

Arboricultural impact assessment and BS5837  
survey of  
38 Nichol road, Chandlers Ford, SO53 5AU

Carried out by Matthew Rowden on behalf of Peter Yeates  
Arboriculture Ltd.

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**Contents**

1. Title page
2. Contents
3. Instruction
4. Limitations
5. Site details
6. Proposals
7. Drawings and documents
8. Legal restrictions
9. Summary
10. Findings
11. Conclusion
12. Recommendations
13. References
14. Appendices 1 (tree protection plan - separate document in pdf and dwg format), 2 (tree survey schedule - separate document), and 3 (arboricultural method statement - same document)

**3. Instruction**

To assess trees on the site for any potential impact that the proposed development may have on them, and the constraints that the trees may pose on the proposals. This is in accordance with current legislation BS5837:2012, and to implement control measures and/or design alterations to the proposals where necessary.

**4. Limitations**

This survey is valid for 1 year, dependent on changing site conditions. I must be kept in direct supervision of the site at all times in regards to all arboricultural matters in order for the findings in this report to remain valid. I have not been presented with a services plan.

**5. Site details**

The site is a residential suburban property located off Nichol road in Chandlers Ford.

## 6. Legal restrictions

The site is covered by woodland TPO ref: 58H, covering all species. There is also a blanket TPO (ref: 244:E), covering a red oak (not present or misidentified), a sweet chestnut (not present or misidentified), a handkerchief tree (present), and a snake bark maple (not present or misidentified).

## 7. Proposals

The proposal is to demolish the bungalow and the garage on the property and erect a new structure that will be a single storey property with a loft bedroom area. The garage will be replaced with another garage. The footprint of the building will be extended 1-2m South and 2m East, with the old footings being removed, and new footings installed for the structures.

New driveway access is to be installed, with space for three car parking spaces to the West aspect of the structure.

## 8. Drawings and documents

The client has provided detailed drawings and documents for the purposes of this assessment. For ease of identification, the trees relevant to this report have been numbered as T1- T14 and grouped where applicable. They have been plotted on a tree protection plan obtained from Tony Blunn Architects Ltd to show how and where protection measures must be implemented.

## 9. Summary

The trees on the site present moderate constraints on the proposals. Tree protective fencing will be required, as will minimal invasive footings, and a no dig solution for the driveway access. The trees that have been recommended to be felled do not necessarily pose an issue with the proposals: rather, they are lower value specimens that are likely to have lost all amenity value within 5 years in conjunction with the build.

## 10. Findings (please see appendices 2 & 3 for specific details)

### A. Identification of the constraints posed by the trees to developing the site under the current proposal.

#### **T1, 2 and 6**

- i. The proposed driveway access passes between the RPAs of trees 1 and 2, and the new footings will impinge on the RPAs of these trees.

#### **Trees 3, 4, G5:**

- ii. These trees occupy the footprint of the proposals and are incompatible with the build.

**TG9, TG13:**

- iii. The footprint of these trees blocks access for the demolition of the garage and they are low value specimens that can be transplanted if necessary.

**T7, 8, 10, 11, 12, 14**

- iv. No constraints posed.

**B. Potential impacts of the proposal on the trees****T3, 4, G5, G9, G13**

- i. These trees will be felled.
- ii. These trees are poor specimens with a the potential to shade and block the gutters of the newly erected structures at maturity: the site can be greatly improved by felling them and replacing them with more appropriate specimens further away from the structures and driveway.

**T1, T2, T6**

- iii. Excavation would be necessary to install the driveway and footings in a conventional manner within the RPAs of these trees.
- iv. Severing the small fibrous roots throughout the top 600mm of soil will cause root death, loss of nutrient uptake, stress, and if enough of the functional root mass is killed, the trees may die.
- v. The rooting area of these trees is likely to be in the top 600mm of soil and very susceptible to compaction from vehicular movements. This can result in root death, loss of oxygen in the soil, reduced moisture percolation and diminished nutrient uptake, leading to stress and eventual strain.
- vi. Excavating up to over 1m deep and installing the hard standing or footings conventionally is unacceptable in this instance. Instead, ground protection and “no-dig” solutions must be utilised.

**All remaining trees:**

- vii. No impacts.

### C. Potential impacts of trees on the current proposals

#### **Trees 3, 4, G5, G9, G13:**

- i. The impact is the loss of amenity of these trees to the site. Trees G5 and G9 could be transplanted so that their amenity isn't entirely lost from the site.

#### **T1, T2, T6**

- ii. These trees necessitate the installation of the driveway using a cellular confinement system that will be "no dig", and the footings for the main structure must be installed using a non invasive method, such as pile and beam foundations, ground screws or Grundomat® hand driven piles.

#### **All remaining trees:**

- iii. Tree protective fencing will be required to protect the trees on the site.

### **11. Conclusion**

The constraints presented by the trees on the site are not insignificant. Spoil disposal and demolition is to be to the South aspect of the site using the existing pedestrian access, with zero impacts posed there. The issues for the arboricultural method statement to address are:

- i. Tree protective fencing, erection and signage.
- ii. Pile and beam, Grundomat® or ground screw footings.
- iii. Geo cellular membrane installation for the driveway.

### **12. Recommendations:**

Follow the AMS (appendix 3 below). Do not deviate and seek arboricultural advice whenever necessary.

- i. Fell or transplant trees 3, 4, G5, G9, G13
- ii. Erect tree protective fencing.
- iii. Install driveway access following method statement.
- iv. Commence and fully complete build using the AMS for the footings.



Matthew Rowden *BTEC L3 NatDipArb, ABC L6 ProfDipArb*

07/05/2024

### 13. References

- a. BS5837:2012 - Trees in relation to design, demolition and construction
- b. TDAG 2014
- c. Cutler & Richardson 1981, Kew root survey.

**Appendix 1 - Tree protection plan (in DWG and PDF format)**

**Appendix 2 - Tree survey schedule**

**Appendix 3 - Arboricultural method statement.**

| Tree no. on plan | Species                | Ht (M) | Crown spread (M)<br>N<br>E<br>S<br>W | Stem dia. @1.5m (mm)<br><br>RPA circle radius (M)<br><br>RPA (M2) | Life stage | Estimated remaining contribution in years | General observations<br><br>Physiological condition- P<br><br>Structural condition - S | Preliminary management recommendations                                                                                                                     | Category of retention and sub category |
|------------------|------------------------|--------|--------------------------------------|-------------------------------------------------------------------|------------|-------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| 1                | <i>Castanea sativa</i> | 21     | 8<br>7<br>9<br>8                     | 1040<br><br>12.5<br><br>490                                       | M          | >40                                       | P- Good<br><br>S- Good<br><br>RPA constrains proposals.                                | Erect TPF as per TPP.<br>Footings must be installed on ground screws/ pile and beam foundations.<br>Driveway installed with 150mm layer Cellweb® membrane. | A1                                     |
| 2                | <i>Castanea sativa</i> | 19     | 7<br>8<br>8<br>7                     | 880<br><br>10.6<br><br>350                                        | M          | >40                                       | P- Good<br><br>S- Good<br><br>RPA constrains proposals.                                | Erect TPF as per TPP.<br>Footings must be installed on ground screws/ pile and beam foundations.<br>Driveway installed with 150mm layer Cellweb® membrane. | A1                                     |

| Tree no. on plan | Species                                                                 | Ht (M) | Crown spread (M)<br>N<br>E<br>S<br>W | Stem dia. @1.5m (mm)<br><br>RPA circle radius (M)<br><br>RPA (M2) | Life stage | Estimated remaining contribution in years | General observations<br><br>Physiological condition- P<br><br>Structural condition - S | Preliminary management recommendations | Category of retention and sub category |
|------------------|-------------------------------------------------------------------------|--------|--------------------------------------|-------------------------------------------------------------------|------------|-------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------|
| 3                | <i>Cupressus lawsonia</i>                                               | 20     | 2<br>2<br>2<br>2                     | 450                                                               | M          | <5                                        | P- Good<br><br>S- Fair<br><br>Incompatible with proposals.                             | Fell                                   | B1                                     |
| TG4              | <i>Acer palmatum</i> ,<br><i>Arbutus unedo</i> ,<br><i>Cammelia sp.</i> | /      | /                                    | /                                                                 | YM         | <5                                        | P- Good<br><br>S- Fair<br><br>Incompatible with proposals.                             | Fell                                   | C1                                     |

| Tree no. on plan | Species                                                       | Ht (M) | Crown spread (M)<br>N<br>E<br>S<br>W | Stem dia. @1.5m (mm)<br><br>RPA circle radius (M)<br><br>RPA (M2) | Life stage | Estimated remaining contribution in years | General observations<br><br>Physiological condition- P<br><br>Structural condition - S | Preliminary management recommendations                           | Category of retention and sub category |
|------------------|---------------------------------------------------------------|--------|--------------------------------------|-------------------------------------------------------------------|------------|-------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------|
| TG5              | <i>Pittosporum sp.</i><br>x 2, <i>Eucryphia glutinosa</i> x 1 | /      | /                                    | /                                                                 | Y          | <5                                        | P- Good<br><br>S- Fair<br><br>Incompatible with proposals.                             | Fell                                                             | C1                                     |
| 6                | <i>Betula pendula</i>                                         | 19     | 5<br>3<br>5<br>5                     | 350<br><br>4.2<br><br>55                                          | M          | >20                                       | P- Good<br><br>S- Good<br><br>RPA constrains proposals.                                | Install footings using ground screws/ pile and beam foundations. | B2                                     |

| Tree no. on plan | Species                   | Ht (M) | Crown spread (M)<br>N<br>E<br>S<br>W | Stem dia. @1.5m (mm)<br><br>RPA circle radius (M)<br><br>RPA (M2) | Life stage | Estimated remaining contribution in years | General observations<br><br>Physiological condition- P<br><br>Structural condition - S | Preliminary management recommendations | Category of retention and sub category |
|------------------|---------------------------|--------|--------------------------------------|-------------------------------------------------------------------|------------|-------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------|
| 7                | <i>Betula pendula</i> x 2 | 18     | 5<br>4<br>4<br>3                     | 350<br><br>4.2<br><br>55                                          | M          | >20                                       | P- Good<br><br>S- Good                                                                 | Erect TPF as per TPP                   | B2                                     |
| 8                | <i>Betula pendula</i>     | 16     | 2<br>4<br>4<br>3                     | 220<br><br>2.6<br><br>22                                          | M          | >20                                       | P- Good<br><br>S- Good                                                                 | Erect TPF as per TPP                   | B2                                     |

| Tree no. on plan | Species                                                                                                                                                                                                                             | Ht (M) | Crown spread (M)<br>N<br>E<br>S<br>W | Stem dia. @1.5m (mm)<br><br>RPA circle radius (M)<br><br>RPA (M2) | Life stage | Estimated remaining contribution in years | General observations<br><br>Physiological condition- P<br><br>Structural condition - S | Preliminary management recommendations | Category of retention and sub category |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------------------------|-------------------------------------------------------------------|------------|-------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------|
| TG9              | <i>Prunus avium</i> ,<br><i>Acer palmatum</i> ,<br><i>Corrulus avellana</i> ,<br><i>Stewartia pseudocamellia</i> ,<br><i>Cornus alba</i> ,<br><i>Arbutus unedo</i> ,<br><i>Magnolia grandiflora</i> ,<br><i>Davidia involucrata</i> | 4-5    | 3m radius.                           | 150- 200mm                                                        | YM         | <10                                       | P- Good<br><br>S- Fair<br><br>Incompatible with proposals.                             | Fell                                   | C1                                     |
| T10              | <i>Cupressus lawsonia</i>                                                                                                                                                                                                           | 14     | 2<br>2<br>2<br>2                     | 250<br><br>3<br><br>28                                            | YM         | >20                                       | P- Good<br><br>S- Good                                                                 | Erect TPF as per TPP.                  | B1                                     |

| Tree no. on plan | Species              | Ht (M) | Crown spread (M)<br>N<br>E<br>S<br>W | Stem dia. @1.5m (mm)<br><br>RPA circle radius (M)<br><br>RPA (M2) | Life stage | Estimated remaining contribution in years | General observations<br><br>Physiological condition- P<br><br>Structural condition - S                                                                            | Preliminary management recommendations | Category of retention and sub category |
|------------------|----------------------|--------|--------------------------------------|-------------------------------------------------------------------|------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------|
| T11              | <i>Quercus robur</i> | 21     | 10<br>12<br>10<br>9                  | 980<br><br>11.8<br><br>434                                        | M          | >40                                       | P- Good<br><br>S- Good<br><br>RPA overlaps site access, but hard standing is historic and unlikely to be much significant rooting area beneath the hard standing. | Erect TPF as per TPP                   | A1                                     |
| T12              | <i>Acer rubrum</i>   | 4      | 3<br>3<br>3<br>3                     | 180<br><br>2.2<br><br>15                                          | Y          | >20                                       | P- Good<br><br>S- Good                                                                                                                                            | Erect TPF as per TPP                   | B1                                     |

| Tree no. on plan | Species                                                | Ht (M) | Crown spread (M)<br>N<br>E<br>S<br>W | Stem dia. @1.5m (mm)<br><br>RPA circle radius (M)<br><br>RPA (M2) | Life stage | Estimated remaining contribution in years | General observations<br><br>Physiological condition- P<br><br>Structural condition - S | Preliminary management recommendations          | Category of retention and sub category |
|------------------|--------------------------------------------------------|--------|--------------------------------------|-------------------------------------------------------------------|------------|-------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------|
| G13              | <i>Rhododendron sp. x 4,</i><br><i>Pittosporum sp.</i> | 4-5    | 3m radius.                           | 200                                                               | M          | <10                                       | P- Good<br><br>S- Fair<br><br>Incompatible with proposals.                             | Fell                                            | C1                                     |
| 14               | <i>Acer pseudoplatanus</i>                             | 8      | 4<br>4<br>4<br>4                     | 280<br><br>3.4<br><br>35                                          | Y          | >20                                       | P- Good<br><br>S- Fair<br><br>Included bark union at 0.5m.                             | Remove Southerly stem.<br>Erect TPF as per TPP. | B1                                     |

**Survey schedule key**

1. Tree ID: Refers to numbers as shown in the plan of the tree constraints.
2. Species: common name and scientific name
3. Height (measured in meters)
4. Crown spread (measured in meters at the points of North, South, East and West). Where “#” is used as a suffix, the measurements are approximate.
5. Stem diameter measured at 1.5m height in mm. Root protection area (RPA) radius is shown in meters, and RPA in square meters is displayed at the bottom.
6. Life stage: Young (Y) (small trees at a very early stage of their growth), young mature (YM)(larger trees at an early life stage with the potential to still grow considerably larger), Mature (MA)(trees which have reached their maximum size and are self sustaining at the point), Over mature (OM)(trees that are beginning to decline and starting to die back from the tips), Veteran (V)(trees that are rapidly in decline and steadily losing canopy spread), Dead (D)
7. Estimated remaining contribution in years: Until such a time as any residual amenity is lost.
8. General observations - a visual assessment of the physiological and structural condition of the tree, classed as :Poor, fair, good, dead, decline. Physiologically refers to the vitality and vigour of the tree; Structural refers to the presence of physical defects within the tree’s structural makeup. For example, a multi stemmed tree from a lapsed pollard with multiple defects in those unions, but with good vitality and good leaf cover would be classed as physiologically good, but structurally poor.

9. Preliminary management recommendations - recommendations to maintain the tree as part of the proposals, or assessing whether its retention is viable, whether it be the suggestion of aerial inspections, remedial pruning, or detailed decay inspections.

10. Categories and sub-categories of retention: See figure 1 below.

**BS5837:2012 Table 1 – Cascade chart for tree quality assessment**

| Category and definition                                                                                                                                                   | Criteria (including subcategories where appropriate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                   |                                                                                                                                       | Identification on plan                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Trees unsuitable for retention (see Note)                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                   |                                                                                                                                       |                                                                                       |
| <b>Category U</b><br>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years | <ul style="list-style-type: none"><li>• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li><li>• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li><li>• Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</li></ul> <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see [BS5837:2012] 4.5.7.</i></p> |                                                                                                                                                                                                                                                                   |                                                                                                                                       |    |
|                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                   |                                                                                                                                       |                                                                                       |
|                                                                                                                                                                           | <b>1 Mainly arboricultural qualities</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>2 Mainly landscape qualities</b>                                                                                                                                                                                                                               | <b>3 Mainly cultural values, including conservation</b>                                                                               |                                                                                       |
| Trees to be considered for retention                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                   |                                                                                                                                       |                                                                                       |
| <b>Category A</b><br><b>Trees of high quality</b> with an estimated remaining life expectancy of at least 40 years                                                        | Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features                                                                                                                                                            | Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture) |    |
| <b>Category B</b><br><b>Trees of moderate quality</b> with an estimated remaining life expectancy of at least 20 years                                                    | Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation                                                                                                                                                                                                                                                                                                                                                                                                                                | Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality | Trees with material conservation or other cultural value                                                                              |    |
| <b>Category C</b><br><b>Trees of low quality</b> with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm       | Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits                                                              | Trees with no material conservation or other cultural value                                                                           |  |

Fig.1

**Appendix 3**

# Arboricultural Method Statement for 38 Nichol road, Chandlers Ford, SO53 5AU

Carried out by Matthew Rowden on behalf of Peter Yeates  
Arboriculture Ltd.

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07483135349



## 1. Responsibilities

It is the responsibility of the site manager to respect the tree protection measures and observe the necessary precautions within and adjacent to them. Bonafide sub-contractors must be inducted by the site manager and the tree protection measures explained and enacted to the letter of this method statement.

As the arboriculturist appointed for this site, I must be present onsite prior to work commencing to ensure that my protection measures have been followed. I must be attend site whenever there are arboriculturally sensitive activities occurring, and must send regular supervision reports to Eastleigh LPA with site meetings arranged if the planning officer or handling team so wish.

In this instance, I believe that I will need to visit site to check the installation of the tree protective fencing, driveway, footings, and then final sign off.

## 2. COSHH

- a. A cement mixing area will be sited away from the CEZ and if necessary a protective bund installed to prevent contaminated washings or rainwater draining into the CEZ.
- b. These will be positioned on the existing hard standing where marked on the TPP.
- c. Fuels or any other chemicals must be stored outside of the construction exclusion zone (CEZ) on the road.

## 3. Contractor parking and site office

- a. Contractor parking will be on Nichol road and Woodlands close. No revisions to the highway for construction traffic will be necessary at this time.
- b. No site office necessary.

## 4. Restrictions within Construction exclusion zone

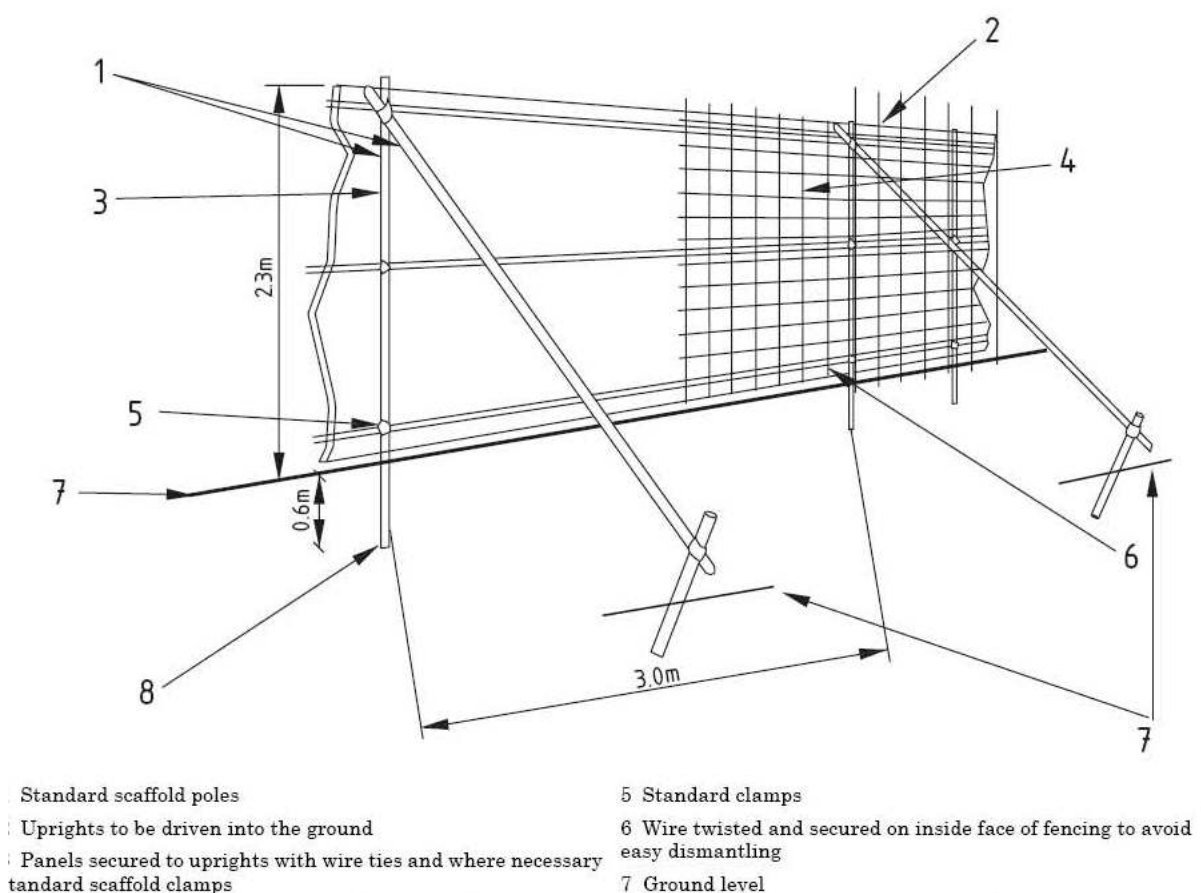
Inside the exclusion area of the CEZ, the following shall apply:

- a. No excavation by any means without arboricultural site supervision.
- b. No hand digging without a written method statement having first been approved by the developer's arboriculturist.
- c. No storage of plant or materials.
- d. No storage or handling of any chemicals.
- e. No vehicular access.
- f. No development activity.

## 5. Tree Protection Fencing

- a. The Tree Protection Plan (TPP) shows the position of the Tree Protection Fencing (TPF) that encircles the entire building area where the structures are to be built. Vertical banners must be erected and ground protection installed before any materials or machinery are brought onto site and before any demolition, development or stripping of soil commences.

- b. Once erected, barriers and ground protection will be regarded as sacrosanct, and will not be removed or altered without prior agreement of an arboriculturist and approval of the local planning authority.
- c. Barriers must be fit for the purpose of excluding constructive activity, and appropriate to the degree and proximity of work taking place around the retained tree. Attention must be paid to ensuring that barriers remain rigid and complete.
- d. Barriers will consist of a scaffold framework in accordance with Fig.1, comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this, weld mesh panels must be securely fixed with wire or scaffold clamps.
- e. Weld mesh panels on rubber or concrete feet are not resistant to impact and must not be used.
- f. The tree protective fencing must be erected prior to commencing any work on the site, and must remain in situ for the entire duration of the development, until all final work has been completed and the site has been signed off by the site arboriculturist.
- g. All weather notices must be fixed to the barriers with the words: 'Construction exclusion zone - Keep out' or similar (see above image).
- h. It is vital that these protection measures are in place before any construction work happens.



## 6. Driveway installation

- a. Tree roots are very shallow, the majority occupying the top 600mm deep layer of soil. With this in mind, the driveway cannot be laid in the traditional fashion of excavating to >500mm and compacting hardcore prior to applying the top surface. Instead, the following control measures must be implemented to ensure the trees are not constrained by the proposal and extensive root damage doesn't occur:
- b. The proposed area of excavation is for industrial machinery (up to a 3.5 ton excavator [a 100mm layer of cell web will only permit loading of 3.5 tons which may constrain the build]).
- c. This is a "no dig" solution, so there is no need to remove any top soil. Scrape off the top layer of turf and debris using hand tools.
- d. Install Treetex geotextile membrane up to the boundaries of the proposed access route and to act as a pollution barrier and a separation layer.
- e. Install a 60mm layer of clean angular stone (type 4/20mm) as a sub base, to level the area where possible. Often sand is used to level out hollows.
- f. Install 150mm layer of Cellweb® TRP up to the edges of the proposed extension area and working area, banking up the sides of the separation membrane with angular stone. Infill the TRP with clean angular stone, size 4/20mm. Commence roll out within the RPA as a no dig solution, as ground level can be adjusted more flexibly outside of the RPA.
- g. Overfill by 25mm with clean angular stone, size 4/20mm.

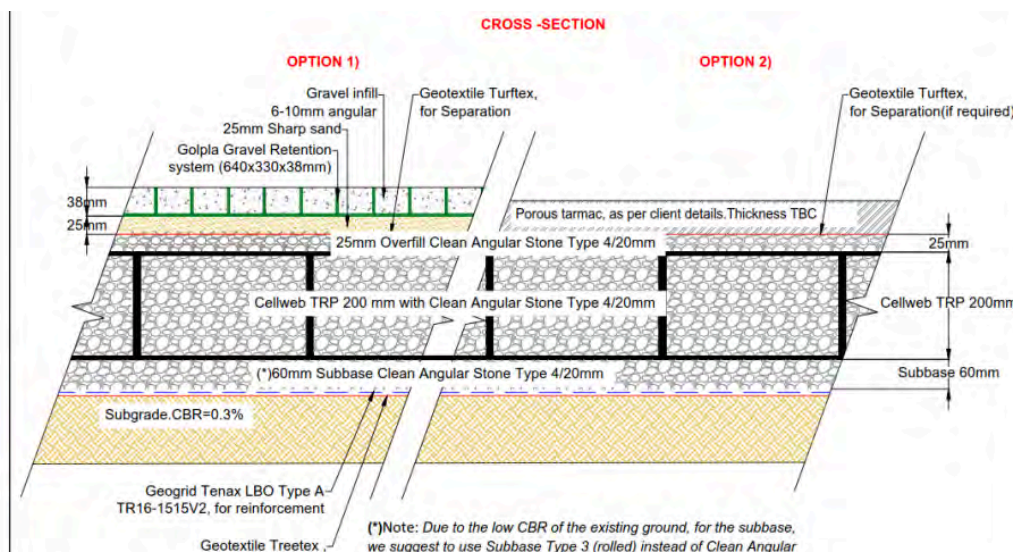


Fig.1

7. Foundations are normally constructed by excavating up to a 3m deep trench with infill of ballast, sharp sand and concrete. Due to the aforementioned rooting area of trees in the top 600mm of soil, this is not permissible, so alternatives must be used instead using this MS:

Ground screw foundations

- a. The ground screws are to be installed with an excavator mounted auger, drilling a 40mm hole to a depth of up to 2m.
- b. The screws must then be wound in using the excavator, to create a hole of 100mm diameter.
- c. The 200mm flange at the top of the screws may then be attached to a U bolt to allow the remainder of the steel frame to be reacted on top of the screws as a floating raft. From here, the brickwork may then be built up.
- d. Install 100mm layer of woodchip, and spreader boards to adequately distribute pedestrian loads.
- e. Within this protected area, highlight the areas where the piles need to go, referring to the architects plans, and remove the ground protection in these areas, retaining it as a work area surrounding the future pile holes.
- f. Bore the holes using an auger, ensuring that the plant used does not exceed the load limit of the ground protection ( 1 ton).
- g. Remove the subsequent spoil.
- h. Install ground screws, raising the property level so that the top of the piles is higher than the original ground level, and leaves an air gap of >200mm.
- i. Install beams across the top of the screws, at which point the construction of the super-structure may continue.
- j. Raise the ground level on the exterior of the super structure with 200mm of sharp angular stone, size 4/20mm.

Pile and beam foundations

- k. Install a 60mm layer of clean angular stone (type 4/20mm) as a sub base.
- l. Install 100mm layer of Cellweb® TRP (geo-textile membrane), infilled with clean angular stone, size 4/20mm.
- m. Within this protected area, highlight the areas where the piles need to go, referring to the architects plans, and remove the ground protection in these areas, retaining it as a work area surrounding the future pile holes.
- n. Bore the holes using an auger, ensuring that the plant used does not exceed the load limit of the ground protection ( 3.5 tons).
- o. Remove the subsequent spoil.
- p. Install membranes in the resultant pile holes to prevent concrete run off along the rest of the tree rooting area.
- q. Install piles, raising the property level so that the top of the piles is higher than the original ground level, and leaves an air gap of >200mm.
- r. Install beams across the top of the piles, at which point the construction of the super-structure may continue.
- s. Raise the ground level on the exterior of the super structure with 200mm of sharp angular stone, size 4/20mm.

## 8. Sequence of events

- a. All trees that require felling to facilitate the build must be felled.
- b. All tree protective fencing must be erected as per the tree protection plan. I will then visit site to ensure it is adequate, and submit a supervision statement with photographic evidence to EBC via email and invite the handling team to comment.
- c. The ground protection for the driveway can then be installed. It is no dig, so I don't see any reason for me to be there while it is carried out. Once installed, I will visit site and submit another supervision statement to EBC.
- d. At this point, I really need confirmation from the structural engineer as to exactly what type of piled footings are going to be used. I must be present during their installations and will file another supervision statement with photographic evidence after the footings have been dug.
- e. After the footings have been dug, the superstructure can be built. I expect to visit the site once more prior to the soft landscaping being carried out to determine that the tree protective fencing can come down. At this point, I will submit my final supervision statement to EBC.