SP ENERGY NETWORKS

The Kendoon to Tongland Reinforcement Project:

Routeing and Consultation Document

October 2016


LUC

The Kendoon to Tongland 132kV Reinforcement Project

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Preface

This Routeing and Consultation Document has been prepared on behalf of ScottishPower Energy Networks and relates to proposals to reinforce the 132kV electricity transmission network between Kendoon and Tongland, in the Dumfries and Galloway Region. The reinforcement is referred to as 'the Kendoon to Tongland 132kV Reinforcement Project' (the KTR Project).

This Routeing and Consultation Document presents the methodology and findings of the routeing study which has been undertaken to inform public consultation on route options for the KTR Project.

This Routeing and Consultation Document is available to download for free from *www.spendgsr.co.uk*

Digital copies of this Routeing and Consultation Document are available upon request. Hard copies may also be obtained, but may be subject to a reasonable charge to cover printing and postage. For digital or hard copies please contact us on:

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E-mail: dgsr@communityrelations.co.uk

From *October 21st 2016* until the close of the consultation period on *January 13th 2017*, this Routeing and Consultation Document will also be available for viewing at the following information points. Opening hours may be subject to change. Please phone before making a special trip.

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Dumfries Planning Office, English Street, Dumfries, DG1 2HS. Opening hours: Normal office hours.

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1 Introduction

Purpose of this Report

1.1 This document has been prepared by LUC on behalf of ScottishPower Energy Networks (SPEN)[1], and relates to the Kendoon to Tongland 132kV Reinforcement (KTR) Project. The document explains the background to the KTR Project and outlines the routeing work that has been undertaken, culminating in the identification of preferred routes for the reinforcement of the 132 kilovolt (kV) network between Kendoon and Tongland.

1.2 This document also sets out the process for the consultation which will be undertaken in relation to the routeing work undertaken in 2016. This process is designed to gather feedback from stakeholders, including the public in order to inform the subsequent stages.

1.3 The KTR Project originally comprised an integral part of the larger Dumfries & Galloway Strategic Reinforcement (DGSR) Project. The outputs from the early routeing and consultation stages of the DGSR Project have influenced the KTR Project. This document should therefore be read in conjunction with the DGSR Project: Routeing and Consultation Document (May 2015) and the DGSR Project: Summary of Feedback from 2015 Consultation (July 2016). Electronic versions of these reports are available on www.spendgsr.co.uk.

Background to the Project

1.4 In the summer of 2015, SPEN carried out a three month stakeholder consultation on the DGSR Project, which included proposals for:

- a new high voltage overhead line (OHL) of up to 400kV from Auchencrosh, in South Ayrshire, through Dumfries and Galloway, to Harker, near Carlisle;
- two new 132kV overhead lines from Kendoon to Glenlee and from Glenlee to Tongland;
- four new high voltage substations at Auchencrosh, Newton Stewart, Glenlee and Dumfries; and
- removing approximately 130km of existing 132kV overhead electricity lines.

1.5 In parallel with the consultation in 2015, SPEN worked with National Grid, in its role as GB Transmission System Operator, to carry out a thorough cost-benefit analysis (CBA) of the DGSR Project to makes sure Dumfries and Galloway's transmission system was developed in the most efficient and economical way.

1.6 The CBA looked at options ranging from the full 400kV Auchencrosh to Harker proposal to a reduced scheme based on the modernisation of existing 132kV infrastructure and the provision of some additional capacity on the system.

1.7 The results concluded that the 400kV Auchencrosh to Harker proposal did not deliver enough benefit for electricity consumers in Great Britain relative to the cost of the project at this time. The outcome of this work is the identification of a recommended solution which was significantly reduced in scope and scale and only partially meets the original project drivers. It is therefore recommended that a 'reduced scheme', which is integral to and forms part of the original project, should be progressed at this time.

1.8 This reduced scheme involves the modernisation and capacity increase of the existing 132kV overhead lines between Kendoon and Glenlee and from Glenlee to Tongland (the KTR Project), as outlined below.

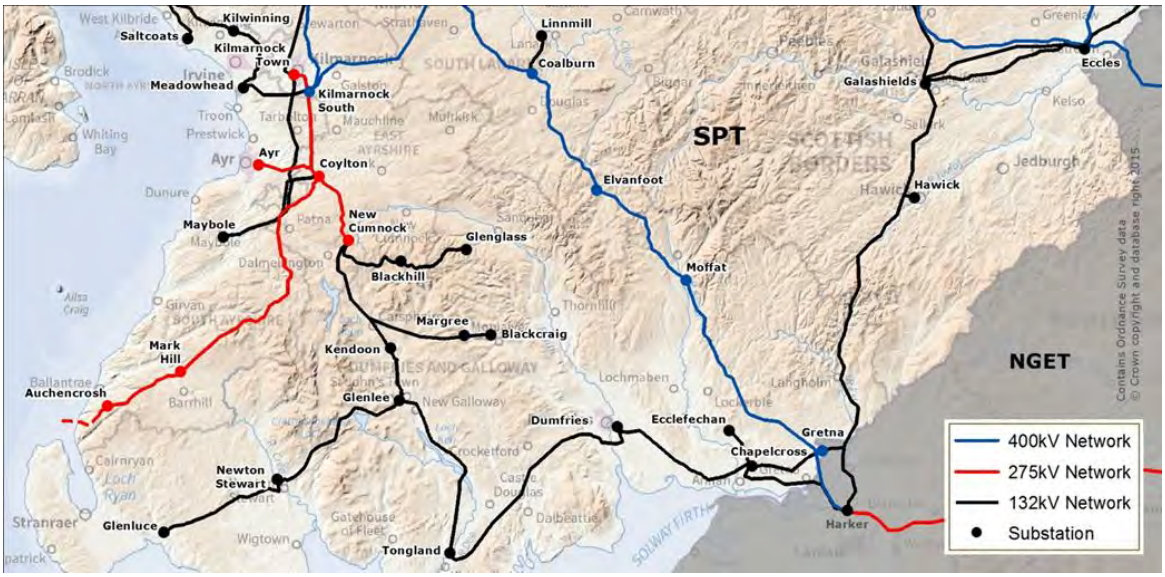
[1] SPEN operates and maintains the electricity transmission and distribution networks in central and southern Scotland on behalf of the license holders SP Transmission plc (SPT) and SP Distribution plc (SPD). The references below to SPEN in the context of statutory and licence duties and the application for section 37 consent below should be read as applying to SP Transmission plc.

The Need for the KTR Project

1.9 The existing electricity transmission network in the south-west of Scotland is shown in **Figure 1.1**. This was developed between the 1930s and 1970s to supply local customers and to connect the area's hydro generation schemes. It currently serves more than 83,000 customers.

1.10 As shown in **Figure 1.1**, a 132kV overhead line runs from Glenluce to Newton Stewart, then on to Glenlee, before heading north towards Dalmellington and south to Tongland. From Tongland, the line heads east via Dumfries towards Gretna, on the border with England. At Gretna, a 400kV line connects south to the National Grid substation at Harker, near Carlisle. A separate 275kV transmission line links Auchencrosh in South Ayrshire to Coylton in East Ayrshire.

Figure 1.1 Electricity transmission network in south-west Scotland



1.11 When SPEN assessed the network as part of its asset replacement programme, nearly 90km of the transmission lines in Dumfries and Galloway were found to be approaching the end of their operational life. Specifically, these are the lines running from Kendoon to Glenlee, from Glenlee to Tongland, from Tongland to Dumfries and to a lesser extent the line from Chapelcross to Harker[2]. As assets get older, the need for maintenance work becomes more critical and more difficult, and the exposure to unplanned outages (faults) increases. Asset replacement is essential to provide secure, reliable supplies to existing and future customers.

Approach to the Required Network Upgrading

1.12 Whilst both the existing and proposed overhead lines between Kendoon and Tongland have a voltage of 132kV, the majority of the existing overhead lines are only 'single circuit'. This means that the steel towers have three cross-arms and support a single three -phase circuit (i.e. three 'conductors' – or wires). However, the proposed new overhead lines will be 'double circuit' and will require a different tower design, with six cross-arms instead of three.

1.13 In addition to the requirement to accommodate a different tower design, the environmental characteristics of the area and our understanding of their value has changed since the original overhead lines were constructed. For example, a number of 'new' constraints now need to be considered during the routeing of overhead lines, including environmentally designated areas, settlement expansion, and changes in land use.

1.14 As a consequence of both of these factors, SPEN's approach to routeing the KTR Project has been to adopt a 'blank sheet' approach which does not solely reflect the route of the existing 132kV overhead line. This approach has ensured that all potential route options are identified and appraised, including those that follow or include existing overhead lines in places.

1.15 The reinforcement of sections of the 132kV overhead line network will also allow the removal of sections of existing 132kV overhead lines.

[2] The Chapelcross to Harker line will be replaced under a separate scheme and does not form part of the KTR project.

The Components of the KTR Project

1.16 The KTR Project comprises the following:

- the construction of a new 132kV double circuit steel tower overhead line between Polquhanity, around 3km north of the existing Kendoon substation, and the existing Kendoon substation;
- the construction of a new 132kV double circuit steel tower overhead line between the existing Kendoon substation and the existing Glenlee substation;
- the construction of a new 132kV single circuit wood pole overhead line between Carsfad and Kendoon;
- the construction of a new 132kV single circuit wood pole overhead line between Earlstoun and Glenlee;
- the construction of a new 132kV double circuit steel tower overhead line between Glenlee and Tongland;
- the extension of the existing 132kV Glenlee substation; and
- the removal of the existing 132kV steel tower overhead lines between Polquhanity and Kendoon, Kendoon and Glenlee (including Carsfad and Earlstoun), and Tongland and Dumfries.

1.17 Further details of the components of the KTR Project are provided in **Chapter 2**. The locations of both the existing overhead lines and the overhead lines to be removed are shown on **Figure 2.1**.

SPEN's Statutory and Licence Duties

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

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

1.19 SPEN is required in terms of its statutory and licence obligations to provide for new electricity generators wishing to connect to the transmission system in its licence area. SPEN is also obliged to make its transmission system available for these purposes and to ensure that the system is fit for purpose through appropriate reinforcements to accommodate the contracted capacity.

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

"(a) to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and,

(b) to do what it reasonably can to mitigate any effects which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects."

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

1.22 As a result of the above, SPEN is required to identify electrical connections that meet the technical requirements of the electricity system, which are economically viable, and cause, on balance, the least disturbance to the environment and the people who live, work and enjoy recreation within it.

The Development and Consenting Process

1.23 The project comprises three key phases:

- Phase One: Line Routeing;
- Phase Two: Environmental Impact Assessment;
- Phase Three: Application for Consent.

Phase One: Line Routeing

1.24 Phase One comprises a review of environmental, technical and economic considerations and the application of established step-by-step routeing principles to identify 'preferred' routes for the required 132kV overhead lines.

1.25 SPEN is committed to ongoing consultation with interested parties, including statutory and non-statutory consultees and local communities (see below). Whilst there is no statutory requirement to consult during the early routeing stages, SPEN nonetheless considers it good practice to introduce consultation at this stage.

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

Phase Two: Environmental Impact Assessment

1.27 Phase Two comprises an Environmental Impact Assessment (EIA) of the 'proposed' routes. This is required under The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000, given the nature and scale of the KTR Project. The EIA process will seek to avoid, reduce and where possible, offset likely significant impacts on the environment through an iterative design process. This will culminate in the production of an Environmental Statement (ES).

Phase Three: Application for Consent

1.28 Following completion of the ES, SPEN will apply to Scottish Ministers for consent under Section 37 of the Electricity Act 1989, to install, and keep installed, the proposed lines identified above. At the same time, SPEN will apply for deemed planning permission for the lines and associated works including the extensions to the substations, under Section 57(2) of the Town and Country Planning (Scotland) Act 1997.

Stakeholder Engagement

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

1.30 SPEN attaches great importance to the effect that its work may have on the environment and on local communities. In seeking to achieve 'least disturbance', SPEN is keen to engage with key stakeholders including local communities and others who may have an interest in the project. This engagement process begins at the early stages of development of a project, and continues into construction once consent has been granted.

1.31 SPEN's approach to stakeholder engagement for major electrical infrastructure projects is outlined in Chapter 5 of the document 'Major Infrastructure Projects: Approach to Routeing and Environmental Impact Assessment' (available to download from www.spendgsr.co.uk). SPEN aims to ensure effective, inclusive and meaningful engagement with local communities, statutory consultees, stakeholders and interested parties through four key engagement stages:

(i) pre-project notification and engagement;

(ii) information gathering to inform the routeing stage;

(iii) obtaining feedback on emerging route options (and substation sites where relevant); and

(iv) the Environmental Impact Assessment (EIA) stage.

(see paragraph 5.3 of the Approach to Routeing document for further details).

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

Structure of this Report

1.33 This report is structured as follows:

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

1.34 The report is also supported by a number of **figures** and **appendices**, as listed in the contents page.

2 Project Description

Introduction

2.1 This chapter provides a brief description of the connection requirements for the KTR Project. The development of the KTR Project will also enable SPEN to rationalise the electricity network through the removal of existing overhead transmission lines within the Project area. Further details on this are also provided below.

2.2 **Figure 2.1** shows the location of the existing 132kV network, including the points of connection outlined below and the existing network which will be removed as a result of the KTR Project.

Connection Requirements

Polquhanity to Kendoon

2.1 A new 132kV double circuit overhead line is required between Polquhanity, approximately 3km north of the existing Kendoon substation, to connect to the existing Kendoon substation. This proposed overhead line will connect to a new consented line which is currently being constructed (in 2016 and 2017) from Polquhanity to the existing New Cumnock substation, 3km north-east of Dalmellington). The proposed overhead line will be supported on L7 lattice steel towers, which have six cross-arms (three on each side) and have a standard design height of 27m. Dependant on the route option, a short section of underground cable may be required to connect to the Kendoon substation. A photo/graphic showing an existing L7 tower in the landscape is provided as **Figure 2.2a**.

Kendoon to Glenlee

2.2 A new 132kV double circuit overhead line is required between the existing Kendoon substation and the existing Glenlee substation. The overhead line will be supported on L7 lattice steel towers, which have six cross-arms (three on each side) and have a standard design height of 27m. A photo/graphic showing an existing L7 tower in the landscape is provided as **Figure 2.2a**.

2.3 A minor extension to the existing Kendoon substation may also be required to accommodate a new L7 terminal tower.

Glenlee to Tongland

2.4 A new 132kV double circuit overhead line is required between the existing Glenlee substation and the existing Tongland substation. The overhead line will be supported on L4 lattice steel towers, which have six cross-arms (three on each side) and have a standard design height of 26m. A photo/graphic showing an existing L4 tower in the landscape is provided as **Figure 2.2a.**

2.5 An extension (of approximately 90m x 40m) to the existing Glenlee substation will be required to accommodate new switchgear associated with the replacement connections to Kendoon and to Tongland.

Carsfad and Earlstoun Connections

2.6 A new 132kV single circuit overhead line is required between the hydroelectric power station at Carsfad and the existing substation at Kendoon. The overhead line will be supported on a 'trident' design wood pole with a standard design height of 15m.

2.7 A new 132kV single circuit overhead line is required between the hydroelectric power station at Earlstoun and the existing substation at Glenlee. The overhead line will be supported on a 'trident' design wood pole with a standard design height of 15m. A short section of underground cable will be required to connect into the Glenlee substation. A photo/graphic showing an existing trident wood pole in the landscape is provided as **Figure 2.2b.**

Removal of Existing Overhead Lines

2.8 The above proposals enable SPEN to remove approximately 90km of existing aged network between Polquhanity and Kendoon, Kendoon and Glenlee (including Earlstoun and Carsfad), Glenlee to Tongland, and Tongland and Dumfries.

Overhead Line Infrastructure

2.9 With an overhead line, conductors (or wires) are suspended at a specified height above ground and supported by wooden poles or lattice steel towers, spaced at intervals. Conductors can be made either of aluminium or steel strands. Most overhead lines at 132 kV and above carry two 3-phase circuits, with one circuit strung on each side of a tower. An earth wire may be required to provide lightning protection. Single circuit lines are used on occasion, and at 132kV, these lines can be supported on wooden poles.

2.10 Conductors are strung from insulators attached to the lower cross-arms or pole steel work and prevent the electric current from crossing to the tower or pole body.

Towers Types

2.11 Towers can be used to carry conductors at 132kV and above. These are generally of a lattice steel construction fabricated from high tensile steel which is assembled using galvanised high tensile steel bolts with nuts and locking devices.

2.12 There are three types of tower:

- Suspension or Line: where the tower is part of a straight line section.
- Tension or Angle: where there is a horizontal or vertical deviation in line direction of a specified number of degrees. There are three main types of angle tower 30 degrees, 60 degrees and 90 degrees.
- Terminal: where the overhead line terminates into a substation or on to an underground cable section via a separate cable sealing end compound or platform.

Tower Heights and Span Lengths

2.13 The section of overhead line between towers is known as the 'span', with the distance between them known as the 'span length'. Span lengths between towers average between 250m and 350m but can be increased if there is a requirement to span something such as a river or a loch.

2.14 Towers are used to regulate the statutory clearances required for conductor height, which is determined by the voltage of the overhead line (the higher the voltage, the greater the safety clearance that will be required) and the span length required between towers.

Tower Colour

2.15 Towers are painted grey. It is not possible to colour towers to camouflage them for all times of day or all seasons. However, the colour of towers can only be recognised from a short distance. Beyond this distance, the colour is not distinguishable and appears as grades of light and dark. Where towers are viewed against the sky, colour cannot be relied upon to diminish visibility, since the lighting characteristics of the sky vary greatly. Towers will turn a dull grey colour after about 18 months.

Wood Poles Types

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

2.17 There are three types of pole:

- Intermediate: where the pole is part of a straight line section.
- Angle: there is only one type of angle pole which can support changes in direction up to a maximum of 300 degrees. All angle structures will require to be back stayed.
- Terminal: where the overhead line terminates into a substation or on to an underground cable section via a cable sealing end.

Wood Pole Heights and Span Lengths

2.18 Span lengths between poles average between 80m and 100m but can go up to 120m. The standard height of poles varies from 14m to 16m.

Wood Pole Colour

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

Underground Cables

2.20 With an underground cable, the conductors are encased in insulated material and buried in a backfilled trench of suitable depth and width. Whilst the number of cables, and the depth and width of the trench depends on the circuit rating and voltage, the width of the trench can be substantial. This would be dependent on the installation method, environmental issues, ground conditions and access requirements during construction. For example, two 132kV circuits run together, each with two cables/phase, would require a trench greater than 2400mm wide (possibly up to 5m wide) with an adjacent working area of up to 3m wide. Where connected to an overhead line, an underground cable may also involve the creation of a fenced compound for the siting of terminal supports and sealing end compounds above ground.

Construction Process

2.21 The construction of overhead lines and underground cables requires additional temporary infrastructure such as temporary accesses to tower/pole locations and to cable trenches and construction compounds to store materials. All have limited maintenance requirements and all are subject to well-established procedures for dismantling/ decommissioning.

Overhead Lines

2.22 Line construction, maintenance and decommissioning usually follow a standard sequence of activities. The duration of these activities for wood pole lines is normally less than for lattice steel tower lines.

2.23 The total duration of construction activity at any single tower site is approximately two weeks for tower foundations, one to two weeks for tower construction, and up to four weeks for conductor erection and stringing depending on the size of the tower and the number of the conductors to be strung. These periods are spread over about four months, with periods of inactivity between, or longer if construction difficulties are experienced elsewhere along the line or ground conditions prevent normal progress. The construction period for wood pole lines is normally less than for tower lines.

2.24 Prior to constructing the overhead line, temporary accesses will be constructed, as necessary, and laydown /storage areas established, usually mid-way along the route. Any trees which may impact on safety clearances will be removed or lopped. Following commissioning of the overhead line, all equipment and temporary access of construction areas will be removed with the land being reinstated to the satisfaction of the landowner.

2.25 The majority of overhead line components are maintenance free, although periodic painting of the tower steelwork may be required and components are regularly inspected for corrosion, wear and deterioration. There is also an ongoing requirement to ensure that any trees within the wayleave corridor do not impact on safety clearances.

2.26 The condition of tower steelwork and foundations is monitored regularly. Towers which have deteriorated significantly may be dismantled carefully and replaced. If a line is decommissioned, towers will be removed with components re-used where possible. Foundations are removed to a minimum depth of one metre below ground level, the area cleared and the ground reinstated.

Underground Cables

2.27 Open cut trenching is the most frequently used construction method for cable installation. However, in crossing under watercourses or motorways for example, a trenchless technique such as directional drilling may be used. Works at each section commonly consist of the construction of a haul road, the excavation of the cable trench by mechanical excavators, cable laying, the backfilling of the trench with sand and native material and surface reinstatement. A typical cable installation rate is up to 160m per week, depending on the terrain. A temporary construction compound is also required and again this is generally located close to the midpoint of the cable route.

2.28 Annual maintenance checks on foot are commonly required during operation. The cable route will also be kept clear of all but low growing vegetation. In the unlikely event that there is a fault along the cable, the area around the fault is excavated and the fault repaired or a new section of cable inserted as a replacement. If lines are decommissioned, cables can either be left in situ or carefully excavated and removed.

Kendoon to Tongland Routeing Consultation

Figure 2.1: KTR Existing Network and Points of Connection

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Existing 132kV line to remain
- Existing 132kV line to be removed (by KTR Project)
- Existing 132kV line to be removed
- 132kV wood pole line consented

Map Scale @ A3:1:150,000

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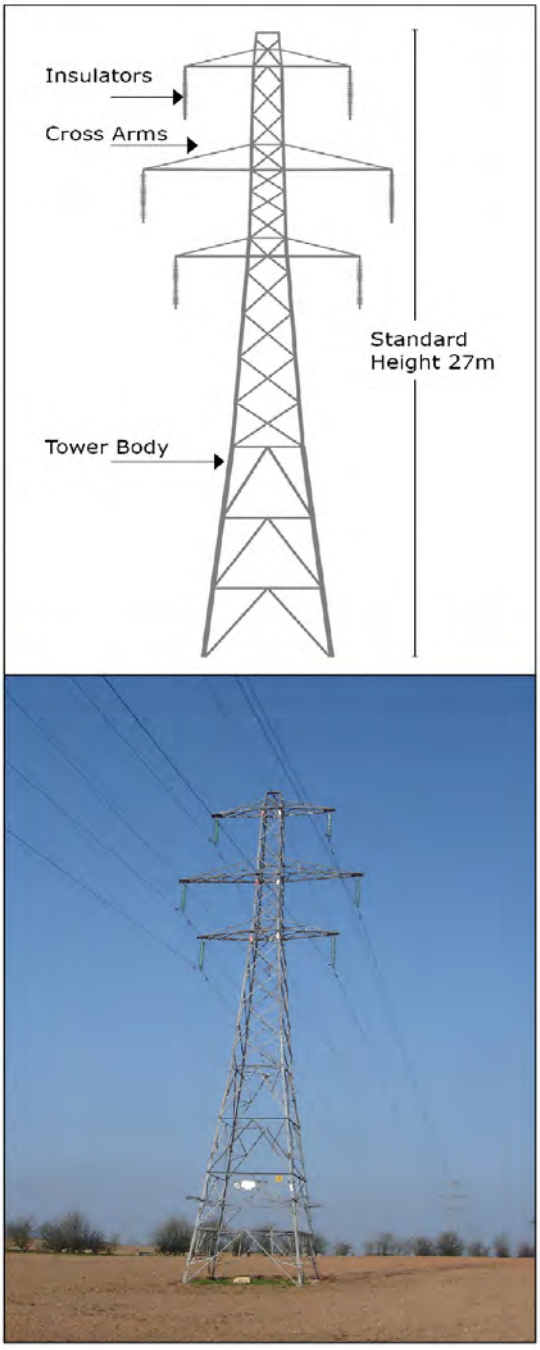
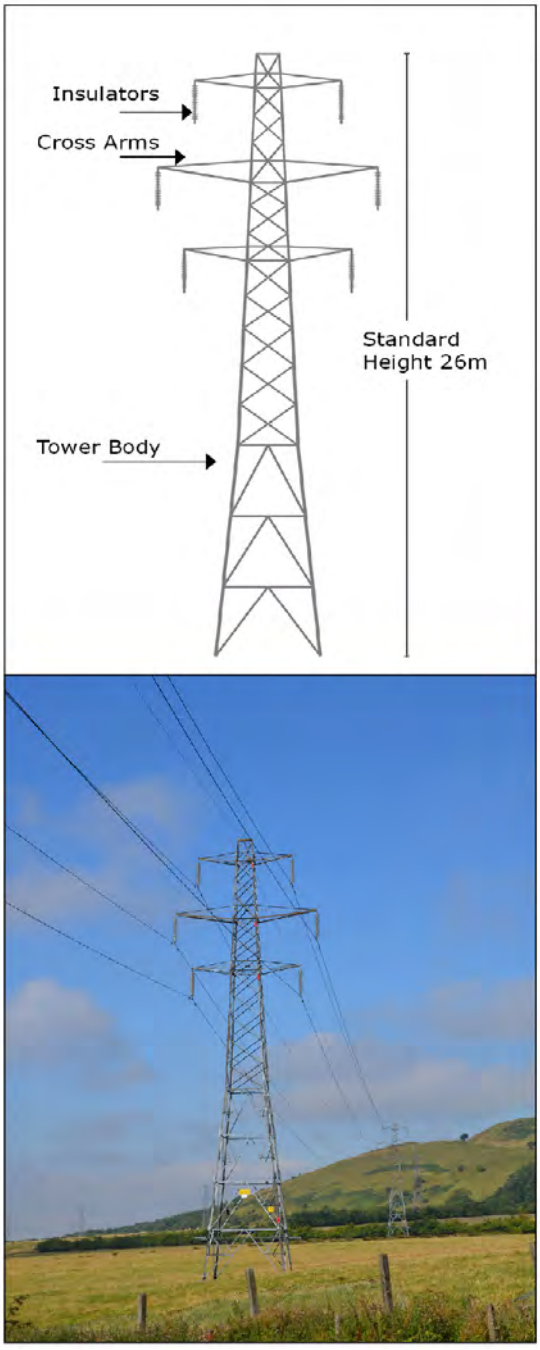
Figure 2.2a: Steel Tower Types



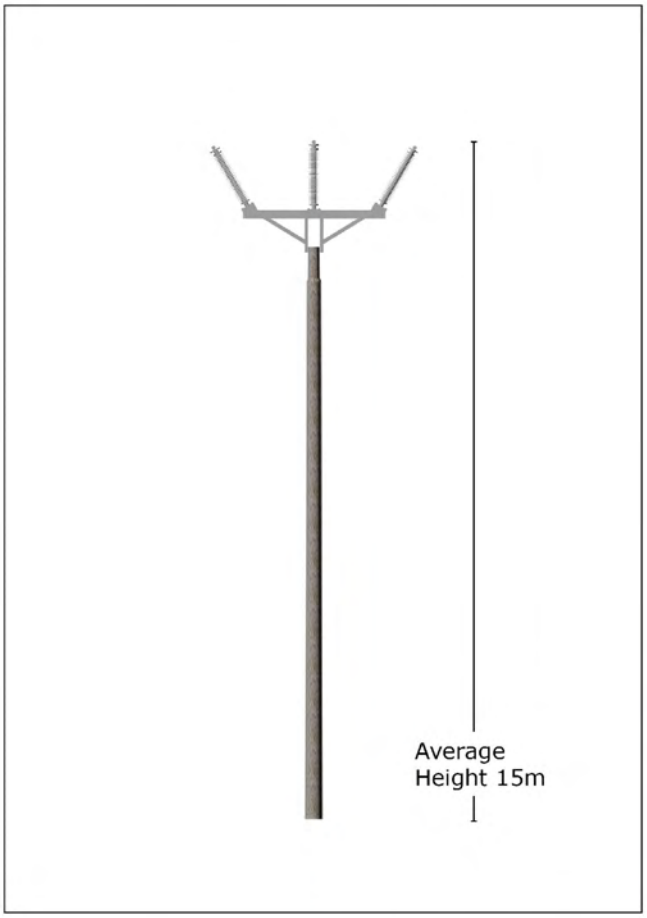
Component parts of 132kV Steel Lattice Tower L7: Polquhanity to Kendoon, and Kendoon to Glenlee.



Component parts of 132kV Steel Lattice Tower L4: Glenlee to Tongland

Source: LUC, SPEN

Figure 2.2b: Wood Pole Type



132kV 'Trident' design Wood Pole
Carsfad to Kendoon and Earlstoun to Glenlee

Source: LUC, SPEN

3 Approach to Routeing

SPEN's Overall Approach

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

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

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

Routeing Objective for the Project

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

> *"To identify a technically feasible and economically viable route for a continuous 132kV overhead line connection supported on lattice steel towers from Polquhanity to Kendoon, from Kendoon to Glenlee, and from Glenlee to Tongland. The Project is also required to identify new 132kV overhead line connections supported on trident wood poles from Carsfad to Kendoon, and from Earlstoun to Glenlee. The routes should, on balance, cause the least disturbance to the environment and the people who live, work and enjoy recreation within it."*

Routeing Methodology

3.5 It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing overhead transmission lines, 'The Holford Rules'[3], with subsequent updates, should continue to be employed as the methodological basis for routeing high voltage overhead transmission lines. The Holford Rules are included as **Appendix 1**.

3.6 Key principles of the Holford Rules include avoiding prominent ridges and skylines, following broad wooded valleys, avoiding settlements and residential properties and maximising opportunities for 'backclothing' and the screening[4] of infrastructure.

3.7 The methodology is also informed by the following:

- SPEN and LUC experience of routeing overhead lines;
- relevant national and local planning policy and guidance;
- consultation with stakeholders including the public (via the Round One Consultation[5]) and the Statutory Stakeholder Liaison Group[6] (SSLG).

[3] NGC 1992, SHETL 2003

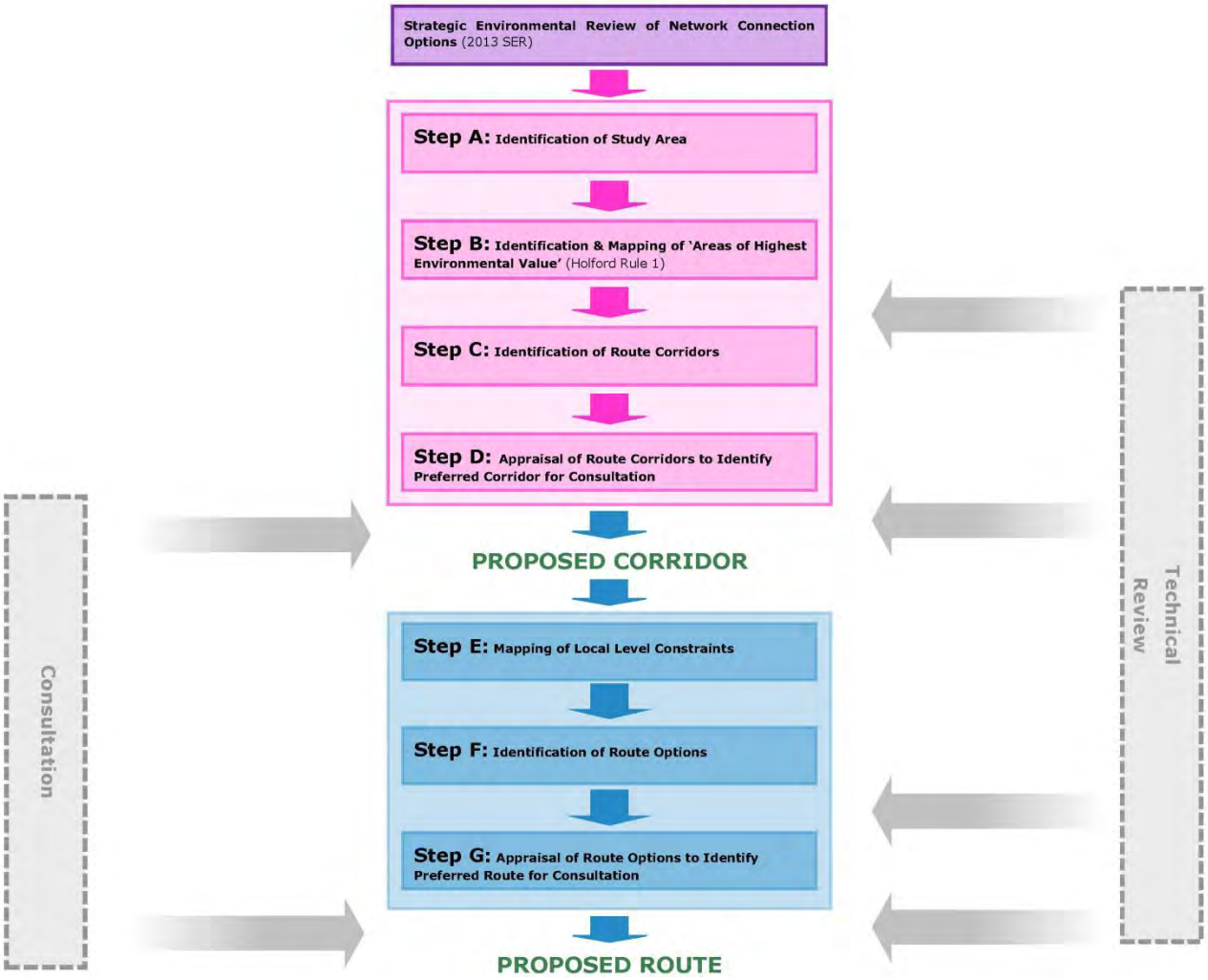
[4] It is acknowledged that in relation to the provision of woodland screening (with reference to commercial woodland in particular) screening is often only of a temporary nature.

[5] Round One Consultation was undertaken between 9th June and 31st August 2015 in relation to the DGSR Project, and involved a three month stakeholder and public consultation.

[6] The SSLG is chaired by the Scottish Government and is attended by SPEN and consultees who are directly involved in the consenting process. Minutes of these meetings are published on the Scottish Government website at http://www.gov.scot/Topics/Business-Industry/Energy/Infrastructure/Energy-Consents/DumfriesandGallowayStrategicReinforcementProject

3.8 The methodology for line routeing comprises a number of broadly sequential steps as shown in **Figure 3.1** below**.** For simplicity, the methodology is set out in a linear manner, with the findings of each step informing the next step, building up an ever increasing level of understanding to inform the routeing process. However, it is important that the process for identification of routes remains iterative. This means that the outcome of each step is subject to a technical and, where relevant, consultation 'check' to ensure that LUC, SPEN and key stakeholders are confident with the findings prior to commencing the next step.

Figure 3.1: KTR Project Routeing Methodology



3.9 Steps A to D of the routeing methodology were undertaken for the KTR Project in 2014/2015 as part of the wider DGSR Project, culminating in the identification of 'preferred corridors' from Kendoon to Glenlee and Glenlee to Tongland. These preferred corridors were taken forward for a three month stakeholder and public consultation between June 9th and 31st August 31st 2015 (Round One Consultation). Following the evaluation of feedback and further SPEN review, the preferred corridors were confirmed as the 'proposed corridors'[7] and these have been progressed to the next steps of the routeing methodology (steps E-G), the subject of this report.

3.10 Steps E to G culminate in the identification of the 'preferred route' for the overhead lines which are taken forward for stakeholder and public consultation. Following the evaluation of feedback and further SPEN review, and assuming no requirement to revisit these preferences, the preferred route is confirmed as the 'proposed route' for progression to the more detailed review of the proposed line alignment which is informed by the parallel EIA stage.

3.11 This routeing report follows on from the findings of steps A-D of the routeing methodology presented within the DGSR Routeing and Consultation Document (May 2015), and provides further detail on Steps E-G of the methodology, i.e. the steps followed to identify preferred routes for each connection comprising the KTR Project.

[7] Copies of the Routeing & Consultation Report (May 2015) and subsequent Summary of Feedback from 2015 Consultation document, which detail the corridor routeing process and SPEN's response to the issues raised, including reasoning for the corridor extension between Glenlee and Tongland, can be found at www.spendgsr.co.uk

3.12 The routeing method for steps E-G continues to follows a staged iterative process as summarised below:

- defining a routeing strategy to guide the identification of a preferred route using baseline information gathered to date (including feedback from the Round One Consultation relevant to the KTR Project) and professional judgement informed by field visits;
- mapping of Holford Rule 1 and 2 constraints (which include regional and local level constraints), as well as opportunities, within the study area (Step E);
- identifying route options using best landscape fit (following Holford Rules 3-7) (Step F);
- appraising route options to identify a preferred route for each overhead line (Step G).

3.13 As shown on **Figure 3.1**, on the basis that the outcome of the environmental and technical appraisal identifies a continuous overhead route which meets the routeing objective for the Project, this is confirmed as 'preferred' and progressed to the consultation stage. However, should the appraisal not identify a continuous overhead route which meets the objective, an iteration to the routeing process is undertaken and the corridor stage revisited.

3.14 It is important to note that at this stage in the routeing process, the approach continues to build on the 'blank sheet' approach adopted at the corridor routeing stage, not solely reflecting the route of existing 132kV overhead lines. This ensures that all potential route options are identified and appraised. Where a corridor includes an existing overhead line, the route option is assessed against the same routeing criteria as newly identified potential route options.

3.15 Application of steps E-G of the routeing methodology, including a summary of feedback on the methodology received from stakeholders as part of the Round One Consultation, is provided in **Chapters 4** to **6**.

Consultation Feedback on Methodology

3.16 The draft routeing methodology was issued to SSLG members in November 2015 for discussion at the SSLG meeting in December 2015. Following the meeting SSLG members were invited to provide their comments on the draft methodology. Due to the reduction in the scope of the DGSR Project, to the currently proposed KTR Project, the routeing methodology was reviewed and revised to reflect the KTR Project and this was re-issued to the SSLG in July 2016. An overview of the comments received from the SSLG members on the routeing methodology of relevance to the KTR Project and how these comments have influenced the methodology are provided in **Appendix 2**.

3.17 In addition to feedback from the consultees, a large proportion of feedback received from the public related to detailed issues and concerns which LUC/SPEN propose to take account of during the routeing and subsequent alignment/EIA stage. Details of the feedback received, grouped by environmental themes, and geographical areas, are presented in the Summary of Feedback from 2015 Consultation (July 2016).

3.18 As outlined above, consideration of the consultee and public feedback has informed SPEN's proposed routeing methodology which has been applied in **Chapters 4** to **6**.

4 Identification of Route Options

Routeing Strategy

4.1 Application of the methodology at the corridor routeing stage identified a preferred corridor which tended to follow the valleys, avoiding the areas of highest environmental value (Holford Rule 1), and limiting widespread visibility of the lattice steel towers and overhead line by avoiding the highest ground wherever possible. The consequence of routeing within the valleys is that potential effects on residential areas and visual amenity from individual properties may need to be balanced with avoiding areas of highest environmental value and/or limiting wider visibility.

4.2 Considering this, the Routeing Strategy which has informed the identification and appraisal of route options is:

> *"To limit visual effects of the proposed overhead lines, routes will seek to avoid high ground and ridgelines and generally follow valleys, responding to the grain of the landscape wherever possible, subject to avoiding areas of highest amenity value. In more densely populated areas this might require a balance, which will be considered on a case by case basis."*

The Study Area

4.3 The study area for the identification of route options for the KTR Project was based on the proposed corridors identified by SPEN through the routeing process and the Round One consultation for the DGSR Project. These corridors are K/G1, for the Kendoon/Polquhanity to Glenlee connection, including the Earlstoun and Carsfad connections, and G/T2, for the Glenlee to Tongland connection. However, as the result of feedback received during the first round of consultation, SPEN has extended the G/T2 corridor to the west in the vicinity of Mossdale, to incorporate the Laurieston Forest.

4.4 The study area is shown on **Figure 4.1.**

Step E: Identification and Mapping of Routeing Considerations

4.5 The next step in routeing was the identification and mapping of Holford Rule 2 constraints, comprising smaller geographical areas of highest amenity value and areas of regional or local high amenity value identified from development plans. These were mapped in addition to those identified during previous steps (corridor identification and appraisal steps A-D), as is consistent with the Holford Rules and SPEN's approach to routeing.

4.6 The technical and environmental features which informed the identification of route options were mapped. They reflect the key considerations of the routeing methodology and consultation feedback and include:

- biodiversity and geological conservation;
- landscape and visual amenity (including residential visual amenity, recreation and links with recreation and tourism);
- cultural heritage;
- land use; and
- forestry[8].

4.7 The mapped information was taken from available GIS data sets, together with that on 1:25,000 scale Explorer Ordnance Survey (OS) maps, as well as information from consultation with stakeholders (e.g. Councils, SNH, and others). Where possible, this information was verified in the field supplemented by the use of aerial photography.

8 Due to the extent of commercial forestry within the proposed study area, and the potential implications for forestry operations as well as forestry as a land use/resource, forestry was treated separately from land use during the routeing stage. It will also be treated separately during subsequent alignment/EIA stages.

4.8 The mapping allowed identification of land within, and in the vicinity of, the proposed corridor which was less constrained by technical or environmental considerations, and was therefore more favourable for identification of route options.

4.9 Given the detailed nature of this stage of the routeing process, maps were prepared for the study area at 1:25,000 scale using Explorer Ordnance Survey (OS) base maps, and used for the identification of route options.

Data Mapped to Inform Identification of Route Options

4.10 The following Areas of Highest Environmental Value, as identified through Step B, paras 5.1 – 5.8 of the DGSR Routeing and Consultation Document (May 2015), which are present within the proposed corridor and 2km wider area (comprising the study area), remain relevant to informing the identification of route options:

- RAMSAR sites (R);
- Special Protection Areas (SPA);
- Special Areas of Conservation (SAC);
- Sites of Special Scientific Interest (SSSI);
- Scheduled Monuments (SMs);
- Inventory Gardens and Designed Landscapes (IGDLs);
- Category A Listed Buildings (LB);
- Settlements;
- Steep slopes and high ground (technical).

4.11 In addition to the relevant Areas of Highest Environmental Value listed above, and further information gathered during Step D of the routeing methodology, paras 7.9 – 7.57 of the DGSR Routeing and Consultation Document (May 2015), set out the information included during the appraisal of corridors stage, which remain relevant to this route option stage namely:

- Regional Scenic Areas (RSAs);
- Key viewpoints including mapped viewpoints and tourist routes,
- Conservation Areas;
- Archaeologically Sensitive Areas;
- Flood risk areas (1/200yr);
- Woodland; and
- Committed and Existing Development.

4.12 Further information was gathered specifically to inform the identification of route options. This comprised Holford Rule 2 considerations which were mapped and treated as 'avoid where possible', or 'where not possible, balanced with other considerations'. As with the earlier stages, justification for the inclusion of information is provided below. Where no features were present within the proposed corridor and 2km wider area (comprising the study area), these are not discussed further below.

Biodiversity and Geological Conservation (including ornithology)

4.13 Local Nature Conservation Sites (LNCS) (Holford Rule 2) are 'catch-all' terms used to define various local nature conservation sites designated by local authorities. In most cases, these are designated as they represent a viable example of a habitat or species of conservation interest at a local level. LNCSs include Local Wildlife Sites (Dumfries and Galloway).

Landscape and Visual Amenity

4.14 As part of the routeing process, more detailed information was gathered through desk and field work in relation to landscape character and visual amenity (most notably in relation to residential properties, where this could be ascertained from publically accessible locations). This was also informed by information collated from consultation feedback (see visual amenity below).

Landscape Capacity

4.15 Landscape capacity refers to the ability of the landscape to accommodate a particular kind of change without significant change in its character, in this instance the introduction of a lattice steel tower, high voltage overhead line development. As part of the original DGSR Project, during the appraisal of route corridors, the capacity of the landscape to accommodate up to 'L8' towers in the order of 46m in height was mapped. Individual Landscape Character Types (LCTs) defined with the SNH Landscape Character Assessments (LCAs) for Dumfries and Galloway (Report No. 94, Land Use Consultants 1998) were used as the starting point in determining landscape capacity across the study area.

4.16 For the identification and appraisal of route options for the KTR Project, it was necessary to consider the ability of the landscape to accommodate lattice steel towers (L7, standard 27m in height and L4 towers standard 26m in height), and 'trident' wood pole infrastructure (averaging up to 15m in height) in greater detail. To achieve this, greater consideration was given to Landscape Character Units (LCUs) which are geographically defined occurrences of each LCT. Based on desk and field study, the landscape capacity of each of these LCUs was determined and in turn used to establish potential variances in the overall landscape capacity of a LCT. This approach allowed a more detailed consideration of how a route option would affect, or fit within, the landscape, and the degree to which potentially adverse effects could be avoided or reduced. A number of indicators were considered to determine the landscape capacity of LCUs as detailed in **Appendix 3**, and the approach also draws on the principles set out in the Holford Rules and Horlock Rules.

4.17 During the identification of route options, these indicators of landscape capacity were considered to ensure the most appropriate landscape fit of the proposed overhead line development. Consideration was given to landform and scale, landcover and pattern, the presence of other man-made influence, the presence and distribution of settlement and evidence of existing and likely future change within the landscape.

Visual Amenity from Residential Properties

4.18 As effects on views and visual amenity are experienced by people as receptors. Receptors at their homes are often judged to be most susceptible to changes in views and visual amenity, therefore information within, and in the vicinity of, the proposed study area, all individual settlements and residential properties were identified. Individual residential properties were mapped using OS AddressBase Plus® data, and a 150m radius applied around each property to reflect the principles within the Further Notes on Clarification to the Holford Rules a) (see **Appendix 1**). The general location of properties, including for example multiple residences within converted agricultural buildings or similar, was verified in the field and the data set updated accordingly. Where possible, route options were identified which avoided encroaching on the 150m 'trigger for consideration zone'. In addition, route options sought to avoid principal views from residential properties, informed by observations made during fieldwork which considered the orientation of properties, the likely availability of views from the property and its curtilage and the presence of intervening screening (e.g. localised landform, woodland, forestry and vegetation, built form and other landscape features).

Visual Amenity from Tourism and Recreation Interests

4.19 Highlighted as a key theme in the public consultation feedback, consideration was also given to visual amenity experienced by people at locations where they undertake recreational activities, including tourist attractions. To inform consideration of visual amenity, a number of potential receptors (i.e. areas where people are undertaking recreation or visiting tourist attractions where views of the surrounding landscape are important to that experience) were identified and mapped, including but not limited to golf courses, holiday/caravan parks, promoted visitor attractions (including the Galloway Forest Park[9].), promoted tourist routes/core paths, and long distance walking/cycle routes.

4.20 Data on recreation and tourism interests was gathered using a desk based approach supplemented by fieldwork and feedback from the Round One consultation. Initially, OpenStreetMap, OS AddressBase Plus® were used to identify and map locations. This data was supplemented by OS Explorer 1:25000 base maps, aerial satellite imagery and data obtained from published material e.g. VisitScotland and Dumfries and Galloway Tourist Board. Sites highlighted by Dumfries and Galloway Council Archaeologist during the DGSR Project as being 'promoted' heritage sites (i.e. of tourism interest) were also included as tourism features[10]. In addition, features identified by stakeholders as part of their feedback on Round One consultation were added to the mapped data, where these were of a location-specific nature. Observations made during fieldwork were used to identify further locations which may not have been identified through the desk and consultation processes.

[9] This is a non-statutory designation established and managed by the Forestry Commission Scotland. Forest parks are extensive areas of forest managed for multiple benefits with particular emphasis on recreation. Identified as a recreational/visitor attraction in Dumfries and Galloway Local Development Plan (page 62).
[10] These features are considered under the cultural heritage appraisal to avoid duplication.

4.21 Route options were identified which avoided promoted/documented views from tourism/recreation viewpoints where possible, and where route options could not avoid crossing a linear recreational feature e.g. core path, routes were identified which crossed these in a perpendicular manner.

Cultural Heritage

4.22 Category B and C Listed Buildings were mapped at this stage. Category B Listed Buildings are considered to be of regional and more than local importance, C(S)[11] buildings are of local importance. Where these are located in clusters, these were avoided where possible in the identification of route options.

4.23 Non-Inventory Gardens and Designed Landscapes are considered to be of regional importance. As areas of regional high amenity value, these were avoided where possible in the identification of route options.

4.24 Unscheduled Archaeology considered to be of likely National Importance is recorded within Local Authority Historic Environment Records (HERs) (sometimes referred to as Sites and Monument Records (SMRs)). Within the study area, these are recorded in the HER maintained by Dumfries and Galloway Council. These were avoided where possible in the identification of route options.

Land Use

4.25 In relation to committed development as a land use, valid planning applications for new residences were mapped and included as residential receptors (as they are considered committed development) and the 150m 'trigger for consideration' radius applied. Where relevant, the curtilages of residential properties were also noted, as shown on OS maps and verified in the field at this stage. In addition, areas subject to a valid planning application for non-residential use (including those not yet implemented), or allocated within the Local Development Plan (2014) which were of a size such that they would influence routeing, were mapped through a combination of planning application information and field observation and avoided[12]. The 'cut-off' date for committed development was 8th July 2016. A review of the status of individual committed developments which have influenced routeing will be undertaken at decision making points throughout the routeing and EIA process.

4.26 In relation to minerals as a land use, in addition to the operational sites and areas allocated for minerals extraction in Development Plans mapped during the corridor appraisal stage, sites with valid planning applications or planning permission for minerals extraction were also mapped and avoided in the identification of route options. Former extraction areas, which have been restored and no longer under licence, and areas considered to as have mineral extraction potential, but are not subject to planning permission, were considered available for routeing at this stage.

Forestry and Woodland

4.27 In accordance with Holford Rule 5, and accompanying notes, woodland was avoided where possible in identification of route options. However, where routeing through areas of extensive woodland would facilitate avoidance of other environmental constraints, including people, in accordance with the routeing objective, the implications of routeing through woodland (including the potential for natural screening and backclothing) was considered.

4.28 When routeing through woodland, routes were identified which avoided ancient woodland, and minimised the loss of native woodland where possible. In identifying route options through commercial woodland, all other things being equal and in accordance with Holford Rule 3, the most direct line was chosen. However, the scope for limiting the effects of the 80m wayleave such as effects on woodland management, woodland loss (e.g. increased felling to a windfirm edge), and visual and ecological effects, was considered, taking account of the type of woodland, age, structure and use in consultation with the forestry manager and/or Forestry Commission Scotland.

Step F: Identification of Route Options

4.29 Reflecting the Routeing Strategy, the identification of route options was undertaken using the methodology set out below to meet the overarching Routeing Objective.

4.30 Whilst the study area broadly comprises the proposed corridors, areas outside the proposed corridors where promoted views look into the corridor, or where cultural heritage features outside the corridor have a setting which extends into the corridor, could influence the alignment of a route option. To allow for this, based on experience of the likely

[11] Historic Scotland reclassified Category C(S) Listed buildings to Category C Listed in 2012.
[12] No such valid planning applications, including wind farms, were present within the study area as of the cut-off date of 8th July 2016.

perceptibility of overhead lines in comparable landscapes, an additional 2km radius either side of the study area was mapped, and potential views from this area were considered during desk based and field based work.

4.31 It is important to note that the corridor 'edges' as mapped do not represent fixed boundaries to routeing. The identification of corridors was undertaken to identify the broad geographic area within which the routeing of an overhead line was considered to be preferable, relative to other geographic areas. Therefore, if an area outside the corridor was identified as being suitable for the accommodation of a potential overhead line, this was identified as a route option for appraisal and consultation.

4.32 Route options approximately 200m wide, which meet technical parameters, whilst wherever possible avoiding environmental constraints, including individual residential properties, were identified using the desk based mapping supplemented by knowledge of the area gathered during field work.

4.33 In addition to seeking to avoid the identified Holford Rule 1 and 2 constraints, consideration was given to Holford Rules 3 to 7.

4.34 Consideration was also given to the 'fit' of the overhead line within the topography and the landscape. Key objectives were as follows:

- follow the grain of the landscape, running within valleys, in parallel with woodland edges, field boundaries etc. wherever possible;
- use woodland and topography as a backdrop to the line, or as a foreground screen (Holford Rule 4);
- minimise the number of crossings of linear features (e.g. roads and rivers), and when appropriate cross at a perpendicular angle;
- minimise the exposure of the line over prominent ridges and skylines (Holford Rule 4);
- avoid creating wirescape with existing infrastructure (Holford Rule 6);
- avoid residential areas as far as practicable, including individual properties which could be adversely affected, particularly by steel towers (Holford Supplementary Note a);
- other things being equal, prefer the shortest and/or most direct alignment (Holford Rule 3).

4.35 Initial desk based identification of route options was followed by fieldwork[13]. The findings from application of the desk based criteria were verified and refined where necessary to more accurately reflect the local conditions and characteristics observed in the field. The identification of route options included understanding the principal/ primary view(s) from residential properties which were considered pertinent to routeing; including consideration of the potential screening provided by local landform, woodland and hedgerows; and identifying important views/locally sensitive landscape characteristics. Modifications were made to the route options, where required, to reflect the findings of the site based field work and identify suitable route options to take forward for appraisal.

SPEN Technical Review

4.36 At this stage, a technical review was undertaken by SPEN to confirm that the route options were technically feasible prior to being progressed to the appraisal step.

Description of Identified Route Options

4.37 Each section of the proposed route was given a unique reference which reflects the substation origin and termination points and the route option letter. For example, route options originating at Kendoon substation (K) and terminating at Glenlee substation (G) are prefixed with K/G and the route option letter e.g. A, B, C etc. The route options for the entire KTR Project are shown on **Figure 4.2.**

Polquhanity to Kendoon (P/K)

4.38 Six route options were identified for the 132kV L7 lattice steel tower connection between Polquhanity T-in point (P) and the existing Kendoon substation (K). The Polquhanity to Kendoon route options are shown on **Figures 4.3a-e**.

[13] Field based observations undertaken from publicly accessible locations.

Route Option A

4.39 Route option A follows the most westerly alignment, running south-eastwards from the Polquhanity T-in point before entering coniferous forestry at the eastern periphery of the Galloway Forest Park. The route option emerges from forestry to the south-west of Dundeugh where the OHL deviates eastwards towards the A713 where it descends towards the river where the OHL then crosses the Water of Deugh, Dundeugh Forest and the Water of Ken to access Kendoon substation.

Route Option B

4.40 Following the same alignment as route option A until south of Dundeugh, route option B crosses east, north-eastwards over the A713 and the Water of Ken to access Kendoon substation, passing south of the woodland at the southern extent of Dundeugh Forest located between the Water of Deugh and Water of Ken.

Route Option C

4.41 Route option C follows the alignment of the existing 132kV OHL closely between Polquhanity and Dundeugh, running broadly parallel to the A713 along the lower slopes of the Glenkens Valley. Once south of Dundeugh, route option C then deviates eastwards to cross the A713 and follow the alignment of route option A as it passes through the woodland of Dundeugh Forest, located between the Water of Deugh and Water of Ken, before connecting into Kendoon substation.

Route Option D

4.42 Route option D follows the alignment of route option C until south of Dundeugh, where the route option deviates south-easterly to cross the A713, before following the alignment of route option B to cross the Water of Ken and access Kendoon substation.

Route Option E

4.43 This route option closely follows the alignment of the existing 132kV OHL and route option C south-eastwards from Polquhanity, until south of the residential property of Hawkrigg where the route option deviates eastwards to cross the A713 and descend towards the Water of Deugh. The route option crosses the river and passes through woodland towards the southern extent of Dundeugh Forest before crossing the Water of Ken and emerging from woodland towards the terminal tower siting area located east of the Water of Ken and Glenhoul Wood. The OHL would terminate at the terminal tower siting area from where an underground cable running south-westwards links this route option to Kendoon substation.

Route Option F

4.44 Initially following the alignment of the existing 132kV OHL at its northern extent, this route option runs south-easterly and broadly in parallel with the A713 until deviating eastwards to cross the road and descend towards the Water of Deugh. The route option then crosses the river and into the Forest of Dundeugh, where the route deviates south-easterly to cross the lower flanks of Dundeugh Hill whilst remaining broadly in parallel with the consented Blackcraig - Margree OHL. Near Carse of Dundeugh, the route option meets the alignment of route option E where it runs eastwards to cross the Water of Ken and accesses the terminal tower siting area. As with route option E the OHL will terminate at the terminal tower siting area from where an underground cable running south-westwards links this route option to Kendoon substation.

Kendoon to Glenlee (K/G)

4.45 Six route options were identified for the 132kV L7 lattice steel tower connection between Kendoon substation (K) and Glenlee substation (G). The Kendoon to Glenlee route options are shown on **Figures 4.4a-b.**

Route Option A

4.46 Route option A follows the alignment of the existing 132kV OHL between Kendoon and Glenlee substations, running southwards along the western slopes of the Glenkens Valley, and broadly parallel with the A713. Near Knocknalling Wood, the route option deviates south-westwards towards Polharrow Bridge, to avoid the A713 and residential properties overlooking the Water of Ken, before re-joining the broad alignment of the existing 132kV OHL near Glen Strand. From here, the route option contours across the mid-slopes of the Glenkens valley, avoiding the highest ground, before passing through Hag Wood and descending towards, and crossing, Coom Burn, where the route then connects into Glenlee substation.

4.47 Route options B to F connect Kendoon and Glenlee substations via the terminal tower siting area north-east of Kendoon substation. For each of these route options, an underground cable would run in a north-easterly direction between Kendoon substation and the terminal tower siting area. Route options B to F are addressed in detail below.

Route Option B

4.48 Route option B runs broadly southwards on the eastern side of the Glenkens Valley, crossing higher ground between Glenhoul Hill and Mackilston Hill to the east of the B7000 and to the east of Carsfad Loch. Once south of Carsfad Loch, the route option heads south-westerly to cross the B7000 before the route option descends towards Earlstoun Loch and the foot of the Glenkens Valley, before deviating westwards to avoid the settlement of St John's Town of Dalry. The route option crosses the A713, Water of Ken and A762 before ascending the lower western slopes of the valley to meet the alignment of the existing 132kV OHL and that of route option A.

Route Option C

4.49 Following the same alignment as route option B until south of Barlaes Hill, route option C continues southwards over higher ground north-west of Ardoch Hill on the east of the Glenkens Valley, before deviating south-westerly to cross the B7000 and descend towards Earlstoun Loch where it meets the alignment of route option A.

Route Option D

4.50 Following the same alignment of route option B until south-west of Ardoch Hill, this route option then deviates west, south-westerly to cross the B7000 near Earlstoun Bridge before descending westwards towards Earlstoun Loch and joining the alignment of route option A north-east of Earlstoun Dam.

Route Option E

4.51 This route option follows the alignment of route option D until east of Earlstoun Bridge, where the route option continues southwards across the upper eastern slopes of the Glenkens Valley before deviating south-westwards as it descends towards the B7000 and the Water of Ken, avoiding blocks of coniferous and broadleaf woodland before meeting the alignment of route options A to D east of the A713.

Route Option F

4.52 Following the alignment of route option E until south-west of Ardoch Hill, this route option continues southwards towards the northern flanks of Blawquhairn Hill before deviating south-westerly to again meet the alignment of route options E and descending towards the A713 and Water of Ken.

Earlstoun to Glenlee (E/G)

4.53 One route option was identified for the 132kV 'trident' wood pole connection between Earlstoun hydro power station (E) and Glenlee substation (E). The Earlstoun to Glenlee route option is shown on **Figures 4.4a-b.**

4.54 Route option E/G heads first south-westerly, and then southerly from Earlstoun hydro power station, following the existing 132kV OHL across the western slopes of the Glenkens Valley, avoiding the higher ground to the west. The alignment then deviates south-westerly where it passes through Hag Wood, before crossing Coom Burn in parallel with the existing 132kV OHL and proposed alignment of the Kendoon-Glenlee route options. Once adjacent to the Glenlee hydro power station, the 'trident' wood pole OHL will terminate and an underground cable will follow the alignment of the minor public roads to access the south-westerly extension to Glenlee substation.

Carsfad to Kendoon (C/K)

4.55 One route option was identified for the 132kV 'trident' wood pole connection between the Carsfad hydro power station (C) and Kendoon substation (K). The Carsfad to Kendoon route option is shown on **Figures 4.4a-b**.

4.56 From the Carsfad hydro power station at the southern end of Carsfad Loch, the 'trident' wood pole route option C/K crosses the A713 westwards before remaining west of the road and running in a northwards direction across the western slopes of the Glenkens Valley. At the head of Carsfad Loch, the route option crosses eastwards over the A713 towards the Water of Ken, before the OHL transfers from 'trident' wood pole to steel tower from where the OHL crosses the Water of Ken eastwards to connect into Kendoon substation.

Glenlee to Tongland (G/T)

4.57 Due to the length of the connection between Glenlee substation (G) and Tongland substation (T), for ease of description and appraisal of options, the study area for the 132kV L4 lattice steel tower connection was divided into five sections and

numbered accordingly from north to south (e.g. 1, 2, 3 etc.). A number of route options were identified within each route section and referenced by letter e.g. A, B, C etc. The Glenlee to Tongland route options are shown on **Figures 4.5a-f**.

Section 1

4.58 Two route options were identified within Section 1, each of which runs between Glenlee substation and a point east of Stroan Loch.

Route Option 1A

4.59 From the south-western extension to Glenlee substation, this route option ascends the western slopes of the Glenkens Valley in parallel with the existing alignment of the 132kV OHL which connect Glenlee and Newton Stewart substations. The route option runs south-west until deviating south, south-eastwards near Bucks Linn Bridge to cross higher ground between Shiel Hill and Gallows Knowe before crossing the A712 and Knocknairling Burn. The route option then enters the coniferous forestry of Galloway Forest Park and runs southwards, whilst taking a westerly alignment avoiding the highest ground of Peal Hill, before deviating south-eastwards to contour around the southern slopes of Cairn Edward Hill and Bennan Hill, before passing east of Stroan Loch.

Route Option 1B

4.60 Following the same alignment as route option A between Glenlee substation and Shiel Hill, route option B then deviates south-eastwards towards Achie Hill before crossing the A712 and Knocknairling Burn east of route option 1A. The route then takes an easterly alignment around Peal Hill before re-joining the alignment of route option 1A to the west, north-west of Cairn Edward Hill.

Section 2

4.61 Eight route options were identified within Section 2, each of which run from east of Stroan Loch to the west of Bargatton Loch.

Route Option 2A

4.62 Route option 2A takes the most westerly alignment of the route options within this section, deviating south-westwards once south of Stroan Viaduct. The route option passes through coniferous woodland before taking a western alignment around Slogarie Hill where the route then deviates southwards past Lochenbreck Loch, and through Laurieston Forest. Once south of the minor road running west from Laurieston, the route option heads south-eastwards towards the A762, crossing near Beoch Moor before passing around the southern shores of Bargatton Loch and northern flanks of Whirstone Hill.

Route Option 2B

4.63 Following a similar alignment to route option 2A, this route option deviates southwards once west of Bennan Hill, passing between the higher ground of Slogarie Hill to the west and the Non Inventory Designed Landscape (NIDL) of Slogarie House to the east. The route option continues south, south-eastwards around the western flanks of Kenick Hill before crossing the minor road running west from Laurieston at Kenick Wood. The route then takes a minor deviation southwards before joining the alignment of route option A and emerging from the coniferous forestry at the south-eastern extent of Laurieston Forest.

Route Option 2C

4.64 Following a more direct alignment southwards from Stroan Viaduct, this route option crosses the Black Water of Dee before passing Slogarie Bridge and the NIDL of Slogarie House. The route option then deviates south-eastwards before entering Laurieston Forest, passing east of the highest ground of Kenick Hill before crossing the minor road running west from Laurieston near Barlue Hill. The route option continues south through coniferous woodland before emerging west of Dinnance Wood and deviating south-eastwards towards the A762 and joining the alignment of route options A and B west of Bargatton Loch.

Route Option 2D

4.65 This route option follows the same alignment as route option 2C, but takes a minor deviation as it emerges from Laurieston Forest, taking a more south-easterly alignment closer to Dinnance Wood before re-joining route option C north-west of Edgarton Loch.

Route Option 2E

4.66 This route option also takes the same alignment as route option 2C. However, south of Stroan Viaduct, the route option follows a minor deviation south-eastwards as it crosses the Black Water of Dee before contouring around the western slopes of Crae Hill and passing east of the residential properties at Banks of Dee. The route option then continues southwards to the east of Barchesney before re-joining the alignment of route option 2C within Laurieston Forest to the south-east of White Hill.

Route Option 2F

4.67 This route option follows that of route option 2E but takes the same minor deviation as route option 2D as it emerges from Laurieston Forest, taking a more south-easterly alignment closer to Dinnance Wood before re-joining the same alignment as route options 2C and 2D north-west of Edgarton Loch.

Route Option 2G

4.68 Route option 2G takes a more direct south-easterly alignment to cross Stroan Viaduct and the Black Water of Dee and passing over the higher ground of Crae Hill south of Mossdale Flow. The route option then continues southwards on the same alignment as route options 2C and 2E.

Route Option 2H

4.69 Following the same alignment as route option 2G until south-west of Laurieston, this route option then takes the same minor deviation as route option 2D and 2F as it emerges from Laurieston Forest, before re-joining the alignment of route options 2C to 2G north-west of Edgarton Loch.

Section 3

4.70 Three route options were identified within Section 3, each of which run south, south-easterly from Bargatton Loch to the A75 east of Ringford.

Route Option 3A

4.71 Route option 3A takes the most westerly alignment of the route options in Section 3. The route option heads south from Bargatton Loch, passing across the eastern flanks of Whirstone Hill and running broadly in parallel with the broad ridge of Barstobrick Hill. The route option then continues south-easterly across farmland towards the A75 before crossing the road north-east of Ringford and ascending the slopes south of the road before meeting the alignment of the existing OHL.

Route Option 3B

4.72 Route option 3B runs south-easterly from Bargatton Loch before passing west and then south of the small hill and cluster of woodland north of Upper Balannan, before joining the alignment of the existing OHL to the north-east of Upper Balannan.

Route Option 3C

4.73 Route option 3C follows a similar alignment to route option 3B, but passes to the north of the small hill and cluster of woodland north of Upper Balannan, before reaching the alignment of the existing 132kV OHL south-west of Dunlop. From here, the route option follows a closely parallel alignment to the existing OHL, passing east of Upper Balannan before crossing the A75 to the north-east of Ringford.

Section 4

4.74 Two route options were identified within Section 4, each of which run south, south-west along the alignment of the existing 132kV OHL.

Route Option 4A

4.75 Route option 4A follows a closely parallel alignment to the existing 132kV OHL as it crosses relatively higher ground between the valleys of Tarff Water to the west and the River Dee to the east and passes between residential properties at Argrennan Cottages and Argrennan Mains.

Route Option 4B

4.76 This route option deviates south-eastwards towards Kennan's Hill passing east of the residential properties at Argrennan Cottages and Argrennan Mains, before deviating south-westwards to re-join route option 4A west of Park of Tongland.

Section 5

4.77 Two route options were identified within Section 5, which run south broadly along the alignment of the existing 132kV OHL from west of Park of Tongland and Tongland substation.

Route Option 5A

4.78 Route option 5A deviates slightly west of the existing 132kV OHL towards the higher ground of Bar Hill to pass west of an area currently being worked / which is allocated for mineral extraction to the east. The route option then descends south-easterly towards Tongland substation passing to the east of Langbarns to access the substation.

Route Option 5B

4.79 Route option 5B follows the alignment of the existing 132kV OHL, running parallel to the minerals extraction area north of Tongland before descending towards Tongland substation, west of the A711.

Kendoon to Tongland Routeing Consultation

Figure 4.1: Study Area

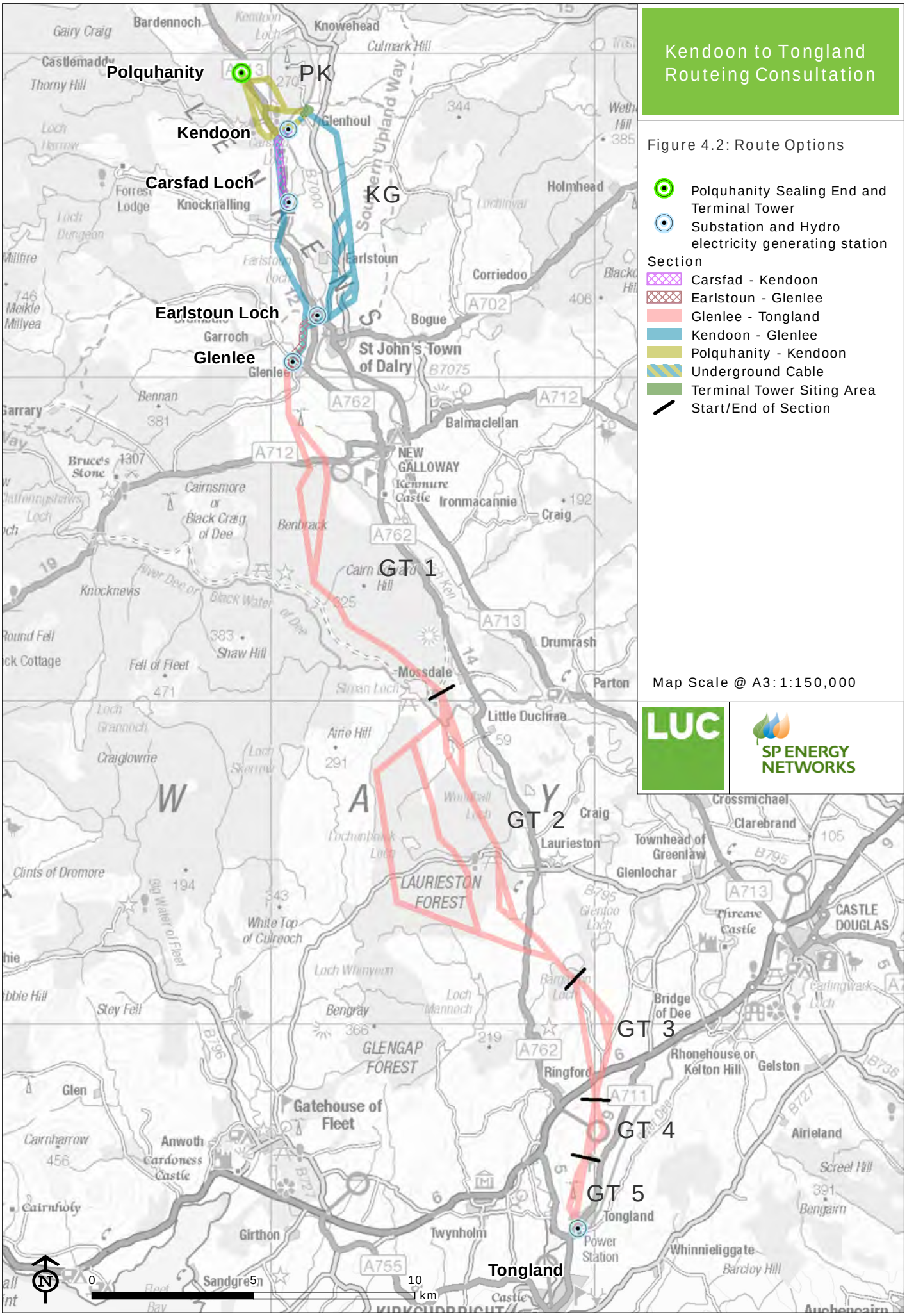
- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Existing 132kV line to remain
- Existing 132kV line to be removed (by KTR Project)
- Existing 132kV line to be removed
- 132kV wood pole line consented
- Proposed Corridor

Map Scale @ A3:1:150,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG04-01_6104-100-r1_KTR_Study Area 29/09/2016



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Kendoon to Tongland Routeing Consultation

Figure 4.3a: Route Options

Polquhanity - Kendoon (PK A)

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Polquhanity - Kendoon
- Existing Network

Map Scale @ A3: 1:15,000

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SP ENERGY NETWORKS

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Kendoon to Tongland Routeing Consultation

Figure 4.3b: Route Options

Polquhanity - Kendoon (PK B)

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Polquhanity - Kendoon
- Existing Network

Map Scale @ A3: 1:15,000

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SP ENERGY NETWORKS

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Kendoon to Tongland Routeing Consultation

Figure 4.3c: Route Options

Polquhanity - Kendoon (PK C)

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Polquhanity - Kendoon
- Existing Network

Map Scale @ A3: 1:15,000

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SP ENERGY NETWORKS

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Kendoon to Tongland Routeing Consultation

Figure 4.3d: Route Options

Polquhanity - Kendoon (PK D)

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Polquhanity - Kendoon
- Existing Network

Map Scale @ A3: 1:15,000

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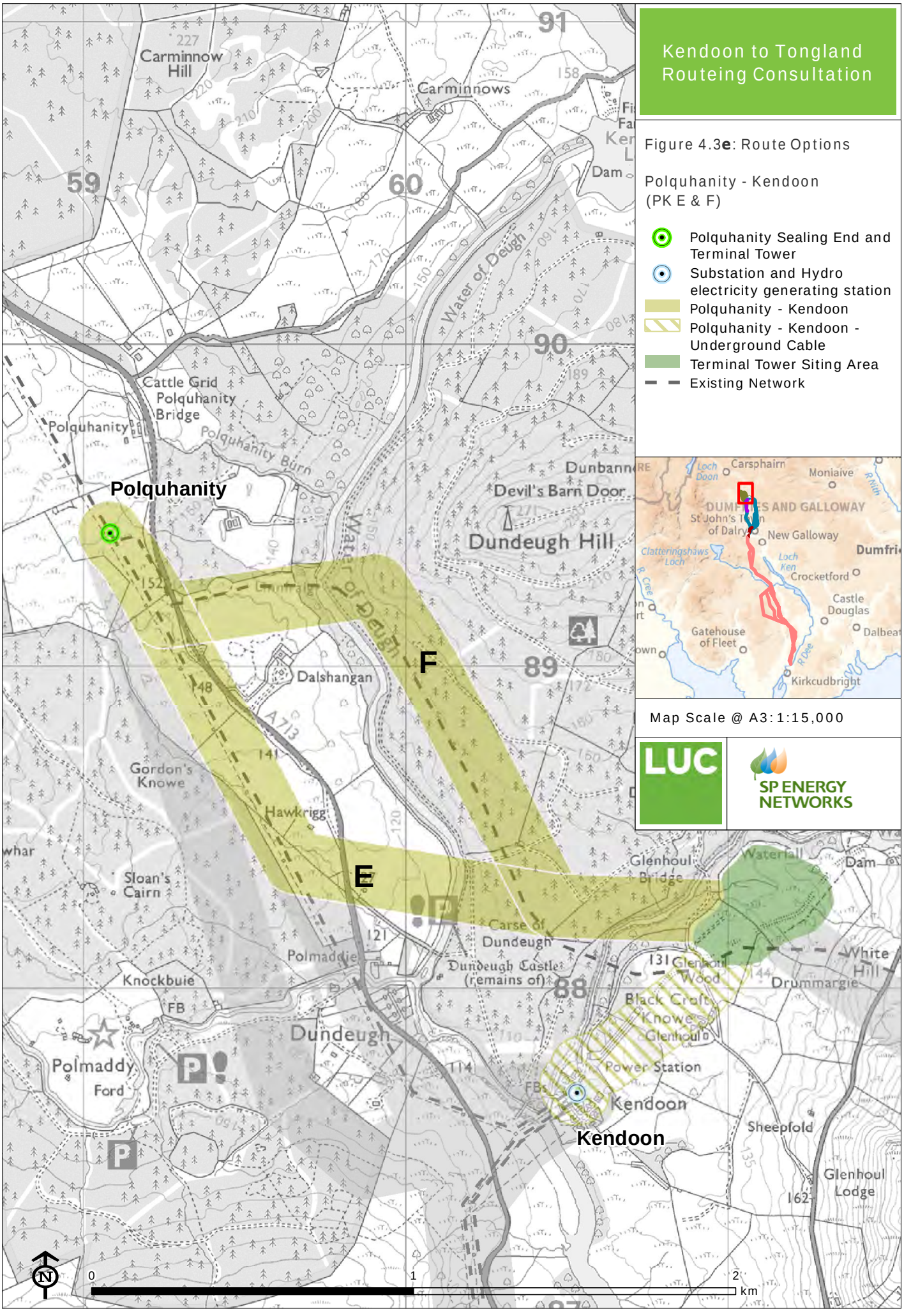

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Kendoon to Tongland Routeing Consultation

Figure 4.4a: Route Options

Kendoon - Glenlee
(KG A & B)

- Substation and Hydro electricity generating station
- Carsfad - Kendoon
- Earlstoun - Glenlee
- Earlstoun - Glenlee - Underground Cable
- Kendoon - Glenlee
- Kendoon - Glenlee - Underground Cable
- Terminal Tower Siting Area
- Existing Network

Map Scale @ A3: 1:35,000

LUC

SP ENERGY NETWORKS

Kendoon

Carsfad Loch

A

B

Earlstoun Loch

Glenlee

0 1 2 km

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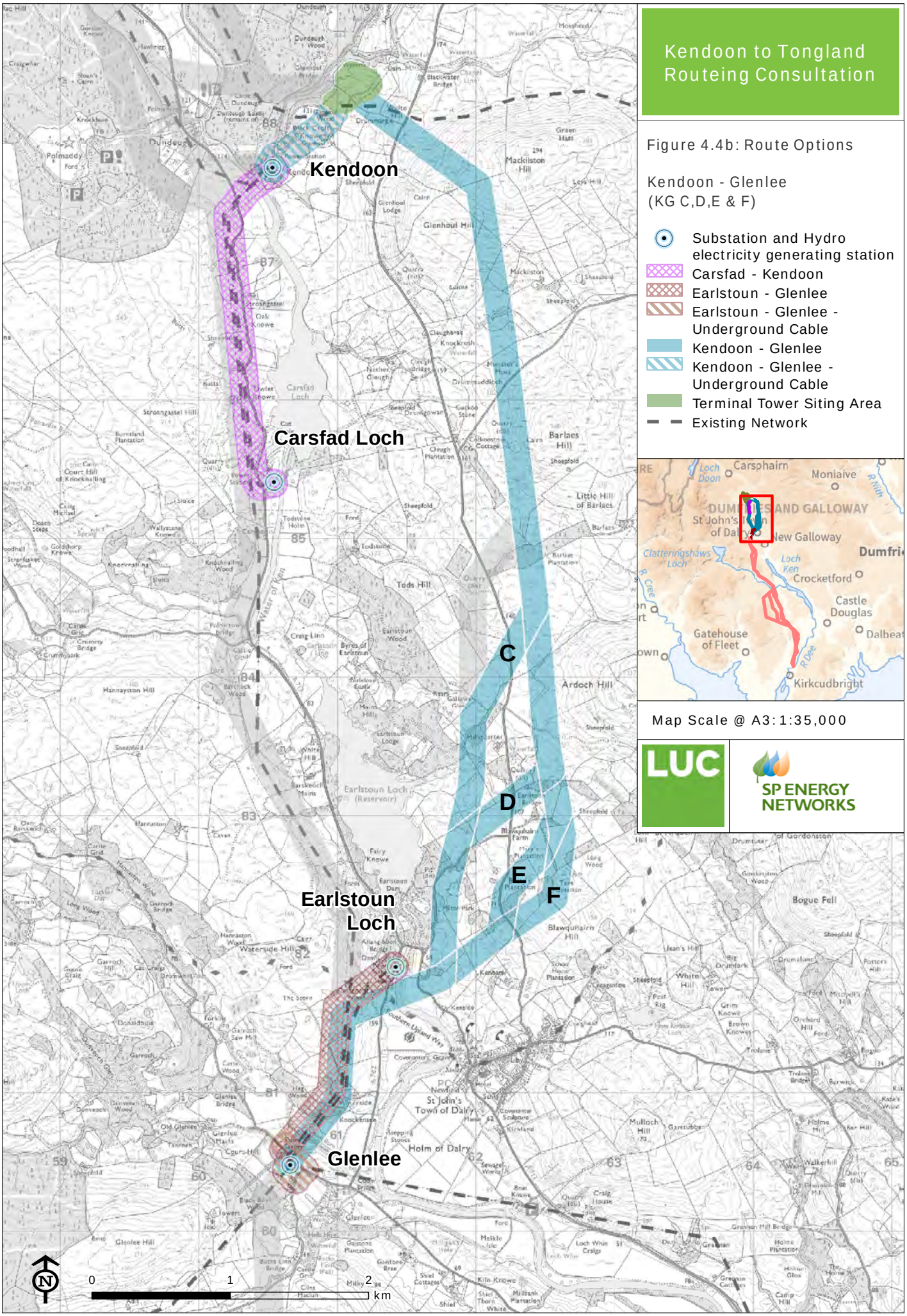

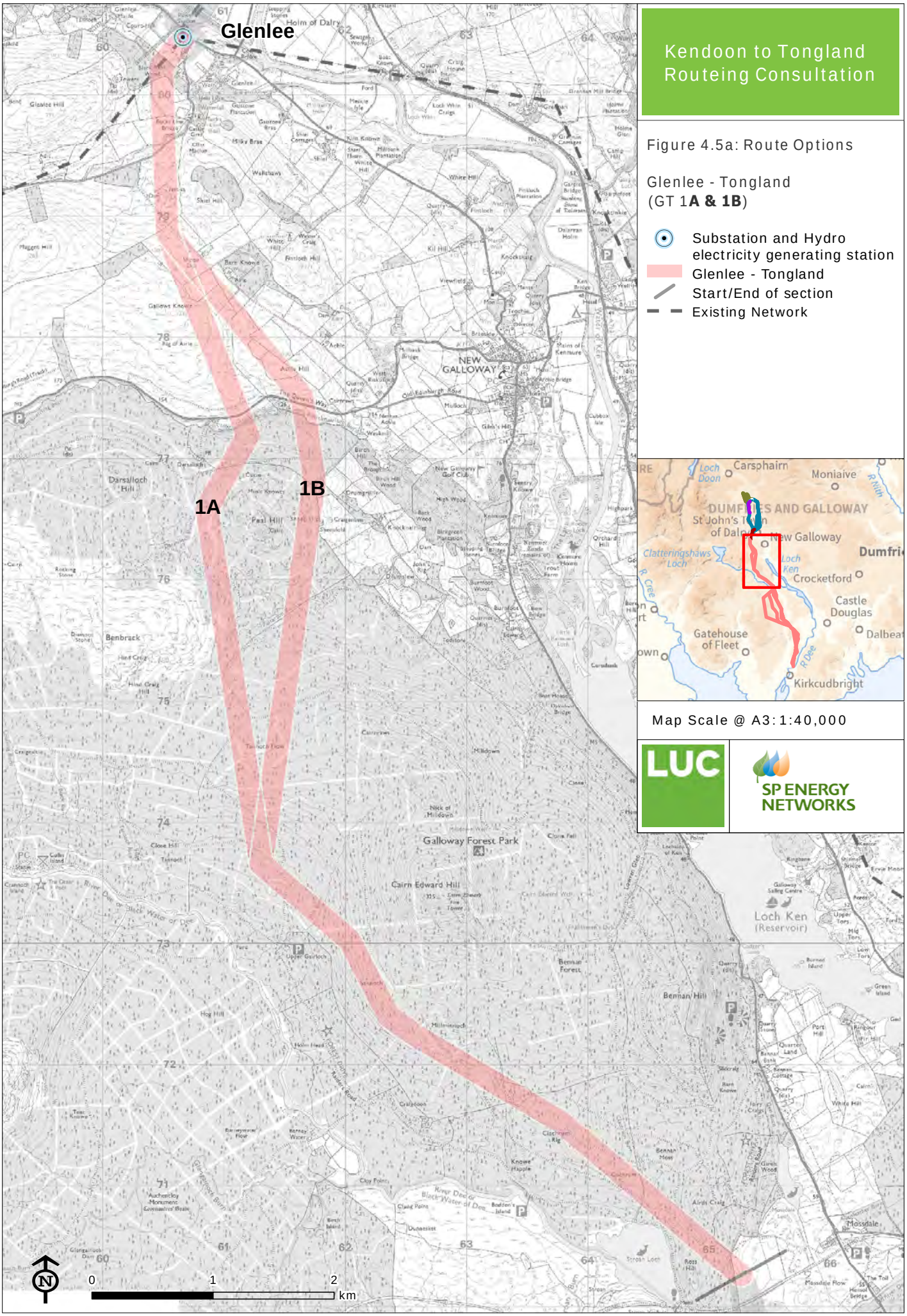

Kendoon to Tongland Routeing Consultation

Figure 4.5a: Route Options

Glenlee - Tongland
(GT 1**A & 1B**)

- Substation and Hydro electricity generating station
- Glenlee - Tongland
- Start/End of section
- Existing Network

Map Scale @ A3: 1:40,000

LUC

SP ENERGY NETWORKS

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Kendoon to Tongland Routeing Consultation

Figure 4.5b: Route Options

Glenlee - Tongland
(GT 2A & 2B)

Glenlee - Tongland
Start/End of section
Existing Network

Map Scale @ A3: 1:40,000

LUC

SP ENERGY NETWORKS

2A

2B

Galloway Forest Park

Laurieston Forest

Beoch Moor

0 1 2 km

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Kendoon to Tongland Routeing Consultation

Figure 4.5c: Route Options

Glenlee - Tongland
(GT 2C & 2D)

Glenlee - Tongland
Start/End of section
Existing Network

Map Scale @ A3: 1:40,000

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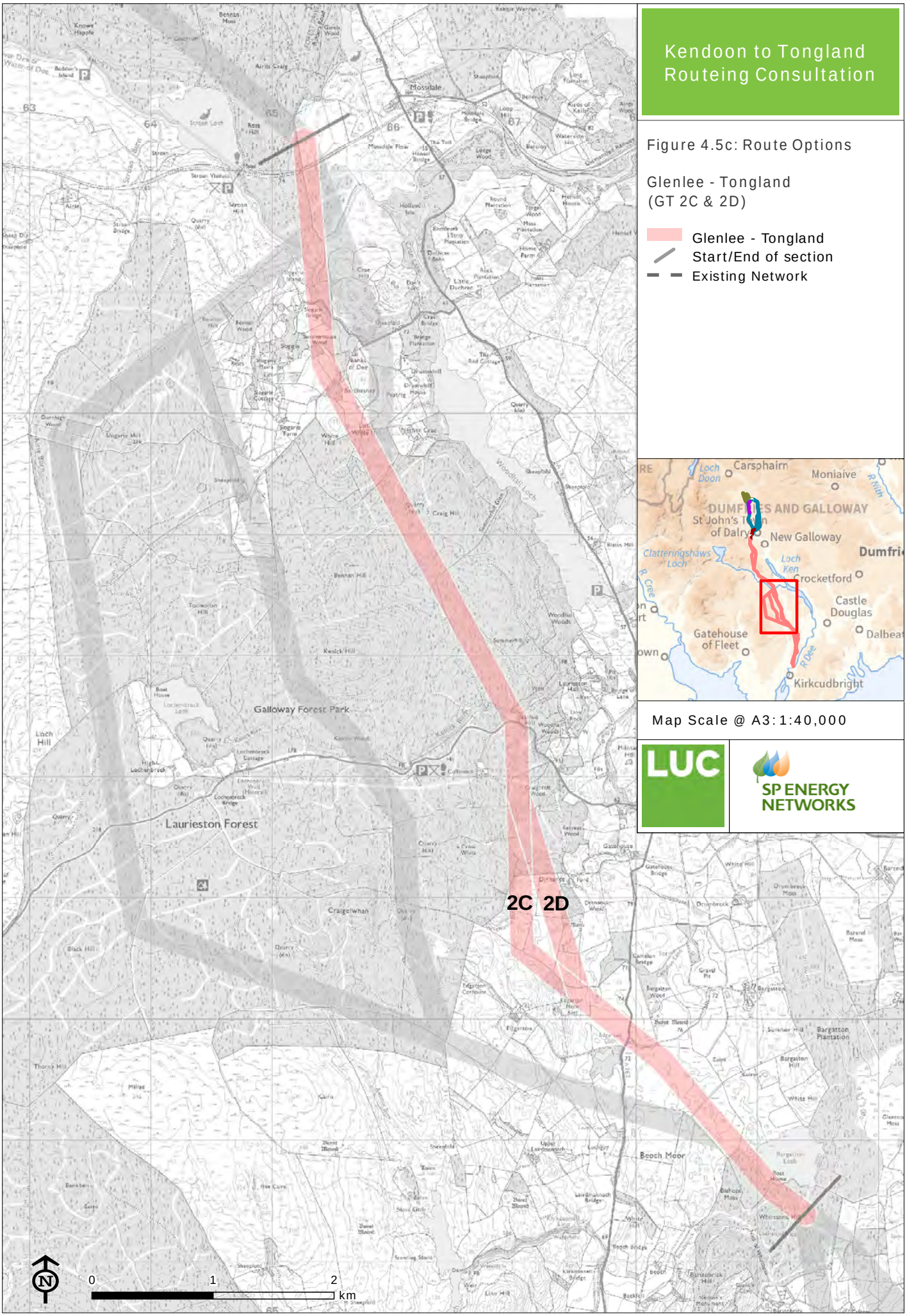
SP ENERGY NETWORKS



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Kendoon to Tongland Routeing Consultation

Figure 4.5d: Route Options

Glenlee - Tongland
(GT 2E & 2F)

Glenlee - Tongland
Start/End of section
Existing Network

Map Scale @ A3: 1:40,000

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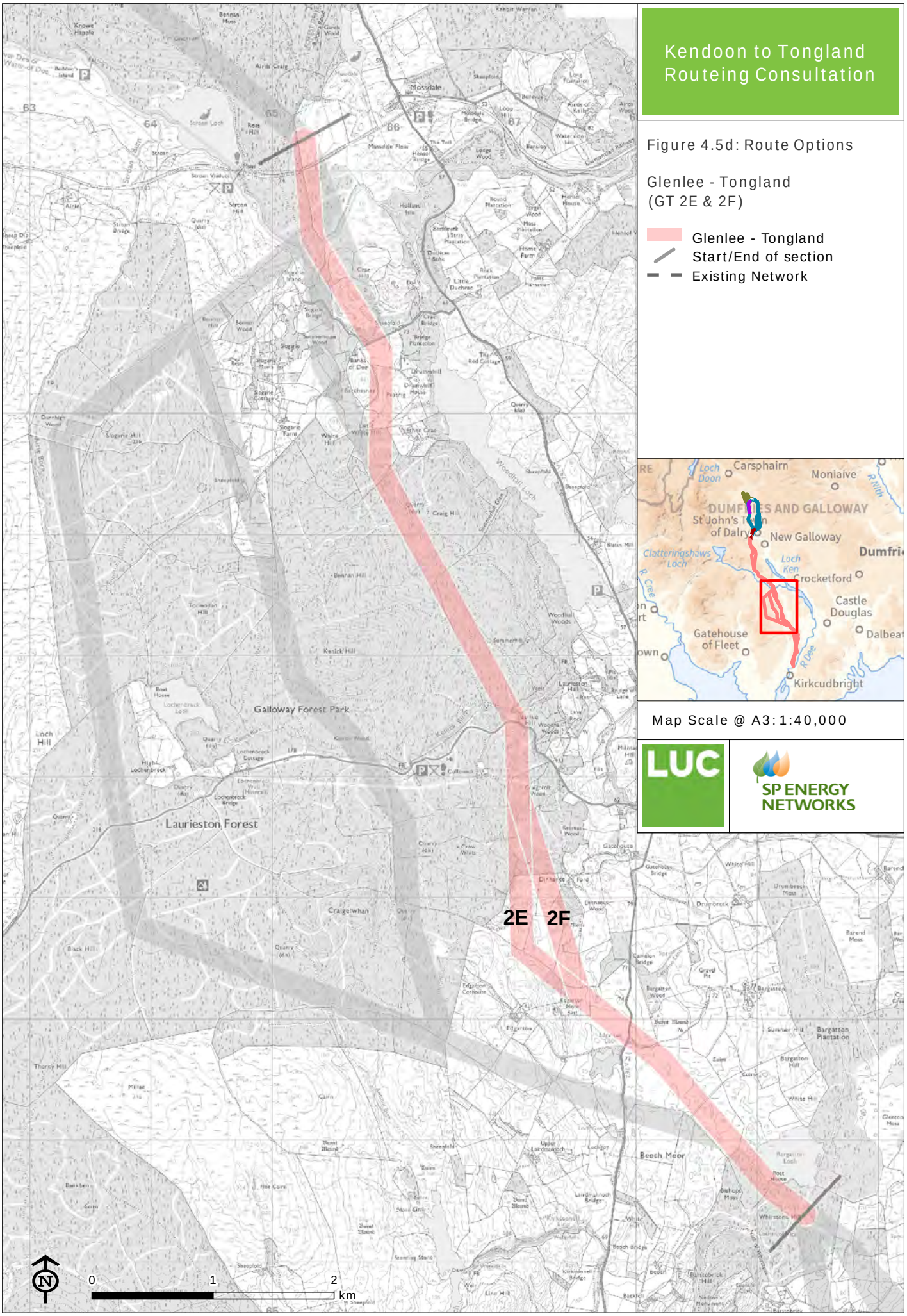
SP ENERGY NETWORKS



Kendoon to Tongland Routeing Consultation

Figure 4.5e: Route Options

Glenlee - Tongland
(GT 2G & 2H)

Glenlee - Tongland
Start/End of section
Existing Network

Map Scale @ A3: 1:40,000

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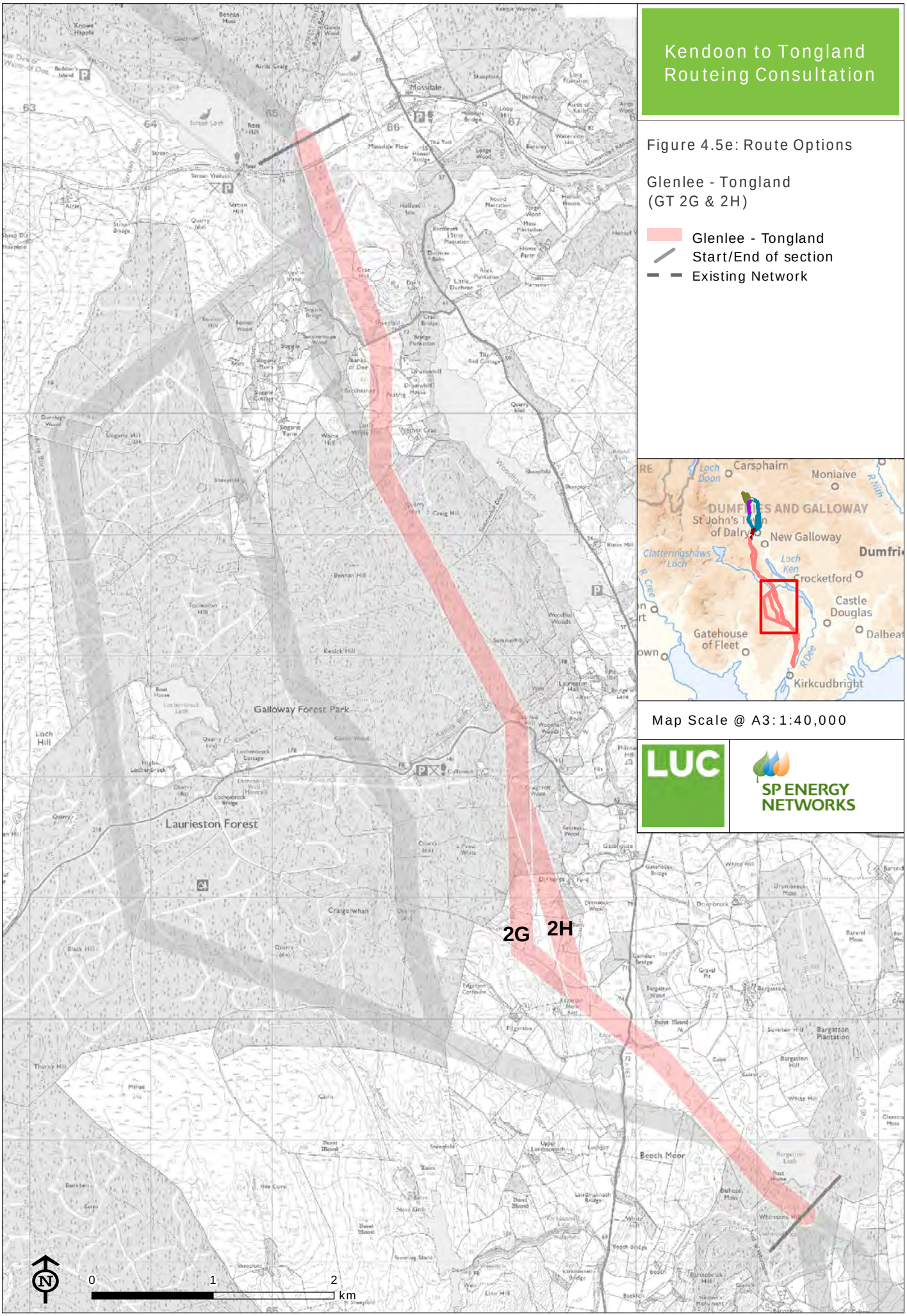
SP ENERGY NETWORKS



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Kendoon to Tongland Routeing Consultation

Figure 4.5f: Route Options

Glenlee - Tongland
(GT 3A-C, 4A/B & 5A/B)

- Substation and Hydro electricity generating station
- Glenlee - Tongland
- Start/End of section
- Existing Network

Map Scale @ A3: 1:40,000

LUC

SP ENERGY NETWORKS

3A 3B 3C 4A 4B 5A 5B Tongland

0 1 2 km

CB:SR EB:robertson_s LUCGLA FIG04-0x_6104-100-r0_KTR_RouteOptions_INDEX 22/09/2016

5 Appraisal of Route Options

Step G: Overall Approach to Appraisal of Route Options

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

5.2 The process also sought to:

- continue to reflect the overall Routeing Objective and Routeing Strategy;
- continue to reflect SPEN's Approach to Routeing and EIA document[14];
- continue to reflect the Holford Rules for Routeing Overhead Transmission Lines;
- draw out distinctions between the routes to enable the relative strengths and weaknesses of each to be identified.

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

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

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

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

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

Appraisal Criteria

5.4 Based on the findings of Steps A- E feedback received from consultation Round One and knowledge of the study area, the route options were appraised using the following criteria, which continue to reflect the key considerations of the routeing methodology:

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

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

Length of Route Option

5.6 Holford Rule 3 states that "other things being equal choose the most direct line". Whilst this rule primarily relates to avoiding sharp changes in direction, and therefore the need for more visually intrusive angle towers/poles, choosing the

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

most direct route may result in fewer adverse effects, than a longer, less direct route (taking due consideration of other constraints).

Biodiversity and Geological Conservation

5.7 SNH has published a series of maps and guidance documents relating to priority peatlands (Mapping of SNH Carbon Rich Soil, Deep Peat and Priority Peatlands (CPP) (July 2016).). By dividing peatland habitat types into 4 broad 'classes', SNH has mapped those areas of Scotland of greatest value for carbon sequestration through peat formation. Class 1 and 2 peatlands are those which offer greatest restoration or carbon-sequestration potential. Whilst not avoided during the identification of route options, the spatial extent of these areas which could potentially be affected by the location of towers/poles was included in the appraisal of route options.

5.8 The Galloway and Southern Ayrshire Biosphere Reserve comprising an area of 5,268km^2 covers the study area. The Core Areas of the Biosphere comprise designated sites which have been avoided during corridor identification and appraisal with the Buffer and Transition Areas extending across the corridor. As outlined in paragraph 7.6 and footnote 21 in the DGSR Routeing and Consultation Report (May 2015), the principles of the Biosphere continued to be reflected during the routeing stage and will continue during subsequent EIA stages, through ongoing consultation with the Biosphere Partnership.

5.9 The ornithological 'trigger for consideration' zones (2km around the Loch Ken and River Dee Marshes SPA and 1km around the Laughenghie and Airie Hills SSSI) continued to be mapped and included as a criterion within the appraisal of route options. Species constituting the qualifying features of these designated sites are reliant on habitats adjacent to, but outside, the designated site boundaries for foraging and, in some cases, for nesting. Hence, for individuals of these species, the presence of a route in the 'trigger for consideration zones' may present a risk of disturbance and collision, and the risk is considered to be proportionate to the length of the route option within this 'trigger for consideration zone'. The appraisal highlights the length of route which intersects with these 'trigger for consideration zones' and whether they can be avoided during the alignment stage.

5.10 In addition, habitual concentrations of potentially sensitive species of high nature conservation importance (Annex 1/Schedule 1 species) which weren't previously taken into account through the inclusion of designated sites were considered. These comprised red kite communal winter roosts, on the basis that these species are known to use traditional roost sites in concentrated numbers from year to year, and birds at the roost are protected from disturbance ('harassment') year round (Schedule 1A of the Wildlife and Countryside Act). Where relevant, roost data held by the RSPB was mapped (although not shown publically due to confidentiality reasons) with a 300m 'trigger for consideration' zone and used to inform the appraisal of route options.

5.11 Furthermore, as requested by SNH, 'trigger for consideration' zones have been applied to the known nest sites of a number of Annex 1/Schedule 1 raptor species identified using confidential data from the Dumfries and Galloway Raptor Study Group and the RSPB within a 50km square zone overlaying the study area. The 'trigger for consideration zone' distances around raptor nests are derived from the literature, primarily Disturbance Distances of Selected Bird Species by Ruddock & Whitfield (2007). Data was received for six Annex 1/Schedule 1 raptor species, although not all these species overlap with route options. Trigger for consideration zone distances were 300 m (red kite), 500 m (osprey, goshawk, peregrine and honey buzzard) and 1 km (golden eagle). In addition, a 750m 'trigger for consideration' zone has also been applied to known Black Grouse lek sites. The appraisal considers intersections between route options and these nest/lek site 'trigger for consideration zones' and whether they can be avoided during the line alignment stage. If a nest site trigger for consideration zone cannot be avoided, information gathered during EIA surveys, design of the route alignment, implementation of a construction management plan and, if necessary, other practical measures will be used to mitigate potential adverse impacts.

5.12 The appraisal also takes account of SNH Guidance[15] on 'new versus replacement power lines' by favouring route options which align most closely with wayleaves for existing power lines, where these do not encroach on designated sites. This aims to minimise overall effects on birds as areas currently supporting infrastructure are assumed to be already disturbed and local bird populations may be habituated to the presence of this infrastructure.

5.13 Other species of high/moderate conservation concern will be considered during the alignment/EIA stage in relation to i) collision risk and ii) disturbance during construction and operation.

5.14 The biodiversity considerations taken into account during the route option appraisal are shown on Figures **5.1a-e.**

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

Landscape and Visual Amenity

5.15 The landscape considerations taken into account during the route option appraisal are shown on **Figures 5.2 a-e**. Consideration of landscape capacity at the LCU scale was supplemented by observations made during fieldwork to appraise the relative landscape fit of each route option, with reference to the indicators of landscape capacity. Consideration was given to landform and scale, landcover and pattern, the presence of other man-made influence, the presence and distribution of settlement and evidence of existing and likely future change within the landscape (as set out in **Appendix 3**).

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

5.17 Where route options cannot avoid promoted tourism/recreational viewpoints and/or routes, the implications for tourism/recreational receptors were highlighted in the appraisal.

5.18 The visual considerations taken into account during route option appraisal are shown on Figures **5.3 a-e.**

Cultural Heritage

5.19 When appraising the route options, where a route was not able to avoid category Listed Buildings, Non-Inventory Gardens and Designed Landscapes and Unscheduled Archaeology of likely National Importance[16], or where the route was located within proximity to these assets, the implications of this in relation to direct effects during the alignment stage have been highlighted within the appraisal. Unscheduled Archaeology of regional and local significance was also mapped at this stage and taken account of in the appraisal.

5.20 Where a cultural heritage asset has been identified by Historic Environment Scotland and/or Dumfries and Galloway Council Archaeologist as being potentially sensitive to effects on its setting, it has been specifically appraised (findings presented in **Appendix 5**).

5.21 The cultural heritage considerations taken into account during the route option appraisal are shown on **Figures 5.4 a -e.**

Land Use

5.22 When appraising the route options, where a route was not able to avoid the committed development, or where the route was located within proximity to committed development (e.g. within the 150m 'trigger for consideration zone'), the implications of this for the alignment and/or subsequent EIA stage were highlighted. The land use considerations taken into account during the route option appraisal are shown on **Figures 5.5 a-e.**

Flood Risk

5.23 In relation to potential conflicts with policy relating to flooding and to avoid potential increase to flood risk, SEPA flood zones were mapped using GIS. When appraising the route options, the ability to span the flood zone (average span of 250m for steel towers and 100m for wood pole) was considered. The appraisal considered the potential to cross the flood zone at the narrowest point, all other environmental/ technical considerations being equal.

5.24 The flood risk considerations taken into account during the route option appraisal are shown on **Figures 5.5 a-e.**

Forestry and Woodland

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

5.26 These forests were then divided into three groupings:

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

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

[16] (a list of Listed Buildings and Unscheduled Sites of National Importance within 2km of route options is provided as Appendix 4.)

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

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

5.30 In undertaking the appraisal, consideration was given as to whether or not the ASNW and NWSS forests can be avoided during the route alignment/EIA stage, assuming that the final wayleave within commercial forestry will be up to 80m in width (i.e. 40m on either side of the OHL). Due to the often scattered and broken nature of natural forests, there is frequently the opportunity to avoid areas through careful consideration of the line alignment. . Consideration will also be given to minimising impacts on commercial forestry at the route alignment stage, taking account of the need to create long term stable forest edges and to minimise impacts on forestry management practices.

5.31 The forestry considerations taken into account during the route option appraisal are shown on **Figures 5.5 a-e.**

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

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

5.33 The appraisal criteria are presented in **Table 5.1** below. Where an environmental factor was not located within the study area, or did not influence the appraisal, it is not included within the table below or the appraisal tables within **Appendix 6.**

Table 5.1: Appraisal Criteria for Route Options

CRITERION	SUB-CRITERIA	OBJECTIVES
Biodiversity and Geological Conservation	RAMSAR Sites*[17] Special Protection Areas Special Areas of Conservation* Sites of Special Scientific Interest Local Wildlife Sites (Dumfries and Galloway)*	To seek to avoid/reduce, as far as practical, effects on designated sites of ecological or geological conservation importance. (Holford Rule 1 and 2).
	Ornithology trigger for consideration zones around designated sites and habitual concentrations of species of high conservation value and known nest sites of Annex 1/Schedule 1 raptor species and Black Grouse leks.	To seek to avoid/reduce, as far as practical, effects on ornithological species of high conservation value. (Holford Rule 1).
	SNH Priority Peatland Habitats (Classes 1 and 2)	To seek to avoid/reduce loss of peatlands in accordance with Scottish Planning Policy (SPP). (Holford Rule 2).
Landscape and Visual Amenity	National Scenic Areas Regional Scenic Areas	To seek to avoid/reduce, as far as practical, effects on designated landscapes. (Holford Rule 1 and 2).
	Landscape Capacity	To contribute to the understanding of likely landscape and visual sensitivities within

[17] * the geographical location of these features are such that they have not informed the identification or appraisal of route options.

CRITERION	SUB-CRITERIA	OBJECTIVES
	Visual amenity from residential properties (residential visual amenity). Tourism and Recreation: key viewpoints (visual amenity) - promoted viewpoints, tourist attractions and recreational areas, including the Galloway Forest Park.	different areas for routeing within corridors. (Holford Rules 4, 5, 6 and 7). To seek to avoid/reduce, as far as practicable, potential effects on views from residential receptors. To seek to avoid/reduce, as far as practicable, potential effects on formal/informal recreational areas and tourism features. (Further Notes on Clarification to the Holford Rules).
Cultural Heritage	Scheduled Monuments Listed Buildings Category A, B and C Inventory Gardens and Designed Landscapes* Conservation Areas Archaeologically Sensitive Areas Non-Inventory Gardens and Designed Landscapes Unscheduled Archaeology of National, Regional and Local Importance (Dumfries and Galloway HER).	To seek to avoid/reduce, as far as practical, direct effects and indirect effects on the setting of designated features of cultural heritage interest. (Holford Rule 1 and 2).
Land Use	Existing and committed development: areas allocated within LDP including existing buildings/sites, residential use applications and valid planning applications for other non-residential uses including minerals.	To seek to avoid/reduce, as far as practical in the circumstances, effects on existing and committed development. (Holford Rule 7).
Forestry	Commercial forestry, Ancient and Semi Natural Woodland and Native Woodland.	To seek to avoid/reduce, as far as practical, effects of forestry, particularly areas of ancient woodland and native woodland, and on future forestry operations. (Holford Rule 5).
Flood Risk	Flood zones and waterbodies	To cross flood zones at their narrowest point with overhead lines to minimise locating infrastructure within flood zones.

Appraisal Findings

5.34 **Table 5.2** below presents the emerging preference for each component of the KTR Project, i.e. the preference made in relation to environmental considerations only; including the overarching reasoning for the preference in relation to the appraisal findings.

5.35 The detailed appraisal findings are included as **Appendix 6**.

Table 5.2: Emerging Route Preferences

Project Section	Route Option Preference	Reasoning
Polquhanity to Kendoon (P/K)	Route Option B	Whilst route option B is the joint longest route (although not substantially longer), on balance it is preferred as it is routed within the forestry to the west of the A713, minimising views from this tourist route and avoiding the principal views of the properties at Polmaddie and Dundeugh. This route option enables the removal of the existing 132kV OHL from the principal views, and a number of curtilages, of these properties. This route also avoids the committed development to the east of the residential properties Polmaddie. However, during the route alignment stage, consideration will require to be given to minimising potential effects on the black grouse lek, and potential effects on the settings of Dundeugh Castle and other features of cultural heritage interest. Whilst routeing through commercial woodland will enable the OHL to be backclothed from the A713, and cultural heritage features, the alignment will need to be designed to minimise loss of, and disruption to, commercial woodland.
Kendoon to Glenlee (K/G)	Route Option A	Route option A is preferred as it is the shortest route and predominantly follows the existing 132kV OHL which has been accommodated into the landscape, whereby effects on views and visual amenity will be similar to those currently experienced. It also avoids the principal views of residential properties located within 150m of the OHL. However, during the route alignment stage, consideration will be given to minimising potential disturbance to an Annex 1/Schedule 1 raptor nest, the Archaeologically Sensitive Area, and the Non Inventory Designed Landscape within which the existing OHL is located. Minimising the number of towers located within the flood risk zone will also form key objectives during the route alignment stage.
Glenlee to Tongland (G/T)	GT1: Route Option 1A	Route option A is preferred as it is the shortest route (although not substantially) and avoids the trigger for consideration zone of the Loch Ken and River Dee SPA. Option A also minimises the possibility of long distance views from the Glenkens Valley, the A762, the settlement of New Galloway, cultural heritage features, and with the exception of properties south of Glenlee substation (where it follows the existing OHL), avoids proximity to residential properties. However, views may be possible from sections of recreational trails, including the FCS promoted Raiders Road, and minimising effects on this tourism and recreational resource will form a key objective of the route alignment stage. Whilst option A affects less NWSS and commercial forestry, the alignment will need to be designed to minimise loss of ancient woodland, and loss of and disruption to, commercial forestry.
	GT2: Route Option 2B	Whilst route option B is the second longest route, on balance it is preferred as the presence of woodland and localised landform form a backcloth in views from the scattered properties south of Mossdale around Slogarie and Laurieston. Option B also avoids the immediate setting and grounds of Slogarie and Laurieston Hall Non Inventory Designed Landscapes. However, option B, does need to cross/route in proximity to promoted recreational areas e.g. FCS Black Water Riverside Walk, Raiders Road and Stroan Bridge Link, and minimising effects on users of these tourism/recreational features will form a key objective of the alignment stage. Option B also routes through the second longest section of 'trigger for consideration zone' (potential breeding and foraging areas) of the Laughengie and Airie Hills SSSI and two 'trigger for consideration zones' for Annex 1/Schedule 1 raptor nest sites (one

Project Section	Route Option Preference	Reasoning
		overlaps only). During the route alignment stage, consideration will be given to the flight activity within the SSSI 'trigger for consideration zone' by foraging birds and minimising disturbance/collision risk to Annex 1/Schedule 1 raptors. Furthermore, option B routes through the easternmost extent of the Grobdale ASA and potentially the southernmost extent of the Stroan Settlement HER of national importance, and minimising direct and indirect effects on these cultural heritage features in addition to the setting of Edgarton Mote will form a key objective of the alignment stage. Where the OHL will be routed through Laurieston Forest, consideration will be given to minimising loss of NWSS and loss of, and disruption to, commercial woodland.
	GT3: Route Option 3C	Whilst route option C is the longest route (although not substantially), it is preferred as it follows the alignment of the existing 132kV OHL which has been accommodated into the landscape, whilst not encroaching within close proximity to residential properties with open views of the OHL. Option C is also the joint greatest distance from Barstobrick Hill fort HER of National Importance, in relation to potential effects on its setting. However, the route alignment stage will need to take account of the committed development to the east of Upper Balannan which has had planning permission granted for the siting of 444 bases and holiday lodges, and minimising potential effects on the Annex1/Schedule 1 raptor nest and commercial woodland.
	GT4: Route Option 4A	Route option A is preferred as it is the shortest route and closely follows the alignment of the existing 132kV OHL which has been accommodated into the landscape. It will not encroach within as close proximity of residential properties which have open views of the OHL, and will not affect views from the Tongland Family Golf Centre. However, the properties at Argrennan Cottages and Argrennan Mains will form a key consideration during the route alignment stage, in relation to residential visual amenity.
	GT5: Route Option 5B	Route option B is preferred as it is the shortest route (although not substantially) and closely follows the alignment of the existing 132kV OHL which has been accommodated into the landscape. It also avoids the mineral extraction quarry north of Tongland, however the area with potential for mineral extraction will required to be considered during route alignment.
Carsfad to Kendoon (C/K)	Route Option A	This is the only route option. The key considerations for the route alignment stage are likely to comprise residential visual amenity (albeit for a small number of properties), cultural heritage, including routeing through/adjacent to the Polharrow Burn Archaeologically Sensitive Area, minimising loss of native woodland and crossing the flood zone southwest of Kendoon.
Earlstoun to Glenlee (E/G)	Route Option A	This is the only route option. The key considerations for the route alignment stage are likely to comprise visual amenity (e.g. views from the SUW and Galloway Tourist Route), cultural heritage, minimising loss of commercial and ancient woodland and crossing the flood zone at the Garroch Burn/Coom Burn confluence.

Technical Review of Emerging Preferred Routes

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

5.37 The outcome of this technical review was the consideration of the individual emerging preferred routes to in combination i.e. the KTR Project as a whole as set out below.

Consideration of Combined Effects of Emerging Preferred Routes

5.38 Following technical confirmation of the emerging route preferences for each part of the KTR Project, an environmental review was undertaken of the connections in combination with each other. The objective of this review was to ensure that in combination, the emerging preferred routes continue to meet the routeing objective and SPEN's statutory duties.

5.39 Cumulative effects are possible from the Kendoon to Glenlee steel tower connection (route option K/G-A) in conjunction with the Carsfad - Kendoon and Earlstoun - Glenlee 'trident' wood pole connections at its northern end (Carsfad) and southern extent (Earlstoun), as the OHLs are all located in parallel to one another on the west side of the Glenkens Valley.

5.40 The Kendoon to Glenlee connection will be visible in combination with the Carsfad and Earlstoun connections in views from the Galloway Tourist Route and the Southern Upland Way, and in longer distance views across the Glenkens Valley from the settlement of St John's Town of Dalry. To minimise cumulative effects, the Kendoon to Glenlee connection will, where possible, remain on the west side of the two trident wood pole connections to avoid the need for crossing of the OHLs. The Earlstoun underground cable section between the terminal tower location north of Glenlee and the substation entry on the south-western side of the substation will however, minimise cumulative effects on residential properties/receptors.

5.41 Cumulative effects will continue to be considered during the route alignment and EIA stages of the KTR Project.

Conclusion

5.42 On the basis of the findings of the environmental appraisal and technical review undertaken as Step G of the routeing process, the emerging preferred routes were confirmed by SPEN as preferred routes, which SPEN believe meet the Routeing Objective. These preferred routes, along with the alternatives considered, form the basis of this consultation with stakeholders and the public. Further details in relation to the consultation process are provided in **Chapter 7**.

Kendoon to Tongland Routeing Consultation

Figure 5.1a: Biodiversity Criteria

Polquhanity - Kendoon

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Terminal Tower Siting Area

Section

- Polquhanity - Kendoon
- Polquhanity - Kendoon - Underground Cable

Biodiversity Criteria

- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site

Priority Peatland Habitats

- Class 1
- Class 2
- 2km

Map Scale @ A3: 1:25,000

LUC

SP ENERGY NETWORKS

0 1 2 km

CB:SR EB:robertson_s LUCGLA FIG05-1_6104-100-r0_KTR_Biodiversity_INDEX 21/09/2016

Source: SNH, HS

Kendoon to Tongland Routeing Consultation

Figure 5.1b: Biodiversity Criteria

Polquhanity

Kendoon

Carsfad Loch

Earlstoun Loch

Glenlee

Kendoon - Glenlee

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Terminal Tower Siting Area

Section

- Carsfad - Kendoon
- Earlstoun - Glenlee
- Earlstoun - Glenlee - Underground Cable
- Kendoon - Glenlee
- Kendoon - Glenlee - Underground Cable

Biodiversity Criteria

- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Ramsar Site (R)
- Local Wildlife Site
- Sensitive Bird Area 'trigger for consideration'

Priority Peatland Habitats

- Class 1
- Class 2
- 2km

Map Scale @ A3: 1:50,000

0 1 2 km

CB:SR EB:robertson_s LUCGLA FIG05-1_6104-100-r0_KTR_Biodiversity_INDEX 21/09/2016

Source: SNH, HS

Kendoon to Tongland Routeing Consultation

Figure 5.1c: Biodiversity Criteria

Glenlee - Tongland (GT1)

Substation and Hydro electricity generating station

Section

Glenlee - Tongland

Start/End of Section

Biodiversity Criteria

Special Protection Area (SPA)

Site of Special Scientific Interest (SSSI)

Ramsar Site (R)

Sensitive Bird Area 'trigger for consideration'

Priority Peatland Habitats

Class 1

Class 2

2km

Map Scale @ A3: 1:50,000

LUC

SP ENERGY NETWORKS

0 1 2 km

CB:SR EB:robertson_s LUCGLA FIG05-1_6104-100-r0_KTR_Biodiversity_INDEX 21/09/2016

Source: SNH, HS

Kendoon to Tongland Routeing Consultation

Figure 5.1d: Biodiversity Criteria

Glenlee - Tongland (GT2)

Section

- Glenlee - Tongland
- Start/End of Section

Biodiversity Criteria

- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Ramsar Site (R)
- Sensitive Bird Area 'trigger for consideration'

Priority Peatland Habitats

- Class 1
- Class 2
- 2km

Map Scale @ A3:1:50,000

LUC

SP ENERGY NETWORKS

CB:SR EB:robertson_s LUCGLA FIG05-1_6104-100-r0_KTR_Biodiversity_INDEX 21/09/2016

Source: SNH, HS

Kendoon to Tongland Routeing Consultation

Figure 5.1e: Biodiversity Criteria

Glenlee - Tongland (GT 3,4,5)

Substation and Hydro electricity generating station

Section

Glenlee - Tongland

Start/End of Section

Biodiversity Criteria

Special Protection Area (SPA)

Site of Special Scientific Interest (SSSI)

Ramsar Site (R)

Local Wildlife Site

Sensitive Bird Area 'trigger for consideration'

Priority Peatland Habitats

Class 1

Class 2

2km

Map Scale @ A3:1:50,000

LUC

SP ENERGY NETWORKS

CB:SR EB:robertson_s LUCGLA FIG05-1_6104-100-r0_KTR_Biodiversity_INDEX 21/09/2016

Source: SNH, HS

Kendoon to Tongland Routeing Consultation

Figure 5.2a: Landscape Cirteria

Polquhanity - Kendoon

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Terminal Tower Siting Area

Section

- Polquhanity - Kendoon
- Polquhanity - Kendoon - Underground Cable

Landscape Cirteria

- Galloway Hills Regional Scenic Area (Dumfries and Galloway)
- Higher Landscape Capacity
- Medium Landscape Capacity
- Lower Landscape Capacity

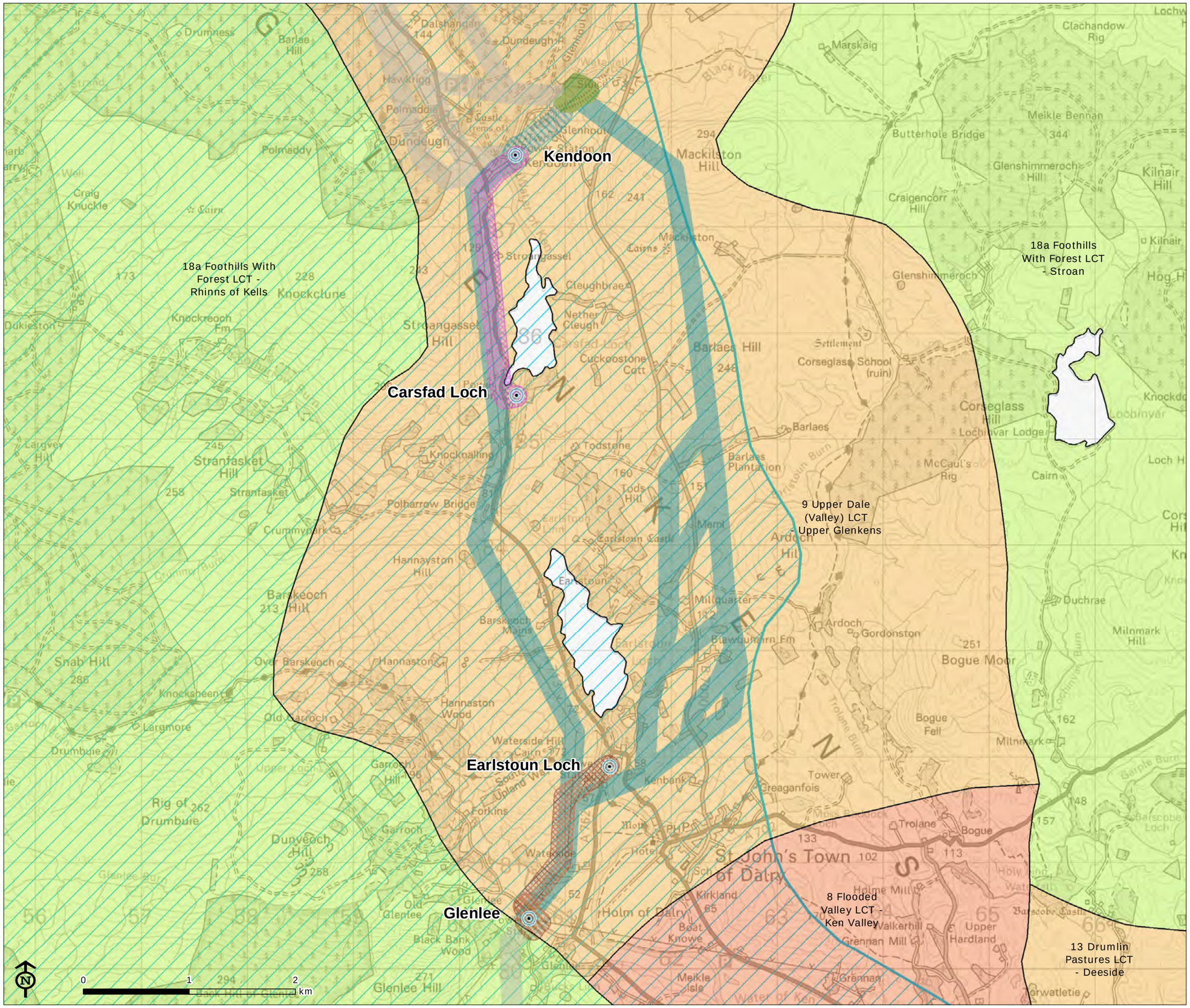
Map Scale @ A3: 1:15,000

LUC

SP ENERGY NETWORKS

Source:SNH, South Ayrshire, Dumfries and Galloway Local Authorites

CB:SR EB:nunn_j LUCGLA FIG05-2_6104-100-r0_KTR_LandscapeCirteria_INDEX 28/09/2016



Kendoon to Tongland Routeing Consultation

Figure 5.2b: Landscape Cirteria

Kendoon - Glenlee

⊙	Substation and Hydro electricity generating station
🟩	Terminal Tower Siting Area

Section

▨	Carsfad - Kendoon
▨	Earlstoun - Glenlee
▨	Earlstoun - Glenlee - Underground Cable
🟦	Kendoon - Glenlee
▨	Kendoon - Glenlee - Underground Cable

Landscape Cirteria

▨	Galloway Hills Regional Scenic Area (Dumfries and Galloway)
🟩	Higher Landscape Capacity
🟨	Medium Landscape Capacity
🟥	Lower Landscape Capacity

Map Scale @ A3:1:35,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-2_6104-100-r0_KTR_LandscapeCirteria_INDEX 28/09/2016

Source:SNH, South Ayrshire, Dumfries and Galloway Local Authorites

Kendoon to Tongland Routeing Consultation

Figure 5.2c: Landscape Cirteria

Glenlee - Tongland (GT1)

Substation and Hydro electricity generating station

Section

Glenlee - Tongland

Start/End of Section

Landscape Cirteria

Galloway Hills Regional Scenic Area (Dumfries and Galloway)

Higher Landscape Capacity

Medium Landscape Capacity

Lower Landscape Capacity

Map Scale @ A3: 1:40,000

LUC

SP ENERGY NETWORKS

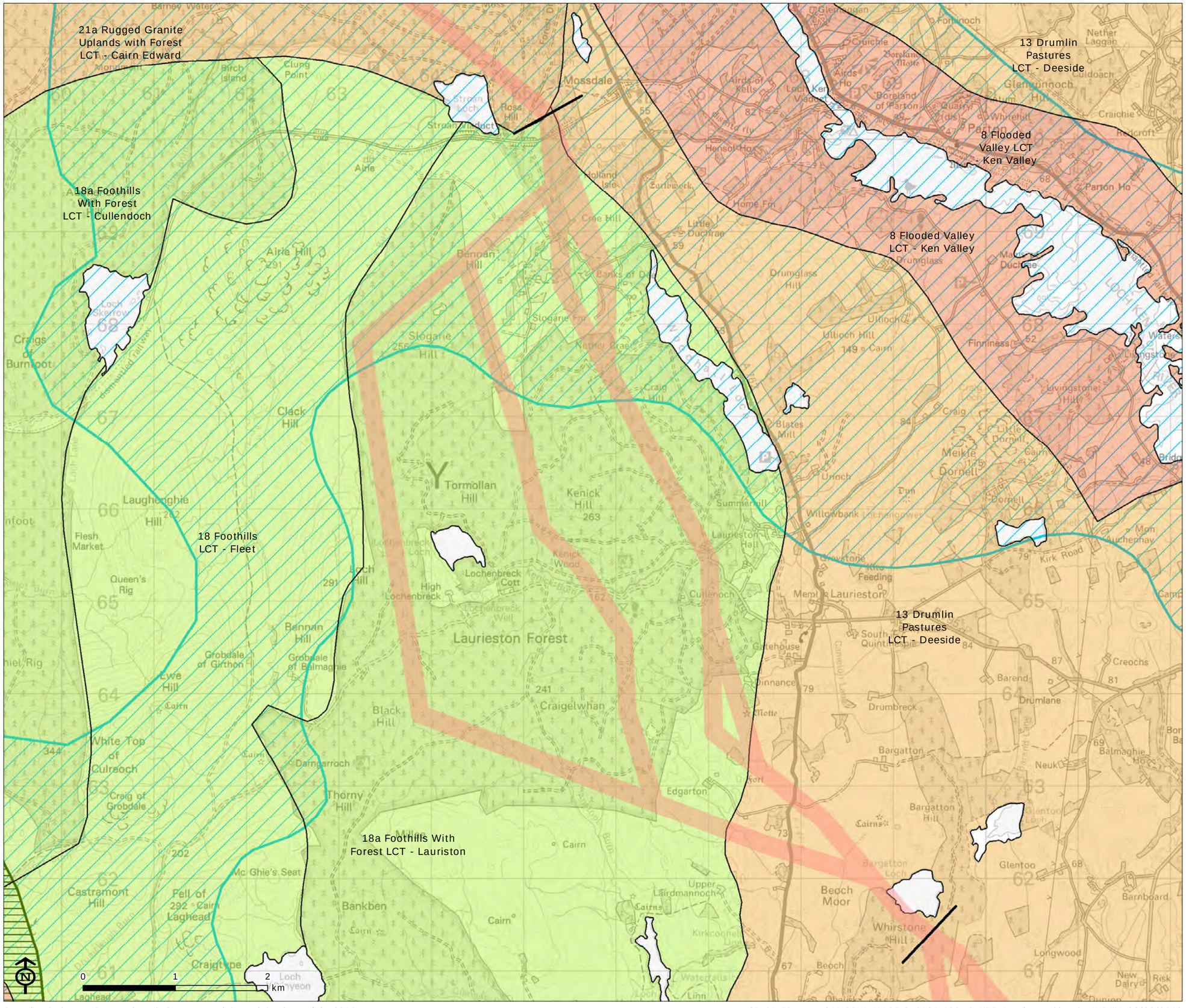
CB:SR EB:nunn_j LUCGLA FIG05-2_6104-100-r0_KTR_LandscapeCirteria_INDEX 28/09/2016

Source:SNH, South Ayrshire, Dumfries and Galloway Local Authorites

Kendoon to Tongland Routeing Consultation

Figure 5.2d: Landscape Cirteria

Glenlee - Tongland (GT2)



Section

- Glenlee - Tongland
- Start/End of Section

Landscape Cirteria

- Fleet Valley National Scenic Area (Scotland)
- Galloway Hills Regional Scenic Area (Dumfries and Galloway)
- Higher Landscape Capacity
- Medium Landscape Capacity
- Lower Landscape Capacity

Map Scale @ A3:1:40,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-2_6104-100-r0_KTR_LandscapeCirteria_INDEX 28/09/2016

Source:SNH, South Ayrshire, Dumfries and Galloway Local Authorites

Kendoon to Tongland Routeing Consultation

Figure 5.2e: Landscape Cirteria

Glenlee - Tongland (GT 3,4,5)

Substation and Hydro electricity generating station

Section

Glenlee - Tongland

Start/End of Section

Landscape Cirteria

Solway Coast Regional Scenic Area (Dumfries and Galloway)

Higher Landscape Capacity

Medium Landscape Capacity

Lower Landscape Capacity

18a Foothills With Forest LCT - Lauriston

13 Drumlin Pastures LCT - Deeside

20 Coastal Granite Uplands LCT - Bengairn Coastal Granite

1 Peninsula LCT - Dundrennan

Tongland

0 1 2 km

Map Scale @ A3:1:40,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-2_6104-100-r0_KTR_LandscapeCirteria_INDEX 28/09/2016

Source:SNH, South Ayrshire, Dumfries and Galloway Local Authorites

Kendoon to Tongland Routeing Consultation

Figure 5.3a: Visual Amenity Criteria

Polquhanity - Kendoon

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Terminal Tower Siting Area

Section

- Polquhanity - Kendoon
- Polquhanity - Kendoon - Underground Cable

Visual Amenity Criteria

- Residential Property
- 150m from Residential Property
- Caravan/Camp Site
- Galloway Forest Park
- Galloway Tourist Route
- Galloway Forest District Promoted Trail
- Core Path

Note:

Routes and trails have been shown as per the data provided. The lines are approximate and in reality are likely to follow the nearest road, track or path.

Map Scale @ A3:1:15,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-3_6104-100-r1_KTR_VisualAmenityCriteria_INDEX 22/09/2016

Source: South Ayrshire, Dumfries and Galloway Local Authorites, SUSTRANS, SNH

Kendoon to Tongland Routeing Consultation

Figure 5.3b: Visual Amenity Criteria

Kendoon - Glenlee

- Substation and Hydro electricity generating station
- Terminal Tower Siting Area

Section

- Carsfad - Kendoon
- Earlstoun - Glenlee
- Earlstoun - Glenlee - Underground Cable
- Kendoon - Glenlee
- Kendoon - Glenlee - Underground Cable

Visual Amenity Criteria

- Residential Property
- 150m from Residential Property
- Caravan/Camp Site
- Galloway Forest Park
- Galloway Tourist Route
- Southern Upland Way
- Galloway Forest District Promoted Trail
- Core Path

Note:

Routes and trails have been shown as per the data provided. The lines are approximate and in reality are likely to follow the nearest road, track or path.

Map Scale @ A3:1:35,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-3_6104-100-r1_KTR_VisualAmenityCriteria_INDEX 22/09/2016

Source: South Ayrshire, Dumfries and Galloway Local Authorites, SUSTRANS, SNH

Kendoon to Tongland Routeing Consultation

Figure 5.3c: Visual Amenity Criteria

Glenlee - Tongland (GT1)

Substation and Hydro electricity generating station

Section

Glenlee - Tongland

Start/End of Section

Visual Amenity Criteria

- Residential Property
- 150m from Residential Property
- Caravan/Camp Site
- Other Recreation Sites
- Golf Course
- Viewpoint
- Galloway Forest Park
- Galloway Red Kite Trail
- Robert the Bruce Trail
- Galloway Tourist Route
- Galloway Forest District Promoted Trail
- Core Path

Note:

Routes and trails have been shown as per the data provided. The lines are approximate and in reality are likely to follow the nearest road, track or path.

Map Scale @ A3:1:40,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-3_6104-100-r1_KTR_VisualAmenityCriteria_INDEX 22/09/2016

Source: South Ayrshire, Dumfries and Galloway Local Authorities, SUSTRANS, SNH

Kendoon to Tongland Routeing Consultation

Figure 5.3d: Visual Amenity Criteria

Glenlee - Tongland (GT2)

Section

- Glenlee - Tongland
- Start/End of Section

Visual Amenity Criteria

- Residential Property
- 150m from Residential Property
- Caravan/Camp Site
- Other Recreation Sites
- Viewpoint
- Galloway Forest Park
- Galloway Red Kite Trail
- Robert the Bruce Trail
- Galloway Tourist Route
- Galloway Forest District Promoted Trail
- Core Path

Note:

Routes and trails have been shown as per the data provided. The lines are approximate and in reality are likely to follow the nearest road, track or path.

Map Scale @ A3:1:40,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-3_6104-100-r1_KTR_VisualAmenityCriteria_INDEX 22/09/2016

Source: South Ayrshire, Dumfries and Galloway Local Authorites, SUSTRANS, SNH

Kendoon to Tongland Routeing Consultation

Figure 5.3e: Visual Amenity Criteria

Glenlee - Tongland (GT 3,4,5)

Substation and Hydro electricity generating station

Section

Glenlee - Tongland

Start/End of Section

Visual Amenity Criteria

- Residential Property
- 150m from Residential Property
- Other Recreation Sites (Point)
- Other Recreation Sites
- Golf Course
- Galloway Forest Park
- Burns Heritage Trail
- Robert the Bruce Trail
- Galloway Tourist Route
- Covenanters Trail
- National Cycle Network
- Core Path

Note:

Routes and trails have been shown as per the data provided. The lines are approximate and in reality are likely to follow the nearest road, track or path.

Map Scale @ A3:1:40,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-3_6104-100-r1_KTR_VisualAmenityCriteria_INDEX 22/09/2016

Source: South Ayrshire, Dumfries and Galloway Local Authorites, SUSTRANS, SNH

Kendoon to Tongland Routeing Consultation

Figure 5.4a: Cultural Heritage Criteria

Polquhanity - Kendoon

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Terminal Tower Siting Area

Section

- Polquhanity - Kendoon
- Polquhanity - Kendoon - Underground Cable

Cultural Heritage Criteria

- Scheduled Monument

Listed Building

- Category B
- Category C
- Archaeologically Sensitive Area (Dumfries & Galloway)
- Non-Inventory Designed Landscape (Dumfries & Galloway)

Unscheduled Archaeology of National Importance

- Point
- Area
- Promoted Heritage Site - Point
- Promoted Hertitage Site Scheduled Monument

Unscheduled Archaeology of Regional and Local Importance

- Point
- Area
- 2km

Map Scale @ A3: 1:25,000

LUC

SP ENERGY NETWORKS

0 1 2 km

CB:SR EB:robertson_s LUCGLA FIG05-4_6104-100-r0_KTR_CulturalHeritage_INDEX 21/09/2016

Source: SNH, HS, CFA

Kendoon to Tongland Routeing Consultation

Figure 5.4b: Cultural Heritage Criteria

Kendoon - Glenlee

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Terminal Tower Siting Area

Section

- Carsfad - Kendoon
- Earlstoun - Glenlee
- Earlstoun - Glenlee - Underground Cable Kendoon - Glenlee
- Kendoon - Glenlee - Underground Cable

Cultural Heritage Criteria

- Scheduled Monument

Listed Building

- Category A
- Category B
- Category C
- Conservation Area
- Archaeologically Sensitive Area (Dumfries & Galloway)
- Non-Inventory Designed Landscape (Dumfries & Galloway)

Unscheduled Archaeology of National Importance

- Point
- Area
- Promoted Heritage Site - Point
- Promoted Hertitage Site Scheduled Monument

Unscheduled Archaeology of Regional and Local Importance

- Point
- Area
- 2km

Map Scale @ A3: 1:50,000

LUC

SP ENERGY NETWORKS

CB:SR EB:robertson_s LUCGLA FIG05-4_6104-100-r0_KTR_CulturalHeritage_INDEX 21/09/2016

Source: SNH, HS, CFA

Kendoon to Tongland Routeing Consultation

Figure 5.4c: Cultural Heritage Criteria

Glenlee - Tongland (GT1)

Substation and Hydro electricity generating station

Section

Glenlee - Tongland

Start/End of Section

Cultural Heritage Criteria

Scheduled Monument

Listed Building

Category A

Category B

Category C

Conservation Area

Archaeologically Sensitive Area (Dumfries & Galloway)

Non-Inventory Designed Landscape (Dumfries & Galloway)

Unscheduled Archaeology of National Importance

Point

Linear

Area

Promoted Heritage Site - Point

Promoted Heritage Site Driving/Hiking Trail

Promoted Hertitage Site Scheduled Monument

Unscheduled Archaeology of Regional and Local Importance

Point

Area

2km

Map Scale @ A3: 1:50,000

LUC

SP ENERGY NETWORKS

CB:SR EB:robertson_s LUCGLA FIG05-4_6104-100-r0_KTR_CulturalHeritage_INDEX 21/09/2016

Source: SNH, HS, CFA

Kendoon to Tongland Routeing Consultation

Figure 5.4d: Cultural Heritage Criteria

Glenlee - Tongland (GT2)

Section

- Glenlee - Tongland
- Start/End of Section

Cultural Heritage Criteria

- Scheduled Monument

Listed Building

- Category A
- Category B
- Category C
- Archaeologically Sensitive Area (Dumfries & Galloway)
- Non-Inventory Designed Landscape (Dumfries & Galloway)

Unscheduled Archaeology of National Importance

- Point
- Linear
- Area
- Promoted Heritage Site Driving/Hiking Trail
- Promoted Heritage Site - Area

Unscheduled Archaeology of Regional and Local Importance

- Point
- Area
- 2km

Map Scale @ A3:1:50,000

LUC

SP ENERGY NETWORKS

CB:SR EB:robertson_s LUCGLA FIG05-4_6104-100-r0_KTR_CulturalHeritage_INDEX 21/09/2016

Source: SNH, HS, CFA

Kendoon to Tongland Routeing Consultation

Figure 5.4e: Cultural Heritage Criteria

Glenlee - Tongland (GT 3,4,5)

Substation and Hydro electricity generating station

Section

Glenlee - Tongland

Start/End of Section

Cultural Heritage Criteria

Scheduled Monument

Listed Building

Category A

Category B

Category C

Conservation Area

Archaeologically Sensitive Area (Dumfries & Galloway)

Inventory of Gardens and Designed Landscape

Non-Inventory Designed Landscape (Dumfries & Galloway)

Unscheduled Archaeology of National Importance

Point

Area

Promoted Heritage Site - Point

Promoted Heritage Site - Area

Unscheduled Archaeology of Regional and Local Importance

Point

Area

2km

Map Scale @ A3:1:50,000

LUC

SP ENERGY NETWORKS

CB:SR EB:robertson_s LUCGLA FIG05-4_6104-100-r0_KTR_CulturalHeritage_INDEX 21/09/2016

Source: SNH, HS, CFA

Kendoon to Tongland Routeing Consultation

Figure 5.5a: Flood Risk and Land Use

Polquhanity - Kendoon

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Terminal Tower Siting Area

Section

- Polquhanity - Kendoon
- Polquhanity - Kendoon - Underground Cable

Land Use Criteria

- Flood Risk (1 in 200 years)
- Ancient Woodland Inventory
- Native Woodland
- Woodland
- Existing and Committed Development

Map Scale @ A3:1:15,000

0 1 2 km

CB:SR EB:nunn_j LUCGLA FIG05-5_6104-100-r1_KTR_LandUse_INDEX 27/09/2016

Source: National Grid, SEPA, FC, South Ayrshire, Dumfries and Galloway Local Authorites

Kendoon to Tongland Routeing Consultation

Figure 5.5b: Flood Risk and Land Use

Kendoon - Glenlee

- Substation and Hydro electricity generating station
- Terminal Tower Siting Area

Section

- Carsfad - Kendoon
- Earlstoun - Glenlee
- Earlstoun - Glenlee - Underground Cable
- Kendoon - Glenlee
- Kendoon - Glenlee - Underground Cable

Land Use Criteria

- Flood Risk (1 in 200 years)
- Ancient Woodland Inventory
- Native Woodland
- Woodland
- Settlement
- Existing and Committed Development

Map Scale @ A3:1:35,000

LUC

SP ENERGY NETWORKS

0 1 2 km

CB:SR EB:nunn_j LUCGLA FIG05-5_6104-100-r1_KTR_LandUse_INDEX 27/09/2016

Source: National Grid, SEPA, FC, South Ayrshire, Dumfries and Galloway Local Authorites

Kendoon to Tongland Routeing Consultation

Figure 5.5c: Flood Risk and Land Use

Glenlee - Tongland (GT1)

- Substation and Hydro electricity generating station
- Start/End of Section

Section

- Glenlee - Tongland

Land Use Criteria

- Flood Risk (1 in 200 years)
- Ancient Woodland Inventory
- Native Woodland
- Woodland
- Settlement
- Existing and Committed Development

Map Scale @ A3: 1:40,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-5_6104-100-r1_KTR_LandUse_INDEX 27/09/2016

Source: National Grid, SEPA, FC, South Ayrshire, Dumfries and Galloway Local Authorites

Kendoon to Tongland Routeing Consultation

Figure 5.5d: Flood Risk and Land Use

Glenlee - Tongland (GT2)

Start/End of Section

Section

Glenlee - Tongland

Land Use Criteria

- Flood Risk (1 in 200 years)
- Ancient Woodland Inventory
- Native Woodland
- Woodland
- Existing and Committed Development

Map Scale @ A3:1:40,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-5_6104-100-r1_KTR_LandUse_INDEX 27/09/2016

Source: National Grid, SEPA, FC, South Ayrshire, Dumfries and Galloway Local Authorites

Kendoon to Tongland Routeing Consultation

Figure 5.5e: Flood Risk and Land Use

Glenlee - Tongland (GT 3,4,5)

- Substation and Hydro electricity generating station
- Start/End of Section

Section

- Glenlee - Tongland

Land Use Criteria

- Flood Risk (1 in 200 years)
- Ancient Woodland Inventory
- Native Woodland
- Woodland
- Settlement
- Existing and Committed Development

Map Scale @ A3:1:40,000

LUC

SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG05-5_6104-100-r1_KTR_LandUse_INDEX 27/09/2016

Source: National Grid, SEPA, FC, South Ayrshire, Dumfries and Galloway Local Authorites

6 Preferred Routes and Implications for Existing Network

6.1 This chapter confirms the preferred routes which are being progressed to Consultation Round Two, and confirms the implications for the existing network on the basis of the outcome of the routeing phase of the KTR Project.

Preferred Routes

6.2 The preferred routes are shown as an overview on **Figure 6.1** and in detail on **Figures 6.2a-e,** with an overview description of the preferences provided below.

6.3 The preferred route commences at the T-off point at Polquhanity and follows route option **P/K-B** southwards to the Kendoon substation. From Kendoon, route option **K/G-A** follows the route of the existing 132kV OHL along the west of Carsfad and Earlstoun Lochs to the existing substation at Glenlee. Route option **G/T1A** exits the Glenlee substation following the existing 132kV line south-westwards before heading south towards Stroan Loch. From here, route option **G/T2B** routes through Laurieston Forest to join **G/T3C** at Bargaton Loch before crossing the A75 and following the existing 132kV OHL southwards via **G/T4A** and **G/T5B** to the existing substation at Tongland.

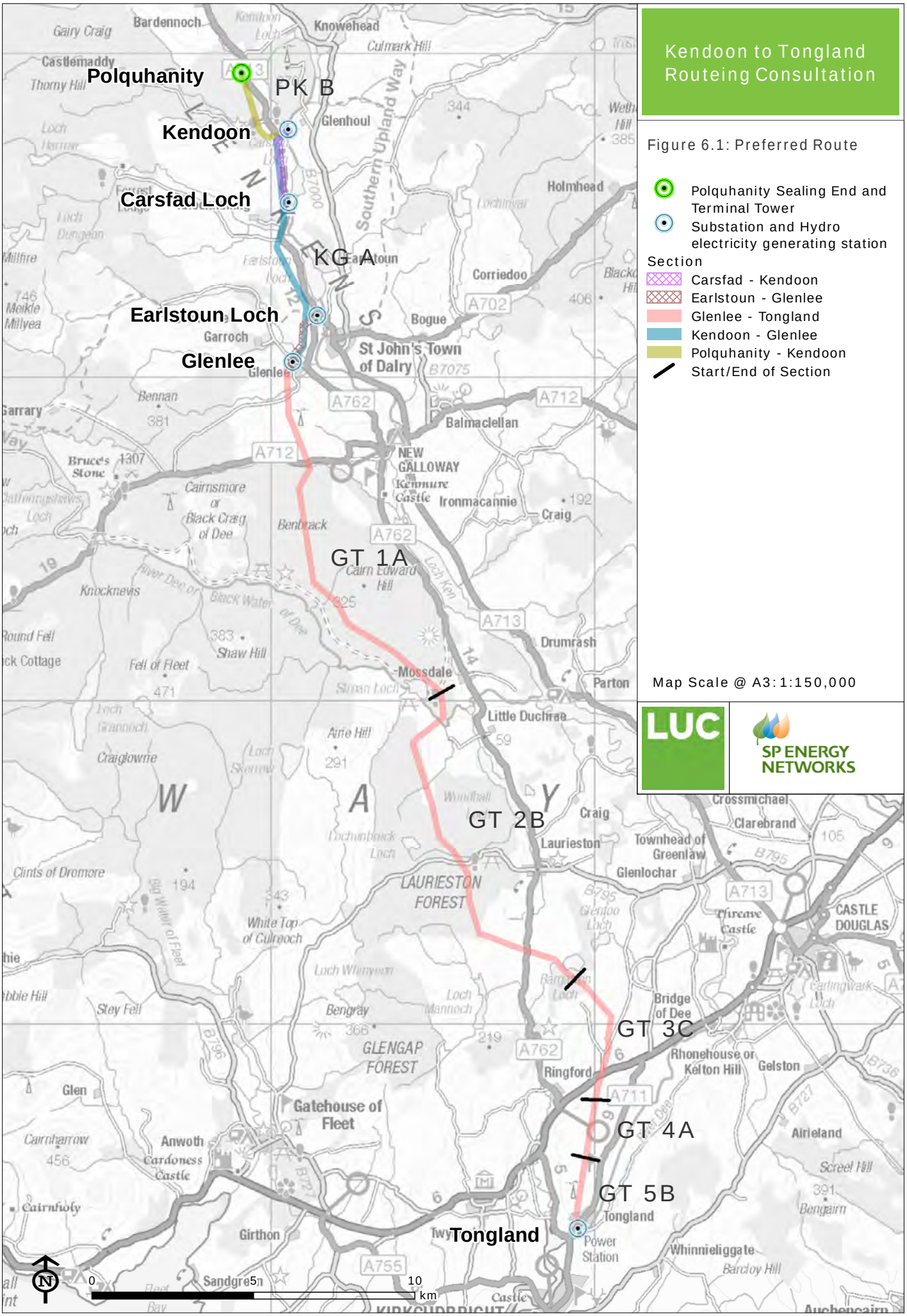
6.4 The Carsfad **(C/K)** and Earlstoun **(E/G)** connections broadly follow the existing 132kV routes on the western side of Carsfad and Earlstoun Lochs.

Implications for Existing Network

6.5 As outlined in **Chapter 2,** the development of the KTR Project will enable SPEN to rationalise the electricity network through the removal of a number of existing overhead transmission lines within the Study Area.

6.6 The KTR Project will enable 48km of existing aged network between Polquhanity to Kendoon, Kendoon to Glenlee and Glenlee to Tongland to be removed. The existing 132kV Carsfad to Kendoon and Earlstoun to Glenlee connections supported on steel towers are also being removed.

6.7 The KTR Project will also enable SPEN to remove the entire existing 132kV OHL between Tongland and Dumfries, approximately 44km in length. Security of supply will be maintained to the Tongland area by the new Glenlee to Tongland L4 OHL which will be a double circuit (6 wires), replacing the current OHL which is only a single circuit (3 wires).



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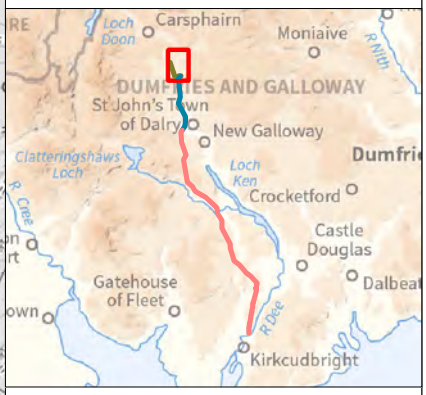
Kendoon to Tongland Routeing Consultation

Figure 6.2a: Preferred Route

Polquhanity - Kendoon (B)

- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Polquhanity - Kendoon
- Existing Network



Map Scale @ A3:1:15,000

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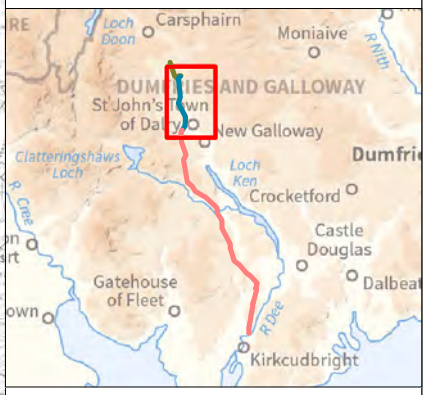
CB:SR EB:nunn_j LUCGLA FIG06-02_6104-100-r1_KTR_PreferredRoute_INDEX 22/09/2016

Kendoon to Tongland Routeing Consultation

Figure 6.2b: Preferred Route

Kendoon - Glenlee (A)

- Substation and Hydro electricity generating station
- Carsfad - Kendoon
- Earlstoun - Glenlee
- Earlstoun - Glenlee - Underground Cable
- Kendoon - Glenlee
- Existing Network



Map Scale @ A3:1:35,000

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SP ENERGY NETWORKS

Kendoon

Carsfad Loch

A

Earlstoun Loch

Glenlee

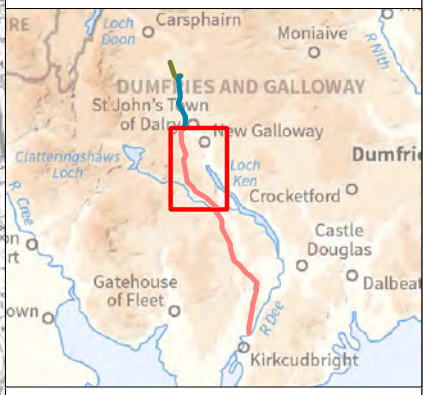
0 1 2 km

Kendoon to Tongland
Routeing Consultation

Figure 6.2c: Preferred Route

Glenlee - Tongland (1A)

- Substation and Hydro electricity generating station
- Glenlee - Tongland
- Start/End of section
- Existing Network



Map Scale @ A3:1:40,000

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Kendoon to Tongland Routeing Consultation

Figure 6.2d: Preferred Route

Glenlee - Tongland (2B)

Glenlee - Tongland
Start/End of section
Existing Network

Map Scale @ A3:1:40,000

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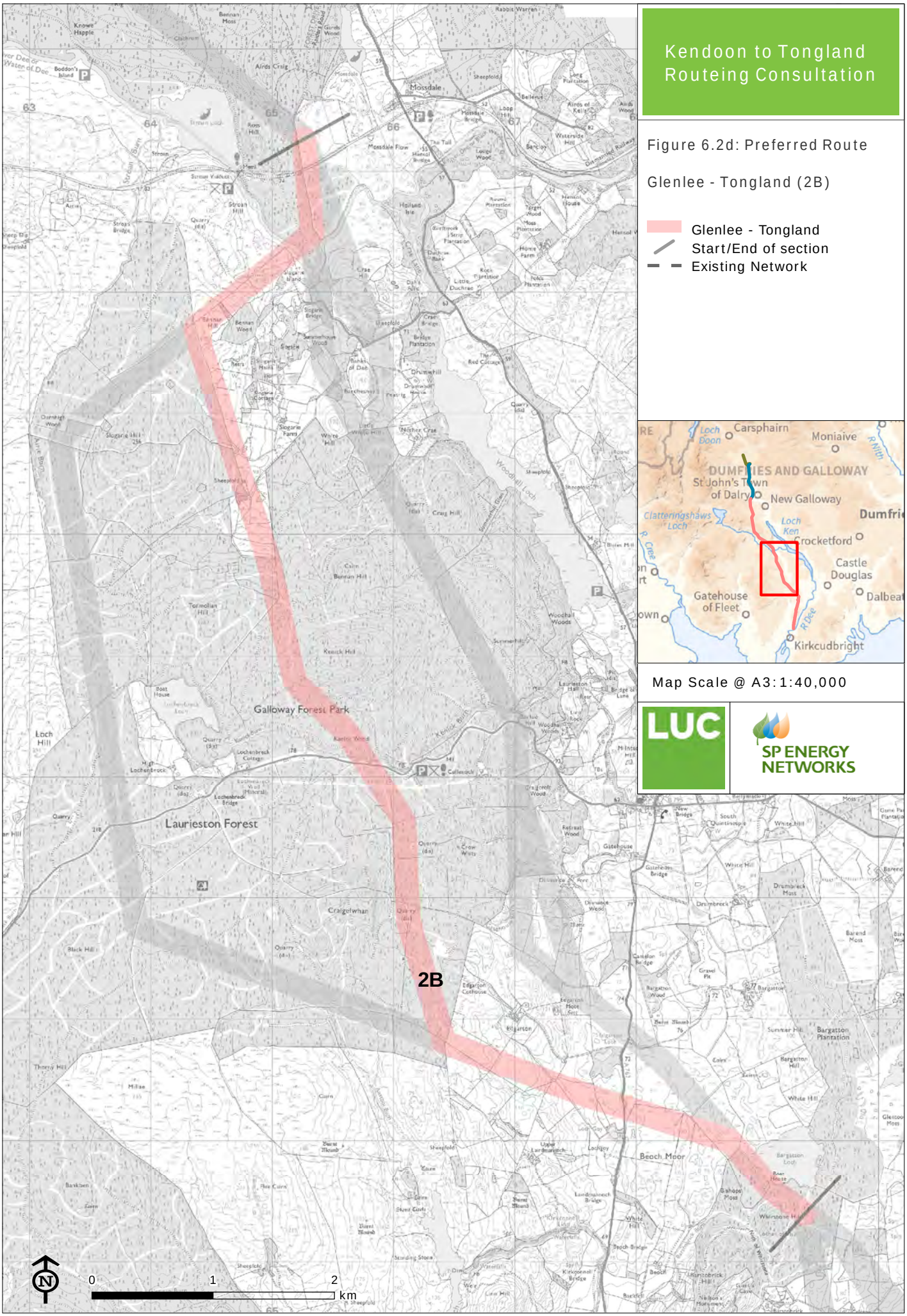
SP ENERGY NETWORKS

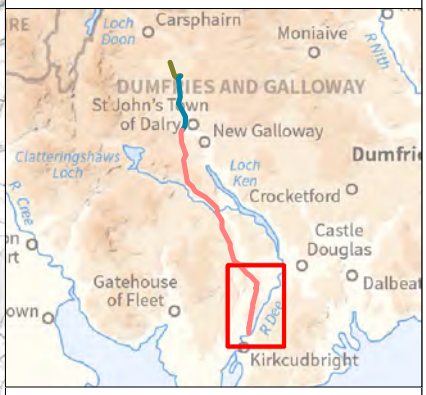


Kendoon to Tongland Routeing Consultation

Figure 6.2e: Preferred Route

Glenlee - Tongland (3C, 4A, 5B)

- Substation and Hydro electricity generating station
- Glenlee - Tongland
- Start/End of section
- Existing Network



Map Scale @ A3:1:40,000

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7 The Consultation Process and Next Steps

The Consultation Process for the KTR Project

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

7.2 Therefore, prior to the submission, SPEN will carry out three rounds of consultation with stakeholders and the public. The three rounds are:

- **Round One:** Public consultation on the preferred corridor, which was carried out from June 9th to August 31st 2015.
- **Round Two:** Public consultation on preferred routes, which will be carried out from October 31st to December 21st 2016. The deadline for receipt of feedback will be January 13th 2017.
- **Round Three:** Public consultation on detailed route alignment, which is anticipated to take place in Autumn 2017.

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

Consultation Strategy

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

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

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

7.7 A substantial amount of work has already been done by SPEN to identify stakeholders, engage with communities and share its plans and this will continue to take place at all levels both during and outside consultation periods.

7.8 In developing its strategy for the second round of consultation, SPEN has taken account of feedback submitted by stakeholders and communities during the first round of consultation. A summarised overview of the comments received during the first round of consultation of relevance to the KTR Project is provided in **Appendix 7.**

The Second Round of Consultation

Consultees

7.9 SPEN has already been consulting statutory stakeholders through its Statutory Stakeholder Liaison Group (SSLG). This group comprises the Scottish Government, Scottish Natural Heritage, the Scottish Environment Protection Agency, Historic Environment Scotland, the Forestry Commission and Dumfries and Galloway Council.

7.10 In addition, a new Community Liaison Group (CLG), chaired by the Scottish Government, will be established to coincide with the consultation launch. This new forum will provide representatives of communities who are directly affected by the KTR Project with an opportunity to be informed on the latest proposals and to raise points with SPEN. The membership and scope of the CLG will be agreed with the Scottish Government and Dumfries and Galloway Council.

7.11 To ensure that all other residents and stakeholders potentially affected by the proposals are consulted, SPEN has defined a consultation zone. The zone includes all residential and business addresses within the proposed study area and up to 1km either side of it. Exceptions to this rule are where the boundary of the zone bisects a community. This only applies to Kirkcudbright, where the boundary of the zone area has been extended to include the whole town. However, any member of the public (whether living within or outwith the consultation zone) will be welcome to participate in the consultation, attend an exhibition or make a comment using one of the channels outlined within this document.

7.12 The consultation will include the following broad groups:

- statutory and non-statutory consultees, including community councils;
- approximately 3,500 homes and businesses in the consultation zone;
- known local interest and community groups operating in the part of Dumfries and Galloway affected by the KTR Project;
- elected members of Dumfries and Galloway Council, the Member of Parliament (MP) and Members of the Scottish Parliament (MSPs) whose constituencies are within the consultation zone; and
- the public in general.

7.13 In addition, respondents to the first round of consultation who provided their contact details and everyone who registered for email project updates will be informed of the launch and invited to take part.

Consultation Launch and Duration

7.14 The second round of consultation will run for eight weeks from October 31st to December 21st, 2016. Due to the proximity of Christmas, an additional three weeks will be allowed for people to send in their feedback. The deadline for receipt of feedback will be at midnight on January 13th, 2017.

7.15 Prior to the consultation, adverts will appear in local weekly newspapers at least seven days before the first exhibition. A news release will be issued to local media announcing the impending start of the consultation. Information explaining the project and the consultation will be posted out to homes, businesses, and known local interest and community groups within the local area making them aware of the start of the consultation and inviting them to take part. Other stakeholder groups will also be contacted direct, informed and invited to take part.

The Focus of the Second Round of Consultation

7.16 This report presents the findings of Steps E-G of Phase One of the KTR Project (see **Figure 3.1**), the routeing process, resulting in the identification of preferred routes.

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

- the preferred routes;
- any of the alternative route options considered during the appraisal process;
- the removal of the existing overhead lines; and
- any other issues, suggestions or feedback; particularly views on the local area, for example areas used for recreation, local environmental features, and any plans to build along the line route.

7.18 To make this easier, the consultation zone will be divided into three sections corresponding to the appraisal tables in **Appendix 6** of this document:

- **Zone A:** Polquhanity to Kendoon
- **Zone B:** Kendoon to Glenlee
- **Zone C:** Glenlee to Tongland.

Sources of Information about the Consultation

7.19 A map showing the consultation zone sections is provided as **Figure 7.1** and will be included in the principal sources of information about the consultation, which comprise the KTR Project leaflet and the project website (www.spendgsr.co.uk).

Project leaflet

7.20 The leaflet will be mailed to every home and business in, or within, a kilometre of the study area.[18] It will consist of a map showing the preferred routes by Zone A, B or C. It will also include details of the scheme, the consultation process, how to find out more and how to submit comments by feedback form, website, post or email, and by when.

Project website: www.spendgsr.co.uk

7.21 The website will build on the information in the leaflet, with publicly available consultation documents for viewing or download, and an online feedback form. The feedback form will be available from October 31 until the deadline for receipt of feedback at midnight on January 13th, 2017.

7.22 Hard copies of consultation documents will be lodged at a number of publicly-accessible information points from October 21st 2016 for people who do not have access to the internet, cannot attend an exhibition or would prefer to see them in person. Details of these information points are listed in the Preface of this document and in other consultation materials.

How People can make a Comment

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

- in person at an exhibition;
- online, using the feedback form on the website;
- by post, using as paper feedback form, or by letter;
- by email,; or
- by phone to the SPEN KTR Consultation Contact Centre.

In person

7.24 SPEN will hold four public exhibitions between November 1st and 4th within the local area where people can look at maps, talk to members of the project team and pick up a feedback form. Locations have been chosen so that people within the consultation zone are only a short distance from their nearest exhibition by car or public transport. The dates and venues are listed in full in the project leaflet and on the website. The format will be an afternoon/evening drop-in.

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

- **Tuesday November 1, Dumfries:** Cairndale Hotel, English Street, DG1 2DF;
- **Wednesday November 2, Kirkcudbright:** Kirkcudbright Parish Church Hall, St Mary Street, DG6 4AQ;
- **Thursday November 3, Mossdale:** Mossdale Village Hall, DG7 2NF.
- **Friday November 4, New Galloway:** New Galloway Town Hall, High Street, DG7 3RL.

Online

7.26 People will be able to make comments online at www.spendgsr.co.uk using an interactive online version of the feedback form, which will be available until midnight on January 13th 2017.

Post

7.27 A hard-copy feedback form will be available at public exhibitions, for download from the website, by request to the SPEN KTR Consultation Contact Centre on 0800 157 7353 or by email to dgsr@communityrelations.co.uk. Completed forms must be returned to FREEPOST SPEN DGSR by January 13th 2017. If returning completed forms by post people are advised to allow up to 7 days for these to be received. It may not be possible to consider forms received after this date.

[18] Other than Kirkcudbright where the consultation zone has been extended as outlined above.

E-Mail

7.28 SPEN will also accept comments relating to the specific focus of this second round of consultation by e-mail to dgsr@communityrelations.co.uk by January 13th, 2016.

Phone

7.29 SPEN prefers to receive comments in writing as this helps avoid the risk of misinterpretation. However, where no other means are available, comments will be received via phone call free on 0800 157 353. The SPEN KTR Consultation Contact Centre is open Monday to Friday (except some bank holidays) between the hours of 9am and 5.30pm. There is a voicemail facility outside these hours.

SPEN's Response

7.30 The responses received in the second round of consultation will be evaluated by SPEN and reported back in the form of a Consultation Summary Report.

7.31 Although SPEN may not be able to respond to all individual comments, people will be able to request to be informed by email as and when there are project developments, such as the availability of the second Consultation Summary Report. People interested in being kept informed in this way can register on the website or send their email address to dgsr@communityrelations.co.uk.

Next Steps: Route Alignment and EIA

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

7.33 The proposed route will then progress to a more detailed review to identify an overhead line alignment, including tower/pole positioning, which will be informed by the parallel EIA stage, detailed engineering ground surveys and discussions with landowners. This alignment, including all ancillary development which will be included in the applications for Section 37 Consent and deemed planning permission e.g. access tracks and temporary construction areas, will be subject to a further round of pre-application public consultation during 2017.

7.34 There are a number of additional factors which will be considered at this stage given their relationship with the location specific details of infrastructure and construction processes, including:

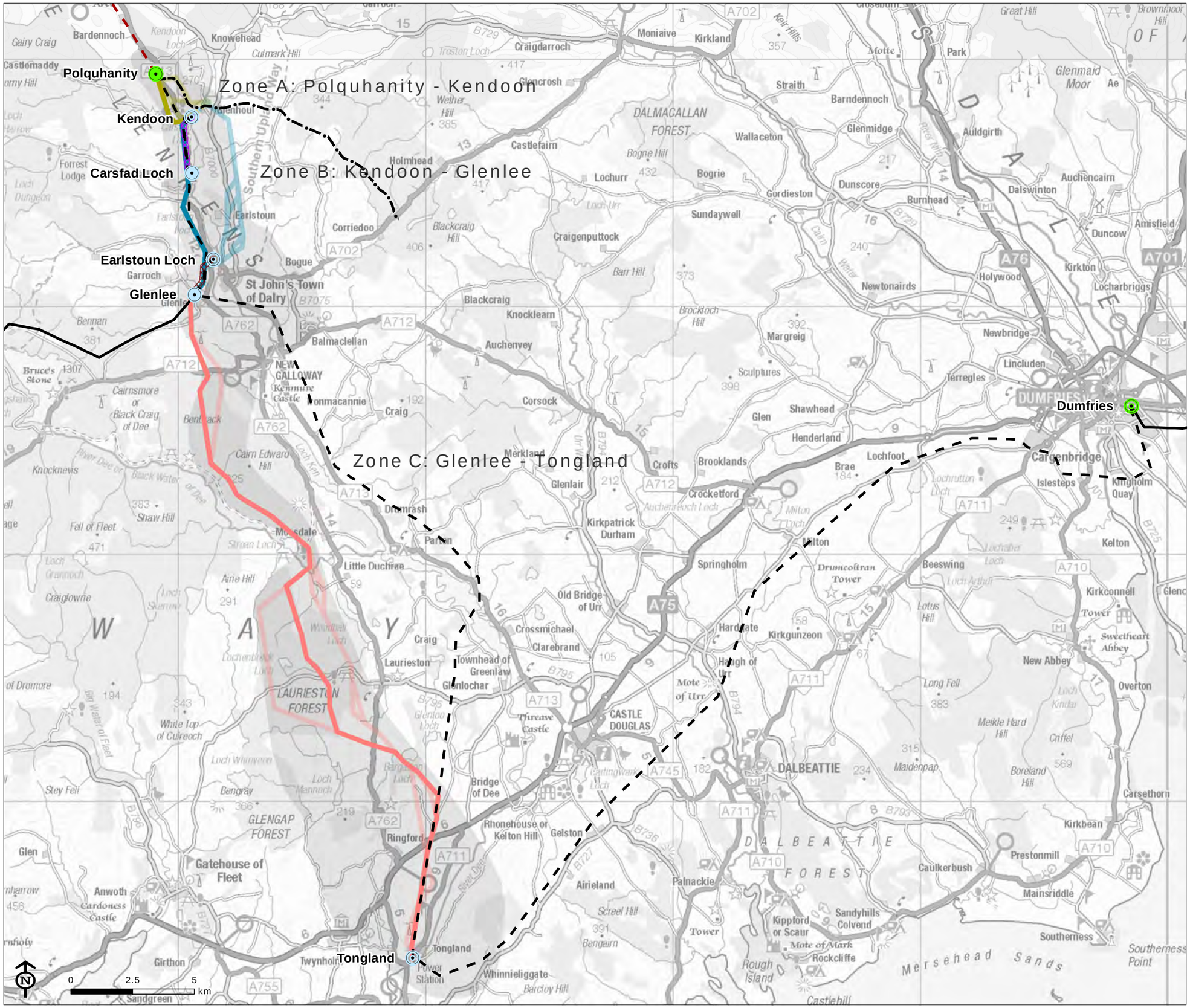
- access, traffic and transportation;
- air quality and emissions including dust;
- noise and vibration;
- waste management;
- water quality and resources;
- electric and magnetic fields[19].

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

[19] Further detail on Electric and Magnetic Fields can be found at http://www.emfs.info/wp-content/uploads/2014/07/EMF_The_Facts_260613.pdf

Kendoon to Tongland Routeing Consultation

Figure 7.1: Consultation Zones



- Polquhanity Sealing End and Terminal Tower
- Substation and Hydro electricity generating station
- Proposed Corridor
- Existing 132kV line to remain
- Existing 132kV line to be removed (by KTR Project)
- Existing 132kV line to be removed
- 132kV wood pole line consented

Preferred Route

- Carsfad - Kendoon
- Earlstoun - Glenlee
- Glenlee - Tongland
- Kendoon - Glenlee
- Polquhanity - Kendoon

Other Routes

- Glenlee - Tongland
- Kendoon - Glenlee
- Polquhanity - Kendoon
- Underground Cable
- Terminal Tower Siting Area

Map Scale @ A3:1:150,000

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SP ENERGY NETWORKS

CB:SR EB:nunn_j LUCGLA FIG07-01_6104-100-r0_KTR_ConsultationZones_A3L 29/09/2016

Glossary

Circuit: a combination of conductors (commonly three conductors) along which electricity is transmitted.

Conductors: metallic wire strung from tower to tower or pole to pole, to carry electricity current.

Earth Wire: a wire erected above the topmost conductor at the tower peak or under slung on certain types of wood pole. These are used for protection against lightning strikes but can also contain fibre optic cores for communication purposes.

Emerging Preferred Route: route identified as being preferred on the basis of environmental considerations only.

Environmental Impact Assessment (EIA): a formal process used to identify, predict and assess the likely environmental effects of a proposed development.

Holford Rules: accepted guidance for routeing overhead lines in the UK.

Insulators: articulated strings made either of glass or polymeric compound. These are required to prevent electric current crossing to a tower or pole body.

Kilovolt (kV): 1,000 volts.

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

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

Preferred Route: the preferred route is confirmed following SPEN technical review of the emerging preferred route.

Proposed Route: the proposed route is confirmed following the conclusion of the review of consultation responses made on the second round consultation.

Route Alignment: the alignment of the route which forms the basis of the application for Section 37 consent. This is arrived at through detailed environmental impact assessment (EIA), discussions with landowners and technical ground surveys.

Route Options: a number of routes connecting two substations or node points (in some cases, there may only be one route option).

Span: the section of overhead line between two towers or two wood poles.

SPEN: ScottishPower Energy Networks, responsible for the development, operation and maintenance of electricity transmission and distribution networks in Central and Southern Scotland on behalf of the transmission license holder for this area, Scottish Power Transmission (SPT).

Study Area: the area within which route options can be identified between the required points of connection (substations or node points on the existing network).

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

Terminal Tower Siting Area: an area within which the terminal tower could be sited.

The National Grid: The electricity transmission network system operator of Great Britain.
Underground Cable: an electric line installed below ground within a cable trench.

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

Watt: the unit of electric power.

Appendix 1 : The Holford and Horlock Rules

Appendix 1: The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines (with NGC 1992 and SHETL 2003 Notes)

Rule 1

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

Note on Rule 1

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

b) Areas of highest amenity value require to be established on a project-by-project basis considering Schedule 9 to The Electricity Act 1989, Scottish Planning Policies, National Planning Policy Guidelines[20], Circulars and Planning Advice Notes and the spatial extent of areas identified.

Examples of areas of highest amenity value which should be considered are:
Special Area of Conservation (NPPG 14)[21]
Special Protection Area (NPPG 14)[22]
Ramsar Site (NPPG 14)[23]
National Scenic Areas (NPPG 14)[24]
National Parks (NPPG 14)[25]
National Nature Reserves (NPPG 14)[26]
Protected Coastal Zone Designations (NPPG 13)[27]
Sites of Special Scientific Interest (SSSI) (NPPG 14)[28]
Schedule of Ancient Monuments (NPPG 5)[29]
Listed Buildings (NPPG 18)[30]
Conservation Areas (NPPG 18)[31]
World Heritage Sites (a non-statutory designation) (NPPG 18)[32]
Historic Gardens and Designed Landscapes (a non-statutory designation) (NPPG 18)[33]

Rule 2

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

Note on Rule 2

a) Small areas of highest amenity value not included in Rule 1 as a result of their spatial extent should be identified along with other areas of regional or local high amenity value identified from development plans.

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

21 Now noted in SPP paragraph 207.
22 Now noted in SPP paragraph 207.
23 Now noted in SPP paragraph 211.
24 Now noted in SPP paragraph 212.
25 Now noted in SPP paragraph 212.
26 Now noted in SPP paragraph 212.
27 Now noted in SPP paragraph 87.
28 Now noted in SPP paragraphs 211-212.
29 Now noted in SPP paragraph 145.
30 Now noted in SPP paragraph 141.
31 Now noted in SPP paragraph 143.
32 Now noted in SPP paragraph 147.
33 Now noted in SPP paragraph 148.

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

c) If there is an existing transmission line through an area of high amenity value and the surrounding landuses have to some extent adjusted to its presence, particularly in the case of commercial forestry, then the effect of remaining on this line must be considered in terms of the effect of a new route deviating around the area.

Rule 3

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

Note on Rule 3

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

b) Too few angles on flat landscape can also lead to visual intrusion through very long straight lines of towers, particularly when seen nearly along the line.

Rule 4

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

Rule 5

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

Notes on Rules 4 and 5

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

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

c) Where possible follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods. Where there is no reasonable alternative to cutting through woodland or commercial forestry, the Forestry Commission Guidelines should be followed (Forest Landscape Design Guidelines, second edition, The Forestry Commission 1994 and Forest Design Planning – A Guide to Good Practice, Simon Bell/The Forest Authority 1998).

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

Rule 6

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

Note on Rule 6

a) In all locations minimise confusing appearance.

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

Rule 7

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

Note on Rule 7

a) When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.

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

c) When siting substations take account of the impacts of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

Explanatory Note on Rule 7

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

Supplementary Notes

a) Residential Areas

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

b) Designations of Regional and Local Importance

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

c) Alternative Lattice Steel Tower Designs

In addition to adopting appropriate routeing, evaluate where appropriate the use of alternative lattice steel tower designs available where these would be advantageous visually, and where the extra cost can be justified. [*Note: SHETL have reviewed the visual and landscape arguments for the use of lattice steel towers in Scotland and summarised these in a document entitled Overhead Transmission Line Tower Study 2004*].

FURTHER NOTES ON CLARIFICATION TO THE HOLFORD RULES

Line Routeing and People

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

The following notes are intended to reflect this.

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

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

c) Minimise the visual effect perceived by users of roads, and public rights of way, paying particular attention to the effects of recreational, tourist and other well used routes.

Supplementary Notes on the Siting of Substations

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

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

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

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

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

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

APPENDIX A

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

1 Interpretation of The Holford Rules 1 and 2

1.1 Introduction

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

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

1.2 Designations

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

1.3 Amenity

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

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

1.4 Hierarchy of Amenity Value

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

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

1.5 Major and Smaller Areas

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

1.6 Conclusion

Given that both the spatial extent in terms of major and smaller and the amenity value in terms of highest and high that must be considered in applying Rules 1 and 2, that no value in these terms is provided by either Schedule 9 to the Act, relevant Scottish Planning Policies or National Planning policy Guidelines, then these

must be established on a project-by-project basis. Designations can be useful in giving an indication of the level of importance and thus value of the interest safeguarded. The note to The Holford Rules can thus only give examples of the designations which may be considered to be of the highest amenity value.

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

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

APPENDIX B

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

Major Areas of Highest Amenity Value

1 In Scotland relevant national or international designations for major areas of highest amenity value include the following identified from Scottish Planning Policies and National Policy Guidelines[34]:

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

Other Smaller Areas of High Amenity Value

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

Areas of Great Landscape Value

Regional Scenic Areas

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

Regional Parks

Country Parks

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

Flora and Fauna

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

Area of Historic, Archaeological or Architectural Value

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

Schedule of Ancient Monuments

Listed Buildings, especially Grade A and Grade B

Conservation Areas

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

Green Belts

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

Appendix 1: The Horlock Rules: NGC Substations and the Environment: Guidelines on Siting and Design (2006)

THE NATIONAL GRID COMPANY plc.

NGC SUBSTATIONS AND THE ENVIRONMENT: GUIDELINES ON SITING AND DESIGN

Section I INTRODUCTION

1 The National Grid Company plc.'s (NGC's) policy statement on the environment recognises the importance of giving due regard to protecting and enhancing the environment and taking into account the environmental effects of the Company's actions. The Company has statutory duties in relation to preservation of amenity under Schedule 9 of the Electricity Act 1989, and has published a Schedule 9 Statement setting out the manner in which it proposes to meet these duties.

2 NGC has a statutory duty under the Act to develop and maintain an efficient, co-ordinated and economical transmission system of electricity for England and Wales. New transmission lines, new substations, sealing end compounds, line entries, additions and extensions to existing substations may be required to provide new connections for customers or reinforcement of the national grid system arising from changes in the demand for and generation of electricity.

3 This document explains the approach NGC takes towards such developments (Section II) and contains Guidelines (Section III) to assist those responsible for siting and designing substations to mitigate the environmental effects of such developments and so meet the Company's policy. The document complements the Company's Holford Rules guidelines on the routeing of high voltage transmission lines and when appropriate should be used in conjunction with them.

4 The guidelines are to be used by NGC staff, their consultants, and contractors in the siting and design of new substations and extensions to substations. They reflect the criteria the company requires its staff, consultants and contractors to satisfy.

5 As recognised in its Schedule 9 Statement NGC places importance on consultation with statutory planning and amenity bodies over its proposals for new developments. NGC believes that the availability of these guidelines will assist in such discussions by referring to the main considerations relevant to substation siting, and will thereby assist in achieving the most appropriate siting and design solutions.

Section II NGC'S APPROACH TO DESIGN AND SITING OF SUBSTATIONS

Approach to the Environment

6 NGC's environmental policy recognises the importance of giving due regard to protecting and enhancing the environment and taking into account the effect on the environment of all the Company's actions. Following the principle of integrating environmental considerations into all its activities, NGC seeks to keep known adverse effects on the environment to a reasonably practicable minimum and, in accordance with its duties under Schedule 9 of the Electricity Act, the Company gives due regard to the preservation of amenity and takes reasonable steps to mitigate the effects of its relevant proposals. To achieve these aims the Company therefore has to balance technical, economic and environmental considerations to reach reasonably practicable development proposals.

7 The guidelines (Section III) deal with the amenity issues associated with the siting and design of new substations and major extensions or major modifications to existing substations. They cover a range of key issues from the time options are initially considered to final design, including form, silhouette and colour of the entire development in relation to the surrounding area, and also related

issues such as overhead line entries, since these are dominant features in any substation.

Environmental Report

8 In order to achieve these objectives, the environmental effects of new substations and extensions or modifications to existing substations will be assessed and where appropriate an environmental report prepared describing the effects and mitigative measures. Items to be considered are summarised in Appendix A.

Integrating Environmental Considerations into Power System Planning

9 The nature of transmission system planning is such that scheme proposals and options may go through various stages before it is finally decided to proceed with construction.

10 The purpose of each proposal for substation, sealing end compound or line entry development should be set out in a brief, and a range of system and siting options should be evaluated and documented as part of the selection of the preferred solution. In each case the effects of the overall development on the environment should be assessed, prior to a commitment to a particular site or design.

11 When it is clear a project is likely to proceed, an assessment should be made of any additional skills required to deal effectively with the range of environmental, land use, planning and design issues. Consideration should also be given to consultation as soon as reasonably possible with appropriate statutory planning and amenity bodies.

Liaison with other Electricity Companies

12 NGC will encourage and recommend other parties such as power generators or regional electricity companies to adopt these guidelines when working with NGC on proposals for substations, sealing end compounds or line entries.

Post Construction Review

13 Following completion of the project, a review should be undertaken to check that the necessary measures identified in the environmental report have been implemented.

Section III GUIDELINES

Overall System Options and Site Selection

1 **In the development of system options including new substations, consideration must be given to environmental issues from the earliest stage to balance the technical benefits and capital cost requirements for new developments against the consequential environmental effects in order to keep adverse effects to a reasonably practicable minimum.**

Amenity, Cultural or Scientific Value of Sites

2 **The siting of new NGC substations, sealing end compounds and line entries should as far as reasonably practicable seek to avoid altogether internationally and nationally designated areas of the highest amenity, cultural or scientific value by the overall planning of the system connections.**

Notes:

1 *Internationally and nationally designated areas of highest amenity, cultural or scientific value are:*

National Parks;
Areas of Outstanding Natural Beauty; Heritage Coasts;
World Heritage Sites; Ramsar Sites;
Sites of Special Scientific Interest; National
Nature Reserves; Special Protection Areas;
Special Areas of Conservation.

2 *Care should be taken in relation to all historic sites with statutory protection e.g. Ancient Monuments, Battlefields and Listed Buildings.*

3 *Account should be taken of Government Planning Policy Guidance and established codes of practice.*

4 *Account should be taken of any development plan policies relevant to the siting or design of substations.*

3 Areas of local amenity value, important existing habitats and landscape features including ancient woodland, historic hedgerows, surface and ground water sources and nature conservation areas should be protected as far as reasonably practicable.

Local Context, Land Use and Site Planning

4 The siting of substations, extensions and associated proposals should take advantage of the screening provided by land form and existing features and the potential use of site layout and levels to keep intrusion into surrounding areas to a reasonably practicable minimum.

Notes:

1 *A preliminary study should be undertaken to identify the extent of land required to meet both operational and environmental needs.*
In some instances it may be possible to site a substation partially or fully enclosed by existing woodlands.
Topographical information should be obtained at an early stage. In some cases a geotechnical survey may be required.

5 The proposals should keep the visual, noise and other environmental effects to a reasonably practicable minimum.

Notes:

1 *Allow sufficient space for screening of views by mounding or planting.*
2 *Consider appropriate noise attenuation measures where necessary.*
3 *Use security measures which minimise visual intrusion from lighting.*
4 *Consider appropriate on-site water pollution prevention measures.*
5 *Consider adjoining uses and the amenity of local inhabitants.*

6 The land use effects of the proposal should be considered when planning the siting of substations or extensions.

Notes:

1 *Issues for consideration include potential sterilisation of nationally important land, e.g. Grade 1 agricultural land and sites of nationally scarce minerals.*
2 *Effects on land drainage.*

Design

7 In the design of new substations or line entries, early consideration should be given to the

options available for terminal towers, equipment, buildings and ancillary development appropriate to individual locations, seeking to keep effects to a reasonably practicable minimum.

Notes:

1. *With outdoor equipment, a preference should be given normally to a low profile design with low height structures and silhouettes appropriate to the background.*
2. *Use lightweight narrow section materials for taller structures especially for gantries over about 6 metres in height.*
3. *Commission exterior design and colours appropriate to the surroundings.*
4. *Materials and colours for buildings, equipment and fencing should be chosen to harmonise with local surroundings.*
5. *Where possible avoid the use of prominent insulators by consideration of available colours appropriate to the background.*
6. *Where possible site buildings to act as visual screens for switchgear.*
7. *Ensure that the design of high voltage and low voltage substations is co-ordinated by early consultation between NGC and its customers.*
8. *Where there are particular technical or environmental constraints, it may be appropriate to consider the use of Gas Insulated Switchgear (GIS) equipment which occupies less space and is usually enclosed within a building.*
9. *Early consideration should be given to the routeing of utility service connections.*

8 **Space should be used effectively to limit the area required for development consistent with appropriate mitigation measures and to minimise the adverse effects on existing land use and rights of way, whilst also having regard to future extension of the substation.**

Notes:

1. *Assess the benefit of removing redundant substation equipment from existing sites where this would improve their appearance.*

9 **The design of access roads, perimeter fencing, earthshaping, planting and ancillary development should form an integral part of the site layout and design to fit in with the surroundings.**

Line Entries

10 **In open landscape especially, high voltage line entries should be kept, as far as possible, visually separate from low voltage lines and other overhead lines so as to avoid a confusing appearance.**

11 **The inter-relationship between towers and substation structures and background and foreground features should be studied to reduce the prominence of structures from main viewpoints. Where practicable the exposure of terminal towers on prominent ridges should be minimised by siting towers against a background of trees rather than open skylines.**

END

APPENDIX A

NGC SUBSTATIONS – ENVIRONMENTAL REPORT

Introduction

All proposals for significant extensions of existing substations or for new substations and associated development should be the subject of an environmental appraisal and an environmental report should be produced. The project manager will be responsible for ensuring that an appropriate appraisal is undertaken and report prepared, with due regard to expert advice available to the team.

For a major development a scoping exercise should be undertaken with the contribution of appropriate skills to establish the range and depth of the appraisal. It will generally be appropriate at this stage to consider consultation with the local planning authority.

A clear distinction should be drawn between the preparation of an environmental report which will be undertaken in most cases and a full environmental statement (ES) which may on occasion be required under UK environmental assessment legislation, for example where the substation forms part of a major new power station for which an ES may be needed.

Recommended Content of Environmental Reports for Substations

Section 1

Information describing the project during construction, when operational and on de- commissioning including:-

1.1 Purpose and physical characteristics of the project, including details of access and transport arrangements and employment.

1.2 Land use requirements and other physical features of the project.

1.3 Operational features of the project and relevant measurements of emissions such as noise, vibration, light, heat and electric and magnetic fields.

1.4 Main alternative sites considered and reasons for final choice.

Section 2

Information describing the site and its environment including:-

2.1 Physical features such as

- Flora and fauna
- Soil: agricultural quality, geology
- Water courses including land drainage generally
- Climatic factors
- Historic heritage and archaeological sites
- Landscape and topography
- Local recreational uses
- Proximity of population and any other relevant environmental features.

2.2 The policy framework

The policy framework including all relevant statutory designations such as national nature reserves,

sites of special scientific interest, national parks, areas of outstanding natural beauty, heritage coasts, special protection areas, special areas of conservation, regional parks, country parks, national forest parks, local nature reserves, areas affected by tree preservation orders, water protection zones, minerals protection zones, nitrate sensitive areas, conservation areas, listed buildings, scheduled ancient monuments, and designated areas of archaeological importance. It should also include references to Structure, Unitary and Local plan policies applying to the site and the surrounding area which are relevant to the proposed development as well as to any international designations.

Section 3

Assessment of effects on the surrounding area and landscape including:-

3.1 Visual effects, emissions during normal operation, noise, light, impact on local roads and transport.

3.2 Effects of the development on buildings, the architectural and historic heritage and archaeological features.

3.3 Loss of, and damage to flora, fauna and geology.

3.4 Land use/resource effects such as:
quality and quantity of agricultural land to be taken
sterilisation of mineral resources and alternative uses of the site.

3.5 Changes to hydrographic characteristics.

3.6 Air and Climate

3.7 Indirect matters such as
traffic (road, rail, air, water) related to the development
development associated with the project, e.g. new roads, sewers, power lines, pipelines, telecommunications etc.

Section 4

Mitigation measures

4.1 Where significant adverse effects are identified, a description of the measures to be taken to avoid, reduce or remedy those effects, e.g.

a) site planning;

c) technical measures e.g. equipment selection, recycling of waste or redundant parts, pollution control and treatment, containment (e.g. shielding of transformers and bunding)

d) aesthetic and ecological measures e.g.
mounding, design, colour, landscaping, tree planting
measures to preserve particular habitats or create alternative habitats
recording of archaeological sites
measures to safeguard historic buildings or sites.

END

Appendix 2 : SSLG Feedback on Draft Routeing Methodology for DGSR (2015)

Appendix 2: SSLG Feedback on Draft Routeing Methodology for DGSR (Issued November 2015)

SSLG Member	Feedback	SPEN Action
Dumfries and Galloway Council[35]	- The decision on undergrounding appears to be driven by cost rather than any assessment of the wider cost-benefits of undergrounding (e.g. on tourism assets or other environmental assets). Suggest the methodology section on undergrounding needs to be clearly expressed with any thresholds potentially used to inform such decisions clearly set out and defined.	- High voltage, high capacity overhead lines are the economic and reliable choice for the bulk transmission of electricity throughout the world. It is therefore SPEN's view that wherever practical, an overhead line approach is taken when planning and designing major electricity infrastructure projects such as this. However, we appreciate that there are specific circumstances in which an underground approach should be considered. If, through the routeing process, it is determined that an underground cable section is required then the approach is to minimise the length of underground cable necessary to overcome the constraint to routeing. This must be consistent with a balance between technical and economic viability, deliverability and environmental considerations. The criteria we use in deciding whether lines should be undergrounded can be found in our document Major Electrical Infrastructure Projects: Approach to Routeing and Environmental Impact Assessment at www.spendgsr.co.uk
	- Figure 1 confirms that the appraisal and subsequent identification of preferred route corridors occurs before identification and analysis of local level constraints.	- Regionally and locally important areas/features are considered as Holford Rule 2 and as such have been identified and mapped to inform the route option identification and appraisal.
	- RSAs (Regional Scenic Areas) should be considered at routeing stage as siting power lines within an RSA will lead to potentially significant landscape and visual impacts and is unlikely to be consistent with Local Development Plan Policies OP1 and NE2.	- As with the corridor appraisal stage, the RSA have continued to be mapped and taken account of during the route option appraisal stage to seek to minimise effects on the RSA.

[35] Feedback received in relation to SPENs Major Electrical Infrastructure Projects Approach to Routeing and EIA Document are not included here but are being considered by SPEN in the context of the Approach Document.

SSLG Member	Feedback	SPEN Action
	- Suggest the interaction between overhead lines and windfarms is reviewed through i) identifying potential capacity for routeing within wind farms or wind farm clusters (maybe look for potential opportunities for 'short cuts' to be used perhaps utilising undergrounding through such areas) and ii) avoiding areas identified as being of higher sensitivity to larger turbines in the Dumfries and Galloway Wind Farm Landscape Capacity Study.	- The status of wind farm applications has been reviewed prior to commencing the identification of line route options. Whilst routeing through windfarms forms a constraint to routeing on technical grounds (due to potential health and safety issues), where there are opportunities to route in proximity to the edges of windfarms these have been explored.
	- A list of key views for areas within the corridors or potentially affected by lines within the corridors should be generated and potential impacts assessed.	- A list of 'key views' has been compiled from the feedback received from the SSLG as part of the Round One.
	- In the section on Tourism and Recreation, consideration should be given not only to static localities and individual assets, but also to the routes visitors use to travel to and between these locations, especially routes that are promoted for their visual qualities.	- Consultation and informed the appraisal of line route options, where possible. Key views identified during consultation will subsequently be used to inform the selection of viewpoints for the Landscape and Visual Impact Assessment as part of the EIA.
	- The cultural heritage features to be considered are appropriate at this stage.	- Long distance walking and cycling routes as well as promoted tourist routes have been mapped and used to inform the appraisal of route options.
Scottish Natural Heritage	- Trigger for consideration zones should also be applied to known nest sites of Annex 1/Schedule 1 raptors (and raptor roosts) and other key species.	- Red Kite Roosts and Black Grouse Leks have been mapped and an appropriate 'trigger for consideration' applied to their locations. Known nest sites of Annex 1/Schedule 1 raptors and other key species have been provided by the Raptor Study Group and have been used to inform the appraisal of line route options. This information is confidential and has not been shown in the report.
	- The landscape and visual constraints should include visibility of potential overhead lines from National Scenic Areas and the Merrick Wild Land Area as well as Long Distance Walking Routes.	- Potential visibility from the Fleet Valley and East Stewartry Coast NSAs, and the Merrick WLA was considered in the appraisal of corridors and where there remains potential for visibility this has been considered in the appraisal of route options. - Promoted Long distance walking routes (LDRs) were also considered in the appraisal of corridors and have continued to be considered during the appraisal of route options in relation to potential visual effects experienced by people (receptors) using these trails, as well as other tourist and

SSLG Member	Feedback	SPEN Action
		attractions and recreation areas.
	- Dumfries and Galloways emerging list of 'key views' should be used to establish 'key viewpoints' for use in the appraisal.	- Consultation with D&GC confirmed the emerging list of 'key views' is not currently available.
	- Welcome the use of LCAs to underpin the capacity study but highlight the D&G LCA was produced in 1998 so may be out of date with regards to cumulative impact of tall structures.	- The methodology for assessing landscape capacity of Landscape Character Types (LCTs) is contained within Appendix 3 of the Dumfries & Galloway Strategic Reinforcement Routeing and Consultation Document (May 2015). A similar finer grained appraisal of landscape capacity for individual landscape character units (LCU) within each LCT, as defined within the Dumfries and Galloway Wind Farm Landscape Capacity Study (2011), has been undertaken to inform the appraisal of route options.
	- Suggest access tracks for construction should form a part of feasibility stages in the methodology.	- The potential impact of access tracks is acknowledged and will form an integral part of the alignment/design process as part of the EIA.
	- Suggest Zones of Theoretical Visibility (ZTVs) are used to assess where the route options would be seen outwith the corridor from promoted views and designated areas.	- ZTVs will be used at the EIA stage to illustrate the likely extent of theoretical visibility of the proposed route and assist in the identification of assessment viewpoints to represent key visual receptors to be considered in the assessment of visual effects.
Forestry Commission Scotland	- Suggested that Native Woodland Survey of Scotland (NWSS) dataset should be mapped as part of baseline gathering process.	- The NWSS has been incorporated into the baseline gathering process and used to inform route identification and appraisal when routeing through woodland.
	- Suggest further clarity/explanation is given to the 'weighting' given to forestry with regards to other commercial land uses.	- In accordance with the Routeing Strategy where this potentially conflicts with other environmental characteristics/constraints, e.g. people or visibility, a route through forestry has been considered. At this point, a more detailed assessment of the type, current forest management etc. of the individual forest/woodland block has been undertaken to understand the potential effects of routeing through this area to inform consideration against other factors in the routeing process. This same process has been undertaken for other land uses such as minerals extraction and committed

SSLG Member	Feedback	SPEN Action
		development.
Historic Environment Scotland	- Overall consider the methodology appropriate and robust for HES interests.	
	- HES would welcome clarification / justification on whether unscheduled archaeology within the study area is considered as being of national or regional importance in the methodology.	- Unscheduled archaeology has been considered as being of national importance if it is considered as such in the HER and this would be similar for assets considered to be of regional or local importance in the HER.
	- Section 1.58 identifies a 2km trigger for consideration zone for the setting of heritage assets. Whilst this appears reasonable, it would be helpful to clarify here whether this applies to simply the lines themselves, or also towers.	- The 2km trigger for consideration zone for external receptors comprises the area where there would most likely be significant impacts on the setting of heritage assets from the route (comprising both lines and their supporting towers/poles).
	- Note that comments on impacts on the historical environment do not include a consideration of impacts on tourism and recreation. In section 1.40 it is stated that features identified as recreation and tourism interests will be given a status of 'regional importance' for the purposes of routeing appraisal. In some cases, it is likely that these sites will also be considered to be of regional importance from a cultural heritage perspective.	- Where cultural heritage features are promoted as tourist attractions, these were also considered within the visual amenity appraisal with regards to potential effects on tourism.
	- It should be clarified whether or not a combination of interests could lead to a receptor having cumulative value across disciplines, such that a site identified as being of regional importance for both cultural heritage and recreation may be considered as having higher than regional value overall. This may aid in predicting or reducing such indirect impacts and would provide consistency between the methodologies for routeing and assessment.	- The setting assessment has, where appropriate, taken into consideration where the public consciousness places a strong emphasis on an asset and its setting. However a combination of interests would not elevate the importance of a feature.

SSLG Member	Feedback	SPEN Action
	- Where screening from vegetation, and particularly forestry, is considered to mitigate setting impacts, we would always advise that consideration should be given to the fact that this can be subject to change over the lifetime of a development. This should be reflected in any detailed assessment as part of the EIA process.	- With regards to screening from vegetation, this will be identified and included within the assessment as part of the EIA.
Scottish Environment Protection Agency	- Impacts on peat and GWDTEs should be considered in the decision on the preferred route.	- Field surveys will be undertaken to identify and map GWDTEs during the EIA stage, once access to land has been agreed, and their presence will inform the alignment of the route. - The SNH mapping of Carbon Rich Soils, Deep Peat and Priority Peatlands has been used to inform the identification and appraisal of route options. Peat field surveys will be undertaken during the EIA stage and the presence of peat will inform the alignment of the route.
	- Existing infrastructure should be used where possible and all new proposed infrastructure should be shown on plans and assessed as part of the EIA.	- Existing infrastructure has continued to be mapped and options to follow these routes, as well as new routes have been identified and appraised during the routeing process.
	- 1/200yr flood extent areas should have minimum infrastructure sited within it where possible. Require all substations to be located outwith the 1/1000yr flood extent.	- The 1/200yr flood extent areas have continued to be mapped and avoided where possible. Where a flood extent is required to be crossed, this will be undertaken at the narrowest point, where possible.

SSLG Feedback on Draft Routeing Methodology for KTR (2016)

Consultee	Response	SPEN Action
SEPA 5th August 2016	In summary SEPA are satisfied with the methodology, provided that our comments within the attached (previously provided on wider DGSR methodology) are taken into consideration throughout the project.	See above table.

Consultee	Response	SPEN Action
	SEPA would add one comment at this stage and that is the presence of North American Signal Crayfish needs to be taken into consideration, especially in the Dee/Ken catchment, as it is essential that this species is not spread any further. Therefore robust biosecurity measures are required not only for NASC but other invasive species.	Invasive species and associated biosecurity measures will be taken account of during the EIA stage and measures to avoid impacts included within the Construction Environment Management Plan.
SNH 19th August 2016	SNH are content that previous comments re. the larger DGSR scheme have been taken account of in the methodology for the KTR project. SNH do though reiterate the value of making use of ZTVs as a tool to compare visibility between route options and to help shape a route with the least visibility from sensitive viewpoints. At present, it looks like ZTVs will only be used retrospectively at the EIA stage once the preferred route has been identified, rather than as part of the route selection process.	On the basis that the route options are generally variants of each other, located within a relatively limited geographic area, combined with the coarse grain of the ZTV (i.e. no forestry or buildings), ZTVs are not considered to provide sufficient detail to inform the comparative appraisal of route options.
	On a more general note, it is important that the detailed methodology for the comparative appraisal of route options (1.65 iii) is made clear from the outset, and the results presented in a transparent way that is open to scrutiny by interested parties.	In relation to the comparative appraisal, the objective of the appraisal of the route options within Step G was to identify a preferred route, for each section of the Project. As outlined in the Routeing Strategy, where the characteristics of the study area were such that they required to be balanced to enable the overarching Routeing Objective to be met, professional judgement, informed by both desk studies and field work, and reflecting the Holford Rules, was employed to identify the preferred route. This professional judgement was made on a case by case basis. The methodology for the comparative appraisal of route options is set out in **Chapter 5** of this report and the findings presented in **Chapter 5** and **Appendix 6**.

Consultee	Response	SPEN Action
	A couple of specific bird issues that may need to be considered are i) potential golden eagle nest locations, and ii) flight lines of hen harriers roosting within Laughenghie & Airlie Hills SSSI (http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=911). Contacts within the Raptor Study Group will hopefully be able to assist with more specific local knowledge.	With regards to bird issues, data has been obtained from RSPB and the Dumfries and Galloway Raptor Study Group in relation to nesting birds of Annex 1/Schedule 1 raptor species and a 1km 'trigger for consideration zone' applied specifically to Golden Eagle to inform the route option appraisal. A 2km 'trigger for consideration zone' from the SSSI has also been used to inform the appraisal in lieu of flight data which will be collated as part of the EIA.
	In addition, you may already be aware that we have recently published guidance on birds and power lines (http://www.snh.gov.uk/docs/A2047189.pdf).	The newly published SNH guidance will inform the ornithological surveys proposed to be undertaken to inform the route alignment and EIA stages.
D&GC 16th August 2016	On the whole, have few issues with the assessment methodology outlined.	
Cultural Heritage	Sections 1.43 – 1.46 deal specifically with cultural heritage issues. Whilst nationally significant sites recorded in the HER are acknowledged in 1.45, the HER also includes a number of sites of regional and local significance. As category B and C listed buildings are of similar, though designated, significance, and Non Inventory Designed Landscapes are also of regional significance, it is suggested that SPEN consult the HER for sites of local and regional significance at this stage of the process, as avoiding them now, or minimising the impact, would avoid any undue delays at later detailed stages – or would allow for an indication of potential issues that will have to be factored in. National policy requires all historic environment features to be taken into account, and this would seem the appropriate stage in the process to factor the sites in. The Council's HER would be able to provide the information in GIS format, with the significance grade of the asset as one of the data fields, to facilitate spatial planning.	HER data for regional and local significance have been mapped and taken account of during the route option appraisal.
FCS 19th August 2016	*1.51 In accordance with Holford Rule 5, and accompanying notes, woodland will be avoided where possible in identification of route options. However, where there are extensive areas of commercial woodland and routeing through the woodland would facilitate avoidance of other environmental constraints, including people, in accordance with the routeing objective, these areas will be considered 'opportunity areas' for identification of route options*. Suggest that woodlands in themselves offer no more opportunity than other forms of land use, such as agriculture,	The methodology for identification and appraisal of route options has been updated to reflect the feedback from FCS as presented in **Chapters 4** and **5.**

Consultee	Response	SPEN Action
	so shouldn't be given any more preference in such instances than those options. Indeed, as we discussed, placing OHL in forests results in significantly more impacts on subsequent land use than the equivalent in an agricultural context. A much greater area than the Wayleave is directly impacted in terms of growing of trees, access to woodland areas divided by the OHL, and long term H&S considerations about operational working within proximity to these areas, tragically, the sector continues to suffer fatalities as a result of operations coming into contact with OHL's. It's also the case that fitting OHL's into woodland areas also often results in increased felling to accommodate the works and also long term woodland loss as a result of effectively landscaping the OHL wayleave into the woodland. *1.52 In this scenario, when routeing through woodland, routes will avoid ancient woodland where possible, and minimise the loss of native woodland where possible. In identifying route options through commercial woodland, all other things being equal, in accordance with Holford Rule 3 the most direct line will be chosen.* Routeing within forests should consider much more effectively the sort of impacts identified above; it should also better reflect existing infrastructure and woodland internal edges in the alignments chosen. Doing so can significantly reduce the impacts of the installation. Therefore suggest that all these elements should be considered in route alignment, a "direct line" can often result in a significant amplification of the impacts. *1.53 However scope for limiting environmental effects of a 50m wayleave e.g. visual and ecology, and effects on woodland management e.g. felling design plans, will be undertaken through consideration of the type of woodland and age etc. in consultation with the forestry manager and/or Forestry Commission Scotland, where relevant.* Agree this is a sensible way to consider OHL's that are sited within woodlands, early engagement with the owner and FCS can provide best solutions and minimise impacts and costs for all parties.	
HES 5th August 2016	HES are content with the manner in which the historic environment remit has been addressed in both documents, and welcome the detailed level of engagement that has been possible as the project has developed over the last few years. Polquhanity to Tongland Overhead Line Routeing Methodology. HES welcome the actions that have been taken in response to previous comments on the methodology for the DGSR Project, and consider that the proposed methodology will be adequate for consideration of the historic environment and of assets within their regulatory remit.	Noted.

Appendix 3 : Appraisal of Landscape Capacity to Accommodate Overhead Lines

Appendix 3: Appraisal of Landscape Capacity to Accommodate Overhead Lines

Introduction

The 2002 Landscape Character Assessment Guidance[36] provided a starting point for the definition of Landscape capacity: *"Landscape capacity refers to the degree to which a particular landscape character type or area is able to accommodate change without significant effects on its character, or overall change of landscape character type. Capacity is likely to vary according to the type and nature of change being proposed."*

SNH define landscape capacity as *"the extent to which a particular landscape type is able to accept a particular kind of change (e.g. mining, forestry, wind farms) without significant effects on its character. The capacity of a landscape for a specific type of change will depend upon the nature and magnitude of the change and the landscape's sensitivity."*[37]

As outlined in GLVIA3[38] an appraisal of landscape capacity *"cannot provide a substitute for the individual assessment of the susceptibility of the receptors in relation to change arising from the specific development proposal."* which in this case will be undertaken in the Landscape and Visual Impact Assessment (LVIA), as part of the EIA for the overhead line route alignment.

Methodology

The following study updates and refines the landscape capacity work undertaken in identifying a preferred corridor between Polquhanity and Tongland, as part of the DGSR project[39]. Landscape capacity[40] is assessed with reference to the existing landscape characteristics and attributes of the landscape. Accordingly, the SNH Landscape Character Assessment (LCA) for Dumfries and Galloway (Report No. 94, Land Use Consultants 1998) has been used as the starting point in determining landscape capacity across the proposed corridor.

Each Landscape Character Type (LCT), and subsequently each Landscape Character Unit (LCU), which is potentially affected has been evaluated (on its susceptibility to being changed by overhead lines of the type proposed) and categorised as having **higher**, **medium** or **lower** landscape capacity to accommodate high voltage overhead lines. The appraisal relies on the application of professional judgement in the use of the LCA, and also draws on the principles set out in the Holford Rules and the Horlock Rules (as set out in **Appendix 1**).

Indicators of the relative levels of landscape capacity to accommodate overhead line development are shown in the table below.

[36] Swanick, Carys and Land Use Consultants (2002). Landscape Character Assessment Guidance for England and Scotland. Countryside Agency and Scottish Natural Heritage
[37] http://www.snh.gov.uk/protecting-scotlands-nature/looking-after-landscapes/tools-and-techniques/landscape-capacity-and-sensitivity/
[38] Landscape Institute & Institute for Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment – Third Edition (GLVIA3).
[39] SP Energy Networks (May 2015) The Dumfries and Galloway Strategic Reinforcement Project: Routeing and Consultation Document.
[40] 'Capacity' in this document means: the (relative) ability of the landscape to accommodate an overhead line.

Indicators of Landscape Capacity

Capacity	Definition
Higher	Landscape character, existing land use, pattern, scale and attributes are robust and tolerant of the change resulting from high voltage overhead lines. The change could be accommodated without geographically extensive and/ or substantial adverse effects on, or loss of, key perceptual, physical or aesthetic characteristics.
Medium	Landscape character, existing land use, pattern, scale and attributes able to accommodate some landscape change resulting from high voltage overhead lines.
Lower	Landscape character, existing land use, pattern, scale and attributes are vulnerable to being changed or lost resulting from the introduction of high voltage overhead lines. Key perceptual, physical and aesthetic characteristics are vulnerable to change or loss.

For each LCT and LCU, the key characteristics are analysed to inform an overall judgement on the capacity of each LCT and LCU to accommodate high voltage overhead lines of the type proposed. The following table outlines the rationale for determining landscape capacity in relation to key landscape characteristics:

Characteristics influencing Landscape Capacity

Characteristic	Characteristics indicating a higher capacity to accommodate overhead lines	Characteristics indicating a lower capacity to accommodate overhead lines
Landform and scale	• Flatter or gently undulating landscapes • Broad valley landscapes • Larger scale landscapes	• Steep, complex landscapes • Complex topography • Intimate scale landscapes

Characteristic	Characteristics indicating a higher capacity to accommodate overhead lines	Characteristics indicating a lower capacity to accommodate overhead lines
Landcover and pattern	• Arable, pasture, rough grassland • Moorland • Simple patterns • Landcover which can recover quickly/ does not require complex engineering solutions	• Continuous woodland • Bog, peat, wetlands • Complex patterns • Landcover which recovers slowly/ requires complex engineering solutions
Manmade influence	• Industry, arable farming, presence of large built structures, disturbed areas • Landscapes which have experienced a higher level of human influence • More developed/ managed landscapes	• Remote landscapes • Areas with natural characteristics • Landscapes with little evidence of human influence
Visual experience	• Interrupted horizons • Simple skylines	• Uninterrupted horizons • Distinctive/ complex skylines
Settlements	• Industrial • Sparsely settled arable	• Residential • Dense patterns of isolated farmsteads/ small scale settlements
Time depth	• Landscapes which, through human influence, have experienced greater change at a faster pace of evolution (and which look likely to continue in this way)	• Landscapes which are more static, evolving at a slower pace (and which look likely to continue in this way)

In determining landscape capacity, professional judgement is applied alongside an understanding of how the proposed development would affect, or fit in with, the landscape, and the degree to which potentially adverse effects could be reduced. This enables a judgement to be made on the landscape capacity of each LCT, which is presented graphically on a series of maps using GIS, and supported by written observations on the key landscape characteristics.

Findings: Route Corridor

The following table presents LUC's appraisal of the landscape's relative capacity to accommodate overhead line development with reference to the Landscape Character Types within the proposed corridor. Reference has also been made to the assessed sensitivity[41] of each LCT from the following reports:

1 *Dumfries and Galloway Landscape Assessment* (SNH Report No. 94, prepared by Land Use Consultants, 1998)[i];

2 *Dumfries and Galloway Wind farm Landscape Capacity Study – Main Report* (Carol Anderson in association with Alison Grant, Landscape Architects, 2011)[ii];

Landscape Character Type (LCT)	Landscape Sensitivity findings (in relation to tall structures, wind farms etc.) from Landscape Character Assessment (1998)[iii]	Landscape Sensitivity[42] findings (in relation to wind farms) from Landscape Capacity Study (2011)[iv]	LUC Appraisal – Landscape Capacity to Accommodate Overhead Line Development
LCT 1: Peninsula	In relation to wind farms, the assessment states: *'this landscape type offers few opportunities for screening of towers, and so subsequently would be very visible.'* (Page 87)	Type 1: Peninsula – Dundrennan Unit (LCU) *'The rugged coastline, rolling coastal hills and complex knolly landform around the Buckland Burn are highly sensitive… Some limited areas of more open, simple and expansive hill slopes occur inland where sensitivity is reduced… The landscape of the Dundrennan peninsula has an overall Medium sensitivity to the small-medium typology (20-50m)'* (Page 32)	Medium scale, sensitive coastal edges and policy landscapes, distribution of farmstead and cultural heritage features indicate a **lower** capacity for overhead line development.
LCT 8: Flooded Valley	In relation to wind farms, the assessment states: '*This landscape is particularly scenic as recognised by its*	Type 8: Flooded Valley - Ken Valley Unit (LCU) *'The overall low relief of the valley, the*	Shallow V shaped valley with narrow valley floor, complex glacially shaped terrain, diverse landscape pattern including

[41] 'Sensitivity' is defined here in accordance with the first component only of Paragraph 3.24 of GLVIA 3 namely: "the susceptibility of the receptor to the type of change arising from the specific proposal…"

[42] The judgements of sensitivity referenced are made in relation to the small-medium wind turbine typology, defined as 20-50m in vertical height and of a similar vertical scale to the maximum height of the lattice steel tower and wood pole overhead line infrastructure proposed.

Landscape Character Type (LCT)	Landscape Sensitivity findings (in relation to tall structures, wind farms etc.) from Landscape Character Assessment (1998)[iii]	Landscape Sensitivity[42] findings (in relation to wind farms) from Landscape Capacity Study (2011)[iv]	LUC Appraisal – Landscape Capacity to Accommodate Overhead Line Development
	designation as a regional scenic area (Loch Ken). It is well used for recreation and highly accessible.' (Page 69)	*sensitivity of the loch, the small scale and complexity of the landforms and the adjacent drumlin pasture character results in a **High-medium** sensitivity to the small-medium typology (20–50m).'* (Page 60)	dominance of the loch indicate a **lower** capacity for overhead line development.
LCT 9: Upper Dale	*'The development of wind turbines within the Upper Dale landscapes could be both intrusive and obtrusive unless local topographic variations could provide a backclothing from main viewpoints avoiding skyline silhouettes and disruption of long views down the valley.'* (Page 71)	Type 9: Upper Dale – Upper Glenkens Unit (LCU) *'The openness and more expansive scale of the broader parts of these upper dales, however, offer some opportunities for smaller typologies and there would be a **Medium** sensitivity to the small-medium typology (20–50m).'* (Page 64)	Wide V shaped valley enclosed by high peaks and moorland which offer backclothing opportunities indicates a higher capacity for overhead line development. However, the open nature allows long views down the valley. Overall, this LCT is judged to have **medium** capacity to accommodate overhead line development.
LCT 13: Drumlin Pastures	*'The integrity of the landform is essential to the landscape character of drumlin pastures. Any development that would disrupt this unity would therefore be detrimental to the landscape character.'* (Page 70)	Type 13: Drumlin Pastures – Deeside Unit (LCU) *'The small scale of the landform and the pattern of land cover and settlement, as well as the sensitivity of the smooth rhythm of the drumlin tops also results in a **High-medium** sensitivity to the small-medium typology. (20–50m).'* (Page 79)	Distinctive and undulating landscape with smooth convex drumlins; pattern of improved pasture and copses of deciduous woodland; and settled nature indicate a **medium** capacity for overhead line development.
LCT 18: Foothills	*'In foothills landscape type, `wild land' values and experience can be very*	Type 18: Foothills – Fleet Unit (LCU) No landscape sensitivity judgement	Gently undulating land with rounded peaks, simple land cover of semi improved pasture,

Landscape Character Type (LCT)	Landscape Sensitivity findings (in relation to tall structures, wind farms etc.) from Landscape Character Assessment (1998)[iii]	Landscape Sensitivity[42] findings (in relation to wind farms) from Landscape Capacity Study (2011)[iv]	LUC Appraisal – Landscape Capacity to Accommodate Overhead Line Development
	important locally and wind towers may compromise this.' *'The more extensive foothill landscapes are likely to hold greater potential for visual containment within plateaux, depressions and valleys where their influence could be limited within the Foothills landscape type i.e. not perceptible from valley or other lowland areas. Siting below hills and ridges should also seek to achieve maximum backclothing effect from hill roads and isolated settlements / farmsteads.'* (Page 168)	provided for small-medium typology but the report outlines that '*the strongly contained upland valley of this landscape unit has a diverse, often rugged landscape and an open and natural quality, which contrasts with adjacent extensively forested foothills. The knolly, south-western hills of these foothills form an enclosing edge and backdrop to the highly scenic Fleet Valley. There would be a* ***High sensitivity*** *to both the large and medium typologies…'* and goes on to state that '*the small-medium typology* [20 to 50m] *would have similar effects to larger typologies*.' (Page 107)	lower density settlement pattern and somewhat contained nature of views indicate a higher capacity for overhead line development. However, the role this unit plays in providing an enclosing ridge lowers this areas capacity to overhead line development to **medium**. Routeing should seek to avoid the areas of highest ground to maximise screening and back clothing and the proposed corridor avoids the more sensitive south-western edge of these hills.
LCT 18a: Foothills With Forest	*'Forested foothills may provide opportunities for topographic screening and backclothing with the added benefits of peripheral tree screens.'* *'The most suitable locations would be in the middle area of these landscapes below ridge lines, in depressions, basins or valleys where their influence on Scottish Uplands and Upland Fringe (and Lowland) landscapes would be minimised.'* (Page 172)	Type 18a: Foothills With Forest – Rhinns of Kells Unit (LCU) No landscape sensitivity judgement provided for unit in relation to small-medium typology but the report states '*small/medium turbines could relate to slacker lower hill slopes where they would have some visual association with smaller scale elements and settlement and would be less likely to appear 'lost' within more expansively scaled upper slopes.'* (Page 130)	All Units are similar in character to LCT 18: Foothills (in terms of scale and landform) but with extensive coniferous forest cover indicating a **higher** capacity for overhead line development. Coniferous forest offers opportunities for backclothing and screening vertical and linear development if long straight visually intrusive corridors and wind throw can be avoided. The proposed corridor also avoids the more sensitive south-western edge of the Cullendulloch and Lauriston Units.

Landscape Character Type (LCT)	Landscape Sensitivity findings (in relation to tall structures, wind farms etc.) from Landscape Character Assessment (1998)[iii]	Landscape Sensitivity[42] findings (in relation to wind farms) from Landscape Capacity Study (2011)[iv]	LUC Appraisal – Landscape Capacity to Accommodate Overhead Line Development
		Type 18a: Foothills With Forest – Lauriston Unit (LCU) No landscape sensitivity judgement provided for unit in relation to small-medium typology but with regard to smaller typologies the report states '*there is scope however to locate this typology on broader lower hill slopes and terraces on open farmland and moorland to the east but avoiding more sensitive areas of moorland, wetland and scrub which contribute to the diversity of the open parts of this landscape.'* (Page 128)	
		Type 18a: Foothills With Forest – Strone (LCU) No landscape sensitivity judgement provided for unit in relation to small-medium typology but with regard to smaller typologies the report states '*the small/medium typology would have similar adverse effects on landmark hills, ridges and containing edges to adjacent settled landscapes although opportunity exists to site turbines on lower hill slopes and less*	

Landscape Character Type (LCT)	Landscape Sensitivity findings (in relation to tall structures, wind farms etc.) from Landscape Character Assessment (1998)[iii]	Landscape Sensitivity[42] findings (in relation to wind farms) from Landscape Capacity Study (2011)[iv]	LUC Appraisal – Landscape Capacity to Accommodate Overhead Line Development
		prominent hill tops (but not the more complex drumlins) and in association with settlement.' (Page 132)	
LCT 20: Coastal Granite Uplands	*'Introduction of new wind farms is likely to detract from enjoyment of these unspoilt landscapes and should not generally be accepted.'* (Page 183)	Type 20: Coastal Granite Uplands – Bengairn Unit (LCU) '*This landscape unit of the Coastal Granite Uplands varies greatly in scale. It comprises complex, intimately scaled coastal promontories, knolly 'foothills' and narrow valleys but also larger scale landmark hills. The dramatic steep slopes, craggy ridges and summits of these hills make a strong contribution to wider scenic diversity. Landscape sensitivity would be* ***High-medium*** *for the small-medium typology*.' (Page 151)	The large scale, sparsely populated nature of this LCU indicates a higher capacity for overhead line development. However, varied landcover, complex topography and the scenic qualities offered by this coastal LCU lower this area's capacity, especially where they coincide with the NSA and RSA designation at its eastern extent. Overall, this LCT is judged to have **medium** capacity to accommodate overhead line development.

Landscape Character Type (LCT)	Landscape Sensitivity findings (in relation to tall structures, wind farms etc.) from Landscape Character Assessment (1998)[iii]	Landscape Sensitivity[42] findings (in relation to wind farms) from Landscape Capacity Study (2011)[iv]	LUC Appraisal – Landscape Capacity to Accommodate Overhead Line Development
LCT 21a: Rugged Granite Upland with Forest	*'The potential for wind power development is extremely limited within this landscape type.* *Opportunities may only exist for small to medium scale developments which can be sited in areas of smoother relief and where they would not influence the character of the adjacent Rugged Granite Uplands type.'* (Page 190)	Type 21a: Rugged Granite Upland with Forest – Cairn Edward Unit (LCU) No landscape sensitivity judgement provided for units in relation to small-medium typology but report does state that: *'Smaller typologies would appear trivial in relation to the scale of more expansive hill slopes and tops but could relate to the smaller scale of occasional blocks of pasture carved out of the forest or on lower hill slopes close to the Dee valley.'* (Page 161)	Very similar characteristics (in terms of large scale and varied underlying landform) to the Rugged Granite Uplands LCT but with extensive coniferous forest landcover. At its eastern extents the dense coniferous forest of the Cairn Edward Unit offers opportunities for backclothing and screening vertical and linear development if long, linear visually intrusive corridors and wind throw, and the notable unforested rugged granite summits can be avoided. This LCT is judged to have **medium** capacity to accommodate overhead line development.

[i] *Dumfries and Galloway Landscape Assessment* (SNH Report No. 94, prepared by LUC, 1998).

[ii] *Dumfries and Galloway Wind farm Landscape Capacity Study – Main Report (Carol Anderson in association with Alison Grant, Landscape Architects, 2011).*

Appendix 4 : Listed Buildings and Unscheduled Sites of National Importance within 2km of the Route Options

Appendix 4: Details of Listed Buildings and Unscheduled Sites of National Importance within 2km* of the Route Options

*Within 2km at nearest point.

	Listed Buildings within 2km trigger for consideration zone	Unscheduled Monuments of National Importance within 2km trigger for consideration zone
Polquhanity to Kendoon		
P-K Route Option A P-K Route Option B P-K Route Option C P-K Route Option D P-K Route Option E P-K Route Option F	**Category B Listed** Kendoon North Dam (LB51691) Kendoon Power Station & Valve-house (LB51694) Carsfad Dam (LB51695) **Category C Listed** Dalshangan, stables (LB3679) Dalshangan, dovecot (LB3680) Kendoon South Dam (LB51692) Kendoon Surge Tower (LB51693)	Mackilston Cairn (MDG3865) Barlae Hill – Stroangassel Hill, Road (MDG3416) Irongallows/Faulds, Farm system, Farmstead (MDG13622)
Carsfad to Kendoon		
-	**Category A Listed** Earlstoun Castle (LB3624), which is also a Scheduled Monument Knocknalling Barn (LB9746) **Category B Listed** Kendoon Power Station and Valve House (LB51694) Carsfad Dam (LB51695) Knocknalling House and Walled Garden (LB9717) Knocknalling Stableyard (LB9718) Polharrow Bridge (LB9750) **Category C Listed** Dalshangan Stables (LB3679) Dalshangan Dovecot (LB3680) Kendoon South Dam (LB51692) Kendoon Surge Tower (LB51693)	Mackilston cairn (MDG3865) Barlae Hill – Stroangassel Hill, Road (MDG3416)
Kendoon to Glenlee		
K-G Route Option A	**Category A Listed** Earlstoun Castle (LB3624), which is also a Scheduled Monument. Knocknalling Barn (LB9746) **Category B Listed** Dalry Manse (LB3620) Dalry Parish Church and Churchyard (LB3621)	The Score (MDG12802) - promoted heritage site along the Southern Upland Way Barlae Hill – Stroangassle Hill, Road (MDG3416) Mackilston Cairn (MDG3865) Dalry Fundamental Bench Mark (MDG25521)

	Listed Buildings within 2km trigger for consideration zone	Unscheduled Monuments of National Importance within 2km trigger for consideration zone
	Dalry Parish Church Vestry (LB3622) St John's Old Church (LB3623) Allangibbon Bridge (LB3642) Allangibbon Bridge Cottage (LB3643) Dalry, 5-7 Main Street (LB3645) Knocknalling House and Walled Garden (LB9717) Knocknalling Stableyard (LB9718) Earlstoun Power Station (LB9725) Glenlee House (LB9737) Glenlee Park Bridge to East of House (LB9738) Glenlee Park Stableblock (LB9739) Glenlee Park, Urn and Pedestal in grounds of Glenlee House (LB9740) Glenlee Park Sarcophagus nr House (LB9741) Kendoon Power Station and Valve-House (LB51694) Carsfad Dam (LB51695) Carsfad Power Station (LB51696) Earlstoun Dam (LB51697) **Category C Listed** Kendoon South Dam (LB561692) Kendoon Surge Tower (LB51693 Dalshangan Stables (LB3679) Dalshangan Dovecot (LB3680) Barskeoch Mains Farmhouse and Farmsteading (LB9722) Kendoon Surge Tower (LB51693)	
K-G Route Option B	**Category A Listed** Earlstoun Castle (LB3624), which is also a Scheduled Monument. **Category B Listed** Dalry Manse (LB3620) Dalry Parish Church and Churchyard (LB3621) Dalry Parish Church Vestry (LB3622) St John's Old Church (LB3623) Allangibbon Bridge (LB3642) Allangibbon Bridge Cottage (LB3643) Ardoch (LB3644) Dalry, 5-7 Main Street (LB3645) Barlaes (LB3676) Earlstoun Power Station (LB9725) Glenlee House (LB9737), Glenlee Park Bridge to East of House (LB9738)	The Score (MDG12802) - promoted heritage site along the Southern Upland Way Barlae Hill – Stroangassle Hill, Road (MDG3416) Carseglass, Cairn, Field boundary, settlement and boundary bank (MDG3866) Dalry Fundamental Bench Mark (MDG25521)
K-G Route Option C		

	Listed Buildings within 2km trigger for consideration zone	Unscheduled Monuments of National Importance within 2km trigger for consideration zone
	Glenlee Park Stableblock (LB9739) Glenlee Park, Urn and Pedestal in grounds of Glenlee House (LB9740) Glenlee Park Sarcophagus nr House (LB9741) Polharrow Bridge (LB9750) Kendoon Power Station and Valve-House (LB51694) Carsfad Dam (LB51695) Carsfad Power Station (LB51696) Earlstoun Dam (LB51697) **Category C Listed** Kendoon South Dam (LB51692) Kendoon Surge Tower (LB51693) Dalshangan Stables (LB3679) Dalshangan Dovecot (LB3680) Barskeoch Mains Farmhouse and Farmsteading (LB9722) Coom Bridge (LB9724)	
K-G Route Option D	**Category A Listed** Earlstoun Castle (LB3624), which is also a Scheduled Monument **Category B Listed** Dalry Manse (LB3620) Dalry Parish Church and Churchyard (LB3621) Dalry Parish Church Vestry (LB3622) St John's Old Church (LB3623) Allangibbon Bridge (LB3642) Allangibbon Bridge, Cottage (LB3643) Ardoch (LB3644) Dalry, 5-7 Main Street (LB3645) Barlaes (LB3676) Earlstoun Power Station (LB9725) Kendoon Power Station and Valve-House (LB51694) Glenlee House (LB9737) Glenlee Park Bridge to East of House (LB9738) Glenlee Park Stableblock (LB9739) Glenlee Park, Urn and Pedestal in grounds of Glenlee House (LB9740) Glenlee Park Sarcophagus nr House (LB9741) Carsfad Dam (LB51695) Carsfad Power Station (LB51696) Earlstoun Dam (LB51697)	
K-G Route Option E		
K-G Route Option F		

	Listed Buildings within 2km trigger for consideration zone	Unscheduled Monuments of National Importance within 2km trigger for consideration zone
	Category C Listed Barskeoch Mains Farmhouse and Farmsteading (LB9722) Dalshangan Stables (LB3679) Dalshangan Dovecot (LB3680) Coom Bridge (LB9724) Kendoon South Dam (LB51692) Kendoon Surge Tower (LB51693)	
Earlston to Glenlee		
-	**Category B Listed** Dalry Manse (LB3620) Dalry Parish Church and Churchyard (LB3621) Dalry Parish Church Vestry (LB3622) St John's Old Church (LB3623) Allangibbon Bridge (LB3642) Allangibbon Cottage (LB3643) Dalry, 5-7 Main Street (LB3645) Earlstoun Dam (LB51697) Glenlee House (LB9737) Glenlee Park Bridge to East of House (LB9738) Glenlee Park Stableblock (LB9739) Glenlee Park, Urn and Pedestal in grounds of Glenlee House (LB9740) Glenlee Park Sarcophagus nr House (LB9741) **Category C Listed** Barskeoch Mains (LB9722) Coom Bridge (LB9724)	The Score (MDG12802) - promoted heritage site along the Southern Upland Way Dalry Fundamental Bench Mark (MDG25521)
Glenlee to Tongland		
G-T Route Section 1		

	Listed Buildings within 2km trigger for consideration zone	Unscheduled Monuments of National Importance within 2km trigger for consideration zone
Option A	**Category B Listed** Hensol Lodge (LB3417) Dalry Manse (LB3620) Dalry Parish Church and Churchyard (LB3621) Dalry Parish Church Vestry (LB3622) St John's Old Church (LB3623) Allangibbon Bridge (LB3642) 5-7 Main Street, Dalry (LB3645) Hensol Lodge and Gates (LB3417) Glenlee House (LB9737) Glenlee Park Bridge to East of House (LB9738) Glenlee Park, Stableblock (LB9739) Glenlee Park, Urn and Pedestal in Grounds of Glenlee House (LB9740) Glenlee House, Sarcophagus nr House (LB9741) Hensol Bridge (LB9742) Stroan Viaduct (LB9751) **Category C Listed** Little Duchare, Cottage and Farm Steading (LB3428) Coom Bridge (LB9724)	The Score (MDG12802) – promoted heritage site on the Southern Upland Way Stroan settlement (MDG8225) Stroan rig and furrow (MDG8226) Airie, building, enclosure, corn-drying kiln and barn (MDG8232) Dalry Fundamental Bench Mark (MDG25521)
Option B	**Category B Listed** Hensol Lodge and Gates (LB3417) Dalry Manse (LB3620) Dalry Parish Church and Churchyard (LB3621) Dalry Parish Church Vestry (LB3622) St John's Old Church (LB3623) 5-7 Main Street, Dalry (LB3645) Glenlee House (LB9737) Glenlee Park, Steading near House (LB9739) Glenlee Park, Urn and Pedestal in Grounds of Glenlee House (LB9740) Glenlee House, Sarcophagus nr House (LB9741) Hensol Bridge (LB9742) Kells Parish Church (LB9743) Kells Parish Churchyard (LB9744) Kenmure Castle (LB9745) (and SM) Overton House, Garden Building (LB9749) Stroan Viaduct (LB9751) Clydesdale Bank (LB38465)* Burbank (LB38472)* Mill House (LB38574)* Brae Cottage (LB38464)* Hillboro Cottage (LB38466)* Corner House (LB38468)	

	Listed Buildings within 2km trigger for consideration zone	Unscheduled Monuments of National Importance within 2km trigger for consideration zone
	Town Hall/Tolboth (LB38475)* The Thorn (LB38478)* **Category C Listed** Little Duchare, Cottage and Farm Steading (LB3428) Coom Bridge (LB9724) Inton (LB38469)* Greenhead and Greenhead Cottage (LB38467)* Baddaroch (LB38470)* Copper Cottage (LB38471)* Meadowbank (LB38476)* Meadowbank Cottages, North Range and South Ranges (LB38473)* The Old School (LB49306)* [* =buildings forming part of New Galloway CA]	
G-T Route Section 2		
Option A	**Category B Listed** Hensol Lodge and Gates (3417) Glentoo Farmhouse and Horsemill with Steading (LB3423) Hensol Bridge (LB9742) Stroan Viaduct (LB9751) **Category C Listed** Little Duchare Cottage and Steading (LB3428) Kirkconnel Farmhouse and Steading (LB17118)	Bargatton Cairn (MDG3770) Neilson's Monument (MDG3772) Barstobrick Hill fort (MDG3780) Airie, Building, Enclosure and Corn Drying Kiln (MDG8232) Grobdale of Girthon, Building and possible hut circle (MDG8236) Grobdale of Girthon, Hut Circle (MDG8238) Grobdale of Girthon Burnt Mound (MDG8240) Lochenbreck, Burnt Mound (MDG8244) Laughenghie Hill, Cairn; Bank (Earthwork); Hut Circle (MDG8247) Laughenghie Field System; Shieling; Farmstead; Hut (MDG8249) Laughenghie, Farmstead (MDG8250) Laughenghie, Ridge And Furrow; Field System (MDG8251) Laughenghie, Corn Drying Kiln; Barn (MDG8252) Grobdale Of Balmaghie, Burnt Mound (MDG8312) Grobdale Lane, Burnt Mound (MDG8329) Edgarton, Burnt Mound (MDG8367) Edgarton, Dam; Leat; Water Wheel; Mill (MDG8368) Upper Lairdmannoch, Burnt Mounds (MDG8371, MDG8374 and MDG8384) Loch Mannoch, Burnt Mound (MDG8399) Dinnance, Cairn? (MDG8405) Loch Mannoch, Cairn (MDG8418) Bargatton, Burnt Mound (MDG8419)

	Listed Buildings within 2km trigger for consideration zone	Unscheduled Monuments of National Importance within 2km trigger for consideration zone
		Loch Mannoch, Burnt Mounds (MDG8424 and MDG9663) Raiders Road – promoted heritage trail
Option B	**Category B Listed** Hensol Lodge and Gates (LB3417) Lauriston Hall (LB 3418) Lauriston Hall Stables (LB3424) Glentoo Farmhouse and Hosemill with Steading (LB3423) Hensol Bridge (LB9742) Stroan Viaduct (LB9751) Kirkconnel Farmhouse and Steading (LB17118) **Category C Listed** Little Duchare, Cottage and Farm Steading (LB3428)	Bargatton Cairn (MDG3770) Neilson's Monument (MDG3772) Barstobrick Hill fort (MDG3780) Stroan, Settlement (MDG8225) Stroan, Ridge And Furrow; Field System (MDG8226) Airie, Building, Enclosure and Corn Drying Kiln (MDG8232) Lochenbreck, Burnt Mound (MDG8244) Upper Lairdmannoch, Burnt Mounds (MDG8272, MDG8371-MDG8372, MDG8374 and MDG8384) Edgarton, Burnt Mound (MDG8367) Edgarton, Dam; Leat; Water Wheel; Mill (MDG8368) Loch Mannoch Burnt Mounds (MDG8399, MDG8419, MDG8424 and MDG9663) Dinnance, Cairn (MDG8405) Loch Mannoch, Cairn (MDG8414) Bargatton, Burnt Mound (MDG8419) Raiders Road promoted heritage trail
Option C	**Category B Listed** Hensol Lodge and Gates (3417) Laurieston Hall (LB3418) Lauriston Hall Stables (3424) Windhover and Lilac Grove (LB3427) Chestnut House (LB3425) Glentoo Farmhouse and Horsemill with Steading (LB3423) Stroan Viaduct (LB9751) Hensol Bridge (LB9742) Kirkconnel Farmhouse and Steading (LB17118) **Category C Listed** Little Duchare Cottage and Farm Steading (LB3428) Crockett Memorial (LB3426)	Bargatton Cairn (MDG3770) Neilson's Monument (MDG3772) Barstobrick Hill fort (MDG3780) Stroan, Settlement (MDG8225) Stroan, Ridge And Furrow; Field System (MDG8226) Edgarton, Dam; Leat; Water Wheel; Mill (MDG8368) Upper Lairdmannoch, Burnt Mound (MDG8371, MDG8374 and MDG8384) Dinnance, Cairn? (MDG8405) Loch Mannoch, Cairn (MDG8418) Bargatton, Burnt Mound (MDG8419) Loch Mannoch, Burnt Mound (MDG9663) Raiders Road promoted heritage trail
Option D		Bargatton Cairn (MDG3770) Neilson's Monument (MDG3772) Barstobrick Hill fort (MDG3780) Stroan, Settlement (MDG8225) Stroan, Ridge And Furrow; Field System (MDG8226) Edgarton, Burnt Mound (MDG8367) Edgarton, Dam; Leat; Water Wheel; Mill (MDG8368) Upper Lairdmannoch, Burnt Mound (MDG8371, MDG8374 and MDG8384) Dinnance, Cairn? (MDG8405) Loch Mannoch, Cairn (MDG8418) Bargatton, Burnt Mound (MDG8419)

	Listed Buildings within 2km trigger for consideration zone	Unscheduled Monuments of National Importance within 2km trigger for consideration zone
Option E		Bargatton Cairn (MDG3770) Neilson's Monument (MDG3772) Barstobrick Hill fort (MDG3780) Stroan, Settlement (MDG8225) Stroan, Ridge And Furrow; Field System (MDG8226) Edgarton, Burnt Mound (MDG8367) Edgarton, Dam; Leat; Water Wheel; Mill (MDG8368) Upper Lairdmannoch, Burnt Mound (MDG8371, MDG8374 and MDG8384) Dinnance, Cairn? (MDG8405) Loch Mannoch, Cairn (MDG8418) Bargatton, Burnt Mound (MDG8419) Loch Mannoch, Burnt Mound (MDG9663) Raiders Road promoted heritage trail
Option F		Bargatton Cairn (MDG3770) Neilson's Monument (MDG3772) Barstobrick Hill fort (MDG3780) Stroan, Settlement (MDG8225) Stroan, Ridge And Furrow; Field System (MDG8226) Edgarton, Burnt Mound (MDG8367) Edgarton, Dam; Leat; Water Wheel; Mill (MDG8368) Upper Lairdmannoch, Burnt Mound (MDG8371, MDG8374 and MDG8384) Dinnance, Cairn? (MDG8405) Loch Mannoch, Cairn (MDG8418) Bargatton, Burnt Mound (MDG8419)
Option G	**Category A Listed** Hensol House (LB3415) Hensol House, The Lainshaw Sundial (LB3416) **Category B Listed** Hensol Lodge and Gates (LB3417) Laurieston Hall (LB3418) Lauriston Hall Stables (3424) Chestnut House (LB3425) Glentoo Farmhouse and Horsemill with Steading (LB3423) Stroan Viaduct (LB9751) Hensol Bridge (LB9742) Kirkconnel Farmhouse and Steading (LB17118)	Bargatton Cairn (MDG3770) Neilson's Monument (MDG3772) Barstobrick Hill fort (MDG3780) Stroan, Settlement (MDG8225) Stroan, Ridge And Furrow; Field System (MDG8226) Edgarton, Burnt Mound (MDG8367) Edgarton, Dam; Leat; Water Wheel; Mill (MDG8368) Upper Lairdmannoch, Burnt Mound (MDG8371, MDG8374 and MDG8384) Dinnance, Cairn? (MDG8405) Loch Mannoch, Cairn (MDG8418) Bargatton, Burnt Mound (MDG8419) Loch Mannoch, Burnt Mound (MDG9663) Raiders Road promoted heritage trail

	Listed Buildings within 2km trigger for consideration zone	Unscheduled Monuments of National Importance within 2km trigger for consideration zone
	Category C Listed	
Option H	Crockett Memorial (LB3426) Windhover and Lilac Grove (LB3427) Little Duchare Cottage and Farm Steading (LB3428)	Bargatton Cairn (MDG3770) Neilson's Monument (MDG3772) Barstobrick Hill fort (MDG3780) Stroan, Settlement (MDG8225) Stroan, Ridge And Furrow; Field System (MDG8226) Edgarton, Burnt Mound (MDG8367) Edgarton, Dam; Leat; Water Wheel; Mill (MDG8368) Upper Lairdmannoch, Burnt Mounds (MDG8371, MDG8374 and MDG8384) Dinnance, Cairn? (MDG8405) Loch Mannoch, Cairn (MDG8418) Bargatton, Burnt Mound (MDG8419)
G-T Route Section 3		
Option A	**Category A Listed** Argrennan House (LB17114) **Category B Listed** Glentoo Farmhouse and Horsemill with Steading (LB3423) Argrennan Lodge (LB17115) Brook House (LB17117) Kirconnel Farmhouse and Steading (LB17118) Agrennan House, Walled Garden (LB43477)	Bargatton Cairn (MDG3770) Neilson's Monument (MDG3772) Barstobrick Hill fort (MDG3780) Kirkcormack Cemetry and Church (MDG4074) Gillfoot Mote (MDG4102) Bargatton, burnt mound (MDG8419)
Option B		Bargatton Cairn (MDG3770) Neilson's Monument (MDG3772) Barstobrick Hill fort (MDG3780) Kirkcormack Cemetry and Church (MDG4074) Gillfoot Mote (MDG4102) Bargatton, burnt mound (MDG8419) Mollance Building platform (possible, mill and dam (MDG20989)
Option C		
G-T Route Section 4		
Option A	**Category A Listed** Agrennan House (LB17114)	Hell's Hole, settlement (MDG3695) Kirkcormack Cemetery and church (MDG4074) Netherthird, Settlement (MDG4100) Gillfoot Mote (MDG4102)
Option B	**Category B Listed** Old Bridge of Tarff (LB17084) Argrennan Lodge (LB17115) Bogra House (LB17116) Brooke House (LB17117) High Bridge of Tarff (LB17119) Tongland Abbey (LB17124) Tongland Parish Church and	

	Listed Buildings within 2km trigger for consideration zone	Unscheduled Monuments of National Importance within 2km trigger for consideration zone
	Churchyard (LB17127) Agrennan House, Walled Garden (LB43477) Tongland Dam (LB51698)	
G-T Route Section 5		
Option A	**Category A Listed** Cumstoun House (LB16993) Tongland Old Bridge (LB17123) Tongland Bridge (LB17125) Tongland Power Station (17126) **Category B Listed** Ellenbank (LB9711) Cumstoun Garden House and Walled Garden (LB16983) Cumstoun Dovecot (LB16988) Old Bridge of Tarff (LB17084) Bogra House (LB17116) Brooke House (LB17117) High Bridge of Tarff (LB17119) Tongland Abbey (LB17124) Low Bridge of Tarff (LB17120) Tongland Parish Church and Churchyard (LB17127) Tongland Dam (LB51698) **Category C Listed** Cumstoun Lodge and Gatepiers (LB16984) Kempleton Farmhouse (LB16985)	Cumstoun Earthwork (MDG3644) Hell's Hole Settlement (MDG3695) Netherthird Settlement (MDG4100) Gillfoot Mote (MDG4102)
Option B		

Appendix 5: Summary of Potential Effects on the Setting of Cultural Heritage Assets highlighted by HES and/or D&G Council as Sensitive Assets

Appendix 5: Summary of Potential Effects on the Setting of Cultural Heritage Assets highlighted by HES and/or D&G Council as Sensitive Assets

This appendix should be read in conjunction with **Appendix 6: Route Option Appraisal Tables**

As highlighted in the key below 'orange' highlights a potential adverse effect on the setting of an asset, and 'green' highlights that no adverse effect is likely on the setting of the asset.

Key:

Potentially adverse effect on setting of asset

Likely no adverse effect on setting of asset

Not relevant

				Polquhanity to Kendoon						Carsfad to Kendoon	Kendoon to Glenlee					Earlstoun to Glenlee	Glenlee to Tongland																
Site name	**Status**	**Highlighted by**	**Setting**	A	B	C	D	E	F	-	A	B	C	D	E	F	-	1/A	1/B	2/A	2/B	2/C	2/D	2/E	2/F	2/G	2/H	3/A	3/B	3/C	4/A	4/B	5/A	5/B
Polmaddy medieval and post-medieval settlement (SM5391)	SM/Promoted Site	D&G Council	Moorland, surrounded by forestry, mostly south-facing.																														
Polharrow Burn	ASA	D&G Council	Open moorland, open views to south.																														
Mackilston Cairn (MDG3865)	Nat Imp	D&G Council	Rural farmland, open views to surrounding landscape, concentrated to south.																														
Earlstoun Castle (SM5391/LB3624)	SM, Cat A & NIDL	D&G Council	Parkland and Woodland forming setting for A Listed Earlstoun Castle. Principal views from castle to south-west.																														
Knocknalling	NIDL	D&G Council	Small mostly wooded landscape forming setting for Category A Knocknalling Barn.																														
Dalry Mote (SM1117)	SM	D&G Council	Stands on the edge of St John's Town of Dalry. Views concentrated to the north and west along Water of Ken, overlooking farmland, semi-rural setting.																														
Garroch	NIDL	D&G Council	Parkland and Woodland forming setting for Category B Old Garroch (Lairds House). House mostly surrounded by woodland, any views afforded aligned to north-west.																														
Glenlee Park	NIDL	D&G Council	Parkland and Woodland forming setting for Category B Listed Glenlee House. Principal structural elements of designed landscape at centre of NIDL surrounded by woodland. Principal facades of house aligned north-west to south-east.																														
The Score (MDG12802)	Nat Imp	D&G Council	Open moorland close to the Souther Upland Way. Principal views to the south.																														
Dalry Fundamental Bench Mark (MDG25521)	Nat Imp	D&G Council	Positioned on western side of A713 public road, in improved pasture and in close proximity to existing pylon.																														
Kenmure Castle	NIDL	D&G Council	Parkland and woodland forming setting for A Listed Kenmure Castle. Principally forming a sheltered setting for castle. Principal views from castle to east overlooking Ken Water and to the south-east taking in Loch Ken.																														
Raiders Road Forest Drive	Heritage Trail	D&G Council	Running from Carsfard Loch to Stroan Loch, lower valley slopes overlooking River Dee valley, surrounded by forestry.																														
Edgarton Mote	Scheduled	HES	Open moorland. Views afforded to surrounding																														

				Polquhanity to Kendoon						Carsfad to Kendoon	Kendoon to Glenlee						Earlstoun to Glenlee	Glenlee to Tongland														
(SM1119)	Monument		landscape, principally to south.																												
Bargatton Farm Cairn (SM1002)	Scheduled Monument	HES	Open moorland. Views gain to surrounding landscape, principally to south/south-south-east overlooking Bargatton Loch. Intervisible with non-designated Bargatton Cairn (MDG3770)																												
Craig Hill Fort (SM2891)	Scheduled Monument	HES	Rough pasture, open views in arc from NW to SW.																												
Slogarie	NIDL	D&G Council	Parkland and woodland forming setting for undesignated Slogarie House. Views from house principally to south-south-east.																												
Hensol House	NIDL	D&G Council	Parkland and woodland forming setting for Category A Listed Hensol House. Principal vista, overlooking garden from house, to south-east. Designed landscape surrounded by number of ridges and high slopes on the south-west and southern sides.																												
Site name	**Status**	**Highlighted by**	**Setting**	A	B	C	D	E	F	-	A	B	C	D	E	F	-	1/A	1/B	2/A	2/B	2/C	2/D	2/E	2/F	2/G	2/H	3/A	3/B	3/C	4/A	4/B	5/A	5/B
Lauriston Hall	NIDL	D&G Council	Parkland and woodland forming setting for Category B Listed Laurieston Hall. Buildings of designed landscape towards centre of landscape and surrounded mostly by woodland. Large swathe of commercial forestry on western side of designed landscape.																												
Dinnance Cairn (MDG8405)	Nat Imp Site	D&G Council	Improved pasture. Open views to surrounding landscape, principally to south-east																												
Bargatton Cairn (MDG3770)	Nat Imp Site	D&G Council	Open moorland. Views gain to surrounding landscape, principally to south-east overlooking Bargatton Loch. Intervisible with Scheduled Bargatton Farm Cairn (SM1002)																												
Neilson's Monument (MDG3772)	Nat Imp Site (Commemorative Monument)	D&G Council	At summit of Barstobrick Hill and located towards centre of remains of Barstobrick Hill fort (MDG3780x). Public viewpoint. Open/wide views to surrounding landscape, particularly to south. Large swathe of commercial forestry to north.																												
Barstobrick Hill Fort (MDG3780)	Nat Imp Site	D&G Council	Situated on the crest of Barstobrick Hill. Substantial remains. Open moorland. Open/wide views to surrounding landscape. Large swathe of commercial forestry to north.																												
Gillfoot Mote settlement (MDG4102)	Nat Imp Site	D&G Council	Improved pasture. River side setting. Views concentrated along River Dee to north-east and south-west.																												
Tongland Abbey (LB17124)	Cat B Listed	D&G Council	Urban setting. Surrounded by houses and industrial estate (Tongland village). Views principally concentrated along River to Dee to north-east and south-west.																												
Argrennan House	NIDL	D&G Council	Parkland and woodland forming setting for Catgeory A Listed Agrennan House. House stands towards centre of designed landscape surrounded by woodland. Principal views from house to south.																												
Netherthird Settlement (MDG4100)	Nat Imp Site	D&G Council	Woodland setting.																												
Hell's Hole Settlement (MDG3695)	Nat Imp Site	D&G Council	Poorly preserved remains, principally visible on aerial photographs. Improved pasture field just west of Tarff Water. Views to surrounding landscape, concentrated down river to south and north.																												

				Polquhanity to Kendoon						Carsfad to Kendoon	Kendoon to Glenlee						Earlstoun to Glenlee	Glenlee to Tongland															
Tongland Old Bridge (LB17123)	Cat A Listed	D&G Council	River setting, views concentrated along river to west and east																													
Tongland Bridge (LB17125)	Cat A Listed	D&G Council	River setting, views concentrated along river to west and east																													

Appendix 6: Route Option Appraisal Tables

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
Approximate Length of Route Option (km)	-	2.8km	2.8km	2.5km	2.5km	2.5km	2.6km	**Route Options C, D or E** are preferred as these are the shortest options (though the others are not substantially longer).
Biodiversity and Geological Conservation	Habitual concentrations of species of high conservation value and known nest sites of Annex 1/Schedule 1 raptor species and Black Grouse leks.	Route Options A and B pass through the trigger for consideration zone around a black grouse lek, and may include foraging areas and areas of elevated flight activity by this species. The trigger for consideration zone could not be avoided during route alignment.		No ornithological trigger for considerations zones. Follows existing OHL alignment wayleave for 2km.	No ornithological trigger for considerations zones. Follows existing OHL alignment wayleave for 2.5km.	The route option partly overlaps the trigger for consideration zone around an Annex 1/Schedule 1 raptor nest site, and may include foraging areas and areas of elevated flight activity. The trigger for consideration zone could be avoided during alignment. Follows existing OHL alignment wayleave for 1.2km.	The route option partly overlaps the trigger for consideration zone around an Annex 1/Schedule 1 raptor nest site, and may include foraging areas and areas of elevated flight activity. The trigger for consideration zone could be avoided during alignment. Follows existing OHL alignment wayleave for 0.3km.	**Route Option D** is preferred as it does not intersect with ornithological trigger for consideration zones, and follows the greatest extent of existing OHL wayleave.
Landscape & Visual Amenity	Regional Scenic Areas	The route option is located within the Galloway Hills RSA in its entirety, which cannot be avoided through routeing.						**Route Option B** is preferred as although this route option will be across slightly higher ground than the existing 132kV OHL, it will be visible from only a short section of the Galloway Tourist Route along the A713 and views experienced by visitors and users of the Galloway Forest Park as it crosses the Bardennoch Trail (Core Path) at the edge of Dundeugh from where the presence of other existing man-made elements is evident. The route option will remove the presence of existing OHL development from the principal views of properties within Dundeugh which are located along the alignment of the existing 132kV OHL. This route option will also result in the removal and realignment of the existing OHL entry into Kendoon substation which currently passes directly over the residential property of Stonebyres and its curtilage, however, effects on views experienced by recreational users crossing the footbridges over the Water of Ken and Water of Deugh will occur, and some loss of woodland west of the existing substation is
	Landscape Capacity	Route Options A and B are located solely within the Upper Dale (Valley) LCT (Medium capacity) – Upper Glenkens LCU (Medium capacity). These route options follows a broadly parallel alignment approximately 300m to the west of the existing 132kV OHL at its most distant point. The existence of the OHL locally increases the capacity of the landscape to accommodate OHL development. In its northern extent, the route options pass through simple landcover of rough pasture farmland before entering the coniferous forestry of the Galloway Forest Park near Gordon's Knowe to avoid residential properties to the south, and generally following the grain of the landscape until south of Dundeugh where the OHL must deviate eastwards to cross the Water of Dundeugh/Water of Ken to access Kendoon substation.		These route options are located solely within the Upper Dale (Valley) LCT (Medium capacity) – Upper Glenkens LCU (Medium capacity). These route options closely follow the alignment of the existing 132kV OHL, which locally increases the capacity of the landscape to accommodate OHL development. The existing 132kV OHL closely follows the grain of the landscape, running broadly parallel to the Water of Deugh along the lower slopes of the Glenkens Valley. The route options utilise this alignment closely, avoiding higher ground and offering opportunities for backclothing against the western slopes of the valley.	The route option is located solely within the Upper Dale (Valley) LCT (Medium capacity) – Upper Glenkens LCU (Medium capacity). This route option follows the alignment of the existing 132kV OHL for approximately 1km before deviating eastwards broadly along the alignment of the consented Blackcraig-Margree OHL, which locally increases the capacity of the landscape to accommodate OHL development. The route option follows the grain of the landscape, located on low ground on the west side of the valley. Once east of the A713, the route option enters a sparsely populated area of farmland west of the Water of Dundeugh before passing through	The route option is located solely within the Upper Dale (Valley) LCT (Medium capacity) – Upper Glenkens LCU (Medium capacity). This route option broadly follows the alignment of the consented Blackcraig-Margree OHL, which locally increases the capacity of the landscape to accommodate OHL development. This route option follows the consented Blackcraig-Margree OHL eastwards across the Water of Dundeugh before following the grain of the landscape parallel with the Water of Deugh, contained within the coniferous forestry whilst contouring around the lower southern slopes of Dundeugh Hill. A terminal tower would be located in an area of farmland to the east of the Water of Deugh area, utilising local topography and screening	

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
						coniferous forestry and woodland. A terminal tower would be located in an area of farmland to the east of the Water of Deugh area, utilising local topography and screening from adjacent woodland.	from adjacent woodland.	likely.
	Residential Visual Amenity	A dispersed pattern of scattered farmsteads and properties exists between Polquhanity and Dundeugh, generally located along the A713, with various viewing orientations and outlooks informed by local topography and vegetation. The route option runs broadly parallel to the west of the alignment of the existing 132kV OHL, further from these residential properties. The location of an OHL within coniferous forestry to the west of Dundeugh will potentially screen views from these properties, alongside removal of the existing OHL from the principal views of new build residential properties west of the A713. The route option would cross the Water of Deugh and Water of Ken before entering the substation at the north-west corner, encroaching on the 150m trigger for consideration zone, but not passing over residential properties or their curtilages. Although the existing OHL (to be removed) is visible to the south-east, visual effects on residents and recreational receptors accessing the properties via the footbridges over the Water of Ken and Water of Deugh will occur from the	A dispersed pattern of scattered farmsteads and properties exists between Polquhanity and Dundeugh, generally located along the A713, with various viewing orientations and outlooks informed by local topography and vegetation. The route option runs broadly parallel to the alignment of the existing 132kV OHL, further from these residential properties. The location of an OHL within coniferous forestry to the west of Dundeugh will potentially screen views from these properties, alongside removal of the existing OHL from the principal views of new build residential properties west of the A713. On crossing the Water of Ken, an OHL will follow the alignment of the existing 132kV OHL, passing slightly further north-west and avoiding the residential property of Stonebyres and its curtilage.	Closely following the alignment of the existing 132kV OHL, this route option will pass within close proximity to a number of residential properties, including the crossing of the curtilages and principal views of new build residential properties west of the A713 at Dundeugh. The route option would cross the Water of Deugh and Water of Ken before entering the substation at the north-west corner, encroaching on the 150m trigger for consideration zone, but not passing over residential properties or their curtilages. Although the existing OHL (to be removed) is visible to the south-east, visual effects on residents and recreational receptors accessing the properties via the footbridges over the Water of Ken and Water of Deugh will occur from the alignment of the OHL closer to the footbridges.	Closely following the alignment of the existing 132kV OHL, this route option will pass within close proximity to a number of residential properties, including the crossing of the curtilages and principal views of new build residential properties west of the A713 at Dundeugh. On crossing the Water of Ken, an OHL will follow the alignment of the existing 132kV OHL.	Closely following the alignment of the existing 132kV OHL in its northern extent, the route option will pass within close proximity to a number of residential properties east of the A713, before crossing the principal outlook of the new build property of Hawkrigg, and heading eastwards towards the Water of Deugh. From here, the route option crosses farmland and into coniferous forestry before emerging east of the Water of Ken into rough grazing farmland near Glenhoul Wood, with limited opportunities for views from residential properties.	Route option follows the alignment of the existing 132kV OHL closely before crossing the A713 eastwards between residential properties at Dalshangan Wood to the north and Dalshangan to the south, but outwith the 150m trigger for consideration zone. The route option will cross the principal southerly outlook from Dalshangan Wood but will not affect views from the south-easterly outlook of Dalshangan. Once east of the Water of Deugh, this route option will be largely imperceptible from these properties due to the presence of intervening woodland, however, where visible, the route option will appear in the context of the broadly parallel Blackcraig-Margree OHL.	

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
		alignment of the OHL closer to the footbridges.						
	Tourism and Recreation: key viewpoints (visual amenity – promoted viewpoints, tourist attractions and recreational areas).	Route Options A and B cross the Bardennoch Trail (Core Path) to the west of Dundeugh, and whilst the route options are located within the eastern periphery of the Galloway Forest Park they do not intersect with the FCS Promoted trails at Polmaddy. The route options will be partly visible from the Galloway Tourist Route which follows the A713, however the OHL will generally be located further from the road than the alignment of the existing 132kV OHL until it crosses the road south of Dundeugh. The route options will pass close to the licensed caravan/ campsite adjacent to the property of Hawkrigg, however the OHL will be located beyond the alignment of the existing OHL to the west (to be removed).		Route Options C and D cross the Bardennoch Trail (Core Path) within Dundeugh. These route options will be visible from the Galloway Tourist Route which follows the A713, appearing in a similar context to that of the existing 132kV OHL. The route options will pass close to the licensed caravan/ campsite adjacent to the property of Hawkrigg, in parallel to the alignment of the existing OHL to the west.		This route option runs broadly parallel with the Dundeugh Hill (Core Path) between the A713 and the Water of Deugh, before crossing a number of other footpaths of the Dundeugh Trail network within the forestry between the Water of Deugh and Water of Ken. This route option will be visible from the Galloway Tourist Route, appearing in a similar context to that of the existing 132kV OHL between Polquhanity and Dundeugh. The route option will pass close to the licensed caravan/ campsite adjacent to the property of Hawkrigg, closely in parallel to the alignment of the existing OHL to the west, before heading eastwards to cross the A713 where the OHL will be visible in views to the south.	This route option runs broadly parallel with the Dundeugh Hill (Core Path) which runs along the eastern banks of the Water of Deugh, before crossing a number of other footpaths of the Dundeugh Trail network within the forestry between the Water of Deugh and Water of Ken. This route option will be visible from a short section of the Galloway Tourist Route near Polquhanity, appearing in a similar context to that of the existing 132kV OHL.	
Cultural Heritage	Scheduled Monuments	There are two Scheduled Monuments, Dundeugh Castle (SM2476) and Polmaddy medieval and post-medieval settlement (SM5391) within 2km of all of the route options. The principal views from Dundeugh Castle are to the west. Polmaddy settlement is a promoted heritage site and has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. Polmaddy settlement is located on a south-facing slope surrounded by large swathes of commercial forestry. Initial assessment suggests that intervening topography and commercial forestry would mostly screen views to the proposals and the setting of the settlement would not be adversely affected.							There are no key differences between the route options with regards to potential for effects on cultural heritage. However, on balance, the preferred route options would be options E or F to minimise affecting the principal western views from Scheduled Monument Dundeugh Castle (SM2476).
	Listed Buildings Category A, B and C	Seven Listed Buildings are located within 2km of all of the route options, comprising: three Category B Listed Buildings and four Category C Listed Buildings.						
	Archaeologically Sensitive Areas (ASA)	Two ASAs lie within 2km of all of the route options, Polharrow Burn ASA and Bardennoch – Garryhhom ASA. Polharrow Burn ASA has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. See Appendix 5 for details on setting. It is considered that the setting of the ASA would not be adversely affected by the proposals.						
	Unscheduled Archaeology of National Importance	Three unscheduled archaeological sites of national importance lie within 2km of all of the route options. Mackilston Cairn (MDG3865) has been raised by D&G Council as a sensitive asset in relation to the potential effect on its setting. See Appendix 5 for details on setting. It is considered that the setting of the cairn would not be adversely affected by the proposals.						
	Undesignated Archaeology of Regional/Local	There is one site of regional/local importance,	There are three sites of regional/local importance	There are two sites of regional/local importance	There is one site of regional/local importance	There are three sites of regional/local importance	There are no sites of regional/local importance	

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
	Importance (recorded in D&G Council HER) within route options	Kendoon Suspension Bridge (footbridge) (MDG3850), within the route option. This could be avoided during alignment.	within the route option: Mesolithic flint findspots (MDG3848 and MDG3849), and Kendoon Suspension Bridge (footbridge) (MDG3850). The bridge could be avoided during alignment. The findposts indicate the potential for a cluster of early prehistoric remains present around Kendoon. Where the route option crosses two areas that contained Mesolithic flint findspots there may be a requirement for further archaeological investigations and mitigation prior to and during construction of the development.	within the route option: Mesolithic find spot (MDG3849) and Kendoon Suspension Bridge (footbridge)(MDG3850). The bridge could be avoided during alignment. Where the route option crosses an area that contained Mesolithic findspots there may be a requirement for further investigations and mitigation prior to and during construction of the OHL.	within the route option: Clearance cairn (MDG21309). The cairn could be avoided during alignment.	within the route option: Mesolithic findspot (MDG3839), a corn drying kiln (MDG12735) and clearance cairn (MDG21309). Both the corn drying kiln and clearance cairn could be avoided during alignment. Where the route option crosses an area that contained Mesolithic findspots there may be a requirement for further investigations and mitigation prior to and during construction of the OHL.	within the route option.	
Land Use	Existing and Committed Development.	There are no areas of committed development located within Route Options A or B.		There is one area of committed development (new residential dwelling), within Route Options C, D or E, to the east of Polmaddie. There are options to avoid these areas during route alignment; however it may not be possible to avoid the 150m 'trigger for consideration zone'.			There are no areas of committed development located within this route option.	**Route Options A, B, and F** are of equal preference as none contain an area of committed development.
Forestry	Commercial forestry	This route option affects 31.9ha of commercial forestry.	This route option affects 30.2ha of commercial forestry.	This route option affects 6.3ha of commercial forestry.	This route option affects 4.67ha of commercial forestry.	This route option affects 13.1ha of commercial forestry.	This route option affects 30.5ha of commercial forestry.	**Route Option D** is the preferred route option as it will affect less commercial forest. There are also opportunities to avoid the NWSS and ASNW during route alignment.
	Native Woodland (NWSS)	The total area of NWSS within this route option is 3.52ha. This could not be avoided during route alignment.	The total area of NWSS within this route option is 2.43ha. This could be avoided during route alignment.	The total area of NWSS within this route option is 4.4ha. This could not be avoided during route alignment.	The total area of NWSS within this route option is 3.56ha. This could be avoided during route alignment.	The total area of NWSS within this route option is 8.26ha. This could not be avoided during route alignment.	The total area of NWSS within this option is 9.62ha. This could not be avoided during route alignment.	
	Ancient Woodland (ASNW)	0.71ha of ASNW is affected by this route. This area is also NWSS and is included in the above NWSS area. This could not be avoided during route alignment.	Less than 0.3ha of ASNW is affected by this route. This area is also NWSS and is included in the above NWSS area. This could be avoided during route alignment.	0.71ha of ASNW is affected by this route. This area is also NWSS and is included in the above NWSS area. This could not be avoided during route alignment.	1.16 ha of ASNW is affected by this route. This area is also NWSS and is included in the above NWSS area. This could be avoided during route alignment.	6.13ha of ASNW is affected by this route. Of this area, 0.49ha is not NWSS and therefore has not been included in the above NWSS area. This could not be avoided during route alignment.	12.7ha of ASNW is affected by this route. Of this area, 5.46ha is not NWSS and therefore has not been included in the above NWSS area. This could not be avoided during route alignment.	
Flood Risk	Flood zones and waterbodies	This route option crosses three areas within the 1/200yr flood risk zone (one to the west of Polmaddie, close to Polmaddy Ford, and two to the west of Kendoon; one of which is a section of the Water of Deugh, and	This route option crosses two areas within the 1/200yr flood risk zone (one to the west of Polmaddie, close to Polmaddy Ford and one to the south-west of Kendoon, which is where the Water of Deugh meets the Water of	This route option crosses three areas within the 1/200yr flood risk zone (one area immediately to the west of Polmaddie, and two to the west of Kendoon; one of which is a section of the Water of	This route option crosses two areas within the 1/200yr flood risk zone (one area immediately to the west of Polmaddie, and one to the south-west of Kendoon, which is a where the Water of Deugh meets the Water of	This route option crosses two areas within the 1/200yr flood risk zone (one area, to the north-east of Dundeugh, which is a section of the Water of Deugh, and one to the north-east of Kendoon,	This route option crosses two areas within the 1/200yr flood risk zone (one area, to the south-east of Polquhanity, which is a section of the Water of Deugh, and one to the north-east of Kendoon, which is a section of the Water of	All route options are of equal preference as none cross an area of 1/200yr flood risk, which cannot be spanned.

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
		one a section of the Water of Ken). These flood risk zones cannot be avoided during routeing; however they can be spanned during route alignment stage.	Ken). These flood risk zones cannot be avoided during routeing; however they can be spanned during route alignment stage.	Deugh, and one a section of the Water of Ken). These flood risk zones cannot be avoided during routeing; however they can be spanned during route alignment stage.	Ken). These flood risk zones cannot be avoided during routeing; however they can be spanned during route alignment stage.	which is a section of the Water of Ken). These flood risk zones cannot be avoided during routeing; however they can be spanned during route alignment stage.	Ken). These flood risk zones cannot be avoided during routeing; however they can be spanned during route alignment stage.	
Overall Preference		**Overall the preference is for Route Option B.** Whilst Route Option B is the joint longest route (although not substantially longer), on balance it is preferred as it is routed within the forestry to the west of the A713, minimising views from this tourist route and avoiding the principal views of the properties at Polmaddie and Dundeugh. This route option enables the removal of the existing 132kV OHL from the principal views, and a number of curtilages, of these properties. This route also avoids the committed development to the east of the residential properties Polmaddie. However, during the route alignment stage, consideration will require to be given to minimising potential effects on the black grouse lek, and potential effects on the settings of Dundeugh Castle and other features of cultural heritage interest. Whilst routeing through commercial woodland will enable the OHL to be backclothed from the A713, and cultural heritage features, the alignment will need to be designed to minimise loss of, and disruption to, commercial woodland.						

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
Approximate Length of Route Option (km)	N/A	7.5km	9.5km (includes 0.6km underground cable (UGC))	9.5km (includes 0.6km UGC)	9.7km (includes 0.6km UGC)	9km (includes 0.6km UGC)	9.8km (includes 0.6km UGC)	**Route Option A** is preferred as this is the shortest route option.
Biodiversity and Geological Conservation[1]	Habitual concentrations of species of high conservation value and known nest sites of Annex 1/Schedule 1 raptor species and Black Grouse leks.	The route option passes through the trigger for consideration zone around an Annex 1/Schedule 1 raptor nest site, and sensitivity to disturbance and flight activity may be elevated. Follows existing OHL alignment wayleave for 7.5km.	The route option partly overlaps the trigger for consideration zone around three Annex 1/Schedule 1 raptor nest sites and sensitivity to disturbance and flight activity may be elevated. All trigger for consideration zones could be avoided during route alignment. Follows existing OHL alignment wayleave for 1.2km.	The route option partly overlaps the trigger for consideration zone around three Annex 1/Schedule 1 raptor nest sites and sensitivity to disturbance and flight activity may be elevated. All trigger for consideration zones could be avoided during alignment. Follows existing OHL alignment wayleave for 1.2km.	The route option passes through the trigger for consideration zone around an Annex 1/Schedule 1 raptor nest site and partly overlaps the trigger for consideration zones around two other nest sites; sensitivity to disturbance and flight activity may be elevated. Where there is a part overlap, the trigger for consideration zones could be avoided during alignment. Follows existing OHL alignment wayleave for 1.2km.	Route Options E and F partly overlap the trigger for consideration zone around two Annex 1/Schedule 1 raptor nest sites, and sensitivity to disturbance and flight activity may be elevated. Both trigger for consideration zones could be avoided during alignment. Follows existing OHL alignment wayleave for 1.2km.		**Route Option A** is preferred, as it intersects with the fewest trigger for consideration zones and follows the greatest extent of existing wayleave. Route Option A also avoids areas of Priority Peatland Habitats.
	SNH Priority Peatland Habitats (Classes 1 and 2)	None.	Route Options B, C, D, E and F pass through Class 1 habitat at two locations, and Class 2 habitat at one location.					
Landscape & Visual Amenity	Regional Scenic Areas	All route options are located within the Galloway Hills RSA which cannot be avoided through routeing.						**Route Option A** is preferred as it follows the alignment of the existing 132kV OHL and wayleave which has been assimilated into the landscape without substantially altering the character of the Glenkens Valley. Following this existing alignment as closely as possible will minimise changes in landscape character. Effects on views and visual amenity will be similar to those experienced through the presence of the existing OHL, with opportunities for minor deviations to avoid or reduce effects from some residential properties, the Galloway Tourist Route and the SUW. This route option will result in the removal and realignment of the existing OHL entry into Kendoon substation which currently passes directly over the residential property of Stonebyres and its curtilage, however, effects on views experienced by recreational users crossing the footbridges over the Water of Ken and Water
	Landscape Capacity	The route option is located within the Upper Dale (Valley) LCT (Medium capacity) – Upper Glenkens LCU (Medium capacity). This route option follows a broadly parallel alignment to the existing 132kV OHL on the western side of the Glenkens Valley, approximately 220m to the west at its most distant point. The presence of the existing OHL has altered the character of this side of the valley, which locally increases the capacity of the landscape to accommodate OHL	Route Options B, C, D, E and F are located within the LCT Upper Dale (Valley) LCT (Medium capacity) – Upper Glenkens LCU (Medium capacity). Although the existing OHL on the western side of the valley has assimilated into the landscape on the western side of the Glenkens Valley, which increases the capacity of this landscape locally to accommodate OHL development, these route options will introduce OHL development to the east side of this part of the Glenkens Valley where no transmission infrastructure currently exists. At the southern extent, on the west side of the Glenkens Valley, these route options closely follow the alignment of the existing 132kV OHL for approximately 1.25km. These route options generally follow the grain of the landscape, appearing backclothed in views across the Glenkens Valley against the landform beyond, minimising the opportunity for skylining of the OHL above the eastern slopes of the valley. However, at the northern extent the OHL will appear skylined for a short section they pass over high ground east of the B7000 between Glenhoul Hill and Mackilston Hill in order to avoid the Cleugh SSSI which covers an area between Carsfad Loch and the B7000. These route options utilise shelterbelts and blocks of woodland to backcloth and screen the OHL as they descends towards the foot of the valley, following linear field boundaries wherever possible as it crosses the simple pattern of enclosed pasture and rough grazing fields. These route options avoid the principal views of residential properties wherever possible and minimises potential views from the settlement of St John's Town of Dalry as far as is practical.					

[1] The UGC alignment and implementation of a construction management plan and habitat reinstatement will ensure no long-term effects on Annex 1/Schedule 1 species, therefore UGC are not included in the appraisal.

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
		development. The existing 132kV OHL is evident from across the Glenkens Valley, however the steel tower OHL follows the grain of the landscape, avoiding the higher ground on the western side of the valley, generally appearing backclothed against the landform beyond. The scale of the Galloway hills diminishes both the scale and perceptibility of the existing OHL. This route option broadly follows the alignment of the existing OHL, contouring across the mid-slopes of the valley avoiding residential properties and potential skylining, whilst utilising opportunities for backclothing wherever possible.						of Deugh will occur, and some loss of woodland west of the existing substation is likely. Elsewhere, although the route option encroaches on the 150m trigger for consideration zone at the residential properties of Carsfad Cottage and Stroangassel Farm it will not be within principal views from these properties.
	Residential Visual Amenity	A dispersed pattern of scattered farmsteads and properties is located along the corridor of the A713 on the west side of the valley, with properties generally orientated to afford views east across the Glenkens Valley. Across the Water of Ken from Kendoon substation, the route option passes close to the property of Stonebyres, encroaching on the 150m trigger for consideration zone, but without passing directly over the residential property or its curtilage. Once west of the Water of Ken, this route option follows the alignment of the existing OHL and encroaches on the 150m trigger for consideration zone for the residential properties of Stroangassel Farm and Carsfad Cottage, with a minor deviation near Polharrow Bridge to locate this route option further west of the residential property of	A dispersed pattern of scattered farmsteads and individual properties is found across the eastern slopes of the Glenkens Valley, generally located in close proximity to the road network. Route Options B, C and D cross the principal views of properties near Blackwater Bridge, however passing over higher ground to the east of the valley will not affect the principal views of properties located alongside the B7000 where properties are generally orientated to afford views west across the Glenkens Valley. These route options descend towards Earlstoun Loch encroaching on the 150m trigger for consideration zone for the residential properties of Millquarter, Woodend of Earlstoun, Milton Park and Allangibbon Cottages; however, the route options utilise the presence of tree belts and extensive intervening woodland and landform close to Earlstoun Loch to screen views from these properties. Where these route options cross the Water of Ken, the OHL will cross the principal view of the property of Staffa located alongside the A762, encroaching on the 150m trigger for consideration zone from this property. Long distance views of the OHL will be possible from properties on the north-western edge of St John's Town of Dalry, as they cross the Water of Ken south of Earlstoun Dam, and appearing largely backclothed against the landform and woodland beyond.			A dispersed pattern of scattered farmsteads and individual properties is found across the eastern slopes of the Glenkens Valley, generally located in close proximity to the road network. Route Options E and F cross the principal views of properties near Blackwater Bridge; however, passing over higher ground to the east of the valley they will not affect the principal views of properties located alongside the B7000 where properties are generally orientated to afford views west across the Glenkens Valley. As these route options descend towards Earlstoun Loch they will utilise opportunities for routeing alongside or behind tree belts where possible to reduce visibility from scattered farmsteads to the west and east of the B7000, including Woodend of Earlstoun and Blawquhairn Farm. The route options will encroach on the 150m trigger for consideration zone of Blawquhairn Farm, crossing the principal views from this property, with opportunities to partially screen the OHL with intervening woodland at the alignment stage. Where these route options cross the Water of Ken, the OHL will cross the principal view of the property of Staffa located alongside the A762, encroaching on the 150m trigger for consideration zone for this property. Long distance views of the OHL will be possible	

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
		Inverharrow. More distant views of the OHL will be possible across the Glenkens Valley from the settlement of St John's Town of Dalry, however visibility of the OHL will be in a similar context to that of the existing 132kV OHL (to be removed), largely backclothed against the landform beyond.				from properties on the north-western edge of St John's Town of Dalry, as they cross the Water of Ken south of Earlstoun Dam, and appearing largely backclothed against the landform and woodland beyond.		
	Tourism and Recreation: key viewpoints (visual amenity – promoted viewpoints, tourist attractions and recreational areas).	This route option broadly follows the route of the Galloway Tourist Route (the A713), following a parallel alignment to the existing OHL located to the west of the A713. Key views from the tourist route across the Glenkens Valley to the east and long distant views towards the Cairnsmore of Carsphairn to the north-east will be unaffected. The OHL will cross the route of the Southern Upland Way (SUW) long distance footpath (and Core Path) west of Earlstoun hydro power station. Effects will be experienced in the context of other infrastructure associated with the power station, and in close proximity of the alignment of the existing 132kV OHL (to be removed). This route option also crosses the Glenlee Core Path which follows Coom Burn; however, views of the OHL will be in the context of the Glenlee substation and hydro power station.	Visibility of the northern extent of Route Options B, C, D, E and F will be possible from the route of the SUW to the east, as it crosses open higher ground between Mackilston Hill and Barlaes Hill. At the southern extent, these route options will pass over the SUW (and Core Path) as it crosses the Water of Ken south of Earlstoun dam. Views of the OHL will be limited to a short section of this route, seen in the context of the nearby Earlstoun dam and hydro power station. These route options will also cross the Galloway Tourist Route which follows the A713 along the foot of the valley between St John's Town of Dalry and Earlstoun dam, however views of the OHL will be short lived as it crosses the road perpendicular from east to west. The route options also cross the Glenlee Core Path which follows Coom Burn, however views of the OHL will be in the context of the Glenlee substation and hydro power station.					
Cultural Heritage	Scheduled Monuments	Four Scheduled Monuments lie within 2km of Route Option A; Dundeugh Castle (SM2476), Polmaddy medieval and post-medieval settlement (SM5391), Dalry Mote (SM1117) and Earlstoun Castle, which is also a Category A Listed Building. Dalry Mote is	Four Scheduled Monuments lie within 2km of Route Options A and B; Dundeugh Castle (SM2476), Polmaddy medieval and post-medieval settlement (SM5391), Dalry Mote (SM1117) and Earlstoun Castle, which is also a Category A Listed Building. Dalry Mote is also a promoted heritage site. Earlstoun Castle, Polmaddy settlement and Dalry Motte have all been raised as sensitive assets by	Four Scheduled Monuments lie within 2km of Route Option D; Dundeugh Castle (SM2476), Polmaddy medieval and post-medieval settlement (SM5391), Dalry Mote (SM1117) and Earlstoun	Four Scheduled Monuments lie within 2km of Route Options E and F; Dundeugh Castle (SM2476), Polmaddy medieval and post-medieval settlement (SM5391), Dalry Mote (SM1117) and Earlstoun Castle, which is also a Category A Listed Building. Dalry Mote is also a promoted heritage site. Earlstoun Castle, Polmaddy settlement and Dalry Motte have all been raised as sensitive assets by		**Route Options E and F** are preferred as these avoid routeing through the ASA and NIDLs, and are the greatest distance from Category A/Scheduled Monument Earlstoun Castle and its associated NIDL. It is, however, recognised that Route options E and F may potentially have an effect on the setting of Mackilston Cairn (considered as an unscheduled archaeological site of national importance in the

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
		also a promoted heritage site. Earlstoun Castle, Polmaddy settlement and Dalry Motte have all been raised as sensitive assets by D&G Council. Route Option A would be seen in views across the Water of Ken from Dalry Mote, although following the existing OHL route (to be removed). Initial assessment suggests that the proposals are unlikely to adversely affect the setting of the monument.	D&G Council. Route Options B and C are in close proximity to Category A/Scheduled Earlstoun Castle and may potentially adversely affect the setting of the castle. Route Options B and C would also be seen (at their southern ends) running along views from Scheduled Dalry Mote in principal views from the Mote to the north along the Water of Ken and may potentially affect the setting of the monument.		Castle, which is also a Category A Listed Building. Dalry Mote is also a promoted heritage site. Earlstoun Castle, Polmaddy settlement and Dalry Motte have all been raised as sensitive assets by D&G Council. Route Option D would be seen (at its southern end) running along views from Scheduled Dalry Mote in principal views from the Mote to the north along the Water of Ken and may potentially affect the setting of the monument.	D&G Council. Route Options E and F would be seen crossing the Water of Ken in views to the north from Scheduled Dalry Mote and may adversely affect the setting of the monument.		D&G HER) and possibly on the Scheduled Monument, Dalry Mote.
	Listed Buildings Category A, B and C	Two Listed Buildings, Category B Listed Polharrow Bridge (LB 9750) and Glenlee Power Station and Bridge (LB9736), are located within the route option. Both could be avoided at the route alignment stage. There are an additional 27 Listed Buildings within 2km of the route option, including: two Category A Listed Buildings, 19 Category B Listed Buildings; and six Category C Listed Buildings. These include Category A Listed Earlstoun Castle which has been raised as a sensitive asset by HES in relation to the potential effects on its setting (see comments above, Scheduled Monuments).	One Category B Listed Building (Glenlee Power Station and Bridge) is located within the southern end of Route Options D, E and F. The building could be avoided at the route alignment stage. There are 27 Listed Buildings within 2km of these route options, including: one Category A Listed Building; 20 Category B Listed Buildings; and six Category C Listed Buildings. These include Category A Listed Earlstoun Castle which has been raised as a sensitive asset by HES in relation to the potential effect on its setting (see comments above, Scheduled Monuments). Given the close proximity to Earlstoun Castle, these are the least preferred route options.		One Category B Listed Building (Glenlee Power Station and Bridge) is located within the southern end of Route Options D, E and F. The building could be avoided at the route alignment stage. There are 26 Listed Buildings within 2km of the route options, including: one Category A Listed Building; 19 Category B Listed Buildings and six Category C Listed Buildings. These include Category A Listed Earlstoun Castle which has been raised as a sensitive asset by HES in relation to the potential effect on its setting (see comments above, Scheduled Monuments).			
	Archaeologically Sensitive Areas	The route option crosses the eastern edge of Polharrow Burn ASA following the route of the existing 132kV OHL (to be removed). Polharrow Burn has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. Initial assessment suggests	One ASA, Polharrow Burn ASA, lies within 2km of Route Options B, C, D, E and F. Polharrow Burn has been raised as a sensitive asset by D&G Council in relation to potential effect on its setting. These route options would avoid the ASA and run along the opposite side of Carsfad Loch. See Appendix 5 for details on setting. It is considered that the proposals would not adversely affect the setting of the ASA.					

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
		that the route option crosses a not particularly sensitive part of the ASA and the route alignment is considered unlikely to have an adverse effect on the ASA. See Appendix 5 for details on setting.						
	Non – Inventory Gardens and Designed Landscapes	The route option partly overlaps the eastern edge of Knocknalling NIDL, following the route of the existing 132kV OHL (to be removed). The NIDL could be avoided at the route alignment stage. The NIDL has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. See Appendix 5 for details on setting. It is considered that the route option would not adversely affect the setting of the NIDL. In addition, there are four NIDLS within 2km of the route option, of which three, Earlstoun Castle, Garroch and Glenlee Park have been raised as sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for details on setting. It is considered that the route option would not adversely affect the setting of these NIDLs.	Route Options B and C partly overlap the eastern edge of Earlstoun Castle NIDL. The NIDL could be avoided at the alignment stage. This NIDL has been raised as a concern by D&G Council in relation to the potential effect on its setting. Given the close proximity to Earlstoun Castle NIDL, it is considered that the route options may potentially adversely affect the setting of the castle and its designed landscape, and these are the least preferred options. See Appendix 5 for details on setting. In addition, there are four NIDLs within 2km of both route options: Knocknalling, Garroch, Hannaston and Glenlee Park, of which Knocknalling, Garroch and Glenlee Park have been raised as sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for details on setting. It is considered that the route options would not adversely affect the setting of these NIDLs.		Within 2km of Route Options D, E and F, there are five NIDLs, Earlstoun Castle, Knocknalling, Garroch, Glenlee Park and Hannaston, of which Knocknalling, Garroch, Earlstoun Castle and Glenlee Park have been raised as sensitive assets by D&G Council in relation to potential effects on their settings. See Appendix 5 for details on setting. It is considered that the route options would not adversely affect the setting of these NIDLs.		
	Unscheduled Archaeology of National Importance	There are four unscheduled archaeological sites of national importance within 2km of the route option. Two of these, The Score, (a promoted heritage site located along the Southern Upland Way), and Dalry Fundamental Bench Mark, (located near the A713 south of St John's Town of Dalry), have been raised as sensitive assets by D&G Council in relation to the	Route Options B, C, D, E and F cross the eastern extent of the unscheduled archaeological site of national importance, Mackilston Cairn (MDG3865), which can be avoided during the alignment stage. The cairn has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. Given the close proximity of the OHL to the cairn it is assessed that there is some potential for the OHL to have an adverse effect on the setting of the cairn. There are a further four unscheduled archaeological sites of national importance within 2km of the route options. Two of these, The Score and Dalry Fundamental Bench Mark, have been raised as sensitive assets by D&G Council in relation to the potential effect on their setting. See Appendix 5 for details on setting. It is considered that the route options would not adversely affect the setting of these assets.					

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
		potential effect on its setting. See Appendix 5 for details on setting. It is considered that the route option would not adversely affect the setting of these assets.						
	Undesignated Archaeology of Regional and Local Importance (recorded in the D&G Council) within the route options	There are five archaeological sites of regional importance within the route option, Kendoon Suspension Bridge (MDG3850), one Mesolithic flint findspot (MDG3848), a farmstead (MDG16039), which forms part of Polharrow Burn ASA, a field system (MDG9479) and an air raid shelter (MDG21321), and one site of local importance, Building (MDG5102). Kendoon Suspension bridge, building (MDG5102) and the air raid shelter could be avoided at the route alignment stage. Where the route option crosses an area that contains Mesolithic flint findspots, there may be a requirement for further archaeological investigations and mitigation prior to and during construction of the OHL. The scope of works would be agreed with D&G Council. The farmstead (MDG16039) is recorded from historical maps and its current baseline condition is unknown. Field survey would require to be undertaken to record the condition and surviving extent of the site.	There are six archaeological sites of regional importance within the route option, metalworking findspot (MDG3882), suggesting the presence of a possible iron smelting site, and an air raid shelter (MDG21321), field system remains (MDG9175), an alleged chapel site (MDG3861) and two farmstead with associated clearance cairns and rig and furrow cultivation (MDG9169 and MDG4645). There is one archaeological site of local importance, an enclosure (MDG4646). The alleged chapel site, farmsteads and enclosure are all clustered together near to Mackilston. Where the UGC would cross an area containing the remains of a possible iron smelting site, there may be a requirement for further archaeological investigations and mitigation prior to and during construction. The air raid shelter could be avoided at the alignment stage. Desk-based resources suggest that the cluster of farmstead/field system remains recorded at Mackilston are more complex than it appears from the HER and further	There are eight archaeological sites of regional importance within the route option, metalworking findspot (MDG3882), suggesting the presence of a possible iron smelting site, and an air raid shelter (MDG21321), a clearance cairn (MDG5286), a building (MDG4697), field system remains (MDG9175), an alleged chapel site (MDG3861) and two farmstead with associated clearance cairns and rig and furrow cultivation (MDG9169 and MDG4645). There is one archaeological site of local importance, an enclosure (MDG4646). The alleged chapel site, farmsteads and enclosure are all clustered together near to Mackilston. Where the UGC would cross an area containing the remains of a possible iron smelting site, there may be a requirement for further archaeological investigations and mitigation prior to and during construction. The air raid shelter, clearance cairn, building, enclosure and field system (MDG9169), at Barlaes Hill, could all be avoided at the alignment stage Desk-based resources	There are eight archaeological sites of regional importance within the route option, metalworking findspot (MDG3882) suggesting the presence of a possible iron smelting site, and air raid shelter (MDG21321), Earlstoun Bridge (MDG3885), an enclosure (MDG4695), field system remains (MDG9175), an alleged chapel site (MDG3861) and two farmstead with associated clearance cairns and rig and furrow cultivation (MDG9169 and MDG4645). There is one archaeological site of local importance, an enclosure (MDG4646). The alleged chapel site, farmsteads and enclosure are all clustered together near to Mackilston. Where the UGC would cross an area containing the remains of a possible iron smelting site, there may be a requirement for further archaeological investigations and mitigation prior to and during construction. The air raid shelter, clearance cairn, bridge, enclosure and field system (MDG9169), at Barlaes Hill, could all be avoided at the alignment stage. Desk-based resources suggest that the cluster	There are seven sites of regional importance within Route Options E and F, metalworking findspot (MDG3882) suggesting the presence of a possible iron smelting site, and air raid shelter (MDG21321), an enclosure (MDG4695), field system remains (MDG9175), an alleged chapel site (MDG3861) and two farmstead with associated clearance cairns and rig and furrow cultivation (MDG9169 and MDG4645). There is one archaeological site of local importance, an enclosure (MDG4646). The alleged chapel site, farmsteads and enclosure are all clustered together near to Mackilston. Where the UGC would cross an area containing the remains of a possible iron smelting site there may be a requirement for further archaeological investigations and mitigation prior to and during construction. The air raid shelter, enclosure and field system (MDG9169), at Barlaes Hill, could be avoided at the route alignment stage. Desk-based resources suggest that the cluster of farmstead/field system remains recorded at Mackilston are more complex than it appears from the HER and further investigations, including field survey, would be required to record the complexity and extent of the remains. Initial assessment suggests that where the route options cross the remains, the OHL could be aligned so as to avoid structural remains (buildings) and main elements of the farmsteads.	

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
			investigations, including field survey, would be required to record the complexity and extent of the remains. Initial assessment suggests that where the route option crosses the remains, the OHL could be aligned so as to avoid structural remains (buildings) and main elements of the farmsteads.	suggest that the cluster of farmstead/field system remains recorded at Mackilston are more complex than it appears from the HER and further investigations, including field survey, would be required to record the complexity and extent of the remains. Initial assessment suggests that where the route option crosses the remains, the OHL could be aligned so as to avoid structural remains (buildings) and main elements of the farmsteads.	of farmstead/field system remains recorded at Mackilston are more complex than it appears from the HER and further investigations, including field survey, would be required to record the complexity and extent of the remains. Initial assessment suggests that where the route option crosses the remains, the OHL could be aligned so as to avoid structural remains (buildings) and main elements of the farmsteads.			
Forestry	Commercial forestry	There is no commercial forestry included within route A.	7.7ha of commercial forestry is included within route B. Most of the commercial forestry can be avoided with the exception of a small block at the southern end.	8.7ha of commercial forestry is included within route C. Most of the commercial forestry can be avoided with the exception of a small block at the southern end.	6.7ha of commercial forestry is included within route D. Most of the commercial forestry can be avoided with the exception of a small block at the southern end.	8.2ha of commercial forestry is included within route E. Most of the commercial forestry can be avoided with the exception of a small block at the southern end.	9.0ha of commercial forestry is included within route F. Most of those commercial woodlands can be avoided during route alignment. Only one commercial block of 2.5ha cannot be avoided during route alignment.	**Route Option A** is preferred as this offers opportunities to avoid commercial forestry as well as NWSS and ASNW.
	Native Woodland (NWSS)	8.7ha of NWSS is located within this route option. NWSS are scattered across the route option. The NWSS located on the southern end of the route can be avoided during route alignment.	7.5ha of NWSS is located within Route Options B and C. Most of those NWSS woodlands can be avoided during route alignment. However, the NWSS at the southern end of the route options cannot be avoided.		6.8ha of NWSS is located within this route option. Most of those NWSS woodlands can be avoided during route alignment. However NWSS at the southern end of the route option cannot be avoided.	6.34ha of NWSS is located Route Options E and F. Most of those NWSS woodlands can be avoided during route alignment. However NWSS at the southern end cannot be avoided.		
	Ancient Woodland (ASNW)	This route option contains 7.32ha of ASNW. This is located within the middle section of the route and can be avoided during route alignment. Only 1.30ha is not also NWSS.	This route option contains 4.6ha of ASNW. This can be avoided during route alignment. Only 2.41ha is not also NWSS.	This route option contains 5.9ha of ASNW. This cannot be avoided during route alignment. Only 3.74ha is not also NWSS.	This route option contains 5.68ha of ASNW. This cannot be avoided during route alignment. Only 3.74ha of this area is not also NWSS.	This route options contains 7.2ha of ASNW. This cannot be avoided during route alignment. Only 5.25ha of this area is not also NWSS.	This route option contains 7.3ha of ASNW. This cannot be avoided during route alignment. Only 2.23ha of this area is not also NWSS.	
Flood Risk	Flood zones and waterbodies	This route option crosses three areas within the 1/200yr flood risk zone (one to the south-west of Kendoon, where the Water of Deugh meets the Water of Ken, one to the south of Carsfad Loch, which is a	Route Options B, C, D, E and F cross two areas within the 1/200yr flood risk zone (one to the south of Earlstoun Loch, when crossing a section of the Water of Ken, and one to the immediate north-east of Glenlee, which is connected to a section of water where Garroch Burn meets Coom Burn). These flood risk zones cannot be avoided during routeing. The area to the south of Earlstoun Loch has an approximate width of 205m, at its narrowest, and the area to the immediate north-east of Glenlee, an approximate width of 305m, at its narrowest point. The flood zone to the north-east of Glenlee is in therefore in excess of the average span length.					There are no preferred route options as none can avoid 1/200yr flood zones. During the route alignment stage the objective will be to minimise the number of towers sited within the flood plain.

CRITERION	Sub-Criteria	Route Option A	Route Option B	Route Option C	Route Option D	Route Option E	Route Option F	Preference
		section of the Water of Ken and one to the immediate north-east of Glenlee, where Garroch Burn meets Coom Burn). These flood risk zones cannot be avoided during routeing. The Water of Ken to the south of Carsfad Loch (approximate width 310m, at its narrowest point), and the area where Garroch Burn meets Coom Burn, to the immediate north-east of Glenlee (approximate width 305m, at its narrowest point) are both in excess of the average span length.						
Overall Preference		**Overall the preference is for Route Option A.** Route Option A is preferred as it is the shortest route and predominantly follows the existing 132kV OHL which has been assimilated into the landscape, whereby effects on views and visual amenity will be similar to those currently experienced. It also avoids the principal views of residential properties located within 150m of the OHL. However, during the route alignment stage, consideration will require to be given to minimising potential disturbance to the Annex 1/Schedule 1 raptor nest, the Archaeologically Sensitive Area, and the Non-Inventory Designed Landscape within which the existing OHL is located. Minimising the number of towers located within the flood risk zone will also form key objectives during the route alignment stage.						

Kendoon to Tongland 132kV Reinforcement (KTR) Route Options Appraisal Tables: Earlstoun to Glenlee

CRITERION	Sub-Criteria	Earlstoun to Glenlee
Approximate Length of Route Option (km)	N/A	1.6km
Biodiversity and Geological Conservation	Habitual concentrations of species of high conservation value and known nest sites of Annex 1/Schedule 1 raptor species and Black Grouse leks.	The OHL component of the route option passes through the trigger for consideration zone around an Annex 1/Schedule 1 raptor nest site, and sensitivity to disturbance and flight activity may be elevated. This zone could not be avoided during alignment. Follows existing OHL alignment wayleave for 1.6km.
Landscape & Visual Amenity	Regional Scenic Areas	The route option is located within the Galloway Hills RSA in its entirety, which cannot be avoided through routeing.
	Landscape Capacity	The route option is located solely within the Upper Dale (Valley) LCT (Medium capacity) – Upper Glenkens LCU (Medium capacity). This route option closely follows the alignment of the existing 132kV OHL, which locally increases the capacity of the landscape to accommodate OHL development. The route option crosses the western slopes of the Glenkens Valley, generally following the grain of the landscape overlooking the wide flood plain alongside the Water of Ken. The route option will remain largely backclothed against the underlying landform and higher ground to the west, along with screening from woodland close to Earlstoun hydro power station. The route option crosses simple enclose pasture and rough grazing land whilst avoiding residential properties, and will utilise the existing wayleave through Hag Wood before crossing Coom Burn in parallel with the existing OHL. South of Earlstoun Loch, this route option will run in parallel with the southern section of the route options between Kendoon and Glenlee. The alignment of this route option is therefore dependent on the alignment of the 132kV (L7 steel tower) OHL, to avoid or minimise the need for crossing of the OHLs.
	Residential Visual Amenity	Residential properties are generally located along the road network which follows the Glenkens Valley, with the properties of Waterside and Staffa alongside the A762, west of the Water of Ken, located within the 150m trigger for consideration zone. However, the orientation of properties, intervening landform and vegetation will limit views of the OHL from these properties and principal views could be avoiding at the alignment stage. More distant views of the OHL will be possible across the Glenkens Valley from the settlement of St John's Town of Dalry. However, visibility of the OHL will be in the context of the parallel Kendoon-Glenlee route options, and the OHL will appear backclothed against the landform beyond.
	Tourism and Recreation: key viewpoints (visual amenity – promoted viewpoints, tourist attractions and recreational areas).	The OHL will cross the route of the Southern Upland Way long distance footpath (and Core Path) directly south of Earlstoun hydro power station. However, effects will be experienced in the context of other infrastructure associated with the power station, and in close proximity to the alignment of the existing 132kV OHL (to be removed). The OHL is likely to be visible, in conjunction with the alignment of the Kendoon-Glenlee OHL route, from a short section of the Galloway Tourist Route which follows the A713 between St John's Town of Dalry and Earlstoun Loch. At its southern extent, this route option will also cross the Glenlee Core Path. However, the OHL will be seen in the content of the Glenlee hydro power station infrastructure and the adjacent parallel alignment of the Kendoon-Glenlee OHL route.
Cultural Heritage	Scheduled Monuments	One Scheduled Monument, Dalry Motte (SM1117), lies within 2km of the route option. A direct effect on the scheduled monument could be avoided during route alignment. The motte site is a promoted heritage site and has been raised by D&G Council as a sensitive asset in relation to the potential effect on its setting. Dalry Motte stands on the edge of St Johns Town of Dalry and is partially surrounded by buildings. Views out from the monument take in the surrounding farmland and initial assessment suggests that views are concentrated particularly along the Water of Ken, to the north-west and south-west. The 132kV trident OHL would be visible on the opposite side of the river, crossing an area of pasture farmland. At the nearest point, the OHL would be 0.7km from the monument. Initial assessment suggests that the proposals would be unlikely to have an adverse effect on the setting of the monument. See Appendix 5 for details on setting.
	Listed Buildings Category A, B and C	There are two Category B Listed Buildings within the route option, Earlstoun Power Station and Bridge (LB9725), and Glenlee Power Station and Bridge (LB9736). A direct effect on these could be avoided during route alignment. There are an additional 15 Listed Buildings within 2km of the proposed route option including: 13 Category B Listed Buildings; and two Category C Listed Buildings.

CRITERION	Sub-Criteria	Earlstoun to Glenlee
	Non – Inventory Gardens and Designed Landscapes	The route option is partially located within the north-western edge of Glenlee Park NIDL, however this section of the connection would be underground, aligned beneath/adjacent to the public road. Initial assessment indicates that the OHL would not result in any adverse direct effect on the NIDL. There are three additional NIDLs within 2km of the route option, Garroch, Earlstoun Castle and Hannaston. Garroch and Earlstoun Castle have been raised by D&G Council as sensitive assets in relation to the potential effect on their settings. See Appendix 5 for details of setting. It is considered that the OHL would not result in an adverse effect on the setting of these NIDLs.
	Unscheduled Archaeology of National Importance	There are two unscheduled archaeological site of national importance, The Score (MDG12802) and Dalry Fundamental Bench Mark (MDG25521), located near the A713 and south of St Johns Town of Dalry, within 2km of the route option. The Score is a promoted heritage site along the Southern Upland Way. Both The Score and the Dalry Fundamental Bench Mark have been raised as sensitive assets by D&G Council in relation to the potential effect on their setting. See Appendix 5 for details of setting. It is considered that the OHL would not result in an adverse effect on the setting of these NIDLs.
	Undesignated Archaeology of Regional and Local Importance (recorded within D&G Council HER) within the route option	There are two archaeological sites of regional/local importance within the route option, metalworking findspot (MDG3882), suggesting the presence of a possible iron smelting site, and an air raid shelter (MDG21321) both at Glenlee and within the underground cable route. The air raid shelter could be avoided during route alignment. Where the underground section of the connection would cross an area containing the remains of a possible iron smelting site there may be a requirement for further archaeological investigations and mitigation prior to and during construction.
Forestry	Commercial forestry	There is 2.35ha of commercial forestry within this route option. This cannot be avoided during route alignment.
	Native Woodland NWSS	There is 2.82ha of NWSS within this route option. This can be avoided during route alignment.
	Ancient Woodland ASNW	There is a block of 2.73ha ASNW at the southern end of the route option that cannot be avoided during route alignment. 0.41ha of ASNW is not NWSS and therefore has not been included in the NWSS area above.
Flood Risk	Flood zones and waterbodies	This route option crosses one area within the 1/200yr flood risk zone, to the immediate north-east of Glenlee substation, where Garroch Burn meets Coom Burn. This area has an approximate width of 105m, at its narrowest point. In addition, approximately 380m of underground cabling would be laid within this 1/200yr flood risk zone. This flood risk zone cannot be avoided during route alignment and is in excess of the average span length of 100m.

Kendoon to Tongland 132kV Reinforcement (KTR) Route Options Appraisal Tables: Carsfad to Kendoon

CRITERION	Sub-Criteria	Carsfad to Kendoon
Approximate Length of Route Option (km)	N/A	2.6km
Landscape & Visual Amenity	Regional Scenic Areas	The route option is located within the Galloway Hills RSA in its entirety, which cannot be avoided through routeing.
	Landscape Capacity	The route option is located solely within the Upper Dale (Valley) LCT (Medium capacity) – Upper Glenkens LCU (Medium capacity). This route option closely follows the alignment of the existing 132kV OHL, which locally increases the capacity of the landscape to accommodate OHL development. Once west of the Water of Ken, the OHL transfers from steel tower to Trident wood pole infrastructure, which can be accommodated into the landscape and will be backclothed against the simple underlying enclosed pasture and rough grazing. The route option will closely follow the alignment of the existing 132kV (steel tower) OHL along the western slopes of the valley, which generally follows the grain of the landscape, avoiding higher ground, and remaining west of the A713 until the OHL descends eastwards to Carsfad Hydro Power Station.
	Residential Visual Amenity	The route option will use the existing OHL alignment to pass directly over the residential properties of Struan and Birnam, and their curtilages. Once west of the Water of Ken, scattered properties are generally concentrated on the east side of the A713 affording principal views eastwards across the Glenkens Valley. However, between Kendoon and Carsfad, only two residential properties, Stroangassel Farm and Carsfad Cottage, are located within the 150m trigger consideration zone for this route option.
	Tourism and Recreation: key viewpoints (visual amenity – promoted viewpoints, tourist attractions and recreational areas).	The route option will be visible from the Galloway Tourist Route which follows the A713; however, the OHL supported on wood poles will generally be less perceptible than the existing 132kV steel tower OHL.
Cultural Heritage	Scheduled Monuments	Three Scheduled Monuments, Polmaddy medieval and post-medieval settlement (SM5391), Dundeugh Castle (SM2476) and Earlstoun Castle (SM1118), which is also a Category A Listed Building, lie within 2km of the route option. Polmaddy settlement is a promoted heritage site. Both Polmaddy settlement and Earlstoun Castle have been raised as key sensitive assets by D&G Council in relation to the potential effect on their settings. Polmaddy settlement is located on a south-facing slope surrounded by large swathes of commercial forestry and initial assessment suggests that the setting of the settlement would not be adversely affected by the OHL. The key consideration is potential effects on the setting of Earlstoun Castle (SM1118/LB3624) and its associated NIDL. However, the OHL lies at some distance from these heritage assets (c. 1.5km away at its nearest point) and it is considered that the OHL is unlikely to result in an adverse effect on the setting of the castle or its designed landscape.
	Listed Buildings Category A, B and C	One Listed Building, Category B Listed Carsfad Power Station (LB51696), lies within the southern end of the route option. There are an additional 11 Listed Buildings within 2km of the route option, including: two Category A Listed Buildings, five Category B Listed Buildings, and four Category C Listed Buildings. Category A Listed, Earlstoun Castle, has been raised as a key sensitive asset by HES in relation to the potential effect on its setting. See comments above (Scheduled Monuments) with respect to this.
	Archaeologically Sensitive Areas	The route option crosses the eastern edge of Polharrow Burn ASA. This ASA has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. Initial assessment suggests that the route option crosses a relatively less sensitive part of the ASA and the OHL is considered unlikely to have a significant effect on the ASA. The removal of the existing 132kV steel tower OHL that currently crosses the ASA and its replacement with a 132kV wooden trident pole line would likely result in an overall benefit for the ASA.
	Non – Inventory Gardens and Designed Landscapes	There are two NIDLs, Knocknalling and Earlstoun Castle within 2km of the route option. Both NIDLs have been raised as sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for details on setting. It is considered that the route options would not adversely affect the setting of the NIDLs.
	Unscheduled Archaeology of National Importance	There are two unscheduled archaeological sites of national importance, Mackilston cairn (MDG3865) and Barlae Hill to Stroangassel Hill Road (MDG3416), within 2km of the route option. Mackilston cairn has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. See Appendix 5 for details on setting. It is considered that the route option

CRITERION	Sub-Criteria	Carsfad to Kendoon
		would not adversely affect the setting of the cairn.
	Undesignated Archaeology of Regional and Local Importance (recorded in the D&G Council HER) within route options	There are seven sites of regional/local importance within the route option: Five Mesolithic findspots of flint artefacts (MDG3835, MDG3846-MDG3849), these are clustered in two groups at Kendoon and Todstone Holme south of Carsfad Loch respectively. The flint artefacts discovered at Kendoon (MDG3835) were recorded along with the remains of a hearth; Kendoon Suspension Bridge (footbridge) (MDG3850) and a farmstead (MDG16039) which forms part of the Polharrow Burn ASA. The bridge could be avoided during route alignment.. Where the route option crosses areas that contained Mesolithic flint findspots, there may be a requirement for further archaeological investigations and mitigation prior to and during construction of the development. The farmstead is recorded from historical maps and its current baseline condition is unknown. Field survey would require to be undertaken to record the condition and surviving extent of the site.
Forestry	Native Woodlands NWSS	The Native Woodland area within the route option is 4.4ha. This is situated in two sections at the northern and southern ends of the route option. All NWSS woodland areas located in the northern end of the route option could be avoided during route alignment. At the southern end of the route option, the NWSS woodland area crosses the width of the route option and therefore cannot be avoided. The NWSS area at the southern end of the route option is 1.39ha.
	Ancient Woodland ASNW	There is 0.18ha of Ancient Woodland area within the route option. This area is also NWSS and is included in the NWSS area detailed above. The 0.18ha described as ASNW can be avoided during route alignment.
Flood Risk	Flood zones and waterbodies	This route option crosses two areas within the 1/200yr flood risk zone (one to the south-west of Kendoon, where the Water of Deugh meets the Water of Ken, and one to the south-west of Carsfad Loch, where the Water of Ken leaves the loch). Options exist to avoid the flood risk zone south of Carsfad Loch, in relation to the Water of Ken. However, the area to the south-west of Kendoon, where the Water of Deugh meets the Water of Ken, cannot be avoided. This area is approximately 110m in width, at its narrowest point. This is in excess of the average span length of 100m for a wood pole.

Appraisal Criteria for Route Options: Glenlee to Tongland Section 1

CRITERION	Sub-Criteria	G-T Route Section 1 (see figure 4.5a)		Preference
		Route Option A	**Route Option B**	
Approximate Length of Route Options (km)	N/A	12.2km	12.4km	**Route Option A** is the preferred as this is the shortest route option, (though Route Option B is not substantially longer).
Biodiversity and Geological Conservation	SSSI Sites	Route Options A and B pass through the 1km trigger for consideration zone around the Laughenghie and Airie Hills SSSI (for 3km) and may include breeding and foraging areas used by the qualifying species. This cannot be avoided during route alignment.		**Route Option A** is preferred as it avoids the trigger for consideration zone around the SPA.
	Special Protection Areas (SPA)	None.	Route option passes through the 2km trigger for consideration zone of the Loch Ken and River Dee Marshes SPA, and cannot be avoided during route alignment.	
	Habitual concentrations of species of high conservation value and known nest sites of Annex 1/Schedule 1 raptor species and Black Grouse leks.	Route Options A and B pass through the trigger for consideration zone around an Annex 1/Schedule 1 raptor nest site and sensitivity to disturbance and flight activity may be elevated. This cannot be avoided during route alignment.		
Landscape & Visual Amenity	National Scenic Areas	The Fleet Valley NSA is located approximately 9.6km to the south-west at its nearest point. Visibility of this route option from the NSA will be restricted due to distance, and the presence of intervening landform and coniferous woodland.		**Route Option A** is preferred as it takes an alignment on the west side of Peal Hill and Cairn Edward Hill, minimising the possibility of long distance views of the OHL from the Glenkens Valley, the A762 and the settlement of New Galloway to the east, north-east. The majority of this route option avoids encroaching on the 150m trigger for consideration zone for residential properties, however, the route option will introduce a further OHL in relatively close proximity to residential properties south of Glenlee substation. Although views from promoted tourist trails and routes are possible, effects will be limited to short sections of recreational trails, including the FCS Promoted Raiders Road Forest Drive, as the route option mainly crosses perpendicular to avoid elongated sequential views.
	Regional Scenic Areas	Route Options A and B are located within the Galloway Hills RSA which cannot be avoided through routeing.		
	Landscape Capacity	Route Options A and B pass through the Rugged Granite Uplands with Forest LCT (Medium capacity) – Cairn Edward LCU (Medium capacity); and Foothills with Forest LCT – Rhinns of Kells LCU (Higher capacity). These route options follows higher ground to the west of the Water of Ken, utilising routeing opportunities within the shallow valley west of Shiel Hill and Fintloch Hill to minimise skylining of the OHL in views from the east. The presence of local topography to the east of the route option, and coniferous woodland along a large proportion of the route option will minimise the visibility of the OHL as it continues southwards. The route options cross simple landcover of enclosed pasture and rough grazing before entering extensive coniferous woodland south of the A712 road. The extensive coniferous woodland offers opportunities for screening and backclothing the OHL, whilst avoiding the higher ground of Peal Hill and Cairn Edward Hill.		
	Residential Visual Amenity	The first section of this route option encroaches on the 150m trigger for consideration zone of residential properties south of Glenlee substation, including the property of Glenlee Kennels adjacent to Bucks Linn Bridge. Between Bucks Linn Bridge and the A712 this route option passes close to a small number of scattered properties and farmsteads on the west side of the Glenkens Valley, including Glenlee Kennels and Airie Cottage, however the principal views of these properties are east, south-eastwards towards the valley or are contained by woodland screening, and opportunities exist to avoid encroachment on the 150m trigger for consideration zone from these	As for Route Option A, in relation to the initial section of OHL from Glenlee. This route option is located closer to the property of Airie Cottage, however opportunities exist to avoid the 150m trigger for consideration zone and the principal views east, south-east from this property. Views west from this property towards the route option are largely screened by woodland. To the south of the A712 this route option passes within relatively close proximity, but outside the 150m trigger for consideration zone, to the property of Cairnraws, however, the property has south-easterly principal views and views west, south-west towards the route option are largely screened by	

CRITERION	Sub-Criteria	G-T Route Section 1 (see figure 4.5a)		Preference
		properties during the alignment stage. South of the A712 the route option passes through generally uninhabited coniferous woodland, however, the route option will pass to the east of the property of Darsalloch, north-west of Peal Hill, but will avoid the principal north facing views from the property. Some visibility of the route option from across the Glenkens valley may be possible from St. John's Town of Dalry appearing in the context of the Glenlee hydro power station and other existing OHLs, however, more distant views of the route option from properties within the settlement of New Galloway are unlikely to occur due to the presence of intervening landform and woodland where the route options passes west of Peal Hill.	trees and dense vegetation surrounding the property curtilage. More distant views of the route option from properties within the settlement of New Galloway are unlikely to occur due to the presence of intervening landform and woodland, however, some visibility of the route option from across the Glenkens valley may be possible from St. John's Town of Dalry appearing in the context of the Glenlee hydro power station and other existing OHLs.	
	Tourism and Recreation: key viewpoints (visual amenity – promoted viewpoints, tourist attractions and recreational areas).	The northern extent of Route Options A and B will potentially be perceptible from sections of the Southern Upland Way as it crosses higher ground on the eastern and western side of the Glenkens Valley, however, the OHL would be seen at a distance of over 1.5km and in the context of the existing 132kV OHL between Glenlee and Newton Stewart, and infrastructure of the Glenlee hydro power station. These route options are unlikely to be visible from the Galloway Tourist Route (A713) on the east side of the Glenkens Valley due to intervening landform and the presence of coniferous woodland west of the A762. Sections of the Galloway Kite Trail within the Glenkens Valley (following the A762 and A713) are also unlikely to experience views of this route option. The route options cross the Robert the Bruce Trail and a section of the Galloway Kite Trail (between New Galloway and Clatteringshaws Loch) which follow the A712 between New Galloway and Newton Stewart, crossing the road perpendicular to the north of Peal Hill. The route options then pass into dense coniferous woodland before broadly running parallel with the route of the FCS Promoted Raiders Road Forest Drive (at a distance of beyond 300m through much of this section, but within 100m for a short section at the eastern extent) south-eastwards towards Stroan Loch and the A762, within the Galloway Forest Park. Views of the OHL experienced from this promoted off road tourist drive will be possible, with visibility dependant on the presence, retention and future management of coniferous woodland. At its southern extent the route options cross the Raiders Road east of Ross Hill, crossing the line perpendicular within an area of coniferous woodland. Due to intervening landform and the presence of dense coniferous woodland, these route options are unlikely to be visible from the two promoted viewpoints on Bennan Hill from which the key focus of the available views are east, south-east across Loch Ken, where the existing 132kV OHL is visible on the east side of the Glenkens Valley. The route options will be visible in views from the Stroan Loch and Stroan Viaduct, however, the key views west across the loch from the eastern shore and adjacent picnic area will be unaffected. These route options cross a number of Core Paths both north and south of the A712, however the route will most frequently cross perpendicular to these walking and cycling routes, minimising the opportunities for extended sequential views from these routes, which predominantly pass through coniferous woodland where more distant views of the route option will be limited. Route Options A and B encroach on the FCS promoted Buzzard Walk (No. 17) which follows a short loop around the northern and eastern shores of Stroan Loch, from which close up views of the OHL will be possible where open views from the woodland exist. Views of the route options from New Galloway Golf Course are not considered likely, due to the presence of intervening landform and coniferous woodland.		
Cultural Heritage	Scheduled Monuments	Two Scheduled Monuments, Dalry Motte (SM1117) and Little Ducharie Fort (SM1077) lie within 2km	Two Scheduled Monuments, Dalry Motte (SM1117) and Little Ducharie Fort (SM1077) lie within 2km of	**Route Option A** is preferred as this would be located on the western side of Peal Hill and would therefore be less visible from

CRITERION	Sub-Criteria	G-T Route Section 1 (see figure 4.5a)		Preference
		Route Option A. These can be avoided during route alignment. Dalry Motte is a promoted heritage site and has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. The northern end of the OHL would be located over 1.3km to the south-east of the motte and the route option would not pass the motte. Initial assessment suggests that the built up areas of St John's Town of Dalry, to the south/south-west of the motte, would principally screen views in the direction of the proposed OHL and its effect on the motte would be minimal.	Route Option B. These can be avoided during route alignment. One additional, Scheduled Monument, Kenmure Castle (SM7743), which is also a Category B Listed Building (see below) is within 2km of Route Option B. This can be avoided during route alignment. Dalry Motte is a promoted heritage site and has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. The northern end of the OHL would be located over 1.3km to the south-east of the motte and the route option would not pass the motte. Initial assessment suggests that the built up areas of St John's Town of Dalry, to the south/south-west of the motte, would principally screen views in the direction of the proposed OHL and its effect on the motte would be minimal.	designations to the east (within the Glenkens valley).
	Listed Buildings Category A, B and C	There is one Listed Building within the route option, Category B Listed Glenlee Power Station and Bridge (LB9736). The building can be avoided during route alignment. Within 2km of the route option there are 18 Listed Buildings: 16 Category B Listed Buildings; and two Category C Listed Buildings.	There is one Listed Building within the route option, Category B Listed Glenlee Power Station and Bridge (LB9736). The building can be avoided during route alignment. Within 2km of the route option there are 33 Listed Buildings: 24 Category B Listed Buildings; and nine Category C Listed Buildings.	
	Conservation Areas	One Conservation Area, New Galloway, lies within 2km of both these route options.		
	Archaeologically Sensitive Areas	One ASA, Grobdale, lies within 2km of both these route options. The route options will pass to the north of the ASA on the opposite side of the valley and passing through an area of commercial forestry at the closest being approximately 800m from the northern edge of the ASA. Initial assessment suggests that the route options would not adversely affect the setting of the ASA.		
	Non – Inventory Gardens and Designed Landscapes	Within 2km of both route options there are five NIDLs: Garroch, Glenlee Park, Kenmure Castle, Slogarie and Hensol House. Three of these NIDLs, Kenmure Castle, Garroch and Glenlee Park, have been raised as sensitive assets by the D&G Council in relation to the potential effect on their settings. See Appendix 5 for details on setting. It is considered that the setting of the NIDLs would not be adversely affected by the proposals.		
	Unscheduled Archaeology of National Importance	There are five unscheduled archaeological sites of national importance within 2km of both route options. Two of these, The Score, a promoted heritage site located along the Southern Upland Way, and Dalry Fundamental Bench Mark near the A713 south of St John's Town of Dalry, have been raised as sensitive assets by D&G Council in relation to the potential effect on their setting. In addition, D&G Council has highlighted the route of the 'Raider's Road', a promoted forest drive (heritage trail), as a sensitive heritage asset. The road runs from the Clatteringshaws Loch to Stroan Loch through the Galloway Forest Park, along the lower slopes of the River Dee (or Black Water of Dee), and is surrounded by commercial forestry. The road would be crossed by the proposed route options at Ross Hill. There are no previously recorded archaeological sites within this area and any direct impact on the road itself could be avoided during alignment. See Appendix 5 for details on setting. It is considered that the OHL would not adversely affect the setting of the forest drive.		
	Undesignated Archaeology of Regional and Local Importance (recorded in D&G Council HER) within the route options	There is one archaeological site of regional/local importance within Route Options A and B, a deserted settlement (MDG3822). The settlement (or farmstead) is recorded from historical maps and its current baseline condition is unknown. From modern aerial photographs, the site appears to have been recently planted (commercial plantation) and field survey would require to be undertaken to record the condition and surviving extent of the site.		
Forestry	Commercial forestry	145.7ha of this route option is commercial forestry.	147.2ha of this route option is commercial forestry.	**Route Option A** is preferred as it affects less commercial forestry

CRITERION	Sub-Criteria	G-T Route Section 1 (see figure 4.5a)		Preference
		These woodlands cannot be avoided during route alignment.	The commercial forestry areas are located at the central/southern end of the route option and cannot be avoided during route alignment.	and less NWSS, although the difference between the routes is marginal.
	Native Woodland NWSS	28.0ha of this route option is NWSS. The NWSS areas in the north can be avoided during route alignment; however the NWSS areas in the south cannot be avoided during alignment.	28.5ha of this route option is NWSS. NWSS cannot be avoided during alignment.	
	Ancient Woodland ASNW	2.59ha of this route option is ASNW. These are scatted small blocks of woodland. Of the ASNW area affected, 0.37ha is not NWSS and therefore has not been included in the NWSS area described above. With regards to Peal Hill woodland affected by this route option; the ASNW area on the north of the hill is conifer woodland. During route alignment, the impact on the Peal Hill cannot be avoided during route alignment.	2.49ha of this route option is ASNW. Of the ASNW area affected 0.19ha is not NWSS and therefore has not been included in the NWSS area described above. With regards to Peal Hill woodland affected by this route option; the 0.2ha of ASNW area on the north of the hill can be avoided during route alignment.	
Flood Risk	Flood zones and waterbodies	Route Options A and B cross three areas within the 1/200yr flood risk zone, one to the immediate south-west of Glenlee substation (Coom Burn), one to the south of Glenlee (an unnamed burn which meets Coom Burn) and one to the north of Peal Hill (Knocknairling Burn). These flood risk zones cannot be avoided during routeing; however none of these are wider than the average span length of 250m and so can be easily spanned.		There is no preference as both route options cross the same areas within the 1/200yr flood risk zones.
Overall Preference		**Overall preference is for Route Option A.** Route option A is preferred as it is the shortest route (although not substantially), which avoids the trigger for consideration zone of the Loch Ken and River Dee SPA. Option A also minimises the possibility of long distance views from the Glenkens Valley, the A762, the settlement of New Galloway, cultural heritage features, and with the exception of properties south of Glenlee substation (where it follows the existing OHL), avoids proximity to residential properties. However, views may be possible from sections of recreational trails, including the FCS promoted Raiders Road, and minimising effects on this tourism and recreational resource will form a key objective of the route alignment stage. Whilst option A affects less NWSS and commercial forestry, the alignment will need to be designed to minimise loss of ancient woodland, and loss of and disruption to, commercial forestry.		

Appraisal Criteria for Route Options: Glenlee to Tongland Section 2

CRITERION	Sub-Criteria	G-T Route Section 2 (see figure 4.5b, c, d and e)								Preference
		Route Option A	**Route Option B**	**Route Option C**	**Route Option D**	**Route Option E**	**Route Option F**	**Route Option G**	**Route Option H**	
Approximate Length of Route Option (km)	N/A	13.5km	11.8km	10.3km	10.1km	10.3km	10.2km	10.3km	10.1km	**Route Options D or H** are the preferred as these are the shortest route options (though Route Options C, E, F and G are not substantially longer).
Biodiversity and Geological Conservation	SSSI Sites	The route option passes through the 1km trigger for consideration zone around the Laughenghie and Airie Hills SSSI (for 7.5km) and may include breeding and foraging areas used by the qualifying species. This cannot be avoided during alignment.	The route option passes through the 1km trigger for consideration zone around the Laughenghie and Airie Hills SSSI (for 2.3km) and may include breeding and foraging areas used by the qualifying species. This cannot be avoided during alignment.	Route Options C, D, E and F pass through the 1km trigger for consideration zone around the Laughenghie and Airie Hills SSSI (for 1km) and may include breeding and foraging areas used by the qualifying species. This cannot be avoided during alignment				Route Options G and H pass through the 1km trigger for consideration zone around the Laughenghie and Airie Hills SSSI (for 0.9km) and may include breeding and foraging areas used by the qualifying species. This cannot be avoided during alignment.		**Route Option G** is preferred as it has the joint lowest length through the 1km trigger for consideration zone of the SSSI. Route Option G avoids trigger for consideration zones around habitual concentrations of Annex1/Schedule 1 raptors.
	Habitual concentrations of species of high conservation value and known nest sites of Annex 1/Schedule 1 raptor species and Black Grouse leks.	The route option passes through the trigger for consideration zones around three Annex 1/Schedule 1 raptor nest sites, and partly overlaps the trigger for consideration zone around another two nest sites; sensitivity to disturbance and flight activity may be elevated. Where there is a part overlap (two trigger for consideration zones), the zone could be avoided during alignment. None of the other zones could be avoided.	The route option passes through the trigger for consideration zone around one Annex 1/Schedule 1 raptor nest site, and partly overlaps the trigger for consideration zone around another nest site; sensitivity to disturbance and flight activity may be elevated. Where there is a part overlap (one trigger for consideration zone), the zone could be avoided during alignment. Neither of the other zones could be avoided during alignment.	The route option passes through the trigger for consideration zones around three Annex 1/Schedule 1 raptor nest sites and partly overlaps the trigger for consideration zone around another nest site; sensitivity to disturbance and flight activity may be elevated. Where there is a part overlap (one trigger for consideration zone), the zone could be avoided during alignment. None of the other zones could be avoided.	The route option partly overlaps with the trigger for consideration zone around a habitual concentration of an Annex1/ Schedule 1 raptor. The route option also passes through the trigger for consideration zones around three Annex 1/Schedule 1 raptor nest sites and partly overlaps the trigger for consideration zone around another nest site; sensitivity to disturbance and flight activity may be elevated in all the above zones. The trigger zone around the habitual concentration of an Annex1/ Schedule 1	The route option passes through the trigger for consideration zones around two Annex 1/Schedule 1 raptor nest sites, and partly overlaps the trigger for consideration zone around another two nest sites; sensitivity to disturbance and flight activity may be elevated. Where there is a part overlap (two trigger for consideration zones), the zone could be avoided during alignment. None of the other zones could be avoided during alignment.	The route option partly overlaps with the trigger for consideration zone around a habitual concentration of an Annex1/ Schedule 1 raptor. The route option also passes through the trigger for consideration zones around two Annex 1/Schedule 1 raptor nest sites, and partly overlaps the trigger for consideration zone around another two nest sites; sensitivity to disturbance and flight activity may be elevated. The habitual concentration of an Annex1/ Schedule 1 raptor could be avoided during	The route option passes through the trigger for consideration zones around two Annex 1/Schedule 1 raptor nest sites, and partly overlaps the trigger for consideration zone around another two nest sites; sensitivity to disturbance and flight activity may be elevated. Where there is a part overlap (two trigger for consideration zone), the zones could be avoided during alignment. None of the other zones could be avoided during alignment.	The route option partly overlaps with the trigger for consideration zone around a habitual concentration of an Annex1/ Schedule 1 raptor. The route option also passes through the trigger for consideration zones around two Annex 1/Schedule 1 raptor nest sites, and partly overlaps the trigger for consideration zone around another two nest sites; sensitivity to disturbance and flight activity may be elevated. The habitual concentration of an Annex1/ Schedule 1 raptor could be avoided during	

CRITERION	Sub-Criteria	G-T Route Section 2 (see figure 4.5b, c, d and e)								Preference
					raptor and one of the trigger zones around an Annex1/Schedule 1 nest site could be avoided during alignment, but the other zones could not be avoided.		alignment. In relation to the other zones, where there is a part overlap (two trigger for consideration zones), the zones could be avoided during alignment; none of the other zones could be avoided during alignment.		alignment. In relation to the other zones, where there is a part overlap (two trigger for consideration zones), the zone could be avoided during alignment; none of the other zones could be avoided during alignment.	
	SNH Priority Peatland Habitats (Classes 1 and 2)	All route options pass through Class 1 habitat at two locations (west of Mossdale Flow and immediately adjacent to the A762 at Beoch Moor). Opportunities exist to avoid/span the class 1 peatland habitats during the alignment stage.								
Landscape &Visual Amenity	National Scenic Areas	The Fleet Valley NSA is located approximately 4.8km to the west at its nearest point, however, visibility of this route option from the NSA will be restricted due to distance, and the presence of intervening landform and coniferous woodland.	The Fleet Valley NSA is located approximately 6.8km to the west at its nearest point, however, visibility of the route option will be very limited due to the presence of intervening landform and coniferous woodland.	The Fleet Valley NSA is located at a distance of over 7.5km to the west of Route Options C, D, E, F, G and H at its nearest point. Visibility of these route options from the NSA will be restricted due to distance, and the presence of intervening landform and coniferous woodland.						**Route Option B** is preferred as it utilises the presence of woodland, forestry and localised landform for backclothing of the OHL, whilst avoiding the areas of highest ground and enabling an alignment that would not encroach on the 150m trigger for consideration zone for residential properties through this sparsely populated area of the Galloway Forest Park. The route option will however cross the FCS Promoted Black Water Riverside Walk affecting views experienced by recreational receptors from this trail. In comparison to the easterly route options (C-H) this route avoids the immediate setting and grounds of Slogarie non-inventory GDL and avoids the potential for loss of mature broadleaf woodland around Slogarie Bridge on the approach via the minor road to the east.
	Regional Scenic Areas	All route options pass through the Galloway Hills RSA for a distance of approximately 2.5km, which cannot be avoided through routeing.								
	Landscape Capacity	The route option passes through the Drumlin Pastures LCT (Medium capacity) – Deeside LCU (Medium capacity), and Foothills with Forest LCT – Laurieston LCU (Higher capacity). The route option passes through coniferous woodland and rough grazing at its northern extent, before entering the large scale and extensive coniferous woodland of the Laurieston Forest, avoiding the highest	The route option passes through the Drumlin Pastures LCT (Medium capacity) – Deeside LCU (Medium capacity), and Foothills with Forest LCT – Laurieston LCU (Higher capacity). As for route option A, this route option avoids the higher ground of Slogarie Hill and Kenick Hill, but takes an eastern alignment passing over the vague saddle between these hills, east of Lochenbreck	Route Options C, D, E, F, G and H pass through the Drumlin Pastures LCT (Medium capacity) – Deeside LCU (Medium capacity), and Foothills with Forest LCT – Laurieston LCU (Higher capacity). These route options takes a more direct route south, south-eastwards, passing through coniferous woodland and rough grazing at its northern extent, avoiding small local variations in topography south of the Back Water of Dee and the highest ground of Kenick Hill within the Laurieston Forest. The route options run broadly parallel with Woodhall Loch and the A762 from which the OHL will be largely screened or backclothed by coniferous woodland. Further south coniferous woodland provides opportunities for backclothing and screening of the OHL before it emerges from Laurieston Forest and heads east, south-eastwards across the lower lying simple enclosed pasture and rough grazing, to the east of the A762 whilst minimising the opportunities for skylining.					

CRITERION	Sub-Criteria	G-T Route Section 2 (see figure 4.5b, c, d and e)								Preference
		ground of Slogarie Hill and Kenick Hill. The forest provides opportunities for backclothing and screening of the OHL as it passes south, before emerging from Laurieston Forest and heading east, south-eastwards across the lower lying simple enclosed pasture and rough grazing, to the east of the A762 whilst minimising the opportunities for skylining.	Loch, minimising the opportunity for skylining of the OHL. As for route option A, the presence of coniferous forestry provides opportunities for backclothing and screening the OHL before it emerges from the forest and heads east across open farmland either side of the A762.							
	Residential Visual Amenity	This route option will not encroach on the 150m trigger for consideration zone from residential properties at Mossdale, from where more distant views will be limited due to the orientation of properties (generally south, south-easterly) and the presence of intervening landform and coniferous woodland. This route option passes through a sparsely populated area of the Galloway Forest Park, where only a small number of properties are located within Laurieston Forest, the nearest of which, High Lochenbreck to the south of Lochenbreck Loch, will potentially experience views of the route to the west, although outside the 150m trigger for consideration zone and without affecting	This route option follows the alignment of route option A until deviating southwards once west of Bennan Hill. This route option generally avoids residential properties, passing through a sparsely populated area of the Galloway Forest Park. A small number of properties are located within Laurieston Forest, the nearest of which are located within or accessed via the grounds of Slogarie NIDL, including Slogarie House, Coach House, Keepers Cottage and Rose Cottage. Principal views from these properties will be unaffected, and views west towards the route are generally contained by the presence of coniferous and broadleaf woodland. South of Slogarie, the route option passes	As for route option A, this route option does not cross the principal views of properties at Mossdale which are generally south-east, however, the route may be visible from properties once south of the Black Water of Dee at a distance of over 1km. The route then passes between the properties of Banks of Dee and the property of Slogarie (also a non-inventory GDL), and views from these properties are likely to be affected by this route option. The remainder of this route option does not encroach on the 150m trigger for consideration zone from residential properties.	This route option largely follows that of route option C, however a minor deviation south of Craigcroft Wood results in this route option passing closer to the property of Dinnance, however views south-east from the principal outlook of this property will be unaffected.	This route option follows the alignment of route option C other than a minor deviation between Black Water of Dee and the minor road east of Banks of Dee. The route option crosses this minor road perpendicular north to south and avoids the principal outlook of the property of Banks of Dee, maximising opportunities to screen views of the line from the property of Banks of Dee, and the properties of Drumwhill and Nethercrae to the east, from which views are largely contained by broadleaf and coniferous woodland.	This route option follows the alignment of route option E other than a minor deviation south of the property of Craigcroft Wood which results in this route option passing closer to the property of Dinnance, however views south-east from the principal outlook of this property will be unaffected.	Largely following route option E, the more direct alignment of this route option, north of the property of Banks of Dee, will result in the route option passing slightly further east of this property, however to the north of Crae Hill, this section of the route will be located closer and potentially be more perceptible in views south from the settlement of Mossdale as it crosses the slightly higher ground of Crae Hill and the open ground to the north.	This route option largely follows route option G. A minor deviation south of Craigcroft Wood results in this route option passing closer to the property of Dinnance, however views south-east from the principal outlook of this property will be unaffected.	

CRITERION	Sub-Criteria	G-T Route Section 2 (see figure 4.5b, c, d and e)								Preference
		the principal views south-east from the property. Once east of the A762, the route option crosses sparsely populated pasture farmland without encroaching on the 150m trigger for consideration zone for residential properties.	through commercial forestry absent of habitation.							
	Tourism and Recreation: key viewpoints (visual amenity – promoted viewpoints, tourist attractions and recreational areas).	The route crosses two Core Paths to the east and south of Stroan Loch (Stroan Bridge Link and Mossdale to Gatehouse station railway walk) and a further Core Path, Glengap and Laurieston Forest, which are popular with local walkers and cyclists. However, views will be short-lived as the OHL passes over these routes perpendicularly, often within dense coniferous forestry. The route crosses the FCS promoted Black Water Riverside Walk which follows a circular path southwards from Stroan Viaduct along the Black Water of Dee before heading back north through coniferous woodland. Views of the OHL from the riverside section of the walk will be possible, and from a short section of the trail as it passes through the woodland to the east. At the southern	As for Route Option A, this route option crosses two Core Paths to the east and south of Stroan Loch which are popular with local walkers and cyclists, however views will be short-lived as the OHL passes over these routes, often within dense coniferous forestry. As for route option A, views of the OHL from the FCS promoted Black Water Riverside Walk will occur. South of the minor road west of Laurieston, the route option passes close to two Core Paths east and west of Kenick Wood, however views from these Core Paths will be limited by the presence of woodland cover. The southern extent of the route option will follow that of route option A, with potential for effects on views from Neilson's Monument situated on	Route Options C, D, E, and F do not cross any promoted long-distance tourist or recreational routes, however, visibility may be possible from some short sections of the Galloway Kite Trail where it follows the A762. Glimpsed views will be limited to sections of the route options where open views are available, however much of the route options are contained by dense broadleaf woodland and vegetation, or adjacent coniferous woodland. The route options cross a number of Core Paths within Laurieston Forest, including the Mossdale to Gatehouse Station Railway Link and the Retreat Wood circular route twice, and within close proximity to the Stroan Bridge Link Core Path. The route options will cross these paths perpendicular, resulting in relatively short-lived effects on views from these recreational footpaths. At their northern extent, the route options will cross or pass close to the FCS promoted Black Water Riverside Walk at its most southerly point alongside the Black Water of Dee. The OHL will be visible in views from this trail where views are not screened by the presence of woodland. More generally, the route options cross forestry tracks within the Laurieston Forest of the Galloway Forest Park which are used by local walkers and cyclists for recreation, however, effects will be limited to those experienced in close proximity to the route options as other views are generally contained by the woodland through which they pass. Views from the FCS promoted Kenick Burn Trail/Walk west of the route options are unlikely to be affected by the presence of the OHL due to the presence of intervening broadleaf and coniferous woodland. As for Route Option A, at the southern extent, these route options will be visible in views north from the Neilson's Monument situated on Barstobrick Hill, and the network of footpaths around the northern slopes of this hill. The area surrounding Bargatton Loch is popular with walkers and fisherman, with views of this route option likely as it passes within close proximity to the south of the loch.	As for Route Options C-F, Route Options G and H do not cross any promoted tourist or recreational routes, however, visibility may be possible from some short sections of the Galloway Kite Trail where it follows the A762. The route options also cross the Mossdale to Gatehouse Station Railway Link and the Retreat Wood circular route twice, and within close proximity to the Stroan Bridge Link Core Path. The route options pass to the east of the FCS promoted Black Water Riverside Walk; however, views from this trail are likely to be limited due to the presence of coniferous woodland. Within the Laurieston Forest, the route options follow a similar alignment to Route Options C-F resulting in similarly limited effects on promoted trails and Core Paths through this area. As for the other route options, at their southern extent views from Neilson's monument and locations surrounding Bargatton Loch will be possible.	

CRITERION	Sub-Criteria	G-T Route Section 2 (see figure 4.5b, c, d and e)				Preference
		extent, the route option will be visible in views north from the Neilson's Monument situated on Barstobrick Hill, and the network of footpaths around the northern slopes of this hill. The area surrounding Bargatton Loch is popular with walkers and fisherman, with views of this route option likely as it passes within close proximity to the south.	Barstobrick Hill, including the network of footpaths around the northern slopes of this hill, and from the area surrounding Bargatton Loch.			
Cultural Heritage	Scheduled Monuments	There are three Scheduled Monuments, Edgarton Mote, fort (SM1119), Little Duchrae fort (SM1077) and Bargatton Farm cairn (SM1002), within 2km of Route Options A and B. Both Edgarton Mote, fort and Bargatton Farm cairn have been raised as sensitive assets by HES in relation to the potential effect on their setting. Edgarton Mote fort is located in an area of open moorland just west of Edgarton farm. Views are afforded from the mote to the surrounding landscape, principally to the south. Both route options would pass the fort in these views and may potentially adversely affect its setting. See Appendix 5 for details on setting. Bargatton Farm cairn stands in open moorland with views to the surrounding landscape, principally to the south/south, south-east overlooking Bargatton Loch. The proposed OHL (both routes follow the same alignment where they pass the cairn) would be a new element in the surrounding landscape of the cairn, visible in the principal views, c. 0.5km away, and may potentially adversely affect its setting. See Appendix 5 for details on setting.		There are three Scheduled Monuments, Edgarton Mote, fort (SM1119, Little Duchrae fort (SM1077) and Bargatton Farm cairn (SM1002) within 2km of Route Options C, D, E, F, G and H. Both Edgarton Mote, fort and Bargatton Farm cairn have been raised as sensitive assets by HES in relation to the potential effect on their setting. Edgarton Mote, fort (SM1119) lies just outside the western edge of the route options. This asset has been raised as a sensitive asset by HES in relation to the potential effect on its setting. The mote is located in an area of open moorland just west of Edgarton farm. Views are afforded from the mote to the surrounding landscape, principally to the south. The route options would be visible to the north of the fort and initial desk-based assessment suggests that Route Options D, F and H would be the least visible from the monument due to intervening topography. Bargatton Farm cairn stands in open moorland with views to the surrounding landscape, principally to the south/south-south-east overlooking Bargatton Loch. The route options would pass the cairn in these views (c.0.5km away) and may potentially adversely affect its setting. One additional Scheduled Monument, Craig Hill fort (SM 2891), has also been raised as a sensitive asset by HES in relation to the potential effect on its setting. This Scheduled Monument lies just outside (2.1km) the 2km buffer for external receptors for Route Options C-H. This monument is located in an area of rough pasture to the west of the route options. Views from the cairn are concentrated in an arc from the north-west, overlooking Woodhall Loch, to the south-west towards Lauriston, taking in the surrounding farmland and hill slopes. Where the route options pass the fort they will pass through an area of commercial forestry, c.2.1km away, and initial desk-based assessment suggests that the OHL would unlikely be a prominent feature in the surrounding landscape of the monument. See Appendix 5 for details on setting		**Route Option F** is preferred as at its northern end avoids crossing the Grobdale ASA and its associated unscheduled archaeological sites of national importance, and Slogarie NIDL (although NIDLs are unlikely to be affected by any option). It is also likely to be relatively less visible (along with D and H) from the scheduled Edgarton Mote due to intervening topography.
	Listed Buildings Category A, B and C	There are six Listed Buildings within 2km of the route option, including: four Category B Listed Buildings, and two Category C Listed	There are eight Listed Buildings within 2km of the route option including: seven Category B Listed Buildings and one Category C Listed	There are 11 Listed Buildings within 2km of Route Options C, D, E and F including: nine Category B Listed Buildings, and two Category C Listed Buildings.	There are 13 Listed Buildings within 2km of Route Options G and H, including: two Category A Listed Buildings; eight Category B Listed Buildings, and three Category C Listed Buildings.	

CRITERION	Sub-Criteria	G-T Route Section 2 (see figure 4.5b, c, d and e)				Preference
		Buildings.	Building.			
	Archaeologically Sensitive Areas	Both route options cross the eastern extent of Grobdale ASA (at Stroan Hill). Route Option A would then run in close proximity to the eastern edge of the ASA for c.5km, at the closest being c.180m from the edge of the ASA area. Route Option B would be aligned further to the east from the ASA, at closest being c.1.5km from the edge of the ASA area. Where the route options pass the eastern edge of the ASA they would both pass through an area of commercial forestry. Within the ASA, where both route options cross Stroan Hill, are the ruins of a post-medieval farmstead and field system and remains of an earlier (medieval) township (MDG8225 & MDG8226, see below) along with elements of earlier land-use, such as small groups of clearance cairns and a prehistoric burnt mound. The remains form a well-preserved archaeological landscape that has considerable time-depth and are recorded as being of national importance in the D&G Council HER. Although the route options would cross the ASA they would be on the edge of the ASA and away from the nationally important cultural heritage remains in a less sensitive part of the ASA, removing any potential direct effect on the upstanding archaeological remains. The presence of the OHL (both route options) crossing the ASA would result in an impact on the setting of both the ASA and the nationally important settlement remains; however, initial assessment suggests that this would likely be minimal. There is one additional ASA, Loch Mannoch, within 2km of the route options. Here the route options would be present to the north/east of the ASA partially passing through an area of commercial forestry. Initial assessment suggests that the proposed route options would be principally screened from the ASA by intervening topography and would therefore not adversely affect the setting of the ASA. See Appendix 5 for details on setting.		Two ASAs, Grobdale and Mannoch, lie within 2km of Route Options C, D, E, F, G and H. The route options would pass the eastern side of Grobdale ASA, partially running through an area of commercial forestry. The presence of the OHL (all routes) in close proximity to the eastern edge of the ASA would result in an impact on the overall setting of the ASA, however, initial assessment suggests that this would likely be minimal. Route Option G which is the furthest from the edge of the ASA area would be the preferred option. All route options would pass Mannoch ASA to the north-east/eastern side. Initial assessment suggests that the proposed route options would be principally screened from the ASA by intervening topography and would therefore not adversely affect the setting of the ASA. See Appendix 5 for details on setting.		
	Non – Inventory Gardens and Designed Landscapes	Two NIDLs, Slogarie and Hensol House, are within 2km of the route option. Both Slogarie and Hensol House NIDLs have been raised as	Three NIDLs, Slogarie, Hensol House and Laurieston Hall, are within 2km of the route option. All three NIDLs have been raised as	Route Options C and D cross the eastern edge of Slogarie NIDL and the western edge of Laurieston NIDL. There are opportunities to avoid both NIDLs during the alignment stage. There is one additional NIDL, Hensol House, within 2km of the route options.	Route Options E, F, G and H clip the western edge of Laurieston Hall NIDL. There are opportunities to avoid the NIDL during the alignment stage. There are two further NIDLs, Slogarie and Hensol House, within 2km. Laurieston Hall, Slogarie and Hensol House NIDLs have been raised as sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. It is considered that the setting of the NIDLs would not be adversely affected by the	

CRITERION	Sub-Criteria	G-T Route Section 2 (see figure 4.5b, c, d and e)							Preference
		sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. It is considered that the setting of the NIDLs would not be adversely affected by the proposal.	sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. It is considered that the setting of the NIDLs would not be adversely affected by the proposal.	Laurieston Hall, Slogarie and Hensol House NIDLs have been raised as sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. It is considered that the setting of the NIDLs would not be adversely affected by the proposal.		proposal.			
	Unscheduled Archaeology of National Importance	The route option crosses Stroan settlement, field system and cultivation remains (MDG8225 & MDG8226) which is an unscheduled archaeological site of national importance and forms part of Grobdale ASA (see comments above in ASAs). In addition, there are 27 unscheduled archaeological sites of national importance within 2km of the route option. Four of these, Dinnance Cairn, Bargatton Cairn, Neilson's Monument and Barstobrick Hill fort have all been raised as sensitive assets by the D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. Initial assessment suggests that the proposals may potentially adversely affect the setting of Bargatton Cairn. In addition, D&G	The route option crosses Stroan settlement and cultivation remains (MDG8225 & MDG8226) which is an unscheduled archaeological site of national importance and forms part of Grobdale ASA. In addition, there are 21 unscheduled archaeological sites of national importance within 2km of the route option. Four of these, Dinnance Cairn, Bargatton Cairn, Neilson's Monument and Barstobrick Hill fort have all been raised as concerns by the D&G Council in relation to the potential effect on their settings. The effect of the OHL on these sites would require to be assessed. In addition, D&G Council has highlighted the route of the 'Raider's Road', a promoted forest/heritage trail (see Route Option A).	One unscheduled archaeological site of national importance, Edgarton burnt mound (MDG8367) lies within the route option. This site could be avoided during route alignment. In addition, there are 14 unscheduled archaeological sites of national importance within 2km of the route option. Four of these, Dinnance Cairn, Bargatton Cairn, Neilson's Monument and Barstobrick Hill fort have all been raised as sensitive assets by the D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. Initial assessment suggests that the proposals may potentially adversely affect the setting of Bargatton Cairn. In addition, D&G Council has highlighted the route of the 'Raider's	There are 13 unscheduled archaeological sites of national importance within 2km of the route option. Four of these, Dinnance Cairn, Bargatton Cairn, Neilson's Monument and Barstobrick Hill fort have all been raised as sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. Initial assessment suggests that the proposals may potentially adversely affect the setting of Bargatton Cairn. In addition, D&G Council has highlighted the route of the 'Raider's Road', a promoted forest drive (heritage trail) (see Route Option A).	The route option crosses Stroan settlement, field system and cultivation remains (MDG8225 & MDG8226) which is an unscheduled archaeological site of national importance and forms part of Grobdale ASA (see comments above in ASAs). In addition, there are 27 unscheduled archaeological sites of national importance within 2km of the route option. Four of these, Dinnance Cairn, Bargatton Cairn, Neilson's Monument and Barstobrick Hill fort have all been raised as sensitive assets by the D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. Initial assessment suggests that the proposals may potentially	There are 13 unscheduled archaeological sites of national importance within 2km of the route option. Four of these, Dinnance Cairn, Bargatton Cairn, Neilson's Monument and Barstobrick Hill fort have all been raised as sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. Initial assessment suggests that the proposals may potentially adversely affect the setting of Bargatton Cairn. In addition, D&G Council has highlighted the route of the 'Raider's Road', a promoted forest drive (heritage trail) (see Route Option A).	One unscheduled archaeological site of national importance, Edgarton burnt mound (MDG8367) lies within the route option. This site could be avoided during route alignment. In addition, there are 14 unscheduled archaeological sites of national importance within 2km of the route option. Four of these, Dinnance Cairn, Bargatton Cairn, Neilson's Monument and Barstobrick Hill fort have all been raised as sensitive assets by the D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. Initial assessment suggests that the proposals may potentially adversely affect the setting of Bargatton Cairn. In addition, D&G	There are 13 unscheduled archaeological sites of national importance within 2km of the route option. Four of these, Dinnance Cairn, Bargatton Cairn, Neilson's Monument and Barstobrick Hill fort have all been raised as sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for details of setting. Initial assessment suggests that the proposals may potentially adversely affect the setting of Bargatton Cairn. In addition, D&G Council has highlighted the route of the 'Raider's Road', a promoted forest drive (heritage trail) (see Route Option A).	

CRITERION	Sub-Criteria	**G-T Route Section 2** (see figure 4.5b, c, d and e)								Preference
		Council has highlighted the route of the 'Raider's Road', a promoted forest drive (heritage trail). The drive runs from the Clatteringshaws Loch to Stroan Loch through the Galloway Forest, along the lower slopes of the River Dee (or Black Water of Dee), and surrounded by forestry. See Appendix 5 for details of setting.		Road', a promoted forest drive (heritage trail) (see Route Option A).		adversely affect the setting of Bargatton Cairn. In addition, D&G Council has highlighted the route of the 'Raider's Road', a promoted forest drive (heritage trail). The drive runs from the Clatteringshaws Loch to Stroan Loch through the Galloway Forest, along the lower slopes of the River Dee (or Black Water of Dee), and surrounded by forestry. See Appendix 5 for details of setting.		Council has highlighted the route of the 'Raider's Road', a promoted forest drive (heritage trail) (see Route Option A).		
	Undesignated Archaeology of Regional and Local Importance (recorded in D&G Council HER) within route options	There is one archaeological site of regional/local importance within the route option, a burnt mound (MDG8228) forming part of the Stroan ASA. The burnt mound can be avoided during route alignment.		There is one archaeological site of regional/local importance within the route option, a burnt mound (MDG8367) forming part of the Stroan ASA. The burnt mound can be avoided during route alignment.	There is one archaeological site of regional/local importance within the route option, a mote (MDG3775) forming part of the Stroan ASA. The mote can be avoided during route alignment.	There is one archaeological site of regional/local importance within the route option, a burnt mound (MDG8367) forming part of the Stroan ASA. The burnt mound can be avoided during route alignment.	There is one archaeological site of regional/local importance within the route option, a mote (MDG3775) forming part of the Stroan ASA. The mote can be avoided during route alignment.	There is one archaeological site of regional/local importance within the route option, a burnt mound (MDG8367) forming part of the Stroan ASA. The burnt mound can be avoided during route alignment.	There is one archaeological site of regional/local importance within the route option, a mote (MDG3775) forming part of the Stroan ASA. The mote can be avoided during route alignment.	
Forestry	Commercial Forestry	Route Option A contains 189ha of commercial woodland, which cannot be avoided during route alignment. The amount of wooded area affected is likely to be similar irrespective of route alignment.	Route Option B contains 112ha of commercial woodlands, which cannot be avoided within the central area during route alignment.	Route Option C contains 112ha of commercial woodlands. These woodlands are scattered between the northern and central areas of the route option. Commercial woodland cannot be avoided during route alignment.	Route Option D contains 110ha of commercial woodlands. These woodlands are scattered between the northern and central areas of the route option. Commercial woodland cannot be avoided during route alignment.	Route Option E contains 109ha of commercial woodlands. These woodlands are scattered between the northern and central areas of the route option. Commercial woodland cannot be avoided during route alignment.	Route Option F includes 106ha of commercial woodlands. These woodlands are scattered between the northern and central areas of the route option. Commercial woodland cannot be avoided during route alignment.	Route Option G contains 105ha of commercial woodlands. These woodlands are scattered between the northern and central areas of the route option. Commercial woodland cannot be avoided during route alignment..	Route Option H contains 117.4ha of commercial woodlands. These woodlands are scattered between the northern and central areas of the route option. Commercial woodland cannot be avoided during route alignment.	**Route Option A** is preferred as although the amount of commercial woodland affected by this route option is greater than the other routes, the NWSS and ASNW areas concentrated within the north-east and centre will be avoided.
	Native Woodland NWSS	2.7ha of the wooded area is NWSS. NWSS	14.7ha of the wooded area is NWSS. NWSS	16.6ha of the wooded area is	12.2ha of the wooded area is NWSS. NWSS	Over 14ha of the wooded area is	13.3ha of the wooded area is	15ha of the wooded area is NWSS. NWSS	5.5ha of the wooded area is NWSS. NWSS	

CRITERION	Sub-Criteria	G-T Route Section 2 (see figure 4.5b, c, d and e)								Preference
		cannot be avoided during route alignment.	cannot be avoided during route alignment.	NWSS. NWSS cannot be avoided during route alignment.	cannot be avoided during route alignment.	NWSS. NWSS cannot be avoided during route alignment.	NWSS. NWSS cannot be avoided during route alignment.	cannot be avoided during route alignment.	cannot be avoided during route alignment.	
	Ancient Woodland ASNW	Route Option A crosses over less than 1ha of ASNW in one block which can be avoided during alignment. 0.65ha of this ASNW is not NWSS. This area must be taken into consideration in addition to the NWSS.	ASNW forms a total of 4.3ha in blocks scattered across the route option. They cannot be avoided during alignment at Kenick Wood. 2.55ha of ASNW is not NWSS and therefore has not been included in the area above.	ASWN forms a total of 5.76ha of the wooded area. Most of the woodland can be avoided, however the ASNW at Barlue Hill cannot. 2.97ha of ASNW is not NWSS and therefore has not been included in the area above.	ASNW forms a total of 3.58ha of the wooded area. Most of the woodland can be avoided, however the ASNW at Barlue Hill cannot. 1.79ha of this ASNW is not NWSS. This area must be taken into consideration in addition to the NWSS.	ASNW forms a total of 5.01ha of the wooded area. Most of the woodland can be avoided, however the ASNW at Barlue Hill cannot. 2.33ha of ASNW are not NWSS.	ASNW forms a total of 2.34ha of the wooded area. Most of the woodland can be avoided, however the ASNW at Barlue Hill cannot. 1.78ha is not NWSS and therefore has not been included in the area above.	ASNW forms a total of 3.8ha of the wooded area. Most of the woodland can be avoided, however the ASNW at Barlue Hill cannot. 0.13ha of ASNW is not NWSS and therefore this area must be taken into consideration in addition to the NWSS.	ASNW forms a total of 0.18ha of the wooded area. Most of the woodland can be avoided, however the ASNW at Barlue Hill cannot.	
Flood Risk	Flood zones and waterbodies	This route option crosses one area within the 1/200yr flood risk zone (Black Water of Dee, to the south-west of Mossdale). This flood risk zone cannot be avoided during routeing; however it is not wider than the average span length of 250m and so can be easily spanned.	This route option crosses two areas within the 1/200yr flood risk zone (one to the south-west of Mossdale – the River Dee, and one within the Laurieston Forest, the Kenich Burn). These flood risk zones cannot be avoided during routeing; however they are not wider than the average span length of 250m and so can be easily spanned.	Route Options C and D cross four areas within the 1/200yr flood risk zone (three to the south-west of Mossdale; one of which is Black Water of Dee and one (Kenick Burn) to the north-west of Laurieston). These flood risk zones cannot be avoided during routeing; however none are wider than the average span length of 250m and so can be spanned.		Route Options E, F, G and H cross three areas within the 1/200yr flood risk zone (two to the south-west of Mossdale; one of which is Black Water of Dee and one (Kenick Burn) to the north-west of Laurieston. One of the flood risk zones to the south-west of Mossdale could be avoided during routeing. The other areas cannot be avoided; however neither are wider than the average span length of 250m and so can be easily spanned.				All route options are of equal preference as none cross an area of 1/200yr flood risk, which cannot be easily spanned.
Overall Preference	**Overall preference is for Route Option B.** Whilst Route Option B is the second longest route, on balance it is preferred as the presence of woodland and localised landform form a backcloth in views from the scattered properties south of Mossdale around Slogarie and Laurieston. Route Option B also avoids the immediate setting and grounds of Slogaire and Laurieston Hall Non Inventory Designed Landscapes. However, option B, does require to cross/route in proximity to promoted recreational areas e.g. FCS Black Water Riverside Walk, Raiders Road and Stroan Bridge Link, and minimising effects on users of these tourism/recreational features will form a key objective of the alignment stage. Route Option B also routes through the second longest section of 'trigger for consideration zone' (potential breeding and foraging areas) of the Laughengie and Airie Hills SSSI and two 'trigger zones' for Annex 1/Schedule 1 raptor nest sites (one overlaps only). During the route alignment stage, consideration will require to be given to the flight activity within the SSSI 'trigger for consideration zone' by foraging birds and to minimising disturbance/collision risk to Annex 1/Schedule 1 raptors. Furthermore, Route Option B routes through the easternmost extent of the Grobdale ASA and potentially the southernmost extent of the Stroan Settlement HER of national importance, and minimising direct and indirect effects on these cultural heritage features in addition to the setting of Edgarton Mote will form a key objective of the alignment stage. Where the OHL will be routed through Laurieston Forest, consideration will be given to minimising loss of NWSS and loss of, and disruption to, commercial woodland.									

Appraisal Criteria for Route Options: Glenlee to Tongland Section 3

CRITERION	Sub-Criteria	G-T Route Section 3 (see figure 4.5f)			Preference
		Route Option A	**Route Option B**	**Route Option C**	
Approximate Length of Route Option (km)	N/A	3.8km	4.1km	4.3km	**Route Option A** is preferred as this is the shortest route option.
Biodiversity and Geological Conservation	Habitual concentrations of species of high conservation value and known nest sites of Annex 1/Schedule 1 raptor species and Black Grouse leks.	The route option passes through the trigger for consideration zone around an Annex 1/Schedule 1 raptor nest site, and sensitivity to disturbance and flight activity may be elevated. This zone could not be avoided during alignment.	The route option passes through the trigger for consideration zone around an Annex 1/Schedule 1 raptor nest site, and sensitivity to disturbance and flight activity may be elevated. This zone could not be avoided during alignment. Follows existing OHL alignment wayleave for 1.4km.	The route option passes through the trigger for consideration zone around an Annex 1/Schedule 1 raptor nest site, and sensitivity to disturbance and flight activity may be elevated. This zone could not be avoided during alignment. Follows existing OHL alignment wayleave for 2km.	**Route Option C** is preferred as it follows the greatest extent of existing wayleave.
Landscape & Visual Amenity	National Scenic Areas	At its nearest point, the Fleet Valley NSA is located approximately 9.2km to the west and the East Stewartry Coast NSA is located at a distance of approximately 7.7km to the south-east of all three route options. Visibility of the route options from these NSAs will be restricted due to distance, and the presence of intervening landform and coniferous woodland.			**Route Option C** is preferred as it closely follows the alignment of the existing 132kV OHL which has been accommodated into the landscape, whilst not encroaching within close proximity of residential properties with open views of the OHL, to the north-west of the A75.
	Regional Scenic Areas	The Galloway Hills RSA is approximately 3.9km to the north of all three route options at its nearest point, whilst the Solway Coast RSA is approximately 3.25km to the south of the route options at its nearest point, experienced limited visibility of the route options at this distance, restricted further by the presence of intervening landform and woodland.			
	Landscape Capacity	The route option is located solely within Drumlin Pastures LCT (Medium capacity) – Deeside LCU (Medium capacity). This route option follows a broadly parallel alignment of the existing 132kV OHL, approximately 850m to the west at its most distant. However, locally, the route option contours above the narrow valley east of White Hill which is not currently affected by the presence of the existing OHL. The route option crosses more settled farmland with a short section appearing skylined to the east of Barstobrick. The route options offers limited opportunities for screening and backclothing of the OHL against landform or woodland, but opportunities exist to run in parallel with linear field boundaries whilst crossing the simple landcover pattern of enclosed pasture fields.	Options B and C are located solely within the Drumlin Pastures LCT (Medium capacity) – Deeside LCU (Medium capacity). These route options closely follow the alignment of the existing 132kV OHL for approximately 2km – 2.5km, which locally increases the capacity of the landscape to accommodate OHL development. The route options cross the shallow valley north of Culcrae and passes over slightly elevated ground to the east and south, utilising opportunities for backclothing or screening of the OHL by the small wooded hill west of the minor road between Upper Balannan and Dunlop, before it deviates southwards along the alignment of the existing 132kV OHL. The simple landcover of pasture farmland with linear field boundaries offers opportunities to tie into the existing landscape pattern, whilst utilising the presence of woodland for screening and backclothing as the route option approaches the A75. South of the A75, the route options ascend the gentle slopes, however a short section of the OHL will be skylined as it follows the alignment of the existing OHL onto the elevated plateau to the south.	
	Residential Visual Amenity	Views from the cluster of properties at Barstobrick will be predominantly screened by the presence of dense deciduous woodland directly east and south of these properties. This route option, although passing across lower ground, will cross the principal views of the properties at Culcrae, Crumquhill Farm, Chalet and Cottage, and Upper Balannan, encroaching on the 150m trigger for consideration zone for these properties. The route option will introduce infrastructure into the foreground of	Views of the OHL from the properties at Barstobrick will be screened by the presence of dense deciduous woodland and coniferous forestry north of this cluster of properties. Closely following the alignment of the existing 132kV OHL, Route Options B and C avoid the principal view south, south-west from the property of Culcrae east of Barstobrick Hill, before deviating south, south-eastwards whilst avoiding the principal views south, south-west from the property of Upper Balannan. The route options will encroach on the 150m trigger for consideration zone for this property, but views will be limited to those available north, north-east from the property and its curtilage.		

CRITERION	Sub-Criteria	G-T Route Section 3 (see figure 4.5f)			Preference
		open views south, south-west from these properties.			
	Tourism and Recreation: key viewpoints (visual amenity – promoted viewpoints, tourist attractions and recreational areas).	The route option runs parallel with the broad ridge of Barstobrick approximately 500m east at its closest point, and will appear very perceptible from the upper slopes and summit. This route option passes within approximately 650m of Barstobrick Hill, upon which Neilson's Monument and a public viewpoint are situated. A number of trails, including the Barstobrick Core Path, provide access to the monument for walkers and horse riders, who will experience views of the route option from the eastern slopes of Barstobrick Hill. Visibility of this route option from the Barstobrick Visitor Centre will be possible in views to the east, at a distance of approximately 1.3km. The route option crosses the Barstobrick Core Path between residential properties at Culcrae and Barstobrick.	The southern extent of Route Options B and C largely follows the existing OHL which is perceptible in views from Barstobrick Hill. As for Route Option A, the northern extent of these route options will also be apparent from the summit and upper slopes of Barstobrick Hill, and Neilson's Monument, however the OHL will be located further east beyond other man-made elements (farmsteads and agricultural buildings) in the view. The route options do not cross the Barstobrick Core Path to the south-west, however views of the OHL will be possible from sections of this route in views to the north and east. Visibility of these route options from the Barstobrick Visitor Centre will be possible in views to the east, albeit at a distance of approximately 2km.		
Cultural Heritage	Scheduled Monuments	There are three Scheduled Monuments, Park stone circle (SM1039), Bargatton Cairn (SM1002) and Kirkcormarck motte (SM1122) within 2km of all of the route options.			**Route Options B and C** are preferred as they are at a greater distance from Barstobrick Hill fort (MDG3780).
	Listed Buildings Category A, B and C	There are six Listed Buildings within 2km of all of the route options, including: one Category A Listed Building, and five Category B Listed Buildings.			
	Non – Inventory Gardens and Designed Landscapes	There are two NIDLs, Argrennan House and Dildawn within 2km of all of the route options.			
	Unscheduled Archaeology of National Importance (recorded in D&G Council HER)	There are six unscheduled archaeological sites of national importance within 2km of the route option. Three of these sites, Barstobrick Hill fort, Gillfoot Mote and Neilson's Monument, have all been raised as concerns by D&G Council in relation to the potential impact on their settings. See Appendix 5 for details on setting. Initial assessment suggests that the proposals may adversely affect the setting of Barstobrick Hill and Neilson's Monument.	There are seven unscheduled archaeological sites of national importance within 2km of Route Options B and C. Three of these sites, Barstobrick Hill fort, Gillfoot Mote and Neilson's Monument, have all been raised as concerns by D&G Council in relation to the potential impact on their settings. See Appendix 5 for details on setting. It is considered that the proposals would not likely result in an adverse effect on the setting of these monuments.		
Land Use	Existing and Committed Development: areas allocated within LDP including existing buildings/sites, residential use applications and valid planning applications for other non-residential uses of a size and geographic location to be considered 'major areas' (including minerals and windfarms).	There are no areas of committed development located within this route option.	There are no areas of committed development located within Route Options B and C; however there is a large area to the east of Upper Balannan which has had planning permission granted for the siting of 444 bases and holiday lodges. These route options pass approximately 30m to the west of this area.		**Route Option A** is the preferred as it passes the furthest from the site of committed development to the east of Upper Balannan.
Forestry	Commercial forestry	Within this route option, there is 3ha of commercial woodland. The commercial	Within this route option, there is 8.4ha of commercial woodland. The commercial	Within this route option, there is 8.3ha of commercial woodland. The commercial	**Route Option C** is preferred as the NWSS can be avoided at the route alignment stage and there is an opportunity to

CRITERION	Sub-Criteria	G-T Route Section 3 (see figure 4.5f)			Preference
		woodland is located in the north of the route option. Commercial woodland cannot be avoided during alignment.	woodland is located in the north of the route option. Commercial woodland cannot be avoided during alignment.	woodland is located in the north of the route option. Commercial woodland cannot be avoided during alignment.	minimise commercial woodland loss when compared with route B.
	Native Woodland NWSS	There is 7.1ha of NWSS located within this route option. The block of NWSS at the northern end of the route cannot be avoided during route alignment.	There is 2.4ha of NWSS located within Route Options B and C. This can be avoided during alignment.		
Overall Preference		**Overall preference is for Route Option C.** Whilst Route Option C is the longest route (although not substantially), it is preferred as it follows the alignment of the existing 132kV OHL which has been accommodated into the landscape, whilst not encroaching within close proximity to residential properties with open views of the OHL. Route Option C is also the joint greatest distance from Barstobrick Hill fort HER of National Importance, in relation to potential effects on its setting. However, the route alignment stage will need to take account of the committed residential development to the east of Upper Balannan, minimising potential effects on the Annex1/Schedule 1 raptor nest and commercial woodland.			

Appraisal Criteria for Route Options: Glenlee to Tongland Section 4

CRITERION	Sub-Criteria	G-T Route Section 4 (see figure 4.5f)		Preference
		Route Option A	**Route Option B**	
Approximate Length of Route Option (km)		1.8km	2km	**Route Option A** is preferred as this is the shortest route option (though Route Option B is not substantially longer).
Biodiversity and Geological Conservation	Habitual concentrations of species of high conservation value and known nest sites of Annex 1/Schedule 1 raptor species and Black Grouse leks.	No nest sites are present within the route option. Follows existing OHL alignment wayleave for 1.8km.	No nest sites are present within the route option. The route does not follow the existing OHL wayleave.	**Route Option A** is preferred as it follows the greatest extent of existing wayleave.
Landscape & Visual Amenity	National Scenic Areas	The Fleet Valley NSA is located approximately 9.0km to the west and the East Stewartry Coast NSA is approximately 7.5km south-east of both route options at its nearest point, however, visibility of these route options from these NSAs will be unlikely due to distance, and the presence of intervening landform and coniferous woodland, with some limited views expected from hills and elevated ground at the western periphery of the East Stewartry Coast NSA.		**Route Option A** is preferred as it takes the most direct route, closely following the alignment of the existing 132kV OHL which has been accommodated into the landscape, whilst not encroaching within closer proximity of residential properties with open views of the OHL. This route option offers the greatest opportunity to minimise effects on the principal views from residential properties, following the alignment of the existing 132kV OHL as closely as possible between Argrennan Cottages and Argrennan Mains. The alignment of this route option will position the OHL further west of the Tongland Family Golf Centre/Course, potentially reducing the perceptibility of the OHL from this recreation area.
	Regional Scenic Areas	The Galloway Hills RSA is located over 6.5km to the west of Route Options A and B at its nearest point, whilst the Solway Coast RSA is approximately 1.4km to the south of these route options at its nearest point. Visibility of the OHL from the Galloway Hills RSA will be limited at this distance, due to the presence of intervening landform and woodland. Although located within relatively close proximity, views of these route options from the Solway Coast RSA are likely to be very limited due to the presence of intervening landform and screening.		
	Landscape Capacity	The route option is located solely within the Drumlin Pastures LCT (Medium capacity) – Deeside LCU (Medium capacity). This route option broadly follows the alignment of the existing 132kV OHL, which locally increases the capacity of the landscape to accommodate OHL development. The OHL crosses sparsely populated and relatively high ground between the valleys of the River Tarff to the west and the River Dee to the east, crossing through enclosed pasture farmland and through a stand of coniferous woodland creating a wider wayleave west of the existing OHL.	The route option is located solely within the Drumlin Pastures LCT (Medium capacity) – Deeside LCU (Medium capacity). At its northern extent the route deviates from the route of the existing OHL south-eastwards towards the western flanks of Kennan's Hill to avoid the residential properties of Argrennan Mains which may result in increased skylining of the OHL from the valley of the River Dee to the east.	
	Residential Visual Amenity	The route option passes through farmland with a dispersed pattern of scattered farmsteads and properties with various viewing orientations and outlooks informed by local topography and vegetation. At its northern and southern extents, the OHL does not pass within the 150m trigger for consideration zone of residential properties. In its central section, one 'pinch point' exists between residential properties at Argrennan Cottages and Argrennan Mains, from which the principal views are orientated south. The route option runs closely parallel to the west of the alignment of the existing 132kV OHL, within 150m of these residential properties, however the existing OHL which is located	The route option passes through farmland with a dispersed pattern of scattered farmsteads and properties with various viewing orientations and outlooks informed by local topography and vegetation. At its northern and southern extents, the OHL does not pass within close proximity of residential properties. Opportunities exist during the alignment stage to avoid this route option encroaching on the 150m trigger for consideration zone from Argrennan Cottages or Argrennan Mains, however, residential properties at the eastern extent of Argrennan Mains will have open views east and south-east towards the	

CRITERION	Sub-Criteria	G-T Route Section 4 (see figure 4.5f)		Preference
		within approximately 75m of Argrennan Mains will subsequently be removed.	OHL.	
	Tourism and Recreation: key viewpoints (visual amenity – promoted viewpoints, tourist attractions and recreational areas).	The alignment of this route option slightly further west of the existing 132kV will result in similar views of the OHL east from the valley of Tarff Water, including from the Core Paths at Stick Bridge and Barstobrick. At its southern extent, the OHL will be positioned west of the existing 132kV and therefore further from the Tongland Family Golf Centre/Course, potentially reducing the perceptibility of the OHL from this recreation area.	At its southern extent, the deviation of this route option from the alignment of the existing 132kV OHL will potentially increase the perceptibility of towers in views north from the Tongland Family Golf Centre/Course.	
Cultural Heritage	Scheduled Monuments	Two Scheduled Monuments, Park stone circle (SM1039) and Kirkcormack motte, (SM1122) lie within 2km of the route option.	One Scheduled Monument, Park stone circle (SM1039) lies within the route option. Whilst the monument could be avoided during route alignment, the OHL would still be in close proximity.. One additional Scheduled Monument, Kirkcormack, motte (SM1122) is located within 2km of the route option.	**Route Option A** is preferred, as Route Option B passes close to Scheduled Monument Park stone circle (SM1039)
	Listed Buildings Category A, B and C	There are ten Listed Buildings within 2km of Route Options A and B, including: one Category A Listed Building, and Nine Category B Listed Buildings. One of the Listed Buildings, Category B Listed Tongland Abbey, has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. See Appendix 5 for detailed on setting. It is considered that the proposals would not have an adverse effect on the setting of the abbey.		
	Non – Inventory Gardens and Designed Landscapes	One NIDL, Argrennan House, lies within 2km of both route options. Argrennan House NIDL has been raised as a sensitive asset by D&G Council in relation to the potential effect on its setting. See Appendix 5 for detailed on setting. It is considered that the proposals would not have an adverse effect on the setting of the NIDL.		
	Unscheduled Archaeology of National Importance	There are four unscheduled archaeological sites of national importance within 2km of both route options. Three of these sites, Gillfoot Mote, Netherthird Settlement and Hell's Hole Settlement, have been raised as sensitive assets by D&G Council in relation to the potential effect on their settings. See Appendix 5 for detailed on setting. It is considered that the proposals would not have an adverse effect on the setting of the monuments.		
	Undesignated Archaeology of Regional and Local Importance (recorded in D&G Council HER) within route route option options	There are no archaeological sites of regional or local importance within the route option.	There is one archaeological site of regional/local importance, Cup marked stone and possible enclosure (MDG4094), recorded within the route option. The route option just clips the western edge of the cultural heritage site and the site could be avoided during route alignment.	
Land Use	Existing and Committed Development: areas allocated within LDP including existing buildings/sites, residential use applications and valid planning applications for other non-residential uses of a size and geographic location to be considered 'major areas' (including minerals and windfarms).	There are no areas of committed development located within this route option.	There are two areas of committed development (one is a new residential dwelling, and the other a slurry tank), within this route option, to the north of Tongland at Argrennan Mains. There are options to avoid these areas during alignment stage, however the new residential dwelling would still be within the 150m trigger for	**Route Option A** is preferred as it avoids the residential property comprising committed development at Argrennan Mains.

CRITERION	Sub-Criteria	G-T Route Section 4 (see figure 4.5f)		Preference
			consideration zone.	
Forestry	Commercial forestry	There is no commercial woodland within this route option.	There is 0.63ha of commercial woodland within this route option. The block of commercial woodland is located in the middle section of the route option. These commercial woodlands can be avoided during alignment.	There is no preference as all woodland can be avoided during the alignment stage.
	Native Woodland NWSS	Within this route option, there is 0.5ha of NWSS which can be avoided during alignment.	Within this route option there is 0.86ha of NWSS which can be avoided during alignment.	
	Ancient Woodland ASNW	Within this route option, there is 0.15ha of ASNW which can be avoided during alignment. All ASNW here is NWSS and has been included above.	There is no ASNW woodland within this route option.	
Overall Preference		**Overall preference is for Route Option A.** Route Option A is preferred as it is the shortest route and closely follows the alignment of the existing 132kV OHL which has been accommodated into the landscape. It will not encroach within as close proximity of residential properties which have open views of the OHL, and will not affect views from the Tongland Family Golf Centre. However, the properties at Argrennan Cottages and Argrennan Mains will form a key consideration during the route alignment stage, in relation to residential visual amenity.		

Appraisal Criteria for Route Options: Glenlee to Tongland Section 5

CRITERION	Sub-Criteria	G-T Route Section 5 (see figure 5.4f)		Preference
		Route Option A	**Route Option B**	
Approximate Length of Route Option (km)	N/A	2.3km	2.2km	**Route Option B** is the preferred as this is the shortest route option (though Route Option A is not substantially longer).
Biodiversity and Geological Conservation	Habitual concentrations of species of high conservation value and known nest sites of Annex 1/Schedule 1 raptor species and Black Grouse leks.	Follows existing OHL alignment wayleave for 0.2km.	Follows existing OHL alignment wayleave for 2.2km.	**Route Option B** is preferred as it follows the greatest extent of existing wayleave.
Landscape & Visual Amenity	National Scenic Areas	The Fleet Valley NSA is located approximately 8.5km to the west and the East Stewartry Coast NSA is approximately 7.6km east of this route option at its nearest point. Any visibility of this route option from these NSAs will be in a similar context to that of the existing 132kV OHL, appearing in relatively long distance views experienced from high ground at the periphery of the NSAs.	The Fleet Valley NSA is located approximately 8.8km to the west and the East Stewartry Coast NSA is approximately 7.3km east of this route option at its nearest point. Any visibility of this route option from these NSAs will be in a similar context to that of the existing 132kV OHL, appearing in relatively long distance views experienced from high ground at the periphery of the NSAs.	**Route Option B** is preferred as it takes the most direct route, closely following the alignment of the existing 132kV OHL which has been accommodated into the landscape, and in part, alongside the operational area of the mineral extraction site to the north of Tongland. Some skylining is likely to occur, however the alignment of this route option will result in towers appearing in a similar context above the skyline west of the valley of the River of Dee from where views of OHL infrastructure has become a characteristic of this sparsely settled valley. The alignment will minimise the introduction of the OHL above the skyline from the valley of Tarf Water to the west, in comparison to Route Option A.
	Regional Scenic Areas	A proportion of Route Options A and B pass through the Solway Coast RSA for approximately 800m, which cannot be avoided through routeing. The Galloway Hills RSA is located over 6.5km to the west, north-west of these route options at its nearest point, from which some visibility of the OHL is likely as it crosses higher ground along the existing alignment of the 132kV OHL.		
	Landscape Capacity	The route option is located solely within the Drumlin Pastures LCT (Medium capacity) – Deeside LCU (Medium capacity). This route option follows a broadly parallel alignment of the existing 132kV OHL, approximately 250m to the west at its most distant, which locally increases the capacity of the landscape to accommodate OHL development. The route option crosses simple landcover of enclosed pasture farmland following linear field boundaries where present, however, it crosses slightly higher ground near Barr Hill to the west of the alignment of the existing 132kV OHL, increasing the potential for visibility of the proposed line on the skyline which forms the eastern watershed of Tarff Water to the west.	The route option is located solely within the Drumlin Pastures LCT (Medium capacity) – Deeside LCU (Medium capacity). This route option follows the alignment of the existing 132kV OHL closely, which locally increases the capacity of the landscape to accommodate OHL development. As for route option A, this route option crosses enclosed pasture farmland before passing adjacent to the extensive area of mineral extraction to the north of Tongland. Following a similar alignment to the existing OHL, this route option will result in visibility of towers across the skyline from the River of Dee valley to the east, extending across the Dundrennan LCU to the south-east, however, the OHL will appear in the context of the existing mineral extraction site.	
	Residential Visual Amenity	At its southern extent, properties on the western fringe of the scattered settlement of Tongland are located close to the OHL but outwith the 150m trigger for consideration zone, with views from properties mainly focused across the valley to the east and south-east. At its southern extent, following closely the alignment of the existing 132kV OHL, the proposed route will require the positioning of towers within 150m of	As for route option A, scattered residential properties are located close to this route option but outwith the 150m trigger for consideration zone. This route option to the west of the alignment of the existing 132kV will locate the OHL further from residential properties at High Clachan. At its southern extent, following closely the alignment of the existing 132kV OHL, the proposed route will require the positioning of towers within 150m of	

CRITERION	Sub-Criteria	G-T Route Section 5 (see figure 5.4f)		Preference
		residential properties on the approach to Tongland substation, near Langbarns.	residential properties on the approach to Tongland substation, near Langbarns.	
	Tourism and Recreation: key viewpoints (visual amenity – promoted viewpoints, tourist attractions and recreational areas).	Visibility of this route option is likely to be possible from the Tongland to Cumstoun Bridge Core Path which follows the A762 to the south-west. Views of the existing 132kV OHL are possible from this footpath route, limited to glimpsed views of towers on the skyline west of Tongland. However, the alignment of this route option will likely result in towers situated in a more prominent position in views from the valley of Tarff Water to the west. Visibility of this route option from the Cumstoun Mains, and the Dee Walk and Boreland Core Paths is also likely to be possible. However, the key focus of views from these paths is generally along the River Dee estuary and across this intimate river valley. At its northern extent, this route option is located in close proximity to the alignment of the existing 132kV OHL, which is visible in views west from Tongland Family Golf Centre/Course. This route option will position towers slightly further west of the existing OHL. Distant views of this route option from the Burns Heritage Trail and Robert the Bruce Trail are likely to be very limited, appearing in a similar context to the exiting 132kV OHL at a distance of over 1.5km.	Following the alignment of the existing 132kV closely is likely to result in similar views of this route option from the Tongland to Cumstoun Bridge Core Path which follows the A762 to the south-west and the Dee Walk and Boreland Core Path to the south-east. Similar views of this route option to that of the existing 132kV OHL are possible from the northern extent of the OHL, where it passes within 250m of the Tongland Family Golf Centre/Course. This route option will position towers slightly further west of the existing OHL, often partially screened by intervening topography to the west of the golf course. Distant views of this route option from the Burns Heritage Trail and Robert the Bruce Trail are likely to be very limited, appearing in a similar context to the exiting 132kV OHL at a distance of over 1.5km.	
Cultural Heritage	Scheduled Monuments	Four Scheduled Monuments, Carse Mote fort (SM1058), Park stone circle (SM1039), Brockcleugh Cottage cup and ring marked rocks (SM1005) and Cumstoun Castle (SM8263) lie within 2km of both route options.		**Route Option B** is preferred, as Route Option A crosses higher terrain and would therefore potentially be more visible from external receptors in the wider landscape, including designated monuments to the north-west.
	Listed Buildings Category A, B and C	There are 17 Listed Buildings within 2km of both route options, including: four Category A Listed Buildings, 11 Category B Listed Buildings, and two Category C Listed Buildings. Three of these buildings, Category A Listed Tongland Old Bridge and Tongland Bridge and Category B Listed Tongland Abbey, have all been raised as sensitive assets by D&G Council in relation to the potential effect on their settings. Both Category A Listed Tongland Bridge and Tongland Old Bridge are located to the south and south-east, respectively. Views from both bridges are concentrated along the River Dee, approximately east to west. There are a number of current electricity wood pole lines and telegraphy wires either within the surrounding landscape of the bridges or spanning the river close to the bridges, particularly at Tongland Old Bridge. The proposed route options would all terminate in farmland just north of Tongland Bridge. Initial desk-based assessment suggests that intervening topography would mostly screen views of the OHL from Tongland Old Bridge. Views would be afforded to the OHL from Tongland Bridge, but this would be in an area that contains a number of similar OHLs in the landscape and it is considered that the proposals would likely have a minimal effect on the setting of this bridge.		
	Non – Inventory Gardens and Designed Landscapes	There is one NIDL, Cumstoun House, within 2km of both route options.		
	Unscheduled Archaeology of National Importance (recorded in D&G Council HER)	Four unscheduled archaeological sites of national importance lie within 2km of both route options. Three of these, Gillfoot Mote, Netherthird Settlement and Hell's Hole Settlement, have all been raised as		

CRITERION	Sub-Criteria	G-T Route Section 5 (see figure 5.4f)		Preference
		sensitive assets by D&G Council in relation to the potential effect on their settings. The effect of the OHL on these sites would require to be assessed.		
Land Use	Existing and Committed Development: areas allocated within LDP including existing buildings/sites, residential use applications and valid planning applications for other non-residential uses of a size and geographic location to be considered 'major areas' (including minerals and windfarms).	This route option crosses an area of potential committed development (identified as having potential for mineral extraction). However, the area which has planning permission and is currently operational is located to the east and can be avoided during the alignment stage.	This route option crosses an area of committed development (identified as having potential for mineral extraction). The route option follows the existing 132kV OHL parallel to the western most edge of the existing mineral extraction area. The existing quarry could be avoided during the alignment stage.	No preference as both route options can avoid the existing mineral extraction area/quarry during the alignment stage; however option B cannot avoid the area identified as having potential for mineral extraction.
Forestry	Native Woodland NWSS	There is 0.52ha of NWSS within the route option, which can be avoided during alignment.	There is 0.60ha of NWSS within the route option, which can be avoided during alignment.	There is no preference as all woodland can be avoided during the alignment stage.
Overall Preference		**Overall preference is for Route Option B.** Route Option B is preferred as it is the shortest route (although not substantially) and closely follows the alignment of the existing 132kV OHL which has been accommodated into the landscape. It also avoids the mineral extraction quarry north of Tongland, however the area with potential for mineral extraction will required to be considered during route alignment.		

Appendix 7 : Summarised Consultation Round One Feedback Regarding the Consultation Process

Summarised Feedback Regarding Consultation Process from Consultation Round One

Feedback	SPEN Action
- Timing of the consultation should avoid holidays and periods when councils are in recess.	- The second round of consultation will avoid major holiday periods and will not start or end in a school holiday or on a bank holiday. While the second round of consultation does not encroach on the Christmas school holidays, SPEN recognises that this is a busy time for families and has extended the deadline for receipt of feedback until January 13, 2017.
- Hard copies of project documents should be provided to community councils and, on request, members of the public free of charge.	- Hard copies of project documents will be sent to all community councils whose area is within the consultation zone. - Due to the cost of printing larger documents, we may still need to charge for further copies of documents. However we will make copies available free on memory stick or other suitable data storage device to members of the public on request. - Folders containing hard copies of all relevant project information will also be made available for reference at public information points.
- More information is required for landowners, particularly those, such as holiday home owners, who may not be in residence when information is posted. Also, more information on landowner issues such as wayleaves and compensation is requested.	- SPEN's Land Officers will contact landowners within the proposed routes to confirm land ownership and discuss access to land to carry out surveys for the Environmental Impact Assessment (EIA). We will also discuss issues with landowners on an individual basis at this time and arrange separate meetings as required.
- More use of visual imagery is requested to help people understand the scale and impact of the project better.	- We will prepare a fully interactive 3D model to allow the general public and other consultees to gain an appreciation of the potential visual impact of the project. Diagrams indicating the scale of existing and proposed towers will also be incorporated into the materials.
- Packaging design for mailing of project leaflet should be improved.	- Future mailings will be enclosed in identifiable branded envelopes.
- The duration of consultation should allow people adequate time to assess and interpret detailed technical information.	- We are allowing eight weeks for the consultation, which is more than originally allocated to the first round of consultation. SPEN believes this time is adequate given the scope of the KTR Project and the level of technical detail, which is significantly less than in the first round. It also reflects the fact that many people are already aware of many of the issues and allows us to avoid ending the consultation in

Feedback	SPEN Action
	the run-up to the Christmas holiday period.
- General comments provided about imagery, useful additions and terminology.	- Comments about imagery, useful additions and terminology have been taken into account in the second round of consultation.
- Functionality of the online feedback form should be improved to allow for more text to be entered and more choices for people's titles.	- In light of feedback received during consultation, we will improve the capability of text boxes and add additional title options.
- Access to project documents should be improved for people with poor internet access.	- We accept that for some people, website access is an issue, especially in a rural area. Where people have access to a computer, copies of all the project documents will be available free of charge on a memory card or other suitable data storage device on request. - For people with no access to a computer, folders containing hard copies of all relevant project information will also be made available for reference at public information points. People can also contact their community council. - If people are still having problems accessing the documents, we would urge them to contact us to discuss their requirements.
- More information should be provided about the issue of Electric and Magnetic Fields (EMFs).	- Copies of the Energy Networks Association's publication *Electric and Magnetic Fields The Facts* will be available at exhibitions and on request by phone, email and letter, and we will include a link to the online version on our project website.
- Access to the maps at exhibitions during busy periods should be improved.	- More than one complete set of maps will be available in hard copy at each exhibition. Additionally, we will prepare a fully interactive 3D model to allow the general public and other consultees to gain an appreciation of the potential visual impact of the project.
- Access to the Kirkcudbright exhibition should be improved by making the location more central.	- In the second round of consultation we will hold the Kirkcudbright exhibition at Kirkcudbright Parish Church Hall in St Mary Street, Kirkcudbright, DG6 4AQ.
- Advertising for ad hoc drop-in events organised at the request of	- We believe advertising and promotion of these events is the responsibility of the event organiser, as frequently we have less control and therefore cannot vouch for the arrangements. However, we will

Feedback	SPEN Action
community councils should be improved.	provide posters and advice on request.
- Access to information points in evenings or at weekends should be improved.	- Dalry Library is no longer open on Saturday mornings. However we will include other venues with extended opening hours. These are Kirkcudbright Library, which is open until 7pm on Fridays and between 10am and 1pm on Saturdays, and Dumfries' Ewart Library which is also open from 10am until 4pm on Saturdays as well as several later evenings during the week.
- Lessons learned from the experience of communicating the Beauly to Denny project should be adopted.	- A new Community Liaison Group (CLG) will be established in Autumn 2016 to coincide with the second round of non-statutory public consultation. This new forum will provide community representatives with an opportunity to be informed on the latest proposals and raise points with SPEN. This forum will be ongoing for the duration of the project, meeting as required.
- Advertising in shops, pubs, community centres, libraries, post offices, health centres and supermarket noticeboards should be considered, as should erecting static displays in village halls or empty shop windows and using temporary banners on exhibition days.	- A5 posters will be designed for local notice-boards to include details of local exhibitions and how to respond to the consultation. SPEN will send these to community councils to help them promote the consultation as well as identified display points in the consultation zone, which may include local businesses, shops, petrol stations, health practices, places of worship, sports/community venues and village halls. SPEN urges anyone who has ideas for a location to contact them. - A promotional A-board will be erected outside exhibition venues during events.