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Yorkshire Green Energy Enablement (GREEN) Project

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1. Arboricultural Impact Assessment

1.1 Introduction

1.1.1 This report presents the assessment of the likely impacts of the Yorkshire Green Energy Enablement Project (referred to as the Project or Yorkshire GREEN throughout the ES) with respect to Arboriculture, including the impact on individual trees, groups, hedgerows and woodlands. The assessment should be read in conjunction with the Project description provided in **Chapter 3: Description of the Project, Volume 5, Document 5.2.3** and with respect to relevant parts of the following chapters:

- **Chapter 6: Landscape and visual amenity, Volume 5, Document 5.2.6** (in relation to the loss of trees and proposed mitigation measures); and
- **Chapter 8: Biodiversity, Volume 5, Document 5.2.8** (in relation to the loss of, or impact on trees and hedgerows).

1.1.2 This chapter describes:

- the legislation, policy and technical guidance that has informed the assessment (**Section 1.2**);
- consultation and engagement that has been undertaken and how comments from consultees relating to Arboriculture have been addressed (**Section 1.3**);
- the methods used for baseline data gathering (**Section 1.4**);
- overall baseline (**Section 1.5**);
- embedded measures relevant to Arboriculture (**Section 1.6**);
- the scope of the assessment for Arboriculture (**Section 1.7**);
- the methods used for the assessment (**Section 1.8**);
- the assessment of Arboricultural impacts (**Section 1.9**).

Project overview

1.1.3 The Project is divided into six sections for ease of reference as indicated in **Figure 1.2, Volume 5, Document 5.4.1.** In summary the Project comprises the following new infrastructure within the Order Limits.

- Section B (North-west of York Area):
  - Shipton North and South 400kV cable sealing end compounds (CSECs) and 230m of cabling;
  - the 2.8km YN 400kV overhead line (north of proposed Overton Substation);
  - Overton 400/275kV Substation; and
  - two new sections of 275kV overhead line south of Overton Substation: the XC 275 kV overhead line to the south-west (2.1km) and the SP 275kV overhead line to the south-east (1.5km);

- Section D: Tadcaster Tee West and East 275kV CSECs; and 350m of cabling; and
- Section F: Monk Fryston 400kV Substation (adjacent to the existing substation).

1.1.4 Works to existing infrastructure within the Order Limits would comprise:

- Section A (Osbaldwick Substation): Minor works at Osbaldwick Substation comprising the installation of a new circuit breaker and isolator along with associated cabling, removal and replacement of one gantry and works to one existing pylon. All substation works would be within existing operational land.
- Section B (North west of York Area): Reconductoring of 2.4km of the 2TW/YR 400kV overhead line and replacement of one pylon. A mixture of decommissioning, replacement and realignment of 5km of the existing XCP 275kV Poppleton to Monk Fryston overhead line between Moor Monkton and Skelton. To the south and south-east of Moor Monkton the existing overhead line would be realigned up to 230m south from the current overhead line and the closest pylon to Moor Monkton (340m south-east) would be permanently removed. A 2.35km section of this existing overhead line permanently removed between the East Coast Mainline (ECML) Railway and Woodhouse Farm to the north of Overton.
- Section C (Moor Monkton to Tadcaster): Works proposed to the existing 275kV Poppleton to Monk Fryston (XC) overhead line comprise replacing existing overhead line conductors, replacement of pylon fittings, strengthening of steelwork and works to pylon foundations.
- Section D (Tadcaster Area): Replacement of one pylon on the Tadcaster Tee to Knaresborough (XD) 275kV overhead line route.
- Section E (Tadcaster to Monk Fryston). Works proposed to the existing 275kV Poppleton to Monk Fryston (XC) overhead line comprise replacing existing overhead line conductors, replacement of pylon fittings, strengthening of steelwork and works to pylon foundations.
- Section F (Monk Fryston Area): Reconfiguration of the existing XC Poppleton to Monk Fryston overhead line at its southern end to connect into the new substation at Monk Fryston; Reconfiguration of the Monk Fryston to Eggborough 400kV 4YS overhead line to connect into the new substation at Monk Fryston.

1.1.5 Please refer to **Chapter 3: Description of the Project, Volume 5, Document 5.2.3** and **Figures 1.1** and **1.2, Volume 5, Document 5.4.1** for an overview of the different components of the Project.

Limitations and assumptions

1.1.6 Due to the size of the Site (all land within the Order Limits) and the low risk of impacts to trees in many areas of the Order Limits, tree surveys have been targeted to focus on those areas where arboricultural impacts are most likely. Outside of these areas trees have been considered through the design and assessment process via a high-level baseline data set illustrating tree cover (based on Lidar and aerial imagery via the National Tree Map (NTM) dataset provided by BlueSky International Ltd) as set out in Section 8.7 of the Environmental Impact Assessment (EIA) Scoping Report and Section 1.16 of the Outline Arboricultural Impact Assessment included as part of the Preliminary Environmental Information Report (PEIR). The Planning Inspectorate has accepted the proposed approach to scope out areas such as reconductoring from the detailed tree survey where impacts are less likely and to rely on high level tree assessment data and

guidance on working methodologies for such areas (please refer to the EIA Scoping Opinion, **Appendix 4A, Volume 5, Document 5.3.4A**). This high-level baseline dataset generally includes vegetation above 5m in height and therefore may exclude some formally maintained or lower growing hedgerows. This data has also been used to cover small gaps in detailed survey data coverage where access has not been possible or where surveys weren't otherwise considered to be required.

1.1.7 Phase 1 mapping relates to data collected and mapped by field ecologists to record information on important wildlife habitat and existing vegetation within a given study area. In areas where only field boundary hedgerows are present and no other tree assessment was required this assessment has relied upon Phase 1 hedgerow mapping only and considered the extent of un-surveyed hedgerow features in linear metres. Further information on the Phase 1 survey is included within **Appendix 8B, Volume 5, Document 5.3.8B.**

1.1.8 No topographical survey plan has been made available in relation to the Project and therefore trees have been positioned as accurately as possible using aerial imagery, GPS and LiDAR data (NTM – obtained from BlueSky International Ltd in 2021). Tree positions must therefore be considered indicative and where necessary relevant offsets must be measured out on site prior to works commencing which will be secured via DCO requirement 10 (**Volume 3, Document 3.1**).

1.1.9 Some areas of land where surveys were required were not fully accessible and therefore in such situations surveys of tree features have been completed from a distance from adjacent accessible land. All observations and dimensions have been estimated. Where this is the case, it is noted in the Tree Survey Schedule included as **Annex 3I.2**.

1.1.10 Land access has been made available in the majority of instances. Where land was inaccessible and trees were not visible from adjacent accessible land it has not been possible to formally survey them. This is consistent with other typical DCO projects of this scale where full land access is not consistently achieved. In such circumstances trees have been considered via aerial imagery and LiDAR data (NTM) and high-level assumptions have been made in relation to likely quality, value and spatial constraints. Where such features are limited to lower growing or managed hedgerows only, Phase 1 hedgerow mapping has been utilised. All such hedgerows are assumed to be up to 1.5m in height and up to 1.5m in width. This is considered to be sufficiently robust and representative to inform this assessment.

1.1.11 The assessment of arboricultural impacts has been based on a GIS desk study undertaken by the Project team. A reasonable worst case has been assumed and in practice some tree features identified to be removed or impacted may be retainable/unimpacted. This will be reviewed as part of the detailed design process, on site, in advance of any tree clearance works.

1.2 Relevant legislation, planning policy and technical guidance

1.2.1 This section identifies the legislation, planning policy and technical guidance that has informed the assessment of effects with respect to Arboriculture. Further information on policies relevant to the Project is provided in **Chapter 5: Legislative and policy overview, Volume 5, Document 5.2.5**.

Legislation

1.2.2 A summary of the relevant legislation is given in **Table 1.1**.

Table 1.1 – Legislation relevant to the arboricultural assessment

Legislation	Legislative context
Town and Country Planning Act 1990 (as amended)[1] and; Town and Country Planning (Tree Preservation) (England) Regulations 2012[2]	The law on Tree Preservation Orders (TPOs) is contained within Part VIII of the Town and Country Planning Act 1990 as amended and in the Town and Country Planning (Tree Preservation) (England) Regulations 2012 which came into force on 6 April 2012. Section 192 of the Planning Act 2008 ("the Act") made further amendments to the 1990 Act which allowed for the transfer of provisions from within existing Tree Preservation Orders to regulations. Part 6 of the Localism Act 2011 amended section 210 of the Town and Country Planning Act 1990 concerning time limits for proceedings in regard to non-compliance with Tree Preservation Order regulations. A Tree Preservation Order is an order made by a local planning authority in England to protect specific trees, groups of trees or woodlands in the interests of amenity.
The Forestry Act 1967[3]	The Forestry Act 1967 creates the legal framework for the felling of trees in England and also includes provisions for restocking requirements. A licence is required to fell any growing trees unless an exception applies. Exceptions include the removal of less than 5 cubic metres of timber per calendar quarter, felling trees smaller than 8cm diameter or coppicing trees of 15cm diameter, the removal of trees in churchyards, gardens or public open spaces, felling trees to abate a nuisance or prevent a danger, felling trees immediately required to implement full planning consent, felling trees to satisfy an obligation in accordance with an act of parliament and tree removals by or necessary tree removals on behalf of a statutory undertaker.
The Hedgerow Regulations 1997[4]	The Hedgerow Regulations 1997 protect agricultural or countryside hedgerows which meet the requirements of an 'important hedgerow'. These include a minimum length of 20m (or meets another hedge at each end) and a minimum age of at

[1] UK Government (1990). The Town and Country Planning Act 1990 (as amended) (online). Available at: https://www.legislation.gov.uk/ukpga/1990/8/contents (Accessed 15 September 2021)
[2] UK Government (2012). The Town and Country Planning (Tree Preservation) (England) Regulations 2012 (online). Available at: https://www.legislation.gov.uk/uksi/2012/605/made?view=plain (Accessed 15 September 2021)
[3] UK Government (1967). The Forestry Act 1967 (online). Available at: https://www.legislation.gov.uk/ukpga/1967/10?view=extent (Accessed 15 September 2021)
[4] UK Government (1997). The Hedgerow Regulations 1997 (online). Available at: https://www.legislation.gov.uk/uksi/1997/1160/regulation/12/made (Accessed 15 September 2021)

Legislation	Legislative context
	least 30 years. A wide range of other ecological and archaeological/heritage features can constitute an important hedgerow and further advice from a qualified ecologist is recommended in advance of any planned works which could impact established hedgerows on or bordering agricultural or countryside land. Prior to the removal or destruction of a protected hedgerow an application must be made to the Local Planning Authority. Full planning consent is an exemption to this requirement.
Occupiers Liability Act 1957[5]	The Occupiers Liability Act 1957 confers a duty on an occupier to take reasonable care to ensure that visitors to their property are safe from harm. In 1984 the scope of the Occupiers Liability Act was extended to include uninvited visitors including trespassers. This duty to the uninvited is limited to those dangers which the occupier is aware of, those dangers that the uninvited are likely to be foreseeably exposed to (i.e. they will be in the area near hazardous trees) and those dangers from which the occupier could be reasonably expected to take steps to protect visitors (invited or otherwise). The 1957 Act also indicates in section 2(3) (a) that occupiers need to be prepared for the fact that children may not be as risk aware or as careful as adults and finally it includes a consideration of the nature and circumstances of the occupier(s) and the reasonableness of any steps to help prevent injury. Prosecutions under this act are generally restricted to civil law cases and fall under the tort of negligence.

Planning policy

1.2.3 A summary of the relevant national and local planning policy is given in **Table 1.2**.

1.2.4 In September 2021, the Department of Business, Energy and Industrial Strategy (BEIS) consulted upon a review of energy National Policy Statements (NPS) with consultation closing on 29 November 2021. The energy NPS were reviewed to reflect the policies and broader strategic approach set out in the Energy white paper: Powering our net zero future published by BEIS in December 2020[6] and ensure a planning framework was in place to support the infrastructure requirement for the transition to net zero. There are no substantive changes with regard to Arboriculture within those draft Energy National Policy Statements which are considered to be relevant to the Project with the

[5] UK Government (1957). The Occupiers Liability Act 1957 (online). Available at: https://www.legislation.gov.uk/ukpga/Eliz2/5-6/31/section/2 (Accessed 15 September 2021)
[6] Department for Business, Energy and Industrial Strategy (2020). The Energy White Paper: Powering our Net Zero Strategy. (online). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945899/201216_BEIS_EWP_Command_Paper_Accessible.pdf (Accessed September 2022).

exception of the Draft National Policy Statement for Electricity Networks Infrastructure (EN-5)[7] which is considered below.

Table 1.2 – Planning policy relevant to the arboricultural assessment

Policy	Policy context
National planning policy	
Overarching National Policy Statement for Energy (EN-1)[8]	The main points of the Government's biodiversity strategy are to ensure a halting, and if possible, a reversal of declines in priority habitats and species, with wild species and habitats protected as part of healthy, functioning ecosystems; and the general acceptance of biodiversity's essential role in enhancing the quality of life; and to take account of the context of the challenge of climate change. In relation to Ancient Woodland the policy states that the Secretary of State should not grant development consent for any development that would result in its loss or deterioration unless the benefits (including need) of the development, in that location outweigh the loss of the woodland habitat. It also provides for the consideration of aged or 'veteran' trees were found outside Ancient Woodland considering their value particularly for biodiversity and stating that their loss should be avoided. This policy is addressed in **Section 1.9** of this report where impacts to trees and hedgerows including ancient woodland and aged or veteran trees are considered.
National Policy Statement for Electricity Networks Infrastructure (EN-5)[9]	Section 2.8.5 sets out guidelines for the routeing of new overhead lines based on the Holford Rules (develop by Lord Holford in 1959). The guidelines have been subsequently reviewed and updated and should be followed by developers when designing new overhead lines. The Holford Rules requirements in relation to trees include routing overhead lines to utilise the screening benefit of trees. Section 2.8.11 identifies mitigation for new overhead lines which can include off site tree and hedgerow planting to

[7] Department for Business, Energy and Industrial Strategy (2021). Draft National Policy Statement for Electricity Networks Infrastructure (EN-5) (online). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015238/en-5-draft-for-consultation.pdf (Accessed October 2022)
[8] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1) (online). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf (Accessed September 2022).
[9] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). (online). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/37050/1942-national-policy-statement-electricity-networks.pdf (Accessed September 2022).

Policy	Policy context
	provide screening and to soften visual impacts, although this would require agreement with relevant landowners. This policy is addressed in **Section 1.9** of this report in relation to tree and hedgerow planting and is further considered in **Chapter 6 – Landscape and Visual Amenity, Volume 5, Document 5.2.6.**
Draft National Policy Statement for Electricity Networks Infrastructure (EN-5)[7]	Section 2.8.1 is relevant to Arboriculture and sets out the importance of recognising that the linear nature of electricity infrastructure provides excellent opportunities to 'reconnect important habitats via green corridors' and 're-establishment of appropriate hedgerows'. This policy is addressed in **Section 1.9** of this report and is further considered in **Chapter 6 - Landscape and Visual Amenity, Volume 5, Document 5.2.6** and **Chapter 8 – Biodiversity, Volume 5, Document 5.2.8.** Section 2.11.11 to 2.11.12 summarises the Horlock Rules in relation to the design siting of new substations. It requires the environmental issues should be considered at an early stage to balance the technical benefits and capital costs a given design against the consequential environmental effects in order to keep adverse effects to a reasonably practicable minimum. . It also requires that areas of local amenity value, important existing habitats and landscape features including ancient woodland, historic hedgerows, surface and ground water sources and nature conservation areas are protected as far as reasonably practicable. This policy is addressed in **Section 1.9** of this report in relation to tree and hedgerow planting and is further considered in **Chapter 6** – **Landscape and Visual Amenity, Volume 5, Document 5.2.6.**
National Planning Policy Framework (NPPF)[10]	The NPPF seeks to ensure that new development is sustainable and underlines the importance of Green Infrastructure, of which trees and hedgerows form an integral part. This encompasses a recognition of the importance of trees in relation to the management of air, soil and water quality along with other associated ecosystem services and climate change adaption. The NPPF also seeks to achieve the protection and enhancement of landscapes and a net gain in biodiversity. Finally, it specifically identifies veteran and ancient trees and woodland as irreplaceable habitat and that planning permission should be refused for any development that would result in any loss or damage to trees of this nature unless there are 'wholly exceptional' reasons and a suitable compensation strategy (para 180 c).

[10] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework (online). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf (Accessed September 2022).

Policy	Policy context
	This policy is addressed in **Section 1.9** of this report and in **Chapter 6 – Landscape and Visual Amenity, Volume 5, Document 5.2.6** and **Chapter 8 – Biodiversity, Volume 5, Document 5.2.8**.
Local Planning Policy	
Harrogate District Local Plan, 2014-2035[11]	Policy NE4 Landscape character requires that development maintains the aesthetic and biodiversity value of natural heritage such as trees, woodlands and hedgerows. Policy NE7 Trees and Woodlands states that development must protect and enhance existing trees of value unless there are "clear and demonstratable" reasons why tree removal is preferential for development. Proposals which cause damage or loss to ancient or veteran trees and/or trees subject to a tree preservation order will not be permitted unless there is an overriding need for the development and where there is no alternative for the development's location. Policy NE7 states the requirements for new tree planting to mitigate against tree removal, to be required on-site. Where this is not feasible, off-site planting may be undertaken. These policies are addressed in **Section 1.9** of this report.
Harrogate Borough Council, Tree and Woodland Policy, 2022-2027[12]	This Policy identifies that Harrogate Borough Council will expect applications where trees are present on or adjacent to the site to include a tree survey, arboricultural impact assessment and method statement in accordance with BS5837:2012[13]. There is a presumption that healthy trees will be retained. Works within Root Protection Areas (RPAs) will not be supported without over riding planning justification. Onsite provision of replacement planting is identified as the *'primary option'* with a recognition that offsite provision of new planting is '*inherently challenging'.* Policy 48 requires all new tree planting to be in keeping with local landscape character; planted in accordance with BS

[11] Harrogate Borough Council (2020). Harrogate District Local Plan 2014-2035. (online). Available at: https://www.harrogate.gov.uk/planning-policy-guidance/harrogate-district-local-plan-2014-2035 (Accessed September 2022).
[12] Harrogate Borough Council (2016) Harrogate Borough Council Tree and Woodland Policy 2016-2021. Harrogate Borough Council; Harrogate..
[13] British Standards Institute (2012), BS 5837: Trees in Relation to Design, Demolition and Construction. BSI; London.

Policy	Policy context
	8545:2014[14]; and to be replaced where any new tree planting fails within five years of development completion. These policies are addressed in **Section 1.4** and **1.9** of this report.
Hambleton Local Plan – Adopted 2022	Section 6.43 identifies the importance of protecting and enhancing ancient woodland and veteran trees. Their loss will only be permitted *"where the benefits of development in that location can clearly be demonstrated to outweigh their loss."* Policy E4 identifies that the Council will seek to protect existing green infrastructure, secure improvements to its safety and accessibility and secure net gains to green infrastructure provision. The Council intends to increase tree cover to address climate change and enhance biodiversity. Policy E7 states that proposals will be supported where they seek to conserve and enhance any existing tree, hedgerow or woodland of value that would be affected by development. Policy E7 requires that mitigation from harm to trees by development is to be achieved through new tree planting; and sustainable tree management programmes. Loss or deterioration of irreplaceable habitats will only be acceptable where there is wholly exceptional justification and a suitable compensation strategy is in place. Section 6.74 identifies that the Council will encourage proposals which seek to increase the planting of trees, woodland and hedgerows These policies are addressed in **Section 1.9** of this report.
York 2005 Draft Development Control Local Plan (approved for the purpose of making development control decisions)	Section 2.32 identifies the requirement for the retention of important trees in new developments. Policy NE1: Trees, Woodlands and Hedgerows states that development will be refused which results in loss or damage to trees; will require the adequate protection of trees and hedgerows which are to be retained; and important trees will be protected through the creation of TPOs. Policy NE1 requires appropriate replacement planting for tree removals, with development required to make provision for planting of new trees as part of landscaping schemes. Section 3.11 further states the requirement for mitigation for tree loss stating *"...conditions will be attached to require both replacement planting to compensate for any trees lost as a result of development activity on the site, and a replacement scheme for any protected trees on the site, which die within a specified time period following development (usually 5 years). In many cases a financial contribution, in the form of a bond, will be required from developers towards the protection of*

[14] British Standards Institute (2014). BS 8545 Trees: from nursery to independence in the landscape – Recommendations. BSI; London.

Policy	Policy context
	trees during construction and the implementation of the approved landscaping scheme. This bond would then be returnable on completion of the development." This policy is addressed in **Section 1.9** of this report.
City of York Local Plan - Publication Draft, 2018 (Regulation 19 Consultation)[15]	Policy GI4 Trees and Hedgerows states: *Development will be supported where it:* *i. recognises the value of the existing tree cover and hedgerows, their biodiversity value, the contribution they can make to the quality of a development, and its assimilation into the landscape context;* *ii. provides protection for overall tree cover as well as for existing trees worthy of retention in the immediate and longer term and with conditions that would sustain the trees in good health in maturity;* *iii. retains trees and hedgerows that make a: positive contribution to the character or setting of a conservation area or listed building, the setting of proposed development, are a significant element of a designed landscape, or value to the general public amenity, in terms of visual benefits, shading and screening.* *iv. does not create conflict between existing trees to be retained and new buildings, their uses and occupants, whether the trees or buildings be within or adjacent to the site; and* *v. supplements the city's tree stock with new tree planting where an integrated landscape scheme is required.* This policy is addressed in **Section 1.9** of this report.
Minerals and Waste Joint Plan (North Yorkshire CC, York City Council, North York Moors National Park Authority)[16] – Adopted 2022	Policy D07 Biodiversity and Geodiversity, section 3 confirms that development that would have a negative impact on notified features within a SSSI or would result in the loss or deterioration of ancient woodland, aged or veteran trees will only be permitted where the need for and benefits of development in that location clearly outweigh the impact or loss. This policy is addressed in **Section 1.9** of this report.
Leeds City Council:	Policy N20 identifies that removal of trees within a Conservation Area will be resisted.

[15] City of York Council (2018). Local Plan - Publication Draft, 2018 (Regulation 19 Consultation) (online). Available at https://www.york.gov.uk/downloads/file/1314/cd001-city-of-york-local-plan-publication-draft-regulation-19-consultation-february-2018- (Accessed 5 October 2022)
[16] North Yorkshire County Council, York City Council, North York Moors National Park Authority (2017). Minerals and Waste Joint Plan (online). Available at: https://www.northyorks.gov.uk/minerals-and-waste-joint-plan (Accessed September 2022).

Policy	Policy context
Saved UDP 2001[17] and UDP Review 2006 policies[18]	Section 4.3.6 identifies that all development is subject to considerations including the retention of trees and should avoid environmental intrusion and loss of amenity. Development should reflect concepts of sustainability. This policy is addressed in **Section 1.9** of this report.
Leeds City Council Natural Resources and Waste Local Plan, 2015[19]	Policy Land 2: Development and Trees states that development should conserve trees wherever possible and include new tree planting in designs. Where trees are to be removed, an expected replacement standard of three to one will be required on the site, forming part of the landscaping scheme. Where this cannot be achieved, either off site planting or agreed financial contributions will be required. There will be no trees removed where the Project falls within the Leeds City Council authority boundary.
Leeds City Council Supplementary Guidance No. 25 Greening the built edge[20]	Section 3.4 identifies that tree surveys should extend up to 10m beyond the site boundary to take due account of off-site features. Section 9.7 identifies that trees, either existing or proposed, may be protected by a TPO. This policy is addressed in **Section 1.4** and **1.9** of this report.
Leeds City Council Core Strategy (as amended by the Core Strategy Selective Review 2019) Leeds Local Plan, 2014[21]	Policy G1: Enhancing and Extending Green Infrastructure states that development proposals should ensure that green infrastructure and/or corridors are retained and improved; the green infrastructure is extended; that opportunities are taken to increase woodland cover; and provision of biodiversity and its retention are identified. Policy G2: Creation of New Tree Cover states that development which results in harm to or the loss of Ancient Woodland and Veteran Trees will be resisted. This policy is addressed in **Section 1.9** of this report.

[17] Leeds City Council (2001). Unitary Development Plan. Leeds City Council; Leeds.
[18] Leeds City Council (2006). Unitary Development Plan Review (online). Available at https://www.leeds.gov.uk/planning/planning-policy/adopted-local-plan/unitary-development-plan (Accessed 15 September 2021)
[19] Leeds City Council (2013). Leeds City Council Natural Resources and Waste Local Plan (online). Available at https://www.leeds.gov.uk/planning/planning-policy/adopted-local-plan/natural-resources-and-waste-local-plan (Accessed 15 September 2021).
[20] Leeds City Council (1996). Supplementary Planning Guidance No. 25 Greening the Built Edge (online). Available at: https://www.leeds.gov.uk/docs/Greening%20the%20built%20edge%20SG%20No%2025.pdf (Accessed 15 September 2021).
[21] Leeds City Council (2014). Leeds City Council Core Strategy (as amended by the Core Strategy Selective review 2019) (online). Available at: https://www.leeds.gov.uk/planning/planning-policy/adopted-local-plan/core-strategy-introduction (Accessed September 2022).

Policy	Policy context
Selby District Local Plan (saved policies), 2005[22]	Policy ENV1 identifies that when considering granting planning permission, the potential loss of and impact to trees and hedgerows will be considered. Policy ENV21 requires that where appropriate retained trees and hedgerows and new planting are incorporated as an integral part of the layout. It also states that Tree Preservation Orders or other measures may be used to require the protection, future maintenance or replacement of existing and planted trees and hedgerows. These policies are addressed in **Section 1.9** of this report.
Selby District Core Strategy Local Plan, 2013[23]	Policy SP15 Sustainable Development and Climate Change Section B. Design and Layout of Development states: In order to ensure development contributes toward reducing carbon emissions and is resilient to the effects of climate change, schemes should where necessary or appropriate: e) Include tree planting, and new woodlands and hedgerows in landscaping schemes to create habitats, reduce the 'urban heat island effect' and to offset carbon loss. This policy is addressed in **Section 1.9** of this report.

Technical guidance

1.2.5 A summary of the technical guidance for Arboriculture is given in **Table 1.3**.

Table 1.3 – Technical guidance relevant to the Arboricultural assessment

Technical guidance document	Context
British Standards BS5837:2012 Trees in relation to design, demolition and construction - Recommendations[13]	Gives recommendations and guidance on the relationship between trees and design, demolition and construction processes taking account of current practice regarding planning for the management, protection and planting of trees in the vicinity of structures, and for the protection of structures near trees. It sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.

[22] Selby District Council (2005). Selby District Council Local Plan (saved policies) (online). Available at: https://www.selby.gov.uk/selby-district-local-plan-sdlp-2005 (Accessed September 2022).
[23] Selby District Council (2013). Selby District Council Core Strategy Local Plan (online). Available at: https://www.selby.gov.uk/sites/default/files/Documents/CS_Adoption_Ver_OCT_2013_REDUCED.pdf (Accessed September 2022).

Technical guidance document	Context
National Joint Utilities Group (NJUG) Vol 4 Issue 2 – Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. 2007[24]	Technical guidance to allow the co-existence of trees and utility apparatus where they are required to share available space both above and below ground.
BS3998:2010 Tree Work - Recommendations[25]	Guidance on the management options for established trees and overgrown hedges including the impact of that work both on the individual tree and in relation to neighbouring trees.
BS8545:2014 Trees: from nursery to independence in the landscape - Recommendations[14]	This British Standard gives recommendations for transplanting young trees successfully from the nursery, through to achieving their eventual independence in the landscape, specifically covering the issues of planning, design, production, planting and management.
Natural England and Forestry Commission (2022) Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (standing advice)[26]	Guidance for planning authorities when determining applications relating to ancient woodland and ancient or veteran trees. Provides guidance on minimum buffer zones. This requires a minimum 15m buffer for ancient woodland and a buffer zone equivalent to 15 x stem diameter or canopy spread +5% (whichever is greatest) for ancient or veteran trees.
Ancient Tree Forum (2013) Ancient and other veteran trees: further guidance on good management[27].	Guidance for veteran and ancient tree classification and assessment.
Arboricultural Association (2018) Guidance Note 2 Application of Biosecurity in Arboriculture[28]	Guidance for good biosecurity practice in relation to tree works.

[24] National Joint Utilities Group (NJUG) (2007). Vol 4 Issue 2 – Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. NJUG; London.
[25] British Standards Institute (2010). BS3998 Tree work – Recommendations. BSI; London.
[26] Natural England and Forestry Commission (2022). Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (standing advice) (online). Available at: https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions (Accessed 25 August 2022)
[27] Ancient Tree Forum (2013). Ancient and other veteran trees: further guidance on good management. The Tree Council; London.
[28] Arboricultural Association (2018). Guidance Note 2 Application of Biosecurity in Arboriculture. Arboricultural Association; Gloucestershire.

Technical guidance document	Context
The UK Forestry Standard (2017)[29]	Guidance in relation to forest and woodland management and forest and woodland planting.

1.3 Consultation and engagement

Overview

1.3.1 The assessment has been informed by consultation responses and ongoing stakeholder engagement. An overview of the approach to consultation is provided in **Chapter 4: Approach to preparing the ES, Volume 5, Document 5.2.4**.

EIA Scoping Opinion

1.3.2 An EIA Scoping Opinion was adopted by the Secretary of State, administered by the Planning Inspectorate, on 28 April 2021. A summary of the relevant responses received in the Scoping Opinion in relation to Arboriculture and confirmation of how these have been addressed within the assessment is presented in **Table 1.4**.

Table 1.4 – Summary of EIA Scoping Opinion responses for arboriculture

Consultee	Consideration	How addressed in this ES
The Planning Inspectorate	Osbaldwick Substation was proposed to be scoped out of the assessment as it is existing operational land. The scoping response highlighted that as a worst-case land to the east of the Substation may be impacted by the Project and therefore should be included in the Arboricultural Impact Assessment.	Trees at Osbaldwick Substation are included in the Impact Assessment. It has not been possible to arrange land access to this area and therefore trees have been considered via desk study information only.
The Planning Inspectorate	The Planning Inspectorate highlight that the ES should set out how the Project has been developed to avoid trees and requires that where tree loss is unavoidable the ES sets out how construction will avoid or minimise damage.	The Arboricultural Impact Assessment identifies likely areas of impact to important arboricultural features. Following feedback from consultation with the Planning Inspectorate, Natural England and North Yorkshire County Council and taking into account tree constraints

[29] Forestry Commission (2017) The UK Forestry Standard. The governments' approach to sustainable forestry (online). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/687147/The_UK_Forestry_Standard.pdf (Accessed 1 September 2022).

Consultee	Consideration	How addressed in this ES
		information derived from tree surveys (presented in **Annex 3I.1** and **Annex 3I.2**), the design has been developed to reduce or avoid significant impacts where feasible, with a particular focus on avoiding impacts to the highest value tree features such as veteran trees. More information on the design process and considerations of alternatives is included in **Sections 2.7 and 2.8 in Chapter 2 (Volume 5, Document 5.2.2) of the ES**
The Planning Inspectorate	The Planning Inspectorate highlight that Ancient Woodland <2Ha may not be included on the Ancient Woodland Inventory and request that the ES should assess significant effects on Ancient Woodland and seek to avoid direct impacts to Ancient Woodland and veteran trees and ensure no increase in the fragmentation of these habitat types.	Information and survey results supporting the Biodiversity assessment (**Chapter 8: Biodiversity, Volume 5, Document 5.2.8**) confirm that no areas of woodland <2Ha have been identified which may qualify as Ancient Woodland. A minimum buffer of 15m has been added to all recorded Ancient Woodland and this zone is successfully avoided by the Project (except for at Huddleston Old Wood where an incursion into the 15m buffer is unavoidable to facilitate reconductoring of the existing overhead line). The Arboricultural Impact Assessment considers the potential impacts on Ancient Woodland and veteran trees in **Section 1.9**. The detailed design and construction process will seek to further reduce or avoid significant impacts where feasible.
The Planning Inspectorate	The Planning Inspectorate accept the proposed approach	Trees at Osbaldwick Substation are considered as

Consultee	Consideration	How addressed in this ES
	to scope out reconductoring areas from the detailed tree survey and to rely on high level tree assessment data and guidance on working methodologies, however the requirement to consider a detailed tree survey at Osbaldwick is reiterated.	part of the Arboricultural Impact Assessment, however the assessment of trees in this area is limited to desk study data only as access was not available for a walkover tree survey. Reconductoring areas (detailed in **Chapter 3: Description of the Project, Volume 5, Document 5.2.3** and accompanying **Figures 3.3 and 3.5, Volume 5, Document 5.4.3**) have been scoped in where impacts to trees are likely and detailed tree surveys have been carried out for relevant areas. Remaining areas have been considered via desk study as originally proposed.
North Yorkshire County Council (Landscape Officer)	Generally supportive of the proposed approach for arboriculture and reiterates that the assessment should adhere to BS5837[13] and stresses the importance of considering existing vegetation in relation to the ongoing screening of the Site.	The assessment adheres to the principles of BS5837. Consideration of the potential screening impacts associated with any loss of tree features will be taken into account in **Chapter 6: Landscape and Visual Amenity, Volume 5, Document 5.2.6** of the ES.
Natural England	Natural England highlight that ancient woodland is irreplaceable and that the ES should give regard to the guidance in the NPPF which states that development resulting in the loss or deterioration of ancient woodland or veteran trees should be refused unless there are wholly exceptional reasons and a suitable compensation strategy is in place.	The design has been developed to avoid or minimise any impact on irreplaceable habitat features associated with trees. The Arboricultural Impact Assessment assesses the likely impact on known veteran or ancient trees (the location of which are shown on the Tree Constraints Plan included as **Annex 3I.1**) and ancient woodland in **Section 1.9**.

Statutory Consultation

1.3.3 Statutory Consultation took place between 28 October and 9 December 2021 in accordance with the Act. Prescribed and non-prescribed consultees and members of the public were included in the consultation. Various methods of consultation and engagement were used in accordance with the Statement of Community Consultation

including letters, website, public exhibitions, publicity and advertising in newspapers and webinar briefings.

1.3.4 National Grid Electricity Transmission plc ("National Grid") prepared a Preliminary Environmental Information Report (PEIR) which was publicised at this consultation stage. National Grid sought feedback on the environmental information presented in that report. Feedback received during statutory consultation was considered by National Grid and incorporated where relevant into the design of the Project.

1.3.5 A summary of the relevant responses received in response to statutory consultation, together with any subsequent discussions held in relation to Arboriculture and confirmation of how these have been considered within the assessment to date is presented in **Table 1.5**. Statutory consultation representations and National Grid's responses is provided in **Volume 6, Document 6.1 (Consultation Report)**.

1.3.6 Technical engagement with consultees in relation to Arboriculture is ongoing.

Table 1.5 – Summary of statutory consultation responses and technical engagement

Consultee	Consideration	How addressed in this ES
North Yorkshire County Council, Selby District Council, (Leeds City Council, Hambleton District Council, Harrogate Borough Council and City of York Council were also invited but didn't attend, meeting minutes were shared for review/agreement).	Officers stated that in line with Development Plan policy they would not wish to see any net loss of trees. Project team confirmed growth estimate for existing trees in relation to the overhead line will be 0.55cm per year. The Project team confirmed accessible areas would be subject to detailed tree survey where a significant risk of impact is considered likely but inaccessible land would be considered using LiDAR and desk study information with observations from adjacent accessible land where feasible.	As addressed in **Section 1.9** there is a DCO requirement securing replacement tree planting where trees are to be removed to ensure no net loss of tree cover.
Yorkshire Wildlife Trust	Comments regarding potential for effects on irreplaceable habitats (ancient woodland and veteran trees).	The Arboricultural Impact Assessment considers impacts to ancient woodland and veteran trees in **Section 1.9.** Further consideration in relation to impacts to irreplaceable habitats is included in the **Chapter 8: Biodiversity, Volume 5, Document 5.2.8**
Forestry Commission (Forestry England)	Project team outlined the Project and requested confirmation of the	Outline tree planting proposals are outlined in

Consultee	Consideration	How addressed in this ES
	land ownership boundaries for Forestry Commission land (this is assumed to be 'Public Forest Estate' land as illustrated on Magicmap. Also requested information on any areas where tree planting opportunities might be available. Forestry Commission referenced UK Forestry Standard (UKFS) and tree planting/woodland creation guidance to inform any large-scale tree planting proposals.	**Section 1.9** and in **Chapter 6 – Landscape and Visual Amenity, Volume 5, Document 5.2.6.**

1.4 Data gathering methodology

Study area

1.4.1 The arboriculture Study Area has been developed to consider all areas of the Project where trees are at risk of impact. In the context of this assessment the term 'trees' include a range of tree features such as individual trees, tree groups, hedgerows formed of tree species and woodlands.

1.4.2 The arboriculture Study Area has been determined following the design review process and following internal project-specific guidance from National Grid. This includes temporary and permanent accesses, construction working areas, new build and temporary overhead lines, along with those to be dismantled, new bellmouths and visibility splays and areas for reconductoring, where impacts to trees such as tree coppicing, removal or pruning may be required.

1.4.3 The arboriculture Study Area has developed over time and is shown by all areas of detailed tree survey on the Tree Constraints Plan (**Annex 3I.1**) and details of surveyed tree features are included on the Tree Survey Schedule included as **Annex 3I.2**. This includes areas of tree cover where trees were surveyed but which are now outside of the Order Limits or in areas well set back from proposed works. This reflects how the Order Limits have been refined as part of the post Statutory Consultation design development. Therefore, not all trees within the Order Limits have been subject to a detailed tree survey and some trees outside the current Order Limits are also included. Data on all surveyed trees is included in this assessment for context and completeness.

1.4.4 An overview of the Project including works for new infrastructure and works to existing infrastructure is provided in **Section 1.1**.

1.4.5 Areas where no tree impacts are likely (such as where existing access routes will be utilised with no increase in vehicular height or loading compared to existing use) have not generally been included in the detailed tree survey assessment, however tree constraints (a Tree Constraints Plan is included as **Annex 3I.1**) are considered in these areas via proprietary LiDAR based tree mapping (National Tree Map provided by Bluesky Ltd) and/or Phase One hedgerow data where detailed tree survey data is not available.

Desk study

1.4.6 A summary of the organisations that have supplied data, together with the nature of that data is outlined in **Table 1.6**.

Table 1.6 – Data sources used to inform the arboricultural assessment

Organisation	Data source	Data provided
Department for Environment and Rural Affairs (DEFRA)	MagicMAP[30]	Statutory and Non-statutory designations relating to trees such as Ancient Semi Natural Woodland (ASNW), Sites of Special Scientific Interest (SSSI), Priority Habitats Inventory (England).
Woodland Trust	Ancient Tree Inventory[31]	Online mapping resource highlighting the approximate position of recorded ancient, veteran or notable trees.
Bluesky Ltd	National Tree Map (NTM) dataset[32]	Proprietary mapping showing tree canopy cover and heights based on LiDAR and aerial imagery.
York City Council TPO online mapping	York City Council[33]	Online mapping resource identifying the location of trees subject to TPO.
Hambleton District Council TPO online mapping	Hambleton District Council[34]	Online mapping resource identifying the location of trees subject to TPO.
Harrogate District Council TPO online mapping	Harrogate District Council[35]	Online mapping resource identifying the location of trees subject to TPO.

[30] Defra. (2021). Multi-Agency Geographic Information for the Countryside (MAGIC) website. (Online). Available at: https://magic.defra.gov.uk/magicmap.aspx (Accessed 25 August 2022).
[31] Woodland Trust (2021). Ancient Tree Inventory website. (online). (Accessed 25 August 2022).
[32] Bluesky (2021). National Tree Map. (online) (Accessed 25 August 2022).
[33] York City Council. (2021). TPO online mapping (Online). (Accessed 25 August 2022).
[34] Hambleton District Council (2021). TPO online mapping (Online). Available at: https://www.hambleton.gov.uk/planning/trees-conservation/1 (Accessed 16 February 2021)
[35] Harrogate Borough Council (2021). TPO online mapping (Online). Available at: https://secure.harrogate.gov.uk/inmyarea/property/?uprn=100052003563 (Accessed 16 February 2021)

Organisation	Data source	Data provided
Selby District Council TPO online mapping	Selby District Council[36]	Online mapping resource identifying the location of trees subject to TPO.
Leeds City Council TPO online mapping	Leeds City Council[37]	Online mapping resource identifying the location of trees subject to TPO.

Survey work

1.4.7 Tree surveys compliant to BS5837:2012[13] were undertaken between August 2021 and August 2022 within the arboricultural study rea subject to land access. Trees have been visually inspected via a walkover ground level survey carried out by qualified arboriculturists. Tree features may include individual trees, groups hedgerows and woodlands but are referred to collectively as 'trees'. For each tree feature assessed the following attributes have been recorded and attribute data is recorded in the Tree Survey Schedule included as **Annex 3I.2**:

- tree number;
- tree type (T-Tree, W-Woodland, G-Group, H-Hedge);
- species (for groups the primary species are listed);
- life-stage (young, semi-mature, early-mature, mature, over-mature or veteran);
- height (for groups an average height is recorded);
- stem diameter (trunk thickness) measured at 1.5m (for groups a maximum diameter is recorded);
- crown radius (recorded at the four cardinal points);
- height of first significant branch and direction;
- physiological and structural condition (good/fair/poor/dead)
- estimated remaining contribution in years;
- quality category (A – high quality, B – moderate quality, C – low quality or value, or U- unsuitable for retention for more than 10 years); and
- subcategory (1- arboricultural value, 2 – landscape value or 3 – cultural or conservation value).

1.4.8 Tree positions were determined using GPS, aerial imagery and National Tree Map positional data as appropriate. Where trees exhibited features associated with veteran status, they were recorded as veteran trees and have been assigned a greater Root

[36] Selby District Council. (2021) TPO online mapping (Online). Available at: [redacted] (Accessed 25 August 2022).

[37] Leeds City Council. (2021). TPO online mapping (Online). Available at: [redacted] (Accessed 25 August 2022).

Protection Area (equivalent to a radius of 15 x stem diameter or canopy spread +5m, whichever is greatest).

1.4.9 Where trees were inaccessible (e.g. due to land access, topography or dense vegetation restrictions), they have been assessed from the nearest feasible vantage point. Where trees have not be visible from adjacent accessible areas this has been clearly noted in the Tree Survey Schedule in **Annex 3I.2** and tree features have been evaluated via aerial imagery, LiDAR based tree mapping and other available information sources to allow an estimate of quality and dimensions.

1.5 Overall baseline

Current baseline: overview

1.5.1 The Order Limits are dominated by agricultural land with a high proportion of arable land which is divided into fields of varying size. Typically, managed hedgerows form field boundaries with occasional individual trees. Some individual trees, likely remnant of old field boundaries, are present within larger fields and are also noted along highways crossing the land within the Order Limits. Woodland groups provide a break from the repetition of agricultural fields together with smaller tree copses generally close to watercourses or adjacent to farmsteads.

1.5.2 Within the Tadcaster Area (Section D), the tree population includes sections of plantation woodland whilst within the Monk Fryston Area (Section F), deciduous woodland groups are present to the southern and eastern boundaries with small tree groups also present to the south of the existing Monk Fryston Substation.

1.5.3 The existing Osbaldwick Substation (Section A) is surrounded on three sides by dense deciduous tree planting, whilst in the remainder of the Study Area mature trees appear along field boundaries and along the edge of the A64.

1.5.4 The tree survey has identified that surveyed trees are generally in good to fair condition and consist predominantly of the following species: English oak (*Quercus robur* – 27%), ash (*Fraxinus excelsior* – 27%) and sycamore (*Acer pseudoplatanus* – 10%). All other species form less than 5% of the individually surveyed tree population and these include species such as blackthorn (*Prunus spinosa*), Lombardy poplar (*Populus nigra* 'Italica'), white willow (*Salix alba*), crack willow (*Salix fragilis*), Norway maple (*Acer platanoides*), horse chestnut (*Aesculus hippocastanum*), lime (*Tilia* sp.), rowan (*Sorbus aucuparia*), holly (*Ilex aquifolium*), field maple (*Acer campestre*) and silver birch (*Betula pendula*).

1.5.5 Two thousand, four hundred and twenty-six tree features have been subject to a detailed survey. Of these, 277 are classified as Category A (high quality) features, 723 as Category B (moderate quality) and 1330 as Category C (low quality). In addition, 96 trees which are unsuitable for retention for more than 10 years have been identified (Category U).

1.5.6 The majority of surveyed tree features (circa 50%) were young to semi mature, one fifth (circa 20%) of surveyed trees were mature and one fifth (circa 20%) early mature. Circa 3% of surveyed trees were considered to be veteran.

Current baseline: Statutory Designations applicable to trees

Tree Preservation Orders

1.5.7 A number of TPOs have been identified in proximity to the Order Limits although there are no TPOs within the Order Limits. Nearby TPOs are administered by City of York Council, Hambleton District Council and Selby District Council (see **Table 1.7**). Although all the TPOs in proximity to the Order Limits have been considered, TPOs that are located within residential gardens that will not be affected by the Project have been excluded.

Table 1.7 - TPOs located within the Study Area

LPA	TPO Ref	TPO Name / Location	TPO Type	Species
York	1985/77	Moorlands Lodge, Skelton	Individual	Oak
York	1989/137	Moorlands, Skelton	Woodland	Various
York	1989/137	Moorlands, Skelton	Group	Various
York	1990/158	By River Ouse, Skelton	Area	N/A
York	1990/158	By River Ouse, Skelton	4x Individual	N/A
York	1989/125	Fairfields,	16x Individual	Oak, Beech, Lime, Sweet Chestnut, Willow, Sycamore, Yew, Horse Chestnut
Selby	2/2006	1 Garnet Lane, Tadcaster	Individual	Beech
Selby	9/1988	Inholmes Lane, Tadcaster	Individual	Sycamore
Selby	1/1980	Lord's Plantation, Leeds Road, Tadcaster	Woodland	Mixed, mainly Sycamore, Silver Birch, Beech, Ash and Scots Pine
Selby	9/1984	Peckfield Lodge South Milford	Woodland	Sycamore, Ash, Horse Chestnut, Oak, Laburnum, Beech, Silver Birch, Poplar, Thorn, Larch.

LPA	TPO Ref	TPO Name / Location	TPO Type	Species
Selby	3/1991	Toulston Polo Ground, Toulston, Tadcaster	Area	Beech, Sycamore, Ash, Oak, Chestnut, Lime, Sorbus and Birch
Selby	6/1993	Field OS No 3571 Toulston, Tadcaster	Woodland	Beech, Sycamore, Oak, Chestnut and Ash
Hambleton	20/00003/TPO2	North East of Stable Barn, Overton	Individual	Sycamore
Hambleton	1991/13	Yorburgh, Station Lane, Shipton by Beningbrough	Individual	Oak

Conservation Areas

1.5.8 No Conservation Areas are located within the Order Limits. Two Conservation Areas are located in proximity to the Order Limits but are not located within it (these are shown on sheet one of the Tree Constraints Plan included as **Annex 3I.1**).

1.5.9 Skelton Conservation Area is located to approximately 120m to the east of North West of York Area (Section B).

1.5.10 The eastern extent of Nether Poppleton Conservation Area is approximately 420m to the east of the North west of York Area (Section B).

1.5.11 Both Conservation Areas are well outside of the Order Limits and any trees within the Conservation Area will not be impacted by the Project

Sites of Special Scientific Interest

1.5.12 No Sites of Special Scientific Interest (SSSI) are located within or close to Order Limits.

Important Hedgerows

1.5.13 Important hedgerows as defined by the Hedgerow Regulations (1997) are considered in **Chapter 8: Biodiversity, Volume 5, Document 5.2.8.**

Current baseline: Non-Statutory Designations applicable to trees

Ancient Woodland

1.5.14 The Ancient Woodland Inventory identifies woodlands that have had continuous woodland cover since 1600. These woodlands are typically more ecologically diverse and of a higher nature conservation value than those developed recently or those where woodland cover has been intermittent. These woodlands may also be culturally important. The Ancient Woodland Inventory places woodland into one of four categories:

- Ancient Semi-Natural Woodland (ASNW);
- Plantation on Ancient Woodland Sites (PAWS);
- Restored Ancient Woodland Sites (RAWS); and
- Ancient Woodland Site of Unknown Category (AWSUC).

1.5.15 All areas of Ancient Woodland are considered to be irreplaceable. **Table 1.8** below identifies the areas of recorded Ancient Woodland within or in proximity to the Order Limits.

Table 1.8 - Ancient Woodland within the Study Area

Name / Location	Within Order Limits	Total Area of Ancient Woodland (ha)	Woodland Classification
Overton Wood	N (18m to west of Order Limits)	47.75	PAWS
Redhouse Wood	N (23m to south of Order Limits)	48.06	PAWS
Nova Scotia Wood	N	1.81	PAWS
Shire Oaks	N	11.79	ASNW
Shire Oaks	N	3.07	PAWS
Smaws Wood	N	2.64	ASNW
Bullen Wood	N	2.51	PAWS
Castle Hill Wood	N	3.56	PAWS
Huddleston Old Wood	N	3.38	ASNW
Huddleston Old Wood	Y (<0.01ha within Order Limits)	38.20	PAWS

1.5.16 The Phase 1 assessment has not identified any additional Ancient Woodland sites (beyond those recorded on the Ancient Woodland Inventory) within or in proximity to the Order Limits.

Veteran Trees

1.5.17 Veteran Trees are trees that, because of their age, size or condition, are considered to have exceptional cultural, landscape or nature conservation value.

1.5.18 Veteran status is relatively subjective and there is no universal definition or system of classification. For the purposes of this assessment trees have been as potentially veteran where they are at least of a mature life stage for the species and where significant veteran features such as extensive and long-lasting decay are present. Potential ancient status is based on girth for the species with reference to the Ancient Tree Forum guidance tables.

1.5.19 All veteran trees are considered to be irreplaceable. Standing advice from Natural England and the Forestry Commission[38] sets out that for veteran trees a buffer should be maintained which is an area equivalent to a radius of 15 x the stem diameter (measured at 1.5m) or the canopy spread plus 5m (whichever is greater).

1.5.20 The tree survey has identified 67 veteran trees within the Study Area as shown on the **Tree Constraints Plan** included as **Annex 3I.1** and appropriate buffer zones (as detailed in the preceding paragraph) have been applied to these features. The majority of veteran trees are located outside the Order Limits following design adjustments and only 12 veteran trees (T1858, T1468, T2412, T759, T523, T170, T934, T927, T969, T819, T820 and T474) are located within the Order Limits. Further information is provided in the Tree Survey Schedule included as **Annex 3I.2**. Of these trees five ash (T609, T927, T979, T1443, T1448), one hawthorn (T1858), one beech (T2040) and two apple (T2317, T2483) are potentially ancient due to their stem girth.

Ancient Tree Inventory

1.5.21 The Ancient Tree Inventory[39], administered by the Woodland Trust is a mapping tool recording the oldest and most important trees in the UK. There are three categories of trees recorded which are ancient, veteran and notable. Notable trees are included as they are usually mature trees which stand out in the local environment (e.g. due to their size).

1.5.22 There are four trees recorded in the Ancient Tree Inventory within proximity to but outside of the Order Limits which are summarised in **Table 1.9**. None of these trees are close enough to the Order Limits to have the potential to be impacted by the Project and they have not been included in the arboricultural Study Area.

[38] Forestry Commission and Natural England (2018). Ancient woodland, ancient trees and veteran trees: protecting them from development (Online). Available from: https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences (Accessed September 2022).
[39] Woodland Trust (2021). Ancient Tree Inventory. (online) (Accessed 25 August 2022).

Table 1.9 - Trees Recorded on the Ancient Tree Inventory within proximity to the Order Limits

Location	Veteran Status	Species	Within Order Limits
West of Wigginton / North York	Veteran	Beech	No
Hutton Wandesley	Veteran	Pedunculate Oak	No
Hutton Wandesley	Notable	Oak	No
Hull Road / Osbaldwick Site	Notable	Atlas Cedar	No

National Tree Map

1.5.23 This Arboricultural Impact Assessment utilises the National Tree Map (NTM) dataset from the data providers Bluesky International Ltd[40]. This data has been used to help inform the design process and to define the detailed tree survey study area where trees are at risk of impact and have been subject to survey in accordance with BS5837:2012[13]. In a small number of areas where access has not been feasible this dataset has been used along with wider desk study resources to determine the spatial extents of tree features and to allow impacts to be estimated.

1.5.24 NTM is a digital map layer and database that accurately depicts and records the location and extent of trees. NTM data is generated from a combination of high-resolution aerial photography, Digital Surface Models (DSM) and Digital Terrain Models (DTM). It provides approximate tree canopies and heights for individual tree features.

1.5.25 Canopies are delineated based upon processing of the RGB values within aerial photography and the identification of a distinct treetop. Where trees are closely spaced or have a very homogenous height, then a single NTM feature can cover multiple trees. As it is based upon an airborne dataset, any trees obscured from above, for example a small tree growing under the canopy of a much larger tree, will not be recorded. It is impossible to have a 100% accurate dataset and trees can also be missing for a number of reasons including: temporal (size or presence of tree has changed since survey); distortions due to steeply sloping terrain; or shadow effects from tall structures.

1.5.26 Tree heights are based upon a Digital Height model (DHM) which is created by looking at the difference between a DSM and DTM. This provides a maximum height attribute for each generated tree feature.

Future baseline

1.5.27 Trees change over time. It is an inevitable process which will occur across the Study Area regardless of the Project. Natural events such as storms, including high winds and flooding, can significantly impact trees, as can the progression of pests and diseases (such as Ash Dieback). The contribution of individual trees will also change in value as they mature as well as when they eventually die.

[40] Blueksy International Ltd (2021). National Tree Map. (online) (Accessed 25 August 2022).

1.5.28 Human activity can also result in change to any tree population through changes to land use and through management activities.

1.5.29 The extensive representation of ash and oak in particular presents a risk to the current tree population due to low species diversity. These species are susceptible to disease such as Ash Dieback (*Hymenoscyphus fraxineus*) and Acute Oak Decline which has the potential to have a significant negative impact on the tree population

1.6 Embedded environmental measures

1.6.1 A range of environmental measures have been embedded into the Project as outlined in **Section 1.6**. **Table 1.10** outlines how these embedded environmental measures will influence the arboricultural assessment. The **Embedded Measures Schedule** is provided as **Appendix 3A, Volume 5, Document 5.3.3A** of the ES. Further detail on tree planting mitigation is included below in **Table 1.10.**

Table 1.10 – Summary of the embedded environmental measures

Receptor	Potential changes and effects	Embedded measures	Compliance mechanism
Construction			
Ancient woodland and veteran trees	Potential loss or impact to Ancient Woodland and veteran trees from construction	The location of new infrastructure and Order Limits have been developed to avoid ancient woodland and veteran trees where possible.	Works plans, Limits of Deviation (DCO Schedule 1 and Article 5)
Veteran tree T1858	Potential loss or impact due to requirement to drop overhead lines for reconductoring south of pylon XC464	In this instance reconductoring will take place via winching from existing positions and the line is not currently envisaged to be dropped. Where dropping the line is unavoidable a scaffold framework will be constructed above and around the tree to protect its canopy and RPA and the conductor will be draped across this. The tree will otherwise be managed as per the existing clearance management works for the existing overhead line.	Tree and Hedge Protection Strategy secured via DCO requirement 10.
Veteran trees (T144 and T170)	Proposed new or upgraded access routes within the RPA and canopy spread of	Proposed access routes follow existing farm tracks, with the most formal	Tree and Hedge Protection Strategy secured

Receptor	Potential changes and effects	Embedded measures	Compliance mechanism
	veteran trees with the potential to lead to increased soil compaction	access in proximity to T170. Where the access route cannot be achieved without any change to the width, height clearance or loading of vehicles, which would require pruning or would result in any change to existing soil structure an alternative route which fully avoids the RPA will be utilised (and this has been factored into the Order Limits).	via DCO requirement 10. Project design secured via DCO requirement 3.
Trees (all)	Where tree loss is unavoidable and is to be mitigated with replacement planting this provides an opportunity to increase the resilience of the local tree stock (in terms of climate change and pests/disease risk) and maximise the appropriateness of any new tree planting.	Existing species range and diversity will be considered to help inform planting, in accordance with BS8545:2014[14] Trees: from nursery to independence in the landscape - Recommendations[14].	Landscape Strategy, secured via DCO requirement 8.
Trees (all)	Potential impact and damage to retained trees from construction operations.	The Order Limits have been developed to avoid significant trees and woodland where possible. A Tree and hedge protection strategy including an Arboricultural Method Statement will be developed post consent in support of the Code of Construction Practice (CoCP) to ensure the protection and retention of significant individual trees and groups as fully as possible. An outline Arboricultural Method Statement is included as **Annex 3I.4**. The implementation of the Scheme will seek to further avoid tree loss and impacts where possible.	Tree and Hedge Protection Strategy secured via DCO requirement 10. **Biodiversity Mitigation Strategy, Volume 5, Document 5.3.3D** (reinstatement of vegetation from temporary loss), via DCO Requirement 5

Receptor	Potential changes and effects	Embedded measures	Compliance mechanism
Hedgerows (all)	Lengths of hedgerows will be removed or partially removed to facilitate the development proposals.	The Project layout has been optimised to maximise hedgerow retention and the planting of new hedgerows will partly compensate for the losses and provide longer-term landscape enhancement.	Landscape Strategy secured via DCO requirement 8 **Biodiversity Mitigation Strategy, Volume 5, Document 5.3.3D** (reinstatement of vegetation from temporary loss), via DCO requirement 5
Operation			
Trees (all)	Tree features that will require ongoing pruning or management as part of the maintenance of new or reconductored overhead lines and associated infrastructure	Tree planting will take account of the need for safe design and safety clearances. Trees will be removed, pruned or coppiced to facilitate construction and this will provide a framework for future management in relation to the operation of the Project. Trees will be pruned or managed in accordance with BS3998:2010[25] and utility arboriculture best practice.	Tree and Hedge Protection Strategy secured via DCO requirement 10.
Hedgerows (all)	Tree hedgerow features that will require ongoing pruning or maintenance as part of new or reconductored overhead lines and associated infrastructure	Hedgerow planting will take account of the need for safe design and safety clearances. Hedgerow tree features will be removed, pruned or coppiced to facilitate construction and this will provide a framework for future management in relation to the operation of the Project. Hedgerow tree features will be pruned or managed in accordance	Tree and Hedge Protection Strategy secured via DCO requirement 10.

Receptor	Potential changes and effects	Embedded measures	Compliance mechanism
		with BS3998:2010[25] and utility arboriculture best practice.	

Tree Planting Mitigation

1.6.2 Tree removal will be mitigated with a scheme of new tree planting which will ensure no net loss in tree cover secured as a DCO commitment.

1.6.3 New tree or hedgerow planting is proposed as landscape mitigation at the Monk Fryston and Overton Substation sites and at land at Tadcaster in proximity to two CSECs (Tadcaster Tee East and West). This is detailed on the **Outline Landscape Mitigation Strategy Plans** (**Figures 3.10 to 3.12, Volume 5, Document 5.4.3**) with proposals including new native woodland and scrub, native hedgerow and hedgerow strengthening planting including the introduction of hedgerow trees.

1.6.4 Further detailing is provided in **Chapter 3: Description of the Project, Volume 5, Document 5.2.3 and Chapter 6: Landscape and Visual Amenity, Volume 5, Document 5.2.6** which includes 78,000m^2 of new woodland and woodland edge tree planting which will help to provide screening, amenity and biodiversity benefits to the locality as well as providing an opportunity to increase the diversity and resilience of the local tree stock.

1.6.5 In addition 849 linear metres of hedgerow reinforcement is proposed along with 1,027 linear metres of new hedgerow at Overton, Tadcaster and Monk Fryston.

1.6.6 This volume of new woodland, woodland edge and hedgerow planting will ensure there will be a net increase in tree canopy cover and hedgerow linear meterage in relation to those trees classed as *Removed* to facilitate the Project and this will increase over time as planted trees increase in stature.

1.6.7 Additional new planting will further mitigate tree removals and any trees pruned or coppiced (as *Affected/Managed or Potentially Affected*) and will be secured as via **Biodiversity Mitigation Strategy, Volume 5, Document 5.3.3D** implemented via DCO requirement 5. This will be developed to plant replacement trees as close to areas of loss as feasible.

1.6.8 New planting represents an important opportunity to increase species diversity and resilience, particularly in relation to the existing over representation of ash and oak (see **Section 1.5**) across the Study Area with increased exposure to species specific pests and disease. Species should be selected to provide equivalent stature and benefits to currently over-represented tree species so that landscape, amenity, biodiversity and ecosystem service benefits are maintained into the future. Woodland planting will adhere to the principles set out in the UK Forestry Standard (UKFS) and good biosecurity practice (such as the Arboricultural Association Guidance Note 2 Application of Biosecurity in Arboriculture 2018).

1.6.9 Furthermore, where broadleaved trees are Affected/Managed but where coppicing or pollarding is required to achieve a clearance they will be allowed to regenerate to provide replacement canopy cover into the future.

1.7 Scope of the assessment

The Project

1.7.1 Individual arboricultural features, their quality and the spatial constraints associated with them have been identified through on-site walkover surveys using the methodology set out within BS:5837:2012[13] Trees in relation to design, demolition and construction - Recommendations. This has focused on the areas with the most extensive construction works, specifically the new 400kV and 275kV overhead line installations, new substation and CSECs within the North west of York Area (Section B) and the substations and CSECs at the Tadcaster Area (Section D) and Monk Fryston Area (Section F)). It also includes the stringing positions or conductor pulling positions for the reconductoring of the 275kV XC/XCP Poppleton to Monk Fryston overhead line (Sections C to E) where there is potential for an impact to trees (e.g. from new or widening access routes, scaffold positions, reconductoring, temporary overhead lines, visibility splays and working areas.

1.7.2 To address comments raised during EIA scoping (**Table 1.4**), trees in proximity to proposed accesses and the installation of a circuit breaker and isolator at the existing Osbaldwick Substation have also been considered although it has not been possible to collect detailed tree survey data in this location due to land access restrictions, so desk study information is utilised as an alternative (as set out in **Section 1.4).**

1.7.3 Areas that are scoped out of the assessment of impacts include existing access routes where no change in use (including width, loading and height clearance) is proposed. In such areas it is assumed that there will be no impact associated with the Project and that any clearance or maintenance requirements will be delivered as part of the existing management of the access route. Where trees could be impacted by potential changes to existing access routes (such as those serving existing XC suspension pylons) they are classed as affected/managed.

1.7.4 The following designations relating to trees are scoped out as they fall outside of the Order Limits and any trees within them do not have the potential to be impacted by any works within the Order Limits.

- Conservation Area; and
- Site of Special Scientific Interest.

1.7.5 The likely arboricultural impacts are summarised in **Table 1.11.**

Table 1.11 - Likely arboricultural impacts

Receptor	Reason for consideration
Trees in proximity to construction operations	Tree removal or pruning of branches or roots for, but not limited to, land preparation, earthworks or excavation.
Retained trees in proximity to construction and enabling works	Negative impacts on tree health or amenity value due to dust, soil compaction or tree pruning for clearance.
Trees located beneath or adjacent to existing or proposed overhead lines	Height reduction (pruning) or removal of trees to achieve clearances of overhead lines.
Retained trees in proximity to operational access areas	Access clearance requirements resulting in pruning or removal of tree features.

1.8 Assessment methodology

1.8.1 The generic project-wide approach to the assessment methodology is set out in **Chapter 4: Approach to preparing the ES** (**Volume 5, Document 5.2.4**). However, whilst this has informed the approach that has been used in this arboricultural assessment, it is necessary to set out how this methodology has been applied or adapted, to address the specific needs of this arboricultural impact assessment.

1.8.2 This arboricultural impact assessment applies the general assessment methodology set out in BS5837[13]. The layout for the Project is overlaid onto the Tree Constraints Plan (**Annex 3I.1**) which shows tree survey data and high-level tree constraint data. A desk-based review is then carried out to understand where there are conflicts between trees and the position of new structures and overhead lines or access/working space. This assessment is initially carried out in PLS-CADD modelling software and GIS and applied the following methodology:

1.8.3 Initially, four tree management categories were agreed Project wide to aid the assessments:

- Removal – complete removal of the vegetation to ground level.
- Affected/Managed – management strategies from pruning to coppicing (felling a tree to approx. 100mm above ground level and allowing it to regenerate).
- Potential Affected – trees that might be affected/managed or removed should the Limits of Deviation be utilised, or accesses/working areas moved within the Order Limits.
- Not Affected – trees inside or outside the Order Limits that are deemed unaffected as part of this scheme.

1.8.4 Following this, PLS-CADD (overhead line software) analysis was conducted. LiDAR dated (circa December 2021) captured trees within a 60m swathe (approximately) of the proposed and existing overhead lines in the Order Limits. Arboricultural constraints data, inclusive of a centre co-ordinate, height, and expected growth was also analysed. Both the LiDAR and arboriculture data was imported into PLS-CADD, and a clearance-to-vegetation analysis was run in the software. The results highlighted which trees would be in the infringement zone (a zone equivalent to three years tree growth plus a

minimum of 5.3m clearance) to the overhead line conductor(s) or could grow into it within a defined period of years (see below). Shapefiles were outputted comprising the following assumptions:

- New overhead lines – 3-year growth for removal; 10-year growth for affected/managed.
- Temporary overhead lines – 3-year growth for affected/managed, (10 years not applicable as the overhead lines will be removed).
- Dismantling overhead lines – 3-year growth for affected/managed, (10 years not applicable as the overhead lines will be removed).
- Existing overhead lines – 3 year and 10-year growth for affected/managed (this is equivalent to what National Grid would need to manage now under the current maintenance of the existing infrastructure and therefore wouldn't represent a change from existing conditions).

1.8.5 The PLS-CADD shapefiles were imported into GIS and the arboricultural constraints data provided was cut and classified based on the above assumptions. In addition, 45-degree conductor blow out files (modelling the swing of the conductors outwards from each pylon to mimic high wind conditions and modelled at a maximum temperature to capture impacts of line elongation or sagging at high loads or in high temperatures) were exported for use in GIS for further assessments, which comprised:

- Removal – all vegetation within the conductor blow-out of new build overhead lines.
- Affected/Managed – all vegetation within the conductor blow-out of temporary, existing, and dismantling overhead lines.
- Potentially Affected – all vegetation outside of the conductor swing but still within the Limits of Deviation

1.8.6 In addition, the remaining vegetation and arboricultural constraints data sets were assessed further for construction working areas and accesses to determine the likely impacts of the Scheme. The following classification was applied:

- Removal:
  - As above, trees within the 45-degree conductor below outs of new overhead lines and the 3-year growth projections.
  - Trees intersected by new build accesses;
  - Trees intersected by new build and modified bellmouths;
  - Trees that substantially infringe into access tracks;
  - Trees that sit within proposed crossing protection work areas;
  - Trees within new build working areas and stringing positions (within the 45-degree conductor swing);
  - Trees within Cable Sealing End Compounds (CSECs) and Substations; and
  - Trees along, or in proximity to, the proposed centreline of third-party utility diversions and undergrounding.
- Affected/Managed:

- As above, trees within the 45-degree conductor swing/blow outs of temporary, existing, and dismantling overhead lines, and the 3/10-year growth projections;
- Trees within the proposed visibility splays;
- Trees that infringe marginally into proposed accesses;
- Trees (i.e. canopy) that overlaps with accesses – assumed low hanging canopy to be managed;
- Trees between crossing protection areas, assuming it will need to be managed for any netting and backstays;
- Trees within stringing positions and working areas of new overhead lines beyond the 45-degree conductor swing;
- Trees within stringing positions and working areas of temporary, existing, and dismantling overhead lines; and
- Trees within the buffers for third party works beyond the centrelines (unless otherwise shown for removal due to site specific circumstances).

- Potentially Affected:
  - Any trees beyond the above that is within the Order Limits or Limits of Deviation;
  - Any trees along the XD overhead lines where minimal works (such as sagging, tensioning and regulation of XD lines or equivalent) are envisaged; and
  - Minor accesses to earthing towers (e.g. informal access with vehicles such as land rovers, no plant required).

1.8.7 The assessment is based on the following assumptions and principles:

- Some trees have been shown as Removed or Affected/Managed even if not directly impacted. This has been applied in areas where the adjacent trees are affected/removed to an extent where the remaining trees would not survive or remain viable on its own.
- If a tree stem is affected/removed, the entire canopy/tree has been applied to the same category, as the removal of the stem would inherently require the removal of the canopy it supports.
- Data gaps have been filled with the NTM data.
- The hedgerow dataset comprises both detailed tree survey data and also Phase 1 habitat survey data.
- The future growth of trees has been taken into account in relation to future interaction with new or upgraded overhead lines. An assumed annual growth rate of 0.55m canopy height and canopy spread has been applied to all tree species and assumes uniform growth.
- This has then been capped at 10m for lower growing tree species such as hawthorn, blackthorn, elder and hazel, at 12m for holly (to reflect typical maximum heights for these species) and is uncapped for all other species.
- The results of the GIS assessment are then reviewed in AutoCAD to allow a more detailed analysis for each surveyed tree feature.

1.8.8 Where detailed tree survey data was not available trees were considered using NTM data with impacts considered in terms of canopy cover in m^2 and lower growing hedgerows are considered using Phase 1 hedgerow survey data and impacts are expressed in linear metres. **Chapter 8: Biodiversity (Volume 5, Document 5.2.8)** also considers the loss of all hedgerow features.

1.9 Assessment of arboricultural impacts

1.9.1 The Project is likely to require the removal of 50,160m^2 of tree canopy and 1,162 linear metres of hedgerow and a further 104,110m^2 of tree canopy and 3,392 linear metres of hedgerow may be *affected/managed* (including pruning or coppicing). **Table 1.12** below summarises the level of canopy cover to be *removed*, the level likely to be *affected/managed* or *potentially affected*. It should be noted that a different assessment methodology has been applied in the arboricultural assessment compared to **Chapter 8: Biodiversity, Volume 5, Document 5.2.8** due to differences in survey and assessment methodologies and best practice for each aspect and therefore different figures are given regarding length of hedgerows affected.

Table 1.12 - Canopy Cover/Linear Metres *Removed*, *Affected Managed or Potentially Affected*

Tree Feature	Canopy Cover Removed	Canopy Cover Affected/Managed	Canopy Cover Potentially Affected
Surveyed Individual trees, tree groups, hedges and woodlands	50,160m^2	104,110m^2	75,783m^2
Phase 1 Hedgerow features	1,162 Linear metres	3,392 Linear metres	2,152 Linear metres

1.9.2 50,160m^2 of surveyed tree features are to be removed to facilitate the Project (excluding hedgerow features). This is required to achieve new or widened access routes, visibility splays, key working areas and conductor pulling positions where trees cannot be avoided, new infrastructure and new overhead lines. Tree removals consist of 80 individual tree features, 152 full or part tree groups (surveyed hedgerow, woodland and tree groups) and 1,162 linear metres of (ecology phase one) hedgerow. The distribution of tree loss and tree quality category is summarised in **Table 1.13** below.

1.9.3 Tree loss reported at the PEIR stage was 154,033m^2 and this excluded any consideration of tree loss or impact associated with reconductoring. This demonstrates the extent to which the design has been developed to minimise tree loss and impact.

1.9.4 Those trees considered likely to require removal to facilitate the Project which have been subject to detailed tree surveys are set out in **Table 1.13**. Tree quality categories are defined in **Section 1.4**.

Table 1.13 - Surveyed trees likely to be *removed*

Tree Category[41]	Category A	Category B	Category C	Category U
Surveyed individual trees to be removed.	7	29	41	3
Surveyed tree groups (including woods and hedges) to be removed in full or in part	0	20	132	0

1.9.5 A further 104,110m^2 of canopy cover and 3,392 linear metres of hedgerow is *Affected/Managed* which as a worst case could require coppicing but may in practice often be limited to lesser works such as pruning to facilitate access. The distribution of trees which are affected/managed and tree quality category is included as **Table 1.14** below.

1.9.6 The vast majority of surveyed tree species are broadleaved and have the potential to regenerate from coppicing or pollarding. Where trees are coppiced the loss of amenity and other benefits is often temporary and some attributes such as stored carbon in stems and roots are maintained.

1.9.7 Coppiced trees are often of significant value as habitat for biodiversity. Conversely coppiced trees typically require cyclical management into the future to address any structural issues associated with decay and poorly formed unions.

1.9.8 Tree pruning will adhere to the principles of BS3998: 2010 Treework – Recommendations[25].

1.9.9 The default position is that all retained trees will be protected by temporary tree protection fencing to create a Construction Exclusion Zone (CEZ) where they are in proximity to development activity that could result in damage.

1.9.10 Trees classed as *Affected/Managed* may also be subject to RPA incursions where access into the RPA is unavoidable. Where temporary access is required this will be managed with ground protection mats to protect soil structure and these will be installed in advance of any further work or access in that area.

1.9.11 An Outline Arboricultural Method Statement is included as **Annex 3I.4** and this sets out the working methods and tree protection measures to manage sensitive works close to retained trees.

[41] Tree categories are as defined by BS5837: 2012, see **Section 1.4** for more details.

Table 1.14 - Surveyed tree features likely to be *Affected/Managed*

Tree Category	Category A	Category B	Category C	Category U
Surveyed individual trees to be *Affected/Managed*	60	197	220	25
Surveyed tree groups (including woods and hedges) to be *Affected Managed*	13	59	343	0

1.9.12 Where trees are not likely to require removal, coppicing or pruning to achieve the current layout, but could be at risk of removal or impact if the Project design is amended within the Limits of Deviation, they are identified as *Potentially Affected*. This includes up to 75,783m^2 of canopy cover and 2,152 linear metres of hedgerow.

1.9.13 This covers the essential flexibility required for the contractor to deliver the Project. However, if the design is altered within the Limits of Deviation in one area it is likely to result in reduced or amended impacts in another. Any amendment to the design within the Limits of Deviation will take tree quality and value into account.

1.9.14 The distribution of trees classed as *Potentially Affected* and their quality category is included in **Table 1.15** below.

Table 1.15 - Surveyed trees likely to be *Potentially Affected*

Tree Category	Category A	Category B	Category C	Category U
Surveyed individual trees to be *Potentially Affected.*	33	63	26	18
Surveyed tree groups (including woods and hedges) to be *Potentially Affected*	8	36	196	1

Likely impacts to recorded Ancient Woodland

1.9.15 The design has been amended to avoid Ancient Woodland and its minimum 15m buffer zone where possible. This has included amending proposed access route alignments to the west of Overton Wood (PAWS) and to the north of Redhouse Wood (PAWS). The 15m buffer and RPA of individually surveyed trees within these woodlands will be robustly protected with temporary tree protection fencing within the Order Limits.

1.9.16 Scaffolding and an access route to facilitate reconductoring work are required outside of the recorded boundary of Huddleston Old Wood (PAWS) but within the 15m buffer. The

alignment is restricted here due to the position of the existing overhead line and scaffolding (which is required to facilitate the rail crossing) cannot be repositioned to avoid the buffer zone.

1.9.17 In practice the scaffolding will be achieved with the minimum impact to adjacent trees and will be erected and installed working around tree positions where possible.

1.9.18 The access route to the scaffolding will avoid the 15m buffer where possible. Where avoidance cannot be achieved ground protection mats will be utilised, where access within the RPA of a retained tree or the 15m Ancient Woodland buffer is unavoidable, to protect soil structure. No excavation of ground level changes will be permitted. This will ensure that the critical characteristics of the ancient woodland (e.g. undisturbed soil) will not be impacted.

1.9.19 Where trees must be cleared to facilitate access or scaffolding outside of the ancient woodland but within the 15m buffer zone they will preferentially be pollarded or coppiced and allowed to regenerate following the completion of reconductoring works. A maximum clearance area of 192m^2 is required. Trees in this location are young to semi mature hawthorn, ash and hazel and will therefore be tolerant of pruning or coppicing which will also allow the longer-term retention of the woodland edge habitat and will help to promote a mosaic of woodland structure with benefits for biodiversity.

1.9.20 This work is considered to be within the existing route of the in-situ overhead line and as such could be subject to cyclical management as part of the management of the existing overhead line.

Likely impacts to veteran trees

1.9.21 No veteran or ancient trees identified by the Woodland Trust's Ancient Tree Inventory are located within or immediately adjacent to the Order Limits and will not be removed or impacted by the Project.

1.9.22 Sixty-seven veteran tree features have been identified in the arboricultural Study Area via detailed tree surveys and the majority of veteran trees are located outside of the Order Limits with only 12 veteran trees are located within the Order Limits. The design has been developed to avoid them as fully as possible. This includes extensive design amendments to the north, southeast and west of Overton Substation and to the south of Shipton North and South 400kV CSECs where a veteran ash tree, identified to be likely to require removal at the PEIR stage, can now be successfully retained without impact.

1.9.23 Three veteran trees (T927, T934 and T969) to the south-east of Overton had the potential to be impacted by any required widening to the existing hard surfaced access route. Where the existing access route passes within the RPA of these trees the default position is that no widening to the existing hard surfaced access route will take place and there will be no significant increase in vehicular loading or height clearance from the existing use of the route. Where this cannot be achieved an alternative access route will be developed to the north which will also avoid the RPA of these trees and the Order Limits has been adjusted to facilitate this if required.

1.9.24 Two further veteran trees (T144 south of pylon YN001 and T170 south of pylon XC422) were at risk from proposed access routes. These follow existing farm tracks, with the most formal access in proximity to T170. Where the access route cannot be achieved without any change to the width, height clearance or loading of vehicles, which would require pruning or would result in any change to existing soil structure an alternative

route which fully avoids the RPA will be utilised (and this has been factored into the Order Limits).

1.9.25 Reconductoring works are required within the RPA and canopy spread of T1858 (hawthorn) south of pylon XC464. In this instance reconductoring will take place via winching from existing positions and the line is not currently envisaged to be dropped. Where dropping the line is unavoidable a scaffold framework will be constructed above and around the tree to protect its canopy and RPA and the conductor will be draped across this. The tree will otherwise be managed as per the existing clearance management works for the existing overhead line.

1.9.26 T2292 is a veteran oak tree located adjacent to an existing carriageway and there will be no change in use in this location. The existing maintained clearance of the road will be sufficient for construction access and the existing road surface will not be subject to any increased loading or widening.

1.9.27 T759 and T2412 are potentially impacted by the potential for pruning within the blowout zone of the existing overhead line. As it is an existing overhead line any pruning or management will not represent a change from the existing management of these trees in relation to the existing infrastructure and no new impacts are anticipated in association with the Project, on this basis these trees are considered to be unaffected.

1.9.28 T1468 the tree is located adjacent to an existing access route which will not be widened or subject to any increase in loading or height clearance from its existing use and this tree will therefore not be affected.

Likely impacts to trees subject to Tree Preservation Order

1.9.29 The design has been developed to avoid any impacts to trees subject to a Tree Preservation Order. Following amendments to the Order Limits no TPO trees are located within the Order Limits. To the north of Tadcaster a group TPO (ref: 3/1991) is located just outside the Order Limits at Toulston Polo Club but parts of the trees canopy oversail a required visibility splay. This is an existing A road (A659) and it has been confirmed that no additional clearance for visibility or clearance (beyond that already in place and managed as part of the existing highway clearance) is required. Therefore the Project will not impact on these protected trees.

Likely impacts to important hedgerows

1.9.30 Important hedgerows are considered in **Chapter 8: Biodiversity, Volume 5, Document 5.4.8.**

1.10 Conclusions

1.10.1 The design of the Project has been developed to avoid significant tree features where possible.

1.10.2 50,160m^2 canopy cover of surveyed tree features are to be *Removed* to facilitate the Project. This is required to achieve new or widened access routes, key working areas where trees cannot be avoided, new infrastructure and new overhead lines. Tree removals consist of 80 individual tree features, 152 full or part tree groups and 1,162 linear metres of hedgerow.

1.10.3 A further 104,110m^2 of canopy cover and 3,392 linear metres of hedgerow is Affected/Managed which as a worst case could require coppicing but may in practice be limited to lesser works such as pruning.

1.10.4 No tree features subject to statutory protection (including TPO and Conservation Area designations) are to be removed or impacted to facilitate the Project.

1.10.5 Extensive design changes have been applied to avoid loss or negative impacts to veteran trees.

1.10.6 Following embedded alternative designs and specific tree protection measures and working methods no veteran trees will be impacted by the Project.

1.10.7 All ancient woodlands are retained and a minimum 15m buffer has been applied. One area of ancient woodland (PAWS) at Huddleston Old Wood forms part of the existing overhead line wayleave and a small amount (up to 192m^2) of tree clearance just outside the ancient woodland (typically coppicing or pollarding) is required in the 15m buffer zone to achieve essential scaffolding and access for the railway crossing. This relates to a short section of semi mature hawthorn hedgerow (H1291) and a small group of young to semi mature ash and hazel (G1292).

1.10.8 All of these trees will readily regenerate from coppicing. This does not represent a significant change from the existing management of vegetation associated with the existing overhead line. Any access will preferentially avoid the RPA and buffer zone of trees and Ancient Woodland and where this is not feasible soil structure will be protected via ground protection boards.

1.10.9 Tree removal will be mitigated by 78,000m^2 of new tree planting, 1,027 linear metres of new hedgerow and 849 linear metres of hedgerow reinforcement at Overton Substation, Tadcaster and Monk Fryston Substation. This will ensure that there is no net loss in canopy cover in relation to trees and hedgerows classed as *Removed*. Further planting, to ensure no net loss of tree canopy or hedgerow length (such as in relation to trees classified as *Affected/Managed)* will be provided as part of the **Biodiversity Mitigation Strategy** (**Appendix 3D, Volume 5, Document 5.3.3D**) implement via DCO requirement 5 to mitigate tree loss as close to those areas where trees are removed as feasible.

1.10.10 New planting represents an opportunity to increase species diversity and resilience to address over representation of oak and ash trees within the existing tree population which leaves it exposed, particularly in relation to pests and disease.

1.10.11 Coppiced trees will be allowed to regenerate and will be subsequently managed on a cyclical basis where required. Where a clearance does not need to be maintained coppiced trees will be permitted to regenerate full tree canopies.

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National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

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