BJH.0487

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ARBORICULTURAL METHOD STATEMENT & TREE PROTECTION PLAN REPORT

for

42 Highfield Avenue, Waterlooville

*- prepared on behalf of **DKF Developments** –*

***- February 2011** (Ref:10-00949 DC)-*

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ARBORICULTURAL METHOD STATEMENT (AMS) & TREE PROTECTION PLAN (TPP)

Client	**DKF Developments**
Site Location	**42 Highfield Avenue, Waterlooville**
Project Arboricultural Consultant:	Bernie Harverson *M.Arb.,*
Date Report Prepared	February 2011

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3	LAND SURVEY & TREE SURVEY - (in accordance with Section 4 of BS5837)
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Appendices	**Subject**
BH1	Tree Survey Schedule (in accordance with – **Table 1** of BS5837) + **Figure 1 -**Flow Diagram from BS5837 + Tree Survey Notes
BH2	Root Protection Area Schedule (**RPA** in accordance with – **Table 2** of BS5837)
BH3	Arboricultural Impact Assessment (**AIA**) & Tree Constraints Plan (**TCP**) – **BH.01/02** – **NOT PROVIDED FOR THIS PROJECT**
BH4	Pre-Development Facilitation Tree Works Schedule (in accordance with **Section 8** of BS5837)
BH5	Tree Protection Plan–**BH.03** + BS5837 Figure 2 & 3 Diagrams **+** Example Warning Notices
BH6	BS5837 Extracts – including Table 3 and Sections 13 &14 & 15 & NJUG10 Extracts
BH7	Qualifications & Experience

1.0 INTRODUCTION & CLIENTS BRIEF

1.1 My clients seek planning approval to demolish the existing buildings on this site and to then construct a development comprising 7 residential units with garages and access arrangements in its place **(Ref: 10-00949 DC).**

1.2 My instructions come through the clients **Architect – Edward Caush.**

1.3 I have not previously been commissioned to consider the impact that development might have on the existing tree stock (AIA Report) so this is not included on this occasion.

1.3 I am instructed to prepare a **Method Statement & Tree Protection Plan -** based on the planning layout submitted to me.

1.6 My work is compiled in accordance with the Recommendations contained within BS5837:2005 and this report follows the sequential progression through this document with Sections 7 to 15 in the **AMS & TPP.**

2.0 DOCUMENT DISCLOSURE STATEMENT

2.1 A copy of the Land Survey Topographical drawing has previously been provided to me for the purposes of my work.

2.2 A copy of the Planning Layout drawing as prepared at **1:100** scale by **DPD Consultants UK LTD - Ref: 0641-232-Rev C** has been provided to me for the purposes of my work and I rely totally on the accuracy of this drawing.

3.0 LAND SURVEY & TREE SURVEY

3.1 A Land Survey Topographical drawing has been prepared and to the best of my knowledge this accords with the requirements of BS5837 as listed at Section 4 – *Paragraphs 4.1.1 to 4.1.5*.

3.2 I conducted a full Tree Survey exercise on **4th February 2011** in accordance with the requirements of BS5837 as listed at Section 4 – *Paragraphs 4.2.1 to 4.3.7. and Cascade Chart Table 1* – a copy of the survey schedule can be viewed at **appendix BH1.**

3.3 Additional Considerations –

- *BS5837 Para .4.4.1* – **I found a number of trees on site that might represent an immediate and serious hazard to life or property – the conifers in Group 1 and these are recommended for early removal along with the Beech which will become exposed and thus dangerous as well – to the best of my knowledge none of these trees is preserved under a TPO.**
- *BS5837 Para .4.4.2* – **There are no trees on the development site which are suitable candidates for transplanting.**
- *BS5837 Para .4.4.3* – **There are no veteran trees on the development site.**

4.0 TREE CONSTRAINTS PLAN – RPA & ABOVE GROUND CONSTRAINTS

4.1 The RPA for each surveyed tree and group has been calculated using the Tree Survey data and by reference to Table 2 of BS5837.

4.2 A copy of the RPA schedule can be viewed at **appendix BH2** and the data has been applied to the TCP prepared for this current scheme.

4.3 In compiling the data and applying it to the TCP full consideration has been given to BS5837 – *Paragraph 5.2.4 and items a) to e).*

4.4 In this regard it is to be noted that in respect of item *e)* if trees and groups have crown spreads which exceed the specified RPA then this has been taken into account on the TPP for those trees which are to be retained and either an increased protection zone applied to encompass the crown or where deemed appropriate *'access facilitation'* tree surgery works specified that will avoid unnecessary contact and damage from site traffic during the demolition and/or construction works.

5.0 ASSESSMENT OF TREE CONSTRAINTS –AIA & DESIGN ISSUES

5.1 An AIA report has **NOT** previously been prepared for this project and guided the design process.

5.2 At *Paragraph 6.2.2 of BS5837* there is a recommendation that *'Even if there are no trees on the site, areas for future planting should be plotted on the TCP and protected from damage, especially soil compaction due to construction activity, by the erection of barriers and/or ground protection. Where such pre –development protection is not implemented, prior remediation measures should be employed, such as soil ripping with a winged-tined plough or subsoil aeration.'* In practice this is extremely difficult to implement and the best that can be hoped for is that the ground is adequately protected and then appropriate decompaction, aeration and mulching undertaken at the completion of works during the soft landscaping works phase. The TPP may where appropriate indicate notional areas outside the RPA's where appropriate ground protection measures might be implemented to protect the ground during the course of demolition and construction works in anticipation of subsequent new tree planting.

5.3 At *Paragraph 6.2.3 of BS5837* there is a recommendation that the following matters are taken into consideration:-

a) The presence of tree preservation orders or conservation area protection.

- I am aware of an extant **Tree Preservation Order** covering some of the trees on this site- namely the **Oak; Yew and Ash in Group 2** which are all significant mature trees in the landscape and worthy of retention.
- To the best of my knowledge at the time of writing this report there are no other TPO'd trees on this site.

b) The effect that development proposals may have on the amenity value of trees, both on and near the site.

- This scheme involves the removal of almost all (**NOT the Ash in Group 2**) on site tree cover as well as one small Cherry tree on the grassed verge along the site frontage, to facilitate re-development as shown on the DPD Planning Layout Drawings and supplementary drawings as prepared by Edward Caush Architects.

c) The above and below ground constraints.

- Fully assessed and a management strategy devised – see Section 6 of this report for further information in this respect.

d) The construction of the proposed development.

- As shown on the planning layout drawings and detailed in Section 6.0 of this report.

e) Whether the design and/or construction of the proposed development can be modified to accommodate retention of trees that would otherwise be at risk or lost. This includes appropriate tree surgery works that acceptably mitigate adverse effects caused by trees.

- **NO** – this project has been carefully assessed in arboricultural terms and in order to re-develop the site as illustrated on the Planning Layout Drawings it is not possible to retain Hge1; Tree 1 or Group 1.
- **Facilitation Pruning –** As part of the proposals it will be necessary to remove nearly all vegetation growing on the site and there is no need to prune the on-site Ash or the Oak and Yew which are off-site (TPO'd) trees as they are set well back from the site boundary and any overhang is at considerable ground clearance.

f) Infrastructure requirements, e.g. easements for underground or above ground services; highway safety and visibility splays; and other infrastructural provisions, such as substations, refuse stores, lighting, signage and CCTV requirements.

- To the best of my understanding there is no intention to transgress through RPA's with new service utility links.

g) The end use of the space

- This is ultimately an issue for Planners to consider but in arboricultural terms it is not possible to retain any of the trees currently on site without them compromising the planning layout.

h) Whether tree loss resulting from the development proposals can be acceptably mitigated by new tree planting.

- **YES** – there is scope to undertake considerable new landscape planting on this site that will be of considerable importance in mitigating the initial loss of tree cover.
- This can best be covered by a Planning Condition.

5.4 **Proximity of trees to structures**

- This is to ensure that above ground the existing shade cast by the tree crowns is reasonable and acceptable and allowance has been made for their future growth and development without there being pressure to prune or fell or to impinge on useable space.
- In this instance the retained Ash tree and the off-site Oak & Yew tree are all mature and have reached their optimum height and spread and whilst some minor shading of rear gardens will occur at certain times of the day this will not be significant or unacceptable.

6.0 ARBORICULTURAL METHOD STATEMENT & TREE PROTECTION PLAN

6.1 The finalised planning layout drawing has been provided 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.

6.2 The data is presented here in tabular format:-

Key: RSAM = Remove for sound arboricultural management reasons RTFD = To be removed to facilitate development UF of. = Under footprint of development

Tree No	Species	Cat	S or M	Stem Diam mm	BS5837:2005 Min.Radial Prot. Zone m	BS5837:2005 Min.Root Prot. Area m^2	Distance from Site Features (see key above)	Can Tree Be Retained
Hge 1	Leyland Cypress	C2	M	200	2.0	12.6	UF of new development layout -new 2m high brick wall to be built in its place	NO-RTFD
1	Cherry	C1	S	250	3.0	28.3	UF of new development layout – new access drive goes through the trees location so it cannot be kept	NO-RTFD
Grp 1	Sycamore Beech Lawsons Cypress	**R** C2	M & S	350 to 500	3.5 6.0	38.5 113.1	**Cypresses –** to be removed because they are in a dangerous condition **Beech –** will also become exposed and dangerous once the conifers are removed **Sycamore –** will be compromised by the construction of a retaining wall within its RPA that would render it unstable – it also very close and applying pressure to the existing pipe outfall retaining walls	NO – RSAM NO – RSAM NO-RTFD

Tree No	Species	Cat	S or M	Stem Diam mm	BS5837:2005 Min.Radial Prot. Zone m	BS5837:2005 Min.Root Prot. Area m^2	Distance from Site Features (see key above)	Can Tree Be Retained
Grp 2	Ash Oak Yew Hazel Hawthorns	A2	S & M	750 to 900	9.0 9.0	254.5 254.5	**Ash** – 9m to closest building with a significant change in levels and substantial wall constraining rooting in that direction **Oak/Yew** – over 20m distance and with a stream and significant changes in levels in the intervening space	YES

6.3 **NO – RSAM**

- **Group 1 – Cypresses and Beech –** These are all defined in the tree survey as being of poor quality and either in a dangerous condition now or will become so with the removal of other trees. As such they would have been removed for safety reasons regardless of any re-development proposals for this site and therefore do not form part of the planning consideration for this project.

6.4 **NO – RTFD**

- **Hedge 1 & Group 1 Sycamore & Tree 1 Cherry** – Will all need to be removed to facilitate development as proposed.
  - The **Leylandii** hedge is fairly effective but would require regular clipping to keep it under control and the client prefers to have a wall at this location**.**
  - The **Sycamore** is fairly significant visually in the landscape but it is not TPO'd and will at some point be an issue with its vigorous rooting and pressure on the retaining walls of the outfall – it is suggested that replacement planting will be required to mitigate its loss at this location.
  - The **Cherry** is in decline thanks mainly to the heavy lopping that has been undertaken in the past – its loss can readily be mitigated by the planting of new trees along the road frontage to the new development.

6.5 **YES**

- **Group 2 – (TPO'd) – Ash/ Yew & Oak** –This group of significant trees is located well clear of development with a stream and walls and severe landform changes in the space between that will constrain the rooting pattern such that development will have no detrimental impact on them provided that the Protective Fencing barrier is erected as shown on Tree Protection Plan BH03.

7.0 PRE-DEVELOPMENT TREE WORK and WORKING WITHIN THE RPA (Generic Precautions)

7.1 Undertake all tree removal work as listed in the Tree Works Schedule – **see appendix BH4**.

7.2 The tree surgery specialist contractors are to be given clear guidelines and a remit that prohibits heavy plant (Lorries, Cranes and Work Platforms) tracking through the site within tree protection zones where there is no existing hard surfacing protection.

7.3 If there are to be heavy pedestrian movements within the RPA's then Ground Protection measures in accordance with Section 9.3.2 of BS5837 will need to be applied – *'installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile, or supported by scaffold..'*

7.4 *'For wheeled or tracked construction traffic movements within the RPA the Ground Protection should be designed by an engineer to accommodate the likely loading and may involve the use of proprietary systems or reinforced concrete slabs.'*

7.5 Where trees are to be felled in proximity to others that are to be retained it will be necessary to use special dismantling techniques to avoid both above and below ground damage, lowering sections to the ground in a careful manner with the aid of slinging ropes.

7.6 Unless otherwise specifically instructed - all cut wood and arisings are to be removed from site and safely disposed of.

7.7 Tree stumps within RPA's are to be ground out or retained in situ and **NOT grubbed out** to avoid damage to the root systems of retained trees.

8.0 CONSTRUCTION EXCLUSION ZONE : BARRIERS and GROUND PROTECTION

8.1 Protective fencing barriers are to be located exactly as specified on the **Tree Protection Plan BH03** and in full accordance with the recommendations contained within British Standard 5837:2005- Figure 2.

8.2 A copy of the Tree Protection Plan is to be pinned up in the temporary offices/mess hut on site for all site staff to see. The area within the construction exclusion zone is to be regarded as **sacrosanct** and the fencing shall not be taken down or relocated at any time, unless this has been agreed as part of the planning application consent process and is detailed in writing and shown on a plan.

8.3 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 of).
- **No** storage of plant, equipment or materials
- **No** vehicular or plant access
- **No** fire lighting within 10m of tree canopies

- **No** handling, discharge or spillage of any chemical substance, including cement washings and vehicle washings within 10m
- **No** action likely to cause localised water-logging
- **No** alteration of ground levels
- **No** construction of hard surfaces
- **No** attachment of boards, hoarding, cables or notices or fencing to trees

Special care is to be taken on sloping ground where spillages could run towards the trees – a collecting channel dug along the outer line of the protective fencing would be one method of avoiding such damage.

8.4 Barriers must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s).

8.5 Special attention must be paid to these barriers during the course of works to ensure that they remain in situ and rigid and complete. Any breaches or failures are to be repaired immediately and no works undertaken in the vicinity until they have been fully restored/repaired.

8.6 Barriers should consist of a scaffold framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this Weldmesh or Wooden Hoarding Panels should then be securely fixed with wire or scaffold clamps.

8.7 Where specified on the Tree Protection Plan – Ground Protection measures must be applied in accordance with Figure 3 and Sections 9.3.2 & 9.3.3 of BS5837 please see copy at **appendix BH5.**

9.0 AVOIDING DAMAGE TO STRUCTURES BY TREES : DIRECT or INDIRECT ACTION

9.1 Buildings should be constructed to allow for future growth of existing; planted or self sown trees.

9.2 Direct damage can be caused by :-

a) the disruption of underground services and pipelines

b) displacement of underground services and pipelines

c) the impact of branches with the superstructure

d) structural failure of the tree

In this respect the Tree Survey exercise will have identified any trees within categories c) or d) and tree works advised accordingly to remedy risk.

Items a) and b) can be avoided by judicious design and careful placement of utility services and by adherence to Table 3 planting distances.

9.3 Indirect damage by root action causing the shrinkage or swelling of clay soils can be avoided by adherence to the new tree planting distances specified under Table 3 – see at **appendix BH6;** and by having engineer designed foundations to accord with NHBC Standards.

10.0 DEMOLITION & CONSTRUCTION IN PROXIMITY TO EXISTING TREES

This project involves both a demolition and construction works element both of which will be well clear of the retained TPO'd trees and any smaller trees on the far side of the stream banking

10.1 **Phase 1 - Pre-Demolition/Construction Tree Works**

- Undertake all advised pre-development tree removal works. (see at appendix BH4)
- The tree surgery specialist contractors are to be given clear guidelines and a remit that prohibits heavy plant (Lorries, Cranes and Work Platforms) tracking through the site.

10.2 **Phase 2 - Pre-Demolition/Construction Protective Fencing Works**

- Despite the fact that the Oak and the Yew in the TPO'd group appear to be well clear of the development a '**NO GO'** fenced off area has been recommended as an added precautionary measure for the on-site Ash tree.
- Erect the protective fencing - the protective fencing barriers are to be located exactly as specified on the Tree Protection Plan BH03 – see at appendix BH5. Which is in full accordance with the recommendations contained within British Standard 5837:2005- Figure 2. A copy of the Tree Protection Plan is to be pinned up in the temporary offices/mess hut on site for all site staff to see. The area within the construction 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 fencing shall comprise of interlocked Weldmesh (Heras) panels (or agreed alternative which meets the BS5837 standards), well braced to resist impacts and securely attached to a scaffolding framework by means of wires or scaffold clamps. It shall have top and bottom horizontal bars, with uprights set into the ground at no greater interval than 3m spacings. Angled bars shall be located behind the fencing to act as braces, these will be firmly clamped to the top rail and set into the ground braced as necessary; these shall be spaced at no less an interval than one brace per two panels.

  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
- **No** construction of a hard surface

10.3 **Phase 3 – Demolition Phase Works**

- Machinery may be used for this purpose without fear of it affecting the retained TPO'd trees.

10.4 **Phase 4 – Construction Phase Works**

- On completion of the Demolition Phase works- either the Council Tree Officer or an appointed arboricultural expert is to visit the site and confirm that Protective Fencing is in the correct location and is fit for purpose.
- Provided that this has been verified the site may now be handed over for the purposes of Construction.

10.5 **UTILITY SERVICE CONNECTIONS**

- At the time of writing this Method Statement the exact route of underground service connections is not confirmed but unless otherwise specifically referred to by a separate Method Statement it is essential that all such service trenches are excavated outside of the Tree Protection Zones.
- In the interim details of NJUG 10 Guidelines are included (at appendix BH6) as a basis for further discussion in the unlikely event that it should prove necessary to run service routes through tree protection zones.
- The exact route of underground service connections is not confirmed but it is intended that they would link in with the existing service runs to the road. This matter is probably best dealt with to satisfy a Condition of Planning Approval and it can be worded to allow for the need for a further Method Statement and Protection Plan **if required** prior to undertaking any excavations for the implementation of service runs.
- In the interim details of NJUG 10 Guidelines are included (**at appendix BH6**) as a basic Method Statement and as the basis for further detailed discussion in the unlikely event that it should prove necessary to run service routes through RPA's.

11.0 SOFT LANDSCAPING WORKS

- Any soft landscape works within the protected areas shall be in accord with Table 3 and Sections 13 & 14 of BS5837:2005 (**see copy extracts at appendix BH6**).
- It is strongly recommended that the plans and specifications for the landscaping of this development are drawn up by a qualified Landscape Architect.
- On completion of all building works and immediately prior to landscaping works being undertaken and with the agreement of the LPA Tree Officer the Protective Fencing may be removed and the area within opened up for soft landscaping and final surface treatments.
- At this juncture appropriate decompaction, aeration and mulching should be undertaken on any areas designated for planting, which for practical operational reasons could not be fully protected during the build process.
- This is to be hand excavation works only with no machinery being used unless specific ground protection has been laid. Even then only lightweight mini excavators are to be permitted access.
- It is acknowledged that by the nature of the works some surface excavation is needed to prepare for tree and shrub planting or laying of lawns. This work shall be undertaken with hand forks and any exposed roots are to be cleanly severed to encourage new growth and an adequate soil medium laid around them to encourage same.

12.0 MONITORING & SITE SUPERVISION

- It is recommended in BS5837:2005 that either an arboriculturist or a person suitably experienced in the subject is retained to advise on all tree related aspects of site monitoring and supervision and it is the local authority's responsibility to make this a condition of planning approval with the said Condition ideally requiring a set schedule of operations and timings prior to undertaking works on site.
- In this instance with such a small project it is probably only necessary to conduct two pre-start meetings (one for Demolition & then another for the Construction Phase of works) to verify the position and effectiveness of protective fencing and ground protection measures.

13.0 CONCLUSIONS

- Provided that this project is undertaken in strict accordance with the methodology set out in this report, the TPO'd trees in Group 2 can all be retained without undue harm to health and vitality.
- The loss of almost all of the existing tree cover on this site is not a significant issue provided that sufficient levels of tree planting are undertaken as part of the agreed Landscape Masterplan for this project.
- The severe land form levels changes will provide a challenge to the construction techniques to be employed for building footings/foundations but this is an issue for Engineers and Planners and has no direct arboricultural impact on the retained trees provided that the Protective Fencing Barrier is erected as shown on the Tree Protection Plan – BH03 and no works take place within this protected zone.