TYBALDS ESTATE, CAMDEN

# ARBORICULTURAL METHOD STATEMENT

A Report to: Durkan Ltd

Report No: RT-MME-121439

Date: January 2016



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# **REPORT VERIFICATION**

This study has been undertaken in accordance with British Standard 5837:2012 "Trees in relation to design, demolition and construction - Recommendations".

Report Version	Date	Completed by:	Checked by:	Approved by:
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Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

# VALIDITY OF DATA

The findings of this study are based upon the data provided by the client (listed within Table 1.1, Section 1.1). If the development proposals change then this report will require updating to ensure that all aspects are covered within this document and the trees are adequately protected during the development.

# CONTENTS

1.	INT	RODUCTION	. 3
1.	1	PROJECT INTRODUCTION	. 3
1.	-	SITE DESCRIPTION	
1.	3	TREE RETENTION AND REMOVAL & PRE-DEVELOPMENT TREE WORKS	. 8
2.	ARE	BORICULTURAL METHOD STATEMENT	11
2.	1	INTRODUCTION	
2.	2	CONSTRUCTION EXCLUSION ZONE	11
2.	3	SUPERVISION WORKS ZONE	11
2.	4	PROTECTIVE BARRIERS	
2.	5	GROUND PROTECTION	
2.	6	PRECAUTIONS IN RESPECT OF TEMPORARY WORKS	
2.	7	ACCESS DETAILS	
2.	-	CONTRACTORS CAR PARKING	
2.	-	SITE COMPOUND	
	10	MATERIAL STORAGE	
	11	INFRASTRUCTURE REQUIREMENTS	
	12	DEMOLITION, HARD SURFACE REMOVAL & REMOVAL OF STRUCTURES	
	13	New Hard Surfaces	
	14	SITE GRADIENTS	
	15	$CONSTRUCTION \ OF \ Buildings \ and \ Structures \ within \ the \ RPA/Construction \ Exclusion \ Zone$	
	16	SOFT LANDSCAPING	
	17	Use of Herbicides	
	18	ON SITE MONITORING REGIME & CONTACT DETAILS	
	19	USE OF SUBCONTRACTORS	
	20	CONTINGENCY PLAN FOR SOIL CONTAMINATION	
	21	REMEDIAL TREE WORKS AND TREE REMOVAL	
	22	RESPONSIBILITIES	
2.	23	GENERAL PRECAUTIONS	20
		AWINGS	
		ENCES AND BIBLIOGRAPHY	
APF	PENE	DICES	24
A	PPEN	IDIX 1	25
		IDIX 2	

# 1. INTRODUCTION

# 1.1 **PROJECT INTRODUCTION**

In January 2016, Dukan Ltd commissioned Middlemarch Environmental Ltd to compile an Arboricultural Method Statement in respect of the proposed development of land at the Tybalds Estate within the London Borough of Camden.

Middlemarch Environmental Ltd has previously completed an Arboricultural Survey of the site in June 2012 (Report Number RT-MME-111475B-02) and an Arboricultural Impact Assessment in respect of the proposed development in January 2013 (Report Number RT-MME-113218).

The proposed development of the site includes the provision of a mixed use development in order to provide 93 mixed tenure residential units, alterations to existing dwellings and entrances, 249 sqm of new/replacement community facilities, an energy centre, refuse, cycle and caretakers facilities and associated landscape and public realm improvement works.

Additionally the proposal includes the provision of a new internal access road and the reorganisation of car parking within the site and the surrounding area.

Planning Consent in respect of the application for the proposed development of the Tybalds Estate (application reference number 2013/1014/P) was granted, subject to condition, on the 13<sup>th</sup> May 2014.

This document has been prepared to provide the information necessary for the discharge of Condition 23 of the Planning Permission which states:

"Prior to the commencement of any works on the relevant phase of the development, details demonstrating how trees to be retained shall be protected during construction work shall be submitted to and approved by the Council in writing. Such details shall follow guidelines and standards set out in BS5837:2012 "Trees in Relation to Construction". All trees on the site, or parts of trees growing from adjoining sites, unless shown on the permitted drawings as being removed, shall be retained and protected from damage in accordance with the approved protection details.

Reason: To ensure that the development will not have an adverse effect on existing trees and in order to maintain the character and amenity of the area in accordance with the requirements of policy CS15 (Protecting and improving our parks and open spaces and encouraging biodiversity) of the London Borough of Camden Local Development Framework Core Strategy".

Camlins Landscape Architects provided a very comprehensive pack of documents and drawings and Table 1.1 details those drawings and documents, in addition to the Middlemarch Environmental Ltd Reports referred to above, that have been considered during the preparation of this document.

Author	Title	Drawing Number	Date
Camlins Landscape Architects	General Arrangement - Public Realm & Landscape	LL434-300-0001	Aug 2005
Camlins Landscape Architects	Detailed Arrangement - Tybalds Close & Blemundsbury	LL434-300-0002	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Devonshire,Richbell,Boswell,Springwater & Falcon	LL434-300-0003	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Roof Plan North	LL434-300-0004	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Roof Plan South	LL434-300-0005	Aug 2015

 Table 1.1: Drawings and Documents Considered (continues)

Author	Title	Drawing Number	Date
Camlins Landscape Architects	Existing Parking	LL434-300-0011	Nov 2015
Camlins Landscape Architects	Proposed Parking	LL434-300-0012	Aug 2015
Camlins Landscape Architects	Proposed Public Open Space Constructed To Adoptable Standard	LL434-300-0013	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Site Constraints Plan North	LL434-300-0014	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Site Constraints Plan South	LL434-300-0015	Aug 2015
Camlins Landscape Architects	General Arrangement - Biodiversity Measures	LL434-300-0016	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Public Realm Proposed External Levels North	LL434-300-0021	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Public Realm Proposed External Levels South	LL434-300-0022	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Areas of Paved Surface North	LL434-300-0031	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Areas of Paved Surface South	LL434-300-0032	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Drainage Arrangement North	LL434-300-0041	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Drainage Arrangement South	LL434-300-0042	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Boundary Treatment Plan North	LL434-300-0051	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Boundary Treatment Plan South	LL434-300-0052	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Existing Boundaries & Enabling Works North	LL434-300-0053	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Existing Boundaries & Enabling Works South	LL434-300-0054	Aug 2015
Camlins Landscape Architects	Detailed Arrangement - Enabling Works Orde Hall Street Play Area	LL434-300-0055	Aug 2015
Camlins Landscape Architects	Growing Medium Formation - Tybalds Estate North (Sheet 1 of 2)		Aug 2015
Camlins Landscape Architects	Growing Medium Formation - Tybalds Estate North (Sheet 2 of 2)		Aug 2015

Table 1.1 (cont'd): Drawings and Documents Considered (continues)

Author	Title	Drawing Number	Date
Camlins Landscape Architects	Tree Planting Plan - Tybalds Estate North (Sheet 1 of 2)	LL434-300-0071	Aug 2015
Camlins Landscape Architects	Tree Planting Plan - Tybalds Estate South (Sheet 2 of 2)	LL434-300-0072	Aug 2015
Camlins Landscape Architects	Planting Plan - Tybalds Estate North (Sheet 1 of 2)	LL434-300-0081	Aug 2015
Camlins Landscape Architects	Planting Plan - Tybalds Estate South (Sheet 2 of 2)	LL434-300-0082	Aug 2015
Camlins Landscape Architects	Tybalds Close - Detailed Sections 1 of 3	LL434-300-0121	Aug 2015
Camlins Landscape Architects	Tybalds Close - Detailed Sections 2 of 3	LL434-300-0122	Aug 2015
Camlins Landscape Architects	Tybalds Close - Detailed Sections 3 of 3	LL434-300-0123	Aug 2015
Camlins Landscape Architects	Tybalds Close - Street Sections	LL434-300-0124	Aug 2015
Camlins Landscape Architects	Tybalds Close - Mews Courtyards 1 of 2	LL434-300-0125	Aug 2015
Camlins Landscape Architects	Tybalds Close - Mews Courtyards 2 of 2	LL434-300-0126	Aug 2015
Camlins Landscape Architects	Blemundsbury Lightwells	LL434-300-0131	Aug 2015
Camlins Landscape Architects	Blemundsbury Courtyard Section	LL434-300-0132	Aug 2015
Camlins Landscape Architects	Blemundsbury Courtyard Section	LL434-300-0133	Aug 2015
Camlins Landscape Architects	Blemundsbury - Elevation Of Rear Terrace	LL434-300-0134	Aug 2015
Camlins Landscape Architects	Dombay Street Garden	LL434-300-0135	Aug 2015
Camlins Landscape Architects	Devonshire 1 of 3	LL434-300-0141	Aug 2015
Camlins Landscape Architects	Devonshire 2 of 3	LL434-300-0142	Aug 2015
Camlins Landscape Architects	Devonshire 3 of 3	LL434-300-0143	Aug 2015
Camlins Landscape Architects	Richbell & Springwater - Detailed Sections	LL434-300-0151	Aug 2015

 Table 1.1 (cont'd): Drawings and Documents Considered (continues)

Author	Title	Drawing Number	Date
Camlins	Pichholl Datailed Section Through		
Landscape	Richbell - Detailed Section Through	LL434-300-0152	Aug 2015
Architects	Underbuild		U U
Camlins			
Landscape	Springwater	LL434-300-0153	Aug 2015
Architects	epgacc		7.0.9 <u>_</u> 0.10
Camlins			
	Falcon - Detailed Section 1 of 2	LL434-300-0161	Aug 2015
Landscape	Faicon - Detailed Section 1 of 2	LL434-300-0101	Aug 2015
Architects			
Camlins			
Landscape	Falcon - Detailed Section 2 of 2	LL434-300-0162	Aug 2015
Architects			
Camlins			
Landscape	P1 & P2 Paving Details	LL434-300-0201	Aug 2015
Architects			-
Camlins			
Landscape	P3 & P4 Paving Details	LL434-300-0202	Aug 2015
Architects			7 kug 2010
Camlins			
	DE Devine Detaile	11 424 200 0202	Aug 2015
Landscape	P5 Paving Details	LL434-300-0203	Aug 2015
Architects			
Camlins	P6 Paving Details - Tybalds Square		
Landscape	Flags	LL434-300-0204	Aug 2015
Architects	1 1495		
Camlins			
Landscape	P7 & EPDM Paving Details	LL434-300-0205	Aug 2015
Architects	Ũ		5
Camlins			
Landscape	K1, T1, E1 & E2 - Kerbs, Edges & Trims	LL434-300-0221	Aug 2015
Architects			7.0g 2010
Camlins			
	S1 Cronita Stone	11 424 200 0224	Aug 2015
Landscape	S1 - Granite Steps	LL434-300-0231	Aug 2015
Architects			
Camlins			
Landscape	S2 - Brick Steps	LL434-300-0232	Aug 2015
Architects			
Camlins	Drainage Details - Gully Covers G1 & G2		
Landscape	& Drainage Channels C1, C2 &	LL434-300-0241	Aug 2015
Architects	C3(Revision Should read as A & Not -)		-
Camlins			1
Landscape	W1 - 327.5mm Thick Brick Walls With	LL434-300-0251	Aug 2015
Architects	Granite Coping		7.0.9 ±0.00
Camlins			1
Landscape	W2 - 215mm Thick Brick Walls With	11 434 300 0353	Aug 2015
Architects	Brick on Edge Coping	LL434-300-0252	Aug 2015
	- · · ·		
Camlins			
Landscape	Seating Walls	LL434-300-0253	Aug 2015
Architects			
Camlins	Railing Details - Brick Walls With Granite		
Landscape	•	LL434-300-0255	Aug 2015
Architects	Coping		
Camlins			
Landscape	Railing Details - Brick Walls With Brick	LL434-300-0256	Aug 2015
Architects	on Edge Coping		
Camlins			1
	Railing Details - Extension To Existing	11 434 300 0357	Aug 2015
Landscape	Railings	LL434-300-0257	Aug 2015
Architects	Taiiiigs		

 Table 1.1 (cont'd): Drawings and Documents Considered (continues)

Author	Title	Drawing Number	Date
Camlins Landscape Architects	Handrail Details	LL434-300-0258	Aug 2015
Camlins Landscape Architects	Planting Detail - Ground Level Growing Medium	LL434-300-0261	Aug 2015
Camlins Landscape Architects	Planting Detail - Podium Level Growing Medium(Accessible Gardens)	LL434-300-0262	Aug 2015
Camlins Landscape Architects	Planting Detail - Roof Level Growing Medium(Maintenance Access Only)	LL434-300-0263	Aug 2015
Camlins Landscape Architects	Tree Pit & Tree Planting Detail Within Areas Of Hard Landscape (Albion House)	LL434-300-0271	Aug 2015
Camlins Landscape Architects	Tree Pit & Tree Planting Detail Within Areas Of Hard Landscape (Tybalds Sq)	LL434-300-0272	Aug 2015
Camlins Landscape Architects	Tree Pit & Tree Planting Detail Within Areas Of Grass	LL434-300-0273	Aug 2015
Camlins Landscape Architects	Tree Pit & Tree Planting Detail Adjacent To Existing Buildings	LL434-300-0274	Aug 2015
Camlins Landscape Architects	Tree Pit & Tree Planting Detail Within Boswell Street	LL434-300-0275	Aug 2015
Camlins Landscape Architects	Furniture Details - Benches, Bollards & Cycle Stands	LL434-300-0291	Aug 2015
Camlins Landscape Architects	Furniture Details - Modular Planter (Dombay St Garden & Devonshire)	LL434-300-0292	Aug 2015
Camlins Landscape Architects	Furniture Details - Timber Planters (Tybalds Square)	LL434-300-0293	Aug 2015
Camlins Landscape Architects	Furniture Details - Timber Planters (Springwater-Richbell Courtyard)	LL434-300-0294	Aug 2015
Camlins Landscape Architects	Furniture Details - Bin Stores (Babington Court)	LL434-300-0295	Aug 2015
Camlins Landscape Architects	Detailed Arrangement North with Mason Novarro Services Overlay	LL434-300-1301	Aug 2015
Camlins Landscape Architects	Detailed Arrangement South with Mason Novarro Services Overlay	LL434-300-1302	Aug 2015
Durkan Ltd	Tybalds Estate Residents Presentation	-	Nov 2015

# Table 1.1 (cont'd): Drawings and Documents Considered

# 1.2 SITE DESCRIPTION

The area under consideration, hereafter referred to as the site, comprises the land and buildings which together form the Tybalds Estate; a post-war housing estate located in the Bloomsbury area of central London. The site, which extends to approximately 1.88ha in size, is located in central London at Ordnance Survey Grid Reference TQ 305 818.

The Tybalds Estate was historically constructed in three phases between 1949 and 1962 and whilst there are a number of listed buildings within the local area none of the buildings on site are listed as being of special architectural or historic interest.

The site is located partially within the Bloomsbury Conservation Area, a designated heritage asset, and some of the buildings on the site including Devonshire Court, Boswell House and part of Springwater are included within the Conservation Area boundary. In addition the open spaces surrounding these buildings, the Alf Barratt Playground, and a planted area to the north of Babington Court are also within the Conservation Area.

The site is within the administrative district of the London Borough of Camden, within the Holborn and Covent Garden Ward, and it is bounded by properties on Great Ormond Street to the north, Orde Hall Street to the east, buildings off Theobalds Road to the south and Boswell Street and Old Gloucester Street to the west.

The site is currently dominated by hardstanding with a number of buildings and areas of amenity grassland, shrub beds and scattered trees also present. The mature trees present across the site are predominantly specimens of London Plane (*Platanus x hispanica*) and Swedish Whitebeam (*Sorbus intermedia*). A number of other young to mature trees are also present across the site including species of Box Elder (*Acer negundo*), Narrow Leafed Ash (*Fraxinus angustifolia*) and various Limes (*Tilia* sp.).

The location of the trees within the site can be found on Middlemarch Environmental Ltd Drawing Number C121439-01 in Section 3.

## 1.3 TREE RETENTION AND REMOVAL & PRE-DEVELOPMENT TREE WORKS

A number of trees require removal to achieve the approved development. The trees to be removed are identified on the Tree Protection Plan Drawing Number C121439-01, Section 3.

Tree removal is required to achieve various aspects of the proposed development as discussed below:

- **Construction of Proposed Mews Houses:** Construction of the proposed new Mews Houses will directly require the removal of two trees. It will be necessary to remove a Category B Sycamore tree (tree number 18) and a Category B Apple tree (tree number 19). Tree number 18 is located within an off-site position beyond a retaining wall and whilst the likelihood of the roots having penetrated the ground within the site, the tree could not realistically be retained due to the proximity and elevations of the proposed Mews Houses. The elevations for the proposed Mews Houses will be approximately 29 m in height. Tree number 18 is 9.5 m in height. The tree would be sandwiched between the existing buildings off Great Orman Street to the north and the new Mews Houses to the south. In addition to the tree being subjected to almost permanent shade the tree would require to be side pruned from stem base to crown rendering the tree to an instable state with a mass of pruning scars. Tree number 19 is directly within the footprint of the proposed new Tybalds Close link road and will be required to be removed in order to facilitate the construction of the highway.
- **Construction of New Blemundsbury:** The removal of two London Plane trees (numbers 13, Category A, and 14 Category B) are situated within the footprint of New Blemundsbury building. Their removal will be required to permit its construction.
- **Construction of Ormond House Extension:** Tree number 20, Category C1, has experienced extensive stem damage has an iron bar occluded across the base of the stem and is growing within a mosaic of hard surfacing comprised of concrete, tarmac, a retaining wall, underground services inspection covers, block paving and a building. The proposed construction of the Ormond House extension includes the underground installation of an attenuation tank in proximity to the RPA of this tree. The hard surfacing within the RPA has the potential to provide a layer of moisture created by condensation where the proliferation of roots would thrive. The weight of the hard surfacing is potentially providing an element of stability to this tree and the removal could cause the tree to fall hence this tree has been identified for removal.
- Construction of Springwater Building Extension and Accessible Ramp: In order to provide a new accessible ramp for the proposed Springwater building extension it will be necessary to remove four trees. Due to the level changes required in order to comply with the Disability Discrimination Act it will be necessary to remove tree numbers 44 and 47, Crimean Lime trees (Category B) and tree numbers 45 and 46, Swedish Whitebeam trees (Category C).

- Falcon Building Accessible Access and Communal Garden: It is proposed to provide an accessible ramp in order to comply with the Disability Discrimination Act to the eastern entrance of Falcon building. In addition the exiting hard surfacing within the courtyard of Falcon Building will be raised to meet the accessible ramp (set at a gradient greater then 1:20 to meet with regulations) and laid to lawn. In order to facilitate this requirement three Category C Cherry trees (tree numbers 41, 42 and 43) will require to be removed.
- **Richbell Building Extension:** Tree number 34, a Category B, Swedish Whitebeam tree, is situated within the proposed footprint of the Richbell building extension and will be removed to facilitate the construction of the new building extension.
- Rose Garden Walk: It is proposed to provide an accessible ramp in order to comply with the Disability Discrimination Act to the southern proposed Blemundsbury building extension entrance to permit access to Rose Garden Walk and Rose Garden. To facilitate the construction of the accessible ramp it will be necessary to remove two Category C Lawson Cypress hedgerows (hedgerow numbers H1 and H2).
- Landscape Enhancements: Camlins Landscape Architects have provided a series of comprehensive landscape enhancement plans in order to deliver vegetative enrichment across the site for the long-term benefit that will mitigate the relatively small amount of trees identified for removal.
- Additionally it was noted that a young, recently planted, Oak tree located within Tybalds Square is a
  particularly good open grown specimen that has the potential for relocation within the site. It was
  agreed that consideration would be given for the translocation of the Oak tree to the Orde Hall
  Street Play Area during the enhancement phase of the site.

In order to facilitate the construction of the proposed development the removal of thirteen trees and two hedgerows will be required. All of the trees to be removed are shown on the Tree Protection Plan Drawing Number C121439-01 in Section 3.

Tree Number	Species	BS5837:2012 Category
13	London Plane	A1
14	London Plane	B1
18	Sycamore	B1
19	Apple	B1
20	Sycamore	C1
34	Swedish Whitebeam	B1
41	Cherry	C1
42	Cherry	C1
43	Cherry	C1
44	Crimean Lime	B1
45	Swedish Whitebeam	C1
46	Swedish Whitebeam	C1
47	Crimean Lime B1	
H1	Lawson Cypress C1	
H2	Lawson Cypress	C1

The trees and hedgerows identified for removal are shown in Table 1.2.

# Table 1.2: Trees Identified for Removal

#### Tree Works

To permit space for the installation of scaffold towers in order to facilitate the construction and renovation of buildings and to provide working space for the hard and soft landscaping improvements it will be necessary to undertake some access facilitation pruning to the trees on and adjacent to this site. The proposed tree works are detailed in Table 1.3.

Tree Number	Species	Works Required
6	Apple	Selective branch tip pruning of approx. 1.0 m to the north to permit the installation of scaffold around Blemundsbury building.
7	Apple	Selective branch tip pruning of approx. 1.0 m to the north to permit the installation of scaffold around Blemundsbury building.
32	London Plane	Selective branch tip pruning to reduce the canopy spread over Falcon building by approx. 5.0 m to permit the installation of scaffold and facilitate the construction of Falcon building extension.
OSG1	Mixed Species	Crown lift to 30 m above the construction site ground level to permit access for the installation of scaffold in order to construct the roof of the Mews Houses.

## Table 1.3: Tree Works Required

It is worthy of note that a section of the site, containing several trees, is located within the Bloomsbury Conservation Area. The existence of the Conservation Area confers a degree of statutory legal protection upon the trees growing within it. In particular it should be noted that prior to undertaking any works to trees within a Conservation Area it is necessary to submit a Section 211 notice to the Local Planning Authority giving six weeks' notice of the proposed works. In practice the submission of a planning application containing fully specified details of proposed tree works will usually meet this requirement.

The trees within the site that are protected by virtue of being within the Conservation Area are numbers 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32 and 50.

The specific working practices to be adopted during all tree works are specified in Section 2.21.

# 2. ARBORICULTURAL METHOD STATEMENT

## 2.1 INTRODUCTION

The following sections of this report detail the specific measures to be adopted to ensure the protection of retained trees during the proposed development. It is likely that where structures occur within proximity to a retained tree then the default circle RPA would be modified accordingly.

In accordance with Section 4.6.2 of BS5837:2012 an allowance for the modification has been made to the RPA of trees located adjacent to man-made or naturally occurring hard structures. In this case highways, access routes, retaining walls and extreme level changes, footpaths (especially those that are kerbed) and underground services will affect the morphology of roots. The morphology of the roots is such that they are likely to have formed a fan shape with many roots running parallel to the hard structures rather than being offset in to the site.

It is proposed to carry out the proposed construction to Tybalds Estate over 2 phases as shown on Tree Protection Drawing Number C121439-01, Section 3.

The Contracts Manager must ensure that they read and understand all of the following sections prior to commencement of any onsite works.

## 2.2 CONSTRUCTION EXCLUSION ZONE

The Construction Exclusion Zone is the area considered necessary to ensure that the tree roots and canopy are protected from damage during the construction processes. The extent of the exclusion zone is based upon guidance within BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations' in particular the diameter of the stem of each tree (when measured at a height of 1.5m from ground level) in combination with the canopy spread of the tree is considered.

The exclusion zones are to be defined on site throughout the course of the development by the use of protective barriers as described below.

The Construction Exclusion Zones are to be afforded protection at all times. No works that cause compaction of the soil or severance of tree roots, except where undertaken in accordance with the guidance provided within this document, will be undertaken within any exclusion zone.

Additionally, where there are proposed gradient changes across the site the tree protection barriers in conjunction with existing retaining features will be utilised to further protect the trees.

# 2.3 SUPERVISION WORKS ZONE

The Supervision Works Zone is the area around retained trees in which any works must be undertaken under the supervision of the Project Arboriculturist and in accordance with the details set out within this document, to ensure that the tree roots and canopy are protected from damage during the construction processes.

The extent of the Supervision Works Zone is based upon guidance within BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations' in particular the Root Protection Areas and canopy spreads of retained trees are considered. Consideration has also been given to the complexity of the work required in order to further protect the trees due to the nature of the site.

It is of critical importance that no works that cause compaction of the soil or severance of significant tree roots are undertaken within the Supervision Works Zone. The Supervision Work Zone will be an element of the report to meet the requirement to discharge Condition 23 of the Planning Application Decision Notice (2013/1014/P).

The Supervision Zones are shown on Drawing Number C121439-01 (Section 3).

# 2.4 **PROTECTIVE BARRIERS**

It is proposed to contain elements of the site using hoarding for added security. The hoarding is an acceptable replacement for tree protection where appropriate, however, at no time will the hoarding be attached to any tree to provide additional stability to the structures.

The protective barriers will be erected prior to the commencement of any site works e.g. before any materials or machinery are brought on site or the stripping of soil commences. Signs will be installed on the protective barriers, at regular intervals, to inform site staff of responsibilities and these will include the headings listed in Appendix 1.

The locations of the protective barriers to be installed are shown on the Tree Protection Plan Drawing Number C121439-01 (Section 3).

The protective barriers are to be constructed in accordance with the specification detailed in BS5837:2012 (Figure 2; Appendix 2) or agreed at the initial Tree Protection Barrier audit (audit and supervision dates to be confirmed and relayed to the Tree Officer). Any variation to the specification of the protective barrier will be agreed with the Tree Officer for London Borough of Camden Council or Project Arboriculturist (See Section 2.18 for contact details).

The Contracts Manager will inform the Project Arboriculturist when the protective barriers have been installed and the Project Arboriculturist will attend site to confirm that they have been installed in accordance with the Drawing, Tree Protection Plan C121439-01, Section 3. The Local Planning Authority will be notified in writing once this inspection has been undertaken.

Tree numbers 11 and 12, located within the footway off New North Street will have stem boxes installed to prevent accidental damage from contractor's vehicles parking within this road and accidental damage from the refurbishment processes of the adjacent retaining wall.

Tree numbers 15 and 16 are located within the Orde Hall Street Play Area and will have stem boxes installed for the duration of the construction of the play area. In conjunction with the stem boxes tree protection barriers will be installed and relocated as construction of the boundary walls and relocation of play equipment is phased in to the redevelopment of this area. The locations of the tree protection barriers and stem boxes are shown on Tree Protection Drawing Number C121439-01, Section 3.

Tree numbers 6 and 7 will be vulnerable to stem damage during the installation of scaffold for the redevelopment of Blemundsbury building and therefore stem boxes will be fitted around these trees as shown on Tree Protection Plan Drawing Number C121439-01, Section 3.

It will be necessary to segregate the construction activities from within the gardens and RPAs of retained trees (tree numbers 51, 52 and 53) to the southern aspect of Windmill building. In this respect tree protection barriers are to be installed as shown on Tree Protection Plan Drawing Number C121439-01, Section 3.

In order to protect the stems of the retained tree numbers 35, 36, 37, 38, 39 and 40 whilst the Falcon building garden and accessible ramp are constructed it will be necessary to install tree protection barriers and stem boxes to provide sufficient space for the works to be carried out.

During the construction of the Falcon building extension adjacent to The Alf Barrett Playground it will be necessary to install a stem box around tree number 32 to prevent accidental damage occurring to this tree. Additionally, there are two young street trees located within the footway of Old Gloucester Street and these trees will require stem boxes to be installed to prevent accidental conflict with construction traffic.

During the construction of the Springwater building accessible ramp and extension it will be necessary to provide tree protection to tree numbers 48 and 49. The existing retaining wall and palisade fencing will provide adequate protection, however, to improve segregation between the construction and trees a small section of tree protection will be required as shown on Tree Protection Drawing Number C121439-01, Section 3.

The remaining retained trees across the site have existing retaining structures segregating them from construction processes and it is considered that they will not be impacted by the development. During

planned periods of auditing and supervision these trees will be inspected and further consideration for tree protection may be required. In particular highways trees that are located next to the routes that the construction traffic may take that have not previously been identified.

The tree protection measures will only be removed with the consent of the Tree Officer for London Borough of Camden Council or Project Arboriculturist (See Section 2.18 for contact details) to permit soft landscaping and then final completion of the scheme.

Other than works detailed within this method statement or approved in writing by the Local Planning Authority no works, including storage or dumping of materials, shall take place within the Construction Exclusion Zone as defined by the protective barrier.

# 2.5 GROUND PROTECTION

## Temporary Ground Protection

It may be necessary to install temporary ground protection during the refurbishment of the Orde Hall Street Play Area. The methodology for the removal and installation of a number of play apparatus may require machinery to be used within the RPA of retained trees 15 and 16. The protection of these trees is particularly prevalent for the works required as detailed within Section 2.15.

Due to the nature of the site it is recommended that a flexible, bolt together track mat system is used. In this respect the use of products supplied by manufacturers such as TuffTrak or Zapmatt is recommended as the panels, which are made from ultra-high-molecular-weight polyethylene, are chemically inert and thus will not impact upon the soil texture.

The panels will be installed manually and they will be transported to the working area utilising the existing network of footpaths within the play area.

Prior to any works being carried out on site the location and suitability of the ground protection installed will be approved by the Project Arboriculturist (see Section 2.18 for contact details).

#### 2.6 PRECAUTIONS IN RESPECT OF TEMPORARY WORKS

During the course of the development temporary access to the exclusion zones, defined by the protective fencing, will be required to permit the soft landscaping and for the construction of the replacement boundary walls and fences across the site. Where this is the case only pedestrian access beyond the line of the protective fencing is to occur and the guidance contained within Section 2.16 is to be followed.

If further temporary access is required to the exclusion zone or the RPA of a retained tree then such access will only be gained after consultation with Project Arboriculturist and/or the Tree Officer for London Borough of Camden Council (see Section 2.18 for contact details).

# 2.7 ACCESS DETAILS

#### **Construction Vehicles**

The Tybalds Estate Residents Presentation provided by Durkan Ltd indicates that with the exception of the vehicles required for the Falcon building extension, all construction traffic will approach the site via the existing road network off Theobalds Road (A40 major trunk road). Utilising the range of connecting roads between the buildings traffic will access the site via Orde Hall Street entrances into Tybalds Estate either side of the Orde Hall Street Play Area as shown on Tree Protection Plan Drawing Number C121439-01, Section 3.

Construction traffic for the Falcon building extension will access the site via Old Gloucester Street which is accessed off Theobalds Road (A40).

It will be the Contract Manager's responsibility to carry out a visual inspection of the preferred access route off Theobalds Road (A40) and all trees on the route will have stem boxes installed around the trees to prevent accidental damage from occurring from passing vehicles.

Tree protection barriers and stem boxes will be installed to protect nearby trees (both on and off-site) from potential impact damage and to prevent vehicles from accidentally encroaching onto areas of unprotected

ground within the RPAs of retained trees as shown on the Tree Protection Plan Drawing Number C121439-01 (Section 3).

## Pedestrians

It is understood that pedestrian access to the site during construction will utilise the existing highway and footway network off Theobalds Road (A40), New North Street, Harpur Street, Boswell Street, Old Gloucester Street, Great Ormond Street and Orde Hall Street.

## 2.8 CONTRACTORS CAR PARKING

There will be no parking on or adjacent to this site. Contractors will need to make use of off-site parking locations and public transport to gain access to the site. The only vehicles that are permitted to the site are those delivering and off-loading materials required for the construction of the proposed development.

It is understood that a temporary traffic order (TTO) will be requested from the Local Authority and Highways Agency to close parts of the approach roads to residents in order to facilitate the delivery of equipment and materials.

## 2.9 SITE COMPOUND

The Tybalds Estate Residents Presentation provided by Durkan Ltd indicates that the location of the site compound will remain fluid and move around the site as construction is completed within and around each building. The compound, to include offices and welfare facilities will be within the Basement of Blemundsbury building at the initial stages of construction.

The contactors site compound is to remain outside of the Construction Exclusion Zones and its establishment will not cause harm to retained trees.

## 2.10 MATERIAL STORAGE

The Tybalds Estate Residents Presentation provided by Durkan Ltd indicates that the location for the site storage is to be positioned upon existing hard surfacing outside of the RPA of retained trees. The location of the proposed material storage area is shown on the Tree Protection Plan Drawing Number C121439-01 (Section 3).

The material storage is outside of the Construction Exclusion Zone and its establishment will not cause harm to retained trees.

# 2.11 INFRASTRUCTURE REQUIREMENTS

Camlins Landscape Architects Detailed Arrangements – Drainage Arrangement North (Drawing Number LL434-300-0041) and Detailed Arrangements – Drainage Arrangement South (Drawing Number LL434-300-0042) indicates the locations of proposed new services across the site.

Whilst it is apparent that the new services are required at the periphery of the RPAs of retained tree numbers 6, 15, 16 and 50 it is evident from the drawing that the new connections can be made without the requirement to intrude in to the RPAs of the retained trees.

As the site was previously developed there is an opportunity to provide the infrastructure requirement without harming the retained trees and that connections will be made into existing services in areas outside of the Construction Exclusion Zone.

If any underground services are to be installed within the RPA of a retained tree then the Project Arboriculturist will be consulted (see Section 2.18 for contact details).

The methodology for the installation, maintenance or removal of any services within the RPA of a retained tree will be in accordance with NJUG Volume 4 'Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees'. This will include hand dug "broken" trenches to ensure that maximum protection is given to tree roots.

# 2.12 DEMOLITION, HARD SURFACE REMOVAL & REMOVAL OF STRUCTURES

#### Phase 1 Construction

The existing boundary walls surrounding the northern and southern aspects of Orde Hall Street Play Area will be demolished using appropriate hand held tools and machinery positioned outside of the RPA of the retained trees.

The existing play equipment within Orde Hall Street Play Area will be removed and repositioned in to the play area once the boundary walls have been reconstructed. The works to remove the play equipment will be carried out by hand in order not to disturb the ground surrounding the retained trees. The works in proximity to tree numbers 15 and 16 is a Supervision Work Zone as described within Section 2.3.

The works to relocate the play equipment will require access in to the CEZ of tree numbers 15 and 16 and the tree protection barriers will be relocated as shown on Tree Protection Plan Drawing Number C121439-01, Section 3.

Where retaining walls exist around retained trees or tree planting pits have been constructed then these will remain in position and not be demolished as shown on Camlins Landscape Architects Drawing Numbers LL434-300-0251 and LL434-300-0252. They will be renovated in position and be maintained as a root and stem protection barrier for the tree.

## **Phase 2 Construction**

In particular the retaining wall and hard surfacing surrounding tree number 50 will required to be partially removed using appropriate hand tools in order to retain the soil until the correct proposed levels are attained and then the wall renewed. The works in proximity to tree number 50 is a Supervision Work Zone as described within Section 2.3.

All works within the RPA of a retained tree must be undertaken under the supervision of the Project Arboriculturist, see Section 2.18 for contact details.

# 2.13 New Hard Surfaces

#### Phase 1 Construction

The existing boundary wall around the perimeter of Orde Hall Street Play Area is to be relocated and re-built as part of the enhancement phase. A new boundary wall will be constructed within the periphery of the RPAs of tree number 16 to the north and tree number 15 to the south.

In order to provide sufficient working space for the construction of the boundary wall it will be necessary to off-set the tree protection fencing 1.0 m outside of the boundary wall footprint as shown on Tree Protection Plan Drawing Number C121439-01, Section 3.

The location of the wall piers will be determined in consultation with the Project Arboriculturist, to ensure that the potential for harm to occur to the roots of retained trees is justifiable and minimal.

Due to the highly alkaline leachate produced during the curing process of wet concrete, the concrete should not be poured within the RPA of a retained tree unless an impermeable liner has been installed.

If any roots are accidently damaged during the removal of the excavated ground for the wall then the Project Arboriculturist will be consulted. Should the roots be deemed to be of a size whereby they are considered not be of a structural nature then they will be cut using sharp cutting tools such as bypass secateurs or handsaws to leave a clean wound with as small a surface area as possible. No roots over 25 mm in diameter will be cut without advice from the Project Arboriculturist and/or the Tree Officer for London Borough of Camden Council. Construction of the boundary walls will form a Supervision Work Zone as described within Section 2.3.

On completion of the realignment and construction of the boundary walls to the Orde Hall Street Play Area the play equipment will be installed within the RPA of tree number 16. The new hard surfacing for the basket swing will be constructed of rubber-crumb and will be installed without the requirement to excavate the unmade ground within the RPA of tree number 16.

Uneven ground will be augmented using washed sand and levelled using hand-tools. The rubber-crumb matting will be fixed to the ground in accordance with the manufacturers guidelines.

The metal leg supports for the basket swing will require to be fixed to the ground with a concrete base. The holes for the concrete supports will be dug by hand and lined with an impermeable membrane in order to prevent leachate of phytotoxic chemicals in to the soil. Should any structural roots be encountered during the excavation of the support holes the frame will be relocated.

Additional play equipment will be reinstalled within the RPA of tree number 15. The sit-in spring equipment will require a concrete plinth to support it. The plinth will be installed as a preformed concrete plinth whereby no excavation to ground within the RPA of tree number 15 will be required.

Uneven ground will be augmented using washed sand and levelled using hand-tools. The rubber-crumb matting will be fixed to the ground in accordance with the manufacturers guidelines.

The installation of the play equipment within the RPAs of tree numbers 15 and 16 will form a Supervision Work Zone as described within Section 2.3.

## Phase 2 Construction

# Pedestrian Access (Tree 32).

There is an access footpath adjacent to tree number 32 and it is proposed that the access path is relocated. This tree is located within The Alf Barrett Playground and within an off-site position. The tree is protected by a low retaining wall with palisade railings and will remain intact as described within Section 2.12. The following methodology will be adopted to protect the tree from potential harm.

- 1. The existing hard surface will be removed by hand and the hard core base layer retained to prevent damage to underlying roots of the retained tree that may be present.
- 2. Any uneven ground will be augmented using washed sand.
- 3. A permeable geotextile membrane will be pinned to the ground and the finished layer applied.
- 4. The finished surface will be constructed of a permeable material (such as resin bound or permeable paving) capable of allowing the percolation of water and the gaseous exchange required to maintain a healthy root structure.

#### Pedestrian Accessible Ramp (Tree 35).

The existing steps will be removed using appropriate machinery and hand held tools. The detailed methodology for the construction of the ramp is yet to be determined, however, it is likely to take the form of a steel bridge section over which a concrete ramp will be formed. The work carried out in proximity to tree number 35 will form a Supervision Work Zone as described within Section 2.3.

All of the above works have the potential to cause harm to the retained trees however, it is considered that should good working practice be adopted in conjunction with the tree protection measures described then the potential for conflict will be significantly controlled.

# 2.14 SITE GRADIENTS

The existing site is significantly terraced and the proposed development addresses these level changes by increasing the height of a number of areas to improve the ergonomics of the site which is driven by relevant regulations and laws for accessibility. The areas where level changes are proposed will be carefully supervised where they are to occur within the RPA of retained trees.

The work carried out within the RPAs of retained trees are described within Section 2.13 and form the Supervision Work Zones for the development.

If any further site gradient alterations within the RPA of any retained tree are required other than those detailed within Camlins Landscape Architects Drawings then the Project Arboriculturist will be consulted for advice (see Section 2.18 for contact details).

## 2.15 CONSTRUCTION OF BUILDINGS AND STRUCTURES WITHIN THE RPA/CONSTRUCTION EXCLUSION ZONE

The construction of boundary structures within or in close proximity to the retained trees has been addressed within previous sections of this report and are considered to be within the Supervision Zones as described within Section 2.3.

## Phase 2 Construction

The construction of the Falcon building extension is shown to be within close proximity to tree number 32 and within the RPA of this tree. The removal and relocation of the pedestrian access has been addressed within Section 2.13. The foundations for the proposed extension is shown to be within the RPA of tree 32 and consideration for the use of piles and above ground, ground beam cantilever configuration is required where it overhangs the RPA.

It is evident that structural roots are growing beneath the existing hard surfacing and it is deemed that any excavation or construction work within the RPA has the potential to cause significant root damage. The works carried out within proximity to tree number 32 will form a Supervision Work Zone as described within Section 2.3.

It must be stressed that all works carried out within the Supervision Work Zones will be supervised by the Project Arboriculturist in accordance with Condition 23 of the Planning Application Decision Notice (2013/1014/P) and the guidance within BS5837:2012.

## 2.16 SOFT LANDSCAPING

The comprehensive proposed Planting, Tree Planting and Landscaping Plan package of drawings provided by Camlins Landscape Architects indicates that new tree and shrub planting will occur across the site to mitigate the trees lost to the development.

New tree planting should be carried out in accordance with British Standard 8545 *Trees: from nursery to independence in the landscape – Recommendations.* A post planting management regime should be instigated and provide a care program of at least 5 years to include watering, weeding and maintaining the structural support to prevent strangulation of the stem.

Soft landscaping is to be carried out once all of the construction has been completed and the tree protection removed as detailed within Section 2.4.

Pedestrian access will only be permitted within the Construction Exclusion Zones at the discretion of the Project Arboriculturist. Should machinery be required to deliver and lift the new trees in to their planting pits then appropriate ground protection will be installed prior to the work commencing in accordance with the details in Section 2.5.

Any soft landscaping within the exclusion zone will be undertaken by hand. A 500 mm radius from any tree stem will remain uncovered by turf or other planting to allow penetration of water and air into the soil.

# 2.17 USE OF HERBICIDES

Any herbicide used during the development works shall be systemic, spot applied, and mixed according to manufacturers' recommendations.

# 2.18 ON SITE MONITORING REGIME & CONTACT DETAILS

In accordance with Condition 23 of the Planning Application Decision Notice (2013/1014/P) it is imperative that all operations within or in close proximity to the RPAs of retained trees are to be monitored by the Project Arboriculturist in the company of the Contracts Manager. The areas considered for supervision are described within this report.

The Contracts Manager will ensure that all works within this document are followed (this will be built into the contract specification).

If any issues arise in relation to the retained trees the Project Arboriculturist will be contacted for advice. The Project Arboriculturist for this development is:

Name: Marco Bartolini Position: Arboricultural Consultant Company: Middlemarch Environmental Ltd (Southern Office) Mobile: 07557154175

The contact details for the Tree Officer for London Borough of Camden Council is:

Nick Bell Arboricultural Services Parks and Open Spaces Section 7th Floor Town Hall Extension Argyle Street London WC1H 8EQ Telephone: 0207 974 4444

#### Induction and Personnel Awareness

Details of tree protection and methods of working around trees will be included within site inductions to new members of site staff and included within tool-box talks at daily briefings to staff.

A copy of this document and the related Tree Protection Plans will be kept on site and accessible to staff. A copy of the Tree Protection Drawings will be on display in the staff canteen.

#### Monitoring/Audits

A pre-commencement site meeting will be arranged between the contractor, Project Arboriculturist and any other interested party. During this meeting all outstanding items will be finalised and these will be communicated to the Local Planning Authority.

In accordance with Condition 23 of the Planning Application Decision Notice (2013/1014/P) periods of supervision and inspection audits (at appropriately spaced calendar intervals) will be undertaken by the Project Arboriculturist. Feedback will be provided to the Tree Officer for London Borough of Camden Council on completion of this visit.

A detailed project timeline annotating the periods of supervision and inspection audits will be provided to the Tree Officer for London Borough of Camden Council and endorsed/amended accordingly. It is proposed that a minimum of 5 identified periods of audit/supervision will be necessary during **Phase 1** of the development and include the following:

#### Periods of auditing and inspection

- Installation of Tree Protection measures.
- Periodic audits\*.
- Post development tree inspection and removal of tree protection measures.

\*: Subject to confirmation from the Tree Officer for London Borough of Camden Council it is recommended that interval audits are carried out every 12 weeks during construction works.

#### Works Requiring Arboricultural Supervision

The following aspects of **Phase 1** of the development will be completed under the supervision of the Project Arboriculturist:

- Construction of boundary walls within Orde Hall Play Area.
- Installation of play equipment within Orde Hall Play Area.

A detailed project timeline annotating the periods of supervision and inspection audits will be provided to the Tree Officer for London Borough of Camden Council and endorsed/amended accordingly. It is proposed that a minimum of 5 identified periods of audit/supervision will be necessary during **Phase 2** of the development and include the following:

Periods of auditing and inspection

- Installation of Tree Protection measures.
- Periodic audits\*.
- Post development tree inspection and removal of tree protection measures.

Works Requiring Arboricultural Supervision

The following aspects of **Phase 2** of the development will be completed under the supervision of the Project Arboriculturist:

- Accessible ramp construction in proximity to tree number 35.
- Construction of the new access to the Alf Barrett Playground within the RPA of tree number 32...
- Construction of Falcon building extension within the RPA of tree number 32.
- Reconstruction of the retaining wall surrounding tree number 50.
- Periodic audits\*.

\*: Subject to confirmation from the Tree Officer for London Borough of Camden Council it is recommended that interval audits are carried out every 12 weeks during construction works.

The Tree Officer for London Borough of Camden Council will have the opportunity to carry out unannounced audits and inspection at the discretion of the Local Planning Authority.

## 2.19 USE OF SUBCONTRACTORS

The Contracts Manager will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site. Inspections and audits will be regularly carried out by the Contracts Manager during the development. The Contracts Manager will be responsible for the protection of all of the trees and should any concerns be raised by sub-contractual staff then contact with the Project Arboriculturist will be made for advice.

## 2.20 CONTINGENCY PLAN FOR SOIL CONTAMINATION

Water will be available on site to wash down the trees stems and canopy in the event of dust from the demolition process accumulating upon them.

Water will be readily available on site and will be used to flush spilt materials through the soil and avoid contamination to tree roots. At the time of any spillage the main contractor will contact the Project Arboriculturist for advice.

Where any vehicles or plant are to be operated or parked in a static location within the site they must be sited on a spill berm containment mat. All vehicles and plant operating internally to the site must carry a suitable spill containment and absorption kit.

#### 2.21 REMEDIAL TREE WORKS AND TREE REMOVAL

All tree works are to be completed prior to commencement of construction works and installation of the protective barriers. The trees to be removed are detailed in Section 1.3.

There are a number of trees that will require facilitation pruning to be carried out prior to the commencement of works on site. The details of the trees requiring remedial tree works are within Section 1.3. Where those trees situated within Bloomsbury Conservation Area require work to be carried out then a Section 211 Notice will be required to be submitted to the Local Planning Authority.

The use of vehicles within the site upon unmade ground is potentially a highly damaging activity as any vehicle movements that occur across unprotected ground will cause soil compaction detrimental to the health of the trees through reduced soil pore space impacting upon the ability of roots to perform gaseous exchanges and nutrient uptake operations.

Where access is required across unmade ground then ground protection must be installed prior to this works being carried out. Details of the appropriate ground protection required is detailed within Section 2.5.

All tree works are to be completed by suitably qualified and insured arboricultural in accordance with BS3998:2010 'Tree Work – Recommendations'.

Where the removal of tree stumps is required and the works will be undertaken within 15 m of any retained tree then they will be ground out using a proprietary stump grinder and they will not be removed by winching or mechanical excavation.

## 2.22 **RESPONSIBILITIES**

It will be the responsibility of the Contracts Manager to ensure that the planning conditions attached to the planning consent are adhered to at all times.

The Contract's Manager will be responsible for contacting the Local Planning Authority or Project Arboriculturist (See Section 2.18 for contact details) should any issues are raised related to the trees on site.

If further pruning works to trees are required at any time then the Contracts Manager will request permission from the Local Planning Authority through a Notification of Proposed Works to Trees in Conservation Areas (Reminder - all trees are protected within Bloomsbury Conservation Area) and then the works must be carried out in accordance with BS3998:2010 Tree work - Recommendations.

The Contract's Manager will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes. Tree protection measures will remain in position until completion of all construction works on the site. The barriers and signs will be maintained in position at all times and checked on a regular basis by a designated person on site.

The Contract's Manager will be responsible for ensuring that auditable systems of site monitoring are made available to the London Borough of Camden Local Planning Authority and/or Tree Officer and included within the program of development construction as recommended within BS5837:2012.

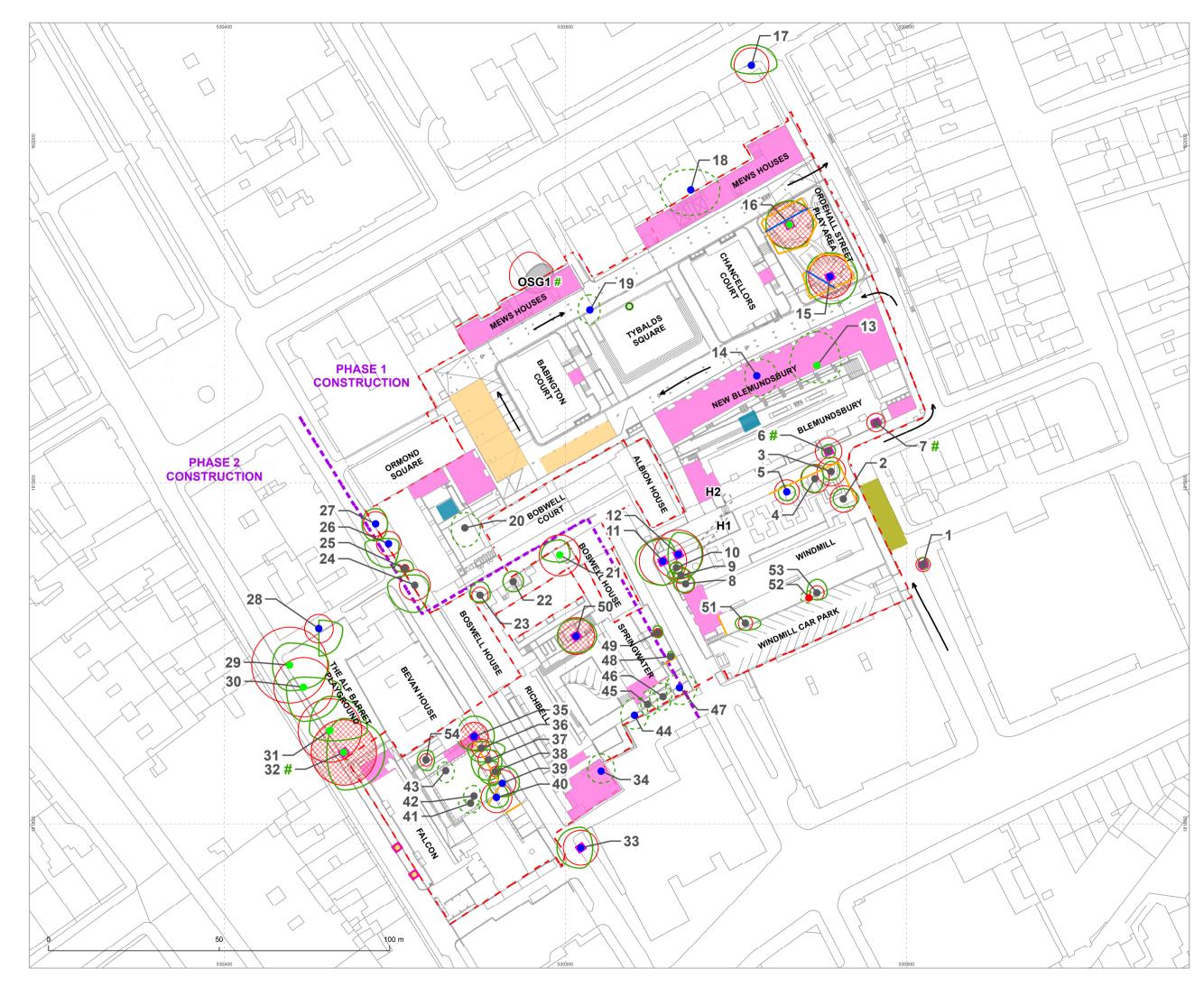
## 2.23 GENERAL PRECAUTIONS

The following precautions should be relayed to all contractors and sub-contractors on site:

- No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within 10 m of the trunk of any tree that is to be retained.
- No fires will be lit within 20 m of the stem of any tree that is to be retained.
- Spill kits will be readily available across the site and carried on vehicles working within the boundary of the development.

# 3. DRAWINGS

Drawing C121439-01 - Tree Protection Plan



C121439-01				
Lege	nd			
•	Category A tree			
•	Category B tree			
	Category C tree			
•	Category U tree			
	Category C grou	up - to be retained		
	Category C grou	up - to be removed		
	Current canopy	- tree to be retained		
	Current canopy	- tree to be removed		
	Root Protection	Area		
	Protective fencing standard *	ng to BS5837(2012)		
	Protective fencin permit access	ng repositioned to		
	Tree protection	box		
	Loading and un	oading area		
	Material storage	•		
	Proposed estate	e building		
	Supervision zon	e within RPA of tree		
	Tower crane			
0	Young oak iden	ified for relocation		
0	Off-site tree			
	Construction ph	ase divide		
$\rightarrow$	Access route (o	ne-way traffic)		
	Site boundary			
#	Facilitation prun	ing required		
Notes				
No par	king on site			
1	cing around trees set back 1m from	T15 and T16 must		
		g was produced in colour - lould not be relied upon		
		1		
		Ν		
Project	Project Tybalds Estate, Camden			
Drawing Tree Protection Plan				
Client				
	Durkan Ltd. Drawing Number Revision			
C Scale @ A3	C121439-01 00			
Approved By	1:1,000 January 2016			
	MB RP			
	ENVI	RONMENTAL		
Triumph House, Birmingham Road, Allesley, Coventry CV5 9AZ				

Triumph House, Birmingham Road, Allesley, Coventry CV5 9AZ T:01676 525880 F:01676 521400 E:admin@middlemarch-environmental.com

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# **REFERENCES AND BIBLIOGRAPHY**

Arboricultural Advisory Information Services (AAIS) Practice Note 12 (2007) Through Trees to Development.

British Standards Institute. (2012). British Standard 5837:2012, *Trees in relation to design, demolition and construction – Recommendations*. British Standards Institute, London.

British Standards Institute. (2010). British Standard 3998:2010, *Tree Work - Recommendations*. British Standards Institute, London.

British Standard 8545 Trees: from nursery to independence in the landscape – Recommendations.

Johnson & More (2004) Tree Guide, Collins, London

NJUG Volume 4 (2007) *Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees.* NJUG, London.

Planning Practice Guidance. (2015). Tree Preservation Orders and trees in Conservation Areas. http://planningguidance.planningportal.gov.uk. Accessed 05/01/15.

Roberts *et al.* (2013) *Tree Roots in the Built Environment. Research for Amenity Trees No.8.* Arboricultural Association, Stonehouse.

# APPENDICES

- APPENDIX 1: Headings for Protective Barrier Notices and Example Protection Sign
- APPENDIX 2: Details of Protective Barrier

# **APPENDIX 1**

Headings for Protective Barrier Notices

# Root Protection Area (RPA) Model Notice

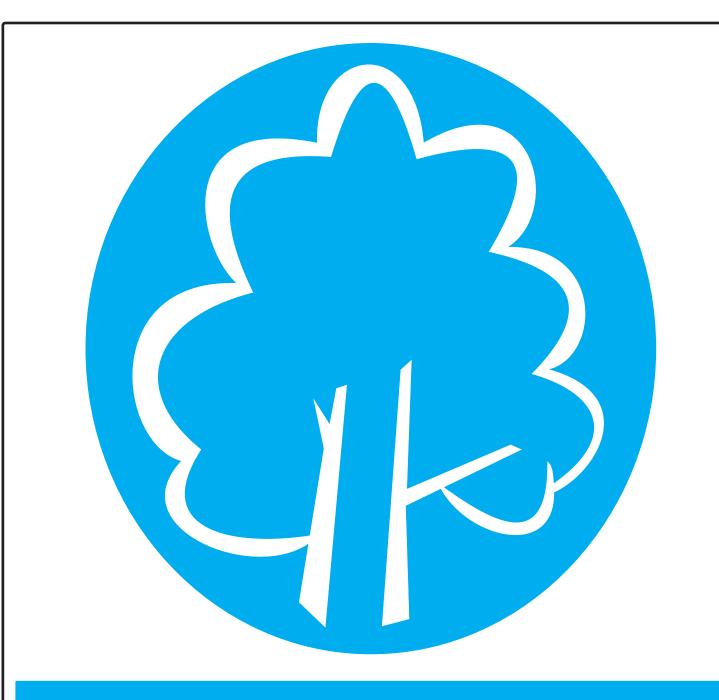
DON'T excavate within this area DON'T use any form of mechanical plant with this area DON'T store materials, plant or equipment within this area DON'T move plant or vehicles within this area

DO contact the Local Authority Arboricultural Officer or owner of the tree if excavation within this area is unavoidable

DO protect any exposed roots uncovered within this area with dry sacking

DO backfill with a suitable inert granular and top soil material mix as soon as possible on completion of work

ANY WORK in this area requires a permit from The Tree Preservation Officer for London Borough of Islington Council



PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.



# TREE PROTECTION AREA KEEP OUT !

(TOWN & COUNTRY PLANNING ACT 1990) TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER. CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

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

# APPENDIX 2

Details of Protective Barrier

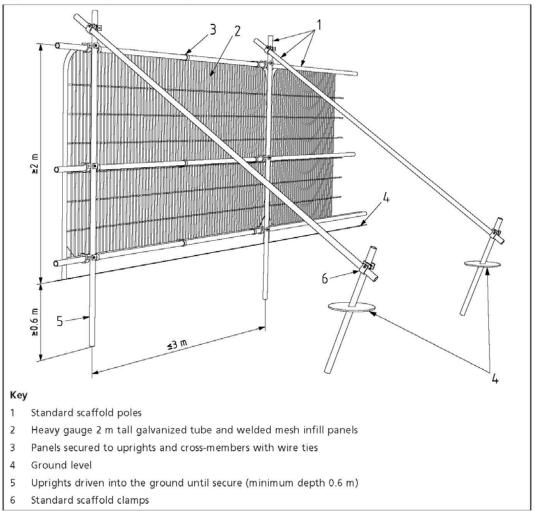


Figure 2 Default specification for protective barrier