

# **Green Hill Solar Farm**

## **EN010170**

### **Environmental Statement**

### **Appendix 19.2: Arboricultural Impact**

### **Assessment and Outline Arboricultural**

### **Method Statement**

Prepared by: Lanpro

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Appendix 19.2, Arboricultural Impact Assessment and Outline Arboricultural Method  
Statement

EN010170/APP/GH6.3.19.2



# **Arboricultural Impact Assessment and Outline Arboricultural Method Statement**

**Document Reference Number: EN10170/APP/GH6.3.19.2**

**Green Hill Solar Farm**

**Environmental Statement**

Green Hill Solar Farm Limited

May 2025

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## Issue Sheet

Document Prepared for: Green Hill Solar Farm Limited

### Arboricultural Impact Assessment and Outline Arboricultural Method Statement

Green Hill Solar Farm

EN10170/APP/GH6.3.19.2

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## Glossary

Term	Definition
Access Tracks	Temporary or permanent routes constructed to facilitate the movement of vehicles, machinery, and personnel during the construction, operation, and maintenance of a solar farm and its associated cable route.
Ash Dieback	A disease affecting ash trees in the genus <i>Fraxinus</i> caused by the fungal pathogen <i>Hymenoscyphus fraxineus/Chalara fraxinea</i> .
Conservation Area	An area of special environmental or historic interest or importance, of which the character or appearance is protected (Section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990).
Green Hill A, Green Hill A.2, Green Hill B, Green Hill C, Green Hill D, Green Hill E, Green Hill F, Green Hill G.	The names for eight of the nine sites that will accommodate the ground mounted solar photovoltaic generating stations.
Micro-siting	A method of avoiding or minimising impacts to trees by moving all construction activities and elements outside of tree canopies and Root Protection Areas.
Outline Landscape and Ecological Management Plan (OLEMP)	The OLEMP sets out the landscape and ecological management actions for the Scheme, outlining how mitigation measures, identified within the Environmental Statement, will be delivered through future landscape works and management.
Permanent Access Points	Designated entry and exit locations along a solar farm's infrastructure, including the cable route, that remain in place after construction to provide ongoing access for operation, maintenance, and emergency response.
Ref	Unique arboricultural feature reference included in <b>Appendix 19.1 Tree Survey Schedule [EN10170/APP/GH6.3.19.1], ES Figures 19.1 – 19.1.30 Tree Constraints Plans [EN010170/APP/GH6.4.19.1-EN010170/APP/GH6.4.19.1.30]</b> and <b>ES Figures 19.2.1-19.2.30 Tree Impact Plans [EN010170/APP/GH6.4.19.2.1 - EN010170/APP/GH6.4.19.2.30]</b> .
Solar PV Panel	Solar photovoltaic panel designed to convert solar irradiance to electrical energy.
Temporary Access Points	Short-term entry and exit locations established during the construction phase of a solar farm and its associated cable route. These points facilitate the movement of construction vehicles, equipment, and personnel and are removed or reinstated once construction is complete.
Temporary Construction Compounds	An area designated for temporary use during the construction phase of a project, such as a solar farm. It serves as a central hub for essential construction activities, logistics, and worker facilities.



<b>Term</b>	<b>Definition</b>
The Applicant	Green Hill Solar Farm Limited
The Cable Route Corridor	The area of land identified within which the trench or trenches and working width for the cable circuits, the cables themselves and associated cable ducts, will be sited. The Cable Route Corridor is approximately 50m wide for the extent of the Scheme.
The Green Hill BESS	One of the nine sites that will accommodate the battery energy storage system.
The Order Limits	The land shown on the Works Plans within which the Scheme can be carried out.
The Scheme	The entire proposed development that will be applied for the Development Consent Order is referred to throughout the Environmental Statement and documents.
The Sites	The collective term for referring to all nine sites that form the main part of the Scheme.
Tree Preservation Order	A legal Order made under Section 198 of The Town and Country Planning Act 1990 (as amended) that protects an individual tree, group of trees, area of trees or woodland.
Veteran Tree Buffer Zone	A buffer zone for a veteran or ancient tree or ancient woodland whereby no development should occur. For ancient woodlands this is 15m from the edge of the woodland. For ancient and veteran trees, the buffer zone is either 15 times the stem diameter of the tree or 5m greater than the canopy spread, whichever is greater.
Root Protection Area (RPA)	An area which defines the theoretical minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability and where the protection of the roots and soil structure is treated as a priority. Measured as the radius of a circle in metres, and total area in square metres.

## Acronyms

<b>Term</b>	<b>Definition</b>
ACoW	Arboricultural Clerk of Works
ATI	Ancient Tree Inventory
BESS	Battery Energy Storage System
BS5837:2012	British Standard 5837: 2012 'Trees in relation to design, demolition and construction – Recommendations'
CEZ	Construction Exclusion Zone
DBH	Diameter at Breast Height
DCO	Development Consent Order
GIS	Geographic Information System
km	Kilometres
m	Metres

Term	Definition
NJUG	National Joint Utilities Group
NPPF	National Planning Policy Framework
QGIS	Quantum Geographic Information Service
RPA	Root Protection Area
TCC	Temporary Construction Compound
TPF	Tree Protection Fencing

# 1 Introduction

## 1.1 Appointment

- 1.1.1 Lanpro Services Ltd. was appointed by Green Hill Solar Farm Limited (the ‘Applicant’) to undertake a BS5837:2012 tree survey and provide an Arboricultural Impact Assessment and Outline Arboricultural Method Statement for the proposed Green Hill Solar Farm (hereafter referred to as ‘the Scheme’).
- 1.1.2 The Scheme’s Order Limits contain an area of approximately 1,441 hectares, split across three administrative boundaries: West Northamptonshire Council, North Northamptonshire Council and Milton Keynes Council. The Order Limits include nine Solar Array areas (referred to collectively as ‘the Sites’), the Cable Route Corridor between the Sites and associated highway accesses, visibility splays and Temporary Construction Compounds.
- 1.1.3 The Scheme is a Nationally Significant Infrastructure Project (NSIP). This report has therefore been prepared as part of a Development Consent Order (DCO) application under the Planning Act 2008.
- 1.1.4 The following Appendices and figures are to be read in conjunction with this report and are provided separately:
- **Appendix 19.1 Tree Survey Schedule [EN10170/APP/GH6.3.19.1]** provides guidance as to the nature and quality of the existing tree stock within and adjacent to the Site;
  - **ES Figures 19.1 – 19.1.30 Tree Constraints Plans [EN010170/APP/GH6.4.19.1-EN010170/APP/GH6.4.19.1.30]** illustrate the location of the surveyed trees, the assigned tree quality category (A, B, C and U), the canopy spread at the four cardinal points (north, south, east and west) and the extent of Root Protection Areas (RPA); and
  - **ES Figures 19.2.1-19.2.30 Tree Impact Plans [EN010170/APP/GH6.4.19.2.1 - EN010170/APP/GH6.4.19.2.30]** illustrate the possible tree removals, canopy and root impacts of the Scheme.

## 1.2 Report Objectives

- 1.2.1 To provide the results of the tree survey and an assessment of the Scheme in regards to its potential impacts on existing trees, tree groups and woodlands. This report is intended for submission with the DCO application.
- 1.2.2 An Outline Arboricultural Method Statement has also been provided within this report to detail how any arboricultural impacts identified will be avoided, mitigated or compensated for.

## 2 Relevant Legislation, Planning Policy and Guidance

2.1.1 This Section provides an overview of the legislation, planning policy and guidance against which the Scheme will be considered for arboriculture.

### Legislation

#### UK Legislation

##### Town and Country Planning Act 1990 (as amended) (Ref. 20)

- 2.1.2 Section 198 of the Act empowers local planning authorities to make Tree Preservation Orders (TPOs) where it appears to be “*expedient in the interests of amenity to make provision for the preservation of trees or woodlands in their area*”. Pursuant to Section 210(1), a TPO present on a tree, group of trees or woodland means that it is an offence to do the following in contravention of the TPO:
- Cut down, uproot or wilfully destroy that tree;
  - Top, lop or wilfully damage a tree in a way that is likely to destroy it; or
  - Cause or permit such activities.
- 2.1.3 A TPO does not prevent the management of trees or removal of trees for development. Trees subject to a TPO can be managed (for example branch removal) once an application for consent to carry out those works has been approved by the local planning authority. Similarly, trees subject to a TPO can be worked upon or removed for development (without the need for a tree works application) so far as such work is necessary to implement a full planning permission. A TPO does however prevent unauthorised removal or work to protected trees prior to full planning permission being granted or an application for tree work being consented.
- 2.1.4 Section 211 of the Town and Country Planning Act preserves trees in Conservation Areas. A Conservation Area is designated by a local planning authority as “*an area which has been designated because of its special architectural or historic interest, the character or appearance of which is desirable to preserve or enhance*” (Reference 1 (Ref. 1) in Annex 1). Trees within a Conservation Area and not already covered by a TPO are protected from cutting down, topping, lopping, uprooting, wilful damage and wilful destruction except insofar as the act in question is authorised by the local planning authority or by an order granting development consent.
- 2.1.5 To carry out work to a tree in a Conservation Area, a six-week notification must be provided to the local planning authority prior to works being carried out unless an exception applies. The notification must identify the tree in question and describe the intended works to the tree. Once the six-week notification period has passed or the local planning authority issues a ‘no objection’ response to the proposed tree work, the tree

work may then take place. Similarly to a TPO, works to trees in a Conservation Area can also take place (without the need for a six week notification) to facilitate a development provided full planning permission is in place.

2.1.6 Exemptions exist to the requirement to make an application/submit a notification to undertake works to trees protected a TPO or Conservation Area respectively. An application or notification is not required for:

- The removal of dead trees or dead wood (five days written notice to the local authority must be given to remove a dead tree covered by a TPO or Conservation Area designation);
- The making safe of dangerous trees where there is an immediate risk of serious harm;
- The minimum of work that is necessary to prevent or abate an actionable nuisance; and
- Tree works necessary to implement a full and valid planning permission.

2.1.7 Full government guidance on TPOs and Conversation Areas can be found in government guidance (Ref. 2).

## Planning Policy

### National Planning Policy

#### Overarching National Policy Statement for Energy (EN-1) (January 2024) (Ref.3)

2.1.8 Paragraph 5.4.32 (Ancient Woodland and Veteran Trees) requires proposals to *"include measures to mitigate fully the direct and indirect effects of development on ancient woodland, ancient and veteran trees or other irreplaceable habitats during both construction and operational phases"*.

2.1.9 Paragraph 5.4.53 (Ancient Woodland, Ancient Trees, Veteran Trees and Other Irreplaceable Habitats) states that *"The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of any irreplaceable habitats, including ancient woodland, and ancient and veteran trees unless there are wholly exceptional reasons and a suitable compensation strategy exists."* Wholly exceptional reasons are *"For example where the public benefits (including need) of the nationally significant energy infrastructure would clearly outweigh the loss or deterioration of the habitat."*

2.1.10 Paragraph 5.11.27 of EN-1 requires existing trees and woodlands to be retained wherever possible. Paragraph 5.11.27 also states that *"Mitigation may include, but is not limited to, the use of buffers"* and *"Where woodland loss is unavoidable, compensation schemes will*

*be required, and the long-term management and maintenance of newly planted trees should be secured".*

**The National Policy Statement for Renewable Energy Infrastructure (EN-3) (January 2024) (Ref.4)**

- 2.1.11 Paragraph 2.10.100 requires proposals to consider as part of the design, layout, construction, and future maintenance plans how to "*protect and retain, wherever possible, the growth of vegetation on site boundaries, as well as the growth of existing hedges, established vegetation, including mature trees within boundaries*". Paragraph 2.10.101 of EN-3 also states that the impacts of a proposed development should be informed by a tree survey and arboricultural assessment.

**National Planning Policy Framework (NPPF, December 2024) (Ref.5)**

- 2.1.12 Paragraph 193 part c) states that:
- 2.1.13 "*development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists*"
- 2.1.14 It should be noted that in the context of DCO applications, while the NPPF is an important and relevant consideration, applications are decided in accordance with the National Policy Statements. Irrespective, in accordance with the National Policy Statements we have avoided such impacts where possible in the first instance, and recommended a comprehensive mitigation package to ensure there is no such loss or deterioration of these trees.

**Local Planning Policy**

**West Northamptonshire's Joint Core Strategy Local Plan (Part 1) (Ref.6)**

- 2.1.15 The Local Plan, by way of providing context to its policies for trees and woodlands, states that "*West Northamptonshire has a relatively poor level of tree cover. Creation of new woodlands, particularly with native species can stimulate the economy, through tourism, business diversification and forestry employment*".
- 2.1.16 The Local Plan contains one policy with specific regard to trees and woodlands – Policy BN3 'Woodland Enhancement and Creation'. This policy seeks to support development applications that propose to enhance and manage existing woodlands or create new woodlands. In particular, to support the creation of new woodlands to buffer, extend or relink areas of ancient woodland. The policy also supports the protection of "*aged or veteran trees*" outside of ancient woodlands. The policy states that development that would lead to loss or fragmentation of ancient woodland or aged or veteran trees will not



be permitted unless the need for and benefits of the development in that location clearly outweigh the loss.

#### **North Northamptonshire Joint Core Strategy 2011-2031 (Ref.7)**

- 2.1.17 There are no tree-specific policies within North Northamptonshire's Joint Core Strategy except for Policy 21 'Rockingham Forest' which seeks to promote 40 hectares of new tree planting in Rockingham Forest to expand this woodland.
- 2.1.18 North Northamptonshire District Council has published a 'Trees and Landscape Supplementary Planning Document' (SPD) adopted in June 2013 (Ref.8). This document provides advice to applicants on recognising, protecting and enhancing existing arboricultural features such as mature trees, woodland and hedgerow and incorporating them into proposals. It also promotes the planting of new trees wherever possible and compliance with the design principles and process detailed in British Standard 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- 2.1.19 The SPD advises that a tree survey should be undertaken as the starting point and a Tree Retention Plan, Tree Protection Plan, Arboricultural Impact Assessment and Arboricultural Method Statement provided where necessary.

#### **Milton Keynes Council Plan: MK 2016-2031 (Adopted March 2019) (Ref.9)**

- 2.1.20 Milton Keynes Council does not have any specific planning policies or Supplementary Planning Documents relating to trees. Policy NE1 'Protection of Sites' relates to ancient woodland and reiterates the effects of NPPF paragraph 186 part c) by stating:
- 2.1.21 *"Development proposals which would cause harm to a National Nature Reserve, Site of Special Scientific Interest or irreplaceable habitats such as ancient woodland will not be permitted unless:*
1. *There is no suitable alternative to the development;*
  2. *The benefits of the development, at this site, clearly outweigh the adverse impacts on the site;*
  3. *All reasonable possibilities for mitigation have been put in place; and*
  4. *Compensatory provision in line with the mitigation hierarchy to ensure that the overall coherence of the site is protected and with the intent to achieve a net gain in biodiversity."*

## **Guidance**

**Natural England and Forestry Commission Standing Advice - Ancient woodland, Ancient Trees and Veteran Trees: Advice for Making Planning Decisions (Ref.10)**

- 2.1.22 This guidance is a material consideration for local planning authorities and advises the following for ancient and veteran trees and ancient woodland:
- Recorded ancient woodland should be identified using Natural England's Ancient Woodland database (Ref.11) and veteran/ancient tree records should be checked via the Woodland Trust's Ancient Tree Inventory (Ref.12);
  - For ancient woodlands, a buffer zone of at least 15 metres from the boundary of the woodland is needed to avoid root damage. Where assessment shows that other impacts are likely to extend beyond this distance, a larger buffer zone will likely be required;
  - For ancient and veteran trees, the Veteran Tree Buffer Zone should be at least 15 times larger than the diameter of the tree or five metres from the edge of the tree's canopy, whichever is greater; and
  - Buffer zones should contribute to wider ecological networks and be part of the green infrastructure of the area. Buffer zones should comprise semi-natural habitats. Development, including drainage infrastructure, should not be located within buffer zones.

**Planning Policy Guidance for Tree Preservation Orders and Conservation Areas (Ref.2)**

- 2.1.23 This guidance details how trees are protected by TPO and Conservation Area designations and the exemptions to the need to apply for permission or notify the local planning authority of works to such trees. Much of the content has been summarised above in paragraphs relating to UK Legislation.

**British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction (BS5837:2012) (Ref.13)**

- 2.1.24 This guidance provides a framework for surveying trees and providing tree constraints information to inform the design of developments. It then provides guidance on the assessment, mitigation and compensation of arboricultural impacts and the arboricultural input needed at each stage of the Town and Country Act 1990 planning process. Whilst BS5837:2012 does not provide explicit guidance on DCO applications, its approach and recommendations can be adapted and followed for the DCO process.
- 2.1.25 BS5837:2012 states that when undertaking a tree survey for development, the Arboriculturist must assess the quality of the trees and categorise each arboricultural feature as either Category A (a high quality tree), Category B (a moderate quality tree), Category C (a low quality tree/young tree) or Category U (a very low quality tree). Subcategories 1 (mainly arboricultural qualities), 2 (mainly landscape qualities) and 3 (mainly cultural values, including conservation) are then added to the categorisation to reflect the predominantly arboricultural, landscape and/or cultural/conservation value of

the tree. BS5837:2012 states that veteran trees will “*almost always be included in the A3 category*”, i.e. a high quality tree with mainly conservation value.

2.1.26 BS5837:2012 requires the following information to be recorded for each individual tree, groups of trees or woodland:

- Reference number (T = individual tree, G = group of trees, W = woodland);
- Species (common name and scientific name);
- Tree height;
- Stem diameter measured at 1.5m height;
- Branch spread at four cardinal points (north, east, south and west);
- Existing height above ground level of a) first significant branch and direction of growth and b) canopy;
- Life stage (young, semi-mature, early-mature, mature);
- Comments;
- Estimated remaining contribution in years; and
- Quality Category A-C and U.

2.1.27 BS5837:2012 then provides guidance on avoiding and minimising impacts to identified arboricultural features such as siting all development outside of Root Protection Areas and canopy spreads in the first instance. Should development need to occur within Root Protection Areas or canopy spreads, guidance is provided on how to minimise impacts to the above and below ground parts of the tree during construction through sensitive working methods, tree protection measures and arboricultural supervision.

### 3 Methodology

#### Desk Study

3.1.1 A desk study was undertaken in 2024 and 2025 to review records of existing ancient woodlands, ancient and veteran trees and trees protected by a TPO or Conservation Area designation. **Table 3.1** below details the information reviewed in the desk study.

**Table 3.1. Information Sources for Desk Study**

Feature	Data Source
Ancient woodlands	Natural England – Ancient Woodland (England) [Ref. 11] reviewed on 27 <sup>th</sup> February 2025.
Ancient and veteran trees	The Woodland Trust – Ancient Tree Inventory [Ref. 12] reviewed on 27 <sup>th</sup> February 2025.
Tree Preservation Orders	GIS shapefiles of all TPOs received from West Northamptonshire Council on 31 <sup>st</sup> October 2024.  GIS shapefiles of all TPOs received from North Northamptonshire Council on 5 <sup>th</sup> April 2024.  GIS shapefiles for all TPOs received from Milton Keynes Council on 6 <sup>th</sup> March 2025.
Conservation Areas	Historic England – Conservation Area [Ref. 14] reviewed on 27 <sup>th</sup> February 2025.

3.1.2 The datasets above were overlaid onto the Order Limits within Quantum Geographic Information Service (QGIS) [Ref. 15] software. The desk study considered all land within the Order Limits as well as within 50 metres (m) of the boundaries of the Order Limits. The 50m distance from the Order Limits was chosen as this is considered the maximum influencing distance of the Scheme on arboricultural features in terms of potential impacts to roots, canopies and Veteran Tree Buffer Zones.

#### High Level Tree Surveys at the Sites

3.1.3 BS5837:2012 guidance states that all trees with a stem diameter above 75mm diameter at a height of 1.5m should be recorded at a development site. However, given the number of trees that would need to be recorded under BS5837:2012 and the size of the Scheme, a high level and more proportionate survey approach was followed which aimed to provide sufficient tree constraints information to inform the design of the Sites in a timely and proportionate manner. This approach is explained below.

3.1.4 Each of the Sites was divided into numbered fields. For example, Green Hill D comprises four fields referred to as DF1, DF2, DF3 and DF4. Within each field, the tree with the largest stem diameter (and therefore the largest Root Protection Area) was identified and recorded

on the northern, eastern, southern and western boundaries of that field. In addition to identifying the largest tree on each field boundary, all ancient and veteran trees (see definitions in **Table 3.2** below) within the Sites or within 15m of the Sites were also recorded in accordance with the survey parameter defined in BS5837:2012 (Ref. 13). All trees were recorded in accordance with BS5837:2012. The following data was recorded for each arboricultural feature:

- Reference number (T = individual tree, G = group of trees, W = woodland, H = hedgerow) preceded by the field reference where feature was located within the Sites e.g. EF4-T1, EF4-T2 etc;
- Species (common name and scientific name);
- Tree height in metres (to nearest half metre for dimensions up to 10m and nearest whole metre for dimensions over 10m);
- Stem diameter measured at 1.5m height (to nearest 10mm);
- Branch spread at four cardinal points - north, east, south and west (to nearest half metre for dimensions up to 10m and nearest whole metre for dimensions over 10m);
- Existing height above ground level of a) first significant branch and direction of growth and b) canopy;
- Life stage (young, semi-mature, early-mature, mature, over-mature, ancient);
- Comments;
- Estimated remaining contribution in years (<10, 10-20, 20-40, 40+); and
- BS5837:2012 quality category A-C and U and subcategory (1-3).

3.1.5 This approach produced tree constraints information for the design team which provided a minimum arboricultural buffer required for each field boundary which, where followed, would ensure no impacts to all trees along that field boundary.

3.1.6 High level tree surveys of the Sites were undertaken between October 2023 and September 2024 by Alexander Lowe BSc MArborA MCIEEM Dip Arb L4 (ABC) and Ho Ming Mak FdSc. A Forestry Pro Laser was used to record tree height, a laser Distometer D110 was used to measure canopy spread and stem diameter was measured using a Diameter at Breast Height (DBH) measuring tape.

3.1.7 Tree positions were plotted directly onto topographical surveys of the Sites.

**Table 3.2. Definitions and Characteristics of Ancient and Veteran Trees and Ancient Woodland**

Ancient/Veteran Tree	Definition
Ancient Tree	An ancient tree is one that has passed beyond maturity and is old or aged in comparison with other trees of the same species. Definition as per the Ancient Tree Forum guidance [Ref. 16].
Veteran Tree	A veteran tree is a survivor that has developed some of the features found on an ancient tree, not necessarily as a consequence of time, but

Ancient/Veteran Tree	Definition
	<p>of its life and environment. Definition as per the Ancient Tree Forum guidance [Ref. 16].</p> <p>As per Natural England advice [Ref. 17] the following are characteristics of a veteran tree, the more characteristics a tree has the stronger the indication that it is a veteran:</p> <ul style="list-style-type: none"> <li>• Girth large for the tree species concerned</li> <li>• Major trunk cavities or progressive hollowing</li> <li>• Naturally forming water pools</li> <li>• Decay holes</li> <li>• Physical damage to trunk</li> <li>• Bark loss</li> <li>• Large quantity of dead wood in the canopy</li> <li>• Sap runs</li> <li>• Crevices in the bark, under branches or on the root plate sheltered from direct rainfall</li> <li>• Fungal fruiting bodies (e.g. from heart rotting species)</li> <li>• High number of interdependent wildlife species</li> <li>• Epiphytic plants</li> <li>• An 'old' look</li> <li>• High aesthetic interest</li> </ul>
Ancient Woodland	<p>An area in England that has been wooded continuously since at least 1600 AD.</p> <p>It includes ancient semi-natural woodland and plantations on ancient woodland sites. Definition as per NPPF.</p>

### Cable Route Corridor Tree Survey

- 3.1.8 A BS5837:2012 tree survey of the Cable Route Corridor was undertaken between December 2024 and February 2025 by Michael Garrett BSc (Hons), Ho Ming Mak FdSc and Ben Stoker HNDArb. A Forestry Pro Laser was used to record tree height, a laser Distometer D110 was used to measure canopy spread and stem diameter was measured using a DBH measuring tape.
- 3.1.9 The survey recorded all individual trees, groups of trees and woodlands within the Cable Route Corridor and within 15m of the Cable Route Corridor and relevant data recorded as per paragraph 3.1.4. Trees along the Cable Route Corridor were given a four digit reference number with no field reference (e.g. T0001, G0001, W0001). Hedgerows were not recorded and are generally not included in this report as they are considered separately in **ES Appendix 9.13 Biodiversity Net Gain Assessment [EN010170/APP/GH6.3.9.13]**.



- 3.1.10 Tree groups and woodlands were identified where trees formed cohesive arboricultural features. Principal trees within a group were plotted individually. Maximum stem diameters, tree heights and canopy spreads of the groups and woodlands were recorded. Insignificant trees (those with a stem diameter of less than 75mm at 1.5m height) were omitted from the survey in accordance with BS5837:2012 (Ref. 13).
- 3.1.11 No topographical survey was available for the Cable Route Corridor therefore trees were mapped on printed maps of aerial imagery and later plotted manually onto aerial imagery in QGIS.

#### **Targeted Tree Surveys**

- 3.1.12 Additional tree constraints data was collected in targeted areas of the Order Limits once additional information was received on the locations of:
- the Battery Energy Storage System;
  - Temporary Construction Compounds for the Cable Route Corridor;
  - Temporary Access Points and visibility splays; and
  - Permanent Access Points and visibility splays.
- 3.1.13 A desktop review of the above information was undertaken and areas where potential tree impacts could occur (such as removal, root or canopy impacts) were identified for survey. By surveying these targeted areas, data was collected to inform this impact assessment and required mitigation and compensation.
- 3.1.14 Targeted tree surveys in accordance with BS5837:2012 (Ref. 13) were undertaken in February 2025 by A. Lowe, M. Garrett, HM. Mak and B. Stoker using a Forestry Pro Laser, laser Distometer D110 and DBH measuring tape. BS5837:2012 data categories listed in paragraph 3.1.4 were collected and trees were given a four digit reference number with no field reference (e.g. T0001, G0001, W0001).
- 3.1.15 No topographical surveys were available for Temporary Access Points within the Cable Route Corridor or Temporary Construction Compounds therefore trees were mapped on printed maps of aerial imagery and later plotted manually onto aerial imagery in QGIS.

#### **Survey Constraints and Limitations**

- 3.1.16 The positions of all trees, groups of trees and woodlands plotted in the Cable Route Corridor, Temporary Construction Compounds and adjacent to Temporary Access Points were estimated from aerial imagery only and not based on a topographical survey. This is not considered to be a significant constraint to this impact assessment given that the design of these elements is indicative only and not available in sufficient detail to allow for accurate predictions of potential canopy or root impacts even if those trees had been plotted on a topographical survey.

- 3.1.17 Access to some tree stems and canopy spreads by the surveyors was sometimes impeded due to a range of factors such as dense vegetation. Estimates of stem diameter and canopy spreads were therefore made where necessary.
- 3.1.18 This was a ground level visual assessment only. The assessment was for the purposes of planning and development only. No risk assessments or internal decay detection tools have been used in this assessment; therefore, this was not a full health and safety assessment and cannot be relied upon for determining tree safety
- 3.1.19 The findings and recommendations contained within this report are valid for a period of two years from the date of survey. It should be noted that tree condition and quality can change significantly after extreme weather events or from anthropogenic influences.

#### **Tree Constraints Mapping**

- 3.1.20 All tree constraints were mapped in QGIS software.
- 3.1.21 RPAs were calculated using the standard formulas provided in BS5837:2012 which produces a generalised RPA circle with a radius 12 times the stem diameter of the tree. Veteran Tree Buffer Zones for ancient and veteran trees were calculated by multiplying the stem diameter of the tree by 15 or by adding 5m to the maximum canopy spread, whichever was larger. Ancient Woodland Buffer Zones were created by taking the polygons of ancient woodland mapped by Natural England [Ref. 11] and buffering these polygons by 15m.

#### **Assessment of Impacts**

- 3.1.22 The following information for the design of the Scheme was provided to inform this impact assessment:
- Landscape and Ecology Mitigation Plans **[EN010170/APP/GH6.4.4.10 - EN010170/APP/GH6.4.4.20]**;
  - Environmental Statement (ES) Chapter 4 - Scheme Description **[EN010170/APP/GH6.2.4]**;
  - Temporary Construction Compounds for the Cable Route Corridor as shown on the Works Plan **[EN010170/APP/GH2.4]**;
  - Temporary Access Points and visibility splays for the Cable Route Corridor as shown in the Transport Assessment **[EN010170/APP/GH6.3.13.2]**;
  - Permanent Access Points and visibility splays for the Sites as shown in the Transport Assessment **[EN010170/APP/GH6.3.13.2]**;
  - Works Plan **[EN010170/APP/GH2.4]**; and
  - Crossing Schedule (showing trenchless solution and open cut Sections in the Cable Route Corridor) **[EN010170/APP/GH7.18]**.

3.1.23 The above information was reviewed and wherever possible, imported as shapefiles into QGIS and overlaid with the tree constraints data. Temporary Access Points and their associated visibility splays were reviewed on PDF drawings based on Ordnance Survey maps.

3.1.24 Arboricultural impacts were then assessed to determine where tree removals, canopy impacts and root impacts may be incurred given the embedded mitigation measures inherent to the design of the Scheme as described in Section 3.2 and further detailed in:

- ES Chapter 4 - Scheme Description [EN010170/APP/GH6.2.4];
- Outline Construction Environmental Management Plan [EN010170/APP/GH7.1];
- Outline Operational Environmental Management Plan [EN010170/APP/GH7.2];
- Outline Decommissioning Statement [EN010170/APP/GH7.3]; and
- Outline Landscape and Ecological Management Plan [EN010170/APP/GH7.4]; and
- Outline Ecological Protection and Mitigation Strategy [EN010170/APP/GH7.5].

3.1.25 The assessment of impacts therefore considered the embedded mitigation and what impacts may still occur to arboricultural features given that embedded mitigation. The assessment is based on a number of assumptions provided in Section 3.3.

3.1.26 For the Cable Route Corridor, part of the embedded mitigation includes micro-siting around sensitive environmental features. Micro-siting, within the context of arboriculture, is a method of avoiding or minimising impacts to arboricultural features within the Cable Route Corridor by moving all construction activities and elements outside of tree canopies and Root Protection Areas. It is not possible to predict, ahead of construction, which trees can be micro-sited around, although firm commitments within the Outline Construction Environmental Management Plan have been made to micro-site (or otherwise avoid using a trenchless solution) around veteran trees and Category A high quality trees. Consequently, the impact assessment for the Cable Route Corridor has shown all arboricultural features which bisect the Cable Route Corridor (and are not veteran or Category A) as potentially requiring removal, presenting a ‘worst case’ maximum tree removal assessment.

3.1.27 Where possible, a magnitude of impact has been assigned as per the definitions in **Table 3.3** below and written in *italic*.

**Figure 3.3. Magnitude of Impact**

<b>Magnitude of Impact</b>	<b>Description</b>
High	Tree removal or significant tree pruning which alters the value/sensitivity of an arboriculture feature.
Medium	Canopy or root impacts which do not alter the value/sensitivity of an arboricultural feature but may have a medium to long term impact on tree condition, health and safe life expectancy.

<b>Magnitude of Impact</b>	<b>Description</b>
Low	Canopy or roots impacts which do not meet the definitions of 'high' or 'medium' above and are likely to have a temporary/short term impacts on the condition of the arboricultural feature, health and safe life expectancy.
Negligible	Very minor impact to the arboricultural feature which does not meet the definitions of high, medium or low magnitude.
Neutral	No feasible impact to the arboricultural feature

### 3.2 Embedded Mitigation

3.2.1 Embedded mitigation describes measures that have been incorporated into the Scheme design to reduce impacts to environmental features. Of relevance to arboriculture are the following embedded mitigation measures contained within the documents listed in paragraph 3.1.24:

#### Embedded Construction Mitigation Measures

- Significant tree and woodland planting is proposed within the Sites to compensate for any tree losses associated with the Scheme – secured in the Landscape and Ecology Mitigation Plans **[EN010170/APP/GH6.4.4.10 - EN010170/APP/GH6.4.4.20];**
- No new landscaping is proposed within the Veteran Tree Buffers Zones to avoid soil disturbance to veteran trees during construction – secured in the Landscape and Ecology Mitigation Plans **[EN010170/APP/GH6.4.4.10 - EN010170/APP/GH6.4.4.20];**
- The Cable Route Corridor has been widened up to 120m adjacent to identified veteran trees to provide sufficient space to allow for open cut trenching around Veteran Tree Buffer Zones ensuring impacts to veteran trees are avoided – secured in the Works Plan **[EN010170/APP/GH2.4];**
- Micro-siting will be used to avoid the removal or occurrence of root or canopy impacts to veteran trees and Category A trees within the Cable Route Corridor. If micro-siting cannot be achieved around such arboricultural features, trenchless techniques such as Horizontal Directional Drilling (HDD) will be used to avoid impacts to veteran and Category A trees – secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- An Arboricultural Clerk of Works (ACoW) will be required to guide tree removal and pruning and ensure tree protection measures are put in place to safeguard trees during construction – secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- Tree removal along the Cable Route Corridor will preferentially target trees of lower quality over those of higher quality. Veteran trees and Category A trees will not be removed in the Cable Route Corridor. The order of priority for tree removal will be as

follows: Category U, C, B and lastly Category A trees – secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**

- Tree pruning will be specified by an ACoW in collaboration with the construction contractor. Pruning will be minimised wherever possible. The order of priority for tree pruning will be as follows: Category U, C, B and A trees. All tree works will be undertaken by a suitably qualified and ensured arborist working in accordance with British Standard 3998:2010 Tree Work – Recommendations (Ref. 18) – secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- Temporary Construction Compounds will be sited outside of the canopy spreads and RPAs of adjacent trees and woodlands – secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- Trees at the Sites will be protected throughout construction by the installation of perimeter fencing which will be installed at the start of construction works. Any trees at the Sites not protected by perimeter fencing will be protected with Tree Protection Fencing for the duration of construction – secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- Trees along the Cable Route Corridor will also be protected with Tree Protection Fencing for the duration of works in a given section of the Cable Route Corridor – secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- Ground protection will be used where vehicle/machinery access is required within the RPAs of retained trees - secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- Any excavation work within the RPAs of retained trees (such as for cable trenches, Access Tracks or Permanent/Temporary Access Points) will be undertaken using hand tools only and the root pruning methodology within the Outline Arboricultural Method Statement. All excavation work within RPAs will also be supervised by the ACoW – secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- Tall machinery working near the canopies of retained trees will be accompanied by a banksman to ensure no damage occurs to tree stems and canopies - secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- All machinery used for trenchless solutions (e.g. HDD) will be situated outside the RPAs of retained trees. Entry and exit points for the trenchless solutions will be sited more than 15m from retained tree stems. Trenchless solution depths will exceed 1m under RPAs - secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**

- Machinery movements and spoil/material storage will avoid the RPAs of retained trees within the Sites and the Cable Route Corridor - secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- Dust and sediment controls will be in place for relevant works near ancient woodlands along the Cable Route Corridor and near the Sites - secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- Construction traffic will not use access tracks within the Veteran Tree/Ancient Woodland Buffer Zones in order to avoid the pruning of veteran trees/trees within ancient woodland to achieve clearance heights for tall vehicles or machinery. Instead, construction traffic will be routed outside of Veteran Tree/Ancient Woodland Buffer Zones - secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];**
- Any access tracks (for use during operation/decommissioning) situated within Veteran Tree/Ancient Woodland Buffer Zones will be constructed using a 'no-dig' solution and all excavation within Veteran Tree/Ancient Woodland Buffer Zones will be avoided - secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1];** and
- A detailed Arboricultural Method Statement, based on post-DCO detailed design, will be produced prior to construction commencing - secured in the Outline Construction Environmental Management Plan **[EN010170/APP/GH7.1].**

#### Embedded Operation Mitigation Measures

- Perimeter fencing (wooden post fencing with deer wire mesh to a height of 2.5m) will be installed and remain in situ during operation of the Sites. This will protect trees on the field boundaries of the Sites from operational impacts such as maintenance and replacement activities – secured in ES Chapter 4 - Scheme Description **[EN010170/APP/GH6.2.4];**
- New tree and woodland planting is not proposed within the open cut sections of Cable Route Corridor, ensuring that future tree removal will not be required to remedy possible tree root interference with the cables – secured in the Landscape and Ecology Mitigation Plans **[EN010170/APP/GH6.4.4.10 - EN010170/APP/GH6.4.4.20];**
- No new tree planting is proposed within the Veteran Tree Buffer Zones of identified veteran trees to ensure no future shading and resulting decline in the health and longevity of veteran trees – secured in the Landscape and Ecology Mitigation Plans **[EN010170/APP/GH6.4.4.10 - EN010170/APP/GH6.4.4.20];**
- Replacement activities will be facilitated through use of Access Tracks installed during the construction of the Scheme, ensuring no additional root or canopy impacts to retained trees during replacement activities – secured in the Outline Operational Environmental Management Plan **[EN010170/APP/GH7.2];**



- Permanent Access Points and visibility splays for the Sites will be the same as those used for construction, ensuring no additional tree removal or pruning during operation of the Sites – secured in the Outline Operational Environmental Management Plan **[EN010170/APP/GH7.2]**; and
- All maintenance and replacement activities near FF30-T2 will be supervised by an ACoW to ensure no machinery or materials enter the Veteran Tree Buffer Zone. This may be achieved through implementation of ground protection and/or Tree Protection Fencing around the Veteran Tree Buffer Zone during maintenance and replacement activities – secured in the Outline Operational Environmental Management Plan **[EN010170/APP/GH7.2]**.

#### Embedded Decommissioning Mitigation Measures

- Permanent Access Points and visibility splays for the Sites will be the same as those used for construction, ensuring no additional tree removal or pruning during decommissioning of the Sites – secured within the Outline Decommissioning Statement **[EN010170/APP/GH7.3]**;
- Decommissioning and removal of Solar PV Panels will take place using the existing Access Tracks installed at the construction stage, ensuring no additional tree root or canopy impacts to retained trees during decommissioning works – secured within the Outline Decommissioning Statement **[EN010170/APP/GH7.3]**;
- Cabling will likely be left in situ after decommissioning which will avoid any future tree removal or root impacts from excavation to remove cables. Should cabling require removal, it may be possible to remove cabling at the jointing bays and extracting it from the ducting to avoid the need for significant lengths of open cut trenching which may harm trees – secured within the Outline Decommissioning Statement **[EN010170/APP/GH7.3]**; and
- Prior to decommissioning of the Scheme, a tree survey must be undertaken in accordance with BS 5837:2012 (or most recent updated standard and industry guidelines) of the Study Area. An Arboricultural Impact Assessment must be produced alongside an Arboricultural Method Statement to guide the decommissioning works and ensure potential tree impacts are identified, mitigated and compensated for where appropriate - secured within the Outline Decommissioning Statement **[EN010170/APP/GH7.3]**.

### 3.3 Assumptions and Limitations to Assessment

- 3.3.1 It is assumed that all trees within open cut Sections of the Cable Route Corridor may require removal to achieve the required working widths and 11m wide permanent easement for the cables (except Category A and veteran trees due to embedded mitigation for these trees).

- 3.3.2 It is assumed that all arboricultural features standing parallel to the edge of the Order Limits can be retained within open cut Sections of the Cable Route Corridor.
- 3.3.3 It is assumed that all arboricultural features in trenchless solution (e.g. HDD) Sections of the Cable Route Corridor will be retained.
- 3.3.4 Visibility splays for Temporary Access Points into the Cable Route Corridor were drawn on Ordnance Survey mapping only as no topographical survey was available. Trees plotted either side of Temporary Access Points were mapped based on aerial imagery only. Consequently, anticipated impacts to trees from Cable Route Corridor access points have been estimated using professional judgement.
- 3.3.5 It is assumed that Permanent Access Points will need to be 6.5m width. The permanent easement for the cables within the Cable Route Corridor will be 11m.
- 3.3.6 It has been assumed, following discussion with the Applicant, that for the Cable Route Corridor between Green Hill C and Green Hill D, the shortest route between the two Sites is likely to be followed for open cut trenching, the working corridor and the permanent easement.
- 3.3.7 It is assumed that the permanent easement for Sections of the cable that will be installed using a trenchless solution will not require any tree removal as the depth of the cable will far exceed the potential influence of tree roots.
- 3.3.8 Overall, this assessment of arboricultural impacts is limited given that the design of the Sites is indicative only and follows a Maximum Design Scenario whereby the maximum project design parameters are shown for each technical discipline. All tree impacts provided in the assessment therefore represent the 'worst case scenario' in regards to arboricultural impacts.
- 3.3.9 It is assumed that the Permanent Access Tracks within the Sites will also be used for decommissioning.
- 3.3.10 It is known that additional access tracks will be required for construction (additional to the operation access tracks shown on the Landscape and Ecology Mitigation Plans), it is assumed that all construction access tracks will be sited outside of the RPAs and canopy spreads of existing arboricultural features.

## 4 Site Description and Results

### 4.1 Site Description

- 4.1.1 The Order Limits comprise eight Solar Array areas and a Battery Energy Storage System (BESS) area referred to collectively as ‘the Sites’ which include Green Hill A, Green Hill A.2, Green Hill B, Green Hill C, Green Hill D, Green Hill E, Green Hill F and Green Hill G. and the Green Hill BESS.
- 4.1.2 The Sites are situated in an area of countryside to the west and south of Wellingborough, and north and southeast of Northampton.
- 4.1.3 Green Hill A, Green Hill A.2 and Green Hill B are within the jurisdiction of West Northamptonshire Council and are located in predominantly agricultural land to the north of Northampton.
- 4.1.4 Green Hill C, Green Hill D, Green Hill E, Green Hill F and the Green Hill BESS are within the jurisdiction of North Northamptonshire Council and are located in predominantly agricultural land and around Grendon substation to the north-east, east and south-east of Northampton.
- 4.1.5 Green Hill G is within the jurisdiction of Milton Keynes Council and located within predominantly agricultural land to the south of Northampton and east of Warrington.
- 4.1.6 The Sites are interlinked via the Cable Route Corridor which runs between the Solar Arrays and Green Hill BESS. The Cable Route Corridor passes through mainly agricultural land.
- 4.1.7 Trees within the Order Limits are largely confined to field boundaries and hedgerows.

### Desk Study Results

- 4.1.8 **Table 4.1** below summarises the results of the desk study of the Order Limits and up to 50m of the Order Limits.

**Table 4.1. Summary of Desk Study Results**

Feature	Number of Features and Description	Local Planning Authority Area	Figure Reference
Tree Preservation Orders	TPO T9/21 WBC (Easton Maudit) TPO 1985 – 35m from Order Limits near Green Hill F	North Northamptonshire	[EN010170/APP/GH6.4.19.1.22]
Conservation Areas	Mears Ashby Conservation Area – 45m from Order Limits near Green Hill E	North Northamptonshire	[EN010170/APP/GH6.4.19.1.15]

Feature	Number of Features and Description	Local Planning Authority Area	Figure Reference
	Easton Mawdit Conservation Area – 5m from Order Limits near Green Hill F	North Northamptonshire	[EN010170/APP/GH6.4.19.1.22]
Recorded Ancient Trees	None		
Recorded Veteran Trees	None		
Ancient Woodland	Sywell Wood on northern boundary of Green Hill C and adjacent to the Cable Route Corridor	North Northamptonshire	[EN010170/APP/GH6.4.19.1.10]
	Horn Wood – directly adjacent to Green Hill F	North Northamptonshire	[EN010170/APP/GH6.4.19.1.24]
	Three Shire Wood – directly adjacent to Green Hill G	Milton Keynes	[EN010170/APP/GH6.4.19.1.29]
	Nun Wood – directly adjacent to Green Hill G	Milton Keynes	[EN010170/APP/GH6.4.19.1.29]
	Barslay Spinney – directly adjacent to the Cable Route Corridor	Milton Keynes	[EN010170/APP/GH6.4.19.1.29]

#### 4.2 Tree Surveys

- 4.2.1 A total of 974 individual trees, 169 groups of trees, 8 woodlands and 8 hedgerows were recorded altogether across the Order Limits.
- 4.2.2 59 number of veteran trees were recorded, one of which was found to be ancient (CF4-T1 Ash). One woodland (W0001/Barslay Spinney) was recorded by the tree survey as ancient and five tree groups were recorded on the edge of the ancient woodland Sywell Wood (G0083, G0084, G0082, G2000 and G2002).
- 4.2.3 A summary of the trees recorded is shown in **Table 4.2** below.

**Table 4.2: Summary of Tree Classification**

BS5837:2012 Quality Category	Number			
	Individual Trees	Group of Trees	Woodland	Hedgerows
<b>A (high quality)</b>	172	9	0	0
<b>B (moderate quality)</b>	254	50	7	3
<b>C (low quality or young)</b>	478	107	1	5
<b>U (very low quality)</b>	70	3	0	0
<b>Total</b>	974	169	8	7

- 4.2.4 Full results of the tree survey are provided in **Appendix 19.1 Tree Survey Schedule [EN10170/APP/GH6.3.19.1]** The locations of trees are also shown in **ES Figures 19.1 – 19.1.30 Tree Constraints Plans [EN010170/APP/GH6.4.19.1-EN010170/APP/GH6.4.19.1.30]**
- 4.2.5 The most common species recorded included ash *Fraxinus excelsior* (57% of all individual trees), oak *Quercus robur* (20%), field maple *Acer campestre* (4%), willow species *Salix* sp. (4%) and sycamore *Acer pseudoplatanus* (2%).
- 4.2.6 It should be noted that due to the high level survey methodology used for the Sites, the tree survey data therefore contains a disproportionately large number of mature and Category A trees which does not necessarily reflect the average age or quality of trees within the Order Limits.

## 5 Arboricultural Impact Assessment

### Arboricultural Impacts at the Sites

- 5.1.1 The following arboricultural impacts have been identified at the Sites. Veteran tree and ancient woodland references are shown in **bold** in all Tables. All tree impacts are shown in the accompanying **ES Figures 19.2.1-19.2.30 Tree Impact Plans [EN010170/APP/GH6.4.19.2.1 - EN010170/APP/GH6.4.19.2.30]**.

#### 5.2 Tree Removals at the Sites

- 5.2.1 The following trees listed in **Table 5.1** below may require removal in order to facilitate construction at the Sites.

**Table 5.1. Summary of Tree Removals at the Sites**

<b>BS5837:2012 Quality Category</b>	<b>Tree Reference</b>	<b>Reason</b>	<b>Figure Reference</b>
Category B trees and tree groups	BESS2-T1	Access widening for Green Hill BESS	<b>[EN010170/APP/GH6.4.19.2.20]</b>
	BESS2-T2	Access widening for Green Hill BESS	<b>[EN010170/APP/GH6.4.19.2.20]</b>
	BESS2-T3	Access widening for Green Hill BESS	<b>[EN010170/APP/GH6.4.19.2.20]</b>
	FF7-T5	Overlaps with proposed Access Track in Green Hill F	<b>[EN010170/APP/GH6.4.19.2.22]</b>
	G0061	Partial removal for access widening for Green Hill BESS	<b>[EN010170/APP/GH6.4.19.2.19]</b>
	BESS1-G1	Removal of approximately 8m width of trees next to Station Road for permanent easement for cables.	<b>[EN010170/APP/GH6.4.19.2.20]</b>
Category C trees and tree groups	T3006	Overlaps with visibility splays for access to Green Hill B	<b>[EN010170/APP/GH6.4.19.2.9]</b>
	T3004	Overlaps with visibility splays for	<b>[EN010170/APP/GH6.4.19.2.9]</b>



BS5837:2012 Quality Category	Tree Reference	Reason	Figure Reference
		access to Green Hill B	
Category U trees and tree groups	T3005	Overlaps with visibility splays for access to Green Hill B	<b>[EN010170/APP/GH6.4.19.2.9]</b>

5.2.2 The above tree impacts have resulted from the indicative layout of the Solar PV Panels, Access Tracks and proposed Permanent Access Points into the Sites.

5.2.3 None of the above trees in **Table 5.1** are Category A, veteran or subject to a TPO or Conservation Area designation.

5.2.4 Compensatory tree planting has been incorporated into the Sites as shown in the **Landscape and Ecology Mitigation Plans [EN010170/APP/GH6.4.4.10 - EN010170/APP/GH6.4.4.20]**.

### 5.3 Root and Canopy Impacts at the Sites

5.3.1 With consideration of the embedded mitigation measures listed in Section 3.2, impacts to the roots and canopies of the following retained trees at the Sites are anticipated as shown below in **Table 5.2**. Veteran tree and ancient woodland references are shown in **bold** in all Tables.

**Table 5.2. Summary of Root and Canopy Impacts at the Sites**

BS5837:2012 Quality Category	Tree Reference	Anticipated Impact	Figure Reference
Category A trees and tree groups	BESS2-T28 Oak	Very minor and likely <i>negligible</i> fibrous root loss from an increase in ground levels in approximately 2% of RPA due to proposed bund at Green Hill BESS.	<b>[EN010170/APP /GH6.4.19.2.19]</b>
	EF12-T1	Canopy lifting may be required for visibility splays at Green Hill E crossing point. <i>Low</i> impact anticipated.	<b>[EN010170/APP /GH6.4.19.2.14]</b>
	BESS1-T14	Crown lifting may be required for visibility splays at proposed access to the Green Hill BESS. Root damage may occur from proposed new access surfacing within approximately 23% of RPA. <i>Medium</i> impact anticipated.	<b>[EN010170/APP /GH6.4.19.2.20]</b>
	BESS1-T15	Crown lifting may be required for visibility splays at proposed access to the Green Hill BESS. <i>Low</i> impact anticipated.	<b>[EN010170/APP /GH6.4.19.2.20]</b>

<b>BS5837:2012 Quality Category</b>	<b>Tree Reference</b>	<b>Anticipated Impact</b>	<b>Figure Reference</b>
Category B trees and tree groups	T0368	Canopy lifting possible for visibility splays for proposed access to Green Hill E. <i>Low</i> impact anticipated.	[EN010170/APP /GH6.4.19.2.12]
	T2020 Ash	Root and canopy damage possible from proposed access track into Green Hill A.2 (approximately 16% RPA incursion within existing farm track should subbase need to be re-laid). <i>Low</i> impact anticipated.	[EN010170/APP /GH6.4.19.2.4]
	T4001, T4002	Crown lifting possible to achieve visibility splays for Green Hill E crossing point. <i>Low</i> impacts anticipated.	[EN010170/APP /GH6.4.19.2.14]
	A2F2-T8 Ash	Root damage possible from proposed access track into Green Hill A.2 (approximately 13% RPA incursion within existing farm track should subbase need to be re-laid). <i>Low</i> impact anticipated.	[EN010170/APP /GH6.4.19.2.4]
	G06-T1	Minor root damage possible from proposed access track in Green Hill G within approximately 6% of tree's RPA. <i>Low</i> impact anticipated.	[EN010170/APP /GH6.4.19.2.29]
	G1023	Crown lifting may be required for visibility splays at proposed access to the Green Hill BESS. <i>Low</i> impact anticipated.	[EN010170/APP /GH6.4.19.2.19]
	G2024	Crown lifting for visibility splays for access to Green Hill A. <i>Low</i> impact anticipated	[EN010170/APP /GH6.4.19.2.1]
	G0059	Crown lifting for visibility splays for Green Hill BESS. <i>Low</i> impact anticipated.	[EN010170/APP /GH6.4.19.2.20]
Category C trees and tree groups	A2F1-T8 Ash	Canopy lifting may be required over Kettering Road to facilitate visibility splay for access to Green Hill A.2. <i>Low</i> impact anticipated.	[EN010170/APP /GH6.4.19.2.4]
	A2F3-T8 Ash	Root damage possible from proposed access track into Green Hill A.2 (approximate 19% RPA incursion within existing farm track should subbase need	[EN010170/APP /GH6.4.19.2.4]

BS5837:2012 Quality Category	Tree Reference	Anticipated Impact	Figure Reference
		to be re-laid). <i>Low impact anticipated.</i>	
	T0233, T0234, T3007	Canopy lifting required for visibility splays for access to Green Hill B.	[EN010170/APP /GH6.4.19.2.9]
	T3022	Works within approximately 8% of tree's RPA may be required for proposed access into Green Hill D. Canopy lifting for visibility splays may also be required. <i>Low impact on individual tree anticipated.</i>	[EN010170/APP /GH6.4.19.2.12]
	T3025	Canopy lifting for visibility splays for Green Hill D access. <i>Low impact anticipated.</i>	[EN010170/APP /GH6.4.19.2.12]
	T3026	Canopy lifting for visibility splays for Green Hill D access. <i>Low impact anticipated.</i>	[EN010170/APP /GH6.4.19.2.12]
	EF15-T2, T4000, T4003, T4004, T4005, T4006, T4007	Canopy lifting may be required for visibility splays at Green Hill E crossing point. <i>Low impact anticipated.</i>	[EN010170/APP /GH6.4.19.2.14]
	G3016	Canopy lifting possible for visibility splays for proposed access to Green Hill E. <i>Low impact anticipated.</i>	[EN010170/APP /GH6.4.19.2.12]
Cat U	EF16-T3	Canopy lifting may be required for visibility splays at Green Hill E crossing point. <i>Low impact anticipated.</i>	[EN010170/APP /GH6.4.19.2.14]

5.3.2 The above impacts in **Table 5.2** are, on the whole, largely associated with Permanent Access Points into the Sites which have, in some cases, required widening of existing farm accesses and the creation of visibility splays for abnormal loads. Drawings for access points and visibility splays for the Sites have been based on topographical surveys, therefore providing this assessment with confidence about the potential impacts to adjacent trees.

5.3.3 None of the above listed trees in **Table 5.2** are protected by a TPO or Conservation Area designation. No known impacts to veteran trees have been identified and negligible impacts to ancient woodlands are anticipated.

### Arboricultural Impacts along the Cable Route Corridor

- 5.3.4 Arboricultural impacts have been identified along the Cable Route Corridor. The Cable Route Corridor is typically 50m in width however it does incorporate a number of wider areas, for example to allow additional working area for trenchless techniques such as Horizontal Directional Drilling (HDD) and to enable flexibility around areas of environmental sensitivity and Temporary Construction Compounds. The cables will be installed using a mixture of trenchless solutions and open-cut trenching as shown in the Crossing Schedule [EN01017/APP/GH7.12] and as shown in **ES Figures 19.2.1-19.2.30 Tree Impact Plans [EN010170/APP/GH6.4.19.2.1 - EN010170/APP/GH6.4.19.2.30]**.
- 5.3.5 For open cut Sections, the maximum width of the trench(es) will be 3.5m and the maximum depth of the trenches will be 2m. For trenchless (e.g. HDD) Sections, trenchless machinery will require an area of 25m x 25m at entry and exit points and the maximum depth of the trenchless solution will be 12m. For open cut sections, a permanent easement will be required around the cables whereby no trees may remain in order to avoid root interference with the cables. The location of the permanent easement will be determined post-DCO by the engineering team and will be 11m in width.
- 5.3.6 Temporary Access Points into the Cable Route Corridor have been provided however these have been drawn on Ordnance Survey mapping only as no topographical survey was undertaken for the Cable Route Corridor. Two Temporary Construction Compound areas have also been proposed along the Cable Route Corridor.
- 5.3.7 Given that the exact location of the trench and permanent easement will be determined post-DCO by the engineering team, the Temporary Access Points and visibility splays are based on Ordnance Survey mapping only and tree positions have been estimated in the absence of a topographical survey, this assessment of the anticipated arboricultural impacts to trees along the Cable Route Corridor represents the worst-case scenario and is precautionary with regards to potential tree removals and canopy and root impacts.
- 5.4 Tree Removals along the Cable Route Corridor
- 5.4.1 The following trees listed in **Table 5.3** below may require removal in the Cable Route Corridor. These trees are also shown as possibly requiring removal in **ES Figures 19.2.1-19.2.30 Tree Impact Plans [EN010170/APP/GH6.4.19.2.1 - EN010170/APP/GH6.4.19.2.30]**. It should again be noted that this assessment has shown all trees bisecting the open-cut Sections of the Cable Route Corridor as potentially requiring removal except veteran trees and Category A trees which will be retained via embedded mitigation (micro-siting and trenchless solutions).
- 5.4.2 Removal could be required in order to achieve the desired working corridor widths, space for trenching and permanent easements around the cable to ensure no long term interference from tree roots. Removal may also be required to achieve Temporary Access Points and visibility splays into the Cable Route Corridor for construction machinery.
- 5.4.3 **Table 5.3** below provides a worst-case assessment of the potential tree removals given the embedded mitigation measures which will be followed during construction.

**Table 5.3. Summary of Tree Removals along the Cable Route Corridor**

<b>BS5837:2012 Quality Category</b>	<b>Tree Reference</b>	<b>Reason</b>
Category B trees, hedgerows and tree groups	T0004, T0072, T0093, T0094, T0128, T0132, T0272, T0301, T0336, T0337, T0338, T0383, T0340, T0353, T0421, T0423, T3029, G0002 (partial), G0068, G0069, G0072 (partial removal), G0073 (partial removal), G0095 (partial removal), BESS1-H6 (partial removal)	To achieve working corridors and/or permanent easements for cables
	T0430, T1003, T1004, W0006 (very small Section of small diameter trees at woodland edge)	To achieve construction accesses and visibility splays
	W0122 (small Section south-west corner of group)	To achieve construction accesses and visibility splays
Category C trees and tree groups	T0003, T0008, T0023, T0024, T0028, T0079, T0110, T0156, T0157, T0158, T0159, T0160, T0172, T0195, T0208, T0209, T0211, T0212, T0226, T0238, T0239, T0240, T0242, T0248, T0249, T0250, T0251, T0253, T0273, T0274, T0275, T0276, T0277, T0282, T0283, T0284, T0285, T0286, T0291, T0300, T0305, T0309, T0310, T0379, T0380, T0381, T0382, T0392, T0393, T0394, T0395, T0396, T0397, T0398, T0399, T0400, T0405, T0406, T0415, T0419, T0420, T0422, T0424,  G0003 (partial), G0016, G0020, G0021, G0042, G0045 (partial), G0057 (partial), G0058 (partial), G0070, G0071, G0074, G0077, G0080, G0093, G0102, G0107, G0109 (partial), G0117, G0118, G3015,  BESS2-T33, BESS2-T34, BESS2- T35, BESS2-T36, BESS2-T37, DF1- T3	To achieve working corridors and/or permanent easements for cables
	T0230, T0231, T0431, T1027, T3065, G0018 (partial), G0123 (partial)	To achieve construction accesses and visibility splays
	G0035	Overlaps with Temporary Construction Compound

BS5837:2012 Quality Category	Tree Reference	Reason
		for the Cable Route Corridor
Category U trees and tree groups	T0005, T0210, T0237, T0243	To achieve working corridors and/or permanent easements for cables

- 5.4.4 None of the above listed trees in **Table 5.3** are subject to a Tree Preservation Order or Conservation Area designation. No veteran or Category A trees will require removal in the Cable Route Corridor. The majority of potential tree removals are associated with creating a working corridor for open cut trenching Sections in the Cable Route Corridor. A smaller number of tree removals are associated with Cable Route Corridor Temporary Access Points and visibility splays.
- 5.4.5 It is considered highly likely that many of the trees listed in **Table 5.3** can be avoided during installation of the cables through micro-siting as detailed in the Outline Arboricultural Method Statement. As such, **Table 5.3** should be considered the worst case scenario. Some tree removal will be unavoidable in certain locations whereby trees are present along the entire width of the Cable Route Corridor and some will need to be cleared to create a trench and working space. The Outline Arboricultural Method Statement reiterates and details the embedded mitigation that will be followed during construction to ensure that low quality trees are preferentially removed over moderate quality trees wherever possible.
- 5.4.6 Compensatory tree planting of any trees removed will be delivered at the Sites. To prevent future root damage to cables, no trees will be planted within the permanent easement of the cables in open cut sections. Trees which are removed will be replaced with locally native species where feasible as detailed in the **Outline Landscape and Ecological Management Plan [EN010170/APP/GH7.4]**.
- 5.5 Root and Canopy Impacts along the Cable Route Corridor
- 5.5.1 With due regard to embedded mitigation measures including tree pruning being undertaken in accordance with British Standard 3998:2010 (Ref. 18) and hand digging and root pruning being undertaken where excavation is required within RPAs, the following impacts to the roots and canopies are anticipated as shown below in **Table 5.4**. Veteran trees are shown in **bold**.

**Table 5.4. Summary of Root and Canopy Impacts along the Cable Route Corridor**

BS5837:2012 Quality Category	Tree Reference	Anticipated Impact
Category A trees and tree groups	<b>T0241, T0241A</b>	Canopy lifting may be required over roads to create clearance heights for construction traffic. Root impacts may occur should

<b>BS5837:2012 Quality Category</b>	<b>Tree Reference</b>	<b>Anticipated Impact</b>
		existing access track need to be widened or resurfaced.
	<b>A2F2-T2</b>	Canopy lifting may be required to create visibility splays at Cable Route Corridor Temporary Access Points.
Category B trees and tree groups	T1005, T1008, G0052	Canopy lifting may be required for access track. Root impacts may occur should existing track need to be upgraded.
	BESS2-T39, G0059	Canopy lifting and root impacts may be incurred from new access track under canopy and within RPAs.
	T0390	Canopy lifting and possible root impacts from construction access near tree.
	T0047, T0080, T0081, T0183, T0184, T0187, T0434, T1028, T1029, T1030, T1031, T2009, T3067  G0008, G0038, G1025, G2021, G2022	Canopy lifting may be required to create visibility splays at Cable Route Corridor Temporary Access Points.
	W0122	Canopy lifting may be required to create visibility splays at Cable Route Corridor Temporary Access Points.
Category C trees and tree groups	G0051, G0054, G0055, G0056, G0057, G0058, T0246	Canopy lifting may be required for construction access/access tracks. Root impacts may occur should existing track need to be upgraded at Green Hill B.
	T1006, BESS2-T38	Canopy lifting may be required for construction access/access tracks. Root impacts may occur for access track.
	T0046, T0088, T0433, T3032, T3033, T3039, T3060, G0034, G0036, G0037, G0092, G2007	Canopy lifting may be required to create visibility splays at Cable Route Corridor Temporary Access Points.
	T0232	Minor canopy lifting may be required for visibility splays for access to Green Hill B.
Category U trees and tree groups	BF4-T3	Canopy lifting may be required above access track for construction machinery at Green Hill B.
	T0082, T0084, T0085, T0086, T0087	Canopy lifting may be required to create visibility splays at Cable Route Corridor Temporary Access Points.



- 5.5.2 None of the above listed trees in **Table 5.4** are subject to a Tree Preservation Order or Conservation Area designation. The majority of potential canopy and root impacts are associated with creating Temporary Construction Accesses and visibility splays for construction machinery working within the Cable Route Corridor.
- 5.5.3 With regard to veteran trees T0241 and T0241A, both are ash trees growing adjacent to an existing access track **[EN010170/APP/GH6.4.19.2.9]**. The access track may need to be widened for construction traffic and trees along the track may require minor pruning to enable vehicles/machinery to pass underneath canopies. Embedded mitigation will be required as detailed in the Outline Arboricultural Method Statement to ensure potential canopy and root impacts to these trees are avoided.
- 5.5.4 With regard to veteran tree A2F2-T2, a veteran ash on the northern boundary of Green Hill A.2 and adjacent to Kettering Road **[EN010170/APP/GH6.4.19.2.4]**, minor canopy lifting may be required to create visibility splays to a Temporary Access Point. The Temporary Access Point and visibility splay have been provided with an Ordnance Survey base rather than a topographical survey therefore it is not certain that A2F2-T2 will require canopy lifting. Pruning is unlikely given the small canopy spread of the tree and the first significant branch was recorded at 3.5m height therefore only minor adventitious growth on the stem may need to be pruned back which would have a negligible impact on the tree. Embedded mitigation will be carried out to ensure pruning of a veteran tree is avoided in the first instance and minimised if absolutely necessary.
- 5.5.5 It is important to note that **Table 5.4** does not include potential impacts to all the trees, groups of trees and woodlands along the Cable Route Corridor that stand adjacent to that Corridor and have Root Protection Areas, canopy spreads and in some cases Veteran Tree Buffer Zones that overlap with the Cable Route Corridor. This has been omitted as embedded mitigation will be applied to ensure all retained trees are safeguarded by Tree Protection Fencing during works within the Cable Route Corridor, ensuring no impacts to these trees.
- 5.6 Impacts to Woodlands During Construction
- 5.6.1 Woodlands, including the following ancient woodlands: Sywell Wood, Horn Wood, Three Shires Wood, Nun Wood and Barslay Spinney (W0001), will not be impacted by construction works on the Sites and along the Cable Route Corridor. Embedded mitigation during construction is in place to ensure woodlands and their associated flora are protected from potential dust and sediment pollution and potential impacts to the roots and canopies of woodland trees. Embedded mitigation includes dust and sediment control measures detailed in the OCEMP **[EN010170/APP/GH7.1]** and tree protection fencing as detailed in the Outline Arboricultural Method Statement and also secured in the OCEMP **[EN010170/APP/GH7.1]**.
- 5.7 Impacts During Scheme Operation

- 5.7.1 During operation of the Scheme, maintenance and replacement activities (as detailed in ES Chapter 4 - Scheme Description **[EN010170/APP/GH6.2.4]**) will need to take place during the Scheme's 60 year lifespan. Embedded mitigation is in place to protect trees from impacts to canopies and roots during maintenance and replacement activities (see paragraph 3.2.1). The only anticipated impacts to trees during operation are those concerning Horn Wood and Three Shires Wood detailed below.
- 5.7.2 Canopy pruning during operation may occasionally be required above the 24m of access track within the Ancient Woodland Buffer Zone of Three Shires Wood at Green Hill G **[EN010170/APP/GH6.4.19.2.29]**. Woodland edge trees may require small diameter branches to be pruned back or removed to allow vehicles space to pass. *Negligible impacts* to woodland edge trees and Three Shires Wood are anticipated given the minor works that are likely to be anticipated. No veteran trees were found along the woodland edge.
- 5.7.3 Similarly, for Horn Wood, canopy pruning during operation may occasionally be required above the 840m of access track within the Ancient Woodland Buffer Zone at Green Hill F **[EN010170/APP/GH6.4.19.2.26]**. Woodland edge trees may require small diameter branches to be pruned back or removed to allow vehicles space to pass. Negligible impacts to woodland edge trees and Horn Wood are anticipated given the minor works that are likely to be anticipated. No veteran trees were found along the woodland edge.
- 5.8 Impacts During Scheme Decommissioning
- 5.8.1 At the decommissioning stage, after the 60 year lifespan of the Scheme, arboricultural impacts may result from the removal of Solar PV Panels and cables. Embedded mitigation is in place for the decommissioning stage to ensure impacts to trees are fully assessed and minimised at the decommissioning stage (see paragraph 3.2.1).
- 5.9 Tree Planting
- 5.9.1 The Landscape and Ecology Mitigation Plans **[EN010170/APP/GH6.4.4.10 - EN010170/APP/GH6.4.4.20]** propose extensive planting of new trees, scrub, shelterbelts and hedgerows throughout the Sites. Tree planting within the Veteran Tree Buffer Zones has been avoided to ensure veteran trees do not decline in the future due to shading and competition from young trees. New tree planting is anticipated to have a significant positive effect on the canopy cover of the Sites in the long term and ensure that succession planting is in place for the large numbers of ash trees with ash dieback that are present throughout the Order Limits.

## 6 Conclusion

- 6.1.1 The Scheme proposed is a Nationally Significant Infrastructure Project comprised of nine Sites including eight Sites for Solar Arrays and a ninth for a Battery Energy Storage System.
- 6.1.2 Tree surveys were undertaken between 2023-2025 and recorded 974 individual trees, 169 groups of trees, 8 woodlands and 8 hedgerows. Of these, 59 trees were recorded as veteran trees with one of those veteran trees was found to be ancient (CF4-T1). The desk study found five ancient woodlands adjacent to the Order Limits. No TPOs or Conservation Areas were found within the Order Limits however one TPO (TPO T9/21 WBC (Easton Maudit) TPO 1985) is located 35m from Green Hill F and one Conservation Area (Mears Ashby Conservation Area) is located 45m from Green Hill E.
- 6.1.3 An arboricultural assessment has been undertaken on the indicative design of the Sites and the proposed Cable Route Corridor and takes account of the embedded mitigation included within the Scheme's design. At the Sites, 7 individual trees would require removal for indicative layout in addition to the partial removal of two groups of trees. Along the Cable Route Corridor, a maximum of 98 individual trees, 29 groups of trees (some partial removals), two woodlands (partial removal) and one hedgerow (partial) would potentially require removal. It should be noted that very few hedgerows were recorded by the tree surveys as hedgerow surveys and impacts are more fully assessed in ES Appendix 9.13 Biodiversity Net Gain Assessment **[EN010170/APP/GH6.3.9.13]**. No Category A trees or veteran trees require removal for the Scheme.
- 6.1.4 Canopy and root impacts to retained trees at the Sites and along the Cable Route Corridor have been identified and largely result from Permanent and Temporary Access Points and access tracks being created near retained trees and retained trees within visibility splays requiring crown lifting or pruning.
- 6.1.5 The arboricultural impacts identified in this report take into account embedded mitigation such as minimised tree pruning and precautionary working methods within RPAs. An Outline Arboricultural Method Statement (OAMS) has been produced to detail how arboricultural features will be safeguarded during construction of the Scheme and compliance with these methods is secured in the Outline Construction Environmental Management Plan (OCEMP) **[EN010170/APP/GH7.1]**, Outline Operational Environmental Management Plan **[EN010170/APP/GH7.2]** and Outline Decommissioning Statement **[EN010170/APP/GH7.3]**.
- 6.1.6 Provided embedded mitigation is followed, it is anticipated that many of the potential tree removals along the Cable Route Corridor can be avoided.
- 6.1.7 Extensive tree planting is proposed across the Sites in the form of new hedgerows, scrub, tree belts and scattered trees. Proposed tree planting will significantly enhance tree cover at the Sites and ensure that succession planting is in place for the many existing ash trees with ash dieback.

## 7 Outline Arboricultural Method Statement (OAMS)

### 7.1 Objectives of this OAMS

- 7.1.1 This OAMS seeks to provide precautionary methods of working that must be followed during construction, operation and decommissioning to mitigate the potential impacts to trees, tree groups and woodlands (hereafter referred to as ‘arboricultural features’) within the Order Limits.
- 7.1.2 Hedgerow impacts, mitigation and compensation are not considered in this OAMS. Mitigation and compensation for hedgerows has already been detailed in the **Outline Ecological Protection and Mitigation Strategy (EN010170/APP/GH7.5)** and the **Outline Construction Environmental Management Plan (EN010170/APP /GH7.1)**.
- 7.1.3 This OAMS provides practical guidance, that if followed correctly will ensure existing arboricultural features for retention are safeguarded during construction, in particular those of high value such as veteran trees and Category A trees of high quality.
- 7.1.4 This OAMS must be made available and followed by all relevant contractors, sub-contractors and project consultants in the Order Limits and read in conjunction with the **Outline Ecological Protection and Mitigation Strategy (EN010170/APP /GH7.5)**. Compliance with this OAMS is secured in the **Outline Construction Environmental Management Plan (EN010170/APP /GH7.1)**.
- 7.1.5 A Detailed Arboricultural Method Statement will be provided post-DCO consent.

### 7.2 Arboricultural Features within the Order Limits

- 7.2.1 High level tree surveys of the Sites were undertaken between October 2023 and September 2024. Tree surveys of the Cable Route Corridor and targeted areas where tree impacts were anticipated were undertaken between December 2024 and February 2025.
- 7.2.2 All tree surveys were carried out in accordance with British Standard 5837:2012 ‘Trees in Relation to Design, Demolition and Construction’ (BS5837:2012. Tree stem positions along the Cable Route Corridor were recorded using aerial mapping with a relative accuracy of 2-3m. Tree stem positions within the Sites were recorded using a topographical survey. The canopy spread, canopy height, Root Protection Areas and Veteran Tree Buffer Zones (latter where appropriate) were recorded for all arboricultural features. Full tree results can be found in **Appendix 19.1 Tree Survey Schedule [EN010170/APP/GH6.3.19.1]** and are visually represented in **ES Figures 19.1 – 19.1.30 Tree Constraints Plans [EN010170/APP/GH6.4.19.1- EN010170/APP/GH6.4.19.1.30]**
- 7.2.3 The tree survey recorded 974 individual trees, 169 groups of trees, 8 woodlands and 8 hedgerows. Of these, 59 trees were recorded as veteran trees with one of those veteran trees was found to be ancient (CF4-T1). Five ancient woodlands are adjacent to the Order Limits. No TPOs or Conservation Areas are within the Order Limits (see Table 4.1 for dates

when TPO data was reviewed, please note new TPO's may have been made since the dates in Table 4.1). One TPO (TPO T9/21 WBC (Easton Maudit) TPO 1985) is located 35m from Green Hill F and one Conservation Area (Mears Ashby Conservation Area) is located 45m from Green Hill E.

### 7.3 Possible Arboricultural Impacts from the Scheme

7.3.1 The arboricultural impact assessment in Section 5 of this report made an assessment of the worst-case arboricultural impacts at the Sites and along the Cable Route Corridor. Impacts to trees during construction may include:

- Tree removal;
- Tree pruning at Temporary and Permanent Access Points, near access tracks and for visibility splays;
- Root loss/damage from excavation or soil compaction within RPAs;
- Dust/sediment impacts to adjacent woodlands (including ancient woodlands); and
- Damage to canopies/stems from machinery movements.

7.3.2 These potential impacts are explained in full in Section 5 of the impact assessment and accompanied by **ES Figures 19.2.1-19.2.30 Tree Impact Plans [EN010170/APP/GH6.4.19.2.1 - EN010170/APP/GH6.4.19.2.30]** showing possible tree removals, canopy impacts and root impacts to trees on the Site. The assessed impacts shown on the Plans are worst-case and indicative only. This is because the design of the Sites is indicative only at this stage and the location of the cable trench, working corridor and permanent easement within the Cable Route Corridor will be determined during construction and post DCO-consent.

### 7.4 How to Use this Document

7.4.1 This OAMS details a suite of precautionary working methods to be followed when working near trees at both the Sites and along the Cable Route Corridor. These precautionary working methods will be followed by construction personnel in collaboration with a supervising Arboricultural Clerk of Works.

7.4.2 The following OAMS will be presented to all personnel, visitors and sub-contractors involved with Scheme construction activities.

7.4.3 It is the responsibility of the Site Manager or nominated personnel with an arboriculture qualification to communicate the contents of this OAMS to all personnel, visitors and sub-contractors undertaking relevant activities. A copy of this document must be kept on site during construction for ease of reference.

### 7.5 Arboricultural Clerk of Works (ACoW)

- 7.5.1 An ACoW will be assigned to the Scheme prior to construction. The responsibilities of the ACoW include ensuring that the precautionary working methods described in this OAMS are adhered to during construction at the Sites and installation of the cables in the Cable Route Corridor. The ACoW will be responsible for undertaking site visits and providing advice throughout construction on how tree impacts will be avoided and minimised. The ACoW will also be responsible for keeping a record of site visits and advice provided during construction.
- 7.5.2 It is the responsibility of the construction contractor to instruct an ACoW prior to the commencement of construction and any enabling works. The construction contractor is also responsible for following this OAMS and ensuring all personnel working on the Scheme have been briefed on this OAMS and the precautionary working methods to follow when working near trees. Lastly, it is the responsibility of the construction contractor to inform the ACoW of any breach of this OAMS and to seek advice on any remedial works required.
- 7.5.3 As a minimum, the following meetings between the ACoW and the construction contractor must take place as detailed in **Table 7.1** below.

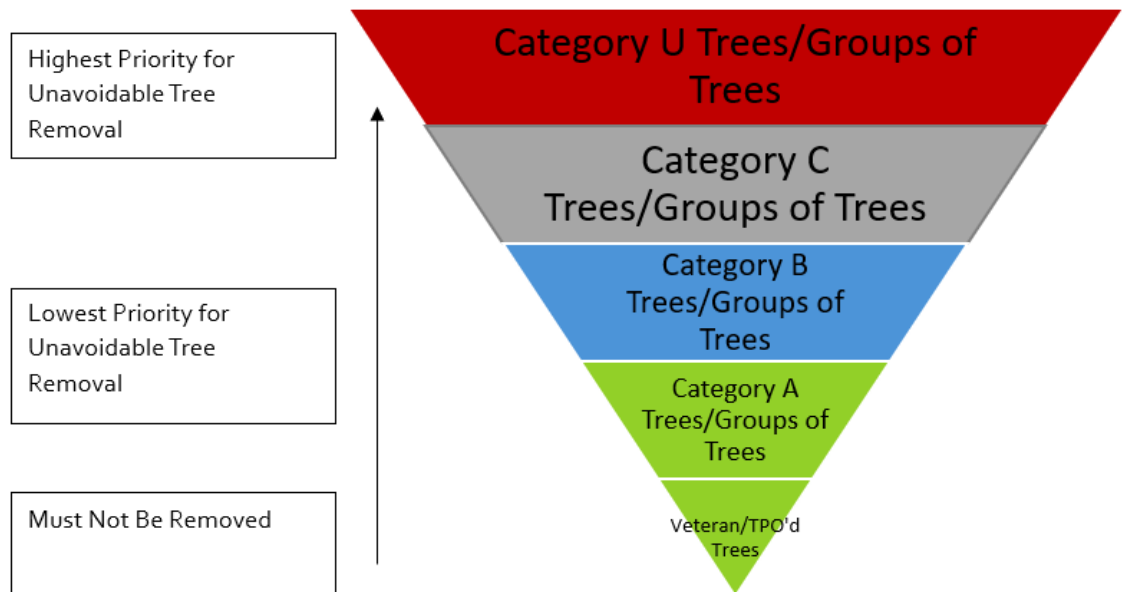
**Table 7.1. ACoW Meetings with Construction Contractor**

Timing	Purpose of Meeting
Pre-enabling works at the Sites	ACoW to brief contractor on the precautionary working methods within this OAMS and provide ACoW contact details. Contractor to brief ACoW on programme of works and provide contact details of key personnel (e.g. Site Manager).
Pre-enabling works along the Cable Route Corridor	As above
Prior to construction works commencing at a Site or Section of Cable Route Corridor	ACoW to undertake a site visit to check tree protection measures, advise on any further site visits/ACoW supervision and mark up any trees requiring removal or pruning.
During construction at the Sites or along the Cable Route Corridor	ACoW to undertake site visits to provide toolbox talks to relevant personnel undertaking works within Root Protection Areas of retained trees and to supervise those works where necessary.

## 7.6 Tree Removal

- 7.6.1 Tree removal will be avoided wherever possible. Should tree removal be unavoidable, trees of lower quality and life expectancy will be removed over those of higher quality and life expectancy as per **Figure 7.1** below. In **Appendix 19.1 Tree Survey Schedule [EN10170/APP/GH6.3.19.1]**, trees with a BS5837:2012 Quality Category of U shall be preferentially removed followed by Category C, B and A trees in that order of priority. Veteran trees will not be removed under any circumstances.

**Figure 7.1 Tree Removal Hierarchy**



- 7.6.2 Trees to be removed for construction will be marked up on site by the ACoW. Indicative tree removals have been provided in **ES Figures 19.2.1-19.2.30 Tree Impact Plans [EN010170/APP/GH6.4.19.2.1 - EN010170/APP/GH6.4.19.2.30]** however many of the trees shown for possible removal in these plans could be retained following detailed design of the Sites, micro-siting of the cable trenches within the Cable Route Corridor and sensitive siting of Temporary Construction Compounds outside of RPAs. Involvement of the ACoW in marking up tree removals will therefore ensure that the Tree Removal Hierarchy in **Figure 7.1** is followed.
- 7.6.3 All tree work will be undertaken by a suitably qualified, insured and experienced arboricultural contractor working in accordance with British Standard 3998: 2010 'Tree Work – Recommendations'. No tree works will be undertaken by construction workers unless qualified and instructed to do so.
- 7.6.4 Prior to any tree removal being carried out, due regard must be given to any legal restrictions on tree pruning including: nesting birds which are protected under The Wildlife and Countryside Act 1981 (as amended) and roosting bats which are protected by Regulation 43 of The Conservation of Habitats and Species Regulations 2017 (as amended). For ecological precautionary working methods please refer to the **Outline Ecological Protection and Mitigation Strategy (EN010170/APP/GH7.5)**.
- 7.6.5 With regard to trees protected by a Tree Preservation Order (TPO), paragraphs 40 and 41 of the Draft Development Consent Order provide 'deemed consent' to the Applicant to undertake works to trees subject to TPOs. As such, the submission of a tree works application to the local planning authority prior to works being undertaken to a TPO'd tree is not required.



- 7.6.6 Paragraph 41 states that *“The undertaker may, if it reasonably believes it to be necessary to do so in order to prevent the tree from obstructing or interfering with the construction, maintenance, operation or decommissioning of the authorised development or any apparatus used in connection with the authorised development, fell or lop or cut back the roots of any tree that is subject to a tree preservation order.”*
- 7.6.7 It is therefore important that works to TPO’d trees only take place if the Applicant *“reasonably believes it to be necessary to do so”* for reasons of obstructing or interfering with construction, maintenance or operation of the Project’s apparatus. Advice from the ACoW will be sought to confirm whether the works are necessary and whether any alternative measures can be employed to avoid undertaking works to protected trees.
- 7.7 Tree Pruning
- 7.7.1 Prior to tree pruning, the ACoW will liaise with the construction contractor on the requirements for pruning and the ACoW will provide a specification for the pruning works required which can then be implemented by a suitably qualified, insured and experienced arboricultural contractor working in accordance with British Standard 3998: 2010 ‘Tree Work – Recommendations’.
- 7.7.2 Pruning works to veteran trees will be avoided and pruning will aim to prioritise trees of low quality (BS5837:2012 Category U and C trees) over trees of moderate or high quality (BS5837:2012 Category A and B trees). No tree works will be undertaken by construction workers unless qualified and instructed to do so. All tree pruning works will have due consideration for ecological mitigation as detailed in **Outline Ecological Protection and Mitigation Strategy (EN010170/APP /GH7.5)**.
- 7.8 Tree Protection Fencing
- 7.8.1 Prior to construction works commencing at the Sites, perimeter fencing will be installed in the locations shown on the Landscape and Ecology Mitigation Plans and/or on the outside edge of RPAs. This fencing will consist of wire mesh and wooden post fencing with a maximum height of 2.5m and serve as tree protection fencing for the duration of the works. The area between the fencing and the trees will be a Construction Exclusion Zone (CEZ) whereby no machinery, materials or spoil may enter.
- 7.8.2 The aim of the tree protection fencing is to fence off the RPA of the tree to ensure it is protected from construction works. Perimeter fencing as shown on the Landscape and Ecology Mitigation Plans has already been designed to protect the RPAs of retained trees. For reference, the distance to offset fencing from a tree is provided by the column ‘Radius of the RPA (m) in **Appendix 19.1 Tree Survey Schedule [EN10170/APP/GH6.3.19.1]**, where trees have been recorded by the tree survey. To calculate the fencing offset distance from a tree not recorded in the survey, the stem diameter in metres of the tree will be measured at 1.5m height in accordance with BS5837:2012 and multiplied by 12 to provide the offset distance.

- 7.8.3 Prior to construction works commencing in an area of the Cable Route Corridor, the ACoW will mark up the line in which temporary tree protection fencing must be installed prior to works commencing. This fencing will consist of post and rope or Heras fencing. Clear signage will be attached at regular intervals to the fencing informing staff members that the roped off area is a 'Construction Exclusion Zone' whereby no machinery, vehicles or materials/spoil may enter.
- 7.8.4 Once fencing has been installed and before construction activities begin, a site check by the ACoW will take place to check the locations and suitability of the tree protection fencing.
- 7.8.5 Once installed, tree protection fencing will not be moved or altered in any way without prior consultation and sign off from the ACoW. If fencing does need to be moved back to create construction space, appropriate ground protection as per Section 7.9 below must be used to cover the exposed RPAs during works until such time as the tree protection fencing can be reinstated in its original position.
- 7.8.6 It is the responsibility of all construction personnel to ensure that the tree protection fencing remains intact and in the correct locations throughout construction. It is also the responsibility of all persons working on the site to respect the CEZ created by the tree protection fencing. In the event that any fence panels are damaged, this must be rectified immediately to restore the CEZ.
- 7.8.7 Perimeter fencing will remain in Situ during the operational phase. Any additional tree protection fencing may be removed once all construction works at that Site or Section of the Cable Route Corridor have concluded. Additional perimeter fencing will be required around the Veteran Tree Buffer Zone of

## 7.9 Ground Protection

- 7.9.1 If construction or maintenance works must occur within the RPA or Veteran Tree Buffer Zone of a retained tree, ground protection will be installed by the construction contractor prior to works occurring within the RPA In order to protect the tree from soil compaction.

- 7.9.2 Ground protection must be suitable for the weight of the traffic using the area to ensure that underlying soils are not compacted. Ground protection specifications will meet the recommendations set out in paragraph 6.2.3.3 of British Standard 5837:2012 (Ref. 13):

*"for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;*

*for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;*

*for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an*

*engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.”*

- 7.9.3 For construction traffic exceeding 2 tonnes, appropriate ground protection will constitute a 150mm woodchip or sharp sand layer topped with heavy-duty ground protection mats (multiple providers are available for rent or purchase) that are suitable for the weight of the heaviest vehicle requiring access to the area.
- 7.9.4 In all cases the objective must be to avoid soil compaction within RPAs. A single pass of a heavy vehicle, especially in wet ground conditions, can cause compaction.
- 7.9.5 Once ground protection is installed, the ACoW must check the suitability of the ground protection and sign it off prior to works within the RPA commencing. Once all works within the RPA have concluded, the ground protection may be removed.
- 7.10 Micro-Siting
- 7.10.1 Micro-siting will be followed during the installation of the cables in the Cable Route Corridor via open cut trenching. This will involve the construction contractor, in collaboration with the ACoW, routing the cable trench, working corridor, spoil areas and permanent easements around trees in order to minimise tree removal and impacts to tree canopies and roots.
- 7.10.2 Trenches, working corridors, spoil areas and permanent easements will be located so as to avoid impacts to veteran trees and then Category A, B, C and U trees in that order of priority. Micro-siting will aim to ensure that all associated cable works avoid the RPAs of trees to be retained.
- 7.10.3 It will be the responsibility of the construction contractor to liaise with the ACoW where trees may need to be removed or works may need to take place within RPAs or near tree canopies.
- 7.11 Works within Root Protection Areas
- 7.11.1 Works within RPAs of retained trees may be required to create Permanent or Temporary Access Points, access tracks within the Sites or trenches within the Cable Route Corridor.
- 7.11.2 Prior to any works occurring with the RPAs of retained trees, the ACoW will be contacted for advice on the precautionary working methods to employ to minimise damage to roots.
- 7.11.3 Precautionary working methods may include: ground protection (as per Section 7.9 of this OAMS) or hand digging with root pruning. Ground protection will be employed where no excavation is required within RPAs and only access to the RPA for working space is required. Where excavation within RPAs is required, the following precautionary working methods (hand digging and root pruning) will be followed in accordance with National Joint Utilities Volume 4 (Ref. 21).
- 7.11.4 Prior to excavation occurring within an RPA, the ACoW will mark up on Site a line whereby root pruning is required, this will likely represent the edge of a proposed excavation

closest to the tree's stem. Along this line, hand tools will be used to dig a trench to the depth of the proposed excavation. Any roots larger than 25mm in diameter that are encountered will be assessed by the ACoW and where necessary pruned back cleanly to the side of the excavation on the stem side by construction personnel. Roots smaller than 25mm will be cut back cleanly with secateurs to the side of the excavation closest to the tree stem.

- 7.11.5 Once root pruning has been carried out, the proposed works within the RPA will commence. In instances where a significant amount of large roots have been pruned, the ACoW will advise on any remedial tree works required for health and safety. If the excavation is being back-filled (i.e. in the Cable Route Corridor), uncompacted subsoil will be replaced followed by uncompacted topsoil. Builders' sand will not be used to backfill the trenches due to its high salt content which is toxic to tree roots. If sand is required, sharp sand will be used or other granular fill.

#### 7.12 Access Tracks Near Veteran Trees and Ancient Woodlands

- 7.12.1 The access tracks situated within the Ancient Woodland Buffer Zone of Horn Wood (840m of access track) in Green Hill F, Three Shires Wood (24m of access track) in Green Hill G and within the Veteran Tree Buffer Zone of T0258 (32m of access track) near Green Hill BESS will be used for operation and decommissioning activities only. Construction traffic and machinery will be routed outside of Veteran Tree/Ancient Woodland Buffer Zones to avoid pruning for tall vehicles or machinery.
- 7.12.2 The construction of access tracks for operation and decommissioning uses will follow a specialist 'no-dig' construction methodology and specification to avoid the need to excavate and potentially incur root damage to T0258 and woodland edge trees at Horn Wood and Three Shires Wood.
- 7.12.3 Access tracks in these locations will be built on top of the existing ground level, with no digging into the ground for a subbase or kerb edging. Detailed design of the access tracks will take place post-DCO and may include the use of cellular confinement systems with high load bearing capacities such as:
- Geosynthetics Cellweb Tree Root Protection System<sup>1</sup>;
  - Wrekin's Protectaweb<sup>2</sup>; and
  - Core Landscape Products' Core TRP<sup>3</sup>.

<sup>1</sup>

<sup>2</sup> h

<sup>3</sup>

- 7.12.4 The installation of the access tracks, once detailed design has been undertaken, will be guided by an Arboricultural Method Statement provided post-DCO consent.

**7.13** Working near Tree Canopies

- 7.13.1 When tall machinery is working near the canopies of tree canopies the machine operator will be accompanied by a banksman who will work from ground level and ensure that moving machinery parts avoid the stems and branches of retained trees.

7.14 Horizontal Directional Drilling

- 7.14.1 Prior to trenchless solution (e.g. HDD) machinery being brought into the Cable Route Corridor, adjacent trees will be protected with post and rope tree protection fencing to create a CEZ around the trees for the duration of works in the area.
- 7.14.2 Trees immediately in front of or behind the trenchless solution obstacle (road, river etc) will also be trenched under in order to minimise tree impacts.
- 7.14.3 The entry and exit points for trenchless solution machinery must be located outside the RPAs of retained trees.
- 7.14.4 Trenchless solution depths must exceed 1m when passing underneath retained trees in order to avoid the majority of tree roots which exist within the upper 600mm of soil.
- 7.14.5 Once all trenchless solution machinery is removed from an area, only then can tree protection fencing be removed.

7.15 Movement of Construction Machinery and Material/Spoil Storage

- 7.15.1 No vehicles, construction machinery, materials or spoil will enter the RPAs of retained trees during works at the Sites or along the Cable Route Corridor. RPAs will be fenced off at the start of construction as per Section 7.7 and the area between the fencing and the trees considered a CEZ. This will ensure that RPAs are not subject to soil compaction which can have significant negative impacts to tree health in the long term. If spoil or machinery does require access to RPAs, ground protection will be employed as per Section 7.9 of this OAMS.

**7.16** Dust and Sediment Control near Woodlands

- 7.16.1 Five ancient woodlands are adjacent to the Sites and the Cable Route Corridor. Along the Cable Route Corridor these include Sywell Wood and Barslay Spinney. Adjacent to Green Hill F is Horn Wood and adjacent to Green Hill G is Three Shires Wood and Nun Wood. The woodlands must be protected from potential dust pollution and sediment run off and any potential impacts to ancient woodland flora and soils.
- 7.16.2 Details of dust and sediment mitigation are detailed in the Outline Construction Environmental Management Plan (OCEMP) (EN010170/APP/GH7.1). A Dust Mitigation

Plan will be developed prior to construction and must also apply its mitigation to construction works occurring near ancient woodlands. Other sediment mitigation detailed in the OCEMP includes:

- Cut-off ditches or geotextile silt-fences, installed around excavations, exposed ground and stockpiles to prevent uncontrolled release of sediment;
- All potentially contaminated waters (for example washdown areas, stockpiles and other areas of risk for water contamination) to have separate drainage. Any contaminated waters would be taken away by tanker from the Sites; and
- Vehicles carrying material off-Site will be sheeted to prevent the spread of dust.

#### 7.17 Temporary Construction Compounds (TCCs)

7.17.1 TCCs will be located away from trees and outside of the canopy spreads and RPAs of adjacent trees. Adjacent trees will be protected for the duration the TCC is in use by Tree Protection Fencing and ground protection as necessary as per section 7.8 and 7.9 respectively of this OAMS.

#### 7.18 Decommissioning

7.18.1 Prior to decommissioning of the Scheme, a tree survey must be undertaken in accordance with BS 5837:2012 (or most recent updated standard and industry guidelines) of the Study Area. An Arboricultural Impact Assessment must be produced alongside an Arboricultural Method Statement to guide the decommissioning works and ensure potential tree impacts are identified, mitigated and compensated for where appropriate.

## Annex 1. References

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- Ref. 12. The Woodland Trust. Ancient Tree Inventory. Available at:  
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Ref. 16 Ancient Tree Forum and The Woodland Trust. Ancient Tree Guide No. 4 – What are ancient, veteran and other trees of special interest? Available at: [REDACTED]  
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Ref. 18 BSI Standards Publication (December 2010). BS3998:2010 'Tree Work – Recommendations'.

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Ref. 21 National Joint Utilities Group. (16<sup>th</sup> November 2007). NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. Available at:  
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