Pre-development Arboricultural Report

82 Highgate West Hill, London, N6 6LU

Commissioned by: Mr & Mrs Gee

Compiled by: Dick Tomlinson (ND arb) Tomlinson Tree Surgeons

Inspection date: 24th February 2009

Pre-development Tree Report

1. Instructions, Objectives and limitations

1.1 I am instructed by Mr and Mrs Gee to inspect and report on the trees liable to be effected by the construction at the above property. The objectives of the report are to advise on the current condition of the trees, identify trees for retention and limit damage to the tree/s during construction in the interests of both health and safety, and to continue to promote the visual character and amenity of the area.

1.2 The following report is in accordance with BS 5837:2005 Trees in Relation to Construction-Recommendations.

1.3 The report includes:

i) **Tree Survey:** Including tree categorisation and identification of trees suitable for retention.

ii) **Tree Constraints Plan (TCP):** Showing the Root Protection Area (RPA) and representing the effect that the mature height and spread of trees suitable for retention will have on layouts through shade, dominance etc.

iii) **Arboricultural Implications Assessment (AIA) and Design Issues:** Whilst the TCP should inform site layout design, it is recognised that the competing needs of development mean that trees are only one factor requiring consideration.
Tree constraints and design: The presence of Tree Preservation orders or conservation area, above and below ground constraints, possible design modifications etc.
Proximity of trees to structures: A realistic assessment of the probable impact of any proposed development on trees and vice versa etc.

iv) **Arboricultural Method Statement (AMS):** To include details of tree protection prior to and during construction. Also tree pruning recommendations to promote the trees health and maximise the juxtaposition between development and post construction remedial methods to promote recovery.

v) **Tree Protection Plan (TPP):** Showing finalised layout proposals, tree retention and tree and landscape protection measures detailed within the AMS, which can be shown graphically.

1.4 The inspection has been carried out from a ground level only. Should a more detailed inspection be required, this will be highlighted in survey recommendations.

1.5 Trees are living organisms whose health and condition can change rapidly. The health and safety of trees should be checked on a regular basis, preferably at least once a year. The conclusions and recommendations contained within this report are only valid for one year. This period of validity may be reduced in the case of any change in conditions to or in proximity to the tree.

1.6 I have been informed by Mr and Mrs Gee that the site is within a Conservation Area and that some of the trees in question are subject to Tree Preservation Orders (TPO). Therefore it would be necessary to notify the local authority prior to undertaking any tree work.

2 Information Received

2.1 The following correspondence and drawings of the existing site and the proposed development have been received upon which this report is based:

i) A land survey including a preliminary site layout. This drawing is used as a basis for the TCP and TPP Drawing. Drawing no. 0713. These drawings have been copied and are attached within Appendix.

3 Site description

3.1 The site is domestic house within an urban setting. The house was built circa 1850 It has a shallow front garden approximately 5m deep. It is mainly paved and level. A garage is situated to the south of the house and abuts the boundary wall. It is at a lower level than the rest of the front garden. There is one tree situated adjacent to the garage and some 2.9m away fro the house, there are several other shrubs in this area.

The rear garden is deep and has several trees within it. It is at a lower level to the house and slopes away from the house it is orientated to the south east.

4 Tree Survey

4.1 The following information is provided:

a) Reference number (recorded on plans) : - 1
b) Species : - Holly (Ilex aquifolium)
c) Height in metres : - 6m
d) Stem diameter in millimetres at 1.5m is 250mm
e) Branch spread in metres taken at the four cardinal points to derive an accurate representation of the crown. N. 2.2m, S.2.5m, E. 2.4m W.2.9m.
f) Height in metres of crown clearance above ground level : - 2m
g) Age class (young, middle aged, mature, over-mature, veteran): - Over mature .
h) Physiological condition (e.g. good, fair, poor, dead): - Fair.
i) Structural condition, e.g. presence of decay: - A large bark wound at 1.8m noted.
j) Preliminary management recommendations: - See 7.1.1
k) Estimated remaining contribution in years (e.g. less than 10, 10-20, 20-40, more than 40): - More than 40 years.
l) R or A to C category grading (see Table 1) : - B 1
m) Restrictions i.e. Conservation Area (CA) or Tree Preservation Order (TPO) The tree is protected by a TPO
n) The Root Protection Area (RPA) is 28.28m2 the radius of which is 3m.

a) Reference number (recorded on plans) : - 2
b) Species : - Dwarf Lawson Cypress (Chamaecyparis lawsoniana 'Elwoodii')
c) Height in metres : - 6.5m
d) Stem diameter in millimetres at 1.5m is 230mm
e) Branch spread in metres taken at the four cardinal points to derive an accurate representation of the crown. N. 1.4m, S.1.4m, E. 0.7m W. 0.6m.
f) Height in metres of crown clearance above ground level : - 0m
g) Age class (young, middle aged, mature, over-mature, veteran): - Over mature.
h) Physiological condition (e.g. good, fair, poor, dead): - Poor.
i) Structural condition, e.g. presence of decay: - The crown is splaying.
j) Preliminary management recommendations: - See 7.1.1

k) Estimated remaining contribution in years (e.g. less than 10, 10-20, 20-40, more than 40): - Less than 10 years.
l) R or A to C category grading (see Table 1) : - R
m) Restrictions i.e. Conservation Area (CA) or Tree Preservation Order (TPO) The tree is in a conservation area therefore local authority permission will be required.
n) The Root Protection Area (RPA) is 23.93m2 the radius of which is 2.76m.

a) Reference number (recorded on plans) : - 3
b) Species : - Lawson Cypress (Chamaecyparis lawsoniana)
c) Height in metres : - 10m
d) Stem diameter in millimetres at 1.5m is 230mm
e) Branch spread in metres taken at the four cardinal points to derive an accurate representation of the crown. N. 1.5m, S. 1.5m, E. 1.5m W. 1.5m.
f) Height in metres of crown clearance above ground level : - 1m
g) Age class (young, middle aged, mature, over-mature, veteran): - Mature.
h) Physiological condition (e.g. good, fair, poor, dead): - Good.
i) Structural condition, e.g. presence of decay: - No defects noted.
j) Preliminary management recommendations: - See 7.1.1
k) Estimated remaining contribution in years (e.g. less than 10, 10-20, 20-40, more than 40): - More than 40 years.
l) R or A to C category grading (see Table 1) : - R
m) Restrictions i.e. Conservation Area (CA) or Tree Preservation Order (TPO) This tree is in a conservation area.
n) The Root Protection Area (RPA) is 35.47m2 the radius of which is 3.36m.

a) Reference number (recorded on plans) : - 4
b) Species : - Magnolia (Magnolia Solangeana)
c) Height in metres : - 6m
d) Stem diameter in millimetres at above the root flare this tree is multi stemmed, is 320mm
e) Branch spread in metres taken at the four cardinal points to derive an accurate representation of the crown. N. 3.2m, S.3.4m, E. 2.8m W.3.6m.
f) Height in metres of crown clearance above ground level : - less than 1m
g) Age class (young, middle aged, mature, over-mature, veteran): - middle aged.
h) Physiological condition (e.g. good, fair, poor, dead): - Good.
i) Structural condition, e.g. presence of decay: - No defects noted.
j) Preliminary management recommendations: - See 7.1.1
k) Estimated remaining contribution in years (e.g. less than 10, 10-20, 20-40, more than 40): - More than 40 years.
l) R or A to C category grading (see Table 1) : - A 1
m) Restrictions i.e. Conservation Area (CA) or Tree Preservation Order (TPO) This tree is in a conservation area.
n) The Root Protection Area (RPA) is 32.17m2 the radius of which is 3.2m.

Tree Constraints Plan (TCP)

4.2 The influence that trees on and adjacent to the site will have on the layout is plotted on a plan called the TCP. This design tool shows how the below ground constraints, represented by the RPA, and the above ground constraints that the trees pose by virtue of their size and position. The future potential sizes and influence will also be considered.

4.3 In order to avoid damage to the rhyzosphear (rooting area) of retained trees, the RPA is plotted around each of the category A, B and C trees. This is a minimum area in m^2, which must be left undisturbed around each retained tree.

The RPA is calculated using BS 5837 Table 2 (a copy of this is included in the appendix) as an area equivalent to a circle with a radius 12 times the stem diameter at 1.5m for single stem trees and 10 times basal diameter for trees with more than one stem.

This can extend further where the effects of existing construction have constrained one side the RPA of the tree. Therefore shape of the RPA may not circular and could extend further on one side of the tree than the RPA calculation dictates and conversely less where a structure can reasonably be expected to have constricted or blocked root development. Where a tree grows in undisturbed soil and it is acceptable to retract one side of the RPA by up to 20% as outlined in BS 5837 5.2.4

5 Arboricultural Implications Assessment (AIA) and Design Issues

5.1 The current constraints and the future growth potential of the trees highlighted for retention are of limited significance aerially with regards to both shade and lateral encroachment of the foliage. This is due to all the trees locations and proximity of the proposed development.

5.2 The proposed development is to excavate below the building this excavation is proposed to extend into the front garden to provide a light well and a passageway to connect the house with the garage. To the rear it is proposed that the excavation will extend into the rear garden to the extent of the current terrace. A set of steps into the garden are proposed. To the south a small terraced area with a set of steps into the garden are also proposed.

5.3 The development to the front will impinge on the RPA of Tree 1 the Holly by 1m where the proposed passageway passes the tree. This will involved a retraction of more than the 20% allowed in the regulations and some modification of the part of the proposal should be considered. There will be no aerial constraints the development will not extend above the current ground level.
To the rear the proposed development will extend into the area of Trees 2 and 3 it is proposed that these trees are not retained. Tree 2 is an over mature specimen the crown is collapsing due to a condition common to this species. This is a poor quality specimen which would be considered for removal not withstanding the development. Tree 3 is a healthy specimen but is not considered of high value to the landscape. It is close to a large retaining wall which could in future be damaged by the presence of this tree.
Tree 4 is adjacent to the development and the RPA extends up to the limit of the development but the development does not impinge upon the this tree. Great care will need to be taken during the development Care will be need to be taken above ground during the development because the crown does overhang the site slightly and will need to be tied back.

5.4 There will be no further disruption to the soil by any infrastructures such as underground services as the route to the road will utilise existing services obviating the need for any trenches within the RPA.

6 Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP)

7.1 All trees must be adequately protected before development operations start. Therefore the Sequence of operations must work hand in hand with the development process are as follows.

i) **Tree Works:** Tree 1 requires no action. Tree 2 and 3 are to be felled to ground level and roots ground 30mm below soil. Tree 4 requires the crown to be carefully tied back and secured for the period of construction.

ii) **Design implications:** Tree 1 will have excavations within the RPA and consideration to minimise or eliminate this should be considered. The RPA of tree4 abuts the development. No design consideration for this tree is considered necessary.

iii) **The construction and demolition exclusion zones. Barriers and ground protection:** Root protection barriers are not necessary because the trees are outside the development site. Construction exclusion barriers will be erected in the normal

way at the site perimeter. Great care will need to be taken where the construction exclusion barrier in built near to tree4.

Barriers and ground protection must be erected and installed prior to any materials or machinery being brought onto the site and before any demolition, development or stripping of soil commences. This must be approved and signed off by a person competent in arboriculture.

The Barriers: Must consist of a scaffold framework in accordance with BS 5837 Figure 2 (a copy of which is enclosed within the appendix). Except for the purpose of demolition, (see above)

The Ground Protection: Ground protection will be as marked on the plan. The barrier will act to exclude all access to the rest of the site, which will remain a domestic garden area outside the construction zone.

Once the exclusion zone has been protected by barriers and /or ground protection, construction work can commence. All weather notices should be erected on the barrier with words such as

"Construction exclusion zone-Keep out"

iii) During construction the following processes must be adhered to;

a) No materials can be stored within 5m of the tree's bole.
b) Oil, bitumen, cement or other material likely to be injurious to a tree must not be stacked or discharged within 5m of the tree's bole.
c) Concrete mixing must not be carried out within 5m of the tree's bole.
d) It is essential that fire must not be lit beneath or within close proximity to the canopies.
e) The trees must not be used as anchorage for equipment.
f) Care must be exercised when using cranes or similar equipment near the spread of the canopy.

iv) Removal of fencing must only occur at the end of construction.

v) A de-compaction method such as compressed air and Mychorrizae injections with a Terravent within the ground protection area of the RPA post construction should be considered to improve the trees recovery. Contact: Goroots (0208 429 8049)

7.2 The tree should be inspected by a competent arboriculturalist following the completion of development for safety. Any deterioration in the tree's condition and any accidental damage to it need to be identified.

This report is for the sole use of the above client and refers to only the trees identified within. Use by any other person(s) in attempting to apply its contents for any other purpose renders the report invalid for that purpose.

Yours sincerely

Dick Tomlinson,

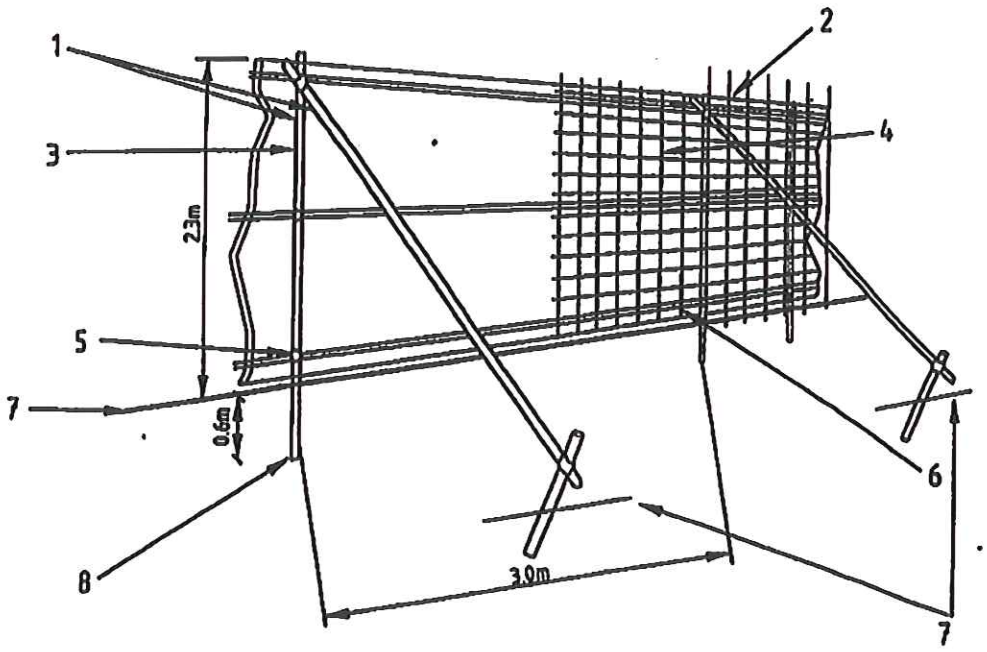
Tomlinson Tree Surgeons (ND ARB)

Appendix

Table 2 — Calculating the RPA

Number of stems	Calculation
Single stem tree	$RPA(m^2) = \left(\frac{\text{stem diameter (mm) @ 1.5 m} \times 12}{1\ 000}\right)^2 \times 3.142$
Tree with more than one stem arising below 1.5 m above ground level	$RPA(m^2) = \left(\frac{\text{Basal diameter (measured immediately above root flare (mm)} \times 10}{1\ 000}\right)^2 \times 3.142$
NOTE The 12× multiplier is based on NJUG 10 [9] and published work by Mathesy and Clark [10].	

5.2.3 The calculated RPA should be capped to 707 m^2, e.g. which is equivalent to a circle with a radius of 15 m or a square with approximately 26 m sides.



1 Standard scaffold poles
2 Uprights to be driven into the ground
3 Panels secured to uprights with wire ties and where necessary standard scaffold clamps
4 Weldmesh wired to the uprights and horizontals
5 Standard clamps
6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
7 Ground level
8 Approx. 0.6 m driven into the ground

Figure 2 — Protective barrier

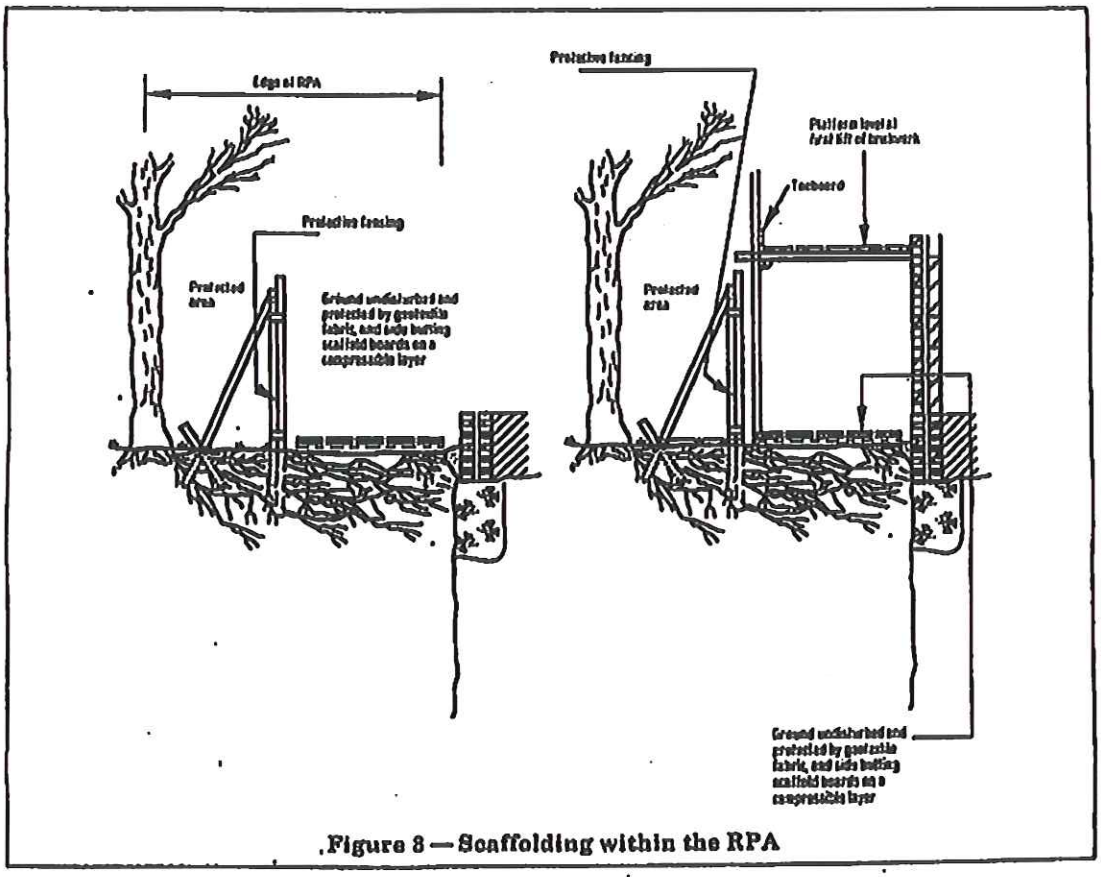


Figure 8 — Scaffolding within the RPA