



Euchanhead Renewable Energy Development

Design and Access Statement

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1 Introduction

1.1 Introduction

1. The UK Government and the Scottish Government have both declared a 'climate emergency' and are committed to ensuring that an increased proportion of electricity is generated from renewable energy sources in order to meet carbon emission targets set in 2019.
2. The Climate Change (Scotland) Act 2009 initially established long term statutory targets for Scotland of reducing greenhouse gas emissions by at least 80 % by 2050, with an interim target of reducing emissions by at least 42 % by 2020. The Act also placed climate change duties on Scottish public bodies and included provisions on climate change including adaption, forestry, energy efficiency and waste reduction.
3. The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 received Royal Assent on 31 October 2019 and came into force in March 2020. The Act responds to the Paris Agreement and the declaration of a 'climate emergency' in Scotland. It amends the Climate Change (Scotland) Act 2009 and commits Scotland to a new target of net zero emissions of all greenhouse gases by 2045, with interim targets for reductions of at least 56 % by 2020, 75 % by 2030 and 90 % by 2040. These new greenhouse emissions targets represent a substantial increase over the targets set in the previous Act and are currently the most ambitious statutory targets in the world. ScottishPower Renewables (SPR) is helping to lead the fight against climate change by developing renewable energy projects, such as this fully integrated renewables scheme called Euchanhead Renewable Energy Development (the proposed Development).
4. SPR is part of the ScottishPower group of companies operating in the UK under the Iberdrola Group, one of the world's largest integrated utility companies and a world leader in wind energy. ScottishPower now only produces 100 % green electricity – focusing on wind energy, smart grids and driving the change to a cleaner, electric future. The company is investing over £4m every working day¹ to make this happen and is committed to speeding up the transition to cleaner electric transport, improving air quality and over time, driving down bills to deliver a better future, quicker for everyone.
5. SPR is at the forefront of the development of the renewables industry through pioneering ideas, forward thinking and outstanding innovation. Its ambitious growth plans include expansion of its existing onshore wind energy portfolio, investment in new large scale solar deployment and innovative grid storage systems including batteries. The company is also delivering the Iberdrola Group's offshore windfarms in the southern North Sea off East Anglia.
6. With over 40 operational windfarms, SPR manages all its sites through its world leading Control Centre at Whitelee Windfarm, near Glasgow.

1.2 The application

7. The proposed Development is a Renewable Energy Development that intends to make use of available renewable energy technologies to maximise and optimise the renewable energy potential of the Site. SPR wishes to construct 21 three-bladed horizontal axis wind turbines, up to 230 m tip height, with a combined rated output in the region of around 126 megawatts (MW) producing an output of around 385 GWh² of electricity annually. This equates to the annual power consumed by approximately 101,660³ average UK households. Around 31.5 MW of energy storage would also be installed to store energy and so provide flexible balance of energy and the delivery of the full potential of renewable energy to meet the demands of the national grid.

¹ between 2018-2022

² For example using a 35% capacity factor, figures are derived as follows: 126 MW × 8,760 hours/year × 0.35 (capacity factor) = 386,316MWh. The actual capacity factor on the site is likely to be higher than 35%.

³ This is calculated using the most recent statistics from BEIS showing that annual UK average domestic household consumption is 3,799kWh. The figure is calculated as follows: Annual energy generation / (UK average domestic electricity consumption/1000).

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8. SPR is submitting an application for the proposed Development under section 36 of the 1989 Electricity Act. A request is also being made that a direction be issued under section 57 (2) of the Town and Country Planning (Scotland) Act 1997 that planning permission be deemed to be granted.

1.3 Purpose of this Design and Access Statement

9. The purpose of this Design and Access Statement is to provide information about the design objectives that have been applied and the subsequent design process that has taken place to inform the proposed Development. This Design and Access Statement:
- describes the steps that have been taken to appraise the environmental context of the Site location and demonstrate its suitability in principle for a renewable energy development;
 - explains the design strategy adopted for the proposed Development and how the policies relating to design in the Development Plan and other relevant policy guidance documents have been taken into account;
 - identifies the comments raised during pre-application consultation for the proposed Development on issues relating to design, and explains how these comments have been addressed.
10. The Design and Access Statement should be read in conjunction with **Chapter 3** of the **EIA Report** of which provides a detailed description of the final layout of the proposed Development (i.e. the culmination of the design development process). The **EIA Report** also presents the Environmental Impact Assessment (EIA) undertaken in connection with the proposed Development.
11. The Design and Access Statement should also be read in conjunction with the **Pre-Application Consultation (PAC) Report**. This gives details of the preapplication consultation undertaken for the proposed Development, the comments made during the consultation, the changes made to the proposal as a result and the justification for the decisions taken as a result of this consultation.

2 Site selection

2.1 Locational policy and guidance

Scottish Planning Policy (SPP)

12. SPP paragraph 161 provides that planning authorities should set out in their Development Plan a spatial framework identifying those areas that are most likely to be suitable for onshore wind energy developments as a guide for developers. The approach to be adopted for the preparation of these spatial frameworks is set out in Table 1 of SPP and is reproduced below.

Table 1: SPP Spatial Frameworks (Table 1 of SPP)

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.		
National and international designations: <ul style="list-style-type: none"> 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. 	Other nationally important mapped environmental interests: <ul style="list-style-type: none"> areas of wild land as shown on the 2014 SNH map of wild land areas; carbon rich soils, deep peat and priority peatland habitat. 	Community separation for consideration of visual impact: <ul style="list-style-type: none"> an area not exceeding 2 km around cities, towns and villages identified on the local development plan with an identified settlement envelope or edge. The extent of the area will be determined by the planning authority based on landform and other features which restrict views out from the settlement.
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.		

Dumfries & Galloway Council (DGC) and East Ayrshire Council (EAC) spatial frameworks

13. The spatial framework for Dumfries & Galloway is set out in Map 8 of the Dumfries & Galloway Local Development Plan 2 (DGLDP2), which was adopted in October 2019. The spatial framework has been prepared in accordance with the criteria set out in Table 1 of SPP. According to the DGLDP2 Spatial Framework Map, the proposed Development is located almost wholly in a Group 3 Area (areas with potential for windfarm development), with only very small parts of the Site considered to be in Group 2 Areas (areas for significant protection). It is understood that these small parts of the Site fall within Group 2 Areas due to mapped areas of Class 1 and Class 2 carbon rich soil, deep peat and priority peatland.
14. The spatial framework for East Ayrshire is set out in Map 12 of the East Ayrshire Local Development Plan (EALDP), which was adopted in April 2017. The spatial framework has been prepared in accordance with the criteria set out in Table 1 of SPP. According to the EALDP Spatial Framework Map, the only elements of the proposed Development that will be located within East Ayrshire is proposed Access Route A. The Spatial Framework, which is provided as Map 12 of the EALDP, identifies that the majority of this proposed access track falls within a Group 3 Area. However, small parts of the proposed access track also lie in a Group 2 Areas due to mapped areas of Class 1 carbon rich soil, deep peat and priority peatland.
15. As discussed in Section 5 of this Design and Access Statement, issues of peat and carbon rich soil have been satisfactorily addressed through the layout and design of the proposed Development such that there are no Group 2 constraints so far as the proposal is concerned. Therefore, the Site is effectively a Group 3 location (areas with potential for windfarm development) and should be regarded as such.

2.2 Site selection

16. SPR uses a range of criteria to select sites for the development of renewable energy projects. As part of the growth plans for the development of renewable energy projects, SPR is continually assessing potential sites. This pipeline of potential sites is commercially sensitive and are not considered to be alternative sites to the proposed Development.
17. Forestry and Land Scotland (FLS) assessed the National Forest Estate and identified potential sites for renewable energy development. In 2011, SPR was awarded the south west Scotland forest district to further explore the potential for renewable energy to be generated on the National Forest Estate.
18. SPR seeks to optimise the renewable energy generation derived from its sites and therefore appraises sites for a range of potential renewable energy applications. In selecting sites, the criteria used by SPR to develop commercially viable projects include the following:
 - suitable wind conditions for the installation of wind turbines;
 - solar irradiation levels;
 - potential for hydroelectric generation;
 - suitability for hydrogen production and storage;
 - availability of nearby grid connection with available capacity to accept new renewable energy generation;
 - favourable topography and access to enable the construction of projects;
 - planning policies which support the development of renewable energy;
 - avoidance of significant environmental constraints where possible on site and/ or immediately surrounding, including protected sites for conservation and heritage, protected species and their habitats and deep peatlands;
 - avoidance of the most sensitive landscapes; and
 - areas that are sparsely populated to protect the residential amenity of residential areas and households.
19. A review of the site selection requirements for the Site found the following:
 - initial desk-based studies and wind monitoring onsite suggest that there is a good wind resource available at the Site to support a renewable energy development;
 - the grid network in the south west of Scotland has been identified by SPR as suited to benefit from energy storage which would complement the operation of wind turbines;
 - it has appropriate access from the public road network for construction traffic and wind turbine deliveries, particularly for longer blades which allows consideration of larger turbines to make the best use of the wind resource;
 - there are no planning policies which, in principle, preclude wind energy or renewable energy development. As identified above, the majority of the Site is located within a Group 3 area where Scottish Planning Policy identifies that wind energy developments are likely to be acceptable subject to detailed consideration against identified policy criteria;
 - whilst no longer current policy, the Site was categorised as an “*Area of Greatest Potential*” for large typology turbines in the Dumfries and Galloway 2014 Local Development Plan spatial framework. This was a key factor in why the Site was originally selected for development by SPR;
 - it can make use of the existing forestry access tracks and windfarm access tracks for Hare Hill Windfarm to minimise environmental impacts;
 - there are no international or national statutory designations for landscape and nature conservation in, or within close proximity of the Site;
 - it can accommodate wind turbines and associated infrastructure without affecting sites designated for their natural or heritage interests;
 - the area surrounding the Site is predominantly rural in nature with a small number of isolated houses located in close proximity to the Site; and
 - visibility of the proposed Development from larger settlements such as New Cumnock, Kirkcunneil, Sanquhar and Moniaive is either limited or entirely screened by topography.

3 Site characteristics and context

3.1 Site location

20. The proposed Development is located mostly within DGC's administrative area, but with part of the Site access, proposed Access Route A, falling within the EAC administrative area. The Site itself is centred on NGR 269180, 601990 and its location is shown on **Figure 1**. A plan showing the application boundary is contained as **Figure 2**, and an aerial photograph of the Site and its surroundings are contained as **Figure 3**.

3.2 Site description

21. A detailed Site description is contained within **Chapter 2** of the **EIA Report**. The following paragraphs provide a general overview of the Site.
22. The Site is a commercial forestry plantation that forms part of the National Forest Estate and is managed by FLS on behalf of Scottish Ministers. The nearest main settlement is Kirkconnel, which lies approximately 6.8 km north east of the nearest proposed turbine location. Sanquhar is located approximately 9.8 km to the east of the nearest proposed turbine location. The nearest third party residential properties to the Site are individual isolated properties, including Dalgonar (approximately 1.8 km north east of the nearest proposed wind turbine), Shinnelhead (approximately 1.9 km south east of the nearest proposed wind turbine) and Bank Cottage / Glen Glass (approximately 2.1 km east of the nearest wind turbine). The area immediately surrounding the Site is generally of low population density. The Polskeoch property in the centre of the Site is under SPR control and will be removed from residential use during the operation of the proposed Development.
23. The Site consists of a series of ridgelines and valleys of relatively remote uplands with forest, comprising widespread coniferous plantation and some smaller areas of open moorland. As the Site has been developed as a commercial forest, there are existing borrow pits and a series of forestry access tracks present.
24. Access to the Site is currently via three U-class roads. Access to the Euchanhead forestry block is via a combination of the C128n Blackaddie Road and the U432n Euchan Water public roads. Access to the Polskeoch forestry block is via the U405N Scar Water public road. Access to the Shinnel forestry block is made via the U400N Shinnel Glen public road. All entrances to the forest blocks are currently gated. The forestry blocks are all linked by the 'Heads of the Valleys' timber haul route that runs from Colt Hill in the south of the Site to the A76 at Kelloholm.
25. The Southern Upland Way, a nationally important trail, runs through a central section of the Site. It enters near Black Hill on the southwest corner of the Site before running north towards High Countam, and then running northeast towards Allan's Cairn. From here the path twists north before following the existing forestry road down past Polskeoch Bothy, and Polskeoch, before heading east along the U405N Scaur Water public road towards Polgown.
26. The Site is not subject to any international or national landscape, built environment or nature conservation designations. Part of the Site, proposed Access Route A, is located within a Sensitive Landscape Area as identified in the adopted East Ayrshire Local Development Plan. Sensitive Landscape Areas are a local landscape designation and are areas that are considered to have particular landscape qualities that make them more sensitive to development.
27. Part of the Site lies within the Transition Zone for the Dumfries & Galloway Dark Sky Park. A Dark Sky Park is an area with exceptionally dark night skies due to low levels of artificial light pollution. In November 2009, the International Dark-Sky Association designated the Galloway Forest Park Gold Tier Dark Sky Park Status due to the exceptional quality of its night sky. The Transition Zone within which the Site is located extends within a radius of approximately 16 km of the Dark Sky Park, its purpose being to avoid any adverse lighting impacts on the quality of the dark sky within the Park. The Dark Sky Park itself – also known as the Core Zone – lies approximately 22.3 km to the south west of the Site as measured to the nearest proposed wind turbine.

3.3 Surrounding area

28. The immediate area surrounding the Site is rural in nature with land predominantly used for commercial forestry purposes and rural agriculture.

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29. The ScottishPower Energy Networks (SPEN) South West Connections Project power line runs through the Euchanhead forest block from Afton Reservoir to the west in an approximately north east direction to the Glenglass substation, located to the east of the proposed Development.
30. Two Regional Scenic Areas (RSAs) as identified in the adopted Dumfries & Galloway Local Development Plan 2 lie in the vicinity of the Site. The Thornhills Uplands RSA is located approximately 3.2 km to the east of the Site and the Galloway Hills RSA is located approximately 5.2 km to the south west of the Site, as measured to the nearest proposed wind turbine. RSAs (see Figure 4) are locally designated and are areas which are considered to be valued regionally or locally for their special scenic qualities.
31. The Site is located within an area which has extensive existing, and proposed, wind energy developments. As measured to the nearest proposed turbine, the operational Sanquhar Wind Farm (9 turbines of 130 m to tip) is located directly adjacent to the Site to the north, the operational Whiteside Hill Wind Farm (10 turbines of 121 m to tip) approximately 2.8 km to the east, and the operational Hare Hill Windfarm (20 turbines of 64 m to tip) and its extension (39 turbines of 70/91 m to tip) approximately 2 km to the north west. The consented Lorg (9 turbines of 130/149m to tip) and Sanquhar Six (6 turbines of 130 m to tip) are located immediately west and north west of the Site. The proposed Sanquhar II Wind Farm (44 turbines of 149/200 m to tip) lies immediately adjacent to the Site.

4 Design policy and guidance

4.1 Introduction

32. The siting, layout and design on the proposed Development has had particular regard to the following policy and guidance:

- Scottish Natural Heritages (SNH's) Siting and Designing Wind Farms in the Landscape V3 (2017);
- Scottish Planning Policy (SPP);
- Dumfries and Galloway Local Development Plan 2 (DGLDP2) (2019) and associated Supplementary Guidance; and
- East Ayrshire Local Development Plan (EALDP) (2017) and associated Supplementary Guidance.

4.2 SNH Siting and Designing Wind Farms in the Landscape

33. SNH (now NatureScot) have produced guidance entitled 'Siting and Designing Wind Farms in the Landscape' which seeks to guide windfarm developments towards those landscapes most able to accommodate them. The guidance also sets out windfarms can be designed to best relate to their setting and to minimise landscape and visual impacts. First published in 2009, the most recent version of the guidance was published in 2017 and includes new advice on wind turbine lighting, turbine colour and additional advice on windfarm developments in woodland.

34. The guidance reflects the advice in understanding of the key landscape and visual constraints and opportunities relevant to windfarm development. It does not refer to wider technical design considerations (such as wind speed, grid access) or to other natural heritage issues (such as impacts on birds, other wildlife and habitats) which it recognises are also of importance in relation to both siting and design.

35. The content of the guidance focuses on the landscape and visual impact of windfarms, wind turbine design and layout, wind farm siting and design, and designing in landscapes with multiple wind farms. Guidance is provided on the appropriate turbine form, size, scale, layout and on siting and design of windfarms in relation to landscape character, landscapes of scenic value, landscape pattern, landform, perspective and focal features.

4.3 Scottish Planning Policy

36. SPP Paragraph 169 sets out the criteria to be considered in the determination of energy infrastructure developments. Those of relevance to the layout and design of the proposed Development include:

- the scale of contribution to renewable energy generation targets;
- effect on greenhouse gas emissions;
- cumulative impacts;
- impacts on communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker;
- landscape and visual impacts, including effects on wild land;
- effects on the natural heritage, including birds;
- impacts on carbon rich soils;
- public access, including impact on long distance walking and cycling routes and scenic routes;
- impacts on the historic environment, including scheduled monuments, listed buildings and their settings;
- impacts on tourism and recreation;
- impacts on aviation and defence interests and seismological recording;
- impacts on telecommunications and broadcasting installations;
- impacts on road traffic;
- impacts on adjacent trunk roads;
- effects on hydrology, the water environment and flood risk; and
- opportunities for energy storage.

37. SPP Paragraph 170 provides that areas identified for wind energy developments should be suitable for use in perpetuity. It states that although consents may be time-limited that wind energy developments should nevertheless be sited and designed to ensure impacts are minimised and to protect an acceptable level of amenity for adjacent communities.

4.4 Local development plan policies

38. **DGLDP2 Policy IN2: Wind Energy** and **EALDP Policy RE3: Wind Energy Proposals Over 50 metres in Height** set out the specific development management considerations for wind energy developments in DGC and EAC respectively. These

development management considerations are broadly similar to those set out within SPP Paragraph 169, the only exception being the additional consideration that proposals will also be assessed on the extent to which they avoid or adequately resolve any potential significant adverse impact on forests and woodland.

39. The Wind Energy Development: Development Management Considerations (WED) Supplementary Guidance was adopted by DGC in February 2020 and forms part of, and has the same weight as, the DGLDP2. Its purpose is to provide further detail in support of the development management considerations in DGLDP2 Policy IN2. Similar additional guidance in support of EALDP Policy RE3 is provided in East Ayrshire's Planning for Wind Energy Supplementary Guidance, which was formally adopted in December 2017.
40. Section 3(C) of the WED Supplementary Guidance provides advice in connection with landscape and visual impacts and design of proposals. It provides in paragraph C1 that the quality of landscape is one of Dumfries & Galloway's major assets, and that the Council attaches a great importance to maintaining the quality of this landscape resource in the long-term interests of the region. It states that potential developments will be expected to demonstrate that the local landscape is capable of accommodating the specific development, without significant detrimental landscape, visual or cumulative impacts. Paragraph C4 provides that visual impacts of schemes can be minimised by use of appropriate:
- siting of wind farm, set back of turbines in relation to sensitive receptor locations (dwellings, settlements, main roads, etc) and to landform;
 - siting to avoid prominent landforms (eg. valley edges, ridges, landmark hills) and their settings;
 - size, design and number of turbines;
 - positioning of turbines in relation to sensitive receptors (e.g. nearby dwellings);
 - positioning of turbines in relation to other turbines; and
 - siting and design of ancillary buildings, power lines, access tracks etc.
41. Paragraph C14 of the WED Supplementary Guidance identifies that wind energy developments should be carefully sited to avoid particularly sensitive locations. It provides that sites may be sensitive due to:
- their prominence in the landscape;
 - the sensitivity of the locations from which they are visible;
 - their historic, cultural or recreational significance;
 - locations on prominent horizons and hillcrests or on the perimeters and outward facing slopes of plateaux and upland massifs; and
 - locations that form a significant focus of view from settlements, major routes, scenic drives and recreational routes.
42. In terms of layout, paragraph C15 of the WED Supplementary Guidance provides that development proposals should relate to the grain and pattern of the landscape and should take account of the overall landscape context and character of the area in terms of its appearance, positioning, extent and density. Paragraph C22 identifies that aviation lighting required for turbines over 150 m to blade tip may detract from local landscape character and visual amenity, for example by extending the effects of development into low light periods such as dawn and dusk.
43. Section 3(D) of the WED Supplementary Guidance provides advice in relation to the assessment of proposals in terms of their cumulative landscape and visual impacts. Paragraph D4 states that cumulative visual effects can be significant where the additional effects become overwhelming or dominant, and / or where the windfarm image becomes visually cluttered. It provides that Development can become visually dominant / overwhelming due to either turbine scale, as occurs where turbines are either high and / or in close proximity to sensitive visual receptors; or windfarm spread, as occurs where multiple or merged developments give rise to a dominating affect, such as across a sensitive skyline or encountered sequentially. Paragraph D8 identifies that developments that are concentrated in appropriate locations with similarities in layout, design and materials can create clusters with a unified appearance which appear to 'fit' within the landscape. Paragraph D11 then sets out DGC's approach for assessing cumulative impacts on patterns of development. It states that proposals will be tested with respect to a number of criteria to determine potential effects on:
- clustering/containing development, consolidating an existing pattern;
 - strategic spaces between established clusters of development;
 - set back from sensitive landscapes;
 - potential coalescence between existing / consented developments and / or clusters of development; and

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- maintain the visual distinction between areas where windfarms are a key characteristic, or on occasion a defining characteristic / 'windfarm landscapes and areas outwith them, where windfarms occur as isolated features or not at all.
44. Paragraph 2 of the WED Supplementary Guidance makes direct reference to the Dumfries & Galloway Wind Farm Landscape Capacity Study (DGWLCS) as a supportive study to the guidance and includes it as an appendix to the guidance.
45. The DGWLCS assesses the sensitivity of the landscape character types, and more locally defined character units, across Dumfries & Galloway to different sizes of wind turbine development based primarily on turbine height. The proposed wind turbines are located within the Ken unit of the Southern Uplands with Forest LCT (19a). The key findings of the DGWLCS with regard to this host LCT unit are as follows:
- the host LCT unit is one of only six units within Dumfries & Galloway identified as having some scope for very large (150 m+ to blade tip) typology wind turbines. Apart from the Eskdalemuir unit of the Southern Upland with Forest LCT unit, no units within Dumfries & Galloway are identified as having scope to accommodate wind turbines towards 200 m high to blade tip.
 - the host LCT unit is identified as being of high-medium underlying landscape and visual sensitivity to very large (150 m+) typology turbines. This is the lowest level of underlying landscape and visual sensitivity to this typology of turbine identified within the study.
 - the host LCT unit is identified as being of medium-low sensitivity in respect of landscape values overall. This is the second lowest level of landscape value overall identified in the study. Only three units were identified as having a low level sensitivity, of which only one (18a Stroan unit of the foothills with Forest LCT) is identified as having opportunities for very large (150 m+) typology turbines.
46. The DGWLCS identifies key opportunities for new wind energy developments within the host LCT unit as being:
- the expansive scale of this character type and its predominantly simple, gently rolling landform.
 - the sparsely settled nature of this character type and its distance from more populated lowland areas.
 - extensive commercially managed forestry which covers the majority of the character type which precludes a strong sense of wildness.
47. The DGWLCS identifies the key cumulative issues and design constraints to new wind energy developments within the host LCT unit. Those of relevance to the Site are as follows:
- the potential creation of a concentrated band of windfarm development visually linking windfarms located in the Ken unit with the Blackcraig and Mochrum wind farms located in the Stroan unit of the Foothills with Forest (18a) to the south.
 - additional development located in the Ken unit which could exacerbate impacts on adjacent Narrow Wooded Valleys (4) and Upland Glens (10) LCTs and effects on the Southern Upland Way and other recreational routes.
 - while the sparsely settled nature of the Southern Uplands with Forest (19a) reduces visual sensitivity, cumulative effects would arise on more elevated views from popularly accessed hills such as Cairnmore of Carsphairn and from the Rhinns of Kells as well as from the Southern Upland Way and the Striding Arches in the Ken unit.
 - the arc of hills which includes Benbrack, Cairn and Blackcraig which form a key focus at the head of the Upper Glen (10) of the Dalwhat Water within the Ken unit. The presence of the Southern Upland Way and the landmark sculptures of Striding Arches add to the sensitivities of this area.
 - the proximity of the dramatic sculptural hill of Cairnmore of Carsphairn to parts of the Ken and Carsphairn units.
 - occasional areas of more complex landform and deeply incised valleys, some of these masked by extensive forest. The Logan Water Valley, the upper water of Ken Valley and Lorg Glen and dramatic open hills at the head of the Ken unit are of increased sensitivity.
 - potential for cumulative effects to arise with additional windfarm development sited within the Ken, Carsphairn and West Langholm landscape units.
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5 Scoping and consultation

5.1 Scoping

48. SPR previously submitted a scoping opinion request to Scottish Ministers for a windfarm development on a similar site to the proposed Development in 2013. This request was made under regulation 7 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000. The Scottish Ministers scoping opinion was subsequently received in October 2013.
49. The 2013 scoping opinion specifically related to a proposed 31 turbine windfarm of 145 m maximum height, with a generating capacity of up to 93 MW. Scottish Government advice provides that if the proposal changes substantially prior to application submission, the applicant may wish to consider the need to request a new scoping opinion. Whilst the proposal has changed substantially since receiving the 2013 scoping opinion, no further formal scoping opinion has been sought.
50. Despite the wealth of scoping and EIA baseline information available from the 2013 scoping opinion and recent scoping exercises undertaken for neighbouring developments, SPR deemed it prudent to request new scoping advice on the proposed Development in February 2020. However, acknowledging the amount of baseline information already known about the Site this request was made directly to consultees rather than to Scottish Ministers. The Energy Consents Unit (ECU), who will administer this application for consent on behalf of Scottish Ministers, were consulted and confirmed the acceptability of this direct scoping approach.

5.2 Consultation

51. A comprehensive understanding of the requirements/views of consultees has been sought throughout the EIA process. This has informed the iterative design of the proposed Development. Consultation comprised public consultation, undertaken in February and July/August 2020, and consultation with a range of statutory bodies, non-statutory bodies, community councils and landowners.
52. Public consultation in respect of the proposed Development was also undertaken with the local community in the form of public information days (PIDs). These PIDs were held in February 2020 in order to inform the local community of the proposed Development and the progress of environmental studies and turbine layout. A further online information event was held in July - August 2020 to provide a project update.
53. Further information on the consultation process and how this has helped shape the proposed Development is contained in the **Pre-Application Consultation Report** that is submitted in support of this application.

6 Design principles

6.1 Technical and environmental constraints

54. This chapter discusses the key design issues and constraints relevant to the proposals and the way they have been addressed in the layout and design of the proposed Development.

Turbine scale

55. Taller turbines produce more electricity as wind speed and thus energy yield increases with height above ground level. Bigger rotors also capture the wind more efficiently and produce more electricity per turbine.
56. It was considered that taller wind turbines (over 150 m to blade tip) would be suitable to this Site, therefore maximising the contribution that the proposed Development can make towards the Scottish Government's net zero greenhouse gas emissions targets and associated renewable energy targets.
57. The necessity for taller wind turbines is recognised in paragraph 23 of the Scottish Government Onshore Wind Policy Statement (OWPS) (2017), which states that the Scottish Government "*acknowledge that onshore wind technology and equipment manufacturers in the market are moving towards larger and more powerful (i.e. higher capacity) turbines and that these by necessity will mean taller towers and blade tip heights*". Paragraph 25 of the OWPS continues that the Scottish Government "*fully supports the delivery of large wind turbines in landscapes judged to be capable of accommodating them with significant adverse impacts.*"
58. As demonstrated in the landscape and visual impact assessment in **Chapter 7** of the **EIA Report**, it is considered that the upland landscape character of the Site can accommodate taller turbines. In addition to maximising generational capacity, the use of taller turbines also has a number of secondary environmental benefits. Compared to smaller wind turbines the amount of concrete per MW produced would be less, and similarly the length of new access track required per MW produced would also be significantly less. Fewer but taller wind turbines would also help to minimise forestry felling by increasing the rotor clearance above the tree canopy and thereby reducing the impacts upon existing forestry operations.
59. Furthermore, the supply of smaller wind turbines across Europe is already reducing, due to lack of demand as manufacturers are recognising the world market is shifting to larger machines and development work focussing on larger turbines to secure higher yields. The onshore wind industry is therefore experiencing a significant reduction in supply of smaller wind turbines due to lack of demand from mainland Europe, where the tendency is to install wind turbines at higher tip heights (e.g. 180 – 250 m to blade tip). Therefore, it is highly unlikely that a range of smaller turbines (e.g. 150 m) would be available at competitive prices by the time the proposed Development is ready to be constructed.
60. The final selection of the turbine tip height of up to 230 m was considered to represent the optimum balance in terms of energy yield, landscape, and the scale of turbine that is currently capable of being transported to site.

Wind analysis

61. Wind analysis and efficiency modelling has been carried out by SPR to identify the areas of the Site most likely to produce the highest yields and therefore the best generational output.
62. For turbines to work as effectively as possible, they must be suitably spaced relative to the predominant wind direction. If they are too close together in this direction, the wake effects from the wind turbines located on the upwind edge of the array will create turbulent air for the next row and so on through the array, reducing overall energy output. Conversely, if wind turbines are located too far apart the opportunity to maximise the capacity and, thereby, electricity generation from a site is reduced.
63. Consideration of windfarm developments adjacent to the Site, including Lorg, Sanquhar, Sanquhar II and Whiteside Hill, was incorporated into the Site design to ensure that the proposed Development would not overly compromise operation of any other site.

Topography

64. The layout of the proposed Development has been strongly dictated by the topography of the Site. The Site is very steep in places and use of the steepest areas of the Site (greater than 12 % slope gradient) for infrastructure has been avoided where possible. Slope stability has been taken into consideration to understand whether infrastructure could be located within

certain areas of the Site. Areas where slope stability was identified as an issue were deemed to be unsuitable for infrastructure have been avoided for turbine and infrastructure placement.

Landscape

65. As identified in Section 4 of this Design and Access Statement, SNH's Siting and Designing Windfarms in the Landscape provides a framework for the consideration of key landscape and design issues for windfarm developments. This guidance is also specifically referenced in the DGWFLCS. The key design objectives are considered to be:

- the proposed layout of wind turbines should present a clearly structured, balanced arrangement which relates to: the underlying landscape characteristics of a similar scale and/or prominence; landform composition; and the key characteristics of the landscape of the Site and surrounding area;
- the layout design should respond to the key landscape features, forestry and grain of local topography;
- the design of a windfarm composition from key viewpoints and sequential routes should be an overriding factor in the windfarm's composition, in order to achieve a simple balanced composition in terms of the overlapping relationship between turbines, skyline effects and back-grounding;
- careful consideration is needed in the siting and design of windfarms, and between windfarms, to avoid confusing the sense of visual perspective;
- when designing with multiple windfarms with an established pattern, compatibility of design is very important within an area to limit visual confusion and reinforce each development seeking to improve the overall pattern and character of development;
- where windfarms are proposed within or near woodland, the effect on the forest is an important consideration in the design of the windfarm and the redesign of the forest management plan itself;
- attention should be given to other design issues, including: turbine colour, size and siting; the design and form of the substation/control building; and the alignment of access tracks to ensure these proposed features relate to the key characteristics of the landscape; and
- with regard to aviation lighting, effects are likely to be more Significant in areas with less artificial lighting. Lit turbines may lessen the contrast between developed and undeveloped areas.

66. The way in which the layout and design of the proposed Development achieves these objectives are illustrated in **Figure 5** and summarised below:

- design compatibility with the operational Sanquhar and Whiteside Hill windfarms near the Site, as well as the consented Lorg and Sanquhar Six, as the proposed Development has been designed to be read in the context of the operational and consented windfarms. It has also been designed in combination with the adjacent proposed Sanquhar II;
- landscape context of turbines located along the ridges reflecting the topography and design compatibility with other operational windfarms but most are located just off of the highest points on the summits to reduce impacts on adjacent glens;
- turbines at 230 m to tip for compatibility of design with the scale of proposed Sanquhar II and ensuring the proposal is commercially viable and taking advantage of the available wind resource as efficiently as possible;
- adjustments in turbine locations to increase offset from some of the nearest residential receptors, users of the Southern Upland Way and those visiting the Striding Arches sculptures;
- turbines are set back from the closest residential properties and nearest receptors within the valleys and views are generally screened from most of the turbines;
- approximately half of the turbines (T3, T7, T9 -T11, T13, T14 - T16, T20 and T21) are located within or adjacent to existing or planned open areas within the forestry, with most of the other locations either within forestry which has only recently been replanted or due to be felled in the next felling phase;
- visible aviation lighting embedded mitigation to include dimming option to 200cd in good visibility as well as proposed aircraft detection lighting system;
- the track layout makes use of around 20 km of existing tracks where possible (to be upgraded for the delivery of wind turbine components), to minimise the requirement for new tracks within the Site;
- location of substation compound set partially within an old borrow pit on the edge of the forestry areas to minimise effects on landscape fabric and within a visually discreet position to limit visual impacts with colour and finish of substation/control building to be visually recessive; and
- new recreational features within the Site including new circular route from the Southern Upland Way and interpretation of cultural heritage features.

67. Overall, the layout and design of the proposed Development mirrors the undulating local landform with a similar design relationship to other windfarms in the Southern Uplands. The design guidance for the Ken unit LCT 19a Southern Uplands with Forestry within DGWFLCS has been influential in the development of the project and the scheme largely follows the guidance.
68. In relation to the pattern existing wind energy developments, the proposed Development has been designed to be seen as part of a larger cluster with the existing Harehill, Sanquhar and Whiteside Hill wind energy schemes. Although it would extend this group southwards, appropriate separation would be maintained between this extended group and the Windy Standard group of windfarms which is located further east. Whilst the scale of the proposed turbines compared to the existing Harehill, Sanquhar and Whiteside Hill schemes would be noticeable from parts of the Southern Uplands Landscape Character Types, there is already a variation of scale of turbines within this cluster and hence it is considered that this scale disparity can more easily be accommodated.

Peat and Carbon Soils

69. SNH's Carbon and Peatland 2016 Map (SNH, 2016) shows the Site to be partly located within Class 1 and 2 Priority Peatland Habitat.
70. Site visits have confirmed the presence of peat and peatland habitats. However, peat probing and habitat surveys undertaken in 2013 and 2020 show that whilst peat is found across parts of the Site, it is mostly shallow peat, with areas of deeper peat being limited in distribution across the Site. Areas of deeper peat occur along on the route for Access Route A, where roads could be floated across them. Deeper peat also occurs in pockets on the central part of the Polskeoch Forest block and other shallow slope areas but are located in forested areas where existing forestry activity is likely to have already impacted on the quality of the peat resource. Further details on peat depth on the Site are presented in **Technical Appendix 10.2** of the **EIA Report**.
71. A review of the peat depth data and habitat mapping, in conjunction with slope gradients, allowed areas of deep peat (typically greater than 2.5 m) and those areas of less modified peat to be avoided where possible through the evolution of the design. Where possible, proposed wind turbines and site infrastructure would be located within areas of peat less than 1 m deep. No turbines are located within Class 1 or Class 2 priority habitat, although some sections of the proposed new access track are located within Class 1 and 2 habitats, as illustrated on the SNH Carbon and Peatland map. However, as the peat depth and quality are variable, the layout of the scheme has focused on keeping the impacts and loss of the best quality peatland habitats to a minimum.
72. The proposed Development has also been designed to avoid any areas of which may be subject to peat slide risk. The ground condition factors that were considered in the design of the proposed Development were:
- identification of peat depths in excess of 1.5 m – to minimise incursion, protect from physical damage, minimise excavation and transportation of peat, reduce potential for peat instability and minimise potential soil carbon loss;
 - identification of slope angles greater than 4° - to minimise soil loss and potential instability; and
 - avoidance of areas where initial peat stability concern was identified where possible – to avoid areas with possible instability issues and associated indirect effects on surface water.

73. Further details of peat slide risk are provided in **Technical Appendix 10.1** of the **EIA Report**.

Ecology and ornithology

74. Ecological surveys have been carried out across the Site, including a Phase 1 habitat survey, a National Vegetation Classification (NVC) Survey and protected species surveys (including badger, otter, water vole, pine marten and red squirrel). Sensitive ecological features, including habitats present within the Site and species which use the Site and appropriate buffers, have been avoided. Of most significance were areas of Annex 1 peatlands and more sensitive NVC communities; these areas have been avoided where possible. In addition, the recommended habitat standoff distances from blade tip swept area to key habitat features have been incorporated into the design to reduce potential collision risk to bats.
75. Areas with potential to be Groundwater Dependent Terrestrial Ecosystems (GWDTEs) were also examined. They were found to be limited in extent across the Site and mainly confined to the upland moorland areas and adjacent to watercourses. Areas of high potential for GWDTEs have been avoided by Site infrastructure where possible.

Hydrology and hydrogeology

76. In accordance with good industry practice, a 50 m buffer zone has been applied around all watercourses and waterbodies on the Site for wind turbines and crane pads. This reduces the risk of runoff and water pollution entering watercourses. In some cases, the use of existing tracks, which are already less than 50 m to a watercourse, have been identified as the best design option for minimising the need for, more impactful, new tracks. Watercourse crossings have been minimised as far as possible; and where possible, existing crossings would be used. Existing culverts may be upgraded or replaced.
77. Publicly available data on private water supplies were obtained from DGC and identified as a potential constraint to development. A 1 km radius of the Site boundary to any Private Water Supplies was established and wind turbine and infrastructure placement avoided within these areas where possible.

Cultural heritage features

78. Non-designated heritage assets were identified within the Site, which mainly relate to agricultural settlement and land division, and probably date to the post-medieval period. These features have been avoided with the inclusion of appropriate buffers as far as possible. SPR has also incorporated some of the heritage assets into the proposed Development by proposing to improve access and provide information boards for a number of features close to the Southern Upland Way, including Allan's Cairn and the Colt Hill Striding Arch.

Noise amenity

79. For the purposes of early constraints mapping, avoidance buffers of 800 m were applied to third party residential properties in the vicinity of the Site. These buffers were further refined (increased) during the design process based on expert noise advice and consideration of the cumulative noise baseline. Using the background noise measurements from published data sources including other windfarm applications, noise modelling was undertaken for the proposed turbine layout at various stages of the design process, to predict the likely sound level which would result from the proposed Development at nearby residential properties.
80. The difference between measured background noise levels and predicted noise levels needs to be compliant with ETSU-R-97: 'The Assessment and Rating of Noise from Wind Farms' to avoid a significant impact. Applying design criteria in accordance with ETSU guidance ensures that no exceedances of acceptable operational noise levels would occur for the proposed Development in isolation or in accumulation with other nearby built, consented or currently proposed wind energy developments.

Recreational routes

81. A number of paths and recreational routes including one of Scotland's Great Trails, the Southern Upland Way, cross or pass through the Site. A minimum standoff distance of 100 m has been applied between wind turbines and the Southern Upland Way. Mitigation measures in the form of an alternative SUW route and improved link to the Colt Hill Striding Arch have also been incorporated into the operational design.

Shadow flicker

82. Shadow flicker is an effect that can occur when the sun passes behind the rotor of a wind turbine and casts a shadow over neighbouring properties. When the turbine blades rotate, the shadow moves across the ground. Where the shadow of a moving wind turbine blade passes over a small opening (such as a window), briefly reducing the intensity of light within the room, it may appear to flicker on and off. Shadow flicker effects occur to properties situated within 130 degrees either side of north and within ten rotor diameters of a wind turbine.
83. The layout of the proposed Development has been designed to avoid any potential shadow flicker effects from occurring, with no residential properties located within 130 degrees either side of north and within ten rotor diameters of any proposed wind turbine locations. Adequate separation distance between the proposed wind turbines and residential properties has also been allowed to take into account the requested 50 m micro-siting allowance for wind turbines sought in this application.

Forestry

84. The commercial plantations of the National Forest Estate, and FLS's existing forestry management plans for felling and planting, have been considered in the design of the proposed Development. Forestry forms an integral part of the proposed Development as some trees would need to be felled ahead of currently planned plantation felling around infrastructure positions to allow for construction of the proposed Development. A Forest Design Plan (see **Technical Appendix 3.2** of the

EIA Report) has been developed to quantify the felling and restocking requirements, as well as any residual need for compensatory planting, in compliance with the Scottish Government policy on control of woodland removal.

85. The existing felling plan is such that a large number of the turbines are able to be 'keyholed' into the existing / proposed young forestry, with only a limited number of turbines requiring older coupes to be felled. This means that out of schedule forestry felling has been kept to a minimum.

Telecommunications

86. Consultation with Joint Radio Company Ltd (JRC), OFCOM and BT raised no issues which could have potentially affected the proposed Development.

Infrastructure

87. ScottishPower Energy Networks (SPEN) have recently built a 132 kV overhead power line through the Euchanhead forestry block, as part of their South West Scotland Interconnector project. Glenglass substation was also constructed as part of this network upgrade. The Energy Network Association recommends a 3 x rotor diameter standard separation from such a powerline to prevent excessive wind turbulence. Wind turbines at the proposed Development are located closer than this recommended distance. However, computer modelling of potential wind turbulence demonstrated that turbulence would increase by less than 1%. This is not considered to be a significant amount and has been agreed as acceptable by SPEN.

7 Design evolution and final design

7.1 Design iteration process

89. SPR has been investigating the potential for a renewable energy development in this area since 2011. Initially the proposed 'Euchanhead' project consisted of a larger landholding covering an additional forest block (Corserig) to the north of the current Site as per **Figure 6**. However, following environmental surveys the Site now comprises a smaller area confined to 2,389 ha within the Euchanhead and Polskeoch/Shinnelhead Forest blocks.
90. SPR commissioned ecological and ornithological surveys of the original site area, which commenced in 2012. Data from these studies plus additional desk based environmental studies fed into a 31 turbine, 145 m blade tip layout that was presented in a Scoping Report submitted to the ECU in 2013. The 2013 Scoping layout included the Corserig area, and the access to the Site from the A76 would have been through Corserig Forest. SPR then took some time to work on the optimisation of the project whilst considerations around access and the challenging onsite topography were considered.
91. Following a review of all work undertaken to date, in 2019 SPR refined the site area to the Euchanhead and Polskeoch/Shinnelhead Forest blocks only. The removal of the northern-most forestry block which is the closest to Kirkconnel and Sanquhar was designed to reduce impacts on these communities.
92. A further direct Scoping exercise with stakeholders was undertaken in February 2020 on a revised scheme covering the Euchanhead and Polskeoch/Shinnelhead Forest blocks. This featured a 20 turbine scheme, with turbines 225 m to blade tip. The scheme incorporated the significant turbine technology improvements which had occurred over the intervening period since 2013 and, with advances in energy storage technology, now incorporated an energy storage facility.
93. The proposed layout and site boundary were further refined during the EIA process as site-based surveys were carried out and following consultation with consultees, in the form of responses to the direct scoping exercise, direct consultation with consultees and discussions with the local community. Information collected during this stage of the design firstly fed into a 'Design Chill' layout of 20 turbines at 230 m, and two alternative accesses from the A76. The Design Chill layout enabled the EIA and SPR technical teams to undertake further studies and surveys and refine further the layouts including aspects such as borrow pit locations and access track alignments.
94. Following detailed review, a final 'Design Freeze' or 'application layout' has been developed which forms the basis of this application for consent. The proposed application boundary has been revised to include the residential property of Polskeoch, which now forms part of the Site. As a consequence of the revision, further noise modelling has allowed the number of turbines to increase by one (to 21) between the design freeze and design chill layouts. There have also been a number of small changes including turbine location refinement in response to survey findings, alignment of roads and selection of borrow pits and substation and construction compound locations. The final design is based on a full understanding of the technical and environmental constraints as discussed in the preceding section. With this information, the final layout also comprises features to enhance the Site, including a Habitat Management Plan and enhanced access for recreation.
95. A summary of the design evolution and iterations, and the reasons for the changes and design decisions is presented in **Table 2**. **Figure 6** also illustrates the four layouts described above and visually illustrates how the design and Site boundary have evolved through the design stages of the EIA process. **Figure 7** shows the application layout along with all the associated infrastructure.

Table 2: Description of the design evolution stages

Design stage	Turbine numbers	Tip height	Layout capacity	Comments and reasons for design amendments
Initial layout (2013 Scoping Report)	31	145 m	77 MW	Considered to be the maximum case scenario in terms of generation using technology available at the time, whilst meeting noise and other desktop constraints. Included an additional parcel of land to the north of the Site.

Design stage	Turbine numbers	Tip height	Layout capacity	Comments and reasons for design amendments
1 st iteration (2020 Scoping exercise)	20	225 m	100 MW + 25 MW energy storage	The 2020 Scoping layout was informed by preliminary landscape studies and development/EIA work previously undertaken, which advised that there is scope to deploy circa 200 m tip height turbine typology on the site. There are fewer, larger turbines proposed for the site which take advantage of advances in turbine technology and generation, but cumulative considerations also limit the capacity of the site. An energy storage facility has also been included on the site.
2 nd iteration (EIA studies / Design Chill)	20	230 m	120 MW + 30 MW energy storage.	<p>'Design Chill' layout which was based on the emergence of environmental constraints from baseline studies and in response to feedback from consultees and the local community. Site infrastructure was developed including options for substation, borrow pit and access track locations. Consideration of an alternative site access off the A76 was included with a view to using SPR's existing Hare Hill Windfarm access tracks as much as possible.</p> <p>Consultation with the main wind turbine manufacturers identified that a 5 m increase would significantly increase the number of standard turbine options available.</p> <p>Initial landscape advice suggested that this could be accommodated without disproportionate change to predicted L&V effects</p>
Application layout	21	230 m	126 MW + 31.5 MW energy storage.	<p>'Design Freeze' layout which was based on the detailed examination of landscape views at key receptor locations and other detailed studies, such as habitat surveys, peat depth investigations and surveys for groundwater dependent terrestrial ecosystems (GWDTE).</p> <p>Further noise modelling following the inclusion of the Polskeoch property allowed an increase in turbine numbers from 20 to 21.</p> <p>Site infrastructure (access tracks and borrow pits) and locations of the substation, construction and maintenance compound and energy storage facility location were also amended following detailed on-site investigations and walkover surveys. This layout includes two potential access routes to the site from the A76.</p> <p>A further feature of the final layout is improving access to the Site for recreation, including proposals to improve access to the Striding Arch near Colt Hill, enhancement of archaeological features within the Site and improvements to the Southern Upland Way and the development of a Habitat Management Plan to improve modified peat habitats.</p>

101. Careful consideration was given throughout the design iteration process to the location of the various ancillary components of the proposed Development, including the cable routes, borrow pits, substation compound options and the access tracks within the Site. For example, small, localised areas of deeper peat have been avoided wherever possible and the number of watercourse crossings has been minimised.

102. The access points to the Site are shown on **Figure 7**. The design allows all abnormal loads e.g. turbines and all construction traffic to access the Site, as described in Section 8 of this Design and Access Statement. The onsite access tracks have been designed to use existing forest tracks as far as possible; whilst minimising cut and fill requirements in order to reduce the amount of ground disturbance, amount of material required for construction, loss of sensitive habitats and landscape and visual effects, particularly during construction. All access tracks require to be designed to avoid excessive gradients to aid the safe usage of the tracks and delivery of large turbine components in particular.

7.2 Final layout design

103. This iterative design process has culminated in the confirmation of the 21 turbine scheme, based upon a 230 m to blade tip turbine model, as the final layout for the proposed Development. The Development layout, together with all other proposed infrastructure, is shown in **Figure 7**. A full description of this layout is presented in **Chapter 3** of the **EIA Report**. Photomontages and wireline visualisations of the proposed layout are provided in **Volume 3b of the EIA Report**.

8 Access

8.1 Access route

104. It is proposed that the wind turbine components would be delivered to King George V (KGV) Docks in Glasgow, or Port of Ayr. Both proposed ports are regularly used for wind turbine delivery and the routes leading from the ports have been assessed in detail to ensure that they can accommodate delivery of the components to the proposed Development..
105. A preliminary Route Survey Report has determined that, based on the wind turbine components considered, transport loads from KGV will follow a predetermined route which involves exiting KGV docks onto Kings Inch Drive, before joining the M8 eastbound. Abnormal loads would merge onto the M74 southbound to junction 5, before exiting the M74, navigating the roundabout and re-joining the M74 northbound, before merging back onto the M8 westbound. The M8 then merges with the M77, which in turn then merges with the A77. At the roundabout with the A76, abnormal loads will then continue south on the A76 before reaching the site access junction. The turbine transport loads would be moved from the port of entry (KGV) to the Site under escort.
106. If turbines are delivered to the Port of Ayr, then the transport route to Site would exit the docks onto Wagon Road, before joining Allison Street. At the roundabout with the A719 the loads would turn left onto the A719 and continue until the roundabout with the A77, where the loads would turn left onto the A77. Abnormal loads would continue along the A77 for approximately 4 miles to the roundabout with the A78, whereby loads would turn right and continue onto the A77. Abnormal loads would then continue along the A77 until the roundabout with the A76 on the outskirts of Kilmarnock, where loads would join the A76 and progress to the Site entrance. The turbine transport loads would be moved from the port of entry (Port of Ayr) to the Site under escort.
107. Following consent, a detailed access assessment would be undertaken which would identify any localised upgrades along the access route in consultation with the relevant authorities.
108. Two potential access routes to the Site from the A76 have been identified as being suitable for the delivery of wind turbine blades and other components, as well as general construction traffic. These are referred to as Access Route A (via Hare Hill Windfarm), and Access Route B (Blackaddie Road / U432N), and are described below.
109. Both potential access routes form part of the application, but following further feedback gained during the planning process, results of detailed engineering design and ground investigation studies, and a review of commercial considerations, only one option will be used for abnormal load access to the site. Should Access Route A be constructed and used for abnormal load delivery, Blackaddie Road may still be used for material delivery and staff access during construction, and for operation and maintenance access once the Site is operational.

Access Route A

110. This route makes use of the existing SPR Hare Hill Windfarm access junction from the A76 and existing site roads as far as practicable, before approximately 8.2 km of new access track would be constructed running from the existing Hare Hill Windfarm south past Laglass Hill and Blackcraig Hill, before turning east at Greenlorg Hill and entering the Site near Graystone Hill. Some upgrading of the existing Hare Hill Windfarm track would be required to allow for larger components to access the Site.

Access Route B

111. This route accesses the Site from the A76 via a combination of the C128n Blackaddie road and the U432n Euchan Water public roads. It enters the Site close to Glenglass cottage.
112. The existing access route to Site is in good condition, having been widened for other windfarms and forestry operations and is generally suitable for very large turbine component deliveries. It is not expected to have to carry out any significant engineering works to the public highway along this route; however, there may be a couple of sections which require minor upgrades or limited repair works within the existing road corridor.
113. The location of both access points are shown on **Figure 7**. Further details of the access routes are found in **Chapter 12: Traffic and Transport** of the **EIA Report**.

8.2 Internal access tracks

114. Approximately 32.6 km of new onsite access tracks and approximately 19.8 km of upgraded track would be required to provide access to the wind turbines, control building compound, substation, construction compounds and borrow pits.
115. Tracks would have a typical 5 m running width, with isolated wider sections on bends and at junctions. Where it is not possible to avoid areas of deepest peat, floating track construction would be used. It is expected that there would be approximately 4.8 km of floating track in locations where consistent peat depths of between 1 – 1.5 m or greater are identified along with shallow topography in the area (below 5 %).
116. Passing places have been incorporated into the proposed Development design to enable turbine delivery and general construction vehicles to pass each other safely whilst utilising the onsite access tracks. Locations of passing places would be established during construction works. The access tracks would be retained throughout the operational life of the proposed Development to enable maintenance of the turbines and replacement of any turbine components.

8.3 Public access – pedestrian

117. A number of paths open to the public including rights of way, core paths and the Southern Upland Way cross the Site, predominantly following along the routes of the existing logging tracks within the Site. The proposed Development would make use of the existing track network for deliveries for construction and would, in places, require temporary diversions to allow construction works to build new access tracks to provide access to turbine locations.
118. In addition, the Site is subject to general rights of public access under the Land Reform (Scotland) Act 2003.
119. Public access to the proposed Development would be restricted during the construction of the proposed Development for obvious health and safety reasons due to construction activities, the movement of heavy plant and the erection of turbines. In order to maintain public safety, SPR proposes that temporary diversions will be put in place if required and fences, signage and / or barriers and security personnel will be used as required to:
- segregate vehicles from pedestrians;
 - restrict or control access to members of the public where this is necessary for public safety or Site security;
 - avoid construction encroachment on areas containing crops or livestock; and
 - indicate rights of way, safe walking routes or landowners' boundaries.
120. SPR is proposing to enhance several aspects of the Site by improving local access and recreation opportunities. The enhancements proposed are as follows:
- an additional route for users of the Southern Upland Way, allowing users to take an alternative route through the western edge of the forest but avoiding the operational forestry tracks, resulting in more open views across the hills. This creates a new circular route which would improve access options for visitors;
 - stone seating, using locally cut rock from the Site borrow pits, would be placed at various locations around the Site;
 - access and information boards to heritage and landscape features near to the Southern Upland Way, which would provide a description of the features and some interesting context for the Site and the surrounding area;
 - improved access and signage for Allan's Cairn with potential to include restoration subject to agreement with relevant stakeholders; and
 - improved access and signage for the Striding Arch on Colt Hill from the Southern Upland Way.
121. The proposed Development would provide information boards at several archaeological features identified on Site, such as Allan's Cairn located just east of the Southern Upland Way between T11 and T13, where the monument to covenanters is located. Members of the public would be able to access the Site on foot and make use of the access tracks under the provisions of the Land Reform Act.
122. During periods of maintenance, access by the public could be restricted depending on the nature of the maintenance activity.

8.4 Turbine access

123. Members of the public would be able to walk up to the base of the wind turbines, but it is not proposed that there would be public access into the towers. Due to health and safety reasons access to the towers would be restricted to employees of, and contractors appointed by, SPR.

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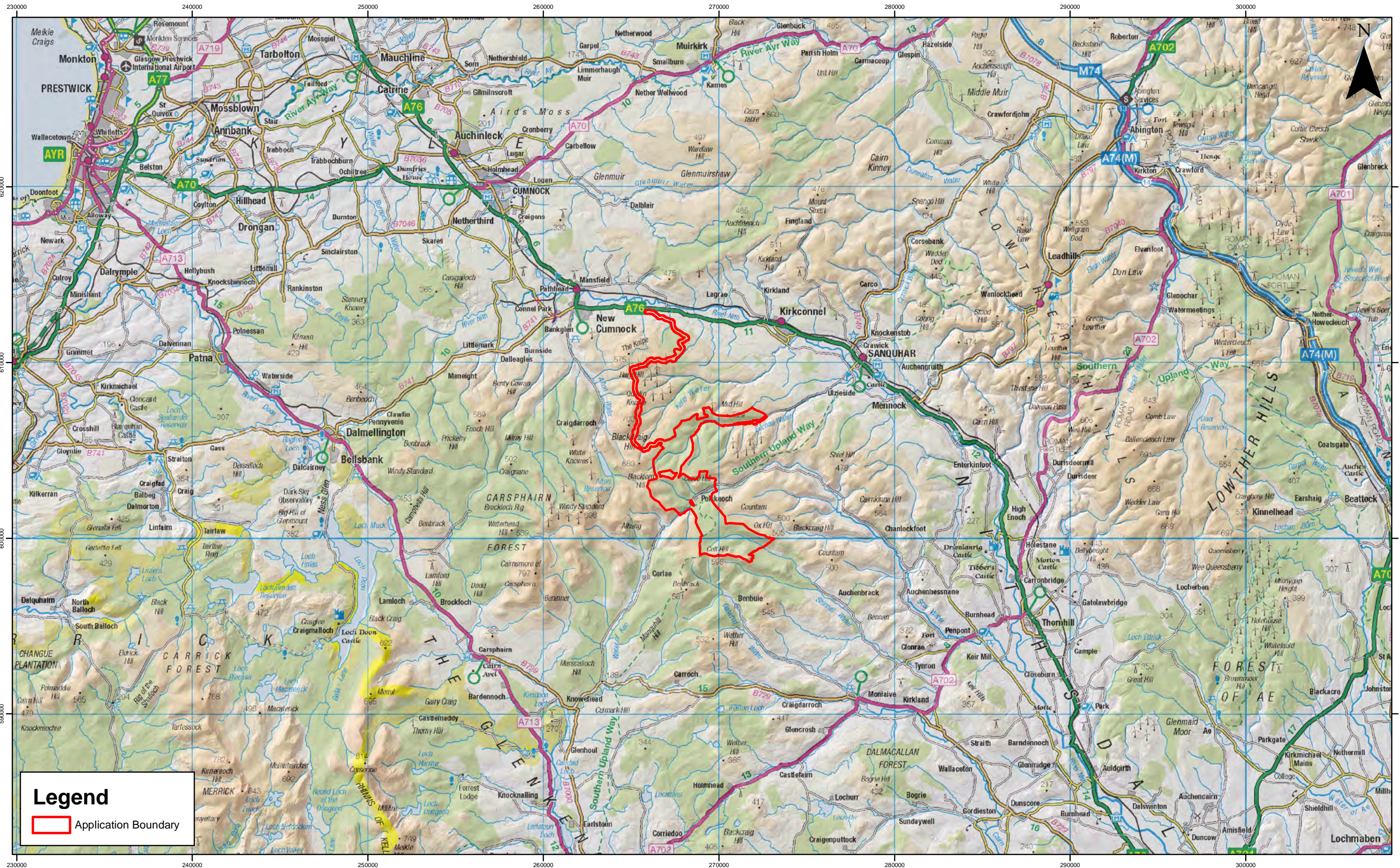
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Legend

Application Boundary



A	13/10/20	AA	Initial Issue
Rev	Date	By	Comment

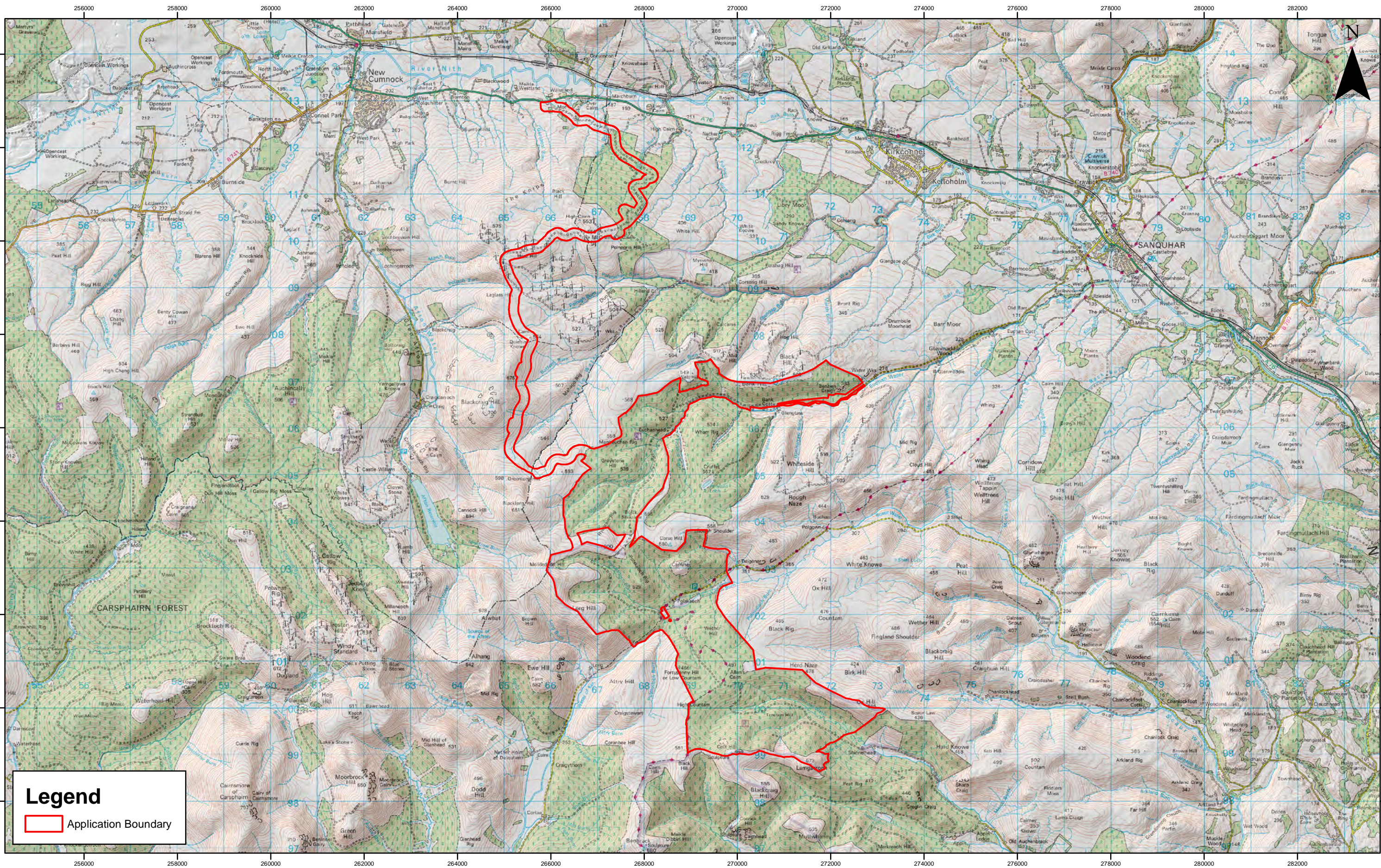
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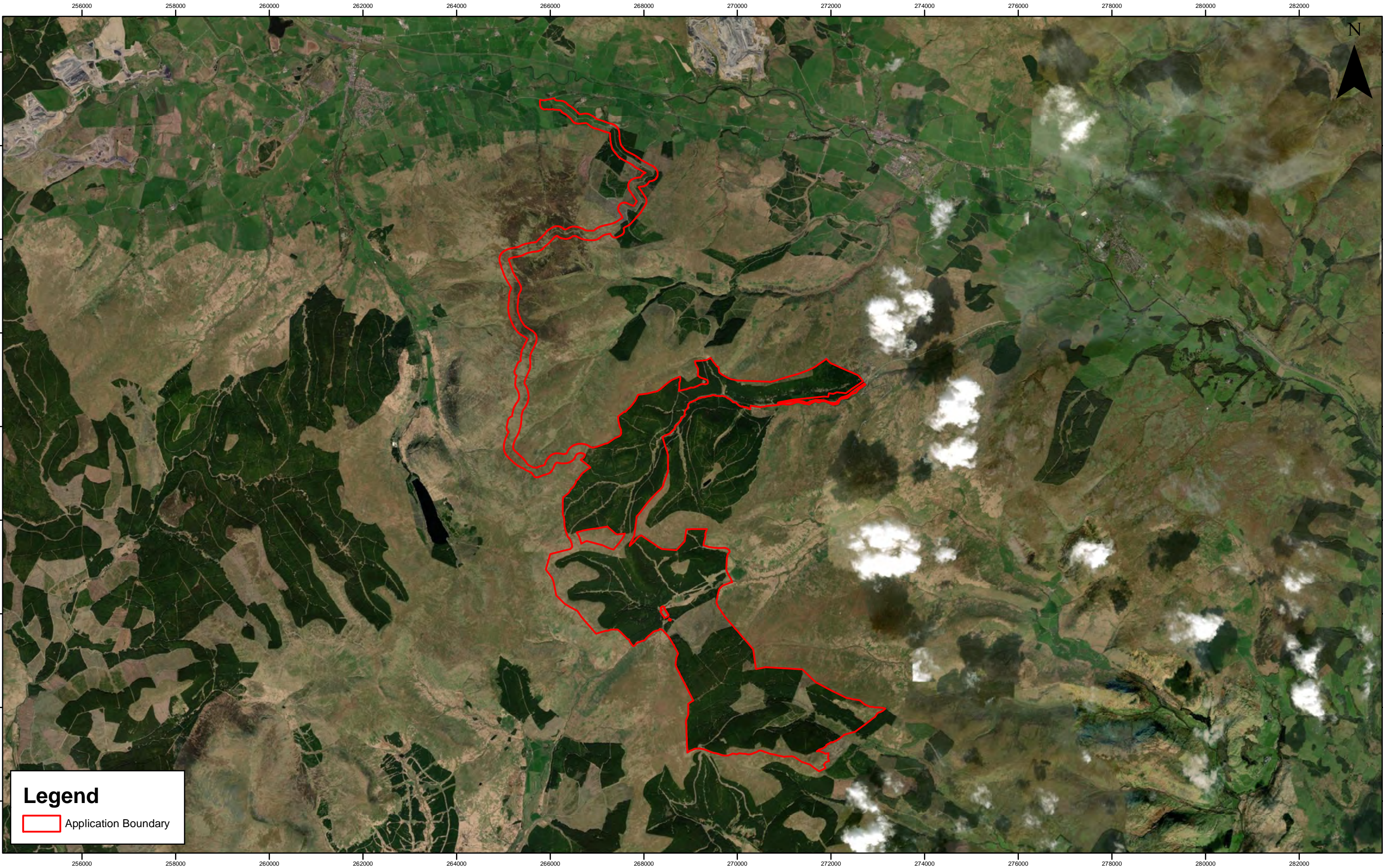
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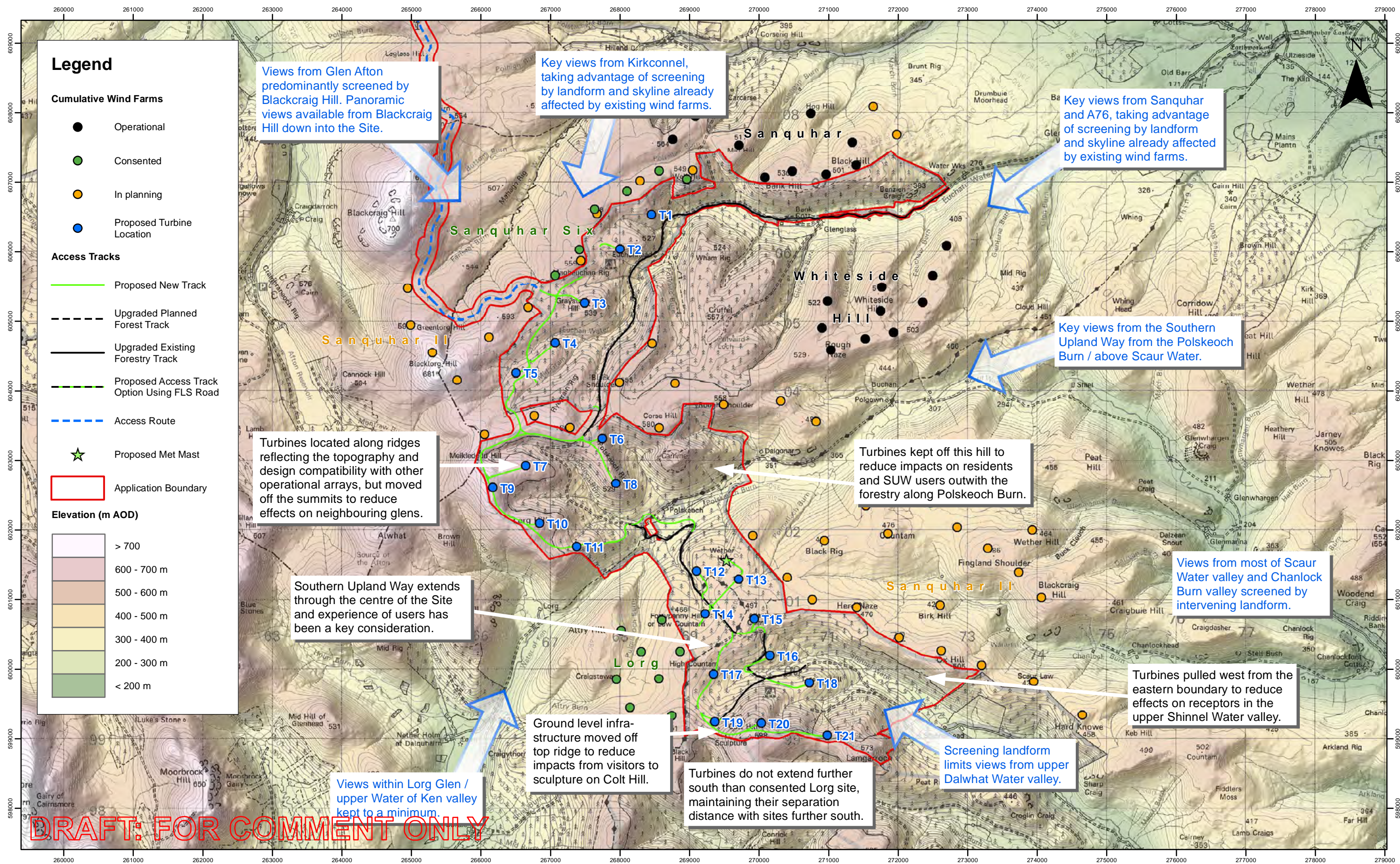
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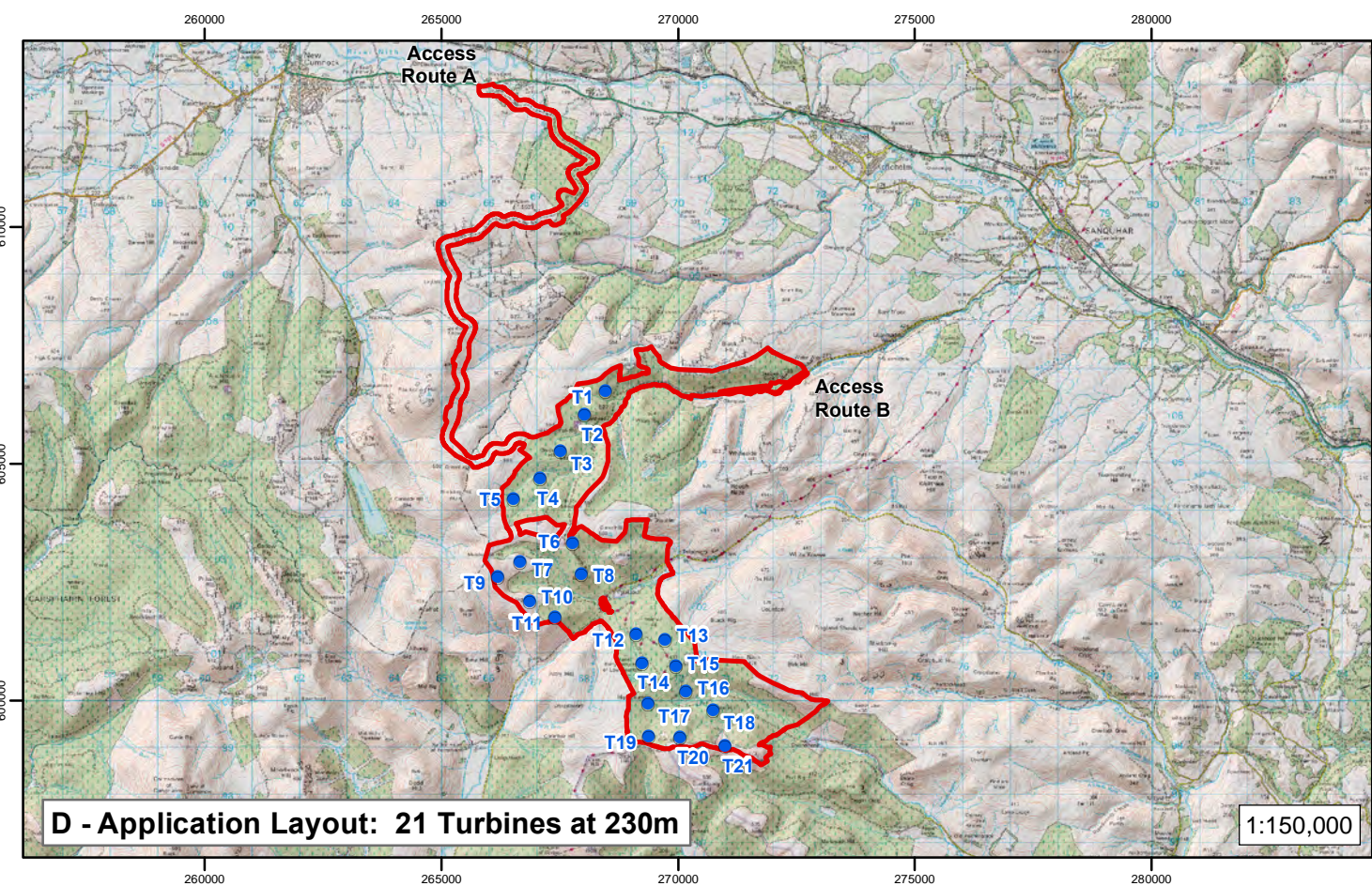
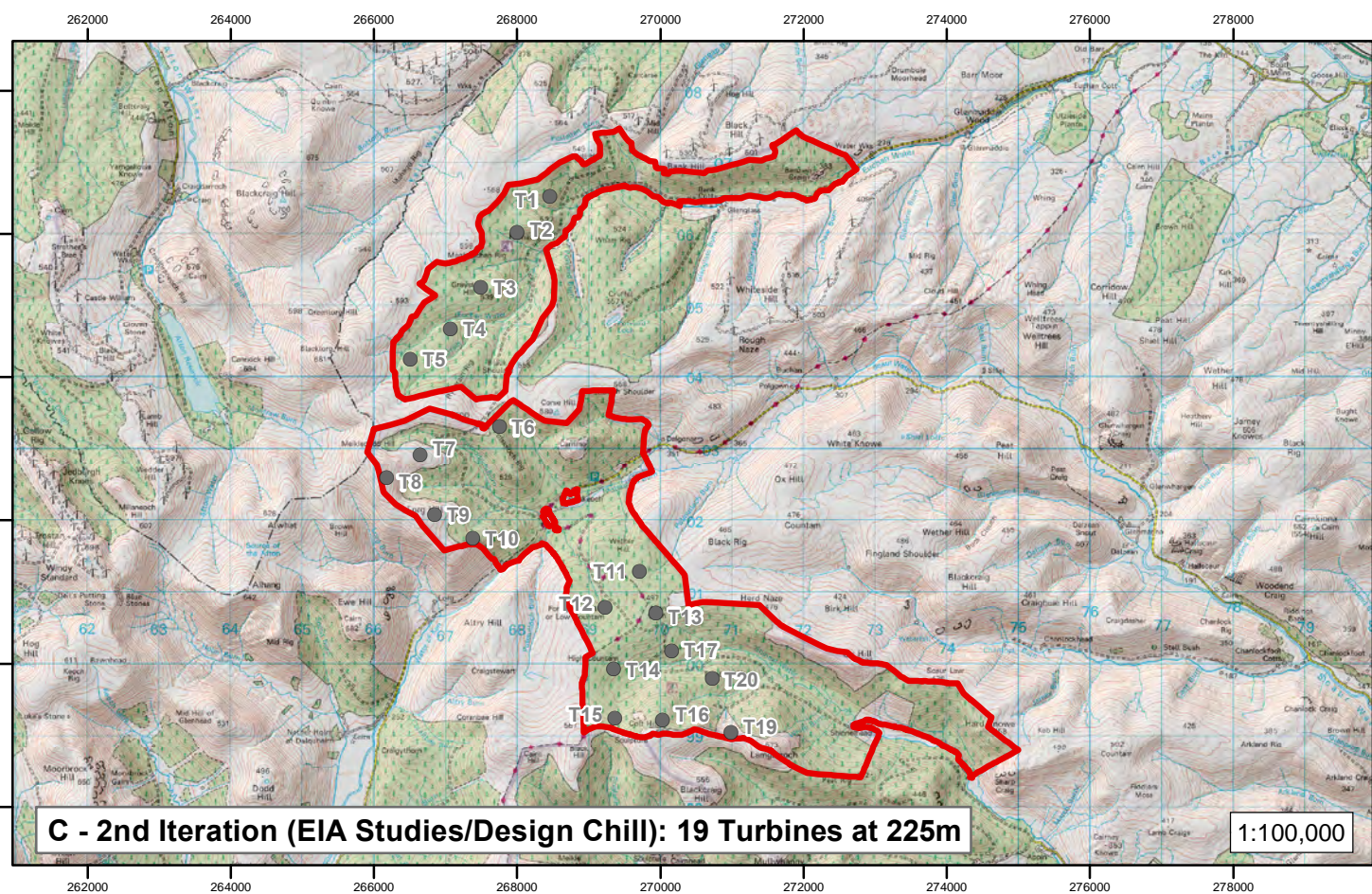
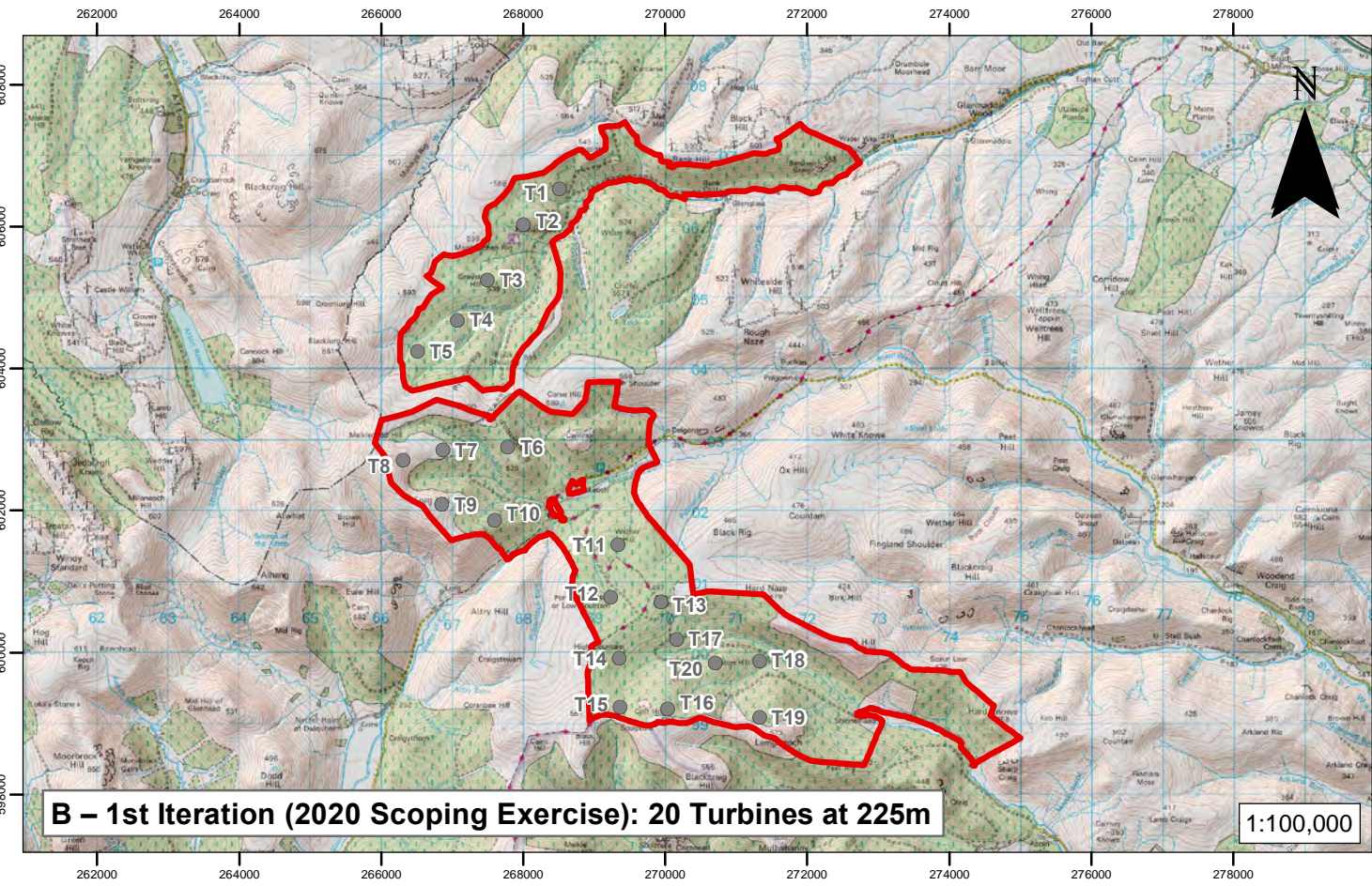
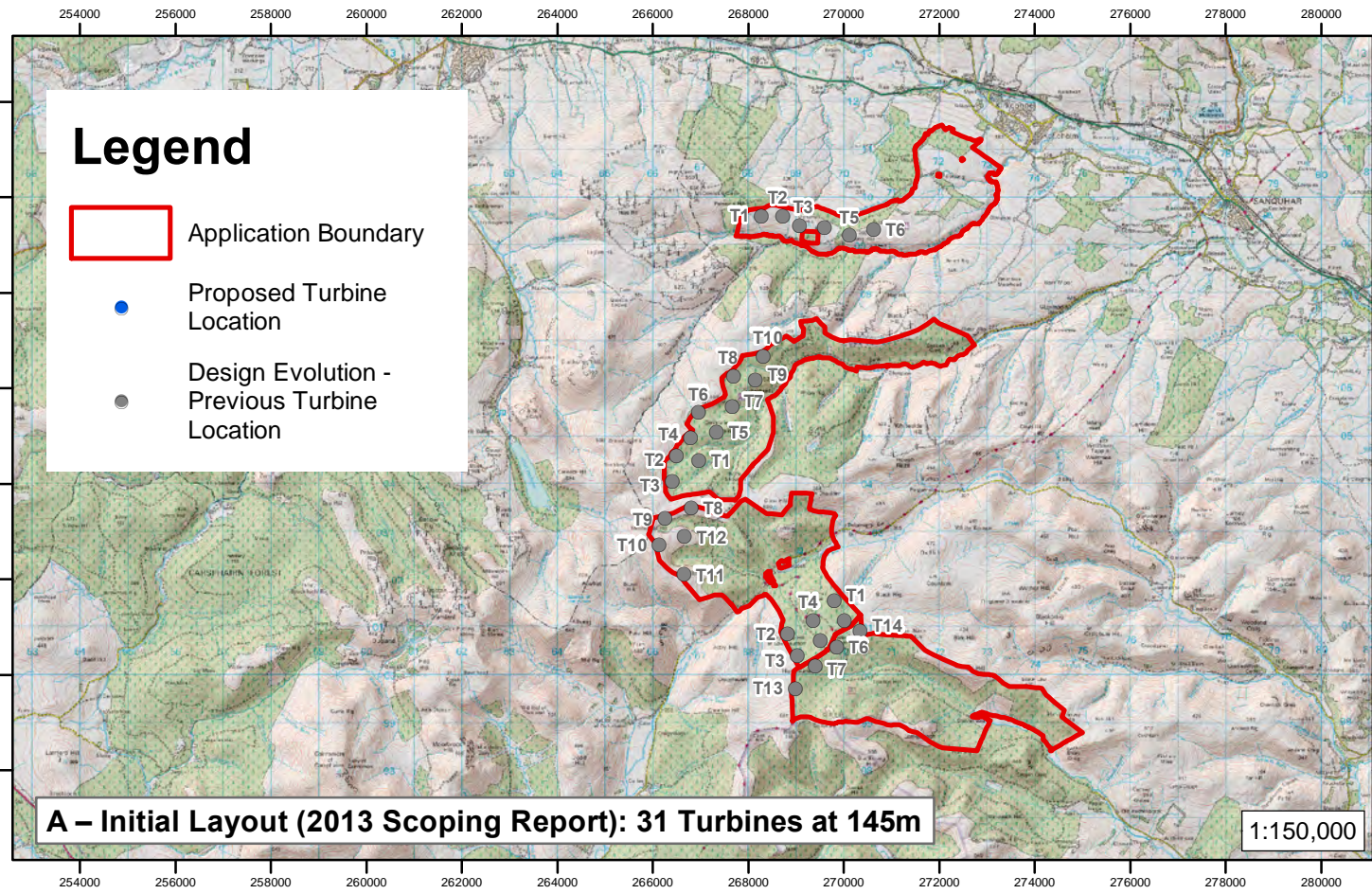


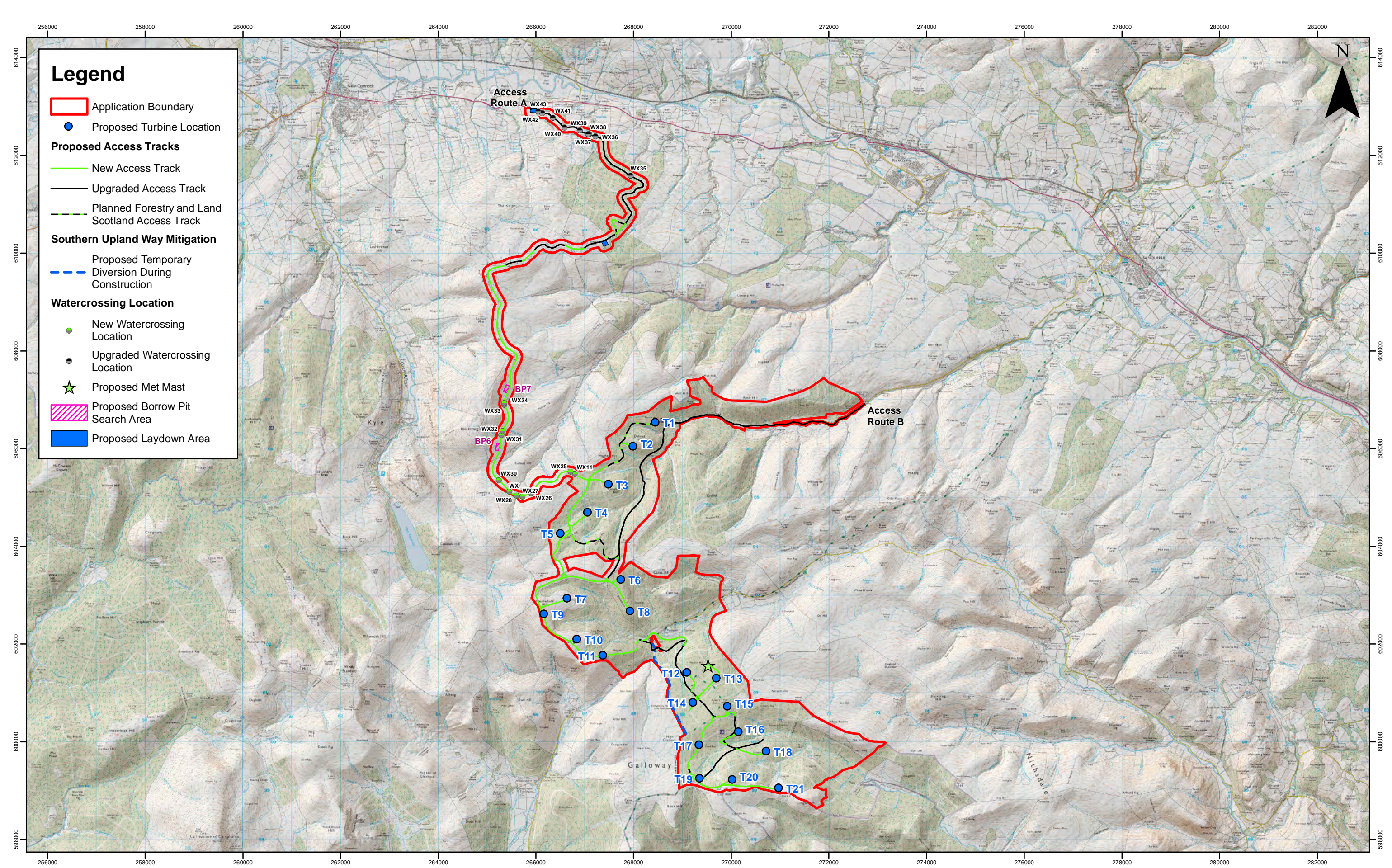
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	Rev	Date	By	Comment				Figure	2			



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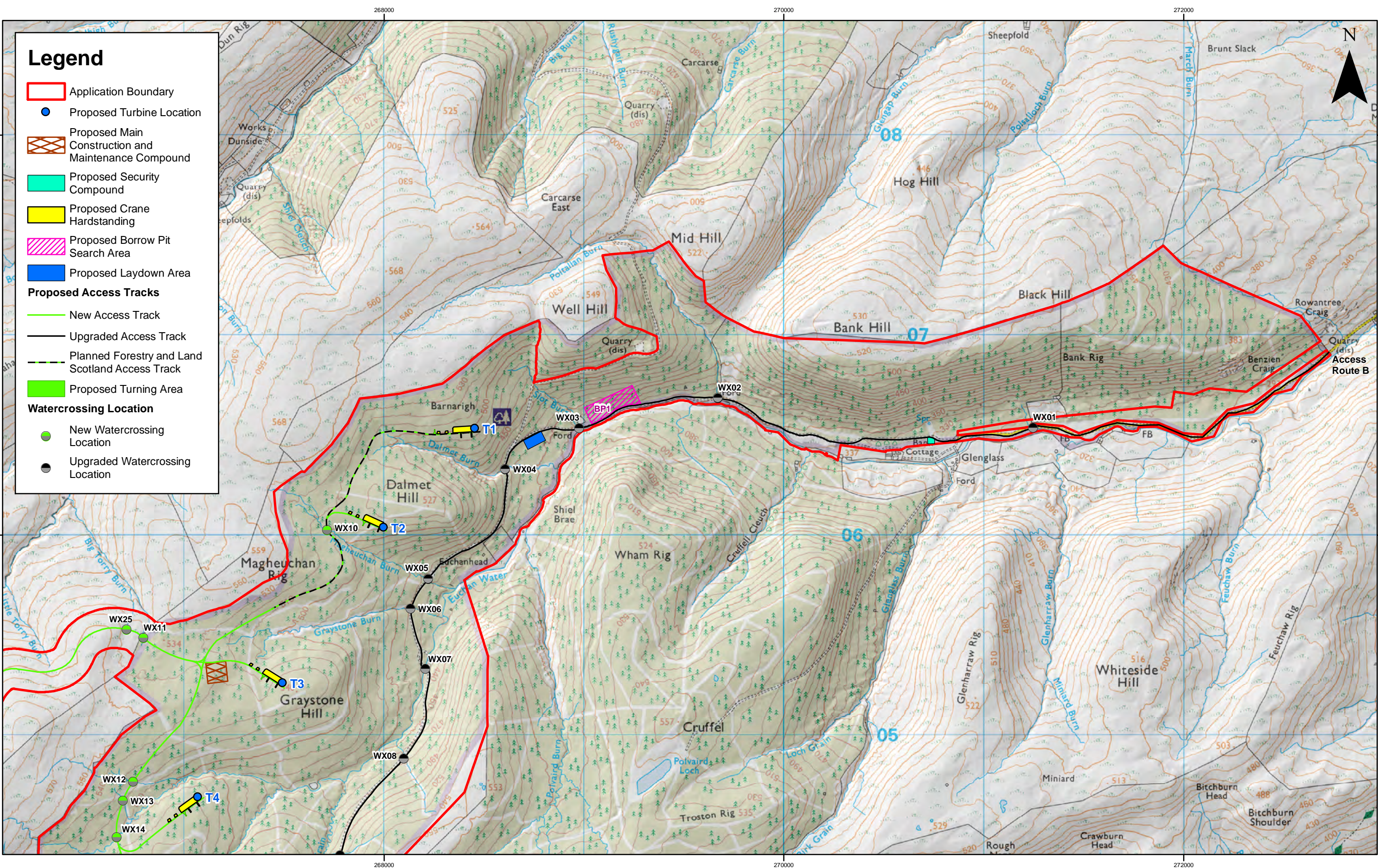


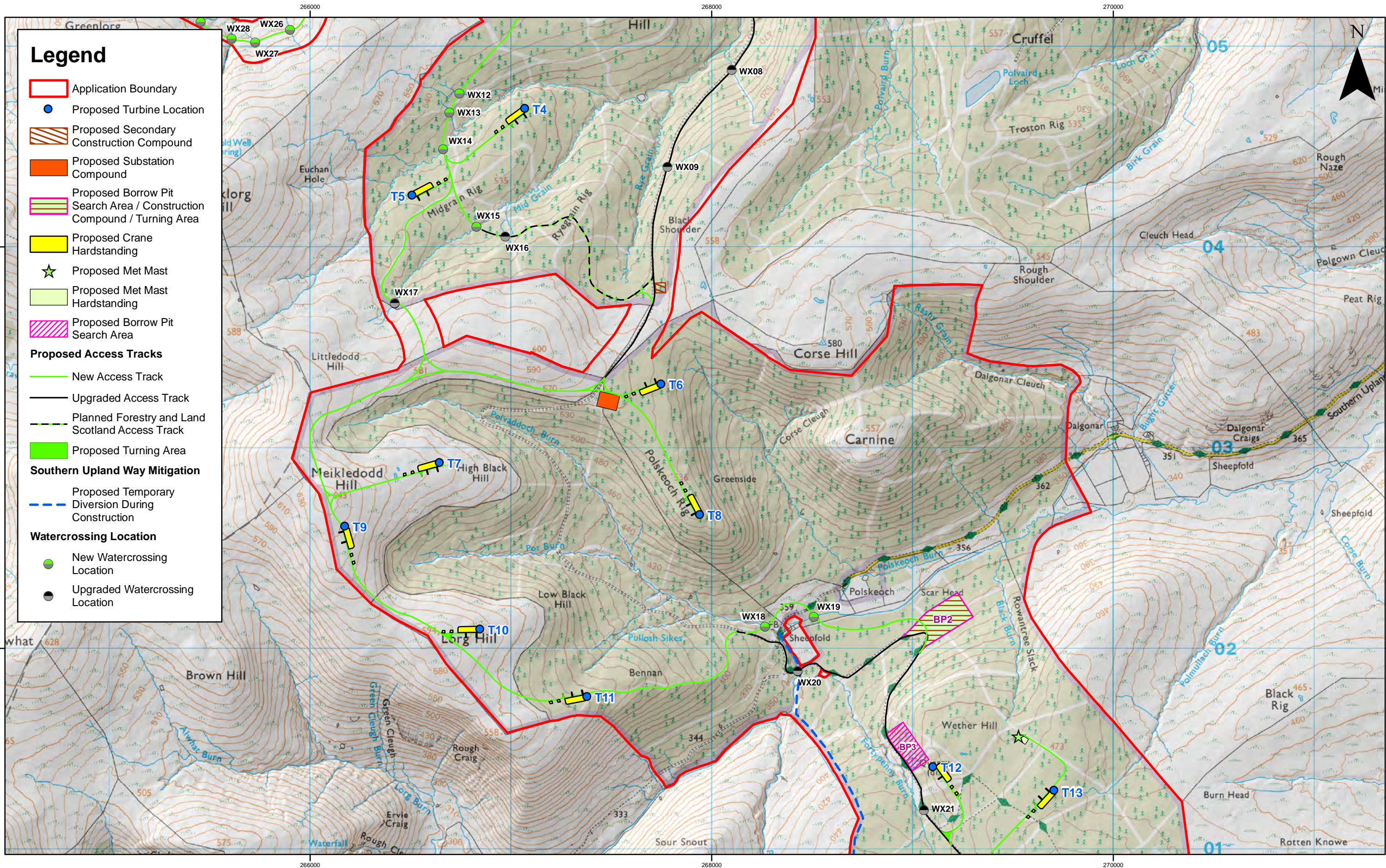
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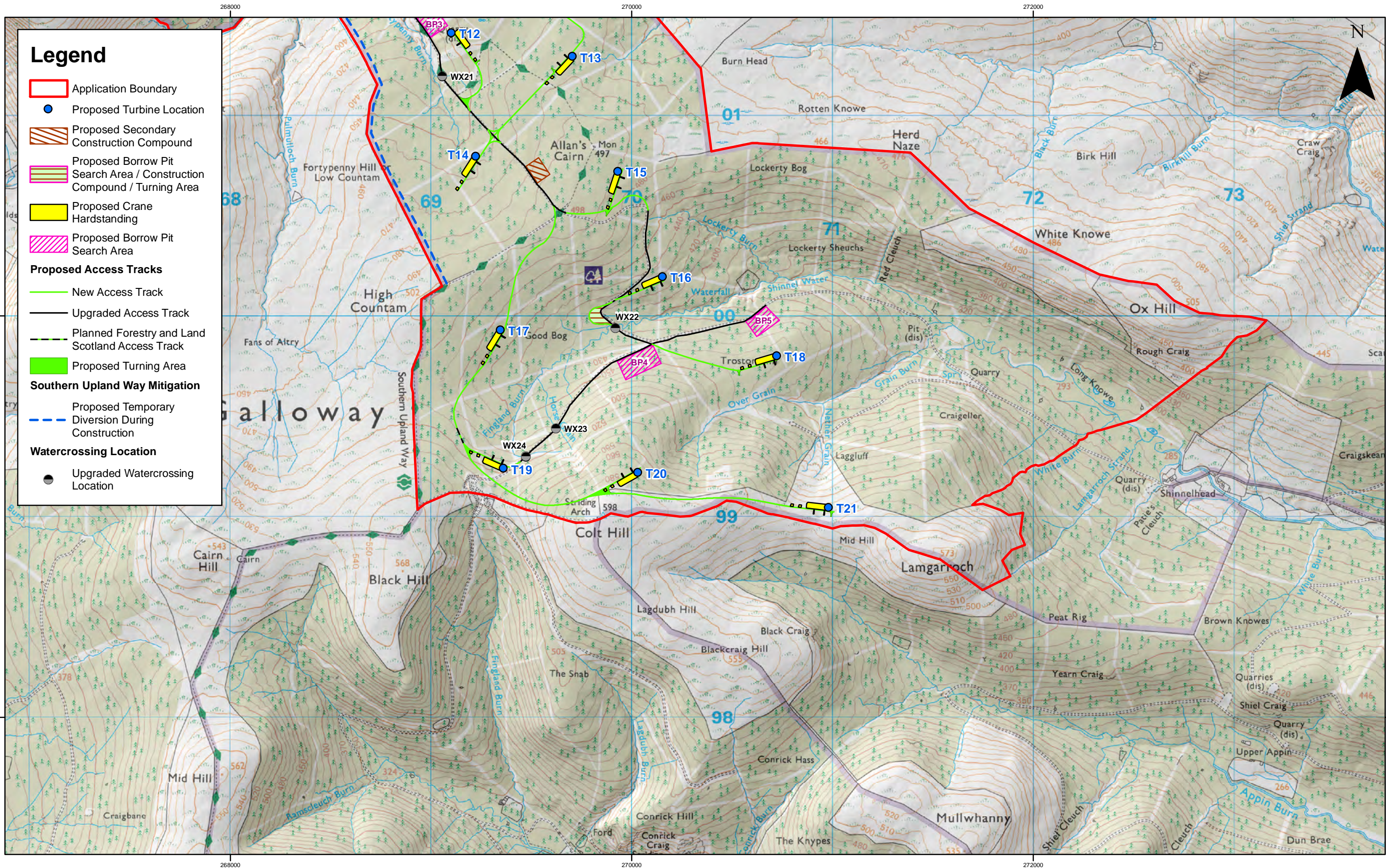
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