

Arboricultural Report

**Assessment of trees in relation to development
for planning purposes**

Morrisons
43-67 High Street
Yiewsley
UB7 7QQ

July 2018

180315-PD-11b

Project	Morrisons, 43-67 High Street, Yiewsley, UB7 7QQ
Report Type	Arboricultural Report for Planning
Checked by	EC
Date Checked	12/07/2018

CONTENTS PAGE

1	SUMMARY REPORT	4
2	INTRODUCTION	5
	INSTRUCTIONS	5
	SCOPE AND LIMITATIONS	5
	METHODOLOGY AND GUIDANCE.....	5
	BACKGROUND AND DOCUMENTS PROVIDED	6
	SUPPORTING INFORMATION	6
3	OBSERVATIONS AND CONTEXT	7
	SITE VISIT.....	7
	DESCRIPTION OF THE SITE	7
	DESCRIPTION OF TREES ON THE SITE.....	7
	VIEWS OF TREES ON THE SITE.....	8
	SOIL CONDITIONS	11
	POLICY CONTEXT.....	12
	SPATIAL PLANNING POLICY.....	13
	LOCAL PLAN	13
	LEGAL CONSTRAINTS	14
4	TECHNICAL INFORMATION	15
	TREE DATA	15
	LIFE STAGE ANALYSIS	15
	BS5837 (2012) CATEGORY BREAKDOWN	16
5	ANALYSIS OF THE PROPOSAL IN RESPECT OF TREES.....	17
	ARBORICULTURAL IMPACTS	17
	ARBORICULTURAL MITIGATION.....	21
6	DISCUSSION AND CONCLUSIONS	22
	GENERAL CHANGE	22
	HOW DO THE CHANGES RELATE TO PLANNING POLICY?	22
	CONCLUSIONS.....	23
	APPENDIX A - PLANS	24
	APPENDIX B - SCHEDULES.....	25

1 SUMMARY REPORT

- 1.1 This arboricultural report has been commissioned by Harbourside Investments Ltd. and WM Morrison Supermarket PLC to provide information to assist all parties involved in the planning process to make balanced judgements with regard to arboricultural features in relation to the proposed development at Morrisons, 43-67 High Street, Yiewsley, UB7 7QQ.
- 1.2 This report accompanies the planning application for the demolition of the existing buildings and the redevelopment of the site to provide a retail and residential mixed use scheme. The site will be developed to provide a replacement Morrisons foodstore, with 144 residential units provided above.
- 1.3 This report includes:
- an assessment of the trees, their quality and value and constraints to development posed by these;
 - the context and observations of the trees on the site;
 - the planning policies relevant to the consideration of the trees on the site;
 - the impact of the proposed development upon the tree population in and around the site;
 - methods of reducing impacts on trees; and
 - measures to be taken to protect trees during the proposed works.
- 1.4 My conclusions are that the development proposal in respect of trees is acceptable in both arboricultural terms and in relation to planning policy as it relates to trees.
- 1.5 Tree loss is required to facilitate the proposals; however, these have been confined to low and poor quality trees only. The design of the development has considered the constraints posed by trees so that moderate quality trees can be retained. New landscaping has been proposed and will improve amenity space and biodiversity within the local area.
- 1.6 All trees to be retained throughout the demolition, construction and landscaping process can be successfully protected, provided the tree protection details within this report are followed.

2 INTRODUCTION

Instructions

- 2.1 My name is Charles McCorkell; I am a senior arboricultural consultant dealing with trees in relation to all forms of human activity including the built environment. I am an Associate Member of the Institute of Chartered Foresters, a Professional Member of the Arboricultural Association, and I have a BSc Honours Degree in Arboriculture from the University of Central Lancashire.
- 2.2 This arboricultural report has been commissioned by Harbourside Investments Ltd. and WM Morrison Supermarket PLC to provide information to assist all parties involved in the planning process to make balanced judgements with regard to arboricultural features in relation to the proposed development at Morrisons, 43-67 High Street, Yiewsley, UB7 7QQ.

Scope and limitations

- 2.3 My report aims to assist with the proposal in relation to trees on the site and to demonstrate that important trees can be retained, where necessary any potential conflicts can be designed out, and that tree cover can be sustained, and losses mitigated with suitable replacement trees.
- 2.4 The survey is not an assessment of health and safety of trees and no recommendations for works have been provided, however trees identified as imminently dangerous have been highlighted in the tree schedule where appropriate.
- 2.5 The contents of this report are copyright of Tim Moya Associates and may not be distributed or copied without the author's permission. Tim Moya Associates Standard Limitations of Service apply to this report and all associated work relating to this site.

Methodology and guidance

- 2.6 I have referred to *British Standard 5837: Trees in relation to design, demolition and construction (2012)* which provides a methodology for the assessment of trees and other significant vegetation on development sites.
- 2.7 BS 5837 (2012) is intended to assist decision making with regard to existing and proposed trees and sets out the principles and procedures to be applied to achieve a harmonious relationship between existing and new trees and structures that can be sustained for the long term.

- 2.8 The Building Research Establishment (BRE) has also produced several documents between 1998 and 2011 in relation to trees and site layout planning, sunlight, daylight, shading and urban cooling. These documents consider trees and their relationship with buildings and garden usage, including the benefits they bring in terms of welcome shade or urban cooling, advising a balanced approach to these issues in design.

Background and documents provided

- 2.9 My report has been prepared with reference to the following supplied information:

- (i) Topographical survey; and
- (ii) Proposed architects plans and elevations.

Supporting Information

- 2.10 This report should be read in conjunction with the supporting documents attached to the appendices.

Document	Ref No.	Location
Tree Survey Plan	180315-P-10	Appendix A
Proposed Layout & Tree Removals	180315-P-11	Appendix A
Tree Protection Plan (Demolition)	180315-P-12	Appendix A
Tree Protection Plan (Construction)	180315-P-13	Appendix A
Tree Schedule	180315-PD-10	Appendix B
Tree Work Schedule	180315-PD-12	Appendix B

3 OBSERVATIONS AND CONTEXT

Site visit

- 3.1 The site was visited by my colleague Edward Cleverdon on the 23 May 2018. The purpose of the visit was to carry out a survey of the trees that may be impacted by the proposal. Trees were inspected from ground level only. The survey methodology used has followed the recommendations of British Standard BS5837:2012 *Trees in relation to design, demolition and construction*.

Description of the site

- 3.2 The site is an existing Morrisons Supermarket located on the western side of the main High Street in the centre of Yiewsley, refer to Map 1. The area surrounding the site is typical of a suburban High Street and consists of commercial businesses and apartments.



Map 1 (Google Maps, 2018) Red line indicates site boundary.

Description of trees on the site

- 3.3 The tree population across the site is poor. The southern boundary along St Stephen's Road is made up of five early mature trees, two Himalayan birch and three whitebeams, refer to Photos 1 and 2. The rooting environment for these trees is restricted and significantly compacted which will reduce their useful life expectancy.

- 3.4 Along the western boundary, within each corner of the car park, are two mature London plane trees. Both trees are in good condition and of public amenity value within their immediate surroundings. Their rooting environments are restricted due to the surrounding hard surfaces and structures.
- 3.5 There are two onsite trees and a collection of off-site trees located along the northern boundary. The onsite trees include a box elder and common elder, both growing in raised beds with limited rooting volume. The box elder has been recently reduced in size. The off-site trees consist of a group of Leyland cypress and one narrow leaved ash. The Leyland cypress have been crown lifted, but still marginally overhang into the site.

Views of trees on the site



Photo 1 (EC 23/05/2018). View of Himalayan birch trees T1 and T2 located on the corner of High Road and St Stephen's Road. Trees are growing within areas of hard standing and are likely to have limited rooting volume.



Photo 2 (EC 23/05/2018). View of one of the three whitebeam trees T3 – T5 located along St Stephen's Road. The trees are growing within a grass verge that is significantly compacted due to cars parking beneath their canopies.



Photo 3 (EC 23/05/2018). Moderate quality London plane tree T8 located at the entrance of the existing car park. Tree is in good condition and of amenity value.



Photo 4 (EC 23/05/2018). Moderate quality London plane tree T9 located within the north western corner of the site. The tree is growing within a raised bed and is in good condition.



Photo 5 (EC 23/05/2018). View of the Leyland cypress trees T12 – T22 located within the neighbouring property along the northern boundary.



Photo 6 (EC 23/05/2018). View of the box elder tree T23 located within the site along the northern boundary and growing within a raised bed. The tree has been recently reduced in size.

Soil conditions

3.6 Soil conditions will have a significant effect upon tree growth and will influence:

- The species that will grow successfully.
- Rooting depths for different species.
- The available soil volume that can be used by roots and therefore the likely tolerance of trees and other vegetation to soil disturbance.

- 3.7 Typically, trees have relatively shallow but widespread rooting systems. It is uncommon for roots to penetrate to depths greater than 2-3 metres, with around 80-90% found within the top 60 or 100cm of the soil profile (depending upon species and soil type).
- 3.8 The British Geological Survey on-line information suggests that the soils on the site are of London Clay Formation – Clay, Silt and Sand formation. While the superficial deposits have been recorded as being Clay and Silt.
- 3.9 The soil type within the area would suggest a mixed loamy soil. These are suitable for the growth of a wide range of tree and shrub species. The clay content is likely to cause the soils to change in volume with changes in moisture content and water absorption by tree roots at depth. This can result in building movement and possible damage.
- 3.10 For further specific details of local soil conditions reference should be made to the BGS website <http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>

Policy context

- 3.11 Planning policy at national level is set out in the government's National Planning Policy Framework (NPPF) which was updated in July 2018.
- 3.12 The purpose of the planning system is to contribute to the achievement of sustainable development. The objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs. To achieve sustainable development, the planning system has three overarching objectives (economic, social and environmental) which are interdependent and need to be pursued in mutually supportive ways.
- 3.13 Paragraph 170 of the NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment by:
- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
 - b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.*
- 3.14 Paragraph 175 of the NPPF states that to protect and enhance biodiversity and geodiversity, plans should apply the following principles:

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.

Spatial Planning Policy

- 3.15 Spatial planning policy consists of the London Plan adopted 2011 (with minor amendments up to 2016) and associated policy documents including the Climate Change Adaptation Strategy (*Managing Risks and Increasing Resilience – October 2011*).
- 3.16 The London Plan (amendment 2015) defines “green infrastructure” as “an overarching term for a number of discreet elements (parks, street trees, green roofs etc.) that go to make up a functional network of green spaces and green features.”
- 3.17 In relation to climate change adaptation the London Plan calls for the use of trees and other shading to *“increase green areas in the envelope of the building, including its roof and environs”*
- 3.18 The London Plan sets a target of a 5% increase in trees in parks, gardens and green spaces by 2025.
- 3.19 Policy 7.21 of the London Plan 2011 calls for trees and woodlands to be protected, maintained and enhanced. The policy requires that existing trees of value should be retained and that any loss as a result of development should be replaced in sustainable locations. The policy suggests that, where appropriate, large canopied species should be planted (rather than smaller ornamental species).

Local Plan

- 3.20 The Hillingdon Local Plan was adopted in November 2012. It is the key strategic planning document for Hillingdon. The following policies are relevant to trees and development.

Policy EM4 – Open Space and Informal Recreation

Protecting and improving habitats and ecosystems throughout the borough and to areas beyond, by maintaining existing trees and native vegetation (adaptable to climate change) and open spaces and creating new areas of tree and woodland cover (including the linking of existing fragmented areas) for the benefit of wildlife and in accordance with the local Biodiversity Action Plan.

Managing development to resist the loss of open spaces, trees and woodlands.

Policy OL26 – *Protection and enhancement of trees, woodlands and landscape features.*

The local planning authority will protect trees and woodlands and encourage the preservation, proper management and in appropriate locations the extension of woodlands. Proposals for development in the more rural areas of the borough should be accompanied by proposals for landscaping and tree planting wherever practicable, and the retention of existing landscaping features where appropriate.

Policy BE38 – *Trees and Landscaping*

Development proposals will be expected to retain and utilise topographical and landscape features of merit and provide new planting and landscaping wherever it is appropriate. Planning applicants for planning consent will be required to provide an accurate tree survey showing the location, height, spread and species of all trees where their proposals would affect any existing trees.

Policy BE39 – *Protection of trees and woodland – tree preservation orders*

The local planning authority recognises the importance of tree preservation orders in protecting trees and woodlands in the landscape and will make orders where the possible loss of trees or woodlands would have a significant impact on their surroundings.

Legal constraints

- 3.21 According to the London Borough of Hillingdon interactive map, the site is not located within a Conservation Area and there are no trees covered by a Tree Preservation Order (TPO).
- 3.22 It is recommended that prior to undertaking works, the Local Planning Authority is contacted to ensure the protection status of trees within the site has not changed.

4 TECHNICAL INFORMATION

Tree Data

- 4.1 The location of trees and groups of trees are shown on the tree survey drawing at Appendix A, this plan illustrates the location of trees and the extent of the spread of their crowns. Dimensions, comments and information for each tree are given in the tree schedule at Appendix B.

Life Stage Analysis

- 4.2 Unlike age in numerical terms (years), this description is used to describe the physical form of a tree in relation to its typical life expectancy and varies between species; for example, an oak may have a young form after 20 years while a cherry tree will be middle-aged after 20 years and will have developed the appearance of a mature tree with a spreading rounded crown whilst the oak remains tall and slender with strong apical dominance.
- 4.3 The survey revealed that the trees across the site are of an early-mature and mature age classifications. Figure 1 below shows a complete breakdown of the age categories found across the 25 survey entries.

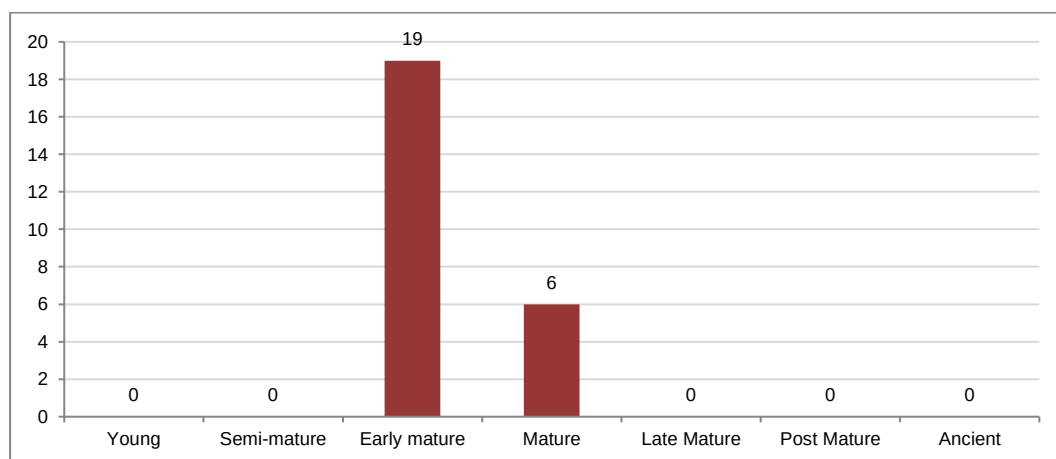


Figure 1 Analysis of life stage.

BS5837 (2012) category breakdown

- 4.4 The trees surveyed were assessed as being of varying quality, see Figure 2 below. Further details of the trees surveyed can be found in the schedule at Appendix B and the tree survey plan at Appendix A.

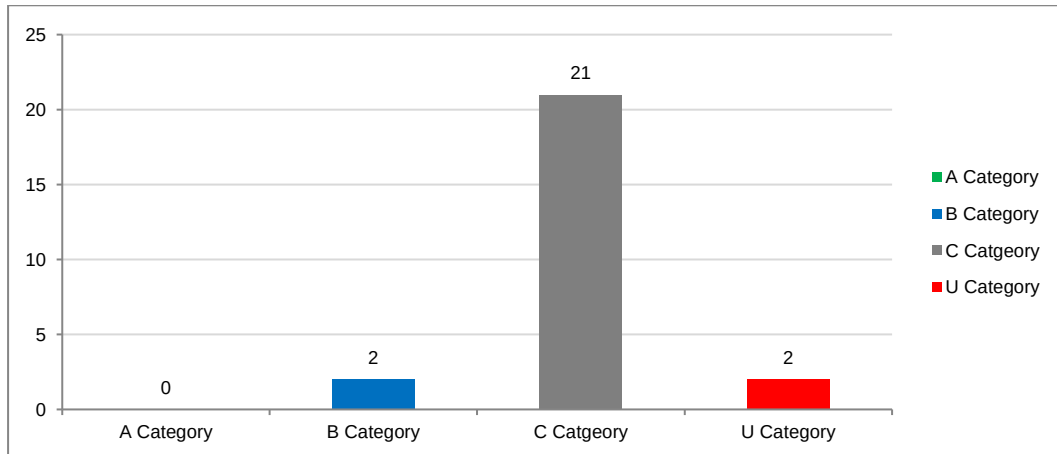
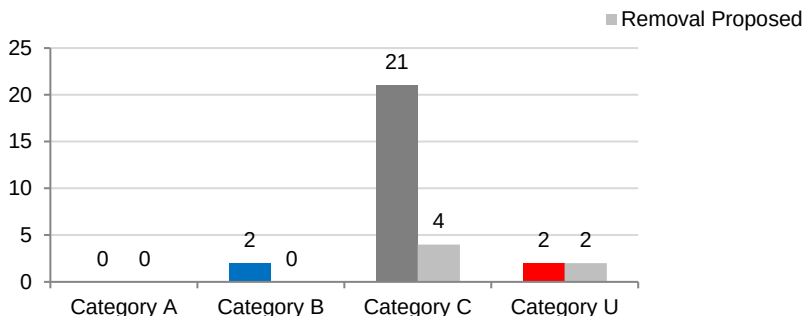


Figure 2 BS5837 retention categories for trees and trees in groups

5 ANALYSIS OF THE PROPOSAL IN RESPECT OF TREES

Arboricultural Impacts

- 5.1 The following arboricultural impacts have been considered in relation to the proposed development:

Impact	Analysis
Loss of trees	The proposal requires the removal of 7 trees to facilitate the development. This includes four low quality and value trees (C Category) and two poor quality trees (U Category). No moderate quality trees (B Category) are required to be removed. Figure 3 below shows the quantity of removals compared with the recorded survey entries in accordance with their BS5837 category. A schedule of all proposed tree works with reasons for the works is attached at Appendix B.  Figure 3: Removals in comparisons to the total number of survey entries recorded and their category in accordance to BS5837. The majority of trees proposed to be removed are located around the site boundary. They are of a small size and growing within poor rooting environments and have restricted canopy space. Due to their small size, their loss will have a minimal impact on the character of the local area as they are not prominent features within the townscape.
Pruning to facilitate development	Minor crown pruning works will be required to facilitate the proposed development. This will include crown lifting tree T8 to provide sufficient clearance for construction vehicles accessing the site and minor lateral reductions to trees T8; T14; T16 to improve the separations between tree crowns and buildings proposed to be demolished and constructed.

	The lateral reductions required to trees T14 & T16 will be minimal (1 m) and is only necessary to avoid any damage to their crowns during the demolition of the existing building. The London plane tree (T8) will require crown lifting to achieve a 5 m clearance above the existing site access. It will also be necessary to carry out a lateral reduction of 4 m adjacent to the building elevation in order to achieve a 2 m clearance. Considering the species high tolerance to pruning and the overall extent required, the proposed works will not impact the visual appearance of the tree within the local area. A reduction in the height of the tree is not proposed or required, its prominence within the area will therefore be maintained. The pruning works that have been proposed will not be detrimental to either tree or affect their appearance within the local area. Proposed tree pruning specifications are attached at Appendix B.
Future growth of retained trees	The proposal has taken into account possible future conflicts between occupants and retained trees. Future pruning works will be required to the London plane tree T8 to maintain an acceptable 2 m separation from the building elevation. These works are typically carried out within urban areas and can be undertaken periodically without detriment to the health or visual appearance of the trees concerned.
Daylight and sunlight	Shading by trees is not considered a significant issue in relation to these proposals. Although T8 is located adjacent to residential properties, it is deciduous and situated on the north western aspect of the building, therefore it will have a negligible impact on sunlight levels. Advice from the Building Research Establishment is that <i>“Tree locations are also important; deciduous species are best because they are leafless when solar gains are most valuable, while providing some shade in summer.” [BR 380 - Environmental site layout planning: solar access, microclimate and passive cooling in urban areas. 2000. Page 69]</i> The environmental benefits of growing trees close to buildings should not be underestimated. The Royal Commission on Environmental Pollution has stated that <i>“The cooling, shading, humidifying and filtering effects of green space are likely to become more important as climate change leads to summers becoming increasingly warm and dry with</i>

	<i>more periods of higher temperatures.[The Urban Environment – Royal Commission on Environmental Pollution. March 2007 – paragraph 4.60]</i>
Demolition operations (Main Building)	The demolition of the existing main building within the site marginally encroaches within the RPA of neighbouring tree T14. The incursion is located at the furthest extent of the trees RPA and will have a negligible impact on its overall health and condition. No special methods of work are therefore proposed.
Demolition operations (Lightweight Structures)	The demolition of lightweight structures such as hard standing and walls are required within the RPAs of retained trees and therefore have the potential to impact upon their growing environment. To avoid damaging the trees during these operations, works within the RPAs will require special methods. During the main demolition works, areas of existing hard standing within tree RPAs should be retained in order to protect the rooting areas of the retained trees. Their future removal will be required to create areas of soft landscaping and to replace the finishing surface material. These works should be programmed into the latter stage of the project and coordinated so that rooting areas do not remain exposed to damage for any length of time. The timing of these works must be agreed in advance with the arboricultural consultant. The removal of the existing hard standing will not involve excavation deeper than the existing sub-base layer. These works must be carried out in a careful and coordinated manner to ensure that machinery is not required to track over the recently exposed ground. The existing material should be fractured with a pneumatic drill and removed with a flat grading bucket. Starting from the point closest to the tree and working backwards. The London plane tree T9 is growing within a raised bed, which is required to be removed as part of the wider landscape works. The wall must be manually demolished with hand tools under arboricultural supervision. If the tree is using any section of the wall for mechanical support, these areas will remain insitu. The proposed works will not require the removal of the existing foundations. Once removed as specified, soil will be used to tie in levels, ensuring that no additional soil is placed within the existing level of the raised bed or main stem of the tree.

	Details of the measures to be taken to protect trees are included at Appendix A.
Construction operations	The construction of the basement will not require any excavation or other works within the RPAs of retained trees. No special measures are therefore required to prevent root damage during this phase of the development. The north western elevation wall of the ground floor and 1st to 3rd floor, marginally encroaches into the RPA of the retained London plane tree T8. The area affected constitutes a very small proportion of the rooting area of this tree (3.8%) and is at the periphery of its RPA. It is not considered at all likely that this very minor incursion will cause harm to the health or structure of the tree and special methods of work are not therefore considered necessary. The refurbishment of existing hard standing to construct the amenity areas and footpaths within the RPAs of T8 and T9 will not involve excavation deeper than the existing sub-base and will not enlarge the hard surface area within their RPAs. While normal tree protection measures will be relevant to these works, no special construction methods are recommended. Details of the measures to be taken to protect trees and the soil environment are included at Appendix A.
Installation of drainage	We do not currently have details of the condition of existing drainage runs or any information which suggests that there will be a requirement to install new drains. However, if new drainage runs are required, they should be located outside the RPAs of retained trees. If it is found to be necessary to locate new drainage runs within the RPAs of retained trees it is recommended that these works are carried out under arboricultural supervision. Methods of work should follow the recommendations in the NJUG guidance. BS5837 (2012) recommends the NJUG guidance as a normative reference to be used in these circumstances. See http://www.njug.org.uk/
Installation of services	New service runs will, where possible, be located outside the RPAs of retained trees. However, if it is necessary to locate services runs within the RPAs, BS5837 (2012) recommends the NJUG guidance as a normative reference to be used in these circumstances. See http://www.njug.org.uk/

Boundary treatments	Existing boundary treatments will be retained where possible. If these are required to be refurbished, they must be constructed within the same footprint as the existing boundaries, with no additional excavation works being carried out. Input from the arboricultural consultant will be required where such works are proposed adjacent to retained trees. A galvanised fence is proposed to be installed within the RPA of T8 as part of the boundary treatment for the amenity area. This will be constructed using galvanised posts set into concrete filled pits. It will be necessary that the following considerations are incorporated into the fencing design and construction methodology: i) The excavation of the pits will be carried out using hand tools only and all roots above 25mm in diameter will be retained within the pits or alternative locations which do not contain roots above 25mm will be found. All fence post pits will be lined with 1000 gauge polythene in order to prevent phytotoxic effects of cement products upon tree roots. ii) Post positions and fencing panels are required to be installed a minimum of 500 mm from the stem base of the tree. If necessary shorter lengths of fencing will be used and will divert around the tree.
Landscaping operations	Landscaping operations will typically take place at the end of the construction period. These works will normally require the removal of protective fencing to facilitate access for works. There is a risk that plant and machinery may damage soil structure where tree roots are growing; however, these risks can be managed by maintaining good professional standards of work and working to a method statement. The principle of avoiding soil disturbance or changes in levels within the RPAs of retained trees should be followed unless arboricultural advice has been sought.

Arboricultural mitigation

- 5.2 An indicative landscape scheme has been designed and includes the planting of new trees on the ground floor and small multi-stemmed trees on the 1st storey amenity deck. There is also the inclusion of hedgerow and shrub planting within the designated amenity areas. These new areas will increase the biodiversity across the site due to range of planting. The new tree planting will also help to mitigate the removal of trees required to facilitate the development.

6 DISCUSSION AND CONCLUSIONS

General Change

- 6.1 The proposed development does not require the removal of trees that are of significant value within the surrounding local area. Tree removals have been restricted to those that are of low and poor quality, small in size and growing within restricted locations. The design team has considered the constraints posed by trees so that the two large moderate quality London plane trees can be successfully retained.
- 6.2 I believe the loss of trees will have a negligible impact on the character and appearance of the surrounding landscape, while the retention of the two London plane trees will significantly enhance the visual appearance of the new development.
- 6.3 Although the landscape design does not include a large number of tree planting within prominent locations, it does create a high quality amenity space that includes an array of planting at different levels which will improve local biodiversity.

How do the changes relate to planning policy?

<i>Policy Ref</i>	<i>Compliance</i>
NPPF	The proposals do not impact upon ancient woodland or veteran trees. The proposals are sustainable in landscape terms and therefore meet the criteria for sustainability in this respect. The proposals have been designed to provide a good standard of amenity for occupants and measures are proposed to enhance and protect natural features. Landscaping has been designed to respond to local character and contribute to a strong sense of place while integrating the proposed development into the natural environment.
Spatial policy (The London Plan)	The London Plan emphasises the importance of trees, green infrastructure and climate change resilience. By retaining existing trees of good quality, planting new trees and enhancing the local landscape, the proposals have responded to the London Plan.
Local policy	The proposed development complies with planning policies as they relate to trees. Existing trees onsite have been surveyed in accordance with best practice and the proposal evaluated in respect of trees. Tree protection

	has been proposed to safe guard retained trees during construction works, and new landscaping which includes tree planting has been specified.
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Conclusions

- 6.4 The design of the proposal has properly considered the tree constraints.
- 6.5 The proposal complies with planning policies referenced within the report.
- 6.6 All retained trees can be adequately protected by following the recommendations in the method statement at Appendix A and controlled by suitably worded planning conditions.

APPENDIX A - PLANS

Tree Survey 180315-P-10

Proposed Layout and Tree Removals 180315-P-11

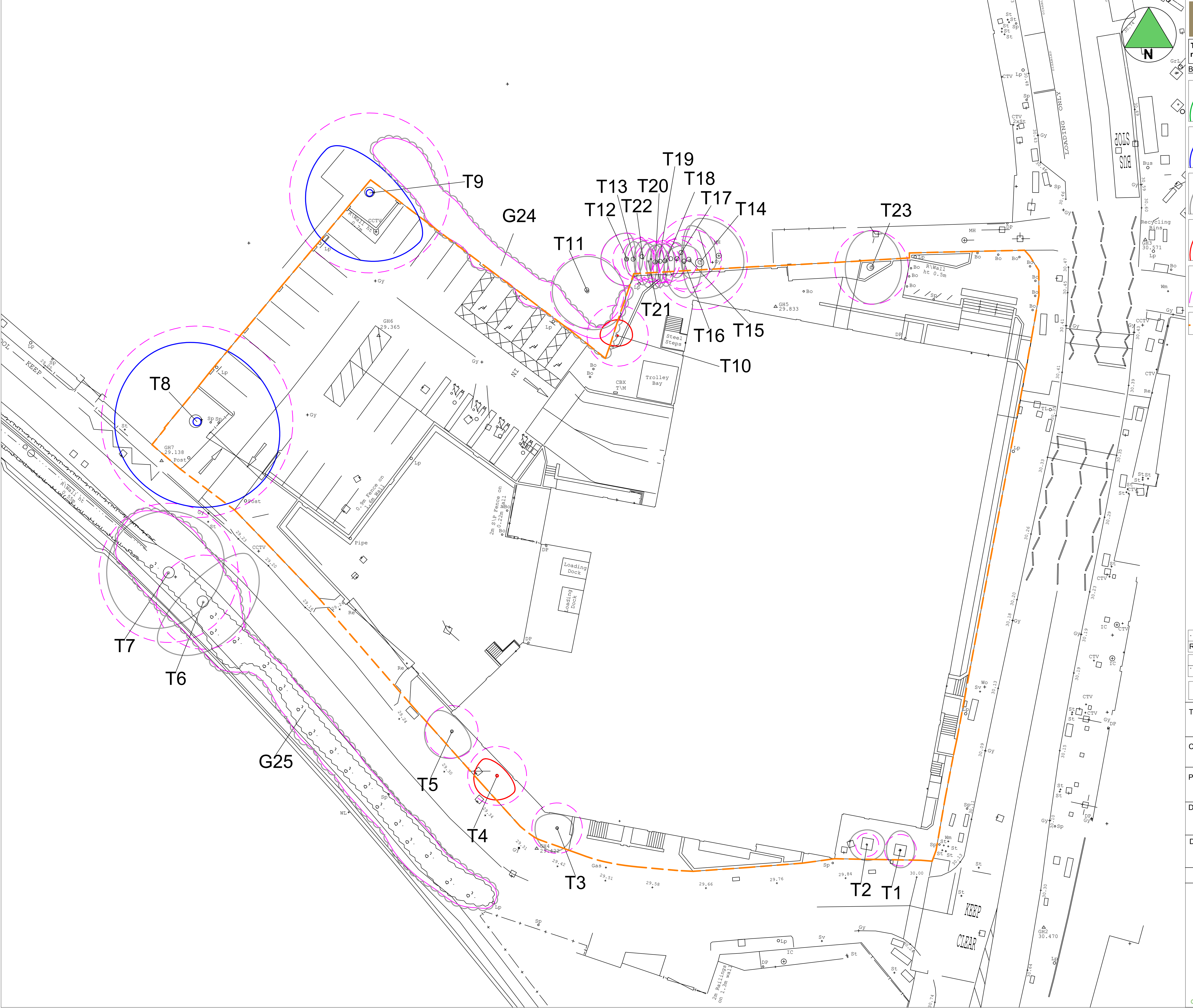
Tree Protection Plan (Demolition) 180315-P-12

Tree Protection Plan (Construction) 180315-P-13

The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

BS 5837:2012 TREE RETENTION CATEGORIES

- Category A**
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B**
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C**
Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.
- Category U**
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
- BS5837 Root Protection Areas**
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work
- Site boundary**



-	XX.XX.XX	-	XX
REV	DATE	DESCRIPTION	DRAWN
Base Drawing			
-	-	TDPD 29475_T	-
0 5m 10m 20m 30m 40m 50m			

Title
Tree Survey

Client Harbourside Investments Ltd. & WM
Morrisons Supermarket PLC

Project
Morrisons, 43-67 High St, Yiewsley, UB7 7QQ

Date May 2018	Drawn by HR	Checked by -
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Drawing No 180315-P-10	Rev -	Scale 1:200@A1
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DO NOT SCALE Use only figured dimensions



BS 5837:2012 TREE RETENTION CATEGORIES

Proposed 1st to 3rd floor shown grey.

A horizontal scale bar with alternating black and white segments. The segments are labeled 0, 5m, 10m, 20m, 30m, 40m, and 50m.

DO NOT SCALE Use only figured dimensions



The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

BS 5837:2012 TREE RETENTION CATEGORIES

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.

Category U
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Position of protective fencing and tree protection zones.

Existing wall retained for tree protection.

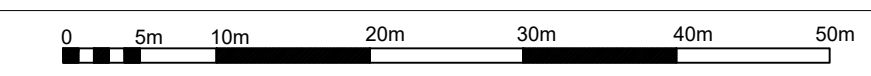
Site boundary

Retaining wall to be removed under arboricultural supervision. Do not alter internal levels within raised bed, proposed landscape levels must tie in with existing level.

Existing hard standing to be retained during main demolition works. Schedule removal during main construction phase and agree time frame with arboricultural consultant. Removal not to exceed sub base layer and to be carried out under arboricultural supervision.

-	XX.XX.XX	-	XX
REV	DATE	DESCRIPTION	DRAWN

Base Drawing			
-	-	TOP	-



Title
Tree Protection for Demolition

Client Harbourside Investments Ltd. & WM Morrison Supermarket PLC

Project
Morrisons, 43-67 High St, Yiewsley, UB7 7QQ

Date July 2018	Drawn by HR	Checked by -
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The Barn, Feltimores Park, Chalk Lane, Harlow, Essex CM17 0PF

0845 094 3268 | info@tma-consultants.co.uk

www.timmoayaassociates.co.uk

arboriculture ecology landscape innovation

ARBORICULTURAL METHOD STATEMENT

BRITISH STANDARD 5837(2012)

This method statement is in accordance with British Standard 5837: Trees in relation to design, demolition and construction - Recommendations (2012) which provides a methodology for the assessment and protection of trees and other significant vegetation on development sites.

TREE SURGERY WORKS

Only tree works specified within this document may be carried out. Any uncertainty regarding trees to be pruned will be immediately confirmed with the arboricultural consultant and local authority tree officer.

All tree works will be carried out in accordance with the recommendations given in the current BS 3998 (2010).

All tree works should be carried out in accordance with the Wildlife and Countryside Act 1981 (as amended) and the Habitat Regulations 2010.

SITE SUPERVISION

All key / critical activities that will affect trees during construction will be inspected and monitored by the approved arboricultural consultant and reports issued to the client and local authority.

Supervision visits will occur as follows:

- Inspection of tree works, tree protection prior to demolition and construction works
- Monthly visits to inspect tree protection measures
- During works that may affect retained trees

PROTECTIVE FENCING

No materials or equipment other than those required to erect protective fencing, will be delivered to the site before the fencing is installed. The position of protective fencing for demolition is shown on this drawing.

Protective fencing will be constructed of robust barriers fit for the purpose of excluding demolition and construction traffic. Signs will be fixed to every third panel stating 'Tree Protection Area Keep Out - Any incursion into the protected area must be with the agreement of the local authority or arboricultural consultant'.

The main contractor will inform the local authority officer and the arboricultural consultant that tree protection is in place before demolition or site clearance works commence.

No alteration, removal or repositioning of the tree protection for demolition will take place during the demolition phase without the prior consent of the arboricultural consultant.

SERVICES AND DRAINAGE

Methods of working for installation of the drainage runs or services will follow the guidance within Table 3 of BS 5837 (2012), or National Joint Utilities Group (NJUG) Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. Volume 4, issue 2, London NJUG 2007.

No works will occur within the tree protection zone without prior agreement from the arboricultural consultant. No machinery will be permitted within the TPZ at any time.

GENERAL PROTECTION METHODS

No fires will be permitted within 20m of the crown of any tree.

No changes in soil levels will take place within the tree protection zones without prior written consent of the local authority.

No materials, vehicles, plant or personnel will be permitted into the tree protection zones at any time without the prior consent of the arboricultural consultant.

Any liquid materials spilled on site will be immediately cleared up and removed from the site. If liquid fuel or cement products are spilled within 2m of the tree protection zone, the contractor will report the incident to the arboricultural consultant immediately.

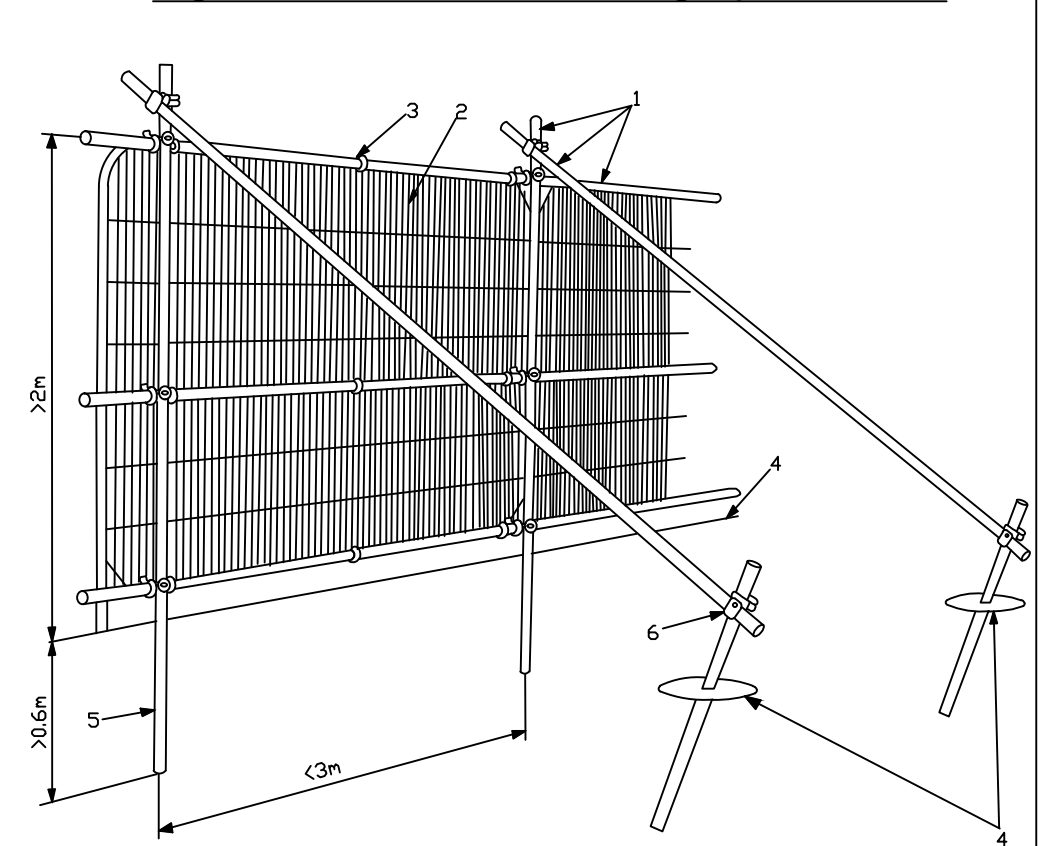
The contractor will report any damage to trees or shrubs, whether caused by construction activities or from any other cause, to the arboricultural consultant immediately.

NO-DIG CONSTRUCTION AREAS

Areas requiring no-dig methods of construction are indicated on this drawing. No-dig will involve either excavating existing hard surfacing down to sub base and building up, or laying materials to create new hard surfacing onto existing ground levels. No scraping or reducing of existing soft ground levels in the areas indicated on this plan will be undertaken, and all construction in these areas will avoid the use of machinery.

The specification for no-dig construction is shown below.

Figure 2 : Protective Fencing Specification



- Key
- 1 Standard scaffold poles.
 - 2 Heavy gauge 2m tall galvanized tube and welded mesh infill panels. Panels secured to upright and cross-members with wire ties.
 - 3 Ground level.
 - 4 Uprights driven into the ground until secure (minimum depth 0.6m).
 - 5 Standard scaffold clamps.



**TREE PROTECTION
AREA
KEEP OUT!**

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE AGREEMENT OF THE LOCAL AUTHORITY OR ARBORICULTURAL CONSULTANT

TIM MOYA ASSOCIATES
ARBORICULTURAL & LANDSCAPE CONSULTANTS

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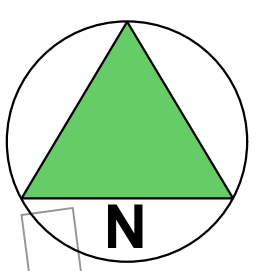
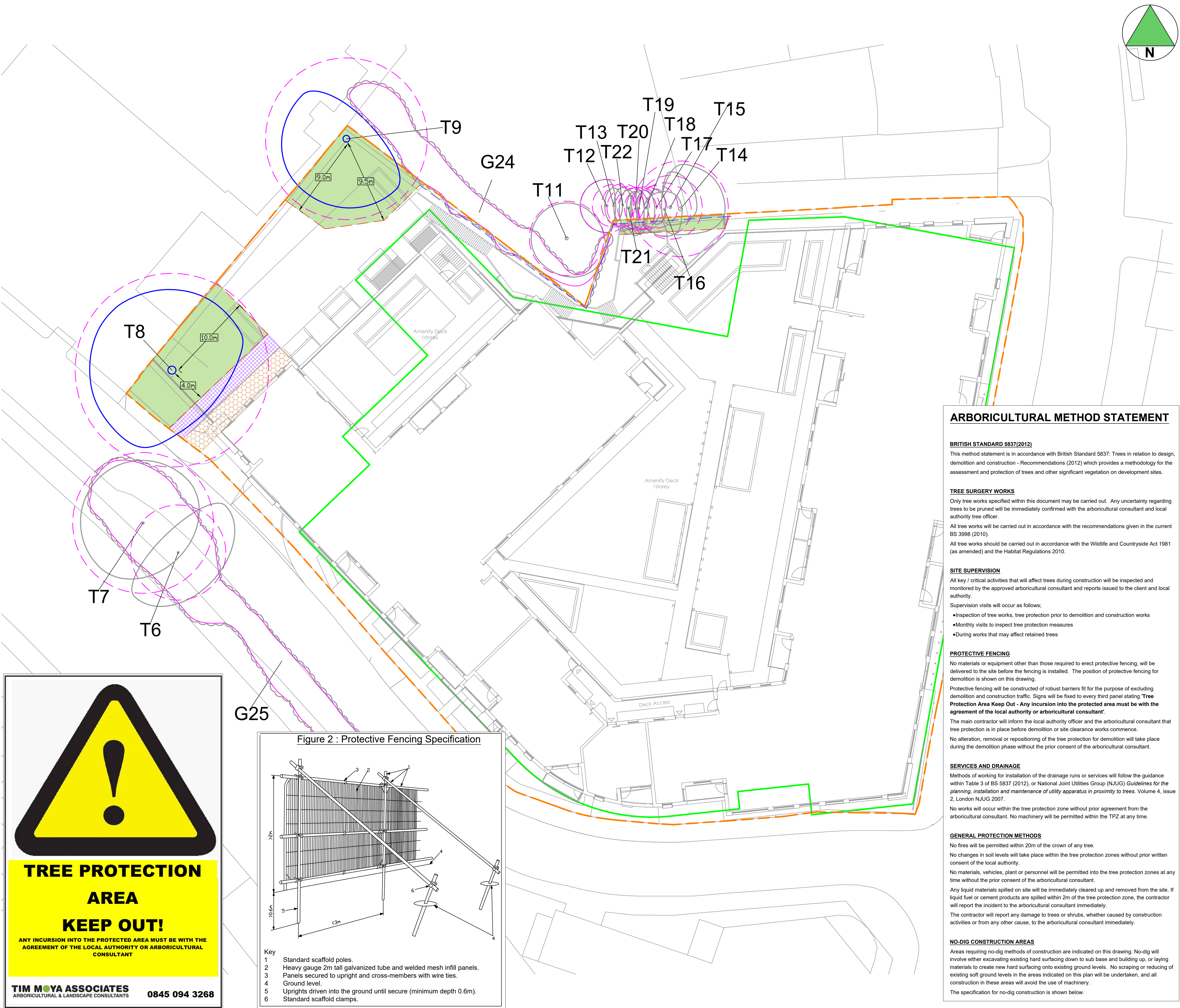
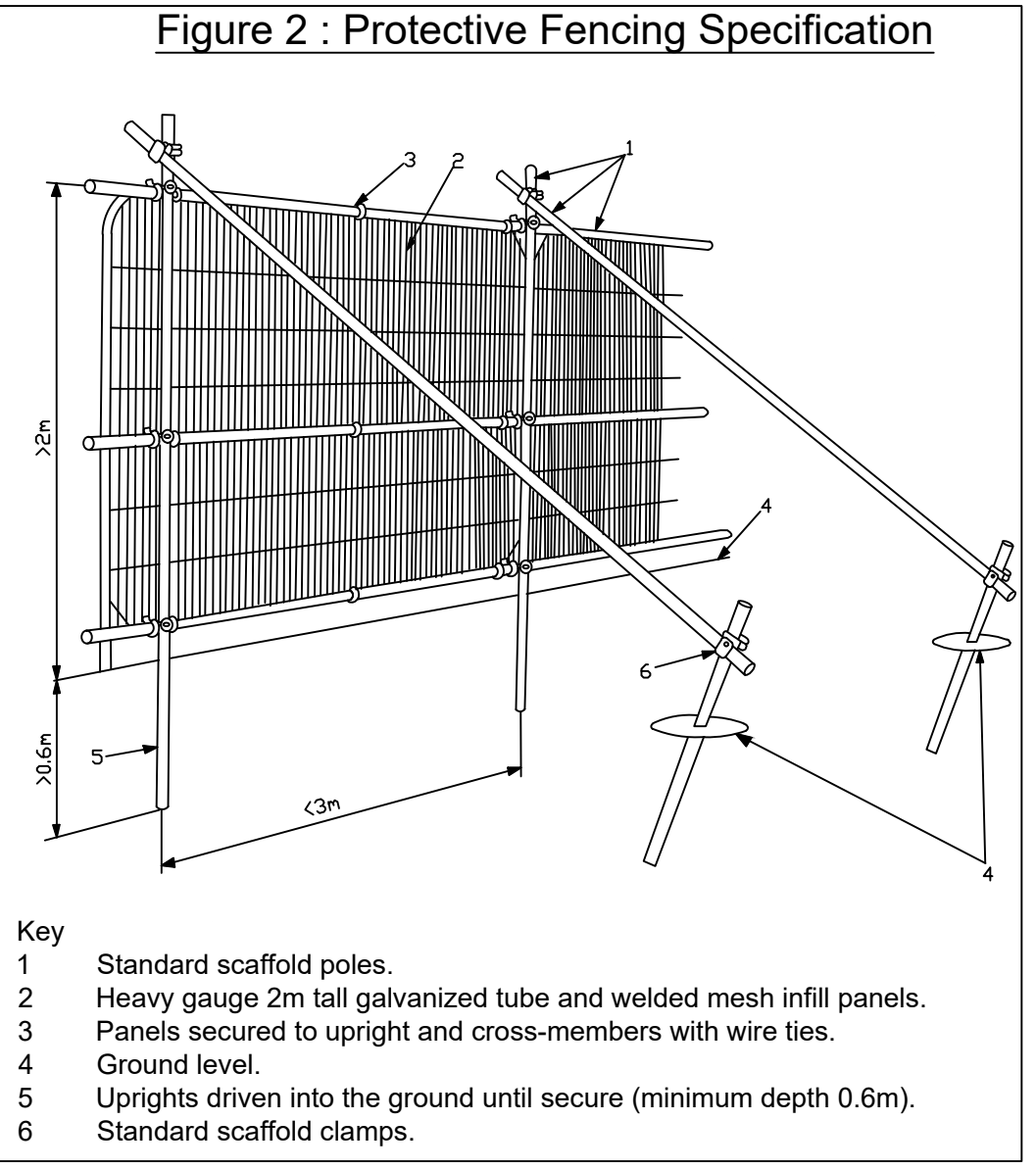
**TREE PROTECTION
AREA
KEEP OUT!**

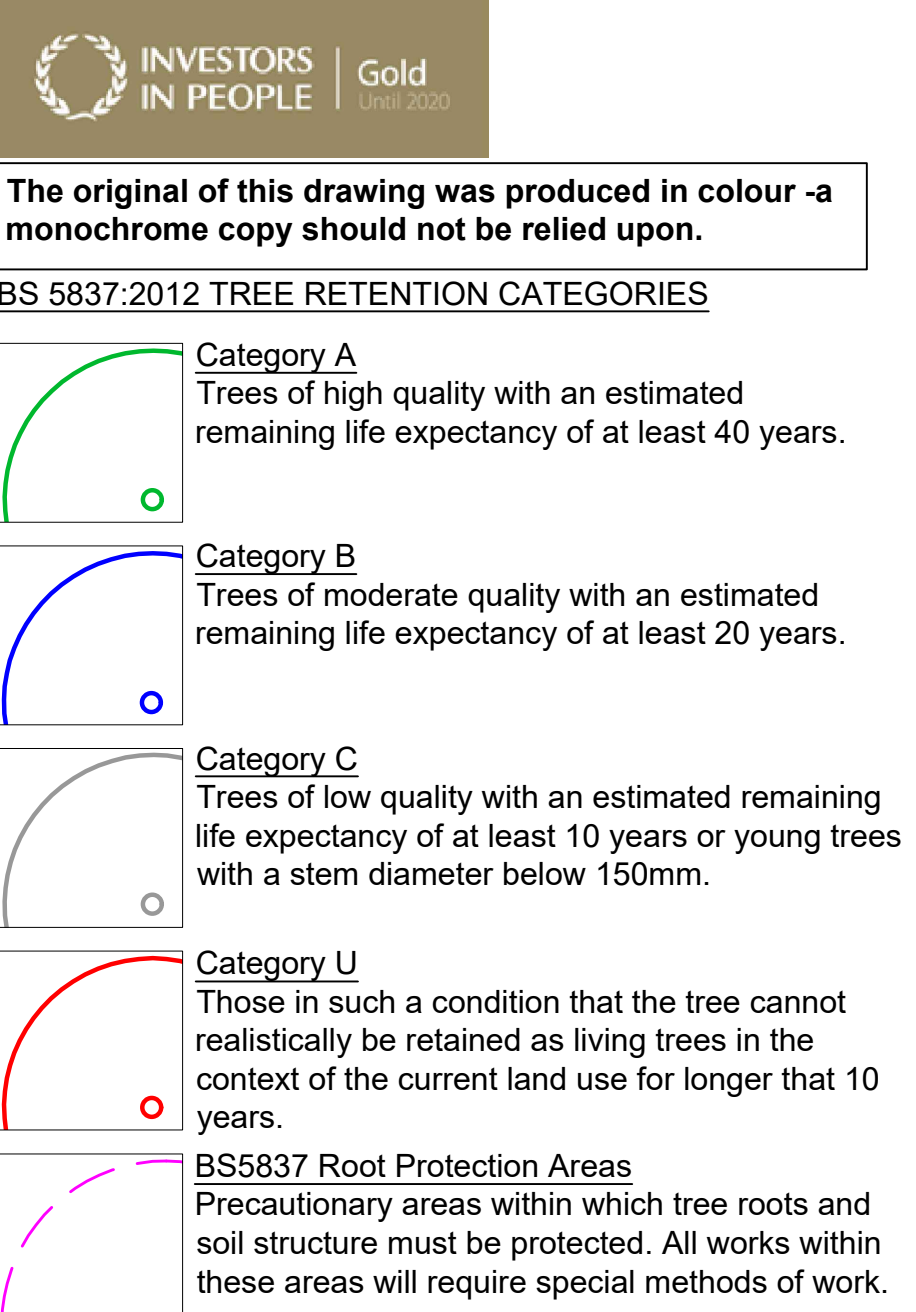
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CONSULTANT

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ARBORICULTURAL & LANDSCAPE CONSULTANTS

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The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

BS 5837:2012 TREE RETENTION CATEGORIES

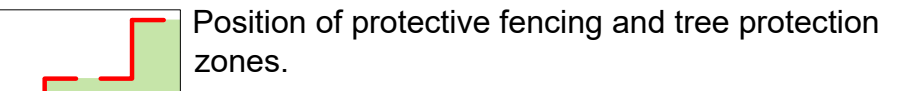
Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.

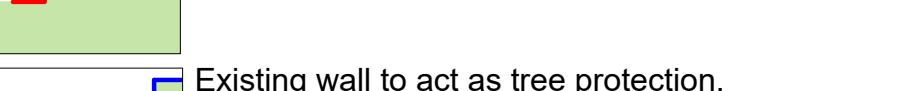
Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.

Category U
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

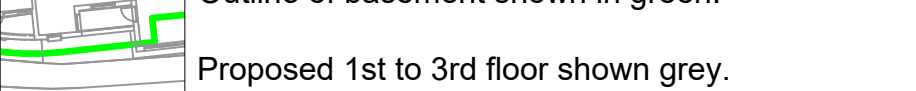
BS5837 Root Protection Areas
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work.

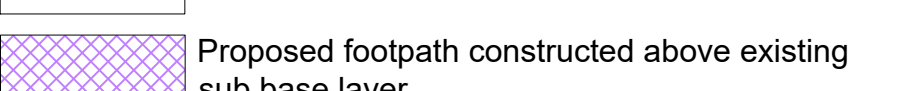














ARBORICULTURAL METHOD STATEMENT

BRITISH STANDARD 5837(2012)
This method statement is in accordance with British Standard 5837: Trees in relation to design, demolition and construction - Recommendations (2012) which provides a methodology for the assessment and protection of trees and other significant vegetation on development sites.

TREE SURGERY WORKS
Only tree works specified within this document may be carried out. Any uncertainty regarding trees to be pruned will be immediately confirmed with the arboricultural consultant and local authority tree officer.
All tree works will be carried out in accordance with the recommendations given in the current BS 3998 (2010).
All tree works should be carried out in accordance with the Wildlife and Countryside Act 1981 (as amended) and the Habitat Regulations 2010.

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SERVICES AND DRAINAGE
Methods of working for installation of the drainage runs or services will follow the guidance within Table 3 of BS 5837 (2012), or National Joint Utilities Group (NJUG) *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees*. Volume 4, issue 2, London NJUG 2007.
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No fires will be permitted within 20m of the crown of any tree.
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The specification for no-dig construction is shown below.

-	XX.XX.XX	-	XX
REV	DATE	DESCRIPTION	DRAWN
Base Drawing			
-	-	16128 Yiewsley High Street-Sheet - 2 - 101 - Proposed Ground Floor Plan & 16128 Yiewsley High Street-Sheet - 2 - 109 - Proposed Basement -1 Floor Plan	

Title		
Tree Protection Plan		
Client Harbourside Investments Ltd. & WM Morrison Supermarket PLC		
Project		
Morrisons, 43-67 High St,Yiewsley, UB7 7QQ		
Date	Drawn by	Checked by
July 2018	-	-
Drawing No	Rev	Scale
180315-P-13	-	1:200@A1
DO NOT SCALE Use only figured dimensions		



TIM MOYA ASSOCIATES

The Barn, FeltimoresPark, Chalk Lane,Harlow, Essex CM17 0PF

0845 094 3268 | info@tma-consultants.co.uk

www.timmoayaassociates.co.uk

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APPENDIX B - SCHEDULES

Tree Schedule 180315-PD-10

Tree Work Schedule 180315-PD-12

180315-PD-10-Tree schedule (BS5837)

180315 - Morrisons, 43-67 High Street, Yiewsley, UB7 7QQ

Tree ID	No. Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m)								Crown clearance (m)	L.B. (m)	Life stage	Condition Notes	Survey date	RPA (m ²)	RPR (m)	Life expectancy (yrs)	BS Category
					N	NE	E	SE	S	SW	W	NW									
Tree T1	1 Betula jacquemontii (Himalayan Birch)	5.0	15	1	2.2		1.6		2.0		1.6		1.8		Early Mature	Structural condition Fair. Physiological condition Fair. Root environment - Compacted.	23/05/2018	10.2	1.8	10-20	C2
Tree T2	1 Betula jacquemontii (Himalayan Birch)	5.0	11	1	1.7		2.0		1.8		2.0		2.0		Early Mature	Structural condition Fair. Physiological condition Fair. Root environment - Compacted.	23/05/2018	5.5	1.3	10-20	C2
Tree T3	1 Sorbus aria (Whitebeam)	7.0	24	1	1.58		1.9		2.7		2.5		2.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown reduction - Recent. Suppressed crown - Minor.	23/05/2018	26.1	2.9	10-20	C2
Tree T4	1 Sorbus aria (Whitebeam)	7.0	28	1		1.09		2.7		2.8		2.5	2.0		Early Mature	Structural condition Poor. Physiological condition Fair. Crown reduction - Recent. Decay / structural defect - Bole. Form - Attenuated stem / stems. Suppressed crown - Minor.	23/05/2018	35.5	3.4	0-10	U
Tree T5	1 Sorbus aria (Whitebeam)	7.0	25	1		1.43		2.9		3.2		3.0	2.0		Early Mature	Structural condition Fair. Physiological condition Fair. Branch - Broken. Crown reduction - Recent. Suppressed crown - Minor.	23/05/2018	28.3	3.0	10-20	C2
Tree T6	1 Fraxinus excelsior (Ash)	13.0	44 COM	5		7.5		5.0		7.0		2.4	4.0		Mature	Structural condition Fair. Physiological condition Fair. Base / stems obscured - Vegetation. Die-back - Mid crown.	23/05/2018	90.5	5.4	10-20	C2
Tree T7	1 Fraxinus excelsior (Ash)	13.0	66 COM	7		7.0		5.6		7.0		7.1	4.0		Mature	Structural condition Fair. Physiological condition Fair. Base / stems obscured - Vegetation. Die-back - Mid crown.	23/05/2018	197.9	7.9	10-20	C2
Tree T8	1 Platanus x hispanica (London Plane)	16.0	91	1		8.7		10.1		9.4		9.4	3.0		Mature	Structural condition Good. Physiological condition Good. Form - Good crown structure. Significant focal tree. Limited previous management.	23/05/2018	374.6	10.9	20-40	B1/B2

Stem **green** Estimated value

Stem **AVE** Average stem diameter for tree groups

Stem **COM** Combined stem diameter in accordance with BS5837

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Page 1 of 7

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180315 - Yiewsley West Drayton

Tree ID	No. Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m)								Crown clearance (m)	L.B. (m)	Life stage	Condition Notes	Survey date	RPA (m ²)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T9	Platanus x hispanica (London Plane)	15.0	76	1	N	NE	E	SE	S	SW	W	NW	3.0		Mature	Structural condition Good. Physiological condition Good. Suppressed crown - Minor. Located within raised brick planter. Limited previous management. Crown break at 2m.	23/05/2018	261.3	9.1	20-40	B2
Tree T10	1 Sambucus nigra (Elder)	6.0	29 COM	5	1.8		1.7		1.2		2.0		4.0		Mature	Structural condition Poor. Physiological condition Poor. Base / stems obscured - Vegetation. Unbalanced crown - Major.	23/05/2018	38.2	3.5	0-10	U
Tree T11	1 Fraxinus angustifolia (Narrow Leaved Ash)	11.0	35	1		4.0		4.7		4.0		4.0	4.0		Early Mature	Structural condition Fair. Physiological condition Fair. Offsite tree dimensions estimated.	23/05/2018	55.4	4.2	10-20	C2
Tree T12	1 Cupressocyparis leylandii (Leyland Cypress)	8.0	25	1	3.0		1.0		3.0		3.0		3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	28.3	3.0	10-20	C2
Tree T13	1 Cupressocyparis leylandii (Leyland Cypress)	8.0	20	1	2.0		1.0		2.0		1.0		3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	18.1	2.4	10-20	C2
Tree T14	1 Cupressocyparis leylandii (Leyland Cypress)	12.0	45	1	5.0		5.0		4.1		2.0		4.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	91.6	5.4	10-20	C2
Tree T15	1 Cupressocyparis leylandii (Leyland Cypress)	11.0	30	1	4.0		3.0		2.0		1.0		6.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	40.7	3.6	10-20	C2
Tree T16	1 Cupressocyparis leylandii (Leyland Cypress)	8.0	25	1	2.0		2.0		4.0		2.3		3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	28.3	3.0	10-20	C2
Tree T17	1 Cupressocyparis leylandii (Leyland Cypress)	8.0	20	1	2.0		1.0		2.0		1.0		3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	18.1	2.4	10-20	C2
Tree T18	1 Cupressocyparis leylandii (Leyland Cypress)	8.0	20	1	2.0		1.0		2.83		1.0		3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	18.1	2.4	10-20	C2

Stem **green** Estimated value

Stem **AVE** Average stem diameter for tree groups

Stem **COM** Combined stem diameter in accordance with BS5837

L.B. Height of lowest branch attachment (m) - where relevant

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180315 - Yiewsley West Drayton

Tree ID	No. Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m)								Crown clearance (m)	L.B. (m)	Life stage	Condition Notes	Survey date	RPA (m ²)	RPR (m)	Life expectancy (yrs)	BS Category
N	NE	E	SE	S	SW	W	NW														
Tree T19	1 Cupressocyparis leylandii (Leyland Cypress)	8.0	20	1	2.0	1.0	2.92	1.0	3.0				3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	18.1	2.4	10-20	C2
Tree T20	1 Cupressocyparis leylandii (Leyland Cypress)	8.0	20	1	2.0	1.0	3.0	1.0	3.0				3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	18.1	2.4	10-20	C2
Tree T21	1 Cupressocyparis leylandii (Leyland Cypress)	8.0	20	1	2.0	1.0	3.0	1.0	3.0				3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	18.1	2.4	10-20	C2
Tree T22	1 Cupressocyparis leylandii (Leyland Cypress)	8.0	20	1	2.0	1.0	3.0	1.0	3.0				3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown lifted site side. Narrow spacing. Boundary screening.	23/05/2018	18.1	2.4	10-20	C2
Tree T23	1 Acer negundo (Box Elder (Ash - Leaved) Maple)	8.0	35	1	4.2	3.4	4.2	3.0	3.0				3.0		Mature	Structural condition Fair. Physiological condition Fair. Crown reduction - Recent. Decline - Suspected. Suppressed crown - Minor. Located in raised brick planter.	23/05/2018	55.4	4.2	10-20	C1
Group G24	1 Rhus typhina (Stag's Horn Sumach)	4.0	12	1									1.0		Early Mature	Structural condition Fair. Physiological condition Fair. Offsite shrubs, ivy and vegetation.	23/05/2018	6.5	1.4	10-20	C2
	4 Malus sp. (Apple sp.)		AVE																		

Stem green Estimated value

Stem AVE Average stem diameter for tree groups

Stem COM Combined stem diameter in accordance with BS5837

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Page 3 of 7

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180315 - Yiewsley West Drayton

Tree ID	No. Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m)								Crown clearance (m)	L.B. (m)	Life stage	Condition Notes	Survey date	RPA (m ²)	RPR (m)	Life expectancy (yrs)	BS Category
					N	NE	E	SE	S	SW	W	NW									
Group G25	6 Ulmus procera (English Elm)	5.0	12 AVE	1									2.0		Early Mature	Structural condition Fair. Physiological condition Fair. Offsite shrubs, ivy and vegetation.	23/05/2018	6.5	1.4	10-20	C2
	3 Sambucus nigra (Elder)																				
	10 Fraxinus excelsior (Ash)																				
	3 Crataegus monogyna (Common Hawthorn/Quick/May)																				
	2 Cerasus avium (Wild Cherry)																				

Stem **green** Estimated value

Stem **AVE** Average stem diameter for tree groups

Stem **COM** Combined stem diameter in accordance with BS5837

L.B. Height of lowest branch attachment (m) - where relevant

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Page 4 of 7

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Summary table with retention category

	Group	Tree	Total
B1/B2	0	1	1
B2	0	1	1
C1	0	1	1
C2	2	18	20
U	0	2	2
Total	2	23	25

Summary table with life stage

	Group	Tree	Total
Early Mature	2	17	19
Mature	0	6	6
Total	2	23	25

Table 1 of BS5837 (2012)

Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see note)				
Category U	* Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) * Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline * Trees infected with pathogens of significance to health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality	RED		
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				
NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7				
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A	Tree that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue).	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).	GREEN
Trees of high quality with an estimated remaining life expectancy of at least 40 years				
Category B	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation.	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value.	BLUE
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years				
Category C	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.	GREY
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm				

180315-PD-12 - Planning Tree Works Schedule

Morrisons, 43-67 High Street, Yiewsley, UB7 7QQ

ID	No. / Species	BS5837 Category	Purpose of works Recommended works	Status
T1	1 Betula jacquemontii Himalayan Birch	C2	To facilitate development Fell - Ground level.	Proposed
T2	1 Betula jacquemontii Himalayan Birch	C2	To facilitate development Fell - Ground level.	Proposed
T3	1 Sorbus aria Whitebeam	C2	To facilitate development Fell - Ground level.	Proposed
T4	1 Sorbus aria Whitebeam	U	To facilitate development Fell - Ground level.	Proposed
T5	1 Sorbus aria Whitebeam	C2	To facilitate development Fell - Ground level.	Proposed
T8	1 Platanus x hispanica London Plane	B1/B2	To facilitate development End-weight reduction - Specified extent. Reduce lateral growth adjacent to proposed building to achieve 2m clearance. To allow access for plant Lift low canopy - Highways clearance. Lift canopy above existing access to provide 5m clearance from ground level for construction vehicles.	Proposed Proposed
T10	1 Sambucus nigra Elder	U	To facilitate development Fell - Ground level.	Proposed
T14	1 Cupressocyparis leylandii Leyland Cypress	C2	To facilitate development End-weight reduction - Specified extent. Reduce overhanging crown by 1m to facilitate demolition.	Proposed
T16	1 Cupressocyparis leylandii Leyland Cypress	C2	To facilitate development End-weight reduction - Specified extent. Reduce overhanging crown by 1m to facilitate demolition.	Proposed
T23	1 Acer negundo Box Elder (Ash - Leaved) Maple	C1	To facilitate development Fell - Ground level.	Proposed

Tree work analysis (trees and trees in groups)

	To allow access for plant	To facilitate development	Total
End-weight reduction - Specified	0	3	3
Fell - Ground level	0	7	7
Lift low canopy - Highways clearance	1	0	1
Total	1	10	11



TIM MOYA ASSOCIATES

arboriculture ecology landscape innovation

The Barn, Feltham Park, Chalk Lane, Harlow, Essex CM17 0PF

0845 094 3268 | info@tma-consultants.co.uk | www.timmoyaassociates.co.uk

Tim Moya Associates is a trading name of Tim Moya Tree Services Ltd. Company Reg No. 3028475