

Newlands Hill Wind Energy Hub 132kV Connection Project

Routeing and Consultation Document

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1 Introduction

1.1 Introduction and Purpose of the Document

This Routeing and Consultation Document (RCD) has been prepared by Sweco on behalf of Scottish Power Energy Networks (SPEN). It presents the appraisal and identification of a 'preferred route' for the proposed overhead line (OHL) grid connection between the proposed Newlands Hill Wind Energy Hub¹ and the 400 kilovolt (kV) substation at the existing Fallago Rig Windfarm. The proposed grid connection passes through the East Lothian and Scottish Borders administrative areas (northern and southern portions of the study area, respectively).

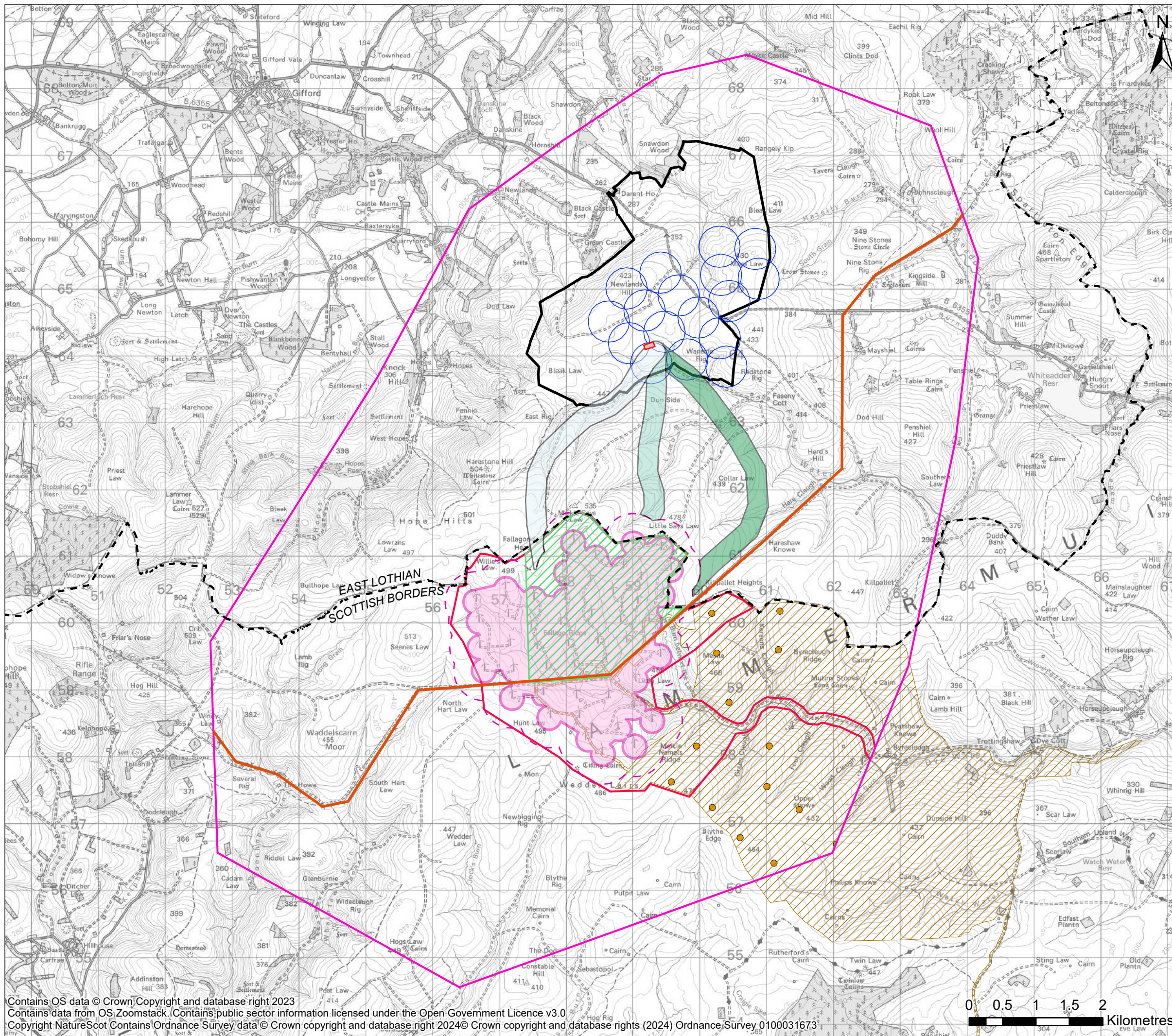
The proposed Newlands Hill Wind Energy Hub is located approximately 5km north of the existing 400kV Fallago Rig Substation in the East Lothian local authority area, and is located approximately 6km southeast of the nearest settlement Gifford. The location of the grid connection is shown on Figure 1-1.

The grid connection will comprise a 132kV wood pole OHL and any associated ancillary works (approximately 6km in length) to connect the proposed Newlands Hill Wind Energy Hub (currently at consenting stage) to the electricity transmission system at the Fallago Rig Windfarm substation. This requires consent under Section 37 of the Electricity Act 1989.

This RCD explains the background to the grid connection and describes the approach to, and results of, the routeing study to identify a 'preferred route' for the grid connection. The grid connection would need to cross the Fallago Rig Windfarm site, which is a highly constrained area and would need to consider underground cabling to complete the connection to the Fallago Rig substation. The proposed extension to the Fallago Rig Substation, to provide additional capacity for the new windfarm grid connection, is also subject to separate planning consent under the Town and Country Planning (Scotland) Act 1997 (as amended), and therefore is not described further in this document.

The main purpose of this RCD is to present the findings of 'Phase 1' of the grid connection (see Section 1.4); the routeing study and identification of the preferred route for the grid connection to be consulted upon. The objective of the consultation is to seek feedback on the preferred route from statutory and non-statutory consultees as well as local communities and use this feedback to inform further design and assessment at subsequent stages of the project.

¹ Belltown Power – Newlands Hill Wind Energy Hub. Available online: <https://www.newlandshillwindenergyhub.com/>



Legend

- Study Area
- East Lothian / Scottish Borders Administrative Area Boundary
- Newlands Hill Wind Energy Hub Boundary (Proposed)
- Newlands Hill Wind Energy Hub Substation (Proposed)
- Newlands Hill Proposed Turbines (2 x RD buffer)
- Fallago Rig Windfarm Boundary
- Fallago Rig turbines (2 x RD = 300m diameter buffer)
- Fallago Rig Turbines (3 x RD = 450m diameter buffer)
- Fallago Rig Existing OHL
- Dunside Windfarm Boundary
- Dunside Turbines (proposed)

Route Options

- Option 1A
- Option 1B
- Option 1C
- Option 2 (Fallago Rig Windfarm indicative routing area)



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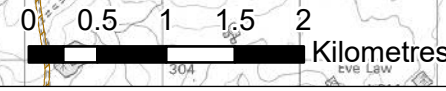
Project Title
NEWLANDS HILL WIND FARM GRID CONNECTION

Drawing Title
FIGURE 1-1 : LOCATION PLAN & STUDY AREA

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1.2 Project Background / Need for the Overhead Line

As part of their commitments to tackling climate change, the Scottish Government has set legally binding targets to reach net zero greenhouse gas emissions in Scotland by 2045. In delivering net zero, the electricity system, i.e. how electricity is generated, transmitted, distributed and used, is undergoing transformational change.

This grid connection is needed to connect the proposed Newlands Hill Wind Energy Hub to the electricity transmission system, following a connection request to National Grid Electricity Transmission (NGET) from the Newlands Hill Windfarm developer (Belltown Power). As the transmission licence holder, SP Transmission (SPT), represented by SPEN, is legally obliged under the Electricity Act 1989 ('the 1989 Act') to provide a grid connection.

The existing Fallago Rig Windfarm is located approximately 10km south of Gifford in the Lammermuir Hills, in the Scottish Borders. Operated by EDF Energy Renewables, it consists of 48 turbines with a maximum blade tip height of 125m and a battery storage facility (generating up to 144MW output capacity). The site received planning consent in 2010 from the Scottish Government Energy Consents Unit (ECU) and became operational in July 2013. Electricity feeds into the national grid through an existing 400kV power line crossing the site and has capacity to power up to 86,000 homes².

The proposed Newlands Hill Wind Energy Hub is located approximately 6km southeast of Gifford and 11km southeast of Haddington in East Lothian. It is proposed to consist of 17 turbines and a battery storage facility (124MW output), including 15 turbines with a height of 200m and two turbines at 180m. The development could have the capacity to power over 120,000 homes. Currently, the site is used for sheep grazing and managed as a grouse moor. As part of the application, significant habitat creation and enhancement across over 45 hectares is proposed. This will include new native woodland, riparian planting, and improvements to grassland, including wet grassland to support breeding wader birds. The wind turbines and their infrastructure, along with the battery storage facility and habitat enhancements, collectively form the Newlands Hill Wind Energy Hub. The completed windfarm would be connected to the transmission network with National Grid for distribution.

1.3 Statutory Duties and Licence Obligations

SPT, the Transmission Owner and Licence Holder under 1989 Act, is responsible for the electricity transmission network in central and southern Scotland. This includes land within the East Lothian and Scottish Borders local administrative areas where the grid connection is located. As the holder of a transmission licence under the 1989 Act, SPT is subject to a number of statutory duties and licence obligations. These include a requirement to:

- “develop and maintain an efficient, coordinated and economical system of electricity transmission”;
- and
- “facilitate competition in the supply and generation of electricity”.

This requires SPT to provide connections for new electricity generators seeking to connect to the transmission system in its licence area; to make its transmission system available for these purposes and to ensure that the system is fit for purpose through appropriate reinforcements to accommodate the contracted capacity.

Schedule 9 of the 1989 Act imposes a further statutory duty on SPT to take account of the following factors in formulating proposals for the installation of overhead transmission lines, as follows:

² Floors Castle – Fallago Rig Windfarm. Available online: <https://www.floorscastle.com/environment/sustainability/fallago-wind-farm/>

- “(a) to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features or special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and
- (b) to do what it reasonably can to mitigate any effects which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects.”

As a result of the above SPEN, acting on behalf of SPT, is required to identify electrical connections that:

- meet the technical requirements of the electricity system;
- are economically viable; and
- cause on balance, the least disturbance to both the environment and the people who live, work and enjoy recreation within it.

1.4 Statutory Consent Process

This section summarises the three key stages for the proposed development and consent of the grid connection:

- **Phase 1:** Routeing and Consultation – this RCD relates to Phase 1, which comprises a review of environmental, technical and economic considerations. This phase culminates in the identification of a preferred route option for the OHL, which is then subject to consultation.
SPEN is committed to ongoing consultation with interested parties, including statutory and non-statutory consultees and local communities. Whilst there is no statutory requirement to consult on the routeing elements, SPEN nonetheless considers it good practice to consult at this early stage.
- **Phase 2:** Detailed Route Design and Environmental Impact Assessment (EIA) – the proposed development also falls under the description of ‘Schedule 2 development’ of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and therefore requires consideration as to the potential for significant effects on the environment with reference to the criteria listed in Schedule 3 of the Regulations. Based on the proposal for a 132kV OHL connection, carried on wooden poles, and other characteristics of the grid connection (as described in Chapter 4), it is considered highly unlikely that the Scottish Ministers would determine that the grid connection constitutes ‘EIA development’. On this basis, a non-statutory Environmental Appraisal Report (EAR) would be prepared, targeted on key environmental topics and issues within the study area.
During this phase SPEN may undertake a second round of public consultation on the detailed design of the grid connection.
- **Phase 3:** Application for Consent – SPEN will apply to the Scottish Ministers for consent under Section 37 of the 1989 Act, to install and keep installed, the grid connection. The EAR will accompany the application for consent. In conjunction, SPEN will apply to the Scottish Ministers for deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended) for the grid connection and associated works. The Scottish Ministers will consult with statutory stakeholders and members of the public in determining the application for consent.

1.5 Stakeholder Engagement

An integral component of the Scottish planning and consenting system is stakeholder and public engagement. Legislation and government guidance aim to ensure that the public, local communities, statutory and other consultees have an opportunity to have their views taken into account throughout the planning process. SPEN recognises the importance of consulting effectively on proposals and is keen to

engage with key stakeholders including local communities and others who may have an interest in the grid connection. This engagement process continues through to the construction of SPEN projects. SPEN's approach to stakeholder engagement for major electrical infrastructure projects is outlined in Chapter 2 of SPEN's 'Approach to Routeing and Environmental Impact Assessment' (2020) document³.

SPEN aims to ensure effective, inclusive and meaningful engagement on its projects through the following engagement steps:

- **Pre-project notification and engagement:** Discussions are undertaken with consenting bodies, planning authorities, and statutory consultees such as NatureScot and Scottish Forestry. Early and proactive engagement enables the views of these consultees to inform project design, environmental and technical assessment methodologies and further engagement. It also provides consultees with an early understanding of the likely programme to submission of the application for consent.
- **Information gathering:** To inform the routeing stage, information on relevant environmental and planning considerations and proposed data gathering techniques (e.g. for seasonal ecological surveys) is requested from statutory consultees and other relevant organisations.
- **Obtaining feedback on emerging route options:** This RCD has been prepared to gather feedback on the OHL route options and the emerging preferred route. It has been issued to statutory consultees, and made available on SPEN's website, with its availability advertised in the press. A local exhibition has also been arranged in order to share relevant information and seek feedback (see Chapter 8 for more information).
- **The EIA / EAR stage:** The results of stakeholder engagement are taken into consideration and used to confirm the proposed OHL route for progression to the detailed design and environment assessment stage. Further consultation is carried out during this stage, including additional information gathering via consultations, desk-based assessments and environmental surveys to inform the assessments and reports to be submitted with the application for consent.

In addition, and as noted above, SPEN as a holder of a transmission licence, has a duty under section 38 and Schedule 9 of the 1989 Act, when formulating proposals for the new electricity lines and other transmission development, to have regard to the effect of work on communities, in addition to the desirability of the preservation of amenity, the natural environment, cultural heritage, landscape and visual quality.

1.6 Structure of the Document

The structure of this document is set out in Table 1-1.

Table 1-1: Structure of the RCD

Chapter	Description
1. Introduction	Provides an introduction to the grid connection, SPEN's statutory obligations and the consenting process, stakeholder engagement, and an outline of the purpose and structure of the RCD.
2. Project Description	Provides an overview of the grid connection and its key physical components including details of construction requirements.
3. Approach to Routeing	Describes SPEN's general approach to OHL routeing following established practices and sets out the approach to the grid connection.

³ SP Energy Networks (2020). Approach to Routeing and Environmental Impact Assessment. Available online: https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_Document_2nd_version.pdf

Chapter	Description
4. The Study Area	Identifies and describes the study area in which the routeing study has been undertaken as well as key constraints or features within it. Relevant national and local planning policy is also referenced.
5. Routeing Strategy	Describes the routeing strategy applied specifically to the grid connection for the identification and assessment of alternative route options.
6. Route Options	Describes and assesses the alternative route options within the study area.
7. Preferred Route	Identifies and describes the preferred route including the reasons for its selection.
8. Next Steps	Describes the key next steps in the grid connection including consultation on the preferred route and how to provide feedback.

2 Project Description

2.1 The Grid Connection

This section provides a description of the infrastructure which would be required for the grid connection. As introduced in Section 1.1, the grid connection consists of the following elements:

- An approximate 6km 132kV grid connection from the proposed Newlands Hill Wind Energy Hub to the substation within the southern section of the Fallago Rig Windfarm site, the majority of which would be wood pole OHL.
- Associated ancillary works including cabling, accesses and laydown areas.

It should be noted that this information is not confirmation of a final design; however, it is considered appropriate for the purposes of this routeing study and to inform this round of consultation. The proposed substation extension would also require separate planning consent under the Town and Country Planning (Scotland) Act 1997 (as amended), and is therefore not within the scope of the proposed development or this RCD.

2.2 Overhead Line Infrastructure

General Description

OHLs transmit electricity by conductors (or wires) which are suspended at a specified height above ground and supported by wood poles or steel towers, spaced at intervals.

The conductors can be made of aluminium or steel strands. The grid connection would include a 132kV single circuit and is proposed to be carried on Trident double 'H' wood poles (examples are provided in Figure 2-1 and the typical design described below).

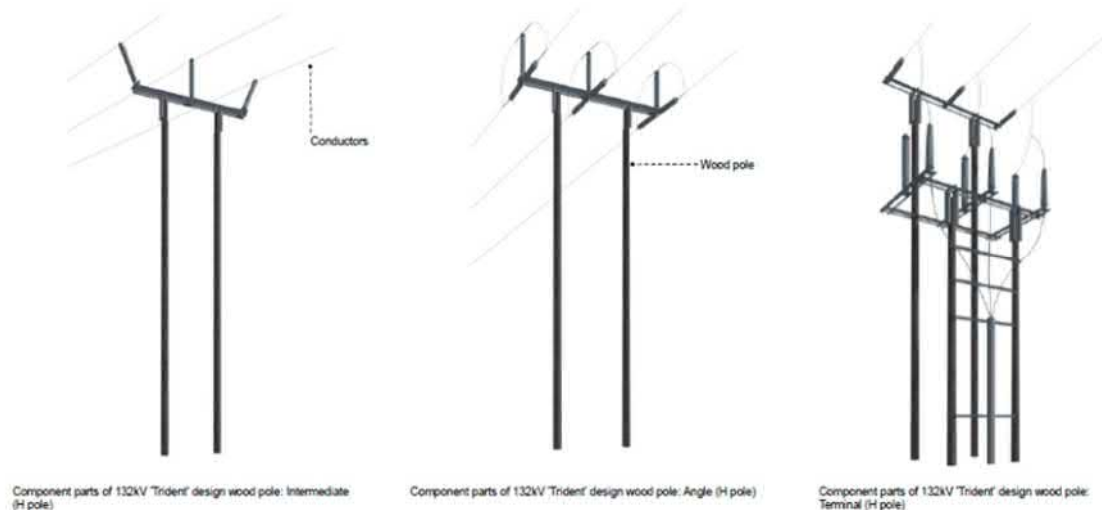


Figure 2-1: Typical Trident Double 'H' Wood Poles

Wood Pole Type, Height and Span Length

Trident wood poles are typically galvanised steelwork cross-arms supporting aluminium conductors on insulators. These are suitable for supporting single circuit lines operating at 132kV. Wood poles are fabricated from pressure impregnated softwood, treated with a preservation to prevent damage to structural integrity.

Wood poles are used to regulate the statutory clearances required for conductor height, which is determined by the voltage of the OHLs (the higher the voltage, the greater the safety clearance that is required) and the span length between wood poles. The standard height of trident 'H' poles (including steel work and insulators) typically range between 10m and 18m. Pole heights may require to be increased where circumstances dictate, for example over elevated land, structures or features.

The section of OHL between wood poles is known as the 'span', with the distance between them known as the 'span length'. Span lengths between wood poles typically average between 80m and 120m, with trident 'H' poles typically having a maximum span of 200m. Span lengths can be increased if there is a requirement to span a larger distance due to the presence of a feature in the landscape such as a river or loch. Equally, at higher altitude where more extreme weather is prevalent, the span length is typically reduced to take account of greater ice and wind loading factors.

New wood poles are dark brown in colour and weather over time to a light grey. The wood pole top cross-arms are galvanised steel and support the aluminium conductors on stacks of grey insulator discs. Both the steelwork and aluminium will weather and darken over time. In terms of appearance, there are three types of structure:

- Suspension or line: where the pole structure forms part of a straight section of line and no change in direction is required. Straight sections of wood poles include section poles where segmentation is required to contain any failure in the OHL.
- Tension or angle: where there is a horizontal or vertical deviation in line direction. The maximum allowable angle deviations on single wood pole designs is 30 degrees, with deviations up to 75 degrees being permitted. All angle structures require to be back stayed.
- Terminal: where the OHL terminates before entry into a substation or on to an underground cable section via a cable sealing end compound or platform.

Typical Construction Requirements

The construction of OHLs follows a well-established process. As well as the OHL it also requires additional temporary land-take and infrastructure, for example temporary accesses and temporary construction compounds to store materials.

Construction

Key phases of construction may comprise the following activities (not exhaustive):

- site clearance tree felling/ lopping and vegetation removal;
- construction of temporary construction compounds;
- preparation of accesses.
- excavation and construction of foundations;
- assembly and erection of poles;
- insulator and conductor erection and stringing / tensioning; and
- reinstatement.

Construction of individual wood poles takes place in one single operation. The hole is dug, and the pole erected within the same day depending on ground conditions and location. Angle poles can take longer due to the need for 'stay wires' to stabilise the pole in the ground.

Prior to constructing OHLs, temporary access routes would be constructed, as needed, and laydown/ storage areas established, typically located about halfway along the route. Trees that could interfere with safety clearances would either be removed or lopped. After the OHL is operational, all equipment and temporary access of construction areas would be removed with the land being reinstated to its former condition.

The construction programme for the grid connection would be confirmed at detailed design stage and prior to start of construction following the granting of statutory consents and after all necessary land purchase or wayleave arrangements have been concluded. At this stage, it is considered that construction of the grid connection and associated works would be approximately 26 months with works scheduled to be complete by March 2029.

Operation and Maintenance

OHLs require minimal maintenance. The condition of the wood poles would be inspected regularly for early identification of any unacceptable deterioration and to ensure action can be taken to maintain the security and safety of all components of the grid connection. Poles which have deteriorated significantly may be removed and replaced. Access arrangements for maintenance will be agreed in advance with landowners and will be undertaken within the agreed wayleave. There is also an ongoing requirement to ensure that any vegetation within proximity to the grid connection does not impact on safety clearances.

Decommissioning

OHL infrastructure is subject to well-established procedures for dismantling/ decommissioning. If an OHL line is to be decommissioned, wood poles would be removed with components re-used where possible. Foundations and supports are removed to a minimum depth of 1m below ground level and the ground reinstated to pre-development conditions, to the satisfaction of the landowner.

3 Approach to Routeing

3.1 Approach to the Overhead Line Routeing

SPEN published a second version of their 'Approach to Routeing and Environmental Impact Assessment'³ in 2020 which describes their general approach to routeing new electricity transmission infrastructure. In line with SPT's statutory duties and licence obligations, and drawing upon established practice, careful routeing needs to balance environmental, technical and economic considerations (examples provided below). Having established the need for a project, the starting point is to identify an OHL route. However, SPEN also recognised specific situations where an underground cable could be a more appropriate alternative.

The first principle of SPEN's approach is that the main effect of an OHL is visual and that the degree of visual impact can be reduced by careful routeing; for example, by using topography and trees to provide screening or background to the OHL and by siting the OHL at a distance from settlements and roads. In addition, OHL routeing takes into account other environmental and technical considerations and will avoid, wherever possible, the most sensitive and valued natural and man-made features.

Environmental Considerations

Environmental considerations include (for example):

- landscape character;
- visual amenity;
- ecology and ornithology;
- cultural heritage;
- watercourses/hydrology and flood risk;
- geology and soil (such as carbon-rich soils and deep peat); and
- land uses, e.g. agriculture and forestry.

Technical Considerations

Technical considerations include (for example):

- proximity to existing electricity transmission or distribution infrastructure (e.g. overhead lines and buried cables);
- proximity to wind turbines, public utilities and mineworking areas;
- altitude, topography and slope gradients;
- accessibility;
- crossings of roads, railways and watercourses; and
- forestry and ground conditions.

Economic Considerations

In compliance with the duties imposed on SPEN in terms of Section 9 of the Electricity Act 1989 (as introduced in Section 1.3), the proposed route must be 'economically viable'. This is interpreted by SPEN as meaning that as far as is reasonably practicable, and all other concerns being equal, the line should be as direct as possible, and the route should avoid areas where technical difficulty or compensatory requirements would render the development unviable on economic grounds.

3.2 Established Practice and Guidelines

The Holford Rules

Routeing considerations take account of the guidance contained in ‘the Holford Rules’ and relevant notes or clarifications (see Appendix A). It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing OHLs, and subsequent updates, should continue to be used as the basis for routeing high voltage OHLs.

The Holford Rules are broadly hierarchical with Rules 1 and 2 placing considerable emphasis on avoiding areas of the highest or high amenity value. Holford Rule 1 advises that routes should avoid major areas of the highest amenity value where possible, and Rule 2 advises that routes should avoid smaller areas of high amenity value by deviation. The Rules do not identify what constitutes “major areas” or “smaller areas” but indicate that consideration should also be given to the spatial extent of areas of highest/high amenity or environmental value. The Holford Rules also consider landform, topography and vegetation in order to reduce landscape and visual effects, and these rules have been interpreted and applied to this routeing study.

Holford Rule 1 – Areas of Highest Amenity and Environmental Value

The term ‘amenity’ has generally been interpreted as designated areas or sites of scenic, landscape, nature conservation, scientific, architectural or historical interest. This is consistent with SPT’s duties under Schedule 9 of the 1989 Act. For the purposes of this routeing study, the term ‘environmental’ has been used in addition to ‘amenity’. This more appropriately reflects the intrinsic environmental, social and cultural value of such designated areas.

The review undertaken by Scottish Hydro Electric Transmission Limited (SHETL) in 2003 provides examples of areas “highest” or “high” amenity or environmental value and states that such areas “require to be established on a project-by-project basis considering Schedule 9 of the Electricity Act 1989”.

While the Holford Rules do not address residential areas, the subsequent notes and clarifications (contained with Appendix A) provide guidance stating to “avoid routeing close to residential areas as far as possible on grounds of general amenity”. For the purposes of this study, settlements have been defined as areas of highest amenity or environmental value. Smaller clusters or individual properties are considered to be a deviation issue and while of similar importance, are considered to be a detailed routeing consideration.

Holford Rule 2 - Smaller areas of high amenity value or scientific interest

For the purposes of this study smaller areas of “high amenity” value or “scientific interest” have been considered. The smaller areas of high amenity value or scientific interest are generally considered to present a greater constraint and therefore require more detailed consideration. Whilst avoidance of these areas is desirable when defining preferred routes during the routeing study, they are generally more likely to pose constraints on the detailed design of the grid connection. Similar to Rule 1, these areas are generally all relevant to environmental aspects listed under Schedule 9, Paragraph 3 (1)(a) of the 1989 Act.

The Holford Rules recognise existing woodland and forestry as features of value as well as presenting opportunities for minimising amenity impacts from new OHLs. The Holford Rules note that where possible routeing should follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods. Where there is no reasonable alternative to OHL routeing through woodland or commercial forestry, discussions should be undertaken with the relevant forestry regulator. Further to the Holford Rules, the UK Forestry Standard (UKFS) was published in 2017 and provides the national reference standard for managing forests in the UK to meet current needs without hindering future generations requirements. The UKFS sets guidelines for sustainable forest management and recognises Scotland’s forests have a range of environmental, economic and social objectives. The fifth edition of the UKFS will become effective from 1st October 2024.

The Scottish Government is committed to maintaining and increasing Scotland's woodland cover and has developed supporting policy guidance to strictly control removal and, where felling is permitted, the requirement for compensatory planting as set out in the Scottish Government's Policy on Control of Woodland Removal and the associated implementation guidance⁴.

Holford Rules 3, 4, 5, 6 and 7

These Holford Rules highlight the importance of considering landscape and visual matters in routeing including giving consideration to landscape character including sensitivity to OHLs, the use of landform and woodland to reduce visual intrusion or prevent 'skylining' and the presence of other OHLs and the potential to create 'wirescapes'. Holford Rule 7 also advises that when residential and recreational land intervenes between the OHL and the substation, the comparative costs of undergrounding should be considered for lines other than those of the highest voltage.

For the purposes of this study, landscape and visual considerations have principally informed the identification of route options, taking account of the considerations described above as far as possible.

Biodiversity Net Gain (BNG)

SPEN is committed to achieving No Net Loss (NNL) of biodiversity across all of its projects. The Scottish Government has not adopted a formal definition of Biodiversity Net Gain (BNG). However, SPEN's commitment to BNG aligns with the emerging requirements of National Planning Framework 4 (NPF4) (see Section 4.4 for more information). This includes policies that prioritise the global climate and nature crises and seek to protect and enhance biodiversity, nature networks, and the natural environment.

In recognition of their commitment to BNG (NNL), SPEN has proactively adopted Scottish and Southern Energy Networks (SSEN) toolkit⁵, based on DEFRA's BNG metric (version 2.0)⁶. The tool has been specifically adapted to reflect the unique nature of Scotland's vegetation communities. At this stage of the project, a high-level qualitative assessment of BNG constraints and opportunities has been undertaken and presented in Table 6-1 and Section 7.2 of this document.

3.3 Routeing Methodology

Overview of Approach to Routeing

The approach to identifying and assessing alternative route options for the grid connection is illustrated in Figure 3-1. It follows SPEN's approach and draws upon established practice ensuring that the process is robust and transparent. It is a systematic and iterative approach in which an increasing level of detail is applied at each step concluding with the identification of a preferred route to be subject to consultation.

⁴ Forestry Commission Scotland (2009) The Scottish Government's Policy on Control of Woodland Removal. Available online: <https://www.forestry.gov.scot/publications/support-and-regulations/control-of-woodland-removal>

⁵ SSE Renewables website. <https://www.sserenewables.com/sustainability/biodiversity-net-gain/>

⁶ Note that Defra has now published version 4.0 of the BNG metric, which is available at The Biodiversity Metric 4.0 - JP039 (<https://publications.naturalengland.org.uk/publication/6049804846366720>)

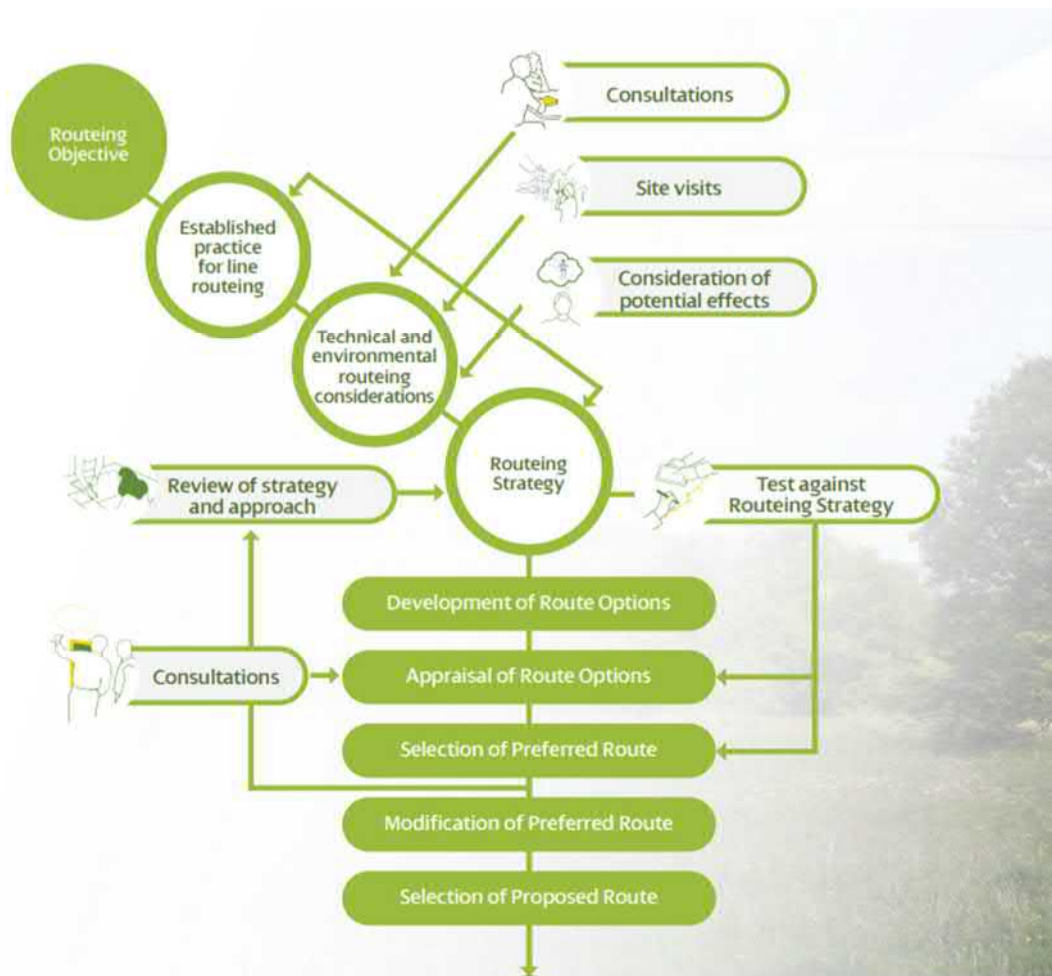


Figure 3-1: SPEN's Routeing Methodology (taken from SPEN's 2020 guidance)

Grid Connection Routeing Objective

The first step in the approach has been to identify an overarching objective for the grid connection, which takes account of SPT's statutory duties and licence obligations. In accordance with SPEN's overall approach to routeing, the objective for the grid connection is:

"To identify a technically feasible and economically viable 132kV overhead line (wood pole) between the proposed Newlands Hill Wind Energy Hub and the substation at the existing Fallago Rig Windfarm. This route should, on balance, cause the least disturbance to the environment and the people who live, work and enjoy recreation within it."

4 The Study Area

4.1 Overview

This chapter describes the study area and routeing considerations within it as set out in the routeing methodology illustrated in Figure 3-1. This considers established approaches to OHL routeing described in the previous section including SPEN's approach to routeing as well as the guidance contained in the Holford Rules (see Appendix A).

4.2 Description of the Study Area

Overview

A study area of up to 5km has been derived based on professional judgement considering the types of impact the route options could have on the environment, the local environmental setting, and the relevant environmental receptors identified. From a landscape and visual perspective, although environmental impacts of an OHL could reach beyond 1.5km, for the purposes of appraisal of route options, 1.5km was considered to provide a proportionate study area to allow comparison between route options. This was determined by the extent of landscape character areas with the potential to be significantly affected, either directly or indirectly, as well as the range of the area from which the grid connection could lead to potentially significant visual effects.

For the cultural heritage appraisal, only assets located within 2km of each route option has been considered at this stage. The assessment has also used data from the Canmore website⁷ for non-designated heritage assets with only those that lie within the route option extents considered.

The study area lies within both the East Lothian and Scottish Borders authority areas (northern and southern portion of the study area, respectively). The Newlands Hill Wind Energy Hub is located within East Lothian, and the Fallago Rig windfarm and substation are located within the Scottish Borders area. The Newlands Hill Wind Energy Hub is located approximately 6km southeast of the nearest settlement Gifford in the northern part of the Lammermuir Hills and the area generally consists of open, treeless and undulating moorland generally ranging between approximately 350m and 500m above ordnance datum (AOD).

Existing landcover consists mainly of an unenclosed mosaic grass and heather moorland on a medium sized plateau. In the vicinity of the Fallago Rig Windfarm, the area comprises a plateau of rolling hills. The area is in use as an active grouse moor and for open grazing. The study area contains discrete pockets of peat, and is intersected by small headwaters and tributaries. The area is located within a protected catchment for drinking water.

To the northwest, the hills drop down to the lower lying and flatter Lothian plain which extends away towards the coast and is more heavily settled and hosts major transport routes including the A1 and East Coast Mainline railway line. Access within the surrounding hills is generally limited to a small number of minor roads including the B6355 from Gifford, hill tracks and occasional core paths.

There are nearby clusters of existing windfarm development within the wider study area, comprising Crystal Rig and Aikengall windfarms to the northeast, and at Fallago Rig within the southern portion of the study area. The proposed Dunside Windfarm, which comprises up to 14 turbines and battery storage, is located immediately to the east of the Fallago Rig Windfarm site in the Lammermuir Hills, and is currently at the consenting stage (no decision has been made by the Scottish Ministers at the time of writing)⁸.

⁷ National Record of the Historic Environment website. Canmore. Available online: <https://canmore.org.uk/>

⁸ EDF Renewables – Dunside Wind Farm. Available online: <https://dunsidewindfarm.co.uk/>

There are several discrete areas of designated ancient and native woodland, particularly on the west side of the route options. The nearest area of ancient woodland (listed on the Ancient Woodland Inventory, AWI)⁹ is located approximately 0.8km west of the route options at its closest extent. The nearest pocket of native woodland (listed on the Native Woodland Survey of Scotland, NWSS)¹⁰ is located approximately 1.7km west of the route options at its closest extent, which consists of upland birchwood. There are also no Tree Preservation Orders (TPOs) listed within the study area.

There are no statutory ecological designated sites within the study area. The River Tweed and some of its tributaries are designated as a Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). The river is designated for Atlantic salmon (*Salmo salar*), Otter (*Lutra lutra*) and Brook and River lamprey (*Lampetra planeri and fluviatilis*). The nearest tributaries, which are designated, are located at least 5km southeast from the route options at their closest extents. The closest Special Protection Area (SPA), 'Fala Flow', is located approximately 13km to the west of the route options on the opposite side of the A68. This SPA is designated for the presence of non-breeding Pink-footed goose (*Anser brachyrhynchus*).

The closest SSSI is 'Lammer Law', located a minimum 0.8km west of the route options at its closest extent, and is designated for its upland blanket bog, heather moor and juniper scrub. It includes three characteristic upland habitats; blanket bog, sub-alpine dry heath and juniper woodland. The site is also notified for the mosaic of upland habitats present. The site supports one of the largest and least disturbed areas of upland blanket bog and heather moorland in East Lothian¹¹. Much of the study area, particularly the northern part, also falls within a designated local nature conservation site (LNCS), 'Lammermuirs', which contains upland heath, bog and grassland habitats.

Within the study area, there are 25 designated heritage assets comprising 19 scheduled monuments and six listed buildings (see Figure C.3, Appendix C). The closest designated heritage asset to the route options is the scheduled 'Whitestone Cairn, cairn, Harestone Hill' (SM 5921) located approximately 0.6km to the west of route options at its closest extent. Beyond the study area, the Inventory Garden and Designed Landscape 'Yester House' is located approximately 3.2km northwest of the route options with the closest Conservation Area located in Gifford, approximately 6km to the northwest. There are no World Heritage Sites or Inventory Battlefields recorded within the study area or the surrounding wider landscape.

These existing environmental considerations are shown on Figures C.1 to C.5 in Appendix C.

4.3 Landscape Character Context and Designations

The following landscape character types (LCTs), identified by NatureScot, are located within the study area (from north to south) and described as follows (see Figure C.1, Appendix C):

- **LCT 269: Upland Fringes – Lothians:** a transitional, hillside landscape on the northern fringes of the uplands differentiated from the uplands by productive land uses changing from farmland to moorland upland. Consisting of undulating landforms with smooth rounded hills and slopes, it transitions from the uplands to rolling farmlands in the north. The higher areas have remnant heather moorland and rough grassland, while the lower elevations have improved grassland and arable land. Tree cover is mostly found in the form of shelterbelts, with limited deciduous woodland in steeper areas near rivers. Settlements are dispersed, with farmsteads and clusters of cottages. Panoramic views across the lowland and towards the coast in the east, with the ridge lines of the hills to the south providing a backdrop.

⁹ NatureScot – Ancient Woodland Inventory Map. Available online: <https://opendata.nature.scot/datasets/snh::ancient-woodland-inventory/about>

¹⁰ Scottish Forestry – Native Woodland Survey of Scotland (NWSS). Available online: <https://www.forestry.gov.scot/forests-environment/biodiversity/native-woodlands/native-woodland-survey-of-scotland-nwss>

¹¹ NatureScot SiteLink website. Lammer Law SSSI. Available online: <https://sitelink.nature.scot/site/903>

- **LCT 266: Plateau Moorland – Lothians:** an area of elevated landscape characterised by its altitude and subdued plateau character. This landscape features modest hills and moors forming a broad plateau with rounded smooth convex slopes. It is characterised by open upland areas with sparse tree cover. The vegetation includes heather moorland, rough grasses on upper slopes, and patches of poor rough grassland and occasional improved pasture on lower slopes. The landscape is generally unenclosed, with some fences along roads and access tracks, as well as stone sheep stells and walls around farmsteads. The area has a sparse population, with scattered farmsteads in valleys. Reservoirs and historic human influences are visible, creating focal points. When viewed from lower land to the north, the plateau forms the skyline.

The study area spans five locally designated Special Landscape Areas (SLAs). These contiguous SLAs are defined within the following documents:

- East Lothian Local Development Plan 2018 Special Landscape Character Areas Supplementary Planning Guidance (October 2018)¹²; and
- Scottish Borders Council Supplementary Planning Guidance Local Landscape Designations (August 2012)¹³.

The SLAs within the jurisdiction of East Lothian Council broadly correlate with landscape character areas (LCAs) as defined within the Landscape Character Area Boundary Review carried out in 2015. The SLA landscape character descriptions have formed the focus of this study and more detail is provided in Appendix B:

- **Lammermuir Moorland SLA** – locally designated by East Lothian Council within which the majority of the route options are located (associated with Lammermuir Plateau LCA).
- **Lammermuir Hills SLA** – locally designated by Scottish Borders Council within which Fallago Rig Windfarm and the southernmost extents of the route options are located.
- **Lammer Law / Hopes to Yester SLA** – locally designated by East Lothian Council, a transitional landscape located on the northern fringes of the upland through the foothills to the rolling agricultural lowland on the southern fringes of Gifford (broadly associated with the Western Lammermuir Fringe and Eastern Lammermuir Fringe LCAs).
- **Monynut to Blackcastle SLA** – locally designated by East Lothian Council, located in the north of the study area within which the proposed Newlands Hill Wind Energy Hub would be located (broadly associated with Eastern Lammermuir Fringe LCA);
- **Whiteadder SLA** – locally designated by East Lothian Council, located in the east of the study area, which includes the valley sides descending from the upland areas to the Kell Burn and Whiteadder reservoir (associates with Whiteadder Upland Valley LCA).

Landscape Character Summary

In summary, the local landscape designations in the study area indicate a relatively high landscape value. The descriptions included in Appendix B highlight the sensitivity of the unbroken horizontal element of the Lammermuir Hills as a backdrop to views from the plains and foothills below and within the Lammermuir Hills themselves. The perception of scale of the moorland hills and valleys is a key component of landscape character and should be unaffected by the grid connection.

¹² East Lothian Council – Supplementary Planning Guidance. Available online:
https://www.eastlothian.gov.uk/downloads/download/13103/supplementary_planning_guidance_spg

¹³ Scottish Borders Council – Local Landscape Designations Planning Guidance. Available online:
https://www.scotborders.gov.uk/directory-record/20043/local_landscape_designations

4.4 Planning Policy

National Planning Policy

National Planning Framework 4 (NPF4)¹⁴ was adopted by the Scottish Ministers on 13 February 2023. NPF4 is a long-term plan for Scotland that sets out where development and infrastructure is needed.

NPF4 sets out pathways aligned with the Government's target for achieving net zero by 2045: *"we must embrace and deliver radical change so we can tackle and adapt to climate change, restore biodiversity loss, improve health and well-being, reduce inequalities, build a wellbeing economy and create great places."*

Of key relevance to the grid connection is NPF4 Policy 11 (Energy), which seeks to encourage, promote and facilitate *"all forms of renewable energy development onshore and offshore"*, including *"new and replacement transmission and distribution infrastructure"*. Environmental impacts of such developments are to be addressed in the project design and mitigation. It is noted that in the consideration of impacts *"significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets"*. With specific reference to grid infrastructure proposals, it is noted that *"consideration should be given to underground connections where possible."*

NPF4 Policy 4 (Natural Places) seeks to protect, restore, and manage natural assets and designated sites. Policy 4 informed the consideration of 'Areas or Sites of Highest Amenity or Environmental Value', introduced within Section 3.2. Specifically:

- European Sites (Special Areas of Conservation (SACs), Special Protection Areas (SPA) and Ramsar sites);
- National Parks;
- National Scenic Areas;
- Site of Special Scientific Interest (SSSI);
- National Nature Reserves; and
- Wild land.

NPF4 Policy 3 (Biodiversity) seeks to *"protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks"*. Mapping constraints and opportunities, in terms of BNG or NNL, is a key part of SPEN's routeing process, and addresses the need for development proposals to deliver biodiversity enhancements in line with Policy 3.

Policy 6 of NPF4 outlines that development proposals involving woodland removal will only be supported where they will achieve significant and clearly defined additional public benefits in accordance with relevant Scottish Government policy on woodland removal. Where woodland is removed, compensatory planting will most likely be expected to be delivered.

NPF4 Policy 7 (Historic assets and places) sets out the intent to *"...protect and enhance historic environment assets and places, and to enable positive change as a catalyst for the regeneration of places."* Policy 7 encompasses both designated and non-designated heritage assets which should be considered as part of the routeing and siting process to avoid, where possible, or minimise any impacts to their cultural significance.

The grid connection would be consented through the 1989 Act, and for these applications NPF4 does not have the same statutory role as it does within Town and Country Planning (Scotland) Act 1997 applications. However, NPF4 and other relevant planning policy, including local planning policy, contains

¹⁴ Scottish Government (2023). National Planning Framework 4. Available online: <https://www.gov.scot/publications/national-planning-framework-4/>

policies relating to many of the environmental factors listed in Schedule 9 of the 1989 Act. NPF4 can therefore be a key consideration during the determination by Scottish Ministers for Section 37 consent under the 1989 Act.

Local Planning Policy

The grid connection study area is located within the East Lothian and Scottish Borders local authority areas. In both of these jurisdictions, local planning policy is set out in the following plans:

- East Lothian Council Local Development Plan (LDP), adopted on 27 September 2018¹⁵; and
- Scottish Borders Council Local Development Plan 2 (LDP2), adopted on 22 August 2024¹⁶.

Of key relevance within East Lothian Council's LDP (2018) is Policy EGT4 (Enhanced High Voltage Electricity Transmission Network), namely:

"The council supports enhancement of the high voltage electricity transmission network in locations defined by operational requirements, subject to acceptable impacts on the landscape, visual amenity, communities, natural and cultural heritage and the provision of appropriate mitigation where required."

With regards to Special Landscape Areas, LDP Policy DC9 states:

"Development within or affecting Special Landscape Areas will only be permitted where:

- 1. it accords with the Statement of Importance and does not harm the special character of the area; or*
- 2. the public benefits of the development clearly outweigh any adverse impact and the development is designed, sited and landscaped to minimise such adverse impacts."*

With regards to the Protection of Local Sites, LDP Policy NH3 states:

"Development that would adversely affect the interest of a Local Nature Conservation Site, Local Nature Reserve or Country Park will only be permitted where it is demonstrated that any damage to the natural heritage interest or public enjoyment of the site is outweighed by the economic, social or environmental benefits of the development and suitable mitigation will be secured."

Of key relevance within Scottish Borders Council LDP2 (2024) is Policy ED9 (Renewable Energy Development) states that development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported, including *"enabling works, such as grid transmission and distribution infrastructure"*. The aim of Policy ED9 is to support renewable energy, to guide development to appropriate locations, and to advise on the factors to be taken into account in considering proposals, including the relevant policies within NPF4 Policy 11 (see section above). This supports the principle of renewables in tackling the climate emergency and sets out the balance of considerations that should apply.

With regards to Special Landscape Areas, LDP2 Policy EP5 states:

"In assessing proposals for development that may affect Special Landscape Areas, the Council will seek to safeguard landscape quality, as identified in its Statement of Importance for the relevant Special Landscape Areas. Proposals that have a significant adverse impact will only be permitted where the landscape impact is clearly outweighed by social, environmental or economic benefits of national or local importance."

¹⁵ East Lothian Council (2018) Local Development Plan. Available online: https://www.eastlothian.gov.uk/info/210547/planning_and_building_standards/12242/local_development_plan

¹⁶ Scottish Borders Council (2016) LDP. Available online: <https://www.scotborders.gov.uk/plans-guidance/local-development-plan>

With regards to the environmental promotion and protection of local biodiversity and geodiversity, LDP2 Policy EP3 states:

“Any development that could impact on local biodiversity through impacts on habitats and species should:

a) aim to avoid fragmentation or isolation of habitats; and

b) be sited and designed to minimise adverse impacts on the biodiversity of the site, including its environmental quality, ecological status and viability; and

c) compensate to ensure no net loss of biodiversity through use of biodiversity offsets and ensure net gain as appropriate; and

d) aim to enhance the biodiversity value of the site, through use of an ecosystems approach, with the aim of creation or restoration of habitats and wildlife corridors and provision for their long-term management and maintenance.”

5 Routeing Strategy

5.1 Overview

The routeing strategy has been developed taking into account the routeing objective and routeing considerations identified in Chapter 3. The purpose of the routeing strategy is to ensure a consistent approach to identifying and assessing the route options, leading to a preferred route whilst ensuring that appropriate consideration is given to balancing the routeing considerations which have been identified. Given the nature of OHLs, the key environmental effects are likely to be landscape and visual effects (see Sections 3.1 and 3.2). To limit adverse effects on landscape and visual amenity, careful routeing is undertaken, led by experienced landscape architects based on professional judgement and experience and informed by fieldwork.

5.2 Grid Connection Routeing Strategy

Route options have been developed such that they:

- Are as direct as possible between Newlands Hill Wind Energy Hub and the boundary of the Fallago Rig Windfarm.
- Minimise, as far as possible, potentially adverse effects on residential and visual amenity by taking account of the pattern and distribution of settlement and individual/ clustered properties.
- Minimise potential direct and indirect effects on:
 - all other statutory and non-statutory sites within the study area;
 - habitats and protected species; and
 - recreational and access routes.
- Take account of existing and planned land use and infrastructure as far as possible including extension of settlements, proximity to existing OHLs and windfarms.
- Consider Biodiversity Net Gain (BNG) opportunities.

6 Route Options

6.1 Identification of Route Options

A routeing exercise was undertaken to identify route options within the study area. These options were generated taking into consideration the Holford Rules and key routeing considerations discussed in Chapter 3 and Chapter 4 above. Three route options (Options 1A, 1B and 1C) and a general route option (Option 2) were identified and are illustrated on Figure 1-1 and are described below.

Route Option 1A

Route Option 1A originates on the southern side of Newlands Hill at 380m AOD on the outer extent of the proposed Newlands Hill Wind Energy Hub boundary and navigates southwest via a valley / minor depression, following the watercourse, Fasney Water. The grid connection steadily heads uphill as it passes over Wolf Cleugh watercourse and then arcs around the western side of Meikle Says Law (540m AOD), reaching its highest point at 500m AOD, before steadily descending in a southerly direction towards the existing Fallago Rig Windfarm.

Route Option 1B

Route Option 1B originates on the southern side of Newlands Hill at 380m AOD on the outer extent of the proposed Newlands Hill Wind Energy Hub boundary and travels directly south, arcing around the eastern side of Meikle Says Law and ascending steadily over multiple minor watercourses to a maximum height of approximately 500m AOD. From there it continues in a southerly direction through the Fallago Rig Windfarm site.

Route Option 1C

Route Option 1C originates on the southern side of Newlands Hill at 380m AOD on the outer extent of the proposed Newlands Hill Wind Energy Hub boundary and arcs in a southeasterly direction around the eastern sides of Little Collar Law and Collar Law, before continuing from the eastern boundary of the Fallago Rig Windfarm to the substation.

Route Option 2

Option 2 covers a general area within the boundary of the Fallago Rig Windfarm to the substation. The area comprises a plateau of rolling hills and landcover is mainly composed of heather moor acid grassland. As introduced in Section 1.1, the grid connection would need to cross the Fallago Rig Windfarm site, which is a highly constrained area. As such, a number of options would need be considered in this area to overcome the design and technical constraints of crossing an operational windfarm site. At this stage, it is considered there would be similar constraints identified within this general routeing area, and no routeing preference would be identified at this stage.

The routeing for a grid connection through the windfarm site would be subject to detailed design at future project stages to determine the most technically feasible and economically viable solution. As a result, Option 2 has not been appraised within Table 6-1 and the routeing in this area is not subject to consultation at this stage.

6.2 Appraisal of Route Options

The appraisal of the three route options is presented in Table 6-1. Route options have been mapped and appraised against a range of environmental considerations (see Appendix C, Figures C.1 to C.5). For each routeing topic, Table 6-1 identifies where a preference has been identified between the route options.

Table 6-1: Summary of assessment

Topic	Route Option 1A	Route Option 1B	Route Option 1C	Preference
Approximate length of route (km)	4.5	3.5	5.1	Route Option 1B – the shortest, most direct route.
Landscape Character	<p>Commencing in the north, the route option spans approximately 3.7km within the Lammermuir Moorland SLA. The topography of this area consists of upland terrain, following the upper sections of the Fasney Water river valley and its minor tributary streams, including Black Grain, Marlion Grain, and Wester Mossy Burn. These sections of river valley are relatively shallow, and small-scale in nature.</p> <p>Moving southward the route option ascends to Fallagoridge Head, reaching an elevation of approximately 500m AOD. From this point, the route option extends across the Lammermuir Hills SLA for around 360m, gradually descending until it reaches the Fallago Rig Windfarm boundary and continuing to the substation. At the highpoint of Fallagoridge Head, there is a possibility of an OHL standing out prominently against the skyline.</p> <p>To the east of the route, the summit of Meikle Says Law can be found, while Harestone Hill Cairn is situated immediately to the west. Throughout the entire route option, there is a published public right of way that follows the Fasney Water river valley and leads to the summit of Meikle Says Law, offering notable views as mentioned in the SLA description.</p> <p>It is important to note that the existing energy infrastructure within the landscape forms detracting features. The route option has close-range intervisibility with Fallago Rig Windfarm, as well as long-range intervisibility with electricity pylons located approximately 2.5km to the east.</p>	<p>Starting from the northern section, the route option spans approximately 2.70km within the Lammermuir Moorland SLA. The route option is characterised by the undulating upland topography of the foothills of Meikle Says Law. Along the length of the route option, there are short sections where the route intersects with the small-scale and shallow upland stream valleys of Wolf Clough, Sheil Burn, Lamb Burn, and Dead Grain.</p> <p>Moving southward, the route option ascends towards a high point slightly to the east of the summit of Little Says Law, reaching an elevation of approximately 465m AOD where it reaches the windfarm boundary beneath the ridgeline, before continuing to the substation facility.</p> <p>It should be noted that the existing energy infrastructure within the landscape forms detracting features. The route option has close-range intervisibility with the Fallago Rig windfarm, as well as long-range intervisibility with electricity pylons located approximately 1.2km to the east.</p>	<p>Beginning from the northern section, the route extends for approximately 4.4km within the Lammermuir Moorland SLA. The route corridor is characterised by the undulating topography of the upland hillside foothills and several upland river valleys.</p> <p>The northern section of the route option crosses the Fasney Water river valley before ascending slightly to cross the foothills of Dun Side. In this section, the Fasney Water valley landform is more deeply incised into the landscape, creating a small-scale enclosed valley with shorter range views.</p> <p>As the route progresses southward, it descends to cross the small-scale Lamb Burn river valley before ascending again to pass by the summit of Collar Law through the lower hillside slopes to the north and west of its summit. The route also crosses the shallow, small-scale stream valleys of Hare Cleugh and Hareshaw Burn before running parallel to the existing high voltage pylons, reaching a high point of 445m AOD before continuing from the eastern boundary of the Fallago Rig Windfarm to the substation.</p> <p>The presence of existing energy infrastructure within the landscape forms detractors. There is a close-range intervisibility between the route option, Fallago Rig Windfarm, and the large-scale electricity pylons located immediately adjacent to the route option.</p>	<p>Route Option 1B</p> <p>This option provides the shortest most direct route. The landscape is of a larger scale, relatively open and predominantly hillside landform with a greater capacity to accommodate the grid connection than smaller scale valley landforms.</p> <p>Route Option 1B reduces the impact of a wirescape, being located at a distance from the existing electricity pylons to the east of the study area.</p> <p>This option maintains a distance between the key landscape features of Meikle Says Law hill and Harestone Hill Cairn.</p>
Visual Amenity	<p>Visual receptors within this route option comprise high sensitivity users of public rights of way and low sensitivity road users.</p> <p>A network of rights of way are present in the vicinity of the route. A right of way located within the Fasney Water river valley which forms one of the access routes to the summit of Meikle Says Law extends across almost the full length of the route across a distance of approximately 3.5km. Meikle Says Law is a recognised destination for walkers with notable views from the summit.</p> <p>The route is within relatively close proximity to the B6355 and adjoining country road to Longformacus village (located approximately 12km to the east). The undulating topography would result in glimpsed views of the route option as it passes over high ground.</p>	<p>Visual receptors within this route option comprise high sensitivity users of public rights of way and low sensitivity road users.</p> <p>A network of rights of way are present in the vicinity of the route. The route crosses the footpath network in two locations both of approximately 0.3km in length. The route comes within close proximity to Core Path 25 near the summit of Little Says Law.</p> <p>The route is within relatively close proximity to the B6355 and to the country road to Longformacus village (located approximately 12km to the east). The undulating topography would result in glimpsed views of the route option as it passes over high ground.</p>	<p>Visual receptors within this route option comprise high sensitivity residential receptors at Fasney Cottage, high sensitivity users of public rights of way and low sensitivity road users.</p> <p>The route is located approximately 0.4km from Fasney cottage where oblique views towards the route option would be available where the route crosses the Fasney Water river valley in the vicinity of Core Path 25.</p> <p>The grid connection would be seen in relatively close proximity forming a prominent feature within the view from this property and would be seen against the skyline.</p> <p>A network of rights of way are present in the vicinity of the route option. The route option crosses the footpath network in several locations including a short section of Core Path 25 and short sections of footpath to the north and south of Lamb Burn. The route option passes in close proximity to a long</p>	<p>Route Option 1B</p> <p>This is due to this route option being relatively well concealed within the landscape and largely viewed against a hillside backdrop.</p> <p>This route avoids high sensitivity residential visual receptors at Fasney Cottage and has the least impacts on high sensitivity users of public rights of way by its approximate equidistant location between the main route to Meikle Says Law and Core Path 25.</p>

Topic	Route Option 1A	Route Option 1B	Route Option 1C	Preference
			<p>section of footpath located within the Fasney Water river valley.</p> <p>The route option is within relatively close proximity to the country road between the B6355 road and Longformacus village. The undulating topography would result in glimpsed views of the route option as it passes over high ground. The route would not be visible from the B6355.</p>	
<p>Cultural Heritage</p>	<p>There are no Scheduled Monuments, Listed Buildings, World Heritage Sites, Inventory Battlefields or Inventory Gardens or Designed Landscapes within Route Option 1A.</p> <p>Within 2km of the route option there are four scheduled monuments and two listed buildings, which comprise:</p> <ul style="list-style-type: none"> Scheduled Whitestone Cairn,cairn,Harestone Hill (SM 5921); Scheduled Green Castle,enclosure 100m NE of fort (SM4549); Scheduled Hopes,fort,Long Yester (SM4549); Scheduled Green Castle,fort,Newlands (SM747); Category A listed Hopes House (LB7325); and Category C listed West Hopes Farmhouse (LB7325). <p>The closest designated heritage asset to the route option is Whitestone Cairn (SM 5921) located approximately 625m to the west. The cairn comprises a stoney mound dating to the Bronze Age on top of Harestone Hill measuring approximately 12.5m in diameter. The cairn has been disturbed at its eastern edge through the construction of a later sheep stell, although it is likely that the primary burial deposits are unaffected.</p> <p>The topographic prominence of the cairn would have been a deliberate choice in its location with wide ranging views across the surrounding landscape particularly to the west and north east. While the presence of OHL apparatus will be a noticeable addition in to the setting of the asset, the change this presence will make will be limited as the surrounding it will only be visible to the east of the asset, in conjunction with numerous existing and proposed wind turbines. The topographic prominence wide ranging views of the asset will be generally unaffected with visibility to the east and northwest unaltered. While the change will be limited, given the high value of the asset, there may be an adverse effect from the route option, although this is unlikely to be significant.</p> <p>The Scheduled Hopes Fort (SM4549) is located approximately 920m west of the Route Option.</p>	<p>There are no Scheduled Monuments, Listed Buildings, World Heritage Sites, Inventory Battlefields or Inventory Gardens or Designed Landscapes within Route Option 1B.</p> <p>Within 2km of the route option there are two scheduled monuments:</p> <ul style="list-style-type: none"> Scheduled Green Castle,enclosure 100m NE of fort (SM4549); and Scheduled Green Castle,fort,Newlands (SM747). <p>The two scheduled monuments are related to each other both in proximity and in historic association. The assets derive their cultural significance from their archaeological value and through the information that excavation could yield on their occupation and function. Their principal setting is defined by that relationship and their position within the immediate landscape at the foot of Newland Hill. While that element of the landscape makes a contribution to their significance allowing the appreciation and understanding of their relationship to each other and to the area the fort will have controlled, the upland landscape does not make any real contribution to that significance. The presence of OHL apparatus within this upland landscape will not result in an alteration to the assets' cultural significance, nor to the appreciation of that cultural significance and there will be no effect from the route option.</p> <p>Within the route option, data from Canmore indicates the presence of one non-designated heritage asset.</p>	<p>There are no Scheduled Monuments, Listed Buildings, World Heritage Sites, Inventory Battlefields or Inventory Gardens or Designed Landscapes within Route Option 1C.</p> <p>Within 2km of the route option there are three scheduled monuments, which comprise:</p> <ul style="list-style-type: none"> Scheduled Green Castle,enclosure 100m NE of fort (SM4549); Scheduled Green Castle,fort,Newlands (SM747); and Byrecleugh, farmstead 1900m WNW of (SM4549). <p>The closet designated heritage assets to the Route Option are the two scheduled monuments at Green Castle, located approximately 1.7km to the north west. The two scheduled monuments are related to each other both in proximity and in historic association.</p> <p>The assets derive their cultural significance from their archaeological value and through the information that excavation could yield on their occupation and function. Their principal setting is defined by that relationship and their position within the immediate landscape at the foot of Newland Hill. While that element of the landscape makes a contribution to their significance allowing the appreciation and understanding of their relationship to each other and to the area the fort will have controlled, the upland landscape does not make any real contribution to that significance. The presence of OHL apparatus within this upland landscape will not result in an alteration to the assets' cultural significance, nor to the appreciation of that cultural significance and there will be no effect from the route option.</p> <p>The Scheduled Byrecleugh (SM4549) is located approximately 2km to the southeast of the route option. The monument comprises a pre-improvement farmstead which includes the upstanding remains of a number of rectangular buildings within an area of approximately 80m x 30m. the monument derives much of its significance through the archaeological remains demarcated by the scheduled area. I</p>	<p>Route Option 1B is preferred as it has least potential for impacts to both designated heritage assets within the surrounding area and to known non-designated heritage assets within the route option extent.</p>

Topic	Route Option 1A	Route Option 1B	Route Option 1C	Preference
	<p>The fort is located on an area of relative topographic prominence on a small hill, overlooking land to the west which is at a lower elevation offering wide ranging views. These views over the landscape and the reciprocal views of the fort are important components of the appreciation of the significance of the asset as they demonstrate the rationale behind its location. The landscape to the east at higher elevations is not as important from a defensive perspective but views of the fort are as they help to understand the power and influence the fort will have had, while also providing an enhanced appreciation of their archaeological interest. While the OHL apparatus may be visible from the asset, this will not affect any of these key relationships nor will it alter the ability to appreciate and understand its topographic prominence or its archaeological value. It is therefore unlikely there will be any significant adverse effect to its cultural significance.</p> <p>In the case of the remaining scheduled monuments, the Route Option is not considered to lie within their setting where that setting contributes to their significance so there is not likely to be any effect to that significance.</p> <p>The Category A listed Hopes House is located approximately 2km to the west of the route option. The asset is located at the bottom of a small valley around the Mid-Burn water course which defines the boundaries of its immediate setting. Given the substantial change in elevation between the asset and the route option, it is unlikely that any of the OHL apparatus will be visible from or in conjunction with Hopes House. There will therefore be no change in the appreciation or understanding of its cultural significance, and no likely adverse effect.</p> <p>Within the Route Option, data from Canmore indicates the presence of three non-designated heritage assets comprising two 19th century sheepfolds (Canmore ID 366810 & 866879) and a 20th century quarry (Canmore ID 266944). All three assets are of low cultural significance but have the potential to be physically affected by the installation of OHL towers.</p>		<p>Its setting comprises the upland landscape within its immediate surroundings, especially to the southeast where rig and furrow earthworks are recorded. Within the wider landscape, the setting of the asset is general defined by the upland rural environment which now contains wind turbines from the Fallago Windfarm. The OHL apparatus may be visible within the wider landscape; however, it will be indiscernible from the apparatus associated with Fallago and will not lead to any effect to the significance of the asset.</p> <p>Within the route option, data from Canmore indicates the presence of three non-designated heritage assets.</p>	
<p>Ecology</p>	<p>There are no designations for protected species or habitats within the study area for this route option.</p> <p>Lammer Law SSSI is located approximately 0.8km west of the route, which is designated for its upland blanket bog, heather moor and juniper scrub. There are no citations for protected species, however.</p> <p>Fala Flow is located approximately 13km west of the route and has non-breeding Pink-footed goose (<i>Anser brachyrhynchus</i>) present.</p>	<p>There are no designations for protected species or habitats within the study area for this route option.</p> <p>Lammer Law SSSI is located approximately 2.5km west of the route option, and Fala Flow is located approximately 15km west of the route option.</p> <p>The River Tweed SAC and SSSI is located more than 5km to the southeast of the route option at its closest extent. Similar for Route Option 1A, given the distance from the route, and the minimal disturbance to watercourses during construction, it is unlikely</p>	<p>There are no designations for protected species or habitats within the study area for this route option.</p> <p>Lammer Law SSSI is located approximately 3.5km west of the route, and Fala Flow is located approximately 16km west of the route option.</p> <p>River Tweed SAC and SSSI is located more than 5km southeast of the route option at its closest extent. Similar for Route Option 1A, given the distance from the route, and the minimal disturbance to watercourses during construction, it is unlikely</p>	<p>No preference</p> <p>No European or nationally designated ecological sites would be impacted by any of the options. The locally designated Lammermuirs LNCS would be traversed by all options and no preference has been identified at this stage of the routeing process.</p> <p>Phase 1 habitat surveys, and any follow up protected species surveys, would determine the presence or absence of key/ notable habitats and protected species at later project stages and inform the</p>

Topic	Route Option 1A	Route Option 1B	Route Option 1C	Preference
	<p>The River Tweed SAC and SSSI is located more than 5km to the southeast of the route option and is designated for Atlantic salmon (<i>Salmo salar</i>), Otter (<i>Lutra lutra</i>) and Brook and River lamprey (<i>Lampetra planeri and fluviatilis</i>). Given the distance from the route, and the minimal disturbance to watercourses during construction, it is unlikely there will be impacts to this designated site and its protected species.</p> <p>The route option lies within the designated local nature conservation site (LNCS), 'Lammermuirs', which contains upland heath, bog and grassland habitats.</p>	<p>there will be impacts to this designated site and its protected species.</p> <p>The route option lies within the designated local nature conservation site (LNCS), 'Lammermuirs', which contains upland heath, bog and grassland habitats.</p>	<p>there will be impacts to this designated site and its protected species.</p> <p>The route option lies within the designated local nature conservation site (LNCS), 'Lammermuirs', which contains upland heath, bog and grassland habitats.</p>	<p>detailed design of the preferred option, including any mitigation required.</p>
<p>Woodland</p>	<p>The nearest area of designated ancient woodland, listed on the AWI, is located approximately 0.8km west of the route option.</p> <p>The nearest area of designated native woodland, listed on the NWSS, is located approximately 1.7km west of the route option, which comprises mainly upland birchwood.</p>	<p>There are no areas of designated native or ancient woodland, and generally no other areas of non-designated woodland areas, within 2km of this route option.</p>	<p>The nearest area of designated ancient woodland, listed on the AWI, is located approximately 1.7km east of the route option.</p> <p>There are no areas of native woodland within 2km of this route option, although there are some small pockets of non-designated woodland to the south of the B6355.</p>	<p>No preference – although Route Option 1B is furthest from any designated or undesignated woodland, all route options would not impact any woodland areas.</p>
<p>Watercourses, Flood Risk, Hydrogeology and Peat</p>	<p>This route intersects five watercourses, listed below (from north to south):</p> <ul style="list-style-type: none"> • Wester Mossy Burn • Fasney Water • Wolf Cleugh • Black Grain • Marlion Grain <p>Due to the upland catchment and general presence of headwaters and small tributaries, the SEPA flood maps shows no risk of flooding within the study area. Any flood risk up to a 1 in 200 year storm event is generally contained to the channel banks.</p> <p>At the southern end of the route, the study area is within a protected catchment for drinking water.</p> <p>There are five different types of wetland typology within this route option, listed below from most to least prominent in the area:</p> <ul style="list-style-type: none"> • Marshy grassland (B5); • Wet dwarf shrub heath (D2); • Blanket bog (E1.6.1); • Wet modified bog (E1.7); and • Flush and spring-acid/neutral grassland (E2.1) <p>Of these types, the blanket bog and wet modified bog are classified as peat bogs and are carbon rich.</p> <p>Potential opportunities for achieving BNG (NNL) include peat bog restoration, as well as other habitats including marshy grassland and wet dwarf shrub heath.</p>	<p>This route intersects six watercourses, listed below (from north to south):</p> <ul style="list-style-type: none"> • Easter Mossy Burn • Fasney Water • Wolf Cleugh • Lamb Burn • Sheil Burn • Dead Grain <p>In terms of flood risk, protected drinking water catchment, wetland types and peatlands, and opportunities for achieving BNG (NNL), this is the same as for Route Option 1A.</p>	<p>This route intersects eight watercourses, listed below (from north to south):</p> <ul style="list-style-type: none"> • Easter Mossy Burn • Fasney Water • Lamb Burn • Cow Cleugh • Little Cow Cleugh • Hare Cleugh • Hareshaw Burn • Black Burn <p>In terms of flood risk, protected drinking water catchment, wetland types and peatlands, and opportunities for achieving BNG (NNL), this is the same as for Route Option 1A.</p>	<p>Route Option 1A – this route crosses the least number of watercourses and interacts with the least predicted amount of protected peat bog.</p> <p>However, all route options show no risk of flooding and present similar opportunities for achieving BNG/NNL.</p>

Topic	Route Option 1A	Route Option 1B	Route Option 1C	Preference
Access and Recreation	<p>A network of rights of way are present in the vicinity of the route option. A right of way located within the Fasney Water river valley, which forms one of the access routes to the summit of Meikle Says Law, extends across almost the full length of the route across a distance of approximately 3.5km. Meikle Says Law is a key viewpoint and destination for walkers with notable views from the summit.</p> <p>The route is within relatively close proximity to the B6355 and adjoining country road to Longformacus village (located approximately 12km to the east). There are no formal recreational sites within the extent of the route option.</p>	<p>A network of rights of way are present in the vicinity of the route option. The route crosses the footpath network in two locations both of approximately 0.3km in length. The route comes within close proximity to Core Path 25 near the summit of Little Says Law.</p> <p>The route option is within relatively close proximity to the B6355 and to the country road to Longformacus village. There are no formal recreational sites within the extent of the route option.</p>	<p>A network of rights of way are present in the vicinity of the route option. The route crosses the footpath network in several locations including a short section of Core Path 25 and short sections of footpath to the north and south of Lamb Burn. The route option passes in close proximity to a long section of footpath located within the Fasney Water river valley.</p> <p>The route option is within relatively close proximity to the country road between the B6355 road and Longformacus village. There are no formal recreational sites within the route option extent.</p>	<p>Route Option 1C – the footpath network crosses this route option in several locations, including Core Path 25, and is therefore likely to be most accessible for walkers and ramblers. However, access provision is relatively similar for all route options.</p>
Land Use and Existing Infrastructure	<p>Land use is generally grass and open moorland, with limited discrete pockets of woodland and peat and small tributaries in the wider study area.</p> <p>There are no known buildings or infrastructure within, or in close proximity, to the route option. The B6355 runs to the east and there are a limited number of minor roads in the study area.</p> <p>The existing Fallago Rig Windfarm is located in the southern portion of the study area (in the area covered by Route Option 2). The adjacent Dunside Windfarm and Newlands Hill Windfarm are both at the consenting stage.</p>	<p>Same as Route Option 1A.</p>	<p>Same as Route Option 1A.</p>	<p>No preference – same for all route options.</p>

Landscape Summary

All route options avoid any national landscape designations, such as national parks, national scenic areas, or wild land. All the route options align with the locally designated Lammermuir Moorland SLA. A very short section of Route Option 1A also aligns with the Lammermuir Hills SLA. Both these SLAs cover a wide area of the surrounding landscape. This indicates that the landscape qualities and visual attributes, such as topography, vegetation patterns, land use, and cultural features, are generally consistent across all route options. Therefore, there is no preference for one route over another in terms of designations and landscape character.

The landscape for all routes is characterised by a lack of trees, with vegetation primarily consisting of moorland heather and grasses. Visible tracks associated with rights of way can be seen traversing through the heather, their light colour contrasting with the surrounding dark vegetation. Therefore, there is no preference for one route over another in terms of vegetation from the perspective of landscape character. Each of the route options crosses valley landforms of varying scales. Although the landscape character of all the routes is similar, there are localised variations in the landform and scale of the landscape within the upland stream valleys, which create differences in enclosure and would result in the grid connection appearing to be a more prominent feature in a number of the options.

Route Option 1A follows a relatively long extent of the upper section of the shallow Fasney Water valley, where the grid connection would be more prominent in the landscape due to the smaller scale and relative enclosure in this area. The grid connection would mainly appear against a hillside backdrop, but the upper sections of an overhead line would be visible against the sky forming a prominent feature from within the valley landform.

Route Option 1C crosses the lower section of the Fasney Water valley, where the river valley landform is deeper creating a greater sense of enclosure, which would increase the prominence of the grid connection within the landscape. As with Route Option 1A, the grid connection would mainly appear against a hillside backdrop. However, in the relatively small-scale Fasney Water valley landform, the grid connection would stand out prominently against the skyline as it crosses Dun Side hillside.

Route Option 1B would be preferable in terms of landscape as it traverses a more open and larger-scale hillside landform, crossing only short sections of shallow, open, and small-scale river valley forms and appearing against a hillside backdrop.

The unbroken horizontal element of the Lammermuir Hills as a backdrop to views from the plains and foothills below and within the Lammermuir Hills themselves is a key landscape sensitivity. The grid connection would introduce vertical elements within the landscape. None of the proposed route options would be visible from the foothills and low land to the north. From within the upland areas of the Lammermuir Hills SLA and Lammermuir Moorland SLA, all route options would largely appear against a hillside backdrop. Skylining would occur over a short section of the southern end of Route Options 1 as the route options cross the highest ground on the approach to the Fallago Rig windfarm boundary.

Among all the routes, Route Option 1A is located closest to Meikle Says Law and Harestone Hill Cairn, which are noted in the SLA description as having key views, making this route a less favourable option due to the value attributed to the views. There are detractors present within the landscape in the form of wind turbines and high voltage electricity pylons. Route Option 1C is considered the least favourable options in terms of the detracting wirescape created as the options converge with the existing wirescape of large-scale overhead electricity pylons.

Route Option 1B provides the shortest and most direct route to the Fallago Rig Windfarm, resulting in the least disturbance to the landscape and vegetation within the Lammermuir Moorland and Lammermuir Hills SLAs, making it a more favourable option in terms of vegetation disturbance.

7 Preferred Route Option

7.1 Overview

The main objective of the route options assessment was to identify a preferred route for the grid connection between the proposed Newlands Hill Wind Energy Hub and the existing Fallago Rig Windfarm boundary, that would result in the smallest impact on the environment and people, whilst also being technically feasible and economically viable.

7.2 The Preferred Route Option

Given the nature of OHLs, and that the key environmental effects are likely to be landscape and visual effects, the Preferred Route that has been selected to progress for further environmental appraisal is Route Option 1B. For the majority of the other environmental considerations, there was little or nothing by way of preferences between the route options (as appraised in Table 6-1). Route Option 1B provides the shortest and most direct route to the Fallago Rig Windfarm, traverses a more open and larger scale hillside landform, crosses only short sections of shallow, open, and small-scale river valley forms, and would result in the least disturbance to the landscape and vegetation within the Lammermuir Moorland SLA.

Potential opportunities for achieving BNG (NNL) include peat bog restoration, as well as the other habitats including Marshy Grassland and Wet Dwarf Shrub Heath, as stated in Table 6.1.

Phase 1 habitat surveys, to be undertaken at later project stages, would determine the presence or absence of key habitats and protected/ notable species and inform the detailed design stage, including any mitigation required to avoid or minimise potential adverse effects.

The preferred route for the new-build single circuit, wood pole OHL will now be subject to consultation (referred to as 'Round One Consultation', see Section 8.1). Responses to the consultation will then be evaluated and inform confirmation of a 'proposed route' to be subject to detailed design at future project stages.

8 Next Steps

8.1 Approach to Consultation

As set out in Section 1.4, SPEN will apply to the Scottish Ministers for consent under Section 37 of the 1989 Act, to install, and keep installed, the proposed overhead line. SPEN will also apply for deemed planning permission for the grid connection and associated works under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended.

Whilst there are no formal pre-application requirements for consultation, SPEN is embracing best practice as promoted by the Scottish Government's Energy Consents Unit (ECU) and which encourages applicants to engage with stakeholders and the public in order to develop their proposals in advance of submitting applications. SPEN has also embraced Scottish Government Planning Advice Note 3/2010 on Community Engagement, defining the process as:

"...giving people a genuine opportunity to have a say on a development plan or proposal which affects them; listening to what they say and reaching a decision in an open and transparent way taking account of all views expressed."

In line with this, SPEN will carry out up to two rounds of consultation with stakeholders and the public prior to submitting the application for consent. The two rounds comprise:

- Round One: Public consultation on the preferred route option, as detailed in this RCD.
- Round Two: Public consultation on the detailed route alignment of the OHL.

The deadline for receipt of feedback for this Round One consultation will be Friday 1st November.

Following submission of the application for Section 37 consent, the Scottish Government ECU will, on behalf of Scottish Ministers, carry out further statutory consultation with the public and stakeholders, including East Lothian Council and Scottish Borders Council.

The main objective of this consultation phase is to ensure that all parties with an interest in the grid connection have access to accurate and up-to-date information and are given an opportunity in which to shape and inform SPEN's proposals at the pre-application stage. In addition, it is intended that the key issues identified through this process can be recorded and presented to decision-makers in order to assist the consent granting process.

8.2 Available Consultation Material

There will be a number of ways for people to make comments:

- using a paper feedback form at the in-person consultation event;
- online, using the feedback form on the website;
- by post, using a paper feedback form, or by letter;
- by emailing the feedback form or in the body of an email; or
- by phone to the SPEN Project Consultation Contact Centre.

In-person

An in-person consultation event will be held at Gifford Village Hall on Friday 4th October. Details of this event will be publicised online (see below) and in local newspaper (East Lothian Courier) prior to the event being held.

The consultation event will include information boards and pop-up banners, similar to the information provided on the grid connection website. The in-person consultation event will be attended by members of

the grid connection team who will be able to introduce the grid connection, and will be available to answer questions on the grid connection, the routeing approach and the Preferred Route.

Project website

The website will provide up-to-date information in relation to the grid connection and will be an interactive online version of the in-person consultation materials.

This will host publicly available consultation documents for viewing or download, and an online feedback form at the following webpage:

http://www.spenergynetworks.co.uk/pages/newlands_hill_wind_energy_hub_132kv_connection_project.aspx.

The online feedback form will be available from Thursday 26th September until the deadline for receipt of feedback on Friday 1st November.

8.3 Confirmation of the Proposed Route and Next Steps

The responses received from the consultation process will be considered in combination with the findings presented within this RCD and inform the selection of 'the proposed route' to be taken forward to future project stages. This will comprise a detailed review to identify an OHL alignment, including tower positions and transformer compound design. This will be informed by environmental assessments, detailed engineering ground surveys and discussions with landowners.

The alignment, including all ancillary development, will be included in the application for Section 37 consent and deemed planning permission. Ancillary development will include all development necessary to construct and operate the grid connection, such as underground cabling and access tracks. SPEN will consult fully with affected landowners and occupiers on all aspects of the grid connection and will give them an opportunity to comment on proposals as they progress.

Appendix A – Holford Rules

Rule 1

Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.

Note on Rule 1

(a) Investigate the possibility of alternative routes, avoiding altogether, if possible major areas of highest amenity value. The consideration of alternative routes must be an integral feature of environmental statements. If there is an existing transmission line through a major area of highest amenity value and the surrounding land use has to some extent adjusted to its presence, particularly in the case of commercial forestry, then effect of remaining on this route must be considered in terms of the effect of a new route avoiding the area.

(b) Areas of highest amenity value require to be established on a project-by-project basis considering Schedule 9 to The Electricity Act 1989, Scottish Planning Policies, National Planning Policy Guidelines, Circulars and Planning Advice Notes and the spatial extent of areas identified.

Examples of areas of highest amenity value which should be considered are:

- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Ramsar Site
- National Scenic Areas (NSA)
- National Parks
- National Nature Reserves (NNR)
- Protected Coastal Zone Designations
- Sites of Special Scientific Interest (SSSI)
- Schedule of Ancient Monuments
- Listed Buildings
- Conservation Areas
- World Heritage Sites
- Historic Gardens and Designed Landscapes

Rule 2

Avoid smaller areas of high amenity value or scientific interest, by deviation; provided that this can be done without using too many angle towers (i.e. the more massive structures which are used when lines change direction).

Note on Rule 2

- a) Small areas of highest amenity value not included in Rule 1 as a result of their spatial extent should be identified along with other areas of regional or local high amenity value identified from development plans.
- b) Impacts on the setting of historic buildings and other cultural heritage features should be minimised.
- c) If there is an existing transmission line through an area of high amenity value and the surrounding land uses.

Rule 3

Other things being equal, choose the most direct line, with no sharp changes of direction and thus fewer angle towers.

Note on Rule 3

- a) Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds.
- b) Too few angles on flat landscape can also lead to visual intrusion through very long straight lines of towers, particularly when seen nearly along the line.

Rule 4

Choose tree and hill backgrounds in preference to sky background wherever possible and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.

Rule 5

Prefer moderately open valleys with woods, where the apparent height of the towers will be reduced and views of the line will be broken by trees.

Notes on Rules 4 and 5

- a) Utilise background and foreground features to reduce the apparent height and domination of towers from main viewpoints.
- b) Minimise the exposure of numbers of towers on prominent ridges and skylines.
- c) Where possible follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods. Where there is no reasonable alternative to cutting through woodland or commercial forestry, the Forestry Commission Guidelines should be followed (Forest Landscape Design Guidelines, second edition, The Forestry Commission 1994 and Forest Design Planning – A Guide to Good Practice, Simon Bell/The Forest Authority 1998).
- d) Protect existing vegetation, including woodland and hedgerows, and safeguard visual and ecological links with the surrounding landscape.

Rule 6

In country, which is flat and sparsely planted, keep the higher voltage lines as far as possible independent of smaller lines, converging routes, distribution lines and other masts, wires and cables so as to avoid a concatenation or 'wirescape'.

Note on Rule 6

- a) In all locations minimise confusing appearance.
- b) Arrange wherever practicable that parallel or closely related routes are planned with tower types, spans and conductors forming a coherent appearance. Where routes need to diverge allow, where practicable, sufficient separation to limit the impacts on properties and features between lines.

Rule 7

Approach urban areas through industrial zones where they exist and where pleasant residential and recreational land intervenes between the approach line and substation, go carefully into the costs of undergrounding, for lines other than those of the highest voltage.

Note on Rule 7

- a) When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.
- b) Alignments should be chosen after consideration of impacts on the amenity of existing development and on proposals for new development.
- c) When siting substations take account of the impacts of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

Supplementary Notes

- a) Residential Areas: Avoid routeing close to residential areas as far as possible on grounds of general amenity.
- b) Designations of Regional and Local Importance: Where possible choose routes which cause the least disturbance to Areas of Great Landscape Value and other similar designations of Regional or Local Importance.
- c) Alternative Lattice Steel Tower Designs: In addition to adopting appropriate routeing, evaluate where appropriate the use of alternative lattice steel tower designs available where these would be advantageous visually, and where the extra cost can be justified.
- d) [Note: SHETL have reviewed the visual and landscape arguments for the use of lattice steel towers in Scotland and summarised these in a document entitled Overhead Transmission Line Tower Study 2004].

Further Notes on Clarification to The Holford Rules Line Routeing and People

The Holford Rules focused on landscape amenity issues for the most part. However, line routeing practice has given greater importance to people, residential areas etc. The following notes are intended to reflect this.

- a) Avoid routeing close to residential areas as far as possible on grounds of general amenity.
- b) In rural areas avoid as far as possible dominating isolated house, farms or other small-scale settlements.
- c) Minimise the visual effect perceived by users of roads, and public rights of way, paying particular attention to the effects of recreational, tourist and other well used routes.

Appendix B – Landscape Character Context and Designations

Key characteristics of the four SLAs are described as follows:

Lammermuir Moorland Special Landscape Area

The route options sit within the Lammermuir Moorland SLA. This area is characterised by open upland moorland located in the Lammermuir Hills. The expansive and open moorland, with rounded hills leading to summits of similar height, is representative of the uplands in East Lothian and the wider region. Meikle Says Law, standing at 535m, is the highest point in the Lammermuir and is considered one of the relative hills of Britain, although it is not a prominent summit. Upland heath and bog are prominent features that contribute to the overall landscape character of the area.

The Lammermuir forms a distinct backdrop to East Lothian, with a strong horizon line contrasting with the fertile farmland below and the open sky above. The skyline, especially when unbroken, is a defining characteristic of East Lothian. Although set back from the Lammermuir edge, the higher parts of this area contribute to the skyline as seen from the plains and foothills below, both in East Lothian and the Scottish Borders Council area.

The area has limited built development and boundary markers, with most of the existing structures clearly associated with moorland use (such as grouse butts and beehives) or infrastructure related to electricity and roads. Habitation in the area consists of small-scale cottages like Fasney Cottage and the larger farmhouse of Johnscleugh, which are closer to the Lammermuir edge. The spacing and style of these cottages, nestled into valleys for shelter while avoiding damp valley floors, reflect historic living conditions.

The area offers a sense of peace and wildness, derived from its exposure to the elements, remote location, limited built development, roads, plantation forestry, and minimal light pollution. Views often focus on the moorland itself, creating a feeling of being immersed in the landscape. However, from higher ground, panoramic vistas open up, particularly from Meikle Says Law, which offers views in all directions, albeit view to the south include wind turbines.

Key relevant guidelines for development state that:

- *‘Any proposed development must not harm the open wilder character. Development or management that would affect the sense of openness or apparent wildness of the moorland, including for example planting of tree belts or plantation forestry hedges or fences along roads and tracks, or signage, or features which break up the open moorland should not be supported.*
- *Any proposed development must not harm the overall open visual character focusing northwards towards the plain and the Forth and avoid development that interrupts key views, in particular from Meikle Says Law, Harestane Cairn and Clints Dod.*
- *Any proposed development must not harm the unbroken horizontal element of the Lammermuir skyline especially as viewed from the plain and foothills below and for key views from the Scottish Borders and within the Lammermuir Hills themselves. Development should be located and designed to limit wider visibility and protect the unbroken horizontal element of the Lammermuir skyline.*
- *Any proposed development must not affect the perception of scale of the moorland hills or valleys.’*

Lammermuir Hills Special Landscape Area

The southern extent of the route options along with Fallago Rig windfarm are located in this SLA. This open upland area of moorland has remote, wild qualities, despite its managed nature. Within the plateau, there is little visual diversity aside from the mottled patchwork resulting from muirburn, and views often present a seemingly endless succession of moorland ridges. The extent and uninterrupted openness of the landscape lend scenic value. Although the area is very sparsely settled, the wider Lammermuir plateau

forms an important part of the setting of settlements in East Lothian. The area is valued especially for its upland and heathland habitats.

It is noted that windfarm development, including ancillary development such as tracks is a force of landscape change. Relevant management recommendations include seeking to maintain the strong wildness character of the plateau, including the sense of isolation where this is apparent.

Lammer Law \ Hopes to Yester Special Landscape Area

The route options are situated in an upland area to the east of this SLA which forms the setting of the SLA. This area encompasses diverse landscapes, including highland with steep hillsides, transitional areas of the foothills, and the rolling agricultural plains around the Gifford Water. Within the study area, the SLA contains the significant landscape feature of the Lothian Edge, which, along with the Lammermuir Hills skyline, serves as a backdrop to the lowland areas of East Lothian. The area offers wide-ranging scenic views both into, out of, and within its boundaries, with notable views from higher elevations.

The majority of the area is recognised as a coherent historic landscape that extends along the foothills into the adjacent SLA of Danskinne to Whitecastle. The combination of the heather moorland plateau hills, incised valleys, and limited built development, along with the presence of woodlands and arable farmland in the foothills contributes to the strong sense of place in this SLA. The vast expanses of heather-covered open plateau, rounded summits and the presence of reservoirs create a visually appealing and sensory-rich environment. The relative wildness and remoteness of the area result in minimal artificial sounds, while the height of the hills provides a contrast for weather conditions. Clouds often linger on the hilltops, creating a dramatic and dark appearance in contrast to the sunlit lower ground. The contours of the hill slopes interact with light, enhancing their scenic value, especially during early morning or evening. Built development in the area is sparse, with settlements primarily located on the lower slopes of the foothills, characterised by narrow lanes and high hedges typical of the region.

Key relevant guidelines for development state that:

- *‘Any proposed development must not harm the characteristic features reflecting transition from open upland to enclosed lowland landscape.*
- *Any proposed development must not harm the open ‘Wild Land’ character of the moorland sections by controlling development or management that would affect the sense of openness or wildness of the moorland, including for example planting of tree belts or plantation forestry hedges or fences along roads and tracks, or signage, or features which break up the open moorland.*
- *Any proposed development must not harm the unbroken horizontal element of the Lammermuir skyline especially as viewed from the plain and foothills below. Development should be located and designed to limit wider visibility and protect the unbroken horizontal element of the Lammermuir skyline.*
- *Any proposed development must not harm the overall open visual character focusing northwards towards the plain and the Forth and avoid development that interrupts key views in particular from Lammer Law, Dod Law and the B6355.*
- *Any proposed development must not increase the apparent scale of large scale industrial elements (reservoir walls, pylon lines) for example by providing scale comparison should not be supported.*
- *Preservation against wind turbines within this area which would have a visual cumulative effect with the turbines of the uplands thereby diminishing the individual identity of the landscape character area and disrupting the sense of contrast between the plateau tops and the fringe landscape.*
- *Preservation against further hill tracks on visually-sensitive slopes. When tracks are new or recently re-surfaced they can look very noticeable over a wide distance, and these can also look wrong by virtue of their straight lines heading straight up the moorland. This may have a negative impact on the ‘natural’ appearance and character of the area and tracks can be widely visible*

including from the plain below. Tracks also open up the area to recreational access, which has obvious benefits but may also affect the remote character of the area. Tracks should follow SNH guidance “Constructed Tracks in the Scottish Uplands” ”1, including consideration of whether the track is necessary at all. Borrow pits, treatment of cut and fill, material, alignment of the track with topography and visibility of the track should all be carefully considered.

- *A restoration strategy is important at development stage where large infrastructure projects are being considered to ensure re-establishment of the natural landscape.’*

Danskin to Whitecastle Special Landscape Area

The route options are situated in an upland area southeast of the SLA. This area is located in the central region of the foothills in the southern part of East Lothian, where the agricultural land gradually transitions into moorland. Glacial activity has left distinct features in the landscape, resulting in a series of smooth, rounded, low summits and slopes that are intricately interwoven.

Throughout the area, there are scattered clusters of buildings, typically consisting of a main farmhouse, associated steading buildings, and rows of low stone farm cottages that are well-proportioned. The fault line scarp, which generally faces north, is highly visible in views from the lowlands of East Lothian and, along with the foothills, plays an important role as a backdrop to the area. Local folds in the landscape add a more intimate feel to certain areas.

The lower lands in the area are highly productive and exhibit a rich, fertile cultivated appearance, contrasting with the less managed appearance of the valleys and highest ground. The transition from pasture to arable land is marked by a general change in field boundaries, with higher areas typically characterised by stonewalls (which tend to be more plentiful and nearer the surface) or fences, while lower ground features clipped hedgerows. Hedgerow trees such as beech, oak, ash, and sycamore are widely spread throughout the lower areas, adding variety and interest to the landscape.

Key relevant guidelines for development are the same as guidelines for Lammer Law / Hopes to Yester SLA.

Whiteadder Special Landscape Area

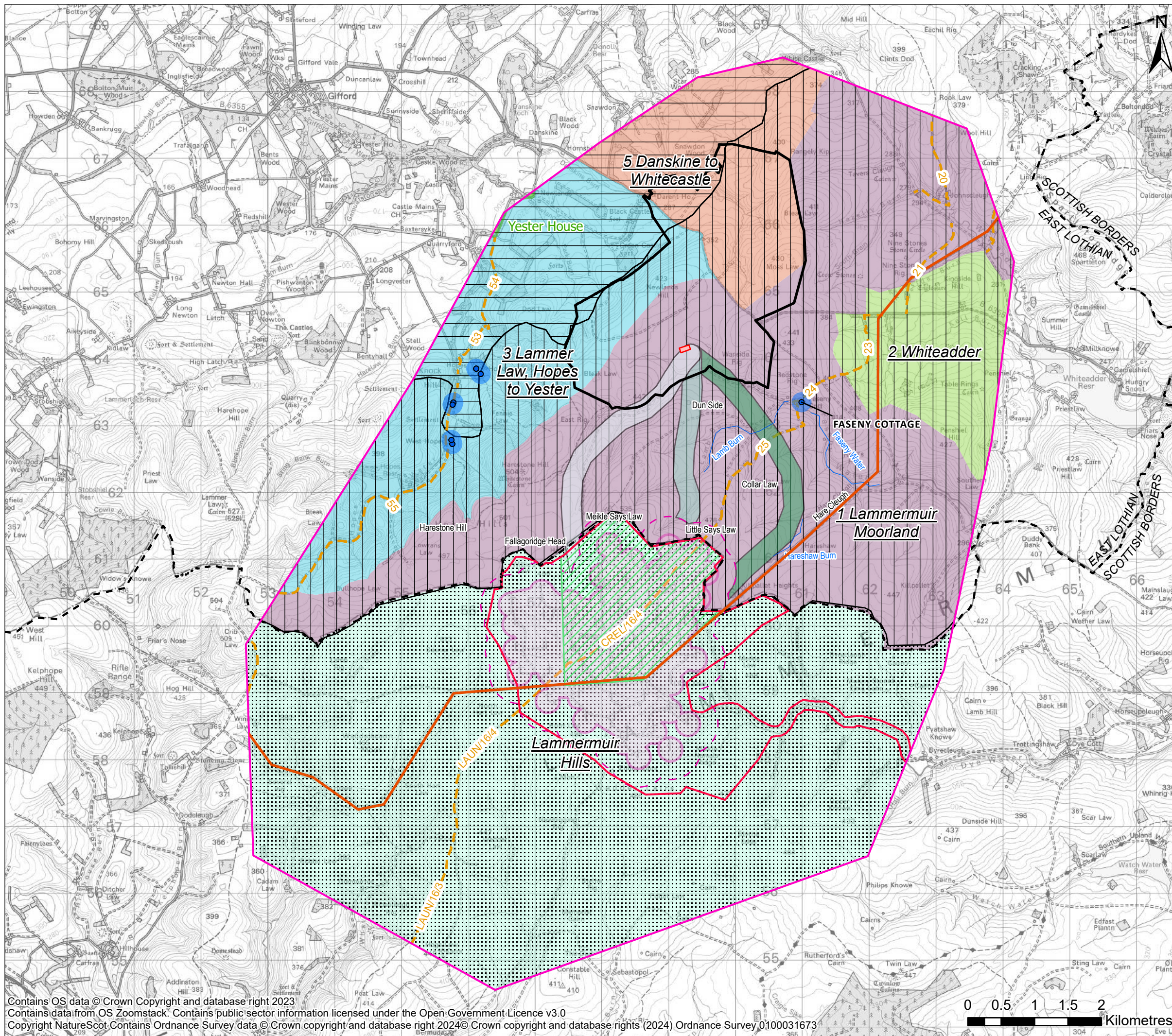
The focal point of the area is the Whiteadder Reservoir, which is the largest water body in East Lothian. It is situated in an open and shallow upland valley. Several tributaries flow into the reservoir or carve small valleys into the hills, adding to the area's charm. The enclosed nature of the surrounding hills creates a peaceful and remote atmosphere, limiting views of the lowland area. The landscape consists of a mix of pasture grassland, grouse moorland, and small patches of woodland, providing visual contrast to the surroundings. Built development is minimal, with most substantial development located on the lower ground surrounding the Whiteadder reservoir. The reservoir itself is an important feature in views from within the area and from the surrounding hills. Its hidden nature, surrounded by hills and located at a lower elevation, makes it less visible from the surrounding Lammermuir Plateau. The area's character is influenced by the changeable weather conditions.

Key relevant guidelines for development state that:

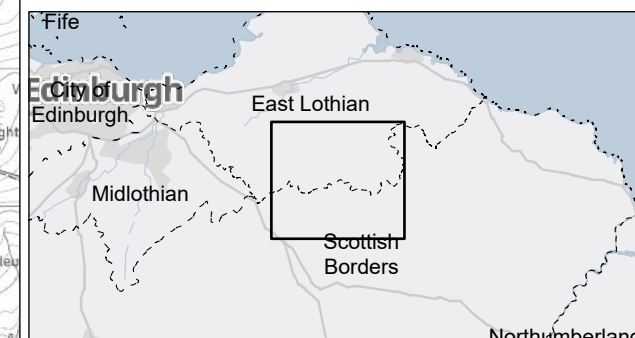
- *‘Any proposed development must not harm the scenic appeal of the Whiteadder reservoir.*
- *Any proposed development must not harm the landscape character of the area by prevention of development that affects the perception of scale of the moorland hills or valleys*
- *Any proposed development must not harm the views of open undeveloped hill slopes and tops from within the Whiteadder valley by avoiding for example large scale wind turbine development that would be visually intrusive from the recreational area around the margins of the Whiteadder*
- *Any proposed development must not increase the apparent scale of large scale industrial elements (reservoir walls, pylon lines) for example by providing scale comparison*

- *Any proposed development must not harm the landscape character of the area by prevention of large, widely-visible development that reduces the scale and contrast of the landscape from both within this area and within the surrounding upland moorland areas*
- *Preservation against wind turbines within this area which would have a visual cumulative effect with the turbines of the uplands thereby diminishing the individual identity of the landscape character area and disrupting the sense of contrast between the plateau tops and the fringe landscape.'*

Appendix C – Supporting Figures



- Legend**
- Study Area
 - East Lothian / Scottish Borders Administrative Area Boundary
 - Newlands Hill Wind Energy Hub Boundary (Proposed)
 - Newlands Hill Wind Energy Hub Substation (Proposed)
 - Fallago Rig Windfarm Boundary
 - Fallago Rig Turbines (2 x RD = 300m Diameter Buffer)
 - Fallago Rig Turbines (3 x RD = 450m Diameter Buffer)
 - Fallago Rig Existing OHL
- Route Options**
- Option 1A
 - Option 1B
 - Option 1C
 - Option 2 (Fallago Rig Windfarm indicative routing area)
 - Residential Properties
 - Residential Properties - 150m Buffer
 - Core Paths
 - Gardens and Designed Landscapes
- Nature Scot : Landscape Character Assessment**
- Landscape Character Type 269 Upland Fringes - Lothians
 - Landscape Character Type 266 Plateau Moorland - Lothians
 - Landscape Character Type 90 Dissected Plateau Moorland
- East Lothian Special Landscape Areas**
- 1 - Lammermuir Moorland
 - 2 - Whiteadder
 - 3 - Lammer Law, Hopes to Yester
 - 5 - Danskin to Whitecastle
- Scottish Borders Special Landscape Areas**
- Lammermuir Hills



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Project Title
NEWLANDS HILL WIND FARM GRID CONNECTION

Drawing Title
FIGURE C.1 LANDSCAPE AND VISUAL CONSIDERATIONS

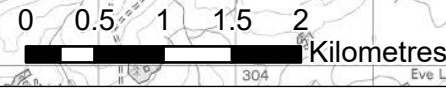
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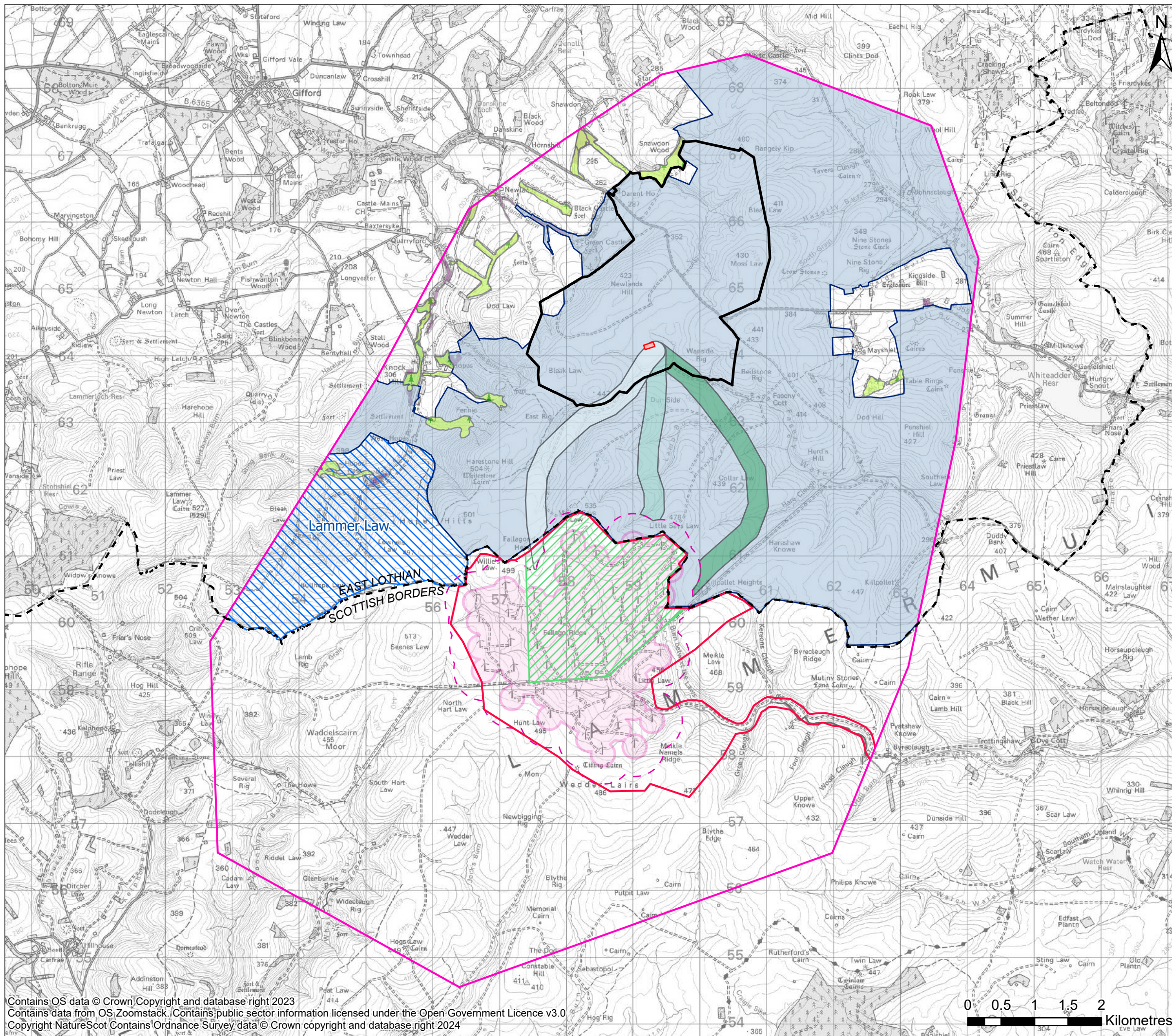
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Legend

- Study Area
- East Lothian / Scottish Borders Administrative Area Boundary
- Newlands Hill Wind Energy Hub Boundary (Proposed)
- Newlands Hill Wind Energy Hub Substation (Proposed)
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- Fallago Rig Turbines (2 x RD = 300m Diameter Buffer)
- Fallago Rig Turbines (3 x RD = 450m Diameter Buffer)

Route Options

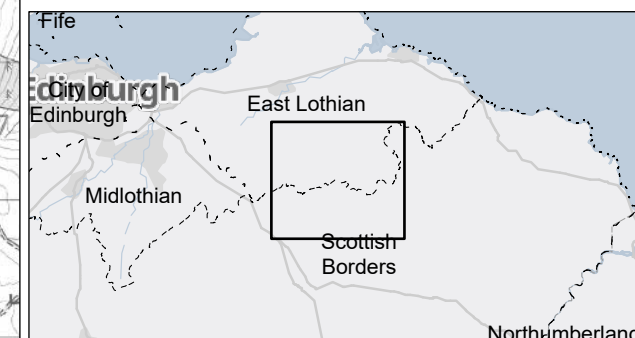
- Option 1A
- Option 1B
- Option 1C
- Option 2 (Fallago Rig Windfarm indicative routing area)

Designations

- Site of Special Scientific Interest (SSSI)
- Lammermuirs Local Nature Conservation Site (LNCS)
- Ancient Woodland Inventory

Woodland Survey of Scotland

- Native Woodland
- Nearly-Native Woodland
- Plantations on Ancient Woodland Sites (PAWS)



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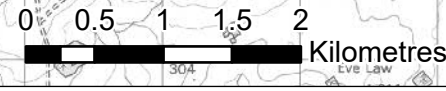
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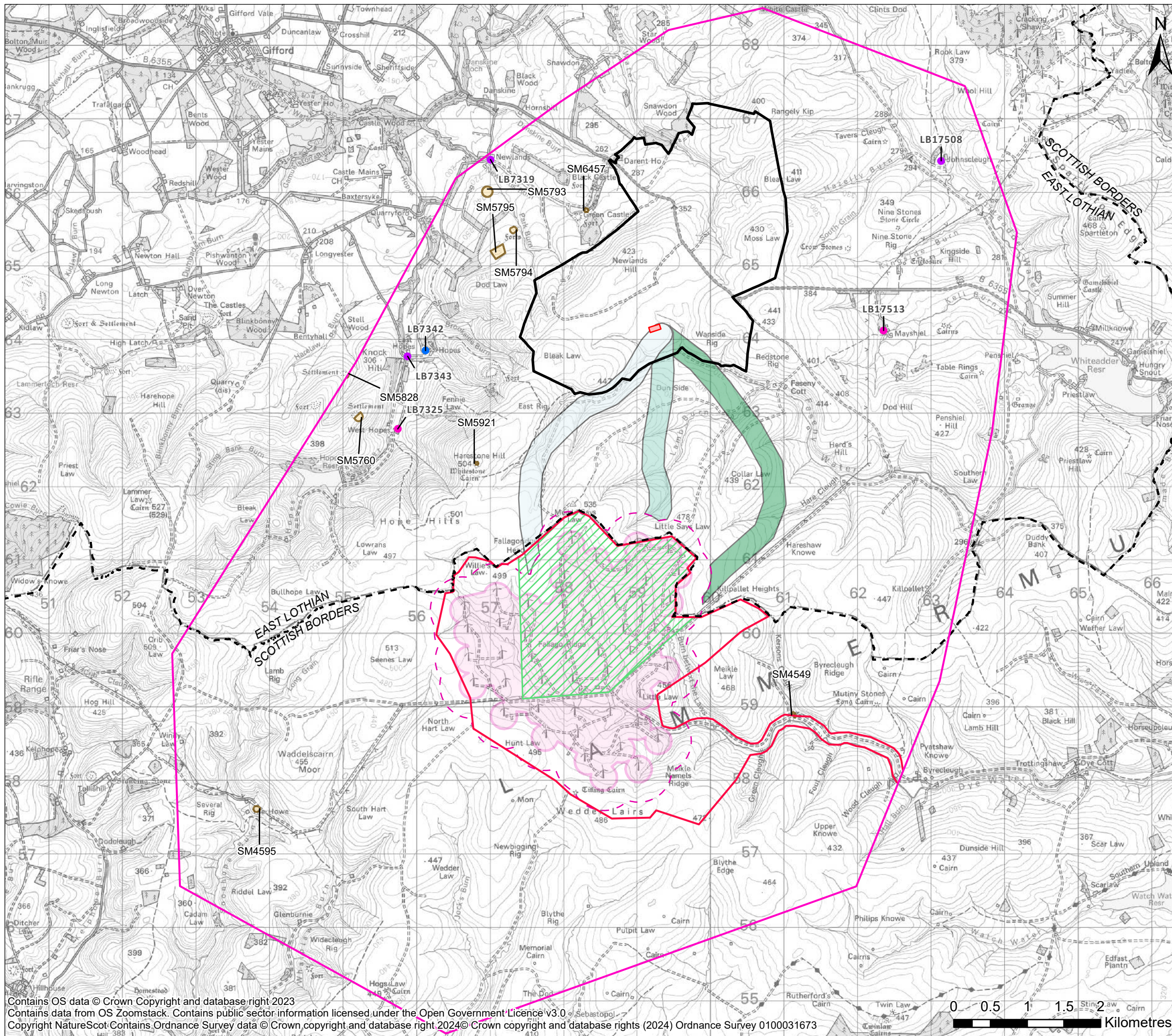
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FIGURE C.2 ECOLOGY AND FORESTRY CONSIDERATIONS

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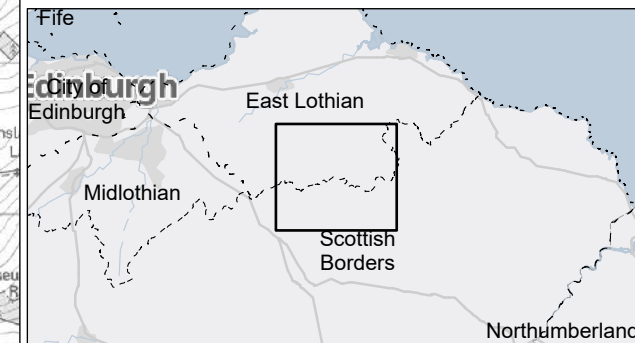
- Study Area
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- Fallago Rig Turbines (2 x RD = 300m Diameter Buffer)
- Fallago Rig Turbines (3 x RD = 450m Diameter Buffer)

Route Options

- Option 1A
- Option 1B
- Option 1C
- Option 2 (Fallago Rig Windfarm indicative routing area)

Listed Buildings by Category

- A
- B
- C
- Scheduled Monuments



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FIGURE C.3 CULTURAL HERITAGE CONSIDERATIONS

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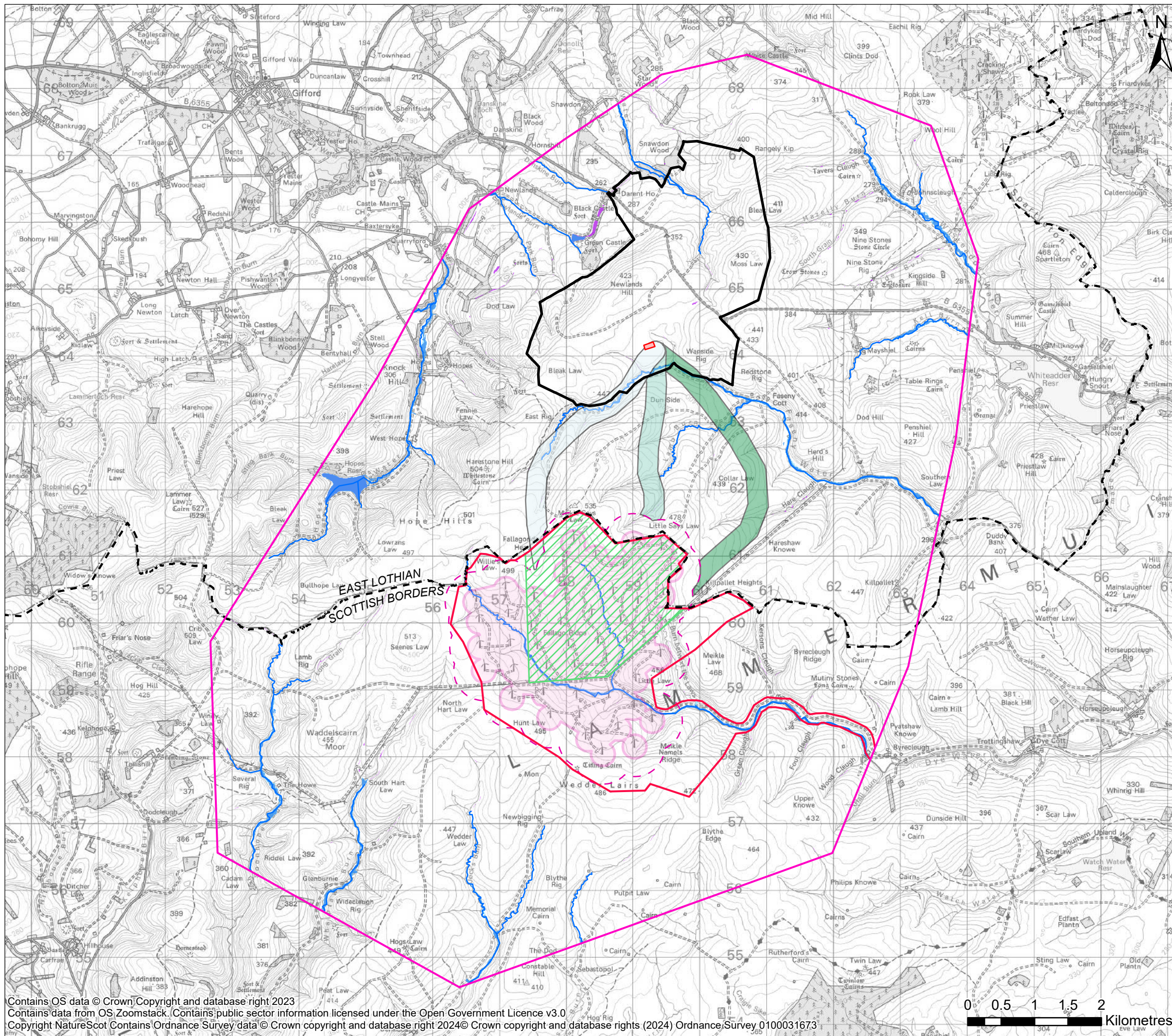
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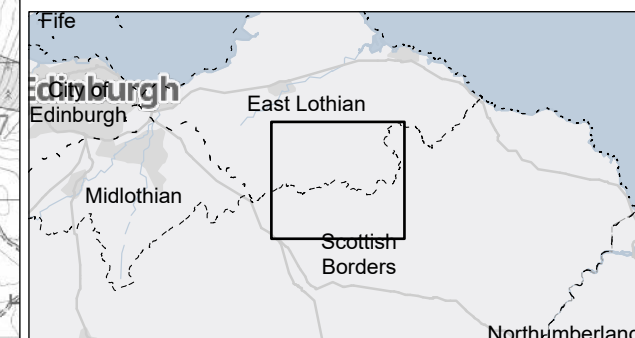
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- Legend**
- Study Area
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 - Newlands Hill Wind Energy Hub Boundary (Proposed)
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 - Fallago Rig Windfarm Boundary
 - Fallago Rig Turbines (2 x RD = 300m Diameter Buffer)
 - Fallago Rig Turbines (3 x RD = 450m Diameter Buffer)
- Route Options**
- Option 1A
 - Option 1B
 - Option 1C
 - Option 2 (Fallago Rig Windfarm indicative routing area)
 - Watercourse
- Flood Risk**
- Risk from Flooding River - High
 - Risk from Flooding River - Medium
 - Risk from Flooding River - Low
 - Risk from Surface Water Flooding - High
 - Risk from Flooding River - Medium
 - Risk from Surface Water Flooding - Low



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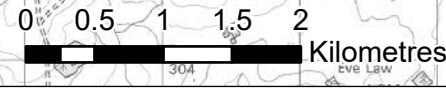
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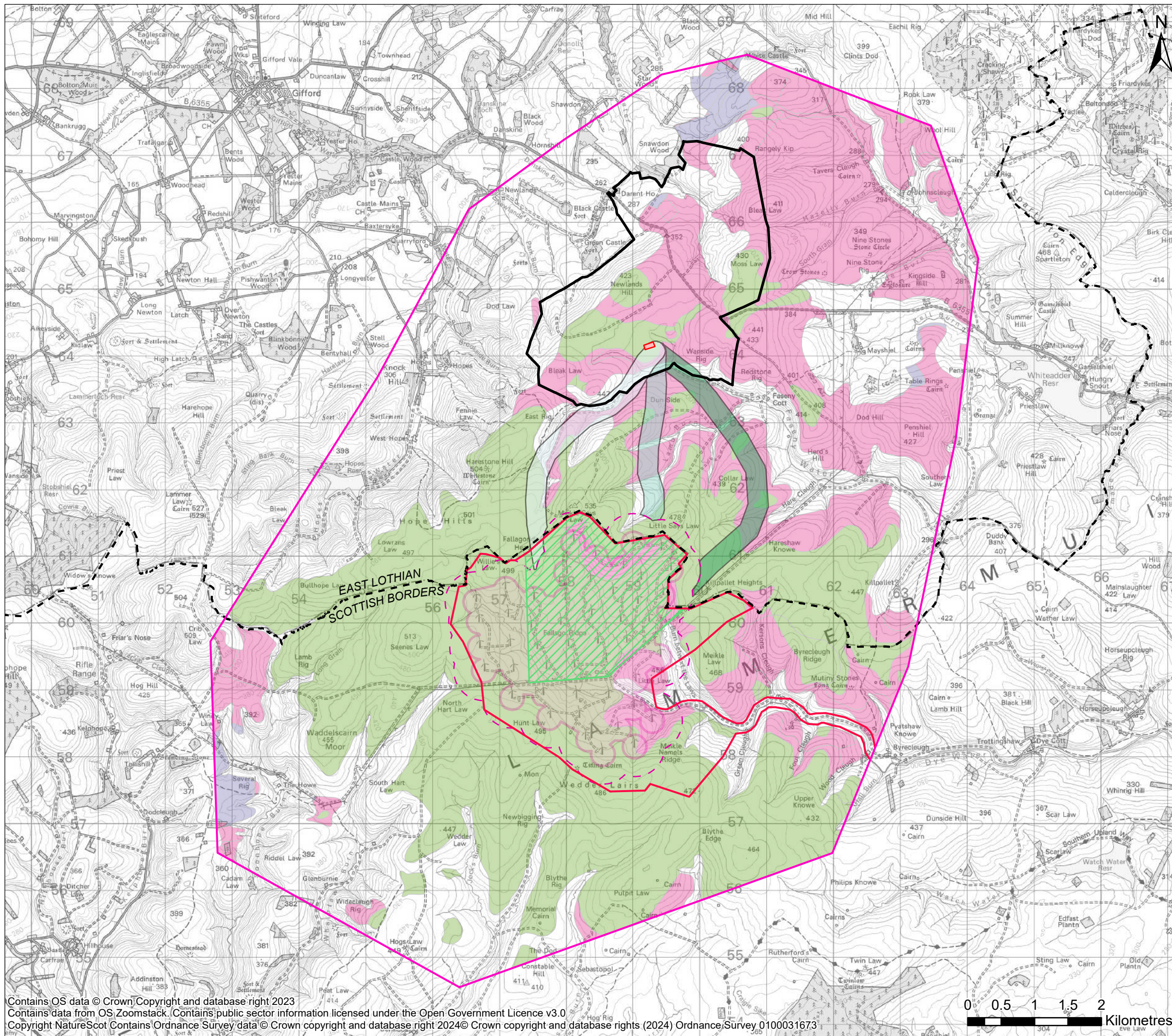
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FIGURE C.4 HYDROLOGY AND FLOOD RISK CONSIDERATIONS

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- Study Area
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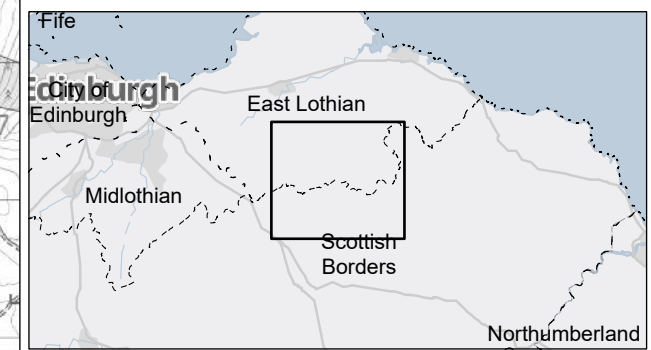
- Route Options**
- Option 1A
 - Option 1B
 - Option 1C
 - Option 2 (Fallago Rig Windfarm indicative routeing area)

Carbon and Peatland 2016

Class 3 - Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat

Class 4 - Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils

Class 5 - Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat.



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FIGURE C.5 PEAT AND CARBON RICH SOILS

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