



Arboricultural Assessment Report by Matt Rogers BSc. (Hons)

Northgate Lodge, 3 Wolverhampton Road, Cookley, Kidderminster, DY10

Report Date: 28/02/21

Property: Cedar House, Church Avenue, Clent, Stourbridge, DY9 9QT

Local Authority: Bromsgrove

Client: Mr. A Yates

Consultant: Matt Rogers BSc. (Hons).

INTRODUCTION - CLIENT'S BRIEF/SCOPE OF REPORT

1. This Tree Survey and Report has been commissioned to investigate and report on any trees growing within the vicinity of the grounds of Cedar House, and assess the current and future potential for the proposed construction of a new replacement property unit to replace the present dwelling, as per site plan provided (Drawing number 02 G). To make recommendations which any possible disturbance of development may pose to the nearby trees.
2. My advice has been sought on the arboricultural issues relating to this project to conform to the requirements of British Standard 5837:2012 – Trees In Relation To Construction – Recommendations.
3. No imminently unsafe trees were found on the site. None of the trees surveyed are covered by a Preservation Order.
4. The report is based on a visual inspection of the trees from ground level. The trees are assessed using the Visual Tree Assessment (VTA) methodology and applies this to the BS framework.
5. My client has provided a survey plan of the site (Drawing number 02 G), which has been used as the basis for my own tree survey exercise.
6. The data gathered from the tree survey exercise has been used to assess the likely tree constraints on this site. The clients have been advised of these constraints which will help to lead to an informed and influenced design process.

DESCRIPTION OF THE SITE

SITE VISIT

7. The site was surveyed on 26/08/20. The following is an appraisal report based on the conditions found on that day. The weather conditions at the time of the survey were dry, and visibility was good.

8. The trees surveyed are growing in the front garden/drive area and rear garden area of the subject property.

9. The ground appears to be free draining with a good fertile earth covering. The sub-soil is believed to be sand.

Tree Assessment Details

10. The larger, significant trees worthy of consideration have been individually numbered, as per table.

11. The table below describes detail of only larger significant trees worth noting.

Tree No.	Species	Age Class	Form	Stem/ Multi Stem	Height (M)	Crown Spread (M)	Diameter DBH (mm)	Min. radius protection zone (M)	BS 5837 Class and colour reference
T1	Copper Beech	M	Fair	S	12	16	700	8.40	A. Green
T2	Lime	M	Fair	S	12	9	700	8.40	A. Green
T3	Lime	M	Fair	S	12	16	700	8.40	A. Green
T4	Silver Birch	M	Fair	MS	15	16	240 220	2.88	B. Blue
T5	Holly	M	Fair	S	10	8	200	2.40	B. Blue
T6	Holly	M	Fair	S	10	8	200	2.40	B. Blue
T7	Beech	M	Fair	S	10	8	240	2.88	B. Blue
T8	Holly	M	Fair	S	10	8	350	4.20	B. Blue
T9	Silver Birch	M	Fair	S	10	6	350	4.20	B. Blue
T10	Beech	M	Fair	S	12	6	230	2.76	B. Blue
T11	Beech	M	Fair	S	14	8	400	4.80	B. Blue
T12	Laburnum	M	Fair	S	7	8	220	2.64	B. Blue
T13	Prunus Group x 4	M	Fair	S	8	4	100-230	2.76	B. Blue
T14	Copper Beech	M	Fair	S	18	10	900	10.80	A. Green
T15	Acacia	M	Fair	MS	18	12	700	8.40	B. Blue
T16	Acacia	M	Fair	MS	18	12	350	4.20	B. Blue
T17	Acacia	M	Fair	S	18	12	550	6.60	B. Blue
T18	Acacia	M	Fair	S	18	12	500	6.60	B. Blue

T19	Conifer	M	Good	S	14	6	500	6.00	A. Green
T20	Oak	M	Good	S	14	14	600	7.20	A. Green

Discussion

Trees 1, 2, 3 and 4

12. The trees are mature specimens, of typical shape and form of the species. The trees are situated on the Southern boundary of the property, (Photograph 7).

13. The spread of canopy branches of the 4 trees are compact and the trees are growing upwards for light and not spread out due to the other trees competing for light.

14. The nearest of these trees to the proposed building footprint is Tree 3. The base of Tree 3 is over 10 metres away from the nearest wall of the proposed building. With an estimated root length of only 8.4 metres, these trees will not be affected in any way by the construction of the proposed building. The trees are now mature and root growth rate would have slowed down.

15. The retention of these trees will help to minimise disturbance of any site demolition and preparation works and provide a useful privacy screen against the construction phase of the proposed building, to residents living or working in the neighbouring property.

Trees 4,5,6,7,8,9,10 and 11

16. The trees are situated in the front garden area along the Southern boundary, (Photograph 3).

17. The nearest of these trees to the proposed building footprint, with significant roots, is Tree 8. The base of Tree 8 is over 12 metres away from the nearest wall of the proposed building. With an estimated root length of only 4.2 metres, these trees will not be affected in any way by the construction of the proposed building.

18. The retention of these trees will help to minimise disturbance of any site demolition and preparation works and provide a useful privacy screen against the construction phase of the proposed building, to residents living or working in the neighbouring property.

Tree 12

19. The tree is situated in the front garden area, (Photograph 1), and is a significant distance from the proposed building footprint. The tree will not be affected in any way by the construction of the proposed building.

Tree 13

20. The group of Prunus trees are situated in the front garden area along the edge of the driveway, (Photograph 2).
21. The nearest of these trees to the proposed building footprint, with significant roots, is over 5 metres away from the nearest wall of the proposed building. With an estimated root length of only 2.76 metres, these trees will not be affected in any way by the construction of the proposed building.

Tree 14

22. The tree is situated in the front garden area in the centre of the lawn area. (Photograph 1). The tree is a significant example and is well into maturity. The tree appears to be in good form although Photograph 8 shows the main trunk divides at 2-3 metres and there is significant included bark. The lawn area around the tree is very damp which could be associated with root growth affecting water pipes.
23. The base of Tree 14 is 11.6 metres away from the nearest wall of the proposed building. With an estimated root length of 10.8 metres, this tree will not be affected in any way by the construction of the proposed building.

Trees 15,16,17,18

24. The group of Acacia trees are situated in the front garden area along the edge of the driveway, (Photographs 4 and 5).
25. The nearest of these trees to the proposed building footprint, with significant roots, is 7.5 metres away from the nearest wall of the proposed building. With an estimated root length of 6.60 metres, only small fibrous roots, if any, will be found within the footprint of the proposed building area. This, however, covers only a small portion of the whole root protection area, and only smaller, fibrous roots, if any, would be found this distance away.
26. None of the main structural roots will be affected by the digging of the foundations of the proposed building. If these roots are pruned leaving a clean cut they should heal well and it is my opinion that any roots cut within this area will not affect the long-term health of the tree, or compromise any stability. The Acacia trees are now mature and root growth rate would have slowed down. The long-term health of the Acacia trees will not be affected by the construction of the proposed building.

Trees 19 and 20

27. The trees are situated in the rear garden area along the Northern boundary, (Photograph 6)
28. The nearest of these trees to the proposed building footprint, with significant roots, T20, is over 11 metres away from the nearest wall of the proposed building. With an estimated root length of only 7.20 metres, these trees will not be affected in any way by the construction of the proposed building. The roots and canopies are a significant distance from any building works and will not affect the health of the trees.

29. With the height difference of over 1 metre from the base of these trees up to the proposed building level of the rear wall, and the distance from the trees to the proposed rear wall, it is my opinion no roots from these trees will be affected in any way by the digging of the foundations for the new rear wall.

Scope for building proposed replacement dwelling

Roots

30. Protective 2m heras style fencing should be erected around the trunks of the retained trees to protect the lower branches from damage from plant during the demolition of the current building, and the construction of the new building. This is shown in the tree plan below. The fencing would be positioned around the current tarmac driveway and along the path on the Southern side of the House to protect the compaction of roots and the lower canopy branches, as shown on the Tree Plan. The fencing will be 'heras' type as shown in figure 1. The area of Root Protection should be considered as sacrosanct and must not be entered by tradesmen unless special permission is given by the Site Supervisor. The use of heras fencing allows each individual panel to be removed temporarily if a certain task is required close to the protected area. During the time of temporary detachment of fencing the Site Supervisor must oversee each task to ensure that damage is prevented to canopy branches or the movement of vehicles or plant passing over potential roots is kept to a minimum.

31. The fencing must be a minimum of 2 metres from the proposed footprint of the new buildings to allow physical building of scaffolding and construction works.

32. Care must be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with the retained trees. Such contact could result in serious injury which might make a tree's safe retention impossible.

33. Only small-scale construction techniques will be required for this proposed development, and therefore existing trees will not be damaged by heavy plant or crane booms on site.

34. The fact that the present building is being replaced, virtually in the same position, reduces the risk of roots from any of the trees surveyed being found within the construction footprint area. The trees would prefer the open, softer lawn area and landscaped borders to grow under rather than the compacted driveway close to the building. Only Tree Acacia is the closest tree to the proposed building area and has the potential of any small roots being found in this area. This would be near to the front corner of the proposed garage unit and it would be to dig out the foundations by hand in this area rather than mechanically to protect any roots found in this area. Any small roots that would require cutting to accommodate the new foundations can be cut cleanly with hand loppers and will heal over naturally.

Compaction of roots and vehicular access to the proposed garage

35. The use of a semi permeable-type drive covering rather than harder tarmac will help the trees in the front garden area in the future from root compaction and water loss. The use of 'Grass-Crete' (Figure 2) or 'Cell-Webb' (Figure 3) would be used as a metre - wide edging around the main driveway of block paving.

36. A cellular confinement system called 'Cell-web' will be used to spread the weight of shingle and gravel under the block paving. This has been specifically designed for use over tree roots to avoid damage or compaction. This will be sourced from 'Geosynthetics', Nuneaton, or similar equivalent. This could be used on its own and have a gravel surface, or would be suitable to use as a base underneath block paving.

37. A hand excavation of topsoil will be made, and the Cell-web will be laid over a weed membrane cut into existing topsoil, under the exact area of the proposed driveway. The existing soil will be raked level and the cell pockets will be laid and then filled with the gravel. This would be dug at the required depth to support whichever top layer is finalised (eg 100mm for a gravel top layer or 250mm for a block paving surface). The top driveway layer will be at the same level as existing turf currently used as garden area, so no extra depth or digging into tree roots will be required, or additional soil used to build up levels and increase weight above roots.

Ground protection measures outside the tree protection fence

38. Machine operators are to undergo an induction session prior to being allowed to work on site, where the importance of root protection will be explained to them and a copy of this report provided for their reference. In this way it is hoped that unnecessary damage, by root disturbance and collision of operating arms with the tree crown will be avoided.

39. All other machinery or materials will be stored in the rear garden area to avoid compaction of roots within the front garden area.

Canopy branches

40. None of the mature trees to be retained will require any significant pruning to accommodate the construction of the proposed buildings. The canopy branches of all retained trees are a safe distance from any works required for any scaffolding or construction works.

41. Protective 2m heras style fencing will be erected around the trunks of the retained trees to protect the lower branches from damage from plant during the demolition of the current building, and the construction of the new building.

CONCLUSIONS

42. No trees surveyed would be required to be removed to accommodate the construction of the proposed building. All other significant trees growing around the site will be retained.

43. The retention of the larger trees surveyed, plus the prominence of other existing mature trees and boundary hedges growing around the site, will help to minimise the disturbance of any site preparation works and construction phase of the proposed building, to residents living or working in neighbouring properties.

44. The retention of these mature trees will also help to maintain the green amenity and good ecological value of the area.

45. The Tree Protection Method Statement shows that the retained trees will be fenced off for the duration of the build process, ensuring a protective barrier to prevent damage to any lower branches. A heras type, 2 metre high fencing will be used, with supported feet to provide stability.

46. Protective 2m heras style fencing should be erected around the trunks of the retained trees to protect the lower branches from damage from plant during the demolition of the garages, and the cleaning of the site. This is described in Tree Method Statement, at a distance of 1 metre from the trunk, as shown on the Tree Constraints Plan. The fencing will also prevent compaction of soil above roots.

47. The fencing must be a minimum of 2 metres from the proposed footprint of the new buildings to allow physical building of scaffolding and construction works.

48. 2 metre Heras style fencing will be erected under overhanging canopies, to protect tree canopies during construction, and compaction of roots from vehicular movement above.

49. The protective fencing barrier is to be located exactly as specified on the Tree Protection Method Statement and Plan provided.

50. These development proposals have been assessed in accordance with British Standard 5837:2012 – Trees In Relation To Construction –Recommendations.

51. I believe the construction of the proposed building unit, will have no significant impact on any of the large existing trees to be retained, or those assessed in the immediate neighbouring vicinity of the proposed building area.

52. It is my opinion that the construction work which has been proposed is justified, especially considering adequate protection and retention of neighbouring trees can be afforded due respect during the construction process; ensuring the safe and healthy retention of these existing mature trees.

53. Overall, taking into consideration increased benefits of improving the current site for future usage, I consider this to be a viable application in arboricultural terms and would be prepared to support it throughout the planning consideration process.

54. Any permitted or approved tree work must be carried out in accordance with the British Standard 'Recommendations for Tree Work' BS3998:2010, by suitably qualified and experienced professional arborists.

ARBORICULTURAL TREE PROTECTION METHOD STATEMENT

Above and Below Ground Constraints

The position of significant trees on and adjacent to the site has been plotted on the Site Tree Plan. Below ground constraints, by the Root Protection Area (RPA), have also been considered. This is to avoid damage to the roots or rooting environment of retained trees.

None of the trees surveyed will be affected by the proposed redevelopment, as the crown branches are far enough away not to be damaged by construction work and the root protection areas are sufficiently away from the proposed foundations to require any major root cutting. The retained trees will not be significantly affected by any construction works.

TREE CONSTRAINTS

Protection of the crown of existing, overhanging, and TPO Trees.

Care must be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with the retained trees. Such contact could result in serious injury which might make a tree's safe retention impossible.

Only small-scale construction techniques will be required for this proposed development, and therefore existing trees will not be damaged by heavy plant or crane booms on site.

Defining Root Protection Areas

The RPA has been calculated for larger trees closer to the boundary of the proposed extension. In accordance with Table 2 of BS5837 recommendations, a circle around each of the trees can be used to show a minimum area which should be left undisturbed around each tree.

Further to this it should be noted that BS5837 states (Section 5.2.4) that the use of a circle at this juncture is for guidance purposes only "as assessed by an arboriculturist, which may change its shape but not its area whilst still providing adequate protection for the root system."

Protection of root area

To determine the area needed for a tree to survive and grow, the following formula should be followed:

(Diameter at Breast Height (1.5 metres)) DBH x 12 = area of protection, measured at a radius from the centre of the trunk, where none of the soil within the area of protection has been compromised by existing features e.g. roads, paths, buildings, compaction, streams, etc.

How to avoid damage to trees

This section gives general guidance on methods of work to minimise damage to trees which should be adopted by utilities. The local authority (or for privately owned trees, the owner or his advisor), should be informed about planned work at an early stage prior to commencement.

Wherever trees are present, precautions should be taken to minimise damage to the root system. As the shape of the root system is unpredictable, there should be careful control and supervision of any excavation, particularly if this involves digging through the surface 600mm where the majority of roots develop.

The precautions advocated in this section are applicable to any excavations or other works occurring within a distance from the tree equal to 4 times the circumference of the trunk (circumference measured around the trunk at a height of 1.5m above ground level; distance measured from the centre of trunk to nearest part of any excavation or other work). This area around the trunk is referred to as "the precautionary area".

In the precautionary area (front garden area and either side of proposed building):-

- Do not excavate with unnecessary machinery.
- When hand digging, carefully work around roots, retaining as many as possible.
- Do not cut roots over 25mm in diameter
- Prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.
- Backfill the trench with an inert granular material and top soil mix. Compact the backfill with care around the retained roots.
- Do not repeatedly move/use heavy machinery plant except on hard standing or ground protection.
- Do not store spoil or building material, including chemicals and fuels.

TREE SURVEY NOTES

These Tree Survey Notes have been prepared in accordance with the recommendations of *British Standard 5837:2012* and define the criteria for pre – development tree surveys.

- Each tree has been allocated a unique number. Where specifically instructed small durable numbered metal tags will be applied to each tree surveyed.
- Height assessments are estimated and dimensions are provided in metres. This will be adequate for the majority of cases, but where accurate heights become a critical issue it will be necessary to return to site, as a separately commissioned exercise, to collect accurate measurements with the aid of optical instruments.
- Trunk/stem diameters are measured in millimetres at 1.5m above ground level and denoted as S single stemmed trees or MS for multi-stemmed trees which are measured immediately above the root flare.

- Radial crown spread assessments are estimated in metres from the centre of the trunk/group. These provide a general guide as to the main bulk outline of a tree/groups crown but do not constitute tape measured dimensions. These would only be undertaken as part of a separately commissioned exercise, where precise dimensions are critical to the project at hand.
- An assessment of a tree/groups age class is made in terms of its site specific maturity as part of the surrounding landscape, taking into account its overall shape and form in that setting, and is recorded thus :-

Y - Young tree/group

EM - Early mature

MA - Middle – aged tree/group

M - Mature tree/group

OM - Over – mature tree/group

V - Veteran tree/group

- An assessment of a tree/groups overall physiological condition (Form) is recorded as :-

G - Good

F - Fair

P - Poor

D - Dead

- Data on the structural condition of the tree/group is provided to give an indication of the visual appearance and any significant health and safety issues. The 'code' given to each surveyed tree is the classification of the tree's suitability for retention, in accordance with *BS5837: 2012 Trees in Relation to Construction*. The key to this classification system is as follows: -

Category R - Trees for removal (to be identified on tree location plan in red).

Category A – Those trees of high quality and value (to be identified on tree location plan in light green)

Category B – Those trees of moderate quality and value (to be identified on tree location plan in mid blue)

Category C - Those trees of low quality and value (to be identified on tree location plan in grey)

Tree Report Photographs

Photograph 1

Trees growing along front garden boundary.



Photograph 2

Trees growing along Southern boundary in front garden.



Photograph 3

Trees growing along Southern boundary.



Photograph 4

Trees 15-18 Acacia growing in front garden.



Photograph 5

Trees 15-18 Acacia growing in front garden.



Photograph 6

Trees 19 and 20 situated in rear garden.



Photograph 7

Trees 1-4 growing on Southern Boundary.



Photograph 8

Tree 14 Copper Beech in front garden

Trunk bifurcation and included bark defect at 2-3 metres from base



Figure 1. Construction of Heras style fencing around the closest significant trees to the building works.

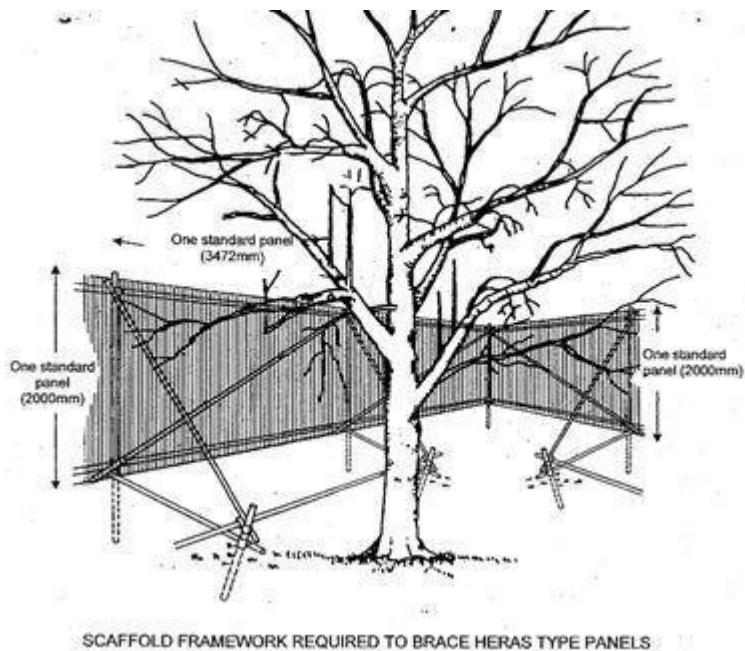


Figure 2. 'Grass-Crete' type drive covering

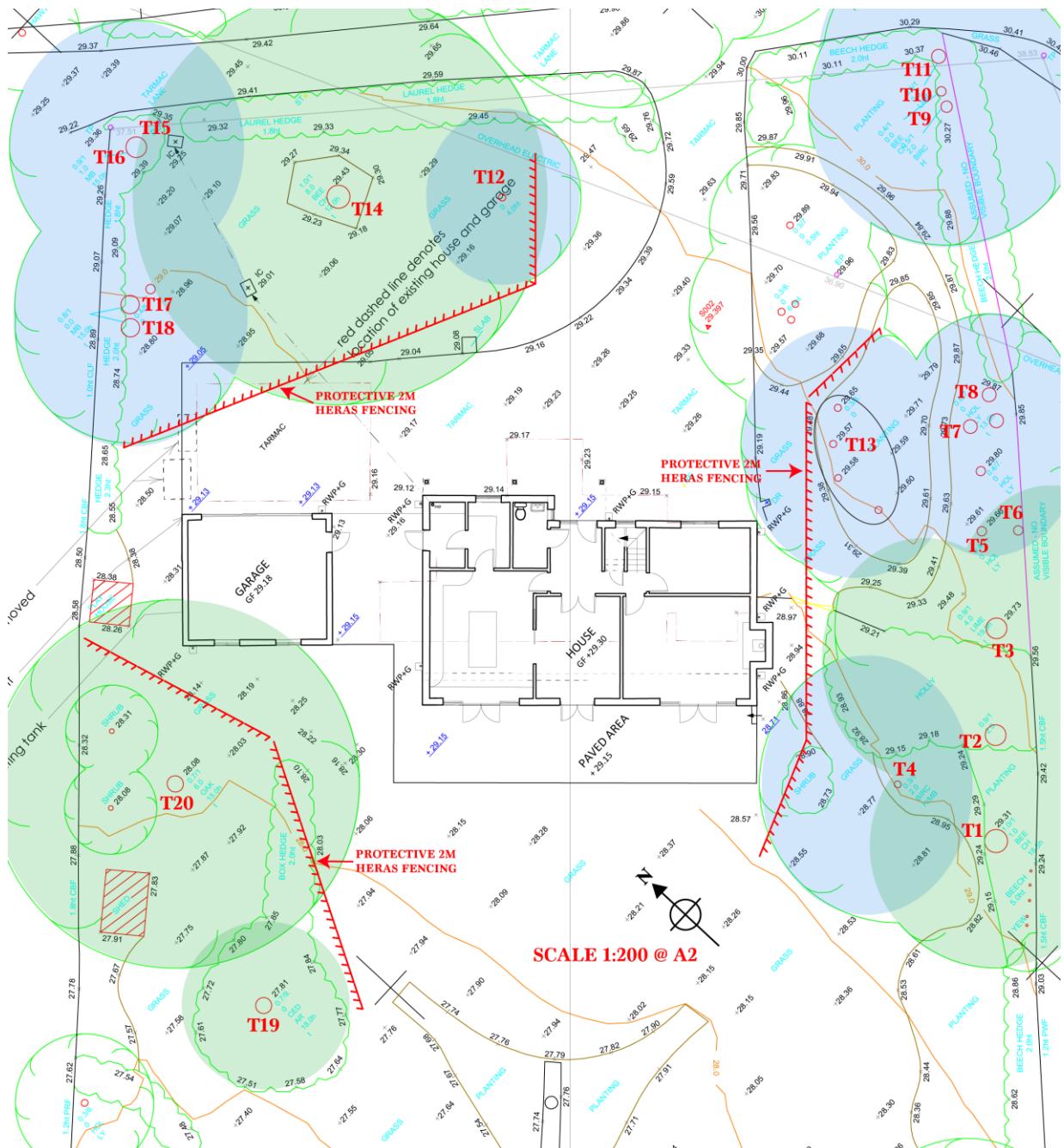


Figure 3. ‘Cell-Webb’ type drive covering



Figure 4. Tree Constraints Plan

This defines the Root Protection Areas of the larger significant trees 1-20 surveyed and positioning of 2 metre high Heras style fencing required to protect the roots and canopies of the closest significant trees to the proposed building area. This should be erected before any demolition works and will remain until end of construction phase.



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