

WH202C

JUNE 2023

# Bull Field, Takeley

## Arboricultural Impact Assessment by Barton Hyett

Prepared in support of the Section 62A Planning Application  
at Bull Field, Takeley.



**ARBORICULTURAL  
IMPACT  
ASSESSMENT**

Bull Field,  
Takeley

June 2023



**Barton Hyett Associates**  
Arboricultural Consultants

| Summary table                                            |                                                                                                                                                                                                                                            |                                           |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Site Name:                                               | Land at Bull Field                                                                                                                                                                                                                         |                                           |
| Project reference:                                       | W.4007                                                                                                                                                                                                                                     |                                           |
| Site Address:                                            | Smiths Green, Takeley, Essex                                                                                                                                                                                                               |                                           |
| Nearest Postcode:                                        | CM22 6NY                                                                                                                                                                                                                                   |                                           |
| Central Grid reference:                                  | TL 56571 21527                                                                                                                                                                                                                             |                                           |
| Local Planning Authority:                                | Uttlesford District Council                                                                                                                                                                                                                |                                           |
| Relevant planning policies:                              | Uttlesford Local Plan (January 2005):<br>GEN2 - Design;<br>ENV3 - Open spaces and trees;<br>ENV7 - The protection of the natural environment - designated sites;<br>ENV8 - Other landscape elements of importance for nature conservation. |                                           |
| Statutory Controls:                                      | Tree Preservation Order                                                                                                                                                                                                                    | Conservation Area                         |
|                                                          | None                                                                                                                                                                                                                                       | No                                        |
| Soil Type:<br>(Source: BGS online soils map © NERC 2023) | Superficial/Drift                                                                                                                                                                                                                          | Bedrock                                   |
|                                                          | Deep loam to clayey loam over Lowestoft Formation diamicton                                                                                                                                                                                | London Clay Formation clay, silt and sand |
| Topographical Survey:                                    | SJG3443 (September 2020 - as updated)                                                                                                                                                                                                      |                                           |
| Notes:                                                   | -                                                                                                                                                                                                                                          |                                           |
| Report author:                                           | Richard Hyett MSc, BSc (Hons), MICFor, MArborA                                                                                                                                                                                             |                                           |
| Date of issue:                                           | 9th June 2023                                                                                                                                                                                                                              |                                           |

## REPORT CONTENTS:

|            |                                                     |
|------------|-----------------------------------------------------|
| SECTION 1: | SUMMARY, SITE DETAILS & SURVEY FINDINGS             |
| SECTION 2: | COMBINED TREE RETENTION/REMOVAL & PROTECTION PLAN   |
| SECTION 3: | TREE SURVEY SCHEDULE & SITE IMAGES                  |
| SECTION 4: | METHODOLOGY                                         |
| SECTION 5: | DESIGN GUIDANCE AND GENERIC ADVICE                  |
| SECTION 6: | PRINCIPLES FOR TREE PROTECTION ON DEVELOPMENT SITES |





## 1. INSTRUCTION

- 1.1. Barton Hyett Associates Ltd have been instructed by Weston Homes Plc to survey trees located on land at Bull Field ('the site') in accordance with the recommendations of British Standard 5837:2012 'Trees in relation to design, demolition and construction - recommendations'.
- 1.2. The scope of the instruction was to inspect trees relevant to a detailed planning application for residential development at the site and provide written advice on how they inform the feasibility and design options for the site. An initial survey was undertaken in January 2021, with a further walkover update survey carried out in October 2022. The instruction also required an assessment of the potential impact (the arboricultural impact assessment) of the proposed development on the site's arboricultural resource to be undertaken.
- 1.3. The site that is the subject of this AIA formed part of a larger site for which planning permission was refused and subsequently appealed. The appeal (Appeal ref: APP/C1570/W/22/329524) was dismissed in the Appeal Inspectors decision dated the 9th August 2022. Where relevant to this assessment, text from the decision has been included within the body of this report.

## 2. SITE DESCRIPTION

- 2.1. The site is formed by a single field known locally as Bull Field. The site is located to the north of Takeley east of Parsonage Road and west of Smiths Green Lane.
- 2.2. Bull Field is an arable field of circa 8.5ha and located to the west of Smiths Green with an agricultural access from it.
- 2.3. Bordering the site to the north is Priors Wood (an area of ancient woodland) and a further agricultural field. To the east is Smiths Green with residential dwellings beyond. To the south and west of the site are residential dwellings within Takeley along with Roseacres Primary School. To the north west is the land known as 7 Acres, which benefits from planning permission (Ref. No. UTT/22/2744/FUL) for 4no. commercial units.
- 2.4. Two public rights of way (PRoW's) cross the site. The first runs along the northern edge of Bull Field and immediately to the south of Prior's Wood. The second crosses the southern part of the site from Smiths Green to Leyfield.
- 2.5. The site is flat and level, with very limited undulations in ground level. To the eastern and northern edges of Bull Field are drainage ditches. Drainage ditches are also present along part of the southern boundary.

## 3. TREE SURVEY FINDINGS

- 3.1. A tree survey of a wider land holding was undertaken in January 2021. The findings of the survey relevant to Bull Field are summarised in Table 1 below. These include five high quality (category A) individual trees along with thirteen of moderate quality (category B) individual trees, six moderate quality tree groups (and one very poor quality individual tree) and three moderate quality hedgerows. In addition, a high quality woodland (Prior's Wood) was also identified. These survey items are shown on the Combined Tree Retention/Removal and Protection Plan (**Section 2**) and within the Tree Survey Schedule (**Section 3**)

|              | Total     | A - High quality trees whose retention is most desirable. | B - Moderate quality trees whose retention is desirable. | C - Low quality trees which could be retained but should not significantly constrain the proposal. | U - Very poor quality trees that should be removed unless they have high conservation value. |
|--------------|-----------|-----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Trees        | 28        | 5                                                         | 13                                                       | 9                                                                                                  | 1                                                                                            |
| Groups       | 11        | -                                                         | 6                                                        | 5                                                                                                  | -                                                                                            |
| Hedgerows    | 3         | -                                                         | 3                                                        | -                                                                                                  | -                                                                                            |
| Woodland     | 1         | 1                                                         | -                                                        | -                                                                                                  | -                                                                                            |
| <b>Total</b> | <b>30</b> | <b>2</b>                                                  | <b>23</b>                                                | <b>4</b>                                                                                           | <b>1</b>                                                                                     |

Table 1: Summary of arboricultural features of each BS5837 quality category as they relate to Bull Field.

## 4. KEY ARBORICULTURAL FEATURES

- 4.1. No individual ancient or veteran trees were identified at the site.
- 4.2. Prior's Wood (W1 - quality category A3), which includes English oak T20 (A1) and field maple T42 (A1), is an ancient semi-natural woodland (ASNW) of 7.9ha and identified as area 43292 on the Natural England database. In order to meet the requirements of paragraph 180 of the National Planning Policy Framework (NPPF) and in accordance with the Standing Advice produced by Natural England and the Forestry Commission, a 15-metre buffer zone has been applied to the woodland on the Tree Survey and Constraints Plan in Section 2. This buffer is considered appropriate given that the site is level, there are deep ditches around parts of the woodland and that trees within it are not of a significant size (that would otherwise require a larger buffer to be applied). The use of this buffer to Prior's Wood was tested at the previous planning Inquiry. The Appeal Inspector found (see paragraph 77 of the Appeal Decision) the buffer and the approach to retaining Prior's Wood acceptable in arboricultural terms.



- 4.3. The woodland borders the north boundary of Bull Field. The woodland has been reduced in size from the 10.3ha shown on Ordnance Survey six-inch map of 1956, with a portion in the north of the woodland (well-away from Bull Field) having been changed to an arable field. The dominant tree species are English oak, hornbeam and field maple growing as high canopy. There is an even, vertical structure with limited tree and shrub species diversity. Many of the hornbeams and field maples appear to have been coppiced in the past, but current management is limited.
- 4.4. There is a network of well worn, informal paths through the woodland, although no public right of way exists through it. A ditch (up to 1m deep) runs around the perimeter of the woodland, with numerous old ditches also within the woodland. The quality of the woodland could be improved with appropriate management such as thinning, and the woodland margins could be enhanced with sinuous margin planting with appropriate species to provide a structural enhancement to the quality of the woodland and help safeguard the buffer.
- 4.5. Bull Field also contains field boundary English oaks T22 (A3) and T41, T43 and T44 (A1). T22 exhibits crown retrenchment and heartwood decay and is of potential ecological habitat value.

## 5. CONSTRAINTS AND OPPORTUNITIES

- 5.1. Ancient woodland is considered to be irreplaceable habitat, and is subject to planning policy protection under the National Planning Policy Framework (NPPF) 2021, which states at paragraph 180:
- 5.2. 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 and a suitable compensation strategy exists;*
- 5.3. In general, detrimental impacts on ancient woodland from development might include, but are not limited to, damage to roots and understorey, damage to or compaction of soil around the tree roots, changes to the surrounding environment. Some impacts can be limited and controlled through appropriate management of woodlands.
- 5.4. The Forestry Commission and Natural England standing advice within the Planning Policy Guidance (PPG) 'Ancient woodland, ancient trees and veteran trees: protecting them from development' is a material planning consideration which is taken into account when making decisions on planning applications. In reaching a planning decision, the LPA should assess the potential impacts, and avoid, mitigate or

compensate for identified impacts. A key method of mitigation is the use of the 15-metre 'buffer zone' as applied in this case.

- 5.5. The standing advice also states that the inclusion of gardens within an ancient woodland buffer zone should be avoided, and instead should consist of semi-natural habitats such as woodland or a mix of scrub, grassland, heathland and wetland planting. The area within the buffer zone should be part of the green infrastructure of the area and contribute to wider ecological networks, and only be planted with local and appropriate native species. Access within a buffer should be appropriate and can be allowed if the habitat is not harmed by trampling. In this case the existing PRoW needs to be maintained, within improvements, within the buffer. Again, this approach was tested in a planning Inquiry relating to Bull Field and the Appeal Inspector found the approach to retaining and enhancing the PRoW acceptable in arboricultural terms.
- 5.6. The 15m ASNW buffer currently contains a well used bare earth footpath (PROW) within a rough grass field margin (approximately 4m wide) with approximately 10-11m of regularly ploughed arable field beyond.

## 6. DEVELOPMENT PROPOSAL

- 6.1. Detailed planning consent is sought for the development. The proposed development is for the construction of 96 residential dwellings and associated infrastructure and landscaping. The description of development is:

*"Access to/from Parsonage Road between Weston Group Business Centre and Innovation Centre buildings leading to: 96 dwellings on Bulls Field, south of Prior's Wood, including associated parking, landscaping, public open space, land for the expansion of Roseacres Primary School, pedestrian and cycle routes to Smiths Green Lane together with associated infrastructure."*

- 6.2. The proposed site layout is shown on the General Arrangement plan (WH202C\_10\_P\_10.20 - GA Bull Field) as amended and submitted.

## 7. IMPACT ASSESSMENT

- 7.1. The AIA considers the effects of any tree loss required to implement the layout design as well as any reasonably foreseeable potentially damaging activities proposed in the vicinity of retained trees. This is undertaken with reference to BS5837:2012 and considering the nature of the proposals. This can include tree removal to facilitate design, demolition of buildings and removal of existing hard surfacing, soil compaction in close proximity to trees and direct impact damage to canopy and roots of retained trees from construction activities. A summary of anticipated impacts resulting from the proposed development is provided below.

Anticipated Tree losses:

- 7.2. All category A trees will be retained long with the overwhelming majority of the boundary trees and tree groups.
- 7.3. Some minor tree removal will be required in order to implement the proposed development as described below. The proposed tree removals are shown on the combined Tree Retention/Removal and Protection Plan in **Section 2**.
- 7.4. *Footway/cycleway links* - to create the access link through the south eastern corner of the site it will be necessary to remove a short section (maximum 5 linear metres) of moderate quality hedgerow H8. In arboricultural terms this minor loss can be mitigated through the proviso of new tree or hedgerow planting. In addition, the proposed footway/cycle link to Roseacres Primary School will require the removal of a moderate quality field maple (T32). With appropriate replacement tree planting the loss of this single tree could be mitigated in the short to medium term (e.g. 10-15 years).

Anticipated impacts upon on retained trees

- 7.5. *Demolition and site clearance* - there are no existing structures on site and so no site clearance is necessary. It is expected that the topsoil from across the site will be stripped and stockpiled prior to the construction work. Existing soil levels within RPAs of retained trees should be maintained.
- 7.6. *Facilitation pruning* - no significant facilitation pruning is required to allow the proposed development to be implemented. However, some minor pruning will be required as set out below and shown on the plan in **Section 3**:
- tree group G21 (B2) and tree T65 (B2) will likely require some minor crown lifting (pruning of lower branches) in order provide ground clearance over adjacent parking bays.
  - tree group G14 (B2) will require crown lifting and lateral crown reduction due to the existing paths proposed dwellings.
  - trees T30 and T31 (B2) will require crown lifting to provide appropriate clearance over the proposed footpath connection to Roseacres Primary School. In addition, this will require the lateral reduction of G15 (C1) away from the path alignment.
  - tree T64, and the ruderal vegetation around it will, will require pruning back on its northern side to provide clearance for the access road in to Bull Field.
- 7.7. *Service installation* - No detailed service plans have been prepared at this stage in the planning and design process. The installation of all services and utilities must be undertaken outside of the RPAs of retained trees. Should it become apparent that service are required within the RPAs of retained trees, further arboricultural assessment will be required. If this is the case, alternative solutions should be explored, including alternative

techniques such as trench less installation methods (e.g directional drilling, hand excavation or Airspade excavation) to allow tree roots to be retained.

- 7.8. *Ground level changes* - the site is broadly flat with very limited level change across its extent. As such, no ground level changes are required to allow the proposed development to be implemented. As such, all existing ground levels within RPAs can, and should, be retained.
- 7.9. *Foundations* - no new foundations are proposed within the RPAs of retained trees.
- 7.10. *Hard surfacing* - the vast majority of proposed hard surfacing is located outside of the RPAs of retained trees. However, the proposed layout indicates that small areas of parking bays will be located within the RPAs of T41, T65 and G21. In these locations it is proposed that a 'no dig' approach to the construction be used. This may include the construction of the parking bays on the existing ground surface and may also utilise a 3d cellar confinement system to assist in distributing loads applied by vehicles and preventing compaction of underlying soil. However, the final surfacing design needs to be prepared by the project engineer and based on a detailed ground investigation to ascertain the current condition of the soils and whether their structure is such that they could be compacted to the point where root growth is negatively affected or inhibited. The final design will also need to take into account the previous agricultural management of the land (e.g. ploughing). The final surfacing design will need to be implemented in accordance with the working methodology set out in a detailed arboricultural method statement (AMS). The same approach (although subject to different engineering design) is proposed where proposed footway/cycleways are within the RPAs of T42, T43 and T44 (Category A) along with T30 and T32 (Category B). A similar approach is also proposed for the upgraded PRoW within the buffer of Prior's Wood.
- 7.11. With regard to this last point it is of note that in Appeal Inspectors decision (through paragraphs 73 to 77) he confirmed that *'it is common ground between the Council and the appellant that there is no objection to the technical design of the proposal as a result of any impact on trees, and no trees within Prior's Wood are to be removed or would be impacted on directly as a result of the proposed route through the buffer'* the Inspector goes on to state *'I am content from the submitted written evidence and what I heard at the Inquiry, that neither the proposed road or cycleway within the buffer or proposed housing in the vicinity, would lead to indirect effects on the ancient woodland'*
- 7.12. *Soft landscaping* - There are no anticipated impacts arising from the implementation of the proposed soft landscaping work.
- 7.13. *Highway infrastructure* - highway access into Bull Field (south of Prior's Wood) will need to be provided. The route for an appropriate access runs through the 'pinch point' and within the ASNW buffer at the south west corner of Prior's Wood. The route utilises an existing and well used field access between 7 Acres and Bull

Field. In order to limit the construction impact of this section of highway the proposed design has been prepared to show a narrowed section of carriageway that is formed within a raised 'table top'. This approach allows the extent of any excavation required to be minimised to within the previously disturbed surface of the existing ground. The detailed design needs to be prepared by the project engineer and based on a detailed ground investigation. The detailed design will also need to take into account the previous agricultural management of the land (e.g. ploughing). In order to further mitigate potential arboricultural impacts, the construction of the highway will need to be implemented in accordance with the working methodology set out in a detailed arboricultural method statement (AMS). This approach was confirmed as acceptable by the Appeal Inspector (see paragraph 7.11).

7.14. In summary, the impacts arising for the proposed development are acceptable from an arboricultural perspective. If the development is carefully implemented according to an approved arboricultural method statement there would be only a low potential for negative impacts to occur to retained trees. Particular care will be required to safeguard and physically protect Prior's Wood through the construction process.

## 8. HEADS OF TERMS FOR AN ARBORICULTURAL METHOD STATEMENT (AMS)

8.1. BS5837:2012 (Figure 1) recommends that detailed/technical design of tree protection and arboricultural methodologies should be resolved and finalised following on from the approval of the feasibility of a scheme by the Local Planning Authority, subject to an appropriately worded planning condition.

8.2. Annex B and Table B.1 of BS5837:2012, an informative, advises that arboricultural method statement heads of terms are a sufficient level of information in order to deliver tree-related information into the planning system. The table also advises that a detailed arboricultural method statement might reasonably be required as part of a planning condition.

8.3. A brief summary of the principles of tree protection on development sites is included in section 7. A draft, 'heads of terms' for an arboricultural method statement is set out below:

- Project arboriculturist – schedule of monitoring and supervision
- Pre commencement site meeting
- Tree removals and facilitation pruning
- Erection of tree protection barriers and sign off
- Main construction phase - including access road near W1 and parking bays (under watching brief)
- Local realignment of protection barriers to secondary locations for path construction
- Removal of tree protection barriers - following on from approval of site conditions
- Final landscaping including tree planting
- Further landscape and woodland planting/enhancement works

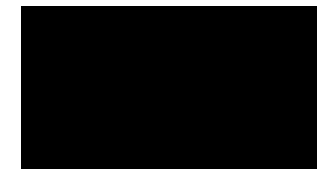
## 9. SUMMARY

9.1. Subject to the implementation of the advice contained within this report the proposed development can be implemented with very limited arboricultural impact. The loss of individual trees and partial removal of tree groups could be readily mitigated through the provision of new tree and hedgerow planting as part of the detailed landscape planting proposals for the site.

9.2. The retained trees can be adequately protected during construction activities to sustain their health and longevity.

9.3. The current proposed development within Bull Field does not substantially differ (with regards to arboricultural impacts) from that which was tested at a previous appeal and found acceptable in arboricultural terms.

9.4. An Arboricultural Method Statement and finalised tree protection plan will need to be produced. Where the feasibility of a scheme has been agreed by the Local Planning Authority, this detail can be agreed and submitted at a later as part of a pre-commencement planning condition (by agreement with the applicant).



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 Chartered Arboriculturist



TRR/P - 'Section 3'



**CONSTRUCTION EXCLUSION ZONE - NO ENTRY**

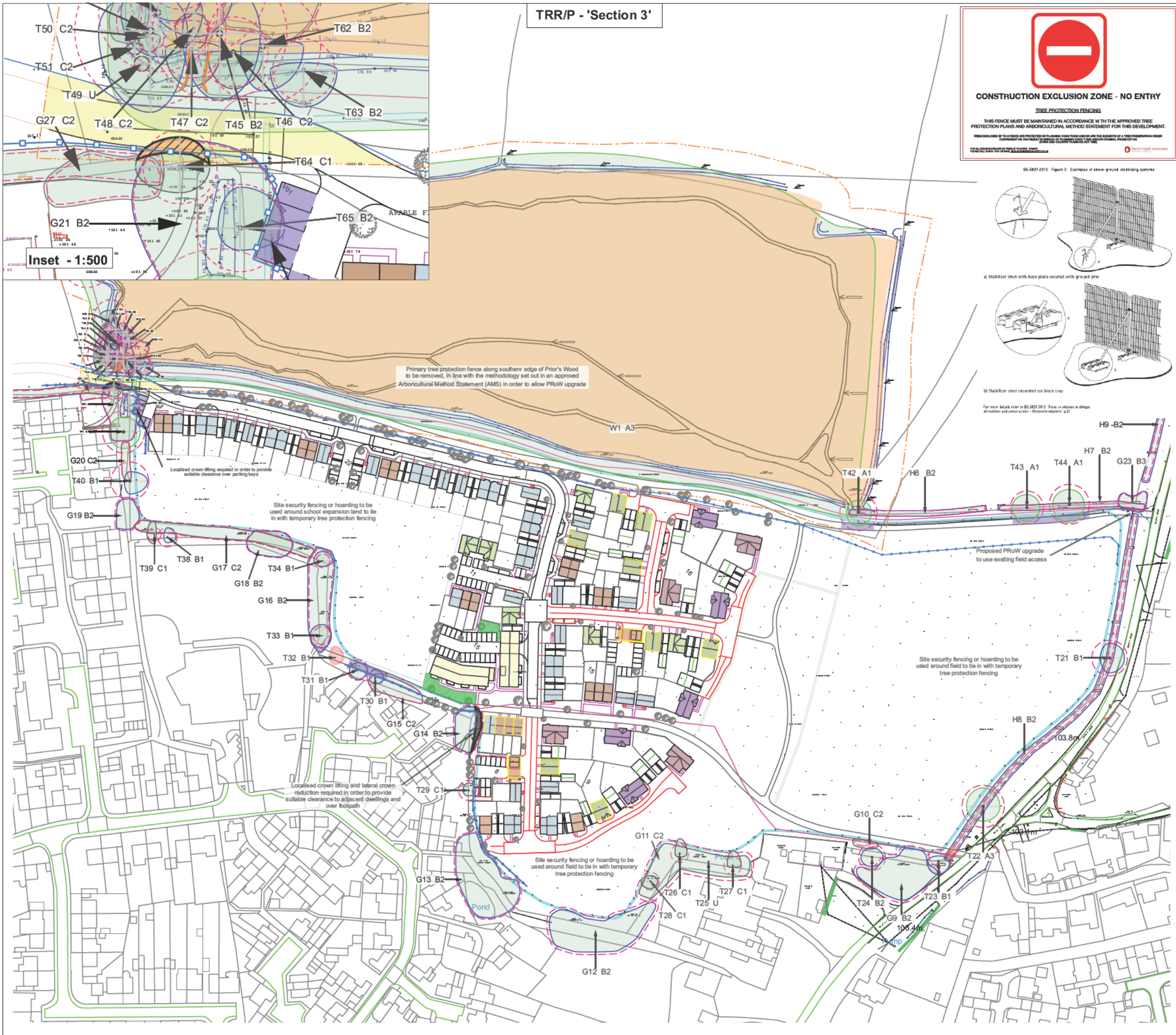
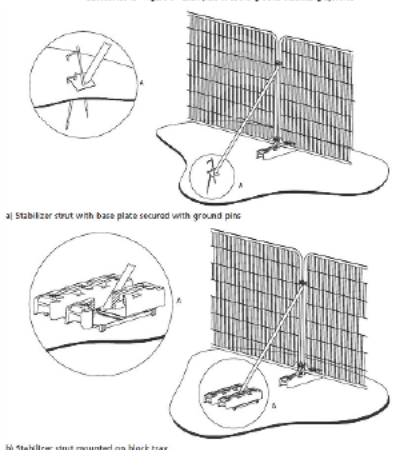
**TREE PROTECTION FENCING**

THIS FENCE MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED TREE PROTECTION PLANS AND ARBORICULTURAL METHOD STATEMENT FOR THIS DEVELOPMENT.

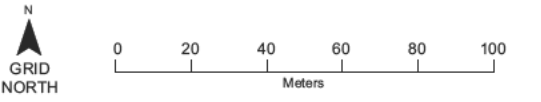
THIS FENCING IS PROVIDED BY THE PLANNING CONDITIONS AND IS THE SUBJECT OF A TREE PROTECTION ORDER (TPO) WHICH IS IN FORCE. IT IS A CRIME TO REMOVE OR DAMAGE THIS FENCING WITHOUT THE WRITTEN PERMISSION OF THE LOCAL AUTHORITY.

06.0807.2012 Figure 2 Examples of above-ground stabilising systems

- KEY**
-  Category A Tree - High quality (Retention highly desirable)
  -  Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
  -  Category B Tree - Moderate quality (Retention desirable)
  -  Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
  -  Category C Tree - Low quality (May be retained but should not constrain development)
  -  Category C - Hedgerow, Group, Woodland - Low quality (May be retained but should not constrain development)
  -  Category U Tree - Very low quality (Mostly unsuitable for retention)
  -  Category U - Hedgerow, Group, Woodland - Very low quality (Mostly unsuitable for retention)
  -  Root Protection Area (RPA) - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
  -  Shrub mass/offsite tree/out of scope (OOS)
  -  \* Tree/Group not on topo stem location given is estimate
- Ancient Tree / Woodland or Veteran Trees**
-  Ancient tree/woodland or Veteran tree: Important trees that require special cons
  -  Ancient tree/woodland or Veteran tree buffer: As per published standing advice 1 Natural England and the Forestry Commission
- Impacts/Protection**
-  Tree of tree group to be removed
  -  Area of tree canopy to be pruned back/crown lifted
  -  Tree Protection Barrier to Figure 3 of BS5837:2012
  -  Area of 'No Dig' parking bay and path construction (separate Engineers specification to be prepared and an AMS report prepared)
  -  Area of reduced dig and narrowed highway construction through ASNW buffer - See AIA report for further details.



**Inset - 1:500**



PROJECT TITLE **Bull Field, Takeley**

DRAWING TITLE **Tree Retention, Removal & Protection Plan**

|                            |                                            |                |             |
|----------------------------|--------------------------------------------|----------------|-------------|
| SCALE                      | 1:2000 @ A3                                | DRAWING NUMBER | BHA_1030_05 |
| DRAWN BY                   | IM                                         | APPROVED BY    | RH          |
| REVISION                   | -                                          | SHEET          | 1/1         |
| LAYOUT USED WITHIN DRAWING | 10.20 General Arrangement                  |                |             |
| CLIENT                     | Weston Homes                               |                |             |
| COORDINATE SYSTEM / DATUM  | British National Grid / Newlyn Datum (AOD) |                |             |

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**Note:** The original of this drawing was produced in colour - a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice

**INDIVIDUAL TREES**

| Ref | Species         | On / off site | Height (m) | No. of Stems | Est diam? | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | Special importance | General Observations                                                                                                                                                          | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m <sup>2</sup> |
|-----|-----------------|---------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|------------------------------------------|-----------------|----------------|--------------------|
| T21 | English oak     | On            | 9          | 1            | #         | 800                           | 8-8-8-5                 | 4.5                    | 2.5               | SE              | M          | None               | Squat form. Dense Ivy on stem and primary limbs. Unable to fully inspect. Dbh estimated. Ditch to east. Branch tip die back in parts. Low leaf density on west side of crown. | Fair              | Fair          | 20+                                      | B1              | 10             | 290                |
| T22 | English oak     | On            | 12         | 1            | #         | 950                           | 10-9-8-9                | 4.0                    | 2.5               | N               | M          | None               | Squat form. Early retrenching crown. Main leader lost in past, likely due to lightning strike. Vertical stem wound on west side of stem with exposed and decaying heartwood.  | Good              | Fair          | 40+                                      | A3              | 11             | 408                |
| T23 | English oak     | On            | 11         | 1            | #         | 550                           | 3-6-7-6                 | 5.0                    | 3                 | E               | M          | None               | Dense Ivy on stem and primary limbs, unable to fully inspect. Ditch to south.                                                                                                 | Good              | Fair          | 20+                                      | B1              | 7              | 137                |
| T24 | Common ash      | Off           | 13         | 1            | #         | 600                           | 5-6-5-6                 | 5.0                    | 4                 | SE              | EM         | None               | Potentially offsite. Ditch between site and tree. Dense Ivy on stem and primary limbs, unable to fully inspect. Typical for species and age.                                  | Fair              | Fair          | 20+                                      | B2              | 7              | 163                |
| T25 | Common ash      | Off           | 12         | 1            | #         | 500                           | ---                     | -                      | -                 | -               | -          | None               | Dead                                                                                                                                                                          | Dead              | Dead          | <10                                      | U               | 6              | 113                |
| T26 | Field maple     | Off           | 7          | 1            | #         | 400                           | 8-4-2-2.5               | 3.0                    | 3                 | W               | EM         | None               | Located on edge of pond. Ivy on stem. Significant stem lean and crown bias to north. Possibly offsite.                                                                        | Fair              | Poor          | 10+                                      | C1              | 5              | 72                 |
| T27 | Field maple     | Off           | 9          | 2            | #         | 390                           | 8-4.5-1-3               | 3.5                    | 4                 | N               | EM         | None               | Located on edge of pond. Ivy on stem. Significant stem lean and crown bias to north. Possibly offsite.                                                                        | Fair              | Poor          | 10+                                      | C1              | 5              | 69                 |
| T28 | Leyland cypress | Off           | 8          | 1            | #         | 400                           | 3-4-4-5                 | 0.5                    | N/a               | N/a             | EM         | None               | Located offsite. Unable to access or visually inspect. Most dimensions estimated. Appears to be typical for species and age.                                                  | Good              | Fair          | 20+                                      | C1              | 5              | 72                 |
| T29 | Common ash      | Off           | 7          | 1            | #         | 450                           | 4-4-3-3                 | 2.0                    | N/a               | N/a             | EM         | None               | Offsite tree. Not on topo. Topped at 2.5m in past.                                                                                                                            | Fair              | Fair          | 20+                                      | C1              | 5              | 92                 |



| Ref | Species          | On / off site | Height (m) | No. of Stems | Est diam? | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | Special importance | General Observations                                                                                                                   | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m <sup>2</sup> |
|-----|------------------|---------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|------------------------------------------|-----------------|----------------|--------------------|
| T30 | Contorted willow | Off           | 8          | 1            | #         | 350                           | 5-4.5-3-3               | 3.5                    | 2.5               | N               | EM         | None               | Offsite tree in rear garden. Not on topo, no access to stem.                                                                           | Fair              | Fair          | 20+                                      | B1              | 4              | 55                 |
| T31 | Field maple      | Off           | 9          | 7            | #         | 460                           | 4-5-5-4.5               | 3.0                    | 2.5               | NE              | EM         | None               | Offsite tree in rear garden. Not on topo, no access to stem.                                                                           | Good              | Fair          | 20+                                      | B1              | 6              | 96                 |
| T32 | Field maple      | Off           | 8          | 2            | #         | 320                           | 6-4.5-3.5-3             | 3.0                    | 3                 | SW              | EM         | None               | Offsite tree in rear garden. Not on topo, no access to stem. Crown lifted in past.                                                     | Good              | Fair          | 20+                                      | B1              | 4              | 46                 |
| T33 | English oak      | Off           | 10         | 1            | #         | 400                           | 6-5-6.5-6.5             | 3.5                    | 3                 | NW              | EM         | None               | Offsite tree in school grounds. Not on topo, no access to stem. Crown lifted in past.                                                  | Good              | Fair          | 20+                                      | B1              | 5              | 72                 |
| T34 | English oak      | On            | 9          | 1            | -         | 310                           | 5-5.5-3-4.5             | 2.5                    | 3                 | E               | EM         | None               | Young tree with good potential. Twin stemmed from 3.5m.                                                                                | Good              | Fair          | 40+                                      | B1              | 4              | 43                 |
| T38 | Field maple      | On            | 11         | 6            | #         | 430                           | 5-4.5-3-2               | 4.0                    | 5                 | S               | EM         | None               | Multi stemmed tree. On boundary with school. Ditch to north. Stem not on topo. No access to tree.                                      | Good              | Fair          | 20+                                      | B1              | 5              | 84                 |
| T39 | Common ash       | On            | 12         | 2            | #         | 300                           | 7.5-1-5-4               | 3.0                    | 3                 | N               | EM         | None               | Twin stemmed tree. On boundary with school. Ditch to north. Stem not on topo. No access to tree.                                       | Fair              | Fair          | 10+                                      | C1              | 4              | 41                 |
| T40 | English oak      | On            | 16         | 1            | #         | 850                           | 5-9.5-7-3               | 5.0                    | 5                 | E               | M          | None               | No access to stem. Unable to fully assess. Heavily reduced on west side in past with previous pruning wounds of approx 300mm diameter. | Fair              | Fair          | 40+                                      | B1              | 10             | 327                |
| T41 | English oak      | On            | 12         | 1            | #         | 950                           | 8-9-9-8                 | 4.0                    | 4                 | N               | M          | None               | Large tree on boundary of site. Garden waste tipped at base. Crown reduced on west side in past where branches overhang garden.        | Good              | Good          | 40+                                      | A1              | 11             | 408                |
| T42 | Field maple      | On            | 12         | 4            | #         | 830                           | 6.5-7-7.5-6.5           | 3.5                    | 3.5               | S               | M          | None               | Excellent form.                                                                                                                        | Good              | Good          | 40+                                      | A1              | 10             | 312                |
| T43 | English oak      | On            | 14         | 1            | -         | 740                           | 7-7-7.5-8               | 3.0                    | 2.5               | W               | M          | None               | No significant defects.                                                                                                                | Good              | Good          | 40+                                      | A1              | 9              | 248                |
| T44 | English oak      | On            | 15         | 1            | -         | 900                           | 8-8-10-9                | 3.0                    | 3                 | S               | M          | None               | Crown lifted over site.                                                                                                                | Good              | Good          | 40+                                      | A1              | 11             | 366                |



| Ref | Species     | On / off site | Height (m) | No. of Stems | Est diam? | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | Special importance | General Observations                                                                                           | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m <sup>2</sup> |
|-----|-------------|---------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--------------------|----------------------------------------------------------------------------------------------------------------|-------------------|---------------|------------------------------------------|-----------------|----------------|--------------------|
| T45 | English oak | Off           | 18         | 1            | -         | 760                           | 7-5.5-9-5               | 7.0                    | 6                 | S               | M          | None               | Mature oak, crown bias to the woodland edge, south                                                             | Good              | Good          | 40+                                      | B2              | 9              | 261                |
| T46 | Hornbeam    | Off           | 6          | 1            | -         | 390                           | 0-4-5-3.5               | 0.8                    | 0.2               | S               | SM         | None               | Located adjacent to the ditch, exposed roots due to erosion, suppressed by neighbouring tree                   | Fair              | Fair          | 20+                                      | C2              | 5              | 69                 |
| T47 | Hornbeam    | Off           | 7          | 1            | -         | 330                           | 1-4-5-3.5               | 0.8                    | 0.5               | S               | SM         | None               | Located adjacent to the ditch, mechanical wound at base, suppressed by neighbouring tree                       | Fair              | Fair          | 20+                                      | C2              | 4              | 49                 |
| T48 | Hornbeam    | Off           | 6.5        | 1            | -         | 180                           | 2-2-3-2.5               | 0.5                    | 0.5               | S               | SM         | None               | Understorey tree to the mature oak.                                                                            | Fair              | Fair          | 20+                                      | C2              | 2.2            | 15                 |
| T63 | Field maple | Off           | 11         | 2            | #         | 350                           | 1-4.5-5-4.5             | 3.5                    | 3.5               | S               | EM         | None               | Bramble at base, twin stemmed from ground level                                                                | Good              | Fair          | 40+                                      | B2              | 4              | 55                 |
| T64 | Damson      | On            | 6          | 1            | #         | 420                           | 4-4-3.5-6               | 2.0                    | 1.5               | W               | M          | None               | Located amongst adjacent to the field entrance/footpath. Some branch rear outs and dead stubs throughout crown | Good              | Fair          | 20+                                      | C1              | 5              | 80                 |
| T65 | Field maple | On            | 13         | 6            | -         | 490                           | 5.5-6-3-3               | 4.0                    | N/a               | N/a             | EM         | None               | Multi stemmed from ground level, located adjacent to the ditch                                                 | Good              | Fair          | 40+                                      | B2              | 6              | 109                |

**GROUPS OF TREES**

| Ref | Species                                                                | On / off site | Height range (m) | No. of trees | Est diam? | Max stem diam (mm) | Av. Crown radius (m) | Avg. Canopy Height (m) | Life Stage | Special importance | General Observations                                                                 | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) |
|-----|------------------------------------------------------------------------|---------------|------------------|--------------|-----------|--------------------|----------------------|------------------------|------------|--------------------|--------------------------------------------------------------------------------------|-------------------|---------------|------------------------------------------|-----------------|----------------|
| G9  | English oak, common ash, holly, common hawthorn, elder, dog rose, lime | On            | 4-10             | Approx 50    | #         | 450                | 4.0                  | 2.0                    | EM         | None               | Located part offsite and part on. Ditch on north side. Dense understorey, no access. | Fair              | Fair          | 20+                                      | B2              | 5.4            |

| Ref | Species                                                                 | On / off site | Height range (m) | No. of trees | Est diam? | Max stem diam (mm) | Av. Crown radius (m) | Avg. Canopy Height (m) | Life Stage | Special importance | General Observations                                                                                                                                                                                                                                                                                | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) |
|-----|-------------------------------------------------------------------------|---------------|------------------|--------------|-----------|--------------------|----------------------|------------------------|------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|------------------------------------------|-----------------|----------------|
| G10 | Blackthorn and elder                                                    | On            | 4-5              | 5            | #         | 75                 | 2.0                  | 0.2                    | SM         | None               | Small field edge tree group. Blackthorn forms a thicket and side flailed to north in past. Ditch to south.                                                                                                                                                                                          | Fair              | Fair          | 20+                                      | C2              | 1.0            |
| G11 | Common ash, blackthorn, goat willow, field maple and English elm        | Off           | 3-10             | Approx 25    | #         | 500                | 4.0                  | 1.5                    | EM         | None               | Common ash, field maple and goat willow with understorey. No stems on topo. Ash located to NE corner and in decline. Pond located to south - appears to be in neighbouring garden. Ivy on many stems. No access.                                                                                    | Fair              | Fair          | 20+                                      | C2              | 6.0            |
| G12 | Field maple, common ash, hawthorn, English elm, hazel, blackthorn.      | Off           | 3-11             | >25          | #         | 450                | 4.0                  | 3.0                    | EM         | None               | Stems no identified on topo. Group extend further to south than shown on tree survey plan. Deep ditch at 2m from northern edge of group. Line of field maple and common hazel along field edge with ditch to south. Most stems located to south of ditch. Largest db( taken on north side of ditch. | Good              | Fair          | 20+                                      | B2              | 5.4            |
| G13 | Goat willow, field maple, English elm, common hawthorn, hazel, dog rose | Off           | 3-9              | >20          | #         | 400                | 4.0                  | 2.5                    | EM         | None               | Dense group. Possibly offsite. Stems not on topo. No access to stems. Bramble and flailed understorey dominates northern edge. Largest Dbh taken at 2m from northern edge.                                                                                                                          | Good              | Fair          | 20+                                      | B2              | 4.8            |
| G14 | Field maple, English oak, hawthorn and blackthorn.                      | On            | 6-8              | 7            | #         | 450                | 4.5                  | 3.0                    | EM         | None               | Linear group on site boundary. Informal access path to rear gardens to west. No stems on topo.                                                                                                                                                                                                      | Good              | Fair          | 20+                                      | B2              | 5.4            |
| G15 | Blackthorn and field maple                                              | On            | 4-6              | 6            | #         | 200                | 2.5                  | 0.5                    | EM         | None               | Topped blackthorn thicket with field maple to south                                                                                                                                                                                                                                                 | Fair              | Poor          | 10+                                      | C2              | 2.4            |
| G16 | Field maple, blackthorn, hawthorn, crab apple                           | On            | 3-8              | Approx 10    | #         | 350                | 3.5                  | 2.0                    | EM         | None               | Along line of ditch adjacent school site. No stems on topo. Unable to fully access. Taller trees located to northern end.m                                                                                                                                                                          | Fair              | Fair          | 20+                                      | B2              | 4.2            |
| G17 | Field maple, common hawthorn, common ash, hazel, dog rose               | On            | 3-5              | >25          | #         | 200                | 2.0                  | 1.5                    | EM         | None               | Dense low group and thicket on boundary with school. Deep ditch, circa 1.2m on north side.                                                                                                                                                                                                          | Fair              | Fair          | 20+                                      | C2              | 2.4            |
| G18 | Field maple                                                             | On            | 8-9              | 5            | #         | 450                | 5.0                  | 2.5                    | EM         | None               | Dense group with single crown. Deep ditch to north, circa 1.2m deep.                                                                                                                                                                                                                                | Good              | Fair          | 20+                                      | B2              | 5.4            |
| G19 | Goat willow, field maple, common ash                                    | On            | 4-9              | >20          | #         | 400                | 4.0                  | 2.0                    | EM         | None               | Dense group of varying crown trees with understorey of blackthorn, bramble and elm. Stems not on topo. No access to stems. Ditch at base of stem, to west.                                                                                                                                          | Good              | Fair          | 20+                                      | B2              | 4.8            |
| G20 | Field maple and hazel.                                                  | On            | 2.5-3.5          | 6            | #         | 175                | 2                    | 0.8                    | SM         | None               | On boundary with residential gardens. Field maple in south topped and maintained as hedge.                                                                                                                                                                                                          | Fair              | Fair          | 20+                                      | C2              | 2.1            |

| Ref | Species                                  | On / off site | Height range (m) | No. of trees | Est diam? | Max stem diam (mm) | Av. Crown radius (m) | Avg. Canopy Height (m) | Life Stage | Special importance | General Observations                                                                                                                                                          | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) |
|-----|------------------------------------------|---------------|------------------|--------------|-----------|--------------------|----------------------|------------------------|------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|------------------------------------------|-----------------|----------------|
| G21 | Field maple, blackthorn, common hawthorn | On            | 5-9              | Approx 12    | #         | 400                | 5                    | 0.5                    | EM         | None               | Dense group, no access to stems. Ditch along centre line. Desire line footpath to west. English by on some stems. Stems not on topo. Blackthorn to north has lost its leader. | Good              | Fair          | 20+                                      | B2              | 4.8            |
| G23 | Field maple                              | On            | 6-7              | 2            | #         | 340                | 4.5                  | 3.5                    | M          | None               | Tree nearest road is decaying 500mm stem topped at 1.5m.                                                                                                                      | Good              | Fair          | 20+                                      | B3              | 4.1            |

### WOODLANDS

| Ref | Species                                                                               | On / off site | Height range (m) | No. of trees | Est diam? | Max stem diam (mm) | Av. Crown radius (m) | Avg. Canopy Height (m) | Life Stage | Special importance | General Observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) |
|-----|---------------------------------------------------------------------------------------|---------------|------------------|--------------|-----------|--------------------|----------------------|------------------------|------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|------------------------------------------|-----------------|----------------|
| W1  | English oak, wych elm, common hawthorn, hornbeam, holly, common ash, occasional larch | On            | 6-14             | >1000        | #         | 1100               | 6                    | N/a                    | M          | ASNW               | Limited species diversity. Limited vertical structure, primarily high canopy with limited evidence of recent thinning. Stark margins, although some smaller margin trees noted on western edge. Ditch around perimeter, circa 1.2m deep. Larger tree of 1100mm Dbh on west side. Many well worn desire line paths within the woodland running around perimeter, other running through woodland. Dog walkers. Quality could be improved with management. Margins could be enhanced with sinuous margin planting in buffer. Cessation of ploughing would assist in enhancing woodland. Many hornbeam and field maple are from coppice stools. Numerous old ditches within. a | Good              | Fair          | 40+                                      | A3              | 13.2           |

### HEDGEROWS

| Ref | Species                                                               | On / off site | Av. Height (m) | Av. width (m) | Av. Stem diam (mm) | Avg. Canopy Height (m) | Life Stage | General Observations                         | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) |
|-----|-----------------------------------------------------------------------|---------------|----------------|---------------|--------------------|------------------------|------------|----------------------------------------------|-------------------|---------------|------------------------------------------|-----------------|----------------|
| H6  | Wych elm, blackthorn, hawthorn, field maple, elder, dog rose, dogwood | On            | 4              | 3             | 100.0              | 0.0                    | EM         | Historically topped at 1m, now side-flailed. | Good              | Good          | 40+                                      | B2              | 1.3            |



| Ref | Species                                                                               | On / off site | Avg. Height (m) | Avg. width (m) | Avg. Stem diam (mm) | Avg. Canopy Height (m) | Life Stage | General Observations                                                                                                                          | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) |
|-----|---------------------------------------------------------------------------------------|---------------|-----------------|----------------|---------------------|------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|------------------------------------------|-----------------|----------------|
| H7  | Wych elm, blackthorn, hawthorn, field maple, elder, dogwood, dog rose                 | On            | 4               | 3              | 100.0               | 0.0                    | EM         | Historically topped at 2m, now side-flailed.                                                                                                  | Good              | Good          | 40+                                      | B2              | 1.3            |
| H8  | Common Hazel, dogwood, common hawthorn, field maple, blackthorn, English elm, cherry. | On            | 4.5             | 4              | 90.0                | 0.2                    | SM         | Relatively young, species rich hedgerow. Ditch in centre but stem primarily to west. Recently side cut with flail. Topped with flail in past. | Good              | Fair          | 20+                                      | B2              | 1.1            |





IMAGE 7: The east boundary of Bull Field, looking north-east.



IMAGE 8: View along the southern boundary of Bull Field, which shows its typical form.



IMAGE 9: The western boundary of Bull Field, looking south-west.



IMAGE 10: Typical view within ancient woodland W1.



IMAGE 11: Example of the stark margin of woodland W1.



IMAGE 12: Existing desire line paths within woodland W1.



- The tree survey was carried out with reference to the methodology set out in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- Trees were surveyed individually or as groups where it was considered that they had grown together to form cohesive arboricultural features either aerodynamically (trees that provide companion shelter), visually (e.g. avenues or screens) or culturally (including for biodiversity). However, where it was considered that there was an arboricultural need to differentiate between attributes trees within groups and / or woodlands were also surveyed as individuals.
- The full tree survey findings are recorded in the following tree survey schedule.
- Within the tree survey schedule, each surveyed TREE (T), GROUP (G), HEDGEROW (H), WOODLAND (W) or SHRUB MASS on or adjacent to the site is given a reference number which refers to its position on the tree survey and constraints plan.
- TREE SPECIES are listed by common name.

The **DIMENSIONS** taken are:

- STEM-No. Indicates the number of main stems (i.e. whether the trunk divides at or below 1.5m; (Used in the calculation of RPA.) "m-s" = Multi-stemmed.
- STEM DIAMETER (measured in millimetres), obtained from the girth measured at approx. 1.5m. For trees with 2 to 5 sub-stems a notional figure is derived from the sum of their cross-sectional areas. For multi-stemmed trees, the notional diameter may be estimated on the basis of the average stem size x the number of stems. (A notional diameter may be estimated where measurement is not possible.)
- HEIGHT (measured in metres), recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- The CROWN SPREAD, taken at the four cardinal points to derive an accurate representation of the tree crown, recorded up to the nearest half metre for dimensions up to 10m and to up the nearest whole metre for dimensions over 10m.
- CROWN CLEARANCES are expressed both as existing height above ground level of first significant branch along with its direction of growth (e.g. 2.5m-N), and also in terms of the overall crown e.g. the average height of the crown above ground level. Measurements are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- ESTIMATES. Where any measurement has had to be estimated, due to inaccessibility for example, this is indicated by a "#" suffix to the measurement as shown in the tree survey schedule.

**LIFE STAGE** is defined as follows:

- Y Young: Normally stake dependent, establishing trees. Should be growing fast, usually primarily increasing in height more than spread but as yet making limited impact upon the landscape.
- SM Semi-mature: Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact upon the local landscape and environment. Semi-Mature (still capable of being transplanted without preparation, up to 30cm girth and not yet sexually mature).

- EM Early-mature: Not yet having reached 75% of expected mature size. Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact upon the local landscape and environment.
- M Mature: Well-established trees, still growing with some vigour but tending to fill out and increase spread. Bark may be beginning to crack and fissure. In the middle half of their safe, useful life expectancies.
- LM Late-Mature: In full maturity but possibly beyond mature and in a state of natural decline). Still retaining some vigour but any growth is slowing.
- A Ancient: A tree that has passed beyond maturity and is old/aged compared with other trees of the same species. Typically having a very wide trunk and a small canopy.

#### **PHYSIOLOGICAL CONDITION (HEALTH & VITALITY):**

Essentially a snapshot of the general health of the tree based upon its general appearance, it's apparent vigour and the presence or absence of symptoms associated with poor health, physiological stress etc. (Fungal infections may be recorded here but decay giving rise to structural weakness would be recorded under 'Structural Condition' – see next parameter):

- Good: No significant health issues.
- Fair: Indications of slight stress or minor disease (e.g. the presence of minor dieback/deadwood or of epicormic shoot growth).
- Poor: Significant stress or disease noted; larger areas of dieback than above.
- Dead: (or Moribund).

#### **STRUCTURAL CONDITION:**

Defects affecting the structural stability of the tree including decay, significant dead wood, root-plate instability or significant damage to structural roots, weak forks (e.g. those where bark is included between the members) etc. Classified as:

- Good: No obvious structural defects: basically sound.
- Fair: Minor, potential or incipient defects.
- Poor: Significant defect(s) likely to lead to actual failure in the medium to long-term.
- Dead: (or Moribund).

#### **ESTIMATED REMAINING CONTRIBUTION:**

An estimate of the length of time in years that a tree might be expected to continue to make a useful contribution to the locality at an acceptable level of risk (based on an assumption of continued routine maintenance):

- Less than 10 years
- 10+ years
- 20+ years
- 40+ years



**SPECIAL IMPORTANCE:**

Trees that are particularly notable as high value trees such as ancient trees/woodland or veteran trees. Such trees may be regarded as the principal arboricultural features of a site and pose a significant constraint to potential development.

An *ancient* tree is one that has passed beyond maturity and is very old compared with other trees of the same species. Very few trees reach the ancient life-stage.

*Veteran* trees are often very old but not necessarily so; they may be regarded as ‘survivors’ that have developed some of the characteristic features of an ancient tree but have not necessarily lived as long. All ancient trees are veterans but not all veteran trees are ancient.

An ancient woodland is an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland (ASNW), plantations on ancient woodland sites (PAWS) and ancient replanted woodland (ARW)

**QUALITY CATEGORY:**

Trees are classed as category U, A, B or C, based on criteria given in BS5837:2012; summary definitions as follows (see BS5837 for further details). Categories A, B and C are further characterised by the use of sub-categories, which attempt to identify what aspect of the tree is the main source of its perceived value, These are:

- (1) arboricultural qualities
- (2) landscape qualities, and
- (3) cultural, historic or ecological/conservation qualities.

Examples of these qualities for each of the three categories are given below, although these are indicative only.

Note: This is NOT a health and safety classification; the classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees’ general suitability for retention.

**CATEGORY A: HIGH QUALITY:**

Trees or groups whose retention should be given a particularly high priority within the design process. Normally with an expected useful life expectancy of at least 40 years.

- A1: Notably fine specimens; rare or unusual specimens; essential component trees within groups, semi-formal or formal plantings (e.g. dominant trees within an avenue etc.).
- A2: Trees, groups or woodlands of particular visual importance as landscape features.
- A3: Trees, groups or woodlands of particular significance by virtue of their conservation, historical, commemorative or other value (e.g. veteran trees or wood pasture.)

**CATEGORY B: MODERATE QUALITY:**

Trees or groups of some importance with a likely useful life expectancy in excess of 20 years. Their retention would be desirable; selective removal of certain individuals may be acceptable but only after full consideration of all alternative courses of action.

- B1: Fair quality but not exceptional; good specimens showing some impairment (e.g. remediable defects, minor storm damage or poor past management.)
- B2: Acceptable trees situated such as to have little visual impact within the wider locality. Also numbers of trees, perhaps in groups or woodlands, whose value as landscape features is greater collectively than would warrant as individuals (such that the selective removal of an individual would not impact greatly upon the trees’ overall, collective value).
- B3: Trees, groups or woodlands with clearly identifiable conservation or other cultural benefits.

**CATEGORY C: LOW QUALITY:**

Trees or groups of rather low quality, although potentially capable of retention for at least approx. 10 years. Also small trees with stems below 15cm diameter.

Potentially retainable, but not of sufficient value to be regarded as a significant planning constraint.

- C1: Unremarkable trees of very limited merit or of significantly impaired condition.
- C2: Trees offering only low or short-term landscape benefits; also secondary specimens within groups or woodlands whose loss would not significantly diminish their landscape value.
- C3: Trees with extremely limited conservation or other cultural benefit.

**CATEGORY U:**

Trees likely to prove to be unsuitable for retention for longer than 10 years should any significant increase in site usage arise as a result of development.

E.g. dead or moribund trees; those at risk of collapse or in terminal decline; trees that will be left unstable by other essential works such as the removal of nearby category U trees; trees infected by pathogens that could materially affect other trees; low quality trees that are suppressing better specimens.

(Category U trees may have conservation values that it might be desirable to preserve. This category may also include trees that should be removed irrespective of any development proposals.)

**ROOT PROTECTION AREA (RPA):**

These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter, measured at 1.5m above ground level. The shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so.

## THE IMPORTANCE OF TREES

### Wider benefits:

There is a growing body of evidence that trees bring a wide range of benefits to the places people live.

Some *Economic* benefits of trees include:

- Trees can increase property values
- As trees grow larger, the lift they give to property values grows proportionately
- They can improve the environmental performance of buildings by reducing heating and cooling costs, thereby cutting bills
- Mature landscapes with trees can be worth more as development sites
- Trees create a positive perception of a place for potential property buyers
- Urban trees improve the health of local populations, reducing healthcare costs

Some *Social* benefits of trees include:

- Trees help create a sense of place and local identity
- They benefit communities by increasing pride in the local area
- They can create focal points and landmarks
- They have a positive impact on people's physical and mental health
- They can have a positive impact on crime reduction

Some *Environmental* benefits of trees include:

- Urban trees reduce the 'urban heat island effect' of localised temperature extremes
- They provide shade, making streets and buildings cooler in summer
- They help remove dust and particulates from the air
- They help to reduce traffic noise by absorbing and deflecting sound
- They help to reduce wind speeds
- By providing food and shelter for wildlife they help increase biodiversity
- They can reduce the effects of flash flooding by slowing the rate at which rainfall reaches the ground
- They can help remediate contaminated soil

### On new development sites:

Trees bring many benefits to new development. Where retained successfully they can form important and sustainable elements of green infrastructure, contribute to urban cooling and reduce energy demands in buildings. Their importance is acknowledged in relation to adaptation to the effects of climate change. Other benefits brought by trees include:

- increasing property values;
- visual amenity
- softening, complementing and adding maturity to built form
- displaying seasonal change
- increasing wildlife opportunities in built-up areas
- contributing to screening and shade
- reducing wind speed and turbulence

## **STATUTORY CONTROLS**

### Statutory tree protection

Works to trees which are covered by Tree Preservation Orders (TPOs) or are within a Conservation Area (CA) require permission or consent from the Local Planning Authority. Where information is available on any Statutory designations such as this they are identified within the summary table in Section 1 and on the Tree Survey and Constraints Plan at Section 2.

Notwithstanding specific exceptions and in general terms, a TPO prevents the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of protected trees or woodlands without the prior written consent of the LPA.

Penalties for contravention of a TPO tend to reflect the extent of damage caused but can, in the event of a tree being destroyed, result in a fine of up to £20,000 if convicted in a Magistrates' Court, or an unlimited fine if the matter is determined by the Crown Court.

Similarly, and again notwithstanding specific exceptions, it is an offence to carry out any works to a tree in a Conservation Area with a trunk diameter greater than 75mm diameter at 1.5 height without having first provided the LPA with 6 weeks written notification of intent to carry out the works.

On many non-residential sites (excluding specific exemptions) there is also a statutory restriction relating to tree felling that relates to quantities of timber that can be removed within set time periods. In basic terms, it is an offence to remove more than 5 cubic metres of timber in any one calendar quarter without having first obtained a felling licence from the Forestry Commission.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with the statutory controls outlined.

### Statutory Wildlife Protection

Although preliminary visual checks from ground level of likely wildlife habitats are made at the time of surveying, detailed ecological assessments of wildlife habitats are not made by the arboriculturist and fall outside of the scope for this report.

Trees which contain holes, splits, cracks and cavities could potentially provide a habitat for protected species such as bats in addition to birds and small mammals. It is advised that in some instances specialist ecological advice may be required. This may result in tree works being carried out following a detailed climbing inspection to the tree to ensure that protected species or their nests/roosts are not disturbed. If any are found, the site manager, site owner or consulting arboriculturist should be informed and appropriate action taken as recommended by the appointed Ecologist or the relevant Statutory Nature Conservation Organisation (SNCO): Natural England, Scottish Natural Heritage or Natural Resources Wales.

It is advised that tree/hedgerow works are carried out with the understanding that birds will generally nest in trees, hedges and shrubs between March and August. This time period only provides an indication of likely nesting times and as such diligence is required when undertaking tree works at all times.

Irrespective of the time of year and other than any actions approved under General Licence, it is an offence to intentionally kill, injure or take any wild bird or to intentionally take, damage or destroy the nest or eggs of any wild bird. Ideally, tree operations should be avoided during the likely bird nesting period. However, any tree works should always only be carried out following a preliminary visual check of the vegetation.

For information, the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010, form the basis of the statutory legislation for flora and fauna in England and Wales. A different legislative framework applies in Scotland and Northern Ireland.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with any relevant statutory controls, outlined above.

## DESIGN GUIDANCE

### Approach

The approach adopts the guidelines set out in the British Standard BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. The process is broken down to coordinate with the key elements within both the RIBA Plan of Work (2013) and British Standard 5837:2012 as set out in the table below:

| Information Stage                                 | RIBA Stage          | BS5837:2012                    |
|---------------------------------------------------|---------------------|--------------------------------|
| <b>Stage A – Tree Survey</b>                      | 2: Concept          | 4: Feasibility                 |
| <b>Stage B – Arboricultural Impact Assessment</b> | 3: Developed design | 5: Proposals                   |
| <b>Stage C – Arboricultural Method Statement</b>  | 4: Technical design | 6: Technical Design            |
| <b>Stage D – Arboricultural Site Supervision</b>  | 5: Construction     | 7: Demolition and construction |

A hierarchical approach is adopted in order to achieve optimum use of the site and location of built structures. This is set out below:

### Avoid

The starting point of Site layout design should be to avoid the RPA of retained trees and provide suitable clearance from above ground constraints [tree canopies]. Where possible building lines should be at least 2m outside the RPA to provide working space for construction. However, protection measures can be taken if such clearance is not achievable.

### Mitigate

Where intrusion within the RPA is unavoidable then its impact on the tree can be mitigated by specialist measures:

Foundations that avoid trenching e.g. screw piles, suspended floor slabs or casting at ground level for lightweight structures such as bin and cycle stores.

Limited use may be made for parking, drives or hard surfaces within the root protection areas, subject to advice from a qualified arboriculturist. Cellular confinement systems that enable hard surfaces to be built above existing soil levels are acceptable methods subject to site-specific soil conditions.

Service runs that cannot be routed outside the RPA(s) can be installed by, for example, thrust boring, directional drilling, air excavation or hand digging. These operations often require supervision by the project arboriculturist.

### Compensate

Replacement planting can ensure the continuity of tree cover where tree removal is unavoidable or desirable. Off-site provision may be considered in some circumstances but this will require negotiation with the local planning authority.

### Considerations:

For proposed residential developments, consideration must be given to numerous factors future tree growth and orientation.

### Tree constraints

#### Root Protection Areas:

With reference to BS5837:2012, a root protection area (RPA) is defined as “a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure should be treated as a priority”. **“The default position [when considering design layout in relation to RPAs] should be that structures are located outside the RPAs of trees to be retained”.**

BS5837:2012 states (4.6.2) that, “where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced.” The BS goes on to state that, “modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution,” and that any deviation from the original circular plot should take into account:

- Morphology and disposition of roots;
- topography and drainage;
- soil type and structure;
- the likely tolerance of the tree to root damage/disturbance.



Above ground:

Above ground constraints posed by trees describe the capacity for trees to have an overbearing or dominating effect on new developments; usually post occupancy. Typical above ground constraints include a number or combination of inconveniences including shading, branch spread, movement of trees during strong winds and so on. If not adequately considered, above ground constraints can lead to repeated requests to fell or heavily prune retained and protected trees.

Shade:

Adverse shading and blocked views from windows raise concerns for incoming residents, which may lead to pressure to fell or remove trees in the future. Wherever possible it is advisable to arrange fenestration away from tree canopies to lessen the conflict, or increase window size to accommodate ambient light. Conversely, appropriate designed development can use existing or new trees to create necessary and welcome shade and screening.

As part of the adopted approach the above considerations and constraints are assessed cumulatively in order to provide clear and site-specific advice on the areas of a site most suitable for the location of development.

Dependent on the site and nature of the proposed development, the Tree Survey and Constraints Plans may show the following:

*Recommended Developable area* - an advisory area defined in order to minimise arboricultural impacts using standard approaches to construction. Restricting proposed development to this area will limit the risk of harm to retained trees and of the Local Planning Authority objecting to the proposed development. It may be possible to propose development outside of this area but specific 'low impact' construction techniques may be needed recommended.

*Recommended Buffer to development* - similar to the Recommended Developable Area but defined as a line marking a suitable buffer to retained trees. More commonly used on large sites or sites where the presence of trees is localised.

**Tree Opportunities**

Depending on the scale of developments existing trees can often provide opportunities to enhance the existing arboricultural resource of a site by bringing it into good management or by putting in place remedial measures e.g. soil amelioration.

Appropriately designed new tree planting is extremely important in maintaining healthy and sustainable tree populations. For the reasons highlighted, new trees can bring many benefits to new developments. It is critical to the establishment of new tree planting that the locations, species and specification of new trees is appropriate. Subsequently the sourcing of high-quality stock, suitable planting and the provision of post planting maintenance are essential to allow new trees to establish and to allow them to mature.

### HOW TREE DAMAGE CAN OCCUR

#### Above the ground

Damage can occur as a result of knocks and scuffs, breakages of branches and/or tree trunks. This is often but not always associated with machine operations, groundworks excavations, tele handlers, high sided vehicles and crane use. Other forms of above ground damage include fixings to trunk and unauthorised cutting back of branches. Wounds will harm a tree's health and shorten its life by letting in disease-causing organisms.

#### Below the ground

It is often not appreciated that the majority of most tree roots are generally located within the top 600mm of the ground. On this basis it needs to be understood that damage to roots can occur in three ways:

- Root severance can occur as a result of, for example, soil stripping during site clearance or excavations.
- Root dieback and death can result from compaction of the soil. Compaction can occur as a result of vehicle weight, weight of stored materials or increased pedestrian access. Compaction crushes out soil pore space and prevents tree respiration from occurring (respiration requires gas exchange between the ground and the atmosphere). Compacted soil is denser and therefore inhibits/prevents any further new root growth.
- Pollution of the soil with chemicals such as oil or cement washings can destroy the soil environment, making it inhospitable for the tree cause causing it stress.

The effects of these impacts can be disfiguring to a tree's appearance and also weaken a tree making it more liable to attack by pest and diseases. In addition, root damage or death results in corresponding decline above the ground with dieback occurring within the tree crown.

The effects of damage to trees generally take some time to become fully apparent. In many cases, damaged trees decline slowly after the completion of a new development, until they eventually need to be removed due to ill health.

Tree protection barriers and load distributing 'no-dig' paths are specified in order to prevent soil compaction from taking place.

### GENERAL SITE RULES FOR TREE PROTECTION

Do not independently carry out any activity that is at odds with the site scheme of tree protection. This is contained within an approved Arboricultural Method Statement (AMS) and accompanying Tree Protection Plan.

In simple terms: do not carry out any work within any Construction Exclusion Zone (CEZ) without prior liaison with the Project Arboriculturist and written authorisation from the Local Planning Authority.

#### Within the CEZ:

- No mixing of cement
- No soil/turf stripping, raising/lowering of ground levels (unless advised), deposit or excavation of soil or rubble
- No excavations for services or installation of services
- No storage of materials, machinery fuel, chemicals or other materials of any other description
- No parking/use of tracked or wheeled machinery
- No siting of temporary structures including hard standing areas, portaloos, site huts
- No lighting of fires or disposal of liquids
- Fires on site should be avoided if possible. Where they are unavoidable, they must not be lit in a position where heat could damage foliage or branches. Fires must be a minimum of 20m from the trunk of any retained tree or the centre line of any hedgerow to be retained
- No signs, cables, fixtures or fittings of any other description shall be attached to any part of a retained tree