



**TREE SURVEY,  
ARBORICULTURAL IMPACT ASSESSMENT &  
TREE PROTECTION PLAN Rev:0,**

with regard to proposed development at:

**88A Jubilee Road,  
Waterlooville,  
PO7 7RE,**

for:

**Outcomes First.**

Job no. MJC-18-0160

3<sup>rd</sup> July 2018.

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## 1.0 Instruction

- 1.1 MJC Tree Services Limited have been instructed, via email, by Mr T. Brown, as follows:

***“Re: Development Site Tree Survey & Reports in Accordance With BS5837:2012 at Hillcrest Jubilee School, 88A Jubilee Road, Waterloooville, PO7 7RE.***

*To visit the above site and carry out the following works:*

- *To carry out a ground level and visual survey of two trees on the site that are identified for survey and assessment under the criterion given in British Standard 5837:2012 ‘Trees in Relation to design, demolition and construction – Recommendations’ (BS5837:2012):*
- *To draw up a Tree Constraints Plan and tree survey schedule in accordance with BS5837:2012, using as a base plan the supplied an existing site plan:*
- *To plot the positions of the trees by making a measured survey off fixed points on site:*
- *To discuss as necessary a proposed development of the site with the design team in the light of the identified tree constraints with a view to arriving at a proposed layout that is acceptable in arboricultural planning terms:*
- *To draw up a combined Arboricultural Impact Assessment & Tree Protection Plan for a proposed development at the above site, using the tree constraints information for reference and the supplied proposed site layout plan:*
- *To combine these elements into a single report and to supply the completed report in an electronic format as a .PDF file, with a copy of the plans used in the report as .dwg (AutoCAD) files.”*

## 2.0 Qualifications and Caveats

- 2.1 The author of this report is a:

- Fellow of the Institute of Chartered Foresters:
- Registered Consultant of the Arboricultural Association:
- Chartered Arboriculturist:
- Chartered Surveyor:
- Registered Consultant of the Institute of Chartered Foresters.

He also holds the Royal Forestry Society’s Professional Diploma in Arboriculture and has over 20 years experience in UK arboriculture. A full CV and CPD record is available as a .pdf file upon request to the above office.

- 2.2 The tree survey was preliminary in nature and was carried out from ground level using visual techniques only. No trees were climbed or internally investigated. Should a more detailed inspection be required then this will be highlighted in the recommendations.

- 2.3 Trees are living organisms whose health and condition can change rapidly. The health, condition and safety of trees should be checked on a regular basis, preferably at least once a year. The conclusions and recommendations in this report are based only on the observations made by the author during the tree survey.
- 2.4 This report is for the sole use of the above named client and refers only to those trees identified within. It may not be reproduced in whole or in part, or sold, lent, hired out or divulged to any third party not directly involved in the subject matter, without our consent. Use by any other person(s) in attempting to apply its contents for any purpose other than stated in this report renders the report invalid for that purpose.
- 2.5 This report is supplied subject to our terms and conditions in force at the time of our instruction by the client.

### **3.0 Introduction**

- 3.1 This report is presented largely in the form of annotated plans with a tree survey schedule that are intended to be read in the sequence they are presented, cross referencing as instructed in the annotations.
- 3.1.1 The reason for this graphical form of presentation is to make its interpretation easier by the greater design team and the demolition/construction team. These teams work in a graphical environment, and if the arboricultural reports involved in the design and demolition/construction processes are to be easily interpreted by these teams they must also be presented in a graphical environment. To do otherwise would create an unhelpful disconnect between the arboricultural information and the design and demolition/construction teams. It also allows the report and the proposed development to be assessed on site by officers of the Local Planning Authority (LPA) whilst referencing a small number of single page documents, thereby avoiding the need to keep flicking backwards and forwards through a written report whilst holding open a large site plan.
- 3.1.2 The layout and order of the plans and schedule are intended to illustrate a logical progression from the existing site (Tree Survey Plan and Tree Survey Schedule), through the proposed development, its impact on the trees in terms of tree losses, the establishment of conflicts with the retained trees and how these conflicts will be resolved in principle (Arboricultural Impact Assessment), to the specific tree protection measures required (Tree Protection Plan).

- 3.2 The tree works recommended on the schedule are based on the current context of the site, they are not works required as a result of any proposed development. This is to comply with section 4.4.1.1 of BS5837:2012 that states "...the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for the development". The tree works required as a result of the proposed development are detailed in the Arboricultural Impact Assessment plan.

## **4.0 Summary**

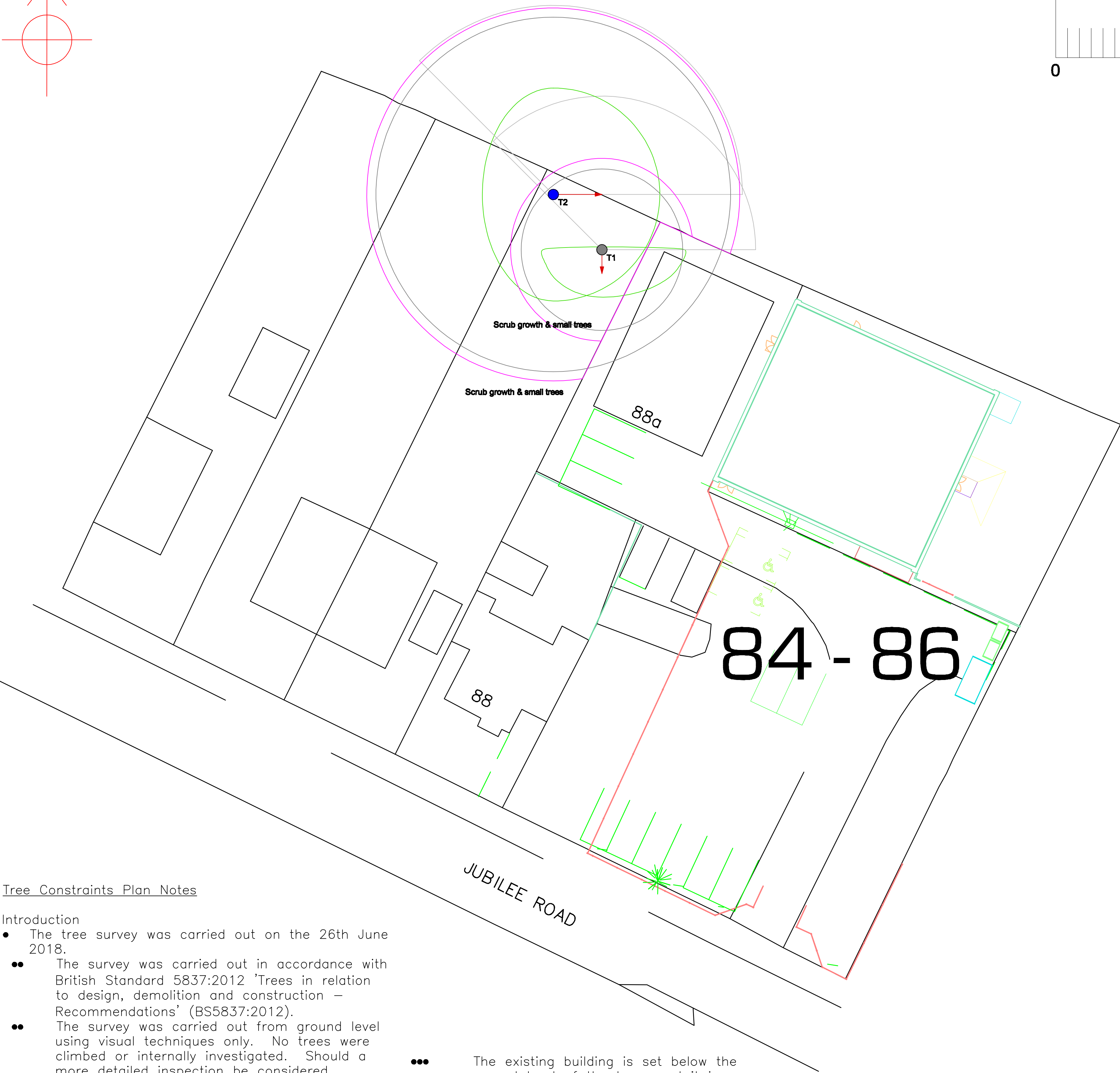
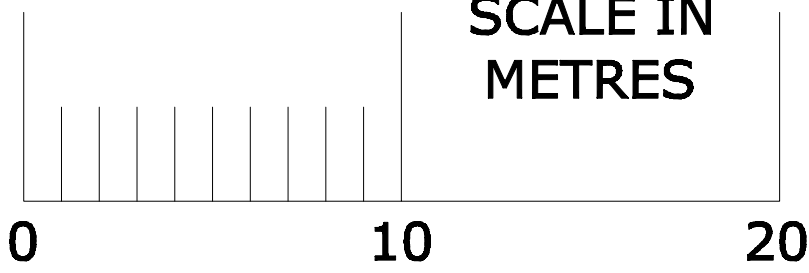
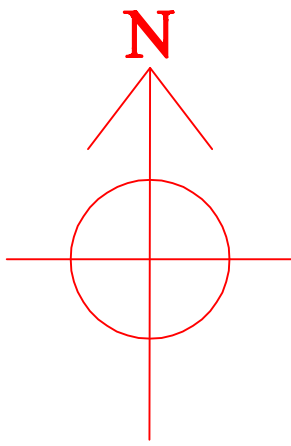
- 4.1 It is proposed to convert the existing building on site into new classrooms whilst retaining the external walls and foundations untouched. No proposals are currently being made in respect of the garden area to the west of the building that contains the trees. The proposed development is illustrated in the Arboricultural Impact Assessment plan
- 4.2 There are no substantive arboricultural reasons for the LPA to object to the proposed development, providing the tree protection measures suggested above and detailed in the Tree Protection Plan are undertaken. In order to ensure that these measures take place, if the LPA grant permission for the proposed development, they should make that permission conditional on the following:
- Adherence to the Tree Protection Plan.
- 4.2.1 The use of this condition is reasonable, necessary and commonplace. Therefore the required use of this condition should not result in a substantive reason for the LPA to object to the proposed development.
- 4.3 An arboricultural method statement is not required for the proposed development as there is no complex interaction with the retained trees, and adherence to the following Tree Protection Plan will provide adequate protection to the retained trees.

**Mark Carter**

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## **5.0 Tree Survey Plan**



Tree Constraints Plan Notes

Introduction

- The tree survey was carried out on the 26th June 2018.
- The survey was carried out in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' (BS5837:2012).
- The survey was carried out from ground level using visual techniques only. No trees were climbed or internally investigated. Should a more detailed inspection be considered necessary then this will be highlighted in the recommendations section of the tree survey schedule.
- The tree works recommended on the schedule are based on the current context of the site, they are not works required as a result of any proposed development. This is to comply with section 4.4.1.1 of BS5837:2012 that states "...the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for the development". Any tree works required as a result of the proposed development will be listed separately in the Arboricultural Impact Assessment plan (AIA).

The Trees

- The details of the individual tree survey are provided on the following tree survey schedule.
- The tree constraints have been calculated and are illustrated in accordance with BS5837:2012.
- The position of the trees was established by the author by making a measured survey whilst on site.
- Root Protection Areas (RPA)
  - The indicative and circular RPA of both trees, as derived by using the calculation provided at section 4.6.1 of BS5837:2012 and illustrated by a grey circle in this plan, extend under the footprint of nearby and existing structures. It has been considered reasonable to assume that these structures will have restricted past tree root growth to varying degrees. Section 4.6.2 of BS5837:2012 states "Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution." In order to comply with this requirement the RPA of some trees have been modified to form an irregular polygon, illustrated with a magenta margin in this plan, as follows.

- The existing building is set below the ground level of the trees and it is considered very likely that this area was excavated in order to construct this building during the life of the trees. It has been considered reasonable to assume that the external walls and their foundations will have created an effective barrier to root growth. In order to compensate for this, the area of indicative RPA that extends under the building has been excluded, and the equivalent area evenly added to the remaining RPA that was considered unrestricted.
- The concrete path around the existing building is set below the ground level of the trees and the resulting change in levels between the path surface and the level of the trees is demarked by a low retaining wall. It is considered very likely that this area was excavated in order to construct this path during the life of the trees. It has been considered reasonable to assume that this excavation will have severed the majority of tree roots under the path, and the retaining wall and its foundation will have restricted root growth under the path after it was constructed. It is possible that some roots have re-grown under the wall and path since its construction, but in order to fully take account of this situation, the area of indicative RPA that extends under the building has been excluded, and the equivalent area evenly added to the remaining RPA that was considered unrestricted. Despite this adjustment, the indicative RPA under the path should still be protected from development in case roots are present.

- The area of potentially significant shade illustrated in this plan has been derived following the guidance provided at section 5.2.2 Note 1 of BS5837:2012. This area does not indicate an area where development may not take place, it merely indicates an area where tree shade may have an adverse impact on a proposed development if that part of the development has a need for high levels of direct and natural light e.g. patios and living room windows.

- A telephone check was made with Havant Borough Council on the 3rd July 2018 and the author was informed that no Tree Preservation Orders were in force on the site, and the site was not within a Conservation Area.

The Site

- The site comprised a rectangular garden to the side of the existing building with a paved area at the northern end. The garden contained several small fruit trees and ornamental shrubs and small trees, none of which were considered of significant quality or amenity value to form a material constraint on any proposed development of the site.
- Surrounding land use was as follows; to the north was a recreation ground; to the east was an industrial building with Jubilee School beyond; to the south and west was residential development.
- An online check with the British Geological Survey's Geology of Britain Viewer was made on the 3rd July 2018.
  - This check indicated that the soils on site were likely to be made up of the following:
    - Bedrock Geology: London Clay Formation – Clay, silt and sand.
    - Superficial deposits: None recorded.
  - These types of soils are likely to be subject to significant and persistent volumetric changes in response to moisture content. Therefore there could be a risk of tree root related subsidence on the this site, and this risk must be allowed for and accommodated in any proposed development of the site.
  - The local topsoil will be prone to rapid compaction to the point that tree root growth is impeded. In areas where the existing soil structure needs to be protected i.e. in the RPA of retained trees or proposed new tree and shrub planting areas, the soil must be protected from demolition and construction activities and traffic by either tree protection barriers or adequate temporary ground protection.

MJC TREE SERVICES LIMITED

Site:  
88A Jubilee Road,  
Waterlooville, PO7 7RE.

TREE CONSTRAINTS PLAN

Plan no. MJC-18-0160-01  
rev:0

This is based on the Axis  
Architecture plan no.  
17-073-01 revD, amended  
by MJC on 03/07/2018.

This plan was produced in  
colour. A monochrome  
version must not be relied  
upon.

KEY

- Category U tree or group and ref' no'
- Category A tree or group and ref' no'
- Category B tree or group and ref' no'
- Category C tree or group and ref' no'
- Crown spread of surveyed trees
- Indicative root protection area (RPA)
- Modified root protection area (RPA)
- Direction of lowest significant branch, length of arrow indicates height i.e. the longer the arrow the higher the branch
- Areas of potentially significant shade constraint, based on surveyed heights

SCALE  
1:200 @ A1

## **6.0 Tree Survey Schedule**

## TREE SURVEY SCHEDULE

### Key:

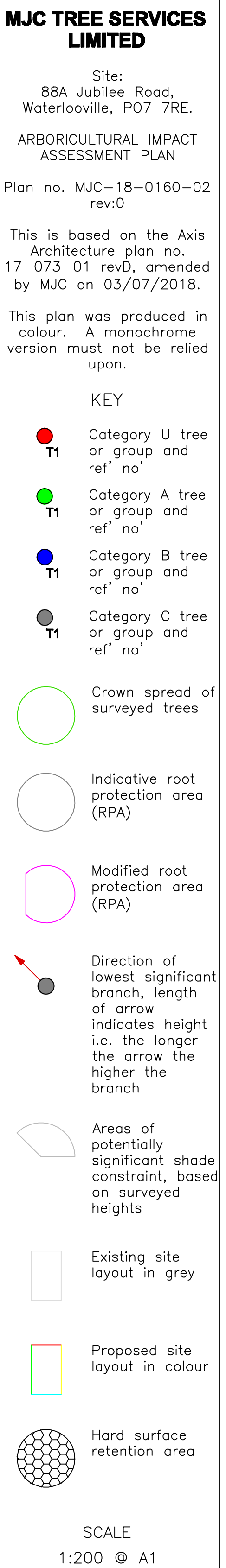
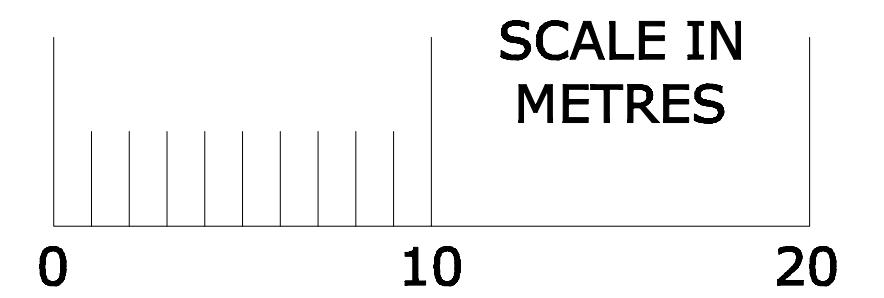
- **Ht** = Height estimated in metres.
- **Stem Diam** = Stem or trunk diameter, measured and calculated in accordance with Annex C and section 4.6 of BS5837:2012.
  - **oi** = Measurement taken over ivy, which is likely to produce an exaggerated figure.
- **Crown Spread** = Crown spread to the cardinal points in metres, measured by pacing.
- **1<sup>st</sup> significant branch ht' & direction** = First significant branch height in metres and direction of growth e.g. N = North.
- **Crown base ht'** = Minimum distance between surrounding ground level at the trunk base and the base of the main crown, estimated by eye in metres.
- **Life stage** is chosen from the four following categories;
  - Y = Young;
  - SM = Semi mature;
  - EM = Early mature;
  - M = Mature;
  - OM = Over Mature.
- **General observations** = Particularly of structural and/or physiological condition, significant features and defects, and the effect these may have on the health, stability and safe retention of the tree.
- **Preliminary management recommendations** = any significant works identified as necessary in the current context, and not taking into account any development of the site..
- **Rem' cont'** = an estimate, in years, of the remaining period over which the tree can be retained at an acceptable level of risk whilst still providing significant amenity benefits with no significant management intervention.
- **Reten' Cat'** = Desirability for retention category. Refers to BS5837:2012 which categorises trees on development sites into one of four categories – A, B, C or U, A being very good and U meaning that felling is appropriate regardless of any proposals. The suffix 1, 2 or 3 refers to a subcategory relating to tree, landscape or cultural/ecological values respectively.
- **AGL** = Above ground level
- **#** = Estimated dimension.
- **TYP** = Typical dimension where several are present.
- **n/a** = Not applicable.
- **n/k** = Not known.

| Ref no | Species    | Ht (m) | Stem diam (mm) | No. of stems | Crown spread (m) |    |   |   | 1 <sup>st</sup> sig' branch ht' (m) | Direction of 1 <sup>st</sup> sig branch | Crown base ht' (m) | Life stage | General observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Preliminary management recommendations                                                                                                                                                                                                                                                                                                                                                                   | Rem' cont' (years) | Reten' Cat |
|--------|------------|--------|----------------|--------------|------------------|----|---|---|-------------------------------------|-----------------------------------------|--------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|
|        |            |        |                |              | N                | E  | S | W |                                     |                                         |                    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                          |                    |            |
| T1     | Common Oak | 13     | 570<br>oi      | 1            | 0                | 7# | 4 | 5 | 3.2                                 | S                                       | 3                  | EM         | <ul style="list-style-type: none"> <li>The tree was heavily covered in Ivy which restricted the extent of visual survey possible.</li> <li>The crown was heavily asymmetric to the south as a result of suppression by the nearby and larger onsite Common Oak and the removal of this tree would benefit its larger and better formed neighbour in respect of space into which to grow.</li> <li>Peripheral crown dieback was present indicating a degree of reduced vitality in the past. However reasonably strong inner crown growth was present suggesting that the tree was recovering from whatever had caused the initial reduction in vitality.</li> </ul> (Contd) | <ul style="list-style-type: none"> <li>Crown lift in order to create a 2 metre clearance over the roof of the existing building and against the external walls of the existing building.</li> <li>Consider felling as a thinning operation in order to benefit the future growth of the nearby larger and better formed Oak tree.</li> <li>RPA: radius = 6.8 metre; area = 147 square metres.</li> </ul> | 10-20              | C1         |

| Ref no | Species            | Ht (m) | Stem diam (mm) | No. of stems | Crown spread (m) |   |   |   | 1 <sup>st</sup> sig' branch ht' (m) | Direction of 1 <sup>st</sup> sig branch | Crown base ht' (m) | Life stage | General observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Preliminary management recommendations | Rem' cont' (years) | Reten' Cat |
|--------|--------------------|--------|----------------|--------------|------------------|---|---|---|-------------------------------------|-----------------------------------------|--------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------|------------|
|        |                    |        |                |              | N                | E | S | W |                                     |                                         |                    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                        |                    |            |
| T1     | Common Oak (Contd) |        |                |              |                  |   |   |   |                                     |                                         |                    |            | (Contd) <ul style="list-style-type: none"> <li>The tree was visible from the public highway but was dominated by its larger neighbour and this reduced its amenity value.</li> <li>The surrounding ground surface was partly shrubs and grass and partly concrete paving slabs. It was possible that the laying of these paving slabs caused root damage in the past resulting in the original reduction in crown vitality.</li> <li>The crown was close to the nearby building.</li> <li>It was clear that the nearby building and its surrounding concrete path and associated retaining walls had all been constructed within the root protection of this tree at some point during the life of the tree. This may also have contributed to root damage and reduction in vitality.</li> </ul> |                                        |                    |            |

| Ref no | Species    | Ht (m) | Stem diam (mm) | No. of stems | Crown spread (m) |    |   |    | 1 <sup>st</sup> sig' branch ht' (m) | Direction of 1 <sup>st</sup> sig branch | Crown base ht' (m) | Life stage | General observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Preliminary management recommendations                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Rem' cont' (years) | Reten' Cat |
|--------|------------|--------|----------------|--------------|------------------|----|---|----|-------------------------------------|-----------------------------------------|--------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|
|        |            |        |                |              | N                | E  | S | W  |                                     |                                         |                    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |            |
| T2     | Common Oak | 16     | 1440<br>oi     | 1            | 9#               | 9# | 9 | 6# | 2                                   | E                                       | 2                  | EM         | <ul style="list-style-type: none"> <li>The tree was heavily covered in Ivy which significantly restricted the extent of visual survey possible. Therefore some assessments and measurements used are estimates and the grading of this tree is provisional on further and future survey.</li> <li>The tree was a prominent site feature visible from the public highway as an individual. However it was set some distance back from the public highway and this had reduced its amenity value.</li> <li>Peripheral crown dieback was present with stronger inner crown growth, very similar to that observed in tree no. T1.</li> <li>The surrounding ground was covered partly by shrubs and grass and partly by paving slabs and it was quite possible that the construction of these paving slabs had caused root damage similar to that considered likely for that for tree no. T1.</li> <li>The tree seemed to be multi stemmed with a potentially weak fork at approximately 2 metres above ground level. However the Ivy had prevented any close examination of this structural feature.</li> </ul> | <ul style="list-style-type: none"> <li>Sever at ground level Ivy stems growing up this tree.</li> <li>In 12 months time remove the covering of what will then be dead Ivy and re-survey the tree.</li> <li>If the surrounding paving slabs are no longer required, lift these and consider mulching around the tree out to its drip line at least on site with a 100 mm thick layer of well composted wood chip mulch.</li> <li>RPA: radius = 15 metre; area = 707 square metres.</li> </ul> | 40+                | B2         |

## **7.0 Arboricultural Impact Assessment Plan**



## Introduction

- It is proposed to convert the existing building on site into new classrooms whilst retaining the external walls and foundations untouched. No proposals are currently being made in respect of the garden area to the west of the building that contains the trees.
- The proposed development layout is illustrated in colour in this plan.
- In order to provide context with the existing site, the existing site layout plan is illustrated in pale grey in this plan.
- The trees and their constraints are illustrated in accordance with the key.

- The proposed development requires the crown lifting of tree no. T1 to create a 2 metre clearspace over the roof of the existing building and against the external walls of the existing building.
- In reality, these works are reasonably required in the current context of the site and not as a direct result of the proposed development, and they should be regarded as the sound management of the existing site. Therefore, the required crown lifting of this tree should not form a substantive reason for the Local Planning Authority (LPA) to object to the proposed development.
- Although no works are proposed for the garden area to the west of the building that contains the trees, it would be beneficial to the trees if the existing paving slabs around these trees were carefully lifted and removed by hand.

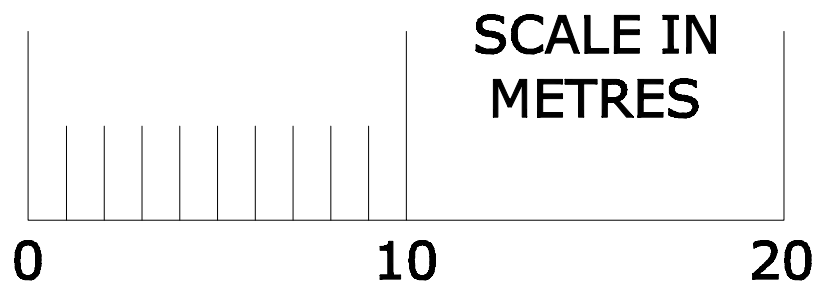
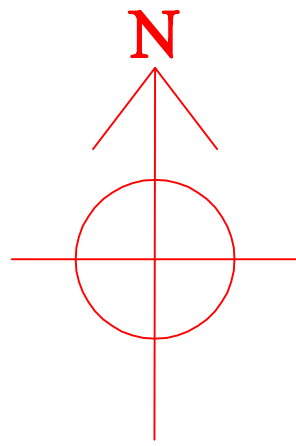
- The proposed development requires no excavation within either the indicative or modified RPA of the trees. Therefore the proposed development does not have any direct impact on the RPA of the retained trees.
- Access around the existing building to carry out the conversion works will need to be restricted to the existing concrete path where this passes over the indicative RPA of the trees, and the existing concrete surface will need to be retained intact in order to protect any roots that may have re-grown under the path since its construction. This area is illustrated in this plan as the 'Hard surface retention area' with black hexagonal hatching.
- All underground services will be carefully routed so as to avoid crossing the RPA of all the retained trees.
- The remaining RPA can be adequately protected by the use of appropriately located and constructed tree protection barriers (see following Tree Protection Plan).

- The inappropriate retention of trees within a new development can lead to future conflicts between the residents of the new development and the trees, thereby creating future pressures to unreasonably prune or fell trees that had been retained in the design and development process. Section 5.3.4 d) of BS5837:2012 requires this issue to be considered and avoided at the design stage of a proposed development. In order to comply with this requirement the following considerations have been made.
- Crown proximity.
  - The proposed development layout does encroach under the crown of tree no. T1. However, this is exactly the same situation as the existing site, and this has clearly been successfully managed in the past through periodic crown lifting works. If the proposed development does not go ahead, exactly the same encroachment will continue to be present with the existing building. Therefore the proposed development is not creating a worse crown proximity situation that is the case with the existing site and this issue should not form a substantive reason for the LPA to object to the proposed development.
  - The retained trees will drop related debris onto the proposed development and this could result in blocked gutters and down pipes. In order to avoid this issue creating legitimate pressures to prune or fell the retained trees in the future, the following measures will need to be taken.
    - Install leaf and litter guards, or similar protective measures to the gutters and down pipes. Alternatively overshoot roof edges with drip edges and under slung gutters can be used to avoid blockages.
    - Locate all downpipes at the maximum distance possible from the crowns of retained trees.
    - Ensure all downpipes are fitted with open downspouts that discharge onto open grill drains in order to permit easy clearing of both the downpipe and the drain.

- Tree shade.
- At the layout design stage, the indicative shade segment suggested at section 5.2.2 Note 1 of BS5837:2012 was used to assess the impact of shade on the proposed development. This assessment indicated that no significant tree shade will be cast over the proposed development, and tree shade will not create any legitimate pressures to unreasonably prune or fell the trees.

- There are no substantive arboricultural reasons for the LPA to object to the proposed development, providing the tree protection measures suggested above and detailed in the Tree Protection Plan are undertaken. In order to ensure that these measures take place, if the LPA grant permission for the proposed development, they should make that permission conditional on the following:
  - Adherence to the Tree Protection Plan (see following Tree Protection Plan).
- The use of this condition is reasonable, necessary and commonplace. Therefore the required use of this condition should not result in a substantive reason for the LPA to object to the proposed development.
- An arboricultural method statement is not required for the proposed development as there are no complex interactions between the development and the retained trees, and adherence to the following Tree Protection Plan will provide adequate protection to the retained trees.

## **8.0 Tree Protection Plan**



## Tree Protection Plan

### Introduction

- The proposed construction works will be carried out in strict accordance with the following tree protection measures.

### Tree Works

- Before any construction works commence, and before any construction vehicles, equipment and materials are delivered to site, the following tree works will be carried out.
  - Crown lift tree no. T1 to create a 2 metre clearance over the roof of the existing building and against the external walls of the existing building
  - All tree works will be carried out in accordance with the following stipulations.
    - All tree works will be carried out in accordance with BS3998:2010 wherever that Standard is applicable.
    - All works will be carried out in accordance with all applicable health & safety and environmental protection legislation.
    - All tree works will be carried out in such a way that no collateral harm is caused to trees to be retained.
    - All arisings will be disposed of in an approved manner and off site unless otherwise instructed by the client or site manager.

### Tree Protection Barriers

- After the tree works are completed, but before any construction works commence, and before any construction vehicles, equipment and materials are delivered to site, the tree protection barriers will be erected at the positions illustrated in this plan.
  - These barriers will either comply with the illustration in this plan, or will comply with the following specification.
    - The barrier will comprise a minimum 2m tall welded mesh fence panels on rubber or concrete feet secured with ground pins.
    - The fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence.
    - The distance between the fence couplers should be at least 1m and should be uniform throughout the fence.
    - The panels should be supported on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins.
    - Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray.
  - The barrier will have an A3 size informative/warning notice attached on the construction site side, at approximately 1.6 metres above ground level, and at no more than 6 metre intervals. An example of a suitable notice follows this plan.
  - No construction access whatsoever will be permitted in the construction exclusion zones formed by the tree protection barriers.
  - The tree protection barriers will be retained in place and intact until all demolition and construction activities have been completed and all demolition and construction materials, equipment and vehicles have been removed from the site.

### Root Protection Area

- The existing concrete surface in the 'Hard surface retention area' illustrated with black hexagonal hatching in this plan, will be retained intact throughout the construction works in order to protect any underlying roots that may have re-grown since the path was constructed.

### General Measures

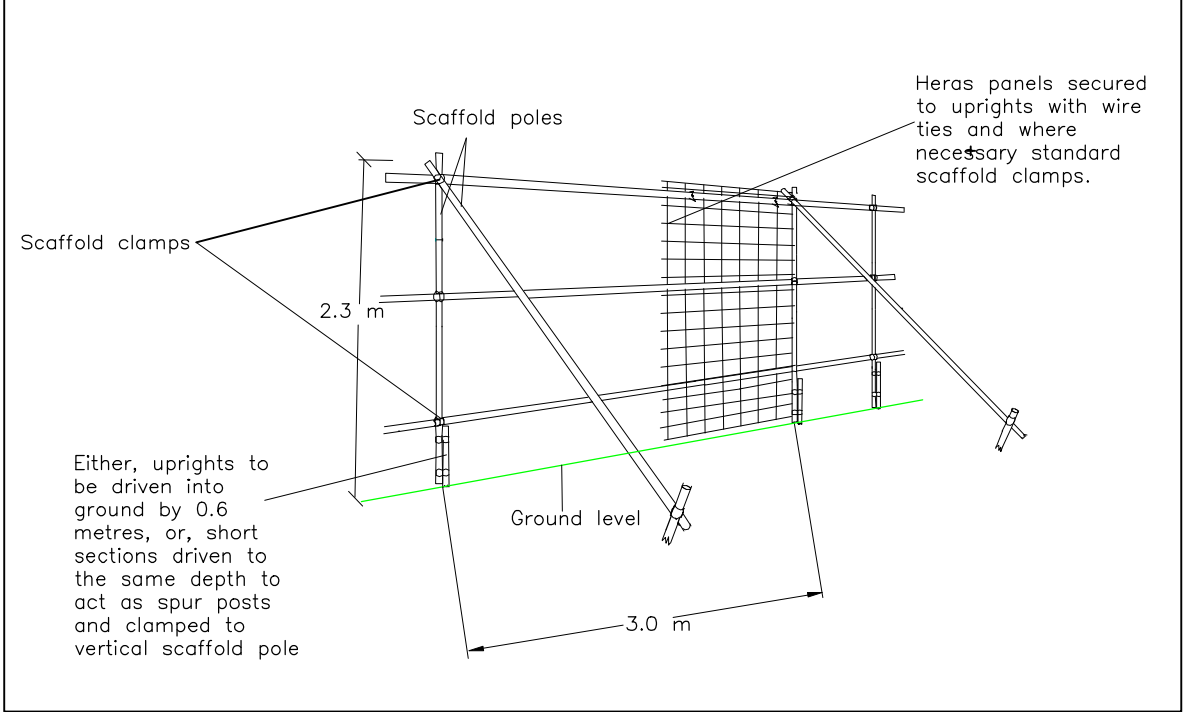
- The following measures will apply throughout the construction works.
  - When any large and/or tall and/or jibbed vehicles/equipment are operating or manoeuvring close to the crowns of trees to be retained, a specific banksperson will be appointed to supervise the movement and ensure that no damage is caused to the crowns of these trees through impact.
  - All activities usually carried out in the compound area, e.g. the storage of materials and equipment (but excluding the storage of oils, fuel or chemicals), the mixing of concrete and mortar, the sitting of rest cabins and the site office etc., will take place outside and down slope from the construction exclusion zones created by the tree protection barriers, and the 'Hard surface retention area.
  - Any facilities for the storage of oils, fuels or chemicals shall be sited at least 5 metres outside and down slope from the tree protection barriers, on impervious bases and surrounded by impervious bund walls. The volume of the bund compound shall be at least equivalent to the capacity of the tank plus 10%. If there is a multiple tankage, the compound shall be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks, plus 10%. All filling points, vents, gauges and sight glasses shall be located within the bund. The drainage system of the bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipe-work shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund.
  - All underground services will be carefully routed so as to avoid crossing the RPA of all the retained trees.
  - No fires will be permitted on site.

### Fencing & Soft Landscaping Works

- Where fences are to be erected in the RPA of retained trees, in order to provide adequate protection to the retained trees, the following measures will be taken.
  - The fences will be erected as part of the post construction soft landscaping works.
  - Post holes will be excavated by hand. If a significant root is encountered i.e. a root over 25mm in diameter, the post hole must be re-positioned so that it avoids the root.
  - Any roots encountered that are less than 25mm in diameter will be carefully cut back to the edge of the excavation using either a sharp pruning saw or a sharp pair of loppers.
  - The upright can be secured with either rammed earth or concrete. If concrete is to be used, the post hole must first be lined with an impermeable and continuous membrane to prevent the leaching of toxic compounds into the root zone.
  - Mechanical augers and excavators will not be used within the RPA's.
  - No vehicular access across the RPA will be permitted as part of these works beyond the existing or new hard surfaces.

- Where soft landscaping works are to be carried out in the RPA of retained trees, in order to provide adequate protection to the retained trees, the following measures will be taken.
  - The soft landscaping works will be carried out as part of the post construction soft landscaping works.
  - Excavations for landscaping works within the RPA will be carefully carried out with hand tools only, and with no cultivations below 300mm. If significant roots are encountered i.e. roots over 25mm in diameter, these will be dug around and left undamaged.
  - Powered cultivators will not be used in the RPA.
  - No vehicular access across the root protection areas will be permitted as part of these works beyond the existing or new hard surfaces.

### TREE PROTECTION BARRIER DETAIL



## MJC TREE SERVICES LIMITED

Site:  
88A Jubilee Road,  
Waterlooville, PO7 7RE.

### TREE PROTECTION PLAN

Plan no. MJC-18-0160-03  
rev:0

This is based on the Axis  
Architecture plan no.  
17-073-01 revD, amended  
by MJC on 03/07/2018.

This plan was produced in  
colour. A monochrome  
version must not be relied  
upon.

### KEY

- Category U tree or group and ref' no'
- Category A tree or group and ref' no'
- Category B tree or group and ref' no'
- Category C tree or group and ref' no'

Crown spread of surveyed trees

Indicative root protection area (RPA)

Modified root protection area (RPA)

Direction of lowest significant branch, length of arrow indicates height i.e. the longer the arrow the higher the branch

Existing site layout in grey

Proposed site layout in colour

Hard surface retention area

Tree protection barriers

SCALE  
1:200 @ A1

## **9.0 Tree Protection Barrier Warning Sign**



**PROTECTIVE FENCING. THIS  
FENCING MUST BE  
MAINTAINED IN ACCORDANCE  
WITH THE APPROVED PLANS  
AND DRAWINGS FOR THIS  
DEVELOPMENT.**



**TREE PROTECTION AREA  
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)  
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY  
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A  
TREE PRESERVATION ORDER.  
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY  
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE  
WITH THE WRITTEN PERMISSION OF THE LOCAL  
PLANNING AUTHORITY**

## 10.0 References

- BS5837:2012 = British Standard 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- BS3998:2010 = British Standard 3998:2010 'Tree work – Recommendations'.