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Executive Summary

National Grid Electricity Transmission plc ('National Grid') owns and maintains the national high voltage electricity transmission network throughout England and Wales. National Grid has developed plans for Norwich to Tilbury (the 'Project'). The Project would support the UK's net zero target through the connection of new low carbon energy generation in East Anglia and by reinforcing the transmission network.

The Project comprises reinforcement of the transmission network between the existing Norwich Main Substation in Norfolk and Tilbury Substation in Essex, via Bramford Substation, the new East Anglia Connection Node (EACN) Substation and the new Tilbury North Substation.

This Ancient Woodland and Veteran Tree Strategy aims to outline the principal measures that are required to help avoid, minimise, and compensate for the potential ecological effects of the Project on ancient woodland and veteran trees, during and post construction, as per the mitigation hierarchy. Due to the nature of both ancient woodland and veteran trees being 'irreplaceable habitat', additional and bespoke mitigation, which comprises measures over and above any embedded and standard mitigation measures, has been developed which considers each ancient/ or veteran feature independently. This strategy also describes the embedded mitigation which has influenced the Project design in order to avoid and/or reduce impacts to ancient woodland and/or veteran trees for completeness.

Specific Project commitments have been made as standard mitigation, to remove impacts to ancient woodlands and veteran tree and these are detailed within the Outline Code of Construction Practice (document reference 7.2).

Complete removal of impacts to five ancient woodlands (Round Wood, Rivenhall Thicks, Writtle-Writtlepark Wood, Clapgate Wood and Little Bladen's Wood) and the associated 15 m buffer are unavoidable, as the proposed works relate to the removal, undergrounding or modification of existing third-party infrastructure (11 kV, 33 kV, 132 kV), with the existing assets already located within the associated woodland or 15 m RPA. Mitigation measures associated with each of these five sites have been proposed to ensure no significant long term residual effects on ancient woodland are encountered as a result of the Project.

A total of 112 trees and four groups have been surveyed within the Project Study Area as veterans. Four individual veteran trees require removal, while two veteran groups and 15 veteran trees require crown management. A hierarchy of mitigation/compensation measures have been included within this report. The final mitigation/compensation measures, remediation works and long-term monitoring will be agreed at detailed design stage with the Project arboriculturist and the relevant landowners on a case-by-case basis.

1. Introduction

1.1 Summary

- 1.1.1 National Grid Electricity Transmission plc ('National Grid') owns and maintains the national high voltage electricity transmission network throughout England and Wales. National Grid has developed plans for Norwich to Tilbury (the 'Project'). The Project would support the UK's net zero target through the connection of new low carbon energy generation in East Anglia and by reinforcing the transmission network.
- 1.1.2 The Project comprises reinforcement of the transmission network between the existing Norwich Main Substation in Norfolk and Tilbury Substation in Essex, via Bramford Substation, the new East Anglia Connection Node (EACN) Substation and the new Tilbury North Substation.
- 1.1.3 This Ancient Woodland and Veteran Tree Strategy aims to outline the principal measures that are required to help avoid, minimise, and compensate for the potential ecological effects of the Project on ancient woodland and veteran trees, during and post construction, as per the mitigation hierarchy. Due to the nature of both ancient woodland and veteran trees being 'irreplaceable habitat', additional and bespoke mitigation, which comprises measures over and above any embedded and standard mitigation measures, has been developed which considers each ancient/ or veteran feature independently. This strategy also describes the embedded mitigation which has influenced the Project design in order to avoid and/or reduce impacts to ancient woodland and/or veteran trees for completeness.
- 1.1.4 The physical extent of each ancient woodland along the Project, has been mapped based on a combination of aerial imagery and based on information obtained from the ground truthing woodland surveys. The precise boundary of each affected ancient woodland will be accurately mapped during pre-construction surveys, to ensure an accurate woodland boundary is determined. This updated information will be incorporated into the Final Landscape and Ecological Management Plan (LEMP), with an updated version of this report as required.
- 1.1.5 Veteran trees have been surveyed using a combination of data sources. The sources included The Woodland Trust Ancient Tree Inventory (ATI) database, a ground-based survey within the Order Limits plus up to 30 m beyond the Order Limits, aerial imagery (APEM, 2022) Project commissioned imagery captured using fixed-wing aircraft at a resolution of 3 cm, and open-source aerial imagery.
- 1.1.6 This Ancient Woodland and Veteran Tree Strategy sits alongside the Outline LEMP (document reference 7.4), which details mitigation and compensation measures for the potential ecological, landscape and visual effects of the Project during and post construction, as well as set out how the land, vegetation and habitats would be reinstated following construction.
- 1.1.7 Standard mitigation measures are included within the Outline Code of Construction Practice (CoCP) (document reference 7.2) and should also be read in conjunction with this document. The Ancient Woodland and Veteran Tree strategy is based on the Project description as submitted with the application for development consent (Environmental Statement (ES) Chapter 4: Project Description (document reference 6.4)). It is recognised that there may be minor refinements through the examination process as part of the application for development consent.

1.2 Purpose of the Strategy

- 1.2.1 The Ancient Woodland and Veteran Tree Strategy has been produced to detail the environmental measures that would be implemented to avoid, minimise, mitigate and compensate the ancient and/ or veteran features likely to be impacted during construction and operation, as reported in ES Chapter 8: Ecology and Biodiversity (document reference 6.8), ES Chapter 13: Landscape and Visual (particularly in relation to Tree Preservation Orders and veteran trees) (document reference 6.13) as well as the Outline LEMP (document reference 7.4) and Arboricultural Impact Assessment (AIA) (document reference 6.13.A6).
- 1.2.2 This Ancient Woodland and Veteran Tree Strategy works within the parameters of 'ancient woodland' and 'veteran tree' as defined by Natural England's 'Ancient Woodland Inventory Handbook for England' (2018) and 'Veteran Trees: A guide to good management (IN13)' (2000):
 - Ancient woodland: is any area that's been wooded continuously since at least 1600 AD. It includes:
 - Both ancient semi-natural woodland and plantations on ancient woodland sites, these can be sub-classified as either ancient semi-natural woodland (ASNW) or plantation on ancient woodland sites (PAWs)
 - The term 'ancient woodland' does not represent any particular type of vegetation, nor is it defined explicitly by its ecological or cultural features, but rather encapsulates a broad legacy of characteristically rich, interesting and valuable wooded habitats
 - Veteran trees: A tree which, because of its age, size and condition, is of
 exceptional biodiversity, cultural or heritage value. All ancient trees are veteran
 trees. Not all veteran trees are old enough to be ancient but are old relative to
 other trees of the same species. Very few trees of any species reach the ancient
 life-stage.
- 1.2.3 As described above, 'ancient woodland' and 'veteran trees' are a broad characterisation of distinctive, diverse, and ecologically valuable wooded habitats and as such, a blanket compensation approach may not be effective in protecting these features during and post-construction. This strategy offers a bespoke mitigation/ compensation approach which considers each ancient/ or veteran feature independently. This strategy also describes the embedded mitigation where environmental constraints to ancient woodland and/or veteran trees have been avoided and/or impacts reduced through changes to Project design. The Main Works Contractor(s) would be responsible for implementing the measures outlined within this strategy and associated management plans.
- 1.2.4 The Project has considered the Forestry Commission and Natural England Standing Advice (2022) which states that 'For ancient woodlands, you should have a buffer zone of at least 15 m to avoid root damage...'. A 15 m buffer from ancient woodland has therefore been considered an appropriate root protection zone (RPZ) for ancient woodlands.
- 1.2.5 The measures detailed in this Ancient Woodland and Veteran Tree Strategy should be read alongside the Outline LEMP (document reference 7.4) and ES Chapter 8: Ecology and Biodiversity (document reference 6.8), ES Chapter 13: Landscape and

Visual (document reference 6.13) and the measures described in the Outline CoCP (document reference 7.2).

1.2.6 The objectives of this strategy are as follows:

- Demonstrate how National Grid has sought to avoid effects on ancient woodland and veteran trees as identified in ES Chapter 8: Ecology and Biodiversity (document reference 6.8) and ES Chapter 13: Landscape and Visual (document reference 6.13)
- Detail the location of the ancient woodland and veteran trees, and the associated 15 m buffer relevant to the Project
- Set out the specific Project construction impacts on ancient woodland and veteran trees and/or the associated 15 m buffer
- Prescribe suitable mitigation measures where impacts to ancient woodland and veteran trees are unavoidable
- To provide a mechanism for the delivery of bespoke ancient woodland and veteran tree mitigation that sits outside of Biodiversity Net Gain (BNG)
- To ensure that legislation and best practice is adhered to by the Project.

1.3 Structure of the Strategy

1.3.1 The structure of this document is set out in Table 1.1.

Table 1.1 Structure and outline of the Ancient Woodland and Veteran Tree Strategy

Chapter/ Appendix	Content
1. Introduction	This sets out the purpose of the Ancient Woodland and Veteran Tree Strategy and how it is structured.
2. Ancient Woodland and Veteran Tree Surveys	This section details the ancient woodland and veteran tree surveys.
3. Ancient Woodland	This section covers the ancient woodland that is within 15 m of the Project Order Limits and considers potential impacts and the mitigation strategy.
4. Ancient Woodland Conclusion	This section summarises the results and the strategy for ancient woodland across the Project.
5. Veteran Trees	This section covers the survey findings and mitigation hierarchy to be implemented for veteran trees. It also provides a range of compensation / remediation options to be agreed upon and implemented on a tree-by-tree basis.
6. Veteran Trees Conclusion	This section summarises the veteran tree survey results and the mitigation hierarchy for veteran trees.
Annex A	Figures
Annex B	Other Ancient Woodland within 15 m of the Order Limits

Chapter/ Appendix	Content
Annex C	Ancient Woodland with Proposed Mitigation in relation to the Project
Annex D	Veteran Features within the Study Area

1.4 Project Commitments

- 1.4.1 The Project design is a result of an iterative design process that has taken into account environmental considerations from the Project inception. Knowledge gained through the Environmental Impact Assessment (EIA) process, following baseline surveys and assessment of impacts, along with consultation with interested parties have influenced the Project design. Where practicable key environmental constraints have been avoided and/or impacts reduced. These measures are considered embedded mitigation as they are intrinsic to and built into the Project design. Embedded mitigation measures relevant to ecology are set out in ES Chapter 8: Ecology and Biodiversity (document reference 6.8) those relevant to Tree Preservation Orders and veteran trees are set out in ES Chapter 13: Landscape and Visual (document reference 6.13).
- 1.4.2 Embedded and standard mitigation measures, comprising management activities and techniques, would be implemented during construction of the Project to limit effects through adherence to good site practices and achieving legal compliance. The Outline CoCP (document reference 7.2) contains relevant standard / good practice mitigation measures relating specifically to landscape, ecology and biodiversity.
- 1.4.3 Additional mitigation comprises measures over and above any embedded and standard mitigation measures to further reduce significant environmental effects. This includes landscape proposals within the Environmental Areas, where habitat creation and enhancement measures are proposed.

2. Ancient Woodland and Veteran Tree Surveys

2.1 Ancient Woodland

- 2.1.1 A desk study was undertaken to determine the locations of all known ancient woodlands, located within 200 m of the Project Order Limits. This desk study included a review of Natural England's Ancient Woodland Inventory (AWI) and Suffolk Biodiversity Information Service (BIS) ancient woodland inventory.
- 2.1.2 Ancient Woodlands that were illustrated on Natural England's AWI are woodlands that cover more than 2 ha and are shown on maps on, or before, the year 1600 (Natural England, 2018). Smaller woodlands less than 2 ha are reflected within the Suffolk BIS AWI.
- 2.1.3 A review of the citations for all statutory and non-statutory designated sites was undertaken, to identify any ancient woodlands (including those of less than 2 ha), whereby their designated site description indicated ancient woodland features.
- 2.1.4 Habitat surveys have been undertaken across the Order Limits between 2023 and 2025. These surveys included UK Habitat (UKHab) surveys, habitat condition assessment surveys and National Vegetation Classification (NVC) woodland surveys.
- 2.1.5 Within the Study Area (the Order Limits plus a 200 m buffer), 51 blocks of ancient woodland were identified, these are located in every Project Section but are particularly concentrated in:
 - Section B Mid-Suffolk District Council (11 sites)
 - Section F Chelmsford City Council and Brentwood District Council (11 sites)
 - Section G Basildon Borough Council and Brentwood Borough Council (and part of Chelmsford City Council) (13 sites).
- 2.1.6 Figure B.A.1 in Annex A shows the location of these ancient woodlands in relation to the Project and the associated Project Section.
- 2.1.7 Eleven of the 51 ancient woodlands identified are not mapped as ancient woodland on Natural England's AWI, but their Local Wildlife Site (LWS) description indicates they contain ancient woodland features. Even though these sites are not officially listed on the AWI, the Project has classified them as ancient woodland on a precautionary basis and they have been afforded the same levels of protection and mitigation as a listed ancient woodland site.

2.2 Veteran Trees

2.2.1 A desk study was undertaken to determine the location of veteran trees recorded within 30 m of the Order Limits. The Woodland Trust were contacted for access to their Ancient Tree Inventory (ATI) database. This database was referred to throughout the arboricultural survey process and all efforts were made to validate the locations of these trees. As the ATI data is collected on a voluntary basis, the data is

prone to inaccuracies in spatial location, and in some instances the trees could not be verified. However, the Project is accepting the veteran trees defined within the ATI dataset to be accurate and is not challenging the methodology of the existing dataset.

- 2.2.2 A list of the ATI veteran trees is found in the AIA (Document reference 6.13.A6). The ATI database has been manually reviewed since the initial dataset was provided and new veteran trees that have been added within the survey timeframe up until 30 May 2025 have been included.
- 2.2.3 The arboricultural baseline survey was undertaken between May 2023 and May 2025. New trees that were surveyed as veterans were assessed using the Recognition of Ancient, Veteran and Notable Trees (RAVEN2) survey methodology, produced by Forbes Laird Arboricultural Consultancy (FLAC) (2023).
- 1.1.1 A total of 112 veteran trees and four veteran tree groups have been identified within the Study Area, of which 108 veteran trees and all veteran tree groups will be retained with appropriate mitigation measures in place. Four veteran trees require removal and 15 veteran trees and two veteran groups require crown management to facilitate construction of the Project.

2.3 Full Results

2.3.1 Full results for the surveys listed above are provided in their respective documents, a as listed in Table 2.1.

Table 2.1 Surveys and studies supporting the Ancient Woodland and Veteran Tree Strategy

Document Reference
Arboricultural Impact Assessment (document reference 6.13.A6)
ES Appendix 8.1: Habitat Report (document reference 6.8.A1)
ES Appendix 8.1: Habitat Report (document reference 6.8.A1)
ES Appendix 8.2: National Vegetation Classification Report (document reference 6.8.A2)
ES Appendix 8.16: Designated Sites Report (document reference 6.8.A16)

3. Ancient Woodland

3.1 Potential Impact Pathways

3.2 Construction Phases

- 3.2.1 The Project includes several construction elements which have the potential to impact ancient woodland. The following key construction elements are considered in terms of the ancient woodland impact assessment:
 - Overhead line/ underground cable alignment and construction swathe
 - Temporary haul road for construction traffic
 - Temporary construction compounds
 - Construction works areas
 - Third party mitigation of existing assets
 - Permanent access routes.

3.3 Impact Pathways

- 3.3.1 This section details the potential impact pathways (direct and indirect) with potential to affect ancient woodland associated with the above construction elements.
- 3.3.2 The Project has considered the Forestry Commission and Natural England Standing Advice (2022) which states that 'For ancient woodlands, you should have a buffer zone of at least 15 m to avoid root damage...'.
- 3.3.3 Different elements of constructions work may impact an ancient woodland through specific pathways and as such the impacts of works can be variable. Often these specific impact pathways will interlink to more generic impacts, but in the context of the typical works associated with the Project, they can be broadly categorised:
 - Canopy loss:
 - Microclimate: The tree canopy plays a vital role in regulating the woodland's microclimate. Loss of canopy can lead to increased sunlight and temperature, disrupting the balance of shade-dependent flora and fauna
 - Exposure: Canopy loss increases wind penetration, which can dry out soils, damage understorey vegetation, and make the woodland more vulnerable to further structural damage
 - Soil degradation: Loss of rainwater interception leads to soil erosion and reduced fertility
 - Structural fragmentation: Ancient woodlands have a multi-layered structure, including a canopy, understorey, shrub layer, and ground flora. Canopy loss disrupts this layering, causing shifts in species composition and ecological function

Ecosystem instability: Ancient woodlands have developed over centuries and are highly specialised ecosystems. Canopy loss can destabilise the ecosystem, making it more vulnerable to further disturbances such as pests, diseases, or extreme weather events. Unlike younger woodlands, ancient woodlands recover very slowly, if at all, from canopy loss due to their unique composition and the long timescales required for tree and habitat regeneration. This is why they are classified as irreplaceable habitat

Soil compaction:

- Reduced soil aeration: Compaction compresses soil particles, reducing the spaces that hold air and water. This limits oxygen availability to plant roots and soil organisms, such as fungi, bacteria, and invertebrates, which are critical for nutrient cycling. Trees and plants in ancient woodlands often have extensive root systems that require well-aerated soil. Compaction can suffocate roots, impairing growth and survival
- Reduced soil permeability: Compacted soil reduces the rate at which water can infiltrate, leading to increased surface runoff. This can cause soil erosion and flooding in and around the woodland
- Restricted growth: Compacted soil creates a physical barrier that prevents roots from expanding freely, limiting the tree's ability to anchor itself and access deeper soil layers
- Loss of soil biodiversity: Soil compaction reduces habitat availability for microorganisms, fungi, and invertebrates that play essential roles in decomposition, nutrient cycling, and soil health
- Decline in sensitive species: Species adapted to loose well-aerated soils may decline, while those tolerant of compacted conditions (often invasive species) may dominate

Soil excavation / open cutting:

- Physical root damage: much of these impacts are like soil compaction, but excavation could sever tree roots, which are essential for water and nutrient uptake, anchorage, and tree stability
- Tree stress / mortality: damage to roots can lead to tree dieback, increased susceptibility to pests and diseases, or outright tree death, particularly for ancient or veteran trees with extensive root systems
- Change to water drainage patterns: Excavation / compaction can disrupt the natural drainage and infiltration patterns within the woodland, leading to waterlogging in some areas and drying out in others

Contamination from construction run-off:

— <u>Chemical pollution</u>: Construction run-off often contains harmful substances such as concrete washings, hydrocarbons (e.g., oil, fuel), heavy metals, and other chemicals. These can alter soil chemistry, making it toxic to plants, fungi, and soil organisms. If soil is infiltrated within a woodland or tree root protection area (RPA), this may cause tree mortality or increase susceptibility to disease

Other pollutants:

- <u>Dust and noise pollution:</u> Construction activities such as soil storage, excavation, operating machinery and steelworks can damage an ancient woodland by disrupting plant photosynthesis, altering soil chemistry, and disturbing wildlife behaviour, leading to long-term ecological imbalance
- <u>Light spill:</u> Temporary lighting during construction works can impact ancient woodland by disrupting the natural behaviours of nocturnal fauna, disorientate key pollinator species and interfere with the growth cycles of valuable flora associated with ancient woodland interiors

Introduction of foreign flora:

— <u>Invasive</u>, non-native species (INNS): These may be introduced to a woodland through the movement of contaminated soil, machinery, or materials, as well as by creating disturbed ground that provides ideal conditions for their establishment and growth. These species will often outcompete native flora associated with ancient woodland because they grow faster, tolerate a wide range of conditions, or lack natural predators in the introduced environment

Poor housekeeping:

<u>Litter stockpiling:</u> Stockpiling litter in construction work areas can compact soil, cause harm to fauna by entrapment or ingestion, or result in run-off of chemical pollutants into woodland waterways or soil. Litter can also change the micro-habitats present within a woodland or alter the thermal properties of the forest floor which could impact organisms dependant on stable or specific conditions

• Edge effects:

Edge effects: Any of the above can create 'edge effects', which in ancient woodlands refer to the changes in environmental conditions, ecological processes, and species composition that occur at or near the boundary (or 'edge') of the woodland, as opposed to its interior. These effects are typically caused by external influences such as light, wind, temperature, noise, pollution, and human activity, which penetrate the woodland from the surrounding landscape. Ancient woodlands, which are highly sensitive and often small or fragmented, are particularly vulnerable to edge effects, which can lead to significant ecological degradation.

3.4 Summary of Potential Impact Pathways

3.4.1 Table 3.1 describes the construction elements associated with the Project and provides explanation of the potential pathways that could affect ancient woodland (hypothetical, this is not an impact assessment for the Project). For a more comprehensive description of these construction elements please see ES Chapter 4: Project Description (document reference 6.4).

Table 3.1 Construction elements and their potential impact on Ancient Woodland

Construction Element	Description	Impact to Ancient Woodland (Hypothetical)
400 kV Overhead Line	Vegetation removed (to ground level or sufficient height to meet electrical clearances plus an allowance for growth): A 40 m wide swathe of removed vegetation to allow for the construction and operation (and maintenance) of the overhead line (to include all physical infringements to conductor, including conductor swing (45° blown-out conductor); i.e., 20 m either side of each overhead line centreline. Vegetation affected / managed: An additional up to 8 m of vegetation either side of the 40 m may then need to be managed during construction and operation (and maintenance) to allow for electrical clearance from the conductor to be maintained (assumes a generalised allowance of 0.5 m growth per year over a 5-year period. Total: 56 m (excluding Limits of Deviation (LoD)). Vegetation potentially affected: A further, up to 22 m of vegetation either side of the 8 m would be potentially affected, which includes allowances for design flexibility as per the proposed lateral LoD. The base of the pylons would involve the excavation of the soil. Piling (which may include percussive) would be required at some pylon locations, subject to the ground conditions.	In worst case, permanent loss of a portion or entirety of irreplaceable habitat resulting in total or partial biodiversity loss. In areas where vegetation is affected / managed, pruning of trees may result in canopy loss.
400 kV Underground cable	A 120 m swathe of vegetation removal around route centreline as standard is applied to the whole route and mitigated (pinched) where necessary. The 120 m width includes the temporary haul road, soil storage, pre-construction drainage areas, communications cables and typically six cable trenches for 18 cables (three cables per phase) assumed to be to a typical minimum depth of 1.2 m and suitably spaced apart to allow for the required heat dissipation between cables and circuit phases. Cables are installed typically using open cut techniques. A further (up to) 50 m of vegetation either side of the maximum 120 m swathe would be	In worst case, permanent loss of a portion or entirety of irreplaceable habitat resulting in total or partial biodiversity loss. If open-cut excavation occurs within 15 m buffer, damage to RPA can be expected which may compromise woodland health. Soil compaction from temporary haul road or soil storage could damage RPA through altered water draining patterns and reduced soil

Construction Element	Description	Impact to Ancient Woodland (Hypothetical)
	potentially affected during construction, allowing for the LoD (50 m either side).	aeration / water permeability. Drainage could run-off into woodland and contaminate the soils contributing to poor woodland health and edge effects.
Temporary haul road for construction traffic	A 12 m swathe of vegetation removal allowing for 8 m wide haul road and 2 m either side for two-way vehicular movement and drainage, shallow excavation for the laying of aggregate and then shape / levelling of the road to create the desired road profile which would typically include sloping for drainage. A further 4 m buffer is applied either side.	In worst case, permanent loss of a portion or entirety of irreplaceable habitat resulting in total or partial biodiversity loss. Soil disturbance from excavation works and compaction from movement of heavy plant and machinery could damage RPA through altered water draining patterns and reduced soil aeration/water permeability. Drainage could run off into woodland and contaminate the soils contributing to poor woodland health and edge effects.
Temporary construction compounds	Land would also be required temporarily for construction activities including, for example, construction working areas, storage areas for construction equipment and machinery, site offices, welfare, materials and temporary construction access. It is assumed that the water supply needs of the Project during construction would be sourced either from mains water supply or in remote locations, where this option may not be available, water would be tankered in.	In worst case, permanent loss of a portion or entirety of irreplaceable habitat resulting in total or partial biodiversity loss. If within a 15 m buffer of the woodland, disturbance such as light pollution, noise and dust, soil compaction from storage/ manoeuvring of heavy plant or poor housekeeping resulting in the stockpiling of litter, vehicular movement and temporary cabins can lead to edge effects and / or damage to RPA through altered water draining patterns and reduced soil aeration/ water permeability.

Construction Element	Description	Impact to Ancient Woodland (Hypothetical)
Third party mitigation of existing assets	Includes works to remove, underground and divert, existing 132 kV lattice pylon overhead line. The installation of underground cable diversions is assumed to be in a single trench typically up to 3 m in width and 1.2 m in depth to the cover (worst-case for deep ploughing). An underground cable LoD of 35 m has been applied, it is assumed that any vegetation within the LoD would be removed during construction and reinstated where practicable following the works. There is also third-party mitigation to remove, underground and divert existing electricity overhead lines (132 kV, 33 kV and 11 kV) and Openreach wood pole infrastructure along the overhead line alignment. The installation of underground cable diversions is assumed to be in a single trench typically up to 1 m in width and 1.2 m in depth to the cover (worst-case for deep ploughing). These would be routed either within the existing highway, highway verges or across farmland (using existing gaps through hedgerows where practicable). An underground cable LoD of 25 m has been applied.	In worst case, permanent loss of a portion or entirety of irreplaceable habitat resulting in total or partial biodiversity loss. Dismantling of existing pylons within an ancient woodland would be considered to be of long-term positive benefit. However, any intrusive/ ground-breaking works could damage a woodland's RPA and therefore impact root vitality and spread. Soil compaction from excavation works, soil storage, high noise and dust levels, heavy machinery or vehicle movement could alter water drainage patterns and reduce aeration / water permeability of the soil thus compromising woodland health. This disturbance could lead to edge effects.
Permanent access routes	There would be no physical works associated with permanent access routes to pylons or underground cables. They are proposed rights of access only to allow for any maintenance or refurbishment required.	No impact.

3.5 Impact Assessment

3.6 Summary of Impacts

- 3.6.1 The Project design process has carefully considered ancient woodland from the Project inception, with the design intended to avoid impacts on ancient woodland and the associated 15 m root protection zone where practicable. The mitigation hierarchy has been applied throughout the design process.
- 3.6.2 In the absence of standard or additional mitigation, the following impacts to ancient woodland have been identified:

Within ancient woodland:

 Three ancient woodlands have minor excavation and non-excavation works proposed within the woodland. This is because of the required removal of third-

- party existing infrastructure (132 kV, 33 kV and 11 kV). This impact is unavoidable due to the location of the existing assets
- Two ancient woodlands have non-excavation works proposed within the woodland. This is because of minor pruning along an existing highway and works to modify an existing 132 kV pylon already located within the woodland. This impact is unavoidable due to the location of the existing asset

Within ancient woodland 15 m buffer:

- One ancient woodland has minor excavation works proposed within the 15 m buffer, due to the removal and undergrounding of 11 kV existing asset.
 This impact is unavoidable due to the location of the existing asset
- Four woodlands have non-excavation construction working areas located within the 15 m buffer
- 3.6.3 The tables below identify the potential impacts, in the absence of additional mitigation, on specific ancient woodland parcels:
 - Table 3.2 describes construction elements and associated impacts where works are proposed within ancient woodland
 - Table 3.3 describes construction elements and associated impacts where works are proposed within 15 m of ancient woodland.
- 3.6.4 Annex C includes a series of figures (Figure B.C.1 to Figure B.C.11) that show each ancient woodland identified within Table 3.2 and Table 3.3 with the construction elements.

Other Ancient Woodlands

3.6.5 It is important to distinguish the difference between distance to the Project Order Limits and distance to proposed construction works, as the Order Limits are not necessarily mutually exclusive with impact to, or loss of, habitat. While in theory the Limits of Deviation (LoD) on the proposed alignment could bring works into the 15 m buffer, a Project commitment, as detailed within the Outline CoCP (document reference 7.2), will ensure that the avoidance of ancient woodland and its 15 m buffer is a priority in practice. Table B.1 within Annex B details the other ancient woodlands that specifically need to be considered during detailed design but are not currently impacted by the Project.

Table 3.2 Works proposed within ancient woodland

Project Ancient Woodland Name and Description¹ Impact Figure Ref Section **Round Wood Non-Excavation Works** Figure B.C.1 В (Annex C). Round Wood is an ancient woodland bordered The existing third party 132 kV line (PHB line) passes through the by a medieval bank, ditch and hedgerows. northern section of the woodland. This section of the 132 kV PHB Dominant trees include pedunculate oak line is to be removed as part of the Project. Pylon PHB30, located Quercus robur and ash Fraxinus excelsior with within the north-eastern corner of the ancient woodland, is to be hazel Corylus avellana coppice. There is a good dismantled. The proposed works area is subject to ongoing diversity of uncommon woody species including vegetation management around the existing pylon and overhead midland hawthorn Crataegus laevigata, guelder- line. rose Viburnum opulus, crab apple Malus **Excavation Works** sylvestris, spindle Euonymus europaeus, early-Excavation works will be required to remove the reinforced purple orchid Orchis mascula, wood anemone concrete foundation of pylon PHB30 to 1.2 m below ground level. Anemone nemorosa, early dog-violet Viola While there will be a small area of temporary habitat loss within the reichenbachiana, sanicle Sanicula europaea woodland to allow for this excavation, the impact affect shrub and and stinking iris Iris foetidissima. The woodland ground flora only and will not require the removal of mature trees. also supports woodland birds, particularly Bespoke mitigation will still apply. warblers. В Miller's Wood **Non-Excavation Works** Figure B.C.5 (Annex C). Partially within Order Limits for primary access route H10-A2, H11-Miller's Wood is a patch of ancient woodland A1 and visibility splay. The visibility splay runs past the southern enclosed by a woodbank, parts of which were edge of the woodland which is approximately 365 m on the probably of medieval origin. Ditches divide the wood into compartments. The northern section existing Bullen Lane. As the visibility splay is situated on a preexisting road, it is expected that there is likely already some of the wood is typical of ancient woodland and consist of hazel and field maple Acer campestre degree of roadside management of vegetation in-place. Potential requirement to prune back overhanging vegetation. coppice with pedunculate oak standards forming the tree layer. Further south, coppiced No direct loss of woodland is expected. horse-chestnut Aesculus hippocastanum and sweet chestnut Castanea sativa are abundant.

¹ Woodland descriptions were taken from Local Wildlife Site citations as published by the relevant Local Authority.

Project Ancient Woodland Name and Description¹ **Impact Figure Ref** Section In contrast the remainder of the wood is a recent plantation consisting mainly of sycamore Acer pseudoplatanus with beech Fagus sylvatica. The ground flora is reasonably varied Sanicle Sanicla eurpaea, violet Viola spp., wood spurge Euphorbia amygdaloides and hairy St John's-wort *Hypericum hirsutum* are amongst the more uncommon plants on the species list. E Rivenhall Thicks **Non-Excavation Works** Figure B.C.2 (Annex C). Rivenhall Thicks is a large, important ancient The very edge of a standard works area for the existing third party 33 kV overhead line, which requires dismantling of one wood pole woodland that has an exceptionally rich flora. The structure of the wood is primarily old, and subsequent undergrounding, lies just within the woodland. coppiced hazel and ash with standards of **Excavation Works** pedunculate oak. The woodland is extremely The existing 33 kV overhead line will be undergrounded on the diverse, with 28 species of trees and shrubs same route will require excavation (albeit minor) to install the cable recorded. There many plants indicative of 3 m from the woodland edge. ancient woodland in the ground flora. A 100 m section of temporary haul road would be located within the 15 m buffer (8 m at closest point, 14 m at farthest point) to the north of the woodland. The haul road has a 4 m buffer either side and further 2 m either side for two-way vehicular movement and drainage. F Writtle - Writtlepark Woods **Non-Excavation Works** Figure B.C.3 (Annex C). The Writtlepark complex consists of Writtlepark Writtle-Writtlepark Woods lies just within the Order Limits. An

The Writtlepark complex consists of Writtlepark Wood, Bosmore Wood, Baker's Wood and Chatterbox Wood. Writtlepark Wood. It is dominated by coppiced sweet chestnut and hornbeam *Carpinus betulus*. Pedunculate oak standards are found throughout. These woodlands form an integral part of the historic landscape of Writtle Forest. There is good

Writtle-Writtlepark Woods lies just within the Order Limits. An existing 11 kV overhead line with one wood pole lies within the north-east corner of Bosmore Wood (part of the Writtlepark Wood complex). This 11 kV overhead line is to be dismantled and undergrounded as part of this Project. Removal of this single wood pole will cause minimal temporary loss of shrub vegetation and ground flora and will not require the removal of mature trees.

Excavation Works

Project Section	Ancient Woodland Name and Description ¹	Impact	Figure Ref
	documentary evidence to suggest an ancient status, which is also borne out by the structure and composition.	The proposed subsequent undergrounding lies just 4 m into the woodland on the same alignment as the existing overhead line. While there will be a direct impact to the woodland, this is measured as low as the woodland is already managed to provide electrical clearance around the overhead line. Bespoke mitigation will still apply.	
G	Little Bladen's Wood (LWS) This LWS comprises a large but partially grubbed out wood and a detached section to the south. The main wood is almost pure hornbeam coppice with very little shrub layer or ground flora beneath. The ground flora contains	Non-Excavation Works Little Bladen's Wood lies within the Order Limit. The Project includes the removal and undergrounding of part of an existing 132 kV overhead line which currently crosses the western corner. Pylon PUB40 sits in the northern fringe of the woodland and will require modification (not removal) to facilitate the undergrounding of the 132 kV further north.	Figure B.C.10 (Annex C).
	plants indicative of ancient woodland including bluebell <i>Hyacinthoides non-scripta</i> and wood meadow-grass <i>Poa nemoralis</i> . The site is not listed as ancient woodland, but the structure and floral composition suggests that this is largely, if not completely, ancient woodland.	An access route lies 13 m into the woodland to access pylon PUB40 for these modification works. This will make use of the existing route used for ongoing maintenance to the existing line and no further works to this access road are required. While no excavation works are proposed within 15 m of the woodland, works areas do fall within the 15 m buffer.	

Table 3.3 Works proposed within 15 m buffer of ancient woodland

Project Section	Ancient Woodland Name and Description ²	Impact	Figure
D	Stonefield Strip (LWS) The woodland is a narrow strip dominated by tall ash and field maple coppice in the canopy, with a scattered shrub layer and ground flora including ancient woodland indicators. Although this strip is too small to be listed on the ancient woodland inventory, a wood bank and ditch on the west edge of the wood combined with the general woodland structure and flora indicate that this is an ancient wood.	Non-Excavation Works The northern tip of the woodland is 8 m south of the 400 kV overhead line LoD extent but sits over 54 m from the current alignment and therefore no direct loss of woodland habitat expected. The woodland lies 12 m from the haul road works area, but it is 16 m from any excavation works to facilitate the haul road. No direct loss of woodland expected and no excavation within 15 m RPA is expected.	Figure B.C.6 (Annex C)
E/F	Mann / Parson's Woods Mann / Parson's Wood is an ancient woodland in good condition. The site is divided into compartments, all of which support a diverse ground flora indicating a good condition ancient woodland. Mann / Parson's Wood is a mixed deciduous woodland that contains mature hornbeam and small-leaved lime Tilia cordata coppice, with some silver birch Betula pendula and sweet chestnut.	Parson's Wood lies adjacent to the Order Limits. Part of the existing 132 kV UKPN overhead line mitigation lies adjacent to the woodland. The portion of overhead line that runs adjacent to the Order Limits (200 m) is due to be modified but will remain in-situ, and no impacts to the woodland are anticipated. A Cable Sealing End (CSE) platform is proposed 15 m from the woodland at its closest point; this is where the existing overhead line will transition to a new underground cable 36 m east of woodland at the closest point. No excavation is required within 15 buffer, but the works area LoD currently extending into the 15 m buffer. Pylon PSB42 will be dismantled, and 100 m of overhead line removed 35 m from the woodland at closest point. Pylon PSB43 will remain in-situ 31 m from woodland but will be modified, the	Figure B.C.7 (Annex C)

² Woodland descriptions were taken from Local Wildlife Site reviews as published by the relevant Local Authority.

Project Section	Ancient Woodland Name and Description ²	Impact	Figure
		pylon work area has been minimised to maintain 15 m works buffer. While no excavation works are proposed within 15 m of the woodland and no loss of woodland anticipated, the works area LoD extends into the 15 m buffer.	
F	Sheepcotes Wood is a small, neglected woodland comprising pedunculate oak, ash, and field maple, with a hazel and hawthorn Crataegus monogyna shrub layer. Dog's mercury Mercurialis perennis is abundant in the ground flora.	Non-Excavation Works Sheepcotes Wood lies outside the Order Limits. The woodland is 10 m south-east at the closest point from permanent access route (right of access only) for maintenance of the 400 kV overhead line. No construction works are required for the permanent access. The woodland lies 40 m south-west of the main TB-route compound. Utility (electricity and water) connections to the compound are proposed to run along the north of the woodland, with a 15 m buffer applied to the works areas for flexibility. At one point the water pipeline goes slightly closer (15 m) as it ties into an existing structure, which sits between the ancient woodland and the proposed water connection. While the water pipe itself would be outside the 15 m buffer the standard works area (which provides flexibility) lies within 4 m at one specific point. No excavation works are proposed within 15 m of the woodland and no loss of woodland anticipated, but the works area lies just within the 15 m buffer.	Figure B.C.8 (Annex C)
G	Clapgate Wood Clapgate Wood is an area of ancient woodland where ash, sweet chestnut and silver birch form the main structure, with hazel in the understory.	Non-Excavation Works A standard working area of 25 m has been applied across the Project for 11 kV works, this works area lies adjacent to the woodland at its closest point. Excavation Works Along the edge of the very southern corner of the woodland (12 to 15 m away), is a proposed underground cable for a third party 11	Figure B.C.4 (Annex C)

Project Section	Ancient Woodland Name and Description ²	Impact	Figure
		kV. This is mitigation for the dismantling of an existing overhead line further south. No direct loss of woodland.	
G	Botneyhill Wood (LWS) Botneyhill Wood is a LWS which has been identified as possibly ancient woodland from its site description. It comprises a canopy dominated by neglected hornbeam coppice with occasional standards of pedunculate oak and ash. The site supports key indicator species of ancient woodland.	Non-Excavation Works The western corner of the woodland is approximately 9 m from the haul road works area. The woodland is separated from the haul road by the existing Chase Farm Road which may already have minimised the RPA of the woodland.	Figure B.C.9 (Annex C)

3.7 Interactions with other projects

3.7.1 There will be some interaction with the Norwich to Tilbury Project ('the Project') and the Lower Thames Crossing (LTC) project (assuming LTC proceeds to construction). Specifically associated with ancient woodland, the two schemes geographically overlap at the Tilbury North Substation and land to the south. While the Norwich to Tilbury Project does not directly impact existing ancient woodland it does affect an area of tree planting required as part of the LTC project to mitigate for the loss of ancient woodland. Further details are provided within Table 3.4 below.

Table 3.4 Lower Thames Crossing scenario

-	Ancient Woodland Name and Description	Impact	Figure
Н	Ashen Shaw and Rainbow Wood (LWS) Rainbow Wood appears to be a small ancient woodland fragment. It is an overgrown sweet chestnut coppice, with hazel, field maple and a canopy of pedunculate oak, wild cherry <i>Prunus avium</i> and ash. Ashen Shaw has a canopy mainly comprising pedunculate oak, ash and field maple. Hornbeam coppice found on the edge of the wood has old coppice stools that suggest the woodland is old. The structure and floristic composition of these woods suggest that they are both ancient in origin, though they are not listed on the AWI.	Loss of proposed compensation land Removal of part of this woodland block (Ashen Shaw) is required under the LTC project proposals. The Project proposals will not impact the remaining part of this woodland, with no excavation works proposed within 15 m of woodland. The Project will impact LTC's proposed location for replacement ancient woodland planting. The proposed Tilbury North Substation covers part of this 'proposed mitigation area' and the overhead lines coming into the substation to the south place restrictions on tree planting. At the time of writing this strategy LTC's ancient woodland planting had not been undertaken, and National Grid are in consultation with the LTC team regarding proposed work timetables. If LTC is not taken forward, the Project would not impact any part of Ashen Shaw and Rainbow Wood.	

3.8 Mitigation Strategy

Overarching Principles of the Strategy

- 3.8.1 As per the mitigation hierarchy, avoidance of impacts on ancient woodland is the principal aim of the strategy and is achieved through embedded mitigation.
- 3.8.2 Where it is not possible to completely avoid impacts, the Project seeks to minimise impacts through design changes or modifications to working methodology. Standard mitigation measures, comprising management activities and techniques, would be implemented during construction of the Project to limit effects through adherence to good site practices and achieving legal compliance. The Outline CoCP (document reference 7.2) contains relevant standard / good practice mitigation measures relating specifically to landscape, ecology and biodiversity along with commitments made by National Grid.
- 3.8.3 In most cases, the above avoidance, embedded and standard mitigation measures are adequate to avoid impacts to ancient woodland. However, where this is not the case, additional mitigation, comprising measures over and above any embedded and standard mitigation measures, are proposed to further avoid significant environmental effects. Compensation is a last resort and is not currently proposed within this strategy.

Embedded/ Standard Mitigation

3.8.4 Embedded/ standard mitigation are National Grid commitments which have been applied to all ancient woodlands as standard across the Project, as included within the Outline CoCP (document reference 7.2).

National Grid Commitment

- 3.8.5 National Grid are dedicated to undertaking sensitive construction practices to avoid impact to ancient woodland. Integrating this principle into the Project design process has been a core part of the process. As such, National Grid have committed to no physical works or breaking ground within 15 m of any ancient woodland or within ancient woodland where at all possible (commitment B17 of the Outline CoCP (document reference 7.2)). The 15 m buffer is to protect the Root Protection Area (RPA) of the ancient woodland; a 15 m distance is based on guidance from Natural England and the Forestry Commission (2022).
- 3.8.6 At detailed design stage (post-consent) this commitment to a 15 m buffer from ancient woodland will be fundamental constraint to the design process.
- 3.8.7 In addition to the standard ancient woodland mitigation commitment, National Grid have also made specific Project commitments associated with restrictions to works area within/within 15 m of certain ancient woodlands. These commitments remove all impacts to five ancient woodlands (Mann/Parson's Wood, Stonefield Strip, Sheepcote's wood, Botneyhill and Millers Wood) and reduce impacts to one (Rivenhall Thicks) and are detailed within the Outline CoCP (document reference 7.2):
 - B20 All works (including all excavation works) associated with the 132 kV PSB cable sealing end platform, will stay out of the 15 m buffer from Mann / Parson's

- Wood Ancient Woodland and the associated Parson's and Queen's Wood Local Wildlife Site (LWS)
- B21 The haul roads and associated working area will be micro-sited to avoid the
 15 m root protection area from Stonefield Strip Ancient Woodland
- B22 The works area for flexibility to install utility connections to compounds TB-CC07/TB-Main will avoid the 15 m buffer from the ancient woodland known as Sheepcote's Wood
- B23 The working area for the haul road will be micro-sited to avoid the 15 m root protection area from the ancient woodland associated with Botneyhill Wood LWS
- B24 Commitment to only manage trees/ vegetation from the southern side of Bullen Lane as part of the visibility splay to avoid impacts on Millers Wood Local Wildlife Site and associated ancient woodland
- B25 Commitment to micro-site haul road outside the 15 m buffer from Rivenhall Thicks Ancient Woodland where practicable or use no-dig construction methods for the short stretch of haul road located within 15 m buffer.

Woodland Demarcation

- 3.8.8 Ancient woodlands can be difficult to identify without ecological expertise in woodland identification and could be mistaken for a woodland which is not classified as irreplaceable habitat.
- 3.8.9 It's important that all site operators are aware when there is ancient woodland within 15 m of the Project. Daily site briefings can help to negate the risk of a site operative accidentally breaching a 15 m buffer, but clear demarcation which marks the boundary of the woodland with definitive signage is an extra precautionary measure that National Grid has committed to undertaking to confidently ensure the buffer is not breached. This will be constructed of self-supporting Heras fencing (or similar), so that it does not penetrate the ground to avoid damage to the woodland RPA.
- 3.8.10 To prevent inhibiting the free movement of mammals to and from the woodland, fencing will only be installed on the side of the woodland which faces the Order Limits. Fencing will also be installed with minimum of 15-20 cm gap at the base to allow for continued movement of small mammals during construction.
- 3.8.11 All ancient woodlands requiring demarcation have been identified within Table 3.5. In some instances, there may be vegetation, which is adjacent or connected to the woodland, that is not part of the ancient woodland site boundary; the Project will take a case-by-case approach on whether the whole area of vegetation will be demarcated or only the ancient woodland area. This decision on the extent of demarcation will be determined jointly by the ArbCoW and ECoW and informed by the pre-construction surveys.

Sensitive Construction Practices

- 3.8.12 Where works within the 15 m woodland buffer cannot be avoided, sensitive construction practices will be adopted, such as:
 - Micro-siting, in construction this refers to the fine-tuning or adjustment of the
 exact location of infrastructure, equipment, or project components within a predefined area to account for local conditions and minimise impacts. It involves
 precise decision-making based on real-time observations and assessments of the

- site, often in response to unexpected challenges or features encountered during construction
- Non-excavation techniques, in construction this refer to methods that minimise
 or entirely avoid the need for traditional soil excavation, they reduce soil
 disturbance, erosion, and damage to root systems or underground features.
 There are different methods to this, such as:
 - No-dig path construction: Haul roads or access routes are constructed without excavating the soil by using materials that sit directly on the surface. It works by laying geotextiles, cellular confinement systems, or permeable membranes on the ground to distribute weight and protect the soil.
 Aggregates, recycled materials, or other load-bearing surfaces are then placed on top
- **Delicate or precise excavation methods** are used when ground-breaking works cannot be avoided and seek to minimise disruption to the soil such as:
 - Use of an air lance or air spade: This provides a concentrated air flow in a high velocity stream jet which penetrates and dislodges the soil without damage to roots. An air compressor is used to power the lance/spade. An experienced operator will be able to effectively dislodge the soil around the roots for removal. This method may be used with a vacuum excavation wagon which is a method of removing small amounts of soil or debris using suction rather than digging in accordance with clause 7.2.1 of BS 5837:2012. The soil displaced during excavation can be stored to use later for reinstatement activities. It can be used for precise excavation near tree roots, utility lines, or archaeological features.

Vegetation Pruning

3.8.13 A visibility splay is a clear, unobstructed area at the junctions or intersections of haul roads or primary access routes. Vegetation pruning is often a necessary requisite along a visibility splay to allow for safe vehicular access and manoeuvring. Vegetation pruning may also be necessary in areas where there are third-party mitigation works to existing assets required to facilitate the Project. All pruning of ancient woodland is assessed on a case-by-case basis and avoided where practicable and will be all supervised by a suitably qualified ArbCoW.

Soil Contamination

3.8.14 Contamination to the ground soil within an ancient woodland's RPA will be avoided through standard mitigation measures as outlined in ES Chapter 8: Ecology and Biodiversity (document reference 6.8) and the Outline CoCP (document reference 7.2).

Additional Mitigation

3.8.15 Additional mitigation is mitigation that is bespoke, it relates to a particular construction elements as detailed in Table 3.1 and is only applied to ancient woodland sites where there are direct impacts to either the woodland or land within 15 m that may negatively impact the woodland structure or RPA.

3.8.16	Table 3.5 discusses each ancient woodland in turn and the standard and additional mitigation measures proposed in line with the above approach. The locations of these ancient woodlands are shown on Figure B.A.2 in Annex A.				

Table 3.5 Mitigation measures on affected ancient woodlands

Project Section	Woodland Name	Pathway to Impact	Mitigation
В	Wood requerem concepts groupe eas:	Excavation works are required for UKPN 132 kV to remove the reinforced concrete foundation of pylon PHB30 to 1.2 m below ground level in the northeastern corner of the woodland.	Supervision: All excavation works within 15 m of the woodland will be supervised by the Arboricultural Clerks of Works (ArbCoW).
			Micro-siting: The works area will be reduced as far as practical within the woodland, using the adjacent arable fields instead of the woodland.
			Working methods: Where feasible, any steel work will be broken up outside of the woodland to reduce disturbance and prolonged presence of heavy plant and machinery within the 15 m buffer.
			Precise excavation methods: Robust machinery will be required to break up the concrete foundation and therefore techniques such as hand-digging are not appropriate. To remove the concrete foundation, the excavation will need to extend slightly around its periphery. Whilst there is not expected to be prominent root structures immediately adjacent to PHB30, any excavation not involved with the breaking of concrete will use small machinery under supervision of the ArbCoW
			Soil Storage: Disturbed topsoil (with ancient woodland ground flora seed stock) will be stored separately to other soil piles, clearly demarcated with signage, and carefully reinstated upon the removal of the concrete foundation to return the woodland ground flora seed bank.
			Demarcation: The Project will demarcate around the edge of the construction work area to ensure no works encroach further into the woodland than is necessary.
			Replacement planting: On removal of the existing pylon from the woodland, tree saplings of species' which supports the same or similar biodiversity will be planted within the gap. The woodland ground flora would be expected to establish naturally from the existing seed bank, and therefore no specific ground flora planting is proposed.
В	Miller's Wood	Miller's Wood is situated within a visibility splay and therefore additional	Supervision : All works within 15 m of the woodland will be supervised by the ArbCoW

Project Section	Woodland Name	Pathway to Impact	Mitigation
		mitigation is proposed to minimise impact from devegetation works. As the splay is situated on a preexisting road, it is expected that there is likely already some degree of roadside management of vegetation in-place.	Working methods: National Grid have committed to only managing trees/vegetation from the southern side of Bullen Lane as part of the visibility splay (commitment B24 in the Outline CoCP (document reference 7.2)). This means that vegetation management for the visibility splay will only occur on the other side of the road from the ancient woodland and will have no direct impact on the ancient woodland. Light pruning of the trees that overhang Bullen Lane from the woodland may be required but this is considered in line with existing highway management works.
D	Stonefield Strip (LWS)	Stonefield Strip is 12 m at its closest point from the haul road buffer and 15 m from haul road construction itself.	Supervision: All works within 15 m of the woodland will be supervised by the ArbCoW. Micro-siting: at detailed design the overhead line will consider the presence of ancient woodland as a key constraint (restrictions within the LoD) and the 15 m buffer from the woodland will be avoided where practicable. The haul road and associated working area is to be restricted to outside the 15 m buffer from the ancient woodland (Project commitment). The edge of the 15 m buffer would be demarcated to ensure no accidental (commitment B21 in the Outline CoCP (document reference 7.2). Demarcation: the Project will demarcate around the edge of the construction work area to ensure no works encroach further into the woodland than is necessary.
E	Rivenhall Thicks	Existing 33 kV pole on corner of woodland requires dismantling. No additional tree loss anticipated as vegetation already managed under existing line. Short-term minimal impact to shrub and ground flora within the ancient woodland (at the base of the wood pole) during removal works.	Supervision: All excavation works within 15 m of the woodland will be supervised by the ArbCoW Micro-siting: the works area will be reduced as far as practical within the woodland, using the adjacent arable fields instead of the woodland. Where there is less than 15 m between the woodland and haul road works area, this land would be excluded from being utilised for soil storage or drainage, resulting in no direct impacts on the woodland. For the works area for the undergrounding of the 33 kV overhead line, works will seek to minimise extent of excavations within the 15 m buffer and heavy plant and machinery will only be present within the 15 m buffer for the duration of use, storage of plant and machinery overnight will be prohibited in these areas.

Project Section	Woodland Name	Pathway to Impact	Mitigation
		The proposed works within the RPA of Rivenhall Thicks will require excavation works, albeit minor, to dismantle and underground a pre-existing third-party overhead line (33 kV). A short section of temporary haul road is 10 m from woodland edge, and so within 15 m of the woodland's northern edge.	Working methods: where there is less than 15 m between the woodland and haul road itself, the Project will use no-dig construction methods along the 100 m section to minimise impact to RPA (commitment B25 in the Outline CoCP (document reference 7.2)). The impacted areas of the woodland RPA would be at minimum 12 m away and therefore secondary impacts from soil compaction are considered low. Precise excavation methods: as the excavation works required to underground the 33 kV cable are considered minor, small machinery only is proposed within the woodland RPA to protect root structures. The long-term impact of underground cabling within the RPA are considered low as it is such a small cable/ area. Demarcation: the Project will demarcate around the edge of the construction work area to ensure no works encroach further into the woodland than is necessary.
E/F	Mann / Parson's Wood	Embedded mitigation during the design phase has excluded any excavation works within the woodland or RPA. The existing PSB42 dismantling works are within the woodland RPA but will have minimal impact on the woodland. The CSE platform is located 15 m from woodland edge to facilitate undergrounding of existing 132 kV overhead line. No excavation required within 15 buffer, but the works area LoD for the CSE platform currently extends into the 15 m buffer.	Supervision: All dismantling works within 15 m of the woodland will be supervised by the ArbCoW. Micro-siting: Location of CSE platform and associated construction working areas to be restricted to outside the 15 m buffer from the ancient woodland (Project commitment). The edge of the 15 m buffer would be demarcated to ensure no accidental encroachment (commitment B20 in the Outline CoCP (document reference 7.2)). Working methods: any heavy plant / machinery will be restricted to only being within 15 m of the woodland for as short a period as possible to avoid soil compaction, such as only for the duration of the works and the storage of plant and machinery will be prohibited in these areas. Demarcation: the Project will demarcate the woodland buffer to area to ensure no works encroach further into the woodland RPA than is necessary.

Project Section	Woodland Name	Pathway to Impact	Mitigation
F	Sheepcote's Wood	A construction works area for utility connection is 4 m from the woodland at one specific point	Supervision: All works within 15 m of the woodland will be supervised by the ArbCoW Micro-siting: standard work areas to install utility connection (for flexibility only) to temporary construction compounds will avoid the 15 m buffer from the woodland. No works will be undertaken within 15 m of the ancient woodland (commitment B22 in the Outline CoCP (document reference 7.2)). Working methods: any heavy plant / machinery will be restricted to only being within 15 m of the woodland for as short a period as possible to avoid soil compaction. Demarcation: the Project will demarcate the woodland area to ensure no works encroach into the woodland RPA.
F	Writtle – Writtlepark Wood	Excavation works are necessary as part of the dismantling of existing 11 kV overhead line and subsequent undergrounding 4 m into the woodland. Removal of wood pole will cause minimal temporary loss of shrubs and ground flora within the woodland and undergrounding will only extend 4 m into the woodland where the trees are already managed due to the presence of the existing line.	Supervision: All excavation works within 15 m of the woodland will be supervised by the ArbCoW Micro-siting: the works area will be reduced as far as practical within the woodland, using the adjacent fields for works area Working methods: any heavy plant/ machinery will be restricted to only being within 15 m of the woodland for as short a period as possible to avoid soil compaction. Storage of plant and machinery will be prohibited in these areas. Precise excavation methods: as the excavation works required to underground the 11 kV cable are considered minor, only small machinery are proposed within the woodland RPA to protect root structures. The long-term impact of underground cabling within the RPA are considered low as it is such a small cable/ area. Soil Storage: disturbed topsoil and seed stock will be stored separately to other soil piles, clearly demarcated with signage, and carefully reinstated upon the removal of the foundation to return the woodland ground flora seed bank. If soil is stored for longer than 1 day, or if works are being undertaken in spring / summer when temperatures are milder and there has been a lack of rainfall for over five consecutive days, soil heaps will be covered in shade cloths or, where practicable, in areas where there is sufficient natural shade. This is to prevent drying out of soil and seedstock, which could encourage pioneering and competitive grass / weed species to propagate and outcompete ancient woodland ground flora making reinstatement unsuccessful.

Project Section	Woodland Name	Pathway to Impact	Mitigation
			Demarcation: the Project will demarcate around the edge of the construction work area to ensure no works encroach further into the woodland than is necessary. Replacement planting: On removal of the existing wood pole and undergrounding of the 11 kV cable from the woodland, sweet chestnut and hornbeam tree saplings will be planted within the gap. The woodland ground flora would be expected to establish naturally from the existing seed bank, and therefore no specific ground flora planting is proposed.
G	Clapgate Wood	Excavations works within 15 m of the woodland (12 to 15 m away) is required to underground cabling for a third-party 11 kV overhead line mitigation.	Supervision: All excavation works within 15 m of the woodland will be supervised by the ArbCoW
			Micro-siting: where feasible, works areas will be located outside the woodland RPA. A standard working area of 25 m has been applied across the Project for 11 kV works, this works area lies adjacent to the woodland at its closest point. However, due to the small-scale of the 11 kV underground cable works, this will be minimised to be either outside 15 m buffer completely or at least 12 m away to minimise impacts.
			Working methods: any heavy plant / machinery will be restricted to only being within 12 to 15 m of the woodland for as short a period as possible to avoid soil compaction. The storage of plant and machinery will be prohibited in these areas.
			Precise excavation methods: as the excavation works required to underground the 11 kV cable are considered minor, only small machinery are proposed within the woodland RPA to protect root structures. The long-term impact of underground cabling within the RPA are considered low as it is such a small cable/ area.
			Demarcation: the Project will demarcate around the edge of the construction work area to ensure no works encroach further into the woodland than is necessary.
G	Botneyhill Wood (LWS)	The western corner of the S) woodland is approximately 9 m from the haul road works area. The woodland is separated from the haul road by the existing Chase Farm Road, which may already	Supervision: All works within 15 m of the woodland will be supervised by the ArbCoW (if cannot be completely avoided).
			Micro-siting: at detailed design the haul road will consider the presence of ancient woodland as a key constraint and the 15 m buffer from the woodland will be avoided
			The haul road working area currently lies within the 9 to 15 m buffer from the woodland, this area would be excluded from being utilised for soil storage or drainage

Project Section	Woodland Name	Pathway to Impact	Mitigation
		have minimised the RPA of the woodland.	(commitment B23 in the Outline CoCP (document reference 7.2)). No direct impacts to the RPA anticipated.
			Working methods: if works cannot be micro-sited outside the RPA, any heavy plant / machinery will be restricted to only being within 15 m of the woodland for as short a period as possible to avoid soil compaction. The storage of plant and machinery will be prohibited in these areas. Demarcation: the Project will demarcate the edge of the works area to ensure no works encroach into the woodland RPA.
G	Little Bladen's Wood (LWS)	The modification of existing Pylon PUB40 within the northern fringe of the woodland will result in a construction works area within 15 m of woodland but no excavation.	Supervision: All works within 15 m of the woodland will be supervised by the ArbCoW Micro-siting: works areas will be located outside the woodland and where practicable outside the RPA. Working methods: the existing access route used for pylon maintenance will be used for the modification works. Any heavy plant / machinery will be restricted to only being within 15 m of the woodland for as short a period as possible, such as only for the duration of use and storage of plant and machinery overnight will be prohibited in these areas. The works are considered minimally invasive to the woodland with no direct impact. Demarcation: the Project will demarcate around the edge of the construction work area to ensure no works encroach further into the woodland than is necessary.

4. Conclusion (Ancient Woodland)

- 4.1.1 This strategy has sought to detail the potential impact pathways associated with ancient woodland parcels along the Project route and has identified any necessary mitigation measures (embedded, standard and/or additional) that are required as per the mitigation hierarchy to ensure no long-term impacts on ancient woodland are encountered because of the Project.
- 4.1.2 Potential impacts (excavation and non-excavation), in the absence of mitigation, were identified at 10 ancient woodland parcels (five within ancient woodlands themselves and five within the 15 m buffer RPA.
- 4.1.3 Specific Project commitments have been made as standard mitigation, to remove impacts to ancient woodlands. As a result of these Project commitments impacts associated with five ancient woodlands have been completely removed (Mann/Parson's Wood, Stonefield Strip, Sheepcote's Wood, Botneyhill Wood and Millers Wood). No works will be undertaken (in line with Project commitments B20 to B24 set out within the Outline CoCP (document reference 7.2)) within or within 15 m of these ancient woodlands. Impacts have also been reduced at one ancient woodland (Rivenhall Thicks) by Project commitment B25, set out within the Outline CoCP (document reference 7.2).
- 4.1.4 Complete removal of impacts to the remaining four ancient woodlands and Rivenhall Thicks (and the associated 15 m buffer) are unavoidable, as the proposed works relate to the removal, undergrounding or modification of existing third-party infrastructure (11 kV, 33 kV, 132 kV), with the existing assets already located within the associated woodland or 15 m RPA.
- 4.1.5 Within three of these ancient woodlands (Round Wood, Rivenhall Thicks and Writtle-Writtlepark Wood) minor excavation works are required to remove the existing assets. Modification to an existing pylon located within Little Bladen's Wood is required and minor excavation to facilitate the 11 kV undergrounding is required 12 to 15 m from Clapgate Wood. Mitigation measures have been proposed to ensure no significant long term residual effects on ancient woodland are encountered as a result of the Project.
- 4.1.6 Rainbow Wood and Ashen Shaw is affected by the LTC project. The Norwich to Tilbury Project will have no direct effects on Rainbow Wood and Ashen Shaw ancient woodland, the Project will affect the area of proposed the LTC Development Consent Order mitigation planting. An alternative tree planting area has been included within the Project Order Limits, which will provide space for this ancient woodland mitigation adjacent to the retained areas of Rainbow Wood LWS if LTC is taken forward to construction and the mitigation planting is required.

5. Veteran Trees

5.1 Introduction to Veteran Trees

- 5.1.1 This section is a preliminary assessment and contains measures which could be implemented on an outline basis. The Outline LEMP (document reference 7.4) will be fully developed based on detailed design and construction methodology information to be provided by the Main Works Contractor(s). The Final LEMP and associated Ancient Woodland and Veteran Tree Strategy will detail which measures have been agreed with relevant landowners and are therefore implementable and proportionate to the impacts attributed to the final detailed design of the Project.
- 5.1.2 This section focuses on the veteran trees surveyed and identified for retention within the Order Limits, together with veteran trees located outside of the Order Limits that may be impacted based on their calculated buffer zones, and the following items to be addressed include:
 - The hierarchy to avoid, minimise, rectify, and compensate
 - Trees identified for removal/management
 - Compensation for veteran trees being removed/ managed
 - Management options i.e. soil decompaction, exclusion fencing/zones, deadwood management, and veteranisation of other trees
 - Mitigation methods, remediation works, and monitoring.

5.2 Limitations and Exclusions

- 5.2.1 The intention of this section of the Ancient Woodland and Veteran Tree Strategy is to outline actionable measures that are achievable and measurable which may require agreement with landowners to deliver. Therefore, the options to deliver as part of a compensation package are considered based on the practicalities of implementing such measures in collaboration with the landowners. Subject to landowner agreements further enhancements could be explored to incorporate in a Final Strategy.
- 5.2.2 Based on the existing overhead line alignments without considering the LoD this is an initial assessment of veteran tree removals and impacts, and all attempts should be made during detailed design to retain veteran trees where practicable (see commitment B18 in the Outline CoCP (document reference 7.2).

5.3 Mitigation Hierarchy

5.3.1 Table 5.1 outlines the order of hierarchy priorities for veteran trees. Each veteran tree within the Order Limits has been assigned a hierarchy category from the below list. All veteran trees within the Order Limits and the associated primary outcome are listed out in Annex D.

5.3.2 Remedial works under the 'Rectify' heading should be used in all instances where a veteran tree is affected by the Project but are subject to agreements between National Grid and the relevant landowners.

Table 5.1 Mitigation hierarchy

	,
Order of Hierarchy	Outcome
Avoid	Design refined to avoid buffer zones of veteran trees.
	Protective measures during construction (as set out in the Outline CoCP (document reference 7.2)) to ensure health and vitality of trees is maintained, addressing the rooting and above-ground environments of trees, together with ongoing monitoring and maintenance for the duration of construction. Protective measures may include construction methodologies, micro-siting, use of fencing to exclude construction traffic from buffer zones
Minimise	Same protective measures as above, as well as ground, stem and limb protection. Assumes that avoidance is not possible and protective measures will not fully mitigate impacts.
	 May include targeted facilitation pruning, so as to minimise uncontrolled damage to above ground components of trees. Pruning techniques adopted for veteran trees (i.e. coronet cuts, retrenchment pruning, fracture pruning) to be advised by Project Arboriculturist / ArbCoW
	Where excavation within buffer zones occurs, Root pruning / severance may be specified to minimise uncontrolled damage caused unintentionally during the process (to be specified by Project Arboriculturist / ArbCoW)
Rectify	Will primarily focus on post construction remediation works (i.e. soil improvements, competition removal, halo pruning) to be specified by Project Arboriculturist / ArbCoW

Remedial pruning works may be required following unforeseen mechanical

damage during construction. Pruning to be specified by the Project

Arboriculturist / ArbCoW

Order of Hierarchy

Outcome

Compensate

- Where avoid, minimise or rectify are not suitable options then suitable compensation is required. Different compensation options are available and should be specified on a case by case basis by the Project Arboriculturist / ArbCoW. These may include but are not limited to the below and may be used in conjunction with each other:
- Phased tree surgery appropriate for tree species and subject to individual tree assessments.
- Veteranisation of nearby mature trees to maintain habitat continuity.
- Genetic Conservation: To preserve the genetic heritage of the veteran trees identified for removal, seeds could be collected before any clearing begins (generally between September and November). This seed collection would focus on gathering a diverse range of native tree and understory species, ensuring that the genetic material from the original tree can be used for propagation in the new planting areas, thereby maintaining a direct ecological link to the lost habitat. Sapling relocation where appropriate
- Compensation Planting: Veteran trees are acknowledged as being irreplaceable, therefore full compensation is unachievable. Compensation Planting will include a combination of new planting, sapling relocation, seed bank for local provenance, and financial contributions to local tree planting organisations to plant and maintain new areas of planting off-site.

Commitments to maintain and monitor compensation areas for a minimum of 30 years.

5.4 Impacts to Veteran Trees

- 5.4.1 Annex D outlines the individual veteran trees/ groups within the Study Area and their associated impacts in relation to the Project.
- 5.4.2 Section 3.1 outlines impacts to ancient woodland, these impacts are also applicable to veteran trees.

Table 5.2 Definitions of Project activities

Project Activity	Definition
Excavations	Construction activities that break the soil surface.
Overhead Lines	Construction activities associated with the stringing and final strung locations of conductors.
Temporary Construction	All temporary access routes / haul roads, any works that will not remain post construction.

5.5 Veteran Trees to be Removed

5.5.1 There are four veteran trees that have been identified as requiring removal due to the Project. These are listed below in Table 5.3. Veteran trees to be removed will still provide essential habitats for the local flora and fauna. Where practical, after being felled, each tree should be laid as close to their original location as possible or near existing woodland to provide a deadwood habitat area. The material to be left should be as intact as is practicable.

Table 5.3 Veteran features to be removed

Feature ID	Species
T296	English oak
T328	English oak
T329	English oak
T566	English oak

There are 15 veteran trees and two veteran groups that have been identified for management/ pruning as per clearance requirements for the overhead line are shown in Table 5.4 below. Pruning specifications are to be confirmed and agreed with a suitably qualified arboriculturist, with VetCert qualifications and undertaken to best industry standards i.e. BS 3998:2010. The trees identified for management/ pruning are listed in Table 5.4.

Table 5.4 Veteran trees to be pruned

Species	Buffer Zone (m)
English oak	15.75
English oak	18.00
English oak	18.00
Field maple	14.00
Ash	18.00
English oak	16.50
English oak	19.50
English oak	16.50
Field maple	15.30
English oak	18.00
English oak	19.50
English oak	23.25
	English oak English oak English oak Field maple Ash English oak English oak English oak English oak English oak English oak Field maple English oak English oak

Feature ID	Species	Buffer Zone (m)
T970	Hornbeam	13.50
T1064	English oak	24.75
T1113	English oak	18.00
VG404	Alder	24.75
VG406	English oak	0.00

5.6 Mitigation Methods

- 5.6.1 Specifications for fencing are outlined in Section 7.3 of the Outline LEMP (document reference 7.4) and should be in accordance with clause 6.2 of BS 5387:2012. Barriers and / or ground protection will be used to safeguard RPA on site of veteran trees to be retained. A precautionary RPA has been provided around groups of trees with the RPA reflecting the maximum calculated extent. In accordance with clause 6.2.1.1 of BS 5387:2012, all barriers and ground protection will be installed prior to construction at each relevant location and remain in place until construction has ceased.
- 5.6.2 There are several commitments from National Grid directly relating to trees found in the Outline CoCP (document reference 7.2) These commitments are set out below:
 - GG06 A record of condition will be carried out (photographic and descriptive) of the working areas that may be affected by the construction activities, including trees and hedgerows. This record will be available for comparison following reinstatement after the works have been completed to ensure that the standard of reinstatement at least meets that recorded in the pre-condition survey
 - GG08 Where features are to be retained (including veteran trees, ancient woodland and high, medium and low value trees and hedgerows, where practicable), an appropriate protective area or protection mechanisms will be established using appropriate equipment or fencing and signage and will be inspected, repaired, and replaced as necessary
 - GG14 Following detailed design and prior to construction (of relevant parts of the Project), relevant surveys will be undertaken of arboricultural features that may be impacted or need to be removed to ensure any tree/ hedgerow removal is reduced as far as practicable
 - GG18 Appropriate site layout and housekeeping measures will be implemented by the Main Works Contractor(s) at all construction sites. This will include but not be limited to:
 - Preventing pests and vermin control and treating any infestation promptly, including arrangements for the proper storage and disposal of waste produced on site
 - Inspecting and collecting any waste or litter found on site
 - Locating or designing site offices and welfare facilities to prevent the overlooking of residential properties except where otherwise agreed with the owner of the impacted property

- Locating designated smoking/vaping areas to avoid nuisance to neighbours
- Managing staff/vehicles entering or leaving site, especially at the beginning and end of the working day and for 24 hour working
- Managing potential off-site contractor and visitor parking to ensure they are safe
- Appropriate protection of existing vegetation and appropriate layout to avoid damage to existing vegetation.
- GG31 Stockpiles, material storage, vehicle tracking, and soil bunds will be
 located away from trees and hedgerows, where practical, to ensure no damage
 occurs to these features and works remain outside of the root protection zone of
 the features. Works that cannot be undertaken without entering into a root
 protection zone will be addressed in a bespoke way (within an Arboricultural
 Method Statement (AMS)) to ensure all appropriate measures are in place to
 protect the area (unless otherwise agreed with the relevant LPA)
- B07 Construction Exclusion Zones (CEZ) will be established prior to construction
 to define working areas and ensure protection of retained habitats throughout the
 Project. A minimum buffer of 10 m (where practicable) will be retained around
 priority habitats (including watercourses) to reduce any potential direct or indirect
 effects on the habitats and species associated with them and the CEZ may need
 to be extended beyond 10 m for certain biodiversity receptors, such as woodlands
 and trees for example, to protect root protection zones
- B08 All hedgerows, shrubs, trees or dense vegetation will be retained as far as is practicable. Where these measures are not practicable and works are needed to be carried out during the bird breeding season, all areas to be affected will be checked by the ECoW for evidence of nesting birds 24 hours (as standard) prior to the vegetation removal or tree felling works taking place. There may be some instances where 24 hours is not practical, therefore a maximum period of 48 hours is permitted with contractors having a duty of care to look out for birds prior to removal. If any active bird nests are discovered these will be given a minimum standoff of 5 m (this may increase depending on species, proposed works and location) where no potentially disturbing works will take place until the young have fledged and the nest is vacated. A second nesting bird check would then be undertaken to ensure the tree or vegetation does not contain any further active nests prior to felling or removal works taking place
- B19 The Project is also committed to adopting a sustainable approach to development by proactively taking measures to ensure that the Project leaves the environment in a better condition than it was before development (including but not limited to delivering 10% BNG with environmental and societal benefits). The Project will seek to provide strategic habitat enhancement and creation, aiming to identify and implement opportunities to improve habitat quality and connectivity and align with national nature recovery objectives and projects. Such measures may include specific habitat creation and enhancement measures and additional receptor-specific measures such as the creation of habitat piles and installation of bird and bat boxes.

5.7 Remediation Works

- 5.7.1 Once construction has been completed in a specific area surrounding the RPA of a retained veteran tree, remediation works should be agreed with the Project Arboriculturist. If required, remediation works should be undertaken with ArbCoW supervision to ensure that rooting conditions are favourable for the trees longevity.
 - Remediation works may include the need for the following operations:
 - Mulching
 - Soil decompaction
 - Soil improvement additives
 - Halo pruning
 - Remediation pruning
 - Establishment of a permanent exclusion zone
 - Installation of fencing or dead hedge
 - Land management changes
 - Companion/shelter planting
 - Habitat creation.

5.8 Monitoring

- 5.8.1 To assess and ensure the effectiveness of the above remediation works, a monitoring programme will be agreed and adopted by National Grid. The purpose of this is to assess the results of remediation works and adapt or amend as necessary on a case-by-case basis.
- 5.8.2 Due to the ecological significance of veteran trees, the monitoring programme will cover a minimum of a 30-year period which aligns with Paragraph 10.4.2 of the Outline LEMP (document reference 7.4).

6. Conclusion (Veteran Trees)

- 6.1.1 A total of 112 trees and four groups have been surveyed within the Project Study Area as veterans. Four individual veteran trees require removal, while 15 veteran trees and two veteran groups require crown management.
- 6.1.2 ATI veteran trees are expanded on in the AIA (document reference 6.13.A6).
- 6.1.3 Project commitments relating to veteran trees are listed within the Outline CoCP (document reference 7.2) and shown in Table 6.1.
- 6.1.4 A list of veteran trees and their position within the hierarchy is shown in Annex D.
- 6.1.5 The final mitigation measures, remediation works and long-term monitoring are to be agreed at detailed design stage with the Project arboriculturist and the relevant landowners on a case-by-case basis.
- 6.1.6 All management options discussed for veteran trees need to be achievable and therefore will need landowner consent and agreement with National Grid.
- 6.1.7 Trees to be removed are to be left as close as possible to their original location as intact as practicable.
- 6.1.8 Trees identified for pruning in Section 5.6 would need to be undertaken by a suitably qualified arborist with Vetcert qualifications and experience in undertaking works on veteran trees.
- 6.1.9 Protection measures are to be in place prior to the commencement of construction or pre-construction works and require sign off by the Project Arboriculturist.

Abbreviations

Abbreviation	Definition
AC	Alternating Current
ArbCoW	Arboricultural Clerk of Works
AIA	Arboricultural Impact Assessment
AIS	Air Insulated Switchgear
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
APFP	Applications: Prescribed Forms and Procedure
ATI	Ancient Tree Inventory (Woodland Trust)
BIS	Biodiversity Information Service
BNG	Biodiversity Net Gain
BS	British Standards
BT	British Telecommunications
CoCP	Code of Construction Practice
CSE	Cable Sealing End
CWS	County Wildlife Sites
DCO	Development Consent Order
DLL	District Level Licence
EACN	East Anglia Connection Node
EcOW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EN-1	Overarching National Policy Statement for Energy
EnvCoW	Environmental Clerk of Works
EPS	European Protected Species
FLAC	Forbes Laird Arboricultural Consultancy
FRAP	Flood Risk Activity Permit
GCN	Great Crested Newt
GIS	Gas Insulated Switchgear
HRA	Habitat Regulations Assessment

Abbreviation	Definition
INNS	Invasive, non-native species
kV	Kilovolt
LCA	Landscape Character Area
LCoW	Landscape Clerk of Works
LCT	Landscape Character Type
LEMP	Landscape and Ecological Management Plan
LoD	Limit of Deviation
LPA	Local Planning Authority
LTC	Lower Thames Crossing
LWS	Local Wildlife Sites
MoRPh	Modular River Physical
NG	National Grid
NSIP	Nationally Significant Infrastructure Project
NVC	National Vegetation Classification
OHL	Overhead Lines
OL	Order Limits
PRF-I	Preliminary Roost Features – Individual
PRF - M	Preliminary Roost Features – Maternity
PRoW	Public Rights of Way
RAMs	Reasonable Avoidance Measures
RPA	Root Protection Area
SAC	Special Areas of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UG	Underground
UKHab	UK Habitat Classification Surveys
UKPN	UK Power Networks
VP	Vantage Point

Glossary

Description
Additional mitigation refers to measures implemented beyond the initial Project design to further reduce or manage environmental impacts identified during the planning or construction phases. These measures are bespoke to the specific site and its unique constraints, ensuring they address the particular challenges and sensitivities of the location effectively.
Land that has been continually wooded since at least 1600 in England. Regarded as 'irreplaceable habitat' in national planning policy and guidance. Ancient woodland greater than 2 ha is recorded on the Natural England Ancient Woodland Inventory.
A dataset managed by Natural England to identify and record information about ancient woodland sites in England.
Annex 1 habitats are natural habitats identified by the European Union's Habitats Directive 1992 as needing special conservation efforts. These habitats are either at risk of disappearing, have a limited natural range, or are outstanding examples of their natural environment.
The variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.
Biodiversity Net Gain (BNG) is a concept introduced by the Environment Act 2021. It requires developers to ensure their projects not only minimise environmental damage but also actively enhance biodiversity by creating or improving habitats, resulting in a net positive impact on the natural environment of at least 10%.
This is a British Standard that provides recommendations for tree work, covering a wide range of tree care activities, including pruning, tree felling, and tree health assessments. It is a comprehensive guide for managing established trees, including those in urban and rural landscapes.
This is a British Standard that provides recommendations for trees in relation to design, demolition and construction. It focuses on achieving a harmonious and sustainable relationship between trees and structures, and it is relevant to a wide range of professionals including arboriculturists, construction workers, and planners.
An insulated conductor designed for underground installation.
Structures used to transfer transmission circuits between underground

Term	Description
Cable Sealing End compound	Electrical infrastructure used as the transition point between overhead lines and underground cables. A compound on the ground acts as the principal transition point.
Cable Sealing End platform	Electrical infrastructure used as the transition point between overhead lines and underground cables. A platform on the pylon acts as the principal transition point.
County Wildlife Site	Non-designated areas of land important for their wildlife and nature conservation value.
Ecosystem	A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.
Embedded mitigation	Embedded mitigation refers to the proactive incorporation of design features and construction practices within a project to inherently minimise environmental and social impacts from the outset.
European Protected Species	Animals and plants listed under the Habitats Directive and protected under the Conservation of Habitats and Species Regulations 2017, as amended.
Fauna	All the animals in a given area.
Final LEMP	The Final Landscape and Ecological Management Plan is produced post-consent by individual Main Works Contractor(s) in a specified area. It is a comprehensive and detailed document that provides management actions, responsibilities, and timelines for implementing landscape and ecological measures which respond directly to the environmental constraints in that specific area.
Flora	The plants within a particular habitat or region.
Habitat	The natural home or environment of an animal, plant, or other organism.
Habitat of Principal Importance	A habitat which has been deemed to be of principal importance for the purpose of conserving biodiversity, currently adopted under s41 of the Natural Environment and Rural Communities Act 2006, formerly listed in the UK Biodiversity Action Plan.
Haul route	Another term used for the temporary access route, which is a temporary route built to carry construction vehicles within the Order Limits.
Invasive Non-Native Species (INNS)	An Invasive Non-Native Species is any non-native animal or plant that can spread, causing damage to the environment, the economy, health, and way of life.
Local Planning Authority	The public authority whose duty it is to carry out specific planning functions for a particular area.
Local Wildlife Site	Non-designated areas of land important for their wildlife and nature conservation value.
Mitigation	The action of reducing the severity and magnitude of change (impact) to the environment. Measures to avoid, reduce, remedy or compensate for significant adverse effects as per the Mitigation Hierarchy.

Term	Description
Nationally Significant Infrastructure Projects (NSIPs)	The UK government considers these projects to be of national significance due to their size, impact, and potential benefits to the wider community and economy.
National Vegetation Classification	A system of classifying natural habitat types in Great Britain according to their vegetation types.
Order Limits	The maximum extent of land within which the authorised development may take place.
Outline LEMP	The Outline Landscape and Ecological Management Plan outlines the intentions and overarching principles which support the DCO application.
Overhead line	Conductor (wire) carrying electric current, strung from pylon to pylon.
Sites of Special Scientific Interest (SSSIs)	SSSIs are protected by law under the Wildlife and Countryside Act 1981. They are important because they support rare or endangered fauna and flora, and they represent the United Kingdom's best wildlife and geological sites.
Species	A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.
Standard mitigation	Mitigations included within the Code of Construction Practice which are considered industry best practice and applied as standard across the Project to ensures legislative compliance.
Substation	Substations are used to control the flow of power through the electricity system. They are also used to change (or transform) the voltage from a higher to lower voltage to allow it to be transmitted to local homes and businesses.
UK Power Networks (UKPN)	UK Power Networks (Operations) Limited (registered company number 03870728) and/or its affiliate Eastern Power Networks plc (registered company number 02366906) as applicable.
Underground cable	An insulated conductor carrying electric current designed for underground installation. Underground cables link together two Cable Sealing End compounds.
Zone of Influence	The defined geographic area within which the Project's environmental receptors are located.

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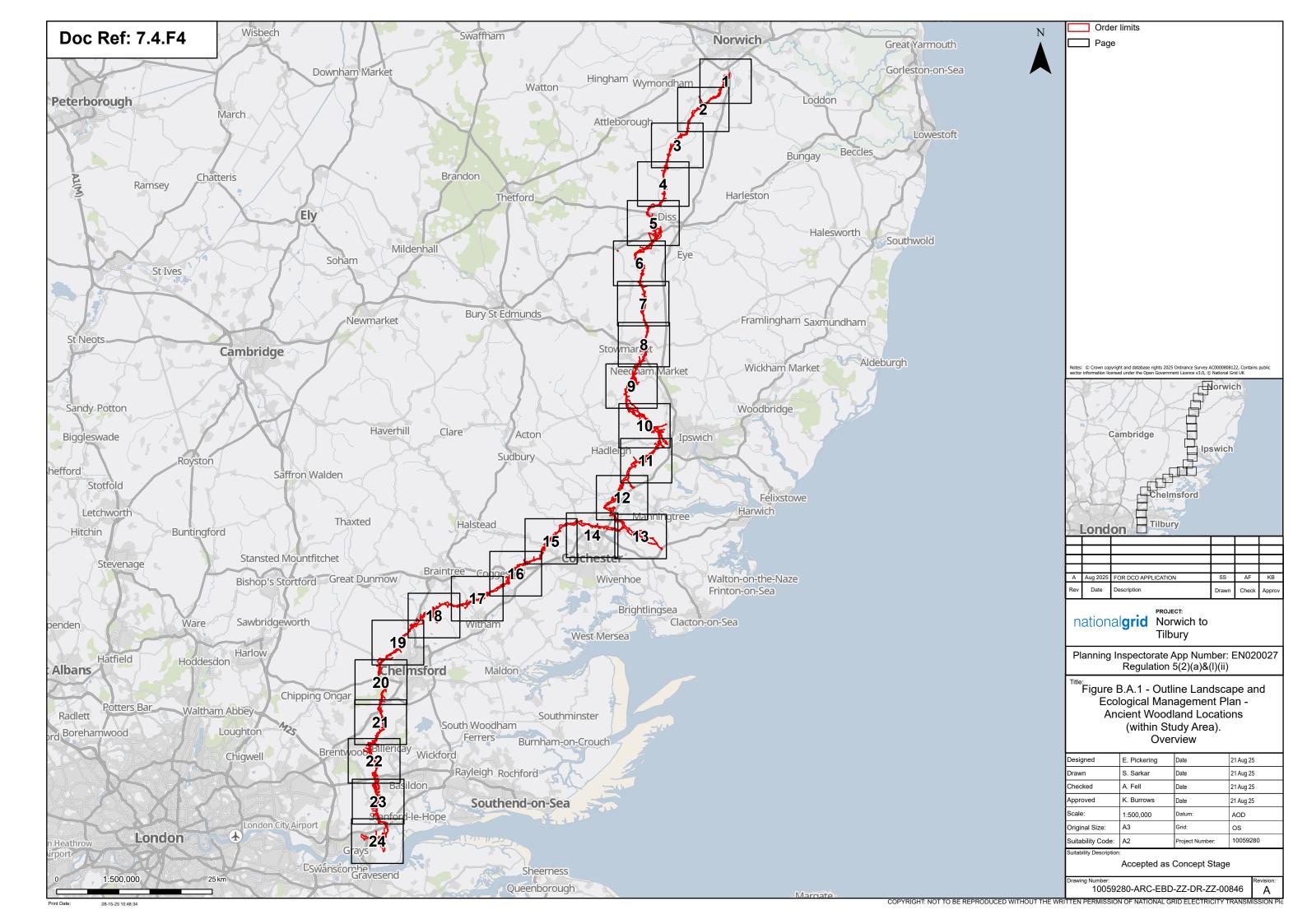
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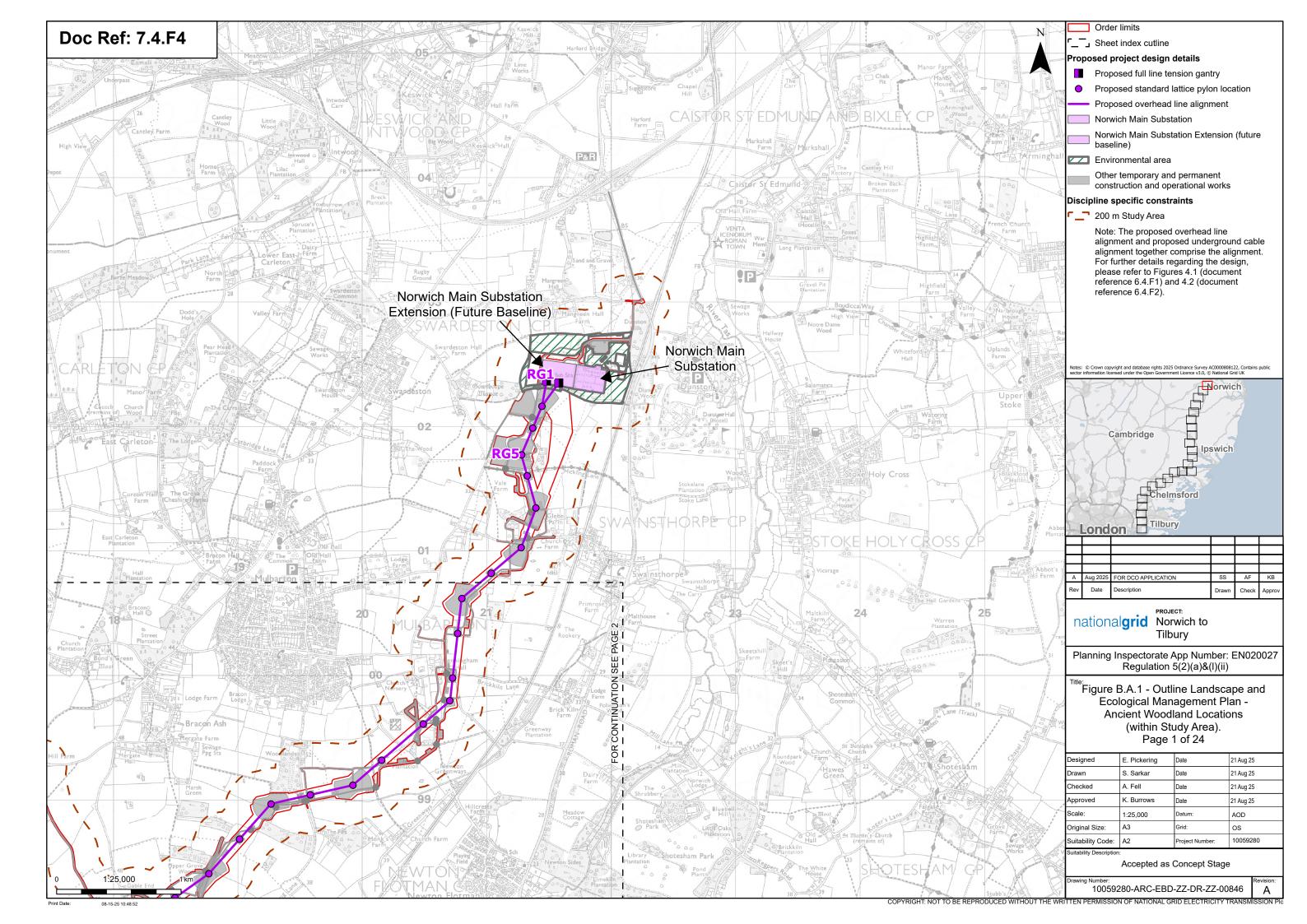
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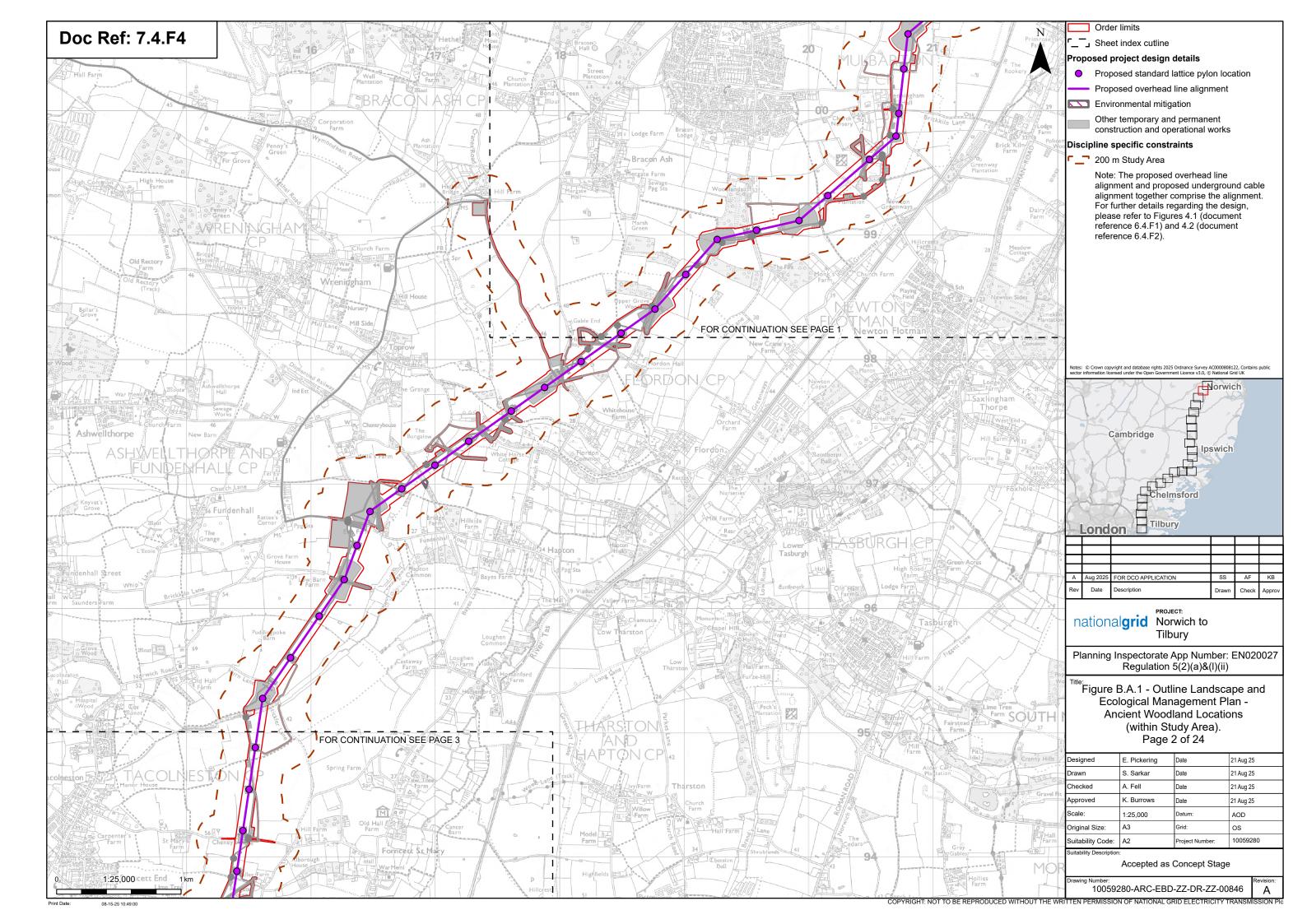
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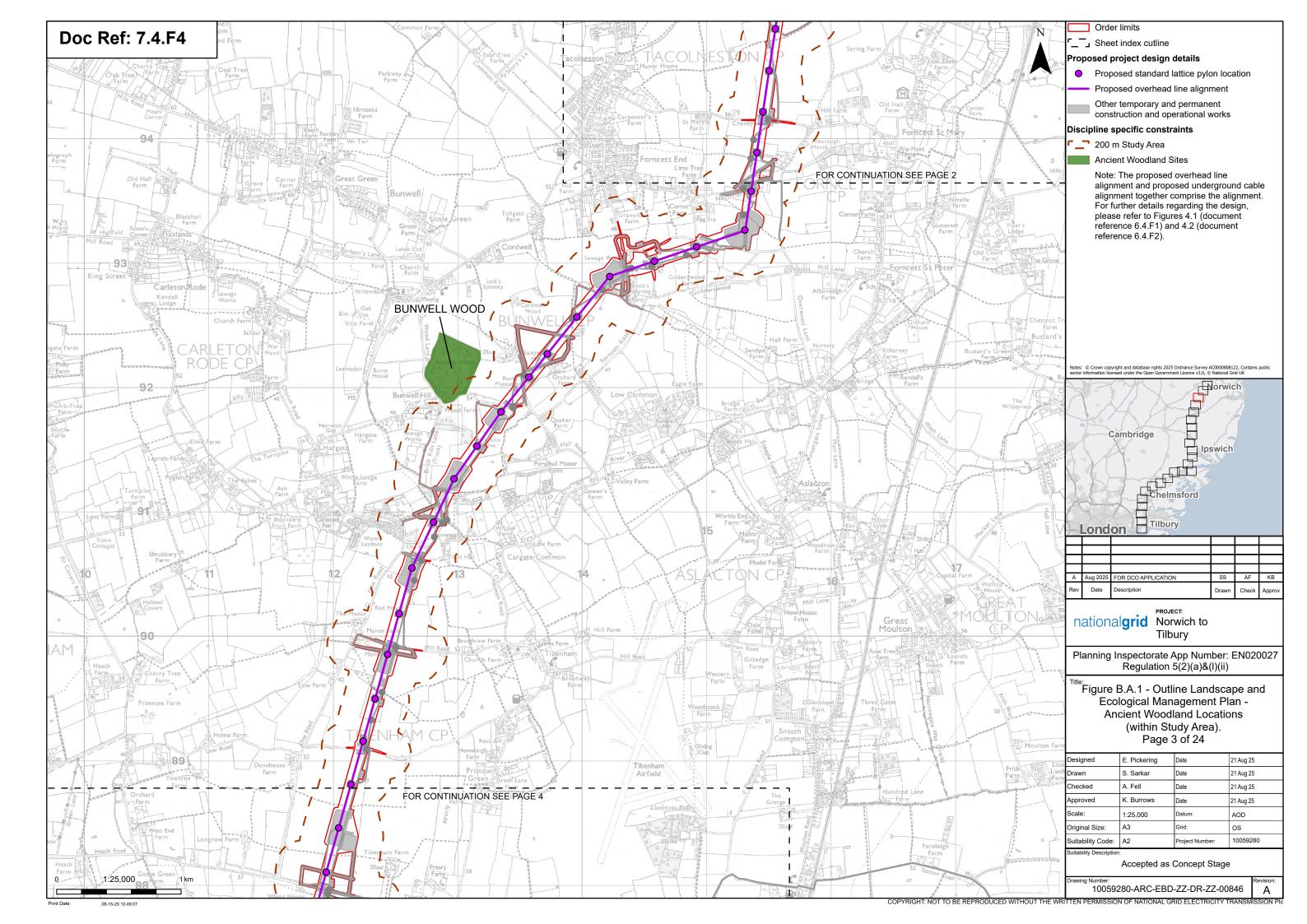
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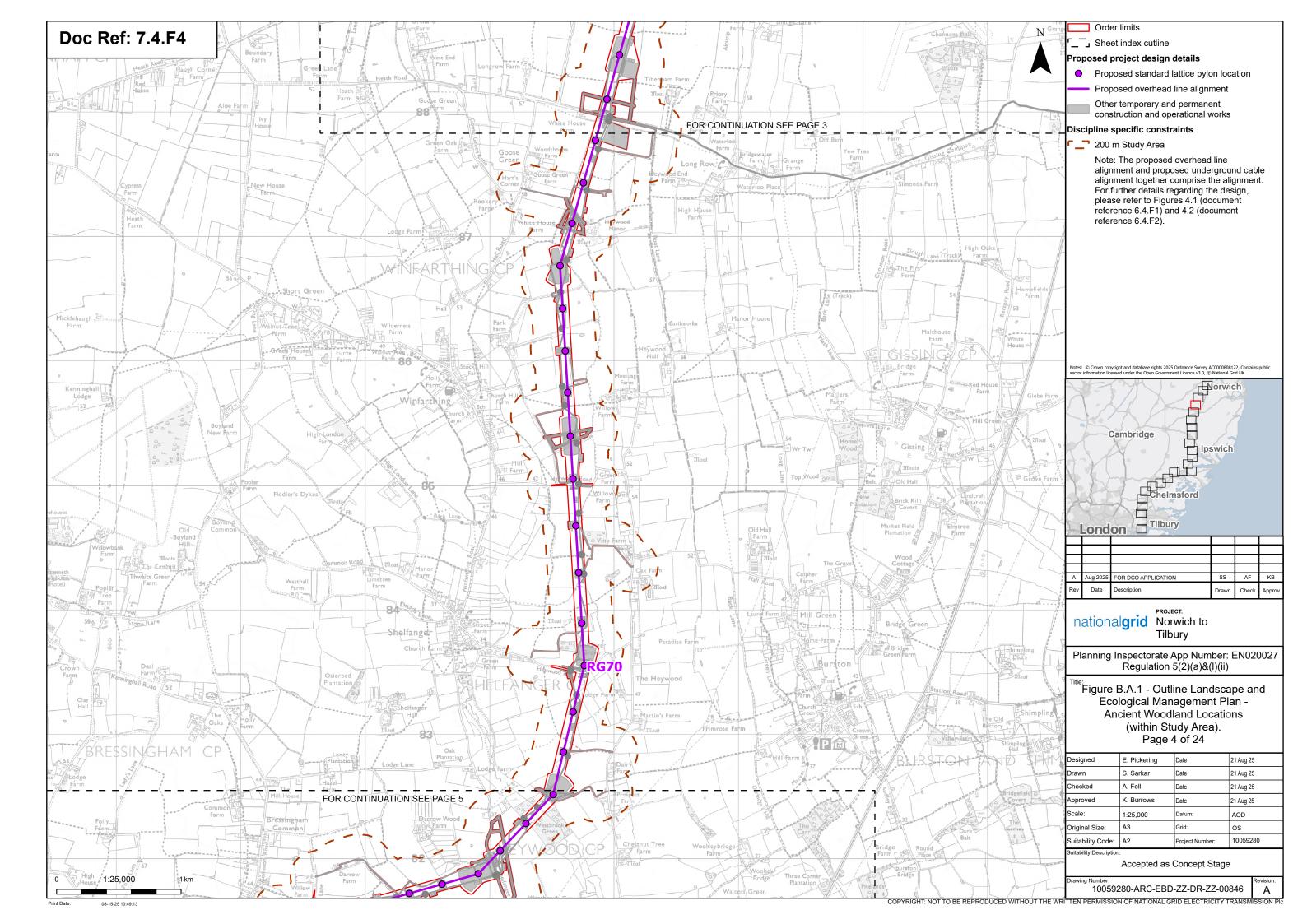
Annex A. Figures

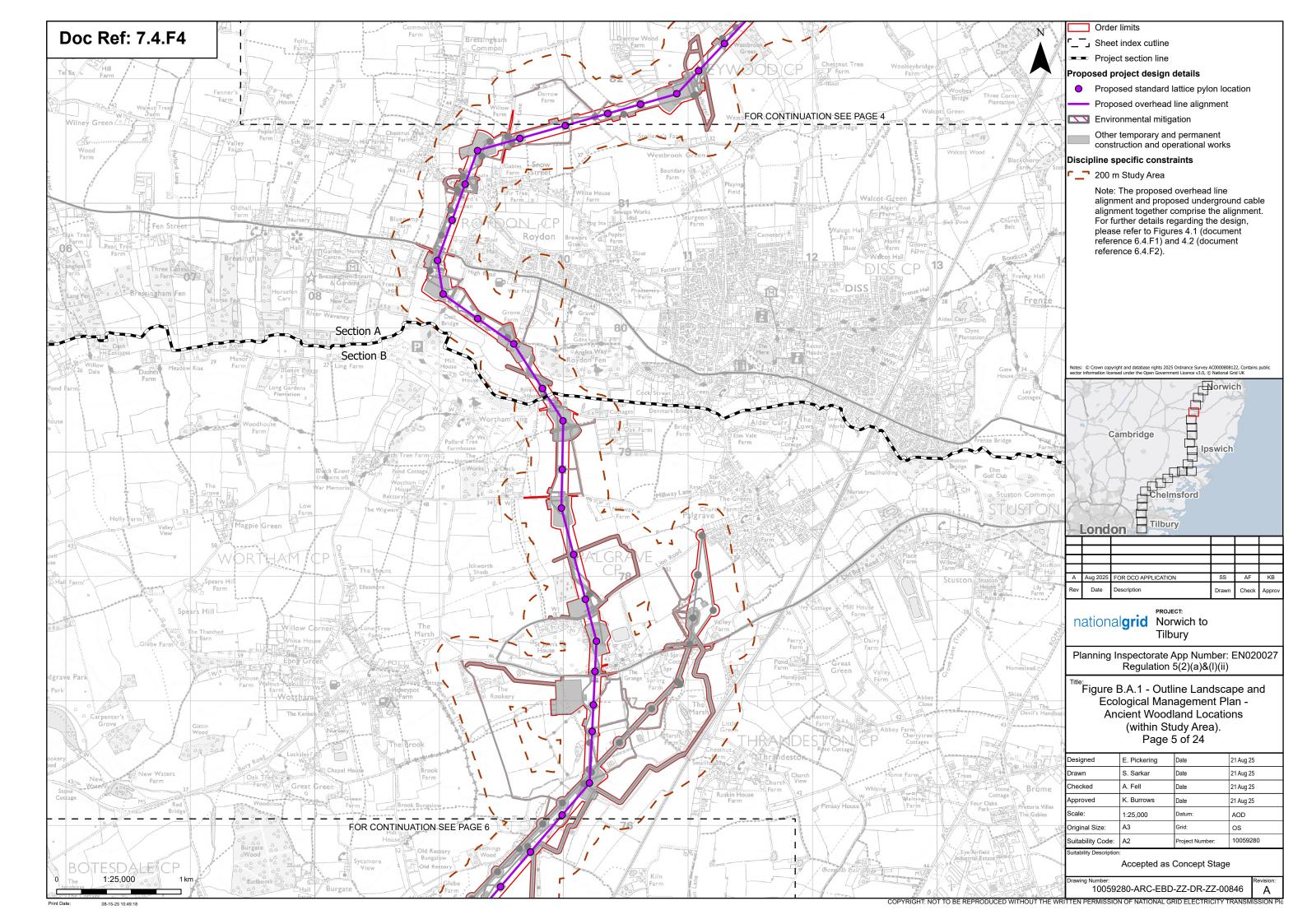


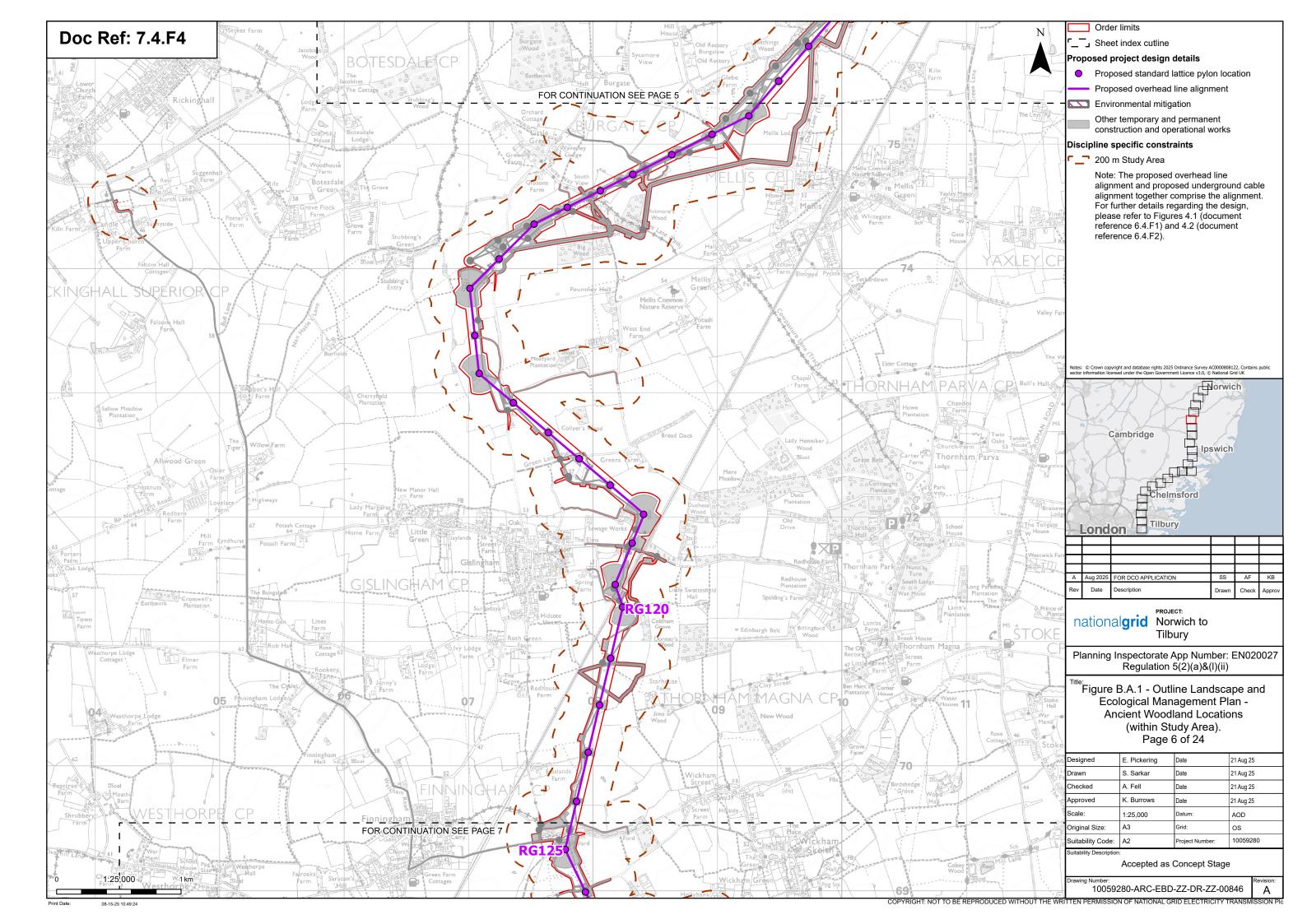


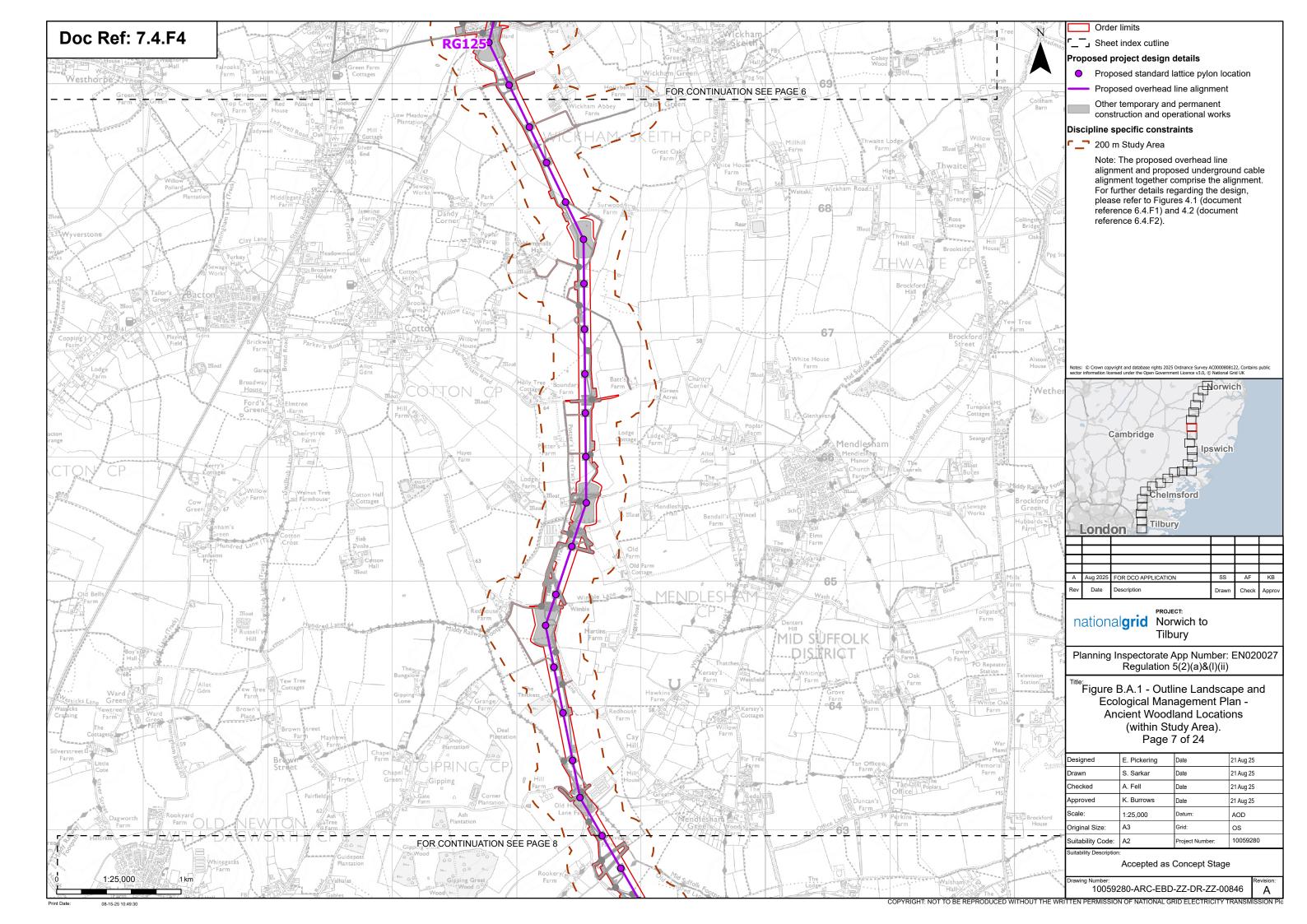


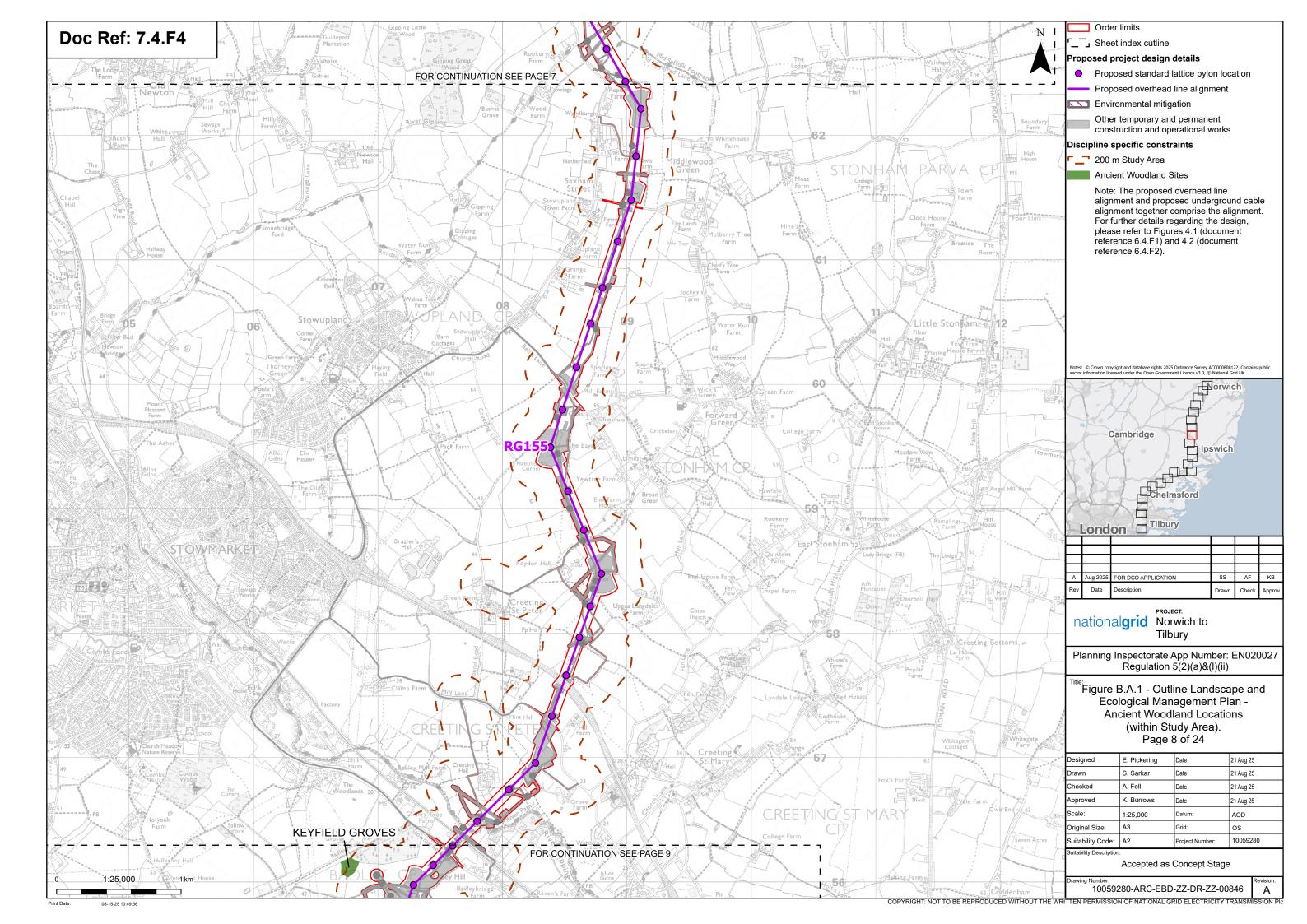


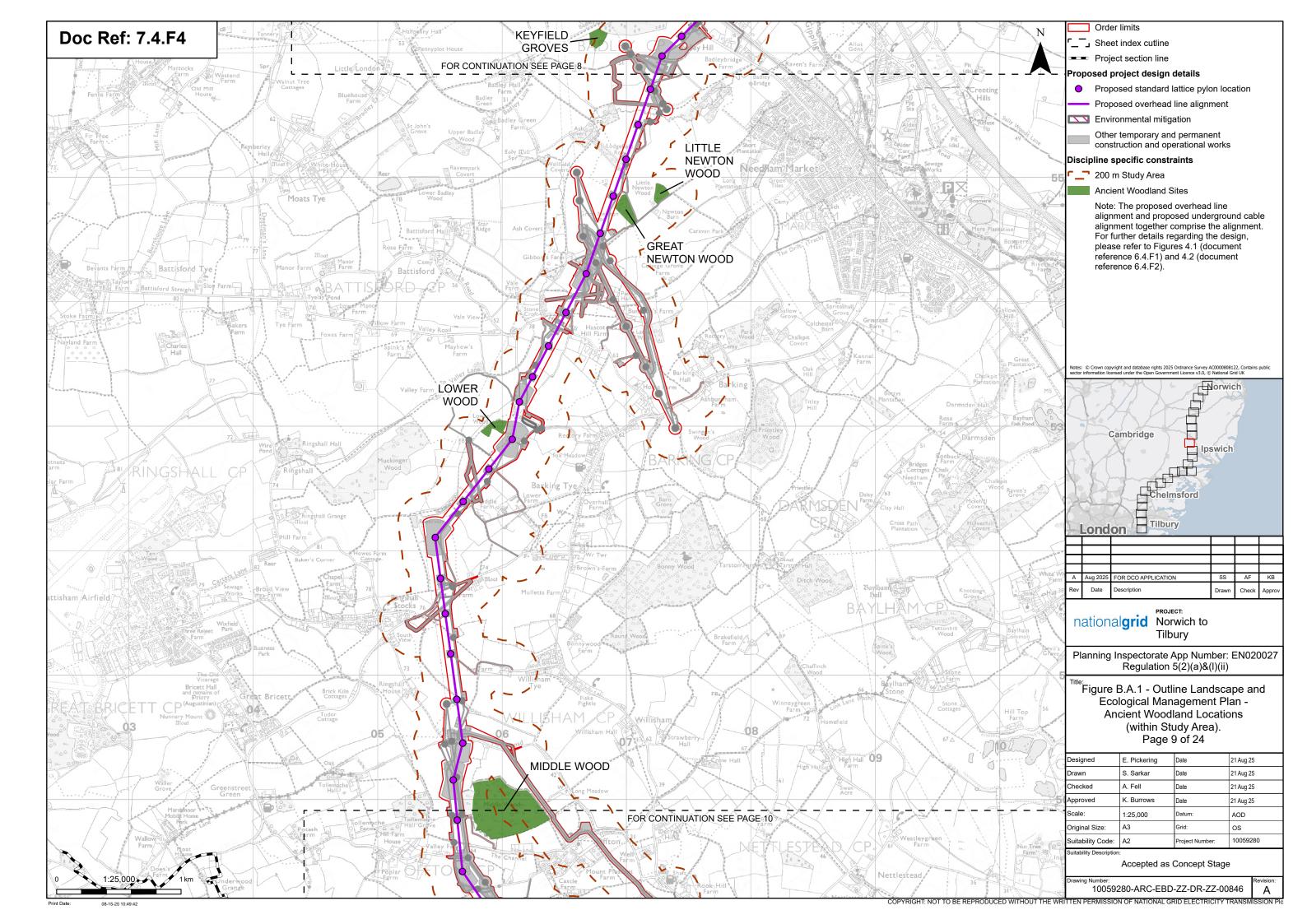


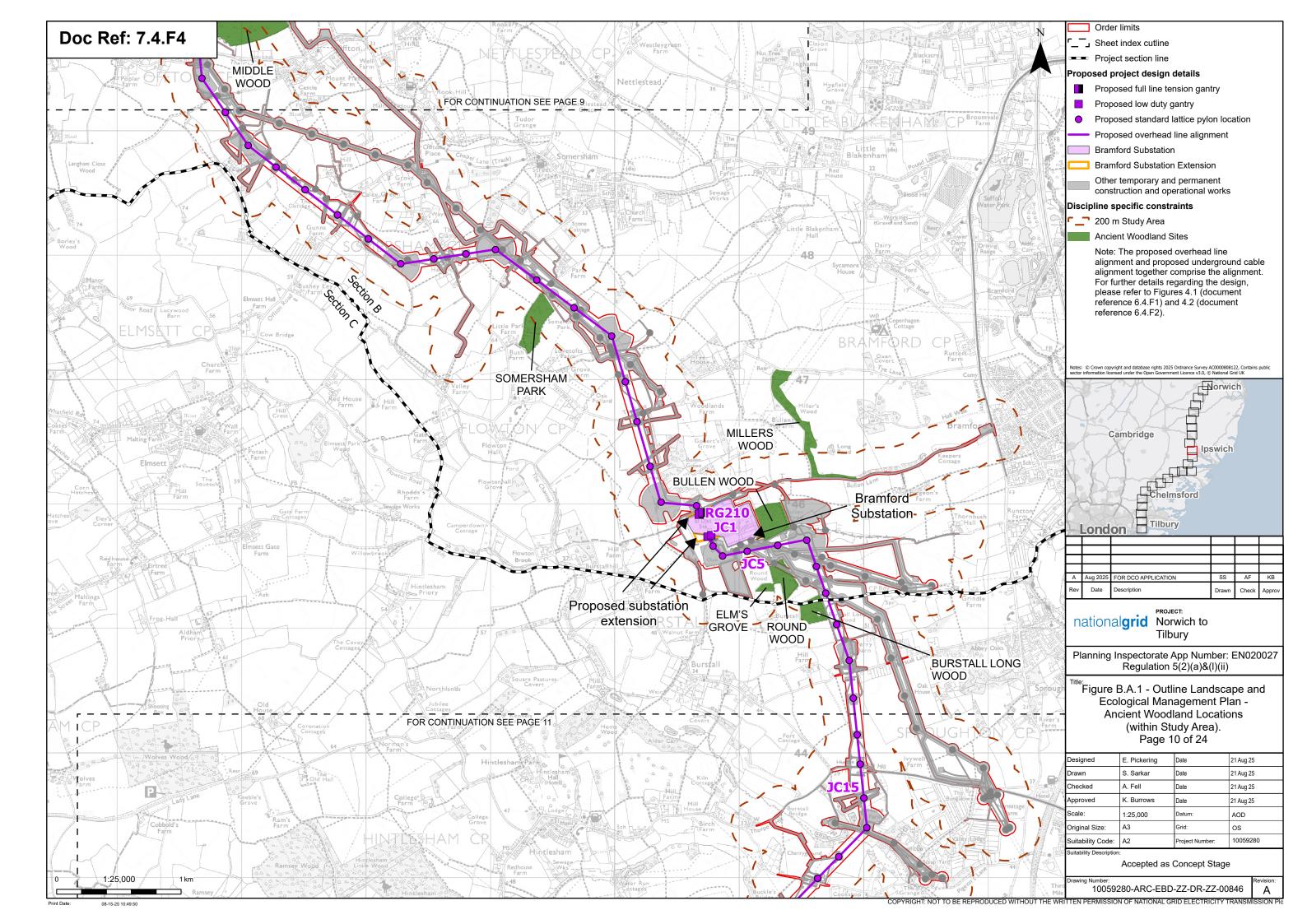


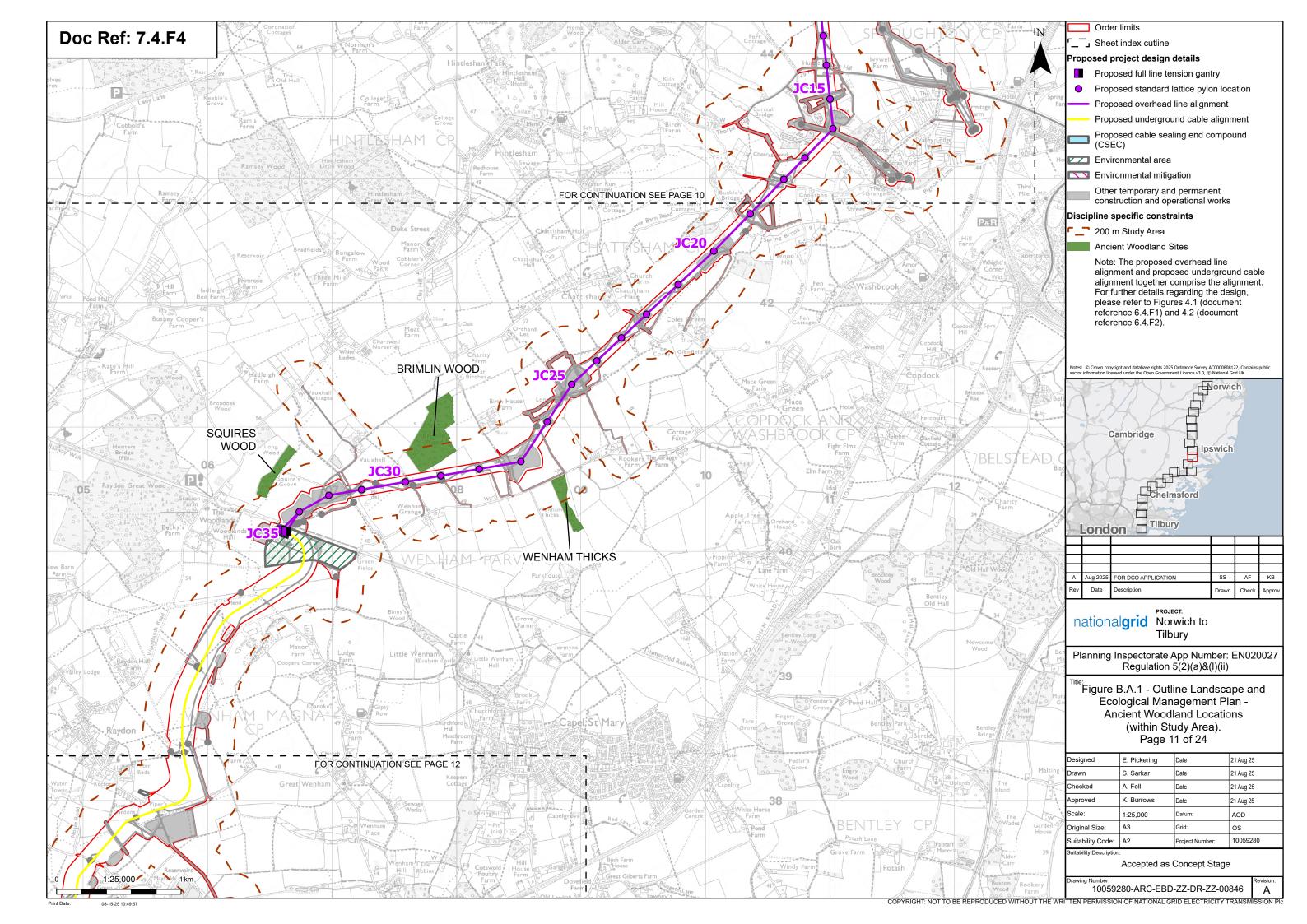


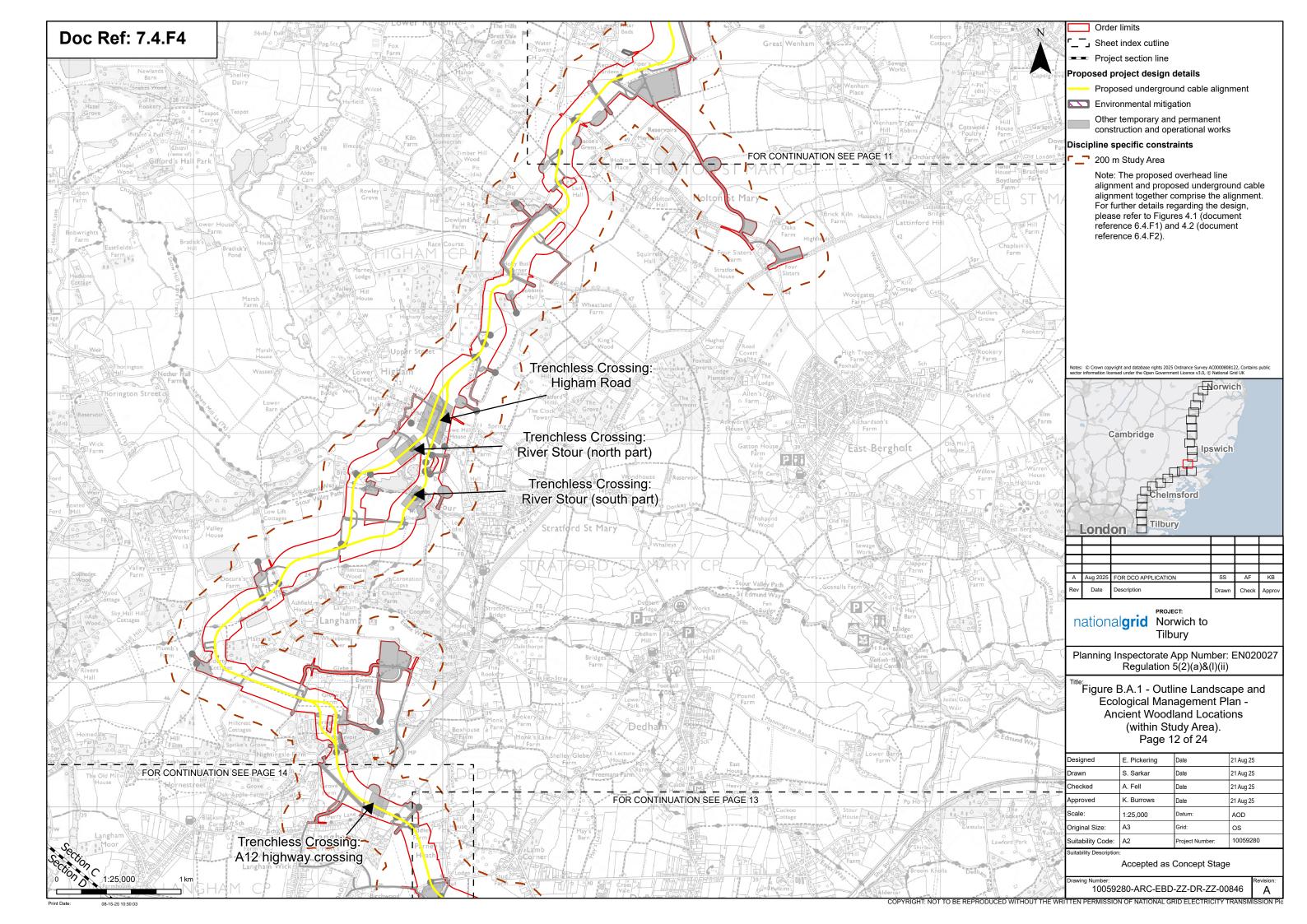


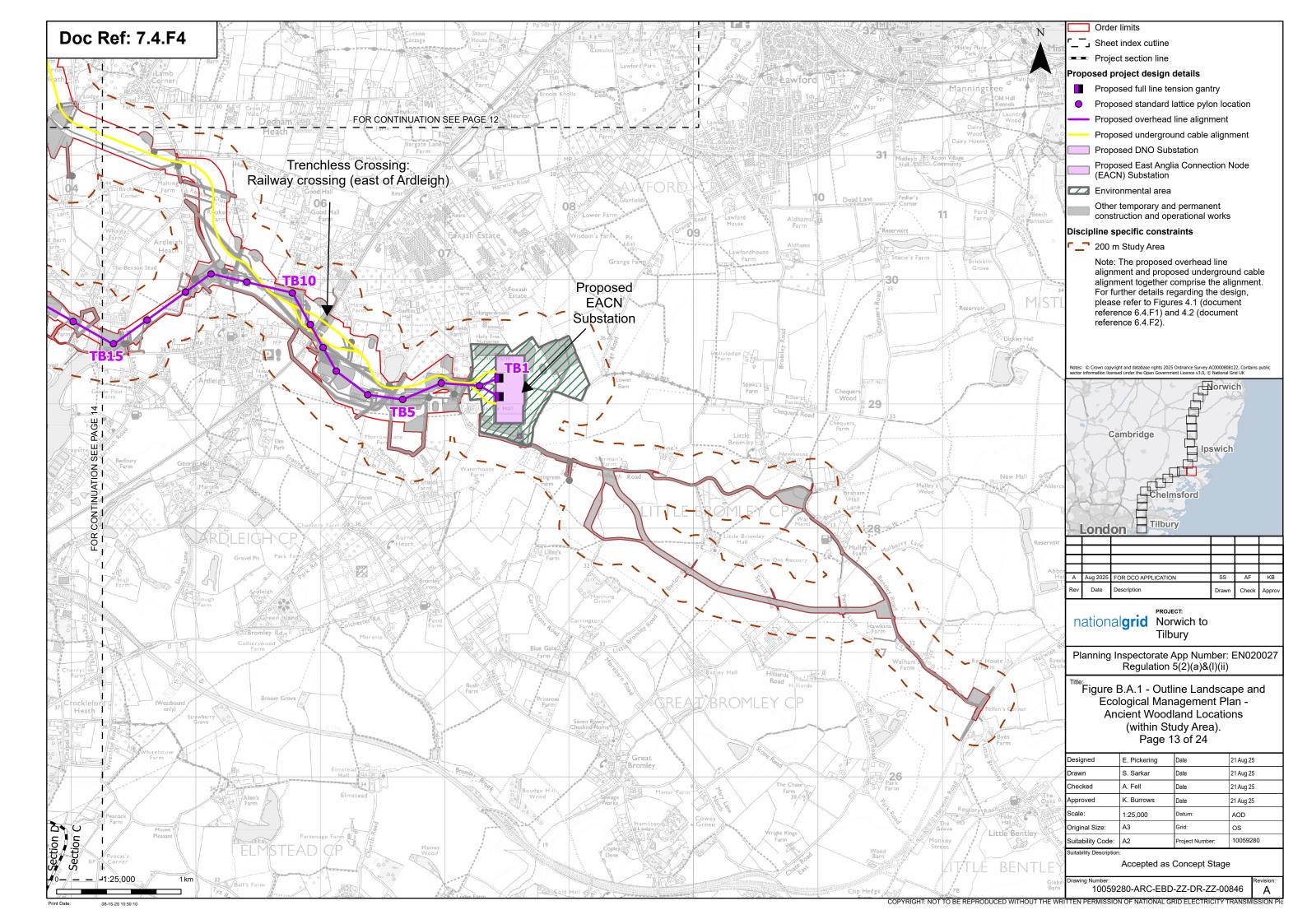


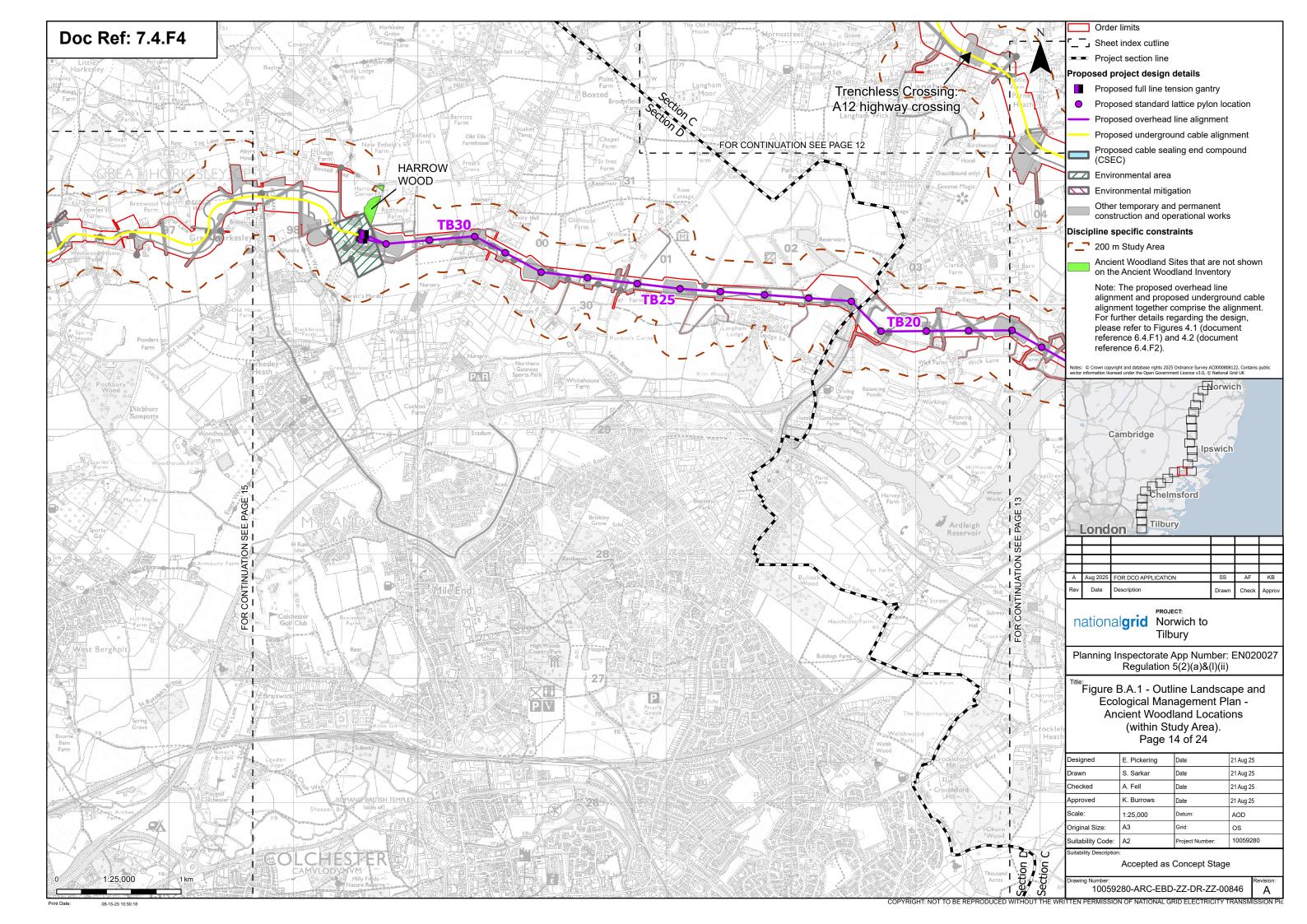


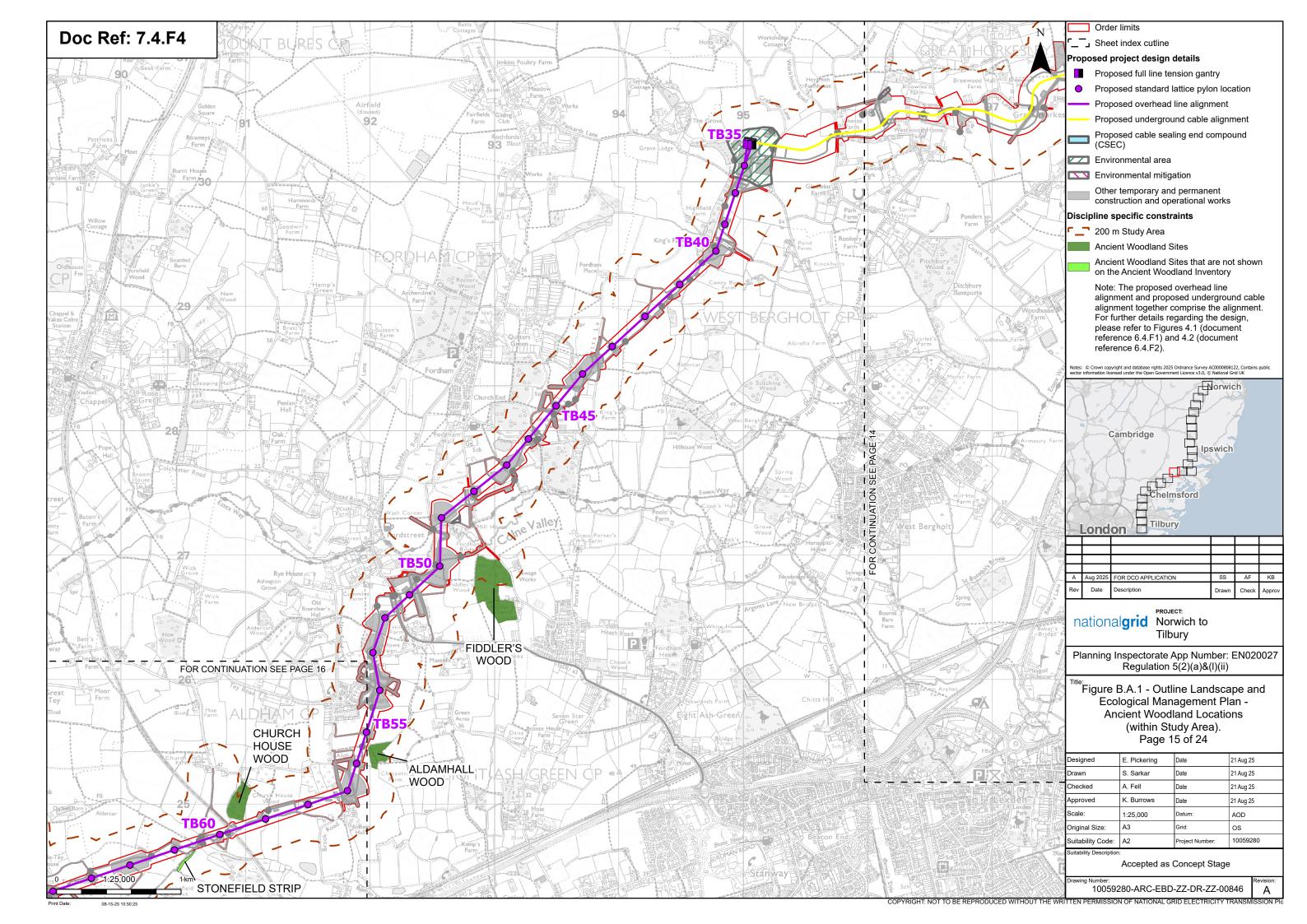


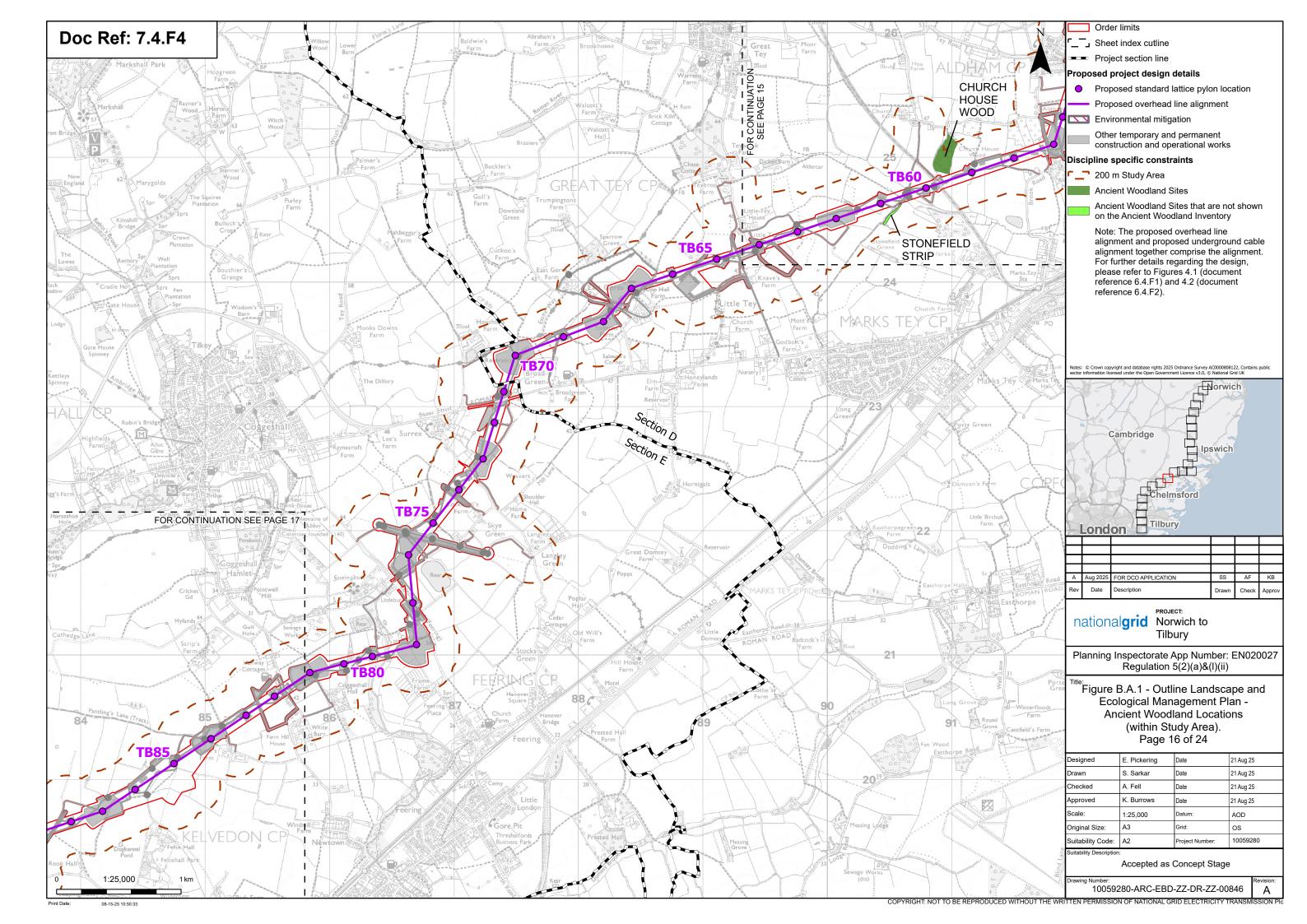


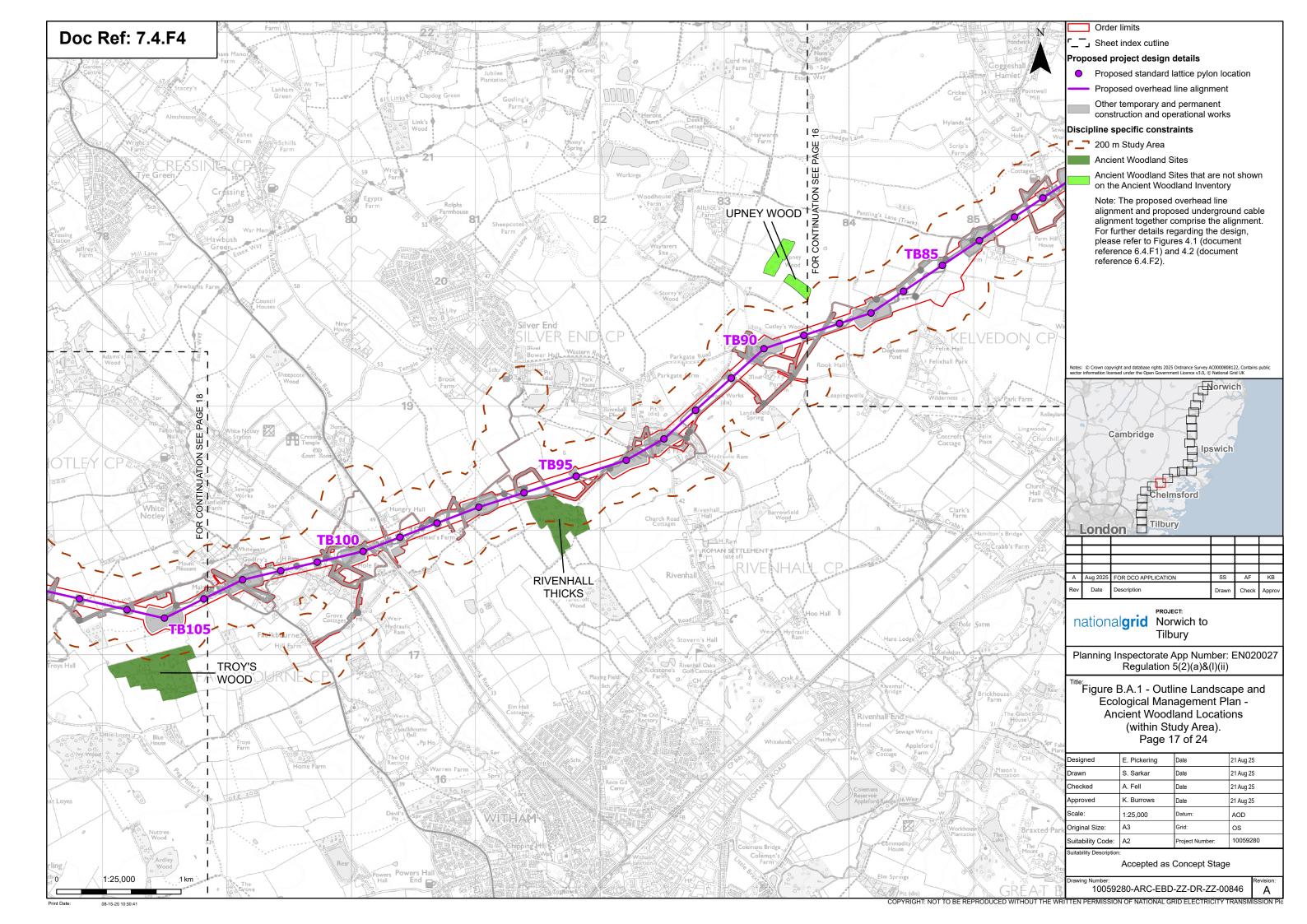


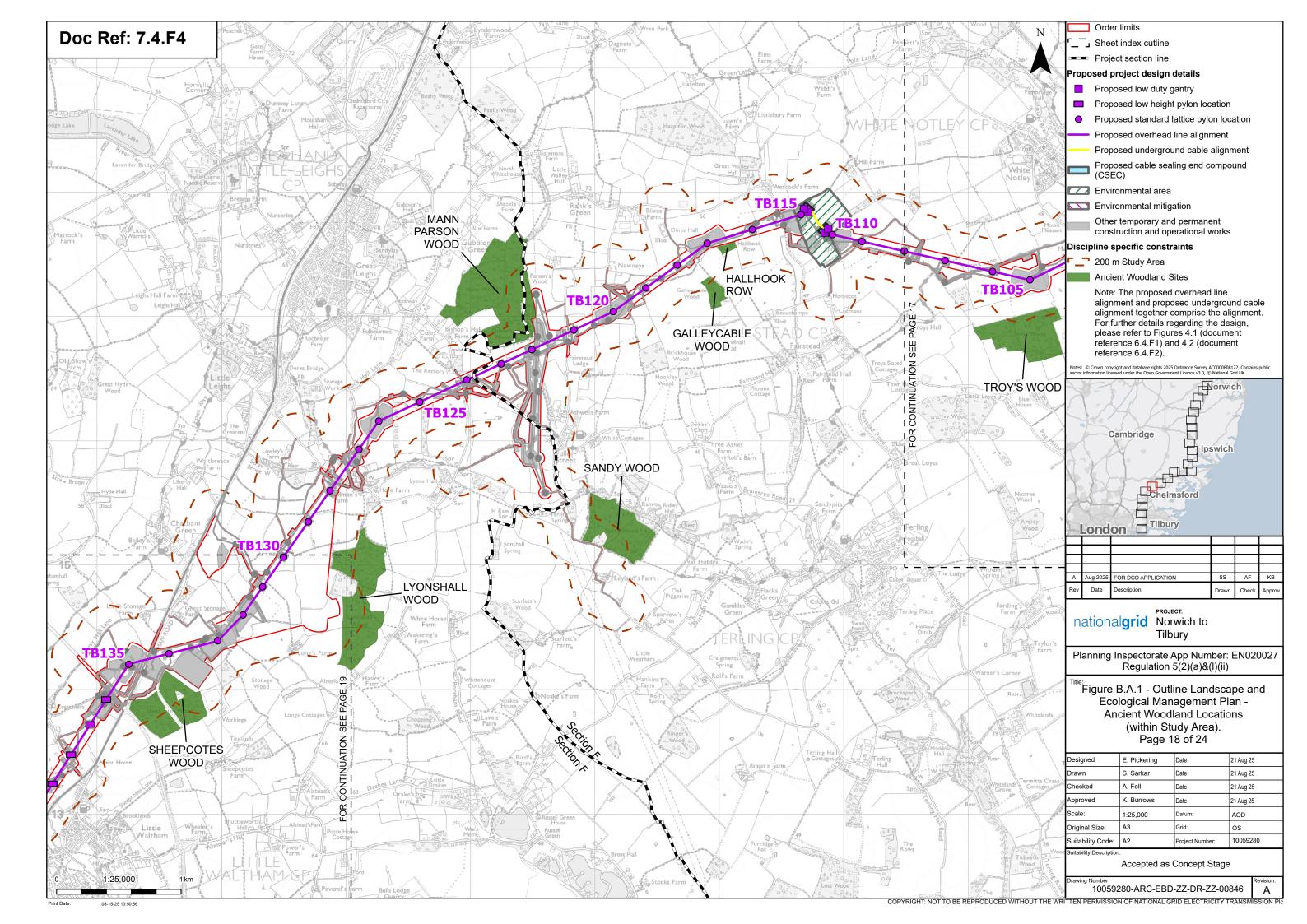


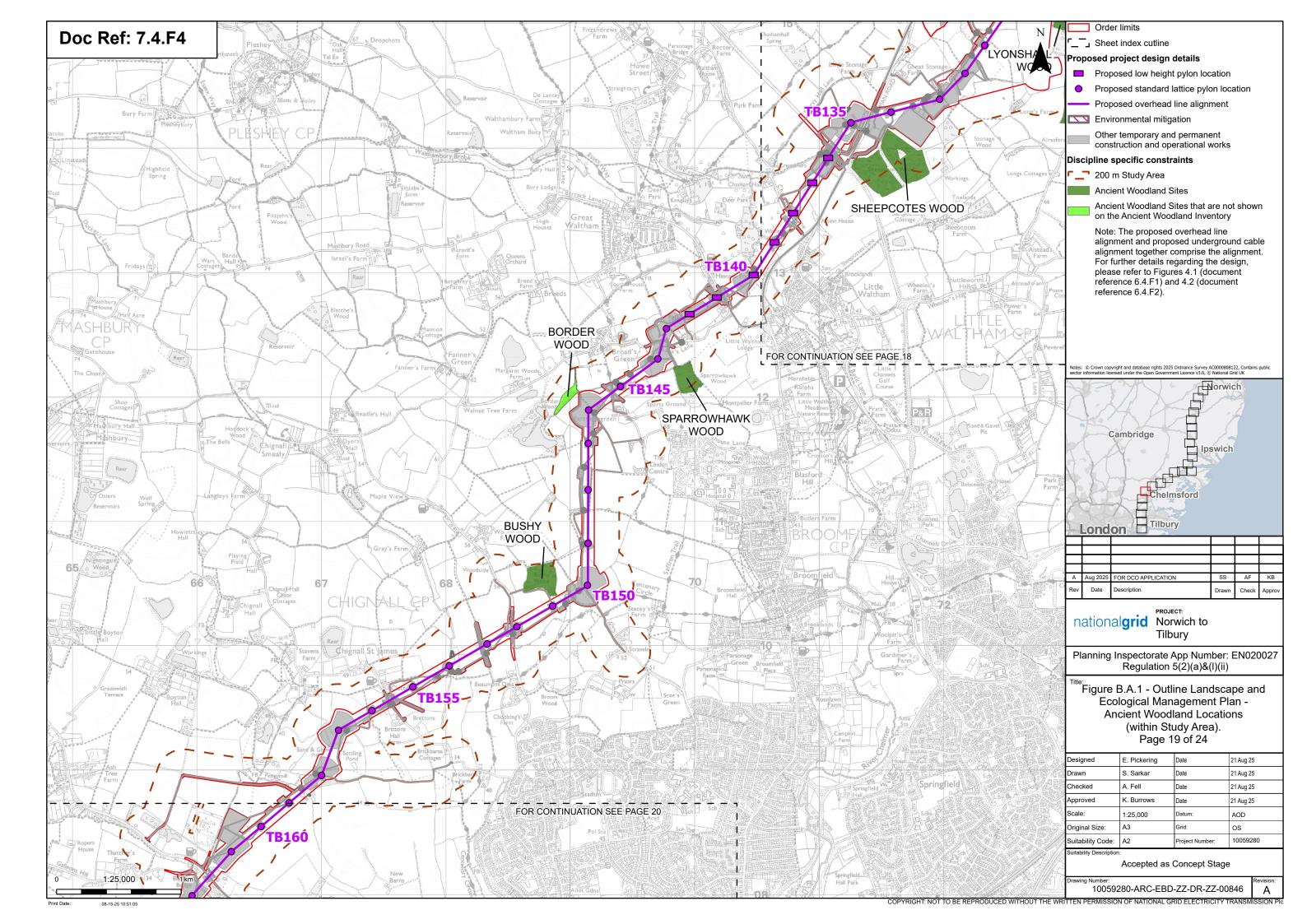


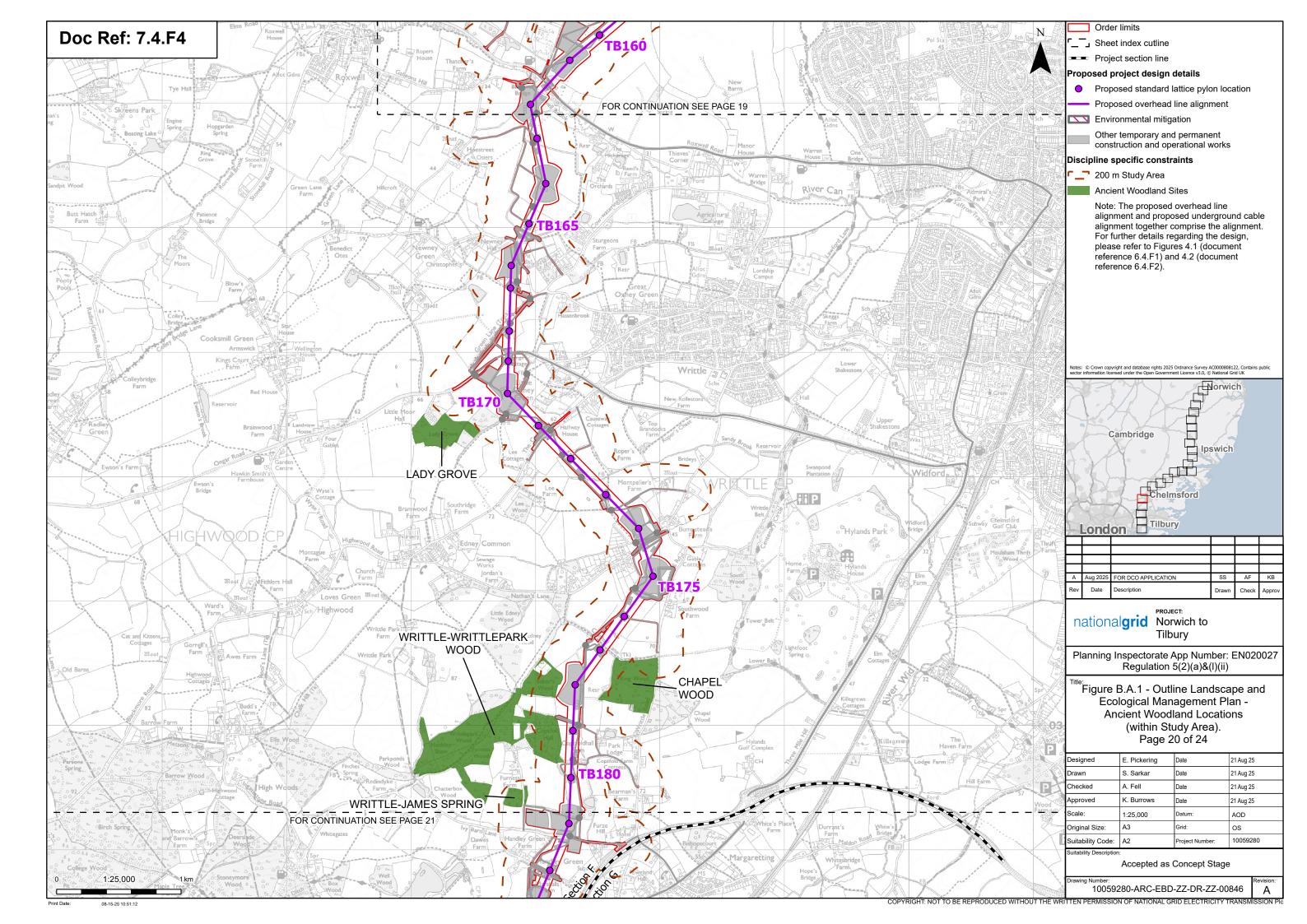


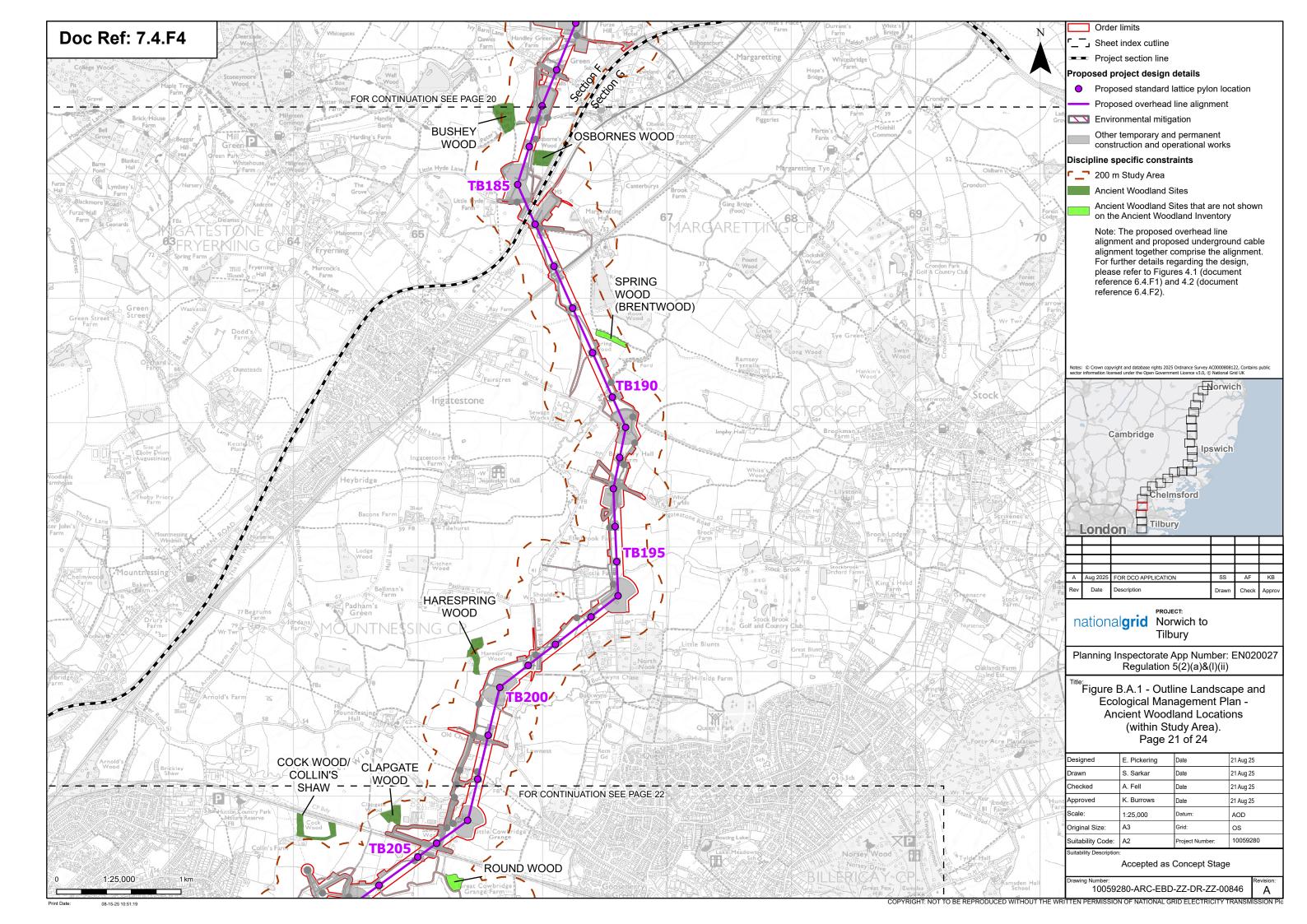


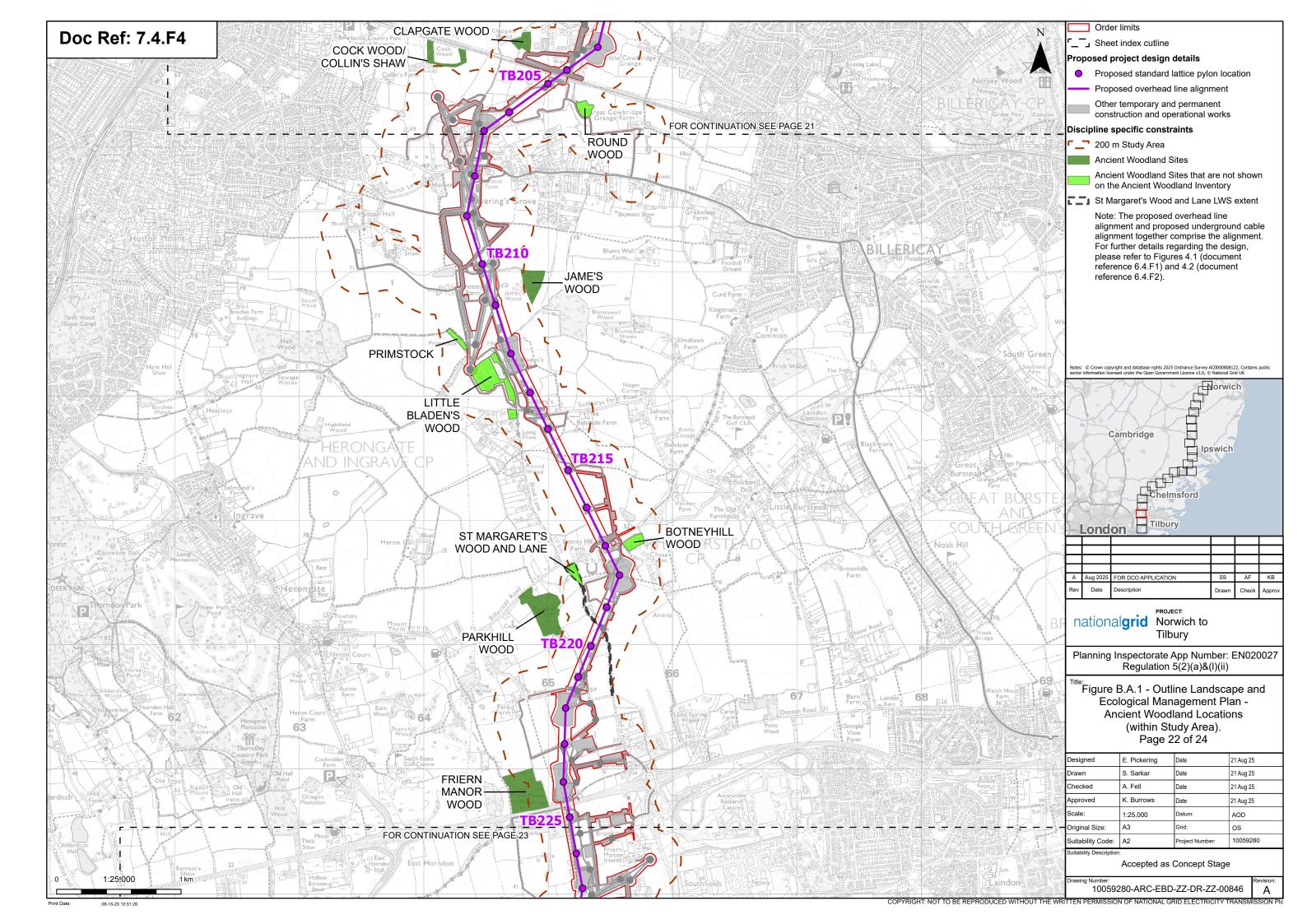


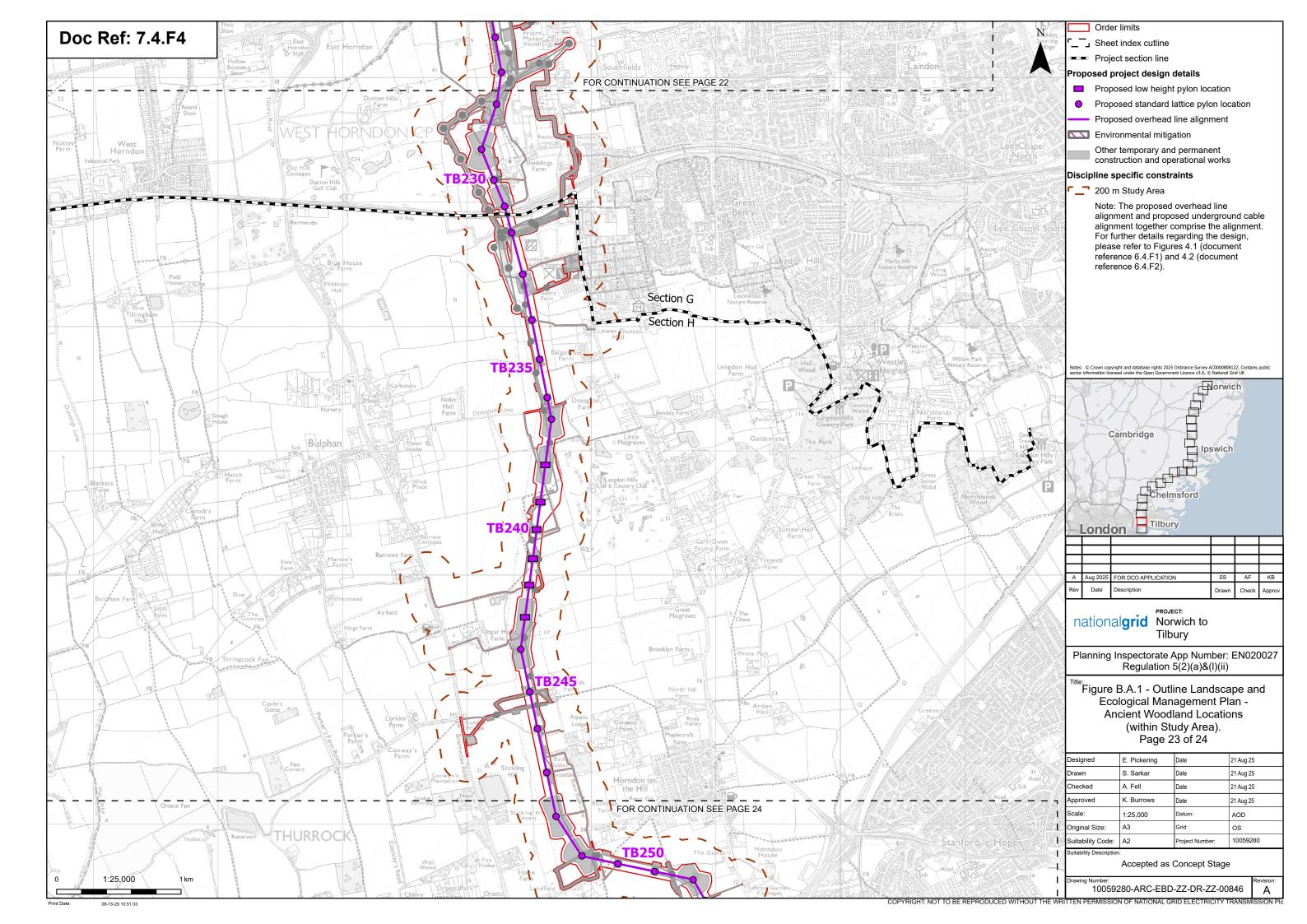


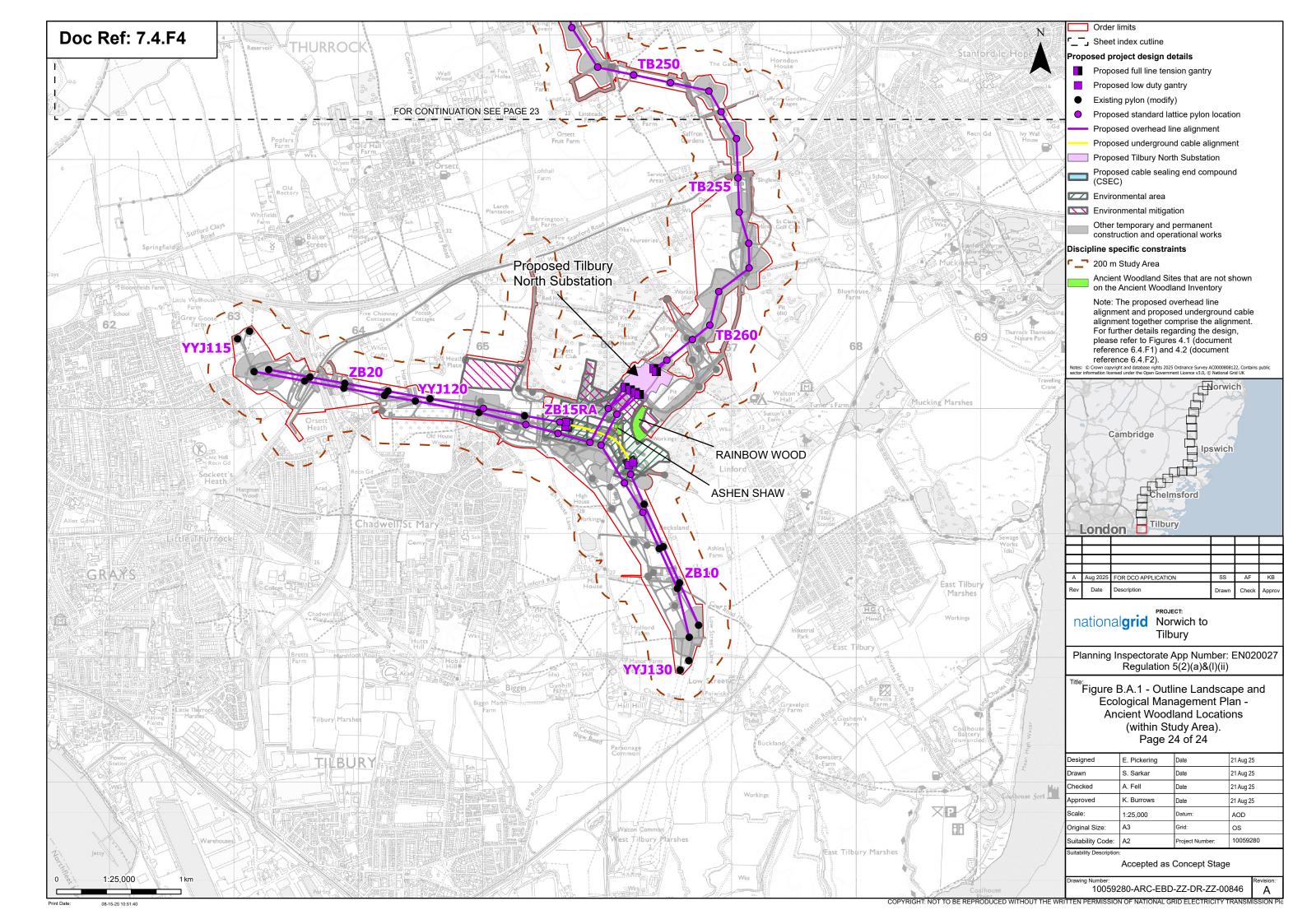


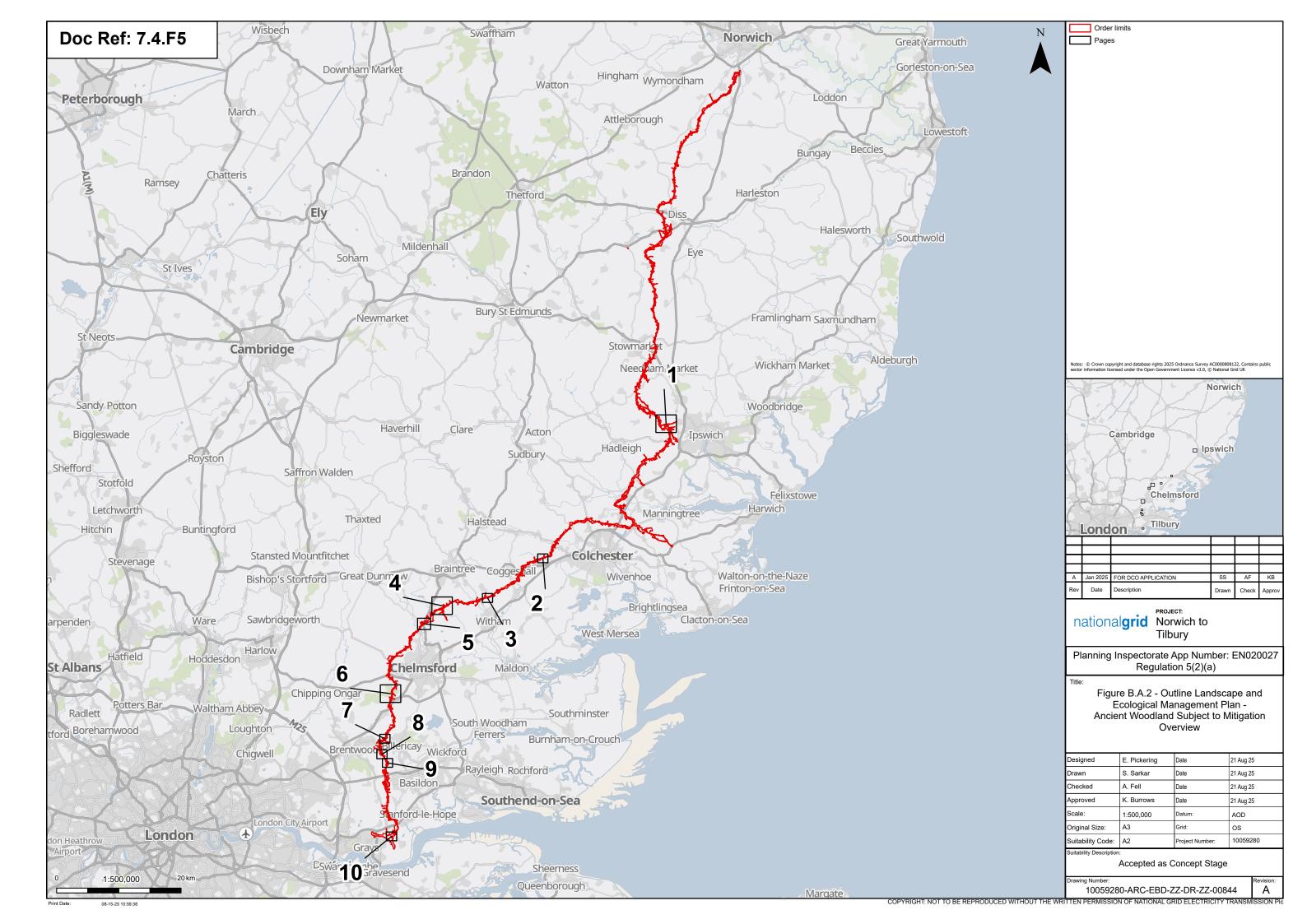


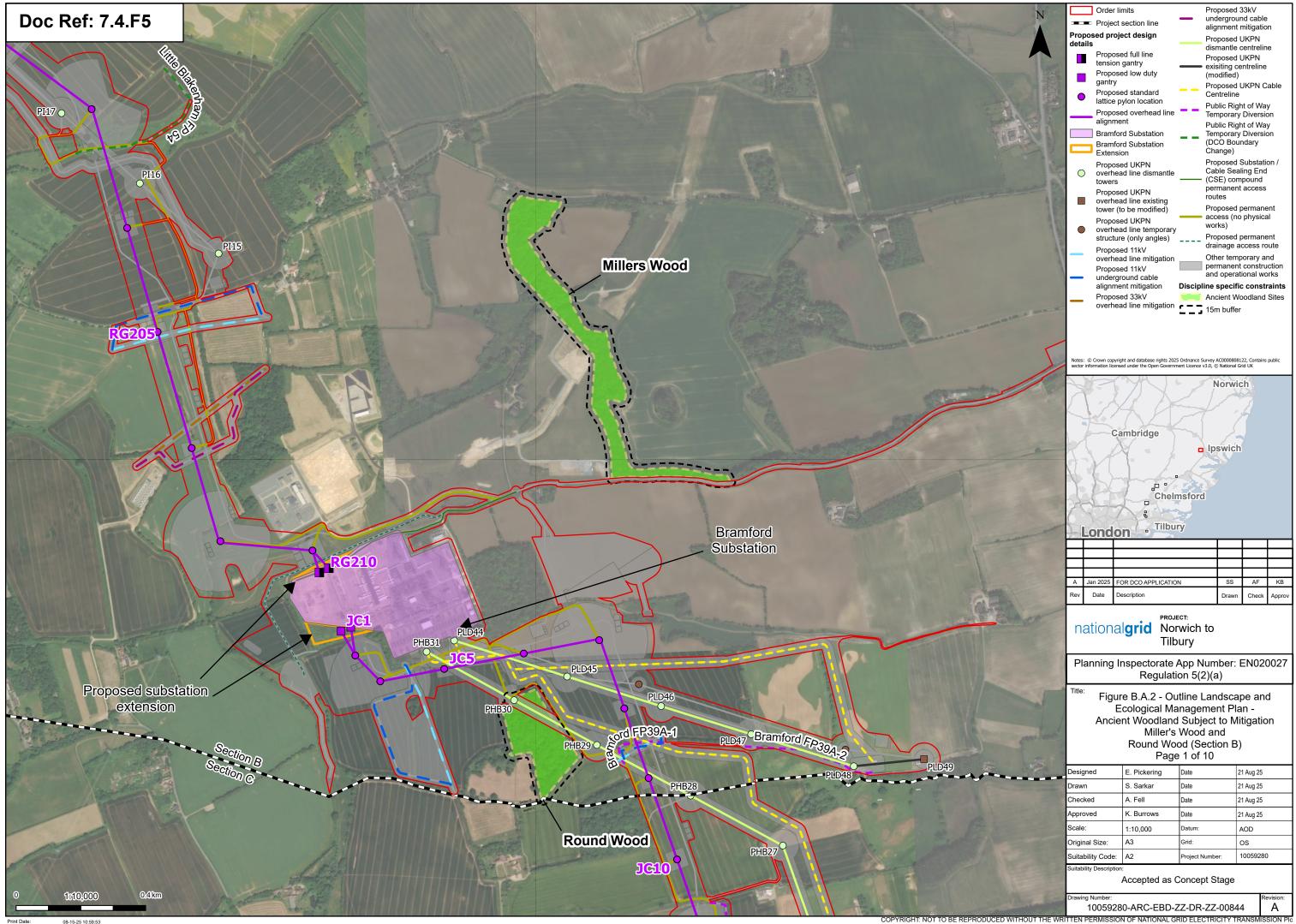


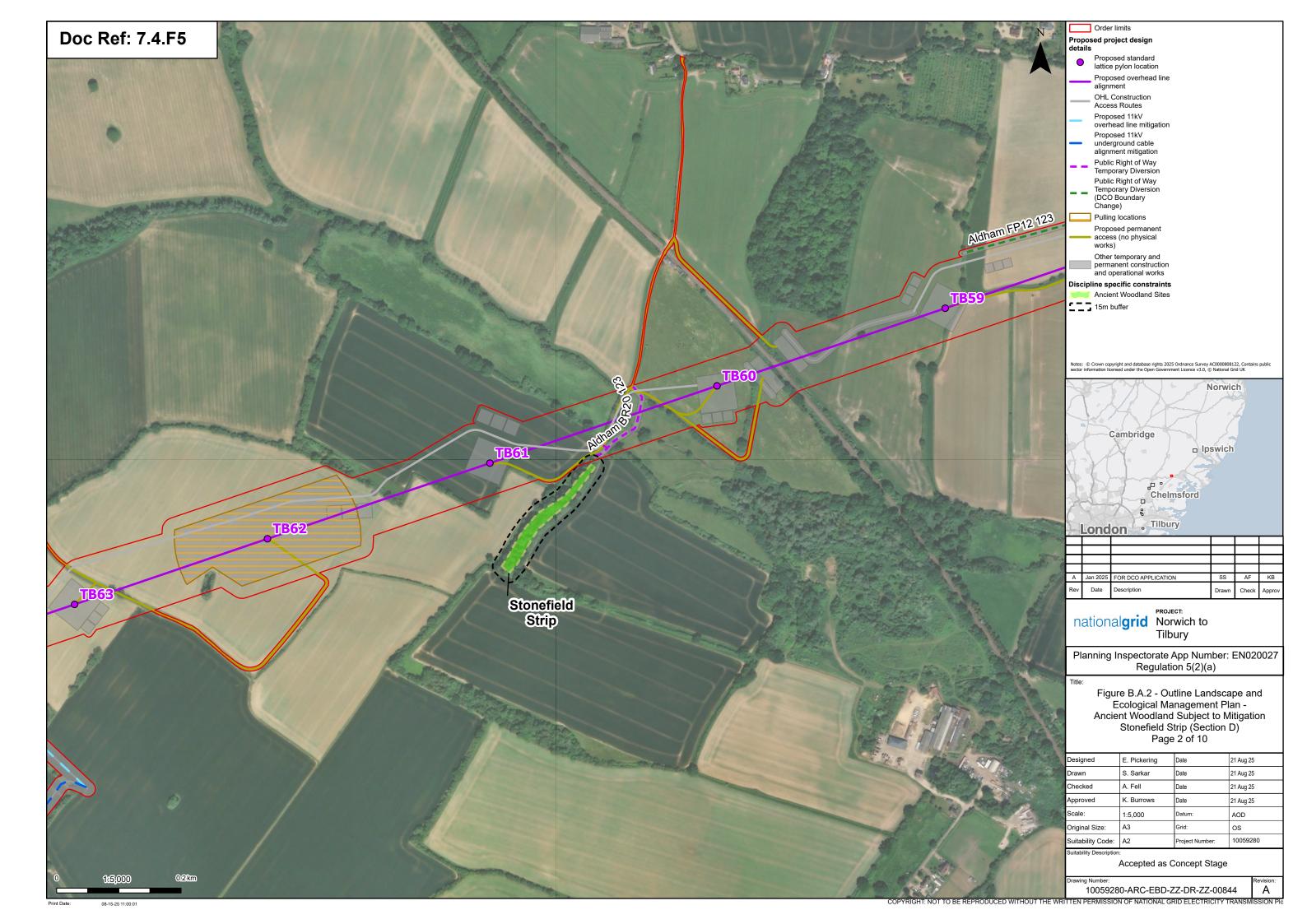


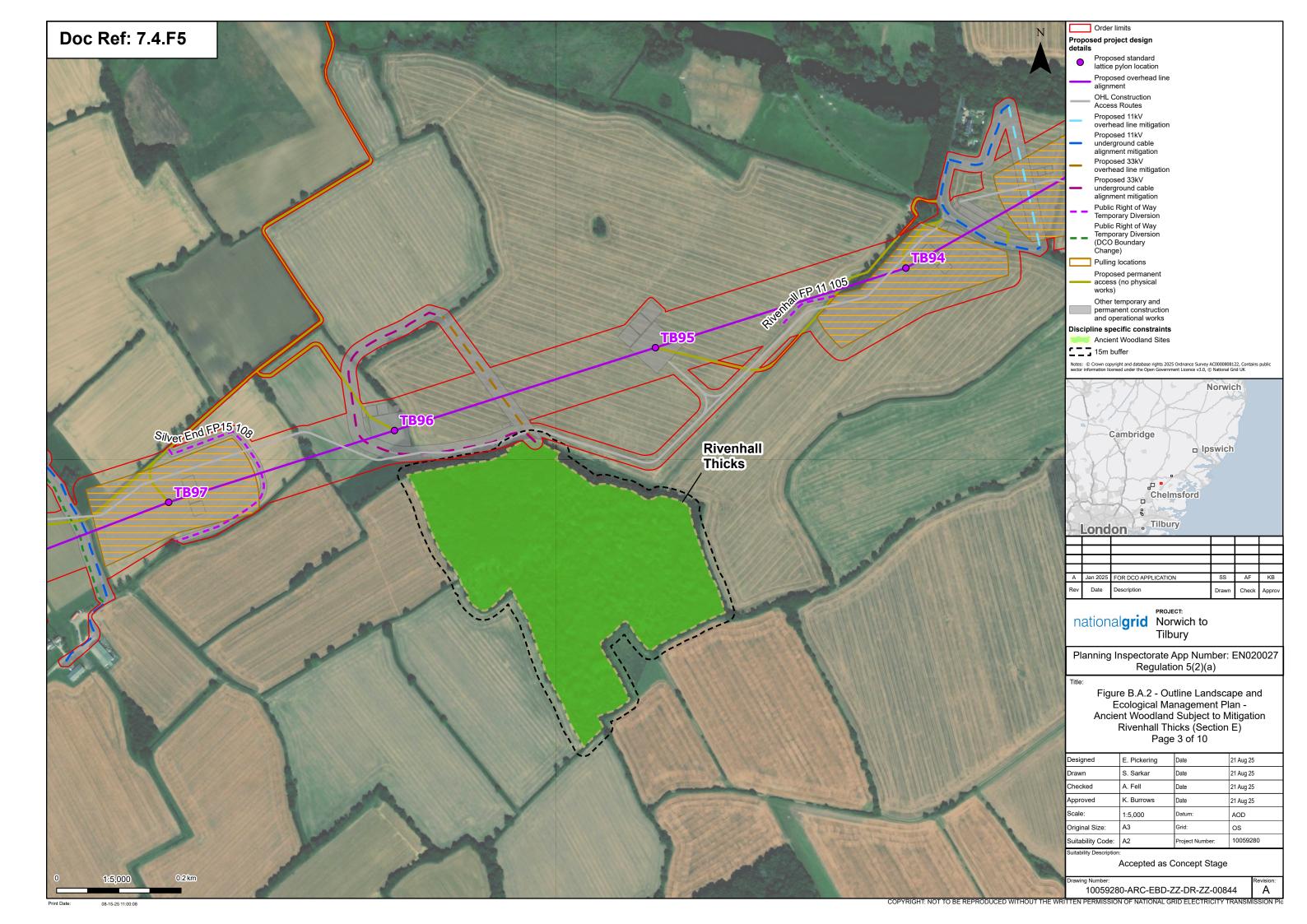


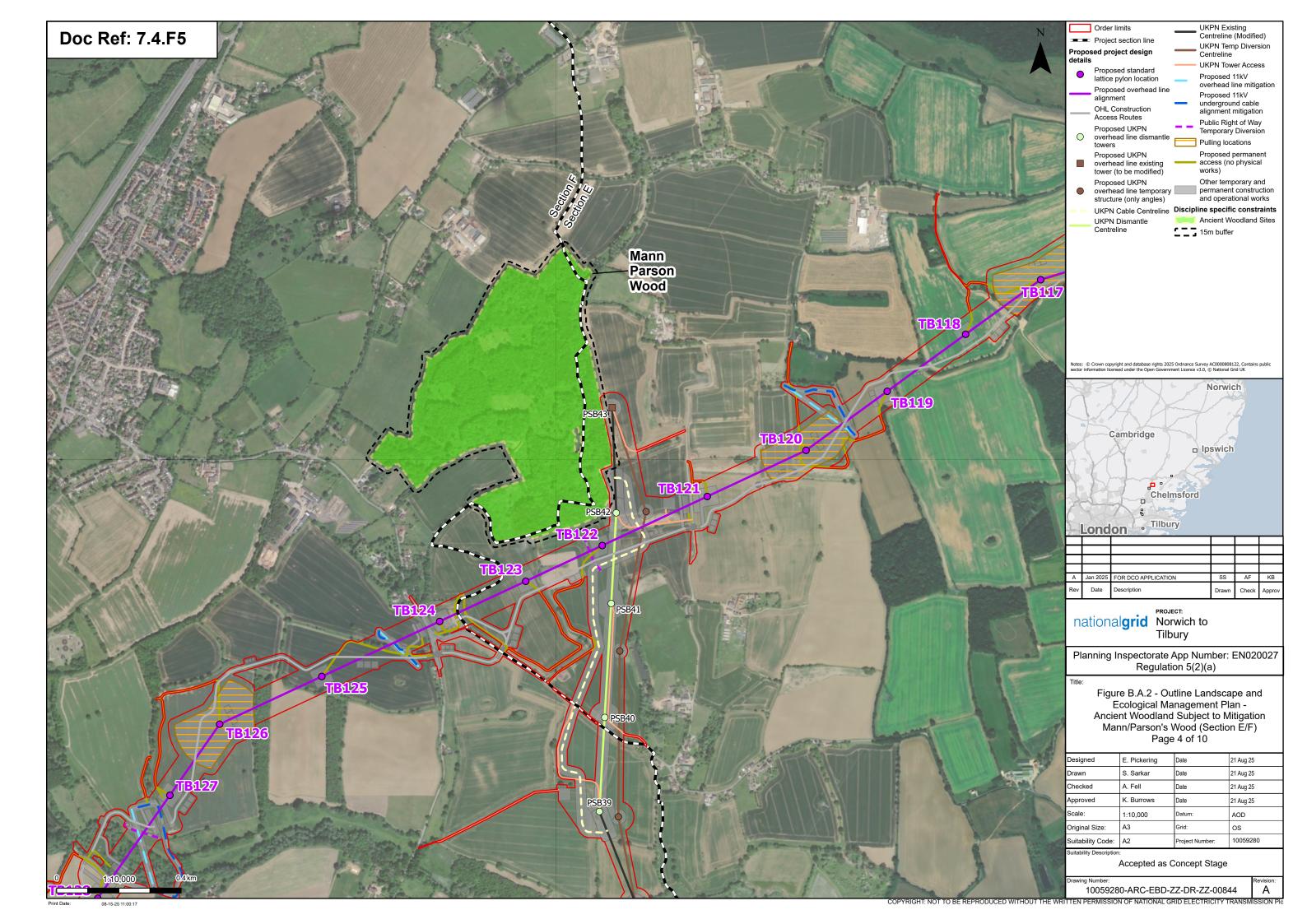


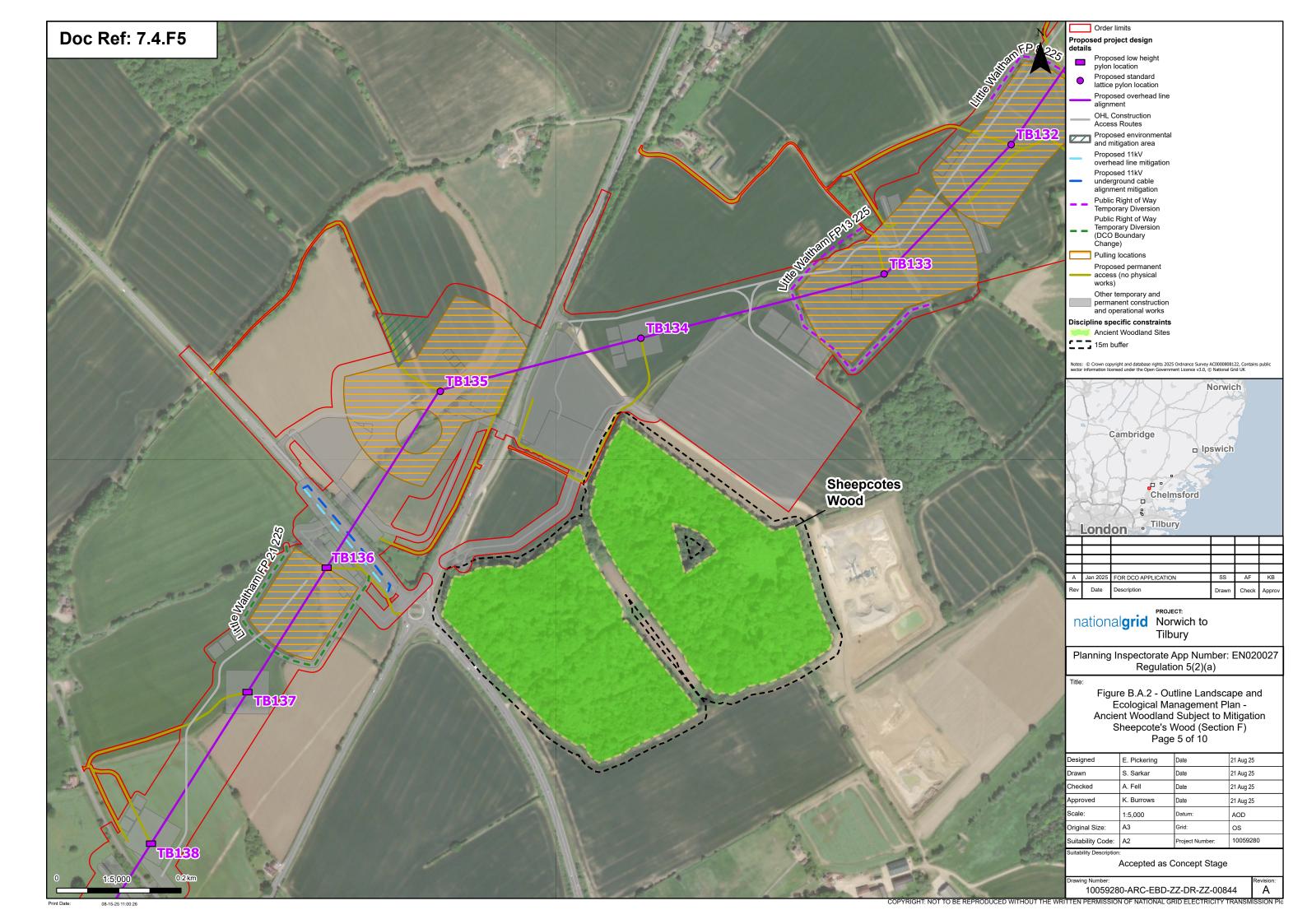


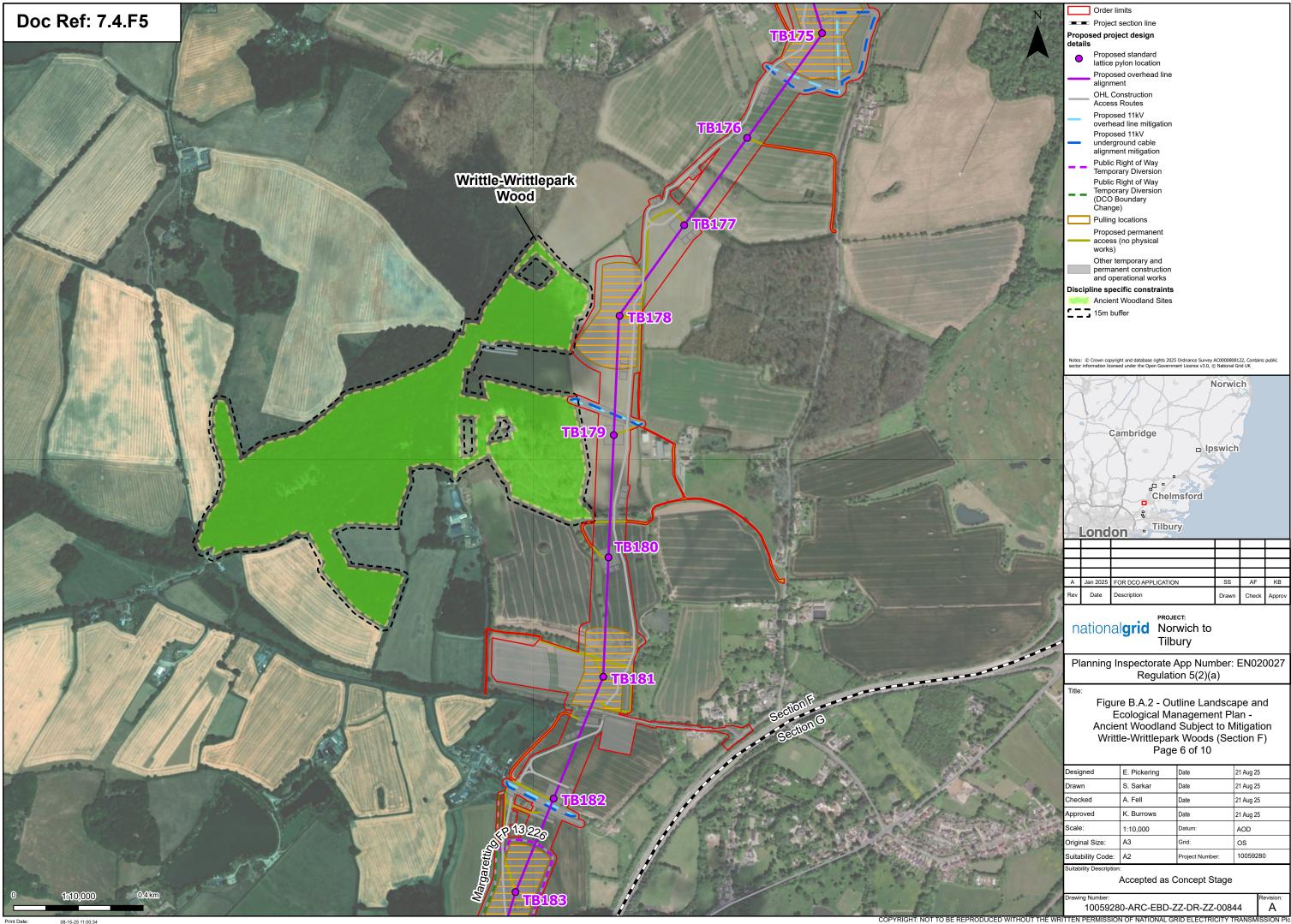


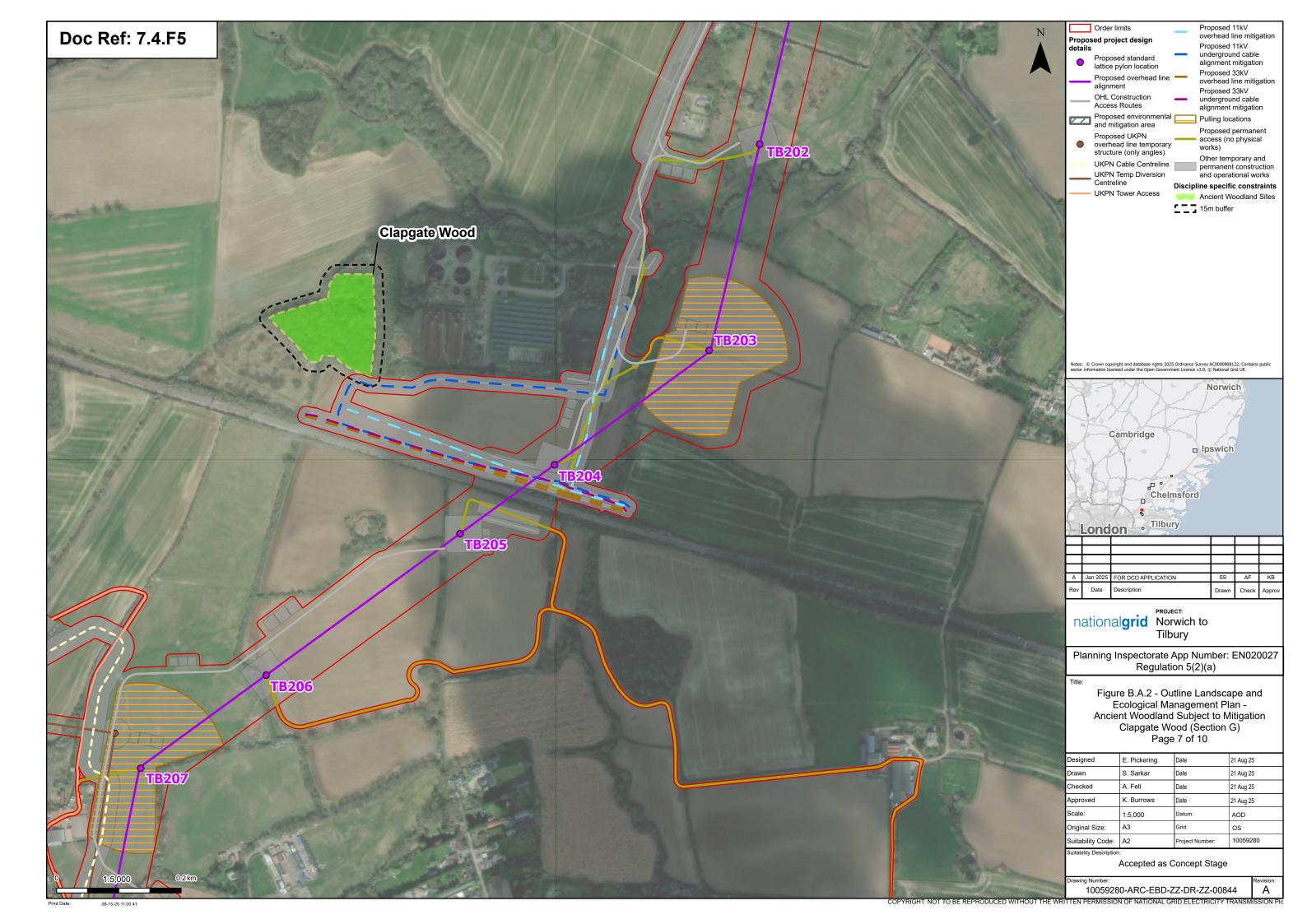


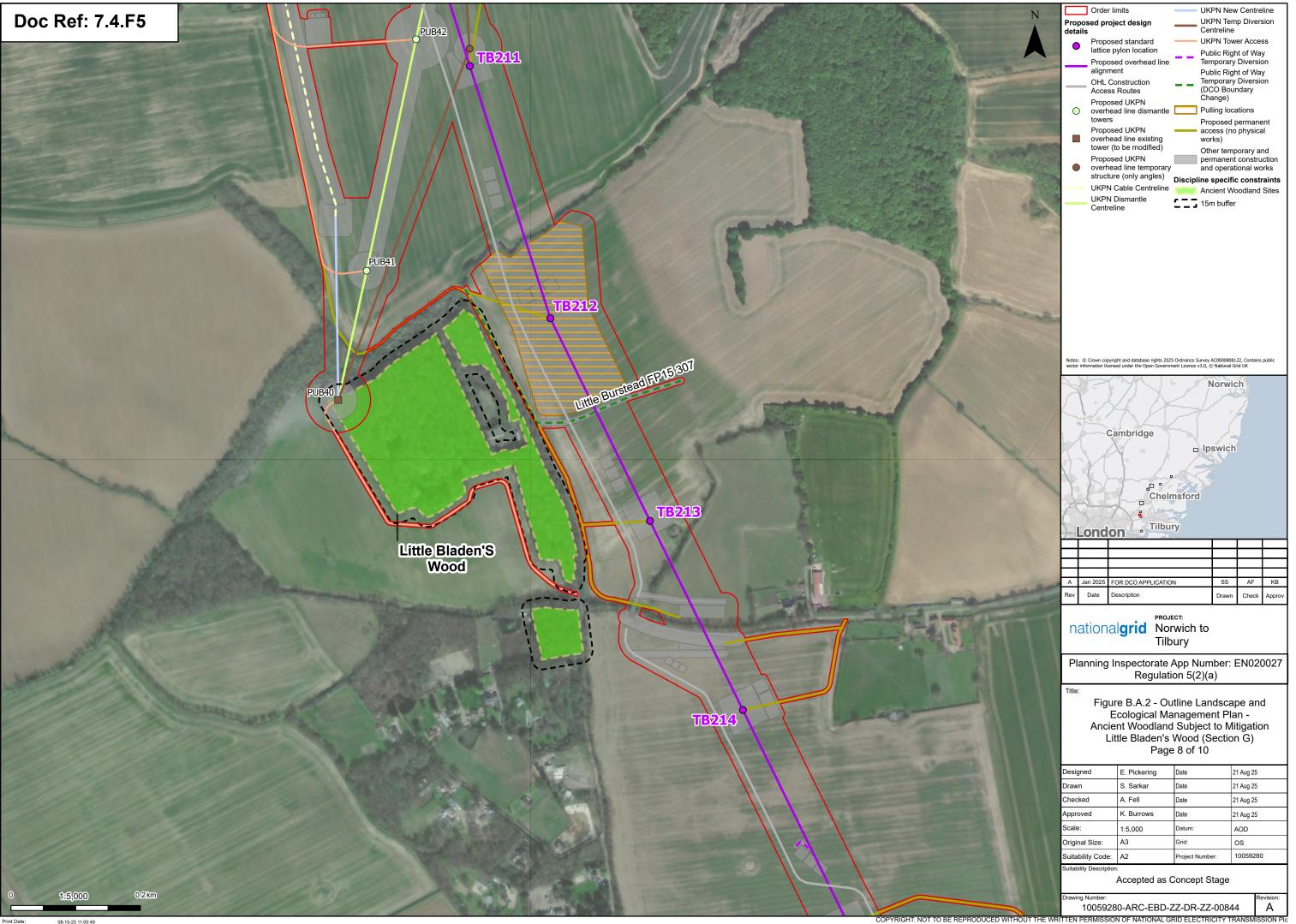


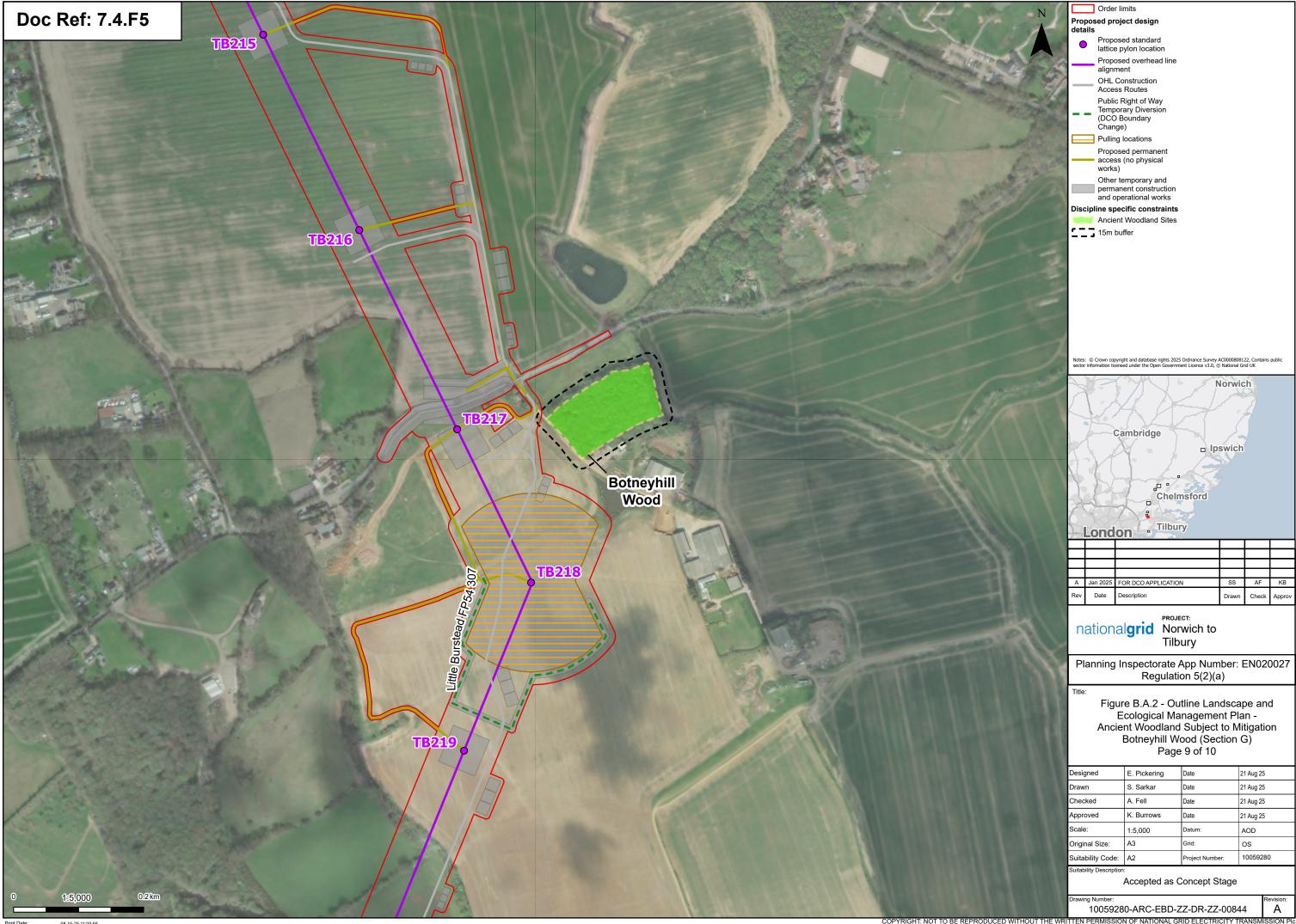


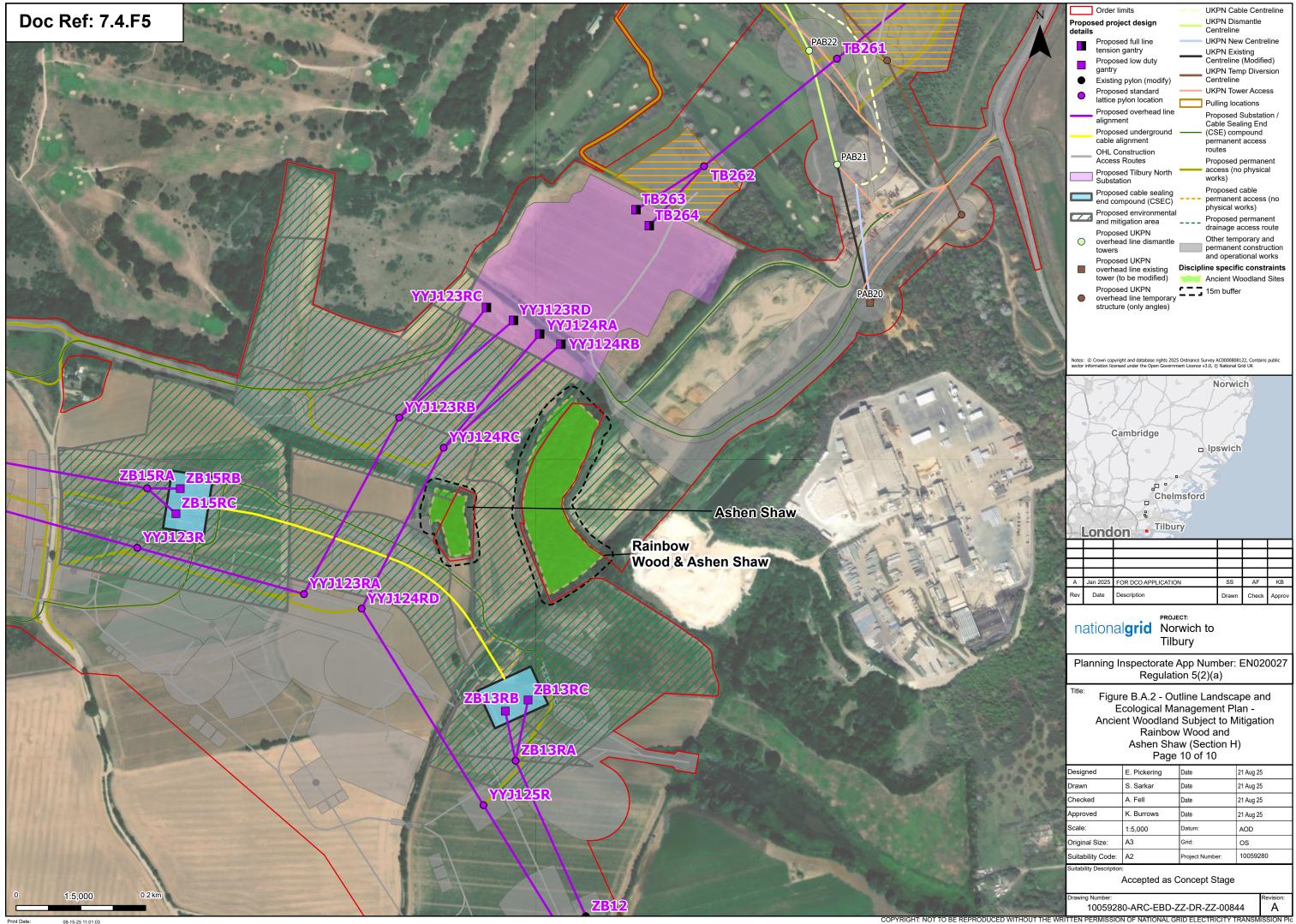


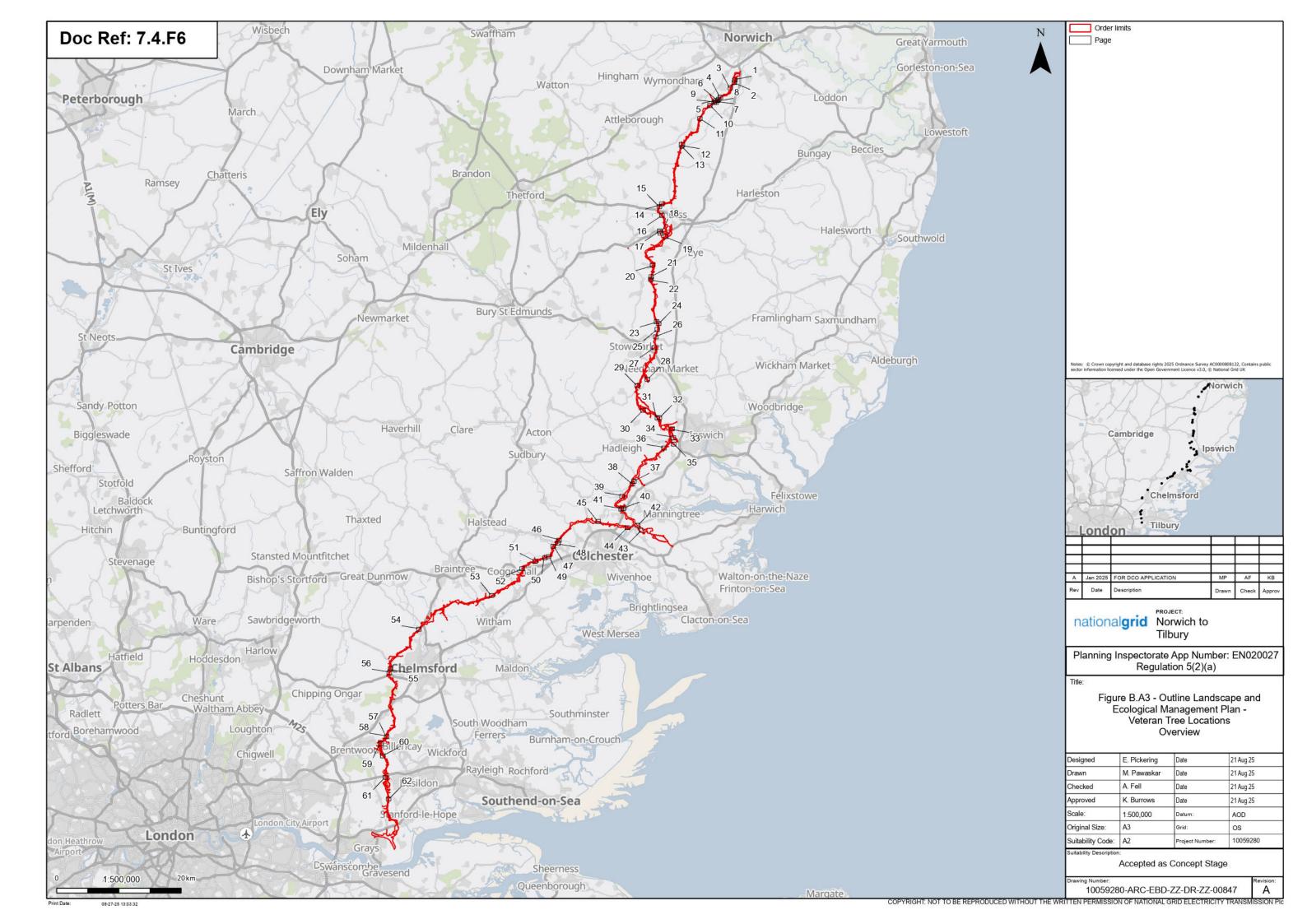


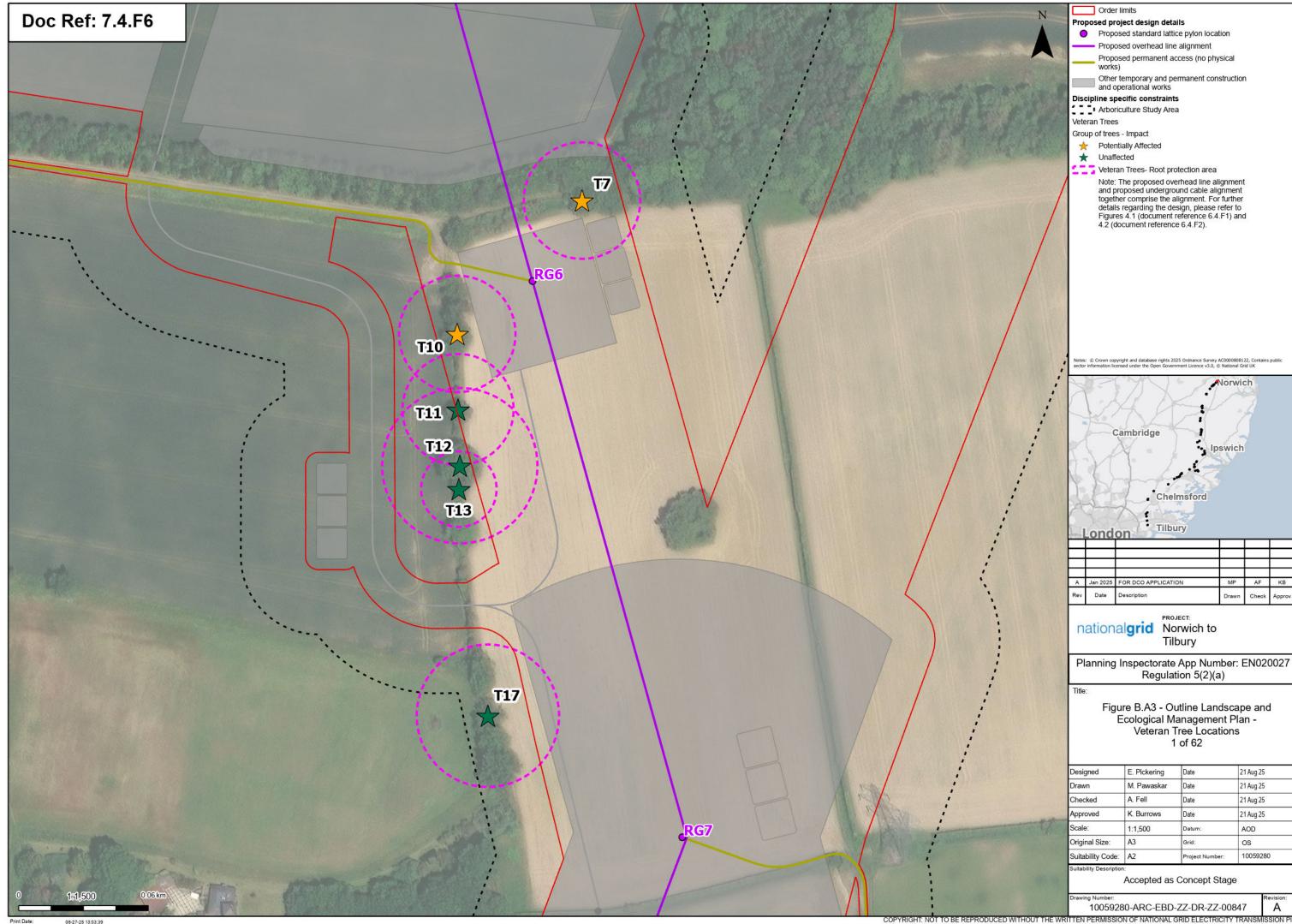


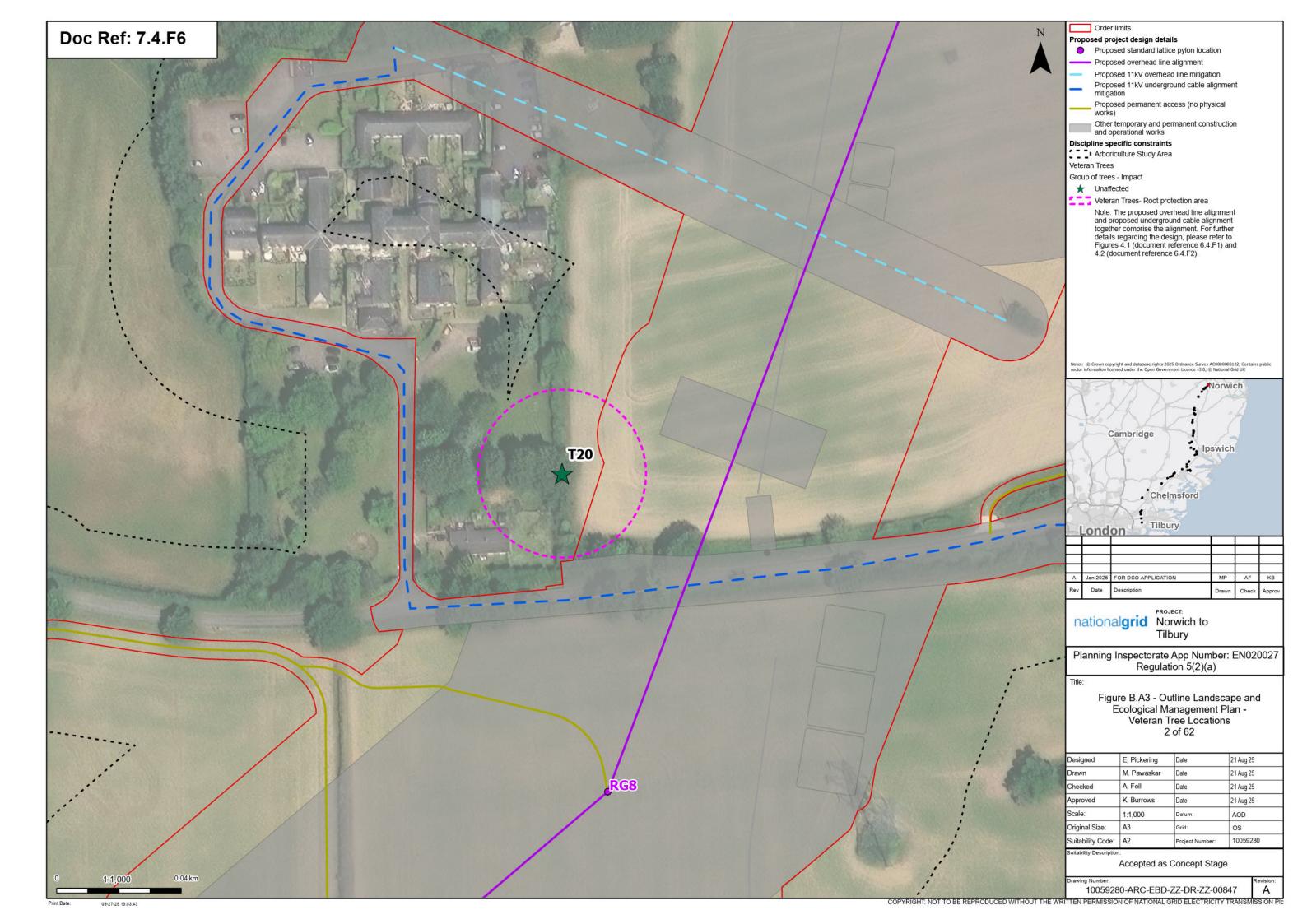


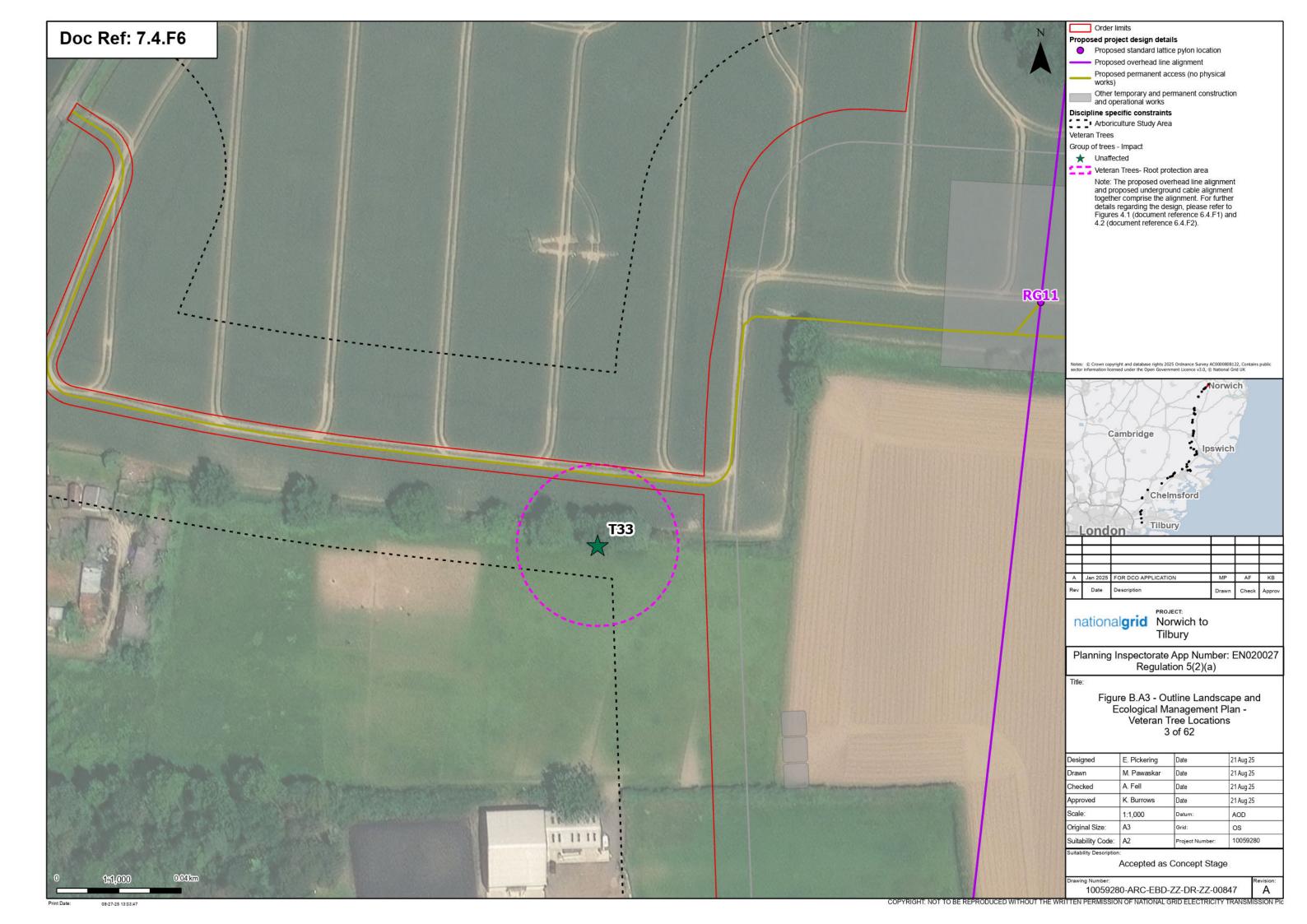




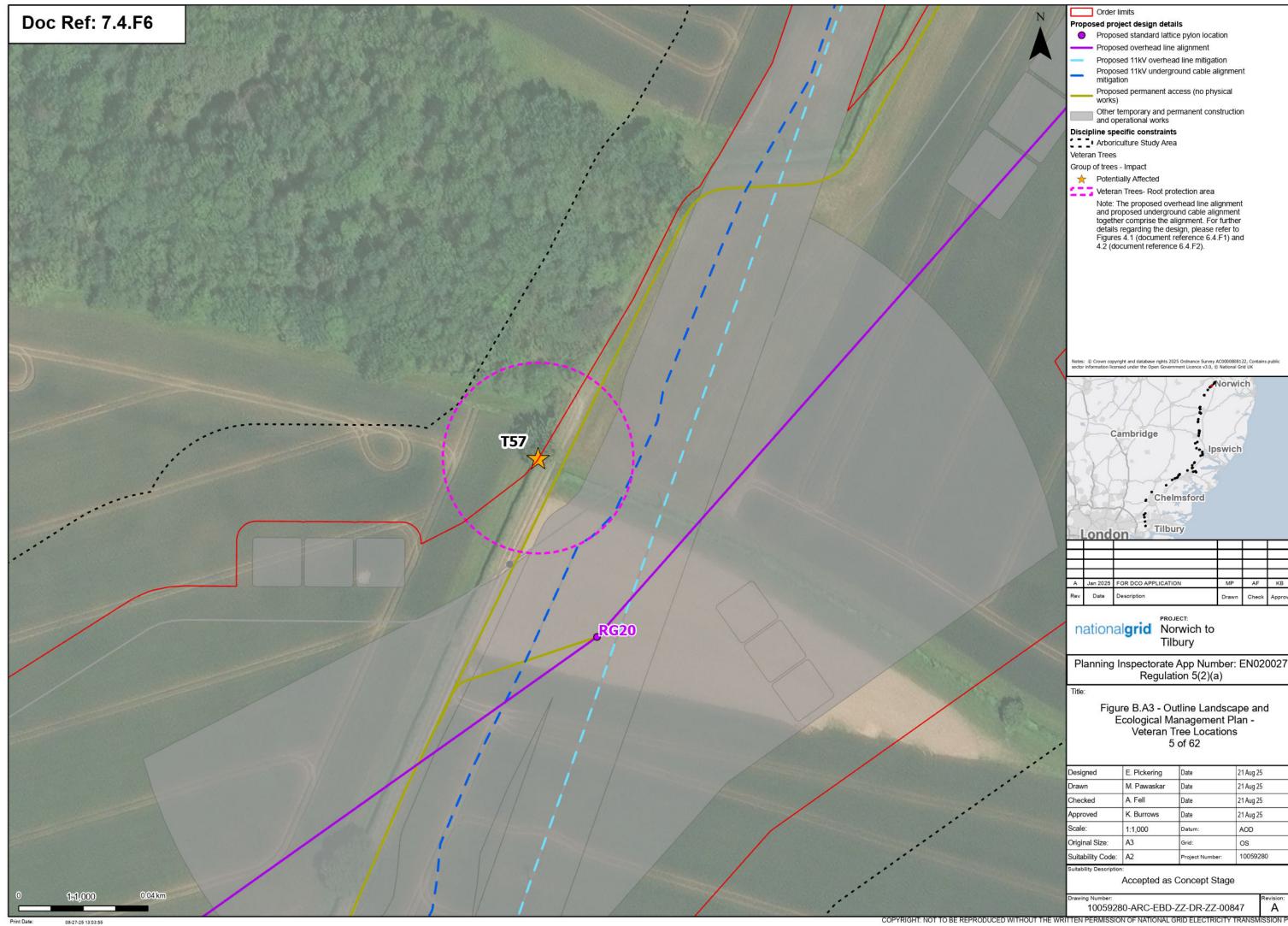


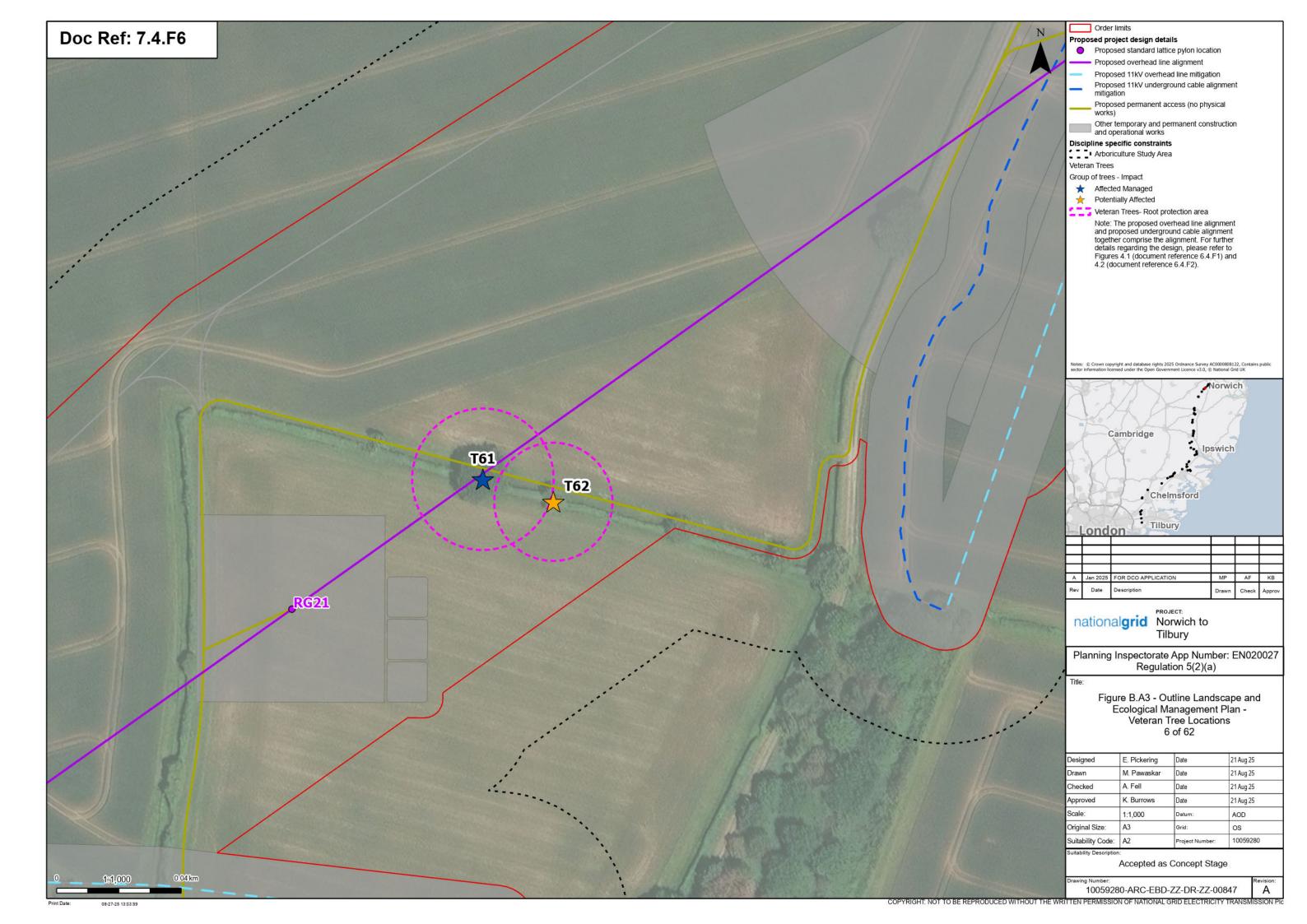


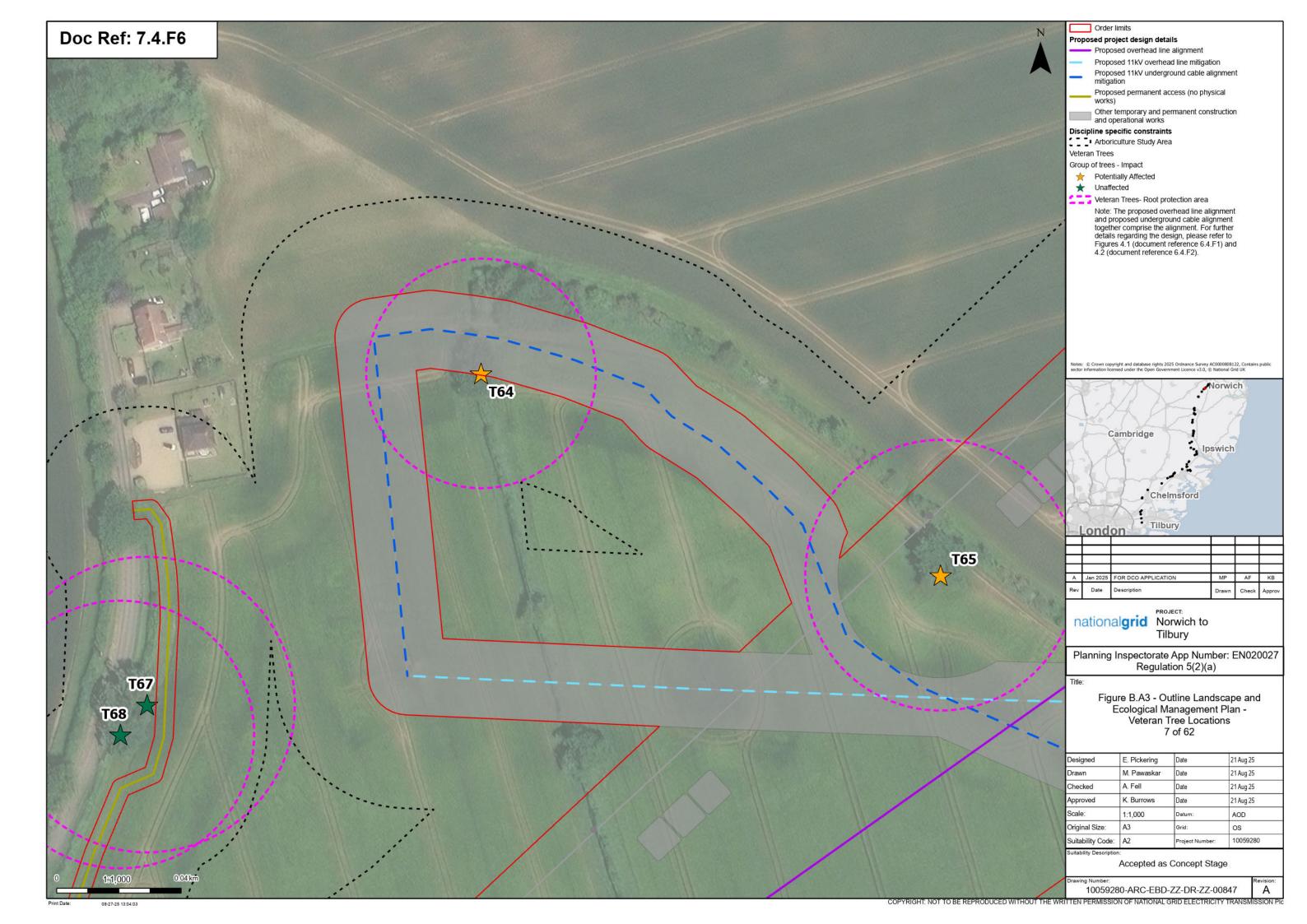




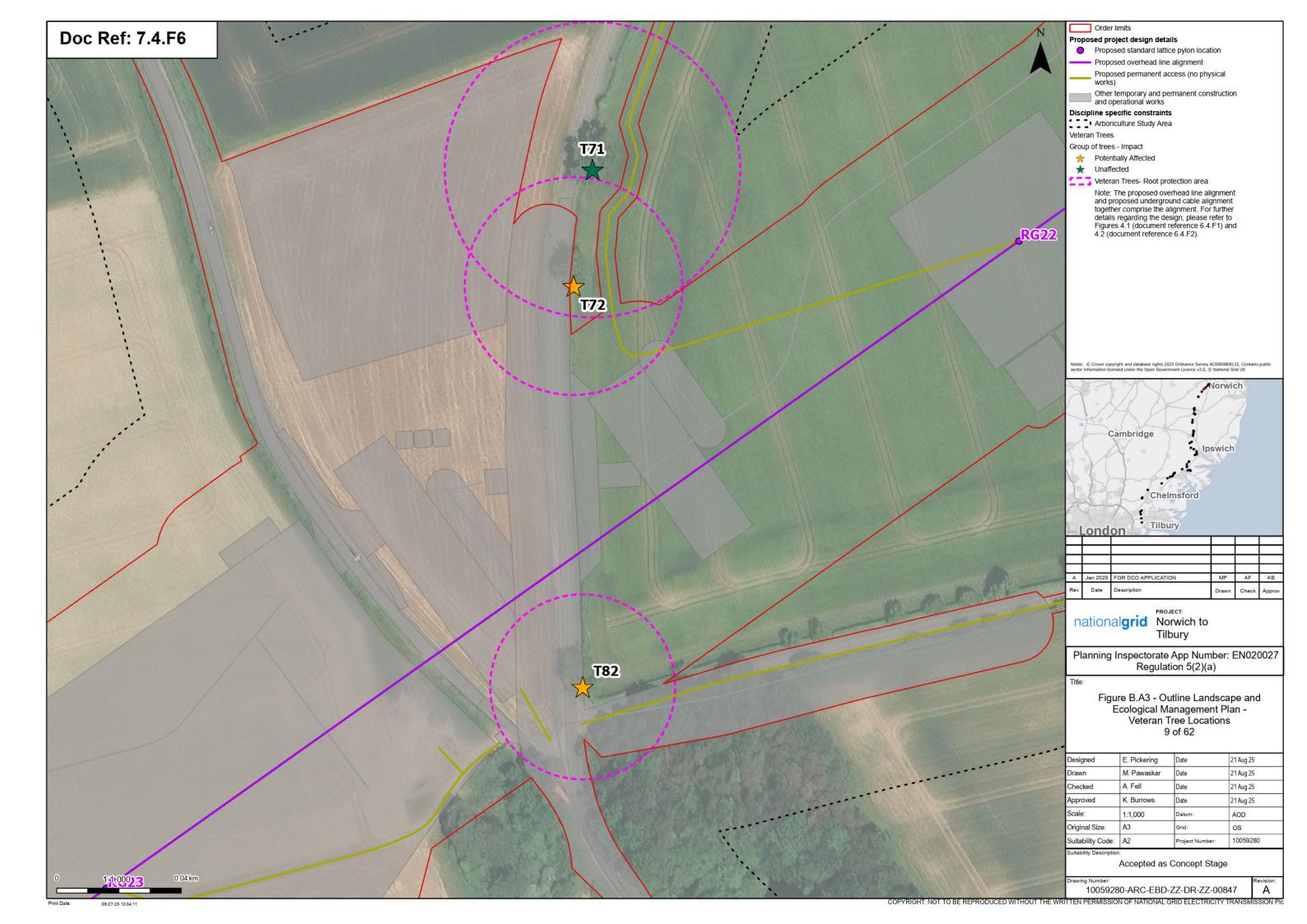


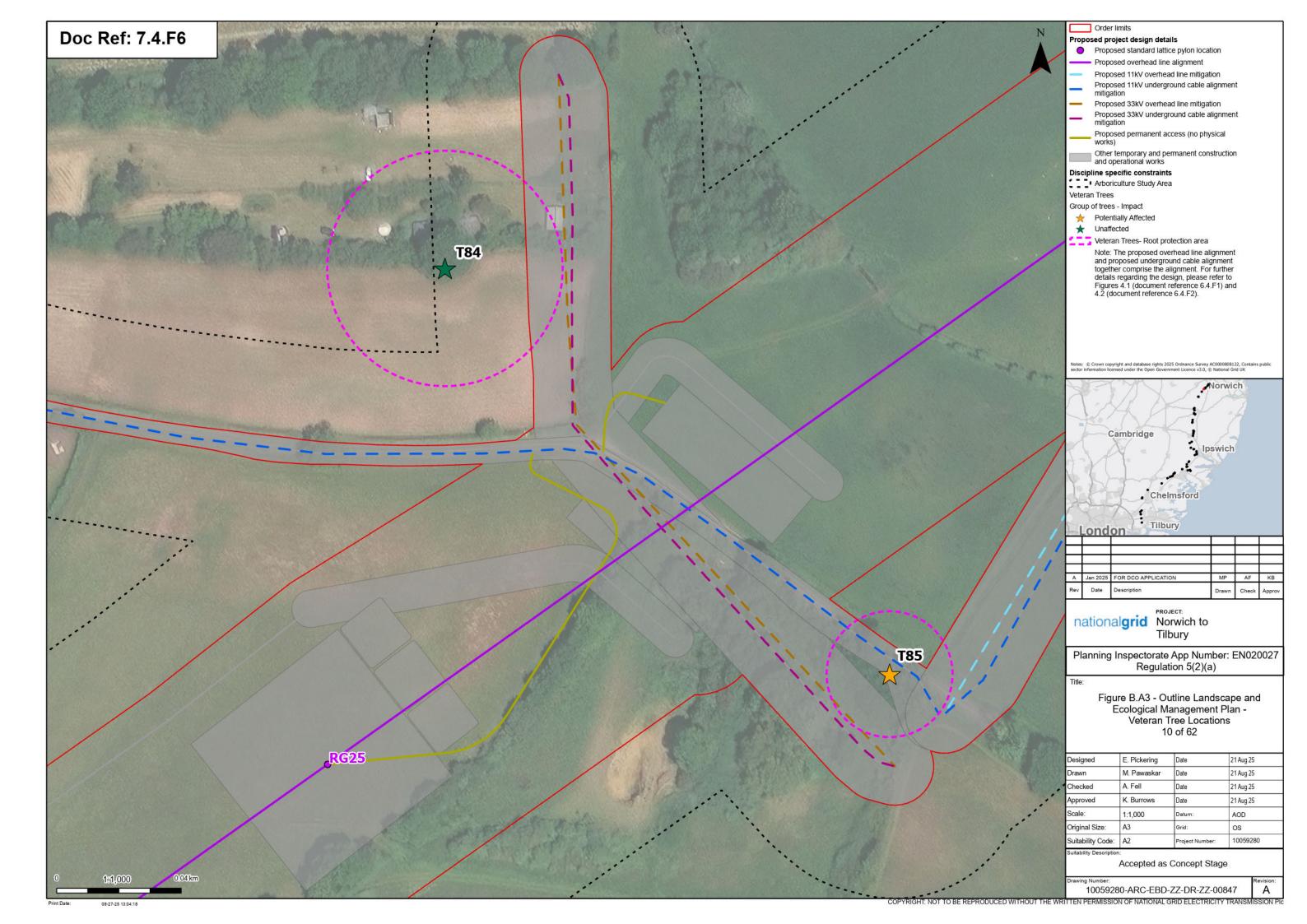


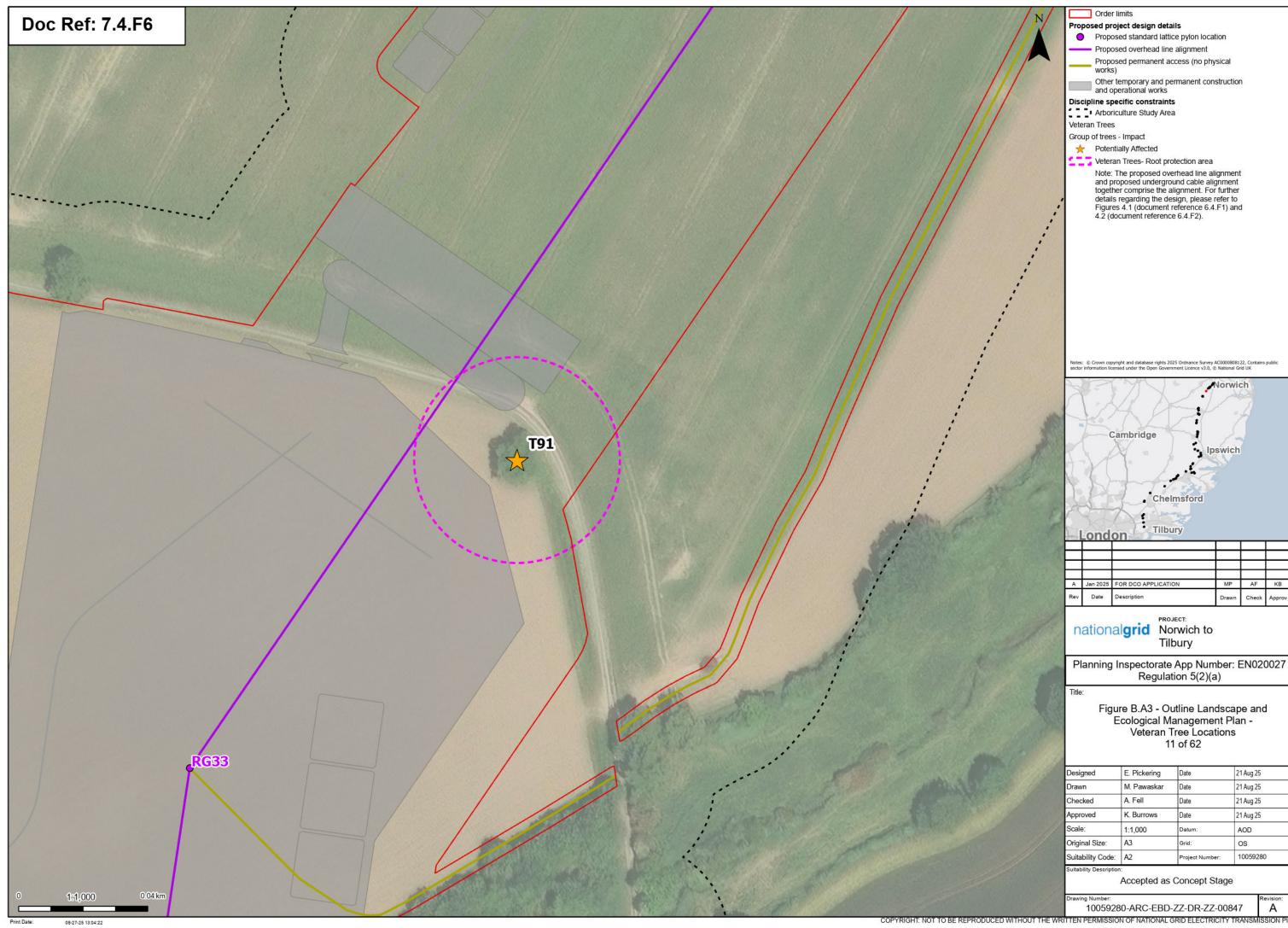


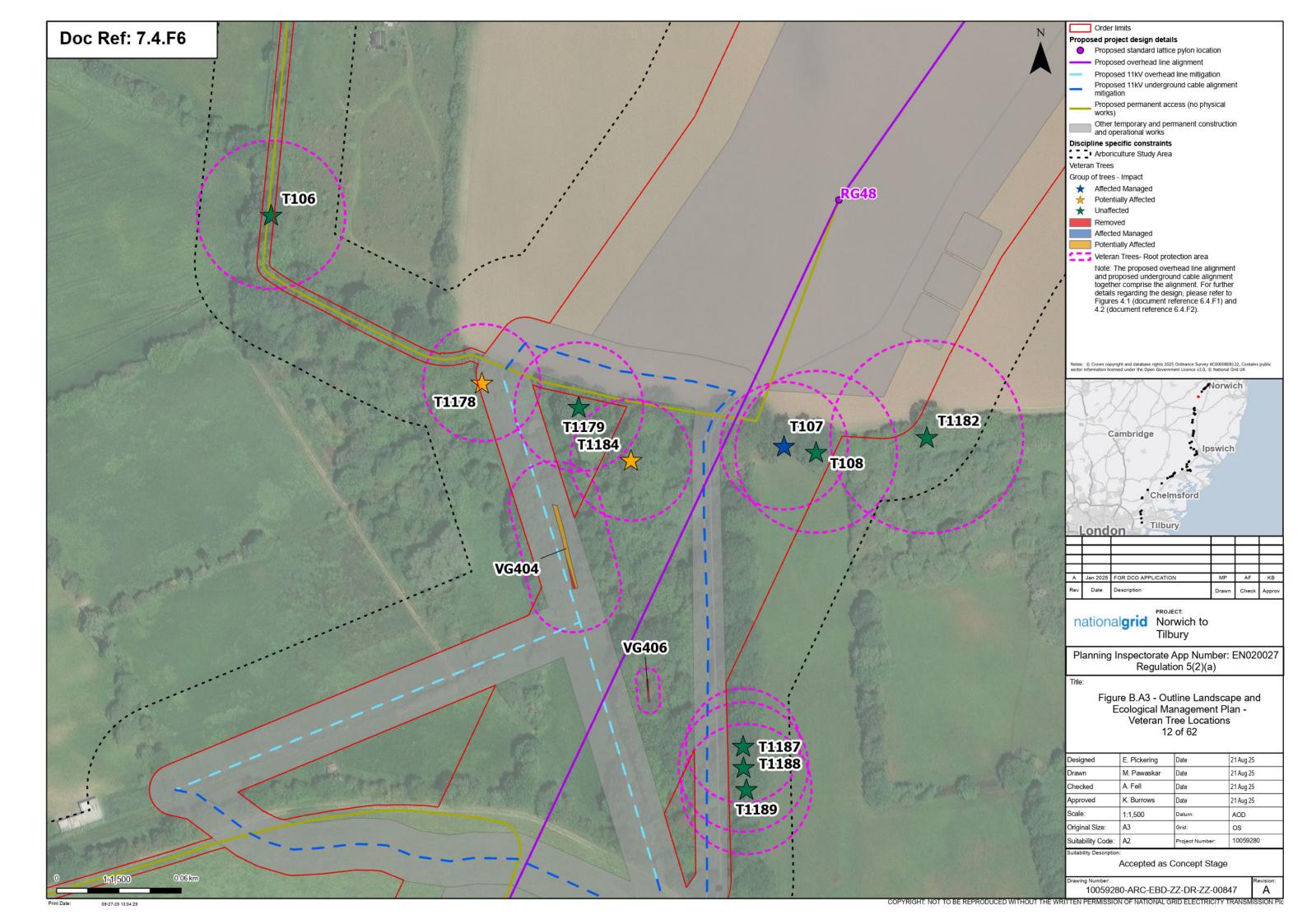




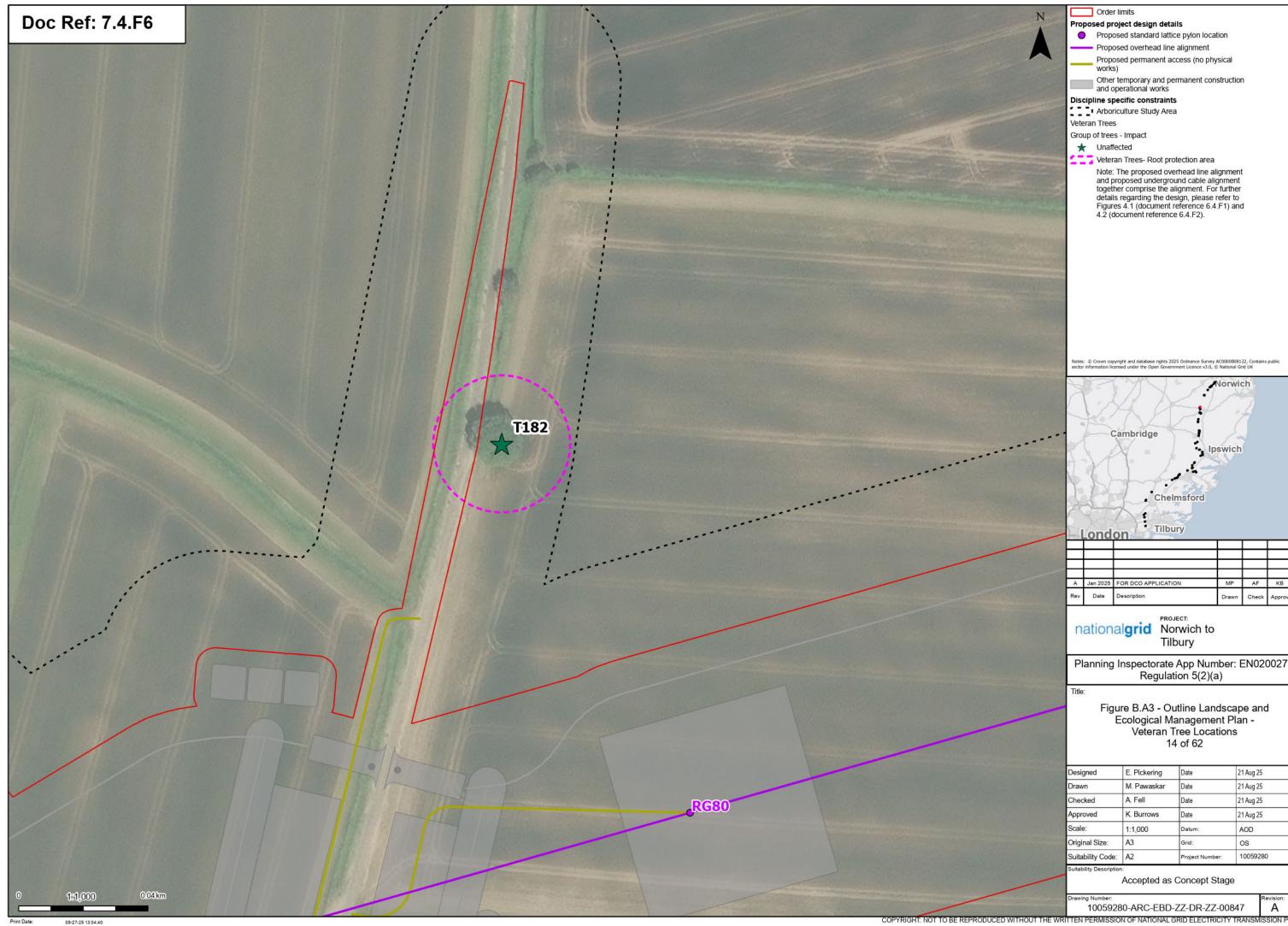


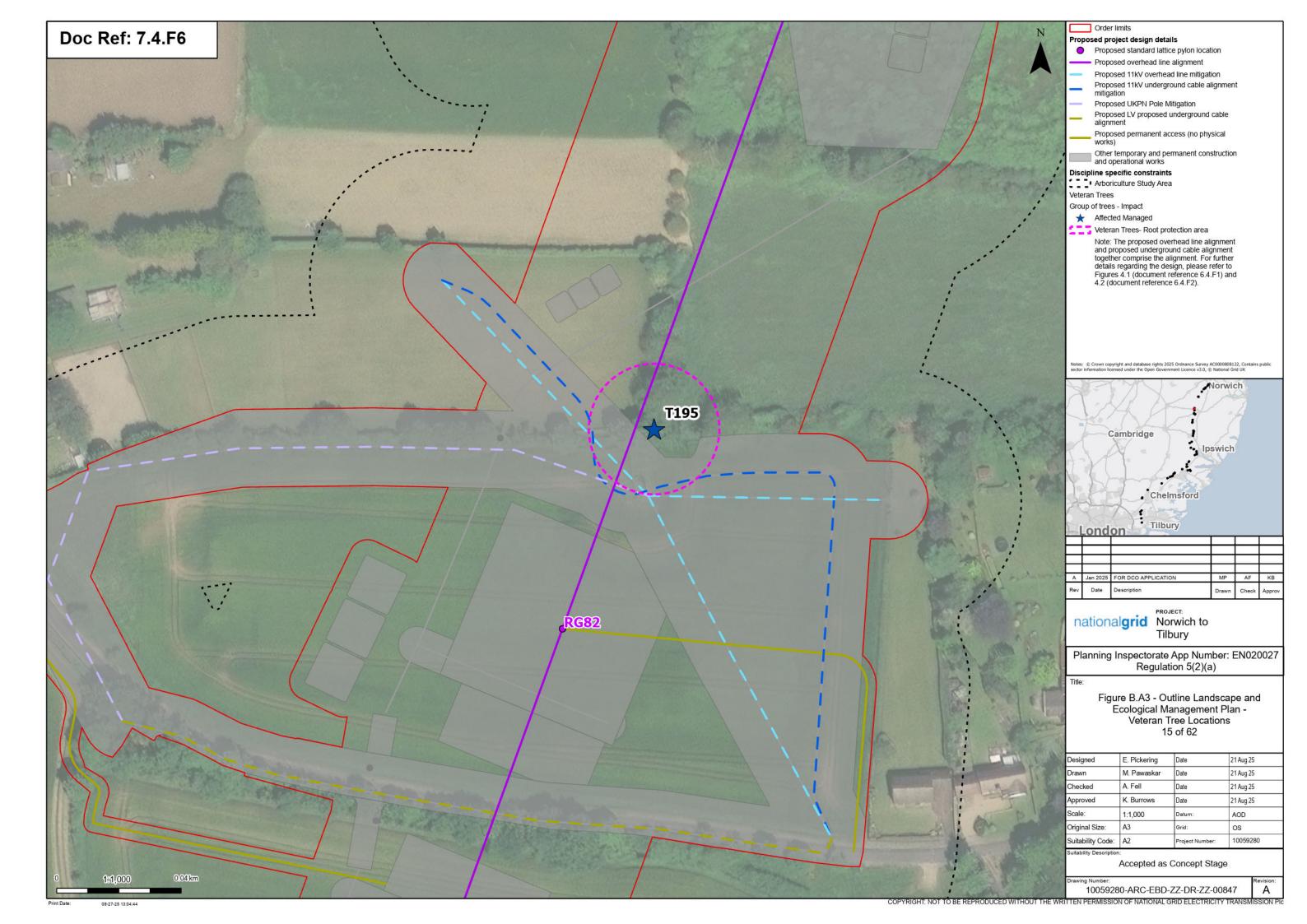


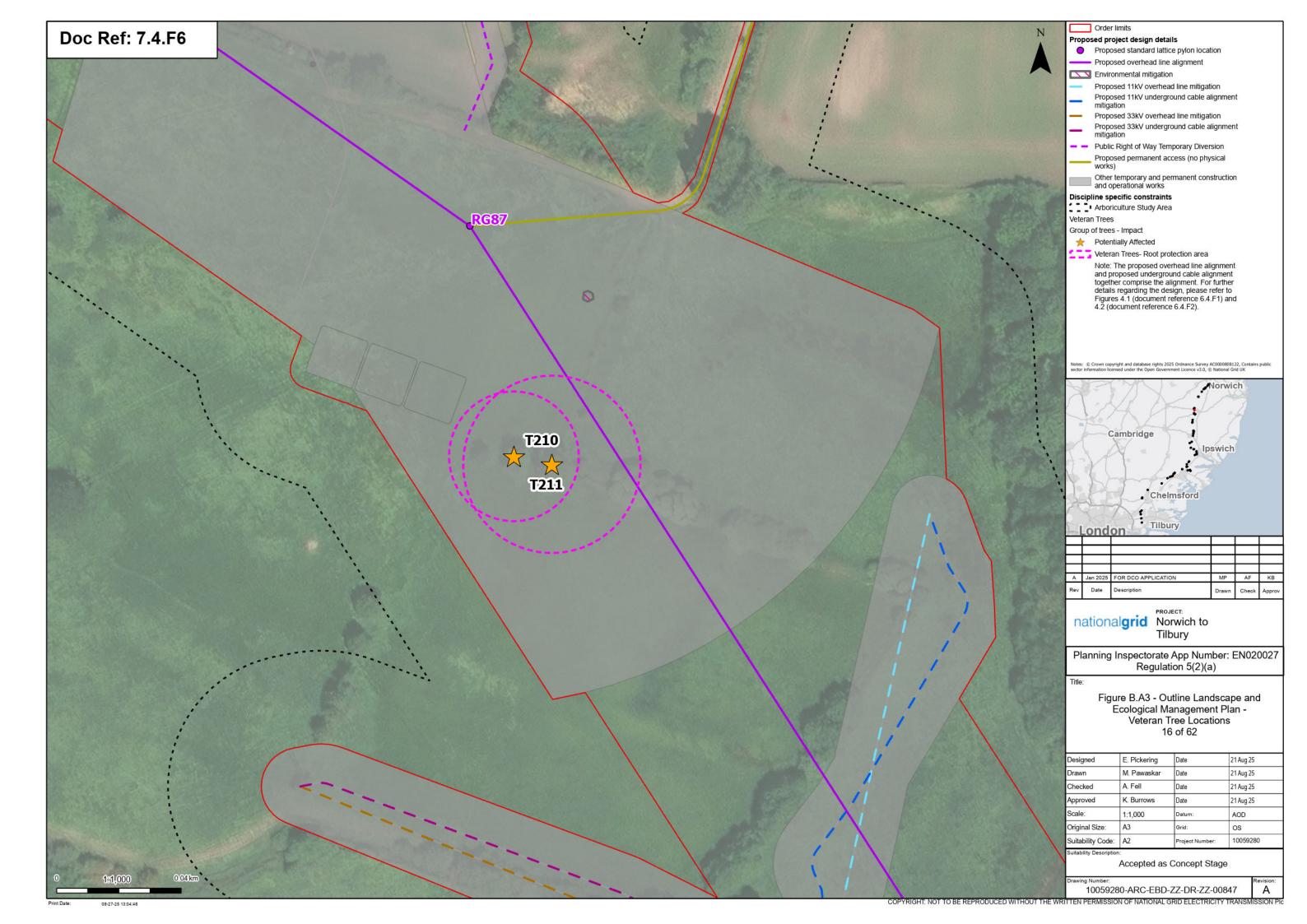


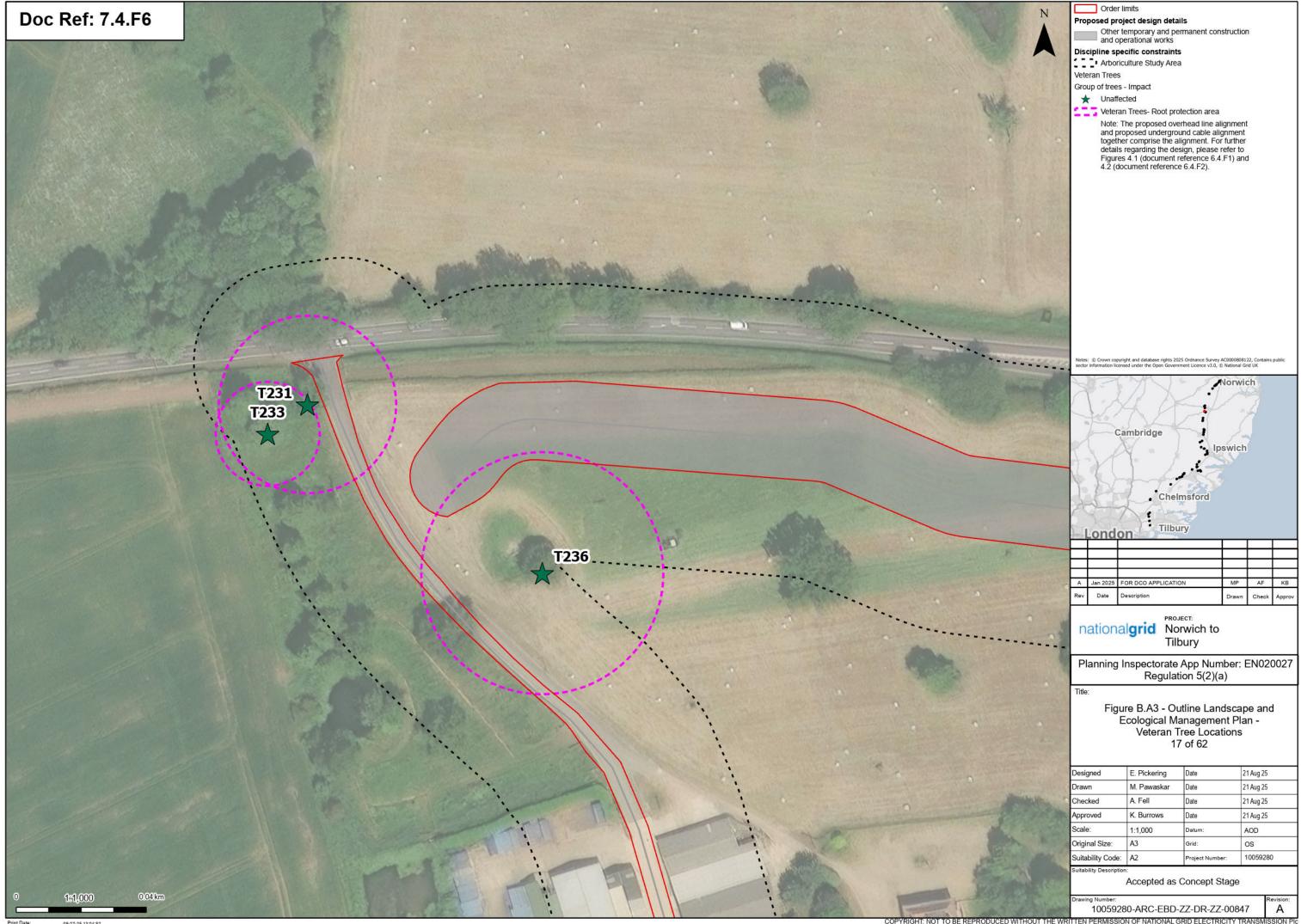




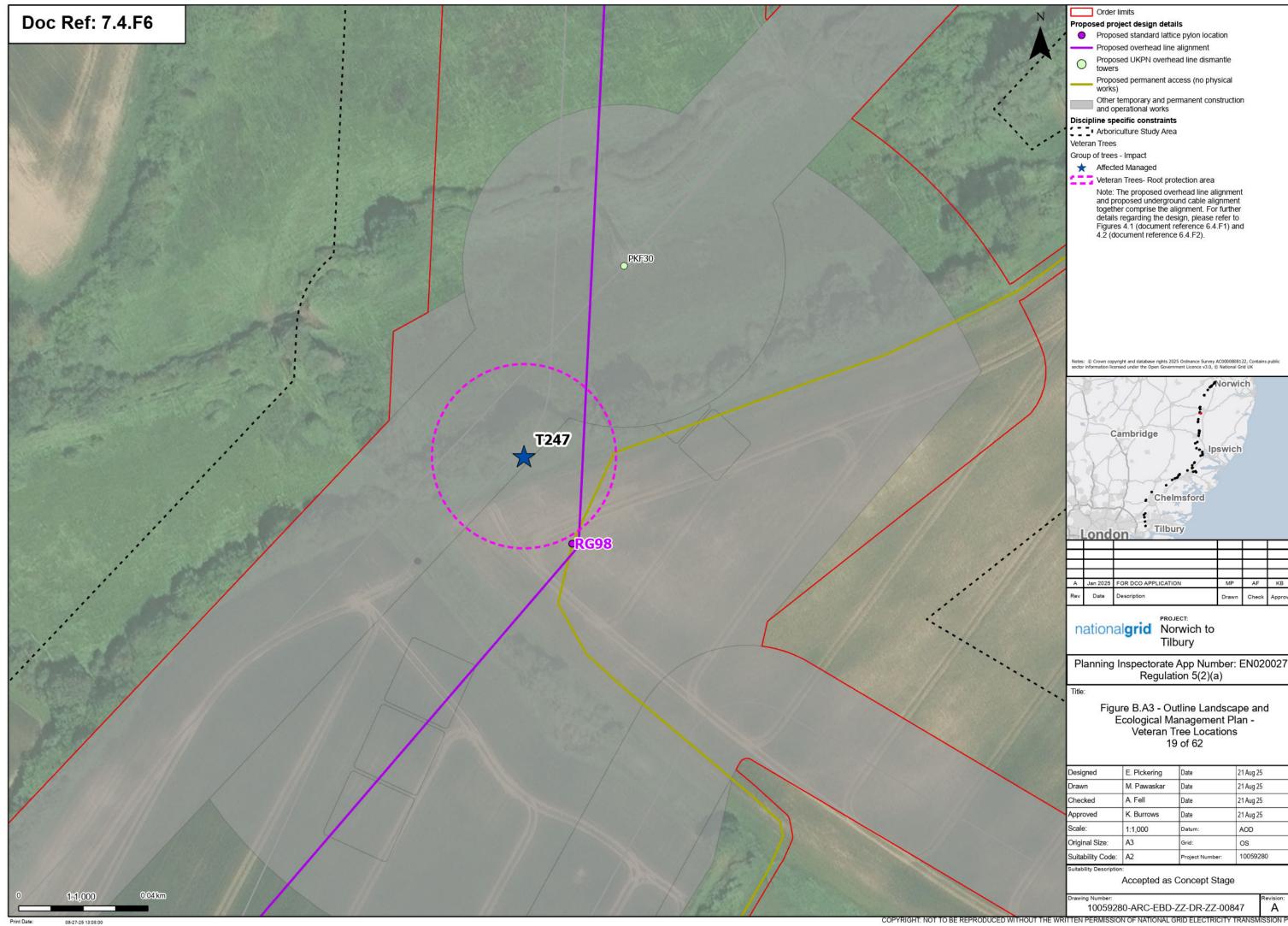




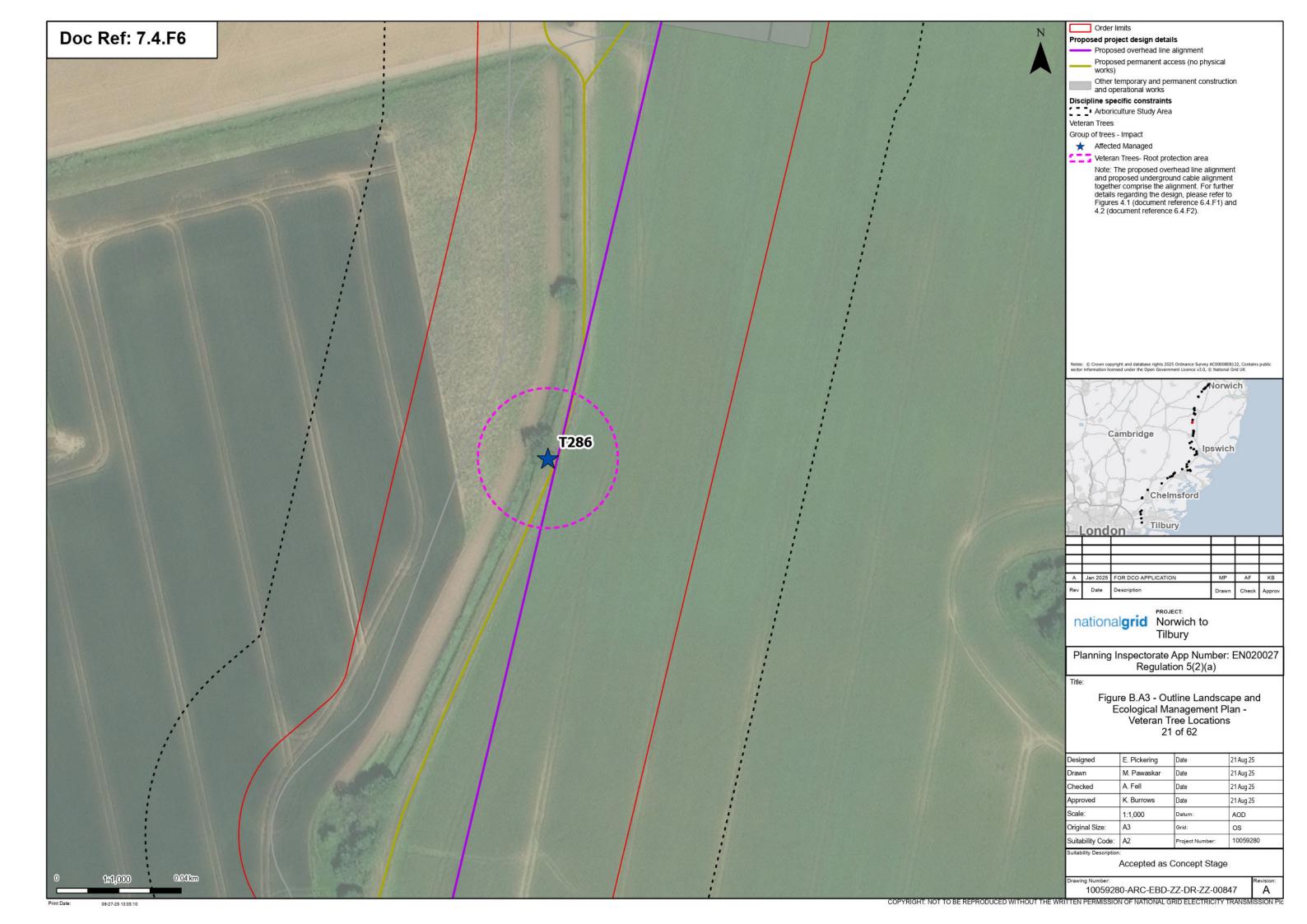


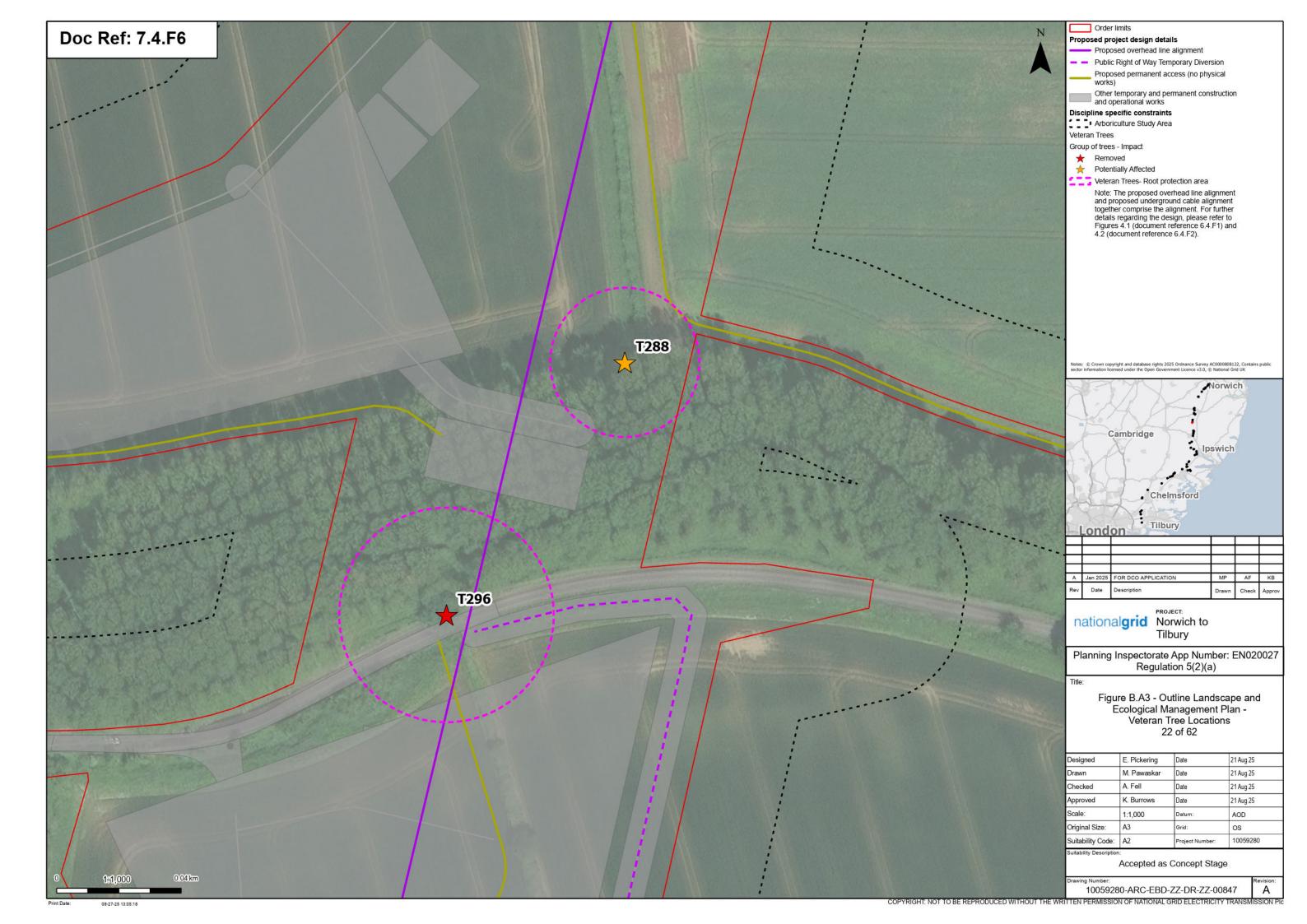


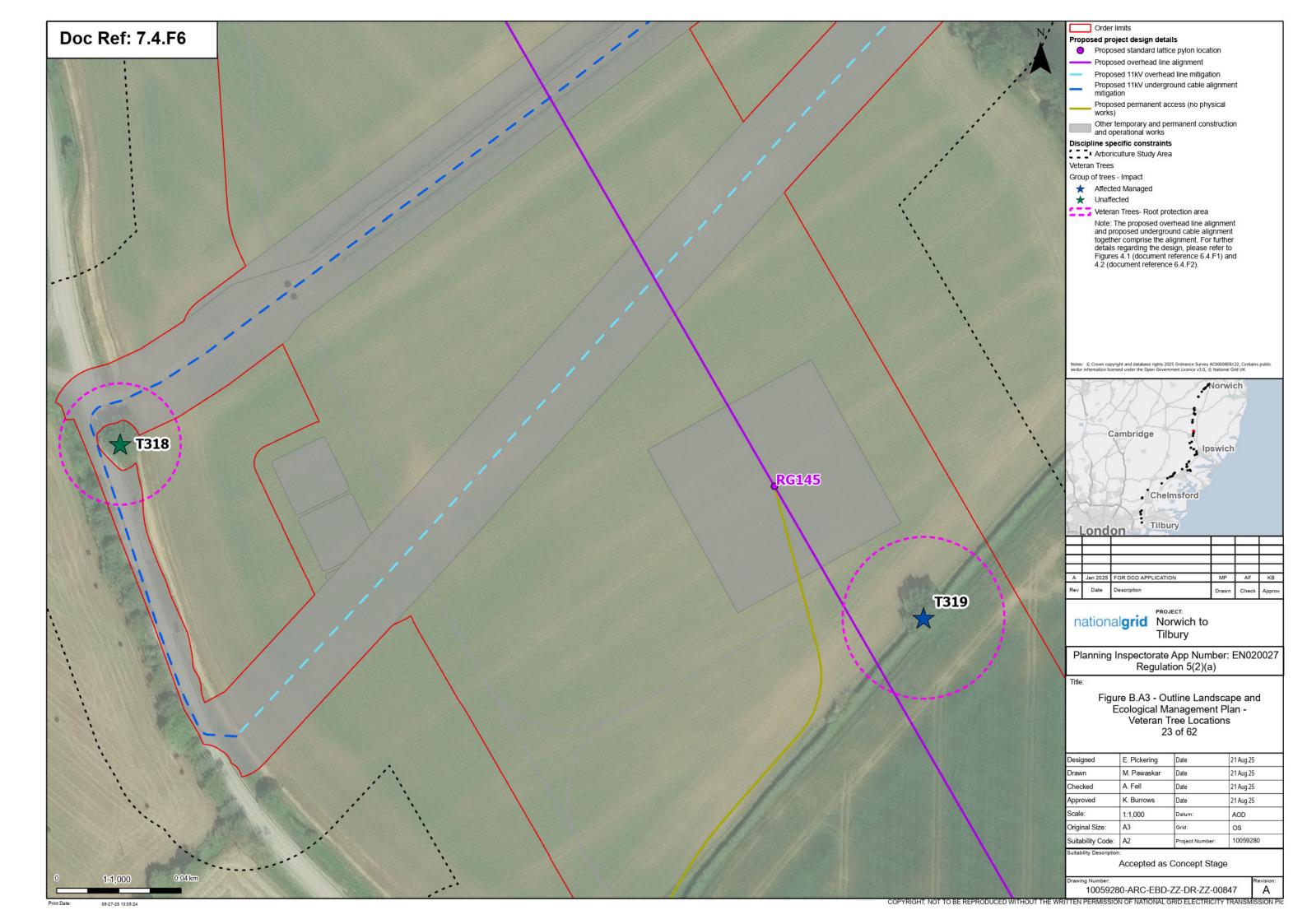


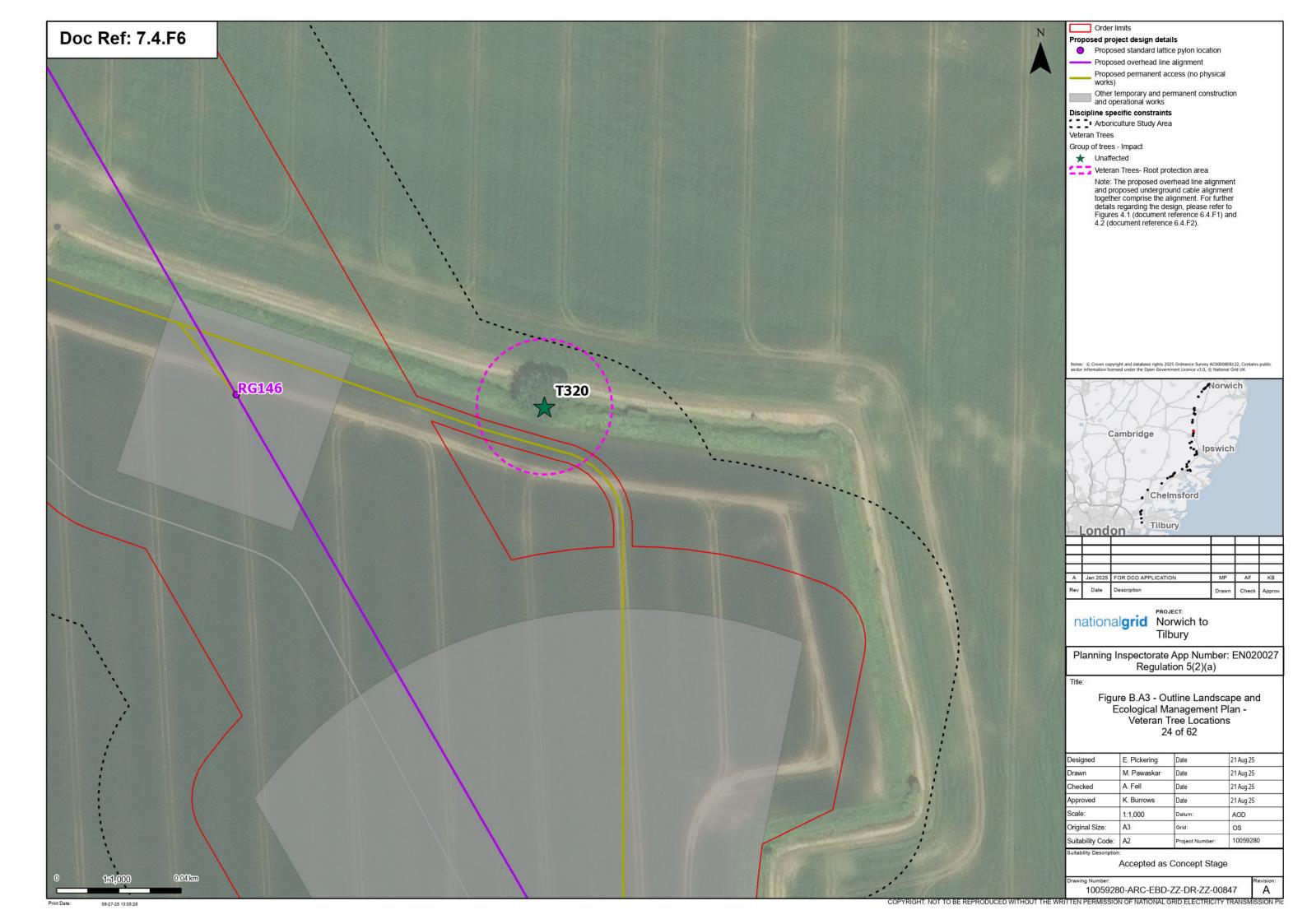




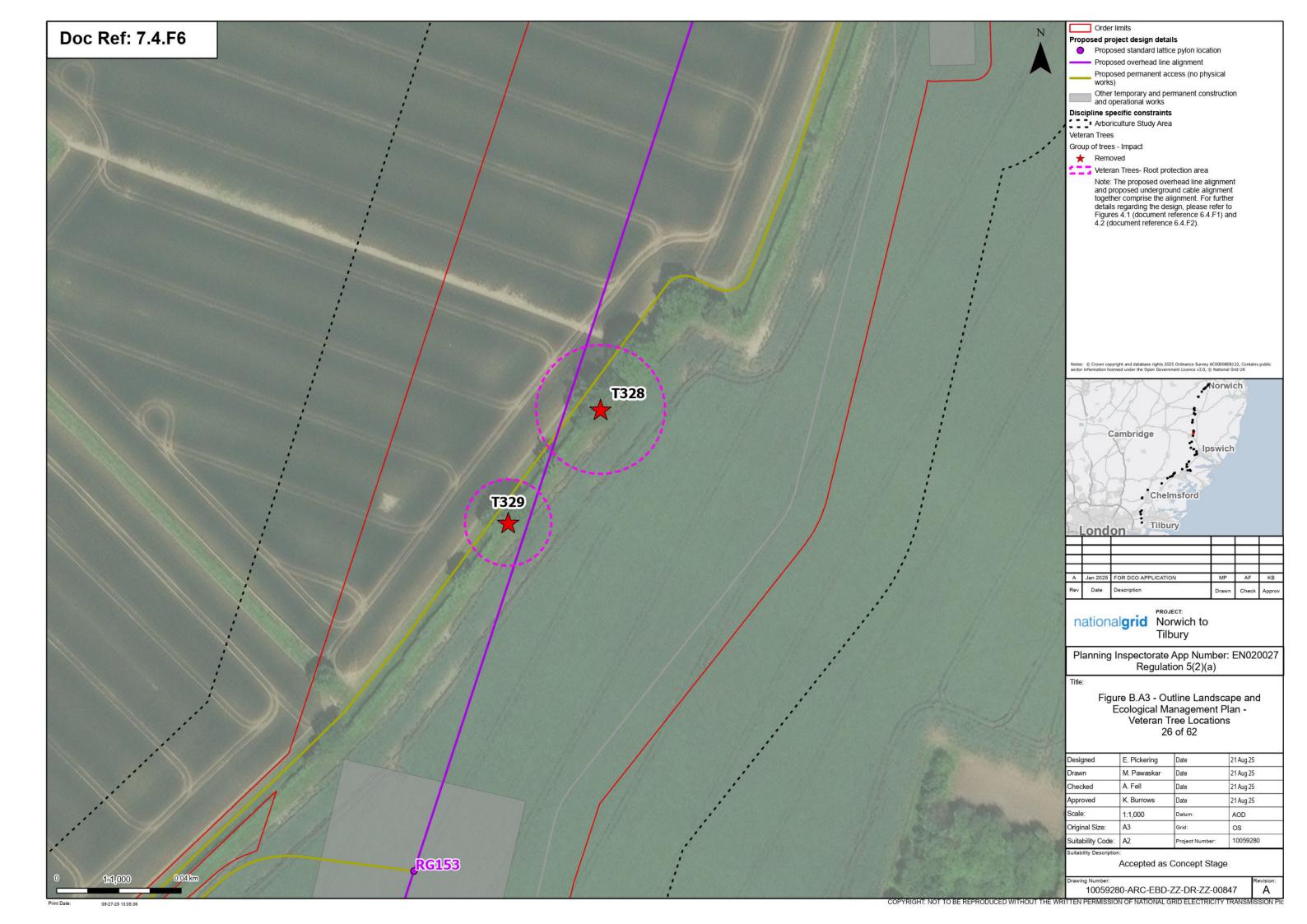


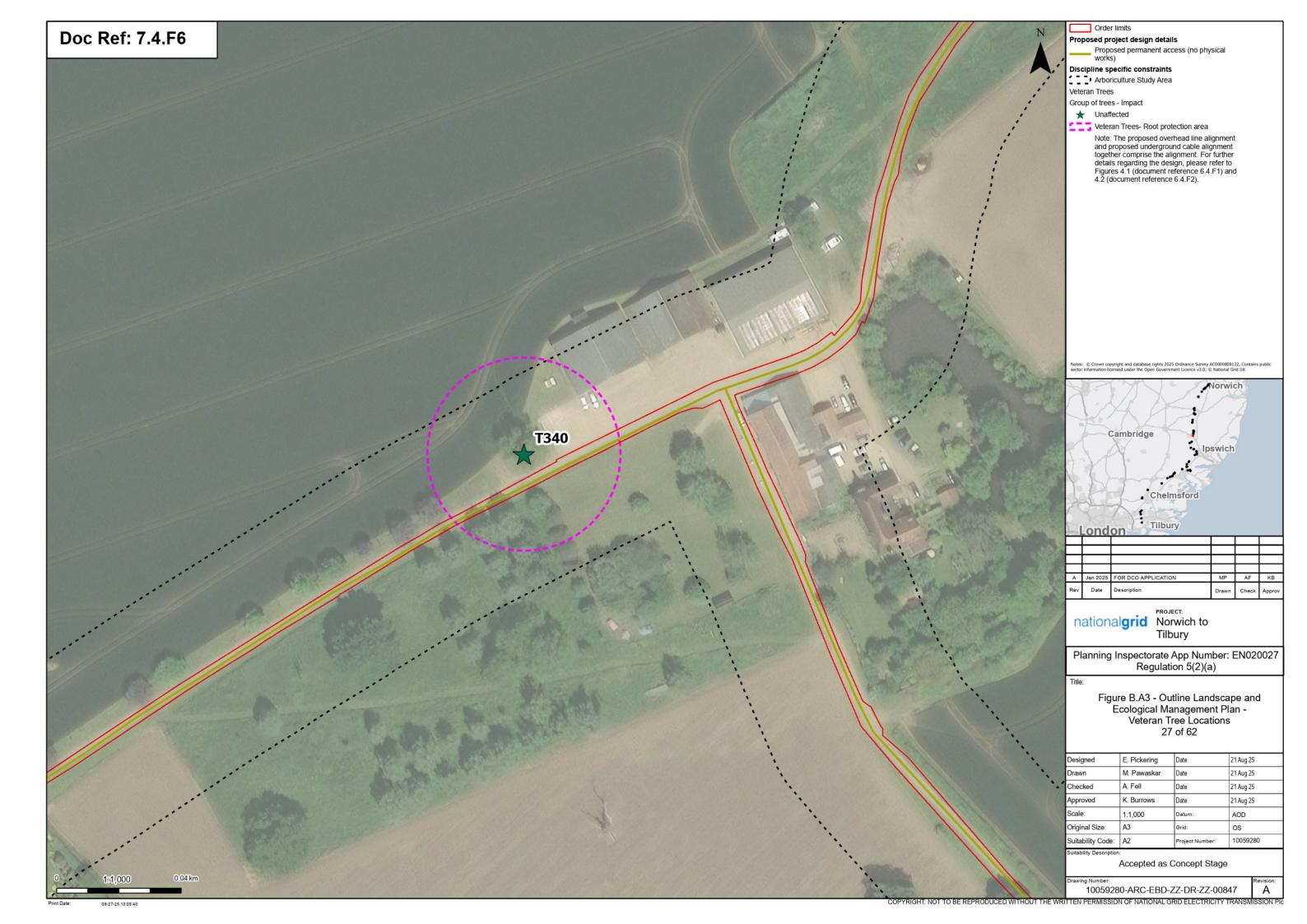




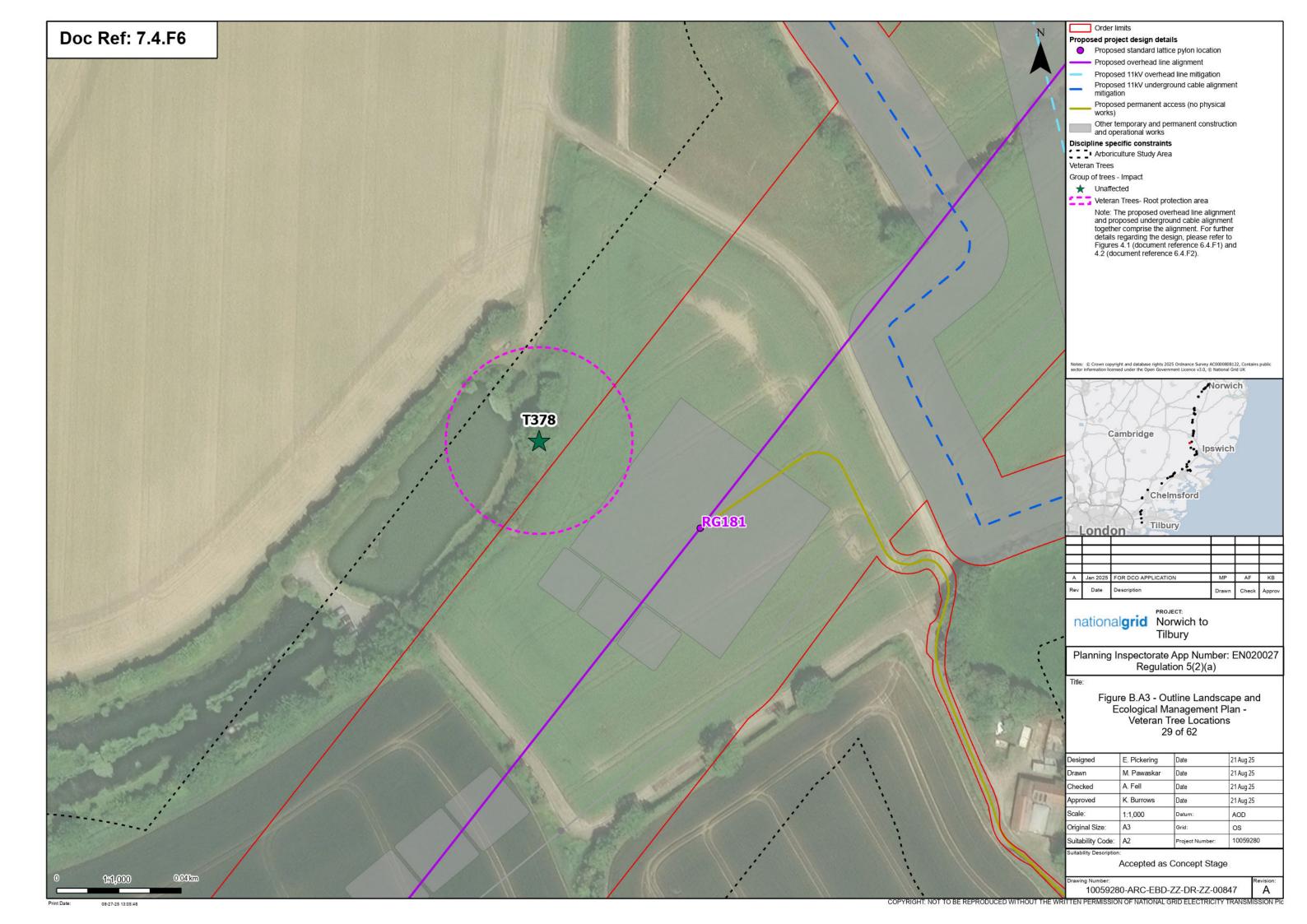


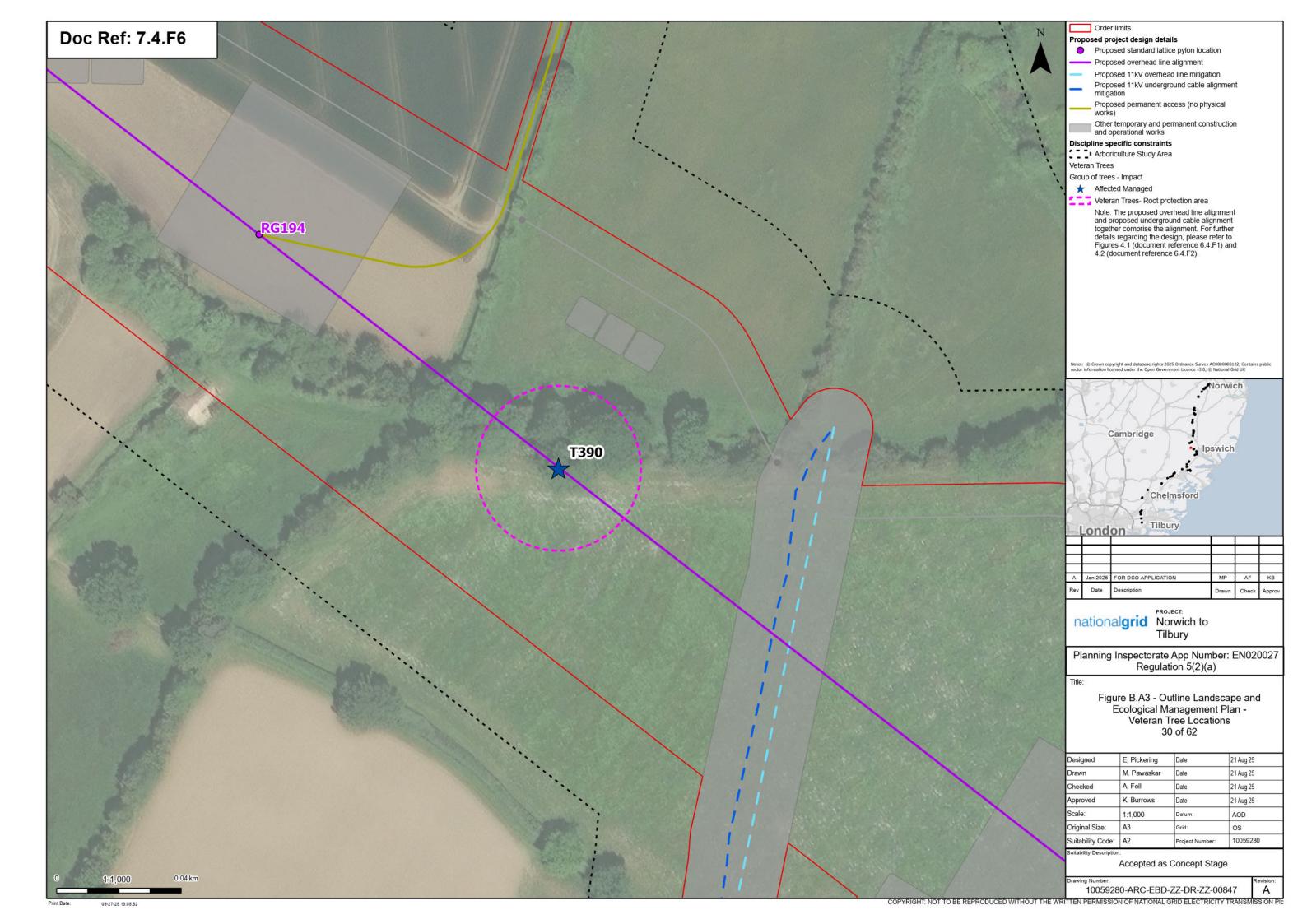


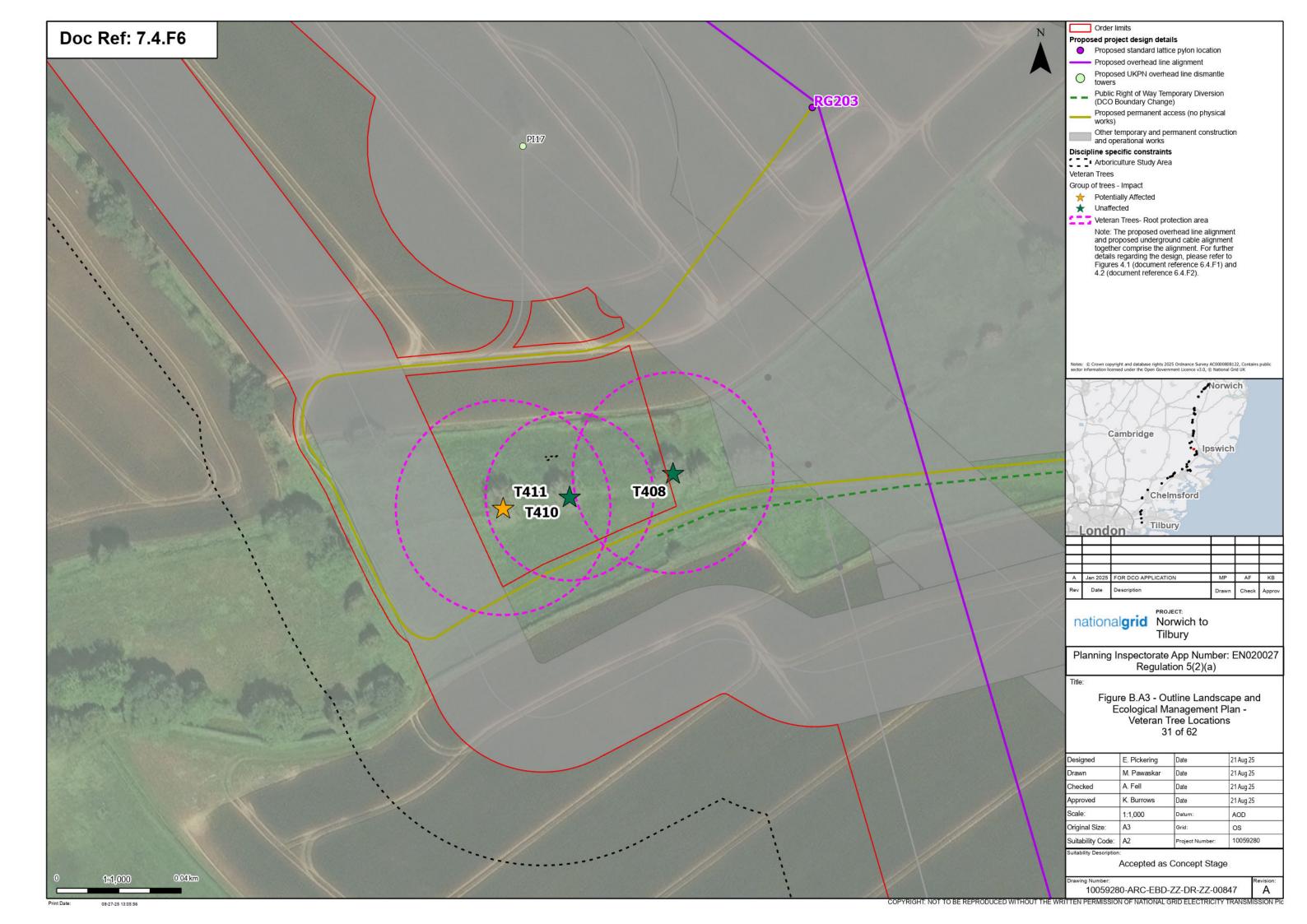


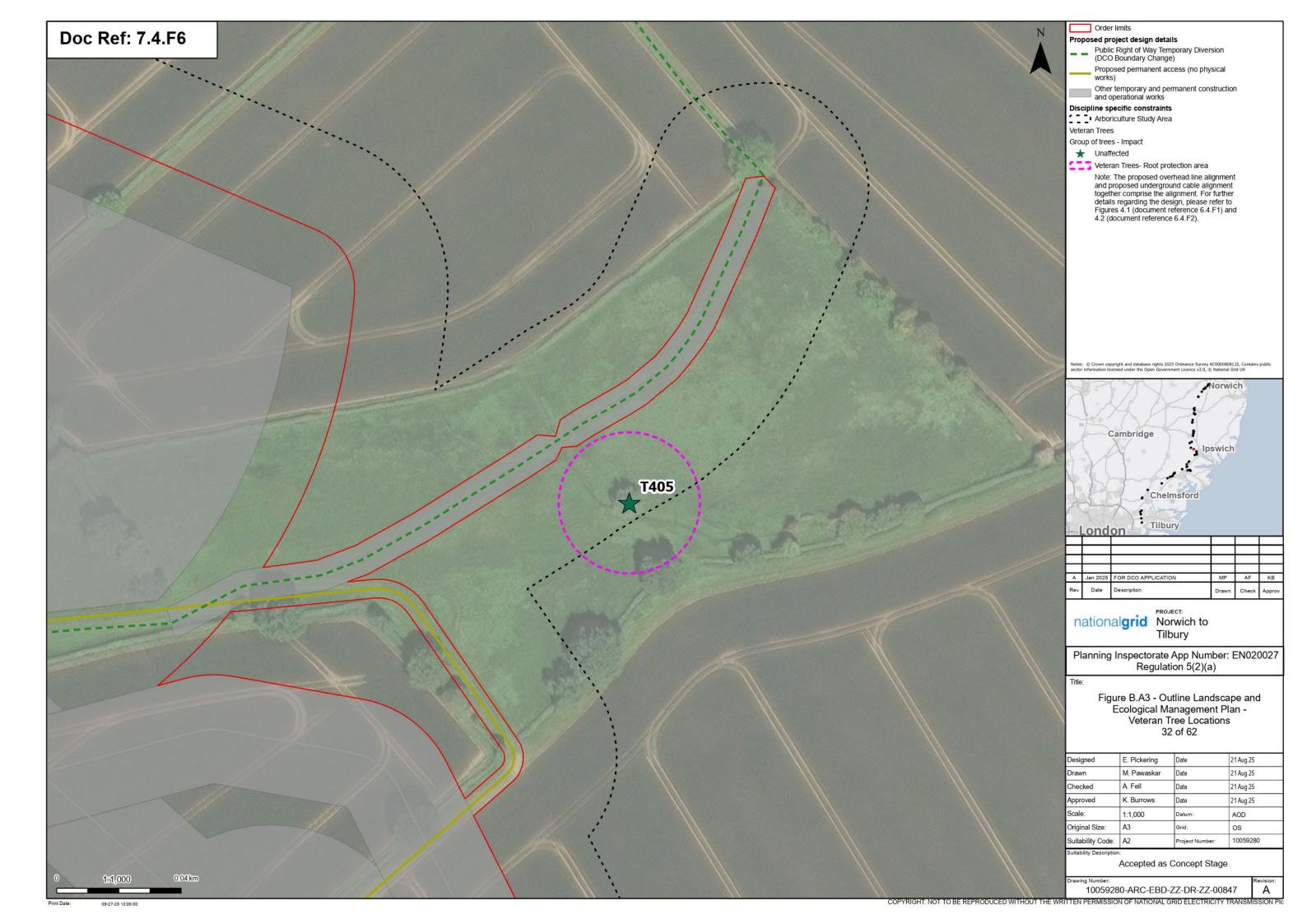




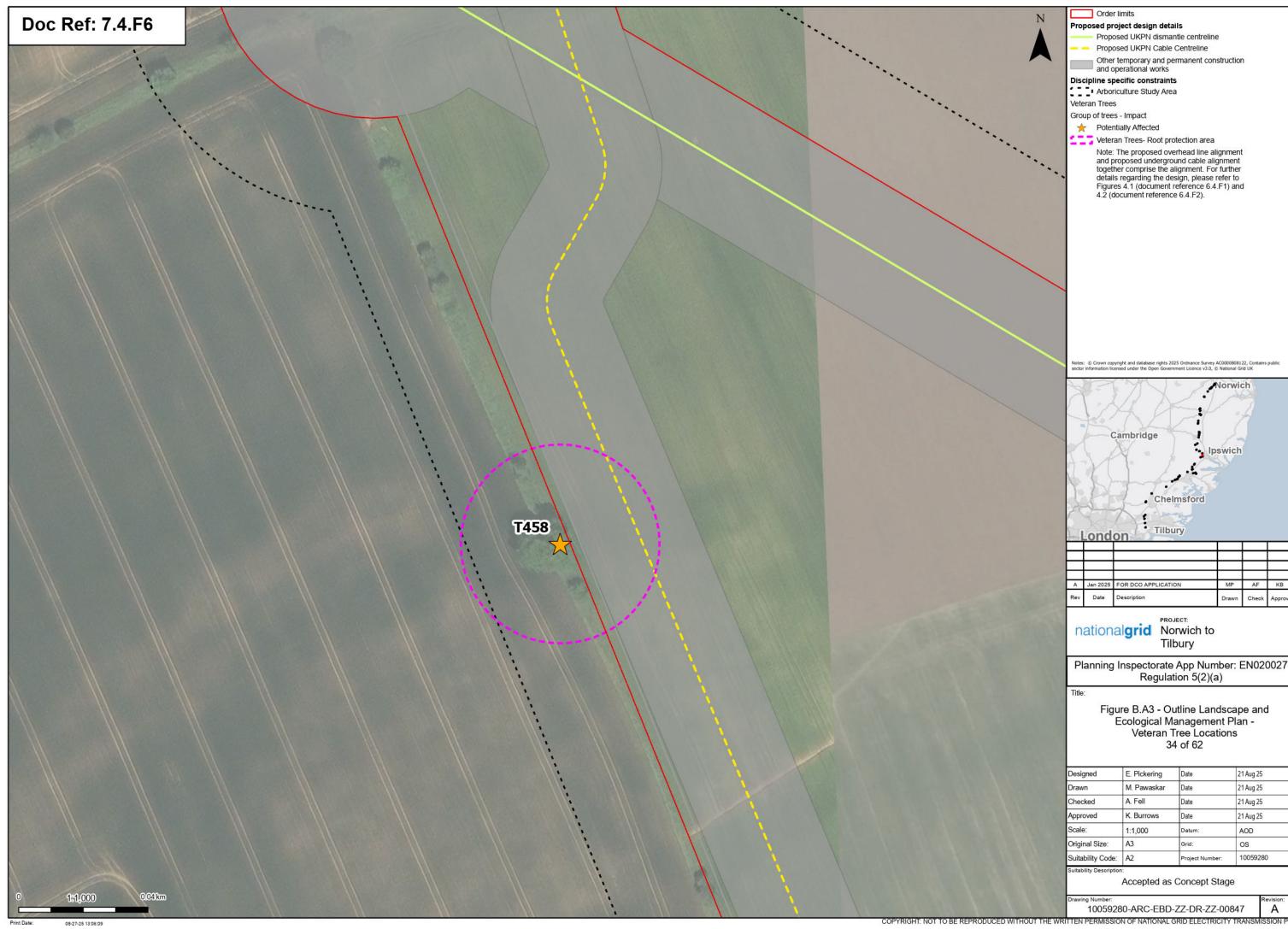


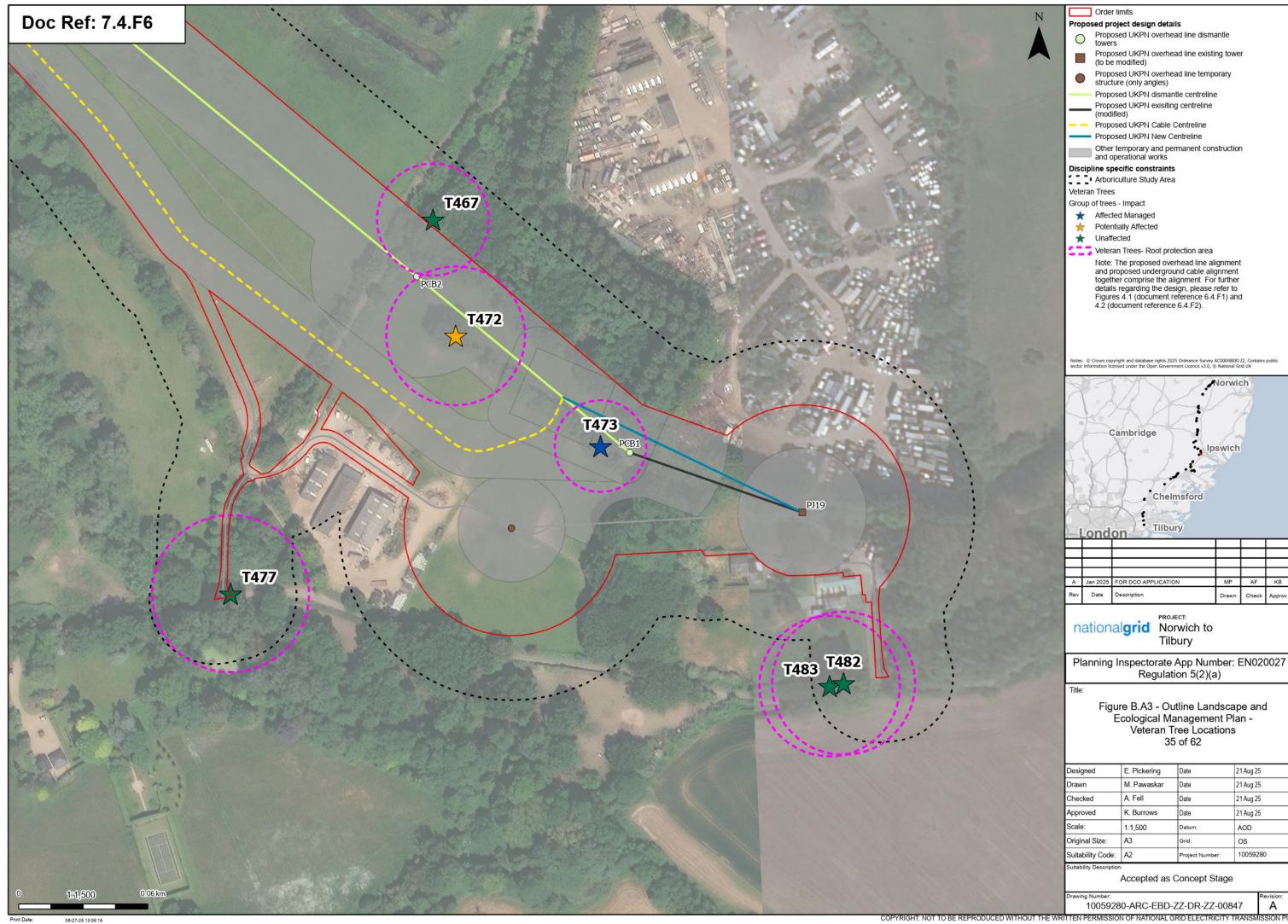


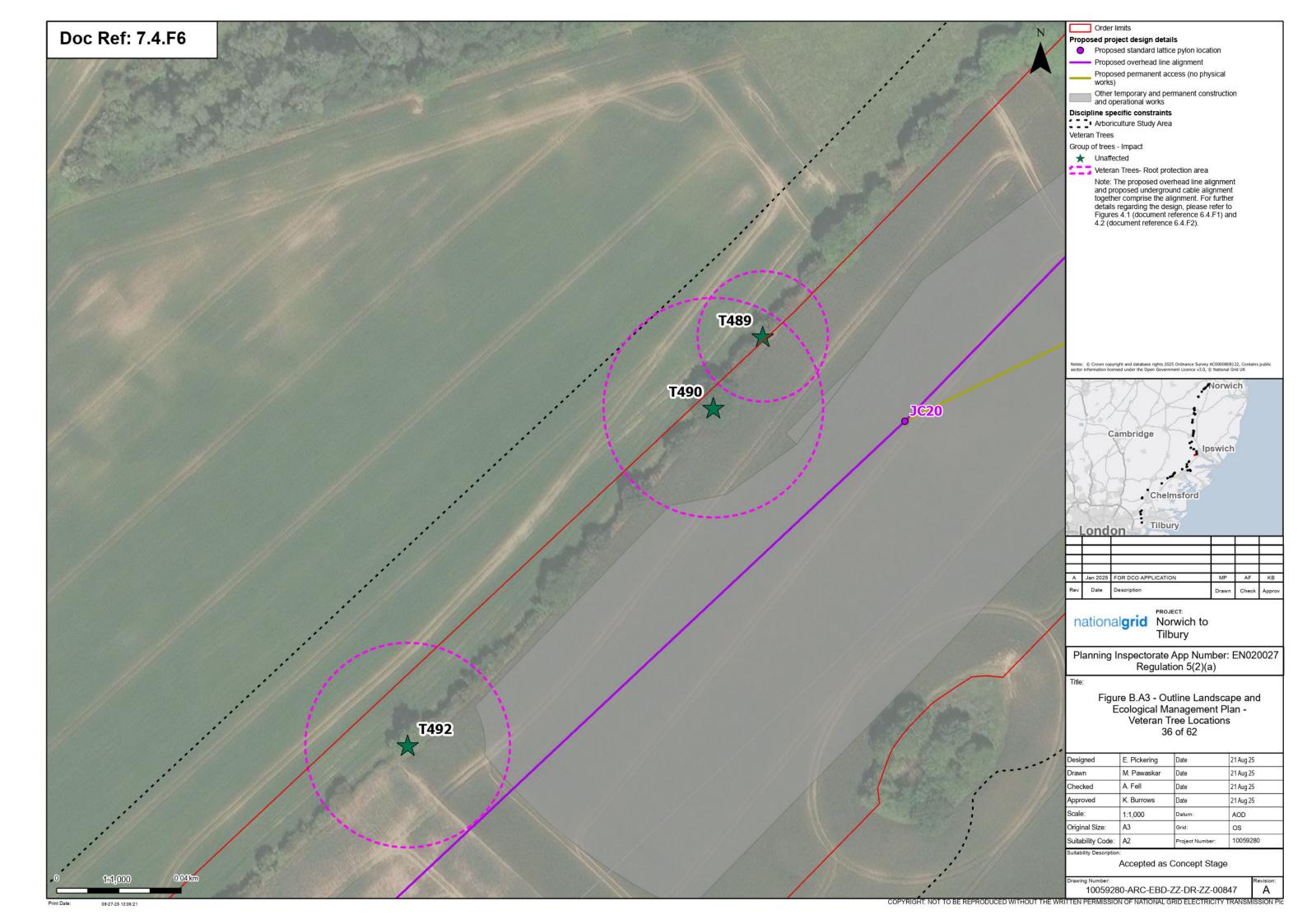


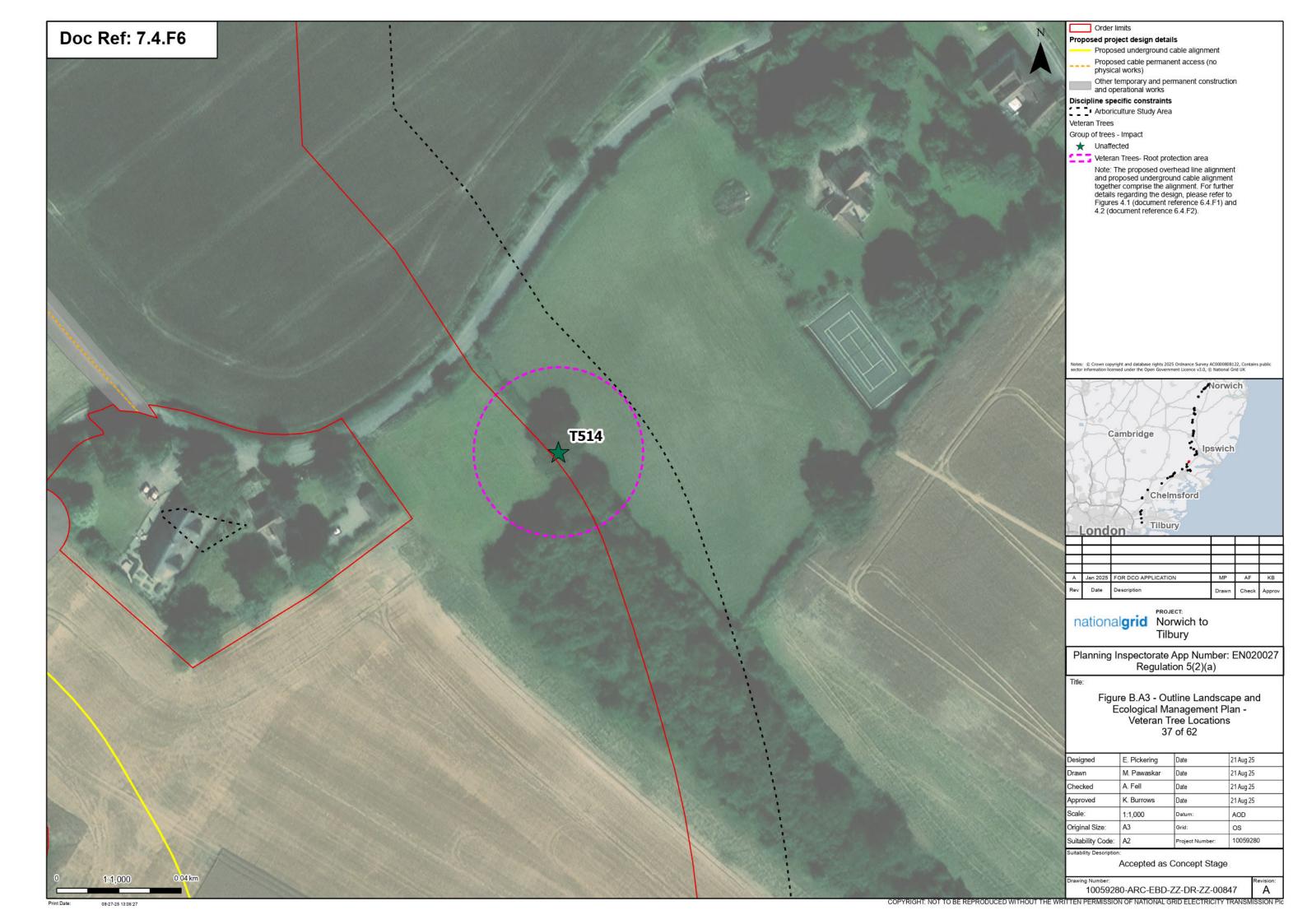




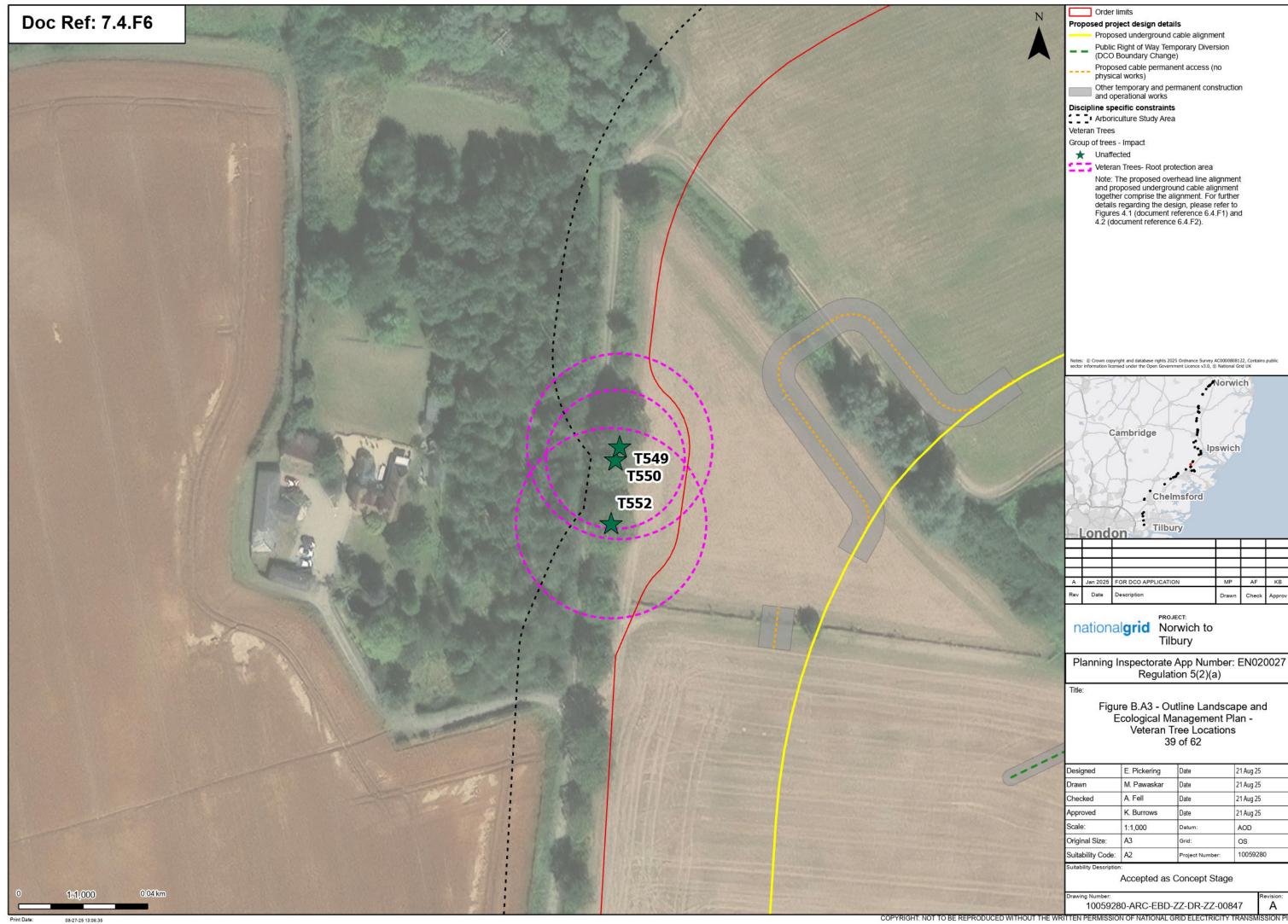




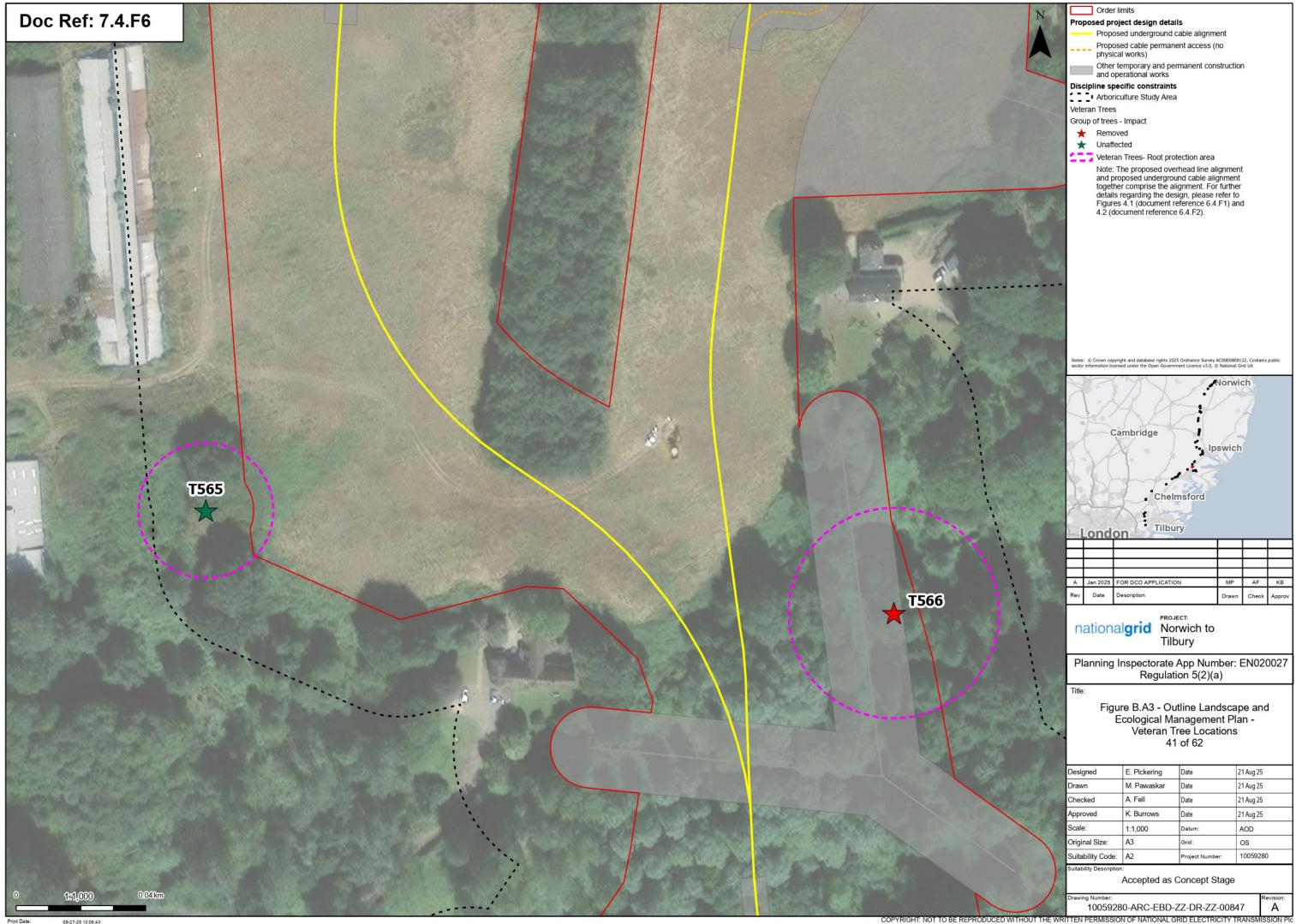






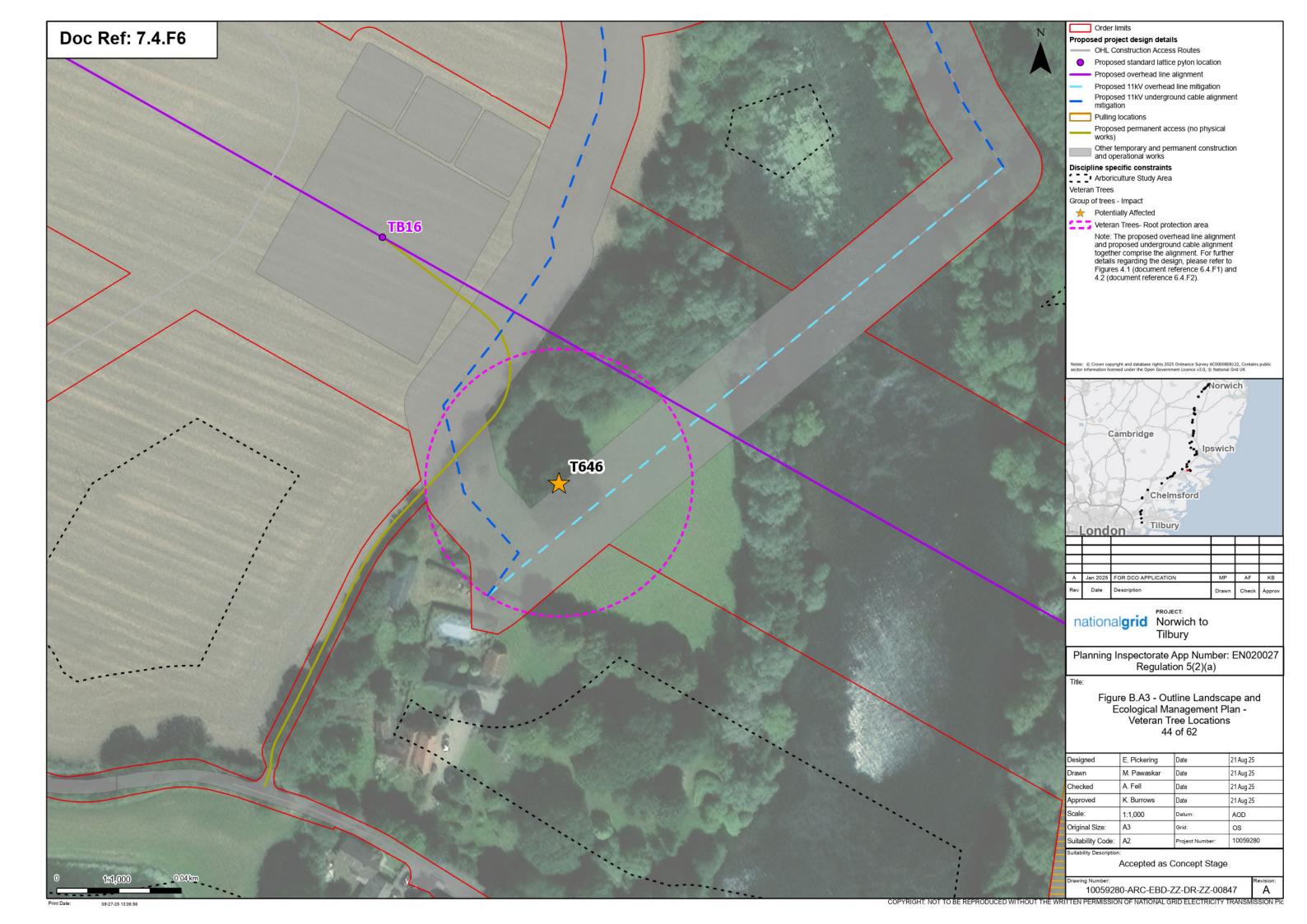


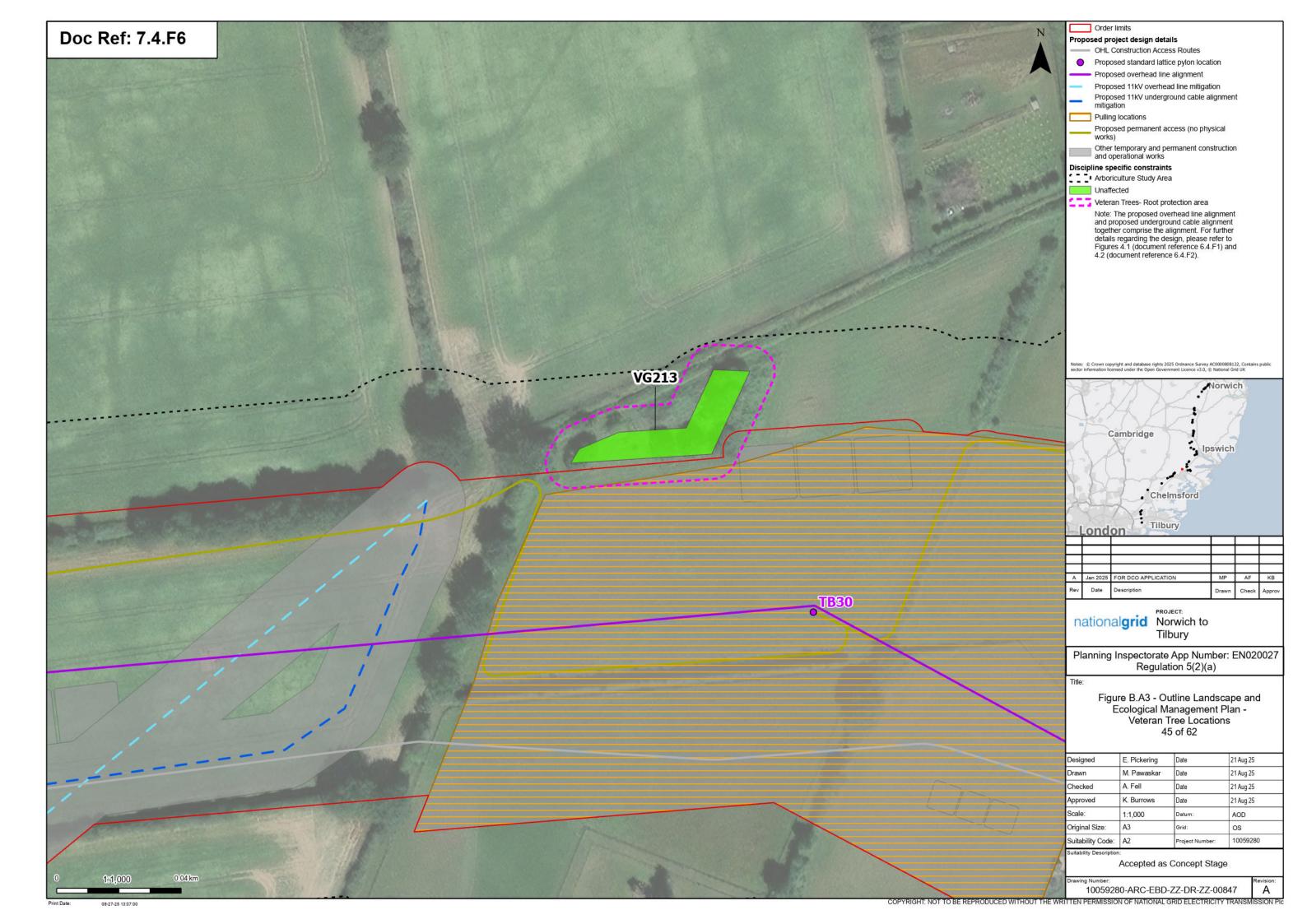




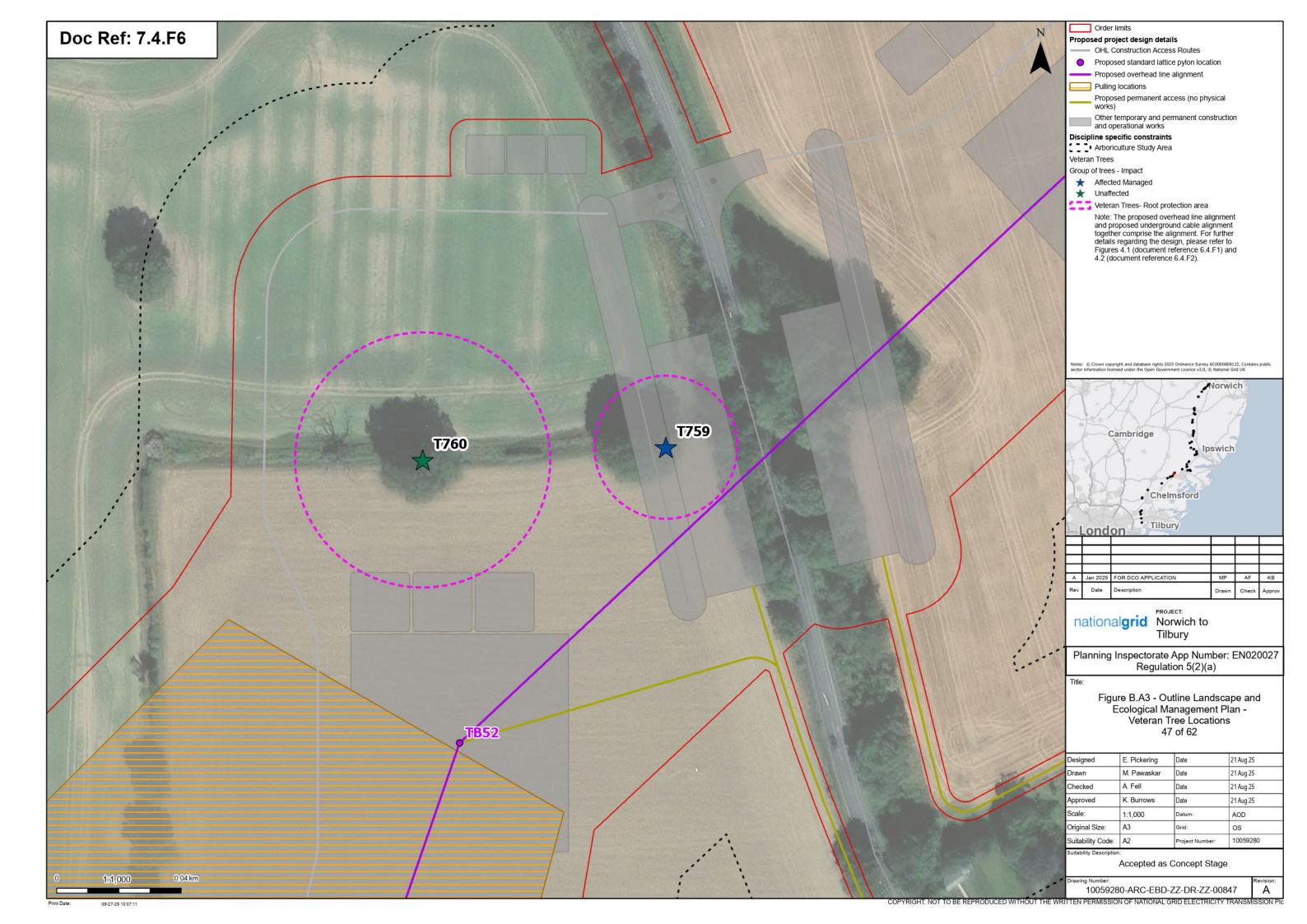






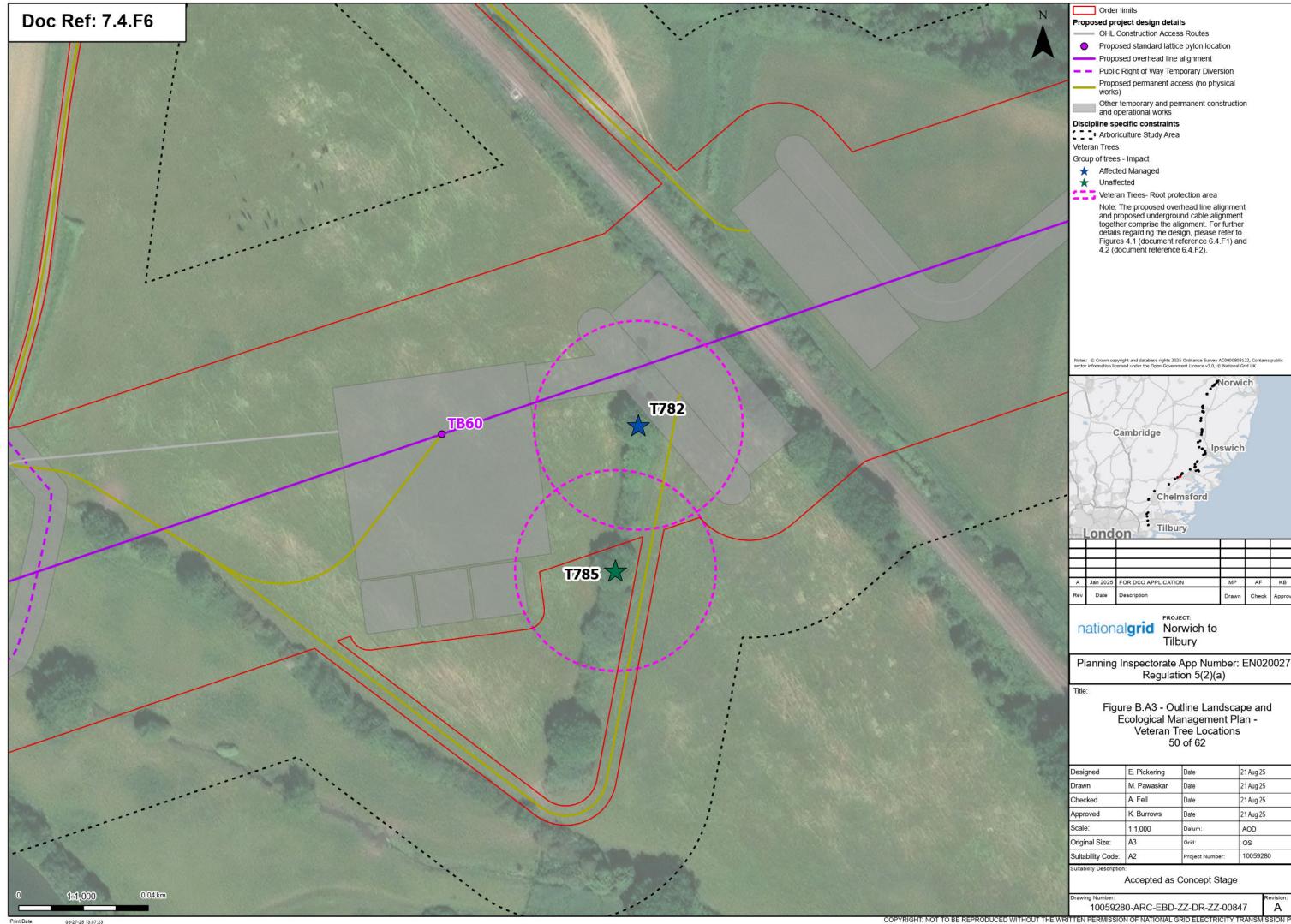


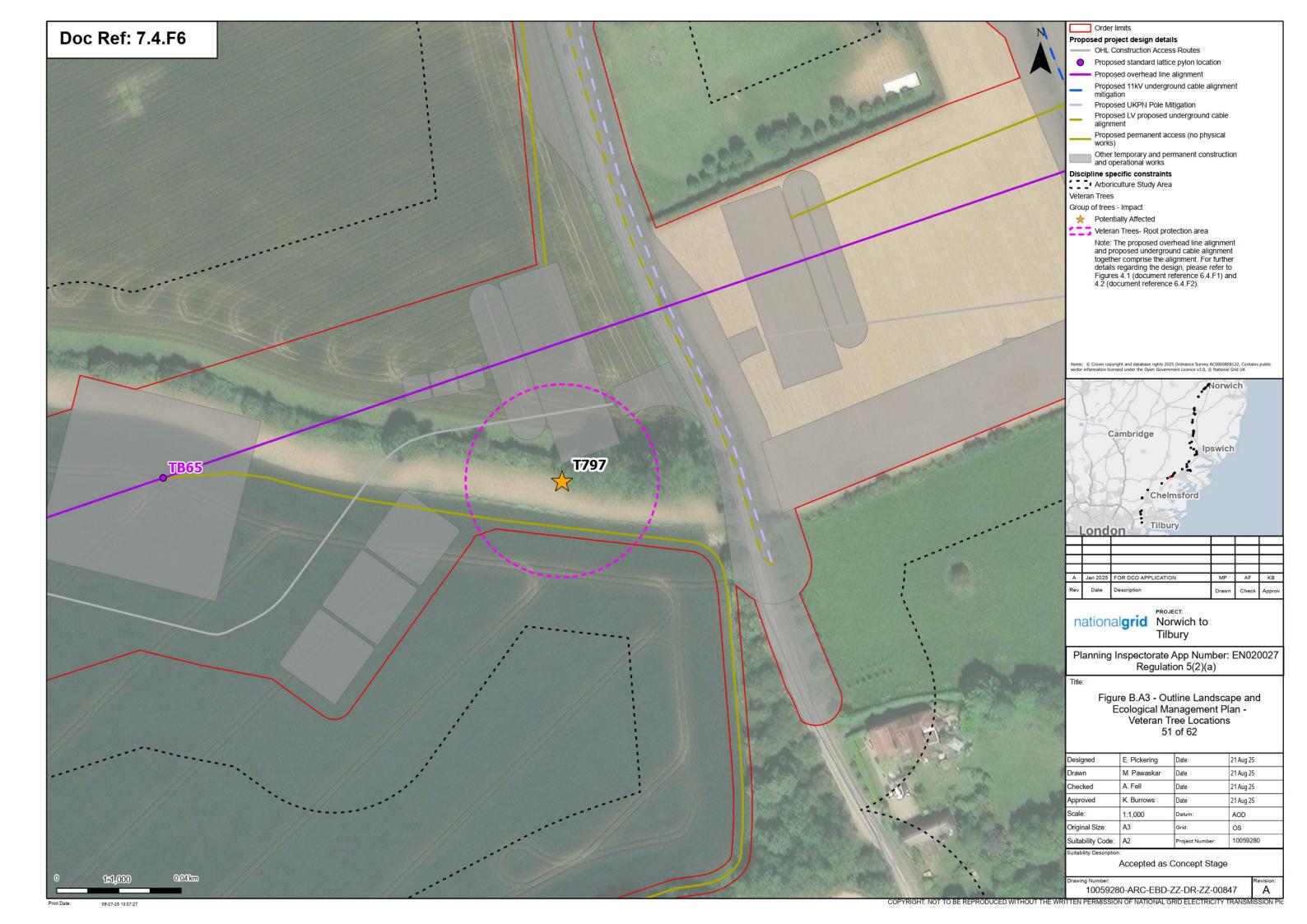


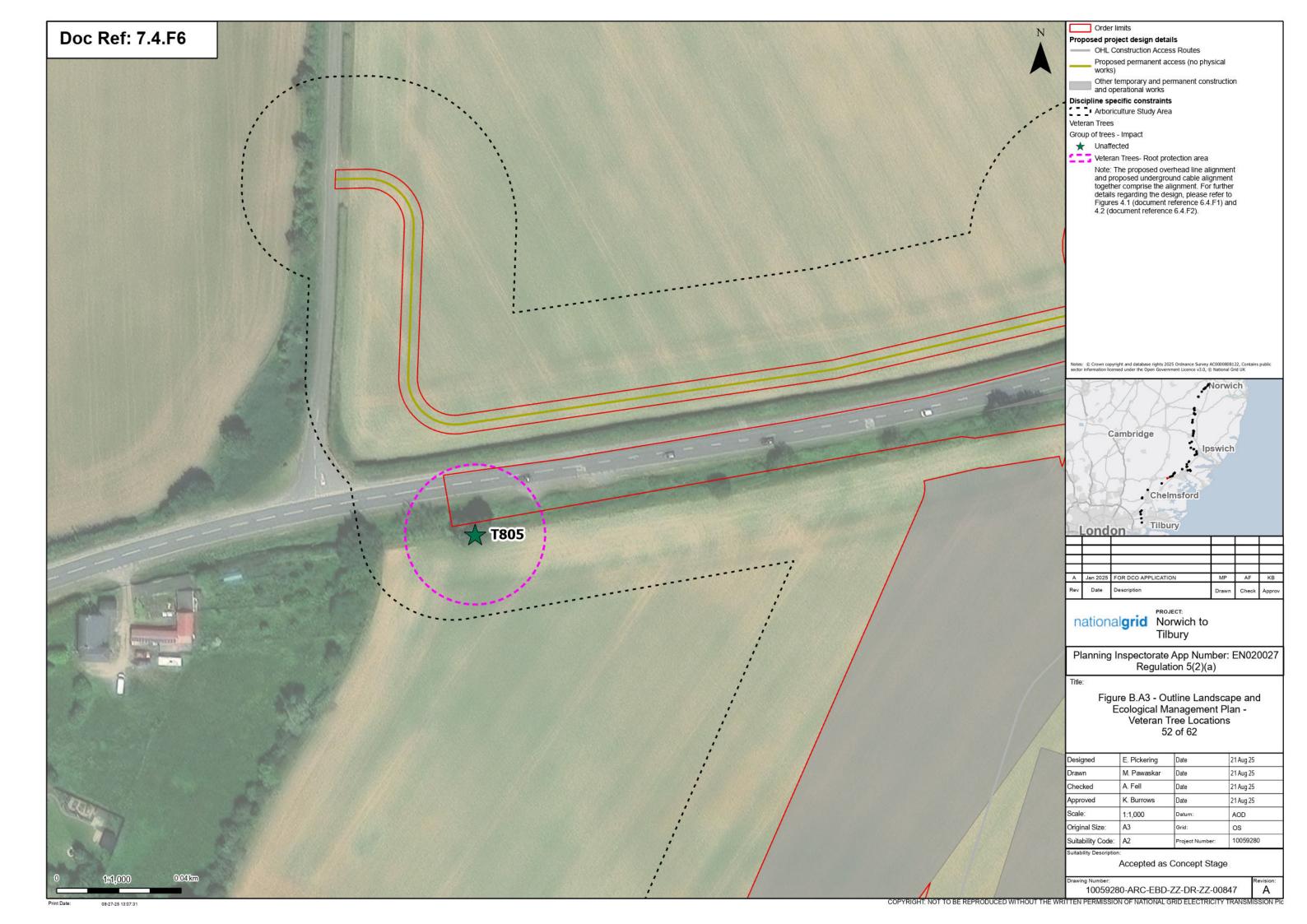






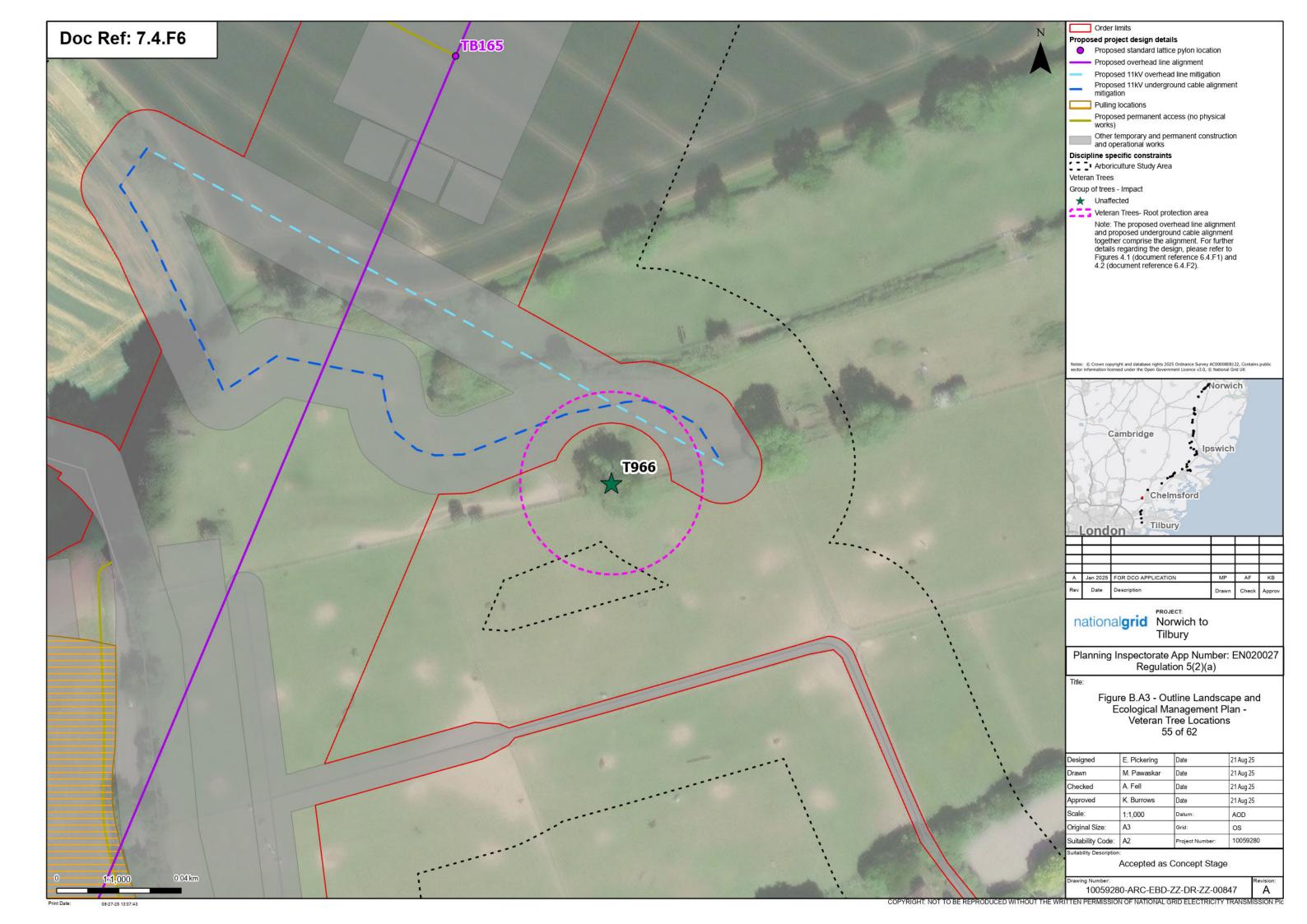


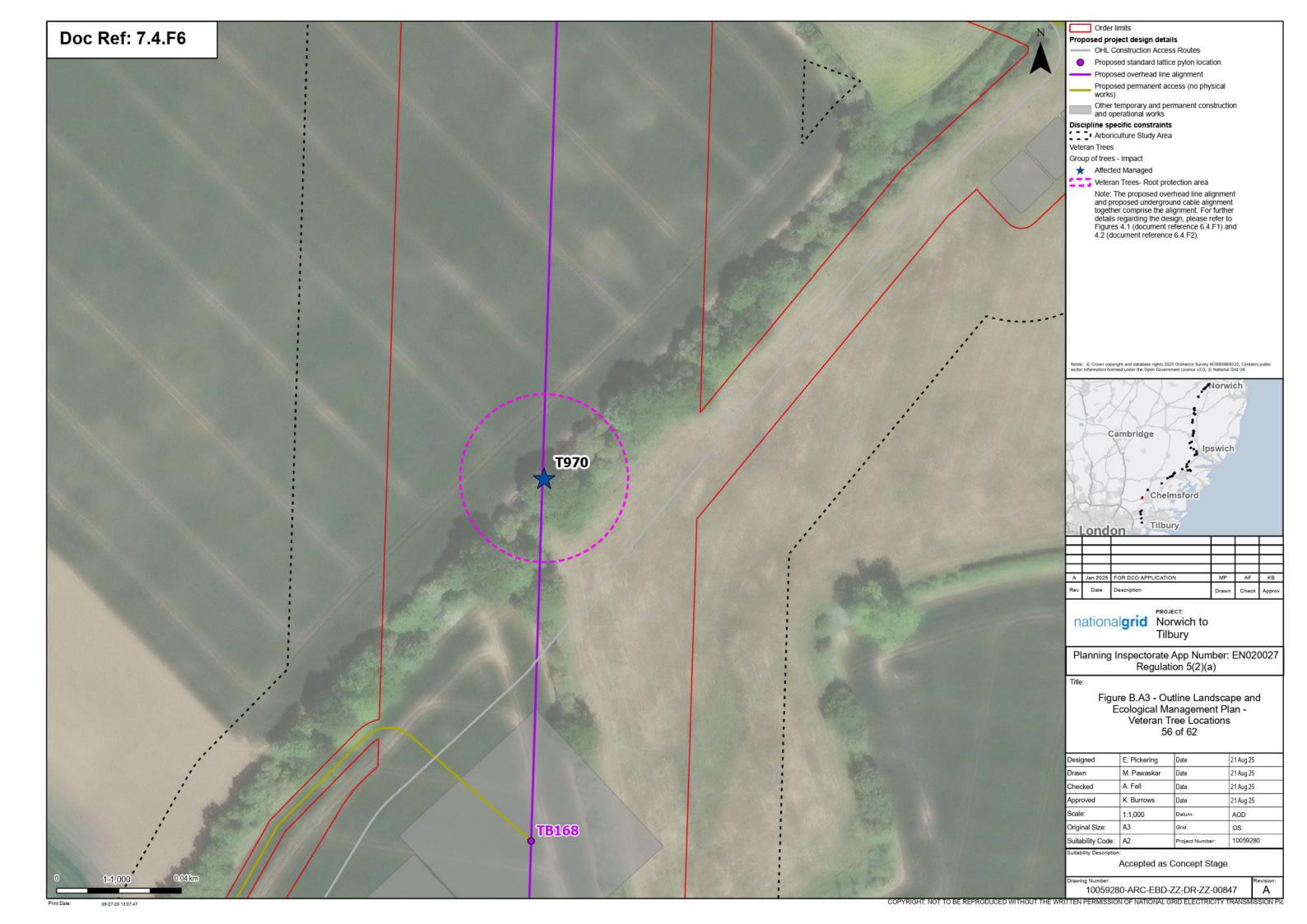




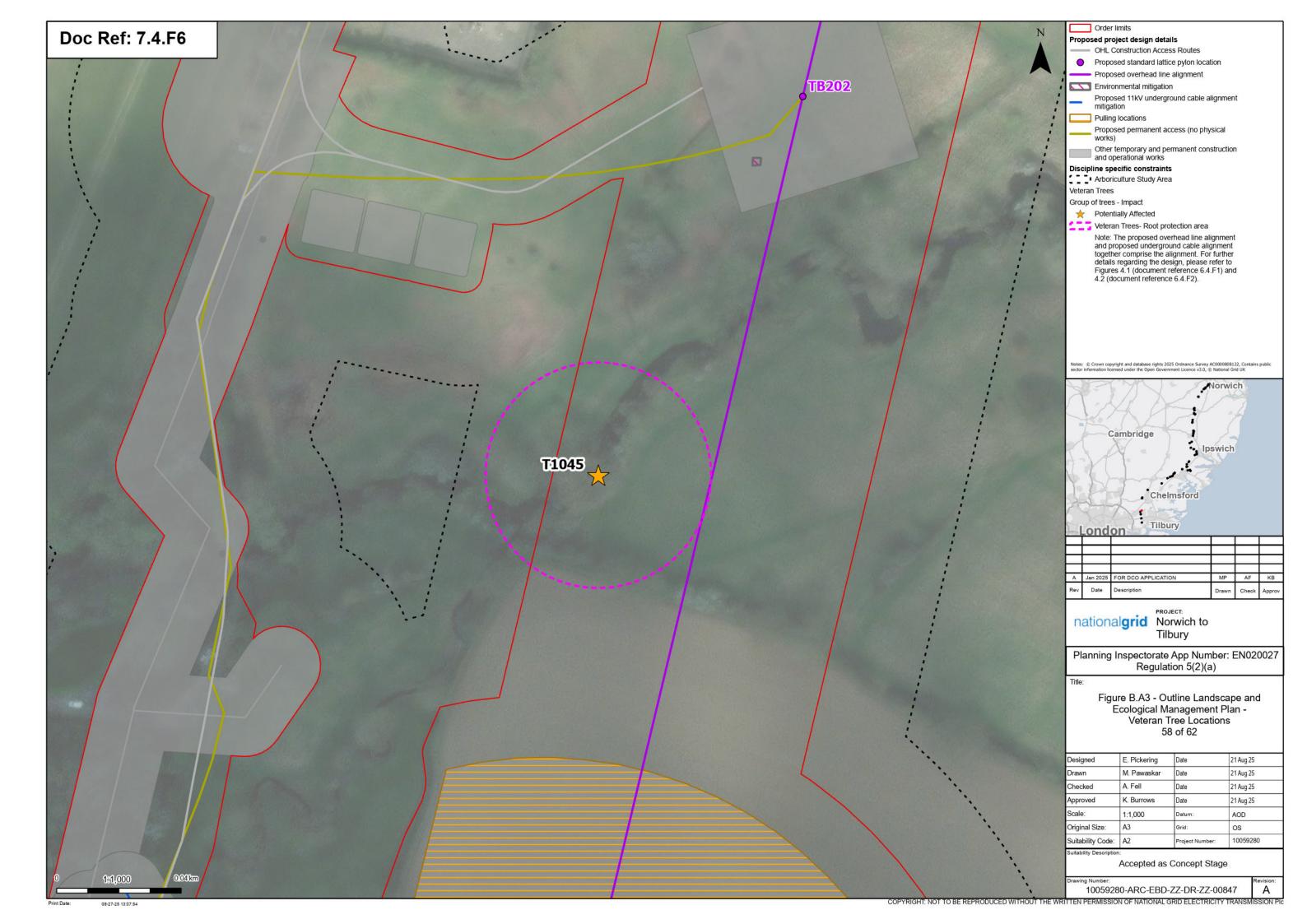


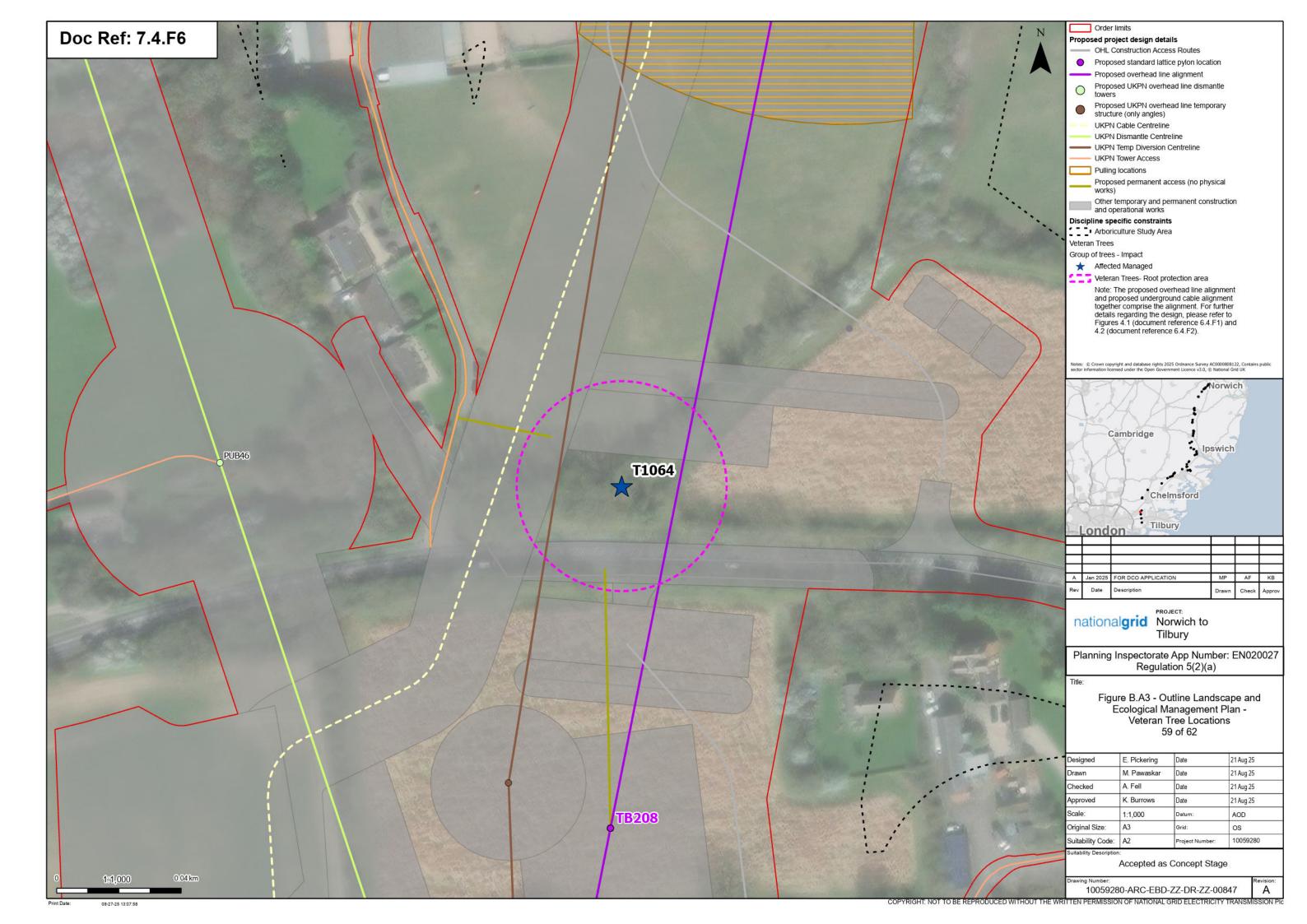




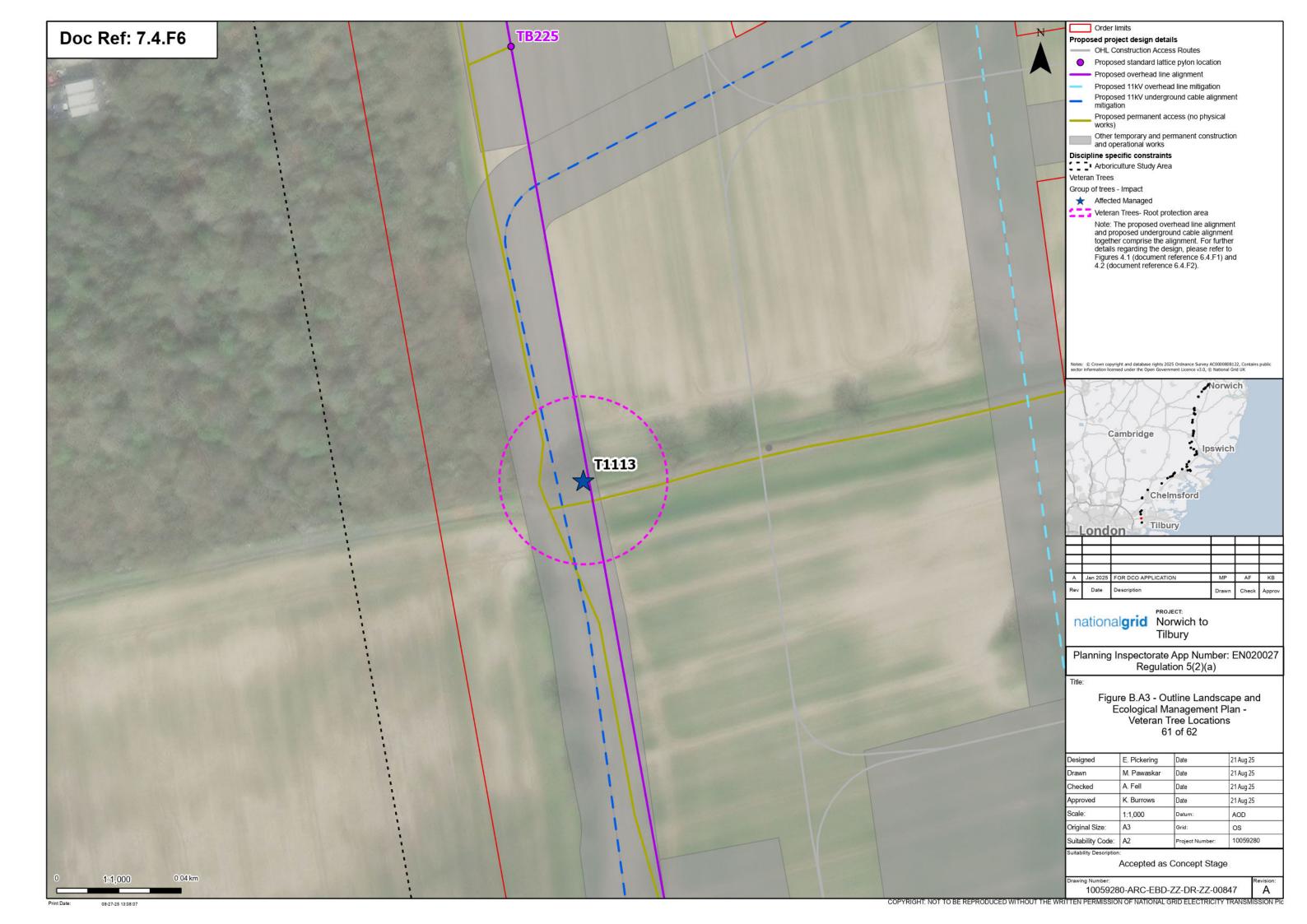














Annex B. Other Ancient Woodland Within 15 m of the Order Limits

Annex B Other Ancient Woodland Within 15 m of the Order Limits

Table B.1 Other ancient woodlands within 15 m of Order Limits (woodlands not already captured in tables above)

Project Section	Ancient Woodland Name	Woodland in Relation to the Project	Mitigation Measure/ Commitment	Breaking Ground/ Physical Works Within 15 m?
В	Great Newton Wood	Borders Order Limit, woodland is 0 m east of 400 kV overhead line LoD extent but 43 m from current alignment. The woodland is 6 m south-west of a permanent access route for UKPN access to pylon EEPK9 as part of their 132 kV overhead line mitigation. No proposed works required for permanent access route as existing tracks (right of access only). No direct loss of woodland is expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No
В	Little Newton Wood	Woodland is 6 m south-east of closest point to permanent access route (right of access only) for UKPN access to pylon EEPK9 as part of their 132 kV overhead line mitigation. No proposed works required for permanent access route as existing road (Hill House Lane, right of access only). No works would be required for the permanent access route as an existing track would be used. No direct loss of woodland is expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No
В	Middle Wood, Offton	Woodland is 32 m from diverted centreline of UKPN third party mitigation of 132 kV overhead line (PI route) centreline and 15 m from the works swathe. No direct loss of woodland is expected. Middle Wood SSSI extent is within Order Limits for works area of the dismantling of third party UKPN 132 kV route, however	ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m	No

Project Section	Ancient Woodland Name	Woodland in Relation to the Project	Mitigation Measure/ Commitment	Breaking Ground/ Physical Works Within 15 m?
		ancient woodland extent (as mapped on the inventory) is approximately 60 m into the woodland (and from the dismantling of 132 kV route) at closest point.		
В	Somersham Park	Borders Order Limits. 13 m from permanent access route (right of access only) for construction of pylons RG201 and RG202 for 400 kV overhead line. No works would be required for the permanent access route as an existing track would be used. 0 m from 400 kV overhead line LoD extent but 50 m from current alignment. No direct loss of woodland is expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No, not with additional/ embedded mitigation measures of minimising LoD extent where 15 m buffer could be breached.
В	Bullen Wood	Adjacent to Order Limits - directly next to Bramford Substation. Permanent existing access route 4 m to the south (right of access only) for construction of pylons JC6 and JC7 for 400 kV overhead line. No works would be required for the permanent access route as an existing track would be used. South-east corner of woodland is within 8 m of 400 kV overhead line LoD extent but 52 m from current alignment. No direct loss of woodland is expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No, not with additional/ embedded mitigation measures of minimising LoD extent where 15 m buffer could be breached.
В	Lower Wood	Woodland is 6 m from pulling location by pylon RG179, but 84 m from pylon RG179 itself. No direct loss of woodland is expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No
B/C	Burstall Long Wood	Woodland is 6 m east at closest point from 400 kV overhead line LoD extent but 50 m from current	Commitment for no physical works or breaking ground within 15 m of	No, not with additional/

Project Section	Ancient Woodland Name	Woodland in Relation to the Project	Mitigation Measure/ Commitment	Breaking Ground/ Physical Works Within 15 m?
		alignment. No direct loss of woodland expected. 6 m from permanent access route (right of access only) as part of third party UKPN 132 kV overhead line mitigation. No works would be required for the permanent access route as an existing track would be used. No direct impact/ loss of woodland is expected.	ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	embedded mitigation measures of minimising LoD extent where 15 m buffer could be breached.
С	Wenham Thicks	Woodland is 5 m south at closest point from permanent access route (right of access only) for construction of pylons JC26 and JC27 for 400 kV overhead line. No works would be required for the permanent access route as an existing track would be used. No direct impact/ loss of woodland is expected. No direct impact/ loss of woodland is expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No
С	Brimlin Wood	Southern corner of woodland is 2 m north from 400 kV overhead line LoD extent but over 50 m from current alignment. No direct impact/ loss of woodland is expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No, not with additional/ embedded mitigation measures of minimising LoD extent where 15 m buffer could be breached.
D	Fiddler's Wood	Woodland is 2 m south-west at closest point from visibility splay along Fiddlers Hill from bellmouth TB-B045. No ground excavation works within 15 m, no direct impact	Management of vegetation along road for visibility splay only in proximity to woodland, no devegetation of ancient woodland. No breaking ground works anticipated.	No.

Project Section	Ancient Woodland Name	Woodland in Relation to the Project	Mitigation Measure/ Commitment	Breaking Ground/ Physical Works Within 15 m?
D	Aldhamhall Wood	Woodland is 12 m east at closest point from 400 kV overhead line LoD extent but over 50 m from current alignment. No direct loss of woodland is expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No, not with additional/ embedded mitigation measures of minimising LoD extent where 15 m buffer could be breached.
D	Church House Wood	South-east corner of woodland is 4 m north at closest point from 400 kV overhead line LoD extent but over 44 m from current alignment. No direct loss of woodland is expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No, not with additional/ embedded mitigation measures of minimising LoD extent where 15 m buffer could be breached.
D	Harrow Wood LWS	Not mapped as ancient woodland on the inventory but LWS description indicates ancient woodland features. A permanent access route (right of access only) would be located on the fringes of LWS boundary, no works would be required for the permanent access route as an existing track would be used. An Environmental Area would be located adjacent to the woodland for habitat creation and enhancement measures only. There would be no other construction elements within 50 m. Woodland is 12 m west at closest point from overhead line LoD extent but over 150 m from current	Commitment to no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No, not with additional/ embedded mitigation measures of minimising LoD extent where 15 m buffer could be breached.

Project Section	Ancient Woodland Name	Woodland in Relation to the Project	Mitigation Measure/ Commitment	Breaking Ground/ Physical Works Within 15 m?
		alignment and 18 m from current construction swathe. No loss of woodland is anticipated.		
E	Sandy Wood	Woodland is 10 m north of closest point to permanent access route (right of access only) for UKPN access to pylon PSB38 as part of their 132 kV overhead line mitigation. No works would be required for the permanent access route as an existing track would be used.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No
E	Hallhook Row	Borders Order Limit. 0 m from 400 kV overhead line LoD extent but 49 m from current alignment. No direct loss of woodland is expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No, not with additional/ embedded mitigation measures of minimising LoD extent where 15 m buffer could be breached.
F	Bushy Wood	Adjacent to Order Limits. Woodland is 3 m north at the closest point from permanent access route (right of access only) for construction of pylon TB151 for 400 kV overhead line. Woodland is 8 m north-west from 400 kV overhead line LoD extent but over 55m from current alignment. No direct loss of woodland expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No, not with additional/ embedded mitigation measures of minimising LoD extent where 15 m buffer could be breached.
F	Writtle- James Spring	Woodland is 5 m north at closest point from permanent access route (right of access only) for construction of	Commitment for to no physical works or breaking ground within 15 m of ancient woodland where	No

Project Section	Ancient Woodland Name	Woodland in Relation to the Project	Mitigation Measure/ Commitment	Breaking Ground/ Physical Works Within 15 m?
		pylon TB181 for 400 kV overhead line. No direct loss of woodland expected.	at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	
F	Sparrowhawk Wood	Woodland is 11 m south at the closest point from permanent access route (right of access only) for construction of pylon TB144 for 400 kV overhead line. No direct loss of woodland expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No
F	Border Wood	9 m from the Order Limits but at least 30 m from pulling location of pylon TB146 for 400 kV overhead line and 165 m from pylon itself. No direct loss of woodland expected.	Embedded mitigation during the design phase has scoped out the need for additional mitigation measures.	No
F	Osborne's Wood	Woodland is 5 m east from 400 kV overhead line LoD extent at closest point, but 50 m from current alignment. No direct loss of woodland expected. Woodland is 11 m east at closest point to permanent access route (right of access only) for construction of pylon TB183 for 400 kV overhead line.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No, not with additional/ embedded mitigation measures of minimising LoD extent where 15 m buffer could be breached.
G	Round Wood LWS	Not mapped as ancient woodland on the inventory but LWS description indicates ancient woodland features. Woodland is 5 m north at closest point to permanent access route (right of access only) for construction of pylon TB205 for 400 kV overhead line. No direct loss of woodland expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No

Project Section	Ancient Woodland Name	Woodland in Relation to the Project	Mitigation Measure/ Commitment	Breaking Ground/ Physical Works Within 15 m?
G	Primstock LWS	Not mapped as ancient woodland on the inventory but LWS description indicates ancient woodland features. Woodland is 7 m west at closest point to permanent access route (right of access only) for construction of pylon TB213 for 400 kV overhead line. No direct loss of woodland expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No
G	St Margarets Wood and Lane LWS	St Margarets Wood and Lane is a LWS which contains a woodland which is not mapped on the inventory, but its description indicates ancient woodland features. The lane portion of the LWS passes through the Order Limits, however the woodland is approximately 30 m west at its closest point to a permanent access route (right of access only) for construction of pylon TB219 for 400 kV overhead line. No direct loss of woodland expected.	Commitment for no physical works or breaking ground within 15 m of ancient woodland where at all possible. Demarcation measures will be used to ensure this 15 m buffer is not breached.	No

Annex C. Ancient Woodland with Proposed Mitigation in relation to the Project

Annex C Ancient Woodland with Proposed Mitigation in relation to the Project

Figure B.C.1 Round Wood (Section B)



Figure B.C.2 Rivenhall Thicks (Section E)



Figure B.C.3 Writtle - Writtlepark Woods (Section F)

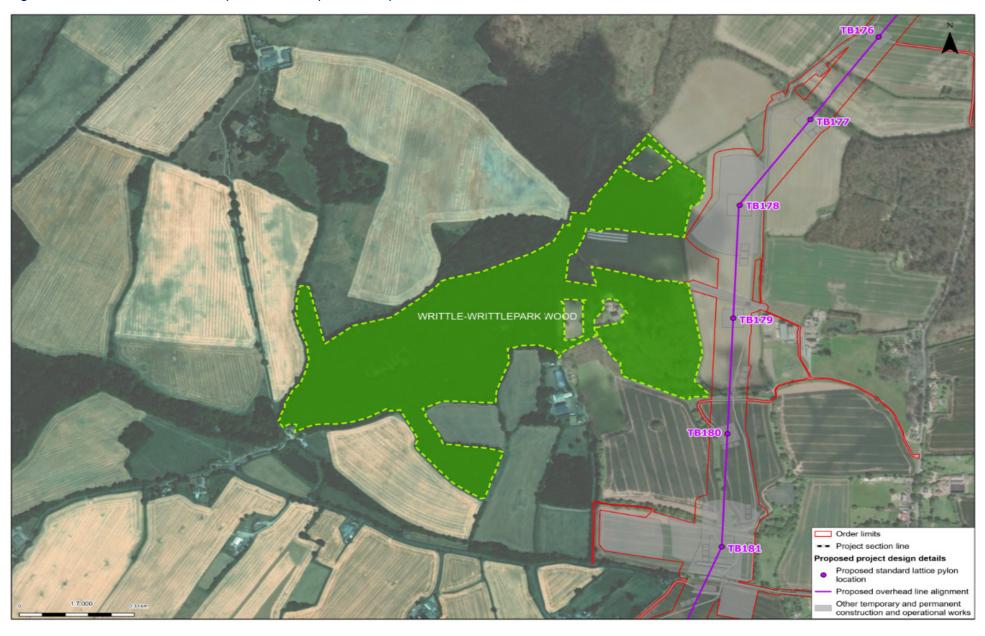


Figure B.C.4 Clapgate Wood (Section G)



Figure B.C.5 Miller's Wood (Section B)



Figure B.C.6 Stonefield Strip (LWS) (Section D)



Figure B.C.7 Mann / Parson's Wood (Section E / F)



Figure B.C.8 Sheepcote's Wood (Section F)



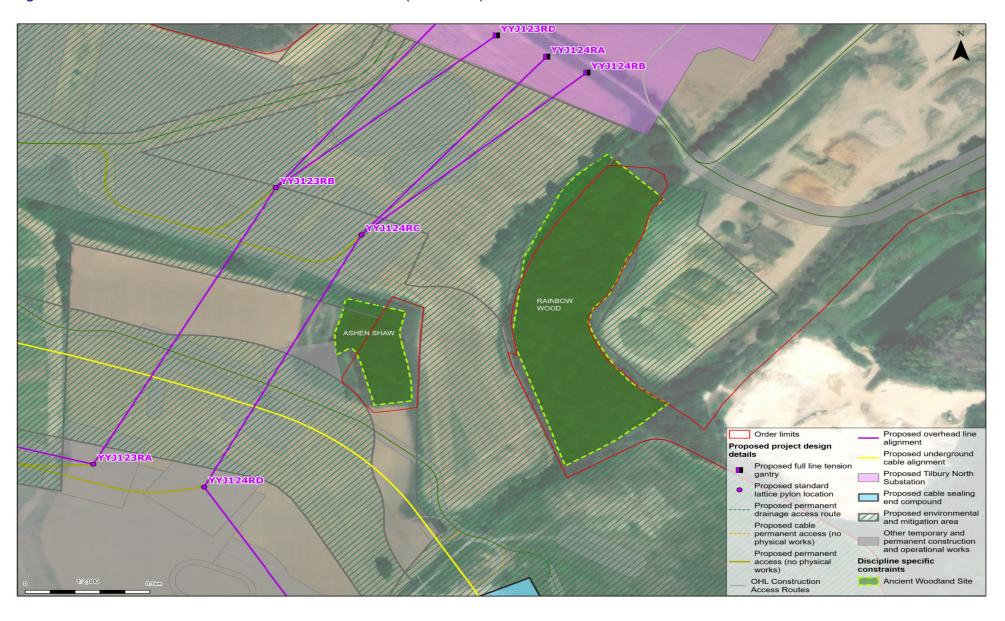
Figure B.C.9 Botneyhill Wood LWS (Section G)



Figure B.C.10 Little Bladen's Wood LWS (Section G)



Figure B.C.11 Rainbow Wood and Ashen Shaw LWS (Section H)



Annex D. Veteran Features Within the Study Area

Annex D Veteran Features Within the Study Area

Table D.1 Veteran features within the Study Area

Feature ID	Species	Buffer Zone	Location in Relation to Project	Project Activity (Refer to Table 7.2 for Details of Impact)	Assumed Mitigation (Refer to Table 7.1 for Details)
T7	English oak	21 m	Tree within Order Limits	Excavations, Overhead Lines, Temporary Construction	Minimise
T10	English oak	21 m	Tree within Order Limits	Excavations, Overhead Lines, Temporary Construction	Minimise
T11	English oak	18.75 m	Tree within Order Limits	Excavations, Overhead Lines, Temporary Construction	Avoid
T12	English oak	27 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T13	Holly	10.5 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T17	English oak	24 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T20	English oak	21 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T33	English oak	18.45 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T53	English oak	19.5 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T57	English oak	22.5 m	Tree within Order Limits	Excavations, Temporary Construction	Minimise
T61	English oak	15.75 m	Tree within Order Limits	Overhead Lines, Temporary Construction, Excavations	Compensate

Feature ID	Species	Buffer Zone	Location in Relation to Project	Project Activity (Refer to Table 7.2 for Details of Impact)	Assumed Mitigation (Refer to Table 7.1 for Details)
T62	English oak	16.5 m	Tree within Order Limits	Overhead Lines, Temporary Construction, Excavations	Compensate
T64	English oak	27.9 m	Tree within Order Limits	Temporary Construction	Minimise
T65	English oak	33 m	Tree within Order Limits	Temporary Construction, Excavations	Minimise
T67	English oak	37.5 m	Buffer Zone within Order Limits	Temporary Construction, Excavations	Minimise
T68	English oak	33 m	Buffer Zone within Order Limits	Temporary Construction, Excavations	Minimise
T70	English oak	18 m	Tree within Order Limits	Overhead Lines	Minimise
T71	English oak	37.5 m	Tree within Order Limits	Temporary Construction, Excavations	Minimise
T72	English oak	28.5 m	Tree within Order Limits	Temporary Construction, Excavations	Minimise
T73	English oak	24.75 m	Buffer Zone within Order Limits	Excavations	Minimise
T82	English oak	21.75 m	Tree within Order Limits	Temporary Construction, Excavations	Minimise
T84	English oak	29.85 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T85	Common ash	14.25 m	Tree within Order Limits	Temporary Construction, Excavations	Minimise
T91	English oak	23.4 m	Buffer Zone within Order Limits	Temporary Construction, Overhead Lines	Minimise
T106	English oak	24.75 m	Tree within Order Limits	Temporary Construction	Avoid
T107	English oak	18 m	Tree within Order Limits	Overhead Lines. Temporary Construction	Compensate
T108	English oak	27 m	Tree within Order Limits	Temporary Construction, Excavations	Avoid
T182	English oak	13.2 m	Tree within Order Limits	Overhead Lines, Temporary Construction	Avoid

Feature ID	Species	Buffer Zone	Location in Relation to Project	Project Activity (Refer to Table 7.2 for Details of Impact)	Assumed Mitigation (Refer to Table 7.1 for Details)
T195	Field maple	15 m	Tree within Order Limits	Overhead Lines, Temporary Construction	Minimise
T210	Alder	17.85 m	Tree within Order Limits	Overhead Lines, Temporary Construction	Minimise
T211	Alder	22.5 m	Buffer Zone within Order Limits	Temporary Construction	Minimise
T231	Oak sp.	19.8 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T233	Oak sp.	12 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T236	English oak	29.25 m	Buffer Zone within Order Limits	Excavations	Avoid
T241	English oak	14.25 m	Tree within Order Limits	Overhead Lines, Excavations, Temporary Construction	Avoid
T247	Ash	18 m	Buffer Zone within Order Limits	Excavations	Minimise
T278	English oak	32.4 m	Buffer Zone within Order Limits	Temporary Construction, Excavations	Avoid
T279	English oak	20.55 m	Tree within Order Limits	Overhead Lines, Temporary Construction	Avoid
T286	English oak	16.5 m	Tree within Order Limits	Overhead Lines	Minimise
T288	English oak	16.5 m	Tree within Order Limits	Overhead Lines	Avoid
T296	English oak	12 m	Buffer Zone within Order Limits	Temporary Construction	Compensate
T318	English oak	12 m	Tree within Order Limits	Overhead Lines	Avoid
T319	English oak	19.5 m	Buffer Zone within Order Limits	Overhead Lines	Minimise
T320	English oak	14.25 m	Tree within Order Limits	Temporary Construction	Avoid
T324	English oak	10.5 m	Tree within Order Limits	Overhead Lines	Avoid
T328	English oak	13.2 m	Tree within Order Limits	Overhead Lines	Compensate

Feature ID	Species	Buffer Zone	Location in Relation to Project	Project Activity (Refer to Table 7.2 for Details of Impact)	Assumed Mitigation (Refer to Table 7.1 for Details)
T329	English oak	6.9 m	Buffer Zone within Order Limits	Excavations	Compensate
T340	Wild black poplar	23.55 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T375	English oak	32.25 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T378	Ash	21 m	Tree within Order Limits	Overhead Lines	Avoid
T390	English oak	16.5 m	Tree within Order Limits	Temporary Construction	Minimise
T405	White willow	19.2 m	Tree within Order Limits	Temporary Construction	Avoid
T408	White willow	24.75 m	Tree within Order Limits	Temporary Construction	Avoid
T410	White willow	19.5 m	Tree within Order Limits	Temporary Construction	Avoid
T411	White willow	27 m	Tree within Order Limits	Excavations	Minimise
T431	English elm	20.25 m	Tree within Order Limits	Excavations	Minimise
T432	English elm	18 m	Tree within Order Limits	Excavations	Minimise
T434	English elm	25.95 m	Tree within Order Limits	Excavations	Minimise
T439	English elm	24 m	Tree within Order Limits	Excavations	Avoid
T440	English elm	24 m	Tree within Order Limits	Excavations	Avoid
T458	English oak	23.25 m	Tree within Order Limits	Temporary Works	Minimise

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Feature ID	Species	Buffer Zone	Location in Relation to Project	Project Activity (Refer to Table 7.2 for Details of Impact)	Assumed Mitigation (Refer to Table 7.1 for Details)
T467	Ash	15 m	Tree within Order Limits	Temporary Works	Avoid
T472	English oak	23.25 m	Tree within Order Limits	Temporary Works	Minimise
T473	Field maple	15.3 m	Tree within Order Limits	Temporary Works	Minimise
T477	Crack willow	34.5 m	Buffer Zone within Order Limits	Temporary Works	Avoid
T482	English oak	23.25 m	Buffer Zone within Order Limits	Temporary Works	Avoid
T483	English oak	22.65 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T489	English oak	16.95 m	Tree within Order Limits	Temporary Construction	Avoid
T490	English oak	24.3 m	Tree within Order Limits	Temporary Construction, Overhead Lines	Avoid
T492	Ash	24.9 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T514	English oak	17.25 m	Buffer Zone within Order Limits	Excavations	Avoid
T520	Ash	30 m	Buffer Zone within Order Limits	Excavations	Avoid
T522	Ash	27 m	Tree within Order Limits	Excavations	Avoid
T525	English oak	21.6 m	Buffer Zone within Order Limits	Excavations	Minimise
T527	Oak sp.	20.7 m	Buffer Zone within Order Limits	Temporary Construction, Excavation	Avoid
T549	English oak	21.75 m	Buffer Zone within 5 m of Order Limits	Temporary Construction	Avoid
T550	English oak	13.5 m	Buffer Zone within 5 m of Order Limits	Temporary Construction	Avoid
T552	English oak	21 m	Tree within Order Limits	Temporary Construction, Excavations	Avoid
T563	English oak	25.5 m	Buffer Zone within Order Limits	Excavations	Minimise

Zone within 5 m of Order Limits Zone within Order Limits Vithin Order Limits Zone within Order Limits	,	Avoid Compensate Avoid Avoid
Zone within Order Limits Vithin Order Limits Zone within Order Limits	Temporary Construction, Excavation Temporary Construction, Overhead Lines	Avoid Avoid
Vithin Order Limits Zone within Order Limits	Temporary Construction, Overhead Lines	Avoid
Zone within Order Limits		
	Excavation	
	LAGGVATION	Minimise
Zone within Order Limits	Temporary Construction, Excavation	Avoid
Zone within Order Limits	Temporary Construction	Avoid
	Temporary Construction, Excavation, Overhead Lines	Avoid
	Temporary Construction, Excavation, Overhead Lines	Minimise
	Temporary Construction, Excavation, Overhead Lines	Avoid
	Temporary Construction, Excavation, Overhead Lines	Minimise
	Overhead Lines, Temporary Construction, Excavation	Minimise
vithin Order Limits	Temporary Construction, Excavation	Minimise
Zone within Order Limits	Temporary Construction	Minimise
Zone within Order Limits	Temporary Construction	Avoid
V	Zone within Order Limits Zone within Order Limits Zone within Order Limits within Order Limits	Zone within Order Limits Temporary Construction, Excavation Temporary Construction Temporary Construction, Excavation, Overhead Lines Tolerand Lines Temporary Construction, Excavation, Overhead Lines Temporary Construction, Excavation

Feature ID	Species	Buffer Zone	Location in Relation to Project	Project Activity (Refer to Table 7.2 for Details of Impact)	Assumed Mitigation (Refer to Table 7.1 for Details)
T820	English oak	21.6 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T908	English oak	18.3 m	Tree within Order Limits	Temporary Construction, Excavation, Overhead Lines	Avoid
T909	English oak	28.8 m	Buffer Zone within 5 m of Order Limits	Temporary Construction, Excavation	Minimise
T966	Ash	19.35 m	Tree within Order Limits	Overhead Lines, Temporary Construction,	Avoid
T970	Hornbe-am	13.5 m	Tree within Order Limits	Overhead Lines	Minimise
T1045	English oak	26.25 m	Tree within Order Limits	Temporary Construction, Excavation, Overhead Lines	Minimise
T1064	English oak	24.75 m	Tree within Order Limits	Temporary Construction, Excavation	Minimise
T1085	Ash	13.5 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T1087	English oak	14.85 m	Tree within Order Limits	Overhead Lines, Temporary Construction, Excavation	Avoid
T1113	English oak	18 m	Tree within Order Limits	Temporary Construction	Minimise
T1131	English oak	14.4 m	Tree within Order Limits	Overhead Lines, Temporary Construction	Avoid
T1178	Field maple	20.25 m	Tree within Order Limits	Temporary Construction	Minimise
T1179	English oak	20.55 m	Buffer Zone within Order Limits	Temporary Construction	MInimise
T1182	Ash	37.5 m	Buffer Zone within Order Limits	Temporary Construction	Avoid
T1184	English oak	17.25 m	Tree within Order Limits	Overhead Lines, Temporary Construction	Minimise

Feature ID	Species	Buffer Zone	Location in Relation to Project	Project Activity (Refer to Table 7.2 for Details of Impact)	Assumed Mitigation (Refer to Table 7.1 for Details)
T1187	English oak	17.1 m	Buffer Zone within Order Limits	Temporary Construction	Minimise
T1188	English oak	20.25 m	Buffer Zone within Order Limits	Temporary Construction	Minimise
T1189	English oak	20.4 m	Buffer Zone within Order Limits	Temporary Construction	Minimise
VG163	Hunting- don elm	17.4 m	Group within Order Limits	Overhead Lines, Temporary Construction, Excavation	Minimise
VG213	Plum sp.	8.4 m	Buffer zone within Order Limits	Temporary Construction	Avoid
VG404	Alder	24.75 m	Group Within Order Limits	Temporary Construction	Minimise
VG406	English oak	0.00 m	Group Within Order Limits	Overhead Lines, Temporary Construction	Minimise