

Technical Appendix 2.4: Electricity Connection Infrastructure Appraisal

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1.1 Introduction

Background

- 1.1.1 Neshion Ltd ('the Applicant') has prepared this Environmental Impact Assessment Report (EIAR) in support of an application to Scottish Ministers seeking consent pursuant to Section 36 of the Electricity Act 1989, together with a request for planning permission to be deemed to be granted to Section 57(2) of the 1997 Act, for the construction and operation of Neshion Energy Park ('the Proposed Development'). The Proposed Development comprises up to eight wind turbines, each with a maximum overall height to vertical blade tip of 200 m, together with ancillary development including internal transformers and related switchgear at each turbine; associated wind turbine foundations and hardstanding areas; an on-site substation compound including a control building; a Battery Energy Storage System (BESS) compound of approximately 0.5 ha; underground power cables; development access tracks, water crossings and site entrances; temporary construction compounds, laydown areas, borrow pits and concrete batching plant (as further described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**). The Proposed Development Site as defined by the application boundary, as shown on **Figure 3.1: Site Context (EIAR Volume 3a)**, covers a total area of approximately 303 hectares (Ha) and borders with a large industrial site to the east comprising the Sullom Voe Oil Terminal (SVT) and Shetland Gas Plant and associated infrastructure.
- 1.1.2 While the application for consent is for the elements of the Proposed Development set out in the above paragraph, it is acknowledged that additional electricity connection infrastructure would be required in order to export electricity generated from the Proposed Development to the National Electricity Transmission System (NETS) and/or the distribution network (together referred to as the grid connection). At the time of writing (June 2026), the details of the location and physical characteristics of the grid connection are unknown. Based on the informed judgement of the Applicant, it is anticipated that the most likely point of connection (PoC) to the electricity grid for the Proposed Development would be in northern mainland Shetland at the proposed Shetland Northern Substation Hub. The Northern Substation Hub project is being developed by the Transmission License Holder, Scottish and Southern Electricity Networks Transmission (SSEN-T) and is currently at site selection stage. It is anticipated that SSEN-T will submit their planning application to Shetland Island Council (SIC) in 2026, with construction commencing in 2028.
- 1.1.3 In addition to the above grid connection, the Applicant is also anticipating making a private wire¹ connection to the neighbouring SVT to supply a low carbon fuel plant at the terminal (referred to collectively as electricity connection infrastructure).
- 1.1.4 Once defined, the electricity connection infrastructure would be progressed through one or more separate consent applications, submitted by the relevant parties. These applications would be accompanied by appropriate environmental assessment (as required).
- Document Purpose
- 1.1.5 On 17 February 2026, the Inner House of the Court of Session delivered a decision in Raeshaw Farms Limited v Scottish Ministers [2026] CSIH 10. The Court quashed the planning permission for the Wull Muir Wind Farm on the basis that the reporter appointed by the Scottish Ministers had, in granting consent, failed to lawfully consider whether the wind farm and its grid connection formed a single project for Environmental Impact Assessment (EIA) purposes and irrationally weighed the benefits of

connected and operational renewable generation without considering the environmental impacts of the grid connection required to deliver those benefits.

- 1.1.6 The Court did not, however, hold that a single consent application is required for the whole project; rather, it confirmed that grid connection may form part of the 'project' for EIA purposes whilst being capable of being the subject of a separate consent application. The identity of the 'project' is therefore a matter of evaluative judgment, having regard to factors such as functional interdependence.
- 1.1.7 When it comes to evaluating what constitutes an EIA project, the Court of Session made reference to a non-exhaustive list of relevant factors set out in the case of R (Wingfield) v Canterbury City Council [2020] JLP 154. These factors were subsequently endorsed in the Court of Appeal case of R (Ashchurch Rural Parish Council) v Tewkesbury BC [2023] EWCA Civ 101; [2023] Env LR 25.
- 1.1.8 The relevant factors referred to above are set out in **Table 1** below, alongside commentary relative to the Proposed Development when considered with respect to the grid connection and the private wire connection.

Table 1: Consideration of the Relevant Factors set out in R (Wingfield) v Canterbury City Council [2020].		
Wingfield Criterion	Grid Connection	Private Wire Connection
Common ownership	The Proposed Development and the grid connection would be in separate ownership, with the connection likely to be delivered and owned by SSEN Distribution (SSEN-D).	A private wire arrangement would typically involve a direct commercial relationship between the generator and terminal operator (e.g. EnQuest); ownership could be shared but is likely to be separate from the Proposed Development unless co-developed.
Simultaneous determination / consenting	The grid connection would be subject to a separate process of gaining necessary consents and would be brought forward independently, not determined alongside the Proposed Development.	A private wire would be subject to a separate process of gaining necessary consents and would be brought forward independently, not determined alongside the Proposed Development.
Functional interdependence	There is functional interdependence, as the Proposed Development requires a connection to the NETS to export electricity.	A private wire would have functional interdependence, as the Proposed Development would rely on the terminal as the off taker of electricity.
Stand alone project status	The grid connection is a separate project, capable of being progressed independently by SSEN-D, with its own design, consenting and delivery programme. The details are unknown at this stage, but it is possible that there would be some element of shared or collocated infrastructure as part of connecting various generation sources to the proposed Northern Substation hub.	A private wire could also be considered a stand alone project, as it could be designed, consented and delivered as a distinct piece of infrastructure, even if commercially linked to the Proposed Development.

- 1.1.9 In the event that the Scottish Ministers consider that the grid connection, private wire and the energy park are functionally 'one project' for EIA purposes, the Applicant has prepared this proportionate Environmental Appraisal (EA) for the Grid Connection Study Area (GCSA). This EA is based on the information known at the time of writing (June 2026) and is based on reasonable assumptions regarding the likely nature, location and characteristics of the electricity connection infrastructure. The EA

¹ A private wire connection is a direct, privately owned electrical link between a generator and a consumer that bypasses the transmission and distribution networks.

demonstrates that the likely effects of the electricity connection infrastructure and associated PoC have been identified and understood as far as is reasonably practical and proportionate given their stage of development and given that they are being promoted by other entities. As construction and operation of the electricity connection infrastructure will be subject to separate consenting processes in due course, precise details on construction and operation methodologies (together with appropriate mitigation) remain unknown, and there are limitations on the level of detail currently available.

1.1.10 This EA has been prepared with reference to the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. In accordance with regulation 5, this report has been prepared by competent experts, and it has been informed by and taken account of the available results of the EIA that was prepared in respect of the Proposed Development.

Document Structure

- 1.1.11 This document covers the following:
- Details of the electricity connection infrastructure components, and the associated Study Areas.
 - Details of the grid reform.
 - The environmental appraisal methodology applied to the assessment.
 - The environmental appraisal, summarising key constraints and potential effects.
 - Conclusion.

1.2 Electricity Connection Infrastructure

Grid Connection

Grid Connection Point

- 1.2.1 As the Northern Substation Hub (NH) project is at the site selection stage, SSEN-T are currently considering (at the time of writing and to our best knowledge) four site location options. This has been informed by the latest publicly available information on the NH project located within a Public Information Session document dated October 2025². Therefore, all four options have been considered within the EA.
- 1.2.2 As three of the NH sites are located in a similar area (south west of the Proposed Development within and next to Scatsta Airfield (disused)), these sites have been grouped together and are being assessed as a single unit as opposed to three individual sites (NH Option 1).
- 1.2.3 The remaining NH site is located to the east of the Proposed Development in Toft (NH Option 2).
- 1.2.4 NH Option 1 and NH Option 2 (known collectively as PoC) are illustrated on **Figure 1 (Annex A)**.

Grid Connection Study Area (GCSA)

- 1.2.5 The GCSA has been identified between the Proposed Development substation and the proposed National Electricity Transmission System (NETS) PoC. The extent of the Study Area has been informed by the location of the PoC, the distribution of existing and proposed infrastructure, the identification of technically feasible routing options, and the application of professional judgement. While the final alignment of the grid connection has not yet been determined, it is anticipated that any subsequent route refinement will be contained within the defined GCSA.

Private Wire Connection Point

- 1.2.6 The private wire connection will connect into the southern region of SVT, east of the Proposed Development. This location has been informed by discussions with the operator and owners of the terminal; however, it should be noted that the exact PoC cannot be confirmed at this time.

Private Wire Connection Study Area (PWCSA)

- 1.2.7 The PWCSA has been identified between the Proposed Development substation and the private wire PoC. The extent of the study area has been informed by the location of the private wire PoC, layout of existing and proposed infrastructure, feasible routing options and the application of professional judgement. It is therefore likely that any private wire connection refinement will be located within the PWCSA, although a specific direct route is unknown at this stage.
- 1.2.8 The GCSA and PWCSA are shown on **Figure 1 (Annex A)**.

Electricity Connection Infrastructure Components

- 1.2.9 The grid connection and private wire connection would likely comprise:
- underground electricity cables (UGC) installed within a temporary trench, which would be fully reinstated following installation;
 - joint bays and associated minor above-ground features, where required – such joint bays would be limited to an access cover on the ground surface and potentially some demarcation with an upstanding post or similar; and
 - termination works at the proposed PoC.
- 1.2.10 The specific configuration will be determined once the routes have been determined, and will depend on a balance of environmental sensitivity, technical feasibility, operational requirements, maintenance considerations and construction practicalities. The likely infrastructure components are described below.
- 1.2.11 UGC systems involve burying insulated conductors within a trench, typically around 1.3 m deep, with a trench width of between 1.5 - 2 m, although this may increase where ground conditions or construction access requires additional working room.
- 1.2.12 UGCs are installed with specially prepared thermal backfill materials to ensure they operate efficiently and safely. Ducting may be used, particularly where crossing other infrastructure such as utilities or roads.
- 1.2.13 It can be assumed that the cables for both the grid connection and private wire will terminate within the context of either the proposed Northern Substation Hub (in the case of the grid connection) or the industrial context of the SVT with a switchgear and/or transformer arrangement.

Connections Reform

Introduction

- 1.2.14 Through electricity grid connections reform, the National Energy Systems Operator (NESO) and the network partners, who are responsible for operating the electricity networks across the UK, aim to achieve a refined queue of viable, 'real' projects that would facilitate in achieving the UK Government's Clean Power 2030 (CP30) Action Plan³ ambitions and eliminate all stalled projects⁴. This is an important overhaul replacing the no longer fit for purpose first-come first-served grid connection processes with a more "first ready, first needed and connected" approach. The grid reform will facilitate SSEN-D and

² SSEN-D. Northern Hub Consultation Document. Available at: [northern-substation-hub-consultation-booklet.pdf](#) (Accessed 08/05/2026)

³ UK Government. Clean Power 2030 Action Plan. Available at: <https://www.gov.uk/government/publications/clean-power-2030-action-plan> (Accessed 07/05/26)

⁴ i.e. projects that are currently taking up grid capacity that will not progress and are blocking other real projects from progressing.

NESO to plan and develop the transmission network that is vital for Clean Power and Net Zero targets amid growing demands.

- 1.2.15 Gate 2 to the Whole Queue (G2TWQ) is a one-time exercise that intends to apply the new connections reform criteria retrospectively to all existing connections. Through the G2TWQ process, the TSOs and NESO are restudying and/or optimising how the projects that remain in the refined queue will connect to the transmission network. As a result, the points of connection, and the grid route, for most projects are subject to change, while maintaining the most economic and efficient design.

Connections Reform Gates

- 1.2.16 As part of the reformed connections process, projects are assessed and assigned a status (Gate 1 or Gate 2) based on their readiness and strategic alignment with the UK’s energy goals as defined in the CP30 Action Plan³:
- Gate 1 applies to projects that do not meet the Gate 2 criteria. Gate 1 projects will not be assigned a confirmed connection date but may progress through future windows if readiness is demonstrated.
 - Gate 2 applies to projects that meet the new requirements for readiness and strategic alignment. These projects can secure a confirmed connection date, connection point, and queue position.

Neshion Energy Park Status

CONNECTIONS REFORM GATE

- 1.2.17 The Proposed Development Has been allocated a Gate 1 status. The Proposed Development will be required to re-apply at the next future gated application window following receipt of consent. Until the Proposed Development receives a Gate 2 Offer (which would be after receipt of consent under the electricity act and granting of a deemed planning permission, the confirmed connection date, grid connection point and route connecting the Proposed Development to the grid network will not be known.

1.3 Environmental Appraisal

Scope and Methodology

- 1.3.1 As identified in **Chapter 2** the GCSA and PWCSA may be subject to change following both the outcome of G2TWQ analysis and the future design and assessment processes, over which the Applicant does not have control.
- 1.3.2 This EA is therefore proportionate and presents, in an appropriate manner in light of the circumstances relating to the proposed electricity connection infrastructure (primarily the uncertainties involved with the routeing and PoC), a high-level appraisal, based on the information available at the time of writing (June 2026), with cognisance given to the Holford Rules⁵ (**Annex B: Holford Rules**). There has been no additional survey work or consultation undertaken as part of the appraisal. This EA has been informed by relevant online (detailed in **Table 3.1**) resources as well as information from Neshion Energy Park EIAR.
- 1.3.3 This EA assesses the potential for likely significant effects for identified environmental receptors, as shown in **Figure 2 (Annex A)**. It does not determine the significance of the effect (i.e. major, moderate, minor or negligible), as to do so in advance of a finalised proposed alignment for the connection would be premature.
- 1.3.4 Impacts from/upon socio-economics, climate change, air quality, shadow flicker, aviation, and telecommunications would not be caused by the grid connection infrastructure in its own right;

therefore, these issues are scoped out of further assessment within this document. Air quality impacts would be limited to construction and would be managed through best practice construction measures. No impacts were identified that would only be caused by the grid connection infrastructure that have not been considered for the wind farm.

- 1.3.5 This EA is based on the assumption that the electricity connection infrastructure would be likely to comprise the construction of an UGC (as described in Chapter 2: Electricity Connection Infrastructure, EIAR Volume 2), between the Proposed Development, and proposed PoC (NH and private wire). The precise configuration can only be determined after final route selection and detailed design.
- 1.3.6 The Applicant is not seeking consent for the electricity connection infrastructure, which will be subject to separate routeing processes, applications for consent, and environmental surveys and assessments as appropriate, by the network operator.

⁵ Scottish Hydro Electric Transmission Limited (SHETL) (2004). The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines. Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> (Accessed: 08/05/26)

Environmental Appraisal

1.3.7 The appraisal of the environmental constraints and key receptors is presented below in **Table 2** and illustrated on **Figure 2 (Annex A)**.

Table 2: Environmental Appraisal of Electricity Connection Infrastructure Study Areas		
Topic	Constraint ⁶	Potential Impact
Landscape and Visual	Residential Properties	A review of Ordnance Survey (OS) mapping shows that residential properties located in the vicinity of Sullom Voe, Sella Ness, Graven, Toft, Mossbank, Stenswall and Moorfield and Scatsa Farm are within the GCSA. It should be noted that residential properties located in Toft are within 20 m of the potential NH Option 2 PoC. Residential properties located in the vicinity of Sullom Voe are within the PWCSA and associated PoC. The installation of underground cabling may result in temporary, short-term landscape and visual effects associated with construction activities, including the presence of plant, vehicles and construction traffic. Construction would typically proceed in sections within the grid connection corridor, such that any effects are localised to the immediate vicinity of the works and confined only to areas with clear visibility. Impacts arising from construction plant and activities would be temporary and limited to the construction period or occasional maintenance. Given their short-term and reversible nature, no significant effects are anticipated.
Cultural Heritage	Grade B Listed Building – Garth House, Delting	A review of Historic Environment Scotland (HES) spatial datasets shows Garth House, Delting; a Grade B listed building, Crooksetter Chambered Cairn and Graven Chambered Cairn Scheduled Monuments (SM), as well as 22 non-designated assets are located within the GCSA.
	Scheduled Monument – Crooksetter Chambered Cairn (SM3608)	Garth House, Delting as well as seven non-designated assets are located within the PWCSA. Construction activities associated with UGC installation may give rise to direct physical effects on heritage assets. However, such effects are likely to be avoided through design, with temporary access routes and construction compounds sited to avoid known assets.
	Non-designated Heritage Assets	Given the nature of underground cabling, any effects on the setting of heritage assets would be limited to the construction phase and would be temporary and reversible. No operational effects on setting are anticipated once installation is complete.
	Unknown buried archaeological assets	Construction of the UGC may result in direct physical effects on previously unidentified archaeological remains. This risk would be informed through additional archaeological and cultural heritage assessment, including a desk-based study in accordance with Chartered Institute for Archaeologists (CifA) Standards and Guidance⁷ and a subsequent walkover survey. Where there remains potential for construction activities to affect previously unrecorded archaeological remains, this can be mitigated through the implementation of an appropriate programme of archaeological works secured by planning condition. This would seek to identify such remains and, where preservation in situ is not feasible, ensure preservation by record through excavation, detailed recording and post-excavation analysis. The electricity connection infrastructure will utilise the existing direct public road network where possible, therefore the potential for construction of the UGC to impact unknown archaeological assets would be expected to be small. Ground workings associated with the prior construction of the road network are highly likely to have disturbed and/or removed existing archaeological assets within and/or in the immediate surrounding area of the existing road corridor. As the UGC would utilise the existing direct public road network where possible, the potential for construction of the UGC to impact unknown archaeological assets would be expected to be small. Ground workings associated with the prior construction of the road network are highly likely to have disturbed and/or removed existing archaeological assets within and/or in the immediate surrounding area of the existing road corridor. Sensitive design and localised avoidance can be applied in areas of identified archaeological interest to minimise impacts, with an archaeological watching brief implemented where appropriate.
Ecology	Designated Sites	A review of NatureScot^{8, 9, 10} and Scottish Government¹¹ data on Shetland’s designated ecological sites shows Sullom Voe Special Area of Conservation (SAC), designated for its large shallow inlets and bays, providing habitat for boreal-arctic species unique to the Shetland voes, lies within the GCSA. Additionally, Yell Sound Coast SSSI is located within 1 km of the GCSA. Considering the proximity and potential for connectivity, construction works may result in a Likely Significant Effect (LSE). Sullom Voe SAC is located within the PWCSA and Yell Sound Coast SSSI is located within 1 km of PWCSA, again resulting in potential LSE. Subject to the implementation of appropriate mitigation, significant effects on designated sites are not expected.
	Sensitive Ecological Habitat	A review of ecology survey data (Technical Appendix 6.2, EIAR Volume 4) gathered for the Proposed Development Site shows both the GCSA and PWCSA and associated PoC have the potential to impact on habitats such as blanket bog¹², marsh and marshy grassland, dry heath and acid grassland and groundwater dependent ecosystems¹³ (GWDTE). In addition, a review of the Scottish Government (2024) Habitat Map of Scotland¹⁴ shows that the majority of the Study Area consists of blanket bog habitat. Potential habitat loss would, where practicable, be minimised through design. Effects on verge habitats would be temporary and reversible, with works overseen by an Ecological Clerk of Works (ECoW) to ensure impacts are effectively controlled and reduced. Once operational, no significant impacts are anticipated to arise from the installation of the UGC. Subject to the implementation of appropriate mitigation, significant effects on sensitive habitats are not expected.
	Protected Species	There is the potential for protected species to be present within the GCSA and PWCSA.

⁶ Constraints consist of key environmental receptors within the electricity connection infrastructure Study Areas and associated points of connection.

⁷ Chartered Institute for Archaeologists. CifA Codes, regulations and Standards, and guidance. Available at: <https://www.archaeologists.net/work/standards> (Accessed 02/06/26)

⁸ NatureScot (2022a). Sites of Special Scientific Interest. [online] Nature.scot. Available at: <https://opendata.nature.scot/datasets/snh::sites-of-special-scientific-interest/explore?location=57.528552%2C-7.698272%2C6> [Accessed 09/06/2026].

⁹ NatureScot (2022b). Special Areas of Conservation. [online] Nature.scot. Available at: <https://opendata.nature.scot/datasets/snh::special-areas-of-conservation/about> [Accessed 09/06/2026].

¹⁰ NatureScot (2022c). RAMSAR Wetlands of International Importance. [online] Nature.scot. Available at: <https://opendata.nature.scot/datasets/ramsar-wetlands-of-international-importance/explore?location=55.336663%2C-6.472151%2C4> [Accessed 09/06/2026].

¹¹ Scottish Government (2026). Local Nature Conservation Sites - Scotland - National Data Library. [online] Data.gov.uk. Available at: <https://www.data.gov.uk/dataset/c3460656-74ab-435a-8f77-9a528e24beb1/local-nature-conservation-sites-scotland> [Accessed 09/06/2026].

¹² Blanket bog habitats are an Annex I habitat and are defined by extensive peatland areas have developed under climatic conditions characterised by high levels of precipitation and relatively low evapotranspiration, enabling peat to accumulate not only within depressions but also across wide areas of undulating terrain.

¹³ GWTDE comprise a range of habitats that are influenced by groundwater conditions. These ecosystems are classified as wetlands that are fundamentally reliant on groundwater flows and/or hydrochemical characteristics for their structure and function.

¹⁴ Scottish Government (2024). Habitat Map of Scotland (HabMoS). SpatialData.gov.scot. Available at: <https://www.data.gov.uk/dataset/e934a9ff-0aca-4bf1-a3c4-b64180d0ac60/habitat-map-of-scotland-habmos>

Table 2: Environmental Appraisal of Electricity Connection Infrastructure Study Areas		
Topic	Constraint ⁶	Potential Impact
		Ecological walkover surveys, including a Preliminary Ecological Appraisal Survey of the GCSA and PWCSA, would be undertaken as part of the separate consenting process. These surveys would identify the presence or potential presence of protected species, with any necessary species-specific surveys informing appropriate mitigation measures, including route design and/or licensing from NatureScot. While effects on protected or notable species may occur during construction of the grid/private connection, these are expected to be managed through the implementation of standard good practice measures secured within a Construction Environmental Management Plan (CEMP) (or equivalent), including pre-construction checks for activities such as vegetation clearance. The presence of an ECoW would help ensure the identification and avoidance of protected or notable species. Once operational, no significant impacts are anticipated from the installation of the UGC. Subject to the implementation of appropriate mitigation, significant effects on protected species are not anticipated.
Ornithology	Breeding Birds	Whilst statutory designated sites are avoided, there is potential for bird breeding territories identified during ornithology surveys (undertaken for the Proposed Development) to be affected during enabling and construction works associated with the electricity connection infrastructure, including activities such as vegetation clearance and management. Details of these for each option are as follows: The GCSA contains recorded curlew, whimbrel and Arctic skua territories as well as an ornithology avoidance zone for Schedule 1 bird¹⁵ species. The PWCSA contains recorded curlew territories as well as an ornithology avoidance zone for Schedule 1 bird species. In line with standard practice, clearance works would be undertaken outside the breeding bird season (March to August inclusive), with vegetation checked by a suitably qualified ecologist within an appropriate period prior to commencement. If a nest is identified, an appropriate buffer would be established and works halted until further instruction from a suitably qualified ecologist. Subject to the implementation of standard good practice measures, no significant impacts on ornithology would be anticipated during construction. Once operational, no ornithological impacts are anticipated.
Hydrology, Hydrogeology, Geology and Soils	Watercourses	The electricity connection infrastructure would require crossings of existing watercourses. These are anticipated to be constructed without significant effects on the water environment, using either existing structures, established isolated open cut trenching methods, or trenchless techniques. No increase in hardstanding or flood risk is anticipated.
	Waterbodies	Additionally, the GCSA contains a waterbody at Sullom Voe to the south west of the wind farm site. The PWCSA does not contain any water bodies. Potential groundwater impacts are likely to be associated with areas of construction activity and any introduced contamination sources, such as accidental spills or leaks from plant. Any potential impacts on groundwater receptors would be controlled or minimised through careful design and the application of best practice construction methods to reduce surface water runoff and manage potential sources of contamination. A CEMP would be secured and implemented as part of the future consenting processes, setting out standard management and mitigation measures to control water contamination. With the implementation of best practice construction methods, no significant adverse effects are anticipated. Once operational, no further interaction or impact on water receptors is anticipated.
	Private Water Supplies (PWS)	No record of water abstractions or Private Water Supply (PWS) within the surrounding area have been identified through consultation with SEPA and Shetland Islands Council (SIC). It is expected that standard and best practice construction measures would be adhered to through the implementation of the CEMP, such as ensuring construction machinery is well maintained and presence of readily available spill kits to ensure pollution prevention and control. With the implementation of best practice construction methods, no adverse effects are anticipated.
	Peat	A review of peat survey data collection for the Proposed Development Site¹⁶, shows the GCSA and PWCSA to contain deep peat (>0.5 m) over areas they cross the Proposed Development Site with the maximum peat depth recorded during the surveys being 6.0 m. A review of the NatureScot online Carbon and Peatland map¹⁷ additionally shows areas of class 1 and class 5 peat throughout the GCSA and PWCSA. There is potential for peat disturbance during UGC construction, including compaction from plant and infrastructure, erosion resulting from ground disturbance or localised drying, peat instability and slide risk, and loss of peatland habitat through excavation. Areas of deepest peat would be avoided as far as possible in the siting of the GCSA and PWCSA, however it is unlikely that all deep peat can be avoided owing to the prevalence of areas of deep peat across Shetland. Where peat impacts cannot be avoided, standard industry construction techniques and methodologies would be implemented to minimise disturbance. Management and control measures would be applied during construction through a Peat Management Plan and/or CEMP. Once operational, no further impacts on peat are anticipated.
Traffic and Transport	Local road network and core paths	A review of OS mapping shows the A968, B9076, and core path CPPDe02 to pass through the GCSA, in addition this option has the potential to affect the Toft-Ulsta Ferry Terminal and associated ferry route which lie within 300 m of the GCSA. The PWCSA contains minor roads in the vicinity of SVT including a road which connects the oil terminal to the B9076. While large construction plant may be required on a temporary basis for UGC installation, these vehicles are not expected to constitute abnormal loads or occur in significant volumes. Additionally, the plant required is expected to be comparable to that used for routine road maintenance activities. Construction of the grid/private wire connection is expected to result in only minor increases in traffic. During construction, sections of the existing road network may require temporary closure or diversion where roads are single track or insufficiently wide to ensure safe working conditions. Such closures would require a traffic regulation order if in place for more than five days. Where required, appropriate orders would be sought from the relevant highway authority (SIC). Short-term construction traffic would be managed through the application of best practice measures via a Construction Traffic Management Plan (CTMP), including measures such as consolidating traffic movements and avoiding unnecessary idling.

¹⁵ Schedule 1 species are those listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), which receive enhanced legal protection. In addition to the general protections afforded to all wild birds, it is an offence to intentionally or recklessly disturb these species while nesting, or to disturb their dependent young.

¹⁶ See **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Chapter 2)** and **Technical Appendix 8.4: Peat Depth Survey Results (EIAR Chapter 4)**.

¹⁷ NatureScot (2016). Carbon and Peatland Map 2016. Consolidated spatial dataset of carbon-rich soils, deep peat and priority peatland habitats in Scotland. Available at: <https://soils.environment.gov.scot> (accessed 05.06.2026).

Table 2: Environmental Appraisal of Electricity Connection Infrastructure Study Areas		
Topic	Constraint ⁶	Potential Impact
		Installation of the UGC within the vicinity of the existing road network may necessitate temporary diversions or closures of core paths. Any such diversions or closures required during construction would be applied for as necessary. Where practicable, diversions would be preferred over closures; however, given the transient nature of the works, any effects on core path users would be temporary. Operation would require only occasional maintenance vehicle visits, with infrequent access to the electrical compound and PoC.
Noise	Residential Properties	A review of Ordnance Survey (OS) mapping shows that residential properties located in the vicinity of Sullom Voe, Sella Ness, Graven, Toft, Mossbank, Stenswall and Moorfield and Scatsa Farm are within the GCSA. It should be noted that residential properties located in Toft are within 20 m of the potential PoC to NH Option 2. Residential properties located in the vicinity of Sullom Voe are within the PWCSA and associated PoC. Due to the short-term and localised nature of UGC installation works, any construction noise would be temporary, limited in extent and confined to small sections of the route at any given time as works progress. Noise and vibration effects would be controlled through standard mitigation measures stated within the CEMP, including restricted working hours and the application of best practicable means in accordance with relevant British Standards. On this basis, effects on nearby receptors are expected to be appropriately managed and not significant.

Potential In-combination Effects

- 1.3.8 Where the environmental effects of the Proposed Development are considered in combination with the grid connection, the grid connection does not introduce any additional receptors, pathways or effect types beyond those already identified for the electricity generation elements of the Proposed Development. The grid connection works are closely linked to the Proposed Development in both spatial and functional terms. The EIAR already incorporates a network of underground cables as part of the Proposed Development, and any temporary construction-phase effects associated with the grid connection would therefore either overlap with, or be subsidiary to, those already assessed. As such, the combined effects of the Proposed Development and the grid connection are not expected to materially alter the nature or significance of the effects reported in Volume 2 of the EIAR.

Potential Cumulative Effects

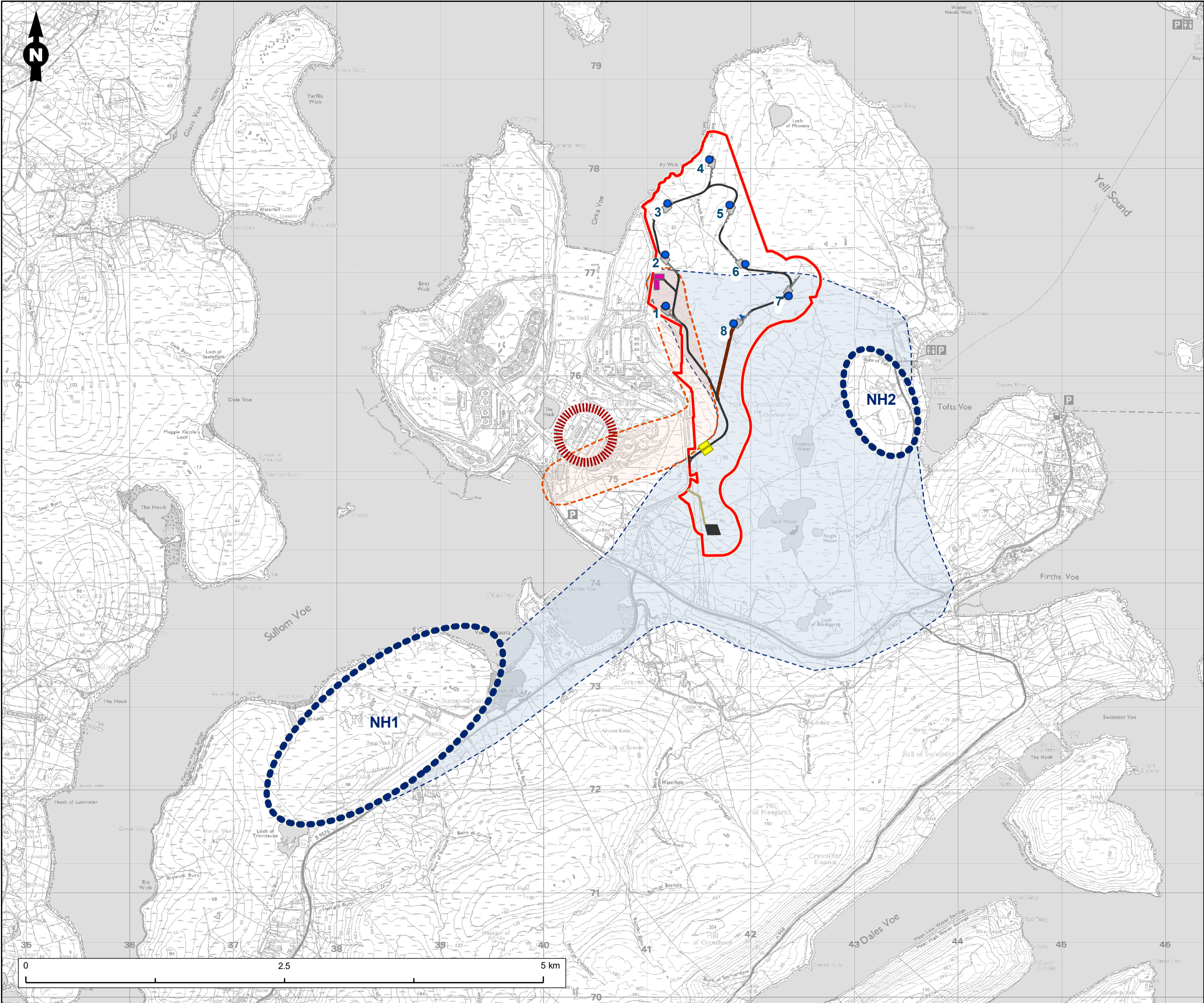
- 1.3.9 The grid connection would not introduce any additional or different sources of environmental impact beyond those already considered in Volume 2 of the EIAR. Any temporary construction-phase effects (e.g. noise, traffic or localised disturbance) would be short-term and limited in extent and would not be expected to combine in a way that would give rise to additional significant cumulative effects.

Conclusion

- 1.3.10 A high-level assessment of the likely environmental impacts of the GCSA and PWCSA has been undertaken on the basis that it would comprise a UGC.
- 1.3.11 Following a desk-based review of environmental constraints, this report concludes that the grid connection for the Proposed Development:
- the cable is likely to be installed underground (potentially following proposed tracks within the energy park site and utilising the existing road network), thereby substantially reducing the potential for significant effects;
 - would result in only temporary construction-phase effects;
 - would not result in any additional likely significant environmental effects beyond those already identified in the EIAR, either alone, in combination with, or cumulatively alongside the Proposed Development.
- 1.3.12 Likely non-significant environmental effects are considered capable of being effectively managed through application of the mitigation hierarchy, including avoidance of constraints and reduction of impacts through design, best practice construction methods and standard mitigation measures, such that no environmental constraint to the delivery of the grid connection is anticipated.
- 1.3.13 As stated above, once defined, the electricity connection infrastructure would be progressed through one or more separate consent applications, submitted by the relevant parties. These applications would be accompanied by appropriate detailed environmental assessment (as required).

Annex A – Figures

1620016691-RAV-MA-IA-00140_ElectricityConnectionInfrastructureStudyArea_01 pagx



Legend

Proposed Development

- Proposed Development Application Boundary
- Proposed Turbine
- Proposed Hardstanding
- Proposed Substation, BESS and Lidar Area
- Proposed Construction Compound
- Proposed Borrow Pit Search Area
- Proposed Temporary Borrow Pit Access Track
- Proposed Operation and Maintenance Access Track
- Proposed Access Tracks
- Proposed Turning Head

Electricity Connection Infrastructure

- Proposed Substation Study Area (Grid PoC)
- Proposed Grid Connection Study Area
- Proposed Private Wire Connection Study Area
- Proposed Private Wire PoC

Figure Title
Electricity Connection Infrastructure Study Area

Project Name
Neshion Energy Park

Project No./Fily ID
1620016691 / REH2024N00248

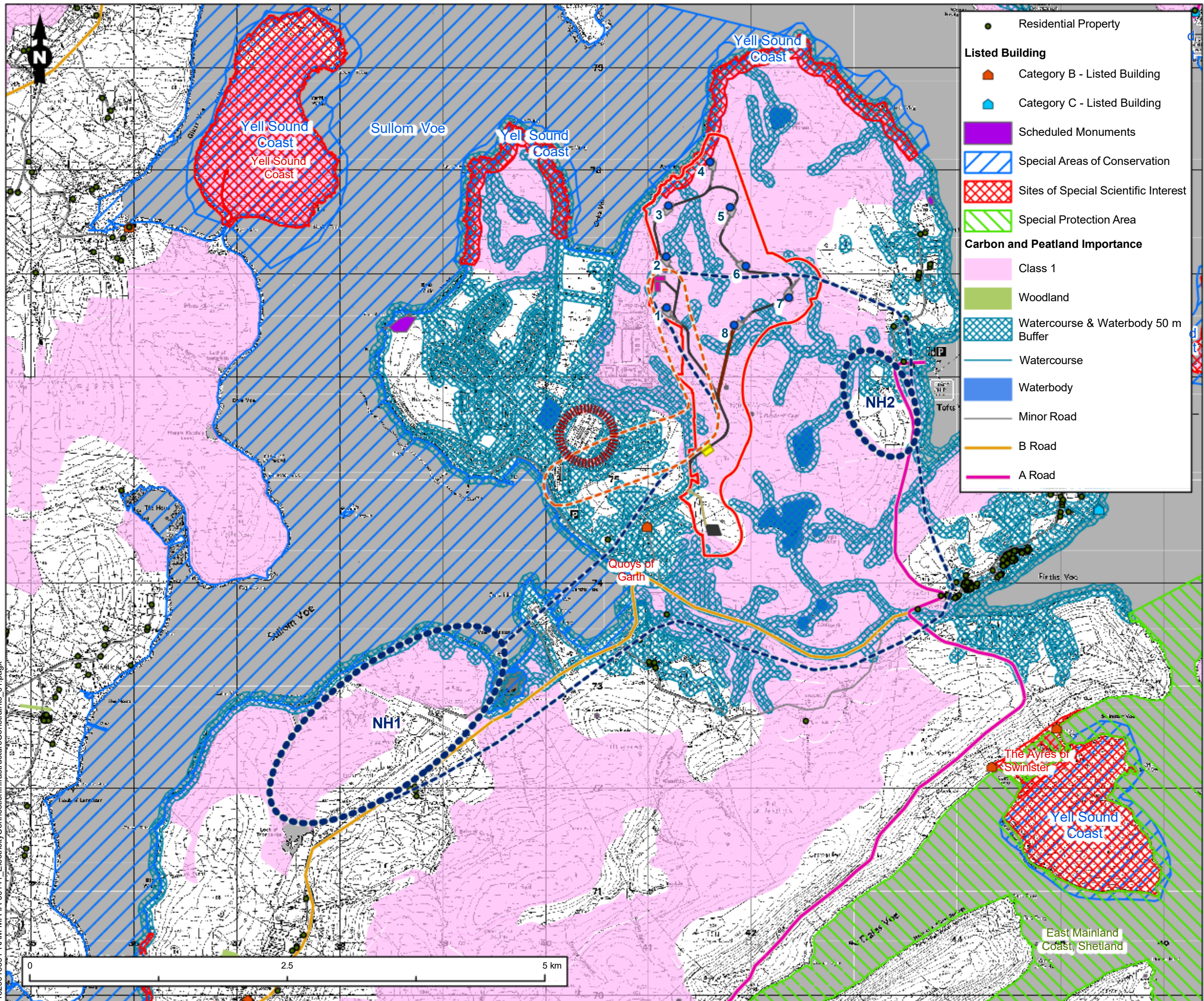
Date June 2026	Figure No. 1	Revision 1.0
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Client
Neshion Ltd



1620016691-RAM-MA-IA-00141 ElectricityConnectionInfrastructureConstraints 01.pagx



Legend

Proposed Development

- Proposed Development Application Boundary
- Proposed Turbine
- Proposed Hardstanding
- Proposed Substation, BESS and Lidar Area
- Proposed Construction Compound
- Proposed Borrow Pit Search Area
- Proposed Temporary Borrow Pit Access Track
- Proposed Operation and Maintenance Access Track
- Proposed Access Tracks
- Proposed Turning Head

Electricity Connection Infrastructure

- Proposed Substation Study Area (Grid PoC)
- Proposed Grid Connection Study Area
- Proposed Private Wire Connection Study Area
- Proposed Private Wire PoC

Listed Building

- Category B - Listed Building
- Category C - Listed Building

Scheduled Monuments

- Scheduled Monuments

Special Areas of Conservation

- Special Areas of Conservation

Sites of Special Scientific Interest

- Sites of Special Scientific Interest

Special Protection Area

- Special Protection Area

Carbon and Peatland Importance

- Class 1
- Woodland
- Watercourse & Waterbody 50 m Buffer
- Watercourse
- Waterbody
- Minor Road
- B Road
- A Road

Figure Title

Electricity Connection Infrastructure - Constraints

Project Name

Neshion Energy Park

Project No./Fily ID

1620016691 / REH2024N00248

Date	Figure No.	Revision
June 2026	2	1.0

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RAMBOLL

Annex B – Holford Rules

GUIDELINES FOR THE ROUTEING OF NEW HIGH VOLTAGE OVERHEAD TRANSMISSION LINE

- 1.4.1
- Rule 1: Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the first line in the first place, even if the total mileage is somewhat increased in consequence.
- 1.4.2
- Note on Rule 1
- 1.4.3
- Investigate the possibility of alternative routes, avoiding, if possible, the areas of the highest amenity value. The consideration of alternative routes must be an integral feature of environmental statements.
- 1.4.4
- Areas of highest amenity value are:
 - Areas of Outstanding Natural Beauty
 - National Parks
 - Heritage Coasts
 - World Heritage Sites
- 1.4.5
- Rule 2: Avoid smaller areas of high amenity value, or scientific interests by deviation; provided that this can be done without using too many angle towers, ie the more massive structures which are used when lines change direction.
- 1.4.6
- Note on Rule 2
- 1.4.7
- Some areas (e.g. Site of Special Scientific Interest) may require special consideration for potential effects on ecology (e.g. to their flora and fauna).
- 1.4.8
- Where possible choose routes which minimise the effects on the setting of areas of architectural,historic and archaeological interest including Conservation Areas, Listed Buildings, Listed Parks and Gardens and Ancient Monuments.
- 1.4.9
- Rule 3: Other things being equal, choose the most direct line, with no sharp changes of direction and thus with fewer angle towers.
- 1.4.10
- Note of Rule 3
- 1.4.11
- Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds.
- 1.4.12
- Rule 4: Choose tree and hill backgrounds in preference to sky backgrounds wherever possible; and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.
- 1.4.13
- Rule 5: Prefer moderately open valleys with woods where the apparent height of towers will be reduced, and views of the line will be broken by trees.
- 1.4.14
- Note on Rules 4 & 5
- 1.4.15
- Utilise background and foreground features to reduce the apparent height and domination of towers from pan viewpoints.
- 1.4.16
- Minimise the exposure of numbers of towers on prominent ridges and skylines. Where possible avoiding cutting extensive swathes through woodland blocks and consider opportunities for skirting edges of copses and woods.
- 1.4.17
- Protecting existing vegetation, including woodland and hedgerows, and safeguard visual and ecological links with the surrounding landscape.

- 1.4.18
- Rule 6: In country, which is flat and sparsely planted, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concentration or ‘wirescape’.
- 1.4.19
- Note on Rule 6:
- 1.4.20
- In all locations minimise confusing appearance.
- 1.4.21
- Arrange wherever practicable that parallel or closely related routes are planned with tower types, spans and conductors forming a coherent appearance; where routes need to diverge, allow where practicable sufficient separation to limit the effects on properties and features between the lines.
- 1.4.22
- Rule 7: Approach urban area through industrial zones, where they exist; and when pleasant residential and recreational land intervenes between the approach line and the substation, go carefully into the comparative costs of the undergrounding, for lines other than those of the highest voltage.
- 1.4.23
- Note on Rule 7
- 1.4.24
- When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.
- 1.4.25
- Alignments should be chosen after consideration of effects on the amenity of existing development and on proposals for new development.
- 1.4.26
- When siting substations take account of the effects of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

SUPPLEMENTARY NOTES

Residential Areas

- 1.4.27
- Avoid routeing close to residential areas as far as possible on grounds of general amenity.

Designations of County, District and Local Value

- 1.4.28
- Where possible choose routes which minimise the effect on Special Landscape Areas, areas of Great Landscape Value and other similar designations of County, District or Local value.

Alternative Tower Designs

- 1.4.29
- In additional to adopting appropriate routeing, evaluate where appropriate the use of alternative tower designs now available where these would be advantageous visually, and where the extra cost can be justified.