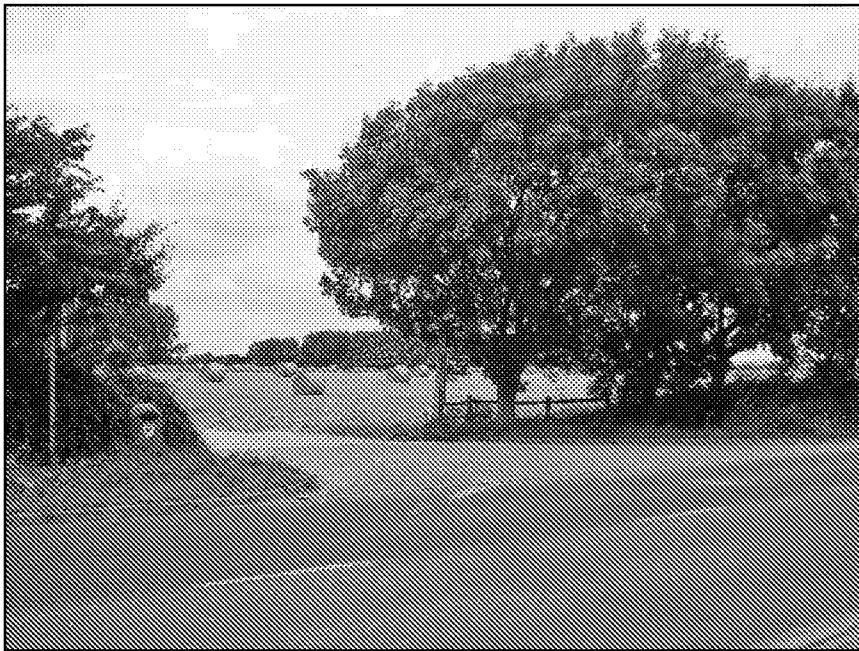


# Arboricultural Impact Assessment & Tree Protection Plan

For trees on land at

Pagham Road in Pagham



*On behalf of*

**Hanbury Properties Ltd**

17 Northgate

Chichester

West Sussex

PO19 1BJ

*Inspected and prepared by*

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6<sup>th</sup> December 2016

## SUMMARY

The trees considered in this report are located on and around land at Pagham Road in Bognor Regis. The report is intended to support a plan to create a new mixed-use development at the site.

Arboricultural advice was taken early in the planning process and so the design incorporates the best trees on the site. Four trees will need to be removed in order to construct the proposed development, this includes three B-grade trees and one C-grade tree. Five groups of trees will also need to be removed including three B-grade groups and two C-grade groups. One further B-grade group will need to be partially removed. One C-grade hedgerow will also need to be removed and a second one partially removed. The loss of these trees will be compensated by a large quantity of new tree planting that has been carefully designed to ensure that they will have the chance to mature and make a long-term contribution to the local landscape.

Temporary fencing will be used during construction to protect retained trees situated near works areas; the location of necessary tree protection fencing is indicated on the tree protection plan (TPP-1) and a specification for this fencing is provided in Appendix 2. **For effective tree protection it is crucial that the protective fencing is installed before any heavy plant machinery is used on the site.** The tree protection fencing must remain in place until the construction works have been completed.

Arboricultural supervision will be required if any unforeseen construction activity is to take place within the root protection area of any of the retained trees on or near the site. This supervision must be carried out by a suitably qualified arboriculturist. It is advised that the project arboriculturist and the local authority's tree officer are informed of necessary works near trees as soon as they become apparent.

General advice on the protection of trees during construction works has also been provided in this report. The site manager must be made aware of the tree protection requirements at the site and provided with a copy of this report; this information must be passed on to all construction staff.

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## **1 INTRODUCTION**

### **1.1 Background Information**

Hanbury Properties Ltd propose to develop an area of land at Pagham Road in Pagham, Bognor Regis, PO4 2NN; this land is hereafter referred to as the 'Site'. This would involve constructing a new mixed-use development that will include a range of residential properties and a primary school with sports pitches; these proposals are hereafter referred to as the 'Proposed Development'.

The following documents have been reviewed to inform this report:

- Illustrative Masterplan - DLA - Drawing # DLA.1731.L003.05
- Landscape Framework - DLA - Drawing # DLA.1731.L003.06

An initial tree constraints plan was produced in August 2016 and this has informed the proposed Site layout.

### **1.2 The Assignment**

Davies Landscape Architects instructed Bosky Trees on behalf of Hanbury Properties Ltd to undertake a Site visit, survey the trees that could be affected by the Proposed Development and specify suitable tree protection measures. The information compiled within this report is in accordance with BS5837:2012<sup>1</sup> - Trees in relation to design, demolition and construction - Recommendations. The following information is provided in this report to accompany a planning application for the Proposed Development:

- A tree survey plan based on the topographical survey provided, with any additional tree(s) indicatively plotted.
- An arboricultural impact assessment of the Proposed Development identifying trees that will be lost as well as trees that can be retained and protected during development works.
- Information regarding the location of tree protection fencing and ground protection measures on a tree protection plan.
- Recommendations for remedial tree works to be undertaken to retained trees prior to commencement of the necessary Site clearance and construction.
- Method statements for works near trees.

### **1.3 Limitations**

The assessment and works recommendations relate to conditions found at the time of inspection. Any significant alteration to the Site that may affect the trees that are present or have a bearing on the planning implications (including level changes, hydrological changes, storms, extreme climatic events or Site works) will necessitate a re-assessment of the trees.

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<sup>1</sup> British Standards Institution (2012). BS5837 Trees in relation to design, demolition and construction – Recommendations. BSI, London.

It should be noted that this survey is not a tree safety inspection; it has been carried out in order to inform the planning process. Where clear and obvious hazards have been observed, these have been addressed in the works recommendations. A full assessment of the levels of risk posed by trees would be informed by considering Site use together with hazards present within a tree. Changes in Site use are likely to occur during, and result from, the Proposed Development. In light of these factors, regular tree risk assessments are advised.

This report does not consider any aspect of tree-related building subsidence. If shrinkable clay soils are present on Site the guidance given in the National House Building Council (NHBC) chapter 4.2<sup>2</sup> should be used to avert the risk of future subsidence of new buildings.

No detailed assessment of the potential conflict between future Site use and the shade cast by trees has been undertaken within this report.

## **2 TREE SURVEY INFORMATION**

### **2.1 Details of Site Visit**

I visited the Site and carried out the tree survey on 10<sup>th</sup> August 2016. Weather conditions were dry and clear and did not present any constraints. The survey considered all of the trees in and around the Site.

The Site is currently three large arable fields and there are numerous mature sycamore and ash trees situated on the eastern boundary alongside Pagham Road. A large group of tall poplars grow on the western boundary, and there are smaller trees sparsely distributed on the other field boundaries.

### **2.2 Data Collection**

Trees, tree-groups and hedgerows were allocated an individual number that is used to identify them throughout this report. These are listed in the tree schedule at the rear of the report and they are also used on the plans presented at the front of this report.

The tree inspections took place from ground level using the Visual Tree Assessment method<sup>3</sup>. In addition each tree has been classified into four retention categories, A, B, C or U (in accordance with the system described in Table 1 of BS5837). The stem diameter has been used to calculate the root protection area (RPA<sup>4</sup>) required by each tree during construction. Information on each tree, tree-group and hedgerow is listed in the schedule provided in Appendix 1.

A total of 18 individual trees, 19 groups of trees and 10 hedges were surveyed. A summary of their value/retentive worth is provided in Table 1.

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<sup>2</sup> National House Building Council (2008). NHBC Standards Chapter 4.2 - Building near trees.

<sup>3</sup> Mattheck, C. and Breloer, H. (1995). The Body Language of Trees: A handbook for failure analysis. Research for Amenity Trees 4. HMSO, London.

<sup>4</sup> The root protection area (RPA) is 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 roots and soil structure is treated as a priority.

**Table 1: A summary of the retentive worth classified to the trees, groups and hedgerows included in the survey.**

| <b>BS5837<br/>Category</b> | <b>Quality</b> | <b>Number of<br/>Trees</b> | <b>Number of<br/>Groups</b> | <b>Number of<br/>Hedges</b> |
|----------------------------|----------------|----------------------------|-----------------------------|-----------------------------|
| A                          | High           | 0                          | 0                           | 0                           |
| B                          | Moderate       | 5                          | 7                           | 0                           |
| C                          | Low            | 12                         | 10                          | 10                          |
| U                          | Very poor      | 1                          | 2                           | 0                           |
|                            | <b>Total</b>   | <b>18</b>                  | <b>19</b>                   | <b>10</b>                   |

## **2.3 The Tree Plans**

The tree removal plan (TR-1) shows the root protection areas required by each tree and identifies which trees are to be removed to enable the Proposed Development. The tree protection plan (TPP-1) shows where fencing will be installed in order to protect trees during construction. These plans are provided as separate A0 sheets.

## **3 ARBORICULTURAL IMPACT ASSESSMENT AND PROPOSED MITIGATION**

### **3.1 Trees for Removal**

Four trees will need to be removed in order to construct the Proposed Development, these include three B-grade trees (T2, T6 and T7) and one C-grade tree (T1). Five groups of trees will also need to be removed, these include three B-grade groups (G3—G5) and two C-grade groups (G9 and G14). One further B-grade group will need to be partially removed (G12). One C-grade hedgerow will need to be entirely removed (H1) and a second one partially removed (H3).

New trees will be planted to compensate for the loss of these trees, the locations for the new trees are shown on the Illustrative Masterplan that has been produced by Davies Landscape Architects (Drawing ref. DLA.1731.L003.05). The plan shows that new tree planting extensively throughout the Site, and especially on the eastern and western boundaries.

### **3.2 New Service Runs**

Installation of underground services by typical 'open trench' methods near trees is likely to sever roots; this will harm the physiological condition of the trees, provide an opportunity for fungal infection, and could leave them prone to windthrow. Therefore, the locations for new underground services will be designed to avoid the root protection areas required by the retained trees.

If any additional underground services are required I recommend that suitable members of the project team, including an arboricultural consultant, should design their routes. An appropriate specification and method statement for their installation would need to be produced, and guidance provided in NJUG<sup>5</sup> must be followed.

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<sup>5</sup> NJUG (2007): Guidelines for the Planning, Installation, and Maintenance of Utility apparatus in the Proximity to Trees. National Joint Utilities Group Volume 4.

### 3.3 Level Changes and Retaining Walls

Any changes in levels or slopes need to comply with the constraints attached to the construction exclusion zones. This means that any soil grading must take place outside of the fenced areas identified on the tree protection plan.

### 3.4 Final Landscaping Works Near Retained Trees

Once the construction process has been completed it will be necessary to remove the tree protection measures and landscape the areas near the retained trees. Care must be taken at this point to ensure that root damage does not occur and so vehicles must stick to designated transit routes and any digging near trees should be carried out with the use of hand tools only. The ground may be levelled by adding topsoil rather than skimming the surface.

### 3.5 Tree Protection Fencing

Temporary fencing and/or barriers must be used during construction to protect retained trees situated near works areas. The location of necessary tree protection is indicated on the tree protection plan (TPP-1). **For effective tree protection it is crucial that the protective fencing is installed before any heavy plant machinery is used on the Site.** The tree protection fencing must remain in place until the construction works have been completed (unless under arboricultural supervision). The fenced off areas will be construction exclusion zones.

A specification for suitable tree protection fencing is provided in Appendix 2.

### 3.6 General Specification for Effective Tree Protection

Trees are vulnerable to root damage caused by ground disturbance, direct injury of the trunk or branches, environmental change, pests, and diseases. Construction work often exerts pressures on existing trees, and a tree that has taken many decades to reach maturity can be damaged irreparably in a few minutes by unwitting or negligent actions.

The Site manager must be made aware of the tree protection requirements at the Site and the guidance provided in this report. It is strongly recommended that there is a pre-start meeting to ensure the correct erection of barriers forming the construction exclusion zones.

For this project temporary fencing will be used during construction to protect the retained trees at the Site (see section 3.5 for further guidance). The fenced off areas will be construction exclusion zones.

Soil compaction quickly occurs if vehicles pass over an area of soil. Compaction may cause reduced infiltration rates of water, poor drainage, reduced availability of water, and reduced air and oxygen supply to roots. This leads to reduced root growth and as a result the health of the tree is impacted. Therefore, to ensure that soil compaction is avoided, it is very important that no vehicles enter the fenced-off areas during construction operations.

All construction staff should be made aware of the following restrictions that apply to the construction exclusion zones:

- 1) No excavation or raising of soil levels is permitted within the construction exclusion zones without written permission from the project arboriculturist;
- 2) Site offices and staff welfare facilities must be located outside of the construction exclusion zones unless agreed with the local authority's arboricultural officer;

- 3) No materials of any kind are to be stored dumped or discharged within the construction exclusion zone;
- 4) No utility trenches are to be routed through a construction exclusion zone without written permission from the local authority's arboricultural officer;
- 5) Care must be taken when planning site operations to ensure that wide or tall loads, or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Branches may be tied back so that they are out of the way if necessary;
- 6) Potential contaminants such as diesel oil, cement and bitumen must be stored at least 10m from any trees, with provision made for any spillage or run off to be contained away from the protected area;
- 7) Cement and concrete mixing must take place at least 10m from any trees, over a suitable hard surface to prevent soil contamination from spillage or washing out;
- 8) Fires should be avoided, however if permitted by the site manager, they must not be lit in a position where heat could affect foliage or branches, (At least 15m from the base of a tree would normally be sufficient).

## **4 RECOMMENDATIONS**

### **4.1 Tree Work**

All of the tree works that would be necessary for the Proposed Development to proceed are listed in the schedule in Appendix 1.

All permitted and approved tree work must be undertaken in accordance with BS3998:2010 – Recommendations for tree work<sup>6</sup>. It would be easiest if these works are carried out at the beginning of the construction phase, before protective fencing is put up. Only qualified and insured tree surgeons should be employed.

### **4.2 Legal Restrictions to Tree Works**

It has not been confirmed to Bosky Trees whether any trees on this Site are protected by a TPO or if they are located within a Conservation Area.

You should be aware that it is an offence to wilfully damage or destroy a tree the subject of a tree preservation order (TPO). The Town and Country Planning (Tree Preservation) (England) Regulations 2012 and its accompanying 'Guide to tree preservation procedures', makes clear that deliberate destruction of a protected tree or damage in a manner likely to destroy it, without the permission of the Local Planning Authority, would render you liable to an unlimited fine. Also, a replacement tree would normally have to be planted if the tree was cut down or destroyed. If the trees stand within a Conservation Area they have the same protection as trees protected by a TPO.

If this report is submitted to support a full planning application, and that application is subsequently approved, any tree works listed in the report may be carried out prior to the commencement of

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<sup>6</sup> British Standards Institution (2010). BS3998 Recommendations for Tree Work. BSI, London.

construction without the requirement for further permission from the planning authority. However, if trees are owned by a third party permission for their removal must be agreed with the owners of the trees.

If any arboricultural works are intended before planning permission has been approved then the local planning authority should be contacted to find out if any of the trees are protected. If the trees are in a Conservation Area then the local planning authority must be notified of the intended works and they have up to 6 weeks to respond. If the trees are protected by a TPO then an application for works must be made and the local authority will respond within 8 weeks. Please contact Bosky Trees if you would like these matters explained in more detail.

As it is illegal to disturb an active bird's nest, works may be constrained from March to August. Bat roosts are also protected and tree works could be delayed if any roosting bats are encountered. A tree surgeon or an ecologist will be able to advise on this matter.

### **4.3 Works Supervision and Monitoring**

Arboricultural supervision will be required if any unforeseen construction activity is to take place within the root protection area of any of the retained trees on or near the Site. This supervision must be carried out by a suitably qualified arboriculturist. It is advised that the project arboriculturist and the local authority's tree officer are informed of necessary works near trees as soon as they become apparent.

## Appendix 1 - Tree Schedule

Site: Land at Pagham Road, Pagham

Surveyor: Nick Baxter

Date of Survey: 10th August 2016



| Tree Number | Tree Species | Height (m) | Number of Stems | Stem Ø (cm) | N - Radius (m) | S - Radius (m) | E - Radius (m) | W - Radius (m) | 1st Branch (m) | Age Class | Overall Health | ULE (Years) | Tree Structural Condition & Site Notes                                                                                                                    | Recommended Management                                                        | Category |
|-------------|--------------|------------|-----------------|-------------|----------------|----------------|----------------|----------------|----------------|-----------|----------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------|
| T1          | Sycamore     | 9          | 1               | 30          | 3.5            | 3.5            | 4              | 2.5            | 3.5            | M         | G              | 40+         | Past crown lift. Upper crown leans to the east. No obvious significant defects.<br>Ditch immediately to the west.                                         | Fell.                                                                         | C2       |
| T2          | Sycamore     | 12         | 1               | 45          | 6.5            | 7              | 6              | 5              | 4              | M         | G              | 40+         | Past crown lift. Upper crown leans to the east. No obvious significant defects.<br>Ditch immediately to the west.                                         | Fell.                                                                         | B2       |
| T3          | Field maple  | 5          | 1               | 25          | 4.5            | 1              | 4              | 1              | 2              | M         | G              | 40+         | Three stems from 2m. Windswept crown leans to the north. No obvious significant defects.<br>Ditch immediately to the east.                                | No action required at present.                                                | C2       |
| T4          | Sycamore     | 8          | 3               | 26          | 3.5            | 3.5            | 3.5            | 3.5            | 3              | M         | G              | 40+         | Crown lift on west side over field. No obvious significant defects.<br>Ploughed field to the west. Large ditch immediately to the east.                   | No action required at present.                                                | C2       |
| T5          | Sycamore     | 8          | 2               | 27          | 3.5            | 3.5            | 3.5            | 3.5            | 3              | M         | G              | 40+         | Crown lift on west side over field. No obvious significant defects.<br>Ploughed field to the west. Large ditch immediately to the east.                   | No action required at present.                                                | C2       |
| T6          | Sycamore     | 10         | 1               | 48          | 5              | 5              | 5              | 4              | 3              | M         | G              | 40+         | Roadside tree. Three stems from 2m. Past crown lift on east side over road. No obvious significant defects.<br>Ditch immediately to the west.             | Fell.                                                                         | B2       |
| T7          | Sycamore     | 12         | 1               | 48          | 6.5            | 7              | 6              | 5              | 4              | M         | G              | 40+         | Roadside tree. Three stems from 2m. Past crown lift on east side over road. No obvious significant defects.<br>Ditch immediately to the west.             | Fell.                                                                         | B2       |
| T8          | Sycamore     | 16         | 1               | 48          | 6.5            | 6.5            | 5              | 6              | 3.5            | M         | G              | 40+         | Slight crown lean to the east. No obvious significant defects. Prolific arboreal ivy.<br>Ploughed field to the west. Large ditch immediately to the east. | Crown lift on the east side up to 3m by removing the lower branches entirely. | B2       |
| T9          | Sycamore     | 13         | 2               | 30          | 4              | 4              | 4              | 4              | 3              | M         | G              | 40+         | Three stems from 2m. No obvious significant defects.<br>Ploughed field to the west. Large ditch immediately to the east.                                  | No action required at present.                                                | C1       |
| T10         | Sycamore     | 14         | 1               | 40          | 6.5            | 6              | 6              | 4              | 4              | M         | P              | 10+         | Major crown dieback on the east side.<br>Ploughed field to the west. Large ditch immediately to the east.                                                 | No action required at present.                                                | C2       |
| T11         | Elm          | 6          | 1               | 9           | 1              | 1              | 1              | 1              | 2              | EM        | G              | <10         | This tree will soon reach the age of getting Dutch elm disease.                                                                                           | No action required at present.                                                | U        |

A key explaining each category is provided at the rear of the schedule

| Tree Number | Tree Species | Height (m) | Number of Stems | Stem Ø (cm) | N - Radius (m) | S - Radius (m) | E - Radius (m) | W - Radius (m) | 1st Branch (m) | Age Class | Overall Health | ULE (Years) | Tree Structural Condition & Site Notes                                                                                                                            | Recommended Management         | Category |
|-------------|--------------|------------|-----------------|-------------|----------------|----------------|----------------|----------------|----------------|-----------|----------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------|
| T12         | Oak          | 8          | 1               | 48          | 5              | 2              | 5              | 5              | 3.5            | M         | F              | 20+         | Minor crown dieback. The south side of the crown appears to have been trimmed back with a flail. Arboreal ivy. Ditch immediately to the north.                    | No action required at present. | C2       |
| T13         | Oak          | 8          | 1               | 18          | 2.5            | 1              | 1.5            | 1.5            | 3              | EM        | G              | 20+         | Minor crown dieback. Ditch immediately to the south. Ploughed field to the north.                                                                                 | No action required at present. | C2       |
| T14         | Oak          | 11         | 1               | 38          | 4.5            | 4.5            | 4.5            | 4.5            | 3              | M         | G              | 40+         | Slight trunk lean to the north. Arboreal ivy. No obvious significant defects. Ditch immediately to the east.                                                      | No action required at present. | B1       |
| T15         | Field maple  | 7          | MS              | 64          | 3              | 4              | 4              | 3              | 2              | M         | G              | 40+         | Multi stemmed from base. Crown flailed on the east side. Arboreal ivy. No obvious significant defects. Ditch immediately to the west. Ploughed field to the east. | No action required at present. | C2       |
| T16         | Field maple  | 7          | MS              | 64          | 3              | 4              | 4              | 3              | 2              | M         | G              | 40+         | Multi stemmed from base. Crown flailed on the east side. Arboreal ivy. No obvious significant defects. Ditch immediately to the west. Ploughed field to the east. | No action required at present. | C2       |
| T17         | Apple        | 5          | MS              | 46          | 3              | 3              | 3              | 3              | 1.5            | M         | G              | 40+         | Five stems from 1m. No obvious significant defects. Ploughed field to the west. Situated outside of the boundary in private garden.                               | No action required at present. | C2       |
| T18         | Goat willow  | 8          | 1               | 28          | 3              | 3              | 3              | 3              | 2              | M         | G              | 40+         | Multi stemmed from 2m. No obvious significant defects. Ploughed field to the west. Situated outside of the boundary in private garden.                            | No action required at present. | C2       |

A key explaining each category is provided at the rear of the schedule

## Appendix 1 - Group Schedule

Surveyor: Nick Baxter



Site: Land at Pagham Road, Pagham

Date of Survey: 10th August 2016

| Group Number | Tree Species                             | Number in Group | Height (m) | Number of stems | Stem Ø (cm) | N - Radius (m) | S - Radius (m) | E - Radius (m) | W - Radius (m) | 1st Branch | Age Class | Overall Health | ULE (Years) | Tree Structural Condition & Site Notes                                                                                                                                                | Recommended Management                                                                          | Category |
|--------------|------------------------------------------|-----------------|------------|-----------------|-------------|----------------|----------------|----------------|----------------|------------|-----------|----------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------|
| G1           | Crack willow                             | 5               | 14         | 1               | 25          | 4              | 4              | 4              | 4              | 3          | M         | G              | 40+         | Previously crown lifted on the north side over children's play park. No obvious significant defects. Ditch to the south.                                                              | No action required at present.                                                                  | C2       |
| G2           | Leyland cypress and field maple          | 3               | 11         | 1               | 25          | 4              | 4              | 5              | 4              | 2          | M         | G              | 40+         | Arboreal ivy. Multi stemmed from 2m. No obvious significant defects. Large ditch immediately to the east.                                                                             | No action required at present.                                                                  | C2       |
| G3           | Oak, sycamore and ash                    | 25              | 16         | 1               | 30          | 5              | 5              | 5              | 5              | 2.5        | M         | G              | 40+         | Many have previously been crown lifted on the east and west sides. Ploughed field to the west of this group. Large ditch                                                              | Remove.                                                                                         | B2       |
| G4           | Sycamore                                 | 4               | 13         | 1               | 35          | 5              | 5              | 5              | 3.5            | 3          | M         | G              | 40+         | These are roadside trees. Previously crown lifted on the east side over road. Large ditch immediately to the west.                                                                    | Remove.                                                                                         | B2       |
| G5           | Sycamore, oak, ash and willow            | 9               | 11         | 1               | 30          | 5              | 5              | 5              | 5              | 3          | M         | G              | 40+         | Many have previously been crown lifted on the east and west sides. No obvious significant defects. Ploughed field to the west of this group. Large ditch immediately to the east.     | Remove.                                                                                         | B2       |
| G6           | Oak, sycamore and ash                    | 7               | 9          | 1               | 30          | 4              | 4              | 5              | 4              | 3          | M         | G              | 40+         | Many have previously been crown lifted on the west side. No obvious significant defects. Ploughed field to the west of this group. Large ditch immediately to the east.               | Crown lift on the eastern edge of the crowns up to 3m by removing the lowest branches entirely. | B2       |
| G7           | Oak, sycamore and ash                    | 4               | 14         | 1               | 35          | 4.5            | 4.5            | 4.5            | 4.5            | 3          | M         | G              | 40+         | Many have previously been crown lifted on the west side. No obvious significant defects. Arboreal ivy. Ploughed field to the west of this group. Large ditch immediately to the east. | Crown lift on the eastern edge of the crowns up to 3m by removing the lowest branches entirely. | B2       |
| G8           | Willow and cherry                        | 3               | 7          | 1               | 20          | 4              | 4              | 4              | 4              | 3          | EM        | G              | 20+         | Growing within a hedgerow. No obvious significant defects. Ploughed field to the west of this group. Large ditch immediately to the east.                                             | No action required at present.                                                                  | C2       |
| G9           | Oak, sycamore, ash, willow and whitebeam | 19              | 13         | 1               | 20          | 4              | 4              | 4              | 4              | 3          | EM        | G              | 20+         | Growing within a hedgerow. No obvious significant defects. Ploughed field to the west of this group. Large ditch immediately to the east.                                             | Remove.                                                                                         | C2       |

A key explaining each category is provided at the rear of the schedule

| Group Number | Tree Species                 | Number in Group | Height (m) | Number of stems | Stem Ø (cm) | N - Radius (m) | S - Radius (m) | E - Radius (m) | W - Radius (m) | 1st Branch | Age Class | Overall Health | ULE (Years) | Tree Structural Condition & Site Notes                                                                                                     | Recommended Management                                                       | Category |
|--------------|------------------------------|-----------------|------------|-----------------|-------------|----------------|----------------|----------------|----------------|------------|-----------|----------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------|
| G10          | Field maple and ash          | 10              | 11         | 1               | 25          | 4              | 4              | 4              | 4              | 3          | EM        | G              | 20+         | No obvious significant defects.<br>Ploughed field to the west of this group. Large ditch immediately to the east.                          | No action required at present.                                               | C2       |
| G11          | Elm                          | 5               | 9          | 1               | 12          | 1.5            | 1.5            | 1.5            | 1.5            | 2          | EM        | G              | <10         | This group will soon reach the age of getting Dutch elms disease.<br>Ditch immediately to the north.                                       | No action required at present.                                               | U        |
| G12          | Ash and oak                  | 5               | 14         | 1               | 25          | 4              | 4              | 4              | 4              | 5          | M         | G              | 40+         | Arboreal ivy. No obvious significant defects.<br>Ditch immediately to the north.                                                           | Remove a section of this group as indicated in the tree removal plan (TR-1). | B2       |
| G13          | Elm                          | 5               | 3          | 1               | 9           | 1              | 1              | 1              | 1              | 1          | SM        | F              | <10         | This group will soon reach the age of getting Dutch elms disease.<br>Ditch immediately to the east.                                        | No action required at present.                                               | U        |
| G14          | Goat willow                  | 4               | 6          | MS              | 30          | 5              | 7              | 7              | 2.5            | 2          | M         | G              | 20+         | Multi stemmed from base. Recent pruning work on the west side for clearance of farm track.<br>Growing on the south side of a ditch.        | Remove.                                                                      | C2       |
| G15          | Blackthorn                   | 20              | 4          | 1               | 9           | 2              | 2              | 2              | 2              | 2          | M         | G              | 20+         | Blackthorn scrub. Brambles growing within group.                                                                                           | No action required at present.                                               | C2       |
| G16          | Hybrid black poplar          | 40              | 22         | 1               | 45          | 4              | 4              | 8.5            | 8.5            | 4          | M         | G              | 40+         | A linear planting of trees acting as a screen and shelterbelt for the buildings behind. Prominent trees in the landscape.<br>Arboreal ivy. | No action required at present.                                               | B2       |
| G17          | Willow                       | 7               | 5          | 1               | 15          | 3              | 3              | 3              | 3              | 1          | M         | G              | 40+         | Dense area of willow scrub.                                                                                                                | No action required at present.                                               | C2       |
| G18          | Field maple and crack willow | 3               | 7          | 1               | 25          | 4              | 4              | 4              | 4              | 3          | M         | F              | 20+         | No obvious significant defects.<br>Growing to the west side of a farm track and ditch.                                                     | No action required at present.                                               | C2       |
| G19          | Leyland cypress              | 3               | 15         | 1               | 55          | 4              | 4              | 4              | 4              | 4          | M         | F              | 40+         | Previously reduced in height. Hanging branch in crown.                                                                                     | No action required at present.                                               | C2       |

A key explaining each category is provided at the rear of the schedule

## Appendix 1 - Hedge Schedule

Site: Land at Pagham Road, Pagham

Surveyor: Nick Baxter

Date of Survey: 10th August 2015



| Hedge Number | Tree Species                    | Height (m) | No. of Stems | Stem Ø (cm) | Width (m) | Length (m) | Age Class | Overall Health | ULE (Years) | Condition & Notes                                                                                                                                              | Management Recommendations                                                           | Category |
|--------------|---------------------------------|------------|--------------|-------------|-----------|------------|-----------|----------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------|
| H1           | Sycamore and blackthorn         | 6          | MS           | 10          | 2         | 20         | EM        | G              | 20+         | These appear to be self sown trees that now act as a field boundary hedgerow.                                                                                  | Remove.                                                                              | C2       |
| H2           | Hawthorn, blackthorn and willow | 6          | MS           | 9           | 2         | 30         | EM        | G              | 20+         | This is a field boundary hedgerow. It seems that it has never been managed.<br>Ploughed field to the west of this hedge. Large ditch immediately to the east.  | No action required at present.                                                       | C2       |
| H3           | Hawthorn, blackthorn and willow | 4          | MS           | 9           | 3         | 135        | EM        | F              | 20+         | This is a field boundary hedgerow. It seems to be flailed on the west side.<br>Ploughed field to the west of this hedge. Large ditch immediately to the east.  | Remove a 110m section of this hedgerow as indicated in the tree removal plan (TR-1). | C2       |
| H4           | Blackthorn and elm              | 5          | MS           | 10          | 1.5       | 15         | EM        | G              | 20+         | This is a field boundary hedgerow. It seems to be flailed on the west side.<br>Ploughed field to the west of this hedge. Large ditch immediately to the east.  | No action required at present.                                                       | C2       |
| H5           | Blackthorn                      | 2          | MS           | 9           | 2         | 5          | EM        | G              | 20+         | This is a field boundary hedgerow. It seems to be flailed.<br>Ditch immediately to the north.                                                                  | No action required at present.                                                       | C2       |
| H6           | Blackthorn and hawthorn         | 3          | MS           | 10          | 2         | 75         | M         | G              | 20+         | Few gaps. This is a field boundary hedgerow. It seems to be flailed.<br>Ditch immediately to the north.                                                        | No action required at present.                                                       | C2       |
| H7           | Blackthorn                      | 3          | MS           | 10          | 2         | 25         | M         | G              | 20+         | Few gaps. This is a field boundary hedgerow. It seems to be flailed. Ditch immediately to the south.                                                           | No action required at present.                                                       | C2       |
| H8           | Blackthorn and willow           | 4          | MS           | 10          | 3         | 30         | M         | G              | 20+         | This is a field boundary hedgerow. It seems to be partly flailed.<br>Ditch immediately to the east.                                                            | No action required at present.                                                       | C2       |
| H9           | Blackthorn and hawthorn         | 2          | MS           | 10          | 1.5       | 75         | EM        | G              | 20+         | This is a field boundary hedgerow. It doesn't seem to have been managed in several years. This hedge seems to have been planted outside of the boundary fence. | No action required at present.                                                       | C2       |
| H10          | Hawthorn, rowan and alder       | 3          | MS           | 10          | 2         | 50         | EM        | G              | 20+         | This is a field boundary hedgerow. It doesn't seem to have been managed in several years. Few small trees grow throughout the sparse hedge.                    | No action required at present.                                                       | C2       |

A key explaining each category can be found at the rear of the schedule.

## Tree Schedule - KEY

### Tree/Group/Hedge Number

Tree, tree-groups or hedges have been allocated a number for the purpose of this survey. Numbers within the Tree Schedule relate to those marked on the Tree Constraints Plan and Tree Protection Plan drawings.

### Species

Common names are listed.

### Number in Group

Number of trees within a group. A group of trees may comprise of more than one species.

### Height (m)

All heights are estimated in metres.

### Number of Stems

The number of stems is either 1, 2, 3, 4, 5 or MS (multi-stemmed). This feature influences how the area of the recommended root protection area is calculated.

### Stem or Combined Diameter (cm)

Single stem diameters are measured at 1.5m with a diameter tape. The combined stem diameters for trees with up to five stems and trees with more than five stems (MS) trees are calculated in accordance with the guidance. The stem diameters are measured in accordance with Figure C.1 of BS5837:2012. All measurements in bold are estimates due to restricted access to the tree trunk.

### Crown Spread Radius (m)

The crown radius from tree trunk to crown limit identified at the four cardinal points (N, S, E and W) in order to allow presentation of the above ground constraints on the Tree Constraints Plan and Tree Protection Plan. Measurements are approximate and recorded to the nearest half metre.

All measurements depend on clear access about the crown.

### 1<sup>st</sup> Branch (m)

This is a record of the height of the lowest branch. This is useful when planning access routes or considering if pruning will be required to site new features under a tree crown.

### Age Class

(Y) Young, (SM) Semi-Mature, (EM) Early-Mature, (M) Mature, (FM) Fully-Mature or (V) Veteran.

### Overall Health

An overall assessment of the physiological condition of the tree recorded as (G) Good, (F) Fair, (P) Poor, (D) Dead.

### ULE (Years)

Useful Life Expectancy. Anticipated future contribution to amenity, in years.

### Tree Structural Condition & Site Notes

Observations on the form of the tree, condition and structural integrity.

Site notes are detailed when relevant to the growth conditions or rooting constraints.

### Management Recommendations

Recommended tree surgery works to be carried out prior to construction. Terminology used is based on guidance detailed in BS3998:2010 – Recommendations for tree work<sup>1</sup>.

### Category

Tree category as defined within BS5837:2012. Categories A (high quality), B (moderate quality) and C (low quality) are trees that should be considered for retention. Category U trees are unsuitable for retention.

<sup>1</sup> British Standards Institution (2010). BS3998 - Recommendations for Tree Work. BSI, London.

## Appendix 1

# Tree Schedule, Group Schedule, Hedge Schedule & Schedule Key

## APPENDIX 2

### SPECIFICATION FOR TREE PROTECTION FENCING

The location of the tree protection fencing that will be required is shown on the tree protection plan, (this is provided at the front of this document). **For effective tree protection it is crucial that the protective fencing is installed before any heavy plant machinery is used on the site.** The tree protection fencing must remain in place until the construction works have been completed (unless under arboricultural supervision). The fenced off areas will be construction exclusion zones.

Most planning permission notices include a condition for tree protection that requires proof to be provided to demonstrate that the tree protection fencing has been put up properly and in accordance with the tree protection plan. This can be done by installing the fencing and informing the council two weeks in advance of starting construction, or by employing an arboricultural consultant to check the fencing and produce a record of the inspection. Alternatively photos could be taken as evidence that the fencing has been put up before any other works have started.

Fencing (or other forms of barrier) must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. In most cases fencing should consist of a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. A specification for fencing suitable for most construction sites is provided in Figure 2 of BS5837 but in some situations more light-weight stabilising systems for fencing may be sufficient, this is detailed in Figure 3a and 3b in BS5837 (both of these diagrams are reproduced on the next page). Alternative methods of barrier could be appropriate for tree protection provided that they are sufficient to exclude construction activity; but any such methods must first be agreed by the Local Authority's arboricultural officer.

Once the barriers have been erected the areas of land within the construction exclusion zone should be regarded as sacrosanct, and should not be removed or altered without prior consultation with the project arboriculturist and, where necessary, approval from the local planning authority. All-weather notices should be attached to the fencing with words such as: 'Construction Exclusion Zone - No Access'. Throughout the construction period attention should be paid to ensure that barriers remain rigid and complete.

**Arboricultural supervision will be required whenever construction and development activity is to take place within a construction exclusion zone.** This supervision must be carried out by a suitably qualified arboriculturist.

Figure 2 Default specification for protective barrier

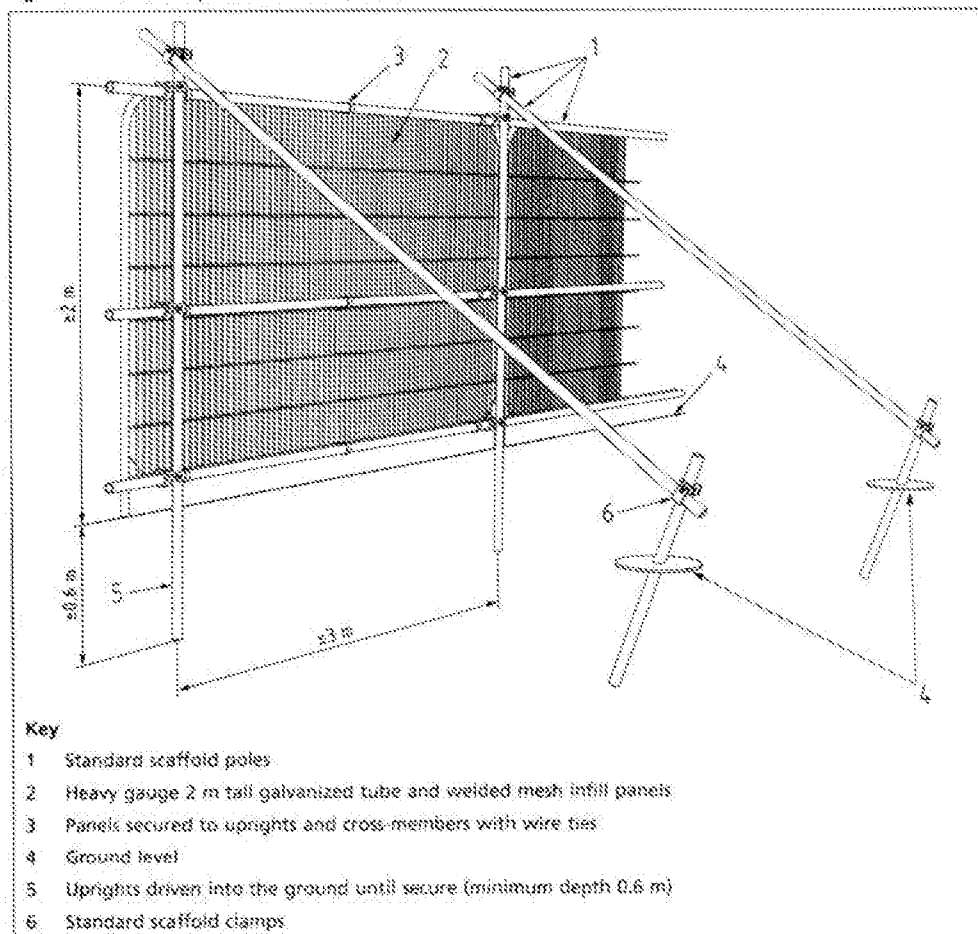


Figure 3 Examples of above-ground stabilizing systems

