Quaife Woodlands AR/4080/jq

Arboricultural Survey and Planning Integration Report

at

Dry Hill Farm, Sundridge, Sevenoaks, Kent. TN14 6AA

19th April, 2021

C O N T E N T S

Arboricultural and Woodland Consultants

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ARBORICULTURAL REPORT

LOCATION	Dry Hill Farm, Sundridge, Sevenaoks, Kent. TN14 6AA	**REF: AR/4080/jq**
CLIENT	Mr and Mrs Petry, Address as above	**DATE OF REPORT** 19th April, 2021
		DATE(S) OF INSPECTION
REPORT PREPARED BY	J. Quaife, AA Registered Consultant Dip.Arb.(RFS), F.Arbor.A, CEnv.	27th February, 2021
SURVEY INSPECTOR(S)	J. Quaife, AA Registered Consultant Dip.Arb.(RFS), F.Arbor.A, CEnv.	**SHEET No.** 1 of 7

LOCAL AUTHORITY	Sevenoaks District Council
CONTACT	Arboricultural Officer - Mr Les Jones 01732 227289 Les.jones@sevenoaks.gov.uk

Please note that abbreviations introduced in [square brackets] *are used throughout the report.*

INSTRUCTIONS

Issued by – Mr and Mrs Petry, address as above.

TERMS OF REFERENCE – To survey the subject trees to assess their general condition and to provide a planning integration statement for the proposed development that safeguards the long term well being of the retained trees in a sustainable manner.

Summary

The proposal is to extend the existing barn and to convert it into a dwelling. The existing drive is to be extended to create a turning head, and the ground excavated around the end of the extension to accommodate it leaving and embankment. The southern side of the dwelling is to have the land level built up in the hollow with soil from the extension excavation and laid to lawn. There are just 5 subject trees which are affected by the proposal and all are retained. No new tree planting is envisaged as part of the application.

The protection of the retained trees can be effected in accordance with current standards and guidance, and there are no matters of post development pressure upon trees that could not be managed with routine maintenance.

The proposal is sustainable in arboricultural terms.

Documents Supplied

- Ordnance Survey Plan with 1-metre contour graduations
- Sonnex Surveying Ltd Proposed elevations and plan drawing ref: ss/201526/2/rv3

Scope of Survey

1.1 The survey is concerned with the arboricultural aspects of the site only.

1.2 With reference to the Sevenoaks District Council on-line tree protection viewer there is no statutory protection of trees on the subject site.

1.3 No discussions took place between the surveyor and any other party.

1.4 The trees were inspected on the basis of the Visual Tree Assessment method expounded by Mattheck and Breloer (The body language of trees, DoE booklet Research for Amenity Trees No. 4, 1994).

1.5 The survey was undertaken in accordance with British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations [BS5837] with modification.

1.6 This report sets out the Root Protection Area [RPA], described by the RPA radius [RPR] derived from Section 4.6 of BS5837.

1.7 Pruning works will be required to be in accordance with British Standard 3998:2010 Tree work - Recommendations [BS3998].

1.8 This report does not cover the specific arrangements that may be required in connection with the installation of underground services.

1.9 This report sets out the working specifications of tree protection measures, but the specifications of engineering and design features are matters for which we can only provide enough detail in principle to demonstrate the feasibility of the scheme.

Survey Method

2.1 The survey was conducted from ground level with the aid of binoculars.

2.2 No tissue samples were taken nor was any internal investigation of the subject trees undertaken.

2.3 No soil samples were taken.

2.4 The stem diameters [SD] were measured or estimated in centimetres at 1.5 metres above ground level and otherwise in accordance with Annex C of BS5837.

2.5 The height of each subject tree was estimated with a clinometer.

2.6 The crown diameters were estimated by pacing or visually where access was restricted.

2.7 The positions of the subject trees are plotted at Appendix A derived from my own survey measurements. Please note that the attached plan is for indicative purposes only.

Ecology Informative

3.1 Bats are protected under the Wildlife & Countryside Act 1981 and subsequent legislation and The Conservation of Habitats and Species Regulations 2010 and it is an offence to deliberately or recklessly disturb them or damage their roosts. Trees should be inspected before any works commence and if the presence of bats is suspected advice will need to be sought from the Natural England Bat Line on 0845 1300228. Further advice on bats is available from The Bat Conservation Trust (020 7627 2629).

3.2 Tree work should as far as is possible avoid the bird nesting season, which officially (natural England) is from February until August, although the busiest time is from 1st March until 31st July.

3.3 Please also be aware that ecology is governed principally by;
- the Wildlife and Countryside Act 1981 (as amended by the CRoW Act 2000),
- the Conservation of Habitats and Species Regulations 2010,
- the Wild Mammals (Protection) Act 1996, and
- the Natural Environment and Rural Communities (NERC) Act 2006.

3.4 I have completed the Bat Conservation Trust's 3-day course on bats and am conversant with the BS986 Micro-Guide for arboriculturists and the Natural England Bat Habitat Assessment Guidance 2010, and I could not see any indication of bat roosts in the subject trees. The large oak may have roosts but the tree is unaffected by the proposal.

The Site

4.1 The subject site part of amenity land on the eastern side of the public right of way, the major part of which is shown at Appendix A. The northern part is grass pasture which slopes up to the east. Beyond the oak the land levels off and abuts the agricultural field on neighbouring land. There is an embankment with hazel coppice running to the north-east from the end of the barn, and above and south of the hazel coppice embankment the land levels off and is a fenced vegetable garden. Further to the south is a small wooded copse (not shown on the plan at Appendix A).

4.2 The existing barn is more or less at a right-angle from the public right of way and the eastern end is dug into the embankment. From the southern elevation of the barn there is a small, steep-sided dell with the subject trees on each side embankment.

4.3 With reference to the British Geological Survey Geology of Britain Viewer the indicated soil parent material is the Hythe Formation of sandstone and limestone. This is non-shrinkable and therefore is not susceptible to compaction which is harmful to tree roots, and the foundation for the extension will not need to allow for tree-associated soil shrinkage.

4.4 I am not an expert on soils and although I have some working knowledge of them, if accurate soil analysis is required then a soil specialist should be contacted.

Subject Trees

5.1 There are 5 subject trees. The largest and most significant tree is a fully mature oak with a wide crown and a stem diameter of about 90 centimetres. There is a multi-stemmed field maple some 9 metres to the north of it, both on the eastern side of the dell.

5.2 On the western side of the dell the embankment is lower and runs adjacent to the public right of way. The nearest tree to the barn is a cherry with a field maple about 3 metres to the east. To the south-east of that by nearly 10 metres is a hazel coppice. All the subject trees are retained so the BS5837 gradings[1] are not relevant but the oak is clearly an A grade and the others C.

5.3 Overall the trees are in satisfactory condition and none of them presents any significant risk.

The Proposal

6.1 The proposal is to extend the existing barn and to convert it into a dwelling. The existing drive is to be extended to create a turning head, and the ground excavated around the end of the extension to accommodate it leaving an embankment.

6.2 The southern side of the dwelling is to have the land level built up in the hollow with soil from the extension excavation and laid to lawn.

6.3 There is to be a raised path around the eastern and southern elevations of the dwelling with a retaining wall. The path at the eastern end is to be a ramp up to the level of the southern elevation path. There will be steps down to a gate onto the public right of way.

Arboricultural Landscape Integration

7.1 As the subject trees are to be retained as they are, and the extension will be dug into the embankment, the landscape impact of the proposal in arboricultural terms will be almost indiscernible. The increase in the area of the drive and the visual appearance of the barn as a dwelling will be visible but will be congruous with the character and appearance of the area.

7.2 The new lawn to the rear of the dwelling will be behind the embankment alongside the public right of way and a hedge of indigenous species will be planted along the top of it for privacy.

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[1] BS5837 Tree Category Classes

U – Existing condition is such that any existing value would be lost within 10 years and should therefore be removed for reasons of sound arboricultural management.

A – High quality and value (40 + yrs).
1) Mainly arboricultural values 2) Mainly landscape values 3) Mainly Cultural values including conservation.

B - Of moderate quality and value (20+ years).
1) Mainly arboricultural values 2) Mainly landscape values 3) Mainly Cultural values including conservation.

C – Those of low quality and value (10+ years).
Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a SD of less than 15cm could be considered for relocation.

Post Development Pressure

8.1 The concept of post development pressure is not that routine maintenance work to maintain clearances and the proportionality of trees is unacceptable. The term should more accurately be one of irresistible post development pressure where the spatial or physical relationship of a retained tree to a structure or feature demands pruning or removal that is inappropriate, but to which the local planning authority could not reasonably refuse consent.

8.2 The spatial relationship of the retained trees to the proposed dwelling will not cause maintenance problems, and accordingly there will be no appreciable post development pressure, and certainly none that would oblige the Council to give consent to inappropriate tree works.

Tree Protection Measures

9.1 The BS5837 gives a Root Protection Area [RPA] for each retained tree by reference to Section 4.6 in the BS. The RPA is an estimation of the area of the root system that would need to be retained to sustain the condition of the tree if all the other roots outside it were to be severed. The RPA represents a smaller proportion, (on average only a third), of a tree's root system and consequently whilst the RPA is particularly important to ensure that there are no adverse effects upon stability, if an encroachment does not reduce the overall assimilative function of the root system significantly it is unlikely to cause harm. However, as with any factor relating to trees each individual situation must be justified in site-specific terms.

9.2 The RPA is usually described as a circle with a radius (Root Protection Area Radius [RPR]) of the prescribed distance within which no unspecified activity should occur, though the shape and position of the RPA can be modified by an arboriculturist to meet individual site conditions according to the probable distribution of the tree roots. Intrusion into the RPA can take place only where the ground is adequately protected in accordance with the requirements of Section 6.2.3 of BS5837 or where work is carried out to an agreed design and working method.

9.3 Quaife Woodlands uses a tabular method to derive rounded-up RPA radii in half-metre graduations (Appendix B). I regard circular RPAs to be appropriate in some instances but I have adjusted the RPAs of other trees where built form will have caused asymmetric root growth.

9.4 The RPAs of the subject trees are as follows:

Oak stemØ 900cm **RPA radius 10.5 metres**
(shape adjusted to allow for the field maple and hazel)

Field maple 1 stemØ 500cm (equivalant for the multiple stems) **RPA radius 6 metres**

Hazel stemØ 300cm (equivalant for the multiple stems) **RPA radius 4 metres**

Field maple 2 stemØ 350cm **RPA radius 4.5 metres**
(shape adjusted to allow for the cherry)

Cherry stemØ 350cm **RPA radius 4.5 metres**
(shape adjusted to allow for the field maple)

9.5 **RPA Encroachment** The only RPA encroachments are by the ground level alteration for the lawn. The friable soil from the excavation for the extension will be used to build up the level and will diminish in depth nearer the edges. There is compensatory rooting area outside the RPAs and I doubt that there would be any adverse effect upon the trees.

9.6 **Tree Protection Fencing** The combined zones of RPAs form the Construction Exclusion Zone [CEZ] and will be protected by a Tree Protection Fence [TPF] comprising steel mesh panels of 1.8 metres in height ('Heras'). These panels will be mounted on braced blocks as shown at Figure 3 of BS5837 (Appendix C). This support will be sufficient as the TPF will not be under any construction pressure

9.7 The line of the TPF is shown at Appendix A.

9.8 The TPF is to be erected before any work commences on site, is to remain in situ undamaged for the duration of all work, and only to be removed once all work is completed. The TPF is to carry waterproof warning notices denying access within the CEZ.

9.9 **General Matters** The surface water run-off and soil drainage have not been studied. However, due to the site topography and soil type, I do not foresee any detrimental effects on the trees in hydrological terms as a result of this development.

9.10 I have not been provided with any details of the underground service routes but I assume they will be directed under the existing drive and therefore will have no arboricultural impact.

9.11 the space required for materials and plant storage, along with site welfare facilities can be placed to the north of the barn and will therefore have no arboricultural impact.

Conclusions

10.1 The five subject trees are retained and together with the surrounding countryside will have no adverse arboricultural impact upon the landscape. Accordingly the landscape impact will be neutral.

10.2 The subject trees do not cause any significant conflicts in terms of construction activities, nor will any significant issues of post development pressure be likely to emerge that could not be managed with routine maintenance.

10.3 The subject trees will all be protected in accordance with current standards and guidance, particularly with logistical planning.

10.4 For trees to be sustainable within a development proposal they must be compatible with their surroundings, not just in terms of long-term spatial relationship but also in respect of minimising any potential conflicts to matters of routine maintenance. This proposal achieves this objective.

10.5 I have taken account of the information given to me and my own observations on site and I am satisfied that this scheme is arboriculturally sound and that the long-term well-being of the retained trees will be safeguarded in a sustainable manner.

Recommendations

11.1 The successful integration of the proposal with retained trees will need to take account of the following points:

i) Plan of underground service routes.

ii) Implementation of the tree protection measures and methods set out in this Report.

iii) Site logistics plan to include storage, plant parking/stationing, materials handling.

iv) Site supervision – Following an induction meeting conducted by the project arboriculturist with all those involved in attendance, an individual, e.g. the Site Agent, will be nominated to be responsible for all arboricultural matters on site. This person must:

a) be present on site for the majority of the time,
b) be aware of the arboricultural responsibilities,
c) have the authority to stop any work that is causing, or has the potential to cause harm to any tree,
d) be responsible for ensuring that all site operatives are aware of their responsibilities toward trees on site and the consequences of any failure to observe those responsibilities,
e) make immediate contact with the local authority and/or the project arboriculturist in the event of any tree related problems occurring, whether actual or potential.

11.2 As a matter of course these points will be resolved in consultation with and subject to the approval of the planning authority through their Arboricultural Officer.

11.3 The sequence of works should be as follows:

i) installation of TPF
ii) excavation of the ground for the extension and transfer of the soil to create the lawn
iii) installation of underground services as may be necessary
iv) main construction
v) removal of TPF
vi) soft landscaping of the lawn

Existing Drive
Proposed Drive
Existing Embankment
Proposed Embankment
Significant Tree
Tree Protection Fence
Construction Exclusion Zone
Existing Barn
Proposed House
Proposed Path
Proposed Lawn
Root Protection Area
Indicative Circular
Adjusted Actual

Quaife Woodlands **Arboricultural Survey AR/4080/jq**

Dry Hill Farm, Sundridge, Sevenoaks, Kent, TN14 6AA

Site Plan - Proposed Barn Extension 19th April, 2021

Scale 1:250 approximately @ A3

0 5 10 15 20 metres

Scaling accuracy is sufficient for planning purposes but this drawing should not be used for construction

This plan is drawn in colour so monochrome reproduction may be unreliable

N.B. the OS contour lines are averaged at 1-metre graduations and the detailed ground contours are indicated by observation

NORTH
WALL
SUMACS
Silver Birch
Oak
AGRICULTURAL FIELD
HAZEL COPPICE
GATE
FENCE
Hawthorn
BEECH HEDGE
101 m
102 m
RETAINING WALL
VEGETABLE GARDEN
Ash
104 m
105 m
106 m
107 m
108 m
Field Maple **1**
Cherry
Field Maple **2**
Oak
Hazel
PUBLIC RIGHT OF WAY

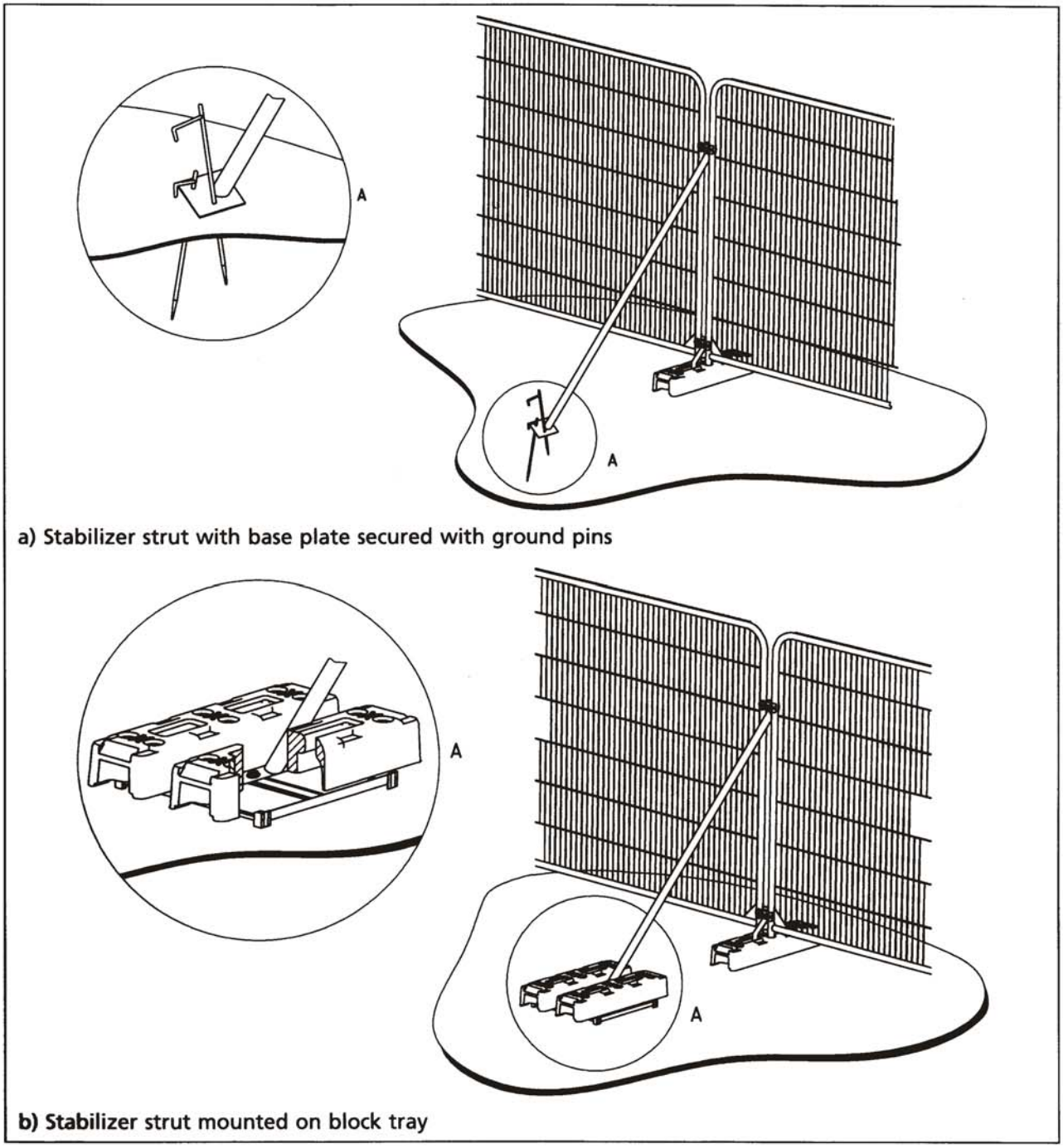
Appendix B

BS5837:2012 (Paragraph 4.6.1)
Root Protection Area radii in ½ metre graduations

The ½ metre graduations of RPA radii have been calculated back to produce diameter dimensions, which in turn have been rounded down to the nearest centimetre. If the BS5837 multiplier factor is plotted on a graph it produces a straight gradient and if the ½ metre steps are plotted they are all above that line, thus ensuring that the RPA radii err on the generous side.

Single Stem up to diameter (mm)	*RPA Radius (m)*	*RPA (m^2)*
1250	**15.0**	**707**
1210	**14.5**	**660**
1170	**14.0**	**616**
1120	**13.5**	**573**
1080	**13.0**	**531**
1040	**12.5**	**491**
1000	**12.0**	**452**
960	**11.5**	**416**
920	**11.0**	**380**
870	**10.5**	**346**
830	**10.0**	**314**
790	**9.5**	**284**
750	**9.0**	**255**
710	**8.5**	**227**
670	**8.0**	**201**
620	**7.5**	**177**
580	**7.0**	**154**
540	**6.5**	**133**
500	**6.0**	**113**
460	**5.5**	**95**
420	**5.0**	**79**
370	**4.5**	**64**
330	**4.0**	**50**
290	**3.5**	**38**
250	**3.0**	**28**
210	**2.5**	**20**
160	**2.0**	**13**

Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray