

June 2022

BS5837:2021 Arboricultural Survey and Impact Assessment

Site address: Selsted Farm, Stockham Lane, Dover
Prepared on behalf of: DHA Planning

Document ref:	2137	Survey date	May 2022
Survey type	Arboricultural Tree Condition Survey		
Surveyor	P Pritchard – <i>Dip, MArbor A</i>		

Validity of Report

The trees have been surveyed in accordance with the criteria set in the BS:5837:2012 Trees in Relation to Design, Demolition and Construction 2012. A full hazard assessment of the trees (including assessment of decay or their defects and their implications) has not been undertaken as this is considered beyond the scope of this report. Any obvious hazards and defects have been identified where relevant in the Tree Survey Schedule and appropriate relating works have been recommended. Where relevant, trees not located within the legal property of the owner have been included and any works would be subject (where relevant by law, Statute and Common) to the owner's permission.

Where appropriate further investigative works to be undertaken have been detailed and recommended. This may include climbing inspections, below ground exploratory investigations and the use of specialist decay detection equipment. Detailed ecological considerations are also beyond the scope of this report. UK and European Wildlife Legislation may affect the timing and even prohibit the enhancement of works and operations described in this report.

Most of the information regarding wildlife can be found in the Wildlife and Countryside Act 1981 & updated 1994. This includes information of wild birds, bats, badgers, and some insects. Bats are afforded particular protection and a specialist is required to determine if bats are present or may be affected when carrying out tree works. Further information is available from Natural England. It is accepted that this document may need to be updated and more detailed information added throughout the planning and development process. However, this document will be the main documentation for reference in the event of disputes.

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1 – OVERVIEW

Full site address	Selsted Farm, Stockham Lane, Dover, CT15 7HJ
Client / on behalf of	DHA Planning
Survey date	June 2022
Proposals	Construction of ten residential dwellings
Planning reference	<i>Not known</i>
Baseline Information	
Surveyor/s	P Pritchard - Dip, MArbor A L Rowbottom – MD

Quick Summary

The survey identified the following concerns regarding onsite trees.

Please note these are further analysed and evaluated in sections 4 of this report onwards.

Species of concern	Impact Level	Recommendations
None	Low	See appendix 4

2 – INTRODUCTION

Background

Fellgrove have been appointed to provide advice on the arboricultural constraints relating to a proposed planning application at Selsted Farm, Stockham lane, Dover, CT15 7HJ. We undertook a Tree Condition Survey during June 2022 (see Appendix 3). This survey assessed the condition of the tree resource, categorised the trees and provided the Root Protection Area (RPA) information according to the BS5837:2012 Recommendation Guidelines¹. The tree numbers used in this report refer to the tree numbers used in our Tree Condition Survey.

Context – Desktop Study

TPO – Conservation area

A detailed search at Folkestone and Hythe District Council has been carried out prior to the site survey.

- We can confirm that the site does not fall within any known Conservation Area.
- No trees on site are covered by preservation orders.

Ancient Woodland – Woodland Pasture

A detailed search with defra magic map was completed.

- We can confirm that the site does not impact on Ancient Woodland. Stony Lane Wood is East of the site by 200m.

BAP Habitat

A detailed search with defra magic map was completed.

- We can confirm the site does not hold any BAP habitats.

Veteran Trees

A detailed search with Woodland Trust was completed.

- We can confirm the sites holds no Veteran Trees.

Baseline Site Information

- ***Selsted_A3-Final Sheet.pdf***

Site Description

The site currently forms Selsted farm, with large areas of hard standing, debris piles and farm buildings. The immediate and distant landscape character is within the rural setting of Selsted. The main character of the local landscape is that of a typical Kentish village with a good mix of farmland and woodland interspersed by residential and commercial properties.

Scope of Survey

The purpose of this survey is to assess the condition of the trees immediately affected by the proposal and provide recommendations for trees to be retained and low amenity value or hazardous trees to be replaced in accordance with the principles of BS5837: 2012 '*Trees in relation to design, Demolition and Construction – Recommendations*'.

The outcome will produce a tree protection plan (TPP) demonstrating the location of surveyed trees, their BS5837:2012 categorisation, the theoretical Root Protection Areas (RPA) and the location of protection fencing / measures. If the guidelines and principles outlined in this report are not adhered to, as with all development sites there is a risk that the construction activities will result in damage to and potentially the death of the retained trees. Damage to the trees will significantly increase the risk of their health declining and may increase the risk of their complete or partial failure.

Executive Summary

The trees surveyed have moderate amenity value within the site landscape and a low amenity value within the surrounding area. The trees surveyed consist primarily of mature species with one tree and four groups surveyed.

To accommodate the proposal and enhance the site, removal and management work have been recommended.

Management recommendations and the Tree Works Schedule can be found within Appendix 3.

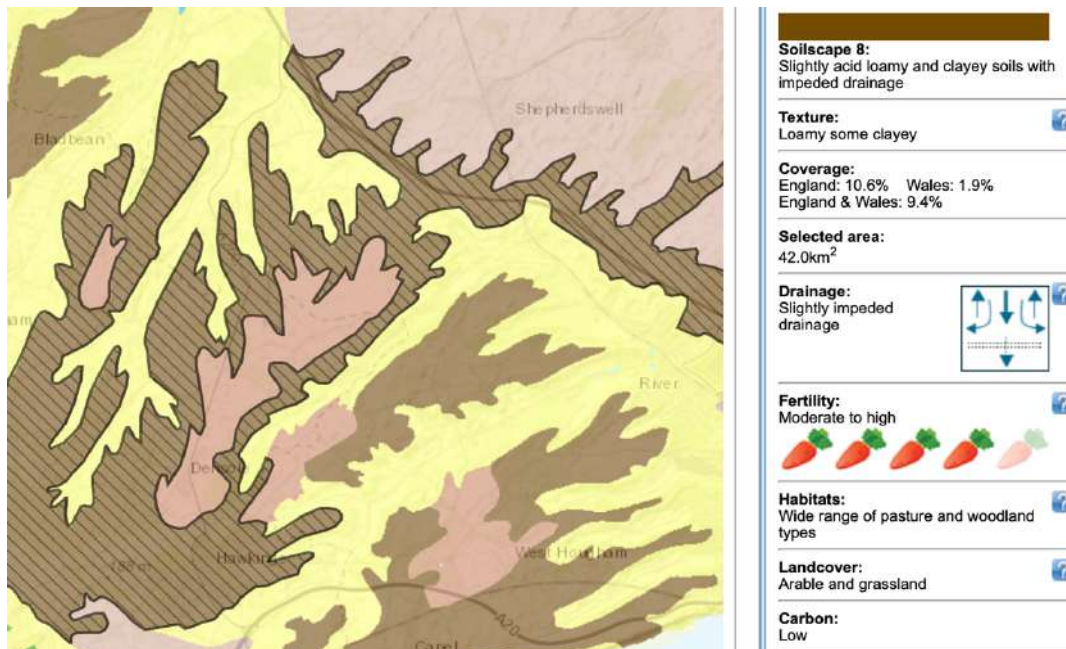
This report seeks to assess the tree stock in accordance with BS5837:2012¹. The survey and report will identify those trees most suitable to be retained and those that can be removed and replaced, as part of any future landscaping scheme for the site. This will provide information for the architect / developer to design a layout within the parameters of the development window with the retention of the best trees where possible.

¹ BS5837:2012 '*Trees in relation to design, demolition, and construction – Recommendations*

Figure 1 – Indicative Site Plan



Figure 2: Site Location - Soilscape 8



LandIS.org.uk Soilsapes has identified the soil as Soilscape 8, slightly acid loamy and clayey soils with impeded drainage. All comments regarding soils should be verified with onsite geotechnical investigations and laboratory testing with foundation depth and design undertaken by a structural engineer in accordance with the requirements of NHBC Chapter 4.2.

3 – OVERVIEW OF TREES

The data obtained during the tree survey is recorded within this report and can be found in Appendix 3 along with any recommendations. The trees surveyed have been broken down into categories set out in BS5837:2012, also outlined in Cascade Chart for Quality Tree Assessment (see Appendix 2).

One tree and four groups were surveyed: All are C category, low category C trees do not warrant retention, they are not sufficiently worthy of impacting any design layout holding limited value in the overall context of planning. The current proposals are to demolish the barns and build a new residential development of 10 properties. To accommodate the proposal, we are recommending the removal of G001, G002 and T001. G003 and G004 will require management works prior to construction. See appendix 3 for details. The open nature of the proposal will allow for a robust re-planting scheme, in turn this will increase the overall amenity value of the site and improve the wider tree scape.

The survey of the trees has been carried out in accordance with the guidance provided in Annexe C of BS5837. In summary, this requires that any tree on site with a stem diameter of over 75mm at 1.5m above ground level is recorded. Stem diameter measurements were taken using Haglof diameter callipers and are recorded to the nearest full unit or in accordance with Annexe D of BS5837. Where access to the base of the tree was not possible for any reason, the diameter has been estimated. Height measurements are estimated and recorded to the nearest full metre. Crown spread dimensions have been paced and are recorded to the nearest full metre for all four cardinal points.

The Survey Schedule of trees can be found in Appendix C. The locations of the trees have been plotted on the attached Tree Location Plan (TLP). The trees have been categorised in an order defined in table 1 of BS5837, a copy of which can be seen in Appendix A (and summarized below).

Tree Categorisation

Category A	Category B	Category C	Category U
0	0	5	0

4 – IMPACT ASSESSMENT

The overall impact of the proposal on the localised tree population is low with three removals recommended to accommodate the proposal: G001, G002, T001 with management of G003 and G004.

It is considered that future planting will maintain and enhance the sites amenity value within the wider tree scape and uphold the overall tree scape within the area.

Development proposals can impact on trees by causing them to be removed either immediately or in the future. It does this by adversely affecting their potential for retention either through disturbance to the root protection area (RPA) or through the need for pruning / removal.

Ground Constraints and Proximity of Trees to Structures

ABOVE GROUND (Reference material)

Where the current and/or ultimate height of a Category A, B or C tree will cause an obstruction to the approved development, this must be considered as a constraint.

An amenity clearance zone (ACZ) is used to consider the impact of the proximity of retained trees to structures and is defined as an area surrounding the tree that enables a satisfactory relationship to exist between the approved development and the tree.

The ACZ is a combination of factors such as shading (of buildings and open space), direct damage to structures, future pressure for removal, seasonal nuisance (e.g., leaf fall blocking gutters, fruit fall creating slippery patches and honey dew dripping on vehicles and surfaces), consideration is also given to species characteristics such as deciduous or evergreen.

BELOW GROUND (Reference material)

The RPA is defined as the minimum area (m²) around the tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where protection of the roots and soil structure is treated as a priority.

Section 4.6.2 & 4.6.3 of BS5837 allows for the shape of the RPA to be changed for the likely spread of the roots.

Onsite Impact Assessment from Proposal

Area of concern	Impact to trees	Recommendation
RPA	Negligible	Protection fencing during construction
Foundations	None.	n/a
Surfaces	None.	No new surfaces proposed within an RPA.
Services	None.	Room within site to accommodate services routes.
Ground Levels	None.	No changes to ground levels within an RPA
Shading	None.	Room for replanting appropriate species.
Leaf Litter	None.	Prevention of leaf litter with all nonslip surfaces and guards fitted to guttering / gullies.

5 – RECOMMENDATIONS

The preliminary tree works recommendations are included in the tree survey schedule contained within this report (see *Appendix 3*). By liaison with the council tree officer, formal agreement should be sought regarding the proposed removals and replacements.

1. *Removals of T001, G001 and G002.*
 2. *Protection fencing around G003 and G004*
 3. *A robust landscape plan to show site enhancements.*
-

Providing all recommendations set out within this and preceding reports are followed, a pragmatic methodology has been proposed that retains those trees of good amenity value, allowing the development to be implemented.

6 - REFERENCES

BS5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'

BS3998:2010 'Tree Work – Recommendations'

NJUG 4 – National Joint Utilities Group "Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. Volume 4, issue 2. London: NJUG 2007"

BGS Open-Source Soil Data – <http://www.bgs.ac.uk/nercsoilportal/maps.html>

7 – APPENDICES

APPENDIX 1

Key to Survey Sheets

BS5837 Category	Description
A	Those of high quality and value: in such a condition as to be able to make a substantial contribution (> 40 years)
B	Those trees of moderate quality and value: those in such a condition as to make a significant contribution (> 20 years)
C	Those trees of low quality and value: currently in adequate condition to remain until new planting could be established (> 10 years)
U	Those in such a condition that any existing value would be lost within 10 years, and which should, in the current context, be removed regardless of development

Note: Sub-categories are denoted in tree survey data (A1, B1, C2 etc). See BS for further detail if required.

Tree No.	T (tree), G (group), H (hedge), W (woodland) + Ref No.
Species	Common and Botanical Name
Ht (m)	Measured height in metres
DBH (mm)	Diameter at 1.5m above ground level
Branch Spread	In m to all four cardinal points
Cr Ht Clearance (m)	Overall height of lowest branches from ground level on side of proposed development
Life Stage	Young, Semi-Mature, Early Mature, Mature, Over-Mature
General Observations	Observations on the condition of the tree(s)
Tree Work Specification	Proposed tree works in accordance with BS3998
BS Cat	See above
Life Exp	Estimated remaining contribution in years.
RPA Radius (m)	Radius of tree Root Protection Area measured from trunk to edge of RPA circle
RPA (m2)	Overall Root Protection Area in m2
*	Indicates where tree data may have been estimated as tree was offsite / restricted access / dense vegetation hindering full inspection

APPENDIX 2

Cascade Chart for Quality Tree Assessment

TREE REMOVAL				
Definition	Criteria			Plan ID
<u>CATEGORY U</u> Those in such condition they cannot realistically be retained as living trees in the context of current land used for over 10 years	- Trees with 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 U Category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low-quality trees suppressing adjacent trees of better quality.			DARK RED RGB code 127-000-000
TREE RETENTION				
Definition	Main Criteria Subcategories of Value			
	Arboricultural	Landscape	Cultural / conservation	
<u>CATEGORY A</u> Trees of high quality with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g., dominant and/or principal trees within an avenue)	Trees, groups, or woodlands of particular visual importance as arboricultural and or landscape features	Trees, groups or woodlands of significant conservation, historical commemorative, or other value (e.g. veteran trees or wood-pastures)	LIGHT GREEN RGB code 000-255-000
<u>CATEGORY B</u> Those 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 as to make little visual contribution to the wider area.	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE RGB code 000-000-255
<u>CATEGORY C</u> Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in the higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit.	Trees with no material conservation or other cultural value	GREY RGB code 091-091-091

Appendix 3 - BS5837 Report

Ref	Species	Full Structure	Measurements	Spread	General Observations	Retention Category	RPA	Comments	Condition	Recommendations
G001	Field Maple x4 (Acer campestre) European Lime x3 (Tilia x europaea) Blackthorn (Prunus spinosa) Sycamore (Acer pseudoplatanus) Hornbeam x2 (Carpinus betulus)	Group 11 trees	Height (m): 14 11 stems, avg.(mm): 200 Spread (m): 14N, 6E, 14S, 6W Crown Clearance (m): 1 Life Stage: Early Mature Rem. Contrib.: 20+ Years	N:14 E:6 S:14 W:6	Row of trees located along the Western boundary of the site. Trees adjacent formal grass area to the West with pond area located to the North Western corner. Trees unmanaged with informal and untidy appearance. 1 x Lime and 1 x aField Maple on South Western corner (adjacent road) adjacent and under LV overhead power lines.	C1	Area: 246.98 sq m.	These trees will have to be removed to facilitate a proposed future development.	Physiological Cond: Fair Structural Cond: Fair	Remove trees
G002	Elder (Sambucus nigra) Common Ash x4 (Fraxinus excelsior) Common Hawthorn (Crataegus monogyna)	Group 6 trees	Height (m): 14 6 stems Spread (m): 6N, 12E, 2S, 12W Crown Clearance (m): 0 Life Stage: Early Mature Rem. Contrib.: 10+ Years	N:6 E:12 S:2 W:12	Row of trees located along South Western corner of the site. Trees running along roadside. Cut back from road on South side, unmanaged and encroaching onto farm outbuildings to the Northern side. Trees under LV overhead power lines and previously cut back from same. Unsuitable for location will cause problems and have to be cyclical pruned from lines.	C1	Area: 129.46 sq m.	These trees will have to be removed to facilitate a proposed future development.	Physiological Cond: Fair Structural Cond: Fair	Remove trees
G003	Leyland Cypress x28 (Cupressocyparis leylandii X)	Group 28 trees	Height (m): 7 28 stems, avg.(mm): 200 Spread (m): 18N, 2E, 18S, 2W Crown Clearance (m): 0 Life Stage: Early Mature Rem. Contrib.: 30+ Years	N:18 E:2 S:18 W:2	Row of trees outwith site running along the South Eastern boundary from North to South. Trees formally maintained on the top and site side.	C1	Area: 412.31 sq m.	The surfacing and levels in the RPA should not be altered as long as the trees are being retained.	Physiological Cond: Good Structural Cond: Good	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans. Post construction: Remove barriers.
G004	Common Hawthorn x7 (Crataegus monogyna) Leyland Cypress (Cupressocyparis leylandii X)	Group 8 trees	Height (m): 6 8 stems, avg.(mm): 150 Spread (m): 7N, 2E, 7S, 2W Crown Clearance (m): 0 Life Stage: Early Mature Rem. Contrib.: 20+ Years	N:7 E:2 S:7 W:2	Running along Eastern boundary . Outwith site.	C1	Area: 184.68 sq m.	The surfacing and levels in the RPA should not be altered as long as the tree is being retained.	Physiological Cond: Fair Structural Cond: Fair	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans.

Ref	Species	Full Structure	Measurements	Spread	General Observations	Retention Category	RPA	Comments	Condition	Recommendations
T001	Common Walnut (Juglans regia)	Tree	Height (m): 11 Stem Diam (mm): 350 Spread (m): 4N, 1E, 4S, 3W Crown Clearance (m): 2 Life Stage: Early Mature Rem. Contrib.: 10+ Years	N:4 E:1 S:4 W:3	Tree located outwith site boundary on Northern side of the site. Tree in poor condition with sparse and necrosis foliage. Tree potentially encroaching onto new build?	C1	Radius: 4.2m. Area: 55 sq m.	This tree does not merit retention due to poor condition and misplaced adjacent formal redevelopment.	Physiological Cond: Poor Structural Cond: Poor	Remove tree.

Status

Planning

Project

Selsted Farm

Drawing title

Tree location plan - Appendix 4

Rev	Description	Date
-	-	-
-	-	-
-	-	-

Scale	Date	Drawing Number	Rev
NTS	10/08/22	2137_01	V01

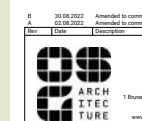
BS Category of Condition

- Site boundary
- Calculated Root Protection Area
- Category A - High quality and value - >40 years.
- Category B - Moderate quality and value - >20 years.
- Category C - Low quality and value >10 years.
- Category U - Poor quality and low value <10 years.
- Target Notes

- 1:
- 2:
- 3:
- 4:
- 5:



ACCOMMODATION SCHEDULE	
PLOT 01	3BGP
PLOT 02	4BGP
PLOT 03	4BGP
PLOT 04	4BGP
PLOT 05	4BGP
PLOT 06	4BGP
PLOT 07	3BGP
PLOT 08	4BGP
PLOT 09	4BGP
PLOT 10	4BGP



Project Title
Proposed Residential Development at land at Duck Pond Farr Stockham Lane, Selsted, CT15 7HU

Drawing Description
Proposed Site Plan

Scale (to A1)	Date
1:200	JUN 2022
Drawn By BM	Checked By DT

Planning

Drawing No
19-0716 - 05

Notes
- Do not scale
- The architect is responsible for checking dimensions and areas. If dimensions are not shown, they should be taken from the site plan.
- Limited before proceeding with the works.
- If dimensions are not shown, they should be taken from the site plan.
- If dimensions are not shown, they should be taken from the site plan.
- If dimensions are not shown, they should be taken from the site plan.

Cited from Google Earth



Status

Planning

Project

Selsted Farm

Drawing title

Removal plan - Appendix 4

Rev	Description	Date
-	-	-
-	-	-
-	-	-

Scale	Date	Drawing Number	Rev
NTS	10/08/22	2137_02	V01

BS Category of Condition

-  Site boundary
-  Calculated Root Protection Area
-  Category A - High quality and value - >40 years.
-  Category B - Moderate quality and value - >20 years.
-  Category C - Low quality and value >10 years.
-  Category U - Poor quality and low value <10 years.
-  Tree recommended removal on Arboriculture grounds
-  Tree recommended removal to accommodate the proposal

1 Target Notes

- 1:
- 2:
- 3:
- 4:
- 5:



Proposed Site Plan
1:200

ACCOMMODATION SCHEDULE		
PLOT 01	3BGP	
PLOT 02	4BGP	
PLOT 03	4BGP	
PLOT 04	4BGP	
PLOT 05	4BGP	
PLOT 06	4BGP	
PLOT 07	3BGP	
PLOT 08	4BGP	
PLOT 09	4BGP	
PLOT 10	4BGP	

Rev	Date	Description
1	20/08/2022	Amended to comments
2	22/08/2022	Amended to comments

Project Title
Proposed Residential Development at land at Duck Pond Farr, Stockham Lane, Selsted, CT15 7HU

Drawing Description
Proposed Site Plan

Scale (to A1)	Date
1:200	JUN 2022
Drawn By	Checked By
BM	DT

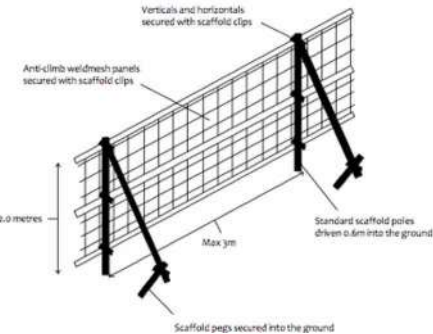
Planning

Drawing No
19-0716 - 05

Notes
- Do not scale
- The contractor is responsible for checking dimensions and locations. Report all discrepancies to the client.
- Limited before proceeding with the works.
- Where an item is shown in a different color, it is to be worked to the larger scale drawing to be worked to.
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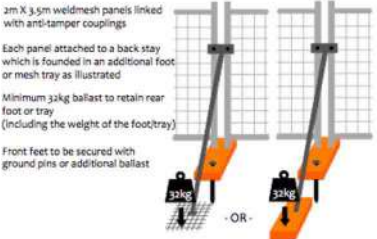
Cited from Google Earth





Primary Tree protection

The 'Back Stay System'
(an alternative to 'The In-Ground System')



Secondary Tree protection

architecture ecology landscape
fellgrove

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Status

Planning

Project

Selsted farm

Drawing title

Protection plan - Appendix 4

Rev	Description	Date
-	-	-
-	-	-
-	-	-

Scale	Date	Drawing Number	Rev
NTS	10/08/22	2137_03	V01

BS Category of Condition

- Site boundary
- Calculated Root Protection Area
- Category A - High quality and value - >40 years.
- Category B - Moderate quality and value - >20 years.
- Category C - Low quality and value >10 years.
- Category U - Poor quality and low value <10 years.
- Tree protection barrier (primary Specifications)
- Tree protection barrier (secondary Specifications)

Target Notes

- 1:
- 2:
- 3:
- 4:
- 5:

Cited from Google Earth



Proposed Site Plan
1:200

ACCOMMODATION SCHEDULE		
PLOT 01	3BGP	
PLOT 02	4BGP	
PLOT 03	4BGP	
PLOT 04	4BGP	
PLOT 05	4BGP	
PLOT 06	4BGP	
PLOT 07	3BGP	
PLOT 08	4BGP	
PLOT 09	4BGP	
PLOT 10	4BGP	

Rev	Date	Description
1	10/08/22	Approved to comments
2	10/08/22	Approved to comments
3	10/08/22	Approved to comments
4	10/08/22	Approved to comments
5	10/08/22	Approved to comments

Project Title
Proposed Residential Development at land at Duck Pond Farr Stockham Lane, Selsted, CT15 7HU

Drawing Description
Proposed Site Plan

Scale (to A1)	Date
1:200	JUN 2022
Drawn By	Checked By
BM	DT

Planning
Drawing No: 19-0716 - 05

Notes
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- The contractor is responsible for checking dimensions and locations. If any discrepancy is found, it must be reported to the architect immediately.
- Limited before proceeding with the works.
- Where an item is covered by drawing is different, a larger scale drawing is to be worked to.
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APPENDIX 5

Site Inspection and Monitoring Schedule

In order to ensure that the principals of tree protection are adhered to, it is important to set out communication details for key individuals and tasks that require supervision. Any on-going monitoring and site supervision shall be agreed with the local tree officer where required.

It should be noted that these visits will only be undertaken if a written instruction is received from the client prior to commencement of works on site.

INSPECTION	ATTENDEES	COMMENTS
<i>Pre-construction</i>		
Occurring prior to any works taking place on site	- site manager - appointed arborist - architect - site owner	Site manager to study this method statement & contact the appointed arborist to agree all protection measures on site and install.
Tree and hedge removals	- site manager - appointed arborist - appointed contractors	Work to take place before construction on site.
Meeting after tree works completed & all protection measures installed, prior to any other activity	- site manager - appointed arborist	Tree protection fencing locations & specifications checked. Additional ground protection measures checked. Further protection measures/restriction agreed.
Toolbox talk	- Site manager - site staff working near / within RPA fencing	Any member of site staff working near or within the RPA will need to attend a toolbox talk delivered by the site arborist. All attendees will be provided with summary sheets and cautionary notes.
Ground protection installation	The appointed arborist shall be invited to oversee the ground protection.	At least one week's notice shall be given prior to commencing excavations
Intermediate reporting throughout entire project, at least once per month	The site manager shall report back to the appointed arborist to complete once monthly site checks if required.	Site manager to liaise with the appointed arborist regarding any issues which may affect trees. General site photos indicating tree protection measures to be provided monthly
<i>Post-construction</i>		
Post construction activity but prior to removal of fencing & landscaping operations	- site manager - appointed arborist	Retained trees inspected, further landscape operation and restrictions to be agreed.

APPENDIX 6

Tree and Ground Protection Specification

In order to ensure that the principals of tree protection are adhered to, it is important to set out communication details for key individuals and tasks that require supervision. Any on-going monitoring and site supervision shall be agreed with the local tree officer where required. It should be noted that these visits will only be undertaken if a written instruction is received from the client prior to commencement of works on site.

Figure 3: In-Ground System

- This system (illustrated to the right) is based on BS 5837 guidelines and may be installed where indicated by a solid purple line on the Tree Protection Plan. It should be robust enough to withstand occasional knocks by plant machinery and, once installed, shall remain in place throughout the entire construction phase.
- Vertical scaffold poles are driven into the ground, onto which are affixed horizontal scaffold poles and diagonal bracing struts. Weldmesh panels (or similar – (e.g., Heras type fencing panels, or 18mm+ plywood boards) are secured to this scaffold framework using sturdy clips e.g., standard scaffold clips.

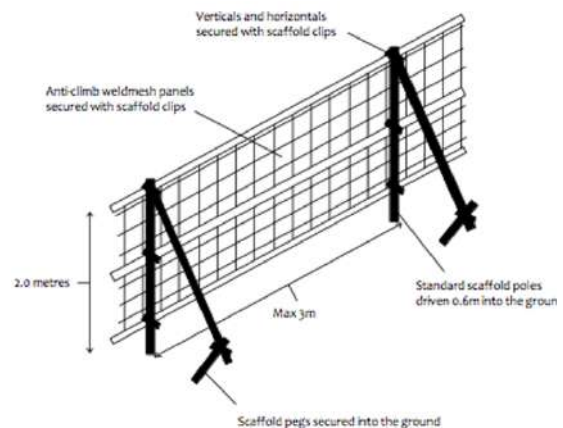
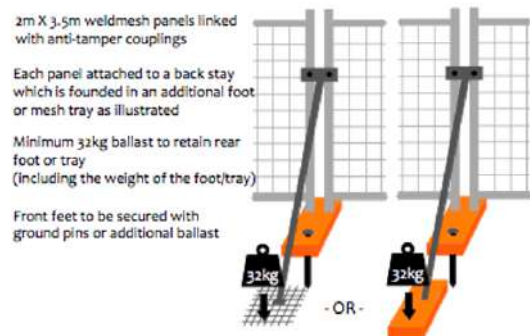


Figure 3a: Back-Stay System

- This system may be installed where indicated by a solid or dashed purple line on the Tree Protection Plan. It is more practical over existing hard surfaces or where the fencing needs to be moved to enable permitted activities within the RPA.
- This system should be able to withstand occasional knocks by machinery and should not be relocated except with the consent of the site manager and the approval of the site arborist. Within this system, weldmesh fencing panels (minimum height 2m) are affixed into rubber or concrete feet and clipped together with anti-tamper couplers.
- Where topography permits, two couplers should be used, spaced at least 1m apart. Alternate panels should be attached to a diagonal back stay connected to an additional foot or baseplate secured with ground pins or additional ballast.
- Where ground pins are not used, the total weight of the foot/plate plus ballast should not exceed 32kg.

The 'Back Stay System' (an alternative to 'The In-Ground System')



Ground Protection Measures Specifications

Where indicated on the Tree Protection Plan, ground protection measures shall need to be installed over any soft landscaping to prevent soil compaction and contamination, where it's not practicable to fence off the Root Protection Areas because access is required. Where vehicles or machinery are required to operate within the Restricted Zone, a geotextile fabric shall be installed followed by a compression resistant layer such as 150mm of compressible material (e.g. Woodchip) or a 3D cellular confinement system in-filled with 7-40mm angular gravel (e.g. Cellweb™). Either system shall act to spread the load of any vehicles passing through the restricted zone. Above this load spreading layer, 25mm wooden boards or 12mm road plates shall be secured. Plant machinery shall be limited to 2 tonnes. See also Figure 4 and 4a below.

Figure 4: Example of Above Soil Surfacing

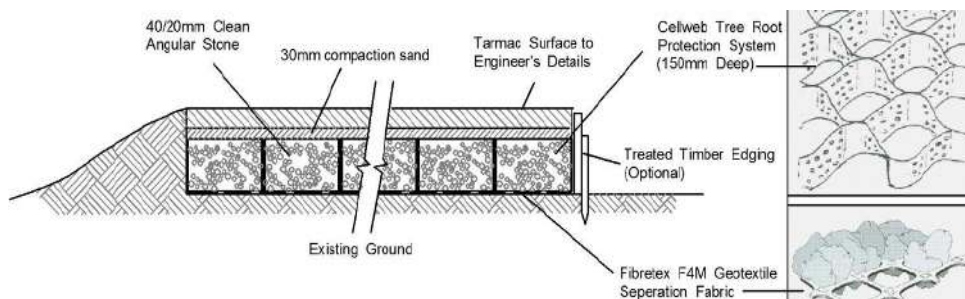


Figure 4a: Ground Protection

(where root protection areas are outside Construction Exclusion Zone)

- If only pedestrian access is required, then 25mm wooden boards, (e.g. scaffold) firmly affixed together and laid directly on ground shall suffice. If the ground is uneven, then it shall first be made even using sand or soil to ensure the boards distribute loads over a large area of ground. Boards shall be appropriately weighted or pinned to prevent movement. Alternatively scaffold boards may be supported above ground on a scaffold framework.
- Where existing hard surfacing is to be retained throughout the entire project it shall not be necessary to install additional ground protection measures. However, the hard surfacing must be firm enough to spread the load of any traffic passing overhead. Paving slabs shall need to be reinforced with scaffold boards or similar if vehicles or machinery are to be used in this area.
- These measures shall be installed and approved before commencement of demolition and construction activity and before the arrival of plant machinery or materials. They shall remain in place until all heavy construction activity is complete or until they are due to be replaced with a new hard surface.

