Scottish & Southern Electricity Networks
TRANSMISSION

Banniskirk Substation and HVDC Converter Station

EIA Report

Volume 1 | Non-Technical Summary

November 2024

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1. INTRODUCTION

1.1 Overview

This Non-Technical Summary (NTS) forms part of the Environmental Impact Assessment Report ("EIA Report") prepared on behalf of Scottish Hydro Electric Transmission plc ("the Applicant") who, operating and known as Scottish and Southern Electricity Networks Transmission ("SSEN Transmission"), own, operate and develop the high voltage electricity transmission system in the north of Scotland and remote islands.

The proposed Banniskirk 400 kV Substation and HVDC Converter Station (hereafter referred to as the 'Proposed Development') is located approximately 12 km to the south of Thurso and near the small settlement of Spittal in Caithness, Scotland. The specific location of the Proposed Development is 460 m northeast of the existing Spittal Substation, at central grid reference ND 15905 56823. The Proposed Development is located within an area of rough grassland used for cattle/ sheep grazing. The A9 runs adjacent to the Proposed Development.

The full results of the EIA (baseline information, survey findings and technical assessments) of the Proposed Development are presented in the main EIA Report (**Volume 2**). The findings of these studies are summarised and presented in this summary document in non-technical language.

The aim of this NTS is to summarise the content and the main findings of the EIA Report in a clear and consistent manner to assist the public in understanding what the environmental effects of the Proposed Development are likely to be. The full EIA Report (Volume 2: Main Report; Volume 3a: Figures; Volume 3b: Visualisations and Volume 4: Technical Appendices) provides a more detailed description of the Proposed Development, and the findings of the EIA.

1.2 The Proposed Development

The Proposed Development consists of:

- Creation of a platform and the construction of a new outdoor Air Insulated Switchgear (AIS), 400 kV substation complete with 400 kV double busbar arrangement;
- Creation of a platform and construction of a new 525 kV DC 2GW Bi-pole HVDC converter station;
- Installation of two new Super Grid Transformers (SGT) within noise enclosures;
- Installation of two Synchronous Compensators (SYNCOMs);
- A new substation control building and two SYNCOM buildings;
- Security fencing around the substation and converter station;
- Sustainable Drainage Systems (SuDS), foul water drainage and detention basins for drainage control;
- Realignment of the Achalone Tributary around the southern and eastern edges of the Site, with naturalisation measures included to improve the realigned watercourse above its current condition;
- Internal roads for access and maintenance;
- Access points at approximate grid references ND 15580 56484 (planned to be the principal Site access and the only permanent access), and ND 15676 56250 (planned to be a second temporary site access);
- Mounding for the purposes of visual screening;
- Planting for the purposes of visual screening, landscape improvement and Biodiversity Net Gain (BNG);
- Cut and fill earthworks as required to enable the above; and
- Temporary construction compounds and material storage areas for the duration of the construction phase.

1.3 Notifications

Notice will be served for this application to the relevant planning authority, in this case The Highland Council, of the application for consent under the Town and Country Planning (Scotland) Act 1997.

In accordance with Regulation 21 (3) of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, the application will be advertised in the following local newspapers:

- The Press and Journal (Inverness, Highlands and Islands); and • Inverness Courier

It will also be advertised in the following regional newspaper:

- Edinburgh Gazette

The full EIA Report and supporting Technical Appendices can be viewed at the following locations:

- Infrastructure and Environment Service, Council Headquarters, Glenurquhart Road, Inverness, IV3 5NX
- Bonar Bridge Community Hall, Lairg Road, Bonar Bridge, IV24 3EA

Electronic versions of the consent application, including the EIA Report will be available to download from the Applicant's website at: www.ssen-transmission.co.uk/banniskirk.

The EIA Report is available in other formats if required. For details, including costs, contact:

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2. PROJECT NEED

In July 2022, National Grid Electricity System Operator (ESO), published the Pathway to 2030 Holistic Network Design, setting out the blueprint for the onshore and offshore electricity transmission network infrastructure required to enable the forecasted growth in renewable electricity across Great Britain, including the UK and Scottish Government's 2030 offshore wind targets of 50 GW and 11 GW. This confirms the need for a significant and strategic increase in the capacity of the onshore electricity transmission infrastructure to deliver 2030 targets and a pathway to net zero. The need for these reinforcements is underlined within the British Energy Security Strategy, which recognised the significant impact on the cost of living from rising gas prices and sets out a plan to increase the supply of electricity from zero-carbon British sources to deliver affordable, clean and secure power in the long term.

SSEN Transmission holds a licence under the 1989 Act for the transmission of electricity in Scotland and has a statutory duty under section 9 of the Act to develop and maintain an efficient, co-ordinated, and economical electrical transmission system in its licence area. Where there is a requirement to extend, upgrade or reinforce its transmission network, SSEN Transmission's aim is to provide an environmentally aware, technically feasible and economically viable solution which would cause the least disturbance to the environment and to people who use it.

The ESO's Pathway to 2030 Holistic Network Design identified the requirement to reinforce the onshore corridors between Beauly and Spittal in Caithness and provide an offshore subsea cable between Spittal and Peterhead in Aberdeenshire. It outlined that a 400 kV overhead line and high voltage subsea cable connection between these sites would provide the capacity required to take power from large-scale onshore and offshore

renewable generation (mainly wind farms) to the north-east mainland of Scotland. From there, it could be transported to demand centres in England via a subsea cable. The Proposed Development is an integral component to in delivery these requirements.

The independent Great Britain energy regulator, the Office of Gas and Electricity Markets (Ofgem), approved the need for these projects as part of its Accelerated Strategic Transmission Investment (ASTI) framework as a Great Britain wide programme of investments. Ofgem's decision approved all of SSEN Transmission's Pathway to 2030 projects, including the Spittal – Loch Buidhe – Beauly 400 kV reinforcement.

A strategic hub at Banniskirk (Banniskirk Hub) is required for the purpose of establishing a co-located approach to development for the future network reinforcements as identified in the Pathway to 2030 Holistic Network Design to meet the UK's 2030 net zero targets.

A holistic approach to project planning and development was considered necessary to maximise the potential efficiencies which comes from a single co-ordinated development site for both AC and DC transmission infrastructure in the region.

The Proposed Development will substantially strengthen the local transmission network and support new onshore and offshore connections.

The scope of this NTS and associated EIA Report is Banniskirk Hub. The new 400 kV overhead line (OHL) connecting Spittal, Loch Buidhe and Beauly, and the proposed substations at Loch Buidhe and Beauly are being progressed through separate consents and are, therefore, not within the scope of this NTS or the associated EIA Report.

3. DESCRIPTION OF THE PROPOSED DEVELOPMENT

The proposed Banniskirk Hub (**Section 1.2**) construction will be undertaken in a phased delivery as detailed below.

3.1 Phase 1 – Enabling Works

Road improvements and Access

Detailed access proposals will be developed by the Principal Contractor (once appointed). In general, based on desk study analysis and preliminary walkover inspections, access will be established through a combination of:

- Installation of a bellmouth junction on the A9 for access to the Site;
- Installation of a new bound access road with the Site;
- Installation of a temporary access road onto A9 (that will be removed following construction);
- Installation of temporary new stone tracks; and
- Installation of permanent new stone tracks.

Watercourse Diversion

The diversion of the Achalone tributary will implement a natural channel to replace the current linear routing of the watercourse. The design will incorporate measures which enhance the in-channel and riparian habitat quality through the provision of a multistage channel and marginal planting using a natural routing.

Temporary Site Compounds

One construction compound will be required, located in the southern corner of the Site for welfare, parking, and laydown for platform construction. The exact size of the compound may be subject to change and will be confirmed by the Principal Contractor. Plant and materials storage areas will also be confirmed by the Principal Contractor.

Forestry Clearance

Construction would require the removal of approximately 4.8 ha of coniferous trees which are believed to be non-commercial. This would be undertaken in consultation with Scottish Forestry. It is assumed at this stage that all trees on site would be removed to facilitate construction, although opportunities to minimise loss of trees will be sought where possible as the design develops.

Opportunities for reforestation or compensatory planting will be explored in consultation with Scottish Forestry and other relevant stakeholders to offset the loss and support ecosystem restoration. This approach aligns with national forestry policies and sustainability goals.

Ground Clearance and Blasting

As part of the works to construct the Proposed Development, it will be necessary to remove rock to allow the construction of the new substations and associated infrastructure.

The blasting will involve removal of the rock from surface to design depth rather than removing in layers. The exact development sequence will be determined by the explosives supervisor on-site after the loose overburden has been removed and all the relevant information affecting blasting has been considered. The sequence of removing the rock will be to start in the areas of the shallowest rock with the smallest charges. As blasting progresses towards buildings, roads and other sensitive receptors, vibration levels will be monitored to determine peak particle velocity and frequency values.

3.2 Phase 2 – Construction Works

This phase would comprise:

- Creation of a level platform;
- Installation of security fencing;
- Laying of foundations, including construction of site drainage;
- Erection of control buildings;
- Installation of electrical plant; and
- Construction of SuDS and planting of screening/ BNG vegetation.

3.3 Phase 3 – Commissioning

The Proposed Development would be subject to an inspection and snagging process. This allows the Principal Contractor and the Applicant to check that the works have been built to specification and are fit to energise. The Proposed Development would also go through a commissioning procedure for the switchgear, communications, and protection controls through the substation and converter station. The circuits would then be energised from the Proposed Development.

3.4 Phase 4 – Reinstatement

Following commissioning of the Proposed Development, all construction sites will be reinstated. Reinstatement will form part of the contract obligations for the Principal Contractor and will include the removal of all temporary access tracks, all work sites and the re-vegetation of the construction compound etc.

The following principles will inform the approach to reinstatement of all sites:

- Best practice will be followed for reinstatement of all sites; and
- Reinstatement principles are detailed in the GEMPs (**Volume 4 Appendix 3.1**).

Reinstatement of Temporary Access Tracks

Reinstatement would involve replacement of topsoil, grading and installation of drainage as required. Graded areas shall be planted in line with the Landscape Management Plan or would be allowed to vegetate naturally, as appropriate.

Reinstatement of Construction Compound

The construction compound site will be made good at the end of construction with all buildings and materials removed and soils appropriately reinstated.

4. SITE SELECTION AND ALTERNATIVES

The approach to site selection has been informed by SSEN Transmission's Substation Site Selection Procedures for Voltages at or above 132 kV[1] guidance document. The guidance document considers the approach to identification and selection of new electricity transmission substation sites and also covers requirements to extend existing substations.

Each stage is an iterative process and involves an increasing level of detail and resolution, bringing cost, technical and environmental considerations together in a way which seeks to achieve the best balance at each stage. The stages that are carried out can vary depending on the type, nature of and size of a project and consultation is carried out at each stage of the process.

4.1 Strategic Options Assessment (Stage 0)

A strategic options assessment was undertaken by SSEN Transmission. The outcome of this assessment identified the following key requirements for the new sites:

- Proximity to the existing 275 kV substation to minimise the amount of cabling required to connect to the network.
- Large enough to accommodate the proposed substation footprint, together with associated landscaping, contractor compounds, access and new connection routes.
- Capacity for future connections.
- Located in areas which do not contain environmental designations and minimise impacts on local environmental receptors.
- Enables connection.
- The outcome of the strategic options assessment informed the identification of sites to take forward as part of the Stage 1: Initial Site Screening Stage.

4.2 Initial Site Selection (Stage 1)

Stage 1 of the SSEN Transmission Site Selection process requires a comprehensive list of feasible site options to be identified. Initially, 16 indicative site options were identified using a desk-based exercise using ArcMap GIS, with an appraisal informed by input from the SSEN Transmission 'Suitability Multi-Criteria Analysis' (MCA), Geographic Information System (GIS) tool, site walkover and field reconnaissance, and further desk study information.

Following the completion of the Stage 1 initial screening process, a total of three sites were identified and taken forward to Stage 2.

4.3 Detailed Site Selection (Stage 2)

This stage seeks to identify a preferred substation site from shortlisted options, which minimises where practicable physical, environmental and amenity constraints, is likely to be acceptable to stakeholders and is viable (taking into account engineering and cost requirements). The connections into new and existing assets forms a crucial part of this assessment to reduce the need for additional new infrastructure.

Appraisal of options involved systematic consideration against a range of factors broadly covered under environmental, engineering and cost topic areas. A rating was applied to each factor within each topic area for each site option, indicating potential constraint(s) to development.

A preferred substation option was identified, and this option was subject to statutory, non-statutory and public consultation. All consultation responses were considered, and adjustments made to the design where possible.

[1] Scottish and Southern Electricity Networks (November 2020). PR-NET-ENV-502. Substation Site Selection Procedures for Voltages at or above 132 kV

The preferred substation option was then selected as the proposed substation and taken forward to the consenting phase of the project.

4.4 Preferred Site Refinement

Following further design work and consultation feedback throughout the pre-application phase of the project, further adjustments to the design have been undertaken. This has included micro-siting, changes in orientation and alternative arrangement of plant, and removal of an additional permanent access to reduce environmental impacts, enable a safe and technically robust design and deliver the most cost-effective solution.

5. EIA PROCESS AND METHODOLOGY

The aim of the impact assessment process is to predict if the Proposed Development is likely to result in a significant impact on the environment. The EIAR contains the environmental information required by the EIA Regulations and comprises a number of volumes as outlined below:

- Volume 1 – Non-Technical Summary;
- Volume 2 – Environmental Impact Assessment Report;
- Volume 3 – Figures; and
- Volume 4 – Technical Appendices.

The EIAR has examined potential effects of the Proposed Development on the following topics:

- Landscape and Visual Impact;
- Ecology, Nature Conservation and Ornithology;
- Cultural Heritage;
- Traffic and Transport;
- Hydrology, Hydrogeology, Geology and Soils;
- Noise and Vibration;
- Land Use, Amenity and Socio-Economics; and
- Cumulative Effects.

EIA best practice suggests that the significance is assessed in relation to magnitude and sensitivity. The magnitude (scale) of change / effect is identified and compared to the existing baseline conditions. The sensitivity of the receiving environment to change is determined using professional judgement, consideration of existing designations and quantifiable data where possible.

Each change / effect is assessed taking account of the predicted magnitude of change / effect and the sensitivity of the receptor as shown in **Table 1** to determine an overall significance.

Table 1: Matrix for Determining the Significance of Effects

		Sensitivity of Receptor/Receiving Environment to Change/Effect			
		High	**Medium**	**Low**	**Negligible**
Magnitude of Change/Effect	**High**	**Major**	**Major**	Moderate	Negligible
	Medium	**Major**	**Moderate**	Minor	Negligible
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Major and moderate effects are considered to be significant in the context of the EIA Regulations. Minor and negligible effects are not considered significant.

Mitigation measures are identified to prevent, reduce or remedy any potentially significant adverse environmental effects identified, beyond that already taken into account as normal good practice, i.e. embedded mitigation for example, the Construction Environment Management Plan, or Species Protection Plans. Such measures would be implemented during detailed design, construction and / or operation of the Proposed Development. Any remaining predicted effects after taking into account available mitigation measures are known as residual effects.

6. SCOPE AND CONSULTATION

SSEN Transmission has sought to maintain an open dialogue with local communities in the vicinity of the site of the Proposed Development throughout the evolution of the project. This has included carrying out consultation

events during site selection stages, engaging with local elected members such as Ward Councillors and Community Councils and engaging with landowners, residents and businesses that may be affected by the Proposed Development.

During the site selection stage and following publication of a consultation booklet in February 2023, face to face public consultation events were held in Spittal and Halkirk, the nearest settlements to the Proposed Development.

SSEN Transmission also maintained dialogue with all community and ward councils in the vicinity of the Site has sought to keep members up to date on project progress, and any upcoming consultation events. In addition to regular update meetings with MPs and MSPs, SSEN Transmission has also hosted a number of meetings with local elected members and community forums. A community liaison manager has been appointment as the main pointed of contact for all enquiries.

In addition to pre-applications with The Highland Council (THC) an EIA Scoping Report was issued in December 2023. A Scoping Opinion was provided by THC on 6th February 2024. Pertinent points raised in the Scoping Opinion have been considered and are detailed within the appropriate technical chapters of **Volume 2** of this EIAR.

Pre- application consultation events were held in March 2024 and June 2024 and feedback has been collated and considered by the SSEN team.

7. PLANNING AND ENERGY POLICY CONTEXT

In recent years the United Kingdom (UK) and Scottish Government policies have focussed increasingly on concerns about climate change. Each tier of Government has developed targets, policies and actions to achieve targets to deal with the climate crisis and generate more renewable energy and electricity.

The UK Government retains responsibility for the overall direction of energy policy, although some elements are devolved to the Scottish Government. The UK Government has published a series of policy documents setting out how targets can be achieved. Renewable energy generation in Scotland, is identified as an important component to achieve these various goals.

The Scottish Government has published a number of policy documents and its own targets. The most relevant policy, legislative documents and more recent statements published by the Scottish Government include:

- The Letter from Chief Planner to all Heads of Planning in relation to energy targets and Scottish Planning Policy (SPP) (November 2015);
- Scottish Energy Strategy (December 2017);
- Onshore Wind Policy Statement (October 2021);
- The Scottish Government's declaration of a Climate Emergency (April 2019);
- The Scottish Government's 'Programme for Government' (September 2020);
- The Scottish Climate Change Plan Update (2020);
- The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 setting legally binding net zero target for 2045 and interim targets for 2030 and 2040;
- The Scottish Government's 'Programme for Government' (September 2021); and
- The Onshore Wind Policy Statement Refresh: Consultative Draft (October 2021).

The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 requires that the Scottish Ministers must ensure that the net Scottish emissions account for the net-zero emissions target year is at least 100% lower than the baseline (the target is known as the “net-zero emissions target”). The target year is 2045 and the Act also sets out challenging interim targets. It requires that:

“The Scottish Ministers must ensure that the net Scottish emissions account for the year—

(a) 2020 is at least 56% lower than the baseline,

(b) 2030 is at least 75% lower than the baseline, and

(c) 2040 is at least 90% lower than the baseline.”

It is important to note that these targets are minimum targets, they are not maximums or aspirations. The targets legally bind the Scottish Ministers and have largely been legislated to set the framework for Scotland’s response to the Climate Emergency.

The Proposed Development relates to the reinforcement of the grid transmission network and the need for asset replacement which would enable the increase in generation of electricity from renewable energy sources and comes as a direct response to national planning and energy policy objectives.

The Proposed Development would therefore enable a growing contribution to the attainment of emissions reduction, renewable energy and electricity targets at both the Scottish and UK levels. Detailed reference to the renewable energy policy context and the Needs Case is provided in the Planning Statement (see also **Volume 2: Chapter 2 - Project Need** and **Chapter 7 – Planning and Energy Policy Context** of this EIAR).

8. LANDSCAPE CHARACTER AND VISUAL AMENITY

The landscape and visual impact assessment for the Proposed Development has been undertaken in accordance with the Guidelines for Landscape and Visual Impact Assessment (3rd Edition) GLVIA 3 and following consultation with THC.

The assessment has identified the baseline landscape and visual context to the Proposed Development and assessed the effects resulting from the Proposed Development during the construction phases in addition to the operational phase (at Year 1 and Year 12). The potential cumulative effects of the Proposed Development were also considered in combination with six other developments.

The Proposed Development is adjacent to, and east of the A9 in the context of a fairly flat landscape, as reflected in the landscape character type within which it sits – Farmed Lowland Plain. The Proposed Development Site broadly slopes from 90 m at the south to 70 m in the north. Within the wider Study Area, the ground falls to the north in the direction of Halkirk and down to the River Thurso. To the west, the ground slopes gently down towards the river but is mainly flat. Similarly, to the east the ground rises slightly before dropping down towards Loch Watten. To the south, the ground rises, particularly at Spittal Hill (176m AOD) and Achnarras Hill (119m AOD). Spittal Hill is in proximity to the Site and forms a local landmark.

Visual receptors within the study area to the Proposed Development comprise scattered residential properties and farmsteads and users of the A9. Seven viewpoint locations were selected for assessment of the Proposed Development (and agreed with THC). Two of these are located at Halkirk, one on the A9 alongside the Site, one on the A882 between crossing of railway and Clayock, one on a minor road accessing Banniskirk Mains, one on a minor road near Yellow Moss and one at Achanarras Hill (Quarry).

The potential for landscape and visual impacts were identified at an early stage and helped guide the siting and design of proposed mitigation planting measures and the approach to mitigation of effects resulting from the earthworks. These measures helped to reduce the potential landscape and visual impact of the Proposed Development on the wider area.

The assessment identified that the Proposed Development would be sited in the Farmed Lowland Plain LCT and would not be sited within a designated landscape. The Proposed Development would result in a permanent change to the landscape within a discrete parcel of land, through the loss of existing trees in an area scarce of woodland and change to the landform as a result of the formation of the platform. Changes to the character of the landscape would be localised and Moderate (Significant) at both Year 1 and Year 12, as despite mitigation planting becoming established, the Proposed Development would remain reasonably visible in the landscape, particularly in areas where no mitigation has been possible due to engineering infrastructure restrictions.

Effects on visual amenity of visual receptors would generally be greatest during the construction phase, reducing as mitigation planting establishes. For residential receptors alongside the A9, effects would be Major during the construction and operational phase (years 1 and 12). For road users of the A9 effects would be moderate during construction and operation. For residential receptors along the southern boundary of Halkirk, effects would be Moderate during year 1 and year 12 of operation. For users of the minor road near Yellow Moss effects would be Moderate during year 1 and year 12 of operation. For users of Achanarras Hill, effects would be Minor during construction and operation (years 1 and 12). For users of the minor road accessing Banniskirk Mains, effects would be Moderate at construction and Major at operational phase (years 1 and 12).

Whilst not within any designated landscapes, the Proposed Development would result in a permanent change to landscape features across the area of Proposed Development and in combination with the existing Spittal Substation, increasing the footprint of electricity transmission infrastructure within the Farmed Lowland Plain LCT. The Proposed Development would be likely to significantly affect visual receptors in the vicinity of the Proposed Development at construction and operational phases. Visual cumulative effects would also be significant during construction and operation. Effects on the wider landscape and visual amenity of the surrounding region would not be significant.

9. ECOLOGY, ORNITHOLOGY AND NATURE CONSERVATION

An assessment has been carried out which considers the potential impacts on ecology and nature conservation including designated sites, terrestrial habitats, and protected species, and reaches conclusions as to the predicted significant impacts. The potential effects of the Proposed Development were also considered in combination with six other developments.

Ecological Features

The assessment is based on best practice guidance including the Chartered Institute for Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (2018). The scope of the ecological assessment and baseline conditions were determined through a combination of desk-based study, field surveys, and consultation with relevant organisations. The 2 km search area for statutory designated sites (with ecological qualifying interests) and protected species records is based on the limited Zone of Influence (ZoI) considered likely as a result of the construction and operation of the Proposed Development. This process established ecological features that could potentially be impacted by the Proposed Development. No sites designated for their nature conservation importance lie within the boundary of the Proposed Development and only one site, the River Thurso Special Area of Conservation (SAC), was identified within 2 km of the Proposed Development.

Various grassland habitats dominate the survey area; the predominant habitats identified were modified grassland (57.12 ha), neutral grassland (31.65 ha) and other lowland dry acid grassland (26.32 ha). Woodland and forest was the next largest habitat recorded, with various woodland classifications attributing to approximately 48 ha of the survey area. Of the habitats classified five were considered to be potentially ground water dependent terrestrial ecosystems (GWDTEs).

No evidence of protected species was observed; however, suitable habitats were recorded within the survey area to support badger, pine marten, otter, water vole, red squirrel as well as common amphibian and reptile species such as common toad, common frog, common lizard and adder.

The Proposed Development has been designed to minimise impacts on designated sites, important habitats, peatland and protected species as far as practicable. This has been achieved through embedded mitigation and an iterative design process. This process, combined with further commitments to certain mitigation measures preconstruction, during construction, and during operation, allowed potential effects on habitats and species present to be assessed as not significant. On account of the River Thurso being located approximately 1.48 km downstream of the Proposed Development and with the embedded mitigation measures proposed, no significant impacts are predicted.

Grassland is the dominant habitat affected. Permanent loss of grassland habitat caused by the Proposed Development will occur from the creation of the substation platform upon which the substation infrastructure will be built. Further to this, permanent loss of grassland will be required to accommodate access tracks and Sustainable Drainage Systems (SuDS). Grassland habitats affected by the Proposed Development are common and widespread throughout Scotland and locally abundant within the wider landscape surrounding the Proposed Development. A relatively small area of locally frequent GWDTE habitat is to be permanently lost. Along with the implementation of embedded mitigation, the magnitude of the effects regarding habitat loss from the Proposed Development are predicted to be negligible and no significant effects are predicted.

Ornithological Features

Relevant European, national and local guidance was referred to in order to determine key ornithological features.

The importance of features was also determined using professional judgement and taking account the results of baseline surveys, desk-based study information and the importance of features within the context of the region.

Baseline surveys were carried out between April 2023 and August 2024 comprised of:

- Breeding Bird surveys;
- Flight Activity (vantage point) surveys; and
- Wintering goose roost surveys.

Breeding bird survey results indicated possible breeding by two Nature Conservation Index (NCI) species, greenshank and siskin.

Flight activity surveys indicated low levels of activity by NCI species, with only 10 flights by five different species recorded between May 2023 and April 2024. Of these six flights involved birds flying over / partially over the area encompassed by the Proposed Development.

No roosting or loafing geese were recorded on either waterbody within 2 km of the Proposed Development. No geese were recorded foraging on or within 500 m of the Proposed Development site or commuting from known roosts to forage on the Proposed Development site.

On the basis of the results obtained, together with desk-based study data, it was possible to 'scope out' the effects on a number of species of high NCI by virtue of their ecology, absence, distance from the Proposed Development, small numbers, low levels of activity and the nature and location of this activity.

With regards to sites designated for their ornithological interest; Caithness Lochs SPA and Caithness and Sutherland Peatlands SPA were recorded 3.2 km north west and 6.6 km north west, respectively, of the Proposed Development. The SPAs are designated for supporting an assemblage of Annex 1 bird and regularly occurring migratory species. The Proposed Development is within published connectivity distance for the core range or foraging distance for red-throated diver and black-throated diver from the Caithness and Sutherland Peatlands SPA/Ramsar Site and within connectivity distance for whooper swan, greylag goose and Greenland white-fronted goose from Caithness Lochs SPA/Ramsar Site. Given the lack of suitable foraging habitat for divers within or close to the Proposed Development, no impacts on qualifying features of the Caithness and Sutherlands Peatlands SPA/Ramsar site are predicted. As the Proposed Development is within the core foraging range of whooper swan, greylag geese and Greenland white-fronted geese from Caithness Lochs SPA, effects on the Caithness Lochs SPA/Ramsar Site were subject to assessment within a Report to Inform Habitats Regulations Assessment (HRA). LSEs on Greenland white-fronted goose and greylag goose could not be scoped out during HRA screening and both were subject to a Shadow Appropriate Assessment (AA). The Shadow AA predicted that, following proposed mitigation measures, there would be no adverse effect on either receptor, and impacts will not affect the integrity of the designation.

Cumulative Assessment

Cumulative effects were assessed within a zone of influence of 4 km. No cumulative effects are predicted between the Proposed Development and any of the developments identified within the 4 km zone of influence.

10. ARCHAEOLOGY AND CULTURAL HERITAGE

An assessment has been carried out to evaluate the effects of the proposed Banniskirk Substation on cultural heritage and archaeology.

The purpose of the assessment is to establish the archaeological and heritage baseline, assess the potential for direct effects to the archaeological resource from the Proposed Development, and assess nearby designated heritage assets for changes to setting that affect cultural significance as a result of the Proposed Development. The potential cumulative effects of the Proposed Development were also considered in combination with six other developments.

Two study areas have been identified for assessment, a 250 m study area and a 5 km study area. The 250 m study area was used to aid the assessment of direct impacts and potential unknown subsurface archaeology to survive within the Proposed Development boundary. A setting study area with a radius of 5 km from the

Proposed Development boundary was used to identify assets that could potentially undergo a change to setting, as a result of the Proposed Development.

The assessment identified that no direct impacts to any designated heritage assets are anticipated. There are 10 non-designated assets located within the Proposed Development and two non-designated assets located within 5 m from the Proposed Development boundary that are at risk of direct impact as a result of the construction phase. For eight assets, mitigation via avoidance is not possible and a full programme of excavation and recording has been recommended, as a result residual effect to these assets after mitigation remains moderate. As part of this mitigation, three areas of pre-commencement excavation are required. For three of these assets, mitigation via avoidance has the potential to reduce effect to minor / no Impact. For one asset located within the development boundary, the residual effect as a result of the construction phase is negligible.

Based upon the baseline results and field survey, the Proposed Development has a low/moderate potential for subsurface archaeology to be encountered during construction. However, the survey conducted notably identified a cairn within the site boundary of the Proposed Development. This is a likely prehistoric structure and as such, may have associated unknown buried archaeology nearby.

A programme of further archaeological works in the form of watching brief is recommended for the construction phase of the project, to be completed where construction work occurs on previously undisturbed ground.

Five Scheduled Monuments are present within 5 km, which were identified as having potential for setting effects as a result of the Proposed Development:

- Achies Broch
- Achanarras cairn;
- Achanarras cairn;
- Achanarras hut circle; and
- St Magnus Church and Burial Ground.

It has been determined that four of these assets will experience a minor adverse effect to setting as a result of the Proposed Development. One asset is predicted to experience a negligible effect to setting as a result of the Proposed Development, Achies broch. When considering cumulative impacts, it has been assessed that, for setting, the cumulative adverse impact would be considered significant in relation to EIA regulations.

11. TRAFFIC AND TRANSPORT

An assessment of traffic and transport effects on the public road network associated with the construction phase of the Proposed Development has been undertaken. Cumulative effects in combination with six nearby schemes were also considered.

During construction and in the absence of mitigation measures, significant effects could arise for settlements along the route and non-motorised users in relation to severance, non-motorised user amenity, pedestrian delay and fear and intimidation.

To mitigate for these effects, a Construction Traffic Management Plan has been produced which includes traffic mitigation measures to avoid conflicts with general traffic and non-motorised users of the A882. Following the implementation of the proposed package of mitigation measures, the assessment of residual effects indicated that there would be no significant adverse effects associated with the construction of the Proposed Development.

The effects of transporting abnormal loads would increase locally along the A9, however the proposed mitigation measures for the Proposed Development include a Construction Traffic Management Plan, localised road enhancements and a Section 96 Abnormal Wear and Tear agreement (as required and agreed with the Highland Council), would mitigate the effects of any change in access and routing.

The impact on traffic and transport due to cumulative effects is assessed as minor and not significant.

12. HYDROLOGY, HYDROGEOLOGY, GEOLOGY AND SOILS

An assessment has been undertaken on hydrology, hydrogeology, geology, peat and soils (the geology and soils environment) during the construction and operational phases of the Proposed Development. The potential effects of the Proposed Development were also considered in combination with six other developments.

To inform the assessment field walkover surveys and a desk-based assessment was conducted to establish the baseline conditions at the location of the Proposed Development. The field and desk-based assessments indicate that the Proposed Development is located within the Scotland WFD River Basin District (RBD), the main river catchment of the River Thurso, and the nested catchment of the Halkirk Burn.

The potential for impacts and changes to the water environment due to the Proposed Development were assessed for all phases of the project. With the use of construction good practice measures, such as drainage measures, absorbent / pollutant spill pads and committing to restoring the site to its original conditions post construction, the potential impacts are considered to be negligible. The Hydrology and Hydrogeology impact assessment identified no significant effects and therefore no mitigation measures additional to those best practice measures are proposed.

Construction and operation of the Proposed Development has the potential to effect soil compaction and erosion; peat erosion or instability; adverse effects on geological designated sites and adverse impact on ground stability.

Implementation of the proposed mitigation measures and undertaking the construction works in accordance with best practice will mean that there are no significant residual effects from the Proposed Development on Geology, Soils and Peat.

Whilst other developments might present significant effects to Geology, Hydrology and Hydrogeology receptors in their own right, no significant cumulative effects have been identified associated with the Proposed Development.

13. NOISE AND VIBRATION

The purpose of the noise chapter is to present the results of technical assessment to quantify the impact that may result from construction and operational phases of the Proposed Development. The potential effects of the Proposed Development were also considered in combination with six other developments.

To establish the baseline, noise measurements were taken at four noise sensitive receptors (NSR), the locations were selected to best represent the background noise conditions for external amenity for the six closest properties to the Proposed Development.

The assessment concluded that two NSRs have the potential for Major and Moderate effects from both construction and operational noise, which is significant in terms of EIA and therefore additional mitigation is required.

It is best practice that construction noise should be controlled by a Construction Noise Management Plan (CNMP), in accordance with relevant guidance. The CNMP is expected to be embedded within the Construction Environmental Management Plan (CEMP).

Currently the assessment is based on an early worst-case engineer specification of the noise emitting equipment. When further information is available an acoustically optimised design will be progressed to better understand potential noise impacts, and put together a mitigation plan that will minimise noise during operation. There are various engineering solutions and potential mitigation strategies that could be implemented to reduce noise levels including mitigation for the step up transformers, synchronous condensers, and the operation of cooling equipment With appropriate engineering design or mitigation, it is expected that the noise impacts would be reduced to an extent where low impact is predicted.

An updated noise impact assessment will be conducted , shared and agreed with THC. Therefore, with the Applicant committed to meeting the noise limits, no significant residual effects are predicted.

To ensure there are no cumulative noise impacts with any other schemes during construction a combined CNMP will be put in place during potential high noise activities.

14. LAND USE, AMENITY AND SOCIO-ECONOMICS

An assessment has been carried out to evaluate the effects of the proposed Banniskirk Substation on land use, amenity and socio-economics. The assessment considered the potential for impacts on private residential land, agricultural holdings, community facilities, tourism and recreation assets, employment and Gross Value Added (GVA), demographics, and social infrastructure. Effects were considered within the red line boundary for the Proposed Development (direct impacts such as loss or severance of land), within a 5 km local study area (indirect impacts such as loss of amenity), and across the Highland Council area and Scotland as a whole (economic impacts such as employment). The potential effects of the Proposed Development were also considered in combination with six other developments.

A desk-based baseline assessment was undertaken which identified the socio-economic and demographic characteristics of the population within the Highland Council area. The baseline also identified community facilities, businesses, tourism attractions and recreation assets within the 5 km study area, including core paths and other walking routes.

The assessment concluded that the construction and operation of the proposed substation would not result in any significant effects on land use, amenity and socio-economics. While 87 ha of agricultural land would be required for the construction of the proposed substation, this represents a small proportion of the landowner’s total holding and would not impact on wider farm operations. There are no direct impacts on community facilities, businesses, tourism attractions or recreation assets.

An economic model was built to estimate the employment and GVA effects that would arise during construction, operation and decommissioning. This found that construction of the proposed substation would create over 11,000 person years of direct, indirect and induced employment over the 37-month construction programme, and would generate over £900m in GVA. Once in operation, it is estimated that the proposed substation would

support approximately 10 direct full-time equivalent (FTE) jobs, which could create up to a further 24 indirect and induced FTE jobs in the supply chain and generate close to £1.5m in GVA per annum.

While new employment opportunities could be important locally, the new jobs and GVA that would be created during construction and operation would represent a small proportion of total jobs and GVA within the Highlands and across Scotland and the effect during construction and operation would therefore not be significant. Any increase in the local population and demand for local services associated with the temporary construction workforce is also likely to be small, and not significant.

There is the potential for cumulative effects on amenity for local residents, businesses and users of community, and on the local labour market as a result of the construction of the proposed substation and cumulative schemes in the study area. Further engagement with THC and developers of relevant schemes is recommended to understand the potential for such effects and to identify the need for measures to mitigate any significant adverse cumulative effects.

No significant cumulative effects on tourism and recreation receptors have been identified in the study area, including Achalone Activities Horse Riding School, Achnanarras Quarry Nature Reserve, and associated core paths.

15. SUMMARY

This NTS provides a summary of the EIA Report for the proposed Banniskirk 400 kV Substation and HVDC Converter Station Hub. Likely significant residual effects (i.e. after mitigation) are as follows.

- The Landscape and Visual assessment concludes that the Proposed Development would significantly affect the character of the non-designated landscape (Farmed Lowland Plain LCT) at the local level and some visual receptors in the vicinity of the Proposed Development at both construction and operation phases.
- Cumulative Landscape and Visual impact is assessed as significant. The proposed overhead line and windfarm are not generally mitigated by planting and therefore their visibility in the landscape and in views will remain undiminished over time.
- The Cultural Heritage assessment identifies that for eight non-designated assets, where mitigation via avoidance is not possible, residual effects to these assets after mitigation remains moderate.
- Cumulative Cultural Heritage impact is assessed as significant. The overall presence of other developments in the landscape when completed may result in a Major overall effect to the setting of five nearby designated cultural heritage assets.
- The Land Use, Amenity and Socio-Economics assessment identifies the potential for significant cumulative effects. To mitigate any significant adverse impacts, further engagement with THC and developers of relevant schemes is recommended.

All other assessments identified no significant residual effects from the Proposed Development following implementation of the recommended mitigation.