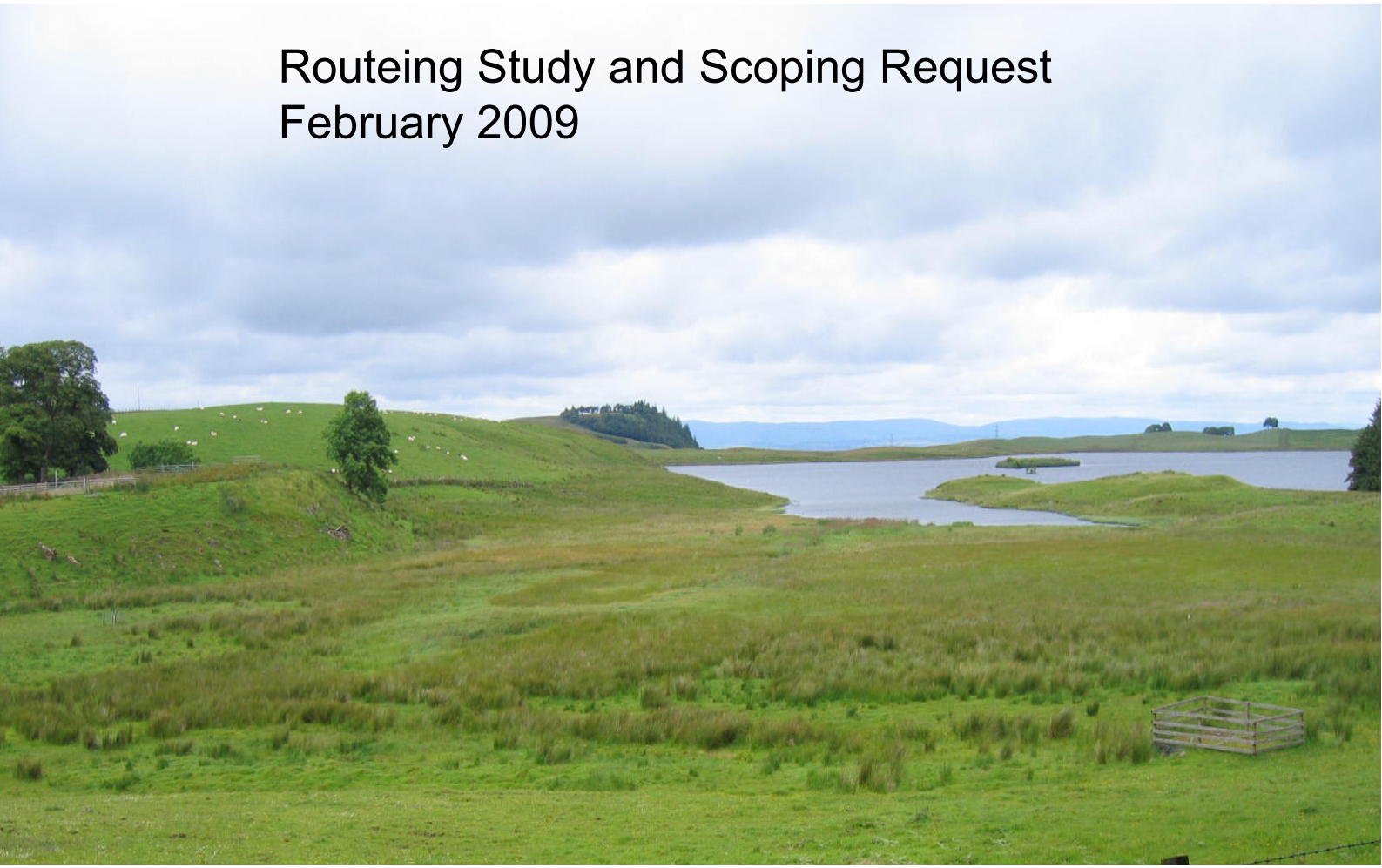
ScottishPower Transmission Ltd

Harelaw Windfarm Grid Connection

Routeing Study and Scoping Request
February 2009



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Title: Harelaw Windfarm Grid Connection – Scoping Report				
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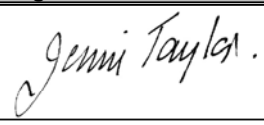
Prepared By:	Jenni Taylor	Jacobs		6/2/09
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Revision Status				
Rev.	Date	Revision Details	Checked	Authorised

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1 Introduction

1.1 Document Structure

1.1.1 Section 1 explains the background and purpose of the Routeing Study and the Scoping Request and the statutory consent procedure.

1.1.2 Thereafter the document is presented in two parts. Part 1, Sections 2 to 7, is the Routeing Study and Part 2, Sections 8 to 10, is the Scoping Request.

Part 1: Routeing Study

1.1.3 Section 1 explains the background and purpose of the Routeing Study and the statutory consent procedure.

1.1.4 Section 2 outlines the government's policy and targets for renewables and SPT's statutory duties, describes the project and the design, construction and maintenance of the wood pole line.

1.1.5 Section 3 outlines the study approach and methodology to be adopted within the document.

1.1.6 Section 4 discusses the environmental baseline conditions associated with the choice of substation location and wood pole line.

1.1.7 Section 5 is an appraisal of the substation and wood pole line route options.

1.1.8 Section 6 is an appraisal of the preferred substation and wood pole line route.

1.1.9 Section 7 details the next steps to be taken following the selection of the preferred substation and wood pole line.

Part 2: Scoping Request

1.1.10 Section 8 outlines the purpose of the Scoping Request, the legislative requirement and content before outlining the structure of the Environmental Statement (ES).

1.1.11 Section 9 presents the finding of an initial appraisal of the environmental effects, discusses the potential effects of the preferred wood pole line route for key environmental issues which will be assessed in the ES.

1.1.12 Section 10 explains the next steps to be taken following the receipt of the scoping opinion.

1.1.13 Section 11 details references.

1.1.14 Section 12 contains the appendices.

1.2 Background

1.2.1 SP Transmission Limited (SPT) is part of the ScottishPower group and is one of three companies in the UK which have a legal duty to develop and maintain an efficient, co-ordinated and economical transmission system of electricity supply in accordance with the Electricity Act 1989.

1.2.2 SPT is obliged to provide a connection to the electrical system for proposed developments within its network area. As such SPT propose to construct a 132,000 volts (132kV) wood pole line between the proposed Harelaw Windfarm and a connection point with an existing overhead line route south-east of Neilston. At this time the windfarm has not received Section 36 consent and construction of the proposed substation and transmission line would be subject to this development receiving consent.

1.3 Purpose of Document

1.3.1 The purpose of this document is twofold. The first part is designed to inform the reader of the routeing process through which the preferred route for the overhead line and substation location has been arrived at. This is to facilitate consultation with stakeholders and other interested parties before it is developed into the proposed route and carried forward to environmental assessment. The second part of the document forms SPT's request for a Scoping Opinion from the Scottish Ministers under Regulation 7 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (amended 2008). SPT believe that any changes which are made to the proposed route as part of the consultation will not effect the overall scope of the environmental assessment.

1.4 Statutory Consent Procedure

1.4.1 Under Section 37 of the Electricity Act 1989, SPT are required to seek consent from the Scottish Ministers for the construction of any non-exempted overhead line operating at a voltage greater than 20kV.

1.4.2 An application will be made by SPT to the Scottish Ministers for Section 37 consent under the Act and at the same time, a request for deemed planning permission will be made under Section 57 of the Town and Country Planning (Scotland) Act 1997.

1.4.3 The development of the proposed overhead line is defined by the Electricity Works (Environmental Impact Assessment) (Scotland) Amendment Regulations 2008 as a 'Schedule 2 Development' as it is "an electric line installed above ground with a voltage of 132 kilovolts or more, the installation of which (or the keeping installed of which) will require a Section 37 consent but which is not Schedule 1 development"

1.4.4 Due to the nature and size of the proposal it is recognized that the development is likely to have significant effects on the environment, and on this basis SPT proposes to submit an ES with the application for consent. In accordance with regulation 3(2), this intention to submit an ES confirms the development as an Environmental Impact Assessment (EIA) development.

Part 1: Routeing Study

2 Project Description

2.1 Routeing

2.1.1 The Routeing Document has been prepared in order to set out the steps taken in identifying the preferred route of the 132kV overhead transmission line between the proposed substation for Harelaw Windfarm and the connection to the electricity grid. The location of Harelaw Windfarm and the existing overhead transmission lines are shown on Figure 1 Site Context.

2.1.2 Its purpose is to allow statutory and other interested parties the opportunity to comment on the preferred route and any other matters in order to inform the selection of the proposed route. Comments will also inform the preparation of the ES for the line which will accompany the applications for consent to construct and operate the line.

2.2 Government Policy and Targets for Renewables

2.2.1 The Energy White Paper[1] sets out the government targets for renewable energy and states that 10% of electricity supplies within the United Kingdom should be generated from renewable sources by 2010. Depending on the renewable technology employed, this could require installation of up to 10,000MW of additional renewable energy generation. In Scotland, the Scottish Parliament has set a target that 18% of electricity supplies in Scotland should be generated from renewable resources by 2010. In addition, the Scottish Government is undertaking a consultation process which is seeking views on a 40% target for Scotland by 2020. If these targets are to be met the necessary electrical transmission infrastructure requires to be put in place.

2.3 Renewable Generation Application

2.3.1 Following the announcement of the Government targets for renewable energy, a considerable volume of connection applications from renewable generators have been received by the electricity transmission companies. The electricity generating capacity of the proposed windfarm which would be linked to the national grid through the project will be 80MW.

2.4 The Project

2.4.1 Jacobs was commissioned by SPT in February 2008 to undertake an options appraisal exercise of a proposed 132kV overhead transmission line in East Renfrewshire which would connect Harelaw Windfarm with the existing transmission network.

2.4.2 The appraisal has been based on identification and assessment of the baseline landscape and environmental features present within a defined study area, which have formed the key drivers in the identification and analysis of route corridor options and preferred routes. These preferred route alignments have been considered, on balance to have the least overall effect on people and the natural and built environment.

[1] DTI Energy White Paper – "Our Energy Future – Creating A Low Carbon Economy," February 2003, www.dti.gov.uk

2.5 SPT Transmission System

SPT's Statutory Duties

2.5.1 SP Transmission (SPT) is responsible for the transmission network from the English/ Scottish border to just north of Stirling, an area of some 23,000 square kilometres. SPT is required under the Electricity Act 1989 "to develop and maintain an efficient, co-ordinated and economical system of electricity transmission". For SPT to comply with its licence obligations, it must provide all new forms of electricity generation with access to the electricity network.

2.5.2 All transmission licence holders are required by Schedule 9 of the 1989 Act to take account of the following factors in formulating proposals for the installation of overhead transmission lines:

i. "(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,

ii. (b) to do what he 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."

2.5.3 As a result a licence holder is required to consider then balance technical, economic and environmental issues, through the application of a logical process. The exercise of professional judgement involved in weighing the issues results in a route, which, on balance, best meets the stated 'routeing objective'. That routeing commitment requires to reflect the licence holders statutory duties. This is discussed in further detail in Section 3.2.

2.6 Design, Construction and Maintenance

Substation

2.6.1 A new 132kV substation will be required to collect the load from the windfarm and transform this into a suitable voltage to transmit along the overhead line and into the existing electricity network south of the village of Neilston.

2.6.2 The substation compound will have an approximate footprint of 70m x 60m. It will contain a custom built brick or steel clad single storey control building. The compound will also contain a transformer and switchgear which will be mounted on steel support structures fixed to concrete bases. The substation will be surrounded by a 2.74m high palisade security fence. A notional substation layout and design is shown in Figure 3 Detail of Typical Substation.

2.6.3 The substation will be a joint site between the windfarm developer and SPT and as such will be designed to meet the requirements of both parties. Responsibility for gaining consent for the substation will remain with the windfarm developer.

Wood Pole Line - Design

2.6.4 Following selection of the proposed route corridor for the new line, a detailed topographical survey will be carried out. This is required to identify the proposed positions and heights of each individual pole.

2.6.5 There are basically three types of pole, a 'line' pole, an 'angle' pole and a 'terminal' pole. The angle pole, as its name suggests, is used where the line changes direction. The three pole types are shown on Figure 2 Detail of Wood Pole Line.

2.6.6 The proposed heavy duty wood pole will support three conductors (wires) in a horizontal flat formation. Additionally there is an earth conductor suspended beneath the main conductors in order to provide lightning protection.

2.6.7 The proposed heavy duty wood pole has a nominal height in the range of 13m to 15m. The spacing between the poles will vary depending on topography and altitude, with poles being closer together at high altitudes to counteract the effects of greater exposure to high winds and other weather events. The height and distance between poles will therefore be determined after the detailing line survey but will be in the range of 70m to 90m.

Wood Pole Line – Construction

2.6.8 Line construction typically follows a standard sequence of events which are:

- Prepare access;
- Install pole foundations;
- Erect poles;
- String conductors; and
- Reinstate pole sites and remove temporary accesses.

2.6.9 It is preferred to have vehicular access to every pole site for foundation excavation and pole installation. Access routes and arrangements will be detailed considering all relevant landowner and environmental issues prior to construction. Where there is no existing access available or where ground conditions prevent normal access, temporary access routes may have to be constructed.

2.6.10 Access can take various forms and is dependent on ground conditions. In poorer conditions more access works are required and this can vary from laying temporary wooden or aluminium matting to installing crushed stone roads. Helicopters may also be used to facilitate access in sensitive or remote areas.

2.6.11 The erection of wood poles requires excavation to allow the pole brace blocks and/ or steel foundations braces to be positioned. A number of wood pole supports also require stays which are fixed in a similar way to the wood poles by excavating an area around the stay base and burying a large wooden block. The stay arrangement is different for each pole. The wood poles are installed using a tracked vehicle with a piling arm as illustrated in the typical photograph on Figure 2 Detail of a Wood Pole LIne.

2.6.12 The excavation is then backfilled and consolidated in layers, normally with the original materials. Topsoil is reserved for the top layer and any surplus subsoil or rock is removed from the site using a licensed waste carrier and deposited at a licensed site.

2.6.13 Once all poles within a section of line under construction have been erected, these poles are fitted with insulator supports. Running blocks are fitted to the top of the insulator supports and the conductors (wires) are fitted using the following technique. Overhead line conductors are usually fitted from one end of the line, in short sections by positioning a conductor drum and with a tensioner and hydraulic brake at one end and a pulling wire at the other. The conductor is joined to a single heavy-duty pilot wire and drawn through the section, one conductor at a time.

2.6.14 During construction the wooden poles are transported on general purpose 4 wheel drive or tracked cross-country vehicles which have incorporated lifting devices. Where there is a need to cross controlled waters, the means of access will be agreed with the Scottish Environmental Protection Agency (SEPA).

2.6.15 Drums of conductor are delivered as close as possible to the angle pole sites from which the conductors are pulled. Tractors or tracked vehicles adapted to carry such loads will be used to transport the drums to the pole sites at the required time.

2.6.16 The anticipated rate of progress during the erection of 132kV overhead line is three to four weeks per kilometre.

Wood Pole Line - Maintenance

2.6.17 In general a transmission line requires very little maintenance. It is periodically inspected to identify any unacceptable deterioration of components so that they can be replaced. From time to time inclement weather, storms or lightning, can cause damage to either the insulators or the conductors. If conductors are damaged short sections may have to be replaced and that would involve winching replacement conductors through the short sections.

3 Study Approach and Methodology

3.1 Overview

3.1.1 The following guidelines have been taken into account by the Routeing study:

- ScottishPower Transmission (2002) Overhead Transmission Lines – Routeing and Environmental Assessment;
- The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines with NGC 1992 and SHETL 2003 Notes;
- Section 9 of the Electricity Act 1989;
- Forestry Commission (1994) Forest Landscape Design Guidelines, 2nd Edition;
- Forestry Authority (1998) Forest Design Planning – A Guide to Good Practice.

3.2 Detailed Methodology

SPT's Routeing Commitment:

3.2.1 In developing and maintaining an efficient and coordinated technically and economically viable transmission system in accordance with the license agreement, SP Transmission is committed to limiting disturbance to people and the environment by its operations.

The Project Routeing Objective

3.2.2 " to identify a technically feasible and economically viable route for an overhead transmission line that meets the technical requirements of the electricity network and causes, on balance, the least disturbance to the environment and the people who live, work and recreate within it"

Defining the Study Area

3.2.3 The first stage in the routeing assessment process was to establish and define the areas of search for the key environmental and technical constraints.

3.2.4 The study area is the area within which it would be feasible to site the substation and to construct the transmission line whilst taking into account the location of the proposed windfarm and major topographical and infrastructure constraints such as high ground, ridgelines, settlements and individual properties or existing transmission lines.

Data Collection

3.2.5 Once the study area was defined, the next stage of the process was to identify and collate the baseline for these areas. This process began with initial stakeholder consultation to identify relevant environmental, land use and landscape data and to obtain early views from consultees on constraints and potential effects of the transmission line.

3.2.6 Baseline information was also obtained from a number of other sources including local authority plans and policies (including local and regional plans), digital datasets, Ordnance Survey maps and site visits.

Constraints Analysis

3.2.7 Analysis of constraints in the study area which has been defined for the project is crucial to the understanding of potential environmental effects of route options, and in defining options which avoid areas of highest constraint. Constraints analysis has been used throughout the process, including at the following stages:

- In determining a study area within which potential substations and route corridor options can be identified;
- In gathering of high level environmental baseline information relating to the study area;
- In the identification of constraints for the substations and route corridors selected as part of the environmental sieving process; and
- In assessing the potential for route corridor options to overlap with, and/or impact upon, areas of environmental constraint.

Established Practice for Overhead Transmission Line Routeing

3.2.8 Broad principles for overhead transmission line routeing, known as the Holford Rules have been established within the electricity supply industry and are detailed in Appendix 1. These rules are the starting point for routeing electricity transmission lines in the UK. The central theme of the Holford Rules is that the extent of the visual effect of an overhead transmission line can be reduced by careful routeing. These rules, and the accompanying guidance, have been taken into account in the process of identification of a preferred substation location and route alignment.

3.2.9 The Holford Rules 1 and 2 refer to the avoidance of areas of highest amenity value or scientific interest such as designated sites and advise that substations and route alignments should be located to minimize environmental effect on these areas.

3.2.10 The Holford Rules 3 to 5 advise the choice of the most direct line and the use of tree and hill backgrounds and moderately open valleys to reduce the apparent height of the route in preference to sky backgrounds where poles are highly visible

3.2.11 The Holford Rules 6 to 7 refer to the avoidance where possible of conflicts with other lines and infrastructure as well as residential or recreational land.

3.2.12 This is supplemented by the National Grid guidelines for the routeing of new high voltage overhead transmission lines.

3.2.13 Guidelines have also been produced by the Forestry Commission for routeing of transmission lines in forest areas.

Consultations

3.2.14 Letters to various statutory consultees were issued in July 2007 informing them of the proposal and requesting relevant information. The consultation register in Appendix 4 lists the names of all consultees and provides a summary of the responses which were used to inform the design.

4 Environmental Baseline Information

4.1 Introduction

4.1.1 The study area is shown on Figure 4.

4.1.2 Environmental baseline information was obtained from a number of sources including local authority maps, local and regional plans, digital datasets, Ordnance Survey maps and statutory undertakers. Site visits were also undertaken to assist mapping of the existing landscape, assessment of visual effects and an overview of wildlife habitats.

4.2 Landform

4.2.1 The topography of the study area is shown on Figure 5.

4.2.2 This north and west of the study area is characterised by a rugged, hummocky landscape of steep, craggy bluffs interspersed with shallow troughs of gently undulating farmland. The topography varies from between 125m Above Ordnance Datum (AOD) around Neilston village up to 261m AOD in the Neilston Pad area and 253m AOD at Carswell Hill.

4.2.3 The south and east of the study area is characterised by gently undulating areas of higher ground, separated by low lying, boggy areas and waterbodies. The topography rises from 165m AOD around North Craigton and South Craigton in the east up to 280m AOD at William's Hill, James's Hill and Laggen Hill in the south. The landform rises and falls gently and steadily with extensive plateau basins rising to soft contoured ridges.

4.2.4 The most significant focal point of the area is Neilston Pad with its distinctive steep sided eastern face.

4.3 Hydrology

4.3.1 The main waterbodies are shown on Figure 4.

4.3.2 The study area lies within the catchment area for the Black and White Cart Water. The Levern Water, the main watercourse in the area drains from Commore Dam in the northwest into Harelaw Dam and the Long Loch. In addition many lower lying areas have been flooded including Craighall Dam, Snypes Dam and Walton Dam.

4.4 Drift Geology and Soils

4.4.1 Peat is mapped by both the British Geological Survey (BGS) as part of their drift geology mapping and the Macaulay Land Use Research Institute as part of their soil mapping.

4.4.2 The BGS drift geology map shows peat to be present in several areas scattered across the study area, on Moyne Moor to the west of Long Loch, an area to the east of Long Loch, an area to the east of Snypes Dam, an area to the east of Walton Dam and several areas to the north of Carswell Farm.

4.5 Landscape Character

4.5.1 Landscape character types are shown on Figure 6 and typical views on Figure 7.

4.5.2 Residential properties and farms are scattered over the study area. These properties and a 150m buffer zone are shown on Figure 10 Site Context.

4.5.3 Landscape assessment consists initially of the collection of baseline data relating to the individual elements (e.g. hills, valleys, woodlands, hedges, buildings etc), character (i.e. the distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and how

it is perceived by people) and characteristics (elements or combinations of elements that make a particular contribution to the character of an area, including experiential characteristics such as tranquility and wildness) of the landscape.

4.5.4 There are no national or local landscape designations within the study area.

4.5.5 Referring to Scottish Natural Heritage's (SNH) landscape assessment No 116[2] there are two Landscape Character Types which apply to the study area. These are Rugged Upland Farmland generally to the north and west and Plateau Moorland generally to the south and east as shown on Figure 6 Landscape Character Types. Refer to Appendix 3 for extracts of these character types from SNH landscape assessment No 116.

4.5.6 Within the Rugged Upland Farmland in the north and west there are extensive, distant views possible to the north towards Glasgow and the Campsie Fells. In the east, views tend to be more restricted due to the hummocky nature of the landform and the scattered clumps of trees. Neilston Pad is a focal point and separates the east and west of the area. Open views are possible from higher points such as Neilston Pad and the minor road past Harelaw Dam, but generally the landform restricts longer views. In the west the land tends to fall away and open views are possible across the Levern Valley. The existing network of overhead lines are noticeable on the skyline in views to the east and north. Views from dwellings tend to be restricted by landform or vegetation.

4.5.7 Within the Plateau Moorland in the south and east the relatively flat, open landform allows long views from higher ground within the area but from lower areas the views are generally restricted by the undulating topography. In this relatively open landscape the vertical elements of the geometric shelterbelts are severe in appearance. Views from dwellings are limited due to landform and vegetation.

4.6 Nature Conservation (flora and fauna)

4.6.1 Features of nature conservation interest are shown on the Phase 1 Habitat map on Figure 8. Designated sites and areas of peat are shown on Figure 9 Environmental Constraints.

4.6.2 The majority of the study area is improved grassland, poor semi-improved grassland or arable habitats of limited ecological value. The central section of the study area is characterised by semi-improved acid grassland especially between Corsehouse Reservoir and Black Loch. There are networks of marsh/marshy grassland in the low lying fields below Harelaw Dam.

4.6.3 Large areas of wet heath/acid grassland mosaic are found next to Harelaw Dam and Long Loch. Small fragments of blanket bog and wet modified bog occur throughout the southern sector of the study area, both of which are priority habitats in the Habitats Directive and Biodiversity Action Plan (BAP).

4.6.4 Semi-natural woodland within the study area is limited to scattered trees throughout the eastern section and along field boundaries. The north-western section has a relatively large conifer plantation woodland of mixed age.

4.6.5 There are no national ecological designated sites within the study area.

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[2] Land Use Consultants 1999. Glasgow and Clyde Valley Landscape Assessment. Scottish Natural Heritage No116;

4.6.6 9 Sites of Interest for Nature Conservation (SINCs) occur within the site including:

- Neilston Pad;
- Commore Dam;
- Harelaw Dam, Long Loch and Dod Hill;
- Carswell Hill and Levern Water;
- Snypes Dam;
- Dyke Hill;
- Walton Dam and nearby unnamed loch;
- Marshland of Kirkton Burn; and
- Glanderston Dam and Duncarnock.

4.6.7 The study area provides suitable habitat for a number of protected species including badger, otter, and water vole, in addition to reptiles and amphibians. The mosaic of habitat types including hedgerows, watercourses, open grassland and woodland are suitable for supporting a range of birds, with linear features (including walls, buildings and hedgerows) providing suitable habitats for bats.

4.7 Archaeology

4.7.1 There are 75 recorded sites within the study area. A Scheduled Ancient Monument at Duncarnock Farm lies to the north east of the study area. There is also 1 listed building at Snypes Farm. The remaining sites are of local interest only.

4.7.2 There is the possibility that previously unrecorded sites and deposits may lie within the area.

4.7.3 The Scheduled Ancient Monument, archaeological sites and listed buildings are shown on Figure 9 Environmental Constraints.

4.8 Planning Policy and Development

4.8.1 For the purpose of this Routeing study, the relevant policy requirements and objectives are simply highlighted. Planning policies seek to guide and control development and also to provide protection for environmental resources.

The Development Plan

4.8.2 The proposed windfarm lies within the East Renfrewshire Council area. The development plans for the area comprise:

- Glasgow and the Clyde Valley Structure Plan 2006; and
- East Renfrewshire Local Plan 2003.

4.8.3 The review of planning policies highlighted the presence of a number of SINC's which are shown on Figure 9 Environmental Constraints.

4.8.4 The study area lies within the Green Belt, where there is a strong presumption against certain types of development. However, East Renfrewshire Council will consider development proposals related to renewable energy, providing the functions of the Green Belt can be maintained and the viability of important agricultural land and units is not prejudiced.

4.8.5 East Renfrewshire Council supports renewable energy proposals, including wind turbine developments, in appropriate locations provided that it can be demonstrated that the environmental effects of such proposals are minimised. In addition, such uses are also considered to be acceptable in the Green Belt.

4.9 Transport, Traffic and Existing Infrastructure

4.9.1 The main road network is shown on Figure 4 Study Area. The transmission lines and the high pressure gas mains are shown on Figure 9 Environmental Constraints.

4.9.2 The study area lies south east of the A736 and directly south of the village of Neilston. The B769 road lies in the south east of the study area and runs parallel with the M77, which is approximately 1 km to the east. The area is crossed by small local roads, some of which provide private access to dwellings and farms

4.9.3 Two transmission lines cross the northern end of the site.

4.9.4 A high pressure gas main crosses the central area of the site between Commore in the west and Bannerbank Farm in the south east. A PIG (Pipeline intervention gadget) station is located close to Harelaw, and from here a high pressure gas mains heads south west passing east of Gabroc Hill.

4.10 Recreation

4.10.1 The main recreation within the study area is informal walking and fishing. Rights of Way are shown on Figure 9 Environmental Constraints. Water bodies are shown on Figure 4 Study Area.

4.10.2 Walking is generally on local roads and tracks within the woodlands at Neilston Pad. Private fisheries exist on Harelaw Loch, Snypes Dam and Harelaw Dam.

4.11 Agriculture and Forestry

4.11.1 The study area comprises agricultural land at the lower end of the Macauley Institute land capability grading[3]. The majority of the land in the study area is classified as being of Class 5_1, suited only to improved grassland and rough grazing. This type of land allows for the easy establishment of a high yield grass sward, and is used as grazing for sheep and horses. To the south and east of Neilston Pad there are patches of land classified as Class 4_1 and 4_2, which are capable of supporting crops such as barley and oats, although crops would be limited due to wet conditions. These areas are used for a mixture of forestry and rough grazing for sheep. On the higher ground to the south of Harelaw Dam, the quality of the land tends to reduce to class 5_3 and 6_3, due to the increased wetness of Moyne Moor. These land grades generally produce poorer quality grassland only suitable for rough grazing, and are used as grazing for sheep with occasional stands of woodland across the area.

4.11.2 Across Carswell Hill and around Neilston Pad, much of the land is used for commercial forestry. The majority of the plantations are conifers, although there is a small stand of willows on the eastern side of Neilston Pad. The conifer plantations comprise of blocks of differing ages, ranging from newly planted transplants to semi-mature trees.

4.11.3 There are five areas of woodland within the study area which are listed in the Ancient Woodland Inventory and are shown on Figure 9 Environmental Constraints.

[3] Soil Survey of Scotland. Sheet 64. Land Capability for Agriculture. The Macauley Institute for Soil Research, Aberdeen.

4.12 Settlement

4.12.1 Settlement areas lie to the north of the study area including the village of Neilston and the Glasgow suburbs of Barrhead and Newton Mearns which are shown on Figure 1 Site Context.

4.13 Individual Residential Receptors

4.13.1 The 150m buffer for residential receptors is shown on Figure 10 Substation Options and Route Corridors and Figure 24 Preferred Substation Location and Wood Pole Line Route.

4.13.2 Residential receptors are scattered throughout the northern half of the study area. These receptors generally comprise dwellings associated with farms and outbuildings, and to minimize the effect on the amenity a 150m buffer was maintained around each property. In addition the viewing orientation and localized screening around properties was assessed through fieldwork and is referred to where appropriate.

5 Substation Site and Route Corridor Appraisal

5.1 Introduction

5.1.1 As part of the original connection agreement with National Grid, SPT were obliged to look at a connection from the windfarm developer's substation site, which is shown as Site 2 on Figure 10 Substation Options and Route Corridors. Shortly after commencing the routeing process it was recognised that the developer's proposed substation location was not appropriate to route an overhead line to (see Chapter 5 Substation Site Appraisal). Therefore SPT, in agreement with National Grid and the windfarm developer, undertook a siting process for the substation in order to find the most appropriate location for an overhead line to be routed to. Responsibility for gaining consent for the substation will remain with the windfarm developer.

5.1.2 The environmental baseline information and consultation responses were used to prepare Figure 9 Environmental Constraints.

5.1.3 A number of substation options were developed across the southern section of the study area where connection to the windfarm could be most easily achieved and to avoid the highest ground in the south east where a substation would be highly visible.

5.1.4 The route options for the wood pole line were then designed to link to the existing overhead transmission line, the AY line, in the north of the study area. Theses routes were generally located to the west of the study area where they avoided the highest ground, areas of recreational and amenity value, and where there was greater tree cover.

5.1.5 The substation and wood pole line options were then reviewed within the Route Option Comparison Table in Appendix 5. This table identified constraints for each subject area and allowed a comparison of substation locations and routes. The results of the study are summarised below.

5.2 Substation Site Constraints

Substation 1

5.2.1 The substation would be located at 246786, 653071 in marshy grassland.

5.2.2 The following table outlines the environmental constraints associated with this site.

TABLE 1 Substation 1	
Technical Considerations	No known technical constraints.
Landscape	Situated at 227m AOD the substation would lie within the Rugged Upland Farmland character type. Situated within a small valley the substation would have a good landscape fit.
Visual	Potential effects on 1 receptor at Picketlaw (700m distance). Picketlaw benefits from the shelter and enclosure of scattered deciduous woodlands. The visual envelope of this substation would be contained in the small valley by higher ground (as shown on Figure 11) with only limited effects.
Nature Conservation	The area comprises marshy grassland and based upon habitat quality, the site for construction of the substation has locally low/moderate ecological value. It is not expected to have significant effects upon known faunal groups.
Archaeology	There are four sites within 100m of the site. Three of these are of limited importance. The remains of a pre-nineteenth century farmhouse building were identified nearby at NGR: 4671 5308.
Planning Policy and Development	Area lies within the Green Belt.
Transport, Traffic and Infrastructure	Area lies close to a local road.
Recreation	Informal walking along local road.
Agriculture and Forestry	Currently used for grazing the land is Class 4_1 and capable of producing a narrow range of crops.

Conclusion

5.2.3 The substation would have a good landscape fit. There would be limited visual effects on 1 receptor, some 700m distant, which could be mitigated by bunding and planting. The site has locally low/moderate ecological value and minor archaeological interest.

Substation 2

5.2.4 The substation would be located at 247087, 652928 on an open moorland area.

5.2.5 The following table outlines the environmental constraints associated with this site.

TABLE 2 Substation 2	
Technical Considerations	No known technical constraints.
Landscape	The substation would be located at 245m AOD and lies within the plateau moorland character type. Situated on the open moorland in an elevated position it would have a poor landscape fit.
Visual	Potential effects on 2 receptors at Picketlaw (700m distance) and Moyne Farm (400m distance) and on the recreational use of Long Loch. Existing woodlands would provide limited screening. The visual envelope of this substation would extend over a wide local area (as shown on Figure 12) with potentially significant effects.
Nature Conservation	The substation would be located in a SINC and based upon habitat quality, the site for construction of the substation has locally high ecological value. It is not expected to have significant effects upon known faunal groups.
Archaeology	The proposed location is within an area of archaeological sensitivity and has good archaeological potential.
Planning Policy and Development	Area lies within the Green Belt and within a SINC.
Transport, Traffic and Infrastructure	Area lies close to a local road.
Recreation	Informal walking along local road, nearby tracks and woodland.
Agriculture and Forestry	Situated in Land Class 6_3 and suited only to rough grazing with poor plant communities and wetness limitations.

Conclusion

5.2.6 The substation would be sited in an elevated position on exposed moorland with a wide visual envelope and the potentially significant visual effect would be difficult to mitigate. Located within a SINC, the area is of locally high ecological value and good archaeological potential.

Substation 3

5.2.7 The substation would be located at 247250, 652540 in an area of open moorland.

5.2.8 The following table outlines the environmental constraints associated with this site.

TABLE 3 Substation 3	
Technical Considerations	No known technical constraints.
Landscape	The substation would be located at 242m AOD and lie within the plateau moorland character type. Situated on the open moorland and close to the Long Loch it would have a poor landscape fit.
Visual	Potential effects on 1 outdoor receptor at Long Loch which would be difficult to mitigate. The visual envelope of this substation would be extensive (as shown on Figure 13) with potentially significant effects.
Nature Conservation	The substation would be located in a SINC and based upon habitat quality, the site for construction of the substation has a locally high ecological value. It is not expected to have significant effects upon known faunal groups.
Archaeology	The proposed location is within an area of archaeological sensitivity and has good archaeological potential.
Planning Policy and Development	Area lies within the Green Belt and within a SINC.
Transport, Traffic and Infrastructure	Area lies close to a local road.
Recreation	Informal walking along nearby tracks and woodland. Private fishing on Long Loch.
Agriculture and Forestry	Situated in Land Class 6_3 and suited only to rough grazing with poor plant communities and wetness limitations.

Conclusion

5.2.9 The substation would be sited on exposed moorland with a wide visual envelope and potentially significant visual effects would accrue to Long Loch. The site is located within a SINC, and is of locally high ecological value and good archaeological potential.

Substation 4

5.2.10 The substation would be located at 247350, 653140 in an area of open moorland.

5.2.11 The following table outlines the environmental constraints associated with this site.

TABLE 4 Substation 4	
Technical Considerations	No known technical constraints.
Landscape	Located at 240m the substation would lie within the plateau moorlands character type. Situated on a small rise to the west of the Long Loch and close to the edge of Harelaw Dam it would have a poor landscape fit.
Visual	Potential effects on 2 outdoor receptors at Harelaw Dam and Long Loch which would be difficult to mitigate. The visual envelope of this substation would be extensive (as shown on Figure 14) with potentially significant visual effects.
Nature Conservation	The substation is located in a SINC and based upon habitat quality, the site for construction of the substation has a locally moderate ecological potential value. It is not expected to have significant effects upon known faunal groups.
Archaeology	The proposed location is within an area of archaeological sensitivity and has good archaeological potential.
Planning Policy and Development	Area lies within the Green Belt and within a SINC.
Transport, Traffic and Infrastructure	Area lies close to a local road.
Recreation	Informal walking along nearby tracks and woodland. Private fishing on Harelaw Dam and Long Loch.
Agriculture and Forestry	Situated in Land Class 6_3 and suited only to rough grazing with poor plant communities and wetness limitations.

Conclusion

5.2.12 The substation would be sited on exposed moorland with a wide visual envelope. Potentially significant visual effects would accrue to Harelaw Dam and Long Loch. The site is located within a SINC, has locally moderate ecological value and is an area of good archaeological potential.

Substation 5

5.2.13 The substation would be located at 247207, 653518 in an area of unimproved grassland.

5.2.14 The following table outlines the environmental constraints associated with this site.

TABLE 5 Substation 5	
Technical Considerations	No known technical constraints.
Landscape	Located at 235m the substation would lie within the rugged upland farmlands character type and be situated on an open and exposed hill close to Harelaw Dam. It would have a poor landscape fit.
Visual	Potential effects on 1 receptor at Moyne Farm (200m distance) and 1 outdoor receptor at Harelaw Dam. Mitigation mounding and screening would reduce the adverse effect. The visual envelope of this substation would extend over a wide area (as shown on Figure 15) with potentially significant effects.
Nature Conservation	The substation is located in a SINC and based upon habitat quality, the site for construction of the substation has a locally low/moderate ecological value. It is not expected to have significant effects upon known faunal groups.
Archaeology	The proposed location is within an area of archaeological sensitivity and has good archaeological potential.
Planning Policy and Development	Area lies within the Green Belt and within a SINC.
Transport, Traffic and Infrastructure	Area lies close to a local road.
Recreation	Informal walking along nearby tracks and woodland. Private fishing on Long Loch.
Agriculture and Forestry	Situated in Land Class 4_1 capable of producing a narrow range of crops.

Conclusion

5.2.15 The substation would be sited on an open exposed hillside with a wide visual envelope. Potentially significant effects would accrue to Harelaw Dam. The site has a locally low/moderate ecological value and good archaeological potential.

Substation 6

5.2.16 The substation would be located at 248296, 653322 in an area of unimproved grassland.

5.2.17 The following table outlines the environmental constraints associated with this site.

TABLE 6 Substation 6	
Technical Considerations	No known technical constraints.
Landscape	Located at 230m AOD the substation would be located within the plateau moorland character type. Rolling topography and Lochend Hill would provide screening from nearby properties and road, and the substation would have a good landscape fit.
Visual	Potential effects on 3 outdoor receptors: Harelaw Dam; Long Loch; and the footpath around Lochend Hill. The visual envelope of this substation would be contained by higher ground (as shown on Figure 16) with potentially significant effects.
Nature Conservation	The substation is located in a SINC and based upon habitat quality, the site for construction of the substation has a locally moderate/high ecological value. It is not expected to have significant effects upon known faunal groups.
Archaeology	4 sites of local importance are located are located nearby.
Planning Policy and Development	Area lies within the Green Belt and within a SINC.
Transport, Traffic and Infrastructure	Area lies close to a local road.
Recreation	Informal walking along nearby tracks and woodland. Private fishing on Long Loch.
Agriculture and Forestry	Situated in Land Class 5_3 and suited only to improved grassland with limited capacity for stock density due to wetness limitations.

Conclusion

5.2.18 The substation would have a good landscape fit as the visual envelope would be contained by higher ground. The site is located within a SINC and has locally moderate/high ecological and archaeological potential.

5.3 Overhead Line Route Option Constraints

Route A

5.3.1 This route would run northwest from substation 1 through grasslands crossing Carswell Hill before turning north east near the property at Nether Carswell and crossing the Levern Water. The route would then run parallel to Kingston Road and through conifer plantations. The route would then pass over an area of improved grassland before connecting to the existing electricity grid at tower AY17 to the point south of the village of Neilston.

5.3.2 The following table outlines the environmental constraints associated with this route.

TABLE 8 Route A	
Technical Considerations	Potential construction difficulties due to the presence of rock outcrops and steeply undulating ground as the route crosses west of Neilston Pad and Barr Hill. Runs parallel to Kingston Road.
Landscape	The route would pass through rugged upland farmland and would have a poor landscape fit running across Carswell Hill and then parallel to Kingston Road, before running over rock outcrops and steeply undulating ground.
Visual	Potential effects on 6 receptors and approximately 15 additional receptors at the edge of Neilston. The visual envelope of this route would be extensive (as shown on Figure 17). There would be potentially significant effects.
Nature Conservation	The route would pass through 2 SINC's and mainly through habitats of locally low ecological value and is not expected to have significant effects upon known faunal groups.
Archaeology	Area is of low archaeological interest and has only local sites.
Planning Policy and Development	The route would lie within the Green Belt. There are two SINC's crossed by the route.
Transport, Traffic and Infrastructure	Route would be easily accessible from adjacent local road.
Recreation	Local effects for parking, walkers and picnic facilities at Neilston Pad and for users of Craighall Dam due to views of the route.
Agriculture and Forestry	Local effects as the route would pass through land classes 5_1 (40%), 4_1 (45%) and 5_3 (15%). Almost half of the class 4_1 land is planted as woodland. The edge of the forestry areas close to Kingston Road would be lost.

Conclusion

5.3.3 The presence of rock outcrops and steeply undulating ground and the closeness to the local road could lead to technical constraints and potentially significant effects which would be difficult to mitigate.

5.3.4 This route would extend over ground of locally low ecological value and archaeological potential.

5.3.5 There would be some effect on Class 4_1 land and on the forestry areas.

Route B

5.3.6 This route would run in a northerly direction from substation 1 passing midway between the properties of Nether Carswell and Carswell before turning north east and passing directly west of Carswell Dam and following a route close to Kingston road. This route would pass over an area of improved grassland before connecting to the existing electricity grid at tower AY18 to the south of the village of Neilston.

5.3.7 The following table outlines the environmental constraints associated with this route.

TABLE 9 Route B	
Technical Considerations	Potential construction difficulties due to the presence of rock outcrops and steeply undulating ground as the road crosses west of Neilston Pad and Barr Hill.
Landscape	Route would cross through rugged upland farmland and would have a poor landscape fit as it would pass close to Craighall Dam and over rock outcrops and steeply undulating ground.
Visual	Potential effects on 3 receptors and approximately 10 additional receptors at the edge of Neilston and Carswell Dam. There are potential adverse visual effects (from Carswell Hill to Carswell Dam) due to the local topography and developing woodland. However the position of the route across the rocky outcrops and open farmland to the south of Neilston would be highly visible and would result in potentially significant effect on the remainder of the route. The visual envelope of this route would be extensive (as shown on Figure 18).
Nature Conservation	The route would pass through 2 SINC's, several short sections of coniferous plantation and fields of semi improved neutral grassland of generally locally low ecological value. It would not be expected to have significant effects upon known faunal groups.
Archaeology	Area is of low archaeological interest and only has sites of local or very minor importance.
Planning Policy and Development	The route would lie within the Green Belt. There are 2 SINC's crossed by the route.
Transport, Traffic and Infrastructure	Route would be easily accessible from adjacent local road.
Recreation	Local effects for parking, walkers and picnic facilities at Neilston Pad and for users of Craighall Dam due to views of the route.
Agriculture and Forestry	Local effects as the route would pass through land classes 5_1 (90%) and 4_1 (10%). Almost half of the route would pass through forestry plantation woodland with effects on the use of the land for forestry.

Conclusion

5.3.8 The presence of rock outcrops, steeply undulating ground and the closeness to the local road could lead to technical constraints. This route would cross an area of locally low ecological and archaeological interest but it would be highly visible from a wide surrounding area, with views from Craighall Dam, Kingston Road and several dwellings at the edge of Neilston.

5.3.9 Almost half of the route would pass through forestry plantation woodland with effects on the use of the land for forestry

Route C

5.3.10 This route would run in a northeasterly direction from substation 1 following the line of a small valley before passing east of the property of Harelaw. The route would then pass into plantation forestry, east of Craighall Dam and along the western edge of Neilston Pad. This route would then pass through woodland, west of Craig of Neilston farm and over farmland before connecting to the existing electricity grid at tower AY18 to the south of the village of Neilston.

5.3.11 The following table outlines the environmental constraints associated with this route.

TABLE 10 Route C	
Technical Considerations	Constraints due to the proximity of a gas main on the early section of the route and potential construction difficulties due to the presence of rock outcrops and steeply undulating ground as the road crosses west of Neilston Pad and Barr Hill.
Landscape	The route would cross through rugged upland farmland and in the southern section of the route would follow a small valley with good landscape fit. The northern half of the route crosses the western slopes of Neilston Pad and would have potentially significant effects as it would cross the steep slopes of one of the dominant landscape features in the area.
Visual	Potential effects on 4 receptors. The visual envelope of this route would be extensive (as shown on Figure 19). There is potential for significant visual effects (from Carswell Hill to Harelaw) on the route.
Nature Conservation	Route C would pass through the Neilston Pad SINC and close to the Craig of Neilston SINC, resulting in locally low/moderate ecological effects upon associated features within the study area. It is not expected to have significant effects upon known faunal groups.
Archaeology	Area is of low archaeological interest and has only sites of local or very minor importance.
Planning Policy and Development	The route would lie within the Green Belt.
Transport, Traffic and Infrastructure	Route would be easily accessible from local road.
Recreation	Local effects for walkers and fishermen on Craighall Dam due to views of the route.
Agriculture and Forestry	Local effects as the route would pass through land classes 5_1 (50%), 4_1 (35%) and 4_2 (15%). Almost half of the route would pass through forestry plantation woodland with effects on the use of the land for forestry.

Conclusion

5.3.12 From substation 1 the southern section of the route would have a good landscape fit.

5.3.13 The northern section of the route would cross the western slopes of Neilston Pad and would be visible from Kingston Road, Craighall Dam and over a wide surrounding area, including several dwellings at the edge of Neilston. The presence of rock outcrops and steeply undulating ground west of Neilston Pad could lead to technical constraints and potentially significant visual effects.

5.3.14 The route is of locally low ecological and archaeological interest and would pass through forestry plantation woodland over half of its length with potential effects on the use of the land for forestry.

Route D

5.3.15 This route would run in a northerly direction from substation 3 or 5, crossing the western edge of Harelaw Dam before passing around the eastern edge of Neilston Pad and across Barr Hill. The route would then continue across farmland to the north of Craig of Neilston Farm before connecting to the electricity grid at tower AY18 to the east of the village of Neilston. The following table outlines the environmental constraints associated with this route.

TABLE 11 Route D	
Technical Considerations	Route would cross over Harelaw Dam.
Landscape	The initial stretch of the route from substation 3 would cross plateau moorland, moving into rugged upland farmland as it approaches substation 5 with the remainder of the route sited in this character area. The route would have a poor landscape fit as it crosses open moorland and Harelaw Dam.
Visual	Potential effects on 4 receptors and Harelaw Dam. The visual envelope of this route would be extensive (as shown on Figure 20). The southern section of route D would have potentially significant effects as it crosses open, exposed moorland and would require a water crossing affecting the visual amenity of Harelaw Dam. The northern section of the route would utilise the potential screening of the woodland around Neilston Pad and lie below the skyline against a strong backdrop helping to minimise the visual effect of the line with potentially significant effect. The route across the open farmland to the east of Neilston would be partially screened by a stand of established woodland near the settlement.
Nature Conservation	Route D would pass mainly through habitats of locally moderate/high ecological value in the southern section of route including blanket bog, a BAP priority habitat. The southern section of route D would have a locally high ecological effect upon associated features within the study area. It would not be expected to have significant effects upon known faunal groups. The northern section would pass through conifer plantation and fields of improved grassland, both of which are of low ecological value.
Archaeology	Area has good archaeological potential.
Planning Policy and Development	The route would lie within the Green Belt.
Transport, Traffic and Infrastructure	Route would be easily accessible from local road.

Recreation	Local effects for walkers and picnic facilities at Neilston Pad. Route would pass over the edge of Harelaw Dam.
Agriculture and Forestry	Local effects as the route would pass through land classes 5_1 (40%), 4_1 or 4_2 (30%), 6_3 (20%) and 5_3 (10%). Almost half of the route would pass through forestry plantation woodland with effects on the use of the land for forestry.

Conclusion

5.3.16 The southern section of the route would pass through areas of locally high ecological and archaeological interest and would cross Harelaw Dam which is used for fishing. This section of the route would be widely visible with potentially significant visual effects. Further north around Neilston Pad, the effects are not expected to be significant for the remainder of the route, as the route would be viewed against the hill backdrop and established woodland.

5.3.17 Almost half of the route would pass through forestry plantation woodland with effects on the use of the land for forestry.

Route E

5.3.18 Route E would pass from substation 4 and pass north east and cross over Harelaw Dam to pass midway between the properties of West Walton and High Walton before meeting Route G. Refer to Route G for the remainder of this route.

5.3.19 The following table outlines the environmental constraints associated with this route.

TABLE 12 Route E	
Technical Considerations	No known constraints.
Landscape	The route would be located within plateau moorland and joins route G to pass into rugged upland farmland. The route would have a poor landscape fit as it would cross open moorland and farmlands.
Visual	Potential effects on 6 receptors and on Harelaw Dam. Limited effects on multiple properties within Neilston. The visual envelope of this route would be extensive (as shown on Figure 21). Route has potential for significant visual effects due to the exposed nature of the moorland and farmland it would cross.
Nature Conservation	Route E would pass through habitats of locally high botanical and ecological value including marshy grassland, unimproved grassland and blanket bog, a BAP priority habitat. It would therefore have locally high ecological effects upon associated features within the study area. It is not expected to have significant effects upon known faunal groups.
Archaeology	Area has good archaeological potential.
Planning Policy and Development	The route would lie within the Green Belt. There is 1 SINC crossed by the route.
Transport, Traffic and Infrastructure	Route would be distant from local road.
Recreation	Local effects for walkers and fishermen on Harelaw Dam and Long Loch.
Agriculture and Forestry	Local effects as the route would pass through land classes 5_1 (50%), 4_1 (20%), 5_3 (20%) and 6_3 (10%).

Conclusion

5.3.20 The route would be remote from local roads and has locally high ecological and archaeological interest. It would cross Harelaw Dam and would be highly visible along its entire length due to the exposed nature of the surrounding farmlands and moorland, with moderate to major adverse effects.

Route F

5.3.21 This route would run north from substation 6 east of Harelaw Dam, pass between the properties of West Walton and High Walton and then Low Walton and North Walton, before passing west of Muirhead. The route would continue across the farmland on the western side of Dyke Hill before connecting to the existing electricity grid at tower AY19 to the east of the village of Neilston.

5.3.22 The following table outlines the environmental constraints associated with this route.

TABLE 13 Route F	
Technical Considerations	No known constraints.
Landscape	The route would be located within plateau moorland and rugged upland farmland. The route would have a poor landscape fit as it would cross open moorland and farmlands.
Visual	Potential effects on 5 receptors and on the visual amenity of Harelaw Dam. Limited effects on multiple properties within Neilston. The visual envelope of this route would be extensive (as shown on Figure 22). Route has potential for significant visual effects due to the exposed nature of the moorland and farmland it would cross.
Nature Conservation	Route F would pass through several habitats of locally moderate ecological and botanical value and would have a locally significant ecological effect upon the associated features within the study area. It would not be expected to have significant effects upon known faunal groups.
Archaeology	Area has good archaeological potential.
Planning Policy and Development	The route would lie within the Green Belt. There is 1 SINC crossed by the route.
Transport, Traffic and Infrastructure	Route would be distant from local road.
Recreation	Local effects for walkers and fishermen on Harelaw Dam and Long Loch.
Agriculture and Forestry	Local effects as the route would pass through land classes 5_1 (55%), 4_1 (20%) and 6_3 (25%).

Conclusion

5.3.23 The route would be remote and pass through areas of locally high ecological and archaeological interest. It would be highly visible along its entire length due to the exposed nature of the surrounding farmlands and moorland with moderate to major adverse effects.

Route G

5.3.24 This route would run northeast from substation 3 along the edge of Long Loch and across open moorland before turning north to pass east of High Walton. It would then pass midway between Low Walton and North Walton before passing west of Dyke Hill. From a point west of Dyke Hill the route would pass over farmland with scattered scrub before connecting to the existing electricity grid at tower AY19 to the east of the village of Neilston.

5.3.25 The following table outlines the environmental constraints associated with this route.

TABLE 14 Route G	
Technical Considerations	No known constraints.
Landscape	The route would be located within plateau moorland and rugged upland farmland. The route would have a poor landscape fit as it would cross open moorland and farmlands.
Visual	Potential effects on 6 receptors. Limited effects on multiple properties within Neilston. The visual envelope of this route would be extensive (as shown on Figure 23). Route has potential for significant visual effects due to the exposed nature of the moorland and farmland it would cross.
Nature Conservation	This route has locally high ecological value and would pass through several habitats of high botanical and ecological value including wet modified bog, a BAP priority habitat. It is not expected to have significant effects upon known faunal groups.
Archaeology	Area has good archaeological potential.
Planning Policy and Development	The route would lie within the Green Belt. There is 1 SINC crossed by the route.
Transport, Traffic and Infrastructure	Route would be distant from local road.
Recreation	Local effects for walkers and fishermen on Harelaw Dam and Long Loch.
Agriculture and Forestry	Local effects as the route would pass through land classes 5_1 (35%), 4_1 (15%), 5_3 (20%) and 6_3 (30%).

Conclusion

The route would be remote and pass through areas of locally high ecological and archaeological interest and would be highly visible along the entire length due to the exposed nature of the surrounding farmlands and moorland with major adverse effects

Summary Notes

Substation

5.3.26 The study area lies within the Green Belt and there are no landscape designations, however the rugged upland and plateau moorland areas are sensitive to the introduction of towers and masts on higher ground where they will be highly visible. The natural shelter provided by the topography of the small valley to the west of the local access road and Moyne Moor would help to limit the visual effect of the development, providing opportunities to screen the structure and fit within the landscape.

5.3.27 Substation 1 to the west of the study area is preferred as it is: easily accessible from a local road; located in an area of rough grazing; avoids marshy ground and peat; has limited ecological effects; and SINC's and areas with good archaeological potential are avoided.

5.3.28 For these reasons substation 1 is considered to be, on balance, the site of least environmental and landscape effect.

Overhead Line Route

5.3.29 No single option for the wood pole line offers a completely good landscape fit. Routes E, F and G would be in remote locations, with only a few isolated built visual receptors affected. However, they would cross open moorland and would affect the visual amenity of Harelaw Dam, Long Loch and some local footpaths. These options would be visible on the skyline in a number of views due to their exposed positions, potentially causing significant adverse effects. These areas also have a locally higher ecological value and archaeological interest.

5.3.30 Routes A and B have the least ecological value and limited archaeological potential. They do have the advantage of being sited in close proximity to a local road. However, the technical constraints and visual effects caused by the crossing of Carswell Hill and the rocky outcrops south of Neilston would be significant.

5.3.31 The southern half of route C would be visually contained within the shallow valley running from Carswell Hill to Harelaw, and would achieve a good fit within the landscape. This section of the route is of locally low ecological value and archaeological potential. However, the northern half of this route would pass through the plantation woodlands and cross the steep upper slopes of Neilston Pad which is one of the dominant landscape features in the area with potentially significant adverse visual effects.

5.3.32 The southern half of route D would be located in a SINC and cross open, exposed moorland of locally high ecological value and archaeological potential. It would require a water crossing affecting the visual amenity of Harelaw Dam with potentially significant adverse effects. However the northern section of the route would utilise the screening effects of existing woodlands and the landform around Neilston Pad and lie below the skyline helping to minimise the visual effect of the line.

5.3.33 For these reasons a combination of the southern half of route C and northern half of route D is considered to be, on balance, the route of least environmental and landscape effect.

6 Preferred Substation and Route

6.1 Overview

6.1.1 The preferred substation location and route are shown in Figure 24. Typical views along the route are shown on Figures 25 and 26.

6.1.2 Substation 1 provides the best location for placement of the substation:

- Provides opportunities to screen the site and fit within the landscape;
- Least ecological effect of all options with the site being located outside existing SINC's or areas of ecological interest;
- Located outwith areas of known archaeological potential;
- Close to the existing local road network and the A736; and
- Low potential for effects on recreation.

6.1.3 A combination of routes C and D provide the best option for the wood pole line running from substation 1:

- Reduces visual effects by utilising a valley landform in the southern half of route C;
- Reduces visual effects by utilising the existing woodlands and landform around Neilston Pad in the northern half of route D;
- Avoids areas of blanket bog (a BAP priority habitat) and would pass through woodlands of low ecological value;
- Reduces effects on areas of good archaeological potential;
- Located close to the existing road network and the A736; and
- Minimal effect on local walking routes avoiding any loss of visual amenity on Harelaw Dam, Long Loch and Graighall Dam.

6.2 Description of the Preferred Substation and Route

6.2.1 Substation 1 would be sited in improved grassland used for sheep grazing in a gently sloping valley, with views to the west contained by Carswell Hill and areas of coniferous woodland and to the east by higher moorland of Moyne Moor.

6.2.2 From the substation the preferred route would follow a route northwards and close to the valley bottom. As the valley narrows views would continue to be contained by higher ground and the rolling topography.

6.2.3 Closer to Harelaw, the route would turn eastwards and cross open ground. In this area the route would be more exposed but would continue to be screened from Neilston village and from the recreational facility at Harelaw Dam. The route would then follow close to the eastern edge of a forestry plantation which surrounds Neilston Pad.

6.2.4 The ground drops in level where the route would pass around the edge of the immature coniferous woodlands and then west of the distinctive almost vertical face of Neilston Pad. The route would continue to descend in level as it passes along the lower eastern edge of Barr Hill and close to Snypes Dam. From Snypes Dam the route would continue to fall through fields of rough grazing to meet Tower AY18.

6.2.5 The preferred substation and route meet the requirements of the Holford rules:

- By avoiding areas of highest amenity value or scientific interest such as designated sites and by locating the substation and poles to minimize environmental effect on areas of higher amenity and ecological and archaeological potential. (Rules 1 and 2);
- By following a direct route and making use of tree and hill backgrounds and moderately open valleys to reduce the apparent height of the substation and poles and avoiding sky backgrounds where poles are highly visible. (Rules 3 to 5); and
- By avoiding conflicts with other lines and infrastructure and residential or recreational land. (Rules 6 and 7)

7 Next Steps

7.1.1 At the conclusion of the routeing consultation, a preferred route will be selected by SPT, after consideration of:

- All the comments and responses made by statutory and other interested parties during the routeing consultation;
- The appraisal of route options; and
- Having regard to all other matters that SPT consider to be relevant.

7.1.2 The preferred route will be the subject of a request to the Scottish Ministers for a scoping opinion as discussed in Part 2 of this document.

Part 2: Scoping Request

8 Project Description

8.1 Introduction

8.1.1 This section of the document forms the written request by SPT under Regulation 7 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 for the opinion of the Scottish Ministers as to the information to be provided in the ES that SPT intend to prepare. The Scoping Request will set out the proposed structure and content of the ES and identify the possible effects on the environment.

8.2 Legislative Requirements (obtaining a scoping opinion)

8.2.1 Regulation 7 (1) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (Amended 2008) allows a developer to obtain a Scoping Opinion from the Scottish Ministers as to what should be included in an ES.

8.2.2 The request for a Scoping Opinion should normally include the following information about the proposed development:

- A plan sufficient to identify the site which is the subject of the proposed development (Refer to Figure 24);
- A brief description of the nature and purpose of the proposed development and its possible effects on the environment (Refer to Part 1, Routeing Study and Section 9 of the Scoping Request);
- Such further information or representations as the person making the request may wish to make; and
- Draft outline of the ES (Refer to Appendix 6).

8.3 Content of Scoping Request

8.3.1 The development of an overhead line has the potential to impact on people and property, natural resources and natural and cultural heritage. This scoping request has considered the following topics;

- Landscape;
- Visual Effects
- Ecology;
- Archaeology;
- Planning, Policy and Development;
- Transport, Traffic and Existing Infrastructure;
- Hydrology;
- Recreation;
- Agriculture and Forestry; and
- Electro-Magnetic Fields (EMF's) and Operational Noise.

8.4 Structure of the Environmental Statement

8.4.1 The ES will be prepared to include the following information:

- The ES text divided into distinct parts for each appropriate subject area;

- Supporting figures, photographs and illustrations; and
- Technical appendices containing specialist and technical data accumulated during the preparation of the ES.

8.4.2 In addition a freestanding non-technical summary will also be made available. Appendix 6 provides a detailed breakdown of the ES contents.

9 Potential Effects of the overhead line

9.1 Introduction

9.1.1 This chapter presents the findings of an initial appraisal of the environmental effects of the preferred wood pole line route which was selected subsequent to the routeing study discussed in chapters 1 to 7 of this document. Following the analysis of feedback from the consultation on the preferred route, SPT will decide upon a proposed route which will be assessed in the ES. SPT believe that any change made to the preferred route as part of this process will not affect the scope of assessment required.

9.1.2 Key environmental issues to be addressed in the ES are identified and the effects of the construction and operation of the preferred wood pole line on these issues is discussed.

9.1.3 The scoping request looks at a range of subject areas in relation to the preferred route identified within the Routeing study as follows:

- Landscape;
- Visual Issues;
- Ecology;
- Archaeology;
- Planning, policy and development;
- Transport, traffic and Infrastructure;
- Hydrology;
- Recreation; and
- Agriculture and Forestry.

9.1.4 In addition the scoping request also considers Electro-Magnetic Fields and Operation noise.

9.2 Landscape

Introduction

9.2.1 This scoping assessment considers the key landscape character issues that have the potential to arise during the EIA, and identifies the methodologies that will be used to identify baseline conditions and assess effect significance. It has been carried out with reference to the preferred overhead line route shown on Figure 24.

Baseline Situation

9.2.2 The preferred wood pole line route is located within the Glasgow and Clyde Valley Landscape Character Area and is the Rugged Upland Farmland landscape character type as described in Appendix 3.

9.2.3 The rugged upland farmlands are generally located to the south and west of Glasgow and form a transition to the higher plateau moorland to the east. They are characterized by a rugged hummocky landscape of steep craggy bluffs interspersed with less rugged farmland. Many of the lower lying areas have been flooded to form reservoirs.

9.2.4 The southern section of the preferred wood pole line route is located within a shallow valley running from Carswell Hill to Harelaw. The northern section of the preferred wood pole line route would pass around the edge of plantation woodlands and the steep bluff face of Neilston Pad and run close to Snypes Dam before crossing improved grassland to join a main transmission line south of Neilston.

9.2.5 There are no national or local landscape designations which apply to the preferred wood pole line route.

Impact Assessment

9.2.6 During construction there will be activity along the preferred wood pole line corridor and there will be some disruption to grazing land and commercial forestry however this is assessed as being short term and is only likely to have a localised impact on landscape character.

Summary and Recommendations

9.2.7 The ES will include a chapter assessing the effects of the construction and operation of the preferred wood pole line route on landscape character. This chapter will identify and assess the landscape character baseline and consider the effects of the construction and operation of the preferred wood pole line route upon this landscape character and identify measures to mitigate any predicted significant adverse effects, where practical.

9.2.8 A detailed landscape character assessment will be undertaken adopting "The Guidelines for Visual Impact Assessment" Second Edition, published by the Institute of Environmental Assessment and the Landscape Institute (2002).

9.3 Visual Effects

Introduction

9.3.1 This scoping assessment considers the key visual impact issues that have the potential to arise during the EIA, and identifies the methodologies that will be used to identify baseline conditions and assess the significance of effects. It has been carried out with reference to the preferred wood pole line route identified shown on Figure 24.

Baseline

9.3.2 Sensitive visual receptors include residential buildings, listed buildings, recreational sites and viewpoints. There are no Historic Gardens and Designed Landscapes in the vicinity of the study area.

9.3.3 The preferred substation will be located at the edge of an upland moor area to the south of Glasgow, with the preferred wood pole line running across rolling agricultural land and through a woodland plantation on the lower slopes of the prominent rocky outcrop of Neilston Pad and it heads north to tie-in to the existing electricity transmission network. A small local road providing access to a number of scattered dwellings and farms runs through the study area, with the settlement of Neilston located to the north of the preferred line.

9.3.4 Initial Zone of Theoretical Visibility (ZTV) analysis suggests that the substation and wood pole line would be visible from a number of the scattered dwellings and farms across the area, with the northern end of the wood pole line visible from the edge of Neilston and the minor road running south-west out of the settlement. The surrounding topography in the area, including Neilston Pad, Carswell Hill, James' Hill and Black Hill and the ridgeline formed by the Lochliboside Hills to the north, would help to contain views from the wider area. Site investigation has suggested that the actual visibility of the wood pole line will be less than suggested by the bareground ZTV due to the established woodland plantation throughout the area, and that visibility will be largely confined to the immediate route corridor.

Impact Assessment

9.3.5 There will be both temporary and permanent visual effects resulting from the construction of the preferred wood pole line and substation.

9.3.6 **Summary and Recommendations**

9.3.7 The ES will include a chapter assessing the effects of the construction and operation of the preferred substation and wood pole line upon visual receptors. The chapter will identify the visual baseline along the wood pole line route; assess the route corridor in terms of its visual sensitivity; consider the effects of the construction and operation of the wood pole line upon visual amenity; and identify measures, where practicable, to provide mitigation of any predicted significant adverse effects.

9.3.8 A visual impact assessment will be undertaken adopting "The Guidelines for Landscape and Visual Impact Assessment" Second Edition, published by the Institute of Environmental Assessment and the Landscape Institute (2002). Receptors to be considered will include residents in settlements and individual properties with a view of the proposals, travellers including motorists, walkers, cyclists and horse riders using minor roads and tracks for access and recreation.

9.4 Ecology

Introduction

9.4.1 This scoping assessment considers the key ecological issues that have the potential to arise during the EIA and identifies the methodologies that will be used to identify baseline conditions and assess effect significance. It has been carried out with reference to the preferred wood pole line route shown on Figure 24.

9.4.2 Ecological features are the subject of a wide variety of legislation and policy. Some potential effects would constitute an offence and would not be acceptable without suitable mitigation and/or (where necessary) Scottish Government/Scottish Natural Heritage licences. Such potential effects would therefore come under the scrutiny of statutory consultees and other interested parties as well as the consenting authorities.

Baseline

9.4.3 A two tiered approach was adopted to identify and assess the initial ecological value of the study area, i.e. the preferred route within a 500m wide corridor and a 100m wide corridor.

9.4.4 The value of local habitats and potential species populations were determined by reference to any designations and the results of the consultations, literature review and field surveys.

9.4.5 The ecological receptors were identified from the baseline studies, and their value assessed. Following the guidelines, the effects on ecological receptors were identified, and the effects of the preferred development predicted.

9.4.6 The East Renfrewshire Biological Records Centre (now disbanded) was contacted for the following information:

- Statutory designated sites;
- Locally designated sites;
- Rare Species Inventory Search; and
- Protected Species Register.

9.4.7 Additional sources of information were also sought including the SNHi website which provided boundary details of statutory nature conservation sites within the locality of the preferred scheme (http://www.snh.org.uk/snhi/).

9.4.8 The NBN gateway (www.nbn.org.uk) was also used to provide additional details of protected species in the study area.

9.4.9 Finally, the Renfrewshire, East Renfrewshire, Inverclyde Biodiversity Action Plan (http://www.ukbap.org.uk/lbap.aspx?ID=444) was also consulted for details of species or habitats that are locally rare or notable.

9.4.10 The following field survey techniques (with their standard methodologies) were carried out from April to June 2008. These provide baseline information to assess the potential for identified habitats to support protected species and other species of conservation concern.

- Extended Phase One Habitat Survey (Joint Nature Conservation Committee, 1993);
- Great Crested Newt Habitat Suitability (Oldham et al., 2000);
- Badger Meles meles (Design Manual for Roads and Bridges, 2001);
- Bats – Tree Habitat Suitability (Bat Conservation Trust, 2007);
- Breeding Bird Survey (British Trust for Ornithology, 2008);
- Otter Lutra lutra (Environment Agency, 2002);
- Water Vole Arvicola terrestris (Water Vole Handbook, 2006) and;
- Reptiles. (Froglife Advice Sheet 10, 1999)

9.4.11 The majority of the wider area around a 500m corridor of the preferred route is improved, poor semi-improved grassland with arable habitats of limited ecological value. The central section of this area is characterised by semi-improved acid grassland and there are networks of marsh /marshy grassland in the low lying fields below Harelaw Dam.

9.4.12 Large areas of wet heath/acid grassland mosaic are found next to Harelaw Dam and Long Loch with small fragments of blanket bog and wet modified bog throughout the southern sector of the study area, both of which are priority habitats in the Habitats Directive and Biodiversity Action Plan (BAP).

9.4.13 Semi-natural woodland is limited within the study area and is found mainly as scattered trees throughout the eastern section and along field boundaries. The north-western section is characterised by a large conifer plantation woodland of mixed age.

9.4.14 The preferred route follows a range of habitats of similar low ecological value as shown in Figure 8 Phase One Habitat. The southern section of the route follows improved grassland used in agriculture, which has a low ecological value. The northern section would pass through conifer plantation and additional fields of improved grassland, both of which are also of low ecological value.

9.4.15 There are no national ecological designations which apply to the wood pole line route. There are four local sites of interest for nature conservation (SINC's) located within 100m of the preferred route: Snypes Dam, Neilston Pad and Craig of Neilston; Levern Water and Carswell Hill. Refer to Figure 9 Environmental Constraints.

Impact Assessment

9.4.16 During the construction period there may be a temporary impact upon the habitats crossed by the preferred route, although it will be negligible in significance.

9.4.17 Faunal surveys (Jacobs, 2006 & 2008) indicate activity from a number of species including badgers, otters, soprano bats, roe deer, foxes, stoat and weasels within the study area. Construction of the preferred wood pole line route may result in temporary disturbance of these groups including noise, dust and human presence, but these effects will be short-term and negligible.

9.4.18 The overall ecological impact of works is therefore expected to be low in magnitude and confined to the construction period with the following constraints;

- Evidence of badgers within a 100m corridor of the preferred route was identified in the 2008 surveys. There is a potential ecological impact to badger breeding, resting and foraging areas. The nearest identified sett, however was outside of the 100m corridor, and further than the 30m legal distance where a licence is required to disturb a badger sett;
- Four trees with the potential to support roosting bats were identified in 2008 survey, within the 100m corridor of the preferred route. Potentially negative ecological effects would occur for the bats if these trees were removed;
- The preferred route crosses a number of watercourses within the 100m corridor of the preferred route. Evidence of otter was identified in the 2008 surveys causing a potential negative impact to otter breeding or resting sites and foraging areas;
- Ten ponds were identified within 500m of the preferred route, which may provide potential breeding locations for amphibians, including Great Crested Newt Triturus cristatus; and
- A range of suitable habitats for birds and a number of different bird species were identified during the 2008 surveys, within the 500m corridor of the preferred route. There is a potential ecological impact to bird nesting and foraging sites are located throughout the preferred route.

Summary and Recommendations

9.4.19 The ES will include a chapter assessing the effects of the construction and operation of the preferred wood pole line route on nature conservation and the legal implications associated with ecological features of the preferred wood pole line route. The chapter will assess the ecological baseline, the effects upon nature conservation and identify measures to mitigate any predicted significant adverse effects, where practical.

9.4.20 Ecologically sensitive areas will be avoided where possible and construction activities will be concentrated in areas of low conservation value such as species poor improved grassland.

9.4.21 In addition, immediately prior to any construction works, supplementary protected species surveys will be carried out to establish their presence in the construction area. If present, species will be evaluated and additional mitigation measures will be agreed with Scottish Natural Heritage if necessary. Habitat loss will be kept to a minimum and a Project Ecologist/ Ecological Clerk of Works will be in regular contact with the construction team to ensure ecological legislation compliance.

9.5 Archaeology

Introduction

9.5.1 This scoping assessment considers the key archaeological and heritage issues that have the potential to arise during the EIA and identifies the methodologies that will be used to identify baseline conditions and assess effect significance. It has been carried out with reference to the preferred wood pole line route shown on Figure 24.

9.5.2 Heritage resources include Scheduled Ancient Monuments, other archaeological features, Listed Buildings and other buildings of historic or architectural importance, Conservation Areas and other significant townscapes of historic or architectural importance, Historic Gardens and Designed Landscapes and other significant historic landscapes, and World Heritage Sites

Baseline

9.5.3 To inform the scoping process and identify potential effects, preliminary baseline information has been collated on the locations of known archaeology and heritage features along and adjacent to the preferred wood pole line route, using Pastmap (www.pastmap.org.uk), an online cultural heritage database maintained by Historic Scotland and the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS). For current purposes information has been collated on designated cultural heritage features and sites present within 20 sq km of the preferred development route and on undesignated sites present within 20 sq km of the overhead line route.

9.5.4 Baseline archaeology and heritage conditions will be fully established as part of the EIA. The locations, extents and current condition of all currently known features within the search area will be obtained from Historic Scotland, the National Monuments Record of Scotland (NMRS), West of Scotland Archaeology Service Sites and Monuments Record (SMR), and Local Plans and local authorities as appropriate. The baseline will be enhanced through assessments of relevant documentary, cartographic and aerial photographic records held by RCAHMS, the map library of the National Library of Scotland, and the National Archives of Scotland. Local sources, such as museums, libraries, historical and archaeological societies and individual researchers, may also provide additional relevant information.

9.5.5 Reconnaissance field survey will be undertaken along the preferred wood pole line route. This survey will locate all visible cultural heritage features and identify their current condition; identify areas with the potential to contain unrecorded, buried archaeological remains; and assess the potential effects of the preferred development on those features and areas in the vicinity will be visited where possible to assess potential indirect effects. It is not preferred to conduct any invasive archaeological investigations as part of the EIA.

9.5.6 Consultation and discussions will be held with Historic Scotland, West of Scotland Archaeology Service (WoSAS) and other bodies with interests in the conservation of the historic environment as necessary, to gain professional opinion on the potential effects and to agree the approach to mitigation.

9.5.7 Site-specific and scheme-wide effects will be classified on the basis of their type (direct, indirect, secondary, and cumulative), nature (beneficial, neutral or adverse), duration (temporary, permanent) and reversibility (reversible, irreversible). The assessment of significance of effects will take into account the importance of the receptor and the magnitude of impact (details in Appendix 4).

9.5.8 There are no Scheduled Ancient Monuments, Listed Buildings, Historic Gardens and Designed Landscapes or World Heritage Sites within 1km of the potential development locations.

9.5.9 There are no known archaeological sites located directly along the preferred wood pole line route. There are approximately 10 other undesignated sites of cultural heritage interest recorded by the NMRS within c. 200m of the preferred route. Around Snypes Farm there are three agricultural sites, the remains of a field bank (NGR: NS 247800 655010), a clearance cairn NGR: NS 247850 655100) and a large glacial erratic stone referred to as the ‘Giants Stone’ NGR: NS 247830 655150. To the north of this area are the remains a settlement known locally as the 'Pad Farm' NGR: NS 24797 65529). The site is composed of a pre-improvement longhouse measuring 20m by 7m with associated enclosure, walls and annexed structures as illustrated on Ainslie's map. Prior to the planting of the area, the remains were excavated and the artefactual evidence dates the site to the early 18th century (East Renfrewshire Community Woodland (DES 1995, 90). The upstanding remains of the farm house, now lie within a fenced enclosure.

9.5.10 To the south east of Craig of Neilston farm are three more agricultural sites in the form of quarry scoops NGR: NS 248010 655590, NS 248120 655580 and NS 248120 655760. The first two sites occur at the periphery of the 200m corridor and the latter is located on the southern side of the disused track way, NGR: NS 248140 655680, which extends to the south east of Craig of Neilson farm. At the northern extent of the preferred route is a turf mound located at the edge of the cultivated field (NGR: NS 248070 656290) is believed to date from the 18th century.

Impact Assessment

9.5.11 Both the construction and operational stages of the preferred development could potentially have effects upon different elements of the archaeology and heritage. The more likely potential effects of the preferred wood pole line route that can be identified in relation to the baseline considered above are summarised in Table 15.

TABLE 15 Potential Effects on Archaeology and Heritage	
Construction	Direct effects on undesignated features of archaeological interest, potentially including the field bank at Snypes Farm. Disturbance of currently unrecorded buried archaeological features or deposits of palaeoenvironmental importance.
Operation	Indirect effects on the setting of Scheduled Ancient Monuments and Listed Buildings present in the vicinity of the preferred development locations.

Summary and Recommendations

9.5.12 The ES will include a chapter assessing the effects of the construction and operation of the preferred development upon the archaeology and heritage interests of the area concerned. The chapter will identify the heritage baseline along the preferred wood pole line route; assess the route in terms of its archaeological and historic environment potential; consider the effects of the construction and operation of the preferred wood pole line route upon archaeology and heritage interests; and identify measures to mitigate any predicted significant adverse effects, where practical. The assessment will be conducted with reference to the relevant legislative and planning policy frameworks, and in accordance with the Institute of Archaeologists (IfA) Code of Conduct and Standard and Guidance for Archaeological Desk Based Assessment documents.

9.5.13 Receptors to be considered will include Scheduled Ancient Monuments, other archaeological features, Listed Buildings and other buildings of historic or architectural importance, Conservation Areas and other significant townscapes of historic or architectural importance, Historic Gardens and Designed Landscapes and other significant historic landscapes, and World Heritage Sites. See section 9.5.3 to 9.5.7 the preferred baseline survey and effect significance assessment methodologies respectively.

9.6 Planning, Policy and Development

Introduction

9.6.1 This scoping assessment considers the key planning issues that have the potential to arise during the EIA. It has been carried out with reference to the preferred wood pole line route shown on Figure 24.

Baseline

9.6.2 A preliminary review of the principal documents that make up the current development plan for the study area and the wider area is provided in this section. The plans comprise:

- Glasgow and the Clyde Valley Structure Plan 2006; and
- East Renfrewshire Local Plan 2003.

Structure Plan Policy - Glasgow and the Clyde Valley Structure Plan 2006

9.6.3 The Structure Plan aims to achieve an increase in economic competitiveness, greater social inclusion and integration, an enhanced natural and built environment, and the integration of land use and transportation. Policies or statements which may be of relevance to the preferred wood pole line route are summarised as follows;

- Renewable Energy (Strategic Policy 8) – states that there are significant opportunities for wind power generation developments, as identified in Diagram 22;
- Landscape (Strategic Policy 7) – states a presumption against development which would adversely affect the status of areas of landscape value including National Scenic Areas, Regional Scenic Areas, Areas of Great Landscape Value and the character of the Green Belt;
- Ecological Resources (Strategic Policy 7) - particular regard should be given to safeguarding and managing the International, National and Strategic Environmental Resources, including SAC's, SPA's, SSSI's, NNR's, RSPB and SWT reserves;
- Built Heritage (Strategic Policy 7) - aims to conserve and promote the area's built heritage, whether listed buildings, World Heritage Sites, conservation areas, Scheduled Ancient Monuments, archaeological sites or locations identified in the Inventory of Historic Gardens and Designed Landscapes; and
- Green Network Priorities - aims to maximise the potential for recreation, amenity and nature conservation in the Structure Plan area. The nearby 'Dams to Darnley Countryside Project' has been identified as a potential project to be included in the Strategic Green Network Partnership.

Local Plan Policy - Adopted East Renfrewshire Local Plan 2003

9.6.4 The overall aim of the Local Plan is: "to provide a rich and diverse environment and promote and manage land use change for the benefit of the local community in a manner which is sustainable". In relation to the preferred development, this forms the basis for the following policy themes:

- Policy E2 Green Belt and Countryside Around Towns - East Renfrewshire Council will give sympathetic consideration to development proposals related to renewable energy providing the functions of the Green Belt can be maintained and the viability of important agricultural land is not prejudiced;
- Policy E3 – Protection of Natural Features - The adopted local plan contains policies which seek to protect areas of landscape quality, SSSI's, SINCs and designated TPO's. This policy establishes a strong presumption against development which compromises the integrity of any of these;
- Policy E5 Archaeological Remains - The Local Plan seeks to protect Scheduled Ancient Monuments and their settings from damaging development. It also states a presumption against development that would have an adverse effect on any important archaeological resource, as identified by the West of Scotland Archaeological Service;
- Policy E8 Renewable Energy - East Renfrewshire Council supports renewable energy proposals, including wind turbine developments, in appropriate locations provided that it can be demonstrated that the environmental effects of such proposals can be mitigated; and
- Policy L6 Core Path Network - The Council intends to identify a Core Path Network through the development of an Access Strategy which it intends to manage for the benefit of the community. This will comprise a system of strategic routes, important in terms of transportation, healthy-living, leisure and access to facilities and the countryside.

Predicted Effects

9.6.5 The wood pole line route has the potential to conflict with Local Plan policies relating to the green belt, landscape, archaeological sites and the core paths network. The significance of these effects will be assessed by the relevant environmental disciplines and an assessment of their impact on planning policy made. However, the preferred wood pole line route is partly included in the Structure Plans 'Potential Areas of Search for Windfarms' which would include any necessary connection to the electricity grid. There is therefore potential compliance with both Local Plan and Structure Plan renewable energy requirements.

Summary and Recommendations

9.6.6 The ES will include a chapter identifying the adopted planning policies and reviewing the detailed design and effects on other environmental topics in order to assess conflict or compliance. A

review would also be undertaken to assess the preferred development against the emerging East Renfrewshire Local Plan (2008), which is currently at the 'Finalised' stage. This will allow appropriate mitigation measures to be identified to ensure that the aims and objectives of the relevant planning policies are met.

9.7 Hydrology

Introduction

9.7.1 This scoping assessment considers the key issues in relation to the water environment issues that have the potential to arise during the EIA, and identifies baseline conditions and assesses effect significance. It has been carried out with reference to the preferred overhead line route shown on Figure 24.

Baseline Situation

9.7.2 The preferred wood pole line route is located in the catchment for the Black and White Cart Water and lies within 500m of Harelaw Dam and Snypes Dam.

9.7.3 The Levern Water, the main watercourse in the area would be crossed by the preferred wood pole line route.

Impact Assessment

9.7.4 The nature of the proposed construction and the flexibility related to the exact location of poles combined with appropriate mitigation is such that no significant risk of direct impact on watercourses is anticipated. During construction there would be a need to provide access along much of the line of the route and this may require access across the Levern Water and minor ditches in order to string conductors which may result in localized and temporary disturbance. There would be no significant implication for the broader hydrological regimes or water quality within catchments and watercourses.

9.7.5 In common with any construction work in the vicinity of watercourses there would be the potential for accidental pollution of watercourses due to incidents unrelated to essential construction requirements specific to the project (oil spillage by vehicles). There would also be the potential for pollution of watercourses related to excavation and temporary storage of soils, although these are relatively small-scale operations due to the nature of work involved and outlined in Part 1 Section 2.6, Design, Construction and Maintenance. These operations would be subject to specific contractual requirements concerning excavation, temporary storage and replacement of materials as would storage of fuels for construction and vehicles. These issues will be controlled on site by using an Environmental Management Plan (EMP) an example of which will be shown in the ES.

Summary and Recommendations

9.7.6 It has been assessed that the potential effects on hydrological regimes will not be significant, that standard safeguards and mitigation will be in place and that a detailed assessment is not required.

9.8 Transport, traffic and infrastructure

Introduction

9.8.1 This scoping assessment considers the key transport, traffic and infrastructure issues that have the potential to arise during the EIA, and identifies the methodologies that will be used to identify baseline conditions and assess effect significance. It has been carried out with reference to the preferred overhead line route shown on Figure 24.

Baseline Situation

9.8.2 The preferred wood pole line route lies south east of the A736 and directly south of the village of Neilston and a connection will be made to the existing transmission line which runs in an east-west direction directly south of the village of Neilston.

9.8.3 The B769 trunk road lies in the south east and runs parallel with the M77 and A77 approximately 1 km to the east. Access for construction will be along local roads.

9.8.4 The southern section of the preferred wood pole line route will run close to a high pressure gas transmission pipeline which it will cross close to the pipeline intervention gadget station (PIG) at Harelaw.

Impact Assessment

9.8.5 The impact on the existing overhead transmissions lines is not considered to be significant.

9.8.6 Access will be required for construction along local roads and there will be a short term impact due to an increase in traffic and this is not considered to be significant. However the cumulative impact of this in conjunction with the construction of the Harelaw Windfarm may result in effects on local roads

9.8.7 There is the potential for conflict due to the proximity of the preferred wood pole line route to the high pressure gas transmission pipeline and the (PIG) station however standard and appropriate safeguards will be in place.

Summary and Recommendations

9.8.8 It has been assessed that the potential effects on transport, traffic and infrastructure will not be significant, that standard safeguards will be in place and that a detailed assessment is not required.

9.9 Recreation

Introduction

9.9.1 This scoping assessment considers the key recreation issues that have the potential to arise during the EIA, and identifies the baseline conditions and assess effect significance. It has been carried out with reference to the preferred overhead line route shown on Figure 24.

Baseline Situation

9.9.2 The main recreation within the area is informal walking and fishing.

9.9.3 Walking is carried out on local roads and tracks within the woodlands at Neilston Pad. Private fisheries exist on Harelaw Loch, Snypes Dam and Harelaw Dam.

Impact Assessment

9.9.4 During construction there will be activity along the preferred wood pole line route corridor and there will be some temporary and short term disruption to walkers on the local road which provides access to Harelaw Dam and in Neilston Pad woodland area. Access will be maintained on local roads throughout the project

Summary and Recommendations

9.9.5 It has been assessed that the potential effects on recreation will not be significant and that detailed assessment is not required.

9.10 Agriculture and forestry

Introduction

9.10.1 This scoping assessment considers the key land use issues that have the potential to arise during the EIA, and identifies the methodologies that will be used to identify baseline conditions and assess effect significance. It has been carried out with reference to the preferred overhead line route shown on Figure 24.

Baseline Situation

9.10.2 The preferred wood pole line route crosses agricultural land at the lower end of the Macauley Institute land capability grading 5_1 and suited only to improved grassland and rough grazing. Close to Harelaw the route will pass a small area of Class 4_1 and 4_2 which is capable of producing a narrow range of crops. The full extent of the corridor is used for rough grazing and commercial forestry.

Impact Assessment

9.10.3 During construction of the preferred wood pole line route there will be disruption to agriculture and forestry as access will be required to pole sites for foundation excavation and pole installation. Access routes will be detailed considering all landowner and environmental issues. Temporary access routes may also be required. Further information on the design, construction and maintenance of the preferred wood pole line route is provided in Part 1, Section 2.6.

Summary and Recommendations

9.10.4 The ES will include a chapter assessing the effects of the construction and operation of the preferred wood pole line route on agriculture and forestry. This chapter will identify and assess agricultural and forestry land use and consider the effects of the construction and operation of the preferred wood pole line route upon land use and identify measures to mitigate any predicted significant adverse effects, where practical.

9.11 Electro-Magnetic Fields (EMFs) and Operational Noise

Introduction

9.11.1 This section presents the proposed approach to assessment of EMFs and Operational Noise. The ES will include a chapter assessing the effects of the construction and operation of the proposed OHL upon EMFs and Audible (operational) Noise levels. The chapter will identify the EMF and noise baseline along the OHL routes and assess the route corridor in terms of its existing EMF and noise. The chapter will also consider the impacts of the construction and operation of the OHL routes upon EMF and noise; and identify measures to mitigate any predicted significant adverse effects, where practical. The assessment will be carried out with reference to the proposed OHL route and substation location.

EMF Baseline

9.11.2 Power-frequency electric and magnetic fields in the vicinity of high-voltage electric power equipment may have various physical effects. In recent years, there also have been some epidemiological research studies that have suggested a link with childhood leukemia.

Operational Noise Baseline

9.11.3 Overhead line noise is generated when the conductor's surface electric stress exceeds the inception level for corona discharge activity. Overhead line conductors are designed to operate below this threshold. Surface contamination on a conductor will, however, cause a local enhancement of electrical stress and possibly initiate discharge activity. At each discharge site, a

limited electrical breakdown of the air occurs. A portion of the energy associated with the corona process is released as acoustic energy and radiates into the air as sound pressure waves.

Impact Assessment

9.11.4 Although no significant effects are expected, potential EMF effects and recent research evidence will be considered in the Environmental Impact Assessment, together with the conclusions of the national and international bodies who have reviewed the evidence for possible health effects.

9.11.5 Possible effects of audible noise will be considered in the Environmental Impact Assessment and will be assessed against BS 4142: 1997 “Method for rating industrial noise affecting mixed residential and industrial areas”.

Summary and Recommendations

9.11.6 Although no significant effects are anticipated, potential EMF effects and recent research evidence will be considered in the Environmental Impact Assessment.

9.11.7 Again, although no significant effects are expected, operational noise will be considered in the ES and will be assessed against BS4142: 1997 “Method for rating industrial noise affecting mixed residential and industrial areas”.

10 Next Steps

10.1.1 Following receipt of the Scoping Opinion from the Scottish Ministers further detailed studies will be undertaken for the preparation of the Section 37 application. The ES will assess the environmental effects of the preferred route, which will be developed from the preferred route identified in this Routeing Study following consultation. It is envisaged that this process will identify the main environmental considerations. The ES will incorporate relevant information from this document and the routeing process. Following further detailed environmental and technical assessment; it may identify localized deviations from the preferred route in order to mitigate local effects.

10.1.2 The ES will identify and describe in detail the environmental effects of line construction and operation and will identify any appropriate mitigation measures.

11 References

11.1.1 Biodiversity Steering Group Report (1995 Vol 2) HMSO, London;

11.1.2 Biodiversity: The UK Action Plan. HMSO, London, UK;

11.1.3 Council Directive of 2 April 1979 on the Conservation of Wild Birds (79/409/EEC). Office for Official Publications of the European Communities, 25 pp. http://europa.eu.int/eur-lex/en/consleg/pdf/1979/en_1979L0409_do_001.pdf;

11.1.4 Council Directive of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (92/43/EEC). http://eur-lex.europa.eu;

11.1.5 Wildlife and Countryside Act 1981. http://www.jncc.gov.uk/;

11.1.6 Land Use Consultants 1999. Glasgow and Clyde Valley Landscape Assessment. Scottish Natural Heritage No116;

11.1.7 The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines with NGC 1991 and SHETL 2003 Notes, ScottishPower;

11.1.8 ScottishPower Transmission (2002) Overhead Transmission Lines - Routeing and Environmental Assessment, ScottishPower;

11.1.9 Forestry Commission (1994) Forest Landscape Design Guidelines, 2nd Edition; and

11.1.10 Forestry Authority (1998) Forest Design Planning – A Guide to Good Practice.

12 Appendices

12.1 The Holford Rules

The Holford Rules: Guidelines for the Routeing of New High Voltage OverheadTransmission Lines with NCG1992 and Shetl 2003 Notes

RULES 1 -7

Rule 1

12.1.1 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

12.1.2 (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 ESs. 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 the effect of remaining on this route must be considered in terms of the effect of a new route avoiding the area.

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

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

- Special Area of Conservation (NPPG14)
- Special Protection Area (NPPG14)
- Ramsar Site (NPPG14)
- National Scenic Areas (NPPG14)
- National Parks (NPPG14)
- National Nature Reserves(NPPG14)
- Protected Coastal Zone Designations (NPPG13)
- Sites of Special Scientific Interest (SSSI) (NPPG14)
- Schedule of Ancient Monuments (NPPG5)
- Listed Buildings (NPPG18)
- Conservation Areas (NPPG18)
- World Heritage Sites (a non-statutory designation) (NPPG18)
- Historic Gardens and Designed Landscapes (a non-statutory designation) (NPPG18)

Rule 2

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

Note on Rule 2

12.1.6 (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.

12.1.7 (b) Effects on the setting of historic buildings and other cultural heritage features should be minimised.

12.1.8 (c) If there is an existing transmission line through an area of high amenity value and the surrounding land uses 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

12.1.9 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

12.1.10 (a) Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds.

12.1.11 (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

12.1.12 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

12.1.13 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

12.1.14 (a) Utilise background and foreground features to reduce the apparent height and domination of towers from main viewpoints.

12.1.15 (b) Minimise the exposure of numbers of towers on prominent ridges and skylines.

12.1.16 (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).

12.1.17 (d) Protect existing vegetation, including woodland and hedgerows, and safeguard visual and ecological links with the surrounding landscape.

Rule 6

12.1.18 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

12.1.19 (a) In all locations minimise confusing appearance.

12.1.20 (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 effects on properties and features between lines.

Rule 7

12.1.21 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

12.1.22 (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.

12.1.23 (b) Alignments should be chosen after consideration of effects on the amenity of existing development and on proposals for new development.

12.1.24 (c) When siting substations take account of the effects 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

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

Supplementary Notes

(a) Residential Areas

12.1.26 Avoid routeing close to residential areas as far as possible on ground of general amenity.

(b) Designations of Regional and Local Importance

12.1.27 Where possible choose routes which cause the least disturbance to Areas of Great Landscape Value and other similar designations of Regional Local Importance.

(c) Alternative Lattice Steel Tower Designs

12.1.28 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 titled Overhead Transmission Line Tower Study 2004].

Further notes on clarification to the Holford rules

Line Routeing and People

12.1.29 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.

12.1.30 (a) Avoid routeing close to residential areas as far as possible on grounds of general amenity.

12.1.31 (b) In rural areas avoid as far as possible dominating isolated houses, farms or other small-scale settlements.

12.1.32 (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

12.1.33 (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.

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

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

12.1.36 (d) Alternative designs of substations may also be considered, eg ‘enclosed’, rather than ‘open’, where additional cost can be justified.

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

12.1.38 (f) When siting substations take account of the effects 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

Interpretation of the Holford Rules 1 and 2

Introduction

Rule 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.

Designations

Since 1949 a framework of statutory measures has been developed to safeguard areas of high landscape value and nature conservation. 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 or 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.

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, of 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 that the licence 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.

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, NPPG13 : Coastal Planning, NPPG14 : Natural Heritage or NPPG18 : Planning and the Historic Environment. Nevertheless, designations give an indication of the level of importance of the interest to be safeguarded.

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.

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.

- The setting of a Scheduled Ancient Monument or a Listed Building

The NGC note to Rule 2 refers to the setting of historic building and other cultural heritage features. NPPG5: Archaeology and Planning refers to the setting of Scheduled ancient monuments and NPPG18: Planning and the Historic Environment refers to the setting of Listed Buildings. None of these documents define setting.

APPENDIX B

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

Major Areas of Highest Amenity Value

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

- Special Areas of Conservation (NPPG14)
- Special Protection Areas (NPPG14)
- Ramsar Site (NPPG14)
- National Scenic Areas (NPPG14)
- National Parks (NPPG14)
- National Nature Reserves (NPPG14)
- Protected Coastal Zone Designations (NPPG13)
- Sites of Special Scientific Interest (NPPG14)
- Schedule of Ancient Monuments (NPPG5)
- Listed Buildings (NPPG18)
- Conservation Areas (NPPG18)
- World Heritage Sites (NPPG18)
- Historic Gardens and Designed Landscapes (NPPG18)

Other Smaller Areas of High Amenity Value

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
- 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

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

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

Green Belts

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

12.2 Glossary

Glossary

Angle Pole: A pole erected to allow for a change in direction of the line.

Conductor: The name given to the metallic wires strung from tower to tower to carry electric current.

Earth Conductor: A wire suspended beneath conductors for protection against lightning strikes. It can also contain fibre optic cores for communication purposes.

Insulators: Materials that are very poor conductors of electricity. Air exists as natural insulation around conductors, but at supports, an insulator string (or strings) is required to prevent live contact with the tower or pole body. Glass, polymeric or porcelain insulators can be used.

Insulator Strings: Insulator units assembled in articulated strings between the pole steelwork and conductors.

Kilovolt (kV): 1,000 volts.

Megawatt (MW): 1,000,000 watts.

The National Grid: The electricity transmission network of the UK.

Overhead Transmission Line: An electric line installed above ground usually supported by lattice steel towers or wooden poles.

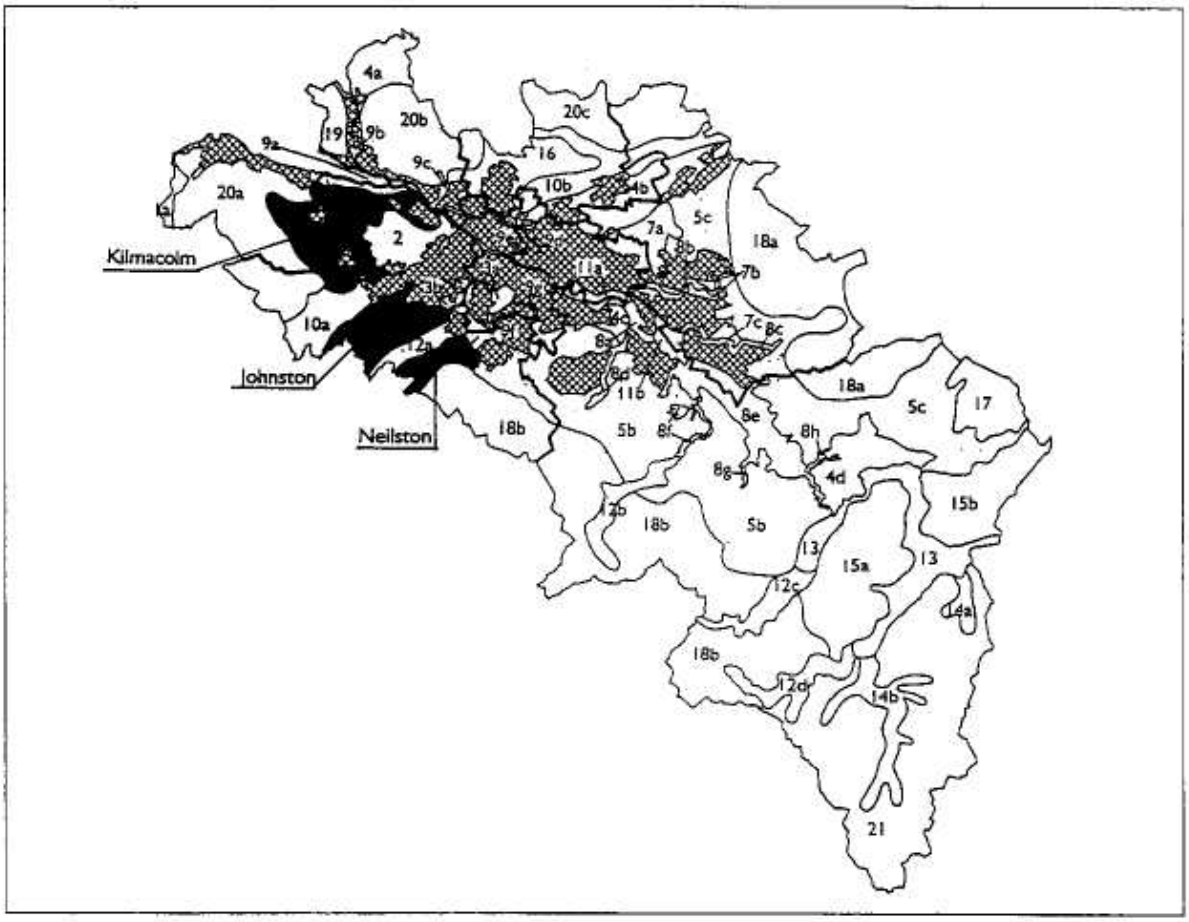
Substation: Controls the flow and voltage of power by means of transformers and switchgear, with facilities for control, fault protection and communications.

Volts: The international system unit of electric potential and electromotive force.

Watt: The unit of electric power.

12.3 SNH Landscape Character Types

6 RUGGED UPLAND FARMLAND



5.6.1 The Rugged Upland Farmland landscape type, which shares many of the attributes of Plateau Farmland, is found in the following areas:

- 6a Kilmacolm
- 6b Johnstone
- 6c Neilston

5.6.2 This landscape type occurs in the following local authority areas:

- Inverclyde
- Renfrewshire
- East Renfrewshire

5.6.3 North and west of Newton Mearns, the smooth plateau farmlands and higher plateau moorlands give way to a more rugged farmland landscape, forming a transition to the rugged moorland area further north west.

5.6.4 These landscapes are, for the large part underlain by millstone grits and carboniferous limestone with peripheral, higher areas of basalt. They are characterised, to a greater or

lesser degree, by a rugged, hummocky landscape of steep, craggy bluffs interspersed with more gentle farmland. Many of the troughs and valleys are flooded, providing reservoirs for urban areas to the north. The area south of Gleniffer Braes is more gentle and plateau-like.

5.6.5 Woodland cover is relatively extensive, with many of the rugged hillocks covered in stands of beech or pine. The more hospitable areas are mostly improved pasture (mainly given over to sheep farming). Beech hedgerow trees are a distinctive feature in many parts of this landscape, often associated with past estates. Farms and villages tend to be concentrated in more sheltered areas, particularly near the northern edge of these areas.

5.6.6 Although this area does not include urban areas, influences include electricity infrastructure and masts, particularly around Gleniffer Braes, some forestry, isolated suburban development, settlement expansion and the aural impact of aircraft approaching or leaving Glasgow Airport. From the northern part of this area fine views are possible over the Glasgow conurbation (and well beyond).

Key landscape issues

5.6.7 Key issues affecting this landscape type include:

- the importance of encouraging the continued maintenance and management of hedges, field boundary trees and characteristic woodland clumps;
- the visual and landscape impacts associated with urban related infrastructure, particularly tall structures such as pylons and communications masts;
- changes in landscape character resulting from non-agricultural land uses such as golf courses.

MANAGING LANDSCAPE CHANGE

Key characteristics

5.6.8 The key characteristics, features and qualities of this landscape type are:

- rugged landform comprising rocky bluffs and shallow troughs;
- dominance of pastoral farming;
- tree cover often emphasising landform, for example concentrated on bluffs and outcrops.

Planning and management should aim to conserve the distinctive character of the Rugged Upland Farmland by resisting developments such as pylons and masts, which would weaken its rural character, and by securing the positive management of features such as field boundaries and woodlands.

Trees and woodland: sensitivities and forces for change

5.6.9 Woodland provides an important structural landscape element. As noted above, stands of beech and pine emphasise many of the rugged hillocks, contrasting with intervening pastures. The landscape would be very sensitive to the loss of these woodlands, either through direct loss, or, more likely, through undermanagement and neglect. Equally, an increase in woodland cover to include the currently unwooded area would change perceptions of the landscape. There may, however, be opportunities for additional, small scale woodlands, which conform to existing patterns and which would reinforce the character of the landscape.

Trees and woodland: planning and management guidelines

5.6.10 Guidelines for the Rugged Upland Farmland include:

- the emphasis in this landscape type should be placed upon securing the appropriate management of existing small woodlands, particularly where they emphasise the natural topography and thereby contribute to landscape character;
- this landscape type has the potential to accommodate some additional woodland planting provided that this is of a relatively small scale, is correctly sited (particularly in relation to hillocks and outcrops) and reflects local patterns of species, particularly the occurrence of Scots pine in higher areas and beech in lower areas;
- commercial plantations should be designed carefully to ensure that they do not undermine or obscure the small-scale nature of local topography; where this type of forestry does occur, the aim should be to encourage planting patterns which retain a significant proportion of open land and which make use of organic shapes and outlines fitted to topography; geometric shapes should be avoided and irregular margins used, incorporating broadleaves in lower areas;
- the aim should be to bring existing field boundary trees and farm woodlands into positive management, with the objective of prolonging the life of existing specimens, and bringing forward replacements in the longer term;
- resist planting patterns which would create large areas of continuous coniferous tree cover.

Agriculture: sensitivities and forces for change

5.6.11 Farming is central to the character of this landscape type. It is sensitive therefore to agricultural change. Development pressures, for example for housing on the edge of urban areas or around rural settlements can result in the direct loss of farmland and the introduction of uncertainty and blight, sometimes resulting in landscape decline. Furthermore, urban fringe demands for leisure facilities such as golf courses may also result in the displacement of traditional land uses and consequent urbanisation of landscape character. This trend is evident in areas above Newton Mearns and at Gleniffer Braes.

5.6.12 The landscape would also be sensitive to large scale agricultural building developments particularly where they require significant modifications to landforms or result in the loss of existing trees and hedgerows. The placement of buildings on ridges or hilltops could

also be obtrusive unless they were carefully composed to relate to traditional buildings.

5.6.13 The landscape is also sensitive to the loss or decline of its key features. These include:

- the decline of hedgerows and replacement by fences;
- the loss of and failure to replace mature trees from hedgerow lines, field corners, hilly outcrops and from around farmsteads;
- the drainage or infilling of small waterbodies to improve agricultural production;
- the improvement of small areas of grassland which previously provided nature conservation interest and visual variety.

Agriculture: planning and management guidelines

5.6.14 Farming is a defining feature of this landscape type and, as in other areas, provides the principal means of landscape management. An overarching aim should be to support retention of a viable agricultural economy within the area. In relation to landscape features, landscape management and planning to aim to:

- encourage the positive management and, where appropriate, restoration of field boundaries (hedges and drystone dykes) and field boundary trees in recognition of the contribution these features make to the grain of this complex landscape, and their cumulative role in providing screening;
- influence the location, design and materials of new agricultural buildings to limit their visual impact and to maximise the integration of such structures with existing farm buildings;
- encourage the planting of new farm woodlands particularly where they could help to reduce the impact of large farm buildings;
- support the conservation of unimproved grasslands, wetlands and waterbodies which provide local nature conservation interest.

Minerals: sensitivities and forces for change

5.6.15 The outcropping nature of the basalt rocks in this area is reflected in the occurrence of small quarries, many associated with the winning of local building materials. In many cases these small quarries serve to emphasise the craggy character of the landscape. However, the landscape would be sensitive to more modern commercial quarries, since these would be of a scale that would entail more significant landscape change. In some areas, particularly to the north, quarries would be prominent features when viewed from the lower parts of the Clyde basin.

Minerals: planning and management guidelines

5.6.16 Guidelines for the Rugged Upland Farmlands include:

- discourage large-scale mineral working, particularly quarrying, where this would result in the loss of important local features (e.g. rock outcrops) or would result in significant levels of visual intrusion both locally, and within the Clyde Valley more widely;

- if planning policies favour hard rock quarrying, preference should be given to small scale sites located away from prominent ridgelines and skylines;
- the temporary visual impacts of bings, processing plant and haul roads, together with any traffic and other effects of extraction and restoration (e.g. landfilling with domestic waste) should be considered in terms of the area's rural landscape character;
- mineral working should only be permitted where restoration proposals will result in the creation of a landscape that is integrated with that surrounding the site.

Transport: sensitivities and forces for change

5.6.17 A network of minor roads which wind, climb and descend in an informal manner are typical of this landscape. Many are lined by hedgerows and tree avenues and several pass the gate lodges and walls of country houses. The landscape would be sensitive to any road improvement works which removed these features or which introduced suburban signage or features such as kerbing. It would also be sensitive to any new road developments which did not respect the craggy and varied topography in their alignment and elevation. The complexity of the local landscape lends itself to the approach described in the Scottish Office document *Fitting roads* (Scottish Office, 1995).

Transport: planning and management guidelines

5.6.18 Guidelines for Rugged Upland Farmland include:

- conserve the existing character of the networks of minor country roads which wind through this landscape. Encourage the retention and positive management of field boundaries and field boundary trees along minor roads. Discourage upgrading schemes which would result in unsympathetic earthworks and intrusive rock cuttings to achieve more efficient alignments.

Development: sensitivities and forces for change

5.6.19 Development pressures in this area are focused on villages such as Kilmacolm and Bridge of Weir which have expanded to accommodate commuter settlement. Potentially, at least, the varied topography of this landscape type has the potential to accommodate limited expansion of settlements without significant landscape impacts over a wider area. The rural character of the area would be sensitive, however, to development in more prominent locations, or to a pattern of more dispersed residential development in the open countryside.

5.6.20 This landscape type has been significantly affected in some areas by infrastructure associated with the Glasgow conurbation. This includes a number of small reservoirs which sit relatively easily in the rugged landscape, and a concentration of tall structures including masts, pylons and other power equipment. Particularly where sited close to the northern edge of this area, these structures can have a significant and detrimental impact both on the Rugged Upland Farmland landscape character type and adjoining landscape types. In some areas the character of the landscape has already been significantly and adversely affected. It would be very sensitive to additional tall structures.

Development: planning and management guidelines

5.6.21 Guidelines for the Rugged Upland Farmlands include:

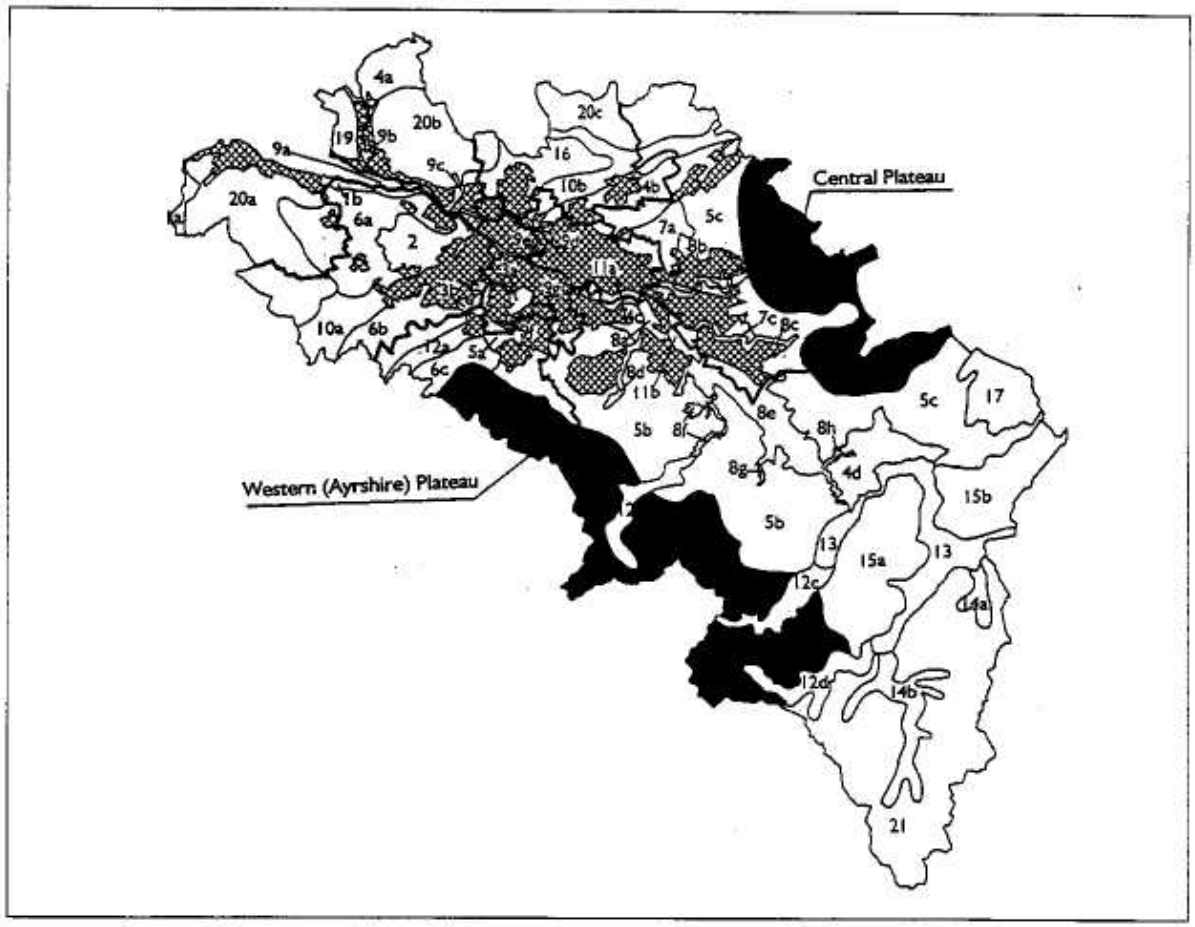
- the aim should be to conserve the rural character of these areas of Rugged Upland Farmland; developments should therefore generally be of a small scale and well sited so as to maximise the natural screening and integration provided by topographic and woodland variety; new residential development should, wherever possible, be located within existing settlements;
- designs and materials should, wherever possible, reflect traditional buildings in the area; typical patterns include stone or distempered harl with slate;
- large scale development is unlikely to be appropriate in this medium to small scale landscape type;
- new land uses that would result in the loss of traditional features, or the introduction of new features, should be discouraged, particularly in more prominent areas;
- tall structures such as communications masts or aerials should generally be discouraged except where there opportunities to provide a degree of backclothing; skylines along the southern edge of the Clyde Valley are particularly sensitive in this regard.

LANDSCAPE CHARACTER TYPES

Figure 5.5

1. **Fragmented Farmland** - Farmland near Calderbank.
2. **Green Corridors** - River Kelvin in Glasgow.
3. **Broad Valley Lowland** - View north across Lochwinnoch.
4. **Incised River Valley** - The North Calder Water near Calderbank.
5. **Broad Urban Valley** - Strathclyde Country Park and Hamilton.
6. **Upland River Valley** - Valley of the Douglas Water.

18 PLATEAU MOORLANDS



5.18.1 Plateau Moorlands occur in two parts of Glasgow and the Clyde Valley:

- 18a Central Plateau
- 18b Western (Ayrshire) Plateau

5.18.2 This landscape type occurs in the following local authority areas:

- North Lanarkshire
- South Lanarkshire
- East Renfrewshire

5.18.3 Both areas of Plateau Moorlands grow in scale as they approach the Southern Uplands. The moors along the Ayrshire Rim, for example, rise from about 300 metres near Barrhead in the north, to almost 600 metres in the south. Those along the Central Plateau rise from about 250 metres in the north to about 350 metres in the south.

5.18.4 These two moorland areas are distinguished geologically. The Ayrshire Rim is underlain by resistant basalts and tuffs. Rivers draining these hills tend to follow fault lines and

many have been glacially enlarged to form important lowland corridors through the moorlands. These valleys are described separately as Upland River Valleys.

5.18.5 The central plateau is dominated by coal measures, though a number of significant igneous intrusions and dykes (to the east of Airdrie for example) are present. The area is less faulted than the Ayrshire Rim, and river valleys, such as that of the North Calder and Luggie Water are much less significant features. Both areas have a number of waterbodies, many of them enlarged to provide water supplies for the Glasgow conurbation.

5.18.6 The Plateau Moorlands consist of blanket bog, heather and grass moorland. The topography is comparatively level with extensive plateau basins rising to soft contoured ridges. Farmland, often with wind bent trees and thorn hedges, extends onto the lower slopes, particularly on the Central Plateau where altitude and exposure is less extreme. The landscape is of an open, exposed and rather wild character despite occasional isolated hill farms, and sheep and cattle grazing. Mosses, comprising areas of extensive peatland form an important ecological and landscape component of the plateau moorlands. The Central Plateau also supports one of only two overwintering flocks of bean geese.

5.18.7 Settlement within these exposed landscapes has been historically sparse. Along the Ayrshire Rim, farmsteads, villages and towns usually favoured more sheltered valley locations. Although the same is generally true of the Central Plateau, the lower altitude, together with a series of important transport corridors linking Glasgow and Edinburgh means that settlement is more extensive. The moorlands provide long views across the Glasgow conurbation, emphasising the contrast between the remote upland and the developed lowlands.

5.18.8 Modern development in these areas takes a number of forms and can be very prominent in this otherwise open, expansive and simple landscape. Tall structures are often visible over a considerable distance. Examples include the dense cluster of communication masts and electricity pylons on the moorland ridge above Paisley, the communications mast on Ballageich Hill south of Newton Mearns, and the masts on either side of the M8 motorway near Harthill. Many of the villages in the area have grown incrementally over time.

5.18.9 The presence of coal reserves and, to a lesser extent, hard rock deposits, has had a major effect on the landscape within the Central Plateau area. Coal working has experienced a number of clear phases of development. Historically it would have been worked on a small scale with surface pits, drift mines and shallow pits. Up until recent decades, deep mining also took place, though this has been replaced by open-cast working, often on a very large scale. Cumulatively, these activities have had a major influence on the landscape in the form of bings and tips, areas of derelict land, operating open-cast workings (such as those to the south of Shotts) and associated industrial infrastructure including disused railway embankments. Hard rock quarries are also visible features in some areas. Several former extraction sites are now used for the landfilling of waste.

5.18.10 A subset of the Plateau Moorlands landscape type, Plateau Moorlands with Forest landscape type, occurs where significant afforestation has taken place. Both areas of plateau moorland have extensive conifer plantations. Examples along the Ayrshire Rim

include Whitelee Forest (which extends into Ayrshire) to the west of Strathaven and the plantations which cover Black Loch Moss, Nutberry Hill and the slopes of Cairn Table to the south. Examples on the Central Plateau include Kingshill Plantation above Carluke and Worm Law to the east. The afforestation has significantly modified the original character in terms of colour, textures and the length of views possible. However, there is a general lack of elevation which means that the forests create dark horizons, rather than being visible in their full extent. New plantations appear as dark speckled landscapes from a distance. The open ground and surrounding moorland contrasts in its mosaics of brown and ochre colours. The landscape has an exposed and remote character, although enclosure within the forests can be well defined.

Key landscape issues

5.18.11 Key landscape issues affecting this landscape type include:

- the prominence of any modern developments in this open upland landscape;
- the importance of striking a balance between large scale conifer plantations and open moorland;
- visual impact of tall structures including masts, pylons and wind turbines;
- the pressures for mineral extraction, particularly large scale open-cast working;
- the pressures for peat working in some areas;
- the marginal nature of agriculture where this extends onto the moorland plateau and the effect in terms of hedgerow maintenance;
- possible pressures for transport infrastructure improvements;
- potential presence of unrecorded archaeological sites which may be at risk from development/land use change.

MANAGING LANDSCAPE CHANGE

Key characteristics

5.18.12 The key characteristics, features and qualities of this landscape type are:

- distinctive upland character created by the combination of elevation, exposure, smooth, plateau landform, moorland vegetation and the predominant lack of modern development;
- these areas share a sense of apparent naturalness and remoteness which contrasts with the farmed and settled lowlands.

Landscape planning and management should aim to conserve the upland character of the Plateau Moorlands. New developments which introduce modern elements or which would undermine the sense of 'wildness' and remoteness should generally be resisted.

Trees and woodland: sensitivities and forces for change

5.18.13 Large parts of this landscape type have been subject to afforestation in the past, resulting in the creation of large-scale conifer plantations of uniform age and species composition. At a distance these can echo the gentle slopes of the Plateau Moorlands. More locally, however, they create enclosure and can obscure natural features such as gullies and burns, and human features such as walls and tracks. The expansion of coniferous woodland within this landscape type would further alter the balance between forested and open land, with an adverse effect on its character.

5.18.14 Modern forestry practice favours the creation of more natural patterns of planting when coniferous plantations reach the end of the current rotation. In many cases, newly planted forests include a higher proportion of broadleaves, particularly around the fringes, and are more closely related to the underlying landform. Within part of this area, the Central Scotland Forest Strategy places an emphasis on expanding farm woodlands, establishing commercial forestry on poorer quality farmland, and creating new woodlands on derelict mineral sites.

Trees and woodland: planning and management guidelines

5.18.15 Guidelines for this landscape type are as follows:

- encourage the management of existing coniferous plantations in the Plateau Moorlands with the aim of developing more natural shapes and achieving more varied age and species composition;
- discourage significant expansion of existing conifer plantations in order that the balance between planted and unplanted land remains broadly constant;
- where new planting does occur, encourage designs which reflect and articulate local variations in topography and avoid the obscuring of local features such as burns, gullies, walls or archaeological sites;
- encourage forest developments to retain broad open space corridors which respect areas of historic occupation and cultivation where these occur;
- there may be opportunities to encourage the regeneration or expansion of broadleaf woodland and scrub along burnsides and in gullies creating a closer integration of lowland woodland and the moorland landscape;
- support new woodland planting where appropriate to provide screening around land uses such as mineral extraction, and along the principal transport corridors.

Agriculture: sensitivities and forces for change

5.18.16 This landscape type would be sensitive to any attempts to improve the land for grazing, including drainage or reseeding operations. These are most likely to occur along the central plateau moorlands where lower elevation and exposure means that farmland and moorland are more intermixed. Improvement of land to provide additional pasture could result in a further blurring of the distinction between the upland and lowland areas.

5.18.17 On the other hand, the fringes of these uplands are characterised by farmland enclosed by hedges and drystone walls. The landscape type would be sensitive to any changes in agricultural practices which resulted in the further decline of these features.

Agriculture: planning and management guidelines

5.18.18 Guidelines for this landscape type are as follows:

- encourage the management of field boundaries where pastures extend onto the moorland areas, to conserve the contrast between farmland and open moorland; stone dykes should be conserved, and, where appropriate, field boundary trees managed or retained;
- agricultural improvements resulting in the further losses of moorland and mosses should be discouraged;
- support the enhancement of wildlife values through careful grazing regimes and heather management.

Minerals: sensitivities and forces for change

5.18.19 Much of this landscape type is underlain by worked coal reserves, many of which have potential for open-cast extraction. In the short term, this could result in the creation of uncharacteristic features including bunds, overburden and spoil bings which would be prominent in this otherwise gently sloping landscape. Mineral working can also result in the loss of local landscape features such as hedgerows, walls, streams and variations in topography and landcover. Although restoration is now a condition of all new mineral working consents, the resulting landscape can be overly bland and dislocated from its context. This landscape has the advantage that parts of it are relatively remote, and the landform is such that views over or into mineral workings are comparatively rare. The capacity of the landscape to accommodate such activity is closely related to the scale of working, the prominence of the site, the duration of operations, the quality of restoration works and the number of sites being worked in a given vicinity at any one time. Hardrock quarrying may have a more visible effect, creating open rock faces such as those which are visible near Harthill. The restoration of many mineral sites includes a phase of landfilling of waste, an activity which can generate its own impacts on the surrounding countryside (visual impacts, noise, odours and heavy goods vehicle traffic generation).

5.18.20 It is recognised that many features of past, smaller-scale mineral working now remain as important landscape features and components of local cultural heritage. While the overall aim may be to encourage reclamation and restoration, there may be instances where conservation is more appropriate.

5.18.21 Parts of this landscape type are subject to peat cutting to supply horticultural demand. When undertaken on an extensive basis, this activity has the potential to modify large tracts of landscape, and could affect areas of nature conservation importance. This landscape type would be sensitive to any significant extension of the areas subject to peat cutting.

Minerals: planning and management guidelines

5.18.22 Guidelines for this landscape type are as follows:

- discourage the concentration of mineral workings within limited areas or along particular routes where the result would be an unacceptable level of cumulative or sequential impact;
- encourage the siting of mineral workings so as to avoid locations where they would be particularly visible from higher ground or where they would intrude on neighbouring lowland areas;
- require the assessment of the visual and landscape effects associated with pits, overburden and spoil bings, processing plant and accommodation;
- assess impacts of further peat extraction on bog and moss habitats;
- encourage operators to adopt a 'restoration-led' approach which sets mineral working within the context of the end-use of the site; where land has previously become degraded, restoration should result in landscape enhancement and the establishment of positive landcover;
- encourage the use of detailed site surveys to identify landscape (and other) features of importance which should be conserved or which have potential for re-creation during restoration; the aim should be to restore the grain and character of the site's former appearance and to avoid overly bland restoration solutions;
- encourage the use of advance planting to screen the site during operation and to help tie it into the surrounding landscape framework on restoration;
- extensive peat workings should be assessed carefully in terms of the likely impact on landscape and other interests such as ecology and cultural heritage.

Transport: sensitivities and forces for change

5.18.23 These moorland areas form physical barriers between areas of settled lowland. A number of major routes including the A77, M8 and A8 cross the moors as a result. In visual terms, the road infrastructure fits relatively easily into the large scale landscape. However, the road corridors inevitably introduce movement, noise and, at night, light, into comparatively remote areas of countryside. As a result, the capacity of these areas to accommodate additional routes is limited.

5.18.24 Open-cast coal mining in this landscape type may provide an opportunity to re-utilise and restore old railway lines instead of using road haulage. Equally, it is possible that the removal or gradual loss of disused railway lines and associated structures will occur. This could diminish the heritage interest of the landscape and preclude their future reinstatement as communication routes.

Transport: planning and management guidelines

5.18.25 As noted above, major elements of transport infrastructure, particularly roads, can have a significant visual and landscape impact within the open areas of Plateau Moorland. Landscape planning and management should:

- ensure that new elements of infrastructure are designed to make maximum use of natural landform screening, and that, where appropriate, additional planting is provided to give screening and integration into the wider landscape;
- minimise the use of tall, vertical elements such as lights, signs, and overhead signs which could be intrusive features in the plateau landscape;
- within the wider road network, the incremental use of urban features such as signage, road markings and concrete kerbing should be resisted.

Development: sensitivities and forces for change

5.18.26 This landscape type is relatively free from other forms of built development. In places, however, housing (e.g. near Newton Mearns) and light industrial development (e.g. near Newhouse) threatens to encroach onto the lower fringes of the moors. The open nature of these areas means that this landscape type would be very sensitive to such development. Many villages have also experienced incremental growth.

5.18.27 These moorlands already accommodate tall structures such as masts and pylons. These are often visible over a considerable distance. Parts of the moorlands between the Clyde Basin and the Ayrshire Basin fall into the Preferred and Intermediate Areas for wind farms identified in the *Strathclyde structure plan* (Strathclyde Regional Council, 1995b). Given the open, horizontal and apparently wild character of these areas, the landscape would be sensitive to the concentration of wind farm development in this area. This would be particularly the case where cumulative impacts occurred or where the intrinsic undeveloped upland character was weakened.

Development: planning and management guidelines

5.18.28 Guidelines for this landscape type are as follows:

- discourage the encroachment of development into these otherwise unsettled areas;
- discourage the erection of additional masts or other tall structures within the hills;
- encourage operators to share infrastructure with the aim of minimising the number of masts that are needed;
- steer any new masts to sites where the landscape and visual impact is minimised;
- minimise the requirement for ancillary developments such as service roads or servicing buildings;

- wind energy developments in this area should be very carefully sited so as to minimise the visual and landscape impacts; where possible, developments should be located away from prominent ridgelines and skylines provided with a degree of backclothing; the open character of the landscape means that the potential to accommodate several wind power developments is likely to be limited; potential cumulative and sequential effects should be taken into account.

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LANDSCAPE CHARACTER TYPES

Figure 5.7

1. **Moorland Hills and Ridges** - Seen from east side of the Leven Valley.
2. **Rugged Moorland Hills** - Clyde Muirshiel.
3. **Southern Uplands** - Part of Culter Fell.

12.4 Consultation Register

HARELAW WINDFARM GRID CONNECTION – CONSULTATION REGISTER – FINAL January 2009

Number	Organisation	Contact	Consultation Type and Date	Response
1	Architecture and Design Scotland	Bakehouse Close 146 Canongate Edinburgh EH8 8DD 0131 556 6699	Posted letter and location plan on 12/07/07	
2	Association of District Fishery Boards (DSFB)	2 Hill Street Edinburgh EH2 3JZ 0131 226 4955	Posted letter and location plan on 12/07/07	
3	Association for the Protection of Rural Scotland	Gladstone's Land 3rd Floor 483 Lawnmarket Edinburgh EH1 2NT 0131 225 7012	Posted letter and location plan on 12/07/07	
4	Ayrshire Rivers Trust	Brian Shaw Donald Hendrie Building Auchincruive Estate Ayr KA6 5HW 01292 525 142	Posted letter and location plan on 12/07/07	
5	BAA	Michael Dowds The Administration Building St Andrews Drive Paisley PA3 2SW	Posted letter and location plan on 12/07/07	Response from: Lesley Duggan, Planning and Surface Access, BAA Safeguarding team, First Point, Buckingham Gate, Gatwick Airport, West Sussex RH6 ONT No objection to the Grid Connection but may object to the windfarm.
6	Biological Recording in Scotland	info@brisc.org.uk	Emailed letter and location plan figure on 13/07/07	
7	BT Wholesale	btwholesale.direct@bt.com	Emailed letter and location plan figure on 13/07/07	
8	British Trust for Ornithology	Jeremy Greenwood (Director) The Nunnery Thetford Norfolk IP24 2PU 01842 750050 / 750030 Email: info@bto.org	Posted letter and location plan on 12/07/07	E mail received 17/07/07 no info available without payment of initial search fee.

9	BTCV Scotland	Peter Blackburn Balallan House 24 Allan Park Stirling FK8 2QG 01786 479 697	Posted letter and location plan on 12/07/07	E mail received 16.08.07 Protect the landscape setting by placing cables underground.
10	Civil Aviation Authority	CAA House 45-59 Kingsway London WC2B 6TE T: 020 7379 7311	Posted letter and location plan on 12/07/07	Letter received 16/07/07 No concerns unless the project involves structures over 90m
11	Clyde River Foundation	Dr Willie Yeomans Division of Environmental and Evolutionary Biology Graham Kerr Building University of Glasgow Glasgow G12 8QQ. 0141 330 5080 / 5971 E: w.yeomans@bio.gla.ac.uk	Posted letter and location plan on 12/07/07	
12	Clyde Amphibian and Reptile Group (CARG)	c/o Kelvin Clyde Greenspace 229 George Street Glasgow G2 1DU 0141-287 6084 0141-287 9987 kc.greenspace@btopenworld.com.carg@supanet.com	Posted letter and location plan on 12/07/07	
13	Crown Estate	Alan Laidlaw 6 Bell's Brae Edinburgh EH4 3BJ 0131 260 6070	Posted letter and location plan on 12/07/07	
14	Defence Estates	Chris Evans Kingston Road Sutton Coldfield West Midlands B75 7RL 0121 311 2140	Posted letter and location plan on 12/07/07	
	Department for Environment, Food and Rural Affairs	Referred us to DTI		

15	Department for Business, Enterprise and Regulatory Reform (this is the new name for DTI)	Bob Proud Department for Business, Enterprise & Regulatory Reform 1 Victoria Street London SW1H 0ET 020 7215 5000	Posted letter and location plan on 12/07/07	
16	East Renfrewshire Council	Fiona Morrison Planning Department East Renfrewshire Council Headquarters Eastwood Park Rouken Glen Road Giffnock Glasgow G46 6UG	Posted letter and location plan on 12/07/07	10th Oct 07 Note Local Plan, SSSI, proposed improvement of public access to Neilston Pad and significant archaeological interest. Gas pipeline Safeguarding issues with Glasgow airport
17	Farming and Wildlife Advisory Group	Farming & Wildlife Advisory Group, Algo Business Centre, Glenearn Road, Perth, PH2 ONJ 01738 450500 / 450495 e-mail: scotland@fwag.org.uk	Posted letter and location plan on 12/07/07	
18	Forestry Commission	Nicholas Shepard Central Scotland Conservancy Bothwell House Hamilton Business Park Caird Park Hamilton ML3 0QA	Posted letter and location plan on 12/07/07	
65	Forestry Commission	Operations Manager (East Renfrewshire) Forestry Commission Scotland Silvan House Edinburgh EH12 7AT	Emailed letter on 02/08/07, following response from Nicholas Shepard (See Above)	
19	Friends of the Earth Scotland	Lamb's House Burgess Street Edinburgh EH6 6RD 0131 554 9977	Posted letter and location plan on 12/07/07	

20	FrogLife	9 Swan Court Cygnet Park Hampton Peterborough PE7 8GX 01733 558844 info@froglife.org	Posted letter and location plan on 12/07/07	
21	Glasgow Prestwick Airport	Gillian Watson Glasgow Prestwick Airport Aviation House Prestwick KA9 2PL 0871 223 0700	Posted letter and location plan on 12/07/07	
22	Health and Safety Executive	Sarah Hill HM Inspector of Health and Safety 375 West George Street Glasgow G2 4LW 0141 275 3096	Posted letter and location plan on 12/07/07	
23	Historic Scotland	Billy Kidd Room A3 Longmore House Salisbury Place Edinburgh EH9 1SH HS general enquiries - 0131-668 8600	Posted letter and location plan on 12/07/07	E mail 18/07/07 requesting extension of time to 14th August. Full response received 25/07/07. SAM at Duncarnock Fort. Impact on setting relevant for SAM's and A listed buildings. We should identify any listed buildings, historic gardens and designed landscapes using PastMap.
24	John Muir Trust	Helen McDade John Muir Trust Tower House Station Road Pitlochry PH16 5AN 01796 470080	Posted letter and location plan on 12/07/07	
25	Central Scotland Bat Group	No address. Contact: ifpascoe9@tiscali.co.uk	Emailed letter and location plan figure on 13/07/07	Email received 18/07/07 This is totally outwith their area
26	Clyde Mammal Recorder	Dr J.A. Gibson Scottish Natural History Library Foremont House Kilbarchan Renfrewshire PA10 2EZ 01505 702419	Posted letter and location plan on 12/07/07	

27	Botanical Society of the British Isles	Renfrewshire (76) Mr Keith Watson Lanarkshire (77) Dr Peter Macpherson Contact co-ordinator: alex@whildassociates.co.uk	Emailed letter and location plan figure on 13/07/07	
28	MLL Telecom Ltd	Medina House Fieldhouse Lane Marlow Buckinghamshire SL7 1TB 0870 241 7315	Posted letter and location plan on 12/07/07	
29	National Air Traffic Services	Sarah Allen Corporate and Technical Centre 4000 Parkway Whiteley Fareham Hants PO15 7FL General Enquiries: 01489 616001	Posted letter and location plan on 12/07/07	
30	NFU Scotland	Rural Centre - West Mains Ingliston Midlothian EH28 8LT 0131 472 4000	Posted letter and location plan on 12/07/07	
31	National Trust for Scotland	John Mayhew Wemyss House 28 Charlotte Square Edinburgh Scotland EH2 4ET 0131 243 9300	Posted letter and location plan on 12/07/07	
32	Ofcom	Steven Alexander Riverside House 2a Southwark Bridge Road London SE1 9HA 020 7981 3000	Posted letter and location plan on 12/07/07	
33	Ofgem	Regent Court 70 West Regent Street Glasgow G2 2QZ 0141 331 2678	Posted letter and location plan on 12/07/07	No comments or issues

34	Plantlife Scotland	Deborah Long Plantlife Scotland Balallan House Allan Park Stirling FK8 2QG 01786 478509/479382 scotland@plantlife.org.uk	Posted letter and location plan on 12/07/07	
35	Ramblers Association Scotland	Davie Black Kingfisher House Auld Mart Business Park Milnathort Kinross KY13 9DA 01577 861222	Posted letter and location plan on 12/07/07	Advise contacting the local authority access officer regarding the Core Path Plan. Preference for undergrounding of cables.
36	Reforesting Scotland	62-66 Newhaven Road Edinburgh EH6 5QB 0131 554 4321	Posted letter and location plan on 12/07/07	
37	Royal Society for the Protection of Birds Scotland	Zoe Clelland South and West Scotland Regional Office 10 Park Quadrant Glasgow G3 6BS 0141 331 0993	Posted letter and location plan on 12/07/07	Yvonne Boles 4.10.07 RSPB charges £50 + VAT per hour. Letter passed to ecology for guidance on cost. Check key species flight lines and avoid these. Surveys required for areas not covered by windfarm surveys.
66	Royal Society for the Protection of Birds Scotland	Clare Fergusson Admin Manager RSPB Scotland, South and West Region 10 Park Quadrant Glasgow G3 6BS	Posted letter and location plan on 03/08/07	
38	Scotland and Northern Ireland Forum for Environmental Research (SNIFFER)	Ruth Forstenholme First Floor Greenside House 25 Greenside Place Edinburgh EH1 3AA 0131 557 2140	Posted letter and location plan on 12/07/07	
39	Scottish Badgers	Dr J.A. Gibson Scottish Natural History Library Foremont House Kilbarchan Renfrewshire PA10 2EZ 01505 702419	Posted letter and location plan on 12/07/07	

40	Scottish Canoe Association	John Picken Caledonia House South Gyle Edinburgh EH12 9DQ 0131 3177314	Posted letter and location plan on 12/07/07	
41	Scottish Council for National Parks	Robert Maund The Barony 2 Glebe Road Kilbirnie Ayrshire KA25 6HX 01505 682447	Posted letter and location plan on 12/07/07	
42	Scottish Countryside Rangers Association	Roger Powell c/o The Pitcairn Centre Moidart Drive Coul Glenrothes Fife roger.powell1@tesco.net	Posted letter and location plan on 12/07/07	
43	Scottish Enterprise	Scottish Enterprise Energy Team 10 Queens Road Aberdeen AB15 4ZT	Posted letter and location plan on 12/07/07	
44	Scottish Executive	Scottish Executive Development Department Victoria Quay Edinburgh EH6 6QQ	Posted letter and location plan on 12/07/07	Planning Directorate responded and advised request had been circulated. Climate Change Division – ensure that there is no significant impact on the water environment (both surface and groundwater). Consult with SEPA. JMP Consulting on behalf of Transport Scotland – provide info in the ES on the wider impact of development related traffic along with requirements for any consequent mitigation Consider whether a transport assessment is required

45	Scottish Rural Property and Business Association	Jackie McCreery SRPBA Stuart House Eskmills Business Park Musselburgh EH21 7PB 0131 653 5400	Posted letter and location plan on 12/07/07	
46	Scottish Link	Scottish Environment LINK 2 Grosvenor House Shore Road Perth PH2 8BD 01738 630804	Posted letter and location plan on 12/07/07	
47	Scottish Natural Heritage	Dave Lang Caspian House Mariner Court Clydebank Business Park Clydebank G81 2NR 0141 951 4488 / 8948	Posted letter and location plan on 12/07/07	No designated sites for which SNH has an interest. SINCS are shown in the Local Plan 2 Landscape Character areas as shown in the Glasgow and Clyde Valley LCSA – Land Use Consultants – Rugged Upland Farmland and Plateau Moorland.
48	Scottish Native Woods	Gordon Gray-Stephens 1 Crieff Road Aberfeldy Perthshire Scotland PH15 2BJ 01887 820392	Posted letter and location plan on 12/07/07	No knowledge of the area but advised that any Ancient Semi Natural Woodlands would be avoided by the works. Check with the Forestry Commission.
49	Scottish Ornithological Club	Jim Wilson Waterston House Aberlady East Lothian EH32 0PY 01875 871 330/871 035 mail@the-soc.org.uk	Posted letter and location plan on 12/07/07	Hourly charges. Letter passed to ecology for guidance on cost. E-mailed 03/08/07 requesting details on Schedule 1 and Red/Amber list species.
50	Scottish Raptor Study Groups	Gordon Riddle gordon@riddle-kestrel.com	Emailed letter and location plan figure on 13/07/07	
51	Scottish Wild Land Group	Alistair Cant Hartington Place Bruntsfield Edinburgh EH10 4LE 0131 229 2094	Posted letter and location plan on 12/07/07	

52	Scottish Wildlife Trust	Paul Gallagher Cramond House Kirk Cramond Cramond Glebe Road Edinburgh EH4 6NS 0131 312 7765 / 8705	Posted letter and location plan on 12/07/07	Response from David Shenton, SWT, 6, St Ninians Rise, Kirkintilloch, Glasgow G66 3HU Flight hazard to birds mainly commorants flying between Loch Long and Brother Loch. Williams Hill SINC and James Hill SINC are valuable habitats
53	SEPA	Alistair Milne SEPA Corporate Office Erskine Court Castle Business Park Stirling FK9 4TR 01786 457700 / 446885	Posted letter and location plan on 12/07/07	Response from Dennis Kasap SEPA able to provide further comments on routeing options. SEPA should be kept informed and will provide additional guidance and more specific comment. - Issues: Water Framework Directive; pollution prevention; road and hard standing construction; environmental management; air quality; borrow pits(not Applicable) ; and nature conservation.
54	Sustrans	Glenorchy House 20 Union Street Edinburgh EH1 3LR 0131 539 8122	Posted letter and location plan on 12/07/07	
55	Visit Scotland	Ocean Point One 94 Ocean Drive Leith Edinburgh EH6 6JH 0131 472 2222	Posted letter and location plan on 12/07/07	
56	West of Scotland Archaeology Services (WoSAS)	West of Scotland Archaeology Services Charing Cross Complex 20 India Street Glasgow G2 4PF 0141 287 8330	Posted letter and location plan on 12/07/07	Response with details of GIS database records for the study area. Charge to be made for search.

57	Wildfowl and Wetlands Trust	WWT Caerlaverock Wetland Centre Eastpark Farm Caerlaverock Dumfriesshire Scotland, DGG 4RS. 0138 777 0200 / 0539 E: info.caerlaverock@wwt.org.uk	Posted letter and location plan on 12/07/07	WWT undertook a study of Whooper Swans at and around Glasgow Airport for Central Science Laboratory.
58	Woodland Trust Scotland	The Woodland Trust Scotland Glenruthven Mill Abbey Road Auchterarder Perthshire, PH3 1DP 01764 662554	Posted letter and location plan on 12/07/07	Five area of Ancient Woodland: NS495561 NS477551 NS496543 NS491538 NS495535 Asked to be kept informed of routeing proposals
59	WWF Scotland	David Dowie Panda House Weyside Park Godalming Surrey GU7 1XR 01483 426444	Posted letter and location plan on 12/07/07	
60	The Coal Authority	Albert Schofield The Coal Authority 200 Lichfield Lane Berry Hill Mansfield Nottinghamshire NH18 4RG	Posted letter and location plan on 12/07/07	No interest and no comment.
61	Transco (Now Scottish Gas Networks)	Samera Sikinder Transco 95 Kilbirnie Street Glasgow G5 8JD	Posted letter and location plan on 12/07/07	High Pressure Gas Transmission Pipelines in the site area. Check drawings in file for locations and comply with their publication 'Measures to be taken to protect plant'.
62	Scottish Water	Scottish Water Development Planning Team 419 Balmore Road Glasgow G22 6NU	Posted letter and location plan on 12/07/07	Response highlights need to protect SW assets in the area and lists precautions that should be taken.

63	Shell UK Ltd	Shell UK Ltd The Lands Office The Sidings Tebay Penrith Cumbria CA10 3XR	Posted letter and location plan on 12/07/07	No pipelines affected.
64	Scottish Executive Energy Department	John Gray Energy Consents Officer 2nd Floor Meridian Court 5 Cadogan Street Glasgow G2 6AT	Emailed letter and location plan on 01/08/07	Enterprise, Energy and Tourism Directorate, Energy and Telecommunications Division No comment at this stage
65	Forestry Commission Scotland	Operations Manager (East Renfrewshire) Silvan House, Edinburgh EH12 7AT	Posted letter and location plan on 02/08/07	E Mail response; Tommy.mcgrory@forestry.gsi.gov.uk . Tel no 01698 368530 Not able to undertake Constraints mapping until they have more information on routes.

12.5 Route Options Comparison Table

HARELAW WINDFARM GRID CONNECTION – ROUTE OPTION COMPARISON
For the purpose of this route option comparison, effect has been considered to be:

None	No detectable change
Minor	A detectable but non material change
Moderate	A material but non fundamental change
Major	A fundamental change to the environment

SUBSTATION 1	
Technical considerations	No known technical constraints
Landscape designations	There are no landscape designations.
Landscape Character	Rugged Upland Farmland. Situated at 227m. Situated in a small valley, the substation would have a good landscape fit.
Visual Issues	Potential affect on 1 receptor at Picketlaw (700m). Carswell Hill in background. Located in low area. Quite well hidden from roads and properties. Picketlaw benefits from the shelter and enclosure of deciduous woodland. Opportunity to tie screening planting into existing vegetation. Minor adverse effects.
Nature Conservation	The proposed substation is located 100m east of Carswell Hill SINC, (SINC 25 East Renfrewshire Council). Phase 1 surveys (2006) indicate the substation would be located on marshy grassland with a relatively local botanical value of 2 (1 Low – 5 High). Construction of substation would potentially result in the permanent loss of habitat, fragmentation of habitat, and have an effect upon habitat caused by alterations to drainage regimes. The loss of habitat would be permanent although small in scale. Otter surveys (2006) indicate otter activity throughout the study area. Bat surveys (2006) have shown that one bat species, the soprano pipistrelle (Pipistrellus pygmaeus) was identified foraging over the southern section of the study area and immediate surrounds. Research has shown that bats prefer broadleaved woodland and water bodies and habitats such as marshy grasslands are less favourable. The fact that no roosts would be affected by the proposed substation development means that the effect on bats is likely to be negligible. Badger surveys (2006) have shown activity throughout the proposed development area although no annex, subsidiary or outlier setts were identified within the study area of the proposed substation. Surveys indicated the presence of non-protected species throughout the southern section of study area including roe deer, foxes, stoat and weasels. There is likely to be temporary disturbance to mainly common faunal species on site (including badger and otter), during the construction phase including noise, dust and human presence. These effects would be short-lived and would be negligible. Therefore based upon habitat quality, the site for construction of proposed substation has a low/moderate local ecological value.
Archaeology	There are four sites within 100m of the proposed site. Three of these are of less than local importance and comprise two quarry pits excavated

	during construction of the adjacent road and 1 cairn/mound, possibly of natural origin. The remains of a pre-nineteenth century farmhouse building were identified at NGR: NS 4671 5308 during previous archaeological monitoring works.
Planning Policy and Development	Area lies within the Green Belt
Transport, Traffic and Existing Infrastructure	Close to local road
Recreation and Tourism	Informal walking along local road.
Agriculture	Situated in land classed as 4_1 capable of producing a narrow range of crops including forage crops and cereals for stock feed. Limited by climatic conditions.
SUBSTATION 2	
Technical considerations	No known technical constraints.
Landscape designations	There are no landscape designations.
Landscape Character	Rugged Upland Farmland/ Plateau Moorland. Located at 245m. Situated on a small rise to the west of Long Loch. Poor landscape fit.
Visual Issues	700m from Picketlaw , 400m from Moyne Farm and 1 outdoor receptor at Long Loch Positioned on open moorland with no backdrop or screening. Elevated position would be very visible and prominent. Exposed location would make it difficult to tie any new screen planting to and would appear out of character with the open moorland. Moderate adverse effects
Nature Conservation	Substation is located within the south-western section of Moyne Moor SINC (SINC 24 East Renfrewshire Council). The SINC is important for blanket bog, wet heath, mire, rush pasture and acidic grassland habitats. Moyne Moor is specifically mentioned in both Mire and Dwarf Shrub Heath Habitat Action Plans. Phase 1 surveys (2006) indicate the substation would be located on blanket bog which is in good condition. It has a relative local botanical value of 4/5 (1 Low – High 5), and reveals a good species assemblage including round-leaved sundew (Drosera rotundifolia), bog asphodel (Narthecium ossifragram), cranberry (Vaccinium oxycoccus) and papillose bog-moss (Sphagnum magellanicum). Sphagnum magellanicum is a good indicator that the habitat is in a relatively undisturbed/intact condition and therefore of particularly high conservation value in the local and possible regional context. Blanket Bog is a priority habitat in the Biodiversity Action Plan (UK BAP) and Annex 1 of the Habitats Directive. Construction of substation would potentially result in the permanent loss of habitat, fragmentation of habitat, and have an effect upon habitat caused by alterations to drainage regimes. The loss of habitat would be permanent although small in scale. Otter surveys (2006) indicate otter activity throughout the study area. Bat surveys (2006) have shown that one bat species, the soprano pipistrelle (Pipistrellus pygmaeus) was identified foraging over the southern section of study area and immediate surrounds. Research has shown that bats prefer broadleaved woodland and water bodies, although blanket bog may also provide favourable habitat. The fact that no roosts would be affected by the proposed substation development means that the effect on bats is likely to be negligible. Badger surveys (2006) have shown activity throughout the proposed development area although no annex, subsidiary or outlier setts were identified within the study area of proposed substation. Surveys indicated the presence of non-protected species throughout the southern section of study area including roe deer, foxes, stoat and

	weasels. There is likely to be temporary disturbance to mainly common faunal species on site (including badger and otter), during the construction phase including noise, dust and human presence. These effects would be short-lived and would be negligible. Therefore based upon habitat quality, the site for construction of the proposed substation has a high local ecological value.
Archaeology	A number of quarry pits associated with the road construction were identified within 100m of the proposed substation, these are of less than local importance. This proposed location is within an area potentially of archaeological sensitivity. Field walking to the north of the proposed location and south of Harelaw dam revealed artefacts of Prehistoric date including flints and pottery. In addition, approx 100m to the south of location 3, two Prehistoric burial cairns are known. This suggests that the area has good archaeological potential.
Planning Policy and Development	Site is in Green Belt. Site lies within a SINC.
Transport, Traffic and Existing Infrastructure	Close to local road.
Recreation and Tourism	Informal walking along local road, nearby tracks and woodland.
Agriculture	Situated in land classed as 6_3 suited only to rough grazing with poor quality plant communities. Wetness limitations.
SUBSTATION 3	
Technical considerations	No known technical constraints.
Landscape designations	There are no landscape designations.
Landscape Character	Plateau Moorland. Located at 242m. Situated at the edge of Moyne Moor to the west of Long Loch. Poor landscape fit.
Visual Issues	Potential effects on 1 outdoor receptor at Long Loch. Small mature forestry block provides screening but otherwise in an open moorland area. Well hidden from the roads and properties but visible from the loch. Moderate adverse effects.
Nature Conservation	The proposed substation is located within the south-western section of Moyne Moor SINC (SINC 24 East Renfrewshire Council). The SINC is important for blanket bog, wet heath, mire, rush pasture and acidic grassland habitats. Moyne Moor is specifically mentioned in both Mire and Dwarf Shrub Heath Habitat Action Plans. Phase 1 surveys (2006) indicate the substation would be located on a wet modified bog which has a relative local botanical value of 4/5 (1 Low – High 5). Wet modified bog fragments occur in several areas across the study area but are small and fragmented, being found only along Long Loch and above White Loch. The habitat is dominated by Vaccinium oxycoccus and Narthecium ossifragrum. Wet modified bog is a component habitat of Blanket Bog which is a priority habitat in the Biodiversity Action Plan (UK BAP) and Annex 1 of the Habitats Directive. Construction of substation would potentially result in the permanent loss of habitat, fragmentation of habitat, and have an effect upon habitat caused by alterations to drainage regimes. The loss of habitat would be permanent although small in scale. Otter surveys (2006) indicate otter activity throughout the study area. Bat surveys (2006) have shown that one bat species, the soprano pipistrelle (Pipistrellus pygmaeus) was identified foraging over the southern

	section of study area and immediate surrounds. Research has shown that bats prefer broadleaved woodland and water bodies, although wet modified bogs may also provide favourable habitat. The fact that no roosts would be affected by the proposed substation development means that the effect on bats is likely to be negligible. Badger surveys (2006) have shown activity throughout the proposed development area although no annex, subsidiary or outlier setts were identified within the study area of proposed substation. Surveys indicated the presence of non-protected species throughout the southern section of study area including roe deer, foxes, stoat and weasels. There is likely to be temporary disturbance to mainly common faunal species on site (including badger and otter) during the construction phase, including noise, dust and human presence. These effects would be short-lived and effects would be negligible. Therefore based upon habitat quality, the site for construction of the proposed substation has a relatively high local ecological value.
Archaeology	A Post Medieval farmstead and evidence of associated agricultural earthworks are located 100m to the south east of the proposed location alongside the Loch. Two burial cairns/ cists are known north of the proposed location. This may indicate further prehistoric activity in the area.
Planning Policy and Development	Area lies within the Green Belt. Area lies within a SINC.
Transport, Traffic and Existing Infrastructure	Close to local road.
Recreation and Tourism	Informal walking along nearby tracks and woodland. Private fishing on nearby loch.
Agriculture	Situated in land classed as 6_3 suited only to rough grazing with poor quality plant communities. Wetness limitations.
SUBSTATION 4	
Technical considerations	No known technical constraints.
Landscape designations	There are no landscape designations.
Landscape Character	Plateau Moorland. Located at 240m. Situated on a small rise to the west of Long Loch. Poor landscape fit.
Visual Issues	Potential effects on 2 outdoor receptors at Harelaw Dam and Long Loch. Small mature forestry strip provides some screening but otherwise in an open moorland area. Visible from the loch, although the forestry would provide a backdrop to views. Moderate adverse effects.
Nature Conservation	Substation is located within the north-western section of Moyne Moor SINC (SINC 24 East Renfrewshire Council). The SINC is important for blanket bog, wet heath, mire, rush pasture and acidic grassland habitats. Moyne Moor is specifically mentioned in both Mire and Dwarf Shrub Heath Habitat Action Plans. Phase 1 surveys (2006) indicate the substation would be located on unimproved acid grassland which has a relative local botanical value of 3/4 (1 Low – High 5). Unimproved acid grassland is frequent throughout the study area and the habitat can be particularly rich in species. Construction of substation would potentially result in the permanent loss of habitat, fragmentation of habitat, and have an effect upon habitat caused by alterations to drainage regimes. The loss of habitat would be permanent although small in scale. Otter surveys (2006) indicate otter activity throughout the study area.

	Bat surveys (2006) have shown that one bat species, the soprano pipistrelle (Pipistrellus pygmaeus) was identified foraging over the southern section of study area and immediate surrounds. Research has shown that bats prefer broadleaved woodland and water bodies and habitats such as unimproved acid grasslands are less favourable. The fact that no roosts would be affected by the proposed substation development means that the effect on bats is likely to be negligible. Badger surveys (2006) have shown activity throughout the proposed development area although no annex, subsidiary or outlier setts were identified within the study area of proposed substation. Surveys indicated the presence of non-protected species throughout the southern section of study area including roe deer, foxes, stoat and weasels. There is likely to be temporary disturbance to mainly common faunal species on site (including badger and otter), during the construction phase including noise, dust and human presence. These effects would be short-lived and effects would be negligible. Therefore based upon habitat quality, the site for construction of the proposed substation has a moderate local ecological value.
Archaeology	A shepherds cairn and stone mound are known 100m from location 6. In addition, to the east of location 5, field-walking produced evidence of flint-knapping and shards of Bronze Age Pottery.
Planning Policy and Development	Area lies within the Green Belt. Area lies within a SINC.
Transport, Traffic and Existing Infrastructure	Close to local road.
Recreation and Tourism	Informal walking along nearby tracks and woodland. Private fishing on nearby loch.
Agriculture	Situated in land classed as 6_3 suited only to rough grazing with poor quality plant communities. Wetness limitations.
SUBSTATION 5	
Technical considerations	No known technical constraints.
Landscape designations	There are no landscape designations.
Landscape Character	Rugged Upland Farmland. Located at 235m. Situated on a hill above Harelaw Dam. Poor landscape fit.
Visual Issues	Rolling ground would provide screening from the road but would be visible from The Moyne, the footpath to Lochend Hill and from Harelaw Dam, which is used for recreational fishing. Open hillside has no established vegetation to tie screen planting to. Major adverse effects.
Nature Conservation	Substation is located 200m west of Long Loch and Harelaw Dam SINC. Phase 1 surveys (2006) indicate the substation would be located on unimproved neutral grassland which has a relative local botanical value of 3 (1 Low – High 5). Construction of substation would potentially result in the permanent loss of habitat, fragmentation of habitat, and have an effect upon habitat caused by alterations to drainage regimes. The loss of habitat would be permanent although small in scale. Otter surveys (2006) indicate otter activity throughout the study area. Bat surveys (2006) have shown that one bat species, the soprano pipistrelle (Pipistrellus pygmaeus) was identified foraging over the southern section of study area and immediate surrounds. Research has shown that bats prefer broadleaved woodland and water bodies and habitats

	such as unimproved neutral grasslands are less favourable. The fact that no roosts would be affected by the proposed substation development means that the effect on bats is likely to be negligible. Badger surveys (2006) have shown activity throughout the proposed development area although no annex, subsidiary or outlier setts were identified within the study area of proposed substation. Surveys indicated the presence of non-protected species throughout the southern section of study area including roe deer, foxes, stoat and weasels. There is likely to be temporary disturbance to mainly common faunal species on site (including badger and otter), during the construction phase including noise, dust and human presence. These effects would be short-lived and effects would be negligible. Therefore based upon habitat quality, the site for construction of proposed substation has a low/moderate local ecological value.
Archaeology	No sites were identified within 100m of this location.
Planning Policy and Development	Area lies within the Green Belt. Area lies within a SINC.
Transport, Traffic and Existing Infrastructure	Close to local road.
Recreation and Tourism	Informal walking along nearby tracks and woodland. Private fishing on nearby loch.
Agriculture	Situated in land classed as 4_1 capable of producing a narrow range of crops including forage crops and cereals for stock feed. Limited by climatic conditions.
SUBSTATION 6	
Technical considerations	No known technical constraints.
Landscape designations	There are no landscape designations.
Landscape Character	Plateau Moorland. Located at 230m. Situated at the base of Lochend Hill between Long Loch and Harelaw Dam. Good landscape fit.
Visual Issues	Rolling topography and Lochend Hill would provide screening from nearby properties and road, but site is open moorland with no significant vegetation to tie screen planting to. Would be visible from the footpath around Lochend Hill, from Long Loch and Harelaw Dam, which is used for recreational fishing. Moderate adverse effects.
Nature Conservation	The proposed substation is located within the north-eastern section of Moyne Moor SINC (SINC 24 East Renfrewshire Council). The SINC is important for blanket bog, wet heath, mire, rush pasture and acidic grassland habitats. Moyne Moor is specifically mentioned in both Mire and Dwarf Shrub Heath Habitat Action Plans. Phase 1 surveys (2006) indicate the substation would be located on unimproved acid grassland which has a relative local botanical value of 4 (1 Low – High 5). Unimproved acid grassland is frequent throughout the area and the habitat can be particularly rich in species. Construction of substation would potentially result in the permanent loss of habitat, fragmentation of habitat, and have an effect upon habitat caused by alterations to drainage regimes. The loss of habitat would be permanent although small in scale. Otter surveys (2006) indicate otter activity throughout the site, with activity being specifically recorded at the eastern end of Harelaw Dam which is close to substation 7.

	One bat species, the soprano pipistrelle (Pipistrellus pygmaeus) was identified foraging over the southern section of site and immediate surrounds. Research has shown that bats prefer broadleaved woodland and water bodies and habitats such as unimproved acid grasslands are less favourable. The fact that no roosts would be affected by the proposed substation development means that the effect on bats is likely to be negligible. Badger surveys have shown activity throughout the proposed development area although no annex, subsidiary or outlier setts were identified within the area of proposed substation. Surveys indicated the presence of non-protected species throughout the southern section of proposed development area including roe deer, foxes, stoat and weasels. There is likely to be temporary disturbance to mainly common faunal species on site (including badger and otter), during the construction phase including noise, dust and human presence. These effects would be short-lived and effects would be negligible. Therefore based on habitat quality the site has a moderate/high local ecological value.
Archaeology	Four sites are located close to location 7. A clearance cairn, sheepfold, farmstead and shieling. All of these sites are considered to be of local importance.
Planning Policy and Development	Area lies within the Green Belt. Area lies within a SINC.
Transport, Traffic and Existing Infrastructure	Distant from local roads.
Recreation and Tourism	Informal walking along nearby tracks and woodland. Private fishing on nearby loch.
Agriculture	Situated in land classed as 5_3 suited only to improved grassland with limited capacity for stock density due to wetness limitations.
ROUTE A	
Technical considerations	Approx. 4064m long. Potential construction difficulties due to the presence of rock outcrops and steeply undulating ground.
Landscape designations	There are no landscape designations.
Landscape Character	Rugged Upland Farmland. Poor landscape fit running across Carswell Hill and over rocky outcrops and steeply undulating ground.
Visual Issues	Passes approx. 160m from Nether Carswell, 245m from Commore, 317m from Neilstonside, 18m from the Scottish Water Neilston Treatment Works and 46m from the Waterworks Cottages. Will also be within 65m of properties on Glen Falloch Crescent and within 90m of properties on Craig Road at the edges of Neilston. Line would run across Carswell Hill, which would be visible from the surrounding properties and roads. Would be running adjacent to the local road running south from Neilston (Kingston Road). Already a line of telegraph poles along part of the road, which would potentially increase the apparent scale of the wood poles. Established and newly restocked plantation woodland adjacent to the road would form a backdrop to the line as it runs beside the road. As it runs past Craighall Dam and Craig of Neilston the line would need to cross rocky outcrops and small ridgelines which would be visibly prominent, with potential construction issues. Existing woodland set back from the road after line passes the water treatment works to the south of Neilston, which would make poles prominent in views. Visible from houses at the edge of the settlement. Two angle changes of more than 30 deg would require larger structures. Route A would be highly visible along all sections of the route, which would have a moderate to major adverse visual effect on the area.

Nature Conservation	The proposed route A grid connection extends from proposed substation 1, located on the northern boundary of Carswell Hill SINC, (SINC 25 East Renfrewshire Council). From Carswell Hill SINC, route A passes northwards through fields of improved grassland of low local botanical (1) and ecological value (1 Low – 5 High), bisecting Levern Water, Harelaw SINC (SINC 27 East Renfrewshire Council). The burn within this SINC is important for linking and supporting diverse habitats creating a wildlife corridor of high local ecological interest. However route A only passes through a short section of the SINC, of mainly marshy grassland habitat of moderate local ecological value. Route A then proceeds through a short section of coniferous plantation of low ecological value and through several fields of improved grassland of low local ecological value and a conifer plantation of low local ecological value until connecting with national grid. The proposed grid connection along route A would consist of overhead cables on wooden poles. During the construction period there would potentially be a temporary effect upon the habitats crossed by route A, although it would be negligible in significance. Faunal surveys (2006) indicate activity from a number of species including badgers, otters, soprano bats, roe deer, foxes, stoat and weasels within the study area. Construction of route A may result in temporary disturbance of these groups including noise, dust and human presence, but these effects would be short-lived and negligible. Route A would pass mainly through habitats of low local ecological value and have potential negligible effect upon faunal groups. Compared to the other route options proposed, it provides the route of least local ecological effect upon associated features within the study area.
Archaeology	There are only Local and less than local sites in the vicinity of this route. Much of the area was surveyed during a pre-afforestation walkover survey and the known sites are post medieval in date and agricultural.
Planning Policy and Development	Route lies within the Green Belt. Route passes through a SINC.
Transport, Traffic and Existing Infrastructure	Directly adjacent to local road.
Recreation and Tourism	Informal walking and picnic facilities at Neilston Pad, Craighall Dam used for private fishing
Agriculture	The Macauley Institute land capability grading indicates the proposed route would pass over land in the following ranges: - Approximately 40% of the route passes through land classed as 5_1 suitable for rough grassland; - Approximately 45% of the route passes through land classed as 4_1 suitable for a narrow range of crops (approx. 50% of this is planted as woodland as the route passes adjacent to Kingston Road to the north); - Approximately 15% of the route passes through land classed as 5_3 suitable for rough grassland with limited stock densities (this is planted as woodland and is adjacent to Kingston Road to the north of the route).
ROUTE B	
Technical considerations	Approx 3752m long. Potential construction difficulties due to the presence of rock outcrops and steeply undulating ground.
Landscape designations	There are no landscape designations.
Landscape Character	Rugged Upland Farmland. Poor landscape fit running passing directly west of Craighall Dam and over rocky outcrops and steeply undulating ground.
Visual Issues	Passes approx. 155m from Nether Carswell, 160m from Carswell and 58m from Craig Cottage. Will also be within 344m of properties on Glen Falloch Crescent and within 275m of properties on Craig Road at the edges of Neilston. Line would run across north-eastern slope of Carswell Hill, but position on lower slopes would reduce visual prominence and scale of the

	poles. When the line turns north-east and runs near to the local road running south from Neilston, it would be running through the established and newly restocked plantation woodland around Neilston Pad – the woodland would help to provide screening on the wood poles once it develops. The route would need to cross several small rocky outcrops to the north of Craighall Dam and would be visually prominent from the road, with potential construction issues. Route would continue northeast across the hillside, cutting through the newly restocked woodland to the east of the Scottish Water treatment works and across open farmland to the south of Neilston. Would be visible from several dwellings at the edge of Neilston as it runs down the northern slope of the Craig of Neilston and across the farmland to the south of the settlement. One angle change of 22 deg and two changes of more than 15 deg would require larger structures. From Carswell Hill to Craighall Dam, route B would have a slightly reduced visual effect due to the local topography and developing woodland, which would have a minor/moderate adverse effect. However, the position of the stretch of the route across the rocky outcrops near the road would be highly visible and would have a moderate adverse effect, which would continue for the final stretch of the route as it crosses the open farmland near Neilston.
Nature Conservation	The proposed route B grid connection extends from proposed substation 1, located on the northern boundary of Carswell Hill SINC, (SINC 25 East Renfrewshire Council). From Carswell Hill SINC, route B passes northwards through a field of improved grassland of low local botanical and ecological value, bisecting the second section of Carswell Hill SINC. It then passes through Levern Water, Harelaw SINC (SINC 27 East Renfrewshire Council) which contains a burn which is important for linking and supporting diverse habitats creating a wildlife corridor of high ecological interest. However, route B only passes through a short section of the SINC, of mainly marshy grassland habitat of moderate local ecological value. Route B then proceeds through several short sections of coniferous plantation of low ecological value and through several fields of semi-improved neutral grassland of low/moderate local ecological value before connecting with national grid. The proposed grid connection along route B would consist of overhead cables on wooden poles. During the construction period there would potentially be a temporary effect upon the habitats crossed by route B, although it would be negligible in significance. Faunal surveys (2006) indicate activity from a number of species including badgers, otters, soprano bats, roe deer, foxes, stoat and weasels within the study area. Construction of route B may result in temporary disturbance of these groups including noise, dust and human presence, but these effects would be short-lived and negligible. Route B would pass mainly through habitats of low local ecological value and have potential negligible effect upon faunal groups. It provides a route of low local ecological effect upon associated features within the study area.
Archaeology	There are only Local and less than local sites surrounding this route with only one designated site of local importance within 200m. Much of the area was surveyed during a pre-afforestation survey and the known sites are mainly post medieval in date and agricultural.
Planning Policy and Development	Route lies within the Green Belt. Route passes through 3 SINC's.
Transport, Traffic and Existing Infrastructure	Close to local road.
Recreation and Tourism	Informal walking and picnic facilities at Neilston Pad, Craighall Dam used for private fishing.
Agriculture	The Macauley Institute land capability grading indicates the proposed route would pass over land in the following ranges: - Approximately 90% of this route passes through land classed as 5_1 suitable for rough grassland (approx. 60% of this is planted as woodland to the north);

	- Approximately 10% passes through land classed as 4_1 suitable for a narrow range of crops (adjacent to a reservoir).
ROUTE C	
Technical considerations	Approx. 3428m long. Potential construction difficulties due to the presence of a gas main on the early section of the route, as well as rock outcrops and steeply undulating ground.
Landscape designations	There are no landscape designations.
Landscape Character	Rugged Upland Farmland. In the first section to Harelaw the route would have a good landscape fit. The northern half of the route crosses the western slopes of Neilston Pad.
Visual Issues	Passes approx. 199m from Carswell, 194m from Moyne Farm, 194m from The Moyne, 159m from Harelaw, 76m from Craig Cottage and 100m from Craig of Neilston. Line would follow a slight valley to the east of Carswell Hill as it leaves the substation, which would help to reduce the sense of scale of the poles. Would be visible from the local road and surrounding properties but the position on lower ground would stop the line from dominating views. After the line passes Harelaw it would be running through the established and newly restocked plantation woodland which would help to provide screening and reduce the apparent scale of the poles as the woodland develops. Would be running across the western side of Neilston Pad at the top of the steep slope, which would be highly visible across the wider area. Potential construction issues as it crosses rocky ground. Would pass within 75m of Craighall Dam and would be intrusive on any recreational activities on the loch. Line would be visible from several walking routes around Neilston Pad and would cross the paths twice. Would pass between Craig Cottage and Craig of Neilston, and cross the access track to the properties before running across the adjacent open farmland, where it would be visible from properties at the edge of Neilston. Route would require five angle changes of between 5 and 13 deg which would require slightly larger structures. Between the slopes of Carswell Hill and Harelaw, route C would be partially hidden by local topography which would limit the visual effect to minor/negligible adverse. The second half of the route would have increased visibility within the landscape, particularly as it crosses Neilston Pad and the open farmland to the south of the settlement. While the developing woodland would help to provide some screening, the visual effect would be moderate adverse.
Nature Conservation	The proposed route C grid connection extends from proposed substation 1, located in a field of improved grassland of low local botanical and ecological value and passes through marshy grassland with a relative local botanical value of 2 (1 Low – 5 High). It then passes through several fields of improved grassland of low local botanical and ecological level and through a conifer plantation of low local ecological value. Route C then proceeds through Neilston Pad and Craig of Neilston SINC (SINC 32 East Renfrewshire Council) passing through a field of improved grassland of low local ecological value before connecting to national grid. The proposed grid connection along route C would consist of over head cables on wooden poles. During the construction period there would potentially be a temporary effect upon the habitats crossed by route C, although it would be negligible in significance. Faunal surveys (2006) indicate activity from a number of species including badgers, otters, soprano bats, roe deer, foxes, stoat and weasels within the study area. Construction of route C may result in temporary disturbance of these groups including noise, dust and human presence, but these effects would be short-lived and negligible. Route C would pass mainly through habitats of low ecological value and have potential negligible effect upon faunal groups. It provides the route with low/moderate local ecological effect upon associated features within the study area.

Archaeology	There are only Local and less than local sites surrounding this route with only one designated site of local importance within 200m. Much of the area was surveyed during a pre-afforestation survey and the known sites are mainly post medieval in date and agricultural.
Planning Policy and Development	Route lies within the Green Belt. Route passes through 1 SINC.
Transport, Traffic and Existing Infrastructure	Close to local road.
Recreation and Tourism	Informal walking and picnic facilities at Neilston Pad, Craighall Dam used for private fishing
Agriculture	The Macauley Institute land capability grading indicates the proposed route would pass over land in the following ranges: - Approximately 50% of the route passes through land classed as 5_1 suitable for rough grassland; - Approximately 35% of the route passes through land classed as 4_1 suitable for a narrow range of crops, (currently planted as woodland); - Approximately 15% of the route passes through woodland in an area of land classed as 4_2 suitable primarily for grassland (approx. 50% of this is planted as woodland north of the Harelaw Dam Road).
ROUTE D	
Technical considerations	Approx. 3059m long to Substation 5, 4037m long to Substation 3. Crossing of Harelaw Dam.
Landscape designations	There are no landscape designations.
Landscape Character	Rugged Upland Farmland/ Plateau Moorland. The route would have a poor landscape fit as it crosses open moorland and Harelaw Dam.
Visual Issues	Passes approx. 238m from Moyne Farm, 157m from The Moyne, 130m from the Harelaw Dam fishing facility hut, 254m from Snypes, 268m from Craig of Neilston and 232m from Loanfoot. From substation 3 the line would be crossing open moorland to the east of the local access road, with no landscape elements to provide a backdrop to the line and minimise the scale of the poles. Would cut through a mature forestry belt behind Moyne Farm. Line would run adjacent to the western side of Harelaw Dam, which is used for fishing and recreation, which would effect upon the visual amenity of the waterbody. Requires a 205m span over Harelaw Dam. Line from substation to the edge of Harelaw Dam would be running across a SINC. From the northern side of Harelaw Dam the line would be running across rolling, open moorland. The line would then enter the established and newly restocked plantation woodland that runs around the eastern side of Neilston Pad, which would help to provide screening and reduce the apparent scale of the poles as the new woodland matures. It would run below the steep eastern face of Neilston Pad and a stand of Ancient Woodland, which would provide a strong backdrop to the line and prevent the poles from dominating the views. Line continues through the restocked plantation woodland on Barr Hill, passing to the west of Snypes Dam, which is used for fishing. The route would be visible from the amenity facility and from walking routes through the woodland, but the woodland would help to provide screening and reduce the apparent scale of the poles as it matures. Route would continue north across open farmland to the southeast of Neilston. Would be partially screened from Neilston by an existing stand of trees near the settlement. Route would require one angle change of 16 deg and one of 9 deg which would require slightly larger structures. Route D would have significant visual effects upon the landscape as it crosses Moyne Moor and runs past Harelaw Dam due to its exposed position on higher ground, and would have major adverse effects along the first half of the route. When the line moves into the woodland and runs around the eastern side of Neilston Pad the visual effects would reduce due to the screening provided by the woodland and topography, with effects decreasing to minor adverse. Northern end of route would be crossing open farmland but would have minimal visual impact due to screening provided by established woodland areas.
Nature Conservation	The proposed route D grid connection extends from proposed substation 3, which is located within the south-western section of Moyne Moor

	SINC (SINC 24 East Renfrewshire Council). The SINC is important for blanket bog, wet heath, mire, rush pasture and acidic grassland habitats. Moyne Moor is specifically mentioned in both Mire and Dwarf Shrub Heath Habitat Action Plans. Phase 1 surveys (2006) indicate the substation would be located on a wet modified bog which has a relative local botanical value of 4/5 (1 Low – High 5). Wet modified bog fragments occur in several areas across the study area but are small and fragmented, being found only along Long Loch and above White Loch. Wet modified bog is a component habitat of Blanket Bog which is a priority habitat in the Biodiversity Action Plan (UK BAP) and Annex 1 of the Habitats Directive. Route D passes through several habitats of high local botanical and ecological value including marshy grassland, unimproved grassland, unimproved neutral grassland and blanket bog in addition to a conifer plantation of low local ecological value. The overhead line then passes over Long Loch and Harelaw Dam SINC and through a field of improved grassland of low local ecological value and through a conifer plantation of low local ecological value, before connecting to national grid. The proposed grid connection along route D would consist of overhead cables on wooden poles. During the construction period there would potentially be a temporary effect upon the habitats crossed by route D, although it would be negligible in significance. Faunal surveys (2006) indicate activity from a number of species including badgers, otters, soprano bats, roe deer, foxes, stoat and weasels within the study area. Construction of route D may result in temporary disturbance of these groups including noise, dust and human presence, but these effects would be short-lived and negligible. Route D would pass mainly through habitats of moderate/high local ecological value and have potential negligible effect upon faunal groups. It provides a route of high local ecological effect upon associated features within the study area (conifer plantation of low local ecological value).
Archaeology	Much of this route was surveyed during a pre-afforestation survey and the known sites are mainly agricultural and post medieval in date. However, there are also areas where Prehistoric artefacts were discovered indicating that this route contains areas with good archaeological potential.
Planning Policy and Development	Route lies within the Green Belt. Route passes through a SINC.
Transport, Traffic and Existing Infrastructure	Close to local road.
Recreation and Tourism	Informal walking and picnic facilities at Neilston Pad, Line crosses the edge of Harelaw Dam used for private fishing.
Agriculture	The Macauley Institute land capability grading indicates the proposed route would pass over land in the following ranges: - Approximately 40% of the route passes through land classed as 5_1 suitable for rough grassland (approx 75% of this is planted as woodland to the north of the route); - Approximately 30% of the route passes through land classed as 4_1 or 4_2 suitable for a narrow range of crops or grassland (planted as woodland to the north of the route); - Approximately 20% of the route also passes through land classed as 6_3 suitable for low quality rough grazing (approx 25% of this is planted as woodland to the south of Harelaw Dam); - Approximately 10% passes through an area of land classed as 5_3 suitable for rough grassland.

ROUTE E	
Technical considerations	Approx. 3862m long. No known constraints. Route would cross over Harelaw Dam.
Landscape designations	There are no landscape designations.
Landscape Character	Rugged Upland Farmland/ Plateau Moorland, The route would have a poor landscape fit as it would cross open moorland and farmlands.
Visual Issues	Passes approx. 237m from West Walton, 230m from High Walton, 188m from Low Walton, 194m from North Walton, 234m from Muirhead and 196m from Loanfoot. Line would be running across open moorland to the south of Harelaw Dam, which would have an effect on the visual amenity of the waterbody, which is used for fishing. Would cross the footpath to Lochend Hill, which would effect upon the views from the walking route. Would require a 166m span over Harelaw Dam but at the quieter eastern arm of the loch. Between the substation and the southern slopes of Straun Hill the line would be running through a SINC. Continues across rolling farmland around Straun Hill, which is very open and exposed, with no significant landscape elements to provide a backdrop to the line and reduce the apparent scale of the poles. Would run between several properties to the east of Neilston Pad. Would cut across a line of telegraph poles that run adjacent to the access road to Snypes, which would potentially increase the apparent scale of the wood poles. Route would run across the lower hills to the west of Dyke Hill, which would be visible from properties around the edge of Neilston near the eastern skyline. Requires one angle change of 46 deg which would require several larger structures, and one of 15 deg and two minor changes of 6 and 7 deg which would require slightly larger structures. Route E would have significant visual effects along the length of the line due to the exposed nature of the moorland and farmland it crosses, which would have moderate to major adverse effects.
Nature Conservation	The proposed route E grid connection extends from proposed substation 4, located within the north-western section of Moyne Moor SINC (SINC 24 East Renfrewshire Council). The SINC is important for blanket bog, wet heath, mire, rush pasture and acidic grassland habitats. Moyne Moor is specifically mentioned in both Mire and Dwarf Shrub Heath Habitat Action Plans. Phase 1 surveys (2006) indicate the substation would be located on unimproved acid grassland which has a relatively local botanical value of 3/4 (1 Low – High 5). Route E passes through several habitats of high local botanical and ecological value including marshy grassland, unimproved grassland and blanket bog. The overhead line then passes over Long Loch and Harelaw Dam SINC and through several fields of marshy grasslands of moderate local ecological value contained within William's and James' Hills SINC, before passing through several fields of improved grasslands of low local ecological value before connecting to the national grid. The proposed grid connection along route E would consist of over head cables on wooden poles. During the construction period there would potentially be a temporary effect upon the habitats crossed by route E, although it would be negligible in significance. Faunal surveys (2006) indicate activity from a number of species including badgers, otters, soprano bats, roe deer, foxes, stoat and weasels within the study area. Construction of route E may result in temporary disturbance of these groups including noise, dust and human presence, but these effects would be short-lived and negligible. Route E would pass mainly through habitats of moderate/high local ecological value and have potential negligible effect upon faunal groups. It provides a route of high local ecological effect upon associated features within the study area.
Archaeology	Much of this route was surveyed during a pre-afforestation survey and the known sites are mainly agricultural and post medieval in date.

	However, there are also areas where Prehistoric artefacts were discovered indicating that this route contains areas with good archaeological potential.
Planning Policy and Development	Route lies within the Green Belt. Route passes through a SINC.
Transport, Traffic and Existing Infrastructure	Distant from local road.
Recreation and Tourism	Informal walking, Route crosses Harelaw Dam used for private fishing.
Agriculture	The Macauley Institute land capability grading indicates the proposed route would pass over land in the following ranges: - Approximately 50% of the route passes through land classed as 5_1 suitable for rough grassland; - Approximately 20% of the route passes through land classed as 4_1 suitable for a narrow range of crops; - Approximately 20% of the route also passes through land classed as 5_3 suitable for improved grassland; - Approximately 10% passes through an area of land classed as 6_3 suitable for rough grazing.
ROUTE F	
Technical considerations	Approx. 3153m long. No known constraints. Route would pass close to the edge of Harelaw Dam.
Landscape designations	There are no landscape designations.
Landscape Character	Rugged Upland Farmland/ Plateau Moorland, The route would have a poor landscape fit as it would cross open moorland and farmland.
Visual Issues	Passes approx. 157m from West Walton, 406m from High Walton, 166m from Snypes, 173m from Low Walton and 226m from Loanfoot. Line leaves sub-station 6 at the south-eastern corner of Harelaw Dam and crosses the narrow valley around the Levern Water as it flows into the loch. Line would effect the visual amenity of the waterbody, which is used for fishing. Continues across open moorland and rolling farmland as it runs north. Line would be visible within the landscape as it crosses Straun Hill between the properties of West Walton and High Walton. No significant landscape features or vegetation to provide a backdrop to the line and reduce the apparent scale of the poles. Would run through a former quarry on Drumler Craigs. Continues across open, rolling farmland to the east of Snypes Dam. Would cut across a line of telegraph poles that run adjacent to the access road to Snypes, which would potentially increase the apparent scale of the wood poles. Route would run across the lower slopes of Dyke Hill and the open farmland to the southeast of Neilston, and would be visible on the higher ground from a number of properties at the edge of Neilston. Very direct route, which would require one angle change of 11 deg and another of 12 deg, requiring slightly larger structures. The route would be visible along the entire length of the line due to the exposed nature of the rolling farmland and moorland it crosses, which would have a moderate to major adverse effect on the area.
Nature Conservation	The proposed route F grid connection extends from proposed substation 6, located within the north-eastern section of Moyne Moor SINC (SINC 24 East Renfrewshire Council). The SINC is important for blanket bog, wet heath, mire, rush pasture and acidic grassland habitats. Moyne Moor is specifically mentioned in both Mire and Dwarf Shrub Heath Habitat Action Plans. Phase 1 surveys (2006) indicate the substation would be located on unimproved acid grassland which has a relative local botanical value of 4 (1 Low – High 5). Route F passes through several habitats of moderate local botanical and ecological value including unimproved grassland, wet heath/acid grassland mosaic, and unimproved neutral grassland, in addition to several fields of improved grassland of low local ecological value, before connecting to national grid. The proposed grid connection along route F would consist of over head cables on wooden poles. During the construction period there would

	potentially be a temporary effect upon the habitats crossed by route E, although it would be negligible in significance. Faunal surveys (2006) indicate activity from a number of species including badgers, otters, soprano bats, roe deer, foxes, stoat and weasels within the study area. Construction of route F could result in temporary disturbance of these groups e.g. noise, dust and human presence, but these effects would be short-lived and negligible. Route F would pass mainly through habitats of moderate local ecological value and have potential negligible effect upon faunal groups. It provides a route of moderate local ecological effect upon associated features within the study area.
Archaeology	Much of this route was surveyed during a pre-afforestation survey and the known sites are mainly agricultural and post medieval in date. However, there are also areas where Prehistoric artefacts were discovered indicating that this route contains areas with good archaeological potential.
Planning Policy and Development	Route lies within the Green Belt. Route passes through a SINC.
Transport, Traffic and Existing Infrastructure	Distant from local roads.
Recreation and Tourism	Informal walking, Harelaw Dam and Long Loch Long used for private fishing.
Agriculture	The Macauley Institute land capability grading indicates the proposed route would pass over land in the following ranges: - Approximately 55% of the route passes through land classed as 5_1 suitable for rough grassland; - Approximately 20% of the route passes through land classed as 4_1 suitable for a narrow range of crops; - Approximately 25% passes through an area of land classed as 6_3 suitable for rough grazing.
ROUTE G	
Technical considerations	Approx. 3420m long to Substation 6, 4742m long to Substation 3. No known constraints.
Landscape designations	There are no landscape designations.
Landscape Character	Rugged Upland Farmland/ Plateau Moorland. The route would have a poor landscape fit as it would cross open moorland and farmland.
Visual Issues	Passes approx. 168m from High Walton, 362m from South Walton, 188m from Low Walton, 194m from North Walton, 234m from Muirhead and 196m from Loanfoot. Line would be running across open moorland on the northern side of Long Loch. Would be visually prominent in views from the loch, with no significant landscape features or vegetation to provide a backdrop to the line and reduce the apparent scale of the poles, which would have an effect upon the visual amenity of the waterbody. Would cross the footpath to Lochend Hill, which would have an effect upon the views from the footpath as it runs around the hill. Crosses the narrow valley around the Levern Water as it flows into Harelaw Dam and would be visible from the loch, which is used for fishing, having an effect on the visual amenity of the waterbody. Continues across the moorland to the east of Harelaw Dam, and would be visible across the wider landscape as it would be situated on high ground with no significant screening. Along this stretch of the route the line would be running through a SINC. The line turns north and begins to run across the rolling farmland around Straun Hill. Would be visible from nearby properties as it passes between them. Farmland is very open and exposed, with no significant landscape elements to provide a backdrop to the line and reduce the apparent scale of the poles. Would cut across a line of telegraph poles that run adjacent to the access road to Snypes, which would potentially increase the apparent scale of the wood poles. Route would run across the lower hills to the west of Dyke Hill, which would be visible from properties around the edge of Neilston near the eastern skyline. Requires four angle changes of 7 deg, 14 deg, 20 deg and 34 deg which would require larger structures.

	The line of route G would have a significant visual effect upon the area as it would be crossing the exposed high ground around Harelaw Dam, continuing across open farmland. This would have major adverse effects upon the visual amenity of the area.
Nature Conservation	The proposed route G grid connection extends from proposed substation 3, which is located within the south-western section of Moyne Moor SINC (SINC 24 East Renfrewshire Council). The SINC is important for blanket bog, wet heath, mire, rush pasture and acidic grassland habitats. Moyne Moor is specifically mentioned in both Mire and Dwarf Shrub Heath Habitat Action Plans. Phase 1 surveys (2006) indicate the substation would be located on a wet modified bog which has a relative local botanical value of 4/5 (1 Low – High 5). Wet modified bog fragments occur in several areas across the study area but are small and fragmented, being found only along Long Loch and above White Loch. Wet modified bog is a component habitat of Blanket Bog which is a priority habitat in the Biodiversity Action Plan (UK BAP) and Annex 1 of the Habitats Directive. Route G passes through several habitats of high local botanical and ecological value including marshy grassland, unimproved grassland, blanket bog within Moyne Moor SINC and wet heath/acid grassland mosaic and wet modified bog of William's and James's Hill SINC. It then passes through several fields of unimproved grassland of low local ecological value before connecting to national grid. The proposed grid connection along route G would consist of over head cables on wooden poles. During the construction period there would potentially be a temporary effect upon the habitats crossed by route G, although it would be negligible in significance. Faunal surveys (2006) indicate activity from a number of species including badgers, otters, soprano bats, roe deer, foxes, stoat and weasels within the study area. Construction of route D may result in temporary disturbance of these groups including noise, dust and human presence, but these effects would be short-lived and negligible. Route G would pass mainly through habitats of moderate/high local ecological value and have potential negligible effect upon faunal groups. It provides a route of high local ecological effects upon associated features within study area.
Archaeology	Much of this route was surveyed during a pre-afforestation survey and the known sites are mainly agricultural and post medieval in date. However, there are also areas where Prehistoric artefacts were discovered indicating that this route contains areas with good archaeological potential.
Planning Policy and Development	Route lies within the Green Belt. Route passes through a SINC.
Transport, Traffic and Existing Infrastructure	Distant from local roads.
Recreation and Tourism	Informal walking, Harelaw Dam and Loch Long used for private fishing.
Agriculture	The Macauley Institute land capability grading indicates the proposed route would pass over land in the following ranges: - Approximately 35% of the route passes through land classed as 5_1 suitable for rough grassland; - Approximately 30% of the route passes through land classed as 6_3 suitable for rough grazing; - Approximately 20% of the route passes through land classed as 5_3 suitable for improved grassland; - Approximately 15% passes through an area of land classed as 4_1 suitable producing a narrow range of crops.

12.6 Preferred Structure of the Environmental Statement

Structure of the Environmental Statement

12.6.1 For each of the environmental parameters requiring detailed assessment, the ES will be structured broadly as follows:

- Introduction;
- Methodology;
- Baseline conditions;
- Predicted impacts;
- Mitigation measures;
- Residual impacts; and
- References

12.6.2 Topics not requiring detailed assessment will be addressed in summary form, providing a level of information sufficient to enable clear understanding of the reasons why they are considered non-significant. Cumulative impacts will be considered in a separate chapter.

12.6.3 The main environmental impacts identified through the EIA process will be summarised in tabular form, and a Schedule of Environmental Impacts provided identifying the mitigation measures and monitoring requirements to be implemented during the construction and operation/maintenance of the wood pole line.

12.6.4 It is intended to undertake consultation with statutory and non-statutory organisations as necessary to update the consultation undertaken as part of this Environmental Scoping and to include any further interested parties.

12.6.5 A Non-Technical Summary will be prepared as a separately bound document to the ES, providing a brief explanation of the proposals and highlighting the key findings of the EIA.

13 Figures

FIGURE 1

LEGEND

- Study Area
- Council Boundary
- Proposed Wind Turbine Locations for Harelaw Renewable Energy Park
- Proposed Wind Turbine Locations for Middleton Windfarm

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Approved
1	Dec 08	Middleton turbine locations added	SC	JT	ML

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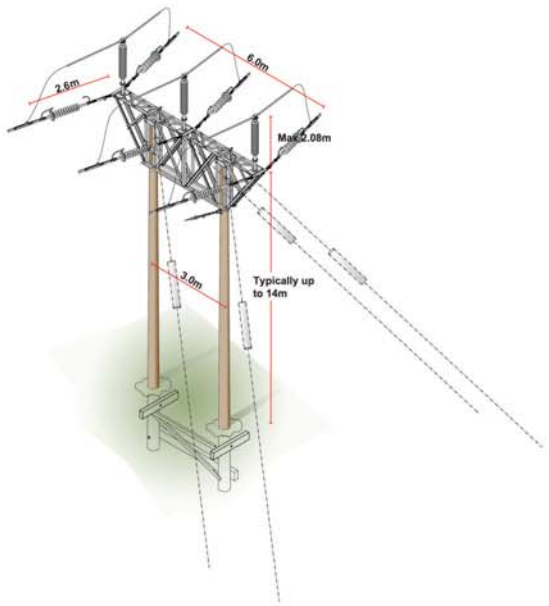
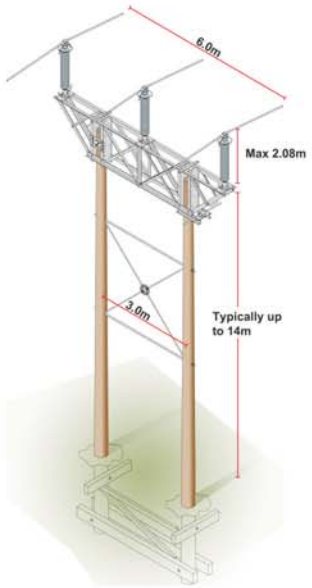
Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Site Context
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 1
Revisions	
Scale	1:50,000 @ A3
Date	August 2008
Drawn	DB
Checked	JT
Approved	ML

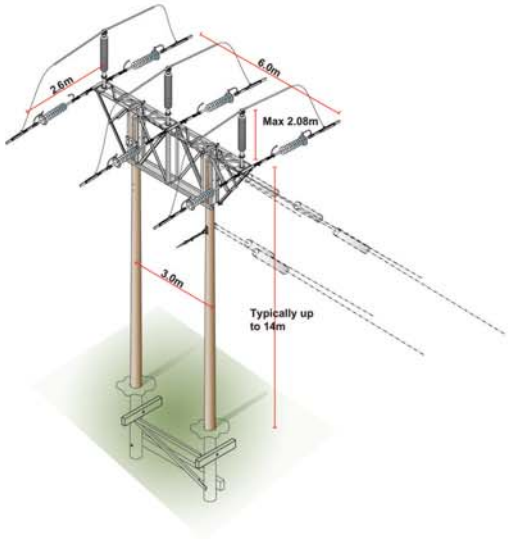
Images provided by CAPITA LOVEJOY



Detail of heavy duty angle pole



Detail of heavy duty straight line pole



Detail of heavy duty wood pole terminal structure

Construction of a heavy duty wood pole

The proposed 132kV overhead transmission line will be strung along a heavy duty wood pole line which will support three wires in a horizontal flat formation. An earth conductor will be suspended beneath the main wires to provide lightning protection.

The typical height of the poles will be 15m to 17m, and the spacing between towers will be around 70m to 90m, but will vary depending on topography and altitude.

FIGURE 2

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd
1	Dec 08	Heavy duty pole details revised	SC	JT	ML

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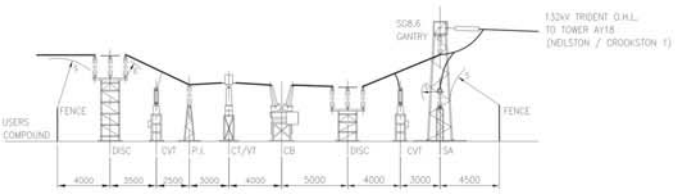
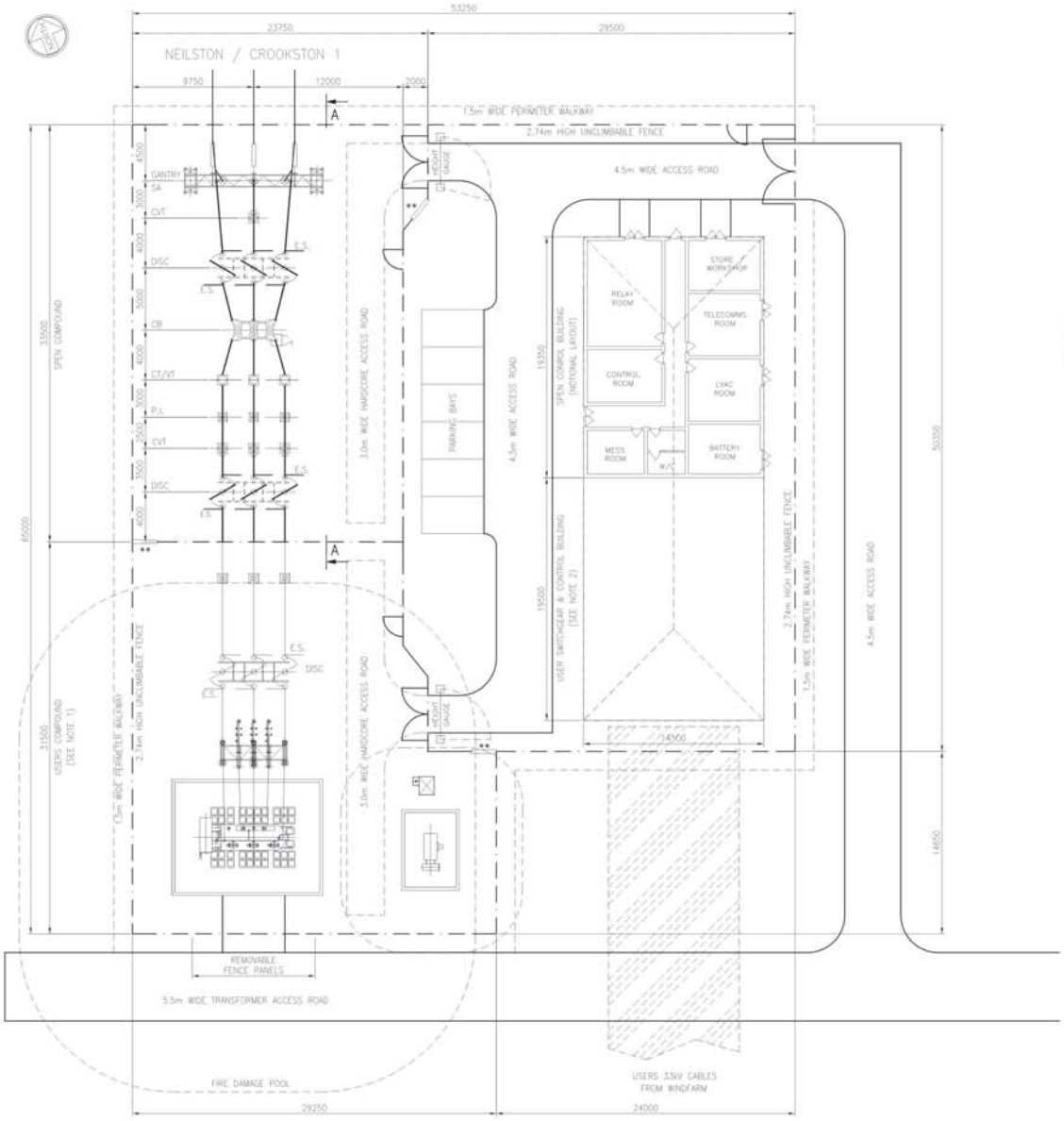
Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Detail of Wood Pole Line
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 2
Revisions	1
Scale	Not to scale
Date	August 2008
Drawn	SC
Checked	JT
Approved	ML

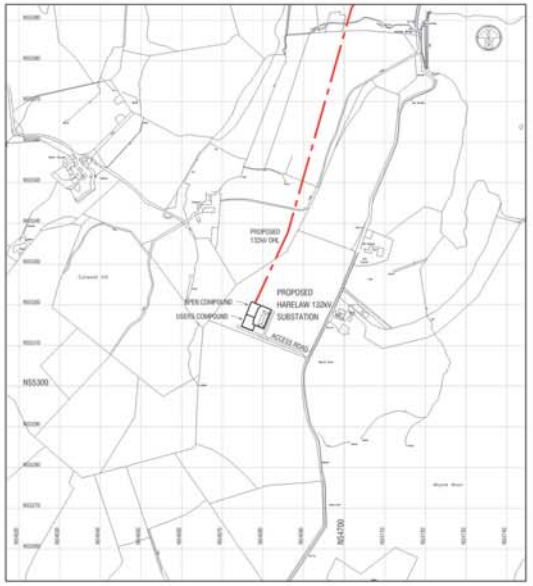
FIGURE 3



SECTION A-A



PLAN OF TYPICAL SUBSTATION



LOCATION MAP

SCALE

0m 5m 10m 15m 20m

NOTE:

1. PLANT, LAYOUT AND DIMENSIONS SHOWN FOR THE USERS COMPOUND ARE INDICATIVE ONLY.
2. DIMENSIONS SHOWN FOR THE USERS SWITCHGEAR AND CONTROL BUILDING ARE INDICATIVE ONLY.

LEGEND:

** INDICATES INSULATED FENCE PANEL (2m Long Minimum)

MINIMUM ELECTRICAL CLEARANCES AT 132kV

PHASE TO EARTH (E)	1.1m
PHASE TO PHASE (P)	1.4m
SECTION CLEARANCE (S)	3.8m
SURGE ARRESTER (D)	1.1m

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd
1	Dec 08	Substation details revised	SC	JT	ML

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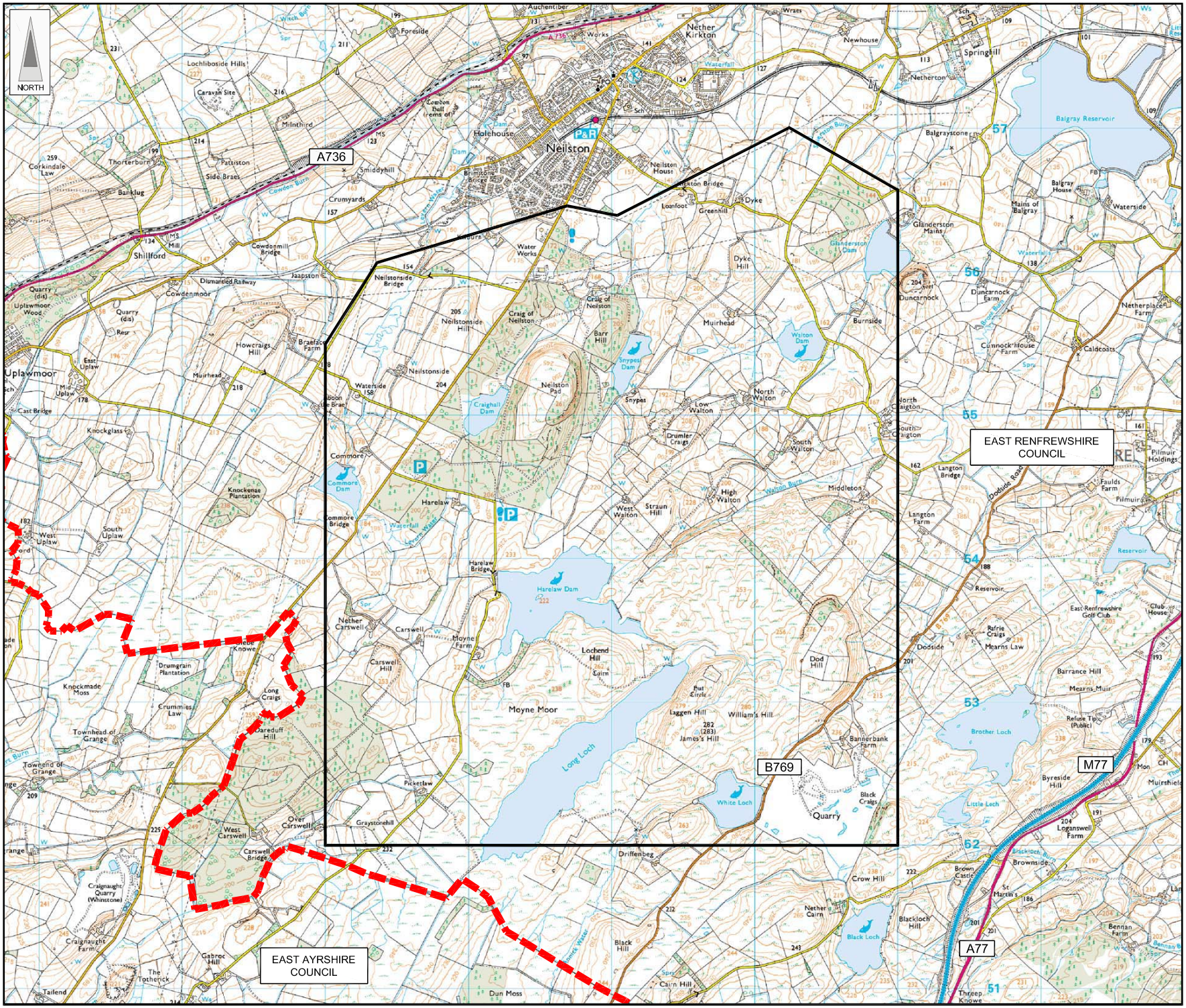
Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Detail of Typical Substation
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 3 Dec 2008
Revisions	1
Scale	Not to scale
Date	August 2008
Drawn	SC signature
Checked	JT signature
Approved	ML signature

FIGURE 4

LEGEND

Study Area

Council Boundary



Rev	Rev. Date	Purpose of revision	Drawn	Checked	Approved

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Study Area
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 4
Revisions	
Scale	1:25,000 @ A3
Date	August 2008
Drawn	DB
Checked	JT
Approved	ML

FIGURE 5

LEGEND

- Study Area
- 275 - 300m
- 250 - 275m
- 225 - 250m
- 200 - 225m
- 175 - 200m
- 150 - 175m
- 125 - 150m
- 100 - 125m
- 75 - 100m
- 50 - 75m

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Topography
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 5
Revisions	
Scale	1:25,000
Date	August 2008
Drawn	RB
Checked	JT
Approved	ML

0 1km 2km 3km

FIGURE 6

LEGEND

- Study Area
- Rugged Upland Farmland
- Plateau Moorlands
- Upper River Valleys (Dales)
- Ayrshire Lowlands
- Plateau Moorlands with forest

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Landscape Character Types
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 6
Revisions	
Scale	1:25,000
Date	August 2008
Drawn	RB
Checked	JT
Approved	ML

0 1km 2km 3km

FIGURE 7

Photo 1 - Rugged Upland Farmland Landscape Character Type

Photo 2 - Rugged Upland Farmland Landscape Character Type

Photo 3 - Rugged Upland Farmland Landscape Character Type

Photo 4 - Plateau Moorland Landscape Character Type

Photo 5 - Plateau Moorland Landscape Character Type

Photo 6 - Plateau Moorland Landscape Character Type

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Landscape Character Types Typical Views
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 7
Revisions	
Scale	
Date	August 2008
Drawn	DB
Checked	JT
Approved	ML

FIGURE 8

LEGEND

- Study Area
- Standing Water
- River with Direction of Flow
- Coniferous Plantation
- Broad-leaved Plantation
- Mixed Plantation
- Semi-natural Broad-leaved
- Bog
- Wet Modified Bog
- Wet Heath/ Acid Grassland Mosaic
- Marsh/Marshy Grassland
- Unimproved Grassland
- Unimproved Neutral Grassland
- SI — Semi-improved Neutral Grassland
- Dense Continuous Bracken
- Mixed Semi-natural
- Scattered Trees (Broad-leaved)
- Scattered Trees (Coniferous)
- Scattered Trees (Mixed)
- Scattered Scrub
- Dense Scrub
- Species Rich Hedge
- Swamp
- (4) Target Notes

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Phase 1 Habitat
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 8
Revisions	
Scale	1:25,000
Date	August 2008
Drawn	RB
Checked	JT
Approved	ML

0 1km 2km 3km

FIGURE 9

LEGEND

- Study Area
- Ancient Woodland
- Scheduled Ancient Monument
- Site of Special Scientific Interest (SSSI)
- Site of Important Nature Conservation (SINC)
- Peat Areas (from MLURI Soil Map Sheet 22)
- Quarries
- Scotland Gas Network PIG Enclosure
- Archaeological Sites
- Listed Building
- 1 Potential Sub-station Location
- Rights of Way
- Existing Overhead Transmission Lines
- Indicative Route of High Pressure Gas Main
- Proposed Wind Turbine Locations for Middleton Windfarm

Do not scale this drawing

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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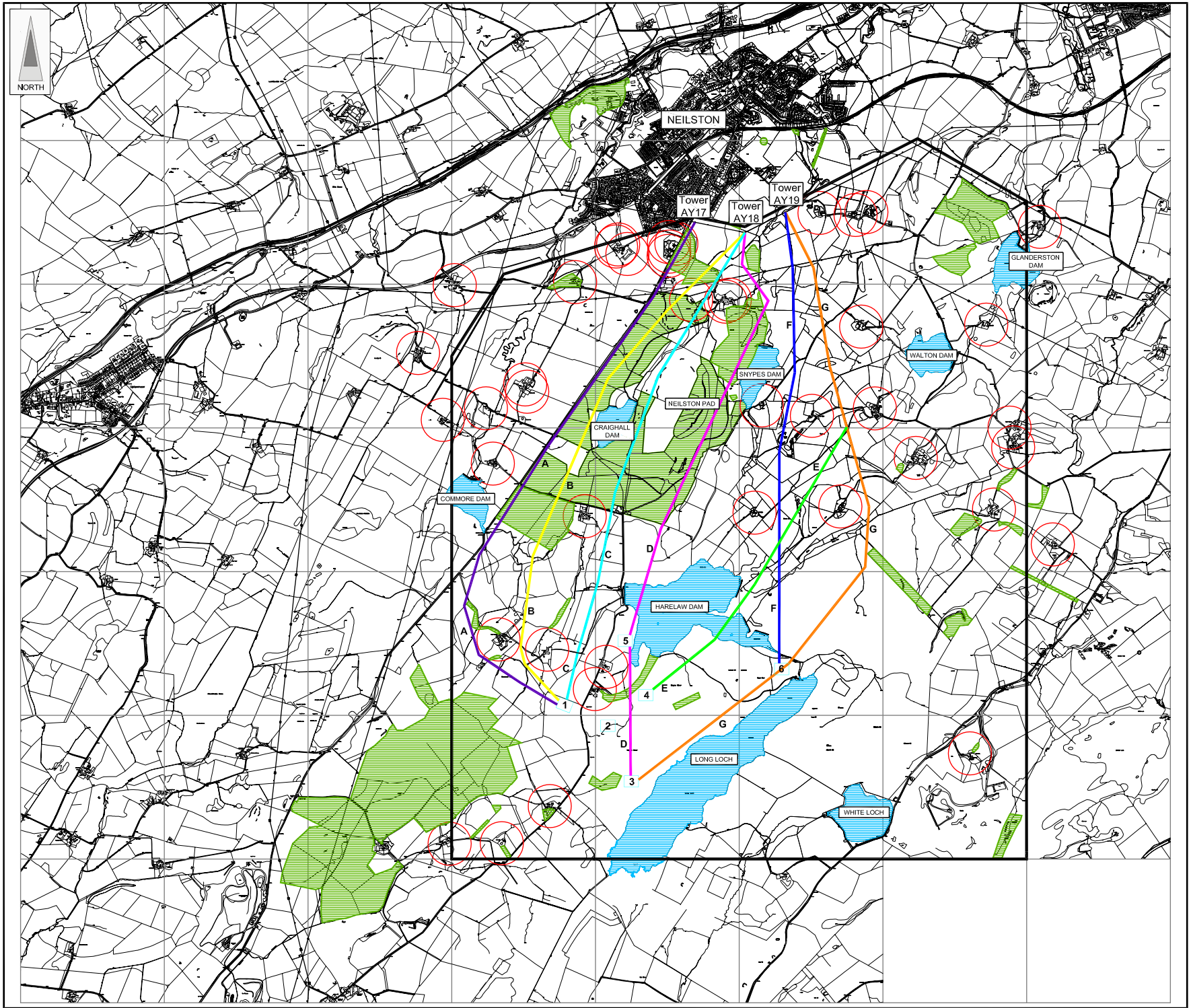
Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Environmental Constraints
Drawing Status	FINAL
JB No.	B0771604
Drawing No	FIGURE 9
Revisions	
Scale	1:25,000 @ A3
Date	August 2008
Drawn	RB
Checked	JT
Approved	ML

FIGURE 10



LEGEND

- Study Area
- 150m Property Buffer Zone
- Existing Woodland
- Waterbody
- 1 — Proposed Substation Location Option
- Route Option A
- Route Option B
- Route Option C
- Route Option D
- Route Option E
- Route Option F
- Route Option G

0 0.5km 1km 2km 4km

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Approved
1	13/01/09	Substation & wood pole line amended	SC	JT	Approved

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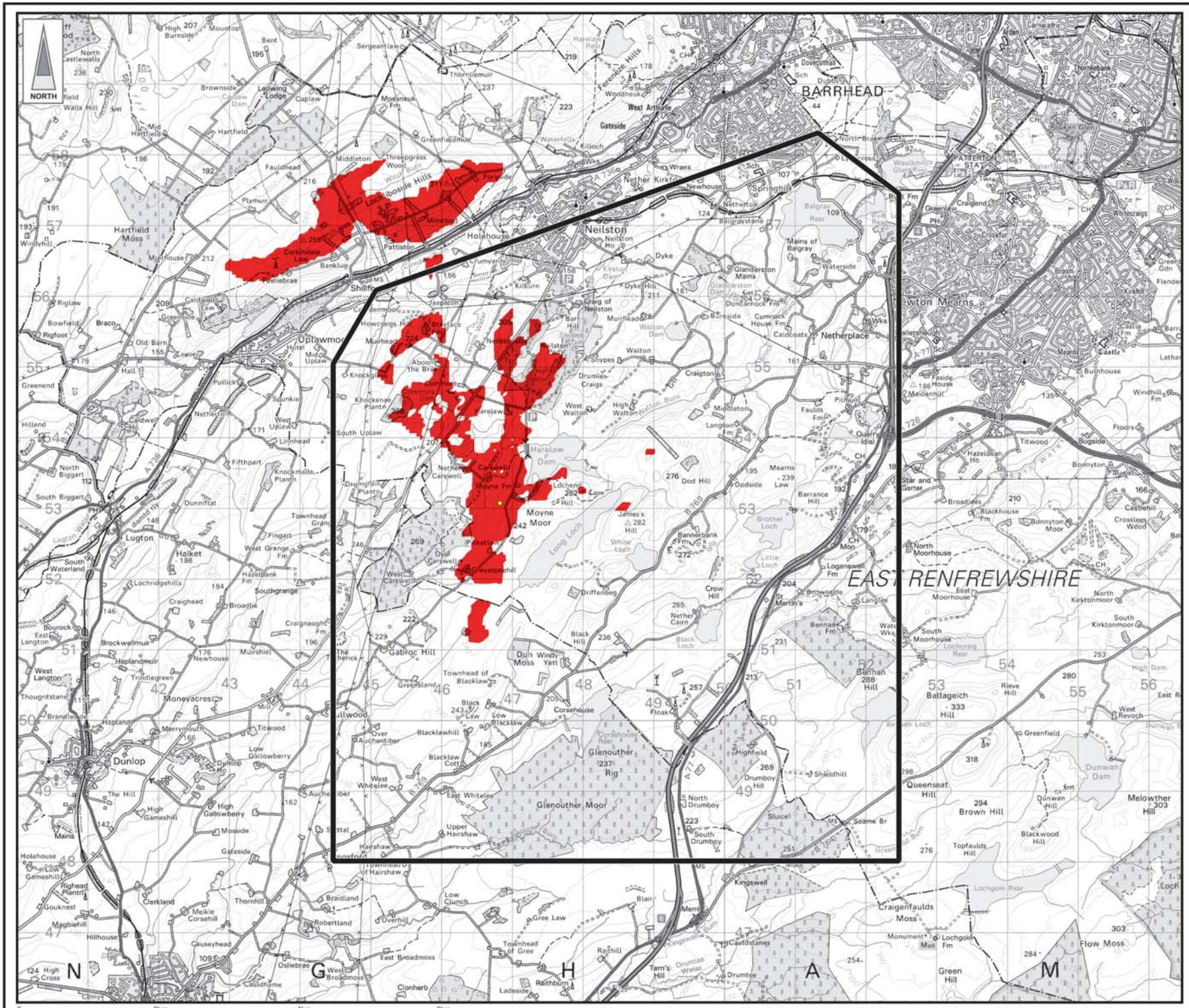
Client: SP TRANSMISSION

Project: **Harelaw Windfarm Wood Pole Line Grid Connection**

Title: Substation Options and Route Corridors

Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 10
Revisions	1
Scale	1:25,000 @ A3
Date	August 2008
Drawn	DB
Checked	JT
Approved	ML

FIGURE 11



LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Substation

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd
1	13/01/09	Substation	SC	JT	ML

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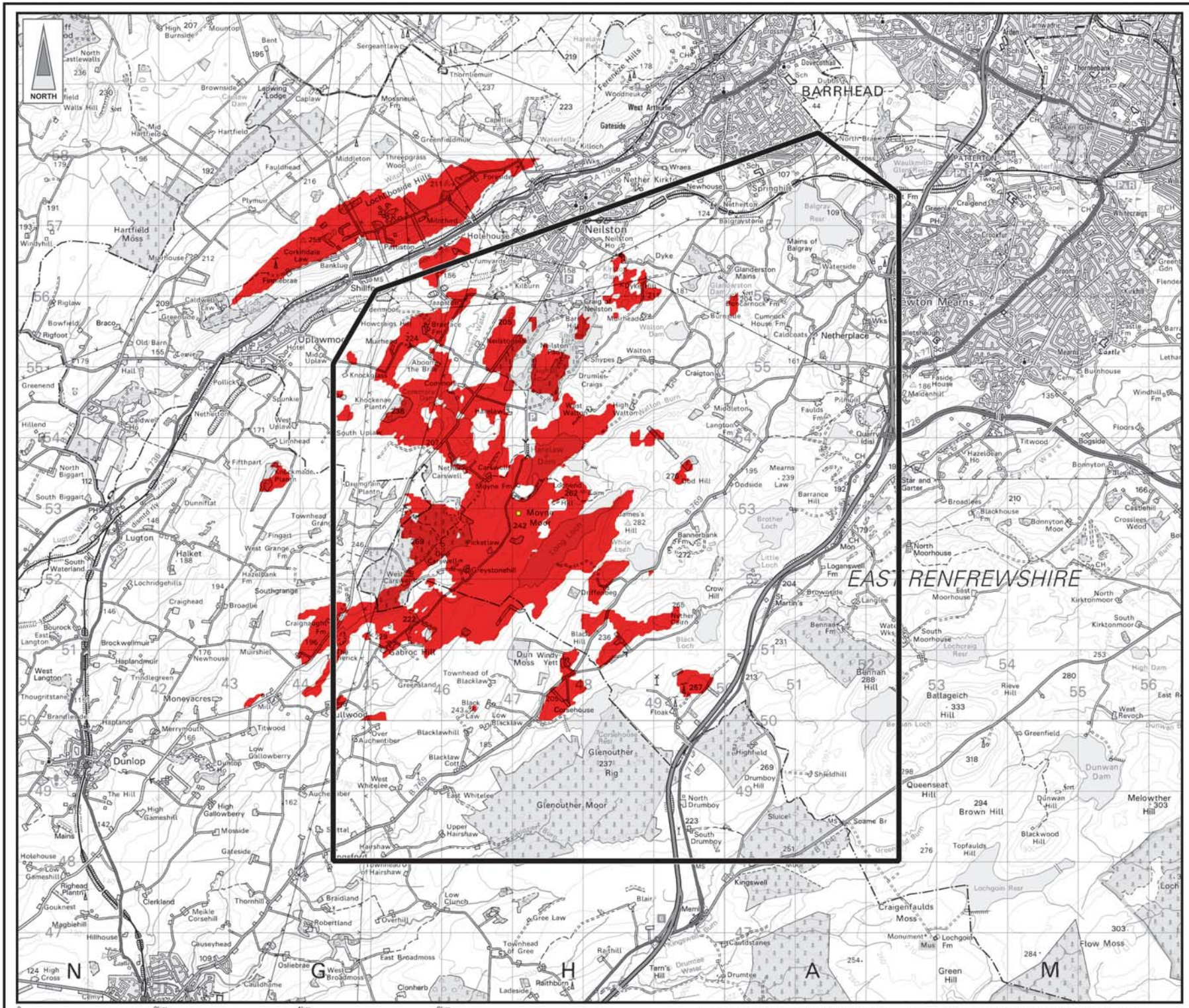
Client: SP TRANSMISSION

Project: **Harelaw Windfarm Wood Pole Line Grid Connection**

Title: Visual Envelope Substation - 1

Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 11
Scale	1:50,000
Drawn	SHF
Checked	JT
Approved	ML
Revisions	
Date	August 2008

FIGURE 12



LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Substation

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

JACOBS
95 Bothwell Street, Glasgow, G2 7HX, UK
Tel: 0141 204 2511 Fax: 0141 226 3109
www.jacobsbabtie.com

Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Visual Envelope Substation - 2
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 12
Revisions	
Scale	1:50,000
Date	August 2008
Drawn	SHF
Checked	JT
Approved	ML

FIGURE 13

LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Substation

NORTH

BARRHEAD

EAST RENFREWSHIRE

0 2km 4km 6km

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Visual Envelope Substation - 3
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 13
Revisions	
Scale	1:50,000
Date	August 2008
Drawn	SHF
Checked	JT
Approved	ML

FIGURE 14

LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Substation

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Visual Envelope Substation - 4
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 14
Revisions	
Scale	1:50,000
Date	August 2008
Drawn	SHF
Checked	JT
Approved	ML

FIGURE 15

LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Substation

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Visual Envelope Substation - 5
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 15
Revisions	
Scale	1:50,000
Date	August 2008
Drawn	SHF
Checked	JT
Approved	ML

FIGURE 16

LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Substation

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Visual Envelope Substation - 6
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 16
Revisions	
Scale	1:50,000
Date	August 2008
Drawn	SHF
Checked	JT
Approved	ML

FIGURE 17

LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Pole Line

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Tel: 0141 204 2511 Fax: 0141 226 3109
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Client: SP TRANSMISSION

Project: **Harelaw Windfarm Wood Pole Line Grid Connection**

Title: Visual Envelope Route Option - A

Drawing Status	FINAL		
JB No.	B0771604		
Figure No.	FIGURE 17	Revisions	
Scale	1:50,000	Date	August 2008
	Drawn SHF	Checked JT	Approved ML

FIGURE 18

LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Pole Line

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Visual Envelope Route Option - B
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 18
Revisions	
Scale	1:50,000
Date	August 2008
Drawn	SHF
Checked	JT
Approved	ML

FIGURE 19

LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Pole Line

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Visual Envelope Route Option - C
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 19
Revisions	
Scale	1:50,000
Date	August 2008
Drawn	SHF
Checked	JT
Approved	ML

FIGURE 20

LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Pole Line

NORTH

EAST RENFREWSHIRE

0 2km 4km 6km

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Visual Envelope Route Option - D
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 20
Revisions	
Scale	1:50,000
Date	August 2008
Drawn	SHF
Checked	JT
Approved	ML

FIGURE 21

LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Pole Line

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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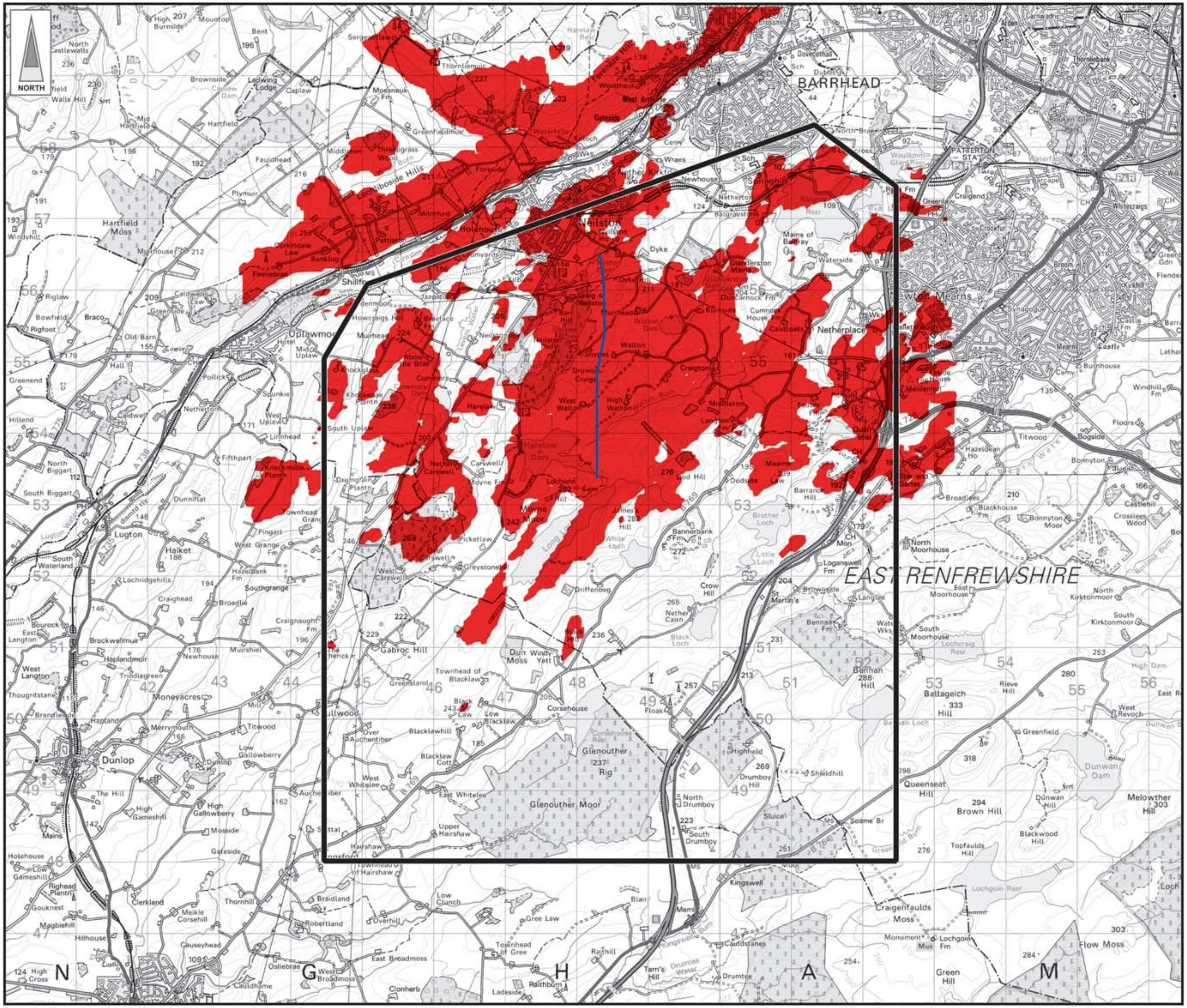
Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Visual Envelope Route Option - E
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 21
Revisions	
Scale	1:50,000
Date	August 2008
Drawn	SHF
Checked	JT
Approved	ML

FIGURE 22



LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Pole Line

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client: SP TRANSMISSION

Project: **Harelaw Windfarm Wood Pole Line Grid Connection**

Title: Visual Envelope Route Option - F

Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 22
Scale	1:50,000
Date	August 2008
Drawn	SHF
Checked	JT
Approved	ML

FIGURE 23

LEGEND

- Study Area
- Substation Position
- Route of Proposed Pole Line
- Areas Visible from Proposed Pole Line

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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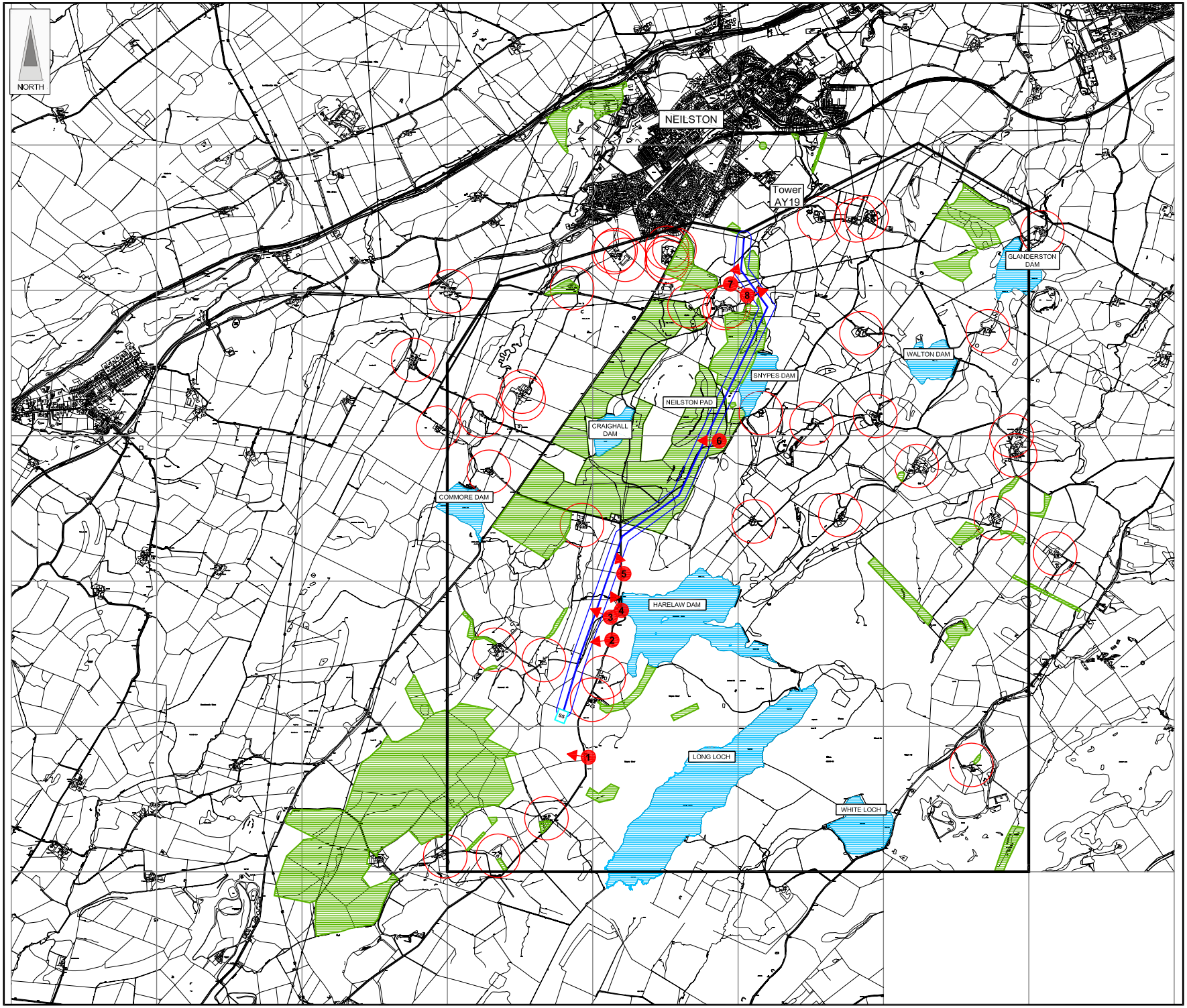
Client: SP TRANSMISSION

Project: **Harelaw Windfarm Wood Pole Line Grid Connection**

Title: Visual Envelope Route Option - G

Drawing Status	FINAL		
JB No.	B0771604		
Figure No.	**FIGURE 23**	Revisions	
Scale	1:50,000	Date	**August 2008**
Drawn	**SHF**	Checked	**JT**
		Approved	**ML**

FIGURE 24



LEGEND

- Study Area
- 150m Property Buffer Zone
- Existing Woodland
- Waterbody
- SS — Proposed Substation Location
- Preferred Wood Pole Line and Corridor (50m to either side)
- 1 — Photograph Location (see Figure 12)

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Approved
1	13/01/09	Substation & wood pole line amended	SC	JT	Approved

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Client: SP TRANSMISSION

Project: **Harelaw Windfarm Wood Pole Line Grid Connection**

Title: Preferred Substation Location and Wood Pole Line Route

Drawing Status	FINAL
JB No.	B0771604
Figure No.	**FIGURE 24**
Revisions	1
Scale	1:25,000 @ A3
Date	August 2008
Drawn	DB
Checked	JT
Approved	ML

FIGURE 25

Photo 1: Site of Preferred Substation - Situated on lower ground which will help to restrict views of the structure

Photo 2: Preferred Wood Pole Line Route - Rolling topography will help to minimise the visual impact of the poles

Photo 3: Preferred Wood Pole Line Route - Line will be able to follow the valley until it reaches Harelaw Dam

Photo 4: Preferred Wood Pole Line Route - Route will keep the line off the high ground and avoid the recreational facility at Harelaw Dam

Photo 5: Preferred Wood Pole Line Route - Line will be more exposed as it passes Harelaw but will be sheltered from Neilston

Photo 6: Preferred Wood Pole Line Route - Visual impact of the wood poles will be reduced against the backdrop of Neilston Pad and by the plantation woodland

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Preferred Substation Location and Wood Pole Route Typical Views
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 25
Revisions	
Scale	Date: August 2008
Drawn: DB	Checked: JT
Approved: ML	

Photo 7: Preferred Wood Pole Line Route – Views to the wood pole line will be gained from properties on the edge of the village of Neilston

Photo 8 : Preferred Wood Pole Line Route – Visual impact of the poles will be reduced by valley setting and the backdrop of higher ground to the east

FIGURE 26

Rev	Date	Purpose of Revision	Drwn	Chkd	Appd

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Client	SP TRANSMISSION
Project	Harelaw Windfarm Wood Pole Line Grid Connection
Title	Preferred Substation Location and Wood Pole Route Typical Views
Drawing Status	FINAL
JB No.	B0771604
Figure No.	FIGURE 26
Revisions	
Scale	
Date	August 2008
Drawn	AB
Checked	
Approved	