



Westfield Substation Extension

Environmental Impact Assessment
Report.

Non-Technical Summary
September 2026

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Plans Non-Technical Summary

Figure 1.1: Tealing to Kincardine Upgrade Project Overview

(edp8754_d004c 15 April 2026 DJo/LMa)

Figure 1.2: Site Location Plan

(edp8754_d016c 15 April 2026 DJo/LMa)

Figure 3.1: Proposed (Indicative) Site Plan

(edp8754_d018c 15 April 2026 DJo/LMa)

Figure 3.2: Illustrative Landscape Strategy

(edp8754_d009e 15 April 2026 JOn/LMa)

Figure 3.6: OHL Reconfiguration

(edp8754_d020d 15 April 2026 DJo/LMa)

Figure 6.2: Site Context and Local Character

(edp8754_d001d 15 April 2026 GYo/MBe)

Figure 6.3: Planning Designations and Environmental Context

(edp8754_d007d 15 April 2026 VMs/MBe)

Figure 12.1: Cumulative Site Locations

(edp8754_d021d 15 April 2026 DJo/MMm)

Preface

This Non-Technical Summary (NTS) has been prepared as part of a Planning Application in Principle (PPiP) submitted to Fife Council for consent to construct and operate a high-voltage substation extension at Westfield Substation, Fife and to decommission parts of the existing Westfield Substation. This Non-Technical Summary Report has been prepared by The Environmental Dimension Partnership Ltd (EDP) and Stantec UK on behalf of SP Transmission PLC (the Applicant) and it summarises the key issues and findings of the Environmental Impact Assessment Report (EIAR).

Notifications

Electronic copies of the NTS and EIA Report can be downloaded free of charge via the Project website:

<https://www.spenergynetworks.co.uk/pages/tkup.aspx>

Electronic (USB) and hard copies of the NTS and EIA Report may be obtained by contacting the Applicant by email: tkup@communityrelations.co.uk.

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1. Introduction

1.1 Overview

- 1.1.1 This Non-Technical Summary (NTS) has been prepared as part of a Planning Application in Principle (PPiP) submitted to Fife Council for consent to construct and operate a high-voltage extension to Westfield Substation and decommissioning of the 275kV elements of the existing Westfield Substation, Fife. This substation extension is part of the Tealing to Kincardine Upgrade Project (TKUP), a national strategic infrastructure project required to increase the capacity of the electricity network to enable electricity to get from where it is generated to where it is used.
- 1.1.2 This NTS has been prepared by The Environmental Dimension Partnership Ltd (EDP) and Stantec UK on behalf of SP Transmission (SPT) (the Applicant) and it summarises the key issues and findings of the Environmental Impact Assessment Report (EIAR).
- 1.1.3 This NTS makes reference to the following EIAR figures:
- Figure 1.1: Tealing to Kincardine Upgrade Project Overview;
 - Figure 1.2: Site Location Plan;
 - Figure 3.1: Proposed (Indicative) Site Plan;
 - Figure 3.2: Illustrative Landscape Strategy;
 - Figure 3.6: OHL Reconfiguration;
 - Figure 6.2: Site Context and Local Character; and
 - Figure 12.1: Cumulative Site Locations.
- 1.1.4 The EIAR has been prepared in accordance with the requirements of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations) . The Proposed Development has considered the planning policy requirements set out in the National Planning Framework 4 (NPF4) 2023 and Fife's Local Development Plan, the FIFEplan 2017. Due to the type and size of the Proposed Development it is classed as 'National Development' in NPF4, and therefore it will assist in the delivery of the Spatial Strategy for Scotland.

1.2 The Tealing to Kincardine Upgrade Project

- 1.2.1 The wider TKUP project comprises several different elements, which all contribute to the upgrading of the electricity transmission network to provide additional grid capacity across the Fife area. The key elements are illustrated on **Figure 1.1**, and can be summarised as follows:
- The reconductoring of the YJ, YV, and YS overhead lines to allow for the increase in capacity voltage from 275kV to 400kV;
 - A new span of overhead line between YJ001A and ZCN001, the increase in voltage of the existing electric line between these towers and removal of tower YJXL001 and the span to YJXL001A;

- Substations at 400kV to manage this increased capacity voltage at Westfield, Mossmorran and Conland (north of Glenrothes);
- New terminal towers adjacent to related substation infrastructure at Westfield Substation, Mossmorran Substation, and Conland Substation; and temporary masts to facilitate the existing network during construction;
- Reconfiguration of existing 275kv overhead lines at these substation sites involving removal of existing towers and use of temporary masts to facilitate existing 275kv connections during construction;
- Decommissioning of the existing 275kv substation at Westfield and decommissioning of the 275kv substation at Mossmorran; and
- Other ancillary works including temporary road sections, temporary laydown areas for materials, landscape works, drainage, temporary work compounds and other areas of temporary hardstanding, plant, machinery, accesses, underground cables and landscaping.

1.3 The Site and Surrounding Area

- 1.3.1 The application site is located immediately west of, and includes part of, the existing Westfield Substation, and south of the B9097 to the east of Lochore and Ballingry in Fife. The majority of the site is currently agricultural and relatively flat whilst the remaining parts of the site comprise the existing 275kV parts of the existing Westfield Substation. To the west is a disused railway line, parts of which are now used as a public footpath. Within the site are two existing field boundary hedgerows with trees and existing overhead line (OHL) steel lattice towers.
- 1.3.2 The surrounding land use is predominantly farmland and a mix of arable and grazed pasture. There are a number of commercial and industrial land uses, including a historic quarry being developed as the Fife Energy Park to the north-east. The residential settlement of Ballingry is located to the west. To the south is the Fife Pilgrim Way Long Distance Walking Route (LDWR), which connects West Fife and East Fife via routes used by medieval pilgrims. To the west beyond Ballingry, and to the north, are areas within the Lomond Hills Regional Park. Further to the north-west is the Loch Leven National Nature Reserve, Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and Ramsar Wetland Designation.

1.4 The Role of SP Energy Networks

- 1.4.1 SP Energy Networks (SPEN) is the trading name for Scottish Power Energy Networks Holdings Limited. SPEN owns and operates the electricity transmission and distribution networks in central and southern Scotland through its wholly owned subsidiaries SPT and SP Distribution. These businesses are 'asset-owner companies' holding the regulated assets and Electricity Transmission and Distribution Licenses.
- 1.4.2 SPT are the Transmission Licence holder for the south of Scotland. They are obliged as part of their statutory duties and licence obligations to manage the electricity transmission network and provide electrical connections from energy sources, and where necessary, to upgrade the network.
- 1.4.3 In addition to its obligation to develop and maintain the electricity transmission network as noted below, they are required under Schedule 9 of The Electricity Act 1989, when formulating any relevant

proposals, to have regard to the desirability of preserving the environment to do what they reasonably can to mitigate any effects which the proposals would have on the environment. and to avoid, so far as possible, causing injury to fisheries or to the stock of fish in any waters. A copy of the SPT Schedule 9 Statement is provided in **Technical Appendix 1.1**.

1.4.4 Requirements under Section 9(2) of the Electricity Act 1989 are to:

- Develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and
- Facilitate competition in the supply and generation of electricity.

1.4.5 There are also obligations pursuant to the licence conditions, including:

- To make available those parts of the licensee's transmission system which are intended for the purposes of conveying, or affecting the flow of, electricity so that such parts are capable of doing so and are fit for those purposes;
- To make the transmission system available provide for new electricity generators wishing to connect to the transmission system in its licence area. SPT is also obliged to ensure that the system is fit for purpose through appropriate reinforcements to accommodate the contracted capacity; and
- To plan and develop its transmission system in accordance with the National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS) and in so doing take account of the obligations of the National Energy System Operator as the Independent System Operator and Planner, to co-ordinate and direct the flow of electricity on, to and over the British transmission system.

1.4.6 Therefore, in response to statutory and licence obligations, the Applicant is required to ensure that the transmission system is developed and maintained in an economic, co-ordinated and efficient manner in the interests of existing and future customers.

1.5 Methodology and Approach

1.5.1 Environmental Impact Assessment (EIA) is a process that considers how a development is predicted to change the existing environmental conditions and what the consequences of these changes will be. A voluntary EIA is being undertaken for the Proposed Development.

1.5.2 The EIA process contains the following key stages:

- Project inception and consideration of whether a development requires 'Screening' for EIA. A request for a screening opinion was not made in this instance, and a voluntary EIA has been prepared;
- Preparation of a Scoping Report;
- Consideration of the Scoping Response issued by the Local Planning Authority (LPA), and drafting of the EIA in light of this response;
- Baseline data collection, including site visits, field work, review of published information and other documentation;

- Assessment of likely significant environmental effects based on pre-determined methodologies and assessment criteria;
- Identification of mitigation and enhancement measures; and
- Identification of residual effects after taking into account the mitigation and enhancement measures.

1.5.3 The information gathered during the EIA process is presented within an Environmental Impact Assessment Report (EIA Report or EIAR). The EIA Report meets the requirements of Schedule 4 of the EIA Regulations and other relevant guidance relevant to each environmental topic considered.

Scope of the EIA

1.5.4 A request for an EIA Scoping Opinion was submitted to Fife Council in July 2024 (planning reference 24/01927/SCO). An EIA Scoping Opinion was received from Fife Council in September 2024. A copy of the Scoping Opinion is provided in **Technical Appendix 2.1** of the EIAR. The Scoping Opinion confirmed the environmental topics to be considered in the EIA to include;

- Landscape and visual amenity (daytime only);
- Ecology and biodiversity;
- Traffic and transport (construction only);
- Air quality (construction phase only including construction traffic and dust);
- Noise (construction traffic and operational); and,
- Cumulative effects.

1.5.5 In addition to the matters noted above, the applicant has undertaken an assessment of the likely significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters.

1.5.6 It was agreed that all other environmental topics do not need to be included in the EIAR; this includes socio-economics and tourism, hydrology, cultural heritage, ground conditions and contamination, climate change and human health.

Determining Likely Significant Effects

1.5.7 The likely effects of the Proposed Development have been assessed and the significance of the effect determined. In assessing the significance of effect, the magnitude of change likely to arise as a result of the Proposed Development is considered, alongside the sensitivity of the affected environmental receptor. In addition, consideration is given to the geographical extent of the change and the extent to which mitigation can reduce an adverse effect. Other factors considered include:

- Indirect Effects – those effects that are not a direct result of the Proposed Development;
- Direct Effects – where the effect is a direct result of the Proposed Development;
- Short-Term, Medium-Term and Long-Term Effects;
- Temporary Effects – where the effect only occurs for a limited period of time and the change can be reversed;

- Permanent Effects – where the effect is a long-lasting change;
- Beneficial Effects – a positive effect considered beneficial to one or more environmental receptors; and
- Adverse Effects – a negative, or detrimental, effect on one or more environmental receptors.

1.6 Public Consultation

- 1.6.1 As part of the pre-application process public consultation was undertaken. The overall objective of the consultation process is to ensure that all parties with an interest in the Proposed Development have access to up-to-date information and are provided with clear and easy ways in which to shape and inform SPT's proposals at the pre-application stage.
- 1.6.2 The formal Proposal of Application Notice (PAN) submitted to Fife Council on 25th June 2024 in respect of the Westfield substation extension set out a description of the development in general terms, including a plan to identify the site, and SPEN's proposals for undertaking pre-application consultation for the substation extensions and associated works.
- 1.6.3 As part of the consultation strategy, SPEN held two rounds of public consultation for the public, stakeholders and consultees to provide comments on the proposals.
- 1.6.4 The first consultation period ran from Thursday 18 July until Friday 30 August 2024. There were two public events on Tuesday 30 and Wednesday 31 July 2024 in Ballingry and Crossgates. The second consultation period ran from Monday 25 November until Friday 20 December 2024. There were two public events on Tuesday 26 and Thursday 28 November 2024 in Ballingry and Auchtertool.
- 1.6.5 One formal feedback response was submitted during the consultation process. The feedback was positive and did not raise any concerns. Issues raised informally in discussions at the public events included:
- Whether there would be opportunities for landscaping and screening to reduce the potential visual impact of the new substation equipment;
 - Whether there would be an increase in noise during construction or operation of the sites;
 - How construction traffic would access the sites;
 - Concerns over electric and magnetic fields (EMF); and
 - Opportunities for community benefit funding.

2. Need and Alternatives

2.1 Need for the Proposed Development

- 2.1.1 Much of the electricity transmission network in Scotland is between 50 and 100 years old. It has grown and evolved to meet industrial needs and serve the expanding population, but the network in central Scotland will soon be at full capacity and unable to accommodate all the clean, green renewable energy we will all need in future.
- 2.1.2 Every year the National Energy Systems Operator (NESO) carries out a Network Options Assessment (NOA) to determine what, if any, additional transmission network capacity will be required and economically justified to ensure current and future energy generation can flow from where it is produced to where it is needed.
- 2.1.3 The NOA identified a need to increase transmission network capacity in this area of Scotland by increasing the voltage of existing overhead lines between Tealing, near Dundee, and Kincardine, in Fife, from 275,000 volts (275kV) to 400,000 volts (400kV), to allow more energy to flow through the system. To facilitate this, SPEN needs to replace the two existing 275kV transformers at Westfield substation, which are now 55 years old, with new 400kV transformers.
- 2.1.4 The Westfield substation extension will also directly facilitate the network connection for the Eastern Green Link (EGL) 4 project (another national development proposed immediately to the east of the site) as well as currently up to six contracted customer connections.
- 2.1.5 The upgrade to the overhead line and extended substations will have a key role in enabling Scotland and the UK to meet Net Zero emissions targets while ensuring that power flows efficiently through the system in central Scotland.

2.2 Alternatives and Design Evolution

- 2.2.1 Technical requirements, associated with the location of existing overhead line transmission towers, required the extension to Westfield substation to be located on the west side of the existing substation. These technical requirements were considered alongside environmental information about the site and surrounding area, and economic viability and deliverability.
- 2.2.2 The siting and design of the extension to Westfield substation considered the requirements of the 'Horlock Rules', which provide guidelines for the siting and design of new substations, or substation extensions to avoid or reduce the environmental effects of such developments. The Horlock Rules require the following to be considered:
- Overall system options and site selection;
 - Amenity, cultural or scientific value of sites;
 - Local context, land use and site planning; and,
 - Design.

- 223 A “do nothing” option was considered, where no upgrades would be made and the existing network would continue as it is. This option was rejected because it would not meet future electricity demand, maintain a reliable supply, or comply with technical standards.
- 224 Since an upgrade is needed, different technical options and possible locations were assessed. This included looking at different substation designs and choosing a suitable site based on practical, environmental, and landscape considerations.
- 225 Alternative technologies have also been considered. Air Insulated Switchgear (AIS) and Gas Insulated Switchgear (GIS) are different technologies used in the electricity industry, with AIS using air for insulation, requiring a larger footprint, lower initial cost and more frequent maintenance, while GIS uses inert gas, providing a compact, reliable, and low-maintenance solution at a higher upfront cost. Considerations include space availability, economic considerations, and environmental conditions, with AIS being suitable for larger, and GIS preferred for space-limited, high-pollution, or harsh environments. In this case, both options were considered. However, an offline build of a 400kv, GIS, double busbar substation was the preference due to its lower capital cost, shorter delivery programme and reduced outage requirements, which maximises security of supply during construction and minimises operational costs. As the GIS systems requires less space it is also considered the most appropriate from an environmental perspective, reducing the footprint and extent of environmental impacts.
- 226 This process of design consideration determined that upgrading the existing Westfield Substation in the proposed way is the most suitable and preferred option. The design of the proposed extension to Westfield substation has evolved as part of the environmental assessment. Key elements of the design including the access onto the B9097, the location and size of the substation platform and the location and size of the proposed drainage features have evolved as information about the site and any technical constraints has become available.

2.3 The Proposed Development

Extension to Westfield Substation

- 231 The Westfield Substation Extension is currently envisaged to include the installation of up to six new transformers. These will replace the two existing 275kV transformers at the existing Westfield substation.
- 232 Minor alterations to the existing overhead lines are also required at Westfield to connect them to the new substation. The overhead lines currently cross the site for the proposed new substation. SPEN will install a temporary mast to divert the overhead lines away from the site, removing six existing towers (pylons) to enable the build of the new substation. Two new towers will then be erected and underground cables installed to connect the new substation to the network before removal of the temporary mast and line diversion. These overhead line alterations will be consented separately to the substation extension and therefore are considered as part of this EIA within the cumulative assessment.
- 233 Following the completion of the construction and electrification of the proposed extension to the Westfield substation, the existing 275kV component of the substation will be deconstructed and the

land maintained for future high voltage infrastructure that may be required. This decommissioning work forms part of the Proposed Development assessed within this EIAR.

2.3.4 The Proposed development will include the following:

- A new 400kV SF₆-free GIS substation building, which will house electrical switchgear, plant and ancillary equipment;
- Up to six 400/132kV transformers;
- SF₆-free GIS double busbar to connect the switchgear to each circuit;
- An improved access onto B9097, internal access roads and vehicle parking;
- Drainage and landscape bunds and planting; and
- Perimeter security fencing around the live compound and some exterior lighting on columns to ensure safety and security.

2.3.5 An example of a similar substation is illustrated on **Image 2.1**.



Image 2.1: Example of an existing substation.

2.3.6 The proposed substation will operate 24 hours per day, 365 days per year and will be mainly unmanned. Once operational, there will be routine maintenance visits. Other maintenance repairs and works will be required sporadically. It is anticipated that the substation plant and equipment will have a design life of approximately 40 years, after which it will be replaced with new equipment and installed to the relevant engineering specification and environmental standards.

Maximum Development Parameters

2.3.7 Maximum development parameters have been established for the purpose of the environmental assessment. These include the following: Maximum development parameters have been established for the purpose of the environmental impact assessment. These include the following and are illustrated on Figures 3.1–3.5:

- Maximum building and infrastructure/component heights: GIS Building 17m, Transformers 14m, Busbars, gantry structures and other ancillary infrastructure 14m;
- Maximum extent of substation platform of 60,000 square metres;
- Maximum height (90.5m aOD) of the finished floor level of the substation platform;
- Location of access onto B9097;
- Maximum height of primary perimeter security fence will be 3m founded on a continuous anti-dig concrete strip to prevent burrowing and undermining. A secondary maximum 2m high agricultural post-and-wire stock fence will be set 5m outside the security fence.. Closed Circuit TV poles will be a maximum of 6.5m with lighting columns a maximum of 6m (4m standard height);
- Maximum extent of any earthworks or construction zones within the site boundary (16.7ha);
- Maximum noise emissions from plant and equipment. The maximum sound power level of the transformers is 87dB(A);
- A construction compound will be located within SPEN land adjacent to the substation footprint. The indicative size of this compound is 30 m × 55 m. The compound will provide hardstanding for plant and welfare facilities, designed for 100 kN/m² bearing capacity, with granular layers and geotextile separation where required. Drainage will include temporary SuDS to manage runoff;
- Access tracks: The existing junction onto the B9097 will be altered to improve access to the site, including for transformer delivery vehicles. It will connect to an internal access road running parallel to the existing road and internal tracks around the platform. Roads will be 5 m wide, widened on bends, surfaced in asphalt externally and granular Type 1 internally. Drainage will use filter drains discharging via SuDS ponds;
- Junction details: The junction will meet DMRB CD123 standards with 215 m visibility splays. Swept Path Analysis confirms suitability for 20-axle transformer vehicles (64.4 m long). Over-run areas and verge widening will accommodate abnormal loads. Assessments undertaken to date have been based on transformer delivery accessing and exiting the site from the east.

2.4 Construction, Programme and Phasing

- 2.4.1 The Proposed Development will be constructed 'offline', in effect while the existing 275/132kV substation remains operational. This is to provide continuity of supply across the transmission network. It is anticipated that the construction will commence in 2027 for a period of approximately four years.
- 2.4.2 The construction of the Proposed Development will be delivered in phases. Indicative phases are set out as follows:
- Construction of the access roads;
 - Construction of the substation platform;
 - Installation of the main plant and equipment;
 - Installation of replacement tower for YS001 (to be consented under Section 37 for the YS Route);

- Electrification and commissioning of the proposed substation extension;
 - Removal of existing towers YS001 and YJ085
 - Decommissioning of the 275kV elements of the existing Westfield Substation; and
 - Reinstatement and landscape works.
- 24.3 Subject to securing planning permission and other required consents and approvals being granted the indicative construction programme for the Proposed Development is as follows:
- Construction Start: January 2027;
 - Installation of Main Plant and Equipment: October 2029;
 - Reinstatement of grassland and proposed landscaping measures (October 2030);
 - Electrification and Commissioning: October 2030; and
 - Decommissioning of the existing 275kv electrical equipment Q4 2031.
- 24.4 Further detailed construction phasing and programme are subject to change as the design progresses and land rights are secured .
- 24.5 The Applicant is committed to minimising the environmental impact of construction activities on the environment. Environmental Management Systems (EMS) have been developed by the Applicant and cover a large range of activities. All construction works will be undertaken in accordance with these and the Applicants Contractor Environmental Performance Requirements (CEPR) for major projects.
- 24.6 A site-specific Construction Environmental Management Plan (CEMP) and Project Environmental Management Plan (PEMP) will be adhered to, and it will aid in avoiding, minimising and controlling adverse environmental impacts associated with the construction of the Proposed Development. In addition, the Contractor will also provide an Environmental Risk Assessment, Pollution Prevention Plan, Surface Water Management Plan, Species Protection Plans, Habitat Management Plan, Peat Management Plan and Site Restoration Plan.

3. Landscape and Visual Amenity

- 3.1.1 This section has been prepared by EDP and summarises the potential direct and indirect impacts on the landscape and visual amenity that are predicted to arise as a result of the Proposed Development.

3.1 Summary of Landscape Effects

- 3.1.1 The Proposed Development will result in visible and tangible changes to come of the land comprised within the site, in particular the land currently in agricultural use. During construction, temporary disruption will occur through traffic movements and construction operations within the site, and the loss of some trees and grassland. These changes will create a high level of short-term adverse effects, particularly within the site itself.
- 3.1.2 In the long term, the landscape character will change as a result of the Proposed Development, particularly in the vicinity of the existing Westfield substation. However, the development would be visible in the context of existing energy infrastructure, which already influences the character of the local area. Mitigation measures, including new landscape planting on 2m bunding, will help to integrate the development into the surrounding landscape and reduce its visual prominence over time. By Year 15, as planting matures, the perceptual and visual effects are expected to reduce, with the development becoming a more established feature of the local landscape.
- 3.1.3 The surrounding landscape character types (LCT) are also considered. The Host LCT (Lowland Hills and Valleys) within which the Proposed Development will be located, will experience lower levels of change that will reduce over time. The most notable effects are localised and diminish quickly due to topography and existing features. Non-Host (wider) LCTs have also been assessed and no significant effects are predicted.
- 3.1.4 There will be significant effects at the site level due to the proposed scale of change and the loss of some existing landscape features. Such effects are not an indication of bad design or of the development being in the wrong place, but an unavoidable consequence of development in greenfield locations. Notwithstanding these localised impacts, effects at the wider host LCT scale are limited and not significant, reflecting the relatively limited extent of change, the influence of existing industrial features, and the contained nature of the site. Mitigation planting would reduce effects over time, although some Significant residual change to site character would remain.
- 3.1.5 Effects on non-host LCTs would generally be limited in extent and not significant. This reflects a combination of factors including distance from the site, limited intervisibility, intervening landform and vegetation, and the presence of existing industrial and energy infrastructure within the wider landscape. Where visibility occurs, the development would typically be perceived in the context of existing built features, resulting in low to very low magnitudes of change.
- 3.1.6 The cumulative assessment considered the Proposed Development alongside other elements of the TKUP and other committed developments in the area. Whilst these projects would increase the concentration of energy-related infrastructure locally, the Proposed Development would not be an overly prominent component of the cumulative landscape change. Cumulative landscape effects during both construction and operation would remain not significant, and no effects greater than those identified for the Proposed Development in isolation would arise.

3.2 Summary of Visual Effects

- 3.2.1 The visibility of the development varies depending on location. People using nearby walking routes like the Fife Pilgrim Way and local Core Paths will see the new substation most clearly during construction and the early years. Views are partially screened by vegetation and landform, but worst-case visual effects are considered significant from some locations, especially from the south and west.
- 3.2.2 By Year 15, the visual impact of the substation in views will be softened slightly by tree planting, resulting in a reduction of visual effects for most receptors. In areas where views are already influenced by existing infrastructure (such as overhead lines, substations, and the Westfield Energy Recovery Facility), the new development is seen as an incremental change rather than a prominent addition to the view.
- 3.2.3 Nearby residential property groups and settlements (including properties on the eastern edge of Ballingry, Middleburn Cottage, and properties south of the B9097) have been considered, and are close enough to experience visual change at all stages of the development, but especially during construction. These effects lessen over time but remain perceptible, and significant for a small number of receptors. Other groups of residential properties, such as those further away (such as Capledrae dwelling and properties north of Pitkinny Forest) or screened by vegetation and buildings, will see only limited changes.
- 3.2.4 For road users, particularly those travelling along the B9097 adjacent to the site, there will be brief but noticeable views of the substation during construction and operation. However, these effects are not significant overall for users of these routes, especially given the transient nature of road travel and existing roadside vegetation which will screen some views.
- 3.2.5 The Proposed Development would give rise to a range of visual effects, with significance varying by receptor type, proximity, and extent of visibility. Significant visual effects are generally limited to receptors in close proximity to the site where views are more open and direct. For the majority of receptors, including more distant viewpoints and those where views are filtered or experienced in the context of existing infrastructure, effects are Not Significant. Over time, mitigation planting would help to soften and partially screen views, reducing the magnitude of visual change, although some residual effects would persist locally.
- 3.2.6 The cumulative visual assessment considered the combined visibility of the Proposed Development with other TKUP elements and nearby developments. Although some locations would experience views of multiple developments, particularly under the more extensive cumulative scenario, the Proposed Development would generally not be an overly prominent component of the overall cumulative change. Cumulative visual effects would be limited and localised, with no new significant effects arising as a result of the Proposed Development and no cumulative effects greater than those identified for the Proposed Development in isolation.

4. Ecology and Biodiversity

- 4.1.1 This section has been prepared by EDP and summarises the potential direct and indirect impacts on the Ecology and Biodiversity that are predicted to arise as a result of the Proposed Development.
- 4.1.2 The Proposed Development will result in the woodland, hedgerow, trees, watercourse and associated bat foraging, commuting and roosting resources and impacts to fish populations during construction. Temporary impacts from construction activities will occur predominantly through habitat loss, as well as the potential direct harm to individual salmonids present in the impacted watercourse network. These activities have the potential to cause a Minor Adverse effect (significant) at a Local level.
- 4.1.3 Measures to mitigate for potential impacts during the construction phase will include a range of industry standard measures describing key working methods and timings to avoid/minimise ecological effects during construction will be delivered through an ECMS, which would detail any and protected species licences and species-specific method statements, and, where required, will specify where work will require supervision by a suitably qualified ecologist. Licences, if required, would be obtained in advance of construction, and mitigation measures would be further refined and agreed during the licencing process.
- 4.1.4 Embedded mitigation has sought to retain the scrub habitat along the northern boundary, and the development footprint has been spatially separated from the retained watercourse to the south. Where the removal of habitats cannot be avoided, mitigation i.e. scrub, hedgerow and wildflower grassland will be planted within the site. Offsite habitat units will also be provided to ensure there is No Net Loss in biodiversity in line with NPF4 policy requirements. In parallel with this approach, SPT promote 10% biodiversity net gain to accord with the SPEN RIIO T3 business plan commitments. The establishment, maintenance and long-term management of the retained, enhanced and created habitats on-site will be delivered via a BEP or other equivalent documentation. The landscaping at site will be additional to the provision of off-site biodiversity enhancement. Any trees planted at site will need careful consideration to ensure they do not undermine site security.
- 4.1.5 In summary, with appropriate mitigation and design, the construction and operation of the Proposed Development is not anticipated to have any significant residual effects on Important Ecological Features (not significant).
- 4.1.6 The cumulative assessment considered the Proposed Development alongside other elements of the TKUP and other committed developments in the area. Based on the nature of the works and the embedded and additional mitigation provided, no cumulative effects are anticipated as a result of the Proposed Development for Biodiversity and Ecology.

5. Traffic and Transport

- 5.1.1 This section has been prepared by Stantec UK and sets out the likely significant effects of the Proposed Development on traffic, transport and access conditions.
- 5.1.2 The environmental assessment of traffic and movement uses the IEMA Guidelines (2023) to assess the potential impacts.
- 5.1.3 The baseline conditions at the site and surroundings have been considered. Baseline traffic data on the local road network was surveyed and collected in December 2024, which has been used to inform the baseline assessment.
- 5.1.4 The potential direct and indirect impacts of the Proposed Development during only the construction phase have been identified. The peak construction period was identified between March and June 2027 (during the 'Bulk Earthworks' period). As the peak period is anticipated to generate the most trips during the construction phase, these trips have been used within the assessment as they include the worst-case traffic scenario which is more robust.
- 5.1.5 The construction peak period anticipates a total of 78 two-way Heavy Goods Vehicle trips per day. The 78 two-way trips will access and exit the site and will route towards the M90 or A92.
- 5.1.6 The proposed traffic associated with the decommissioning of the 275kV transformers of the existing substation has been calculated and provided by the Applicant. The decommissioning phase is anticipated to commence in Q4 2030 and last for a period of approximately 12-14 months, with the peak period occurring between May and August 2031. The peak decommissioning months (May to August 2031) forecasts a total of 60 two-way trips per day.
- 5.1.7 Overall, it is clear that the construction phase is forecast to generate a higher quantity of vehicle trips compared to the decommissioning phase during the respective peak periods. The percentage change assessment has therefore only considered the construction phase trips on the local road network as this phase produced a higher, and therefore worst-case scenario, number of trips. No further assessment of the decommissioning phase has been undertaken.
- 5.1.8 The anticipated percentage change in traffic during the peak period for all survey locations did not exceed the thresholds set out by the IEMA Guidelines. Therefore, no further assessment of the impacts has been undertaken. The potential impacts can be considered negligible and not significant.
- 5.1.9 It has been concluded that no specific mitigation is required for the construction phase and decommissioning phase.

6. Air Quality

- 6.1.1 This section has been prepared by Stantec UK and considers the potential air quality impacts associated with the construction and operation of the Proposed Development and the decommissioning of the 275kv elements of the existing substation.
- 6.1.2 The potential air quality impacts associated with the Proposed Development have been assessed. The site is located within the administrative boundary of Fife Council. Fife Council has investigated air quality within its area as part of its responsibilities under the Local Air Quality Management (LAQM) regime. When the Environmental Impact Assessment (EIA) Scoping report was written Fife Council had two Air Quality Management Areas (AQMA) declared within the county. However, since then these have both been revoked and at the time of writing, no AQMAs are declared within the county. The nearest AQMA to the site is in Edinburgh, more than 22 km to the south-east.
- 6.1.3 The construction activities associated with the Proposed Development have the potential to create dust. During construction, a package of mitigation measures will be put in place to minimise the risk of elevated Particulate Matter (PM10) concentrations and dust soiling in the surrounding area. With this mitigation in place, the construction dust impacts are judged as being 'not significant'.
- 6.1.4 During the construction period, the peak increase in heavy duty vehicles (HDVs) movements on the road network will be 78 Average Annual Daily Traffic (AADT) which is below the threshold of 100 HDV movements per day outside an AQMA for an assessment to be necessary according to Environmental Protection United Kingdom (EPUK) and IAQM guidance. Therefore, the air quality impacts of the Proposed Development with regards to construction traffic are considered to be 'not significant' and additional mitigation is not required.
- 6.1.5 As part of the Proposed Development, there is a standby diesel generator required in case of a power outage. Due to the size of the generator, the IAQMs NOx emission rate screening criteria (EPUK and IAQM, 2017) would be exceeded however, the generator will be operated very infrequently and will therefore not have the potential to impact the national air quality objectives (NAQOs). Alongside this, the background concentrations at the site are low and the separation distance from the closest sensitive receptor is over 100m, therefore the potential impact of emissions to air from the back-up power generator are considered 'not significant'.
- 6.1.6 During the decommissioning period, the peak increase in HDVs movements on the road network will be 36 AADT which is below the threshold of 100 HDV movements per day outside an AQMA for an assessment to be necessary according to EPUK and IAQM guidance. Therefore, the air quality impacts of the Proposed Development with regards to decommissioning traffic are considered to be 'not significant' and additional mitigation is not required.
- 6.1.7 No secondary mitigation measures or further monitoring is required as the effects of construction dust, traffic and combustion emissions on existing sensitive human receptors is considered to be 'not significant'.
- 6.1.8 There are not predicted to be any significant air quality effects as a result of the Proposed Development, and the Proposed Development is considered to be in accordance with the requirements of the National Planning Framework 4 (NPF4) and the Fife Air Quality Supplementary Planning Document (SPD).

7. Noise

- 7.1.1 This section has been prepared by Stantec UK. It outlines the effects identified in Chapter 10 – Noise of the ES, associated with the decommissioning of existing equipment, construction and operational phases of the Proposed Development.
- 7.1.2 Noise levels generated during decommissioning works are expected to be comparable to those generated during construction works. The Scoping Report noted that noise from construction works could potentially result in significant effects if appropriate mitigation is not implemented. However, as is the case for construction noise, likely effects would be mitigated through the implementation of a construction environmental management plan, which would outline relevant noise mitigation for the decommissioning phase. Noise from decommissioning works has been scoped out of the assessment. These works will not overlap with construction and would be comparable in nature and duration. On this basis, and given receptor distances, no significant effects are anticipated
- 7.1.3 Baseline sound data was collected through a survey undertaken in December 2024. This data informed the baseline assessment and provided a robust foundation for the subsequent environmental noise assessment, which was conducted in accordance with relevant guidelines and standards.
- 7.1.4 The baseline assessment involved detailed measurements and analysis of existing environmental sound levels at multiple locations around the site, representative of the nearest noise sensitive receptors. Measurements were taken during both daytime and night-time periods.
- 7.1.5 Predictions of sound emissions related to operational activity of the substation have been provided using proprietary three-dimensional noise modelling software and calculations of construction road traffic noise in accordance with relevant guidance. The outcome of the assessment indicates that the noise impact from both construction and operational phases will not be significant.
- 7.1.6 Given that the anticipated changes in noise levels are within acceptable limits, no specific mitigation measures are required.
- 7.1.7 In conclusion, the assessment demonstrates that the Proposed Development will not give rise to significant adverse noise effects on the surrounding area. The potential effects are considered negligible, and no further mitigation is necessary.

8. Major Accidents and Disasters

- 8.1.1 This section has been prepared by Stantec UK. It outlines the potential effects associated with Major Accidents and Disasters (MA&D) during the construction and operation of the Proposed Development, and the decommissioning of the existing substation.
- 8.1.2 The assessment considers the potential for events such as fire, explosion, equipment failure and nearby infrastructure, and whether these could give rise to significant effects either alone or in combination with other nearby developments.
- 8.1.3 During construction, there is a low risk of incidents such as vehicle collisions, fuel spills, or equipment-related accidents. There is also the potential for accidental damage to existing buried services, including pipelines, during excavation works.
- 8.1.4 These risks will be managed through standard good practice measures, including pre-construction utility surveys, permit-to-dig procedures, and adherence to Construction Environmental Management Plans (CEMPs).
- 8.1.5 Where pipelines or other utilities are present, appropriate stand-off distances, protection measures, and consultation with asset owners will be implemented to avoid accidental damage.
- 8.1.6 Given the temporary nature of construction activities, the implementation of these controls, and the separation distances between nearby developments, the likelihood of a major accident (including pipeline rupture or associated hazardous event) is considered to be very low. As such, the potential effects associated with major accidents and disasters during construction are considered to be negligible and not significant.
- 8.1.7 During operation, the Proposed Development will be designed and managed in accordance with relevant legislation and industry standards, incorporating appropriate safety systems, monitoring, and emergency response procedures.
- 8.1.8 With regard to existing pipelines in the surrounding area, these are regulated infrastructure assets subject to their own safety management systems, monitoring, and maintenance regimes. The Proposed Development does not introduce activities that would materially increase the risk of pipeline failure.
- 8.1.9 For cumulative effects to occur, a simultaneous failure of infrastructure (e.g. a pipeline incident in combination with a site-related event) would be required. Given the independent operation of each asset and separation distances, this scenario is considered highly unlikely. Therefore, the potential for significant effects associated with major accidents and disasters during operation, including those involving pipelines, is considered to be negligible and not significant.
- 8.1.10 The decommissioning phase will involve activities similar to construction, including removal of infrastructure and excavation works, and therefore presents similar risks, including the potential for accidental interaction with existing buried services such as pipelines.
- 8.1.11 These risks will be managed through the same measures applied during construction, including utility identification, permit-to-dig systems, and adherence to environmental and health and safety management plans.

- 8.1.12 Given the temporary and controlled nature of decommissioning works, and the implementation of appropriate safeguards, the likelihood of a major accident, including pipeline-related incidents, is considered to be very low. The potential effects associated with major accidents and disasters during decommissioning are therefore considered to be negligible and not significant.
- 8.1.13 In conclusion, the Proposed Development is not considered to give rise to any significant effects in relation to MA&D, and no further mitigation measures are required.

9. Cumulative and Interactive Effects

9.1 Introduction

- 9.1.1 The assessment of cumulative effects is concerned with identifying circumstances in which a number of likely significant effects either from the project itself, or from separate existing or future approved development, could combine to cause a significant effect on a particular feature of the environment.
- 9.1.2 This section summarises both effects arising from different elements of the Proposed Development on environmental receptors and from the Proposed Development combined with other activities or development in the area. It also includes the assessment of relevant parts of the TKUP and EGL 4 projects in the consideration of cumulative effects.
- 9.1.3 Two types of cumulative effects are considered. 'Interactive' cumulative effects are those that occur when different parts of the Proposed Development act together to affect the same environmental feature. 'In-combination' cumulative effects arise when the Proposed Development acts together with other existing or planned developments in the area.

9.2 Interactive Cumulative Assessment

- 9.2.1 An overall assessment of the cumulative effects on identified common sensitive receptors has been made using professional judgement and the technical information provided in Chapters 6–11 of the EIAR.
- 9.2.2 Only residual significant effects on landscape character and visual amenity have been identified for the Proposed Development. It is therefore concluded that no significant interactive effects are anticipated.

9.3 In-Combination Cumulative Assessment

- 9.3.1 The in-combination effects are the combined effects of the Proposed Development, relevant elements of TKUP and EGL 4 projects, and other reasonably foreseeable developments, considered in line with each topic area specific guidance. They consider all stages through construction and operation.
- 9.3.2 A 'long list' of other Proposed Developments has been identified, to include all elements of the TKUP (within the SPEN Transmission Licence Area) and other proposed energy and other developments within an identified geographical zone of influence of the Proposed Development. This list of developments was agreed with Fife Council.
- 9.3.3 A 'short list' of sites for assessment has been identified. This short list has been determined taking into account the geographical zone of influence, the geographical extent of the other developments and the likely construction periods and operational dates. In addition, industry specific guidance for each environmental topic in relation to cumulative assessment has been considered. The short list of sites is listed as follows and show on **Figure 12.2**.

- TKUP related projects:
 - TKUP Reconductoring of YJ Route;
 - TKUP Reconductoring of YS Route;
 - Reconfiguration of OHL and 132kV OHL works at Westfield Substation;
- EGL4 related projects:
 - EGL4 Converter Station;
 - EGL4 On Shore Underground AC Cable Route;
 - EGL4 On Shore Underground DC Cable Route;
- Westfield Solar Farm;
- BESS Kirklands Farm;
- BESS Fife Power Station;
- Westfield BESS; and
- Solar Farm and BESS Land at Strathruddie.

9.3.4 In summary, the majority of in-combination cumulative effects are negligible and not significant. This is the case for construction and operational phase cumulative effects on landscape character, ecological receptors, on construction traffic and transport, construction phase air quality, operational phase air quality, construction traffic noise, major accidents and disasters and operational noise.

9.3.5 Significant cumulative effects would not arise where there is no significant effect for the Proposed Development in isolation. There are also receptors where cumulative effects would reduce in significance due to the increased infrastructure and electrical context provided by the theoretical cumulative baseline which reduces the extent to which the Proposed Development would contribute to the cumulative magnitude of change. This relates to visual receptors in close proximity to the Proposed Development and results from the addition of the EGL4 project, and the Kirklands Farm BESS which are both in close proximity to the Proposed Development and serve to increase the extent of infrastructure/energy development in the theoretical baseline landscape against which the Proposed Development would be experienced.

9.3.6 Therefore, significant in-combination cumulative effects of the Proposed Development and other identified similar developments are limited to impacts on the visual amenity in close proximity to the site.

10. Mitigation

- 10.11 Mitigation measures have been proposed to either avoid or reduce impacts, which could otherwise give rise to significant residual environmental impacts.
- 10.12 The proposed mitigation measures are primarily related to potential construction impacts. Therefore, pre-construction and construction phase mitigation will be delivered through a CEMP and other relevant management plans and documents.

11. Summary of Effects

11.1.1 A summary of the identified effects for each environmental topic is provided in **Table 11.1**.

Table 11.1 Summary of Effects

Environmental Topic	Summary of Residual Effects
Landscape and Visual Amenity	The following are likely to experience significant residual effects during construction: • The site character and its immediate surroundings (parts of LCT 186); • Users of small sections of The Fife Pilgrim Way West (including Core Paths R410, R519, R520 and R817) but not the route overall; • Users of sections of Core Paths R580 and R581, but not the routes overall; • Users of sections of Core Path R828 and R583 (PVPs EDP 11 and 12) but not on the routes overall; • Users of sections of the B9097 as the route passes the site, but not the road overall; and • Residential Groups A to C. During operation the likely residual (Year 1) significant effects would be on the following landscape and visual receptors: • The site character and its immediate surroundings (parts of LCT 186); • Users of short sections of The Fife Pilgrim Way West (including Core Paths R410, R519, R520, R817) but not the route overall; • Users of sections of Core Paths R580 and R581, but not the routes overall; • Users of sections of Core Path R583 (PVPs EDP 11) but not on the route overall; • Users of sections of the B9097 as the route passes the site, but not the road overall; and • Residential Groups B to C. During operation the likely residual (Year 15) significant effects would be on the following landscape and visual receptors: • The site character and its immediate surroundings (parts of LCT 186); • Users of sections of Core Paths R580 and R581, but not the routes overall; and • Residential Group C.
Ecology and Biodiversity	No significant adverse effects have been identified.

Environmental Topic	Summary of Residual Effects
Traffic and Transport	No significant adverse effects have been identified.
Air Quality	No significant adverse effects have been identified.
Noise	No significant adverse effects have been identified.
Cumulative and Interactive Effects	No significant interactive cumulative effects. Significant in-combination cumulative effects on visual amenity of some settlements and residential dwellings in close proximity to the site during construction and operation. These effects would be no greater (and sometimes lower) than the Proposed Development in isolation. No other significant in-combination cumulative effects.

Plans Non-Technical Summary

Figure 1.1: Tealing to Kincardine Upgrade Project Overview

(edp8754_d004c 15 April 2026 DJo/LMa)

Figure 1.2: Site Location Plan

(edp8754_d016c 15 April 2026 DJo/LMa)

Figure 3.1: Proposed (Indicative) Site Plan

(edp8754_d018c 15 April 2026 DJo/LMa)

Figure 3.2: Illustrative Landscape Strategy

(edp8754_d009e 15 April 2026 JOn/LMa)

Figure 3.6: OHL Reconfiguration

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Figure 6.2: Site Context and Local Character

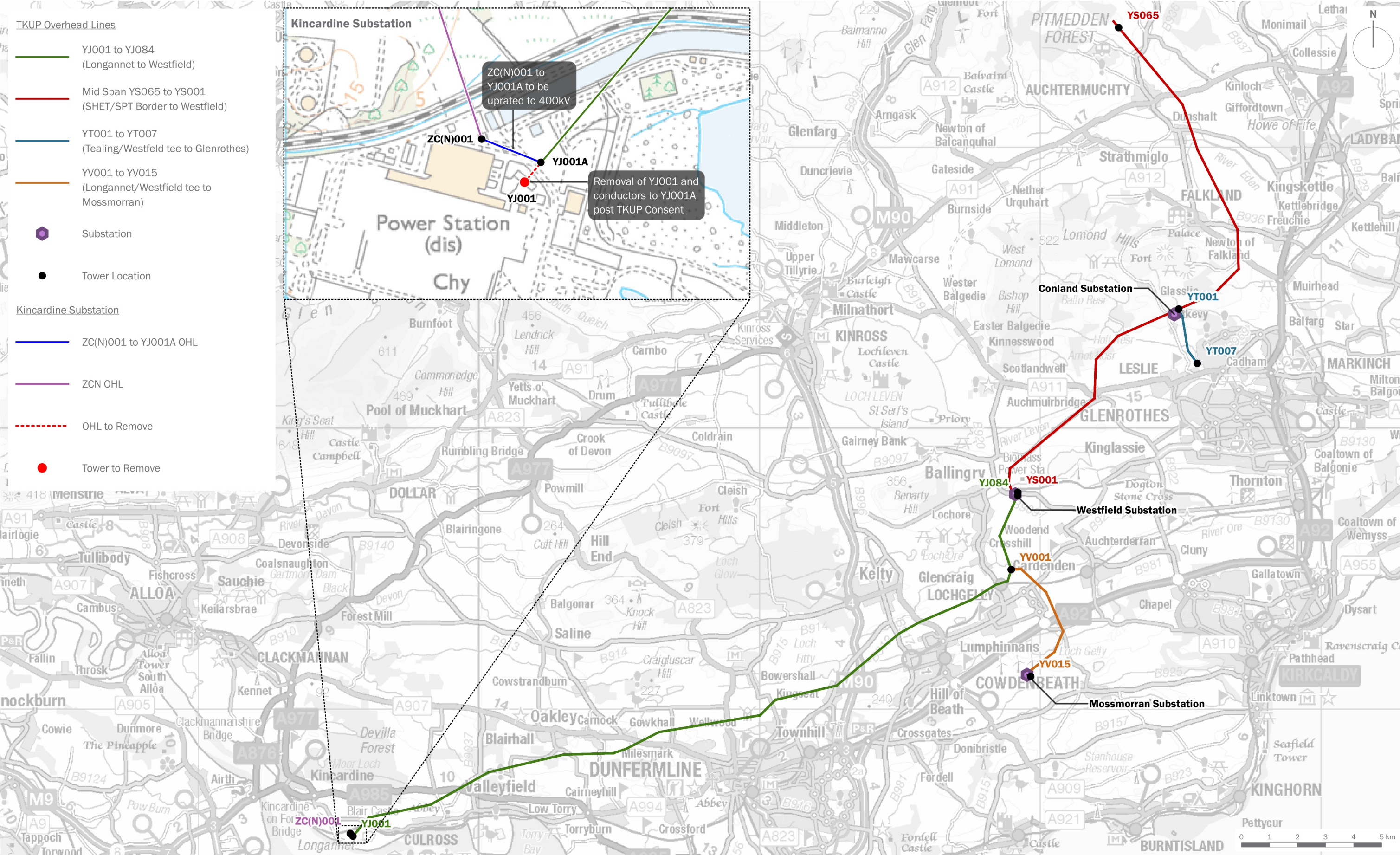
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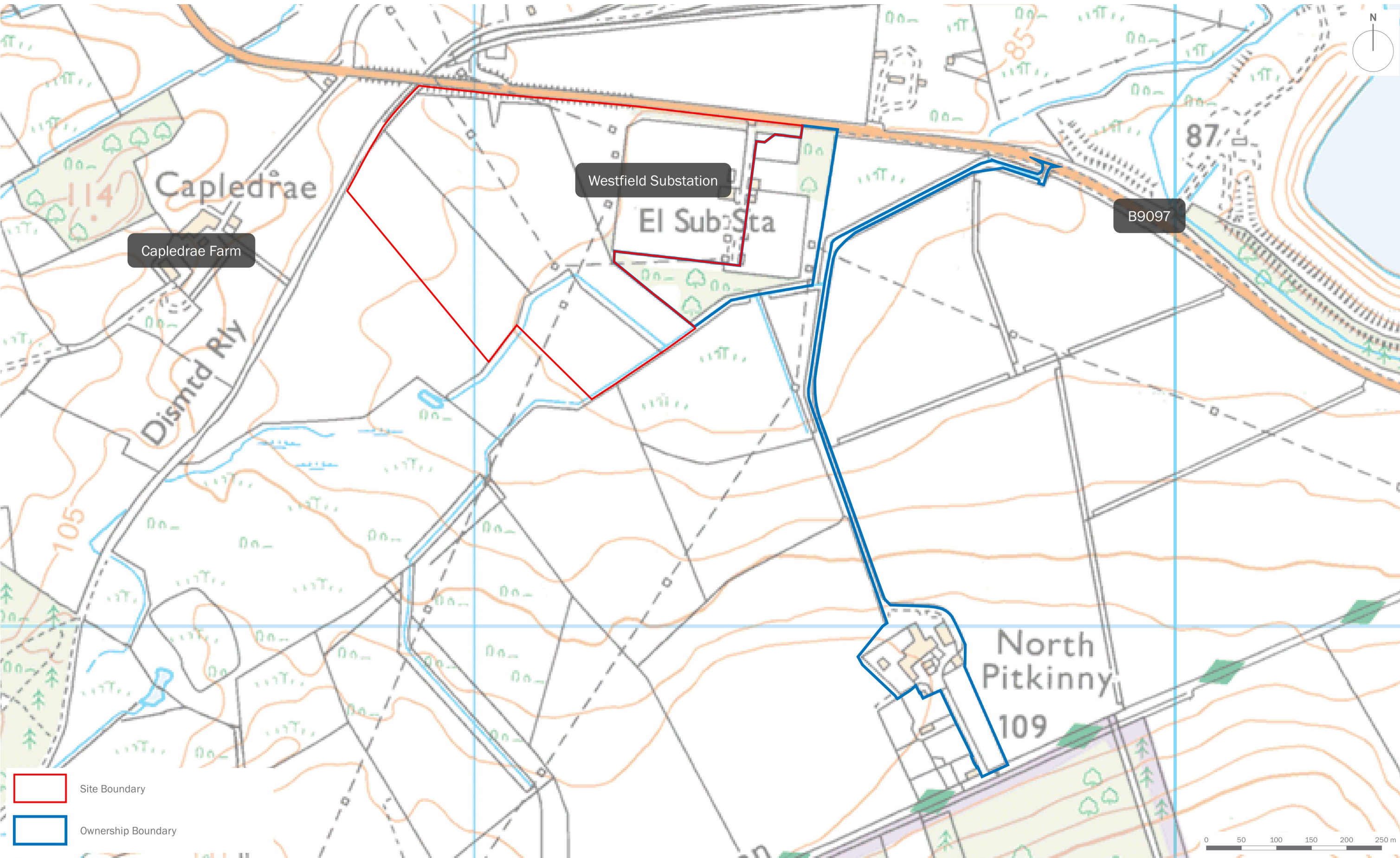
Figure 6.3: Planning Designations and Environmental Context

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Figure 12.1: Cumulative Site Locations

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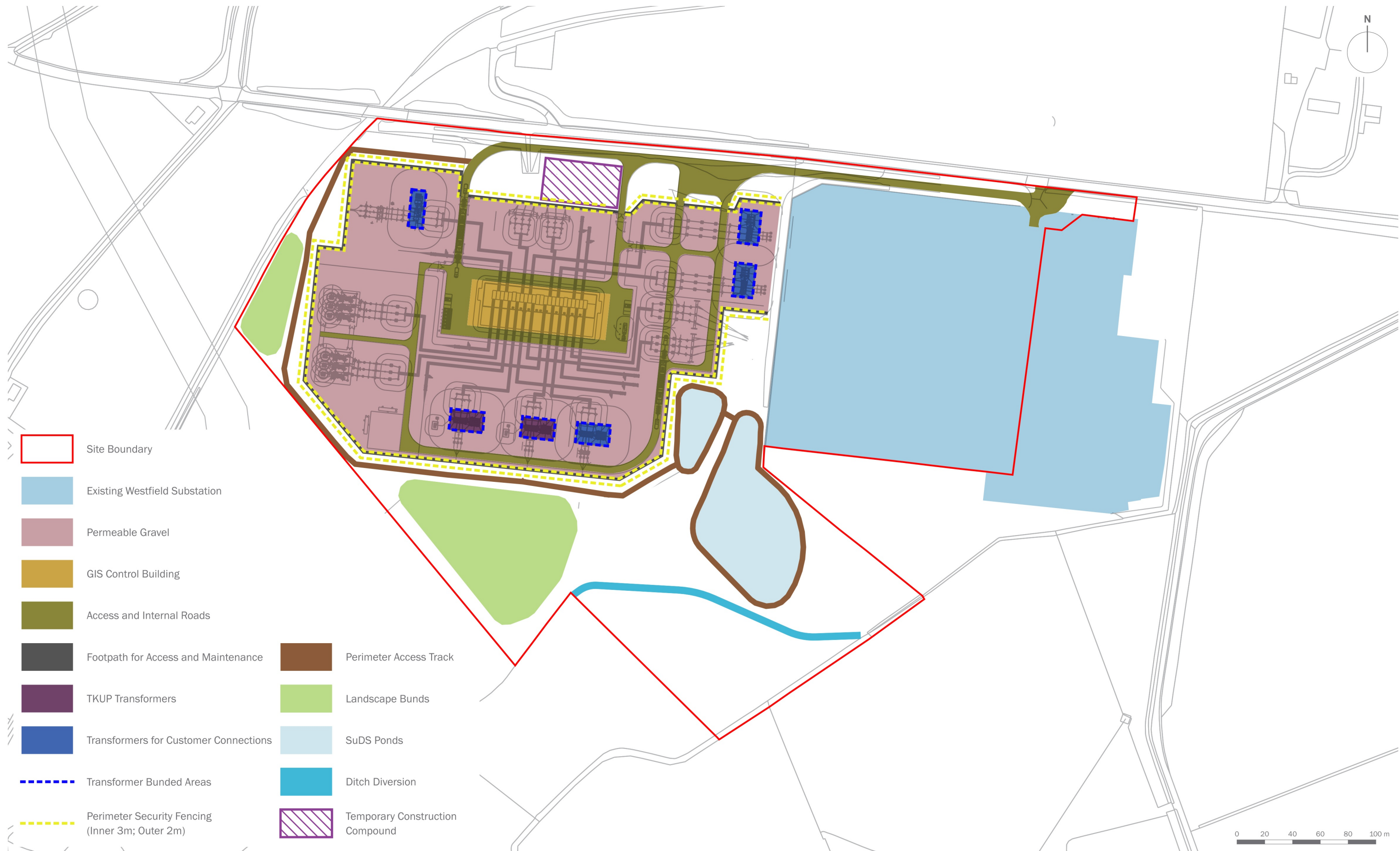


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Figure 1.2: Site Location Plan



Site Boundary

Wildflower Grassland

Proposed Access

Proposed Attenuation Basin

Proposed Bunds

Proposed Ditch Realignment

Proposed Clearance Zone

Proposed Maintenance Track

Proposed Security Fencing

Existing Vegetation

Proposed Trees

Proposed Shrub Planting



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Figure 3.2: Illustrative Landscape Strategy

