



Arboricultural Impact Assessment



Client: Pageant Investment Development Ltd.

Site name: Cockreed Lane, New Romney, TN28 8JH

Ref no: GE030_RP_001_C

Date: 08/7/2019

Status: Planning

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Author	Jo Hamilton Bsc (Hons) MArborA
Reviewed	Lydia Hill-Wood
1st Issue date	25th September 2018
Revised	3rd November 2018, 8th July 2019
Revision issue	C

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1. SUMMARY

- S.1 This report has been prepared to support a planning application for the construction of a new residential area comprising of 30 new dwellings with associated garden and parking on land at Cockreed Lane, New Romney, TN28 8JH.
- S.2 A total of 15 individual trees, 4 groups and 2 hedges were surveyed and therefore the subject of this report which has been written in accordance with British Standard, BS 5837:2012 '*Trees in relation to demolition, design and construction – Recommendations*'.
- S.3 In order to facilitate the development, 12 individual trees, 3 groups and 1 hedge will require removal, in addition 1 tree should be removed for reasons of sound arboricultural management.
- S.4 To allow for suitable clearance, 1 group and 1 hedge will require pruning works.

2. INTRODUCTION

COMMISSION

- 2.1 Green Eden Tree Consultancy were commissioned by Pageant Investment Development Ltd c/o Hill-Wood & Co (Kent) Ltd. on 12th September 2018 to undertake a Tree Survey and prepare an Arboricultural Impact Assessment on the trees within the site at Cockreed Lane, New Romney, TN28 8JH.
- 2.2 Survey work was undertaken in accordance with British Standard BS 5837:2012, '*Trees in relation to design, demolition and construction – Recommendations*' (The BS).

DEVELOPMENT SITE

- 2.3 The development site consists of approximately 5000m², comprising of an old Garden Centre/ Plant Nursery site, with the majority of trees being planted by the site owner over the past 30 years as part of the landscaping.
- 2.4 The location of the development site is shown in Figure 1, Section 3 and Figure 2, Section 4.

PROPOSED DEVELOPMENT

- 2.5 Development proposals include the construction of a new residential area comprising of 30 new dwellings with associated garden and parking.

PURPOSE OF REPORT

- 2.6 This report aims to provide guidance at the planning stage of development as to the impacts posed to the trees onsite by potential development
- 2.7 The objectives of the report are to:
 - Provide details of significant trees based on an assessment of condition using BS 5837 categorisation;
 - Produce an Arboricultural Impact Assessment based on the survey findings, highlighting trees to be retained and removed. The report will also detail areas where tree protection will be required, and also areas requiring specialist construction methods
 - Produce a Tree Protection Plan, a layout tool overlaying the trees onsite with the finalised development scheme. Used in conjunction with the report, the Tree Protection plan shows trees to be retained, removed, tree protection and specialist construction areas.

3. SITE LOCATION

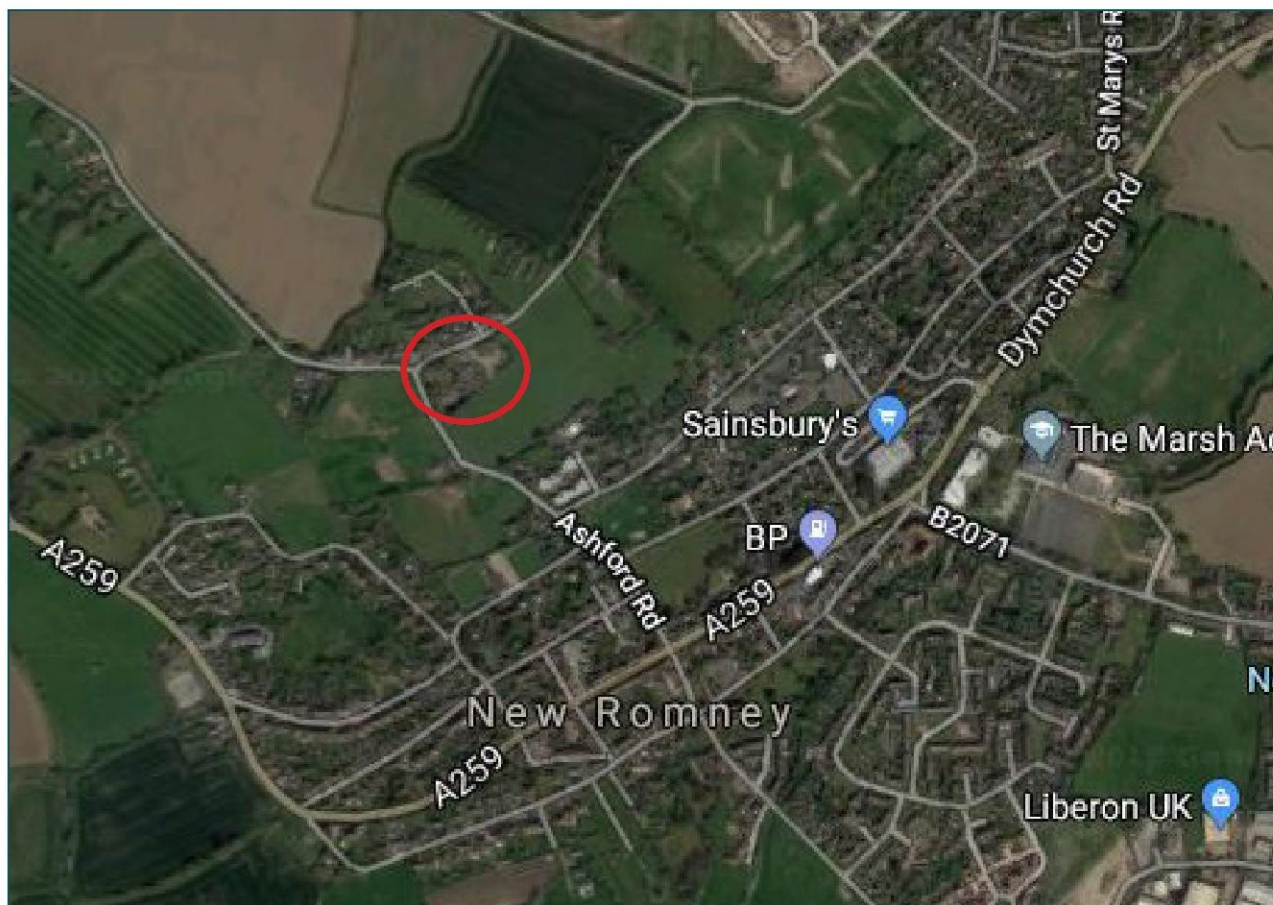


Figure 1: Location of development site. Reproduced from Google Maps Imagery ©2018
Google, TerraMetrics, Map Data ©2018 Google

4. LOCATION PLAN SHOWING OWNERSHIP BOUNDARY

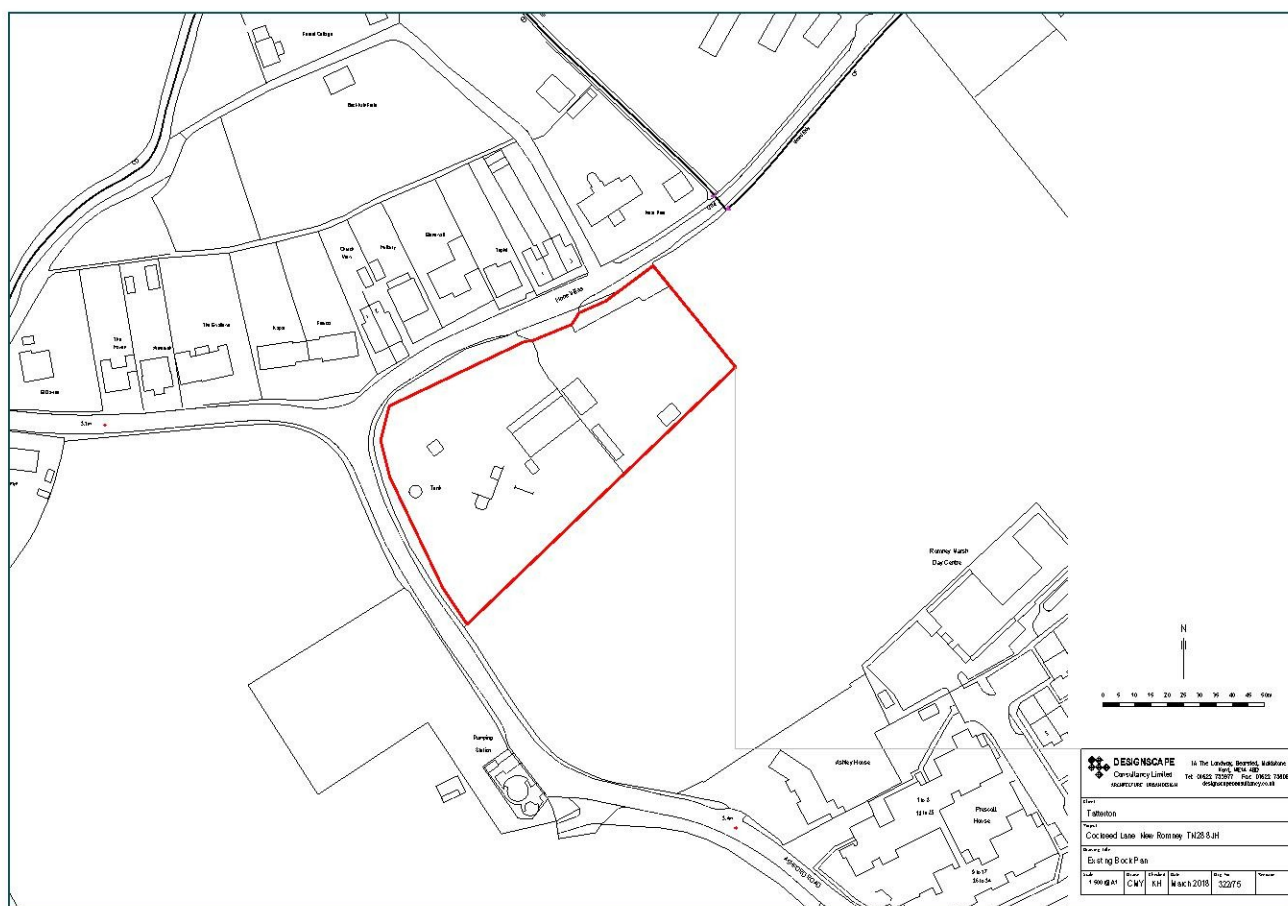


Figure 2: Location plan showing proposed site and ownership boundary in red (Existing Block Plan, Designscape Consultancy Ltd, dated March 2018, DRG No: 322/75)

5. PROPOSED SITE PLAN



6. METHODOLOGY

DESK STUDY

- 6.1 A search of available information provided by Folkestone & Hythe District Council on their website was undertaken to ascertain whether any trees within the site are subject to Tree Preservation Orders (Town and Country Planning (Tree Preservation) (England) Regulations 2012) or lie within a Conservation Area (Section 192 of the Planning Act 2008). The protective status of trees is information which is subject to constant change, and so our assessment on this matter in this report is only valid at the time of writing. Therefore it is always the responsibility of those undertaking potential tree works to undertake their own legal checks beforehand.
- 6.2 Using the online Soilscape resource provided by Cranfield University an approximate soil analysis was undertaken for the site.

FIELD SURVEY

- 6.3 A site visit was undertaken by Jo Hamilton Bsc (Hons) MArborA of Green Eden Tree Consultancy on 14th September 2018.

Table 1: Survey details

Site	Cockreed Lane, New Romney, TN28 8JH
Grid reference	TR 06181 25159 (centre of site)
Survey date	14th September 2018
Surveyor/s	Jo Hamilton Bsc (Hons) MArborA
Time on site	10:00 - 12:00
Weather	20°C, 10% cloud cover, light breeze, no rain, ground dry
Soil Type	Loamy and clayey soils of coastal flats with naturally high groundwater

- 6.4 All trees with a stem diameter of 75mm or above were surveyed as specified in the British Standard. All dimensions are accurately measured on-site unless otherwise indicated. A full inventory of the trees surveyed can be found in the Tree Survey Schedules (see Appendix 2).

- 6.5 Information collected is in accordance with recommendations in subsection 4.4.2.5 of BS 5837 and includes tree species, height, stem diameter, canopy spread (N, E, S, W), crown clearance, age class, physiological condition, structural condition and remaining contribution. Each tree was then allocated one of four categories (U, A, B or C) to reflect its suitability as a material constraint on development.
- 6.6 A breakdown of the British Standard classifications can be found in Section 12, Appendix 1.
- 6.7 Noteworthy vegetation was also recorded if thought to significantly contribute to the characteristic of the site.
- 6.8 Relevant off site trees were recorded up to 15m outside of the site boundary.

TREE SURVEY PLAN

- 6.9 Tree Survey Plan GE030_DR_001 (Section 5, Figure 3) is based on a topographical survey supplied by the client. The Tree Survey Plan is a tool which should be used in the design stage of a development to highlight the constraints posed by the trees on a site (see Appendix 5).
- 6.10 Surveyed trees are identified with a prefix 'T' and a unique number on Tree Survey Plan GE030_DR_001. Groups of trees are identified with the prefix 'G' and hedges with the prefix 'H'. Areas recorded as woodland are identified with the prefix 'W'.
- 6.11 Each tree's stem and label on the Tree Survey Plan is colour coded with regards to its classification grade as specified in section 4.5 - Table 2 in BS 5837.
- 6.12 Below ground constraints are represented by the Root Protection Area (RPA), the colour of which dependant on BS category. Above ground constraints consist of the existing crown spreads of the trees and are represented by the green solid outlines.
- 6.13 The Tree Survey Plan indicates the theoretical RPAs based on the ideal circular rooting area centred on the tree stem. However, paragraph 4.6.2 of BS 5837 states that the RPA may be changed in shape, taking into account factors such as site circumstances and professional arboricultural knowledge, but not reduce its area whilst still providing adequate protection for the root system.
- 6.14 Section 4.61 of BS 5837 states that RPAs should be capped to 707m² which equates to a radius of 15m.
- 6.15 The RPA of 'U' grade trees are not shown on the Tree Survey Plan as they do not pose a constraint.

SURVEY LIMITATIONS

- 6.16 Trees are dynamic living organisms and, along with their growing environment, are subject to constant change. Therefore the results and recommendations included within this report are based on the size and condition of trees during the survey.



- 6.17 The trees were inspected from ground level only. Whilst every effort was made to ensure that the comments relating to the trees surveyed are accurate, it must be noted that no climbing of trees, internal inspections, or excavations of the root areas have been undertaken.
- 6.18 While relevant off site trees were recorded, this was from within the site as access to the off site tree would require the permission of the land owner. Measurements of off site trees are therefore estimated.
- 6.19 For the benefit of survey efficiency, tree height was measured using reference points and professional estimation rather than the use of specific instruments. Recorded trees which were not supported by topographical information were plotted on site. No liability for the accuracy of measurements and location plotting can be accepted by the arboricultural consultant and, if required, exact measurements should be sought prior to the start of development works.
- 6.20 The tree protection status described within the report is accurate at the time of writing, however, this status is subject to change. It is therefore the responsibility of any persons undertaking works to the trees subject to this report to undertake their own statutory checks prior to commencing.
- 6.21 The soil assessment provided in this report is not detailed specifically to the site, it simply provides a general soil type for the area. It is information provided for guidance only in regards to tree related issues.

7. RESULTS

THE SURVEYED TREES

Tree category

- 7.1 A total of 15 individual trees, 4 groups and 2 hedges were surveyed and therefore the subject of this report which has been written in accordance with BS 5837.
- 7.2 Four individual trees have been classified as 'B' grade trees of moderate quality and value. Ten individual trees, 4 groups and 2 hedges have been categorised as 'C' grade trees of low quality and value. In addition, 1 individual trees have been categorised as a 'U' grade trees, which should be removed for reasons of sound arboricultural management.

Species and age distribution

- 7.3 The most common tree species within those surveyed is hawthorn which forms the majority of hedging around the site, otherwise the range of species is relatively diverse. The following trees are also present onsite: Red maple, Atlantic cedar, dogwood, Norway maple, Norway maple 'Crimson King', hazel, elder, goat willow, ash, white poplar, silver birch, purple-leaved plum, Japanese maple, cherry birch, common lime, Leyland cypress, cherry, apple, blackthorn, cockspur thorn, crack willow, field maple, rowan/mountain ash and guelder rose (*Viburnum*)
- 7.4 The most common age group of those surveyed was early mature, followed by semi-mature, mature.

PROTECTION STATUS OF THE TREES

- 7.5 It is understood that none of the trees on/adjacent to site are protected by a Tree Preservation Order, and that the site is not within a Conservation Area.

OTHER LEGAL CONSIDERATIONS

- 7.6 Providing tree works are undertaken to enable granted planning permission, a Felling License application should not be required. If over 5 cubic metres of trees are felled on non-residential property outside of planning permission, a Felling License should be held before hand.
- 7.7 There are legal requirements providing statutory protection to species of flora and fauna including birds, bats and other species associated with trees. This legislation is found within The Wildlife and Countryside Act 1981, as amended, The Conservation of Habitats and Species Regulations 2010 and the Countryside and Rights of Way Act 2000. These could impose significant constraints on the undertaking of tree related works. It is the responsibility of the developers and contractors of the project to ensure that no breaches occur of the above legislation whilst carrying out site clearance or tree surgery works. The advice of an ecologist should be sought to ensure that works comply with the specified legislation.

8. ARBORICULTURAL IMPACT ASSESSMENT

TREE PROTECTION PLAN

- 8.1 The Tree Protection Plan GE030_DR_002 - Rev C (Appendix 6) has been produced by overlaying the finalised architect's layout with the Tree Survey Plan (Appendix 5). Using this layout tool, the level of impact to the trees onsite has been accurately determined and discussed in this section of the report.
- 8.2 The Tree Protection Plan (TPP) shows trees to be retained, removed and protected. The protection displayed consisting of either Tree Protection Fencing, or Ground Protection which act to define the Construction Exclusions Zone(s) (CEZs) within a development site.
- 8.3 Incursions of the Root Protection Areas are also determined and judged with the use of the TPP. Where this significantly occurs, areas requiring specialist construction methods, or on more complicated sites - areas requiring a more detailed method statement report are shown on the TPP.
- 8.4 The TPP is for use only regarding tree related issues

ARBORICULTURAL IMPACT

Trees to be removed

- 8.5 In order to facilitate development, 4 'B' grade trees, 8 'C' grade trees, 3 'C' grade groups and 1 'C' grade hedge will require removal. In addition, 1 'U' grade tree should be removed for reasons of sound arboricultural management due to its poor condition.
- 8.6 The following trees will require removal: T1 (B), T2 (B), T3 (C), T4 (C), T5 (B), T6 (C), T7 (C), T8 (B), T9 (C), T10 (C), T11 (C), T12 (C), T14 (U), G1 (C), G3 (C), G4 (C) and H1 (C).
- 8.7 The majority of the trees being removed are not directly visible from outside of the site and mostly comprise of trees which have been planted over the last thirty years by the current site owner.
- 8.8 Where screening to the site will be lost in the short term given the required removal of H1 and G3, the anticipated landscape scheme will provide mitigation planting in these areas to replace the vegetative screening along the site boundaries.
- 8.9 T14 is the largest tree onsite, however it is a mature crack willow which has a column of decay visible in at least one of its primary limbs, other limbs on the tree have already failed. Due to the safety issues the tree poses, as well as approaching the end of its natural life span, the tree was recorded as 'U'. The removal of T14 would act to enhance the growing condition of the surrounding trees which are currently being suppressed, therefore mitigating T14's loss.

Trees to be Pruned

- 8.10 In order to provide suitable structural clearance and clearance for garden space, the canopies of the following trees will need to be checked and pruned accordingly: H2 and G2. Please see Appendix 3 - Tree Surgery Schedules for a full list of required works.

Root Protection Area Incursions

- 8.11 On the Tree Protection Plan it can be seen that due to site constraints a small section of the RPA of G2 is not protected by the fencing. These sections of exposed RPA are relatively minor and should not pose a risk to the trees if disturbed, especially as some disturbance has already taken place around these trees due to the site's history.

Impact to Amenity

- 8.12 The majority of trees being removed are of low quality and value which are not providing significant amenity value as they are not significantly visible from outside the site. As part of the proposed scheme, a planting plan is anticipated which will act to mitigate the loss of the existing trees, especially those of low quality being removed.

TREE PROTECTION

Protection Fencing

- 8.13 Guidance for the design of the trees protection fencing to be used can be found in Appendix 4 of this report. The TPP shows the approximate location of the Tree Protection Fencing, which has been positioned to try and provide 2m structural clearance where possible. However the local authority may wish to finalise the exact position of the fencing at a pre-commencement meeting.
- 8.14 Tree Protection Fencing is still limited when it comes to protecting the crowns of trees. Where tree canopies cannot be protected by fencing care must be taken to ensure no damage occurs by site personnel.

9. PHOTOGRAPHS



Photograph 1: T1, photo taken from outside the site



Photograph 3: T14, recorded as 'U' grade due to poor structural integrity



Photograph 2: Much of the site is currently unused minimising impact to amenity of potential development



Photograph 4: Trees T3 and T4, providing limited amenity

10. CONCLUSION

EXISTING TREES

- 10.1 A total of 15 individual trees, 4 groups and 2 hedges were surveyed and therefore the subject of this report which has been written in accordance with BS 5837.
- 10.2 From information available on the Folkestone & Hythe website it is understood that none of the trees on/adjacent to site are the subject of a Tree Preservation Order, and that the site is not within a Conservation Area.

TREE REMOVAL

- 10.3 In order to facilitate development, 4 'B' grade trees, 8 'C' grade trees, 3 'C' grade groups and 1 'C' grade hedge will require removal. In addition, 1 'U' grade tree should be removed for reasons of sound arboricultural management due to its poor condition.

TREE SURGERY

- 10.4 In order to provide suitable clearance the canopies of the following trees will need to be checked and pruned accordingly: H2 and G2. Please see Appendix 3 - Tree Surgery Schedules for a full list of required works.

OVERALL ARBORICULTURAL IMPACT

- 10.5 Although the proposal will require the removal of a number of trees, they are mostly low grade specimens which are semi-early mature. In addition the proposal includes a replanting scheme which will not only enhance the quality of the tree stock on site but will bolster the site screening therefore mitigating for the loss of the lower quality trees. Most of the site currently is unused brown field site offering little in the way of amenity, the development and management of the site would therefore potentially be an improvement.

11. RECOMMENDATIONS

- 11.1 Tree protection measures should be installed prior the start of any works commencing onsite, this includes the delivery of plant materials.
- 11.2 A copy of this report must be kept onsite, with all site personnel being familiarised with the arboricultural requirements

12. REFERENCES

- British Standards Institute (2012). Trees in relation to design, demolition and construction – Recommendations, London.
- Cranfield University SoilScapes Viewer. Cranfield Soil and Agrifood Institute. Website: <http://www.landis.org.uk/soilscapes/> (Accessed 19/05/2017)
- TERRAM Geosynthetics. Tree Root Protection/Load Platform Geocell. Website: <http://www.terram.com/products/geocells/tree-root-protection-geocell.html> (Accessed 24/08/2017)
- UK Grid Reference Finder. Website : <https://gridreferencefinder.com/>

13. APPENDIX 1: TREE SURVEY KEY

TREE SURVEY SCHEDULE BREAKDOWN

Name - Species of tree with both common and botanical names.

Height (m) - Height of tree in metres

Stem No. - Number of tree stems of a BS 5837 qualifying size

Stem diam. - recorded in millimetres at 1.5m above ground level for single-stemmed trees or in accordance with Annex C of BS 5837 for multi-stemmed trees or trees with low forks or irregular stems.

Canopy spread N, E, S, W (m) - Crown spread at the four cardinal points. $\emptyset$ = average crown radius.

Crown clearance (m) - Height of canopy above ground level.

Age class - newly planted (NP), young (Y), semi-mature (SM), early-mature (EM), mature (M), over-mature (OM), veteran (V)

Phys. cond. - Physiological condition of the tree recorded as either: good, fair, poor, dead as determined from the ground

Stru. Cond. - Structural condition of the tree recorded as either: good, fair, poor as determined from the ground

Comments: General noteworthy comments about the tree and surrounding area

RPR (m) - Root Protection Radius: the calculated radius of each tree's RPA

Est. rem. contr. (Yrs): The estimated contribution in years the tree has to offer: <10, 10-20, 20-40, >40 years

BS Cat. Grade - The BS 5837 category grading awarded to the tree either: U or A to C

BS 5837:2012 CATEGORISATION BREAK DOWN

Category A: Those of high quality and value, those in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested). Trees with green stems/text on Tree Survey Plan.

Category B: Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested). Trees with blue stems/text on Tree Survey Plan.

Category C: Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm. Trees with grey stems/text on Tree Survey Plan.

Category U: Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. Trees with red stems/text Tree Survey Plan.

Numerical subcategories:

_1: mainly arboricultural value. _2: mainly landscape value. _3: mainly cultural value.

14. APPENDIX 2: TREE SURVEY SCHEDULES

Refer to Appendix 1 for key.

Tree Ref No.	Common name	Botanical name	Height (m)	Stem No.	Stem diam. (mm)	Canopy spread m (N)	Canopy spread (E)	Canopy spread (S)	Canopy spread (W)	Crown clearance (m)	Age class	Phys. cond.	Stru. cond.	Comments	RPR (m)	Est. rem. contr. (yrs)	B.S. Cat. Grade
T1	Red Maple	<i>Acer rubrum.</i>	10	2	350 330	4	4	4	4	1	EM	F	F	Multistem boundary tree, ornamental specimen, ivy, basal growth, upright even form, soil compaction around base	5.7	20+	B2
T2	Atlantic Cedar	<i>Cedrus atlantica</i> 'Glauca'	10	1	510	4	4	4	4	4	EM	F	F	Upright even form, dense ivy throughout and around base, ground disturbed surrounding tree	6	20+	B1
T3	Silver Birch	<i>Betula pendula</i>	5	1	130	1	1	1.5	1	1	SM	F	F	Upright tree slightly suppressed by T4	1.5	10+	C2
T4	Purple-leaved Plum	<i>Purunus cerasifera</i> 'Purpureum'	4	5	100 90 90 75 110	2.5	2	3	2	0	EM	F	F	Multistem from 1m onwards, congested form, ivy	2.4	10+	C2
T5	Japanese Maple	<i>Acer palmatum</i>	4	3	130 170 110	2	2.5	2.5	2.5	0	EM	G	F	Dense ivy, undulating and disturbed ground surrounding tree, minor deadwood, even form, small compact species	3	20+	B2
T6	Cherry Birch	<i>Betula lenta</i>	12	2	280 240	4	5	3	2	0	EM	F	F	Growing at base of T7, suppressed, ivy, multistem, debris around base	4.5	10+	C1
T7	Cherry Birch	<i>Betula lenta</i>	10	4	190 190 150 210	2	4	4	3	0	EM	F	F	Growing at base of T6, suppressed, dense ivy throughout, multistem, debris around base	4.5	10+	C1
T8	Common Lime	<i>Tilia x europea</i>	14	1	700	4	4	6	4	0	EM	G	G	Ivy, ground slightly mounded around base of tree, becomes multistem at 1.6m	8.4	20+	B1
T9	Silver Birch	<i>Betula pendula</i>	4	3	120	1	1	1	1	0.5	SM	F	F	Upright small tree, deadwood	1.5	10+	C1

Tree Ref No.	Common name	Botanical name	Height (m)	Stem No.	Stem diam. (mm)	Canopy spread m (N)	Canopy spread (E)	Canopy spread (S)	Canopy spread (W)	Crown clearance (m)	Age class	Phys. cond.	Stru. cond.	Comments	RPR (m)	Est. rem. contr. (yrs)	B.S. Cat. Grade
T10	English Oak	<i>Quercus robur</i>	5	1	180	2.5	1.5	0.5	0.5	0	SM	F	F	Upright small tree, uneven canopy, ivy, basal growth	2.1	20+	C1
T11	Norway Maple 'Crimson King'	<i>Acer platanoides</i> 'Crimson King'	8	1	200	3	3	3	3	0	EM	F	F	Not picked up on topo, stands out from G2 as individual	2.4	10+	C2
T12	Norway Maple	<i>Acer platanoides</i>	8	1	200	3	3	3	3	0	EM	F	F	Not picked up on topo, stands out from G2 as individual	2.4	10+	C2
T13	Cockspur Thorn	<i>Crataegus prunifolia</i>	5	1	200	2	3	4	1	0	M	F	F	Fenceline tree, debris limiting inspection, pruned back to fence, deadwood	2.4	10+	C2
T14	Crack Willow	<i>Salix fragilis</i>	17	1	790	8	8	7	3	0	M	F	F	Uneven, unbalanced form, limb failures, historic lean north, veg limiting inspection decay column in southern limb	9.6	<10	U
T15	Field Maple	<i>Acer campestre</i>	11	2	200 250	6	5	2	3	0	EM	F	F	Suppressed by T14, fenceline tree, not picked up on topo	3.9	10+	C2
G1	Mixed Group	<i>Mixed group</i>	2 - 4	N/A	100	2	2	2	2	0	SM	F	F	Clumps of small trees, some on topo, typical self-set, includes: Elder, Dogwood, Leyland Cypress	N/A	10+	C2
G2	Mixed Group	<i>Mixed group</i>	5 - 7	N/A	200	4	4	4	4	0	EM	F	F	Limited topo info, cannot access due to storage units, includes: Cherry, apple, Crab Apple, Elder, Blackthorn	N/A	10+	C2
G3	Mixed Group	<i>Mixed group</i>	3 - 8	N/A	120	2	2	2	2	0	SM - EM	F	F	More diverse group along northern boundary, screening value, no topo info, includes: Field Maple, Rowan, Hazel, Cherry, Elder, Hawthorn, Crab Apple, Privet, Viburnum	N/A	10+	C2
G4	Goat Willow	<i>Salix caprea</i>	3	N/A	75	1	1	1	1	0	SM	F	F	Small fenceline trees, no topo info	N/A	10+	C2
H1	Mixed Hedge	<i>Mixed hedge</i>	"1 - 10"	N/A	100	2.0	2.0	2.0	2.0	0	SM	F	F	Western boundary section is more dense, northern boundary has sections of just climbers, includes: Dogwood, Ash, Norway Maple, Elder, Hazel, Hawthorn, White Poplar	N/A	10+	C2
H2	Hawthorn, Elder	<i>Mixed hedge</i>	3 - 4	N/A	90	1	1	1	1	0	EM	F	F	Predominantly hawthorn with some elder, laterally pruned but height not managed, providing eastern boundary screening	N/A	10+	C2

15. APPENDIX 3: TREE SURGERY SCHEDULE

Tree Ref No.	Common name	Proposed Works	Reason
T1	Maple sp.	Fell Tree and remove stump	To facilitate construction of building
T2	Atlantic Cedar	Fell Tree and remove stump	To facilitate construction of building
T3	Silver Birch	Fell Tree and remove stump	To facilitate construction of building
T4	Purple-leaved Plum	Fell Tree and remove stump	To facilitate construction of building
T5	Japanese Maple	Fell Tree and remove stump	To facilitate construction of building
T6	Birch sp.	Fell Tree and remove stump	To facilitate construction of building
T7	Birch sp.	Fell Tree and remove stump	To facilitate construction of building
T8	Lime	Fell Tree and remove stump	To facilitate construction of building
T9	Silver Birch	Fell Tree and remove stump	To facilitate construction of building
T10	English Oak	Fell Tree and remove stump	To facilitate construction of building
T11	Norway Maple 'Crimson King'	Fell Tree and remove stump	To facilitate construction of car park
T12	Norway Maple	Fell Tree and remove stump	To facilitate construction of car park
T13	Cockspur Thorn	No works required	-
T14	Crack Willow	Fell tree and remove stump	For reasons of sound arboricultural management
T15	Field Maple	No works required	-
G1	Mixed Group	Fell trees and remove stumps	To provide appropriate clearance of properties and garden space
G2	Mixed Group	Prune back to edge of garden	To provide appropriate clearance for gardens
G3	Mixed Group	Fell trees and remove stumps	To provide appropriate clearance of properties and garden space
G4	Mixed Group	Fell trees and remove stumps	To facilitate construction of building
H1	Mixed Hedge	Fell trees and remove stumps	To provide appropriate clearance of properties and garden space
H2	Mixed Hedge	Prune back to boundary	To provide appropriate clearance for building

16. APPENDIX 4: TREE PROTECTION SPECIFICATION

FENCING/BARRIERS

- 16.1 Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place. The default specification should be in accordance with 6.2.2.2 of BS 5837, as detailed below.

Figure 3 Examples of above-ground stabilizing systems

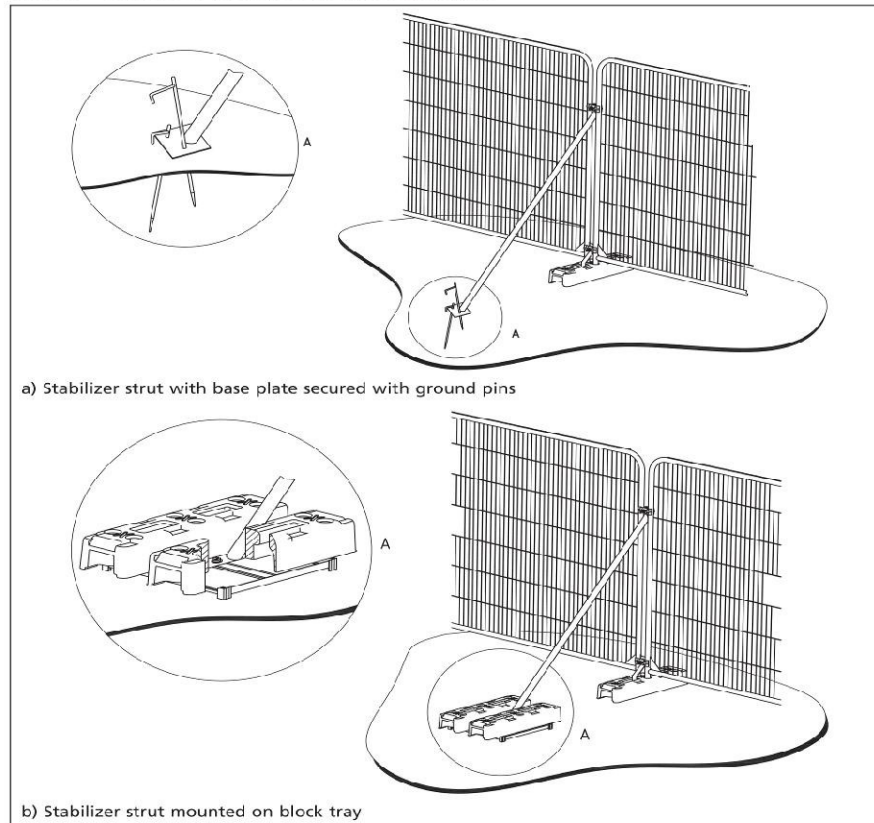


Figure 3: Illustration of the Tree Protection Fencing as specified in BS 5837 - Trees in relation to design, demolition and construction - Recommendations 2012

- 16.2 Tree protection barriers should be a minimum 2m high, consisting of a vertical and horizontal scaffold framework. The vertical tubular bracing should be spaced at a minimum interval of 3m and driven securely into the ground so that the barriers are well equipped to resist impacts,. Onto this framework, welded mesh panels should be securely fixed.
- 16.3 Where site circumstances and associated risk of damaging incursions into the Construction Exclusion Zone (CEZ) do not necessitate the default level of protection, an alternative specification may be used if agreed with the local authority. An example would be 'Heras' type welded mesh panels on rubber or concrete feet.

- 16.4 Location: Fencing should ideally be positioned on the perimeter of the Root Protection Area to define the Construction Exclusion Zone or as specified in the Tree Protection Plan.

Landscaping

- 16.5 Once construction is completed, the Tree Protection Fencing may need removing to facilitate landscaping works. To stop other contractors, vehicles or materials entering into the exposed CEZ, the area should be marked with spray paint or other obvious means. Landscaping works should be carried out by hand with pedestrian movements restricted to running boards where possible to minimise soil compaction.
- 16.6 **Shown on the Tree Protection Plan by a Solid Pink Line**

GROUND PROTECTION

- 16.7 In areas where it is not possible to erect protective fencing, ground protection must be used to protect the RPA of trees.
- 16.8 For relatively lightweight movements required within the RPA of trees, such as pedestrian movement or the erection of scaffolding, single thickness scaffold boards on top of a compressible layer of sharp sand or wood-chip laid onto a geotextile may be used to form suitable ground protection.
- 16.9 For more heavyweight movements within the RPA, the ground protection should be designed by an engineer to accommodate the likely loading and may involve the use of proprietary systems of metal, polymer or wooden panels or reinforced concrete slabs, or cellular webbing.

16.10



Figure 4: Photos, the courtesy of TERRAM Geosynthetics, showing the installation of a cellular confinement system.

17. APPENDIX 5: TREE SURVEY PLAN

Please see attached plan: GE030_DR_001.

18. APPENDIX 6: TREE PROTECTION PLAN

Please see attached plan: GE030_DR_002 - REV C.