SP ENERGY NETWORKS

The Erskine to Devol Moor 132kV Replacement Project:

Routeing and Consultation Report

February 2018

The Erskine to Devol Moor 132kV Replacement Project

Routeing & Consultation Report

ScottishPower Energy Networks

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Preface

This Routeing and Consultation Report has been prepared on behalf of ScottishPower Energy Networks (SPEN). It relates to the identification and appraisal of route options for a new overhead line to replace the existing 132 kilovolt (kV) overhead line from the existing Devol Moor substation, Inverclyde, to the existing Erskine substation, Renfrewshire.

This document presents the methodology and findings of the routeing study which has been undertaken, to inform consultation being undertaken on the Erskine to Devol Moor Routeing and EIA Project.

The Routeing and Consultation Report is available to download free of charge from:

www.spenergynetworks.co.uk/pages/community_consultation

The Routeing and Consultation Report will also be available in hard copy from the following locations (from 12th February 2018):

- Inverclyde Council, Princes Street House, 19-29 Princes Street, Port Glasgow, PA14 5JH
- Renfrewshire Council, Renfrewshire House, Cotton Street, Paisley, PA1 1AN
- Bishopton Community Library, 11 Greenock Road , Bishopton, PA7 5JW
- Kilmacolm Library , 13 Lochwinnoch Road, Kilmacolm, PA13 4HB
- Port Glasgow Library, Fore Street , Port Glasgow, PA14 5EQ

Representations to this consultation should be received no later than midnight on Friday 16th March 2018. Submissions can be made to the following:

By email to devolmoor.projectmanager@sppowersystems.com

By post to Devol Moor Project Manager, SPEN Environmental Planning, 3rd Floor Ochil House, 10 Technology Avenue, Blantyre, G720HT

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1 Introduction

Purpose of this Report

1.1 This document has been prepared by LUC on behalf of ScottishPower Energy Networks (SPEN). It relates to the identification and appraisal of route options for a new overhead line (OHL) to replace the existing 132 kilovolt (kV) OHL from the existing Devol Moor substation, Inverclyde, to the existing Erskine substation, Renfrewshire (hereafter referred to as the EDM Project). The location of the EDM Project is shown on **Figure 1.1**.

1.2 This document outlines the methodology adopted for the routeing of the new OHL including the way in which established guidelines for overhead transmission line routeing have been incorporated into the routeing strategy. It presents the findings of the routeing study, culminating with the description of the 'preferred route option' for the OHL connection, and provides an opportunity for interested parties to comment on the preferred route and any other related issues which will inform the next stages of the EDM Project.

Background to the EDM Project

1.3 SPEN has a legal duty to develop and maintain a technically feasible and economically viable transmission and distribution system.

1.4 The existing 'G route' 132kV OHL between Devol Moor and Erskine substations secures the supplies in this area. This represents a demand of around 150MW but more importantly approximately 70,000 customers including many critical establishments such as the new Queen Elizabeth University Hospital.

1.5 At over 70 years old, this existing OHL is coming to the end of its operational life, and requires to be replaced to ensure electricity supplies are maintained. As assets get older, the need for maintenance work becomes more critical and more difficult, and the exposure to unplanned outages (faults) increases. Asset replacement is therefore essential to provide secure, reliable supplies to existing and future customers.

1.6 SPEN previously undertook rounds of public consultation in relation to the replacement of the Erskine to Devol Moor OHL in 2007 and 2010. These consultations were based on routeing a new double circuit tower line. However, due to changing requirements in the transmission network, SPEN have undertaken further analysis of its proposals against future requirements of the network in the area. The conclusion of this analysis is that a double circuit replacement on steel towers is no longer required. However, the existing OHL is coming towards the end of its operational life and will still require to be replaced. On this basis, SPEN's revised proposal is to replace the existing steel towers between Erskine and Devol Moor substations with a single circuit 132kV wood pole 'Trident' design (**Figure 2.1**).

The Components of the EDM Project

1.7 The EDM Project comprises the replacement of the Erskine to Devol Moor OHL through the following:

- The construction of a new 132kv single circuit wood pole (Trident) OHL between the Erskine and Devol Moor substations; and
- The removal of the existing 132kV double circuit steel tower (Type L4) between the Erskine and Devol Moor Substations.

1.8 Further Details of the components of the EDM Project are provided in **Chapter 2**.

SPEN's Statutory and Licence Duties

1.9 As a transmission licence holder for southern Scotland, SPEN[1] is required under Section 9(2) of the Electricity Act 1989 to:

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

1.10 Schedule 9 of the Electricity Act 1989 imposes a further statutory duty on SPEN to take account of the following factors in formulating proposals for the installation of overhead transmission lines:

"(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."

1.11 SPEN's 'Schedule 9 Statement' sets out how it will meet the duty placed upon it under Schedule 9. The Statement also refers to the application of best practice methods to assess the environmental impacts of proposals and to identify appropriate mitigation measures.

1.12 As a result of the above, SPEN is required to identify electrical connections that meet the technical requirements of the electricity system, which 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.

Stakeholder Engagement

1.13 Stakeholder engagement, including public involvement, is an important component of the Scottish planning and consenting system. Legislation and government guidance aim to ensure that the public, local communities, statutory and other consultees and interested parties have an opportunity to have their views taken into account throughout the planning process.

1.14 Striking the right balance can be challenging, and in seeking to achieve this SPEN recognises the importance of consulting effectively on proposals and of being transparent about the decisions reached. SPEN is keen to engage with key stakeholders including local communities and others who may have an interest in the EDM Project. This engagement process begins at the early stages of development of a project, and continues into construction once consent has been granted.

1.15 SPEN's approach to stakeholder engagement for major electrical infrastructure projects is outlined in Chapter 5 of the document 'Major Infrastructure Projects: Approach to Routeing and Environmental Impact Assessment'[2]. SPEN aims to ensure effective , inclusive and meaningful engagement with the public, local communities statutory and other consultees and interested parties through three key engagement steps:

- Information gathering to inform the routeing stage;
- Obtaining feedback on the preferred route; and
- the Environmental Impact Assessment (EIA) stage.

1.16 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 Electricity Act 1989, when formulating proposals for 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] SPEN owns and operates the electricity transmission and distribution networks in central and southern Scotland through its wholly-owned subsidiaries SP Transmission plc (SPT) and SP Distribution plc (SPD). SP Transmission plc is the holder of a transmission licence. The references below to SPEN in the context of statutory and licence duties and the application for section 37 consent below should be read as applying to SP Transmission plc

[2] ScottishPower Energy Networks (2015), Major Electrical Infrastructure Projects, Approach to Routeing and Environmental Impact Assessment: https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_FINAL_20150527.pdf

The Development and Consenting Process

1.17 The Project comprises three key phases:

- Phase One: Routeing and Consultation.
- Phase Two: Environmental Impact Assessment.
- Phase Three: Application for Consent.

Phase One: Routeing and Consultation

1.18 This report relates to Phase One, which comprises a review of environmental, technical and economic considerations and the application of established step-by-step routeing principles to identify and appraise potential route options to establish a 'preferred' route for the replacement OHL.

1.19 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 during the early routeing stages, SPEN nonetheless considers it good practice to introduce consultation at this stage.

1.20 Responses to the consultation process will be evaluated and the 'proposed' route confirmed for progression to the next stage.

Phase Two: Environmental Impact Assessment

1.21 Phase Two comprises an Environmental Impact Assessment (EIA) of the 'proposed' route and removal of the existing 132kV overhead line ('G' route). This is required under The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, given the nature and scale of the EDM Project. The EIA process will seek to avoid, reduce and where possible, offset likely significant impacts on the environment through an iterative design process for the proposed OHL. This will culminate in the production of an Environmental Impact Assessment Report (EIA Report) which will report on the effects of construction and operation of the EDM Project in its entirety including the removal of the existing 'G' route. The EIA will also consider the cumulative effects of the existing OHL with the proposed new OHL, which will both be present in the landscape during the construction phase of the new EDM OHL (approximately 12 to 18 months), following which the existing OHL will be removed.

Phase Three: Application for Consent

1.22 Following completion of the EIA Report, SPEN will be applying to Scottish Ministers for consent under Section 37 of the Electricity Act 1989 ('the Electricity Act'), as amended, to install, and keep installed, the proposed OHL line identified above. In conjunction with the Section 37 application, SPEN will apply for deemed planning permission for the OHL under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended, including for the removal of 'G' route. The EIA Report will accompany the application.

The Structure of the Report

1.23 This report comprises of the following chapters:

- **Chapter 1**: Introduction
- **Chapter 2**: Project Description
- **Chapter 3**: Approach to Routeing
- **Chapter 4**: Identification of Route Options
- **Chapter 5**: Appraisal of Route Options
- **Chapter 6**: Appraisal Findings
- **Chapter 7**: The Consultation Process and Next Steps

1.24 This report is also supported by a number of figures and appendices, as listed in the contents page above.

2 Project Description

Connection Requirements

Erskine to Devol Moor Replacement

2.1 The existing OHL between Erskine and Devol Moor substations is coming to the end of its operational life, and requires to be replaced to ensure electricity supplies are maintained.

2.2 A new 132kV single circuit wood pole replacement overhead line is required between the Erskine and Devol moor substations. The proposed replacement Erskine to Devol Moor overhead line is approximately 16km in length.

2.3 This will also require the removal of approximately 16km of existing overhead steel tower line (G route) between the Erskine and Devol Moor Substations.

Wood Poles

2.4 The proposed OHL will be constructed using the Trident wood pole design with galvanised steelwork cross-arms supporting aluminium conductors on insulators. The proposed design is described below and examples of pole designs and photographs are shown on **Figure 2.1**.

2.5 Wood poles can be used for single circuit lines operating at 132kV. Wood poles are fabricated from pressure impregnated softwood, treated with a preservative to prevent damage to structural integrity.

2.6 There are three types of pole:

- Intermediate: where the pole forms part of a straight line section.
- Angle: there is one type of angle pole which can support changes in direction up to a maximum of 75 degrees. All angle structures will require to be back stayed.
- Terminal: where the OHL terminates into a substation or on to an underground cable section via a cable sealing end.

Wood Pole Heights and Span Lengths

2.7 Span lengths between poles generally average between 80m and 100m however can increase to approximately 120m. The standard height of poles varies from 14m to 16m.

Wood Pole Treatment

2.8 New wood poles are dark brown in colour and weather over the years to a light grey.

Construction Process

2.9 The construction of OHLs requires additional temporary infrastructure such as temporary accesses to pole locations. All have limited maintenance requirements and all are subject to well-established procedures for dismantling/ decommissioning.

Wood Pole Construction

2.10 The construction of the OHL will follow a well-established sequence of activities as outlined below:

- preparation of accesses;
- excavation of foundations;
- delivery of poles;
- erection of poles;
- delivery of conductor drums and stringing equipment;

- insulators and conductor erection and tensioning;
- clearance and reinstatement.

2.11 Prior to constructing the OHL, temporary working areas around each pole location will be required for foundation excavation and pole erection. Any vegetation that requires to removal will be removed or lopped.

2.12 The erection of the wood poles will require a small excavation to allow the pole brace block and/or steel foundation braces to be positioned in place. The excavated material will be sorted and stored and used for backfilling purposes and no concrete is required.

2.13 Poles are erected in sections, i.e. between angle support poles and/or terminal support pole. The insulator fittings, and wood poles forming the pole support, will be assembled local to the pole site and lifted into position utilising the tracked excavator which excavated the foundations. The pole foundation holes will then be backfilled and the pole stay wire supports attached to the ground in preparation for conductor stringing, erection and tensioning.

Access

2.14 Temporary accesses to all pole locations will be taken from the existing main road network wherever feasible, with the use of selected unclassified roads also likely to be required. The use of existing tracks and watercourse crossings will be maximised, with the upgrading of these where necessary.

2.15 The initial preference when taking temporary access is to use low ground pressure vehicles and plant. Where access is required to be taken through any sensitive areas identified during the EIA process, other less intrusive methods such as temporary steel matting, or timber roadways may be employed.

2.16 All temporary tracks will be removed after commissioning with land being restored to its former condition.

Temporary Working

2.17 Temporary working areas will be required for the duration of the construction works. Temporary vehicular access is required to every pole location. Wood pole locations will have a working area of approximately 30m x 30m and could also extend to accommodate conductor pulling if required. In some cases the shape or size of the working area will be determined by nearby environmental or land use constraints, identified during the EIA process / prior to construction. Each working area will be taped off to delineate the area for environmental protection reasons.

2.18 Following the completion of the construction works, the temporary working areas will be reinstated and restored to former conditions.

Construction Timescales

2.19 Construction and erection of a standard single pole generally takes approximately half a day depending on ground conditions and location, i.e. it may take more hours if the ground is softer. Angle poles and H-poles can take longer due to the need for ‘stay wires’ to stabilise the pole in the ground.

Operation and Maintenance

2.20 Whilst most OHL components are maintenance free, exposed elements which suffer from corrosion, wear, deterioration and fatigue may require inspection and periodic maintenance. OHL cables generally require refurbishment after approximately 40 years.

2.21 Any felled wayleave areas will also have to be managed to maintain the required clearances whilst the connection remains in service. Walkover surveys or flyovers will identify where there is a requirement to clear wayleaves of new growth.

Decommissioning

2.22 When the operational life of the proposed new EDM OHL comes to an end, it is possible that the line may be re-equipped with new conductors and insulators and refurbished. Alternatively, the OHL may be decommissioned fully.

2.23 Following energisation of the new EDM OHL, the existing ‘G’ route will be decommissioned and removed in its entirety.

2.24 Towers will be removed with components re-used where possible. Foundations are removed to a minimum depth of one metre below ground level, the area cleared and ground reinstated to its former condition.

3 Approach to Routeing

SPEN's Overall Approach

3.1 The Government, Ofgem and the electricity industry, including SPEN, have reviewed their positions on OHLs. They remain of the view that the need to balance economic, technical and environmental factors, as a result of statutory duties and licence obligations, continues to support an OHL approach in most cases.

3.2 It is therefore SPEN's view that wherever practical an OHL approach is taken when planning and designing new or reinforced transmission lines. However, SPEN accepts that there are specific circumstances in which an undergrounding approach should be considered.

3.3 In 2015, SPEN published a summary document outlining the approach taken to routeing transmission infrastructure (Major Infrastructure Projects: Approach to Routeing and Environmental Impact Assessment, SPEN 2015). This document is available at www.spenergynetworks.co.uk/pages/community_consultation

The EDM Project Routeing Objective

3.4 In accordance with SPEN's approach to routeing , the routeing objective for the EDM project is:

"To identify a technically feasible and economically viable replacement route for a continuous 132kV overhead line connection supported on wood poles. The route should, on balance, cause the least disturbance to the environment and the people, who live, work and enjoy outdoor recreation within it."

Established Practice for Overhead Line Routeing

3.5 SPEN's overall approach is based on the premise that the main effect of an OHL is visual, as a result of its scale relative to objects in the vicinity such as buildings and trees, and that as there is no technical way of reducing this other than choice of support (towers and poles), and only limited ways of achieving screening through planting, the most effective way of causing least visual disturbance is by careful routeing. In addition, a well routed OHL takes account of other environmental and technical considerations, even if the length is increased as a consequence.

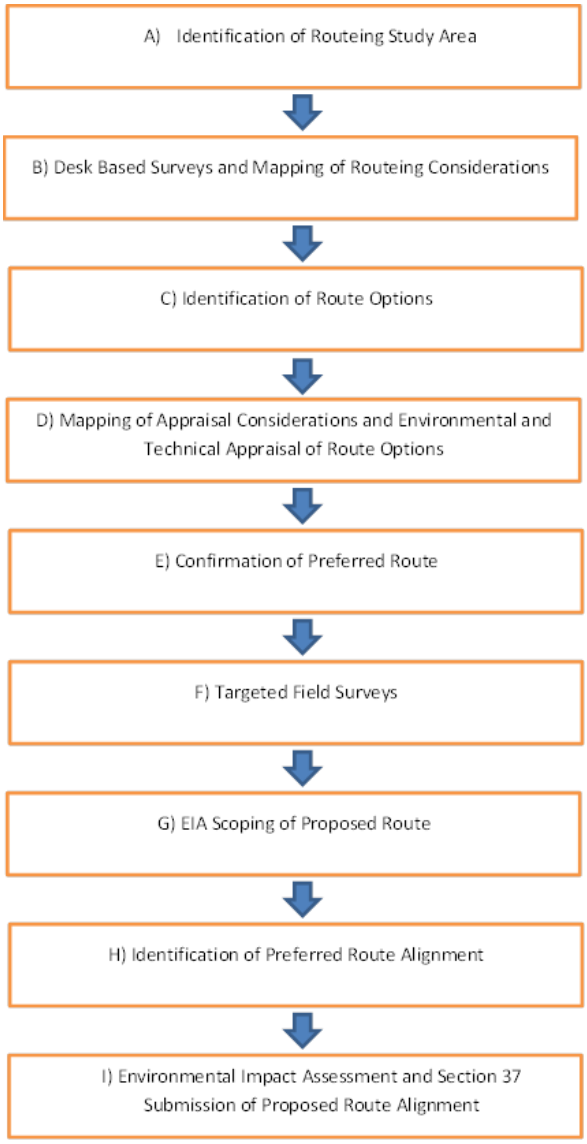
3.6 It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing OHLs, 'The Holford Rules'[3], should continue to be employed as the basis for routeing high voltage OHLs. The Holford Rules were reviewed circa 1992 by the National Grid Company (NGC) Plc. (now National Grid Electricity Transmission Plc (NGT)) as owner and operator of the electricity transmission network in England and Wales, with notes of clarification added to update the Rules. A subsequent review of the Holford Rules (and NGC clarification notes) was undertaken by ScottishHydro Electric Transmission Limited (SHETL) in 2003 to reflect Scottish circumstances.

3.7 The Holford Rules and the NGC and SHETL clarification notes are included in **Appendix 1**. These guidelines for the routeing of new high voltage overhead transmission lines form the basis for routeing the EDM Project. Key principles of the Holford Rules include avoiding prominent ridges and skylines, following broad wooded valleys, avoiding settlements and residential properties and maximising opportunities for 'backclothing' and the screening[4] of infrastructure.

3.8 For simplicity, the methodology is set out in a linear manner (as shown in **Figure 3.1**), with the findings of each step informing the next step, building up an ever increasing level of understanding to inform the routeing process. However, it is important to note that this process remains iterative, with the steps subject to a technical review and consultation where necessary. This enables assumptions to be confirmed and ensures confidence in the findings, prior to the commencement of subsequent steps.

[3] NGC 1992, SHETL 2003

Figure 3.1: EDM Project Routeing Methodology



Routeing Process

3.9 A study area is first defined, which is large enough to accommodate all likely route options, taking account of factors such as topography and land use. Baseline mapping of the routeing considerations outlined below then enables routeing constraints and opportunities to be identified.

Environmental Considerations

3.10 Statutory duties imposed by Section 38 and Schedule 9 of the Electricity Act 1989 require licence holders to seek to preserve features of natural and cultural heritage interest, and to mitigate where possible, any effects which their proposals may have on such features. The construction and operation of an overhead transmission line will have potential effects on people and the environment, including potential effects on (in no hierarchical order):

- visual amenity;
- landscape character;
- ecology and ornithology;
- hydrology, hydrogeology, geology and water resources;
- cultural heritage including archaeology;
- land uses including mineral operations, agriculture and forestry; and
- recreation and tourism.

3.11 Some effects can be avoided or limited through careful routeing. Other effects are best mitigated through local deviations of the route, the refining of pole locations and/or specific construction practices. These are reviewed as part of the EIA process.

Technical Considerations

3.12 Technical considerations which can influence routeing include the existing electricity transmission network, access requirements/opportunities, slope gradient, altitude, waterbodies and peat and windfarms[5].

Economic Considerations

3.13 In compliance with the duties imposed on SPEN in terms of Section 9 of the Electricity Act 1989, 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 scheme unviable on economic grounds.

Identification and Appraisal of Route Options

3.14 SPEN's approach to routeing the EDM Project has been to adopt a 'blank sheet' approach which does not solely reflect the route of the existing 132kV steel tower OHL. This approach has ensured that all potential route options are identified and appraised.

3.15 The study area was analysed to establish a number of possible 'route options'. This process involves the avoidance where possible of designated areas of high 'amenity' value. These areas generally include areas of natural and cultural heritage value designated at a national, European or international level as these are afforded the highest levels of policy protection. The study area also includes consideration of matters such as altitude and slope gradients, over which technical limitations would mean a route was unachievable.

3.16 The route options are then appraised against environmental and technical criteria, including the length of the proposed route option, and the likely impacts on the considerations identified during the development of route options. By definition, the route of the line must be continuous and as a consequence, the environmental advantages for routeing in one area may be offset by the disadvantages of routeing through an adjoining area.

Selection of the Preferred Route

3.17 The comparative appraisal of route options leads to an 'emerging preferred route'. Following technical review, this is confirmed as the 'preferred route' (or revisited and modified if necessary). The preferred route is the option which is technically feasible and economically viable whilst causing the least disturbance to the environment and to people, of all the options considered. This is then taken forward for stakeholder and public consultation.

3.18 The preferred route is subjected to further consideration in response to public consultation, and may be modified further in the light of these consultations. Modifications may result in further consultation if necessary.

3.19 The preferred route, modified to take into account consultations and the consideration of specific local issues, is then promoted as the 'proposed route'. The proposed route is subjected to further detailed appraisal to determine its likely effect on the environment. This may result in further minor deviations, prior to confirmation of the route alignment for application purposes.

[5] Constructed windfarms were considered as a technical consideration. Windfarms were also considered within the appraisal of committed development.

4 Identification of Route Options

The Project Routeing Strategy

4.1 The routeing strategy , which has informed the identification and appraisal of the route options is :

"Route options will seek to avoid high ground and ridgelines, responding to the grain of the landscape, subject to avoiding areas of highest amenity value as far as possible. In more densely populated areas and where there are other competing environmental and/or technical constraints, the weighting and balancing of these constraints will be given careful consideration."

The Study Area

4.2 The first step involved identification of the study area, predominantly for the purposes of gathering data specific to the project area. In identifying the study area, it was important to ensure that this was large enough to accommodate all likely route options reflecting the Routeing Objective and Routeing Strategy. On this basis, the study area was required to be able to accommodate a continuous 132kV OHL from the existing Erskine substation to the existing Devol Moor substation.

4.3 A preliminary check was also carried out to identify the presence of International, European or Nationally Designated areas within or immediately adjacent to, the study area, to ensure that potential effects on these areas could be considered. Taking account of the above, and also informed by topography, the maximum area across which the route options were likely to be located, was identified. The study area is shown in **Figure 4.1**. An overview of the study area characteristics is provided below.

Study Area Description

4.4 The study area extends broadly from the existing Devol Moor substation, situated to the south of Harelaw Reservoir, on Devol Moor to the existing Erskine substation, situated to the south east of Kingston, and to the west of the M898. The study area covers an area of approximately 1,563ha and incorporates land within the council areas of both Renfrewshire and Inverclyde. Much of the study area is relatively rural in nature, comprising agricultural land, hedgerows and interspersed with areas of woodland; however much of the eastern section is directly adjacent to the settlement of Bishopton.

4.5 Topography across the study area varies; the highest ground is located to the west, in the Devol Moor area, and encompasses the existing substation. The elevation drops slightly to the east, undulating around Craigmarloch Wood, before levelling out in the vicinity of Leperstone and Auchendores Reservoirs. The study area includes at its more easterly extents an area of higher ground covering Knockmountain, and the lower slopes of Whinny Hill, Gled Craig and Craig Muir. The ground then generally drops in elevation as the study area curves west and then north and east of Bishopton, with the River Clyde situated in close proximity to the north of the study area. As such, the varied topography across the study area represents both potential opportunities for, and constraints to, the routeing of overhead transmission infrastructure.

4.6 The existing electricity transmission network within the study area currently includes the existing 132kV OHL, which runs in a generally east then south-eastern direction from Devol Moor substation, to a point to the east of Haddockston, and south of Meiklefield. The OHL then runs north until level with Whitemoss Farm; from here it runs north-east, then east, passing to the north of Bishopton before heading south-east to the Erskine substation. In addition a 400kV OHL also exits the Devol Moor substation; however it heads south-east and leaves the study area almost immediately, after approximately 180m. A 400kV OHL also runs parallel to the southern study area boundary for a distance of approximately 6km before continuing south away from the study area.

4.7 There are a number of both consented and operational wind turbines within the study area; two operational and one consented located in close proximity to each other between approximately 1.4km and 2.1km to the south-east of Devol Moor substation, and one further consented turbine adjacent to Mid Glen (approximately 900m south of Barscube Hill).

4.8 The main communication routes within the study area comprise the following:

- the M8 which passes through a north eastern section of the study area to the north and north east of Bishopton, connecting Glasgow to Langbank (from hereafter it becomes the A8 which is also within the study area);
- the M898 which skirts the south east and eastern edges of the study area (becoming the M8 as it continues west);
- the A761 which runs south to north, joining with the A8 outwith the study area, in Port Glasgow;
- various B roads including the B815 and the B789;
- the railway which cuts through the eastern section of the study area, running through Bishopton towards Langbank. This connects Glasgow with Wemyss Bay, and the onward ferries to Bute.

4.9 Communication routes are a key consideration during the routeing process as crossing both the railway and the M8 at some point, with the OHL, is unavoidable.

4.10 Though the study area skirts around Bishopton, there are no settlements within the study area. The population spread across the study area is instead dispersed and formed by individual and small clusters of residential properties.

4.11 Greater detail on 'Areas of Highest Environmental Value' within the study area is provided in **Appendix 2**. The Inner Clyde Special Protection Area (SPA) is located immediately north of the Study Area will require consideration.

Planning Policy Context

Local and Strategic Planning Policy

4.12 The Local Development Plans (LDP) covering the study area consist of:

- the Renfrewshire Local Development Plan (adopted August 2014)[6]; and
- the Inverclyde Local Development Plan (adopted August 2014)[7].

4.13 **The Renfrewshire LDP** sets out the spatial strategy for Renfrewshire with key policies and proposals structured around the five themes of economy, centres, infrastructure, places and environment.

4.14 The spatial strategy set out the objective to *"guide development throughout Renfrewshire. The aim is to promote sustainable economic growth by indicating opportunities for change and supporting investment which helps to regenerate, create and enhance communities and places, providing high quality new development in the right locations."*

4.15 The LDP outlines a general support for this type of infrastructure project, stating *"Management, incremental additions or upgrades as well as aiming to reduce demands on existing infrastructure is the preferred development approach within Renfrewshire."* It is also noted that the successful implementation of the spatial strategy, as set out in the LDP, will be dependent on investment in infrastructure in the right place at the right time, in order to enable and support development opportunities.

4.16 **The Inverclyde LDP**[8] supports economic competitiveness while protecting and enhancing the natural environment. There is a focus on regeneration, while at the same time supporting a move towards a sustainable low carbon economy.

4.17 **Glasgow and Clyde Valley Strategic Development Plan**[9] sets out the land use development strategy for the Glasgow and Clyde Valley area. It provides strategic direction in relation to green belt and the countryside, business and industry, retailing, housing, environmental protection and transport and infrastructure. Alongside the adopted Inverclyde LDP and the Renfrewshire LDP it forms the statutory Development Plan for Inverclyde and Renfrewshire.

National Planning Policy

4.18 **The Third National Planning Framework (NPF3)**[10], which was laid in the Scottish Parliament on 23rd June 2014, is the spatial expression of the Scottish Government's Economic Strategy and plans for infrastructure investment and development priorities over the next 20 to 30 years. NPF3 strengthens the link between strategy and delivery through 14 national development priorities identified within Annex A. In relation to development priority number four of Annex A,

[6] The Renfrewshire Local Development Plan (August 2014), Available [online] at: < http://www.renfrewshire.gov.uk/article/2478/Renfrewshire-Local-Development-Plan>
[7] Inverclyde Local Development Plan (August 2014), Available [online] at: < https://www.inverclyde.gov.uk/planning-and-the-environment/planning-policy/development-planning/ldp>
[8] Note that a new version of the LDP is currently under preparation, and will likely be adopted in Spring 2019.
[9] Glasgow and the Clyde Valley Strategic Development Plan (July 2017) <https://www.clydeplan-sdpa.gov.uk/images/ApprovedPlanHighRes.pdf>
[10] The National Planning Framework (2014) available [online] at: <http://www.gov.scot/Publications/2014/06/3539>

'An Enhanced High Voltage Electricity Network', the statement of need is as follows*: "These classes of development are needed to support the delivery of an enhanced high voltage electricity transmission grid which is vital in meeting national targets for electricity generation, statutory climate change targets, and security of energy supplies."* In terms of the description of Classes of Development it includes, new or upgraded onshore electricity cabling of or in excess of 132kV. The OHL forming part of the EDM Project constitutes national development. The need for the OHL is therefore established.

4.19 **The updated Scottish Planning Policy (SPP)**[11] document was published in June 2014 and is a statement of Scottish Government policy on development and land use planning. Paragraph 156 states that *"strategic development plans should support national priorities for the construction or improvement of strategic energy infrastructure, including generation, storage, transmission and distribution networks."*

Identification and Mapping of Routeing Considerations

4.20 The Holford Rules are broadly hierarchical, with Rule 1 deemed the first rule to be considered in routeing. Rule 1 relates to the avoidance, where possible, of *"major areas of highest amenity value"*. Holford Rule 2 makes the following recommendation: *"avoid smaller areas of high amenity value or scientific interest by means of deviation".* As the Holford Rules do not define what constitutes a major area (Rule 1), and the importance of the area is irrespective of size, smaller areas of highest amenity value e.g. Scheduled Ancient Monuments (Rule 2) were also mapped at this stage alongside the larger areas.

4.21 The Holford Rules do not identify which designated areas constitute areas of *highest amenity value*. However, SHETL clarification note b) (see **Appendix 1**) states that areas of highest amenity value *"require to be established on a project-by-project basis considering Schedule 9 of the Electricity Act, 1989"*, and provides examples to be considered.

4.22 In this routeing study, the term 'environmental' has also been used in place of 'amenity' (with the exception of residential amenity) to reflect more recent thinking which also seeks to recognise the intrinsic value of such areas.

4.23 On this basis, 'areas of highest environmental value' (Holford Rule 1) located within the study area, and therefore considered within this stage of the routeing process, include the national level designations listed below, and shown on **Figure 4.2**[12]:

- Sites of Special Scientific Interest (SSSIs): SSSIs are defined in the Wildlife and Countryside Act 1981 (as amended) as areas of land or water which are of special interest by reason of their flora, fauna or geological or physiographical features.
- Scheduled Monuments (SMs): SMs are monuments of national importance, given legal protection under the Ancient Monuments and Archaeological Areas Act 1979.
- Gardens and Designed Landscapes (GDLs): GDLs which are particularly important for their scenic quality and historic interest are identified in the Inventory of Gardens and Designed Landscapes in Scotland and are highlighted for their national importance within the Scottish Historic Environment Policy (SHEP).
- Conservation Areas (CAs): Conservation Areas are protected under the Listed Buildings and Conservation Areas (Scotland) Act 1997.
- Unscheduled Archaeology of National Importance.
- Listed Buildings (LBs): Listed Buildings are also protected under the Listed Buildings and Conservation Areas (Scotland) Act 1997.

4.24 Whilst GDLs are non-statutory designations, they are referred to in the notes accompanying Holford Rule 1. On this basis, these designated areas are included as areas of highest environmental value.

4.25 Conservation Areas are also included as areas of highest environmental value as, although a local level designation, these correspond generally with population centres and are listed in the SHETL notes accompanying Holford Rule 1 (see **Appendix 1**), as an example of areas of highest environmental value. Groupings or clusters of Listed Buildings were also highlighted as being areas of highest environmental value, although individual sites will be considered in further detail during the later routeing stages, when deviation round them may be required.

[11] Scottish Planning Policy available [online] at: <https://beta.gov.scot/publications/scottish-planning-policy/pages/2/>

[12] Designations which would constitute Areas of Highest Environmental Value but are not located within the study area are not discussed, including international and European level designations.

4.26 Supplementary Note a) of the Rules relates to residential areas, stating *"avoid routeing close to residential areas as far as possible on grounds of general amenity"*. In this routeing report, settlements have been mapped and included as areas of highest environmental value. Settlements are defined as towns and villages identified within Local Development Plans.

4.27 The SHETL note a) on Holford Rule 2 (see **Appendix 1**) states that other areas of "regional or local high amenity value" should be identified from Development Plans. For this routeing study, these other areas which have also been included as areas of highest environmental value comprise Scottish Wildlife Trust Reserves (SWTRs) and areas of Ancient Woodland (AW) as defined by the Ancient Woodland Inventory (AWI).

Additional Environmental Considerations

4.28 As noted in **Chapter 3**, for some projects, it can be helpful to introduce additional considerations into the appraisal to help inform the selection of a preferred route option. These may be of more local importance and smaller in scale.

4.29 For this routeing study, and in accordance with the SHETL note a) on Holford Rule 2 (see **Appendix 1**) in relation to other areas of "*regional or local high amenity value",* the following have also been considered:

- Non Inventory Gardens and Designed Landscapes;
- Regional Scenic Areas/ Local Landscape Designations;
- Regional Parks;
- Local Nature Conservation Sites (LNCS): a 'catch-all' term used to define various local nature conservation sites designated by local authorities. In most cases, these are designated as they represent a viable example of a habitat or species of conservation interest at a local level.

4.30 These have been mapped where present and treated as 'avoid where possible', or where not possible, 'balance with other considerations'. Further information on each of the 'Additional Environmental Considerations' listed above is included in **Appendix 2.**

4.31 Furthermore, and whilst it is recognised that proximity to properties is not an absolute constraint to routeing a 150m 'trigger for consideration' has been mapped around each residential property to allow this proximity to be balanced with other considerations, while also helping identify possible 'pinch points'.

4.32 In addition, further potential landscape and visual effects (including cumulative effects) associated with temporary crossings and steep changes in angle have been considered.

4.33 A full list of environmental considerations is included in **Appendix 2.**

Identification of Route Options

4.34 Given their nature, overhead transmission lines the primary environmental effects are likely to be landscape and visual effects. The best way to limit adverse effects on landscape and visual amenity is by careful line routeing, led by landscape architects, based on professional judgement and informed by fieldwork.

4.35 Holford Rules 1 and 2, as described above, form the basis for the landscape led identification of route options. In addition, Rules 4 and 5 of the Holford Rules identify that OHL infrastructure is judged to be more widely visible from surrounding areas when located on higher ground, for example ridges and skylines. Holford Rule 3 which states that, other things being equal, the most direct line should be chosen, with no sharp changes in direction, is also taken account of in identifying route options.

Identification of Route Option Sections

4.36 The nature of the topography and of the technical and environmental constraints in the study area between Erskine and Devol Moor substations informed the identification of 'route option sections' as opposed to geographically distinct 'route options' (refer to **Figure 4.3**). The sections combine in numerous different ways to provide alternative route options between the two project end points (i.e. the substations) and it was considered that appraisal of all possible combinations would be an unnecessarily complex and lengthy process. As such each 'route option section' was appraised against its equivalent (e.g. Section 1a against Section 1b), and the most appropriate section taken forward to form part of the overall route option.

4.37 Accordingly the following route option sections have been identified:

- Section 1: which comprises option 1a or 1b;

- Section 2: which comprises option2a or 2b;
- Section 3: which comprises option 3a, 3b, 3c, 3d or 3e;
- Section 4: which comprise option 4a, 4b, 4c or 4d.

4.38 It is important to note that the route 'edges', as mapped, do not represent fixed boundaries to routeing. The identification of routes was undertaken to identify the broad geographic area within which routeing of an OHL was considered to be preferable, relative to other geographic areas.

Brief Description of Route Option Sections

4.39 With consideration of Holford Rules 3, 4 and 5 and of the environmental, technical and economic considerations identified in **Chapter 3**, the identified route option sections are shown on **Figure 4.3.**

4.40 **Section 1** comprises two possible route options as outlined above, and extends from Devol Moor substation in the west to Auchenbothie Road to the east. Option 1a is the more northerly section and mirrors the existing OHL, taking a north eastern route from the substation then continuing in a slightly south eastern direction until reaching Auchenbothie Road. Option 1b, exits the substation in a south eastern direction and continues on a north eastern route before converging with Section 1a at Auchenbothie Road.

4.41 **Section 2** comprises two possible route options as outlined above, and covers from Auchenbothie Road to directly south of West Glen (east of the property at Knockmountain) when travelling from west to east. Both options mirror the existing OHL prior to diverging slightly west of the forest operations building at Knockmountain. At this point Option 2a takes a northern route around Knockmountain, while Option 2b continues to mirror the existing OHL to the south of this facility, before continuing east to converge with Option 2a to the south of West Glen.

4.42 **Section 3** comprises five possible route options. Section 3 extends from directly south of West Glen continuing in an eastern direction to where Chestnut Avenue is bisected by the M8, to the north east of the Bishopton Railway Tunnels. All options head south east from near West Glen, until a point to the north of Mid Glen.

4.43 From here Options 3a, 3b and 3c run north east, passing to the west of Barmore Hill, and to the west of Formakin GDL, continuing along the same route until slightly west of Ingliston Equestrian Centre.

4.44 At this point Options 3a and 3b head north, crossing the A8 and the railway, before turning east then south east, around the Cora Campus and between the railway and the M8. Option 3a then crosses the M8, whereas Option 3b continues south east towards Bishopton Tunnels, before crossing the M8 and converging with Option 3a on the eastern side of the motorway.

4.45 At its divergence with Option 3a/b, Option 3c passes to the south of Ingliston Equestrian Centre, heading south east until the Commonwealth Cemetery, and then north, crossing the A8 and continuing north east towards the M8. This option then crosses the M8 at the same point as Option3b.

4.46 Section 3d diverges from Options 3a/b/c at a point slightly south west of Park Erskine, to the west of Barmore Hill. This option the runs to the south of Barmore Hill, crossing an area of Formakin GDL as it runs north east and then north. It converges with Option 3c to the south east of the Commonwealth Cemetery and follows the same route from there onwards.

4.47 Option 3e diverges from the other options to the north of Mid Glen and follows a south eastern path to the south of Haddockston, before looping round to the north east, and re-joining Option 3d at the south east corner of Formakin GDL. From here onwards this option follows the same route as Option 3d.

4.48 **Section 4** comprises four possible route options, all of which start to the north of the M8, in proximity to Chestnut Avenue. Option 4a continues east, passing between Ritchieston and the Erskine Golf Club House , prior to heading south east, mirroring the route of the existing OHL from west of North Porton to the Erskine substation in the far east. Option 4b runs parallel to the M8, to the south of the cluster of properties at Ritchieston, before heading east mirroring the existing OHL, converging with Option 4a to the west of North Porton and continuing east to the substation. Option 4c runs parallel to the north of the M8, converging with the other two options at the access road to North Porton. Option 4d follows a similar path to Option 4a, in its western extents, passing to the north of Ritchieston and then passing to the north of North Porton. It then heads south to the east of Drumcross toward Erskine substation.

5 Appraisal of Route Options

Approach to Appraisal of Route Options

5.1 The objective of the appraisal of the route options was to identify a preferred route, for each section of the project, in a comparable, documented and transparent way to identify an overall preferred route option. As outlined in the Routeing Strategy, where the characteristics of the study area were such that they required to be balanced to enable the overarching Routeing Objective to be met, professional judgement, informed by both desk studies and field work, and reflecting the Holford Rules, was employed to identify the preferred route. This professional judgement was made on a case by case basis.

5.2 The process also sought to:

- continue to reflect the overall Routeing Objective and Routeing Strategy;
- continue to reflect SPEN's Approach to Routeing and EIA document[13];
- continue to reflect the Holford Rules for Routeing Overhead Transmission Lines;
- draw out distinctions between the routes to enable the relative strengths and weaknesses of each to be identified.

5.3 The comparative appraisal of route options was undertaken in stages as set out below:

(i) identification of appraisal criteria, together with their reasoning for inclusion (appraisal objective);

(ii) application of appraisal criteria to each route option, following the appraisal methodology;

(iii) comparative appraisal of route options to identify a preferred route;

(iv) SPEN technical review, reflecting system design requirements.

Appraisal Criteria

5.4 Based on the established practice for the line routeing and the routeing considerations for the project, the route options were appraised using the following criteria, which continue to reflect the key considerations of the routeing methodology:

- length of route;
- biodiversity and geological conservation;
- landscape and visual amenity (including recreation and tourism);
- cultural heritage;
- land use;
- forestry;
- flood risk.

5.5 The reasoning for the use of these criteria and an outline of the methodology for appraising each route option is set out below.

Length of Route Option

5.6 Holford Rule 3 states that "other things being equal choose the most direct line". Although this rule primarily relates to avoiding sharp changes in direction, and therefore the need for more visually intrusive angle towers/poles, choosing the most direct route may result in fewer adverse effects, than a longer, less direct route (taking due consideration of other constraints).

[13] SPEN (May 2015) Major Electrical Infrastructure Projects Approach to Routeing and Environmental Impact Assessment

Biodiversity and Geological Conservation

5.7 An ornithological 'trigger for consideration' zone of 2km from the Renfrewshire Heights SSSI and SPA (designated for breeding Hen Harrier) is applied to reflect the core range of Hen Harrier, in relation to potential collision risk with the OHL during foraging. A 1km 'trigger for consideration' zone has been applied around the Inner Clyde SSSI, SPA, Ramsar), to reflect potential disturbance on the qualifying species of the designated site (designated for wintering red shank and several wintering coastal birds including goldeneye and red-throated diver. The ornithological trigger for consideration zones are included as a criterion within the appraisal of route options. Species constituting the qualifying features of these designated sites are likely to be reliant on habitats adjacent to, but outside, the designated site boundaries for foraging and, in some cases, for nesting. Hence, for individuals of these species, the presence of a route in the 'trigger for consideration zones' may present a risk of disturbance and collision (in the case of Hen Harrier), and the risk is considered to be proportionate to the length of the route option within this 'trigger for consideration zone'. The appraisal highlights the length of route which intersects with these 'trigger for consideration zones' and whether they can be avoided during the alignment stage, and / or whether suitable mitigation can be implemented during construction.

5.8 Other species such as breeding Schedule 1 birds (outwith the boundaries of designated sites), European Protected Species (such as otters), and other nationally protected species, such as water vole and badger, will be considered during the detailed alignment and subsequent appraisal stage, informed by the findings of the field surveys. A combination of the siting of wood poles and mitigation measures during construction will ensure no significant disturbance effects on these species, such that their presence will not affect the routeing of the OHL.

5.9 The appraisal also takes account of SNH Guidance[14] on 'new versus replacement power lines' by favouring route options which align most closely with wayleaves for existing power lines, where these do not encroach on designated sites. This aims to minimise overall effects on birds as areas currently supporting infrastructure are assumed to be already disturbed and local bird populations may be habituated to the presence of this infrastructure.

Landscape and Visual Amenity

5.10 Consideration of landscape sensitivity to the type of OHL proposed, using landscape character types defined at a more localised scale, was supplemented by observations made during fieldwork to appraise the relative landscape fit of each route option. Consideration was also given to the presence of landscape designations and regional parks. The findings of the landscape sensitivity appraisal are presented as **Appendix 3.**

5.11 In relation to residential visual amenity, the following matters were considered: (1) the number of properties in proximity to the route option; (2) where the route option might encroach within the 150m 'trigger for consideration zone'; and (3) the implications for principal views from individual properties.

5.12 Consideration was also given to tourism receptors such as promoted/ key recreational viewpoints and promoted routes such as core paths and Sustrans route.

5.13 A series of Zone of Theoretical Visibility (ZTV) maps have been generated from a number of viewpoints to the north of the Clyde. The viewpoints have been selected as they are representative of more open, coastal views experienced by residential and recreational receptors (including road users on the coastal road) and provide a spread of viewpoints along the northern extents of the Clyde coast, opposite the study area extents :

- Viewpoint 1 – Ardmore (**Figure 5.4a**)
- Viewpoint 2 – A814 east of Cardross (**Figure5.4b**)
- Viewpoint 3 – Levengrove Park (**Figure 5.4c**)
- Viewpoint 4 – Dumbarton Castle (**Figure 5.4d**)
- Viewpoint 5 – Bowling (**Figure 5.4e**)

5.14 From each of the five viewpoints, the ZTV indicates theoretical visibility (not taking account of screening through built form or vegetation) of 15m high structures (being a proxy for the wood poles). This is a helpful assessment tool in determining which route options could potentially result in the OHL being seen above the horizon, in key views from the north of the Clyde. This is likely to occur where route options cross in and out of the southern extents of the ZTV or run in parallel to the southern extents of the ZTV.

[14] SNH (2016). Guidance. Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds. SNH, Battleby.

Cultural Heritage

5.15 When appraising the route options, where a route was located within proximity to, or not able to avoid Scheduled Monuments, Listed Buildings, Inventory and Non-Inventory Gardens and Designed Landscapes and Unscheduled Archaeology of likely National Importance, the implications of this in relation to direct effects during the alignment stage have been highlighted within the appraisal. Unscheduled Archaeology of regional and local significance was also mapped at this stage and taken account of in the appraisal.

5.16 Potential effects of the OHL proposal on the setting of cultural heritage assets, have been assessed by initially identifying assets within 5km of the route options, and 'screening' the assets using professional judgement to identify and appraise assets with the potential to experience an effect on their setting.

Land Use

5.17 When appraising the route options, where a route was located within proximity to committed development (e.g. within the 150m 'trigger for consideration zone'), the implications of this for the alignment and/or subsequent EIA stage were highlighted. Existing and consented wind farms were also considered at this stage, with a 'trigger for consideration' zone of 3x the rotor diameter being placed around all turbines.

5.18 Committed development data has been obtained directly from Inverclyde Council. Data from Renfrewshire Council was obtained through their planning website, and accompanying map. It should be noted that the exact locations of some of the planning applications in Renfrewshire were difficult to verify; therefore though every effort has been made to accurately appraise the route options in regards to the Renfrewshire Council committed development data, it is proposed to obtain the GIS data directly from the Council to inform the alignment stage.

5.19 Land Capability for Agriculture classes 1, 2 and 3.1 in Scotland are referred to as 'Best and Most Versatile' land (with regards to agricultural productivity), and are afforded protection from development. These grades of agricultural land were mapped and opportunities to avoid them during routeing were appraised. The avoidance of these areas is likely to form key discussions with landowners.

Flood Risk

5.20 In relation to potential conflicts with policy relating to flooding and to avoid potential increase to flood risk, SEPA flood zones were mapped using GIS. When appraising the route options, the ability to span the flood zone (average span of 100m for wood pole) was considered. The appraisal considered the potential to cross the flood zone at the narrowest point, all other environmental/ technical considerations being equal. Any waterbodies, which the route options cross, or are in proximity to were also considered where necessary, during the appraisal process.

Forestry and Woodland

5.21 Forest areas within each of the route options were identified through the use of aerial photography, combined with digital data available from forest landowners, SNH and Forestry Commission Scotland (FCS) sources.

5.22 These forests were then divided into three groupings:

1. Conifer forest.
2. Ancient and Semi Natural Woodland sites (ASNW).
3. Native Woodlands from the Native Woodland Survey of Scotland (NWSS).

5.23 It is recognised that there is often overlap between 1 and 2 and also between 2 and 3. There is no perceived overlap between 1 and 3.

5.24 Appraisal against the forestry criterion comprised analysis of the extent and location of each forest type within the route options to identify net areas for these three forest types.

5.25 In general terms, the objective in identifying a preferred route is based on identifying the lowest impact for all three types of forest. This requires a subjective review which places greater weight on reducing the impact on types 2 and 3 ahead of type 1. This reflects the importance of the local resource of these woodland types and as such, the implications of the proposed removal of this type of forest within the wayleave (area of forestry felled to accommodate the OHL). In addition, for the ANSW forest designated areas, consideration was given as to whether this forest type was commercial forestry planted on an ancient forest site, rather than native forest. Whilst the importance of this is recognised in terms of the opportunity to restore these sites, it is deemed to merit less weight than the removal of NWSS.

5.26 In undertaking the appraisal, consideration was given as to whether or not the ASNW and NWSS forests can be avoided during the route alignment/EIA stage, assuming that the final wayleave within forestry will be up to 80m in width (i.e. 40m

on either side of the OHL). Due to the often scattered and broken nature of natural forests, there is frequently the opportunity to avoid areas through careful consideration of the line alignment. Consideration will also be given to minimising impacts on forestry at the route alignment stage, taking account of the need to create long term stable forest edges and to minimise impacts on any forestry management practices.

5.27 During the alignment/EIA stage consideration will be given to all three forest types through:

- taking account of existing, and planned, windfarm boundaries to minimise sterilisation of commercial woodland areas and reduce the requirements for additional felling outwith the wayleave;
- taking account of forest design plans and liaising with forestry owners/managers to avoid, or reduce restrictions on forest management operations/techniques e.g. maintaining access to woodland blocks for harvesting/safety; and
- identification of opportunities to retain and/or plant particularly lower growing shrub species within the wayleave.

5.28 The appraisal criteria are presented in **Appendix 2**. Where an environmental factor was not located within the study area, or did not influence the appraisal, it is not included within **Appendix 2** or the appraisal tables.

6 Appraisal Findings

6.1 **Table 6.1** below presents the emerging preference for each route option of the EDM Project, i.e. the preference made in relation to environmental considerations only.

6.2 The detailed appraisal findings are included as **Appendix 4.**

Table 6.1: Emerging Route Option Preferences

Project Section	Route Option Preference	Reasoning
1	1b	Route Option 1b is the shorter of the two route options and whilst it does not follow the existing OHL (where the landscape has adjusted to its presence), it avoids routeing through Port Glasgow Golf Course with associated effects on recreational receptors. The route option also utilises lower ground minimising the likelihood of visibility from the River Clyde and is the shortest route through the Devol Road Upland SINC. Whilst this route option passes within the 150 m 'trigger for consideration zone' of a single property, however this can be avoided during route alignment. It also passes within the 'trigger for consideration zone' of a turbine; however this can also be avoided during route alignment. However, Route Option 1b is likely to require a greater amount of woodland felling at the Devol Moor Substation and this will need to be taken account of during the route alignment stage.
2	2b	Whilst both route options are identical in length, Route Option 2b reflects the existing alignment of the OHL whereby the surrounding land use has adjusted to its presence, which avoids routeing through the higher sensitivity Rocky Hills and Ridges LCT, located on higher ground around Knockmountain. Although Route Option 2b slightly overlaps the Dargavel SSSI, this can be avoided during route alignment. Both route options cross the Craigmarloch Wood and Auchendores Reservoir SINCs, which are unavoidable. Both route options also cross the Leperstone SINC, which can be avoided during route alignment. Route Options 2a and 2b also cross the Knockmountain SINC, however route Option 2b can avoid this during route alignment, therefore on balance route Option 2b affects a smaller area of SINC, when compared with Route Option 2a. Route 2b also provides the greatest opportunity to reduce the need for ASNW tree removal during route alignment.
3	3b	Route Option 3b is one of the longest route options; however on balance it is the preferred route in relation to landscape and visual amenity. It offers opportunities to minimise effects on residential visual amenity as well as visual effects on tourism and recreational features. However, this route has the potential to affect the more sensitive Escarpment landscape character type, albeit in the context of the presence of existing linear infrastructure (i.e. motorway and railway). This route option avoids the Formakin Inventory Garden and Designed Landscape and its associated heritage assets. Whilst it intersects visibility between the Whitemoss Roman Fort Scheduled Monument and the Antonine Wall World Heritage Site (which are historically linked), this is in the context of the presence of existing linear infrastructure (i.e. motorway and railway) and at a lower elevation. Whilst this route option is closer to the Inner Clyde SPA/Ramsar /SSSI, compared to Route Options 3c, 3d and 3e, effects on these designated sites will be avoidable during route alignment and/or mitigation measures. Route Option 3b is routed through Land Capability for Agriculture grade 3.1 Land, which in each

Project Section	Route Option Preference	Reasoning
		option is unavoidable and will form a consideration during the route alignment stage to minimise loss of agricultural land where possible. Route Option 3e potentially affects the smallest area of ANSW. Although route option 3b includes a larger area of ASNW, the majority can be avoided during route alignment.
4	4a	Route Option 4a is the joint second longest route (with Route Option 4b); however it offers opportunities to avoid principal views from the Richieston cluster of properties and North Polton farmstead. Though located in proximity to the Erksine Golf Club clubhouse, it is routed behind the course and the principal views from the clubhouse used by recreational receptors. Route Option 4a is however routed closer to the Richieston Scheduled Monument and Blantyre Monument (B Listed Building) than the other route options, and partially crosses the southernmost extent of the Unscheduled Archaeology of National Importance (Cropmark enclosure - which can be avoided during route alignment), therefore cultural heritage assets and their settings will form a key consideration during route alignment. Route Option 4a also potentially routes through less ASNW than the other options. Route Option 4a is also routed through 1.4km of Land Capability for Agriculture Grade 3.1 land which (as with all options) is unavoidable and will form a consideration during the route alignment stage, to minimise losses of agricultural land where possible.

Technical Review of Emerging Preferred Route Option

6.3 Following the environmental appraisal of options, the emerging preferred routes were reviewed by SPEN in relation to the system/network design requirements and also the existing overhead line network (in relation to required clearance distances and the crossing of the existing network). This review was undertaken to ensure that, based on the level of detail available, the preferred routes are within the technical parameters required to construct OHLs, including in combination with each other, and with existing OHLs, which must remain in situ until the new 132kV OHL component of the EDM Project is operational. This included consideration of matters such as altitude and slope gradients.

Consideration of Combined Effects of Emerging Route Option Preferences

6.4 Following technical confirmation of the emerging route option preferences, an environmental review was undertaken of these in combination with each other to form the entire EDM Project. The objective of this was to ensure that in combination, the emerging preferred route continues to meet the routeing objective and SPEN's statutory duties.

6.5 The potential for cumulative effects of the EDM Project with the existing 132kV OHL and 400kV OHL were taken cognisance of during the routeing process. Cumulative effects will continue to be considered, and assessed where appropriate, throughout the EIA process.

Appraisal Conclusions

6.6 In accordance with the overarching project routeing strategy, the selection of the preferred route for each section has primarily reflected the findings of the landscape and visual appraisal, including residential amenity, subject to avoiding areas of highest amenity value. This is on the basis that the routeing stage comprises the most effective way of avoiding and/or minimising potential landscape and visual effects, whereas effects on other environmental characteristics, such as woodland, cultural heritage and ecology can more readily be avoided/minimised during the route alignment stage (and potentially through adoption of mitigation measures).

6.7 On this basis, the environmental appraisal undertaken as part of the routeing process has identified a continuous 132kV OHL route which meets the project routeing objective. The emerging preferred route on balance causes the least disturbance to the environment and the people, who live, work and enjoy outdoor recreation within it. The emerging preferred route comprises route options 1b, 2b, 3b and 4a and is shown on **Figure 6.1**.

7 Consultation Process and Next Steps

The Consultation Process for the EDM Project

7.1 As set out in **Chapter 1**, SPEN will apply to Scottish Ministers for consent for the new 132kV OHL component of the EDM Project under Section 37 of the Electricity Act 1989 for consent to install and keep installed the overhead electricity line. SPEN will also apply for deemed planning permission for the line and associated works under Section 57(2) of the Town and Country Planning (Scotland) Act 1997. While there are no formal pre-application requirements for consultation in seeking section 37 consent/deemed planning permission, SPEN is embracing best practice as outlined in the *Scottish Government Energy Consents and Deployment Unit's Best Practice Guidance (January 2013)*. This guidance encourages applicants to engage with stakeholders and the public in order to develop their proposals in advance of such applications being made.

7.2 Therefore, prior to the submission, SPEN is carrying out consultation with stakeholders and the public.

7.3 Following the submission of application for Section 37 consent and deemed planning permission, the Scottish Government Energy Consents and Deployment Unit will, on behalf of Scottish Ministers, carry out further consultation with the public and stakeholders, including Renfrewshire and Inverclyde Councils.

Consultation Strategy

7.4 SPEN attaches great importance to the effect that its works may have on the environment and local communities and is very keen to hear the views of local people to help it develop the EDM Project in the best way.

7.5 The overall objective of the consultation process is to ensure that all parties with an interest in the EDM Project continue to have access to up to date information and are given clear and easy ways in which to shape and inform SPEN's proposals at the pre-application stage.

7.6 In addition, it is envisaged that the key issues identified through this process can be recorded and presented to decision makers in order to assist the consents process.

Consultation Launch and Duration

7.7 The consultation will run for four weeks from 12th February to 16th March 2018.

7.8 Prior to the consultation, adverts will appear in local weekly newspapers at least seven days before the first exhibition. A news release will be issued to local media announcing the impending start of the consultation.

Consultees

7.9 SPEN wishes to consult with relevant stakeholders and gain their views on the proposed route of the EDM project. The consultation will seek to gain views from the following broad groups:

- statutory and non-statutory consultees, including community councils;
- local residents and businesses along the route;
- known local interest and community groups operating in Renfrewshire and Inverclyde Council areas;
- elected members of Inverclyde and Renfrewshire Council Areas, the Member of Parliament (MP) and Members of the Scottish Parliament (MSPs) whose constituencies are within in the Inverclyde and Renfrewshire Council areas; and
- the public in general.

7.10 In addition, respondents of the previous consultation who provided their contact details will be informed of the consultation event and invited to take part.

The Focus of the Consultation

7.11 This report presents the findings of Phase One of the EDM Project, the routeing process, resulting in the identification of a preferred route.

7.12 The focus of the consultation will be to ask for people's views on:

- the preferred route;
- the removal of the existing OHL; and
- any other issues, suggestions or feedback; particularly views on the local area, for example areas used for recreation, local environmental features, and any plans to build along the line route.

Sources of Information about the Consultation

The principal sources of information regarding the consultation will comprise the EDM Project leaflet and the project website: www.spenergynetworks.co.uk/pages/community_consultation

Project Leaflet

7.13 The leaflet will include details of the scheme, the consultation process, how to find out more and how to submit comments by feedback form, website, post or email, and by when. The leaflet will be emailed to community councils and known local interest and community groups operating in the Renfrewshire and Inverclyde Council areas. The leaflet will also be emailed to respondents of the previous consultation who provided their contact details.

Project Website

7.14 The website (www.spenergynetworks.co.uk/pages/community_consultation) will build on the information in the leaflet, with publicly available consultation documents for viewing or download, and an online feedback form. The feedback form will be available from February 12th 2018 until the deadline for receipt of feedback at midnight on 16th March 2018.

Consultation Documents

Hard copies of consultation documents will be lodged at publicly-accessible information points from 12th February 2018 for those who do not have access to the internet, cannot attend an exhibition or would prefer to see them in person. Details of these information points are listed in the Preface of this document and in other consultation materials.

How People can make a Comment

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

- in person at an exhibition;
- by post, using as paper feedback form, or by letter; or
- by email.

In person

7.16 SPEN will hold two public exhibitions on February 15th and February 16th 2018 within the local area where people can look at maps, talk to members of the project team and pick up a feedback form. Locations have been chosen so that people within the consultation zone are only a short distance from their nearest exhibition by car or public transport. The dates and venues are listed in full in the project leaflet and on the website. The format will be an afternoon/evening drop-in.

7.17 The exhibitions will be held at the following locations from 2pm until 8pm on the days stated:

- **Thursday 15th February 2018 at the Cargill Centre, Lochwinnoch Road, Kilmacolm, Renfrewshire, PA13 4LE**
- **Friday 16th February 2018 at the Bishopton Scout Hall, Greenock Road, Bishopton, PA75NB**

Post

7.18 A hard-copy feedback form will be available at public exhibitions, for download from the website, by request to devolmoor.projectmanager@sppowersystems.com. Completed forms must be returned to Devol Moor Project Manager, SPEN Environmental Planning, 3rd Floor Ochil House, 10 Technology Avenue, Blantyre, G72 0HT no later than midnight on 16th March 2018. If returning completed forms by post people are advised to allow up to 7 days for these to be received. It may not be possible to consider forms received after this date.

E-Mail

7.19 SPEN will also accept comments relating to the specific focus of this second round of consultation by e-mail to to devolmoor.projectmanager@sppowersystems.com no later than midnight on 16th March 2018.

Next Steps: Route Alignment and EIA

7.20 The responses received from the consultation process will be considered in combination with the findings of this report to enable SPEN to decide on the 'proposed' route to be progressed to the next stage.

7.21 The proposed route will then progress to a more detailed review to identify an OHL alignment, including individual pole positioning, which will be informed by the parallel EIA stage, detailed engineering ground surveys and discussions with landowners. This alignment, including all ancillary development will be included in the application for Section 37 Consent and deemed planning permission.

7.22 SPEN will consult fully with affected landowners and occupiers on all aspects of the EDM Project and will give them an opportunity to comment on proposals as they progress.

Appendix 1 The Holford Rules and SHETL Clarification Notes

The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines (with NGC 1992 and SHETL 2003 Notes)

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[15], 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 (NPPG 14)[16]
Special Protection Area (NPPG 14)[17]
Ramsar Site (NPPG 14)[18]
National Scenic Areas (NPPG 14)[19]
National Parks (NPPG 14)[20]
National Nature Reserves (NPPG 14)[21]
Protected Coastal Zone Designations (NPPG 13)[22]
Sites of Special Scientific Interest (SSSI) (NPPG 14)[23]
Schedule of Ancient Monuments (NPPG 5)[24]
Listed Buildings (NPPG 18)[25]
Conservation Areas (NPPG 18)[26]
World Heritage Sites (a non-statutory designation) (NPPG 18)[27]
Historic Gardens and Designed Landscapes (a non-statutory designation) (NPPG 18)[28]

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.

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15 The National Planning Policy Guidelines ("NPPG") have been superseded by the Scottish Planning Policy ("SPP") published on 23 June 2014. The references to the relevant equivalent paragraphs of the SPP are noted.

16 Now noted in SPP paragraph 207.
17 Now noted in SPP paragraph 207.
18 Now noted in SPP paragraph 211.
19 Now noted in SPP paragraph 212.
20 Now noted in SPP paragraph 212.
21 Now noted in SPP paragraph 212.
22 Now noted in SPP paragraph 87.
23 Now noted in SPP paragraphs 211-212.
24 Now noted in SPP paragraph 145.
25 Now noted in SPP paragraph 141.
26 Now noted in SPP paragraph 143.
27 Now noted in SPP paragraph 147.
28 Now noted in SPP paragraph 148.

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 landuses have to some extent adjusted to its presence, particularly in the case of commercial forestry, then the effect of remaining on this line must be considered in terms of the effect of a new route deviating around the area.

Rule 3

Other things being equal, choose the most direct line, with no sharp changes of direction and thus with few 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 backgrounds, 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 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 high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles 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 when pleasant residential and recreational land intervenes between the approach line and the substation, go carefully into the comparative 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.

Explanatory Note on Rule 7

The assumption made in Rule 7 is that the highest voltage line is overhead.

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. [*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.

Supplementary Notes on the Siting of Substations

a) Respect areas of high amenity value (see Rule 1) and take advantage of the containment of natural features such as woodland, fitting in with the landscape character of the area.

b) Take advantage of ground form with the appropriate use of site layout and levels to avoid intrusion into surrounding areas.

c) Use space effectively to limit the area required for development, minimizing the impacts on existing land use and rights of way.

d) Alternative designs of substation may also be considered, e.g. ‘enclosed’, rather than ‘open’, where additional cost can be justified.

e) Consider the relationship of tower and substation structures with background and foreground features, to reduce the prominence of structures from main viewpoints.

f) When siting substations take account of the impacts of line connections that will need to be made.

APPENDIX A

INTERPRETATION OF THE HOLFORD RULES 1 AND 2 AND THE NOTES TO RULE 2 REGARDING THE SETTING OF A SCHEDULED ANCIENT MONUMENT OR A LISTED BUILDING

1 Interpretation of The Holford Rules 1 and 2

1.1 Introduction

Rules 1 refers to avoiding major areas of highest amenity value, Rule 2 refers to avoiding smaller areas of high amenity value. These rules therefore require identification of areas of amenity value in terms of highest and high, implying a hierarchy, and the extent of their size(s) or area(s) in terms of major and smaller areas.

The NGC Notes to these Rules identify at Rule 1(b) areas of highest amenity value and at Rule 2(a) and (b) of high amenity value that existed in England circa 1992.

1.2 Designations

Since 1949 a framework of statutory measures has been developed to safeguard areas of high landscape value and nature conservation interest. In addition to national designations, European Community Directives on nature conservation, most notably through Special Areas of Conservation under the Habitats and Species Directive (92/43/EC) and Special Protection Areas under the Conservation of Wild Birds Directive (79/409/EEC) have been implemented. Governments have also designated a number of Ramsar sites under the Ramsar Convention on wetlands of International Importance (CM6464). Scottish Office circulars 13/1991 and 6/1995 are relevant sources of information and guidance. In addition, a wide range of non-statutory landscape and nature conservation designations affect Scotland.

1.3 Amenity

The term 'Amenity' is not defined in The Holford Rules but has generally been interpreted as designated areas of scenic, landscape, nature conservation, scientific, architectural or historical interest.

This interpretation is supported by paragraph 3 of the Schedule 9 to the electricity Act 1989 (The Act). Paragraph 3 (1)(a) requires that in formulating any relevant proposals the licence holder must have regard to the desirability of preserving natural beauty, or conserving flora, fauna and geological or physiological features of special interest and of protecting sites, buildings, including structures and objects of architectural, historic or archaeological interest. Paragraph 3 (1)(b) requires the license holder to do what he reasonably can do to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any flora, fauna, features, sites, buildings or objects.

1.4 Hierarchy of Amenity Value

Rules 1 and 2 imply a hierarchy of amenity value from highest to high.

Schedule 9 to the Act gives no indication of hierarchy of value and there is no suggestion of a hierarchy of value in either NPPG5: Archaeology and Planning, NPPG 13: Coastal Planning, NPPG 14: Natural Heritage or NPPG 18: Planning and the Historic Environment. Nevertheless, designations give an indication of the level of importance of the interest to be safeguarded.

1.5 Major and Smaller Areas

Rules 1 and 2 imply consideration of the spatial extent of the area of amenity in the application of Rules 1 and 2.

1.6 Conclusion

Given that both the spatial extent in terms of major and smaller and the amenity value in terms of highest and high that must be considered in applying Rules 1 and 2, that no value in these terms is provided by either Schedule 9 to the Act, relevant Scottish Planning Policies or National Planning policy Guidelines, then these must be established on a project-by-project basis. Designations can be useful in giving an indication of the level of importance and thus value of the interest safeguarded. The note to The Holford Rules can thus only give examples of the designations which may be considered to be of the highest amenity value.

2. The setting of a Scheduled Ancient Monument or a Listed Building

The NGC note to Rule 2 refers to the setting of historic buildings and other cultural heritage features. NPPG 5: Archaeology and Planning refers to the setting of scheduled ancient monuments and NPPG 18: Planning and the Historic Environment refers to the setting Listed Buildings. None of these documents define setting.

APPENDIX B

ENVIRONMENTAL AND PLANNING DESIGNATIONS – EXAMPLES OF DESIGNATIONS TO BE TAKEN INTO ACCOUND IN THE ROUTEING OF NEW HIGH VOLTAGE TRANSMISSION LINES

Major Areas of Highest Amenity Value

1 In Scotland relevant national or international designations for major areas of highest amenity value include the following identified from Scottish Planning Policies and National Policy Guidelines[29]:

Special Areas of Conservation	(NPPG 14)
Special Protection Areas	(NPPG 14)
Ramsar Sites	(NPPG 14)
National Scenic Areas	(NPPG 14)
National Parks	(NPPG 14)
National Nature Reserves	(NPPG 14)
Protected Coastal Zone Designations	(NPPG 13)
Sites of Special Scientific Interest	(NPPG 14)
Scheduled Ancient Monuments	(NPPG 5)
Listed Buildings	(NPPG 18)
Conservation Areas	(NPPG 18)
World Heritage Sites	(NPPG 18)
Historic Gardens and Designated Landscapes	(NPPG 18)

Other Smaller Areas of High Amenity Value

2 There are other designations identified in development plans of local planning authorities which include areas of high amenity value:

Areas of Great Landscape Value

Regional Scenic Areas

[29] See footnotes under Holford Rule 1 (note on Rule 1) for references update.

Regional Parks

Country Parks

The nature of the landscape in these areas is such that some parts may also be sensitive to intrusion by high voltage overhead transmission lines but it is likely that less weight would be given to these areas than to National Scenic Areas and National Parks.

Flora and Fauna

3 Legislation sets out the procedure for designation of areas relating to flora, fauna and to geographical and physiogeographical features. Designations relevant to the routeing of transmission lines will include Special Area of Conservation, Special Protection Area, Sites of Special Scientific Interest, National Nature Reserves, Ramsar Sites and may also include local designations such as Local Nature Reserve.

Area of Historic, Archaeological or Architectural Value

4 Certain designations covering more limited areas are of relevance to the protection of views and the settings of towns, villages, buildings or historic, archaeological or architectural value. These designations include features which may be of exceptional interest. Of particular importance in this connection are:

Schedule of Ancient Monuments

Listed Buildings, especially Grade A and Grade B

Conservation Areas

Gardens and Designated Landscapes included in the Inventory of Gardens and Designated Landscapes of Scotland

Green Belts

5 Generally the purposes of Green Belts are not directly concerned with the quality of the landscape.

Appendix 2 Environmental Considerations

Topic	Consideration	Objectives
Technical	Existing Electricity Network	To seek to adopt the shortest route option.
Biodiversity and Geological Conservation	SSSI Sites (Holford Rule 1)	To seek to avoid/reduce, as far as practical, effects on designated sites of ecological or geological conservation importance. (Holford Rule 1 and 2). To seek to avoid/reduce, as far as practical, effects on ornithological species of high conservation value. (Holford Rule 1) To seek to avoid/reduce loss of peatlands in accordance with Scottish Planning Policy (SPP). (Holford Rule 2).
	RAMSAR Sites (Holford Rule 1)	
	Special Protection Areas (SPA)(Holford Rule 1)	
	Special Areas of Conservation (SAC)*(Holford Rule 1)	
	National Nature Reserves*(Holford Rule 1)	
	Scottish Wildlife Trust Reserve* (Holford Rule 2)	
	Local Nature Reserves (Holford Rule 2)*	
	Sites of Importance for Nature Conservation (SINC) (Holford Rule 2)	
	SNH Priority Peatland Habitats (Classes 1 and 2)*(Holford Rule 2)	
Landscape and Visual Amenity	National Scenic Areas*(Holford Rule 1)	To seek to avoid/reduce, as far as practical, effects on designated landscapes. (Holford Rule 1 and 2). To contribute to the understanding of likely landscape and visual sensitivities within different areas for routeing. (Holford Rules 4, 5, 6 and 7). To seek to avoid/reduce, as far as practicable, potential effects on views from residential receptors. To seek to avoid/reduce, as far as practicable, potential effects on formal/informal recreational areas and tourism features. (Further Notes on Clarification to the Holford Rules).
	Wild Land Areas*(Holford Rule 1)	
	Residential Visual Amenity with '150m trigger for consideration zone'	
	Landscape Character Area (Holford Rule 4, 5, 6 and 7)	
	Regional Scenic Areas/ Local Landscape Designations (Holford Rule 2)	
	Regional Parks (Clyde Muirshiel) (Holford Rule 2)*	
	Tourism and Recreation: OS promoted viewpoints (visual amenity – SUSTRANS routes, core paths, long distance trails, tourist attractions and recreational areas such as golf courses) (Notes on Clarification to The Holford Rules)	

Topic	Consideration	Objectives
Cultural Heritage	Scheduled Monuments (Holford Rule 1)	To seek to avoid/reduce, as far as practical, direct effects and indirect effects on the setting of designated features of cultural heritage interest. (Holford Rule 1 and 2).
	Inventory Gardens and Designed Landscapes (Holford Rule 1)	
	Conservation Areas*(Holford Rule 1)	
	World Heritage Site (Holford Rule 1)	
	Listed Buildings, Category A, B and C (Holford Rule 1)	
	Unscheduled Archaeology of National Importance *(Holford Rule 1)	
	Non – Inventory Gardens and Designed Landscapes (Holford Rule 2)	
	Undesignated Archaeology of Regional / Local Importance within route options (Holford Rule 2)	
Land Use	Existing and Committed Development (include valid planning applications for residential properties, and larger scale developments such as wind farms, and single turbines).	To seek to avoid/reduce, as far as practical in the circumstances, effects on existing and committed development. (Holford Rule 7). To seek to avoid/reduce, as far as practical, effects on best and most versatile agricultural land. (Holford Rule 7).
	Scotland Land Capability for Agriculture Classes 1, 2 and 3.1	
Forestry	Ancient Woodland (AWI) (Holford Rule 2)	To seek to avoid/reduce, as far as practical, effects of forestry, particularly areas of ancient woodland and native woodland, and on future forestry operations. (Holford Rule 5).
	Native Woodland (NWSS)	
	Forestry (NFI) (Holford Rule 5)	
Flood Risk	Flood Zones and Waterbodies	To cross flood zones at their narrowest point with overhead lines to minimise locating infrastructure within flood zones.

*Those entries marked with an asterisk have been included within the environmental considerations, but have not been appraised as they fall outside of the study area or do not influence the appraisal

Appendix 3 Appraisal of Landscape Sensitivity to OHL Development

Appraisal of Landscape Sensitivity to OHL Development

Landscape sensitivity is assessed with reference to the existing landscape characteristics and attributes of the landscape. Accordingly, the SNH Landscape Character Assessment for Glasgow and the Clyde Valley (Report No. 116, Land Use Consultants in association with Glasgow University Archaeological Research Division 1999) has been used as the basis for determining landscape sensitivity across the study area. The following regional Landscape Character Types (LCT) fall within the study area and are mapped on **Figure 5.1**:

- Raised Beach;
- Rugged Upland Farmland; and
- Rugged Moorland Hills.

However, the regional landscape character assessments provide only a broad picture of the landscape character of the study area. As part of the Erskine to Devol Moor (EDM) 2010 Public Consultation Document a finer grain landscape assessment of the study area was undertaken, subdividing this into Local LCT. This local landscape character assessment has been verified through fieldwork, and with some minor refinements made to the boundaries (refer to **Figure 5.2**), provides a useful assessment tool for this routeing appraisal.

Each Local LCT which is potentially affected by a route option has been evaluated (on its sensitivity to being changed by OHL development of the type proposed) and categorised as having **higher**, **medium** or **lower** sensitivity. The application of professional judgement in the use of the Local LCA also draws on the principles set out in the Holford Rules. Indicators of the relative levels of landscape sensitivity to accommodate OHL development are shown in the table below:

Appendix Table 1.1 Indicators of Landscape Sensitivity

Sensitivity	Definition
Higher	Landscape character, existing land use, pattern, scale and attributes are vulnerable to being changed or lost resulting from the introduction of OHL development. Key perceptual and aesthetic characteristics are vulnerable to change or loss.
Medium	
Lower	Landscape character, existing land use, pattern, scale and attributes are robust and tolerant of the change resulting from OHL development. The change could be accommodated without geographically extensive and/ or significant adverse effects on (or loss of) key perceptual, physical or aesthetic characteristics.

For each Local LCT, the key characteristics are analysed to inform an overall judgement on the Local LCT's sensitivity to OHL development (refer to **Figure 5.3**). The following table outlines the rational for determining landscape sensitivity in relation to key landscape characteristics:

Appendix Table 1.2 Characteristics influencing Landscape Sensitivity Indicators of Landscape Sensitivity

Criteria	Characteristics indicating a **lower** sensitivity to OHL development	Characteristics indicating a **higher** sensitivity to OHL development
Landform and Scale	Flatter or gently undulating landscapes Broad valley landscapes	Steep, complex landscapes Complex topography

Criteria	Characteristics indicating a **lower** sensitivity to OHL development	Characteristics indicating a **higher** sensitivity to OHL development
	Larger scale landscapes	Intimate scale landscapes
Landcover and pattern	Arable, pasture, rough grassland Moorland Simple patterns Landcover which can recover quickly/ does not require complex engineering solutions	Continuous woodland Bog, peat, wetlands Complex patterns Landcover which recovers slowly/ requires complex engineering solutions
Manmade influence	Industry, arable farming, presence of large built structures, disturbed areas Landscapes which have experienced a higher level of human influence More developed/ managed landscapes	Remote landscapes Areas with natural characteristics Landscapes with little evidence of human influence
Visual experience	Interrupted horizons Simple skylines	Uninterrupted horizons Distinctive/ complex skylines
Settlements	Industrial Sparsely settled arable	Residential Dense patterns of isolated farmstead/ small scale settlements

The following table presents LUC's appraisal of landscape sensitivity to OHL development with reference to the Local LCT (as identified in the EDM Public Consultation Document 2010) through which the route options pass.

Appendix Table 1.3 Landscape Sensitivity Appraisal

Landscape Character Type	Key landscape characteristics from Local Landscape Character Assessment (EDM Public Consultation Document 2010)	LUC appraisal: Landscape sensitivity to OHL development of the type proposed
Escarpment (Erskine Park to Port Glasgow)	"*The predominantly steep north facing slope above the Inner Firth of Clyde. A varied small to medium scale landscape of pasture, broadleaved woodland and occasional parkland set between areas of settlement. Climbed by steeply ascending roads cutting diagonally across the slope. Extensive views northwards across the Inner Firth of Clyde.*"	The pronounced topography, smaller scale parts of the landscape and potential for infrastructure seen breaking the horizon (including in views from north of the Clyde) would indicate a **higher** sensitivity to OHL development.
Raised Beach (Erskine Park to Langbank)	"*The flat and undulating pastureland forming the coastal strip along the Inner Firth of Clyde. Predominantly improved pasture divided into fields by post and wire fences. Traversed by main transport corridors including the M8 and railway. Views southwards cut off and dominated by escarpment and woodlands.*"	The flatter topography, opportunities for back-clothing and presence of linear infrastructure (major roads and railways) would indicate a **lower** sensitivity to OHL development.
Rolling Pastureland (Extensive throughout much of study area between Erskine and Port Glasgow above the Firth of Clyde escarpment)	"*Small to medium scale, rolling and undulating improved and semi-improved pasture. Predominantly enclosed by hedges, fences and walls with occasional trees, copses and shelterbelts with a high proportion of broadleaved trees. Frequent farms, isolated houses and small settlements connected by a network of narrow, winding roads and lanes. Traversed by electricity transmission lines. Occasional small scale water bodies and rapidly flowing minor watercourses. Views vary from highly enclosed to extensive from tops of ridges. A complex, semi-enclosed and often intimate landscape.*"	The rolling topography and woodland copses and shelterbelts offer back-clothing and screening opportunities. However, there is potential for infrastructure being seen above the horizon when crossing higher ground and cumulative effects with other electricity infrastructure. There is also a dispersed pattern of farmsteads and some areas of smaller scale and policy landscapes. On balance, this would indicate a **medium** sensitivity to OHL development.
Rocky Hills and Ridges (Isolated summits and ridges between Bishopton and Port Glasgow)	"*Small to medium scale hills and ridges set in a predominantly pastoral landscape where they define lower lying pastureland and shallow valleys. Steep sided in places with rocky outcrops. Predominantly rough grazing in large enclosures. Areas of bracken. Lower summits crowned with mature mixed or broadleaved woodland. Occasional masts and pylons. Extensive views*."	Routeing over these localised areas of steeper, sometimes complex topography would increase potential visibility; result in a poorer landscape fit; and likely require more complex engineering solutions. This would indicate a **higher** sensitivity to OHL development.

Landscape Character Type	Key landscape characteristics from Local Landscape Character Assessment (EDM Public Consultation Document 2010)	LUC appraisal: Landscape sensitivity to OHL development of the type proposed
Pastoral Valleys (Dargavel Glen, Finlaystone Glen, Strathgryfe, Formakin/ Park Glen)	"*Areas of small to medium scale Rolling and Upland Pastureland which are sufficiently topographically defined by surrounding ridges and/ or by watercourses to be considered as valleys. Views enclosed to the sides but often lengthy along and beyond the valley. Often crossed or traversed by electricity pylons although these are often viewed against a background of slopes and/ or woodland and trees.*"	The valley topography and presence of woodland offer back-clothing and screening opportunities. However, there is also a dispersed pattern of farmsteads; some areas of smaller scale; and the potential for cumulative effects. On balance, this would indicate a **medium** sensitivity to OHL development.
Improved Upland Pasture (Mainly in west of study area in the area around Devol Moor)	"*Medium scale undulating or rolling improved and semi-improved pasture. Predominantly enclosed by fences and drystone walls. Open and exposed with few trees and occasional shelterbelts or small mainly coniferous, plantations. Isolated farms, occasional roads and tracks. A simple, open landscape with wide views where tall or large scale objects are easily visible.* "	The simpler landform and landcover and sparsely settled arable nature would indicate a lower sensitivity to OHL development. However, there is potential for long range views and cumulative effects with existing OHL. On balance, this would indicate **medium** sensitivity to OHL development.
Forestry (west of Bishopton ROF)	"*Extensive area of commercial forestry plantation set out in geometric blocks, generally located in upland areas. Dominated by even age stands of coniferous trees of varying maturity. Serviced by a network of tracks. No habitation.* "	Areas of forest on rising ground offer back-clothing and screening opportunities. However, routing through these areas would require felling and an area of permanent wayleave. On balance, this would indicate **medium** sensitivity to OHL development.
Moorland (Devol Moor)	"*Undulating and rolling, predominantly unimproved, upland used for rough grazing. Occasional watercourses. Few enclosures, roads or tracks and little habitation. A simple, open medium to large scale landscape with wide views where tall or large scale objects are easily visible.*"	The simple landform and landcover and lack of habitation would indicate a lower sensitivity to OHL development. However, there is potential for long range views (moorland contributes to the horizon in certain views from the north of the Clyde) and the area displays some remote characteristics. On balance, this would indicate **medium** sensitivity to OHL development.

Landscape Character Type	Key landscape characteristics from Local Landscape Character Assessment (EDM Public Consultation Document 2010)	LUC appraisal: Landscape sensitivity to OHL development of the type proposed
Settlement and Industry (Bishopton and ROF)	No character assessment has been made as dense existing and proposed residential development would make routeing through these areas highly problematic.	-

Appendix 4 Detailed Appraisal Findings

Erskine to Devol Moor – Route Option Appraisal Table: Route Section 1

CRITERION	Sub-Criteria	Route Option: 1a	Route Option: 1b	Preference
Approximate Length of Line Route (km)		Approximate length of 3km.	Approximate length of 2.9km.	**Route Option 1b is the preference** as it is slightly shorter than Route Option 1a.
Biodiversity and Geological Conservation	Sites of Importance for Nature Conservation (SINCs)	Both Route Option 1a and 1b dissect the Devol Road Upland SINC (4.13ha and 2.16ha, respectively), which is notified for a mosaic of wet heathland and acid grassland, with local areas of dry heath, bracken, and gorse. Agricultural management, such as grazing cattle and drainage changes, have contributed to variation in the site's communities. There are also three wind turbines located within the SINC. The SINC cannot be avoided during route alignment for both options. Route Option 1a follows the existing overhead line wayleave through the SINC. Approximately 133m of the Crosshill Road Heath SINC, notified for acid grassland, bracken, heathland, rock exposure, broom scrub, and mire vegetation, is crossed by Route Option 1a. This could be avoided during route alignment.		**Route Option 1b is the preference** in relation to Biodiversity and Geological Conservation. Route Option 1b affects a smaller area of the Devol Road Upland SINC.
Landscape & Visual Amenity	Residential Visual Amenity (with '150m trigger for consideration zone')	Route Option 1a does not pass through any 'trigger for consideration zones'.	Route Option 1b passes within the 'trigger for consideration zone' for the property at Cunstone, however detailed routeing can avoid this area. Furthermore, principal views from this property appear to be orientated to the east (with the route option located to the north).	Whilst it is recognised that Route Option 1a offers greater opportunities to closely reflect the alignment of the existing OHL, on balance, **Route Option 1b is the preference.** Both route options pass through Landscape Character types of similar sensitivity. Route Option 1b passes within the 150m trigger for consideration zone for 1 property, but detailed routeing could avoid this. Route Option 1b is also located on lower lying ground across Devol Moor, which reduces the likelihood of wood poles being seen on the horizon in views from the Clyde. Furthermore, this route option avoids crossing through Port Glasgow Golf Course and associated effects on recreational receptors in this area.
	Landscape Character Area	From west to east, both route options pass through the following Landscape Character Types (with associated sensitivity to OHL of the type proposed): • Moorland (medium sensitivity) • Improved Upland Pasture (medium sensitivity) • Moorland (medium) • Rolling Pasture Land (medium)		
	Tourism and Recreation: OS promoted key viewpoints (visual amenity – SUSTRANS routes, core paths, long distance trails, tourist attractions and recreational areas such as golf courses).	Both route options cross the Core Path along Devol Road and the Sustrans Route/ Core path which runs along the disused railway line running parallel to Auchenbothie Road. Route Option 1a also passes through the southern end of Port Glasgow Golf Club. In terms of visibility from key recreational viewpoints, the ZTV generated from Cardross is a useful tool to indicate the geographical extent over which objects around 15m in height would be visible from the north of the Clyde. Routeing should seek to avoid, as far as possible, OHL on the horizon (which would likely be indicated by route options running parallel to southern extents of ZTV/ or frequently crossing in and out of the ZTV extents). Route Option 1 passes over higher ground on Devol Moor, in and out of the ZTV generated from Cardross. This increases the chances of OHL seen above the horizon, in views from the north of the Clyde and recreational receptors in this	Similar effects on core paths as Route Option 1a. Route Option 2b passes over lower ground on Devol Moor, which will reduce the likelihood of OHL being seen on the horizon in views from the north of the Clyde.	

		area.		
Cultural Heritage	Scheduled Monuments	There is one Scheduled Monument within 1km to the south of both route options (Craigmarloch Wood Fort SM4379). The elevated location is key to understanding its cultural significance. The replacement of the existing OHL with wood poles is likely to slightly reduce the effect on the asset's setting. Three other SMs, which should be given consideration, are located within 2km of both route options: • A two-part Scheduled Monument, High Mathernock Anti-Aircraft battery, (SM12883) ; • Pennytersal Farm motte (SM12893); and • Lurg Moor Roman fortlet (SM1613) There are unlikely to be adverse effects on the cultural significance or setting of the above SMs, as a result of either route option.		**Route Option 1a is the preference**. This option follows the existing OHL and therefore visibility from SMs will be similar, although likely reduced due to the smaller size of wood poles relative to the existing steel towers.
Land Use	Existing and Committed Development (include valid planning applications for residential use applications and valid planning applications for other non-residential uses (including windfarms).	There are no other areas of committed development within or in close proximity to this route option.	Route Option 1b overlaps with the buffer zone of the nearest wind turbine, which is located to the south of the route option, by approximately 25m. The 'trigger for consideration' zone could be avoided during route alignment. There are no other areas of committed development within or in close proximity to this route option.	There is **no preference** as there are opportunities to avoid the wind turbine trigger for consideration in Route Option 1b during route alignment.
Forestry	Ancient and Semi Natural Woodland (ASNW)	There is 0.24ha of ASNW within this route option. The majority of this is in close proximity to the substation; however there are opportunities to avoid it during route alignment.	There is 0.28ha of ASNW within this route option. The majority of this is in close proximity to the substation; there are limited opportunities to avoid it during route alignment.	There is **a slight preference for Route Option 1a** as there are more opportunities to avoid the ASNW within the route option, during route alignment.
	National Forestry Inventory (NFI)	There is 0.06ha of NFI within this route option. This can be avoided during alignment.	There are no areas of NFI within this route option.	
Flood Risk	Flood zones and waterbodies	Neither route option crosses or is within any areas of 1/200 year flood risk zone.		There is no preference.
Overall Preference 1b		Route Option 1b is the shorter of the two route options and whilst it does not follow the existing OHL (where the landscape has adjusted to its presence), it avoids routeing through Port Glasgow Golf Course with associated effects on recreational receptors. The route option also utilises lower ground minimising the likelihood of visibility from the River Clyde and is the shortest route through the Devol Road Upland SINC. Whilst this route option passes within the 150 m 'trigger for consideration zone' of a single property, this is not within a principle view. It also passes within the 'trigger for consideration zone' of a turbine; however this can also be avoided during route alignment. However, Route Option 1b is likely to require a greater amount of woodland felling at the Devol Moor Substation and this will need to be taken account of during the route alignment stage.		

Erskine to Devol Moor – Route Option Appraisal Table: Route Section 2

CRITERION	Sub-Criteria	Route Option: 2a	Route Option: 2b	Preference
Approximate Length of Line Route (km)		Approximate length of 3.7km.	Approximate length of 3.7km.	**There is no preference** in relation to route option length as both route options are the same length.
Biodiversity and Geological Conservation	Sites of Special Scientific Interest (SSSI)	n/a	Route Option 2b crosses the edge of the Dargavel Burn SSSI, designated for valley fen; this could potentially affect 0.31 ha. This could be avoided during route alignment.	**Route Option 2a is the preference** in relation to Biodiversity and Geological Conservation. Though Route Option 2a may affect a greater total SINC area than 2b, these are non-statutory designations. Route Option 2a avoids the Dargavel Burn SSSI entirely.
	Sites of Importance for Nature Conservation (SINCs)	Along the section where Route Options 2a and 2b overlap, it crosses through the Craigmarloch Wood SINC. This SINC is notified for mature plantation woodland and diverse understorey. Heathland regeneration is also scattered in areas of fallen Scot's pine. The overlapping Route Options follow the existing wayleave through the SINC. Along the section where Route Options 2a and 2b overlap, it crosses through the Leperstone Reservoir & Auchendores Reservoir SINC. This SINC is notified for large bodies of freshwater with rich marginal vegetation. The overlapping section of Options 2a and 2b follow the existing wayleave through the SINCs.		
		Route Option 2a crosses through Knockmountain Wood SINC, Renfrewshire Council has not made the SINC notifications access to the public; as such there is no information as to the important habitats present. The approximate total area of SINC which could be affected by Route Option 2a is 6.96 ha. This is unavoidable during route alignment.	The approximate total area of SINC which could be affected by Route Option 2b is 4.76 ha. However this can be avoided during route alignment.	
Landscape & Visual Amenity	Residential Visual Amenity with '150m trigger for consideration zone'	Where the two route options differ, neither pass within the '150m trigger for consideration zones' for any properties.		On balance, **Route Option 2b is the preference**. This route option offers greater opportunity to reflect the alignment of the existing OHL and minimises routeing through the higher sensitivity Rocky Hills and Ridges LCT located on higher ground around Knockmountain.
	Landscape Character Area	From west to east, and where the route options differ, both route options pass through the following landscape character types (with associated sensitivity to OHL of the type proposed): • Rocky Hills and Ridges (high) • Rolling Pastureland (medium) • Pastoral Valleys (medium) Both route options pass through similar LCT however, Route Option 2a passes through a greater extent of the higher sensitivity Rocky Hills and Ridges LCT, located to the north of the existing OHL around Knockmountain.		

CRITERION	Sub-Criteria	Route Option: 2a	Route Option: 2b	Preference
	Tourism and Recreation: OS promoted key viewpoints (visual amenity – SUSTRANS routes, core paths, long distance trails, tourist attractions and recreational areas such as golf courses).	Both route options cross the Core Path between Kilmacolm and the Old Greenock Road. In terms of visibility, and where the route options differ, Route Option 2a increases the chances of OHL being seen above the horizon, in views from the north of the Clyde such as Cardross. This is because the route option is routed on higher ground around the Knockmounatin area.		
Cultural Heritage	Scheduled Monuments	Both route options pass within close proximity to two SMs: • Craigmarloch Wood fort (SM4379) is located approximately 300m to the south of the route options. • High Castlehill (SM12886) is located approximately 290m to the north of the route options. Both are 'defended' sites and, their elevated locations and patterns of visibility are important in understanding their cultural significance. As the existing overhead line is being replaced with a wood pole line (thus is likely to slightly reduce the effect on the setting of Craigmarloch Wood fort), and topography to the north is likely to partially obscure views of the route options from High Castlehill, adverse effects on the cultural significance of either asset are not anticipated.		There is **no preference** between route options.
	Inventory Gardens and Designed Landscapes	Two Inventory-Listed Gardens and Designed Landscapes are located within 2km: - Finlaystone House. - Duchal House. There is no visibility from either, therefore no adverse effects are anticipated.		
	Conservation Areas	Two CAs are located within 2km: - The Cross, Kilmalcolm. - Kilmalcolm. There is no visibility from either (screened by topography and intervening development), and no impacts are expected.		
	Undesignated Archaeology of Regional / Local Importance within route options	There are four sites within 1km, but these are unlikely to experience adverse effects on cultural significance.		
	Listed Buildings, Category A, B and C	The following LBs were considered during the appraisal of both route options: • 'Cloak', is a Category B-Listed house (LB12462) located approximately 100m to the north of both route options. • Auchenbothie House, is a Category B-Listed country house (LB12460) located approximately 900m to the south of both route options. • Auchenbothie House gatelodge is a Category B-Listed lodge house (LB12461), located approximately 1.2km to the south of the route options. • A Category B-Listed headstone (LB51677) is situated approximately 990m to the south of both route options. • 'Water Yetts', Finlaystone Road, is a Category B-Listed house, located approximately 1km to the south of both route options. • Numerous other LBs within Kilmalcolm, less than 2km from the route options, which are screened by intervening topography and development. No adverse effects on the setting of these LBs are considered likely.		
Land Use	Existing and Committed Development (include valid planning applications for	There are no areas of existing or committed development within either route option.		There is **no preference.**

CRITERION	Sub-Criteria	Route Option: 2a	Route Option: 2b	Preference
	residential use applications and valid planning applications for other non-residential uses (including windfarms).			
Forestry	Ancient and Semi Natural Woodland (ASNW)	There is 1.13ha of ASNW within this route option. The majority of this could be avoided during route alignment; however depending on tree cover on the ground, there may be one area which cannot be avoided, and will have to be crossed by the overhead line.	There is 1.52ha of ASNW within this route option. Depending on tree cover on the ground, it is likely this could be avoided during route alignment.	**Route Option 2b is the slight preference**, as there is more opportunity to avoid the ASNW within the route option, during route alignment.
	Native Woodland (NWSS)	There is 0.3ha of NWSS within this route option. This could be avoided during route alignment.	There is 0.88ha of NWSS within this route option. This could be avoided during route alignment.	
	National Forestry Inventory (NFI)	There is 5.02ha of NFI within this route option. This could be avoided during route alignment.	There is 1.47ha of NFI within this route option. This could be avoided during route alignment.	
Flood Risk	Flood zones and waterbodies	This route option crosses two areas of existing waterbodies (Leperstone Reservoir, and a small area of water to the south of Knockmountain Wood); however these can both be avoided during route alignment, or if necessary, can be easily spanned by a wood pole line.	This route option crosses an existing waterbody (Leperstone Reservoir); however this can be avoided during route alignment, or if necessary, can be easily spanned by a wood pole line.	There is **no preference** as neither of the route options cross, or include an area of 1/200 year flood risk zone or waterbody which cannot be avoided, or easily spanned, during route alignment.
Overall Preference 2b		Whilst both route options are identical in length, Route Option 2b reflects the existing alignment of the OHL whereby the surrounding land use has adjusted to its presence, which avoids routeing through the higher sensitivity Rocky Hills and Ridges LCT, located on higher ground around Knockmountain. Although Route Option 2b slightly overlaps the Dargavel SSSI, this can be avoided during route alignment. Both route options cross the Craigmarloch Wood and Auchendores Reservoir SINCs, which are unavoidable. Both route options also cross the Leperstone SINC, which can be avoided during route alignment. Route Options 2a and 2b also cross the Knockmountain SINC, however route Option 2b can avoid this during route alignment, therefore on balance route Option 2b affects a smaller area of SINC, when compared with Route Option 2a. Route 2b also provides the greatest opportunity to reduce the need for ASNW tree removal during route alignment.		

Erskine to Devol Moor – Route Option Appraisal Table: Route Section 3

CRITERION	Sub-Criteria	Route Option: 3a	Route Option: 3b	Route Option: 3c	Route Option: 3d	Route Option: 3e	Preference
Approximate Length of Line Route (km)		Both route options are approximately 7.5km in length.		Approximate length of 7.4km.	Approximate length of 7km.	Approximate length of 7.4km.	**Route Option 3d is the preference** as it is shorter than all other route options.
Biodiversity and Geological Conservation	Sites of Special Scientific Interest (SSSI)	The Inner Clyde SSSI is designated for wintering redshank and several wintering coastal birds, as well as saltmarsh. At the nearest point, Route Option 3a is within approximately 125m of the Inner Clyde SSSI, although on the opposite side of the M8 motorway. Where the route option runs alongside the northern side of the motorway (for c. 560m) it is located approximately 625m from the SSSI. The 1km trigger for consideration zone cannot be avoided during route alignment.	At the nearest point, Route Option 3b is within approximately 125m of the Inner Clyde SSSI, although on the opposite side of the M8 motorway. The 1km trigger for consideration zone cannot be avoided during route alignment.	At the nearest point, Route Option 3c/d and e are within approximately 800m of the Inner Clyde SSSI, although on the opposite side of the M8 motorway. The 1km trigger for consideration zone cannot be avoided during route alignment. All areas of Route Option 3d are beyond 800m of the Inner Clyde SSSI, excepting the join with Section 4 at 720m on the near side of the M8 motorway. All areas of Route Option 3e are beyond 800m of the Inner Clyde SSSI, excepting the join with Section 4 at 720m on the near side of the M8 motorway.			Route Option 3e is the preference as the majority of the route is a greater distance from the Inner Clyde SPA/Ramsar/SSSI than the other route options. Additionally, Route Option 3e affects the smallest area of overall SINC at just under half a hectare, which could be avoided during route alignment
	Special Protection Areas (SPA)	The Inner Clyde SPA is designated for wintering redshank and is aligned with the SSSI, above.					
	Ramsar Sites	As for the Inner Clyde SPA (the Ramsar is designated for wintering redshank).					
	Sites of Importance for Nature Conservation (SINCs)	Route Option 3a clips Erskine West Ferry/Barhill Wood/Boden Boo SINC, notified for woodland & grassland. This could be avoided during route alignment. It also clips Park Glen/Barbeg Hill SINC, notified for grassland & scrub. This could be avoided during route alignment.	Route Option 3b clips Park Glen/Barbeg Hill SINC, notified for grassland & scrub. This could be avoided during route alignment. The approximate total area of SINC which could be affected by Route Option 3b is 1.44ha if other considerations meant the SINC could not be avoided..	Route Option 3c clips Park Glen/Barbeg Hill SINC, notified for grassland & scrub. This could be avoided during route alignment. It also clips the edge of Whitemoss SINC, notified for woodland & scrub, with a large loch also being present. This could be avoided during route alignment. The approximate total area	Route Options 3d bisects Park Glen/Barbeg Hill SINC, notified for grassland & scrub. This could not be avoided during route alignment. The approximate total area of SINC which could be affected by Route Option 3d is 7.6ha.	Route Option 3e clips Corsliehill & Swinesglen/Northbrae Woods SINC, notified for grassland, marsh, woodland, & scrub. This could be avoided during route alignment. The approximate total area of SINC which could be affected by Route Option 3e is 0.48ha if other considerations meant the SINC could not be avoided..	

CRITERION	Sub-Criteria	Route Option: 3a	Route Option: 3b	Route Option: 3c	Route Option: 3d	Route Option: 3e	Preference
		The approximate total area of SINC which could be affected by Route Option 3a is 1.9ha, if other considerations meant the SINCs could not be avoided..		of SINC which could be affected by Route Option 3c is 1.39ha. if other considerations meant the SINCs could not be avoided..			
Landscape & Visual Amenity	Residential Visual Amenity with '150m trigger for consideration zone'	Route Options 3a and 3b pass within the '150m trigger for consideration zone' for the property to the east of the Drums property group. There is the potential for partially open views from south eastern façade, however a woodland belt to the east of the property would likely provide some level of screening. The 150m 'trigger for consideration zone' could be avoided during route alignment as opportunities exist to route on lower lying ground further east.		As for 3a and 3b, route Option 3c also passes within the '150m trigger for consideration zone' for the property to the east of the Drums property group. This route option also passes the fringes of the 'trigger for consideration zones' for the farmstead at Whitemoss (potential for open views from northern façade) and the group of three properties to east of Ingliston Country Club (rear views where garden vegetation would play a role in screening). In addition Route Option 3c passes through the 'consideration zones' for properties on north western edge of Bishoptown. These properties have open rear aspects. Detailed routeing opportunities exist to route outside the 'trigger for consideration zone' of all these properties.	Route Option 3d passes through the '150m trigger for consideration zone' for properties to south of Formakin GDL. Localised woodland is likely to screen views from most properties, however open principal views are considered likely from Saltstone. This route option also passes within the 'trigger for consideration zone' of the three properties to the east of Ingliston Country Club and properties on the north western edge of Bishoptown, discussed previously. Detailed routeing opportunities exist to route outside the 'trigger for consideration zone' of all these properties.	In addition to the properties discussed for Route Option 3d, Route Option 3e also passes within the '150m trigger for consideration zone' for Yetson, Haddockston, Towncroft Farm and Meiklefield. All these properties are located to the south of the study area where cumulative effects in relation to the existing 400kV are also a consideration. There is potential for open principal views from Towncroft Farm and Meiklefield. The existing 400kv OHL is also apparent in slightly oblique, principal views from Meiklefield. Detailed routeing opportunities exist to route outside the 'trigger for consideration zone' of all these properties .	In terms of effects on residential visual amenity Route Option 3a and 3b are the emerging preferences. In terms of effect on landscape character, Route Options 3c and 3e are the emerging preferences. In terms of effects on tourism and recreation Route Option 3b and 3e are the emerging preferences. On balance, **Route Option 3b is considered to be the preference**. With regard to effects on landscape character, where the route options passes through the higher sensitivity Escarpment LCT, it does so between the railway and motorway, an established liner infrastructure corridor, before crossing a lower lying section of the ridge at an oblique angle.
	Landscape Character Area	From west to east, and where the route options differ, both route options pass through the following landscape character types (with associated sensitivity to OHL of the type proposed): • Pastoral Valley (medium) • Rolling Pastureland (medium) • Pastoral Valley (medium) • Rolling Pastureland (medium)		From west to east, Route Option 3c passes through the following landscape character types (with associated sensitivity to OHL of the type proposed): • Pastoral Valley (medium) • Rolling Pastureland (medium)	From west to east, Route Option 3d passes through the following landscape character types (with associated sensitivity to OHL of the type proposed): • Pastoral Valley (medium) • Rolling Pastureland (medium) • Pastoral Valley (medium)	Where Route Option 3e differs to Route Option 3d, it avoids the higher sensitivity Rocky Hills and Ridges LCT, passing through lower lying ground further south: • Pastoral Valleys (medium); and • Rolling Pastureland (medium).	

CRITERION	Sub-Criteria	Route Option: 3a	Route Option: 3b	Route Option: 3c	Route Option: 3d	Route Option: 3e	Preference
		• Escarpment (higher) • Raised Beach (lower) • Escarpment (higher) The eastern extent of Route Option 3b also passes through the Rolling Pastureland LCT (medium). For both route options routeing through the higher sensitivity Escarpment LCT is unavoidable. However, the Escarpment LCT has been locally altered by the motorway and railway and both route options broadly parallel with this infrastructure, until they cross perpendicular to the LCT west of the Cora Campus.		• Pastoral Valley (medium) • Rolling Pastureland (medium)	• Rocky Hills and Ridges (high) • Pastoral Valley (medium) • Rolling Pastureland (medium) • Pastoral Valley (medium) • Forestry (medium) • Rolling Pastureland (medium) It is possible, through detailed routeing, to avoid the higher sensitivity Rocky Hills and Ridges LCT		
	Tourism and Recreation: OS promoted key viewpoints (visual amenity – SUSTRANS routes, core paths, long distance trails, tourist attractions and recreational areas such as golf courses).	Both route options cross the Core Path (twice) to the south of Barscube Hill, the Core Path to the west of the Cora Campus near Old Greenock Road and, at their eastern extents, run parallel to sections of the Core Paths either side of the motorway, with 3a paralleling a slightly longer section of CorePath. In terms of visibility from key viewpoints, the ZTV generated from Dumbarton Castle is a useful tool to indicate the geographical extent over which objects around 15m in height would be visible from the north of the Clyde. Routeing should seek to avoid, as far as possible, OHL seen above the horizon (which would be indicated by route options running parallel to the southern extents of ZTV/ crossing in and out of the southern extents of the ZTV. Typically Route Options 3a and 3b avoid this effect, but OHL would likely be visible above the horizon for a short section as the route options exit the ZTV south of High Hatton.		Route Option 3c also crosses the Core Path (twice) to the south of Barscube Hill. Where it then differs to route Option 3a/b it crosses the Core Path which runs to the west of Ingliston Country Club and the Core Path south of the motorway. In terms of visibility from key viewpoints, Route Option 3c leaves, enters and leaves again the ZTV generated from Dumbarton Castle, which is likely to increase the visibility of OHL seen above the horizon, in views from the castle. Route Option 3c would also pass in close proximity to the south of Ingliston Country Club and then the south and eastern sides of the cemetery (to the west of Bishopton) and be visible in open views for recreational receptors from both areas.	Route Option 3d also crosses the Core Path (twice) to the south of Barscube Hill and the Core Path south of the motorway. In terms of visibility from key viewpoints, Route Option 3d leaves the ZTV generated from Dumbarton Castle once, to the west of Bishopton. Route Option 3d would also pass in close proximity to the eastern side of the cemetery (to the west of Bishopton) and be visible in open views for recreational receptors from here.	Route Option 3e avoids crossing the Core Path (twice) to the south of Barscube Hill. Beyond this effects on Core Path and visibility from key viewpoints such as Dumbarton Castle would be very similar to those identified for Route Option 3d.	
Cultural Heritage	Scheduled Monuments	There are five SMs located within 1km of both route options: • Steel Cottage (SM12889) is located approximately 720m to the north. • Whitemoss Roman Fort (SM1652) is located		There are five SMs located within 1km of this route option: • Steel Cottage (SM12889) is located	There are four SMs located within 1km of this route option: • Steel Cottage (SM12889) is located	There are four SMs located within 1km of this route option: • Steel Cottage (SM12889) is located approximately 720m to the north.	**Route Option 3c is the preference** as it avoids interaction with Whitemoss SM and Antonine Wall WHS. This route option also

CRITERION	Sub-Criteria	Route Option: 3a	Route Option: 3b	Route Option: 3c	Route Option: 3d	Route Option: 3e	Preference
		approximately 290m to the east. • Bishopton, aqueduct (SM4326) is located approximately 50m to the south west. • Ritchieston Enclosure (SM12807) is located approximately 630m to the east. • Fornet Cottage (SM12890) is located approximately 1km to the north east. It is considered that the setting of these SMs would not be adversely affected by the wood poles.		approximately 720m to the north. • Whitemoss Roman Fort (SM1652) is located approximately 120m to the north. • Bishopton, aqueduct (SM4326) is located approximately 550m to the north west. • Ritchieston Enclosure (SM12807) is located approximately 630m to the east. • Fornet Cottage (SM12890) is located approximately 1km to the north east. It is considered that the setting of these SMs would not be adversely affected by the wood poles.	approximately 720m to the north. • Whitemoss Roman Fort (SM1652) is located approximately 625m to the west. • Bishopton, aqueduct (SM4326) is located approximately 550m to the north west. • Ritchieston Enclosure (SM12807) is located approximately 630m to the east. In addition Barochan Hill, Roman fort (SM3318) is located approximately 1.4km to the south east of Route Option 3d. It is considered that the setting of these SMs would not be adversely affected by the wood poles.	• Whitemoss Roman Fort (SM1652) is located approximately 625m to the west of this route option. • Bishopton, aqueduct (SM4326) is located approximately 550m to the north west. • Ritchieston Enclosure (SM12807) is located approximately 630m to the east. In addition Barochan Hill, Roman fort (SM3318) is located approximately 1.2km to the south of Route Option 3e. It is considered that the setting of these SMs would not be adversely affected by the wood poles.	minimises effects on Formakin GDL and associated group of listed buildings.
	Inventory Gardens and Designed Landscapes	Route Options 3a, b & c angle around the northwest circuit of Formakin IGDL (GDL00183) IGDL landscape at a distance of approximately 150m. The route options appear to be well screened by local topography. Similarly, the designed landscape is of an introspective and enclosed design, with comparatively short-range views to formal gardens and adjacent parkland. Route options would be unlikely to adversely affect the asset's cultural significance.			Route Options 3d and 3e pass through the south eastern edge of Formakin IGDL (GDL00183), and would potentially be visible in views to the southwest from the upper floor of the main house, as it descends the flank of Barmore Hill. However, this is unlikely to adversely affect the asset's cultural significance.		
	Undesignated Archaeology of Regional / Local Importance within route options	Local Importance: Barscube Mill (Canmore: 170970 / WoSASPIN: 42306) is located almost wholly within all the route options which will require to be taken account of during route alignment.	Local Importance: Barscube Mill (Canmore: 170970 / WoSASPIN: 42306) is located almost wholly within all the route options which will require to be taken account of during route alignment. Regional Importance: Route Option 3b runs parallel to Bishopton Tunnel West (Canmore: 122964 / WoSASPIN: 21142) for its entire length. Its significance relates to its historical and evidential	Local Importance: Barscube Mill (Canmore: 170970 / WoSASPIN: 42306) is located almost wholly within all the route options which will require to be taken account of during route alignment. Regional Importance: Route Options 3 c, d and e cross Bishopton Tunnels (Canmore: 122965 / WoSASPIN: 21143). Its significance relates to its historical and evidential value; its setting is important to the extent that the overlying landscape can be read as part of a working agricultural landscape. The introduction of the route would not compromise this relationship or the ability of viewers to understand this aspect of its history and significance. The asset is crossed by the existing OHL.			

CRITERION	Sub-Criteria	Route Option: 3a	Route Option: 3b	Route Option: 3c	Route Option: 3d	Route Option: 3e	Preference
			value; its setting is important to the extent that the overlying landscape can be read as part of a working agricultural landscape. The introduction of the route would not compromise this relationship or the ability of viewers to understand this aspect of its history and significance.				
	World Heritage Site	The Frontiers of the Roman Empire (Antonine Wall) World Heritage Site is located approximately 2.75km to the east north east of all route options at its closest point. The route options will not give rise to adverse effects on the WHS cultural significance or Outstanding Universal Value. However, conserving the visual/functional relationships between the Antonine Wall WHS and the Whitemoss fort (an integral part of the frontier system) is important. The positioning and nature of the route option suggests that this should not be an issue for Route Option 3a, sitting as it does on the lower raised beach. Route Option 3b takes a more elevated route, but there should be little chance of adverse effects on functional relationships. Though the route options converge at the same point, Route Options 3 c, d and e provide less visual separation between Whitemoss fort and the Antonine Wall.					
	Listed Buildings, Category A, B and C	Route Options 3a, 3b and 3c are located approximately 800m to the west of Formakin House (LB10903), a Category A-Listed country house. The route options are likely only to be visible in longer views from upper floors to the northwest and are very unlikely to affect views from main rooms or principal elevations. The route options are not likely to result in adverse effects on the LBs cultural significance. B-Listed Formakin main entrance and lodge (LB10904) appears to be mis-located in HES GIS data and should potentially be located at NS 41056 70704. However, the route options are unlikely to be visible from this asset. Gatelodge (LB10902), is a Category C-Listed gate lodge located approximately 500m east of Route Options 3a and 3b and approximately 440m north of Route Option 3c. No adverse effects on the cultural significance is considered likely. Old Bishopton House (LB10901) is a Category B-Listed 17th century mansion house located approximately 100m to the south of Route Options 3a and 3b. An adverse effect is considered unlikely as the cultural significance derives principally from historical, architectural and aesthetic values with setting playing only a contextual role.			Route Options 3d and e are located approximately 100 – 160m from a group of Category B-Listed buildings in southwest corner of Formakin designed landscape (group listed LB10905): • South eastern stable range • Miller's house and western stable range • Northern stable range, pend and dovecot • North eastern stable range • Petrol house • Eastern stable range • Archway • Bothy block • Stables Formakin Mill, Category B-Listed mill (LB12380) is also included. The most important element of the setting of these assets is their relationship to each other and the wider Formakin estate, which would be unchanged by the introduction of the route. There are numerous other LBs within 1km which are screened by intervening topography and development, therefore no adverse effects are expected.		
	Non – Inventory Gardens and Designed Landscapes	Route Options 3a, b and c run parallel to the western boundary of Drums House, a designed landscape of local and regional significance. The route options are located between the Drum House policies and the Inventory-listed Formakin House designed landscape. Introduction of an overhead line on wood poles would be unlikely to result in an adverse effect on the cultural significance of the asset.			n/a	n/a	
Land Use	Existing and Committed	There are no areas of existing or committed	There are no areas of existing or committed	There are no areas of existing or committed	There are no areas of existing or committed	There are no areas of existing or committed development within this	**Route Option 3a is the preference** as it crosses the

CRITERION	Sub-Criteria	Route Option: 3a	Route Option: 3b	Route Option: 3c	Route Option: 3d	Route Option: 3e	Preference
	Development (include valid planning applications for residential use applications and valid planning applications for other non-residential uses (including windfarms).	development within this route option.	development within this route option.	development within this route option.	development within this route option.	route option.	smallest distance of grade 3.1 agricultural land.
	Scotland Land Capability for Agriculture Classes 1, 2 and 3.1	This route option passes through approximately 800m of Grade 3.1 agricultural land. This could not be avoided during route alignment; therefore this route option would result in the loss of an area of good quality agricultural land.	This route option passes through approximately 880m of Grade 3.1 agricultural land. This could not be avoided during route alignment; therefore this route option would result in the loss of an area of good quality agricultural land.	This route option passes through approximately 1.6km of Grade 3.1 agricultural land. This could not be avoided during route alignment; therefore this route option would result in the loss of an area of good quality agricultural land.			
Forestry	Ancient and Semi Natural Woodland (ASNW)	There is 4.48ha of ASNW within this route option. The majority of this could be avoided during route alignment; however depending on tree cover on the ground, there may be three areas which cannot be avoided, and will have to be crossed by the overhead line.	There is 4.44ha of ASNW within this route option.. The majority of this could be avoided during route alignment; however depending on tree cover on the ground, there may be three areas which cannot be avoided, and will have to be crossed by the overhead line.	There is 3.36ha of ASNW within this route option. The majority of this could be avoided during route alignment; however depending on tree cover on the ground, there may be four areas which cannot be avoided, and will have to be crossed by the overhead line.	There is 4.71ha of ASNW within this route option. The majority of this could be avoided during route alignment; however depending on tree cover on the ground, there may be eight areas (primarily where the tree line follows a track or field boundary) which cannot be avoided, and will have to be crossed by the overhead line.	There is 2.56ha of ASNW within this route option. This could be avoided during route alignment. The majority of this could be avoided during route alignment; however depending on tree cover on the ground, there may be nine areas (primarily where the tree line follows a track or field boundary) which cannot be avoided, and will have to be crossed by the overhead line.	Route Option 3e is the preference as it affects the smallest area of ASNW .
	Native Woodland (NWSS)	There is 0.7ha of NWSS within this route option. This could be avoided during route alignment.	There is 0.48ha of NWSS within this route option. This could be avoided during route alignment.	There is 0.46ha of NWSS within this route option. This could be avoided during route alignment.	There is 2.39ha of NWSS within this route option. This could be avoided during route alignment.	There is 1.78ha of NWSS within this route option. This could be avoided during route alignment.	
	National Forestry Inventory (NFI)	There is 2.61ha of NFI within both of these route options. The majority of this could be avoided during route alignment.		There is 2.23ha of NFI within this route option. The majority of this could be avoided during route alignment.	There is 0.87ha of NFI within this route option. The majority of this could be avoided during route alignment.	There is 0.42ha of NFI within this route option. The majority of this could be avoided during route alignment.	

CRITERION	Sub-Criteria	Route Option: 3a	Route Option: 3b	Route Option: 3c	Route Option: 3d	Route Option: 3e	Preference
Flood Risk	Flood zones and waterbodies	These route options crosses a small existing waterbody to the south of West Glen. This can be avoided during route alignment. In addition they includes two areas of 1/200 year flood risk zone (one to the south of Barscube, and one the associated with the River Clyde); however these can also be avoided during route alignment.		This route option crosses two small existing waterbodies (one to the south of West Glen, and one to the south west of Ingliston Equestrian Centre). These can be avoided during route alignment.	This route option crosses one small existing waterbody to the south of West Glen, which can be avoided during route alignment, and a further three (one to the south of Barmore Hill and two to the north west of Nether Mill) which cannot be avoided but can be easily spanned. In addition there are two areas of 1/200 year flood risk zone within the route option (one to the south of Barscube which can be avoided during route alignment, and one to the north west of Nether Mill, which cannot be avoided but can be easily spanned).	This route option crosses two small existing waterbodies (to the south of West Glen, and at Mid Glen), which can be avoided during route alignment, and a further two (to the north west of Nether Mill) which cannot be avoided but can be easily spanned. In addition there are three areas of 1/200 year flood risk zone within the route option (one to the south of Barscube, one to the east of Haddockston and one to the north west of Nether Mill), none of which cannot be avoided but all of which can be easily spanned.	There is no preference as none of the route options cross, or include an area of 1/200 year flood risk zone, or existing waterbody, which cannot be avoided or spanned during route alignment.
Overall Preference: 3b		Route Option 3b is one of the longest route options; however on balance it is the preferred route in relation to landscape and visual amenity. It offers opportunities to minimise effects on residential visual amenity as well as visual effects on tourism and recreational features. However, this route has the potential to affect the more sensitive Escarpment landscape character type, albeit in the context of the presence of existing linear infrastructure (i.e. motorway and railway). This route option avoids the Formakin Inventory Garden and Designed Landscape and its associated heritage assets. Whilst it intersects visibility between the Whitemoss Roman Fort Scheduled Monument and the Antonine Wall World Heritage Site (which are historically linked), this is in the context of the presence of existing linear infrastructure (i.e. motorway and railway) and at a lower elevation. Whilst this route option is closer to the Inner Clyde SPA/Ramsar /SSSI, compared to Route Options 3c, 3d and 3e, effects on these designated sites will be avoidable during route alignment and/or mitigation measures. Route Option 3b is routed through Land Capability for Agriculture grade 3.1 Land, which in each option is unavoidable and will form a consideration during the route alignment stage to minimise loss of agricultural land where possible.					

Erskine to Devol Moor – Route Option Appraisal Table: Route Section 4

	Sub-Criteria	Route Option: 4a	Route Option: 4b	Route Option: 4c	Route Option: 4d	Preference
Approximate Length of Line Route (km)		Both route options have an approximate length of 2.3km.		Approximate length of 2.2km.	Approximate length of 2.67km.	**Route Option 4c is the preference** as it is slightly shorter than the other route options.
Biodiversity and Geological Conservation	Sites of Special Scientific Interest (SSSI)	The Inner Clyde SSSI is designated for wintering red shank and several wintering coastal birds, as well as saltmarsh. All Route Options, 4a, 4b, 4c and 4d, meet at the closest point to the Inner Clyde SSSI, at approximately 700 m distance. The difference in distance from this point eastwards for each route option is not significant, being less than 150 m, maximum. The 1km trigger for consideration zone cannot be avoided during route alignment.				There is little difference between the three route options in relation to biodiversity and geological conservation; therefore there is no preference.
	Special Protection Areas (SPA)	The Inner Clyde SPA is designated for wintering redshank and is aligned with the SSSI, above.				
	Ramsar Sites	As for the Inner Clyde SPA (the Ramsar is designated for wintering redshank).				
Landscape & Visual Amenity	Residential Visual Amenity with '150m trigger for consideration zone'	Route Option 4a passes within the '150m trigger for consideration zone' of the cluster of properties at Ritchieston, the farmstead at North Porton and some properties on the northern edge of Bishopton (including to the east of the M8). Detailed routeing opportunities exist to avoid the 'consideration zone' at Ritchieston, routeing to the rear (north) of this property cluster. At North Porton, all route options pass to the south (with the exception of route 4d), where there is the potential for open views from the property, within 150m. However, for all route options detailed routeing opportunities exist to accommodate the new wood pole OHL behind (south) of the existing OHL, in views from this property. Route Option 4a also passes within the fringes of a limited number of 'consideration zones' for	Where Route Option 4b differs to Route Option 4a, it passes to the south within the '150m trigger for consideration zone' of the cluster of properties at Ritchieston. It would not be possible to avoid this area during detailed routeing. Furthermore, principal views from this cluster of properties are orientated to the south, but it is recognised that garden vegetation would provide a level of screening.	Route Option 4c runs parallel to the north of the M8, through a greater number of 'consideration zones', for properties on the northern edge of Bishopton. As noted previously, these tend to be rear/ gable end views with mature vegetation providing potential screening. This route option also passes to the south of Ritchieston, following a similar path to Route Option 4b to the south of this property cluster.	Route Option 4d passes within the '150m trigger for consideration zone' for the cluster of properties at Ritchieston; the farmsteads of North Porton and Drumcross; and properties on the southern edge of the small settlement of Kirkton. Detailed routeing opportunities exist to avoid the 'consideration zones' for the properties of North Porton, Drumcross and at Kirkton. Properties on the edge of Kirkton have open, secondary views (including garden views and views from conservatories) to the south and at Drumcross there is the potential for open views to the east. At Ritchiestone it would not be possible to avoid routeing through the 'consideration zone' to the north of the property cluster, however it is noted that principal views from this cluster of properties are orientated to the south.	On balance, **Route Option 4a is the preference**. Whilst it is recognised that this route option would potentially bring OHL in closer proximity to Erskine Golf Club House and result in more localised effects on Core Paths, detailed routeing opportunities exist to avoid routeing within the '150m trigger for consideration zone' for the cluster of properties at Ritchieston, routeing behind this property group. This route option also avoids introducing closer proximity views of OHL from properties and recreational receptors in the small settlement of Kirkton.

	Sub-Criteria	Route Option: 4a	Route Option: 4b	Route Option: 4c	Route Option: 4d	Preference
		properties to the north of Bishopton. However, these are typically rear/ gable end views with mature vegetation along the motorway providing potential screening. For the properties to the east of the M8, these are set on lower ground with woodland screening and mature garden vegetation to the north. There is also a property to the east of Erskine Substation, on Shilton Lane. However, detailed routeing opportunities exist to avoid routeing within the '150km trigger for consideration zone' of this property (also applies to Route Options 4b, c and d).				
	Landscape Character Area	All route options are located within the Rolling Pastureland LCT, which is assessed as being of medium sensitivity to the type of OHL proposed.				
	Tourism and Recreation: OS promoted key viewpoints (visual amenity – SUSTRANS routes, core paths, long distance trails, tourist attractions and recreational areas such as golf courses).	Route Option 4a runs parallel to the Core Path along the continuation of Chestnut Avenue, west of the Club House at Erskine Golf Club, and crosses the Core Path along the B815. This route option also passes in closer proximity to the south of the Club House than Route Options 4b and 4c. However, it is recognised that principal views from the Club House are orientated to the north, towards the Clyde. The golf course itself used for recreation is also located to the north of the Club House.	Route Option 4b starts near the Core Path along the continuation of Chestnut Avenue, follows the alignment of the Core Path south of Ritchieston for a short distance and crosses the Core Path along the B815.	Route Option 4c has similar effects on Core Paths to Route Option 4b.	Route Option 4d has similar effects on Core Paths and recreational receptors at Erskine Golf Club, following a similar alignment to this route option to the west of the B815. Furthermore, this route option would bring the OHL in closer proximity to the settlement of Kirkton, which has a Core Path running past a church, located on slightly elevated ground with open principal views to the south. As such, Kirkton Church is likely to provide a place where people could stop, visit and appreciate the view.	
Cultural Heritage	Scheduled	Enclosure, ENE of No. 4 Richieston (SM12807): a	Enclosure, ENE of No. 4 Richieston (SM12807) is	Enclosure, ENE of No. 4 Richieston (SM12807) is	Enclosure, ENE of No. 4 Richieston (SM12807)is located	**Route Option 4b or 4c would be the preference.** These options

	Sub-Criteria	Route Option: 4a	Route Option: 4b	Route Option: 4c	Route Option: 4d	Preference
	Monuments	cropmark of a later prehistoric enclosure, is located approximately 35m to the north east of Route Option 4a. Its setting contributes to significance in terms of the legibility of the surrounding topography, potentially informing the choice of location and spatial relationships with contemporary features. The presence of the route option would potentially erode the sense of openness and sightlines that contribute to its appreciation and may affect the setting of the feature. Enclosure, WSW of Drumcross (SM12806), a cropmark of a later prehistoric enclosure, is located approximately 110m to the north east of this route option. As, at this point, the route option is within the existing wayleave no additional effects are expected.	located approximately 170m to the north of this route option. Enclosure, WSW of Drumcross (SM12806) is located approximately 110m to the north east of this route option. As, at these points, the route option is within the existing wayleave no additional effects are expected.	located approximately 250m to the north east of this route option. As the route option is at greater distance than the existing route and the smaller wood pole structures will be less visually intrusive, no additional effects are expected. Enclosure, WSW of Drumcross (SM12806)is located approximately 110m to the north east of this route option. As, at this point, the route option is within the existing wayleave no additional effects are expected.	approximately 30m to the north of this route option. Its setting contributes to significance in terms of the legibility of the surrounding topography, potentially informing the choice of location and spatial relationships with contemporary features. The presence of the route option would potentially erode the sense of openness and sightlines that contribute to its appreciation and may affect the setting of the feature. Enclosure, WSW of Drumcross (SM12806), a cropmark of a later prehistoric enclosure, is located approximately 260m to the north east of this route option.	avoid potential impacts on the setting of Scheduled Monument and Listed Buildings; in addition to avoiding direct effects on an area of high archaeological importance.
	Unscheduled Archaeology of National Importance	Cropmark enclosure (Canmore: 43364 / WoSASPIN: 7914) is an expanded area around SM12807, encompassing the wider cropmark complex around the Scheduled area. Route Option 4a crosses southwest of the identified area and can be avoided during route alignment.	n/a		Cropmark enclosure (Canmore: 43364 / WoSASPIN: 7914) is an expanded area around SM12807, encompassing the wider cropmark complex around the Scheduled area. Route Option 4d crosses the southern area of this, which cannot be avoided during route alignment. To avoid physical effects on archaeological assets, infrastructure/groundworks should be located outside the identified area. Where groundworks are necessary, archaeological supervision will be required as mitigation.	

	Sub-Criteria	Route Option: 4a	Route Option: 4b	Route Option: 4c	Route Option: 4d	Preference
	Listed Buildings, Category A, B and C	Richieston Cottages, a Category C-Listed group of three cottages (LB10899), are located approximately 95m to the south of this route option. This route option would introduce an intrusive element to an otherwise open fieldscape, however intervening woodland may screen views to limit adverse effects on the setting of the assets. Blantyre Monument is a Category B-Listed obelisk, located approximately 205m to the north east of this route option. Introduction of a route in close proximity could adversely affect the perception of the monument's scale (with poles being approximately half the height of the obelisk) and introducing visual clutter. An adverse effect on setting is likely. Erskine Home Farm (LB10895/6) is a Category B and C-Listed group of assets located between approximately 300-500m north east of the route option and is unlikely to be adversely affected. In addition, Freeland House (LB10897), Category B-Listed house and Freeland House, offices (LB10898), Category C-Listed estate offices are nearby. The building group is well screened by intervening vegetation and sits in a slight hollow. Kirkton Cottages (LB10894), Category B-Listed cottages, are located approximately	Richieston Cottages, a Category C-Listed group of three cottages (LB10899), are located approximately 30m to the north of this route option. Partially screened from the route options by intervening vegetation means key relationships with the former Erskine estate, and agricultural landscape, will be unaffected by these route options. Blantyre Monument is a Category B-Listed obelisk, located approximately 230m to the north east of Route Option 4b, and approximately 375m to the north of Route Option 4c. No additional effects are likely, with Route Option 4c. Erskine Home Farm (LB10895/6) is a Category B-and C Listed group of assets, located approximately 600-700m north east of these route options. Route Option 4b is within existing wayleave and Route Option 4c is further away; therefore adverse effects are considered unlikely. Kirkton Cottages, Freeland (LB10894), Category B-Listed cottages, are located approximately 520m to the north east of the route options. The views of the route options will be obscured by intervening topography. There are other LBs within 1km which are screened by intervening topography and development. No effects are expected.		Richieston Cottages, a Category C-Listed group of three cottages (LB10899), are located approximately 40m to the south of this route option. This route option would introduce an intrusive element to an otherwise open fieldscape, however intervening woodland may screen views to limit adverse effects on the settingof the assets. Blantyre Monument is a Category B-Listed obelisk, located approximately 106m to the north of this route option. Introduction of a route in close proximity could adversely affect the perception of the monument's scale (with poles being approximately half the height of the obelisk) and introducing visual clutter. An adverse effect on setting is likely. Erskine Home Farm (LB10895/6) is a Category B and C-Listed group of assets located between approximately 280—480m north of the route option and is unlikely to be adversely affected. In addition, Freeland House (LB10897), Category B-Listed house and Freeland House, offices (LB10898), Category C-Listed estate offices are nearby. The building group is well screened by intervening vegetation and sits in a slight hollow. Kirkton Cottages (LB10894), Category B-Listed cottages, are located approximately 145m to the north of the route option. Intervening topography is likely to largely screen views of the	

	Sub-Criteria	Route Option: 4a	Route Option: 4b	Route Option: 4c	Route Option: 4d	Preference
		520m to the north east of the route option. Intervening topography is likely to largely screen views of the route option. There are other LBs within 1km which are screened by intervening topography and development. No effects are expected.			route option. There are other LBs within 1km which are screened by intervening topography and development. No effects are expected.	
Land Use	Existing and Committed Development (include valid planning applications for residential use applications and valid planning applications for other non-residential uses (including windfarms).	There are no areas of existing or committed development within these route options.				**Route Option 4d is the is the preference** as it crosses the smallest distance of grade 3.1 agricultural land; thus would result in a relatively minimal loss of agricultural land.
	Scotland Land Capability for Agriculture Classes 1, 2 and 3.1	This route option passes through approximately 1.4km of Grade 3.1 agricultural land. This could not be avoided during route alignment; therefore this route option would result in the loss of an area of good quality agricultural land.	This route option passes through approximately 1.3km of Grade 3.1 agricultural land. This could not be avoided during route alignment; therefore this route option would result in the loss of an area of good quality agricultural land.	This route option passes through approximately 1.2km of Grade 3.1 agricultural land. This could not be avoided during route alignment; therefore this route option would result in the loss of an area of good quality agricultural land.	This route option passes through approximately 1.1km of Grade 3.1 agricultural land. This could not be avoided during route alignment; therefore this route option would result in the loss of an area of good quality agricultural land.	
Forestry	Ancient and Semi Natural Woodland (ASNW)	There is 3.08ha of ASNW within this route option. The majority of this could not be avoided during route alignment.	There is 4.09ha of ASNW within this route option. The majority of this could not be avoided during route alignment.	There is 6.12ha of ASNW within this route option. The majority of this could not be avoided during route alignment.	There is 1.58 of ASNW within this route option. The majority of this could not be avoided during route alignment.	**Route Option 4d is the preference** as it includes the smallest area of ASNW and NWSS.
	Native Woodland (NWSS)	There is 2.14ha of NWSS within all of these route options. The majority of this could not be avoided during route alignment.			There is 1ha of NWSS within this route option. This could not be avoided during route alignment.	
	National Forestry	There is 0.75ha of NFI within these route options.			There is 0.97ha of NFI within	

	Sub-Criteria	Route Option: 4a	Route Option: 4b	Route Option: 4c	Route Option: 4d	Preference
	Inventory (NFI)	This could be avoided during route alignment, if the existing overhead line route is followed.			these route options. This could not be avoided during route alignment.	
Flood Risk	Flood zones and waterbodies	There are no existing waterbodies, or areas of 1/200 year flood risk zone within any of these route options.				There is **no preference**.
Overall Preference 4a		Route Option 4a is the second longest route (with Route Option 4b); however it offers opportunities to avoid principal views from the Richieston cluster of properties and North Polton farmstead. Though located in proximity to the Erksine Golf Club clubhouse, it is routed behind the course and the principal views from the clubhouse used by recreational receptors. Route Option 4a is however routed closer to the Richieston Scheduled Monument and Blantyre Monument (B Listed Building) than the other route options (with the exception of 4d), and partially crosses the southernmost extent of the Unscheduled Archaeology of National Importance (Cropmark enclosure - which can be avoided during route alignment), therefore cultural heritage assets and their settings will form a key consideration during route alignment. Route Option 4a is also routed through 1.4km of Land Capability for Agriculture Grade 3.1 land which (as with all options) is unavoidable and will form a consideration during the route alignment stage, to minimise losses of agricultural land where possible.				