WEDDLE

LANDSCAPE ARCHITECTURE
ARBORICULTURE
GARDEN DESIGN
ECOLOGY

Landscape Institute
Registered practice

WARMINSTER ROAD, SOUTH NORWOOD

ARBORICULTURAL IMPACT ASSESSMENT

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1 INTRODUCTION

1.1 Background

Easy Forward Planning has asked Weddles to inspect the trees onsite and prepare an Arboricultural Impact Assessment report. This report has been prepared to support a planning application for extension to a residential dwelling.

A previous application was approved in November 2020 (21/03250/FUL) subject to a number of conditions. Condition 7 states:

'The tree protection methods shall by implemented as specified within the approved 'C153951-01-01' document prior to any above ground works. Reason: In order to safeguard trees and maintain the appearance of the area'.

This report has been prepared by Imogen Glover Bsc (Hons) and checked by Christopher Braine BA Hons MCIHort MLA CMLI of Weddle Landscape Design. Neil is a Chartered Landscape Architect and associate member of the Arboricultural Association, registered user of Quantified Tree Risk Assessment with over 16 years experience of arboricultural consultancy.

This report considers the impact of development on the trees and refers to drawing C152802-01-01 Tree Survey and Constraints Plan, 1782-001 Tree Protection Plan.

1.2 The Proposals

The proposal is for an outline planning application for the construction of a new residential property and the construction of an extension to the existing property at 53 Warminster Road.

1.3 Planning History

Prior to the application, a previous planning application was granted in November 2020 for the erection of a two storey side addition to the current dwelling, providing two flats with associated site alterations. As part of this application Middlemarch Environmental provided a tree survey and report with a proposal of complete removal of T8, G3 and partial removal of G2. The council responded in respect to trees:

'The tree protection methods shall by implemented as specified within the approved 'C153951-01-01' document prior to any above ground works. Reason: In order to safeguard trees and maintain the appearance of the area'

Since then, planning permission has lapsed due to council condition 1 stating,

'The development shall be begun within three years of the date of the permission. Reason: To comply with the provisions of the Town and Country Planning Act 1990 as amended by the Planning and Compulsory Purchase Act 2004.'

1.4 General Site Description

The site is located at 53 Warminster Road in Croydon, London, SE25 4DY, at Ordnance Survey Grid Reference TQ 34157 68876.

The arboricultural resource of the site is predominantly boundary trees, with an existing dwelling to the centre of the site.

A search of Croydon Borough Councils website show that the site does not lie within a Conservation Area (CA) and there are no Tree Preservation Orders (TPOs) present on the site.

There are 12 trees on site and 3 groups. The trees onsite are predominantly Aspen and Lime with some native species including Oak and Sycamore.

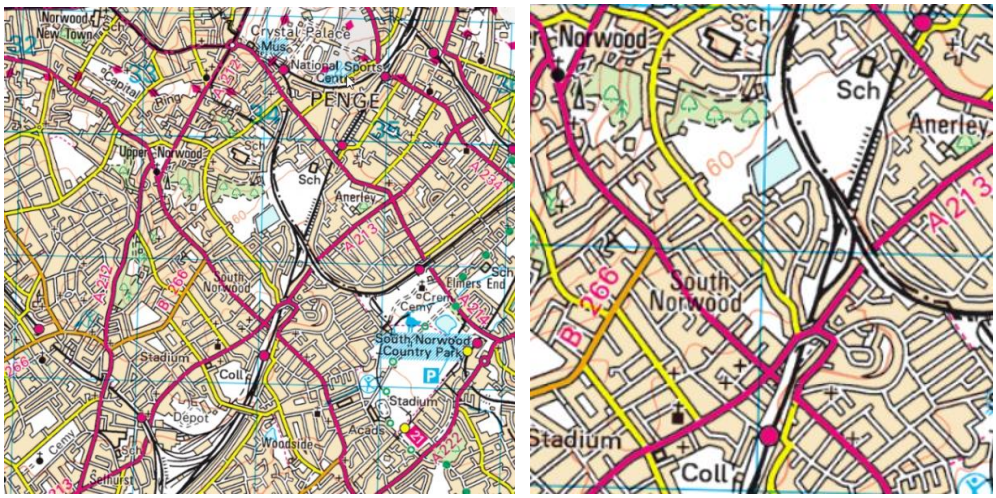


Figure 1: OS Map showing site location



Figure 2: Redline - development site boundary.

2 TREE SURVEY

A Tree Survey to BS 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' was carried out by Middlemarch Environmental Ltd in June 2020, as shown on drawing C152802-01-01 below.

The tree survey includes an assessment of life stage, life expectancy, general observations on condition and categorisation in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' Section 4.5 and Table 1.

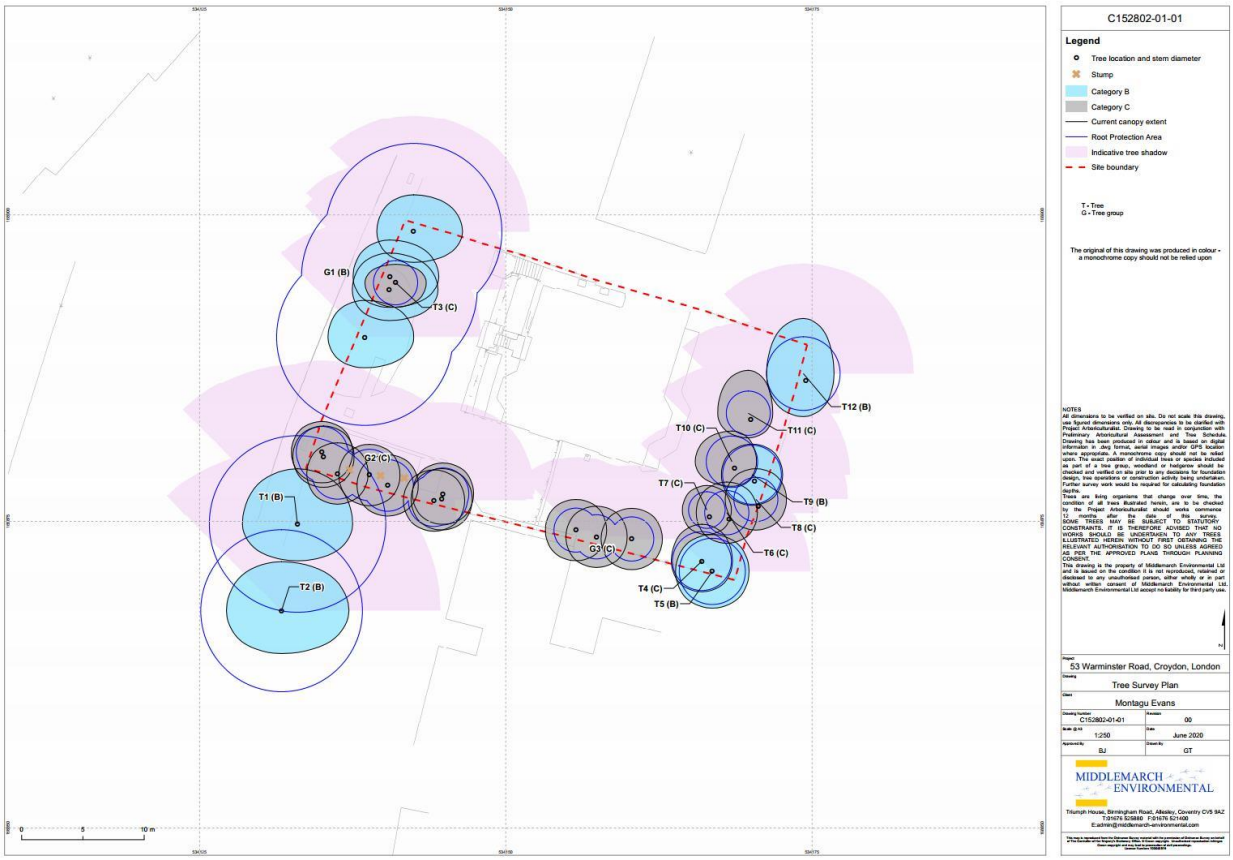


Figure 3: Tree Survey and Constraints Plan C152802-01-01

2.1 Approach to tree protection

The Root Protection Area (RPA) as defined by BS 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' has been identified and shown on the Tree Constraints Plan (see drawing C152802-01-01). This is the zone of roots which should be protected against damage during construction.

Three phases are proposed for the development, a demolition phase, a construction phase and an external works phase. The Tree Protection Plans indicate the position for protective fencing barriers during these phases.

A Method Statement for Construction has been included. This deals with general methodology of tree protection from compaction during construction and techniques to be adopted to minimise the impact of construction on tree roots.

3 TREE CONDITION

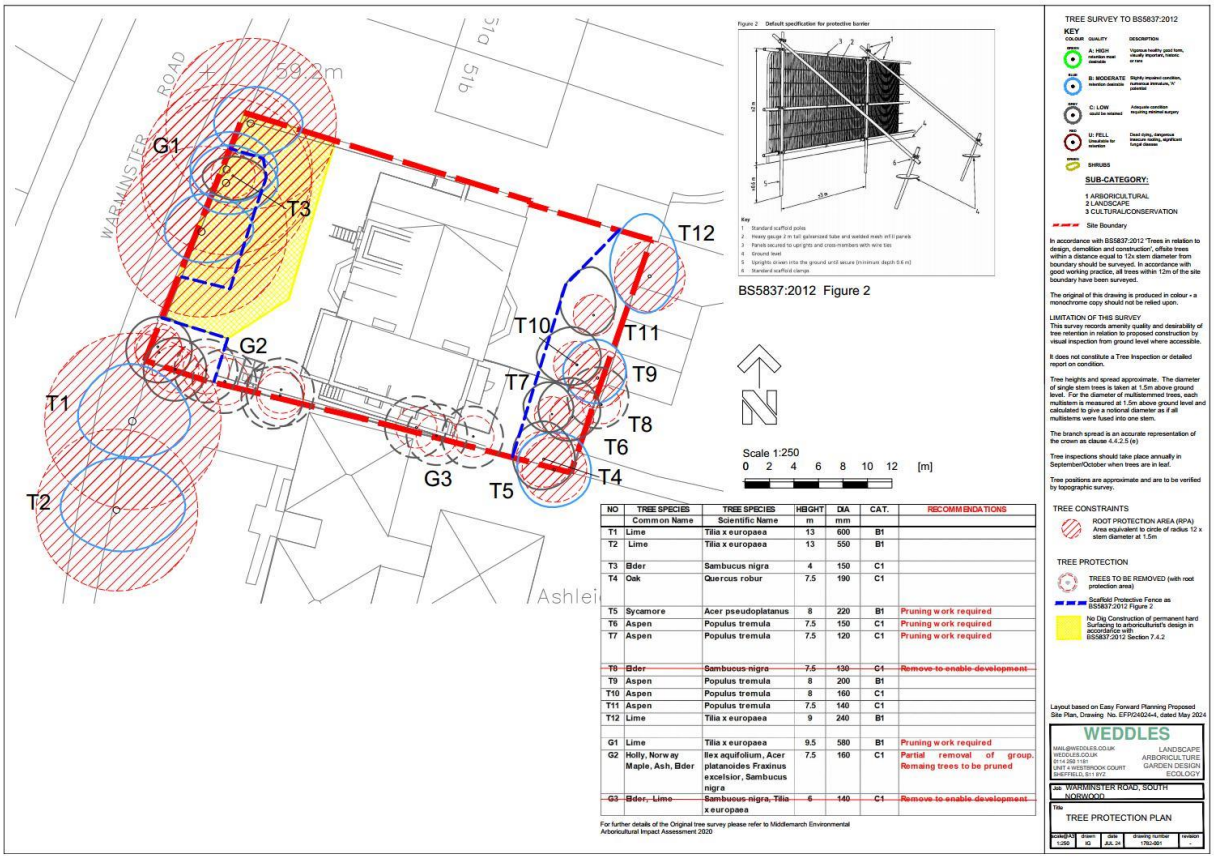
The tree survey includes an assessment of life stage, life expectancy, general observations on condition and categorisation in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' Section 4.5 and Table 1. This information is was produced by Middlemarch Environmental in 2020 and can be found in Appendix C of this report.
The survey included 12no. trees and 3no. groups.

- European Lime T1 has epicormic growth on main stem and in crown, with rubbing branches and minor deadwood in the crown also. There is evidence of previous pruning wounds from a crown lift. Build and hard surfaces are within the RPA. (category B).
- European Lime T2 has epicormic growth on main stem and I crown as well as evidence of minor deadwood. Building and hard surfacing within the RPA area. (category B).
- Elder T3 has some rubbing branches in crown and existing hard surfacing within RPA. (category C).
- Oak T4 is suppressed, and has evidence of minor deadwood and branch stubs in crown (category C).
- Sycamore T5 is growing into boundary fence, has minor deadwood and stubs in crown, and has ivy covered stems. (category B).
- T6 Aspen has old pruning wounds and stubs in crown, ivy covered stems and included unions throughout the crown area. (category C).
- T7 Aspen has previous pruning wounds, stubs, and including unions throughout crown (category C).
- T8 Elder has the existing building within RPA and branch stubs in the crown area (category C).
- T9 Aspen has an ivy covered stem, and building is within the RPA (category B).
- T10 Aspen has included unions throughout the crown, and the building is within the RPA (category C).
- T11 Aspen has evidence of branch stubs and included unions in the crown (category C).
- T12 European Lime has some dead wood, ivy covered stems and branch stubs present (category B).
- G1 European Lime has a conjoined canopies, ivy covered stems and some branch stubs. (category B).
- G2 Holly, Norway maple, Ash and Elder has some dead trees present within the group as well as some self-seeding. Minor deadwood and ivy covered stems are also present.(category C).
- G3 Elder and European Lime have some dead and self seeded trees present within the group. Building and hard surface is within the RPA also. (category C).

4 ARBORICULTURAL IMPACT ASSESSMENT

4.1 Description of proposed development

The proposal is for the erection of a storey side addition providing flats with associated site alterations. The proposed layout is shown on drawing 1782-001. The Tree Protection Plan also indicates the position for protective barriers.



NO	TREE SPECIES Common Name	TREE SPECIES Scientific Name	HEIGHT m	DIA mm	CAT.	RECOMMENDATIONS
T1	Lime	Tilia x europaea	13	600	B1	
T2	Lime	Tilia x europaea	13	550	B1	
T3	Elder	Sambucus nigra	4	150	C1	
T4	Oak	Quercus robur	7.5	190	C1	
T5	Sycamore	Acer pseudoplatanus	8	220	B1	Pruning work required
T6	Aspen	Populus tremula	7.5	150	C1	Pruning work required
T7	Aspen	Populus tremula	7.5	120	C1	Pruning work required
~~T8~~	~~Elder~~	~~Sambucus nigra~~	~~7.5~~	~~130~~	~~C1~~	~~Remove to enable development~~
T9	Aspen	Populus tremula	8	200	B1	
T10	Aspen	Populus tremula	8	160	C1	
T11	Aspen	Populus tremula	7.5	140	C1	
T12	Lime	Tilia x europaea	9	240	B1	
G1	Lime	Tilia x europaea	9.5	580	B1	Pruning work required
G2	Holly, Norway Maple, Ash, Elder	Ilex aquifolium, Acer platanoides Fraxinus excelsior, Sambucus nigra	7.5	160	C1	Partial removal of group. Remaing trees to be pruned
~~G3~~	~~Elder, Lime~~	~~Sambucus nigra, Tilia x europaea~~	~~6~~	~~140~~	~~C1~~	~~Remove to enable development~~

Tree Protection Plan – 1782-001

4.2 Implications of proposed development

4.2.1 Trees to be removed

Full removal of T8 and G3 is required as well as the partial removal of trees on the eastern side of G2 is required to facilitate the construction of the proposed development.

The layout has been developed considering a number of factors including engineering levels, access roads, connection to highway, parking provision, architectural massing, service easements and tree constraints etc. To achieve a viable layout will require the removal of these groups which are graded low quality (category C).

4.2.2 Trees to be retained

All other trees will be retained. The proposed development has the potential to impact on the retained trees and protective fencing will be erected to surround all retained trees. The location of protective fencing is shown on drawing 1782-001 Tree Protection Plan.
Retained trees are all in close proximity to the proposed building and the following works are proposed:

- Sycamore T5 should be pruned back from fence line.
- Aspen T6 and T7 should be reduced away from proposed building structure.
- Lime G1 will require its canopy being reduced away from driveway and entrance into the site.
- Remainder of G2 will have its canopy reduced away from site access point
- In addition to the above works any ivy and deadwood should be removed from retained trees.

It is considered that with the fencing and methods proposed during construction any impacts on retained trees will be satisfactorily mitigated, ensuring their long term health.

5 OUTLINE METHOD STATEMENT FOR CONSTRUCTION

5.1 Introduction

The root system is the most susceptible part of a tree to damage, because it is not immediately visible. Damage of the root system will affect the health, growth, life expectancy and safety of the rest of the tree. The effects of below ground damage may only become evident several years later.

Damage to the trunk and branches of a tree may cause severe disfigurement although rarely kills the tree. Death of branches or their unplanned removal may adversely affect the balance of the tree and hence its safety.

Roots also need oxygen from the soil. Respiration by the roots and other soil organisms depletes this oxygen and increases carbon dioxide levels in the soil. Diffusion between the soil and the atmosphere maintains a correct balance of oxygen and carbon dioxide in the soil.

Anything which affects this balance will affect the condition of the root system. Compaction of the ground reduces space between soil particles and hence can upset this balance.

5.2 Tree Protection Fencing and Construction Exclusion Zone

The general principle of avoiding damage to trees or compaction of soil within the Root Protection Area is achieved by erecting protective fencing as recommended by BS 5837:2012, Trees in Relation to Design, Demolition and Construction - Recommendations (Clause 5.5), before site works commence. The fenced area is referred to as the construction exclusion zone (CEZ) and should be considered to be sacrosanct.

The Tree Protection Fence shall be a minimum 2 metre high vertical and horizontal scaffold framework well braced to resist impacts as Figure 2 in BS5837:2012 and be erected as a first site operation (See Appendix A). Waterproof signage labelled as ‘Tree Protection Area’ should be attached to fencing as provided in Appendix A.

Within the CEZ site no construction activities will take place including:

- Movement of vehicles or plant
- Raising, lowering or adjusting soil levels
- Storage of construction materials, chemicals, fuel or cement
- Site huts, cabins or other temporary structures
- Utility trenching
- Laying of impervious materials
- Changes to the water table

5.3 Utility or Service runs within the Root Protection Area

Ideally no service runs should pass through protected areas. If unavoidable, all hand dug trenching should be carried out in accordance with NJUG 10/Volume 4 (Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees published by the National Joint Utilities Group April 2007).

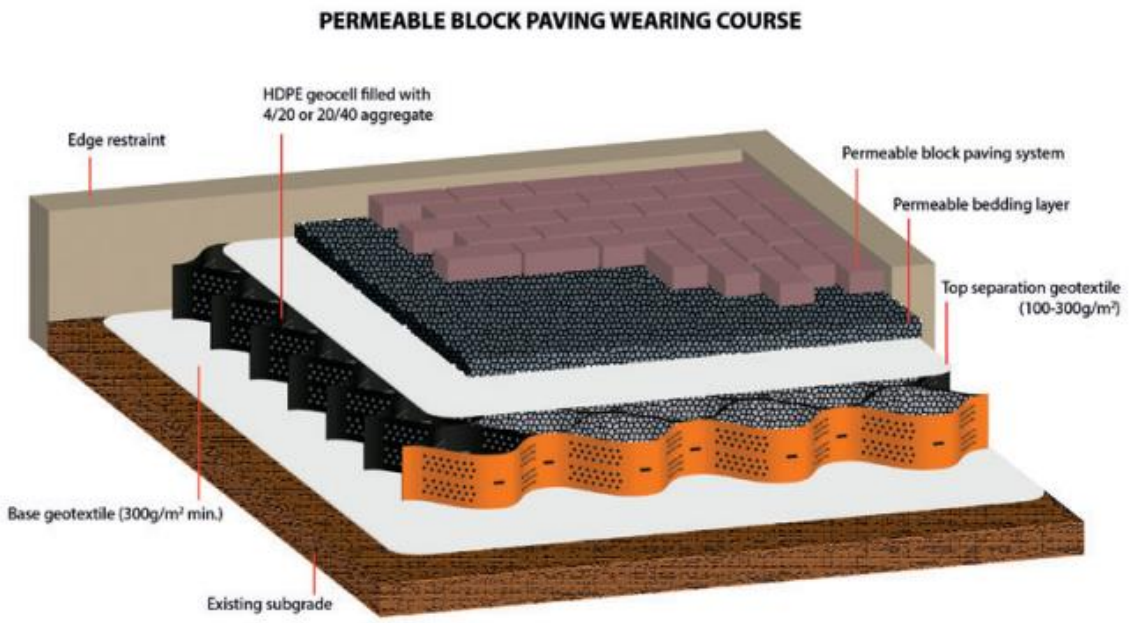
Particularly a hand-dug method of trenching should be used and if any roots of 25mm size and above are encountered must be retained spanning the trench, and services are to be inserted carefully beneath them.

Alternative trenchless insertion methods may also be possible in accordance with Clause 7.7 of BS5837:2012.

5.4 No Dig Construction of Permanent Hardstanding within the RPA

In areas specified on drawing 1782-001 Tree Protection Plan as requiring new surfacing to be No Dig Construction of permanent hard surfacing to arboriculturist's design in accordance with BS5837:2012 Section 7.4.2 the following method should be followed:

- Hard surfacing should be designed by a structural engineer and agreed with the arboriculturist.
- Hard surfacing should utilise a sub-base formed from a three-dimensional cellular confinement system. For Block paving an appropriate specification may be 300g/m geotextile to ground, then 150mm HDPE geocell (Tarram Geocell 25/15, or similar) with 4/20 or 20/40 aggregate fill, then 100-300g/m geotextile with permeable bedding layer and permeable block paving surface.
- Excavations associated with the installation of kerbs and edging should be avoided. Above ground products which can be pinned in place should be used in preference to those which require foundations and haunches. Examples include pegs and boards, sleepers and gabion baskets. Kerb may be installed to edge ontop of concrete-filled geocell. Further stabilised by wooden pegs or pinning.
- Avoid any excavation or lowering of soil levels other than the removal, using hand tools only, of any turf, surface vegetation or organic matter. Levels may be raised using a granular fill which will remain gas and water permeable for the duration of its design life.
- Avoid any localised compaction of the underlying soil by evenly distributing any anticipated loading over a suitably large area.
- Utilise a sub-base and wearing course that is permeable to air and water (this includes and separation membranes that may be required).
- Avoid the need for the use of de-icing salt or, if undesirable, should include a system whereby contaminated run-off is directed outside of the RPA.
- Compaction of soil surrounding and beneath any new hard surfacing shall be prevented. This may be achieved through the use of temporary ground protection or by constructing the new surface with machinery working forward from the surface as it is constructed (i.e. “rolling out”).
- If uncured concrete is to be used, then an impermeable membrane will be required in order to prevent leachate from entering the surrounding soil.



Extract from 'The use of cellular confinement systems near trees – a guide to good practice, September 2020' Figure 8.

5.5 Boundary fencing within the RPA

General

- Foundations should be design with minimum depth and width. If a specific volume of foundation is required, then it is preferable to include greater depth whilst minimising the overall width.
- Mechanical excavation should be avoided. Excavation should be undertaken either using hand tools or through the use of compressed air or water.
- The location of any fencing posts should retain sufficient flexibility for them to be relocated should excavations reveal important roots that can't be cut. This includes roots over >25mm Ø, or substantial numbers of roots < 25 mm Ø.
- The use of poured concrete must be avoided. Concrete foundations must use a dry mix to avoid leachate entering the soil and damaging tree roots.

5.6 Soft-Landscaping within the RPA

- No works will be carried out if the soil moisture is of a level likely to allow compaction to occur (i.e. soil shall not be waterlogged but shall be firm and friable).
- Only pedestrian operated machinery shall be used. All pedestrian operated machinery shall utilise low ground pressure tyres.
- Herbicide applications shall be restricted to the use of translocated products such as glyphosate. These will be applied according to the manufacturer's instructions and drift onto non-target plants avoided.
- Existing vegetation will be removed by hand. Turf may be removed using a mechanical turf stripper where necessary.
- Compacted areas of soil will be broken up by using hand tools only.
- There shall be no excavation or lowering of soil levels.
- Depressions may be levelled through infilling with a maximum depth of 150mm of loosely compressed good quality topsoil or other porous material.

- For grass sending and turfing the soil shall be cultivated to a depth of no more than 25mm.
- Bare root seedlings, transplants, whips and feathered trees shall be notch planted.
- Container grown shrubs, feathered trees, and standard trees shall be planted into individual pits. In no circumstances shall planting take place into cultivated beds or trenches.
- All planting pits shall be excavated with due care for underlying tree roots and using hand tools only.
- In instances where tree roots are found within the planting pit then roots less than 25mm in diameter may be severed using a sharp tool such as a saw or pair of secateurs. The cut should be as small as possible and must avoid leaving a ragged end. Roots over 25mm diameter may only be cut on the advice of an arboriculturist. If roots over 50mm are encountered, or groups of roots over 25mm, then the planting pit will be backfilled and moved to an alternative location.

5.7 Additional precautions outside of CEZ fenced areas

Chemicals, fuels, oils, bitumen and cement or other material likely to be injurious to trees should be stored well away from the root protection areas of trees. Positions of chemical toilets should also be considered.

Ideally fires should be avoided if possible. If unavoidable they should not be lit where the heat could affect tree foliage or bark. 15m is a suggested offset from any tree canopy.
Trees should not be used as anchorages for any equipment.

6 PROGRAMME

6.1 Prior to development

Trees T8, G3 and the eastern 4 trees of G2 should be removed as a first site operation.

Protective fencing and ground protection should be erected immediately prior to demolition as shown on drawing 1782-001.

6.2 During Construction Phase

Fence lines and ground protection should be maintained.

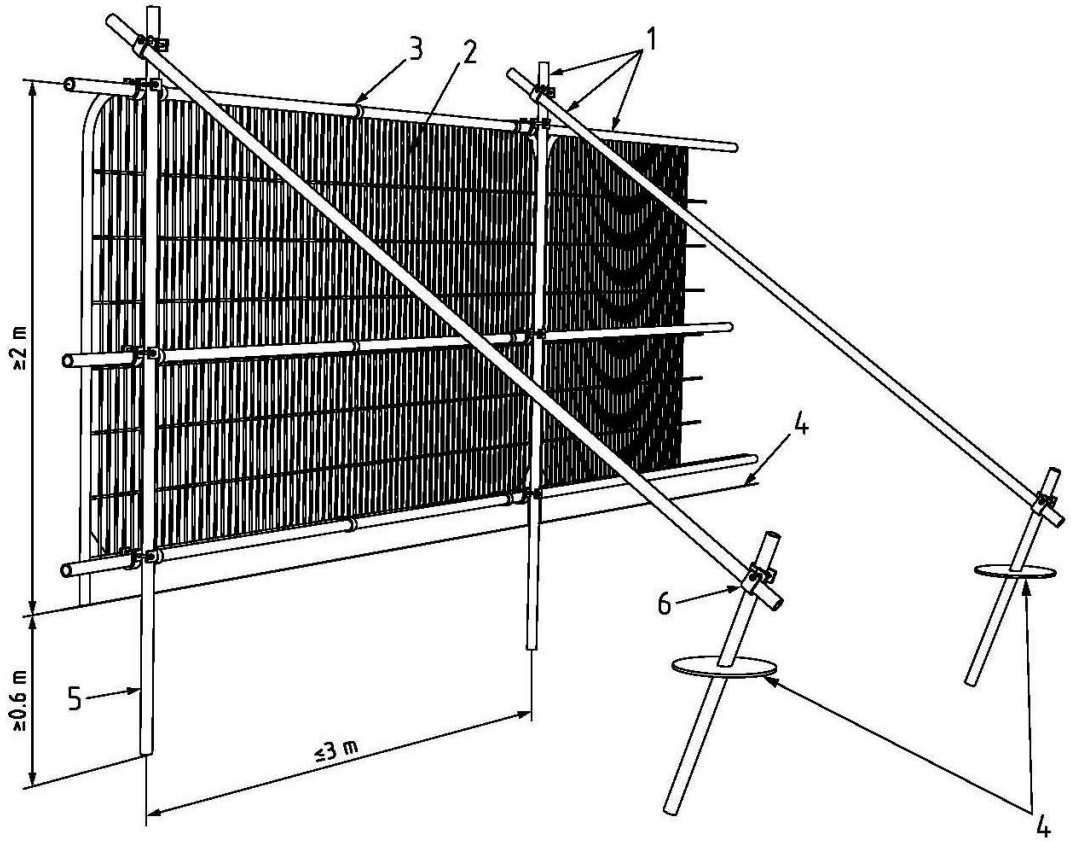
No construction activities should take place behind the protective fence line.

6.3 After Development

Protective fencing should be removed within one month of the development being completed.

APPENDIX A
BS 5837:2012 Standard Tree Protection Fence

Figure 2 **Default specification for protective barrier**



Key

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

Appendix B - Tree Protection Area Signage



Appendix C – Tree Schedule produced by Middlemarch Environmental

Appendix A - Summary

	Individual Trees	Totals	Tree Groups	Totals
Category U		0		0
Category A		0		0
Category B	T1, T2, T5, T9, T12	5	G1	1
Category C	T3, T4, T6, T7, T8, T10, T11	7	G2, G3	2
	Total	12	**Total**	3

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T1	European lime	13.0	1.0	1	600	4.5	4.5	3.0	4.5	EM	F	G	163	7.2	B 1	Building and hard surfaces within RPA Epicormic growth on main stem and in crown Branch stubs in crown Minor deadwood in crown No obvious defects observed Old pruning wounds from previous crown lift
T2	European lime	13.0	1.0	1	550	4.0	5.5	3.5	4.5	EM	F	G	137	6.6	B 1	Building and hard surfaces within RPA Epicormic growth on main stem and in crown Limited inspection due to vegetation Minor deadwood in crown
T3	Elder	4.0	1.0	6	150	1.5	2.5	2.0	2.5	Y	F	F	10	1.8	C	Hard surfaces within RPA Branch stubs in crown Limited contribution
T4	English oak	7.5	4.0	1	190	3.0	2.5	2.5	2.5	SM	F	F	18	2.4	C 1	Branch stubs in crown Limited inspection due to access Minor deadwood in crown Form suppressed by neighbour Limited contribution
T5	Sycamore	8.0	2.0	1	220	3.0	3.0	3.0	3.0	SM	F	G	23	2.7	B 1	Branch stubs in crown Heavy ivy on the stem Limited inspection due to access and ivy Minor deadwood in crown Growing into fence
T6	Aspen	7.5	2.5	1	150	2.5	2.5	2.5	2.5	Y	F	G	10	1.8	C 1	Branch stubs in crown Light ivy on stem Limited inspection due to access Old pruning wounds from previous crown lift Included unions throughout crown

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T7	Aspen	7.5	1.0	1	120	2.0	2.0	2.0	2.0	Y	F	G	7	1.5	C 1	Branch stubs in crown Included unions throughout crown Old pruning wounds from previous crown lift
T8	Elder	7.5	2.0	1	130	2.5	2.5	2.5	2.5	SM	F	F	10	1.8	C 1	Building within RPA Branch stubs in crown Limited inspection due to access Typical crown form Limited contribution
T9	Aspen	8.0	2.0	1	200	2.5	2.5	2.5	2.5	SM	F	G	18	2.4	B 1	Building within RPA Light ivy on stem Limited inspection due to access Branch stubs in crown Typical crown form No obvious defects observed
T10	Aspen	8.0	1.0	1	160	2.5	2.0	2.0	3.0	SM	F	G	14	2.1	C 1	Building within RPA Included unions throughout crown
T11	Aspen	7.5	0.5	1	140	3.5	2.0	2.0	2.5	SM	F	G	10	1.8	C 1	Branch stubs in crown Included unions throughout crown No obvious defects observed Typical crown form
T12	European lime	9.0	3.0	1	240	4.5	2.5	3.5	3.0	EM	F	G	28	3.0	B 1	Building within RPA Branch stubs in crown Heavy ivy on the stem Limited inspection due to access and ivy Minor deadwood in crown No obvious defects observed Typical crown form

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
G1	European lime	9.5	2.0	-	580	3.0	4.0	2.5	3.0	EM	F	G	163	7.2	B 1,2	Building and hard surfaces within RPA Conjoined canopy Branch stubs observed Typical crown forms Light ivy on stems Limited inspection due to ivy
G2	Holly Norway maple Ash Elder	7.5	1.5	-	160	2.5	2.5	2.5	2.5	Y SM	F	F	14	2.1	C 1,2	Building and hard surfaces within RPA Dead trees present Self seeded trees present Minor deadwood in crowns Heavy ivy on stems Limited inspection due to access and ivy Limited contribution
G3	Elder European lime	6.0	1.0	-	140	2.5	2.5	2.5	2.5	Y SM	F	F	10	1.8	C 1,2	Building and hard surfaces within RPA Dead trees present Limited inspection due to access Self seeded trees present Limited contribution