

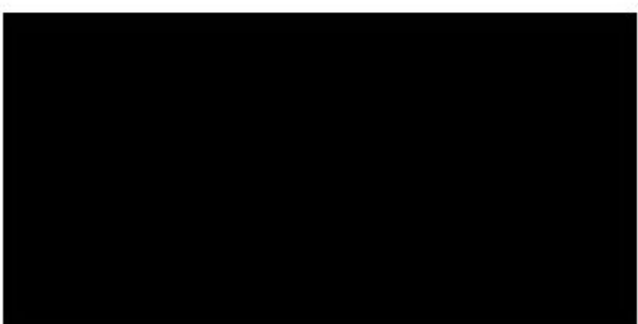




## QA

### **GROW Totteridge Farm. BS5837 Tree Survey & Arboricultural Impact Assessment**

|                 |  |   |
|-----------------|--|---|
| Issue/Revision: | Draft  | Final   |
| Date:           | December 2019  | December 2019   |
| Comments:       |  |   |
| Prepared by:    | James Rawlinson  | James Rawlinson   |
| Signature:      |  |  |
| Authorised by:  | Mitch Cooke  | Mitch Cooke   |
| Signature:      |  |  |
| File Reference: | 551328jrDec19D01_AIA   | 551328jrDec19F01_AIA  |

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## 1.0 EXECUTIVE SUMMARY

- 1.1 Greengage Environmental Ltd ('Greengage') was commissioned by Totteridge Academy to undertake an appraisal of trees at the site known as GROW Totteridge Farm, in accordance with the *BS5837:2012 Trees in relation to design, demolition and construction – Recommendations*.
- 1.2 A visit was made to the site on the 15<sup>th</sup> November 2019. The crowns and stems were inspected from the ground using the 'Visual Tree Assessment' (VTA) method; no invasive techniques were used at this stage.
- 1.3 The survey focused on the trees directly on and adjacent to the site that could be affected by the proposed development. This report also indicates any trees to be removed on the grounds of sound arboricultural management and those that may be required to be removed to allow for site development.
- 1.4 The Arboricultural Impact Assessment (AIA) was then drawn up based on the identified constraints of the existing on and off-site trees on the proposed development and its construction. It details any works to either the trees or the design proposals required to mitigate these constraints.
- 1.5 The subsequent Tree Constraints Plan (Appendix 2.0), shows the constraints to the development from the existing site trees and presents the locations, crown spreads, root protection areas (RPAs) and BS5837 categories.
- 1.6 The Tree Schedule (Appendix 1.0) contains details of all the surveyed trees falling within the scope of this report.

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## 2.0 METHODOLOGY

### Site Visit

- 2.1 The survey was undertaken on 15th November 2019 during dry conditions, with deciduous trees largely in winter bud. A summary table of all the trees included in the Tree Schedule (detailing further information on each tree) is shown at Appendix 1.0.
- 2.2 The crowns and stems were inspected from the ground using the 'Visual Tree Assessment' (VTA) method; no invasive techniques were used at this stage.
- 2.3 Full details on the tree survey methodology is given at Appendix 3.0.

## 3.0 BACKGROUND

### Site Description

- 3.1 The site comprises an area of open grassland/field (approximately 2.4ha) located to the north of the secondary school Totteridge Academy, Barnet Lane. The land slopes gently down to the north and west. Currently the land is being used in conjunction with the school as an outdoor space to teach the pupils the 'GROW' curriculum which engages pupils with nature, teaching nutrition and well-being in an agricultural/farming setting. Currently on site are found some beehives, sheep, planting beds prepared for cultivation and open grassland. This use does not currently benefit from planning permission.
- 3.2 The site is enclosed by a palisade fence and is bounded by open grassland and agricultural fields, except for the southern boundary where it adjoins the school and its associated buildings. A substantial hedge containing a number of mature trees is found on the southern boundary, which partly screens the school buildings. The other boundaries are also lined by trees and hedges, with the exception of the northern boundary where the palisade fence separates the open field.
- 3.3 The site falls within designated Green Belt Land and within Article 4 (6) land which removes agricultural permitted development rights. To the north of the site beyond the adjoining field is located a Site of Local Importance for Nature Conservation (SINC) and a metropolitan walk (The London Loop and the Dollis Valley Green Walk). A public footpath is also found to the west of the site, which provides a linking footpath.

## 4.0 THE TREES

- 4.1 In line with the BS5837 guidelines, 14 trees and 2 tree groups were identified either within or directly adjacent to the proposed development area. The following section should read as a summary description of the onsite trees with full details given in the Arboricultural Data Tables (Appendix 1.0), together with their respective BS category ratings.
- 4.2 Surveyed trees within the site boundary include a broad mix of species, life stages and condition with BS5837 assessments ranging from Category A to U.
- 4.3 Most of the surveyed trees are located along the southern edge of the site and form a small woodland section providing good visual screening between the site and the school, with the most visually and arboriculturally prominent being the larger Category B Oak trees. These formally planted larger specimens are then set within a group of generally lower quality largely self-seeded semi mature trees within a thick understory shrub layer.
- 4.4 There are also a number of poorer quality, visually prominent trees within this area (largely Ash), that are in varying stages of decline, with some Category U trees as a result of both Ash dieback (*hymenoscyphus fraxineus*) and *Inonotus hispidus* decay fungus.
- 4.5 Outside the site boundary (but adjacent to the eastern site entrance), are a number of other visually prominent landscape trees, including a Category A Weeping willow and Category B Oak, that despite their stature have significant defects that should be further assessed via detailed decay and tree health inspections.
- 4.6 Adjacent to the eastern site entrance are a linear group of Poplars, which are within falling distance of the existing site carpark. These are now lapsed pollards which are starting snap out, so sections could fail on the carpark area.

### Tree Legal Protection

- 4.7 Trees within the London Borough of Barnet can be protected by Tree Preservation Orders (TPOs) or by virtue of being in a Conservation Area, with the council generally requiring the retention of trees that contribute to the area's character and appearance.
- 4.8 A review of the council website shows that none of the trees within the survey area are covered by either a TPO or conservation area.
- 4.9 It is noted that that the area does form part of the designated Green Belt Land.



## 5.0 ARBORICULTURAL IMPACT ASSESSMENT

5.1 The Arboricultural Impact Assessment (AIA) is drawn up based on the identified constraints of the existing on and off-site trees, on both the proposed development and its construction. This takes into account both the above and below ground constraints of these trees both in their current form and from their future growth. Expanding on this it details any works to either the trees or the design proposals required to mitigate these constraints.

### Proposed Tree Removals

5.2 In line with the proposed development, almost all the of the onsite trees are proposed for retention, with those shown as removed being as a result of their direct conflict with the proposed development layout.

5.3 The need for the identified tree removals are as follows (as shown on the Tree Constraints Plan, Appendix 2.0):

- G1 Mixed group: Direct conflict with western site access (partial removal)

5.4 The proposed site layout requires additional access to the new site to the west. A narrow section of G1 will therefore be removed to allow for the onsite access road to be constructed. The location of the access road has specifically been located to avoid the RPAs of retained trees, so special ground protection will not be required.

### Development with Calculated Root Protection Areas

5.5 The Tree Constraints Plan for the proposed layout as shown in Appendix 2, indicates that all on site plantings and constructions are located outside the RPAs of retained trees. Special construction techniques are therefore not required.

### Facilitation Pruning

5.6 The tree survey specifically identified the need to undertake health and safety arboricultural intervention works to both T11 and G2, given their poor condition and close proximity to the eastern site entrance and carpark.

5.7 T11 will have the crown removed as it is shown to be in terminal decline with large lost limbs and extensive active decay (*Inonotus hispidus*), and G2 will be re-pollarded, as sections of the lapsed regrowth are now beginning to fail and snap out.

5.8 It is essential that arboricultural best practice as set out in BS:3998 Tree work – Recommendations, is adhered to for any required tree work

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***Landscape Feature Trees***

- 5.9 Whilst not within the development redline boundary, T13 Willow and T14 Oak (of high visual stature and landscape quality, as identified within the survey), both potentially require arboricultural intervention works. Specifically, it is advised that detailed tree condition inspections be undertaken to assess the extent of possible heartwood decay within T13 and the apparent Acute Oak Decline of T14. A programme of works on these two trees can then be drawn up as required.

**BS 5837 Tree Protection Fencing**

- 5.10 Prior to any site works taking place, all relevant tree protection fencing should be in place around all retained trees.
- 5.11 The fencing will comprise 1.8m Heras fencing around retained trees. Once erected, this will not be moved or relocated without approval from the council tree officer.
- 5.12 The tree protection area behind the Heras fencing (the Construction Exclusion Zone) will be sacrosanct throughout development and no access will be allowed to this area including (for example) the storage of or moving of materials or machinery.
- 5.13 The Heras fencing will be secured using footings to prevent movement of the protective fencing and ensure its rigid installation. Details of this are given on the Tree Constraints Plan (Appendix 2.0) and identified as such using appropriate signage (Appendix 4.0).

## 6.0 CONCLUSIONS

- 6.1 All trees under assessment have been considered with a total of 14 trees and 2 tree groups identified within or adjacent to the proposed development area.
- 6.2 The quality of the surveyed trees varies significantly, with a mix of Category A through to Category U trees.
- 6.3 Leading on from the tree survey, the Arboricultural Impact Assessment for the proposed development was drawn up based on the detailed design for the site.
- 6.4 As a result of the identified constraints between the proposed development design and the existing site trees, only a small area of Group 1 is shown as removed to allow for the construction of a second access road the west.
- 6.5 Given the poor structural and physiological condition of T11 and G2 (and close proximity of the eastern site entrance and adjacent carpark), tree works, in the form of crown removal for T11 and repollarding for G2, are proposed. Furthermore, detailed health and condition inspections are advised for T13 Willow and T14 Oak.
- 6.6 If the recommendations in this report are adhered to (namely the installation of suitable tree protection fencing), all retained trees should be suitably protected throughout the development.

### Limitations

- 6.7 This report includes information on only the trees that were inspected and the condition they were observed in at the time of survey. The condition of trees can change, and as such any findings from this report should be held valid to inform for purposes of development for no longer than 12 months from the survey date.
- 6.8 No guarantee can be given for the structural integrity of any trees on the Site as a full hazard assessment has not been made. Inaccessible trees will have best estimates made about location, physical dimensions and characteristics.

- END -

**APPENDIX 1.0: ARBORICULTURAL DATA TABLES**

a

| Tree No | Species     | Height (m) | Stem Diameter (mm) | Crown Spread |   |   |   | 1 <sup>st</sup> Significant Branch |            | Crown Clearance (m) | Age Class | Condition |   | General Notes  | Estimated years remaining | Grade Category |
|---------|-------------|------------|--------------------|--------------|---|---|---|------------------------------------|------------|---------------------|-----------|-----------|---|--|---------------------------|----------------|
|         |             |            |                    | N            | E | S | W | Direction                          | Height (m) |                     |           | P         | S |  |                           |                |
| T1      | Ash         | 9          | 500                | 6            | 5 | 7 | 5 | N/A                                | N/A        | N/A                 | EM        | F         | P | Off site tree in decline. Asymmetrical structure with no leader. Can't inspect close up but seems to have damaged limbs and cavities. Likely has <i>Inonotus hispidus</i> decay (as seen elsewhere on site ash trees).   | >10                       | C1             |
| T2      | Ash         | 12         | 750                | 6            | 6 | 7 | 6 | N                                  | 3          | 2                   | M         | F         | P | Upper structure shows numerous small cavities and snapped out limbs with limbs over school grounds possibly reduced (tree surgery). Several metres of new regrowth from these points. <i>Inonotus hispidus</i> brackets on the floor showing that active decay is in the upper crown.<br><br><b>Suggested works.</b><br>Defects may result in future snap outs, however the need for any reduction works will be dictated by the target value below as a result of site development. | >10                       | C1             |
| T3      | English oak | 10         | 670                | 8            | 7 | 7 | 6 | Multi-directional                  | 2          | 2                   | EM        | G         | G | Twin stem structure, which quickly breaks out into a wide multi-stem crown with no leader. Asymmetrical crown as a result of adjacent T2 Ash.  | >20                       | B1             |
| T4      | English oak | 10         | 670                | 6            | 6 | 6 | 6 | Multi-directional                  | 2          | 3                   | EM        | G         | G | Undergrowth too thick for close inspection. Multi-stem from 1-2 m with even crown structure.   | >20                       | B1             |
| T5      | English oak | 13         | 550                | 6            | 5 | 7 | 6 | Multi-directional                  | 2          | 3                   | EM        | G         | F | Tri-stem structure from base with included bark unions. Two of the three stems are showing a number of self-bracing points within their closely growing fastigate structure. The third   | >20                       | B1             |

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Client: Totteridge Academy  
Project Number: 551328`  
Greengage Environmental

**P:** Physiological  
**S:** Structural  
**G:** Good  
**F:** Fair  
**P:** Poor  
**SM:** Semi mature  
**EM:** Early mature

b

| Tree No | Species     | Height (m) | Stem Diameter (mm) | Crown Spread |   |   |   | 1 <sup>st</sup> Significant Branch |            | Crown Clearance (m) | Age Class | Condition |   | General Notes   | Estimated years remaining | Grade Category |
|---------|-------------|------------|--------------------|--------------|---|---|---|------------------------------------|------------|---------------------|-----------|-----------|---|---|---------------------------|----------------|
|         |             |            |                    | N            | E | S | W | Direction                          | Height (m) |                     |           | P         | S |   |                           |                |
|         |             |            |                    |              |   |   |   |                                    |            |                     |           |           |   | stem is growing so the south over the school grounds.   |                           |                |
| T6      | Ash         | 14         | 450                | 5            | 5 | 6 | 4 | Multi-directional                  | 4          | 4                   | EM        | G         | P | <p>Whilst physiologically good, the misshapen base structure suggests a decay cavity within the heart of the ground level stems. Also, included bark v-union above does not look secure, with signs of reaction wood to the outside to seemingly compensate this structural weakness.</p> <p><b>Suggested works.</b><br/>Tree currently quite small but should be kept under review as maturing limbs from this weakened base could fail over site in time.</p> | >10                       | C1             |
| T7      | English oak | 16         | 790                | 8            | 8 | 8 | 8 | N                                  | 2          | 0.5                 | M         | G         | G | Multi-stem structure with a number of self-bracing points throughout the crown area, with one to the north side of the tree (at a height of 4 m) having resulted in a heavily rubbed and damaged larger limb. Could fail at some point, but quite low down in structure and unlikely to threaten any adjacent targets, irrespective of development plans.   | >20                       | B1             |
| T8      | English oak | 11         | 600                | 6            | 5 | 5 | 3 | S                                  | 3          | 2                   | M         | P         | P | <p>Tree shows major open cavity decay wound to the southern side from ground level to 2 m. Tree though does retain some structural strength given the stronger tension wood to the northern side remains intact.</p> <p><b>Suggested works.</b></p>   | <10                       | U              |

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C

| Tree No | Species        | Height (m) | Stem Diameter (mm) | Crown Spread |   |   |    | 1 <sup>st</sup> Significant Branch |            | Crown Clearance (m) | Age Class | Condition |   | General Notes   | Estimated years remaining | Grade Category |
|---------|----------------|------------|--------------------|--------------|---|---|----|------------------------------------|------------|---------------------|-----------|-----------|---|---|---------------------------|----------------|
|         |                |            |                    | N            | E | S | W  | Direction                          | Height (m) |                     |           | P         | S |   |                           |                |
|         |                |            |                    |              |   |   |    |                                    |            |                     |           |           |   | With white rot decay continuing and the lean towards the adjacent building, a crown reduction as advisable. (not required for development).   |                           |                |
| T9      | Ash            | 9          | 580                | 4            | 4 | 6 | 4  | S                                  | 3          | 2                   | M         | P         | P | Tree in terminal decline with lost limbs ( <i>Inonotus hispidus</i> ) and die back ( <i>hymenoscyphus fraxineus</i> ). Small structure with no significant threat to site.  | <10                       | U              |
| T10     | English oak    | 12         | 550                | 7            | 8 | 5 | 5  | N                                  | 2          | 2                   | EM        | G         | F | Very asymmetrical structure to the north, with little southern crown. Reason unclear, but tree in stable condition.   | >20                       | B1             |
| T11     | Ash            | 12         | 800                | 6            | 4 | 6 | 6  | N                                  | 1          | 1                   | OM        | P         | P | Tree in terminal decline with large lost limbs and extensive active decay ( <i>Inonotus hispidus</i> ).<br><br><b>Suggested works.</b><br>Tree is adjacent and in falling distance to the site entrance. If site development goes ahead, then the crown should be removed to leave a monolith or tree completely removed. | <10                       | U              |
| T12     | Ash            | 6          | 260                | 3            | 3 | 1 | 3  | Multi-directional                  | 2          | 1                   | SM        | P         | P | Small tree with extensive die back ( <i>hymenoscyphus fraxineus</i> ).<br><br><b>Suggested works.</b><br>Tree removal (not required for development).   | <10                       | U              |
| T13     | Weeping willow | 13         | 120                | 6            | 7 | 7 | 10 | Multi-directional                  | 4          | 0.5                 | M         | G         | F | Important visual and landscape feature tree that is a good example of its species. Shown as Cat. A tree despite the noted defects. Historically a three stemmed structured crown, with  | >40                       | A1             |

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d

| Tree No | Species     | Height (m) | Stem Diameter (mm) | Crown Spread |   |   |   | 1 <sup>st</sup> Significant Branch |            | Crown Clearance (m) | Age Class | Condition |   | General Notes   | Estimated years remaining | Grade Category |
|---------|-------------|------------|--------------------|--------------|---|---|---|------------------------------------|------------|---------------------|-----------|-----------|---|---|---------------------------|----------------|
|         |             |            |                    | N            | E | S | W | Direction                          | Height (m) |                     |           | P         | S |   |                           |                |
|         |             |            |                    |              |   |   |   |                                    |            |                     |           |           |   | historical major limb failure having resulted in a large wound with exposed heartwood. Active decay noted from the presence of small fungal fruiting bodies within the exposed heartwood area. Has seen previous crown reduction work.<br><br><b>Suggested works.</b><br>The noted heartwood decay in the central area could result in future failure of adjacent large limbs. As reduction works to assist in managing this would result in a dramatic visual impact on the tree, detailed decay analysis (PICUS) should be undertaken to advise on the extent of any intervention works.                    |                           |                |
| T14     | English oak | 17         | 990                | 5            | 9 | 7 | 6 | W                                  | 4          | 3                   | OM        | F         | F | Important visual and landscape feature. But shown as Cat. B given the extent of noted defects. Tree shows good crown structure, albeit with some historical failed/pruned limbs. A large open decay wound is noted at the base, the extent of which (along with presence of active decay) is unclear. The tree is also showing signs of Acute Oak Decline, which whilst extensive bleeding was not noted, did shown numerous cracks and splits within the bark of the main stem. As is often typical at this stage of the disease, the crown and foliage seems in good health.<br><br><b>Suggested works.</b> | >20                       | B1             |

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e

| Tree No | Species   | Height (m) | Stem Diameter (mm) | Crown Spread            |   |   |   | 1 <sup>st</sup> Significant Branch |            | Crown Clearance (m) | Age Class | Condition |  | General Notes   | Estimated years remaining | Grade Category |
|---------|---|------------|--------------------|-------------------------|---|---|---|------------------------------------|------------|---------------------|-----------|-----------|--|---|---------------------------|----------------|
|         |   |            |                    | N                       | E | S | W | Direction                          | Height (m) |                     |           | P         | S  |   |                           |                |
|         |   |            |                    |                         |   |   |   |                                    |            |                     |           |           | As there are no treatments for this disease, its deteriorating condition should just be monitored, with intervention works undertaken when necessary. It would though be advisable to have a detailed tree health inspection undertaken to assess the extent of decline. |   |                           |                |
| G1      | Elder, blackthorn, yew, ash, hawthorn, field maple, apple and willow. | 7          | 100 (Ave)          | See Tree Constants Plan |   |   |   | N/A                                | N/A        | G/L                 | EM        | G         | F  | Mixed species broadleaf group of small trees and shrubs growing within and around T2 to T11. Provides good habitat cover on the edge of the proposed development area.  | >10                       | C2             |
| G2      | Poplar  | 16         | 75 (ave)           | See Tree Constants Plan |   |   |   | Multi-directional                  | 4          | 5                   | M         | P         | P  | Group of 4 trees, all lapsed pollards.<br><br><b>Suggested works.</b><br>Pollard regrowth sections now starting to fail and snap out, which threatens the carpark area to the entrance to the site. All trees should therefore be re-pollarded. | >10                       | C2             |

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## **APPENDIX 2.0: TREE CONSTRAINTS PLANS**



# Tree Constraints Plan showing existing layout against BS5837:2012 tree categories & Root Protection Areas

- Category A**  
 Trees of high quality with an estimated remaining life expectancy of at least 40 years.  
 (pink circle denotes Root Protection Area)
- Category B**  
 Trees of moderate quality with an estimated remaining expectancy of at least 20 years.
- Category C**  
 Trees of low quality with an estimated remaining life expectancy of at least 10 years, or a stem diameter below 150mm.
- Category U**  
 Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
- Category C Tree Group (English oak)**
- Tree and tree groups (not surveyed)**  
 Trees either beyond the site boundary or unaffected by the proposals.
- Site redline boundary**

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| No. | Revision/Issue             | Date     |

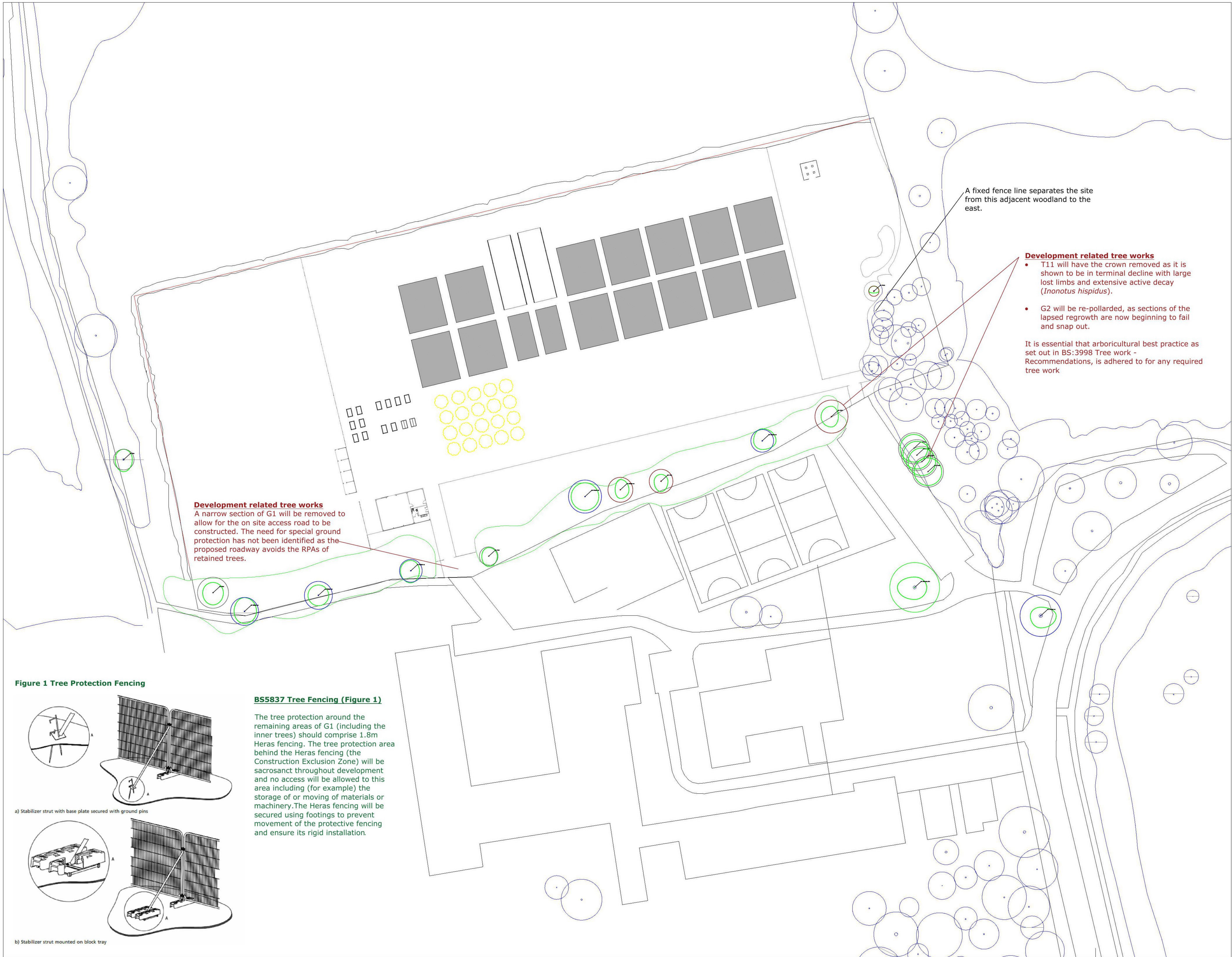
**Greengage**  
 64 Great Suffolk Street  
 SE1 0BL  
 Tel: 0203 544 4000

**Project Name and Address**  
 GROW Totteridge Farm  
 Totteridge Academy

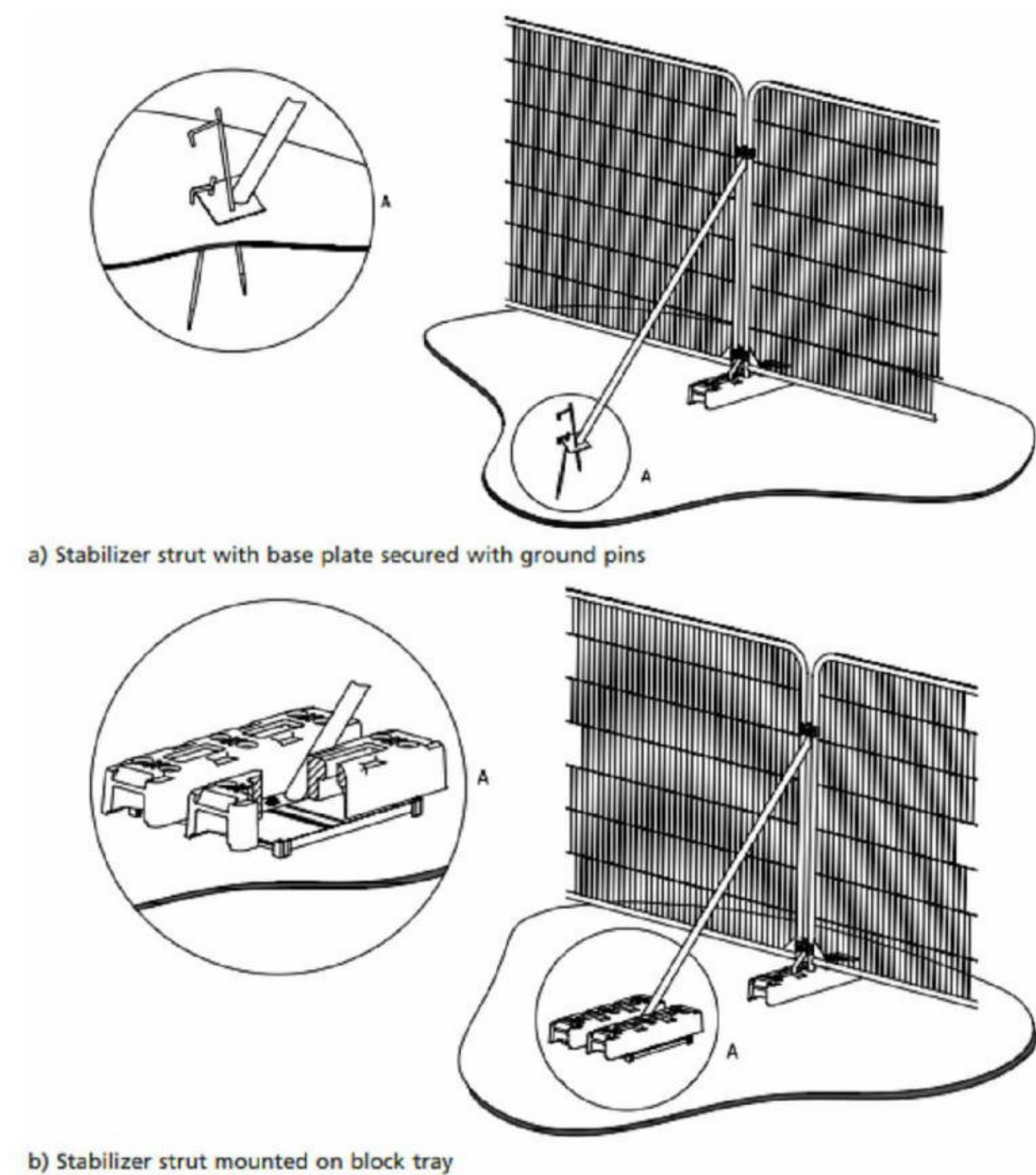
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| <b>Project</b><br>GROW Totteridge Farm | <b>Sheet</b><br>1 of 1 |
| <b>Date</b><br>02/12/2019              |                        |
| <b>Scale</b><br>1 to 100 at A1         |                        |

# Tree Constraints Plan showing proposed layout against BS5837:2012 tree categories & Root Protection Areas

- Category A**  
Trees of high quality with an estimated remaining life expectancy of at least 40 years.  
(pink circle denotes Root Protection Area)
- Category B**  
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C**  
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or a stem diameter below 150mm.
- Category U**  
Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
- Category C Tree Group (G1)**
- Tree and tree groups (not surveyed)**  
Trees either beyond the site boundary or unaffected by the proposals.
- Site redline boundary**
- Proposed orchard trees**



**Figure 1 Tree Protection Fencing**



**BS5837 Tree Fencing (Figure 1)**

The tree protection around the remaining areas of G1 (including the inner trees) should comprise 1.8m Heras fencing. The tree protection area behind the Heras fencing (the Construction Exclusion Zone) will be sacrosanct throughout development and no access will be allowed to this area including (for example) the storage of or moving of materials or machinery. The Heras fencing will be secured using footings to prevent movement of the protective fencing and ensure its rigid installation.

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SE1 0BL  
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| <b>Scale</b><br>1 to 100 at A1         |                        |

## APPENDIX 3.0: TREE SURVEY METHODOLOGY

Trees, tree groups and woodlands have been considered following evaluation into one of four categories (U, A, B, C) based on tree quality as outlined in British Standard 5837 (2012) which has been followed. Categorisation of trees, following the British Standard, gives an indication as to the trees' importance in relation to the site and the local landscape and also, the overall value and quality of the existing tree stock on site. This allows for informed decisions to be made concerning which trees should be removed or retained, should development occur.

For a tree to qualify under any given category it should fall within the scope of that category's definition. In the categories A, B, C which collectively deal with trees that should be a material consideration in the development process, there are three sub-categories which are intended to reflect arboricultural, landscape and cultural values respectively. Category U trees are those which would be lost in the short-term for reasons connected with their poor physiological or structural condition. They are, for this reason, not usually considered in the planning process.

In assigning trees to the A, B or C categories the presence of any serious disease or tree related hazards are taken into account. If the disease is considered fatal and / or irremediable, or likely to require sanitation for the protection of other trees it may be categorised as U, even if they are otherwise of considerable value.

Category (A) – trees whose retention is most desirable and is of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution (a minimum of 40 years) and may comprise:

- Trees which are particularly good examples of their species especially rare or unusual, or essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue);
- Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups); and
- Trees or groups or woodlands of significant conservation, historical, commemorative or other value (e.g. Veteran or wood-pasture trees).

Category (B) – are trees whose retention is considered desirable and are of moderate quality and value. These trees are considered to be in such a condition as to make a significant contribution (a minimum of 20 years) and may comprise:

- Trees that might be included in the high category but because of their numbers or slightly impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage), are downgraded in favour of the best individuals;

- Trees present in numbers such that they form distinct landscape features and attract a higher collective rating than they would as individuals. Individually these trees are not essential components of formal or semi-formal arboricultural features, or trees situated mainly internally to the site and have little visual impact beyond the site; and
- Trees with clearly identifiable conservation or other cultural benefits.

Category (C) – are trees that could be retained and are considered to be of low quality and value. These trees are in an adequate condition to remain until new planting could be established (a minimum of ten years) or are young trees with a stem diameter below 150mm and may comprise:

- Trees not qualifying in higher categories;
- Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value and or trees offering low or only temporary screening benefit; and
- Trees with very limited conservation or other cultural benefits.

Category (U) – trees for removal are those trees in such a condition that any existing value would be lost within 10 years and which should in the current context be removed for reasons of sound arboricultural management. Trees within this category are:

- Trees that have a serious irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees;
- Trees that are dead or are showing signs of significant, immediate or irreversible overall decline; and
- Trees infected with pathogens of significance to the health and or/safety of other trees nearby trees or very low quality trees suppressing adjacent trees of better quality.

Species has been recorded by common name and recorded as such in the Arboricultural Data Tables in Appendix 2. Height has been estimated in meter and stem diameters have been measured at 1.5 metres above ground level and recorded in millimetres. Crown spreads have been measured in half meters and taken to the point of greatest spread unless the crown has presented a pronounced asymmetrical form and therefore measurements have been taken for the four cardinal points. The measurements have always been considered in the following sequence, North, East, South, and West, and therefore appear as such within the Arboricultural Data Tables.

In the assessment particular consideration has been given to the following when deciding the most appropriate British Standard Category and Sub-Category allocation:

1. the health, vigour and condition of each tree;
2. the presence of any structural defects in each tree and its life expectancy;

3. the size and form of each tree and its suitability within the context of the proposed scheme; and
4. the location of each tree relative to existing site features, e.g. its value as a screen or as a skyline feature.

Age class is assessed according to the age class categories referred to in BS 5837.

- Y: Young trees up to five years of age;
- SM: Semi-mature, trees less than 1/3 life expectancy;
- EM: Early mature, trees 1/3 – 2/3 life expectancy;
- M: Mature trees over 2/3 life expectancy;
- OM: Over mature – declining or moribund trees of low vigour; and
- V: Veteran - Characteristics have been noted where a tree exhibits certain characteristic features of veteran trees.

The overall condition of the tree, or group of trees, has been referred to as one of the following. A more detailed description of condition has been noted in the Tree Schedule and discussed in the Tree Assessment Report.

- Good: A sound tree, trees, needing little, if any, attention;
- Fair: A tree, trees, with minor but rectifiable defects or in the early stages of stress, from which it may recover;
- Poor: A tree, trees, with major structural and physiological defects or stressed such that it would be expensive and inappropriate to retain; and
- Dead: A tree, trees, no longer alive. However, this could also apply to those trees that are dying and will be unlikely to recover, or are / have become dangerous.

Major defects or diseases and relevant observations have also been recorded under Structural Condition. The assessment for structural condition has included inspection of the following defects:

- The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay;
- Soil cracks and any heaving of the soil around the base indicating possible root plate movement;
- Any abrupt bends in branches and limbs resulting from past pruning, as it may be an indication of internal weakness and decay;
- Tight or weak 'V' shaped unions and co-dominant stems;
- Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994);

- Cavities as a result of limb losses or previous pruning;
- Broken branches;
- Storm damage;
- Canker formations;
- Loose bark;
- Damage to roots;
- Basal, stem or branch / limb cavities;
- Crown die-back;
- Abnormal foliage size and colour;
- Any changes to the timing of normal leaf flush and leaf fall patterns; and
- Other pathological diseases affecting any part of the tree.
- Major defects or diseases and relevant observations have also been recorded. Dead wood has been defined as the following:
  - Twigs and small branch material up to 5cm in diameter;
  - Minor dead wood 5cm to 10cm in diameter; and
  - Major dead wood 10cm in diameter and above.

The survey was completed from ground level only, aerial inspection of trees was not undertaken. Investigations as to the internal condition of a tree have not been undertaken. Further investigations of this type can be made and have been recommended where it has been considered necessary, within the report although these investigations are beyond the scope of this report.

Evaluation of the trees condition given within this assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months, in accordance with sound arboricultural practice.

The individual positions of trees and groups of trees recorded in the Arboricultural Data Tables have been shown on the Tree Constraints Plan, in Appendix 3. The positions of trees are based on a topographical / land survey supplied by the development and client in dwg. format for the purpose of plotting the trees.

The Root Protection Areas (RPA) to be required by the individual and groups of trees are indicated by the Tree Constraints element of the above plans. The Root Protection Areas are formulated as described below.

Below ground constraints to future development is represented by the area surrounding the tree that contains sufficient rooting volume to ensure survival of the tree, which need protecting in order for the tree to be incorporated into any future scheme, without



adverse harm to the tree or structural integrity of buildings. This is referred to as the RPA and is shown as a circle of a given radius.

The circle may be modified in shape to maintain a similar total area depending on the presence of surrounding obstacles. Where groups of trees have been assessed, the RPA has been shown based on the maximum sized tree in any one group and so would automatically exceed the RPAs required for many of the individual specimens within the group. An RPA is equivalent to a circle with a radius 12x the stem diameter for single stem trees and 10x the basal diameter for trees with more than one stem arising less than 1.5 meters above ground level.

**APPENDIX 4.0: TREE PROTECTION SIGNAGE**

