

# **PRE-DEVELOPMENT TREE SURVEY and CONSTRAINTS PLAN**

## **SITE OF SURVEY**

St Mary The Virgin C.W. Primary School  
North Church Street  
Butetown  
Cardiff  
CF10 5HB

## **CLIENTS**

CARDIFF CITY COUNCIL

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## **DATES SURVEYED**

5<sup>th</sup> November 2018  
Report valid for 12 months

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# 1. INTRODUCTION

## 1.1 TREES AND DEVELOPMENT SITES

Trees are of vital importance to the landscape and are essential for enhancing the rural and urban environment. They provide scenic character, visual amenity and are vital habitats for dependent wildlife populations.

The retention of trees within a new development provides an immediate sense of maturity for the benefit of a site and its surroundings, raising the overall quality of a scheme and enhancing property value.

Trees can occupy a substantial part of a development site and because of their potential size can have a major influence on the planning and use of the site. Existing trees of good quality and value can greatly enhance a new development. However, trees can also be a constraint. Poorly laid out sites or the retention of inappropriate or poor quality trees can restrict development and can cause nuisance to future residents.

Where retained trees are inadequately protected, damaged or their immediate environment significantly changed by a development, the trees may subsequently decline and die resulting in all positive benefits being lost.

The purpose of a Pre-development Tree Survey is to provide the proposed developers, architects and landscape designers with an independent, concise presentation of the position, dimensions, condition and future life expectancy of existing trees on the site. This will enable them to evaluate the impact of different development layouts and select the optimum solution for the situation. This survey is based on British Standard 5837 .

## 1.2 ASSIGNMENT

We have been instructed by Angharad Traylor RIBA Pensaer | Architect Datblygu Economaidd | economic Development Cyngor Caerdydd | Cardiff Council to:

Visually assess the significant trees within the designated area at St Mary The Virgin C.W. Primary School, North Church Street, Butetown, Cardiff CF10 5HB.

We have visually inspected the site for the presence of Japanese knotweed. Only Japanese knotweed visible at the time of inspection has been recorded on the site plan. **Species description** (Japanese Knotweed) A native of eastern Asia, *Fallopia japonica* Japanese Knotweed was introduced from Japan as a garden ornamental in 1825. By 1886 it was recorded as a naturalised alien, becoming established by 1940 and greatly increasing since 1962. Regeneration is vegetative by means of extensive rhizome systems, which occurs naturally adjacent to rivers, becoming more reliant on human interaction elsewhere (ie in movement of contaminated soil or disturbance of roots). Viable seeds are not produced in the UK. *Fallopia japonica* forms a dense canopy early in the growing season which is 2–3m high, beneath which few species are able to survive. Stem litter build up is also a problem further preventing growth of our native species. It is found predominantly around urban areas, along river banks, railways and road verges as well as waste ground, spoil heaps and sea-loch shores and able to grow in all soil types. Rhizome fragments can be dispersed through disposal of garden refuse and other rubbish as well as through water and in particular by river

floods. We do not provide services relating to the scientific investigation of land, water or air quality. Where a site inspection or investigation of planning history or local knowledge reveals the possibility of pollution and pollution control being a material planning consideration, this will be the clients responsibility and sub consultants should be engaged. Visual assessment has been undertaken and no formal identification of plants on the site has been undertaken. A more detailed investigation may take the form of sending plants and soils to a laboratory for identification.

Prepare a written report, tree schedule and categorisation

- Prepare a Survey Plan and a Tree Constraints Plan to BS 5837:2005 'Trees in relation to construction – Recommendations'

### **1.3 QUALIFICATIONS AND EXPERIENCE**

We have based this report on our site observations and we have come to conclusions in the light of our experience. We have qualifications and experience in arboriculture and list the details in Appendix 1.

### **1.4 DOCUMENTS AND INFORMATION PROVIDED**

We were provided with a site plan showing the approximate position of site by Cardiff City Council.

### **1.5 LIMITATIONS AND USE OF COPYRIGHT**

All rights in this report are reserved. No part of it may be reproduced or transmitted, in any form or by any means without our written permission. Its contents and format are for the exclusive use of Cardiff City Council. It may not be sold, lent out or divulged to any third party not directly involved in this situation without the written consent of Cardiff Treescapes.

We have no connection with any of the parties involved in this situation that could influence the opinions expressed in this report.

## 2. THE SITE

### 2.1 SITE VISIT

We carried out the site visit on 5<sup>th</sup> November 2018. All our observations were from ground level without detailed investigations and we measured all dimensions unless otherwise indicated. The weather at the time of inspection was cloudy with occasional bright sunshine.

### 2.2 SITE DESCRIPTION

The trees in question are positioned within areas of recreational green space adjacent to residential properties, public footpaths, public highway and boundary fences within the grounds of a Primary School.

### 2.3 IDENTIFICATION AND LOCATION OF THE TREES

The trees in question have been marked with numbered plastic tags which correspond with the survey. We have illustrated the locations of the surveyed trees on a scale plan. All the relevant information on the trees is contained within this report and the provided documents.

## 3. TREE SCHEDULE KEY

|                                       |   |
|---------------------------------------|---|
| <b>Type</b>                           | Represents the type of vegetation being assessed. These are Tree (T), Group (G), Stump (S), Woodland (W)  |
| <b>Tag No</b>                         | Each tree has been marked by a numbered tag for on site identification. Where possible this number is related to, or similar to the given tree number. There may be occasions when the tag number bears no relationship to the tree number, but is still useful for on site identification  |
| <b>Common Name<br/>Botanical Name</b> | The tree species have been identified and both common and botanical names are given.  |
| <b>Age</b>                            | <p><b>Young</b> – (Shown as <b>Y</b> in the schedule) juvenile tree with dominant leading shoot growth and short side branches. Vigorous growth and often of conical form.</p> <p><b>Semi-mature</b> – (Shown as <b>SM</b> in the schedule) young adult tree, leading shoot growth may not always be dominant but side branches are usually ascending. Vigorous growth, flower and seed production. Minimal deadwood.</p> <p><b>Early maturity</b> – (Shown as <b>EM</b> in the schedule) adult tree with the main framework of the crown formed. Not yet at full dimensions. Vigorous growth and some shedding of inner branches and deadwood. Horizontal side branches.</p> <p><b>Mature</b> – (Shown as <b>M</b> in the schedule) adult tree at full crown volume and dimensions. Maximum flower and seed production. Dead wood likely within the crown and reiteration growth in the lower canopy.</p> <p><b>Over mature</b> – (Shown as <b>OM</b> in the schedule) loss of overall vigor and reduction of full dimensions due to limb loss and branch tip die back. Major dead wood within the crown and possible hollowing and cavities. Retrenchment of the crown through increased reiteration growth on the lower branches.</p> <p><b>Veteran / Ancient</b> – (Shown as <b>V</b> in the schedule) a tree that has passed beyond maturity and is old in comparison with other trees of the same species. They often have decayed or hollow stems and branches and abundant deadwood. They are important for heritage, landscape and ecological value.</p> |
| <b>Height (m)</b>                     | Where site lines allow, tree height has been calculated by means of a laser clinometer and recorded in metres. If the use of a laser clinometer is restricted due to confined space or obscuring vegetation, the  |

|   |   |
|---|---|
|   | height of the tree may be estimated based on the surveyor's experience. Adjacent trees or buildings with a clear view may be measured and used as a height scale. Where several trees are located in close proximity, one tree may be measured and the other trees estimated using the measured tree as a reference.  |
| <b>Diameter (mm)</b>  | The stem diameter is measured in millimetres in accordance with Annex C of BS5837 2012.   |
| <b>Crown Height (m)</b>   | Is the distance from the lowest point of the crown from ground level.   |
| <b>FSB Height (m) /Direction</b>  | The height of the First Significant Branch (FSB) is recorded in metres and the direction of growth is in relation to the cardinal points of the compass.  |
| <b>North (m)<br/>South (m)<br/>East (m)<br/>West (m)<br/>(Crown Spread)</b> | As it is rare that a tree's crown is asymmetric, the crown spread is measured at the four cardinal points of the compass to give an estimated representation of the crown spread which is then recorded on the tree survey plan.  |
| <b>Condition</b>  | <u>Physiological Condition</u><br>Each tree has undergone a brief preliminary visual inspection from ground level. This information is only relevant at the time of inspection because circumstances influencing a tree's condition can change rapidly. This section is divided into two separate sections:<br><b>G = Good</b> – fully foliated/twigged canopy for the tree's situation with an indication of natural vigor from shoot extension growth and signs of good vitality throughout the tree's system.<br><b>F = Fair</b> – signs of adequate vigour and vitality up to 70% canopy coverage. May show signs of slight stress such as branch tip die back, slightly sparse foliage, yellow or small foliage. Stress may be alleviated by prescribed maintenance.<br><b>P = Poor</b> – obvious signs of advance stress including less than 70% canopy coverage, crown die back, significant deadwood. Sparse and discoloured foliage.<br><b>D = Dead</b> – moribund or dead trees   |
| <b>Comments</b>   | <u>Structural Condition</u><br>Any structural defects are noted such as splits, cracks, tight forks, rubbing branches, cavities, decay and the presence of pests or diseases. These may compromise the mechanical integrity of the tree's structure.<br>(Veteran trees may pose many physiological and structural faults yet still be considered in good condition for their age.)  |
| <b>Recommendations</b>  | Following visual inspection preliminary recommended action, further detailed inspection, or maintenance may be prescribed.  |
| <b>RPR (m)<br/>Root Protection Radius</b>                                   | This is calculated from Annex D of BS 5837 2012 'Trees in relation to construction - Recommendations'.  |
| <b>RPA (m)<br/>Root Protection Area</b>                                     | This measurement is the total area of root protection. This can be modified if necessary by the Arboricultural Consultant.  |
| <b>Category</b>   | The tree's overall value is categorised in accordance to the cascade chart (table 1) of BS 5837 2005, see Appendix 2 of this report.<br><br>In brief, the purpose of the tree categorisation is to identify and quantify the value of the existing tree stock. This will allow informed decisions to be made concerning which trees should be removed or retained should the development occur.<br><br><u>Category A</u> Trees of high quality and value that make a substantial contribution. Marked in <b>light green</b> on the tree survey plan.<br><br><u>Category B</u> Trees of moderate quality and value that make a significant contribution. Marked in <b>mid blue</b> on the tree survey plan.<br><br><u>Category C</u> Trees of low quality and value that provide only an adequate contribution. Marked in <b>grey</b> on the tree survey plan.<br><br><u>Category U</u> Trees in such a condition that any existing value would be lost within ten years. This includes trees that should be removed for good arboricultural reasons. Marked in <b>dark red</b> on the tree survey plan. |

## 4. THE SURVEY

See attached excel document below for full details.

| Tree Number | Tag number | Type  | Age | Tree Name (Common name)                                | Tree name (Botanical)  | Condition | Crown height | Height | Trunk Dia. (mm) | Single stem (1) or multi-stem (m) * | North (m) | South (m) | East (m) | West (m) | BS Cat. | RPA Radius (m) | RPA Area (m2) | Comments  | Action  |
|-------------|------------|-------|-----|--|--|-----------|--------------|--------|-----------------|-------------------------------------|-----------|-----------|----------|----------|---------|----------------|---------------|---|---|
| 1           | 1          | Group | EM  | Lawsons Cypress, Spruce, Lime, Walnut, Sycamore, Holly | <i>Chamaecyparis lawsoniana, Picea spp. Tilia x europea, Juglans nigra, Acer pseudoplatanus. Ilex aquifolium</i> | Good      | 4S           | 18     | 700             | m                                   | See plan  |           |          |          | B2      | 7.00           | 153.9         | Group trees with suppressed canopy towards neighbouring trees and full crown towards the light. Branches overhang site boundary. Growing within grounds of the adjacent Church close to the boundary wall.  | Monitor future growth.  |
| 2           | 2          | T     | SM  | Apple  | <i>Malus tschonoskii</i>   | Good      | 1.5N         | 6      | 210             | 1                                   | 2.5       | 3         | 3        | 1.5      | C2      | 2.52           | 20.0          | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within grass area inside school grounds.   | Monitor future growth.  |
| 3           | 3          | T     | EM  | Ash  | <i>Fraxinus excelsior</i>  | Good      | 2S           | 13     | 600             | 1                                   | 5         | 7         | 7        | 6        | B2      | 7.20           | 162.9         | Open grown tree with single stem and natural taper, supporting a full canopy. Stub of previously failed limb in crown. Heavily end loaded limbs developing in lower crown. Growing within grass area inside school grounds close to site boundary, footpath and public highway. | Remove stub of previously failed limb. Reduce end loading of vulnerable limbs by approx. 2m. Monitor future growth. |

|   |   |   |    |               |                           |      |      |     |     |   |   |     |     |     |    |      |       |   |   |
|---|---|---|----|---------------|---------------------------|------|------|-----|-----|---|---|-----|-----|-----|----|------|-------|---|---|
| 4 | 4 | T | EM | Hawthorn      | <i>Crataegus mongyna</i>  | Good | 0    | 3.5 | 190 | 1 | 2 | 3   | 3   | 1.5 | C2 | 2.28 | 16.3  | Open grown tree with single stem and natural taper, supporting a full canopy. Growing within grass area inside school grounds.  | Monitor future growth.                                    |
| 5 | 5 | T | EM | Lime          | <i>Tilia x europea</i>    | Good | 3.5S | 9   | 340 | 1 | 3 | 3.5 | 3.5 | 2.5 | B2 | 4.08 | 52.3  | Open grown tree with single stem and natural taper, supporting a full canopy. Dense epicormic growth present around the base of the main stem. Growing within grass area inside school grounds close to site boundary, footpath and public highway. | Remove epicormic growth. Monitor future growth.           |
| 6 | 6 | T | SM | Apple         | <i>Malus tschonoskii</i>  | Fair | 1.8N | 3.5 | 100 | 1 | 1 | 1   | 1   | 1   | C2 | 1.20 | 4.5   | Open grown tree with single stem and natural taper, supporting a full canopy. Stake still attached to main stem. Growing within grass area inside school grounds.   | Monitor future growth. Check stake and ties.              |
| 7 | 7 | T | EM | Foxglove tree | <i>Paulonia tomentosa</i> | Good | 3.5N | 11  | 520 | 1 | 5 | 5   | 6   | 5   | B2 | 6.24 | 122.3 | Open grown tree with single stem and natural taper, supporting a full canopy. Branches overhang adjacent property. Ivy growth on main stem. Growing within area inside school grounds close to site boundary and residential property.              | Sever Ivy and re inspect main stem. Monitor future growth |



|    |    |   |    |                                 |   |      |      |     |     |   |             |     |     |     |    |      |       |  |  |
|----|----|---|----|---------------------------------|---|------|------|-----|-----|---|-------------|-----|-----|-----|----|------|-------|--|--|
| 8  | 8  | T | EM | Hazel,<br>Hawthorn,<br>Sycamore | <i>Corylus avellana</i> ,<br><i>Crataegus<br/>monogyna</i> , <i>Acer<br/>pseudoplatanus</i> | Good | 0    | 4.5 | 350 | m | See<br>plan |     |     |     | B2 | 3.50 | 38.5  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Branches encroach on adjacent land. Growing within area inside school grounds close to site boundary.   | Maintain at present dimensions by regular pruning. Remove Sycamore trees. Monitor future growth.         |
| 9  | 9  | T | EM | Sycamore                        | <i>Acer<br/>pseudoplatanus</i>  | Good | 2.5E | 12  | 610 | 1 | 5           | 6.5 | 8   | 6.5 | B2 | 7.32 | 168.3 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Branches overhang adjacent parking area. Ivy growth on main stem. Growing within area inside school grounds close to site boundary.   | Sever Ivy and re inspect main stem. Prune to clear parking area. Monitor future growth                   |
| 10 | 10 | T | EM | Ash                             | <i>Fraxinus excelsior</i>   | Good | 4E   | 13  | 490 | 1 | 5           | 3   | 6   | 7   | B2 | 5.88 | 108.6 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Branches overhang adjacent building. Ivy growth on main stem. Growing within area inside school grounds close to site boundary.   | Sever Ivy and re inspect main stem. Prune to clear building. Monitor future growth                       |
| 11 | 11 | T | EM | Horse<br>Chestnut               | <i>Aesculus<br/>hippocastanum</i>   | Good | 3E   | 8   | 490 | 1 | 4           | 4   | 3.5 | 5.5 | U  | 5.88 | 108.6 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Significant crown die back present in upper crown with significant deadwood present. Ivy growth present on the main stem. Growing within area inside school grounds close to site boundary. | Pollard at approx. 6m. Sever Ivy and re inspect main stem. Prune to clear building. Monitor for decline. |

|    |    |   |    |                |                               |      |      |     |     |   |     |   |     |     |    |      |       |  |  |
|----|----|---|----|----------------|-------------------------------|------|------|-----|-----|---|-----|---|-----|-----|----|------|-------|--|--|
| 12 | 12 | T | EM | Horse Chestnut | <i>Aesculus hippocastanum</i> | Good | 3N   | 9.5 | 480 | 1 | 4   | 6 | 6.5 | 4.5 | C2 | 5.76 | 104.2 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Several areas of bark necrosis visible on main stem. Growing within grass area inside school grounds close to site boundary.  | Monitor for decline  |
| 13 | 13 | T | EM | Horse Chestnut | <i>Aesculus hippocastanum</i> | Good | 3.5E | 14  | 540 | 1 | 5.5 | 5 | 7   | 2   | C2 | 6.48 | 131.9 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Heavily end loaded limbs developing in crown. Several pruning wounds present on main stem. Several areas of bark necrosis visible on main stem. Growing within grass area inside school grounds close to site boundary. | Reduce all vulnerable limbs by approx. 2m. Monitor for decline |
| 14 | 14 | T | EM | Norway Maple   | <i>Acer platanoides</i>       | Good | 4N   | 16  | 640 | 1 | 9   | 8 | 4   | 8   | B2 | 7.68 | 185.3 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Ivy growth present on main stem. Growing within grass area inside school grounds close to site boundary.  | Monitor future growth.   |
| 15 | 15 | T | EM | Cockspur thorn | <i>Crataegus crus galli</i>   | Good | 2N   | 5   | 320 | 1 | 2.5 | 2 | 2   | 2.5 | B2 | 3.84 | 46.3  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Ivy growth present on main stem. Growing within grass area inside school grounds close to site boundary and public footpath.  | Monitor future growth.   |

|    |    |       |    |                                 |  |      |      |    |     |   |          |     |     |     |    |      |       |   |   |
|----|----|-------|----|---------------------------------|--|------|------|----|-----|---|----------|-----|-----|-----|----|------|-------|---|---|
| 16 | 16 | T     | EM | Horse Chestnut                  | <i>Aesculus hippocastanum</i>  | Good | 2.5N | 11 | 530 | 1 | 4.5      | 3.5 | 5   | 3.5 | B2 | 6.36 | 127.1 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Some early signs of bark necrosis. Growing within grass area inside school grounds close to site boundary and public footpath.   | Monitor future growth.  |
| 17 | 17 | T     | EM | Apple                           | <i>Malus spp.</i>  | Good | 3E   | 6  | 340 | 1 | 4.5      | 3.5 | 4.5 | 3.5 | B2 | 4.08 | 52.3  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Several pruning wounds on main stem. Growing within grass area inside school grounds close to site boundary and public footpath. | Monitor future growth.  |
| 18 | 18 | T     | EM | Goat Willow                     | <i>Salix caprea</i>  | Good | 0    | 8  | 450 | m | 7        | 6   | 6   | 5.5 | B2 | 4.50 | 63.6  | Open grown tree with single stem and natural taper, supporting a full canopy. Multi stemmed tree. Growing in raised bed within school grounds.  | Monitor future growth.  |
| 19 | 19 | Group | EM | Hawthorn, Hazel, Dogwood, Apple | <i>Crataegus monogyna</i> ,<br><i>Corylus avellana</i> ,<br><i>Cornus spp.</i> <i>Malus spp.</i> | Good | 0    | 4  | 300 | m | See plan |     |     |     | B2 | 3.00 | 28.3  | Group trees grown as hedgerow with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within area inside school grounds close to site boundary.   | Maintain at present dimensions by regular pruning. Monitor future growth. |

|    |    |       |    |                 |                                      |      |  |     |   |  |          |  |  |      |      |  |  |   |                        |
|----|----|-------|----|-----------------|--------------------------------------|------|--|-----|---|--|----------|--|--|------|------|--|--|---|------------------------|
| 20 | 20 | Group | SM | Mixed species   |                                      | Good |  | 7   |   |  | See plan |  |  |      |      |  |  | Group trees grown as hedgerow with suppressed canopy towards neighbouring trees and full crown towards the light . Growing within area inside school grounds. | Monitor future growth. |
| A  | A  |       | SM | Himalayan Birch | <i>Betula utilis var jaquemontii</i> |      |  | 240 | 1 |  |          |  |  | 2.88 | 26.1 |  |  |   | Monitor future growth. |
| B  | B  |       | SM | Whitebeam       | <i>Sorbus aria</i>                   |      |  | 180 | 1 |  |          |  |  | 2.16 | 14.7 |  |  |   | Monitor future growth. |
| C  | C  |       | SM | Whitebeam       | <i>Sorbus aria</i>                   |      |  | 170 | 1 |  |          |  |  | 2.04 | 13.1 |  |  |   | Monitor future growth. |
| D  | D  |       | SM | Field Maple     | <i>Acer campestre</i>                |      |  | 220 | 1 |  |          |  |  | 2.64 | 21.9 |  |  |   | Monitor future growth. |
| E  | E  |       | SM | Field Maple     | <i>Acer campestre</i>                |      |  | 240 | 1 |  |          |  |  | 2.88 | 26.1 |  |  |   | Monitor future growth. |
| F  | F  |       | SM | Mountain Ash    | <i>Sorbus aucuparia</i>              |      |  | 240 | 1 |  |          |  |  | 2.88 | 26.1 |  |  |   | Monitor future growth. |
| G  | G  |       | SM | Field Maple     | <i>Acer campestre</i>                |      |  | 240 | 1 |  |          |  |  | 2.88 | 26.1 |  |  |   | Monitor future growth. |
| H  | H  |       | SM | Field Maple     | <i>Acer campestre</i>                |      |  | 310 | 1 |  |          |  |  | 3.72 | 43.5 |  |  |   | Monitor future growth. |
| I  | I  |       | SM | Cherry          | <i>Prunus spp.</i>                   |      |  | 410 | 1 |  |          |  |  | 4.92 | 76.0 |  |  |   | Monitor future growth. |
| J  | J  |       | SM | Cherry          | <i>Prunus spp.</i>                   |      |  | 260 | 1 |  |          |  |  | 3.12 | 30.6 |  |  |   | Monitor future growth. |
| K  | K  |       | SM | Hawthorn        | <i>Crataegus monogyna</i>            |      |  | 40  | 1 |  |          |  |  | 0.48 | 0.7  |  |  |   | Monitor future growth. |
| L  | L  |       | SM | Himalayan Birch | <i>Betula utilis var jaquemontii</i> |      |  | 140 | 1 |  |          |  |  | 1.68 | 8.9  |  |  |   | Monitor future growth. |

|    |    |                |    |                              |  |      |    |    |     |   |          |     |     |     |    |      |       |   |  |
|----|----|----------------|----|------------------------------|--|------|----|----|-----|---|----------|-----|-----|-----|----|------|-------|---|--|
| 21 | 21 | T              | EM | Sycamore                     | <i>Acer pseudoplatanus</i>   | Good | 2E | 12 | 520 | 1 | 7.5      | 8.5 | 6.5 | 7   | B2 | 6.24 | 122.3 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within grass area inside school grounds close to site boundary, public footpath and public highway.  | Monitor future growth.                                     |
| 22 | 22 | Group 13 trees | EM | Field Maple, Oak, Ash, Hazel | <i>Acer campestre, Quercus robur, Fraxinus excelsior, Corylus avellana</i> | Good | 0  | 13 | 380 | m | See plan |     |     |     | B2 | 3.80 | 45.4  | Group trees with suppressed canopy towards neighbouring trees and full crown towards the light. Ash tree with significant bark wound in lower fork. Growing within area inside school grounds close to site boundary, public footpath and public highway. | Fell Ash tree with damaged stem.<br>Monitor future growth. |
| 23 | 23 | T              | EM | Cherry                       | <i>Prunus spp.</i>   | Good | 2S | 9  | 380 | 1 | 6        | 4   | 4   | 4   | B2 | 4.56 | 65.3  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within area inside school grounds.   | Monitor future growth.                                     |
| 24 | 24 | T              | SM | Holm Oak                     | <i>Quercus ilex</i>  | Good | 0  | 6  | 310 | 1 | 3        | 2   | 2.5 | 2.5 | B2 | 3.72 | 43.5  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Twin stemmed tree. Growing within area inside school grounds.  | Monitor future growth.                                     |

|    |    |   |    |             |                                    |      |      |     |     |   |   |     |   |   |    |      |       |   |                        |
|----|----|---|----|-------------|------------------------------------|------|------|-----|-----|---|---|-----|---|---|----|------|-------|---|------------------------|
| 25 | 25 | T | EM | Cherry      | <i>Prunus spp.</i>                 | Good | 2S   | 10  | 480 | 1 | 5 | 7.5 | 8 | 3 | B2 | 5.76 | 104.2 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Several crossing limbs developing in lower crown. Growing within area inside school grounds. | Monitor future growth. |
| 26 | 26 | T | EM | Field Maple | <i>Acer campestre</i>              | Good | 0.5N | 8   | 310 | 1 | 4 | 1   | 4 | 2 | B2 | 3.72 | 43.5  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within area inside school grounds.   | Monitor future growth. |
| 27 | 27 | T | EM | Hornbeam    | <i>Carpinus betulus fastigiata</i> | Good | 1.5S | 5.5 | 310 | 1 | 3 | 3   | 3 | 3 | B2 | 3.72 | 43.5  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within area inside school grounds.   | Monitor future growth. |
| 28 | 28 | T | EM | Hornbeam    | <i>Carpinus betulus fastigiata</i> | Good | 0.5S | 7   | 340 | 1 | 4 | 3   | 4 | 4 | B2 | 4.08 | 52.3  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within area inside school grounds.   | Monitor future growth. |

|    |    |       |    |                       |  |      |      |   |     |   |             |     |     |     |    |      |      |   |                        |
|----|----|-------|----|-----------------------|--|------|------|---|-----|---|-------------|-----|-----|-----|----|------|------|---|------------------------|
| 29 | 29 | Group | EM | Dogwood,<br>Whitebeam | <i>Cornus spp.</i><br><i>Sorbus aria</i> | Good | 0    | 5 | 300 | m | See<br>plan |     |     |     | C2 | 3.00 | 28.3 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within area inside school grounds. | Monitor future growth. |
| 30 | 30 | T     | EM | Mountain<br>Ash       | <i>Sorbus aucuparia</i>                  | Good | 2N   | 5 | 260 | 1 | 2.5         | 2   | 2   | 2.5 | C2 | 3.12 | 30.6 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within area inside school grounds. | Monitor future growth. |
| 31 | 31 | T     | EM | Field Maple           | <i>Acer campestre</i>                    | Good | 1,6N | 7 | 270 | 1 | 3.5         | 2.5 | 1.5 | 2   | B2 | 3.24 | 33.0 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within area inside school grounds. | Monitor future growth. |
| 32 | 32 | T     | EM | Cherry                | <i>Prunus spp.</i>                       | Good | 2,5N | 8 | 440 | 1 | 5.5         | 4   | 4   | 3   | B2 | 5.28 | 87.6 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within area inside school grounds. | Monitor future growth. |

|    |    |       |    |              |                          |      |      |     |     |   |          |     |   |     |    |      |       |  |   |
|----|----|-------|----|--------------|--------------------------|------|------|-----|-----|---|----------|-----|---|-----|----|------|-------|--|---|
| 33 | 33 | Group | SM | Hawthorn     | <i>Crataegus mongyna</i> | Good | 0    | 4   | 200 | m | See plan |     |   |     | C2 | 2.00 | 12.6  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within school grounds close to site boundary.   | Maintain at present dimensions by regular pruning. Monitor future growth. |
| 34 | 34 | T     | EM | Birch        | <i>Betula pendula</i>    | Good | 2.5N | 12  | 380 | 1 | 4        | 4.5 | 4 | 5.5 | B2 | 4.56 | 65.3  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Exposed surface roots. Growing within school grounds close.   | Monitor future growth.  |
| 35 | 35 | T     | EM | Norway Maple | <i>Acer platanoides</i>  | Good | 2N   | 9   | 500 | 1 | 5        | 5   | 7 | 5.5 | B2 | 6.00 | 113.1 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Branches overhang adjacent public footpath. Growing within grass area inside school grounds close to site boundary and public footpath. | Monitor future growth.  |
| 36 | 36 | T     | EM | Mountain Ash | <i>Sorbus aucuparia</i>  | Good | 2N   | 5.5 | 210 | 1 | 1.5      | 2   | 2 | 1   | C2 | 2.52 | 20.0  | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within grass area inside school grounds.  | Monitor future growth   |

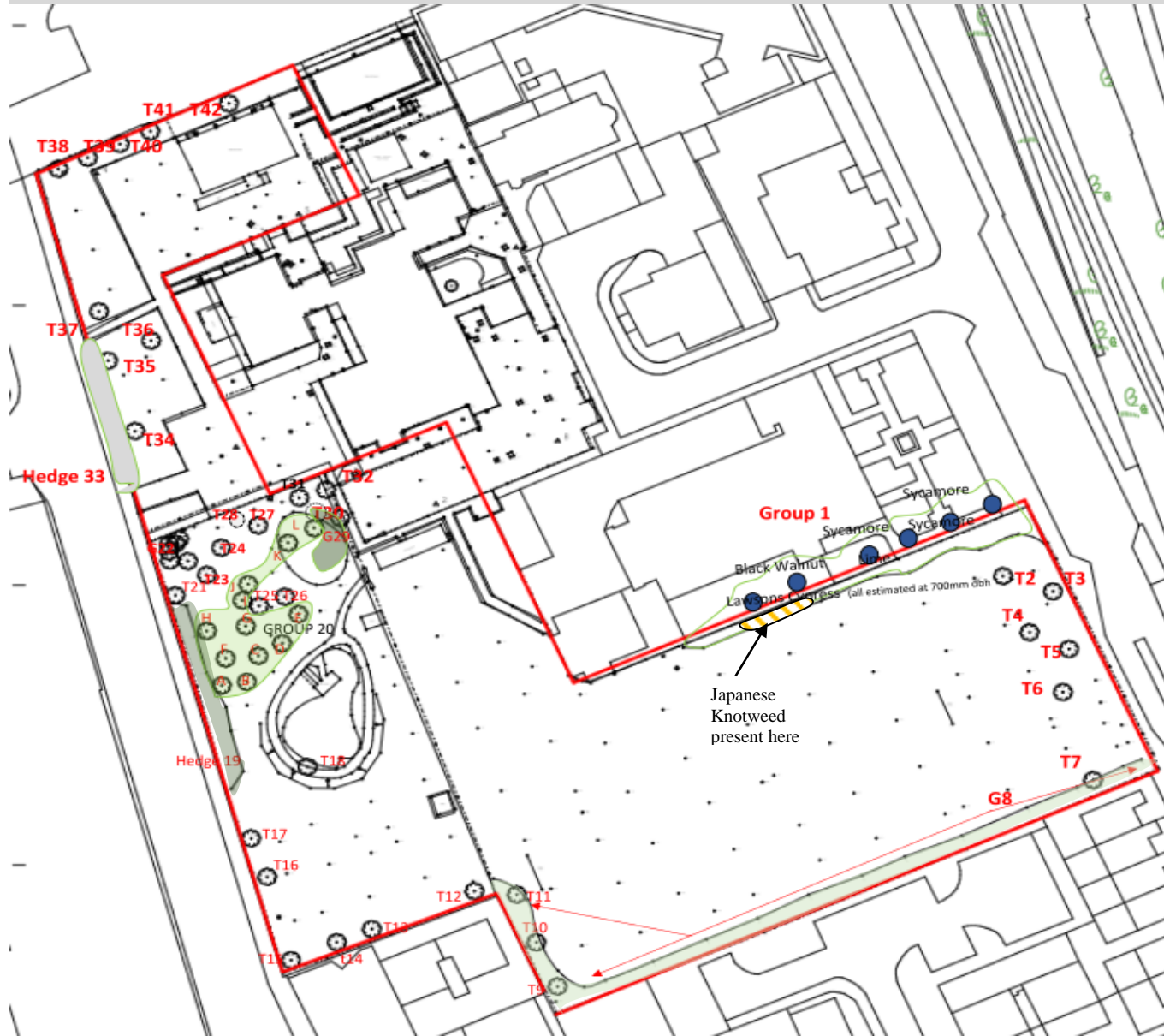


|    |    |   |    |          |                                |      |      |    |     |   |     |     |   |     |    |      |      |   |  |
|----|----|---|----|----------|--------------------------------|------|------|----|-----|---|-----|-----|---|-----|----|------|------|---|--|
| 37 | 37 | T | EM | Birch    | <i>Betula pendula</i>          | Good | 2.5W | 12 | 380 | 1 | 3.5 | 3   | 4 | 5   | B2 | 4.56 | 65.3 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Heavily end loaded limb developing over public footpath. Growing within grass area inside school grounds close to site boundary and public footpath. | Reduce heavily end loaded limb developing over public footpath by approx. 2m. Monitor future growth. |
| 38 | 38 | T | SM | Sycamore | <i>Acer pseudoplatanus var</i> | Good | 1.8N | 5  | 240 | 1 | 2   | 2   | 2 | 2.5 | C2 | 2.88 | 26.1 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Tight fork developing in lower crown. Growing within grass area inside school grounds close to site boundary.  | Monitor future growth.   |
| 39 | 39 | T | SM | Sycamore | <i>Acer pseudoplatnanus</i>    | Good | 0.3E | 4  | 220 | 1 | 2   | 2   | 2 | 2   | C2 | 2.64 | 21.9 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Growing within grass area inside school grounds close to site boundary.  | Monitor future growth.   |
| 40 | 40 | T | SM | Sycamore | <i>Acer pseudoplatnanus</i>    | Good | 0.5N | 5  | 300 | 1 | 2.5 | 2.5 | 2 | 2.5 | C2 | 3.60 | 40.7 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Branch encroaching on adjacent fence structure. Growing within grass area inside school grounds close to site boundary.                              | Remove branch encroaching on fence. Monitor future growth.   |

|    |    |   |    |                   |                          |      |    |     |     |   |     |     |     |     |    |      |      |  |   |
|----|----|---|----|-------------------|--------------------------|------|----|-----|-----|---|-----|-----|-----|-----|----|------|------|--|---|
| 41 | 41 | T | EM | Whitebeam         | <i>Sorbus aria</i>       | Good | 2N | 5   | 340 | 1 | 3   | 3   | 2.5 | 1.5 | C2 | 4.08 | 52.3 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Slightly leaning main stem. Growing within grass area inside school grounds close to site boundary.   | Monitor future growth.  |
| 42 | 42 | T | EM | Swedish Whitebeam | <i>Sorbus intermedia</i> | Good | 2S | 5.5 | 440 | 1 | 3.5 | 3.5 | 3   | 3.5 | B2 | 5.28 | 87.6 | Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Ivy growth on main stem. Several pruning pegs present adjacent to building. Growing within grass area inside school grounds close to site boundary and outbuilding. | Sever ivy. Prune to remove pruning pegs. Monitor future growth. |

St Mary The Virgin C.W. Primary School

TREE LOCATION PLAN: Please refer to tree constraints plan for further information on root protection areas tree categories and crown spreads)



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## **5. GENERAL IMPLICATION OF DEVELOPMENT ON TREES**

### **5.1 INTRODUCTION**

The successful retention, protection and preservation of trees on construction sites is a continuous problem. It requires commitment from all parties:- arboriculturalists, planners, developers and contractors. The conflict between the need to maximise scarce building land and the social and environmental pressure to retain as many trees as possible often sets the construction industry at odds with planners.

### **5.2 THE REASONS FOR RETAINING TREES ON DEVELOPMENT SITES**

- a) Trees increase property value by adding character, maturity and prestige to a new development.
- b) Trees add visual amenity by softening and naturalising hard landscapes.
- c) The general public respect trees and demand their protection.
- d) Local Planning Authorities have a duty to preserve trees under the Town and County Planning Act 1990
- e) Trees provide a microclimate reducing extremes of wind, temperature and dissipate ground water.
- f) Trees provide wildlife habitats
- g) Trees reduce pollution by removing particles from the air.
- h) Trees provide a screen from external sights and sounds

### **5.3 RISKS TO TREES**

Trees that are growing satisfactorily are growing in equilibrium with their surroundings above and below ground. Anything that even slightly alters this balance will effect the trees' health, future growth and safety. Trees on development sites are particularly vulnerable to disruption during the construction process.

Damage can be caused by

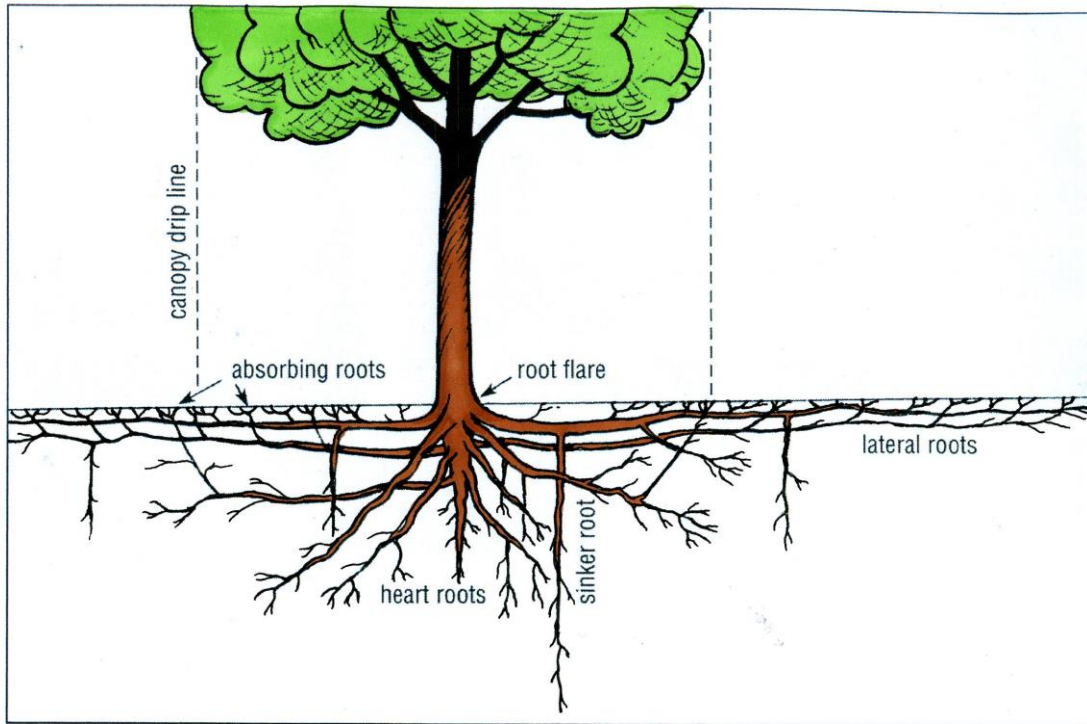
- a) Excavation within the root zone
- b) Raising or lowering of the soil levels
- c) Compaction of the soil by construction vehicles, machinery and by storing materials and debris
- d) Spillage of toxic materials

- e) Root asphyxiation by flooding
- f) The laying of impermeable surfaces
- g) Damage to trunk, branches and crown by direct physical impact
- h) Fire or heat damage
- i) Environmental changes - exposure to sunlight, cold, wind or shade

#### **5.4 IMPACT ON TREE ROOTS**

##### **a) Important Facts About Tree Roots**

- Tree roots are particularly susceptible to damage because they are not visible and frequently ignored. Damage or death of tree roots will effect the overall health and vigor of the tree, reduce potential life expectancy, and increase the risk of structural failure.
- The roots attached to a tree's main stem rapidly taper and subdivide resulting in a mass of fibrous roots, normally extending well beyond the edge of the outer most branches.
- Most tree roots are within the top 600mm of soil where optimum moisture, oxygen and nutrients are to be found
- Fine and fibrous roots are important for the trees structural stability. It is the mass of soil bound together by fibrous roots that counter balances the above ground portion of the tree.
- Tree roots often have an inter-relationship with beneficial fungi called mycorrhiza, relying on them for extra moisture, oxygen and nutrients and paying them back with converted energy.
- Soil compaction can drastically reduce the moisture, oxygen and nutrients available to tree roots and beneficial fungi; resulting in tree stress, decline and possibly death and structural failure.
- Tree root systems mechanically support the above ground portion of the tree on a structured root plate close to the stem of the tree. This is anchored in the soil by lateral tension roots which are in cohesion with the soil. The removal of just one main root particularly on the windward side can lead to failure unless the tree is reduced.



## b) Root Severance

Trees can tolerate some minor root severance but it is important this work is undertaken by qualified arborists with specialised equipment (see section below).

Linear root severance can be detrimental in that:

- It reduces a tree's moisture and nutrient uptake leading to reduced vitality and stress
- Direct wounding of the root system makes an entrance point for pathogens which can lead to significant fungal decay.
- The stability of a tree may be affected in that roots that mechanically support the tree will be compromised. Root severance will reduce the cohesion surface area with the soil and affect the tension and compression properties of the root's system. This may lead to shearing of the root plate and structural failure.

Surface soils are often compacted on construction sites as a consequence of heavy equipment moving over the surface. Soil structure can be affected to some depth. Compaction reduces air and moisture content and increases the likelihood of erosion.

## **5.5 CHANGES IN GROUND LEVEL**

The raising of the soil level over a tree's root system and around the stem base can be very damaging to some species. The fill soil can hold moisture around the trunk and over the roots and alter normal gas exchange. Some trees develop adventitious roots in the fill soil and keep the tree alive. Over time decay and disease may develop in the lower original root system and root buttresses. The tree can then become structurally unsound and prone to failure. These impacts may not take effect until many years after the construction has been completed.

## **5.6 IMPLEMENTATION OF WORK**

We advise that any tree work be carried out by Qualified Arboricultural Contractors. The contractor should carry out all tree works to BS 3998 *Recommendations for Tree Work* and as modified by research that is more recent.

Cardiff Treescapes can provide Arboricultural Contractors and would be pleased to supply quotations for any recommended tree work.



## **6. CONCLUSION**

The tree survey and constraints plan has been completed and indicates the root protection area. It is recommended in BS 5837:2012 'Trees in relation to construction – Recommendations' that this information is used as a tool for design of the proposed development.

## **7. COMMENTS**

### **7.1 NEXT STAGE**

The above document is intended to be used as an aid for the site design and layout by the Planning Team.

Following the finalising of the planning stage and any further arboricultural consultation that this may require, the next stage is the drawing up of an Arboricultural Implications Assessment followed by an Arboricultural Method Statement

### **7.2 ARBORICULTURAL IMPLICATIONS ASSESSMENT**

This is a study undertaken by an arboricultural consultant to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

The arboricultural consultant needs to consult with the design team and have impact on the design with regards to preparing an Arboricultural Implications Assessment (AIA).

The Arboricultural Implications Assessment considers the information provided in the topographical land survey, tree survey and tree constraints plan and assesses how the proposed development and its associated trees and landscape will co-exist both at present and in the future.

The Arboricultural Implications Assessment should take into consideration

- a) The proximity of trees to structures in relation to obstruction of light, shade etc, future growth requirements, damage and nuisance.
- b) Protection of trees above and below ground.
- c) Legal constraints that may effect the trees, ie Tree Preservations Orders and Conservation Area.
- d) Other implications that are relevant to a specific site with regards to protection and suitable retention of trees.

### **7.3 ARBORICULTURAL METHOD STATEMENT**

Once the Arboricultural Implications Assessment has been completed and final layout proposals agreed, the Arboricultural Method Statement and a Tree Protection Plan should be prepared.

The function of an Arboricultural Method Statement and Tree Protection Plan is to translate all necessary aspects of arboricultural work of the entire development into a document which is readily understood and appreciated by construction workers. This will comprise of:

- a) Statement of any planning conditions relevant to the trees.
- b) Table showing a concise chronology of events.
- c) List of relevant contacts.
- d) Tree Protection Plan. This is a scale drawing showing the finalised layout proposals, tree protection and tree and landscape protection measures detailed within the Arboricultural Method Statement, which can be shown graphically.
- e) Schedule of works for any tree removal and any preliminary tree works required.
- f) Specifications for any site specific engineering required or soil amelioration in relation to the retained trees.
- g) Design for re-planting and specifications (if required).
- h) Schedule for site monitoring by an Arboricultural Consultant during the construction period.

5<sup>th</sup> November 2018

**Angharad Traylor RIBA**

**Pensaer | Architect**

**Datblygu Economaidd | Economic Development**

**Cyngor Caerdydd | Cardiff Council**

Dear Angharad

**Pre-development Tree Survey at St Mary The Virgin C.W. Primary School,  
North Church Street, Butetown, Cardiff CF10 5HB**

Please find enclosed our completed report although we are awaiting the scaled drawing showing the tree constraints.

Yours sincerely

Gareth Ayres BSc (Hons) M Arbor A Dip Biol ND Arb  
T. A. Seymour BA (Hons) M.Arbor A. Dip Geog ND Arb  
Cardiff Treescapes  
17 Ravenscourt Close  
Penyland  
Cardiff  
South Glamorgan  
Telephone: 02920 481284  
Mob 07831109904

## APPENDIX I

### QUALIFICATIONS AND PROFESSIONAL DEVELOPMENT

**Mr G.M. Ayres BSc (Hons) M. Arbor A. NDArb**

1. **QUALIFICATIONS**

- BSc (Hons) Biological Sciences & Environmental studies
- Diploma in Biological Sciences
- Surrey County Diploma in Arboriculture 1981 – Merrist Wood College
- Ordinary National Diploma in Arboriculture – 1981 Merrist Wood College, Surrey
- M.Arbor A Professional membership of The Arboricultural Association

2. **CAREER SUMMARY**

Gareth Ayres began his career with trees in 1977 with Cardiff City Council Parks Department, mainly tackling the ravages of Dutch elm disease. As part of the OND course he spent a year in Denmark for the Scandinavian Institute of Trees and Shrubs, gaining practical experience as a trainee arborist. Following the completion of the college course, he gained a wide practical knowledge of all aspects of commercial arboriculture. He worked as a craftsman arborist for Nivela Services Ltd working in Denmark, Norway and Sweden.

In 1983 he joined Cardiff City Council's Tree Department gaining the post of chargehand arborist. In 1984 he went into partnership with Tom Seymour and formed Cardiff Treescapes. The business quickly gained a reputation for excellence and became Arboricultural Association approved contactors in 1987. Through practical experience, continual professional development and further academic qualifications, Gareth has now gained a reputation as a consulting arborist. He was a founder member of the South Wales Branch of the Arboricultural Association and served on the committee for 3 years.

### 3. AREAS OF EXPERTISE

- Tree hazard risk assessments for tree owners
- Mortgage and Insurance reports to assess the influence of trees on buildings  
Pre-development site surveys and arboricultural implication studies
- Tree management reports to prioritise maintenance programs
- Tree related insurance claims
- Diagnosis of tree disorders
- General arboricultural advice

### 4. CONTINUAL PROFESSIONAL DEVELOPMENT

- **Some recent courses attended:**
- Picus (Sonic tomography) Master class - Kew Gardens 2016
- Tree science day Cardiff University 2016 Prof. Lynne Boddy of Cardiff University, supported by PhD Students Emma Gilmartin and Sarah Johnston, the roles of fungi in death and decay of trees and also their crucial roles in feeding and protecting trees from pathogens
- Transformational nature (Kew Gardens) – secrets of natural form, plant intelligence and the ageing process. Covering tree architecture Sensory information and communication. Adaptation, life change and process. Francis Halle, Stefan Mancuso, Howard Thomas, Monica Gagliano, Neville Fay
- AA Western Branch seminar at Ashton Court led by Prof. Lynne Boddy of Cardiff University, supported by PhD students Emma Gilmartin and Sarah Johnston, illustrating roles of fungi in death and decay of trees, and also their crucial roles in feeding and protecting trees from pathogens.
- Seminar Prof. Dr Claus Mattheck VTA update.
- A new branch attachment model starting from Alex Shigo's model
- A new unpredictable lateral grain failure mode of branches which look absolutely safe
- Possible symptoms for the new failure mode and related risks of misinterpretation
- Relationship between topping, root decay and branch failure due to lateral grain
- Slenderness failures of lion-tail branches versus failures due to vigour and compactness – the unbelievable comes true!
- The life-long fight between branch and trunk
- Conclusions for decay propagation from trunk to branch and vice versa
- Truth and lies in the body language of the 'Chinese moustache' (branch bark ridge) – common errors May 2014
- Seminar Prof. Dr Claus Mattheck VTA update
- The current state of VTA and related failure criteria including the t/R debate. Thinking tools after nature, Crown mechanics, Root mechanics and graftings. May 2012
- Seminar Prof. Dr Claus Mattheck VTA update, Shear square method,

tensile triangles & force cones. Sac fungi. Age determination of perennial fungal fruiting bodies. How broadleaf trees fight spiral cracks & the biomechanical similarities between the hazard beam crack and spiral crack. May 2010.

- Management of veteran trees in historic gardens (N.Fay & T. Green) Nov 2008
- Seminar XII TEP Trees, Roots, Fungi, Soil Nov. 2008
- Picus masterclass July 2008
- Mattheck VTA update May 2008
- Seminar IX TEP Fungal Decay Process & Applied Engineering Nov. 2007
- Seminar V11 TEP Tree Morphology 2 June 2007
- Seminar VI TEP The future of Tree risk management September 2006
- Seminar V TEP Tree morphology March 2006
- Decay Detection Master class (Picus Sonic Tomograph) May 2005
- Principles of Tree Risk Assessment & Management Silwood Park 2002
- Principles of Tree Risk Assessment – July 2002
- Tree Mechanics with Dr Claus Mattheck – 2002
- Biology of Decay in Trees – Hatfield Forest – November 2001
- Trees and the Law Leicester Racecourse 2001
- Modern Arboriculture – a system approach to practical tree care – Dr Alex Shigo - 1992

## 5. **PROFESSIONAL AFFILIATIONS**

- Arboricultural Association

# **QUALIFICATIONS AND PROFESSIONAL DEVELOPMENT**

## **Mr T.A.SEYMOUR BA.(Hons) M.Arbor A.**

### 1. **QUALIFICATIONS**

- BA (Hons) Human geography & Environmental studies
- Diploma in Environment and Geography
- Surrey County Diploma in Arboriculture 1981 – Merrist Wood College
- Ordinary National Diploma in Arboriculture – 1981 Merrist Wood College, Surrey
- M.Arbor A Professional membership of The Arboricultural Association

### 2. **CAREER SUMMARY**

Tom Seymour began his career in horticulture in 1977 with the renowned plant nursery Hilliers of Romsey Hants where he undertook an apprenticeship, learning about the care and propagation of amenity trees and shrubs. As part of the OND course he spent a year in Ealing London working for the local authority gaining practical experience as a trainee arborist, and in other sections of the arboricultural department. Following the completion of the college course, he gained a wide practical knowledge of all aspects of commercial arboriculture.

In 1981 he joined Cardiff City Council's Tree Department gaining the post of chargehand arborist. In 1984 he went into partnership with Gareth Ayres and formed Cardiff Treescapes. The business quickly gained a reputation for excellence and became Arboricultural Association approved contactors in 1987. Through practical experience, continual professional development and further academic qualifications, Tom has now gained a reputation as a consulting arborist. He was a founder member of the South Wales Branch of the Arboricultural Association and served on the committee for 3 years.

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