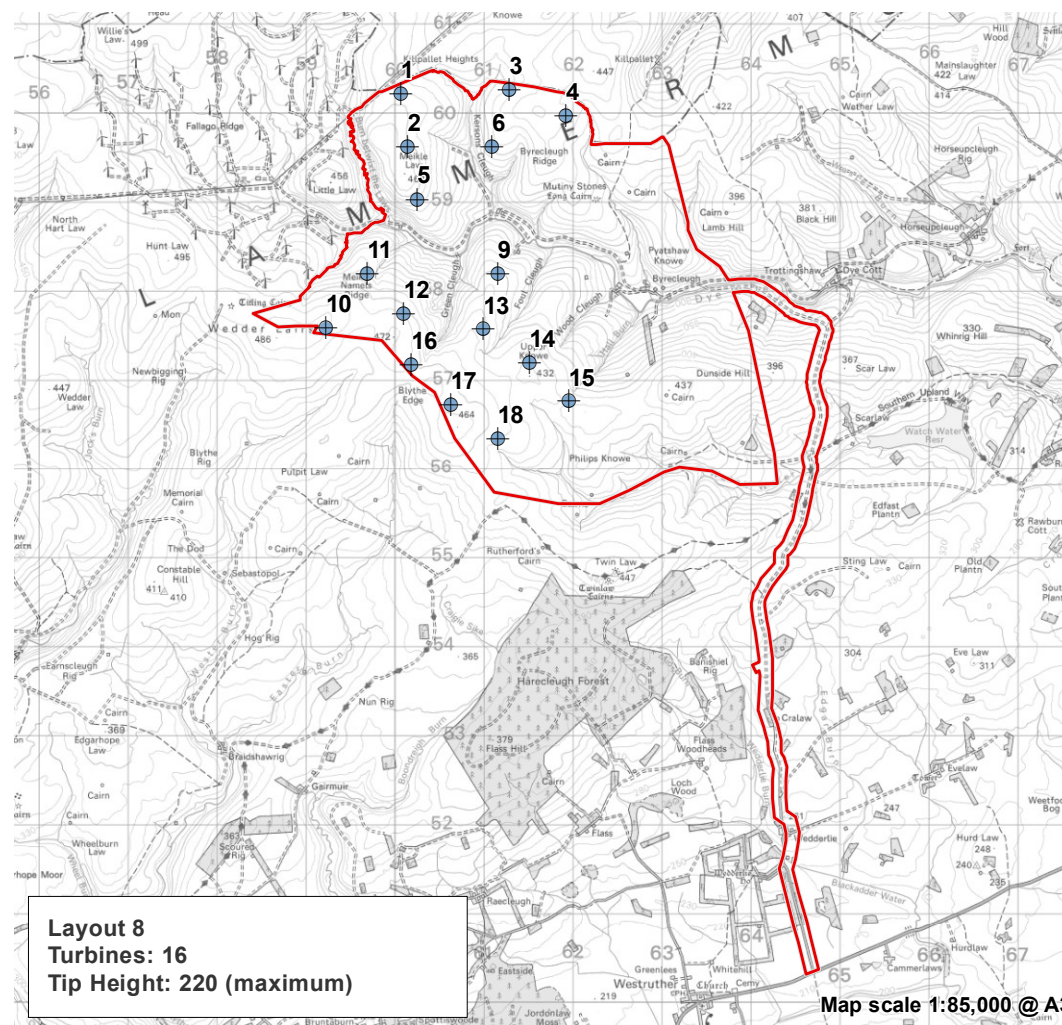
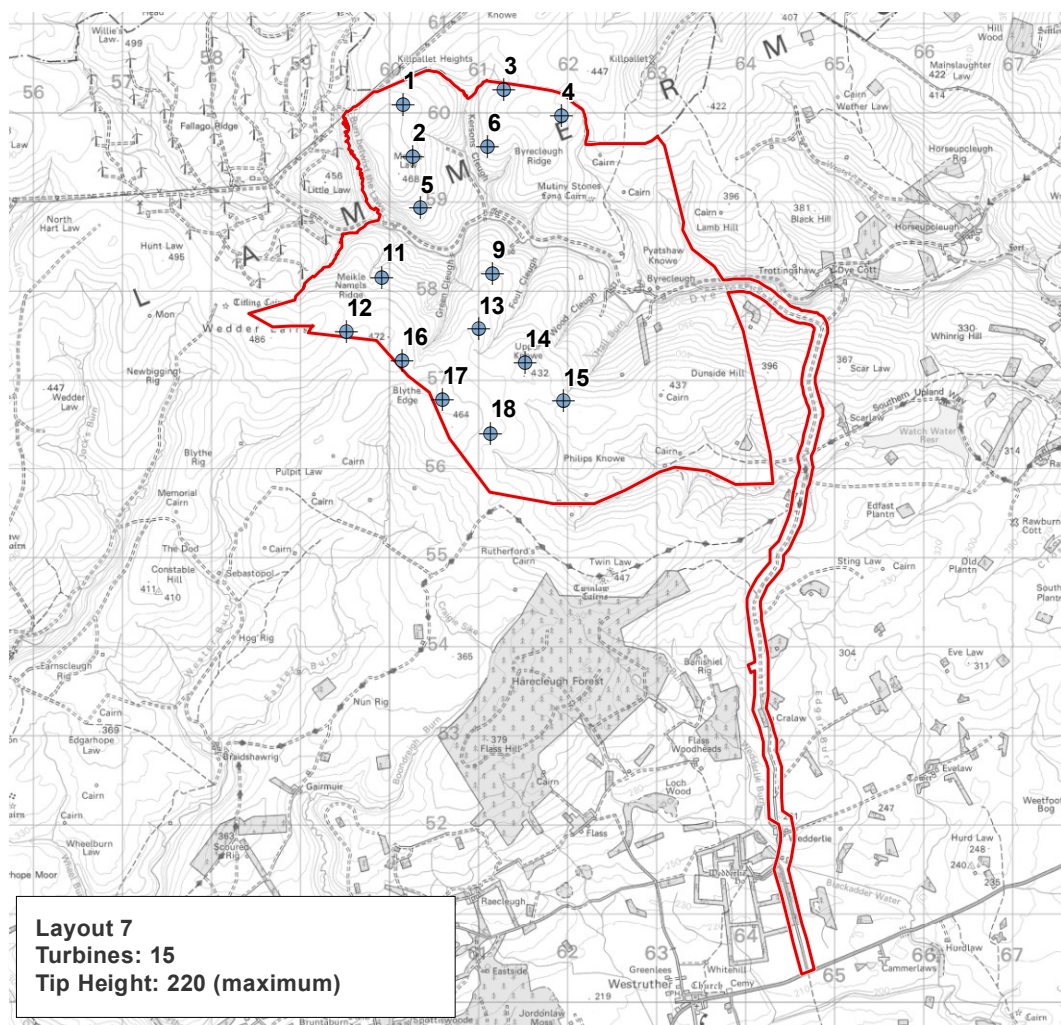
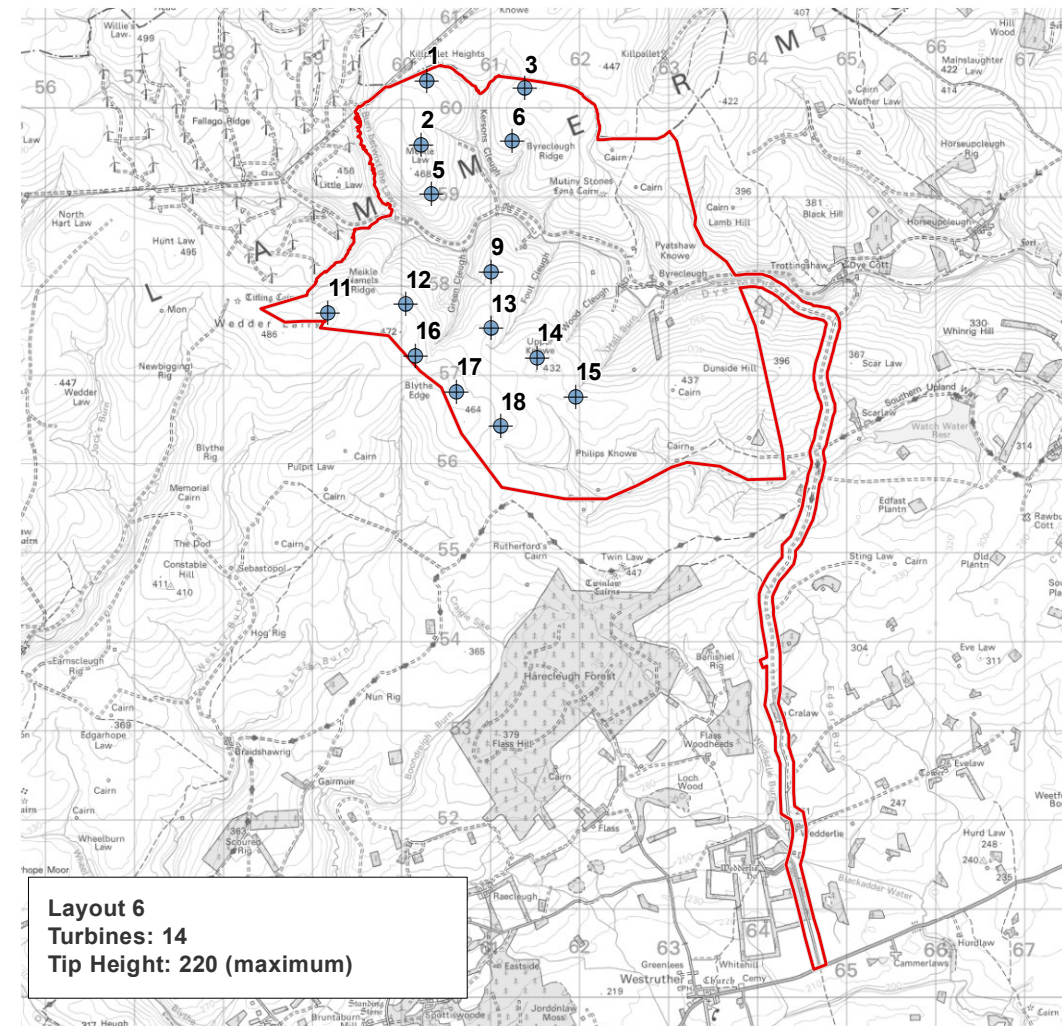
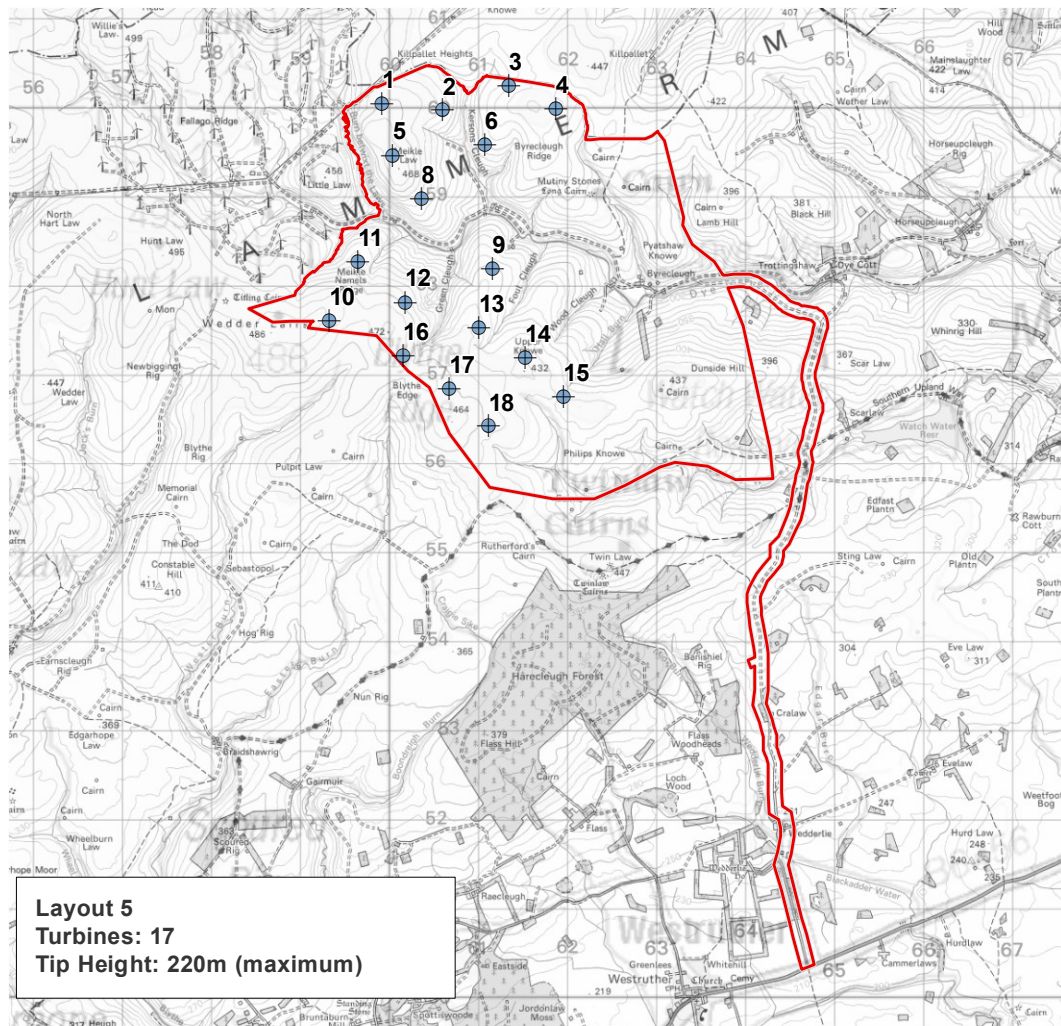


Map scale 1:85,000 @ A3





Figure 2.6: Layout 5 to Layout 8



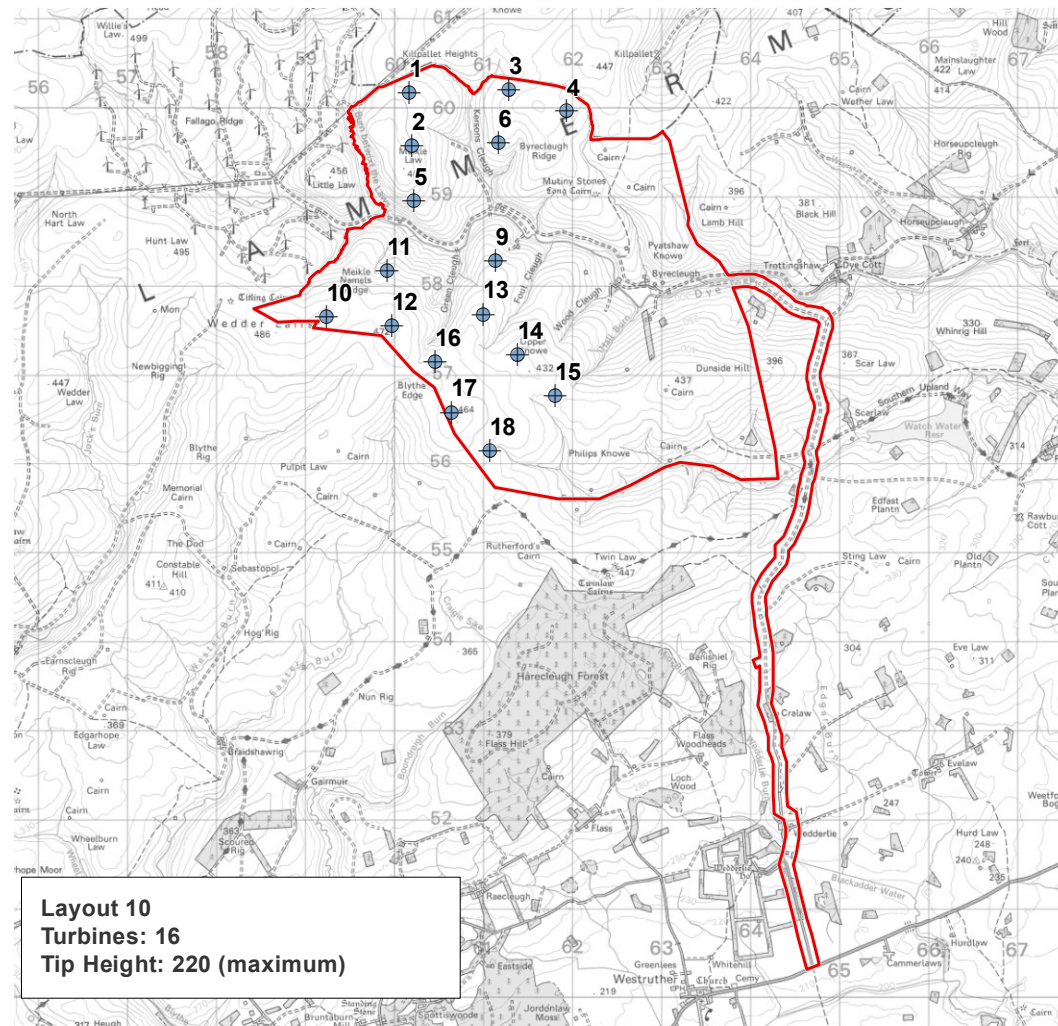
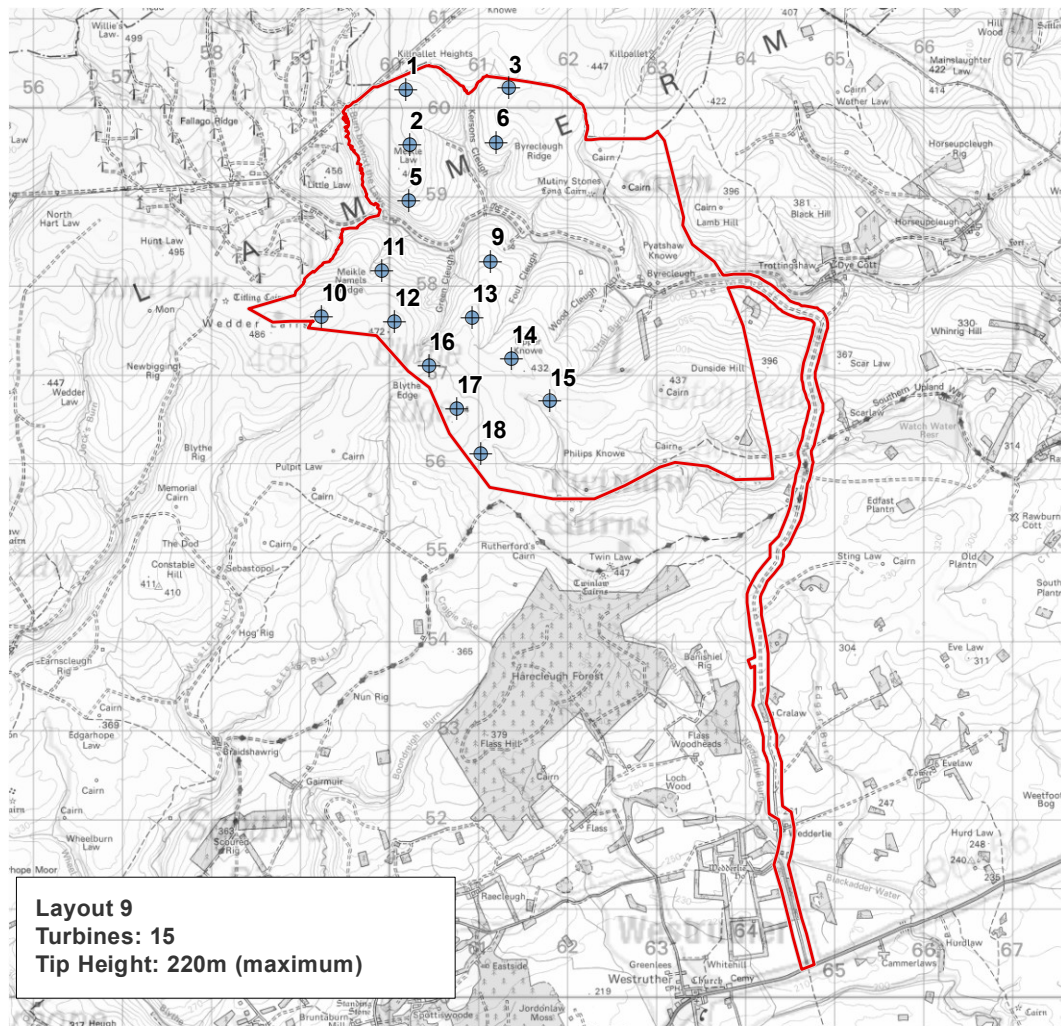
Site Boundary  
Turbine

Map scale 1:85,000 @ A3





Figure 2.7: Layout 9 to Layout 12



- Site Boundary
- Turbine
- Proposed access tracks
- Proposed hardstanding

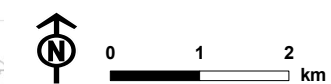
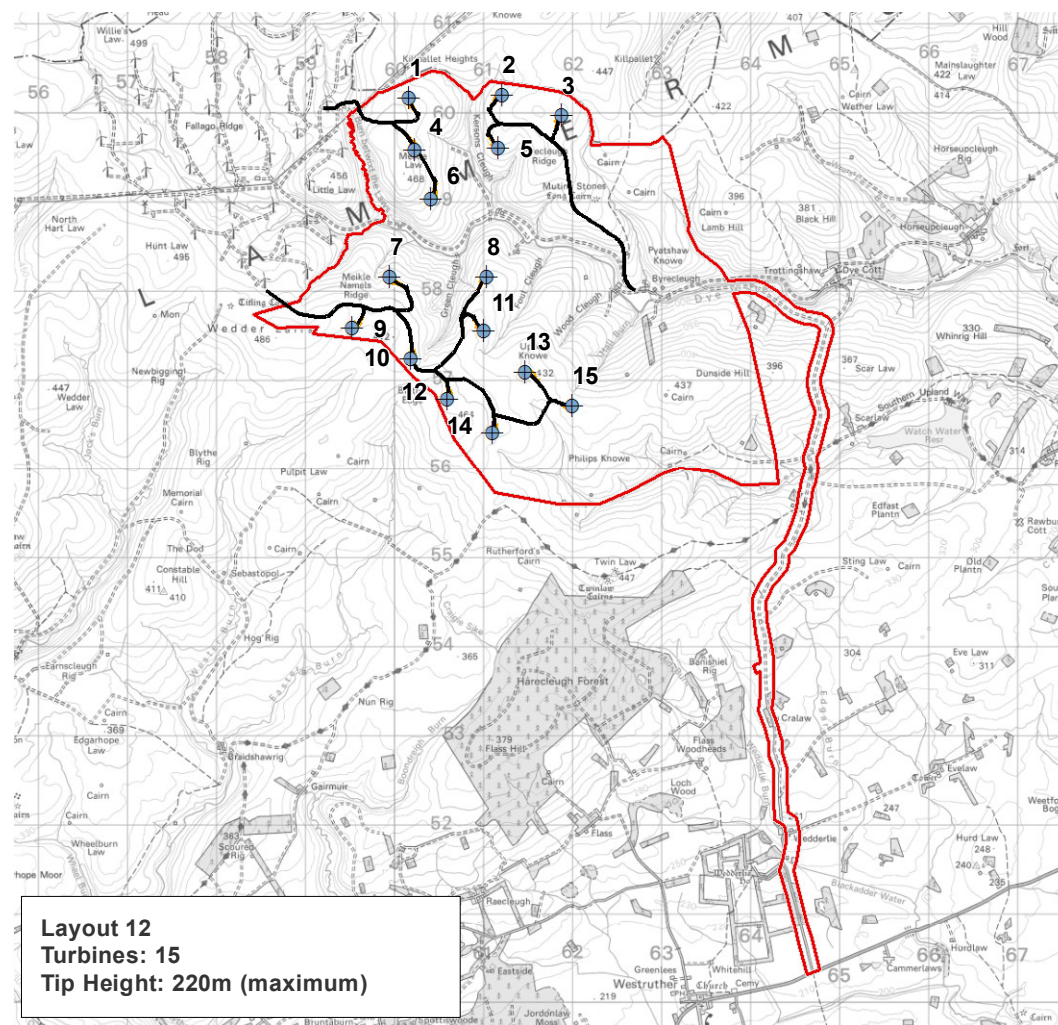
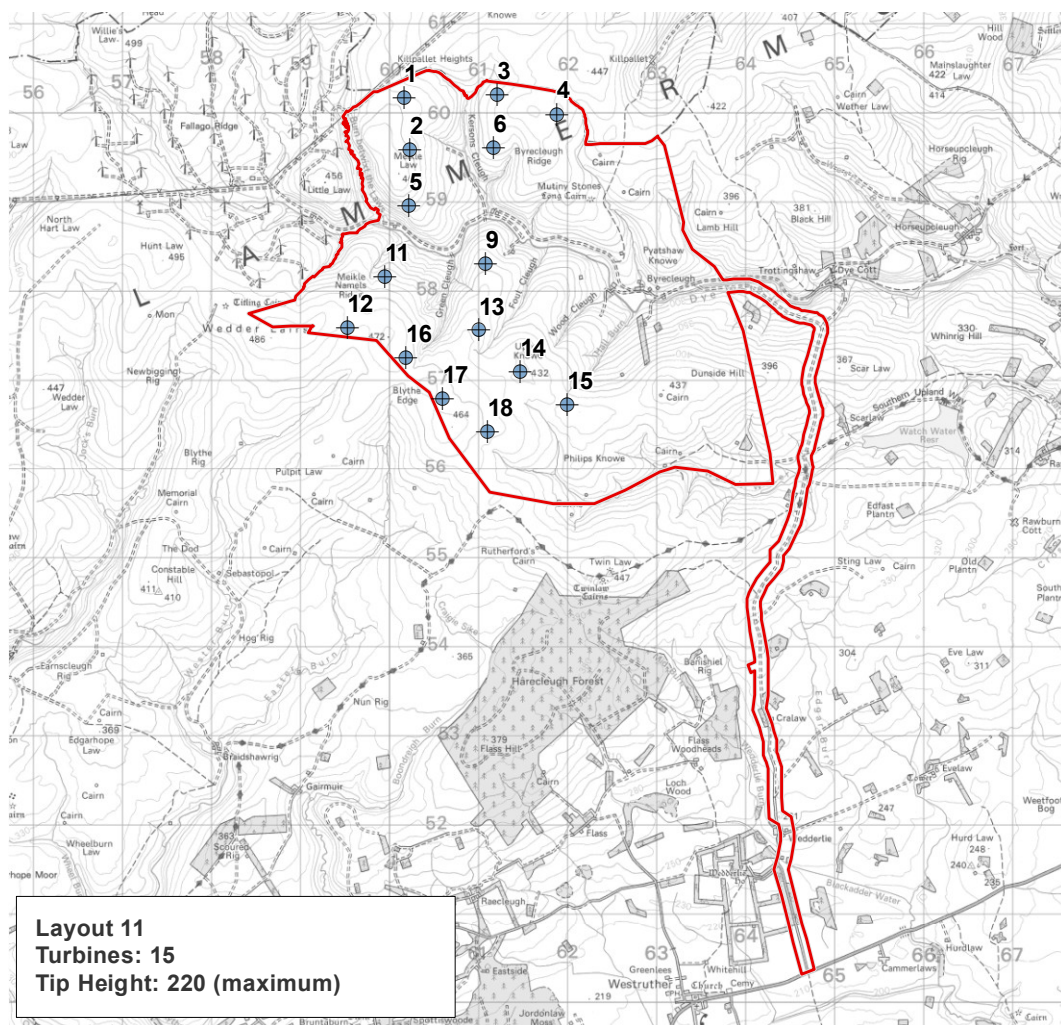
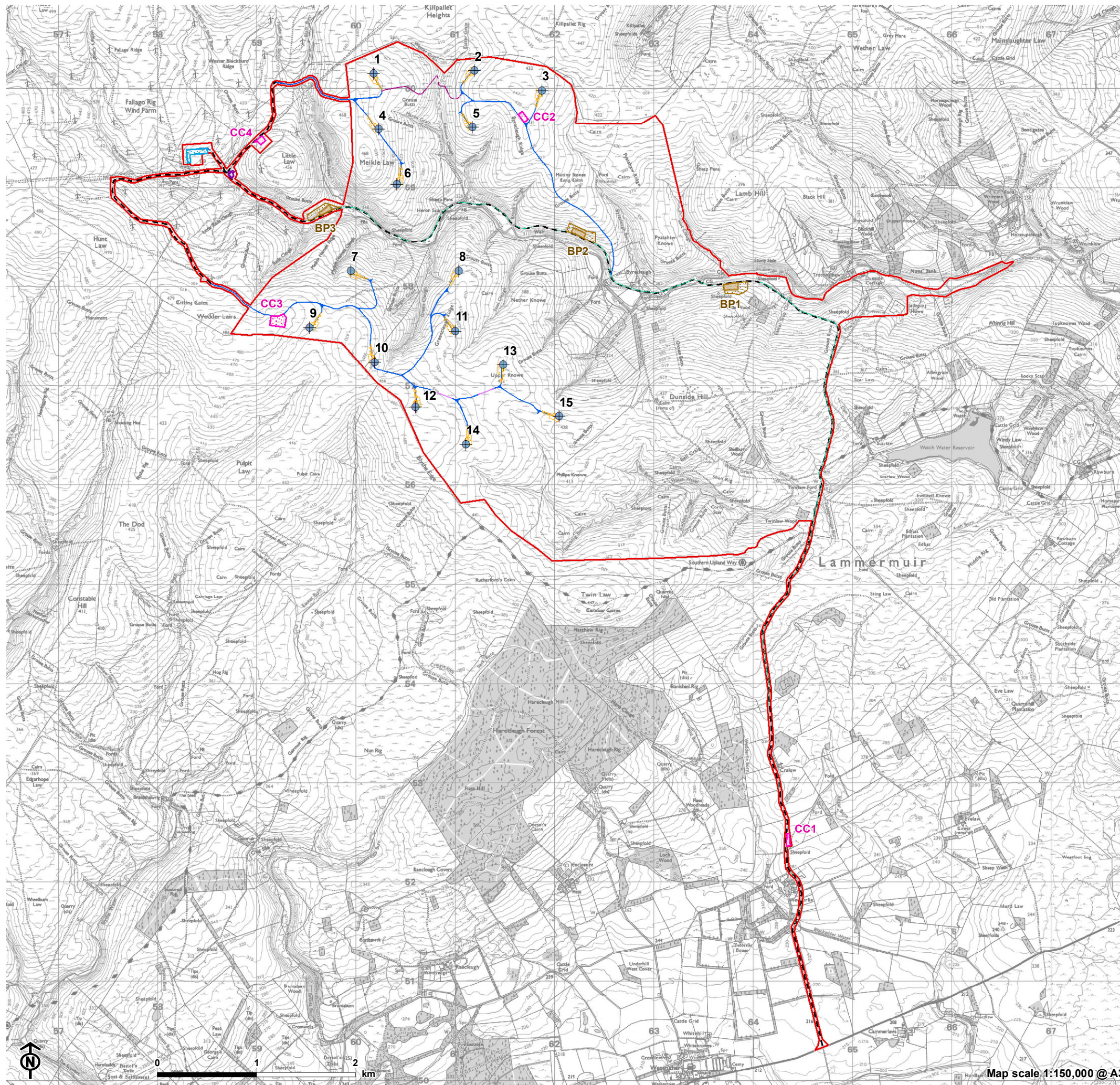




Figure 2.8: Layout 13: Final Layout



- Turbine
- Site Boundary
- Substation extension
- Construction compound
- Existing construction compound
- Borrow pit
- Borrow pit search area
- Temporary hardstanding
- Permanent hardstanding
- Battery storage
- Proposed new track (floating)
- Proposed new track
- Proposed light vehicle track (3m wide)
- Proposed existing track upgrade
- Existing track