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Tree Survey
Replacement Garage, 11 Hillcrest Close, Kingsley Holt. PP-07902814

1. Site & Applicant Details:

Mr M Jones
11 Hillcrest Close
Kingsley Holt,
Staffordshire,
ST10 2BL

OS Grid Ref SK 016 662
Easting 402196
Northing 346965



Fig. 1. Mature Chestnut at the rear of the garage at Hillcrest

2. Introduction:

2.1 No 11 is a detached bungalow which lies at the northern end of Hillcrest Close.

2.2 The garage at No 11 has a developed significant fractures.. These have been attributed to an inadequate foundation depth given the sloping ground and soft clay subsoil. - David Connelly, FICE FIStructE MHKIE, Alchemy Consulting.

2.3 It is proposed that the garage be rebuilt with adequate foundations.

3. Scope & Limitations

3.1 There is a mature horse chestnut to the rear of the garage.

3.2 The purpose of this survey is to assess the impact of construction work on this tree.

3.3 The survey is limited to the aforementioned chestnut. Immature and remote specimens have not been assessed.

4. Tree Protection:

4.1 The main instrument of protection is the root protection area as defined in BS5837 - 2012 "Trees in relation to Construction"

4.2 If required, trees may be protected by designating a Construction Exclusion Zone or CEZ. This is in the form of Heras® type fencing which ensures that construction vehicles do not enter a protected zone and construction materials, fuels and lubricants are not stored within it.

4.3 Where access by construction vehicles is unavoidable and there is a risk of soil compaction and root damage, a temporary ground protection zone may need to be defined and ground protection mats employed.

5. Survey:

5.1 The survey was carried out on 16th May 2019 in fine sunny conditions.

5.2 Methodology:

i). Tree positions were triangulated by tape, surveyors wheel and laser rangefinder from known points on the OS mapping file

ii). Tree diameter and RPA were calculated from the circumference measured at 1.5 m above ground

iii). The diameter of multi stemmed trees is assessed as:
$\sqrt{(D1^2 + D2^2 \ldots + D5^2)}$ for trees with 2 to 5 stems and
$\sqrt{(Dmean^2 \times N)}$ for trees with more than 5 stems
BS5837 - 2012 Annex C, D

iv). RPA's are capped at 15m.

v). Tree heights were assessed where possible using the shadow method, as a ratio of the length of shadow of a surveyors staff, and otherwise by direct ratio.

vi). Canopy height measured by aid of a surveyors staff.
vii). Canopy spread measured by surveyors wheel and laser rangefinder.
viii). Tree age, form and condition assessed visually.
ix). Trees identified from general form, leaf or needle form, bark, and fruit with samples taken where required.

6. Findings:

6.1 BS5837 classifies trees as U which are unsuitable for retention with letters A, B and C indicating quality, for those trees suitable for retention.

6.2 Category U trees are in poor condition and cannot realistically be retained for more than 10 years. Other trees nearby which will become unviable after the removal of other Category U trees may also be included.

6.3 Category A trees are of high quality with a remaining life expectancy of at least 40 years. Category B trees are of moderate quality with a life expectancy of at least 20 years. Category C trees are of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.



Fig.2. Stem of Horse Chestnut T1

6.4 Subcategories, 1, 2 and 3 consider whether the trees have mainly arboricultural, landscape or cultural qualities.

6.5 T1 is a mature Category C European horse chestnut. Aesculus hippocastanum, a quick growing, non native but naturalised species originating from the Balkans.

6.6 T1 is located on the boundary with number 10, about 7m from the NW corner of the garage.

6.7 The tree is estimated to be about 50 years old, is in poor physical condition with evidence of bleeding canker and a diseased stem.

6.8 Given the condition of the tree, it is difficult to put an accurate figure on its remaining contribution. It assumed that the tree could survive for another ten years consistent with a Category C specimen.

6.9 Although the tree is not particularly healthy, the scaled bark provides a good habitat for invertebrates and the flowers provide a rich source of nectar for pollinators.

6.10 It is therefore recommended that the tree be retained but the crown thinned. The stem is weak and removing the heavier limbs will reduce the risk of loss through storm damage.

6.11 The garage and the concrete raft supporting the workshop were constructed in 1981 when T1 would have been a young specimen and its canopy and root system would not have extended as far as the garage.

6.12 Building Regulation A, paragraph 2E4 states that the underside of foundations should be taken to a depth where anticipated ground movements do not impair stability - a minimum of 1.0m on high shrinkage clay soils.

6.13 The tree’s root system allows the uptake of water and nutrients from the soil and oxygen is required for cell metabolism. Therefore 90% of the roots lie close to the surface.

6.14 So although the existing foundations are too shallow for structural stability of the building, they are nonetheless expected to be deep enough to have formed an effective root barrier.

6.15 The RPA calculation takes no account of ground conditions. However it is likely that the concrete raft upon which the workshop sits will have suppressed the root system in this direction, further reducing the likelihood that significant roots will be found at the perimeter of the foundations. This effect is illustrated in Fig. 3.

6.16 A test pit has been excavated at the NW corner of the garage and no roots have been detected.

6.17 Provided the replacement garage is built no closer to the tree than the existing garage it is unlikely that the roots of T1 will be adversely affected.



Fig.3. Hard surfacing and root suppression

6.18 Nonetheless, a precautionary approach is advised:

i). Excavate by hand close to T1, using air tools if required.
ii). No roots larger than 25mm should be severed.
iii). Wrap any small roots in geotextile membrane, sweep to one side and backfill with clean topsoil to BS3882.

6.19 There is a risk of soil compaction by construction vehicles during the demolition and groundworks stage which could could affect the roots of T1. The rear garden should be considered a temporary ground protection zone. Ground protection mats or boards should be laid over a 150mm layer of bark on a geotextile membrane.

6.20 The crown clearance of T1 is sufficiently high that the lower limbs are unlikely to be affected during construction. Furthermore, the gap between the garage and the bungalow is quite narrow so the rear garden will become inaccessible to construction vehicles once the new foundations have completed. Therefore there is no merit in defining a construction exclusion zone or CEZ and there is no need for Heras® fencing.

6.21 However, construction materials, fuels, plant and machinery should be stored in the driveway.

6.22 Please refer to the accompanying block plans for further details.

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PME Planning Services Ltd
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