



**Tree Survey and Arboricultural Impact Assessment
In Accordance with BS5837:2012**

Project No 11452	Swinley, Pylands Lane, Bursledon		
Client:		BPS Design Consultants Ltd	
Date of Report:		23/01/2025	
Prepared by:	Liz Beckett	Revision:	Original

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Summary

In this circumstance it is intended to construct a detached dwelling with associated changes to the soft and hard landscape. The arboricultural related implications of the proposal are summarised in Tables 1 and 2 below, and detailed where necessary within the report.

All trees and landscape features that are to remain as part of the development should suffer no structural damage provided that the findings within this report are complied with in full.

Table 1 - Construction and ongoing constraints from an arboricultural perspective (subject to completion of necessary tree work):

Potential Design/ Build Constraints	Arboricultural Impact?	Comments/Solution
Construction Access	Yes	See sections 4.1 and 4.4.
Demolition	Yes	See section 4.2.
New Structures	Yes	See section 4.3.
New Hard Surfaces	Yes	See section 4.4.
Compound	No	
Phasing	Yes	See section 4.5

Table 2 - Tree work necessary to facilitate the proposal:

Feature No.	Tree work	Reason for work	BS Category
G001	Undertake linear root pruning as shown in drawing 10452-D-AIA.	To facilitate construction of the proposed dwelling.	C



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1.0 Introduction

1.1 Purpose

1.1.1 As part of the United Kingdom planning process, applicants are required to supply local planning authorities with a detailed evaluation of how their proposals will impact trees. The nationally recognised procedure for doing this is laid out in *BS5837:2012 "Trees in relation to design, demolition and construction – Recommendations"*. In summary, this must include the following information as a minimum: -

- A Tree Survey and Tree Constraints Plan.
- An Arboricultural Impact Assessment of sufficient detail to confirm the feasibility of the design from a tree perspective.
- A scaled Tree Retention and Removal drawing showing retained trees and their root protection area on the proposed layout.

1.1.2 This report has been prepared to ensure that this information is provided to the Local Planning Authority in a straightforward and clear way so that they can make an informed decision about how (if at all) trees are affected.

1.1.3 When planning permission is granted it is typically the case that the Local Planning Authority will require specific conditions to be fulfilled. This means that a subsequent detailed Arboricultural Method Statement and Tree Protection Plan may be required. This will be detailed on the Local Planning Authority's decision notice.

1.2 Scope

1.2.1 In accordance with the above, BPS Design Consultants Ltd have commissioned Hayden's Arboricultural Consultants to prepare a Tree Survey and Constraints Plan, Arboricultural Impact Assessment and scaled Tree Retention and Removal drawing for the existing trees at Swinley, Pylands Lane, Bursledon.

1.2.2 Unless stated within the survey, all trees were inspected from ground level with no climbing inspections undertaken. As such, the findings are of a preliminary nature. It is not always possible to access every tree and therefore some measurements may have to be estimated.

1.2.3 The trees were inspected on the basis of "*Visual Tree Assessment*" (Mattheck & Breloer - 1994) and "*Common Sense Risk Management of Trees*" National Tree Safety Group guidance – 2011.

1.2.4 Whilst this is an arboricultural report, comments relating to non arboricultural matters are given, such as built structures and soil data. Any opinion thus expressed should be viewed as provisional and confirmation from an appropriately qualified professional sought. Such points are clearly identified within the body of the report.



1.3 Documentation

1.3.1 The following documentation was provided prior to the commencement of the production of this report;

- Email from Robert Narramore dated 8th January 2025.
- Proposed site layout received 8th January 2025 ref Proposed Block Plan PL/05 Jan 2025.

2.0 The Site

2.1 Overview

2.1.1. The site is Swinley, Pylands Lane, Bursledon. The site comprises of a detached dwelling with ancillary buildings in the large rear garden. Mature broadleaf trees are situated adjacent to the site's western boundary. Many have been unsympathetically managed which has adversely affected the amenity that they provide.

2.2 Soils

2.2.1 The soil type commonly associated with this site are slowly permeable and seasonally wet, slightly acid but base-rich loams and clays. They are of moderate fertility and mainly support seasonally wet pastures and woodlands type habitats. This soil type constitutes approximately 19.9% the total English land mass.

2.2.2 The data given was obtained from a desktop study which provides indications of likely soil types. By definition, this information is not comprehensive and therefore any decisions taken with regards the management, usage or construction on site should be based on a detailed soil analysis.

2.2.3 Further to item 2.2.2, this report provides no information on soil plasticity. It may be necessary for practitioners in other disciplines (e.g. engineers considering foundation design) to obtain this data as required.

2.3 Statutory Tree Protection

2.3.1 Information on any Local Planning Authority or Forestry Commission controlled statutory tree protection (Tree Preservation Orders, Conservation Areas and Felling Licenses etc) is recorded on the attached drawing no. 11452-D-AIA.

2.3.2 Further details regarding any existing Statutory Tree Protection is recorded at Appendix B.



3.0 Tree Survey

- 3.1 The tree survey was carried out on 16/07/2024 in accordance with *BS5837:2012 "Trees in relation to design, demolition and construction – Recommendations"*, the relevant qualitative and quantitative tree data was recorded in order to assess the condition of the existing trees and their constraints upon the proposed development.
- 3.2 An accurate topographical survey was not available at the time of inspection. The position of each tree shown on the attached drawing no. 11452-D-AIA has therefore been fixed by use of a hand-held GPS surveying unit. Given this, the position of the trees must be considered indicative, although drawing no. 11452-D-AIA provides a fair representation of the relationship of the trees as distributed across the site.
- 3.3 In order to provide a systematic, consistent and transparent evaluation of the trees included within this survey, they have been assessed and categorised in accordance with the method detailed in item 4.3 of *BS5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations"*. For further information, please see the attached Explanatory Notes.
- 3.4 The detailed assessment of each tree and its work requirements with priorities are listed in the attached Schedule of Trees.
- 3.5 Recorded within this tree survey are the approximate locations of dead trees of low risk to persons or property. These are denoted on drawing no. 11452-D-AIA with a red symbol, as per the drawing key. As there is little health and safety concern in regard to these identified trees, it is to the landowner's discretion whether they are removed or left in situ (i.e., for wildlife/habitat purposes).
- 3.6 In accordance with item 4.2.4 (c) of *BS5837:2012*, the items inspected and detailed within this report have been selected for inclusion due to the likely influence of any proposed development on the trees, rather than strictly adhering to the curtilage of the site. However, it must be understood that there may be trees beyond the site and not included in this survey which may exert an influence on the development. Where works for cultural, health and safety, quality of life, or development purposes have been recommended on trees outside the ownership of the site, these can only progress with the agreement of the owner, except where it involves portions of the trees overhanging the boundary.



4.0 Arboricultural Impact Assessment (Additional or Specific Comments)

4.1 Site Access

- 4.1.1 Site access is encumbered by the Root Protection Areas (RPA) of the following retained trees – T001, T003 and G001. It will therefore be necessary to install a proprietary temporary load bearing road to prevent compaction and contamination damage to tree roots. This must be installed as a first stage of development, immediately after the completion of the necessary tree work and installation of tree protective barriers. Alternatively, the “no dig” surfacing proposed at item 4.4, could be installed as a first phase of development (provided that it is designed to be of sufficient load bearing capacity to cope with construction traffic) and sealed to prevent contamination. The seal can then be removed to allow air and moisture penetration at the completion of the project.

4.2 Demolition.

- 4.2.1 Demolition of an existing garage and garden building affects the theoretical Root Protection Area (RPA) retained trees – G001. In order to prevent damage to the canopy and roots of these trees, work must only be completed with appropriate machinery or by hand within the calculated RPA and crown spread (whichever is the greater). In the proximity of the retained tree, all walls and material must be demolished inwards into the footprint of the garage and away from the stem (often referred to as “top down, pull back”). Additionally, all plant and vehicles engaged in demolition should operate outside the canopy. As a precautionary measure, the demolition of the garage closest to trees within G001 must be completed under arboricultural supervision and linear root pruning completed as necessary if roots have been found to permeate the footings.

4.3 Construction of the proposed dwelling.

- 4.3.1 Construction of foundations marginally encroach within the calculated RPA of the retained trees within – G001. Given the minor extent of this intrusion it is considered appropriate to undertake linear root pruning as part of the access facilitation pruning (AFP) works, as shown on drawing 11452-D-AIA. This operation will obviate the need for arboriculturally imperative specialised foundation construction methods. However, dependent on the soil type, species and topography, trees may have an influence on the soil beyond their calculated RPA. Given the proximity of the proposed construction to the trees to be retained, it is recommended that a Structural Engineer is consulted to assess the implications of the tree retention on the required foundation design.



4.4 Construction of hard surfaces.

- 4.4.1 Installation of new hard surfaces encroach within the RPA of the following trees to be retained – T001, T003 and G001. Provided that these work with finished levels and required load bearings without cutting into the ground, the surfaces should be attended to by using “no dig” construction methods. In the detailed Arboricultural Method Statement & Tree Protection Plan, Hayden’s Arboricultural Consultants will supply a sample design of “no dig” surfacing. However, the exact specification (adhering to the principles of the sample design) must be designed by a Civil Engineer who can confirm that the finished levels and load bearings are achievable with this type of design without cutting into the ground. To protect the RPA of the affected trees, these areas should be constructed as a first phase of the development – i.e. immediately after the necessary tree work has been completed and protective barriers installed. It is recognised that the final top dressing of the hard surfaces could be added at the completion of the project. However, during the construction phase the permeable surface must be sealed and protected to prevent contamination and compaction. Whatever method of sealing and protection is used, this must be removed at the completion of construction to allow for moisture penetration and gaseous exchange. Alternatively, the protective fencing could be re-sited to the edge of the RPA of these trees and the “no dig” construction completed as a final phase of development.

4.5 Phasing

- 4.5.1 The proposal involves the integration of aspects that affect tree. For this reason, the project must be carefully phased to ensure the highest level of protection is maintained for retained trees. As part of the detailed Arboricultural Method Statement & Tree Protection Plan, Hayden’s Arboricultural Consultants will produce an in-depth phasing recommendation to cover the major operations on site as they affect retained trees.

4.6 Services

- 4.6.1 New service routes are not available. However, it is important to establish the principle that wherever possible, all underground service runs will be placed outside the Root Protection Areas (RPA) of the trees on or adjacent to the site. Where it is not possible to do this, any infringement must be addressed by hand digging or trenchless technology. Similarly, all routes for overhead services will aim to avoid the trees and where this is not possible, any necessary tree work must be agreed with the Local Planning Authority.



5.0 Limitations & Qualifications

Tree inspection reports are subject to the following limitations and qualifications.

General exclusions

Unless specifically mentioned, the report will only be concerned with above ground inspections. No below ground inspections will be carried out without the prior confirmation from the client that such works should be undertaken.

The validity, accuracy and findings of this report will be directly related to the accuracy of the information made available prior to and during the inspection process. No checking of independent third-party data will be undertaken. Hayden's Arboricultural Consultants Limited will not be responsible for the recommendations within this report where essential data are not made available or are inaccurate.

This report will remain valid for one year from the date of inspection subject to the recommendations specified within being adhered to. It must also be appreciated that recommendations proposed within this report may be superseded by extreme weather, or any other unreasonably foreseeable events.

Tree surgery should be completed as detailed in the Schedule of Trees. Where this has been identified for reasons other than to permit development, this work should be completed within the advised timescales irrespective of any development proposals.

Tree surgery works may also be proposed as part of this Survey to mitigate any identified problems that may be caused by trees in close proximity to the proposed development. To this end, should these recommendations be overruled, this Survey stands as the opinion of Hayden's Arboricultural Consultants Limited, and therefore any damage or injury caused by trees recommended by this practice for felling or tree surgery works, to which the proposed schedule of works has been altered or the tree has been requested to be retained by the Local Planning Authority, cannot be the responsibility of this practice.

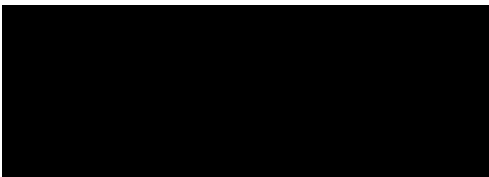
Moreover, if any additional alterations to the property or soil levels are carried out and/or further tree works undertaken other than specified within the report, it will become invalid and a new tree inspection required.

It will be appreciated, and deemed to be accepted by the client and their insurers, that the formulation of the recommendations for the management of trees will be guided by the following: -

1. The need to avoid reasonably foreseeable damage.
2. The arboricultural considerations - tree safety, good arboricultural practice (tree work) and aesthetics.

The client and their insurers are deemed to have accepted the limitation placed on the recommendations by the sources quoted in the attached report. Where sources are limited by time constraints or the client, this may lead to an incomplete quantification of the risk.

Signed:



January 2025

For and on Behalf of Hayden's Arboricultural Consultants Limited



6.0 References

British Standards Institute. (2010). *Recommendations for Tree Work BS3998:2010* BSI, London.

British Standards Institute. (2012). *Trees in Relation to Design, Demolition and Construction – Recommendations BS5837:2012* BSI, London.

Ministry of Housing, Communities & Local Government. (2014). *Tree Preservation Orders and trees in conservation areas*. London: Ministry of Housing, Communities & Local Government.

Mattheck & Breloer, H. (1994). *Research for Amenity Trees No.4: The Body Language of Trees*, HMSO, London.

NHBC Standards (2007) *Chapter 4.2 'Building Near Trees'*. National House-Building Council.

Patch, D. Holding, B. (2006) *Arboricultural Practice Note 12 (APN12), Through the Trees to Development*. Arboricultural Advisory and Information Service (AAIS).

Lonsdale, D. (1999). *Research for Amenity Trees No 7: Principles of Tree Hazard Assessment and Management*, HMSO, London.

National Tree Safety Group (2011). *Common Sense Risk Management of Trees*. Forestry Commission.



7.0 Appendices

Appendix	A	Species List & Tree Problems
Appendix	B	Statutory Tree Protection Advice & Tree Preservation Order Enquiry/Response
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	2.	European Protected Species and Woodland Operations Checklist (v.4)
	3.	BS 5837:2012 Figure 2 - Default specification for protective barrier
	4.	BS 5837:2012 Figure 3 - Examples of above-ground stabilising systems
	5.	Method Statement for 'No Dig' Construction in line with Arboricultural Practice Note 12 ' <i>Through the Trees to Development</i> '
	6.	GroundGuards Multitrack Ground Protection
	7.	Root pruning specification.
Appendix	H	Drawing No 11452-D-AIA.



Appendix A - Species List & Tree Problems

Species List:

Beech	<i>Fagus sylvatica</i>
Cherry Laurel	<i>Prunus laurocerasus</i>
English Oak	<i>Quercus robur</i>
Holly	<i>Ilex aquifolium</i>
Plum	<i>Prunus domestica</i>

Tree Problems:

This gives a brief description of the problems identified in the attached Tree Survey.

Name: Deadwood	
Symptoms/damage type and cause:	This relates to dead branches in the crown of the tree. In the majority of cases, this is caused by the natural ageing process of the tree or shading due to its close proximity to neighbouring trees. However, in some situations, it may be related to fungal, bacterial or viral infection.
Consequence:	Depending upon the location and mass of dead wood removal of the affected tissue may be necessary to prevent harm to persons or property as the wood will become unstable as it decays and in some circumstances is likely to fall from the tree with little or no warning.
Control:	Detailed monitoring should be undertaken on those trees showing signs of excessive deadwood production to identify the underlying cause.
Species affected:	Most tree species.
Images:	



Name: <i>Hedera helix</i> (Ivy)	
Symptoms/damage type and cause:	Ivy may grow to varying degrees on all areas of a tree from the base to the upper crown. It is possible that in doing so it will out-compete the host tree for available light thereby suppressing the host.
Consequence:	This is generally only harmful to the tree on already unhealthy specimens which may be constricted by large ivy stems around the trunk or may have their top growth suppressed by a mass of flowering shoots in the crown. Ivy can also mask potentially dangerous faults on a tree.
Control:	Ivy should only be removed if absolutely necessary because it provides abundant cover to wildlife and then by severing twice close to the ground and removing a length of stem thereby causing the gradual dying away of the aerial parts of the plant providing extended benefit to wildlife whilst relieving the pressure on the tree.
Species affected:	Most trees can be affected.
Images:	



Appendix B - Statutory Tree Protection Advice & Tree Preservation Order Enquiry/Response

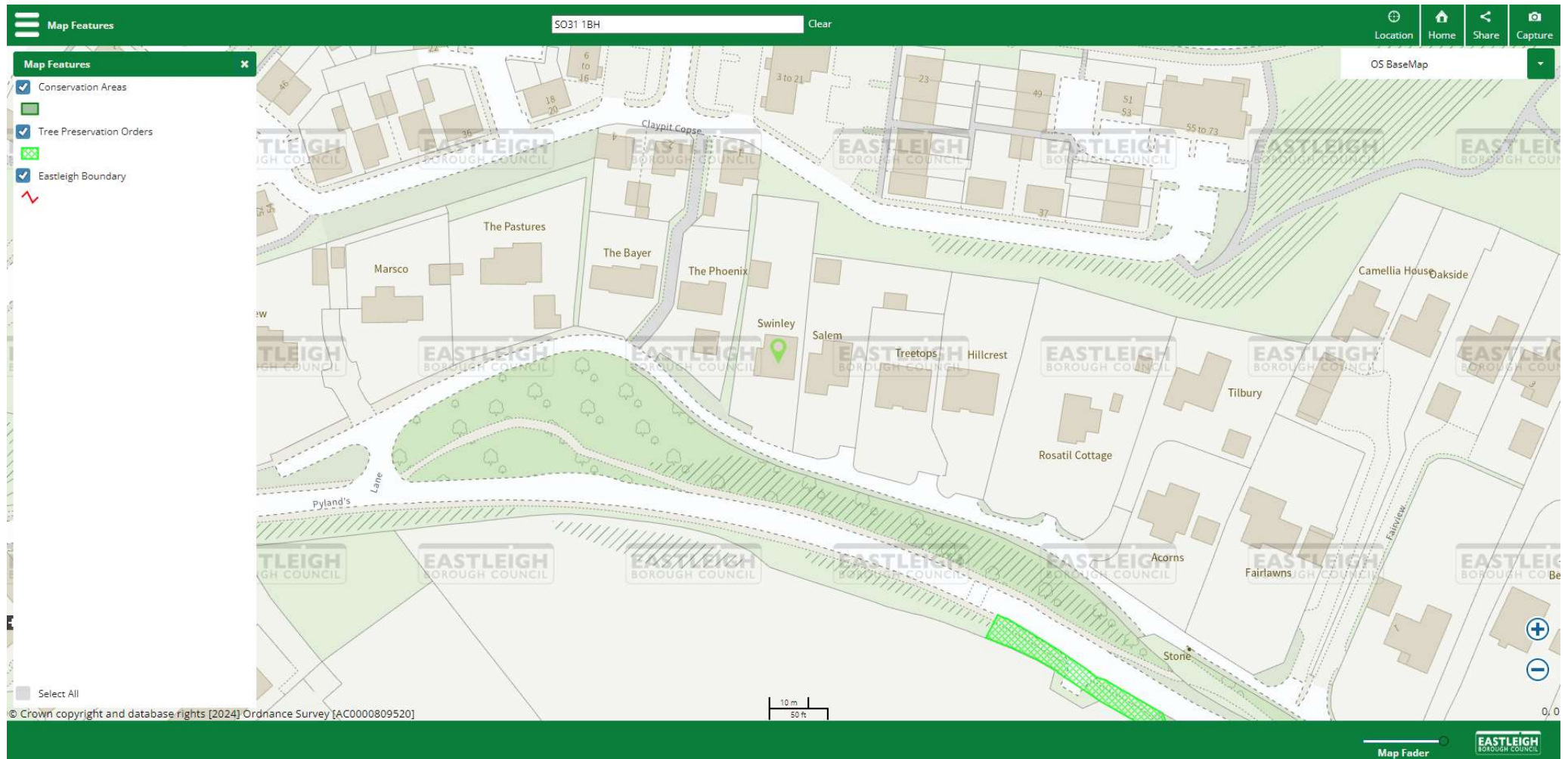
Statutory Tree Protection Advice

Hayden's Arboricultural Consultants Limited have been informed that at the *date of the tree inspection* the trees concerned were not located within a Conservation Area or the subject of a Tree Preservation Order. As such, no written permission would be required from the Local Planning Authority prior to commencing works to trees. However, it should be noted that the Local Planning Authority have the power to serve Tree Preservation Orders very rapidly. It is incumbent upon anyone wishing to undertake work to any trees to contact the Local Planning Authority prior to commencing works to ensure that the situation has not changed.

This information was sourced using the Local Planning Authority's Online Mapping System (as instructed by them) and to our best knowledge was current and accurate at the time the information was accessed. We would advise it prudent that before any tree work commences, this is checked directly with the Local Planning Authority to confirm that their online mapping system is definitive.



Tree Preservation Order / Conservation Area Online Mapping Extract



Appendix C

Schedule of Trees

SCHEDULE OF TREES (AIA) Swinley, Pylands Lane, Burseldon, Southampton, Hampshire

Surveyed By: Liz Beckett Date: 16/07/2024

Managed By: Liz Beckett

TreeNo	Species	DBH	Height		Visual	Crown Spread		Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand							
On site		RPA (m²)	Aspect	Aspect	SULE	Ground Cover							
G001	Beech, Plum	540	9		Moderate	N2, E3, S3, W2		Linear group of overstood Beech hedge x 12 and Plum x 3. The trees have been intermittently maintained. Ivy, multiple pruning wounds. Set between 2 boundary fences.	C2	No work required	4	Undertake linear root pruning as shown in drawing 10452-D-AIA.	0
		6.48	3		M	Moderate							
No		131.9			10+ years	Light undergrowth							
H001	Cherry Laurel	120	3		Low	N1, E0.5, S1, W1.5		Maintained Laurel hedge	C2	No work required	4		
		1.44	0.1		M	Moderate							
Yes		6.5			10+ years	Block paving;Grass							
T001	English Oak	570	13.5		High	N7, E7, S6, W3		Ivy restricting inspection. Situated midway on bank. Trifurcates at approximately 2m above ground level. Deadwood, truncated branches. Lateral branches shortened west aspect.	B2	Remove Ivy and reinspect. Crown lift to 5m over road.	3		
		6.84	4.5		M	High							
No		147			20+ years	Tarmac;Light undergrowth							
T002	Holly	220	6		Low	N2.5, E3, S1, W1		Twin stemmed with basal suckers. West stem dead. East stem has thinning crown.	C2	Remove dead stem with landowner consent.	3		
		2.64	1		EM	Low							
No		21.9			10+ years	Tarmac;Ivy;Light undergrowth							
T003	English Oak	330	10.5		Moderate	N3.5, E3, S2.5, W3		The fence is ratchet tied to stem. Crown reduced.	C2	No work required	4		
		3.96	3		SM	High							
No		49.3			10+ years	Light undergrowth							

Appendix D

Schedule of Works – Irrespective of Development

SCHEDULE OF WORK IRRESPECTIVE OF DEVELOPMENT

Swinley, Pylands Lane, Burseldon, Southampton, Hampshire

Surveyed By: Liz Beckett

Surveyed: 16/07/2024

Managed By: Liz Beckett

Tree No.	Species	Work required	Priority
T001	English Oak	Remove Ivy and reinspect. Crown lift to 5m over road.	3
T002	Holly	Remove dead stem with landowner consent.	3

Appendix E

Preliminary Schedule of Works to Allow Development

SCHEDULE OF WORKS (AIA)

Swinley, Pylands Lane, Burseldon, Southampton, Hampshire

Surveyed By: Liz Beckett
Surveyed: 16/07/2024
Managed By: Liz Beckett

Tree No.	Species	Work required	Priority
G001	Beech, Plum	Undertake linear root pruning as shown in drawing 10452-D-AIA.	0

Appendix F

Explanatory Notes

Explanatory Notes

Categories

No	Identifies the tree on the drawing.
Species	Common names are given to aid understanding for the wider audience.
BS 5837 Main Category	Using this assessment (BWS 5837:2012, table 1), trees can be divided into one of the following simplified categories, and are differentiated by cross-hatching and by colour on the attached drawing. Category A - Those of high quality with an estimated remaining life expectancy of at least 40 years; Category B - Those of moderate quality with an estimated life expectancy of at least 40 years; Category C - Those of low quality with an estimated remaining of at least 10 years, or young trees with a stem diameter below 150 mm; Category U - Those trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
BS 5837 Sub Category	Table 1 of BS 5837:2012 also requires a sub category to be applied to the A, B, C, and U assessments. This allows for a further understanding of the determining classification as follows: Sub Category 1 - Mainly arboricultural qualities; Sub Category 2 - Mainly landscape qualities; Sub Category 3 - Mainly cultural values, including conservation. Please note that a specimen or landscape feature may fulfil the requirements of more than one Sub Category.
DBH (mm)	Diameter of main stem in millimetres at 1.5 metres from ground level. Where the tree is a multi-stem, the diameter is calculated in accordance with item 4.6.1 of BS 5837:2012.
Height	Recorded in metres, measured from the base of the tree.
Crown Base	Recorded in metres, the distance from ground and aspect of the lowest branch material.
Lowest Branch	Recorded in metres, the distance from ground and aspect of the emergence point of the lowest significant branch.

Age

Recorded as one of seven categories:

Y Young. Recently planted or establishing tree that could be transplanted without specialist equipment, i.e. less than 150 mm DBH.

S/M Semi-mature. An established tree, but one which has not reached its prospective ultimate height.

E/M Early-mature. A tree that is reaching its ultimate potential height, whose growth rate is slowing down but if healthy, will still increase in stem diameter and crown spread.

M Mature. A mature specimen with limited potential for any significant increase in size, even if healthy.

O/M Over-mature. A senescent or moribund specimen with a limited safe useful life expectancy. Possibly also containing sufficient structural defects with attendant safety and/or duty of care implications.

V Veteran. A tree considered a 'survivor' having endured injury, disease and/or decay, developing important habitat features such as decay, trunk hollowing, deadwood, fungal fruiting bodies (plus others) not solely as a consequence of time. Veteran trees are afforded additional protection within the planning system where they may be influenced by change.

A Ancient. A tree that has the features of a Veteran tree but has also surpassed the typical lifespan for its species. These trees may differ in appearance from a Veteran tree, such as having a thick/wide trunk and a small crown. Ancient trees are usually considered to have exceptional cultural significance. Ancient trees are afforded additional protection within the planning system where they may be influenced by change.

Safe Useful Life Expectancy (SULE)

Relates to the prospective life expectancy of the tree and is given as 4 categories:

1 = 40 years+;

2 = 20 years+;

3 = 10 years+;

4 = less than 10 years.

Crown Spread

Indicates the radius of the crown from the base of the tree in each of the northern, eastern, southern and western aspects.

Minimum Distance

This is a distance equal to 12 times the diameter of the tree measured at 1.5 metres above ground level for single stemmed trees and 12 times the average diameter of the tree measured at 1.5 metres above ground level tree for multi stemmed specimens. (BS 5837:2012, section 4.6).

RPA

This is the Root Protection Area, measured in square metres and defined in BS5837:2012 as "a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority". The RPA is shown on the drawing.. Ideally this is an area around the tree that must be kept clear of construction, level changes of construction operations. Some methods of construction can be carried out within the RPA of a retained tree but only if approved by the Local Planning Authority's tree officer.

Water Demand

This gives the water demand of the species of tree when mature, as given in the NHBC Standards Chapter 4.2 "Building Near Trees".

Visual Amenity	Concerns the planning and landscape contribution to the development site made by the tree, hedge or tree group, in terms of its amenity value and prominence on the skyline along with functional criteria such as the screening value, shelter provision and wildlife significance. The usual definitions are as follows: Low An inconsequential landscape feature. Moderate Of some note within the immediate vicinity, but not significant in the wider context. High Item of high visual importance.
Problems/ Comments	May include general comments about growth characteristic, how it is affected by other trees and any previous surgery work; also, specific problems such as deadwood, pests, diseases, broken limbs, etc.
Works Required (TS)	Identifies the necessary tree work to mitigate anticipated problems and deal with existing problems identified in the "Problems/comments" category.
Work Required (AIA)	Identifies the tree work specifically necessary to allow a proposed development to proceed.
Priority	This gives a priority rating to each tree allowing the client to prioritise necessary tree works identified within the Tree Survey. 1 Urgent – works required immediately; 2 Works required within 6 months; 3 Works required within 1 year; 4 Re-inspect in 12 months, 0 Remedial works as part of implementation of planning consent.

BS 5837:2012 Terms and Definitions

Access Facilitation Pruning	One-off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
Arboricultural Method Statement	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
Arboriculturist	Person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.
Competent Person	Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached. NOTE - a competent person is expected to be able to advise on the best means by which the recommendations of this British Standard may be implemented.
Construction	Site-based operations with the potential to affect existing trees.
Construction Exclusion Zone	Area based on the root protection area from which access is prohibited for the duration of a project.
Root Protection Area (RPA)	Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Service	Any above or below ground structure or apparatus required for utility provision. NOTE - examples include drainage, gas supplies, ground source heat pumps, CCTV and satellite communications.
Stem	Principal above ground structural component(s) of a tree that supports its branches.
Structure	Manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork.
Tree Protection Plan	Scale drawing, informed by descriptive text where necessary, based upon the finalized proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Veteran/Ancient Tree Buffer

A diagrammatic representation of the additional protection measures afforded to Veteran and Ancient Trees by the imposing of a geographical 'buffer' space between the Veteran/Ancient Trees and any potential activity such as construction, that may affect the trees. The buffer zones are calculated as follows:

For ancient woodlands, the proposal should have a buffer zone of at least 15 metres from the boundary of the woodland to avoid root damage (known as the root protection area). Where assessment shows other impacts are likely to extend beyond this distance, the proposal is likely to need a larger buffer zone. For example, the effect of air pollution from development that results in a significant increase in traffic.

For ancient or veteran trees (including those on the woodland boundary), the buffer zone should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5 metres from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter. This will create a minimum root protection area.

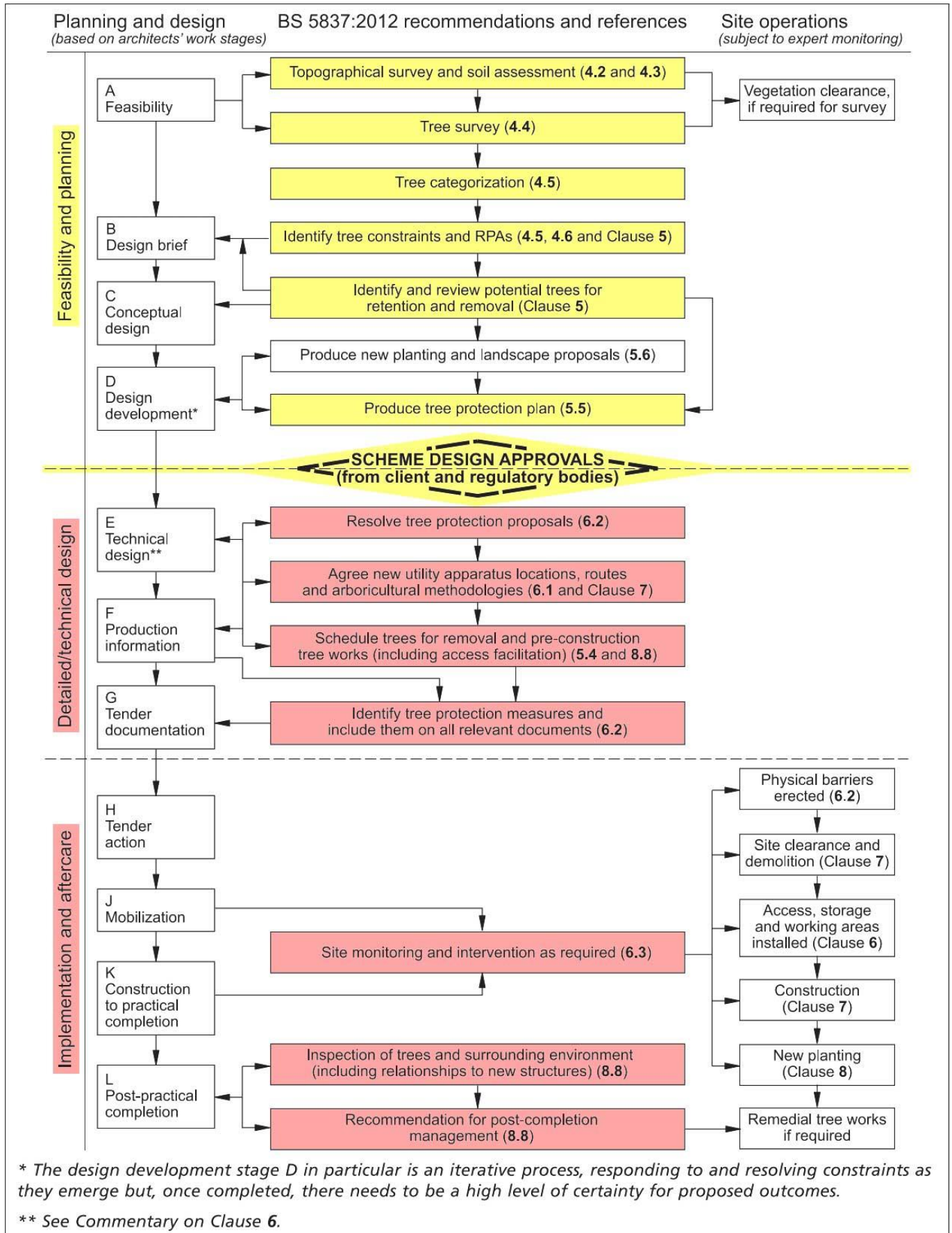
Where assessment shows other impacts are likely to extend beyond this distance, the proposal is likely to need a larger buffer zone.

Source: Natural England; The Forestry Commission; The UK Government Dept. for The Environment.

Appendix G

Advisory Information & Sample Specifications

1. BS 5837:2012 Figure 1 - Flow Chart – Design and Construction & Tree Care



European Protected Species and woodland operations. (V4)

Complete all sections of the Checklist



Checklist

- 1** Are you within, or close to, the known mapped range of any of the protected species OTHER THAN BATS which are potentially everywhere? Tick any that apply.
See distribution maps in the Good Practice Guidance for each species -

- ☐ Dormice
☐ Otters
☐ Great crested newts
☐ Sand lizards
☐ Smooth snakes

YES

NO

- 2** Does your wood contain any of the following habitats? Tick any that apply.

- ☐ Old trees with holes and crevices which might be used bats
☐ Species rich scrub/coppice, early growth stage plantations and forest interfaces
☐ Rivers on which otters might be found
☐ Ponds which might be occupied by great crested newts
☐ Open areas on heathy soils

YES

NO

- 3** Have any of the protected species been recorded in this wood or on adjoining sites? Tick any that apply.

Indicate which sources of information you have checked:

- ☐ National Biodiversity Network (www.nbn.org.uk)
☐ Local Biological Records Centre
☐ Local Wildlife Trust
☐ Other

Specify Other:

YES

NO

- 4** Have your inspections or any expert surveys found any of the following signs or evidence? Tick any that apply.

- ☐ Signs (e.g. otter spraint, nuts gnawed by dormice, leaves folded by newts)
☐ Sightings (or echo-location)
☐ Potential breeding or roosting sites (e.g. veteran trees, old trees with crevices, riverside hollow trees, ponds, timber stacks, large fallen deadwood)
☐ Confirmed breeding or roosting sites (i.e. evidence of sites actually being used)

Details:

YES

NO

CHECK POINT

If you have answered NO to ALL of the above then only bats need to be considered in your operations.

If you have answered YES to any of the above then the species concerned must be considered as well as bats.

Notes

- 5** Do the operations comply with Good Practice for bats and any other species found (or likely to be found in your wood) or can the operations be modified to do so?

Details: Use reverse of form to expand as required:

YES

NO

A licence is not required but continue to sections 6 and 7 below

You will need to obtain a licence BEFORE carrying out the work (see EPS Licence Application Forms and Notes)

- 6** Whether or not a licence is required...
Has the information been communicated to operators (including the location of breeding sites and sensitive areas)? Tick any that apply.

- ☐ Included in documentation (e.g. contract, letter of instruction, site assessment or other management plan)
☐ Shown to operators and/or their supervisor
☐ Marked with paint or hazard tape
☐ Shown on the site plan

Other means:

YES

NO

You may commit an offence if you do not tell your operators about the protected species in your wood.

- 7** Have arrangements for supervision been made to ensure Good Practice guidance is complied with during the operations?

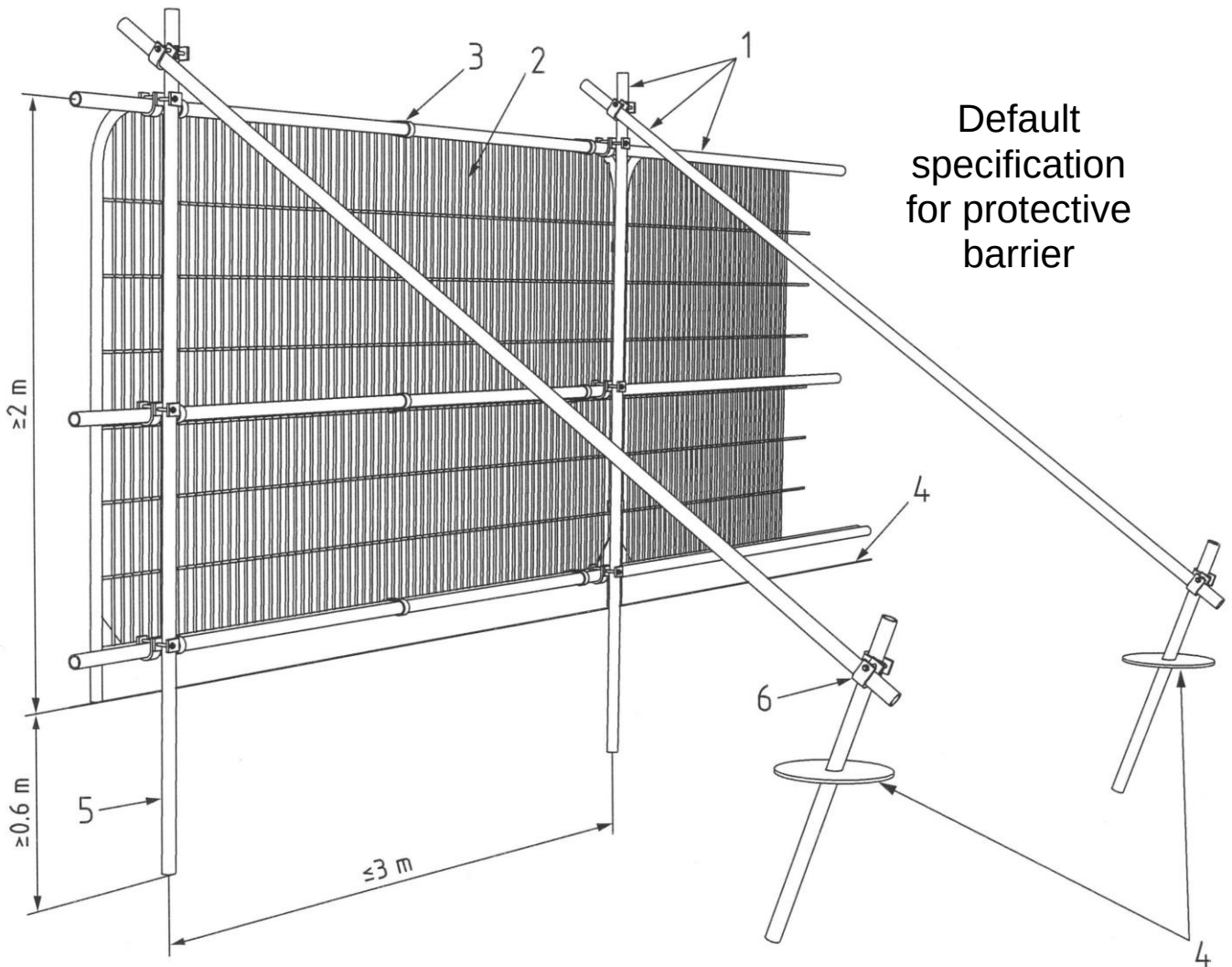
Details:

YES

NO

You may commit an offence if you do not take steps to ensure that your operators comply with the Good Practice guidance.

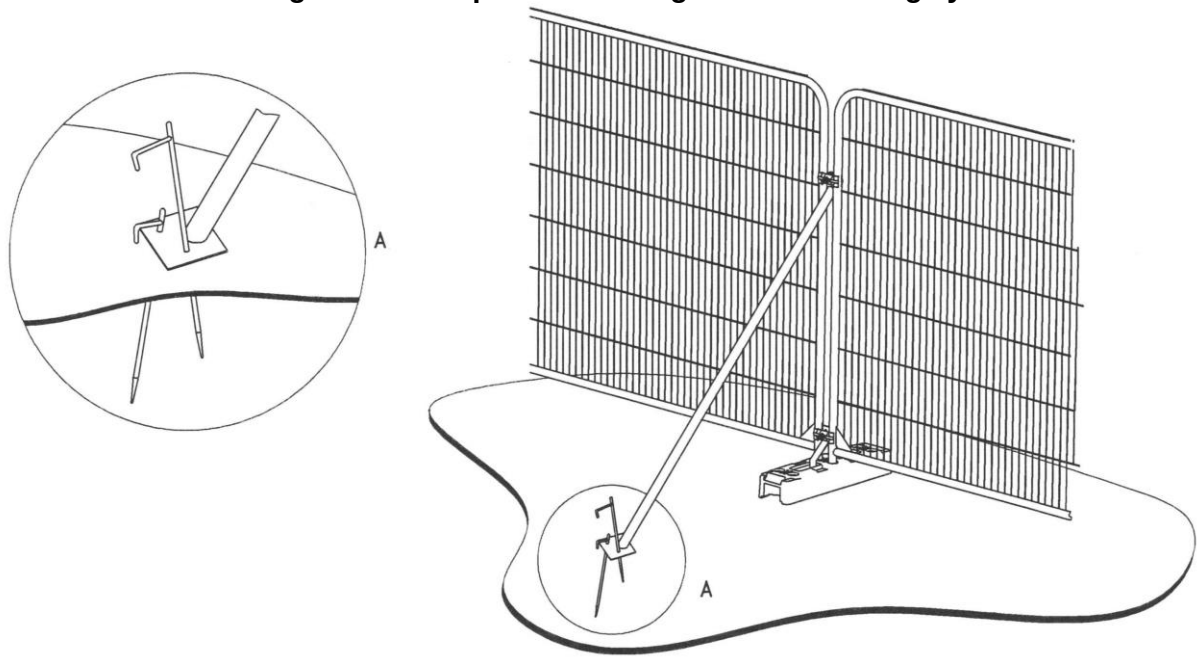
3. BS 5837:2012 Figure 2: Default specification for protective barrier



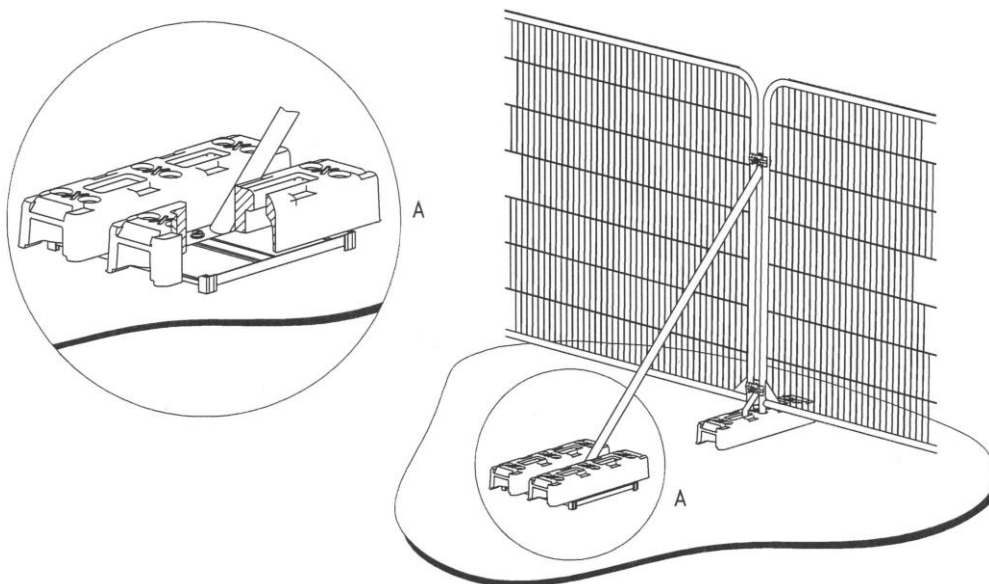
Key

- 1 Standard scaffold pole
- 2 Heavy gauge 2m tall galvanised 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 0.6m)
- 6 Standard scaffold clamps

4. BS 5837:2012 Figure 3: Examples of above-ground stabilizing systems



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

**5. METHOD STATEMENT FOR “NO-DIG” CONSTRUCTION IN LINE WITH
ARBORICULTURAL PRACTICE NOTE 12
“Through the Trees to Development”**

Prior to commencing any demolition or construction on site, erect protective fencing around trees to form an exclusion zone (see attached plan).

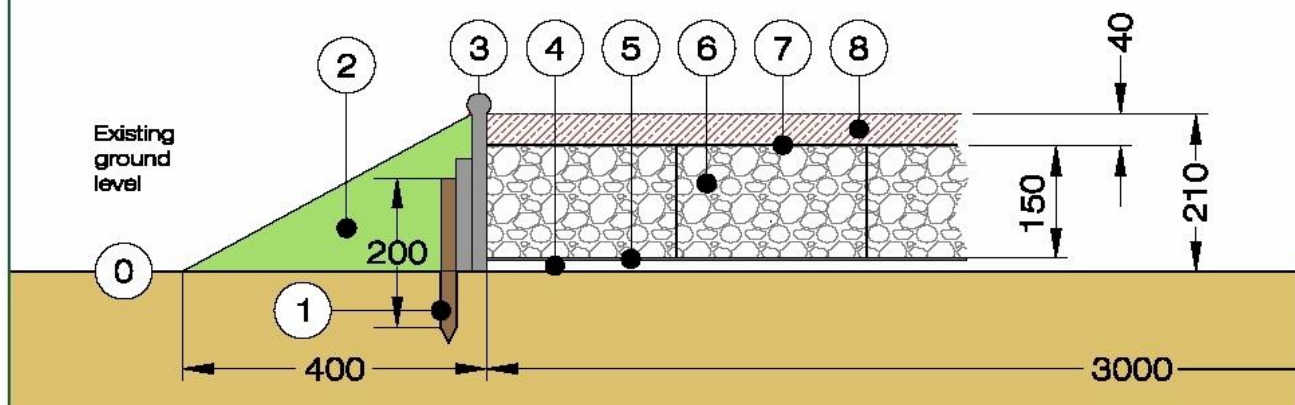
This will ensure that roots will not be severed during the construction work and the soil in the area of the exclusion zone will not be compacted thus enabling oxygen to continue to diffuse into the soil beneath.

Construction of the driveway, path or other hard surface should be undertaken in dry weather between May and October when the ground is driest and least prone to compaction.

- 1 Kill ground vegetation using a translocated herbicide (glyphosate), ensuring that the selected herbicide doesn't damage the root of the tree(s) below the surface of the path.
- 2 Remove the dead or organic material from the site and ensure that large stones and shrub stumps are removed from the proposed route.
- 3 Any tree stumps should be ground out rather than excavated to minimize soil disturbance.
- 4 The resulting hollows and any other holes along the route driveway, path or other hard surface should be filled with sharp sand.
- 5 Lay *Terram Geotextile* matting across the full width of the driveway, path or other hard surface. This will prevent the intrusion of roots into the sub-base whilst still allowing nutrients and gaseous exchange.
- 6 Lay *Terram 150 Geocell* (cellular confinement system). (This is available from the Terram Ltd, tel: 01495 757722, fax: 01495 762393, and can be cut with a Stanley knife on site to the length, width and profile of the path required).
- 7 The driveway, path or other hard surface is to be supported against 150 x 20mm tanalised softwood boarding and 200mm long tanalised soft wood pegs driven into the ground at 1500mm centres.
- 8 Carefully push 20mm – 40mm gravel chippings (no fines) into the *Geo 150 Geocell* matting to form an aggregate sub-base.
- 9 The chippings should be placed at one end of the matting and pushed/spread across the matt to prevent compaction of the soil, working on either side of the driveway, path or other hard surface.
- 10 Compact the sub base to ensure binding with the *Geocell* and to minimise future wheel rutting.
- 11 Lay second layer of *Terram Geotextile* matting across the full width of the driveway, path or other hard surface. This will prevent the intrusion of fines into the gravel chippings.
- 12 Add layer of 'no fines, sharp sand and compact if using pavers as surface treatment.
- 13 Place proposed surface treatment (e.g. Pavers) on top of the compacted sub-base to form the finished surface to the path and 'bank up' the edging with topsoil, which is to be grass seeded in spring/autumn. This will form a gentle slope from the edging to the existing ground level.

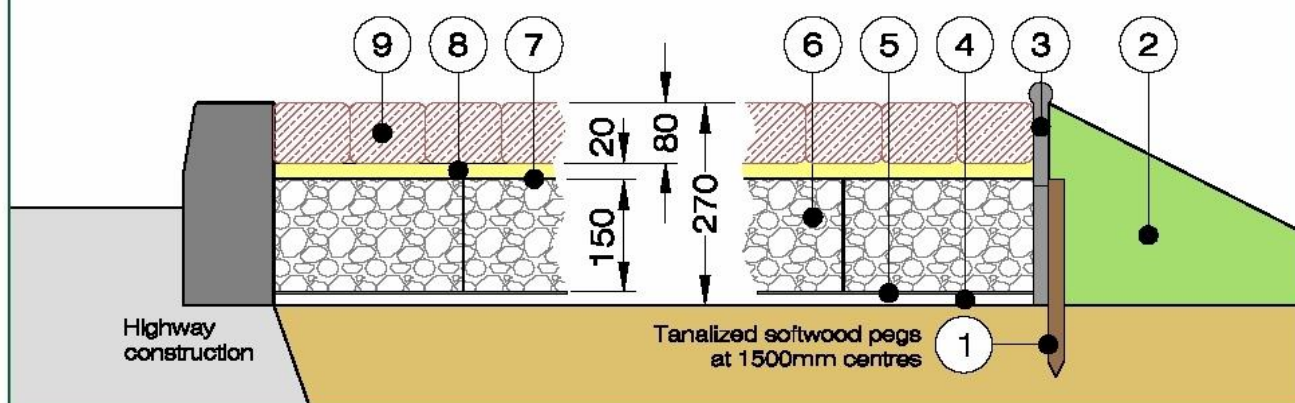
- 1) Tanalised softwood pegs at 1500mm centres
- 2) Top soil banked up to edging
- 3) Softwood boards / Concrete edging 'tiles'
- 4) Existing surface to be cleared of ground vegetation using a translocated herbicide such as glyphosate

- 5) Geo-textile matting "Terram" laid on top of footpath
- 6) "Geocell" Cellular Confinement System (150mm deep) with gravel chippings
- 7) Geo-textile matting "Terram" laid on top of cellular confinement system
- 8) Gravel or paving laid on top of permeable sub-base



- 2) Top soil banked up to edging
- 3) Softwood boards / Concrete edging 'tiles'
- 4) Existing surface to be cleared of ground vegetation using a translocated herbicide such as "glyphosate"
- 5) Geo-textile matting "Terram" laid on top of footpath

- 6) "Geocell" Cellular Confinement System (150mm deep) with gravel chippings
- 7) Geo-textile matting "Terram" laid on top of cellular confinement system
- 8) 'No fines' sand laid on top of geo-textile matting
- 9) Aquaflow permeable paving laid on top of no fines sharp sand and permeable sub-base



2) Top soil banked up to edging

3) Softwood boards / Concrete edging 'tiles'

4) Existing surface to be cleared of ground vegetation using a translocated herbicide such as glyphosate

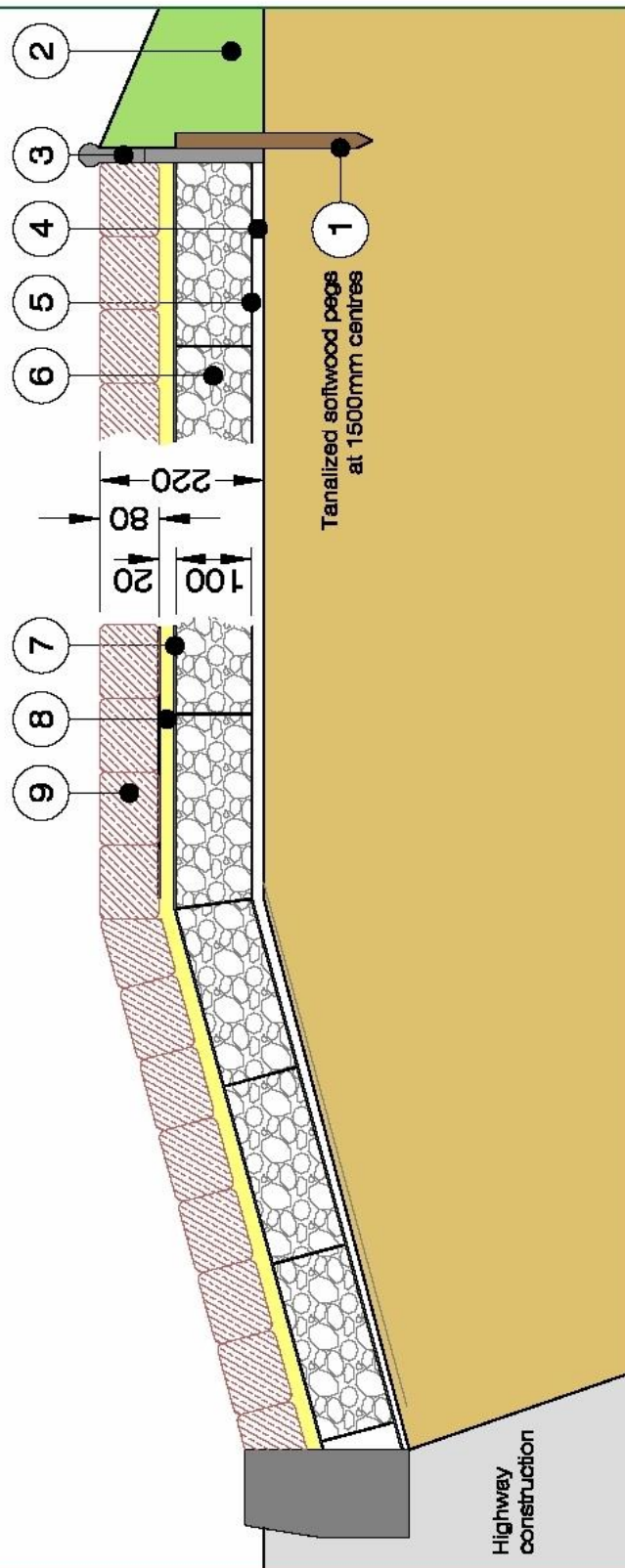
5) Geo-textile matting "Terram" laid on top of footpath

6) "Geocell" Cellular Confinement System (150mm deep) with gravel chippings

7) Geo-textile matting "Terram" laid on top of cellular confinement system

8) 'No fines' sand laid on top of geo-textile matting

9) Gravel or paving laid on top of permeable sub-base



HAYDEN'S
Arboricultural Consultants

5 Moseley Farm
Business Centre
Fornham All Saints
Bury St Edmunds
Suffolk IP28 6JY

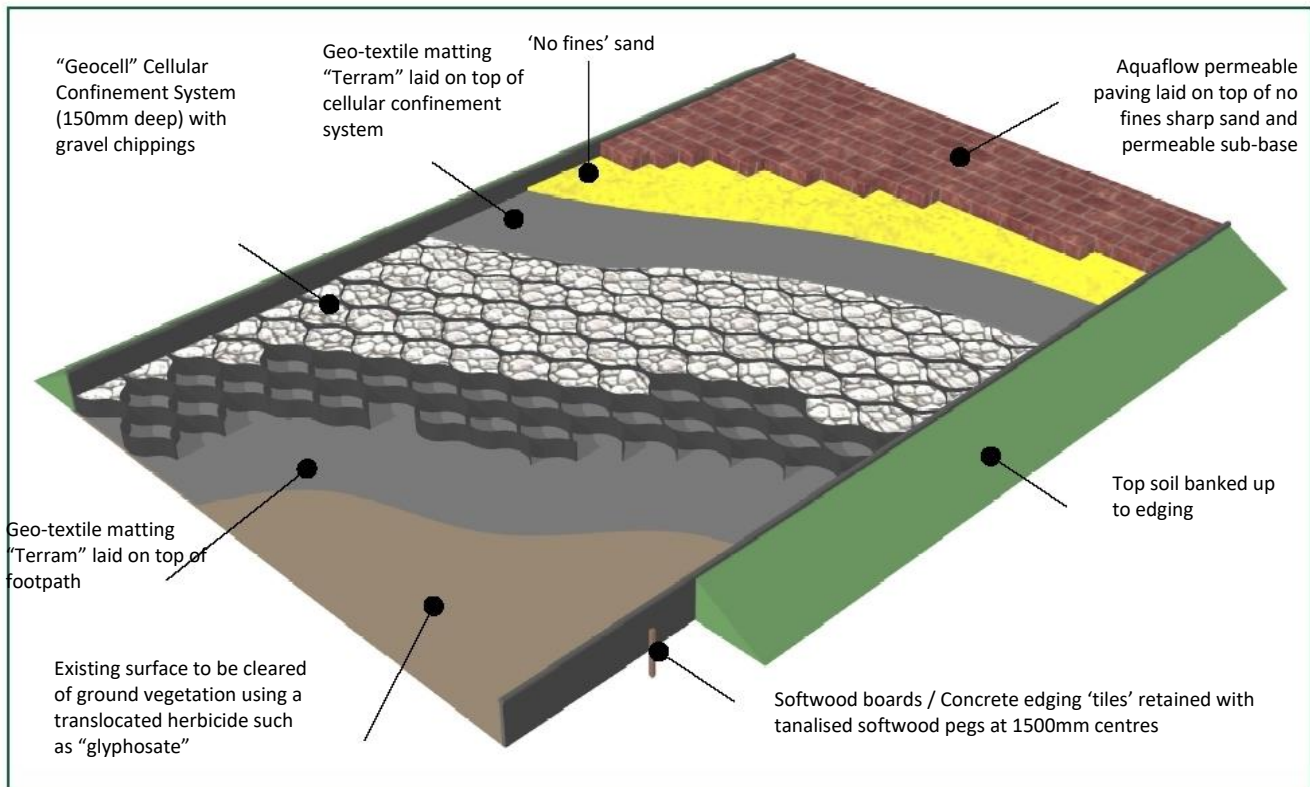
Tel: 01284 765391
Fax: 01284 765181
Mob: 07850167400
info@treesurveys.co.uk
www.treesurveys.co.uk

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'No Dig' Footpath & Driveway Specification

Scale
1:10 (A4)

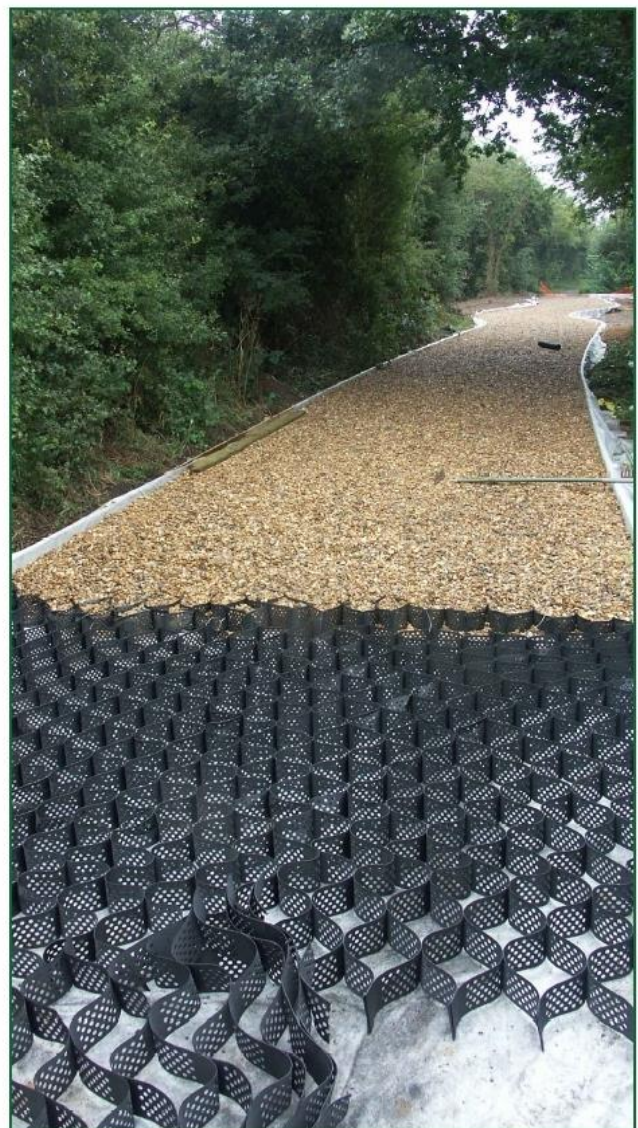
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Hayden's.ND



The 3D drawing above may not accurately depict the construction to be carried out and should be taken as indicative only. Use the section drawings on the previous page for full details on the required construction method

'No Dig' system during construction (right)

"Geocell" Cellular Confinement System (100mm deep) with gravel chippings (below)



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The Aquaflo[®] range of permeable paving

Aquaslab[®]

For use on Pedestrian areas

Size

300 x 450 x 60mm

Laying pattern

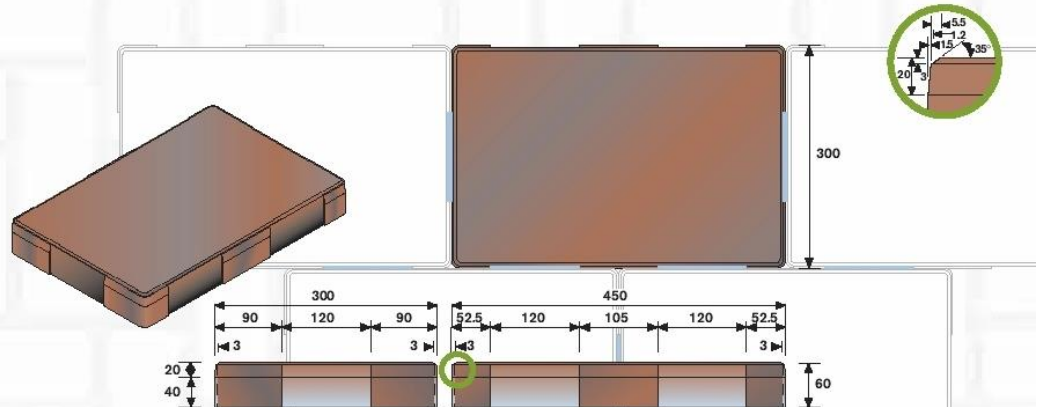
Staggered stretcher bond

Colours*

Natural, Burnt Red, Red brindle, Golden brindle and Charcoal

Finish

Standard
Bush hammered to special order



Aquasett[®]

For use on footpaths, domestic drives and roads (80mm)

Range of colours and the Olden finish make the Aquasett appropriate for use in conservation areas or on projects where architectural heritage is a major consideration.

Sizes

150 x 250 x 60/80mm

Laying pattern

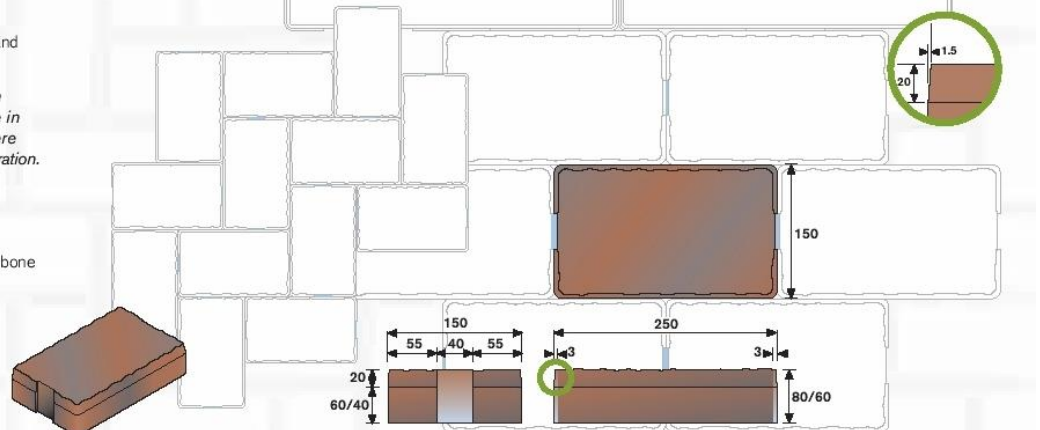
Staggered stretcher bond or 90° herringbone for trafficked areas.

Colours*

Traditional, Red Brindle, Vendage and Pennant.

Finish

Olden
Bush hammered to special order



Aquasett combined[®]

For use on footpaths and domestic drives

Range of colours and the Olden finish make the Aquasett combined appropriate for use in conservation areas or on projects where architectural heritage is a major consideration

Sizes

Large 150 x 250 x 60/80mm

Medium 150 x 150 x 60/80mm

Small 100 x 150 x 60/80mm

Ratio of blocks in 0.8 square metre manufactured format: 10 large, 14 medium and 7 small.

Laying pattern

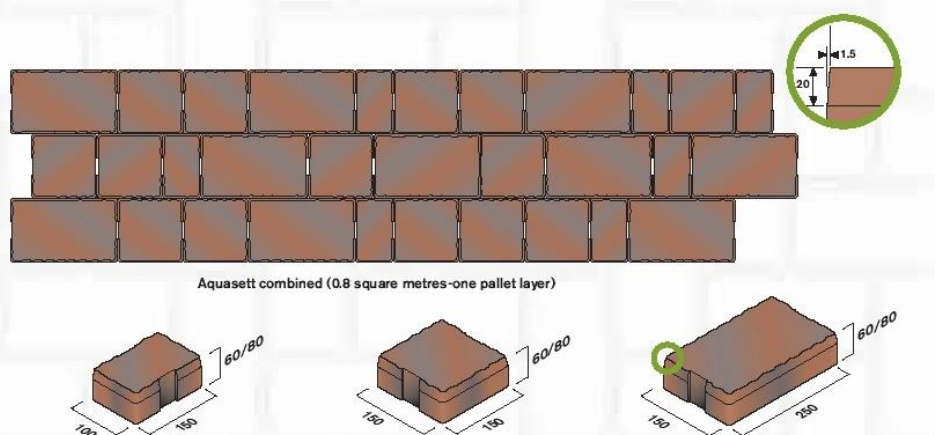
Staggered stretcher bond

Colours*

Traditional, Red Brindle, Vendage and Pennant.

Finish

Olden
Bush hammered to special order



Formpave have designed a range of Aquaflow paving blocks to be used in conjunction with either tanked or infiltration systems.

The range consists of six blocks manufactured from concrete with a tensile splitting strength in accordance with BS EN 1338:2003.

Included within the range is the Aquaslab which has been designed for use on non-trafficked pedestrian areas.

All of the blocks and slabs provide drainage through vertical channels and will allow water through the surface at a rate of approximately 9000mm per hour (9000 litres per m² per hour). The Inbitex geotextile beneath the laying course will allow approximately 4500 litres per m² per hour through and this figure should be used for design purposes.

The Aquaflow ML block system consists of an interlocking block with specialist top, bottom and edge blocks and has been specifically designed for heavy duty applications.

The ML blocks can be laid by hand or by machine. Where the blocks are machine laid modules of .65m² are laid in one pass. Laying rates of over 600m² per day have been readily achieved with a three man crew.

* Other colours and finishes such as EcoGranite are available to special order.

Aquaflow block®

For use on car parks, drives and moderately trafficked areas

Sizes

100 x 200 x 60/80mm

Laying pattern

Must be laid in 90° herringbone

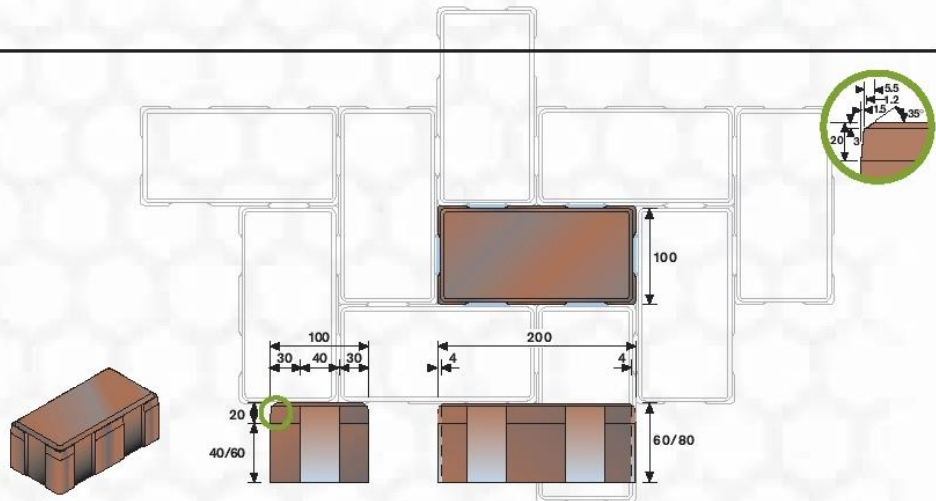
Colours*

Natural, Burnt Red, Red brindle, Golden brindle and Charcoal.

Finish

Standard

Bush hammered to special order



Aquaflow ML block®

For Roads and heavy duty use

Size

80mm

Laying pattern

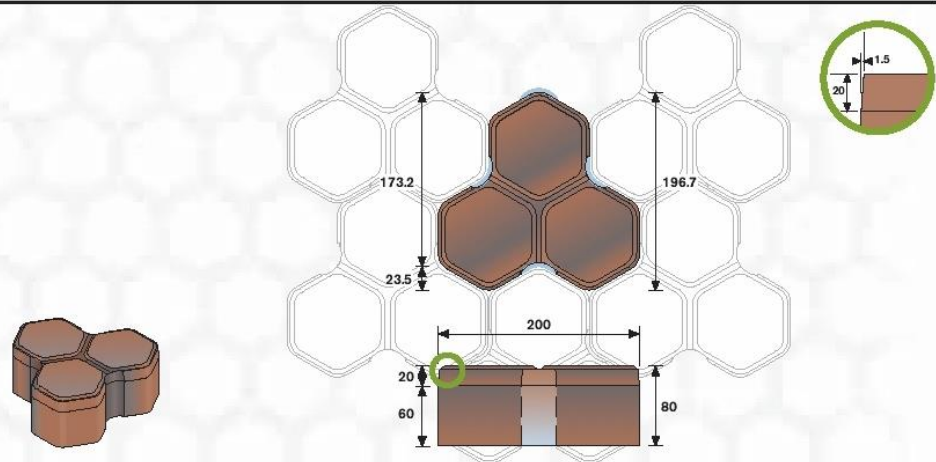
Include stretcher course around edge in conjunction with MLE and MLTB

Colours*

Natural, Burnt Red, Red brindle, Golden brindle and Charcoal.

Finish

Standard



Not available in EcoGranite

Aquaflow MLE® top drawing

End block

For use with Aquaflow ML blocks

Aquaflow MLTB® bottom drawing

Top and bottom block

For use with Aquaflow ML blocks

Size

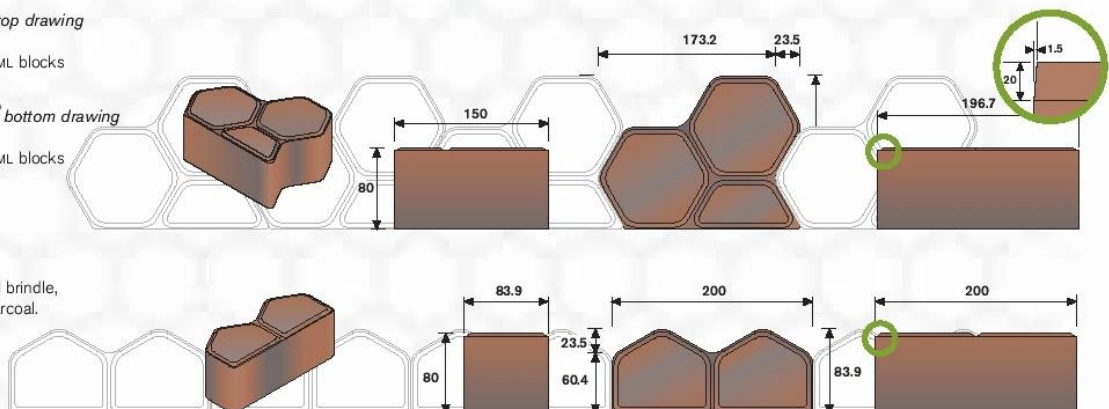
80mm

Colours*

Natural, Burnt Red, Red brindle, Golden brindle and Charcoal.

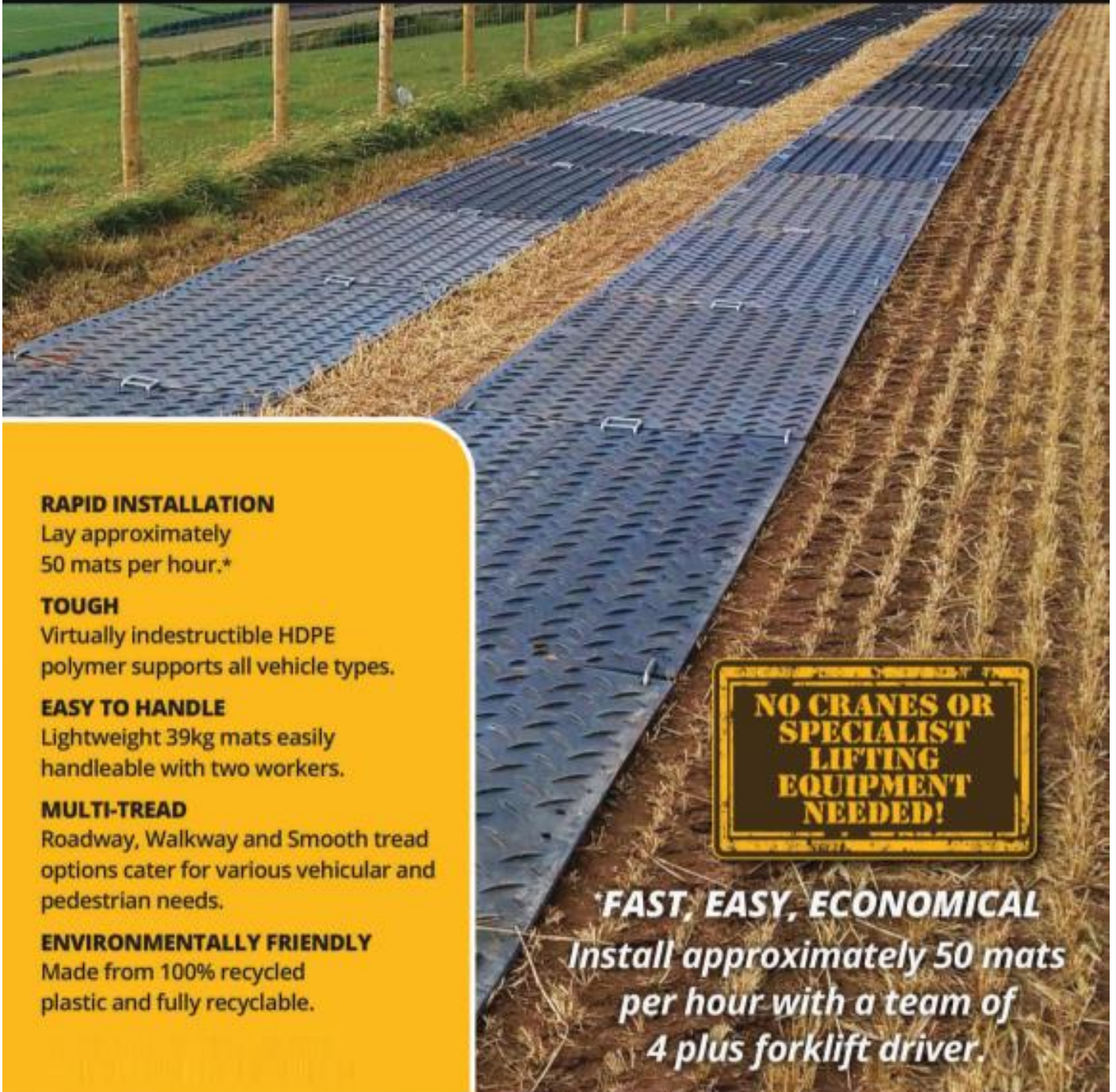
Finish

Standard



Not available in EcoGranite

MultiTrack



RAPID INSTALLATION

Lay approximately
50 mats per hour.*

TOUGH

Virtually indestructible HDPE
polymer supports all vehicle types.

EASY TO HANDLE

Lightweight 39kg mats easily
handleable with two workers.

MULTI-TREAD

Roadway, Walkway and Smooth tread
options cater for various vehicular and
pedestrian needs.

ENVIRONMENTALLY FRIENDLY

Made from 100% recycled
plastic and fully recyclable.



FAST, EASY, ECONOMICAL
*Install approximately 50 mats
per hour with a team of
4 plus forklift driver.*

GroundGuards®

+44 (0)113 267 6000
info@ground-guards.co.uk
www.ground-guards.co.uk

MultiTrack



MultiTrack mats are the strongest in their category



Mats are easily moved using a HandiHook



Standard no-tools joiners quickly clip the mats together



Low profile joiners for walkways plus bolted joiners



SafeStore stillages hold 25 mats

Overall Size: 2435 x 1215 x 13mm (plus treads)

Surface Area: 2.95m²

Weight: 39kg

Tread Options: Roadway, Walkway and Smooth, or a combination

Connectors: 10 joining points.
A choice of standard clip joiners, low profile joiners or bolted joiners, plus anchor pins

Packed in: Stillage of 25 mats

Stillage Pack: **Weight:** 1105kg
Dimensions: 2550 x 1260 x 900mm

Slip Testing: BS7976 part 2

Deflection: Tested on varying CBR ground conditions using a 300mm diameter steel platen with 6 tonnes load to simulate the pressure of an HGV wheel

Ground CBR 11.35%: Deflection 17.68mm

Ground CBR 8.58%: Deflection 20.41mm

Ground CBR 4%: Deflection 22.00mm

Guarantee:

It is the user's responsibility to assess the load-bearing capacity of the ground, and to only operate vehicles within the weight that the ground is capable of safely supporting. Ground-Guards Ltd accepts no liability whatsoever for any damage, loss or injury arising from the ground conditions on which these products are used.

MultiTrack mats are not suitable to use for bridging purposes. Damage caused by mechanical equipment (e.g. cuts by digger buckets) or sharp protrusions beneath the mats is not covered by this guarantee.



GroundGuards®

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www.ground-guards.co.uk

Root Pruning Specification

1. Informative

Root pruning is a specialist tree surgery operation that may be undertaken in certain circumstances to allow construction operations to take place within a limited and strictly controlled area of the predicted rooting zone of a tree that it is intended to be retained on site after development work is completed. The most common applications for recommending root pruning are to allow the installation of services, hard surfaces and foundations of buildings. There are no rigid rules as to when root pruning is or is not appropriate. Instead much depends on the tree species, its current health, its age, the topography and site history, and the operation to be completed. As such recommendations to undertake root pruning are a matter of judgement to be carefully considered by a qualified and experienced Arboricultural Consultant.

It is important to note that in most situations the tree to be root pruned will be protected by planning conditions or a tree preservation order, and therefore works may not proceed without written permission from the relevant Local Planning Authority. The most common means of authorising the proposed work is for the Local Planning Authority to approve an Arboricultural Method Statement drawn up by a qualified and experienced Arboricultural Consultant. This will designate the exact location of the pruning on a scaled drawing, along with providing details of appropriate tree protection measures (e.g. fencing or materials to insulate the tree and the surrounding ground from contamination or compaction).

With the recent rise in numerous pathogens affecting trees, biosecurity measures are critical and referenced in the specification below. The most recent advice on biosecurity measures can be obtained from the Forestry Commission at www.forestry.gov.uk/england.

2. Specification

2.1 Supervision - Root pruning is an expert operation that must be completed by either (i) a competent and experienced arboricultural contractor, or (ii) by ground workers acting directly under the supervision of a Monitoring Arboricultural Consultant. As such no work may commence until instructed by the nominated arboricultural expert henceforth referred to in this document as the Monitoring Arboricultural Consultant.

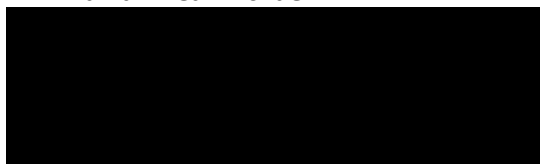
2.2 Site Setup - All tree protection measures identified in the approved Arboricultural Method Statement must be implemented (e.g. erection of fencing) before works commence. The exact alignment of the approved root pruning must be measured out and marked on site (e.g. spray paint or stakes at regular intervals).

2.3 Preparation of Tools - All tools to be used in the operation must be sharp so as to ensure a clean and smooth cut. In addition, they must be disinfected for biosecurity reasons both before commencing work and, if more than one tree is involved, before each separate tree is addressed. As of March 2017 two commonly used arboricultural disinfectants are "Virkon" (www.virkon.com) and "Propellar" (available from Evans Chemical Supplies - 01209 213643).



- 2.4 Excavation Method** - This must take place under the direct supervision of the nominated Monitoring Arboricultural Consultant who will control the operation. Dependent on the situation, the excavation will be completed (i) by hand, (ii) with an air-spade, (iii) by careful use of a mechanical excavator, or (iv) by a combination of these methods as directed by the Monitoring Arboricultural Consultant.
- 2.5 Excavation Location** - The process will involve the excavation of a vertical trench that will not transgress closer to the retained tree than the distance indicated on the approved Arboricultural Method Statement.
- 2.6 Excavation Width** - The width of the trench may be extended to any practical dimension on the aspect furthest from the retained tree unless other tree constraints exist (if present, these will be detailed in the approved Arboricultural Method Statement and controlled on site by the Monitoring Arboricultural Consultant).
- 2.7 Excavation Depth** - The depth of the trench will be sufficient to allow the base of any adjacent approved construction to be inserted without further later excavation that may cause additional harm to any deeper roots that will remain. Experience shows that the main rooting depth for a tree on even topography with undisturbed ground is not usually greater than 600mm, but this is a matter that must be reviewed for each site by the Monitoring Arboricultural Consultant, and can vary considerably due to factors such as made-up ground and unknown subterranean barriers (buried retaining walls or foundation remnants etc).
- 2.8 Root Pruning** - The severing of roots will be at the sole direction and authorisation of the Monitoring Arboricultural Consultant. Disinfected tools appropriate to the task must be used. The standard equipment would normally be secateurs and hand pruning saws. In the unlikely event that a much larger root is encountered than would be predicted at the location whereby the severing of that root would result in critical stability concerns for the retained tree, the Monitoring Arboricultural Consultant must suspend works and liaise with the Local Planning Authority to obtain an acceptable resolution.
- 2.9 Completion** – Once the excavation and pruning works are completed, it is essential that no retained roots are exposed to the negative effects of atmospheric exposure. The completion of the project will be at the direction of the Monitoring Arboricultural Consultant in liaison with the Site Manager who will determine if the trench is to be temporarily back filled, permanently backfilled (e.g. as services were installed as a parallel operation), or the pruning face protected by damp hessian sacking.

David M Carmichael



Arboricultural Manager



Appendix H

Hayden's Drawing

Arboricultural Impact Assessments ●
Arboricultural Method Statements ●
Tree Constraints Plans ●
Arboricultural Feasibility Studies ●
Shade Analysis ●
Picus Tomography ●
Arboricultural Consultancy for Local Planning Authority ●
Quantified Tree Risk Assessment ●
Health & Safety Audits for Tree Stocks ●
Tree Stock Survey and Management ●
Mortgage and Insurance Reports ●
Subsidence Reports ●
Woodland Management Plans ●
Project Management ●
Ecological Surveys ●



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Website
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