



ROYAL ARSENAL RIVERSIDE
THE ROPEYARDS
PLOTS D & K

ARBORICULTURAL REPORT

To Support a Reserved Matters
Application

MARCH 2024

Arboricultural report for the proposed residential development at The Ropeyards, Royal Arsenal Riverside, Plots D & K

Site address: Land between Duke of Wellington Avenue and Beresford Street, London, SE18 6NP

Reference GRS.129.22

Client: Berkeley Homes (East) Thames Ltd

Local Planning Authority: Royal Borough of Greenwich



ARBORICULTURAL CONSULTANT LTD



DATE OF REPORT 1ST MARCH 2024

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1. EXECUTIVE SUMMARY

- 1.1. This report provides an analysis and an evaluation of the proposed residential development comprising 663 homes across buildings D and K will have on the existing tree stock.
- 1.2. To facilitate this development will be necessary to remove all the trees within the area to be developed, but as all are young their removal will not affect the local landscape.
- 1.3. Where there are incursions into the Root Protection Area, these have been assessed and the relevant measures to protect the soil are shown on the tree protection plan.

2. INTRODUCTION

- 2.1 I have been instructed by Berkeley Homes (East) Thames Ltd to provide a tree survey undertaken in accordance with BS5837:2012 Trees in relation to design, demolition and construction – Recommendations (BS). From the data collected, an arboricultural impact assessment (AIA) has been carried out to assess the impact the proposed development will have on the existing tree stock and wider landscape.
- 2.2 This report, along with the tree protection plan (**TPP - 01**) and the arboricultural method statement (AMS) will demonstrate that this development can be implemented in its entirety, whilst ensuring the trees showed to be retained can be protected during the course of the development and therefore incorporated into the proposed layout.

3. PURPOSE OF REPORT

- 3.1 To follow the core objectives to prepare a concept design including outline proposals for structural design following the guidance set out in BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations (BS).
- 3.2 By following the principles set out in the BS will ensure there is a sustainable relationship between the built form and the tree stock, and therefore allowing the retained trees to continue to grow and contribute to the character of the local landscape.
- 3.3 Feasibility stage - tree survey (**appendix B**). This provides a sequential reference number; species; height; stem diameter branch spread; crown clearance; age of tree, general observations, and estimated remaining contribution to the landscape. Each tree/group of trees will be allocated a grading based on Table 11 – Cascade chart for tree quality assessment forming a tree location plan (Appendix E - **TLP-01**).
- 3.4 A tree constraints plan (TCP) has been prepared to identify the primary and secondary constraints to the development posed by existing trees.
- 3.5 Examples of primary constraints include:
 - Below ground - extent of the root protection area (RPA)².
 - Above ground - branch framework and space for the canopy to grow without affecting any structures and may have an impact on the future welfare of the retained trees also referred as post development³.
- 3.6 Also identified are secondary constraints such as areas of existing hard standing within the RPA that can be removed if the soil is not disturbed. This information will help to identify any above and below ground

¹ Refer to Appendix A for more information.

² Root protection area (RPA) is defined as minimum area around a tree required to contain sufficient roots and rooting volume to ensure the successful integration of the tree into the new layout. This is calculated using the formulae set out in section 4.6 of BS5837:2012 Trees in relation to design, demolition and construction – Recommendation.

³ As described in section 5.2 of the B.S Example includes current and ultimate height and spread of the tree, species characteristics, density of foliage, susceptibility to honey dew and branch drop.

constraints which will provide guidance for the design layout of the proposed development. At this stage, it may be necessary to remove existing trees to accommodate the proposed design layout.

- 3.7 **Arboricultural Impact Assessment (AIA)** is based on the findings from the tree survey and the TCP and evaluates any direct or indirect effects the existing trees may have on the proposed design and assesses what impact the proposed removal of the trees would have on the local landscape. At this stage, it may be necessary to remove existing trees to accommodate the proposed design layout, these are shown on the tree removal plan (**TRP**).
- 3.8 **Draft Arboricultural Method Statement (AMS) - Appendix D.** This identifies the relevant tree protection measures that must be implemented and maintained during the development to ensure all the trees shown to be retained are incorporated into the final layout. It should be read in conjunction with TPP 01 and 02 which is appended to this report.
- 3.9 **Tree Protection Plan (TPP) – Appendix E** identifies any issues which must be addressed during the demolition and construction phase. In addition, any pruning works that are necessary to facilitate plant machinery are also identified.

4. BASE LINE DATA

- 4.1 The survey was carried out in accordance with section 4.4 – 4.5 of the BS 5837:2012 ‘Trees in relation to design, demolition, and construction – Recommendation’, hereafter to be identified as ‘BS’. Where it was not possible to gain access to record the relevant data, certain fields such as crown spread and diameter at breast height (dbh) were estimated.
- 4.2 If defects were noted and required further inspection the following inspection aids were used: laser distometer was used to measure the crown spread, binoculars to inspect the upper crown, magnifying glass for inspection of pest and diseases, steel probe to test strength of wood/depth of cavities and a mallet to give an audible indication of the extent of cavities.
- 4.3 Trees within the report were inspected from ground level only and any external faults and features were recorded. The following inspections were not carried out: aerial inspection, detailed excavation of the rooting system or the use of internal decay detection equipment. The use of such equipment would require an additional report.
- 4.4 Detailed ecological considerations are beyond the scope of this report. UK and European wildlife legislation may affect the timing and even prohibit the enhancement of works and operations described in this report. Most of the information regarding wildlife can be found in the Wildlife and Countryside Act 1981 (as amended). It is recommended that consideration is given to the requirement for ecological surveys. Bats in particular are afforded particular protection and a specialist may be required to determine if bats are present or could be affected when carrying out tree works.
- 4.5 Trees are living organisms whose health and condition can change rapidly. Trees should be checked on a regular basis. The conclusions and recommendations of this report are valid for one year. It is recommended that the trees within the site be inspected after adverse weather conditions such as high winds.
- 4.6 Stem diameters are used to calculate Root Protection Areas (RPA) (**see appendix C**); where ivy or dense undergrowth has been noted in the comments section of the tree survey a precise stem diameter measurement may not have been possible. The stem diameter and RPA given in this instance is therefore provisional until such time that the ivy has been removed and the stem recalculated.

4.7 Documents supplied.

4.8 The following documents were provided:

Table 1 – Relevant documents supplied, date and format.

<i>Drawing title</i>	<i>Drawing reference</i>	<i>Date</i>	<i>Rev</i>	<i>Format</i>
Topographical survey	Y 47440 – PCL – DR-Y 00002	July 2022		CAD/PDF
Proposed site layout plan	Z429-PRP01-STW-ZZ-DR-A-005	February 2024	P04	CAD/PDF

4.9 Local geology. No soil samples were taken during the site visit; however, a desktop assessment using MagicMap interactive map (DEFRA, 2018) describes the soilscape as loamy and free draining. This information will provide guidance for selecting the right tree species to act as mitigation against those removed to facilitate this development. The depth of foundations and other structures in relation to trees can be found within NHBC Standards Chapter 4.2 (NHBC).

4.10 Protecting soil from compaction is essential, failure to do so will affect the physical, chemical and biological properties and functions of soil. It reduces the permeability which inhibits tree growth, increase run-off, erosion and reduces soil biodiversity.

4.11 Statutory tree protection

4.12 According to the Council website none of the trees are subject to a Tree Preservation Order (TPO). Whilst the Site located is not within a Conservation Area, it is immediately adjacent to the west of the Royal Arsenal West, Conservation Area, Woolwich Conservation Area is situated to the west of the Site, beyond Baresford Street, covering Woolwich Town Centre.

5. SITE DESCRIPTION

5.1 The Site is located on the western edge of the wider Royal Arsenal Riverside masterplan and is approximately 2.3 ha. The Site currently sits on a temporary park and is bound to the south by the A206, the RAR A & B Blocks to the north (and north east) and RAR Phase 3, the Brass Foundry and The Guard House to the west.

5.2 Beyond the immediate site boundaries, to the north of the site is the River Thames and to the south and south east of the site is Woolwich Town Centre including the main shopping area along Powis Street, General Gordon Square, the Woolwich Arsenal Overground Train Station and the Woolwich DLR Station.

6. ARBORICULTURAL IMPACT ASSESSMENT

6.1 In total forty-six individual trees and two groups were surveyed in accordance with section 4.4 of the BS (see appendix A), the findings of the survey are shown on the table below.

<u>Tree no.</u>	<u>Category</u>
	U
	A
T45, T46, T48	B
T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17 T18, T19, T20, T21, T22	C
T23, T24, T25, T26, T27, T28, T29, T30, T31	
T32, T33, T34, T35, T36, T37, T38, T39, T40	
T41, T47, G43, G44 S42	

Table 2 - Results of the tree survey

6.2 The majority of the trees are recently planted and located either in groups next to the footpaths or in the case of T27 -T34 form a short avenue. The only trees of significance are T45, T46 and T47 and have been graded as moderate quality due to their age and being readily visible from the Beresford Street.

6.3 Direct impact - trees to be removed to facilitate the proposed development be read in conjunction with TRP- 01

Table 3 – Trees to be removed.

<u>Trees</u>	<u>Category</u>
<i>T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17 T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32, T33, T34, T35, T36, T37, T38, T39, T40, T41, T47, G43, G44, S42</i>	C

6.4 All the trees are young their contribution to the immediate area is minimal and their removal will not have a noticeable impact on the appearance of the local landscape or canopy cover.

6.5 **Direct impact** - Assessment of incursions into the RPA and where there is an incursion into the rooting area will be assessed a solution will be provided to ensure there is minimal impact on the rooting environment.

<u>Tree affected</u>	<u>Phase</u>	<u>Extent of the incursion</u>	<u>Impact</u>	<u>Solution/ long term impact on root development</u>
<i>T46 and T47 Refer to TPP - 01</i>	Demolition phases refer to TPP-01		Compaction of the soil	Erection of protective fencing and keep existing path in place.
<i>T46 and 47 Refer to TPP - 02</i>	Construction phase - turning circle.	18%	Compaction of the soil	Install above ground soil surfacing in the area shown as orange hatching.

Table 4 - RPA incursions and measures to be used.

6.6 The extent of incursions is below the 20%⁴ threshold for new hardstanding and therefore subject to the use of above ground soil surfacing being installed T2 will not be harmed by this part of the development.

6.7 The location of the underground services has not been provided. Prior to the commencement of any works the project arboriculturist will be consulted on the most appropriate location of services ideally, they will be located outside the RPAs of the retained trees. Should they be located within the RPA of any trees, the most appropriate methodology in accordance with NJUG Guidance Notes 2007⁵ and guidance set out in sections 7.7 of the BS will be followed.

7. CONCLUSION

7.1 This report has demonstrated the following:

- Only low-quality trees are to be removed and this will not have an impact the appearance of the local and wider landscape.
- The nature of the layout will allow a high-quality landscape scheme to be implemented which will increase biodiversity and the local canopy cover.
- Where there are incursions into RPAs of nearby trees, these have been assessed and the solutions comply with the relevant sections as outlined in the BS.
- Subject to the measures identified on the tree protection plan being implemented and maintained during the course the development the retained trees will be incorporated into the final layout.

⁵ NJUG Guidance Notes 2007 - Acceptable techniques for excavating near trees as stated by NJUG Guidelines for the Planning, Installation and Maintenance of utility Apparatus in Proximity to Trees.

8. GLOSSARY OF TERMS

Arboricultural method statement ('AMS')	Methodology for the implementation of any aspect of development that is within the root protection area (RPA), or has the potential to result in loss of or damage to a tree to be retained.
Arboricultural consultant	Appointed person to oversee all tree related matters and who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.
Tree protection plan ('TPP')	Scale drawing, informed by descriptive text where necessary, based upon the finalized proposals, showing trees for retention and illustrating the tree and landscape protection measures
Root Protection Area ('RPA')	The minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Construction Exclusion Zone ('CEZ')	Area based on the RPA from which access is prohibited for the duration of a project
Protective fencing	Temporary fencing that excludes potentially harmful demolition or construction activity adjacent to trees to be retained.
Ground protection	Ground protection within RPAs capable of supporting traffic entering or using the site without being distorted or causing compaction of underlying soil or damage to surface roots.
Arboricultural monitoring & supervision	Throughout the demolition and construction process the arboricultural consultant shall undertake regular site monitoring visits and supervise specific works adjacent to trees. All supervisory and monitoring visits will be formally confirmed in writing and circulated to all relevant parties.

Figure 1 Glossary of terms

9. GENERAL ADVICE

Extent and form of the root system	Within a short distance of the stem, the roots are highly branched, so as to form a network of small-diameter woody roots, which can extend radially for a distance much greater than the height of the tree, except where impeded by unfavourable conditions. All parts of this system bear a mass of fine, non-woody absorptive roots, typically concentrated within the uppermost 600 mm of the soil.
Damage to roots	All parts of the root system, but especially the fine roots, are vulnerable to damage. Once roots are damaged, water and nutrient uptake is restricted until new ones have grown. Mature trees recover slowly, if at all, from damage to their woody roots.
Soil compaction	Soil that has been compacted will not provide suitable conditions for the survival and growth of vegetation, whether existing or new, and is a common cause of post-construction tree loss on development sites. Compacted soil will adversely affect drainage, gas exchange, nutrient uptake and organic content, and will seriously impede or restrict root growth.

Figure 2 General advice

10. REFERENCES

AL Shigo (1991) 'Modern Arboriculture', Shigo and Trees Associates

BS 3998:2010 'Recommendations for Tree Work', British Standards Institution, London.

BS5837: 2012 'Trees in relation to design, demolition and construction – Recommendation', British Standards Institution, London.

D. Lonsdale (1999) 'Principles of Tree Assessment and Management' HMSO

Mattheck and Broeler (1994) 'The Body Language of Trees' HMSO

Strouts and Winter (1994) 'Diagnosis of Ill Health in Trees' HMSO

National Joint Utilities Group. Volume 4, GUIDELINES FOR THE PLANNING, INSTALLATION AND MAINTENANCE OF UTILITY APPARATUS IN PROXIMITY TO TREES", Issue 2: 16th November 2007

**Appendix A –Tree survey information - undertaken in accordance with section 4,
BS5837:2012 ‘Trees in relation to design, demolition and construction – Recommendations**

Tree no:	Sequential reference number of trees or groups of trees commencing at "1". Prefixed with a letter indicating type: T: Tree. G: Group. H: Hedge. W: Woodland. A: Area
Tree Preservation Order/ (TPO) conservation area (CA)	Served on individual, groups, woodland or as an area when the local planning authorities (LPA) consider it necessary to protect the visual amenity of the local area. Consent from the LPA must be sought prior to undertaking any works, failure to do so may lead to unlimited fines. Conservation area is an area designated under 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990. Works to trees located within a CA require six weeks notification (S211 notice) to be submitted to the LPA. If the works are considered excessive and will have an impact on the visual amenity of the CA a TPO can be served.
Name	Species listed by common name/ latin name
Height	Estimated height of tree shown in metres.
Trunk Dbh:	Diameter at breast height measured at approximately 1.5 m above ground level given in millimetres and to the nearest 100 mm. Where there are more than 1 stem the average diameter is provided.
Radial crown spread (M)	Given as a radial measurement in metres from the centre of the stem to the furthest point of the canopy at the four main compass points N, E, S, W
Crown clearance (M)	First branch above ground level
Height to first branch	Height and orientation of first significant branch.
Age Class	<p>Y: Young: Age less than 1/4 life expectancy SM: Semi Mature: 1/4 to 1/2 life expectancy EM: Early Mature: 1/2 to 3/4 life expectancy M: Mature: Over 3/4 life expectancy OV: Over-mature: Mature, and in a state of decline V: Veteran: tree that, by recognized criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.</p>
Physiology At the time of inspection the general health of the tree based upon its general appearance, vigour and the presence or absence of symptoms associated with poor health and physiological stress	<ul style="list-style-type: none"> • Good: Typical for species and age • Fair: Signs of physiological stress or dysfunction; but not significant enough that the tree may not recover. • Poor: Signs of physiological stress or dysfunction; significant enough that the tree might not recover. • Dead: Dead specimen.

<p>Structure Structural condition of the tree based on the structure of its roots, trunk and major stems and branches in relation to the presence of any physiological, pathological or mechanical defects.</p>	<ul style="list-style-type: none"> • Good: No significant structural defects. • Fair: Significant structural defects; but these are either remediable or do not put the tree at immediate or early risk of collapse. • Poor: Significant and irremediable structural defects, such that there may be a risk of early or premature collapse. • Hazardous: Significant and irremediable structural defects, such that there is a risk of imminent collapse.
<p>Landscape value</p>	<ul style="list-style-type: none"> • High: Individuals specimens considered to be of visual importance • Moderate: trees growing in a group no individual tree/s of significance: • Low; located within woodland, or provide little landscape value
<p>Estimated Years</p>	<p>Estimated life expectancy based on current condition.</p> <ul style="list-style-type: none"> • 0 Dead trees. • <10 Less than ten years. • 10+ more than ten years. • 20+ more than twenty years. • 40+ more than forty years
<p>Comments:</p>	<p>General comments relating to identified structural defects or hazards, vitality, pathogens or observational notes.</p>
<p>Recommendation of work</p>	<p>Arboricultural – Remedial tree works that involves pruning to a specification in accordance with the arboricultural best practice BS3998: 2010 Tree work – Recommendations. Examples include crown reduction, crown thinning, reducing specific branches and crown lifting.</p> <p>Safety works- nature of the works is to ensure the trees are kept in a safe manner.</p> <p>Facilitative – one off pruning works associated with development works whereby branches are removed to allow the movement of plant machinery within the grounds of the site without harming the trees visual appearance.</p>
<p>Category</p>	<p>A-Trees of high quality; B- Trees of moderate quality; C- Trees of low quality; U – 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</p> <p>1- Mainly arboricultural qualities 2- Mainly landscape qualities 3 – Mainly cultural values , including conservation values</p>
<p>Root Protection Area: (RPA)</p>	<ul style="list-style-type: none"> • The RPA represents the minimum area of soil that the tree requires supporting a healthy and effective root system. The amount shown is based on the calculations set out in section 4.6 of the BS see attached appendices for the method of calculation.
<p>Root Protection Area m2</p>	<ul style="list-style-type: none"> • Root Protection Area (RPA) as radius (m) from the centre of the trunk

No.	Species	Height	Trunk Dia.	Radial Crown Spread	Crown Clearance	Height to 1st Branch	Life Stage	Physiology	Structure	Landscape Value	Est. Years	Comments	Recommendation	Category	RPA Radius	RPA m ²
T1	Tibetan cherry	4m	4 stems @ 100mm	N0.5m E0.5m S0.5m W0.5m	N1.5m E1.5m S1.5m W1.5m	1.5m N	Y	Good	Good	Low	20+	Four stemmed from base; newly planted tree.	Fell to ground level	C (1)	2.4m	18.1m ²
T2	Silver birch	5m	3 stems @ 40mm	N1m E1m S1m W1m	N0.5m E0.5m S0.5m W0.5m	0m N	Y	Good	Good	Low	10+	Three stemmed from base; newly planted tree	Fell to ground level	C (1)	0.9m	2.5m ²
T3	Sargent Cherry	6m	100mm	N1m E1m S1m W1m	N2m E2m S2m W22.5m	2.5m S	Y	Good	Good	Low	20+	Natural form; more prominent compared to the neighbouring trees.	Fell to ground level	C (1)	1.2m	4.5m ²
T4	Sargent Cherry	8m	100mm	N1.5m E1.5m S1.5m W1.5m	N2.5m E2.5m S2.5m W2.5m	2.5m N	Y	Good	Good	Low	20+	Newly planted tree; good form.	Fell to ground level	C (1)	1.2m	4.5m ²
T5	Jacquemonts Birch	5m	3 stems @ 40mm	N1m E1m S1m W1m	N1m E1m S1m W0.5m	0.5m W	Y	Good	Good	Low	10+	Three stemmed from base; newly planted tree.	Fell to ground level	C (1)	0.9m	2.5m ²
T6	Tibetan cherry	4m	100mm 3 stems @ 70mm	N1.5m E1.5m S1.5m W1.5m	N1.5m E1.5m S1.5m W1.5m	1m N	Y	Good	Good	Low	10+	Four stemmed from base; newly planted tree.	Fell to ground level	C (1)	1.9m	11.2m ²
T7	Wild cherry	9m	210mm	N3m E3m S3m W3m	N1.5m E1.5m S1.5m W1.5m	2m N	Y	Good	Good	Moderate	20+	Broad dominant crown.	Fell to ground level	C (1)	2.5m	20.0m ²
T8	Wild cherry	8m	200mm	N3m E3m S3m W3m	N2m E2m S2m W2m	2.5m N	Y	Good	Good	Moderate	10+	Broad dominant crown.	Fell to ground level	C (1)	2.4m	18.1m ²
T9	Sargent Cherry	7m	100mm	N1.5m E1.5m S1.5m W1.5m	N2.5m E2.5m S2.5m W2.5m	2.5m SW	Y	Good	Good	Low	10+	Young tree (stem diameter less than 150mm); newly planted tree.	Fell to ground level	C (1)	1.2m	4.5m ²

No.	Species	Height	Trunk Dia.	Radial Crown Spread	Crown Clearance	Height to 1st Branch	Life Stage	Physiology	Structure	Landscape Value	Est. Years	Comments	Recommendation	Category	RPA Radius	RPA m ²
T10	Tibetan cherry	6m	2 stems @ 40mm 60mm	N1m E1m S1m W1m	N2m E2m S2m W2m	1.5m S	Y	Good	Good	Low	10+	Three stemmed from base; root ball present.	Fell to ground level	C (1)	1.0m	3.1m ²
T11	Sargent Cherry	8m	60mm	N0.5m E0.5m S0.5m W0.5m	N2.5m E2.5m S2.5m W2.5m	2m N	Y	Good	Good	Low	10+	Young tree (stem diameter less than 150mm); newly planted tree.	Fell to ground level	C (1)	0.9m	2.5m ²
T12	Tibetan cherry	6m	40mm	N0.5m E0.5m S0.5m W0.5m	N1.5m E1.5m S1.5m W1.5m	1m N	Y	Good	Good	Low	10+	Previously three stemmed at base, two stems have been removed.	Fell to ground level	C (1)	0.9m	2.5m ²
T13	Jacquemonts Birch	8m	60mm	N2m E3m S2m W2m	N2m E2m S3m W3m	1.5m NW	Y	Good	Good	Low	20+	Part of the landscape scheme; newly planted tree.	Fell to ground level	C (1)	0.9m	2.5m ²
T14	Jacquemonts Birch	8m	90mm	N2.5m E2.5m S3m W2m	N2.5m E2.5m S2m W2.5m	2m W	Y	Good	Good	Low	20+	Young tree (stem diameter less than 150mm); newly planted tree.	Fell to ground level	C (1)	1.1m	3.7m ²
T15	Silver birch	6m	2 stems @ 90mm	N2m E2.5m S2.5m W3m	N1m E2m S1m W1.5m	1.5m S	Y	Good	Good	Low	10+	Three stemmed from base; newly planted tree.	Fell to ground level	C (1)	1.5m	7.3m ²
T16	Silver birch	6m	3 stems @ 40mm	N2m E2m S2m W2m	N1m E1m S1m W1m	1.5m S	Y	Good	Good	Low	10+	Four stemmed from base; newly planted tree.	Fell to ground level	C (1)	0.9m	2.5m ²
T17	Sargent Cherry	8m	170mm	N3m E3m S3m W3m	N2.5m E2.5m S2.5m W2.5m	2m W	Y	Good	Good	Moderate	20+	Broad dominant crown; newly planted tree.	Fell to ground level	C (1)	2.0m	13.1m ²
T18	Silver birch	6m	2 stems @ 70mm 110mmN	N2m E2m S2m W2m	N1m E1m S1m W1m	1.5m E	Y	Good	Good	Low	20+	Three stemmed from base; newly planted tree.	Fell to ground level	C (1)	1.8m	9.9m ²

No.	Species	Height	Trunk Dia.	Radial Crown Spread	Crown Clearance	Height to 1st Branch	Life Stage	Physiology	Structure	Landscape Value	Est. Years	Comments	Recommendation	Category	RPA Radius	RPA m ²
T19	Silver birch	6m	80mm 70mmS	N2m E2m S2m W2m	N1.5m E1.5m S1.5m W2m	1.5m N	Y	Good	Good	Low	20+	Twin stemmed from base; newly planted tree.	Fell to ground level	C (1)	1.3m	5.1m ²
T20	Silver birch	6m	80mm 70mm 40mm	N2m E2m S2m W2m	N1.5m E1.5m S1.5m W2m	1m W	Y	Good	Good	Low	20+	Twin stemmed from base; newly planted tree.	Fell to ground level	C (1)	1.4m	5.8m ²
T21	Sargent Cherry	8m	140mm	N3m E3m S3m W3m	N3m E3m S3m W3m	2.5m N	Y	Good	Good	Low	20+	Broad dominant crown; newly planted tree.	Fell to ground level	C (1)	1.7m	8.9m ²
T22	Silver birch	4m	4 stems @ 40mm est	N3m E2m S2m W2m	N1m E1m S1m W1m	1.5m N	Y	Good	Good	Low	10+	Four stemmed from base; newly planted tree.	Fell to ground level	C (1)	1.0m	2.9m ²
T23	Silver birch	4m	3 stems @ 40mm	N3m E2m S2m W2m	N1m E1m S1m W1m	1.5m N	Y	Good	Good	Low	10+	Three stemmed from base; newly planted tree.	Fell to ground level	C (1)	0.9m	2.5m ²
T24	Sargent Cherry	8m	120mm	N2m E2m S2m W2m	N3m E3m S3m W3m	3m N	Y	Good	Good	Low	20+	Broad dominant crown; newly planted tree.	Fell to ground level	C (1)	1.4m	6.5m ²
T25	Silver birch	3m	3 stems @ 60mm	N1.5m E1.5m S1.5m W1.5m	N1.5m E1.5m S1.5m W2m	1m S	Y	Good	Good	Low	10+	Three stemmed from base; newly planted tree.	Fell to ground level	C (1)	1.2m	4.9m ²
T26	Silver birch	7m	2 stems @ 90mm	N2m E2m S2m W2m	N1.5m E1.5m S1.5m W1.5m	1.5m N	Y	Good	Good	Low	10+	Twin stemmed from base; newly planted tree.	Fell to ground level	C (1)	1.5m	7.3m ²
T27	Sargent Cherry	8m	110mm	N2m E2m S2m W2m	N2m E2m S2m W2m	1.5m N	Y	Good	Good	Low	10+	Part of group.	Fell to ground level	C (1)	1.3m	5.5m ²

No.	Species	Height	Trunk Dia.	Radial Crown Spread	Crown Clearance	Height to 1st Branch	Life Stage	Physiology	Structure	Landscape Value	Est. Years	Comments	Recommendation	Category	RPA Radius	RPA m ²
T28	Sargent Cherry	8m	150mm	N2.5m E2.5m S2.5m W2.5m	N2m E2m S2m W2m	1.5m N	Y	Good	Good	Low	10+	Part of group.	Fell to ground level	C (1)	1.8m	10.2m ²
T29	Sargent Cherry	8m	170mm	N2.5m E2.5m S2.5m W2.5m	N2m E2m S2m W2m	1.5m N	Y	Good	Good	Low	10+	Part of group.	Fell to ground level	C (1)	2.0m	13.1m ²
T30	Sargent Cherry	8m	140mm	N2.5m E2.5m S2.5m W2.5m	N2m E2m S2m W2m	1.5m N	Y	Good	Good	Low	10+	Part of group.	Fell to ground level	C (1)	1.7m	8.9m ²
T31	Cappadocian maple	8m	120mm	N2.5m E2.5m S2.5m W2.5m	N2m E2m S2m W2m	1.5m N	Y	Good	Good	Low	10+	Part of group.	Fell to ground level	C (1)	1.4m	6.5m ²
T32	Cappadocian maple	8m	120mm	N2.5m E2.5m S2.5m W2.5m	N2m E2m S2m W2m	1.5m N	Y	Good	Good	Low	10+	Part of group.	Fell to ground level	C (1)	1.4m	6.5m ²
T33	Sargent Cherry	7m	170mm	N3m E3m S3m W3m	N2.5m E2.5m S2.5m W2.5m	2m N	Y	Good	Good	Low	20+	Part of group.	Fell to ground level	C (1)	2.0m	13.1m ²
T34	Sargent Cherry	7m	150mm	N3m E3m S3m W3m	N2m E2m S2m W2m	2m N	Y	Good	Good	Low	20+	Part of group.	Fell to ground level	C (1)	1.8m	10.2m ²
T35	Common Oak	8m	150mm	N1m E1m S1m W1m	N2m E2m S2m W2m	2m E	Y	Good	Good	Low	20+	Quercus robur Fastigiata (Koster); line of off-site trees providing some screening. Set within paving area	Fell to ground level	C (1)	1.8m	10.2m ²
T36	Common Oak	8m	150mm	N1m E1m S1m W1m	N2m E2m S2m W2m	2m E	Y	Good	Good	Low	20+	Quercus robur Fastigiata (Koster); line of off-site trees providing some screening. Set within paving area	Fell to ground level	C (1)	1.8m	10.2m ²

No.	Species	Height	Trunk Dia.	Radial Crown Spread	Crown Clearance	Height to 1st Branch	Life Stage	Physiology	Structure	Landscape Value	Est. Years	Comments	Recommendation	Category	RPA Radius	RPA m ²
T37	Common Oak	8m	130mm	N1m E1m S1m W1m	N2m E2m S2m W2m	2m E	Y	Good	Good	Low	20+	Quercus robur Fastigiata (Koster); line of off-site trees providing some screening. Set within paving area	Fell to ground level	C (1)	1.6m	7.6m ²
T38	Common Oak	8m	130mm	N1m E1m S1m W1m	N2m E2m S2m W2m	2m E	Y	Good	Good	Low	20+	Quercus robur Fastigiata (Koster); line of off-site trees providing some screening. Set within paving area	Fell to ground level	C (1)	1.6m	7.6m ²
T39	Common Oak	8m	120mm	N1m E1m S1m W1m	N2m E2m S2m W2m	2m E	Y	Good	Good	Low	20+	Quercus robur Fastigiata (Koster); line of off-site trees providing some screening. Set within paving area	Fell to ground level	C (1)	1.4m	6.5m ²
T40	Campbells Magnolia	5m	120mm	N2m E2m S2m W2m	N2m E2m S2m W2m	1.5m N	Y	Good	Good	Low	10+	Young tree (stem diameter less than 150mm).	Fell to ground level	C (1)	1.4m	6.5m ²
T41	Cappadocian maple	9m	150mm	N2m E2m S2m W2m	N2.5m E2.5m S2.5m W2.5m	2.5m N	Y	Good	Good	Low	20+	Off - site tree		C (1)	1.8m	10.2m ²
T45	Sycamore	15m	600mm	N5m E5m S5m W5m	N4m E4m S4m W4m	3m S	SM	Good	Good	Moderate	20+	Off-site tree; lower branches removed back to the trunk leaving a balanced crown.		B (1)	7.2m	162.9m ²
T46	London plane	15m	520mm	N5m E4.5m S4m W5m	N2m E4m S4m W3m	2m N	SM	Good	Good	Moderate	20+	One of three trees located on a grass embankment; broad canopy with no defects.		B (1)	6.2m	122.3m ²
T47	London plane	15m	300mm	N2m E4m S5m W5m	N2m E4m S2m W5m	2m N	Y	Good	Good	Low	10+	Unbalanced crown as suppressed.		C (1)	3.6m	40.7m ²
T48	London plane	16m	530mm	N6m E5m S6m W7m	N3m E3m S3m W2m	3m N	SM	Good	Good	Moderate	20+	Off-site tree located on a triangular piece of land, readily visible because of its location.		B (1)	6.4m	127.1m ²

No.	Species	Height	Trunk Dia.	Radial Crown Spread	Crown Clearance	Height to 1st Branch	Life Stage	Physiology	Structure	Landscape Value	Est. Years	Comments	Recommendation	Category	RPA Radius	RPA m ²
G43	Silver birch	2m	Avg 100mm	N1m E1m S1m W1m	0.5m	0.5m N	Y	Good	Good	Low	20+	Group of young trees, some are twin stemmed.	Fell to ground level	C (2)	1.2m	4.5m ²
G44	Mixed species	Min 1m Max 2m	Max 100mm	N1m E1m S1m W1m	1.5m	1m N	Y	Good	Good	Low	10+	Mixed species group comprising a mixture of shrubs and trees	Fell to ground level	C	1.2m	4.5m ²
S42	Himalayan tree-cotoneaster	2m	10mm	N1m E1m S1m W1m	N0.5m E0.5m S0.5m W0.5m	0.5m N	Y	Good	Good	Low	10+	Group of young trees, some are twin stemmed.	Fell to ground level	C (2)	0.9m	2.5m ²

APPENDIX C - Calculation of the Root Protection Area (RPA)

The RPA for single stem trees is an area equivalent to a circle with a radius 12 times the stem diameter.

For trees with more than one stem the following calculation methods should be used. Guidance is provided within the BS (Annex C) which provides details on how to measure the stem diameters. The calculated RPA for each tree should be capped to 707m²

- a) Trees with two to five stems, the combined stem diameter should be calculated as follows:

$$\sqrt{(\text{stem diameter}1)^2 + (\text{stem diameter}2)^2 \dots + (\text{stem diameter } 5)^2}$$

- b) Trees with more than five stems (not shown in Annex C), the combined stem diameter should be calculated as follows:

$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

APPENDIX D - DRAFT ARBORICULTURAL METHOD STATEMENT

THIS PART OF THE REPORT MUST BE READ IN CONJUNCTION WITH THE TREE PROTECTION PLAN ATTACHED WITH THIS REPORT. FAILURE TO ADHERE TO THE RECOMMENDATIONS OUTLINED IN THIS SECTION MAY RESULT IN A TEMPORARY STOP NOTICE BEING SERVED.

1.1 To ensure an effective tree protection regime is implemented the following logical sequence of events and arboricultural inspection/supervision must be always adhered to. These stages and the arboricultural input are listed below.

- Pre-commencement meeting
- Tree removal and access facilitation pruning
- Protective fencing installed.
- Temporary ground protection installed.
- Installation of underground services
- Excavating within the RPA
- Soft landscaping
- Removal of protective fencing

1.2 A pre-commencement meeting will be held on site before any site clearance or construction work begins and the following parties should be in attendance.

<i>Name of person</i>	<i>Title</i>	<i>Telephone number</i>	<i>Email address</i>
TBC	Tree Officer	TBC	TBC
TBC	Project architect	TBC	TBC
TBC	Site manager	TBC	TBC
Mr Guy Stephens	Arboricultural	07970675828	guy@grstrees.co.uk

Table 1- List of contacts

1.3 The pre-commencement meeting will be used to clarify and make understood all aspects of the implementation of tree protection and sequencing to all relevant parties. The specific works or events during which the arboricultural consultant will need to visit the site to undertake supervision or inspection will be confirmed, and a suitable length of time between monitoring visits will be agreed. When the project arboriculturist is not on site, a person will be appointed to undertake a daily inspection of the approved tree protection measures are in place. The inspections will be recorded and sent to the project arboriculturist. The LPA tree officer will receive monitoring reports on a regular basis, as agreed during the pre-commencement meeting.

1.4 A copy of the AMS and TPP will be kept on site at all times and be made available to all those who are to undertake works directly adjacent to the trees that are to be retained. It is the developer's responsibility to ensure that details of this AMS and any agreed amendments are known and understood by all site personnel.

1.5 If there is a change in site manager then the arboricultural consultant must be informed and a meeting must take place within 5 days of such a change, so that the important aspects of the AMS and TPP can be discussed and made clear to the site manager.

1.6 The table below identifies the phases of the project arboriculturist will be on site to oversee works which have the potential to harm the retained trees. A monitoring form will be sent to the LPA confirming they have been completed satisfactorily.

Phase	Works to take place	Tree Protection measures to be installed	Project arboriculturist to attend	Site monitoring to report to be sent to LPA
Pre-start meeting	Sequence of monitoring regime to be agreed.	N	Y	Y
Tree work	Trees to be removed the approve scheme	N	N	N
Demolition phase	Demolition of existing building next to T46 and T47	Erection of tree protective fencing. Retain existing drive	N	Y
Construction phase	Erection approved scheme	Tree protection fencing to be retained.	N	Y
		Installation of above ground soil surfacing.	Y	y

Table 2 - Site monitoring phases

1.7 Tree works. All works prescribed in shall be carried out in accordance with best arboricultural practice as set out BS3998:2010 Tree works – Recommendations.

1.8 Prior to carrying out any tree work. Birds: Please note that it is an offence under the Wildlife and Countryside Act of 1981, amended by the Countryside and Rights of Way Act 2000, to kill, injure or take any wild birds, damage or destroy nests that are in use or are being built and take or destroy eggs.

1.9 Bats: Prior to the commencement of any tree works, a visual inspection carried out by a qualified ecologist must be carried out to see whether there are any signs of bat. In the event of bats being found the tree should only be felled if deemed unsafe. Such features have the potential to provide roosting spaces for bats but are not in themselves indicators of presence.

- Woodpecker holes.
- Rot holes.
- Loose bark.
- Cankers.
- Tension cracks and splits.
- Shattered 'snag' ends.
- Signs of internal decay (e.g. fungal fruits, hyphae, exudation).
- Inclusions.
- Elongated tight forks,
- 'Unusual' growth forms
- Bat boxes on or near the tree.
- Evidence of past pruning/coppicing/pollarding/storm damage.

1.10 In the event of bats being found the tree should only be felled if deemed unsafe. If a potential bat roosting site is found during tree works every effort must be taken to preserve the area, for example cuts must be made above the crack or hole.

1.11 **Stages of the erection and removal tree protective fencing and signs.**

1.12 The location of the tree protective fencing (TPF) is shown as a light blue line on the TPP for both the demolition and construction phase and must be kept in those locations throughout the course of the development which include the following stages.

- Delivery of all plant machinery
- Soft landscaping including the removal of soil.
- Installation of underground services
- Construction of the approved development
- Hard and soft landscaping

1.13 Installing and maintaining the TPF.

1. Existing vegetation that prevents the TPF from being installed in its entirety is to be removed using hand tools only.
2. Mark out the fencing points
3. Fencing contractors erect the fencing and attach tree protection signs.
4. Site meeting with the project arboriculturist and site foreman to inspect and sign it off.

1.14 Approved works to start. As soon as the construction works start the fencing must remain in place, in the event of it having to be removed or relocated the project arboriculturist must be contacted immediately who will inform the local planning authority. Any alternative fencing to be used must be approved by the project arboriculturist and a revised TPP will be issued and sent to the local planning authority for approval.

1.15 Examples of protective fencing

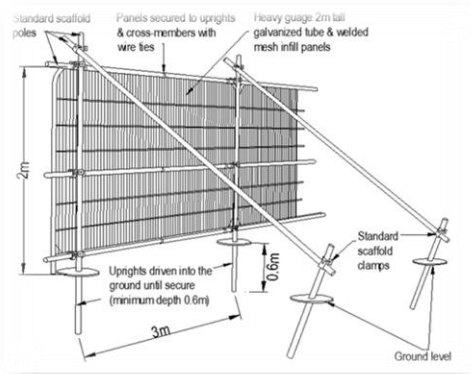


Figure 1 Default specification for protective fencing (Figure 2)

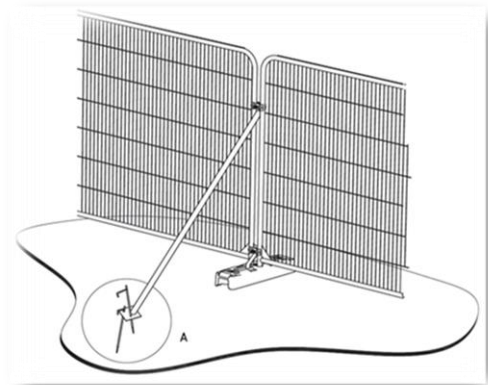


Figure 2 Example of above ground stabilizing system (Figure 3 a)

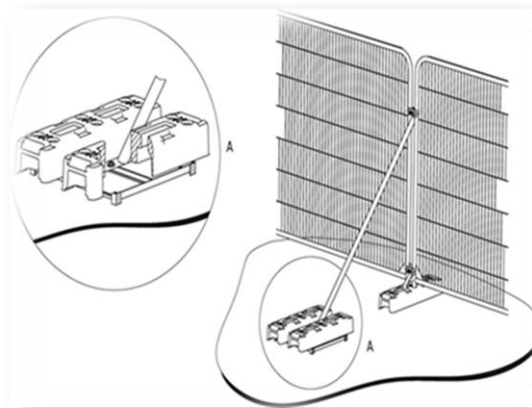


Figure 3 Example of stabilizer strut on block tray (Figure 3b)

1.16 In the first instance the tree protective fencing will be the default specification as shown as figure 2 of BS5837:2012 Trees in relation to design, demolition and construction and will comprise the following elements; standard scaffold poles, heavy gauge 2 m tall galvanized tube and welded mesh infill panels, panels secured to uprights and cross members with wire ties, ground level, Upright driven into the ground until secure (minimum depth 0.6 m) and standard scaffold clamps.

1.17 An assessment will be made by the project arboriculturist whether the default protective fencing can be implemented and be a robust form of protection during the demolition and construction phase, the fencing can be changed to either figures 3a or 3b depending on the site. The project arboriculturist will informing the tree officer of any changes in the type of fencing. To avoid potential enforcement action, it may require issuing a new tree protection plan to the LPA which will need to be formally discharged.

1.18 **Examples of tree protection warning signs.**

1.19 Notices stating, "Tree Protection Zone, Keep Out!" will be attached with cable ties to every third panel.



Figure 4 Example of warning signs.

1.20 **Examples of temporary ground protection.**

- 1.21 Temporary ground protection shall be designed to an engineer's specification; to accommodate and support the likely loading from any traffic entering or using the site without being distorted or causing compaction of underlying soil.

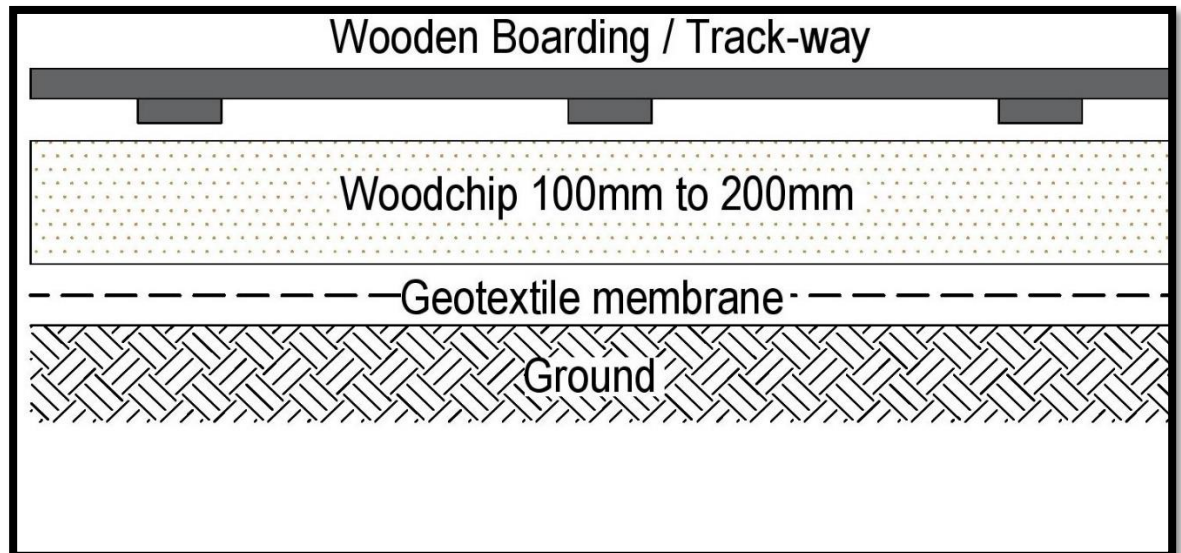


Figure 5 Temporary ground protection

Examples of temporary ground protection include.

- Pedestrian- single thickness of scaffold boards placed either on top of a driven scaffold frame thus forming a suspended walkway, or on top of a compression – resistant layer e.g. 100 mm depth of woodchip.
- Pedestrian operated plant up to a gross weight of 2 t – comprising inter-linked ground protection boards, placed on top of 150 mm wood chip laid onto a geotextile membrane.
- Wheeled or tracked construction traffic exceeding 2 t gross weight - an engineering specification in consultation with the project arboriculturist is recommended see www.ground-guards.co.uk.

1.22 Demolition of existing buildings.

1.23 Before any demolition starts all the relevant protective measures as shown on the **TPP - 01** must be in place. Where trees stand adjacent to structures to be removed, the demolition will be undertaken inwards within the footprint of the existing building often referred to as “top down, pull back”

1.24 The stages of this phase of works are as follows.

- Pre-commencement meeting with the retained arboricultural consultant/ site manager to discuss the critical stages during the demolition phase.
- All plant machinery must be located outside the RPA.
- Disassemble the tree protective fencing to allow basic access to work area.
- Lay down temporary ground protection in areas which are not covered in hard standing.
- 100 mm of topsoil either from within the site or imported ¹ is to be spread over exposed areas.
- In the event of contamination of the soil from fuel and oil leakage the retained arboricultural consultant must be contacted immediately to assess the impact.

1.25 Installation of hard surfacing within RPA

1.26 In order to prevent unacceptable root damage to the parking bays within the RPA of T46 and T47 the hard surfacing shall be constructed to the specification in accordance with the recommendations of Section 7.4 of British Standard BS 5837 and Guidance Note 12. The use of cellular confinement systems near trees: a guide to good practice.

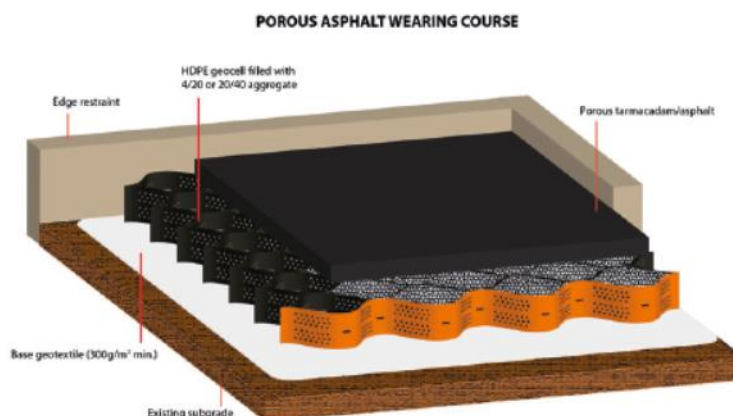


Figure 6 Illustration of a typical above-soil hard surface next to trees.

1.27 The installation of the no dig surface shall be overseen by the project arboriculturist (PA) and this statement should be read in conjunction with Tree Protection Plan – **(TPP- 01)**

1.28 Within its RPA there shall be no lowering of existing soil level and no digging shall be undertaken: all parts of the proposed parking bays shall be constructed above existing ground level. This is to ensure that roots are not severed, soil is not compacted, and oxygen can continue to reach roots beneath the engineered surface. Construction shall be undertaken in dry weather; ideally between May and October when the soil is at its driest and least prone to compaction.

1.29 The removal of up to 50mm of leaf litter and surface vegetation can be carried out if there are obvious surface roots, or if the soil layer is shallow, but may not be appropriate to remove any

¹ BS 3882: 2007 – Specification for topsoil and requirements for use

surface material at all. Any protruding rocks should be removed. To protect retained surface roots from being damaged when the infill is placed on the area ramps made of sharp sand should be used as a protective layer.

- 1.30 No stripping of turf or topsoil shall be undertaken herbaceous (non-woody) vegetation shall be cut as close to ground level as possible and be raked off by hand; shrubs shall be grubbed out using hand tools. Any hollows shall be filled with sharp sand.
- 1.31 A permeable geotextile membrane (such as 'Treetex T300') shall be laid on the ground beneath the footprint of the proposed driveway to help prevent pollution contamination of the rooting area below, this shall be secured with pegs or pins driven through it into the ground. If the new surface is likely to be subject to de-icing salt application, an impermeable barrier shall be laid to prevent contamination of the rooting area and run-off shall be directed away from the trunk of the tree (preferably out of the RPA).
- 1.32 Edge supports of an appropriate size and strength shall be laid above ground level, on top of the geogrid, either on a concrete haunching, or flat on the geogrid itself, secured with pegs or pins driven into the ground. If concrete haunching is used, a strip of heavy-duty polythene shall be laid beneath it, on top of the geotextile membrane, to prevent the leaching of wet cement into the soil. The outer side of the edge supports shall be banked up with topsoil, graded down to existing ground level.
- 1.33 A perforated cellular confinement system ('geoweb') shall then be laid above the geotextile membrane. The grade and type of this web shall be selected by a structural engineer to ensure that anticipated loads can be supported without causing any additional compaction of the soil structure beneath. A 200mm standard cell width shall be used; cell depth shall be a minimum of 150mm. Where more than one strip of geoweb needs to be employed, the cellular structure shall be maintained by stapling adjacent sections together using 10mm galvanised staples.
- 1.34 The geoweb shall be filled with an angular aggregate with a particle size of between 20mm and 40mm, with no fines (to permit vertical gaseous diffusion). Care shall be taken that trucks do not drive onto the area to deposit the aggregate; it shall be tipped at the edge of the area and then pushed into position so that machinery moves only on the areas of already laid aggregate and not on the ground either side of it.
- 1.35 A second layer of permeable geotextile membrane shall be laid on top of the geoweb to prevent sand or other materials used as the base of the wearing course falling into the no-fines aggregate below. Before and during the construction of the bays a temporary wearing course of at least 50mm deep shall be laid on top (if the final wearing course is not suitable at this time).
- 1.36 The final wearing course shall be block pavers with built-in infiltration spaces between the slabs or locks. These shall be laid dry-jointed on a sharp sand or coarse aggregate no-fines.
- 1.37 **Assessing and treating roots**
- 1.38 Roots encountered of less than 25mm diameter may be cut cleanly by the arboricultural consultant with secateurs or a sharp pruning saw (except where they occur in clumps of 25mm diameter or larger). If roots (or clumps of roots) of 25mm in diameter or larger are encountered, they shall be retained and protected.
- 1.39 If roots of 25mm diameter and above are found, they will be covered with Hessian sacking and a minimum depth of 50mm of topsoil and sharp sand. Exposed roots will be covered with sand or hessian sacking and be kept moist at all times; they will not be left exposed to frost, wind or direct sunlight.

1.40 **Construction Exclusion Zones.**

1.41 The protective fencing shall form the Construction Exclusion Zones ("CEZ's") and will restrict any access by people or machinery into these areas. These areas are based on the RPA's of the trees and the protective measures are designed to protect the soil within RPAs and the trees from damage or harm.

1.42 Where construction activity cannot be fully excluded from within the RPA's of trees to be retained the parts of the RPA's that are outside of the protective fencing shall be protected by appropriate ground protection.

1.43 The protected areas shall be regarded as sacrosanct, and once installed, the protective fencing and the ground protection shall not be removed or altered without prior recommendation by the appointed arboricultural consultant.

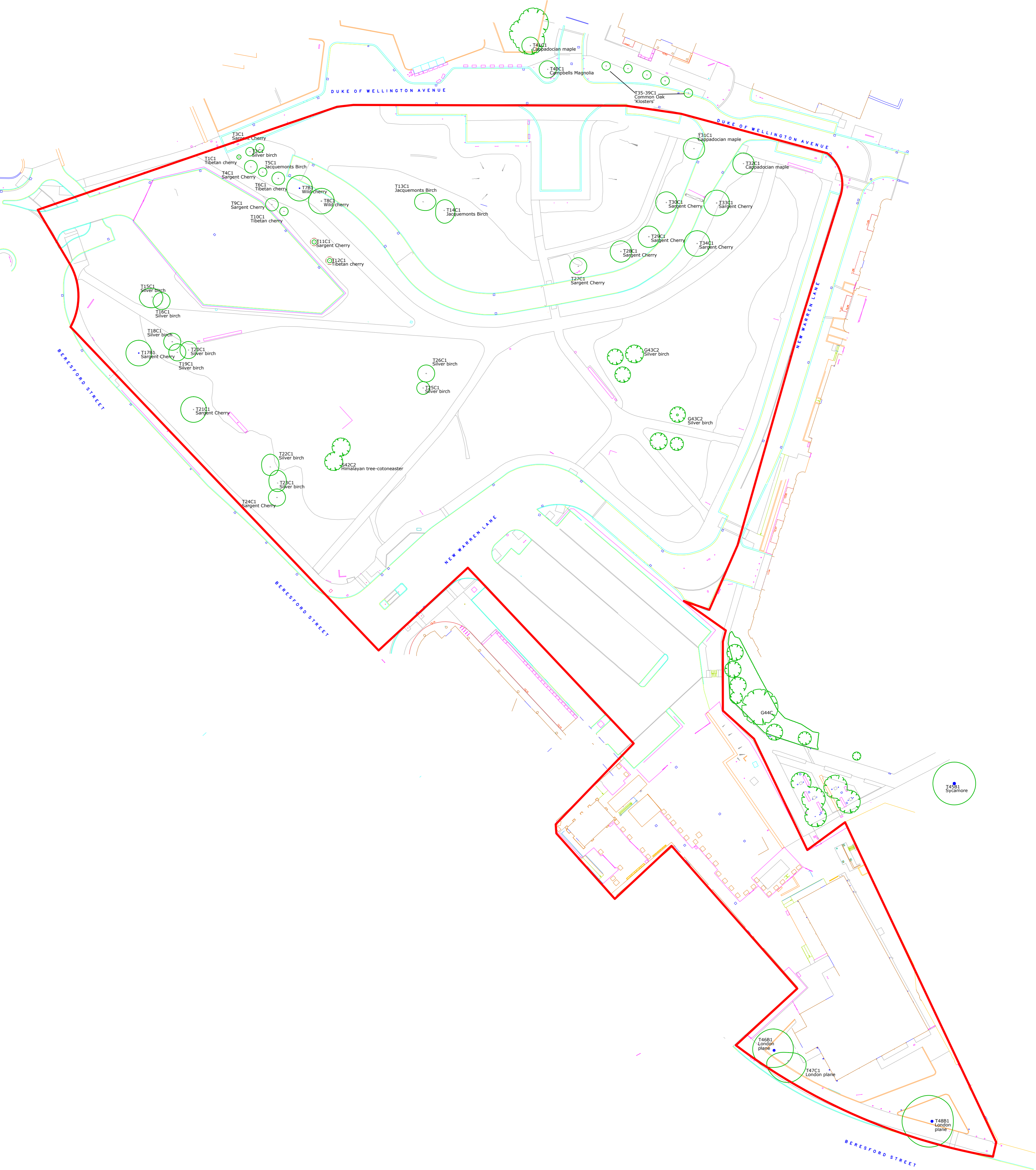
1.44 **No activity shall occur within the CEZ's; this means:**

- No storage of equipment or materials.
- No access to people, plant or vehicles.
- The actions to be carried out within or directly adjacent to the CEZ's shall only be carried out in accordance with this method statement. Where specified these works shall only be carried out under the direct supervision of the arboricultural consultant.
- Provision shall be made to avoid the spillage of chemicals that are toxic to roots into the RPA. It is now standard practice to have emergency spillage kits made available. Liquid chemicals such as oil, bitumen, diesel, and cement shall not be stored, mixed or discharged onto the ground within 10 m of the trees.
- No notice boards, or above ground services, shall be attached to any of the trees. No fires shall be lit within the RPAs of the trees or near enough to the extent of the canopy that branches might be damaged.
- Planning of site operations shall take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees shall be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times.
- Unwanted vegetation shall be removed by hand or by using chemicals that do not damage the roots of the trees that are to be retained.

APPENDIX E - Drawings

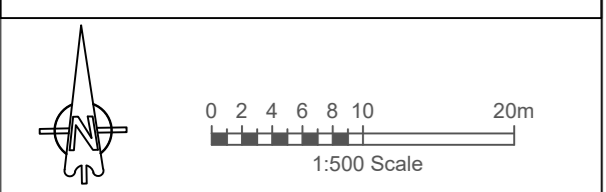
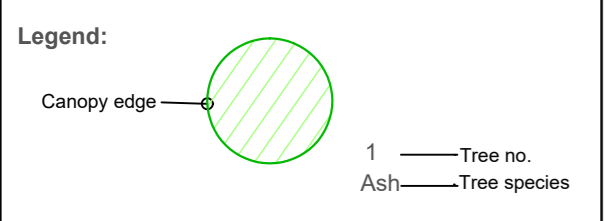
Tree Location Plan TLP- 01
Tree Removal Plan TRP- 01
Tree Protection Plan TPP- 01 – Demolition Phase
Tree Protection Plan TPP- 02 – Construction Phase

Tree no.	Grading
T1	C1
T2	C1
T3	C1
T4	C1
T5	C1
T6	C1
T7	B1
T8	C1
T9	C1
T10	C1
T11	C1
T12	C1
T13	C1
T14	C1
T15	C1
T16	C1
T17	B1
T18	C1
T19	C1
T20	C1
T21	C1
T22	C1
T23	C1
T24	C1
T25	C1
T26	C1
T27	C1
T28	C1
T29	C1
T30	C1
T31	C1
T32	C1
T33	C1
T34	C1
T35	C1
T36	C1
T37	C1
T38	C1
T39	C1
T40	C1
T41	C1
S42	C1
G43	C1
G44	C1
T45	B1
T46	B1
T47	C1
T48	B1



Notes:

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



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Client	Berkeley Homes (East Thames) Limited
Title	Tree location plan - TLP-01
Site	Royal Arsenal Riverside Blocks D&K
Date	19/03/2023
Drawn	GRS
Job ref	GRS-129-22
Scale	1:500
Paper size	A1
Notes	Draft/Planning
Drawing reference	Topographical survey 47440-PCL-DRY 0002

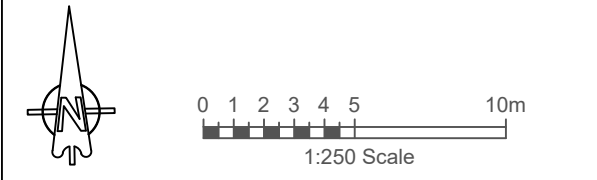
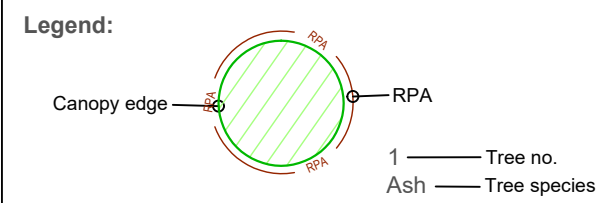


Key

Existing footpath leading to the offices

Existing grassed area

- Trunk of a category U tree** ●
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
- Trunk of a category A tree** ●
Trees of high quality with an estimated remaining life expectancy of at least 40 years
- Trunk of a category B tree** ●
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
- Trunk of a category C tree** ●
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm



Tree Protective Fencing

Protective fencing shall consist of a scaffold framework in accordance with figure 3 of British Standard 5837 (2012); comprising 2m tall welded mesh panels on rubber or concrete feet. Onto this, weldmesh panels shall be securely fixed with wire or scaffold clamps joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers shall be at least 1m and shall be uniform throughout the fence. The panels shall be supported on the inner side by stabilizer struts mounted on a block tray.

Weldmesh panels — Anti tamper coupler

Block tray

Stabilizer strut mounted on a block tray

TREE PROTECTION AREA

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND ARE SUBJECTS OF A TREE PRESERVATION ORDER (TOWN & COUNTRY PLANNING ACT 1990)

CONTRAVENTION OF TREE PRESERVATION ORDERS MAY LEAD TO CRIMINAL PROSECUTION

THE FOLLOWING MUST BE OBSERVED BY ALL PERSONS:-

- THE PROTECTIVE FENCING MUST NOT BE REMOVED
- NO PERSON SHALL ENTER THE PROTECTED AREA
- NO MACHINE OR PLANT SHALL ENTER THE PROTECTED AREA
- NO MATERIALS SHALL BE STORED IN THE PROTECTED AREA
- NO SPOIL SHALL BE DEPOSITED IN THE PROTECTED AREA
- NO EXCAVATION SHALL OCCUR IN THE PROTECTED AREA

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

KEEP OUT!

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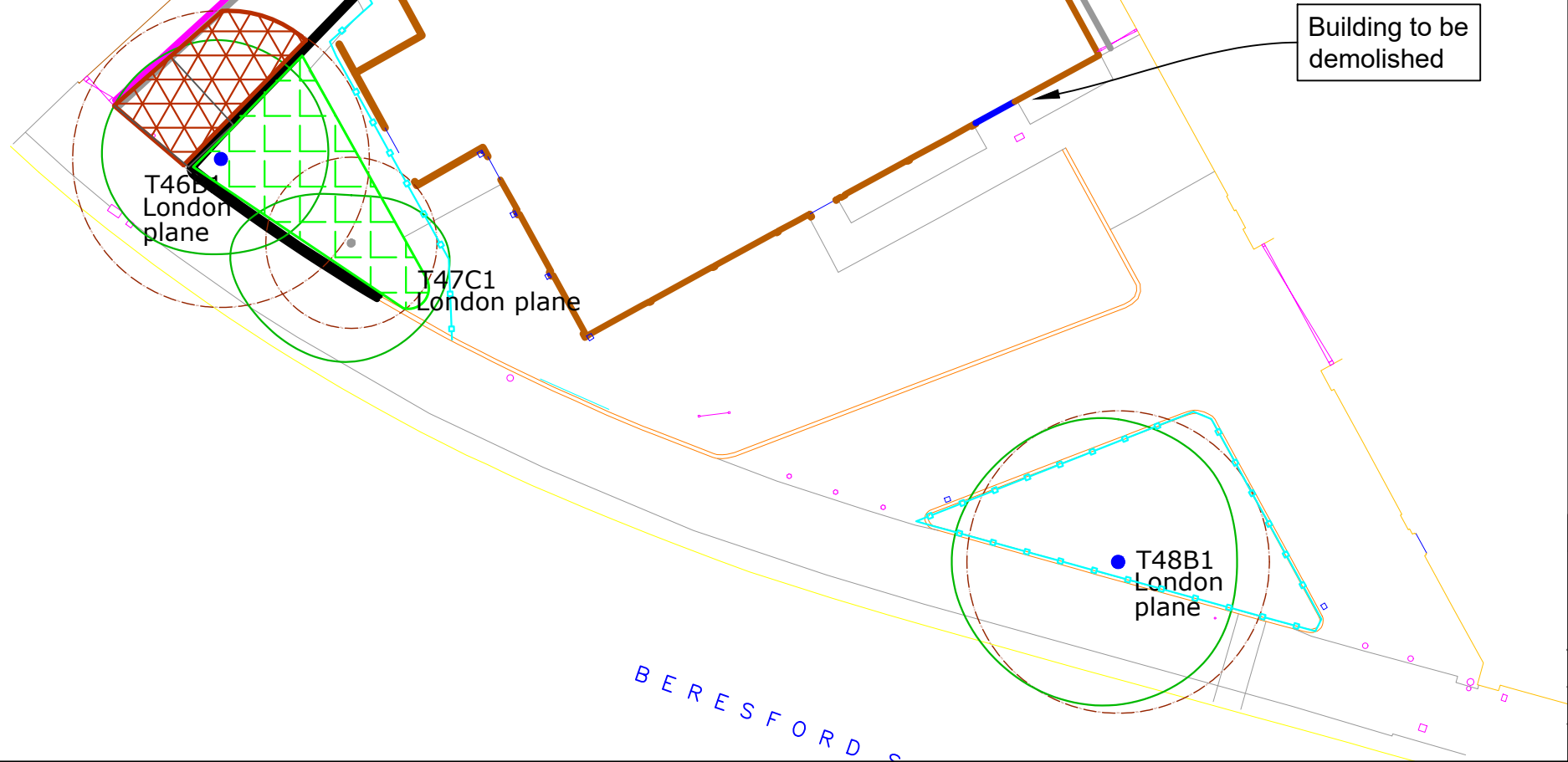
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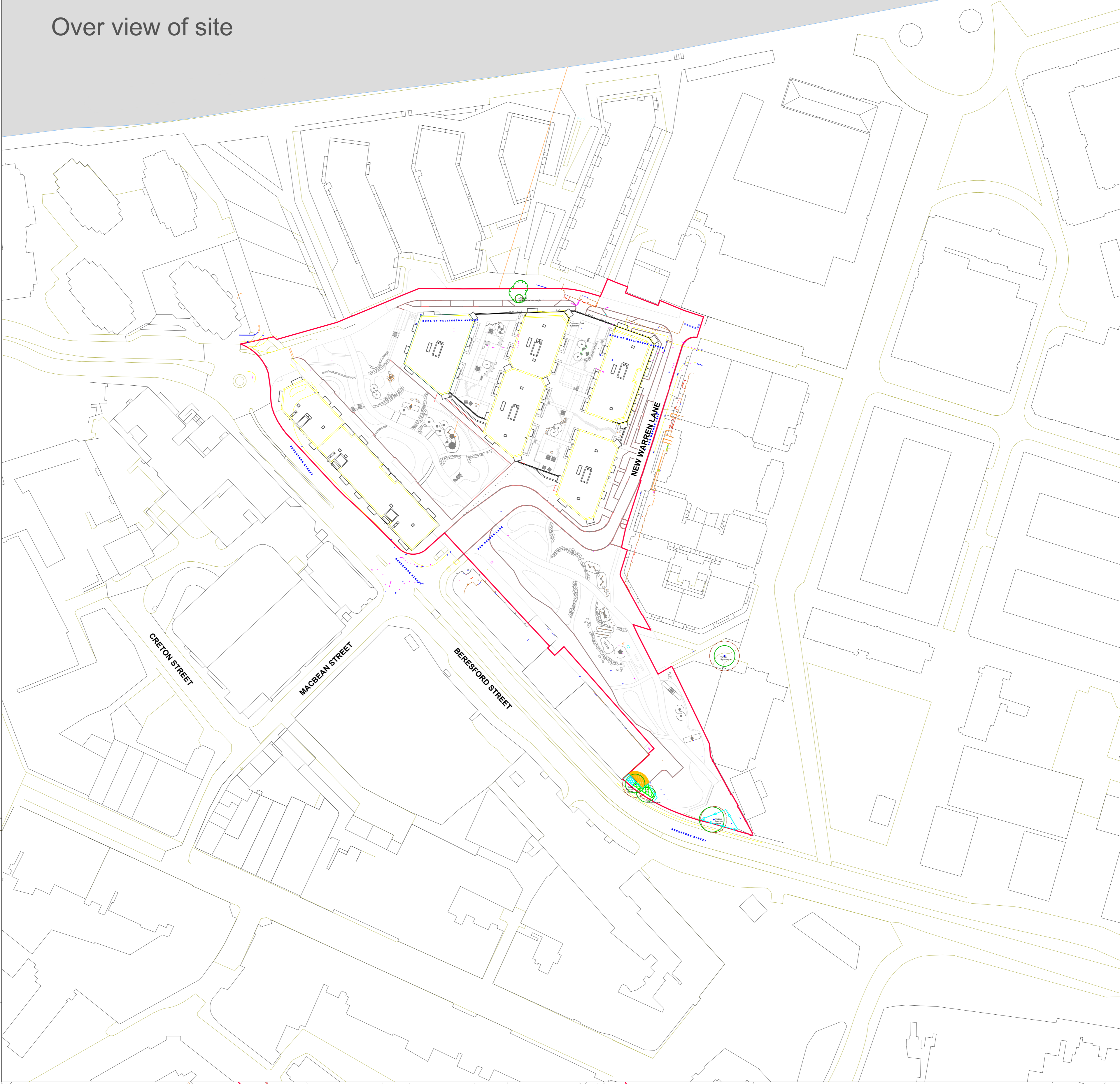
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Client	Berkeley Homes (East Thames) Limited
Title	Tree Protection Plan - TPP-01 Demolition Phase
Site	Royal Arsenal Riverside Blocks D&K
Date	19/03/2023
Drawn	GRS
Job ref	GRS.129.22
Scale	1:250
Paper size	A1
Notes	Planning
Drawing reference	Topographical survey 47440-PCL-DR-Y 00002

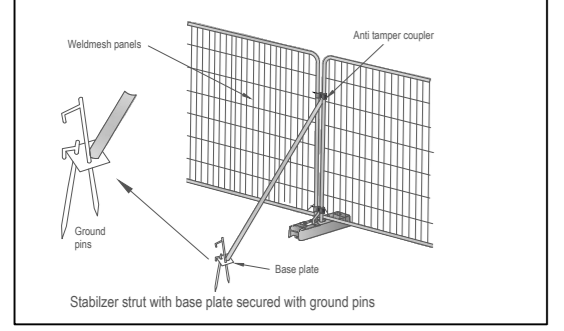


Over view of site



Tree Protective Fencing

Protective fencing shall consist of a scaffold framework in accordance with figure 3 of British Standard 5837 (2012), comprising 2m tall welded mesh panels on rubber or concrete feet. On to this, weldmesh panels shall be securely fixed with wire or scaffold clamps joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers shall be at least 1m and shall be uniform throughout the fence. The panels shall be supported on the inner side by stabilizer struts, attached to a base plate secured with ground pins.



TREE PROTECTION AREA

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND ARE SUBJECT TO THE TREE PROTECTION ACT 1999. THE PROTECTION OF THIS AREA IS A CONDITION OF THE PLANNING PERMISSION. CONTAMINATION OF TREE PROTECTION AREAS MAY LEAD TO ORIGINAL PROTECTION OF THE FENCE BEING REMOVED.

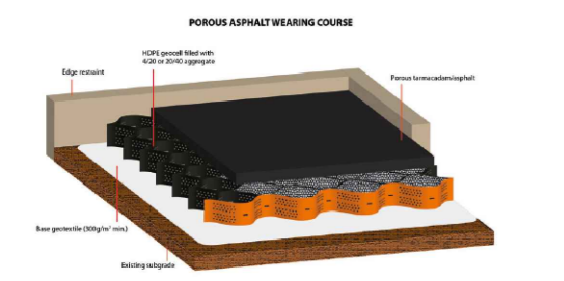
THE FOLLOWING MUST BE OBSERVED BY ALL PERSONS:-

- THE PROTECTIVE FENCING MUST NOT BE REMOVED
- NO PERSONS SHALL ENTER THE PROTECTED AREA
- NO MACHINERY OR PLANT SHALL ENTER THE PROTECTED AREA
- NO SOIL SHALL BE DEPOSITED IN THE PROTECTED AREA
- NO EXCAVATION SHALL OCCUR IN THE PROTECTED AREA

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

KEEP OUT!

Above soil surfacing within RPAs



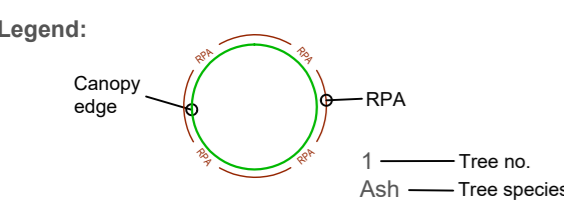
Proposed above soil surfacing shall accordance with guidance set out in section A.1.5 of BS 5837: 2012 Trees in relation to design, demolition and construction - Recommendations and Guidance Note 12 The Use of Cellular Confinement Systems Near Trees. The illustration above shows the general principles, which will be discussed in full within the accompanying AMS.

Trunk of a category U tree ● 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

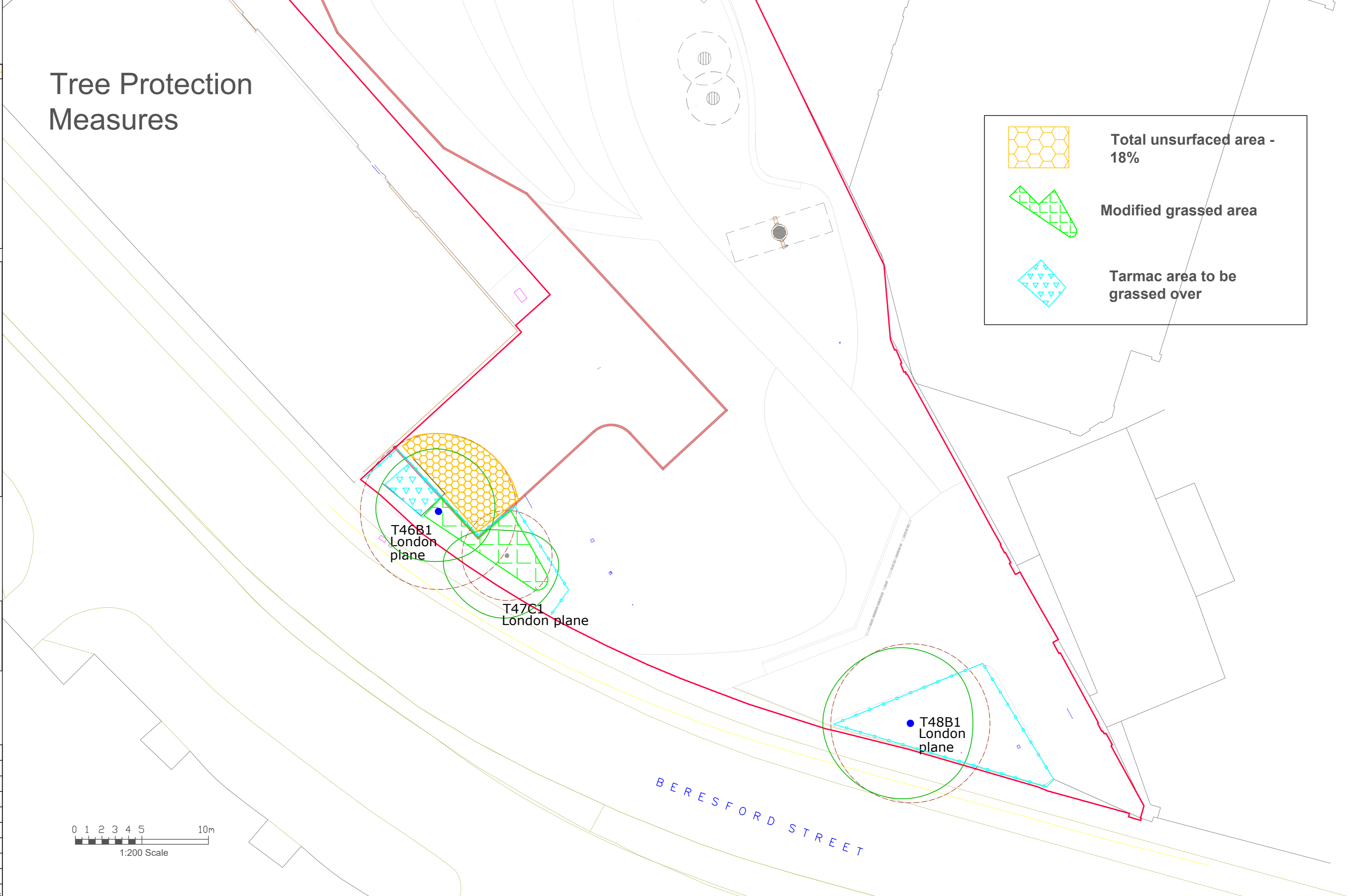
Trunk of a category A tree ● Trees of high quality with an estimated remaining life expectancy of at least 40 years

Trunk of a category B tree ● Trees of moderate quality with an estimated remaining life expectancy of at least 20 years

Trunk of a category C tree ● Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm



Tree Protection Measures



- Total unsurfaced area - 18%
- Modified grassed area
- Tarmac area to be grassed over

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Client	Berkeley Homes (East Thames) Limited
Title	Tree Protection Plan - TYP-02 Construction Phase
Site	Royal Arsenal Riverside Blocks D&K
Date	19/03/2023
Drawn	GRS
Job ref	GRS 129.22
Scale	1:200 / 1:1000
Paper size	A1
Notes	Planning
Drawing reference	Z429-PRP01-STW-ZZ-DR-A-005