



# Enoch Hill Wind Farm

## Design And Access Statement

September 2015





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## Report for

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Doc Ref. 32965/CGOS115i1r

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## Document revisions

No.	Details	Date
1	Draft for client comment	17/07/2015
2	Draft for legal review	30/07/2015
3	Final	18/08/2015



# Executive summary

## Purpose of this report

This report has been produced for the purpose of explaining how relevant design and access related issues and factors have been taken into consideration in the design of the proposed Enoch Hill Wind Farm. This report should be read in conjunction with the Planning Statement and Environmental Statement which accompany the section 36 application for the Proposed Development.

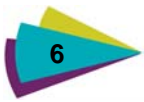




# Contents

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<b>1.</b>	<b>Introduction</b>	<b>7</b>
1.1	Purpose of this Design and Access Statement	7
1.2	Introduction	7
1.3	Project Description	7
1.4	Applicant Details	9
1.5	Structure this Statement	9
<b>2.</b>	<b>Siting Strategy</b>	<b>11</b>
2.1	Site Identification Process	11
	High Level Initial Assessment	11
	Feasibility Assessment	11
	Detailed Design & Environmental Impact Assessment	12
<b>3.</b>	<b>The Design Statement</b>	<b>13</b>
3.1	The Site and Immediate Surrounding Area	13
3.2	Planning Policy Context	13
	National Policy	13
	Development Plan Policies	14
	Draft Supplementary Planning Guidance	19
	Non Statutory Landscape Guidance	19
3.3	Design Strategy	19
	Design Objectives/Principles	19
	Environmental and Technical Considerations	20
3.4	Design Iteration Process	22
	Overview	22
	Iteration 1: Site Boundary Delineation – June 2011	23
	Iteration 2: Feasibility Study Layout – April 2012	23
	Iteration 3: Turbine Maximum Capacity Layout – July 2014	23
	Iteration 4: Design Chill Layout – July 2014	24
	Iteration 5: Design Chill Layout Following Civil Engineering Site Visit – October / December 2014	24
	Iteration 6: Design Workshop January 2015 Layout	25
	Iteration 7: February 2015 Layout	25
	Iteration 8: Final Design Layout – March 2015	25
3.5	The Design Solution	25
3.6	Micrositing	26
<b>4.</b>	<b>The Access Statement</b>	<b>27</b>
4.1	Introduction	27
4.2	Access Routes to the Site	27
4.3	Site Entrance	27
4.4	Access Tracks	27
	Track Specification	27
	Track Alignment	28
	Track Design	28
	Access Track Solution	28
4.5	Public Access	29
	Public Access Baseline Position	29
	During Construction	29
	During Operation & Post Decommissioning	29



## 5. References

31

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Table 1.1	Key Development Features	8
Table 3.1	Design & Access Related Policies within the Ayrshire Joint Structure Plan (2007)	15
Table 3.2	Design & Access Related Policies within the East Ayrshire Local Plan (2010)	16
Table 3.3	Design & Access Related Proposed Policies within the Dumfries & Galloway LDP (2014)	17
Table 3.4	Design & Access Related Proposed Policies within the East Ayrshire Local Development Plan Proposed Plan (2015)	18
Table 3.5	Layout 1 Design Considerations	23
Table 3.6	Layout 2 Design Considerations	23
Table 3.7	Layout 3 Design Considerations	24
Table 3.8	Layout 4 Design Considerations	24
Table 3.9	Layout 5 Design Considerations	25
Table 3.10	Layout 6 Design Considerations	25
Table 4.1	Typical Access Track Construction Techniques	28

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Appendix A Figures

# 1. Introduction

## 1.1 Purpose of this Design and Access Statement

- 1.1.1 This Design and Access Statement ('DAS') has been prepared by Amec Foster Wheeler Environment & Infrastructure UK Ltd (Amec Foster Wheeler) on behalf of the applicant, E.ON Climate and Renewables UK Developments Ltd (E.ON), to accompany an application to construct and operate the proposed Enoch Hill Wind Farm (the 'Proposed Development').
- 1.1.2 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. It also demonstrates how the Development Site and its surroundings have been fully appraised, including through the Environmental Impact Assessment (EIA) process, to ensure that the final design is suitable for the Development Site. It describes the starting point for the Proposed Development's design, and subsequent alterations to the layout that were made in response to potential constraints that were identified through the EIA process. Details are also provided on the access arrangements during all phases of the Proposed Development, both for construction traffic and for public access.
- 1.1.3 This DAS is supported by multiple figures, which are included in **Appendix A**.

## 1.2 Introduction

- 1.2.1 The Proposed Development comprises up to 19 three-bladed, horizontal axis wind turbines, each up to 130m maximum blade tip height. The Development Site covers an area of approximately 1,466ha, the majority of which is rough grazing land.
- 1.2.2 As shown on **Figure 1**, the Development Site is located in East Ayrshire approximately 5km to the south west of New Cumnock and approximately 7km to the north east of Dalmellington, close to the northern border of Dumfries and Galloway Council. The B741 runs in an east - west direction along the northern part of the Development Site, connecting the aforementioned settlements of Dalmellington and New Cumnock. Carsphairn Forest is located to the west and south of the Development Site boundary, with open cast mining to the north and moorland to the east.
- 1.2.3 The applicant is applying to the Scottish Ministers for consent under section 36 of the Electricity Act 1989 (as amended) for the construction and operation of the Proposed Development. The applicant is also seeking deemed planning permission for the Proposed Development under section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended).
- 1.2.4 Under the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013, a DAS is required as part of all 'national' and 'major' planning applications, as defined by the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009. There is no statutory requirement for the provision of a DAS as part of applications submitted under section 36 of the Electricity Act 1989 (as amended). Nonetheless, the applicant recognises the usefulness of the DAS to act as a communication tool to aid communities, consultees and decision-makers to understand the design rationale for the Proposed Development.
- 1.2.5 This DAS has been prepared in accordance with guidance set out in PAN 68: Design Statements and Circular 3/2013 Development Management Procedures. It has also been informed by CABE's *Design and access statements: How to write, read and use them* document (2007), which is endorsed by East Ayrshire Council (EAC).

## 1.3 Project Description

- 1.3.1 The Proposed Development comprises the installation and operation of up to 19 wind turbines and associated infrastructure including, one vehicular site access point, on-site access tracks and

footpaths, hardstanding areas, a wind farm control building, an onsite transmission substation, electrical cabling, and two permanent anemometry masts. During construction, temporary construction compounds would be required to house a site office, welfare facilities, and turbine component laydown areas. The Proposed Development also incorporates three borrow pit search areas where borrow pits may be worked during the construction phase to provide rock and stone materials for on-site construction activities.

- 1.3.2 A micrositing option for turbines and other infrastructure is proposed to allow the necessary adjustments to be following the results of ground investigations. Any borrow pits worked within the identified search areas would be restored following the cessation of rock winning activities. At the end of its consented operating period (anticipated to be 25 years from the date of Final Commissioning) it is assumed that the Proposed Development would be decommissioned and the Development Site would be restored.
- 1.3.3 A full description of the Proposed Development can be found in **Chapter 4 – Project Description** of the ES, whilst details regarding the proposed positioning of individual development components are shown on ES **Figures 4.1 to 4.13**. **Table 1.1** below provides a summary of the key development features.

**Table 1.1 Key Development Features**

Component	Description
<b>Wind Turbines</b>	Number: up to 19 (see ES <b>Table 4.2</b> for grid references) Model: (See ES <b>Section 4.2.8</b> ) Maximum Rated Output per turbine: up to 3.3 MW Turbine Height (to tip): up to 130m (Hub height: up to 80m & Blade Length: up to 53m)*
<b>Turbine Foundations</b>	Number: up to 19 Footprint per Turbine: ~0.05ha based on 25m diameter foundation Foundation Depth: 2-3m dependent on ground conditions.
<b>Turbine Crane Pads</b>	Number: up to 19 Dimensions: 25m by 50m Footprint per Crane Pad: ~ 0.125ha
<b>Permanent Anemometer Masts</b>	Maximum number: 2 (located at National Grid Reference (NGR) E 255533, N 607642 and E 256259, N 606618) Description: up to 80m high permanent wind monitoring mast Crane Pads: 20m x 20m each
<b>Wind Farm Control Building and Compound &amp; SPEN Substation and Compound</b>	Location: Approximately centred on NGR E 255430, N 608980, Dimensions: 180m by 110m Control Building Height: up to 5.5m Maximum Compound Footprint: 1.98ha
<b>Access Tracks (including turning heads)</b>	Length: ~12.9km / Running Width: up to 6m (wider on bends, see ES Sections 4.2.13 to 4.2.16 for more details) Footprint: Approximately 8.4ha
<b>Watercourse Crossings</b>	Maximum number: up to 6 culverts
<b>Passing Places (25 no.)</b>	Number: estimated 25 Dimensions: 30m in length, up to 6m wide Footprint: Approximately 0.45ha
<b>Borrow Pits</b>	Total number: up to 3 (See ES <b>Table 4.7</b> for details)
<b>Temporary Construction Compounds</b>	Location: centred on NGR E 255405, N 609120. Dimensions: ~ 100m by 100m Footprint: ~1.0ha
<b>Cable Trenches</b>	Depth: 1m / Width: 1.2m Cables will be installed in areas along access tracks where practicable.

\*The hub height will be adjusted to account for any blade longer than 50m to ensure that maximum tip height will not exceed 130m.





## 1.4 Applicant Details

- 1.4.1 E.ON is one of the world's largest power and gas companies. In the UK, E.ON supplies energy to more than 5 million customers and generates enough electricity for around 8 million homes. E.ON Climate & Renewables (EC&R) was set up in 2007 as a global business responsible for developing, constructing and operating all of E.ON's renewable energy projects. In the UK, E.ON focuses on developing onshore and offshore wind, biomass and marine energy technologies.
- 1.4.2 The applicant directly employs a number of project management staff and technical specialists, who have contributed to the design process by specifying minimum design requirements, providing technical data for the design and EIA processes, and approving design changes.

## 1.5 Structure this Statement

- 1.5.1 In addition to this introduction, the DAS comprises the following three sections:
- ▶ The Siting Strategy, which describes the process followed to establish that the Development Site is a viable and suitable location for the development of a wind farm;
  - ▶ The Design Statement, which describes the project and explains its design evolution; and
  - ▶ The Access Statement, detailing the access to the Development Site during the construction, operation and decommissioning phases of the Proposed Development.
- 1.5.2 The DAS should be read in conjunction with the Environmental Statement (ES) and Planning Statement (PS) for the Proposed Development. In particular, the ES contains information regarding the design strategy for the Proposed Development (Chapter 3) as well as assessments of the predicted landscape and visual (Chapter 9) and access related impacts (Chapter 14).



## 2. Siting Strategy

### 2.1 Site Identification Process

2.1.1 The careful selection of potential wind farm sites is a critical aspect of the overall wind farm development process. This section describes the process which the applicant followed in order to establish that the Development Site is a viable and suitable location for the development of a wind farm.

#### High Level Initial Assessment

2.1.2 The Development Site identification process started in June 2010 when the applicant carried out a high level initial assessment of the south west Scotland area to identify potentially suitable sites for wind energy development.

2.1.3 An initial assessment of the feasibility of potential development sites was conducted using Geographical Information Systems (GIS) to look at high-level constraints and key criteria for wind farm development. This process allowed early identification of key technical, environmental and planning issues which could either support or hinder the development of wind energy developments on individual sites.

2.1.4 Some sites were rejected following this exercise due to factors including lack of a suitable wind resource, ornithological sensitivities, landscape and visual sensitivities, planning policy, and commercial constraints. Other sites, including the Development Site, passed this initial assessment and were then subject to further analysis, detailed feasibility assessments and consultations with relevant consultees.

2.1.5 At the conclusion of the initial assessment, the Development Site was identified as being potentially suitable for wind farm development as no high level constraints likely to preclude wind farm development had been identified. However, it was recognised that the Development Site lies within the East Ayrshire Sensitive Landscape Area (SLA), as defined within the East Ayrshire Local Plan (2010), and therefore landscape considerations would be of utmost importance in the design of a potential wind farm at this location.

#### Feasibility Assessment

2.1.6 Potentially suitable sites identified during this first phase of the process were subject to feasibility assessments. Sites were evaluated, with those satisfying the basic assessment criteria progressing to the next stage of evaluation. These basic assessment criteria included (but were not limited to):

- ▶ Land Availability: ensuring there is sufficient land available for development;
- ▶ Land Use and Context: assessing the suitability of the existing land use;
- ▶ Wind Resource: ensuring a sufficient wind resource exists to make the development financially viable;
- ▶ Electricity Grid: assessing whether the development site is within appropriate proximity of a suitable connection point to the electricity grid;
- ▶ Transport Infrastructure: ensuring the development site is accessible via public road infrastructure to allow the construction, operation and maintenance of the wind farm;
- ▶ Residential Amenity: ensuring the wind turbines can be located sufficiently far away from houses to protect local amenity with respect to noise amenity and shadow flicker;

- ▶ Landscape and Visual Capacity: an initial assessment of the landscape and visual effects of a wind farm on important receptors (i.e. not located within a statutory designated landscape, considerations of landscape capacity and potentially sensitive visual receptor); and
- ▶ Nature Conservation Sites: an initial assessment to determine the location of statutorily designated sites such as Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Ramsar Sites, Special Areas of Conservation (SAC) and Special Protection Areas (SPAs) in relation to the Development Site.

2.1.7 The conclusion of this feasibility assessment work was that the Development Site met the necessary basic assessment criteria (e.g. a good wind resource and proximity to a potential grid connection) to be considered by the applicant as a potential site for a large scale wind farm. In April 2012, the applicant decided to proceed with detailed design work and, in tandem, undertake a formal environmental assessment, for a proposed wind farm on the Development Site.

### Detailed Design & Environmental Impact Assessment

2.1.8 The design and EIA processes for the Proposed Development involved intensive environmental survey work, multiple design workshops, attendance at public exhibitions, use of GIS tools and consultations with key stakeholders including Scottish Natural Heritage (SNH), the Royal Society for the Protection of Birds (RSPB) and Scottish Environment Protection Agency (SEPA). The purpose of engaging key stakeholders during the design process was to gauge their views on a potential wind farm at the Development Site and to ultimately assist in the evolution of an appropriate, responsibly designed wind farm.

2.1.9 The outcome of this stage was the finalised design of the Proposed Development, the completion of an EIA and the submission of an application under section 36 of the Electricity Act 1989 (as amended) to Scottish Ministers. Further details regarding the design strategy and design process are provided in **Section 3 – The Design Statement**.

## 3. The Design Statement

### 3.1 The Site and Immediate Surrounding Area

- 3.1.1 The Development Site, which is shown on **Figure 2**, is located in East Ayrshire, directly north of the border with Dumfries and Galloway. The proposed turbines are located in the southern part of the Development Site following the iterative design process which has resulted in turbines being located away from sensitive landscape and visual receptors and residential properties.
- 3.1.2 The nearest settlements to the Development Site are New Cumnock, located 5km to the north east, and Dalmellington, located 7km to the south west. The nearest residential property is located at Maneight (approximately 310m from the Development Site and approximately 1.75km from the nearest turbine). The B741 is located directly to the north and the largely coniferous Carsphairn Forest abuts the Development Site to the west, south and southeast. The Southern Upland Way (SUW) is located approximately 12.5km to the east.
- 3.1.3 The elevation of the Development Site ranges from ~210m to ~569m above ordnance datum (AOD) and covers an area of ~1,466ha, the majority of which is rough grazing land with a number of small watercourses crossing it. Vegetation across the Development Site is rough grassland with no tree cover and is used as sheep pasture. The terrain is relatively undulating and steep in some places. The landform in the south of the Development Site comprises Enoch Hill and High Chang Hill. The central landform comprises Barbeys Hill, Rigg Hill, Chang Hill and Benty Cowan Hill to the east. The northern landform comprises Peat Hill, part of Knocknarran Hill, Blarene Hill and Knocknide Hill.
- 3.1.4 The Development Site is not subject to any statutory nature conservation designations. Whilst two non-statutory designated sites of native woodland are present within the Development Site boundary they are not located within the Proposed Development area. The nearest site designated at national or international levels for reasons of biodiversity conservation is the Muirkirk and North Lowther Uplands Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI), which is situated approximately 7km to the north-east of the Development Site.

### 3.2 Planning Policy Context

- 3.2.1 The design of the Proposed Development has taken account of design policies and guidance of relevance to wind farm developments. Full details of the policy framework of relevance are provided in the PS which accompanies the planning application. Key points from national and development plan policies related to design matters are outlined below.

#### National Policy

- 3.2.2 National planning policy is contained within the National Planning Framework (NPF) 3 (and the Scottish Planning Policy (SPP), both of which were published on 23<sup>rd</sup> June 2014. In addition, national policy advice relating to design matters and the preparation of Design and Access Statements is set out within PAN 68: Design and Access Statements.

#### Scottish Planning Policy

- 3.2.3 The stated purpose of the Scottish Planning Policy (SPP – Scottish Government, 2014) is “to set out national planning policies which reflect Scottish Ministers’ priorities for operation of the planning system and for the development and use of land” (paragraph i). In doing so, the SPP sets out the Scottish Government’s expectations regarding the treatment of specific planning issues within development planning and development management. Of particular relevance to this DAS is the fact that the new SPP published in June 2014 supersedes the Scottish Government’s Designing Places planning policy (2001).

- 3.2.4 Paragraphs 36 -57 of the SPP set out a Principal Policy on Placemaking and identifies 6 design related criteria that should be considered in all development proposals:
- ▶ Distinctive;
  - ▶ Safe and Pleasant;
  - ▶ Welcoming;
  - ▶ Adaptable;
  - ▶ Resource Efficient; and
  - ▶ Easy to Move Around and Beyond.
- 3.2.5 Full details regarding provisions set out within the SPP which are of relevance to the Proposed Development are provided in **Chapter 5 – Planning Policy Context** of the ES and **Section 4 – Planning Policy Framework** of the PS.

#### PAN 68: Design Statements

- 3.2.6 This document explains that the purpose of a Design Statement is to explain the design of a Proposed Development in a structured way and to demonstrate how spatial context has been considered throughout the design process. The document makes clear that a prescriptive approach to preparing Design Statements is not appropriate; rather, it is more useful for the content and structure of Design Statements to be informed by the nature of the Proposed Development and its spatial situation.

#### Development Plan Policies

- 3.2.7 Details regarding all relevant national, Development Plan and other policies and all other considerations are set out in **Chapter 5 – Planning Policy Context** of the ES and within **Section 4 – Planning Policy Framework** of the PS which accompanies this section 36 application.
- 3.2.8 The Development Plan applicable to the Development Site comprises:
- ▶ The Approved Ayrshire Joint Structure Plan 2007; and
  - ▶ The Adopted East Ayrshire Local Plan 2010.
- 3.2.9 It should be noted that both of these plans are due to be superseded by the East Ayrshire Local Development Plan (LDP). The East Ayrshire LDP Proposed Plan and associated draft Supplementary Guidance was published for consultation between March and April 2015. Subject to approval by East Ayrshire Council in September 2015 the East Ayrshire LDP Proposed Plan is expected to undergo a formal examination process commencing late autumn 2015.
- 3.2.10 The Dumfries and Galloway Development Plan has also been considered given the proximity of the Development Site to the Dumfries & Galloway Council boundary. The Dumfries and Galloway Development Plan comprises the Dumfries & Galloway Local Development Plan (adopted 2014) and associated Statutory Supplementary Guidance.
- 3.2.11 Current and emerging design and access related local planning policies which are relevant to the design of the Proposed Development are outlined below.

Table 3.1 Design &amp; Access Related Policies within the Ayrshire Joint Structure Plan (2007)

Policy	Summary
<b>Policy STRAT 1 – Sustainable Development (in particular Schedule 1)</b>	<p>The schedule attached to this policy lists a number of “<i>guiding principles of sustainable development</i>” for use in determining planning applications. Principles of relevance to the Proposed Development include:</p> <ul style="list-style-type: none"> <li>a) Community Regeneration: “<i>Developments will require to be of good quality design and reflect where appropriate local character and materials</i>”.</li> <li>b) Environmental Quality: “<i>Important cultural heritage resources will be safeguarded; Development will require to respect the landscape character of the area and not result in visual damage or intrusion; Development should not lead to unacceptable damage to species and habitats; New development will be expected to take account of the impacts of climate change; New development will be located where there is no unacceptable risk from flooding...; Development should not have an adverse effect on land, air and water quality or nuisance by way of smell, noise or light...; Non renewable resources will be used prudently</i>”.</li> <li>c) Development Obligations: “<i>Developers will be expected to mitigate the adverse impacts of their developments and to ensure the costs involved are not borne locally; Developers should consult with...all appropriate amenity bodies on any significant development proposals</i>”.</li> </ul>
<b>Policy ECON 6 - Renewable Energy</b>	<p>This policy encourages proposals for the generation and utilisation of renewable energy. The policy explains that renewable energy proposals should conform to the structure plan and should have no significant adverse impacts, including cumulative impacts, or infrastructure constraints. Policy ECON 6 also states that the design of renewable energy developments should be sensitive to landscape character, biodiversity and cultural heritage.</p>
<b>Policy ECON 7 – Wind Farms</b>	<p>This policy states that proposed wind energy outside identified Areas of Search be assessed against the following criteria, taking into account both positive and negative impacts and the effect of mitigation measures:</p> <ul style="list-style-type: none"> <li>1) “<i>Historic Environment;</i></li> <li>2) <i>Areas designated for their regional and local natural heritage value;</i></li> <li>3) <i>Tourism and recreational interests;</i></li> <li>4) <i>Communities;</i></li> <li>5) <i>Buffer Zones;</i></li> <li>6) <i>Aviation and Defence interests; and</i></li> <li>7) <i>Broadcasting Installations</i>”.</li> </ul> <p>Policy ECON 7 also includes criteria to assess sites in areas designated for heritage and landscape importance, the cumulative impact of existing wind farms and proposals effecting sensitive landscape character areas.</p>
<b>Policy ENV1 Landscape Quality</b>	<p>This policy seeks to maintain and enhance the quality and distinctiveness of landscapes across Ayrshire. Applicable assessment criteria to conserve those features that contribute to local distinctiveness include:</p> <ul style="list-style-type: none"> <li>a) “<i>Setting of communities and buildings within the landscape;</i></li> <li>b) <i>Patterns of woodland, fields, hedgerows, and tree features;</i></li> <li>c) <i>Special qualities of rivers, estuaries and coasts;</i></li> <li>d) <i>Historic landscapes; and</i></li> </ul> <p><i>Skylines and hill features, including prominent views</i>”.</p>

Table 3.2 Design &amp; Access Related Policies within the East Ayrshire Local Plan (2010)

Policy	Summary
<b>Policy SD1 – General Strategic Policy</b>	<p>This policy links to Policy STRAT 1 within the Structure Plan, and references the Guiding Principles for Sustainable Development contained within Schedule 1. This policy outlines that new development should not have any unacceptable adverse impact on:</p> <p><i>“The character and appearance of the particular location in which it is proposed;</i>  <i>The environment and amenity of local communities and residents of the area;</i>  <i>Landscape character quality; and</i>  <i>Natural or built heritage resources.”</i></p>
<b>Policies CS12 – Renewable Energy Developments (General)</b>	<p>This policy includes a presumption in favour of renewable energy development subject to demonstrating no significant, unacceptable adverse impact, including adverse cumulative impact. The following assessment criteria applies:</p> <ul style="list-style-type: none"> <li>▶ <i>“On any registered statutory or non-statutory sites of nature conservation interest;</i></li> <li>▶ <i>On the amenity of nearby communities or sensitive establishments;</i></li> <li>▶ <i>On any recognised built heritage resources;</i></li> <li>▶ <i>On the visual amenity of the area; and</i></li> <li>▶ <i>On existing infrastructure.”</i></li> </ul> <p>Policy CS12 also requires developers to demonstrate <i>“there will be no unacceptable adverse environmental impact caused by the proposed connections linking the Proposed Development with the national grid and the surrounding road network”</i>.</p>
<b>Policy ENV16: Landscape Character</b>	<p>The policy states that <i>“the Council will ensure, through the development process that development is in keeping with, has minimal visual impact and reflects the nature and landscape character of the rural area in which it is located, in terms of layout, materials used, design, size, scale, finish and colour. The design and material finish of any ancillary features will also be required to be sympathetic to the character and appearance of the area.”</i></p>



Table 3.3 Design &amp; Access Related Proposed Policies within the Dumfries &amp; Galloway LDP (2014)

Policy	Summary
<b>Policy OP2: Design Considerations</b>	<p>This policy requires all development proposals “to achieve high quality design in terms of its contribution to the existing built and natural environment”. Where relevant, development proposals should:</p> <ol style="list-style-type: none"> <li>i. <i>“Relate well to the scale, density, massing, character, appearance and use of materials of the surrounding area and in so doing be sympathetic to the local built forms as well as respecting the important physical, historic and landscape features of the site and its vicinity;</i></li> <li>ii. <i>Be designed with people, not vehicle movement, as the primary focus...ensure that any open space required is of high quality, appropriate and integrated to the development and where possible provides linkages to the wider green network;</i></li> <li>iii. <i>Be designed to create safe, accessible and inclusive places for all people...;</i></li> <li>iv. <i>Integrate sustainable energy measures; and incorporate a hard landscaping and planting scheme which includes the proposed treatment of existing trees and other landscape features”.</i></li> </ol>
<b>Policy IN1: Renewable Energy</b>	<p>This policy states that the Council will support development proposals for all renewable energy technologies: <i>“provided they do not individually or in combination have an unacceptable significant adverse impact on: landscape; the built cultural and natural heritage; areas and routes important for tourism or recreational use in the countryside; water and fishing interests; air quality; and the amenity of the surrounding area”.</i></p> <p>A footnote to Policy IN1 states that unacceptable significant adverse impact <i>“will be determined through an assessment of the details of the proposal including its benefits and the extent to which its environmental and cumulative impacts can be satisfactorily addressed”.</i></p>
<b>Policy IN2: Wind Energy</b>	<p>Part 1 of this policy states:</p> <p><i>“The council will assess the acceptability of any proposed wind energy development against the following considerations:</i></p> <p><i>Landscape and visual impact:</i></p> <ul style="list-style-type: none"> <li>▶ <i>The extent to which the proposal addresses the guidance contained in the Dumfries and Galloway Windfarm Landscape Capacity Study.</i></li> <li>▶ <i>The extent to which the landscape is capable of accommodating the development without significant detrimental impact on landscape character or visual amenity.</i></li> <li>▶ <i>That the design and scale of the proposal is appropriate to the scale and character of its setting, respecting the main features of the site and the wider environment and that it fully addresses the potential for mitigation.</i></li> </ul> <p><i>Cumulative Impact</i></p> <ul style="list-style-type: none"> <li>▶ <i>The extent of any detrimental landscape or visual impact from two or more wind energy developments and the potential for mitigation.</i></li> <li>▶ <i>Impact on local communities</i></li> <li>▶ <i>The extent of any detrimental impact on communities and local amenity including assessment of the impacts of noise, shadow flicker, visual dominance and the potential for associated mitigation.</i></li> <li>▶ <i>Impact on Aviation and Defence Interests</i></li> <li>▶ <i>The extent to which the proposal addresses any impacts arising from location within an area subject to potential aviation and defence constraints including the Eskdalemuir Safeguard Area.</i></li> </ul> <p><i>Other Impacts and considerations</i></p> <ol style="list-style-type: none"> <li>a) <i>The extent to which the proposal avoids or adequately resolves any other significant adverse impact including: - on the natural and historic environment, cultural heritage, biodiversity; forest and woodlands; and tourism and recreational interests.</i></li> <li>b) <i>The extent to which the proposal addresses any physical site constraints and appropriate provision for decommissioning and restoration”.</i></li> </ol>

Table 3.4 Design &amp; Access Related Proposed Policies within the East Ayrshire Local Development Plan Proposed Plan (2015)

Policy	Summary
<b>Overarching Policy OP1</b>	This policy requires all development proposals, where relevant, to comply with multiple environmental, design and amenity related criteria. Of relevance to this Design & Access Statement, criterion (v) requires development proposals to “ <i>be of the highest quality design by meeting with the provisions of SPP, the Scottish Government’s policy statement Designing Streets, the Council’s Design Guidance and any master plan/design brief prepared for the site</i> ”.
<b>Policy RE1 Renewable Energy Developments</b>	This policy sets out the overarching criteria for all renewable energy proposals. This policy states that such proposals will be supported by the Council “ <i>where it can be demonstrated that there will be no unacceptable significant adverse impacts on all of the relevant Renewable Energy Assessment Criteria set out in Schedule 1 of the LDP, that the scale of the proposal and its relationship with the surrounding area are appropriate and that all other relevant LDP policies are met...</i> ”. The assessment criteria listed in Schedule 1 to the LDP Proposed Plan relate closely to the development management criteria for renewable energy proposals listed within the SPP at paragraph 169.
<b>Policy RE3: Wind Energy Proposals over 50 Metres in Height</b>	In relation to the proposed spatial framework within the LDP Proposed Plan, this policy states that significant protection will be afforded to Group 2 areas. In these areas wind energy developments must demonstrate that “ <i>any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation and where the proposal is acceptable in terms of all applicable Renewable Energy criteria set out in Schedule 1</i> ”. This policy also provides support for proposed wind energy developments in Group 3 areas “ <i>where it can be demonstrated that they are acceptable in terms of all applicable Renewable Energy Assessment Criteria set out in Schedule 1</i> ”.
<b>Policy RE4: The Cumulative Impact of Wind Energy Proposals</b>	This policy highlights that the cumulative impact arising from wind energy developments is listed as an assessment criteria in Schedule 1 to the LDP Proposed Plan.
<b>Policy RE5: Wind Energy and the Landscape</b>	This policy highlights that landscape impacts arising from wind energy development is identified as an assessment criteria in Schedule 1 to the LDP Proposed Plan. The policy also draws attention to the East Ayrshire Landscape Wind Capacity Study.
<b>ENV8: Protecting and Enhancing the Landscape</b>	<p>The protection and enhancement of East Ayrshire’s landscape character will be a key consideration in assessing the appropriateness of development proposals in the rural area. This policy requires that:</p> <ul style="list-style-type: none"> <li>(i) “<i>Development proposals are sited and designed to respect the nature and landscape character of the area and to minimise visual impact. Particular attention will be paid to size, scale, layout, materials, design, finish and colour.</i></li> <li>(ii) “<i>Where visual impacts are unavoidable, development proposals include adequate mitigation measures to minimise such impacts on the landscape.</i></li> <li>(iii) “<i>Particular features that contribute to the value, quality and character of the landscape are conserved and enhanced</i>”.</li> </ul> <p>The policy also states: “<i>development that would create unacceptable visual intrusion or irreparable damage to landscape character will not be supported by the Council</i>”.</p>

## Draft Supplementary Planning Guidance

### Planning for Wind Energy Draft Supplementary Guidance (March 2015)

- 3.2.12 This draft document supports the implementation of proposed policies RE3-RE6 within the East Ayrshire LDP by clarifying the criteria against which proposed medium and large scale wind energy development will be assessed. The document was subject to public consultation in tandem with the East Ayrshire LDP Proposed Plan.
- 3.2.13 Maps 3 and 4 of the document indicate the sensitivity of landscape character areas across East Ayrshire to 70m+ and 50-70m high wind turbines respectively. It should be noted that although Map 3 within this document identifies the Development Site as having high sensitivity to 70m+ turbines, the East Ayrshire Wind Landscape Capacity Study (2013) assigns a lower High-medium sensitivity to the same area.

## Non Statutory Landscape Guidance

### Scottish Natural Heritage Strategic Guidance for Onshore Wind Farms (2009)

- 3.2.14 The Development Site area is located within Zone 2 of SNH's Strategic Guidance for Onshore Wind Farms (March 2009) which is defined as follows:
- "areas with some sensitivities to wind farms. However, by careful choice of location within these areas there is often scope to accommodate development of an appropriate scale, siting and design (again having regard to cumulative effects) in a way which is acceptable in natural heritage terms".*

### Wind Landscape Capacity Studies

- 3.2.15 The Development Site is located close to the boundary of two capacity studies; the East Ayrshire Wind Landscape Capacity Study (2013) and the Dumfries & Galloway Wind Landscape Capacity Study (2011).
- 3.2.16 It is located within the East Ayrshire Wind Landscape Capacity Study, partly within the Southern Uplands Landscape Character Type (LCT) and partly within the Southern Uplands and Forestry LCT. The study considers that both of these LCTs to have an inherently 'High to Medium' sensitivity to large scale wind turbines. The Southern Uplands with Forest LCT is located to the south of the Proposed Development Site and is assessed in the Dumfries & Galloway Wind Landscape Capacity Study (2011), as having an inherently 'Low' overall sensitivity to large typology wind farm development.

## 3.3 Design Strategy

- 3.3.1 This section describes and explains the design strategy which was adopted for the Proposed Development. The design strategy was influenced by several factors including the physical characteristics of the Development Site and its surroundings, the planning policy context and a number of specific design objectives.

### Design Objectives/Principles

- 3.3.2 Taking account of the physical characteristics of the Development Site and its surroundings and of the planning policy context, a number of objectives/principles were identified for the design strategy:
- ▶ To seek to maximise energy yield;

- ▶ To develop a turbine layout that responds to the landform and topography of the Development Site, whilst appearing as a simple, cohesive turbine layout from key locations in the surrounding area;
- ▶ To develop a layout that relates the scale of the turbines (and the overall Proposed Development) to the scale of its landscape setting, including other wind farm development in close proximity. In this respect, the design should adopt a clustered layout that would be viewed as one cohesive entity in the landscape and is broadly similar to neighbouring wind farm developments in terms of perceived turbine height, number, proportion, 3 bladed turbine design, colour and lighting;
- ▶ To avoid placing turbines and other infrastructure in environmentally sensitive and technically constrained locations;
- ▶ To maintain the simple landscape character of the Development Site by siting ground based infrastructure in the least visible locations when viewed from receptor locations to the north and northeast including New Cumnock, the B741 and the A76; and,
- ▶ To seek to minimise development on areas of deep peat (i.e. in excess of 1m) as far as reasonable practicable and to deploy appropriate mitigation measures where required in order to protect environmental interests.

3.3.3 The location of the proposed wind turbines was the main design consideration due to their form as tall structures which are visible across a wide area. Other components of the Proposed Development such as access tracks were subsequently designed, taking account of the same on-site environmental constraints which were used to inform the turbine locations.

## Environmental and Technical Considerations

3.3.4 This subsection explains how a number of environmental and technical considerations influenced the design strategy for the Proposed Development. A map showing various physical constraints across the Development Site is illustrated in **Figure 3**, and **Figure 4** also shows how these constraints have been addressed through multiple design iterations. Further details regarding individual constraints and their treatment in the design process is provided within relevant technical assessment chapters of the ES.

## Landscape & Visual Design Strategy

3.3.5 The need for the Proposed Development to respond to the surrounding landscape, and for the turbines to appear as a simple, cohesive, rational group in views from the surrounding area, was a key objective which strongly influenced the layout design.

3.3.6 SNH identify the following types of cumulative effects from multiple wind farms within relatively close proximity:

- ▶ *“The windfarms are seen as separate isolated features within the landscape character type, too infrequent and of insufficient significance to be perceived as a characteristic of the area;*
- ▶ *The windfarms are seen as a key characteristic of the landscape, but not of sufficient dominance to be a defining characteristic of the area; and*
- ▶ *The wind farms appear as a dominant characteristic of the area, seeming to define the character type as a ‘windfarm landscape character type’”.*

3.3.7 Following an initial Landscape and Visual Appraisal, a decision was made to limit the tip height of turbines to 130m. This is relatively comparable with the height of turbines at recently consented schemes such as Sanquhar (130m maximum), Dersalloch (125m maximum) and Afton (120m maximum), as well as other proposed schemes.

3.3.8 In overall terms, the Proposed Development has been designed to be broadly compatible with existing, consented and proposed schemes, thereby minimising cumulative landscape and visual effects. In particular, the Proposed Development has adopted a similar design approach to the

proposed South Kyle Wind Farm such that if both schemes are consented, the Proposed Development would appear as a modest extension of the South Kyle Wind Farm. If the South Kyle application was not consented, the Proposed Development has been designed such that it would appear as a simple, cohesive cluster and would appear sufficiently separate from other cumulative wind farm development to appear distinctive and separate. This design philosophy accords with guidance within SNH's 'Guidance on Siting and Designing Windfarms, Version 2' publication (2014).

### Ecological & Ornithological Constraints

- 3.3.9 Ecological surveys were undertaken across the Development Site, including an Extended Phase 1 habitat survey and National Vegetation Classification (NVC) survey, European protected species surveys and bird surveys. This fieldwork identified the following ecological constraints:
- ▶ The Development Site is dominated by mire vegetation communities, of which about 95% is blanket mire (M17 and M20). Blanket bog habitats were identified at an early stage in the design process as the key ecological layout constraint and the design sought to minimise the loss of these habitats where possible;
  - ▶ Two non-statutory designated sites of native woodland occur within the Development Site, in two small pockets to the mid north and north-east. Turbines and other infrastructure are not proposed in these areas;
  - ▶ Three potential moderate to high Ground Water Dependent Terrestrial Ecosystems (GWDTE) vegetation communities were identified as being present within the Development Site during the NVC survey. Potential GWDTE communities were afforded appropriate protection, including the use of buffer zones, throughout the design process;
  - ▶ A black grouse lek and three satellite leks (smaller leks, in this case located ~1km from the main lek) were recorded within the Development Site. The applicant has committed that no construction will occur within 500m of any identified black grouse lek between 3am and 9am during their breeding season core lekking period (mid-March to the end of May).

### Peat Depth

- 3.3.10 Based on the findings of the peat depth surveys and preliminary peat slide hazard risk assessment, several areas of the Development Site were identified to have medium risk of peat instability. The layout of the Proposed Development has been designed to avoid the deepest areas of peat.

### Hydrology

- 3.3.11 The only areas in the vicinity of the Development Site where the SEPA Online Flood Map indicates localised flood risk is on the River Nith tributary floodplain areas, at the northern most extent of the Development Site. This area was excluded from the Potential Development Area where turbines and other infrastructure could be located.
- 3.3.12 The Development Site includes multiple small watercourses which are confluent with either the River Nith (flowing northwards) or the Water of Deugh (flowing southwards). Taking account of the ecological potential and overall status of these watercourses, and on the advice of SEPA and Marine Scotland respectively, a buffer (infrastructure exclusion) zone of 100m was applied around all the River Nith tributaries and a 50m buffer zone (the standard buffer distance around watercourses in the absence of known sensitivities) was applied around all Water of Deugh catchment tributaries.

### Archaeological and Cultural Heritage Features

- 3.3.13 The layout of the Proposed Development, including the positioning of all turbines, access tracks and other infrastructure elements was designed to seek to avoid direct effects on any known cultural heritage features wherever possible.

### Noise Sensitive Receptors (i.e. Residential Properties)

- 3.3.14 Noise modelling was undertaken at an early stage to inform the design of the Proposed Development. Given that the minimum separation distance between proposed turbine locations and habitable non-involved residential properties exceeds 1.5km, operational noise at sensitive receptors would not exceed limits defined under ETSU guidance. Noise considerations were therefore not a major influence on the design strategy for the Proposed Development.

### Technical Considerations

- 3.3.15 The optimum layout of a wind farm is influenced by a range of technical criteria. These technical criteria will vary depending on the type and size of turbine. Generally, turbines are arranged at a set distance apart to minimise the effect of wake turbulence, this being a larger distance down-wind of the prevailing wind direction than across it. On the basis of extensive wind resource monitoring undertaken at the Development Site, the final design of the Proposed Development incorporates wake effect separation distances of six rotor diameters by four rotor diameters orientated in a north to south direction.
- 3.3.16 In relation to the design of turbine foundations and associated infrastructure, Construction Design Management (CDM) best practices have been taken into account throughout the design process and would continue to be adhered to throughout all subsequent phases of the Proposed Development.

## 3.4 Design Iteration Process

- 3.4.1 The influence of the environmental and technical considerations (as outlined above) throughout the design iteration process is presented below. These culminated in the final layout for which planning consent is being sought.
- 3.4.2 During the design iteration process, consultation was undertaken with statutory and non-statutory consultees and the general public. The feedback from the consultations, in combination with the findings of the preliminary assessment process, informed subsequent iterations of the layout. Throughout the process, computer modelling was used as a tool to aid design of the layout. In particular, wireframes were generated for views from key locations around the Development Site and used to 'test' the design in key views.

### Overview

- 3.4.3 The design process can be summarised through eight major iterations, although it should be noted that many minor additional design refinements have been made in between. These major iterations are:
- ▶ Iteration 1: Site Boundary Delineation – June 2011;
  - ▶ Iteration 2: Feasibility Study Layout – comprising a maximum of 23 turbines – April 2012;
  - ▶ Iteration 3: Turbine Maximum Capacity Layout – comprising 40 turbines – July 2014;
  - ▶ Iteration 4: Design Chill Layout – comprising 20 turbines – July 2014;
  - ▶ Iteration 5: Design Chill Layout Following Civil Engineering Site Visit – comprising a further modified 20 turbine layout – October / December 2014;
  - ▶ Iteration 6: Design Workshop January 2015 Layout – comprising 18 turbines;
  - ▶ Iteration 7: February 2015 Layout – comprising 19 turbines; and
  - ▶ Iteration 8: Final Design Layout – comprising 19 turbines – March 2015.

- 3.4.4 These major design iterations are shown sequentially on **Figure 4** and are described below. Further details regarding individual constraints and their treatment in the design process is provided within relevant technical assessment chapters of the ES.

### Iteration 1: Site Boundary Delineation – June 2011

- 3.4.5 The design process began with the determination of the design objectives/principles and the delineation of the Development Site boundary. The design factors considered at this initial stage are detailed in **Table 3.5**.

Table 3.5 Layout 1 Design Considerations

Design Factor or Constraint	Design Impact
<b>Delineation of Development Site boundary (the area under the Option Agreement between E.ON and the landowners)</b>	This produced the indicative site area within which all components of the Proposed Development would be located.
<b>Results of site selection exercise &amp; initial feasibility assessment</b>	The site selection process established that this site is potentially a suitable location for wind farm development.

- 3.4.6 This initial layout did not identify the potential capacity of the Development Site in terms of either the number or the height of turbines, and did not identify an infrastructure layout.

### Iteration 2: Feasibility Study Layout – April 2012

- 3.4.7 Following the delineation of the Development Site boundary, environmental information relating to the Development Site and the surrounding area was collated, mapped and analysed to inform the early stages of the design process. From this, an initial turbine layout was designed with the objectives of avoiding physical environmental constraints, maximising the use of available land and optimising wind yield. The design factors considered in this design iteration are summarised in **Table 3.6**.

Table 3.6 Layout 2 Design Considerations

Design Factor or Constraint	Design Impact
<b>Initial constraints mapping</b>	The initial feasibility assessment identified a number of 'hard constraints' such as residential properties, watercourses, roads, electricity and telecommunications infrastructure which were buffered as appropriate.
<b>Siting and Designing Wind Farms (SNH)</b>	This guidance document provides advice on the siting and design of wind farms in Scotland's landscapes. The document notes that a grid of wind turbines is often taken as the starting point in wind farm design, with turbines spaced at minimum separation distances to avoid turbulence.

- 3.4.8 Preliminary assessments of potential environmental impacts were then undertaken to identify the potential effects of the initial turbine layout. Information gathered and analysed throughout the EIA process led to multiple refinements in the turbine layout design, as detailed below.

### Iteration 3: Turbine Maximum Capacity Layout – July 2014

- 3.4.9 In this design iteration, the turbine layout was revised to illustrate the theoretical maximum generating capacity of the Development Site. Whilst this layout sought to maximise energy yields, the layout also took account of the environmental survey information gathered since the inception of this project. However it did not take account of ground conditions, gradients, the terrain or soft environmental constraints.

3.4.10 This design iteration involved a number of design considerations, as detailed in **Table 3.7**.

**Table 3.7** Layout 3 Design Considerations

Design Factor or Constraint	Design Impact
Energy yield maximisation and efficiency	17 additional turbines were added to the layout achieved through design iteration 2.
EIA survey results	All turbines from design iteration layout 2 were moved in relation to hard constraints. These constraints also influenced the siting of the 17 additional turbines.

3.4.11 This layout was presented to the Community Liaison Group (CLG) at a meeting held on 2<sup>nd</sup> July 2014.

#### Iteration 4: Design Chill Layout – July 2014

3.4.12 The layout was refined further through a design workshop held in July 2014. This design iteration involved a number of design modifications to address multiple environmental issues, as detailed in **Table 3.8**.

**Table 3.8** Layout 4 Design Considerations

Design Factor or Constraint	Design Impact
Technical Studies & EIA Survey Results	The hard constraints identified for Layouts 2 and 3 were avoided. In addition, survey results from the EIA for protected species, noise, vegetation, cultural heritage, peat depth etc. were taken into account and the more sensitive areas were buffered and avoided as appropriate.
Community Liaison Group Feedback	A turbine 'avoidance area' at the north of the Development Site was applied in response to feedback obtained as a result of public consultation and Community Liaison Group (CLG) meetings. This constraint was applied to minimise effects on residential properties located to the north of the Development Site.
Military Aviation Safeguarding	A 1km buffer was applied around the B741 to mitigate effects on military aviation, as agreed with the MoD.
Landscape & visual optimisation	The design was optimised from a landscape and visual perspective by examining wireframes from the viewpoints agreed with consultees and turbines were moved to create a balanced and coherent layout.
Wake Effect Avoidance	A wake separation distance of five rotor diameters in a north-east to south-west direction and three rotor diameters in a north-west to south-east direction between turbines was applied.

3.4.13 The net effect of this design iteration was to remove 20 turbines from design iteration 3 and to reposition the remaining 20 turbines to less environmentally sensitive locations.

#### Iteration 5: Design Chill Layout Following Civil Engineering Site Visit – October / December 2014

3.4.14 Following a ground truthing exercise, the layout was refined further to take account of topographical and ground conditions and the potential presence of a GWDTE, as detailed in **Table 3.9**.



Table 3.9 Layout 5 Design Considerations

Design Factor or Constraint	Design Impact
<b>Topography &amp; Ground Conditions</b>	In October 2014 E.ON Civil and Structural engineers visited the Development Site and minor changes to the location of four turbines were made to areas of more favourable topography.
<b>GWDTE Avoidance</b>	In December 2014, one turbine was moved to avoid an area of assessed GWDTE.

3.4.15 The net effect of this design iteration was that whilst five turbines were slightly repositioned, the 20 turbine layout achieved under design iteration 4 remained largely unchanged.

### Iteration 6: Design Workshop January 2015 Layout

3.4.16 A further design workshop was undertaken in January 2015 where the results of wind monitoring which had been undertaken at the Development Site were taken account of to maximise energy yield and efficiency of turbines, while balancing this with the constraints described for previous layouts. The issues considered during this design iteration are detailed in **Table 3.10**.

Table 3.10 Layout 6 Design Considerations

Design Factor or Constraint	Design Impact
<b>Technical Studies &amp; EIA Survey Results</b>	The constraints described in relation to previous design iterations were again taken account of, along with the results of additional ecological studies that had taken place in the intervening period.
<b>Wake Effects Avoidance</b>	The 5 x 4 rotor diameter wake separation distance used for previous layouts was increased to a 6 x 4 rotor diameter wake separation orientated in a north to south direction as result of wind monitoring which had been undertaken at the Development Site.

3.4.17 Owing to the increased wake separation distance applied, the net effect of this design iteration was the removal of 2 turbines, resulting in an 18 turbine layout.

### Iteration 7: February 2015 Layout

3.4.18 A revised 19 turbine layout was produced in February 2015 following collaboration between E.ON's wind energy team and Amec Foster Wheeler's Landscape team. This layout sought to carefully balance potential landscape and visual effects with the maximisation of renewable energy generation. The layout also took into account the conclusions of previous design iterations, all known physical site constraints and the latest available data regarding the onsite wind regime.

### Iteration 8: Final Design Layout – March 2015

3.4.19 The layout achieved under design iteration 7 was tweaked, with one turbine relocated slightly to be outwith the line of sight with Great Dun Fell Radar Station. This layout forms the finalised design for which the applicant seeks section 36 consent and deemed planning permission from the Scottish Ministers.

## 3.5 The Design Solution

3.5.1 The design evolution illustrated in **Figure 4** shows that from the outset it was recognised the turbines would need to be located in the south of the Development Site, within the interior hills, away from the north-facing hill slopes and the Upland Basin landscape and associated visual

receptors including the B741, residential properties and the settlement of New Cumnock. It should also be noted that initially turbines with a blade tip height of 150m were considered for the Proposed Development; however this was reduced early in the design evolution process to turbines with a blade tip height of 130m to ensure that the Proposed Development is visually comparable to nearby wind farm development and to reduce its visibility.

3.5.2 The outcome of the design process represents the final design layout, shown on **Figure 5**, which comprises a maximum of 19 turbines, each with a height of up to 130m to tip, and associated infrastructure. This design process has resulted in a design solution which is considered to:

- ▶ Balance landscape and visual effects with the need to maximise the production of renewable energy generation at least cost;
- ▶ Minimise loss of habitats of higher nature conservation value, whilst maximising production of renewable energy generation at least cost;
- ▶ Respond to feedback obtained from local residents, local communities and members of the public. This includes the feedback received at two public information days and from regular Community Liaison Group meetings;
- ▶ Respect on-site environmental assets and constraints including watercourses, areas of deep peat and topography, nature conservation interests, archaeological interests and other environmental qualities of the Development Site and its surroundings; and,
- ▶ Comply with industry best practice in terms of turbine spacing to ensure safety and maximise wind yield.

## 3.6 Micrositing

3.6.1 The design strategy and design solution outlined above has taken account of the possible need for micrositing of turbines and other infrastructure components. This is to mitigate any geo-environmental and geotechnical constraints which may be identified during detailed post-consent site investigation works or preparatory ground works. Any such micrositing of wind farm infrastructure components would be limited through a planning condition to +/-50m so as not to involve encroachment into any environmentally or technically constrained areas. Proposed access tracks would be subject to a separate micrositing allowance of up to 25m, with the exception of any realignment necessary to connect to microsited turbines and crane pads (where the allowance may be up to 50m).

## 4. The Access Statement

### 4.1 Introduction

- 4.1.1 This section of the Design & Access Statement describes the proposed access arrangements during all phases of the Proposed Development, in relation to both construction traffic and public access.

### 4.2 Access Routes to the Site

- 4.2.1 All turbine components would be transported from the manufacturing plant to the Port of Ayr by sea and then delivered to the Development Site by road.
- 4.2.2 Access studies incorporating swept path analysis (see Appendix 14.A of the ES) have been carried out to review potential access routes to the Development Site. The proposed route for abnormal loads is from the Port of Ayr, leaving the Jura Terminal along Waggon Road. From here the abnormal load route would turn right onto Allison Street A79, then onto A719, and the A77 northbound towards the roundabout with the A78. The route then heads further north along the A77, joining the A76 at the roundabout at Kilmarnock heading southbound before joining the B741 at New Cumnock and heading south-west towards the Development Site entrance off this road. This route is shown in **Figure 6**.
- 4.2.3 Notwithstanding the intended use of on-site borrow pits, the transport assessment (Chapter 14) has considered as a worst case that there would be a need to import stone and aggregate materials from a quarry located approximately 18km north east of the Development Site. The route from the quarry to the Development Site is expected to use the B743, travelling westbound before joining the B713 in the village of Sorn, and continuing through the village of Catrine before joining the A76. From the A76 the route heads southbound and travels through New Cumnock, where it then joins the B741 heading south-westbound towards the Development Site access.

### 4.3 Site Entrance

- 4.3.1 There would be one principal point of access to the Development Site from the B741. A new junction would be created off this minor road a short distance from its junction with the A713. The new junction would be used for construction, delivery and maintenance access during the operational phase and the decommissioning phase.
- 4.3.2 The proposed site entrance junction arrangement is detailed in **Figure 7**.

### 4.4 Access Tracks

- 4.4.1 It is anticipated that approximately 12.9 km of new on-site access track would be required as part of the Proposed Development. All access tracks would be unpaved and constructed from material sourced from off-site sources or on-site borrow pits.

#### Track Specification

- 4.4.2 Owing to the size of some of the turbine components, all on-site access tracks will have to be a maximum of up to 6m wide with some additional localised bend widening and passing places to a maximum of approximately 12-14m.
- 4.4.3 Access tracks would be constructed to a depth and quality suitable to bear the load of all envisaged traffic.

## Track Alignment

- 4.4.4 The proposed alignment of access tracks was developed initially through a desk study and refined following a site visit, with the objectives of:
- ▶ Minimising the overall track length;
  - ▶ Minimising landscape and visual impacts; and
  - ▶ Avoiding identified constraints as far as is practical (ecologically sensitive areas, areas of deep peat, waterbodies etc.).
- 4.4.5 The detailed design of the access tracks will depend on local geological, topographical and drainage conditions. In terms of design, the primary objectives that have informed the access tracks are:
- ▶ Requirements to maintain water flows across tracks and minimise disruption to the current hydrology;
  - ▶ Minimisation of peat spoil by routing tracks through areas of shallow or no peat where possible;
  - ▶ Serviceability requirements for construction and wind turbine delivery vehicles; and
  - ▶ Constructability considerations.

## Track Design

- 4.4.6 To achieve a track structure that meets the conditions encountered on the Development Site, whilst meeting the primary track design objectives, two different designs have been developed (each with associated construction techniques) as summarised in **Table 4.1**.

Table 4.1 Typical Access Track Construction Techniques

Design	Construction Method	Typical Site Conditions	Peat Depth (m)
1	Floating Road	Deep, flat, stable areas of peat (track thickness estimated 600mm to 1,000mm)	≥1 m
2	Excavated Road	Flat with simple drainage condition (track thickness estimated 450mm to 600mm)	<1 m

- 4.4.7 An intrusive peat depth survey, utilising a Russian sampler which extracts peat samples, has been carried out across all the proposed infrastructure areas including proposed access track routes. The survey identified several areas of deep peat, so some sections of access track have the potential to require floating roads, where the weight of the road is supported by the peat beneath. Based on current knowledge of the Development Site, approximately 1.9km of floating tracks will be required. These tracks would be constructed in line with the good practice guidance produced by the Forestry Commission Scotland (FCS) and SNH (2010), and Scottish Renewables, SNH, SEPA and FCS (2010) and would include the use of geogrids.

## Access Track Solution

- 4.4.8 The finalised on-site access track layout is shown the final design layout shown on **Figure 5**. This alignment has already been subject to initial review by an experienced civil engineer and re-routed to respond to readily identifiable constraints. The final decision on alignment and on the appropriate type of access track design to adopt for a particular length of track would be made in advance of construction and may involve input from the Ecological Clerk of Works (ECoW) as well as site engineers (and any other environmental specialists as required).

## 4.5 Public Access

### Public Access Baseline Position

- 4.5.1 The majority of the Development Site is subject to the 'right to roam' under the Land Reform (Scotland) Act 2003. As such, public access for general recreation (including walking and horse riding) is currently permitted over most of the Development Site. However, there are no Core Paths or other designated or non-designated walking routes within the Development Site boundary.
- 4.5.2 Core Paths and other local recreational routes within 5km of the Development Site are shown on **Figure 8**.

### During Construction

- 4.5.3 Public Access to the Development Site throughout the construction phase will be managed by the appointed main contractor for health and safety reasons, in line with the requirements of the Construction Design and Management (CDM) Regulations 2015. Temporary public access restrictions to the Development Site would only apply in areas where and when intensive construction activities are taking place. Appropriate site signage would be implemented to communicate safe access to the Development Site during construction.

### During Operation & Post Decommissioning

- 4.5.4 After construction work is completed there would be no reason under normal circumstances to restrict access to the Development Site for public safety reasons. Therefore, current access arrangements to the Development Site would not change substantially during or after the operation of the Proposed Development.
- 4.5.5 The Proposed Development would result in approximately 12.9km of new access tracks linking turbines and the access point to the public highway. These tracks, which would improve public access across the Development Site, would be retained during and after the operational phase of the Proposed Development. During Decommissioning.
- 4.5.6 During the decommissioning phase of the Proposed Development, it would be necessary to temporarily restrict public access to land in order to enable heavy plant to safely access and remove wind farm components. It is anticipated that any such restrictions would only be in place for a very limited period of time.



## 5. References

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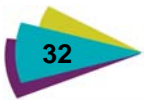
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Scottish Natural Heritage. (2014) Siting and Designing Wind Farms in the Landscape - Version 2. Available at: <http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=2128> (Accessed 15/07/2015).



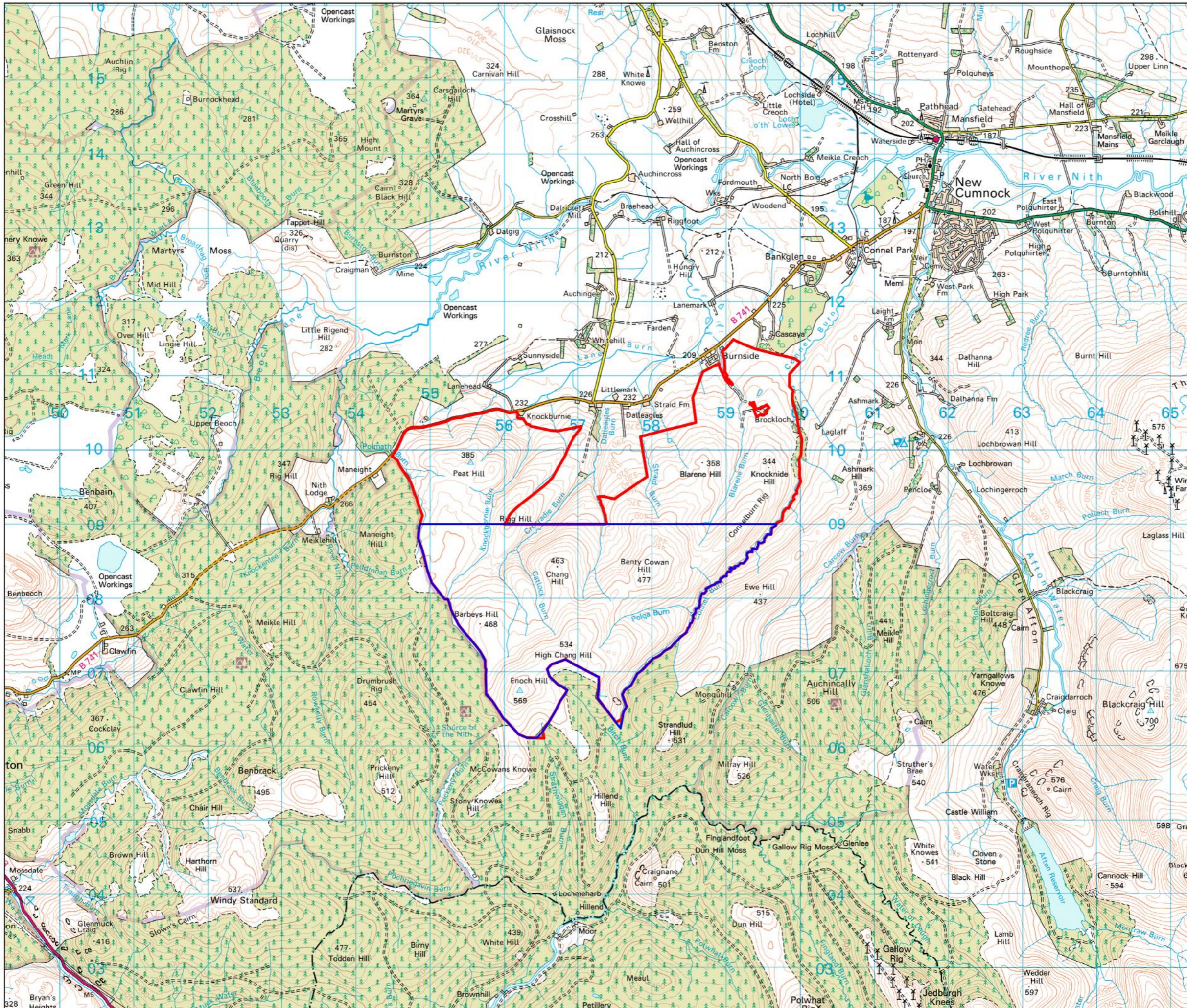




# Appendix A

## Figures





Key

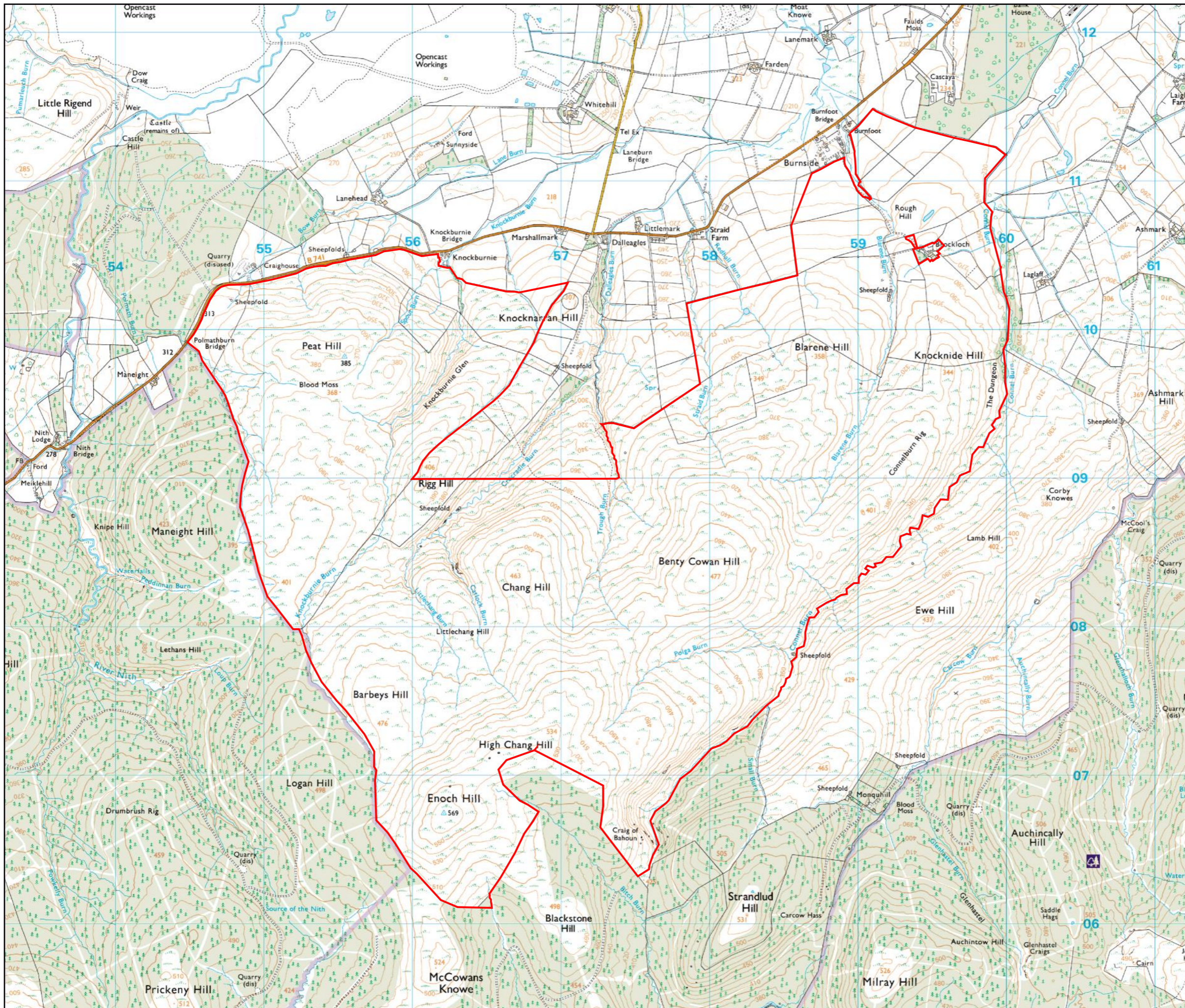
- Site boundary
- Core survey area

0 km 3.0 km  
Scale 1:50,000 @ A3

Client

Enoch Hill Wind Farm  
Design and Access Statement

Figure 1  
Site Location



Key


Site boundary

0 km 1.5km

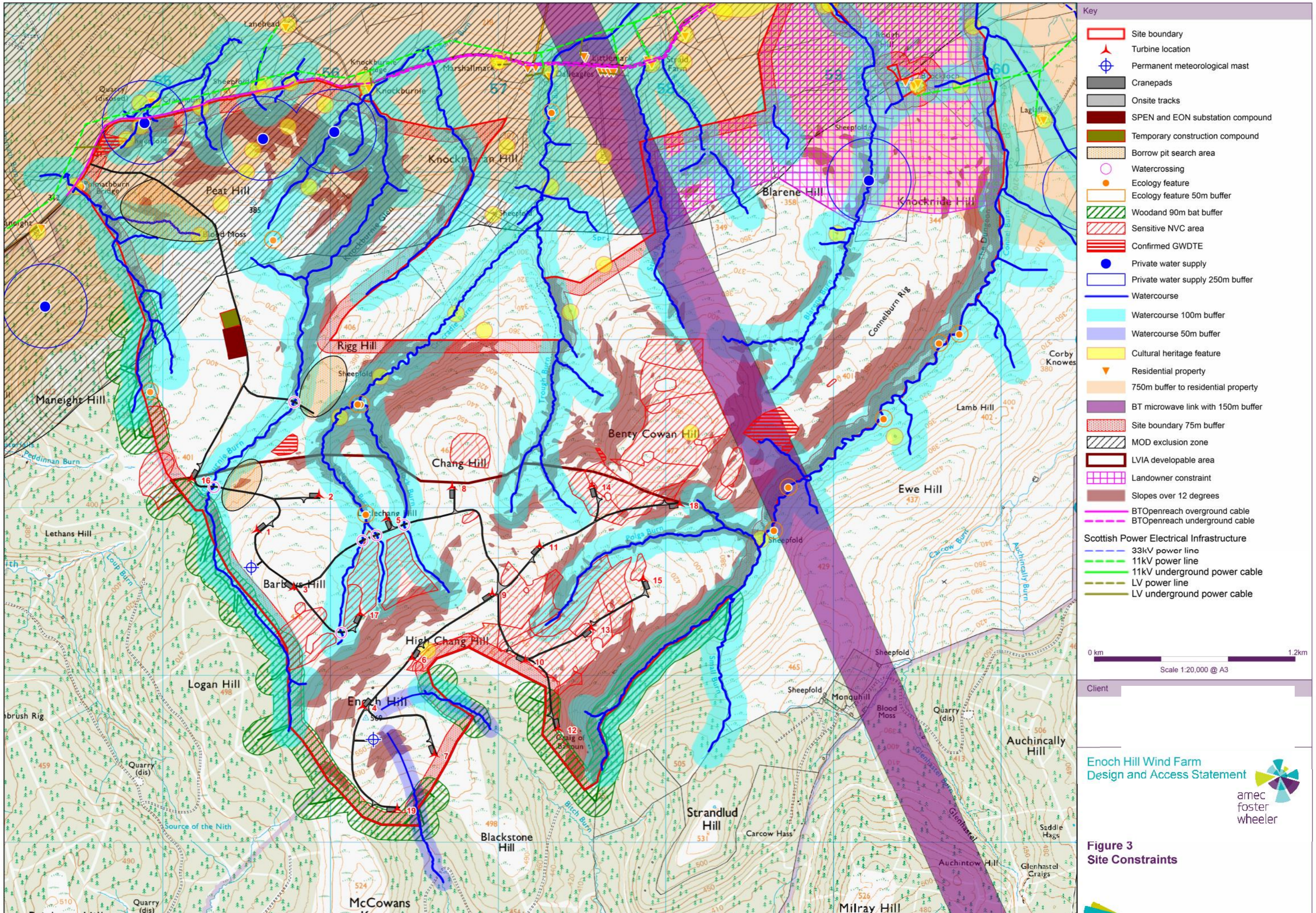
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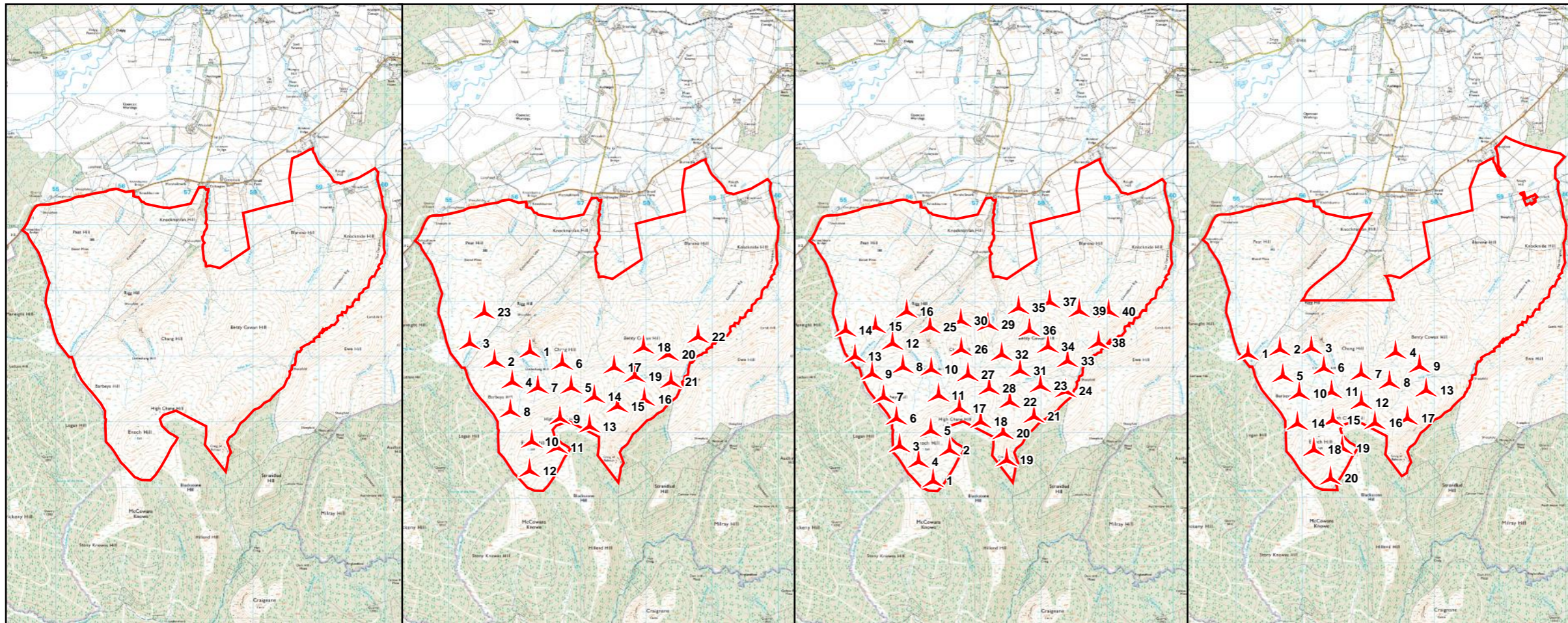
Client

Enoch Hill Wind Farm  
Design and Access Statement

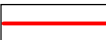



**Figure 2**  
Development Site Boundary





Key

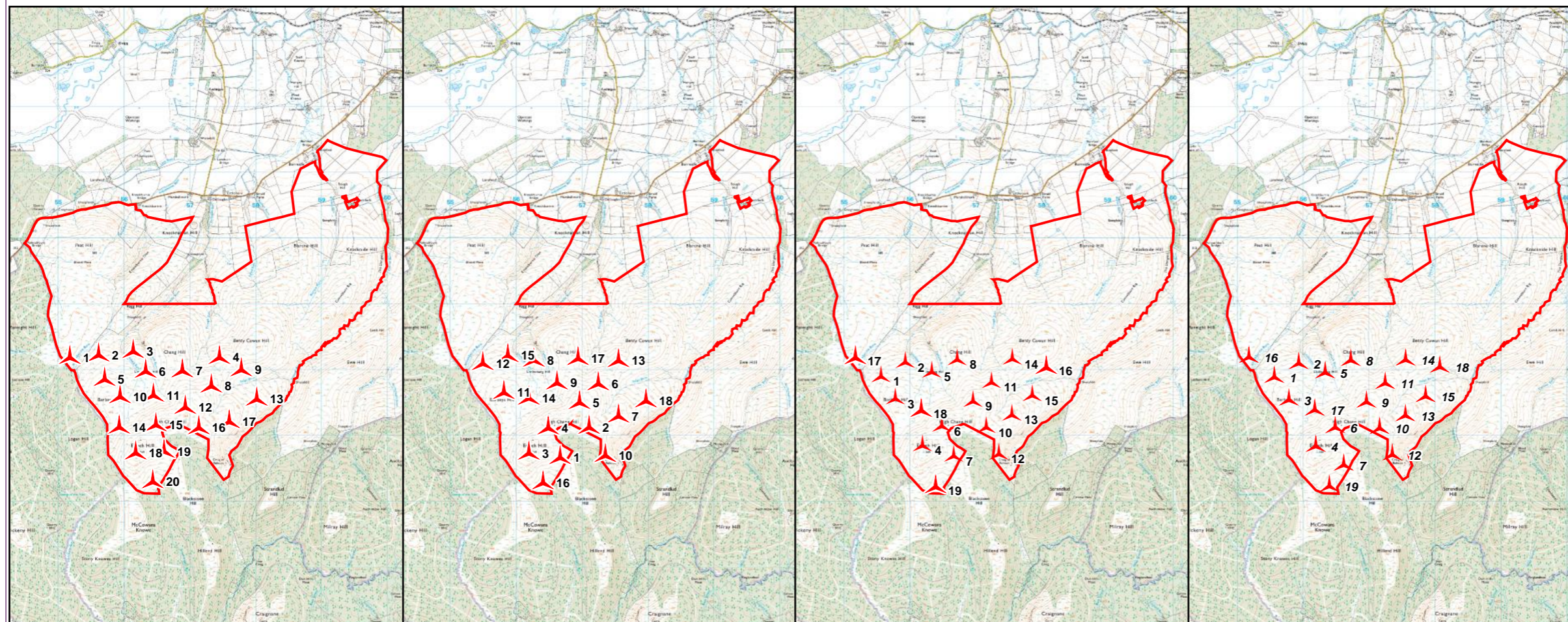
-  Site boundary
-  Turbine location

Layout 1 - Initial site boundary

Layout 2 - 23 Turbine feasibility layout

Layout 3 - 40 Turbine maximum capacity layout

Layout 4 - 20 Turbine design chill layout



0 km 4.5km

Scale 1:75,000 @ A3

Client

Enoch Hill Wind Farm  
Design and Access Statement




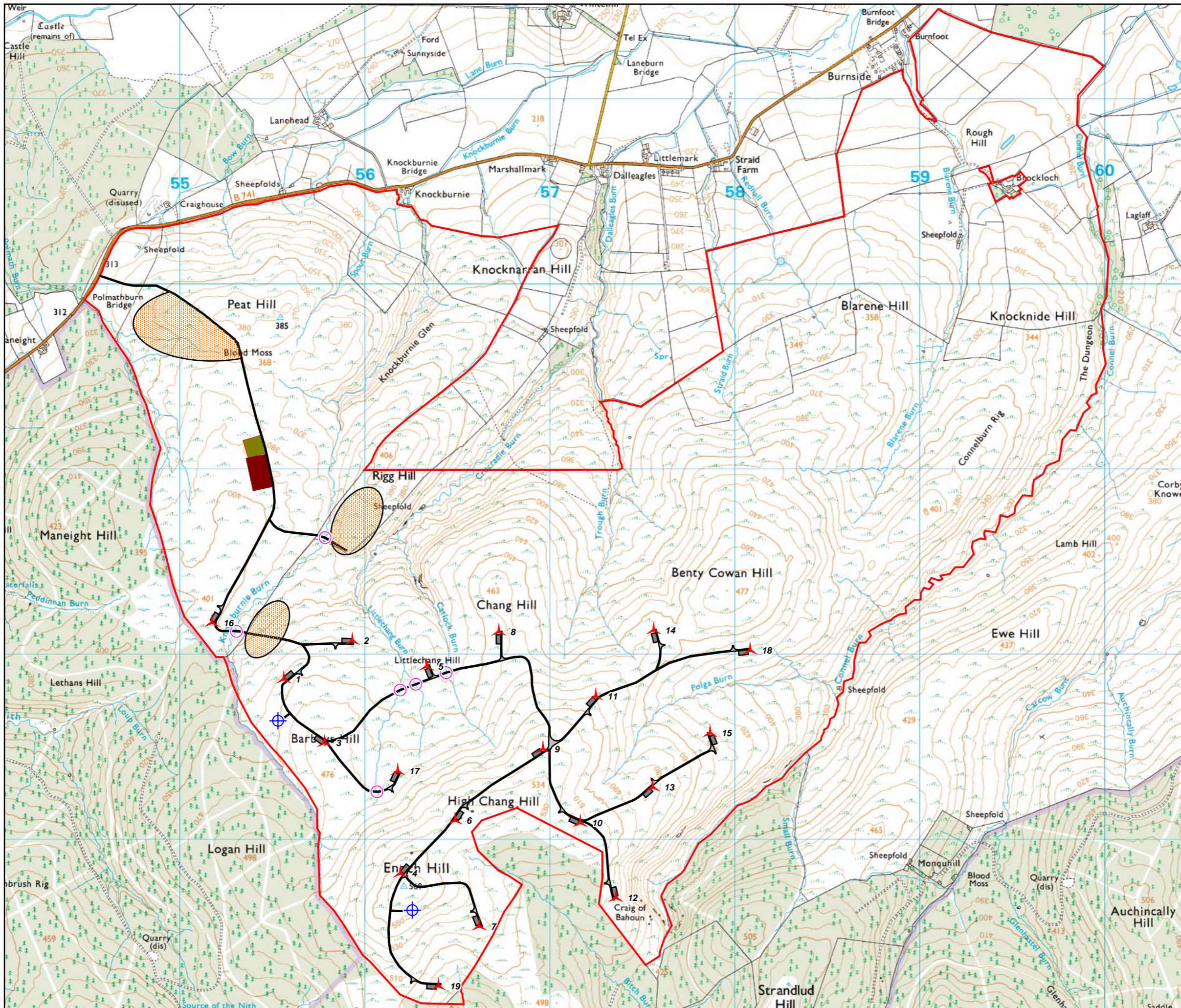
Figure 4  
Site Design Iterations

Layout 5 - 20 Turbine layout following civil site visit

Layout 6 - 18 Turbine layout design workshop January 2015

Layout 7 - 19 Turbine layout February 2015

Layout 8 - Final design layout



- Key
- Site boundary
  - Turbine location
  - Proposed on site tracks
  - Crane pad
  - SPEN and EON Substation compound
  - Temporary construction compound
  - Watercourse crossing
  - Borrow pit search area
  - Permanent meteorological mast

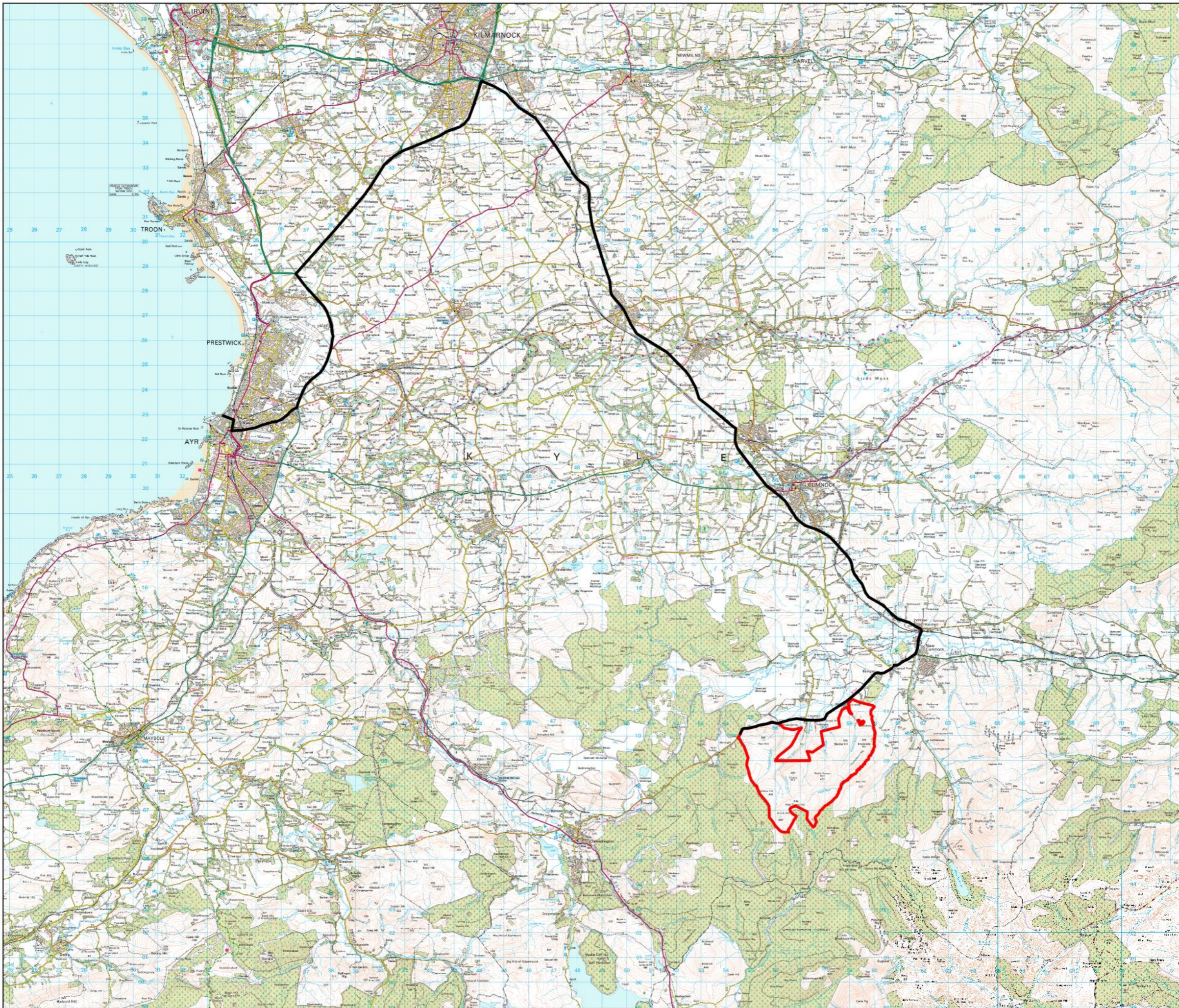


Client

Enoch Hill Wind Farm  
Design and Access Statement

**Figure 5**  
Final Site Layout

Based upon Ordnance Survey Map with the permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright. 10001776



Key

- Site boundary
- Abnormal Indivisible Load access route to site



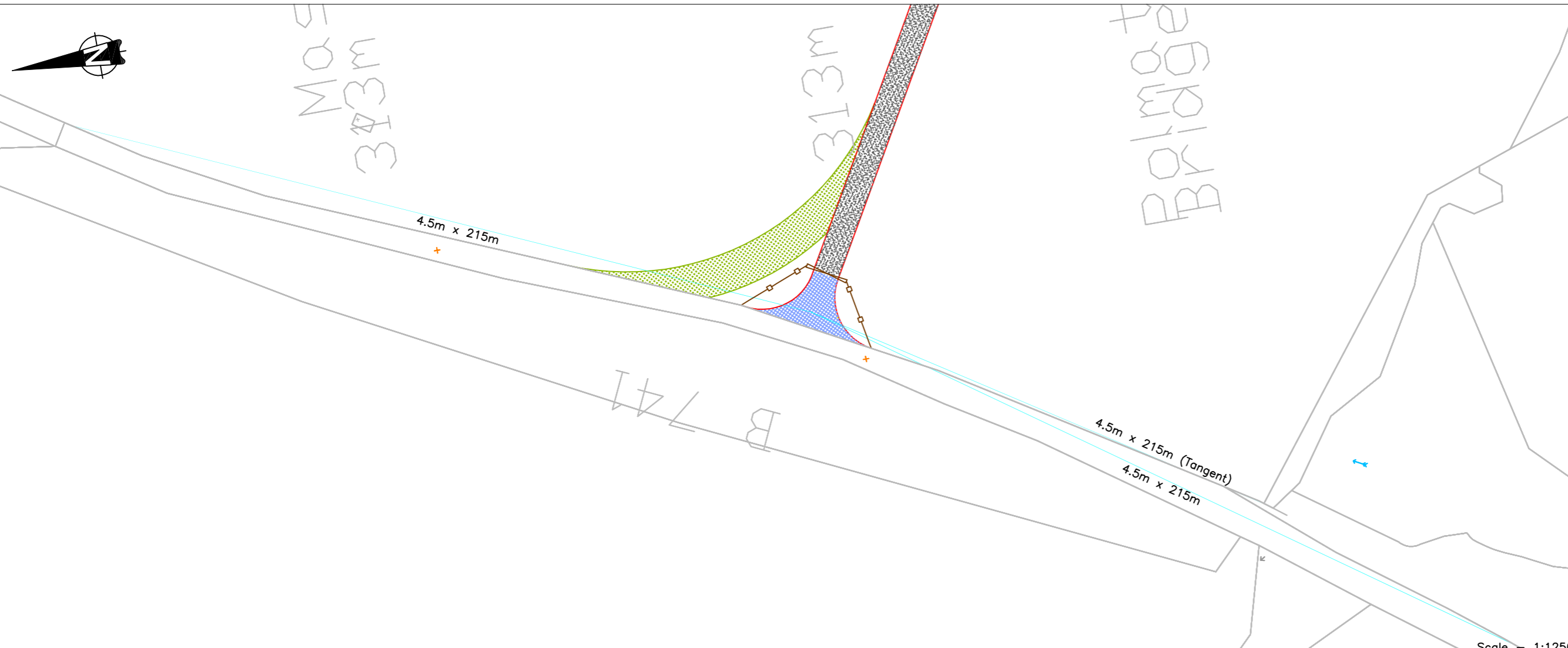
Client

Enoch Hill Wind Farm  
Design and Access Statement

amec  
foster  
wheeler

**Figure 6**  
**Abnormal Load Access Route**





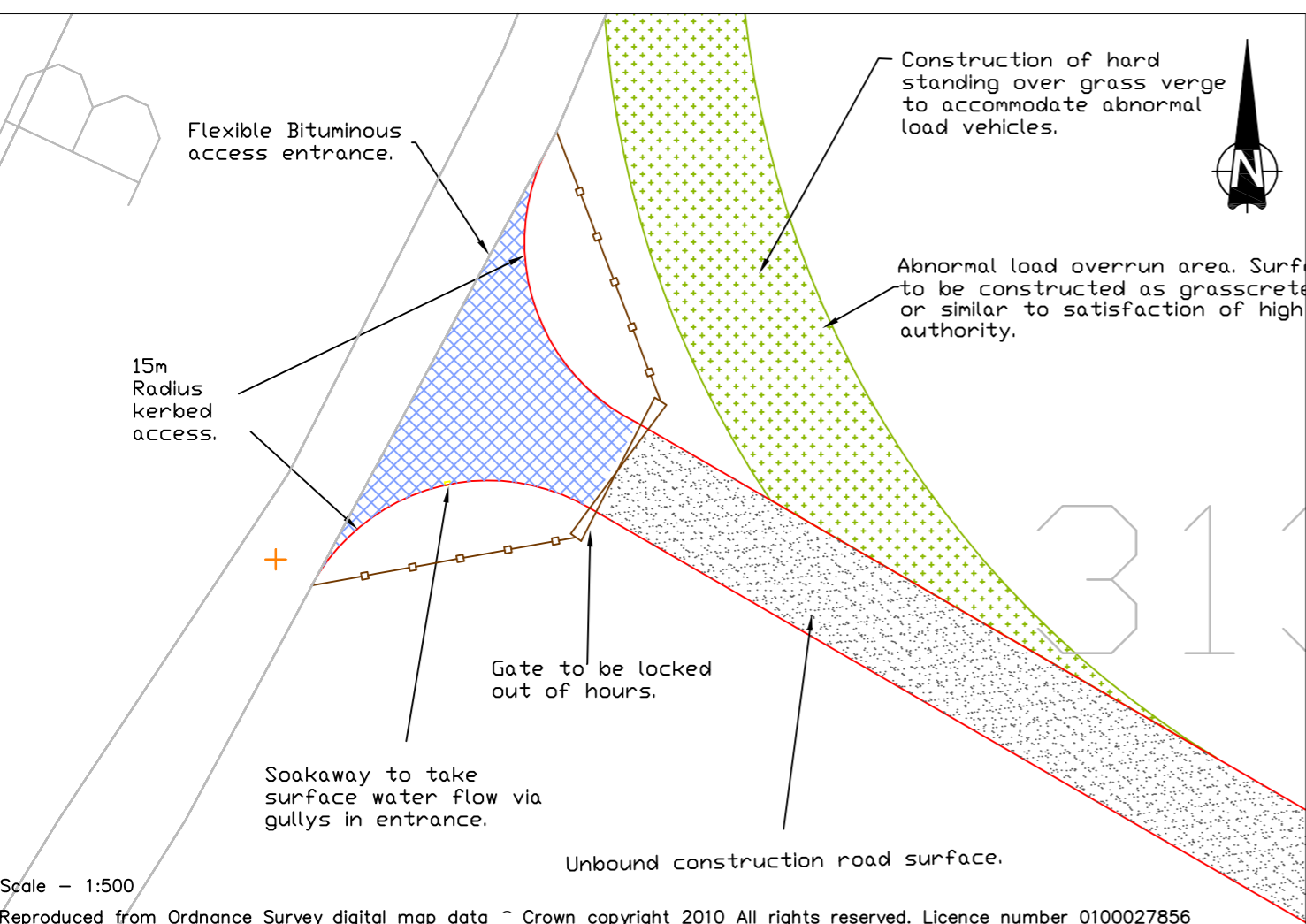
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A	JULY 2015	FIRST ISSUE	DS	JGM	TD	
REV	DATE	REVISIONS		DWN	CHK	APP

- NOTES
1. SWEEP PATH BASED ON BLADE TRANSPORTER CARRYING 53m LONG BLADE
  2. THE SWEEP PATHS SHOWN ON THIS DRAWING HAVE BEEN PRODUCED USING REAR WHEEL STEERING. AUTODESK CONFIRM THAT THESE PATHS ARE AS ACCURATE AS POSSIBLE USING THE CORRECT SPEED AND TURN RATE OF A REAL LIFE VEHICLE. HOWEVER, THE EXACT ALIGNMENT CAN NOT BE GUARANTEED DUE TO THE ACCURACY DIFFERENCE BETWEEN THE SOFTWARE OPERATOR AND THE VEHICLE DRIVER
  3. PLEASE NOTE THAT THE MANUFACTURER OF VEHICLE TRACKING GIVES NO WARRANTY AS TO THE RESULTS OR PERFORMANCE OF THIS SOFTWARE.
  4. THIS SWEEP PATH ANALYSIS IS A HIGH LEVEL ASSESSMENT BASED ON PRELIMINARY MAPPING. AS A RESULT FURTHER DETAILED ANALYSIS MAYBE NEEDED TO ENSURE KEY CONSTRAINTS ARE CONSIDERED AND AVOIDED WHEREVER POSSIBLE.
  6. ANY STREET FURNITURE LOCATED WITHIN THE SWEEP PATH EXTENTS SHOWN WILL NEED TO BE REMOVED AND RELOCATED AS NEEDED.

KEY

	VISIBILITY SPLAYS
	VEHICLE BODY OVERHANG
	VEHICLE WHEEL BASE
	TURBINE BLADE
	BLADE OVERHANG
	UNBOUND CONSTRUCTION ROAD
	ABNORMAL LOAD OVERRUN AREA
	FLEXIBLE BITUMINOUS ACCESS
	POST AND RAIL FENCING

Scale - 1:1250



Scale - 1:500

Reproduced from Ordnance Survey digital map data - Crown copyright 2010 All rights reserved. Licence number 0100027856

SCALES: AS SHOWN

PROJECT TITLE:  
ENOCH HILL WINDFARM  
DESIGN AND ACCESS STATEMENT

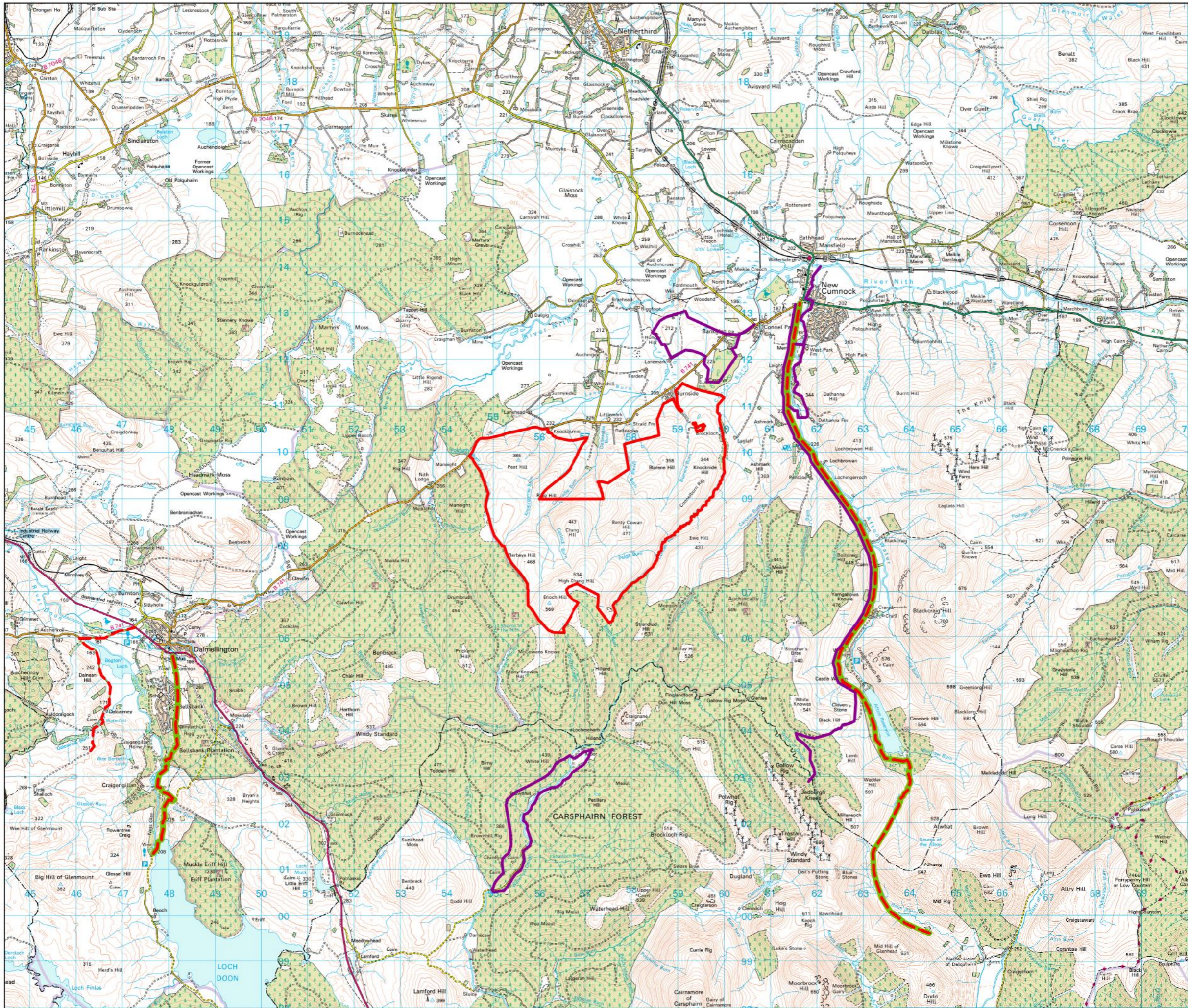
DRAWING TITLE:  
FIGURE 7  
PROPOSED SITE ENTRANCE  
JUNCTION ARRANGEMENT

CLIENT:



Project Ref. 32965	DRAWING No. GLA388	Revision No. -
-----------------------	-----------------------	-------------------

Original Drawing Size - A3



**Key**

- Site boundary
- Core paths
- Heritage paths
- Scottish hill tracks

0 km 4.8km  
 Scale 1:80,000 @ A3

Client

**Enoch Hill Wind Farm  
 Design and Access Statement**

amec  
 foster  
 wheeler

**Figure 8  
 Core Paths & Local Recreational  
 Routes within 5km**

