



## Arboricultural Impact Assessment & Tree Protection Plan

Arboricultural Impact Assessment & Tree Protection Plan to accompany planning application by Pavement Homes Ltd. for the construction of 6 three-bedroom dwelling houses and all ancillary site works at St. Finian's Way, Main Street, Newcastle, Co. Dublin.

Planning Ref: SD22A/0045

Greentrack Environmental Consultants

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## DOCUMENT DETAILS

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## 1 INTRODUCTION

A planning application has been submitted for 6 three-bedroom dwelling houses and associated works at St Finians Way, Main Street, Newcastle, Dublin (Planning Ref: SD22A/0045). The planning authority have issued a request for additional information about the site to help inform their planning decision. The scope of the report is defined by the request for Additional Information issued by the Planning Authority to the applicant.

The request states:

*'The applicant is requested to submit details of the tree protection measures to be employed in order to ensure the protection and retention of trees to be retained on the site, in accordance with BS 5837:2012 - Trees in relation to construction - Recommendations, for the approval of the Planning Authority. Response should include an Arboricultural Impact Assessment and Tree Protection Plan.'*

## 2 SCOPE

To produce an arboricultural impact assessment supported by a photographic survey and site layout plan which examines:

- The trees retained within the site
- The trees to be removed
- Protection measures for the tree to be retained

The impact assessment report is based on the British Standard BS 5837:2012 *Trees in relation to design, demolition and construction recommendations*. This standard gives recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees, including shrubs, hedges and hedgerows, with structures. It sets out to assist those concerned with trees in relation to construction to form balanced judgements. This impact assessment report will be accompanied by an inventory of trees and hedgerows on site and a tree protection plan. The Arboricultural Impact Assessment and a tree protection plan was prepared for the site identifying trees that may be impacted on by the proposed development based on the proposed design.

BS 5837:2012 *Trees in relation to design demolition and construction – Recommendations (BS5837)* provides a framework which sets out how trees should be considered in this context and also explicitly applies to development where planning consent is not required.

An Arboricultural Impact Assessment is developed to identify the likely direct and indirect impacts of the Proposed Development, and a Tree Protection Plan is prepared to identify trees to be removed or retained and to illustrate how retained trees are to be protected. An Arboricultural Method Statement is often required as a condition of planning consent to detail how sensitive operations are to be achieved in close proximity to retained trees. These elements are the minimum normally required for a planning application and are intended to ensure both a sustainable and harmonious relationship between trees and new development.

## 3 METHODOLOGY

An initial tree survey and visual condition assessment was on the 30<sup>th</sup> July 2022. Only trees with diameters of 75mm or greater were surveyed. Also, in accordance with Section 4.4.2.3 of the British standard document where trees formed obvious groups, these were assessed and recorded as groups.



Section 4.4.2.3 of BS 5837: 2012 states: 'Trees growing as groups or woodland should be identified and assessed as such where the arboriculturist determines that this is appropriate. However, an assessment of individuals within any group should still be undertaken if there is a need to differentiate between them, e.g. in order to highlight significant variation in attributes (including physiological or structural condition). NOTE: The term "group" is intended to identify trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally, including for biodiversity (e.g. parkland or wood pasture), in respect of each of the three subcategories.'

The survey concentrated primarily on the significant trees/hedgerows and groups located within the development area. The objective of this survey was to gather information regarding the tree's location on the proposed development site and the impact the proposed development may have on the trees. Significant trees can be equated as those trees whose visual importance to the surrounding area are sufficient to justify special efforts to protect/preserve and whose loss would have an irremediable adverse impact on the local environment. Significance can also be placed depending on the trees age, another variable to imply significance can be the aesthetic merit of the tree based on its unusual size, intrinsic physical features or outstanding appearance or occurring in a unique location or context, and thus provides a special contribution as a landmark or landscape feature.

All above parts of the trees were visually examined. Tree diameters (DBH) were estimated at 1.5 meter above grade as per standard arboricultural practice. Tree height was measured with the use of a clinometer (Where practical). A generalised system was employed to describe the overall health of the trees. Trees were assigned a category as per guidance provided within BS 5837:

*'Category U This category signifies those trees that are in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.*

*Category A. Those trees of a high quality and value, in such a condition as to be able to make a substantial contribution. (A minimum of 40 years is suggested)*

*Category B. This category signifies those trees of a moderate value and in such a condition as to be able to make a substantial contribution (A minimum life expectancy of 20 yrs is suggested)*

*Category C. This category signifies those trees of a low quality and value that are currently in an adequate condition to remain until new planting could be established (A minimum life expectancy of 10yrs is suggested), or young trees with a stem diameter below 150mm. Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.*

*The above categories have sub-categories attached to the tree categorisation. Sub-category 1- Mainly Arboricultural Values eg-A1 Sub-category 2- Mainly Landscape Values- B2 Sub-category 3- Mainly cultural values, including conservation C2'*

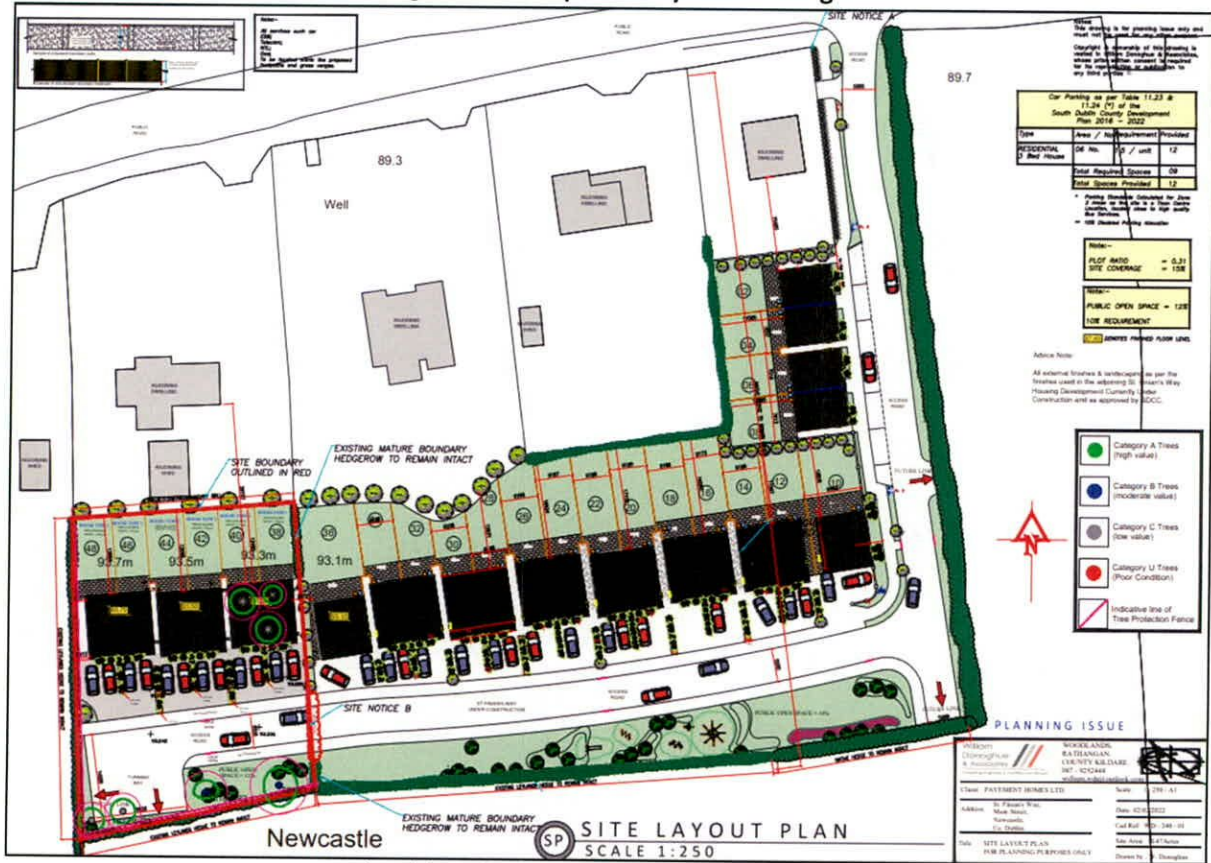
- Inspection Date: 30<sup>th</sup> July 2022
- Inspected by: Colin Farrell BSc. MSc Cert Arb (RFS)
- Weather conditions: Warm, sunny, light variable breeze 21°C.

# 4 SITE DESCRIPTION

## 4.1 Location

The site is located in a suburban setting on St Finian’s Way, Main Street, Newcastle, Co. Dublin. The site is a large garden that has been planted some time ago with trees. The trees are mainly around the boundary of the site and contain a wide variety of mainly non-native species. The centre of the site is mainly grasses. There is one small area in the central eastern part of the site that appears to have been originally planted as a feature shrub bed but has now overgrown. A Leylandii hedge is also planted as a boundary feature. Figure 4.1 below shows the proposed layout drawing for the development where 6 three-bedroom dwellings are proposed to be located within the site.

Figure 4.1: Proposed Layout Drawing



The site is bounded by detached and semi-detached housing of St Finians way to the east, by detached housing to the north and west and by agricultural land to the south. An aerial photograph of the site with the approximate boundary marked on red is shown in Figure 4.2 below.



**Figure 4.2: Aerial photograph of the site**



**4.2 Tree Removal**

Figure 4.3 below is a sketch of the areas of tree removal required on site to facilitate development.

**Figure 4.3: Tree removal areas**





### 4.3 Overview of trees on site

Figure 4.4 below shows an aerial photograph of the site. For ease of reference, the trees are described in 5 separate groupings. 4 of these groupings correspond to the 4 boundaries of the site and the fifth grouping is the former shrub bed on site.

The groupings are labelled on Figure 4.4 below.

Group 1 – Eastern boundary with existing St Finians way development

Group 2 – Southern Boundary with the agricultural field

Group 3 – Western Boundary with neighbouring property

Group 4 – Northern boundary with neighbouring property

Group 5 – Shrub bed in central eastern portion of site

Figure 4.4: Grouping of trees on site



## 5 ASSESSMENT

An assessment is made below of the trees within each grouping:

### 5.1 Group 1

#### 5.1.1 General Description

This grouping of trees forms the boundary between the site and the existing development of St Finian's Way. It is largely composed of a Leylandii hedge (Castlewellan Gold variety) with some semi-mature Beech trees contained within it towards the northern end and a clump of semi-mature Sycamore trees towards the southern end. On the southern edge of this group on the inside of the



boundary there is a coppiced Copper Beech tree which has been pruned and maintained as a shrub tree. The Copper Beech is approximately 2.5 m height. The average height of the Leylandii hedge is 2m and the average height of the semi-mature Beech trees along this boundary is 4m. Photograph 5.1 below shows the maintained portion of the Leylandii hedge and the semi-mature Beech trees on the northern end of the grouping.

**Photograph 5.1: Leylandii hedge and semi-mature Beech trees**



### **5.1.2 Trees to be removed**

The semi-mature Sycamore trees, Leylandii hedge and the Copper Beech shrub will have to be removed to facilitate development (Figure 4.4). The trees to be removed are assessed as trees of low to medium quality as summarized in Table 5.1 below.

**Table 5.1: Category of trees to be removed**

| Species             | Age Class   | Category of Trees to be Removed (BS 5837) |
|---------------------|-------------|-------------------------------------------|
| <i>Leylandii</i>    | Young       | C2                                        |
| <i>Sycamore</i>     | Semi-mature | C2                                        |
| <i>Copper Beech</i> | Young       | C2                                        |

### **5.1.3 Trees to be retained and protected**

The remaining trees in this group are to be retained and protected with a suitable fence during the construction process. The category of the trees to be protected is similar to that outlined in Table 5.1 above with nothing assessed above a C2 category.

Tree protection is discussed in Section 6, Tree Protection Plan. The type and position of the protective fence is indicated in Figures 6.1 & 6.2 respectively.



## 5.2 Group 2

### 5.2.1 General Description

This grouping of trees forms the southern boundary of the site and is comprised of a Leylandii hedge (Castlewellan Gold variety) along the southern boundary and a variety of trees and shrubs on the inside of the boundary.

Photograph 5.2 gives an overview of this grouping of trees with a Horse Chestnut tree on the far right, Lodgepole Pine tree in the centre and Sycamore trees on the far left. The Leylandii Hedge is approximately 2.5-3 m in height and the other trees range in height from 6-8m.

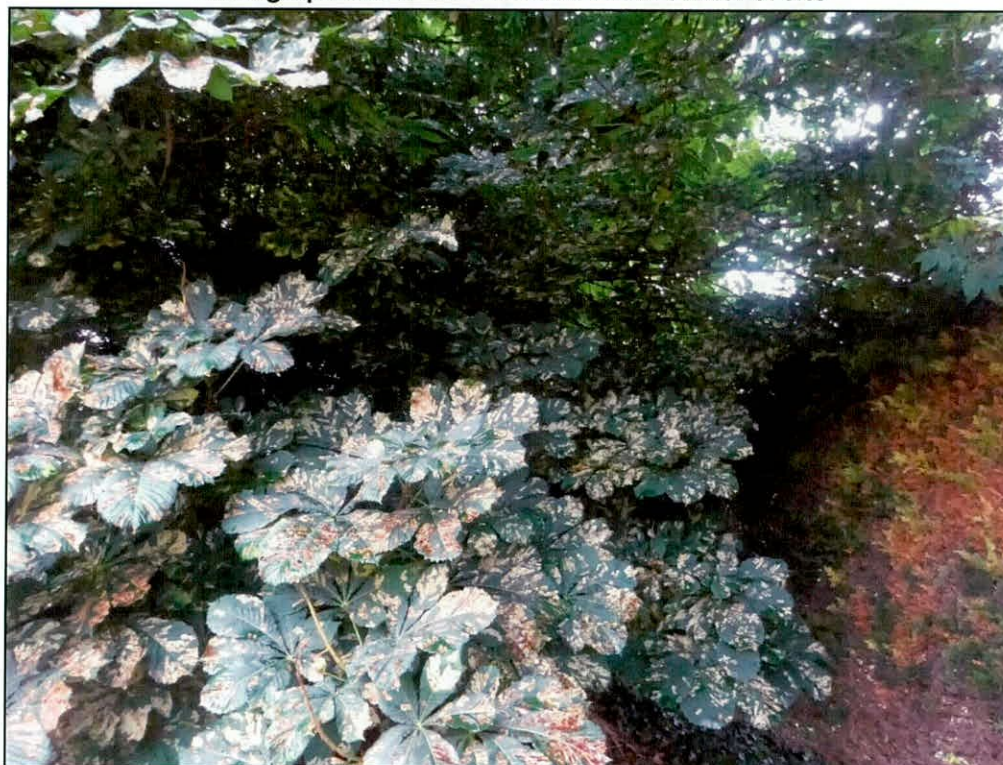
**Photograph 5.2: Trees on the southern boundary of the site (looking south)**



Starting at the western end of the group there is a semi-mature Horse Chestnut which has significant crown spread of over 5m in most directions. It appears structurally sound but the foliage is in poor condition. This is likely to be due to a fungal infection and worthy of further investigation if the tree was due to be retained. Photograph 5.3 below show the fungal infection present in the leaves of this tree.



**Photograph 5.3: Horse Chestnut in SW corner of site**



There are some clumps of Portuguese Laurel with an interplanted Leyland Cypress tree sited adjacent to the Horse Chestnut. Both the laurel and the cypress appear in good condition. There is a semi-mature Lodgepole Pine planted in the centre of group 2. The Pine is straight stemmed, and foliage appears in good condition. Between the Pine and the Sycamore and Rowan tree there are more shrubs that have overgrown such as Portuguese Laurel. On the western edge of Group 2 there are two semi-mature Sycamore trees and one semi-mature Rowan tree. These have closed canopy, and all appear to be in good condition.

**5.2.2 Trees to be removed**

Of this grouping the Horse Chestnut tree, some of the Portuguese Laurel and the Leyland Cypress tree will require removal to facilitate development of the proposed turning bay in the development (Figure 4.4). The Cypress tree is slightly outside the footprint of the turning bay, but the removal of a significant amount of its root plate will make this tree unviable so should be removed before construction begins. The Portuguese Laurel is a common hedging plant and will be able to recover from severe pruning and partial removal without causing lasting damage. The Horse Chestnut tree to be removed is showing signs of a severe fungal infection and may not be suitable for retention in the short to medium term regardless of development plans. The trees to be removed are assessed as trees of low to medium quality as summarized in Table 5.2 below.

**Table 5.2: Category of trees to be removed**

| Species                  | Age Class   | Category of Trees to be Removed (BS 5837) |
|--------------------------|-------------|-------------------------------------------|
| <i>Horse Chestnut</i>    | Semi-mature | U*/C2                                     |
| <i>Leyland Cypress</i>   | Young       | B2                                        |
| <i>Portuguese Laurel</i> | Young       | C2                                        |

\*depending on further investigation.



### **5.2.3 Trees to be retained and protected**

The remaining trees in this group are to be retained and protected with a suitable fence during the construction process. The category of the trees to be protected is assessed as B2. These trees are to form part of the green space proposed in the development. Photograph 5.4 below shows the Sycamore and Rowan tree that are schedule to remain and be protected during construction.

Tree protection is discussed in section 6, Tree Protection Plan. The type and position of the protective fence is indicated in Figures 6.1 & 6.2 respectively.

**Photograph 5.4: Sycamore and Rowan trees for retention in south-east corner of site.**



## **5.3 Group 3**

### **5.3.1 General Description**

This grouping of trees forms the western boundary between the site and the neighbouring property to the west. It is mainly a Leylandii hedge (Castlewellan Gold Variety) with a semi-mature Elder tree at the southern end. The hedge is maintained at approximately 2-2.5m height. The Elder tree is approximately 3m in height. Photograph 5.5 show this western boundary of the site.



**Photograph 5.5: Western boundary of site**

### **5.3.2 Trees to be removed**

There are no trees to be removed from this grouping.

### **5.3.3 Trees to be retained and protected**

All trees are to be retained in this group and the category of the trees is assessed as C2.

Tree protection is discussed in Section 6, Tree Protection Plan. The type and position of the protective fence is indicated in Figures 6.1 & 6.2 respectively.

## **5.4 Group 4**

### **5.4.1 General Description**

This grouping of trees is located along the northern boundary of the site with the neighbouring property. The trees do not form a continuous line and are more open grown than the other trees inspected on site.

Starting at the north-west corner there is a semi-mature Oak tree in good condition with some smaller Elder bushes growing underneath. The Oak is categorized as B2. Next to the Elder there is a clump of trees including a semi-mature Alder tree and several young stems of Ash & Beech. The Alder tree is assessed as category C2. The Ash is showing signs of Ash die-back disease. In the north-east corner of this group there is a semi-mature Sweet Chestnut tree in good condition. This tree is assessed as category B2. The semi-mature trees range in height from 6-8m and the young trees range in height from 2-5m.

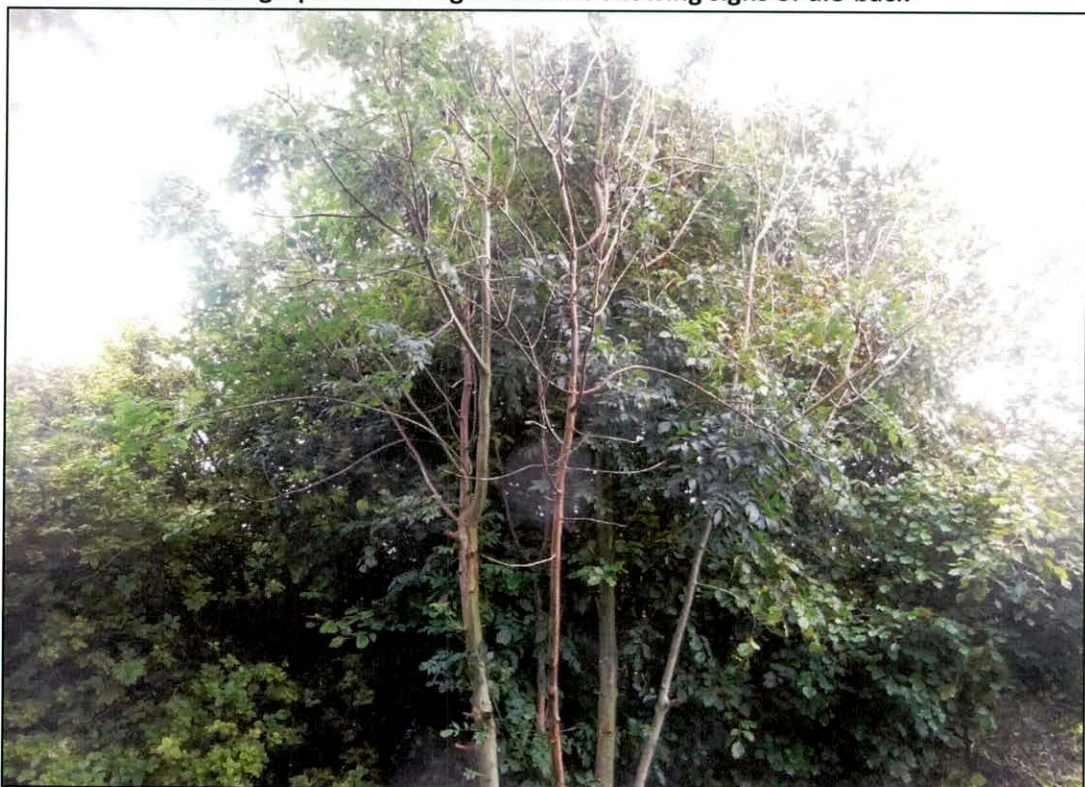
Photograph 5.6 below shows the Oak tree in the north-west corner of the site. Photograph 5.7 below shows the young Ash stems showing signs of Ash die-back disease. Photograph 5.8 shows the semi-mature Sweet Chestnut tree in the north-east corner of the site.



**Photograph 5.6: Oak tree in north-west corner of site**



**Photograph 5.7: Young Ash stems showing signs of die-back**





**Photograph 5.8: Sweet Chestnut tree in north-east corner of site**



**5.4.2 Trees to be removed**

There are no trees required to be removed from this group to facilitate development. However, it would be prudent to remove the young Ash stems as they will not recover from Ash die-back disease.

**Table 5.3: Category of trees to be removed**

| Species | Age Class | Category of Trees to be Removed (BS 5837) |
|---------|-----------|-------------------------------------------|
| Ash     | Young     | U                                         |

**5.4.3 Trees to be retained and protected**

The remaining trees in this group are to be retained and protected with a suitable fence during the construction process. The category of the trees to be protected is assessed as B2 for the Oak and Sweet Chestnut and C2 for the Alder and young Beech.

Tree protection is discussed in section 6, Tree Protection Plan. The type and position of the protective fence is indicated in Figures 6.1 & 6.2 respectively.

**5.5 Group 5**

**5.5.1 General Description**

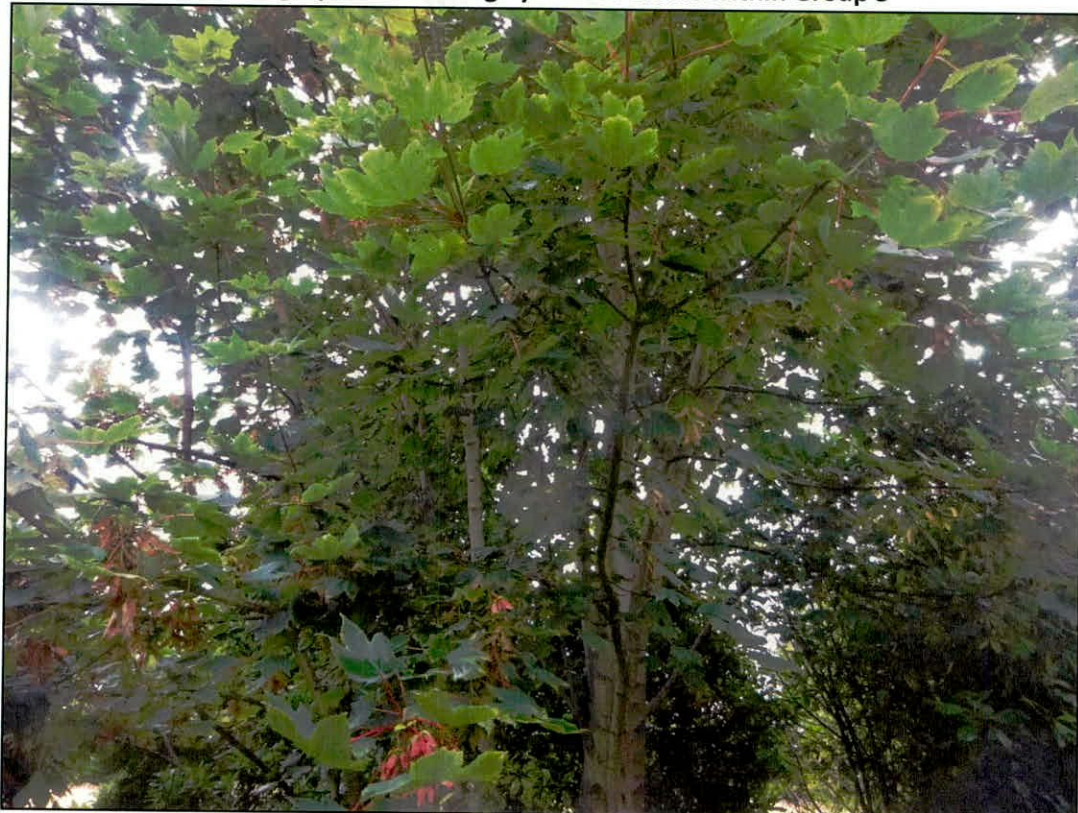
This grouping of trees/shrubs is located in the central eastern part of the site. It appears to have been a former shrub bed that has no longer been maintained. It contains various shrub species including, Bamboo, Spirea, Variegated Laurel, and Photinia along with some young Sycamore trees. The shrub height averages 2-3m and the Sycamore is approximately 6m height. The condition of the shrubs and Sycamore is good. Photograph 5.9 below shows the group of shrubs/trees as viewed from the south.



**Photograph 5.9: Group 5 group of shrubs/trees as viewed from the south.**



**Photograph 5.10: Young Sycamore stems within Group 5**



**5.5.2 Trees to be removed**

All the trees/shrubs in this group will be required to be removed to facilitate development



**Table 5.4: Category of trees to be removed**

| Species               | Age Class | Category of Trees to be Removed (BS 5837) |
|-----------------------|-----------|-------------------------------------------|
| <i>Sycamore</i>       | Young     | C2                                        |
| <i>Various shrubs</i> | Young     | n/a                                       |

**5.5.3 Trees to be retained and protected**

There are no trees to be retained within this group.

**5.6 Summary of Trees Removed****Table 5.5: Trees to be removed**

| Species                  | Group | Age Class   | Category of Trees to be Removed (BS 5837) |
|--------------------------|-------|-------------|-------------------------------------------|
| <i>Leylandii</i>         | 1     | Young       | C2                                        |
| <i>Sycamore</i>          | 1     | Semi-mature | C2                                        |
| <i>Copper Beech</i>      | 1     | Young       | C2                                        |
| <i>Horse Chestnut</i>    | 2     | Semi-mature | U*/C2                                     |
| <i>Leyland Cypress</i>   | 2     | Young       | B2                                        |
| <i>Portuguese Laurel</i> | 2     | Young       | C2                                        |
| <i>Ash</i>               | 4     | Young       | U                                         |
| <i>Sycamore</i>          | 5     | Young       | C2                                        |
| <i>Various shrubs</i>    | 5     | Young       | n/a                                       |

\*depending on further investigation

**5.7 Arboricultural Impact**

Most of the trees scheduled for removal are category C2 or below. The only category B tree is a young Leyland Cypress tree in Group 2. The guidance with BS 5837 indicates that young trees should not be considered constraints to development as they can be either replaced or transplanted relatively easily. The arboricultural impact of the proposal is assessed as not significant subject to the retained trees receiving the correct protection as outlined below in Section 6.

**6 TREE PROTECTION PLAN**

The trees to be retained are outlined in Section 5 above.

**6.1 Protection Areas**

Prior to any construction or demolition works on this site all trees and hedgerows destined for retention need to be protected by the use of protective barriers and or ground protection, fit for the purpose of ensuring the successful long-term preservation of the trees. In order for the retained trees to be adequately protected on the site a construction exclusion zone needs to be identified. This zone is calculated based on the root protection area (RPA), which is the minimum area in m<sup>2</sup> which should be left undisturbed around each retained tree. The RPA should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter for a single stem tree and 10 times basal diameter measured immediately above the root flare for trees with more than one stem arising below 1.5m above ground level.

In this case, where the trees are in groups, the protective fence should extend approximately 1m beyond the edge of the canopy of the woodland group.



### 6.2 Protective Barriers

Trees and hedgerows that are indicated to be retained must be protected by barriers, signage and/or ground protection prior to any materials or machinery being brought on site and prior to any development, demolition or soil stripping takes place. Areas that are designated for new plantings should be similarly protected. Barriers should be fit for the purpose of excluding construction activity. In most cases barriers should consist of a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts. Typical specification of suitable fencing is shown in Figure 6.1 below.

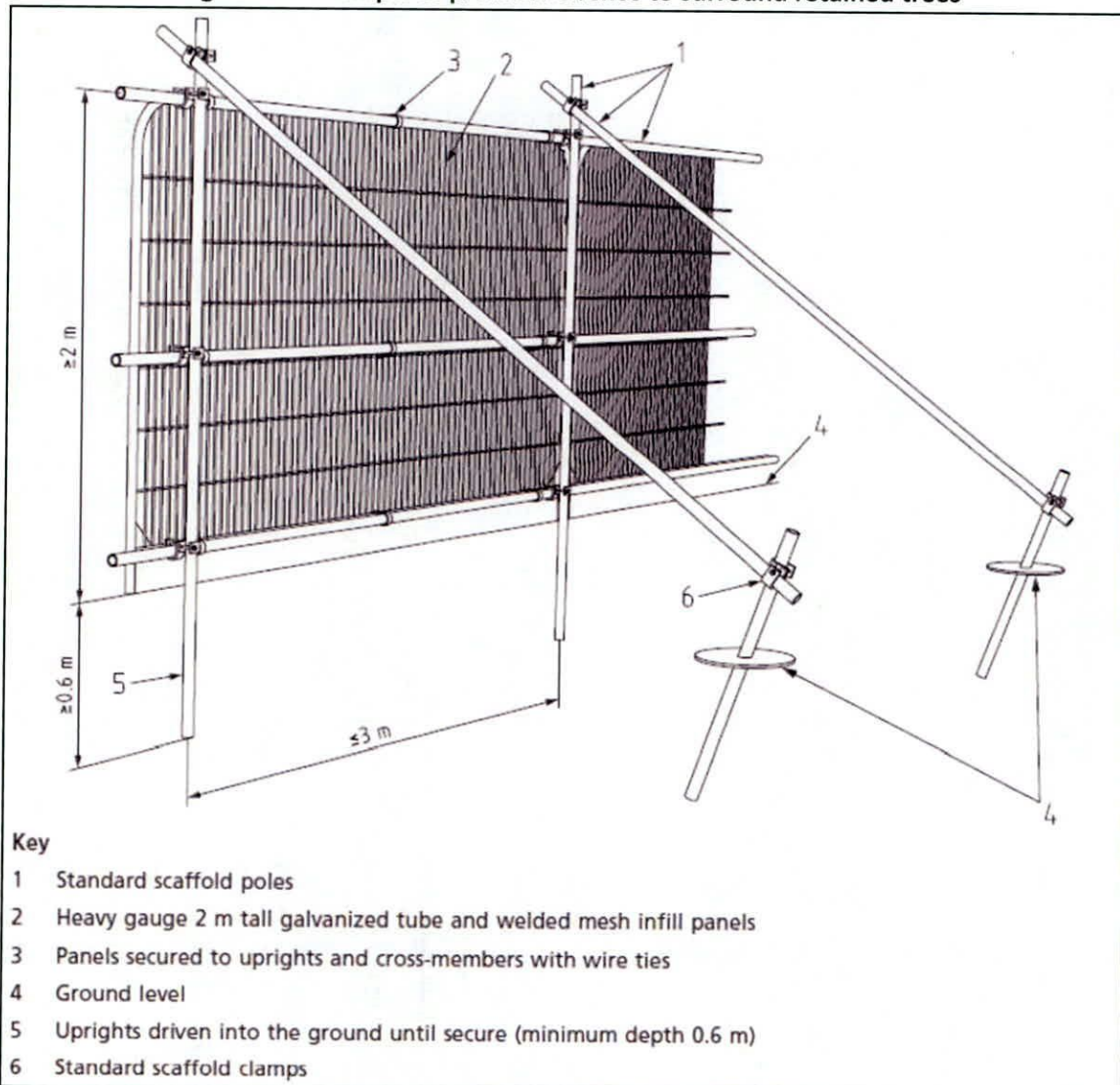
To ensure the protective barriers are respected, clear concise signage must be affixed to the barrier in an unrestricted easily viewed location.

The signage must state the following:

- No construction activity is to take place within the R.P.A.
- No materials of any kind are to be stored within the R.P.A.
- No washout of materials shall take place within the R.P.A.
- No fires are to be lit within the R.P.A.

The protective barriers shall remain in an undisturbed condition and only removed on completion of all construction activity finished grading and seeding.

**Figure 6.1: Example of protective fence to surround retained trees**



BS 5837 (2012) Trees in Relation to Construction



### 6.3 Line of Protection

The placement of the protective fence should be around the groups of trees to be retained as specified in Section 5. Figure 6.2 outlines the approximate position of the protective fencing required on site.

**Figure 6.2: Approximate position of protective fencing**



### 6.4 Pre-commencement

Prior to any works on site, it may be necessary that a meeting be arranged between the project manager, site foreman, the project landscape architect/arborist and the local authority to identify and finalise the trees for removal and the line of protective fencing and any other mitigation measures.

### 6.5 Tree clearance

The developer or the main contractor is to appoint a professional tree surgery company to undertake any tree removal or surgery works identified. The works are to be undertaken in accordance with BS 3998 2010.

### 6.6 Fencing Integrity

During the course of the construction works the integrity of the fencing must be respected and remain in place at all times. No building materials or soil heaps are to be stored within this area. Should essential works need to take place with the root protection area the project arborist must be informed in advance and any mitigation measures are to be put in place. The protective fencing must remain in situ for the duration of the project and must only be removed upon completion of all works.



### **6.7 Excavation works**

Excavation works are only to commence once the protective fence line is in place. The excavations need to be viewed on site once marked out with the project manager, site foreman and the project arborist in advanced of excavation to determine the extent of the impact and the works space required to allow the construction works proceed and to assess any additional mitigation measures that may be required to protect the retained trees. In certain areas it may be necessary to use alternative methods of excavation to prevent encroachment into the RPA of the trees to be retained and this may include such methods as retaining walls, cellular confinement systems, no dig technique etc.

### **6.8 Finished ground levels**

The existing ground levels within the RPA of the retained trees must be retained and incorporated into the finished landscaped development. Where changes in level occur, these are to be either graded into the finished levels starting outside the RPA or alternatively, retaining wall structures are to be used differentiating between the different levels. All soft and hard landscaping within the RPAs must be carried out manually and the soil levels must not be lowered or raised resulting in root damage to the trees. All finished surfaces are to be porous to allow the free movement of water and gaseous exchange to the roots.

### **6.9 Post Development Works**

The project is not to be considered complete until an appointed arborist has inspected the site and is satisfied that all retained trees have been protected in accordance with the site-specific Tree Protection Plan and there has been no negative impact on the retained trees on site as a result of the development.