



for

-prepared on behalf of Gary Willard

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0749.bjh.Oct14

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1.0 INTRODUCTION & CLIENTS BRIEF

- 1.1 My client - **Gary Willard** - is wishing to redevelop the garage block in view of the fact that cracks have appeared in the floor and back wall.
- 1.2 There is a mature TPO'd Oak tree on this site which abuts the existing garages and thus also the site for the new garages - this will need to be accounted for and appropriate measures taken to afford protection in accordance with BS5837 recommendations.
- 1.3 I have been commissioned to prepare a report & plans to satisfy the arboricultural aspects of this project to meet planning requirements.
- 1.4 My work is to be compiled in accordance with the recommendations contained within BS5837:2012.

2.0 DOCUMENT DISCLOSURE STATEMENT

- 2.1 I have been provided with a copy of the following Planning Layout drawing as prepared by my clients architects - **ADS Design Services**
- **Amended Position of Double Garage over Existing Footprint Plan- 13226/5 Rev A - 23.10.14 - 1:50 @ A3 paper size**
-this has been provided to me for the purposes of my work and I rely totally on the accuracy of this drawing in terms of tree location; applying crown spreads and setting out protective fencing and specifying mitigation measures.

3.0 TREE SURVEY & ROOT PROTECTION SCHEDULES & IMPACT ASSESSMENT

- 3.1 I visited the site on **21st October 2014** and carried out a tree survey exercise in accordance with BS5837:2012 recommendations.
(see explanatory tree survey notes at appendix B1111).

Tree No.	Species	Ht m	Diam mm	Brch Spred m	GC m	LMB m	LS	Condition Comments	Preliminary Management Recommendation	Rem. Con yrs	Cat
1	Pedunculate Oak <i>Quercus robur</i>	13	1100	No F.b. Sb. W.b.	1.5	3 w	M	Previously heavily topped out for safety reasons and has now regrown a full crown of healthy foliage - some deadwood - fair shape and form	No works required at this time	>40	B1

3.2 A Tree Root Protection Schedule has been prepared in accordance with BS5837:2012 recommendations (see Plans BJH 01 & 02 at appendix BH2)

Tree No.	Tree Species	Cat	Diam mm	BS5837:2012 Table D1 Radial Protect. Zone m	BS5837:2012 Table D1 Root Protect. Area m ²	Is An Offset Required To Cater For Existing Rooting Pattern Restrictions
1	Pedunculate Oak <i>Quercus robur</i>	B1	1100	13.2 Suggested Appropriate Adjusted RPA 9m	547 255	NO - there are constraints all around this tree which hem it in and cancel each other out <i>N.B. - this tree has been very heavily topped out and the likelihood is that this pruning regime would have to be continued every few years on a cyclic basis the future for safety reasons alone to keep the tree from breaking out due to weak points of branch attachment and to counter the basal fungal decay - under these circumstances it is appropriate to reduce the RPA in accordance with the size of crown and the likely demands placed on it in future to supply water and nutrient to sustain the tree.</i>

4.0 IMPACT ASSESSMENT & TREE PROTECTION MEASURES RECOMMENDED

4.1 The finalised planning layout drawing has been provided to me and an assessment made as to the viability of retaining trees as part of this layout in order that they meet the RPA requirements of BS5837 - the data is presented here in tabular format:-

Key RSAM - Remove for sound arboricultural management reasons RTHD - Remove to facilitate development LF - under footprint of proposed development
YES - Yes can be retained and fully protected YES (1) - Yes can be retained subject to mitigation measures being applied

Tree No	Species	Cat	Stem Diam mm	BS5837:2012 Radial Protection Area m	BS5837:2012 Polygon Area m ²	Distance from Site Features (see key above)	Can Tree Be Retained
1	Pedunculate Oak <i>Quercus robur</i>	B1	1100	13.2	547	2.7m to existing garage block 2.7m to proposed new garage block	YES (1)

4.2 YES (1)

Tree 1 - Pedunculate Oak

- The RPA of this tree completely encompasses the area which is proposed for re-development thus requiring special foundation techniques to be applied to avoid root damage.
- As the new building will occupy exactly the same footprint as the current garage block with no requirement for excavation outside of this zone this is a viable development but it requires that a strict methodology is adhered to - see at Section 6 below.

5.0 PRE-DEVELOPMENT TREE WORKS

5.B. – these tree works are to be undertaken prior to contractors taking possession of the site for the Construction phase of work.

No	Species	Tree Works Recommended
1	Pedunculate Oak <i>Quercus robur</i>	Remove epicormic shoots from north side of trunk and crown lift to provide 1.5m clearance from the existing garage roof to provide adequate clearance for scaffolding and standard construction techniques to be followed.

6.0 METHOD STATEMENT

- 6.1 All of the specified tree works are to be undertaken by an approved and experienced tree contractor prior to any construction contractors commencing works on the site.
- 6.2 Erect the boxed hoarding around the trunk to act as protective fencing as specified and shown on the **Tree Protection Plan BH04** at appendix B113. Barriers are to be 'Fit For Purpose' to exclude construction activity and must be maintained to ensure that they remain rigid and complete and in the original setting out positions. These checks will need to be incorporated into a schedule of site monitoring visits to be agreed with the clients subject to phased development operations and subsequently copies of these site visit reports will need to be copied in to the Council.
- 6.3 A copy of the Tree Protection Plan is to be pinned up in the offices/mess hut on site for all site staff to see. The area within the fenced off exclusion zone is to be regarded as **sacrosanct** and the fencing shall not be taken down or relocated at any time without the prior written approval of the monitoring arboriculturist or local authority tree officer, unless this has already been agreed as part of the planning application consent process and is detailed in writing and shown on a plan.

The following prohibitions shall apply within the area enclosed by the Tree Protection Fencing -

- **No** mechanical digging or scraping once the initial ground cover vegetation has been cleared and the site fenced off.
- **No** storage of plant, equipment or materials.

- No vehicular or plant access
- No fire lighting
- No handling, discharge or spillage of any chemical substance, including cement washings
- No action likely to cause localised water-logging
- No change in ground levels

- 6.4 All site works storage areas and compounds/welfare units and any mixing areas are to be located on existing hard surfaced areas or else well outside of and well clear of retained tree RPA's but in any event appropriate polythene sheeting must be laid to collect chemical contaminants and prevent them from accessing the surrounding soil.
- 6.5 It will be very important for any vehicle drivers to have undergone a pre-contract induction session where the trees to be retained are to be highlighted and the need for care and attention when working nearby with wide loads; tall loads; plant with swinging booms, jibs and counterweights (including drilling rigs) or slewing hydraulic arms to avoid contact with trunks or crowns.
- 6.6 On completion of the erection of the protective fencing the demolition of the existing garage block can be commenced with machinery working over retained hard surfaced areas to the south side or over ground protection if working from the north or west sides – this protection is to accord with **BS5837 – 6.2.3.3 b)** – for plant up to a gross weight of 2 tonnes – scaffold boards are to be laid over a compression resistant layer of 150mm depth woodchip with an underlay of geotextile membrane.
- 6.7 This will also provide support for any scaffolding which needs to be erected around the walls of the new garage block to facilitate roof construction.
- 6.8 The methodology for demolition must follow a pattern of roof and walls being pulled in on the footprint of the garage block and away from the tree.
- 6.9 Once the roof and walls have been demolished and cleared this will expose the existing concrete floor – this will in turn be broken out with hydraulic hammers and the rubble cleared as work proceeds and not left stockpiled on the site. Once the concrete and sub-base layers have been broken out and cleared and open ground exposed beneath them there is to be no further use of machinery within this zone.
- 6.10 Initial exploratory hand dug trench excavations (see trial pit photos at appendix B115) have revealed that the current concrete floor and sub-base layer are 200mm deep below the existing ground level surrounding the garage block and thus no disturbance of the ground is to take place below this depth.
- 6.11 The new concrete slab needs to be 300mm deep to support the new garage block and thus there will be an upstand above ground of 100mm – wooden formers will be pegged around the outside of the footprint of the new garage block and concrete poured into this containment zone and levelled off.

- 6.12 Because of the 100mm upstand there will be a need to then ramp up from the current gravel surfacing on the west side to match this new garage floor level – which can readily be accommodated by clearing the existing vegetation with ‘Hand Tools ONLY’ and then raking level before laying a geotextile membrane over the ground and then setting out sloping wooden formers to the north and south sides infilling with pea gravel or similar small diameter washed aggregate.
- 6.13 The area to the north of the garage block will remain grassed with ground protection only removed on completion of all construction works to allow this soft landscape feature to recover. The area to the west side will be cleared of existing vegetation and the ground raked level and then protected as per BS5837 – Section 6.2.3.3 b).
- 6.14 The area to the south of the garage block is currently laid to concrete and this will be broken out as one of the final phases of work once the new garage block has been constructed – in this way it offers maximum ground protection for the longest possible period protecting roots beneath it. Once broken out it must immediately be backfilled with high quality topsoil – the intention being that this flank wall of the garage will then be screened from the road by new hedge and shrub planting to soften the impact in the landscape and street scene. This process will also apply to the concrete to the east side of the new base which will be retained in situ for as long as possible before being broken out and backfilled with topsoil.
- 6.15 The final operation will be to remove the boxed hoarding from around the trunk of the Oak tree.
- 6.16 With regards to service and utility connections it is proposed that all existing connections will be tapped into and no new excavation works to the north or west sides will be necessary. IF for any reason this situation changes then it will be necessary to submit a separate Method Statement to define how new links will be formed without damaging tree roots and the health and vitality of the Oak tree. As regards rainwater pipes these can either discharge onto the surface of the soil around the concrete slab or be piped into water butts but no excavation works will take place to form soakaways.

7.0 SITE MONITORING & SUPERVISION

- BS5837 recommends that wherever trees on or adjacent to a site have been identified on the tree protection plan as requiring special protection measures, there should be an auditable system of arboricultural site monitoring. This should extend to direct arboricultural monitoring whenever demolition/construction and development activity is to take place within or adjacent to any RPA.
- It is suggested that for all major sites the following phased approach should be observed, but on smaller sites this would be simplified subject to agreement with the Council :-
 1. Pre-commencement site meeting between the development teams arboricultural consultant and the site manager and client representative where the full extent of arboricultural supervision/monitoring can be agreed for the project and the requirements of the AIA report and Tree Protection Plan BJI1.04 discussed. Please note that **IF** there is a Demolition Phase to the project then the demolition contractors representative would also need to attend to gauge the constraints which will be placed on vehicle movements by the requirement to have Demolition Phase Protective Fencing erected for the duration of their works.
 2. Employ a qualified and experienced Tree Contractor to carry out all tree pruning and felling works that have been agreed with the Council.
 3. Erect the Construction Phase Protective Fencing [or extend it out from the initial Demolition Phase fencing if applicable] and apply any Ground Protection measures as recommended in the AIA report and shown on the Tree Protection Plan BJI1.04.
 4. Schedule a second pre-commencement meeting between the development teams arboricultural consultant and the site manager and client representative where the location of the Protective Fencing can be verified [and any adjustments to same requested] and the suitability of the materials used can also be verified [i.e. are they 'fit for purpose']. Subject to this all meeting the recommendations of the AIA report and as shown on the Tree Protection Plan BJI1.04 the site may be released to the Site Manager and a letter issued by the Arboricultural Consultant to the Council verifying satisfactory completion of the initial site set-up Tree Protection measures - probably accompanied by details of how the requirements for an ongoing auditable system of arboricultural site monitoring are to be met on this project.

8.0 CONCLUSIONS

- Provided that the above methodology is strictly adhered to in the phased manner advocated [and arb expert monitored work where appropriate] I would not foresee any detrimental impact taking place that might undermine the health or visual amenity value of the Oak tree shown for retention on this site.
- I would therefore see this as a fully supportable and viable scheme in arboricultural terms.

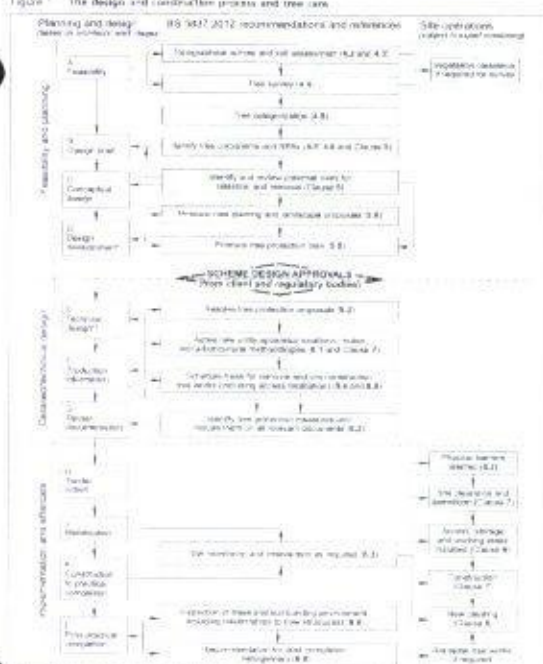
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BH 1

Figure 1 - Flow Diagram
& Tree Survey Notes

Figure 1 The design and construction projects and tree care.



The design development stage of a building is an iterative process, comprising a number of meetings with the client, the design team and the building services engineer. The design team will develop a number of design options, which will be evaluated and refined. The building services engineer will provide input into the design process, ensuring that the building services requirements are met. The design development stage is a key stage in the design process, as it is where the building services requirements are fully defined and the design team is able to develop a detailed design for the building services system.

development, although the exact layout/detail of any specific scheme will not be known at the time of surveying. The trees have been classified into one of four categories and colour-coded as BS5837 recommends – ■ (dark red), ■ (light green), ■ (mid-blue) and ■ (grey). Please note that suffixed numerical sub-categories are also applied for guidance only and do not carry any cumulative or increased value for the tree group. This colour coding scheme will be applied to all drawings provided.

TREE SURVEY NOTES

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

- British Standard BS5837:2012, and they define the criteria for pre-development tree surveys.
 - Each tree/group/hedge/shelterbelt/woodland has been allocated a unique number (**No.**) where specifically requested and appropriate fees are agreed small durable numbered metal tags can be applied to each tree/group surveyed
 - The tree species (**Species**) is provided in both English and Latin name formats.
 - Height assessments (**Ht**) are estimated in metres. This will be adequate for the majority of cases, but where accurate heights become a critical issue it may be necessary to return to site, as a separately commissioned exercise, to collect accurate measurements with the aid of optical instruments.
 - Trunk/stem diameters (**Diam**) are measured in millimetres at 1.5m above ground level where the tree is inaccessible the diameter is estimated as indicated by suffix #
 - Radial crown spread assessments (**Brch Sprd**) are estimated in metres from the centre of the trunk/group to each of the four primary points of the compass (**N**-north; **E**-east; **S**-south and **W**-west) in order to achieve a representation of the crown shape which will be shown on the accompanying tree survey plan. These provide a general guide as to the main bulk outline of a tree/groups crown but are not 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
 - Both the canopy ground clearance (**GC**) and the height & compass direction of the lowest major branch (**LMB**) are estimated and shown in metres.
 - An assessment of a tree/groups 'life stage' (**LS**) 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, **SM** - Semi-Mature tree/group, **EM** - Early-Mature tree/group;
M - Mature tree/group, **OM** - Over - mature tree/group
- Data on the structural condition (**Condition Comments**) of the tree/group is provided to give its visual appearance and any significant health and safety issues
 - Details of any recommended tree works required at the time of survey is given under the heading **Preliminary Management Recommendations**.
 - An estimate of a tree/groups remaining contribution in years (**RC**) is made and is recorded thus :-
0-5; 5-10; 10-20; 20-30; 30-40 or >40 years.
 - The category grading (**Cat**) for each tree group is assessed according to the criteria provided within **BS5837:2012**. The assessment is made of the tree group in its current condition and within the

Table 1 – Cascade chart for tree quality assessment

Category and definition	Criteria			Colour on plan
Trees unsuitable for retention				
Category 1 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.	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unstable after removal of other category U trees (i.e. where, for whatever reason the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - 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 NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve.			Dark Red
Trees to be considered for retention	Criteria – Subcategories			
	1	2	3	
Category 2 Trees of high quality 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)	Light Green
Category 3 Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in the category A ₁ , 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	Mid Green
Category 4 Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	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	Grey

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BH 2

Tree Survey & Root Protection Plans

BJH 01 & BJH 02

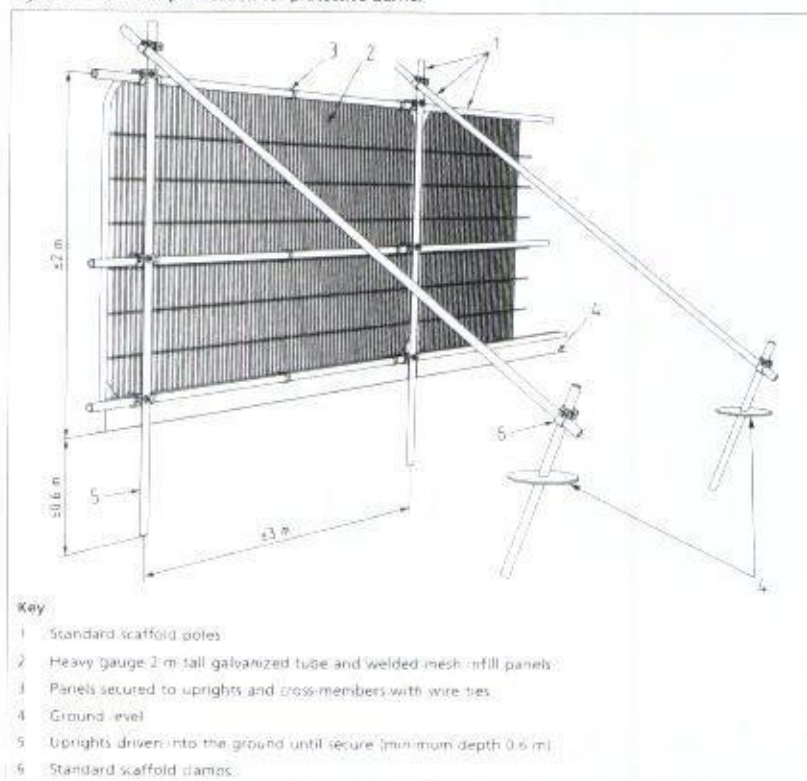


BH 3

Combined Tree Retentions & Removals Plan BJH 03 & Tree Protection Plan BJH 04

+ BS5837:2012 – Figure 2
+ Trial Pit Photo

Figure 2 Default specification for protective barrier





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BH 4

Qualifications & Experience



QUALIFICATIONS AND EXPERIENCE

- My name is Bernie Harverson and I am a self-employed independent arboricultural consultant in private practice. I take instructions primarily in the South of England but also on occasions work nationwide and abroad and have offices at :-
3 Foxcombe Cottages, South Harting, West Sussex GU31 5PL and also at Cedar Court, 5 College Street, Petersfield.
- I hold the following arboricultural qualification - **Master of Arboriculture** (Royal Forestry Society - 1976)
- I have over **forty** years of practical and managerial experience in the arboricultural industry including periods in both the public and private sectors
- My Local Government sector experience comprises one year as a tree surgeon with Brighton Parks and nine years spent in Arboricultural Officer posts with both Westminster City Council and Portsmouth City Council
- My past practical experience in the private sector includes two years at Tilhill Forest Nursery and over ten years for various companies as a Climbing Arborist/Tree Surgeon
- Managerial work in the private sector includes two years as manager of Beechings tree surgery company and twelve years with CBA Tiges as an Arboricultural Consultant
- As an independent self-employed Arboricultural Consultant I now provide a comprehensive range of services including :-
tree surveys, appraisals, assessments and inspections with particular reference to planning and development and tree safety audits with a service offered as a climber to undertake full climbing inspections to better understand the condition of a given tree before prescribing a management strategy.
- I also undertake litigation work appearing as an Expert Witness in Court Actions and at Planning Appeals, Hearings and Public Local Inquiries.

Bernie Harverson M.Arb.

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