Proposed 132kV Grid Connection to Rogerhill Solar & Battery Energy Storage System

Routeing and Consultation Document

SP Energy Networks

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December 2025

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Contents

Preface

This Routeing and Consultation Document has been prepared on behalf of SP Energy Networks (SPEN). It relates to the identification and appraisal of route options for two 132kV "Trident" wood pole overhead line circuits to connect from the proposed Rogerhill Solar and Battery Energy Storage System (BESS) to Coalburn North Substation located to the south of Lesmahagow ("the Rogerhill 132kV Connection Project").

This document presents the methodology and findings of the routeing study, which has been undertaken, to inform the consultation process for the Rogerhill 132kV Connection Project.

The Routeing and Consultation Document is available to download from:
http://www.spenergynetworks.co.uk/pages/rogerhill_solar_farm_connection.aspx

Representations to this consultation stage should be received no later than **1st March 2026.** Submissions can be made to the following:

By email to: rogerhill.connection@spenergynetworks.co.uk

By post to: Rogerhill Connection Project,
Land and Planning Team,
SP Energy Networks,
55 Fullarton Drive,
Glasgow,
G32 8FA.

You can also call the SPEN Community Liaison Team during the consultation period on **07516 461129**

Summary

Scottish Power Energy Networks (SPEN), through its transmission licence holder Scottish Power Transmission plc (SPT) proposes to construct two 132kV overhead line circuits in South Lanarkshire. As the transmission licence holder, SPEN is obliged to provide this grid connection, which is needed to allow the proposed Rogerhill Solar and Battery Energy Storage System (BESS) development to input to the electricity network.

The proposed overhead line will be supported on the "Trident" wood pole design which has two configurations, the single wood pole and the "H" wood pole. The proposed overhead line will connect the proposed Rogerhill Solar and BESS to Coalburn North Substation. This substation is located to the north of the existing Coalburn Substation and is currently under construction.

The overhead line design has been determined following a review of the engineering and technical requirements for the connection and utilizes a single wood pole and "H" wood pole configuration. The poles are installed at a minimum excavation depth of 3m and have a nominal length ranging from 10m to 22m to ensure adherence with minimum safety clearances. The average spacing between single wood poles will be approximately 100-150m depending on the terrain. For the "H" wood pole the spans will be shorter at between 70m- 100m. An Infrastructure Location Allowance (ILA) is proposed of 50m to either side of the proposed OHL and temporary access routes, to allow micrositing and adjustments to be made at the construction stage.

Technical constraints around Coalburn North Substation require the proposed overhead lines to be terminated approximately 500m from the site boundary. From this point an underground cable will be installed to allow the grid connection to enter the substation.

This Routeing and Consultation Document provides details of the initial stages of work undertaken to identify a Preferred Route for the grid connection. This has involved the review of key environmental features of the Study Area, identification of alternative routes and analysis of route options. From the outset, SPEN has focused on reducing the environmental impact of the proposed development, whilst remaining technically and economically viable.

At this Routeing and Consultation Stage, the Preferred Route from the proposed Rogerhill Solar and BESS is aligned south passing to the west of Lesmahagow and New Trows. The route then passes south eastwards to parallel the existing 400kV overhead line and terminate to the west of Coalburn North Substation. The total length of this new 132kV grid connection is approximately 7.2 km.

Consultation at this route selection stage follows the approach adopted by SPEN to line routeing and is part of the ongoing engineering design, technical development, and environmental review of the proposed development. The eventual route selected by SPEN for the grid connection will take into account views expressed during this Routeing and Consultation Stage.

On review of the proposed nature and scale of development, at this project stage SPEN does not consider the proposed grid connection is an "Environmental Impact Assessment (EIA)" development within the meaning of the The Electricity Works (EIA) (Scotland) Regulations 2017. A Screening Request shall therefore be submitted to Scottish Ministers to adopt a screening opinion. Following confirmation of this approach, an Environmental Appraisal (EA) of the Proposed Route shall be undertaken to ensure that all relevant issues are taken into account. The EA shall accompany the Section 37 Application under the Electricity Act 1989.

Any comments made during this Routeing and Consultation Stage are <u>not</u> representations to The Scottish Government Energy Consents Unit. Following submission of the Section 37 Application by SPEN, interested parties will have the opportunity to make representations to the Scottish Government on these proposals.

Project Need

1.1 Scottish Power Energy Networks (SPEN), through its transmission licence holder Scottish Power Transmission plc (SPT) proposes to construct two 132kV "Trident" wood pole overhead lines circuits in South Lanarkshire Council. The proposed grid development is needed to allow the proposed Rogerhill Solar and Battery Energy Storage System (BESS) development[1], to connect to the electricity transmission network at Coalburn North Substation (hereafter referred to as "the Rogerhill 132kV Connection Project"). This substation is located to the north of the existing Coalburn Substation and is currently under construction. The location of the Rogerhill 132kV Connection Project is shown in **Figure 1.1**.

1.2 SPEN operates and maintains the transmission and distribution networks in central and southern Scotland on behalf of the licence holders, SP Transmission plc (SPT) and SP Distribution plc (SPD). As a transmission licence holder, SPT has a statutory duty "to develop and maintain an efficient, co-ordinated and economical system of electricity transmission"[2].

1.3 To comply with the licence obligations, SPT must provide the proposed Rogerhill Solar and BESS development with a connection to the transmission system.

Legislative Framework

1.4 The legal provisions applying to the development of overhead lines (OHL) in Scotland are principally the Electricity Act 1989 and the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. All transmission licence holders are required under Section 9 of the Electricity Act to take account of the following factors in formulating proposals for the installation of overhead 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 he reasonably can to mitigate any effect the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings, or objects."

1.5 SPEN interprets the words "reasonably can" to mean that it should make every effort to mitigate the environmental effects, whilst bearing in mind the technical constraints imposed by overhead transmission line technology, and its duties under Section 9 of the Electricity Act. In summary, SPEN is required to identify electrical connections that meet the technical requirement of the electricity system, which are economically viable, and on balance, cause the least disturbance to both the environment and the people who live, work and enjoy recreation within it.

[1] The proposed Rogerhill development comprises solar panels, battery storage units, transformers and associated infrastructure (including the SPEN grid connection substation) and will be surrounded by a deer fence. The 7.2m wide solar panel tables will be set up in rows facing south at 20 degrees creating an angled height of 0.8m to 2.9m. The battery storage units will be approximately 4m height and the transformers 3.2m height.

[2] S9 of the Electricity Act 1989 (as amended by the Utilities Act 2000)

Purpose of the Public Consultation Document

1.6 The purpose of this document is to provide a review of the route selection process to identify the Preferred Route alignment and invite comment. The document presents the methodology adopted for routeing the new OHL, culminating with the description of the "Preferred Route" for the grid connection.

1.7 This document also sets out the process for the consultations, which will be undertaken. This process is designed to gather feedback from stakeholders, including the public, to inform the subsequent stages of the Rogerhill 132kV Connection Project.

1.8 Following consultation on this Preferred Route, feedback will be reviewed and considered to inform the route development process to identify the "Proposed Route".

The Development and Consenting Process

1.9 The Project comprises three key phases:

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

Phase One: Routeing and Consultation

1.10 This document relates to Phase One, which comprises a review of environmental, technical and economic considerations and the application of established step by step routeing principles to identify and appraise potential route options to establish a "Preferred Route" for the OHL.

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

1.12 Responses to the consultation process will be evaluated and the "Proposed Route" confirmed for progressing to the next stage.

Phase Two: Environmental Impact Assessment

1.13 This comprises an Environmental Appraisal/ Environmental Impact Assessment (EIA) of the "Proposed Route". On review of the proposed nature and scale of development at this project stage, SPEN does not consider the proposed grid connection is "EIA" development within the meaning of The Electricity Works (EIA) (Scotland) Regulations 2017.

1.14 A Screening Request will therefore be submitted to Scottish Ministers to seek an opinion under Provision 8 of the Electricity Works (EIA)(Scotland) Regulations 2017 to confirm this position. This will review the proposed scope of information to be provided in the Environmental Appraisal to accompany the Application for Consent to ensure that all relevant issues and concerns of external stakeholders are taken into account.

1.15 All applications for consent of overhead lines are processed on behalf of Scottish Ministers by the Energy Consents Unit (ECU).

Phase Three: Application for Consent

1.16 Following completion of the Environmental Appraisal, SPEN will apply to Scottish Ministers for consent under Section 37 of the Electricity Act 1989 ("the Electricity Act"), as amended, to install, and keep installed, the proposed OHL identified above. In conjunction with the Section 37 application, SPEN will apply for deemed planning permission for the OHL and any ancillary development under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended. The Environmental Appraisal will accompany the application to the ECU.

Stakeholder Engagement

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

1.18 Striking the right balance can be challenging, and in seeking to achieve this SPEN recognises the importance of consulting effectively on proposals and of being transparent about the decisions reached. SPEN is keen to engage with key stakeholders including local communities and others who may have an interest in the Rogerhill 132kV Connection Project. This engagement process begins at the early stages of development of a project and continues through to construction stage once consent has been granted.

1.19 SPEN's approach to stakeholder engagement for major electrical infrastructure projects is outlined in the document "Major Infrastructure Projects: Approach to Routeing and Environmental Impact Assessment"[3]. SPEN aims to ensure effective, inclusive and meaningful engagement with the public, local communities, statutory and other consultees and interested parties through the following key engagement steps:

- Information gathering to inform the routeing stage;
- Consultation on specific requirements;
- Obtaining feedback on the Preferred Route; and
- Environmental Appraisal (EA) / Environmental Impact Assessment (EIA) stage.

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

Structure of the Routeing and Consultation Document

1.21 This Document comprises of the following Chapters:

[3] Scottish Power Energy Networks (2020) Approach to Routeing and Environmental Impact Assessment -Chapter 5 https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_Document_2nd_version.pdf

Chapter 1: Introduction
Chapter 2: Project Description
Chapter 3: Approach to Overhead Transmission Line Routeing
Chapter 4: Study Area Environment
Chapter 5: Route Options and Preferred Route Alignment
Chapter 6: Appraisal of Route Options
Chapter 7: Way Forward

1.22 This Routeing and Consultation Document is also supported by a number of Figures as listed in the contents page. At the back of the document are the References and a Glossary.

Project Team

1.23 This Report has been prepared for SPEN by Environmental Designworks, an environmental planning and landscape design practice, with specialist input from: SPEN on the proposed grid connection engineering design and technical issues; CFA Archaeology; BSG Ecology; and Ramand Associates.

1.24 This Routeing and Consultation Document is available to view on the Internet and download free of charge at:
http://www.spenergynetworks.co.uk/pages/rogerhill_solar_farm_connection.aspx

1.25 If you would like any further information or discuss any aspect of the proposed development, please contact the SPEN Project Manager either:
By email to: rogerhill.connection@spenergynetworks.co.uk

By post to: Rogerhill Connection Project,
Land and Planning Team,
SP Energy Networks,
55 Fullarton Drive,
Glasgow G32 8FA.

You can also call the SPEN Community Liaison Team during the consultation period on **07516 461129**

0 1 2 3 4km

figure 1.1

Title:
Location Plan

Project:
Proposed 132kV Grid Connection to Rogerhill Solar & BESS

Scale: 1:60,000 @ A3 / Bar Scale

Date: Dec 2025

SP EnergyNetworks

Environmental Designworks
Landscape Architecture + Planning

Proposed Connection

2.1 To connect the proposed Rogerhill Solar and BESS development to the electricity grid at Coalburn North Substation requires two 132kV overhead line circuits double circuits[4]. The proposed Rogerhill 132kV Connection Project will be supported on the "Trident" wood pole design which has two configurations, the single wood pole and the "H" wood pole. The proposed 132kV overhead lines will provide a grid connection from the proposed Rogerhill Solar and BESS substation to a new 400kV double busbar bay and 400/132kV transformer at Coalburn North Substation.

2.2 Technical constraints around Coalburn North Substation require the proposed overhead lines to be terminated approximately 500m from the site boundary. From this point an underground cable will be installed to allow the grid connection to enter the substation.

2.3 At Coalburn North Substation, new electrical infrastructure will be required to accommodate the proposed grid connection. This will comprise of a 400kV double busbar bay, 400/132kV 360MVA transformer and 132kV circuit breaker bay. A 132kV disconnector is also required on each individual circuit to provide suitable isolation. This extension to Coalburn North Substation will be consented as ancillary to the Section 37 Application for the proposed Rogerhill 132kV Connection Project and will be within the planning boundary for the consented Coalburn North Substation[5].

2.4 A diagram illustrating the "Trident" wood pole design which has two configurations, the single wood pole and the "H" wood pole is provided in **Figure 2.1.**

Existing Overhead Line

2.5 An existing 400kV overhead line crosses the Study Area in a north-west to south-east direction passing between Coalburn North Substation and Coalburn Substation. The overhead line is on lattice steel towers ranging in height from 40m to 60m. A minimum separation distance of 40m to the existing 400kV overhead line has been adopted for the proposed Rogerhill 132kV Connection Project

Overhead Line (OHL) Infrastructure

2.6 With an overhead electricity 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 of aluminium or steel strands. Most overhead lines at 132kV 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.

<u>Tower Type, Height and Span Length</u>

2.7 The proposed overhead line will be supported on either single wood pole or "H" wood pole "Trident" design depending on the connection route topography and altitude, and the weather conditions of the area, such as ice and wind loading. At this project stage a single wood pole

[4] Two circuits are required to provide sufficient capacity for the proposed Rogerhill Solar and BESS development.

[5] SLC Coalburn North Substation Planning Application ref no: P/24/0320_Location / Site Plan

is envisaged for the proposed twin 132kV double circuit grid connection. The “H” wood pole design is generally used at elevations greater than 200m.

2.8 The height of the wood poles reflects the statutory clearances required for the conductor, 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 poles. Wood poles will have a nominal length ranging from 10m to 22m. These will be installed at a minimum excavation depth of 3m.

2.9 The section of overhead line between overhead line support structures is known as the “span”. With the distance between them known as the “span length”. The spacing between single wood poles is generally 100m, with a maximum span length of 150m. For the “H” wood pole design span lengths are shorter at between 70-100m. The “H” wood pole design allows deviations of up to 75 degrees.

2.10 The “Trident” wood pole specification is a UK Electricity Industry Design Standard and the final design choice of single, or “H” wood pole is generally dependent on the key factors of altitude, topography, and weather, which also determines pole height and span. The final wood pole design, height and span will therefore only be confirmed at the detailed topographical survey stage of the overhead line route. Site surveys may also be undertaken at proposed pole positions to examine the subsoil conditions to inform the foundation design.

2.11 Wood poles are fabricated from pressure impregnated softwood, treated with a preservative to prevent damage to structural integrity. It is assumed that creosote[6] will be the preservative substance used for treatment. New wood poles are dark brown in colour and weather, over time to a light grey.

2.12 The wood pole top cross-arms are galvanised steel and support the aluminium conductors on stacks of grey insulator discs. Both the steelwork and aluminium weather and darken over time.

2.13 There are three types of single and “H” wood poles:

Intermediate – where the pole is part of a straight section of line and no change in direction is required. Straight sections of wood poles include section poles where segmentation is required to contain any failure in the OHL.

Angle – where the OHL requires a change of direction. All angle structures will require to be back stayed.

Terminal- where the OHL ends before entry to the substation.

2.14 There may occasionally be a need to use lattice steel towers on wood pole OHLs. Towers are fabricated from high tensile steel, which is assembled using galvanised high tensile steel bolts with nuts and locking devices. Examples where towers may be used include crossing a watercourse with steep valley sides where the construction process for wood poles is difficult.

[6] Creosote is classed as a hazardous substance and can only be used to treat wood for industrial or professional purposes for example to treat railway sleepers or telegraph poles (NetRegs https://www.netregs.org.uk/environmental-topics/materials-fuels-and-equipment/more-hazardous-materials-topics/wood-preservatives/)

In this situation it may be necessary to construct a steel tower either side of the watercourse to achieve the span length required to cross the valley. Other examples requiring the use of steel towers would occur if slope gradients are too steep to be able to construct and 'stay' the wood poles into the ground.

2.15 The means of connection of the OHL to the underground cable section entering Coalburn North Substation will be achieved through using either a wooden four pole terminal structure or a single terminal steel tower. This will be confirmed as the grid connection design progresses.

Underground Cables

2.16 Where a section of underground cable is required, the conductors are encased in insulated material and buried in a trench of suitable depth and width, then backfilled. Whilst the number of cables, and the depth and width of the trench depends on the circuit rating and voltage, the overall width of the trench can be further increased by other factors. The final width is dependent on, for example: the installation method; environmental issues; ground conditions; and access requirements during construction. Where connected to an overhead line, an underground cable may also involve the creation of a fenced compound for the siting of above ground terminal supports and sealing end compounds.

Maintenance

2.17 The majority of components of overhead lines are maintenance free. Weather conditions in which an overhead line operates and the effects of the environment on exposed elements do give rise to corrosion, wear, deterioration and fatigue after many years in service. Regular inspection identifies any unacceptable deterioration at an early stage, so action can be taken to maintain the high level of security and safety required of all components in accordance with the Electricity Supply Regulations.

2.18 If conductors are damaged, short sections of the OHL may require to be replaced which involves winching to and from section poles. There is therefore a preference that any crushed stone roads built during construction are left for future access. All access arrangements for maintenance and fault repairs will be arranged with the relevant landowners, undertaken within the agreed wayleave and have regard to other interested parties' comments. The wayleave corridor for the proposed Rogerhill 132kV Connection Project is assumed to be a minimum of 60m width (20m (falling distance) between the lines and 20m to either side).

2.19 There is also an ongoing requirement to ensure that any trees within the wayleave corridor are managed to maintain required safety clearances whilst the connection is in service. Walkover surveys or flyovers will identify where there is a requirement to clear wayleaves of new growth. The typical wayleave corridor for a twin 132kV OHL through woodland up to 25m height is 82.5m (31.25m to either side of the route).

Operational Life

2.20 Depending on the severity of pollution and local weather conditions, experience indicates that the components of a new overhead line of this type would require refurbishment after approximately 40 years. At that time, it is likely conductors, insulators and fittings would be replaced. Should the proposed Rogerhill Solar and BESS operation come to an end, the Rogerhill 132kV Connection would also be decommissioned.

Decommissioning

2.21 When a line is decommissioned, the poles are removed, and all components reused where possible. Foundations are extracted to a minimum depth of one metre below ground level and the ground fully reinstated to the satisfaction of the landowner.

Construction Process

2.22 The construction of overhead lines and underground cables requires additional temporary infrastructure such as access to the wood pole locations and construction compounds to store materials. All have limited maintenance requirements and are subject to well-established procedures for dismantling/ decommissioning.

2.23 The construction of the proposed grid connection will be procured by SPEN. This contract will appoint specialised contractors for specific elements of work, such as civil engineering works and overhead line construction. Each specialist contractor through the Construction Environmental Management Plan (CEMP), will be required to comply with the mitigation measures set out in the EA and any conditions or other restrictions placed upon the Section 37 consent.

Construction Environmental Management Plan

2.24 The Construction Environmental Management Plan (CEMP) in conjunction with SPEN's Construction, Health, Safety and Welfare requirements will control all potential environmental effects of the construction works. The CEMP controls and guides working practices during construction such as implementation timescales; detailed design measures to safeguard sensitive habitats and species; further surveys as required before commencing works etc. The document will also incorporate NatureScot (NS), Scottish Environmental Protection Agency (SEPA), Historic Environment Scotland (HES), Forestry and Land Scotland (FLS) and other relevant guidance by adopting current best practice measures in protecting the environment during the works.

2.25 Construction Method Statements will be used to describe the proposed works and the protection measures being applied for specific activities in accordance with the CEMP. This will aim to ensure all activities are carried out to minimise environmental effects.

Programme

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

2.27 The construction programme for the Rogerhill 132kV Connection Project will be confirmed at detailed design stage and prior to project start following the granting of statutory consents and all necessary land purchase/ wayleave arrangements have been concluded. At this stage it is considered that construction of the proposed connection would be approximately 16 months.

Pre-Construction Activities

2.28 SPEN and appointed Contractors will seek to liaise further with those directly affected by the proposed development prior to commencing with works on site to ensure all effects during construction are minimised.

2.29 Prior to commencing the construction of the OHL, a precision ground survey will be carried out to determine the ground profile along the centre of the Proposed Route and for 25m on either side where the ground profile slopes across the line route. This is to ensure that the locations selected for the final siting of wood poles and the relationship with each other comply with the technical limits laid down for maximum span lengths, maximum sum of adjacent spans and safety clearances to live conductors. Further consideration is also given to the detailed environmental effects as outlined in the CEMP and landowner requirements.

2.30 Where the route of the line passes over or is in close proximity to trees that could infringe safe clearance to 'live' conductors, the tree must be felled or pruned prior to construction. Any trees felled as part of the proposed development wayleave will be undertaken in adherence to the mitigation measures as listed in the CEMP.

Construction Method for an OHL

2.31 Construction of overhead lines typically follows a standard sequence as outlined below:

(i) Tree Felling where required

Felling will be undertaken with tracked mechanical harvesters designed to cause least ground and soil structure damage. Manual chainsaw operators will support the harvester to fell any trees that are too large or heavily branched. Once felled, timber is stacked on the ground to await extraction to the roadside.

At this early project stage, it is proposed that any mature commercial forestry (20-50 years) felled to accommodate the works shall be used for timber products. Young non-commercially viable trees (0-20 years) will be chipped, and the mulch spread to an agreed depth for the specific location.

All commercial tree felling operations including access tracks and protection of watercourses will be undertaken in accordance with FLS guidelines. Timber will be harvested conventionally with the resulting lop and top left and used as brash mats to provide floatation for the extraction of the timber products as per standard forestry practices to minimise ground damage. At this project stage, it is envisaged that areas felled beyond the required OHL wayleave to accommodate for example potential windthrow will be returned to the landowner and replanted in accordance with the adopted Long Term Forestry Plan unless an alternative proposal is identified during the environmental assessment process.

Other individual trees depending on the species, location and future use, shall either be felled as close to the ground as possible and treated with a suitable herbicide, or stump ground.

(ii) Construction of Temporary Construction Compounds

Temporary construction compounds will be required for the provision of site offices, welfare facilities and the storage of construction materials. The temporary compounds will be located close to the existing road network, and where services and utilities can be easily accessed. The appointed contractor in agreement with SPEN will identify these sites prior to construction. Each temporary compound will be fully restored when the grid connection has been commissioned.

(iii) Preparation of Temporary Accesses

Wood pole OHL construction generally involves the use of a tracked excavator and low ground pressure vehicles such as tractors, argocats or quad bikes to deliver, assemble and erect each of the wood pole structures. There may be some instances where an access track may need to be formed using imported stone or temporary matting.

Where new temporary access tracks are required, the type will be determined based on the ground conditions, landuse and environmental sensitivity of the location. The three main types of access are:

- Low pressure vehicle use.
- Floating tracks.
- Wood/steel matting.

Where floating stone access tracks are used over peat, best practice guidance[7] will be followed and the risk of compaction will be minimised by:

- Using suitably graded geotextiles and geofabrics to spread loading.
- Micrositing tracks to avoid any particularly wet areas of peat.
- Using appropriate drainage techniques to maintain the natural peat hydrology.

The least disturbance to current land use and land management practices will be sought, and the use of existing tracks will be maximised with upgrading works undertaken where necessary. It may be necessary to construct temporary spurs from existing roads/tracks into each pole position. The temporary access roads will be identified by SPEN for inclusion in the environmental assessment and application for consent. These will later be confirmed with the appointed contractor.

The CEMP will set out the detailed criteria for identifying the types of tracks required and the appropriate installation and removal techniques for each type.

Temporary bridges may also need to be installed to provide access over watercourses for construction. For narrow burns, a mat of timbers will be used supported by steel beams. Larger watercourses will require the installation of a steel plate deck which will have safety barriers at either side supported by main support beams and steel cross members.

All watercourse crossings will be designed to comply with the Controlled Activities (Scotland) Regulations[8]. These will adhere to the general binding rules and may, in some instances require a licence.

Where temporary crossings of watercourses are required, it is envisaged at this stage of the project that there will be two types:

- Narrow burns- a mat of timbers supported by steel beams.
- Larger watercourses- steel plate decking bridge supported on main beams and cross members.

(iv) Temporary Working Areas including Excavation and Construction of Foundations

[7] SNH/FCE (2010) Floating Roads on Peat

[8] Water Environment (Controlled Activities)(Scotland) Regulations 2011 as amended.

The likely required temporary working areas around wood pole positions is 30m x 20m. A 5m tract under the route is also required for conductor stringing. These areas will be reinstated and restored to former conditions upon completion of the construction works.

In some cases, the shape or size of the working area will be determined by nearby environmental, or land use constraints identified during the environmental assessment process prior to construction.

Wood pole foundations involve an excavation to allow the pole brace block or steel foundation brace to be positioned in place. A typical pole excavation will be 3m x 3m and 3m deep. Excavated material is carefully stored and used for backfilling once the pole is erected.

(v) Assembly and Erection of Poles
For wood poles, the cross-braced steelwork, insulator fittings and wood poles will be delivered and assembled local to the pole site and lifted into position by the tracked excavator, which excavated the foundations. Once the pole has been braced in position, the foundation holes will then be backfilled with the excavated material, and the pole stay wire supports attached in preparation for conductor stringing.

(vi) Stringing of Conductors and Commissioning of the Line
Stringing of the poles will only commence after a sufficient number of wood poles have been completely erected. Temporary pulling points will be established at angle poles. These may coincide with temporary pole working areas and will generally be 30m x 20m in area.

At each pulling area, a winch will be set up at one end of the stringing area. A “tensioner” will be set up at the other end of the section. Pilot wires will be placed in blocks fitted to the top of the insulator strings and connected to both the winch and the tensioner. Using the winch, the conductor will then be drawn through the section, with the tensioner providing a constant tension. This allows the conductor to be pulled above the ground minimising damage to the conductor and the ground below.

(vii) Reinstatement
Upon completion of construction activities, the temporary working areas and construction compounds will be fully reinstated and restored to their previous condition.

Services

2.32 The proposed transmission line may cross underground pipelines and services. In these locations all requirements of the appropriate authority will be adhered to, both at the detailed design stage, when locating individual poles and ensuring minimum safety clearances are achieved, and at the construction stage by complying with relevant Codes of Practice and adopting Safe Working Procedures and Operations.

2.33 Prior to stringing the conductors, any roads or railways, which are to be crossed by the proposed overhead line, must be protected by building a scaffold tunnel “sky cradle” through which vehicles can safely pass. Other structures such as existing overhead lines must be either switched off, deviated or protected using “live line” scaffolds.

Completion

2.34 Wood pole construction is completed with the reinstatement of ground around the poles, access routes and temporary construction compound, all in accordance with the CEMP and as agreed with the landowner. Any surplus material will be treated in accordance with the CEMP and Site Waste Management Plan (SWP).

2.35 The CEMP will outline the required ground and vegetation clearance measures to be implemented at the outset of the construction work. This may require for example: the existing vegetation and materials holding the seedbank (i.e. 300mm of the top of softer materials) to be stripped and carefully set aside for reuse; or whole turves set aside and stored vegetation side up for surface restoration. In all cases, topsoil and subsoil will be carefully excavated and stored separately in accordance with BS4428 and BS8601.

2.36 At all construction stages every effort is made to cause the least disturbance to landowners and surrounding residents.

Construction Method for Underground Cables

2.37 Open cut trenching is the most frequently used construction method for cable installation. However, in crossing under watercourses or roads for example, a trenchless technique such as directional drilling may be used.

2.38 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 backfill material, and surface reinstatement. A temporary construction compound is also required and again this is generally located close to the midpoint of the cable route.

2.39 Annual maintenance checks on foot are commonly required during operation. Except for low growing vegetation, the cable route will also be kept clear. In the event of a fault along the cable, the area round the fault will be 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.

Waste

2.40 As part of the CEMP, a Site Waste Management Plan (SWP) will be prepared for the proposed development, which will detail the requirements for management of any waste in accordance with statutory and licencing requirements, accepted good practice and to ensure that wherever possible materials are reused, recycled, or recovered in preference to disposal. Any waste emanating from the construction works will be collected in predetermined areas on site and transferred to a licenced site by a registered waste carrier in accordance with the SWP.

2.41 At this project stage likely waste streams are considered to be as follows:

- Toilet facilities.
- Municipal type wastes.
- Subsoil/ stone from wood pole excavations.

Micrositing & Infrastructure Location Allowance

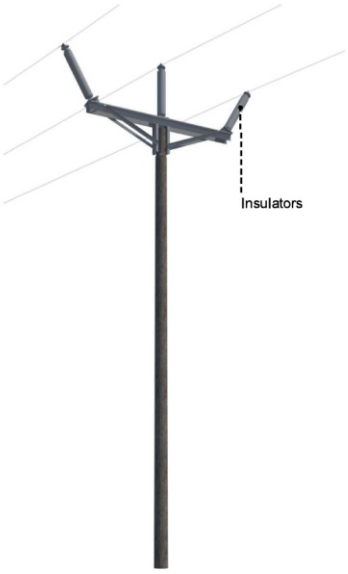
2.42 The proposed Rogerhill 132kV Connection Project development footprint will continue to be developed and detailed through technical, engineering, and environmental review as an integral

part of the design and environmental assessment process. Even after consent the final vertical and horizontal profile of conductors, pole positions and access track routes may require to be refined to reflect the following:

- Pre-construction confirmation of dynamic environmental conditions e.g. the location of protected species.
- Detailed technical survey information, particularly for unconfirmed ground conditions.
- Provide further scope for the effective mitigation of any likely environmental impacts.
- Minor alterations requested by landowners.

2.43 To ensure that the final positions of the OHL poles, associated temporary and permanent infrastructure are not varied to such a degree as to cause an increase in environmental impacts, an Infrastructure Location Allowance (ILA) is proposed. This will permit the siting of a pole to be adjusted within 50m tolerance in any direction from the centre of the proposed OHL support structure and either side of the temporary access routes. It is proposed that the ILA forms part of the Section 37 Application and as a Condition attached to consent.

2.44 Implementation of the ILA will be controlled through the CEMP. Should a request to vary a pole or access track position within the ILA be raised, the relevant environmental baseline surveys undertaken to inform the CEMP will be reviewed in the first instance as these surveys extend beyond the proposed 50m ILA tolerance. Should this review identify any potential issues, further environmental advice will then be sought from the appropriate specialist. A procedure for notifying relevant statutory consultees of proposed ILA movements will also be agreed with these bodies prior to construction commencing.



Component parts of 132kV 'Trident' design wood pole: Intermediate

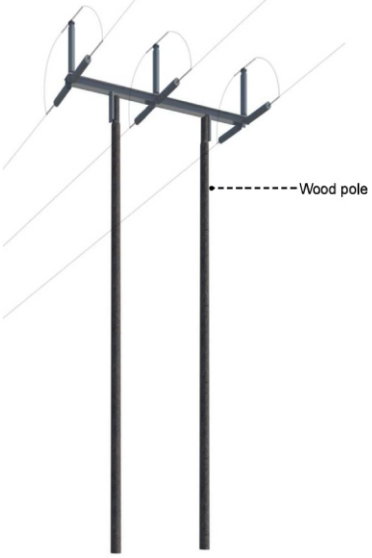
Intermediate Single Pole

Component parts of 132kV 'Trident' design wood pole: Angle

Angle Single Pole

Component parts of 132kV 'Trident' design wood pole: Intermediate (H pole)

Intermediate 'H' Pole



Component parts of 132kV 'Trident' design wood pole: Angle (H pole)

Angle 'H' Pole

Component parts of 132kV 'Trident' design wood pole: Terminal (H pole)

Terminal 'H' Pole

figure 2.1

Title:

132kV "Trident" Single & "H" Wood Pole Overhead Line Design

Project:

Proposed 132kV Connection to Rogerhill Solar & BESS

Scale: n/a

Date:Dec 2025

SPEN's Overall Approach

3.1 SPEN has a legal duty to develop and maintain a technically feasible and economically viable transmission and distribution system. The routeing of a grid connection is a complex process, requiring a balance to be struck between statutory obligations, engineering requirements, economic viability, the environment, and people.

3.2 The UK Government and Electricity Agency, including SPEN, constantly review their positions on the routeing of grid connections and given 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. SPEN's view is therefore that, wherever practical, an overhead line approach is taken when planning and designing new grid connections. However, SPEN appreciates that there are specific circumstances in which an underground approach should be considered.

3.3 The starting point for the consideration this grid connection is therefore that the route will be overhead. Should exceptional constraints determine that an underground cable is required, this will be duly evaluated. The approach will be to minimise the length of underground cable required to overcome the constraint to overhead line routeing, consistent with a balance between technical and economic viability, deliverability and environmental considerations.

3.4 SPEN has published a document outlining the approach taken to the complex process of routeing transmission infrastructure (Routeing and Environmental Impact Assessment, SPEN 2020). This document is available at:

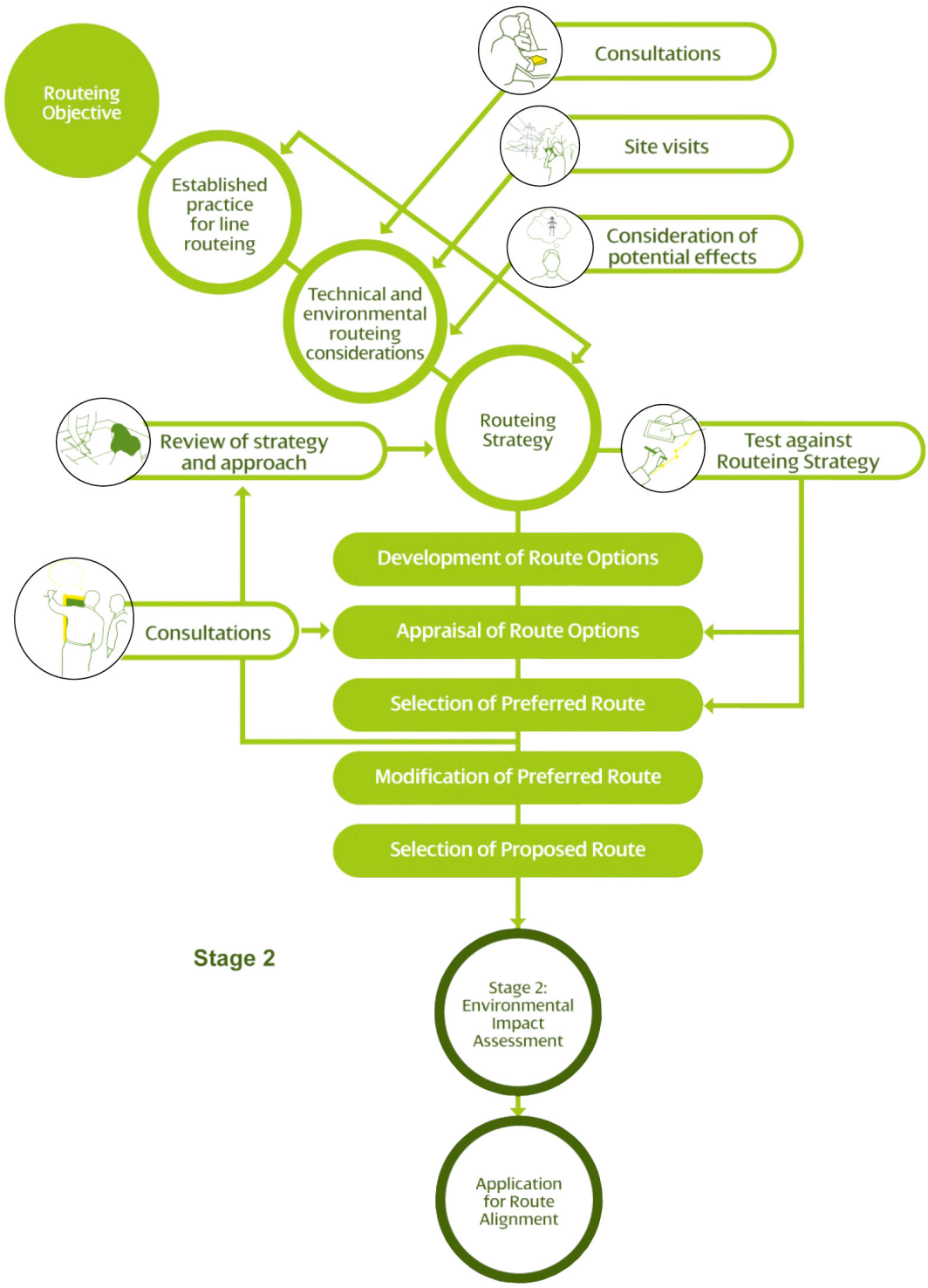
https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_Document_2nd_version.pdf

3.5 This builds on the previous Approach to Routeing document published in 2015 consolidating guidance as outlined in the Holford Rules, Forestry Guidelines, Horlock Rules and best practice (Marshall and Baxter, 2002). One key addition is the consideration of Biodiversity Net Gain (BNG) and how SPEN will seek to integrate this into routeing, EIA, and project delivery stages to ensure that all projects contribute to targets for biodiversity enhancement.

3.6 In summary, every project follows a well-established and sequential step by step process to identify a technically feasible and economically viable route, which on balance causes the least disturbance to people and the environment.

3.7 The routeing process is summarised in the diagram as extracted from the Routeing and EIA Process (SPEN 2020) as indicated in **Table 3.1**.

Table 3.1: Routeing and Environmental Impact Assessment Process



Routeing Objective for the Rogerhill 132kV Connection Project

3.8 In accordance with SPEN's approach to routeing, the routeing objective for the Rogerhill 132kV Connection Project is:

"To identify a technically feasible and economically viable route for a continuous 132kV overhead grid connection from the proposed Rogerhill Solar and Battery Energy Storage System development to Coalburn North Substation. This route should, on balance, cause the least disturbance to the environment and the people who live, work and enjoy recreation within it".

Approach to Routeing

3.9 SPEN's overall approach is based on the premise that the principal way of mitigating environmental effects is by the selection of the most appropriate route. This approach reflects the fact that one of the main effects of an overhead line (OHL) is visual, as a result of its scale relative to objects in the vicinity such as buildings and trees. As there is no technical way of reducing this other than choice of support (tower and poles), and only limited ways of achieving screening through planting, the most effective way of causing the least visual disturbance is therefore by careful routeing. However, the importance of other likely environmental considerations, including matters such as biodiversity, are also recognised to have a significant role in this process. On that basis, it is acknowledged that a well routed OHL takes account of other environmental and technical considerations, even if the length is increased as a consequence.

3.10 Integral to the routeing approach is the fact that the route selection process must be objective and comprehensive to the ultimate decision-making authority and those stakeholders whose interests are affected by the proposed development. In seeking to achieve "least disturbance", key stakeholders including local communities and others who may have an interest in the project are actively consulted. This consultation process begins at an early stage to ensure that the project design balances the views of stakeholders and communities, with the statutory obligations of a transmission licence holder.

3.11 The approach is an iterative, systematic evaluation of route alternatives based on established practice and guidelines, with professional judgement used to establish explicitly the balance between technical, economic viability and environmental factors. Consultation and technical review are an integral part of the routeing strategy process. This enables assumptions to be confirmed and ensures confidence in the findings, prior to the commencement of subsequent stages.

Established Practice and Guidelines

<u>The Holford Rules</u>

3.12 It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing overhead lines, "The Holford Rules", should continue to be employed as the basis for routeing high voltage overhead lines. Key principles of the Holford Rules as outlined below include avoiding prominent ridges and skylines, following broad wooded valleys, avoiding settlements and residential properties, and maximising opportunities for "back clothing" infrastructure.

Rule 1: Avoid altogether, if possible, the major areas of highest amenity value[9], by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.

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.

Rule 3: Other things being equal, choose the most direct line, with no sharp changes of direction and thus with few angle towers.

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.

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'.

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.

3.13 The Holford Rules were reviewed around 1992 by the National Grid Company (NGC) PLC (now National Grid Transmission PLC (NGT)), as owner and operator of the electricity transmission network in England and Wales, with notes of clarification added to update the Rules. A subsequent review of the Holford Rules (and NGC clarification notes) was undertaken by Scottish Hydro Electric Transmission Limited (SHETL) in 2003 to reflect circumstances in Scotland. The Holford Rules, NGC and SHETL clarification notes have been placed in **Appendix 1.**

Forestry and Land Scotland Guidance

3.14 Guidelines have also been produced by Forestry and Land Scotland (FLS) for the routeing of overhead lines through forest areas[10]. In summary, these guidelines state that overhead lines should be routed to follow open space and to run alongside, not through, woodland. Where there is no alternative route; an overhead line through a forested area should:

- avoid areas of landscape sensitivity;
- avoid the line of sight of important views;

[9] SHETL clarification note states areas of highest amenity value "require to be established on a project - by - project basis considering Schedule 9 of the Electricity Act, 1989". The term is now often interpreted as "environmental" value to reflect wider intrinsic value.

[10] Forestry Commission (1994) Forest Landscape Design Guidelines.

- be kept in valleys and depressions;
- not divide a hill into two similar parts where it crosses over a summit;
- cross skyline or ridges where they drop to a low point;
- follow alignments diagonal to the contour as far as possible;
- be inflected upwards in hollows and downwards on ridges.

3.15 With respect to the design of the overhead line corridor, within the forest, the overhead line should seem to pass through a series of irregular spaces. The forest should appear to meet across the open space in some places so that the corridor does not split the forest completely. Where appropriate, and in line with relevant electrical and forest management safety guidance, careful consideration should also be given to the management of woodland edges for biodiversity and wildlife e.g. wildlife bridges[11].

3.16 The UK Forestry Standard (UKFS) provides the national reference standard for managing forests in the UK to meet current needs without hindering future generations requirements. The UKFS sets guidelines for sustainable forest management and recognises Scotland's forests have a range of environmental, economic and social objectives.

3.17 The Scottish Government is committed to maintaining and increasing woodland cover and has developed supporting policy guidance[12] to strictly control removal and where felled, the requirement for compensatory replanting. In summary woodland removal should be kept to the minimum and only where it would achieve significant and clearly defined public benefits. This approach is consistent with the sustainable forest management approach as outlined in the UKFS.

Overview of Routeing Process

Study Area

3.18 A Study Area is first defined, which is large enough to accommodate all likely route options, taking account of the technical requirements (i.e. connection points) and factors such as topography. Baseline data collation and mapping of the routeing considerations outlined below then enables routeing constraints and opportunities to be identified.

Environmental Considerations

3.19 As noted, statutory duties imposed on SPEN by Schedule 9 of the Electricity Act 1989 state that licence holders:

"(a) shall 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 archeological interest; and

[11] Forestry Commission (2014) Design Techniques for Forest Management Planning: Practice Guidance

[12] Forest Land Scotland (2019 and as updated) Control of Woodland Removal Policy

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

3.20 As noted, SPEN's approach to route selection is based on the premise that the major effect of an overhead transmission line is visual and that the degree of visual intrusion can be reduced by careful routeing. This can be achieved by routeing the line to fit the topography, by using topography and trees to provide screening and/or background, and by routeing the line at a distance from settlements and roads.

3.21 However, the importance of other environmental issues also play a significant role in this process. Such environmental considerations include potential effects on (in no hierarchical order): visual amenity; landscape character; ecology and ornithology; forestry and woodland; hydrology; hydrogeology; geology (e.g. carbon rich soils and deep peat); water resources; cultural heritage; landuse (e.g. commercial forestry, mining operations, national pipeline routes); recreation and tourism. In addition to permanent effects, the construction and operational effects also need to be considered.

3.22 Potential visual and physical effects relate primarily to the structure carrying the transmission lines. The structure and conductors may be visible from properties, roads, tourist attractions and other important locations, and may alter the character of the landscape. Physical effects relate primarily to the proposed structure such as the ground area occupied, underground disturbance of features to construct the required foundations and possible requirement for temporary access tracks during construction. Transmission line conductors require specific safety clearances and may, for example, necessitate the removal of trees. The location and siting of the structure and conductors may also have an effect on bird movement.

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

Technical and Economic Considerations

3.24 Technical considerations which can influence routeing include:

- Minimising the length of the OHL.
- Existing and proposed electricity transmission network.
- Access requirements for construction and future maintenance.
- Avoidance of sharp angles of deviation.
- Avoidance of steep terrain and slopes >15° which can impact on the technical feasibility of actual construction of the wood pole line.
- Avoidance of areas higher than 500m AOD. In Scotland, altitude above 200m is considered an extreme environment in technical design terms due to the high wind and ice loadings.
- Avoidance of unfavourable ground conditions from a geotechnical point of view for example, areas of deep peat and contaminated ground.

- Maintain required clearances and consideration of future maintenance requirements. For example, waterbodies and watercourses used for fishing; wind turbine rotor blades (falling distance and wake effect clearances); and national pipelines (safety clearances).

3.25 In compliance with Section 9 of the Electricity Act 1989, the Routeing Objective requires the proposed solution to be "economically viable". This is interpreted by SPT as meaning that as far as is reasonably possible, and other things being equal, the line should be as direct as possible, and the route should avoid areas where technical difficulty or compensatory requirements would render the scheme unviable on economic grounds.

Routeing Process Summary

3.26 The routeing methodology is made up of sequential steps, which inform the next step. Throughout the process is informed by the preceding steps of the Routeing Objective and Routeing Strategy with reference to: established practice for line routeing; technical and environmental considerations.

3.27 In summary the steps in the routeing process consist of:

1. Identification of the Study Area and Routeing Constraints

The review of technical and environmental constraints and opportunities for the Study Area, with reference to the route objective and established practice, allows potential effects to be identified and the development of a routeing strategy. This provides clarity on how the proposed connection will be achieved for the specific project location.

This approach establishes considerations that are used to identify broad corridors (routeing issues) and those which are used to modify routes (deviation issues). Routeing issues are generally strategic and extensive in area, whilst deviation issues tend to be of local importance and smaller in scale.

2. Identification of Route Options

Based on the routeing strategy, a number of route options are then developed and the effect on the routeing considerations recorded.

3. Appraisal of Route Options

At the evaluation stage a route option may be rejected, modified or studied in more detail. The objective of this process being the identification of a Preferred Route, which has the least likely adverse environmental effects, whilst being technically feasible and economically viable.

4. Selection of a Preferred Route

After the comparative evaluation of route options, an emerging preferred option (on environmental grounds) is subjected to a further technical checking prior to confirming the Preferred Route. This Routeing and Consultation Document aims to provide an objective and transparent understanding of the routeing strategy process to date to identify the Preferred Route.

5. Consultation

The Preferred Route is the option considered to be the most technically feasible and economically viable, whilst causing the least disturbance to the environment and to people. Following consultation on this Preferred Route, any comments raised will be considered to inform the identification of a “Proposed Route”. The stages following the review of feedback from this consultation document are set out in **Chapter 7.0: Way Forward.**

The Project Routeing Strategy

4.1 The routeing strategy, which has informed the identification and appraisal of the Rogerhill 132kV Connection Project route options is:

"Route options will take account of the landscape character and make careful use of the topography whilst avoiding areas of highest amenity value and sensitivity as far as possible. The settlements of Kirkmuirhill, Blackwood, Lesmahagow and New Trows, scattered properties, hill tops, woodland areas, wind turbines, motorway alignment and Coalburn Moss have required careful consideration from the outset".

Study Area

4.2 The first step in the routeing process involved identification of the Study Area, to establish and define an area of search for route options and the gathering of environmental baseline data. In identifying the Study Area, it was important to ensure this was large enough to accommodate all likely route options reflecting the Routeing Objective and Routeing Strategy.

4.3 In this area the topography, existing settlements and infrastructure largely defines corridors within which it would be feasible to route an overhead line between the proposed Rogerhill Solar and BESS, and the substation at Coalburn. A preliminary check was also carried out to identify the presence of International, European, or Nationally Designated areas within or immediately adjacent to, the Study Area, to ensure that potential effects on these areas could be considered from the outset.

4.4 Taking account of the above, a wider area encompassing the potential route options was identified extending approximately 5km to either side to form the boundary of the Study Area. The base mapping extent of the Study Area is shown in **Figure 1.1**.

Environmental Baseline

4.5 Information regarding the landuse, environmental features and sensitivities of the proposed Study Area at this initial stage of the Project is presented below and in the accompanying **Figures 4.1- 4.4** (placed at the end of this **Chapter**).

4.6 The information for these Figures and provided in this Chapter was collected from published documents and site visits. In detail, the following has been undertaken: -

- Desk based study of aerial photographs and historic maps.
- Desk review of current environmental and planning data, designations, Local Development Plans and Policies.
- Site appraisal of environmental resources and potential receptors within the Study Area.[13]
- Reference to the Landscape Character Types[14] as collated by Nature Scot.
- Information available from: Local Development Plans covering the Study Area, Historic Environment Scotland website, British Geological Survey website, Scotland's Soils website, Scotland's Environment website, Mining Remediation Authority website, Scottish Government website, DEFRA MAGIC website, Nature Scot Website and SEPA website.

[13] From publicly accessible locations only.

[14] NatureScot (2019) Scottish Landscape Character Types Map and Descriptions.

4.7 Information has also been obtained from the Environmental Reports prepared for the proposed Rogerhill Solar and BESS (Natural Power, 2024).

Planning Policy Context

National Planning Policy

4.8 The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 introduced a target of net zero greenhouse gas emissions by 2045 in Scotland. Climate Change Plans set out the Government's policies and proposals to enable carbon budgets to be met and the most recent Draft for 2026- 2040 notes that Scotland is now over halfway to achieving this target. To deliver an energy system that meets this challenge it is noted "there will need to be an unprecedented investment in grid infrastructure and the development of grid storage while considering the potential impacts on local communities, on Scotland's habitats, wildlife and landscapes"[15].

4.9 The National Planning Framework 4 (NPF4) adopted in 2023 places climate and nature at the centre the planning system with clear support for all forms of renewable, low carbon and zero emission technologies, including transmission and distribution infrastructure. NPF4 sets out the policies and proposals for the development and use of land, and long term spatial strategy to 2045.

4.10 Significant developments of national importance are identified to deliver the spatial strategy. Eighteen national developments support the NPF4 strategy and include with reference to the delivery of sustainable places, "strategic renewable electricity generation and transmission infrastructure"[16]. National development (No 3) supports "electricity generation and associated grid infrastructure throughout Scotland, providing employment and opportunities for community benefit, helping to reduce emissions and improve security of supply"[17]. New high voltage grid connections of 132kV or more, and associated infrastructure such as substations are noted to be national development within the context of NPF4.

4.11 With reference to Energy, Policy 11 aims to encourage, promote, and facilitate all forms of renewable energy both onshore and offshore. All renewable development proposals will be supported, and it is noted this includes "enabling works, such as grid transmission and distribution infrastructure"[18]. Environmental impacts of such developments are to be addressed in the project design and mitigation. It is noted that in the consideration of impacts "significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets"[19]. With specific reference to grid infrastructure proposals, it is noted that "consideration should be given to underground connections where possible"[20].

4.12 With reference to the environment and biodiversity, NPF4 notes that "development proposals for national, major or EIA development will only be supported where it can be demonstrated that the

[15] Scottish Government (2025) Draft Climate Change Plan 2026-2040, Annex 2 p78

[16] Scottish Government (2023) National Planning Framework 4. p 7

[17] Scottish Government (2023) National Planning Framework 4. p 7

[18] Scottish Government (2023) National Planning Framework 4. p 53

[19] Scottish Government (2023) National Planning Framework 4. p 54

[20] Scottish Government (2023) National Planning Framework 4. p 54

proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention"[21]. This planning aim for biodiversity is embodied in Policy 3.

4.13 Protection of carbon rich soils, peatland restoration and the requirement to minimise disturbance to soils by development is covered by Policy 5. This notes that development proposals on peatland, carbon-rich soils and priority peatland habitat will only be supported in a few specific circumstances including "Essential infrastructure and there is a specific locational need and no other suitable site"[22].

4.14 Policy 6 aims to protect and expand forestry, woodland, and trees. In particular, it is noted that development proposals will not be supported where there is "any loss of ancient woodlands" or "adverse impacts on native woodlands, hedgerows and individual trees of high biodiversity value"[23]. Proposed development which requires woodland to be removed will only be supported where this "will achieve significant and clearly defined additional public benefits" and "compensatory planting will most likely be expected to be delivered"[24].

4.15 The protection and enhancement of historic environment assets and places is afforded by Policy 7. This aim encompasses non designated historic sites and their setting, and wherever possible should be protected in situ. It is noted that where there is potential for non designated buried archaeological remains to exist, developers should "provide an evaluation of the archaeological resource at an early stage so that planning authorities can assess impacts"[25].

Local and Strategic Planning Policy

4.16 The following Local Development Plans (LDPs) cover the Study Area: -

- South Lanarkshire LDP2 2021[26]
- Glasgow and Clyde Valley Strategic Development Plan 2017
- East Ayrshire LDP2 2024

4.17 The South Lanarkshire LDP2 (2021) overall strategic vision is encompassed in Volume 1 by Policy 1 Spatial Strategy which states "The spatial strategy of LDP2 will encourage sustainable economic growth and regeneration, move towards a low carbon economy, protect the natural and historic environment and mitigate against the impacts of climate change"[27].

4.18 South Lanarkshire is one of eight local authorities that form the Clydeplan Strategic Development Planning Authority (SDPA). The second Strategic Development Plan (SDP) was approved in July 2017 and aims to support economic competitiveness and social cohesion whilst acknowledging the need to adopt a sustainable environmental approach. Clydeplan SDP 2017 supports the transition to a low carbon economy (Policy 10). Other relevant strategic planning policy statements include the retention and expansion of woodland.

[21] Scottish Government (2023) National Planning Framework 4. p 9

[22] Scottish Government (2023) National Planning Framework 4. p 42

[23] Scottish Government (2023) National Planning Framework 4. p 44

[24] Scottish Government (2023) National Planning Framework 4. p 44

[25] Scottish Government (2023) National Planning Framework 4. p 46

[26] South Lanarkshire Council (2021) SLLDP2

[27] SLLDP Vol 1 (2021) p 11

4.19 The Planning (Scotland) Act 2019 removed the statutory requirement to prepare a SDP and replaced it with a duty to prepare a Regional Spatial Strategy (RSS). The most current Clydeplan SDP remains in force until both NPF4 and the RSS are adopted. The RSS will guide future long term strategic development and use of land in the public interest and is expected to be adopted shortly. In the interim, Clydeplan have also prepared a Development Plan Scheme and Participation Statement.

4.20 The East Ayrshire LDP2 (2024) overall vision states "East Ayrshire will be a net zero place with a thriving and diverse environment…" A series of aims underpin and relate directly to this vision including "1. Reduce the effects of climate change and contribute to net zero targets"[28].

Key Landscape Features of the Study Area (Figures 4.1- 4.4)

Landform

4.21 The landform encompassing the proposed Rogerhill Solar and BESS and Coalburn North Substation is low lying and undulating. Higher ground is gently sloping ascending to the rounded hill tops to the west (Warlaw Hill 338m/ Black Hill 337m) and east (Black Hill 290m). Through the rolling lowlands the River Nethan, Avon Water and Douglas Water meander north eastwards along steep sided narrow valleys to join the River Clyde. A series of smaller watercourses run perpendicularly into these larger rivers.

4.22 To the east of Coalburn North Substation is the flat low-lying expanse of Coalburn Moss. To the south, this flat level area is punctuated by manmade spoil heaps. Beyond the settlement of Coalburn the land rises to the south to a plateau of dome shaped hills with the high point of Common Hill (488 m AOD).

Landcover

4.23 The landcover of the undulating lowlands is primarily fields of improved and semi improved pasture, bounded by post and wire fences, hedges, mature remnant field boundary and hedgerow trees (predominantly Beech), and drystone walls in more elevated areas. In a few places mature Beech trees on drystone walls form hedgebank field boundaries. Fields are in general large, rectilinear and evenly spaced. The upper slopes and hills tops are unimproved rough grassland and moorland with few trees.

4.24 Areas of mixed woodland are primarily associated with historic estates and designed landscapes, and along the valley slopes of the River Nethan and other watercourses. Shelter belts and smaller areas of woodland are located adjacent farmsteads, scattered properties, along dismantled railway lines and the M74 corridor. To the west of Lesmahagow there a number of shelterbelts aligned in a north west to south east direction

4.25 Many of the smaller woodland areas in the Study Area are Ancient Woodland or Long Established Woodland of Plantation Origin (LEWPO). Ancient Woodland is defined as land that is currently wooded and has been continually wooded at least since 1750. Long Established Woodland of Plantation Origin (LEWPO) are woodland plantations "that were apparently planted

[28] East Ayrshire (2024) LDP2 Vol 1 p 17

before 1860".[29] The Ancient Woodland Inventory (AWI) notes 'the most important woodlands in natural heritage terms are those which are defined as ancient and semi natural".[30] There is no legislation specifically protecting ancient woodland, but current NPF 4 Policy 6 and the SLLDP2 Planning Policy 14 aim to protect and enhance such areas.

4.26 A number of the coniferous and mixed plantations in the Study Area form part of the Lesmahagow Forest Plan (FLS, 2023). Larger coniferous plantations encompass the upland plateau to the south.

4.27 Coalburn Moss and other low lying marsh and bog areas in the Study Area are mainly rough grassland and wet heath fringed with birch dominant broadleaved woodland.

Landuse

4.28 The landuse of the Study Area is primarily agricultural land with sheep and cattle grazing. Some fields have been planted with willow coppice as a crop. Throughout the lowland area are scattered farmsteads and isolated properties.

4.29 The main settlements in the Study Area of Kirkmuirhill, Blackwood, Lesmahagow and Coalburn are associated with the historic and current transport routes, former estates and the past mining industry. To the south west of the Study Area is the retirement complex of Auchlochan Garden Village and Hollandbush Golf Course.

4.30 Aligned in a north south direction through the lowlands is the major transport corridor of the M74. A network of roads pass through the area, many historic, associated with past trading posts and industry in the area or following the routes of the main rivers and other watercourses. A number of dismantled railway lines also cross through the area associated with past mining.

4.31 An existing 400kV overhead line crosses the Study Area from the north west to south east passing between Coalburn Substation and Coalburn North Substation. The overhead line is supported on lattice steel towers ranging in height from 40m-60m.

4.32 Much of the higher ground is open rough grazing with large scale commercial forestry plantations. To the south and east are the former open cast mining areas at Dalquhandy and Broken Cross Muir.

4.33 The large wind farms of Nutberry, Hagshaw, Douglas West and Broken Cross are located to the south and east of the Study Area. Single and small groups of wind turbines are located on higher ground to the north, west and east of the Study Area.

Landscape Designations **(Figure 4.2)**

4.34 No international or national landscape designations are located within the Study Area.

4.35 The following regional local landscape designations are in the Study Area as indicated in **Figure 4.2**.

- Middle Clyde Valley Special Landscape Area (SLA)- South Lanarkshire

[29] SNH (1997) The inventory of Ancient and Long Established Woodland Sites and the Inventory of Semi Natural Woodlands

[30] SNH (1997) The inventory of Ancient and Long Established Woodland Sites and the Inventory of Semi Natural Woodlands

- Douglas Valley Special Landscape Area (SLA)- South Lanarkshire
- Uplands and Moorlands Local Landscape Area (LLA)- East Ayrshire

4.36 To the east of the settlements of Blackwood, Kirkmuirhill and Lesmahagow is designated the Middle Clyde Valley Special Landscape Area (SLA). The significance of this area which encompasses the historic New Lanark World Heritage Site "lies in a combination of landscape qualities and uniquely important sites".[31]

4.37 To the south east of the Study Area is designated the Douglas Valley SLA. The significance of this area is noted to be the "combination of scenic and cultural features"[32]. Special Landscape Areas are protected by Policy NH16 of the SLLDP2 which notes that both "Within the SLAs and the wider landscape of South Lanarkshire, development proposals should maintain and enhance landscape character"[33].

4.38 The Uplands and Moorlands Local landscape Area (LLA) is located to the south west of the Study Area and is protected by Policy NE3 of the in East Ayrshire LDP2 (2024). LLAs "are areas in which the character and quality of the landscape makes them particularly sensitive to new development"[34].

4.39 The key landscape qualities and characteristics of this area are summarised as follows: "In the main a bold and large- scale but simple, rolling landscape of open, rounded top hills that form the backdrop to the eastern parts of East Ayrshire, the yellow and ochre colours of the moorland areas contrast with the dark greens of the coniferous and plantation woodlands. The combination of natural features and the lack of roads and access gives an impression of landscapes that are more extensive, remote and higher than is actually the case"[35].

4.40 The proposed Rogerhill Solar and BESS development and Coalburn North Substation are located within the "Rural Area" protected by Policy 4 of the SLLDP (2021), where "the Council seeks to protect the amenity of the countryside"[36].

4.41 There are few designated heritage features in the surrounding area. Listed Buildings are primarily located within Lesmahagow and other main settlements. Other notable Listed Buildings in the Study Area is the dovecot at Blackwood House, church in Kirkmuirhill, Birkwood House to the south of Lesmahagow and Auchlochan Bridge to the west of Coalburn North Substation. Two Scheduled Monuments are located to the east of Kirkmuirhill encompassing the prehistoric fort and cairn at the top of Black Hill and burial mound on the northern slopes. A footpath leads up to the top of the hill and is a noted viewpoint. A further Scheduled Monument is located in the Study Area at Craighead Mill to the north east of Lesmahagow. The centre of Lesmahagow is a designated Conservation Area.

[31] Ironside Farrar (2010) Validating Local Landscape Designations p 10

[32] Ironside Farrar (2010) Validating Local Landscape Designations p 21

[33] SLLDP Vol 2 (2021) p 69

[34] EAC (2024) LDP2 p 77

[35] EAC (2024) Local landscape Areas. Draft Supplementary Guidance p 17

[36] SLLDP (2021) p 16.

4.42 Reference to historic maps[37] encompassing the Study Area indicates the main changes to the agricultural landscape has been the loss of field boundary hedgerow trees, shelterbelts and woodland. Other changes include: the expansion of the settlements of Kirkmuirhill, Blackwood, Boghead and Lesmahagow: the past alignment of now dismantled railways servicing the mining industry; and decline of large estate houses and associated designed landscapes of Blackwood and located along the River Nethan, Auchtyfardle, Birkwood, Auchlochan and Stockbriggs.

4.43 The Inventory of Gardens and Designed Landscapes managed by Historic Environment Scotland (HES) includes private gardens, parks, country estates and botanical gardens. Inclusion within the inventory means that it receives recognition and a degree of protection through the planning system.

4.44 One inventory garden and designed landscape is located in the Study Area. The Falls of Clyde encompasses a section of the Clyde valley west of the settlement of Lanark and is described as "one of the most significant examples of the picturesque movement of the late 18th century in Scotland. It incorporates New Lanark, and the estates of Corehouse, Bonnington, Braxfield and Castlebank Park."[38]

Landscape Character Assessment **(Figure 4.3)**

4.45 NatureScot (NS) (formerly Scottish Natural Heritage (SNH)) undertook a series of Regional Landscape Character Assessments (LCAs) following established guidance[39] covering the whole of Scotland in the 1990s. Building on the original Landscape Character Assessment studies, this information has now been updated by NatureScot at the level of Landscape Character Type (LCT) to create a single dataset[40] for the review of development proposals, plans and strategies. LCTs are "areas of consistent and recognisable landscape character"[41].

4.46 The different LCTs in the Study Area are listed below and indicated in **Figure 4.3**.

- Rolling Farmland- Glasgow and Clyde Valley (200)
- Plateau Farmland- Glasgow and Clyde Valley (201)
- Incised River Valleys (204)
- Upland River Valley - Glasgow and Clyde Valley (207)
- Broad Valley Upland (208)
- Plateau Moorland -Glasgow and Clyde Valley (213) and Ayrshire (78)
- Broad River Valley- (219)

4.47 The proposed Rogerhill Solar and BESS development, and Coalburn North Substation are located in the Plateau Farmland- Glasgow and Clyde Valley LCT (201). The River Nethan and Logan Water which flows northwards across the Study Area is identified as Upland River Valley LCT (207). To the east of Kirkmuirhill, the River Nethan is encompassed by the Incised River Valley LCT (204) which also extends along the River Clyde to the north west of Lanark. Further

[37] Ordnance Survey 1858 6 inches to 1 mile.

[38] HES (-) Inventory Garden and designed landscape. The Falls of Clyde GDL00358.

[39] Landuse Consultants (1991) Landscape Assessment Principles and Practice & Countryside Commission (1993) Landscape Assessment Guidance (CCP423).

[40] NatureScot (2019) Scottish Landscape Character Types Map and Descriptions.

[41] https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/landscape-character-assessment-scotland

north the River Clyde is encompassed by the Broad River Valley LCT (219). South east of Lanark is identified as Rolling Farmland LCT (200).

4.48 To the south of the Study Area the Douglas Water is also identified as Upland River Valley LCT and links to the Broad Valley Upland LCT (208) to the immediate north east. The higher ground to the south west of the Study Area in South Lanarkshire and East Ayrshire is encompassed by the Plateau Moorland LCT (78, 213).

4.49 The Plateau Farmland Glasgow and Clyde Valley LCT (201) is described as a transitional landscape between the sheltered farmed lowlands and broad valleys, and the exposed uplands and moorlands. It is noted that a key characteristic of this LCT is that the rural character "has reduced as tree cover has declined and the visual influence of settlements, transport infrastructure and mineral working has increased".[42] In terms of perception it is noted "There are wide views across this open, transitional LCT, but few visual foci. The area appears in the foreground when seen in views from or towards adjacent moorland and hills…..There are some rural areas which have a tranquil character"[43].

4.50 The Upland River Valley LCT (207) encompasses areas where tributaries of the Clyde have cut shallow valleys into the plateau moorland and farmland, and in the Study Area includes the River Nethan, Logan Water and Douglas Water. Such landscapes provide "a strong contrast between the wooded and settled character of the valleys and the exposed enclosing uplands"[44]. In terms of landcover a characteristic pattern "is that of lines of field boundary trees (often Beech), together with small to medium scale woodland belts (often coniferous) which extend up the slopes often following drainage channels, hugging gullies and framing terraces. The woodlands are predominantly broadleaf, although small conifer plantations (usually distinctive pine belts), occupy sites on the valley slopes"[45].

4.51 The Incised River Valley LCT (204) extends along the River Nethan to the north east of Kirkmuirhill and the Mid Clyde valley to the west of Lanark. A key characteristic of this LCT is that the steep sided valleys cut deeply into the plateau farmlands and are often hidden within the wider landscape. Rich broadleaf woodlands encompass the steep slopes and where wide enough there is agriculture along the sheltered fertile valley floor with mixed pasture, arable, market gardens and orchards. It is noted that the wider Clyde Valley has been traditionally used for fruit and market gardening and the more confined Nethan valley for woodland coppicing. The incised valleys are also noted to have been strong defensive locations apparent in the variety of historic towers and castles including Craignethan Castle to the south west of Crossford. In terms of perception, it is noted that "the combination of physical features (incised valleys, gorges), woodland, characteristic patterns of landuse and settlement (particularly the history of fruit growing and horticulture) has created a distinctive and high quality landscape"[46].

4.52 To the north west of Lanark is the Broad River Valley LCT (218) which encompasses a broad section of the River Clyde valley between Crossford and Hamilton. This is distinguished from the

[42] NatureScot (2019) Scottish Landscape Character Types Map and Descriptions. LCT 201 p 1

[43] NatureScot (2019) Scottish Landscape Character Types Map and Descriptions. LCT 201 p 3

[44] NatureScot (2019) Scottish Landscape Character Types Map and Descriptions. LCT 207 p 1

[45] NatureScot (2019) Scottish Landscape Character Types Map and Descriptions. LCT 207 p 2.

[46] NatureScot (2019) Scottish Landscape Character Types Map and Descriptions. LCT 204 p 3

nearby Incised River Valley LCT and urban valley downstream due to the lack of development and primary landuse of agriculture.

4.53 The Broad Upland Valley LCT (208) extends along the Douglas Water to the south east of the Study Area. This is described as a medium to large scale landscape comprising of a broad, flat bottomed, basin like valley enclosed by rounded hills.

4.54 To the south and west of the Study Area is the Plateau Moorland LCT (213) which is described as having a "distinctive upland character created by the combination of elevation, exposure, smooth plateau landform, moorland vegetation"[47]. It is noted that a key characteristic is the "sense of apparent naturalness and remoteness which contrasts with the farmland and settled lowlands, although this has been reduced in places by wind energy development"[48]. This LCT is distinguished by the geology of resistant basalts and tufts, with neatly rounded hills and gently sloping ridges. Rivers draining from these hills tend to follow fault lines and many have been glacially enlarged to form lowland corridors through the moorlands which are encompassed by the Upland River Valley LCT (207).

Key Visual Qualities of the Study Area

Visual Spaces

4.55 In summary the main visual spaces of the Study Area are:

- the River Nethan valley where views are contained and focussed along or across the valley;
- the rolling pastoral lowlands where there are more open views across the surroundings undulating topography which is contained in places by areas of woodland, settlements, M74 and surrounding higher hills to the west, south and east;
- extensive long distance views afforded from more elevated areas.

4.56 In addition to stationary vantage points, transient views are also afforded of the Study Area from roads crossing the area which includes the M74, A70, B7086, B7018, B7078, minor roads and network of footpaths and cycle routes.

Visual Receptors

4.57 The main visual receptors located in the Study Area are: residential encompassing the settlements of Kirkmuirhill, Blackwood, Stonehouse, Boghead, Lesmahagow, New Trows, Auchlochan and Coalburn, smaller villages, scattered properties and farmsteads; recreational including visitors to attractions in the area such as Black Hill viewpoint; users of the public footpaths and cycle paths; and travellers using the motorway and other roads passing through the Study Area.

Protected Areas and Features (Figures 4.1- 4.4)

Nature Conservation **(Figure 4.2)**

4.58 Available information from ecological surveys and reporting for the proposed Rogerhill Solar and BESS and consented Coalburn North Substation (Natural Power, 2024, AECOM, 2022 and

[47] NatureScot (2019) Scottish Landscape Character Types Map and Descriptions. LCT 213 p 1

[48] NatureScot (2019) Scottish Landscape Character Types Map and Descriptions. LCT 213 p 1

SPEN, 2024) has been reviewed to inform potential nature conservation interest in the Study Area.

4.59 The Glasgow Museums Biological Records Centre (GMBRC) are currently not accepting data requests. As such, no records centre search of the Study Area has been undertaken. Review of the Proposed Rogerhill Solar Farm Environmental Report (Natural Power, 2024) and Chapter 4 of the Coalburn North Substation Environmental Appraisal (SPEN, 2024) indicate that the GMBRC has been closed to formal data searches since 2023.

Designated Sites Summary

4.60 Table 4.1 below describes the designated sites of international importance found within the Study Area and the reason for their designation.

Table 4.1: Statutory Designated Sites of International Importance within the Study Area

Site Name and Closest Point	Reason for Designation
Coalburn Moss SAC (c.100 m south of Coalburn North Substation)	Supports large continuous areas of Annex I active raised bog habitat, of which the area is one of the largest in central Scotland and considered one of the best in the United Kingdom. The SAC also supports smaller areas of degraded raised bog capable of natural regeneration, also an Annex I habitat though not a primary reason for its designation.
Clyde Valley Woods SAC (c. 1.1 km north-east of proposed Rogerhill Solar & BESS)	SAC comprises several parcels of Annex I *Tilio-Acerion* forests in a wooded gorge setting, and represents the most extensive and complex example of the habitat in Scotland. Although the SAC is beyond the northern limit of lime *Tilia spp,* the site possesses all other characteristic features of *Tilio-Acerion* habitat.
Muirkirk and North Lowther Uplands SPA (c. 7.3 km west of Coalburn North Substation)	Regularly supports breeding Annex I bird species including hen harrier *Circus cyaneus* (29 breeding females, 6% of GB population between 1991 – 1998), short-eared owl *Asio flammeus* (26 pairs, 3% of GB population 1997 – 1998) merlin *Falco columbarius* (9 pairs, 0.7% of GB population 1989 – 1998), peregrine *Falco peregrinus* (6 pairs, 0.5% of GB population 1992 – 1996) and golden plover *Pluvialis apricaria* (154 pairs, 0.7% of the GB population 1999). The site is noted as one of the best in Great Britain for merlin, peregrine and golden plover.

4.61 No other SPAs or Ramsar Sites designated for wintering geese / swans were identified within 20 km.

4.62 Table 4.2 below describes designated areas of national importance found within the Study Area and the reason for their designation:

Table 4.2: Statutory Designated Sites of National Importance within the Study Area

Site Name and Closest Point	Reason for Designation
Coalburn Moss SSSI (c.100 m south of Coalburn North Substation)	Shares designated features and area with Coalburn Moss SAC as described in Table 4.1 above.
Upper Nethan Valley Woods SSSI (c. 1.1 km	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above.

east of proposed Rogerhill Solar & BESS)	
Cander Moss SSSI (c. 2.6 km north of proposed Rogerhill Solar & BESS)	Remnant area of formerly extensive raised bog habitat, with well-developed surface topography featuring dry hummocks and wet flushes, supporting a mixture of typical raised bog vegetation including *sphagnum* species.
Nethan Gorge SSSI (c. 4.3 km north-east of proposed Rogerhilll Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above. Also designated for supporting an important assemblage of uncommon woodland beetles associated with leaf litter, underground fungi and dead wood, including the nationally scarce *Cerylon fagi, Tetratoma ancora* and *Ptinomorphus imperialis*.
Clyde Valley Woodlands NNR (c. 4.3 km north-east of proposed Rogerhill Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above.
Townhead Burn SSSI (c. 4.9 km north-east of proposed Rogerhill Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above.
Avondale SSSI (c. 5.1 km north of the proposed Rogerhill Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above.
Birkenhead Burn SSSI (c. 5.9 km west of Coalburn North Substation)	Notified for geological interest only.
Fiddler Gill SSSI (c. 6.3 km north-east of the proposed Rogerhill Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC, described in Table 4.1 above. Also designated for supporting an important assemblage of uncommon woodland beetles associated with leaf litter, underground fungi and dead wood, including the nationally rare *Orthoperus brunnipes* and the nationally scarce *Cerylon fagi, Tetratoma ancora* and *Orchesia minor*.
Milton-Lockhart Wood SSSI (c. 6.4 km north-east of the proposed Rogerhill Solar & BESS)	Notified for its beetle assemblage only, the site is one of the most important sites for saproxylic beetle species in south central Scotland, as a result of the site's varied topography and ecological niches. The beetle assemblage includes the Red Data Book listed beetles *Atomaria procerula* and *Melolontha hippocastani*; the nationally scarce saproxylic beetles *Abdera flexuosa*, *Cerylon fagi* and *Orchesia micans*; and the regionally scare saproxylic beetles *Cis fagi, Dacne bipustulata* and *Mycetophagus quadripustulatus.*
Gills Burn and Mare Gill SSSI (c. 6.4 km north-east of the proposed Rogerhill Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above.
Falls of Clyde SSSI (c. 6.6 km north-east of Coalburn North Substation)	Designated for its geological features and for supporting semi-natural upland mixed ashwood habitats, with a rich understorey and ground flora, including two nationally scarce grasses: lesser hairy brome *Bromopsis benekenii* and wood fescue *Festuca altissimia*.

Muirkirk Uplands SSSI (c. 7.3 km west of Coalburn North Substation)	Designated for its geological features, low-lying blanket bog, wet and dry heath habitat assemblage, and breeding bird assemblage, as described in the Muirkirk and North Lowther Uplands SPA, which the SSSI forms part of (Table 4.1).
Jock's Gill Wood SSSI (c.7.6 km north-east of the proposed Rogerhill Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above.
Dunside SSSI (c. 7.6 km west of Coalburn North Substation)	Notified for geological interest only.
Milburn SSSI (c. 7.9 km north of the proposed Rogerhill Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above.
Cartland Craigs SSSI (c. 8.2 km west of the proposed Rogerhill Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above.
Miller's Wood SSSI (c. 8.4 km south of Coalburn North Substation)	Notified for its upland birch woodland, a regionally rare habitat in South Lanarkshire. The canopy is dominated with even-aged and dying birch. Both silver birch *Betula pendula* and downy birch *Betula pubescens* are represented in the canopy.
Birk Knowes SSSI (c. 8.9 km west of Coalburn North Substation)	Notified for geological interest only.
Garrion Gill SSSI (c. 8.9 km north of the proposed Rogerhill Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above.
Tinto Hills SSSI (c. 9.8 km south-east of Coalburn North Substation)	Notified for its geological features and for its subalpine dry heath and upland assemblage habitats. The site supports characteristic upland flora including stiff sedge *Carex bigelowii* and mountain crowberry *Empetrum nigrum*.
Shiel Burn SSSI (c. 9.3 km south-west of Coalburn North Substation)	Notified for geological interest only.
Cleghorn Glen SSSI (c. 9.3 km west of the proposed Rogerhill Solar & BESS)	Shares designated features with and comprises part of the Clyde Valley Woods SAC as described in Table 4.1 above. Also designated for supporting an important assemblage of invertebrates associated with leaf litter, underground fungi and dead wood, including the nationally rare beetle *Orthoperus brunnipes,* the nationally rare caddisfly *Adicella filicornis* and the nationally rare snail *Succinea oblonga*. Also supports the nationally scarce beetles *Bolitochara mulsanti* and *Datomicra zosterae,* nationally scarce flies *Dactylolabis transversa* and *Oxycera pardalina* and the nationally scarce hoverflies *Brachyopa insensilis* and *Aulacigaster leucopeza*.

4.63 With the exception of Coalburn Moss SAC & SSSI, Muirkirk and Lowther Uplands SPA & SSSI, Birk Knowes SSSI, Dunside SSSI and Birkenhead Burn SSSI, all designated sites listed above are separated from the main Study Area by the M74 motorway.

Bird interest Summary

4.64 Data from surveys and desk study undertaken for the proposed Rogerhill Solar and BESS (Natural Power, 2024) and the Coalburn North Substation (SPEN, 2024 and AECOM, 2022) was used to inform the bird interest in the Study Area.

Proposed Rogerhill Solar and BESS

4.65 The Scottish Raptor Study Group was contacted in October 2023 as part of the desk study for the proposed Rogerhill Solar and BESS to determine the presence of any bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), Annex I of the European Birds Directive, or any raptors listed on the Birds of Conservation Concern (Stanbury et al, 2021) within 2 km of the site. No records were returned.

4.66 Breeding bird surveys were carried out for the proposed Rogerhill Solar and BESS environmental appraisal (Natural Power, 2024). Breeding bird surveys covered the proposed Rogerhill Solar and BESS site, which is located on predominantly livestock grazed pastureland (Ordnance Survey Grid Reference NS 78568 43195). A total of four survey visits were carried out during the 2023 breeding bird period in suitable weather conditions in accordance with survey methods laid out in Brown and Shepherd (1993).

4.67 Bird surveys covered the breeding period only. Non-breeding birds were scoped out of field surveys following a desk study review that indicated that there were no sites designated for non-breeding birds within 10km. This approach was 'determined acceptable by NatureScot' following consultation in October 2023[49].

4.68 Breeding bird surveys carried out in the breeding season during 2023 recorded 44 species in total, twenty of which were classified as Red or Amber list species per Stanbury *et al* (2021), including house martin, mistle thrush, greenfinch, swift, starling, house sparrow, linnet, stock dove, woodpigeon, sparrowhawk, willow warbler, whitethroat, wren, meadow pipit, lesser black-backed gull, rook, song thrush, dunnock, bullfinch and siskin. The remaining 24 species recorded were Green listed species deemed to be not of conservation concern.

4.69 Overall bird species recorded, comprised typical passerine species associated with semi-natural woodland and rural settings. Surveys did not record any waders or geese.

Coalburn North Substation

4.70 Desk study undertaken by AECOM (2022) for a Preliminary Ecological Appraisal for the Coalburn North Substation included a data search with GMBRC, which returned several records of bird species on the BoCC Red List (Stanbury *et al,* 2021) and the Scottish Biodiversity List within 2 km of the Site, including: barn owl; black-headed gull; bullfinch*;* cuckoo; fieldfare; grasshopper warbler; greenfinch; herring gull; house martin; house sparrow; mistle thrush; siskin; song thrush; starling and swift.

[49] Natural Power (2024) Rogerhill Solar Farm Environmental Report: Para 4, p 4

4.71 Assessment at the Coalburn North Substation concluded that there was no suitable habitat on site to support breeding of the majority of these species and that there was very low potential for protected bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) to nest in proximity of the site.

4.72 The Preliminary Ecological Appraisal undertaken by AECOM (2022) concluded that 'Barn owl could hunt in the rough and marshy grasslands outside the Site, and further afield across the raised bog at Muirkirk and Lowther Uplands, but there are no apparent roosting / nesting opportunities on the site''[50].

Habitat Interest Summary

4.73 Available information from ecological reporting for both the proposed Rogerhill Solar and BESS (Natural Power, 2024) and the Coalburn North Substation (SPEN, 2024 and AECOM, 2022) was reviewed to inform potential nature conservation interest in the Study Area.

Proposed Rogerhill Solar and BESS

4.74 A Phase 1 Habitat Survey (JNCC, 2016) was carried out for the proposed Rogerhill Solar and BESS in 2023. Detailed NVC survey was not undertaken due to the lack of diverse vegetation present. The surveys covered the proposed Rogerhill Solar and BESS site and a 250 m buffer. Not all habitats within the 250 m buffer could be surveyed due to access restrictions (see Figure 4, Natural Power, 2024).

4.75 The following habitats were recorded at the proposed Rogerhill Solar and BESS:

- A1.1.1 – Broadleaved woodland – semi-natural
- A1.1.2 – Broadleaved woodland – plantation
- A1.2.2 – Coniferous woodland – plantation
- A1.2.1 – Mixed woodland – semi-natural
- A2.2 – Scrub – scattered
- A3.1 – Broadleaved parkland / scattered trees
- A3.3 – Mixed parkland / scattered trees
- B4 – Improved grassland
- B6 – Poor semi-improved grassland
- J1.1 – Cultivated land – arable
- J3.6 – Buildings
- J5 – Other habitat (roads)
- G2.1 – Running water – eutrophic
- J2.1.1 – Intact hedge – native species-rich
- J2.1.2 – Intact hedge – species-poor
- J2.2.2 – Defunct hedge – species-poor
- J2.3.2 – Hedge with trees – species-poor
- J2.4 - Fence

4.76 Improved grassland (B4) was the dominant habitat on site and in the surrounding area as much of the land use was grazing pasture.

[50] SPEN (2024) Proposed Coalburn North Substation Environmental Appraisal Report: Para 4.58, p 36

4.77 None of the Phase 1 habitats recorded at the proposed Rogerhill Solar and BESS site were indicators of potential Groundwater Dependent Terrestrial Ecosystems (GWDTEs) as classified in SEPA guidance (SEPA, 2017).

Coalburn North Substation

4.78 Phase 1 Habitat Survey (JNCC, 2016) undertaken by AECOM (2022) for the Coalburn North Substation surveyed habitats on and adjacent to the substation site where accessible (as shown in Figure 4, AECOM 2022). A repeat survey undertaken by Solway Ecology in 2023 confirmed that habitat conditions had not changed significantly since 2022.

4.79 The following habitats were recorded at the Coalburn North Substation site:

- A1.1.2 – Broadleaved woodland – plantation
- A1.2.2 – Coniferous woodland – plantation
- A2.1 – Scrub – dense / continuous
- A2.2 – Scrub – scattered
- B1.2 – Acid grassland – semi-improved
- B2.2 – Neutral grassland – semi-improved
- B5 – Marsh / marshy grassland
- B6 – Poor semi-improved grassland
- F1 – Open water / swamp
- J3.6 – Buildings

4.80 Coniferous plantation woodland was the dominant habitat on site, comprised of dense, immature sitka spruce plantation.

4.81 None of the habitats recorded on the Coalburn North Substation site itself were indicative of potential GWDTEs. However, the habitat survey did record B5 – marshy grassland habitat adjacent the site to the east. The area was subject to further survey and the following NVC habitats with potential to be GWDTEs (depending on hydrological setting) were found adjacent to the site:

- MG10 Holcus lanatus-Juncus effusus rush pasture and;
- M23a Juncus effusus/acutiflorus-Galium palustre rush pasture Juncus acutiflorus sub-community;

4.82 SEPA guidance (SEPA, 2017) indicates that, depending on the hydrological setting, NVC type MG10 is likely to be moderately groundwater dependent and M23 is likely to be highly ground water dependent. However, it was noted in the AECOM Report (2022) that these areas of marshy grassland may be sustained by rain / surface water flows as no obvious supply of groundwater was identified during the field survey.

Study Area

4.83 There are two main watercourses in the Study Area: the River Nethan, which flows through Auchlochan to the north west of Coalburn North Substation, and Cander Water, which flows through the proposed Rogerhill Solar and BESS site north west to reach the Avon Water. Both are tributaries of the River Clyde, located east of the Study Area beyond the M74, which supports populations of salmonid fish and river lamprey *Lampetra fluviatilis*, protected under Schedule 3 of the Habitats Regulations 1994.

4.84 There are several smaller watercourses present in the Study Area.

4.85 Scotland's Ancient Woodland Inventory (NatureScot, 2000) shows several areas of Long-Established Woodland of Plantation Origin within the Study Area. Isolated parcels are found throughout the River Nethan valley and Lesmahagow area, west of the M74 and an is located immediately to the north of Coalburn North Substation.

Faunal Interest Summary

Proposed Rogerhill Solar and BESS

4.86 Protected species walkover surveys were undertaken at the proposed Rogerhill Solar and BESS, targeting habitats suitable for otter, water vole, pine marten, badger and red squirrel.

4.87 Badger evidence was noted throughout the proposed Rogerhill Solar and BESS site. Otter spraint was noted along the west to east branch of Cander Water, a 20 m wide watercourse that flows through the proposed development site, suggesting use by commuting otter. Although habitats suitable for otter resting sites were present, no resting sites were found during the surveys.

4.88 No evidence of water vole was noted during the surveys at the proposed Rogerhill Solar and BESS. The Cander Water was considered unsuitable for the species due to its size and flow rate. Habitats on site were considered suitable to support reptile foraging, commuting and breeding, however no reptile evidence was noted.

4.89 Static bat detector were not undertaken at the proposed Rogerhill Solar and BESS. Preliminary bat roost assessment was undertaken in June 2023 to industry guidance current at that time (Collins, 2016)[51]. The surveys concluded that trees and structures on site displayed low to medium potential to support roosting bats.

4.90 No evidence or habitat suitability for other protected species was noted at the proposed Rogerhill Solar and BESS site.

4.91 No electrofishing surveys of Cander Water were undertaken.

Coalburn North Substation

4.92 Extended Phase 1 Habitat Surveys were carried out at the Coalburn North Substation by AECOM (2022) and updated by Solway Ecology in 2023 to search for evidence of and assess habitat suitability for badger, red squirrel, and reptiles.

4.93 No evidence of badger was recorded during the surveys. No evidence of red squirrel was recorded during the surveys. Evaluation of the habitat concluded that the coniferous and broadleaved plantation woodland present throughout the site was too young to support red squirrel.

4.94 No evidence of reptiles was recorded during the Phase 1 surveys, however the grassland, woodland and scrub edge habitat was considered suitable for use by reptiles. Although no

[51] Following the survey, bat survey guidelines were updated in October 2023 to their current fourth edition (Collins, 2023).

evidence was noted, presence in low numbers was assumed on a precautionary basis (SPEN, 2024).

4.95 A Preliminary Bat Roost Assessment was undertaken by AECOM in summer 2022 (AECOM, 2023) in accordance with guidance current at the time (Collins, 2016). The survey identified eight mature beech trees in the south-west area of the site that displayed low to moderate suitability for roosting bats. The plantation broadleaved and coniferous woodland that dominated the majority of the site was too young to support features suitable for roosting bats.

4.96 An assessment undertaken by AECOM (2023) concluded that the site displayed low suitability for foraging and commuting bats on account of its relatively poor quality habitat that is isolated from high-quality bat habitat in the wider area. Static detector and walked transect surveys were undertaken at the site which recorded low activity levels of at least six species including common pipistrelle, soprano pipistrelle, myotis species, brown long-eared bat, noctule, Leisler's bat, and nyctalus species. Activity was highest in off-site forestry rides and woodland edge habitat.

4.97 No evidence or habitat suitability for other protected species was noted at the Coalburn North Substation site.

Summary

4.98 Key natural heritage interests may include (subject to confirmation by survey):

- Notable habitats including ancient woodland, Annex 1 woodland habitat, blanket bog, wet and dry heath, marshy grassland, unimproved grassland and watercourses.
- Potential GWDTEs.
- Major watercourses that have potential to be used by salmonid fish, lampreys, otter and water vole (although no water voles have been found during surveys carried out for the proposed Rogerhill Solar and BESS). Minor watercourses that have potential to be used by otter and water vole.
- Breeding, non-breeding, foraging and passage birds in the area.
- Badgers, which may use habitats along the proposed overhead line route corridors and have been confirmed on the proposed Rogerhill Solar and BESS site.
- Bats, which may use habitats along the proposed overhead line route corridors.
- Red squirrels, which may use habitats along the overhead line route corridors (although no evidence was noted during surveys carried out for the proposed Rogerhill Solar and BESS and Coalburn North Substation).
- Pine marten, which may use habitats along the proposed overhead line route corridors (although no evidence was noted during surveys carried out for the proposed Rogerhill Solar and BESS and Coalburn North Substation).

4.99 Following review of the available historical data, including the results of survey work completed for the Proposed Rogerhill Solar and BESS (Natural Power, 2024) and the Coalburn North Substation (SPEN, 2024 and AECOM, 2022), the following survey work is proposed along the grid connection in this Study Area:

- Extended Phase 1 Habitat Survey and identification of wetland habitat within the Preferred Route corridor[52];

[52] The identification of wetland habitats is the first stage in the process of identifying and evaluating Ground Water Dependent Terrestrial Ecosystems. It is done with reference to SNIFFER (2009) WFD95: A Functional Wetland Typology for Scotland - Project Report. ISBN: 978-1-906934-21-7.

- NVC survey of GWDTEs that may be affected by the proposals;
- Breeding bird surveys (potentially including black grouse, raptor and wader surveys);
- Non-breeding bird surveys;
- Bat habitat assessment (including roost assessments where required);
- Badger survey of the route corridor and 30 m buffer;
- Red squirrel survey of suitable habitat within 250 m of the Preferred Route corridor;
- Pine marten survey of suitable habitat within the Preferred Route corridor;
- Otter and water vole survey of watercourse crossings;
- Assessment of habitat suitability for reptiles;
- Fish habitat assessment of watercourse crossings.

It is also recommended that consultation with NatureScot is undertaken to rule out the need for bird vantage point flight surveys.

Cultural Heritage **(Figure 4.2)**

4.100 Digital baseline information on known cultural heritage assets recorded within a square Assessment Study Search Area of 256 km^2 (NGR 272002, 640163 – 287997, 639807 by NGR 280199, 647997 – 279970, 632002) was obtained in April 2025 from datasets curated by Historic Environment Scotland (HES) and West of Scotland Archaeology Service (WoSAS), on behalf of South Lanarkshire and East Ayrshire Councils.

4.101 Within this search area, designated cultural heritage assets consist of:

- 11 Scheduled Monuments (SM) of national heritage value and with statutory protection. One of which is a Property in Care (Craignethan Castle (**SM 90083**)).
- 174 Listed Buildings (LB) with statutory protection (48 Category A (national heritage value); 81 Category B (regional heritage value); 45 Category C (local heritage value)).
- Six Conservation Areas (CA) of regional heritage value and with statutory protection.
- Two Inventory Garden and Designed Landscapes (GDL) of national heritage value: The Falls of Clyde (**GDL 358**) and Lee Castle (**GDL 257**).
- One World Heritage Site of outstanding universal value: New Lanark mill village (**WH 3**).

4.102 In addition to these assets, local authority Historic Environment Record (HERs) contain details of more than 1200 non-designated assets of archaeological and cultural heritage interest within the Assessment Study Search Area. Of these non-designated assets, eight are classified, in the HER entries, as potentially being of national heritage value (Non-Statutory Register (NSR) sites).

4.103 These assets are diverse in both their date and character, reflecting long term human occupation and exploitation of the landscape since early prehistory. They include (but are not limited to), prehistoric burial and ritual sites (standing stones, barrows), and settlements (hut-circles); Roman hillforts and roads; medieval castles, medieval to modern farming settlements; post-medieval occupation and widespread industrial remains (mills, quarries, coal mines, limeworks) including the large scale 18th century industrial mill landscape of New Lanark, and historic buildings and designed landscapes.

Geology and Hydrology **(Figures 4.2 & 4.4)**

4.105 This section presents an overview of the geological and hydrological information collated to date for the Study Area.

Soils and Peat

4.106 The soils mapped in the Study Area include non-calcareous gleys, peaty gleys, alluvial soils, brown soil and humus-iron podzols (Scotland's Soils, 2025). No peat is identified on the soils mapping.

4.107 No peat deposits are indicated on the British Geological Survey (BGS) digital mapping across the Study Area (BGS, 2025). The majority of the Study Area is indicated to be underlain by Glacial Till, comprising clay, sand and gravel. Alluvial deposits, comprising clay, silt, sand and gravel, are indicated to be present around small watercourses and waterbodies, including Birkwood Burn, Teiglum Burn and the River Nethan within the Study Area. There are also localised areas of Glaciofluvial deposits, comprising gravel, sand and silt, on top of the Glacial Till, indicated to be present throughout the Study Area.

4.108 The Carbon and Peatland Map (Scotland's Soils, 2025) gives a value to indicate the likely presence of carbon-rich soils, deep peat and priority peatland habitat. Mapping is divided into categories of non-soil, unknown soils, mineral soils, and Class 1 to Class 5 peatland. For peatland, Class 1 is assigned to nationally important carbon rich, deep peat or priority habitat peatland and indicate areas that are likely to be of high conservation value. Class 2 indicates that same national importance, but where the soils/peat/habitats have the potential to have high conservation value and restoration potential. Classes 3 to 5 are not priority habitats. Class 3 includes carbon rich soils and may include deep peat. Class 4 is unlikely to include carbon rich soils or peat. Class 5 is assigned to areas where no peatland habitat is recorded.

4.109 The majority of the soils in the Study Area are not classified as peatland. Coalburn Moss to the south east of Coalburn North Substation is recorded as Class 1 peatland and there are some small pockets identified as Class 3 and 4.

Bedrock Geology

4.110 The BGS digital mapping across the Study Area (BGS, 2025) indicates that the area around proposed Rogerhill Solar and BESS Substation is underlain by the Limestone Coal Formation, comprising sedimentary rock cycles. The area immediately north and south of Lesmahagow Road is indicated to comprise a combination of the Lower Limestone Formation and Top Hosie Limestone Formation, both sedimentary in nature. Bedrock to the north, west and south of Lesmahagow is indicated to comprise the Swanshaw Sandstone Formation. Coalburn North Substation and the intervening area to the west and northwest is indicated as comprising the sedimentary Lawmuir Formation and Limestone Coal Formation.

Mining

4.111 Information from the Mining Remediation Authority (formerly the Coal Authority) database (the Mining Remediation Authority, 2025) indicates that the area around the proposed Rogerhill Solar and BESS Substation and the Coalburn North Substation are located within Development High Risk areas. The area around the Coalburn North Substation is indicated as having been subject to past shallow coal mining works and is in a coal mine reporting area.

4.112 A Coal Mining Risk Assessment was prepared for the Rogerhill Solar and BESS (Wardell Armstrong, 2024). This identified a potential shallow mining risk from the Lochgelly Splint, Meiklehill Wee and Wilsontown Gas coal seams beneath the southern part of the Rogerhill Solar and BESS development area (within the Development High Risk area referred to above). Intrusive site investigations within the area of the proposed Rogerhill Solar and BESS Substation were recommended within the Risk Assessment.

4.113 A ground investigation for the Coalburn North Substation (Raeburn, 2023) reported that fifteen boreholes (BH01 to BH15) were sunk by cable percussive boring. Eight of these boreholes (BH01, BH03, BH08, BH09, BH10, BH11, BH14 and BH15) were continued into rock by rotary coring drilling methods. Borehole BH12A was carried out utilising rotary open hole and coring from ground surface. A review of the borehole and rotary core logs showed no indication of any previous mine workings below the Coalburn North Substation development area.

Hydrology

4.114 The River Nethan forms the predominant watershed within the Study Area. To the south of the proposed Rogerhill Solar and BESS is the Birkwood Burn and Teiglum Burn. Both of these minor watercourses discharge into the River Nethan.

4.115 The River Nethan has an overall SEPA classification of “Poor” and an overall ecology classification of “Poor”, as of 2023. It is likely that this classification is linked to barriers to fish movement. Neither of the burns noted above have SEPA water quality classifications.

4.116 Flood risk mapping published by SEPA (2022a) shows fluvial (river) flood risk is limited to the area immediately adjacent the River Nethan and Birkwood Burn. There is “high” (10% chance of flooding each year) and “medium” likelihood (0.5% chance of flooding each year) immediately adjacent to these watercourse channels.

4.117 There are areas of potentially “high” (10% chance of flooding each year) and “medium” (0.5% chance of flooding each year) likelihood of surface water flooding along the Teiglum Burn and also along various un-named burns to the west of Lesmahagow (SEPA, 2025). There are also localised small areas of “medium” (0.5% chance of flooding each year) to “high” likelihood of surface water flooding between the River Nethan and Coalburn North Substation. These appear to be associated with the upmost reaches of the watercourses or may be associated with topographic depressions.

Hydrogeology

4.118 Most of the bedrock geology within the Study Area is described as a moderate productivity aquifer (BGS, 2025). It is a multi-layered aquifer with potential moderate yields up to 10 L/s. Flow is virtually all through fractures and other discontinuities within the bedrock.

4.119 In areas of former underground mining, aquifers may have been contaminated historically by pollutants such as acidic mine drainage.

4.120 Private water supplies are possible, and the median yield from operational borehole records is up to 10 l/s.

4.121 Wetlands are of both hydrological and ecological importance. Ecological aspects of wetlands are discussed in the Ecology Section of this Chapter. The features mentioned here focus on the hydrological importance. The closest wetland of international importance is Coalburn Moss Special Area of Conservation (SAC) which is located approximately 190m south east of Coalburn North Substation.

4.122 The Scottish Wetland Inventory (Scotland's Environment, 2025) indicates that there are wetlands recorded within the Study Area. These wetland areas are concentrated in the west of the Study Area, on the eastern slopes of Black Hill, west of Woodlands Farm. Peatbog is the main wetland habitat mapped.

4.123 No potential groundwater dependent terrestrial ecosystems (GWDTE) were identified as part of the proposed Rogerhill Solar and BESS baseline survey work (Natural Power, 2024). Similarly, no potential GWDTE was identified at Coalburn North Substation. Given the underlying low permeability glacial till and lack of any identified wetlands within the Study Area, other than those identified on the eastern slopes of Black Hill, it is considered unlikely that GWDTE would be present.

4.124 The area to the west of Lesmahagow is identified as low likelihood of groundwater flooding (SEPA, 2025). This is where groundwater could influence the duration and extent of flooding from other sources, such as surface water (i.e. groundwater is a contributing factor rather than the primary source of flooding). SEPA defines groundwater flooding as being caused by water rising up from underlying rocks or flowing from springs.

Designated Sites

4.125 There are no international or national sites designated for their geological importance located within the Study Area (DEFRA, 2025). There are also no Geological Conservation Review sites (Scotland's Environment, 2025).

Summary

4.126 The baseline information indicates that the key geological and hydrological aspects of interest (i.e. likely receptors) located within the Study Area are:

- The quality and flow of water in the surface watercourses;
- Surface water and groundwater that provide sources of public and private water supply or feed into a protected drinking water area (quality and quantity);
- Infrastructure in areas that are at risk of flooding.
- Infrastructure in areas of mining risk.

Forestry (**Figures 4.1 & 4.2**)

4.127 The Study Area encompasses large areas of coniferous and mixed plantations owned and managed by Forest Land Scotland (FLS). The other main areas of commercial plantation are located at Broken Cross Muir to the east of Coalburn North Substation and the upland plateau to the south.

4.128 The majority of the FLS plantations in the Study Area were planted following the purchase of seven farms owned by Auchlochan Estate encompassing rough grazing, improved and semi improved grassland, riparian woodland, parkland, lowland raised bog, opencast coal restoration areas and ancient semi natural woodland. This area covering 1079.93 Ha now forms part of the Lesmahagow Forest and Land Management Plan (LMP) prepared in 2023, which sets out proposals for the next 10 years. New woodland creation planting was completed between 2012-2015, and a significant proportion of the land was retained as open ground (53%).

4.129 One of the original key objectives of the Forestry Commission (now FLS) was forest expansion, in both state and private forests, to produce a strategic reserve of timber, and consequently, a limited range of species was planted. More recently, greater emphasis has been placed on developing multi-purpose forests, which require a restructuring of age and species. Restructuring is achieved through the forest planning process. The LMP notes that the purchase of the land for Lesmahagow Forest was for two key reasons: as part of the "Woodland In and Around Towns Initiative", and as part of the Government's environmental policy of carbon fixing.

4.130 A Forest Plan, termed either The Land Management Plan (LMP) or Forest Design Plan (FDP) in the State sector, relates to individual forests or groups of woodlands. It describes the woodlands, places them in context with the surrounding area, and identifies issues that are relevant to the woodland or forest. Forest Plans describe how the long-term strategy would meet the management objectives of the owner, the criteria of the UK Forestry Standard (UKFS)[53] and the UK Woodland Assurance Standard 4th Edition (UKWAS)[54], under which the woodlands would be managed if certificated. The UKFS is the benchmark for sustainable forestry and Scottish Government is committed to its use. In addition to forestry and silvicultural considerations, the LMP covers other aspects, such as conservation, archaeology, landscape and the local community.

4.131 Restructuring of age class and species are important factors in this process to ensure proposals meet the current standards. A Forest Plan will typically contain felling and restocking proposals covering a 10 year period in detail, with outline proposals for the remainder of the forest. The current guidelines require diversification of species and woodland types as part of the forest planning process, specifically an increase in the proportion of broadleaf woodland, other conifers, and open ground.

4.132 The Lesmahagow LMP has a number of objectives for the period of 2023-2033 including: thinning requirements for mature and new woodland; removing Larch, to control the spread of disease; assessing the impact of Ash tree dieback; adding to biodiversity through appropriate design and management; protection of Coalburn Moss; and review of access to identified Visitor Zones and future development. These objectives were agreed following internal FLS discussions, detailed desk and site survey, and meetings with key stakeholders.

4.133 To describe the LMP proposals in detail the Lesmahagow Forest is divided into four geographically distinct sub blocks: Brocketsbrae; Lesmahagow; Auchlochan; and Braehead. Brocketsbrae (164.1Ha) is located to the east of Lesmahagow. The Lesmahagow block (603.3

[53] Forestry Commission (2017). The UK Forestry Standard: The Government's Approach to Sustainable Forestry, Forestry Commission, Edinburgh.

[54] UKWAS (2018). The UK Woodland Assurance Standard Fourth Edition, UKWAS, Edinburgh.

Ha) extends to the south of the settlement to the edges of Braehead and Coalburn and encompasses Coalburn Moss. The Auchlochan block (163.2Ha) extends to the south west of Lesmahagow and encompasses the woodland to either side of the River Nethan. The Braehead block (112Ha) is located to the south of the settlements of Coalburn and Braehead.

4.134 The proposals outline the felling plan for existing woodland, new woodland planting, and areas to be treated as Natural Reserves, minimum intervention, low impact silviculture and open ground. Maps 8 and 10 of the LMP indicate in detail the Forest Management Coupes[55] and Felling Plan, and Future Habitats and Species for the Lesmahagow Forest. The majority of woodland to the west and north of Coalburn North Substation is identified as woodland for long term retention and noted to comprise of oak and birch woodland. Felling of the Sitka coniferous plantation to the north of the substation is noted for 2053-2057.

4.135 Minimum intervention areas including Natural Reserves make up 71.54 Ha of the LMP and incorporate ancient woodlands and plantations with good semi natural characteristics. The existing Natural Reserve areas will be expanded to include some existing young planted and mature mixed broadleaved stands where this improves ecological connectivity and better protects core areas of ancient woodland. Work in minimum intervention areas is noted to be limited to minor enhancement operations, including tree safety operations and halo thinning around veteran trees.

4.136 Natural Reserves are identified to the north of Coalburn North Substation encompassing the long established woodland plantation, and the woodland to the west along the River Nethan valley (south of New Trows). The main areas of open ground indicated in the LMP encompasses Coalburn Moss, corridors between woodland coupes and the existing 400kV overhead line wayleave. Visitor Zones are identified in the LMP to the east of Lesmahagow encompassing a footpath to an orchard and to the west of Coalburn North Substation along a well used core path.

Recreation Features/ Routes (**Figure 4.2**)

4.137 In summary the main recreational features, attractions and routes located in the Study Area are as follows: -

- Numerous walks identified as Core Paths, Aspirational Core Paths, Wider Network Paths
- Cycle Paths
- Black Hill Viewpoint and Historic Site to the east of Blackwood
- Hollandbush Golf Club
- Craignethan Castle
- Clyde Valley Woodlands Nature Reserve
- Upper Nethan Gorge Nature Reserve
- Lesmahagow Park along the River Nethan
- Informal footpaths through woodland areas and along the Nethan valley

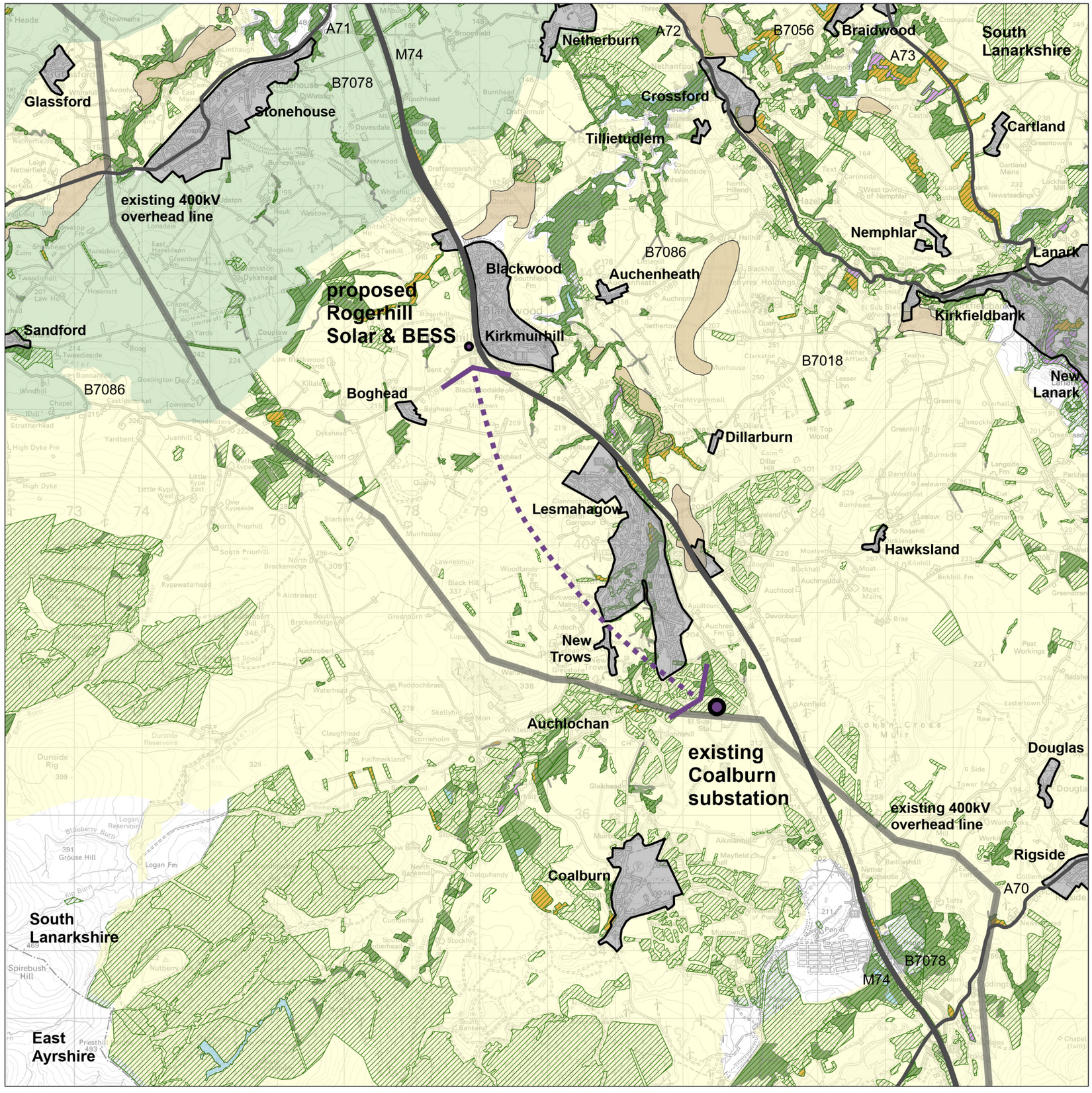
Other

4.138 Other existing features of note within the Study Area include:

- M74 alignment

[55] An area of forest that is harvested in a single operation.

- Dunduff Quarry
- Wind Turbines
- Aerial Masts



Key

- Proposed Rogerhill Solar / BESS & Substation
- Existing Coalburn Substation
- Existing 400kV Overhead Line
- Green Belt (SLLDP2)
- Rural Area (SLLDP2)
- Settlement Boundary (SLLDP2)
- Prime Agricultural Land (SLLDP2)
- Motorway
- 'A' Class Road

Native Woodland Survey

- Native Woodland
- Nearly Native Woodland
- Planted Areas of Woodland Scotland (PAWS)
- Open Land Habitat

National Forest Inventory

- Woodland

Note: The National Forest Inventory (NFI) definition of Woodland is a minimum area of 0.5 Ha under stands of trees with, or with the potential to achieve, tree cover of more that 20% of the ground

0 1 2 3 4km

figure 4.1

Title:
Landuse

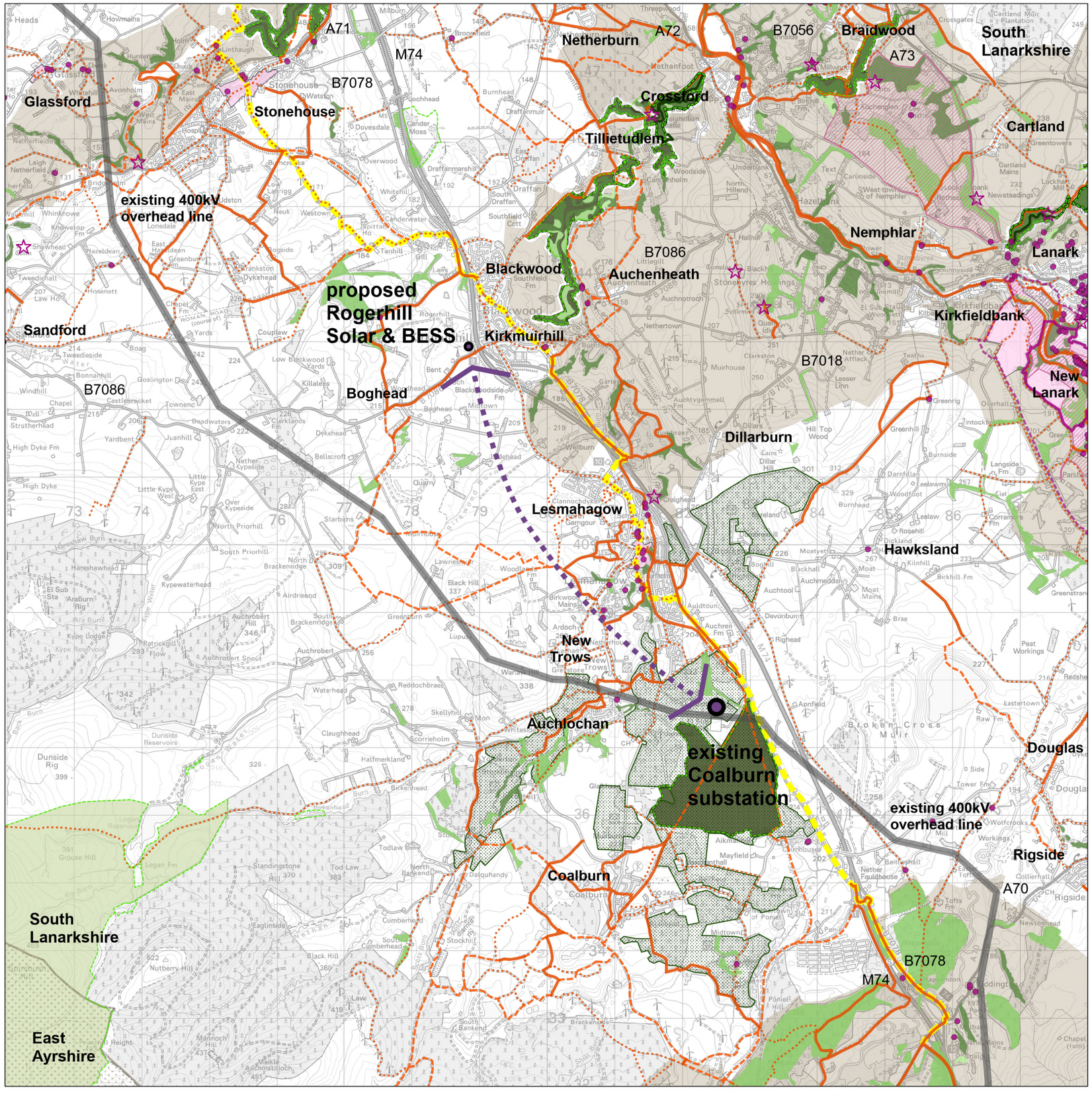
Project:
Proposed 132kv Grid Connection to Rogerhill Solar & BESS

Scale: 1:60,000 @ A3/Bar Scale

Date: 23/07/2025

SP EnergyNetworks

Environmental Designworks
Landscape Architecture + Planning



Key

- Proposed Rogerhill Solar / BESS & Substation
- Existing Coalburn Substation
- Existing 400kV Overhead Line
- Special Landscape Area (SLLDP2)
- Local Landscape Area (EALDP2)
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Scientific Interest
- National Nature Reserve
- Ancient Woodland (of Semi Natural Origin)
- Long Established Woodland (of Plantation Origin)
- Other Woodland (on Roy map)
- New Lanark World Heritage Site
- New Lanark World Heritage Site Buffer Zone
- Scheduled Monument
- Listed Building
- Inventory Garden and Designed Landscape
- Conservation Area
- Core Footpath
- Aspirational Core Path
- Wider Network
- Cycle Path (Traffic Free)
- Lesmahagow Land Management Plan Area (FLS)

0 1 2 3 4km

figure 4.2

Title:
Designated Sites/ Areas, Features & Infrastructure

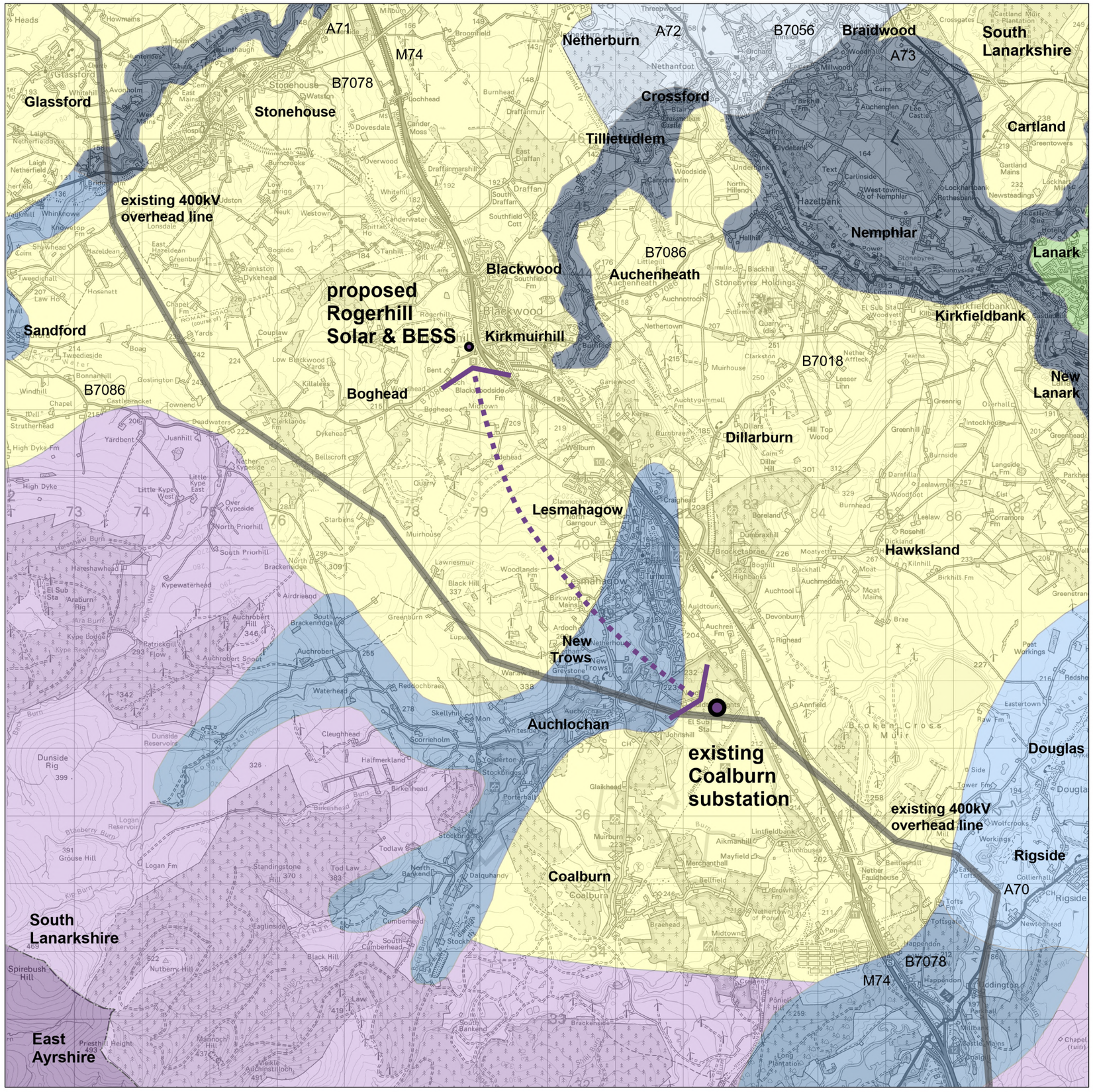
Project:
Proposed 132kv Grid Connection to Rogerhill Solar & BESS

Scale: 1:60,000 @ A3/Bar Scale

Date: 23/07/2025

SP EnergyNetworks

Environmental Designworks
Landscape Architecture + Planning



Key

- Proposed Rogerhill Solar / BESS & Substation
- Existing Coalburn Substation
- Existing 400kV Overhead Line

Landscape Character Types

- 78- Plateau Moorland - Ayrshire
- 213- Plateau Moorland - Glasgow and Clyde Valley
- 200- Rolling Farmland - Glasgow and Clyde Valley
- 201 - Plateau Farmland - Glasgow and Clyde Valley
- 204- Incised River Valleys
- 207- Upland River Valley - Glasgow and Clyde Valley
- 208- Broad Valley Upland
- 219- Broad River Valley

0 1 2 3 4km

figure 4.3

Title:
Landscape Character Types

Project:
Proposed 132kv Grid Connection to Rogerhill Solar & BESS

Scale: 1:60,000 @ A3/Bar Scale

Date: 23/07/2025

SP EnergyNetworks
Environmental Designworks
Landscape Architecture + Planning

Key

- Proposed Rogerhill Solar / BESS & Substation
- Existing Coalburn Substation
- Existing 400kV Overhead Line
- Water & Watercourses

Carbon & Peatland Data (Nature Scot)

- Class 1 - Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value
- Class 3 - Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat
- Class 4 - Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils
- Class 5 - Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat

BGS 1:50000 Superficial Deposits

- Peat (BGS 1:50000 Superficial Deposits)

Scottish Wetland Inventory

- Fen
- Non-Specific Wetland
- Peat Bog
- Springs, flushes and seepages
- Swamp
- Wet Grassland
- Wet Heath
- Wet Woodland

0 1 2 3 4km

figure 4.4

Title:
Hydrology & Peatland Data

Project:
Proposed 132kv Grid Connection to Rogerhill Solar & BESS

Scale: 1:60,000 @ A3/Bar Scale

Date: 23/07/2025

SP EnergyNetworks

Environmental Designworks
Landscape Architecture + Planning

Identification of Route Options

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

5.2 Holford Rules 1 and 2, as described in **Chapter 3**, formed the basis for the landscape led identification of route options. In addition, Rules 4 and 5 of the Holford Rules notes that OHL infrastructure is judged to be more widely visible from surrounding areas when located on higher ground, for example ridges and skylines. Holford Rule 3 states that, other things being equal, the most direct line should be chosen, with no sharp changes in direction. The location of residential properties also played a key role in identifying route options within the Study Area.

5.3 Desk review of environmental baseline data for the Study Area and technical constraints, followed by site visits, allowed the identification of a number of strategic route corridors between the proposed Rogerhill Solar and BESS development, and Coalburn North Substation. During this process a number of route options have been identified, reviewed, rejected or developed in the selection process.

5.4 The identified route options are indicated in **Figure 5.1** and following the routeing process, the current Preferred Route option is indicated in **Figure 5.2**.

5.5 A number of settlements including Kirkmuirhill, Blackwood Lesmahagow and Coalburn are located within the Study Area and the retirement garden village of Auchlochan. These places together with the scattered residential properties and farmsteads in the Study Area have been treated as areas of highest environmental value to be avoided.

5.6 In this routeing study, Coalburn Moss SAC, SSSI, Muirkirk and North Lowther Uplands SPA, and Clyde Valley Woods SSSI are the designated areas “of highest environmental value” (Holford Rule 1) located within the Study Area. Other national level designations in the Study Area are Listed Buildings and Scheduled Monuments.

5.7 As noted in **Chapter 3**, and reflecting the Holford Rules, additional considerations can be introduced into the appraisal to help inform the selection of a Preferred Route option. These areas of “regional and local amenity value” may be of more local importance and smaller in scale. For this routeing study, the other areas which have been considered are shown on **Figures 4.1- 4.4** and include:

- Special Landscape Area - Middle Clyde Valley
- Conservation Area - Lesmahagow
- Areas of Ancient Woodland and Long Established Woodland of Plantation Origin
- Areas of Native Woodland of Scotland (NWS), Nearly Native Woodland and Planted Ancient Woodland Sites (PAWS) as defined by the National Woodland Survey of Scotland;

5.8 The above have been treated as “avoid where possible” or where not possible “balance with other considerations”.

5.9 The alignment of the M74 motorway to the east was identified as a potential constraint at the outset together with other existing landuses in the area such as the existing 400kV overhead line, aerial masts, wind turbines, Dunduff quarry and commercial woodland.

5.10 The existing carbon and peatland data, wetland inventory, watercourses and waterbodies, existing and proposed infrastructure have also been noted in the appraisal of route options. The angle of slope greater than 22 degrees has also been taken into consideration as this presents a technical challenge for the placement of wood poles in elevated areas (200m - 500m AOD)

5.11 At this project stage there has been no other committed developments identified within the Study Area in addition to the proposed Rogerhill Solar and BESS. Committed developments will be kept under review as these could present an environmental constraint to routeing and a technical constraint due to requirement for separation distances etc.

Preliminary Environmental Review

5.12 The developed route options have been subjected to a preliminary environmental review, which is detailed in **Appendix 2**. This appraisal was undertaken qualitatively, employing specialist professional judgement drawing upon: knowledge of the Study Area at this project stage; the baseline environmental information collated to date; and understanding of the potential environmental effects of overhead transmission lines.

5.13 The key environmental considerations used for the comparison of route options have been: -

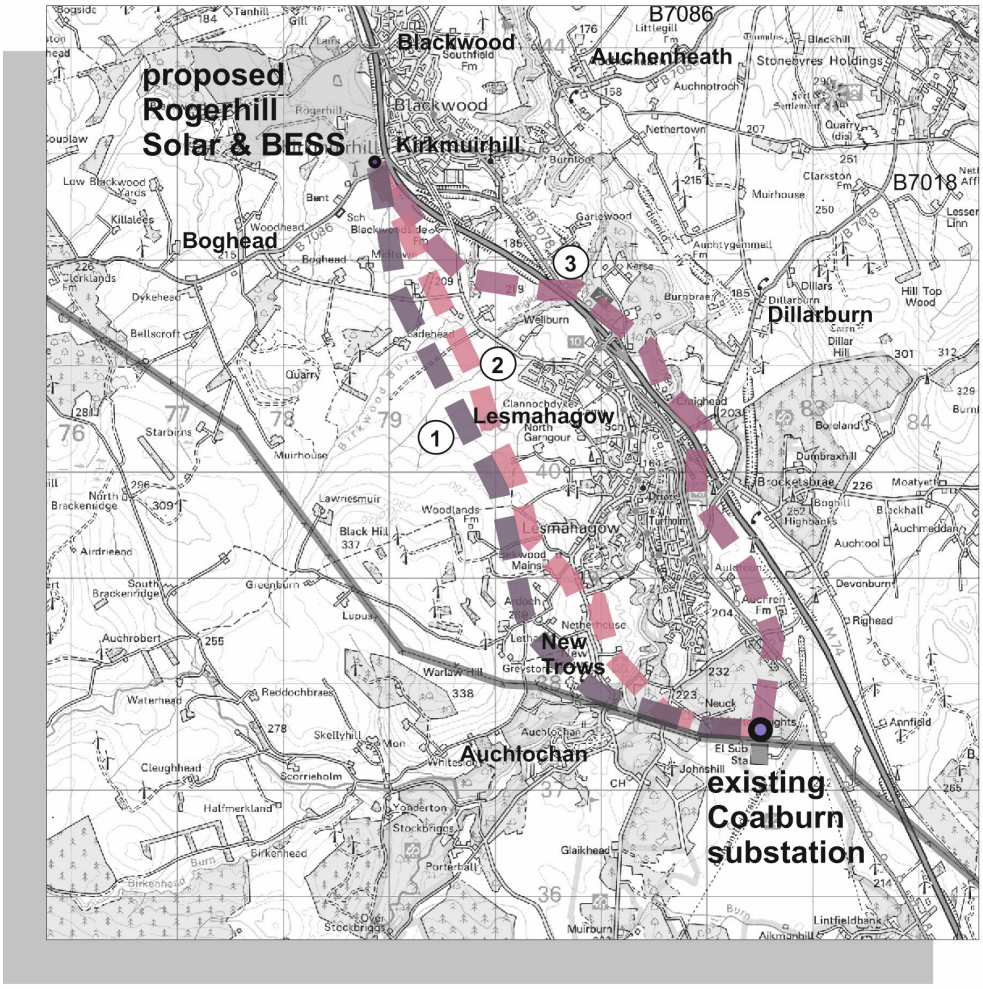
- Landscape: landform, landcover, landuse, designation, landscape character (NatureScot) and summary of effect.

- Visual: visibility, receptor type and summary of effect.

- Protected Areas & Features: nature conservation, heritage, geology, hydrology, commercial forestry, recreational attractions/ routes, national infrastructure and any other important features, which in this Study Area has included the Lesmahagow Land Management Plan Areas managed by Forest Land Scotland (FLS).

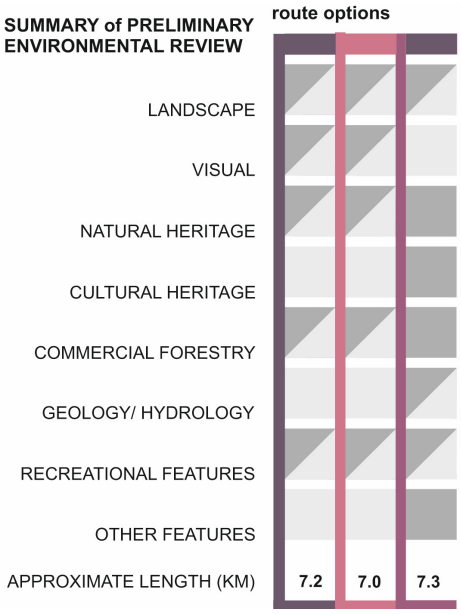
5.14 **Table 5.1** summarises the findings of the Preliminary Environmental Review of the route options as a simple matrix, which provides a preliminary ranking of the potential effect of each route option. This allows recording of the comparative assessment of route options undertaken at this project stage. The Table is supported by the following text, which explains the key differences between the route options leading to the identification of the Preferred Route.

Table 5.1: Summary of Preliminary Environmental Review of Route Options



EFFECT

- MAJOR
- MODERATE
- MINOR
- NONE



Landscape Character

5.15 All routes pass through areas of generally similar landform, landcover and landuse identified as Plateau Farmland and Upland River Landscape Character Types (**Figure 4.3**) to reach Coalburn North Substation. This is a gently undulating lowland valley pastureland. Along the lower part of the wide valley corridor, the main infrastructure routes, watercourses and settlements are aligned.

5.16 The proposed Rogerhill Solar and BESS development is located in this undulating lowland landscape to the west of the motorway and settlements of Blackwood and Kirkmuirhill. This area is currently used for grazing with mixed woodland along the Cander Water and higher ground associated with the former Blackwood House estate.

5.17 Routes 1 and 2 pass through primarily open pasture fields to the west of the settlement of Lesmahagow along the lower slopes of Black Hill. A few fields are currently under coppice rotation. Along these routes the notable landscape features are a few shelterbelts aligned north south along the hillside, mixed woodland following watercourses, field boundary hedges, remnant mature hedgerow trees and stone walls in places. This is an open, simple pastoral landscape with isolated farmsteads and a few scattered groups of wind turbines and aerial masts.

5.18 To the south the routes passes through the Lesmahagow sub block of the Lesmahagow Land Management Plan Area managed by Forest Land Scotland (FLS) to parallel the existing 400kV overhead line. The woodland and scrub area around the River Nethan has been identified as a "Nature Reserve"[56] and a well used core path crossing the area an "Interactive Visitor Zone".[57] This river valley landscape is interesting and dominated by the existing overhead line.

5.19 Route 3 is aligned on lower ground and crosses the motorway to pass to the east of Lesmahagow. This alignment passes through the western edge of the designated Middle Clyde Valley Special Landscape Area which encompasses pastoral fields and the estate of Kerse House. To the south the route passes through the Brocketsbrae sub block of the Lesmahagow Land Management Plan Area managed by Forest Land Scotland (FLS). The area around Glendevon has been identified as an "Interactive Visitor Zone"[58] encompassing a footpath to a community orchard along a well-used core path. This is a settled, enclosed, busy and partially protected landscape contrasting with the surrounding simple pastoral rounded hills and wind farms.

5.20 To the south, the route passes through the Lesmahagow sub block of the Land Management Plan Area managed by FLS and Long Established Woodland of Plantation Origin to reach Coalburn North Substation. This is a simple wooded enclosed landscape adjacent the substation and contrasting open natural expanse of Coalburn Moss.

[56] Forest Land Scotland (2023) Lesmahagow Land Management Plan Area Map 8A.

[57] Forest Land Scotland (2023) Lesmahagow Land Management Plan Area Map 15.

[58] Forest Land Scotland (2023) Lesmahagow Land Management Plan Area Map 15.

Visual Effect

5.21 Partial and glimpse views would be afforded of all Route Options. This would encompass residential, recreational, workers and travellers using the motorway and network of roads.

5.22 Partial and glimpse views would be afforded of Routes 1-3 on exit from the Rogerhill Substation from farmsteads and residential properties, Strathaven Road, Lesmahagow Road, and the motorway. This view would encompass the proposed development, existing aerial masts and motorway. It is considered these views will be limited by the undulating topography and will be primarily viewed in the context of the proposed Rogerhill Solar and BESS.

5.23 Passing south of Lesmahagow Road, partial and glimpse views of Routes 1 and 2 would be afforded from farmsteads, scattered residential properties and primarily the western edge of Lesmahagow and New Trows, network of minor roads and motorway. Views afforded westwards of these Route Options would be backgrounded by Black Hill and Warlaw Hill, and screened and backgrounded in places by existing woodland shelterbelts, hedgerow trees and hedges. This view direction would also encompass the existing wind turbines on top of Black Hill.

5.24 From New Trows, Route Options 1 and 2 would parallel the existing 400kV overhead line and following the wayleave. Limited glimpse views would be afforded from the minor roads and recreational footpaths aligned through the area. Views would also encompass the existing overhead 400kV OHL.

5.25 Route 3 passes to the east of Lesmahagow Road crossing the motorway twice and then south to Auldton Cottages. Glimpse and partial views would be afforded of Route 3 from primarily the eastern edge of Lesmahagow, isolated farmsteads, scattered residential properties, motorway, B7078 and minor roads. Views eastwards to Route 3 would encompass the B7078 and motorway.

5.26 From Auldton Cottages, Route 3 is aligned through coniferous woodland to reach Coalburn North Substation. Limited glimpse views would be afforded from the residential properties at Auldtonheights, recreational footpaths aligned through this area, B7078 and minor road.

Protected Areas & Features

Nature Conservation

5.27 None of the Route Options cross sites that have been designated for their international or national ecological interest, though all routes come within 0.4 km of Coalburn Moss SSSI and SAC, located south east of Coalburn North Substation. Coalburn Moss is designated for its Annex I active raised bog habitats: potential impacts are therefore limited to indirect pollution impacts on bog habitats as a result of increased construction traffic moving along the existing access road to Coalburn Substation. The choice of grid connection route will not alter the significance of this effect.

5.28 The Upper Nethan Valley Woods SSSI is located approximately 1.0 km north east of the northern end of all routes. No direct impacts are likely on this designated site and its associated interest features due to the large separation distance and lack of direct connectivity. Indirect impacts as a result of pollution events into groundwater or watercourses that feed the SSSI area (such as the River Nethan) are possible along all Route Options, in the absence of appropriate mitigation.

5.29 All routes appear to cross open farmland for the majority of the alignment, based on desk based assessment using publicly available aerial imagery as well as landscape character assessment, and carbon and peatland data taken from Nature Scot (see **Figures** 4.3 and 4.4). It is considered unlikely that these settings support groundwater dependent terrestrial ecosystems (GWDTEs). Two NVC communities that are recognised as potentially indicating GWDTEs were recorded directly east of Coalburn North Substation during ecological surveys in 2021, but it was concluded that these were likely to be rainwater rather than groundwater fed based on the conditions there (AECOM, 2022)[59]. Other small areas of GWDTEs have potential to be present in the surrounding area, particularly along rides and fire breaks within forestry areas which are present along all Route Options, as assessed using aerial imagery.

5.30 All routes cross the River Nethan as well as several of its smaller tributaries, as assessed using Ordnance Survey maps. There is the potential for disturbance to riparian species such as otter *Lutra lutra*, water vole *Arvicola amphibius* and breeding birds along all Route Options. Route Options 1 and 2 cross the River Nethan and two unnamed tributaries as they follow the same alignment. Route Option 3 crosses the River Nethan and four unnamed tributaries; the potential for impacts on riparian species is therefore greater with this route. The River Nethan is known to support Atlantic salmon *Salmo salar*, brown trout *Salmo trutta*, river lamprey *Lampetra fluviatilis* and brook lamprey *Lampetra planeri*.

5.31 All routes pass through or close to areas of forestry. Route Option 3 passes through areas of woodland listed in the Ancient Woodland Inventory (AWI), an area of Long Established Woodland of Plantation Origin, approximately 0.1 km due north of Coalburn North Substation, and Ancient Semi-Natural Woodland west of the M74. Potential impacts include the direct loss of ancient woodland through felling along the route and the fragmentation of the remaining woodland areas. Route Options 1 and 2 do not pass through any ancient woodland listed on the AWI.

5.32 Both ancient and non-ancient areas of woodland present along all routes may support populations of red squirrel *Sciurus vulgaris*, badger *Meles meles*, pine marten *Martes martes* and roosting and/or foraging bats. This habitat may also support nesting birds, including species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) such as crossbill *Loxia spp.* and goshawk *Accipiter gentilis*. Route Options 1 and 2 pass through less woodland habitat than Route Option 3 by virtue of utilising the existing overhead line corridor for part of the route. Species may be impacted by direct loss of habitat through felling and fragmentation of remaining woodland area, if present.

5.33 In summary in terms of ecology, Route 1 is preferred, Route 2 is a close second as appears to impact slightly more woodland habitat. Route 3 would affect the most amount of desirable habitat, including four distinct areas of ancient woodland listed on the Scottish Ancient Woodland Inventory and crosses two additional watercourses, with implications for protected species.

Cultural Heritage

5.34 Route Options 1 to 3 have a low to moderate likelihood of resulting in significant (but not necessarily unacceptable) adverse effects on cultural heritage. The majority of known

[59] AECOM (2022). Coalburn North Substation: PEA Report. Project number: 60635450. Published August 2022.

archaeological remains in the Study Area relate to post-medieval settlement and farming, usually situated close to burns.

5.35 The Route Options pass through ploughed agricultural and rough grazing fields, with Route Option 3 crossing the M74 motorway to the eastern side of Lesmahagow. All three Route Options start from the proposed Rogerhill Solar and BESS Substation at Kirkmuirhill with Route Options 1 and 2 intersecting to the south of New Trows before all three join Coalburn North Substation.

5.36 An overhead line along Route Option 1 has a low likelihood of resulting in significant (but not necessarily unacceptable) adverse effects on cultural heritage. The Route Option traverses agricultural fields and small-scale settlements such as Netherhouse and Woodhead, southwest of Lesmahagow, and through pockets of commercial forestry to the south where it intersects with Route Option 2. To the north west of Lesmahagow, Route Option 1 passes through the former location of the 19th century Lesmahagow Golf Club recorded in the WoSAS HER as a point south of Teiglum Burn, which is currently an agricultural field. To the south, this Route Option passes through the findspot of a former stone pounder at Hillside farmstead, but as this find is no longer in situ, the site retains little heritage value. Along this route option alignment there is the potential for further archaeological remains to survive buried subsurface despite prolonged periods of ploughing. To reach Coalburn North Substation the route passes to the south of the post-medieval Neuk farmstead. There are no designated heritage assets along Route Option 1 likely to receive any adverse impacts on their settings.

5.37 Route Option 2 has a low likelihood of resulting in significant (but not necessarily unacceptable) adverse effects on cultural heritage. This route passes through agricultural fields and directly west of Lesmahagow passes next to the findspot of a former stone axe at Birkwood Mains farmstead. This find no longer remains in situ and the site therefore retains little heritage value. However, there is the potential for further archaeological remains to remain buried subsurface despite prolonged periods of ploughing along the route alignment. The route crosses the southern access road into Lesmahagow adjacent to the Category B Listed Building of Birkwood House and South Lodge of medium sensitivity, which may adversely impact the baseline setting of this asset. The Route Option passes a farmstead at Woodhead, continuing southwest to cross the River Nethan where there is a concentration of heritage assets recorded in the WoSAS HER (comprising lime kilns, quarry and possible mill structure) that have the potential for direct impact. The OHL Route Option then intersects with Route Option 1 passing to the south of another post-medieval farmstead at Neuck, to reach Coalburn North Substation.

5.38 An overhead line along Route Option 3 has a moderate likelihood of resulting in significant (but not necessarily unacceptable) adverse effects on cultural heritage. The Route Option passes through open agricultural fields with the potential for direct impact to lime kilns and part of a former farmstead building at Birkwood Burn. The route crosses the M74 motorway to continue through pockets of commercial forestry. Continuing across the River Nethan, the route passes close to the Scheduled Monument of Craighead Mill (SM3907) and has the potential to result in adverse impact on the baseline setting of this asset. As the route passes south it is aligned along the eastern edge of Lesmahagow separated by the B7078 and crosses a findspot of a burial cist at Eastwood. This find no longer remains in situ and the site therefore now retains little heritage value. However, there is the potential for further archaeological remains to remain buried subsurface, despite prolonged periods of ploughing along the route alignment. Route Option 3

passes rough pasture fields and small farmsteads to reach the commercial forestry of Auldtonheights where it terminates at Coalburn North Substation.

5.39 On current evidence, based on analysis of existing records, the most favourable Route Option with specific reference to cultural heritage is Route Option 1. Overall, this route encompasses the least number of heritage assets along its proposed alignment and no designated heritage assets with potential for adverse setting impact. Route Options 2 and 3 would be likely to have an adverse effect on designated heritage assets (Scheduled Monument at Craighead and Category B Listed Building at Birkwood). Of these two, Route Option 2 would be less detrimental on account of the Listed Building being of lesser heritage value (medium sensitivity, regional significance) than the Scheduled Monument (high sensitivity, national significance). However, in each case, an alignment should be designed to avoid significant effects on the character or setting of the cultural heritage assets along the route corridor.

Hydrology/ Hydrogeology

5.40 At this stage, the main geological, hydrological or hydrogeological features of interest with respect to route selection located within the route corridors are considered to be:

- the peat/priority peatland habitats
- wetland areas (including potential GWDTE)
- water supplies; and
- areas at risk of flooding.

5.41 Superficial geological deposits underlying all three Route Options are indicated to comprise Glacial Till which can contain boulders, cobbles, gravel, sands, silts and clays, i.e. they are composite soils containing a mix of very coarse, coarse and fine-grained particles. Glaciofluvial deposits, comprising of gravel, sand and silt, are indicated to be present in the vicinity of watercourses overlying the Glacial Till. Alluvial Deposits, comprising clay, silt, sand and gravel are indicated to be present along the banks of watercourses for all three Route Options. Glaciofluvial and Alluvial deposits are an indication of historical, localised flood events during which watercourse substrate has been disturbed and transported onto the watercourse edges.

5.42 Bedrock underlying all three Route Options follow a similar pattern. Bedrock underlying the proposed Roger Hill Solar and BESS Substation is indicated to comprise Upper Limestone Formation sedimentary rock cycles. All three Route Options then pass over an area of Lower Limestone Formation and then Lawmuir Formation sedimentary rock cycles. The predominant bedrock type for all three Route Options is the Swanshaw Sandstone Formation which is indicated to extend from the north of Lesmahagow and west of the M74 to New Trows (Routes 1 and 2) and Auldton (Route 3). Bedrock from New Trows and Auldton to Coalburn North Substation is indicated to comprise Lower Limestone Formation and Lawmuir Formation sedimentary rock cycles. Bedrock beneath the Coalburn North Substation is indicated to comprise Limestone Coal Formation sedimentary rock cycles.

5.43 Based on the sources of peat mapping (BGS 1:50,000 scale, 2025; and Scotland's Soils, 2025), there are no areas of Class 1 or 2 peatland or Class 3 organic soils present along any of the route corridors. An area of Class 4 soils, unlikely to include significant organic matter, is indicated to extend over an approximate 770m length of Route Option 1 and 680m of Route Option 2 (Scotland's Soils, 2025) to the west of Lesmahagow.

5.44 A review of the Scottish Wetland Inventory indicates that there are no wetlands (i.e. wet grassland, peat bog or non-specific wetland) present along any of the routes. There are wetland areas indicated on the eastern slopes of Black Hill, west of Woodlands Farm and approximately 1.5km west of Route Option 1. Peatbog is the main wetland habitat mapped. Coalburn Moss Special Area of Conservation (SAC) is located approximately 190m south east of Coalburn North Substation. This is designated for its active raised bogs and degraded raised bogs still capable of natural regeneration.

5.45 No Groundwater Dependent Terrestrial Ecosystems (GWDTE) were identified from surveys undertaken for the Roger Hill Solar and BESS environmental appraisal. It was noted that the majority of the proposed development comprised improved grassland, predominantly for livestock grazing, and was therefore relatively species poor. Similarly, no GWDTE was identified within the environmental appraisal for Coalburn North Substation. The nearest GWDTE identified was Coalburn Moss SAC.

5.46 A review of aerial mapping indicates that all three Route Options predominantly cross cultivated grassland and woodland/forestry. As such, the presence of high or moderate sensitivity GWDTE is considered to be unlikely.

5.47 Based on available 25,000 scale Ordnance Survey watercourse mapping and aerial imagery, all three routes may cross field drains immediately to the south of the proposed Roger Hill Solar and BESS Substation.

5.48 Routes Options 1 and 2 may cross Birkwood Burn, to the southeast of Kypehall, and cross Teiglum Burn, to the northwest of Lesmahagow. Continuing south, both routes may cross a number of field drains to the west of Lesmahagow and then an unnamed burn at Letham Mains. Both Route Options may then cross the River Nethan to the south (Route Option 1) and southeast (Route Option 2) of New Trows.

5.49 Route Option 3 may cross an unnamed burn northeast of Kypehall. It may then cross the River Nethan at Craighead and then the Galrig Burn at Auldton.

5.50 Ground truthing would be required to confirm this information because watercourses may extend further than shown on the mapping and imagery used. Other minor watercourses and drainage channels not shown on the mapping may also be crossed by the Route Options and a watercourse crossing survey would be required to confirm this.

5.51 The River Nethan has an overall SEPA water quality classification of Poor and an overall ecology classification of Poor, as of 2023. It is likely that this classification is linked to barriers to fish movement. Neither of the burns noted above have SEPA water quality classifications.

5.52 None of the Route Options pass through or are near to any Scottish Water Drinking Water Protected Areas.

5.53 Flood risk mapping published by SEPA (2022a) shows fluvial (river) flood risk is limited to the area immediately adjacent the River Nethan and Birkwood Burn. There is ‘high’ (10% chance

of flooding each year) and 'medium' likelihood (0.5% chance of flooding each year) immediately adjacent to these watercourse channels.

5.54 There are areas of potentially "high" (10% chance of flooding each year) and "medium" (0.5% chance of flooding each year) likelihood of surface water flooding along the Teiglum Burn and also along various un-named burns to the west of Lesmahagow (SEPA, 2025). There are also localised small areas of "medium" (0.5% chance of flooding each year) to "high" likelihood of surface water flooding between the River Nethan and Coalburn North Substation. These appear to be associated with the upmost reaches of the watercourses or may be associated with topographic depressions.

5.55 With respect to groundwater Water Framework Directive (WFD) status, the Route Options all start at the proposed Roger Hill Solar and BESS Substation on land overlying the East Kilbride groundwater body, which is currently classified as having "poor" quality status (Scotland's Environment, 2025). There are WFD water quality improvement objectives for associated waterbodies with a less than "good" status. The groundwater to the west of Lesmahagow (Routes Options 1 and 2) and east of the M74 (Route Option 3) is classified as having "good" status. Groundwater around the Coalburn North Substation is the Douglas Coalfield North groundwater body which is classified as "poor" quality. All of these groundwaters are contained within the Clackmannan Group aquifer, classified as moderately productive, with flows virtually all through fractures and other discontinuities. This aquifer is known to have been disturbed by historical underground mining.

5.56 Information from the Mining Remediation Authority (formerly the Coal Authority) database (MRA, 2025) indicates that the area around the proposed Rogerhill Solar and BESS Substation and the Coalburn North Substation are located within Coal Mining Reporting Areas and Development High Risk Areas. The area around the Coalburn North Substation is indicated as having been subject to past shallow coal mining works and is in a coal mine reporting area.

5.57 A Coal Mining Risk Assessment was prepared by Wardell Armstrong for the proposed Rogerhill Solar Farm and BESS in February 2024. This identified a potential shallow mining risk from the Lochgelly Splint, Meiklehill Wee and Wilsontown Gas coal seams beneath the southern part of the Rogerhill development area (within the Development High Risk area referred to above). Intrusive site investigations within the area of the proposed substation were recommended within the Risk Assessment.

5.58 A ground investigation for the Coalburn North Substation (Raeburn Drilling and Geotechnical Ltd "Report on Ground Investigation", dated 28th September 2023) reported that fifteen boreholes were sunk by cable percussive and rotary hole boring. A review of the borehole and rotary core logs contained within the report showed no indication of any previous mine workings below the substation development area.

5.59 The Coal Mining Reporting Area associated with the proposed Roger Hill Solar and BESS Substation extends south to Kypehall (Route Options 1 and 2). The Coal Mining Reporting Area associated with Coalburn North Substation extends from New Trows to the substation and also covers the wider area. There is no Reporting Area indicated between Kypehall and New Trows.

5.60 Route Option 3 is located in its entirety within Coal Mining Reporting Areas. It is also partially located within Abandoned Mines Catalogue areas, immediately to the north of Coalburn North Substation.

5.61 All routes will require to cross watercourses and field drains to provide a grid connection between the substations. Some of these watercourses may be susceptible to localised flood events during high rainfall. The watercourses will require ground-truthing surveys to identify their extent and evidence of localised flooding.

5.62 All of the Route Options will be located within areas of potential historic mining. The primary constraint associated with this would be localised ground subsidence which could impact the structural integrity of the proposed infrastructure and underground cables.

5.63 In summary there is little difference between the Route Options from a hydrological or geological perspective. All have potential effects with similar ranges of significance. Minor changes to the alignment or other mitigation will be required to avoid or reduce the potential effects, particularly on hydrological features.

Commercial Forestry

5.64 Route Options 1 and 2 pass through the Lesmahagow Land Management Plan Area to the south of New Trows where the routes parallel the existing 400kV overhead line to reach Coalburn North Substation. Along the western part of the LMP a Nature Reserve encompasses the mixed woodland and scrub adjacent the River Nethan and a Visitor Zone encompasses a well used core path which crosses the river and links with a number of paths along the Nethan valley.

5.65 To the west of Lesmahagow, Route Option 1 crosses the avenue hedge and hedgerow trees of the access road to Ladehead farmstead, woodland along the Birkwood Burn, passes close to an existing shelterbelt woodland near North Garngour farmstead and through an area of woodland associated with a watercourse to the west of Birkwood Mains farmstead. Route Option 2 passes through a strip of woodland to the north of Kypehall. Route Options 1 and 2 parallel the existing 400kV overhead line to the west of Coalburn North Substation and depending on the detailed route alignment may require the existing wayleave through commercial woodland to be widened.

5.66 Route Option 3 passes along the western wooded edge of Kerse Estate and through the Lesmahagow Land Management Plan Area to the east of Lesmahagow which is identified as the Brocketsbrae sub block. The area around Glendevon has been identified as Visitor Zone encompassing a core footpath to a community orchard. Further south the route is aligned through further commercial woodland to the north of Coalburn North Substation. A strip of this woodland to the south of Auldtonheights has been identified as Long Established Woodland of Plantation Origin (LEWPO).

5.67 Commercial forests are considered to be dynamic as the structure continually undergoes change due to felling and restocking. All Route Options will require the Lesmahagow LMP to be amended to allow for the proposed grid connection and associated wayleave, and potential compensatory planting integrated into the overall forest redesign.

Recreation features/ routes

5.68 The main visitor attractions in the Study Area are the footpaths and cycle paths that provide access to the countryside and along the river Nethan. All Route Options cross or pass near to such attractions in the Study Area.

5.69 All Route Options would pass through Visitor Zones encompassing the River Nethan and Glendevon core paths identified in the Lesmahagow LMP (FLS).

5.70 To the east of the Study Area there is a historic site and viewpoint located on top of Black Hill, from which views of all Route Options would be afforded.

Other Features

5.71 All Route Options pass between two aerial masts located adjacent Strathaven Road on exiting Rogerhill Solar and BESS Substation. Routes 1 and 2 avoid the existing wind turbines located to the west of Lesmahagow. Route 3 avoids the existing wind turbines located to the south of Kirkmuirhill. Route 3 would require crossing the M74 twice to pass to the east of Lesmahagow.

Preferred Route Alignment

5.72 The Preferred Route as indicated in **Figure 5.2**, is considered at this project stage to have on balance the least likely adverse environmental effects, whilst being technically feasible and economically viable. The approximate length of the Preferred Route OHL alignment between the proposed Rogerhill Solar and BESS Substation and Coalburn North Substation is 7.2 km.

5.73 From the proposed Rogerhill Solar and BESS Substation, the Preferred Route at this project stage seeks to minimise adverse environmental effects through the following routeing:

Route 1

- The route exits the proposed Rogerhill Solar and BESS Substation southwards crossing Strathaven Road and undulating fields and then passes to the east of Midtown farmstead and west of the Dorchester Pet Hotel to cross Lesmahagow Road. The route then crosses the access road leading to Ladehead farmstead, and passes to the west of Kypehall farmstead and horse riding centre.

- From this point the route is aligned across improved and unimproved fields forming the lower slopes of Black Hill. Many of the fields are bounded by hedges and mature hedgerow trees. This route alignment is backgrounded by the hillside and in places by linear woodland and shelterbelts near the farmsteads of North Garngour, Woodlands, Birkwood Mains and Latham.

- The route then passes between the small group of properties forming Ardoch and farmstead of Latham to cross a minor road which continues along the side of Warlaw Hill. From this point the route is aligned directly south east and descends across pasture fields to pass between the southern edge of the New Trows settlement and Hillside farmstead to cross a minor road to reach the existing 400kV overhead line. The area of mixed woodland to the immediate south of the minor road forms part of the Lesmahagow LMP and is identified as a “Nature Reserve”. To the north the core foot path is identified as a “Visitor Zone” in the LMP.

- The route then follows the alignment of the existing overhead line to reach Coalburn North Substation. This wayleave area is open grassland used for grazing with commercial woodland to the north and south which forms part of the Lesmahagow LMP. Due to technical reasons adjacent the substation the route would then be placed underground to provide a connection into Coalburn North Substation.

5.74 At this project stage, the Preferred Route should be viewed as a **corridor** within which the detailed route alignment can be developed through localised deviations to avoid or reduce identified effects during the detailed environmental assessment process. A preliminary list of potential effects of the proposed development on the environment, proposed desk and field surveys, and draft mitigation measures are listed in **Appendices 3, 4 and 5.**

5.75 **Chapter 6** outlines how the **Preferred Route** will become the Proposed Route through the consultation process.

Key

1 2 3 — Strategic OHL route option corridors (200m width) for the Proposed Rogerhill Solar & BESS 132kV Grid Connection

0 1 2 3 4km

figure 5.1

Title:
Strategic Route Options

Project:
Proposed 132kV Grid Connection to Rogerhill Solar & BESS

Scale: 1:60,000 @ A3 / Bar Scale

Date: Dec 2025

SP EnergyNetworks

Environmental Designworks
Landscape Architecture + Planning

Key

Strategic Route Option 1
Draft Preferred Route Corridor (200m width)

0 1 2 3 4km

figure 5.2

Title:
Preferred Route

Project:
Proposed 132kV Grid Connection to Rogerhill Solar & BESS

Scale: 1:60,000 @ A3 / Bar Scale

Date: Dec 2025

SP EnergyNetworks

Environmental Designworks
Landscape Architecture + Planning

Approach

6.1 The objective of the appraisal of the route options is to identify in a comparable, documented and transparent way an overall Preferred Route option. As outlined in the Routeing Strategy, professional judgement, informed by both desk studies and fieldwork, and reflecting the Holford Rules (as clarified in **Appendix 1**) has been employed in this iterative process.

6.2 The process also sought to:

- reflect the overall Routeing Objective and Routeing Strategy;
- reflect SPEN's Approach to Routeing and Environmental Impact Assessment;
- reflect the Holford Rules for Routeing;
- draw out distinctions between the routes to enable the relative strengths and weaknesses of each to be identified.

6.3 The comparative appraisal of route options was undertaken in stages as set out below:
(i) identification of appraisal criteria, together with reasoning for inclusion;
(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;
(v) cumulative appraisal with other overhead line connections within the Study Area.

Appraisal Criteria

6.4 Based on the established practice for overhead line routeing and the routeing considerations for the project, the Route Options were appraised using the following criteria, which continue to reflect the key considerations of the routeing methodology;

- landscape and visual amenity;
- nature conservation;
- cultural heritage;
- geology and hydrology (flood risk);
- forestry;
- recreation; and
- other features.

Appraisal Findings

6.5 The emerging Preferred Route for the two 132kV "Trident" overhead line circuits from the proposed Rogerhill Solar and BESS Substation is aligned to the south, passing to the west of Lesmahagow and New Trows. The route then passes south eastwards to parallel the existing 400kV overhead line and terminate to the west of Coalburn North Substation. From this point an underground cable would provide a grid connection into the substation. The total length of this new 132kV grid connection is approximately 7.2 km.

6.6 The detailed environmental appraisal findings to identify the Preferred Route option are included in **Appendix 2**.

Technical Review of Emerging Preferred Route Option

6.7 Following the environmental appraisal of Route Options, the emerging three route options have been reviewed by SPEN in relation to the system and network design requirements. This review has been undertaken to ensure that, based on the level of detail available, the Preferred Route is within the technical parameters required to construct overhead lines. This has included consideration of the following matters:

- Altitude;
- Topography (particularly slopes greater than 22 degrees however, slopes that were not greater than 22 degrees but steep in nature were also considered as these could be less favourable for routeing);
- Buildability /Access constraints (including restrictive roads and forestry access tracks);
- Crossing /Proximity to existing OHL transmission and distribution infrastructure (including the existing 400kV OHL);
- Mineworking areas (opencast etc);
- Ground Conditions (including peat);
- Public Service utilities (crossings/ proximity) (including major pipelines);
- Watercourse/ Catchment area crossings (i.e Rivers, Lochs and Reservoir);
- Road/ railways crossings along corridor;
- Wind farms (existing and future developments);
- Residential/ Recreational/ Industrial areas;
- Pollution (consideration of corrosion rates); and
- Forestry.

6.8 To inform the technical review, a specific risk rating (high, medium, or low) was allocated to each parameter by SPENs technical team. The technical review of the above considerations has highlighted that a series of mitigating factors will be required for all options with specific reference to:

- Topography/ Steep terrain
- Shallow coal
- Mineworking in corridor
- Buildability constraints
- Proximity/ Crossing of existing OHL

6.9 At this project stage, the technical review has confirmed the emerging Preferred Route can be progressed to the Cumulative Appraisal as outlined below and Consultation Stage.

Consideration of Cumulative Effects of Emerging Route Option Preferences

6.10 As set out in **Chapter 3**, the routeing process takes account of other OHL connections which are located within the Study Area. When considering more than one project, combined (or cumulative) effects can arise from the concentration of effects in one area or the distribution of effects across a wider area. It is therefore necessary to find an appropriate balance using professional judgement and experience.

6.11 The existing 400kV Scotland – England Interconnector crosses the Study Area from the north-west to south east. The other existing overhead line connections considered in the cumulative appraisal is the 11kV local distribution network.

6.12 Other existing grid connections in the Study Area are underground and are considered unlikely to result in any operational cumulative interactions.

6.13 Following technical confirmation of the emerging route preference, an environmental review has been undertaken to consider the existing overhead lines in combination with the emerging Preferred Route Option.

6.14 The emerging Preferred Route will be aligned parallel to the existing 400kV OHL for approximately 1.2km to reach Coalburn North Substation. At this project stage cumulative interactions between the Preferred Route and existing OHL are considered to be limited to the immediate local area.

6.15 Overall, there will be no likely significant cumulative effects which will prevent the emerging Preferred Route Option from being progressed further. Cumulative grid connection effects will, however continue to be considered, and assessed where appropriate, throughout the detailed alignment and environmental assessment stage.

Conclusion

6.16 In accordance with the overarching routeing process, the selection of the Preferred Route primarily reflects the findings of the landscape and visual appraisal, and aim to avoid the areas of highest amenity value from the outset. This is on the basis that the routeing stage comprises the most effective way of avoiding and/ or minimising potential landscape and visual effects, whereas effects on other environmental characteristics, such as cultural heritage can more readily be avoided/ minimised during the route alignment stage (and potentially through adoption of mitigation measures).

6.17 On this basis, the environmental and technical appraisal undertaken as part of the routeing process has identified a continuous 132kV overhead route, which meets the Rogerhill132kV Connection Project Routeing Objective. The Preferred Route is shown in **Figure 5.2.**

6.18 Due to technical constraints surrounding Coalburn North Substation the overhead line will be terminated 500m from the boundary and an underground cable will then allow the grid connection to enter the substation.

6.19 The Preferred Route, along with the alternative route options considered, form the basis of this stage of consultation with stakeholders and the public. Further details in relation to the consultation process are provided in **Chapter 7**.

Consultation Process

7.1 As set out in **Chapter 1.0**, SPEN will apply to Scottish Ministers for consent for the proposed two 132kV overhead lines to connect the proposed Rogerhill Solar and BESS under Section 37 of the Electricity Act 1989. SPEN will also apply for deemed planning permission for the grid connection and associated works under Section 57(2) of the Town and Country Planning (Scotland) Act 1997.

7.2 While there are no formal pre- application requirements for consultation in seeking Section 37 consent/ deemed planning permission, SPEN is following best practice as adopted by the Company and outlined by the Scottish Government Energy Consents Unit.[60] This guidance encourages applicants to engage with stakeholders and the public to develop their proposals in advance of such applications being made.

7.3 Therefore, prior to submission, SPEN is actively carrying out consultation with the public and stakeholders to inform the project and proposed grid connection at this early stage.

7.4 Following the submission of an application for Section 37 consent and deemed planning permission, the Scottish Government Energy Consents Unit, will, on behalf of Scottish Ministers, carry out further consultation with the public and stakeholders, including South Lanarkshire Council, before making a decision on whether to grant consent.

Consultation Strategy

7.5 SPEN attaches great importance to the effect transmission development may have on the environment and local communities and is very keen to hear the views of local people and stakeholders to help it develop the Rogerhill 132kV Connection Project in the best way.

7.6 The overall objective of the consultation process is to ensure that all parties with an interest in the Rogerhill 132kV Connection Project continue to have access to up to date information and are given clear and easy ways in which to shape and inform SPENs proposal at the pre application stage. In addition, it is envisaged that the key issues identified through this process can be recorded and presented to decision makers to assist the consents process.

<u>Consultees</u>

7.7 SPEN wishes to consult with relevant stakeholders and gain their view on the Preferred Route identified for the Rogerhill 132kV Connection Project. The consultation will seek to gain views from the following:

- landowners, local residents, businesses and the public;
- statutory and non - statutory consultees;
- Community Councils (CC) and Community Groups (CG) -Lesmahagow CC, Coalburn CC, Thornton Road CC, Boghead CG, Blackwood Estate CG, Blackwood and Kirkmuirhill CG and

[60] Scottish Government (2022) Good Practice Guidance for Applications under Section 36 and 37 of the Electricity Act 1989.

Scottish Government (2025) Electricity Act 1989 Pre – Application Consultation and Engagement Guidance for Electricity Line Projects Which Require Environmental Impact Assessment.

- elected members in the South Lanarkshire Council area, the Members of Parliament (MP) and Members of the Scottish Parliament (MSP) whose constituencies are within the Study Area.

The Focus of the Consultation

7.8 This Report presents the findings of the initial phase the Rogerhill 132kV Connection Project and the routeing process resulting in the identification of a Preferred Route.

7.9 The focus of the consultation will be to ask for views on:

- the Preferred Route;
- the alternative route options considered during the routeing process;
- any other issues, suggestions or feedback; particularly views and information about the local area, for example recreational use, local environmental features, attractions and any other proposed development along the Preferred Route.

Consultation Launch and Duration

7.10 The consultation period will run for four weeks from **Thursday 29th January 2026** to **Sunday 1st March 2026** and the information will be available online during this time**.**

7.11 At least 21 days prior to the Consultation launch, adverts will appear in the local weekly newspaper the Carluke and Lanark Gazette providing information on the project. This will also confirm that comments received at this stage are informal comments to SPEN, and the opportunity to comment formally to the ECU will be available once an application has been submitted.

Sources of Information about the Consultation

7.12 To give statutory consultees, interested stakeholders and the public an understanding of the proposed development and seek comment regarding the Preferred Route, this Routeing and Consultation Document will be available to view/ download on the SPEN website:

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

7.13 Copies of the Routeing and Consultation Document will also be placed at the following locations:

South Lanarkshire Planning Department, Floor 6 Council Offices, Almada Street, Hamilton, ML3 0AA.

Lesmahagow Library- 48 Abbeygreen, Lesmahagow, ML11 OEF.

Blackwood and Kirkmuirhill Community Wing, Carlisle Road, Blackwood, ML11 9SB.

7.14 A Public Exhibition will be held on **Thursday 29th January 2026 between 3pm- 8pm** in **The Fountain Community Centre, 11 Abbeygreen, Lesmahagow, Lanark ML11 0HD.** This location has been chosen so that the majority of people near the proposed development are only a short distance from the consultation event by car or public transport. Representatives from SPEN and their consultants will be available at the Exhibition to discuss the Project as a whole or any specific elements.

How to Submit a Comment or Discuss the Project

7.15 If you wish to make any comments on this proposal you can do so by contacting us at the following email or postal address no later than **Sunday 1st March 2026.**

rogerhill.connection@spenergynetworks.co.uk

or by writing to:
Rogerhill Connection Project, Land and Planning Team, SP Energy Networks, 55 Fullarton Drive, Glasgow G32 8FA.

7.16 You can also call the **SPEN Community Liaison Team** during the consultation period on **07516 461129**

7.17 In summary there are a number of ways for people to make comments:

- in person at the Exhibition;
- by post;
- by email;
- by phone.

7.18 As noted, the closing date for sending responses to SPEN will be midnight on **Sunday 1st March 2026. If contacting SPEN by post, please allow up to 7 days for these to be received. It may not be possible to consider comments received after this date.** Following this date, the information will remain accessible online on the project website and available to download.

Next Steps: Route Alignment and Environmental Appraisal

7.19 Following receipt of comments and any additional information relating to the Study Area, SPEN will review the consultation responses and either confirm, modify or amend the Preferred Route as required.

7.20 The outcome of this review process will be the confirmation of a Proposed Route to the proposed Rogerhill Solar and BESS development. The Proposed Route will then be carried forward to detailed environmental impact assessment and discussion with relevant landowners.

7.21 The Proposed Route will also progress to a more detailed engineering review of the overhead alignment including individual pole positioning and identification of construction access routes which will be informed by the parallel environmental impact assessment stage and ground survey work.

7.22 SPEN will consult fully with affected landowners and property occupiers on all aspects of the Rogerhill 132kV Connection Project and will give them further opportunity to comment on proposals as they are developed in further detail.

7.23 The detailed route alignment, including all ancillary development will be included in the application for Section 37 Consent and deemed planning permission.

Screening

7.24 On review of the proposed nature and scale of development, SPEN does not consider the new grid connection is EIA development within the meaning of the EIA Regulations. A Screening Request under Regulation 8 of the Electricity Works (Environmental Impact Assessment)

(Scotland) Regulations 2017 shall be submitted to Scottish Ministers (via the Energy Consents Unit (ECU) to adopt a screening opinion to confirm this position. The Screening Request will reference this Routeing and Consultation Document. An Environmental Appraisal (EA) shall then be prepared to accompany the application for consent to ensure that all relevant issues and concerns of external stakeholders are considered.

7.25 If an Environmental Impact Assessment Report (EIAR) is required, a Scoping Document will then be submitted to the ECU. This will review the proposed scope of information to be provided in the EIAR.

Environmental Appraisal (EA) Report

7.26 Following receipt of the Screening Opinion, the Project Team will progress required specialist studies and detailed environmental impact assessment (EIA) for the Proposed Route. In undertaking the detailed environmental and technical assessment, localised deviations from the Proposed Route maybe identified to mitigate local impacts.

7.27 SPEN will continue to progress the detailed alignment for the 132kV OHL, including individual pole positioning as informed by the EIA surveys, detailed engineering ground surveys, and discussions with landowners.

7.28 The Environmental Appraisal Report will identify and describe in detail the environmental effects of the proposed overhead line during construction and operation and will identify all appropriate mitigation measures. The completed Report will accompany the application for Section 37 consent and deemed planning permission for the proposed Rogerhill 132kV Connection Project and all ancillary development.

7.29 SPEN will consult fully with affected landowners and occupiers on all aspects of the Rogerhill 132kV Connection Project and will give them an opportunity to comment as they progress.

Comments during Consultation Stage

7.30 Please note that any comments made during this Routeing and Consultation Stage are **not** representations to The Scottish Government Energy Consents Unit, who will determine any subsequent application for consent. Following the submission of the Section 37 Application, interested parties will have the opportunity to make representations to the Scottish Government on the proposed development.

Appendix 1: Holford Rules & SHETL Clarification Note

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, 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[61], 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) [62]
Special Protection Area (NPPG 14)
Ramsar Site (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 (SSSI) (NPPG 14)19
Schedule of Ancient Monuments (NPPG 5)
Listed Buildings (NPPG 18)
Conservation Areas (NPPG 18)
World Heritage Sites (a non-statutory designation) (NPPG 18)
Historic Gardens and Designed Landscapes (a non-statutory designation) (NPPG 18)

Rule 2: Avoid smaller areas of high amenity value, or scientific interest by deviation; provided that this can be done without using too many angle towers, i.e. the more massive structures which are used when lines change direction.

Note on Rule 2

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

[61] National Planning Policy Guidelines and Scottish Planning Policy (SPP) are now superseded.

[62] As referred to in SPP

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 clearly 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 Rule 4 & 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'.

Notes 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

d. Residential Areas
Avoid routeing close to residential areas as far as possible on grounds of general amenity.
e. 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
f. 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.

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

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

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 licence holder to do what he reasonably can do to

mitigate any effect which the proposals would have on the natural beauty of the countryside or on any flora, fauna, features, sites, buildings or objects.

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 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.

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

Major Areas of Highest Amenity Value
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 Planning Policy Guidelines[63]:

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
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.

[63] Scottish Planning Policies and National Planning Policy Guidelines now superseded.

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 Reserves.

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:

Scheduled 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.

Significance of Effects

At this preliminary project stage the relative significance of effects without mitigation of the different route options has been assessed using the following terms:

Major - a fundamental change to the environment
Moderate - a material but non-fundamental change to the environment;
Minor - a detectable but non-material change to the environment
None- no detectable change to the environment

Route Corridors	Route 1 - 7.2km	Route 2 - 6.9km	Route 3 - 7.3km
Landscape			
landform	undulating lowland/ hill slope	undulating lowland/ hill slope	undulating lowland
landcover	grassland, coppice, hedges, hedgerow trees, shelterbelts, mixed woodland	grassland, coppice, hedges, hedgerow trees, shelterbelts, mixed woodland	grassland, hedges, hedgerow trees, shelterbelts, mixed woodland
landuse	pastureland, rough grazing, isolated farmhouses, residential properties (New Trows), B7076, minor roads, commercial woodland, aerial masts, wind turbines	pastureland, isolated farmhouses, residential properties (New Trows), B7076, minor roads, commercial woodland, aerial masts, wind turbines	pastureland, isolated farmhouses, residential properties (Auldton), M74 motorway, B7076, B7078, B7018, minor roads, sewage works (Craighead), estate woodland (Kerse), commercial woodland, aerial masts, wind turbines
designation	Rural Area SLLDP2, Lesmahagow Land Management Plan Area (FLS)	Rural Area SLLDP2, Lesmahagow Land Management Plan Area (FLS)	Rural Area SLLDP2, Lesmahagow Land Management Plan Area (FLS), Middle Clyde Valley Special Landscape Area, Prime Agricultural Land
Landscape Character Type (NatureScot)	Plateau Farmland (201)/Upland River Valley (207)	Plateau Farmland (201)/ Upland River Valley (207)	Plateau Farmland (201)/ Upland River Valley (207)
effect	**moderate-minor**	**moderate-minor**	**moderate-minor**
Visual			
visibility	partial/glimpse	partial/ glimpse	partial/ glimpse
receptor type	residential, recreation, workers, travellers	residential, recreation, workers, travellers	residential, recreation, workers, travellers
Effect	**moderate-minor**	**moderate- minor**	**minor**

nature conservation (designations, habitats, fauna, comments)			
	May cross groundwater dependent terrestrial ecosystems in forestry rides or fire breaks **moderate** Pollution impacts from construction traffic on Coalburn Moss SSSI and SAC and indirect pollution impacts on Upper Nethan Valley Woods SSSI **minor** Watercourse crossings **minor** Nesting birds **moderate** Disturbance of protected species including otter, water vole, badger, red squirrel, pine marten, Schedule 1 birds **moderate** Possible impacts on bat roosts if trees need to be removed **moderate**	May cross groundwater dependent terrestrial ecosystems in forestry rides or fire breaks **moderate** Pollution impacts from construction traffic on Coalburn Moss SSSI and SAC and indirect pollution impacts on Upper Nethan Valley Woods SSSI **minor** Watercourse crossings **minor** Nesting birds **moderate** Disturbance of protected species including otter, water vole, badger, red squirrel, pine marten, Schedule 1 birds **moderate** Possible impacts on bat roosts if trees need to be removed **moderate**	Crosses areas of ancient woodland. **major-moderate** May cross groundwater dependent terrestrial ecosystems in forestry rides or fire breaks **moderate** Pollution impacts from construction traffic on Coalburn Moss SSSI and SAC and indirect pollution impacts on Upper Nethan Valley Woods SSSI **minor** Watercourse crossings **minor** Nesting birds **moderate** Disturbance of protected species including otter, water vole, badger, red squirrel, pine marten, Schedule 1 birds **moderate** Possible impacts on bat roosts if trees need to be removed **moderate**
effect	**moderate-minor**	**moderate-minor**	**moderate**
cultural heritage			
	No designated heritage assets within Route Option 1 Corridor (200m width). Three non-designated heritage assets within the Route Option 1 Corridor (200m width). These take the form of a 19th century former golf course (WoSAS 93126), an occupied farmstead (WoSAS 41282) and the findspot location of a pounding stone (WoSAS 10102). No potential for direct impact on known non-designated archaeological remains or upstanding occupied farmsteads.	One designated heritage asset within Route Option 2 Corridor (200m width): the Category B Listed Building, Birkwood, South Lodge and Gateway (LB7699). Five non-designated heritage assets within the Route 2 Option Corridor (200m width). Two occupied farmsteads (WoSAS 41282-83), a possible mill (WoSAS 69685), lime kilns and quarry (WoSAS 69686) and a stone axe findspot (WoSAS 10101). Potential for direct impacts on non-designated archaeological remains of local heritage value and	One designated heritage asset within Route Option 3 Corridor (200m width): the Scheduled Monument Craighead Mill, Lesmahagow (SM3907) an early 19th century Water Mill. Three non-designated heritage assets within Route Option 3 Corridor (200m width). Former farmstead (WoSAS 69937), lime kilns (WoSAS 69936) and a cist findspot (Trove 464789). Potential for direct impacts on known non-designated archaeological remains of local heritage value and unknown archaeological remains buried subsurface.

	Potential for direct impact to unknown archaeological remains buried subsurface.	unknown archaeological remains buried subsurface. Potential for adverse effect on setting of Category B Listed Building of medium sensitivity.	Potential for adverse effect on setting of scheduled monument of 'national' heritage value
effect	**minor**	**minor**	**moderate**
commercial forestry			
	Lesmahagow LMP. Lesmahagow sub block. Crosses "Nature Reserve" and proximity to Core Path crossing River Nethan "Visitor Zone"	Lesmahagow LMP. Lesmahagow sub block. Crosses "Nature Reserve" and proximity to Core Path crossing River Nethan "Visitor Zone"	Lesmahagow LMP. Brocketsbrae sub block. Glendevon community orchard "Visitor Zone". Long Established Wood of Plantation Origin
effect	**minor- moderate**	**minor- moderate**	**moderate**
geology/ hydrology/ hydrogeology			
geological features and potential effect significance	**designated geological sites** No designated sites identified. **none**	**designated geological sites** No designated sites identified. **none**	**designated geological sites** No designated sites identified. **none**
mining activities	**historic mining** Records of historic underground and shallow mining around both substations. **minor**	**historic mining** Records of historic underground and shallow mining around both substations. **minor**	**historic mining** Records of historic underground and shallow mining around both substations and along route. **moderate-minor**
	peat/priority peatland No mapped Class 1 or 2 priority peatland or Class 3 organic soils. **none**	**peat/priority peatland** No mapped Class 1 or 2 priority peatland or Class 3 organic soils. **none**	**peat/priority peatland** No mapped Class 1 or 2 priority peatland or Class 3 organic soils. **none**
hydrological features and potential effect significance	**flooding** Localised flooding indicated along watercourses and River Nethan. **minor**	**flooding** Localised flooding indicated along watercourses and River Nethan. **minor**	**flooding** Localised flooding indicated along watercourses and River Nethan. **minor**
water quality objectives	**water quality objectives** Route passes over various groundwater bodies, which have 'poor' WFD status and improvement objectives. Route crosses watercourses that feed into River Nethan (classified as 'poor' water quality). **minor**	**water quality objectives** Route passes over various groundwater bodies, which have 'poor' WFD status and improvement objectives. Route crosses watercourses that feed into River Nethan (classified as 'poor' water quality). **minor**	**water quality objectives** Route passes over various groundwater bodies, which have 'poor' WFD status and improvement objectives. Route crosses watercourses that feed into River Nethan (classified as 'poor' water quality). **minor**
wetlands	**wetlands** No wetlands mapped on the Scottish Wetland Inventory. **none**	**wetlands** No wetlands mapped on the Scottish Wetland Inventory. **none**	**wetlands** No wetlands mapped on the Scottish Wetland Inventory. **none**

effect	**minor**	**minor**	**moderate- minor**
recreational features/ routes			
	Core footpath aligned to immediate south of BESS along B7076 Strathaven Road to Kirkmuirhill. Other core paths (New Trows), aspirational core paths and wider network paths. Visitor Zone encompassing River Nethan core path forming part of the Lesmahagow LMP (FLS). Black Hill (east) historic site and viewpoint.	Core footpath aligned to immediate south of BESS along B7076 Strathaven Road to Kirkmuirhill. Other core paths (New Trows), aspirational core paths and wider network paths. Visitor Zone encompassing River Nethan core path forming part of the Lesmahagow LMP (FLS). Black Hill (east) historic site and viewpoint.	Core footpath aligned to immediate south of BESS along B7076 Strathaven Road to Kirkmuirhill. Other core paths (Glendevon, B7078), aspirational core paths and wider network paths. Cycle path (B7078). Visitor Zone encompassing Glendevon community recreation area and core path forming part of the Lesmahagow LMP (FLS). Black Hill (east) historic site and viewpoint.
effect	**moderate- minor**	**moderate- minor**	**moderate- minor**
other features			
	n/a	n/a	M74 motorway
	none	**none**	**moderate**

Appendix 3: Preliminary List of Potential Effects

At this Routeing and Consultation Document stage of the Project, based on the environmental baseline information collected and completed evaluation of route options, the potential significant effects of the proposed development on the environment have been identified as follows:

Landscape and Visual

Potential landscape and visual effect of the proposed overhead line during construction and operation.

Ecology and Nature Conservation

Potential effects during construction and operation include:

- loss or disturbance of habitats of local or national significance;
- loss of disturbance of Ground Water Dependant Terrestrial Ecosystems (GWDTE);
- pollution of watercourses and tributaries that may be used by salmonid fish, lampreys, otter and potentially water vole, and the disturbance of otter and water vole;
- loss of habitats suitable for, or disturbance of badgers, red squirrel, reptiles, pine marten and bats, which may use areas in and around the OHL route corridor;
- loss of habitats suitable for, or disturbance of breeding, wintering, foraging and passage birds in the area, and potential for collisions with OHL.

Archaeology and Cultural Heritage

Potential effects on archaeology and cultural heritage during construction and operation include:

- direct construction impacts on surviving visible features of national, regional, or local heritage value;
- direct construction impacts on buried archaeological remains and deposits;
- impacts on the settings of designated heritage assets;
- impacts on the settings of non-designated heritage assets of potential national heritage value.

Commercial Forestry

Potential effect on existing and proposed commercial forestry plantation covered by the Lesmahagow Land Management Plan Area (LMP) which runs from 2023 - 2033. The LMP may need to be amended to allow for the proposed OHL and compensatory planting undertaken. This amendment to the LMP will take account of any updates or revisions to accommodate for other consented development in the area.

Geology/Hydrology/ Hydrogeology

Geology/Hydrology/ Hydrogeology

Potential effects to the geological or hydrological environment during construction and operation could result from the following:

- Changes in surface water or groundwater quality as a result of construction activities (e.g. release of sediment from stockpile storage, storage of weather sensitive materials at laydown areas, construction and use of access tracks, mechanical digging of new or existing drainage and cable channels, vehicle access over watercourses, construction of watercourse crossings and digging of excavations, leaks/spills of fuel/oils, foul waste from welfare units, pH changes due to use of cement).
- Changes in surface watercourse morphology and flow resulting from construction in watercourses or on banks.

- Changes in local surface water flows, drainage patterns, flood water storage and associated flood risk (at, or downstream of, the development) as a result of works in or near watercourses and flood plains.
- Changes in infiltration rates and groundwater recharge due to increased hardstanding.
- Changes in groundwater flow direction (e.g. due to installation of subsurface features).
- Changes in groundwater flows and levels due to excavation dewatering (if required).

It should also be noted that the proposed development itself has the potential to be affected by flooding.

Further work or consultation (desk based or field studies) following the selection of the Proposed Route (i.e. as part of the Screening Stage and/or Environmental Appraisal process) may identify other sensitive receptors that could be affected by the proposed development.

Appendix 4: Preliminary List of Desk and Field Studies

The Table below provides a preliminary list of proposed desk and field studies to be carried out to support matters to be addressed throughout the environmental process. A number of these tasks have been undertaken for the identification of the Route Options Appraisal and preparation of this Routeing and Consultation Document.

Topic	Method
Planning	Desk review of planning policy context: national, strategic and local planning policy (Local Development Plans) and supplementary guidance.
Landscape and Visual	Good practice as described in Landscape and Visual Impact Assessment (LVIA) guidance produced by the Landscape Institute/IEMA (2013) shall be followed in undertaking the appraisal of potential effects on landscape and visual amenity arising from the proposed development. Desk and field studies shall comprise of the following tasks: ▪ Desk survey review of baseline information covering key features of the physical environment including: geology, soils, drainage, landform, landcover and landuse. ▪ Desktop review of relevant planning policy and landscape character assessments. ▪ Fieldwork to determine key landscape features, identify receptors, characterise surrounding landscape (condition and value) and define visibility. ▪ Fieldwork to identify of the approximate extent of visibility and key views. This will be informed by computer generated ZTV information. ▪ Assessment of potential effects on landscape features, landscape character and visual amenity. ▪ Computer generated photomontages will be prepared from agreed viewpoints to illustrate the landscape and visual effect.
Cultural Heritage	▪ Obtain up to date baseline cultural heritage data in GIS format on a defined Preferred Route alignment search area from Historic Environment Scotland (HES) and the West of Scotland Archaeology Service (WoSAS). ▪ Further desk-based assessment (historic maps, aerial photos, LiDAR imagery, documentary sources, etc) along Preferred Route alignment corridor. ▪ Reconnaissance field survey of corridor along Proposed Route and visual assessment (views to/from/across) external receptors (setting).
Nature Conservation & Ecology	▪ Desk study to review available baseline ecological and nature conservation information for the local area, including review of Local Development Plans, existing ecological survey information, Local Biodiversity Action Plan, local bird club reports, bird atlases etc. Data to be sought from local Biological Records Centre, NatureScot, Scottish Wildlife Trust, Scottish Ornithology Club, local wildlife groups, Scottish Raptor Group. ▪ Site survey to undertake an Extended Phase 1 Habitat Survey of Preferred OHL corridor and targeted National Vegetation Classification (NVC) survey of GWTDE's. ▪ The combination of desk study, consultations and site survey will allow:

	- an initial assessment of the value of habitats and species along the preferred route corridor; - identify the need and timing for any species-specific surveys; - identify potential mitigation and compensation measures. Further specialist studies may be required, and the scope and detail of such work shall be reviewed and agreed with NatureScot at the outset to ensure their requirements are met balanced with the project budget and programme. At this stage the following studies are proposed: ▪ Breeding bird surveys (including black grouse, raptors and wader surveys); ▪ Non-breeding bird surveys; ▪ Bat habitat assessment (including roost assessment where necessary); ▪ Badger survey of the route corridor; ▪ Otter and water vole survey of watercourse crossings; ▪ Pine marten and red squirrel survey of suitable habitats in the route corridor; ▪ Habitat assessment for reptiles in the route corridor; ▪ Fish habitat assessment of river crossings.
Geology & Hydrology	▪ Desk study review of the geological and hydrogeological environment, including Ordnance Survey maps, geological and soils mapping, climate and catchment information, flood mapping, and other relevant publicly available information. ▪ Site walkover to gather information in areas most likely to be affected by potential geological and hydrological changes and gain an overall understanding of the hydrological regime. ▪ Data request to Scottish Water with regard to the location of its assets. ▪ Data requests from Scottish Environment Protection Agency (SEPA) and South Lanarkshire Local Authority to inform the baseline water environment with respect to the presence of licensed or private water abstractions. ▪ Identification of the sources of water supplies that could feasibly be affected by the proposed development (depending on the results of the data request). ▪ Detailed ground survey by SPEN at detailed design stage. ▪ Identification of potential GWDTEs (in conjunction with the findings of the ecological surveys). ▪ Peat depth probing survey in areas of potential deep peat (depending on proposed route, extent of new access tracks, and findings of ecological survey work). ▪ A Peat Slide Hazard and Risk Assessment (if required). Outline Peat Management Plan (if required). ▪ A Flood Risk Assessment (if required). ▪ A Mining Risk Assessment (if required).
Commercial Forestry	▪ Obtain baseline woodland data from landowners in GIS format (if required). ▪ Desk-based assessment (maps, aerial photos).

	▪ Field survey encompassing corridor along Proposed Route.
Recreation and Tourism	▪ Desktop review of OS map/ baseline local tourist/recreation information and Core Paths Plan. ▪ Site visit to determine key recreational resources (links with landscape and visual site visit/ identification of viewpoints).
Infrastructure and Utilities	▪ Desk study review of OS maps/ information collected from Utility companies.
Landuse and Property	▪ Desk study review of OS Maps and Local Development Plan (links with landscape and visual site visit/ identification of viewpoints). ▪ Consultation by SPEN with landowners as required.
Access and Transport	▪ Desk study review of OS Maps and discussion with SPEN regarding construction access traffic/ route strategy. ▪ Feedback from Council consultations.
Noise and Vibration	▪ SPEN specialist input as required to complete survey and assessment (if required). ▪ Confirmation construction / operation noise in accordance with Guidance.
EMF	▪ SPEN specialist input to report on any changes to electro magnetic fields.

Appendix 5: Draft Mitigation Measures

This Appendix identifies a preliminary draft of actions that SPEN shall implement to reduce, offset, prevent or compensate for identified potential adverse effects on the environment that may otherwise result as a consequence of proposed development.

The specific mitigation measures associated with the following Landscape and Visual, Ecology and Ornithology, Heritage, and Hydrology assessments, will be identified, developed, and detailed in the EA Report.

For information the standard headings of the Construction Environmental Management Plan (CEMP) are also outlined.

Draft Schedule of Mitigation Measures

No.	Draft Schedule of Mitigation Measures	
General		
1	Construction Environmental Management Plan & Pollution Prevention Plan	All mitigation measures as outlined in the EA Report and any consent Conditions will be detailed and implemented by a Construction Environmental Management Plan (CEMP) and Pollution Prevention Plan (PPP) prepared specifically for the proposed Rogerhill132kV grid connection between the proposed Rogerhill Solar and BESS and Coalburn North Substation. These documents shall control and guide the working practices of the Contractor for the duration of the construction works and shall reflect current best practice and guidance in protecting the environment.
2	SWMP	A Site Waste Management Plan (SWP) shall detail the requirements for management of any waste in accordance with statutory and licensing requirements, accepted good practice and to ensure that wherever possible materials are reduced, reused or recycled in preference to disposal. This will include toilet facilities, soils/ stone/ peat from excavations, concrete from washout areas, municipal type wastes etc.
Agricultural Land		
3	CEMP	On Site Construction Works. Reinstatement agreed with landowner and works undertaken in accordance with CEMP.
Air Quality		
4	CEMP/GPP	Control measures shall be put in place in accordance with the CEMP and Guidance for Pollution Prevention (GPP).
Noise and Vibration		
5	CEMP/GPP	Control measures shall be put in place in accordance with the CEMP and GPP.
Socio Economic & Community Effects		
6	CEMP	Control measures shall be put in place in accordance with the CEMP and GPP.
Traffic and Transport		
7	Traffic Management Plan	Prior to construction work starting any planning consent conditions shall be undertaken for example a Dilapidation Survey. A Traffic Management Plan shall also be prepared and indicate the agreed transport route, management measures and programme for restoration etc.
Utilities and Infrastructure		
8	CEMP	Control measures shall be put in place in accordance with the CEMP and GPP.
Waste and Resource Use		
9	CEMP/GPP	Control measures shall be put in place in accordance with the CEMP, SWMP and GPP.

Standard Headings of a Construction Environmental Management Plan

No.	Title	Description of Content
1	**Introduction**	Provides background information about this document its objectives and content.
2	**The Project**	Provides details of the Development including a description of construction methods and facilities.
3	**Roles and Responsibilities**	Sets out the roles and responsibilities of the parties involved in the construction of the Development.
4	**Communications, Reporting and Training**	Sets out the requirements for regular communications and reporting as well as staff training.
5	**General Environmental Management Requirements**	Sets out the general requirements with respect to environmental management during construction.
6	**Subject Specific Requirements**	Provides an overview of the subject specific requirements to be addressed.
7	**Species Protection Plans**	Sets out the general requirements with regard to protected species.
8	**Mammal Mitigation and Management Plan**	Sets out the requirements with regard to protection of otter, water vole, and badger if required.
10	**Bats - Mitigation and Management Plan**	Sets out the requirements with regard to protection of bats.
11	**Common Reptile - Mitigation and Management Plan**	Sets out the requirements with regard to protection of common reptile.
12	**Endangered Reptiles - Mitigation and Management Plan**	Sets out the requirements with regard to protection of endangered reptile.
13	**Birds - Mitigation and Management Plan**	Sets out the requirements with regard to protection of birds.
14	**Habitat Management Plan**	Sets out the requirements with regard to protection and reinstatement of habitats.
15	**Pollution Prevention Plan**	Sets out the requirements with regard to pollution prevention and protection of the water environment.
16	**Drainage Management Plan**	Sets out the requirements with regard to drainage and protection of the water environment (Surface Water Drainage Strategy).
17	**Private Water Supply Protection Plan**	Sets out the requirements with regard to drainage and protection of the water environment.
18	**Watercourse Crossing Register**	Sets out a watercourse crossing strategy and structure of a detailed crossing register.
19	**Concrete Batching Management Plan**	Sets out the requirements with regard to concrete batching and protection of the water environment.
20	**Borrow Pit Scheme of Works**	Sets out a framework to be followed in developing detailed method statements for borrow pits.

No.	Title	Description of Content
21	**Dust Control and Management Plan**	Sets out the requirements with regard to the prevention and control of dust related impacts.
24	**Archaeological Management Plan**	Sets out the requirements with regard to protection and of archaeological interests.
25	**Traffic Management Plan**	Sets out the requirements with regard to the routeing and management of construction-related traffic and abnormal loads.
26	**Soil Storage and Management Plan**	Sets out the requirements with regard to handling and storage of soil.
27	**Peat Management Plan**	Sets out the requirements with regard to handling and storage of peat and related peat-slide risks (SPMP).
28	**Felling and Tree Management Plan**	Sets out the requirements with regard to tree felling and reinstatement.
29	**Site Waste Management Plan**	Sets out the requirements with regard to the management and disposal of waste.
30	**Noise Management Plan**	Sets out the requirements with regard to the management of construction noise (CNMP).
31	**Restoration and Reinstatement Plan**	Sets out the requirements for restoration and reinstatement of sites post-construction (Outline Landscape Restoration Scheme)

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Water Environment (Controlled Activities) (Scotland) Regulations 2011& 2013, 2017, 2021 Amendment
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Glossary

Term	Explanation
Energy Consents Unit	*Certain applications for energy infrastructure are made to Scottish Ministers for determination. Such applications include the installation of certain overhead electric lines and associated infrastructure. Such applications are administered by this Unit on behalf of Scottish Ministers.*
Environmental Impact Assessment (EIA)	*The process used for describing, analysing and evaluating the range of environmental effects that are caused by a proposed development.*
EIA Report	*The document supporting a planning application that sets out the findings of the EIA and produced in accordance with EIA Regulations.*
Mitigation	*Measures, including any process, activity or design to avoid, reduce or remedy adverse effects of a proposed development*

Transmission Equipment

The following are general definitions of terms used in relation to transmission equipment.

Term	Explanation
Cable	*Generally, refers to an underground "cable" suitably insulated, used for transmitting electricity.*
Conductor	*Wire strung between pylons, used for transmitting electricity.*
Earthwire	*Wire strung between the tops of pylons, used for lightning and system protection. May also be used to carry telecommunication signals*
Electricity lines	*Either an overhead line or an underground cable used to transmit electricity.*
Insulator	*Used to attach the conductors to the pylons preventing electrical discharge to the steelwork. Usually made from porcelain glass units, joined together to form an insulator ring.*
kV	*Kilovolt (one thousand volts)*
MW	*Megawatt (one million watts or one thousand kilowatts)*
Outage	*The withdrawal from service of any part of the transmission system for a period of time in connection with repair, maintenance, or construction of the transmission system as a result of breakdown or failure.*
Overhead Line	*An electric line installed above ground usually supported by lattice steel towers or wooden poles.*
SPEN	*Scottish Power Energy Networks. Develop and operate the transmission system on behalf of Scottish Power Transmission Ltd.*
SPT	*Scottish Power Transmission Ltd. Licence holder under the Electricity Act 1989, responsible for the transmission network from the English/ Scottish border to just north of Stirling.*
Sealing End Compound	*The compound area surrounding the terminal tower, where an overhead line converts to an underground cable.*
Substation	*Transforming or switching stations to control the voltage and direction of electricity. Transforming stations are used to increase the supply of electricity (to 275kV or 400kV) into the national grid system for transmission, and to reduce the voltage to lower levels (to 132kV) for distribution. Switching controls the direction of electricity and ensures fault protection.*
Switchgear	*Combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment.*
Transformer	*A static electrical device that transfers energy by inductive coupling between its winding circuits. They are used to vary the relative voltage of circuits and in some cases isolate them.*
Wayleave	*An agreement granted by the owner or occupier of land whereby transmission equipment is permitted to be installed on, over or under the land so owned or occupied in return for annual payments.*

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