Arboricultural Report

Assessment of trees in relation to development for planning purposes

76 Fitzjohns Avenue
London
NW3 5LS

February 2017

160820-PD-11a

TIM MOYA ASSOCIATES

Project	76 Fitzjohns Avenue, London NW3 5LS
Report Type	Arboricultural Report for Planning
Checked by	
Date Checked	

CONTENTS PAGE

1 SUMMARY REPORT

1.1 The proposal is for a single storey basement excavation to the existing property with front and rear light wells.

1.2 Trees relevant to these proposals have been assessed in accordance with best practice guidance and planning policy at national and local level.

1.3 Relevant impacts and potential issues relating to trees have been considered within this report and factual information is contained in the appendices.

1.4 My conclusions are that the proposed development is acceptable in both arboricultural terms and in relation to planning policy as it relates to trees.

2 INTRODUCTION

Instructions

2.1 My name is Tracy Clarke; I am a Director of Tim Moya Associates. I am a qualified and experienced arboricultural consultant dealing with trees in relation to all forms of human activity. I am a Registered Chartered Arboriculturist with the Institute of Chartered Foresters, a Fellow of the Arboricultural Association, a Chartered Environmentalist and I have a Higher National Diploma in arboriculture and a Postgraduate Diploma in arboriculture and community forest management from Middlesex University.

2.2 This arboricultural report has been commissioned 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.

Scope and limitations

2.3 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 will have been highlighted in the tree schedule at Appendix B, where appropriate.

2.4 The contents of this report are copyright of Tim Moya Associates (TMA) and may not be distributed or copied without TMA's explicit permission. Tim Moya Associates Standard Limitations of Service apply to this report and all associated work relating to this site.

Methodology and guidance

2.5 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.

2.6 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.

2.7 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.

3 OBSERVATIONS AND CONTEXT

Site visit

3.1 The site was visited on 27 September 2016, to survey on and off-site trees and vegetation which may be of significance to the proposed development.

3.2 A further visit was undertaken on 26 October 2016 by my colleague Charles McCorkell to investigate the results of an air spade excavation carried out by Ruskins trees along the line of the proposed front light well. The results are included at Appendix C.

Soil conditions

3.3 The British Geological Survey on-line information suggests that the soils on the site are predominantly mixed with the dominant mineral constituent being clay, silt and sand.

3.4 Mixed loamy soils are suitable for the growth of a wide range of tree and shrub species. However, 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 can result in building movement and possible damage.

3.5 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

3.6 Planning policy at national level is set out in the government's National Planning Policy Framework (NPPF).

3.7 The NPPF sets out overarching planning policy and at its core is a presumption in favour of sustainable development. Sustainable development is defined in the NPPF as having economic, social and environmental strands that are interdependent and in these areas planning should meet the needs of the present without compromising the ability of future generations to meet their own needs.

3.8 The NPPF states that planning should be *"not only about scrutiny, but instead be a creative exercise in finding ways to enhance and improve the places in which people live their lives."* And should "*always seek to secure high quality design and a good standard of amenity for all existing and future occupants of land and buildings;"* Also

that planning should *contribute to conserving and enhancing the natural environment and reducing pollution."*

3.9 The NPPF identifies thirteen aspects contributing to the delivery of sustainable development, including:

- establishing a strong sense of place;
- responding to local character and history; and
- providing developments that are visually attractive as a result of good architecture and appropriate landscaping

3.10 Paragraph 61 of the NPPF states *"planning policies and decisions should address the connections between people and places and the integration of new development into the natural, built and historic environment."*

London Borough of Camden Planning Policies

3.11 The relevant development policies for London Borough of Camden form part of the Local Development Framework and were adopted on 8 November 2010 until 2025.

3.12 Those policies specifically relevant to the consideration of trees include:

DP24: *Securing high quality design, all development to consider existing natural features such as topography and trees, and provision of appropriate hard and soft landscaping*

DP25: *Conserving Camden's heritage to maintain the character of Camden's conservation areas, preserve trees and garden spaces which contribute to the character of a conservation area*

DP27: *Basement and light wells, requiring an assessment of the schemes impact on drainage, flooding, groundwater conditions and structural stability….that does not cause harm to the built and natural environment and local amenity*

3.1 Related Core Strategy policies include:

CS13: *Tackling climate change through promoting higher environmental standards*

CS14: *Promoting high quality places and conserving our heritage*

CS15: *Protecting and improving our parks and open spaces and encouraging biodiversity*

3.2 Camden planning guidance CPG4: Basement and Light wells adopted in 2011, amended in 2013, and again in July 2015 is also relevant. The Council will only permit basement and underground development that does not:

- cause harm to the built and natural environment and local amenity;
- result in flooding; or
- lead to ground instability

Legal constraints

3.3 At the time of writing this report, I have not checked whether either of the surveyed trees is protected by a specific tree preservation order; However, they are legally protected by virtue of being within the Fitzjohns and Netherhall Conservation Area.

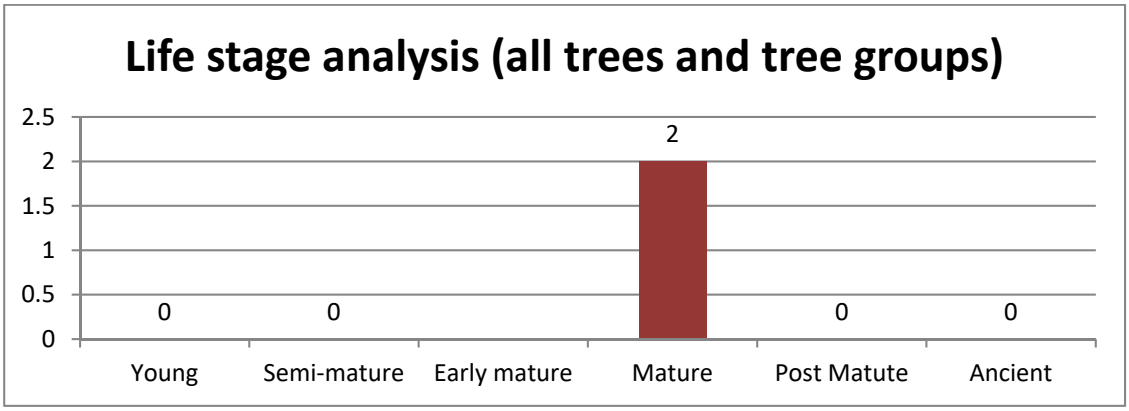
4 TECHNICAL INFORMATION

Tree Data

4.1 The location of the two surveyed trees is shown on the tree survey drawing at Appendix A. Dimensions, comments and information for each tree are given in the tree schedule at Appendix B.

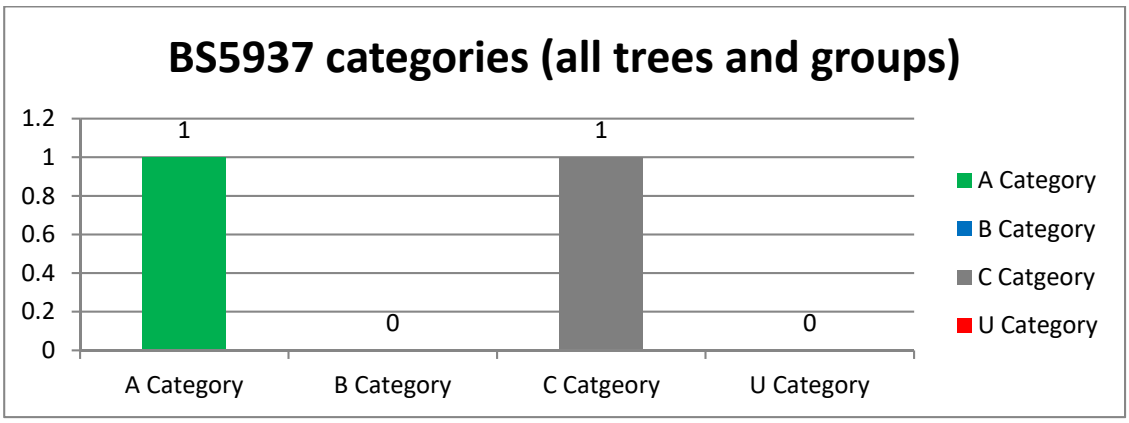
Life Stage Analysis

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.



BS5837 (2012) category breakdown

4.3 There is one high quality, mature beech tree at the front of the site and an unremarkable cordyline in the front garden of the property. Further details of the trees surveyed can be found in the schedule at Appendix B and the tree survey plan at Appendix A.



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	It likely that for practical construction reasons T2 will need to be removed to facilitate the proposal. This 6m high palm tree is not a significant feature in the street scene or typical of the local landscape features. As such is not considered to be a significant constraint to development; it can be easily replaced on completion.
Pruning to facilitate development	Along the line of the proposed front light well, site investigations have revealed the presence of five woody roots most likely to be from T1. These roots vary in diameter from 20mm to 40mm, and are found at depths of 15 to 80cm. The extent of the pruning works / loss of roots will be confined to these and other fibrous roots in this location only. Provided the rest of the front garden is adequately protected during construction operations, the remainder of the rooting environment of T1 will remain intact to provide for the long term health and wellbeing of the tree, the loss of a small proportion of roots in this context is not significant. The roots to be pruned are unlikely to contribute to the structural stability of the tree.
Tree works to facilitate access	The crown of T1 is measured at 5m above existing ground level. No crown pruning will be necessary for construction access provided site machinery is no larger than 4.5m above ground level. A height restriction barrier will need to be installed to control this risk, and the contractor made aware of this restriction when costing up the project.
Tree works to facilitate visibility splays	It will not be necessary to prune the lower growth of trees and other vegetation both on and off-site for highway safety reasons.
Future growth of retained trees, daylight and sunlight	The future growth of trees and potential concerns for shading / daylight availability to the proposal is not considered an issue.
Demolition operations	No buildings are being demolished with this proposal.
Construction operations	Built development is proposed marginally within the outer limits of the theoretical RPA of T1 (3% of the overall RPA). In order to avoid unacceptable physiological or structural harm to this tree, special construction methods are proposed which will allow for the retention of retained important roots and the protection of the soil

	environment in which they are growing. Ground protection as well as tree protection barriers will be required to enable define and control construction access space, and to help protect the roots and crown of T1. Provided the extent of the excavation works for the light well and basement are carefully controlled on site (use of sheet piling / contiguous piling to limit and retain the excavated footprint) and root pruning is carried out in accordance with an agreed method and under arboricultural supervision, prior to the ground works taking place, the proposal should have limited impact on the long term health of the beech tree on completion. Details of the measures proposed are included in the Tree Protection Method Statement at Appendix A.
Changes in soil levels	Other than controlled excavations for the extent of the basement and light wells, no significant changes in soil levels are proposed within the root protection area of T1.
Installation of drainage	I 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/
Landscaping operations	Improvements to the rooting area of T1 are proposed to help mitigate for the loss of roots from the development works. This work will include the removal of hard landscape features, de-compaction of the soil, and an increased area of soft landscaping under the tree within the front garden. Landscaping operations will typically take place at the end of the construction period. These works will normally require the removal of protective fencing or ground protection 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 To mitigate for the loss of roots as a result of the light well excavations and to improve gaseous exchange and water availability for the tree, the client is willing to

convert the hard landscape area to the front of the property to soft landscaping, to improve the existing rooting conditions for T1.

5.3 Details of the proposed conversion to soft landscaping and a replacement for T2 can be found on the landscape plan at Appendix A.

6 DISCUSSION AND CONCLUSIONS

General Change

6.1 Taking into account the above impacts and mitigation, my assessment is that the proposal will not adversely harm the health and appearance of T1, and will not have a negative impact on the landscape character of the area.

How do the changes relate to planning policy?

Policy Ref	***Compliance***
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 to contribute to a strong sense of place.
Regional 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 proposal has given careful consideration to the potential impacts on existing trees on the site, impacts have been identified and mitigation or special methods of working suggested to ensure the natural environment and the character of the conservation area can be protected and maintained.
Camden planning guidance CPG4	The construction of the proposal will not cause harm to the retained tree on site.

Conclusions

6.2 The client has taken a careful approach to assessing the likely impact of the proposed development on the roots of the high quality beech tree at the front of the site. It is evident from the site investigations that some roots will need be pruned to facilitate the installation of the front light well, however the number and size of roots are minor in the context of the over- all available root system of the tree.

6.3 Provided the protection measures and methods of work suggested in this report, together with the proposed rooting enhancement on development completion, I am confident that the proposal can be achieved without having a significant detrimental impact on the health and amenity value of T1 or the character of the conservation area.

6.4 A new tree will be planted to mitigate for the loss of T2 to ensure the proposal is sustainable in terms of tree cover.

6.5 The retained tree can be adequately protected by following the recommendations in the method statement at Appendix A and controlled by suitably worded planning conditions.

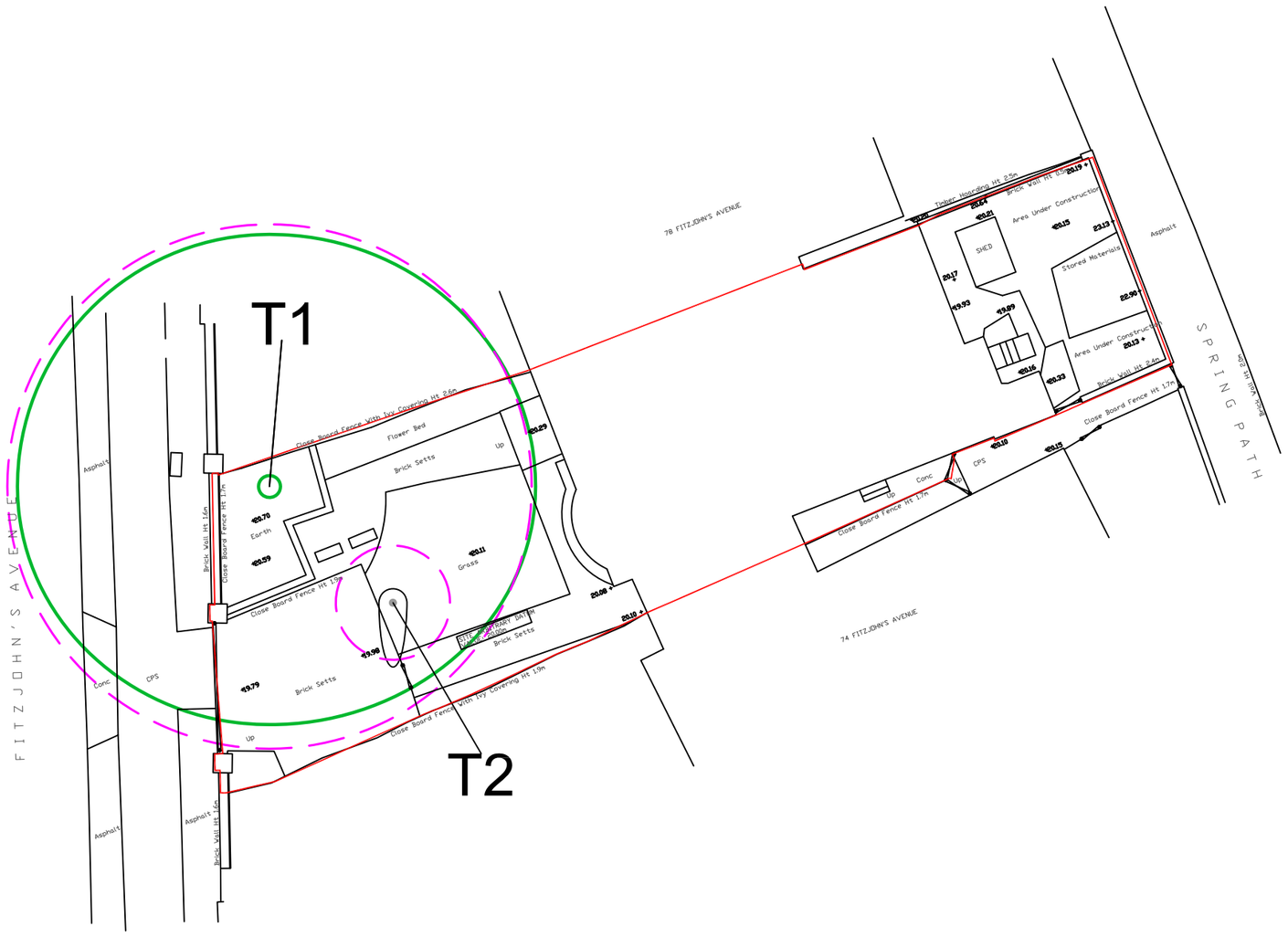
APPENDIX A - PLANS

Tree Survey 160820-P-10

Proposed Layout and Tree Removal 160820-P-11a

Tree Protection and Arboricultural Method Statement 160820-P-12

Landscape Proposal 160820-P-13



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INVESTORS IN PEOPLE

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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 that 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

-	-	-
REVISIONS		
Base Drawing		
-	-	-

0 1m 5m 10m

Title
Tree Survey

Client
Zain Naqi

Project
76 Fitzjohns Avenue, London, NW3 5LS

Date	Drawn by	Checked by
December 2016	RG	
Drawing No	**Rev**	**Scale**
160820-P-10	-	1:200-@A3

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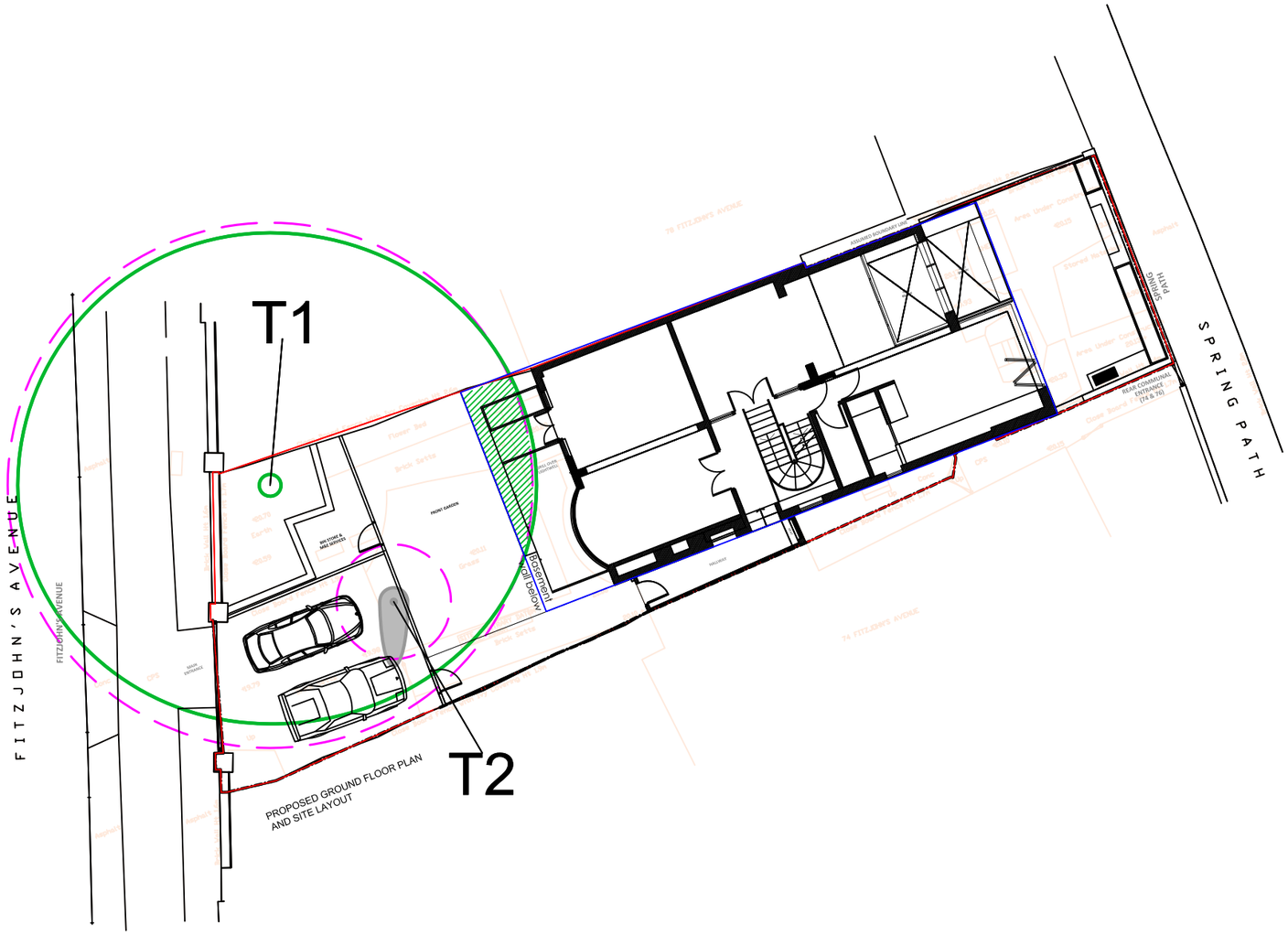

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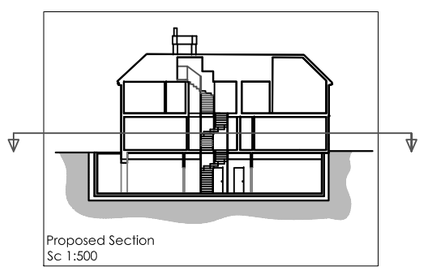
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work

Root protection Area covered by proposed light well = 3 %
(Overal RPA for T1 = 275.2m2)

Trees to be removed shown shaded

Existing layout shown in pink

Prposed layout shown in black



03.02.2017	a	Updated building layout overlay
07.12.2016	-	First issue

REVISIONS

Base Drawing

01.02.2017	-	FPY_Proposed Existing_Plans Elevations Sections_ UPLOAD_170117

0 1m 5m 10m

Title
Proposed Layout and Tree Removals

Client
Zain Naqi

Project
76 Fitzjohns Avenue, London, NW3 5LS

Date	Drawn by	Checked by
December 2016	RG	-
Drawing No	**Rev**	**Scale**
160820-P-11	a	1:200-@A3

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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.

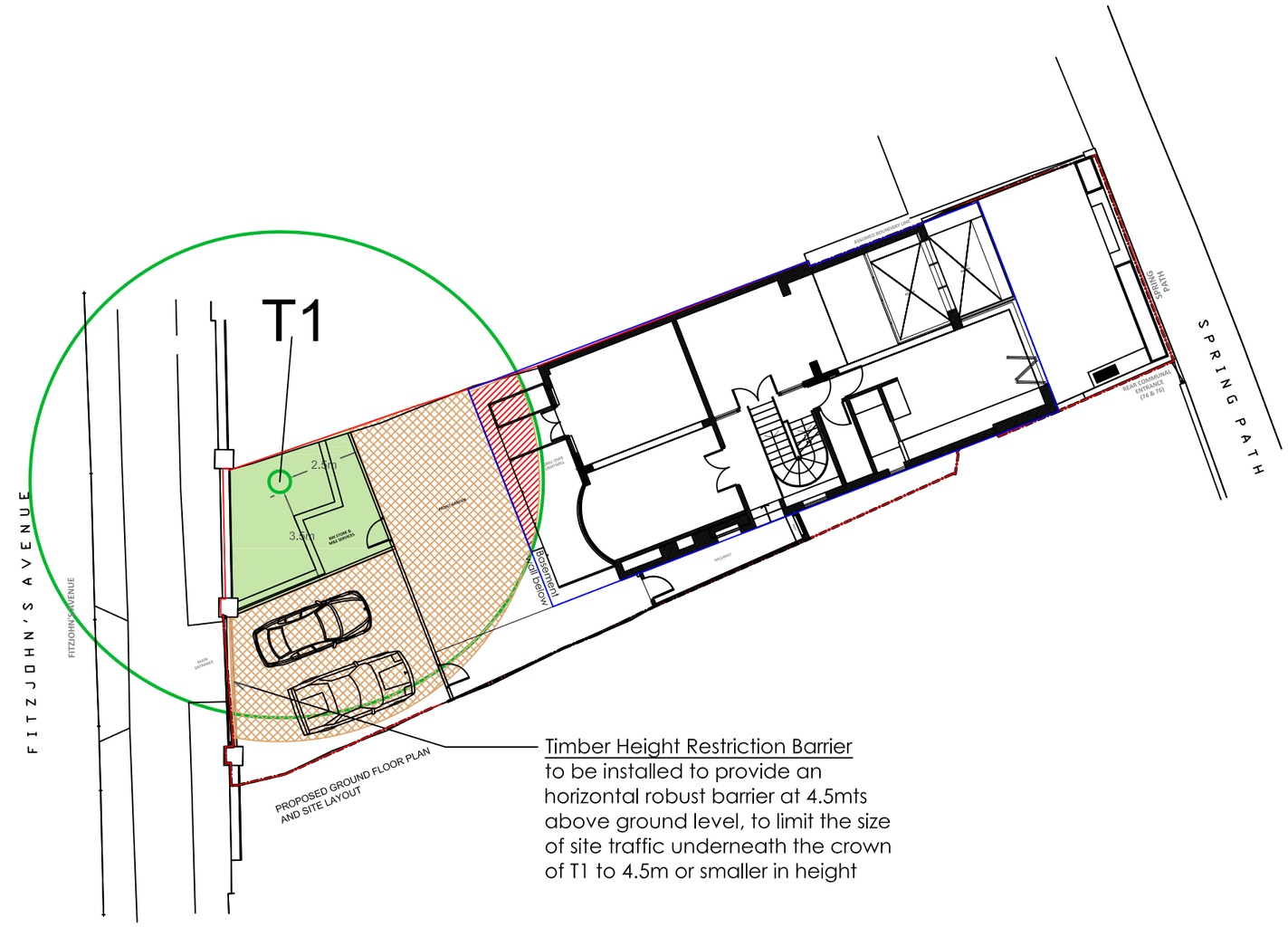
CONTROLLED EXCAVATIONS WITHIN RPA

The line of the basement extent will be marked out on site either sprayed or delineated with timber pegs. No excavations will extend beyond the delineated line.

The top 800mm of soil will be excavated by hand and with sharp, sterile, secateurs, all roots will be pruned back to a position as agreed under the direct supervision of the arboricultural consultant.

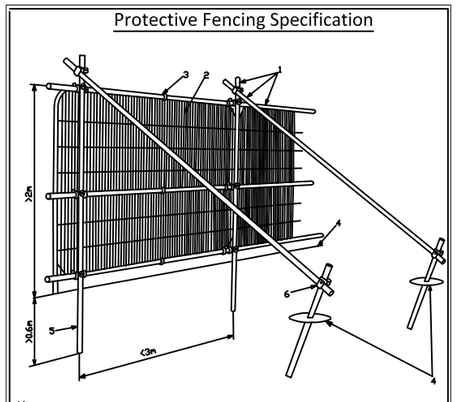
All exposed roots will be immediately wrapped in dry hessian to prevent desiccation and to protect against extreme temperature fluctuations. In hot weather conditions, the hessian will be kept moist until backfilling of soil takes place.

Once roots are pruned, excavations for the remainder of the basement can be undertaken using machinery, ensuring that the excavator does not exceed beyond the pruned roots, into unbroken soil towards the tree and ensuring the machinery is operating from outside the RPA and crown spread of the tree.

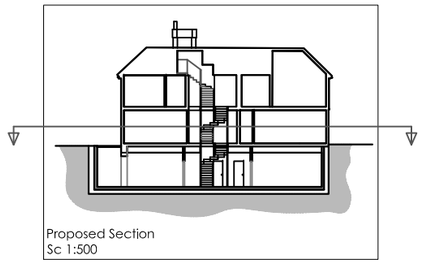


Timber Height Restriction Barrier
to be installed to provide an horizontal robust barrier at 4.5mts above ground level, to limit the size of site traffic underneath the crown of T1 to 4.5m or smaller in height

Protective Fencing Specification



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



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Position of protective fencing and tree protection zones

Temporary ground protection
Refer to Arboricultural Impact Assesment for details

Controlled excavation works, carried out under Arboricultural supervision in accordance with the Arboricultural Method Statement

03.02.2017	a	Updated building layout overlay
07.12.2016	-	First issue

REVISIONS

Base Drawing

14.11.2016		FPY_Existing Proposed_FROZEN_111116

Title
Tree Protection Plan

Client
Zain Naqi

Project
76 Fitzjohns Avenue, London, NW3 5LS

Date	Drawn by	Checked by
December 2016	RG	-
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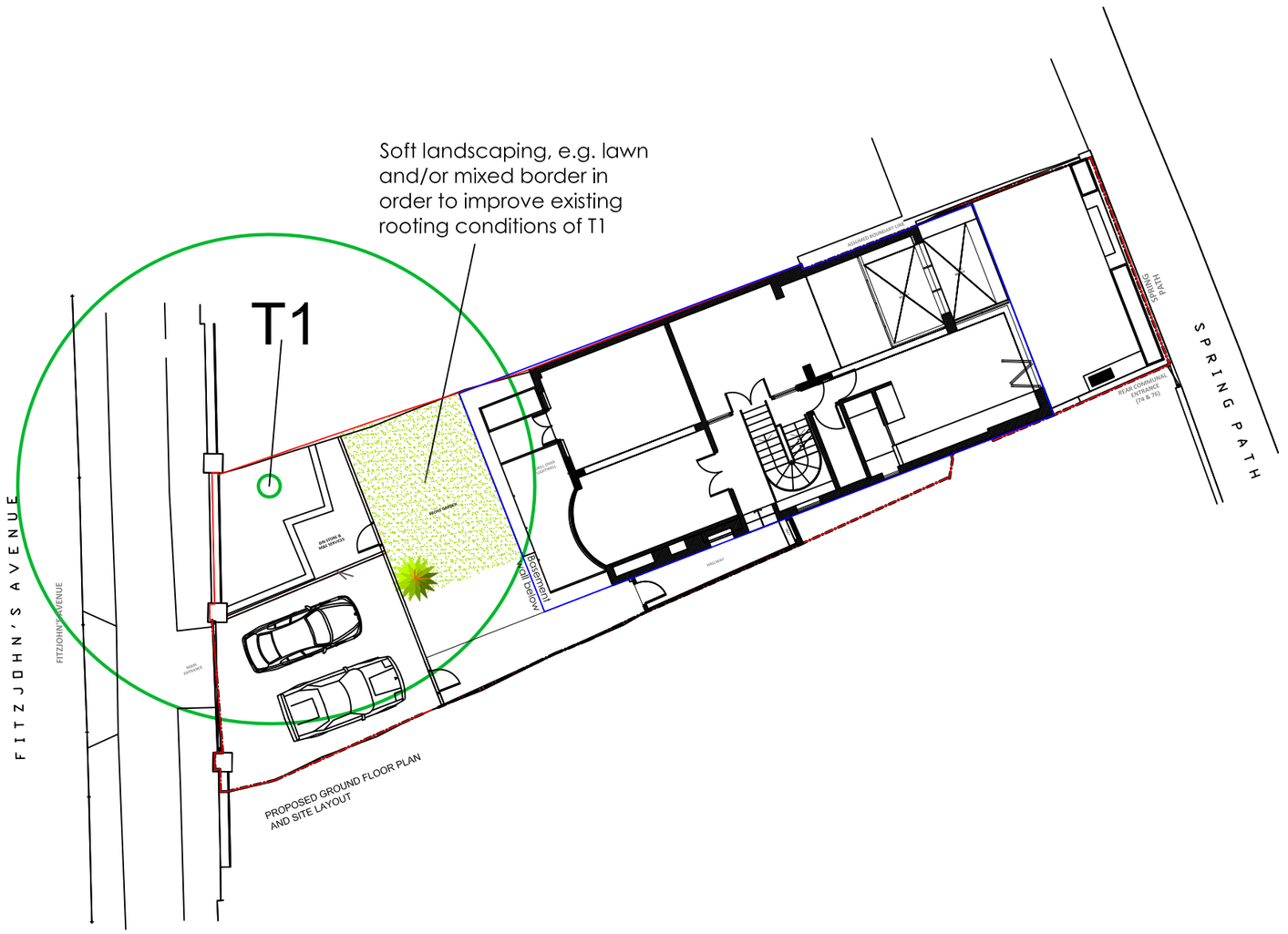

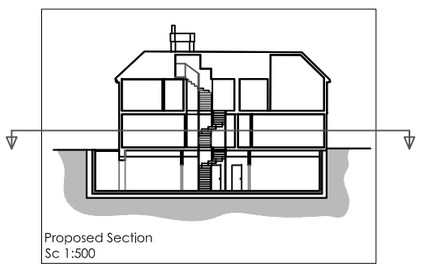

Proposed Section
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BS 5837:2012 TREE RETENTION CATEGORIES

Existing Tree

Proposed planting
Cordyline australis

Soft landscape area

03.02.2017	a	Updated building layout overlay
07.12.2016	-	First issue

REVISIONS

Base Drawing

14.11.2016		FPY_Existing Proposed_FROZEN_111116

Title
Proposed Landscape

Client
Zain Naqi

Project
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Date	Drawn by	Checked by
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160820-P-13	a	1:200-@A3

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APPENDIX B - SCHEDULES

Tree Schedule 160820-PD-10

76 Fitzjohns Avenue, London, NW3 5LS

Tree/Group Number	No. of Trees	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown Clearance (m)	Life stage	Condition Notes	Most Recent Survey	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T1	1	***Fagus sylvatica*** Common Beech	18.0	78	1	9.0		9.5		8.5		9.0		5.0	Mature	Structural condition Good. Physiological condition Good. Arboricultural work - Historic. Girdling roots - Major. Ivy or climbing plant. Root environment - Restricted. Raised planter 411mm height above garden level Tree is 10.4m from front elevation of property (c stem).	27/09/2016	275.2	9.4	40+	A1
Tree T2	1	***Cordyline australis***	6.0	17	1	0.5		0.5		2.3		0.5		3.0	Mature	Structural condition Fair. Physiological condition Fair. No significant faults observed.	27/09/2016	13.1	2.0	10-20	C1

Stem green estimated value

Stem AVE average stem diameter for multi-stemmed trees

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.

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 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	* 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 *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7*			RED
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	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 arboricutural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	GREEN
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	BLUE
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	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

APPENDIX C – ROOT INVESTIGATIONS

Root Investigation Report 160820-RD-01

Root Investigation Plan 160820-R-01

Root Investigation Report

160820-RD-02

Location: 76 Fitzjohns Avenue, London, NW3 5LS

Date: 26 October 2016

Site Visit

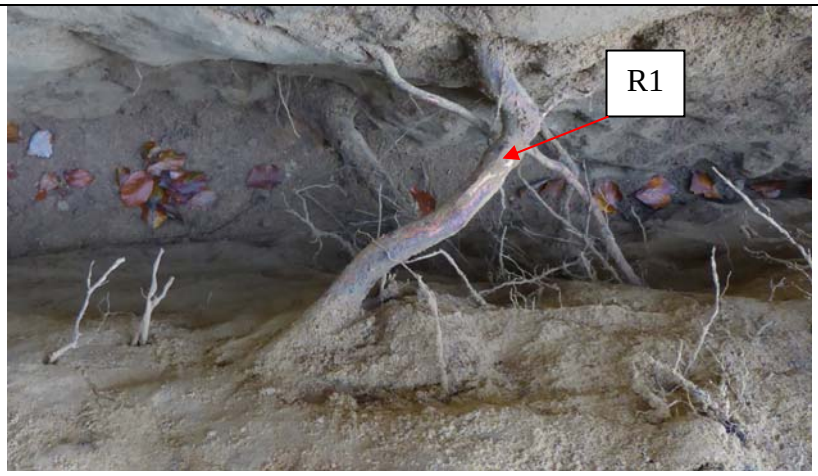
The site was visited by Charles McCorkell on 26 October 2016 in order to carry out a root investigation following the excavation of a trench within the rooting area of a mature copper beech tree, reference number T1. At the time of the inspection the tree was in good structural and physiological condition and appeared to have good vitality.

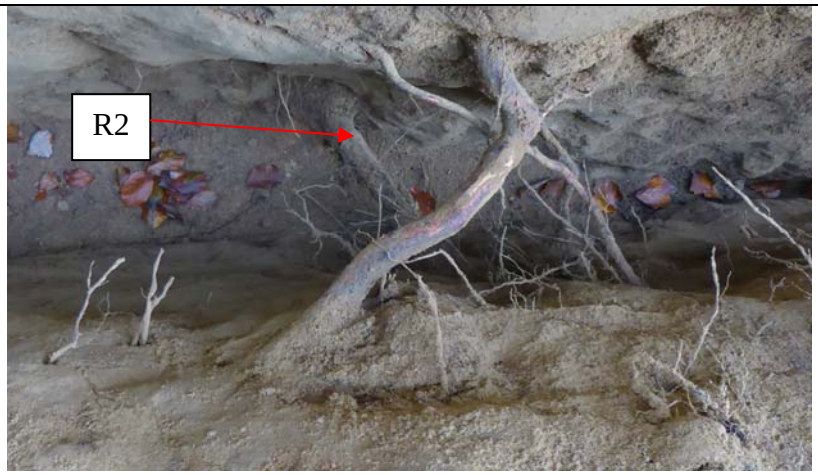
The trial pit was excavated in the morning of the 26th of October by Ruskins Trees and Landscape Ltd. Excavations where undertaken with the use of an air spade and once completed all exposed roots where covered in wet hessian sacks. The trial pit is due to be back filled the following day.

Trial Hole

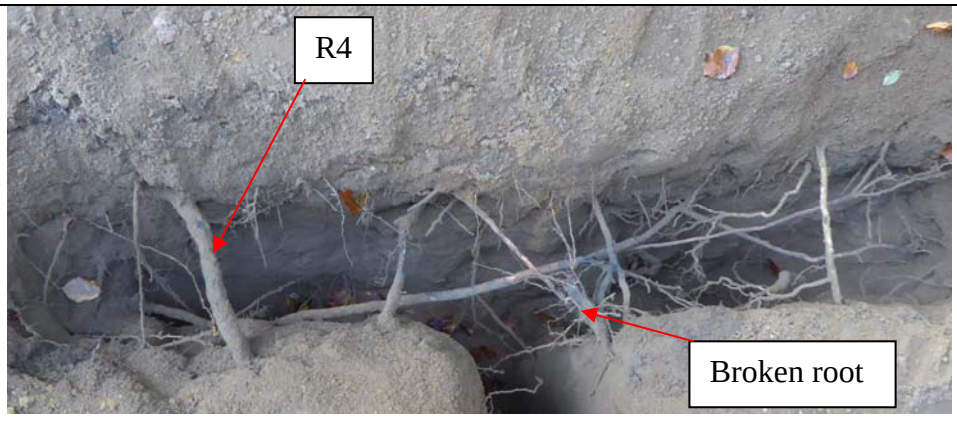
The main trench was excavated parallel to the existing building in the location of the proposed basement light well. Excavation could not be carried out to the boundary line due to existing shrubs being present; therefore, the trench returned in a radial direction towards the tree for 2 metres and then ran parallel to the property once again. The depth of the trench excavated was approximately 90cm throughout. For the dimensions and location of the trial hole please refer to drawing 160820-R-01 attached to appendix A.

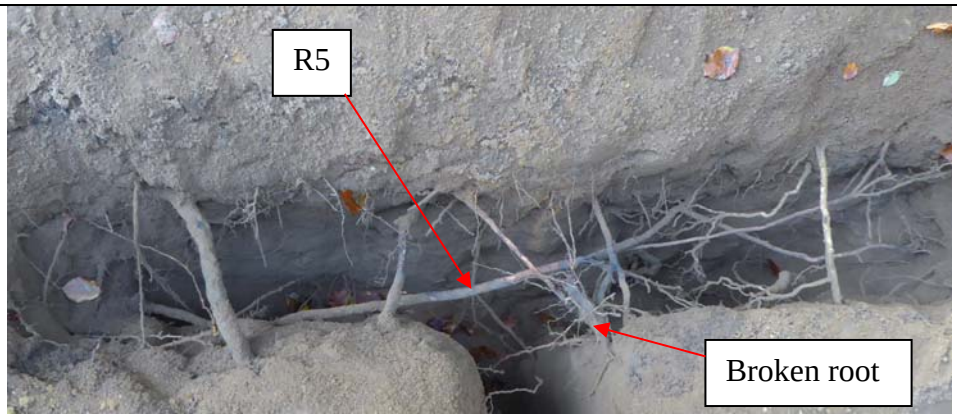
In total, four roots (R1-R4) equal to or greater than 25mm in diameter where recorded within the excavated trench. One root (T5) was recorded at 20mm diameter. There were a number of fibrous roots that where noted but not recorded as these where below the industry best guidance measurement (>25mm in diameter). It was also evident that some rooting within the trench originated from the adjacent shrubs. Please refer to drawing 160820-R-01 for the annotation and location of roots.

Root 1 (R1)	
Diameter	30mm
Depth	25cm to the top of root.
Direction	Towards property
Notes	Minor scaring on upper bark of root from air spading. Minor fibrous rooting <20cm in dia. adjacent to root - not recorded.
Photo	

Root 2 (R2)	
Diameter	40mm
Depth	80cm to the top of root.
Direction	Towards property
Notes	Located below R1. Minor fibrous rooting <20cm in dia. adjacent to root - not recorded.
Photo	

Root 3 (R3)	
Diameter	25mm
Depth	15cm to the top of root.
Direction	Parallel to property
Notes	The difference in diameter would suggest that the root is not the same as that of R1. Minor fibrous rooting <20cm in dia. adjacent to root - not recorded.
Photo	

Root 4 (R4)	
Diameter	30mm
Depth	20cm to the top of root.
Direction	Towards property
Notes	Minor fibrous rooting <20cm in dia. adjacent to root - not recorded. Some lighter coloured rooting within trench are originating from adjacent shrubs. x1 historically broken root within trench.
Photo	

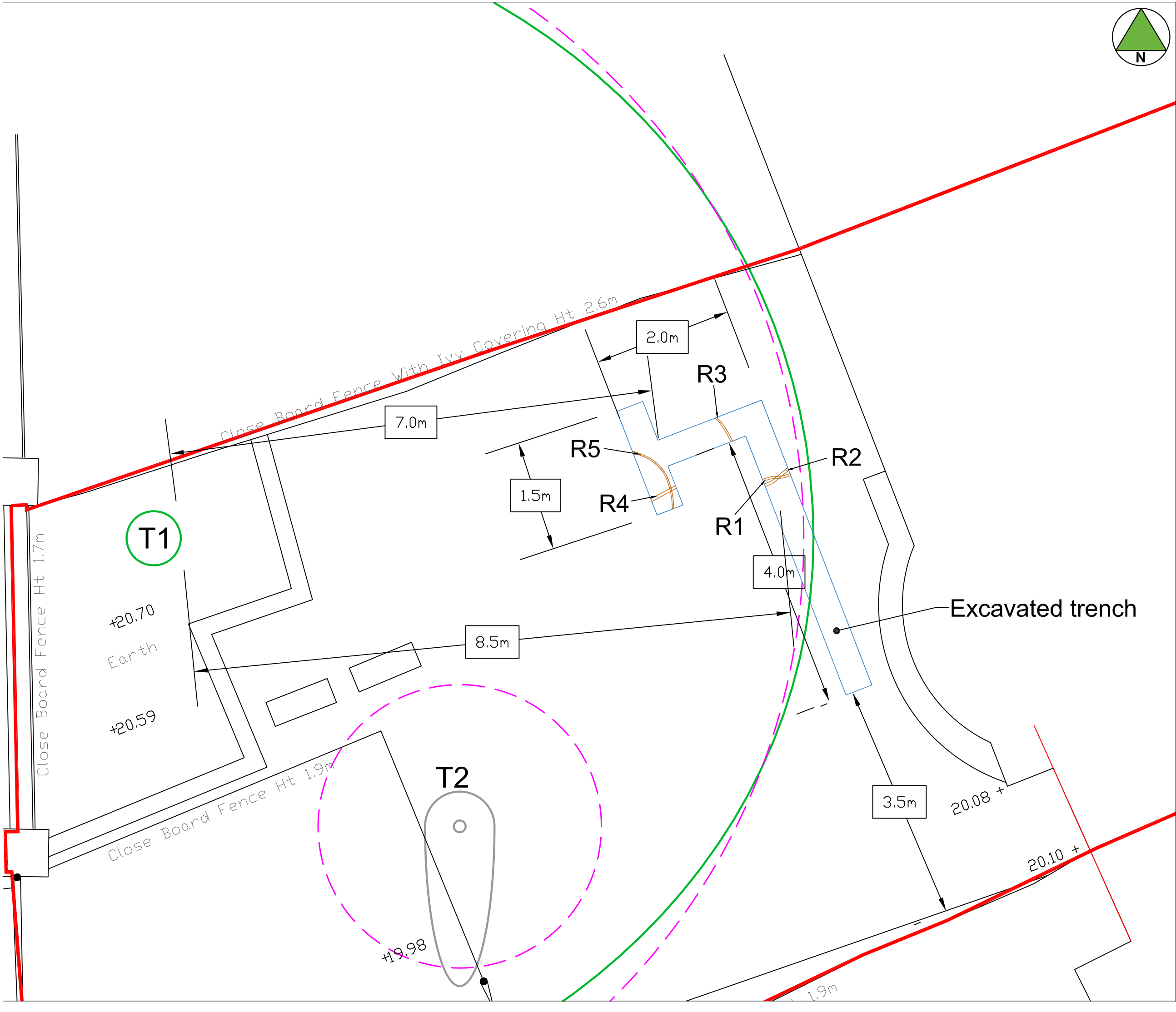
Root 5 (R5)	
Diameter	20mm
Depth	30cm to the top of root.
Direction	Parallel to property
Notes	Minor fibrous rooting <20cm in dia. adjacent to root - not recorded. Some lighter coloured rooting within trench are originating from adjacent shrubs. x1 historically broken root within trench.
Photo	

Conclusion

The trial hole shows that the rooting area extends as far as and beyond the BS5837 theoretical root protection area of T1. Rooting was encountered at depths of 80cm and the diameters recorded were equal to or greater than that of industry best practice (>25mm diameter). Given that rooting was encountered within the location of R1, R2 and R3, it is plausible to suggest that rooting would also be located adjacent to the site boundary in the area that was not excavated. None of the rooting encountered was structural and the overall percentage uncovered is considered minimal in comparison to the whole rooting area of the tree.

Appendix A

160820-R-01



INVESTORS IN PEOPLE

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.

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

-	-	-

REVISIONS

Base Drawing

29.09.16	-	FPY_Existing Proposed_email_270916 (existing)

0 1m 5m 10m

Title
Root Investigation

Client
Zain Naqi

Project
76 Fitzjohns Avenue, London, NW3 5LS

Date	Drawn by	Checked by
October 2016	CM	-
Drawing No	**Rev**	**Scale**
160820-R-01	-	1:50@A3

DO NOT SCALE Use only figured dimensions

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APPENDIX D – TEMPORARY GROUND PROTECTION

eve

TRAKWAY

ROADWAYS | WALKWAYS | BARRIERS | BRIDGES | FENCING

ROADWAYS PRODUCTS

HEAVY DUTY TRAKPANEL EVENT

DUE to the demand for a more durable and stable surface, the Heavy Duty or 'K' Panel was developed from the original roll system. Extruded aluminium planks are connected to create this high capacity panel that has a corrugated surface to aid vehicle traction.

This system is suitable for high volume traffic as it improves the load capacity of the existing ground underneath making it perfect for use as an access road or car park for any outdoor event.

TECH SPEC

Dimensions:
3m x 2.5m

Weight:
310kg

Carrying Capacity:
By using panels in a combination of widths, lengths and layers, this system is capable of taking loads in excess of 1000 tonnes.

HEAVY DUTY TRAKPANEL INDUSTRIAL

BY interconnecting panels in any combination of widths and layers, the Heavy Duty or 'K' Panel provides guaranteed access for any load, up to 1000 tonnes, over almost any terrain.

The Heavy Duty or 'K' Panel is the most versatile temporary roadway product currently available, offering the flexibility to create stability on otherwise impassable ground. From pebble beaches to peat bogs and tidal sands to SSSI sites, Eve Trakway has worked together with land owners, contractors and governing bodies to create a solution designed to provide maximum protection to both the load and the ground upon which it needs to work.

MEDIUM DUTY TRAKPANEL EVENT

THE Medium Duty or Box Panel's unique selling point is its versatility in its applications, being ideally suited for events where both pedestrian and vehicle access is required.

This versatile panel can be laid with either a smooth or corrugated surface uppermost. The smoother surface finish provides excellent support underfoot, whereas the corrugated surface provides greater traction for vehicles, whilst the construction of the panel maintains a high load bearing capacity.

Due to the way these panels fit together, a smooth joint is created therefore reducing trip hazards.

TECH SPEC

Dimensions:
3m x 2.5m
(when installed 3m x 2.44m due to overlap)

Weight:
275kg

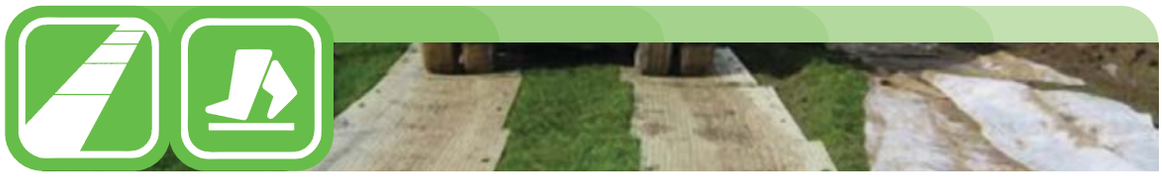
Carrying Capacity:
A more pedestrian friendly roadway, this system is capable of taking any road going loads.

MEDIUM DUTY TRAKPANEL INDUSTRIAL

COMPARED to the Heavy Duty or 'K' Panel this roadway system allows both safe access for pedestrian and vehicle traffic. In situations where workers require a safe passage to access work sites the Medium Duty or Box Panel can be paired with the Multi-Directional panels to create a walkway or roadway around immovable obstacles.

As these panels reduce trip hazards, this makes any construction site access especially health and safety conscious.

ROADWAYS | WALKWAYS PRODUCTS



I-TRAC

I-TRAC is a heavy-duty roadway system consisting of interlocking panels that create a continuous roadway surface that is capable of withstanding all road-going vehicles.

I-Trac is entirely man-handleable and is secured by an inbuilt connection device that needs no special tools to operate. The product is quick to install and recover, with a single man typically laying 50sqm in an hour.

TECH SPEC

Panel size:
0.8sqm

Weight:
15.6kg

Depth:
54mm

Construction:
Polypropylene

TRAKMATS

TRAKMATS provide customers with a man-handleable temporary access solution. Designed to provide access for rubber wheeled vehicles of up to 30 tonnes, dependant on ground conditions; they can be laid as two parallel tracks or a single roadway to provide a temporary surface to protect soft or sensitive ground and flooring.

As the mats require no specialist vehicles or equipment to install, they are ideal for locations where the access needs to be re-sited. This can be done by labour already on site, negating the cost of an additional installation crew.

Trakmats are weather proof, water resistant as well as environmentally friendly and contain UV components that prevent sun damage and deterioration.

TECH SPEC

Width:
1.13m

Length:
2.44m

Total Area:
2.75sqm

Depth:
13mm

Weight:
33kg

Construction:
100% High Density Polyethylene

ROADWAYS | WALKWAYS | ACCESSORIES

PRODUCTS

ROADWAY RAMPS

CAN BE FITTED TO HEAVY OR MEDIUM DUTY TRAKPANELS

A new type of ramp has been introduced to fit both the aluminium roadway systems.

This specially developed ramp is constructed from heavy-duty polyurethane and can be installed at the start and end of the temporary roadway to improve appearance and aid access. The ramps are wheelchair compliant.

MULTI-DIRECTIONAL TRAKPANEL

CAN BE FITTED TO MEDIUM DUTY TRAKPANELS

THE multi-directional panel incorporates an expandable surface enabling the roadway to seamlessly create turns in either direction.

The Multi-Directional Trakpanel has a pedestrian friendly surface ensuring a safe walking area at all times.

TECH SPEC

Dimensions Fully Closed:
1.32m x 3m
Dimensions Fully Extended:
2.13m x 3m
Individual Plank Extension:
3.5 degrees
One Side Full Extension:
17.5 degrees

LD20 LIGHT DUTY TRAKSYSTEM

THE system provides support for both vehicles and pedestrains and is ideal for applications where mass coverage is required quickly. For example, 50m of roadway can be deployed in as little as 5 minutes with a forklift truck. LD20 is a simple yet effective quick install system.

TECH SPEC

Dimensions:
3m wide on rolls of 25 metres
Weight:
1,531kg per roll
Carrying Capacity:
Maximum capacity of 20 tonnes

AM2

THIS temporary roadway solution is generally available in two panel sizes for multiple uses. This roadway also provides immediate hard standing areas. With its quick assembly construction, AM2 is ideal for car parks, spectator viewing areas and temporary standing surfaces for showgrounds. It is regularly featured as the F1 paddock at the Goodwood Festival of Speed.

TECH SPEC

Dimensions:
3.67m x 0.63m (1.46m x 0.63m smaller sections)

Weight:
65kg (31kg smaller sections)

eve
TRAKWAY

Customer Service Centre: 08700 767676

www.evetrakway.co.uk

Eve Trakway | Bramley Vale | Chesterfield | Derbyshire | S44 5GA

- Feasibility Tree Surveys
- British Standard 5837 Tree Surveys
- Tree Constraints Reports & Drawings
- Appeal Statements & Proofs
- Expert Witness
- Evidence at Hearings & Public Inquiries
- Method Statements to Satisfy Planning Conditions
- Design Solutions
- Landscape Plans
- Tender Documents & Drawings
- Supervision & Inspection of Works
- Contract & Project Management
- Health & Safety Surveys
- GPS Surveys
- Computerised Tree Population Surveys
- CAD Plans & Consultancy
- Subsidence Risk Assessments
- Mortgage & Insurance Reports
- TPO Review
- Local Government Officer Contracts
- Arboricultural & Ecological Reports for Planning
- Habitat Surveys (Extended Phase 1/ Walkover/ Botanical)
- Protected Species Surveys
- Ecological Mitigation & Licencing
- BREEAM & CFSH
- Ecological Management Plans
- Hedgerow Surveys
- Landscape Analysis

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