

TREE SURVEY



AT
SANDFIELD HOUSE
DOWNHILL LANE
WEST BOLDON

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1. SUMMARY

1.1 Introduction

Ajt Environmental Consultants were commissioned to undertake a detail condition survey and assessment of the existing trees in relation to the proposed next phase of development at Sandfield House, Downhill Lane, West Boldon with recommendations for a management strategy. This report accompanies a full planning application for the proposed development.

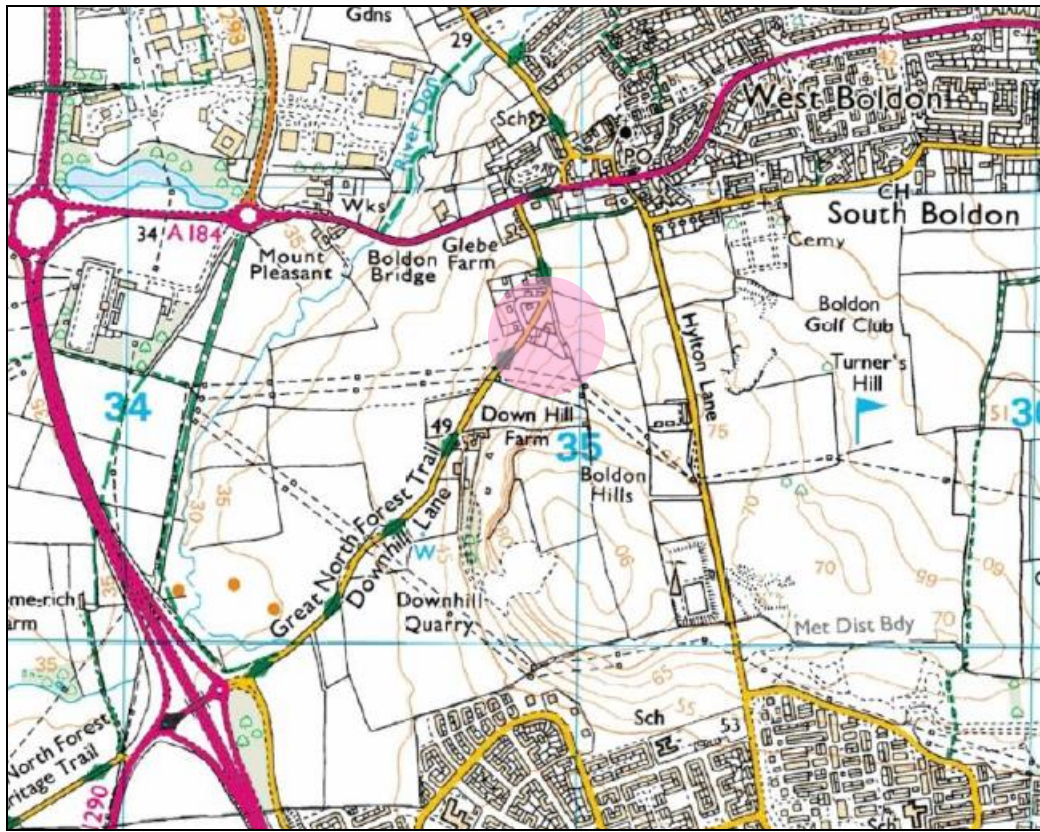
A previous Arboricultural Impact Assessment of the site was undertaken by AllAboutTrees in September 2013, in relation to proposed development at Sandfield House and two adjacent properties at High Cross and Bloemendaal. This included demolition of the adjacent properties and a detached garage, to facilitate the landscaping potential for Sandfield House in association with a proposed extension within an enlarged garden setting.

The current proposal includes the construction of a new drive access, garage and minor infrastructure alterations serving Sandfield House and its new extension. This accompanying tree survey and assessment focusses on those trees which may potentially be affected by this next phase of proposed development. The proposals also incorporate associated new landscape works and garden enhancements within the enlarged site. It is considered that through a sensitively designed scheme, the development will provide the optimal solution for the site and accord with the Government objectives for sustainable development and its desire to promote inclusive, sustainable and vibrant communities.

The proposed development provides the opportunity to develop the existing site and present a scheme which is considered appropriate to the area and its setting and also that will help to meet the long term needs of the local community. The creation of an attractive, vibrant and sustainable environment in which to live and work is essential for the way in which people perceive their surroundings and adds to their quality of life.

The proposals comply with the relevant saved policies of the South Tyneside Unitary Development Plan, Adopted 1999, in order that the scheme both complements and preserves the character or appearance of the surrounding area.

The site location is shown on drawing reference **ajt /735. Figure 1.**



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Figure 1: Location of the site at Sandfield House, West Boldon

1.2 Site Context

The site is located at Ordnance Survey grid reference NZ 349 606, which is situated off Downhill Lane, to the southwest of West Boldon village and lies to the north of Boldon Hills and Townend Farm on the southern edge of the conurbation of South Tyneside.

The site lies to the east of Downhill Lane and is approximately 500m from the A19 (to the west of the site). The A184 lies to the north which connects West Boldon to Sunderland city centre. The area is a mix of houses, small commercial, business, public houses and fields. The site lies just outside the boundary to the West Boldon Conservation Area, but is located within the South Tyneside Great North Forest green belt.

The site is bounded to the north by fields looking towards the A184 Newcastle Road, to the east and south by open countryside and public footpaths and to the west by Downhill Lane and the properties around Lawn Lane with gardens and garden trees.

The site consists of a private dwelling, Sandfield House, with mature and well maintained landscaped gardens to the north, west and south and current construction works. The dwelling is currently accessed from Downhill Lane via a drive with entrance gates and car parking to the west.

Existing large mature trees are predominantly located around the boundaries which form a feature within the surrounding landscape and provide a setting to the site as viewed from a number of vantage points. The groups of trees also contribute towards the visual amenity and setting of this part of West Boldon.

1.3 Legal Protection of Trees

A number of the trees within the site are subject to a Tree Preservation Order (TPO) reference TPO.08 (1995) and TPO.149 (1995) by South Tyneside Council, which has the effect of preventing the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of trees except in certain circumstances other than with consent of the local planning authority.

The effect of proposed development on trees protected by a TPO ranks as a 'material consideration' which would be considered by the Local Authority when determining a planning application under Section 70 of the Town and Country Planning Act 1990.

The trees within the site are considered to provide a feature within the landscape and the setting of the site and contribute towards the visual amenity of the site and of the local area.

Through careful planning and design, the effects of any proposed development upon the existing trees will be minimised and a sympathetic planting scheme will ensure a harmony between development, the trees, the landscape character, amenity of the site and the surrounding area.

1.4 Durham Biodiversity Action Plan (2012)

The Durham Biodiversity Action Plan (BAP) is a strategy that is important in considering the proposed development of the site and the effect upon the existing trees.

Proposed development should take the opportunity to prevent loss and create new habitats through the development process. For example, the retention of existing trees

that are identified as being of value and the incorporation of new tree planting along with habitat creation. This is considered to be an important element of development which would meet a number of the key aims of the BAP.

1.5 Planning Context

There are a number of local planning policies in the South Tyneside Local Development Framework of relevance to the site in relation to trees and the landscape and in respect of the proposed development.

1.6 Survey Method

The survey has followed the recommendations of **BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'**. **The location of each tree** was recorded from a topographical survey of the site. The size, form, girth, and crown spread of each tree was recorded and a visual inspection made to assess the health, vigour and condition, any structural defects in each tree and its life expectancy; public safety and effects on property. Recommendations for a management regime for the trees are given and appropriate remedial work where required.

All trees were included in the survey, which were over 75mm stem diameter measured at 1.5m above ground level. In addition, smaller specimens were noted wherever these were considered to be of particular interest or potential value and other arboricultural features such as large masses of shrubs or hedges.

The Root Protection Area (RPA) of each tree was calculated using Table D.1, Annex D of **BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations'**, and this is a minimum area in m² which should be left undisturbed around each tree.

The amenity value of the trees was assessed as part of the survey, using the Guidance Notes **'Visual Amenity Valuation of Trees and Woodlands' (The Helliwell System)**, Arboricultural Association. This provides a method of assessing the contribution made by the trees for amenity purposes of a locality.

The survey and assessment findings have been used to inform the development proposals and to allow appropriate mitigation to be implemented where required.

1.7 Survey and Site Assessment Summary

A number of large mature broadleaf trees are situated around the boundaries of the site, which form a feature within the landscape as viewed from a number of vantage points. The trees also contribute towards the visual amenity and setting of the adjacent Downhill Lane and for properties at Lawn Drive and surrounding area.

The site is considered to be of moderate landscape condition and reflects the state of repair of a number of features and elements that make up the character of the site, and which would benefit from enhancement.

In relation to the proposed development, 36 number individual trees that are situated within the site were surveyed. The age of the trees, ranging from 170 to 50 years old, reflects the stages of development that have taken place within the site, including recent demolition and tree felling works, with the mature trees mainly situated to the boundaries of the site.

6 number trees on the site are proposed for removal due to condition, unsoundness and for public safety. The removal of disease sources and competition would have a beneficial effect upon the remaining health of the trees and those on adjacent land. The majority of the surveyed trees within the site are of poor quality and condition and fall within the low category and will require careful management and further assessment where appropriate to maintain their safe useful life.

The influence the trees have on and adjacent to the site were plotted on a Tree Constraints Plan (TCP) which shows the below ground constraints, represented by the Root Protection Area (RPA) and above ground constraints the trees pose by virtue of their size and position.

The amenity value of the trees was assessed as a group using a number of factors, which include the size and composition of the trees, position in the landscape, viewing population, presence of other trees and any other special factors. The trees situated to the boundaries of the site are considered as groups to be of moderate amenity value due to their position, composition as a group and are viewed from a number of properties and the adjacent area. The smaller internal trees are considered of low amenity value with a limited number of viewpoints. 6 number trees have not been

valued as part of this system due to their proposed removal for condition and safe useful life expectancy¹.

1.8 Development Proposals Summary

The proposal at the site is to provide a high quality garage building and new drive with associated landscape and minor infrastructure works set within the boundaries of the site.

It is considered that through a sensitively designed scheme, the development will provide the optimal solution for the site and to meeting the long term residential needs of the area and accord with the Government objectives for sustainable development and its desire to promote inclusive, sustainable and vibrant communities.

The impact of the proposed development upon the existing trees has been assessed and 1 number surveyed tree within the site would be adversely affected by the proposed development and require removal. This trees falls within Category Grade C due to poor condition and is of low priority for retention.

Tree mitigation measures are proposed to protect and safeguard the existing retained trees during construction and in the longer term. The measures aim to:

- o Prevent the existing trees worthy of retention being harmed or disturbed during the construction works.
- o Ensure that the continuity of tree cover within site is maintained in the medium to long term.
- o Safeguard the contribution made by the trees for amenity purposes in relation to the landscape, setting of the site, and surrounding area.

It is proposed as part of the development proposals, to effectively and appropriately mitigate the loss of trees within the site through compensation measures. The development proposals would result in the planting of new trees and shrubs and would help to provide a diversity of age, maintain existing screening of the proposed

¹ Refer to Explanatory notes, ii. Life Expectancy, 'Visual Amenity Valuation of Trees and Woodlands' (The Helliwell System), Arboricultural Association

development from key visual receptors and contribute to the landscape setting and visual amenity of the site and surrounding area. It is considered that with appropriate mitigation measures in place, the removal of trees to accommodate the proposed development would not affect the long-term conservation of tree cover or adversely harm the appearance of the landscape setting or visual amenity of the site and surrounding area.

In accordance with the guidance contained within the National Biodiversity Action Plan (UKBAP) and Durham BAP, the detailed development proposals will ensure that the value of created habitats are maximised through new tree planting and management of the landscape.

Protection of the existing retained trees will be required during the construction works **in accordance with best practice and to BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'. Appropriate protective barriers, any** other relevant physical protection measures including ground protection and construction exclusion zones to protect the root protection areas, will be provided to avoid physical damage to trees and root plates during construction.

1.9 Management Summary

The long-term management proposals for the trees are devised to maintain the continuity of tree cover and conserve the landscape and amenity effect of the trees.

6 number trees are proposed for removal due to condition, unsoundness, disease or for public safety. A programme of felling, tree works and new planting is proposed as part of the tree management recommendations that will enhance and conserve the trees within this locality. Many of the trees are planted too close together to be able to fully develop into fine specimens and a programme of selective thinning should be agreed with the LPA in tandem with a replanting programme of new suitable native trees and shrubs proposed to be planted that safeguards the long term tree cover of the site and surrounding area.

Trees are dynamic and generally throughout their lives increase in size until they **become senile or are adversely affected by pests, diseases or man's activity. The air and soil spaces trees occupy are constantly changing. As a result trees close together may begin to interfere with each other or individual trees may interfere with man's use**

of the site. Regular inspections should be undertaken so that changes in the trees can be monitored and management prescriptions devised and implemented to ensure maintenance of a healthy tree cover.

2. SURVEY AND SITE ASSESSMENT

2.1 Landscape Character

The landscape character consists of a distinct and recognisable pattern of elements that occur in a landscape and how people perceive these. It reflects particular combinations of geology, landform, soils, vegetation, landuse and human settlement and creates a particular sense of place. A description of the landscape character of West Boldon and of the site and surroundings, are summarised below.

The site is located is situated in West Boldon and lies within the southern edge of the conurbation of South Tyneside.

2.1.1 General Context

South Shields lies within the Tyne and Wear Lowlands Character Area², which is centred on the lower valleys of the Tyne and Wear. This includes to the north, the extensive conurbation lying in the broad valley of the Tyne, which merges into the South East Northumberland Coastal Plain. The area comprises gently undulating land, incised by the river valley and its tributaries. It is densely populated and heavily influenced by urban settlement, by industry and infrastructures. The undulating land and broad valley of the Tyne are almost entirely underlain by Coal Measures rocks of Upper Carboniferous age. The underlying rocks are overlain by a mantle of glacial debris, mainly boulder clay or till, deposited from ice sheets which covered the area during the last glacial period. The landscape has been widely influenced by coal mining and heavy industry and in the urban areas, there is still an amount of derelict or redundant land although much has been reclaimed to uses such as country parks and recreational activities. In such a heavily affected landscape, woodland cover overall is low with younger plantations of mixed trees or conifers are found throughout the reclaimed areas of land, along highways and around new developments. Owing to the continued expansion of the settlements over the decades, structures and building styles are very mixed.

This broad description of the landscape provides the general character and setting for the site.

² Countryside Agency, Countryside Character Areas ~ North East Region

2.1.2 Site Context

The site is situated to the western edge of West Boldon, to the east of Downhill Lane and comprises of a large detached property known as Sandfield House which is set within mature gardens. Two neighbouring dwellings and an associated garage have been recently demolished in order to facilitate the construction of an extension to the house and develop the landscaping potential of an enlarged garden setting. Mature trees are located predominantly along the boundaries with a number internal to the site. The larger boundary trees as groups form a feature within the surrounding landscape, where there is little tree cover, and provide a setting to the site as viewed from a number of vantage points. The groups of trees also contribute towards the visual amenity and setting of the surrounding area.

To the north of the site lie open agricultural fields with the A184 Newcastle Road beyond, to the east and south lie open countryside and public footpaths and to the west Downhill Lane and the residential properties around Lawn Lane. The area is typical of an urban edge environment comprising predominantly of residential development with small commercial, business and public houses interspersed by agricultural fields and a network of roads and footpath links. The site lies just outside the boundary to the West Boldon Conservation Area.

2.1.3 Determination of Landscape Quality

The landscape character of the site is considered to be of moderate value on the basis³ that the site exhibits a distinct positive character and sense of place. However, the landscape has evidence of alteration and erosion of some features resulting in areas of more mixed character with some features worthy of conservation but with some detracting features and scope to improve the management of vegetation. The trees surveyed within the site range from good, fair to predominantly poor condition and show signs of competing with neighbours for light where they occur within close proximity of each other and growing within an urban and garden environment. The larger mature trees form a feature within the landscape, and contribute to the character and setting of the site and surrounding area.

³ The approach adopted for landscape assessment is based upon the methodology developed by the Countryside Agency. Refer to Guidelines for Landscape and Visual Impact Assessment, Second Edition.

The landscape sensitivity of the site is judged to be of moderate sensitivity and to have some capacity to accommodate change. The site offers the potential for enhancement and improvement of the quality of the landscape, especially if the appropriate and standard steps are taken in terms of siting, layout and design of the change or development in question.

2.2 Landscape Condition

The landscape condition of the site is based upon judgements about the physical state and maintenance of the landscape, and about its intactness, from visual, functional and ecological perspectives. The site is considered to be in a moderate condition with a number of features and elements that make up the character of the site in a poor state of condition and management including recent demolition works. The site would benefit from enhancement, upgrading and improvement, which in turn would enhance the overall quality of the character and appearance of the area.

2.3 Tree Survey

The species and condition of all trees included in the survey were assessed to inform the proposed next phase of development and to allow appropriate mitigation to be implemented if necessary. The trees were assessed by competent personnel⁴ experienced in arboriculture and in accordance with the methodology and **recommendations of BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations'**.

2.3.1 In making this assessment, particular consideration was given to:

- a) The health, vigour and condition of each tree
- b) Any structural defects in each tree and its life expectancy
- c) The size and form of each tree, and its suitability within the context of the proposed development
- d) The location of each tree relative to existing site features, e.g. its value as a screen or as a skyline feature.

Based on this assessment, the trees were divided into four categories. All the surveyed trees with their categories, differentiated on plan by colour, are shown on drawing reference **ajt/ 735. Figure 2**. The tree reference numbers relate to the individual

⁴ Includes an arboriculturist, M.Arbor.A, who has through relevant education, training and experience, gained recognised qualifications and expertise in the field of trees in relation to construction

trees recorded and surveyed on site. In addition, smaller specimens were noted wherever these were considered to be of particular interest or potential value and other arboricultural features such as large masses of shrubs or hedges.

2.3.2 The survey has classified the trees into the following categories:

- a)** Trees whose retention is most desirable: Category A ~ High quality and value (*Light green*) with an estimated remaining life expectancy of least 40 years.
1. Vigorous healthy trees of good form, and in harmony with proposed space and structures.
 2. Healthy young trees of good form, potentially in harmony with proposed development.
 3. Trees for screening or softening the effect of existing structures in the near vicinity, or of particular visual importance to the locality.
 4. Trees of particular historical, commemorative or other value (e.g. veteran trees or wood-pasture), or good specimens of rare or unusual species.
- b)** Trees where retention is desirable: Category B ~ Moderate quality and value (*Mid blue*) with an estimated remaining life expectancy of least 20 years.
1. Trees that might be included in the high category, but because of their numbers or slightly impaired condition, are downgraded in favour of the best individuals.
 2. Immature trees, with potential to develop into the high category.
- c)** Trees which could be retained: Category C ~ Low quality and value (*Grey*) with an estimated remaining life expectancy of least 10 years
1. Trees in adequate condition, or which can be retained with minimal tree surgery, but are not worthy for inclusion in the high or moderate categories.
 2. Immature trees with a stem diameter below 150mm, or trees of no particular merit.
 3. Trees damaged but which should be retained with due care in relation to public safety issues.

d) Trees for removal: Category U ~ Unsuitable for retention (*Dark red*) and 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.

1. Dead or structurally dangerous trees.
2. Trees with insecure root hold.
3. Trees with significant fungal decay at base or on main bole.
4. Trees with a cavity or cavities of significance to safety.
5. Trees that will become dangerous after removal of other category U trees for the reasons given in items 1 to 4.

2.3.3 A schedule of the survey has been prepared which lists all the trees and provides details of species, height and trunk diameter at 1.5m above ground level, the category, age and vigour of the trees, as a basis for the assessment of impact of the proposed development. Branch spread has been assessed, which is shown on the drawing reference **ajt/ 735. Figure 2**, by defining the actual branch spread rather than illustrative circles. The schedule also includes other relevant details such as trunk lean, significant defects, appropriate remedial work and Safe Useful Life Expectancy (SULE), an arboricultural method of assessing the trees remaining safe life span. The tree survey schedule is included in **Appendix 1**. The method for assessing trees remaining life span is included in **Appendix 2**.

2.3.4 A series of photograph plates are provided below, to illustrate the form, condition and location of the individual and groups of trees in context of the site and surrounding area. The location and survey reference of the trees is show on drawing reference **ajt/ 735. Figure 2**.

2.3.5 View looking northeast towards T1 growing on raised southeastern boundary with recently demolished adjacent garage as shown in Plate 1.



Plate 1

2.3.6 View looking southeast along top of 2m high retaining wall located 1.3m from western edge of base to T1, which forms a root barrier modifying the root plate, as shown in Plate 2.



Plate 2

2.3.7 View looking northeast towards rotten central stem of T1 showing signs of structural collapse as shown in Plate 3A and southern-most bole with large cavity and extensive decay with soft wood to 80% of circumference as shown in Plate 3B.



Plate 3A



Plate 3B

2.3.8 View looking east towards T2 on the south eastern boundary as shown in Plate 4.



Plate 4

2.3.9 View looking east towards T3 and T4 on the south eastern boundary as shown in Plate 5.



Plate 5

2.3.10 View looking east towards T5 (with T4 left of photo) on the south eastern boundary with massive decay and lesion to northeast on major branch, suspected fire damage as in T4, and suspected fungal decay, as shown in Plate 6.



Plate 6

2.3.11 View looking east towards T6, T7, T8 and T9 growing as a row along the southern boundary, (with T5 beyond on eastern boundary) with a boundary hedge, as shown in Plate 7.



Plate 7

2.3.12 View looking east towards T12, T13, T14 and T16 growing as a row along the southern boundary, with a boundary hedge, as shown in Plate 8.



Plate 8

2.3.13 View looking north east towards the specimen tree T17 growing on a former terraced lawn, as shown in Plate 9.



Plate 9

2.3.14 View looking west towards T21 (with T20 Lawson cypress beyond left of photo), as shown in Plate 10.



Plate 10

2.3.15 View looking southwest towards T22, as shown in Plate 11.



Plate 11

2.3.16 View looking north towards T23, with T24 and T25 beyond, growing on eastern boundary edge, with a former quarry to east and retaining wall and block paving to the west, as shown in Plate 12.



Plate 12

2.3.17 View east of T25 with former quarry ledge to base to east and retaining wall and tarmac drive to west with wall showing deflection and large crack as shown in Plate 13A and 13B respectively, and wet cavity to crown spring and structurally suspect requiring further investigation, as shown in Plate 13C.



Plate 13A



Plate 13B



Plate 13C

2.3.18 View south along eastern boundary with of T26, T27, T28, T29 and T30 with former quarry ledge to base to east and retaining wall and tarmac drive to west as shown in Plate 14.



Plate 14

2.3.19 View of T31 with large split to east branch and past pruning cuts for telephone cable with cavities, as shown in Plate 15.



Plate 15

2.3.20 View of T33 (left of photo) and T32 with cavity to southwest bole with decay extending 400mm into heartwood and structurally suspect, as shown in Plate 16A with structural cracking and splitting to northeast bole from union up into crown as shown in Plate 16B, with decay to roots to base to west due to drive construction as shown in Plate 16C.



Plate 16A



Plate 16B



Plate 16C

2.3.21 View looking north along Downhill Lane towards T60 and T61 with structural cracking to boundary retaining wall and deflection to hard surfaces as shown in Plate 17.



Plate 17

2.3.22 View looking north along Downhill Lane towards T62 which leans at 22° and structurally suspect with cracking and deflection to boundary retaining wall as shown in Plate 18.



Plate 18

2.3.23 View looking west towards T17 in the foreground and T64, T65 and T66 beyond along the southern boundary, as shown in Plate 19.



Plate 19

2.4 Survey Results

The trees that fall into each category are shown in **Table 1**.

Table 1:

Category	Colour	Total number of trees	Tree survey reference number
High	Light green	1	T17
Moderate	Mid blue	4	T2, T3, T64, T66
Low	Grey	25	T1, T5, T7, T8, T9, T10, T11, T12, T13, T14, T16, T21, T22, T23, T25, T26, T27, T28, T29, T30, T31, T33, T60, T61, T65
Unsuitable for retention	Dark red	6	T4, T6, T20, T24, T32, T62
Total		36	(T15, T18, T19 and T63 recently felled)

2.4.1 The survey followed the recommendations of BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations' and a total of 36 number trees were surveyed within the site. 4 number trees have been recently felled as part of the current construction works on the site.

2.4.2 The trees range from 170 to 50 years old and reflect the stages of development that have taken place within the site, with the mature trees predominantly located to the boundaries of the site. The majority of the trees are of poor condition and fall within the low category with several moderate and one high quality trees present.

2.4.3 6 number individual trees on site are assessed as unsuitable for retention (U category (dark red)) due to disease, structural issues and for public safety and are proposed for replacement.

2.4.4 The 30 number remaining trees fall into the following categories:

- 1 number tree is of high category (*light green*) where retention is most desirable and assessed as vigorous healthy tree, and/or of particular visual importance to the locality.
- 4 number trees are of moderate category (*mid blue*) where retention is desirable and assessed as trees that might be included in the high category, but because of their slightly impaired condition, are downgraded.
- 25 number trees are of low category (*grey*) and assessed as not worthy for

inclusion in the high or moderate categories due to poor condition, with a short safe useful life expectancy⁵ and should be retained with due care in relation to public safety issues, or young trees.

2.4.5 The influence the trees have on and adjacent to the site were plotted on the Tree Constraints Plan (TCP) which shows the below ground constraints, represented by the Root Protection Area (RPA) and above ground constraints the trees pose by virtue of their size and position. The RPA was calculated using Table D.1, Annex D of BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations', and is a minimum area in m², which should be left undisturbed around each tree. The RPA for each tree is included in **Appendix 1** within the tree survey schedule. Account of the following factors was taken:

- The likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, and condition and past management.
- The morphology and disposition of the roots, when known to be influenced by past or existing site conditions (e.g. the presence of roads, structures and underground services).
- The soil type and structure.
- Topography and drainage.
- **Where any significant part of the tree's crown overhangs the provisional position of tree protection barriers, these parts may sustain damage during construction period. In such cases, it may be necessary to increase the extent of tree protection barriers to contain and thereby protect the spread of the crown. Protection may also be achieved by access facilitation pruning. The need for such measures, including the precise extent of pruning, has been assessed.**

The TCP is shown on the drawing reference **ajt/ 735. Figure 3.**

2.5 Amenity Value

The amenity value of the trees was assessed **using the Guidance Notes 'Visual Amenity Valuation of Trees and Woodlands' (The Helliwell System)**, Arboricultural Association. This provides a method of assessing the contribution made by the trees for amenity purposes of a locality and is of particular relevance in relation to the Conservation Area

⁵ Refer to Explanatory notes, ii. Life Expectancy, 'Visual Amenity Valuation of Trees and Woodlands' (The Helliwell System), Arboricultural Association

status of the site and its surroundings. The method for assessing trees is shown in **Table 2**. Six standard factors are identified, plus any special factors such as historical association, special landscape value, obscuring or the screening of unpleasant views and importance in a larger composition. For each of these factors, the tree is given a score, and the scores for all the factors are then multiplied together to give an assessment of the amenity value of the tree. The trees were assessed as follows:

- The trees on the western boundary, as groups, are considered of moderate amenity value due to their position in the landscape and proximity to Downhill Lane and the properties around Lawn Lane.
- The trees on the northern and eastern boundaries, as groups, are considered of moderate amenity value due to their position in the landscape and proximity to open countryside, public footpaths and the west end of West Boldon.
- The trees to the southern boundary are considered of moderate amenity value due to their position in the landscape and proximity to open countryside and public footpaths.
- 6 number tree have not been valued as part of this system due to its proposed removal for condition and safe useful life expectancy⁶.

Table 2:

FACTOR	POINTS									
	0	0.5	1	2	3	4	5	6	7	8
	Minimal Value		Low Value	Moderate Value	High Value	Significant Value				
i. Size of tree	Less than 2m ²	2-5m ²	5-10m ²	10-20m ²	20-30m ²	30-50m ²	50-100m ²	100-150m ²	150-200m ²	Over 200m ²
ii. Useful Life expectancy	Less than 2 years	1-2 years	2-5 years	5-40 years	40-100 years	100+ years				
iii. Importance of position in landscape	No importance	Very little importance	Little importance	Some importance	Considerable importance	Great importance				
iv. Presence of other trees		Woodland	Many	Some	Few	None				
v. Relation to setting	Totally unsuitable	Moderately unsuitable	Just suitable	Fairly suitable	Very suitable	Particularly suitable				
vi. Form		Ugly	Average or indifferent	Good						
vii. Special factors			None	One	Two	Three				

Visual Amenity Valuation table showing factors and scores available for individual trees, developed from Helliwell

⁶ Refer to Explanatory notes, ii. Life Expectancy, 'Visual Amenity Valuation of Trees and Woodlands' (The Helliwell System), Arboricultural Association

2.6 Wildlife Value, Protected Species

The trees were inspected for potential or actual bat roost sites in accordance with the **guidance set out within 'Bat mitigation Guidelines'**, English Nature 2004. Potential bat roosts were observed in 5 number trees surveyed (reference T1, T12 (bat box fitted), T21, T22 (bat box fitted) and T31) due to the presence of dry cavities, splits and or heavy ivy growth but no actual bat roosts or evidence of bats were observed within the trees that were surveyed. Bats will roost in crevices created by ivy growth.

The trees prior to undertaking any tree management works should be investigated further to establish the presence of any roosting bats, whereupon the necessary mitigation measures would be undertaken. Refer to **Appendix 3** Method Statement for Contractor and **Appendix 4** for Method Statement, Bats and Trees.

For proposed developments such as this, it is essential to ensure that no bat roosts are damaged, destroyed or obstructed, that no harm comes to bats as a result of the works, and that the conservation status of bats in the area is maintained or enhanced.

Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the 1981 Act of damaging bat roosts or disturbing bats is extended to cover reckless damage or disturbance.

2.7 Survey Timing

The survey was undertaken on the 21st January 2015 during daylight hours and in weather conditions, which were dry and bright with an air temperature of 5°C.

The tree survey was undertaken in accordance with the published guidance of BS5837: 2012, '**Trees In Relation to Design, Demolition and Construction - Recommendations**'.

2.8 Survey Limitations

Although the report has been produced with the intention of establishing the condition and health status of the trees surveyed within the site, it is not to be regarded as a definitive assessment of the trees present. The survey has focused upon those trees potentially affected by this next stage of development and therefore a number of trees within the site have been excluded from this survey.








In particular, it should be noted that the survey methodology undertaken is a visual survey and further investigation, where recommended, should be undertaken of trees to be retained but of poor condition and of particular concern regarding structural stability and public safety.

Further investigation of such trees would involve using the most advanced tools available within current arboriculture to detect and evaluate the internal incipient and advanced decay, ascertain health/vitality and provide information as to the structural integrity of the tree.

Figure 2: Tree Survey Plan



KEY

-  Category A
Trees whose retention is most desirable:
Good condition at least 40 years SULE High category
-  Category B
Trees whose retention is desirable:
Fair condition or immature trees with potential to develop into high category
at least 20 years SULE Moderate category
-  Category C
Trees which could be retained:
Poor condition at least 10 years SULE or immature trees of no particular merit
Low category
-  Category U
Trees unsuitable for retention
Dead, dying or structurally dangerous Fell category
-  T1/G1
Individual tree or group survey reference
-  Existing individual trees and shrubs recorded but not surveyed
-  Trees approved for and recently felled


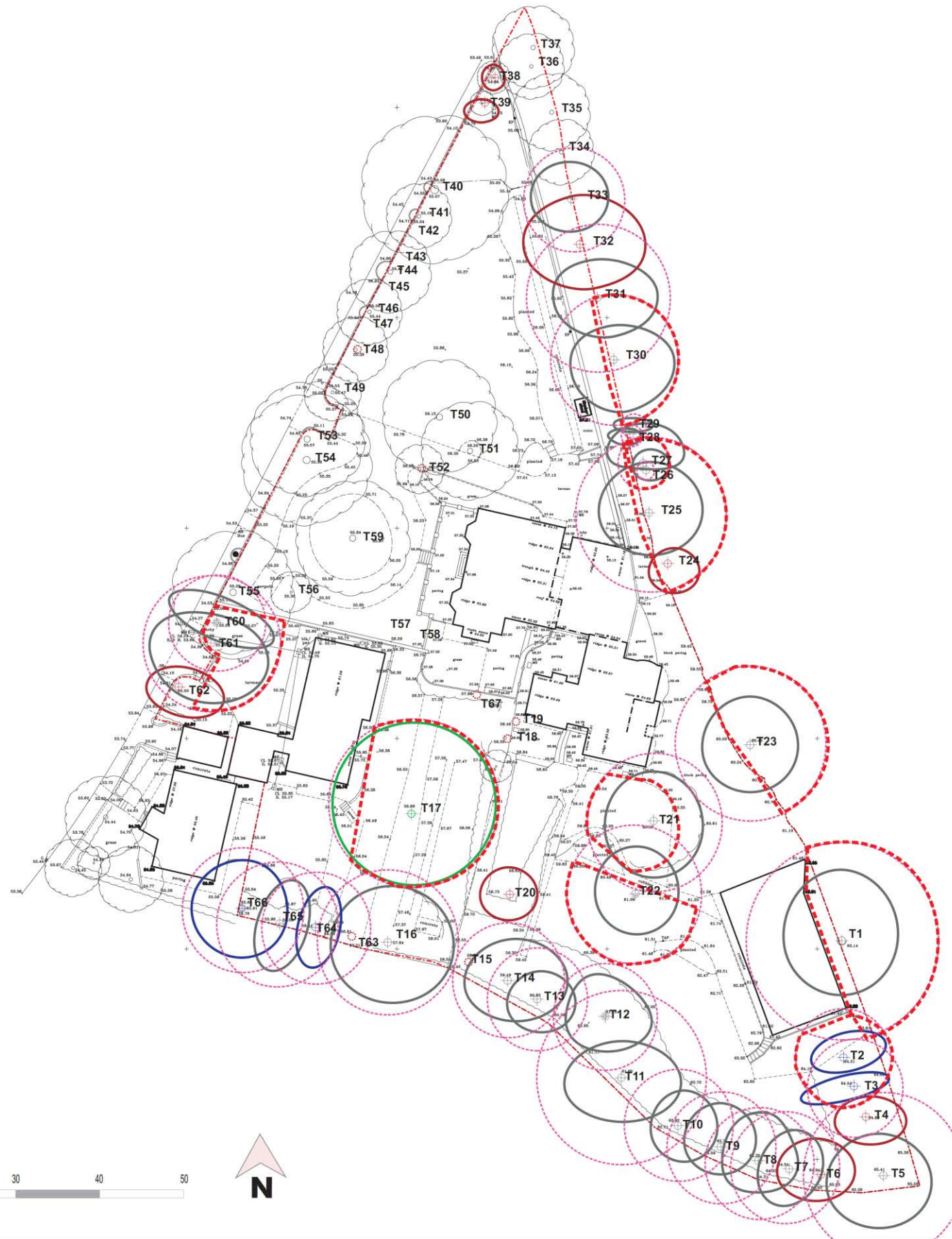









Revisions		ENVIRONMENTAL CONSULTANTS CHARTERED LANDSCAPE ARCHITECTS 
Status PLANNING INFORMATION		
Date 27-01-15	Drawing number 735.Figure 2	Client & Project Mr and Mrs P Cronin Sandfield House
Drawn by BS	Scale: 1: 250 at A1	Title TREE SURVEY
Checked by WJT		<small>This drawing and the information depicted on it are the copyright of AJT Environmental Consultants and may not be reproduced or amended except by written consent.</small>

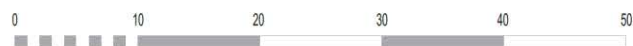
Figure 3: Tree Constraints Plan



KEY

-  Category A
Trees whose retention is most desirable:
Good condition at least 40 years SULE High category
-  Category B
Trees whose retention is desirable:
Fair condition or immature trees with potential to develop into high category
at least 20 years SULE Moderate category
-  Category C
Trees which could be retained:
Poor condition at least 10 years SULE or immature trees of no particular merit
Low category
-  Category U
Trees unsuitable for retention
Dead, dying or structurally dangerous Fell category
-  T1/G1
Individual tree or group survey reference
-  Existing individual trees and shrubs recorded but not surveyed
-  Root Protection Area (RPA)
The area surrounding a tree that contains sufficient rooting volume to ensure
the survival of the tree
-  Modified Root Protection Area (RPA)
The area surrounding a tree that contains sufficient rooting volume to ensure
the survival of the tree and is to be left undisturbed during construction works
but which is asymmetrical due to constraints such as foundations or walls
-  Trees approved for and recently felled

Bar scale in metres



Revisions		ENVIRONMENTAL CONSULTANTS CHARTERED LANDSCAPE ARCHITECTS <i>ajt</i> The Studio, 20 The Grove Newcastle upon Tyne NE3 1NE Tel : 0191 285 5910 Fax : 0191 213 5517 Email : ajtec@ajt.co.uk
Status PLANNING INFORMATION		
Date 27-01-15	Drawing number 735.Figure 3	Client & Project Mr and Mrs P Cronin Sandfield House
Drawn by BS	Scale: 1:250 at A1	Title TREE CONSTRAINTS PLAN
Checked by WJT	<small>© This drawing and the information depicted on it are the copyright of AJT Environmental Consultants and may not be reproduced or amended except by written consent.</small>	

3. IMPACT ASSESSMENT OF DEVELOPMENT PROPOSALS

3.1 Development Proposals

The proposal at the application site is for the construction of a new drive access, garage and minor infrastructure alterations serving Sandfield House. The proposals incorporate associated new landscape works and garden enhancements within the enlarged site facilitated by the recent demolition of neighbouring buildings.

The development proposals are shown on **ajt / 735.Figure 4**.

3.2 Selection of Trees for Retention

The tree survey and tree constraints plan provide the basis for deciding which trees might be suitable for retention in relation to the proposed development. Within the limitations imposed by other constraints, preference is given to retaining the high and moderate category trees. Low category trees will usually only be retained where they are not a significant constraint on development.

It is essential when selecting trees, to ensure that it is practical to make provision to protect the trees physically during development, to avoid damage to the trees by construction work. This will involve identifying an area around the tree known as the construction exclusion zone, which should remain undisturbed, and ensuring that it is feasible to maintain barriers and/or ground protection undisturbed around all such areas throughout construction.

3.3 Assessment of Impact upon Existing Trees

3.3.1 Planning and subsequent site management during construction aims to minimise disturbance to the existing trees. The part of a tree most susceptible to damage is the root system. Damage or death of the root system will affect the health, growth, life expectancy, and safety of the rest of the tree. Damage to the trunk and branches of a tree rarely kill a tree but very severe disfigurement may occur. In addition, death of branches or their unplanned removal may adversely affect the balance of the tree and hence its safety.

- 3.3.2 The majority of the root system is in the surface 600mm of the soil extending radially. The main structural roots are located close to the base of the trunk. The extent of the root system will be very irregular and difficult to predict and will not generally show the symmetry as seen in the branch system.
- 3.3.3 The parts of the root system active in water and nutrient uptake are very fine, typically less than 0.5mm diameter. They are short lived, developing in response to the needs of the tree with the majority dying each winter. All parts of the root system, but especially the fine roots are vulnerable to damage. Vigorous young trees will be capable of rapid regeneration but over mature trees will respond slowly, if at all.
- 3.3.4 In order to avoid unacceptable damage to the trees because of severance or asphyxiation of the root system, an assessment of the potential for impact by the proposed development upon the existing trees within the site has been undertaken **following guidance given within BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations'**. This provides recommendations on the minimum distance around the tree, which should be left undisturbed during construction and protected by the erection of barriers and/or ground protection.
- 3.3.5 The location of the proposed development, in conjunction with the surveyed trees and the tree protection to protect the Root Protection Area (RPA) during construction and marked as a construction exclusion zone, are shown on drawing reference **ajt/735.Figure 4**.
- 3.3.6 The assessment finds that 1 number surveyed tree (reference T16) within the site would be adversely affected by the proposed development requiring removal and is of low priority for retention due to poor condition and falls within Category Grade C. The tree proposed for removal should be agreed with the Local Authority before any works commence and should have work carried out by an approved arboricultural contractor. All felling operations shall be implemented in accordance with both BS 3998: 'Recommendations for Tree Work' and the 'Guide to Good Climbing Practice' 2005 Edition, Arboricultural Association.
- 3.3.7 In addition, 8 number trees are in close proximity of development and appropriate mitigation works would be required to ensure protection against harm during construction.

- 3.3.8 The trees affected directly (highlighted pink) and indirectly (highlighted blue) by the proposed development are detailed in **Table 3** overleaf.
- 3.3.9 It is considered that the proposed development would not have a detrimental impact upon the trees to be retained, as long as the recommended mitigation works are undertaken to protect the trees from potential damage or harm during demolition and construction and safe guard their future survival. Planning and subsequent site management would aim to minimise disturbance of the existing trees to be retained and it is anticipated that the root protection area (RPA) as shown on **ajt / 735.Figure 4**, will protect the root systems to ensure the survival of the trees during the construction phase and for the longer term. The proposed protective barriers would be erected in the locations as required in accordance with BS5837: **2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations'**.
- 3.3.10 The long term impact of the proposed development upon the existing retained and proposed new trees has been considered in terms of the effect of shade and likely extent and density of the crown which may lead to pressure to fell in the future. Proposed tree management works, mitigation measures and post-development management works are outlined in this report. It is considered, based on the survey results and professional judgement, that with the implementation of these works and measures, any risk of long term impact in respect of building conflict or obstruction of light would be minimised. The retention of the trees in proximity to the buildings would be maintained, with adequate room for longer term growth and access for maintenance. New tree planting has been located at distances from structures of at **least those set out in Table A.1, Annex A of BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations' and consideration given to their ultimate height and spread, form, habit colour, density of foliage and maintenance implications.**

Table 3:

Tree reference	Tree Category	Condition	Impact Assessment and Mitigation	Visual Amenity Value
T16	Category C Low	Poor	Significant constraint on proposed development. Tree loss to be mitigated by new tree planting in a suitable location within the site to ensure long-term continuity of tree cover.	Moderate value as part of a group along the southern boundary, with some importance in the landscape as viewed from a public vantage point, but in poor condition.
T21 and T22	Category C Low	Poor	Trees proposed for retention but in close proximity of proposed development area and to be protected from damage or harm during demolition and construction works by appropriate Root Protection Area (RPA) and protected during main construction works in accordance with BS5837: 2012, Trees in relation to design, demolition and construction – Recommendations.	Internal to the site. Low value due to condition and of limited importance in the landscape as viewed from a public vantage point.
T12, T13, T14, T60 and T61			Careful consideration of foundation design may be required to avoid damage to tree roots if found to be present within the location of a proposed structure within the Root Protection Areas. Root damage can be minimised by using a combination of the following: a) Piles or radial strip footings, both of which should be located to avoid major roots; b) Beams, slabs, suspended floors, where all should be laid at or above ground level and cantilevered as necessary to avoid tree roots identified by site investigation.	Moderate value as part of a group along the southern and western boundary, with some importance in the landscape as viewed from a public vantage point, but in poor condition.
T64	Category B Moderate		<p>In order to arrive at a suitable solution, site specific and specialist advice would be sought regarding foundation design from the arboriculturist and engineer.</p> <p>On completion of main construction works, where it is necessary to incorporate part of the protected area around the tree within the hard surfacing for footpaths and roads or within adjacent excavations for any re-profiling works, any excavations close to the tree will be undertaken by hand and hard surfaces to be porous paving, leaving the underlying soil intact to prevent damage or disturbance to roots.</p> <p>Arboriculturist to advise on any tree roots exposed by such operations and should be treated in accordance with details in Clause 6, 7 and 8 BS5837: 2012, Trees in relation to design, demolition and construction - Recommendations and as set out within Section 3.4 of this report and under arboricultural supervision.</p> <p>Arboriculturist to advise and supervise all necessary works.</p>	Moderate value as part of a group along the western boundary, with some importance in the landscape as viewed from a public vantage point.

3.4 Mitigation of Impact upon Existing Trees

- 3.4.1 It is proposed as part of the development proposals, to effectively and appropriately mitigate the loss of trees within the site through compensation measures. These measures will include the careful design and planting of new trees that are cognisant of the setting of the site. The choice of species would reflect the existing landscape character and needs of the locality. With appropriate mitigation measures in place, it is considered that the removal of the trees to accommodate the proposed development would not affect the long-term conservation of tree cover or landscape character of the site and adjacent area.
- 3.4.2 Whilst it is considered that the development would not have an adverse impact upon the root plates or canopies of the trees shown to be retained and in proximity of development these will require where necessary the following measures to be undertaken:
- Protection against potential damage on site by barrier fencing and/or ground protection before any materials or machinery are brought onto the site, and before any development or stripping of soil commences in accordance with the recommendations for the type of barrier given in **BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'** and as shown on drawing reference **ajt / 735. Figure 5**. Appropriate root protection areas (RPA) will be provided where necessary to avoid physical damage to roots during construction activities and from construction traffic.
 - Areas of retained structural planting, or designated for new structural planting, should be similarly protected, based on extent of the soft landscaping shown on the approved drawings.
 - The protected area should be regarded as sacrosanct, and, once installed, barriers and ground protection should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the local planning authority.
 - Where required, pre-development tree work may be undertaken before the installation of tree protection measures, with the agreement of the project arboriculturist or local planning authority if appropriate.

- Confirmation is required by the project arboriculturist that the barriers and ground protection have been correctly set out on site prior to the commencement of any other operations.
- Where demolition is proposed on site where trees are to be retained, access facilitation pruning should be undertaken as necessary to prevent injurious contact between demolition plant and the tree(s). In some cases, working space may be provided by temporarily tying back tree branches. Pruning or tying should be undertaken in accordance with a specification prepared by an arboriculturist. The local authority will be able to advise whether the trees are under statutory protection such that consent for tree works might be required.
- When demolishing a structure (including underground structures) within what would otherwise be the RPA, barriers should be erected, and ground protection installed to protect the underlying soil to the edge of the existing structure.
- All plant and vehicles engaged in demolition works should either operate outside the RPA, or run on the ground protection. Where such ground protection is required, it should be installed prior to commencement of operations.
- Where trees stand adjacent to structures to be removed, the demolition should be undertaken inwards within the footprint of the existing building **(often referred to as “top down, pull back”)**. Where there is a significant build-up of dust on the foliage, it might be necessary to hose down the tree(s).
- The advice of an arboriculturist should be sought where underground structures present within the RPA are, or will become, redundant. In general it is preferable to leave such structures in situ, as their removal could damage adjacent tree roots.
- Where an existing hard surface is scheduled for removal, care should be taken not to disturb tree roots that might be present beneath it. Hand-held

tools or appropriate machinery should be used (under arboricultural supervision) to remove the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground. If a new hard surface is to be laid, it might be preferable to leave any existing sub-base in situ, augmenting it where required.

- Where construction working space or temporary construction access is justified within the RPA and approved by the project arboriculturist, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable hard surfacing that is not proposed for reuse as part of the finished design should be retained to act as a temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate. Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site. New temporary ground protection should be capable of supporting traffic entering or using the site without being distorted or causing compaction of underlying soil. All works to be undertaken under the direction of the project arboriculturist and an engineer as appropriate in accordance with Clause 6.2.3 of BS5837: 2012, **'Trees in Relation to Design, Demolition and Construction - Recommendations'**, in order to protect the tree from potential damage or harm during construction and safe guard future survival.
- Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this clearance and in some instances, local planning authority consent for pruning might be required.

- Fires on sites should be avoided if possible. Where they are unavoidable, they should not be lit in a position where heat could affect foliage or branches. The potential size of a fire and the wind direction should be taken into account when determining its location, and it should be attended at all times until safe enough to leave. Local environmental health authorities might have specific restrictions.
- Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA.
- Construction within the RPA should accord to the principle that the tree and soil structure take priority, and the most reliable way to ensure this is to preserve the RPA completely undisturbed. Soil structure should be preserved at a suitable bulk density for root growth and function (of particular importance for soils of a high fines content), existing rootable soil retained and roots themselves protected.
- The ability of a tree to tolerate some disturbance and alteration of its growing conditions depends on specific circumstances, including prevailing site conditions, and in general, the older the tree, the less successfully it will adapt to new conditions.
- Where alternative design solutions are not available such that construction is proposed within the RPA, the potential impact of the proposals on the tree should be assessed, and a tree protection plan and arboricultural method statement produced. Details of design proposals should be developed in conjunction with the project arboriculturist and, where required, input from a suitably qualified engineer. In order to demonstrate that the proposals are technically feasible such details should be included within planning applications. The exception to this is the installation of underground utility apparatus, where it can be demonstrated that this is achievable by the use of trenchless technology and where entry and retrieval pits can be formed outside the RPA. Where utility operations do not require planning permission, including those performed by statutory undertakers, they should still be undertaken in accordance with these principles. As a minimum standard, such operations should be undertaken in accordance with NJUG Volume 4, issue 2 [N1].

- Careful consideration of foundation design may be required to avoid damage to tree roots if found to be present within the location of a proposed structure within the Root Protection Areas. Root damage can be minimised by using a combination of the following:
 - a) Piles or radial strip footings, both of which should be located to avoid major roots;
 - b) Beams, slabs, suspended floors, where all should be laid at or above ground level and cantilevered as necessary to avoid tree roots identified by site investigation.

In order to arrive at a suitable solution, site specific and specialist advice would be sought regarding foundation design from the arboriculturist and engineer.

- To avoid damage to tree roots, existing ground levels should be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ. However, limited manual excavation within the RPA might be acceptable, subject to justification and only following consultation with an arboriculturist. Such excavation should be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.
- Roots, whilst exposed, should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible. Roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with an arboriculturist; as such roots might be essential to the **tree's health and stability**. **Prior to backfilling**, retained roots should be **surrounded with topsoil or uncompacted sharp sand (builders' sand should not be used because of its high salt content, which is toxic to tree roots)**, or other loose inert granular fill, before soil or other suitable material is

replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.

- If excavations have to be close to a tree where roots are likely to be encountered, particular care should be taken to avoid damage. Any excavations should be undertaken by hand, avoiding damage to the protective bark covering larger roots. The roots should be surrounded with sharp sand before replacing soil or other material in the vicinity. Roots smaller than 25mm diameter may be pruned back, preferably to a side branch using a proprietary cutting tool. Roots larger than 25mm should only be severed following consultation with an arboriculturist, as they may be essential to the health and stability of the tree.
- Where it is necessary to include hard surfacing close to a tree, consideration should be given to constructing the final surface before the main building works, to provide protection for the roots. No trenching or construction works within the RPA to avoid causing any undue stress to the trees.
- Where it is necessary to incorporate part of the protected area of a tree within proposed hard surfaces, precautions are essential to maintain the condition and health of the root system. New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA. It is proposed that new paving will be established above the former ground level, using granular fill leaving the underlying soil intact with a permeable and gas-porous finished surface. Where a permeable surface is to be used by vehicular traffic, a geotextile should be used at the base of construction to help prevent pollution contamination of the rooting area below. Any excavations close to the trees will be undertaken by hand and specialist arboricultural advice will be sought for any work within this protected area.
- The excavation needed for the placement of kerbs, edgings and their associated foundations and haunchings can damage tree roots. Within the RPA, this should be avoided either by the use of alternative methods of edge support or by not using supports at all.
- Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology

in a way that adversely affects the health of the tree. Particular care should be taken in the routing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routing should be drawn up in conjunction with the project arboriculturist. In such cases, trenchless insertion methods should be used (see Table 3, **BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'**), with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs.

- The extent of the root system to trees is very irregular and therefore difficult to predict and further investigation may be required to establish the extent of the rootplate. Where construction is found to conflict with the actual root system on site, and severance or damage to roots may impair the stability of the tree and make it dangerous, advice will be sought from a the project arboriculturist and an engineer as appropriate. Specialist construction or design modification may be required to mitigate any adverse impact.
- Those contractors involved in construction will be informed of the presence of existing trees with a method statement outlining appropriate working practices and procedures to ensure their protection from damage during the works.
- All works will follow an auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision by the project arboriculturist and an engineer as appropriate. Refer to **Appendix 5** for Arboricultural Inspection Proforma. The site inspection and recommendations by the arboriculturist will be recorded on the inspection proforma and issued by the arboriculturist to the site management.

- 3.4.2 Whilst it is considered that the development would not have a detrimental impact upon the root plates or canopy of the remaining trees within the site and those off site on the boundaries, the trees will require protection against potential damage on site by barriers and/or ground protection in accordance with the recommendations for types of **barrier and/or ground protection given in Clause 6 of BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'** and as shown on drawing reference **ajt / 735. Figure 5**. Appropriate root protection areas (RPA) will be provided where necessary, to avoid physical damage to roots during construction activities and from construction traffic.
- 3.4.3 Any branches, which extend beyond the minimum distance for tree protection where they are liable to impact, will be shortened back to a fork in accordance with the recommendations of BS 3998. This will avoid damage and will be undertaken under the supervision of a specialist in arboriculture.
- 3.4.4 It is considered that with appropriate mitigation, the proposed development would not affect the long-term conservation of tree or hedgerow cover, the landscape character and setting of the site or the surrounding area.

3.5 Assessment of Impact upon Amenity Value of Trees

1 number surveyed tree is potentially affected by the proposed development and requires removal. This tree grows as a group along the southern boundary and falls into the moderate amenity value category, and has some visual prominence in relation to setting and visual area as viewed from several vantage points. However, this tree is in poor condition.

Appropriate mitigation measures are proposed to provide replacement planting for its removal, and to protect the existing retained trees from harm or damage during construction. In the longer term the replacement of trees will have a beneficial impact on the character of this site and for the receptors on it. The proposed development includes extensive tree and boundary planting and management that will in the longer term increase the tree quality and cover in this part of West Boldon. The proposed development would not, once completed, adversely affect the visual amenity value of the area provided by the trees or harm the overall appearance of the setting of the site or adjacent area.

The existing trees will be protected by defining an appropriate area around them, known as the Root Protection Area (RPA), excluding all construction operations from this protected area by fencing in accordance with BS5837: 2005, 'Guide For Trees In Relation to Construction'. This will ensure that the amenity value of the existing trees to be retained is adequately protected during construction.

Overall, it is considered that the proposed development would not be detrimental to the long-term conservation of the existing tree cover and appearance of the site, nor impact upon the visual amenity of the adjacent area.

3.6 New Planting

The existing trees to be retained within the proposed development are shown on drawing reference **ajt /735. Figure 4**. It is proposed to supplement and complement the retained trees by new planting.

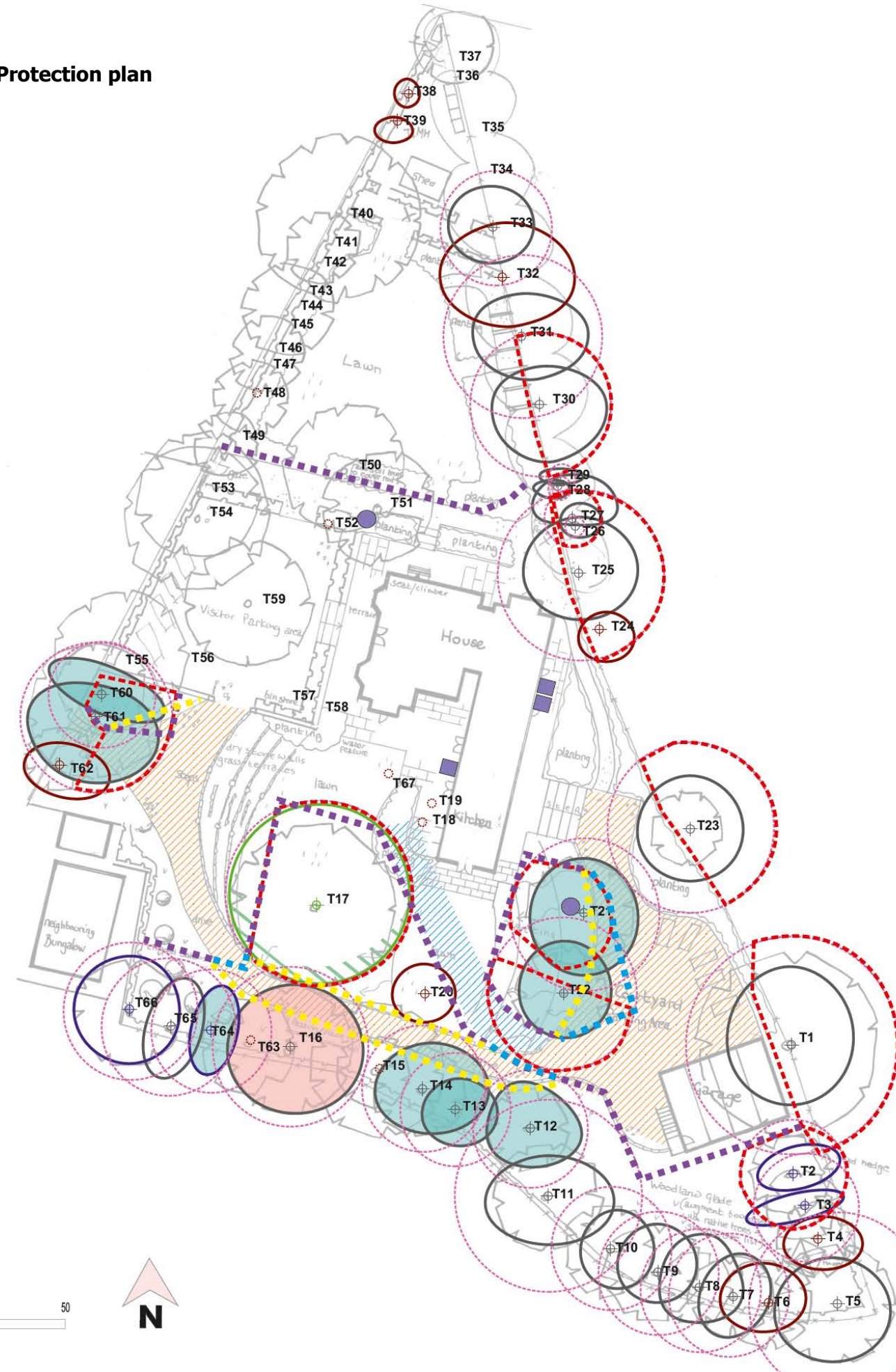
The new planting proposals will provide new trees and boundary planting, which will help to create a diversity of age and conserve the health of the tree cover. The new planting will fill the spaces where there are no or suitable existing trees within the context of the landscape setting of the site and enhance the amenity value of the retained trees. The planting proposals and new tree planting will form part of the proposed landscape design for the proposed development.

The proposals will contribute to and preserve the appearance of the area particularly by ensuring sensitive and appropriate standards of design and development to its landscape setting by implementing environmental improvements to screen the proposed development where appropriate. New planting will also seek to provide spatial division within the site and segregate and screen areas of car parking.





















With the use of appropriate native species, the planting proposals will benefit wildlife conservation, contribute to local biodiversity, and meet the requirements of the Durham BAP. In accordance with the guidance contained in the UKBAP, Natural England Natural Areas and Durham BAP, the detailed design proposals will ensure that the value of created habitats are maximised through new planting and management of the landscape.

It is generally accepted that some crime can be prevented or deterred by good design practice. The proposed development scheme will be laid out to encourage the creation of territory, with careful thought over the number of accesses. Open spaces will be designed to ensure they can be surveyed and easily maintained. All areas would be well lit with sharp bends and restricted views avoided. Similarly, the proposed species for landscaping will be carefully selected for their rates of growth and maintenance requirements to prevent encroachment onto footways or obscuring lighting or windows.

Figure 4: Arboricultural Impact Assessment and Tree Protection plan



KEY

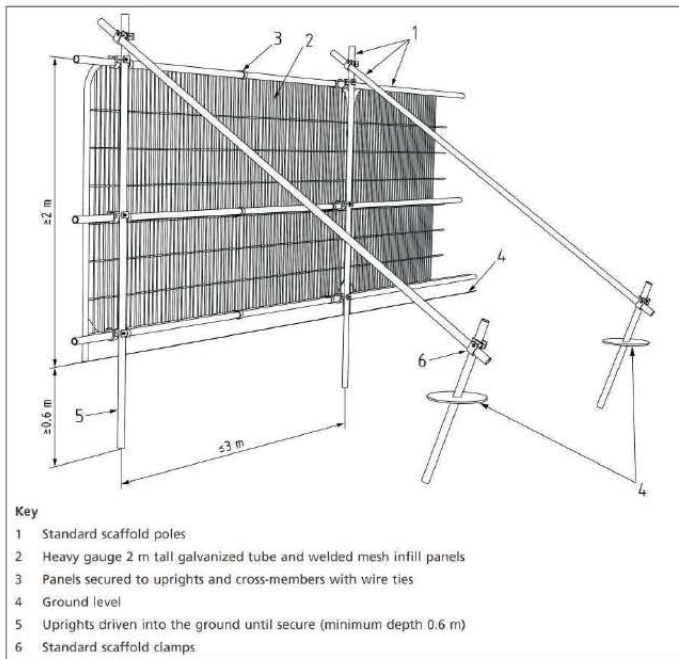
-  Category A
Trees whose retention is most desirable:
Good condition at least 40 years SULE High category
-  Category B
Trees whose retention is desirable:
Fair condition or immature trees with potential to develop into high category
at least 20 years SULE Moderate category
-  Category C
Trees which could be retained:
Poor condition at least 10 years SULE or immature trees of no particular merit
Low category
-  Category U
Trees unsuitable for retention
Dead, dying or structurally dangerous Fell category
-  T1/G1
Individual tree or group survey reference
-  Existing individual trees and shrubs recorded but not surveyed
-  Root Protection Area (RPA)
The area surrounding a tree that contains sufficient rooting volume to ensure
the survival of the tree
-  Modified Root Protection Area (RPA)
The area surrounding a tree that contains sufficient rooting volume to ensure
the survival of the tree and is to be left undisturbed during construction works
but which is asymmetrical due to constraints such as foundations or walls
-  Trees proposed for removal to facilitate the proposed development
-  Tree in close proximity to proposed development and requiring appropriate and
sensitive mitigation measures to avoid adverse damage to the health, future
growth and safety of tree in accordance with BS 5837: 2012
-  Tree protection and construction exclusion zone. Minimum area which should
be left undisturbed around each retained tree, in accordance with Clause 4 of BS
5837: 2012. Tree protection to be erected in accordance with Clause 6 of BS
5837: 2012 to protect RPA and all construction works to be excluded from this
zone
-  Existing tree protection fencing in accordance with AAT dwg AMSTPP rev C to be
retained until the completion of construction works
-  Proposed tree protection fencing erected prior to the commencement of the drive
and garden construction works
-  Existing tree protection fencing in accordance with AAT dwg AMSTPP rev C to be
removed to facilitate realignment of protective fencing prior the commencement
of the drive and garden construction works
-  Proposed ground protection area utilising Permavoid crating and tree soil with an
agreed porous surface as a no dig tree root protection method and ground
protection during construction and in the permanent works in accordance with
BS 5837: 2012. Where Root Protection Area falls within hard surfacing, the
surface finish and construction for development to be porous paving (Type TBC)
for permanent and long term protection in accordance with Clause 7 and 8 of BS
5837: 2012
-  Existing temporary no dig construction route constructed as part of the tree
protection measures
-  Pre-development tree work. Tree may require access facilitation pruning as
part of tree mitigation works to avoid damage of branches during construction
work
-  Tree bat box location
-  In built bat box location
-  Trees approved for and recently felled

NB All services are to be installed outside the tree root protection zones unless the roots remain in situ and the services are installed using trenchless technology that does not damage the roots or the rootplate in any way



Revisions Rev A 30-01-15 Drive alignment amended Rev B 02-02-15 Drive alignment amended Rev C 29-05-15 Additional Tree protection fencing to north of house		ENVIRONMENTAL CONSULTANTS CHARTERED LANDSCAPE ARCHITECTS <i>ajl</i> The Studio, 20 The Grove Newcastle upon Tyne NE3 1NE Tel : 0191 285 5910 Fax : 0191 213 5517 Email : ajl@ajl.co.uk
Status PLANNING INFORMATION		
Date 25-01-15	Drawing number 735.Figure 4 C	Client & Project Mr and Mrs P Cronin Sandfield House
Drawn by BS	Checked by WJT	Title ASSESSMENT OF IMPACT OF DEVELOPMENT UPON EXISTING TREES AND TREE PROTECTION PLAN
Scale: 1: 250 at A1 © This drawing and the information depicted on it are the copyright of AJL Environmental Consultants and may not be reproduced or amended except by written consent.		

Figure 5: Barriers and Ground Protection



Default Specification for Protective Barrier to 2m height

Ground protection during demolition and construction

Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.

New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

NOTE The ground protection might comprise one of the following:

- a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;
- b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;
- c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

The locations of and design for temporary ground protection should be shown on the tree protection plan and detailed within the arboricultural method statement (see 6.1).

In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

Additional precautions outside the exclusion zone

Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs) in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this clearance.

NOTE In some instances, local planning authority consent for pruning might be required.

Note: All works are to be undertaken in accordance with Trees in relation to Design, Demolition and Construction - Recommendations BS 5837:2012

Revisions		ENVIRONMENTAL CONSULTANTS CHARTERED LANDSCAPE ARCHITECTS ajit	
Stage PLANNING INFORMATION		The Studio, 20 The Grove Newcastle upon Tyne NE3 1NE Tel: (0191) 285 5500 Fax: (0191) 213 5517 Email: ajit@ajit.co.uk	
Date: 20-01-15	Drawing number: Figure 5	Client & Project: Sandfield House, Downhill Lane West Boldon	
Drawn by: BS	Scale: NTS	Title: PROTECTION OF EXISTING TREES AGAINST DAMAGE ON SITE	
Checked by: JT	<small>This drawing and the information detailed on it are the copyright of All Environmental Consultants and may not be reproduced or circulated except by written consent.</small>		

4. MANAGEMENT RECOMMENDATIONS

4.1 Felling and Management

The trees proposed for felling and management should be agreed with the Local Authority prior to any works commencing. The agreed trees to be felled or pruned should have work carried out by an approved arboricultural contractor and all felling operations shall be implemented in accordance with both BS 3998: 'Recommendations for Tree Work' and the 'Guide to Good Climbing Practice' 2005 Edition, Arboricultural Association. The pruning and other works to the trees should be undertaken in the dormant season.

In total, the survey has identified 6 number individual trees that require removal and replacement due to condition, disease, structural issues and for public safety. These trees require removal as part of the proposed tree management for the site irrespective of any development. In addition many of the trees are planted too close together to be able to fully develop into fine specimens and a programme of selective thinning should be agreed with the LPA. The removal of disease sources and competition would have a beneficial effect upon the remaining health of the trees and those on adjacent land.

The felling and replacement of 1 number surveyed tree within the site is required to accommodate the proposed next phase of development and would not affect the long-term conservation of tree cover of the site and surroundings.

The trees to be retained on the site range in good, fair to predominantly poor condition and require where indicated tree management works to maintain and conserve the health of the tree cover.

A number of the trees within the site have a high target potential, for example adjoining a public highway, public footpath, and residential area and carry significant risk to life or property should a tree fail. The trees should be checked on a regular annual basis as part of the management of those trees. Further detailed assessment is recommended of a number of mature trees surveyed to assess fully their condition. The trees are considered a high target potential and could cause significant risk to life or property should they fail.

4.2 Trees and Bats

5 number surveyed trees have potential habitat for bat roosts (reference T1, T12 - bat box fitted, T21, T22 - bat box fitted and T31) but no actual bat roosts were observed in the surveyed trees. None of these trees are proposed for removal to accommodate the development. Any trees with bat habitat potential but requiring removal should be felled in accordance with the Method Statement as set out in **Appendix 4**.

All bat species are specially protected under Schedule 5 of the Wildlife and Countryside Act of 1981 (as amended). As a result there is a requirement to consult with English Nature before undertaking any works that may disturb bats or their roost, and it is illegal to:

- Intentionally kill, injure or take bats
- Deliberately disturb bats
- Damage, destroy or obstruct access to bat roosts
- Possess or transport a bat or any part unless acquired legally
- Sell barter or exchange bats or parts of bats

Bats are protected under the Countryside and Rights of Way Act 2000 (CROW Act) to cover reckless damage or disturbance and bats are also covered under The Conservation (Natural Habitats &c.) Regulations 1994 where licenses are required for works that may adversely affect bats.

4.3 Trees and Birds

Implementation of best practice measures during the felling and management of trees should be adopted to minimise disturbance for breeding birds, e.g. avoid felling, pruning works, clearance or disturbance of the existing land and vegetation, during the breeding bird season.

Under the Wildlife and Countryside Act 1981 (as amended), it is illegal to damage or destroy active bird nesting sites and arboricultural works should be undertaken outside of the breeding bird season.

4.4 Management Strategy

The aim of the management strategy is to maintain the continuity of tree cover and conserve the landscape effect of the trees. The management recommendations are shown in **Appendix 1** as part of the tree survey details.

Within the proposed development, there is scope to provide new trees in locations where they can reach maturity and potentially develop in harmony with the proposed development, its landscape setting and surrounding area. New trees, hedgerows and shrubs are proposed to be planted in conjunction with the retained tree cover shown on drawing reference **ajt / 735. Figure 4**.

The long-term management proposals for the trees are devised to maintain the continuity of tree cover and conserve the effect of the trees within their landscape setting and surrounding area.

Removal is required of 6 number trees out with the site due to disease, structural issues and for public safety. 1 number tree is proposed for removal to accommodate the proposed development. However, it is considered that this would not affect the long-term conservation of tree cover of the site and surroundings. A programme of felling, tree management works and replacement would be carried out that will conserve the remaining trees within the site and surrounding area.

Regular inspections should be undertaken so that changes in the trees can be monitored and management prescriptions devised and implemented to ensure maintenance of a healthy tree cover and for public safety.

The trees proposed for retention will maintain tree cover and ensure that the amenity value of the trees is protected. The development proposals include for further tree planting to supplement and complement the existing retained trees. The new planting proposals will help to provide a diversity of age and fill the spaces where there are no or suitable existing trees to contribute to screening and maintain the visual amenity of the site, its landscape setting, key visual receptors and the surrounding area.

It is considered that with appropriate mitigation measures in place, the proposed development would not adversely affect the long term tree cover of the site or harm the appearance, landscape setting or visual amenity of the site and surrounding area.

APPENDIX 1

TREE SURVEY SCHEDULE

TREE SURVEY DATA RECORDS		Site Location: 735 – Sandfield House, West Boldon Weather and site conditions: 5°C Overcast. Light wind. Timing 22 nd January 2015.											
Condition and survey notes Roots, Base, Canopy clearance, Physiological condition, structural condition, Species and reference no including TPO Key NPBR = No potential bat roost observed. PBR = Potential bat roost	H ↑ ↓	dia mm ↔	Crown spread metres				Age	Ultimate Height m	Ultimate Spread m	SULE*	BS grade	RPA Radius m	Proposed works and long term management
			N	S	E	W							
T1 (TPO 149 1995) Ash– <i>Fraxinus excelsior</i> Former coppice stem growing on raised boundary. Base located 1.3m from 2m high retaining wall to w with recently demolished garage. Concrete pad to w constructed up to base. Massive surface roots and buttress roots running s, n and e with decay noted and stone embedded in places. 5 main stems. Central stem rotted and showing signs of structural collapse. S bole with large cavity and extensive decay with soft wood to 80% of circumference. W bole with central decay and cavity. Barbed wire fence embedded into w bole to w face. Branches lateral to s with imbalanced weight distribution. Canopy subject to pruning in past and wind damage with dead wood present. Decay in major branches and former pruning cuts. Chalara suspected with ash keys held and pustules present. Asymmetrical and open canopy and forms part of group forming eastern edge. Canopy clearance 1.5m. Poor. PBR	15	963	8.5	6.5	7	7	160	23	18	S	C2	11.6 – RPA modified by retaining wall to w	Coppice. Monitor regularly for condition and Chalara as part of Management Plan
T2 Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area on eastern boundary. Base and bole appear sound. Asymmetrical canopy but part of group forming eastern edge. Light drawn and distorted crown due to group pressure with weight of canopy to e. Deadwood present. Canopy clearance 2m. Poor. NPBR	13.8	460	3.5	3	6	4.5	80	22	20	L	C2	5.5 RPA modified by retaining wall to n	Crown clean. Monitor as part of Management Plan
T3 Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area on eastern boundary. Base and bole appear sound. Asymmetrical canopy but part of group forming eastern edge. Light drawn and distorted crown due to group pressure with weight of canopy to e and w. Canopy clearance 2.5m. Poor. NPBR	12	440	2	2	6	7	80	22	20	L	C2	7.9	Crown clean. Monitor as part of Management
T4 Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area on eastern boundary. Large wound with decay present to n from base to 2.0m up bole. Fire damage to eastern and south eastern branches. Asymmetrical canopy but part of group forming eastern edge. Light drawn and distorted crown due to group pressure with weight of canopy to e. Canopy clearance 2.5m. Poor. NPBR	12	450	3	4	5.5	4.5	80	N/a	N/a	R	U	5.3	Retain in short term and monitor regularly as part of Management Plan. Establish suitable native replacement and remove
T5 (TPO 149 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southeastern corner of boundary and forms part of group along eastern and southern edge. Epicormic growth to base and surface roots with possible fungal decay. Bole with light ivy growth. Massive decay and lesion to ne on major branch, suspected fire damage as in T4. Deadwood present. Canopy clearance 2m. Poor. NPBR	11.5	800	5.5	6.5	6	7.5	134	22	20	M	C	9.6	Crown clean and crown lift. Monitor regularly as part of Management Plan
T6 (TPO 149 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary and forms part of group along southern edge. Base with decay extending to 200mm. Small crown, light drawn and distorted due to suppression by neighbours and group pressure. Extensive wind damage and deadwood. Canopy clearance 4m. Poor. NPBR	12	530	4.5	3.5	4.5	5.5	100	22	20	R	U	6.4	Retain in short term and monitor regularly. Agree felling and replacement with the LPA as part of overall Management Plan. Establish suitable native replacement

T7 (TPO 149 1995) Sycamore— <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary and forms part of group along southern edge. Base with decay present and to fluting in bole. Epicormic growth present to base. Small crown, light drawn and distorted due to suppression by neighbours and group pressure. Lost central leader in past. Extensive wind damage and deadwood. Canopy clearance 3m. Poor. NPBR	12	560	3.5	3.5	5.5	7	100	22	20	L	C2	6.7	Crown clean. Monitor regularly as part of Management Plan. Agree phased felling of T6, T8, T9 and T10 and replacement with the LPA as part of overall Management Plan. Replacement to be with suitable native trees to secure long term tree cover and amenity
T8 (TPO 149 1995) Sycamore— <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary and forms part of group along southern edge. Crown, light drawn and distorted due to suppression by neighbours and group pressure. Deadwood present. Canopy clearance 3.5m. Poor. NPBR	12	540	6	2.5	5	4.5	100	22	20	L	C2	6.5	Crown clean. Monitor regularly as part of Management Plan. Agree phased felling of T6, T7, T9 and T10 and replacement with the LPA as part of overall Management Plan. Replacement to be with suitable native trees to secure long term tree cover and amenity
T9 (TPO 149 1995) Sycamore— <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary and forms part of group along southern edge. Base with white mycelium present to se with suspected decay. Bole with embedded metal brackets. Crown, light drawn and distorted due to group pressure. Deadwood present. Canopy clearance 3m. Poor. NPBR	13.6	590	5.5	3.5	4.5	4.5	100	22	20	M	C2	7.1	Crown clean. Lighten crown and remove n branch to balance crown. Monitor as part of Management Plan. Agree phased felling of T6, T7, T8 and T10 and replacement with the LPA as part of overall Management Plan. Replacement to be with suitable native trees to secure long term tree cover and amenity
T10 (TPO 149 1995) Sycamore— <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary and forms part of group along southern edge. Bole with decay to ne 200mm above base with pocketing of water and localised decay. Bole swept to e with weight over e. Light ivy growth to bole. Crown, light drawn and distorted due to group pressure. Deadwood present. Canopy clearance 1m. Poor. NPBR	12.8	600	4.5	4	4.5	3.5	100	22	20	M	C2	7.2	Crown clean. Monitor regularly as part of Management Plan. Agree phased felling of T6, T7, T8 and T9 and replacement with the LPA as part of overall Management Plan. Replacement to be with suitable native trees to secure long term tree cover and amenity
T11 (TPO 149 1995) Sycamore— <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary and forms part of group along southern edge. Base with decay. Limited extension growth to canopy, light crown and stunted. Light drawn and distorted due to group pressure. Deadwood present. Canopy clearance 1.5m. Poor. NPBR	12.4	830	4.5	5.5	3.3	3	140	22	20	L	C2	10	Monitor as part of Management Plan.

T12 Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area 5m n of southern boundary and forms part of group along southern edge. Bole leans at 11° to e. Asymmetric crown due to neighbours with weight of crown to e. Deadwood present in crown. Old rope swing attached to branch. Canopy clearance 3m. Poor. PBR (Bat box recently attached)	12	520	5.5	4	7.5	3.5	100	22	20		C2	6.2	Crown clean and remove deadwood. Reattach bat box securely. Monitor as part of Management Plan.
T13 (TPO 149 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary. Growing as a pair with T14. Sinuous bole, leans to e. Ivy to bole recently severed and dead. Light drawn canopy and distorted due to group pressure. Deadwood present. Canopy clearance 2m. Poor. NPBR	11.6	500	3.5	4	5	5	100	22	20	L	C2	6	Monitor regularly as part of Management Plan. Agree phased felling of this suppressed tree and replacement with the LPA as part of overall Management Plan. Replacement to be with suitable native trees to secure long term tree cover and amenity
T14 (TPO 149 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary. Growing as a pair with T13. Leans to ne with debris around base. Epicormic growth to base. Bole lightly ivy clad. Light drawn canopy and distorted due to group pressure. Deadwood present. Canopy clearance 1m. Poor. NPBR	10	52 16.5	2	2	2	2	100	22	20	L	C2	6.7	No action at present. Assess future requirements as part of the Management Plan.
T15 (TPO 149 1995) Sycamore– <i>Acer pseudoplatanus</i> Recently felled	-	-	-	-	-	-	-	-	-	-	-	-	Recently felled
T16 (TPO 08 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary. Growing on a former hedge bank with ground levels made up around base. Concrete post on former fence line 600mm to sw from base. Concrete slab at 3m to ne. Debris around base, particularly to e. VI of base not possible due to made up ground around base. Some softening of wood around bole at ground level. Heavily fluted bole. At 1m to nw face large cavity at former branch butt with decay but compartmentalised. Cavity to sw at branch butt with mycelium and soft wood extending into branch root. Occluded cavity to s face at 1.5m with white powdery exudation. Cavity to se at 2m with white mycelium and decay extending 300mm into bole, compartmentalised but structurally suspect with weight of canopy on cavity. Narrow 'V' shaped union to ne with extensive callous and soft wood. Past pruning work now occluded. Stunted canopy with minimal growth. Small and stunted crown with wind damage and deadwood. Canopy clearance 3m. Poor. NPBR	14	700	7	7.5	8	7	120	22	20	S	C2	8.4	Remove this to allow the proposed driveway to be constructed and this will allow soil conditions to be improved and provide growing room for replacement trees for T16 and T15
T17 (TPO 08 1995) Beech – <i>Fagus sylvatica</i> Single bole. Large mature specimen tree located on grassed terrace with series of terraces to e and w. Base fluted with large buttress roots to e sweeping n, w sweeping w then turning n. Small stone wall to n leading from base. Retaining wall to w at 7m. Localised decay to fluted base to s. Cryptococcus present in places but limited. Cracking of bark to bole and necrosis to e face from base up to 2m. Regrowth and callous with tarry exudation. White powdery exudation and black bark necrosis on ne face at 1.5m. Canopy formed by 2 massive co-dominant boles conjoined at 2m to 2.5m with narrow 'V' shaped union. Former tree house on large lateral swept branch to w. Broad spreading canopy, wind shaped and compact. Wet pocket to base of w branch with bark necrosis. Crown springs at 2m. Canopy clearance 1.4m. Fair. NPBR	17	800	10	10.5	12	10	120	20	20	L	A2/B2	9.6 RPA modified by terrace retaining wall	Crown clean and lift crown. Monitor condition and structure as part of Management Plan.
T18 Holly– <i>Ilex aquifolium</i> Recently felled	-	-	-	-	-	-	-	-	-	-	-	-	Recently felled

T19 Elder— <i>Sambucus nigra</i> Recently felled	-	-	-	-	-	-	-	-	-	-	-	-	-	Recently felled
T20 Lawson Cypress— <i>Chamaecyparis lawsoniana</i> Single bole. Exotic species. Base with exposed surface roots. Poor. NPBR	4.6	140	1.5	1.5	1.5	1.5	25	18	12	R	U	N/a	Remove	
T21 Sycamore— <i>Acer pseudoplatanus</i> Single bole. Located in grass area southeast of house. Growing as a pair with T22. VI restricted due to heavy ivy growth with trellis attached to bole. Drain run across base to n. Pruning to e at 2m and n at 3m. Symmetrical canopy. Deadwood present and crossing branches. Canopy clearance 4m. Poor. NPBR	13.6	680	6.5	7	7.5	6	90	22	20	S	C2	8.2	Crown lift and crown clean. Removing crossing branches. Consider removal and replacement as part of Management Plan with a fine specimen	
T22 Sycamore— <i>Acer pseudoplatanus</i> Single bole. Located in grass area southeast of house. Growing as a pair with T21. Base with pocketed decay to n and ne with decay extending 250mm into heartwood. Former path to n at 300mm causing root severance and possible reason for decay. Bole with pruning cuts occluded with decay and cavities to e at former pruning cuts. Branches with 'V' shaped unions. Epicormic growth. Crown stunted with poor extension growth. Extensive deadwood through canopy. Crown springs at 5m. Canopy clearance 3m. Poor. PBR (Bat box recently attached and bird box)	13.5	710	6	6	7.5	6.5	90	22	20	S	C2	8.5	Crown lift and crown clean. Consider removal and replacement as part of Management Plan with a fine specimen	
T23 (TPO 149 1995) Sycamore— <i>Acer pseudoplatanus</i> Single bole. Located on eastern boundary. Base with epicormic growth and retaining wall with block paving to w and lighting system. Former quarry cliff to e with embankment with surface roots extending down slope. Bole with cavities and narrow 'V' shaped unions and conjoined. Weeping at unions with structural movement. Structurally suspect. Extensive deadwood through canopy. Ivy growth severed to bole. Crown springs at 5m. Canopy clearance 3m. Very poor. NPBR	15.6	750	6	6	6	6	126	22	20		C2	9	Monitor for safety as part of Management Plan. Crown thin by 20%. Removal of the wall to the w and paving is proposed which will improve growing conditions. Consider removal and replacement as part of Management Plan with a fine specimen	
T24 (TPO 149 1995) Pear— <i>Pyrus sp</i> Single bole. Semi moribund. NPBR.	9	350	2.5	4	4.5	3	100	-	-	R	U	-	Remove and replace with a fine specimen	
T25 (TPO 149 1995) Sycamore— <i>Acer pseudoplatanus</i> Single bole. Located on eastern boundary. Base with retaining wall and hard paving to w. Former quarry cliff to e with embankment. Exposed massive surface roots to n, s and e extending down embankment. Wall showing deflection and large crack. There was no deflection to the paving suggesting that no roots pass under the wall and no roots were immediately growing adjacent to the wall it is probable that the cause of the wall defection is due to base and rootplate movement of tree. Structurally suspect. Pocket of wet at cavity to crown spring. Very poor. NPBR	14.4	700	6.5	5.5	7	6.5	126	22	20		C2	8.4	Investigate further structural stability. Crown lift in proximity to new extension to west and thin by 10% to reduce the risk of wind throw. Consider removal and replacement with a fine specimen as part of Management Plan	
T26 Hawthorn— <i>Crataegus monogyna</i> Single bole. Located on eastern boundary growing on steep embankment to former quarry to e. Retaining wall and hard paving to w. Light drawn crown and distorted due to group pressure Canopy clearance 500mm. Poor. NPBR	5	170	2.5	1.5	3	2	100	10	8		C1	2	Consider removal and replacement with a fine specimen as part of Management Plan.	

T27 (TPO 149 1995) Ash– <i>Fraxinus excelsior</i> Single bole. Located on eastern boundary growing on steep embankment to former quarry to e. Retaining wall and hard paving to w. Light drawn crown and distorted due to group pressure. Deadwood present. Chalara suspected. Canopy clearance 4m. Poor. NPBR	10	270	5	1	5	4.5	50	23	18	S	C2	3.2	Consider removal and replacement with a fine specimen as part of Management Plan
T28 Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located on eastern boundary growing on steep embankment to former quarry to e. Retaining wall and hard paving to w, both showing signs of deflection and cracking. Sinuous bole. Light drawn and asymmetric crown due to group pressure. Canopy clearance 4m. Poor. NPBR	10	200	0.5	2	0.5	3	50	22	20	L	C	2.4	Consider removal and replacement with a fine specimen as part of Management Plan
T29 (TPO 149 1995) Hawthorn– <i>Crataegus monogyna</i> Multi stem with 2 boles. Located on eastern boundary growing on steep embankment to former quarry to e. Retaining wall and hard paving to w. Sinuous boles entwined and rubbing. Light drawn and asymmetric crown due to group pressure with crossing branches. Canopy clearance 4m. Poor. NPBR	6	194	1.5	1	3.5	2	50	10	18		C	2.3	Consider removal and replacement as part of Management Plan
T30 (TPO 149 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located on eastern boundary growing on steep embankment to former quarry to e. Hard paving to w. Base with decay to roots to w due to driveway construction. Wet pocket on crown spring where bole divides to form 3 co-dominant stems at 2.3m. Light drawn and asymmetric crown due to group pressure. Canopy clearance 4m. Poor. NPBR	12.5	630	4.5	6.5	7	6.5	110	22	20		C2	7.6	Crown clean and thin by 10% to reduce the risk of wind throw. Monitor as part of Management Plan.
T31 (TPO 149 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located on eastern boundary growing on steep embankment to former quarry to e. Base abuts driveway to w. Bole divides to form 2 codominant stems from 3m. Cabling and light attached to bole. Large split to e to branch from wind damage. Canopy pruned back for cabling. Asymmetric crown due to group pressure. Canopy clearance 6m. Poor. PBR	13.5	710	5.0	5.0	7.5	5.5	110	22	20		C2	8.5	Crown clean, remove split branch to e and thin by 10% to reduce the risk of wind throw. Monitor as part of Management Plan.
T32 (TPO 149 1995) Horse Chestnut – <i>Aesculus hippocastanum</i> Single bole. Located on eastern boundary growing on steep embankment to former quarry to e. Base abuts driveway to w with decay to roots and tarmac deflecting. Cavity to sw face of bole at 2m with decay extending 400mm into heartwood and structurally suspect. Structural cracking and splitting to ne bole from union up into canopy. Asymmetric crown due to group pressure. Canopy clearance 2m. Very poor. PBR	13	810	6	5.5	8	7	110	20	20	R	U	9.7	This tree may fall at any time. Fell for safety using bat methodology and replace with suitable specimen tree.
T33 (TPO 149 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located on eastern boundary growing on steep embankment to former quarry to e. Base abuts driveway to w with tarmac deflecting. Substantial crown lifting for cabling and pruning cuts occluding. Heavily stunted. Wet cavity in base of n branch, suspect. Canopy clearance 2m. Poor. NPBR	13	490	4.5	4	4.5	5	85	22	20		C2	5.9	Remove N branch. Crown clean and thin by 10% to reduce the risk of wind throw. Monitor as part of Management Plan.
T34 (TPO 149 1995) Horse Chestnut – <i>Aesculus hippocastanum</i> Outwith this survey – refer to AllAboutTrees AIA													
T35 (TPO 149 1995) Horse chestnut – <i>Aesculus hippocastanum</i> Outwith this survey – refer to AllAboutTrees AIA													
T36 (TPO 149 1995) Horse chestnut – <i>Aesculus hippocastanum</i> Outwith this survey – refer to AllAboutTrees AIA													

T37 (TPO 149 1995) Sycamore– <i>Acer pseudoplatanus</i> Outwith this survey – refer to AllAboutTrees AIA														
T38 Elder – <i>Sambucus nigra</i> Semi moribund. Poor. NPBR										R	U			Remove and replace
T39 Elder – <i>Sambucus nigra</i> Semi moribund. Poor. NPBR										R	U			Remove and replace
T40 (TPO 08 1995) Sycamore– <i>Acer pseudoplatanus</i> Outwith this survey – refer to AllAboutTrees AIA														Monitor as part of Management Plan
T41 (TPO 08 1995) Sycamore– <i>Acer pseudoplatanus</i> Outwith this survey – refer to AllAboutTrees AIA														Monitor as part of Management Plan
T42 Yew – <i>Taxus baccata</i> Outwith this survey – refer to AllAboutTrees AIA														Monitor as part of Management Plan
T43 Yew – <i>Taxus baccata</i> Outwith this survey – refer to AllAboutTrees AIA														Monitor as part of Management Plan
T44 Sycamore– <i>Acer pseudoplatanus</i> Outwith this survey – refer to AllAboutTrees AIA														Monitor as part of Management Plan
T45 Yew – <i>Taxus baccata</i> Outwith this survey – refer to AllAboutTrees AIA														Monitor as part of Management Plan
T46 Sycamore– <i>Acer pseudoplatanus</i> Outwith this survey – refer to AllAboutTrees AIA														Monitor as part of Management Plan
T47 Yew – <i>Taxus baccata</i> Outwith this survey – refer to AllAboutTrees AIA														Monitor as part of Management Plan
T48 (TPO 08 1995) Lime– <i>Tilia Spp.</i> Recently felled	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T49 (TPO 08 1995) Horse Chestnut – <i>Aesculus hippocastanum</i> Outwith this survey – refer to AllAboutTrees AIA														Monitor as part of Management Plan
T50 (TPO 08 1995) Beech – <i>Fagus sylvatica</i> Investigate further condition and structural integrity														Further investigation, recommended due to concerns relating to condition/structural stability and public safety. Monitor as part of Management Plan

T51 (TPO 08 1995) Horse Chestnut – <i>Aesculus hippocastanum</i> Investigate further condition and structural integrity														Further investigation, recommended due to concerns relating to condition/structural stability and public safety. Monitor as part of Management Plan
T52 (TPO 08 1995) Weeping Ash– <i>Fraxinus excelsior</i> Recently felled	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T53 (TPO 08 1995) Horse Chestnut – <i>Aesculus hippocastanum</i> Investigate further condition and structural integrity														Further investigation, recommended due to concerns relating to condition/structural stability and public safety. Monitor as part of Management Plan
T54 (TPO 08 1995) Beech – <i>Fagus sylvatica</i> Outwith this survey – refer to AllAboutTrees AIA	14	65 21	0	4.8	3	3	40	20	10	M	C2	2.52	Lighten canopy 10%. Monitor as part of Management Plan	
T55 (TPO 08 1995) Sycamore– <i>Acer pseudoplatanus</i> Investigate further condition and structural integrity – tree leaning to s. Cavities present.										M			Lighten canopy 10%. Monitor as part of Management Plan	
T56 Yew – <i>Taxus baccata</i> Outwith this survey – refer to AllAboutTrees AIA													Monitor as part of Management Plan	
T57 Holly– <i>Ilex aquifolium</i> Outwith this survey – refer to AllAboutTrees AIA													Monitor as part of Management Plan	
T58 Holly– <i>Ilex aquifolium</i> Outwith this survey – refer to AllAboutTrees AIA													Monitor as part of Management Plan	
T59 (TPO 08 1995) Weeping English Elm– <i>Ulmus procera</i> Outwith this survey – refer to AllAboutTrees AIA													Crown thin by 5% and maintain shape. Monitor as part of Management Plan (incl for Dutch Elm Disease)	
T60 (TPO 08 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. VI not possible of base due to made up ground. Retaining wall and hard surfacing to w and s with deflection and cracking. Minor cavity to w face at former pruning butt. BT cable passes through canopy. Asymmetric and distorted crown due to suppression and pressure from adjacent neighbours. Overhanging highway and drive entrance. Canopy clearance 2m. Poor. NPBR	14.5	480	3.5	4	7	8	85	22	20	S	C2	6.06	Investigate rootplate and made up ground for structural stability. Consider removal and replacement with a fine specimen as part of Management Plan	

T61 (TPO 08 1995) Service Tree of Fontainebleau – <i>Sorbus latifolia</i> Single bole. VI not possible of base due to made up ground. Retaining wall and hard surfacing to w and n with deflection and cracking. Bole forks at 1.6m to form co-dominant stems. Extensive lesion on bole face to e. Lightly ivy clad. BT cable passes through canopy. Asymmetric and distorted crown due to suppression and pressure from adjacent neighbours. Overhanging highway and drive entrance. Canopy clearance 2m. Poor. NPBR	15.5	680	2.5	6.5	8	7	120	16	14	S	C2	8.2	Investigate rootplate and made up ground for structural stability. Consider removal and replacement with a fine specimen as part of Management Plan
T62 (TPO 08 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. VI not possible of base due to made up ground at 700mm to road to w. Retaining wall and hard surfacing to w and n with structural deflection and extensive vertical cracking. Bole leans at 22° with suspected movement. Tree structurally suspect (suspected root severance due to wall construction) and exposed to sw prevailing winds from adjacent open countryside to sw. The bole is straight but leaning, the boundary wall appears to have pushed out no roots were observed growing adjacent of the wall, so structural failure of the root plate is suspected. Lightly ivy clad. BT cable passes through canopy. Asymmetric and distorted crown due to suppression and pressure from adjacent neighbours. Overhanging highway and drive entrance with property to s. Canopy clearance 1.5m. Poor. NPBR	16.5	590	3.5	3.5	6	4.5	120	22	20	R	U	-	Due to the high target potential of this tree, fell for safety and replace with suitable fine specimen
T63 (TPO 08 1995) Whitebeam– <i>Sorbus aria</i> Recently felled	-	-	-	-	-	-	-	-	-	-	-	-	-
T64 (TPO 08 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary and forms part of group along southern edge. Bole lightly ivy clad. Asymmetric crown due to neighbours and group pressure. Minor deadwood present. Canopy clearance 2m. Fair. NPBR	14.5	530	6	6	3.5	2.5	120	22	20	L	B2	6.4	Crown clean. Monitor as part of Management Plan
T65 (TPO 08 1995) Whitebeam– <i>Sorbus aria</i> Single bole. Located in grass area on southern boundary and forms part of group along southern edge. Bole leans to e. Bole lightly ivy clad. Asymmetric crown, light drawn and distorted due to neighbours and group pressure. Minor deadwood present with limb loss and cavities formed. Canopy clearance 1.5m. Poor. NPBR	12	600	6	6	4	3	120	14	14	S	C2	7.2	Monitor regularly as condition deteriorating. Consider felling as part of Management Plan. Establish suitable specimen replacement tree for location to boundary
T66 (TPO 08 1995) Sycamore– <i>Acer pseudoplatanus</i> Single bole. Located in grass area on southern boundary and forms part of group along southern edge. Bole lightly ivy clad. Asymmetric crown due to neighbours and group pressure. Deadwood present. Canopy clearance 2.5m. Fair. NPBR	13.5	530	5.5	7	4.5	6.6	120	22	20	L	B2	6.4	Crown clean. Monitor as part of Management Plan
T67 Laburnum– <i>Laburnum anagyroides</i> Recently felled	-	-	-	-	-	-	-	-	-	-	-	-	-

*Safe Useful Life Expectancy refer to Appendix 2 for Arboricultural method of assessing the trees remaining safe life span

APPENDIX 2

SAFE USEFUL LIFE EXPECTANCY (SULE)

SAFE USEFUL LIFE EXPECTANCY (SULE)

An Arboricultural method of assessing the trees remaining safe life span.

1. **Long** SULE – 40+ years
 - a) Structurally sound trees that are located in suitable positions that can easily accommodate future growth.
 - b) Damaged trees with minor defects that could be made suitable for their retention through remedial tree work.
 - c) Trees with a special value either for historical, commemorative or rarity reasons, thus warranting particular effort to ensure their retention.

2. **Medium** SULE – 15-40 years
 - a) Trees whose life span is estimated at around 15-40 years
 - b) Trees whose estimated life span may exceed 40 years but may be removed to allow for safe development of better specimens.
 - c) Trees whose estimated life span may exceed 40 years but may be removed for normal management or for safety reasons.
 - d) Damaged trees with defects that could be made suitable for retention in the Medium term via remedial tree works.

3. **Short** SULE – 5-15 years
 - a) Trees whose life span is estimated at around 5-15 years.
 - b) Trees whose estimated life span may exceed 15 years but may be removed to allow the safe development of better specimens.
 - c) Trees whose estimated life span may exceed 15 years but may be removed for normal management or for safety reasons.
 - d) Damaged trees with defects that could be made suitable for retention in the Short term via remedial tree works.

4. **Remove** – Within a maximum of 2-3 years.
 - a) Dead trees.
 - b) Dying trees.
 - c) Dangerous or unstable trees.
 - d) Dangerous trees due to structural defects e.g. cavities, serious fungal decay present.
 - e) Unsafe to retain.
 - f) Trees that may become dangerous after the removal of other trees.

5. **Young** or Small trees.
 - a) Trees with a height of less than 5 metres.
 - b) Trees with a greater height than 5 metres but an estimated age of less than 15 years.

APPENDIX 3

METHOD STATEMENT FOR CONTRACTOR

ARBORICULTURAL METHOD STATEMENT FOR CONTRACTOR

This statement should be copied to the site owner, designers and to those contractors whose work may affect trees including those involved in site access, excavation and construction works.

Those contractors involved in site development and construction will be informed of the presence of existing trees, with a method statement outlining appropriate working practices and procedures to ensure their protection from damage during the works.

All works will comply with BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'.

A precautionary approach towards tree protection should be adopted and any operations, including access, proposed within the RPA (or crown spread where this is greater) should be undertaken under the supervision of the project arboriculturist in order to ensure minimal risk of adverse impact on trees retained.

Legislation

Trees

A number of the trees within the site are subject to a Tree Preservation Order (TPO) reference TPO.08 (1995) and TPO.149 (1995) by South Tyneside Council, which has the effect of preventing the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of trees except in certain circumstances other than with consent of the local planning authority.

Trees and Bats

All bat species are specially protected under Schedule 5 of the Wildlife and Countryside Act of 1981. As a result it is illegal to:

- Intentionally kill, injure or take bats.
- Deliberately disturb bats.
- Damage, destroy or obstruct access to bat roosts.

Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the 1981 Act of damaging bat roosts or disturbing bats is extended to cover reckless damage or disturbance. Fines of up to £5000 per bat affected and confiscation of vehicles used can be imposed for deliberate or reckless disturbance of bats or damage to a roost site.

Bats are also protected under The Conservation (Natural Habitats, &c.) Regulations 1994. Under these regulations licenses are required for works that may adversely affect bats.

Trees and Birds

Implementation of best practice measures during the felling and management of trees should be adopted to minimise disturbance for breeding birds, e.g. avoid felling, pruning works, clearance or disturbance of the existing land and vegetation, during the breeding bird season.

Under the Wildlife and Countryside Act 1981 (as amended), it is illegal to damage or destroy active bird nesting sites and arboricultural works should be undertaken outside of the breeding bird season.

Working Approach

Trees

Appropriate working methods must be utilised to ensure protection during construction works and the risk of trees being harmed by the works is minimised. These working methods will also minimise the risk of causing reckless damage or disturbance to trees.

Appropriate working methods for the site are as follows:

- Protection against potential damage on site by barrier fencing and/or ground protection before any materials or machinery are brought onto the site, and before any development or stripping of soil commences in accordance with the **recommendations for the type of barrier given in BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'** and as shown on drawing reference **ajt / 735. Figure 5**. Appropriate root protection areas (RPA) will be provided where necessary to avoid physical damage to roots during construction activities and from construction traffic.
- Areas of retained structural planting, or designated for new structural planting, should be similarly protected, based on extent of the soft landscaping shown on the approved drawings.
- The protected area should be regarded as sacrosanct, and, once installed, barriers and ground protection should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the local planning authority.
- Where required, pre-development tree work may be undertaken before the installation of tree protection measures, with the agreement of the project arboriculturist or local planning authority if appropriate.
- Confirmation is required by the project arboriculturist that the barriers and ground protection have been correctly set out on site prior to the commencement of any other operations.
- Where demolition is proposed on site where trees are to be retained, access facilitation pruning should be undertaken as necessary to prevent injurious

contact between demolition plant and the tree(s). In some cases, working space may be provided by temporarily tying back tree branches. Pruning or tying should be undertaken in accordance with a specification prepared by an arboriculturist. The local authority will be able to advise whether the trees are under statutory protection such that consent for tree works might be required.

- When demolishing a structure (including underground structures) within what would otherwise be the RPA, barriers should be erected, and ground protection installed to protect the underlying soil to the edge of the existing structure.
- All plant and vehicles engaged in demolition works should either operate outside the RPA, or run on the ground protection. Where such ground protection is required, it should be installed prior to commencement of operations.
- Where trees stand adjacent to structures to be removed, the demolition should be undertaken inwards within the footprint of the existing building (often referred to as **"top down, pull back"**). Where there is a significant build-up of dust on the foliage, it might be necessary to hose down the tree(s).
- The advice of an arboriculturist should be sought where underground structures present within the RPA are, or will become, redundant. In general it is preferable to leave such structures in situ, as their removal could damage adjacent tree roots.
- Where an existing hard surface is scheduled for removal, care should be taken not to disturb tree roots that might be present beneath it. Hand-held tools or appropriate machinery should be used (under arboricultural supervision) to remove the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground. If a new hard surface is to be laid, it might be preferable to leave any existing sub-base in situ, augmenting it where required.
- Where construction working space or temporary construction access is justified within the RPA and approved by the project arboriculturist, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as a temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate. Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site. New temporary ground protection should be capable of supporting traffic entering or using the site without being distorted or causing compaction of underlying soil.

All works to be undertaken under the direction of the project arboriculturist and an engineer as appropriate in accordance with Clause 6.2.3 of BS5837: 2012, **'Trees in Relation to Design, Demolition and Construction - Recommendations'**, in order to protect the tree from potential damage or harm during construction and safe guard future survival.

- Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this clearance and in some instances, local planning authority consent for pruning might be required.
- Fires on sites should be avoided if possible. Where they are unavoidable, they should not be lit in a position where heat could affect foliage or branches. The potential size of a fire and the wind direction should be taken into account when determining its location and it should be attended at all times until safe enough to leave. Local environmental health authorities might have specific restrictions.
- Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA.
- Construction within the RPA should accord to the principle that the tree and soil structure take priority, and the most reliable way to ensure this is to preserve the RPA completely undisturbed. Soil structure should be preserved at a suitable bulk density for root growth and function (of particular importance for soils of a high fines content), existing rootable soil retained and roots themselves protected.
- The ability of a tree to tolerate some disturbance and alteration of its growing conditions depends on specific circumstances, including prevailing site conditions, and in general, the older the tree, the less successfully it will adapt to new conditions.
- Where alternative design solutions are not available such that construction is proposed within the RPA, the potential impact of the proposals on the tree should be assessed, and a tree protection plan and arboricultural method statement produced. Details of design proposals should be developed in conjunction with the project arboriculturist and, where required, input from a suitably qualified engineer. In order to demonstrate that the proposals are technically feasible such details should be included within planning applications.

The exception to this is the installation of underground utility apparatus, where it can be demonstrated that this is achievable by the use of trenchless technology and where entry and retrieval pits can be formed outside the RPA. Where utility operations do not require planning permission, including those performed by statutory undertakers, they should still be undertaken in accordance with these principles. As a minimum standard, such operations should be undertaken in accordance with NJUG Volume 4, issue 2 [N1].

- o Careful consideration of foundation design may be required to avoid damage to tree roots if found to be present within the location of a proposed structure within the Root Protection Areas. Root damage can be minimised by using a combination of the following:
 - c) Piles or radial strip footings, both of which should be located to avoid major roots;
 - d) Beams, slabs, suspended floors, where all should be laid at or above ground level and cantilevered as necessary to avoid tree roots identified by site investigation.

In order to arrive at a suitable solution, site specific and specialist advice would be sought regarding foundation design from the arboriculturist and engineer.

- o To avoid damage to tree roots, existing ground levels should be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ. However, limited manual excavation within the RPA might be acceptable, subject to justification and only following consultation with an arboriculturist. Such excavation should be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.
- o Roots, whilst exposed, should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible. Roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with an arboriculturist, **as such roots might be essential to the tree's health** and stability. Prior to backfilling, retained roots should be surrounded with topsoil or uncompacted **sharp sand (builders' sand should not be used because of its high salt content**, which is toxic to tree roots), or other loose inert granular fill, before soil or other suitable material is replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.

- If excavations have to be close to a tree where roots are likely to be encountered, particular care should be taken to avoid damage. Any excavations should be undertaken by hand, avoiding damage to the protective bark covering larger roots. The roots should be surrounded with sharp sand before replacing soil or other material in the vicinity. Roots smaller than 25mm diameter may be pruned back, preferably to a side branch using a proprietary cutting tool. Roots larger than 25mm should only be severed following consultation with an arboriculturist, as they may be essential to the health and stability of the tree.
- Where it is necessary to include hard surfacing close to a tree, consideration should be given to constructing the final surface before the main building works, to provide protection for the roots. No trenching or construction works within the RPA to avoid causing any undue stress to the trees.
- Where it is necessary to incorporate part of the protected area of a tree within proposed hard surfaces, precautions are essential to maintain the condition and health of the root system. New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA. It is proposed that new paving will be established above the former ground level, using granular fill leaving the underlying soil intact with a permeable and gas-porous finished surface. Where a permeable surface is to be used by vehicular traffic, a geotextile should be used at the base of construction to help prevent pollution contamination of the rooting area below. Any excavations close to the trees will be undertaken by hand and specialist arboricultural advice will be sought for any work within this protected area.
- The excavation needed for the placement of kerbs, edgings and their associated foundations and haunchings can damage tree roots. Within the RPA, this should be avoided either by the use of alternative methods of edge support or by not using supports at all.
- Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. Particular care should be taken in the routeing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routeing should be drawn up in conjunction with the project arboriculturist. In such cases, trenchless insertion methods should be used (see Table 3, BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'), with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs.

- The extent of the root system to trees is very irregular and therefore difficult to predict and further investigation may be required to establish the extent of the rootplate. Where construction is found to conflict with the actual root system on site, and severance or damage to roots may impair the stability of the tree and make it dangerous, advice will be sought from a the project arboriculturist and an engineer as appropriate. Specialist construction or design modification may be required to mitigate any adverse impact.
- Those contractors involved in construction will be informed of the presence of existing trees with a method statement outlining appropriate working practices and procedures to ensure their protection from damage during the works.
- All works will follow an auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision by the project arboriculturist and an engineer as appropriate. Refer to **Appendix 5** for Arboricultural Inspection Proforma. The site inspection and recommendations by the arboriculturist will be recorded on the inspection proforma and issued by the arboriculturist to the site management.
- If issues become evident during work with regard to trees, bats or nesting birds, the arboricultural and ecological consultant will be contacted and consulted immediately (Ajt Environmental Consultants, Tel: **0191 285 5910**).

All contractors shall be made aware of the potential presence of bats, of their legal protection and the requirement to contact Natural England if they are found during works. They shall also be made aware of the legal protection afforded to nesting birds.

If bats are found during the works, work should cease immediately in that area and the advice of the consultant ecologist (AJT Environmental Consultants, Tel 0191 2855910) must be sought and Natural England or the Bat Advice Line should be consulted for further advice. These contact numbers should be left with the contractors on site.

Bats

Many bats are tree roosting at some stage through the year, and hibernating bats can be present in cavities in trees during the winter when tree felling and thinning operations are being undertaken.

Trees with the greatest risk of containing roost sites are those that are mature with a complex structure and aerial dead wood. Bats may roost in rot holes, splits, hollow branches, and old woodpecker holes, beneath flakes of bark and within ivy. Roost sites within trees are not always **easy to detect, as such a precautionary approach should always be employed and 'bat friendly'** working methods, as outlined below, used.

Standard working methods, to minimise the risk to bats, and avoid causing reckless damage or disturbance, will include the following:

- Undertake a tool box talk by the project ecologist for the contractor prior to any works being carried out on site to inform him of the correct methods for construction and felling and risks of bats being present and the correct action to take if any are found
- Inform the project ecologist when moderate or high risk trees are to be felled so that the trees can be surveyed immediately prior to felling to ensure that no bats are present
- Inspect trees for potential roost sites immediately before felling, with access into the canopy.

Signs of bat roosts in trees:

- Obvious holes, cavities and splits.
- Dark staining on the tree below a hole, caused by natural oils in **bats' fur**.
- Tiny scratch marks around the hole from the bats claws.
- Droppings below a hole – **similar to rodent's droppings, but crumble to a powder of insect fragments**.
- Social calls (squeaking) coming from a hole, particularly on a hot day or at dusk.
- Holes may on close inspection contain droppings or smell of bats.
- Where felling or limb removal is essential, larger branches containing cavities or splits will be checked for bats first and if none are recorded the relevant sections will be lowered individually to the ground by rope, rather than dropped, to provide an opportunity for any roosting bats to come out of torpor and escape.
- If there is any evidence of bats being present, bats themselves or mouse-like droppings that crumble to fine dust, it will be necessary to consult the project ecologist immediately who will inform local office of Natural England - cease works on that tree.
- Sound young branches can be removed without constraint.
- Larger branches containing cavities or splits will be lowered individually to the ground by rope, rather than dropped, to provide an opportunity for any roosting bats to come out of torpor and escape. Branches will be left overnight before removal and any cavities checked for bats.
- Where split branches are to be trimmed they will be examined first to ensure that any cavities are not occupied by bats before undertaking tree surgery works which may result in the closure of cracks and the crushing of any roosting bats within.
- Be aware that most bird nests are also protected if working in the spring.

If bats are found at any time during the work the project ecologist will be contacted immediately. If it is necessary to move the bats, gloves should be worn and the bats should be carefully placed into a cardboard box and kept in a quiet place that will not be affected by the work until it can be released after dark, close to the roost site. If works risk recklessly harming bats then the police can order all work to cease until the issue is properly addressed.

APPENDIX 4

METHOD STATEMENT FOR CONTRACTOR (BATS AND TREES)

METHOD STATEMENT FOR CONTRACTOR (BATS AND TREES)

This statement should be copied to the site owner, contractor and arboricultural contractor whose work may affect trees with bat roost potential.

The agreed trees to be felled or pollarded should have work carried out by an approved arboricultural contractor and all felling operations shall be implemented in accordance with both BS 3998: 'Recommendations for Tree Work' and the 'Guide to Good Climbing Practice' 2005 Edition, Arboricultural Association. The works to the trees should be undertaken in the dormant season.

Trees and Bats

All bat species are specially protected under Schedule 5 of the Wildlife and Countryside Act of 1981. As a result it is illegal to:

- Intentionally kill, injure or take bats.
- Deliberately disturb bats.
- Damage, destroy or obstruct access to bat roosts.

Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the 1981 Act of damaging bat roosts or disturbing bats is extended to cover reckless damage or disturbance. Fines of up to £5000 per bat affected and confiscation of vehicles used can be imposed for deliberate or reckless disturbance of bats or damage to a roost site.

Bats are also protected under The Conservation (Natural Habitats, &c.) Regulations 1994. Under these regulations licenses are required for works that may adversely affect bats.

Trees and Birds

Implementation of best practice measures during the felling and management of trees should be adopted to minimise disturbance for breeding birds, e.g. avoid felling, pruning works, clearance or disturbance of the existing land and vegetation, during the breeding bird season.

Under the Wildlife and Countryside Act 1981 (as amended), it is illegal to damage or destroy active bird nesting sites and arboricultural works should be undertaken outside of the breeding bird season.

Working Approach

Trees and Bats

Bats use trees as resting places throughout the year. Trees may serve as maternity roosts, mating roosts, hibernation roosts and/or temporary/transitory roosts. Mature trees, particularly oak, ash, beech, sycamore and Scots pine, are most frequently used as roosts, but bats will use any tree with suitable cavities or crevices.

Temperature and light are important factors when bats select roosts. Roost preferences depend on bat species, the time of year and the breeding status of the bat but include selecting:

- Naturally warm sites, such as sheltered trees receiving some sunshine during the day.
- Highly insulated sites such as a tree hole with a small space and thick wood surrounding it.

It is rare for bats to restrict themselves to a single tree roost. An individual tree may be used by different species for bats, sometimes at the same time. Most bats change roost sites throughout the year in response to their individual needs. Once a tree is used for roosting, there is a high likelihood of it being used again as bats are very long lived. This is one reason why in mixed age stands, older trees have a higher chance of containing roosts than younger trees.

The most effective time to look for potential bat roosts is during winter when the trunk and crown are visible without leaves being present. Use binoculars during good daylight to look for:

- Trees that have been damaged irrespective of age, such as significant windblow or damage from falling mature trees;
- Obvious holes, cavities, splits and loose bark (old woodpecker holes are particularly favoured);
- Dark staining and streaks on the tree below the hole (although this is often due to water seepage);
- **Staining around the hole from oils in bat's fur particularly in autumn;**
- **A maze of tiny scratch marks from the bat's claws around the hole, often around top edge.** These are often only visible close up.

During the summer it may be possible to notice:

- Droppings below the hole – **these have the appearance of rodent's droppings but crumble** to a powder of insect fragments;
- Noise of squeaking/chittering coming from hole, especially on a hot day in high summer or just before dusk as bats are getting ready to emerge;
- Strong smell of ammonia or flies close to a hole.

Standard working methods, to minimise the risk to bats, and avoid causing reckless damage or disturbance, will include the following:

- Undertake a tool box talk by the project ecologist for the contractor prior to any works being carried out on site to inform him of the correct methods for felling and risks of bats being present and the correct action to take if any are found;
- Keep tree work to a minimum retaining all potential roosts where possible;
- A precautionary inspection of the tree(s) by the tree work contractor looking for signs of bats should be carried out before starting work. This should include an

inspection of all holes and niches using a torch and preferably an endoscope. If bats or signs of bats are found, no work should start and Natural England and the Project Ecologist should be contacted for further advice;

- o Where possible, avoid cross cutting in proximity to cavities or hollows;
- o Limbs with internal fissures should be pruned carefully to maintain integrity of features as potential roost sites;
- o Any sections felled containing cavities should be lowered carefully and left on the ground (preferably for 24 hours) with the openings clear, allowing anything inside an opportunity to escape;
- o Split limbs that are under tension may need to be wedged open to prevent their closure when pressure is released, potentially trapping bats;
- o **If ivy covers areas of a tree's trunk or branches**, there is roosting potential behind it. Dealing with ivy-covered trees depends on the amount of growth. If there is a thick mass of ivy growth, it may be practical to consider felling the tree on the basis that the thickness of the foliage will soften the fall and reduce the shock. This tree can then be inspected on the ground and if possible left for 24 hours, before section cutting. If the tree is only partially covered, pruning or sectioning may be more appropriate. If the works are not urgent, cutting the ivy at its base and completing the work when the ivy is dead will reduce the bat roosting potential. Where stems of ivy create a dense mass against the trunk, there will always be roosting potential;
- o Be aware that most bird nests are also protected if working in the spring.

If bats are discovered when branches are removed or trees felled (particularly in winter), work must stop immediately and Natural England and/or the project ecologist (0191 285 5910) contacted. Advice will be given on how to proceed, including collecting up any bats with gloved hands and putting them into a bat box, if appropriate.

APPENDIX 5

ARBORICULTURAL INSPECTION PROFORMA

ARBORICULTURAL INSPECTION PROFORMA**ARBORICULTURIST REPORT**

Site Name		Date	
Arboriculturist		Time	
Client Name		Weather Conditions	
Activities			
Recommendations			
Further Work Required			
Signed			

DELIVERY OF RECOMMENDATIONS/FURTHER WORK

Works must be complete by	
Works undertaken by	
Date / Time Works undertaken	
Works Supervised / Overseen by	
Works Supervised / Overseen by	
Signed	

Upon completion of the arboricultural work this form should be signed by site staff and returned to -

AJT Environmental Consultants
Environmental Consultants • Chartered Landscape Architects
The Studio, 20 The Grove, Newcastle Upon Tyne, NE3 1NE
Tel: 0191 285 5910 • Fax: 0191 213 5517 • Email: ajtec@ajt.co.uk