SUNNICA ENERGY FARM

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Volume 6

6.2 Appendix 10B: Tree Constraints Report

APFP Regulation 5(2)(a)

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Sunnica Energy Farm

Appendix 10B: Tree Constraints Report

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1 Introduction

1.1 Purpose of this appendix

1.1.1 This appendix includes preliminary tree constraints information in relation to the nature and potential level of constraint posed by existing trees following walkover tree constraints assessment performed in 2019 within the assessment area (hereafter referred to as the Scheme), a Precautionary Arboricultural Method Statement (PAMS) report addressing generic tree protection measures for works carried out in relation to the Scheme which will be developed into a detailed Arboricultural Method Statement post consent, and, detailed tree survey and Arboricultural Impact Assessment (AIA) of a pre-defined study area in proximity to the pre-existing Burwell substation (hereafter referred to as the Site).

1.1.2 The AIA for Burwell National Grid Substation Extension for Option 1 and 2 has been undertaken where the impact is anticipated. For other areas, further detailed AIAs will be prepared at a detailed design stage when exact routes and Scheme alignments are confirmed.

2 Methodology

2.1 The Scheme Survey

2.1.1 The tree constraints assessment of the Scheme has been based on Ordnance Survey base mapping, the National Tree Map (NTM) data set and walk-over review assessment for accessible areas. The extent of the Scheme is identified as the Order limits found within Annex A of this report.

2.1.2 The walk-over tree constraints assessment of the Scheme was undertaken over intermittent dates including 10th to 12th December 2018, 7th to 9th January, 28th to 29th May, 3rd to 4th July and 6th September 2019.

2.1.3 A walk-over review of publicly accessible areas was carried out to verify the general results of the desk top study, to map areas of trees of likely higher value and to identify those trees of low stature and large stem diameters which would not be afforded a suitable buffer zone using the assessment methodology based on tree height (which could apply to veteran trees afforded a high priority in the planning process).

2.1.4 Approximate tree height and canopy spread information taken from the NTM data set was used in conjunction with walk-over assessments to identify trees likely to be of higher value and to allow an assessment of the typical approximate nature and spatial constraints associated with trees. A notional buffer zone has been added around each tree to illustrate the maximum likely area of significant constraint associated with above ground (tree canopies) and below ground (tree roots) parts of trees.

2.1.5 The buffer is based on a large data set of trees surveyed in detail by AECOM which cross references recorded tree heights against stem diameter ranges. Stem diameter is the key metric used to determine the Root Protection Area (RPA - the notional key area of tree root development important for tree health and stability) and this approach allows for the calculation of an estimated stem

diameter for each tree or group derived from tree height information recorded in the NTM data set. This buffer zone is intended as high-level guidance only, based on our experience surveying trees and attempts to illustrate and account for the potential approximate area of constraint around each tree (which may be greater than the canopy spread shown in the NTM data).

2.1.6 In addition to the above process, an assessment of aerial photography using Google Earth was carried out to identify those trees and tree groups likely to be of the greatest significance where walk-over survey access was not possible. This assessment incorporated an assessment of tree height, canopy width, shadow and location and the relative importance of trees is based upon the discretion of the surveyor (experienced in undertaking tree surveys to BS 5837). Google Street View was also utilised on an ad hoc basis where feasible to provide additional verification of the assessment process.

2.1.7 Section 4.6.1 of BS5837 recommends that RPAs are capped at 707m^2 and this is equivalent to a circle with a radius capped at 15m for each individual tree and therefore the buffer zone is capped at this radius around the largest trees within the study area.

2.1.8 The assessment results and information in relation to statutory and non-statutory designations such as Conservation Areas, Tree Preservation Orders and designated Ancient Semi Natural Woodland have been incorporated into the Tree Constraint Assessment Plans, included as Annex B.

2.2 Burwell Substation Survey

2.2.1 The tree survey of the Site has been based on a combination of Ordnance Survey Base Mapping and the NTM dataset. Trees have been plotted indicatively with reference to GPS positions, Site features and publicly available aerial photography. As such all positions must be considered to be indicative only and the relative distances of features must be measured out on the Site. A Tree Constraints Plan of the Site is contained within Annex D of this report.

2.2.2 The survey was otherwise conducted in accordance with the requirements of BS5837:2012 Trees in relation to design, demolition and construction – Recommendations (BS5837).

2.2.3 The initial fieldwork was undertaken on 2nd August 2021, during which time dimensional data and observational information were collected. A diameter tape measure was used to measure stem diameters where feasible. The fieldwork informing this report has comprised a preliminary, non-intrusive, visual survey undertaken from ground level with the specific intention of evaluating the quality and benefits of trees on the Site.

2.2.4 Where further inspection is deemed appropriate to ascertain the condition of the tree or other arboreal features, this has been identified within the preliminary management recommendations. Average dimensions or dimensional ranges have occasionally been used, where appropriate, to best describe features.

2.2.5 The tree categorisation process recommended by BS5837:2012 is summarised in the Tree Survey Schedule of the Site included as Annex B.

Table 1: BS5837:2012 Tree Categorisation process

Category	Definition
A	High quality, minimum of 40+ years remaining contribution
B	Moderate quality, minimum of 20+ years remaining contribution
C	Low quality, minimum of 10+ years remaining contribution
U	Unsuitable for retention, <10 years remaining contribution
1	Arboricultural value
2	Landscape value
3	Conservation or cultural value

3 National Legislation, Policy and Guidance

3.1 Trees and the Planning Process

3.1.1 The National Planning Policy Framework (NPPF) seeks to ensure that new development is sustainable and underlines the importance of Green Infrastructure, of which trees form an integral part. This encompasses a recognition of the importance of trees in relation to the management of air, soil and water quality along with other associated ecosystem services and climate change adaption. The NPPF also seeks to achieve the protection and enhancement of landscapes and a net gain in biodiversity. Finally, it specifically identifies veteran and ancient trees and woodland as a highly valuable and irreplaceable habitat.

3.1.2 Local Planning Authorities (LPA) in the UK have a statutory duty to consider both the protection and planting of trees when considering planning applications. The potential impact of development on all trees (including those not protected by a Tree Preservation Order or other statutory designation) is therefore a material consideration.

3.1.3 'BS5837:2012 Trees in relation to design demolition and construction – Recommendations (BS5837)' provides a framework which sets out how trees should be considered in this context and also explicitly applies to development where planning consent is not required.

3.1.4 BS5837 recommends that a tree survey is undertaken to identify the quality and benefits of trees and the spatial constraints associated with them. This is then used to produce a Tree Constraints Plan showing the above and below ground constraints associated with trees. This drawing is used to inform the design process and to allow the retention of good quality trees where appropriate.

3.1.5 An AIA is then developed to identify the likely direct and indirect impacts of a proposed development, and a Tree Protection Plan is prepared to identify trees to be removed or retained and to illustrate how retained trees are to be protected.

3.2 Trees and Risk in the Context of Development

3.2.1 Tree owners/managers have a legal duty to prevent foreseeable harm. It is generally accepted that this duty can be fulfilled by undertaking proactive

inspections of significant trees to identify obvious defects and by taking appropriate remedial action or gaining further advice as appropriate.

3.2.2 The tree surveys carried out as the basis of this report has been primarily for planning purposes, focusing on the quality and benefits of the trees and is not specifically designed to assess the safety of trees within the Scheme.

3.2.3 The Construction (Design and Management) Regulations (2015) states that developers and contractors have responsibilities for health and safety as a result of their actions. Should trees be left in an unstable or hazardous condition the Health and Safety Executive (HSE) could seek to prosecute those responsible along with the potential for further Civil claims for damages.

3.2.4 Full consideration must be given to the presence of species protected under the Wildlife and Countryside Act (1981 - as amended), the Countryside Rights of Way Act (2000) and the Habitat Regulations (2017). In particular, the presence of bats and nesting birds. It is recommended that wherever possible, significant tree/hedge works take place outside of the typical bird nesting season of March to September.

3.2.5 Any tree surgery recommendations contained within this report are to be undertaken in accordance with BS3998: 2010 Tree work – Recommendations (BS3998) by suitably qualified and insured contractors. Significant pruning works are best undertaken when trees are dormant or outside periods of high functional activity to reduce the overall impact on energy available to the tree for growth and processes. In general, the optimum period for works is between November to February and July to August (subject to the presence of protected species) when the tree is less active and better placed to respond to wounding and a reduction in leaf area.

3.2.6 The Hedgerows Regulations (1997) protect agricultural or countryside hedgerows which meet the requirements of an ‘important hedgerow’. These include a minimum length of 20m (or meets another hedge at each end) and a minimum age of at least 30 years. A wide range of other ecological and archaeological/heritage features can constitute an important hedgerow and further advice from a qualified ecologist is recommended in advance of any planned works which could impact established hedgerows on or bordering agricultural or countryside land. Prior to the removal or destruction of a protected hedgerow an application must be made to the relevant LPA. Full development consent is an exemption to this requirement.

3.2.7 A felling licence may be required by the Forestry Commission to fell more than $5m^3$ of timber in any calendar quarter (subject to relevant exemptions including tree safety works, tree works for a statutory undertaking and tree works in gardens, churchyards and designated public open space)

3.2.8 Full development consent is an exemption from the need to apply for consent for works to trees protected by the Hedgerows Regulations, a TPO, the need to give notice of the intention to undertake works within a Conservation Area and the need to apply for a Felling Licence with the Forestry Commission (to fell more than $5m^3$ per calendar quarter). Prior to any tree works the status of trees to be removed or pruned must be verified with the relevant LPA and the Forestry Commission as appropriate.

3.3 National Policy for Electricity Networks

3.3.1 The National Policy Statement for Electricity Networks Infrastructure documents EN-1, EN-3 and EN-5 (2011) set out the national policy for energy infrastructure in relation to planning and design.

3.3.2 In terms of trees, document EN-1 draws reference to Ancient Woodland and Veteran Trees. Section 5.3.14 details that: 'Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. Planning Inspectorate should not grant development consent for any development that would result in its loss or deterioration unless the benefits (including need) of the development, in that location outweigh the loss of the woodland habitat. Aged or 'veteran' trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. This does not prevent the loss of such trees where the Planning Inspectorate is satisfied that their loss is unavoidable. Where such trees would be affected by development proposals the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons why.'

3.3.3 Sections 2.8.5 and 6 of document EN-5 outline the following guidance in relation to design for new infrastructure:

'2.8.5 Guidelines for the routeing of new overhead lines, the Holford Rules, were originally set out in 1959 by Lord Holford, and are intended as a common-sense approach to the routeing of new overhead lines. These guidelines were reviewed and updated by the industry in the 1990s and should be followed by developers when designing their proposals.

2.8.6 In overview, the Holford Rules state that developers should: choose tree and hill backgrounds in preference to sky backgrounds wherever possible. When a line has to cross a ridge, secure this opaque background as long as possible, cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees; prefer moderately open valleys with woods where the apparent height of towers will be reduced, and views of the line will be broken by trees.'

3.4 Local Policy Context

3.4.1 The Scheme is located within two local authority districts. These are West Suffolk Council and East Cambridgeshire District Council.

3.4.2 The relevant council websites each contain guidance on how the authority expects to see trees considered in relation to development and design. The relevant policies referring to trees are outlined in separate headings within this section according to the local authority district.

3.5 East Cambridgeshire District Council Local Plan (2015)

3.5.1 Policy ENV 7: Biodiversity and geology

'Development proposals where the main aim is to conserve biodiversity will be permitted; and opportunities to incorporate biodiversity into new development will be supported.

All development proposals will be required to:

Article I. Protect the biodiversity and geological value of land and buildings and minimise harm to or loss

of environmental features, such as trees, hedgerows, woodland, wetland and ponds.

Article II. Provide appropriate mitigation measures, reinstatement or replacement of features and/or

compensatory work that will enhance or recreate habitats on or off site where harm to

environmental features and habitat is unavoidable; and

Article III. Maximise opportunities for creation, restoration, enhancement and connection of natural habitats as an integral part of development proposals.'

3.6 East Cambridgeshire District Council Natural Environment – Supplementary Planning Document (SPD, Adopted 24 September 2020)

3.6.1 Policy SPD.NE8: Trees and Woodland

'Development proposals should be prepared based on the overriding principle that:

(a) the existing tree and woodland cover is maintained, improved and expanded; and

opportunities for expanding woodland are actively considered and implemented where practical and appropriate to do so.

Existing Trees and Woodland

Planning permission will only be granted if the proposal provides evidence that it has been subject to adequate consideration of the impact of the development on any existing trees and woodland found on-site (and off-site, if there are any trees near the site, with 'near' defined as the distance comprising 12 times the stem diameter of the off-site tree). If any trees exists on or near the development site, 'adequate consideration' is likely to mean:

(a) the completion of a British Standard 5837 Tree Survey and, if applicable,

(b) an Arboricultural Method Statement, Impact Assessment and Tree Protection Plan.

Where the proposal will result in the loss or deterioration of these irreplaceable assets (as defined by the NPPF):

(c) ancient woodland; and/or

(d) the loss of aged or veteran trees found outside ancient woodland

permission will be refused, unless, and on an wholly exceptional basis, the need for and benefits of the development in that location clearly outweigh the loss and a suitable compensation strategy exists.

Where the proposal will result in the loss or deterioration of a tree protected by a Tree Preservation Order or a tree within a Conservation Area, then permission will be refused unless:

(e) there is no net loss of amenity value which arises as a result of the development; or

(f) the need for, and benefits of, the development in that location clearly outweigh the loss.

Where the proposal will result in the loss of any other tree or woodland not covered by above, then the council will expect the proposal to retain those trees that make a significant contribution to the landscape or biodiversity value of the area, provided this can be done without compromising the achievement of good design for the site.

Mitigating for loss of Trees and Woodland

Where it is appropriate for higher value tree(s) (category A or B trees (BS5837)) and/or woodland to be lost as part of a development proposal, then appropriate mitigation, via compensatory tree planting, will be required. Such tree planting should:

*(g) take all opportunities to meet the six Tree Planting Principles (*refer to Section 7.6 of this report*); and*

(h) unless demonstrably impractical or inappropriate, provide the following specific quantity of compensatory trees:

Table 2: Tree Replacement Table extracted from East Cambridgeshire District Council Natural Environment – Supplementary Planning Document (SPD, Adopted 24 September 2020)

Trunk diameter (mm) at 1.5m above ground of tree lost to development	Number of replacement trees required, per tree lost*
75-200	1
210-400	4
410-600	6
610-800	9
810-1000	10
1000+	11

* replacement based on selected standards 10/12 cm girth at 1m

New Trees and Woodland

Where appropriate and practical, opportunities for new tree planting should be explored as part of all development proposals (in addition to, if applicable, any necessary compensatory tree provision).

Where new trees are proposed, they should be done so on the basis of the six Tree Planting Principles. Proposals which fail to provide practical opportunities for new tree planting will be refused.

Planting schemes should include provision to replace any plant failures within five years after the date of planting. Planting of trees must be considered in the context of wider plans for nature recovery which seeks to increase biodiversity and green infrastructure generally, not simply planting of trees, and protecting / enhancing soils, particularly peat soils.

Tree planting should only be carried out in appropriate locations that will not impact on existing ecology or opportunities to create alternative habitats that could deliver better enhancements for people and wildlife, including carbon storage.

Where woodland habitat creation is appropriate, consideration should be given to the economic and ecological benefits that can be achieved through natural regeneration. Any tree planting should use native and local provenance tree species suitable for the location.

Management and Maintenance

In instances where new trees and/or woodlands are proposed, it may be necessary for the Council to require a tree/woodland management plan and/or appropriate developer contributions to be provided, to ensure provision is made for appropriate management and maintenance of the new trees and/or woodland.

Carbon Sequestration Implications of Proposals

The net increase or decrease in tree cover as a consequence of a development will be a material consideration in the decision-making process in terms of the carbon sequestration consequences of the proposal. Considerable weight in favour of a proposal will be given where the net situation is a considerable increase in tree cover (and hence the positive and significant contribution to carbon sequestration). Where the net situation is a loss of trees, weight against a proposal will be given as a consequence of the loss of carbon sequestration, with the degree of weight dependent on the scale of net loss.

3.7 Forest heath and St Edmundsbury Local Plan Joint Development Management Policies document (2015)

3.7.1 Policy DM13: Landscape Features

'Development will be permitted where it will not have an unacceptable adverse impact on the character of the landscape, landscape features, wildlife, or amenity value.

All proposals for development should be informed by, and be sympathetic to, the character of the landscape.

All development proposals should demonstrate that their location, scale, design and materials will protect, and where possible enhance the character of the landscape, including the setting of settlements, the significance of gaps between them and the nocturnal character of the landscape.

Developers/applicants will be required to submit, where appropriate, landscaping schemes with applications for planning permission and for the approval of reserved matters.

Where any harm will not significantly and demonstrably outweigh the benefit of the proposal, development will be permitted subject to other planning considerations.

However, it is essential that commensurate provision must be made for landscape mitigation and compensation measures, so that harm to the locally distinctive character is minimised and there is no net loss of characteristic features.

Where this is not possible development will not be permitted.'

The policies provide an insight into the value afforded to trees and woodland in the planning process and how the local authorities expect impacts on trees and proposed new planting to be managed.

4 General Arboricultural Principles

4.1 General Principles

4.1.1 Trees are dynamic living organisms which provide essential benefits to society and the wider environment. Any proposed development with the potential to impact on trees must take into consideration the value of trees on site, the impact of any proposed activity along with any potential future conflicts on a site. Suitable measures to safeguard retained trees or mitigate the loss of trees (to be removed) will need to be fully considered.

4.1.2 Tree branches and roots frequently grow across site boundaries and off-site trees can pose a significant constraint and should be carefully considered when assessing the developable space within a site.

4.2 Below ground constraints

4.2.1 Below ground tree roots and the soil environment in which they grow need to be protected if the tree is to be retained. Trees grow in association with fungi and other soil organisms which are of key importance to tree health. Roots are essential for anchorage, the uptake of water and nutrients, and the storage of energy (carbohydrates) for the future growth and function of the tree.

4.2.2 Roots can be damaged by physical severance or wounding (e.g. following excavation of the soil) which can lead to the development of decay and a decline in vitality and/or instability.

4.2.3 Raising the soil level can bury tree roots at a depth where suitable conditions for growth are less available. Toxic materials discharged into the soil (such as cement-based aggregates, fuel and chemicals) can lead to root death and dysfunction. Soils can be compacted to levels inhospitable to tree growth with even a single pass of machinery, regular pedestrian traffic or the storage of plant and materials. Relieving compaction can be problematic and may require costly remedial works. Changes in drainage/water levels can also have significant long-term impacts for tree health.

4.2.4 The effects of these incursions may take many years to manifest, with a resulting decline in amenity value and potentially the death or failure of the tree. It should

be noted that older trees are particularly sensitive to damage and changes in conditions.

4.2.5 The Root Protection Area (RPA) is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. This area is deemed to be particularly important for tree stability, growth, function and health. However, roots may extend far greater distances, with the distribution of the root system relating directly to the availability of suitable conditions for growth (namely oxygen, water and nutrients). It is generally accepted that tree roots are predominantly located in the upper 1000mm of soil; however, roots may develop at deeper levels where conditions allow.

4.2.6 The default position must be that all development, including any associated services will occur outside the RPAs of retained trees. Where this is unavoidable, it may be appropriate to use special measures to install structures, services or surfacing within RPAs which allow the protection of roots and soil structure which are essential for tree growth and keep any incursion to a minimum.

4.2.7 Further steps to improve or increase the useable rooting area available to the tree may also be required.

4.2.8 Further guidance on tree protection measures in relation to the Scheme are identified in the PAMS report contained within Annex C.

4.3 Soils

4.3.1 On shrinkable clay soil, tree growth can lead to the differential movement of structures as moisture is removed from the soil during the growing season. Soils must be carefully assessed, and any foundations must be installed following the recommendations of National House Building Council (NHBC) Standards Chapter 4.2: *Building Near Trees* (2021) to avoid potential future damage. Where trees which predate existing structures are to be removed, this can result in heave as the soils are re-wet.

4.3.2 The advice of a suitably qualified engineer must be obtained to inform any potential issue of heave. Specific advice in relation to this issue is beyond the scope of this report.

4.4 Above ground constraints

4.4.1 Tree stems and branches can restrict available space on a site. Damage or wounding (including excessive pruning) can significantly reduce the amenity contribution of the tree and may lead to the development of dysfunction and decay, with significant long-term implications for tree health. The future impact of existing trees should be carefully considered, including individual species characteristics (such as potential future size, fruit fall, shade etc.) and how the tree will interact with any proposed development and future land use. Annual tree growth can lead to direct damage if stems/branches (or roots) come into physical contact with structures and this must also be taken into consideration.

5 Statutory and Non-Statutory Designations

5.1.1 Following searches of the Scheme area performed in 2019, statutory designations including Conservation Areas and Tree Preservation Orders (TPOs) affecting trees within or immediately adjacent to the Scheme are highlighted in the Tree Constraints Assessment Plans in Annex A.

5.1.2 There are no Conservation Areas within the Scheme, and three TPOs bordering the Scheme. The TPOs are identified on Sheet 2 (Thistley Green south, West Suffolk Council), Sheet 4 (Freckenham north, West Suffolk Council), Sheet 8 (Red Lodge north east, West Suffolk Council) and Sheet 15 (Burwell north, East Cambridgeshire District Council) of Annex A of this report.

5.1.3 TPOs protect all trees specified within the TPO schedule and require an 8-week tree works application in advance of any work.

5.1.4 Tree works specifically identified as required (at the application stage) to facilitate full planning permission are exempt from these requirements when planning permission is in place.

5.1.5 Prior to any tree works the presence of any TPOs or Conservation Area designations must be re-confirmed with the relevant LPA.

5.1.6 A felling licence is required to fell more than $5m^3$ per calendar quarter unless the work is exempt (such as necessary to implement full development consent or works necessary on health and safety grounds). Prior to any tree felling works (where full development consent or other statutory exemption is not in place) this situation must be confirmed with the Forestry Commission.

5.1.7 The Woodland Trust Ancient Tree Inventory contains a database of recorded ancient or veteran trees. The findings from the interactive mapping tool indicate the presence of a veteran sycamore (*Acer pseudoplatanus*) in land to the northwest of Burwell. This tree was not found during the walkover assessment of the area identified in the Woodland Trust inventory however any proposed works in this area should be subject to a more detailed assessment to identify the precise location of this tree and to confirm its veteran status. However, several trees with veteran characteristics were identified during the survey which are identified in the accompanying Tree Constraints Assessment Plans contained in Annex A of this report.

5.1.8 Veteran trees are considered to be an irreplaceable resource and should be retained and protected. The NPPF and current standing advice from Natural England and the Forestry Commission states that development affecting veteran trees should be refused unless justification is wholly exceptional. Veteran trees require a buffer equivalent to 15 x stem diameter (at 1.5m) or the canopy spread +5m (whichever is greatest).

5.1.9 Following an assessment of the Magic Map resource, no Sites of Special Scientific Interest (SSSIs) or designated Ancient Woodland areas are located directly within the Scheme. Non-statutory designation search results on Magic Map identified designated ‘deciduous woodland’, ‘traditional orchard’ and ‘wood pasture and parkland’. These non-statutory designations do not require specific

consent prior to tree works but are likely to be taken into consideration by the LPA when reviewing the DCO Application.

6 Yr.2019 Walkover Survey Findings

6.1 Sunnica East Site

6.1.1 The trees in the Sunnica East Sites A and B and adjoining cable route southwards to the Sunnica West Site A area are predominantly semi mature to mature in age. The main species include hybrid black poplar (*Populus* × *canadensis*), white poplar (*Populus alba*), oak (*Quercus* sp.), Scots pine (*Pinus sylvestris*), common beech (*Fagus sylvatica*) and Corsican pine (*Pinus nigra*).

6.1.2 The southern extent of the Sunnica East Site B contains several semi mature pine plantations in good condition. In the southern area, large linear groups of pine and poplar denote field boundaries with a number of large broadleaf dominated woodlands/groups that range from semi mature to mature and consist of predominantly oak and beech mixed with occasional pine. A large group of notable mature beech were recognised as likely high quality (Category A) and are located in the north east of Sheet 7 of the Tree Constraints Assessment Plan.

6.1.3 In the northern extent of the Sunnica East Site B, naturalised field boundary groups dominated by oak denote field boundaries, one high value group of trees is identified in Sheet 1 of the Tree Constraints Assessment Plan. Further west of the northern area the tree coverage is sparser; with occasional groups of mature poplar and willow aligning watercourses between arable fields.

6.1.4 The cable route leading southwards to the Sunnica West Site A area runs across arable fields containing trees established within hedgerow areas denoting boundaries. These areas are predominantly low value with the exception of one oval-shaped high-quality woodland group identified in Sheet 14 of the Tree Constraints Assessment Plan.

6.1.5 No likely veteran or ancient trees were recorded within the Sunnica East Sites A or B.

6.2 Sunnica West Site A

6.2.1 The trees within the Sunnica West Site A are semi mature to mature in age. The main species include Scots pine, Corsican pine, common beech, sycamore, common oak, common ash (*Fraxinus excelsior*) and crack willow (*Salix fragilis*).

6.2.2 At the western side of Sunnica West Site A (within the grounds of Water Hall Farm), large linear pine, beech, willow and sycamore dominated groups denote field boundaries with a number of large broadleaf dominated woodlands/plantation groups. These areas consist of ash, beech, sycamore, birch, alder sp. (*Alnus sp.*) and pine. Occasional mature trees were recognised as likely high quality and are located occasionally throughout Sheets 18, 19, 22 and 23 of the Tree Constraints Assessment Plan.

6.2.3 At the eastern side of Sunnica West Site A (within the grounds of La Hogue and Dane Hill Farm) are several high-quality trees and small groups identified in Sheet 20 of the Tree Constraints Assessment Plan. The La Hogue Farm area contains

several high value mature oak trees surrounding the entrance of the farm shop, at the rear of the farm shop are two trees identified as having numerous characteristics which define them as trees of veteran status. Veteran characteristics present included a large mature oak tree with a retrenched crown form and large sections of deadwood remaining; the main stem of this tree is wide, and ivy clad with a small cavity showing signs of bird activity. Approximately 30 metres west of this tree was a small ash tree with a hollow stem and regenerative growth, at the inside of the hollow stem were fungal fruiting bodies.

6.2.4 Eastwards towards Dane Hill Farm are arable fields bordered mainly by moderate quality groups dominated by oak, aspen (*Populus tremula*), beech and field maple. Within this group are three large mature individual native black poplar (*Populus nigra Ssp. Betulifolia*) trees. Native black poplar is rarely distributed in Britain, with numbers currently at an estimated 8000 trees (identified on Sheet 20 of the Tree Constraints Assessment Plan). Although there are no specific statutory designations affording protection for native black poplar, the Hedgerows Regulations 1997 would afford some protection to the tree and hedge and in the context of BS 5837 and the consideration of trees in relation to the planning system these trees are a high value material constraint that should be retained, protected and afforded sufficient space in relation to any development proposals.

6.3 Sunnica West Site B

6.3.1 The trees within the Sunnica West Site B area are semi mature to mature in age. The main species include common ash, crack willow, hybrid black poplar and Norway spruce (*Picea abies*). One small group of high value trees was identified however the majority of trees in this area were identified as being low to moderate quality.

6.3.2 At the south of the Sunnica West Site B area, the cable route runs southwards to the Sunnica West Site A area to the east of the village of Snailwell. This route crosses arable fields with moderate value plantation tree groups denoting the field boundaries, and one high value group of planted beech trees aligning Chippenham Road (see Sheet 18 of the Tree Constraints Assessment Plan).

6.4 Cable Route (Grid Connection Route A and Grid Connection Route B)

6.4.1 The trees within the cable route corridors for Grid Connection Route A and Grid Connection Route B are semi mature to mature in age. The main species include sycamore, common ash and crack willow denoting field boundaries and aligning the Catch Water Drain watercourse at the west side of the village of Burwell. The majority of trees in this area were identified as being low to moderate quality (see Sheets 9, 10, 15 and 21 of the Tree Constraints Assessment Plan).

7 Arboricultural Impact Assessment: Burwell Substation Extension Options 1 and 2

7.1 The Proposed Development (Options 1 and 2)

7.1.1 An extension to the Burwell National Grid Substation will be required, including a transformer compound to transform the 132kV export voltage from the Sites to the

National Grid 400kV connection voltage. The footprint of the Substation extension will be the same within both locations; however, the area identified for the alternative location is larger due to the need for flexibility.

7.1.2 Option 1 is located within National Grid land ownership to the east of the existing substation, adjacent to Weirs Drove, approximately 200m west of Burwell. Option 2 is to the north of the existing substation approximately 450m west of Burwell. Both Proposed Development layouts are displayed in the Options' 1 and 2 Tree Protection Plans contained within Annex E of this report.

7.2 Purpose

7.2.1 This impact assessment sets out the worst-case scenario of direct and indirect impacts of Option 1 and 2 proposals on the trees on or immediately adjacent to the Site. Suitable mitigation measures to allow for the successful retention of significant trees or to compensate for trees to be removed, where appropriate have been identified.

7.2.2 A brief summary of trees to be removed, tree works, and incursions related to Option 1 are detailed within table 3 below.

Table 3: Summary of Removals, Incursions and Pruning to Facilitate Option 1

Impact	Category A	Category B	Category C	Category U
Trees to be removed to facilitate Option 1	-	-	-	T22
Group features to be removed to facilitate Option 1	-	Part of G10, G21	G28, Part of G38	G30
Total	**-**	**1 tree group, part of 1 tree group**	**1 tree group, part of 1 tree group**	**1 individual tree, 1 tree group**
Trees/groups which may require some incursion into their construction exclusion zone to allow Option 1	-	G32, T39	T29, T40	-
Total	**-**	**1 individual tree, 1 tree group**	**2 individual trees**	**-**
Trees/groups to be pruned under arboricultural supervision to facilitate Option 1	-	G10, G32	G34, G38	-
Total	**-**	**2 tree groups**	**2 tree groups**	**-**

7.2.3 A brief summary of trees to be removed, tree works, and incursions related to Option 2 are detailed within table 4 below.

Table 4: Summary of Removals, Incursions and Pruning to Facilitate Option 2

Impact	Category A	Category B	Category C	Category U
Trees to be removed to facilitate Option 2	-	-	-	-
Group features to be removed to facilitate Option 2	-	Part of G10	Part of G9	
Total	**-**	**Part of 1 tree group**	**Part of 1 tree group**	
Trees/groups which may require some incursion into their construction exclusion zone to allow Option 2	-	-	-	-
Total	**-**	**-**	**-**	**-**
Trees/groups to be pruned under arboricultural supervision to facilitate Option 2	-	G10	G9	-
Total	**-**	**1 tree group**	**1 tree group**	**-**

7.3 Summary of Arboricultural Impacts (Option 1)

7.3.1 Two tree groups and parts of two tree groups would need to be removed to facilitate Option 1. This would include one tree group and part of one tree group classed as moderate quality (Category B), with the remaining features classified as low quality (Category C).

7.3.2 In addition, one individual tree and one tree group of very low quality (Category U) would also be recommended for removal due to their pre-existing condition. These trees are not suitable for long-term retention and its removal is justified regardless due to pre-existing condition and proximal land use.

7.3.3 All of the trees to be removed within the Option 1 scenario are within the Order limits.

7.3.4 The loss of these trees would be necessary to achieve the construction and landscaping objectives for the Option 1 Proposed Development. All of the remaining recorded trees could be retained and protected.

7.4 Summary of Arboricultural Impacts (Option 2)

7.4.1 Part-of one tree group classed as moderate quality (Category B) and part of one low quality (Category C) tree group would need to be removed to facilitate Option 2 of the Proposed Development.

7.4.2 All of the trees to be removed within the Option 2 scenario are within the Order limits.

7.4.3 The loss of these trees would be necessary to achieve the construction and landscaping objectives for the Option 2. All of the remaining recorded trees could be retained and protected.

7.5 Tree Works to Facilitate the Options 1 and 2

7.5.1 Tree removals and tree pruning works to facilitate the Options 1 and 2 are detailed in the Tree Survey Schedule included as Annex B. Tree works should be completed before any other work begins on the Site.

7.5.2 Tree removals within groups proposed for part-removal should be carried out under arboricultural supervision, ensuring the trees to be removed are uniquely identified and agreed prior to felling operations. The remaining trees shall then be re-inspected by an appointed site arboriculturist to determine their suitability for retention and any additional pruning requirements and/or the removal of deadwood as necessary.

7.5.3 All tree pruning works are to follow the principles of BS3998: 2010 Treework – Recommendations. These works must be carried out by suitably qualified and insured contractors, the Arboricultural Association provides a list of contractors who meet these requirements.

7.5.4 Should the requirement for additional tree works be identified, this will be discussed with an appointed arboriculturist and no works will be undertaken without the consent of the relevant LPA.

7.6 Option 1 Incursions within the RPA or Canopy Spread

7.6.1 The Option 1 results in the canopy spread and/or RPA incursions of several moderate quality and low quality retained tree features. All incursions are identified by the Construction Working Zone (CWZ) hatching displayed in the Tree Protection Plans contained in Annex D of this report.

7.6.2 The Option 1 proposals seek to install cables, new surfacing and boundary fencing within RPAs. These works can be achieved without a significant negative impact on tree health by using a careful working methodology under supervision of an appointed site arboriculturist, in accordance with the tree protection methodology set out in more detail in the PAMS contained in Annex C of this report.

7.7 The Future Impact of Retained Trees

7.7.1 The future impact of retained trees in conjunction with the Scheme and future use of the Site has been considered.

7.7.2 Retained trees will require periodic inspection to assess their structural condition and safety. Occasional removal of dead wood or other remedial works to address significant defects may be required in areas of frequent access. This is unlikely to be overly onerous and will be the responsibility of the tree owner.

7.7.3 All tree works recommended as a result of the preliminary tree survey, considered trees in the context of the present use of the Site (i.e. prior to development proposals) in the Tree Survey Schedule. Where these works are not superseded

by proposed tree removal, they should be actioned within the recommended timescales.

7.8 Tree Protection

7.8.1 Retained trees are vulnerable to damage from construction activities which can include physical damage to stems and branches following impacts with plant. Root severance following trenching, root death or dysfunction following damage to soil structure (caused by the movement of people or machinery on unsurfaced ground) or via the spillage of materials toxic to tree health.

7.8.2 The default position is that the RPA and Canopy spread of trees to be retained will form an effective Construction Exclusion Zone (CEZ), secured with robust fencing where no access will be permitted. Where access is necessary within RPAs/canopy spreads, these areas are referred to as CWZs and require measures such as the use of ground protection and arboricultural supervision.

7.8.3 Tree protection measures are considered in the PAMS contained within Annex C of this report. A detailed Arboricultural Method Statement will be required which will set out the phasing of site operations, the finalised tree protection measures for a proposed development and to provide detail on how sensitive elements of work are to be achieved in proximity to retained trees. This will be secured through the Framework Construction Environmental Management Plan (CEMP) in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2].**

7.9 Tree Planting

7.9.1 Where trees are to be removed due to a conflict with proposals in relation to the Scheme, mitigation planting is likely to be required to ensure a continuity of tree cover for the Scheme and to address any negative impact on local amenity and landscape character. Consideration should be given to the reasonable provision of space for new tree planting to off-set any necessary tree loss.

7.9.2 Soil structure in areas for new planting will need to be maintained and may require protection during operation of the proposed development to ensure reasonable conditions for future tree growth are available.

7.9.3 New planting should consider the existing species mix present on site in relation to both arboricultural and ecological considerations. New planting also offers an opportunity to increase the species and age class diversity for a given area which can boost the resilience of the local tree stock in relation to pests, disease and climate change as well as providing a greater range of amenity and other benefits. New planting will be secured through the Outline Landscape and Ecological Management Plan (OLEMP) in **Appendix 10I** of this Environmental Statement **[EN010106/APP/6.2].**

7.9.4 New trees should be planted in accordance with the guidance set out in BS8545:2014 Trees: from nursery to independence in the landscape – Recommendations (BS8545) and with the minimum distances from new structures, services and surfacing set out in Table A.1 of BS5837.

7.9.5 In accordance with the East Cambridgeshire District Council compensatory tree planting requirements, consideration should be given to the number of trees

required to compensate for the loss of existing trees, dependant on the size of the trees to be lost. Where it is appropriate for higher value tree(s) (Category A or B trees (BS5837)) and/or woodland to be lost as part of a development proposal, then appropriate mitigation will be required (refer to Table 2).

7.9.6 In accordance with the East Cambridgeshire District Council SPD, tree planting should meet the following six Tree Planting Principles.

a. Create habitat and, if possible, connect the development site to the Strategic Green Infrastructure Network,
b. Assist in reducing or mitigating run-off and flood risk on the development site;
c. Assist in providing shade and shelter to address urban cooling, and in turn assist in mitigating against the effects of climate change;
d. Create a strong landscaping framework to either (a) enclose or mitigate the visual impact of a development or (b) create new and enhanced landscape;
e. Be of an appropriate species for the site; and
f. Avoid any tree planting where it has the potential to cause harm, such as: harm to existing important habitat; harm to peat soils; or harm to property or infrastructure.

8 Summary and Conclusion

8.1.1 This appendix includes preliminary tree constraints information in relation to the nature and potential level of constraint posed by existing trees following a walkover tree constraints assessment performed in 2019 within the Scheme, a PAMS report addressing generic tree protection measures for works carried out in relation to the Scheme (Annex C), and a detailed AIA of the two Burwell National Grid Substation Extension options.

8.1.2 To facilitate Option 1 of the Scheme, two full tree groups and parts of two tree groups would need to be removed. This would include one tree group and part of one tree group classed as moderate quality (Category B), with the remaining features classified as low quality (Category C). In addition, one individual tree and one tree group of very low quality (Category U) would also be recommended for removal. These trees are not suitable for long-term retention and their removal is justified regardless due to pre-existing condition and proximal land use.

8.1.3 To facilitate Option 2 of the Scheme, part of one moderate quality (Category B) group and part of one low quality (Category C) tree group would need to be removed to facilitate Option 2 of the Proposed Development.

8.1.4 With the exception of detailed assessment of works in relation to Options 1 and 2 of the Scheme, the status of trees to be pruned or removed (if required) and a written summary of the anticipated tree related impacts associated with the wider Scheme will be compiled by an appointed arboriculturist and provided to the relevant LPA to ensure tree removals, pruning works and impacts are formally agreed. This should be accompanied by a tree works specification which identifies trees to be felled or pruned to facilitate the Scheme, this will be secured through the CEMP in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2]**.

8.1.5 Should the requirement for any additional tree works be identified, this will be discussed with an appointed arboriculturist and no works will be undertaken without the consent of the relevant LPA and or tree owner where relevant.

8.1.6 Tree protection measures are considered in the PAMS contained within Annex C of this report. A detailed Arboricultural Method Statement will be prepared to set out the phasing of site operations, the finalised tree protection measures for a proposed development and to provide detail on how sensitive elements of work are to be achieved in proximity to retained trees, this will be secured through the CEMP in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2]**.

8.1.7 Where trees are to be removed due to a conflict with proposals in relation to the Scheme, mitigation planting is likely to be required to ensure a continuity of tree cover for the Scheme and to address any negative impact on local amenity and landscape character, this will be secured through the OLEMP in **Appendix 10I** of this Environmental Statement **[EN010106/APP/6.2]**.

8.1.8 In accordance with the East Cambridgeshire District Council adopted compensatory tree planting requirements, consideration should be given to the number of trees required to compensate for the loss of existing trees, dependant on the size of the trees to be lost and accord with the six adopted Tree Planting Principles.

9 References

Ref. 1 HMSO (2018). Conservation of Habitats and Species Regulations 2017 (as amended). HMSO, London.

Ref. 2 HMSO (2019) The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. HMSO, London

Ref. 3 HMSO (1981). The Wildlife & Countryside Act 1981. HMSO, London.

Ref. 4 HMSO (2000). Countryside and Rights of Way Act 2000. HMSO, London.

Ref. 5 HMSO (1997). Hedgerows Regulations 1997. HMSO, London.

Ref. 6 DECC (2011) National Policy Statement for Electricity Networks Infrastructure (EN-5), Available at: [redacted] [Date Accessed: March 2021].

Ref. 7 National Planning Policy Framework. Department for Communities and Local Government. Available at: [redacted]

Ref. 8 East Cambridgeshire District Council (2015). East Cambridgeshire Local Plan Adopted April 2015. Section 6.8.

Ref. 9 East Cambridgeshire District Council (2020). Natural Environment – Supplementary Planning Document (SPD). Adopted September 2020

Ref. 10 Forest Heath and St Edmundsbury Local Plan; Joint Development Management Policies Document. February 2015. Section 4.

Ref. 11 British Standards Institution (BSI), BS5837:2012. Trees in relation to design, demolition and construction – Recommendations. BSI

Ref. 12 British Standards Institution (BSI), BS3998:2010. Tree work – Recommendations. BSI

Ref. 13 British Standards Institution (BSI), BS8545:2014. Trees: from nursery to independence in the landscape – Recommendations. BSI

Ref. 14 Department for Communities and Local Government (DCLG), 2012. National Planning Policy Framework (NPPF). DCLG

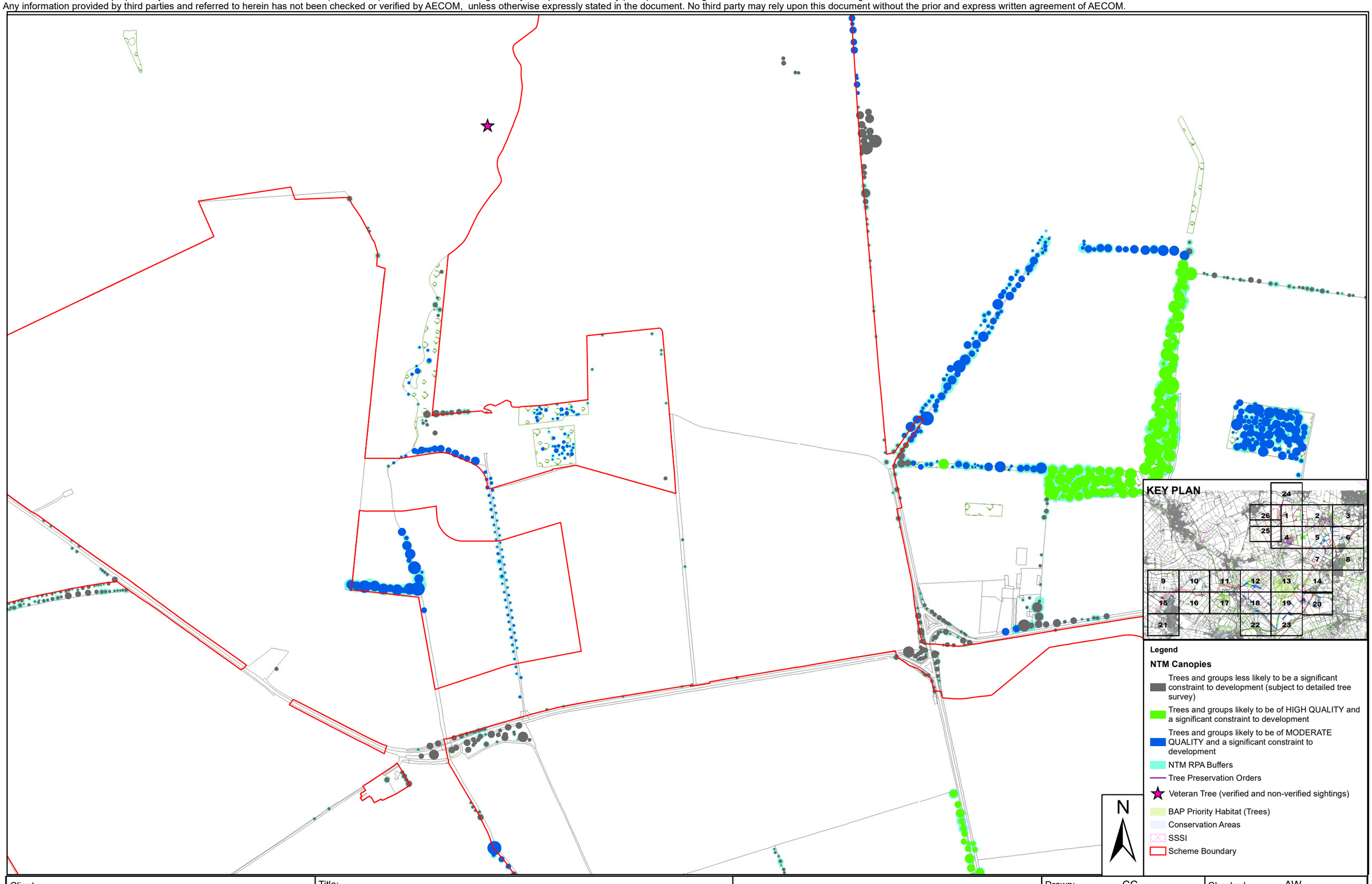
Ref. 15 National House Building Council (NHBC) Standards, (2021). Chapter 4.2: Building Near Trees

Ref. 16 National Joint Utilities Group (NJUG) Volume 4, Issue 2, (2007). NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees.

Ref. 17 National Tree Safety Group (NTSG), 2011. Common sense risk management of trees. Forestry Commission.

Ref. 18 Natural England and The Forestry Commission (2018) Ancient woodland, ancient trees and veteran trees: protecting them from development [redacted]

Annex A Tree Constraints Assessment Plans



Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 1 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	T +44 (0) 1256 310 200 www.aecom.com
Project: Sunnica Energy Farm			

Drawn: CC	Checked: AW		
Verified: MR	Approved: AK		
Date: NOVEMBER 2021	Scale at A3: 1:6,450		
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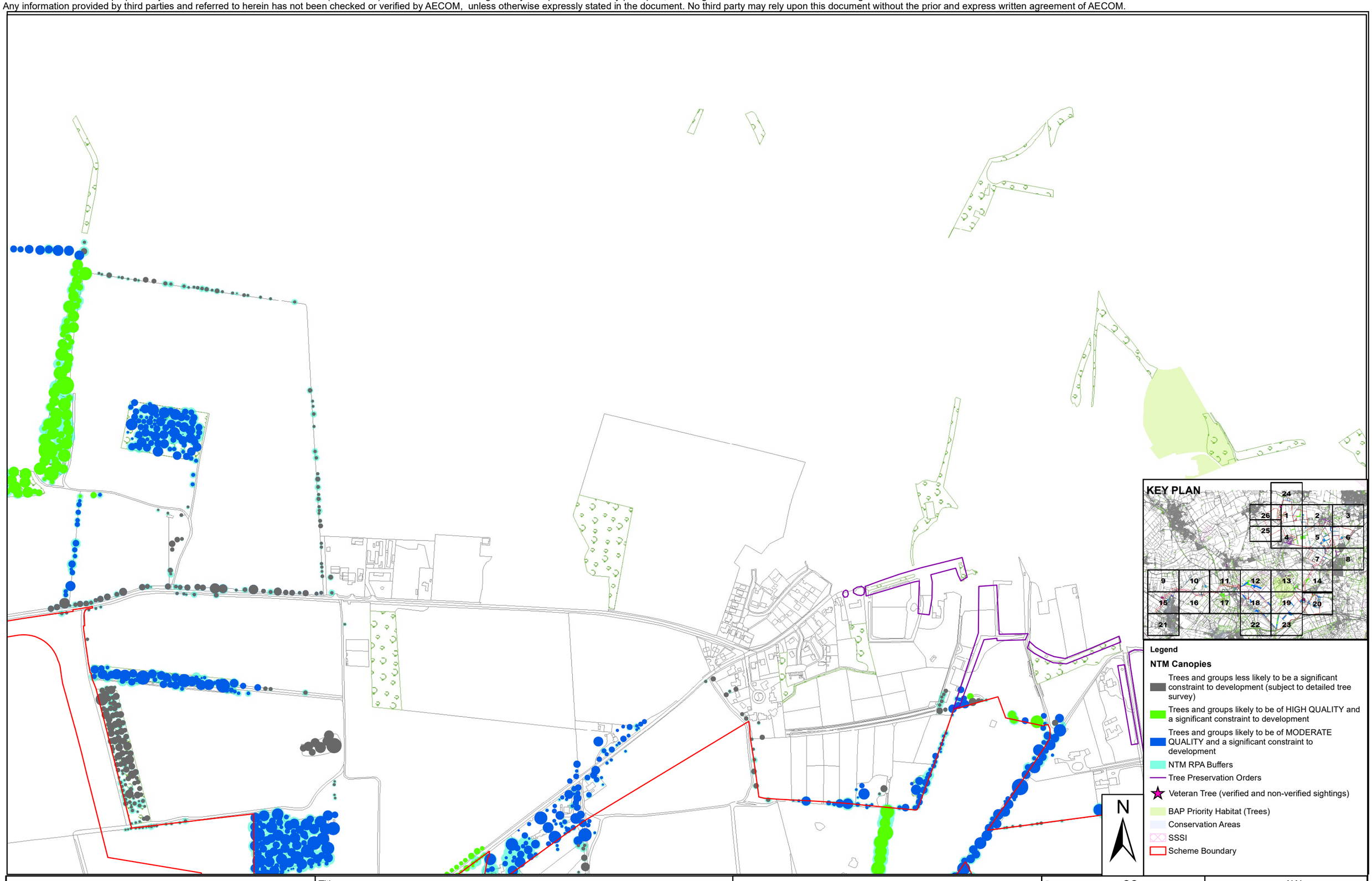

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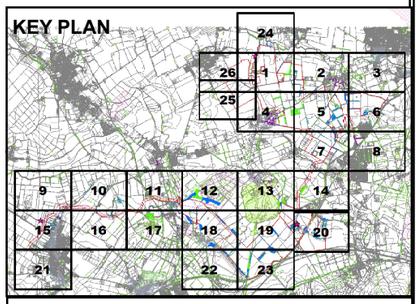

Legend

NTM Canopies

- Trees and groups less likely to be a significant constraint to development (subject to detailed tree survey)
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 3 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK	
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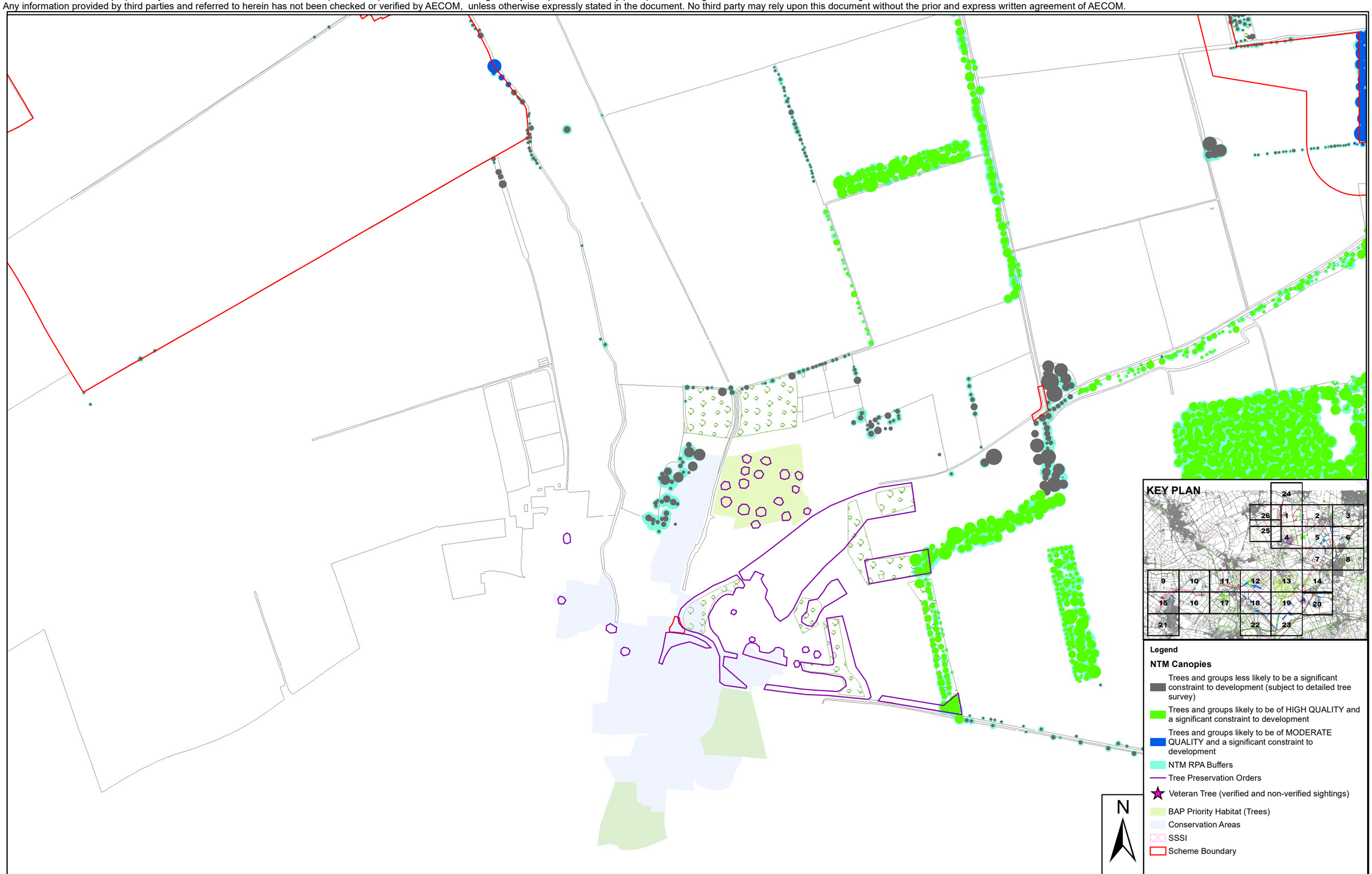

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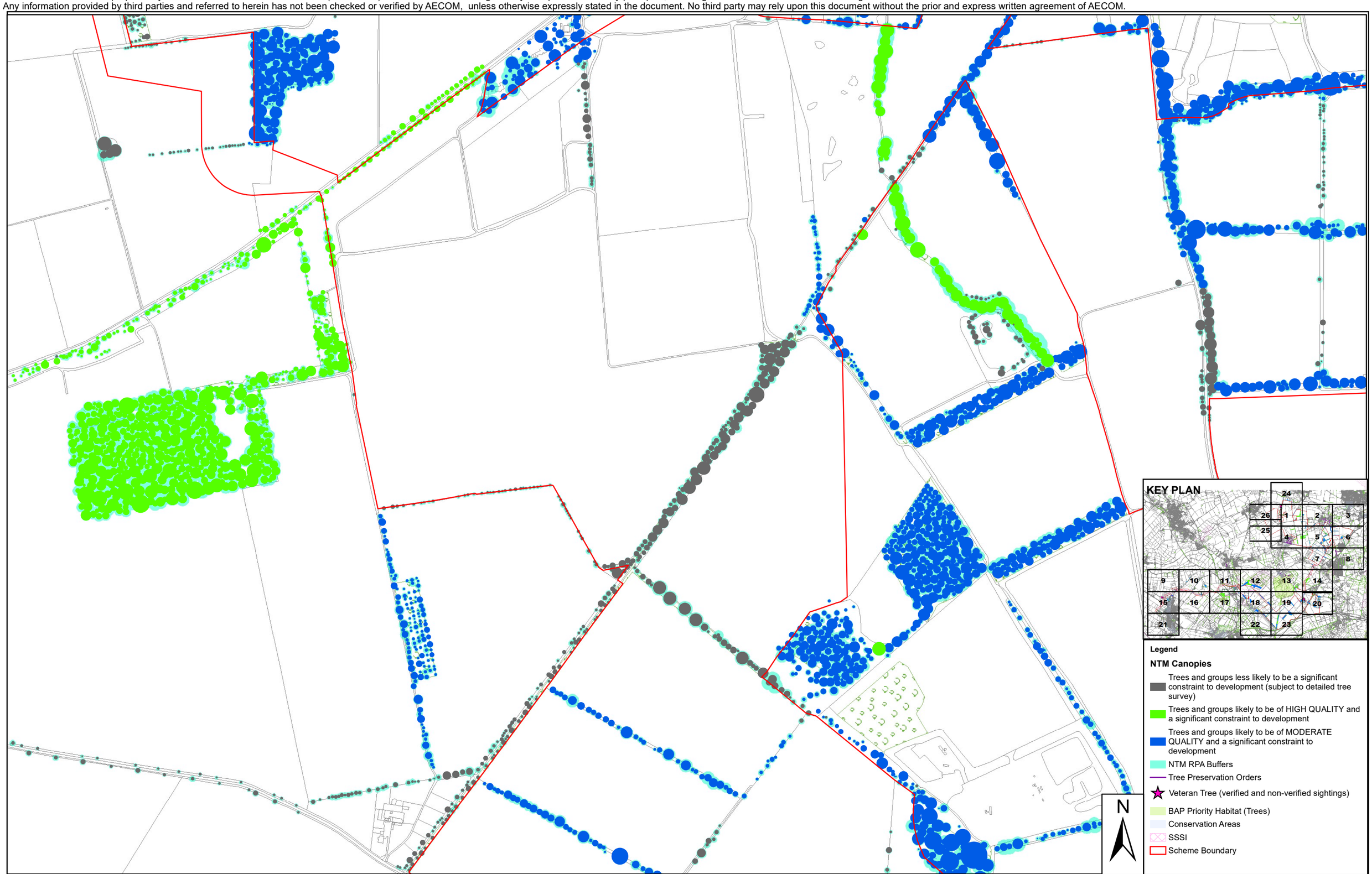

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Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR / Approved: AK
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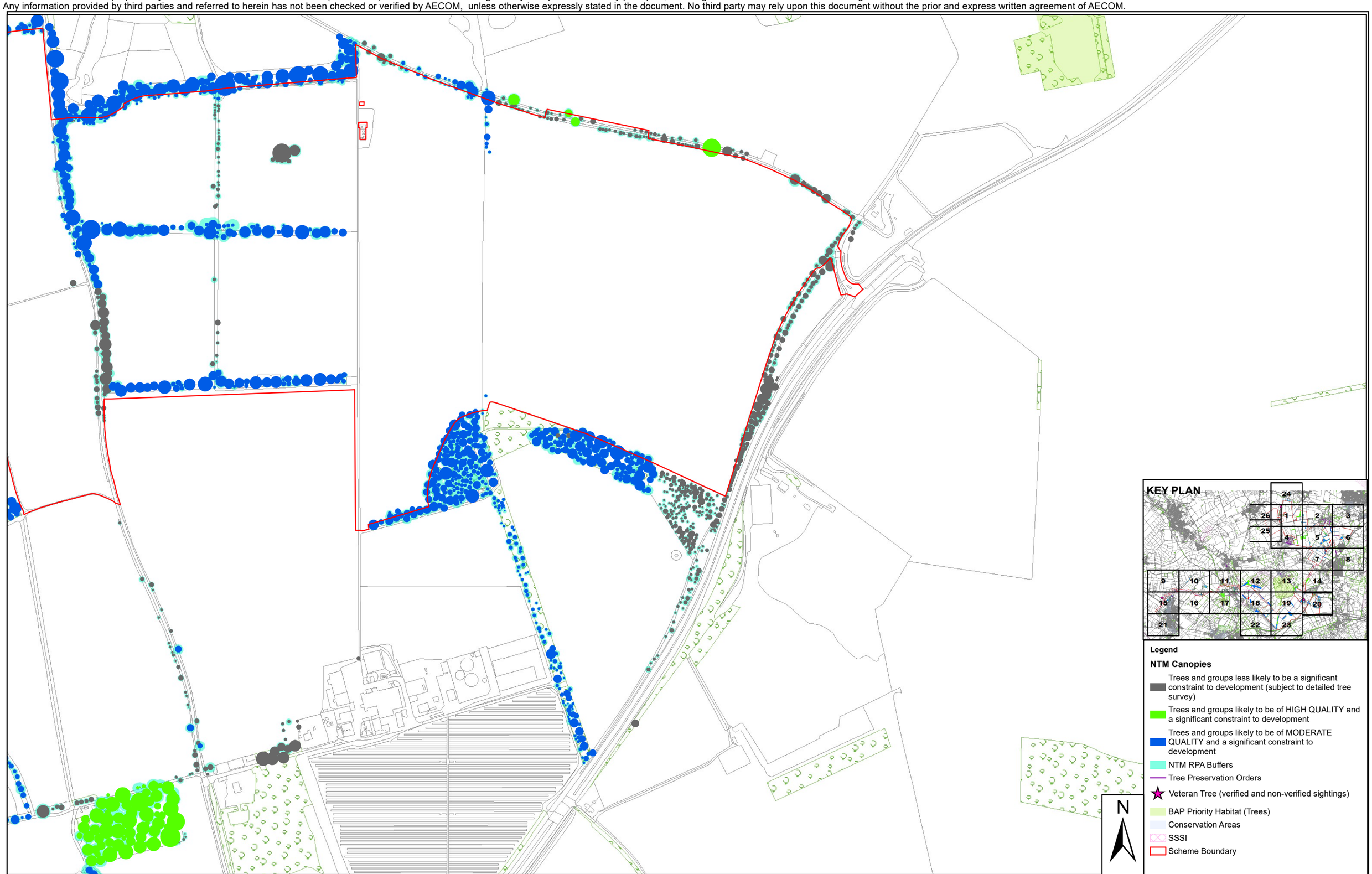

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 6 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	T +44 (0) 1256 310 200 www.aecom.com	Drawn: CC	Checked: AW
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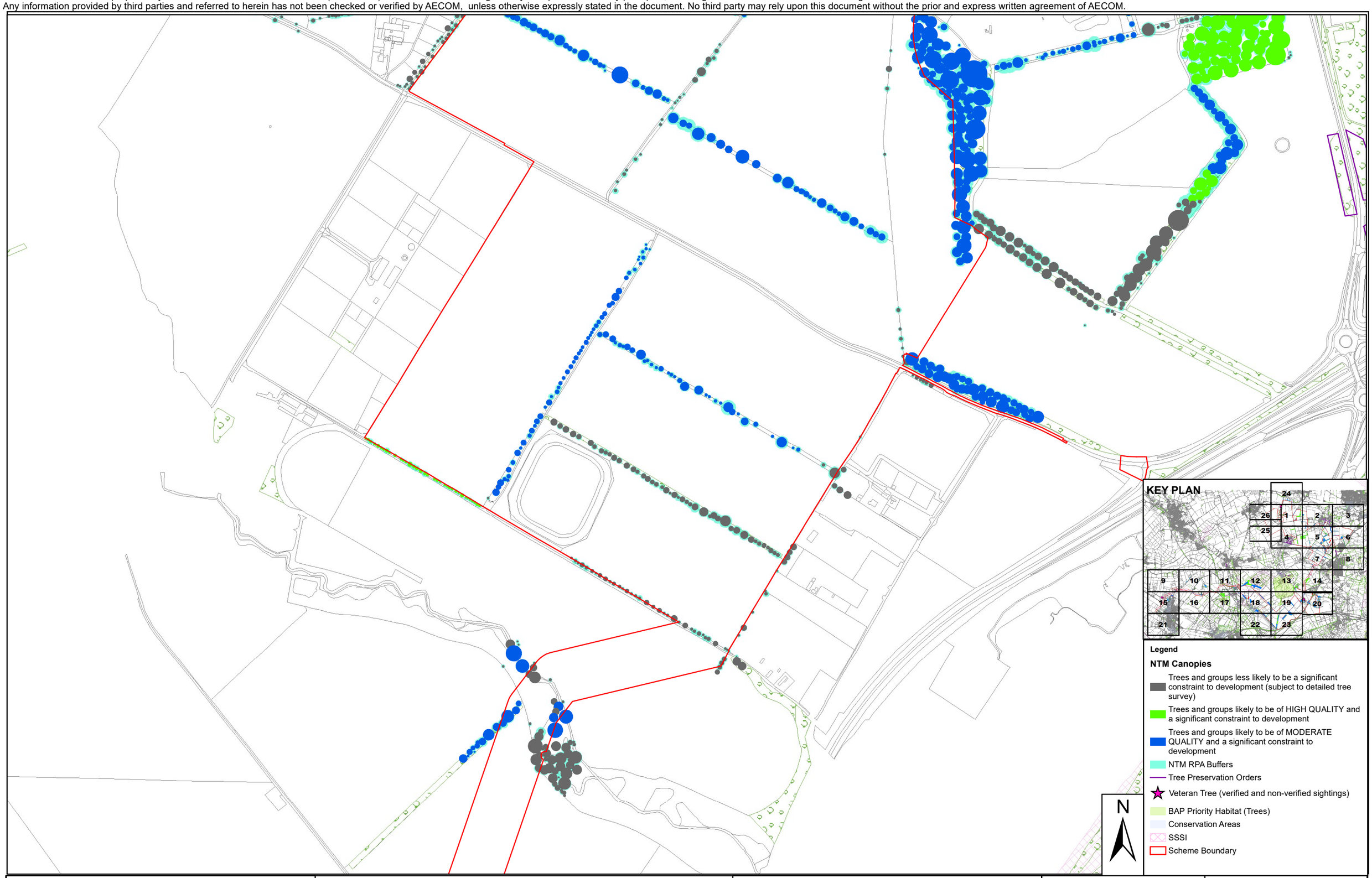

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 7 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	T +44 (0) 1256 310 200 www.aecom.com	Drawn: CC	Checked: AW
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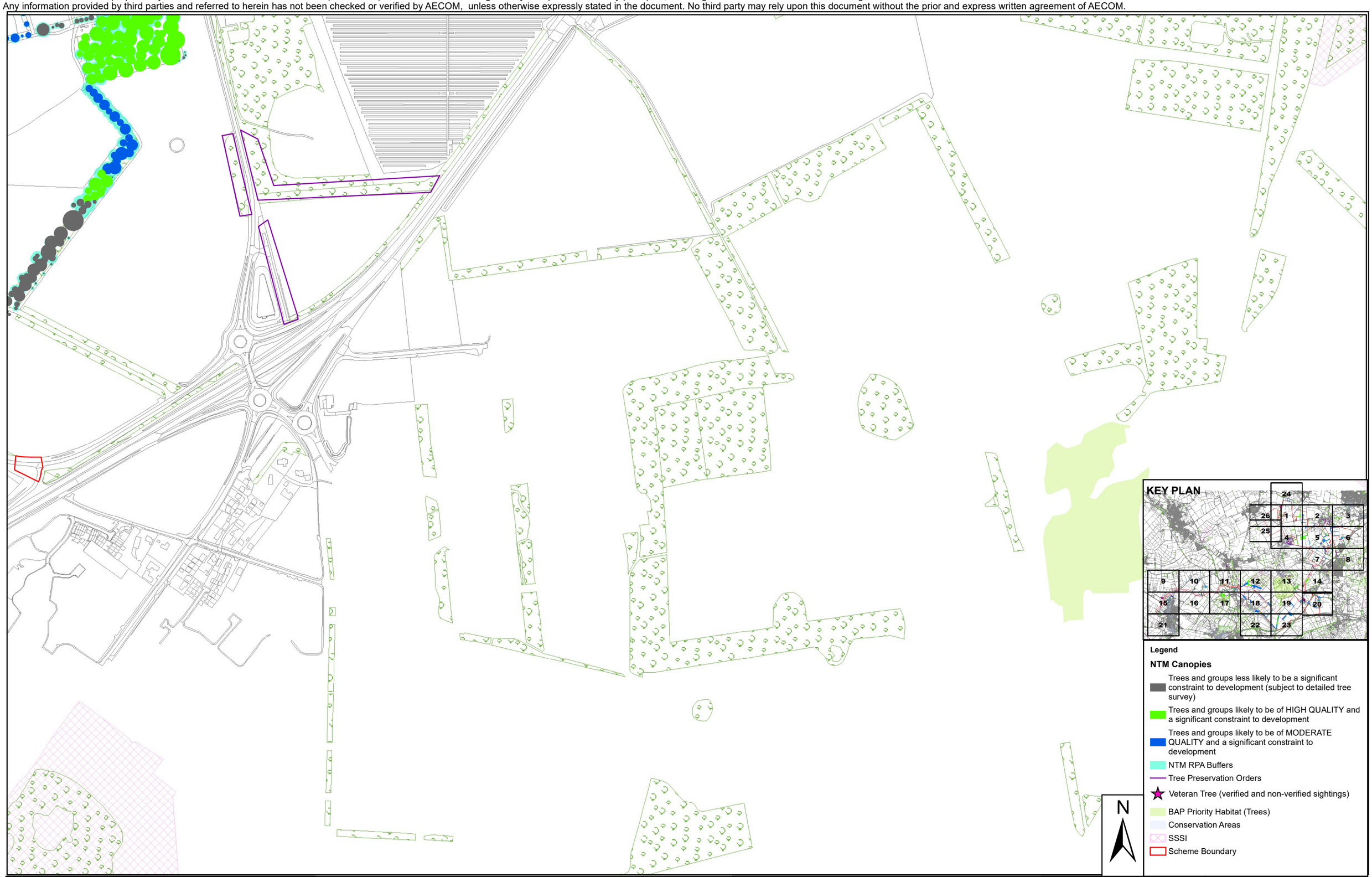

Legend

NTM Canopies

- Trees and groups less likely to be a significant constraint to development (subject to detailed tree survey)
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 8 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK
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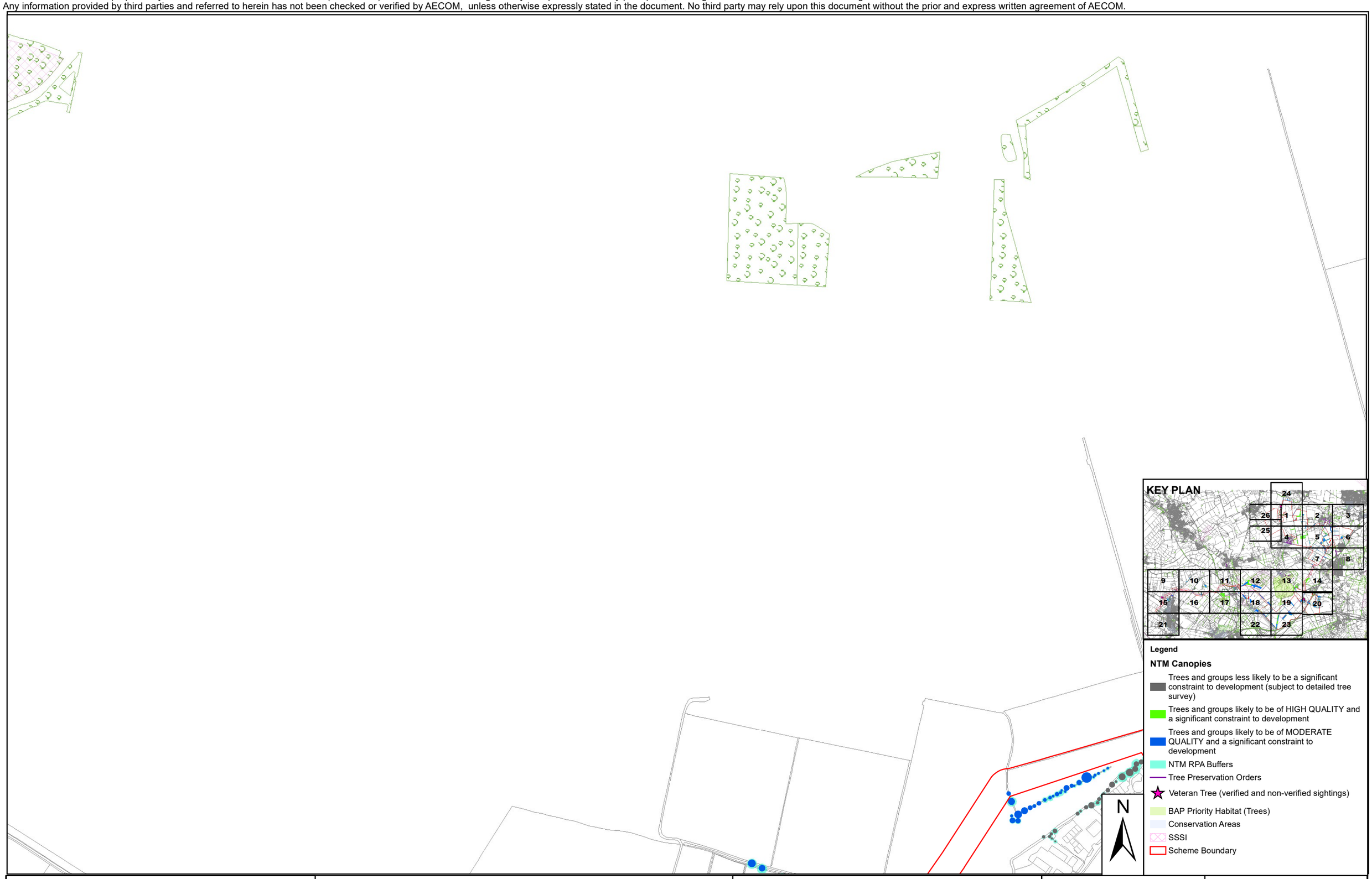

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 9 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK
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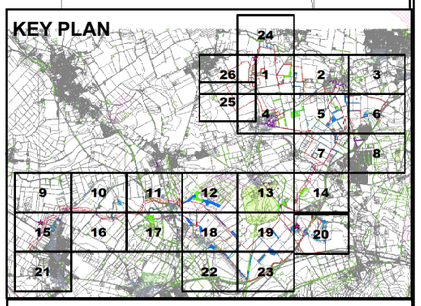

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NTM Canopies

- Trees and groups less likely to be a significant constraint to development (subject to detailed tree survey)
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 10 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
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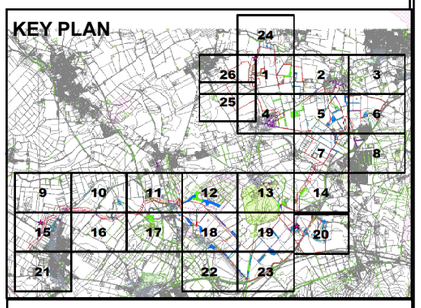

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NTM Canopies

- Trees and groups less likely to be a significant constraint to development (subject to detailed tree survey)
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 11 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK	
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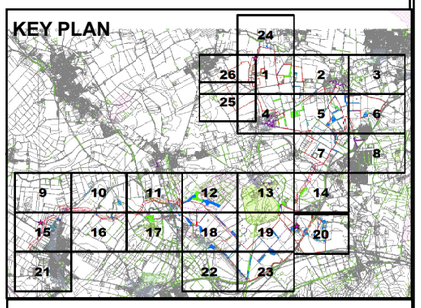

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NTM Canopies

- Trees and groups less likely to be a significant constraint to development (subject to detailed tree survey)
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 12 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK	
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Legend

NTM Canopies

- Trees and groups less likely to be a significant constraint to development (subject to detailed tree survey)
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 13 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
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NTM Canopies

- Trees and groups less likely to be a significant constraint to development (subject to detailed tree survey)
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 14 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK	
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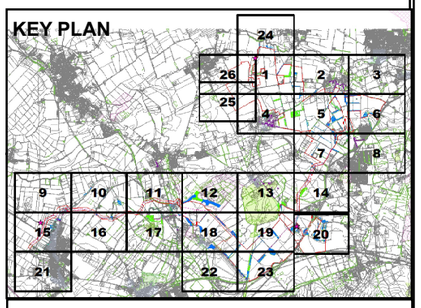
Legend

NTM Canopies

- Trees and groups less likely to be a significant constraint to development (subject to detailed tree survey)
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 15 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK	
			Date: NOVEMBER 2021	Scale at A3: 1:6,450	
			Drawing Number: 60589004_TREE_0015		A3



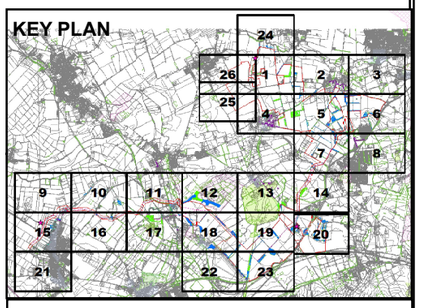
Legend

NTM Canopies

- Trees and groups less likely to be a significant constraint to development (subject to detailed tree survey)
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 16 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK	
			Date: NOVEMBER 2021	Scale at A3: 1:6,450	
			Drawing Number: 60589004_TREE_0016		A3



Legend

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- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
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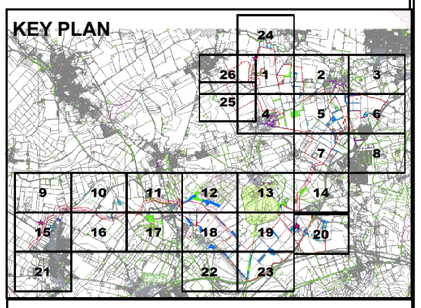
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 17 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK	
			Date: NOVEMBER 2021	Scale at A3: 1:6,450	
			Drawing Number: 60589004_TREE_0017		A3



Legend

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- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 18 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK	
			Date: NOVEMBER 2021	Scale at A3: 1:6,450	
			Drawing Number: 60589004_TREE_0018		A3

Legend

NTM Canopies

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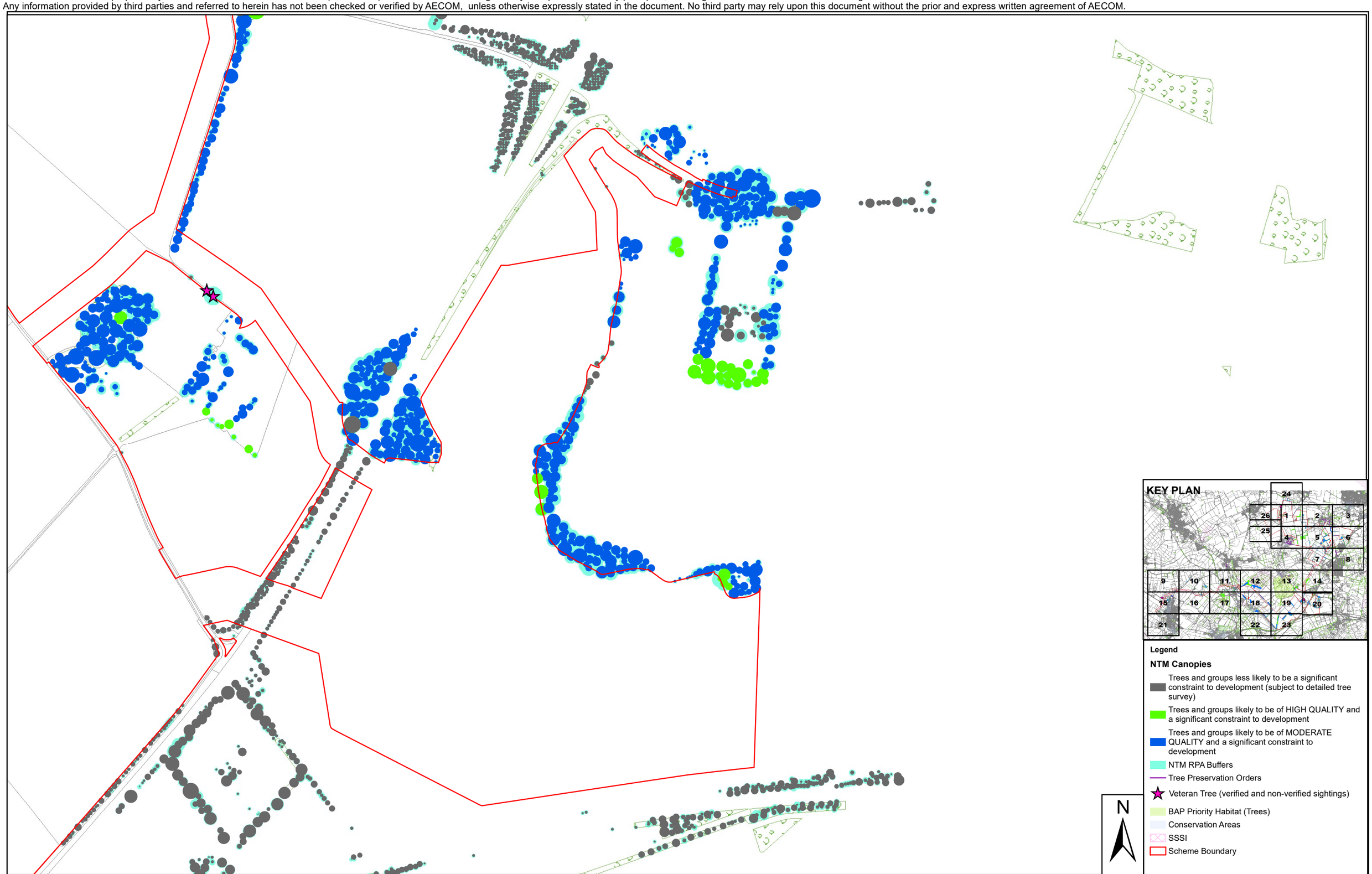
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 19 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW	
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK	
			Date: NOVEMBER 2021	Scale at A3: 1:6,450	
			Drawing Number: 60589004_TREE_0019		A3



Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 20 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK
			Date: NOVEMBER 2021	Scale at A3: 1:6,450
			Drawing Number: 60589004_TREE_0020	A3

Legend

NTM Canopies

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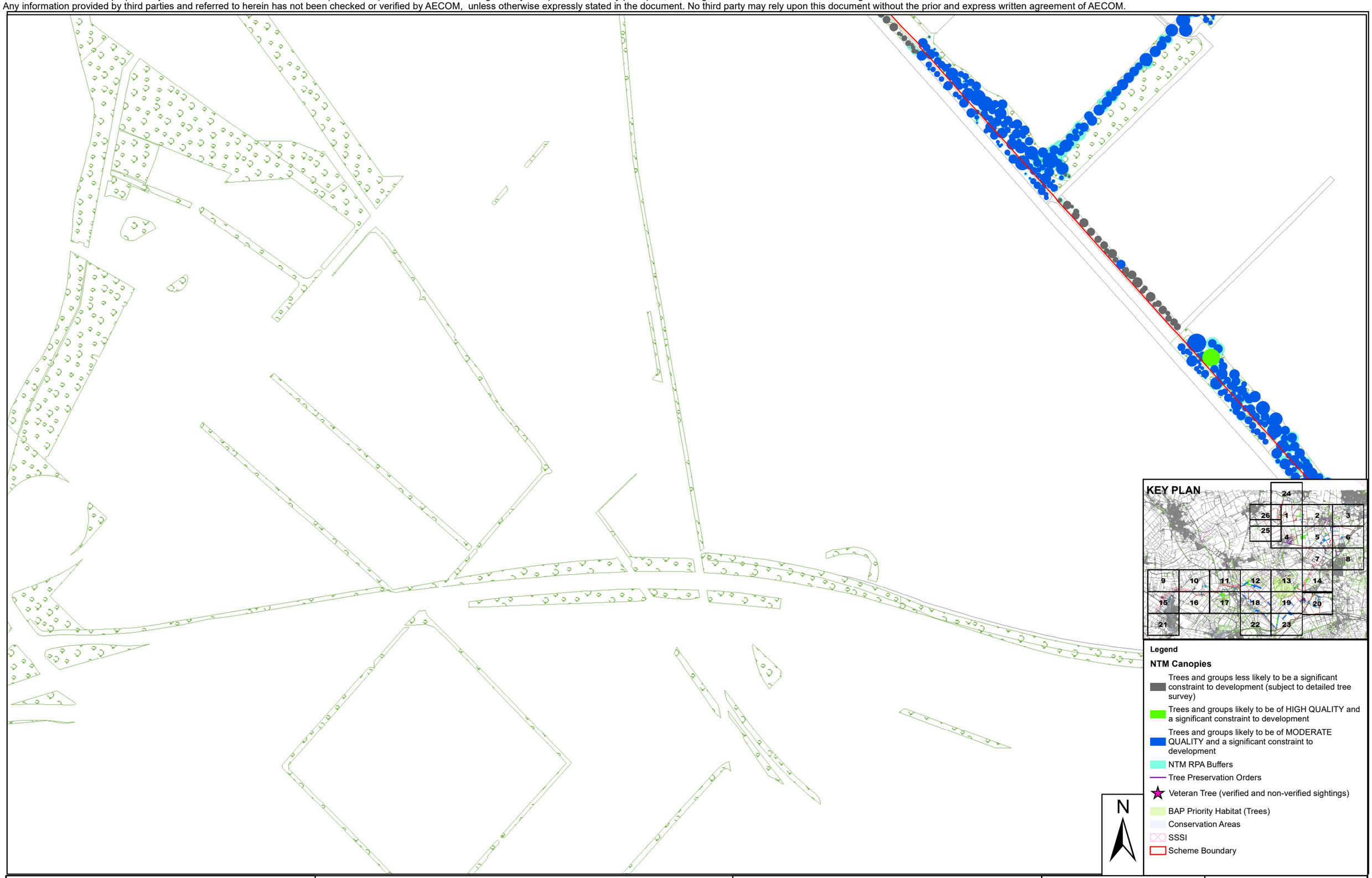
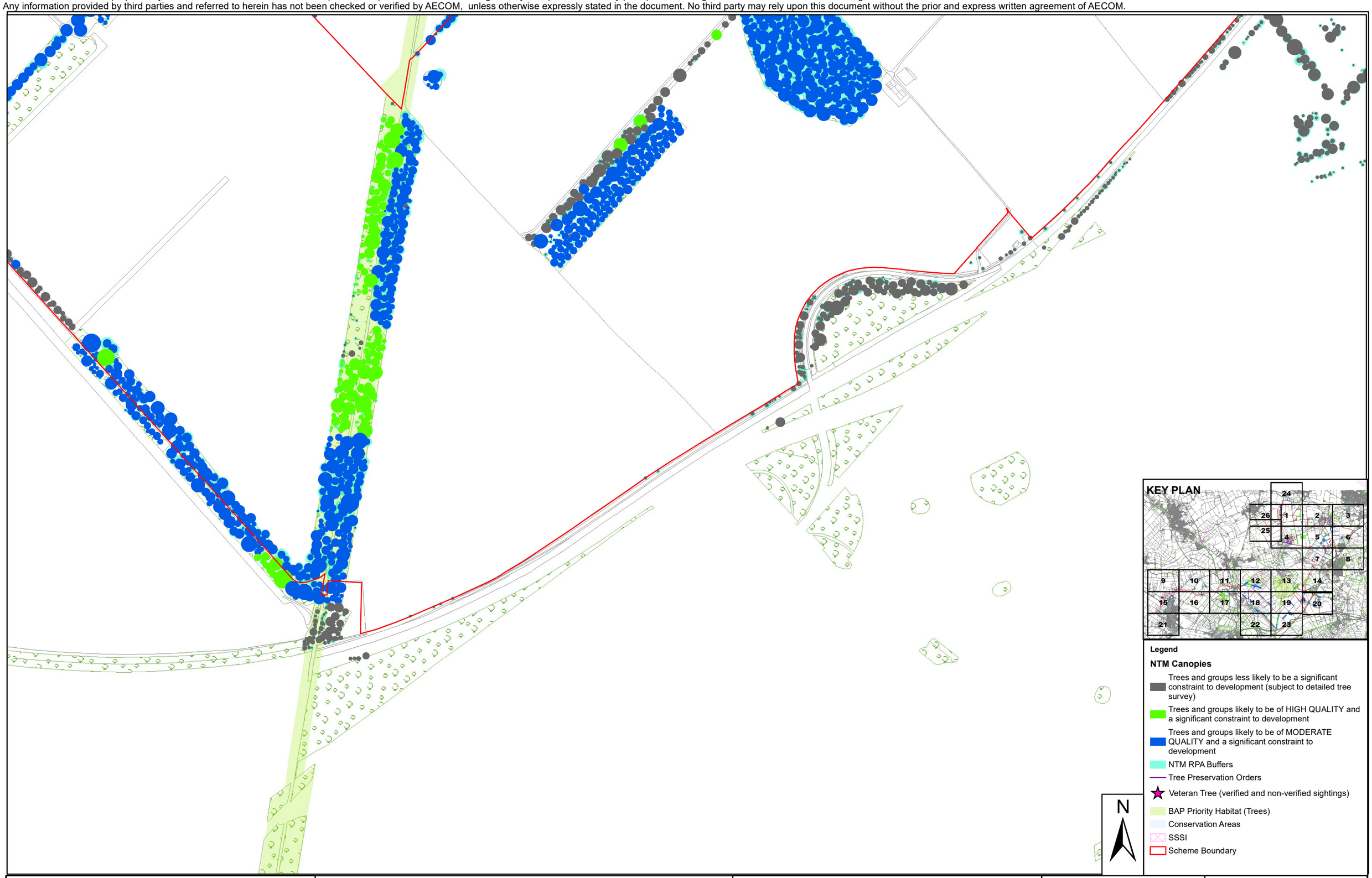
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

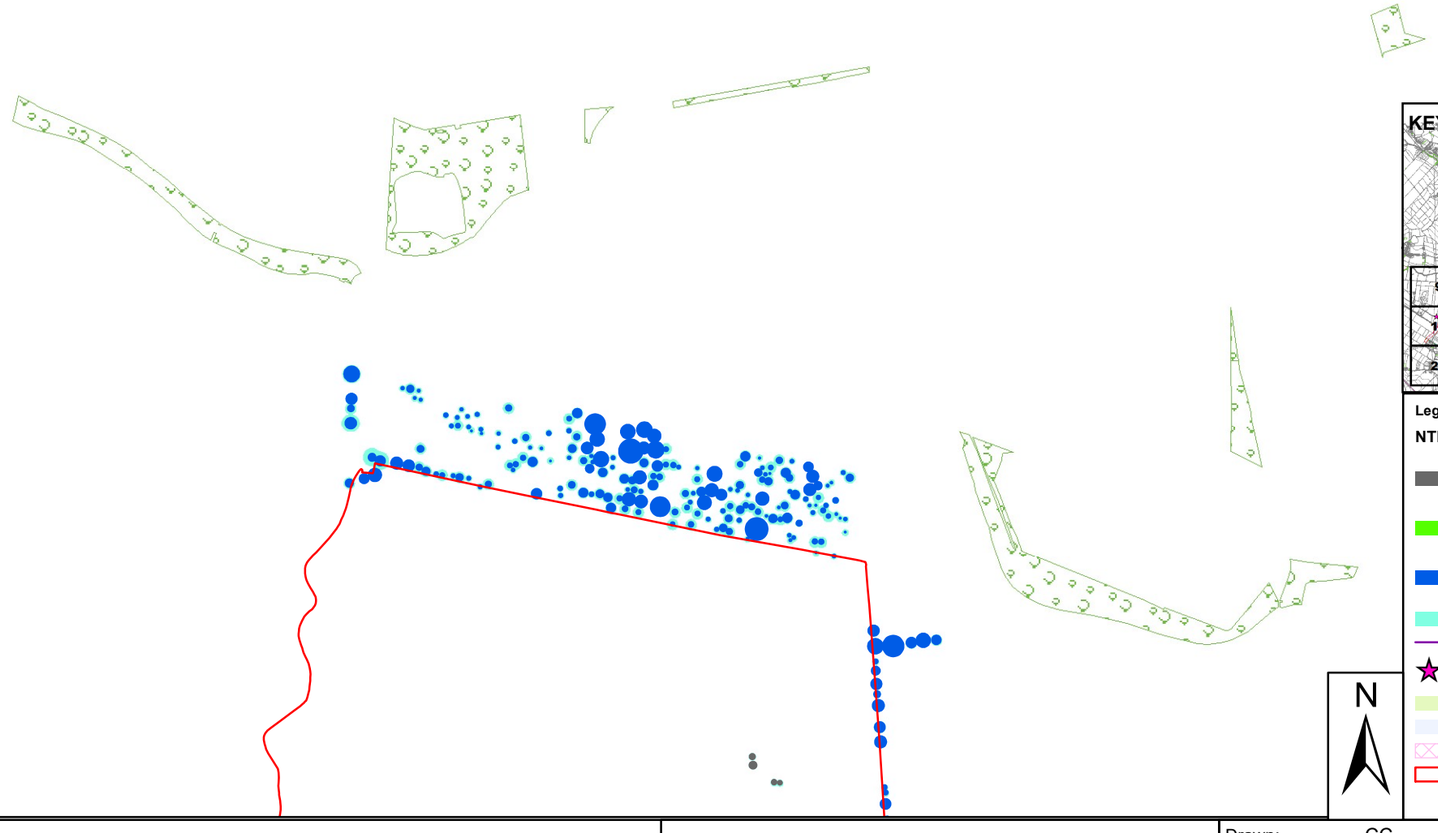
Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 21 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK
			Date: NOVEMBER 2021	Scale at A3: 1:6,450
			Drawing Number: 60589004_TREE_0021	A3

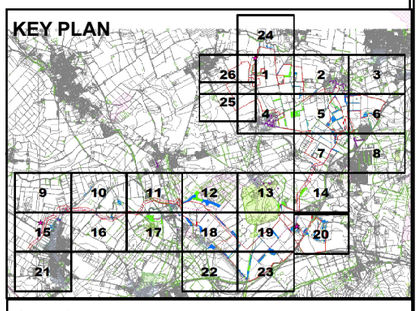


Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 22 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	T +44 (0) 1256 310 200 www.aecom.com	Drawn: CC	Checked: AW
Project: Sunnica Energy Farm				Verified: MR	Approved: AK
				Date: NOVEMBER 2021	Scale at A3: 1:6,450
				Drawing Number: 60589004_TREE_0022	A3



Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 23 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK
			Date: NOVEMBER 2021	Scale at A3: 1:6,450
			Drawing Number: 60589004_TREE_0023	A3





Legend

NTM Canopies

- Trees and groups less likely to be a significant constraint to development (subject to detailed tree survey)
- Trees and groups likely to be of HIGH QUALITY and a significant constraint to development
- Trees and groups likely to be of MODERATE QUALITY and a significant constraint to development
- NTM RPA Buffers
- Tree Preservation Orders
- Veteran Tree (verified and non-verified sightings)
- BAP Priority Habitat (Trees)
- Conservation Areas
- SSSI
- Scheme Boundary

N

Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 24 of 26	Drawn: CC	Checked: AW
Project: Sunnica Energy Farm		Verified: MR	Approved: AK
		Date: NOVEMBER 2021	Scale at A3: 1:6,450
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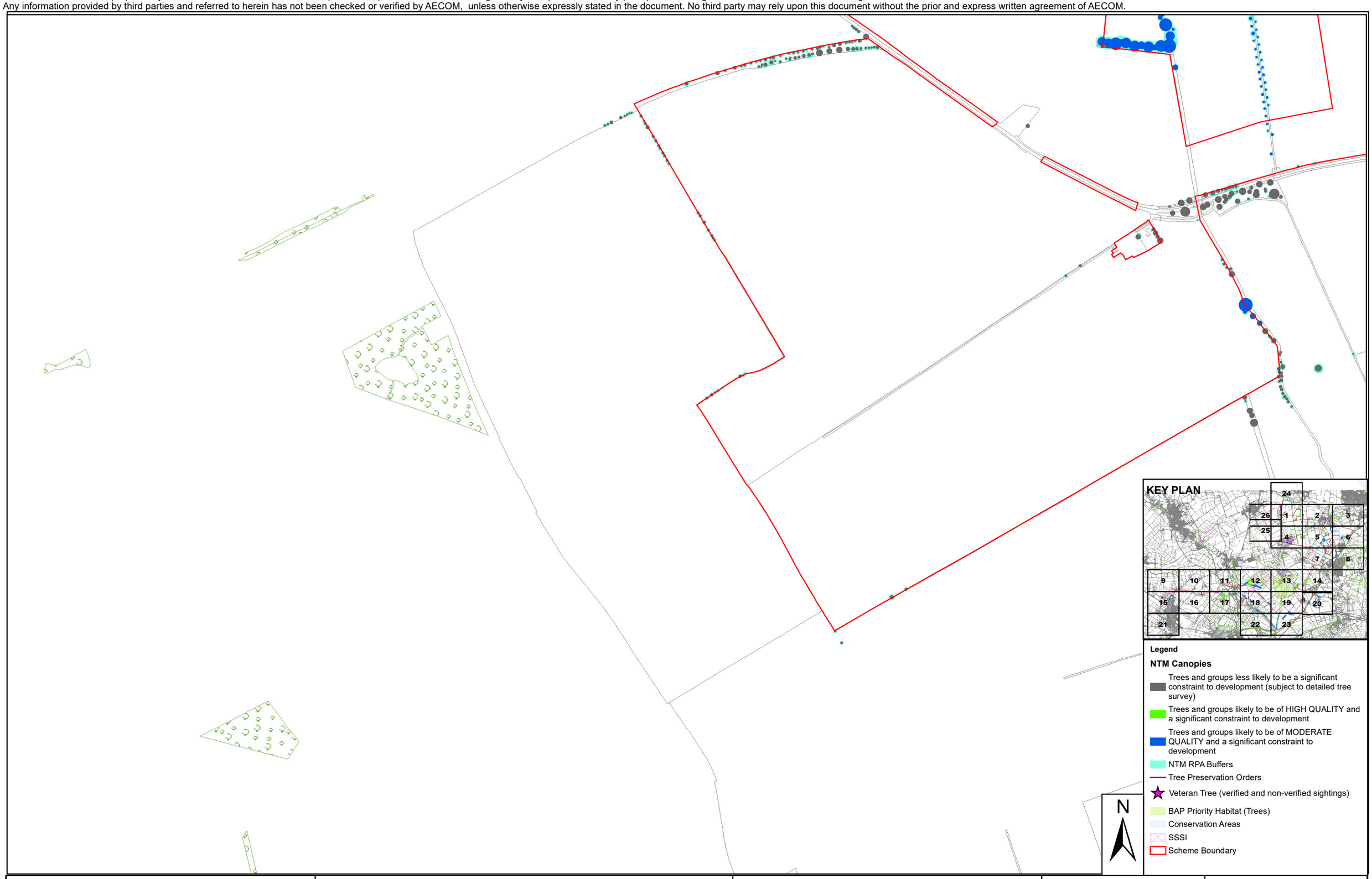
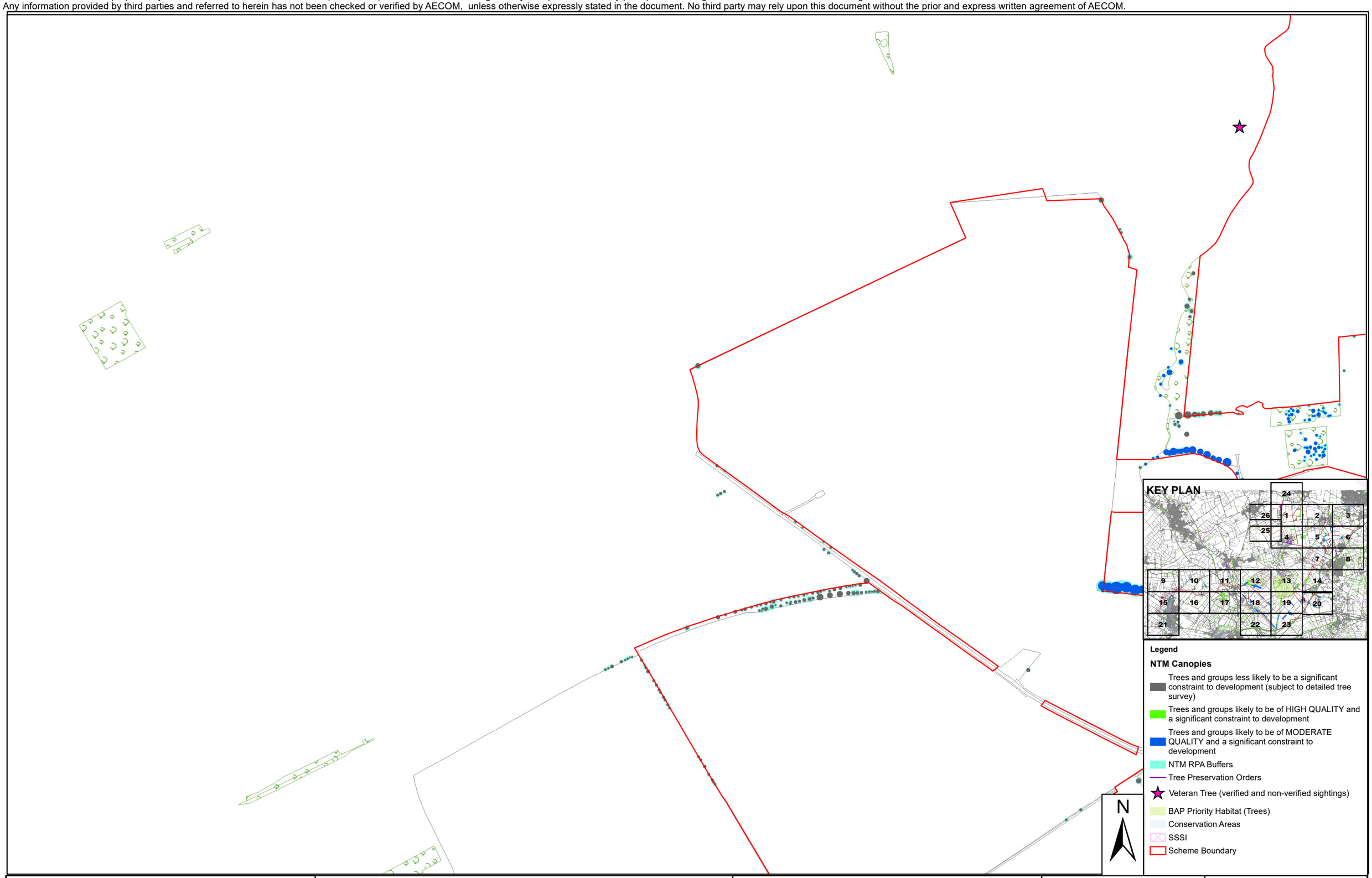
Scott House,
Alencon Link, Basingstoke,
Hants,
RG21 7PP
T +44 (0) 1256 310 200
www.aecom.com



Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 25 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK
			Date: NOVEMBER 2021	Scale at A3: 1:6,450
			Drawing Number: 60589004_TREE_0025	A3



Client: Sunnica Ltd	Title: High Level Tree Constraints Plan Sheet 26 of 26	Scott House, Alencon Link, Basingstoke, Hants, RG21 7PP	Drawn: CC	Checked: AW
Project: Sunnica Energy Farm		T +44 (0) 1256 310 200 www.aecom.com	Verified: MR	Approved: AK
			Date: NOVEMBER 2021	Scale at A3: 1:6,450
			Drawing Number: 60589004_TREE_0026	A3

Annex B Tree Survey Schedule (Burwell Substation)

Tree ID	Species	Estimated Height (m)	Stem Diameter (mm)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Works to Facilitate Proposed Development	Estimated Remaining Contribution	Category
G1*	Crack Willow (*Salix fragilis*), Unknown	15	500#	4.5	4.5	4.5	4.5	n/a	n/a	Good	EM-M	Good - Fair	Unable to fully access, main stems at an approx. 4.5m distance from footprint of road			20+	B2
G2*	Aspen (*Populus tremula*), Crack Willow (*Salix fragilis*)	11	250	2.5	2.5	2.5	2.5	n/a	n/a	Good	SM	Good - Fair	Planted row at arable field boundary, established north of boundary drainage ditch Planted row of aspen dominated single row at field boundary, some suppression of growth from crack willow groups at south			20+	B2
G3	Crack Willow (*Salix fragilis*), Unknown	13	400#	4	4	4	4	n/a	n/a	Good	EM-M	Good - Fair	Unable to fully access, main stems positioned at 4m distance from road edge			20+	B2
G4*	Crack Willow (*Salix fragilis*)	12	400#	4.5	4.5	4.5	4.5	n/a	n/a	Good	M	Fair	Unable to fully access. Co-dominant forms, ivy clad with mutual growth suppression			10+	C2
G5*	Hawthorn (*Crataegus monogyna*), Crack Willow (*Salix fragilis*), Aspen (*Populus tremula*)	11	150#	2.5	2.5	2.5	2.5	n/a	n/a	Good	SM	Good - Fair	Unable to fully access			10+	C2

Tree ID	Species	Estimated Height (m)	Stem Diameter (mm)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Works to Facilitate Proposed Development	Estimated Remaining Contribution	Category
G6*	Sycamore (*Acer pseudoplatanus*), Crab Apple (*Malus sylvestris*), Damson (*Prunus domestica*)	10	150	2.5	2.5	2.5	2.5	n/a	n/a	Good	SM	Good - Fair	Co-dominant sycamore group with emerging fruit tree understorey			10+	C2
G7	Sycamore (*Acer pseudoplatanus*)	11	150	3.5	3.5	3.5	3.5	n/a	n/a	Good	SM	Fair	Mutually suppressed forms			10+	C2
G8*	Sycamore (*Acer pseudoplatanus*)	9	150	2	2	2	2	n/a	n/a	Poor	SM	Fair - Poor	In decline due to fire damage from proximal burn pile, no current target value			<10	U2
G9	Sycamore (*Acer pseudoplatanus*)	12	150	3	3	3	3	n/a	n/a	Good	SM	Fair	Co-dominant forms, mutually suppressed		Part-remove as per accompanying Tree Protection Plan under arboricultural supervision to facilitate Option 2 Proposed Development layout	10+	C2
G10*	Sycamore (*Acer pseudoplatanus*)	15	500#	7	7	7	7	n/a	n/a	Good	EM-M	Good - Fair	Unable to fully access, bordering both sides of field boundary ditch, co-dominant mutually suppressed forms throughout		Part-remove as per accompanying Tree Protection Plan under arboricultural supervision to facilitate Option 1 and 2 Proposed Development layout	20+	B2

Tree ID	Species	Estimated Height (m)	Stem Diameter (mm)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Works to Facilitate Proposed Development	Estimated Remaining Contribution	Category
T11	Aspen (*Populus tremula*)	14	600,500#	1	1	1	1	n/a	3.5	Good	M	Poor	Unable to access. Strongly weighted towards (low occupancy) road, ivy clad and potentially propped by neighbouring trees	Fell - subject to tree ownership (When funds allow)	Works in accordance with Preliminary Management Comments	<10	U1
T12*	Norway Maple (*Acer platanoides*)	10	310	2.5	2.5	2.5	2.5	n/a	2.5	Fair - Poor	EM	Fair	In decline, leaf chlorosis and minor deadwood throughout			<10	U1
G13	Sycamore (*Acer pseudoplatanus*)	14	500#	5	5	5	5	n/a	n/a	Good	EM-M	Good	Unable to access. Co-dominant forms outside substation compound boundary			20+	B2
G14*	Weeping Willow (*Salix X chrysocoma*), Crack Willow (*Salix fragilis*), Sycamore (*Acer pseudoplatanus*), Alder (*Alnus sp*)	16	750#	8	8	8	8	n/a	n/a	Good	M	Good - Fair	Unable to access. Base of tree set back from road edge at an approx. 12m distance			20+	B2
G15*	Sycamore (*Acer pseudoplatanus*), Elder (*Sambucus nigra*)	13	300	3	3	3	3	n/a	n/a	Good	EM	Fair	At roadside with multiple bark wounds			10+	C2

Tree ID	Species	Estimated Height (m)	Stem Diameter (mm)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Works to Facilitate Proposed Development	Estimated Remaining Contribution	Category
H16*	Damson (*Prunus domestica*)	3	75	1	1	1	1	n/a	n/a	Good	EM	Good				10+	C2,3
G17*	Field Maple (*Acer campestre*)	14	500#	3	3	3	3	n/a	n/a	Good	EM-M	Good - Fair	Unable to fully access, co-dominant forms			20+	B2
G18	Crack Willow (*Salix fragilis*)	8	300	3	3	3	3	n/a	n/a	Good	EM	Fair	Below powerline			10+	C2
G19*	Crack Willow (*Salix fragilis*)	22	900#	9	4	6	6	n/a	n/a	Good	M	Good - Fair	Large prominent trees with mutual growth suppression. Unable to fully access, ivy clad multi stem unions at base, minor deadwood throughout			20+	B2,3
G20	Sycamore (*Acer pseudoplatanus*)	13	500#	4	4	4	4	n/a	n/a	Good	M	Good - Fair	Unable to fully access, ivy clad forms			20+	B2,3

Tree ID	Species	Estimated Height (m)	Stem Diameter (mm)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Works to Facilitate Proposed Development	Estimated Remaining Contribution	Category
G21	Crack Willow (*Salix fragilis*), Weeping Willow (*Salix X chrysocoma*), Sycamore (*Acer pseudoplatanus*)	18	800	7	7	7	7	n/a	n/a	Good	M	Good - Fair	At adjacent side of ditch from road, dominated by large crack willow with minor deadwood throughout, remainder of group mutually suppressed		Remove to facilitate Option 1 Proposed Development layout	20+	B2
T22*	English Elm (*Ulmus procera*)	6	100	1.5	1.5	1.5	1.5	n/a	n/a	Dead	Y	Dead	Dead tree		Remove to facilitate Option 1 Proposed Development layout	<10	U1
T23	Elm (*Ulmus sp*)	14	700#	7	7	7	7	3.0/E	1	Good	M	Good - Fair	At adjacent side of ditch, unable to fully access			20+	B1,3
T24*	Sycamore (*Acer pseudoplatanus*)	9	200#	2	2	2	2	n/a	n/a	Good	SM	Good - Fair	Unable to access			10+	C1
G25*	Goat Willow (*Salix caprea*), Hawthorn (*Crataegus monogyna*), Elder (*Sambucus nigra*), Elm (*Ulmus sp*)	6	150#	2	2	2	2	n/a	n/a	Good	EM	Fair	Denotes field boundary, unable to access			10+	C2
G26*	Crack Willow (*Salix fragilis*), Hawthorn (*Crataegus monogyna*)	6	150#	2	2	2	2	n/a	n/a	Good	EM	Good - Fair	Unable to fully access, denotes boundary			10+	C2,3

Tree ID	Species	Estimated Height (m)	Stem Diameter (mm)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Works to Facilitate Proposed Development	Estimated Remaining Contribution	Category
T27*	Hawthorn (*Crataegus monogyna*)	7	250#	2.5	2.5	2.5	2.5	1.0/S	1	Good	EM	Good	Unable to fully access			10+	C1
G28*	Goat Willow (*Salix caprea*)	6	150#	2.5	2.5	2.5	2.5	n/a	n/a	Good	EM	Fair	Denotes field boundary, unable to access		Remove to facilitate Option 1 Proposed Development layout	10+	C2
T29	Lawson Cypress (*Chamaecyparis lawsoniana*)	13	450#	3	3	3	3	n/a	n/a	Good	M	Good - Fair	Unable to fully access, at adjacent side of ditch, ivy clad main stem			10+	C1,2
G30*	Elder (*Sambucus nigra*), Lawson Cypress (*Chamaecyparis lawsoniana*)	8	150	1.5	1.5	1.5	1.5	n/a	n/a	Fair - Poor	EM	Fair - Poor	Both in decline, cypress with larger stem at adjacent side of ditch, no target value		Remove to facilitate Option 1 Proposed Development layout	<10	U2
T31*	Unknown	6	800	2	2	2	2	n/a	n/a	Dead	M	Dead	Ivy clad monolith, no current target value		Remove to facilitate Option 1 Proposed Development layout	<10	U1,3

Tree ID	Species	Estimated Height (m)	Stem Diameter (mm)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Works to Facilitate Proposed Development	Estimated Remaining Contribution	Category
G32*	Ash (*Fraxinus excelsior*)	1	900#	7	7	7	7	n/a	n/a	Good - Fair	M	Fair	Main stems at approx.6m distance from road edge (roadside of ditch). Unable to fully inspect. Ivy clad main stems and inner crowns, minor deadwood throughout. Weighted from mutual suppression.	Sever ivy (< 12 months)		20+	B2,3
G33*	Ash (*Fraxinus excelsior*)	13	450#	5	5	5	5	n/a	n/a	Good	M	Good - Fair	Unable to fully access, at adjacent side of ditch			20+	B2
G34*	Goat Willow (*Salix caprea*), Hawthorn (*Crataegus monogyna*), Elder (*Sambucus nigra*), Elm (*Ulmus sp*)	6	150#	2	2	2	2	n/a	n/a	Good	EM	Fair	Denotes field boundary, unable to access			10+	C2
G35*	Ash (*Fraxinus excelsior*)	17	500	6	6	6	6	n/a	n/a	Good	M	Good - Fair	Co-dominant forms with collective landscape value			20+	B2
G36*	Field Maple (*Acer campestre*)	10	500#	3	3	3	3	n/a	n/a	Good	M	Good - Fair	Unable to fully access, majority of group below overhead powerline			10+	C1,2

Tree ID	Species	Estimated Height (m)	Stem Diameter (mm)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Works to Facilitate Proposed Development	Estimated Remaining Contribution	Category
T37	Ash (*Fraxinus excelsior*)	13	800	7	7	7	7	3.0/S	2.5	Good	M	Good - Fair	Ivy clad main stem and inner crown, multi stem from a 1.5m height above ground level			20+	B1,3
G38*	Ash (*Fraxinus excelsior*), Crack Willow (*Salix fragilis*), Aspen (*Populus tremula*), Sycamore (*Acer pseudoplatanus*)	6	600#	5	5	5	5	n/a	n/a	Good - Fair	EM	Fair	Unable to access, comprising of suppressed or structurally weighted forms		Part-remove as per accompanying Tree Protection Plan under arboricultural supervision to facilitate Option 1 Proposed Development layout	10+	C2
T39*	Crack Willow (*Salix fragilis*)	22	900	7	7	7	7	n/a	5	Good	M	Fair	Dominant tree within group, some failed branches throughout, lapsed pollard	Re pollard above previous points subject to tree ownership (When funds allow)		20+	B1,2
T40*	White Poplar (*Populus alba*)	16	500,400,350#	6	6	6	6	n/a	4	Good - Fair	M	Fair	Unable to fully inspect, dense ivy at base. Multi stem from base. Multiple branch failures throughout lower crown, slightly sparse canopy.	Remove hanging branch over road (Asap)		10+	C1,2,3

Tree ID	Species	Estimated Height (m)	Stem Diameter (mm)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Works to Facilitate Proposed Development	Estimated Remaining Contribution	Category
T41	Crack Willow (*Salix fragilis*)	16	600,600,500,450	5	5	1	4	n/a	1	Good	M	Fair	Multi stem union at 1m, cyclically cleared from proximal power line at east side, remaining form is west weighted			10+	C1,2

Annex C Precautionary Arboricultural Method Statement

1 Precautionary Arboricultural Method Statement (PAMS)

1.1.1 This document provides the Precautionary Arboriculture Method Statement for the Scheme. Should consent be granted the appointed contractor will produce a detailed Arboricultural Method Statement, this will be secured through the CEMP in Appendix 16C of this Environmental Statement **[EN010106/APP/6.2].** All site personnel must be made fully aware of its contents and the implications for work they may be involved in. All elements of the agreed detailed Arboricultural Method Statement must be adhered to in full. No changes may take place to the content or application of the detailed Arboricultural Method Statement without the prior written approval of the Arboriculturist.

1.2 Order of operations

1. Formal appointment of an arboriculturist and LPA notification of tree related impacts
2. Confirmation of preliminary tree works by the appointed Arboriculturist (where required)
3. Notification and consent of tree works with relevant landowner and/or LPA (where required)
4. Pre-commencement site meeting
5. Preliminary tree works
6. Scheme briefing for site personnel
7. Programme of site monitoring
8. Installation of protective fencing as advised by the appointed Arboriculturist
9. Construction operations including installation or diversion of services in proximity to trees under arboricultural supervision
10. Site signed off on agreed completion of significant development works
11. Dismantling of tree protection measures

1.3 LPA notification of preliminary tree works and tree related impacts

1.3.1 Prior to any works taking place, a pre-construction tree survey will be undertaken and the status of trees to be pruned or removed (if required) and a written summary of the anticipated tree related impacts must be compiled by the appointed site Arboriculturist. This should be accompanied by a tree works specification which identifies trees to be felled or pruned to facilitate the Scheme.

1.3.2 The findings of this work will be included within an Arboriculture Report, which will be accompanied by an Arboricultural Method Statement which will set out mitigation and protection measures to be undertaken. The findings and recommendations of these will be taken into account by the appointed contractor.

1.3.3 Any required tree works are to be completed by suitably qualified and insured contractors and must take place before protective fencing is installed and any site works begin.

1.3.4 All tree works must be carried out in line with the principles of BS3998: 2010 Tree work – recommendations will be conducted in such a way that no damage is caused to any tree to be retained. Any appointed tree works contractor must avoid disturbance, such as the production of ruts, on unmade ground.

1.3.5 Tree clearance works should be reviewed within the Order limits in advance and where feasible trees be retained and protected. Consideration should also be given to the potential for trees to be coppiced or formalised into managed hedgerows as an alternative to removal.

1.3.6 Where part of a tree group is to be removed, or, where extensive tree removals are required which could leave retained trees exposed; retained trees must be subject to a walkover assessment by the appointed Arboriculturist to determine the suitability and stability of retained trees and to advise on any additional pruning or removals required to address any loss of companion shelter.

1.3.7 If further additional tree works are deemed to be required during the development, the advice of the appointed Arboriculturist is to be obtained.

1.3.8 Tree ownership must be confirmed in advance of any tree clearance works and the consent of the tree owner obtained (where relevant). It is strongly recommended that this is resolved at the earliest possible stages.

1.3.9 Prior to the commencement of any tree works a thorough check for protected species (including nesting birds, bats and badgers) is to be undertaken. If evidence of any protected species is discovered the advice of the appointed Ecological Clerk of Works must be obtained. Tree works are to be undertaken outside of the typical nesting bird season (March to September). Outside of this period any individual trees will be inspected for evidence of nesting birds by a suitably qualified person prior to works being carried out.

1.4 Scheme briefing for site personnel

1.4.1 The appointed Arboriculturist is responsible for ensuring that all personnel are made fully aware of the constraints posed by retained trees in relation to the Scheme and the measures in place to ensure that they are protected, including having full on-site access to the detailed Arboricultural Method Statement .

1.4.2 It is good practice for the appointed Arboriculturist to be involved in the Scheme briefing to ensure all constraints and tree protection measures are clearly understood by site construction workers.

1.4.3 A Tool Box Talk shall be provided to the site personnel to highlight the need for safe driving of plant and working within the defined corridor to ensure that the risk of accidents and resulting potential damage to trees not covered by tree protection measures are significantly reduced. A copy of the detailed Arboricultural Method Statement must be available in the designated Scheme main office at all times.

1.5 Site monitoring

1.5.1 An auditable system of site monitoring shall be established to guide contractors on site to ensure that tree protection measures are implemented and adhered to.

1.5.2 This includes site visits by the appointed Arboriculturist to confirm the correct installation of protective fencing, to oversee sensitive elements of works within the Root Protection Areas (RPAs) of retained trees, to review the suitability and stability of retained sections of tree groups following removals and to sign off the Scheme when works are completed and tree protection fencing can be dismantled.

1.6 Installation of tree protection fencing

1.6.1 In advance of tree protection fencing installation, RPA measurements of retained trees shall be confirmed by the appointed Arboriculturist. The final position of fencing must be confirmed on site by the Arboriculturist.

1.6.2 The default position as set out by BS 5837:2012 is that retained trees must be protected from construction operations with the erection of robust protective fencing positioned on the outer edge of the RPA or crown spread (whichever is greatest). In accordance with Natural England and The Forestry Commission guidance (2018), RPAs shall be increased for proximal veteran trees as confirmed by the Arboriculturist.

1.6.3 All site operations will be restricted to the area outside of tree protection fencing and this area will form a Construction Exclusion Zone (CEZ) unless agreed otherwise. Protection measures will be installed around the RPA or canopy spread of retained tree features.

1.6.4 The area inside the fence and any additional tree protection measures will be sacrosanct and must not be removed or altered without the prior approval of the Arboriculturist. Any damage to tree protection measures must be reported immediately.

1.6.5 Tree protection fencing shall be constructed with robust vertical and horizontal scaffold framework with weldmesh panels (e.g. Heras or equivalent) firmly attached in accordance with BS 5837:2012 Figure 2. Vertical support poles and bracing poles must be located with care to avoid underground utility services and will be sited to avoid the structural roots of retained trees. Where driven supports are inappropriate or impractical, panels will be footed in block trays or equivalent.

1.6.6 Alternative equivalent robust and immovable fencing specification including site hoarding will also be appropriate. Suitable all-weather signage will be fixed to fencing to notify site staff and visitors of the construction exclusion zone and its purpose.

1.6.7 Failure to fully respect the positioning of barriers and tree protection measures may result in temporary stop notices or other enforcement action and is likely to require the use of a more onerous barrier specification and potentially expensive remedial works.

1.6.8 When entering and exiting the Scheme, the fencing contractor must avoid the production of ruts on unmade ground. Protective fencing and ground protection

shall stay in place until all construction operations are completed and removal is agreed with the Arboriculturist.

1.7 Ground Protection

1.7.1 In general, tree protection fencing will ensure an effective CEZ is maintained for all retained trees.

1.7.2 Where the Scheme requires unavoidable access within the RPA of a retained tree, fit for purpose ground protection must be in place which is sufficient to protect the structure of the soil from damage based on the heaviest anticipated load. This must be installed prior to the commencement of any development activity in proximity to retained trees on the Site and be signed off by the Arboriculturist.

1.7.3 As set out in section 6.2.3.3 of BS5837:2012, the following ground protection measures will be appropriate if deemed necessary by the Site Arboriculturist:

1.7.4 Suitable ground protection for pedestrian only access will comprise a single thickness of appropriate boarding/ matting set on a compressible layer of 100mm of woodchip or sharp sand on a geotextile separation layer

1.7.5 Pedestrian operated plant up to two tonnes in weight would require the use of a proprietary ground protection system (such as Ground Guards, Eki mats, Eve Trakway or equivalent) set on a minimum depth of 150mm woodchip or sharp sand

1.7.6 Heavier loads will require ground protection to an engineering specification in conjunction with arboricultural advice.

1.7.7 As a guide, the threshold beyond which root development is significantly affected is a bulk density ranging from 1.4g per cm^3 for clay soils, to 1.75g per cm^3 for sandy soils.

1.7.8 The existing hard surfacing will act as suitable ground protection where present and must be retained in situ unless otherwise approved by the Arboriculturist.

1.7.9 Tree protective measures shall stay in place until all construction operations are completed and removal is agreed with the appointed Arboriculturist.

1.8 Movement of Vehicles and People and the Movement and Operation of Machinery

1.8.1 Construction works and in particular the use of machinery must be carefully co-ordinated to avoid damage to retained trees. A banksman must be in place for any operations which occur within 5m of any part of a retained tree. Protective fencing will be in place to ensure tree canopies and root systems are fully protected during the main construction works.

1.8.2 Fencing can be set back at a later stage to facilitate more sensitive works such as the installation of services in proximity to retained trees (where relevant) which will be carried out following approval by the Arboriculturist; by pedestrian only access utilising fit for purpose ground protection as detailed in Section 10.8 (under the supervision of the Arboriculturist).

1.9 Site organisation, storage and mixing of materials

1.9.1 The location of site compounds and storage areas will be agreed in advance with the Arboriculturist.

1.9.2 Before any work begins the outer fence for compounds and stockpile sites will be set out and the Site Arboriculturist will confirm the position of fencing to ensure adjacent retained trees are fully protected.

1.9.3 The storage and mixing of materials and any re-fuelling shall take place at least 5m from the RPA of any retained trees and also take into account any potential for run off. Where this is an issue measures such as bunding with robust impermeable polythene sheeting and sandbags must be put in place to prevent accidental run off reaching the rooting zone of retained trees.

1.9.4 No changes in ground level are permitted within the RPA of a retained tree.

1.9.5 No fires shall take place within an RPA or within 5m of any part of a retained tree. No signs, cables or other items are to be attached to any part of a retained tree (with the exception of approved ecological habitat mitigation features).

1.10 General principles for the management of tree roots

1.10.1 Where agreed by the Site Arboriculturist, excavation by hand tools or compressed air takes place within a RPA the following principles will apply:

1.10.2 Individual or small groups of roots less than 25mm in diameter will be retained where possible but can be severed with a sharp tool such as secateurs or pruning saws to leave a clean-cut end (ideally 100mm back from the face of the excavation to account for future regrowth) where they pose an obstruction.

1.10.3 Where roots are encountered which are larger than 25mm in diameter or where significant groups of smaller roots are found, the advice of the Site Arboriculturist must be sought to decide an appropriate course of action.

1.10.4 Roots must only be exposed for the minimum period possible. In the interim period any exposed roots (including the face of any excavation within an RPA) must be completely covered with dampened hessian sacking (which may require ongoing re-wetting) to avoid drying out and exposure to light. Backfill for excavations should ideally utilise the parent material and must not be significantly compacted.

1.11 Installation of New Access Trackways within RPAs

1.11.1 In order to maintain a growing environment which is able to support the long-term growth of trees, and to avoid the requirement for an excavated subbase (which would result in root severance). Any new surfacing within RPAs where required should be built on top of existing ground levels (using no-dig techniques) and its construction should be engineer designed, adapted to the intended gross vehicle weight. This can be achieved using a proprietary raft or tile system such as Cellweb, ArborRaft or equivalent.

1.11.2 All new installed surfacing should allow a minimum 0.5m distance from the base of trees. Any edging within RPAs must be installed without excavation and can

utilise pinned methods including proprietary systems such as StableEDGE or equivalent such as a kerb cast directly into the raft.

1.11.3 Installation within RPAs should be supervised by the appointed Arboriculturist. All machinery and construction activity should be positioned either on ground protection or outside of the RPAs of retained trees at all times to prevent root disturbance. The new surface must be rolled out. Machinery must reach towards retained trees and work backwards to reduce any potential for damage to stems or branches of retained trees. No access onto soft ground within an RPA will be permitted.

1.12 Earthworks

1.12.1 Any required earthworks shall be positioned outside the RPA or canopy spread (whichever is greatest) of retained trees as confirmed by the Arboriculturist. Where earthworks are required within the RPA or canopy of retained trees, the Arboriculturist will be consulted and a methodology agreed prior to any works being carried out.

1.12.2 Where the movement of any part of any plant is required within 5m of any part of a retained tree a banksman will supervise the operation. If additional tree works are required these will be discussed in advance with the Arboriculturist.

1.12.3 Where non-structural fill involving only small increases (up to 200mm) in ground level is required (such as to tie in to existing levels), this will be agreed with the Arboriculturist in advance and achieved using free draining inert granular material only (such as sharp sand or free draining topsoil) which must not be significantly compacted (e.g. light hand tamping only).

1.13 Installation of tree protection fencing, security fencing and CCTV footings in proximity to retained trees

1.13.1 New CCTV footings and security fencing positions will be adjusted to avoid the canopy spread or RPA (whichever is greatest) of retained trees as confirmed by the Arboriculturist.

1.13.2 Where fencing positions or footings within RPAs are unavoidable, the appointed Arboriculturist shall be notified in advance. Where relevant, positions will be as far from retained trees as possible and the footing will be the smallest dimensions feasible (which could include the use of screw piles or equivalent). The excavation will be dug by hand or vacuum excavator under the supervision of the Arboriculturist and where significant roots are encountered the footing location will be micro-sited locally to avoid the requirement for significant root pruning as fully as possible.

1.13.3 Where uncured concrete is to be applied, this will be the driest mix feasible and the excavation will be lined with an impermeable membrane to prevent leaching into soil.

1.14 Removal of existing services

1.14.1 Where existing services are to be removed or diverted; the default position is that redundant cabling must be winched out from an access/ inspection chamber located outside of an RPA or left in situ.

1.14.2 The final methodology for utility removals will be developed and agreed with the Utility Contractor and appointed Arboriculturist.

1.14.3 Where sewers/ drainage pipes are to be decommissioned within the RPA of a retained tree, pipe work will be sealed off and will not be removed via excavation within the RPA of a retained tree. Redundant pipe work can be filled with an inert material or if confirmed to be fully watertight may be filled with foamed concrete applied from an access point located outside the RPA of all retained trees. Concrete must be managed in accordance with this PAMS.

1.15 Diversion and installation of services (including cables) within RPAs

1.15.1 The default position is that all diverted or new services be located outside of the RPA of retained trees. Where it is not feasible to fully avoid the RPA of retained trees, the final methodology for utility diversion will be developed and agreed with the Utility Contractor and Arboriculturist.

1.15.2 Where possible new or diverted utilities will be installed using trenchless techniques. Where possible, it may be acceptable for shallow service runs to be installed via hand excavation where significant tree roots can be retained and worked around.

1.16 Use of trenchless techniques

1.16.1 Where possible cables will be installed using trenchless methods within or near the RPA of retained trees. Insertion and retrieval pits must be located outside of the RPA of retained trees. The depth of the run must be at least 1.5m below ground level and should be located as far from the tree as possible. The mole must be lubricated with water only.

1.16.2 Installation must follow the principles set out in the National Joint Utilities Group (NJUG) Vol 4: Guidelines for the planning, installation, and maintenance of utility apparatus in proximity to trees (issue 2) and BS5837 Section 7.7.

1.17 Trenching techniques

1.17.1 Where new cables must be positioned within the RPA of a retained tree and cannot be installed via trenchless methods, the Arboriculturist shall be notified in advance.

1.17.2 Where possible services shall be installed following the principles set out in the National Joint Utilities Group (NJUG) Vol 4: Guidelines for the planning, installation, and maintenance of utility apparatus in proximity to trees (issue 2).

1.17.3 Hand digging may be employed to achieve shallow surface runs which can be positioned to avoid significant tree roots (greater than 25mm diameter). The excavation will be located as far from the stem of the tree as possible and must be carried out by hand (ideally using compressed air such as an Air Spade and soil vacuum) under the supervision of the appointed Arboriculturist.

1.17.4 Protective fencing will be set back to facilitate localised access to facilitate this work (following the prior approval of the Arboriculturist) and to allow a maximum working space of 0.5m on either side of the trench location. Pedestrian only

access will be permitted, and ground protection measures will be employed with fencing positioned immediately adjacent to restrict any further access into RPAs.

1.17.5 Excavation will be supervised by the Site Arboriculturist who will be on hand to advise on the management of any roots encountered and to ensure the approved tree protection methodology is fully adhered to. Roots smaller than 25mm in diameter can be cut with a clean sharp tool where they pose an obstruction.

1.17.6 Should significant roots (larger than 25mm diameter or large clumps of smaller roots) be encountered these will be retained and wrapped in dampened hessian to prevent drying out and pipes will be routed around them wherever possible. If significant roots are encountered which cannot be feasibly worked around and retained the Site Arboriculturist will advise on appropriate next steps.

1.17.7 All spoil/ arisings from excavation will be placed onto ground protection boards to prevent compaction, ground level changes and to assist in removal or reinstatement. Backfill is to utilise the excavated parent material where feasible, applied to restore the soil profile to its original structure (i.e. topsoil will be installed last) and must be lightly hand tamped only.

1.17.8 Following service installation within RPAs, ground protection will be removed, and the original position of protective fencing will be reinstated under supervision of the Arboriculturist.

1.18 Soft landscaping works

1.18.1 Where new soft landscaping is proposed within the RPA of retained trees the Arboriculturist shall be notified in advance and the following principles must be observed:

1.18.2 Soil levels must be maintained at existing levels, not more than a maximum of 200mm of free draining topsoil is to be added to ground within the RPA of retained trees and this must avoid the area immediately around the stem base of existing trees (minimum offset of 0.5m).

1.18.3 No rotovating of the soil will be permitted within RPAs, any excavation for new planting must be hand dug by pedestrian only contractor access. Where significant tree roots are present during excavation for new planting, positions of new plants will be adjusted to avoid root damage.

1.18.4 Soil must be backfilled to match the original soil profile and backfill must not be significantly compacted but can be heeled in layers of 300-400mm.

1.18.5 Any plant or machinery must be positioned outside of RPAs or be sited on fit for purpose ground protection which must be agreed in advance with the Arboriculturist.

1.19 Dismantling of tree protection measures

1.19.1 All protective fencing and ground protection must remain in place until all significant scheme works have been completed and written approval has been obtained from the Arboriculturist.

1.20 Contact details in relation to arboricultural works

Scheme Manager:	To be confirmed
Appointed Arboriculturist:	To be confirmed
Local Planning Authority Tree Officer(s):	To be confirmed

Annex D Tree Constraints Plan (Burwell Substation Area)

Author: LH Designer: LH Checked: TF Approved: AW

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GENERAL NOTES

1. TREE CATEGORIES AS DEFINED BY BS 5837:2012
2. TREE LOCATIONS ARE BASED ON THE TOPOGRAPHICAL SURVEY, AERIAL IMAGERY, AND GPS CO-ORDINATES FROM ON SITE WALKOVER.
3. * INDICATES A TREE / GROUP WHOSE POSITION IS APPROXIMATE AS BASED UPON AERIAL PHOTOGRAPHY AND ON SITE OBSERVATIONS.
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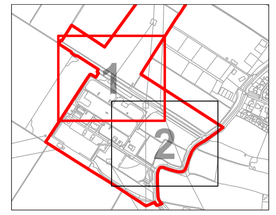
KEY PLAN



KEY

- SITE BOUNDARY
- A CATEGORY TREE, GROUP, HEDGE, OR WOODLAND *(HIGH QUALITY & VALUE)*
- B CATEGORY TREE, GROUP, HEDGE, OR WOODLAND *(MODERATE QUALITY & VALUE)*
- C CATEGORY TREE, GROUP, HEDGE, OR WOODLAND *(LOW QUALITY & VALUE)*
- U CATEGORY TREE, GROUP, HEDGE, OR WOODLAND *(UNSUITABLE FOR RETENTION)*
- ROOT PROTECTION AREAS (RPA) *(AS DEFINED BY BS 5837:2012)*
- APPROXIMATE SHADING ARC *(AS DEFINED BY BS 5837:2012)*

ISSUE/REVISION

P01	13.08.21	FIRST ISSUE
I/R	DATE	DESCRIPTION

DRAWING STATUS

ISSUE

PROJECT NUMBER

60589004

SHEET TITLE

TREE CONSTRAINTS PLAN
(SHEET 01)

SHEET NUMBER **REV.**

60589004-ACM-XX-XX-AB-TCP-001 P01

Author: LH Designer: LH Checked: TF Approved: AW

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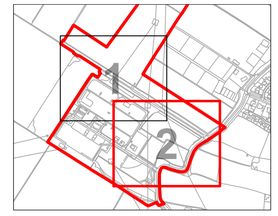

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ISSUE

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60589004

SHEET TITLE

TREE CONSTRAINTS PLAN
(SHEET 02)

SHEET NUMBER 60589004-ACM-XX-XX-AB-TCP-002

REV. P01

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Annex E Tree Protection Plans (Options 1 and 2)

Author: LH Designer: LH Checked: TF Approved: AW

Area of 10m width allowance for cable access route, exact position as yet to be fully confirmed. Suitability for tree retention to be determined by an appointed arboriculturist when route position finallised.

0 5 10 15 20 25 30 35 40 45 50m

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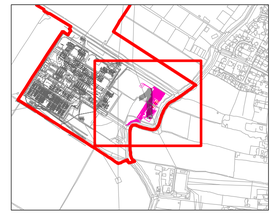
KEY PLAN



KEY

- SITE BOUNDARY
- EXISTING TREE, GROUP, WOODLAND, OR HEDGE TO BE RETAINED
- EXISTING TREE, GROUP, WOODLAND, OR HEDGE TO BE REMOVED
- ROOT PROTECTION AREA OF RETAINED TREES *(AS DEFINED BY BS 5837:2012)*
- TPF TREE PROTECTION FENCING
- CONSTRUCTION EXCLUSION ZONE *(TRACKING OF PLANT, MATERIALS STORAGE, EXCAVATION AND ALL OTHER CONSTRUCTION ACTIVITIES ARE EXCLUDED WITHIN THESE AREAS FOR THE PURPOSES OF PROTECTING TREE HEALTH)*
- CONSTRUCTION WORKING ZONE *(MANAGED CONSTRUCTION PROCESSES PERMITTED IN ACCORDANCE WITH THE PRINCIPLES SET OUT WITHIN THE ARBORICULTURAL IMPACT ASSESSMENT)*
- PROPOSED DEVELOPMENT LAYOUT *(BASED UPON DRAWING REFERENCES LISTED IN THE GENERAL NOTES SECTION)*

ISSUE/REVISION

I/R	DATE	DESCRIPTION
00	18.11.21	APPLICATION VERSION

DRAWING STATUS

ISSUE

PROJECT NUMBER

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SHEET TITLE

TREE PROTECTION PLAN
OPTION 1
(SHEET 01)

SHEET NUMBER 60589004-ACM-XX-XX-AB-TPP-001

REV. 00

Author: LH Designer: LH Checked: TF Approved: AW

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KEY PLAN

KEY

- SITE BOUNDARY
- EXISTING TREE, GROUP, WOODLAND, OR HEDGE TO BE RETAINED
- EXISTING TREE, GROUP, WOODLAND, OR HEDGE TO BE REMOVED
- ROOT PROTECTION AREA OF RETAINED TREES *(AS DEFINED BY BS 5837:2012)*
- TPF TREE PROTECTION FENCING
- CONSTRUCTION EXCLUSION ZONE *(TRACKING OF PLANT, MATERIALS STORAGE, EXCAVATION AND ALL OTHER CONSTRUCTION ACTIVITIES ARE EXCLUDED WITHIN THESE AREAS FOR THE PURPOSES OF PROTECTING TREE HEALTH)*
- CONSTRUCTION WORKING ZONE *(MANAGED CONSTRUCTION PROCESSES PERMITTED IN ACCORDANCE WITH THE PRINCIPLES SET OUT WITHIN THE ARBORICULTURAL IMPACT ASSESSMENT)*
- PROPOSED DEVELOPMENT LAYOUT *(BASED UPON DRAWING REFERENCES LISTED IN THE GENERAL NOTES SECTION)*

ISSUE/REVISION

00	18.11.21	APPLICATION VERSION
I/R	DATE	DESCRIPTION

DRAWING STATUS

ISSUE

PROJECT NUMBER

60589004

SHEET TITLE

TREE PROTECTION PLAN
OPTION 2
(SHEET 02)

SHEET NUMBER **REV.**

60589004-ACM-XX-XX-AB-TPP-002 00

Author: LH Designer: LH Checked: TF Approved: AW

Last saved by: LEO.HEATLEY(2021-11-11 Last Plotted: 2021-11-11
Filename: K:\PROJECTS\ARBORICULTURE PROJECTS - BASINGSTOKE LINKED\S\SUNNICA ENERGY FARM\SUNNICA ENERGY FARM - TPP_002 - OPTION2.DWG

AECOM

PROJECT

Sunnica Energy Farm:
Burwell Substation

CLIENT

Sunnica Ltd

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GENERAL NOTES

1. TREE CATEGORIES AS DEFINED BY BS 5837:2012
2. TREE LOCATIONS ARE BASED ON ORDNANCE SURVEY MAPPING, AERIAL IMAGERY, AND GPS CO-ORDINATES FROM ON SITE WALKOVER.
3. * INDICATES A TREE / GROUP WHOSE POSITION IS APPROXIMATE AS BASED UPON AERIAL PHOTOGRAPHY AND ON SITE OBSERVATIONS.
4. THE DESIGN IS INDICATIVE.
5. PLANS SHOULD BE READ IN CONJUNCTION WITH THE AECOM ARBORICULTURAL REPORT.
6. THE ORIGINAL OF THIS DRAWING WAS PRODUCED IN COLOUR - A MONOCHROME COPY SHOULD NOT BE RELIED UPON.
7. DRAWING REFERENCES:
   OS_MasterMap_654216_858858.dwg
   XREF_30560-2016 P3 Overall Location PASS option 2.dwg
   RLB_20210930_CAD.dwg

KEY PLAN

KEY

- SITE BOUNDARY
- EXISTING TREE, GROUP, WOODLAND, OR HEDGE TO BE RETAINED
- EXISTING TREE, GROUP, WOODLAND, OR HEDGE TO BE REMOVED
- ROOT PROTECTION AREA OF RETAINED TREES *(AS DEFINED BY BS 5837:2012)*
- TPF — TREE PROTECTION FENCING
- CONSTRUCTION EXCLUSION ZONE *(TRACKING OF PLANT, MATERIALS STORAGE, EXCAVATION AND ALL OTHER CONSTRUCTION ACTIVITIES ARE EXCLUDED WITHIN THESE AREAS FOR THE PURPOSES OF PROTECTING TREE HEALTH)*
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ISSUE

PROJECT NUMBER

60589004

SHEET TITLE

TREE PROTECTION PLAN
OPTION 2
(SHEET 03)

SHEET NUMBER **REV.**

60589004-ACM-XX-XX-AB-TPP-003 00