



Gladman Developments Ltd

Land off St Mary's Road, Hayling Island

Arboricultural Assessment

December 2016

FPCR Environment and Design Ltd

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CONTENTS

1.0 INTRODUCTION..... 2

2.0 METHODOLOGY 2

3.0 RESULTS 6

4.0 ARBORICULTURAL IMPACT ASSESSMENT..... 7

5.0 TREE PROTECTION MEASURES.....10

6.0 CONCLUSION 12

TABLES

Table 1: Summary of Trees by Retention Category

FIGURES

- Figure 1: Assessment Boundary Plan (7478-A-01)
- Figure 2: Tree Survey Plan (7478-A-02)
- Figure 3: Tree Retention Plan (7478-A-03)

APPENDICES

- Appendix A: Tree Schedule
- Appendix B: Protective Fencing Specifications

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1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Gladman Development Ltd to present the findings of an Arboricultural Assessment and survey of trees located at Land off St Mary's Road, Hayling Island (hereafter referred to as the site), OS Grid Ref SZ 719 997, as shown in Figure 1. The survey was carried out on 24th August 2016.
- 1.2 The tree survey and assessment of existing trees has been carried out in accordance with guidance contained within British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter referred to as BS5837). The guidelines set out a structured assessment methodology to assist in determining which trees would be deemed either as being suitable or unsuitable for retention.
- 1.3 The guidance also provides recommendations for considering the relationship between existing trees and how those trees may integrate into designs for development; demolition operations and future construction processes so that a harmonious and sustainable relationship between any retained trees and built structures can be achieved.
- 1.4 The purpose of the report is therefore to firstly present the results of an assessment of the existing trees' arboricultural value, based on their current condition and quality and to secondly provide an assessment of impact arising from the proposed development of the site.
- 1.5 This report has been produced to accompany an outline planning application for a residential development and has included an assessment of any impact to the tree cover. The survey has therefore focused on any trees present within or bordering the site that may potentially be affected by the future proposals or will pose a constraint to any proposed development.
- 1.6 The site comprises two field parcels separated north to south by a drainage ditch, situated on Hayling Island. The site abuts St Mary's Road along a section of its eastern boundary, a public footpath abuts the site's northern and western boundaries. Tree cover was confined to the site boundaries, with the exception of a self-seeded tree group around a farm building and drainage pond in the centre of the site.
- 1.7 The presence of any Tree Preservation Orders or Conservation Area designations that may affect the site has yet to be confirmed by Havant Borough Council.

2.0 METHODOLOGY

- 2.1 The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of BS5837. The survey has been undertaken by a suitably qualified and experienced arboriculturalist and has recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of the proposed development in a transparent, understandable and systematic way.
- 2.2 Trees have been assessed as groups where it has been determined appropriate. The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture.

- 2.3 An assessment of individual trees within groups has been made where a clear need to differentiate between them, for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.
- 2.4 Trees have been divided into one of four categories based on Table 1 of BS5837, '*Cascade chart for tree quality assessment*'. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below). Category U trees are those which would be lost in the short term for reasons connected with their physiology or structural condition. They are, for this reason not considered in the planning process on arboricultural grounds. Categories A, B and C are applied to trees that should be of material considerations in the development process. Each category also having one of three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural or conservation values accordingly.
- 2.5 **Category (U) – (Red):** Trees which are unsuitable for retention and are 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 within this category are:
- Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.
 - Trees that are dead or are showing signs of significant, immediate or irreversible overall decline.
 - Trees that are infected with pathogens of significance to the health and/ or safety of other nearby trees or are very low quality trees suppressing adjacent trees of better quality.
 - Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.
- 2.6 **Category (A) – (Green):** Trees that are considered for retention and are of high quality with an estimated remaining life expectancy of at least 40 years with potential to make a lasting contribution. Such trees may comprise:
- Sub category (i) trees that are particularly good examples of their species, especially if rare or unusual, or are essential components of groups such as formal or semi-formal arboricultural features for example the dominant and/or principal trees within an avenue.
 - Sub category (ii) trees, groups or woodlands of particular visual importance as arboricultural and / or landscape features.
 - Sub category (iii) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.
- 2.7 **Category (B) – (Blue):** Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years with potential to make a significant contribution. Such trees may comprise:
- Sub category (i) trees that might be included in category A but are downgraded because of impaired condition for example the presence of significant though remediable defects, including unsympathetic past management and storm damage.

- Sub category (ii) trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.
- Sub category (iii) trees with material conservation or other cultural value.

2.8 **Category (C) – (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:

- Sub category (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
- Sub category (ii) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary / transient screening benefits.
- Sub category (iii) trees with no material conservation or other cultural value.

Tree Schedule

- 2.9 Appendix A presents details of any individual trees, groups and hedgerows found during the assessment including heights, diameters at breast height, crown spread (given as a radial measurement from the stem), age class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention and the root protection area.
- 2.10 General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where appropriate.

Hedgerows

- 2.11 For the purposes of this assessment, a hedgerow is described as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime. Hedgerows and substantial internal or boundary hedges (including evergreen screens) have been recorded including lateral spread, height and stem diameter(s). Where trees are present within a hedgerow that are significantly different in character from the remainder, these have been identified and recorded separately.
- 2.12 A tree survey in accordance with BS5837 does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, and is outside the scope of this assessment.

Other Considerations

- 2.13 It may be necessary during detailed design to undertake further assessment and accurate positioning of woody species within hedgerows and tree groups to assist structural calculations for foundation design of structures in accordance with current building regulations. Knowledge of soil type was not known at the time of this tree assessment. If a current soil survey of the site has taken place then it must be read in conjunction with the results of the tree survey.

- 2.14 The exact position of individual trees or species included as part of a tree group, hedgerow or woodland should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths in accordance with NHBC Chapter 4.2 Building near Trees.

Conditions of Tree Survey

- 2.15 The survey was completed from ground level only and from within the boundary of the site. Aerial tree inspections or the internal condition of the stem/s or branches were not undertaken at this stage as this level of survey is beyond the scope of the initial assessment. Evaluation of tree condition given within this assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months, in accordance with sound arboricultural practice.

Site Plans

- 2.16 Figure 1 identifies the assessment area including trees beyond the application boundary that may be affected by future development of the site and should not be considered as the application boundary.
- 2.17 The individual positions of trees and groups have been shown on the Tree Survey Plan, Figure 2. The positions of trees are based on a topographical / land survey, as far as possible, supplied by the client. Where topographical information has not identified the position of trees and hedgerows, their relation to any existing surrounding features has been plotted using a global positioning system and aerial photography to provide approximate locations. The crown spread, root protection area and shade pattern (where appropriate) are also indicated on this plan.
- 2.18 As part of the Arboricultural Impact Assessment, a Tree Retention Plan, Figure 3 has been prepared to show the proposed layout in relation to the existing tree cover allowing an assessment of any potential conflicts. The plan also identifies which trees would be required to be removed or retained as part of the proposed development.

Tree Constraints and Root Protection Areas

- 2.19 Below ground constraints to future development are represented by the area surrounding the tree containing sufficient rooting volume for the specimen to have the best chance of survival in the long term which is identified as the root protection area (RPA). The RPA has been calculated in accordance with section 4.6 of BS5837 and requires suitable protection in order for the tree to be successfully incorporated into any future scheme.
- 2.20 Where groups of trees have been assessed, the Root Protection Area has been shown based on the maximum sized tree in any one group and so may exceed the Root Protection Area required for some of the individual specimens within the group. Further detailed inspection of the individual trees forming a group may be required where development impacts upon the group.
- 2.21 Above ground constraints such as the current and potential crown spread of the trees and an illustration of the shade pattern (where appropriate) have been considered and identified within the Tree Survey Plan and Tree Retention Plan indicates their potential area of shading influence.

3.0 RESULTS

- 3.1 A total of twenty two individual trees, eleven groups of trees and two hedgerows were surveyed as part of the Arboricultural Assessment. Trees were surveyed as individual trees and groups of trees where examples are clearly present as per the description. Refer to Figure 2 – Tree Survey Plan and Appendix A – Tree Schedule for full details of the trees included in this assessment.

Results Summary

- 3.2 Tree cover was confined to the site boundaries and included mature tree cover within the grounds of St Mary's Church, adjacent to the public footpath, and within the rear gardens of properties on St Mary's Road. Self-seeded tree cover had also established around a farm building and drainage pond within the centre of the site. The table below summarises the trees assessed. Several of the trees have been discussed in more detail following the table, owing to their physical condition or arboricultural significance.

Table 1: Summary of Trees by Retention Category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable	T16, T18	2		0
Category A (High Quality / Value)	T5	1		0
Category B (Moderate Quality / Value)	T1, T2, T3, T6, T12, T13, T14, T19, T20, T21, T22	11	G3, G5	2
Category C (Low Quality / Value)	T4, T7, T8, T9, T10, T11, T15, T17	8	G1, G2, G4, G6, G7, G8, G9, G10, G11, H1, H2	11

- 3.3 Access to the site is currently achieved via a farm track from St Mary's Road on the site's eastern boundary. G1 an outgrown hedgerow and self-seeded tree group made up of hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* had established along both sides of this existing access track. Attaining up to 5m in height and having limited landscape value from an arboricultural perspective as a result of its sporadic appearance resulted in G1 being considered of low quality and retention category C.
- 3.4 Two tree groups (G2 and G3) and a single individual tree (T1) stood beyond the site's northern boundary with the grounds of the St Mary's Church. T1 a single mature maritime pine *Pinus pinaster* and G3 a group of six mature maritime pines were situated 2m beyond the application boundary and had reached heights of up to 18m. Both were considered as moderate quality and retention category B as they lacked the quality required to merit category A designation.
- 3.5 A public footpath runs adjacent to a section of the site's eastern boundary, along which two tree groups (G5 and G6) and ten individual trees (T2-T11) were recorded. Of the ten individual trees three are mature English oak *Quercus robur* though only one (T5) was considered retention category A being a particularly good example of the species. The remaining tree cover along this boundary which included a further two ash *Fraxinus excelsior*, three field maple *Acer campestre* and a single goat willow *Salix caprea* were considered of moderate or low quality and retention category B or C accordingly dependant on their current condition and the presence of existing defects which deducted from their safe life expectancy.

- 3.6 Three tree groups (G7-G9) and four individual trees (T12-T15) were recorded along the site's southern boundary. With the exception of G7 an outgrown hedgerow which contained elder *Sambucus nigra*, wych elm *Ulmus procera* and damson *Prunus insititia* and had established along and self-seeded within the application boundary, the remainder of this southern boundary tree cover stood beyond the application boundary within the rear gardens of adjacent properties.
- 3.7 A single tree group (G10) and three individual trees (T16-T18) were recorded within the centre of the application boundary around an existing farm building and drainage pond. G10 a blackthorn thicket which contained a number of self-seeded ash trees was considered to be of low arboricultural quality and retention category C. T16 a mature ash tree which displayed extensive die back and had limited future potential and T18 a walnut *Juglans regia* which was largely dead at the time of the assessment, were both considered unsuitable for retention.
- 3.8 Four individual trees (T19-T22) were recorded along the site's eastern boundary, all of which stood beyond the application boundary by at least 1m within the rear gardens of adjacent properties. T19 a mature Monterey Cypress was the only tree on this boundary of mature proportions being 15m in height and with a stem diameter in excess of 1m and was considered of moderate quality and retention category B as its future safe life expectancy could not be guaranteed for the forty years required to merit category A designation.
- 3.9 A blackthorn and hawthorn thicket (G11) had established along a small section of the drainage ditch which separated the site into two field parcels. The group was considered of low value from an arboricultural perspective as a result of its sporadic appearance, and the individual specimens attaining heights of only 4m.

4.0 ARBORICULTURAL IMPACT ASSESSMENT

- 4.1 The following paragraphs present a summary of the tree survey and discussion of particular trees and groups recorded in the context of any proposed development in the form of an Arboricultural Impact Assessment in accordance with section 5.4 of BS5837. Any final tree retentions will need to be reconciled with the advice contained within this report.
- 4.2 The impact assessment has been based upon the Development Framework Plan and seeks to outline the relationship between the proposals and the existing trees and hedgerows. The Framework Plan shows the proposals for An application for outline planning permission for the erection of up to 210 residential dwellings (including up to 30% affordable housing), 0.6ha for apartments with care (C2), structural planning and landscaping, informal public open space, children's play areas, sustainable drainage system (SuDS) vehicular access from St Mary's Drive and associated ancillary works. All matters reserved with the exception of the main vehicular accesses.
- 4.3 An overlay of the above Framework has been incorporated in the Tree Retention Plan (Figure 3) to assist in identifying the relationship and any potential conflicts between the proposals and the existing trees and hedgerows.

- 4.4 Through good design and by virtue of the existing tree cover being located around the extents of the site the proposals have allowed for the retention of all moderate and high quality trees and tree groups, only requiring the removal of two sections of low quality tree groups and single category U, required to provide access to the site and achieve a feasible internal layout.
- 4.5 The proposed main vehicular access to the site is from St Mary's Road and will utilise an existing access track which will be enhanced. The enhancement works along with widening the access point, which is currently a single track, will require the removal of a section of G1; an outgrown hedgerow and self-seeded tree group considered of low quality. The removal of this section of tree group is unavoidable should the site be developed as it allows the provision of a suitable access. The removal of this section of G1 should not raise any objection from an arboricultural perspective and the removal of this tree cover would be more than adequately mitigated for through new tree planting proposed as part of a detailed landscaping scheme.
- 4.6 Although shown as retained on the Framework Plan tree removal around the existing farm building will likely be required to allow for a feasible internal layout to be achieved, through the removal of a small section of G10 an outgrown blackthorn thicket. Again this group was considered to be of low quality and its removal to facilitate the proposed development should not raise any objection from an arboricultural perspective and would be mitigated for through new tree planting proposed as part of a subsequent detailed application.
- 4.7 T18 a walnut which was largely dead at the time of the assessment and considered retention category U would be removed as part of the proposed development. Considered as unsuitable for retention T18 should not form a material constraint within the development process and its removal should not raise any objection. T16 also considered as unsuitable for retention would pose no immediate risk and could therefore be retained within this indicative layout for any ecological and habitat potential it may provide.
- 4.8 Retained tree cover within the grounds of St Mary's Church and adjacent to the public footpath along the site's western boundary has been shown to be considered within the outline application with suitable buffers having been illustrated which will encompass the entirety of the root protection areas of these retained trees. This will see the trees retained within a similar growing environment and provided adequate space to mature.
- 4.9 Where trees have been shown to be retained adjacent to proposed residential areas the detailed layout of these residential parcels should take into consideration both the root protection area and illustrative shade patterns of these retained trees. The layout of development plots should ensure that no construction is proposed within root protection areas of retained trees and shading is minimized.
- 4.10 This is particularly important with T19 which was a large mature specimen situated beyond the application boundary within the rear garden of an adjacent property. T19 was a mature Monterey Cypress that had recently suffered a significant branch failure which had fallen into the site and the species is susceptible to branch failure as they mature. No dwellings should be positioned within falling distance of this offsite tree and ideally access beneath the crown would be restricted with new tree and shrub planting.
- 4.11 The design of a proposed SUDS basin within the southern portion of the site should also take into consideration the root protection areas of retained trees within this portion of the site and should be designed as to avoid any excavation within these areas to ensure no root damage occurs.

New Tree Planting

- 4.12 New tree planting will form an integral part of the new development however, proposals for new tree planting should be appropriate for the future use of the site and not just aim to improve the existing tree population. As part of the development proposals new tree planting has been illustrated within landscaped areas. The purpose and function of this new tree planting should be understood from the start of any design stages so that key objectives from a landscape perspective can also be achieved.
- 4.13 The success of any landscaping scheme relies on an adequate provision of a high quality rooting environment within which trees can thrive and reach their full potential. Planting trees with due care and consideration can, in the long term, provide a greater return on a schemes green investment and ensure trees remain healthy and grow to mature proportions. Healthy mature trees integrate well into the built environment; increase the maturity of the landscape; help provide a natural green and leafy urban environment in which people would want to reside whilst also benefiting local wildlife.
- 4.14 The landscaping scheme should consider the use of both native tree species (for their low maintenance requirements and nature conservation value) and ornamental species (for their contribution to urban design and amenity value). Species choices should be selected on the basis of their suitability for the final site use. Furthermore, during the design process consultation should be made with the Local Planning Authority to obtain information on their tree strategy and incorporate the planting proposals with any local policies and initiatives and/or Biodiversity Action Plans (BAP).
- 4.15 Careful consideration would need to be given to the following: ultimate height and canopy spread, form, habit, density of crown, potential shading effect, colour, water demand, soil type and maintenance requirements in relation to both the built form of the new development and existing properties. Through careful species selection, the landscape scheme shall reduce the risk of trees being removed in the future on the grounds of nuisance which can be perceived, within the context of trees as, low overhanging branches, excessive shading, seasonal leaf fall and the misinformed perception that trees close to buildings cause damage.
- 4.16 Tree planting should be avoided where this may obstruct any underground apparatus, which should be ducted or otherwise protected at the time of construction to enable trees to be planted without resulting in future conflicts.

Tree Management

- 4.17 The layout of the development is currently reserved for subsequent approval. In the course of a reserved matters application pursuant to layout, a review of the relationship between the layout and the retained trees should be undertaken by a qualified arboriculturalist to assess the existing tree cover and prepare a schedule of tree works.

- 4.18 All retained trees should be subjected to sound arboricultural management as recommended within section 8.8.3 of BS5837 *Post Development Management of Existing Trees*, where there is a potential for public access in order to satisfy the landowner's duty of care. Additionally, inspections annually and following major storms should be carried out by an experienced arboriculturalist or arborist to identify any potential public safety risks and to agree remedial works as required.
- 4.19 All tree works undertaken should comply with British Standard 3998:2010 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association Approved Contractors as this is the recognised authority for certification of tree work contractors.
- 4.20 All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (February – August inclusive) as all birds are protected under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist.

5.0 TREE PROTECTION MEASURES

- 5.1 Retained trees will be adequately protected during works ensuring that the calculated root protection area for all retained trees can be appropriately protected through the erection of the requisite tree protection barriers. Measures to protect trees should follow the guidance in BS5837 and will be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposed layout. These have been broadly summarised below.

General Information and Recommendations

- 5.2 All trees retained on site will be protected by suitable barriers or ground protection measures around the calculated RPA, crown spread of the tree or other defined constraints of this assessment as detailed by section 6 and 7 of BS5837.
- 5.3 Barriers will be erected prior to commencement of any construction work and before demolition including erection of any temporary structures. Once installed, the area protected by fencing or other barriers will be regarded as a construction exclusion zone. Fencing and barriers will not be removed or altered without prior consultation with the Project Arboriculturalist.
- 5.4 Any trees that are not to be retained as part of the proposals should be felled prior to the erection of protective barriers. Particular attention needs to be given by site contractors to minimise damage or disturbance to retained specimens.
- 5.5 Confirmation that tree protective fencing or other barriers have been set out correctly should be gained prior to the commencement of site activity.

Tree Protection Barriers

- 5.6 Tree protection fencing should be fit for the purpose of excluding any type of construction activity and suitable for the degree and proximity of works to retained trees. Barriers must be maintained to ensure that they remain rigid and complete for the duration of construction activities on site.
- 5.7 In most situations, fencing should comprise typical construction fencing panels attached to scaffold poles driven vertically into the ground. For particular areas where construction activity is anticipated to be of a more intense nature, supporting struts, acting as a brace should be added and fixed into position through the application of metal pins driven into the ground to offer additional resistance against impacts.
- 5.8 Where site circumstances and the risk to retained trees do not necessitate the default level of protection an alternative will be specified appropriate to the level / nature of anticipated construction activity. The recommended methods of fencing specifications for this site have been illustrated in Appendix B.
- 5.9 It may be appropriate on some sites to use temporary site offices, hoardings and lower level barrier protection as components of the tree protection barriers. Details of the specific protection barriers for the site can be provided should the application be approved, as part of a site specific Arboricultural Method Statement for a Reserved Matters application and in accordance with the guidance contained within BS5837.

Protection outside the exclusion zone

- 5.10 Once the areas around trees have been protected by the barriers, any works on the remaining site area may be commenced providing activities do not impinge on protected areas.
- 5.11 All weather notices should be attached to the protective fencing to indicate that construction activities are not permitted within the fenced area. The area within the protective barriers will then remain a construction exclusion zone throughout the duration of the construction phase of the proposed development. Protection fencing signs can be provided upon request.
- 5.12 Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles where they are in close proximity to retained trees.
- 5.13 Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree stem. No concrete should be mixed within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.
- 5.14 No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.
- 5.15 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
- 5.16 Any trees which need to be felled adjacent to or are present within a continuous canopy of retained trees, must be removed with due care (it may be necessary to remove such trees in sections).

- 5.17 In the event of having caused any branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with British Standard 3998:2010 and in agreement with the Local Planning Authority prior to correcting the damage, upon completion of the development.

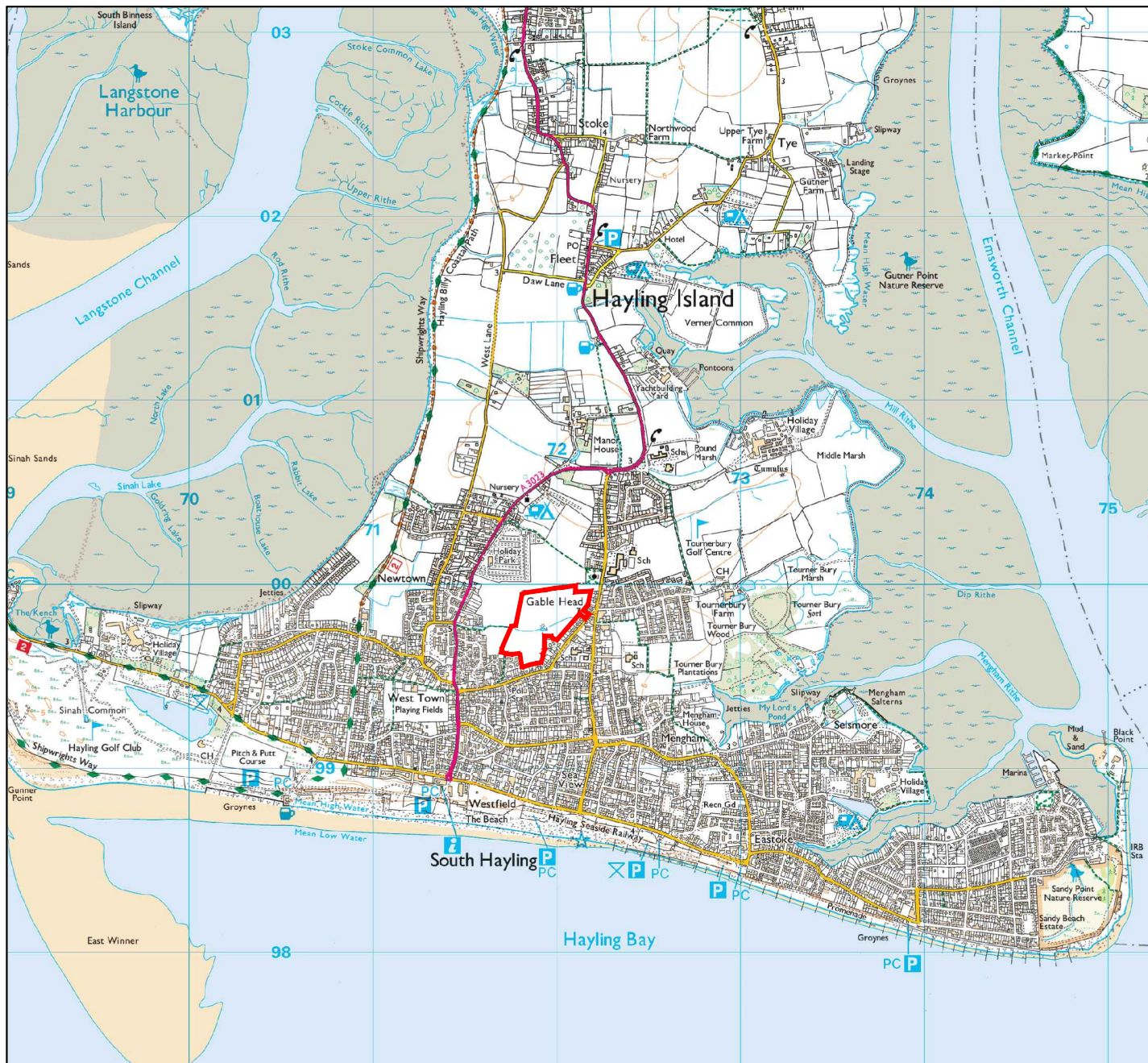
Protection of Trees Close to the Site

- 5.18 A number of trees were located on the boundaries of the site and therefore the root protection area and crown spread of these trees will need to be protected in the same way as all the retained trees within the site. All trees located outside the boundaries of the assessment site yet within close proximity to works should be adequately protected during the course of the development by barriers or ground protection around the calculated root protection area.

6.0 CONCLUSION

- 6.1 The site situated on Hayling Island, comprises two field parcels separated north to south by a drainage ditch. St Mary's Road abuts a section of the site's eastern boundary, a public footpath abuts a section of the site's western boundary and St Mary's Church stands beyond the site's northern boundary.
- 6.2 Tree cover was confined to the site boundaries and included mature trees within the grounds of St Mary's Church, mature trees adjacent to the public footpath and the site's western boundary and trees within the rear gardens of properties on St Mary's Road which backed onto the site. Self-seeded tree cover had also established around a farm building and drainage pond within the centre of the site.
- 6.3 Through good design and by virtue of the existing tree cover being located around the site boundaries the proposals have allowed for the retention of all the moderate and high quality trees and tree groups. Only requiring the removal of two sections of low quality tree groups and single category U tree to provide access to the site from St Mary's Road and to allow for a feasible internal layout to be achieved.
- 6.4 The removal of this tree cover would be unavoidable should the site be developed and as such should not raise any objection from an arboricultural perspective. The removal of this tree cover would be more than adequately mitigated for through new tree planting proposed as part of a detailed landscaping scheme submitted at the appropriate stage of the planning process.
- 6.5 Retained boundary tree cover has been shown to be considered within the outline application with suitable buffers having been illustrated which will encompass the root protection areas of these retained trees seeing them retained within a similar growing environment and provided adequate space to mature.
- 6.6 In conclusion the proposed development should not raise an objection from an arboricultural perspective, with the layout having allowed for the retention of all moderate and high quality trees and proposed new tree planting set to more than adequately mitigate for the removal of the low quality trees required to facilitate its construction.

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KEY



Assessment Boundary

rev	date	description	by
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- masterplanning ■
 - environmental assessment ■
 - landscape design ■
 - urban design ■
 - ecology ■
 - architecture ■
 - arboriculture ■
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client
Gladman Developments Ltd.

project
St Mary's Road
Hayling Island

drawing title
ASSESSMENT BOUNDARY PLAN
FIGURE 1

scale
1:25000 @ A4

drawn
EC

date
September 2016

drawing number

7478-A-01

rev

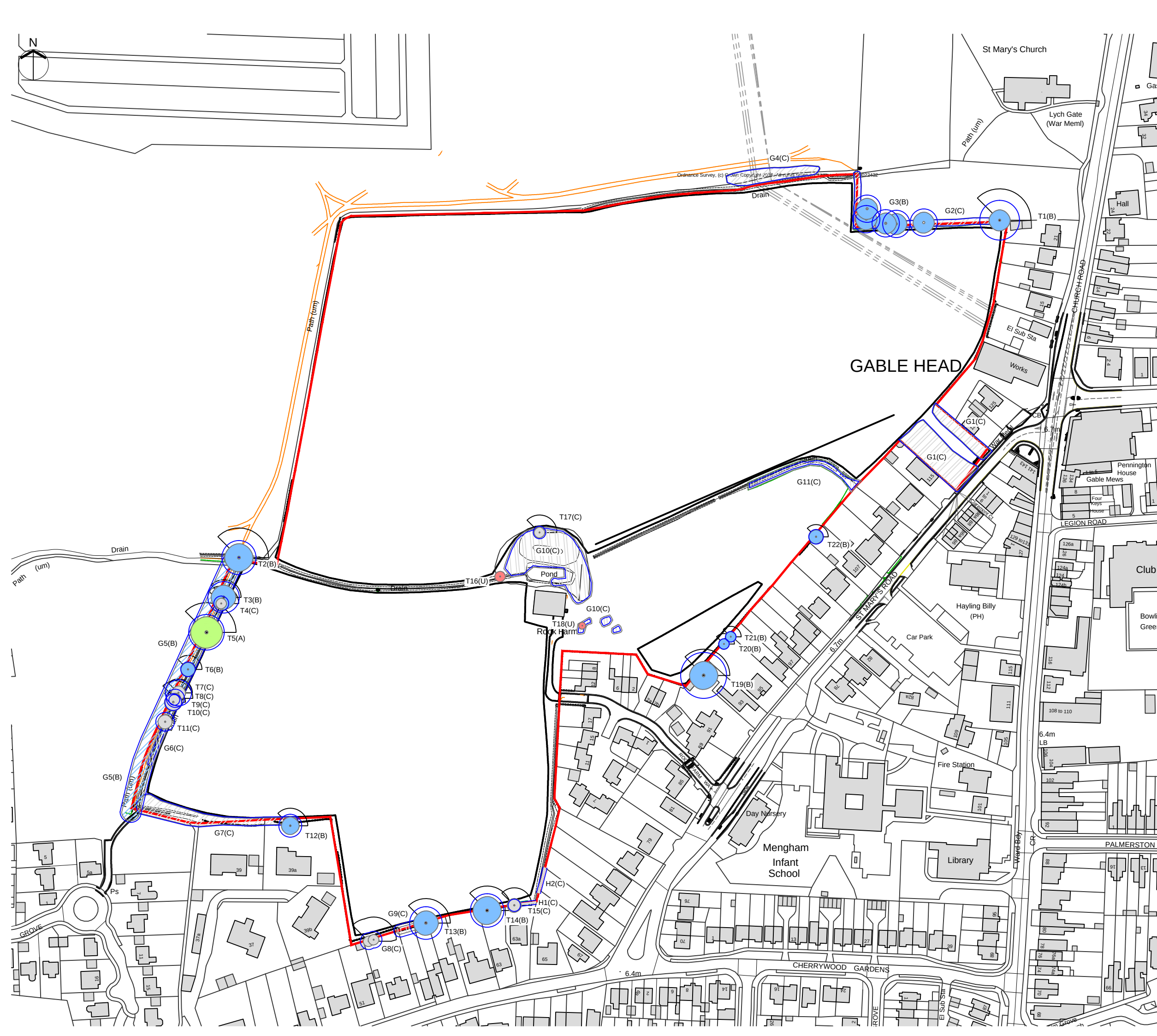
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CAD file: J:\7400\7478\ARB\Plans\Fig 1 Assessment Boundary Plan.dwg

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KEY

Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)

Category A - Trees / Groups of High Quality (BS 5837:2012)

Category B - Trees / Groups of Moderate Quality (BS 5837:2012)

Category C - Trees / Groups of Low Quality (BS 5837:2012)

Hedgerow (Colour indicates BS5837:2012 Category)

Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)

T1 (A)
G1 (A)

Individual / Group Number and BS5837:2012 Category

Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

Scale 1:2000 @ A3



NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule .

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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project

St Mary's Road

Hayling Island

drawing title

TREE SURVEY PLAN

FIGURE 2

scale

1:2000 @ A3

drawn

EC

date

August 2016

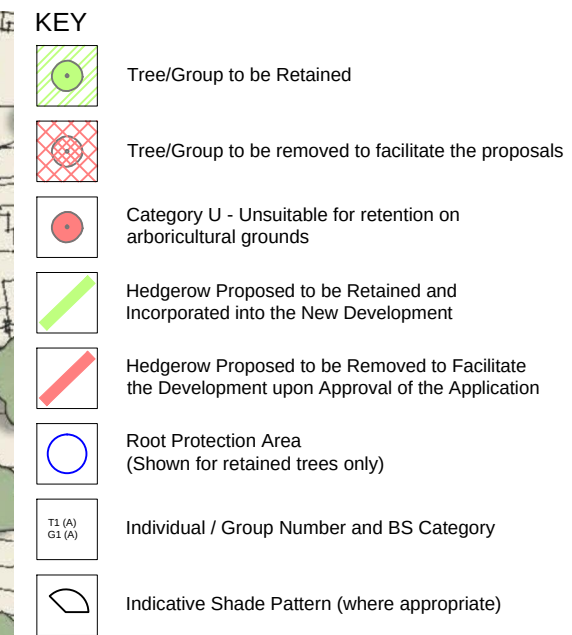
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rev	date	description	by

client
Gladman Developments Ltd.

project
St Mary's Road
Hayling Island

drawing title
TREE RETENTION PLAN
FIGURE 3

scale
1:2000 @ A3

drawn
EC

date
December 2016

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Appendix A - Tree Schedule

Measurements	Age Class	Overall Condition	Root Protection Area (RPA)
Height - Measured using a digital laser clinometer (m)	YNG: Young trees up to ten years of age	G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention	• The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m). • The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the rooting area required for a tree to be successfully retained. Tree roots extend beyond the calculated RPA in many cases and where possible a greater distance should be protected. • Where veteran trees have been identified the RPA has been calculated in accordance with Natural England guidance i.e. 15x the stem diameter, uncapped.
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837	SM: Semi-mature trees less than 1/3 life expectancy	F - Fair: Trees with minor rectifiable defects or in the early stages of stress from which it may recover	
Crown Radius - Measured using a digital laser clinometer radially from the main stem (m)	EM: Early mature trees 1/3 – 2/3 life expectancy	P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term	
Abbreviations est - Estimated stem diameter avg - Average stem diameter for multiple stems upto - Maximum stem diameter of a group	M: Mature trees over 2/3 life expectancy	D - Dead: This could also apply to trees in an advanced state of decline and unlikely to recover	
	OM: Over mature declining or moribund trees of low vigour	The BS category particular consideration has been given to the following • The health, vigour and condition of each tree • The presence of any structural defects in each tree/group and its future life expectancy • The size and form of each tree/group and its suitability within the context of a proposed development • The location of each tree relative to existing site features e.g. its screening value or landscape features • Age class and life expectancy	
	V: Veteran tree possessing certain attributes relating to veteran trees		

Structural Condition
The following is an example of considerations when inspecting structural condition: - The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay - Soil cracks and any heaving of the soil around the base - Any abrupt bends in branches and limbs resulting from past pruning - Tight or weak 'V' shaped forks and co-dominant stems - Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994) - Cavities as a result of limb losses or past pruning - Broken branches or storm damage - Damage to roots - Basal, stem or branch / limb cavities - Crown die-back or abnormal foliage size and colour

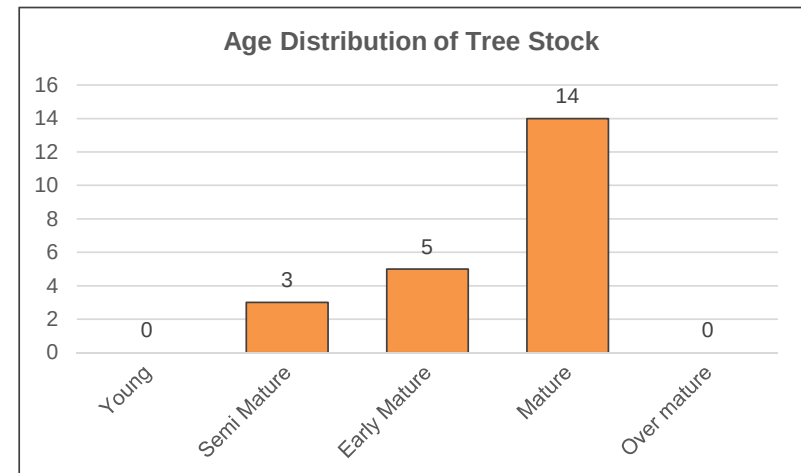
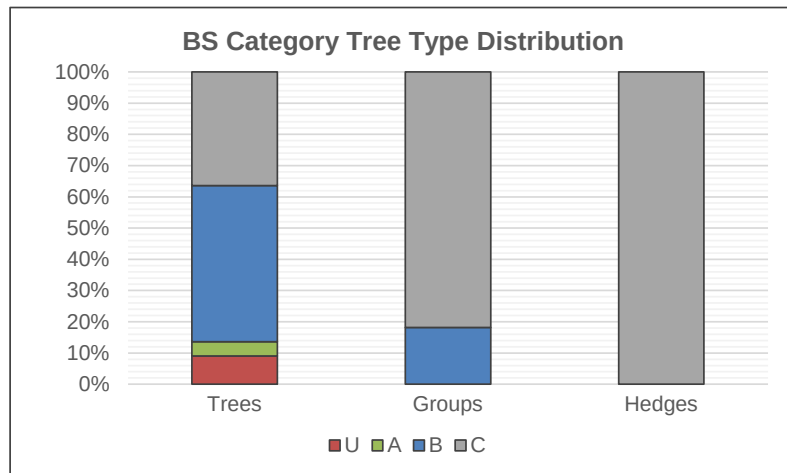
Quality Assessment of BS Category
Category U - Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.
Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
Category C - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.
Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value

Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U	T16, T18	2		0
Category A	T5	1		0
Category B	T1, T2, T3, T6, T12, T13, T14, T19, T20, T21, T22	11	G3, G5	2
Category C	T4, T7, T8, T9, T10, T11, T15, T17	8	G1, G2, G4, G6, G7, G8, G9, G10, G11, H1, H2	11
Total		22	Total	13

BS Category Tree Type Distribution displays the proportion of trees assessed in each type to enable a better understanding of the category distribution.

Age Distribution of Tree Stock shows the number of trees in each age category across the tree stock allowing assessment of their longevity to be made.



Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	Maritime Pine Pinus pinaster	18	Over ivy 950	6	M	G	Branch stubs evident Broken branches evident Characteristic for species Light ivy cover Situated offsite by 2m	408	11.4	B (i)
T2	English Oak Quercus robur	17	580 570	8	M	F	Characteristic for species Epicormic growth evident within the crown Major and minor dead wood evident in the crown Twin stemmed from 1m Included fence within main stem	299	9.8	B (i)
T3	English Oak Quercus robur	10	750	7	M	F	Basal cavity extends through stem Broken branches evident Epicormic growth evident within the crown Light ivy cover Low crown form Major dead wood evident in the crown (>75mm) Pruning wounds noted	254	9.0	B (i)
T4	Field Maple Acer campestre	10	250 200 150	3	M	P	Minor dead wood evident in the crown (<75mm) Multi leadered form Pruning wounds noted Suppressed crown form	57	4.2	C (i)
T5	English Oak Quercus robur	17	850	9	M	G	Characteristic for species Epicormic growth evident within the crown Light ivy cover Low crown form Major dead wood evident in the crown (>75mm) No major defects were noted	327	10.2	A (i)
T6	English Oak Quercus robur	8	350	4	SM	F	Branch stubs evident Characteristic for species Low crown form Pruning wounds noted	55	4.2	B (i)
T7	Ash Fraxinus excelsior	8	480 340 210	4	M	P	Basal cavity observed Coppiced form Dense ivy cover on main stem Multi stemmed from base Pruning wounds noted	176	7.5	C (i)

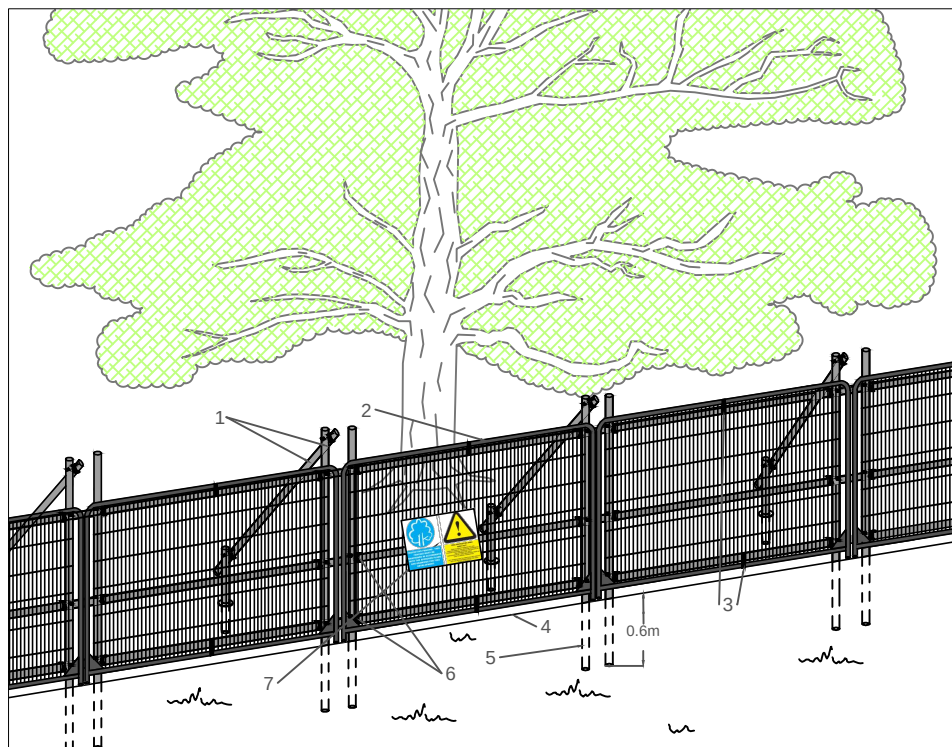
Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T8	Ash Fraxinus excelsior	10	330 280	3	EM	P	Etiolated form Included bark union Light ivy cover Suppressed crown form Twin stemmed from base	85	5.2	C (i)
T9	Field Maple Acer campestre	5	260	3	EM	P	Dense ivy cover on main stem Limited future potential Suppressed crown form	31	3.1	C (i)
T10	Field Maple Acer campestre	7	280 280	5	M	P	Crossing and rubbing branches Limited future potential Twin stemmed from 1m	71	4.8	C (i)
T11	Goat Willow Salix caprea	4	9x 150	4	M	P	Branch stubs evident Coppiced form Dense ivy cover on main stem Low crown form Multi stemmed from base Pruning wounds noted	92	5.4	C (i)
T12	Maritime Pine Pinus pinaster	10	est 550	5	M	G	Branch stubs evident Characteristic for species Pruning wounds noted Situating offsite by 2m Unable to gain access	137	6.6	B (i)
T13	Sycamore Acer pseudoplatanus	14	550 550	7	M	F	Major dead wood evident in the crown (>75mm) Multi leadered form Pruning wounds noted Twin stemmed from 1.5m	274	9.3	B (i)
T14	Ash Fraxinus excelsior	14	800	8	M	F	Basal suckers present Branch stubs evident Broken branches evident Light ivy cover Minor dead wood evident in the crown (<75mm) No major defects were noted Twin stemmed from 2m	290	9.6	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T15	Ash Fraxinus excelsior	10	290	4	EM	P	Dieback of the crown observed Pruning wounds noted Sparse crown Single large stem removed at base	38	3.5	C (i)
T16	Ash Fraxinus excelsior	9	est 400 300 200	3	M	P	Broken branches evident Coppiced form Dieback of the crown observed Limited future potential Major dead wood evident in the crown (>75mm) Multi stemmed from base Failed stems noted	N/A	N/A	U
T17	English Oak Quercus robur	10	est 300	3	SM	P	Branch stubs evident Broken branches evident Flail damage evident Self seeded specimen	41	3.6	C (i)
T18	Common Walnut Juglans regia	4	est 300	2	M	P	Dense undergrowth at the base Dieback of the crown observed Limited future potential Unable to gain access Largely dead	N/A	N/A	U
T19	Monterey Cypress Cupressus macrocarpa	15	est 1100	8	M	F	Bark wounds noted Branch stubs evident Broken branches evident Crossing and rubbing branches Light ivy cover Pruning wounds noted Situating offsite by 4m	547	13.2	B (i)
T20	Contorted Willow Salix matsudana Tortuosa	6	est 250	3	EM	F	Characteristic for species Dense ivy cover on main stem Dense undergrowth at the base Situating offsite by 1m	28	3.0	B (i)
T21	English Oak Quercus robur	6	250	3	SM	G	Characteristic for species Pruning wounds noted Situating offsite by 1m	28	3.0	B (i)
T22	Common Walnut Juglans regia	7	est 350	4	EM	F	Pruning wounds noted Situating offsite by 1m Typical crown form	55	4.2	B (i)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Elder Sambucus nigra Hawthorn Crataegus monogyna Damson Prunus insititia	5	upto 200	2	EM	P	Dense undergrowth at the base Flail damage evident Outgrown hedgerow Pruning wounds noted Sporadic self-seeded trees	18	2.4	C (ii)
G2	Beech Fagus sylvatica Elder Sambucus nigra Field Maple Acer campestre Hawthorn Crataegus monogyna	6	avg 150	2	EM	P	Flail damage evident Gaps present in hedgerow Sporadic self-seeded trees Un-maintained hedgerow	10	1.8	C (ii)
G3	Maritime Pine Pinus pinaster	16	upto 650	6	M	F	Branch stubs evident Broken branches evident Characteristic for species Minor dead wood evident in the crown (<75mm) Pruning wounds noted Situating offsite by 2m	191	7.8	B (ii)
G4	Blackthorn Prunus spinosa	2	est 50 50 50 50	1.5	EM	P	Dense undergrowth at the base Sporadic self-seeded group of trees Thicket	5	1.2	C (ii)
G5	English Oak Quercus robur Hawthorn Crataegus monogyna Hybrid Black Poplar Populus x canadensis	18	upto 500	5	EM	F	Dense ivy cover on main stem Flail damage evident Situating offsite beyond public footpath Larger specimens within understorey hedgerow	113	6.0	B (ii)
G6	Elder Sambucus nigra Hawthorn Crataegus monogyna English Elm Ulmus procera	4	avg 100	2	SM	P	Dense undergrowth at the base Gaps present in hedgerow Multi stemmed and single stem forms Pruning wounds noted Sporadic self-seeded trees	5	1.2	C (ii)

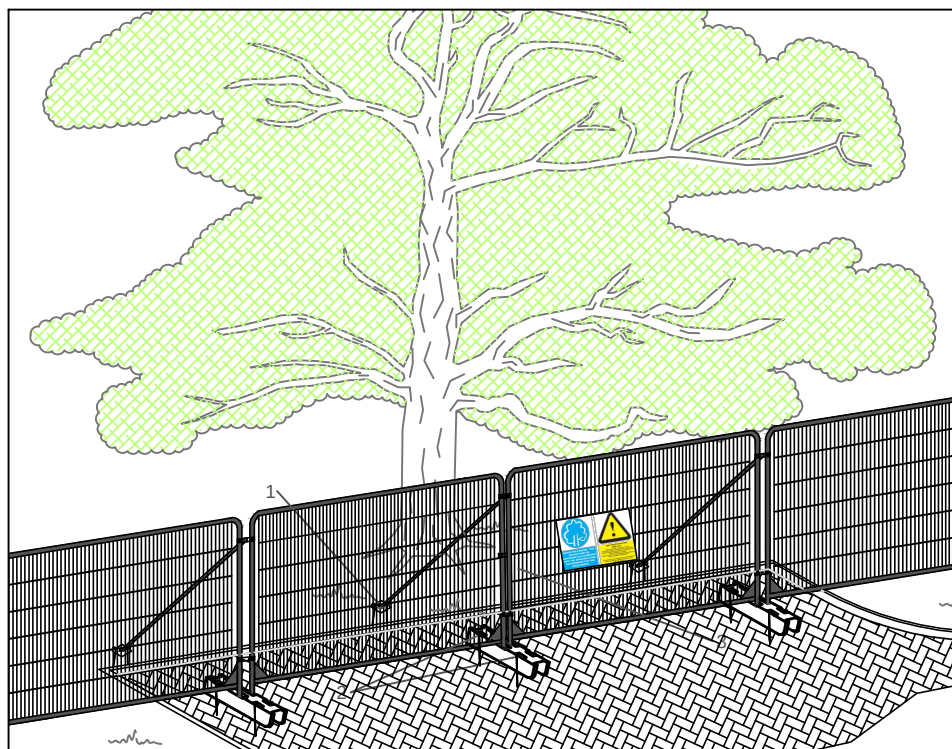
Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G7	Elder Sambucus nigra Wych Elm Ulmus glabra Damson Prunus insititia	8	avg 200	2	SM / EM	P	Broken branches evident Dead trees noted Dense undergrowth at the base Gaps present in hedgerow Outgrown hedgerow Sporadic self-seeded trees	18	2.4	C (ii)
G8	Leyland Cypress Cupressocyparis leylandii	13	est 400	3	M	F	Two trees Characteristic for species Interlocking crowns Light ivy cover Situating offsite by 2m	72	4.8	C (ii)
G9	Elder Sambucus nigra Damson Prunus insititia	7	upto 200 200 100	2	EM	P	Dense ivy cover on main stem Dense undergrowth at the base Flail damage evident Interlocking crowns Sporadic self-seeded group of trees	41	3.6	C (ii)
G10	Ash Fraxinus excelsior Blackthorn Prunus spinosa	8	avg 50 50 50 50	2	SM / EM	P	Dense undergrowth at the base Flail damage evident Interlocking crowns Multi stemmed from base Sporadic self-seeded group of trees Thicket	5	1.2	C (ii)
G11	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna	4	avg 50 50 50 50	2	SM / EM	P	Dense undergrowth at the base Interlocking crowns Sporadic self-seeded group of trees Un-maintained hedgerow Thicket	5	1.2	C (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Leyland Cypress Cupressocyparis leylandii	2	est 100	0.5	EM	F	Gaps present in hedgerow Maintained hedgerow	5	1.2	C (ii)
H2	Leyland Cypress Cupressocyparis leylandii	2	est 100	0.5	EM	F	Gaps present in hedgerow Maintained hedgerow	5	1.2	C (ii)



Standard specification for protective barrier

1. Standard scaffold poles
2. Heavy gauge 2m tall galvanized tube and welded mesh infill panels
3. Panels secured to scaffold frame with wire ties
4. Ground level
5. Uprights driven into the ground until secure (min depth of 0.6m)
6. Standard scaffold clamps
7. Construction Exclusion Zone signs



Above ground stabilising systems

1. Stabiliser strut with base plate secured with ground pins
2. Feet blocks secured with ground pins
3. Construction Exclusion Zone signs

Protective Fencing to be positioned to the specified dimensions in accordance with Figure 3 Tree Retention Plan

NOTES

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APPENDIX B PROTECTIVE FENCING SPECIFICATIONS

CAD file: S:\Arb resources\Basic Templates\Tree Protection\Appendix B - Protective Fencing A4.dwg