

RWE

**Enoch Hill Wind Farm
Variation Application
Volume 4 Non-Technical
Summary (NTS)
June 2020**

wood.



Report for

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Document revisions

No.	Details	Date
1	First Draft	June 2020
2	Final	June 2020



Terminology

For the purposes of this report the following terminology is used:

- The '**Consented Development**' - the 16 turbines and associated infrastructure of Enoch Hill Wind Farm consented by the Scottish Ministers on 13 September 2019;
- The '**Variation Development**' - the proposed revised Enoch Hill Wind Farm whereby for all 16 turbines, the rotor diameter would be increased to up to 136m and blade tip height increased to up to 149.9m, with their locations and all other associated infrastructure remaining unchanged. It is also proposed that the 25 year period of consent is increased to 30 years;
- The '**2015 ES**' - the Enoch Hill Wind Farm Environmental Statement that accompanied a section 36 application for a 19 turbine proposed development located on the same site as the Consented Development;
- The '**2017 FEI**' – Further Environmental Information to the 2015 ES that was submitted in 2017. This considered an amendment to the (then) proposed development by way of the deletion of three turbines and change to the locations of the other 16 turbines. This 16 turbine layout was consented on 13 September 2019 (i.e. the Consented Development);
- The '**Development Site**' - the site of the Consented Development and of the Variation Development, located approximately 5km to the south west of New Cumnock and approximately 7km north east of Dalmellington and centred at National Grid Reference (NGR) E257360, N608630. The site boundary is shown on Figure V3.1;
- The '**Applicant**' for the variation is RWE Renewables UK Developments Ltd, the same legal entity (company number remains 03758407) that sought and holds the benefit of the section 36 consent for the Consented Development (the company name changed from E.ON Climate & Renewables UK Developments Ltd following the acquisition of this part of E.ON business by RWE on 30 September 2019); and
- The '**ECU**' is the Energy Consents Unit of the Scottish Government.

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1. Introduction

1.1.1 On 13 September 2019, Enoch Hill Wind Farm (the “*Consented Development*”) was granted consent under section 36 of the 1989 Electricity Act and deemed planning permission from the Scottish Ministers. The consent and deemed planning permission authorises the construction and operation of a wind farm generating station exceeding 50 Megawatts (MW), comprising up to 16 wind turbines with a tip height of up to 130 m and associated infrastructure such as access tracks and underground electrical cabling. The “*Applicant*”, RWE Renewables UK Developments Ltd (RWE) is seeking to amend the consent and apply for a new deemed planning permission (the “*Variation Development*”) in so far as relevant to EIA to:

- Increase the rotor diameter (to a maximum of 136m) and maximum tip height (from up to 130m to up to 149.9m) of all 16 turbines; and
- Increase the period of consent from 25 to 30 years;

1.1.2 These changes have been assessed for all the environmental topics listed in the following sections.

1.1.3 The Variation Development could have a nameplate installed capacity of up to 80MW based on potential candidate turbines, a 47% increase on the 54.4MW installed capacity of the Consented Development.

1.1.4 This Non-Technical Summary (NTS) forms part of the Environmental Impact Assessment (EIA) Report that has been prepared by Wood Environment & Infrastructure Solutions Ltd (Wood) on behalf the Applicant to accompany an application to the Scottish Ministers for its consent to vary the Consented Development under section 36C of the Electricity Act 1989 and to apply for a new deemed planning permission under section 57 of the Town and Country Planning (Scotland) Act 1997. The “*Variation Development*” would be built on moorland between the settlements of Dalmellington and New Cumnock in East Ayrshire to the south of the B741 (herein referred to as the “*Development Site*”). The site boundary now covers a slightly smaller area for the Variation Development than for the Consented Development and is shown on EIA Report Figure V3.2 (appended to this NTS).

1.1.5 Those interested in obtaining more detail about the environmental aspects of this proposal should consult the main EIA Report which presents the findings of the EIA, and which accompanies the application to vary the Consented Development. The EIA Report is available at:

- [http:// www.rwe.com/enochhill](http://www.rwe.com/enochhill)

1.1.6 The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 came into effect on Friday 24th April. These allow a temporary relaxation of the usual requirement to make documents available for public inspection and hence hard copies of the application documents have not been lodged at locations accessible to the public. The public will however be able to access the documents at the Applicant’s website as noted above.

Any comments on the proposals or findings of the EIA or the Application for the Varied Development should be directed in writing to Nicola Soave, Case Officer at the Energy Consents Unit (ECU) of the Scottish Government preferably by email to Nicola.Soave@gov.scot, or at the address noted below, identifying that the correspondence refers to the proposed variation to the consented Enoch Hill Wind Farm and specifying the grounds for representation.

**Scottish Government,
ECU,
4th Floor,
5 Atlantic Quay,
150 Broomielaw,
Glasgow,
G2 8LU**

2. Background

- 2.1.1 Interest in renewable energy production (such as that produced by a wind farm) has arisen in response to growing concern about the rise in atmospheric levels of carbon dioxide (CO₂) and other greenhouse gases, and the changes in the global climate that this could be causing. Burning of fossil fuels (oil, coal and gas) to meet energy consumption needs is a major contributor to greenhouse gas emissions and reducing their use, and increasing the proportion of power generated from renewable energy sources, is seen as a vital part of reducing these emissions as part of a wider suite of necessary measures such as increasing energy efficiency.
- 2.1.2 In order to meet national and international obligations, both the UK Government and the Scottish Government are committed to reducing greenhouse gas emissions in an effort to reduce the level of future climate change. It remains the case that the Scottish Government expect that a significant proportion of the power generation capacity required to replace fossil fuel generation will come in the short term from onshore wind generation in Scotland. As Scotland has one of the windiest climates in Europe, it has great potential to generate electricity from wind power, and, if constructed, the Variation Development would contribute a meaningful amount of additional renewable generation capacity.
- 2.1.3 The Consented Development was predicted to produce in the order of 54.4MW of renewable energy. It has been calculated that by increasing the height of the consented turbines (from up to 130m tip height to up to 149.9m) and increasing the rotor diameter (to a maximum of 136m) for all 16 turbines, a large increase in generation capacity can be achieved to in the order of 80MW of renewable energy (a 47% increase).
- 2.1.4 RWE Renewables has become a “super player” in the field of renewable energy generation, including being a global leader in offshore wind, with a goal to become climate-neutral by 2040.
- 2.1.5 The Variation Development EIA has been managed by Wood Environment and Infrastructure Solutions UK Ltd, which also coordinated production of the 2015 ES and 2017 FEI (as predecessor company Amec Foster Wheeler). Wood is one of the UK’s leading environmental and engineering consultancies and is a Registered Environmental Impact Assessor under an accreditation scheme run by the Institute of Environmental Management and Assessment (IEMA); the principal professional body for EIA in the UK.



3. The Development Site & Proposals

- 3.1.1 The wider geographical context is shown in EIA Report **Figure V3.1** and the Development Site boundary is shown in EIA Report **Figure V3.2** which accompanies this NTS. The nearest settlements to the Development Site are New Cumnock which is located approximately 5km to the north east, and Dalmellington which is located approximately 7km to the south west. The nearest residential property to the Development Site is located to the north approximately 2.2Km from the nearest turbine.
- 3.1.2 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 open moorland to the east.
- 3.1.3 The elevation of the Development Site is between 210m – 569m above ordnance datum (AOD) and covers an area of approximately 1,219ha (the previous, slightly larger boundary of the Development Site for the Consented Development, covered an area of 1,466ha), the majority of which is rough grazing land. The topography of the Development Site is characterised by four summits; Rigg Hill, Enoch Hill, Chang Hill and Benty Cowan Hill. The highest of these is Enoch Hill at 569m above ordnance datum (AOD).
- 3.1.4 Consent has been obtained to erect and operate sixteen wind turbines and associated infrastructure at the Development Site, each turbine consisting of a tubular steel tower supporting three blades. The Variation Development for which consent is sought seeks to increase the rotor diameter (to a maximum of 136m) and maximum height (to a maximum of 149.9m blade tip) of all sixteen turbines to achieve a greater installed capacity at the Development Site. The proposal as varied would therefore comprise the following main elements:
- 16 turbines with a tip height to up to 149.9m;
 - Access tracks connecting infrastructure elements;
 - A new vehicular access point from the public highway;
 - Hard standing areas e.g. crane pads;
 - Two anemometer masts; and
 - Control building, substation and electrical cabling between this and the turbines.
- 3.1.5 Some temporary works would be undertaken, e.g. use of a construction compound and the establishment of borrow pit(s) for the provision of construction material. For the purposes of the assessment presented in the EIA Report, it is assumed that the wind farm will be decommissioned after this period.
- 3.1.6 The planned operational life of the wind farm would be varied from the up to 25 years of the Consented Development to up to 30 years for the Variation Development.
- 3.1.7 Other than the proposed changes to site boundary, turbine dimensions, installed capacity and operational life, all other aspects of the development remain unchanged from the Consented Development. The site layout is shown on EIA Report **Figure V3.3** which accompanies this NTS.



4. Environmental Impact Assessment (EIA)

- 4.1.1 Under section 36 of the Electricity Act 1989 (the 1989 Act), consent is required from the Scottish Ministers for the construction and operation of all power generating plant that would have an installed capacity of more than 50 megawatts (MW). Under section 36C of the 1989 Act, the beneficiary of a section 36 consent may make an application to the Scottish Ministers for the consent to be varied. The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations) apply to section 36C applications and the EIA for the Variation Development is compliant with these.
- 4.1.2 EIA is a process by which information about the environmental effects of a proposed development is collected, evaluated and presented to assist consultation and to enable decision makers to take account of these effects when determining whether or not a project should proceed and, if it does, what particular controls over its construction and operation are needed to avoid/reduce effects on the environment.
- 4.1.3 The EIA has identified the likely effects of the Variation Development on the environment (including people) and whether any of these could be significant has been assessed. A number of 'mitigation' measures to reduce or avoid adverse effects were incorporated into the design of the Consented Development and these would also be applied to the Variation Development, with any additional measures specific to the latter being identified in the EIA Report (see Chapter 18 for a summary of these measures).
- 4.1.4 The EIA Report, which comprises four volumes: Volume 1 – Main Text, Volume 2 – Illustrative Figures, and Volume 3 – Technical Appendices, and includes this NTS (Volume 4), accompanies the application for consent and reports the findings of the EIA. The assessment of effects was undertaken in an impartial manner using professional experience and judgement, and the findings are presented in a systematic way in the EIA Report. The EIA Report will be used by the Scottish Ministers to help inform their decision about whether or not the Variation Development should be approved.

4.1 Consultation

- 4.1.1 Consultation is a vital aspect of the EIA process, both to agree what work should be carried out to inform the EIA and to seek feedback on the proposals from key stakeholders. Extensive consultation (including public consultation) was undertaken throughout the design evolution of the Consented Development. Consultation with statutory consultees in respect of the Consented Development was undertaken, with responses received via the formal scoping opinion from the ECU. Responses were received from the relevant departments of DGC, East Ayrshire Council (EAC), the Scottish Government, Transport Scotland, the Health and Safety Executive, Defence Infrastructure Organisation (DIO), Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH), and Historic Environment Scotland. The following bodies were also consulted during the EIA phase of the Consented Development: microwave link operators, Royal Society for the Protection of Birds (RSPB), BEAR Scotland, the Ministry of Defence (MoD), National Air Traffic Service (NATS), Civil Aviation Authority (CAA), relevant airports, and a number of operators of existing infrastructure such as SGN, Scottish Power Energy Networks and National Grid.
- 4.1.2 Public consultation on the Consented Development was also undertaken, both as part of the Pre-Application Consultation process required by the Scottish Government and through other mechanisms. This included the formation of a community liaison group and two rounds of public information days and exhibitions (held in November 2012 and October 2014 at New Cumnock

Community Education Centre, Dalmellington Community Centre, Hillview Leisure Centre, Kelloholm and Lagwyne Village Hall, Carsphairn).

- 4.1.3 Additional consultation specifically related to the Variation Development was undertaken in 2020, comprising the submission of a scoping request to the ECU, with the 'scoping opinion' being received in April 2020.

4.2 Environmental Effects

- 4.2.1 Given the nature of the Variation Development, whereby ground level elements of the Consented Development remain unchanged, many predicted environmental effects are unchanged from those reported in the 2015 ES and 2017 FEI. As such, and with the agreement of the ECU, the following environmental topics considered in the 2015 ES and 2017 FEI required no further consideration within the EIA for the Variation Development:

- Peat;
- Geology, Hydrology and Hydrogeology;
- Historic Environment;
- Ecology (other than bat populations);
- Ornithology (other than bird collision risk);
- Socio-economics (other than recreation and tourism); and
- Traffic and Transport (other than updated swept path analysis).

- 4.2.2 Shadow Flicker was also scoped out of the assessment for the Variation Development as no residential properties are located within the area that may be affected by this phenomenon.

- 4.2.3 Where the potential for significant effects was identified during the scoping exercise, detailed assessment has been carried out, using topic specific methodologies based on recognised good practice. The environmental topics considered in the EIA Report are:

- Noise;
- Landscape and Visual;
- Ecology - bat collision risk only;
- Ornithology - bird collision risk only;
- Socio-Economics - tourism and recreation only; and
- Infrastructure, Telecommunications, Safety, Population and Human Health, Major Accidents and Disasters, Utilities, and Aviation Safeguarding.

- 4.2.4 The findings of the assessments that are presented in the EIA Report are intended to assist the Scottish Ministers, and other stakeholders that they consult, in coming to a view about whether or not the Variation Development should proceed (and how it should proceed if consent is granted). The decision-making is in itself part of the EIA process.

- 4.2.5 The following sections provide a brief summary of the main findings of the EIA as set out in detail within the technical chapters of the EIA Report.

4.3 Renewable Energy Policy, Carbon Balance and Peat Management

- 4.3.1 The primary purpose of the Variation Development is to generate renewable energy and in doing so, to assist in the reduction of the emission of greenhouse gasses by offsetting the need for production of electricity from combustion of fossil fuels. This chapter of the EIA Report outlines the prevailing climate change and renewable energy legislation and policy framework, which is supportive of onshore wind farms in principle, subject to siting and environmental considerations. It also describes the carbon balance (the length of time the Variation Development would take to offset the carbon emissions from component manufacture and its construction and decommissioning), taking account of peat within development areas. The carbon savings for the Variation Development are calculated using accepted Scottish Government guidance.
- 4.3.2 It is predicted that the carbon emissions in developing the Variation Development will be paid back (i.e. offset by carbon savings) in approximately 1.2 years (approximately 4% of the proposed operational life of 30 years). Even on the most conservative assumptions, it is predicted that the carbon emissions would be offset within approximately 2.7 years. Similar payback times were predicted for the Consented Development, although as the carbon calculator methodology has changed since 2017, it should be noted that these figures are not directly comparable.
- 4.3.3 Based on the methodology in Scottish Government guidance described in full within the EIA Report, the Variation Development is expected to provide a total carbon saving of approximately 3.4 million tonnes over its proposed 30 year lifetime, equivalent to the emissions from supplying electricity from a mix of conventional power stations to 78,821 average homes in East Ayrshire.

4.4 Landscape and Visual

- 4.4.1 The Landscape and Visual Impact Assessment (LVIA) has been updated to take account of a proposed change in turbine dimensions to the Consented Development. The Variation Development comprises 16 wind turbines in the same location and layout as the Consented Development, though with an increase of all rotor diameters from up to 106m to up to 136m and blade tip height of all turbines increasing from up to 130m to up to 149.9m.
- 4.4.2 The LVIA conforms to the *Guidelines for Landscape and Visual Impact Assessment*, Third Edition (GLVIA) and has encompassed the construction, operation, and decommissioning phases of the Variation Development. It includes a re-assessment of all landscape and visual receptors reported in the 2015 ES and 2017 FEI with the potential for significant effects.
- 4.4.3 The Variation Development would be located within part of the *Southern Uplands / Southern Uplands with Forestry*, which is an evolving area of upland moorland and forestry that contains a number of large scale existing and consented wind farms. Large wind turbines are an established characteristic of this area, and the landscape also demonstrates many of the attributes indicative of an ability to accommodate large scale wind farm development.
- 4.4.4 The Variation Development has taken account of the East Ayrshire Landscape Wind Capacity Study (EALWCS) and the relevant broad scale constraints and opportunities contained within this non-statutory guidance in order to mitigate potential effects on views from the New Cumnock Upland Basin area.
- 4.4.5 Although the turbine height would increase from up to 130m to up to 149.9m to blade tip, this turbine height is comparable to the consented turbines at South Kyle (149.5m to blade tip) and in many views the Variation Development would appear as closely related or appear as an 'extension' to the adjacent South Kyle Wind Farm. The combined developments (South Kyle and the Variation Development) would benefit from each other, both infilling gaps in each other's layout, specifically when viewed from the Upland Basin. Indeed, the addition of South Kyle to the baseline ensures

- that the design and location of the Variation Development will overlap with the effects of South Kyle in terms of landscape, visual and cumulative effects, leading to a reduction in the overall effects of the Variation Development.
- 4.4.6 The design of the Variation Development has largely maintained the geographical footprint of the Consented Development. albeit that the area covered by the redline boundary is slightly smaller (See EIA Report Figure V3.2 appended to this NTS) and has maintained accordance with the original design objectives limiting the number of significant landscape and visual effects. The Variation Development has also maintained the threshold of significant landscape and visual effects to within 7km, the same as the Consented Development, therefore limiting the effects on the surrounding landscape and visual receptors.
- 4.4.7 The additional theoretical visibility of the Variation Development in comparison to the Consented Development would be less than 1% of the 35km study area and reduced from 60% to 37% within 10km where forestry screening has been taken into account. For this reason, the Variation Development would not be visually prominent, in comparison to a more widespread Zone of Theoretical Visibility (ZTV) footprint. There would be no significant effects on nationally designated landscapes or Wild Land Areas, 'A' roads or any of Scotland's Great Trails. There would be no effects on nationally designated landscapes or Wild Land Areas.
- 4.4.8 Other than an unmarked right of way in the southern part of the Development Site, there would be no visual receptors within 2km of any of the proposed turbines. Visibility of the Variation Development would be largely restricted a low-lying Upland Basin to the north. This area is undesignated and has a strong mining heritage. Where visible, the Variation Development would be seen in the context of a contemporary, rural landscape where wind turbines are already visible along the southern skyline.
- 4.4.9 The proposed turbines are located remote from residential properties to the north, within a less sensitive part of the Development Site, providing a generous 'set-back' from the adjacent B741 minor road and thus increasing the level of mitigation afforded to landscape and visual receptors in the Upland Basin to the north along the B741 and around the New Cumnock area.
- 4.4.10 The 2015 ES and 2017 ES concluded that significant landscape, visual and cumulative effects would affect part of the Southern Uplands / Southern Uplands with Forestry and particular views from settlements (Burnside and south western edge of new Cumnock), parts of the B741 and parts of recreational receptors (local footpath network, Knockshinnoch Lagoons Local Nature Reserve (LNR), and the summits of Blackcraig Hill and Windy Standard), within the wider areas of the Upland Basin. In comparison to the previous assessment of the Consented Development, there would be no notable change to the number of significantly affected landscape and visual receptors for the Variation Development.
- 4.4.11 To conclude, the Variation Development has taken account of the guidance set out in the EALWCS and the requirements of the EAC's Local Development Plan (LDP) policy RE3 in respect of landscape, visual and cumulative effects.

4.5 Noise

- 4.5.1 An assessment of the potential significant effects of the Variation Development with respect to noise was undertaken. As larger turbine typologies are proposed which may have different sound power levels to those assessed in the 2017 FEI, with all other noise related elements related to road traffic and construction etc. remaining unchanged, the assessment considered operational turbine noise only. The same eight receptors considered in the 2017 FEI were assessed: Meikle Hill; Nith Lodge; Maneight; Knockburnie; Dalleagles; Dalleagles Terrace; Brockloch; and Laglaff.

- 4.5.2 The results of the cumulative predictions show that there are no exceedances of the ETSU-R-97¹ criteria with the embedded mitigation noted in Chapter 7 of the EIA Report.
- 4.5.3 The noise limits used to assess the Variation Development are the same as those presented in the planning conditions for the Consented Development. Therefore, the results show that the Variation Development meets the noise related planning conditions of the Consented Development. As was the case for the Consented Development, the operational noise effects of the Variation Development would therefore not be significant.

4.6 Shadow Flicker

- 4.6.1 Under certain combinations of geographical position, time of day and year, the sun may appear behind turbine rotors and cast a shadow over neighbouring properties. Where the shadow falls through a narrow window opening, the rotation of the turbine blades results in it appearing to flick on and off; this effect is known as 'shadow flicker'.
- 4.6.2 No residential properties lie within the revised study area for the Variation Development (10 x 136m rotor diameter plus 50m micro-siting allowance and 130 degrees either side of north). As such, shadow flicker is not predicted and, as per the conclusion presented in the 2015 ES and 2017 FEI, there would be no significant effects or mitigation required.

4.7 Historic Environment

- 4.7.1 Consideration of direct effects on heritage assets was scoped out of the assessment with the agreement of DGC's Archaeologist and by Historic Environment Scotland (HES) as all 'ground level' infrastructure remains unchanged from the Consented Development. The impact of the Variation Development on the historic environment therefore only considered the visual effects on off-site heritage assets in respect of the 'setting' in which they are appreciated and understood.
- 4.7.2 In respect of indirect effects, the increase of turbine rotor diameter and blade tip height would generally present a minor change in the appearance of the Consented Development. It was concluded that the proposed variations would not discernibly affect understanding or experience of the relevant assets, and would therefore not present any increase in the magnitude of change to setting from the consented layout as reported in the 2015 ES and 2017 FEI.
- 4.7.3 No significant adverse effects on the historic environment are predicted as a result of the increased turbine height and rotor diameter of the Variation Development. Any additional impacts on designated heritage assets would be of negligible magnitude, and the resulting effects would be equivalent to those of the Consented Development.

4.8 Ecology

- 4.8.1 As the Variation Development primarily relates to increasing the rotor diameter and height to blade tip of all 16 turbines, with all ground level infrastructure, construction/ decommissioning methods and programme remaining unchanged, the only important ecological feature (IEF) scoped into the detailed assessment was bat populations. Effects on all other IEFs would remain unchanged from

¹ The Assessment and Rating from Windfarms. ETSU Report ETSU-R-97 (The Working Group on Noise from Wind Turbines, 1996).

the 2015 ES and 2017 FEI (no significant effects) and were thus excluded from further consideration in respect of the Variation Development (SNH agreed with this approach).

- 4.8.2 The increased rotor diameters would increase the potential risk of individual bat mortality through direct collision and barotrauma. However, due to the low bat activity levels recorded for the majority of species (with limited additional bat records obtained through the updated desk study), and with the embedded mitigation measures proposed, the Variation Development is unlikely to affect the favourable conservation status of bat populations. As such, it is considered unlikely that the Variation Development would result in significant adverse effects on bat species and populations.
- 4.8.3 Overall, there is no change to the conclusion from the 2015 ES and 2017 FEI with all residual effects on bats considered to be not significant.

4.9 Ornithology

- 4.9.1 As the Variation Development primarily relates to increasing rotor diameter and blade tip height of turbines, with all ground level infrastructure, construction/decommissioning methods and programme remaining unchanged (and therefore, no changes in respect of disturbance and habitat loss etc.), the only receptors scoped into the assessment is golden plover, which may be at risk of collisions with turbines. This receptor was also identified as being at risk in the 2015 ES and 2017 FEI. Effects on all other ornithological receptors would be predicted to remain non-significant and unchanged from the 2015 ES and 2017 FEI and were thus excluded from further consideration. This approach was set out in the scoping request to which SNH responded noting that it was satisfied with the proposals.
- 4.9.2 As expected since a greater area of airspace would be occupied by rotating turbine blades, the updated Collision Risk Model (CRM) indicates that the increased rotor diameters increase the theoretical risk of bird collision mortality. However due to the low activity levels of golden plover recorded within the Development Site, supported by results from the CRM, collision mortality is not considered to result in any significant adverse effects on the regional population of golden plover. Overall, there is no change to the conclusion from the 2015 ES and 2017 FEI, with all residual effects on birds considered to be not significant.

4.10 Geology, Hydrology and Hydrogeology

- 4.10.1 The geology, hydrology and hydrogeology (groundwater) baseline conditions within and surrounding the Development Site were identified and reported in the 2015 ES and 2017 FEI and it was concluded that the Consented Development would have no significant effects of these receptors. As the proposed changes relate to above ground infrastructure only, with all the mitigation measures previously defined for the Consented Development for each element of the on-site development to be implemented (most of which involve work being undertaken in accordance with current good practice), it is concluded that there would be no significant effects on geological, hydrological or hydrogeological receptors as a result of the Variation Development. Assessment of receptors related to geology, hydrology and hydrogeology have therefore been scoped out of this EIA.

4.11 Traffic and Transport

- 4.11.1 The proposed variation to the Consented Development relates to the increase in the size of turbine components with all other infrastructure elements (and therefore construction traffic movements)

remaining unchanged. As such, apart from updating Swept Path Analysis (SPAs) based on the longest blade length of the Variation Development candidate turbines, all other traffic and transport related environmental effects were scoped out of the assessment, an approach which was agreed with relevant consultees.

- 4.11.2 Taking account of the amended turbine dimensions, the updated SPAs along the abnormal load route from the Port of Ayr to the Development Site (the same route as described in the 2015 ES and 2017 FEI) are presented in Appendix V14A of the EIA Report. The updated SPAs demonstrate that the largest of the turbine blades of the candidate turbines (68m) can be transported to the Development Site with the provision of similar accommodation works to those identified within the 2015 ES and 2017 FEI.
- 4.11.3 As reported in the 2015 ES and 2017 FEI, it was considered that there would be no significant effects in relation to traffic and transport and this remains unchanged for the Variation Development.

4.12 Socio-economics

- 4.12.1 The proposed variation to the Consented Development would increase the size of turbine components and the operational period only, therefore economic effects, demographics and land use and public access and all other socio-economic aspects, other than tourism and recreation, have been scoped out from the assessment. This is because potential effects are unlikely to be significantly different to those set out in the 2015 ES and 2017 FEI. The only aspect scoped into this assessment therefore is impacts on tourism and recreation.
- 4.12.2 Chapter 9 - Landscape and Visual Impact concludes that significant visual effects would be limited mainly to the views from one road, the B741, and views from the following recreational routes:
- EAC Core Path No. C12: New Cumnock Circular;
 - EAC Core Path No. C10: Coalfield Cycle Route (partly overlapped by Scottish Hill Track 84: Afton Road, part of the New Cumnock Path Network);
 - Right of Way 'd': which accesses the Development Site;
 - Right of Way 'e' between Afton Road and EAC Core Path No. 12; and
 - A small number of additional Rights of Way around New Cumnock and the Lochside Hotel.
- 4.12.3 There would also be significant visual effects from Knockshinnoch Lagoons LNR (and associated recreational routes) (although views from the north/north-eastern parts would benefit from increased screening during the summer), and the summits of Blackcraig Hill and Windy Standard.
- 4.12.4 This remains unchanged from the predicted effects of the Consented Development.
- 4.12.5 Chapter 10 – Historic Environment has considered effects from the Variation Development and has concluded that, as was the case in the 2015 and 2017 FEI, no significant effects are anticipated on the historic environment.
- 4.12.6 It is important to note that any adverse effects identified within Chapters 9 and 10 relate only to those specific assessments rather than necessarily to potential effects on visitor attractiveness and tourism. In comparison to the previous assessment of the Consented Development, there are some increases in the magnitude of visual effects which could affect tourism and recreational receptors, but not to a degree that overall significant tourism or recreational effects on these receptors would result.

- 4.12.7 It is notable that the community benefit associated with the Variation Development would substantially increase from £6,800,000 (54.4MW x £5,000 x 25) to £12,000,000 (80MW x £5,000 x 30). It should be noted however that community benefits are not a material planning consideration.
- 4.12.8 Overall, it is considered that the Variation Development would result in no residual, adverse significant effects on tourism or recreation, a conclusion that is unchanged from the 2015 ES and 2017 FEI.

4.13 Infrastructure and Other Issues

- 4.13.1 As noted in the 2015 ES and 2017 FEI, a number of telecommunications and infrastructure consultees indicated that they operate telecommunications links or plant in the vicinity of the Development Site. However none of these would be directly affected by the Variation Development.
- 4.13.2 Under the Variation Development, the location of all infrastructure will remain unchanged from the Consented Development; and the proposed increase in turbine height and blade length would not affect existing infrastructure or therefore change the conclusion of the 2015 ES and 2017 FEI. As reported in the 2015 ES and 2017 FEI, it remains the case that by providing appropriate clearances and following best practice during construction, there would be no significant effects on existing infrastructure or microwave links.
- 4.13.3 By utilising the techniques outlined in the 2015 ES and 2017 FEI, it is anticipated that any television reception issues as a result of the Variation Development would be fully mitigated.
- 4.13.4 The Variation Development will be constructed and operated in accordance with all appropriate health and safety guidance and standards to ensure the risk to public safety is minimised and kept within acceptable levels. The potential for significant effects as a result of major accidents and disasters has been considered for a range of topics and it is not considered that there would be any significant effects. The potential for significant effects in relation to population and human health has also been considered and no significant effects are predicted.
- 4.13.5 It therefore remains the case for the Variation Development that as reported in the 2015 ES and 2017 FEI, there would be no significant effects in respect of Infrastructure and other issues (i.e. telecommunications, safety, population and human health and major accidents and disasters).

4.14 Aviation

- 4.14.1 There is the potential for direct effects from operation of the Variation Development on Ministry of Defence (MoD) Low Flying activities (a physical obstruction and effect on operations of Military Low Flying aircraft), National Air Traffic Service (NATS) Lowther Hill Primary Surveillance Radar (PSR), NATS Cumbernauld PSR; Glasgow Prestwick Airport (GPA) PSR; and Glasgow Airport PSR.
- 4.14.2 Where turbines are detectable by a PSR system, they may appear as genuine aircraft targets and could mask genuine aircraft responses. The radar may also be de-sensitised by clutter processing within the sector containing turbines, meaning that real aircraft targets may disappear from radar.
- 4.14.3 The updated Radar Line of Sight (LoS) Analysis appended to the EIA Report (Appendix V17A) indicates that:
- all 16 turbines of NATS Lowther Hill PSR would remain theoretically visible;
 - all 16 turbines remain visible to the GPA PSR;

- Turbines 9 and 10 are "likely" (as defined in the LoS report) to be detectable intermittently by the NATS Cumbernauld PSR with occasional detection of a further six turbines is "unlikely" (as defined in the LoS Report) but cannot be ruled out; and
- no turbines of the Variation Development would be theoretically detected by the Glasgow Airport PSR.

4.14.4

Consultation with NATS has confirmed that the Variation Development turbines are not visible to Cumbernauld PSR, and with the mitigation measures outlined in the EIA Report to apply to the other aviation receptors, there would be no significant effects in respect of Aviation as a result of the Variation Development. This conclusion is unchanged from that reported in the 2015 ES and 2017 FEI.



5. Summary

- 5.1.1 The role of onshore wind remains central to achieving Scottish renewable energy targets which have increased in recent years. The Scottish Government's target is to achieve 100% of gross electricity consumption from renewables by 2020 with net zero targets of all greenhouse gases by 2045. In December 2019, the Scottish Government stated that in 2018, 20.9% of total Scottish energy consumption came from renewable sources, 1.7 percentage points higher than 2017. Therefore, there is a recognised need to dramatically increase renewable electricity generation, with onshore wind identified by the Scottish Government as being of critical importance.
- 5.1.2 A significant increase in wind energy capacity will be required if current climate change mitigation and renewable energy targets are to be met and if Scotland is to achieve its ambition to reduce greenhouse gas emissions to a net-zero state by 2045. The Variation Development would contribute substantially in achieving these targets to a greater extent than the Consented Development, providing a large potential increase in renewable energy generation capacity from an estimated 54.4MW (Consented Development) to an estimated 80MW capacity (for the Variation Development) with either no change (most environmental receptors) or only a modest increase in environmental impact (LVIA). It is notable that the additional theoretical visibility of the Variation Development would be limited to less than 1% of the 35km study area in comparison to the Consented Development.
- 5.1.3 The Variation Development has been informed by the comprehensive iterative design process undertaken for the Consented Development. With the exception only of some landscape and visual effects as described in Chapter 9 of the EIA Report, this design process has resulted in the elimination or mitigation of all potentially significant environmental effects in respect of all environmental topic areas.
- 5.1.4 While some significant landscape and visual effects are likely, it is notable that there would be no significant effects on the closest residential properties within 3km of the Variation Development. Significant landscape, visual and cumulative effects would only affect part of the Southern Uplands / Southern Uplands with Forestry and particular views from settlements (Burnside and south western edge of new Cumnock), parts of the B741 and parts of recreational receptors (local footpath network, Knockshinnoch Lagoons LNR, and the summits of Blackcraig Hill and Windy Standard), within the wider areas of the Upland Basin.
- 5.1.5 As was the case with the Consented Development, the Variation Development would provide a number of economic benefits resulting from investment into the local and national economy, job creation and benefits in respect of national energy security, as well as the significant and urgent environmental benefits which would arise from the increased provision of low carbon renewable energy.



Appendix A

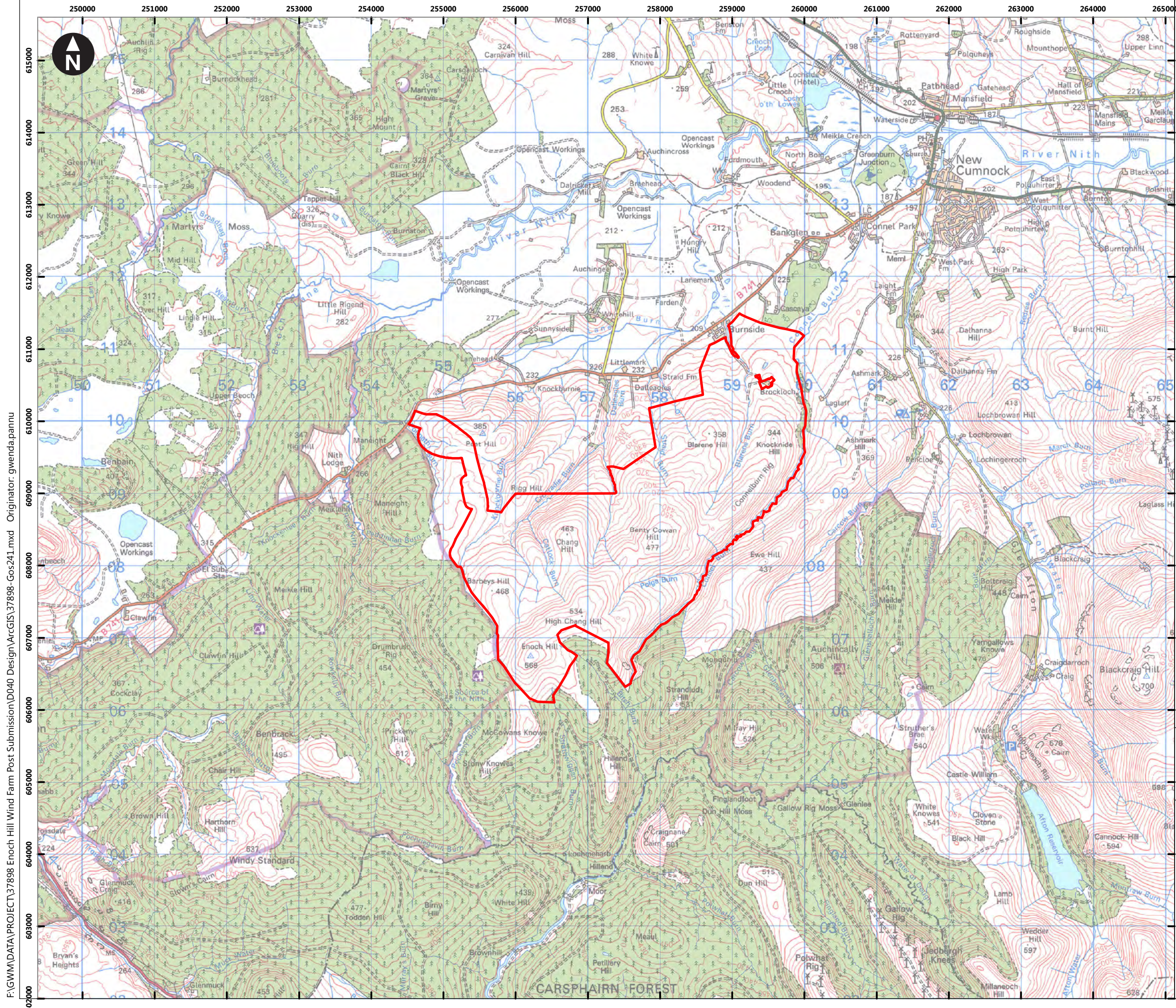
Figures

Figure V3.1 Site Location

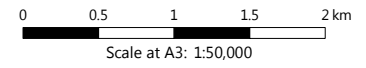
Figure V3.2 Site Plan

Figure V3.3 Site Layout





Key
 Site boundary



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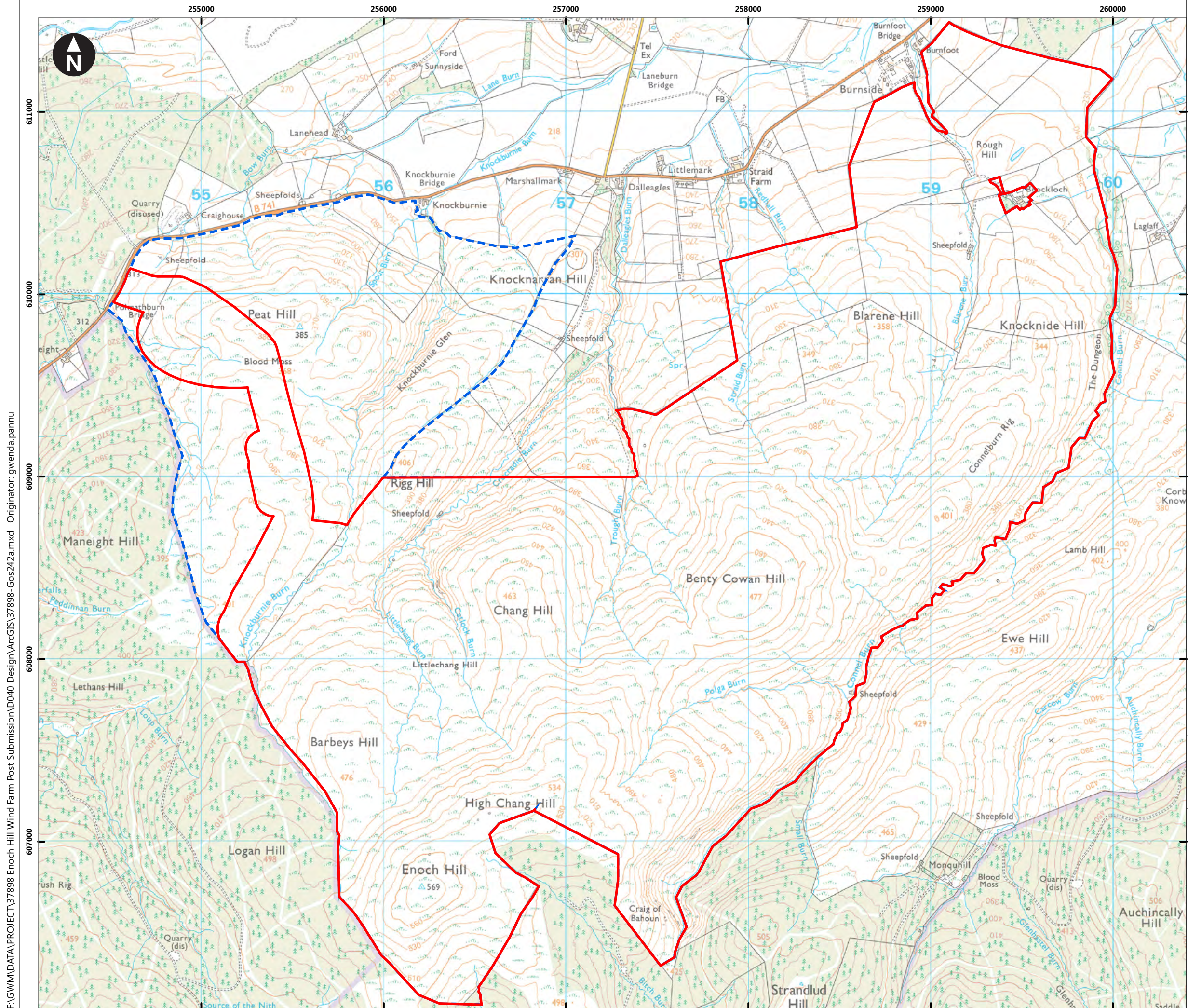


Enoch Hill Variation Application

Figure V3.1
 Site location

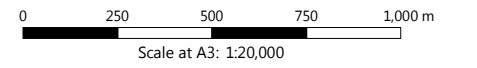
March 2020

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Key

- Site boundary
- Consented site boundary (shown only where different)



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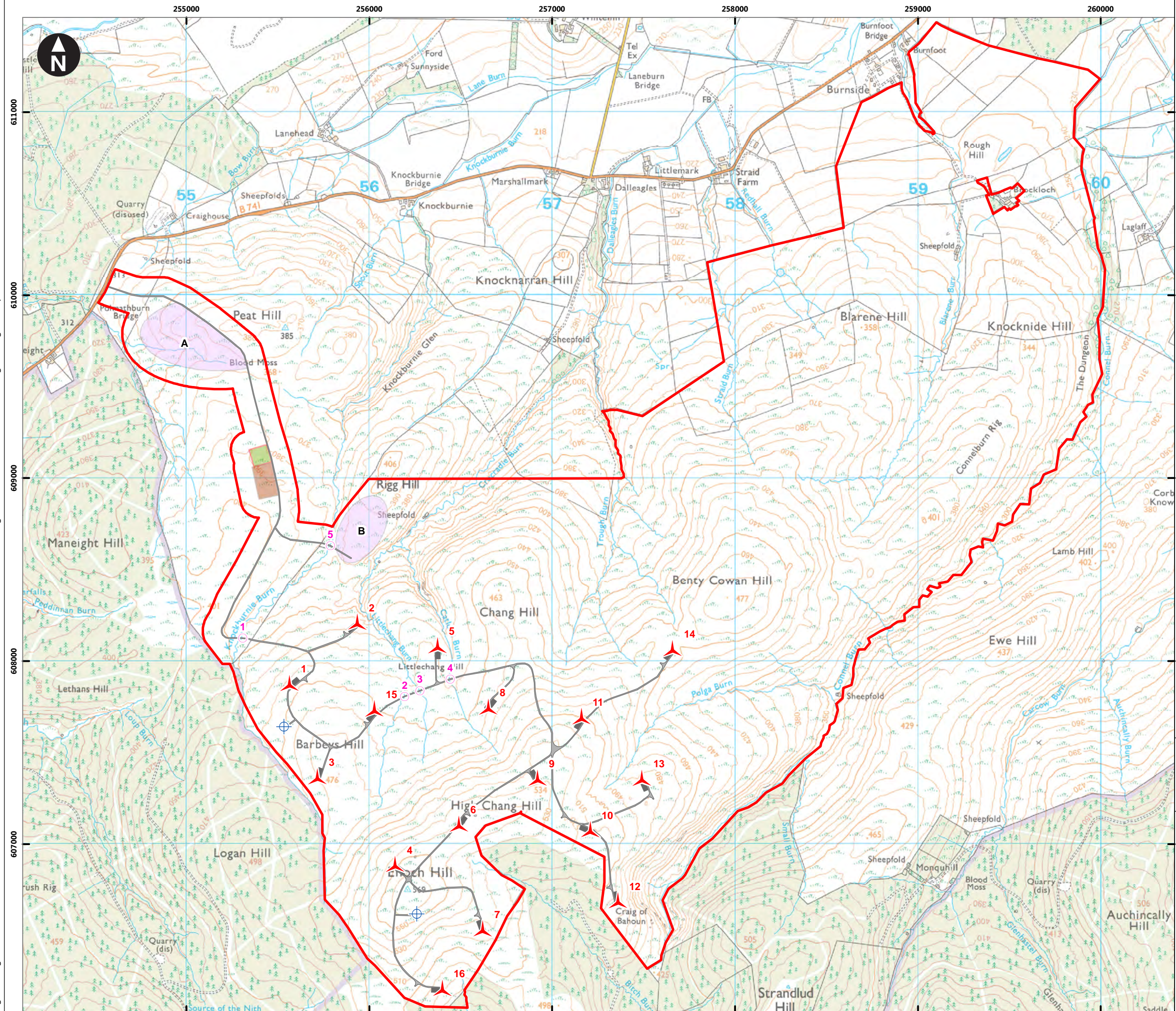
Figure V3.2
Site plan

May 2020

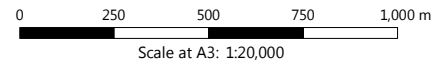


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- Key
- Site boundary
 - ▲ Turbine location
 - ⊕ Permanent meteorological mast
 - Crane pads
 - Wind farm access tracks
 - Substation
 - Watercourse crossing
 - Borrow pit search area
 - Temporary construction compound



Scale at A3: 1:20,000
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Client
Enoch Hill Variation Application

Figure V3.3
Site layout

March 2020

