thomson ecology

www.thomsonecology.com
enquiries@thomsonecology.com

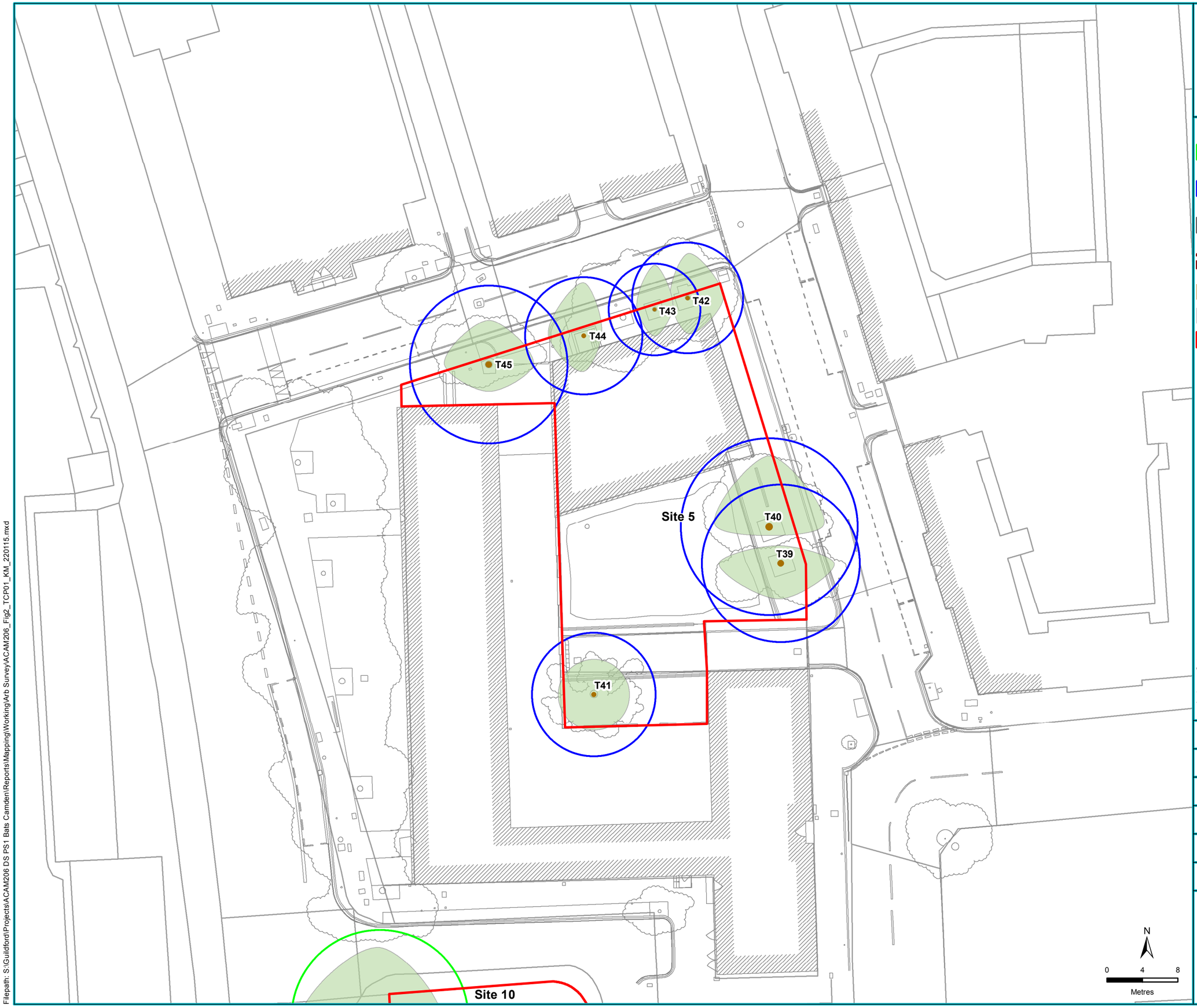
Legend

- Root Protection Area of Category 'A' Tree
- Root Protection Area of Category 'B' Tree
- Root Protection Area of Category 'C' Tree
- Root Protection Area of Category 'U' Tree
- Tree Stem Location
- Tree Canopy Extents
- Site Boundary

Site Grid Reference: 529,180 182,830

Drawing Ref	ACAM206/17942/1
Scale at A3	1:400
Drawn: KM	Checked: NS
Date: 22/01/2015	Date: 22/01/2015
Client	Campbell Reith Hill LLP
Figure Number	2d
Figure Title	Tree Constraints Plan (TCP01)

Filepath: S:\Guildford\Projects\ACAM206 DS PS1 Bats Camden\Reports\Mapping\Working\Arb Survey\ACAM206_Fig2_TCP01_KM_220115.mxd



thomson ecology

www.thomsonecology.com
enquiries@thomsonecology.com

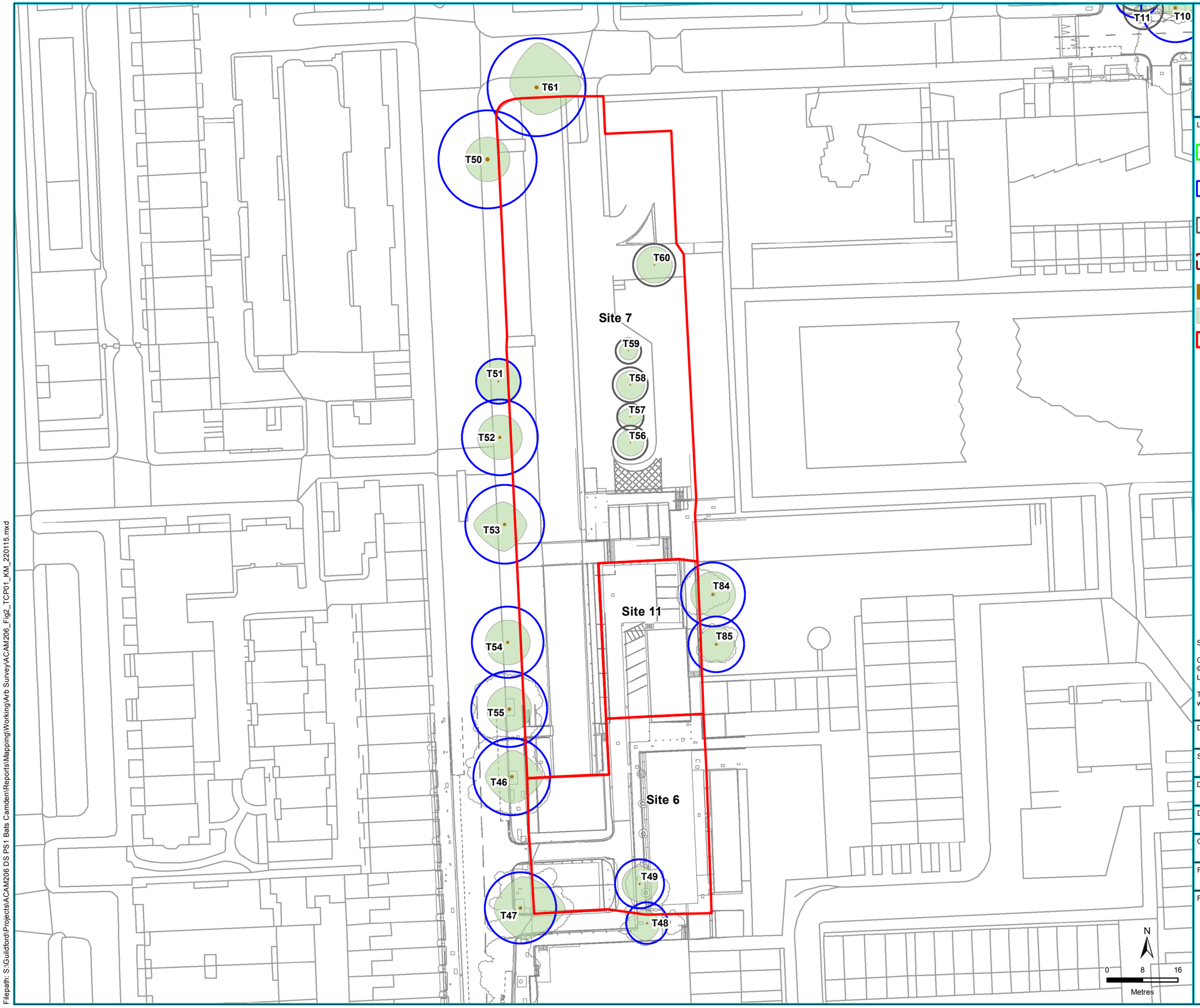
Legend

- Root Protection Area of Category 'A' Tree
- Root Protection Area of Category 'B' Tree
- Root Protection Area of Category 'C' Tree
- Root Protection Area of Category 'U' Tree
- Tree Stem Location
- Tree Canopy Extents
- Site Boundary

Site Grid Reference: 528,851 182,852

Drawing Ref	ACAM206/17943/1
Scale at A3	1:400
Drawn: KM	Checked: NS
Date: 22/01/2015	Date: 22/01/2015
Client	Campbell Reith Hill LLP
Figure Number	2e
Figure Title	Tree Constraints Plan (TCP01)

Filepath: S:\Guildford\Projects\ACAM206 DS PS1 Bats Camden\Reports\Mapping\Working\Arb Survey\ACAM206_Fig2_TCP01_KM_220115.mxd



thomson ecology

www.thomsonecology.com
enquiries@thomsonecology.com

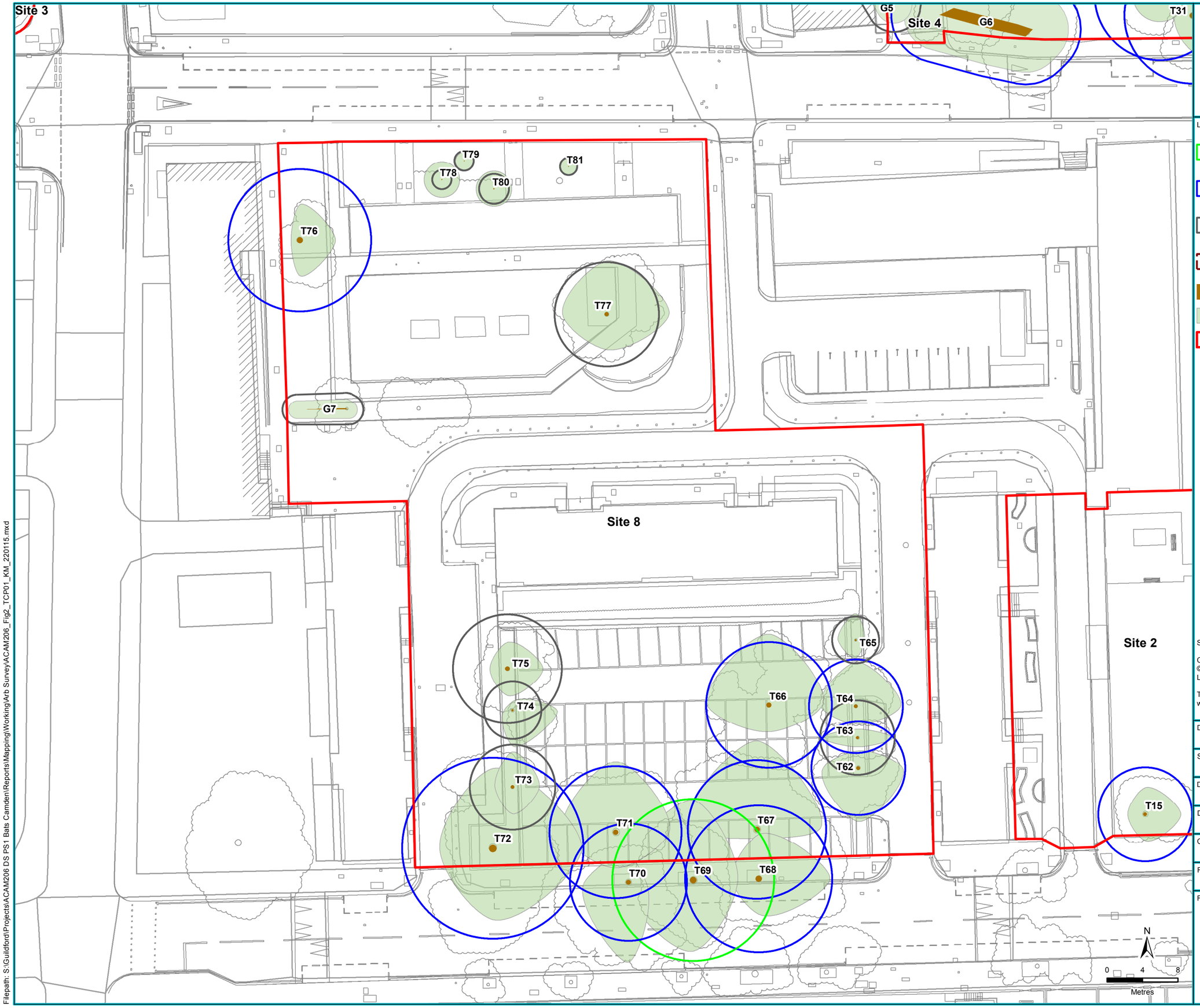
Legend

- Root Protection Area of Category 'A' Tree
- Root Protection Area of Category 'B' Tree
- Root Protection Area of Category 'C' Tree
- Root Protection Area of Category 'U' Tree
- Tree Stem Location
- Tree Canopy Extents
- Site Boundary

Site Grid Reference: 528,856 182,599

Drawing Ref	ACAM206/17944/1
Scale at A3	1:800
Drawn: KM	Checked: NS
Date: 22/01/2015	Date: 22/01/2015
Client	Campbell Reith Hill LLP
Figure Number	2f
Figure Title	Tree Constraints Plan (TCP01)

Filepath: S:\Guildford\Projects\ACAM206 DS PS1 Bats Camden\Reports\Mapping\Working\Arb Survey\ACAM206_Fig2_TCP01_KM_220115.mxd



thomson ecology
www.thomsonecology.com
enquiries@thomsonecology.com

Legend

- Root Protection Area of Category 'A' Tree
- Root Protection Area of Category 'B' Tree
- Root Protection Area of Category 'C' Tree
- Root Protection Area of Category 'U' Tree
- Tree Stem Location
- Tree Canopy Extents
- Site Boundary

Site Grid Reference: 529,126 182,757

Drawing Ref	ACAM206/17945/1
Scale at A3	1:400
Drawn: KM	Checked: NS
Date: 22/01/2015	Date: 22/01/2015
Client	Campbell Reith Hill LLP
Figure Number	2g
Figure Title	Tree Constraints Plan (TCP01)

Filepath: S:\Guildford\Projects\ACAM206 DS PS1 Bats Camden\Reports\MappingWorking\Arb Survey\ACAM206_Fig2_TCP01_KM_220115.mxd

Filepath: S:\Guildford\Projects\ACAM206 DS PS1 Bats Camden\Reports\Mapping\Working\Arb Survey\ACAM206_Fig2_TCP01_KM_220115.mxd

thomson ecology

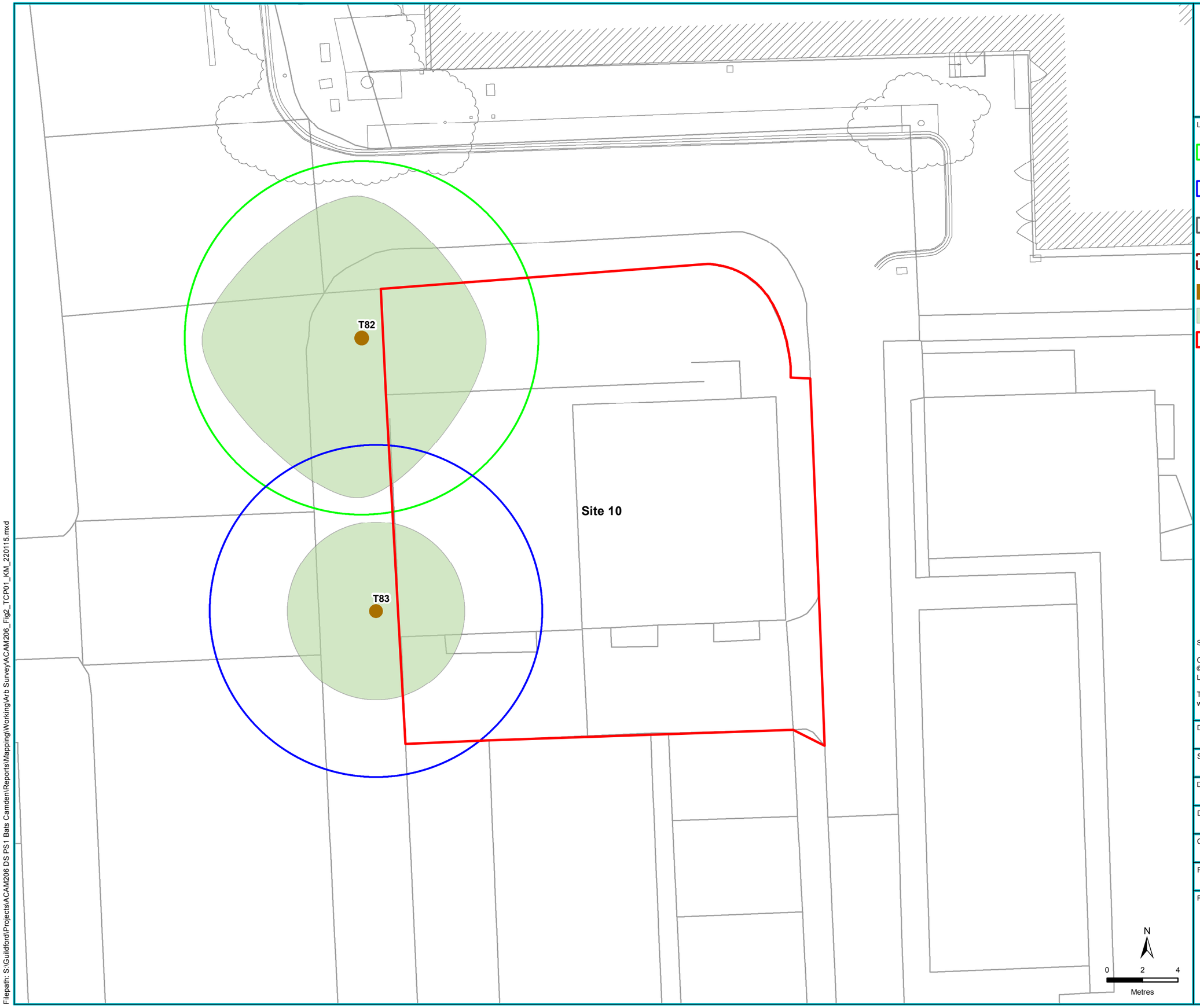
www.thomsonecology.com
enquiries@thomsonecology.com

Legend

- Root Protection Area of Category 'A' Tree
- Root Protection Area of Category 'B' Tree
- Root Protection Area of Category 'C' Tree
- Root Protection Area of Category 'U' Tree
- Tree Stem Location
- Tree Canopy Extents
- Site Boundary

Site Grid Reference: 529,238 182,475

Drawing Ref	ACAM206/17946/1
Scale at A3	1:200
Drawn: KM	Checked: NS
Date: 22/01/2015	Date: 22/01/2015
Client	Campbell Reith Hill LLP
Figure Number	2h
Figure Title	Tree Constraints Plan (TCP01)



Filepath: S:\Guildford\Projects\ACAM206 DS PS1 Bats Camden\Reports\Mapping\Working\Arb Survey\ACAM206_Fig2_TCP01_KM_220115.mxd

thomson ecology

www.thomsonecology.com
enquiries@thomsonecology.com

Legend

- Root Protection Area of Category 'A' Tree
- Root Protection Area of Category 'B' Tree
- Root Protection Area of Category 'C' Tree
- Root Protection Area of Category 'U' Tree
- Tree Stem Location
- Tree Canopy Extents
- Site Boundary

Site Grid Reference: 528,839 182,784

Drawing Ref	ACAM206/17947/1
Scale at A3	1:200
Drawn: KM	Checked: NS
Date: 22/01/2015	Date: 22/01/2015
Client	Campbell Reith Hill LLP
Figure Number	2i
Figure Title	Tree Constraints Plan (TCP01)

2. Introduction

2.1 Development Background

2.1.1 Eleven sites within the Regent's Park Estate are being considered for replacement housing for residents of residential blocks that will need to be demolished to facilitate HS2. There is a possibility that some of the 11 sites will not be considered for development. However, as the development proposals have not been finalised, this report assesses all of them. The proposals above are hereafter referred to collectively as 'the development'.

2.1.2 Development could be undertaken on 11 distinct sites (Sites 1-11 on Figures 2a-i) which combined total approximately 12.6ha within the Regent's Park area (Grid Reference TQ290828), adjacent to the A4201 road in Camden, London, see Figure 1. The areas affected by the development are hereafter referred to as the 'sites'.

2.1.3 There are a number of trees within the site and adjacent to the site boundary that may be affected by development. It is understood that a planning application will be submitted to London Borough of Camden in 2015.

2.2 Site Description

2.2.1 The sites are located in and around the Regent's Park Estate and are mainly small areas of car park and/or open space. A brief description of each of the sites is as follow:

- Site 1: Robert Street Car Park - an area of car park with a small landscaped garden to its north;
- Site 2: Former One Stop Shop - an area of grassed open space;
- Site 3: Vardell Street Corner - a landscaped garden with shrubs and trees;
- Site 4: Newlands Plot - a gated area of open space with trees;
- Site 5: Dick Collins Hall - a small area of open space and a community building;
- Site 6: Cape of Good Hope - a restaurant with surrounding road and pavement;
- Site 7: Troutbeck Block - residential flats and a car park;
- Site 8: Vardell Street - an area of car park and residential flats with a communal garden;
- Site 9: Camden Peoples Theatre - a building;
- Site 10: Victory Pub - a public house and car park; and
- Site 11: St Bedes Mews - a building with surrounding road and pavement.

2.3 Brief and Objectives

2.3.1 Campbell Reith Hill LLP commissioned Thomson Ecology on 15th September 2014 to undertake an arboricultural survey of the site, including the production of a Tree Schedule and a Tree Constraints Plan (TCP).

2.3.2 The objective of the survey and report was to assess the condition of the existing trees on site and any off site trees that might be affected by the development, providing sufficient information to enable decisions to be made on potential design layout and tree retention for the proposed development. The brief was to:

- Conduct an arboricultural survey of up to 80 trees (grouped where deemed appropriate), within or immediately adjacent to the 11 sites within the red line boundary provided, in accordance with standards set out in BS5837:2012 *Trees in Relation to Design, Demolition and Construction - Recommendations* (BSI, 2012);
- Undertake a desk study to determine the presence of any Tree Preservation Order or Conservation Area restrictions affecting the sites;
- Produce a combined report for all 11 sites detailing our methods and the results, including the Tree Schedule; and
- Produce a Tree Constraints Plan (TCP).

2.3.3 In addition to those commissioned, a further five trees and seven groups were recorded during the survey and are listed in the Tree Schedule.

2.4 Limitations

2.4.1 The information provided within this report and in the accompanying Tree Schedule covers only those trees that were inspected and their condition at the time of survey.

2.4.2 While this report makes general observations on the long term potential of the trees surveyed, trees are dynamic organisms and subject to continual change, thus this report should not be relied upon for the purposes of development for more than 12 months from the date of survey.

2.4.3 A full hazard assessment has not been made and therefore no guarantee is given as to the structural integrity of any of the trees on the site.

2.4.4 Where trees were clad in ivy (*Hedera helix*), or where dense epicormic growth or dense underplanting obscured the main stem, this was recorded in the Tree Schedule. The inspection of such trees is impeded and as such a further inspection may be required following the removal of the obstruction. The retention categories of such trees should be considered as provisional only.

2.4.5 Measurements for off-site trees have been estimated and therefore may not fully represent the related constraints.

3. Methodology

3.1 Desk Study

3.1.1 Records of Tree Preservation Orders (TPOs) existing at the site and Conservation Areas within or adjacent to the site were sought from London Borough of Camden.

3.2 Tree Survey

3.2.1 All significant trees at the site were assessed for their potential to be affected by the development proposals. Significant trees are defined as those with a trunk diameter of greater than 75mm at 1.5m above ground level according to the survey methodology outlined in BS5837:2012. Off-site or third party trees have been included where it is likely they would influence the development.

3.2.2 The trees surveyed were inspected from ground level only, were not climbed and no internal investigations were undertaken.

3.2.3 Trees were categorised as single trees or those that formed part of a distinct group such as a woodland or hedgerow. Groups can be defined as cohesive arboricultural features, either aerodynamically, visually or culturally (BS5837:2012). The information recorded for each tree can be seen in Table 1.

Table 1: Information recorded for each tree during survey

Attribute	Description
Tree No.	Numerical reference given in sequential order starting at number '1', corresponding with the numbers as set out in Figure 2; trees are given the prefix 'T', groups 'G', woodlands 'W' and hedgerows 'H'.
Species	The common names are based upon on site identification and expressed according to "*Tree Guide*" (Johnson & More, 2004).
Height	Measured approximately from ground level with the aid of a clinometer and shown in metres (m).
Stem Diameter	Diameter measured at approximately 1.5m above ground level. In the case of multi-stemmed trees, measurement is taken of each stem at 1.5m, where there are two to five stems; or a mean stem diameter at 1.5m, where there are more than five stems. Given in millimetres (mm).

Attribute	Description
Canopy Spread	Maximum branch spread measured in metres from the centre of the trunk in the direction of the four cardinal points of the compass (or an average can be given if branches demonstrate an even spread).
Crown Clearance	Height above ground level of the first significant branch and direction of growth, and the height above ground level of the overall canopy.
Age Class	• Young – less than one-third natural life span spent; • Middle-aged – between one-third and two-thirds natural life span spent; • Mature – greater than two-thirds life span completed; • Over-mature – mature, and in an overall state of decline; • Veteran – surviving beyond the typical age range for the species with a high value in terms of conservation and amenity.
Physiological Condition	Overall health, condition and function of the tree in comparison to a 'normal' example of the species of a similar age; e.g. 'good', 'fair', 'poor' or 'dead'. If deemed necessary, these gradings may be elaborated upon in the 'Comments' section.
Structural Condition	The overall structural condition of the tree including the roots, butt, trunk, limbs and their unions, and the presence of any structural defects, decay or pathological defects. • Good - no significant visible structural defects with a form typical for the species; • Fair - a specimen with only minor defects that are easily remedied or of no long term significance; • Poor - significant and irremediable physiological or structural defects that may lead to early or premature decline; • Hazardous - significant structural defects of such a degree that there is a risk of imminent collapse or failure. If deemed necessary, these gradings may be elaborated upon in the 'Comments' section.

Attribute	Description
Comments	Comments have been made, where appropriate, relating to location, health and condition, structure and form, estimated life expectancy, conservation value and amenity value within the local landscape.
Preliminary Management Recommendations	Tree work that should be undertaken for good arboricultural management, regardless of the requirements of the development.
Estimated Remaining Contribution	The estimated time, in years, that the tree will provide a safe contribution to the site (i.e. <10, 10-20, 20-40 and >40).

Quality Assessment

3.2.4 During the survey, the trees were assessed qualitatively, categorising the quality and value of the trees based on arboricultural, landscape and cultural (including conservation) features. Each tree was then placed into one of four categories. The four categories can be seen in Table 2. Definitions for these categories can be found in Appendix 1.

Table 2: Quality assessment categories

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

3.2.5 Trees categorised as either A, B or C, were also allocated up to three subcategories. The subcategories chosen for each tree are dependent on the main reasons for selection of the particular category grading. The three subcategories are as follows:

1. Category grading based on mainly arboricultural qualities;
2. Category grading based on mainly landscape qualities; and
3. Category grading based on mainly cultural values, including conservation.

Root Protection Areas (RPAs)

3.2.6 Trees that are selected for retention on the site could be at risk of damage during construction, such as root damage during excavations for foundations or services, or any ground-working for landscaping. Further impacts on the trees may potentially result from vehicle movements and materials storage, including root severance, compaction of the soil and exclusion of air and water to the soil. The risk of tree damage is minimised if construction activities are planned to avoid the roots of trees.

3.2.7 The area of ground adjacent to each tree or group of trees that contains the majority of the roots can be calculated using the equation provided in the BS5837:2012. This Root Protection Area (RPA) is a radius around the tree of 12 times the stem diameter for a single stem. For multi-stemmed trees of two to five stems and greater than five stems, the cumulative stem diameters to be multiplied by 12, are calculated as per the equations in Table 3.

Table 3: Equations for the calculation of the RPA of multi-stemmed trees

Number of stems	Equation
Two to five	√(stem diameter 1)² + (stem diameter 2)² … + (stem diameter 5)²
More than five	√(mean stem diameter)² x number of stems

3.2.8 The RPA for each tree in the Tree Schedule has been calculated and, where relevant, has been adjusted to take into account site conditions. For example, when a tree is growing in a confined root space adjacent to an existing building or other solid structure that would restrict root growth in that direction, the RPA has been adjusted accordingly (see Figure 2).

3.2.9 The RPA for tree groups is calculated using the stem diameter of the largest tree within the group. The RPA radius is calculated as per Section 3.2.7 and then used to define the RPA by following the outline of the group's extent.

3.2.10 Where the calculated RPA exceeds 707m^2, it has been capped at this figure, as per BS5837:2012. This is equivalent to a circle with a radius of 15m or a square with approximately 26m sides.

Date of Survey

3.2.11 The site was visited and the survey undertaken on 21st January 2015 by Sam Lowe BSc (Hons) MSc TechCert(ArborA) MArborA MICFor.

Weather Conditions

3.2.12 The weather conditions at the time of survey were cold and overcast with occasional bright spells. Deciduous trees were not in leaf.

4. Results

4.1 Desk Study

4.1.1 It was confirmed by Kelly King of London Borough of Camden via telephone on 30th December 2014 that no trees within the site or immediately adjacent to the site boundaries are covered by Tree Preservation Orders or located within a Conservation Area.

4.2 Tree Survey

4.2.1 A total of 85 significant individual trees and groups of trees located within or immediately adjacent to the boundary of the sites were recorded during the survey. Each tree and group was numbered consecutively across all sites. A breakdown of categories can be found in Table 4 and the number of trees in each category at each of the sites in Table 5. The locations of all trees, RPAs, retention categories and reference numbers are shown on Figure 2. A detailed description of each tree is given in the Tree Schedule in Appendix 2.

Table 4: Number of significant trees allocated to each retention category.

	Category A Trees and Groups	Category B Trees and Groups	Category C Trees and Groups	Category U Trees and Groups
Number of Trees and Groups in Category	3	53	35	1
Tree and Group Numbers	T25, T69, T82	T3, T5, T10, T12, T15, T17, T18, T19, T21, T22, T23, T24, T26, T27, T28, T30, T31, T32, T33, T35, T36, T37, T39, T40, T41, T41, T42, T43, T44, T45, T46, T47, T48, T49, T50, T51, T52, T53, T54, T55, T41, T41, T42, T43, T44, T45, T46, T47, T48, T49, T50, T51, T52, T53, T54, T55, T61, T62, T64, T66, T67, T68, T70, T71, T72, T76, T83, T84, T85, G6	T1, T2, T4, T6, T7, T8, T9, T11, T13, T14, T20, T29, T34, T38, T56, T57, T58, T59, T60, T63, T65, T73, T74, T75,T77, T78, T79, T80, T81, G1, G2, G3, G4, G5, G7	T16

Table 5: Number of significant trees and groups allocated to each retention category in each survey section

	Category A Trees and Groups	Category B Trees and Groups	Category C Trees and Groups	Category U Trees and Groups
Site 1: Robert Street Car Park	0	4	12	0
Site 2: Former One Stop Shop	0	2	0	1
Site 3: Vardell Street Corner	1	6	2	0
Site 4: Newlands Plot	0	11	5	0
Site 5: Dick Collins Hall	0	7	0	0
Site 6: Cape of Good Hope	0	4	0	0
Site 7: Troutbeck Block	0	7	5	0
Site 8: Vardell Street	1	9	11	0
Site 9: Camden Peoples Theatre	0	0	0	0
Site 10: Victory Pub	1	1	0	0
Site 11: St Bedes Mews	0	2	0	0

4.2.2 The subcategories assigned to each tree and group surveyed can be seen in the Tree Schedule in Appendix 2. A list of the criteria used to determine the category and subcategories of the trees can be found in Appendix 1 - Table of Quality Assessment.

Root Protection Areas (RPAs)

4.2.3 The RPAs for the trees and groups surveyed can be seen in Figure 2. The actual RPAs, in m^2, for the individual trees surveyed are shown in Appendix 2.

5. Recommendations

5.1 Site Specific Guidance

5.1.1 All trees on site should be considered for retention where possible, with the greatest consideration given to Category A trees, then Category B and finally Category C trees. However, the retention of Category C trees should not be at the expense of an efficient design. Category U trees are recommended for removal for sound arboricultural reasons. Where trees of any category are on adjacent land, and removal is required for the development, permission must be sought from the landowner before any works can be undertaken.

5.1.2 Each of the sites, apart from site 9 (Camden Peoples Theatre) which contains no trees, is characterised by urban amenity tree planting within or immediately adjacent to them. The most abundant species encountered was London plane (*Platanus* x *hispanica*), with the genera *Sorbus* and *Acer* also very common, as would be expected for sites located in central London. Overall, trees within the sites were in good condition considering the harsh urban environment and many of them, particularly the three Category A London plane and many of the Category B trees, are worthy of retention or serious consideration within the final design proposals.

5.2 Tree Protection

5.2.1 For those trees selected to be retained as part of the redevelopment, it will be necessary to maintain Construction Exclusion Zones (CEZs) during the construction phase. The purpose of CEZs is to prevent damage to the tree roots from severance, compaction of the soil, or exclusion of air and water to the soil.

5.2.2 The CEZ should cover the area around the RPAs of all trees at the site that are not directly affected by the works. The CEZ should be maintained by suitable stout fencing (identified by marking as a 'Construction Exclusion Zone' or 'Tree Protection Zone' with notices) or adequate ground protection suitable to withstand any likely loading. The fencing should be fit for the purpose of excluding construction activity and remain rigid and complete throughout the duration of the works. If the ground protection is intended for pedestrian movements, a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile may be acceptable; however if intended for wheeled or tracked construction traffic, the ground protection should be designed by an engineer.

5.2.3 Where CEZs overlap with existing areas of tarmac, restricted working may be allowed and may not require protection by fencing. Such areas should, however, be clearly identified as restricted working areas within the CEZ by markings on the ground and notices. Within restricted working areas in CEZs, construction activities should be limited to surfacing works only. Strictly no digging should be allowed within these areas, except in cases where root-sensitive excavation techniques have been recommended in an Arboricultural Method Statement.

5.2.4 An adequate water and air supply to roots should be provided for all trees both during and after construction. This should include preventing impermeable surfacing from being allowed to cover more than 20% of the RPA.

5.3 General Recommendations

5.3.1 The following points are made as general recommendations:

- Building lines should be kept clear of RPAs where possible. Limited use may be made for parking, drives or hard surfaces within the RPA, subject to advice from a qualified arboriculturist;
- Wherever possible, service runs should be routed outside the RPAs. If this is not possible, they should be kept together and trenchless techniques should be used. At all times where services pass within an RPA, detailed plans showing the proposed routing should be drawn up in conjunction with an arboriculturist;
- On residential developments consideration must be given to future tree growth and orientation (BS5837:2012), i.e. adverse shading and blocked views from windows, which may lead to pressure to fell or remove trees in the future. Wherever possible, the windows of primary rooms should be orientated to avoid any potential conflict with tree canopies; and
- An Arboricultural Impact Assessment (AIA) and Arboricultural Method Statement (AMS) should be produced once detailed plans for the development are available.

6. References

6.1.1 British Standards Institution (2012) BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations. BSI, London.

6.1.2 British Standards Institution (2010) BS 3998:2010 *Recommendations for Tree Work.* BSI, London.

6.1.3 HM Government. The Town and Country Planning (Tree Preservation) (England) Regulations 2012. London: Office of Public Sector Information (OPSI).

6.1.4 Johnson, O. & More, D. (2004) *Collins Tree Guide*. London: HarperCollins.

6.1.5 Lonsdale, D. (1990) *Principles of Tree Hazard Assessment and Management*. The Stationery Office, London.

6.1.6 Matheny, N. & Clark, J.R. (1998) *Trees and Development.* ISA, Champaign, IL.

6.1.7 Mattheck, C. & Breloer, H. (1994) *The Body Language of Trees.* The Stationery Office, London.

6.1.8 National Joint Utilities Group (NJUG) (2007) NJUG Volume 4: Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees. NJUG, London.

6.1.9 Office of the Deputy Prime Minister (ODPM) (2006) *Tree Preservation Orders, A Guide to the Law and Good Practice.* Office of Public Sector Information (OPSI).

6.1.10 Patch, D. & Holding, B. (2007) Arboricultural Practice Note 12: Through the Trees to Development. London: AAIS.

6.1.11 Robertson, J, Jackson, N & Smith, M (2006) *Tree Roots in the Built Environment.* The Stationery Office, London.

7. Appendix 1 – Table of Quality Assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have serious, irremediable, structural defects, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality NOTE Category U trees can have existing or potential conservation value which might be desirable to preserve			DARK RED
	1 Mainly arboricultural values	**2 Mainly landscape values**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principle trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	MID BLUE
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	GREY

8. Appendix 2 – Tree Schedule

Tree/ Group No.	Site No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T1	1	*Malus tschonoskii;* pillar apple	13	220	2	2	2	2	1.5SW	3	Middle-aged	10-20	Fair	Fair	Stem wounds	-	C1	22
T2	1	*Pyrus calleryana*; callery pear	8	150	1	1	1	1	2SE	2	Young	20-40	Good	Good	-	-	C1	10
T3	1	*Malus tschonoskii*; pillar apple	11	230	2	2	2	2	2.5W	3	Middle-aged	20-40	Good	Good	Minor stem wounds	-	B1;2	24
T4	1	*Quercus ilex*; holm oak	7	220	1	3	2	2	1.5S	1	Young	20-40	Fair	Fair	Pruning wounds	-	C1	22
T5	1	*Cedrus atlantica* 'Glauca'; blue Atlas cedar	16	370	4	2	3	3	3S	3	Middle-aged	20-40	Good	Fair	Three codominant stems from 3m; narrow forks	-	B1;2	62
T6	1	*Fraxinus excelsior*; ash	15	290	4	3	3	2	3SE	3	Middle-aged	>40	Good	Good	Self-set	-	C1;2	38
T7	1	*Acer pseudoplatanus*; sycamore	9	210	2	2	2	2	3S	3	Young	>40	Good	Fair	Codominant stems; self-set	-	C1	20
T8	1	*Quercus cerris*; turkey oak	4	90	1	3	1	0	1.5SE	1	Young	>40	Good	Fair	Poor form	-	C1	4

Tree/ Group No.	Site No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T9	1	*Chamaecyparis lawsoniana*; Lawson's cypress	7	220	1	1	1	1	2N	1.5	Middle-aged	20-40	Good	Good	-	-	C1	22
T10	1	*Platanus* x *hispanica*; London plane	21	640	10	8	2	4	2.5NW	3	Mature	>40	Good	Fair	Off-site	-	B1;2	185
T11	1	*Platanus* x *hispanica*; London plane	10	370	1	1	3	2	3NE	4	Middle-aged	>40	Good	Fair	Pollard	-	C1;2	62
T12	1	*Acer platanoides*; Norway maple	15	420	3	1	2	6	3W	5	Middle-aged	20-40	Good	Fair	Codominant stems	-	B2	80
T13	1	*Acer platanoides*; Norway maple	14	170, 250, 270, 240, 250	2	2	2	2	3NW	3	Middle-aged	>40	Good	Fair	Five stems	-	C1	129
T14	1	*Chamaecyparis lawsoniana*; Lawson's cypress	12	230	1	1	1	1	1.5W	1.5	Middle-aged	20-40	Good	Fair	Pruning stubs	-	C1	24
T15	2	*Sorbus aria*; whitebeam	10	440	3	4	3	2	3N	3	Middle-aged	>40	Good	Fair	Slight lean to north; included main fork; history of crown reduction	-	B1;2	88
T16	2	*Salix* x *sepulcralis 'Chrysocoma'*; weeping willow	3	390	1	4	5	1	1.5S	0.5	Middle-aged	<10	Good	Fair	Crown heavily skewed to south; significant wound stem length of stem; decay fungi at base	Fell to ground level	U	69
T17	2	*Salix* x *sepulcralis 'Chrysocoma'*; weeping willow	15	830	8	7	7	6	6SE	3	Mature	20-40	Fair	Good	Heavily thinned crown; rib of reaction wood length of main stem	-	B1;2	312
T18	3	*Sorbus aria*; whitebeam	9	370	6	7	2	3	1.5E	3	Mature	20-40	Good	Fair	Slight lean; pruning wounds	-	B1;2	62
T19	3	*Sorbus aria*; whitebeam	9	310	3	3	3	3	2.5S	2	Mature	20-40	Good	Good	-	-	B1;2	43

Tree/ Group No.	Site No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T20	3	*Sorbus aria*; whitebeam	8	340	1	3	2	3	2N	2	Mature	10-20	Fair	Fair	Large limb removed in past; slight lean	-	C1;2	52
T21	3	*Sorbus aria*; whitebeam	8	310	2	3	1	2	2E	3	Mature	20-40	Good	Fair	Exposed/damaged roots	-	B1;2	43
T22	3	*Sorbus aria*; whitebeam	8	410	2	5	1	3	2N	2	Mature	20-40	Good	Fair	Exposed/damaged roots	-	B1;2	76
T23	3	*Sorbus aria*; whitebeam	8	360	2	3	3	4	2W	2	Mature	20-40	Good	Good	-	-	B1;2	59
T24	3	*Platanus* x *hispanica*; London plane	21	900	2	10	8	8	4E	4	Mature	20-40	Good	Fair	Columnar stem cavity	Determine extent of cavity	B1;2	366
T25	3	*Platanus* x *hispanica*; London plane	22	820	8	7	4	7	9N	5	Mature	>40	Good	Good	-	-	A1;2	304
T26	4	*Platanus* x *hispanica*; London plane	21	710	4	10	7	7	5E	5	Mature	>40	Good	Good	Off-site	-	B1;2	228
T27	4	*Acer platanoides;* Norway maple	11	310	3	3	3	3	2N	3	Middle-aged	>40	Good	Good	Off-site	-	B1;2	43
T28	4	*Acer platanoides*; Norway maple	11	300	3	3	3	3	2W	3	Middle-aged	>40	Good	Good	Off-site	-	B1;2	41
T29	4	*Prunus serrulata*; Japanese cherry	5	160	1	4	3	2	2SE	2	Middle-aged	10-20	Fair	Fair	Grafted; exposed/damaged roots	-	C1	12
T30	4	*Pterocarya fraxinifolia*; caucasian wingnut	7	220	4	4	4	4	2NE	3	Middle-aged	20-40	Good	Good	Basal epicormic growth; staked	Remove stake and basal epicormic growth	B1;2	22

Tree/ Group No.	Site No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T31	4	*Populus* x *canadensis*; hybrid black poplar	18	640	2	5	4	2	10S	8	Mature	20-40	Good	Fair	Pollard; stem epicormic growth	-	B2	185
T32	4	*Populus* x *canadensis*; hybrid black poplar	18	610	3	3	3	3	11SW	12	Mature	20-40	Good	Fair	Pollard	-	B2	168
T33	4	*Populus* x *canadensis*; hybrid black poplar	19	600	3	3	3	3	12S	12	Mature	20-40	Good	Fair	Pollard; stem epicormic growth; exposed/damaged roots	-	B2	163
T34	4	*Populus* x *canadensis;* hybrid black poplar	12	430	2	2	2	2	8NW	8	Middle-aged	10-20	Fair	Fair	Pollard; pruning wounds; stem epicormic	-	C2	84
T35	4	*Populus* x *canadensis*; hybrid black poplar	18	490	3	3	3	3	12W	12	Mature	20-40	Good	Fair	Pollard	-	B2	109
T36	4	*Populus canescens*; grey poplar	20	640	8	7	2	2	13W	14	Mature	20-40	Good	Fair	Pollard	-	B2	185
T37	4	*Populus* x *canadensis*; hybrid black poplar	18	640	9	8	2	4	2N	5	Mature	20-40	Good	Fair	Pollard; exposed/damaged roots	-	B2	185
T38	4	*Betula pubescens*; downy birch	14	270	3	2	4	5	3W	4	Mature	10-20	Good	Fair	-	-	C1	33
T39	5	*Platanus* x *hispanica*; London plane	19	740	2	6	4	7	6W	5	Mature	>40	Good	Good	History of crown reduction	-	B1;2	248
T40	5	*Platanus* x *hispanica;* London plane	18	830	8	6	1	6	5N	6	Mature	>40	Good	Good	History of crown reduction	-	B1;2	312
T41	5	*Platanus* x *hispanica*; London plane	17	580	4	4	4	4	7NE	7	Middle-aged	>40	Good	Good	Restricted access; base not visible; measurements estimated	-	B1;2	152

Tree/ Group No.	Site No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T42	5	*Acer saccharinum*; silver maple	14	520	5	4	4	2	5N	5	Mature	20-40	Good	Fair	Off-site; history of crown reduction	-	B2	122
T43	5	*Acer saccharinum*; silver maple	14	430	5	2	3	2	2W	4	Mature	20-40	Good	Fair	History of crown reduction	-	B2	84
T44	5	*Platanus* x *hispanica*; London plane	16	550	6	2	4	4	2W	5	Mature	>40	Good	Fair	History of crown reduction	-	B1;2	137
T45	5	*Platanus* x *hispanica*; London plane	17	740	5	5	3	5	5E	6	Mature	>40	Good	Good	History of crown reduction	-	B1;2	248
T46	6	*Platanus* x *hispanica*; London plane	21	720	6	7	6	6	4N	6	Mature	>40	Good	Good	Off-site; history of crown reduction	-	B1;2	235
T47	6	*Platanus* x *hispanica*; London plane	20	670	7	10	7	6	4S	6	Mature	>40	Good	Fair	Off-site	-	B1;2	203
T48	6	*Tilia* x *europea*; common lime	11	390	3	3	4	5	4N	4	Middle-aged	20-40	Good	Fair	Off-site; slight lean; lifting paving slabs	-	B1;2	69
T49	6	*Tilia* x *europea*; common lime	14	460	4	4	4	4	4N	5	Middle-aged	20-40	Good	Good	Lifting paving slabs	-	B1;2	96
T50	7	*Platanus* x *hispanica*; London plane	20	920	5	5	5	5	7N	6	Mature	>40	Good	Good	Off-site; history of crown reduction	-	B1;2	383
T51	7	*Platanus* x *hispanica*; London plane	18	420	5	5	5	5	4W	5	Middle-aged	>40	Good	Good	-	-	B1;2	80
T52	7	*Platanus* x *hispanica*; London plane	19	710	5	5	5	5	4NE	6	Mature	>40	Good	Good	Off-site; history of crown reduction	-	B1;2	228

Tree/ Group No.	Site No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T53	7	*Platanus* x *hispanica*; London plane	19	740	5	5	6	7	4S	6	Mature	>40	Good	Good	Off-site; history of crown reduction	-	B1;2	248
T54	7	*Platanus* x *hispanica*; London plane	20	670	5	5	5	5	4E	6	Mature	>40	Good	Good	Off-site; history of crown reduction	-	B1;2	203
T55	7	*Platanus* x *hispanica*; London plane	20	710	5	5	5	5	8N	7	Mature	>40	Good	Good	Off-site; history of crown reduction	-	B1;2	228
T56	7	*Acer pseudoplatanus*; sycamore	9	320	3	3	3	3	3S	3	Middle-aged	10-20	Fair	Fair	Thin crown	-	C1;2	46
T57	7	*Acer pseudoplatanus*; sycamore	9	250	2	3	2	3	4E	3	Middle-aged	10-20	Fair	Fair	Thin crown	-	C1	28
T58	7	*Acer pseudoplatanus*; sycamore	10	330	3	3	3	3	3.5SE	4	Middle-aged	10-20	Fair	Fair	-	-	C1;2	49
T59	7	*Acer pseudoplatanus*; sycamore	8	240	2	2	2	2	3S	3	Middle-aged	10-20	Fair	Poor	History of crown reduction; basal cavity	-	C1	26
T60	7	*Acer pseudoplatanus*; sycamore	12	400	4	4	4	4	4SW	3	Middle-aged	10-20	Fair	Fair	Pruning wounds	-	C1;2	72
T61	7	*Platanus* x *hispanica*; London plane	23	920	10	10	6	6	6N	5	Mature	>40	Good	Fair	Small basal cavity on roadside	Determine extent of cavity	B1;2	383
T62	8	*Sorbus intermedia*; Swedish whitebeam	12	440	2	5	6	4	2W	5	Mature	20-40	Good	Fair	Growing in raised planter; pruning wounds	-	B1;2	88
T63	8	*Sorbus intermedia*; Swedish whitebeam	11	350	1	4	1	4	2W	5	Middle-aged	10-20	Fair	Fair	Growing in raised planter; heavily thinned crown; suppressed	-	C1;2	55

Tree/ Group No.	Site No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T64	8	*Sorbus intermedia*; Swedish whitebeam	12	440	5	5	2	4	2.5W	5	Mature	20-40	Good	Fair	Growing in raised planter	-	B1;2	88
T65	8	*Magnolia delavayi*; Chinese evergreen magnolia	4	220	3	1	2	2	1.5N	1.5	Middle-aged	10-20	Good	Fair	Slight lean to south-west; evergreen	-	C1	22
T66	8	*Platanus* x *hispanica*; London plane	16	590	8	6	3	7	4.5W	7	Middle-aged	>40	Good	Fair	Codominant stems; one stem reduced; exposed/damaged roots	-	B1;2	157
T67	8	*Platanus* x *hispanica*; London plane	18	650	10	7	1	8	5N	6	Middle-aged	20-40	Good	Fair	Crown skewed to north; exposed/damaged roots; recent concrete over roots	-	B1;2	191
T68	8	*Platanus* x *hispanica*; London plane	23	690	5	8	4	3	8N	8	Middle-aged	>40	Good	Good	Off-site	-	B1;2	215
T69	8	*Platanus* x *hispanica*; London plane	25	760	9	5	8	8	10N	10	Middle-aged	>40	Good	Good	Off-site; good form	-	A1;2	261
T70	8	*Platanus* x *hispanica*; London plane	18	550	3	2	9	5	9W	8	Middle-aged	>40	Good	Fair	Off-site	-	B1;2	137
T71	8	*Platanus* x *hispanica*; London plane	16	620	8	6	4	6	3N	5	Middle-aged	>40	Good	Fair	Exposed/damaged roots	-	B1;2	174
T72	8	*Ailanthus altissima*; tree of heaven	22	850	9	10	8	6	2E	7	Mature	20-40	Good	Good	Heavily thinned crown; growing in raised planter	-	B2	327
T73	8	*Sorbus aria*; whitebeam	9	400	4	3	3	2	2N	3	Mature	10-20	Fair	Fair	History of crown reduction; included main fork	-	C1;2	72
T74	8	*Sorbus aria*; whitebeam	9	270	1	5	4	1	3E	5	Middle-aged	10-20	Poor	Fair	Framework pollarded; lean to east; large stem wound	-	C1	33

Tree/ Group No.	Site No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T75	8	*Sorbus aria*; whitebeam	10	510	3	4	3	2	2SW	5	Mature	10-20	Poor	Fair	Framework pollarded; included main fork	-	C1;2	118
T76	8	*Robinia pseudoacacia*; false acacia	15	670	4	4	4	1	2N	3	Mature	20-40	Good	Fair	Framework pollard	-	B1;2	203
T77	8	*Betula pubescens*; downy birch	15	490	6	7	4	5	3E	4	Mature	10-20	Good	Good	Deadwood in crown; washing line round stem	Remove deadwood from crown	C1;2	109
T78	8	*Prunus serrulata*; Japanese cherry	4	90	2	2	2	2	1N	1.5	Middle-aged	10-20	Good	Fair	-	-	C1	4
T79	8	*Prunus serrulata*; Japanese cherry	4	90	1	1	1	1	2N	1.5	Young	20-40	Good	Good	-	-	C1	4
T80	8	*Ilex aquifolium*; holly	4	140	2	2	2	2	2NW	1.5	Middle-aged	20-40	Good	Good	Crown close to building	-	C1	9
T81	8	*Prunus serrulata*; Japanese cherry	4	80	1	1	1	1	2E	1.5	Young	20-40	Good	Good	-	-	C1	3
T82	10	*Platanus* x *hispanica*; London plane	22	830	8	7	9	9	9W	8	Mature	>40	Good	Good	Off-site	-	A1;2	312
T83	10	*Platanus* x *hispanica*; London plane	20	780	5	5	5	5	9N	8	Mature	>40	Good	Fair	Off-site; history of crown reduction; large burr on stem	-	B1;2	275
T84	11	*Carpinus betulus*; hornbeam	17	600	5	5	5	5	3NE	6	Mature	20-40	Good	Fair	Off-site; measurements estimated; included forks	-	B1;2	163
T85	11	*Carpinus betulus*; hornbeam	15	520	4	4	4	4	3N	3	Mature	20-40	Good	Fair	Off-site; measurements estimated; history of crown reduction	-	B1;2	122

Tree/ Group No.	Site No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
G1	1	*Quercus ilex*; holm oak; *Acer campestre*; field maple	8	160	1	1	1	1	-	1	Middle-aged	20-40	Good	Fair	Holm oak and field maple	-	C1	-
G2	1	*Prunus avium*; wild cherry; *Fraxinus excelsior*; ash	14	240	2	2	2	2	-	3	Young	>40	Good	Fair	Self-set cherry and ash	-	C1	-
G3	3	*Sorbus aucuparia*; rowan; *Prunus avium*; wild cherry; *Acer pseudoplatanus*; sycamore	6	140	2	2	2	2	-	2	Middle-aged	20-40	Fair	Fair	Sycamore, rowan and dead cherry	Fell dead cherry	C1	-
G4	4	*Prunus padus*; bird cherry; *Prunus serrulata*; Japanese cherry	5	180	2	2	2	2	-	2	Middle-aged	10-20	Fair	Fair	Two cherry	-	C1	-

Tree/ Group No.	Site No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
G5	4	*Populus tremula*; aspen; *Sambucus nigra*; elder; *Prunus padus*; bird cherry; *Liquidambar styraciflua*; sweet gum; *Cornus sanguinea*; common dogwood	9	250	2	2	2	2	-	1	Middle-aged	20-40	Fair	Fair	Group of mixed broadleaves	-	C1;2	-
G6	4	*Prunus avium*; wild cherry; *Fraxinus ornus*; manna ash; *Prunus serrulata*; Japanese cherry	18	450	4	4	4	4	-	3	Middle-aged	20-40	Good	Good	Two ash and two cherry	-	B1;2	-
G7	8	*Ilex aquifolium*; holly	7	140	1	1	1	1	-	1.5	Middle-aged	20-40	Good	Good	Group of close grown holly	-	C1	-

Appendix 2: Arboricultural Impact Assessment and Arboricultural Method Statement (Thomson Ecology, May 2015)

thomson ecology

Regent's Park Estate, London

Arboricultural Impact Assessment

and

Arboricultural Method Statement

For

Campbell Reith Hill LLP

Project No.: ACAM206 / 008 / 004 / 003

May 2015

London & South East
Compass House
Surrey Research Park
Guildford
GU2 7AG . UK

t: +44 (0)1483 466 000

North & Borders
Calls Wharf
2 The Calls
Leeds
LS2 7JU . UK

t: +44 (0)113 247 3780

Wales & South West
Williams House
11-15 Columbus Walk
Cardiff
CF10 4BY . UK

t: +44 (0)2920 020 674

Scotland
20-23 Woodside Place
Glasgow
G3 7QF . UK

t: +44 (0)141 582 1333

Enquiries

e: enquiries@thomsonecology.com

w: www.thomsonecology.com

Project Number	Report No.
ACAM206/008	004

Revision No.	Report Status	Date of Issue	Author	Reviewer	Approver
001	1st Draft	16/04/2015	Sam Lowe	Anna Muckle	Sam Lowe
002	2nd Draft	22/04/2015	Sam Lowe	Anna Muckle	Sam Lowe
003	Final	13/05/2015	Sam Lowe	Anna Muckle	Sam Lowe

Contents

1. Summary

1.1.1 Campbell Reith Hill LLP is acting as consultant for the possible development of 11 sites in Regent's Park Estate, London. Following various technical surveys nine of these sites are being taken forward for development. The proposals involve the construction of replacement residential dwellings for those lost as part of the HS2 development.

1.1.2 Campbell Reith Hill LLP commissioned Thomson Ecology to produce an Arboricultural Impact Assessment (AIA) and Arboricultural Method Statement (AMS). This document details the AIA and AMS based on the proposed site layouts and tree survey data from Thomson Ecology report reference: ACAM206/006/002/001. The arboricultural survey was carried out in accordance with BS5837:2012 '*Trees in Relation to Design, Demolition and Construction – Recommendations'* (BSI, 2012).

1.1.3 All trees were categorised in accordance with the cascade chart in BS5837:2012. Trees were given a ranking of A, B or C in descending order of value and assigned one or more subcategories qualifying the basis of that value as either arboricultural, landscape or cultural. Trees with only short-term remaining value or that require immediate removal for safety or management reasons are given a U rating.

1.1.4 The development will result in the loss of 30 trees and three groups. However, all Category A features will be retained. It may also be possible to incorporate compensatory and enhancement planting into the final landscape proposals.

1.1.5 A combination of protective fencing, ground protection and special construction techniques will be utilised to protect the retained trees during the construction phase.