Arboricultural ASSOCIATION
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ArbTS - Arboricultural Technician Services

(Tree Consultancy Services)

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Arboricultural Report

Including:

Tree Survey Data

&

Tree Constraints Plan (TCP)

To the British Standard 5837:2012
(Trees in relation to design, demolition and construction. Recommendations)

Date – 17th July 2019

Site – St Nicholas School

Project Reference – ArbTS_669.1_StNicholasSchool

Table of Contents

1.0 Introduction

1.1 The purpose of this report is to give an assessment as to the quality and constraints of the trees at st nicholas school. The findings of this survey will be used to inform future design proposals, to preserve and minimise damage to the important trees on or adjacent to this site.

1.2 This report identifies the quality of the trees on or adjacent to this site as categorised by the *British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations*. The survey and findings as reported here represent an unbiased third party opinion offering professional advice as to the value of the trees on this site. A Tree Constraints Plan (TCP) has been drawn, as found in Appendix 2, to illustrate the constraints identified trees pose to the design of future development.

1.3 Arboricultural constraints within the surveyed site relate primarily to the preservation of trees recommended for retention. Identified trees must be protected during the construction phase through the employment of a combination of protective barriers, ground protection zones and tree safe construction methods, designed by a suitably qualified Arboriculturist.

1.4 The trees' root systems and the associated soil structure is often over looked during the construction process, and can be damaged or altered by compaction, causing major damage to the health of the tree. Generally, the entire root system of the tree is within the top 600mm, of soil where it can be easily damaged. A calculated area of ground around the tree should be protected for the duration of the onsite construction phase. In this report it is referred to as the Root Protection Area (RPA).

1.5 No Arboricultural Impact Assessment, Tree Protection Plan or Tree Protection Method Statement are included within this report. No assessment has been made regarding the suitability of the proposed development design within this report.

2.0 The Tree Survey

2.1 The tree survey was conducted by Stephen Lucocq *BSc (Hons), Tech Cert (ArborA) , M.Arbor.A* on 5th June 2019.

2.2 Trees over 75mm were tagged where appropriate with numbered metal identification tags at around 2.0 metres above ground level.

2.3 All observations were made from the ground with the aid of an acoustic sounding hammer. No invasive decay detective instruments were used.

2.4 The survey was carried out in accordance to *British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations.* This standard gives a systematic, consistent and transparent evaluation method to tree surveying.

2.5 The survey was conducted with the aid of a topographical survey.

2.6 **Preliminary management recommendations:** The survey has identified preliminary management recommendation for the trees on or adjacent to this site. Details regarding these identified operations are given in this report (See Appendix 1 - Tree Survey Data). Where work priority is stated to be H – High due to safety reasons, these operations should be carried out as soon as practically possible. Where work priority is stated to be M/H – medium/high or higher, these operations should be undertaken before commencement of any works on site.

2.7 **Limitations of the tree survey**: Whilst every effort is made to ensure an accurate assessment of the tree's condition is made during survey, no responsibility can be taken for resultant damage or injury occurred by a failing tree. The survey only gives a snap shot of what is visible and is not obscured on the day of the survey. The survey identifies trees of varying quality and their above ground/below ground constraints. This survey does not constitute a full tree condition/tree risk assessment of the site and this report is only valid for 12 months from the date of the tree survey.

3.0 The Trees

3.1 The full tree survey data can be found in Appendix 1A Tree Survey Data.

3.2 Tree Survey Summary Table (See Appendix 3 for BS5837 category definitions). (A more detailed Tree Survey Data Summary can be found in Appendix 1B)

BS5837:2012 Quality Category	Total Number of Individual Trees Surveyed	Total Number of Tree Groups Surveyed	Total Number of Tree Areas Surveyed	Total Number of Woodland Areas Surveyed	Total Number of Hedgerows Surveyed	Total
A (High - Most desirable for retention)	0	0	0	0	0	0
B (Moderate - Desirable for retention)	5	1	0	0	0	6
C (Low - Optional for retention)	4	2	0	0	5	11
U (Poor - Unsuitable for retention)	3	0	0	0	0	3
Total A,B,C,U	12	3	0	0	5	20

4.0 Tree Constraints Plan (TCP) Information

4.1 A Tree Constraints Plan (TCP) can be found at Appendix 2 of this report. An introduction to TCP can also be found at the start of Appendix 2. For further information and details regarding TCP please see the *British Standard 5837:2012, Trees in relation to design, demolition and construction – Recommendations.*

5.0 Tree Protection Information

5.1 No Arboricultural Impact Assessment, Tree Protection Plan or Tree Protection Method Statement are included within this report for the proposed development design. An introduction to Tree Protection can be found at Appendix 4.

6.0 Conclusion

6.1 This site has potential to accommodate development whilst retaining the trees of value. The significant trees on or adjacent to this site should be given due consideration in the development design process.

6.2 If the health and stability of the trees are maintained, and the following strategies implemented: a suitable development design; tree protection methods; Arboricultural site supervision and tree after care, the process of construction could be conducted with no adverse impact on the important trees upon or adjacent to this site.

7.0 Further Information & Qualifications

Stephen Lucocq has been involved in Arboriculture within South Wales for nearly twenty years. He has worked as an Arborist for many of these years and has a good working knowledge of the practical side of the profession. He has always taken an active interest in all areas of Arboriculture and kept up to date with current research and developments.

Qualifications

- First Class BSc (Hons) Degree – Combined Studies - Biology and IT
- Arboricultural Association Technicians Certificate – Level 4 - (Merit)
- PTI - Professional Tree Inspection (Lantra Awards)
- 2D Computer Aided Design (City and Guilds - Level 3)
- Quantified Tree Risk Assessment (QTRA) – Mike Ellison
- Visual Tree Assessment (VTA) – Mike Ellison
- Arboriculture and Bats (Lantra)
- Industrial Rope Access Trade Association (IRATA)
- Practical Arboriculture Qualifications (NPTC)

Membership

- Arboricultural Association Professional Member (*M.Arbor.A*)

8.0 Web Information & Bibliography

Web Information

- Arboricultural Association

  http://www.trees.org.uk/

- Cellular Confinement System

  GeoWeb - GreenFix

  CellWeb - Geosynthetics Cellweb

- Underground Utilities Installation

  http://www.njug.org.uk/

Bibliography

- British Standards 3998 (2010) Recommendations for Tree Work UK; British Standards Intuition
- British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations UK; British Standards Intuition
- Coombes, A.J (1992) Trees London; Dorling Kindersley
- Lonsdale, D (1999) Principle of Tree Hazard Assessment and Management Edinburgh; Forestry Commission
- Mattheck, C (2007) Field Guide for Visual Tree Assessment Germany; Karlsruhe Research Centre
- Shigo, A.L (1991) Modern Arboriculture USA; Shigo and Trees, Association
- Sterry, P (2007) Collins Complete British Trees London; Collins
- Strouts, R.G (2000) Diagnosis of ill-health in trees Edinburgh; Forestry Commission
- Weber,K & Mattheck, C (2003) Manual of wood decay UK; Arboricultural Association

9.0 Appendix 1A -Tree Survey Data

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments		Preliminary Management Recommendations		Work Priority	RPR (m)	RPA (m2)
G1	Crataegus monogyna (Hawthorn),Ilex aquifolium (Holly),Sambucus nigra (Elder)	M	1	250	B2	6(0)	4	4	4	4	G/F	G/F	20+	low B category.	boundary group of mainly mature hawthorn, likely to be an elapsed managed hedgerow which has developed into small trees, a small number of hawthorn trees in poor health noted				3	28.28
G2	Prunus avium (Wild Cherry),Salix fragilis (Crack Willow),Acer campestre (Field Maple),Sorbus aucuparia (Rowan),Betula pubescens (Downy Birch),Sambucus nigra (Elder),Corylus avellana (Hazel)	SM	1	150	C2	7(0)	3	3	3	3	F	F	10+		small group of small trees of fair to poor form as a group				1.8	10.18
G3	Fraxinus excelsior (Ash),thorn (thorn)	Y	1	100	C2	5(1)	1	1	1	1	F/P	F/P	10+	low C category.	small row of small trees of poor to fair form				1.2	4.52
H1	Crataegus monogyna (Hawthorn),Ilex aquifolium (Holly)	EM	1	50	C2	1(0)	0.5	0.5	0.5	0.5	F	F	10+		small section of hedgerow				0.6	1.13
H2	Crataegus monogyna (Hawthorn)	EM	1	50	C2	1.5(0)	0.5	0.5	0.5	0.5	F	F	10+		small section of hedgerow				0.6	1.13
H3	Crataegus monogyna (Hawthorn),Corylus avellana (Hazel),Sambucus nigra (Elder)	EM	1	75	C2	2(0)	1	1	1	1	F	F	10+	high C category. A hedgerow with no noticeable gaps noted. Received some regular recent maintenance.	section of hedgerow				0.9	2.55
H4	Corylus avellana (Hazel),Crataegus monogyna (Hawthorn),Prunus spinosa (Blackthorn),Sambucus nigra (Elder)	EM	1	75	C2	1(0)	1.5	1.5	1.5	1.5	G/F	G/F	10+	high C category. A hedgerow with no noticeable gaps noted. A hedgerow with minor gaps noted.					0.9	2.55

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments		Preliminary Management Recommendations		Work Priority	RPR (m)	RPA (m2)
H5	Acer pseudoplatanus (Sycamore),Fraxinus excelsior (Ash),Prunus spinosa (Blackthorn),Carpinus betulus (Hornbeam)	EM	1	100	C2	4(0)	1.5	1.5	1.5	1.5	F	F	10+	Located on private land preventing a close inspection of the tree therefore all observations and measurements are estimated. A hedgerow with no noticeable gaps noted. Received some regular recent maintenance.	larger off site trees noted to the east of this hedgerow including horse chestnut and sycamore, hung up stem noted in off site horse chestnut				1.2	4.52
T1	bay laurel	EM	1	150	U	7(2)	4	4	4	4	F/P	N/A	<10	Multiple stems at ground level. Slightly sparse foliage cover. Located on private land preventing a close inspection of the tree therefore all observations and measurements are estimated.			coppice to one metre stump	H/M	1.8	10.18
T2	Ulmus procera (English Elm)	EM	1	250	U	7(2)	4	4	4	4	P	N/A	<10	Multiple stems at ground level. Sparse foliage cover. Dieback in crown. Located on private land preventing a close inspection of the tree therefore all observations and measurements are estimated.			fell	H/M	3	28.28
T3	Fraxinus excelsior (Ash)	M	1	800	B2	18(4)	9	9	9	9	G/F	G/F	20+	Surrounding terrain prevented close inspection of the tree therefore all observations and measurements are estimated.	large broad tree located behind boundary fencing				9.6	289.6
T4	Ulmus glabra (Wych Elm)	SM	1	150	C2	7(3)	3	4	3	3	F	F	10+	Located on private land preventing a close inspection of the tree therefore all observations and measurements are estimated.					1.8	10.18
T5	Ulmus glabra (Wych Elm)	M	1	300	C2	6(3)	4	4	3	3	F	F	10+	Located on private land preventing a close inspection of the tree therefore all observations and measurements are estimated.	fairly large for species tree				3.6	40.72
T6	Unknown (Unknown)	EM	1	300	U	5(2)	3	1	3	3	D	D	<10	Dead.			fell	H/M	3.6	40.72
T7	Aesculus hippocastanum (Horse Chestnut)	M	1	350	C2	6(2.5)	4	3	3	3	F	F	10+		tree that has been periodic pollard as under electrical lines				4.2	55.42
T147	Acer saccharinum (Silver Maple)	EM	1	590	B2	10(3)	6	6	7	6	G/F	G/F	20+		road side tree of fair to good form, roots pushing up concrete slabs				7.08	157.5

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments		Preliminary Management Recommendations		Work Priority	RPR (m)	RPA (m2)
T148	Acer campestre (Field Maple)	EM	3	572	B2	8(4)	5	5	5	5	G/F	G/F	20+		multistemmed tree of fair to good form				6.86	147.9
T149	Betula pendula (Silver Birch)	EM	1	280	C2	12(3)	2	4	4	3.5	F	F	10+	high C category.	tree of fair form, slightly sparse leaf cover				3.36	35.47
T150	Crataegus monogyna (Hawthorn)	M	2	266	B2	6(3)	3	3.5	3.5	3	G/F	G/F	20+	low B category.	short broad tree				3.19	31.97
T151	Acer campestre (Field Maple)	EM	1	650	B2	10(4)	6	5	6	6	G/F	G/F	20+		twin stem from 1.5 metres, tree of fair to good form, tarmac surrounding three sides of tree, wounds noted on westerns side of trunk with surrounding outer occluding growth noted				7.8	191.2

9.0 Appendix 1B – Detailed Tree Survey Data Summary

(Please see Appendix 3 - Tree Survey Key)

Field Usage Results.		
Total Records: 20		
Type	Count	% of Total
T	12	60
G	3	15
H	5	25
Tree Species	Count	% of Total
Acer saccharinum (Silver Maple)	1	5
Crataegus monogyna (Hawthorn)	2	10
Acer campestre (Field Maple)	2	10
bay laruel	1	5
Ulmus procera (English Elm)	1	5
Fraxinus excelsior (Ash)	1	5
Ulmus glabra (Wych Elm)	2	10
Unknown (Unknown)	1	5
Aesculus hippocastanum (Horse Chestnut)	1	5
Betula pendula (Silver Birch)	1	5
Age	Count	% of Total
Y	1	5
SM	2	10
EM	12	60
M	5	25
Cat	Count	% of Total
B2	6	30
C2	11	55
U	3	15
Average Stem Diameter	Count	% of Total
<100	4	20
<150	2	10
<250	3	15
<500	7	35
<750	3	15

<1000	1	5
Height	Count	% of Total
<5	5	25
<10	11	55
<15	3	15
<20	1	5
Phy Cond	Count	% of Total
G/F	7	35
F	9	45
F/P	2	10
P	1	5
D	1	5
Stuc Cond	Count	% of Total
G/F	7	35
F	9	45
F/P	1	5
D	1	5
N/A	2	10
Est. Remain Contrib	Count	% of Total
<10	3	15
10+	11	55
20+	6	30
RPR	Count	% of Total
<5	16	80
<10	4	20
RPA	Count	% of Total
<5	6	30
<15	3	15
<30	2	10
other	9	45

9.0 Appendix 2 - Tree Constraints Plan

An introduction to the Tree Constraints Plan (TCP)

Trees which have been identified to be retained should be treated as constraints to the design of future development. A Tree Constraints Plan has been drawn and can be found over leaf.

- **Tree Quality** - The TCP highlights the above and below ground constraint each tree poses to the design of future development schemes. Further to this the BS5837 tree quality category (A - High, B - Moderate, C - Low and U- Unsuitable for retention) are coloured coded as solid circles at the centre of the trees' position.

- **Root Protection Area** – A magenta circle on the TCP sets out root protection area (RPA). Within this area no construction work, alteration in ground levels or site traffic (machinery or persons) should occur. This prevents damage to tree roots and soil compaction. (Where possible an Arboriculturist can design suitable tree protection methods to facilitate construction work/site traffic within these areas).

- **Tree Canopy -** The jagged green circle/oval on the TCP sets out the above ground constraints of tree canopy spread. Within this area no construction work or site traffic (machinery or persons) should occur if the tree is to be retained. This prevents damage to the tree branches and trunk. (Where possible an Arboriculturist can design suitable tree protection methods to facilitate construction work/site traffic within these areas).

- **Tree Shading** – Shade from the retained trees should be considered in the development design. The shade cast, depending on the trees height and width, will be from a North West to East pattern through the main part of the day.

- **Tree Future growth** - Within future development design, consideration should also be given to the ultimate height and extent of the canopy spread of all trees within the site identified to be retained.

Tree Constraints Plan

Site - St Nicholas

Project Ref - 669.1

Scale 1:500 @ A2

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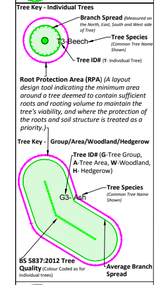
N

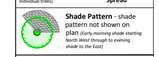
0 5 10 15 20 25
Metres

KEY **BS 5837:2012 Tree Quality** (Colour Coded) *(Individual Tree)*

- **Category A (High)** (*Highly desirable for retention*)
- **Category B (Moderate)** (*Desirable for retention*)
- **Category C (Low)** (*Optional for retention*)
- **Category U (Poor)** (*Unsuitable for retention*)

Tree Key - Individual Trees





Definitions of BS5837:2012 Categories for Trees, Woodlands and Hedgerows (Colour Coded):

A - Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Highly desirable for retention*)

B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Desirable for retention*)

C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Optional for retention*)

U - Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. (*Unsuitable for retention unless provides high conservation value*)

Please Note:
Barriers and Ground Protection must be designed by an arboriculturist, installed before materials or machinery is bought onto site and before any demolition, development or stripping of soil commences. Once erected, barriers and ground protection should be regarded as sacrosanct, and should not be removed or altered without prior recommendation by an Arboriculturist and approval of the Local Planning Authority (LPA).

G2-Wild Cherry, Crack Willow, Field Maple, Rowan, Downy Birch, Elder, Hazel

T6-Unknown

T7-Horse Chestnut

H4-Hazel, Hawthorn, Blackthorn, Elder

G1-Hawthorn, Holly, Elder

H5-Sycamore, Ash, Blackthorn, Hornbeam

T149-Silver Birch

T150-Hawthorn

G3-Ash, thorn

T5-Wych Elm

T4-Wych Elm

T3-Ash

H1-Hawthorn, Holly

T147-Silver Maple

T148-Field Maple

H2-Hawthorn

T151-Field Maple

H3-Hawthorn, Hazel, Elder

T2-English Elm

T1

Tree Constraints Plan

Site - St Nicholas

Project Ref - 669.1

Scale 1:500 @ A2

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KEY BS 5837:2012 Tree Quality (Colour Coded) *(Individual Tree)*

- **Category A (High)** (*Highly desirable for retention*)
- **Category B (Moderate)** (*Desirable for retention*)
- **Category C (Low)** (*Optional for retention*)
- **Category U (Poor)** (*Unsuitable for retention*)

Tree Key - Individual Trees

T2-Beech
- **Branch Spread** (*Measured on the North, East, South and West side of the Tree*)
- **Tree Species** (*Common Tree Name Shown*)
- **Tree ID#** (*T- Individual Tree*)

Root Protection Area (RPA) (*A layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.*)

Tree Key - Group/Area/Woodland/Hedgerow

G1-Ash
- **Tree ID#** (**G**-Tree Group, **A**-Tree Area, **W**-Woodland, **H**-Hedgerow)
- **Tree Species** (*Common Tree Name Shown*)
- **BS 5837:2012 Tree Quality** (*Colour Coded as for individual trees*)
- **Average Branch Spread**

Shade Pattern - shade pattern not shown on plan *(Early morning shade starting North West through to evening shade to the East)*

Definitions of BS5837:2012 Categories for Trees, Woodlands and Hedgerows (Colour Coded):

A - Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Highly desirable for retention*)

B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Desirable for retention*)

C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Optional for retention*)

U - Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. (*Unsuitable for retention unless provides high conservation value*)

Please Note:
Barriers and Ground Protection must be designed by an arboriculturist, installed before materials or machinery is bought onto site and before any demolition, development or stripping of soil commences. Once erected, barriers and ground protection should be regarded as sacrosanct, and should not be removed or altered without prior recommendation by an Arboriculturist and approval of the Local Planning Authority (LPA).

9.0 Appendix 3 - Tree Survey Data Key

- **Tree ID # -** Identifies the location of individual trees (T-ID Number), Groups of trees (G-ID Number), Area of trees (A-ID Number), Hedgerow (H-ID Number), Woodland (W-ID Number), Row of trees (R-ID Number) and tree Stumps (S-ID Number) on the accompanying plan. *(Please note: A group of trees here refers to two or more standing trees that form a visual whole, whereas an area of trees refers to dispersed individual trees standing within the site)*

- **Tree Species -** Scientific names and common tree name in brackets are generally shown.

- **Age**
  - (Y) Young – Less than 1/3 of life completed
  - (SM) Middle Aged - 1/3 - 2/3 of life completed
  - (EM) Early Mature – Just entering Maturity
  - (M) Mature – more than 2/3 of life completed
  - (OM) Over Mature - more than 3/3 of life completed and declining
  - (V) Veteran - (v) Veteran – Veteran trees have no precise definition but are trees considered to be of biological aesthetic or ecological value because of their age

- **Stems –** Number of tree stems used to calculate the RPR/RPA

- **Stem Diam** (mm) - Diameter of tree stem measured in millimetres for single stem trees or average stem diameter calculated for multi-stemmed trees as detailed in section 4.6 & Annex C of the British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations. The height above ground level where the stem measurement was taken will be shown if not measured at 1.5 metres above ground level. *(Please note: that the stem diameter of certain trees will have to be estimated due to difficulties in taking measurements or for trees with a large number of stems)*

- **Cat** – Tree Quality Category - British Standard 5837:2012 A, B, C, U + 1, 2, 3

  Based on BS5837:2012 categories A, B, C, U provides the basis of prioritising trees for retention:

  - A – Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Most desirable for retention*)
  - B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Desirable for retention*)
  - C – Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Optional for retention*)
  - U – Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. (*Unsuitable for retention unless provides high conservation value*)

Retention Criteria Subcategories: Used for identifying subcategories

E.g. A2 = A high quality tree with high landscape qualities (further details can be found in British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations UK; British Standards Intuition)

- 1 – Mainly Arboricultural qualities
- 2 – Mainly landscape qualities
- 3 – Mainly cultural values, including conservation

- **Height + (Lower Branch Height) -** Tree height in metres and in brackets height in metres of the crown (tree branches) clearance at its lowest point above adjacent ground levels.

- **Nrth, Est, Sth, Wst** - Crown Spread (Metres) -Tree branch spread in metres measured in four directions (North, East, South, West) from the trunk.

- **Phys Cond -** Physiological Condition Indicating the health of the tree -

  - (G) Good
  - (F) Fair
  - (P) Poor
  - (D) Dead
  - (N/A) Not Applicable – unable to fully inspect tree due to surrounding vegetation or access issues.

- **Struc Cond –** Structural Condition indicting the structural integrity of the tree -

  - (G) Good – No, or remediable physical defects or decay
  - (F) Fair - Physical non-remediable defects or decay present, not presenting imminent danger but should be monitored
  - (P) Poor - physical non-remediable defects or decay present, tree liable to imminent collapse or loss of major limbs.
  - (D) Dead
  - (N/A) Not Applicable – unable to fully inspect tree due to surrounding vegetation or access issues.

- **Est. Remain Contrib** - (<10, 10+, 20+, 40+)

  The trees estimated remaining contribution in years, recorded as:

  - <10 – less than 10 years
  - 10+ – at least 10 years
  - 20+ – at least 20 years
  - 40+ – at least 40 years

- **Comments –** Additional Comments if required

- **Preliminary Management Recommendations –** Work Recommendations, including further investigation of suspected defects that require more detailed assessment and pose potential for wildlife habitat.

- **Work Priority -** Work Priority -This gives a work priority rating of preliminary management for each tree.

    - H - High – Urgent work to be carried out as soon as practicable due to safety reasons (Within 14 days).
    - H/M - High- Medium – Work to be carried out within 6 months/or before construction phase begins
    - M - Medium – Work to be carried out in 12 months
    - L - Low – After consideration/Re-inspect in 18-24 months
    - Blank – No work required.

- **RPR –** Root protection radius / **RPA -** Root Protection Area **-** Is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. RPR is a circular area measured as a radius in metres from the centre of the tree or RPA is an area in metres squared. Where required this area may be changed in shape but not reduced in area whilst providing adequate protection of the tree's rooting system.

9.0 Appendix 4 – An Introduction to Tree Protection

For the purpose of this report an introduction is given to tree protection. If required an Arboricultural Impact Assessment, Tree Protection Plan and Tree Protection Methods Statement can be provided for the finalised development design.

Tree protection methods must be considered and designed by an Arboriculturist. These should then be implemented BEFORE any machinery or materials are bought onto site and before any demolition, development or stripping of soil commences. The Root Protection Area (RPA) (cyan circles/lines) indicated on the Tree Constraints Plan must be set out and the protective barriers and ground protection installed accordingly for retained trees. The protective barriers and ground protection areas shall be regarded as sacrosanct, and shall not be removed or altered without prior recommendation by an Arboriculturist and approval of the LPA.

The areas protected by barrier fencing and ground protection shall be subject to the following restrictions:

- Existing soil levels within the protected areas shall not be altered.
- No excavation of any kind shall take place within the protected areas.
- The protected areas shall not be used for storage of any kind.
- No vehicles or machinery shall be allowed into the areas protected by fencing.
- Should the developer require the above restrictions to be breached for unforeseen reasons, an appropriate method of works must be agreed with the Local Planning Authority prior to any works taking place within the protected areas.

Additional precautions outside protected barrier areas and ground protection:

- All underground services should be installed following NJUG Volume 4 Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. The full document is available at http://www.njug.org.uk/.
- Building materials and fuels such as oil, bitumen or cement should not be stacked or discharged within 10 metres of the trees stem.
- Fires will not be lit beneath any tree or in a place where flames could extend to within 10 metres of the outer canopy of any tree.
- Trees that are to be retained and protected should not be used as anchorage for services or equipment.
- The use of cranes and large machinery on site should be planned and care taken not to damage the tree during the process.

Visits by an Arboriculturist during the construction process should be conducted to ensure all of the above are being strictly adhered too.

9.0 Appendix 5 – Tree Photographs

Tree ID#T147

Tree ID#T148 + T151 + H2 + H3

Tree ID#T1

Tree ID#T3

Tree ID#T1 + T2

Tree ID#G1

Tree ID#G1

Tree ID#G2

Tree ID#H4 + T6

Tree ID#T7

Tree ID#H5

Tree ID#T149

Tree ID#T150

Tree ID#G3