TREE SURVEY, ARBORICULTURAL IMPACT ASSESSMENT, TREE PROTECTION PLAN & HEADS OF TERMS FOR THE ARBORICULTURAL METHOD STATEMENT Rev:2,

with regard to proposed development at:

Land Adjacent to Pegasus Court, 105 St. Pancras Way, London, NW1 0RA,

for:

Conway Investments Ltd..

Job no: MJC-15-0128

20th April 2015.

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Contents

1.0 Instruction

1.1 MJC Tree Services Limited have been instructed by Michael Kaye of Conway Investments Ltd. as follows:
"***Re: Development Site Tree Survey & Reports in Accordance With BS5837:2012 at Land Adjacent to Pegasus Court, 105 St. Pancras Way, London, NW1 0RA.***
To visit the above site and carry out the following works:

- *To carry out a ground level and visual survey of trees on and adjacent to the site that are identified for survey and assessment under the criterion given in British Standard 5837:2012 'Trees in Relation to Design, demolition and construction – Recommendations' (BS5837:2012):*
- *To draw up a Tree Constraints Plan and tree survey schedule in accordance with BS5837:2012, using as a base plan an existing site plan, onto which the positions of the trees will be plotted by carrying out a measured survey:*
- *To provide explanation of the tree constraints to the design team:*
- *To discuss a proposed development of the site with the design team in the light of the identified tree constraints with a view to arriving at a proposed layout that is acceptable in arboricultural planning terms:*
- *To draw up an Arboricultural Impact Assessment for a proposed development at the above property, using the tree constraints information for reference and a proposed site layout (including all access and service plan details) that will need to be supplied, via email, in an electronic (.dwg or AutoCAD) format to the above office before the report can be completed:*
- *To draw up a Tree Protection Plan and the heads of terms for an Arboricultural Method Statement for the proposed development that will provide adequate protection to the trees identified for retention:*
- *To combine these elements into a single report:*
- *To supply the completed report in an electronic format as a .PDF file, with the plans available as .dwg (AutoCAD) files.*"

2.0 Caveats and Qualifications

2.1 The tree survey was preliminary in nature and was carried out from ground level using visual techniques only. No trees were climbed or internally investigated. Should a more detailed inspection be required then this will be highlighted in the recommendations.

2.2 Trees are living organisms whose health and condition can change rapidly. The health, condition and safety of trees should be checked on a regular basis, preferably at least once a year. The conclusions and recommendations in this report are based only on the observations made by the author during the tree survey.

2.3 The author of this report is a:

- Fellow of the Institute of Chartered Foresters:
- Arboricultural Association Registered Consultant:
- Chartered Arboriculturist:
- Chartered Surveyor:
- Registered Consultant of the Institute of Chartered Foresters.

He also holds the Royal Forestry Society's Professional Diploma in Arboriculture. A full CV is available as a .pdf file upon request.

2.4 This report is for the sole use of the above named client and refers only to those trees identified within. It may not be reproduced in whole or in part, or sold, lent, hired out or divulged to any third party not directly involved in the subject matter, without our consent. Use by any other person(s) in attempting to apply its contents for any purpose other than stated in this report renders the report invalid for that purpose.

2.5 This report is supplied subject to our terms and conditions in force at the time of our instruction by the client.

3.0 Introduction

3.1 This report is presented largely in the form of annotated plans with a tree survey schedule that are intended to be read in the sequence they are presented, cross referencing as instructed in the annotations.

3.1.1 The reason for this graphical form of presentation is to make its interpretation easier by the greater design team and the demolition/construction team. These teams work in a graphical environment, and if the arboricultural reports involved in the design and demolition/construction processes are to be easily interpreted by these teams they must also be presented in a graphical environment. To do otherwise would create an unhelpful disconnect between the arboricultural information and the design and demolition/construction teams. It also allows the report and the proposed development to be assessed on site by officers of the Local Planning Authority (LPA) whilst referencing a small number of single page documents, thereby avoiding the need to keep flicking backwards and forwards through a written report whilst holding open a large site plan.

3.1.2 The layout and order of the plans and schedule are intended to illustrate a logical progression from the existing site (Tree Survey Plan and Tree Survey Schedule), through the proposed development, its impact on the trees in terms of tree losses, and the establishment of conflicts with the retained trees and how these conflicts will be resolved in principle (Arboricultural Impact Assessment), to the specific tree protection measures required and identification of the specific elements of the demolition/construction works that require detailed arboricultural methodologies (Tree Protection Plan and Heads of Terms for the Arboricultural Method Statement Plan).

3.2 The comments and recommendations made in the tree survey schedule are made in the current context of the site, and they do not relate to any proposed development of the site. Tree works and removals required as a result of the proposed development are detailed on the Arboricultural Impact Assessment plan.

3.3 The Arboricultural Impact Assessment plan establishes in principle how the conflicts between the proposed development and the retained trees will be resolved whilst restricting the impact on the trees to an acceptable level. An Arboricultural Method Statement would go into greater and more practical detail regarding these matters, but this is not included in this report in order to comply with the requirements of BS5837:2012. Figure 1 of BS5837:2012 makes it clear that arboricultural methodologies (i.e. the Arboricultural Method Statement) will be submitted after statutory planning permission has been granted and they should not be included with the application documents. Therefore, as this report is to be submitted as part of an application for statutory planning permission it should not include an Arboricultural Method Statement. If the LPA request an Arboricultural Method Statement with the application, they will be contradicting BS5837:2012.

4.0 Summary

4.1 It is proposed to construct a low rise dwelling in the southern half of the site with an access path/ramp constructed from timber in the northern half. Details of the proposed development are illustrated in the William Martin plans no. 10118.05 revA and 10118.05 revA.

4.1.1 The existing asphalt layer covering of the site will be removed thereby improving the soil rooting environment across the site.

4.1.2 Rainwater runoff from the roof will be redirected under the footprint of the building, and the under floor void of the building will be ventilated, thereby allowing the natural infiltration of rainwater and gaseous exchange at the soil surface. Both of these factors will improve the soil rooting environment under the dwelling.

4.2 The proposed development represents a complex interaction with the retained trees. The design team has been aware of the challenges posed by this interaction from the outset and has gone to great lengths to achieve a juxtaposition of trees to development that will allow the successful retention of the trees worthy of consideration as a material constraint on proposed development within the site layout and design.

4.2.1 The proposed development encroaches into the identified tree constraints in several ways, but this arboricultural impact assessment has identified, in principle, the measures required to restrict the impact of these encroachments to an acceptable level. In practical terms, these measures will need to be expanded on in an arboricultural method statement. The LPA are able to ensure the adequacy of this statement by making its production and approval a pre-commencement planning condition. This approach would not only comply with the guidance provided in Figure 1 of BS5837:2012, but would also ensure that any layout modifications made during the planning application determination process, e.g. in response to officer comments, would be accurately referred to in the method statement.

4.2.2 The proposed development will result in the removal of the existing asphalt surface across the site and will redirect roof rain water under the proposed dwelling via the vented under floor void. These measures will significantly improve the soil rooting environment for the retained trees, which will improve their health and longevity. As a number of the retained trees are protected by a Tree Preservation Order (TPO), this should be regarded as a clear planning gain.

4.2.3 The proposed development will result in additional soft landscaping across the site. In the proposed layout plans an indicative soft landscaping proposal is illustrated and this confirms that adequate space is present within the proposed development to carry out new tree and shrub planting that will not only mitigate for the identified tree losses, but will also improve the arboreal street scene. The precise detail of the final soft landscaping scheme will be confirmed after planning permission has been granted and the LPA are able to ensure the adequacy of this soft landscaping scheme by making its production and approval a pre-commencement planning condition.

4.2.4 The proposed development has been carefully designed with the trees in mind from the out set and this approach has resulted in a proposed development that can be successfully integrated with the retained trees, and planning permission for the proposed development should be granted subject to the following conditions:

- The pre-commencement drawing up and approval of a comprehensive soft landscaping scheme for the proposed development that includes adequate mitigation planting of new trees and shrubs to compensate for the identified tree losses:
- Adherence to the enclosed Tree Protection Plan:
- The pre-commencement drawing up and approval of a comprehensive Arboricultural Method Statement that must be followed throughout the development works.

The use of these conditions is reasonable, necessary and commonplace. Therefore the required use of these conditions cannot result in a legitimate reason to refuse planning permission for the proposed development.

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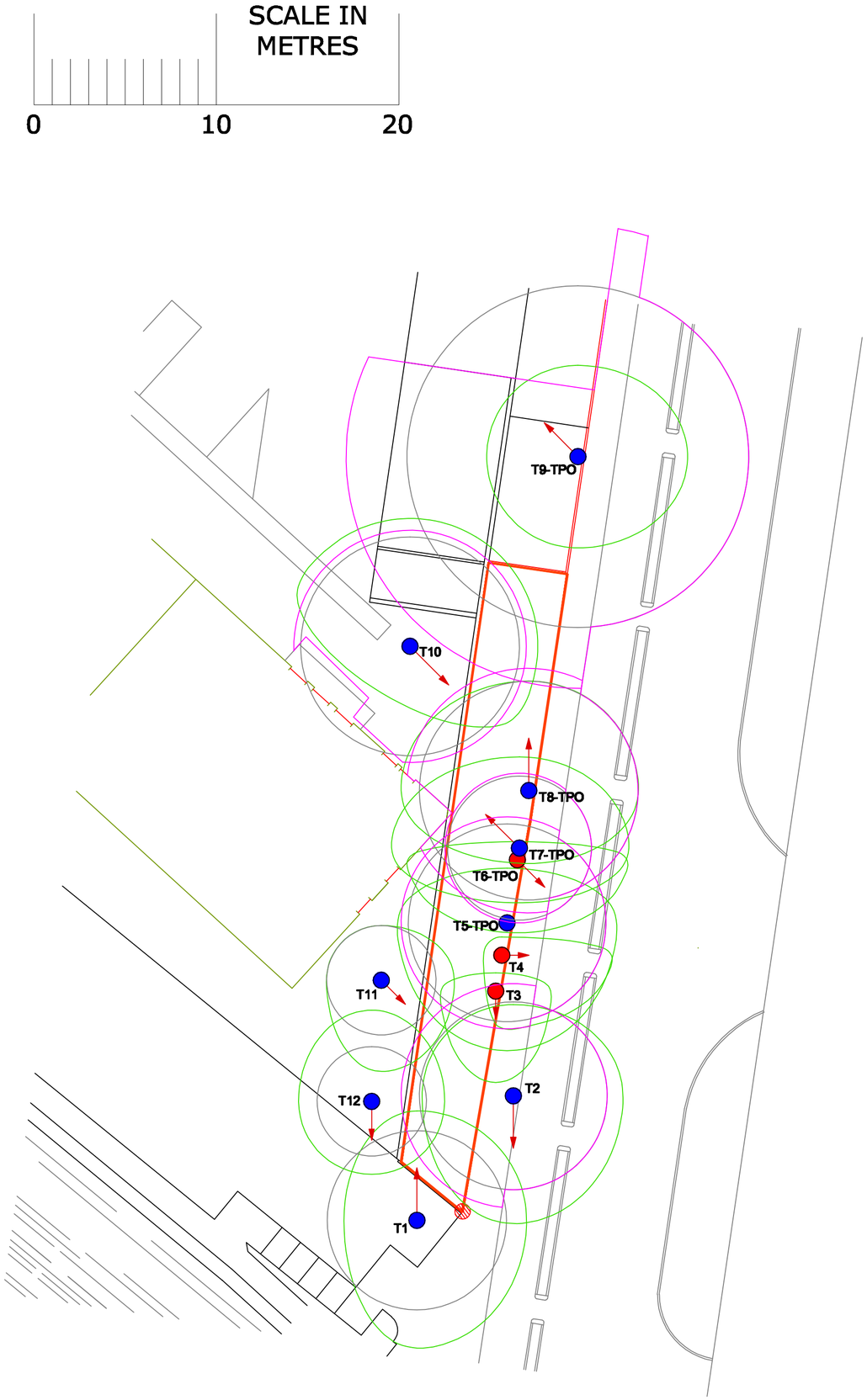
5.0 Tree Survey Plan



Tree Survey Notes

Introduction

- The tree survey was carried out on the 27th January 2015.
  - The survey was carried out in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' (BS5837:2012).
  - The survey was carried out from ground level using visual techniques only. No trees were climbed or internally investigated. Should a more detailed inspection be required then this will be highlighted in the recommendations section of the tree survey schedule.
  - The works recommended on the schedule are based on the current context of the site, as is required by BS5837:2012. They are not works required as a result of any proposed development. These works will be listed separately on the arboricultural impact assessment plan.
- Trees are living organisms whose health and condition can change rapidly. The health, condition and safety of trees should be checked on a regular basis. This survey is based solely on the observations made on the day of the survey,
- This report is supplied subject to our terms and conditions in force at the time of our instruction by the client.

The Trees

- The details of the individual tree survey are provided on the following tree survey schedule.
- The trees were not plotted on the supplied plan and their positions have been confirmed by way of a measured survey.
- The tree constraints have been calculated and are illustrated in accordance with BS5837:2012.
- The indicative root protection areas (RPA) of several trees extended under the nearby buildings, structures and/or the highway.
  - It has been considered reasonable to assume that the large buildings will have formed an effective barrier to root growth. In order to compensate for this, the area of indicative RPA under the buildings has been excluded and evenly added to the RPA under gardens and pavement to partly form a modified RPA.
  - It has been considered reasonable to assume that the lighter and low rise structures such as garages and bin stores will not have formed an effective barrier to root growth as they are likely to have relatively shallow foundations. Therefore no compensation is considered necessary for RPA that pass under these structures.
  - It has been considered reasonable to assume that the compacted base of the highway will have impeded tree root growth, although it was unlikely to have formed an effective barrier to it. In order to compensate for this, 50% of the area of indicative RPA under the highway has been evenly added to the RPA under gardens and pavement to partly form a modified RPA.
  - It must be understood that the irregular shaped polygon forming the modified RPA is unlikely to be a true representation of the actual root spread of the trees. A tree's root system is a dynamic and exploitative structure that will grow and function in different parts of the soil from season to season and year to year, so it is rarely confined to a fixed shape or area. The modified RPA represents the area of ground considered the minimum required to sustain the tree, but the true shape of the modified RPA may not be as illustrated.
- The majority of the trees were clearly self–set Sycamores that had not been purposely planted.
- Several of the trees contained structural defects and required a degree of intervention for sound management reasons. However collectively, they did produce an attractive roadside verdant mass.
- In addition to the trees surveyed there were several sapling trees below the size criteria given in BS5837 for survey and assessment and several shrubs such as Bramble and Buddleia. These have not been individually surveyed as they were not of sufficient value or quality to be considered a material consideration in the planning process.
- An online search carried out by the client's architect indicated that some of the trees surveyed were protected by a Tree Preservation Order (TPO) and this has been noted in this plan and on the following tree survey schedule.

The Site

- The site was a rectangular plot parallel to the public highway. It was broadly level and covered by an existing layer of asphalt.
- The existing site plan was based on the Ordnance Survey (OS) data for the area, but this has been suplimented by a number of onsite measurements to create a more accurate representation of the site's size and shape. This means there are slight discrepancies between the underlying OS data and the site boundary. The measured survey used to position of the trees is considered accurate in relation to the site boundaries.
- An internet search indicates that the local soils on site are likely to comprise London Clay. Such soils are easily compacted to the point where tree root growth is likely to be impeded, even by the single passage of a road going vehicle, and will therefore need protection from construction activities over the RPA of retained trees.
- Surrounding land use was as follows; to the north was residential development; to the east was public highway with residential development beyond; to the south was the Grand Union Canal and towpath with industrial development beyond; to the west was residential development.

MJC TREE SERVICES LIMITED

Site:
Land Adjacent to Pegasus Court, 105 St. Pancras Way, London, NW1 0RA.

TREE SURVEY PLAN

Plan no. MJC–15–0128–02 rev:2

This is based on the William Martin location plan no. 10118.02, amended by MJC on 10/02/2015.

This plan was produced in colour. A monochrome version must not be relied upon.

KEY

Crown spread of surveyed trees, hedges and shrubs

Direction of growth of lowest significant limb

Indicative Root Protection Area (RPA)

Modified root protection area

Category U tree
Category A tree
Category B tree
Category C tree

SCALE
1:200 @ A2

N

6.0 Tree Survey Schedule

TREE SURVEY SCHEDULE

Key:

- **Ht** = Height estimated in metres.
- **Stem Diam** = Stem or trunk diameter, measured and calculated in accordance with Annex C and section 4.6 of BS5837:2012.
  - **oi** = Measurement taken over ivy, which is likely to produce an exaggerated figure.
- **Crown Spread =** Crown spread to the cardinal points in metres, measured by pacing.
- **1st significant branch ht' & direction** = First significant branch height in metres and direction of growth e.g. N = North.
- **Crown base ht'** = Distance between surrounding ground level and the base of the main crown estimated in metres.
- **Life stage** is chosen from the four following and self explanatory categories;
  - Y = Young;
  - SM = Semi mature;
  - EM = Early mature;
  - M = Mature;
  - OM = Over Mature.
- **General observations** = Particularly of structural and/or physiological condition, significant features and defects, and the effect these may have on the health, stability and safe retention of the tree.
- **Preliminary management recommendations** = any significant works identified as necessary in the current context, and not taking into account any development of the site..
- **Rem' cont' =** an estimate, in years, of the remaining period over which the tree can be retained at an acceptable level of risk whilst still providing significant amenity benefits.
- **Reten' Cat'** = Desirability for retention category. Refers to BS5837:2012 which categorises trees on development sites into one of four categories – A, B, C or U, A being very good and U meaning that felling is appropriate regardless of any proposals. The suffix 1, 2 or 3 refers to a subcategory relating to tree, landscape or cultural/ecological values respectively.
- **AGL** = Above ground level
- **#** = Estimated dimension.
- **TYP** = Typical dimension where several are present.

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m) N	E	S	W	1st sig' branch ht' (m)	Direc-tion of 1st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
T1	Ash	9	280# + 300# = 410	2	6	6	7	4#	3	N	2.5	SM	• The tree was offsite and inaccessible therefore all assessments and measurements used were estimates. • The tree was an attractive roadside feature that contributed to the generally verdant appearance of the locality. (Contd)	• Monitor and assess the condition biennially, especially the condition of the decaying wound in the top of the northern stem and the basal bifurcation fork. • RPA area = 76.2 square metres (radius = 4.9 metre).	20-40	B2

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m) N	E	S	W	1st sig' branch ht' (m)	Direc-tion of 1st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
T1	Ash (Contd)												(Contd) • The trunk bifurcated just above ground level with a two stem structure above. The bifurcation fork did not seem to be particularly weak at the time of survey but it was possible that this could become a structural issue at some point in the future. • The northern stem had been damaged in the past and had lost its leading stem. This damage had created a torn out limb wound and the wood exposed was beginning to decay although strong callous growth was present around the periphery.			

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m) N	E	S	W	1st sig' branch ht' (m)	Direc-tion of 1st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
T2	Ash	14	430	1	5	6#	7	5	2.2	S	5.5	EM	• The tree was offsite but was accessible as it was a street tree. • The tree was an attractive roadside feature that had been crown lifted at various times in the past most likely to maintain clearance over the public highway. • The most recent crown lifting had produced two significantly large limb removal wounds on the eastern side, one of which was beginning to decay. • It was possible that at some point in the future decay of these pruning wounds would result in destabilisation of the crown.	• Monitor and assess condition biennially, especially the condition of the decayed pruning wounds on the western side. • RPA area = 83.6 square metres (radius = 5.2 metre).	20-40	B2
T3	Sycamore	8	130 + 70 = 148	2	1	3	5	3	1	S	2.5	Y	• The crown was heavily asymmetric as a result of suppression by nearby and larger trees. • Crown branch form was poor with multiple competing leaders. • One past limb loss wound on the western side of the trunk at approximately 1 metre above ground level was significantly decayed and this would inevitably lead to the destabilisation of the remainder of the tree.	• Fell. • RPA area = 9.9 square metres (radius = 1.8 metre).	0-10	U

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m)				1st sig' branch ht' (m)	Direc-tion of 1st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
					N	E	S	W								
T4	Sycamore	14	200	1	1	6	4	1	4	E	4	SM	• The crown was asymmetric and the tree leant to the south east as a result of suppression by nearby and larger trees. • The trunk had been in direct contact with a concrete fence post at a height of approximately 1.6 metres and this had left a significant wound on the southern face. • It was considered likely that this wound would become decayed and would create a weakness in the main stem that would be likely to cause collapse of the upper part of the tree at some point in the future. • The crown was interfering and seriously obscuring the immediately adjacent street light.	• Fell. • RPA area = 18.1 square metres (radius = 2.4 metre).	0-10	U

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m) N	E	S	W	1st sig' branch ht' (m)	Direc-tion of 1st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
T5	Sycamore	15	400 + 210 = 452	2	3	6	7	6#	0.3	E	5	EM	• This tree is protected by a Tree Preservation Order. • The tree was a significant roadside feature. • The crown was slightly asymmetric to the south as a result of competition for light and space with the immediately adjacent Sycamore to the north. • Branch form was slightly poor with a co dominant side limb branching on the eastern side at approximately 300mm above ground level. • The attachment fork for this co-dominant limb was developing into a weak feature and failure of this fork would allow the stem to fall into the highway. • Removal of this limb would not only reduce the risk of harm to users of the highway it would also improve the form of the tree, although it would introduce a slight risk of basal decay at some point in the future through the creation of a limb removal wound near the base of the trunk to be retained.	• Remove eastern side limb branching at approximately 300mm above ground level. • RPA area = 92.3 square metres (radius = 5.4 metre).	20-40	B2

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m) N	E	S	W	1st sig' branch ht' (m)	Direc-tion of 1st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
T6	Sycamore	13	270	1	1	6	4	6#	3.2	SE	3	SM	• This tree is protected by a Tree Preservation Order. • The crown was heavily asymmetric as a result of suppression by the two nearby and better formed Sycamore trees. • Crown branch form was poor with multiple competing leaders. • Removal of this tree would allow the immediately adjacent Sycamores to develop more balanced and sustainable crowns.	• Fell as a thinning operation in order to benefit the immediately adjacent Sycamore trees. • RPA area = 33.0 square metres (radius = 3.2 metre).	0-10	U
T7	Sycamore	13	330	1	5	6	3	7#	2.1	NW	4	EM	• This tree is protected by a Tree Preservation Order. • The tree had potential to grow into a significant roadside feature if the immediately adjacent Sycamore was felled as a thinning operation.	• No works currently identified. • RPA area = 49.3 square metres (radius = 4.0 metre).	20-40	B2

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m) N	E	S	W	1st sig' branch ht' (m)	Direc-tion of 1st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
T8	Sycamore	14	500#	1	6	6	4	7#	1	N	4	EM	• This tree is protected by a Tree Preservation Order. • The tree was a significant roadside feature. • However crown branch form was poor with competing leaders and potentially weak forks between the leaders although at the time of survey these were not considered structurally significant. • The lowest side limb on the northern side branching at approximately 1 metre above ground level was particularly detracting from the form of the tree.	• Remove lowest side limb branching from the northern side at approximately 1 metre above ground level. • RPA area = 113.1 square metres (radius = 6.0 metre).	20-40	B2

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m) N	E	S	W	1st sig' branch ht' (m)	Direc-tion of 1st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
T9	Sycamore	15	600# + 500# = 781	2#	5#	6#	5#	5#	1#	NW#	6#	EM	• This tree is protected by a Tree Preservation Order. • The tree was offsite and inaccessible in the grounds of the neighbouring property therefore all assessments and measurements used were estimates. • The crown had been lifted and reduced repeatedly on the northern side most likely to maintain clearance against the immediately adjacent building. • The tree was a significant roadside feature.	• No works currently identified. • RPA area = 276.0 square metres (radius = 9.4 metre).	20-40	B2

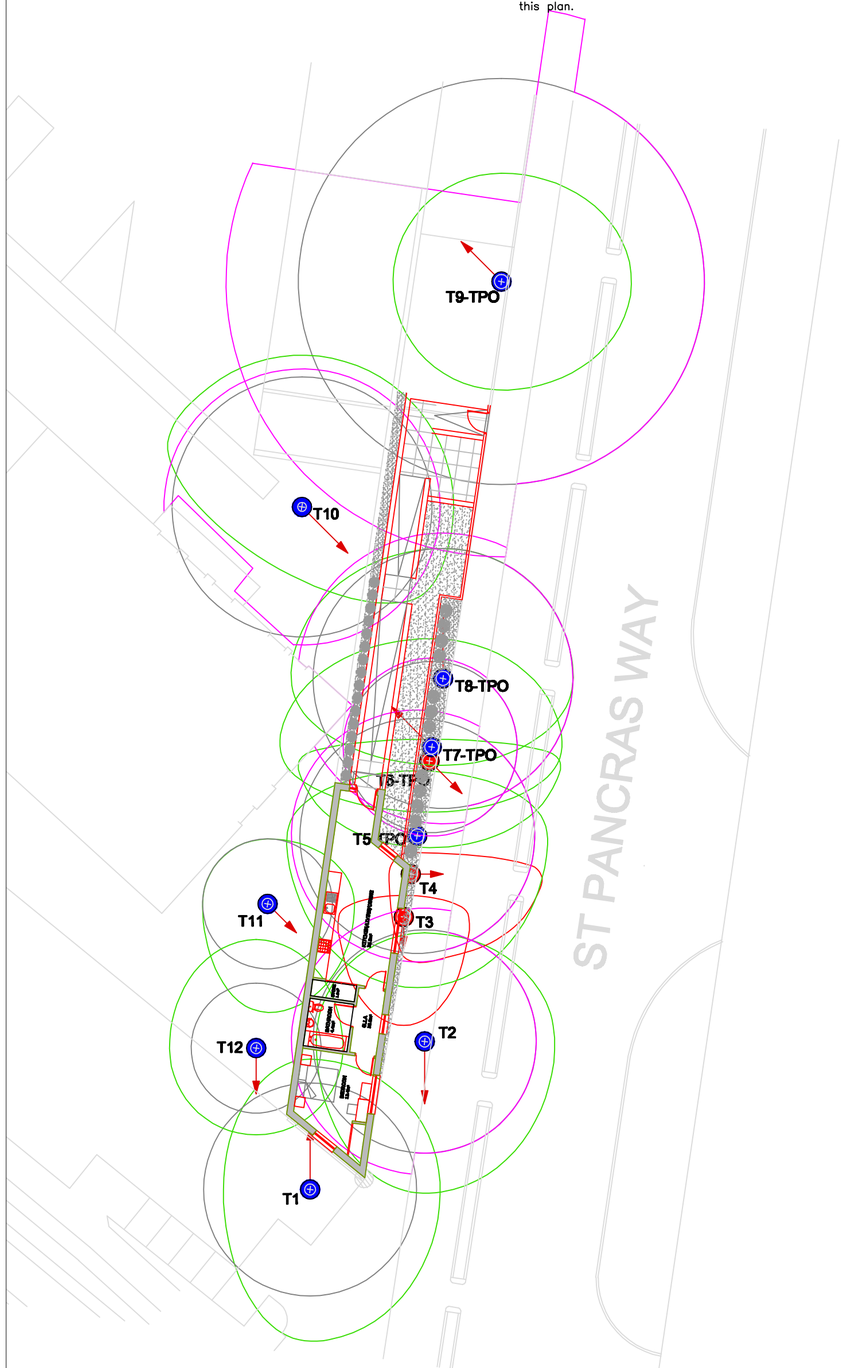
Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m) N	E	S	W	1st sig' branch ht' (m)	Direc-tion of 1st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
T10	Lime	15#	500#	1#	7#	7#	3#	7#	3	SE	2.5	EM	• The tree was offsite and inaccessible in the grounds of the neighbouring property therefore all assessments and measurements used were estimates. • Crown branch form was poor with multiple competing leaders and potentially weak forks although it was not considered likely that these would become structurally significant within the next 20 years. • The southern crown had been extensively cut back on more than one occasion most likely to maintain clearance against the nearby block of flats. • The tree was visible from the public highway but was not a significant individual. • The tree had some potential for future growth.	• No works currently identified. • RPA area = 113.1 square metres (radius = 6.0 metre).	20-40	B2

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m) N	E	S	W	1st sig' branch ht' (m)	Direc-tion of 1st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
T11	Lime	13#	250#	1	3#	4#	5#	3#	3	SE	3	SM	• The tree was offsite and inaccessible in the grounds of the neighbouring property therefore all assessments and measurements used were estimates. • The crown had been significantly cut back on the north western side most likely to maintain clearance against the nearby building. • The tree had some potential for future growth although this future growth would always be cut back on the north western side in order to clear the nearby building.	• No works currently identified. • RPA area = 28.3 square metres (radius = 3.0 metre).	20-40	B2
T12	Lime	10#	250#	1	5#	4#	4#	4#	2	S	3	SM	• The tree was offsite and inaccessible in the grounds of the neighbouring property therefore all assessments and measurements used were estimates. • The tree had some potential for future growth although was beginning to be suppressed by the nearby and larger tree no. T2.	• No works currently identified. • RPA area = 28.3 square metres (radius = 3.0 metre).	20-40	B2

7.0 Arboricultural Impact Assessment Plan

SCALE IN METRES

0 10 20



Arboricultural Impact Assessment

Introduction

- It is proposed to construct a low rise (approximately 3.7 metres above the pavement surface) dwelling in the southern half of the site with an access path/ramp constructed from timber in the northern half.
  - The proposed development layout is illustrated in colour in this plan.
  - In order to provide context with the existing site, the existing site layout plan is also illustrated in pale grey in this plan.
  - The trees and their constraints are illustrated in accordance with the key.
  - The existing asphalt layer covering of the site will be removed thereby improving the soil rooting environment across the site.
  - Rainwater runoff from the roof will be redirected under the footprint of the building, and the under floor void of the building will be ventilated, thereby allowing the natural infiltration of rainwater and gaseous exchange at the soil surface. Both of these factors will improve the soil rooting environment under the dwelling.

Tree Removals.

- The proposed development requires the removal of tree no's. T3 and T4. These trees are illustrated with red crown margins in this plan.
  - These trees were both 'U' grade with regard to their desirability for retention. BS5837:2012 describes such trees as 'Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years'.
  - Such trees cannot be considered to be of high public amenity value, either individually or collectively, and the required removal of such low grade trees cannot form a reason to refuse planning permission for the proposed development. Therefore, the required removal of these trees cannot form a legitimate reason for the Local Planning Authority (LPA) to refuse planning permission for the proposed development.
- In addition, serious consideration should be given to the removal of 'U' grade tree no. T6 as a thinning operation to benefit the nearby and better quality tree no. T7. However, this removal is not required as a result of the proposed development, therefore its removal is not illustrated or recommended in this arboricultural impact assessment.
- It will also be necessary to remove a quantity of saplings and shrubs that are becoming established around the periphery of the site, but these are not a material consideration in the planning application determination process.
- Indicative soft landscaping is illustrated in this plan that is intended to mitigate for the identified tree losses. These proposals will need to be confirmed in a comprehensive soft landscaping scheme for the site that should be drawn up after planning permission has been granted. Given the restricted space on site and the overhanging tree canopies, this landscaping should comprise largely shade tolerant shrubs that will tolerate containment pruning where necessary e.g. Cherry Laurel, Holly, Yew, evergreen Spindle and Elaeagnus.

Tree Works

- In order to create adequate clearance between the proposed dwelling and the crown of the trees to be retained, it will ne necessary to lift the crowns of tree no's. T1, T2, T5, T6, T7, T11 and T12 to 5.7 metres above the pavement surface over the footprint of the proposed dwellings.
  - Some of the retained trees are off site and therefore beyond the control of the site owner. However, the site owner retains the common law right to cut back over growth, therefore this crown lifting can be legally carried out without the permission of the tree's owner(s).
  - This crown lifting is inevitable if the site is to be developed as the existing tree crowns cover the majority of the site, so wherever the dwelling was to be located it would be necessary to crown lift some of the trees.
  - This crown lifting will create a clearspace over the proposed dwelling of 2 metres and this is considered adequate avoid the crowns coming into contact with the dwelling even when the trees are being swayed in high winds.
  - This type and scale of crown lifting is within the scope of British Standard 3998:2010 'Tree works – Recommendations'. Therefore it must be considered acceptable in practical arboricultural terms.
  - This type and scale of crown lifting will have no significant or long term detrimental biological impact on the trees and will have little detrimental impact on their public amenity values.
    - The eastern half of the crowns of tree no's. T1, T2, T5, T6, T7 and T8 have been regularly crown lifted in this scale in the past in order to maintain adequate clearance over the highway and this work seems to have had little detrimental impact on the biology or amenity value of the trees. Therefore it is reasonable to conclude that the extension of this work to some of the western parts of some of these crowns as a result of the proposed development will also have little detrimental impact on the tree's biology or amenity value.
    - The crown of tree no. T11 had been cut back hard in order to maintain clearance against the neighbouring block of flats. Tree no. T10 had been similarly managed. Both trees had been retained in a seemingly strong biological condition and were exhibiting similar levels of vitality as tree no. T12. Therefore, it is reasonable to conclude that the small scale crown lifting of tree no's. T11 and T12 required by the proposed development would have little detrimental impact on the biology of these trees.
    - Tree no's. T11 and T12 were set pack from the public vantage points of the highway and towpath, but their upper crowns were visible from these locations, therefore their upper crowns had some public amenity value, and they helped screen the neighbouring block of flats. The crown lifting required by the proposed dwelling would take place in the crown base only and would not significantly detract from the public view of these trees or the screening benefit they provided. Therefore, the required crown lifting would not have a significant detrimental impact on the public amenity value of these trees.
- In order to create adequate clearance between the proposed access ramp/path and the crowns of trees to be retained, it will be necessary to lift the crowns of tree no's. T6, T7, T8 and T10 to 3.5 metres above the pavement surface over the footprint of the proposed access path/ramp.
  - This crown lifting is inevitable if the site is to be developed as the existing tree crowns cover the majority of the site, so wherever the access ramp/path was to be located it would be necessary to crown lift some of the trees.
  - This crown lifting will create a clearspace over the proposed access path/ramp of at least 2.5 metres and this is considered adequate avoid the crowns coming into contact with pedestrians using the path/ramp even when the trees are being swayed in high winds.
  - This type and scale of crown lifting is within the scope of British Standard 3998:2010 'Tree works – Recommendations'. Therefore it must be considered acceptable in practical arboricultural terms.
  - This type and scale of crown lifting is small and will have no significant or long term detrimental biological impact on the trees and will have little detrimental impact on their public amenity.

Root Protection Areas.

- The proposed dwelling and access path/ramp encroach over both the indicative and modified root protection areas (RPA) of trees to be retained.
- This encroachment is inevitable if the site is to be developed as the RPA of the retained trees cover the majority of the site, so wherever the dwelling or access ramp/path were to be located it would encroach over the RPA of retained trees.
- In order to restrict the impact of the proposed development on the RPA of retained trees, the following measures will be taken.
  - The entire surface of the site is currently covered by a layer of asphalt.
    - This will largely be retained until the soft landscaping phase of the development.
    - This asphalt will act as a ground protection surface that will allow construction access to the site whilst protecting the underlying RPA.
    - The precise load bearing capacity of the asphalt is not known. Therefore it is reasonable to restrict construction access and storage on the site to items with a maximum ground pressure of 0.19 kilograms per square centimetre i.e. the ground pressure of a 1.9 tonne pallet of bricks carried on a 1 metre square pallet. It is considered reasonable to assume that even a modest thickness of asphalt would be able to support such loads without allowing the underlying soil to become compacted to the point where tree root growth would be significantly impeded.
    - This asphalt can only be removed by hand and by the minimum amount necessary to allow access to the underlying soil for construction and landscaping purposes. The removal of the asphalt will be carried out in strict accordance with an arboricultural method statement to be drawn up after planning permission for the proposed development has been granted.
    - By using the existing asphalt in this way it will not be necessary to use additional temporary ground protection.
  - The dwelling will be constructed on vented ground beams set at or above the existing ground level and supported on a series of screw type piles.
    - The asphalt layer covering the site of the pile and its sub base will be broken up carefully, either by hand using hand tools, or mechanically.
      - If the surface is to be broken up mechanically, a hand held breaker or jib mounted mini digger breaker with a maximum ground pressure of 0.19 kilograms per square centimetre will be used. The hand held breaker operator and/or the mini digger will always stand/be located on the intact hard surface or outside the RPA facing the nearest tree. The operator/digger will at all times remain on the existing hard surface. Great care must be taken to ensure that there is no penetration into the underlying soil.
      - The broken up surface and sub base will be carefully removed by hand. Great care will be taken to ensure that any roots present below the hard surface and sub base are not grazed, cut or otherwise damaged by these works.
      - No vehicular or machinery access onto the ground exposed by this removal will be permitted. All vehicular and machinery access will be restricted to the retained hard surface.
      - Under the supervision of the project arboriculturist, the exposed soil will be excavated to a minimum depth of 600 millimetres by means of hand tools or compressed air soil displacement. If any structurally significant roots are exposed the pile will be relocated so as to avoid the root. All other roots will be carefully and cleanly cut back to the edge of the excavation using either a sharp pruning saw or a pair of sharp secateurs.
      - The piles will be installed using a small pile driver unit mounted on top of the pile. This will avoid the risk of crown damage posed by conventional piling rig.
    - The asphalt layer and its sub base under the ground beams will be carefully removed in the same manner as for the pile locations.
      - The ground beams will be moved into place either by hand or they will be lowered into place using a crane or similar lifting equipment located on the highway.
      - If a crane or similar lifting equipment is used a specific banksperson will be appointed to supervise the operation and ensure no impact damage is caused to the retained trees.
  - When all the piles and ground beams have been installed, the remaining asphalt surface under the footprint of the building will be removed in the same manner as for the pile sites. A land drainage pipe for the roof rainwater run off will be installed over the ground surface and covered as necessary with an angular fill that contains no fines, is permeable to both air and water, and is non–marine in origin.
  - All underground services will be will be installed in accordance with the National Joint Utilities Group guidance Volume 4 with the whole of the site being regarded as the 'Precautionary Area' described in that guidance.
  - The timber path/ramp will be constructed from timber as follows.
    - The existing asphalt surface and sub base covering the location of the upright supports will be removed in the same manner as for the pile sites.
      - The holes for the upright supports will be excavated by hand. If a significant root is encountered i.e. a root over 25mm in diameter, the post hole must be re–positioned so that it avoids the root.
      - Any roots encountered that are less than 25mm in diameter will be carefully cut back to the edge of the excavation using either a sharp pruning saw or a sharp pair of loppers.
      - The upright can be secured with either rammed earth or concrete. If concrete is to be used, the post hole must first be lined with an impermeable and continuous membrane to prevent the leaching of toxic compounds into the root zone.
      - Mechanical augers and excavators will not be used.
    - Immediately before the timber surface of the path/ramp is installed, the existing asphalt surface under the footprint of the path/ramp will be removed in the same manner as for the pile sites.
  - The remaining asphalt surface will be removed as part of the soft landscaping phase and only when all construction works have been completed and all construction materials, equipment and spoil have been removed from the site. This removal will be carried out in the same manner as for the pile sites. No vehicular or machinery access, or storage of equipment and materials on the soil exposed by this removal will be permitted.
  - Where fences are to be erected, they will be erected as part of the post construction soft landscaping works, and as follows
    - Post holes will be excavated by hand. If a significant root is encountered i.e. a root over 25mm in diameter, the post hole must be re–positioned so that it avoids the root.
    - Any roots encountered that are less than 25mm in diameter will be carefully cut back to the edge of the excavation using either a sharp pruning saw or a sharp pair of loppers.
    - The upright can be secured with either rammed earth or concrete. If concrete is to be used, the post hole must first be lined with an impermeable and continuous membrane to prevent the leaching of toxic compounds into the root zone.
    - Mechanical augers and excavators will not be used within the RPA's.
  - Soft landscaping works in the RPA will be carried out as follows.
  - Excavations for landscaping works within the RPA will be carefully carried out with hand tools only, and with no cultivations below 30cm. If significant roots are encountered i.e. roots over 25mm in diameter, these will be dug around and left undamaged. Powered cultivators will not be used in the RPA.

Future Pressures to Fell or Prune Trees

- Crown proximity.
  - The proposed development is overhung by retained tree crowns. This is inevitable if the site is to be developed as much of the site is covered by existing tree crowns.
  - The proposed development layout has maintained a minimum clearance between the dwelling and the crown of retained trees of 2 metres. This is considered sufficient to avoid the crowns coming into contact with the fabric of the dwelling, even when the trees are swaying in a storm event.
  - However, the dwelling is located under the crowns of retained trees, and periodic crown lifting will be required to maintain the 2 metre clearance. It could be suggested that this pruning requirement would become onerous, that the overhang of tree crowns would create issues of overbearance and dominance, and that the garden and dwelling would experience a significant degree of tree shade, all issues that could potentially result in future pressures to fell or remove the retained trees. However, these issues should not form a legitimate reason to refuse planning permission for the proposed development for the following reasons.
    - It is clear from the evident past management of tree no's. T1, T2, T5, T6, T7, T8, T9, T10 and T11 that crown pruning of trees to accommodate buildings and to maintain access along roads and pavements is a locally common management tool that has been successfully used to allow the retention of trees in close proximity to built structures. Therefore it is reasonable to assume that the same management tool could be successfully used with the proposed dwelling without the need to remove any trees.
    - A number of the retained trees are protected by a Tree Preservation Order (TPO). Therefore the LPA are able to protect these trees from applications to fell or unreasonably prune them. If future residents made such applications the LPA would be able to strongly refuse them by pointing out that the trees were there before the dwelling and the proposed development was carefully designed to sit among the trees and accommodate their requirements. This TPO protection could easily be extended to the currently unprotected retained trees.
    - A number of the retained trees are off site, therefore future residents would have no authority to remove them.
  - Therefore, the proposed development has avoided placing dwellings so close to the existing crown spreads of retained trees that legitimate feelings of overbearance and dominance will be created in the minds of future residents, and crown proximity should not create any legitimate pressures to prune or fell trees in the future.
  - The retained trees will drop related debris onto the proposed development and this could result in blocked gutters and down pipes, and pressures to fell or prune trees to reduce blockages. In order to avoid this it will be necessary to install leaf and litter guards to the gutters and down pipes.

Summary.

- The proposed development does not represent an ideal juxtaposition of trees to development, but given the location and size of the site, it is not possible to achieve such an ideal juxtaposition if it is to be developed.
- The proposed development encroaches into the identified tree constraints in several ways, but this arboricultural impact assessment has identified, in principle, the measures required to restrict the impact of these encroachments to an acceptable level. In practical terms, these measures will need to be expanded on in an arboricultural method statement. The LPA are able to ensure the adequacy of this statement by making its production and approval a pre–commencement planning condition.
- The proposed development will result in the removal of the existing asphalt surface across the site and will redirect roof rain water under the proposed dwelling via the vented under floor void. These measures will significantly improve the soil rooting environment for the retained trees, which will improve their health and longevity. As a number of the retained trees are protected by a TPO, this should be regarded as a clear planning gain.
- The proposed development has been carefully designed with the trees in mind from the out set and this approach has resulted in a proposed development that can be successfully integrated with the retained trees, and planning permission for the proposed development should be granted subject to the following conditions:
  - The pre–commencement drawing up and approval of a comprehensive soft landscaping scheme for the proposed development that includes adequate mitigation planting of new trees and shrubs to compensate for the identified tree losses:
  - Adherance to the Tree Protection Plan (see following Tree Protection Plan):
  - The pre–commencement drawing up and approval of a comprehensive Arboricultural Method Statement that must be followed throughout the development works.
- The use of these conditions is reasonable, necessary and commonplace. Therefore the required use of these conditions cannot result in a legitimate reason to refuse planning permission for the proposed development.

MJC TREE SERVICES LIMITED

Site:
Land Adjacent to Pegasus Court, 105 St. Pancras Way, London, NW1 0RA.

ARBORICULTURAL IMPACT ASSESSMENT PLAN

Plan no. MJC–15–0128–03 rev:0

This is based on the William Martin proposed layout plan no. 02042015–10118.01, amended by MJC on 07/04/2015.

This plan was produced in colour. A monochrome version must not be relied upon.

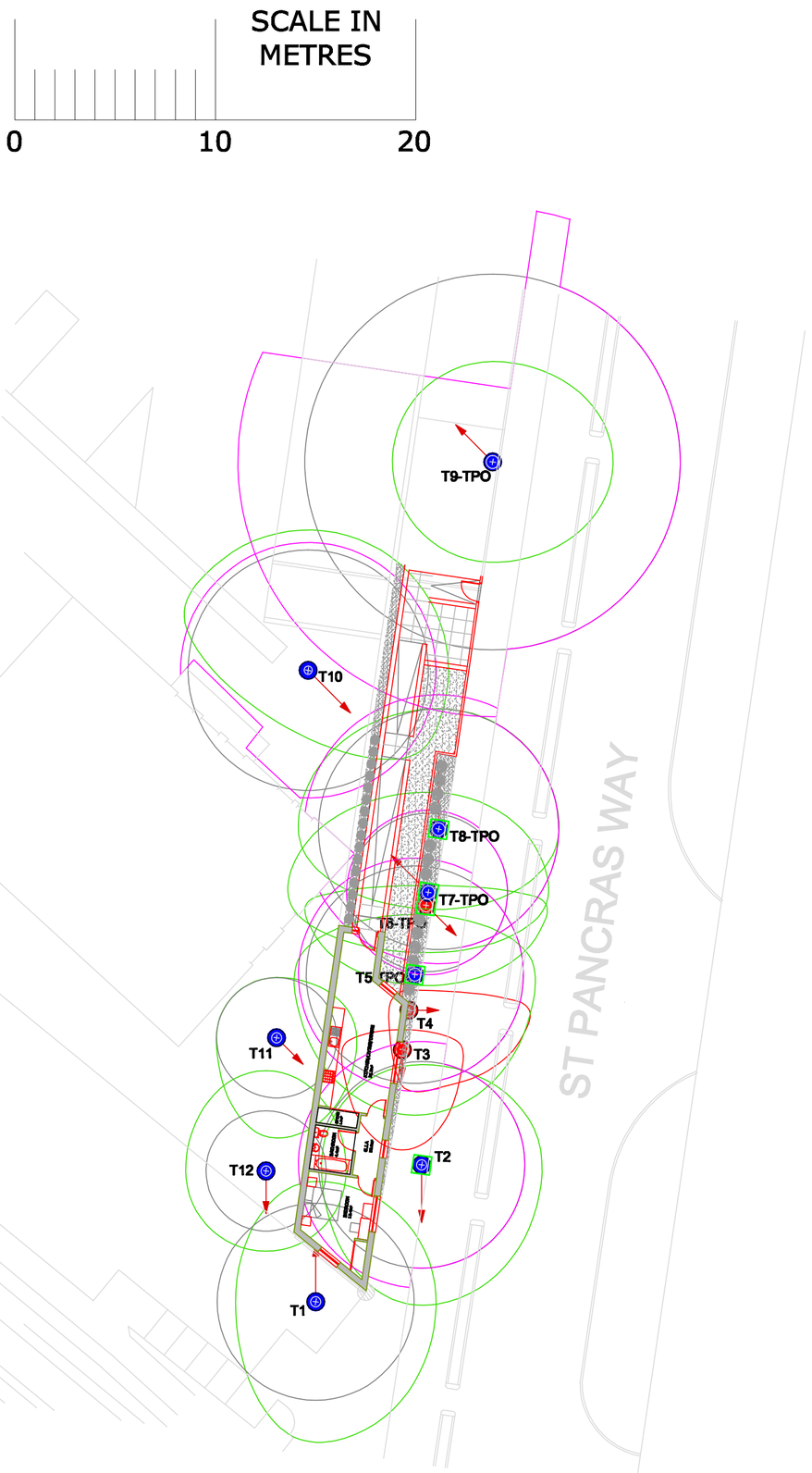
KEY

- Crown spread of surveyed trees, hedges and shrubs to be retained
- Crown spread of surveyed trees, hedges and shrubs to be removed
- Direction of growth of lowest significant limb
- Indicative Root Protection Area (RPA)
- Modified root protection area
- Existing site layout in grey
- Proposed site layout in colour
- Category U tree
- Category A tree
- Category B tree
- Category C tree

SCALE
1:200 @ A2

N

8.0 Tree Protection Plan and Heads of Terms for the Arboricultural Method Statement Plan



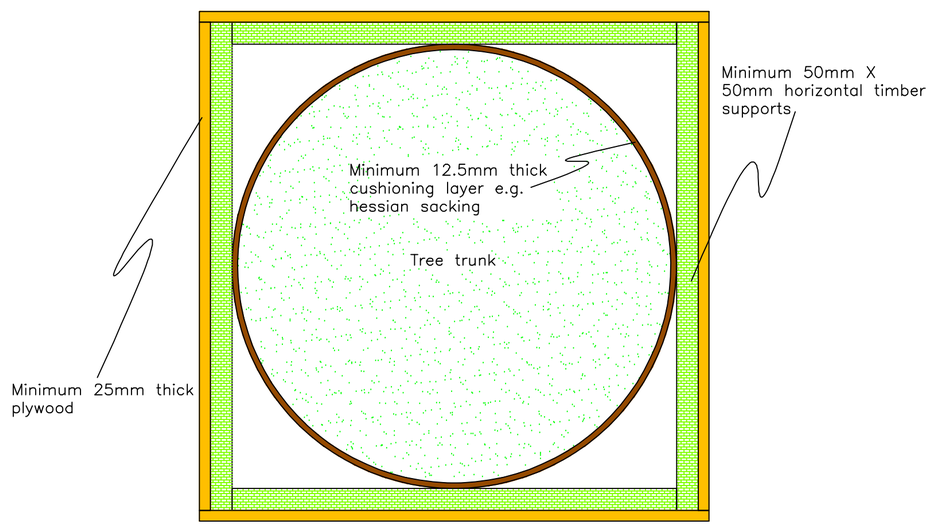
Tree Protection Plan

- Before any construction works commence, and before any construction vehicles, equipment and materials are delivered to site, the following tree works will be carried out.
  - Fell tree no's. T3 and T4 – illustrated with red crown margins in this plan.
  - Lift the crowns of tree no's. T1, T2, T5, T6, T7, T11 and T12 to 5.7 metres above the pavement surface over the footprint of the proposed dwelling.
  - Lift the crowns of tree no's. T6, T7, T8 and T10 to 3.5 metres above the pavement surface over the footprint of the proposed access path/ramp.
  - All tree works will be carried out in accordance with BS3998:2010.
  - All tree works will be carried out in such a way that no harm is caused to trees to be retained.
  - All arisings will be disposed of in an approved manner and off site unless otherwise instructed by the client or site manager.
  - The resulting stumps of tree no's. T3 and T4 will be ground out to 150mm below ground level with either a pedestrian or tracked stump grinder.
- After the tree works are completed, and before any construction works commence, and before any construction vehicles, equipment and materials are delivered to site, T2, T5, T6, T7 and T8 will be protected by plywood hoarding.
  - This hoarding will comply with the design below and will extend from ground level to at least 2m above.
  - This hoarding will be custom fitted to the tree trunk to ensure that the root buttresses are also covered.
  - This hoarding will be retained in place until all construction activities have been completed and all demolition and construction equipment, materials and spoil have been removed from the site.
- When any large and/or tall and/or jibbed vehicles/equipment are operating or manoeuvring close to the crowns of trees to be retained, a specific banksperson will be appointed to supervise the movement and ensure that no damage is caused to the crowns or trunks of these trees through impact.
- Any facilities for the storage of oils, fuels or chemicals shall be sited on impervious bases and surrounded by impervious bund walls. The volume of the bund compound shall be at least equivalent to the capacity of the tank plus 10%. If there is a multiple tankage, the compound shall be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks, plus 10%. All filling points, vents, gauges and sight glasses shall be located within the bund. The drainage system of the bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipe–work shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund.
- No fires will be permitted on site.
- All construction activities will be carried out in accordance with the Arboricultural Method Statement to be drawn up and approved after planning permission has been granted.
- The Arboricultural Method Statement will need to cover the following heads of terms.

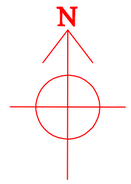
Heads of Terms for the Arboricultural Method Statement

The method statement will need to cover the following elements:

1. Arboricultural monitoring timetable:
2. Phasing of works:
3. Distribution of tree protection plan and method statement:
4. General measures, including access, storage of materials etc.:
5. Tree works:
6. Tree hoarding erection:
7. Construction works:
   - 7.1. Building foundation construction:
   - 7.2. Timber path/ramp construction:
   - 7.3. Underground service installations:
8. Soft landscaping and fencing works.



Individual Plywood Hoarding for Tree Trunks
plan view



MJC TREE SERVICES LIMITED

Site:
Land Adjacent to Pegasus Court, 105 St. Pancras Way, London, NW1 0RA.

TREE PROTECTION PLAN AND HEADS OF TERMS FOR THE ARBORICULTURAL METHOD STATEMENT PLAN

Plan no. MJC–15–0128–04 rev:0

This is based on the William Martin proposed layout plan no. 02042015–10118.01, amended by MJC on 07/04/2015.

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- Crown spread of surveyed trees, hedges and shrubs to be removed
- Direction of growth of lowest significant limb
- Indicative Root Protection Area (RPA)
- Modified root protection area
- Existing site layout in grey
- Proposed site layout in colour
- Protective hoarding around tree no's. T5 to T8 inclusive
- Category U tree
- Category A tree
- Category B tree
- Category C tree

SCALE
1:200 @ A2