Scottish & Southern Electricity Networks
TRANSMISSION

CONTENTS

3. PROJECT DESCRIPTION

3.1 Introduction

3.1.1 This chapter describes the elements required for the construction and operation of the Proposed Development. It provides a description of the key components and information regarding the construction, operation and maintenance of the Proposed Development. The Proposed Development is shown on **Volume 3, Figure 1.2 – Proposed Development**.

3.2 Location of the Proposed Development

3.2.1 The Proposed Development would be located in Aberdeenshire, approximately 5 km to the west of New Deer, and 2.5 km to the south of Cuminestown (National Grid Reference NJ 819 476). The Site (shown on **Volume 3, Figure 1.1 – Site Boundary**) covers an area of approximately 115 ha, has a favourable topography, with good accessibility from the B9170 which lies to the northeast.

3.2.2 The Site is located on, and surrounded by, agricultural land that is primarily used for pasture and / or arable farming, with a predominantly rural character. There is an area of commercial forestry within the northwest of the Site. There are a number of neighbouring residential areas, private properties and farms within close proximity to the Site. The Site in relation to environmental features and designated sites in the local and wider Aberdeenshire area is shown on **Volume 3, Figure 3.1 Environmental Constraints Plan**.

3.3 Description of the Proposed Development

3.3.1 The Proposed Development comprises an Air Insulated Switchgear (AIS) substation, which uses switchgear that relies on open air components. As such, there is only a limited requirement for buildings to be constructed as part of the development. Where required, such buildings would likely comprise a steel portal frame with metal cladding and roof and be designed to minimise visual and noise impact and increase security of supply. The elements described below are to be included as part of the Proposed Development.

400 kV Substation

3.3.2 The 400 kV substation will comprise two 400 / 132 kV Super Grid Transformers (SGTs), outdoor AIS and associated busbars. The SGTs will be enclosed to protect from the weather and reduce the noise impact. The substation layout is composed of a series of 27 bays that will provide the necessary gantry connections for current and future OHL and underground cable (UGC) connections requirements that will come in and out of the substation. The platform footprint, which also accommodates service roads, parking areas and circulation space for management and maintenance of the substation, measures approximately 375 m width by 700 m length, lying at 130 m above ordnance datum (AOD). The highest structures on the Site will be the two synchronous condenser buildings with approximate height of 14.5 m height, with the bays / gantries lower at circa 13 m.

3.3.3 The proposed AIS substation offers a SF6 free technology solution, which is a key part of the Applicant's commitments and responsibilities to the decarbonisation of the electricity network. However, this solution requires greater safe clearance distances between live conductors resulting in a larger overall footprint compared to the more traditional substations comprising internally housed Gas Insulated Switchgear (GIS).

Plate 3-1 Example 400 kV Substation

OHL Tower Platform

3.3.4 There is one OHL platform to the north of the substation platform for which consent is sought as part of the Proposed Development, which will be formed from crushed stone. This platform will be 200 m by 90 m and will be for two towers for the BBNP 400 kV OHL to enter and leave the Site. The associated OHL towers and their foundations are to be consented through the BBNP 400 kV OHL Section 37 Consent and therefore do not form part of this application.

Substation Buildings

3.3.5 There will be three buildings situated within the substation, with two housing synchronous condensers required to support the substation and one smaller building to provide office space, low voltage control equipment for operation of the substation, welfare and spare storage accommodation.

3.3.6 Approximate dimensions for the synchronous condenser buildings are height of 14.5 m, width of 32.3 m and 33 m length; approximate dimensions for the control building are height of 6 m, width of 24.6 m and 48.9 m length.

Drainage

3.3.7 A surface and foul water drainage strategy (see **Volume 4, Appendix 12.2: Drainage Impact Assessment**) has been prepared for the Proposed Development. The Drainage Impact Assessment (DIA) defines the drainage strategy for the Site. The principles of the drainage strategy are to replicate the existing quality and quantities of run-off presently associated with the Site ('greenfield run-off rates'), wherever it is reasonable and practical to do so. All post development run-off shall also be dispersed in accordance with Aberdeenshire Council and SEPA guidelines.

3.3.8 The proposed surface water design follows the philosophy detailed in CIRIA C753: The SuDS Manual[1] wherever possible. All proposed drainage within the Site will be drained using SuDS principles outlined below:

- natural run-off collection and diversion (where required);
- platform surface water run-off drainage collection and routing; and
- SuDS basins, cut-off drains & ditches for treatment and attenuation.

3.3.9 The existing engineered ditches within the Site are required to be realigned to accommodate the Proposed Development. The realigned watercourses are shown on **Volume 3, Figure 1.2 – Proposed Development**.

[1] CIRIA (2015), The SuDS Manual (C753).

3.3.10 The substation platform will be constructed with a 1 m free-draining granular material to provide infiltration through the platform. Overland flow and excess surface water flow from the platform will be collected via perimeter drainage and discharged to SuDS basins for treatment and attenuation (see example detention basin shown on **Plate 3-2**), before eventually discharging into one of the existing or proposed realigned channels, discharging to the Burn of Greens.

3.3.11 Flows from the run-off from proposed building roofs and pumped flows from the bunds and tanker standing areas will drain into pipework sized to prevent any surface flooding during a 1 in 1000-year return period storm. The proposed access tracks will drain into a combination of filter drains, gullies and drainage ditches and flow towards a series of below ground pipe systems and/or swales. Once the surface water run-off has been collected, it will outfall to the proposed SuDS basins.

3.3.12 All SuDS basins have been designed to accommodate a maximum run-off from a 1 in 200-year storm event from hardstanding areas (substation platform and access road) plus a 37% allowance for climate change. The SuDS have been integrated within the landscape proposals to enhance amenity, biodiversity, and habitat, whilst protecting and / or enhancing water quality.

3.3.13 During construction, conveyance ditches will be installed around construction laydown areas and will discharge into settlement lagoons. Domestic flows from the office and welfare facilities will be connected to a septic tank.

Plate 3-2 Example SuDS Basin

Lighting

3.3.14 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 access roads would not be lit under normal operation. The perimeter fence would use infra-red lighting (this would only switch to white light if the fence alarm were activated to allow nighttime cameras to work better). Sensor activated lighting would also be provided permanently at access gates.

Security Fencing

3.3.15 A 2.4 m high galvanised steel palisade fence topped with a 1.6 m high Perimeter Intruder Detection System (PIDS) would be installed around the substation platform. In addition, a standard post and wire perimeter fence would be installed around the Site Boundary, this would be a stock / deer proof fence of a minimum height of 1.8 m to exclude grazing animals and allow establishment of landscaping and screen planting.

Design and Access

3.3.16 The design principles of the Proposed Development have been driven by a combination of technical requirements, and adopted design principles to ensure the Proposed Development is sensitively sited and designed (see **Volume 2, Chapter 4 – Site Selection and Alternatives**). Mitigation, in the form of landscape planting and mounding has been included in the final design (see **Volume 3, Figure 8.7: Landscape and Ecological Mitigation**) to provide habitat biodiversity and minimise potential landscape and visual impacts where possible.

3.3.17 It is proposed that new permanent access would be formed from the existing minor public road (C29S) leading from the B9170, as well as permanent access roads on site to provide access to the proposed infrastructure.

3.3.18 Construction access to the Site is discussed in **Section 3.8**.

3.3.19 Further details are provided in the Design and Access Statement, which accompanies the planning application for the Proposed Development.

Earthworks

3.3.20 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 substation platform or imported locally. A detailed cut-fill exercise would be undertaken to achieve a level platform on which to construct the substation infrastructure.

Underground Cabling

3.3.21 The proposed UGC works between the Proposed Development and the existing New Deer Substation (approximately 2 km to the southeast of the Site) fall under SSEN Transmission's permitted development rights and comprise the installation of a new aluminium conductor 400 kV underground cable circuit. The UGC is not included as part of this EIA and will have a separate voluntary environmental appraisal undertaken to support construction of the UGC.

3.4 Typical Construction Activities

3.4.1 Key tasks during construction of the Proposed Development would relate to:

- enabling works, site clearance and demolitions;
- substation platform earthworks and creation of a level platform;
- construction of perimeter and site drainage, including SuDS;
- construction and installation of the substation buildings;
- installation of electrical plant;
- creation of landscaping features (planting and mounding);
- erection of a palisade security fence up to approximately 4 m in height around platforms;
- commissioning; and
- reinstatement.

3.5 Felling Requirements

3.5.1 Felling of approximately 4.4 hectares (ha) of woodland (mainly comprising sitka spruce, larch, sycamore, Wych elm, willow, ash and beech) would be required to accommodate the construction of the Proposed Development. This includes felling of 1.94 ha of native broadleaved woodland.

3.5.2 In line with the Scottish Government's Control of Woodland Removal Policy (CoWRP)[2] , the Applicant will ensure there is no net loss of woodland. All compensatory woodland will be provided within the Site Boundary. A Woodland Report providing further details on felling requirements, compensatory planting and future management requirements is included within **Volume 4, Appendix 7.1: Woodland Report**.

3.6 Demolitions

3.6.1 At this stage, it is anticipated that a number of existing buildings on site would be demolished to facilitate the Proposed Development. As the design develops, it may be that not all the properties identified may need to be demolished, however for the purpose of this assessment it is assumed that they will be demolished.

3.6.2 The following buildings have been identified for demolition:

- Mains of Greens Farm;
- Parkside of Greens; and
- Mains of Greens Bungalow.

3.7 Construction Employment, Programme and Working Hours

3.7.1 The Applicant takes community responsibilities seriously. The delivery of a major programme of capital investment provides the opportunity to maximise support of local communities. Employment of construction staff will be the responsibility of the Principal Contractor, but SSEN Transmission encourages the Principal Contractor to make use of suitable labour and resources from areas local to the location of the works.

3.7.2 It is envisaged that there would be a number of separate teams working at the same time at different locations across the Site. The resource levels would be dependent on the final construction sequence and would be determined by the Principal Contractor.

3.7.3 It is anticipated that construction of the Proposed Development would take approximately three years and commence following the granting of consents (anticipated to be late 2025), although detailed programming of the works would be the responsibility of the Principal Contractor in agreement with SSEN Transmission.

3.7.4 Construction activities would in general be undertaken during daytime periods. Working hours are currently anticipated seven days a week between approximately 07:00 to 19:00 March to September and 07:30 to 17:30 (or within daylight hours) October to February. Any out of hours working would be agreed in advance with Aberdeenshire Council.

3.7.5 Every effort would be made to cause least disturbance to landowners and local residents during construction by providing regular updates on works via the on-site Construction Manager and Community Liaison Officer.

3.8 Construction Traffic

Construction Traffic Numbers and Traffic Management

3.8.1 A Construction Traffic Management Plan (CTMP) has been prepared by the Principal Contractor, in consultation with the Applicant, Aberdeenshire Council and Transport Scotland (see **Volume 4, Appendix 11.1: Construction Traffic Management Plan)**. The CTMP describes all mitigation and signage measures that are proposed on the public road network. Further detail on the anticipated traffic movements associated with

[2] Scottish Government (2019) Scottish Government's policy on control of woodland removal: implementation guidance. Available at: https://www.forestry.gov.scot/publications/349-scottish-government-s-policy-on-control-of-woodland-removal-implementation-guidance/download

construction of the Proposed Development, and an assessment of the likely effects and suggested mitigation measures, is provided in **Volume 2, Chapter 11: Traffic and Transport**.

Access during Construction

3.8.2 The primary access route for construction traffic associated with the Proposed Development is outlined in the CTMP. From the A90 Trunk Road the route would follow the A948 through Auchnagatt and New Deer to its termination, after which it becomes the B9170 Auchreddie Road West. Construction traffic will then turn off the B9170 and access the Site from the north, via the existing minor public road leading to the Site (C29S) which is to be widened as part of the associated works for the Site (see **Section 3.11**). A new bellmouth will be created off the C29S, along with new access / haul roads within the Site, which would then become the permanent access solution for the Site following completion of construction.

3.8.3 The Proposed Development will require the delivery of number of large electrical transmission components and equipment along with heavy plant such as cranes. The largest of these items would be the two transformers. The transformer manufacturer Hitachi (Sweden) have confirmed that the transformers will be 10.61 m in length, 3.99 m in width and 3.68 m in height, with a total weight of 245,000 kg. Due to their size and weight, the transformers would be classed as Abnormal Indivisible Loads (AIL) and an AIL Assessment has been undertaken to establish the most suitable delivery route for this equipment. The AIL Assessment (see Appendix B of the CTMP) has identified that due to existing infrastructure constraints on the primary access route, some of the larger AIL deliveries will have to take a different route for the final part of their delivery strategy, arriving at the Site from the south.

Delivery of Structures and Materials

3.8.4 All materials would be delivered to the construction compounds. Concrete would be delivered to site pre-mixed or would be batched onsite. Hardcore and earthworks materials for the construction of the Proposed Development would be a combination between site won materials (through cutting of the existing surface to construct the platforms) and locally imported materials. Site won materials would be prioritised over imported materials to reduce the impact on the local roads and the environment.

3.9 Temporary Construction Compound

3.9.1 Temporary site compounds and laydown areas would be required during construction, located within the Site. These would provide office and welfare facilities for site staff, parking, laydown areas and holding and servicing space for construction plant, as shown on **Volume 3, Figure 3.2 – Proposed Temporary Works Plan**.

3.10 Environmental Management During Construction

3.10.1 Authorisation will be required and obtained from SEPA in accordance with the Controlled Activity Regulations (CAR)[3] prior to any construction works commencing on site. This would specify the controls and measures that would be used at site to safeguard the water environment.

3.10.2 The assessment in this EIA Report has been carried out on the basis that all works would be carried out in accordance with industry best practice construction measures, guidance and legislation, together with the following documents and procedures.

General Environmental Management Plans and Species Protection Plans

3.10.3 General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs) have been developed by the Applicant, with SPPs agreed with NatureScot (formerly Scottish Natural Heritage (SNH)). The GEMPs and SPPs considered relevant for the Proposed Development are identified in **Volume 4, Appendix 3.1: General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs)**.

[3] The Water Environment (Controlled Activities) (Scotland) Regulations 2011 Available at: https://www.legislation.gov.uk/ssi/2011/209/contents [Accessed: June 2024].

Construction Environmental Management Plan

3.10.4 A contractual management requirement of the Principal Contractor would be the development and implementation of a Construction Environmental Management Plan (CEMP). This document will detail how the Principal Contractor will 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. **Volume 2, Chapter 16: Schedule of Environmental Mitigation** provides a summary of all mitigation measures included in this EIA Report and **Volume 4, Appendix 3.2 Outline Construction Environmental Management Plan** contains the framework for the Principal Contractors' CEMP.

3.10.5 The CEMP would also reference the aforementioned GEMPs and SPPs. The implementation of the CEMP will 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 will carry out regular inspections and audits to monitor the implementation of the CEMP.

3.11 Associated Works

3.11.1 Other Associated Works are required to facilitate construction of the Proposed Development or would occur as a consequence of its construction and operation. The Associated Works relevant to this Proposed Development comprise Public Road Improvements (PRI) which would be required to facilitate construction traffic movements. The PRI works will improve the standard of the existing C29S through the widening of the carriageway to permit the free flow (2-way) of HGV vehicular traffic between the proposed site access point and the C29S / B9170 Road junction.

3.11.2 The PRI works will be subject to a separate planning application and are therefore not included in the planning application and on that basis they are therefore not assessed in detail in this EIA Report. However, indicative areas and a preliminary appraisal of the potential environmental constraints of public road improvement works are included in **Volume 4, Appendix 3.3: Public Road Improvements Appraisal**.

3.12 Reinstatement

3.12.1 Following commissioning of the Proposed Development, all temporary construction areas will be reinstated. Reinstatement will form part of the contractual obligations for the Principal Contractor and will include the removal of all temporary access tracks and work sites and the re-vegetation of the construction compound to recreate the former habitat as far as possible.

3.13 Mitigation Proposals

3.13.1 A series of mitigation measures have been identified to reduce the potential environmental effects of the Proposed Development. These measures are set out in **Volume 2, Chapter 16: Schedule of Environmental Mitigation**.

3.14 Biodiversity Net Gain

3.14.1 Biodiversity Net Gain (BNG) is a process which leaves nature in a better state than it started. SSEN Transmission has developed a BNG toolkit based upon the Natural England metric[4], which aims to quantify biodiversity based upon the value of habitats for nature. It is an efficient and effective method for demonstrating whether development projects have been able to maintain or increase the biodiversity value of a development site after construction works.

3.14.2 For BNG to be used appropriately and to generate long-term gains for nature, the good practice principles established by the Business and Biodiversity Offset Programme (BBOP)[5] should be followed. These principles

[4] Natural England Biodiversity Metric 3.1 [Online] Available at [http://publications.naturalengland.org.uk/publication/6049804846366720] [Accessed: February 2024].

[5] Guidance Notes to the Standard on Biodiversity Offsets (2012). Business and Biodiversity Offsets Programme (BBOP). [Online] Available at [https://www.forest-trends.org/wp- content/uploads/imported/BBOP_Standard_Guidance_Notes_20_Mar_2012_Final_WEB.pdf] [Accessed: February 2024].

have been established in the context of UK development by the Construction Industry Research and Information Association (CIRIA), the Chartered Institute for Ecology and Environmental Management (CIEEM) and the Institute of Environmental Management and Assessment (IEMA).

SSEN Transmission's Biodiversity Ambition

3.14.3 SSEN Transmission is committed to protecting and enhancing the environment by minimising the potential impacts from their construction and operational activities. As part of this approach, SSEN Transmission has made commitments within its Sustainability Strategy (2018)[6] , Sustainability Plan (2019)[7] and RIIO-T2 Business Plan, for new infrastructure projects to:

- ensure natural environment considerations are included in decision making at each stage of a project's development;
- utilise the mitigation hierarchy to avoid impacts by consideration of biodiversity in project design;
- deliver a minimum 10% biodiversity net gain on all projects gaining consent from May 2023 onwards; and
- work with their supply chain to gain the maximum benefit during asset replacement and upgrades.

3.15 Future Maintenance of the Substation

3.15.1 Substation plant requires maintenance and inspection at regular intervals. Most substations have a monthly inspection, whilst varying degrees of maintenance would be undertaken annually. There would be other visits as required for operational duties.

3.15.2 The Proposed Development would not be manned on a permanent basis, with operations being controlled remotely from SSEN Transmission's control centre in Perth.

3.16 Decommissioning

3.16.1 Planning permission is sought in perpetuity. Should the substation be decommissioned full details of the decommissioning plan would be agreed with the appropriate authorities and the landowners prior to any decommissioning works commencing.

[6] Delivering a smart, sustainable energy future: The Scottish Hydro Electric Transmission Sustainability Strategy (2018). [Online] Available at https://www.ssen-transmission.co.uk/media/2701/sustainability-strategy.pdf [Accessed: February 2024].

[7] Our Sustainability Plan: Turning Ambition into Action. (2019) SHE Transmission. [Online] Available at [https://www.ssen-transmission.co.uk/media/3215/our-sustainability-plan- consultation-report.pdf] [Accessed: February 2024].