



ARBORICULTURAL IMPLICATION STUDY AND TREE PROTECTION STRATEGY

Chestnut Cottage
Sheldons Lane
Hook, Hampshire
RG27 9LH

Produced For: Mr & Mrs Hawthorne care of Michael Conoley Associates
Prepared By: Michael Honey, Dip. Arb. (RFS), F.Arbor.A. BA Hons
Reference: MPH/0661/RHB
Date: 12 March 2016



Honey Tree Specialists Ltd

Suite 2, Dominion House Business Centre, Lion Lane, Haslemere, Surrey, GU27 1JL

Tel: 01428 644764 Mobile: 07771 923396

Email: trees@honeytreespecialists.com www.honeytreespecialists.net

Prepared for: Mr & Mrs Hawthorne care of
Michael Conoley Associates

Site Address: Chestnut Cottage, Sheldons Lane, Hook, Hampshire

Report Prepared By: Michael Honey

Date: 12 September 2016

▪ Instructions

Further to your recent instructions I have pleasure in submitting the following report.

▪ Background

The report concerns the above site which consists of a detached residential property with separate garage and set within its own garden.

The site is subject to a development proposal which consists of the demolition of the existing house and garage and construction of a new residential dwelling with separate garage as outlined upon the proposal drawing included within Appendix 2.

▪ Scope of Report

- a) The following report assesses all the trees on site in terms of their health and safety, amenity value and future potential. The trees were numbered and plotted on the proposal drawing. The schedule of trees is included in Appendix 1.
- b) The scope of this report is to assess the development proposal for this site with respect to its impact upon existing trees. The report determines which trees should be retained and which should be removed. All interfaces between the



development and the trees, their root zones and their crowns are assessed and discussed.

- c) Root Protections Areas for those trees of amenity value graded B and above are also listed and with reference to BS5837:2012 'Trees in Relation to Design, Demolition and Construction' Annexe D.
- d) The quality and future growth potential of the trees likely to be affected by the development are assessed.
- e) The report details those protective measures that will be necessary for the successful protection of retained trees during the construction process.
- f) Guidance is given with respect to the implementation of protective procedures and measures in relation to specific site sensitive trees and general site organisation and construction logistics.
- g) The use of a Tree Protection Method Statement is described as a potential tool to assist the successful logistical implementation of tree protective measures during the construction process. The general principles involved in the formation of a method statement and its contents are outlined.

▪ **Site Description**

The property is located within a residential area of the village of Hook occupied by detached properties set within their own gardens. The area has an established population of mature trees at significant densities which contribute to the local landscape.

The property is approached by a service lane set back from Sheldons Lane which accesses a small area of vehicle hardstanding and a garage, at the front of the property. The house is set further back within its own gardens which comprise predominantly of lawns which surround the house. Small ornamental trees and hedging are confined to the boundaries.

The only three large and significant trees of amenity value include an Ash T1 at the eastern side of the service lane, a large mature Horsechestnut tree T2 located at the front or eastern boundary of the property and a Yew T15 located at the western boundary. The remaining trees are smaller ornamental or orchard specimens of limited prominence and amenity value.



The property is surrounded by further detached houses and their gardens and the site is level with no significant inclines in any direction.

▪ **Design Proposal and Tree Retention**

The proposal allows for the retention of all the trees on site including the two specimens of amenity value at and beyond the front boundary of the site, the Ash T1 graded B and the large prominent Horsechestnut T2 graded A/B, and the Yew at the rear or western boundary T15 graded B.

The new garage will encroach partially upon the Root Protection Area of the Horsechestnut T2. Protective measures including exploratory hand dug excavation and specific foundation design if necessary have been listed within the following report to ensure that there will be no significant impact upon this tree.

Similarly the vehicle hardstanding will be extended southwards slightly and by approximately 1.5 metres to service the new garage and will require a no dig form of construction.

With the implementation of these specific and the general protective measures listed the proposal will have no significant impact upon the site's trees including the trees T1, T2 and T15 of prominence and amenity value.

▪ **Protection of Trees During Construction**

General Principles

Existing trees can be easily damaged directly through root severance and inadvertently through soil compaction which disrupts the soil structure causing asphyxiation of roots and subsequent root dysfunction. Spillage of toxic materials can also cause root death. Protection for selected trees for retention is essential to ensure their lasting effect on the proposed scheme which will include a proportion of the tree/soil zone.

It is equally important therefore to ensure the protection of trees both above and below ground. Guidance is provided in British Standard 5837, 2012, 'Trees in Relation to Design, Demolition and Construction' as to the protection of existing trees before, during and after development.



Additionally, guidance is given specifically with respect to driveways in the publication 'Through the Trees to Development' produced by the Arboricultural Advisory and Information Service.

Trenching close to trees can have a serious detrimental effect on tree physiology and stability. It will be necessary to consider alternatives to open trenching near trees in order to avoid damage. Guidance is given in the National Joint Utilities Group publication 'Guidance for the Planning Installation and Maintenance of Utility Services in Proximity to Trees'.

Protective Distances and Fencing

With reference to BS5837, 2012, Annex D, recommendations for the Root Protection Areas for those trees of amenity value graded B and above has been included within the tree schedule.

These Root Protection Areas should be included on a separate drawing as part of the tree protection plan. The Root Protection Areas where possible and appropriate should be enforced by the use of robust protective fencing as outlined in BS5837, 2012.

In this instance I would recommend fencing 2 metres high consisting of a scaffold framework supporting weldmesh panels (fig. 2 BS5837, 2012, Appendix 3).

Where construction processes are required to within the minimum protective distances the ground between the protective fencing and building should be protected by geo-textile fabrics beneath boarding and separated by a 100mm woodchip compression layer.

High visibility tapes bearing the inscription 'Tree Retention Area Keep Out' should identify protective areas.

Demolition

Demolition of the existing house and garage should be undertaken with great care in order not to damage the three trees of amenity value and in particular the Horsechestnut T2. Demolition of the garage, which abuts the Root Protection Area of the Horsechestnut T2 should be carried out by hand where possible.

All demolition materials to be demolished into the existing house and garage footprint area and moved to designated storage area. No demolition material



should be stored within Root Protection Areas of retained trees. Materials should be removed from site by the designated access route which should include the existing driveway. Excavation of the old garage foundations at its eastern elevation should be restricted to their existing depths and no greater.

Any excavated area within the protected root area should be back filled with inert granular material mixed with top soil.

Tree Protection and Utilities

The location and siting of all utilities should if possible be outside of the minimum Root Protection Area as enforced on site. Where utilities need to encroach upon these areas thrust bore excavation techniques should be considered.

I understand in this instance that all utility and service runs will follow the existing service routes to the property and no new excavation will therefore be required within the Root Protection Areas of the Ash T1 and Horsechestnut T2.

Tree Protection and Storage of Materials

All materials for construction purposes should be carefully stored outside of the enforced tree protection areas. All toxic substances such as oils, bitumens and residues from concrete mixing should be retained by effective catchment areas.

Landscaping Works

All landscaping should avoid soil regrading and disturbance within the tree protective areas. This includes cultivations for the preparation of soil for turf, seeding or planting.

All landscaping works within tree protection areas should be carried out by hand where possible.

Site Access for Demolition and Construction Traffic

All demolition and construction traffic will access the property from the existing driveway and will be restricted to the existing driveway hardstanding within the Root Protection Area of the Horsechestnut T2. All further progress of construction and demolition traffic will be restricted to a westerly direction outside of the Root Protection Area of T2.



Grade Changes

There are to be no grade change alterations within the Root Protection Areas of any trees.

Direct Damage to Roots and Foundation Design

The design proposal includes the construction of a new garage and its foundations partially within the Root Protective Area of the Horsechestnut T2.

If traditional foundation design and construction methods are employed excavation to depths will be required along the foundation line that may sever a small proportion of the tree's root system particularly if foundations are excavated mechanically.

Damage to tree roots can be limited by designing foundations in a way that avoids continuous trench foundations and permits roots to continue to radiate out from the tree. A pile and beam foundation would be suitable for this purpose.

A trench should at first be hand excavated using a compressed air system (Air-spade) to a depth of approximately one metre retaining all roots over 25 millimetres in diameter and bundles of finer roots.

Exposed roots should be kept moist at all times whilst they are exposed.

If no such significant roots are encountered within the exploratory excavation then traditional strip foundation design can be employed.

If significant roots are exposed then the pile and beam system of foundations will be designed accordingly. The trench will act as an exploratory measure to assess the location of roots in order to determine the exact position of both pile and beams to minimise damage. Following the determination of roots and pile and beam positions the trench should be backfilled with inert granular material mixed with topsoil.

It would be preferable that the beams are seated at ground level to avoid root disturbance along their lengths. The piles should be placed as carefully as possible in relation to the roots exposed by exploratory excavation, to ensure that root severance is kept to a minimum and confined, if practical, to roots less than 25



millimetres in diameter and while retaining bundles of finer roots. Any roots that are encountered during the excavation for and construction of the beams should be cut cleanly with a handsaw or secateurs or suitable pruning tools. The excavation areas should be backfilled with inert granular material mixed with top soil.

The base or floor of the garage should also be constructed to avoid excavation of this area. It is preferable that a void exists between the floor and soil surface for gaseous diffusion.

The existing driveway will be extended marginally by a distance of approximately 1.5 metres from the existing hardsurface to service the new garage. Exploratory excavation to the subbase depth should also be undertaken to determine the presence of any roots within this small area of hardsurface construction. If such roots are encountered the driveway extension should be constructed using a porous gravel no dig surface retaining the significant roots.

A structural engineer should be consulted with respect to the garage foundation design and construction techniques.

Protection From Construction Processes

The Horsechestnut T2 will require light construction processes including pedestrian activity and possibly scaffolding within the trees Root Protection area. The more robust form of protective fencing specified (2 metre high scaffolding supporting weld mesh) should first be erected approximately 1 metre from the proposed line of the garage foundations to facilitate the construction process. Ground between the protective fencing and building should be protected by geotextile fabrics beneath boarding separated by a 100mm woodchip compression layer.

Other Trees

All other trees on site to be retained should be adequately protected by the enforced protective measures outlined and no further special requirements will be needed.

▪ **Tree Protection Method Statement**

Before construction works begin and in order to ensure that all the above protective measures are enforced a Method Statement should be devised outlining a logical framework and a reasonable sequence of events and supervisory procedures.



The tree protection method statement should include a drawing depicting all individual and general tree protective distances. The drawing should also depict all areas designated for the storage of materials including catchment areas for toxic fluids, and general access routes for utilities and services.

All protective fencing should be specified in detail for each tree and area.

Detailed specification for special operations should be outlined and agreed including exploratory excavation and specific garage foundation construction if necessary.

The tree protection method statement should also include a schedule of the sequence of events to ensure all protective measures are adhered. All relevant construction and development personnel should be informed with respect to the method statement and which should be made available to them.

Site supervision to ensure that protective measures are employed and protective distances are strictly enforced should be carried out by both site agent and designated arboriculturalists. This to also include regular visits by the arboriculturalists during construction and a final visit on completion. A reporting procedure should also be implemented and agreed.

This protective method statement scheme can be endorsed by planning conditions, agreement or obligations as any appropriate arrangement between the developer and planning authority. Further discussion between these relevant parties might therefore be necessary in order to finalise this document.

Summary

The proposal for the demolition of the existing house and garage and construction of a new detached dwelling and separate garage allows for the retention of all the trees on site. This includes the only two trees of amenity value, which are located at the front of the property the Ash T1 and Horsechestnut T2, and the Yew of amenity value, T15 graded B at the rear or western boundary.

The new garage will be constructed partially within the Root Protection Area of the Horsechestnut T2. Protective measures have therefore been outlined within the report, including exploratory hand dug excavation and specific pile and beam foundation design if necessary to ensure no significant impact upon this tree.



With the careful implementation of these specific and the general protective measures listed the proposal can be constructed while ensuring the safe retention of the site's trees, including the three trees of amenity value T1, T2 and T15 and their continued contribution to the local landscape.

This concludes my report but if I can be of any further assistance, or should you require any further information, please do not hesitate to contact me.

Michael Honey
HONEY TREE SPECIALISTS



APPENDIX

Appendix 1

Tree Schedule

Appendix 2

Proposal Drawing

Appendix 3

Protective Fencing



Appendix 1

Tree Schedule

TREE SCHEDULE

Inspection date: September 2016

Client: Mr & Mrs Hawthorne care of Michael Conoley Associates

Site: Chestnut Cottage, Sheldon's Lane, Hook, Hampshire

REF: MPH/0661/RHB

Surveyor: Michael Honey

Tree No	English Name	Height m	DBH cm	Spread m	Vigour	Age	BS Cat 2012.	BS RPA 2012 (Radius)	Comments
T1	Ash	17	49	6N 6S 4W 4E	N	Middle aged	B	6m	Prominent tree. Leaning one-sided form with abnormality at base, monitor.
T2	Horsechestnut	17	100	9 all aspects	N/L	M/OM	A/B	12m	Very large prominent tree approaching over maturity. Possible Ustulina fungal fruiting bodies at base, reinspect within 1 year, large cavity to old pruning wound at 4 metres on eastern side, lower crown has been managed by past limb reduction. Fungal and Leaf Minor foliage disorders. Large wound to lower southern limb which requires further pruning.
T3	Pair of Prunus/Plums	4	10	2	N	Middle aged	C		Untidy orchard tree.
T4	Horsechestnut	4	Twin 10 & 12	2	N	Y	C		Youthful tree of poor twin stem form with weak basal union.
T5	Hazel	4	Multi	3	N	Y/M	C		Native shrub
T6	Viburnum	2	Multi	2	N	M	C		Ornamental shrub.

Notes:

As per BS5837, 'Trees in Relation to Design Demolition on Construction', 2012.

- Height describes the height of the tree from ground level.
- DBH is the diameter of the trunk at 1.5m from ground level or as defined in the text.
- Spread refers to the crown radius from the trunk centre and is expressed as an average or NSEW aspect, as appropriate.
- Age range is represented as Y-young, SM-Semi mature, M-mature, OM-over mature.
- Vigour is described as N-Normal, L-Low or D-Dead and refers to the general condition of the tree.
- BS Cat. refers to BS 5837, 2012 retention category table 1, where A category retention most desirable (life expectancy 40 yrs +) B retention desirable (20 yrs +) C could be retained (min. 10 yrs) and U (remove).
Colours:- A=LIGHT GREEN B=MID BLUE C=GREY U=DARK RED where indicated on plans.
- BS RPA is BS5837, 2012 recommended Root Protection Area given as the radius of a circle equal to that area; The final RPA may not be represented by a circle within tree protection drawings.

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Tree No	English Name	Height m	DBH cm	Spread m	Vigour	Age	BS Cat 2012.	BS RPA 2012 (Radius)	Comments
T7	Leyland cypress hedge								Formally managed boundary hedge.
T8	Apple	4	30 at base	3	N	M	C		Previously pollarded orchard tree.
T9	Sorbus Aria	4	27	3 all aspects	N	Y/M	C		Small untidy ornamental tree previously managed by crown reduction.
T10	Copper Norway Maple	9	30	4 all aspects	N	Y/M	C		Small untidy ornamental tree, the form of which has been compromised by past pruning.
T11	Silver Maple	14	45	4N 7S 6W 6E	N	Middle aged	C		Tree of poor form with tight included weak union of codominant stems at 1 metre, reinspect within 2 years. Untidy crown as a result of past pruning.
T12	Beech	13	35	4N 4S 4W 2E	N	Y/M	C/U		Untidy tree of poor form and potential with serious weakness and decay to stem at 2 metres, schedule for future removal.
T13	Laburnum	10	18	2	N	M	C		Ornamental tree.

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Tree No	English Name	Height m	DBH cm	Spread m	Vigour	Age	BS Cat 2012.	BS RPA 2012 (Radius)	Comments
T14	Norway Maple	7	27	2	N	Y/M	C		Ornamental tree of poor form as a result of past pruning.
T15	Yew	10	NA approx 60	7 all aspects	N/L	Middle aged	B	7.2m	I had no access to inspect in detail but prominent tree of slightly poor vigour. Reinspect with access.
T16	Mixed Yew and Leyland Cypress Hedge								Formally managed screen.

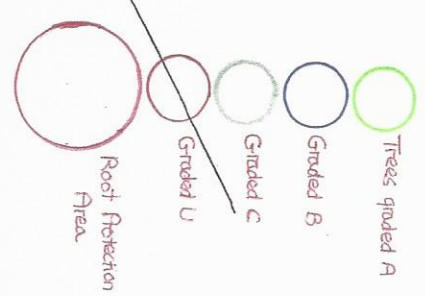
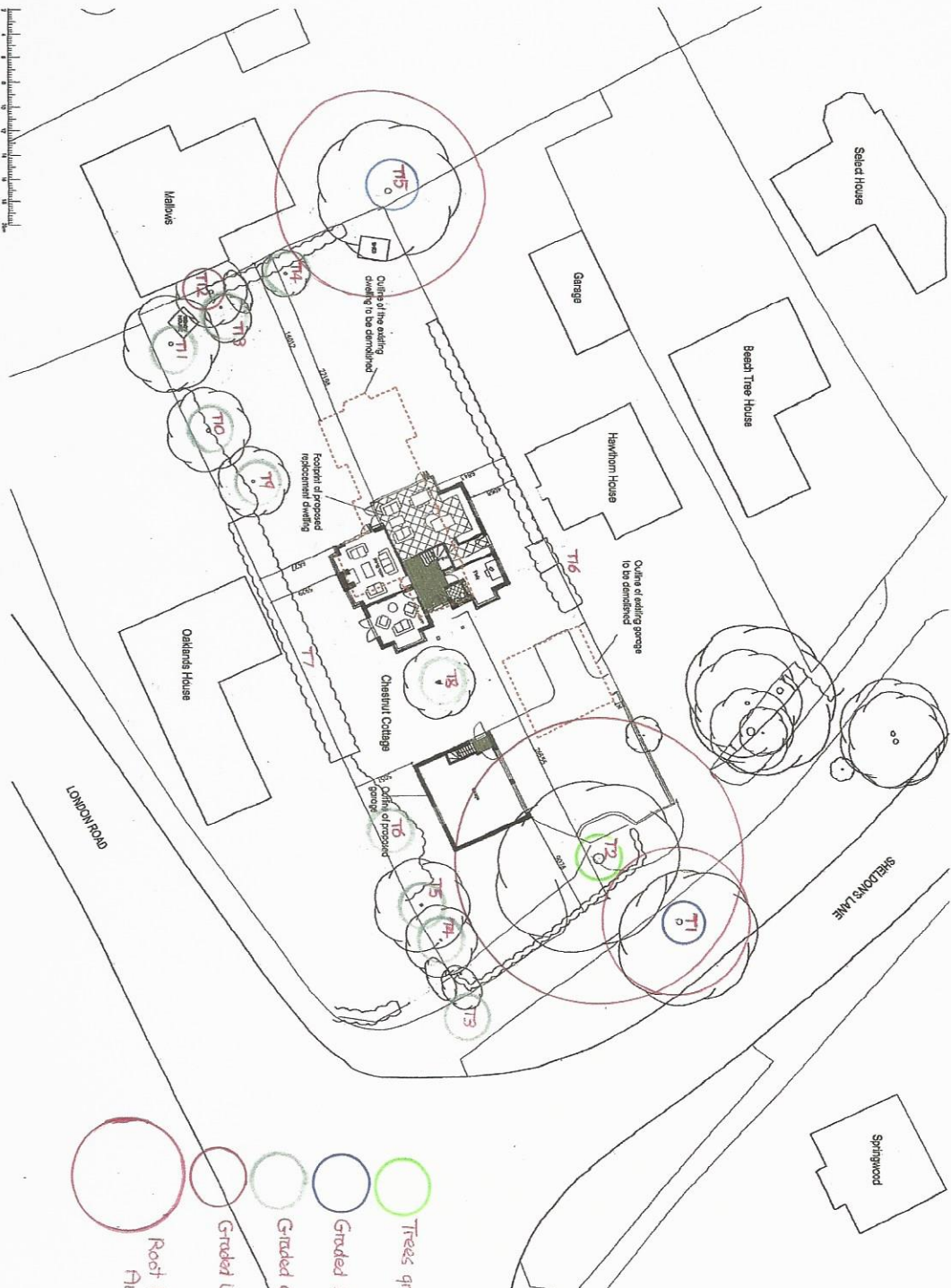
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Appendix 2

Proposal Drawing



SITE LOCATION PLAN
SCALE 1:250

PROPOSED BLOCK PLAN
SCALE 1:200

<p>MICHAEL CONOLEY ASSOCIATES CHARTERED ARCHITECTS</p>	
<p>PROJECT: Replacement Dwelling & Garage at Chestnut Cottage, Sheldon's Lane, Hook RG27 9LH</p>	<p>SCALE: 1:1250 1:200</p>
<p>DATE: 08.16</p>	<p>REVISION: A1</p>
<p>PROJECT TITLE: Proposed Site (Block) Plan and Site</p>	
<p>DRAWING NUMBER: 1.903/P_01</p>	



Appendix 3

Protective Fencing

Figure 2 Default specification for protective barrier

