

**Manor Farm  
Noke  
Proposed Solar Farm**

**Pre-development Arboricultural Report  
and  
Method Statement  
Revision 3**

**Prepared at the request of  
BSG Ecology Ltd**

**04 February 2023**

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## Summary

I have been instructed by BSG Ecology Ltd to carry out a pre-development tree survey of the significant trees growing on the site of a proposed solar farm at Manor Farm, Noke, Oxfordshire. I have been asked to prepare a pre-development arboricultural report and method statement that is intended to protect the existing trees during the construction works.

The approximate locations of the trees are recorded on Plan 1 that shows the existing site layout.

Table 1 records their species, dimensions, age, life expectancy, any defects, habitat features and their amenity value. This information was collected, interpreted and recorded in accordance with BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations*. This information is used to attribute retention categories to the trees; A, B, C and U. These retention categories are described in Appendix 2.

The trees are growing on field boundaries, mostly on the edge of the site. There are also a small number of trees on field boundaries within the site.

The two main species are Pedunculate oak and crack willow. The oaks vary in age from young, recently established trees to large mature specimens. These trees are typically in very good health and have very good future prospects. The crack willows are mostly mature. Many have varying amounts of decay which is typical for the species in maturity.

Section 4 of the report is the impact assessment that discusses the potential implications of the development on the trees.

Plan 2 is the tree constraints plan showing the proposed layout. Plan 2 also includes shading arcs for the trees. The shading arcs have been calculated for 21 September 15.00. The location has been set as Oxford.

None of the panel installations are proposed within the crown spreads or root protection areas (RPAs) of the trees. Four very short sections of existing hedges would need to be removed to accommodate access. This very small loss will be compensated for with a comprehensive hedge planting scheme.

The proposals will have a negligible impact on the existing trees and hedges.

The installation proposals do not impact the trees growing on the river island to the north of the installation site.

Section 5 is the method statement that details how the development will be implemented without detriment to the existing trees. This includes a pruning specification for three trees that require minor pruning. Also included is a recommendation that the security fence is erected prior to any other works taking place because this fence will also act as a tree protection fence for many of the trees.

Plan 3 is the tree protection plan. Provided the method statement is followed I believe that the installation work can be completed without having a negative impact on the trees.

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# 1 INTRODUCTION

## 1.1 Instruction

I have been instructed by BSG Ecology Ltd to carry out a pre-development tree survey of the significant trees growing within, and close to, the site of the proposed solar farm at Manor Farm, Noke, Oxfordshire.

The tree survey is intended to provide a structured, impartial assessment of the tree population that could be affected by a proposed development.

The survey is intended to be informative to all stages of the development process and was carried out in accordance with *BS5837: 2012 Trees in relation to design, demolition and construction – Recommendations*.

## 1.2 Documents and Provided Information

I was provided with the following documents:

Topographical Survey of the Existing Layout. Drawing Ref: ASC.21.002

Development Framework Plan by Pegasus Group. Drawing Ref: P19-2636\_003\_1L

## 1.3 Limitations

This report is concerned only with assessing the condition of the trees, their importance in the local landscape and any cultural and conservation values.

It takes no account of the affects the trees may have on the soil, such as heave where trees are removed or shrinkage where trees are retained.

Trees are dynamic organisms influenced by weather, pests and diseases. Therefore, this report can only remain valid for a period of 24 months.

Any works around the trees such as trenching, pruning, storage of materials and trafficking that has not first been approved by a suitably qualified arboriculturalist will invalidate this report.

This report has been prepared for pre-development purposes. Whilst the condition of the trees has been assessed this is primarily to attribute a retention category. It is not a tree condition and safety report and may not include the same level of detail on tree health and structural condition.

No decay detection equipment was used to gather information on the condition of the trees.

Whilst shading arcs have been included on Plan 2, no liability will be accepted for any loss to electricity generation that results from shading by trees.

All survey and inspection was completed at ground level.

## **2 SITE VISIT AND OBSERVATIONS**

### **2.1 Site visit**

I visited the site on 11 January 2021 to complete the survey.

All dimensions were taken using recognised methodology and arboricultural measuring equipment, unless otherwise stated. The methodology used in the survey recognises the guidance set out in BS5837 for measuring trees as follows:

Stems are measured at 1.5m above ground level.

Where a stem divides below 1.5m both stems are measured.

The crown spread is measured at the four main cardinal points of north, south, east and west as a minimum.

The principles of BS5837:2012 were applied to the assessment and evaluation of the trees.

The weather at the time of inspection was bright but overcast with good visibility. There was a moderate breeze throughout.

### **2.2 Brief Site description**

The land proposed for the solar farm is flat arable land to the north of Manor Farm, Noke, Oxfordshire. The centre of the site is at Ordinance Survey grid reference SP 5445 1392.

The site comprises six fields divided by a network of native hedges managed at a height of around 2m. The eastern, western and northern boundaries are bounded by water courses. These are either drainage ditches or the River Ray.

Most of the trees are growing around the boundary of the site but there is a small number growing along the internal field boundaries.

### **2.3 Development Proposals**

The development proposes installation of solar panels in the northern half of the site within the current field network.

## 2.4 Locations of the Trees

The positions of most of the trees are included on the topographic plan that was provided to me. The accuracy of the topographic site survey has not been checked by me.

The positions of a small number of small trees were not included on the topographical survey. Their positions were plotted by me by measuring from the positions of trees that had been plotted.

## 2.5 General Discussion of the Trees and Their Present Condition

The dominant species are Pedunculate oak and crack willow with smaller numbers of ash. The oak ranges in age from recently established to old mature. The oak trees are mostly in very good health with very good future prospects. These trees have not yet developed to a point where they contain features that are able to offer habitat opportunities.

The crack willows vary greatly in condition. Many have decay to their stems which is typical for the species in maturity. Remedial works to pollard some of the trees with decay has taken place. These trees offer some habitat opportunities as a result of this decay. Some of the willows have partly failed. This is also normal for the species and more will be expected to fail in the future, particularly during gales.

The ash varies in condition with some offering habitat opportunities where decay is present. None of the ash trees appear to be displaying any signs of ash dieback.

## 2.6 Hedges

Hedges are a significant feature of the site. They form the field boundaries within the site. They comprise a mixture of native species such as hawthorn, blackthorn, elm and field maple. Many are old hedges that have evidence of past laying.

The hedgerows on site meet some of the criteria to be regarded as 'important' within the hedgerow regulations: they are on agricultural land (and do not form the curtilage of a domestic property), are older than 30 years old and exceed 20m in length. In terms of ecological features, they are species poor hedgerows with trees, and do not support more than 5 woody species in a given 30m section. However they do support sufficient additional features such as parallel hedgerows, ditches, trees, being intact. It is also likely that they support species protected under Section 5 of the Wildlife and Countryside Act 1981 (as amended), such as grass snake, and potentially dormouse. Therefore, the hedgerows have been assessed as being Important under the Hedgerow Regulations 1997.

Complimentary planting of the hedgerow gaps with native hedging species will improve the quality of the hedges in the long term; not just the quantity of habitat they provide but the connectivity of habitat allowing species to move better.

## 2.7 Tree observations

Table 1. The Tree Survey

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T1	Pedunculate oak	7.0	230	North – 3.0 South – 3.0 East – 3.0 West – 3.0	2.0	2.0	Juvenile mature	Normal	A small, young recently established tree.  It is in good health with good form and good future prospects.	40+	Low (at present)	<b>B 1</b>
T2	Ash	700#	10.0	North – 5.0 South – 2.0 East – 6.0 West – 1.0	1.8	2.0 (over track)	Veteran	Normal	The tree has been topped in the past at approximately 6m. There is extensive decay at the cut point which is providing deadwood habitat.  The tree is growing healthily from the pollard point.  The crown is small and weight biased over the track. Some crown lifting by around 3m may be necessary if this track is to be used for access for installation of the panels.	10+	Medium	<b>B 1 &amp; 3</b>

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL(*1) (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T3	Pedunculate oak	7.0	140	North – 3.0 South – 3.0 East – 3.0 West – 3.0	2.0	2.0	Juvenile mature	Normal	A small, young recently established tree.  It is in good health with good form and good future prospects.	40+	Low (at present)	B 1
G1	1 lime, 1 sycamore, 3 maple, 1 cherry	7.0	<200	North – 3.0 South – 3.0 East – 3.0 West – 3.0	2.0	2.0	Juvenile mature	Normal	A short line of recently established trees. Most of the trees have established well but the cherry has severe canker to the stem and the leading stem of one of the maples has failed.	20+	Low (at present)	C 1
T4	Pedunculate oak	10.0	250#	North – 4.0 South – 2.0 East – 4.0 West – 3.0	2.0	2.0	Juvenile mature	Normal	A small, young and healthy tree with good future prospects.	40+	Low (at present)	B 1&2
T5	Pedunculate oak	10.0	410	North – 7.0 South – 5.0 East – 5.0# West – 5.6	2.5	2.0	Young mature	Normal	A small, young and healthy tree with good future prospects.	40+	Low (at present)	B 1&2

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T6	Pedunculate oak	10.0	550#	North – 6.0 South – 6.0 East – 6.0# West – 6.0	1.0	2.0 over the site	Young mature	Normal	A healthy, well formed tree with good future prospects.  The tree is growing on the other side of the drainage ditch.	20+	High	<b>B</b> <b>1&amp;2</b>
T7	Pedunculate oak	8.0	200#	North – 3.0 South – 3.0 East – 3.0# West – 3.0	1.8	2.0 over the site	Juvenile mature	Normal	A healthy, young and well formed tree with good future prospects.	40+	Medium	<b>B</b> <b>1&amp;2</b>
T8	Crack willow	6.0	800#	North – 3.0 South – 2.0 East – 2.0# West – 2.0	3.0	3.0	Mature	Normal	The tree has been pollarded at 3m. There is a lot of decay in the large diameter stem which will be providing some standing dead wood habitat.	10+	Low	<b>C 3</b>
T9	Pedunculate oak	13.0	500#	North – 6.2 South – 6.6 East – 5.0# West – 6.2	3.0	4.0	Mature	Normal	A healthy tree with good future prospects.  There are a number of small dead branches in the crown. These are not indicative of poor health.	40+	Medium	<b>B</b> <b>1&amp;2</b>

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T10	Pedunculate oak	13.0	47	North – 4.5 South – 3.8 East – 5.0# West – 5.0	3.0	3.0	Mature	Normal	A healthy tree with good future prospects.  There are a number of small dead branches in the crown. These are not indicative of poor health.	40+	Medium	<b>B</b> <b>1&amp;2</b>
T11	Crack willow	8.0	450	North – 4.0 South – 4.0 East – 3.0# West – 3.5	1.0	3.0	Mature	Moderate	A healthy tree but with little landscape or ecological importance at present.	10+	Low	<b>C 1</b>
T12	Pedunculate oak	13.0	600	North – 5.7 South – 6.3 East – 6.0# West – 6.2	4.0	2.5	Mature	Early decline	The tree is displaying some signs of early decline and retrenchment of the crown.  There is some new epicormic growth from lower down the branches.	20+	Medium	<b>B 2</b>
T13	Crack willow	8.0	600#	North – 2.0 South – 3.0 East – 3.0# West – 2.0	1.5	4.0	Mature	Normal	There is a large crack to the main stem. This may be providing some habitat features.  The stem is weight biased to the east over the drainage ditch.	10+	Low	<b>C 1</b>
T14	Pedunculate oak	13.0	730	North – 8.0 South – 7.0 East – 7.7 West – 6.5	3.0 to the east	1.0 to the east	Mature	Normal	A large, well formed and healthy tree growing on one of the internal field boundaries. The tree is prominent in the landscape. Despite its age and size it has not yet developed any significant habitat features.	40+	High	<b>B</b> <b>1&amp;2</b>



Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T15	Pedunculate oak	17.0	920	North – 10.0 South – 10.8 East – 9.6 West – 10.0	4.0 to the south	0.5 to the north	Mature	Normal	A large, well formed and healthy tree growing on one of the internal field boundaries. The tree is prominent in the landscape. Despite its age and size it has not yet developed any significant habitat features.	40+	High	<b>A</b> <b>1&amp;2</b>
G2	39 Leyland cypress	4.0 – 6.0	<100	North – 2.0 South – 2.0 East – 2.0 West – 2.0	0.25	0.25	Juvenile mature	Normal	A short line of young, small trees growing on the edge of the River Ray.	20+	Low	<b>C 1</b>
T16	Crack willow	15.0	550#	North – 8.0# South – 10.0 East – 10.0 West – 11.0	4.0	6.0	Mature	Normal	The tree is growing on the opposite river bank. There is a branch wound at 4m that is forming a decay cavity. This may become a valuable habitat feature in time.	10+	Low	<b>C 1</b>
T17	Pedunculate oak	15.0	600#	North – 7.0# South – 8.5 East – 8.0 West – 7.0	1.0	5.0	Mature	Moderate	The tree is growing on the opposite river bank.	40+	High	<b>B</b> <b>1&amp;2</b>

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T18	Pedunculate oak	15.0	750#	North – 7.0# South – 8.5 East – 8.5 West – 8.5	1.5	5.0	Mature	Normal	The tree is growing on the opposite river bank.  There is an old fruiting body of a decay fungus growing from the base. This could be <i>Fistulina hepatica</i> . The decay associate with this fungus progresses only slowly. It is not thought to be significant at this stage.	20+	Medium	<b>B</b> <b>1&amp;2</b>
T19	Poplar	13.0	500	North – 3.0 South – 5.5 East – 5.0 West – 4.0	4.0	4.0	Mature	Normal	A well formed and healthy tree. It is relatively small still for the species.	40+	Medium	<b>C1</b>
T20	Pedunculate oak	10.0	500	North – 5.0# South – 6.0 East – 5.5 West – 5.0	4.0	4.0	Young mature	Normal	A well formed and healthy tree. It is relatively small still for the species.	40+	Low	<b>B</b> <b>1&amp;2</b>
T21	Pedunculate oak	9.0	700	North – 7.0 South – 5.0 East – 6.0 West – 4.0	4.0	5.0	Mature	Normal	A well formed and healthy tree.	40+	Medium	<b>B</b> <b>1&amp;2</b>
T22	Crack willow	10.0	600	North – 5.0# South – 1.0 East – 10.0 West – 3.0	4.0	5.0	Mature	Normal	One of the main stems of this tree has recently failed at around 6m to leave a long, large bark wound down the remaining stem. This is quite a typical failure pattern in the species.	10+	Low	<b>C1</b>

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T23	Crack willow	14.0	600	North – 4.0 South – 6.0 East – 4.0 West – 4.0	5.0	5.0	Mature	Normal	A healthy well formed tree. The tree is weight biased to the south.	10+	Low	C 1
T24	Ash	17.0	570#	North – 6.5 South – 8.0 East – 8.5 West – 2.0	1.0	1.0	Mature	Normal	A large, significant tree growing on an internal field boundary. There is significant ivy growth to 6m limiting inspection.  There is no evidence of the tree being affected by ash dieback.	10+	High	B 2
T25	Crack willow	17.0	800	North – 6.8 South – 8.0 East – 4.0 West – 7.5	1.0	1.0	Mature	Normal	A large, significant tree growing on an internal field boundary.  There is a large decay cavity at the base and lower stem which is a major defect. There is a reasonable amount of sound wood in the buttresses which will be providing support. However, this defect is likely to result in failure of the tree in time.	10+	High	C 1&2
T26	Ash	7.0	250	North – 3.0 South – 3.0 East – 3.0 West – 3.0	2.0	2.0	Juvenile mature	Normal	A small, young tree growing on one of the internal field boundaries.	10+	Low	C 1

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T27	Ash	8.0	200, 100, 100	North – 2.0 South – 2.0 East – 2.0 West – 2.0	0.25	0.25	Juvenile mature	Normal	A small, young tree growing on the northern boundary.	10+	Low	C 1
T28	Ash	10.0	400	North – 6.0 South – 3.0 East – 4.0 West – 3.0	4.0	4.0	Mature	Early decline	A mature, but small tree that has declining health. There are some dead lateral branches associated with the tree's decline.  There is a hole in the stem at 4m that is providing some habitat for hole nesting birds or bats.	10+	Medium	C 1&3
G3	20 x crack willow	6.0 – 8.0	<600	North – 4.0 South – 4.0 East – 4.0 West – 4.0	0.0	0.0	Mature	Normal	A line of trees growing along the southern bank of the River Ray.  The trees have been pollarded at between 1 and 2m. This is likely to be in response to the significant decay in the stems of the trees. This decay may be providing habitat opportunities.  The trees have small crowns that have regrown from the pollard points.	20+	Medium	B 2&3
T29	Pedunculate oak	10.0	480	North – 7.0 South – 6.0 East – 5.0 West – 5.0#	3.0	2.5	Mature	Normal	A healthy, well formed tree with no significant defects and limited habitat opportunity.	40+	Medium	B 1&2

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T30	Pedunculate oak	14.0	800	North – 11.0 South – 9.0 East – 9.0 West – 8.0#	3.0	3.0	Mature	Normal	A large, mature tree.  There is limited decay at the base. This is a minor defect.	40+	Medium	<b>B</b> <b>1&amp;2</b>
T31	Pedunculate oak	15.0	820	North – 10.0# South – 11.0 East – 11.0 West – 12.0	5.0	4.0	Mature	Normal	A large, significant tree with good form and good future prospects. There are limited habitat opportunities at present, despite its age and size.	40+	High	<b>B</b> <b>1&amp;2</b>
T32	Pedunculate oak	15.0	102	North – 9.5 South – 9.5 East – 9.0 West – 8.5	4.0	5.0	Mature	Normal	A large, significant tree with good form and good future prospects. There are limited habitat opportunities at present, despite its age and size.	40+	High	<b>B</b> <b>1&amp;2</b>
G4	5 ash	10.0	<250	North – 6.0 South – 4.0 East – 3.0 West – 2.0	3.0	3.0	Juvenile mature	Moderate	A small group of small, young trees growing on a spur of field boundary extending into the field from the west.  The trees are in good health but are insignificant.	10+	Low	<b>C 1</b>
T33	Crack willow	8.0	500	North – 2.0 South – 5.0 East – 3.0 West – 2.0	4.0	2.0	Mature	Normal	There is a large decay cavity at the base. This is a major defect. The tree has been topped in the past at 5m, probably because of the condition of the base of the tree.	10+	Low	<b>C 1</b>

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
G5	5 ash	10.0	<35	North – 6.0 South – 5.0 East – 6.0 West – 4.0	2.5	1.5	Juvenile mature	Normal	A small group of small, young trees growing on a spur of field boundary extending into the field from the west.  The trees are in good health but are insignificant.  There are a number of small dead branches throughout the crowns.	10+	Low	C 1
T34	Pedunculate oak	12.0	83	North – 7.0 South – 8.0 East – 4.0 West – 5.0	3.0	1.5	Mature	Normal	A large, prominent, well formed and healthy tree with good future prospects. It has been pruned back from the overhead lines.	40+	High	B 1&2
T35	Pedunculate oak	12.0	90	North – 5.0 South – 6.0 East – 6.0 West – 5.0	3.0	1.5	Mature	Normal	A large, prominent, well formed and healthy tree with good future prospects. It has been pruned back from the overhead lines.  There is a small decay cavity at the base on the east side. This is a minor defect.  There are a number of small dead branches to the north and west.	40+	High	B 1&2

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T36	Pedunculate oak	15.0	132	North – 8.5 South – 7.0 East – 9.0 West – 7.0	2.0	2.0	Old mature	Normal	<p>A large, imposing trees. Possibly the oldest included in this report.</p> <p>There is a fresh fungal bracket of <i>Inonotus dryadeus</i> on the south east side of the base. There are also a number of old fungal brackets of the same fungi. The fungus causes internal decay but this is a long slow process. The tree remains stable at this stage. It is sometimes known as the Eiffel Tower bracket because in very advanced stages of decay the tree is hollowed out at the base, standing only on the stilts of living wood.</p> <p>Despite its size and age, it has little habitat opportunity at this stage.</p>	40+	High	<b>B</b> <b>1&amp;2</b>
T37	Pedunculate oak	6.0	200, 100	North – 4.0 South – 4.0 East – 4.0 West – 5.0	1.0	1.0	Juvenile mature	Normal	A small, young and insignificant tree at this stage.	10+	Low	<b>C 1</b>
T38	Norway maple	6.0	240	North – 2.5 South – 2.5 East – 2.5 West – 2.5	2.0	2.0	Juvenile mature	Normal	A small, young and insignificant tree at this stage.	10+	Low	<b>C 1</b>

Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T39	Norway maple	6.0	260	North – 3.0 South – 3.0 East – 3.0 West – 3.0	2.0	2.0	Juvenile mature	Normal	A small, young and insignificant tree at this stage.	10+	Low	C 1
T40	Ash	8.0	450#	North – 5.0 South – 4.0 East – 3.0 West – 3.0	2.0	2.0	Mature	Normal	The tree is significantly covered in ivy which limited inspection.  The main stem has failed in the past and contains associated decay.  This tree is likely to be providing habitat opportunities.	10+	Low	C 1&3
T41	Ash	8.0	480	North – 5.0 South – 4.0 East – 5.0 West – 4.0	2.0	2.0	Mature	Moderate	A relatively small tree for its age. It is healthy with no significant defects.	10+	Low	C 1
T42	Ash	14.0	700#	North – 9.0 South – 8.0 East – 9.0 West – 5.0	2.0	2.0	Mature	Moderate	There is significant ivy growth to 10m limiting inspection.  The central stem has died to leave a wide crowned tree.	10+	Medium	B 2&3
T43	Poplar	17.0	700#	North – 8.0 South – 9.0 East – 8.5 West – 9.5	3.0	2.5	Mature	Normal	A large significant tree. It is in good health with no significant defects.	20+	High	B 1&2



Tree number	Species	Height (M)	Stem diameter in MM at 1.5m	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Health	General observations on the tree's condition	Estimated life in years	Amenity value	Category
T44	Poplar	10.0	380	North – 5.0 South – 4.0 East – 5.0 West – 4.0	0.5	0.5	Juvenile mature	Normal	A small and insignificant tree.  There is an acute stem union at 1.5m. this is presently stable but may weaken and fail as the tree grows.	20+	Low	C 1
G6	Field maple	<6.0	<250	North – 3.0 South – 3.0 East – 3.0 West – 3.0	0.0	0.0	Juvenile mature	Normal	A small group of young trees growing around the round water tank.	10+	Low	C 1
T45	Ash	7.0	180, 200	North – 5.0 South – 5.0 East – 5.0 West – 4.0	2.0	2.0	Young mature	Normal	A small, young and insignificant tree at this stage.	10+	Low	C 1
T46	Ash	8.0	450	North – 6.5 South – 5.0 East – 6.0 West – 5.0	2.5	2.0	Young mature	Normal	A small, young and insignificant tree at this stage.  The crown is low over the access track. If this track is to be used for access for installation of the panels then crown lifting of the tree over the track by around 3m will be necessary.	10+	Low	C 1

\*<sub>1</sub> Please see appendix 2 below for sub category definitions. # - Estimated measurement. T – individual tree; G – Group of trees, their importance being increased by them growing together cohesively; W – area of woodland

### 3 Interpretation of Information and References

My interpretation and appraisal of information gathered from the survey is based on experience of tree species, visual risk hazard assessment and the guidance set out in BS5837:2012 *Trees in Relation to Design, Demolition, Construction – Recommendations*.

#### 3.1 BS5837:2012 Tree Retention Categories

All trees have been assessed and assigned a retention category in accordance with Table 1 of the standard. A copy of Table 1 from BS5837: 2012 is included as Appendix 2.

This categorisation is intended to rank trees according to their importance in terms of quality, health, life expectancy, amenity and landscape value, together with wildlife and cultural importance. This ranking assists in determining the suitability and appropriateness of trees for retention in any development. Categories A to C are those considered for retention, 'A' being highest.

Category A and B trees tend to be considered more valuable for retention than category C trees.

Category 'U' trees are those not suitable for retention because of impaired condition.

Hedges and shrubs are not assigned retention categories but their heights and species are simply noted on the tree constraints plan.

#### 3.2 Below Ground Constraints; Root Protection Areas (RPAs)

The root protection area is the area of land considered necessary for trees should they be retained as part of any development. This is calculated using the stem diameter measured at 1.5 metres from ground level. This protection area is shown diagrammatically as a circle centred on the base of the tree where it is expected that rooting has not been impeded in any one direction and where disturbance has not taken place. Where rooting has been impeded or disturbance taken place then the shape and size of the root protection area is modified according to an assessment of where rooting is likely to take place.

Plans 1, 2 and 3 have not been produced to a specified scale due to the very large size of the site and the need to fit the drawings onto an A3 page within this report. However, the RPAs have been drawn to the correct size using an AutoCAD drawing package.

Where trees are to be retained, it is optimal to locate structures and services outside the RPA. However, where incursion becomes necessary, technical solutions may be possible to limit damage, areas lost can be compensated elsewhere, or the soil environment can be improved. In these circumstances an arboricultural method

statement will be necessary to ensure that works are undertaken sympathetically and do not damage the below ground parts of the trees.

### **3.3 Above Ground Constraints; Crown Spreads**

Ideally, working areas will be out with the crown spreads of trees to be retained.

Any permanent development proposed within the canopy spread of a tree should be assessed to determine whether the level of pruning necessary to accommodate the layout would be acceptable. However, the effects of shade and other perceived inconveniences of trees this close to property should also be considered, together with the future growth potential of the trees and the maintenance obligation this will bring.

Where temporary access by high sided vehicles and machinery for construction or erection of scaffolding is necessary within the crown spreads of trees to facilitate development an arboricultural method statement will be necessary to ensure pruning works are carried out sympathetically prior to demolition or construction works commencing.

### **3.4 Conception and Design**

The constraints imposed by trees should assist with site design and layout, together with the other competing needs of development.

The provisions of services and the access space required for construction itself should also be considered.

## 4 ARBORICULTURAL IMPACT ASSESSMENT

This section of the report considers the impact that the proposed layout could have on the trees that are included in Table 1 and shown on Plan 1; *Tree Constraints Plan showing the existing layout*.

This section also discusses, where necessary, the engineering solutions that may be available to retain trees where development is proposed within their RPAs or the pruning options available where development might affect crown spreads.

Where there is no option but to remove a tree to accommodate the proposed layout this section will discuss the impact on amenity and ecology and any mitigation that could be offered such as opportunities for replacement planting.

### 4.1 Arboricultural Impact Assessment

None of the infrastructure associated with the solar panels extends into the crown spreads or RPA of the existing trees. The frames for the panels and the service roads would have no impact on the trees. The proposed security fence encroaches by around 1m into the eastern edge of the crown spread and RPA of Tree 24, a mature ash. This encroachment is very marginal. Pruning of the lower crown by up to 2m on the east side will be necessary to provide adequate clearance of the fence. There will be no impact of the RPA.

The island area in the River Ray to the north of the installation site will receive habitat enhancement works as part of a wider mitigation package for the development.

None of the trees on the island will be impacted in anyway by the solar panel installation because the river forms a natural root protection boundary for the trees growing on the island. Roots from the island trees will not extend into the installation site. The crown spreads of the trees on the island extent over the river but do not extend into the installation site.

Almost all of the hedgerows will remain unaffected by the proposals. Seven short sections of hedge between 5 and 7m long will be removed to accommodate access. This is negligible and will be more than mitigated for with an extensive hedge planting programme.

A timber construction footbridge over the watercourse will have no impact on the existing trees provided the holes for the supporting posts are hand dug.

The only potential for damage to the trees on the installation site could be from the installation work itself. However, provided the method statement described in Section 5 below is followed the trees can be protected from damage and the proposals will have no impact on the trees.

## 4.2 Shading by Trees

Shading arcs have been produced for the trees based on their height, crown spread and the length of clear stem between the ground and lower canopy. The shading arcs have been produced for 15.00 on the autumn equinox. The location has been set as Oxford.

The shading arcs have been produced in AutoCAD using the KeyTREE software produced by Keysoft Solutions Ltd.

## 5 ARBORICULTURAL METHOD STATEMENT

### 5.1 Specific Tree Protection Measures

#### Protective Fencing

Tree protective fencing will be necessary to protect the soil around the trees closest to where the solar panels are proposed. Vehicle movements within the root protection areas would cause compaction that would affect the health of the trees. Vehicles could also cause damage to low crowns.

Many of trees are growing in fields where no solar panels or infrastructure is proposed. Provided there is no need to access these fields it would be unnecessary to erect protective fencing around these trees. Trees that are in fields unaffected by the installations are Trees 4 – 13 and 27 to 44.

Additionally, some of the trees are growing on an island of the River Ray. The root protection areas and crown spreads of these trees do not cross the river into the site. There will be no need to use protective fencing to protect any of the trees on the island in the River Ray.

Ordinarily, temporary tree protective fencing is erected around all trees and hedges to be retained within the development area. However, the proposed security fencing around the perimeter of the installation area will provide protection to the trees, provided this fencing can be erected before any other works take place. This will significantly reduce the need for temporary tree protective fencing. The security fencing would protect all but two of the trees within the installation area. For the trees within the installation area (Trees 14 and 15 and the hedgerow they are growing in) the standard of fencing recommended within BS5837: 2012 and included in Appendix 4 is recommended. This fencing should be positioned outside the crown spreads and RPAs of these trees at the positions shown on Plan 3 before any other works are completed.

### Tree Pruning

Trees 2 and 45 are outside the site on the other side of the access track but their crowns do substantially overhang low across the access track. If this access route is to be used for installation of the panels then some crown lifting of the trees will be necessary to provide adequate clearance. I would recommend crown raising the trees by 3.0m over the track.

Tree 24 is a field boundary tree that has a crown that extends 8.5 to the east. The security fence is proposed within the current crown spread of this tree. The fence would encroach by 1.5m into the crown spread. Reducing the crown on the east side by 2.0m would provide adequate clearance between the fence and the crown of the tree.

## **5.2 Phasing of the Works**

The following works should be carried out in chronological order to ensure protection of the trees:

1. Prune Trees 2 and 46 to lift their crowns above the access track by 3m.
2. Reduce the lower and outer crown of Tree 24 on the eastern side by up to 2m to provide adequate clearance for the security fence.
3. Erect the security fencing around the perimeter of the installation area. Work from the centre of the site out, avoiding working on the field boundary side of the security fencing.
4. Erect tree protection fencing around Trees 14 and 15 and hedges at the positions shown on Plan 3 and to the standard included in Appendix 4, or an alternative to be agreed with the local planning authority.
5. Install the solar panels.
6. Remove the security fencing around Trees 14 and 15 and the hedges.

### 5.3 General Tree Protection Measures

The following general tree protection precautions should also be followed **within the tree protection areas** during the construction phase.

- No dumping or storing materials or waste, whether in a skip or on the ground.
- No temporary buildings, sheds, or offices without prior discussion with an arboriculturalist and agreement of the LPA.
- No storage of materials, equipment, plant, fuel or cement.
- No bonfires within 10m of the outer edge of the crown or RPA.
- No refuelling mechanical equipment or mixing of cement.
- No washing cement mixers within or uphill of the RPA.
- No vehicles and plant unless the soil is suitably protected as recommended an arboriculturalist and agreed by the LPA.
- No raising the soil level without prior discussion with an arboriculturalist and agreement of the Local Planning Authority (LPA).
- No excavations without prior discussion with an arboriculturalist and agreement of the LPA.
- No redirection of surface water runoff into or out of the RPA.
- Follow the guidance contained within the National Joint Utilities Group Volume 4 (Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2, 2007); [www.njug.org.uk](http://www.njug.org.uk) ) when installing underground services within the RPA of a retained tree.

### 5.4 Levels

Altering the ground level within the RPAs of the trees may have a detrimental impact on their health and longevity.

### 5.5 Ground surface materials

Altering the ground cover, such as by using impervious or semi-pervious surface materials to cover areas that were previously vegetated soil, will alter the moisture content and recharge of the soil and its oxygen and carbon dioxide content. This could have a detrimental effect on the health of tree roots growing in it. This is unlikely to be a consideration with this development.

## **5.6 Site access**

Vehicles and plant operating or parking on unprotected soil within the RPA of a retained tree could compact or contaminate it and this could have a detrimental impact on its long-term condition and longevity. Particular care should be used when installing the security fence because this will bring vehicle movements closest to field boundary trees and hedges.

## **5.7 Storing fuel, materials and equipment**

Storing fuel, equipment and materials close to trees increases the risk of damage to their trunks and branches, soil compaction and/or contamination with toxic substances.

## **5.8 Activity under tree canopies**

Activity under tree canopies, such as mixing cement, lighting bonfires or storing equipment, plant and materials, may damage branches or stems. It may also be detrimental to soil within its RPA that is utilised by its roots.



## 6 REFERENCES, PLANNING POLICY AND GUIDANCE

### 6.1 National policy

Section 197 in the Town and Country Planning Act 1990 makes it the duty of Local Planning Authorities (LPAs), *'in the interests of amenity,'* to protect trees, when granting planning permission, either by the imposition of conditions or serving Tree Preservation Orders (TPOs).

The National Planning Policy Framework (NPPF) (2019) mentions trees and should be taken into account.

*170. Planning policies and decisions should contribute to and enhance the natural and local environment by:*

*b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*

*175. When determining planning applications, local planning authorities should apply the following principles:*

*c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons<sup>58</sup> and a suitable compensation strategy exists;*

#### Annex 2: Glossary

*Ancient or veteran tree: A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.*

*Ancient woodland: An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS).*

*Irreplaceable habitat: Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen.*

## **6.2 British Standard: Trees in relation to design, demolition and construction – Recommendations (BS 5837, 2012)**

The British Standard: *Trees in relation to design, demolition and construction – Recommendations* (BS 5837, 2012) contains guidance on how to assess trees in or close to proposed development and information to include in pre-development arboricultural reports submitted with planning applications. Appendices 2 and 3 contain relevant extracts from BS 5837 (2012).

## **6.3 Cherwell District Council – The Cherwell Local Plan 2011 - 2031**

*Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment*

*Protection and enhancement of biodiversity and the natural environment will be achieved by the following:*

*The protection of trees will be encouraged, with an aim to increase the number of trees in the District.*

## 7 CONCLUSIONS

Most of the trees are growing around the boundaries of the site.

Most of the trees are Pedunculate oak and crack willow. The oaks have very good future prospects. Many of the willows contain decay but this will be providing habitat opportunity.

The trees around the boundaries of the site would be unaffected by the proposals.

Almost all of the hedgerows will be unaffected. Four small sections of hedging between 5 and 7m long would need to be removed to accommodate access. This will be compensated for with extensive new hedge and shrub planting.

Provided the trees within the interior of the site are protected during the construction works these trees will be unaffected by the proposals.

Provided the method statement proposed in section 5 of this report is followed I believe that the proposals will have a negligible impact on the trees and hedges.

## **8 LEGAL CONSIDERATIONS**

### **8.1 Protected trees**

A search of Cherwell District Council's online map of Tree Preservation Orders (TPOs) was carried out on 18 November 2021 and none are present within the site or close enough to the to be affected by the proposed development.

### **8.2 Wildlife conservation legislation**

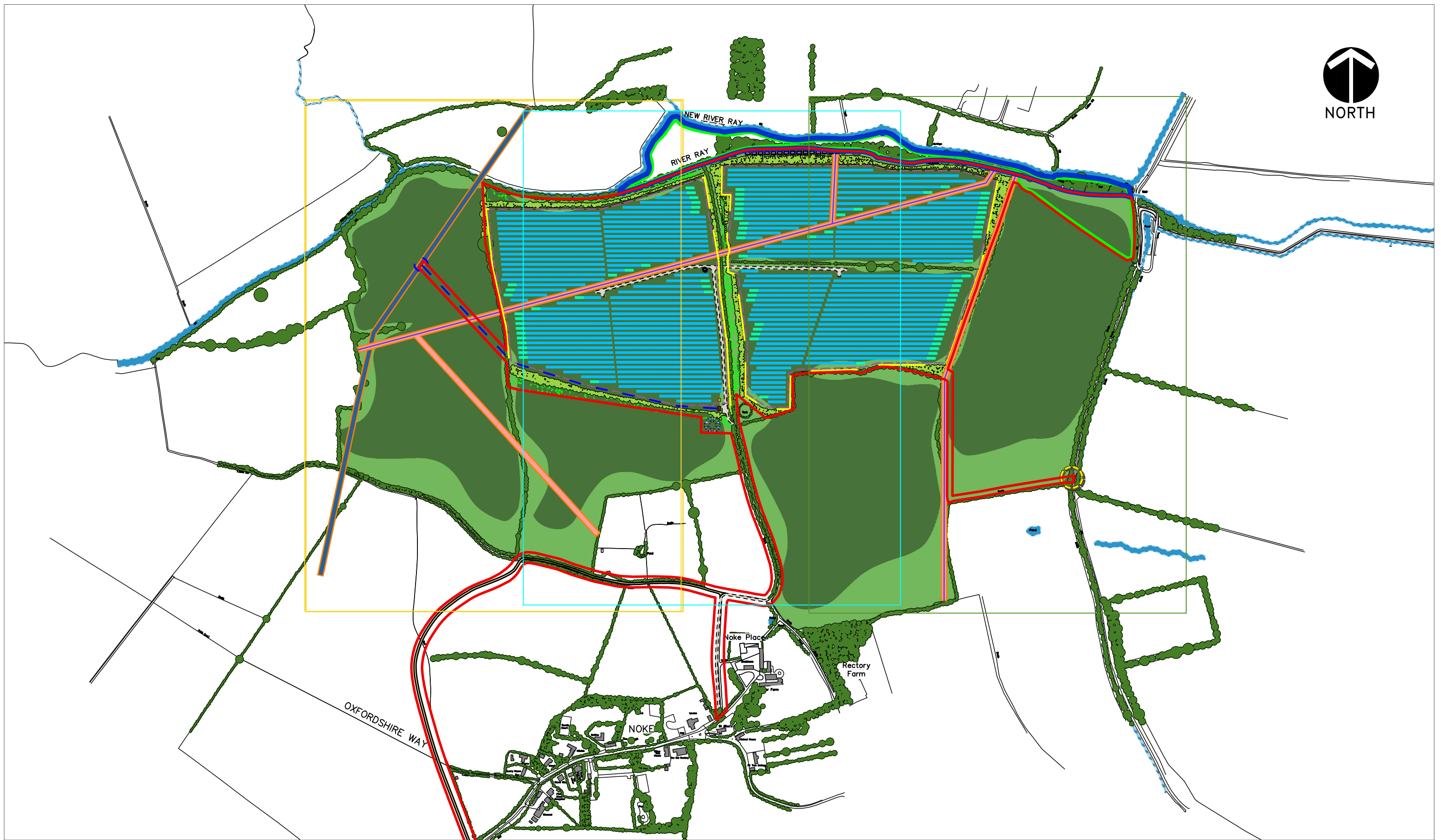
Breeding birds are protected, together with bats and their roosts are, whether their roosts are in use or not.

Consideration should be given to the presence of protected species prior to any proposed tree removal or maintenance. This will include breeding birds, principally between March and August, and bats at any time of year.

Tree surgeons should also be aware of their duties under legislation to protect wildlife and carry out their site assessment and work accordingly.

The woodland areas are likely to be highly attractive to breeding birds.

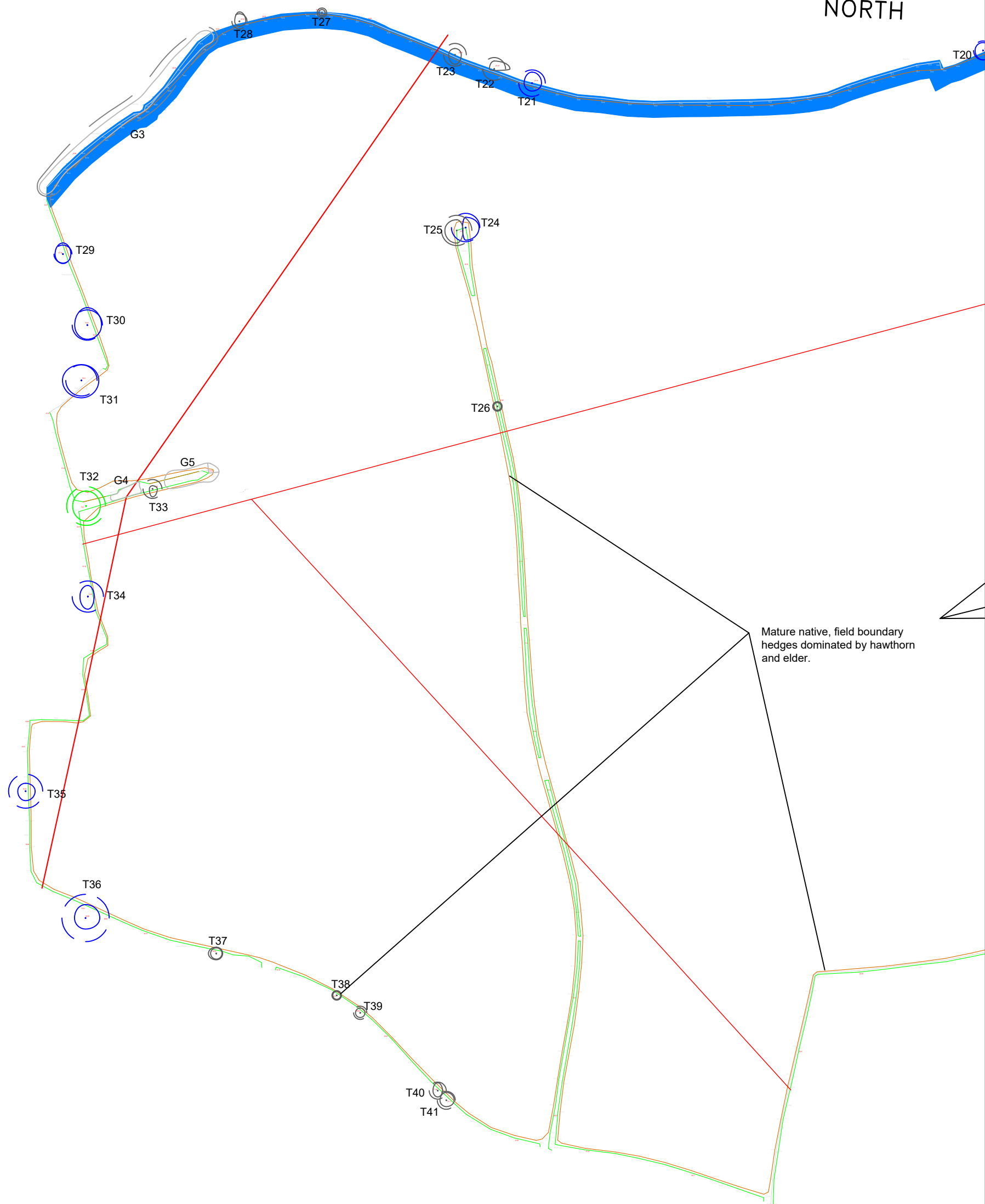
I believe that ecology reports are being prepared for the site. These will provide more detailed guidance about the potential impact on trees.



Plan 0 Red line boundary of the site.

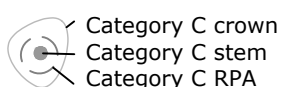
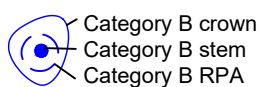
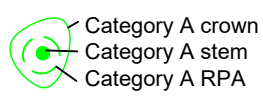
- Sheet 1; western third of the site
- Sheet 2; central third of the site
- Sheet 3; eastern third of the site

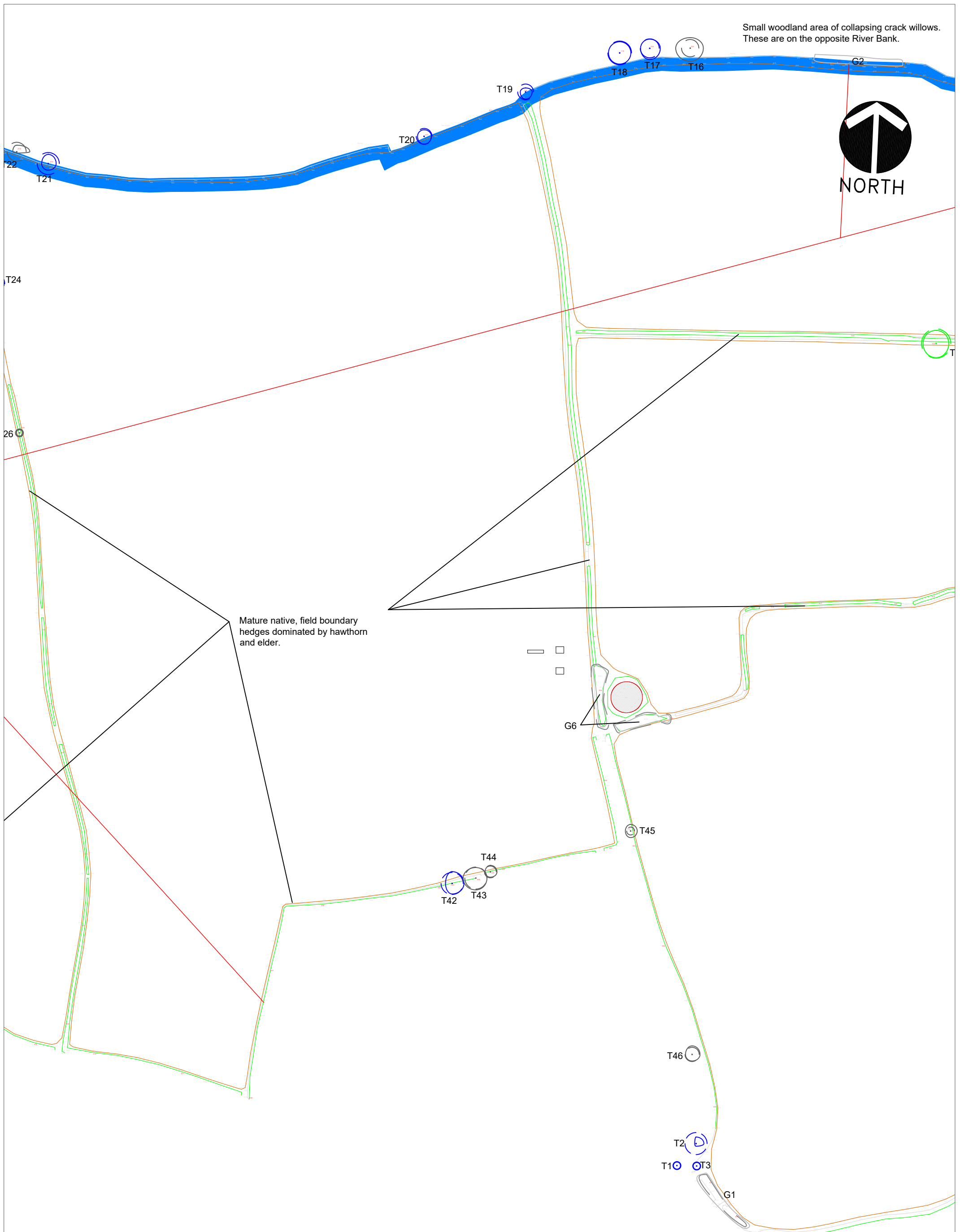
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Plan 1a Tree Constraints Plan showing the existing layout; western third of the site.

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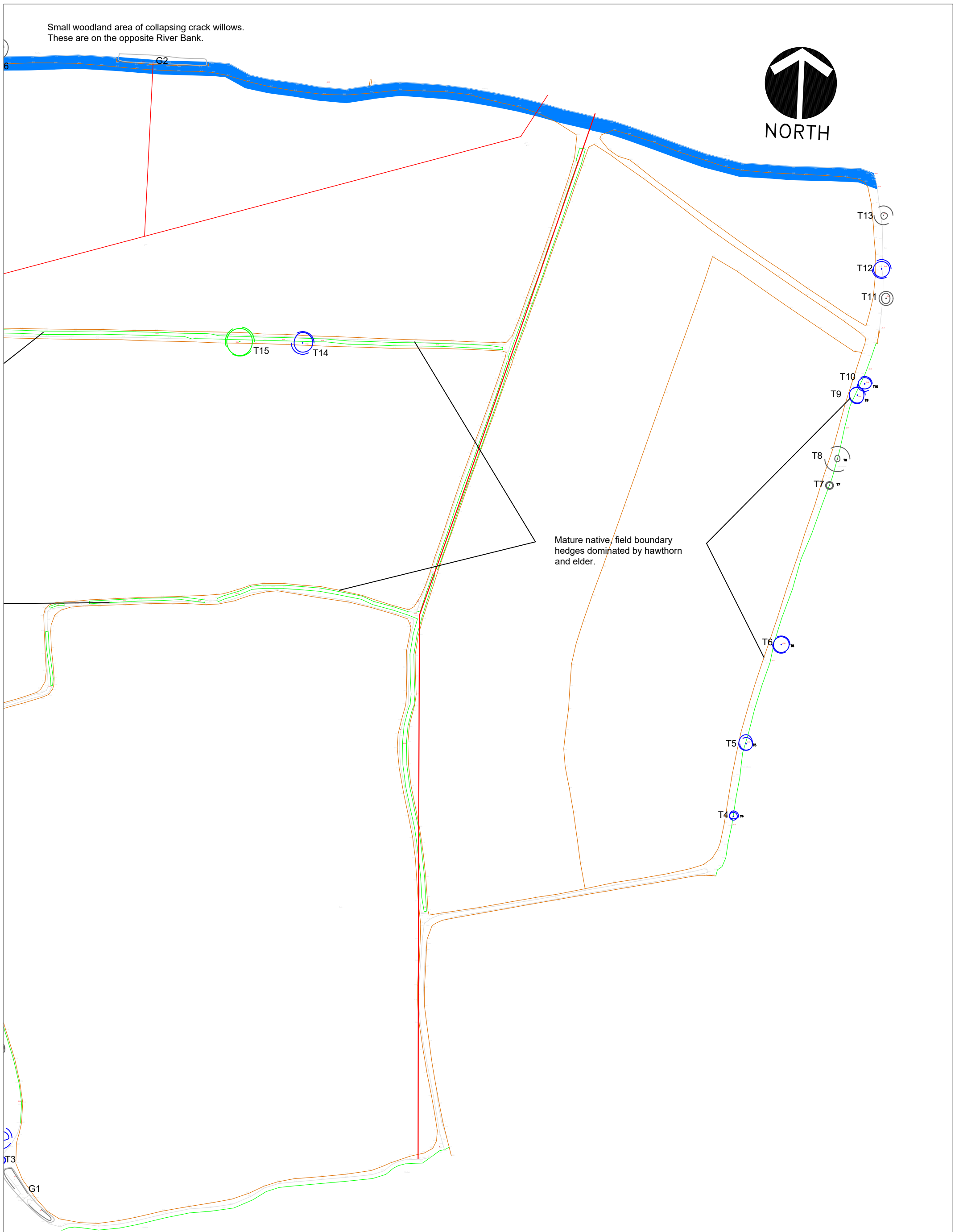




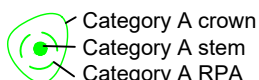
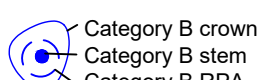
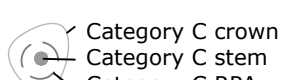
Plan 1b Tree Constraints Plan showing the existing layout; central third of the site.

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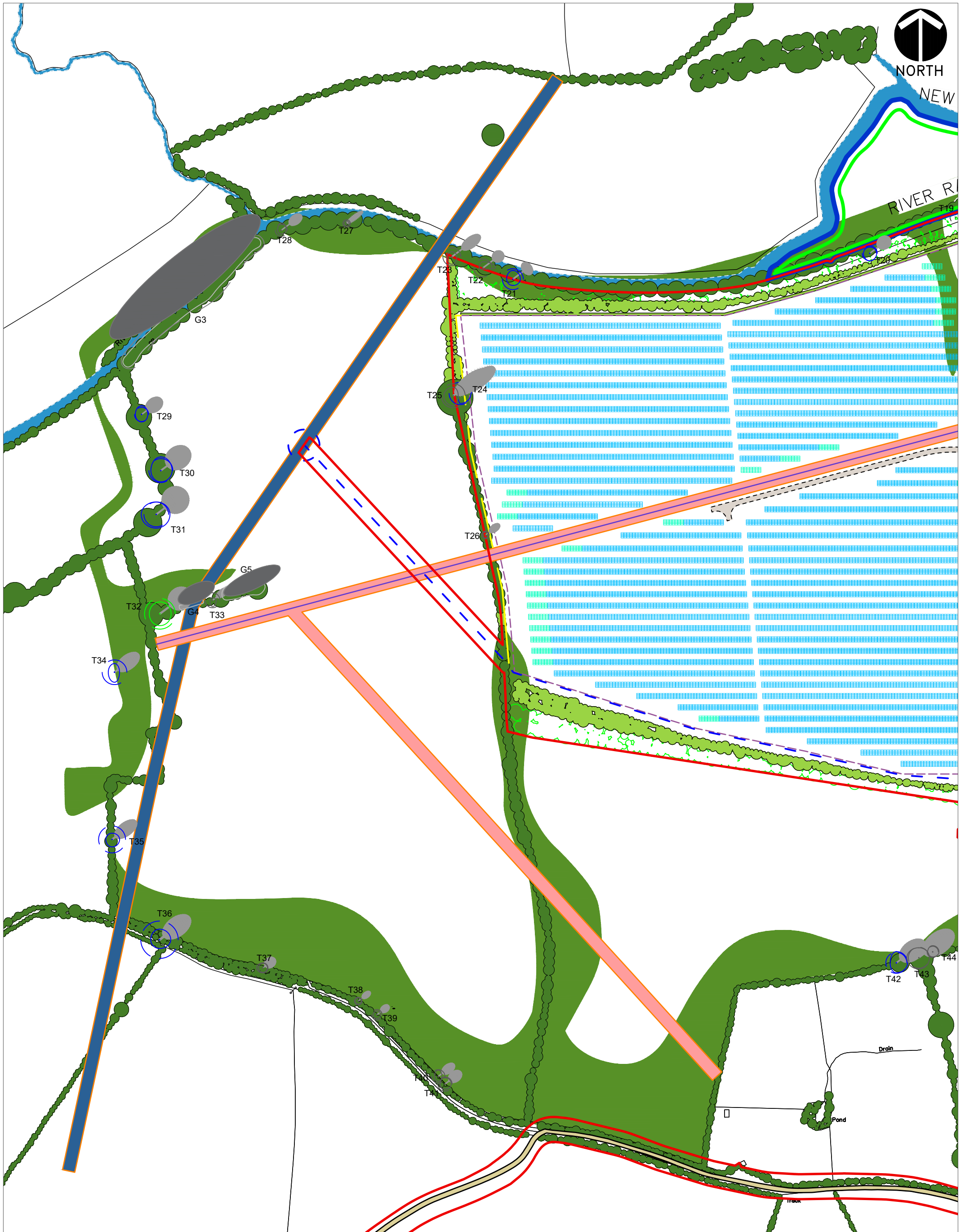
- 
- Category A crown
- Category A stem
- Category A RPA
- Category B crown
- Category B stem
- Category B RPA
- Category C crown
- Category C stem
- Category C RPA



Not scaled

- 
  - Category A crown
  - Category A stem
  - Category A RPA
- 
  - Category B crown
  - Category B stem
  - Category B RPA
- 
  - Category C crown
  - Category C stem
  - Category C RPA

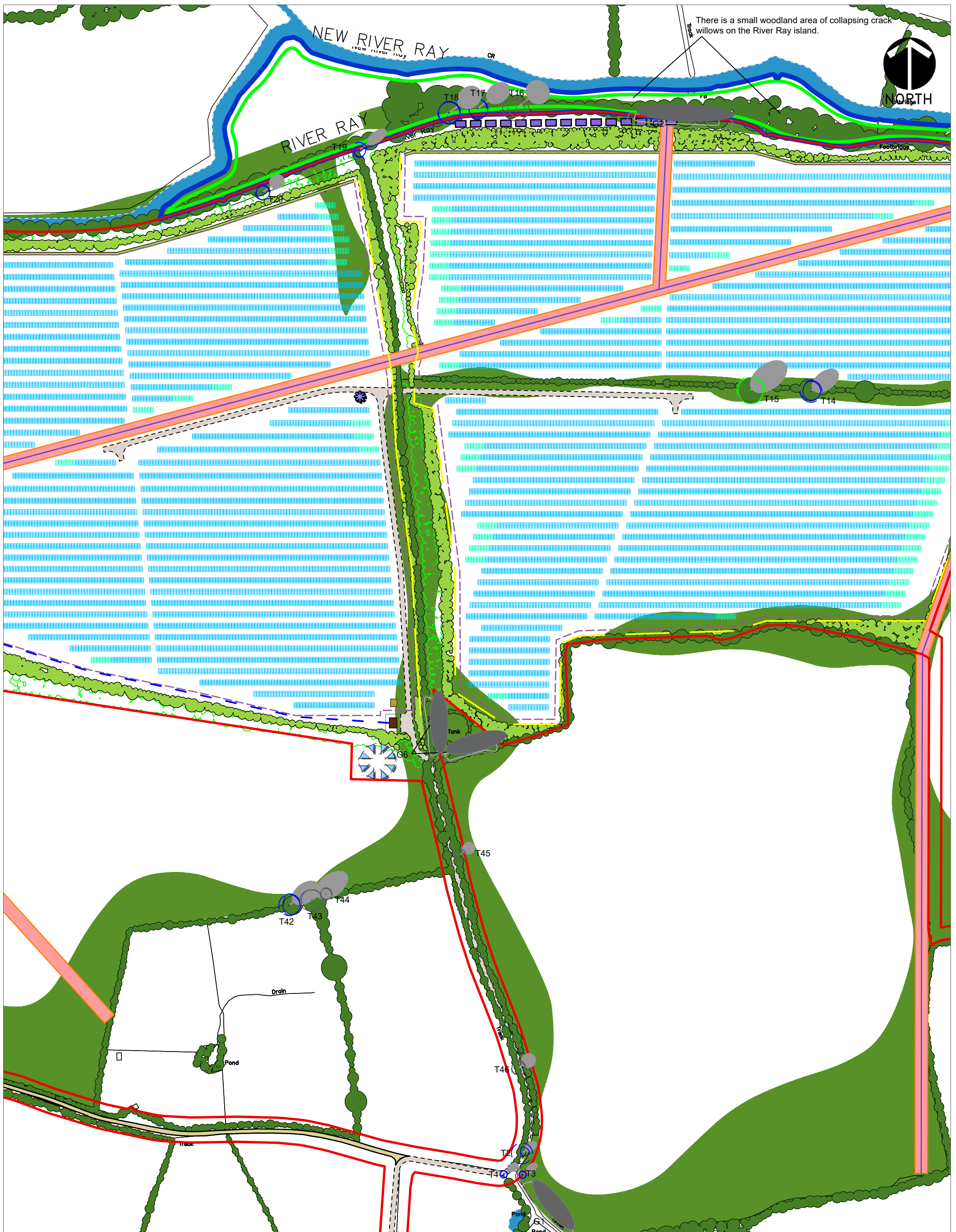




Plan 2a Tree Constraints Plan showing the proposed layout; western third of the site.

Not scaled

-  Category A crown  
 Category A stem  
 Category A RPA
-  Category B crown  
 Category B stem  
 Category B RPA
-  Category C crown  
 Category C stem  
 Category C RPA
-  Shading from a tree.



Plan 2b Tree Constraints Plan showing the proposed layout; central third of the site.

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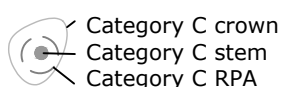
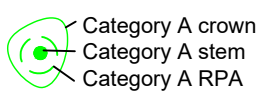
- Category A crown
- Category A stem
- Category A RPA
- Category B crown
- Category B stem
- Category B RPA
- Category C crown
- Category C stem
- Category C RPA
- Shading from a tree.

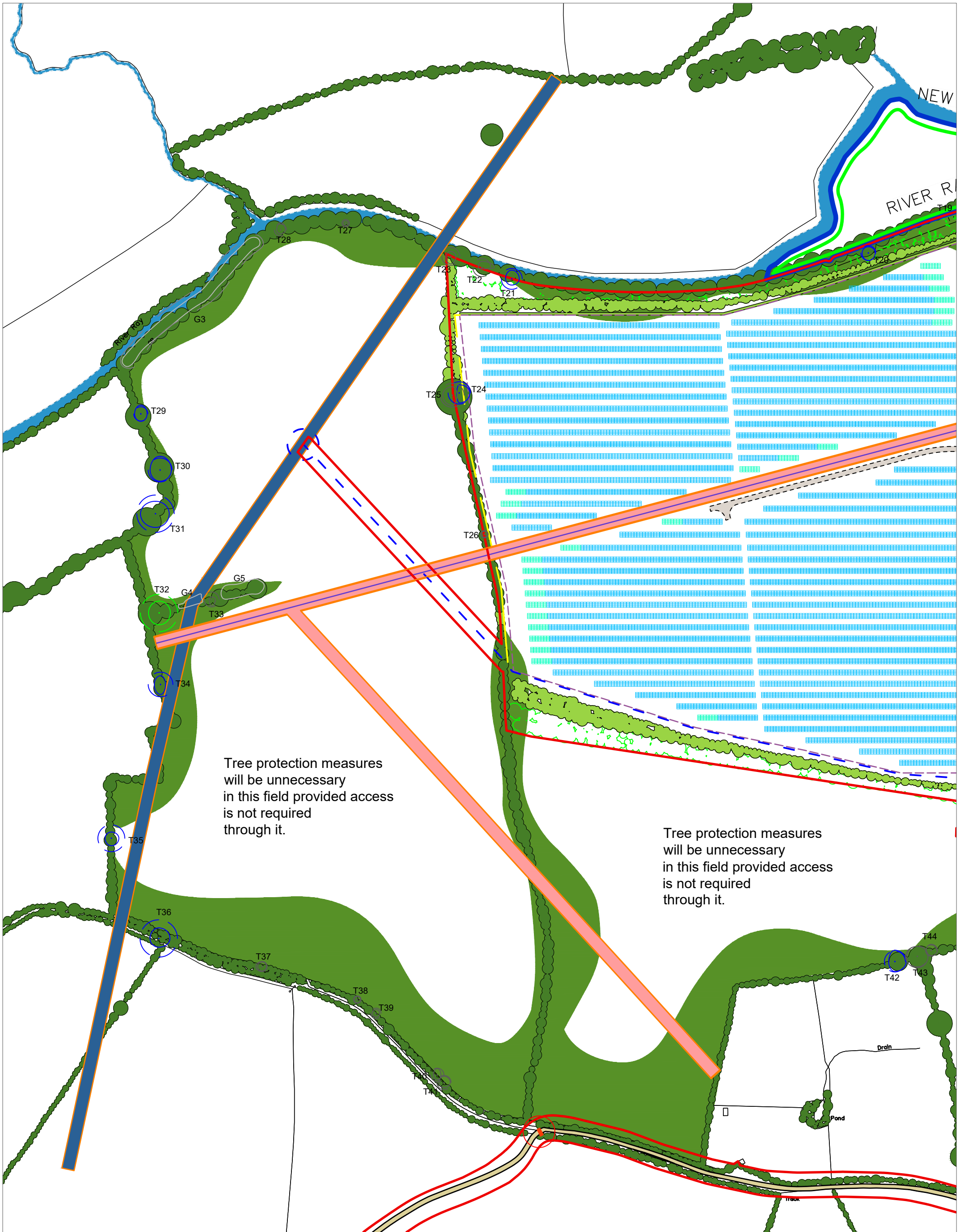




Plan 2c Tree Constraints Plan showing the proposed layout; eastern third of the site.












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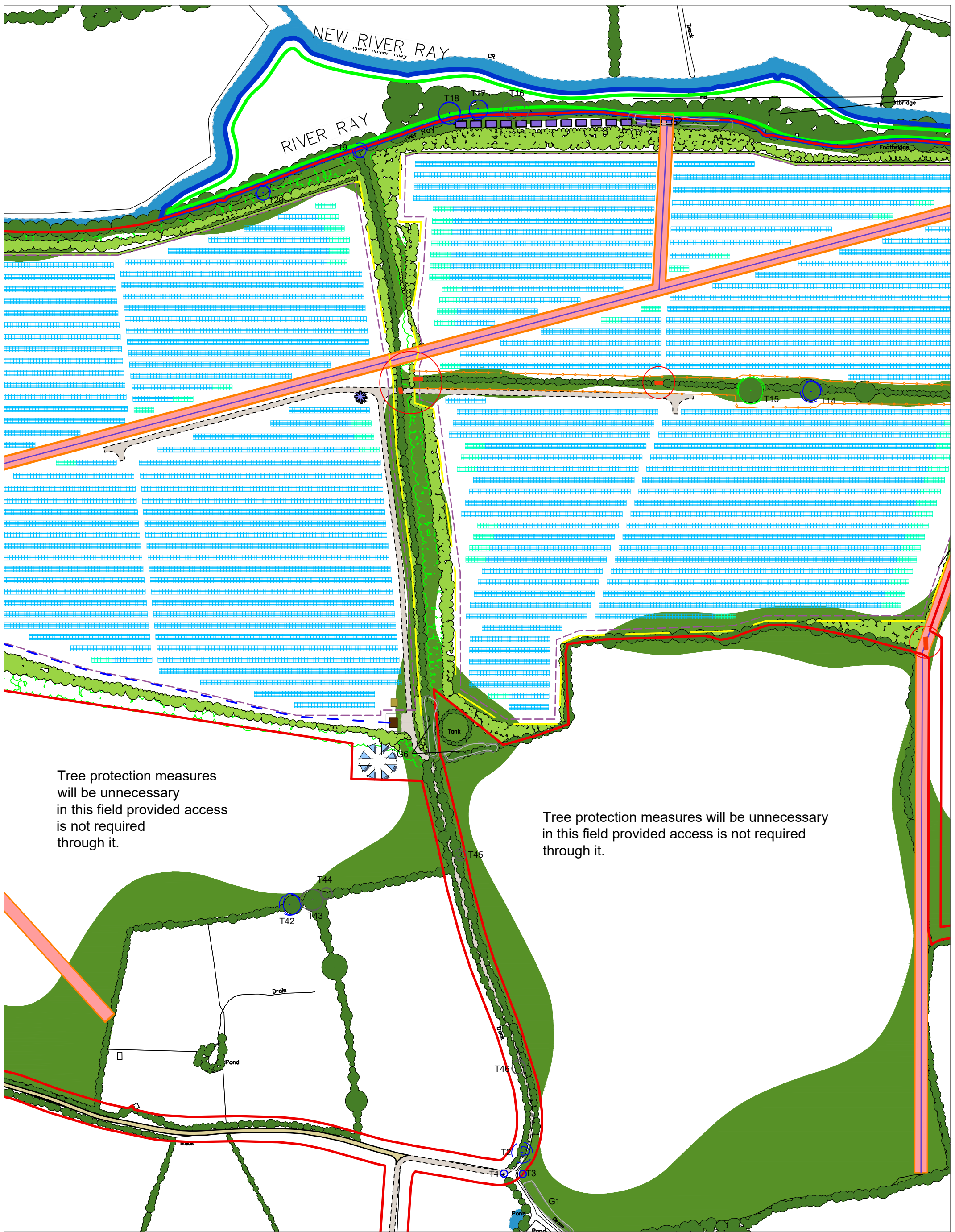


Plan 3a Tree Protection Plan showing the proposed layout; western third of the site.

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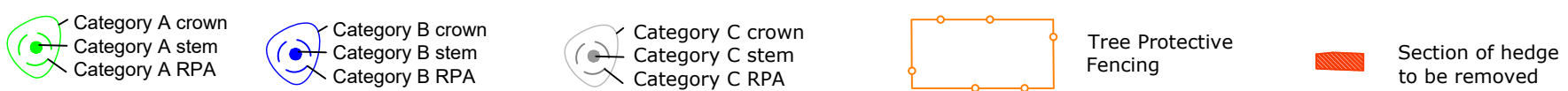
-  Category A crown  
 Category A stem  
 Category A RPA
-  Category B crown  
 Category B stem  
 Category B RPA
-  Category C crown  
 Category C stem  
 Category C RPA
-  Tree Protective Fencing
-  Section of hedge to be removed

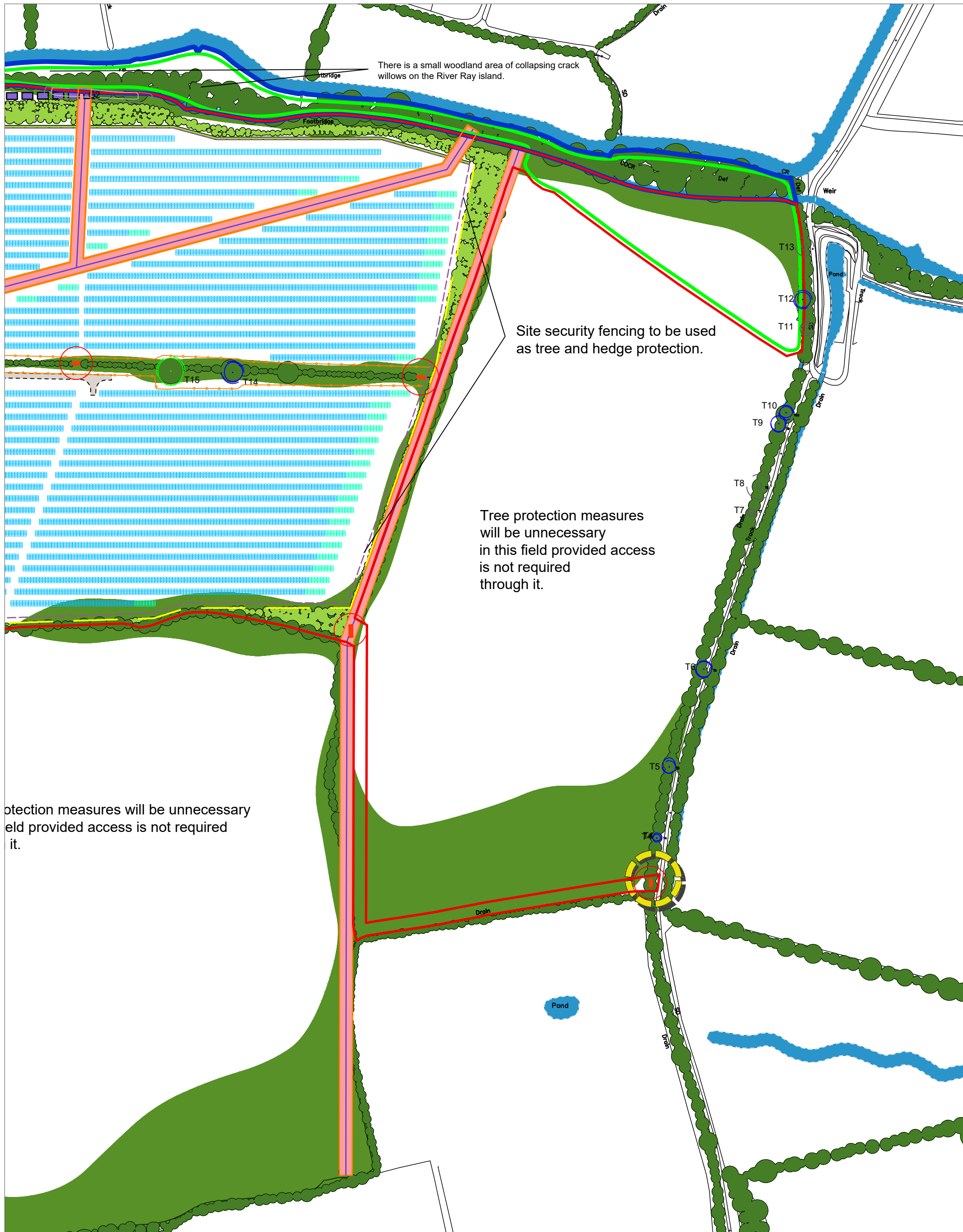




Plan 3b Tree Protection Plan showing the proposed layout; central third of the site.

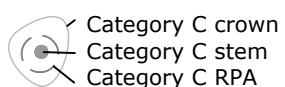
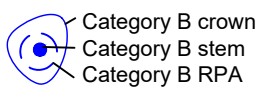
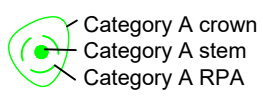
Not scaled





Plan 2c Tree Constraints Plan showing the proposed layout; eastern third of the site.

Not scaled



Tree Protective Fencing



Section of hedge to be removed

## **Appendix 1**

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### **The Experience and Qualifications of Ian Kennedy**

#### **1. Qualifications**

Ian graduated from the Scottish Agricultural College in August 1995 with a Higher National Diploma in Horticulture (HND) with Distinction.

In 1998 Ian graduated from the University of Aberdeen with a BSc (Hons) Upper second class in Forestry with Arboriculture and Amenity Forestry.

He passed the LANTRA Professional Tree Inspection examination in (2006).

In 2009 his application to become a professional member of the Arboricultural Association was assessed to fulfil all the necessary requirements and he became a professional member of the Association that year.

In 2011 he passed the final examination of the Institute of Chartered Foresters and became a member of that institute in January 2012.

#### **2. Practical experience**

Presently Ian is working in private practice as an independent arboricultural and woodland management consultant undertaking tree conditions surveys, pre-development tree surveys to the BS5837:2012 standard, mortgage reports and woodland management planning works. Clients range from home owners and farmers to architects, building companies, local authorities, schools and larger development companies.

Prior to private practice Ian held a number of positions in local government. Firstly, he was the arboriculturalist within a planning office in Essex. Ian gained considerable experience regarding trees in relation to development, in particular BS 5837.

Development work formed the core of his duties and applications ranged from small back garden developments to major schemes such as the redevelopment of Ministry of Defence land for private residential development. Ian also undertook all functions associated with Tree Preservation Orders (TPOs), including the making of new TPOs, assessing suitability of applications to work on protected trees and trees in conservation areas.

Ian went on to manage a 500 hectare woodland estate for a local authority in South Yorkshire that included a mix of urban and rural woodlands. This included preparation and implementation of detailed management plans for multiple use woodlands. He undertook all aspects of silvicultural management from marking to contract tendering and monitoring. He also managed the access, conservation, landscape and archaeological requirements of the estate.

Ian was directly involved in the estate achieving Forest Stewardship Council certification in 2003 and personally ensured continued certification.

Ian has worked extensively with Forestry Commission to obtain the necessary licences for management works and ensured the estate benefited fully from the full range of grants available.

Latterly at the same authority Ian went on to manage the trees and woodlands unit, having overall responsibility for management of the authority's tree and woodland stock and associated staff, together with delivery of other tree related services such as those associated with the Town and Country Planning Acts.

### **3. Continuing professional development**

Ian regularly attends meetings, seminars and training events hosted by The Arboricultural Association, Institute of Chartered Foresters, Royal Forestry Society and Forestry Commission and benefits from the respective journals, briefings and newsletters available to members of the first three of the organisations listed.

### **4. Relevant experience**

Ian Kennedy has spent 21 years working with trees, including as the arboricultural advisor to planning officers for a Local Planning Authority and manager of a trees and woodlands unit for another local authority with overall responsibility for trees, including in relation to the Town and Country Planning Acts.



## Appendix 2

### Tree Retention Categories

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)	Identification on plan		
<b>Trees unsuitable for retention (see Note)</b>				
<b>Category U</b> Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	<ul style="list-style-type: none"> <li>Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li> <li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li> <li>Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</li> </ul> <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p>	See Table 2		
<p><b>1 Mainly arboricultural qualities</b>                      <b>2 Mainly landscape qualities</b>                      <b>3 Mainly cultural values, including conservation</b></p>				
<b>Trees to be considered for retention</b>				
<b>Category A</b> Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
<b>Category B</b> Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
<b>Category C</b> Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

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## Appendix 3

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### Explanatory notes for some of the terms used in this report

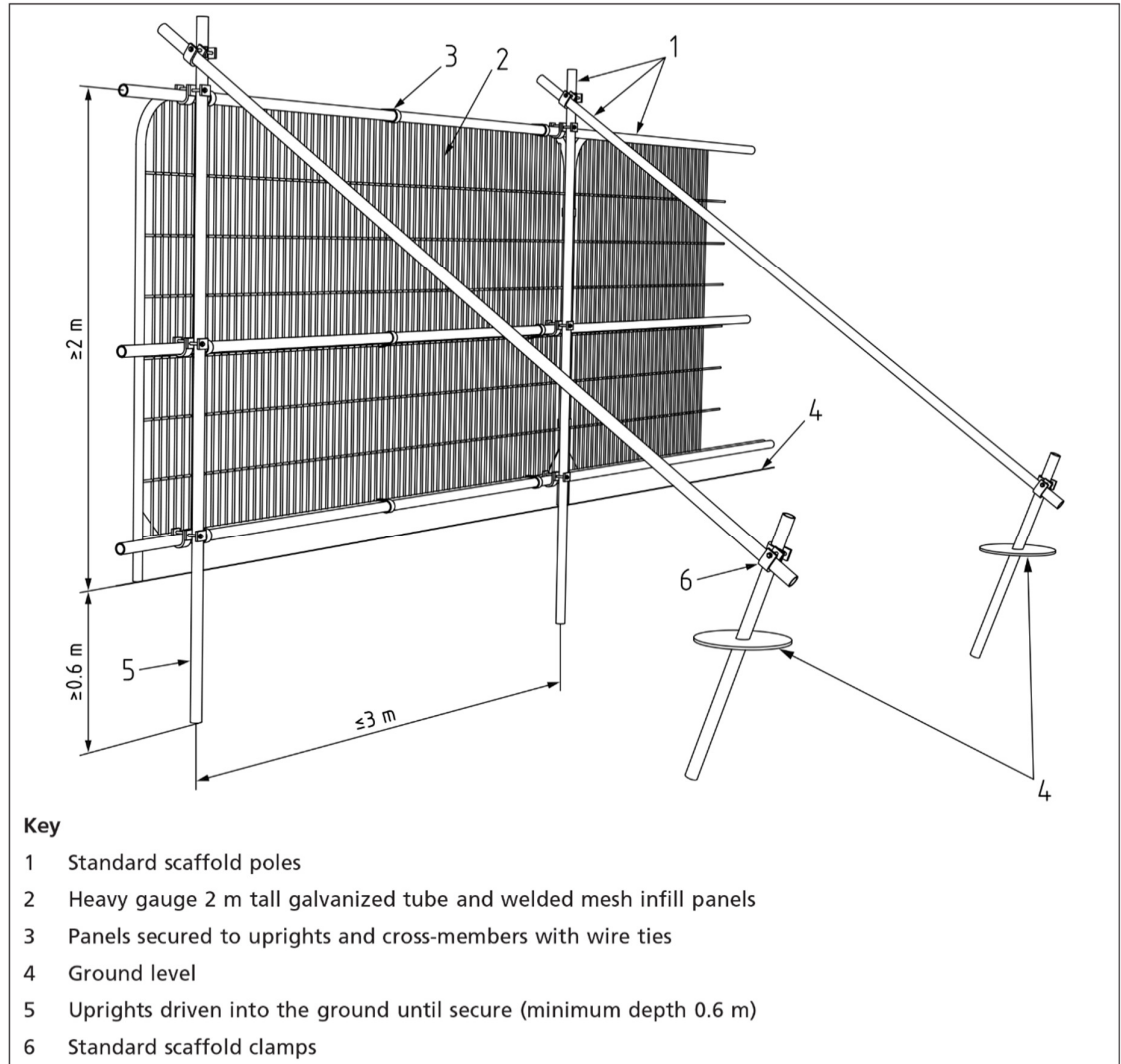
- **Stem Diameter:** The diameter of the trunk at 1.5m above ground level and recorded in millimetres measured with a diameter tape.
- **Compass Bearing:** N = north; S = south; E = east; W = west;
- **Life Stage:** Assessed as either:
  - Semi-mature = Very young, recently planted or established. Often a size which could be transplanted;
  - Juvenile mature = prior to seed bearing age and could be transplanted with care;
  - Young Mature = early maturity, not fully grown but of seed bearing age and may have achieved mature height;
  - Mature = fully grown, annual growth is much reduced;
  - Old Mature = old for the species, possibly starting to decline;
  - Veteran = Beyond maturity for the species. This can be characterised by larger than average stem diameters, scaffold branches or crown spreads. Often still growing with full crowns.
  - Ancient = Well beyond normal mature age. It will have special characteristics associated with its age, including biological, cultural. Growth rates will significantly reduced and the tree may be declining in size.
- **Estimated size: #**
- **Health:**
  - Normal Vitality = normal growth and twig extension;
  - Moderate Vitality = reduced twig extension but other than that few signs of ill-health;
  - Early Decline = reduced twig extension and some dead twigs in the outer canopy;
  - Mid-decline = small internodes, the canopy may be thinning and contain dead twigs and/or branches in the outer canopy, older branch wounds that haven't occluded may be decaying and forming cavities;
  - Severe Decline = sparse crown, numerous dead twigs and branches in the outer canopy, older branch wounds likely to be decaying and forming cavities;
  - Dead.
- **Structural Condition**
  - Acute stem union = a weak union between two or more stems at the main forking point caused by the formation of reaction wood. Mechanical pressure

at the forking point increases as secondary thickening occurs increasing the risk of failure at that point.

- Acute branch union = the same principle as acute stem unions but between a stem and a branch or two branches rather than 2 main stems.
- **Estimated life**
  - The life expectancy brackets of <10 years, 10+ years, 20+ years and 40+ years accord with the guidance in BS5837:2012 and should be considered as the useful life expectancy in the location the trees are growing in. For example, a tree with significant defects growing in a quiet area could be retained for longer than a tree growing next to a busy highway or a residential building.
- **Amenity**
  - High = Growing in a place that is very publicly visible such as a next to a busy road or places where people gather. The tree is also likely to be large or very large.
  - Medium = A smaller tree growing in a very publicly visible place or a large tree growing in a place with reduced public access.
  - Low = A small to medium sized tree growing in a quiet location where it is barely or not visible to anyone other than the landowner.

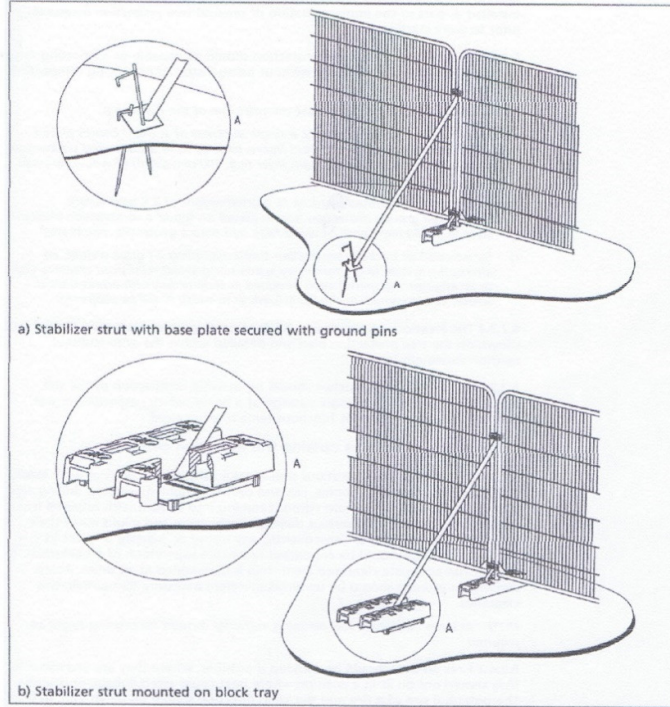
## Appendix 4

### Suggested Tree Protection Fencing taken from BS5837:2012



**Braced Heras fencings can be used as an alternative to a scaffold frame**

Figure 3 Examples of above-ground stabilizing systems



## Appendix 5

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### Example of a sign to attach to tree protective fencing





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