



Knowsley Metropolitan Borough Council

LUF HALEWOOD

Tree Constraints Report





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Tree Constraints Report

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1. WSP has been instructed by Knowsley Metropolitan Borough Council to provide arboricultural constraints information at two sites forming part of the Halewood Levelling Up Fund (LUF) project. Constraints information was collected at the following two sites:

- Site 1 - Halewood Leisure Centre (hereafter referred to as Site 1); and
- Site 2 - Grace Park and Green Gates Playing Field (hereafter referred to as Site 2);

1.2 SCOPE OF REPORT

1.2.1. The scope of this report has been established with reference to BS 5837 and is provided to identify tree constraints which may inform future development proposals at Sites 1 and/or 2.

1.2.2. Information provided complies with the requirements of British Standard BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* (BS 5837), and includes reference to the following:

- A desk study search for baseline information on arboricultural statutory designations;
- Results of a BS 5837 survey walkover;
- A Tree Constraints Plan (TCP) for Site 1; and
- A Tree Constraints Plan (TCP) for Site 2.

1.3 LIMITATIONS

1.3.1. WSP have provided this report solely for the use of the recipient and accepts no liability to any third parties or any other party using or reviewing the report or any part thereof. WSP makes no warranties or guarantees, actual or implied, in relation to this report, or the ultimate commercial, technical, economic, or financial effect on the project to which it relates, and bears no responsibility or liability related to its use other than as set out within the scope of the contract under which it was supplied.

1.3.2. Provisional Tree Preservation Orders (TPOs) may be made whenever a local planning authority deems it appropriate with only those persons interested in the land served with a copy of the Order. Any reference to the presence of TPOs is only valid on the date at which the desk study search was undertaken. In instances where works unspecified in this report are to be undertaken, and which may impact trees, a further search for the presence of TPOs should be carried out prior to commencement.

1.3.3. Trees are dynamic organisms which are influenced by a variety of environmental variables and whose health and condition can rapidly change. Any recommendations made within this report are valid for a period of 24 months from the date of survey, when any site conditions change or pruning or other works unspecified in the report are carried out to, or affecting, the subject trees, whichever is the sooner.

1.3.4. This report does not constitute a health and safety survey. Where concerns for tree health and safety exist then necessary and appropriate tree inspections should be carried out.

- 1.3.5. Assessment of statutory and non-statutory constraints have been carried out using publicly accessible third-party information.

1.4 RELEVANT LEGISLATION, POLICY AND GUIDANCE

- 1.4.1. This report has been compiled with reference to the following legislation, policy and guidance:

LEGISLATION

- The Town and Country Planning Act 1990
- Town and Country Planning (Tree Preservation) (England) Regulations 2012
- Town and Country Planning (Trees) Regulations 1999
- Forestry Act 1967
- The Natural Environment and Rural Communities (NERC) Act 2006

POLICY

- National Planning Policy Framework (NPPF) (revised 5 September 2023)
- Knowsley Local Plan Core Strategy (January 2016)

GUIDANCE

- British Standards Institute. BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations. London: BSI
- Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government, Tree Preservation Orders and trees in conservation areas (2014)¹

¹ Ministry of Housing, Communities & Local Government (2014) *Tree Preservation Orders and trees in conservation areas* [Online] Available at <https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas> (Last accessed 2 January 2023)

1.5 ABBREVIATIONS OF TERMS USED

Table 1-1 – List of abbreviations used within this report

Abbreviations	Definition
AIA	Arboricultural Impact Assessment
BS 5837	British Standard BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations
RPA	Root Protection Area
TCP	Tree Constraints Plan
TPO	Tree Preservation Orders

2 METHODOLOGY

2.1 SITE AND ARBORICULTURAL STUDY AREA

- 2.1.1. Site 1 is located at Baileys Lane, Halewood, Liverpool and is centred on National Grid Reference SJ 45303 85138. Site 2 is located between Wood Road and Leather's Lane), Halewood, Liverpool and centred on National Grid Reference SJ 44698 85245.
- 2.1.2. The site survey was informed by the red outlined boundaries presented in Figure 2-1. The arboricultural study area (hereafter referred to as 'Study Area') covers the extents of both sites plus up to a further 15m. The purpose of this 15m beyond Site extents is to ensure compliance with BS 5837 which recommends that all arboricultural features whose Root Protection Areas (RPAs) and crowns may be impacted are identified and surveyed. BS 5837 has a maximum RPA radius of 15m, hence the extent of the Study Area.

Figure 2-1 - Red outlines forming basis of the Study Area for Sites 1 and 2



2.2 BASELINE DATA COLLECTION

- 2.2.1. Baseline data collection has been undertaken with reference to BS 5837 and has been undertaken using the following data sources:
- an arboricultural desk study; and
 - a walkover survey of arboricultural features within the Study Area.

2.3 DESK STUDY

2.3.1. A desk study was undertaken in October 2023 to identify specific statutory and non-statutory arboricultural constraints which may apply to arboricultural features within the Study Area. The desk study, as outlined in Appendix A, was undertaken to establish the following statutory and non-statutory arboricultural constraints:

- Tree Preservation Orders;
- Conservation areas;
- Traditional orchards;
- Ancient woodland; and
- Ancient or veteran trees.

2.4 WALKOVER SURVEY

2.4.1. A walkover survey of trees within the Study Area was undertaken on 29 September 2023. The survey was undertaken to comply with BS 5837 and details of the method used are presented in Appendix A.

2.4.2. Where access to vegetation was restricted, stem diameters have been estimated as indicated by the 'e' suffix in the Arboricultural Survey Schedules of Appendices B and D.

2.5 PROVIDED DESIGN INFORMATION

2.5.1. The following information has been viewed and used to prepare this report and arboricultural assessment:

- | | |
|-------------------------------------|--|
| ■ Ordnance Survey information: | <i>Halewood LUF site boundary.dwg</i> |
| ■ Red Line Boundary: | <i>Halewood LUF site boundary.dwg</i> |
| ■ Topographical Survey information: | <i>23G236 Site 1 - 2D.dwg and 23G236 Site 2 - 2D.dwg</i> |

3 ARBORICULTURAL SURVEY FINDINGS

3.1 DESK STUDY FINDINGS

- 3.1.1. The desk study found no TPOs nor conservation areas within Study Area. The desk study also found no records of ancient or veteran trees, traditional orchards or ancient woodland within the Study Area.

3.2 GENERAL SITE DESCRIPTION

- 3.2.1. Site 1's northern and southern extents border residential properties and its eastern and western extents margin public highway. Site 1 contains a leisure centre building, car park, playing courts, access road and footpaths which are surrounded by grassed open space. The topography of the site is generally level. Site 1 is enclosed by metal palisade fencing.
- 3.2.2. Site 2's southern and north-eastern extents border residential properties and its western and south-eastern extents margin public highways. The eastern half of Site 2 contains two playing fields and various outbuildings which are enclosed by metal palisade fencing. The western half of Site 2 mainly contains grassed open space plus playground equipment and footpaths. The topography of the site is generally level but contains two raised mounds and a pond.

3.3 WALKOVER SURVEY FINDINGS

- 3.3.1. An Arboricultural Survey Schedule detailing information about trees in the Study Area is presented in Appendices B and D for Site 1 and Site 2 respectively. Arboricultural features sequentially numbered from 1 to 44 are located in Site 1 and sequentially numbered from 45 to 69 are located in Site 2.
- 3.3.2. The locations of arboricultural features are presented on the Tree Constraints Plan (TCP) in Appendices C and E for Site 1 and Site 2 respectively.

SITE 1

- 3.3.3. Table 3-1 summarises the number of trees surveyed and their tree quality categories for Site 1.

Table 3-1 – Summary of tree quality categories – Site 1

BS 5837 Category	Quality	Individual Trees	Groups	Totals
Category B	Moderate	4	4	8
Category C	Low	30	4	34
Category U	Very Low	2	0	2
Totals		36	8	44

- 3.3.4. Approximately 70% of arboricultural features in Site 1 were observed to have stem/surface roots damage which are likely associated with historic mower and trimmer impacts or anti-social behaviour.

SITE 2

3.3.5. Table 3-2 summarises the number of trees surveyed and their tree quality categories for Site 2.

Table 3-2 – Summary of tree quality categories – Site 2

BS 5837 Category	Quality	Individual Trees	Groups	Totals
Category A	High	0	1	1
Category B	Moderate	4	5	9
Category C	Low	7	7	14
Category U	Very Low	1	0	1
Totals		12	13	25

3.3.6. Site 2 contains approximately 60 young saplings which are mostly planted and supported by tree stakes and ties. These saplings were not of sufficient stem size to be included in the BS 5837 survey walkover nevertheless the TCP does provide details on tree species and dead trees observed for these features.

4 TREE CONSTRAINTS PLAN

4.1 OVERVIEW OF TREE CONSTRAINTS PLAN

- 4.1.1. The purpose of the TCP is to visually identify the constraints imposed by arboricultural features in the Study Area in terms of their quality, stem, crown and roots. This information should be considered when determining future land use or compiling an outline or detailed design.
- 4.1.2. The TCP has been compiled in accordance with the following specification:

GENERAL

- 4.1.3. The TCP shows the position of each arboricultural feature including its stem/extent, current crown spread and its RPA. The arboricultural features have been colour coded based upon their assessed BS 5837 quality category.

LOCATION / EXTENT

- 4.1.4. Arboricultural features have been located using topographical survey data where stem locations have been provided. In instances where topographical data is unavailable then features have been positioned using aerial imagery and Ordnance Survey base mapping. In these instances, locations should be considered as approximate only and will have an assumed accuracy of up to five metres.

4.2 TREE QUALITY CATEGORIES

- 4.2.1. Arboricultural features have been assigned a quality category and one or more sub-categories. The purpose of this categorisation is to enable an informed design process and to act as a baseline for an impact assessment. Sub-categories reflect where the value of the feature lies (arboricultural, landscape and cultural) and all carry equal weight.
- 4.2.2. When determining whether it is acceptable to remove an arboricultural feature consideration must be given to its quality. Although the removal of any feature should be considered on its individual merits the following statement provides general guidance as to the overall value of each feature and whether it is worthy of integration into any future development scheme.

HIGH QUALITY FEATURES – CATEGORY A

- 4.2.3. No high quality arboricultural features were surveyed in Site 1. One high quality arboricultural feature was surveyed in Site 2. No veteran trees were identified during the arboricultural survey.
- 4.2.4. High quality features should be retained and are of sufficient value to influence the design. The loss of high quality arboricultural features cannot be fully mitigated through replacement planting or other measures. The overall size and high level of benefits associated with high value features is often the result of hundreds of years of growth and cannot readily be replaced.
- 4.2.5. The loss of high quality features should be viewed as a major adverse impact that will persist for the lifetime of any scheme and beyond. The effects on the arboricultural resource associated with such an adverse impact should be viewed as a key factor in the decision-making process and the future development of the Site.

MODERATE QUALITY FEATURES – CATEGORY B

- 4.2.6. Eight moderate quality arboricultural features were surveyed in Site 1 and nine moderate quality arboricultural features were surveyed in Site 2.
- 4.2.7. Moderate quality features should be retained wherever this is reasonably practicable and are of sufficient value to influence the design. The loss of moderate quality features can potentially be mitigated through replacement tree planting although there will almost certainly be an adverse impact lasting for many decades. This is due to the fact that moderate quality features include trees that are generally mature and of some physical size. It will therefore take a long time for newly planted trees to achieve the same attributes and dimensions.
- 4.2.8. The loss of moderate quality features should be viewed as a moderate to major adverse impact with the potential to persist for the lifetime of any scheme. The effects on the arboricultural resource associated with such an adverse impact should be viewed as an important consideration and are likely to represent a material factor in the decision-making process and the future development of the Site.

LOW QUALITY FEATURES – CATEGORY C

- 4.2.9. 34 low quality arboricultural features were surveyed in Site 1 and 14 low quality arboricultural features were surveyed in Site 2.
- 4.2.10. Low quality features are of insufficient value to influence the design. These features should be retained only where they do not pose a constraint on development.
- 4.2.11. Low quality features can, if present in significant numbers, contribute in meaningful terms towards visual amenity and landscape appeal. Whilst the loss of a limited number of low-quality features can often be accommodated without any significant detrimental impact on visual amenity this may not be the case should substantial numbers be removed. Whilst the removal of low-quality features can often be mitigated through replacement planting there will always be a period of adverse effects during which new trees establish themselves and start to grow.
- 4.2.12. The loss of low-quality trees should be viewed as a negligible to moderate adverse impact which, subject to replacement planting, has the potential to be mitigated over a relatively short period of time.

VERY LOW QUALITY FEATURES – CATEGORY U

- 4.2.13. Two very low quality arboricultural features were surveyed in Site 1 and one very low quality arboricultural feature was surveyed in Site 2.
- 4.2.14. Very low quality features are of insufficient value to influence the design. These features should be retained only where they have conservation value, do not pose a constraint on development and do not pose unacceptable risk to property, health and safety.
- 4.2.15. Very low quality features have serious defects and are generally in irredeemable condition structurally and/or physiologically. These trees may also be infected with pathogens detrimental to the health of nearby trees.
- 4.2.16. Very low quality trees found to have conservation value (outside arboricultural value) even in the short term, could potentially be upgraded in value and retained for specific purposes; however, this

has potential healthy, safety and risk implications depending on the current and future use of the site, which should be considered.

- 4.2.17. The loss of very low-quality trees should be viewed as negligible.

4.3 DIRECT AND INDIRECT CONSTRAINTS

- 4.3.1. The constraints imposed by the surveyed arboricultural features occur both above and below ground, are associated with their current and future physical and physiological requirements and relate to roots, canopies, and their potential to impact on future land-use.
- 4.3.2. In some instances, it may be possible to successfully manage the constraints imposed by arboricultural features through an identified programme of removal and replanting. This should be considered within the context of the scheme and should seek to balance the retention of existing features against the benefits provided by any new development and associated mitigatory planting.

ROOT PROTECTION AREAS (RPA)

- 4.3.3. British Standard BS 5837 defines the RPA as *'the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability'* and is an area within which the requirements of the tree *'must be given priority'*.
- 4.3.4. It also describes the default position as being one where structures are not located within the RPA of any retained tree. However, BS 5837 further states that where there is an overriding justification to do so technical solutions may be available which permit the construction of structures whilst avoiding unreasonable damage to the tree.
- 4.3.5. It is therefore recommended that, unless there is an overriding reason, the default position be that all development (e.g. structures, hard surfacing, level changes and underground services) is excluded from the RPA. However, if development is deemed necessary within the RPA then it is further recommended that the advice of an arboriculturist be sought at the earliest opportunity. This is to ensure that the likely impact on the tree can be fully assessed and that opportunities for any potential mitigation can be identified and incorporated into any future design.

CROWNS

- 4.3.6. The above ground constraints imposed by canopies should be considered in relation to the following:
- The amount of clear height beneath the crown: Is it sufficient for vehicles and pedestrians? Will it restrict access for construction work?
 - The spatial relationship between the crown and any structures: Is there sufficient space to prevent branches causing damage to structures when moving in the wind? Will the crown appear overbearing to occupiers and visitors?
- 4.3.7. The pruning of urban trees as a means of controlling their spatial requirements is not uncommon and is a technique which could possibly be employed as a means of addressing the above points. Pruning is however not appropriate in all circumstances and professional advice should be sought on its acceptability before relying upon it to resolve potential conflicts.

OTHER POTENTIAL CONSTRAINTS

4.3.8. Other potential constraints include, but are not limited to, the following items:

Future Growth Potential

4.3.9. The future growth potential of arboricultural features must be considered in the context of any future design especially where it relates to ultimate height and crown spread. Future growth potential is broadly aligned with age class of the arboricultural feature and can be summarised in Table 4-1.

Table 4-1 – Growth potential as defined by age class

Age Class	Growth Potential
Young	High
Semi-mature	Moderate
Early mature	Moderate to Low
Mature	Low
Veteran	Very low/none

4.3.10. The provision of inadequate space for the future growth of trees can result in damage to structures and maintenance issues for owners or occupiers.

Species Characteristics

4.3.11. The characteristics of individual tree species such whether they are likely to drop fruit, sticky sap, flowers or cones. These may be regarded as a nuisance by future owners or occupiers and may cause resentment towards trees. In instances where such characteristics are likely to be an issue then design solutions such as gutter guards, ladder access points and high friction or easy clean surfaces should be considered.

4.4 ARBORICULTURAL IMPACT ASSESSMENT

4.4.1. The purpose of a tree constraints report is to inform design regarding the baseline condition of the arboricultural resource on site, with this information effort can be made to retain valuable trees.

4.4.2. At such time when the General Arrangement is complete or nearing completion, the design and associated working area should be assessed in relation to its potential impact on trees; this assessment would determine which trees can feasibly be retained and which trees require removal to accommodate the design.

4.4.3. The loss of removed trees should be mitigated in accordance with local planning policy.

4.4.4. Retained trees must be protected throughout demolition and construction phases to feasibly be retained, this will likely involve tree protection fencing and potentially areas of special measures where works are likely to take place within RPAs.

4.5 RESTRICTIONS RELATING TO TREE REMOVAL

- 4.5.1. In addition to TPOs, the felling of trees is controlled by the Forestry Act 1967. In the event that trees need to be felled a felling licence may be required. There are exemptions to this requirement which should be established during the design and impact assessment.

4.6 COMPENSATION PLANTING

- 4.6.1. Tree loss should be compensated through the implementation of a landscape design including new tree planting. A Landscape Architect should be commissioned to design the tree planting as part of a comprehensive approach to landscape design. It is recommended that the choice of species is selected to reflect those which are already in the local landscape and to be suitably varied to build in resilience in the event of pests and diseases affecting the area. There are several factors to consider when selecting tree species and it important to consider the location of the tree as part of this. Trees and Design Action Group has published A Guide for Specifiers² to help in species selection.

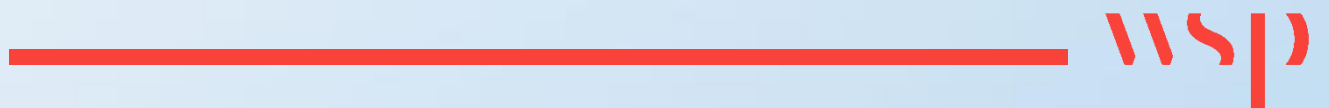
4.7 TREE PROTECTION

- 4.7.1. During preliminary design an Arboricultural Impact Assessment should be undertaken to confirm which trees can be retained. It is recommended that an Arboricultural Method Statement is also developed in which measures for tree protection are detailed.

² Trees And Design Action Group, 2019, Tree Species Selection for Green Infrastructure: A Guide for Specifiers, <https://www.tdag.org.uk/uploads/4/2/8/0/4280686/tdag_treespeciesguidev1.3.pdf>

Appendix A

METHODOLOGY



SURVEY METHODOLOGY

METHOD OF BASELINE DATA COLLECTION

Baseline data collection has been undertaken with reference to BS 5837 and has been undertaken using the following data sources:

- An arboricultural desk study, and;
- A walkover survey of all arboricultural features within the Study Area.

DESK STUDY

The desk study for both sites was undertaken on 13 October 2023 and completed on 18 October 2023.

The desk study reviewed existing arboricultural information available in the public domain. The desk-study has considered the following sources:

TPOs

Knowsley Metropolitan Borough Council is responsible for implementing any legal controls imposed through TPOs within the study area. Information on the location of TPOs is not functioning on their website³ so their office was contacted on 18 October 2023 by email at jonathan.henderson@knowsley.gov.uk; an email of reply was received on the same day.

Conservation areas

Knowsley Metropolitan Borough Council is responsible for implementing any legal controls imposed through conservation areas within the study area. Information on the location of conservation areas is not functioning on their website⁴ so their office was contacted on 18 October 2023 by email at jonathan.henderson@knowsley.gov.uk; an email of reply was received on the same day.

Ancient woodland

The potential presence of ancient woodland within the study area was checked using the web based Multi Agency Geographic Information for the Countryside (MAGIC) map database⁵ which was access on 13 October 2023.

³ Knowsley Metropolitan Borough Council, Tree Preservation Orders <<https://secured.knowsley.gov.uk/myneighbourhood>> [Accessed 18 October 2023].

⁴ Knowsley Metropolitan Borough Council, *Conservation Areas* <<https://secured.knowsley.gov.uk/myneighbourhood>> [Accessed 18 October 2023].

⁵ Magic (DEFRA), *Multi Agency Geographic Information for the Countryside* [online] Available at: <<https://magic.defra.gov.uk/MagicMap.aspx>> [Accessed 13 October 2023].

Ancient and Veteran Trees

The potential presence of ancient and veteran trees within the study area was checked using the Woodland Trust's Ancient Tree Inventory⁶ which was accessed on 13 October 2023.

WALKOVER SURVEY

A walkover survey was undertaken on 29 September 2023 with aerial imagery and topographic survey used as base mapping.

The walkover survey was undertaken in accordance with the following criteria:

- Arboricultural features have been recorded as tree groups where this has been deemed appropriate. Tree groups have been recorded on the basis that they form distinct arboricultural features either aerodynamically, visually or because they contain trees of similar cultural and biodiversity value.
- The trees have been visually inspected from ground level only;
- No tissue samples were taken nor was any internal investigation of the subject trees undertaken;
- Tree heights and crown spreads have been estimated to the nearest 1m;
- Notes have been recorded where they relate to the quality of the arboricultural feature;
- Management recommendations have been provided where work is necessary for the abatement of a hazard which presents a high level of risk to persons or property. Such management recommendations have been communicated to the tree owner/manager separately from this report;
- Stem diameters have been measured in accordance with Annex C of BS 5837;
- Diameters of single stem trees on level ground have been measured at 1.5m above ground level. The diameters of other commonly encountered stems have been measured as per the guidance. The combined stem diameters for multi-stemmed trees have been calculated in accordance with BS 5837 paragraph 4.6.1.⁷
- By default, Root Protection Areas (RPAs) are calculated as an area equivalent to a circle with a radius 12 times the stem diameter and are capped at a distance of 15 metres.

QUALITY ASSESSMENT

The quality of arboricultural features has been determined in accordance with BS 5837 Table 1 a copy of which is provided in Figure A-1. The purpose of the quality assessment is to enable informed decisions to be made regarding the removal and retention of arboricultural features in the context of development. For an arboricultural feature to be included within a particular quality category it should accord with the description provided.

⁶ Ancient Tree Inventory, 2023. *Ancient Tree Inventory* [online] Available at: < <https://ati.woodlandtrust.org.uk> > [Accessed 13 October 2023].

⁷ British Standards Institute. *BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations*. London: BSI, page 10-11 available at: <https://beta.bathnes.gov.uk/sites/default/files/2020-01/BS5837%202012%20Trees.pdf> [last accessed September 2022].

The quality of each arboricultural feature is defined based on its sub-category. Sub-categories carry equal weight, do not influence retention priority and are simply included to indicate the primary value associated with each surveyed item. Sub-categories 1, 2 and 3 are intended to reflect arboricultural, landscape and cultural values, respectively.

The quality and sub-category assigned to each arboricultural feature are identified within the Arboricultural Survey Schedules included in Appendices B and D of this report.

Figure A-1 - BS 5837 Table 1 - Cascade Chart for Tree Quality Assessment

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

NOTES AND LIMITATIONS

Arboricultural survey data is of a preliminary nature and has been collected based on a walkover survey.

Only defects visible from the ground have been noted and each individual feature may not have been inspected closely due to access difficulties, the presence of dense ivy, other vegetation or safety constraints. Safety related features have not been recorded on the basis that the arboricultural features will be subject to a normal programme of tree hazard assessment and only those features which materially affect the quality of the feature or pose a real and immediate safety concern have been recorded.

Arboricultural survey data is typically valid for a period of two years unless otherwise stated. Significant environmental events (such as extreme weather conditions) or changes to the Site may render it invalid within a shorter timescale.

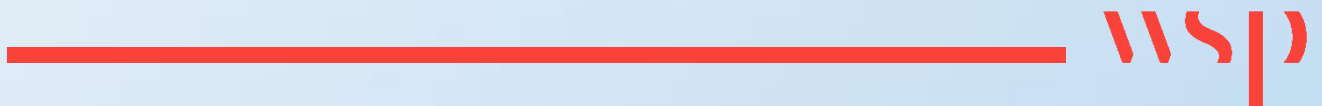
Records held on the Ancient Tree Inventory are collected on a voluntary basis, therefore the absence of records does not demonstrate the absence of ancient or veteran trees but may simply indicate a gap in recording coverage.

Whilst arboricultural surveys are not seasonally limited it is the case that certain pests and diseases may be more or less evident at different times of the year. This is especially true of certain wood decaying fungi such as the Giant Polypore (*Meripilus giganteus*) where fruiting bodies are short-lived, and the early stages of root decay may not result in other identifiable symptoms. Walkover survey data is therefore based upon observations made at the time of the site visit and may be subject to change should further or more detailed inspections be undertaken.

The survey has only been undertaken from land within the client's ownership, from public land or from areas where formal access has been arranged.

Appendix B

ARBORICULTURAL SURVEY SCHEDULE – SITE 1



SURVEY SCHEDULE EXPLANATORY NOTES

REFERENCE ABBREVIATIONS

- T – Tree
- G – Group

MEASUREMENTS

Height is estimated to provide a relative indication of tree size.

Stem Diameter are in accordance with BS 5837 paragraph 4.6.1, Annex C. Abbreviations used:

- e – Estimated

Crown spread for individual trees was estimated in the four cardinal points.

Crown spread for groups is not listed in the Arboricultural Survey Schedule because this is illustrated on the plan showing extent of crown.

Crown spread for groups is recorded as an average for the group.

LCH – lowest canopy height. It is an estimate of the lowest point of foliage above ground level of the tree indicating the clearance below the tree.

LBH – lowest branch height. It is the height above ground level of the first branch union with the main stem of the tree.

ASSESSMENTS

Life stage: Y – Young, SM – Semi-mature, EM – Early Mature, M – Mature, V – Veteran

Physiological condition: G – Good, F – Fair, P – Poor, D – Dead

Structural condition: G – Good, F – Fair, P – Poor, U – Unstable

ERC - Estimated remaining contribution: <10 years, 10+ years, 20+ years or 40+ years.

BS 5837 Category: A, B, C or U with sub-category recorded as 1, 2 or 3.

RPA Radius is the radius of a circular Root Protection Area associated with the tree as measured from the centre of the stem. For arboricultural features, where more than one stem diameter is recorded the RPA radius is calculated using the largest dimension. Unless otherwise noted the Arboricultural Survey Schedule, RPA for groups is based on the equivalent RPA for the largest tree in that group.

Ref.	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m) N - E - S - W	LCH (m)	LBH (m)	Age Class	Physiological Condition	Structural Condition	Comments and Recommendations	RPA Radius (m)	ERC (yrs.)	BS 5837 Category
T1	Norway maple	8	220	2 - 2 - 1 - 1	2	2	SM	F	P	In playing field. Spiralised impact wound to base @0-1m. Suckering at base. Possible fastigate variety.	2.6	10+	C1
T2	Norway maple	5	80	1 - 1 - 1 - 1	0	0	Y	F	P	In playing field. Historically damaged main stem with suckering out of remaining stem base. Deadwood main stem extends to upper canopy.	1.0	10+	C1
G3	Norway maple, poplar species	8	250	2 - 2 - 2 - 2	0	0	SM	F	F	Two trees. Stake still attached to Norway maple. Self set poplar has large aerial root in contact with boundary fence and disrupting pavement. Recommend removal of poplar.	3.0	10+	C2
T4	Hybrid poplar	24	920	5 - 5 - 5 - 5	4	3	EM	F	G	Prominent tree in playing field. Canopy lifted.	11.0	20+	B2
G5	Pedunculate oak, Common yew	16	700e	8 - 8 - 8 - 8	3	3	EM	G	G	Two managed trees in residential from garden plotted. Surveyed from footpath. Oak is on edge of tarmac footpath.	8.4	20+	B2
T6	Common hawthorn	6	160	1 - 1 - 1 - 1	0	0	SM	F	P	Multistem within 200mm of boundary fence. Stem and branches historically cut back from fence with one main stem in contact with fence. Recommend removal of stem nearest fence to ground level.	2.0	10+	C1
T7	Pine species	8	310	4 - 3 - 3 - 3	3	3	SM	G	G	Prominent tree on grassed mini roundabout. Possible girdling root observed at surface.	3.7	20+	B2
G8	Pear species	8	210	3 - 3 - 3 - 3	2	2	SM	F	F	Three trees. Linear planting to leisure centre entrance. Likely chancleer. Some strimmer damage to basal flare and surface roots. Stem epicormic on eastern tree.	2.5	20+	C2
T9	Silver birch	9	240	3 - 3 - 3 - 3	1	3	SM	G	F	Prominent tree near leisure centre entrance. One low stem pruned back to base with exposed heartwood. Some superficial surface root damage from mowers.	2.9	20+	B2
T10	Silver birch	8	240	3 - 3 - 3 - 3	1	3	SM	F	F	Tree near leisure centre entrance which has been topped. One low stem pruned back to base with exposed heartwood. Ample surface root damage from mowers.	2.9	20+	C2
G11	Pear species	8	210	3 - 3 - 3 - 3	1	1	SM	F	F	Three trees. Stem diameters range 170-210mm. Linear planting to leisure centre entrance. Likely chancleer. Some strimmer/mower damage to basal flare and surface roots. Stem epicormic, some dieback and canopy loss on middle tree.	2.5	20+	C2
T12	Norway maple	5	80	0.5 - 0.5 - 0.5 - 0.5	2	2	Y	P	P	Poor condition attenuated tree with significant mower/ strimmer damage to base and surface roots. Open degraded impact wounds to lower stem. Dead primary branches in canopy.	1.0	<10	U
T13	Norway maple	7	120	1 - 1 - 0.5 - 0.5	3	2.5	Y	F	F	Attenuated tree with some mower/ strimmer damage to base and surface roots. Historic impact wounds to stem occluding. Contains some dead branches.	1.4	10+	C1
T14	Norway maple	4	90	0.5 - 0.5 - 0.5 - 0.5	1	1	Y	F	F	Snapped out primary branch. Some mower/ strimmer damage to base and surface roots. Historic impact wounds to stem occluding plus some possible dog attack damage.	1.1	10+	C1
T15	Norway maple	1	80	0.2 - 0.2 - 0.2 - 0.2	1	1	Y	F	P	1m high stump with regrowth. Upper structure snapped out. Suckering regrowth. Historically subject to mower/trimmer damage.	1.0	<10	U
T16	Norway maple	7	120	1.5 - 2 - 1.5 - 1	3	2.5	Y	F	F	Attenuated tree with some mower/ strimmer damage to base and surface roots. Historic impact wounds to stem mid-occlusion.	1.4	10+	C1
G17	Sycamore, Common ash, Apple	12	400e	4 - 4 - 4 - 4	0	0	SM	F	F	Three trees. Inaccessible residential trees surveyed from adjacent land parcel. Boundary to north by fence. Sycamore and ash (multistem) to south of wall. Undersize cotoneaster sp. to west in front garden.	4.8	20+	B2
G18	Norway maple	11	300	4 - 4 - 4 - 4	2	2	SM	F	P	Six low quality trees providing higher collective landscape value despite defects. Stem diameters range between 26-300mm. All trees subject to historic strimmer or mower damage to surface roots and basal flare. Open cavities on lower stem of most trees.	3.6	20+	B2
T19	Norway maple	7	190	2 - 2 - 1 - 0.5	3	2	Y	F	F	Mower/ strimmer damage to base and surface roots. Historic impact wounds to stem occluding. Contains dead branches.	2.3	10+	C1
T20	Cedar species	6	180	3 - 3 - 2 - 3	1.5	1.5	Y	G	G	Canopy lifted. Minor damage to aerial root observed.	2.2	20+	C1

Ref.	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m) N - E - S - W	LCH (m)	LBH (m)	Age Class	Physiological Condition	Structural Condition	Comments and Recommendations	RPA Radius (m)	ERC (yrs.)	BS 5837 Category
T21	Sycamore	9	210	2 - 2 - 2 - 2	2	2	SM	F	F	Mower damaged lower stem (mostly occluded) with limited taper. Possible fastigate form.	2.5	20+	C2
T22	Norway maple	9	180	2 - 2 - 2 - 1	2	2	Y	F	F	Mower damaged lower stem (mostly occluded) with limited taper. Possible fastigate form.	2.2	20+	C2
T23	Norway maple	9	180	1.5 - 2 - 2 - 0.5	2	2	Y	G	F	Mower damaged lower stem with limited taper. Cut back from adjacent parking space. Fastigate form. Some earlyleaf chlorosis.	2.2	20+	C2
T24	Norway maple	9	180	2 - 2 - 2 - 1	2	2	Y	F	F	Mower damaged lower stem with limited taper. 2m long open callus. Fastigate form.	2.2	20+	C2
T25	Norway maple	8	180	2 - 2 - 2 - 2	3	2	SM	F	F	Limited stem taper. Subject to historic lower stem wound which are mostly occluding. One large root damaged by mowers. Fastigate form. Early chlorosis to leaves.	2.2	10+	C1
T26	Pear species	7	120	1 - 1 - 1 - 1	2	2	Y	F	F	Located in landscaped area outside leisure centre entrance. Fastigate form. Various lower stem wounds of which some are mid-occlusion. Some minor stem epicormic. Likely chancleer.	1.4	10+	C2
T27	Norway maple	9	200	2.5 - 2.5 - 2.5 - 2.5	3	3	SM	F	F	Surface root damaged by mower. Some basal epicormic. Various impact wounds encircle lower stem which are mid-occlusion. Watering tube possibly girdling roots	2.4	10+	C2
T28	Norway maple	9	200	2.5 - 2 - 2 - 2	3	3	SM	F	P	Canopy in contact with lamppost. Possible fastigate variety. 1.5m long 100mm wide impact wound to stem with exposed degraded heartwood.	2.4	10+	C2
T29	Norway maple	7	170	2.5 - 2.5 - 2.5 - 2.5	2	2	SM	G	F	Some impact damage to lower stem with exposed heartwood. Healthy crown.	2.0	20+	C2
T30	Norway maple	7	170	1.5 - 1.5 - 1.5 - 1.5	2	2	SM	F	F	2 impact wounds to lower stem with exposed heartwood. Healthy crown.	2.0	20+	C2
T31	Sycamore	6	170	1.5 - 1.5 - 1.5 - 0.5	2	2	Y	F	P	2 impact wounds to lower stem with exposed heartwood. Some canopy loss to west.	2.0	20+	C2
T32	Norway maple	7	210	2.5 - 2.5 - 2.5 - 2.5	2	2	SM	F	F	Impact damage to lower stem with exposed heartwood on north. Healthy crown.	2.5	20+	C2
T33	Norway maple	7	130	0.5 - 0.5 - 0.5 - 0.5	3	2.5	Y	F	P	Attenuated tree with historic impact damage to base and lower stem. Early chlorosis of canopy.	1.6	10+	C1
T34	Norway maple	8	210	2.5 - 2.5 - 2.5 - 2.5	2	2	SM	G	F	Some superficial impact damage to lower stem which appears occluded. Healthy crown. Stem epicormic.	2.5	20+	C2
T35	Norway maple	8	280	3 - 3 - 3 - 3	3	2	SM	G	F	Historic impact wounds on lower stem largely occluded with stem rib @0-1.5m. Some exposed heartwood. Healthy crown.	3.4	20+	C2
T36	Norway maple	9	330	3 - 3 - 3 - 3	3	1	SM	F	F	Dog waste in stem epicormic plus old tree guard attached. Unable to inspect stem due to epicormic but surface roofing damage observed. Twin stem.	4.0	20+	C2
T37	Norway maple	9	310	4 - 4 - 4 - 4	3	1	SM	F	F	Large impact wound to lower stem plus surface damage to roots. Possible root girdling.	3.7	20+	C2
T38	Norway maple	8	240	3 - 3 - 3 - 3	2	0	SM	F	F	One standing dead stem attached to base. Multistem with abundant lower stem epicormic.	2.9	20+	C2
T39	Norway maple	6	130e	2 - 2 - 2 - 2	0	0	Y	F	P	Unable to access/inspect multistems due to abundant epicormic and waste stored in tree. Appears part root girdled by exposed watering tube. Some early leaf chlorosis.	1.5	10+	C1
T40	Hybrid poplar	21	720	7 - 7 - 7 - 7	1	4	EM	G	G	Prominent landscape tree. Healthy crown.	8.6	20+	B1
T41	Scots pine	6	100e	1 - 1 - 1 - 1	1	1	Y	F	F	Off site inaccessible tree in front garden.	1.2	20+	C2
G42	Field maple, Common pear	10	350e	4 - 4 - 4 - 4	0	0	SM	G	F	Two trees. Inaccessible garden trees bound to south by brick wall.	4.2	20+	C2
T43	Cherry species	6	150e	2 - 2 - 2 - 2	1	1	Y	F	F	Off site inaccessible tree in front garden. Possible cherry species.	1.8	20+	C2
G44	Willow species, Rowan	8	300e	4 - 4 - 4 - 4	0	0	SM	F	F	Two trees. Inaccessible residential garden trees. Willow is multistemmed. Bound by brick wall and hard surface path to south.	3.6	20+	B2

Appendix C

TREE CONSTRAINTS PLAN – SITE 1





- LEGEND:**
- Proposed Red Line Boundary
 - Base Mapping
 - Indicative Root Protection Area (RPA)
 - Indicative Tree Canopy
 - T - Single Tree
 - G - Tree Group
- BS 5837(2012) Tree Quality Category**
- B Tree Stem
 - C Tree Stem
 - U Tree Stem
 - B Group Stems
 - C Group Stems

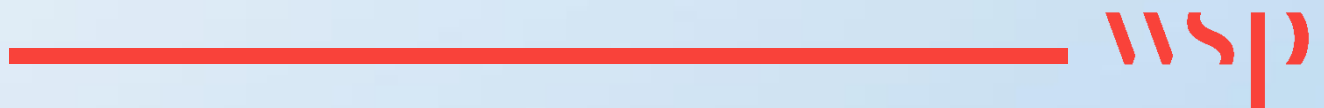
1.0	19/10/2023	JG	FIRST ISSUE	DC	MW
REV	DATE	BY	DESCRIPTION	CHK	APP



CLIENT: Knowsley Metropolitan Borough Council		
PROJECT: LUF Halewood Halewood Leisure Centre		
TITLE: Tree Constraints Plan - Site 1		
PROJECT No: 70112144	SCALE @ A2: 1:1000	DATE: 19-10-2023
DRAWING No: 70112144-ARB-TCP-S1-1.0		REV: 1.0
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Appendix D

ARBORICULTURAL SURVEY SCHEDULE - SITE 2



SURVEY SCHEDULE EXPLANATORY NOTES

REFERENCE ABBREVIATIONS

- T – Tree
- G – Group

MEASUREMENTS

Height is estimated to provide a relative indication of tree size.

Stem Diameter are in accordance with BS 5837 paragraph 4.6.1, Annex C. Abbreviations used:

- e – Estimated
- av. – mean average

Crown spread for individual trees was estimated in the four cardinal points.

Crown spread for groups is not listed in the Arboricultural Survey Schedule because this is illustrated on the plan showing extent of crown.

Crown spread for groups is recorded as an average for the group.

LCH – lowest canopy height. It is an estimate of the lowest point of foliage above ground level of the tree indicating the clearance below the tree.

LBH – lowest branch height. It is the height above ground level of the first branch union with the main stem of the tree.

ASSESSMENTS

Life stage: Y – Young, SM – Semi-mature, EM – Early Mature, M – Mature, V – Veteran

Physiological condition: G – Good, F – Fair, P – Poor, D – Dead

Structural condition: G – Good, F – Fair, P – Poor, U – Unstable

ERC - Estimated remaining contribution: <10 years, 10+ years, 20+ years or 40+ years.

BS 5837 Category: A, B, C or U with sub-category recorded as 1, 2 or 3.

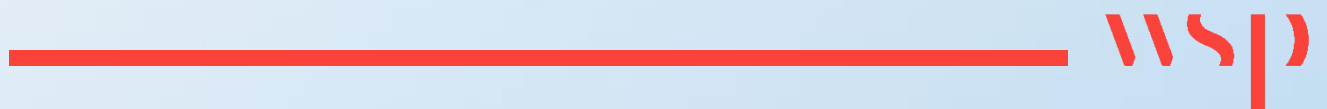
RPA Radius is the radius of a circular Root Protection Area associated with the tree as measured from the centre of the stem. For arboricultural features, where more than one stem diameter is recorded the RPA radius is calculated using the largest dimension. Unless otherwise noted the Arboricultural Survey Schedule, RPA for groups is based on the equivalent RPA for the largest tree in that group.

Ref.	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m) N - E - S - W	LCH (m)	LBH (m)	Age Class	Physiological Condition	Structural Condition	Comments and Recommendations	RPA Radius (m)	ERC (yrs.)	BS 5837 Category
T45	Elder	6	80e	1 - 1 - 1 - 1	1	3	SM	F	F	Inaccessible dead self set multistem. Growing at base of fence line within playing field and dense bramble.	1.0	<10	U
T46	Norway spruce	10	250e	2 - 2 - 2 - 2	4	4	SM	F	F	Inaccessible tree in garden. Heavily crown lifted. Unable to inspect base.	3.0	10+	C1
T47	Elder	6	140e	1 - 1 - 1 - 1	1	1	SM	F	F	Self set multistem growing at base of fence line within playing field. Ivy covered.	1.7	10+	C1
T48	Elder	4	80e	1 - 1 - 1 - 1	1	1	SM	F	F	Self set tree growing at base of double fence line within playing field. Ivy covered.	1.0	10+	C1
G49	Crab apple, Goat willow	8	150 Av.	4 - 4 - 4 - 4	0	0	SM	F	F	Dense self set inaccessible group margining edge of playing field. Contains dogwood and one large hard pruned inaccessible willow (estimated stem diameter of 380mm). Average stem diameter reported.	1.8	20+	C2
T50	Elder	6	120e	1 - 1 - 1 - 1	5	5	EM	F	F	Attenuated and located in dense thick bramble. Possibly in residential garden.	1.4	10+	C2
G51	Common hawthorn, Elder	6	120e	3 - 3 - 3 - 3	1	1	SM	F	F	Inaccessible in 1m high bramble. Elder in limited leaf.	1.4	10+	C2
G52	Wild cherry	9	350e	5 - 5 - 5 - 5	1	1	EM	F	F	Three trees. Stem diameters range from 320-350mm. Bramble encroaches 2 westerly stems. Low lying canopies.	4.2	20+	B2
G53	Norway maple, Silver birch	12	280	3 - 3 - 3 - 3	1	1	SM	F	F	Three trees. Stem diameters range from 170-280mm. Smallest tree in dense bramble. Middle tree suppressed by larger adjacent trees.	3.4	20+	B2
G54	Norway maple, Silver birch, Wild cherry	12	360	5 - 5 - 5 - 5	1	1	EM	F	F	Seven trees. Stem diameters range from 120-360mm. Some stems in bramble.	4.3	20+	B2
G55	Silver birch, Hornbeam, Common ash, Rowan	10	380	3.5 - 3.5 - 3.5 - 3.5	0	0	SM	F	F	Nine trees. Stem diameters range from 110-380mm. Patchy linear planting to east of football pitch fence. Contains one poor condition rowan and one ash with ash dieback.	4.6	20+	C2
T56	Elder	6	130e	1 - 1 - 1 - 1	2	2	SM	F	F	Self set multistem to north of residential fence. Bramble covered.	1.5	10+	C2
T57	Apple	7	250e	2 - 2 - 2 - 2	4	4	SM	F	F	Likely in garden. Obscured by dense bramble and undersize elder.	3.0	20+	B2
G58	Common hawthorn	5	100e	1 - 1 - 1 - 1	0	0	SM	F	F	Lapsed hedge within garden.	1.2	10+	C2
G59	Sycamore, Bird cherry, Elder	8	120e	3 - 3 - 3 - 3	0	0	SM	F	F	Inaccessible group fronted by bird cherry, elder and sycamore plus dense rose. Fronted by some dead hedges.	1.4	10+	C2
G60	Leyland cypress, Common laburnum, Eucalyptus	14	870e	4 - 4 - 4 - 4	0	0	EM	F	F	Four garden trees located to south of garden fence. Tri-stemmed leylandii (500mm x 3).	10.4	20+	B2
T61	Scots pine	5	100e	1 - 1 - 1 - 1	1	1	Y	F	F	Residential garden tree. Located between double fencing. Stem likely to be in contact with fence.	1.2	20+	C1
G62	Sycamore, Common hawthorn, Magnolia, Wild cherry, Plum, Goat willow	14	200 Av.	3 - 3 - 3 - 3	0	0	EM	F	F	Scattered linear feature intersected by residential boundary fence. Includes several multistems and some residential back garden trees observed from playing field. Contains two larger trees (estimated stem diameters of 430mm and 450mm). Average stem diameter reported.	2.4	20+	C2
T63	Italian alder	18	790	5 - 5 - 5 - 5	2	5	M	G	F	Good form. Buttress root damage from mowers. One mostly occluded cavity @ 1m (west). One flush cut @ 2m (east). Pronounced void at stem base on eastern side.	9.5	40+	B1, 2
T64	Lime species	13	600	7 - 7 - 7 - 7	2	1	EM	G	G	Good form. Flared buttress roots.	7.2	20+	B1

Ref.	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m) N - E - S - W	LCH (m)	LBH (m)	Age Class	Physiological Condition	Structural Condition	Comments and Recommendations	RPA Radius (m)	ERC (yrs.)	BS 5837 Category
G65	Norway maple, Poplar species, Whitebeam	30	570	6 - 6 - 6 -6	2	2	EM	P	F	Six trees. Stem diameters range from 300-570mm. Tree group stems subject to vandalism. Contains 3 attenuated poplars in poor vigour - 2 of which significantly stem towards playground. One poplar in poor vigour has dead lower stem suckering, minor to moderate attached deadwood, degraded white fungus at root base and 500x200mm cavity at 1m. Recommend H+S tree inspection of poplars in group.	6.8	20+	C2
G66	Poplar species	30	1030	12-12-12-12	2	2	M	G	F	Three trees. Canopies matched to aerial imagery. Stem diameters range from 590-1030mm. Prominent line of poplar in local landscape. Good crown health. Adjacent to poor vigour poplars x3.	12.4	40+	A2
T67	Lime species	12	700	8 - 8 - 8 - 8	1	1	EM	G	G	Good form. Possible memorial tree with flowers tied to stem.	8.4	20+	B2
T68	Poplar species	13	490	6 - 6 - 6 - 6	3	2	SM	P	F	Tree appears in poor vigour with significant chlorosis throughout canopy. Some suckering at base. 2 rot holes on main stem which are possibly interconnected @ 1m and 3m (south). Woody frass at base of cavities.	5.9	10+	C2
G69	Norway maple, London plane, Common lime	16	630	7 - 7 - 7 - 7	3	2	EM	G	F	Four tree stem diameters range from 420-630mm. Prominent landscaping planting some recent damage to smallest lime. Norway maple has historic open wound which is mid-occlusion.	7.6	20+	B2

Appendix E

TREE CONSTRAINTS PLAN - SITE 2





LEGEND:

- Proposed Red Line Boundary
- Base Mapping
- Indicative Root Protection Area (RPA)
- Indicative Tree Canopy
- Sapling (Stem Diameter <75mm)
- T - Single Tree
- G - Tree Group

BS 5837(2012) Tree Quality Category

- A Tree Stems
- B Tree Stem
- C Tree Stem
- U Tree Stem
- B Group Stems
- C Group Stems

1.0	19/10/2023	JG	FIRST ISSUE	DC	MW
REV	DATE	BY	DESCRIPTION	CHK	APP
					
CLIENT: Knowsley Metropolitan Borough Council					
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DRAWING No: 70112144-ARB-TCP-S2-1.0				REV: 1.0	
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