



3 Church Street,  
Waltham Abbey,  
Essex, EN9 1DX

**BS 5837:2012 Tree Survey & Arboricultural Impact of  
Upgrading the Pedestrian Garden Path**

**Address: Landmark Arts Centre,  
Teddington**

**Site Surveyed by Peter Holloway**

**Report prepared by  
Peter Holloway CEnv, BSc. (Hons), FArborA,**

**Date 30<sup>th</sup> June 2023**

**Report Prepared for The Landmark Arts Centre**

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## 1. Introduction

1.1 I am instructed by Mr Alastair Pott on behalf of the Landmark Arts Centre. My brief is:

- To carry out a Tree Survey in accordance with the British Standard 5837: 2012 'Trees in relation to design, demolition and construction – Recommendations' April 2012.
- To Produce an **Arboricultural Implications Assessment (AIA)** for the proposal to upgrade the existing pedestrian pathway through the gardens.

## 2. Site Description and Proposal

2.1 The site is within the curtilage of St Alban's Church, Teddington on a corner bounded by Ferry Road to the North and Kingston Road to the east.

2.2 The frontage of the site consists of access roads and car parking with a garden space between the car parking and the site perimeter.

2.3 The site is generally level but there is a short embankment on the east, lowering to the footpath level along Kingston Road.

2.4 The site contains several mature trees and many of these are important in the landscape.

2.5 There is an existing path in the wooded garden consisting of a bark mulch surface with an informal edging of small logs.

2.6 The proposal is to upgrade the pathway and facilitate its use for outdoor activities. The new pathway would improve the appearance of the outdoor space and facilitate further improvement in access to the Arts Centre. There is no existing pedestrian access other than sharing the access road with vehicles.

## 3. Documents

3.1 I was provided with the following documents:

- i. Landmark Arts Centre Proposed Areas, LAC SK002A, 31.03.23.

## 4. Background

- 4.1 I had completed a previous tree survey and report for this site in 2021 for a different pathway arrangement trying to separate traffic and pedestrians within the site but this scheme did not proceed.
- 4.2 A planning application to carry out the landscaping in drawing LAC SK002A was submitted on 17<sup>TH</sup> April 2023. My tree report from 2021 was used in this application but this was rejected because it was prepared for a different scheme.
- 4.3 The Local Authority Tree Officer responded as follows:

*TPO T0112 protects various trees at the site, additionally CA27 Teddington Lock protects any trees not covered by the TPO. The TPO protected Pine has been removed, shown as T2 in the application has been removed. The tree was reduced to a monolith under permission 18/T0340/TPO between June 2018 and May 2019. The removal of the remainder occurred between March 2021 and May 2022. There is no application associated with this removal and the previous permission was expired. We will be issuing a replanting notice and considering enforcement action.*

*The route of the path is inconsistent between the Proposed Path drawing, ref. LAC-SK001, dated 31-3-23 and the BS 5837:2012 Tree Survey & Arboricultural Impact of Proposed New Pedestrian Route (AIA), no ref, dated 22 Feb 2021. The AIA does not include trees that will be impacted by the proposed route.*

*The depths in the Proposed Path drawing, and the AIA are inconsistent - the proposed path drawing does not have dimensioned depths, however the path is clearly level with the existing surface while the AIA is based off of a 50mm raised path requiring an excavation of 125mm.*

*There is an existing woodchip path at the proposed location. It is likely a resin bound path could be installed at the site in a way that is acceptable, however I am unable to recommend approval of the Proposed Path drawing that shows excavation of unknown depth that will pass through the rooting area of protected trees, of which there has been no assessment.*

- 4.4 The Geology at this postcode (British Geological Survey Geindex) at is a bedrock of London Clay with a superficial layer of Kempton Park Gravel Member. Kempton Park Gravel consists of sand and gravel, locally with lenses of silt, clay, or peat. The average thickness is 6m.

## **5. Legal Considerations**

- 5.1 The site is within a conservation area and some of the trees are included in Tree Preservation Orders. This means that you must give the Planning Authority six weeks' notice before carrying out any tree works in a conservation area, and you must have written permission to carry out work to a tree with a Tree Preservation Order. There are some exceptions to the requirement to serve notice or obtain permission and these include removing dead branches and dead trees although you may need evidence to prove that the exemption was justified.
- 5.2 The Wildlife and Countryside Act 1981 (as amended), the Conservation (natural habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000 provide protection for many species of animal that live in trees. I did not see any protected species and there are no plans to prune or remove any of the trees or shrubs at present. The dead cherry (T11) may be removed in future, but it is not part of this application.
- 5.3 The church building is listed as grade II\*.
- 5.4 The tree officers' statement that you did not have permission to remove the dead monolith (T2) is confusing because there is no requirement to have permission to remove dead trees although you may need evidence that it was dead as stated above. My survey in 2021 and the tree officers' own statement confirms that the tree was dead. However, there is a legal duty to replace dead trees removed from a conservation area or included in a Tree Preservation Order with a suitable species. Including a replacement tree on the plan is a planning commitment to that duty, the size of the tree to be planted is not stated and the species is Scots Pine (*Pinus sylvestris*). The Local Planning Authority may have a comment on the size of the replacement tree and the species. Scots Pine is a reasonable species to replace because there are many Cedars on site and barely room for more, so Scots Pine, with a slightly smaller mature size, is a reasonable alternative.

## **6. Tree Survey**

- 6.1 I looked at the site on Wednesday 21<sup>st</sup> June 2023 and surveyed all the trees in the garden area and car park at the front of the building.

- 6.2 The trees were surveyed from ground level using a visual tree assessment method. No detailed tree examinations were undertaken during the survey. The methodology for the tree survey is described in Appendix 1.
- 6.3 I recorded twenty-one trees, one stump, and two groups of trees. The tree details are included in Appendix 2 and plotted on the proposed site plan in Appendix 3.
- 6.4 I did not observe any significant defects that require remedial tree work for tree safety reasons. However, the dead cherry (T11) may deteriorate and lose dead branches or collapse when the dead roots decay so you should consider removing it or making it safe.

## 7. Arboricultural Impact Appraisal

- 7.1 BS5837 says that construction within RPAs is only recommended where there is *'an overriding justification for construction within the RPA, technical solutions might be available that prevent damage to the tree(s). If operations within the RPA are proposed, the project arboriculturist should:*
- a) *demonstrate that the tree(s) can remain viable and that the area lost to encroachment can be compensated for elsewhere, contiguous with its RPA.*
  - b) *propose a series of mitigation measures to improve the soil environment that is used by the tree for growth'.*
- 7.2 When digging within the RPA of trees, BS5837 recommends that roots of 25mm diameter or greater need to be retained but smaller roots can be cut to the edge of the trench. This is because smaller roots are readily regenerated. In trenches roots can usually regrow in the soil profile of a refilled trench. If there is a new foundation or structure, they do not have soil to grow back into but in the case of a shallow footpath roots will grow in the soil below it, particularly on sand or gravel geology.
- 7.3 The soil and underlying geology in the tree root zone is likely to be sandy or gravelly and so roots are likely to be growing at deeper levels than they might in finer grained soils.
- 7.4 The proposed pedestrian path as consists of 50mm self-binding gravel (like Breedon Gravel) with 100mm subbase of MOT Type 1, a crushed stone aggregate. The tree officer mentions resin bound gravel for some reason. Resin bound gravel is not as flexible as breedon gravel or as easily repaired when damaged by tree roots and the recommended sub-base is 150mm so the excavation would be deeper than proposed.

- 7.5 I have not adjusted the RPAs of these trees because the deeper geology is sand and gravel, the only obstruction to rooting might be the two external roads, Ferry Road, and Kingston Road. The existing car parking and internal roads were probably built on existing root areas. Nevertheless, the whole of the proposed pathway affects the circular RPAS of many trees and I do not think that adjusting the RPAs will make a material difference to the outcome of this report.
- 7.6 The upgraded pathway will affect the following trees as summarised in Table 2 below. The crowns of the trees will not be affected by the pathway, and it is manual work, so I do not expect any large plant or machinery to be used.

| <b>Table 2 Summary of proportion of RPA affected by Path</b> |                |                          |  |
|--|----------------|--------------------------|--|
| <b>Tree No</b>   | <b>Species</b> | <b>RPA m<sup>2</sup></b> | <b>Area (m<sup>2</sup>) and Proportion (%) affected by New pathway</b> |
| T1   | Common Oak     | 38                       | None and still negligible if RPA adjusted                              |
| T3   | Deodar Cedar   | 391                      | 27m <sup>2</sup> (7%)  |
| T8   | Common Beech   | 254                      | 30 m <sup>2</sup> (12%)  |
| T9   | Deodar Cedar   | 147                      | 60m <sup>2</sup> (40%)   |
| T10  | London Plane   | 577                      | 132m <sup>2</sup> (23%)  |
| T12  | London Plane   | 417                      | 116m <sup>2</sup> (28%)  |
| T13  | Atlas Cedar    | 383                      | 80m <sup>2</sup> (21%)   |
| T15  | London Plane   | 499                      | 41m <sup>2</sup> (8%)  |
| T21  | London Plane   | 707                      | 18m <sup>2</sup> (2.5%)  |

- 7.7 T4, T5, T6, T7, T11(Dead), G14, T16, T17, G18 and T20 will not be affected directly by the work but there will need to be working procedures to protect the ground beneath the trees from compaction or contamination during the construction. The subbase for the path must only be lightly compacted so that the soil beneath is not compacted excessively.

- 7.8 Generally the proportion of the RPAs affected by the pathway is small, but the large circular area increases the proportion of the RPA affected so that the proportion of the RPA of T9 is 40%, T10 is 23%, T12 is 28% and T13 is 21%. BS5837 recommends that hard surfaces should not exceed 20% of the existing open ground. Therefore, these figures will be underestimates because they are based on the total RPA.

## **8. Mitigation**

- 8.1 There is an existing path in roughly the same location albeit constructed in different materials.
- 8.2 The upgraded footpath is on a similar alignment to the existing footpath, but I do not have an existing plan to compare. The existing bark chip pathway is at the same level as the surrounding ground, with small logs forming an informal edge. I assume that this path was constructed in the normal way whereby the surface soil was removed, a geotextile put in place and then covered with bark chippings.
- 8.3 The depth of the proposed excavation is small at a maximum of 150mm. Some of this will involve removal of existing surface vegetation, bark mulch and the membrane beneath the bark. Tree roots generally grow below the surface and below geosynthetic membranes. There will be a minimal impact on the soil beneath the surface organic layers.
- 8.4 The work will be carried out by hand and if any large roots are discovered in the excavation, they can be retained by adjusting the construction by adjusting the position the path, altering the depth of the sub-base, and raising the level of the sub-base. Self-binding gravel is very flexible and tolerant of root action so if necessary significant roots can be retained within the sub-base.

## **9. Conclusion**

- 9.1 The upgraded path will occupy more than the BS5837 recommended minimum of 20% of the open soil within the RPA of some trees but there is an existing pathway in roughly the same location and there are substantial areas of open soil surrounding the site with a natural soil surface with shrubs and leaf litter which is important for healthy trees and roots.



- 9.2 The design of the upgraded pathway with shallow excavations, porous materials including a crushed stone sub-base and a self-binding gravel surface will not have a significant impact on water and gas exchange with the soil. These materials can accommodate root growth and they are easy to repair so it is possible to retain significant roots within the structure if it is necessary.

## 10. Appendix 1 Standard Methodology

### A.1 Survey

A.1.1 All my observations were from ground level without detailed investigations and I measured tree stem diameters where possible and estimated height and crown spread by pacing and using a clinometer. I do not normally have access to trees outside the boundaries and so my observations and comments on these trees are based on the visual assessment made from within the site or the surrounding public highway.

A.1.2 I surveyed all trees objectively without reference to any design proposals supplied or suggested by the client. The trees were located using the topographical survey supplied. If the topographical plan did not include all relevant trees, they would be added in their approximate positions.

A.1.3 As suggested in the BS 5837:2012 all single stem trees with a stem diameter of less than 75 mm at 1.5 m above ground level are usually excluded from the survey as they are not deemed to be of significant size to be included. Multi stemmed trees were measured in accordance with the standard.

A.1.4 Trees and shrubs are living organisms whose health and condition can change rapidly, for this reason the BS 5837 grades, along with any conclusions or tree management recommendations can only remain valid for a period of 12 months.

A.1.5 Where possible trees were assessed as individual specimens, however, where there were trees that formed distinctive groups of the same species within the landscape they can be assessed and graded as groups.

A.1.6 Trees on or adjacent to development sites are a material consideration that may have a significant impact on the future development and use of the site.

### A.2 Use of survey data.

A.2.1 The British Standard 5837:2012 provides guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees with structures.

A.2.2 The tree survey with minimum requirements of BS5837 is enclosed in the appendices of this report.

- A.2.3 The British Standard 5837: 2012 'Trees in relation to design, demolition, and construction – Recommendations' provides guidance and specifies measures to be adopted to avoid or minimise damage to trees retained on or in proximity to construction sites. One of the key recommendations is that a Root Protection Area (RPA) should be established around each retained tree. The RPA is calculated as an area equivalent to a circle with a radius 12 times the stem diameter measured at 1.5 metres above ground level for a single stem tree. In order to prevent disturbance or contamination of the RPA they are usually enclosed by robust fencing.
- A.2.4 Circular Root Protection Areas (RPAs) can be adjusted by an arboriculturist by considering obstructions for root growth, including building foundations, retaining walls, metalled roads, topography, soil type and tolerance of individual trees.
- A.2.5 The British Standard recommends that trees within categories A-C (where A is highest quality) are a material consideration in the development process. Category U trees are trees that will not be expected to exist for long enough to justify their consideration in the planning process. The tree categories are used with the number 1, 2, or 3, which is shown in Table 1. These signify whether the justification for the category was made based on mainly arboricultural values, mainly landscape values or mainly cultural/conservation values respectively. The tree categories are shown on the tree constraints plan by colour coding. Category A trees are green, category B trees are blue, category C are grey and category U are dark red.
- A.2.6 It is important to recognise that tree roots are particularly vulnerable during any adjacent construction operations. Tree roots grow where conditions are most favourable, this tends to be near the soil surface, below the driest surface layers. Generally, most fine tree roots grow in the upper 600mm of the soil, but larger roots can be deeper especially on better drained soils and geology. This means that shallow excavations, soil compaction by heavy plant or machinery or contamination by substances such as cement, diesel, or other chemicals, even water in excess, can be damaging to the root system.
- A.2.7 The presence of surrounding walls, roads and retaining walls can affect the root distribution of trees within and around the site, particularly on fine grained soils and geology. If a Root Protection Area is adjusted its shape is changed but the total area is maintained.

- A.2.8 Approved tree work should be carried out in accordance with BS 3998:2010 by suitably qualified and experienced professional tree surgeons. Under no circumstances shall site personnel undertake any tree pruning operations. All tree works should also take into consideration The Wildlife and Countryside Act 1981 (as amended), the Conservation (natural habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000 protected species of flora and fauna.
- A.2.9 If the site is within a conservation area then the local authority will need to be notified of your intention to prune the tree which they can prevent by making a Tree reservation Order. Some forms of tree work are exempt from this requirement and tree works directly required to accommodate a development that has planning permission would be exempt. However, to avoid error I would always recommend notifying the local authority to avoid costly mistakes.
- A.2.10 If individual trees are protected by Tree Preservation Orders, then written consent is required for tree pruning or tree removal except for a few exemptions and if the work is directly required to accommodate a development which has planning permission. As above, I would always recommend applying for consent rather than assuming that works are exempt from requiring consent.

## 11. Appendix 2 Table 1 'Tree data'

Tree Table

Key to Tree Table

**Tree number:** The number used in the table 1 corresponds to numbers on the plans.

**Species:** The Common and Botanical names of each tree.

**Height** and **branch spread** are estimated and listed in metres.

**Stem diameter** is usually measured at 1.5m above ground level (a.g.l.). It is listed in the table in mm.

**Height of crown above ground level (a.g.l.):**

This gives an indication of whether the crown extends to the ground or has low hanging branches. The height of the lowest branch and its direction will also be recorded. The terms 'AR' is used when the lower branches originate at the same height all around the trunk or sometimes 'CB' when the branches originate at a single point as it does for some pollarded trees.

**Age class:** This refers to the age of the individual tree relating to the average life expectancy of each species in a similar environment.

**Physiological condition:**

The general state of health of the tree, good (G), fair (F), poor (P) or dead (D).

**Structural condition:**

A description of any defects/habits/any previous management of note.

**Remaining contribution in years:**

This has been estimated by taking the age of the tree away from an estimate of the total number of years the tree may live for in current site conditions, it has listed in bands as recommended in BS5837:2012.

**Retention category:**

Each tree is placed in a category using the guidance in BS 5837:2012.

| Table 1  |                 | Landmark Arts Centre |     |            |                    |              |                      |         |                   |                 |                         |           |           |          |          |             |                                    | 21st June 2023  |                              |               |
|----------|-----------------|----------------------|-----|------------|--------------------|--------------|----------------------|---------|-------------------|-----------------|-------------------------|-----------|-----------|----------|----------|-------------|------------------------------------|---|------------------------------|---------------|
| Tree No. | Species         |                      | TAG | Height (m) | Stem Diameter (mm) | No. of Stems | Root Protection Area |         | Crown constraints |                 |                         | North (m) | South (m) | East (m) | West (m) | Age class   | Summary of Physiological condition | Observations  | Remaining contribution years | Tree Category |
|          | Common          | Botanical            |     |            |                    |              | Radius m             | Area m2 | Crown height m    | Lowest branch m | Direction lowest branch |           |           |          |          |             |                                    |   |                              |               |
| T01      | Oak Common      | Quercus robur        |     | 14.5       | 310                | 1            | 3.5                  | 38      | 5                 | 4               | CB                      | 4         | 5         | 3.5      | 5        | Semi Mature | Fair                               | Pruning wound. Bark damage.   | 20 to 40 yrs                 | B1            |
| T02      | Pine            | Pinus sp.            |     | 0.2        | 620                | 1            | 7.4                  | 174     | NA                | NA              | NA                      | NA        | NA        | NA       | NA       | Mature      | Dead                               | Stump   | 0                            | U             |
| T03      | Cedar Deodar    | Cedrus deodara       |     | 23         | 950                | 1            | 11.2                 | 391     | 6                 | 7               | SW                      | 10.5      | 9         | 9        | 9        | Mature      | Good                               | Tree has been crown reduced in the past but imperceptible to a lay person. Typical Cedar crown with dog-legged branches minor tear out wounds. Deadwood has been removed. | >40 yrs                      | A1            |
| T04      | Sycamore        | Acer pseudoplatanus  | 194 | 13         | 350                | 1            | 4.1                  | 52      | 5                 | 5               | SW                      | 4.5       | 7         | 3        | 5        | Semi Mature | Fair                               | Bifurcates at 2m high. Doglegged stem base. Central leader has died.  | 20 to 40 yrs                 | C1            |
| T05      | Sycamore        | Acer pseudoplatanus  | 161 | 13         | 300                | 1            | 3.4                  | 35      | 3                 | 4               | W                       | 4.5       | 5         | 1        | 5        | Semi Mature | Fair                               | Ivy clad stem.  | 20 to 40 yrs                 | C1            |
| T06      | Apple           | Malus sp.            |     | 4          | 60                 | 1            | 0.7                  | 2       | 1                 | 1               | CB                      | 1         | 2.5       | 2        | 2        | Young       | Fair                               | Basal shoots. Low crown over car park space. Suppressed a little.   | 20 to 40 yrs                 | C1            |
| T07      | Silver Birch    | Betula pendula       |     | 13         | 210                | 1            | 2.4                  | 18      | 1.5               | 2               | W                       | 3         | 3         | 2        | 2.5      | Semi Mature | Good                               | Tar spotting on stem. Surface roots in shrub bed.   | 10 to 20 yrs                 | C1            |
| T08      | Common Beech    | Fagus sylvatica      |     | 16         | 750                | 1            | 9.0                  | 254     | 2                 | 5               | AR                      | 8         | 6         | 9.5      | 8        | Mature      | Good                               | Branch pruning wounds and tear out wounds. Crown height reduced a few years ago.  | >40 yrs                      | B1,2          |
| T09      | Deodar Cedar    | Cedrus deodara       |     | 22         | 570                | 1            | 6.8                  | 147     | 8                 | 12              | S                       | 2         | 8         | 1        | 5.5      | Mature      | Good                               | Asymmetrical crown. Suppressed by London plane. Tall thin stem.   | 20 to 40 yrs                 | B1            |
| T10      | London Plane    | Platanus x hispanica |     | 30         | 1130               | 1            | 13.6                 | 577     | 6                 | 7               | N                       | 11        | 7         | 10       | 9        | Mature      | Good                               | Ivy at base. Anthracnose. Old pruning wounds. Loose wire around one limb.   | >40 yrs                      | A1,2          |
| T11      | Cherry          | Prunus sp.           |     | 6          | 220                | 1            | 2.6                  | 22      | 1                 |                 |                         | 4         | 4         | 5        | 2        | Mature      | Dead                               | Dead  | <10 yrs                      | U             |
| T12      | London Plane    | Platanus x hispanica |     | 27         | 960                | 1            | 11.5                 | 417     | 6                 | 6               | NE                      | 8         | 7         | 10       | 9.5      | Mature      | Good                               | Ivy at base. Anthracnose. Minor dead wood.  | >40 yrs                      | A1,2          |
| T13      | Atlas Cedar     | Cedrus atlantica     |     | 27         | 920                | 1            | 11.0                 | 383     | 6                 | 6               | S                       | 10        | 7         | 3        | 12       | Mature      | Good                               | Asymmetrical crown suppressed by London planes. Minor dead wood. Old pruning wounds.  | >40 yrs                      | B1,2          |
| G14      | Holm Oak        | Quercus ilex         |     | 5          | 100,50,70,90       | 4            | 1.9                  | 12      | 0.5               | 0               | MS                      | 2.5       | 2.5       | 2.5      | 2.5      | Young       | Good                               | Group of four trees   | 20 to 40 yrs                 | C1            |
| T15      | London Plane    | Platanus x hispanica |     | 29         | 1050               | 1            | 12.6                 | 499     | 5                 | 5               | W 10                    | 8         | 9         | 10       | 12       | Mature      | Good                               | Inonotus hispidus on a branch pruning wound. Originally pollarded 15m. Old pruning wounds.  | 20 to 40 yrs                 | B1,2          |
| T16      | Wild Cherry     | Prunus avium         |     | 9          | 200                | 1            | 2.4                  | 18      | 1.5               | 3.5             | W                       | 4         | 1         | 3        | 3        | Semi-mature | Fair                               | Ivy at base. Minor dead wood. Suppressed.   | 10 to 20 yrs                 | C1            |
| T17      | Sycamore        | Acer pseudoplatanus  |     | 10         | 260                | 1            | 3.1                  | 31      | 3                 | N               |                         | 3         | 6         | 6        | 5        | Young       | Good                               | Upright branch from 1m rubbing on another branch.   | 20 to 40 yrs                 | C1            |
| G18      | Mixed Group     | Mixed species        |     | 5          | 80                 | 1            | 1.0                  | 3       | 0                 | 0               | MS                      | 2         | 2         | 2        | 2        | Young       | Good                               | Scrubby border with hawthorn, Sweetbay, Holly, plum, sycamore, cherry.  | 20 to 40 yrs                 | C1            |
| T19      | Sweet Chestnut  | Castanea sativa      |     | 6          | 130                | 1            | 1.6                  | 8       | 1.5               | N               | 2                       | 3.5       | 4         | 2        | 4        | Young       | Good                               |   | >40 yrs                      | C1            |
| T20      | Deodar Cedar    | Cedrus deodara       |     | 18         | 750                | 1            | 9.0                  | 254     | 5                 | 10              | W                       | 3         | 6         | 4        | 9        | Mature      | Good                               | Asymmetrical suppressed by London plane. Old pruning wounds.  | 20 to 40 yrs                 | B1,2          |
| T21      | London Plane    | Platanus x hispanica |     | 32         | 1300               | 1            | 15.0                 | 707     | 6                 | 8               | S                       | 10        | 11        | 12       | 12       | Mature      | Good                               | Branch stub 8m south. Old pruning wounds some with cavities. Stem bifurcates at 4m tension fork.  | >40 yrs                      | A1,2          |
| T23      | Common Hawthorn | Crataegus monogyna   |     | 5          | 80                 | 8            | 2.7                  | 23      | 2                 | 0.8             | CB                      | 2.5       | 2.5       | 2.5      | 2.5      | Semi-mature | Good                               | Multistemmed from 0.8m.   | 10 to 20 yrs                 | C1            |
| T24      | Common Holly    | Ilex aquifolium      |     | 3.3        | 40,40,50,60        | 4            | 1.2                  | 4       | 0.5               | 1               | CB                      | 1         | 2         | 2        | 2        | Young       | Good                               | Multistemmed from 1m.   | 10 to 20 yrs                 | C1            |

## 12. Appendix 3 Proposed Plan with Tree Constraints

# Rootcause Limited

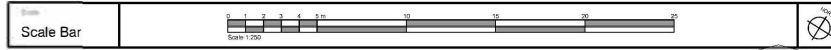
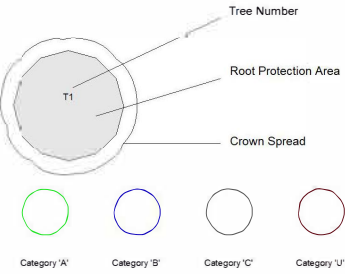
60 Coombe Gardens, KT3 4AA  
info@rootcause.co.uk

## Landmark Arts Centre Upgraded Pathway

SCALE : 1 : 300 @ A3 DATE : 30/06/2023

MAP FILENAME : 2023/Landmark Arts Centre

This plan is based on a raster image using Plan LAC SK004A 31.03.2023





## 13. Appendix 3 Arboricultural (Tree Protection) Method Statement

### A3.1 Roles and Responsibilities

I have described the Roles and Responsibilities for Tree Protection at this site below. Tree protection details are reviewed as part of the site supervision procedure to ensure that tree protection is practical and that construction methods do not compromise tree protection.

#### **Arboriculturist**

Peter Holloway of Rootcause Ltd

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To provide a watching brief over the works on site when there is a risk of damage to any tree or woody plant. To provide an advisory role to the contractor of how works are to be carried out, and the preparation of the agreed methodology with the Contractor. To complete a site visit report for the client after each visit which can be forwarded to the relevant Tree Officer.

#### **Contractor**

Not appointed yet

Site Manager TBC.

Contact details TBC.

To manage the works on site as per the agreed methodology. The contractor is responsible for all operatives on site and how the works are to be executed. The contractor must work closely with the project arboriculturist and endeavour to comply with all aspects of the methodology when working on or near trees.

The construction contractor will incorporate a section in their site induction about site constraints and procedures for tree protection in relation to site access and working near trees.

### A3.2 Tree Work

A3.2.1 There is no tree pruning work anticipated and no tree removals are necessary for the pathway work.

### A3.3 Provision of information for all site operatives

A3.3.1 A copy of the arboricultural method statement will be provided to site managers and key staff.

A3.3.2 Managers and Key staff will attend a pre-start induction meeting on Tree protection during this project with the Arboriculturist.

**A3.4 Erection of protective fencing and ground protection**

The work to construct a new path is landscaping, and physical protection is not feasible so tree protection will be provided by work planning (A.3.5).

A3.4.1 If ground protection is required it will be based on the following principles in BS5827. Ground protection should be designed by an engineer in such a way to prevent compaction in relation to the anticipated loads from vehicles, plant, or pedestrians. Ground protection will be required if any wheeled or tracked machinery is used in the path construction.

*BS5837 recommends the following but suitable alternatives are acceptable: for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane; for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane. for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*

A3.4.2 The existing pathway is sufficient ground protection for workers feet. When surface layers are removed for constructing the new path this should be done in sections by working backwards along the proposed path so that exposed soil is protected from compaction. If staff are repeatedly walking across exposed soil surfaces, then ground protection as described in 3.4.1 must be used.

**A3.5 Construction**

A3.5.1 Vehicles, material storage and any site accommodation must be located on the existing roadway or car parking areas. These must not be located upon the soft landscaped areas.

A.3.5.2 I have not considered that any tall machinery or plant will be used on the site. If it is necessary to use tall machinery or other mobile equipment. If these are used, then this method statement must be reviewed.

- A3.5.2 No materials should be stored within the Root Protection Area (RPA) of retained trees unless ground protection is used (Existing hard surfaces will act as ground protection). Materials can also create a source of combustible material where an accidental fire could destroy the tree. Where possible combustible materials should be kept at least 10m from the crown of retained trees in case of accident. If not practical, suitable fire-fighting equipment must be kept on the worksite while work is in progress.
- A3.5.3 Many building materials are harmful to trees. Cement, cement washings, wastewater, diesel fuel and even clean water in excess can kill or seriously damage trees. Any runoff or spillages must be controlled so that they do not contaminate the RPAs of retained trees or landscape areas.
- A3.5.4 The excavations and changes in ground level required, within the RPAs of retained trees, must be carried out considering that roots may be present. The excavations for the pathway are shallow and will be carried out manually using handheld tools like spades, shovels etc.
- A3.5.4.1 Machine excavations  
No excavations using mechanical excavators are permitted within the root protection areas of the trees which encompasses all the soft landscaped part of the site.
- A3.5.4.2 Hand excavations  
Hand excavations will be conducted in accordance with section A3.7.2 of this method statement. Where workers feet can compact exposed soil and grass, ground protection should be installed as described A3.4.2.
- A3.5.5 There is no electrical services for lighting, nor any drainage proposed that would require any other excavations.
- A3.5.6 There is no new signage or posts that require excavations.

### A3.6 Site Supervision

A3.6.1 The Local Tree Officer or a Planning Enforcement Officer could visit the site at any time to check that the planning conditions, including this method statement are being followed.

A3.6.2 Independent arboricultural supervision is sometimes a condition of planning permission to ensure that the trees are not damaged or at risk during the works. An example of the site supervision record is attached in Appendix 4 which would be completed by the arboriculturist after each supervision visit and provided to The Project Manager and usually copied to the local tree officer if required by the planning condition.

#### A3.6.3 Estimated Site Supervision Schedule if required.

| Arboricultural Site Supervision – estimated schedule |   |                                |   |
|--|---|--------------------------------|---|
| Stage  |   | Estimated date                 | Reason  |
| <b>Prestart</b>                                      | Review of Tree Protection with key site staff | 4 <sup>th</sup> September 2023 | To make sure that protection requirements are understood and practical. |
| <b>Path Construction</b>                             | Path construction excavations & new surfacing | 4-30 September 2023            | Working methodology and supervision of excavations.                     |

### A3.7 Soft Landscaping

A3.7.1 There is no new soft landscaping. The existing soft landscape is retained.

### **A3.7.2 Method for Hand Excavations within Root Protection Areas.**

The purpose of the excavation is to establish the presence/absence of significant roots within the RPA's of retained trees when any excavations are necessary within Root Protection Areas so these roots can be retained without damage.

#### **Method:**

- a) The excavation is within the existing surface layers of the soil to a maximum depth of 150mm.
- b) The existing bark path and soft landscape will be excavated using hand tools like forks, spades, and shovels. Power tools must not be used.
- c) During excavations, any roots less than 25mm diameter can be cut cleanly to the sides of the excavation with a pair of secateurs or a handsaw.
- d) Tree roots 25mm in diameter or greater will be left in situ and protected from damage during the work (see f.).
- e) Tree roots will be growing within the soil below the excavation. Therefore, it is important to avoid compaction and contamination of the soil within, below or in the sides of any excavations.
- f) If excavations are close to retained roots the roots must be protected with cut sections of plastic pipe, covered with sharp sand and boards, or similar materials to prevent physical damage. Roots to be retained which are exposed for longer than an hour will be covered with sharp sand or hessian to prevent damage from high (above 25 °C) or low temperatures (under 5 °C) and sun scorch (depending on the ambient weather conditions). At high temperatures or during very dry weather the roots, and their coverings must be kept moist but not saturated with water.

## 14. Appendix 4: Site Supervision Record



## Tree Protection Monitoring Record

|  |  |                       |
|--|--|-----------------------|
| <b>Reason for visit</b>                                | <b>Stage/Planned/Unplanned/Emergency</b> | <b>Planned</b>        |
| <b>Site:</b>   |  | <b>Site Manager:</b>  |
| <b>Site visit by:</b>                                  |  | <b>Client:</b>        |
| <b>Date of visit:</b>                                  |  | <b>Time of visit:</b> |
| <b>Tree Protection Element</b>                         | <b>Comments/Action</b>                   | <b>Rating*</b>        |
| Site Access routes                                     |  |                       |
| Location of Site<br>Accommodation/ Car<br>Parking etc. |  |                       |
| Tree Protective Fencing                                |  |                       |
| Ground Protection                                      |  |                       |
| Planned Construction<br>Exclusion Zone                 |  |                       |
| Site Storage   |  |                       |
| Soil contamination                                     |  |                       |
| Excavations/ level<br>changes                          |  |                       |
| Tree Condition   |  |                       |
| Plant used on site                                     |  |                       |
| Landscaping  |  |                       |
| General Observations                                   |  |                       |
| Document Review<br>Required                            |  |                       |
| <b>Signed:</b>   |  | Overall Site Rating   |

\*Rating: Poor is inadequate, Fair is adequate but not as specified, Good is as specified or better