AMENDED



Old Carriage House,

Mowthorpe Road,

Scarborough

Arboricultural Report

November 2021

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1 Introduction

- 1.1.1.1 This report presents the results of an Arboricultural Survey undertaken at the site of Old Carriage House, Mowthorpe Road, Hackness, Scarborough. The study area (see Figure 1) extends to approximately 0.13 hectares and is centred at approximate grid reference SE 9713 8903.
- 1.1.1.2 The Arboricultural Survey has been undertaken to provide supporting information for proposed development of the site.
- 1.1.1.3 The Arboricultural Survey included a Tree Constraints Survey which was conducted on 21th July 2021 by James Blades TechArborA.
- 1.1.1.4 This report also includes an Arboricultural Impact Assessment and Arboricultural method Statement. This will outline the impacts the proposed development will have upon the trees on site and will outline the necessary mitigation and protection measures required.

Figure 1. Approximate boundary of the proposed development outlined in red (aerial imagery dated 2018).





2 Methodology

- 2.1.1.1 This arboricultural survey covers those trees or groups of trees which are considered relevant for the brief. During the survey all relevant individual trees and groups of trees located within and close to the boundary of the site were assessed. Trees with an estimated stem diameter of 75 mm or more that overhang the study area or are located within a distance of up to 12 times their estimated stem diameter were included in the survey.
- 2.1.1.2 The objective of the survey was to collect tree data relevant to the proposed works at the site and to categorise individual trees or tree groups in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction Recommendations'¹ based on their condition, quality and future potential.
- 2.1.1.3 The purpose of the categories within BS 5837:2012 is not to determine whether retention of trees is desirable, 'The purpose of the tree categorization method, which should be applied by the arboriculturist, is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of the development occurring.' (BS 5837:2012, Section 4.5.2). This survey should therefore be regarded as an initial appraisal with observations recorded for trees within and adjacent to the site. Remedial tree works, foundation design and material specification are not covered within this report.
- 2.1.1.4 The location of the trees is shown within the attached Tree Constraints Plan (TCP) (Appendix 3). A detailed inspection of the trees with respect to decay, defects and hazard is not included. The tree locations are as shown on the topographical drawing supplied.
- 2.1.1.5 The site survey was conducted on 21th July 2021 by James Blades TechArborA in accordance with the BS 5837:2012 methodology¹. The surveyor is an appropriately qualified and experienced arborist, having worked in the arboricultural industry for over 9 years, undertaken tree surveys and completed training in BS 5837:2012 survey methodology. Information collected during the survey included species, height, stem diameter, branch spread, height of crown clearance, age class, physiological condition, structural condition, estimated remaining contribution and category grade. The survey was made at ground level using visual assessment of the tree canopy and stem. No removal of vegetation, digging or drilling was undertaken during the survey and parts of the stems of some trees remained partly obscured by vegetation.
- 2.1.1.6 The TCP in Appendix 3 shows the positions, canopy spreads and Root Protection Areas RPA of the trees included within the survey. The RPA's have been calculated in accordance with Section 4.6 of BS 5837:2012. Where significant ground constraints, such as roads, walls, buildings, water bodies are likely to restrict and influence root development, the RPA circles have been adjusted to form a polygon of equivalent area, in order to show the likely rooting area for trees subjected to significant constraints, in accordance with paragraph 4.6.2 of BS5837:2012.
- 2.1.1.7 When considering the layout of the site and the retention of trees, proposals should generally be kept outside of both the RPA and the canopy spreads. However, it may be possible to encroach into these with access roads, footpaths and parking areas assuming the existing ground levels can be maintained and the appropriate construction methods are used. No liability can be accepted by Quants Environmental in respect of the trees or for events which happen after the time of the survey.

¹ British Standards Institution (BSI) BS 5837:2012. Trees in relation to design, demolition and construction – Recommendations. Published by BSI Standards Limited 2012. ISBN 978 0 58069917 7.



3 Results

- 3.1.1.1 The survey results are shown in Appendix 2 (Tree Survey Results Table 1) and Appendix 3 (Tree Constraints Plan). The trees included within this survey comprise of 3 individual trees and 2 tree groups.
 - 1 individual tree was classified as BS5837:2012 Category B.
 - 2 individual trees were classified as BS5837:2012 Category C.
 - 2 tree groups were classified as BS5837:2012 Category C.
- 3.1.1.2 This report is concerned with trees found within the site as well as trees that are up to 15 m from the boundary of which the RPA is likely to encroach within the site. The site is comprised of a single large garden area. The trees are located primarily around the periphery of the site and form the only tree cover within the garden area. The site is located in an open rural environment. Tree species identified on the site consist of common oak *Quercus robur*, horse chestnut *Aesculus hippocastanum*, wild cherry *Prunus avium*, hawthorn *Crataegus monogyna* and holly *Ilex aquifolium*.
- 3.1.1.3 The site is located within the rural area of Everly, Hackness and is approximately 14 km west of Scarborough town centre. The site is surrounded by agricultural land and coniferous plantation. Directly to the north, east, south and west is agricultural field land. Canopy cover in the local area is high with a small area of mature broadleaf woodland directly over the road to the north of the site. Larger areas of canopy cover lie 0.3 km the north and 1.3 km to the south west consisting of large scale coniferous forestry plantation.
- 3.1.1.4 A TPO check was made via both Scarborough Borough Council's and the North York Moors National Park Authority's online interactive map*ping*, it was found that there are no TPOs within the site. The site does not fall within a conservation area.
- 3.1.1.5 Trees cover on the site is moderate despite the small nature of the application area and consists of mainly of G1 and T1-T3.
- 3.1.1.6 T1 is the most valuable tree on site due to its position and uncompromised condition. The tree is in good general health and form and can be seen from the adjacent road as well as the main dwelling next to the application area. The tree is considered to be BS5837:2012 Category B2.
- 3.1.1.7 T2 is a moderately sized horse chestnut tree growing in close proximity to the boundary wall. The tree is in a compromised condition due to the presence of a decay pocket (approx. 30 cm in diameter) at the base of the stem on the eastern side. The tree also has a co-dominant stem at 1.5 m which is heavily included. Although the tree is well sheltered from excessive wind loading, due to the species profile for failure at an included union it is thought that the defect is of concern. The tree is considered to be BS5837:2012 Category C2.
- 3.1.1.8 T3 is a mature cherry tree, the last of the three mature trees within the application area. The tree has good form but a sparse canopy with limited leaf cover. There is a moderate amount of deadwood throughout the lower and peripheral crown, the tree is thought to be dying back. It is assumed that the prolific amount of small cherry stems within the area including those of G2 are suckers from T3. Many of the cherry suckers are showing a similarly sparse canopy to T3 especially those closest to the parent tree. Both T3 and G2 are considered to be BS5837:2012 Category C2.
- 3.1.1.9 G1 accounts for a large amount of the canopy cover on site due to the continuous canopy it provides along the northern boundary of the application area. The group is a mixed species hedge which has been left unmaintained and so grown both laterally and in height and has many small cherry stems also thought to be from T3. The group is considered to be Category C2.

4 Arboricultural Impact Assessment

4.1 Introduction

4.1.1.1 The Arboricultural Impact Assessment will outline the potential impact the proposed development will have on the retained trees. The implications will be discussed in terms of below ground constraints and above ground constraints. Possible remedial actions will be discussed where the development impacts significantly on retained trees.

4.2 Aims

- 4.2.1.1 The Arboricultural Impact Assessment will provide information and advice on potential conflicts between the existing trees on site and the proposed extension. The information contained in this assessment has been drawn from the current design layout.
- 4.2.1.2 Possible mitigation measures will be outlined where the proposed development comes into conflict with retained trees and vice versa.

4.3 Development Proposal

- 4.3.1.1 The proposal is for the installation of 4 camping pods along with new access provision from Mowthorpe Road and associated hard surfacing and parking provision.
- 4.3.1.2 The proposed development is shown within the Tree Protection Plan (TPP) at Appendix 4.

4.4 Trees to be Removed

- 4.4.1.1 Trees within G2 are all small sucker growth stems from T3 and will conflict with the proposed parking bays and access paths and overall proposed landscaping. These are small trees and not considered to present a significant contribution to the wider landscape.
- 4.4.1.2 Replacement planting will be required to mitigate the loss of these trees. Replacement planting with longer lived species such as oak will improve the longevity of canopy within the site.

4.5 Below Ground Constraints

- 4.5.1 Excavation Within the RPA
- 4.5.1.1 No excavation will be required within retained tree RPAs.
- 4.5.2 Hard Surface Installation Within the RPA
- 4.5.2.1 There is no requirement for hard surfacing within the RPA of retained trees.
- 4.5.3 Soil Compaction Within the RPA
- 4.5.3.1 Under no circumstances must machinery pass over the unprotected soils within the RPA of retained trees as this will cause compaction of the soils beneath.
- 4.5.3.2 Barrier fencing will need to be erected to create a Construction Exclusion Zone (CEZ), to prevent construction traffic and machinery encroaching into unprotected RPAs. Barrier fencing must be located along the outer extent of retained trees RPAs and along the edge of ground protection measures.
- 4.5.3.3 Where construction activities will occur within the RPA, suitable ground protection measures will need to be installed to protect the soil within RPAs until special engineering measures are carried out for construction within the RPA.



- 4.5.3.4 Construction machinery must not pass over unprotected RPAs and should follow agreed access routes to site.
- 4.5.3.5 Compaction of soil reduces oxygen and water movement through the soil which can lead to the suffocation and the eventual death of roots.

4.5.4 Ground Level Changes

- 4.5.4.1 Landscaping requirements are likely to be required within and adjacent to the RPAs of T1 T3 and G1. It is unlikely that significant ground level changes will need to occur within the RPA of retained trees.
- 4.5.4.2 Generally ground level changes within the RPA of retained trees should not occur. However, with careful consideration to construction methods, changes may occur as long as the following guidelines are followed.
- 4.5.4.3 Lowering of the ground level should only occur after assessment of rooting extent has been carried out. The use of an air spade to expose roots should occur or alternatively hand digging to determine the level of rooting in the area that lowering is required. Lowering of the ground level must not occur if there is a high content of roots >25mm. Guidance of an arboriculturist should be sought when carrying out this process.
- 4.5.4.4 Raising the ground level in the RPA upto 150mm is not likely to have a significant effect on the trees. However, any addition of fill to the RPA must not be compacted and should be of coarse textured soils with a higher sand content to allow good aeration and water movement through the soil.
- 4.5.4.5 Should the addition of fill be greater than 150mm within the RPA then the installation of an aeration system such as perforated piping should be installed within the fill to allow air and water movement through the whole depth.

4.5.5 Changes to Soil Condition

4.5.5.1 It is vital that current soil condition is maintained within the RPA. Effects on bulk density of the soil from construction activity and the quality of the soil can impact on the trees severely as the roots have adapted to the current conditions of the soil.

4.5.6 Underground Utilities/Service Provision

4.5.6.1 At present the exact location of new underground services is unknown. However, it is planned for utility provision to be supplied independently to the site. It is anticipated that service provision will be routed from existing services in Mowthorpe Road and will enter the site via the proposed access. It is not considered that this will affect retained trees.

4.6 Above Ground Constraints.

4.6.1 Access Facilitation Pruning

4.6.1.1 Minor crown lifting of T1 may be required where necessary to provide clearance over proposed access driveway.

4.7 Construction Access and Activities

- 4.7.1.1 All construction machinery must remain outside of unprotected RPAs and follow the guidelines detailed in 4.5.3.
- 4.7.1.2 All storage areas, cement mixing and washing points must be outside RPAs unless otherwise agreed with the Local Planning Authority.



5 Arboricultural Method Statement

5.1 Introduction

5.1.1.1 The following Method Statement will outline the procedures and requirements needed to protect the retained trees on site and complete the development without detrimental effect on retained trees.

5.2 Sequence of Events

- 5.2.1.1 For the purposes of protection for the retained trees, the development works on site should be completed in line with the following sequence of events;
 - Pre-commencement site meeting
 - Pre-commencement tree works
 - Installation of tree protection
 - Construction phase
 - Landscaping phase
 - Removal of tree protection

5.3 Pre Commencement Site Meeting

- 5.3.1.1 A pre-commencement site meeting should take place prior to any works being started to finalise plans for the layout of tree protection
- 5.3.1.2 The developers and the project arboriculturist should be in attendance for the meeting. It may be a requirement for the LPA tree officer to also be in attendance and so prior notification of the meeting should be provided to the LPA.

5.4 Pre Commencement Tree Works

- 5.4.1.1 Prior to the commencement of construction and tree protection installation, tree removal and pruning operations will be required (see Tree Protection Plan (TPP) at Appendix 4).
- 5.4.1.2 Part removal of G2 will be required to facilitate construction of the parking bays and access paths.
- 5.4.1.3 Pruning may be required to T1 to provide clearance, Due to the uneven nature of the crown an assessment on site during marking out of the access driveway footprint should be carried out to identify pruning needs.
- 5.4.1.4 All pruning works must be carried out by appropriately qualified arboricultural contractors with relevant insurance and in accordance with BS3998:2010 Tree Work Recommendations.

5.5 Root Protection Areas (RPAs)

- 5.5.1.1 Based on the tree survey data (Appendix 2), root protection areas (RPAs) have been determined for trees on site.
- 5.5.1.2 A topographical survey was undertaken to detail the location of trees within the site. The location of individual trees is shown in Appendix 3; it should be noted however that topographical surveys are not always comprehensive and it is recommended that the root protection zones and therefore the location of the Protective Fencing is measured on site during installation (using collected data for RPAs and canopy spreads). Any deviation from the location of the proposed Protective Fencing should be confirmed with the tree officer at the Local Planning Authority.
- 5.5.1.3 The RPA is designed to protect, at least, a functional minimum of tree root mass in order to ensure that the trees survive the construction process.



5.5.1.4 It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

5.6 Tree Protection

5.6.1 Standard Fencing

- 5.6.1.1 The Tree Protection Plan (TPP), shown in Appendix 4, details the position of the Tree Protection Fencing (TPF). This fencing will comprise of the type detailed below in Figures 1 and 2. TPF must be erected before any materials or machinery are brought onto site and before any development or stripping of soil commences.
- 5.6.1.2 Once erected, TPF will be regarded as sacrosanct, and will not be removed or altered without prior agreement of an arboriculturist and approval of the local planning authority.
- 5.6.1.3 Barriers should be fit for the purpose of excluding constructive activity, and appropriate to the degree and proximity of work taking place around the retained trees. Special attention should be paid to ensuring that barriers remain rigid and complete. Once the barrier fencing has been installed, construction work can commence. All-weather notices should be erected on the barrier with words such as: "Construction Exclusion Zone – Keep Out".
- 5.6.1.4 The default TPF specification (Figure 1) is a vertical and horizontal scaffold framework, braced to resist impacts. The vertical poles are driven securely into the ground with horizontal poles connected securely to the vertical sections. Bracing bars must then be securely attached to prevent movement of the structure if struck by machinery. Welded mesh panels are then securely attached to the scaffold framework. During installation it is important to consider the position of below ground services and structural roots, which must not be damaged.
- 5.6.1.5 Refer to Figure 1 for the specification of the default Tree Protection Fencing.
- 5.6.1.6 It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them. In the event of any panel or support becoming damaged, this must be immediately reinforced by adding panels with the designs below as appropriate.
- 5.6.1.7 Before any works take place within the site, full BS5837 fencing will be used to ensure the safeguard of the tree RPAs, until there is no risk from damage from the construction activity. To be effective the fencing must be robust and clearly signed.
- 5.6.1.8 TPF must be installed along the edge of the RPA during the main construction phase. Upon commencing the construction of the parking bays, TPF should be set back to the inner edge of the proposed bays to allow construction of the bays utilising the no dig construction methods as outlined in 5.8 (see TPP at Appendix 4)



5.6.1.9 Figure 1. Default Specification for Protective Barrier (Tree Protection Fencing – TPF) (Taken from Figure 2 of Section 6 BS5837:2012)



5.7 Restrictions Within RPAs

- 5.7.1.1 Inside the exclusion area of the Tree Protective Fencing (TPF), the following shall apply:
- 5.7.1.2 No mechanical excavation and no excavation by any other means without prior agreement and stipulation on ground protection requirements from the LPA.
- 5.7.1.3 No hand digging without a written method statement having first been approved by the arboriculturist or the Local Planning Authority.



No ground level changes whatsoever, no storage of plant or materials and no vehicular access. No 5.7.1.4 storage or handling of any chemicals. Any facilities for the storage of oils, fuels or chemicals shall be sited on impervious bases and surrounded by impervious bund walls. The volume of the bund compound shall be at least equivalent to the capacity of the tank plus 10%. If there is a multiple tankage, the compound shall be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks, plus 10%. All filling points, vents, gauges and sight glasses shall be located within the bund. The drainage system of the bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipework shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund. All material storage facilities and work areas must consider the effects of sloping ground on the movement of potentially harmful liquid spillages towards or into protected areas. Prior to and during all construction works on site, no spoil or construction materials will be stored within the RPA of any tree on, or adjacent to the site, even if the proposed development is to be within the RPA. This is to reduce to a minimum the compaction of the roots of the trees. Any encroachment within this protected area will only be with the prior agreement of the Local Planning Authority.

5.8 Installation of Utilities and Services

- 5.8.1.1 The exact location of underground services has not yet been provided. Ideally the routing of underground services will remain outside the RPA of retained trees. In the event that installation of services are required within the RPA of retained the trees the following guidelines must be followed.
- 5.8.1.2 Trenching by machinery for the installation of underground services severs any roots present and may change the local soil hydrology in a way that adversely affects the health of the tree. For this reason, particular care will be taken in the routeing and methods of excavation used. At all times where services are to pass within the Root Protection Area, detailed plans showing the proposed routeing will be drawn up in conjunction with an arboriculturist. Such plans will also show the levels and access space needed for installing the services.
- 5.8.1.3 Ideally trenchless methods, with insertion and retrieval pits sited outside of retained tree RPAs, will be used for the installation of underground services with the RPA of retained trees. Guidance on trenchless solutions can be found in section 7.7, Table 3 in BS5837:2012 and in National Joint Utilities Group Volume 4.
- 5.8.1.4 Where trenchless solutions are not achievable then the preferable method for trenching within RPAs to avoid damage is via excavation using 'air- spade' or similar. This tool utilises compressed air to remove soil from around tree roots causing minimal damage. This approach should be utilised whenever possible and carried out by staff trained in its use. If an air spade cannot be used then trenching through hand digging using only hand tools will be required.
- 5.8.1.5 Where roots are to be exposed for a prolonged time then wrapping with hessian will be required to prevent drying out and desiccation. For construction during spring/summer months, the hessian must be watered regularly. In winter months the hessian should be kept dry.
- 5.8.1.6 Underground service, cabling, ducting and pipes should be installed beneath the exposed roots and where necessary root barriers installed over the services to prevent future root damage.
- 5.8.1.7 Reference can be made to National Joint Utilities Group Volume 4, Issue 2 for guidance, but any approach must be approved by the developers arboriculturist and brought to the attention of the local authority.

5.9 Avoiding Damage to Tree Crowns

5.9.1.1 Great care must be exercised when working close to retained trees. Plant and machinery with booms, jibs and counterweights and the passage of tall or wide loads should be controlled by a banksman to maintain adequate clearance.



5.9.1.2 <u>Under no circumstance shall construction personnel undertake any tree pruning operations.</u>

5.10 Site Access, Location of Site Compounds/Buildings and Storage of Materials

- 5.10.1.1 Access to the site will likely be via the new proposed access from Mowthorpe Road once constructed. Construction traffic and machinery must not pass over unprotected ground within retained tree RPAs and tree protection fencing must remain in place at all times.
- 5.10.1.2 The location of any site compound with cabins and storage has not yet been provided. These must not be located within the RPA of retained trees. There is sufficient space within the site for this to be achievable.
- 5.10.1.3 All storage areas, cement mixing and washing points must be outside RPAs unless otherwise agreed with the Local Planning Authority.
- 5.10.1.4 The storage of oils, fuels or chemicals within the compound shall be sited on impervious bases and surrounded by impervious bund walls. The volume of the bund compound shall be at least equivalent to the capacity of the tank plus 10%. If there is multiple tankage, the compound shall be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks, plus 10%. All filling points, vents, gauges and sight glasses shall be located within the bund. The drainage system of the bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipework shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund. All material storage facilities and work areas must consider the effects of sloping ground on the movement of potentially harmful liquid spillages towards or into protected areas.

5.11 Landscaping/Ground Level Changes

- 5.11.1.1 Landscaping requirements are likely to be required around the site and adjacent to retained trees. It is possible that as part of landscaping requirements, minor ground level changes may need to occur within the RPA of retained trees.
- 5.11.1.2 Generally ground level changes within the RPA of retained trees should not occur. However, with careful consideration to construction methods, changes may occur as long as the following guidelines are followed.
- 5.11.1.3 Lowering of the ground level should only occur after assessment of rooting extent has been carried out. The use of an air spade to expose roots should occur or alternatively hand digging to determine the level of rooting in the area that lowering is required. Lowering of the ground level must not occur if there is a high content of roots >25mm. Guidance of an arboriculturist should be sought when carrying out this process.
- 5.11.1.4 Raising the ground level in the RPA upto 150mm is not likely to have a significant effect on the trees. However, any addition of fill to the RPA must not be compacted and should be of coarse textured soils with a higher sand content to allow good aeration and water movement through the soil.
- 5.11.1.5 Should the addition of fill be greater than 150mm within the RPA then the installation of an aeration system such as perforated piping should be installed within the fill to allow air and water movement through the whole depth.
- 5.11.1.6 Tree protection fencing must remain in place at all times during the construction phase and may only be removed for the landscaping phase with the authority of the LPA tree officer and the supervising arboriculturist.

5.12 New Tree Planting

5.12.1.1 All trees are to be procured, planted and receive aftercare in accordance with British Standards BS 8545:2014 'Trees: from nursery to independence in the landscape – Recommendations'.



- 5.12.1.2 Great care must be taken to prevent any damage to trees during handling and transportation. The contractor(s) charged with supplying the trees shall ensure that the trees are handled in accordance with the Plant Handling Code, from selection at the nursery to planting on site. The trees will be well packed and secured onto the vehicle during transit, so as to avoid any damage.
- 5.12.1.3 The contractor shall replace any trees that are damaged on site or during transportation from the nursery to the site.
- 5.12.1.4 The planting pits shall be twice the diameter and depth of the tree roots. Care will be taken to ensure the tree is planted at an appropriate depth so that the root collar is just below ground level. The soil removed from the planting pit shall be well broken before backfilling, and an appropriate slow release fertiliser will be mixed into the backfill soil in accordance with the manufacturer's instructions. The trees will be well firmed with the ball of the foot.
- 5.12.1.5 It is advisable that any tree planting takes place during the early winter months of November and December. This will allow for the development of sufficient fibrous roots ready for the subsequent growing season.
- 5.12.1.6 Should winter planting not be achievable, it is recommended that root balled trees are planted and are watered sufficiently at the time of planting. Subsequent watering regimes will be required throughout the remaining growing season to ensure successful establishment.
- 5.12.1.7 If within a period of five years from the date of planting of any tree that tree, or any tree planted in replacement for it, is removed, uprooted, destroyed or dies, (or becomes in the opinion of the LPA seriously damaged or defective), another tree of the same species and size originally planted shall be planted at the same place within 12 months, unless otherwise agreed in writing with the LPA.



Appendix 1. Photographs

Image 1 – Looking north to G2.



Image 2 – Looking north to T1.





Image 3 – Looking north east to T2.



Image 4 – Looking north to T3, the sparse canopy can be seen.







Image 5 – Looking north to G1 along the northern site boundary.

Image 6 – Looking west, a generaly high landscape canopie cover can be seen.





Appendix 2. Tree Survey Results – Table 1

Ī				Cro	own S	pread	(m)		er.		_			ы. Т. Э.			Ø	
	Tree/ Group Ref No.	Species	Height (m)	w	N	S	E	Crown Clearance	Stem diamete (mm)	Age class	Physiologica Condition	Structural Condition	Condition	Managemen recommenda ons	ERC	Cat Grade	Radius of Nominal Circl	RPA SqM
	T1	Oak	12.5	2	5	5	4.5	2	340	SM	G	G	Moderately sized oak tree growing adjacent to road, in good health with minor deadwood throughout, uneven crown due to close proximity of other trees, moderately visible from road and surrounding landscape, no obvious defects.	Deadwood, retain.	30+	B2	4.08	52.30
	Т2	Horse chestnut	11	5	6	5	5	1.5	base 590	м	G	Р	Moderately sized horse chestnut growing in very close proximity to boundary wall and road (<0.3 m), decay pocket at base on east side of stem, co-dominant at 1.5 m with an included union, tree receives little windowing due to sheltered environment, moderately visible from localised landscape and road	Retain and continue to monitor condition of union.	10+	C2	5.88	108.63
	T3	Wild cherry	10	6	4.5	6	4	2	420	M	P	G	Moderately sized cherry tree in north area of site, tree is in general decline with sparse leaf cover and moderate deadwood throughout canopy, basal strangulation and occlusion of stock fencing previously wrapped around the stem, tree appears to have	Retain.	10+	C2	5.04	79.81



			Cro	own S	pread	(m)		er.					ti t			D	
Tree/ Group Ref No.	Species	Height (m)	w	N	S	E	Crown Clearance	Stem diamete (mm)	Age class	Physiologica Condition	Structural Condition	Condition	Managemen recommenda ons	ERC	Cat Grade	Radius of Nominal Circle (m)	RPA SqM
												suckered profusely within a 10 m radius. moderate landscape value from road visibility.					
G1	Elderberry, cherry, hawthorn, holly, sycamore	5-8	2.5	2.5	2.5	2.5	1	100-250	SM	G	F	Boundary hedge left unmaintained, mixed species broadleaf trees primarily hawthorn hedging with two larger Holly's, generally in good condition having been previously maintained in height to 2 m with subsequent regrowth, lower visibility due to position within site.	Retain, prune back laterally where required.	10+	C2	3	28.28
G2	Cherry	4-6	1	1	1	1	1.5	75-110	Y	F	F	Group of wild cherry thought to be suckered from T3, small singular stems growing in pairs of groups from a common point, generally in good condition however, most of the stems are 50-75 DBH, low visibility due to position on site.	Part removal required.	10+	C2	1.32	5.47



Key:

* - Denotes estimated measurement where access to tree stems was restricted or not accessible.

Tree/ Group Ref No. - tree/group number, to be recorded on tree survey plan where necessary.

Species – common and scientific names where possible.

Height - overall height of tree in metres.

Stem Dia – stem diameter, in millimetres at 1.5m above adjacent ground level (on sloping ground to the taken on the upslope of the tree base) or immediately above the roof flare for multi-stemmed trees.

Branch spread – in meters taken at the four cardinal points to derive an accurate representation of the crown (to be recorded on the tree survey plan where necessary).

Height of cc – height of crown clearance – in meters above adjacent ground level to inform on ground clearance, crown stem ratio and shading.

Age class – young (Y), young mature (YM), mature (M), over mature (OM) and veteran (V).

Physiological condition – e.g. good (G), fair (F), poor (P) and dead (D).

Structural condition – e.g. collapsing, the presence of decay and any physical defect.

Management recommendations – including further investigations of suspected defects that require more detailed assessment and potential wildlife habitat.

ERC - estimated remaining contribution - in years e.g. less than 10, 10-20, 20-40, more than 40.

Cat grade – category grade – U or A to C, to be recorded in plan on the tree survey plan where possible.

RPA – Root protection area calculated from BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations in sq/m. Where indicated, dimensions of radius of circle or sides of square based around centre point of trunk calculated for design purposes.



Table 2. Cascade Chart for the Quality Assessment²

Category and definition	Criteria (including subcategories where appropriate)								
Trees unsuitable for retention									
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 that have serious, irremediable, structural defect, such that their early loss is expected due to collapse including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning). Trees that are dead or are showing signs of significant, immediate or irreversible overall decline. Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees supressing adjacent trees of better quality. <i>Note: Category U trees can have existing or potential conservation value which it might be desirable to preserve.</i>								
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation						
Trees to be considered for retention									
Category A 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 those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue).	Trees, groups or woodlands of particular visual importance as arboricultual and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran or trees or wood pasture).	See Table 2					
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in Category A, but were 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 groups or woodlands, such that they attract a higher collective rating than they might attract as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value.	See Table 2					
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter of <150mm.	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.	See Table 2					

² The British Standards Institute 2012, Page 9 – Table 1.



1598 – Old Carriage House, Mowthorpe Road, Scarborough Arboricultural Survey

Appendix 3. Tree Constraints Plan









Drawing Title									
Tree Constraints Plan									
Client									
Adam Tinsley									
Site/Project									
Land Adjacent Ol	d Carr	riage ⊦	louse						
Mowthor	pe Ro	ad							
Hackness									
Scale/Sheet Date									
1:150 - A2 22/07/2021									
Drawing No	Rev	Drawn By	Chked By						
1598	1	JS	JB						
QUANTS environmental									
Quants Enviror 65 Kirkby Road, Ripon, N	Quants Environmental Limited 65 Kirkby Road, Ripon, North Yorkshire HG4 2HH.								
Office: 01765 600799 Email: info@quantsenviron Web: www.guantsenviron	onmental.c	om m							



1598 – Old Carriage House, Mowthorpe Road, Scarborough Arboricultural Survey

Appendix 4. Tree Protection Plan







Drawing Title								
Tree Protection Plan								
Client Adam Tinsley								
^{Site/Project} Land Adjacent Old Carriage House Mowthorpe Road Hackness								
Scale/Sheet Date 1:150 - A2 17/11/2021								
Drawing No 1598c	Rev 2	Drawn By JS	Chked By JB					
QUA enviror	nm	en	S tal					
Quants Environ 65 Kirkby Road, Ripon, N	nment North York	al Lim shire HG4	ited 2HH.					
Office: 01765 600799 Email: info@quantsenviro Web: www.guantsenviron	onmental.co	om m						