Scottish & Southern Electricity Networks

TRANSMISSION

Fanellan Hub 400 kV Substation and Converter Station

Environmental Impact Assessment Report

Volume 1| Non-Technical Summary (NTS)

February 2025

Scottish & Southern Electricity Networks
TRANSMISSION

CONTENTS

OTHER VOLUMES

1. INTRODUCTION

1.1 Overview

1.1.1 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.

1.1.2 The EIA Report has been prepared by WSP UK Limited (hereafter referred to as WSP), on the behalf of the Applicant, to accompany an application for full planning permission for the Fanellan 400kV Substation and Converter Station (hereafter also referred to interchangeably as ”the Fanellan Hub” or “the Proposed Development”).

1.1.3 The Applicant is seeking planning permission in full to construct and operate a new strategic transmission hub on land to the south-west of Beauly within The Highland Council (THC) local authority area. The location of the Proposed Development is shown in **Volume 3: Figure 1.1** – Proposed Development.

1.2 Environmental Impact Assessment (EIA)

1.2.1 An Environmental Impact Assessment (“EIA”) has been undertaken for the Proposed Development to assess the likely significant effects of the Proposed Development. The results of the EIA are presented within the EIA Report (**Volume 2**) and summarised in this NTS. The EIA Report informs readers of the nature of the Proposed Development, describes the existing environmental conditions in and around the Site (see **Volume 3: Figure 3.2: Environmental Constraints Plan**), identifying sensitive assets or features and the methods used to assess whether environmental effects, either beneficial or adverse, are predicted to occur during site preparation, construction, and the operation of the Proposed Development. Where appropriate, it also sets out measures (defined as ‘mitigation measures’) to prevent, reduce or offset any significant adverse environmental effects.

1.2.2 The EIA Report is structured as follows:

- Volume 1: Non-Technical Summary (NTS);
- Volume 2: EIA Report;
- Volume 3: Figures;
- Volume 4: Technical Appendices; and
- Volume 5: Confidential Technical Appendices.

1.2.3 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.

1.2.4 The full EIA Report provides a more detailed description of the Proposed Development and the findings of the environmental assessments undertaken.

1.2.5 Notice of the application for planning permission , including this EIA Report and associated documents and figures, will be available for viewing at the following public location during normal opening hours:

- The Highland Council Headquarters, Glenurquhart Road, Inverness, IV3 5NX

1.2.6 A copy will also be available at Kiltarlity Post Office, Coffee Shop and Village Store, Allarburn Place, Kiltarlity, Beauly, IV4 7HG at the following times:

- Between 7:30am – 4:30pm Monday to Friday
- Between 7:30am and 2:30pm Saturday; and

- Between 08:30am and 4:30pm Sunday.

1.2.7 Any representations should be made via The Highland Council online portal. Electronic versions of the application, including this EIA are available to view and comment on via The Highland Council online portal: http://wam.highland.gov.uk/wam/ (search using application key word: Fanellan)

1.2.8 Notice of the application, and details of the Proposed Development, together with a further digital copy of the EIA Report are available on SSEN Transmission's website: https://www.ssen-transmission.co.uk/projects/project-map/new-fanellan-400kv-substation-and-converter-station/

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

Sally Cooper

Community Liaison Manager

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fanellanengagement@sse.com

2. PROPOSED DEVELOPMENT NEED

2.1.1 The Applicant owns and maintains the electricity transmission network across the north of Scotland and holds a transmission licence under Section 6(1)(b) of the Electricity Act 1989 ("the 1989 Act"). The Applicant has a statutory duty under Section 9(2) of the 1989 Act to develop and maintain an efficient, co-ordinated, and economical system of electrical transmission, and a separate duty to facilitate competition between current and new generators of electricity. Where there is a requirement to extend, upgrade or reinforce its transmission network, the Applicant's aim is to achieve an environmentally aware, technically feasible and economically viable option which would cause the least disturbance to the environment and the people who use the area.

2.1.2 In July 2022, National Grid ESO[1], (as of 1st October 2024 now known as the National Energy System Operator (NESO)) published the Pathway to 2030 Holistic Network Design, detailing the onshore and offshore electricity transmission network infrastructure required to enable the forecasted growth in renewable electricity across Great Britain, specifically the UK and Scottish Government's 2030 offshore wind allocations of 50 gigawatts (GW) and 11 GW (through the Crown Estate and ScotWind leasing rounds) which are the main driver for these upgrades. This confirmed the need for a significant and strategic increase in the capacity of onshore and offshore electricity transmission infrastructure to deliver 2030 targets and support the pathway to net zero across Great Britain and Scotland and both the UK and Scottish Governments commitments to meet legally binding net zero targets by 2050 and 2045 respectively. The requirements for grid upgrades in SSEN Transmission's area, including Fanellan Hub, are driven by the 11 GW of ScotWind Offshore Wind development allocated across the North of Scotland.

2.1.3 T National Grid ESO was clear that an integrated design for the electricity transmission network is needed to connect the new, large-scale renewable sources of energy. It is crucial that this investment, including the proposed substation and converter station at Fanellan Hub, is delivered in full along with the other elements of the transmission system reinforcement required. Failing to progress any part of this holistic design will lead to 2030 targets being missed.

2.1.4 The Fanellan Hub will be a key node on the proposed new 400 kV overhead line network between proposed hubs at Spittal and Peterhead, in addition to new substations at various locations along the new OHL routes. The Fanellan Hub also provides a point of connection for the HVDC link from the Western Isles and facilitates the uprating of the existing Beauly – Denny overhead line to enable both circuits to operate at 400 kV. The projects set out within the Holistic Network Design that will connect to the Fanellan Hub are:

- Beauly – Spittal 400 kV Project, comprising proposed new 400 kV substation developments at Carnaig and Banniskirk, with a proposed new 400 kV overhead line linking the Fanellan Hub to these new substations.
- Beauly – Peterhead 400 kV Scheme, comprising proposed new 400 kV substation developments at Longside, Greens and Coachford with a proposed new 400 kV overhead line linking the Fanellan Hub to these new substations.
- Beauly – Denny 400 kV Upgrade, comprising proposed new 400 kV substations at Cambushinnie and Bingally, with a proposed upgraded 400 kV overhead line linking the Fanellan Hub to these new substations.
- Western Isles HVDC Project, comprising proposed new HVDC Converter Stations located near Stornoway and at the Fanellan Hub site, linked by proposed HVDC cable between the Converter Stations.

2.1.5 The scope of the NTS and associated EIA report is the Fanellan Hub, the aforementioned projects are being progressed through separate consents and the not within the scope of this NTS or the associated EIA report.

2.1.6 The Proposed Development is a National Development that is explicitly supported by national planning policy, the electricity system operator, and the energy regulator. It would contribute significantly towards the delivery of

[1] The responsibilities of National Grid ESO transferred to the independent system planner and operator known as the National Energy System Operator (NESO) as of 1st October 2024.

the UK and Scottish Government's Net Zero Targets and help reduce the UK's dependence on imported oil and gas.

3. PROPOSED DEVELOPMENT DESCRIPTION

3.1 Proposed Development Overview

3.1.1 This section describes the key components of the Proposed Development, as shown on **Volume 2, Figure 3.1 : Proposed Development**.

3.1.2 The Proposed Development comprises of a new 400 kV substation and a new High Voltage Direct Current converter station and would include a series of electrical infrastructure and buildings up to around 27.5 m in height. The colour of the buildings is anticipated to be sympathetic to the existing background, to reduce the visual impact of the Proposed Development.

3.1.3 Please note that all dimensions provided are approximate and provide a realistic worst case for the purposes of the EIA.

3.2 Key Components

400 kV Substation

3.2.1 The 400 kV Substation would be situated on a Substation platform. The platform footprint would be approximately 305 m width by 525 m length. The buildings that would be situated on the platform include:

- Air Insulated Switchgear (AIS) and busbar with a maximum height of 15m, to connect incoming Overhead Line circuits as well as facilitating cable connections from the High Voltage Direct Current (HVDC) converter station;
- A Step-Down Transformer, to provide the site with Low Voltage Alternating Current supply;
- A new control building: 50 m wide, 26m long, with a maximum height of approximately 7 m;
- Storage and desk space within the control building,
- car parking for operational and visiting maintenance staff: and
- A 4.2 m high security fence.

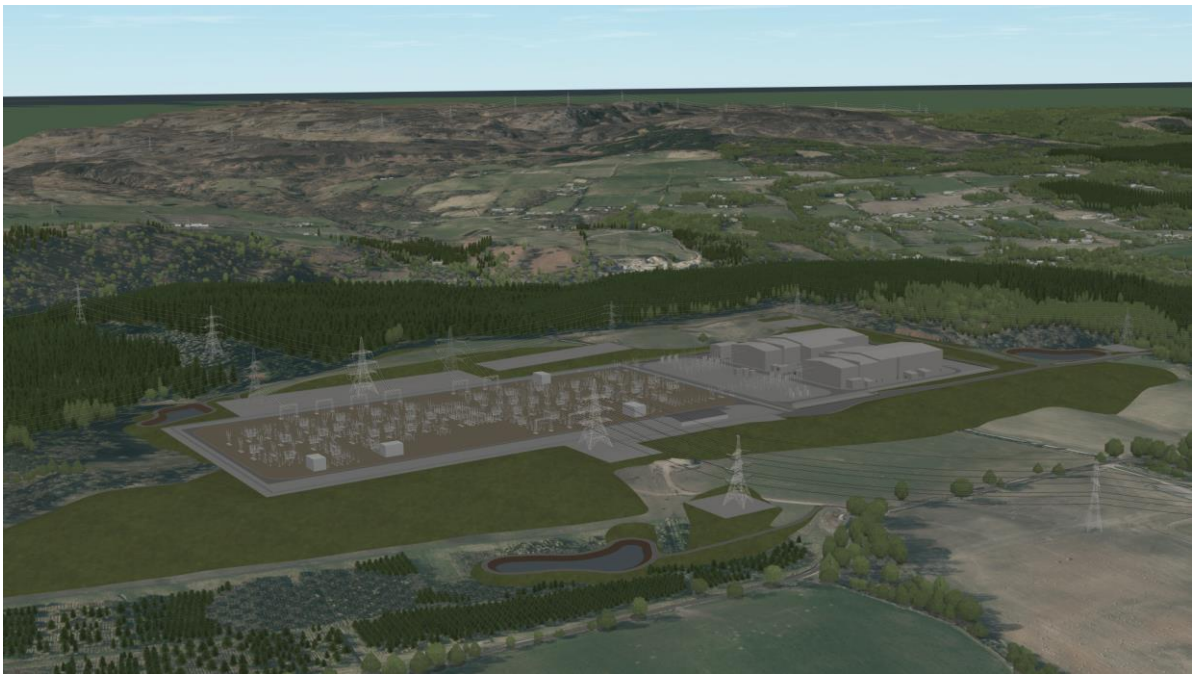

Plate 3-1 Example 400 kV Substation

High Voltage Direct Current (HVDC) Converter Station

3.2.2 The High Voltage Direct Current Converter Station would be situated on a new Converter Station platform adjacent to the new Fanellan substation. The platform footprint would be approximately 305 m width by 285 m length. The buildings that would be situated on the platform include:

- The main HVDC converter station buildings comprising of a Valve Hall, DC Hall, Reactor Hall, Transformer Hall with adjacent Service and Control Rooms (with the largest building approx. 160 m x 80 m, 27.5 m high); and
- Smaller ancillary and supporting buildings adjacent to the main converter station building.

3.3 Ancillary Works

3.3.1 The Proposed Development would also include the following ancillary works.

Drainage and Flood Design

3.3.2 A surface and foul water drainage strategy has been prepared for the Proposed Development, which includes drainage and sustainable drainage systems (SuDS). SuDS mimic natural drainage processes to reduce the effect on the quality and quantity of runoff from developments and provide benefits to amenity and biodiversity. The SuDS have been integrated within the landscape proposals to enhance amenity, biodiversity, and habitat, whilst protecting and/or enhancing water quality.

3.3.3 The proposed surface water drainage network has been designed so that surface water runoff would be collected and conveyed by a series of filter/carrier drains, swales and attenuation basins which will capture, treat and attenuate the surface water generated from its catchment area prior to discharging to the nearest watercourse.

3.3.4 Foul water generated from toilets and washing facilities within the Proposed Development will be treated and discharged to Packaged Treatment plants on site.

Oil Pollution Control

3.3.5 The Proposed Development would have many components which use or store oil-based products. The Proposed Development would install bunds to contain any potential spillage or seepage. An alarm system would be installed to alert the substation personnel, who would begin operating systems to direct the discharge of any contaminated water into the surface water drainage systems, where it will be treated within the Proposed Development. The treated water will then pass onto another level of treatment, either filtration treatment and attenuation within a SuDS basin to remove remaining oil pollutants. For an extra level of protection, all outfalls from SuDS basins will have penstocks and oil traps prior to discharging into the water environment.

Lighting

3.3.6 Floodlights would be installed but would only be used in the event of a fault during the hours of darkness; during the over-run of planned works; or when sensor activated as security lighting for nighttime access. The roads would not be lit under normal operation. A light would also be provided at the access gates.

Security Fencing

A 4.2 m in height palisade fence would be installed around platforms. In addition, a standard post and wire perimeter fence, with a maximum height of 2.4 m, would be installed around the Site Boundary, this would be a stock/deer proof fence to exclude grazing animals and allow establishment of landscaping and screen planting.

Access

3.3.7 A new permanent access would be created from the Fanellan Road to the east of the Site The alignment of the access road has been designed to prevent direct views of the Proposed Development. There may also be a requirement for some public road improvements within the Site Boundary.

3.3.8 Modifications to the Black Bridge over the River Beauly will be required to allow heavy vehicle access. These modifications include the temporary overspanning of the existing bridge to allow for construction and then subsequently constructing a permanent overbridge. This work will be subject to a separate planning application as associated works.

3.3.9 During construction, vehicles would primarily access the Proposed Development by the proposed permanent access junction with Fanellan Road to the east of the Site. The proposed access arrangements comprise:

- installation of bell mouth junction on the C1106 Fanellan Road for access to the Site and to reduce the extent of public road use. This access will remain in place permanently following construction for operational use;
- installation of temporary bellmouth junctions on C1106 Fanellan Road;
- installation of new bound access road within the Site;
- • installation of temporary new stone tracks; and
- installation of permanent new stone tracks.

3.3.10 A Construction Traffic Management Plan (CTMP) would be prepared by the Principal Contractor prior to any works commencing, in consultation with THC and Transport Scotland, as required. The CTMP would describe all mitigation and signage measures that are proposed on the public road network.

3.3.11 The proposed access locations are shown on **Figure 3: Proposed Development**.

Earthworks

3.3.12 The proposed earthworks will extend over the greater extent of the Site. In general, unnecessary earthworks have been avoided to maximise as far as possible unworked land within the Red Line Boundary, . The ground levels will be changed, predominantly within the substation platform, to provide a level area for the proposed structures and operational access provisions. The substation interfaces forming accesses and visual screening landforms, will be graded to create road profiles that are sloped between infrastructure interfaces. The infrastructure has been designed to be as tightly configured as possible, while maintaining the required separation, to minimise the extent of the earthworks.

3.3.13 All hardcore and earthworks materials for the construction of the Proposed Development would either be won on site, through cutting of the existing surface to construct the platforms or imported locally. The cut material would generally be sourced from the creation of the substation platforms, predominantly from the substation footprint, and the recycled material would be used as fill to construct the landscape bunds, form the construction of the access tracks and roads, as well as forming temporary platforms for welfare and other localised areas found elsewhere on the Site. Cut material would also be generated during the construction of the attenuation basins and during the excavation of the internal non-public access roads which serve the platforms. The temporary construction compound and laydown areas will require cut, which would be reinstated

in line with the landscaping strategy post construction. It is anticipated that surplus topsoil following the earthworks, would be used as part of the landscaping strategy.

3.4 Construction of the Proposed Development

Enabling Works

3.4.1 The enabling works will include (but not be limited to) existing utilities diversions, installation of new temporary and permanent water, electrical and telecommunication services and establishment of a temporary construction compound including welfare facilities and laydown areas.

3.4.2 Additional works include construction compounds, forestry clearance, and the delivery of structures and materials.

Site Clearance and Demolitions

3.4.3 The following structures have been identified for demolition:

- Existing agricultural yard and structures associated with Fanellan Farm; and
- Two residential dwellings at Upper Fanellan Cottages.

3.4.4 Where required, vegetation would be carefully removed from within the Site, including trees and hedgerows subject to any ecological considerations relating to timing and method of working. Where possible, existing vegetation would be retained. Construction would require the removal of individual trees and groups of trees within agricultural land. In addition, a small section of Ruttle Wood would be removed as well as approximately half of the young woodland block at Bredaig. The intention is to retain as much of the perimeter trees and vegetation as possible within the technical requirements of the Proposed Development.

Construction Programme and Working Hours

3.4.5 It is anticipated that construction of the Proposed Development would take place over a three year programme, subject to consents and resource availability.

3.4.6 Construction working is likely to be during daytime periods only. Working hours are anticipated seven days a week between approximately 07.00 to 19.00 January to December. Any out of hours working would be agreed in advance with The Highland Council.

Temporary Construction Compound

3.4.7 A temporary construction compound would be required to provide welfare facilities for site staff, parking, laydown areas and holding and servicing space for construction plant. Areas within the RLB have been identified based on their proximity to work areas to allow for the efficient delivery of the developments shown on **Figure 3: Proposed Development**.

Environmental Management during Construction

3.4.8 Works would be carried out on the basis that standard mitigation measures will be implemented during the construction work, including compliance with both project wide and site-specific environmental management procedures. General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs) have been developed by the Applicant.

3.4.9 A contractual requirement of the Principal Contractor would be the development and implementation of a Construction Environmental Management Plan (CEMP). This document would detail how the Principal Contractor would manage the Site in accordance with all commitments and mitigation detailed in the EIA Report, statutory consents and authorisations, and industry best practice and guidance.

3.4.10 The implementation of the CEMP would be managed on site by a suitably qualified and experienced Environmental Clerk of Works (EnvCoW), with support from other environmental professionals as required. The Applicant would carry out regular inspections and audits to monitor the implementation of the CEMP.

3.5 Operation and Maintenance of the Proposed Development

3.5.1 Regular inspections of equipment will be undertaken to identify any deterioration of components, and these parts will be replaced or repaired where needed.

3.5.2 A comprehensive Habitat Management Plan would be formulated to ensure the delivery of the landscape mitigation and biodiversity enhancement works which form part of the Proposed Development.

3.5.3 A full SuDS maintenance plan would be produced as part of the detailed drainage design. The maintenance of the site drainage will be the responsibility of SSEN Transmission.

3.6 Decommissioning the Proposed Development

3.6.1 Planning permission is sought in perpetuity. Should the Proposed Development be decommissioned the site would be restored as follows:

- the Proposed Development infrastructure would be removed;
- where removal of infrastructure such as foundations would result in more damage than leaving them in place, they would be left in-situ; and
- disturbed ground would be reinstated.

4. THE SITE SELECTION PROCESS AND ALTERNATIVES

4.1.1 The selection of the Site for the Proposed Development has followed a staged process undertaken by the Applicant, which has considered a number of alternative site locations and design solutions. During this process there has been consideration of environmental, technical and economic factors in evaluating potential reasonable alternative sites, with the objective of identifying a site which is technically feasible and economically viable, and which causes the least disturbance to the environment and to the people who live, work, visit in proximity to the Proposed Development.

4.1.2 To reduce the need for additional infrastructure at the chosen site in the form of reactive power compensation, and ultimately reduce size and cost, it has been an objective to minimise to the greatest extent possible the distance between the proposed HVDC converters and the alternating current (AC) connection point at the 400 kV Substation. The optimal distance was considered to be less than 1 km, which supported the co-located arrangement that is proposed at the Fanellan Hub.

4.1.3 Proximity to the existing transmission network was also a strategic consideration in order to minimise the amount of new overhead lines or underground cables that would be required to connect the new 400 kV Fanellan substation to the existing network (via the Beauly to Denny OHL). This would reduce the visual and other impacts on the wider Beauly area.

4.1.4 Consideration was also given to the non-infrastructure elements when establishing the total land requirement for the Site. These included BNG, screening and bunding to reduce potential visual and noise impacts, and all elements associated with water management and treatment both during construction and permanent operations.

Approach to Site Selection

4.1.5 Internal guidance for the selection of new electricity transmission substation sites has been developed by SSEN Transmission. This guidance provides a framework to ensure environmental, technical, and economic considerations are consistently and robustly identified and appraised at each stage of the site selection process

4.1.6 The principal site selection stages undertaken have been:

- Stage 0: Strategic Options Assessment;
- Stage 1: Initial Site Screening;
- Stage 2: Detailed Site Selection; and
- Post Site Selection Activities: Consenting Process.

4.1.7 Each stage is an iterative process and involves an increasing level of detail and resolution, bringing technical, environmental and economic considerations together in a way which seeks to achieve the best balance.

4.2 Initial Site Screening

4.2.1 Initially 16 potential sites were identified, within a 10 km radius of the existing Beauly substation at Wester Balblair (the Area of Study).

4.2.2 A comparative appraisal of the identified sites was undertaken against the key criteria within SSEN Transmission's internal guidance and using the RAG matrix. This resulted in 12 of the 16 Options being discounted from further assessment based on their proximity to designated areas and local settlements, visual impact, engineering challenges and connectivity to the existing and future 400 kV circuits around Beauly being more constrained, when compared to the other 4 Options. Options 4, 7, 9 and 11/11a were shortlisted and taken forward to Detailed Site Selection.

4.3 Detailed Site Selection

4.3.1 Detailed Site Selection involved the further detailed appraisal of the environmental and planning, technical and economic factors of the five sites taken forward at the initial site screening stage.

4.3.2 When considering the potential impacts of the substation Options and connections together, Option 7 Combined is considered to be preferred, this option limits the distance of linear infrastructure within the wider Beauly area and their associated environmental impacts. It is noted that Option 7 Combined may have more widespread landscape and visual impacts, however this option will provide opportunity for new hard and soft landscaping mitigation.

4.3.3 Site Option 7 Combined is the preferred site from an engineering perspective. This is a result of favourable scoring on Connectivity (Existing circuits/network) and Footprint Requirements. This site allows for the least amount of re-routing of the Beaul-/Denny 400 kV OHL as well as space to accommodate the HVDC converter station on a single platform. Furthermore, there is adjacent land available for both temporary and permanent ancillary infrastructure. It has also been assessed that this site can accommodate and provide suitable routing for future connections. Topography at Option 7 provides an opportunity to lower the site platform level and screen the site further using won material to create new naturalistic land forms in front of the platform. The remaining sides of the site are naturally screened by woodland. The co-location of the substation and HVDC converter station reduces overall earthworks and land take requirements.

4.3.4 Overall, when considering the substation site Options alongside the required connections to and from each site, Option 7 Combined is the best on balance as it reduces the engineering complexities and cost of siting the Proposed Development whilst also offering the best opportunity to limit overall environmental impacts in the wider Beauly area.

4.3.5 Potential Site Options near to the existing quarry at Balblair were not originally considered due to the operational nature of the Quarry, space restrictions, cumulative impacts with the existing Beauly substation and proximity to the settlement of Wester Balblair. However, following feedback from consultation with communities and statutory stakeholders throughout March 2023, 5 additional Site Options identified as Quarry A, B, C, D and West of Broallan were then considered. These Options were added to the Stage 1 appraisal and, where feasible, taken through, to a more detailed Stage 2 appraisal and compared against the current best on balance option (Preferred Site), Site Option 7 Combined. Following the Stage 1 appraisal, two additional site options were identified as suitable for Stage 2 appraisal:

- Option 7 / Quarry A: Option 7 comprising a site for locating the 400 kV substation and Option A comprising a site for locating the HVDC station. This option was suggested by the community in a meeting in August 2023.
- Option 4 / Quarry A: Option 4 comprising a site for locating the 400 kV substation and Option A comprising a site for locating the HVDC converter station.

4.3.6 Following the Stage 2 appraisal of the two additional site options Option 4 / Quarry A was deemed not feasible from an engineering perspective, despite slight landscape and visual benefits. When comparing Option 7 with Option 7/Quarry A it was concluded that Option 7 would better accommodate future new connections, if required. Option 7/Quarry A would need approximately 2km of underground cable to connect the two sites including Horizontal Direction Drilling (HDD) under the River Beauly. Overall, Option 7 was considered the more technically and cost efficient option.

4.3.7 Following this Site Option 7 Combined was taken forward as the single site for the Proposed Development.

5. EIA APPROACH, SCOPE, CONSULTATION AND ENERGY POLICY

5.1 EIA Approach

5.1.1 EIA is a process that considers how a proposed development is predicted to change existing environmental conditions and what the consequences of such changes will be. It therefore informs both the design, and the decision-making processes related to the grant of development consents.

5.1.2 The EIA Report has been prepared in accordance with the EIA Regulations and current best practice guidance. The proposed methodologies for the assessment of likely significant effects for each topic area covered in the technical chapters within the EIA Report have been the subject of consultation with statutory and non-statutory consultees.

5.1.3 The result of the assessment is the determination of whether the likely effect of the Proposed Development on the receptors in the study area would be significant or not significant, and, adverse or beneficial.

5.1.4 Mitigation measures have been identified to prevent, reduce, or remedy any potentially significant adverse environmental effects identified, beyond that already taken into account as normal good practice. Such measures would be implemented during detailed design stage, construction and/or operation of the Proposed Development. Each technical chapter of the EIA Report details the measures recommended to mitigate identified likely significant effects.

5.1.5 The EIA has examined potential effects of the Proposed Development on the following factors:

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

5.1.6 Each of the above factors consider how the Proposed Development would affect potential receptors; a group, person, or environment that has the potential to be impacted by the Proposed Development. Some receptors would be more sensitive to environmental impacts than others.

5.1.7 In accordance with the EIA Regulations, the assessment has considered 'cumulative effects'. There are two aspects to cumulative effects, defined as follows:

- In-combination effects: the combined effect of the Proposed Development together with other reasonably foreseeable future developments (taking into consideration effects during the construction and operational phases); and
- Effects interactions: the combined or synergistic effects caused by the combination of a number of effects from the Proposed Development and Associated Development (proposed Beauly Denny 400 kV Overhead Line Diversion) on a particular receptor, which may collectively cause a more significant effect than individually.

5.1.8 The future developments that have broadly been considered with respect to in-combination effects within this EIA Report are shown in **Volume 3, Figure 17.1; Cumulative Developments** and are listed below:

Table 1: Cumulative Developments

ID	Project Name	Ref No.	Planning Portal Link	Application Status	Distance / direction to the Fanellan Hub
SSENT projects (Inter Developments):					
1	SSENT SLBB 400 kV OHL	24/04588/SCOP	LINK	Status: unknown – submission in process	-
2	SSENT BBNP 400 kV OHL	24/03064/SCOP	LINK	Status: unknown – submission in process	-
3	SSENT Western Isles HVDC UGC	-	-	Permitted Development	-
4	SSENT Aigas Substation - Construction of 132kV replacement substation	24/02830/FUL	LINK	Status: under consideration	GIS Substation – 1,591.7 m to the Southeast Converter Substation – 1,238.7 m to the Southeast
5	SSENT Erection of replacement Overhead Line –	22/03536/PNO	LINK	Decision: Prior approval not required	GIS Substation – 2,237.1 m to the Southwest Converter Substation – 1,807.7 m to the Southwest
6	Black Bridge replacement	-	-	Subject to ongoing discussion with The Highland Council	1.39km to the north east of the Proposed Development
3rd Party					

8	Proposed energy storage facility	20/04849/PAN	LINK	Decision: Case Closed	GIS Substation – 2,061.3 m to the Southwest Converter Substation – 1,631.5 m to the Southwest
9	Erection and operation of battery energy storage system up to 49.9 MW, substations, switchgear and control buildings, landscaping, fencing and ancillary infrastructure –	24/01548/FUL (see also 23/03772/SCRE relating to the same project)	LINK	Status: under consideration	GIS Substation – 3,096.1 m to the Southwest Converter Substation – 2,742.1 m to the Southwest
10	Construction and operation of Battery Energy Storage System	24/02885/SCRE	LINK	Decision: Screening Application – EIA not required	GIS Substation – 4,102.5 m to the West Converter Substation – 3,790 m to the West
Associated Development (Intra and Inter development):					
11	Beauly-Denny OHL diversion and tie-ins	24/00834/SCRE	LINK	Decision: Screening application - EIA not required. Voluntary EA being completed	-

5.2 EIA Scoping

5.2.1 Scoping is the stage of the EIA process that sets out what needs to be assessed in the EIA to help define the approach to the assessment and what information may be needed to identify the likely significant effects from the development. Scoping provides a basis for a proportionate approach to EIA that is focused on likely significant effects to be considered and assessed. Consultation and engagement with stakeholders in the early stages of a development helps greatly to inform decisions about the design and the EIA scope.

5.2.2 No screening opinion was sought for the proposed development due to its size and nature, as such an EIA Scoping Report was issued to The Highland Council in June 2024. A Scoping Opinion was provided by The

Highland Council on August 06, 2024 with further follow up on August 15th, 2024. The responses, contained within the Scoping Opinion, were considered in detail during the EIA process. The Scoping Opinion makes reference to site specific issues of interest to The Highland Council, to be considered and addressed in addition to those laid out in responses from consultees. The issues raised are reported in the individual topic based technical chapters within **Volume 2** of this EIA Report.

5.3 Consultation

5.3.1 Consultation is an important part of the EIA process and has been undertaken with a range of organisations and groups. The Applicant has sought to keep an open dialogue with local communities within the vicinity of the Proposed Development since the early stages and throughout the evolution of the Proposed Development. This has included carrying out consultation events during the site selection and consenting stages, engaging with statutory consultees, non-statutory consultees, community members and local organisations including local elected members and engaging with landowners, residents and businesses that may be affected by the Proposed Development.

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

5.4 Planning and Energy Policy Context

5.4.1 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.

5.4.2 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.

5.4.3 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).

5.4.4 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."

5.4.5 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.

5.4.6 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.

5.4.7 And 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

6. LANDSCAPE AND VISUAL IMPACT

6.1.1 A thorough site selection process, followed by a comprehensive design process has been undertaken, with Landscape professionals involved from the beginning of the design of the Proposed Development. It is recognised that a National Development of this scale and nature initiates localised significant landscape and visual effects, however, through the iterative and collaborative design the extent of the potential landscape and visual impacts from the Proposed Development, has been reduced.

6.1.2 The landscape assessment considers the effects of change and development on the landscape as a resource. The character of the landscape derives from a combination of physical factors, natural processes, and human intervention. Landscape effects are a combination of the physical changes to the fabric of the landscape arising from the Proposed Development and perceptual changes – the way these physical changes alter how the landscape is perceived.

6.1.3 Visual assessment is concerned with the general visual amenity of people who may be affected by the Proposed Development and their perception and responses to changes in these views.

6.1.4 The assessment of likely significant effects on the landscape and on visual amenity arising from the Proposed Development considers both construction and operational phases. The assessment considers the baseline conditions and the mitigation that has been built into the design. The assessment reports on the residual effects of the Proposed Development, considering committed mitigation, assessed at Year 15 of operation. Where mitigation planting is particularly prominent in a view, an interim Year 7 planting year is included.

6.1.5 The study area for the visual assessment is based on the results of the visibility study as, by definition, visual effects can only occur where at least some part of the development can be seen. Therefore, the study area for the LVIA has been set at 5 km (though set at 10km for cumulative effects) from the Site Boundary to ensure the assessment focuses on potentially significant effects.

6.2 Baseline Conditions

6.2.1 The Site is located within gently undulating topography. The Site lies on the south facing side of the broad valley of the River Beauly, with the core of the site lying on a hill approximately on the 140m contour, falling to approximately 130m AOD at the southeast and south edge of the Site. The site mainly consists of pastoral fields, bound by trees and scrub. The site is surrounded by Ruttle Wood and open arable fields. The Site is crossed by a number of towers and overhead lines.

6.2.2 The area around the Site has a few farmsteads, cottages, and houses mainly south of Fanellan Road. The Far North Line railway runs to the northeast, with the village of Beauly to the north. Smaller settlements include Kilmorack, Wester Balblair, Aigas, and Kiltarlity. The landscape features many archaeological sites like tumuli and standing stones, highlighting its historical development and contributing to its current character.

6.2.3 The main roads in the Study Area include the A831 to the north, part of the Moray Firth tourist route, and the A833 to the southeast. The A862 connects these roads around Beauly and is a key tourist route. There is a network of minor roads and tracks linking scattered farms, with Fanellan Road running through the Site. Several Core Paths intersect the area, including paths near Beaufort Castle and within the Black Wood and near Eskadale.

6.3 Assessment of Potential Effects

Landscape Assessment

6.3.1 The Proposed Development would change the shape of the land and introduce larger scale infrastructure than currently exists into a predominantly rural landscape. It would have a significant adverse effect on the landscape very locally both during construction and on completion but a non-significant effect on the landscape

more widely. The effect on the local landscape would reduce over time as the mitigation planting becomes established.

Mitigation – Landscape Forms and Planting

6.3.2 The strategic construction of landscape forms and woodland planting serves as an effective measure to mitigate visual and environmental impacts of the Proposed Development.

1.1.1 New landforms will be created to provide immediate screening of the Proposed Development from many views. The design aims to limit views of the lower portions of the Proposed Development. The landscape forms will be located between the development platform and the C1106 (Fanellan Road), screening views of the lower aspects of the Proposed Development from the south and southeast.

6.3.3 Trees will be planted within the Site Boundary (including native woodland planting on the landscape forms) to establish a natural barrier to further obscure the Proposed Development from view, thereby preserving the visual integrity of the surrounding landscape. By carefully selecting the tree species, optimising planting densities, and implementing a robust maintenance plan, the success of strategic planting can be maximised.

Visual Impact Year 1 and Year 15

6.3.4 The degree of significance at individual receptors varies according to their orientation in relation to the Site, local topography, and the presence or absence of screening elements such as buildings, walls, trees and shrubs between the receptor and the Site.

During construction and on commencement of operation there would be significant adverse visual effects on high sensitivity visual receptors including residents and recreational users of Core Paths represented by viewpoints 1, 2, 5, 6 and 7 within two kilometres of the Site. The effect on visual amenity would reduce over time as the mitigation planting develops. By Year 15, the number of residential receptors significantly affected would have reduced however, significant effects would remain for high sensitivity receptors along Fanellan Road and within/adjacent to the Site Boundary.

Cumulative Effects with Other Future Developments

6.3.5 In-combination cumulative effects refer to the potential combined impact of the construction or operation of future developments on the environment, particularly if these impacts interact with each other. These combined effects can be more significant because they may affect the same environmental receptors, such as habitats or species. When considering all future developments together, the combined impact environmental receptors could be much greater than if each development was assessed in isolation.

6.3.6 In-combination cumulative effects relating to the Proposed Development include three proposed overhead line developments: Proposed Beauly to Peterhead 400 kV Overhead Line (BBNP), Proposed Spittal to Beauly 400 kV Overhead Line (SLBB) and Proposed Beauly to Denny 400 kV Overhead Line Permanent Diversion and Tie-ins (to the Proposed Development). It was concluded that the construction of two of these projects would result in potential significant cumulative effects in areas of the LCT 227 in closest proximity to the Proposed Development.

6.3.7 Two of these proposed overhead lines would also result in potential significant cumulative effects at Year 15, to receptors within 2 km to the Proposed Development. Existing overhead transmission lines are already present in the locality.

7. ECOLOGY AND NATURE CONSERVATION

7.1.1 This section has considered the potential for significant effects to ecology, nature conservation and ornithology. The Guidelines for Ecological Impact Assessment (EcIA)[2] define an ecological significant effect as: "…*an effect that either supports or undermines the biodiversity conservation objectives for important ecological features or for biodiversity in general.*"

7.1.2 The assessment has focused on Important Ecological Features (IEFs) that have been established during the scoping and EIA process and that occur within the Proposed Development's Ecological Zone of Influence (EZoI). IEFs are species or habitats present within the Proposed Development's EZoI that are of sufficiently high value that certain levels of impact upon them, as a result of the Proposed Development, could result in a significant effect. The description and valuation of ecological features has taken account of any likely changes, including, for example: trends in the population size or distribution of species; likely changes to the extent of habitats; and the effects of other proposed schemes or land-use changes.

7.1.3 The conservation value of each ecological feature was evaluated within a geographical context using the categories recommended in the Guidelines for EcIA. The evaluation considered a variety of factors including for example (but not exclusively) the rarity of a species or habitat; habitat diversity, whether the species population size is notable in a wider context, whether the habitats are important in supporting a rare species, whether species are on the edge of their habitat range or whether the faunal assemblage is characteristics of that habitat type.

7.1.4 A desk study was undertaken to identify records identified between 2013-2024 (i.e. relatively recent records) of protected or notable species within 2 km of the Proposed Development's red line boundary. This was supported by habitat and species surveys undertaken between December 2022 and September 2024 to establish habitats and identify which protected species are present on Site. Species surveys undertaken included bats; badger; great crested newt; otter; water vole; pine marten; and red squirrel surveys.

7.2 Baseline Conditions

7.2.1 This assessment focused on bats and badger as IEFs. These IEFs have been valued in the context of the Site and surrounding area, and wider conservation status as: bats (at District scale); and badger (at Local scale).

Bats

7.2.2 Eleven commercially available records of bats were identified within 2 km of the Proposed Development's red line boundary.

7.2.3 A total of 29 trees were identified with Potential Roost Features (PRFs) for bats within 30 m of areas anticipated to be impacted by the Proposed Development's construction (the 'Study Area'). A further 16 trees occurred outwith 30 m of the Direct Impact Areas but within 100 m of the potential blasting areas. No roosts were identified within these trees.

7.2.4 Two buildings/structures were identified with PRFs in the Study Area. Two day roosts and one maternity roost were identified in one of these buildings, which is the adjoined residential dwelling at Upper Fanellan Cottages.

[2] CIEEM (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater and Coastal. CIEEM, Winchester.

Badger

7.2.5 One commercially available record of badger was identified within 2 km of the Proposed Development's red line boundary.

7.2.6 Six confirmed setts and two potential setts were identified in the Direct Impact Areas . The potential setts that have not been subject to further survey or monitoring, have precautionarily been assumed as being in use by badgers the EIA Report.

7.3 Assessment of Potential Effects

7.3.1 Construction and operational effects have been assessed, including (but not limited to): works affecting protected resting and/or breeding sites (e.g., disturbance or destruction); mortality and/or injury; loss of resources (i.e. foraging habitat or resting site opportunities); and artificial light at night. The significance of these effects was balanced against the current distribution and abundance of bats and badger, their population trends and conservation objectives at the relevant scale which they have been valued.

7.3.2 With the application of additional mitigation, any residual effects from construction or operation of the Proposed Development on badgers would not be significant. Residual effects on bats would be significant, in a worst-case scenario, however compensation measures have been identified to offset this and ultimately there would be no significant effects on the bat populations at a Local scale. Beneficial effects driven by the landscape proposals have been identified for both badgers and bats but would be Not Significant.

7.3.3 A review of cumulative effects from other relevant developments has also been undertaken and no significant cumulative effects were identified.

7.4 Enhancements

A Biodiversity Net Gain (BNG) assessment has been undertaken to demonstrate that the Proposed Development would be able to deliver significant biodiversity enhancements using a mixture of on-site and off-site habitat enhancement. Opportunities for habitat creation on site were limited and while on site measures will be optimised through the creation of grassland, woodland and reedbed habitat, off-site provision will also be provided to deliver the Applicant's commitment of 10% net gain to achieve an overall positive effect.

8. ORNITHOLOGY

8.1 Baseline Conditions

8.1.1 Baseline ecological desk studies and field surveys were undertaken to understand the sensitive bird species present within the Proposed Development and surrounding area.

8.1.2 The Ecological Zone of Influence is the area over which ecological features may be subject to significant effects because of the Proposed Development. Important Ornithological Features that were identified within the Ecological Zone of Influence were:

- Designated sites;
- Osprey;
- Red kite;
- Peregrine falcon; and
- Honey-buzzard

8.2 Assessment of Potential Effects

8.2.1 The footprint of the Proposed Development avoids statutory designated sites of natural heritage interest and priority habitats, wherever possible.

8.2.2 Construction and operational effects on the above noted species were assessed including effects from blasting, habitat loss, disturbance and displacement from foraging habitat and disturbance and displacement from nest sites. The significance of effects is broadly defined as an effect which either supports or undermines the conservation objective or conservation status of the feature.

8.2.3 Effects to Osprey, Red Kite, Peregrine Falcon and honey buzzard during construction are all deemed not significant. Additional mitigation to minimise effects from blasting is proposed, blasting operations should avoid the most sensitive part of the breeding cycle for osprey (and other relevant schedule 1 raptors) when birds are mating, egg laying and incubating eggs in the period March-May as a minimum, to be informed by pre-construction surveys and construction monitoring.

8.2.4 The implementation of species protection plans (SPPs) will assist in implementing mitigation measures and reducing effects to sensitive species.

8.2.5 A review of cumulative effects from other relevant developments has also been undertaken and no significant cumulative effects were identified.

8.2.6 **Conclusions**

8.2.7 Through the successful application of embedded mitigation and precautionary additional mitigation, it was concluded that the Proposed Development would not result in a residual significant effect on any sensitive ornithological receptors.

9. CULTURAL HERITAGE

9.1.1 Cultural Heritage comprises a diverse range of elements that are referred to throughout the EIA Report as heritage assets. Heritage assets are features created or that have undergone modification from human activity. This includes a wide range of visible and buried archaeological sites and monuments, as well as other historic features or places. Heritage assets comprise World Heritage Sites, Scheduled Monuments, Listed Buildings, Gardens and Designed Landscapes (GDL), Inventory Battlefields, Conservation Areas, buried archaeological remains, other historic buildings and earthworks.

9.1.2 The Site forms the basis for the identification of heritage assets that could receive direct physical impacts arising from the construction of the Proposed Development. A Study Area of 1 km, extending from the edge of the Site has been used for the identification of designated heritage assets whose setting is significant enough to be affected by the Proposed Development (including cumulative effects). The Zone of Theoretical Visibility (ZTV) was used to ensure other designated heritage assets outside of the study area were considered within the assessment, where deemed necessary.

9.1.3 The assessment has been informed by a review of all available archaeological records, historical documentary evidence, cartographic evidence, and photographic material. A targeted walkover survey of the accessible areas within the Site was carried out in January 2023 by heritage professionals.

9.2 Baseline Conditions

9.2.1 There are 27 heritage assets included within the baseline for the assessment. 23 of these heritage assets are noted within the Site and Study Area. Four additional scheduled monuments were added to the baseline following the response to scoping from Historic Environment Scotland (HES).

9.2.2 There are ten non-designated heritage assets within the Site boundary, consisting of potential prehistoric settlement remains, a prehistoric cairn, a medieval grave, and post-medieval cottages. The Study Area contains two Scheduled Monuments, one GDL, and ten listed buildings. The four other Scheduled Monuments included in the baseline through consultation with HES were outside the Study Area.

9.2.3 The Site has a high potential to contain archaeological remains from the prehistoric and post-medieval period. This is due to the presence of heritage assets dating from these periods within the Site, which includes the prehistoric cairn, sub-surface remains, and post-medieval buildings. There is a low potential for medieval remains to be present within the Site. Any medieval remains located within the Site are anticipated to relate to agricultural activities.

9.3 Assessment of Potential Effects

9.3.1 All groundbreaking activities associated with the construction of the Proposed Development have the potential to directly impact upon heritage assets. Such activities include, but are not limited to groundworks, topsoil stripping, ground compaction, access, drainage, stockpiling, and storage. It has been assumed that any known heritage assets or currently unknown sub-surface archaeological remains will be physically impacted by these works and wholly removed.

9.3.2 Of the ten heritage assets within the Site, three are outside the construction areas and will not be physically impacted upon, and two relate to archaeological remains previously excavated, recorded and removed. It has been assumed that the remaining five heritage assets would be wholly removed as part of the Proposed Development. The resulting effect is not deemed to be significant as the heritage assets are anticipated to relate to the archaeological remains previously excavated and disturbed. Impacts during the operation of the Proposed Development relate to potential changes within the setting of designated heritage assets due to the addition of modern infrastructure within the existing landscape. A bare earth Zone of Theoretical Visibility was used in the assessment of effects of changes within the setting of designated heritage assets.

9.3.3 Potential impacts were identified during operation to seven designated heritage assets: Culburnie Ring Cairn & Stone Circle (SM2425), Beaufort Castle GDL (GDL00052), Beaufort Castle (LB8068), Belladrum, chambered cairns (SM2435), Dun Mor, fort (SM4979), Phoineas Hill, enclosure (SM4729), and Dun Mor, fort, Ballindoun (SM2423).

9.3.4 Impacts to settings are anticipated on all seven of the heritage assets with the significance of effect expected to be no more than Slight Adverse (not significant). This is due to the undulating topography of the agricultural landscape, screening from mature planting, and the distance between the heritage assets and the Proposed Development.

9.3.5 The assessment also concluded that there will be no cumulative effects in relation to heritage assets.

9.4 Mitigation

9.4.1 The following measures are required to mitigate construction impacts:

- Demarcation and avoidance of three heritage assets which should not be impacted;
- archaeological evaluation in the form of trial trenching within the Site; following a scope to be agreed with the Highland Council Historic Environment Team; and
- Archaeological excavation of the known archaeological remains within the Site where they are anticipated to be removed, following a scope to be agreed with the Highland Council Historic Environment Team

9.4.2 Once the proposed mitigation measures are considered, any residual effects arising from the construction of the Proposed Development would be not be significant.

10. TRAFFIC AND TRANSPORT

10.1 Introduction and Context

10.1.1 Getting plant and equipment for substations and converter stations to sites can be challenging. The traffic associated with the construction of the Fanellan Hub involves general HGVs, and also specialist vehicles for the delivery of transformers and plant equipment. For Fanellan Hub, it is proposed that access to the Site will be taken from a new junction with the Fanellan Road (C1106), approximately 5 kilometres (km) south, south-west of Beauly within The Highland Council (THC) local authority.

10.1.2 It is noted that the most suitable and preferred route to access the Site uses the Black Bridge over the River Beauly close to the A831. Currently, the Black Bridge has limited structural capacity, and replacement is required to facilitate the heavy deliveries needed to travel to Site, however we understand these works will not be complete prior to construction traffic requiring access to the development Site, currently programmed in September 2025, subject to consent.

10.1.3 Therefore, in order that the development can progress prior to completion of bridge replacement works, it is proposed to use an alternate access route to the Site during this period which routes through Kiltarlity. It is anticipated that after Black Bridge has been replaced that construction traffic can be redirected to the preferred route via Black Bridge from the A831 via Fanellan Road (the C1106) for the remainder of the Proposed Development. Therefore, the construction traffic relating to the project has been extracted from the indicative construction programme before and after the anticipated completion of the black bridge works, and this EIA Traffic and Transport Chapter has assessed both of the proposed routes to Site in two separate assessments.

10.1.4 The applicant is currently working with The Highland Council to understand timescales for completion for the Black Bridge replacement. The works are currently programmed to be finished by August 2027, however if planning permission is not required then completion could be as early as December 2026. The assessment of traffic and transport within **Section 12.5** within **Volume 2, Chapter 12: Traffic and Transport**, therefore has the following structure:

- Phase 1: Before construction of Black Bridge, via Kiltarlity - assessment undertaken in 2026; and
- Phase 2: After construction of Black Bridge, via the A831 - assessment undertaken in 2027.

10.1.5 With the exception of the larger substation construction elements (such as transformers) which are anticipated to be delivered after replacement of the Black Bridge via the A831, the vast majority of larger traffic elements that will route via Kiltarlity will be normal construction equipment (such as excavators), which will arrive to Site on regular low loader trailers.

10.1.6 The Port of Entry for the transformers is currently unknown; however the Port of Nigg, Invergordon and North Kessock Ports are currently being considered. It is expected that the transformers would be transported using specialist girder frame trailer (GFT). The total number of these deliveries are yet to be confirmed, however they are to be transported in convoy (if using the same route to Site). To accommodate the movement of these transport trailers, traffic management measures and road widening will likely be required at several locations along the route.

10.1.7 As previously stated, the **Chapter 12 Traffic and Transport** assessment within **Volume 2** is split into two assessments. The trips associated with each assessment are as follows:

- The ‘Phase 1: Before construction of Black Bridge’ Scenario which routes traffic via Kiltarlity confirms that the highest number of construction related deliveries is predicted to occur in November 2026, and would be 68 Heavy Goods Vehicles (HGVs) daily trips (to and from Site) and 112 Total daily trips, including Cars and Light Goods Vehicles (LGVs). Over the 11-hour proposed construction traffic movement window this equates to an average of 6 HGV trips per hour via Kiltarlity.
- The ‘Phase 2: After construction of Black Bridge’ Scenario which routes traffic via the A831 confirms that the highest number of construction related deliveries is predicted to occur in October 2027, after Black Bridge construction works are finalised, and would be 292 HGV daily trips and 396 total daily trips. Over the

11-hour proposed construction traffic movement window this equates to an average of 27 HGV trips per hour via the A831.

10.1.8 Traffic generated during operation is expected to minimal and is scoped out of assessment within the EIA, however this is quantified within **Volume 4, Appendix 12.2 Transport Assessment** and the level of parking on Site will be proportionate to the maintenance, and training facilities required.

10.1.9 As planning permission is pursued in perpetuity, is it considered that decommissioning will not be assessed. If the Development was to be decommissioned and the Site reinstated, this would involve similar access requirements as the construction phase, though the number of HGV movements would be reduced as it is likely loads could be condensed.

10.2 Likely Significant Effects

10.2.1 The potential impact of the construction related traffic on the local road network is not considered significant when compared to the current capacity and usage of the roads. There may be a minor effect upon the perceived division of community through Kiltarlity that can occur with increases in traffic flow, and pedestrian delay and amenity through pedestrian routes near the Site that will be crossed by the construction traffic access routes. There may also be a minor effect on the risk to road user and pedestrian safety due to the temporary increase in the number of HGVs using the local road network. These minor, not significant impacts will be minimised further through development of a range of traffic manage measures.

10.3 Mitigation

10.3.1 The assessment predicts that, prior to mitigation measures, the temporary increase of construction traffic would be generally not significant within the local road network, but that there would be a minor effect to mitigate against.

10.3.2 A CTMP would be prepared to manage the general construction traffic and the larger specialist deliveries. As part of this CTMP, it is anticipated that holding areas would be provided within the Site to control the flow of construction traffic vehicles to be released in convoy from the Site to reduce the potential for two larger vehicles to meet on the unclassified roads which are to be used to support access to the Site. There may also be timing restrictions on HGV movements throughout the construction day to ensure trips are made outwith peak hours for school drop offs and any other local events. In addition, the CTMP would detail the necessary Public Road Improvements (PRIs), and the road user and pedestrian construction Signage Strategy.

10.3.3 The CTMP will also identify measures to reduce the number of construction vehicles, as well as considering ways to reduce or avoid the impact of vehicles through construction programming / routeing and identification of an individual with responsibilities for managing transport and access effects. This could include the setup of community liaison groups to ensure mitigation measures are discussed with the local population to ensure they are fit for propose.

10.3.4 The full content of the Final CTMP would be agreed with The Highland Council, in consultation with the relevant Road Authorities and the Police to ensure road safety. An Outline CTMP has been submitted with this application, which will need to be reviewed and updated by the Principal Contractor when preparing a Final CTMP.

11. HYDROLOGY, HYDROGEOLOGY, GEOLOGY AND SOILS

11.1.1 The potential for construction and operational effects on hydrology, hydrogeology, geology, and soils have been assessed for the Proposed Development and the associated "Site".

11.1.2 The following sensitive hydrology, hydrogeology, geology, and soils receptors within 1 km of the Site have been identified:

- Surface water bodies, including the River Beauly, and its tributaries including multiple minor watercourses;
- Groundwater bodies, specifically the Northern Highlands Groundwater Body;
- GWDTE; and
- Flooding.

11.1.3 The assessment considered how the Proposed Development would potentially affect the sensitive receptors listed above through the impacts of pollution of surface watercourses, groundwater, and water supplies; changes to resource availability; loss and compaction of soils; modification of groundwater levels and flows, and surface water drainage patterns, and short-term flood risk increase during the construction of the Proposed Development.

11.1.4 Baseline conditions for the Proposed Development were established through desk study, consultation with Scottish Water, The Highland Council, Scottish Environment Protection Agency (SEPA) and landowners to identify water abstractions and PWS, and a site walkover visit to identify watercourse crossings.

11.2 Baseline Conditions

11.2.1 The Proposed Development is located within the River Beauly catchment, located to the south of the River Beauly, with its closest point being 350 m from the river. The River Beauly flows in an easterly direction before discharging into the Beauly Firth, leading into the Moray Firth coastal water body. The River Beauly drains a catchment of approximately 1,000 km^2 of land. The Site is located approximately 400m northwest of Allt na Loin, 800m southeast of Breakachy Burn, and 900m west of Bruiach/Belladrum Burn; all tributaries of the River Beauly.

11.2.2 The Proposed Development does not require any crossings or culverting any major watercourse, with the exception of the associated access tracks. Three small unnamed watercourses, likely modified drainage channels, have been identified within the Site that require crossings/culverting.

11.2.3 No SSSI, SAC, SPA, Ramsar sites, Geological Conservation Review (GCR) sites, or Marine Protection Areas have been identified within 1 km of the Site.

11.2.4 There are two PWSs within 1 km of the Site neither of which are within the Site. Scottish Water data indicates that there are no public water abstraction points within a 1 km radius of the Site. There are two SEPA CAR abstractions within 1 km of the Site. The Site is not located within a DWPA.

11.2.5 The bedrock formations underlying the Proposed Development are Ousdale Arkdale Formation, composed of Breccia, conglomerate and sandstone with subsidiary mudstone Superficial deposits underlying the Site for the Proposed Development include glacial sand and gravel, and till (diamicton) and undifferentiated river deposits (clay, silt, sand and gravel).

11.2.6 There are no historical records of contaminated land within the Proposed Development. Contaminated soil is unlikely to be present within the Site due to it being previously undeveloped, with historical and present land use being for agricultural.

11.2.7 SEPA indicative flood mapping indicated that the Site contains no areas of high, medium or low risk river flooding. There are small, localised areas at high risk of surface water flooding in the forested region in the north of the Site.

11.2.8 Three clusters of NVC communities indicative of GWDTE were identified within 250 m of the Site. Given the presence of the watercourses, topography, and the noted NVC communities, these are unlikely to be groundwater dependent. Based on these assumptions, the presence of GWDTE is unlikely.

11.3 Assessment of Potential Effects

11.3.1 The following sensitive hydrology, hydrogeology, geology, and soils receptors associated within 1 km of the Proposed Development have been identified:

- Surface water bodies, including the River Beauly, and its tributaries including multiple minor watercourses;
- Groundwater bodies, specifically the Northern Highlands Groundwater Body;
- GWDTE; and
- Flooding.

11.3.2 The assessment considered how the Proposed Development would affect the above sensitive receptors. The assessment has concluded that with the implementation good practice measures and mitigation by design, including those outlined within the GEMP and CEMP, no significant effects are predicted for the hydrology, hydrogeology, geology, and soils receptors.

11.3.3 Significant cumulative effects are not anticipated. Furthermore, the differing construction programming and activities that would be anticipated to occur across various developments reduces the probability that water quality and flow issues would be coincident across the catchments.

12. NOISE AND VIBRATION

12.1.1 This chapter identifies the likely impacts on noise sensitive receptors associated with the construction and operation of the Proposed Development.

12.1.2 To support the Proposed Development a construction and an operational noise and vibration assessment have been carried out. This study assessed the existing noise environment and the potential noise impact of the Proposed Development, including cumulative effects with other developments.

12.1.3 The Proposed Development will include a High Voltage Direct Current (HVDC) Converter Station and a 400 kV Switching Station. These contain various potential sources of environmental noise, the most significant of which are transformers and associated cooling equipment. Additional sources in HVDC converter stations and switching stations are items such as reactors and capacitors. The noise from these sources is usually steady and is assessed using standard noise assessment techniques.

12.2 Baseline Conditions

12.2.1 Noise monitoring has been conducted in the vicinity of the Proposed Development to determine the existing prevailing noise environment. Long-term noise measurement equipment was commissioned at nearby noise sensitive receptors (NSRs) relating to the Proposed Development to establish current background noise levels. The results indicate that the surrounding area is generally rural and quiet, with road traffic on Fanellan Road being the primary noise source during the daytime. At night, noise levels are very low, with no dominant sources of noise.

12.2.2 Noise levels recorded at six monitoring locations ranged between 23 and 32 dB LA90 at night and 26 to 34 dB LA90 during the day.

12.3 Assessment of Potential Effects

Construction

12.3.1 A desk-based construction noise assessment, in line with BS 5228, has been prepared for the purpose of assessing the effects of the works on any nearby residents. NSRs in the vicinity fall under Category A, and construction noise is predicted to be above the 55 dB Evening and Weekends limit during all stages of the Proposed Development work, and all stages of the proposed associated Beauly Denny Overhead Line Diversion works, and therefore construction noise is assessed initially as Major significance.

Operational

12.3.2 Operational noise has been assessed to BS 4142 and BS 8233 standards. The results of the external BS 4142 assessment predict Minor (Not Significant) effects with a maximum 2 dB excess above background at NSR 2 noise during daytime conditions. During nighttime the maximum excesses are predicted as 4 dB for NSRs 2 and 6. This assessment is conservative, while using inputs available for a non-acoustically optimised site, is assuming the cooling is fully active during the day (cooling is not likely to be fully active during the day in normal operating conditions) and has a 4 dB tonal penalty applied (which is conservative due to lower tones from capacitors and transformers are housed indoors). The maximum absolute level increase is 3 dB, which is widely accepted in industry as ‘just perceptible’.

12.3.3 Considering context, an internal noise assessment was conducted for the operational noise from the Proposed Development, according to BS 8233. The internal noise assessment indicates noise meets NR20 criteria, and therefore the effect is Minor (Not Significant).

12.3.4 Noise excess is limited to the operation of external cooling equipment. It has been identified that this issue will be limited to where the Proposed Development is operating at higher loadings and higher ambient temperatures

and requirements for the cooling system are close to its maximum level. It has been shown that the maximum load in an exceptional circumstance and is not expected to occur for a significant amount of time.

12.3.5 No significant residual effects are predicted. In detailed design, any minor effects are likely to be reduced further.

12.3.6 Cumulative noise has been considered from the OHL works (proposed Beauly to Denny OHL diversion, proposed Beauly to Peterhead 400 kV OHL and proposed Spittal to Beauly 400 kV OHL). Effects are deemed to be Not Significant effect from cumulative SSEN Transmission Developments during the operational phase.

12.4 Mitigation

Construction

12.4.1 It is recommended that a Construction Noise Management Plan (CNMP) be developed by the Principal Contractor (PC) to minimise noise impacts. , The implementation of a robust CNMP, prioritising particularly noisy work (such as crushing in earthworks) during daytime defined hours with a higher 65 dB limit, and careful consideration of the location of crushing activities, will help construction noise of the Proposed Development to achieve a Minor (Not Significant) impact on nearby NSRs. OHL construction works such as felling and foundation work should also implement a detailed CNMP which considers the reduction of operational time for the noisiest equipment. If blasting is required, best practice is encouraged to minimise impact on residents. Careful management of the blasting process must take place through a Blasting Management Plan to minimise effects. Black Bridge site establishment works are not predicted to increase any noise at NSRs above the 65 dB limit. Implementing the above mitigation will lead to Not Significant residual effects.

Operation

12.4.2 To further reduce potential noise impacts, the use of low noise equipment is recommended for key components such as cooling systems, AC capacitors, filters, and HVAC units. The principle of ‘as low as reasonably practicable’ (ALARP) should guide design decisions to minimise noise where possible during the detailed design phase of the project.

12.4.3 An updated noise impact assessment should be conducted during detailed design, following further refinement of the assessment data and the implementation of mitigation.

13. FORESTRY

13.1 Baseline Conditions

13.1.1 The potential for effects to forestry operations and arboricultural features has been assessed for the proposed development

13.1.2 A total of 174 arboricultural features were surveyed within the Study Area, consisting of 90 individual trees and 84 groups. Of these, 17 features were assessed as high quality, 97 of moderate quality, 53 of low quality and seven of very low quality. Three trees have been recorded as veterans. Twenty-two forestry coupes were observed during the surveys with the majority of coupes within Ruttle Wood coniferous plantation and coupes within Fanellan Wood predominantly mature, deciduous woodland.

13.2 Assessment of Potential Effects

13.2.1 The Proposed Development would result in the removal or partial removal of 47 features comprising the removal of 20 individual trees and 14 groups, and partial removal of 13 groups. Of these, 4 are of high quality, 30 of moderate quality, 11 of low quality and two of very low quality. Fourteen features anticipated for removal or partial removal, are designated as ancient woodland.

13.2.2 The Proposed Development in conjunction with the associated development of the proposed Beauly Denny 400kV Overhead Line Diversion is anticipated to result in the removal of 7.09 ha of forestry. Tree removal associated with the Proposed Development would not be considered to significantly impact any management or objectives of the forestry.

13.2.3 Despite the proposed mitigation, tree loss cannot be avoided from arboriculture risk assessment area A, individual trees and small groups within agricultural land and risk assessment area B, deciduous or mixed woodlands within agricultural land. As such, the residual effects are unchanged and remain as Moderate significant effect for arboriculture risk assessment A and Major significant effect for arboriculture risk assessment area B.

13.2.4 The remaining features, and trees remaining in partially removed groups, have been assessed as suitable for retention assuming the tree protection measures detailed in an Arboricultural Method Statement (AMS) and indicatively shown on the Tree Removal and Protection Plan are adhered to.

13.2.5 Tree loss would be compensated through the implementation of a landscape design including new tree planting.

14. SOCIO-ECONOMICS, TOURISM AND RECREATION

14.1.1 The socio-economic assessment identifies the likely impacts on socio-economic sensitive receptors associated with the construction and operation of the Proposed Development.

14.1.2 The methodology for assessing socioeconomic impact in relation to both the construction and operational phase of the Proposed Development begins with a comprehensive Baseline Assessment, establishing the current socioeconomic conditions in the area. Following this, Proposed Development Specific Inputs, such as footprint, worker strategy, and capital costs, were integrated, detailing the anticipated changes and investments associated with the development. These inputs were then used to analyse the economic interactions and impacts (in Input / Output Modelling), whilst an Assessment of Tourism and Recreation was conducted to evaluate the potential effects on local tourism and recreational activities. The results from these analyses informed the GVA (Gross Value Added) and Employment Calculations, providing a detailed understanding of the economic contributions and job creation potential. These findings were then compiled into Assessment Outputs, offering a holistic view of the development's socioeconomic impact, including its influence on tourism and recreation.

14.1.3 The three scales defined in the socioeconomic assessment to capture the varying levels of potential impact were:

14.1.4 Local (Highland Council), focusing on the immediate context of the development;

14.1.5 Regional (Scotland) assessed the broader impacts across Scotland;

14.1.6 National (UK) scale examined the project's wider socioeconomic implications, considering its potential influence on national economic patterns and contributions within the UK.

14.1.7 In addition to these broader geographical scales, more detailed baseline data is used. This granular data allows for a more focused assessment of localised impacts, considering the unique characteristics and socio-economic dynamics of this specific area. It is at this level that the induced benefits —such as spending by workers and contractors— are expected to occur, further stimulating economic activity within the local area.

14.1.8 For the assessment of tourism and recreation, the study area is more site-specific. This includes the land within the boundaries of the Proposed Development and associated works, as well as immediately adjacent areas where direct effects, such as visual or noise impacts, might be experienced. The study also considers a wider area extending up to 5km from the centre of the Proposed Development, to account for any indirect effects on tourism assets or recreational activities within the broader vicinity.

14.1.9 By tailoring the study areas to these different scales, the assessment ensures that both localised and broader socio-economic, recreational and tourism impacts are thoroughly evaluated.

14.2 Baseline Conditions

14.2.1 The baseline assessment for the socioeconomic impact of the Proposed Development provides a detailed overview of current conditions in the study area, covering population, economic activity, employment, supply chain capacity, qualifications, earnings, GVA, deprivation, land use, housing, tourism, and recreation.

14.2.2 The population analysis indicates a small working-age population with many residents over 65. Economic activity in the Highland Council Area is similar to Scotland and the UK, but with 0% unemployment and high economic inactivity. Employment data shows that the construction industry dominates, accounting for 70% of

employment in the Inverness West Rural - 09 Data Zone. The high concentration of construction employment could benefit the local economy if the necessary skills are available.

14.2.3 The workforce is slightly less qualified than Scotland's average but better than the UK's. The mean annual pay in the local area is £33,900, which is lower than the national mean but higher than the Scottish mean. The GVA per worker in Inverness West Rural - 09 Data Zone is high. Deprivation levels are relatively low in the area.

14.2.4 Land use within the redline boundary of the Proposed Development substation is predominantly pasture, with some forest. The housing vacancy rate is high, with many long-term empty homes. Tourism and recreation have significant potential for adventure tourism and cultural experiences, with numerous recreational routes and nearby attractions.

14.3 Assessment of Potential Effects

14.3.1 The Proposed Development is expected to bring moderate socioeconomic benefits to the Highland Council Area, Scotland, and the UK. These benefits include job creation and increased Gross Value Added (GVA) through direct, indirect, and induced impacts.

14.3.2 The construction phase should supply DIRECT GVA of £25 million, total GVA of £35 million, and 318 job years to the Highland Council Area.

14.3.3 Scotland will benefit from total GVA of £331million and 3,040 job years, and the UK will benefit from total GVA of £701million and 6,590 job years.

14.3.4 The Proposed Development is expected to give a significant boost to the Construction Sector, potentially enhancing local economic resilience. The Tourism Sector will potentially have positive impacts from improved infrastructure, but this may enhance possible short-term disruptions.

Moderate effects to recreation users at nearby outdoor recreation facilities have been identified during construction.

14.3.5 The overall impact of the Proposed Development is expected to be overwhelmingly positive, with strategic planning needed to maximise benefits and mitigate adverse effects.

14.3.6 There is potential for cumulative effects on recreational users and tourists in the area due to the convergence of several projects at the Proposed Development site but it is anticipated that there is sufficient tourism accommodation capacity within the vicinity of the Proposed Development, as such, cumulative impacts on tourist accommodations are not expected during construction work.

14.3.7 A number of tourist attractions and recreational uses within the vicinity of the Proposed Development have been noted in the assessment and there is the potential for cumulative effects to tourists and recreational users from changes to the visual landscape during both construction and operation. However, it is expected that the distance from the Proposed Development to these receptors and natural screening will help minimise effects, it is also anticipated that tourists and recreational users are resilient enough to be able to adjust to the changes.

15. CUMULATIVE EFFECTS

15.1 Summary of Cumulative Effects

15.1.1 The assessment of Cumulative Effects (Effect Interactions) identified two potential receptors (nearby residents to the Proposed Development and recreation features/tourist attractions) likely to see a measurable effect interaction from the Proposed Development and the associated development (proposed Beauly Denny 400 kV Overhead Line Diversion). This being residential receptors in the vicinity of the Site and recreational features and tourist attractions. The assessment concluded no significant effects on residential receptors and recreational features and tourist attractions in both the construction and operation phases.

15.1.2 The cumulative effects assessment also looks to evaluate potential effects from multiple transmission projects on individual disciplines. When considering the effects of other projects such as interconnecting overhead line projects, cumulative effects were only noted with respect to landscape and visual amenity.

16. SUMMARY

16.1.1 The Proposed Development is required to substantially strengthen the local transmission network and support new onshore and offshore connections, such as those created through the Scotwind offshore lease rounds. The Proposed Development will further help facilitate the export of future renewable generation from the North of Scotland to demand centres throughout the UK.

16.1.2 An EIA has been undertaken to assess the likely significant effects arising as result of the Proposed Development, with the EIA assessments showing that through careful and iterative design of the Proposed Development, through site-specific mitigation measures and the use of good practice methodologies during construction, the potential for adverse environmental effects has been reduced, with likely significant residual effects limited to localised effects on landscape and visual receptors and arboriculture.