#### THE TREE COMPANY



Willow Works, Unit 9, Inwood Business Park, Whitton Road, Hounslow, Middlesex, TW3 3EB

Tree Survey, Arboricultural Impact and Tree Protection Method Statement

> Address: 15 Kent Drive, Teddington

Site Surveyed and report prepared by: Peter Holloway BSc (Hons) FArborA CEnv

Date: 1<sup>st</sup> July 2024

**Report Prepared for Ms Dawn Goodwin** 

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## 1. Instruction:

- 1.1 Ms Dawn Goodwin instructed me to carry out a tree survey, Arboricultural Impact Assessment and prepare an Arboricultural (Tree Protection) Method Statement for a proposed development at 15 Kent Drive, Teddington.
- 1.2 This report addresses the Arboricultural Impact of partial demolition and construction of the building on a larger footprint with internal alterations.

## 2. Documents

- 2.1 I was supplied with the following documents.
  - a) A set of existing site plans, elevations and sections dated February 2024.
  - b) A Set of Proposed Plans, elevations and sections dated 18<sup>th</sup> June 2024

## 3. Scope of The Report

- 3.1 The tree survey was carried out in accordance with BS5837:2012 as outlined in Appendix 1 and the survey details are provided in Appendix 2 and the tree locations are marked on the plans in Appendix 3, 4 and 6. I updated the survey dated 5<sup>th</sup> February 2024 on 12<sup>th</sup> June 2024
- 3.2 This was a visual tree survey at ground level for planning and no detailed investigations of tree health and condition were carried out.

## 4. Tree & Wildlife Protection

4.1 The site is not within a conservation area according to London Borough of Richmond conservation area maps, but I suspect that some or all the offsite trees T01, T02, and T18 growing in 38-42 Hampton Road could be included in Tree Preservation Orders judging from the planning history of that site. To confirm we would need to obtain a copy of the Tree Preservation Order to compare with the tree survey.



4.2 The Wildlife and Countryside Act 1981 (as amended), the Conservation (natural habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000 provide protection for many species of animal that live in trees. This includes birds and bats. If any tree works affect protected species, then this could be a criminal offence. You should confirm that there are no protected species present and that no bats are using the tree as a roost before undertaking any tree works.

### 5. Site visit and tree survey

- 5.1 I visited the site on 16<sup>th</sup> June 2024.
- 5.2 The geology at the site, as indicated on the British Geological Survey Geoindex, is a bedrock of London Clay with superficial deposits of Kempton Park Gravel member. The average thickness of Kempton Park Gravel is 6m. Some nearby boreholes show the gravel 1.5-1.7m deep below made-ground so the depth of the gravel at the site could be as little as 1m.
- 5.3 The site is a detached property with a front and rear garden. There are two footway crossovers and car parking in the front garden.
- 5.4 The front garden has shrub borders, a palm and a Cordyline 'tree.' There are two mature trees including an Elder (T15) in 13 Kent Drive and a Robinia in 38-42 Hampton Road.
- 5.5 The rear garden is lawn, shrub borders, and trees with a patio along the rear elevation of the building. The mature trees are an Ash (T02) and a Robinia (T03) within 38- 42 Hampton Road and a Sweet Bay (T06) with the site.
- 5.6 This tree survey included fifteen trees, one large Oleander shrub, a large Photinia shrub, and three groups of shrubs in the borders.



Tree Quality										
Quality	Α	В	С	U (Unclassified)						
Category	(High)	(Moderate)	(Low)							
Tree No. Nil		T01, T02,	T04, T05, T06, T08, T09, T10,	T18						
		T03	T11, T14, T15, T16, & T17							
Total	0	5	23	2						

5.7 The quality of the trees, hedges are summarised in Table 2 below.

- 5.8 The 'circular' root protection areas (RPAs) on my plans are 12sided polygons. I have not adjusted the RPA of the trees. T18 is the only tree that is affected by building foundations, others are affected by garage foundations, but garage foundation are normally a shallow slab, and the trees will grow beneath them on this geology.
- 5.9 T18 is a U category tree but I have shown the RPA because it is offsite and in separate ownership. I do not know the foundations for the existing garage, but the roots are less likely to be growing beneath the existing house and garage (if it has a proper foundation. If the roots of this tree are growing under the building their protection would be unreasonable for a U category tree. In any case the proposed changes to the building do not affect the circular RPA of this tree.

## 6. Arboricultural Impact Appraisal

- 6.1 The Proposed site plan with tree constraints is shown in Appendix4.
- 6.2 This project entails constructing a side and rear extension on the north and west sides of the building. There is a small extension on the north side of the east façade.
- 6.3 The proposal will mean the removal of T10 (Cordyline), T11 (Cordyline) and the Japanese maple (T14). These trees are not significant in the landscape and there will be no impact on public visual amenity.
- 6.4 The retained trees and shrubs in the front might be affected by construction processes including demolition, materials storage, scaffold, vehicles, waste storage (skips). Fencing and ground protection will need to be provided for the offsite tree T15 (Elder) and trees T16 (Cordyline) and T17 (Palm).



- 6.5 In the rear garden tree protection fencing can be used to create a construction exclusion zone to protect the on-site and off-site trees.
- 6.6 I have included a tree protection document in Appendix 5 to outline the tree protection methodologies that will be required. This can be reviewed if a construction methodology and construction management plan are available or during the arboricultural site supervision process.



## 7. Appendix 1: Standard Methodology

- A.1 Survey
- A1.1 All my observations were from ground level without detailed investigations, and I measured tree stem diameters where possible and estimated height and crown spread by pacing and using a clinometer. I do not normally have access to trees outside the boundaries and so my observations and comments on these trees are based on the visual assessment made from within the site or the surrounding public highway.
- A.1.2 I surveyed all trees objectively without reference to any design proposals supplied or suggested by the client. The trees were located using the topographical survey where provided. If the topographical plan did not include all relevant trees, they would be added in their approximate positions.
- A.1.3 As suggested in the BS 5837:2012 all single stem trees with a stem diameter of less than 75 mm at 1.5 m above ground level can be excluded from the survey as they are not deemed to be of significant size to be included. Multi stemmed trees were measured in accordance with the standard.
- A.1.4 Trees and shrubs are living organisms whose health and condition can change rapidly, for this reason the BS 5837 grades, along with any conclusions or tree management recommendations can only remain valid for a period of 12 months.
- A.1.5 Where possible, trees were assessed as individual specimens, however, where there were trees that formed distinctive groups of the same species within the landscape they can be assessed and graded as groups.
- A.1.6 Trees on or adjacent to development sites are a material consideration that may have a significant impact on the future development and use of the site.
- A.2 Use of survey data.
- A.2.1 The British Standard 5837:2012 provides guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees with structures.
- A.2.2 The tree survey with minimum requirements of BS5837 is enclosed in the appendices of this report.



- A.2.3 The British Standard 5837: 2012 'Trees in relation to design, demolition, and construction – Recommendations' provides guidance and specifies measures to be adopted to avoid or minimise damage to trees retained on or in proximity to construction sites. One of the key recommendations is that a Root Protection Area (RPA) should be established around each retained tree. The RPA is calculated as an area equivalent to a circle with a radius 12 times the stem diameter measured at 1.5 metres above ground level for a single stem tree. To prevent disturbance or contamination of the RPA they are usually enclosed by robust fencing.
- A.2.4 Circular Root Protection Areas (RPAs) can be adjusted by an arboriculturist by considering obstructions for root growth, including building foundations, retaining walls, metalled roads, topography, soil type and tolerance of individual trees.
- A.2.5 The British Standard recommends that trees within categories A-C (where A is highest quality) are a material consideration in the development process. Category U trees are trees that will not be expected to exist for long enough to justify their consideration in the planning process. The tree categories are used with the number 1, 2, or 3, which is shown in Table 1. These signify whether the justification for the category was made based on arboricultural values, landscape values or cultural/conservation values, respectively. The tree categories are shown on the tree constraints plan by colour coding. Category A trees are green, category B trees are blue, category C are grey and category U are dark red.
- A.2.6 It is important to recognise that tree roots are particularly vulnerable during any adjacent construction operations. Tree roots grow where conditions are most favourable, this tends to be near the soil surface, for this reason most tree roots grow in the upper 600mm of the soil. This means that operations during construction such as shallow excavations, soil compaction by heavy plant or machinery or contamination by substances such as cement, diesel, or other chemicals, even water in excess, can be damaging to the root system.
- A.2.7 The presence of walls, roads and retaining walls can affect the root distribution of trees within and around the site. Normally when a Root Protection Area is adjusted its shape is changed but the total area is maintained.



- A.2.8 Approved tree work should be carried out in accordance with BS 3998:2010 by suitably qualified and experienced professional tree surgeons. Under no circumstances shall site personnel undertake any tree pruning operations. All tree works should also take into consideration The Wildlife and Countryside Act 1981 (as amended), the Conservation (natural habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000 protected species of flora and fauna.
- A.2.9 If the site is within a conservation area, then the local authority will need to be notified of your intention to prune the tree which they can prevent by making a Tree reservation Order. Some forms of tree work are exempt from this requirement and tree works directly required to accommodate a development that has planning permission would be exempt. However, I would recommend notifying the local authority before doing any tree work to avoid misunderstandings.
- A.2.10 If individual trees are protected by Tree Preservation Orders, then written consent is required for tree pruning or tree removal except for a few exemptions and if the work is directly required to accommodate a development which has planning permission. As above, I would recommend applying for consent rather than assuming that works are exempt.



## 8. Appendix 2: Tree Survey Data



Table 1	Table 1 15 Kent Drive , Teddington 12th Jun								12th June 2	2024											
e ber	Tree Name (species)			Crown constraints												Observations	Remaining	ae Jory			
Num	Common	Botanical	Heigh	Calculated Stem Diameter (mm)	No. of Stems	Root Protection Area (Radius, m)	North	Crown South	East	West	Lowest branch	Direction lowest branch	North	South	East	West	Age class	Summary of Physiological condition	Structural Condition & General comments	years	Tre Cate
T01	Robinia	Robinia pseudoacacia	15	650	1	7.80	6				8	w	4	4	4.5	6	Mature	Poor	Offsite. Dieback. Crown reduced by pruning in the past. Tight union at around 9m high.	20 to 40 yrs	B1,2
T02	Common Ash	Fraxinus excelsior	17	644	2	7.73	10				5	w	8	6	6	4	Mature	Fair	Offsite. Dieback and sparser crown on smaller stem.	20 to 40 yrs	B1,2
тоз	Robinia	Robinia pseudoacacia	15	292	2	3.50	8				5	E	3	4	6	2	Semi-mature	Fair	Offsite. Twin stem from ground level. Appressed stems, included bark.	20 to 40 yrs	B1
T04	Cabbage Tree	Cordyline australis	5	140	1	1.68	3				3	CB	1	0.75	0.5	2	Semi-mature	Fair	Dead lower branch.	10 to 20 yrs	C1
T05	Cabbage Tree	Cordyline australis	4.2	110	1	1.32	2.1				2	Fork	1.2	0.9	0.5	0.75	Semi-mature	Fair		10 to 20 yrs	C1
т06	Вау	Laurus nobilis	12	508	5	6.10	3				0	MS	6	4	6	4.5	Mature	Good	Crown pruned to reduce size in past. Two fire damaged stems. Ganoderma on two main stems at near ground.	10 to 20 yrs	C1
S07	Photinia variegated	Photinia x fraserii 'Red Robin' Variegated	4	113	2	1.36				2.5	0	Fork	1.5	2	1	1.5	Semi-mature	Good	Shrub.	10 to 20 yrs	C1
T08	Chusan Palm	Trachycarpus fortunei	4.5	220	1	2.64	2				2.1	AR	2	1.5	1.5	2	Semi-mature	Good		20 to 40 yrs	C1
T09	Fig	Ficus carica	5.2	184	6	2.20		1			1.2	AR	1.5	3	3	3	Semi-mature	Good		20 to 40 yrs	C1
T10	Cabbage Tree	Cordyline australis	5	140	1	1.68		4			2.5	CB	0.5	1	0.5	0.5	Semi-mature	Fair		10 to 20 yrs	C1
T11	Cabbage Tree	Cordyline australis	5	150	1	1.80		3.5			3	W	0.5	1	0.5	1.5	Semi-mature	Fair		10 to 20 yrs	C1
SG12	Shrub group	Shrub group															Young		Shrubsincluding : Bamboo, Choisya, Daphne, cordyline/phormium, sarcococca, pittosporum tobira, Aucuba, viburnum, Cotoneaster and Loropetalum.		
S13	Oleander	Nerium oleander	2.5														Semi-mature		Shrub. Oleander.		
T14	Variegated Japanese Maple	Acer palmatum 'Butterfly'	3	89	5	1.06		1			0.3	S	0.6	1.5	1	1.2	Mature	Good		10 to 20 yrs	C1
T15	Common or Black Elder	Sambucas nigra	4	169	3	2.03		2			0	MS	1.5	2	1.2	2	Mature	Good	Offsite. Touching boundary wall.	10 to 20 yrs	C1
T16	Cordyline	Codyline australis 'Variegata'	3	70	1	0.84		2.2			None		0.3	0.3	0.3	0.3	Semi-mature	Fair	Variegated cordyline. Staked. Under 75mm.	10 to 20 yrs	C1
T17	Chusan Palm	Trachycarpus fortunei	5.5	230	1	2.76				1.5	3	AR	1.2	2	1	1.5	Semi-mature	Good		10 to 20 yrs	C1
T18	Robinia	Robinia pseudoacacia	9	851	2	10.22	5				3	AR	4	4	4	5	Mature	Poor	Offsite. Dieback. Topped to remove deadwood in past, large dead stubs left. Crown is formed of large epicormic shoots.	<10 yrs	U
SG19	Shrub group	Shrub group											<u> </u>			<u> </u>	Young		Shrubs including: Fatsia, Cotinus 'Royal Purple', Nandia, grasses, sedges and Phormium.		
0020	Ion as group	Join as group	1						1	1		1	1	1	1	1	i loung	1	i and plane, prominant, samsoo, latola,		

# 9. Appendix 3: Existing Site Plan with Tree Constraints





## 10. Appendix 4: Proposed Site Plan with Tree Constraints





## 11. Appendix 5: Tree Protection Method Statement

A5.1 The Roles and Responsibilities for Tree Protection on this site are described below. Tree protection details are reviewed as part of the site supervision procedure to ensure that tree protection is practical and that construction methods do not compromise tree protection.

#### Arboriculturist

Peter Holloway of Rootcause Ltd.

To provide a watching brief over the works on site when there is a risk of damage to any tree or woody plant. To provide an advisory role to the Contractor of how works are to be carried out, and the preparation of the agreed methodology with the Contractor. To complete site visit reports for the client after each visit which will be forwarded to the relevant Tree Officer/Department if required by a planning condition.

#### Contractor

Not appointed yet.

To manage the works on site as per the agreed tree protection methodology. The contractor is responsible for all operatives on site and how the works are to be executed. The contractor must endeavour to comply with all aspects of the methodology when working on or near trees.

The construction contractor will incorporate a section in their site induction about site constraints and procedures for tree protection in relation to site access and working near trees.

#### A5.2 Tree Work

A5.2.1 Tree numbers T10, T11, and T14 will be removed. Part of shrub group SG19 will also need to be removed. I have assumed that the two driveways provide sufficient space for materials and waste (skips).



#### A5.3 **Provision of information for all site operatives**

A5.3.1 A copy of the arboricultural method statement will be provided to site managers and key staff.

#### A5.4 Erection of protective fencing and ground protection

- A5.4.1 Tree Protective fencing will be erected where indicated in the tree protection plan. Protective fencing normally consists of 2m tall by 3m long weldmesh panels fixed to a scaffold framework or stakes so they cannot be easily moved or breached. Braces for protective fences must not be fixed to any part of a tree. Other fencing could be used but the purpose is to create a construction exclusion zone and prevent damage to trees, soft landscaping, roots, ground contamination or ground compaction.
- A5.4.2 Ground protection will be used where shown on the Tree Protection Plan. Ground protection can take many forms, so the physical description of ground protection is impractical. However, ground protection must be constructed in such a way to prevent compaction in relation to the anticipated loads from vehicles, plant, or pedestrians.

BS5837 recommends the following but suitable alternatives are acceptable:

a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;

b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane.

c) for wheeled or tracked construction traffic exceeding 2t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

#### A5.5 Construction

A5.5.1 The materials will be unloaded roadside or onto the front driveway and moved into the site manually.



- A5.5.2 There is likely to be a skip on the front driveway.
- A.5.5.3 Materials and waste will be stored on existing hard surfacing. Materials and waste can create a source of combustible material where an accidental fire could destroy the tree. Where it is necessary to use space beneath retained trees for storage additional precautions are required. Where possible combustible materials should be kept at least 10m from the crown of retained trees in case of accident. If not practical, suitable fire-fighting equipment must be kept on the worksite while work is in progress.
- A5.5.4 Many building materials are harmful to trees. Cement, cement washings, wastewater, diesel fuel and even clean water in excess can kill or seriously damage trees. Any runoff or spillages must be controlled so that they do not contaminate the ground within RPAs of retained trees or landscape areas.
- A5.5.5 The only excavations anticipated are to construct foundations of the extension. This does not affect any retained trees.
- A5.5.6 Trenches for services (electricity, gas, water etc.) can damage tree roots. No new services are anticipated within the RPAs of trees. If new services become necessary within the RPAs of retained trees, the excavations and changes in ground level required, must be carried out considering that roots may be present. It will be necessary to undertake excavations by hand and all roots of 25mm diameter or larger must be retained.
- A5.5.7 Any excavations within the RPAs of retained trees must be carried out by manual methods. A methodology for manual excavations is included in A5.8.

#### A5.6 Site Supervision

A5.6.1 The Local Tree Officer or a Planning Enforcement Officer could visit the site at any time to check that any planning conditions, including this method statement are being followed.



A5.6.2 I recommend independent site supervision by an arboriculturist as recommend by BS5837. Independent arboricultural supervision is sometimes a condition of planning permission to ensure that the trees are not damaged or at risk during the works. An example of the site supervision record is attached in Appendix 7. This record would be completed by the arboriculturist after each supervision visit and provided to The Project Manager and copied to the local tree officer if required by the planning condition.

## A5.6.3 Estimated Site Supervision Schedule (This can be adjusted when the Construction Programme is available).

Arboricultural Site Supervision – estimated schedule										
Stag	ge	Estimated date	Reason							
Prestart	Pre-start Meeting & Review of Tree Protection required with key site staff	8 <sup>th</sup> Oct 2024	To make sure that protection requirements are understood and practical.							
	Tree Protection installed	8 <sup>th</sup> Oct 2024	Ensure tree protection installed as described.							
	Demolition	15 <sup>th</sup> Oct 2024	No supervision necessary if tree protection installed.							
Construction	Foundation excavation & construction	12 <sup>th</sup> Nov 2024	Ensure Tree Protection in place and effective.							
	Building Construction	30 <sup>th</sup> Nov 2024	Ensure Tree Protection in place with monthly visits							
	Internal Construction & fittings	March 2025	No supervision necessary if tree protection in place.							
	Tree Protection dismantled	July 2025	To ensure no tree damage occurs and inspect site.							
Landscaping	Landscaping	August 2025	If new landscaping is proposed ensure no operations risk damaging roots or causing soil compaction.							



#### A5.7 Hard and Soft Landscaping

- A5.7.1 Any soft landscaping within the RPAs of trees should avoid significant increases or decreases in ground levels (no more than 50mm) and excavations should be carried out in a way that ensures roots and rooting space are retained.
- A.5.7.2 Any machinery used in landscaping should avoid root damage or soil compaction.
- A5.7.3 The use of herbicides must be avoided where the chemicals could affect retained trees and shrubs.
- A5.7.4 The new hard landscape (patio) within the RPA of T01 must be constructed using no dig techniques to protect roots. If the ground level is raised, then permeable patio would be preferable to ensure adequate gaseous exchange. Any roots of 25mm diameter or larger must be retained.

#### A5.8 Method for Hand Excavations within Root Protection Areas.

The purpose of the excavation is to establish the presence/absence of significant roots within the RPA's of retained trees when any excavations are necessary within Root Protection Areas so these roots can be retained without damage.

#### Method:

- a) Excavation within hard landscaping will need to be carried out using concrete breakers and excavators. Hand excavation is not practical.
- b) Machine excavations should be planned and supervised to protect and preserve roots within the excavations, prevent compaction of soil or granular materials.
- c) Where excavations occur in soil or soft landscape, excavations will use hand tools like forks, spades, and shovels. An 'Air Spade' could be used where appropriate. Any other power tools must <u>not</u> be used.
- d) The depth of excavation will be the same as the depth of the structure proposed.



- e) During excavations, any roots less than 25mm diameter can be cut cleanly to the sides of the excavation with a pair of secateurs or handsaw.
- f) Tree roots 25mm in diameter or greater will be left in situ and protected from damage during the work.
- g) Tree roots could be up to 1.5m below ground level. Therefore, it is important to avoid compaction, contamination of the soil within, below or in the sides of any excavations.
- h) If excavations are close to retained roots the roots need to be protected with cut sections of plastic pipe, or similar materials, to prevent physical damage. Roots to be retained which are exposed for longer than an hour will be covered with Hessian to prevent damage from high (above 20 °C) or low temperatures (under 5 °C) and sun scorch (depending on the ambient weather conditions). In temperatures above 20°C roots and their coverings will need to be kept moist.



## 12. Appendix 6: Tree Protection Plan





## 13. Appendix 7: Tree Protection Monitoring Record







## **Tree Protection Monitoring Record**

Reason for visit	Stage/Plan	ned/ <b>U</b> nplanned/En	nergency	Planned	
Site:			Site Manager:		
Site visit by:			Client:		
Date of visit:			Time of visit:		
Client			Purpose of		
Representative			visit		
Present					
Flement	1	Comments/Ac	tion		Rating <sup>*</sup>
Site Access rout	tas				
One Access rout	103				
Location of Site					
Accommodation/ C	Car Parking				
etc					
Tree Protective	Fencing				
Ground Protecti	on				
Planned Constru	uction				
Exclusion Zone	action				
Site Storage					
Soil contaminati	on				
Excavations/ lev	امر				
changes					
Tree Condition					
Plant used on si	ite				
Landscaping					
General Observ	ations				
Document Revie	ew				
Required					
Signed:				Overall Site Rating	

\*Rating: P is inadequate, F is adequate as specified, G is above specification