Appendix 4.4 Arboricultural Assessment

Hallam Land Management

Great Wilsey Park, Haverhill

Arboricultural Assessment

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INTRODUCTION

1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Hallam Land Management to present the findings of an arboricultural assessment and survey of trees located at Great Wilsey Park, Haverhill (hereafter referred to as the site), OS Grid Ref TL 688 457, as shown in Figure 1. The survey was carried out during October 2014.

1.2 The tree survey and assessment of existing trees has been carried out in accordance with the guidelines contained within British Standard 5837:2012 *'Trees in Relation to Design, Demolition and Construction - Recommendations'* (hereafter referred to as BS5837). The guidelines set out a structured assessment methodology to assist in determining which trees would be deemed either as being suitable or unsuitable for retention. The guidelines also provide recommendations for considering the relationship between existing trees and how those trees may integrate into designs for development; demolition operations and future construction processes so that a harmonious and sustainable relationship between any retained trees and built structures can be achieved.

1.3 The purpose of the report is therefore to firstly present the result of an assessment of the existing trees' arboricultural value, based on their current condition and quality in accordance with the guidelines and to secondly provide an assessment of impact arising from the proposed re-development of the site.

1.4 This report has been produced to accompany a planning application for approximately 2500 dwellings, two schools, community facilities, highway infrastructure, flood attenuation, allotments and new woodland parcel. The report includes an assessment of the impact arising to the tree cover and has therefore focused on any trees present within or bordering the site that may potentially be affected by the future proposals or will pose a constraint to any proposed development.

1.5 The site includes approximately 166 Ha of land located to the north east of the town of Haverhill and is bordered by nearby villages of Little Wratting to the north and Kedington to the east. The assessment area included numerous arable field compartments and woodland parcels positioned throughout the site providing high quality mature tree cover creating significant landscape features. Linear tree groups separated the site from neighbouring residential areas to the west. The central watercourse formed a central spine running through the site with mature tree cover fringing the banks of the central watercourse linking the existing treed landscape throughout the site.

1.6 It is understood following consultation with the Local Planning Authority, St Edmundsbury Borough Council, that there are no tree preservation orders or conservation area designations that would apply to any trees present on site and therefore no statutory constraints would apply to the development in respect of trees. It is understood however that there is a Tree Preservation Order, TPO number 348(2002), which applies to a number of trees within close proximity to the assessment area. A plan detailing trees covered by the TPO has been included within the report as Appendix C and further details are given in Chapter 4.

1.7 The report comprises:

- Chapter 1 provides an introduction to the assessment work, its purpose and background details.
- Chapter 2 briefly describes the methodology by which the tree survey and assessment has been undertaken.
- Chapter 3 presents a summary of the results of the tree survey.
- Chapter 4 evaluates the findings of the survey and assessment in respect of the development proposals in the form of an Arboricultural Impact Assessment and also provides principal recommendations for mitigation planting, specific tree protection measures including pruning.
- Chapter 5 presents an indication of the tree protection measures to be required from a general viewpoint such as typical fencing requirements.
- Chapter 6 provides a conclusion to the findings of the assessment.

1.8 It must be understood that should any specific tree protection be required, this would need to be separately considered where needs arise prior to the commencement of construction activity following approval of a detailed application. Details of specific tree protection measures would be presented in the form of an Arboricultural Method Statement produced in accordance with guidance in BS5837 and is beyond the scope of this initial Arboricultural Assessment.

2.0 METHODOLOGY

2.1 The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of BS5837. The survey has been undertaken by suitably qualified and experienced arboriculturalists and has recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of the proposed development in a transparent, understandable and systematic way.

2.2 Trees have been assessed as groups or woodlands where it has been determined appropriate. The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture. An assessment of individual trees within groups or woodlands has been made where a clear need to differentiate between them, for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

2.3 Trees have been divided into one of four categories based on Table 1 of BS5837, *'Cascade chart for tree quality assessment'*. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below). Category U trees are those which would be lost in the short term for reasons connected with their physiology or structural condition. They are, for this reason not considered in the planning process on arboricultural grounds. Categories A, B and C are applied to trees that should be of material considerations in the development process. Each category also having one of three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural or conservation values accordingly.

2.4 **Category (U) – (Red):** Trees which are unsuitable for retention and are 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. Trees within this category are:

- Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.
- Trees that are dead or are showing signs of significant, immediate or irreversible overall decline.
- Trees that are infected with pathogens of significance to the health and/ or safety of other nearby trees or are very low quality trees suppressing adjacent trees of better quality.
- **Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.**

2.5 **Category (A) – (Green):** Trees that are considered for retention and are of high quality with an estimated remaining life expectancy of at least 40 years with potential to make a lasting contribution. Such trees may comprise:

- Sub category (i) trees that are particularly good examples of their species, especially if rare or unusual, or are essential components of groups such as formal or semi-formal arboricultural features for example the dominant and/or principal trees within an avenue.
- Sub category (ii) trees, groups or woodlands of particular visual importance as arboricultural and / or landscape features.
- Sub category (iii) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.

2.6 **Category (B) – (Blue):** Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years with potential to make a significant contribution. Such trees may comprise:

- Sub category (i) trees that might be included in category A but are downgraded because of impaired condition for example the presence of significant though remediable defects, including unsympathetic past management and storm damage.
- Sub category (ii) 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.
- Sub category (iii) trees with material conservation or other cultural value.

2.7 **Category (C) – (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:

- Sub category (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.

- Sub category (ii) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary / transient screening benefits.
- Sub category (iii) trees with no material conservation or other cultural value.

Tree Schedule

2.8 Appendix A presents details of any individual trees, groups, hedgerows and woodlands found during the assessment including heights, diameters at breast height, crown spread (given as a radial measurement from the stem), age class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention and the root protection area.

2.9 General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where appropriate.

Hedgerows

2.10 For the purposes of this report, a hedgerow is desribed as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime. Hedgerows and substantial internal or boundary hedges (including evergreen screens) have been recorded including lateral spread, height and stem diameter(s). Where trees are present within a hedgerow that are significantly different in character from the remainder, these have been identified and recorded separately.

2.11 A tree survey in accordance with BS5837 does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, and is outside the scope of this assessment.

Other Considerations

2.12 It may also be necessary to undertake further assessment and accurate positioning of woody species within hedgerows and tree groups to assist structural calculations for foundation design of structures in accordance with current building regulations. Knowledge of soil type may however not be known at the time of this tree assessment and therefore the results of the tree survey must be read in conjuction with a current soil survey of the site.

Conditions of Tree Survey

2.13 The survey was completed from ground level only and from within the boundary of the site. Aerial inspection of trees was not undertaken at this stage. Investigations as to the internal condition of a tree have also not been undertaken as this is beyond the scope of this assessment. Evaluation of tree condition given within this assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months, in accordance with sound arboricultural practice.

Site Plans

2.14 Figure 1 (drawing no. 5055-A-01) identifies the assessment area including trees beyond the application boundary that may be affected by future development of the site and should not be considered as the application boundary.

2.15 The individual positions of trees and groups have been shown on the Tree Survey Plan, Figure 2 (drawing no. 5055-A-02 – 5055-A-05 REV A). The positions of trees are based on a topographical / land survey, as far as possible, supplied by the client. Where topographical information has not identified the position of trees and hedgerows, their relation to any existing surrounding features has been plotted using a global positioning system and aerial photography to provide approximate locations. The crown spread, root protection area and shade pattern (where appropriate) are also indicated on this plan.

2.16 As part of the Arboricultural Impact Assessment, a Tree Retention Plan, Figure 3 (drawing no. 5055-A-06 – 5055-A-09 REV C) has been prepared to show the proposed layout in relation to the existing tree cover allowing an assessment of any potential conflicts. The plan also identifies which trees would be removed or retained as part of the proposed development.

Tree Constraints and Root Protection Areas

2.17 Below ground constraints to future development are represented by the area surrounding the tree that contains sufficient rooting volume for the specimen to have the best chance of survival in the long term and is known as the root protection area. The root protection area has been calculated in accordance with section 4.6 of BS5837 and requires suitable protection in order for the tree to be successfully incorporated into any future scheme. Where applicable the shape of the root protection area has been modified to take into account the presence of any nearby obstacles (existing or past) which may have restricted root growth and the likely root distribution i.e. the presence of hard standing, structures and underground apparatus.

2.18 Where groups of trees have been assessed, the root protection area has been shown based on the maximum sized tree in any one group and so may exceed the root protection area required for some of the individual specimens within the group.

2.19 Above ground constraints have been considered such as the current and potential crown spread of the trees and an illustration of the shade pattern (where appropriate) has been plotted on the plans to indicate their potential area of shading influence.

3.0 RESULTS

3.1 A total of 71 individual trees 30 groups of trees, 7 woodlands and 24 hedgerows were surveyed as part of the arboricultural assessment. Trees were surveyed as individual trees and groups of trees where examples are clearly present. Refer to Figure 2 – Tree Survey Plan and Appendix A – Tree Schedule for full details of the trees included in this assessment. The table below summarises the trees assessed. Several of the trees have been discussed in more detail following the table, owing to their physical condition or arboricultural significance.

Results Summary

3.2 The tree stock was predominantly distributed along the central water course and also within two prominent blocks of mixed species woodland, one situated towards the north of the site and the other positioned towards the south west fringing the existing extent of Haverhill. Tree cover across the whole site comprised mainly of early mature and mature specimens most of which were native mixed species with none being particularly dominant. Higher concentrations of tree cover could be found in areas associated within either established woodlands or newly planted blocks of trees offering a wide range of species. Species present across the whole site consisted mainly of English oak, ash, English elm, field maple, hawthorn and blackthorn. The western boundary supported semi and early mature specimens within boundary tree groups as this boundary met with existing residential areas in part.

The eastern portion of the site provided only limited mature tree cover mainly positioned within field boundary hedgerows and small copse groups where field boundaries converge. The remaining vegetation cover was in the form of a number of low quality hedgerows forming the individual field boundaries of the existing agricultural field parcels. Species were limited to English elm, blackthorn, hawthorn, elder, dogwood and field maple with a number of hedgerows comprising a single species.

3.3 Trees across the site were generally found to have grown reactively to their environmental conditions. Specimens to the east displayed traits typically associated with specimens growing in areas of open countryside, having seen little in the way of targeted management whilst trees within areas of woodland exhibited characteristics of trees growing in close proximity to one another resulting in etiolated forms. Most of the trees were of fair and good overall physical condition containing some dead wood of varying proportions along with past storm damage and naturally occurring structural conditions such as branch socket cavities, branch stubs through limb loss and crossing and rubbing material.

3.4 Where pruning had occurred on individual specimens across the site, branch material had generally been removed in an unsympathetic manner leaving a combination of flush cuts and branch stubs. These minor defects leave open wounds exposing heartwood which can allow the potential ingress of decay and fungal pathogens which can lead to premature loss of mature trees over time. The presence of overhead cables had also resulted in number of trees being reduced in height creating open wounds at the top of numerous stems.

3.5 Trees whose positions were slightly offsite were included within the assessment as their presence could influence the assessment area by virtue of their close proximity. Due consideration should therefore be given to their existence for any impacts that may arise as a result of the proposed development.

Table 1: Summary of trees by category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable	T4, T5, T7, T47, T56, T65	7		0
Category A (High Quality / Value)	T8, T11, T15, T16, T17, T19, T21, VT1, T24, T25, T26, T27, T31, T32, T35, T38, T39, T42, T43, T44, T45, T46, T51, T52, T53, T59, VT2, T66, T67, T69, T70, T71	30	TG18, W3, W4, W5, W7	4
Category B (Moderate Quality / Value	T3, T6, T9, T12, T13, T14, T22, T29, T33, T34, T36, T41, T48, T54, T55, T57, T60, T61, T62, T68	20	TG5, TG6, TG7, TG8, TG10, TG11, TG22, TG23, TG25, TG26, TG27, TG28, TG29, W1, W2, W6	17
Category C (Low Quality / Value)	T1, T2, T10, T18, T20, T28, T30, T37, T40, T49, T50, T58, T63	13	TG1, TG2, TG3, TG4, TG9, TG12, TG13, TG14, TG15, TG16, TG17, TG19, TG20, TG21, TG24, TG30, H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, H12, H13, H14, H15, H16, H17, H18, H19, H20, H21, H22, H23	40

Central Watercourse

3.6 A small watercourse bisects the site in a northwest to southeast orientation with TG11 providing the majority of vegetation cover along the length. The group included riparian species such as crack willow and alder along with a mixture of outgrown understory species of blackthorn, elder, hawthorn, field maple, sycamore and dogwood which had formed either side of the watercourse. Tree cover towards the south east contained a high percentage of English elm trees resulting in a large number of standing dead stems due to the presence of Dutch elm disease *Ophiostoma ulmi*.

The majority of the willow and alder specimens throughout TG11 were multi stemmed from ground level or had multi leadered forms due to the characteristics of the species. Many of these specimens may possibly have been managed in the past through coppicing or pollarding to produce poles and firewood. The maintenance of the trees within the group had generally lapsed and had subsequently formed dense structures, although the occasional collapsed stems or dead specimen created gaps amongst the tree cover.

3.7 Situated centrally to the site and also adjacent to the banks of the watercourse were a large number of mature English oak trees which provided the tallest trees along the length of the brook having reached heights up to 25m. Three individual hybrid black poplar trees (T6, T23 and T24) exhibiting large proportions with stem diameters in excess of 1200mm when measure at 1.5m from ground level and heights to 23m were also positioned along the length of the watercourse .

Woodlands

3.8 Seven defined woodland blocks housing early mature and mature trees were observed across the site. High quality woodlands such as W3, W5 and W7 contained mature trees of greater structure providing greater landscape features than the younger tree plantations such as W1 and W4.

3.9 Three woodland parcels, W1 towards the south west and W5 and W7 towards the north formed the largest portions of continuous tree cover within the site. W1 was composed of a high proportion of early mature Norway maple *Acer platanoides* and sycamore *Acer pseudoplatanus* combined with a mixture of Scots pine *Pinus sylvestris* and / or Austrian pine *Pinus nigra* which had been planted within a linear formation creating an extensive belt of trees in a northwest to southeast orientation. A wide range of native species were also present throughout W1 with the vast majority of specimens exhibiting etiolated forms due to the close spacing's between each specimen. The understory was limited to areas of extensive self-set seedlings and suppressed undergrowth due to the dense crown structures resulting in excessive shading at ground level. A number of well-trodden informal footpaths also passed through W1 providing access to local dog walkers.

W5 was surrounded by numerous high quality mature specimens positioned along the western edge which, due to their linear position, had possibly been planted as part of the original landscape. Research of mapping of 1886 identifies these mature specimens positioned around an open field compartment which had since formed a framework within which younger tree planting had been established as Great Field Plantation. The eastern portion of the new woodland was planted around 1900 with an addition of further planting to the west of this group following the cessation of the First World War. The extent of the woodland has not changed since and the species content was predominantly conifer offering limited value in terms of ecological habitats.

Immediately to the east and adjacent to woodland W5 was W7. Although these two areas of woodland had merged together there was a clear distinction between the two when observed from an elevated view point. Trees within W7 displayed younger proportions in comparison to the neighbouring specimens of W5 along with a more regular spaced pattern giving the impression that this woodland was planted at a later date. Discussions with the land owner confirmed that this plantation was intended to produce a crop of Christmas trees which had never been harvested and had subsequently been allowed to outgrow. Species also differed slightly with a higher content of deciduous trees such as common larch *Larix decidua*, grand fir *Abies grandis* and Norway spruce *Picea abies.*

Photograph 1: Elevated view of W5 and W7

3.10 W3, a woodland block and known locally as Mary Cole's Grove, was of mature age and housed numerous high quality trees which had formed through natural regeneration. This woodland was situated to the east of the site beyond the main assessment area but was recorded due to the western corner of the woodland bordering the site.

3.11 W4 was situated centrally to the site and immediately to the east of the central watercourse. Similarly to W1, W4 comprised tall and drawn forms positioned closely together and may have been planted for similar reasons as W7. A higher content of coniferous species such as Scots pine and Austrian pine had resulted in an increase of shade, limiting understory growth to brambles and nettles. As found within the majority of the woodland observed across the site dead and decaying material was found in various proportions along with standing dead stems which had occurred through competition from the neighbouring trees.

Hedgerows

3.12 The majority of the fields were bounded by maintained hedgerows through annual cutting creating, dense, clipped and consolidated structures sometimes formed from laid and coppiced material of early mature proportions. A number of hedgerows had become outgrown in places due to either a lapse in management or a prolonged period between cuttings. No major defects were found within the hedgerows with the exception of some minor broken branches, branch stubs and crossing and / or rubbing branches. Gaps could be found throughout the hedgerows although the majority of these had been colonised by bramble and scrub growth.

A range of species were recorded for the hedgerows, most of which were of native types including field maple, dogwood, hazel, hawthorn, blackthorn, common ash, holly, English oak, elder, beech and goat willow. Standard trees were also found within the vast majority of the hedgerows which consisted of common ash, English oak, English elm and sycamore. Due to the large quantity of English elm throughout the site, dead specimens were found within the majority of hedgerows, having succumbed to Dutch elm disease *Ophiostoma ulmi.* H6, H17 and H20 consisted of newly planted hedgerow material where tree guards were still present.

The annually managed hedgerow forms across the site provided ecological value as natural wildlife corridors, however in arboricultural terms they were considered to be low in quality and therefore retention category C due to their limited landscape and visual amenity contribution currently.

Mature Oak Trees

3.13 There were a number mature oaks situated throughout the site creating visually prominent features due to their proportions and characteristics. T8, T9, T11, T13, T14, T15, T16, T17, T19, T51, T57, T59 and TG18 were all English oak trees situated within field boundary hedgerows housing typical defects / habitat features such as sections of hung up dead wood and minor damage to branches amongst the crown. These specimens were considered to be a mixture of high and moderate arboricultural quality with trees of greater visual prominence and / or conservation value being regarded as retention category A.

Photograph 2: Typical form of a mature English oak across the site

3.14 Approximately 25 mature oaks were positioned centrally to the site along the banks of the watercourse all within relatively close proximity to one another. Typical characteristics found across the site such as branch stubs, broken material and dead wood were also present on a number of these individuals exhibiting additional defects often associated with aged trees. Specimens displayed significant cavities on either main stems or at the bases, dieback of the crowns indicating a decline in health, loss of main leaders or large limbs, unsympathetic removal of lower branches and suppressed crowns in places. Despite these structural conditions the trees provided prominent and established tree cover along the central watercourse and were considered collectively to be a valuable arboricultural and ecological habitat.

3.15 A row of mature oak trees situated along the western edge of W5 were distinctly different from the specimens set within the woodland and were considered to be of a high arboricultural significance due to their overall proportions and visual amenity value.

3.16 Six mature oak trees of large proportions (T66 - T71) were situated within hedgerow H13 forming the field boundary. The positions of these trees replicated the spacing between specimens situated to the south west of W5. All of these specimens could possibly be the remnants of past planting on the site and are estimated to be between 100 and 200 years old.

These oak specimens all displayed physical conditions and characteristics typically found on such trees in this type of environment with open grown crowns supporting several broken branches, branch stubs, branch socket cavities and crossing branch material throughout. Epicormic growth was present amongst the crowns alongside dead wood in various proportions,

evidence of past and recent storm damage. A number of these specimens displayed heart wood in places which had become exposed through the loss of crown sections and in the case of T68 fire damage through vandalism. Despite these notable defects all of these trees were considered to be of high quality in arboricultural terms with considerable remaining life expectancy. The trees also provided prominent visual focal points within the surrounding landscape offering high amenity value and therefore regarded as retention category A.

Photograph 3: Mature English oaks fringing the edge of W5 (left) and trees T65 – T71 (right)

Veteran and Ecologically Beneficial Trees

3.17 A single individual specimen assessed (T23) exhibited a number of characteristics associated with Veteran trees. The characteristics observed included large girth for the species concerned, major trunk or stem cavities with progressive hollowing, physical damage to the trunk, bark loss, large quantities of dead wood and an old look and appearance.

3.18 T23 was a hybrid black poplar situated within the central watercourse. This specimen comprised of numerous collapsed stems which had regenerated over time after coming into contact with the surrounding ground. This form is commonly known as 'Phoenix Regeneration' where a new tree develops by the layering of one that had fallen or bent down to the ground while still remaining rooted. Extensive hollowing and decay was observed along with possible fire and fungal fruiting bodies of *Pholiota squarrosa* or Shaggy Scalycap were present throughout the collapsed stems. Taking all of these factors into consideration it would be justifiable to categorize T23 as a Veteran tree and therefore retention category A.

3.19 T64 was situated within the northern portion of the site, south of the existing school field and on the edge of TG28. This English oak had been subjected to extensive damage in the past possibly resulting in significant structural failure reducing the crown to a main stem with a couple of lateral branches and epicormic growth. The now hollow stem had been drastically weakened through vandalism which had caused the central stem material to have been lost entirely through fire damage leaving a thin wall of functional tissue. The remains of either past fallen or removed branches were scattered around the base of the tree with a single piece of timber acting as a support to the precariously balanced main stem of T64. At the time of inspection this specimen could also be seen moving in contortedly due to the effects of wind upon the unstable structure twisting the stem.

3.20 Although T64 exhibited some characteristics that may be associated with Veteran trees this specimen would be deemed to be in such a condition that it could not be realistically retained as a living tree in the context of the current land use for longer than 10 years and was therefore regarded as retention category U. Due to the fact that Veteran trees are important components of the landscape for a number of reasons including ecological, social, cultural and historical value it is recommended that this tree is allowed to decline over time naturally reaching its own demise. It would be recommended however that T64 is managed sympathetically through similar techniques used on veteran trees to prevent the decline being accelerated. Access should also be restricted in order to prevent further vandalism and reduce the potential for injury to members of the public.

New Plantation

3.21 Two areas of recently new tree planting were observed towards the north east of the site consisting of TG3 and TG5. TG3 consisted of young to semi mature specimens possibly planted to provide a landscape buffer to the new residential development off Green Road. A wide range of native species were noted in either single or multi stemmed forms. Planting guards and stakes were still present and trees displayed no major defects due to their age although the majority of these trees had become established with a low proportion of failures.

Photograph 4: Ash dieback

Photograph 5: T64 Oak

3.22 TG5 consisted of an extensive linear belt of young and semi mature specimens planted approximately 2m apart. These trees exhibited larger proportions of those observed within TG3 and had successfully established themselves with a low number of failures. Little management had been carried out since the trees had been planted and only limited evidence of the occasional removal of individual trees was noted at the time of the assessment. Due to the close proximity of stems, specimens had started to develop upright forms and some crowns had become interlocked causing branches to cross and rub against each other. Despite these factors the tree cover of TG5 was considered to be of moderate quality providing a key landscape feature.

3.23 The symptoms of Chalara dieback of ash *Hymenoscyphus fraxinus* was observed throughout both TG3 and TG5. This disease is caused by a fungus which causes bark necrosis resulting in leaf loss and crown dieback in affected trees and is usually fatal in young trees however, research is ongoing at this current time.

3.24 The younger ash trees within TG3 displayed significant dieback and declining health and ash trees within TG5 also exhibited dieback alongside some trees indicating signs of recovery. The removal and burning of these infected specimens would be recommended to reduce the potential for spread of this disease within the surrounding area. Although unfortunate the removal of the infected trees would also act as a method of thinning TG5 to allow the remaining tree cover to mature into quality specimens as part of the group's future management in accordance with industry best practice.

4.0 ARBORICULTURAL IMPACT ASSESSMENT (AIA)

4.1 The following paragraphs present a summary of the tree survey and offers discussion of particular trees and groups recorded in the context of any proposed development in the form of an Arboricultural Impact Assessment in accordance with section 5.4 of BS5837. Any final tree retentions will need to be reconciled with the advice contained within this report.

4.2 The AIA has been based upon the Illustrative Master Plan and seeks to outline the potential impact that the proposals would have on the existing trees and vice versa. The above drawing shows the proposed development of the site which is to include new road infrastructure, residential parcels, schools, local centre, care home, office and health centre, allotments, existing green infrastructure and equipped play area positioned within the existing field compartment network.

The proposals allow the retention of the majority of the existing vegetation within the site and provides significant levels of enhancement through additional provision of green infrastructure incorporating new trees and hedgerows. In addition, the proposals identify the planting of a new woodland parcel positioned in the south the site. An overlay of the above layout has been incorporated in the Tree Retention Plan (Figure 3) to assist in identifying potential conflicts with the existing trees.

Table 2: Summary of impact on tree stock

	Trees / Tree Groups / Woodlands / Hedgerows to be Removed
Category U - Unsuitable	
Category A (High Quality / Value)	
Category B (Moderate Quality / Value	Two sections of TG5 for access roads Two sections of TG11 for access roads Part of W1
Category C (Low Quality / Value)	Part of H7 for access roads Three sections of H8 for access roads Part of H13 for access road Part to H15 for access road Part of H17 for access road Part of H18 for access road Three sections of H19 for access road Part of H20 for new roundabout

4.3 At this indicative stage, the proposed layout has largely been designed around the natural features of the site, including trees and hedgerows thereby avoiding losses where possible. To facilitate the proposed development as per the above plan no significant tree losses will be required as the proposed built elements of the development are to be positioned within the existing field parcels which are largely devoid of tree cover due to their current agricultural use. The existing trees on site, situated around the field boundaries, are to be retained and reinforced with new planting as landscape buffer strips.

4.4 The proposed main vehicular access for the development will involve the construction of a new roundabout and accompanying access roads positioned off Haverhill Road. In order to facilitate the alterations a section of H20 will need to be removed resulting in the loss of the hedgerow which would be unavoidable due to the construction requirements for the traffic island and access roads. Due to the young age and relatively unestablished nature of the hedgerow cover, any mitigation planting will easily be achieved through the extensive planting situated around the proposed access point.

4.5 The proposed primary access roads throughout the site will require the removal of small sections of tree and hedgerow cover. The most significant impact due upon the existing tree stock through the positioning of a road serving the southern section of the development will occur within the plantation woodland W1 and will consist of removing a corner section to the north of the woodland. The required loss of vegetation should not constrain the development, as from an arboricultural perspective the amount of loss overall would be considered to be of low proportions and the new tree and hedgerow planting proposed as part of the landscaping scheme for the development would more than suitably mitigate for the loss. This conifer plantation was considered to be of moderate quality but would benefit from further management and gradual transition to broadleaf woodland as part of the long term management of the site.

4.6 Tree cover from within TG5 will also need to be removed to provide sufficient easement for two access roads. From an arboricultural perspective this material was also generally considered to be of moderate quality and was of juvenile age. Due to the limited proportions of the trees within TG5 it is recommended that, where possible and economically viable, trees are selected for translocation within close proximity of the existing tree group to avoid their loss. Any material that is lost however can be replaced with new tree planting as part of the supporting landscaping scheme for the development.

4.7 The presence of Chalara dieback of ash was observed throughout TG5 and as a result the removal and burning of the infected ash specimens would be recommended to reduce the potential for spread of the disease within the naturally grown trees surrounding area. The removal of the infected trees will aid in the thinning of TG5 to allow the remaining tree cover to mature into quality specimens as part of the group's future management in accordance with industry best practice.

4.8 In addition to these a number of smaller sections of tree cover will need to be removed to facilitate the proposed access roads. These comprise of two sections within TG11, a moderate quality tree group that follows the path of the watercourse situated central to the site. Sections of a number of hedgerows H7, H8, H13, H15, H17, H18 and H19 will also need to be removed all of which were considered to be of low quality. The removal of these areas of tree and hedgerow cover is unavoidable if links between residential parcels are to be provided and therefore their removal should not constrain the development due to low proportions to be removed in comparison to the retained tree cover and new tree and hedgerow planting across the site.

Due to the outline nature of the proposals at present, from an arboricultural perspective and in accordance with the guidance contained within British Standard 5837:2012 it will be necessary to pay close attention to the layouts of the residential parcels at the detailed design stage to ensure root protection areas of those trees selected for retention can be fully accommodated. Careful

consideration will enable successful integration of the retained specimens into the scheme to ensure their survival and contribution to the site in the future.

4.9 This will be particularly important to the north west of W5 and W7, to the north of W4 and along the northern edge of W1 and TG7. It is recommended that the proposals provide a buffer strip to the existing woodland edge which could be reinforced with new planting using species typically found along the woodland fringe. The provision of an offset from the woodlands and larger tree groups and should reduce the common problems such as pressure to prune crowns or even remove the trees in question. It is also suggested that properties in these areas are fronted onto the woodland blocks which, in turn, will further increase the offset from the residential areas and mature, established trees.

4.10 Additional proposed buffer strips will reinforce the visual screening between the site and the residential properties to the north whilst providing a smoother integration with the open countryside landscape to the north east.

4.11 At this illustrative stage, a number of proposed balancing ponds are to be positioned across the site all within close proximity to the central watercourse. It is recommended that the final shape and position of the basins are assessed at the detailed design stage of the development to avoid the root protection areas of any specimens within the existing tree cover adjacent. This is to ensure that the excavation and removal of any soil required in the construction of the ponds does not occur within the root protection areas of any specimens as such works may result in a risk of destabilisation of the main roots or damage generally to the rooting environment which would threaten the future health / condition of the trees.

4.12 T23 was considered to be a veteran specimen of high arboricultural quality and will need to be safeguarded as its future health is of paramount importance in terms of ecological and arboricultural benefit. Veteran trees are far more sensitive to changes to their growing environment due to their greater maturity and aged condition and are less able to adapt to rapid changes in their rooting environment. Veteran trees are also often important for their links to historic landscapes and offer increased wildlife value, in the form of unique natural habitats for a range of wildlife as well as creating an attractive and interesting focal point for the wider visual amenity of the area.

4.13 The proposed area of residential properties to the south of T23 will possibly encroach upon the RPA of this veteran hybrid black poplar. Although the current proposals are currently at an illustrative stage any final layout will need to be designed around this specimen to avoid any impact upon the rooting system. Any construction activity that may occur within close proximity will need to be monitored and the requisite tree protection barriers installed at the extent of the root protection area to not only avoid any direct damage during construction but to safeguard the future health of the specimen by limiting ground disturbance and rapid change to the growing environment. Due to the veteran status of T23 is it recommended that an area of buffer planting is provided around the RPA of the tree to provide an informal barrier limiting public access.

A county park and community woodland is to be incorporated as part of the development within the southern portion of the site. A well-designed landscaping scheme will provide areas for extensive tree planting which will not only offer suitable mitigation for any tree losses incurred due to the proposed development, but from an arboricultural perspective the tree cover generally across the site will be increased and enhanced.

New Tree Planting

4.14 New tree planting will form an integral part of the new development however, proposals for new tree planting should be appropriate for the future use of the site and not just aim to improve the existing tree population. As part of the development proposals an adequate quantity of tree planting will be included suitably mitigating for the loss of trees required to facilitate the development. The purpose and function of any new tree planting should be understood from the start of any design stages so that key objectives from a landscape perspective can also be achieved.

4.15 The landscaping scheme should consider the use of both native tree species (for their low maintenance requirements and nature conservation value) and ornamental species (for their contribution to urban design and amenity value). Species choices should be selected on the basis of their suitability for the final site use. Careful consideration would need to be given to the following: ultimate height and canopy spread, form, habit, density of crown, potential shading effect, colour, water demand, soil type and maintenance requirements in relation to both the built form of the new development and existing properties.

4.16 Where it may have been proposed to use ash species this is now not viable as currently there is still a restriction on movements of the species throughout the U.K. To prevent further spread of the disease Chalara Dieback of Ash *hymenoscyphus fraxinus* in Britain a Plant Health Order prohibits all imports and internal movement of ash seeds, plants and trees until further notice. Therefore English oak *Quercus robur* would be the first choice as a suitable alternative for new planting in areas of open space. Other possible options may be hornbeam *Carpinus betulus,* small leaved lime *Tilia cordata* and sweet chestnut *Castanea sativa*.

4.17 The landscaping scheme will provide tree planting in the following situations; new woodland planting, new amenity planting as part of any proposed road infrastructure; private gardens; areas of incidental open space; new public parks and larger areas of open space; and structural buffer planting where appropriate.

4.18 Tree planting should be avoided where they may obstruct overhead power lines or cables. Any underground apparatus should be ducted or otherwise protected at the time of construction to enable trees to be planted without resulting in future conflicts. Wherever possible, following discussions with the developer and utility company concerned, particularly on new development sites, common service trenches should be specified to minimise land take associated with underground service provision and to facilitate access for future maintenance.

Tree Management

4.19 The layout of the development is currently reserved for subsequent approval. In the course of a reserved matters application pursuant to layout, a review of the relationship between the layout and the retained trees should be undertaken by a qualified arboriculturalist to prepare a schedule of tree works.

4.20 All retained trees should be subjected to sound arboricultural management as recommended within section 8.8.3 of BS5837 *Post Development Management of Existing Trees,* where there is a potential for public access in order to satisfy the landowner's duty of care. Additionally inspections annually and following major storms should be carried out by an experienced arboriculturalist or arborist to identify any potential public health and safety risks and to agree remedial works as required.

4.21 All tree works undertaken should comply with British Standard 3998:2010 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association Approved Contractors as this is the recognised authority for certification of tree work contractors.

4.22 All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (March - September inclusive) as all birds are protected under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist.

General Design Principles in Relation to Retained Trees

4.23 In a subsequent reserved matters application for the approval of the final layout of the scheme, assessment of the distance of proposed development in relation to the calculated root protection area of retained trees should be made which will inform the final layout.

4.24 Ground investigation through the use of pneumatic excavation, such as an Air Spade and digging of trial pits, may be required should there be areas where it is not possible to modify the layout to avoid conflict with retained trees. Ground investigations would aim to determine the actual location of the physical roots without causing them damage in the process. Such an assessment would enable consideration of the practicality and suitability of certain 'tree friendly' construction methods and would better inform decision making for a design.

4.25 Further assessment of the impact to actual roots found during the ground investigations can then be made and solutions reached thus greatly reducing any potential future impacts on retained trees whilst allowing the development to proceed and minimising risks to future tree health. Ultimately the aim would be to reduce conflicts between trees and buildings, and achieve successful tree retention.

4.26 The use of "no-dig" construction methods should be considered prior to decisions being made as to the removal of each tree concerned, where conflicts between trees identified for retention and the layout arise. Such methods of construction and the use of industry led specialist engineering solutions i.e. three dimensional "load bearing" cellular confinement systems can be used particularly in the case of carriageways, footways and driveways in order to avoid unnecessary losses of trees.

4.27 The routing of below ground services should also be considered with regard to the retained trees as part of a subsequent reserved matters application pursuant to layout. As recommended by the guidance given in section 7.7 of BS5837 services, where possible, should not encroach within the root protection areas of retained trees. If below-ground services are proposed within a root protection area modifications to the alignment of the service route may need to be made in order to minimise adverse effects on root stability and overall tree-health.

4.28 Consideration may also need to be given to the potential for tree roots of newly planted trees and hedgerows to affect or compromise the future services. As far as feasible, it would be preferable that proposed services near both the existing and any new planting should be ducted for ease of access and maintenance and grouped together to minimise any future disturbance.

5.0 TREE PROTECTION MEASURES

5.1 Retained trees will be adequately protected during works ensuring that the calculated root protection area for all retained trees can be appropriately protected through the erection of the requisite tree protection barriers. Measures to protect trees should follow the guidance in BS5837 and will be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposed layout. These have been broadly summarised below.

General Information and Recommendations

5.2 All trees retained on site will be protected by suitable barriers or ground protection measures around the calculated root protection area , crown spread of the tree or other defined constraints of this assessment as detailed by section 6 and 7 of BS5837.

5.3 Barriers will be erected prior to commencement of any construction work and before demolition including erection of any temporary structures. Once installed, the area protected by fencing or other barriers will be regarded as a construction exclusion zone. Fencing and barriers will not be removed or altered without prior consultation with the project arboriculturalist.

5.4 Any trees that are not to be retained as part of the proposals should be felled prior to the erection of protective barriers. Particular attention needs to be given by site contractors to minimise damage or disturbance to retained specimens.

5.5 Where it has been agreed, construction may take place within the root protection area if suitable ground protection measures are in place. This may comprise single scaffold boards over a compressible layer laid onto a geo-textile membrane for pedestrian movements. Vehicular movements over the root protection area will require the calculation of expected loading and the use of proprietary protection systems.

5.6 Confirmation that tree protective fencing or other barriers have been set out correctly should be gained prior to the commencement of site activity.

Tree Protection Barriers

5.7 Tree protection fencing should be fit for the purpose of excluding any type of construction activity and suitable for the degree and proximity of works to retained trees. Barriers must be maintained to ensure that they remain rigid and complete for the duration of construction activities on site.

5.8 In most situations fencing should comprise typical construction fencing panels attached to scaffold poles driven vertically into the ground. For particular areas where construction activity is anticipated to be of a more intense nature supporting struts acting as a brace should be added and fixed into position through the application of metal pins driven into the ground to offer additional resistance against impacts. Where site circumstances and the risk to retained trees do not necessitate the default level of protection an alternative will be specified appropriate to the level / nature of anticipated construction activity. The recommended method of fencing specifications for this site have been illustrated in Appendix B.

5.9 It may be appropriate on some sites to use temporary site offices, hoardings and lower level barrier protection as components of the tree protection barriers. Details of the specific protection barriers for the site can be provided should the application be approved, as part of a site specific Arboricultural Method Statement for a Reserved Matters application and in accordance with the guidance contained within BS5837.

Ground Protection

5.10 Where it has been agreed, construction access may take place within the root protection area if suitable ground protection measures are in place. Guidance on examples of appropriate ground protection for several different scenarios is provided in section 6.2.3 of BS5837. The location of and design for temporary ground protection should be detailed as part of an Arboricultural Method Statement required by conditioning should planning permission be granted. In all cases, the objective is to avoid compaction of the soil which can arise from a single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

Protection outside the exclusion zone

5.11 Once the areas around trees have been protected by the barriers, any works on the remaining site area may be commenced providing activities do not impinge on protected areas.

5.12 All weather notices should be attached to the protective fencing to indicate that construction activities are not permitted within the fenced area. The area within the protective barriers will then remain a construction exclusion zone throughout the duration of the construction phase of the proposed development. Protection fencing signs can be provided upon request.

5.13 Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles where they are in close proximity to retained trees.

5.14 Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree stem. No concrete should be mixed within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.

5.15 No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.

5.16 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.

5.17 Any trees which need to be felled adjacent to or are present within a continuous canopy of retained trees, must be removed with due care (it may be necessary to remove such trees in sections).

Protection of Trees Close to the Site

5.18 There were a number of trees located on the boundaries of the site. The root protection area and crown spread of these trees will need to be protected in the same way as all the retained trees within the site. All trees located outside the boundaries of the assessment site yet within close proximity to works should be adequately protected during the course of the development by barriers or ground protection around the calculated root protection area.

5.19 Any trees which are to be retained and whose root protection areas may be affected by the development should be monitored, during and after construction, to identify any alterations in quality with time and to assess and undertake any remedial works required as a result.

Protection for Aerial Parts of Retained Trees

5.20 Where it is deemed necessary to operate a wide or tall load, plant bearing booms, jibs and counterweights or other such equipment as part of the construction works it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any obstructive branches. Any such equipment would have potential to cause damage to parts of the crown material, i.e. low branches and limbs, of retained trees within the protective barriers. This is termed as 'access facilitation pruning' within BS5837. Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturalist.

5.21 A pre-commencement site meeting with contractors who are responsible for operating machinery will be required, as described above, to firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact.

5.22 In the event of having caused any branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with British Standard 3998:2010 and in agreement with the Local Planning Authority prior to correcting the damage, upon completion of development.

6.0 CONCLUSION

6.1 The site comprises of approximately 166 Ha of land located to the north east of Haverhill and is bordered by the villages of Little Wratting to the north and Kedington to the east. The assessment area includes numerous arable field compartments with woodland parcels positioned throughout the site providing mature tree cover creating significant landscape features. Linear tree groups were positioned to the west and along the central watercourse running through the site from north to south.

6.2 Tree cover across the site was comprised mainly of early mature and mature specimens of mixed native species. Higher concentrations of tree cover were found in areas associated either with the woodlands or newly planted blocks of trees. Species present consisted mainly of English oak, ash, English elm, field maple, hawthorn and blackthorn.

6.3 At this indicative stage, the proposed layout has been largely designed around the natural features of the site allowing the retention of the majority of the existing tree cover. To facilitate the proposed development as per the illustrative plan no significant tree losses will be required as the proposed built elements of the development are to be positioned within the existing field parcels.

6.4 The proposed main vehicular access for the development is to be positioned to the north and will involve the construction of a new roundabout and accompanying access roads positioned off Haverhill Road. In order to facilitate this, a section of hedgerow H20 will need to be removed; the loss of this hedgerow cover is unavoidable due to the construction requirements for the roundabout and access roads. Due to the young age and relatively unestablished nature of this hedgerow, its replacement will be easily achieved through the extensive new tree and hedgerow planting situated around the proposed access point which will, in turn, suitably mitigate for the loss of this vegetative material.

6.5 The most significant impact to occur through the implementation of the development is through the positioning of the proposed internal road infrastructure which will result in the removal of the corner section to the north of the woodland to facilitate the access road and residential units. The main vehicular access into the development which is to be positioned to the north will involve the construction of a new roundabout positioned off Haverhill Road. In order to facilitate this, a section of H20 will need to be removed; further sections of H7, H8, H13, H15, H17, H18 and H19 will need to be removed to facilitate the road infrastructure along with parts of TG5 and TG11.

6.6 A number of balancing ponds are to be positioned across the site all within close proximity to the central watercourse. The final shape and position of the basins will need to be assessed at the detailed design stage of the development to avoid any significant encroachment of RPA's of any specimens within the adjacent tree cover.

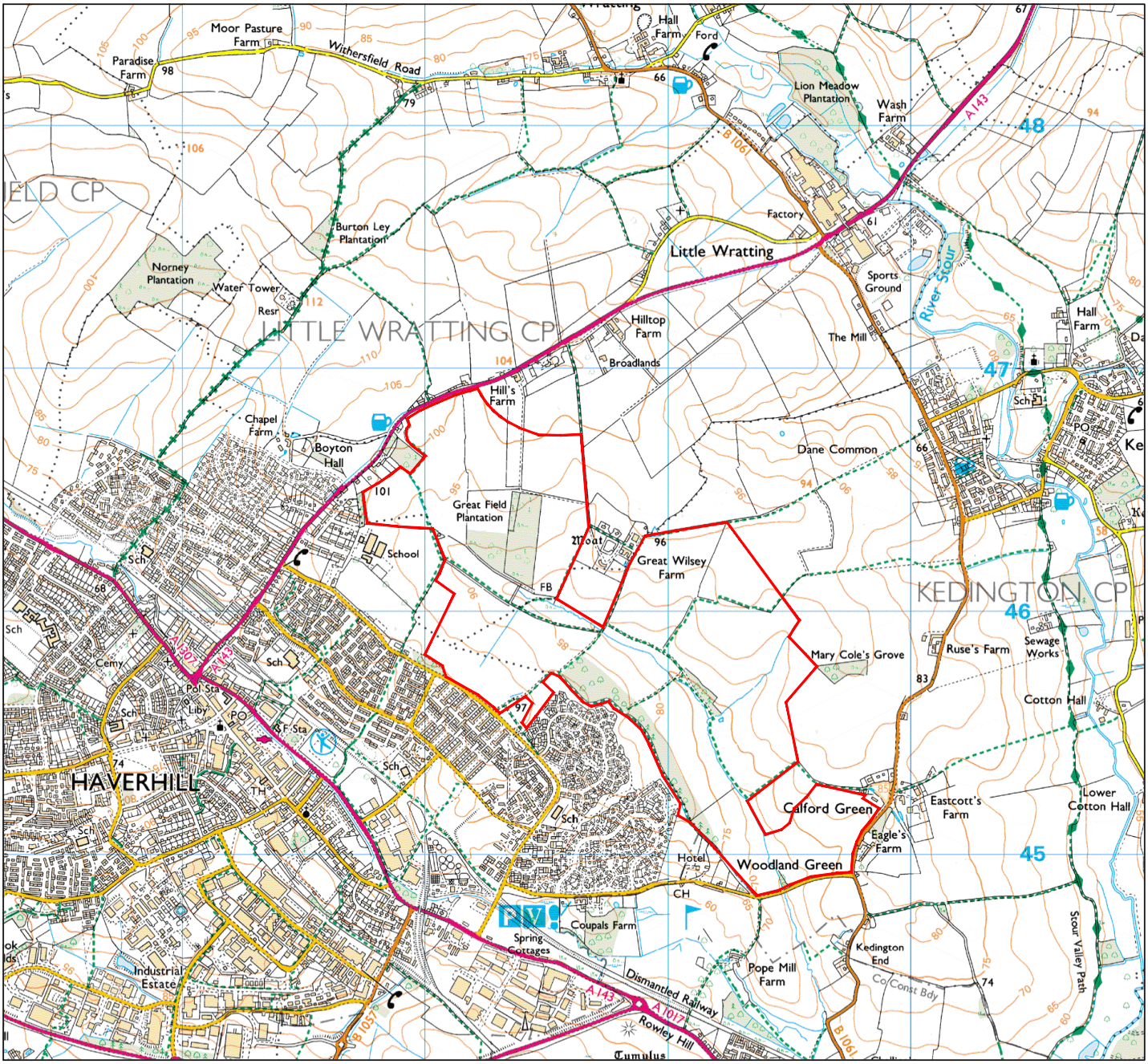
6.7 T23 a veteran hybrid black poplar will need to be safeguarded through the development of the site. The proposed area of residential properties immediately to the south of T23 will need to be carefully designed as not to encroach upon the trees RPA. Any construction activity that may occur within close proximity will need to be monitored and the requisite tree protection barriers installed. Due to the veteran status of T23 is it recommended that an area of buffer planting is provided around the RPA of the tree to provide a buffer between the tree and proposed development.

6.8 New planting throughout the site will form a number of strong landscape features and linear tree belts particularly adjacent to the eastern boundary in order to provide a soft transition between the site and wider landscape. Centrally, new tree and hedgerow planting will be provided to soften the built development form and provide a semi-rural feeling to the development suited to its position on the edge of the existing conurbation of Haverhill. The existing trees, woodlands and linear tree belts will provide significant amenity features offering unique recreational spaces for the benefit of new residents and existing residents alike.

6.9 A county park and community woodland is to be incorporated within the northern portion which will provide areas for extensive tree planting which will offer suitable mitigation for any tree losses

occurred due to the proposed development. Areas of significant buffer planting to the north and east will provide screening to the open countryside and villages beyond. Due to the amount of proposed new planting from an arboricultural perspective tree cover will be increased and enhanced.

6.10 In conclusion, although the proposals would necessitate a small number of losses of some areas of tree cover and sections of hedgerows. Extensive areas of new landscaping of open space; associated gardens and green spaces with new tree planting would provide a significant increase in overall tree cover across the site. The creation of a county park and community woodland to the south will also, in terms of arboriculture create the opportunity to improve and increase tree cover in the local area along with enhancing the landscapes visual amenity.



KEY

Assessment Boundary

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masterplanning
environmental assessment
landscape design
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project
Haverhill
Suffolk

drawing title
SITE LOCATION PLAN
FIGURE 1

scale	drawn	date
1:25000 @ A4	TCB	September 2014

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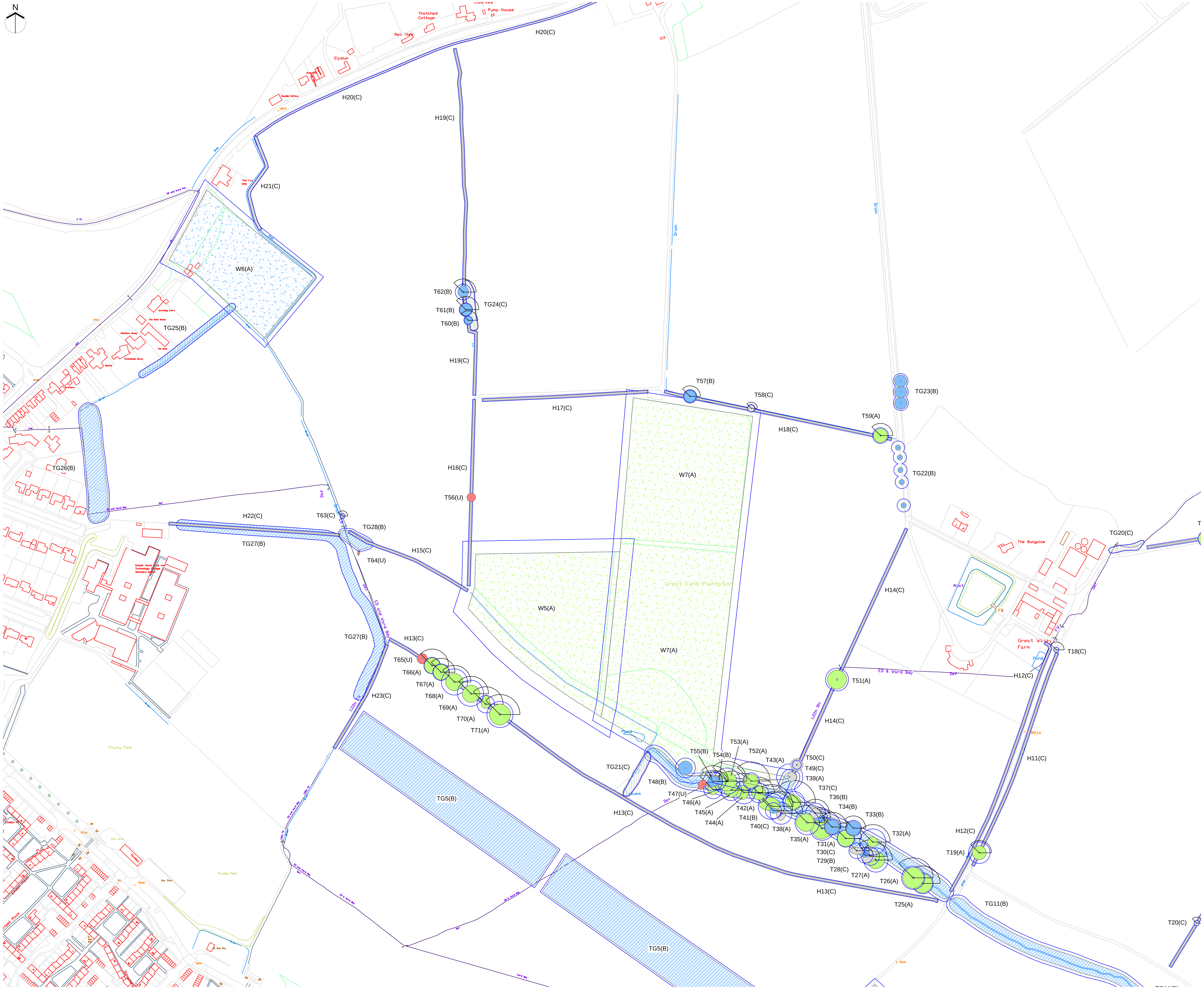
CAD file: J:\5000\5055\ARB\Plans\Fig 1 Site Location Plan.dwg



KEY

- Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
- Category A - Trees / Groups of High Quality (BS 5837:2012)
- Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
- Category C - Trees / Groups of Low Quality (BS 5837:2012)
- Veteran Tree
- Hedgerow Hatching (Colour Indicates BS5837:2012 Category)
- Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
- T1 (A) TG1 (A) — Individual / Group Number and BS5837:2012 Category
- Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

Scale 1:2000 @ A1

0 50 100 150 200m

NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule .

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further assessment may therefore be required where deemed necessary.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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	21.10.2014	First Issue	TCB
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client
Halam Land Management

project
Great Wilsey Park
Haverhill

drawing title
TREE SURVEY PLAN
FIGURE 2

scale	drawn	date
1:2000 @ A1	TCB	August 2015

drawing number: 5055-A-02 rev: - A

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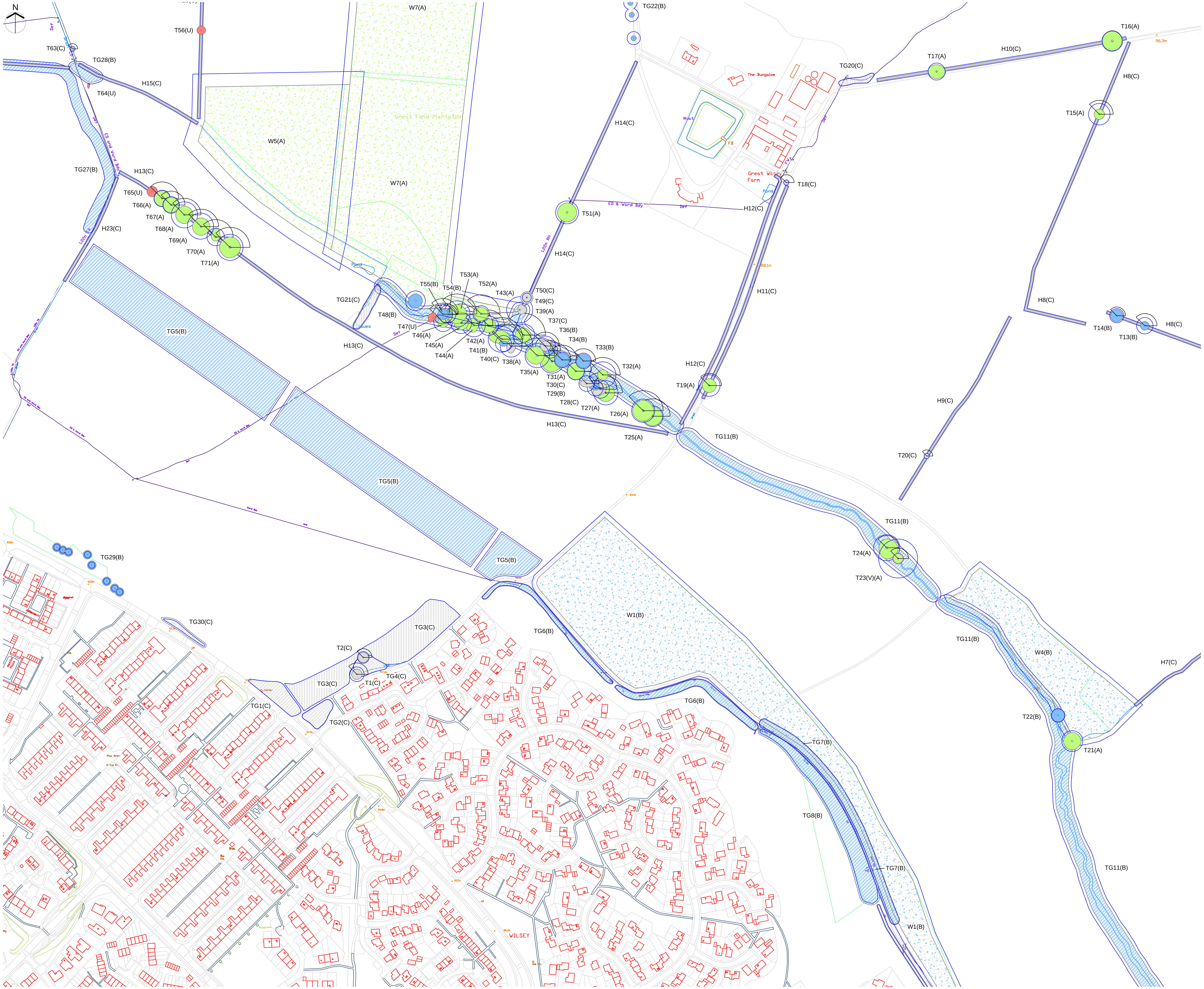

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Veteran Tree

Hedgerow Hatching (Colour Indicates BS5837:2012 Category)

Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)

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Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

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project
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Haverhill

drawing title
TREE SURVEY PLAN
FIGURE 2

scale 1:2000 @ A1 | drawn TCB | date August 2015

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5055-A-03

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- A

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KEY

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FIGURE 2

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