

Trees and Construction

BS5837 Tree Survey Assessment

Site: Land off Mercury Way, Skelmersdale

Ref: 21676/A2_AIA

Client: John McCall Architects



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Revision	Description	Date
/	/	/

1. INTRODUCTION

- 1.1 **Instruction:** This advice has been prepared for John McCall Architects (hereafter; client) and is in respect of the tree related planning considerations at Land off Mercury Way, Skelmersdale (hereafter; site).

As the proposal relates to development works at site, the advice herein is produced in accordance with the British Standard 5837 : 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter; BS5837).

- 1.2 **BS5837:** The scope of BS5837 is to provide guidance on how trees and other vegetation can be integrated into construction and development design schemes. The overall aim is to ensure the protection of amenity by trees which are appropriate for retention.

- 1.3 **Scope of this advice:** This advice has been produced in accordance with BS5837 and is secondary to arboricultural guidance as a 'Tree Survey Assessment' ref: 21676/A1 (hereafter; tree report). The tree report was provided to the client, intended to demonstrate the realistic arboricultural constraints and assist with the design process.

This advice is further to the tree report. Hence, the objective is to assess and provide recommendations regarding the proposal's potential impact on trees and vice versa.

- 1.4 Following instruction the consultant surveyed the site on the 29th June and 28th September 2021 where a site walkover and BS5837 tree survey were carried out; all trees on site and around the application boundary were surveyed from ground level and plotted as either an individual or a tree group.

- 1.5 This advice is subject to caveat at Appendix I, outlines relevant terms and definitions at Appendix II and constitutes the findings of the preliminary site assessment and associated arboricultural recommendations.

- 1.6 The survey data and site observations use the supplied topographical survey to illustrate the surveyed trees in plan format as a 'Tree Constraints Plan' (hereafter; TCP).

The TCP has an overlay of the proposed scheme to enable this review. The TCP informs this assessment and is used as a base layer for the appended 'Tree Protection Plan' (hereafter; TPP); the TCP, tree survey data table and TPP are at Appendix III.

2. SITE INFORMATION & TREE ASSESSMENT

- 2.1 The site currently comprises a disused site split between a disused building with associated access, parking and hard and soft amenity space, and an open field with tree growth mainly in collective canopy groups.
- 2.2 **Proposal:** It is understood that a proposed scheme involves the demolition of the existing structure and construction of residential properties at site. This will include a general scheme of landscape improvement, parking provision and access improvement onto and around the site, as per the client's proposed site plan as illustrated on the TCP.
- 2.3 The site requires consideration from an arboricultural perspective due to the presence of trees on and around the site; these trees are deemed to be within impacting distance of the existing property and potential construction area.
- 2.4 The trees -
- 2.4.1 The tree survey and assessment resulted in the BS5837 quality/retention categories of 'A - high', 'B - moderate' and 'C - low' being attributed to trees/tree groups as well as those categorised as 'U' for those dead, dying or dangerous trees needing to be removed.
- 2.4.2 The BS5837 tree survey is a means of objective assessment and reflects the trees' condition, quality contribution, remaining life expectancy and spatial considerations (stem, crown and roots). On this basis and in order to consider the trees' accurate constraints, the survey data has the crown extents for north, east, south and west, the stem diameter measurement, and the calculated root protection areas (hereafter; RPAs). Hereafter, the trees are therefore reviewed and considered on their own merits and in line with the guidance of BS5837.
- 2.4.3 There are identified defects to the surveyed trees, this has resulted in the recommendation for tree removal, i.e. the category 'U' trees. Thereafter, general site inspections and tree works will be required for H&S tree risk management.

3. FINDINGS & RECOMMENDATIONS

3.1 The following information, as with the prior contents of this report, should be read with the appended tree data table and tree constraints plan (21676/TCP/01).

NOTE: This information as s.3 for the '*tree survey assessment*' is included as an objective and general overview of the trees and consideration for retention and protection. It is included herein for reference and context and is supplemented with a review of the scheme as the AIA (section 4) and the AMS 'considerations' (section 5).

3.2 General Considerations for Tree Retention / Removal

3.2.1 Due to the poor condition and defects noted to the trees categorised as 'U' it is recommended that these be removed as part of health and safety tree risk management i.e. T13, T23, T25.

3.2.2 There are smaller scale trees and those with defects or limitations on the current amenity contribution or useful remaining life expectancy, these are categorised as 'C - low'.

These 'C' category trees should not constrain nor significantly guide a scheme, although protection may be preferable to retain landscape function and maturity. For any proposed tree removals, mitigation tree planting is recommended as part of a landscape scheme and can suitably replace and enhance the initial loss of canopy cover.

3.2.3 The moderate quality 'B' category trees are noted as such due to their fair future potential and fair current amenity contribution. These should be retained and protected where possible as part of the site's development.

Whilst the retention and protection of 'B' category trees is recommended, the removal of some may also be mitigated. Subject to supplementary details for tree selection as part of a well delivered landscape scheme, proposals of this nature may then be accepted by the council. However, this will require higher grade larger nursery planting stock than that to mitigate the removal of 'C' category trees.

3.2.4 Based on the individual prominence, lack of significant defects, current contribution and/or future potential of T22, this is categorised as 'A - high'. It is recommended that this tree be retained, protected and be clear of the proposal. This is best achieved by avoidance where its crown and RPA are accommodated in the design and layout.

3.3 Tree Protection

3.3.1 The design and layout of the site is to incorporate the essential components of retained trees (crown and rooting area) and provide a suitable level of clearance to allow for

their long term safe retention, i.e. RPA protection and crown clearance as well as for any new tree(s) being planted.

- 3.3.2 Depending on the level of tree retention/removal, the protection methods for the retained trees is likely to vary. However, it is likely that a combination of construction restrictions be used with protective barrier fencing (to protect RPAs).

The process of site operations will be an important aspect to confirm by way of a construction layout plan, i.e. showing storage areas, parking, delivery area, access routes etc., all outside of RPAs or with a provision for ground protection. As a basis for tree protection the following points will need to be considered:

- Removal of all agreed trees and any agreed pruning works prior to works commencing by a suitably qualified arboricultural contractor;
- Induction of construction personnel regarding the exclusion of works (including access and storage) from the retained trees' RPAs;
- Secure temporary barrier fencing around the site to exclude the retained tree's crowns and RPAs from the working site;
- The storage of materials clear of all retained trees and conditions to ensure no contamination/run-off into soils in proximity to trees or on higher ground; and
- For the removal of existing structures and/or hard surfaces from RPAs the works to be undertaken separate to construction, manually and sensitively.

3.4 General Overview

- 3.4.1 The considerations for trees which are to be retained as part of the proposal need to be addressed in order to ensure their protection. This is to account for the potential impact on retained trees and their growing environment from the proposed development and vice versa (these follow).

Tree Works

Any trees which are to be removed should be well indicated to ensure that the retained trees are suitably protected. Hence, all trees which are to be removed are to be marked by a suitably qualified person [spraying the stems with a cross] prior to tree works.

Tree Crowns

Consideration is required for both existing and newly planted trees whereby the proposed construction should take account of trees reaching their full growth potential. It is always prudent to provide adequate clearance from a tree's current crown for future growth, i.e. to allow a tree adequate space to reach maturity without conflicts with new structures.

Root Protection Areas (RPA)

As a minimum it would be suitable to consider the outer extents of retained trees' RPAs as construction exclusion zones and be protected.

As above, it is *sometimes* possible to undertake construction activities within the rooting areas of retained trees which requires greater attention to tree protection, foundation designs, phasing of works etc. If it is proposed to undertake works within these areas, more specific advice should be sought from a qualified arboriculturalist with a view to assessing the feasibility of said proposal and forming a suitable method statement.

Demolition/Excavation Works

Any removal of existing built structures (including stairways, small outbuildings, retaining walls etc.) or hard surfacing will need to be undertaken with great care where this occurs within or near to the anticipated rooting areas of retained trees.

Said works should adhere to the RPA restrictions, be undertaken manually with hand held non mechanical tools and ensure that existing ground levels are retained.

Hard Landscape Works

As with previously mentioned arboricultural restrictions to demolition/construction, the proposed works should avoid retained trees' RPAs. However, where ground works are proposed within RPAs, construction methods [for hard surfacing, walls etc.] should retain the existing ground levels, be undertaken sensitively and using a no dig design.

Conversion of soft surfaced areas within RPAs to hard surfaced walkways, parking areas etc., will need to utilise a no-dig product to ensure no negative impact on the tree roots and/or growing conditions.

- 3.4.2 For any proportion of tree removal, new tree planting is to be integrated into a landscape scheme. The new trees should be of a suitable volume, species, scale, in suitably prepared planting locations with adequate space for future growth and development and enhance the site's long term amenity contribution.

Planting Species

New tree planting should incorporate a range of species, select mixed characteristics and take account of the availability of space, i.e. concentrate on selecting suitable scale species based on the ultimate growth extents.

Planting Specification

A detailed specification should be included within a landscape scheme (could form part of planning conditions). This should outline the proposed tree species, stock selection, location, planting process and ongoing maintenance (watering, mulch and pruning).

Planting Location

The new planting sites should take account of the future growth potential of the chosen species and should allow for the amenity space to be utilised, minimise the potential conflict with structures and facilitate the contribution to amenity from the site.

- 3.4.3 Further to the above information, the proposed scheme (as illustrated on the TCP) is reviewed hereafter at s.4 as an Arboricultural Implications Assessment (hereafter; AIA).

4. SCHEME / IMPLICATIONS ASSESSMENT

- 4.1 For the purpose of this assessment, the proposed site plan is used as a basis for consideration. This takes account of anticipated tree removals, tree protection options and potential alterations to account for arboricultural features; as per s.1.6 and s.2.2 herein, the TCP shows the '*proposed site plan*' as an overlay for review.
- 4.2 The proposed scheme conflicts with the 'U' category trees T13, T23 and T25. However, as per s.3.2.1, these trees should not constrain development and should be removed as part of H&S tree risk management in conjunction with the proposed scheme.
- 4.3 The proposed scheme encroaches the 'C' category trees/tree groups T14 - T16, T18, G8, G9 and G10. However, as per s.3.2.2, this tree is small scale with defects and limitations on the current amenity contribution. Hence, these trees should not significantly constrain nor guide the scheme. Therefore, said trees should be removed to facilitate the scheme; mitigation tree planting as part of a landscape scheme is recommended.
- 4.4 The proposed new access is direct conflict with the 'B' category trees T4, T24 and part of G1. Although their retention and protection of B category trees is preferable, as per s.3.2.3, the removal of said trees may be mitigated by a well delivered landscape scheme. However, a 2:1 removal to replacement ratio is recommended and higher grade larger nursery planting stock than that to mitigate the removal of 'C' category trees to provide a long term amenity enhancement.
- 4.5 The proposed dwellings are in direct conflict with the 'B' category tree group G2. Due to the topography of the site, which slopes down and away from the edge of the proposed layout towards G5, the dwellings cannot be relocated to be clear of the G2. Hence, the removal of G2 is proposed in conjunction with the proposed scheme. To replace the loss canopy cover and mitigate the loss of G2, it is recommend that a new wooded area be planted to expand G5 and connect G1 and G4; replacement tree planting details to be included within a landscape scheme.
- 4.6 Further to the above noted impacts, the proposed scheme conflicts with low quality shrub and sapling groups. These should not constrain the site's development and should be removed to facilitate the scheme and be replaced by new site landscaping.
- 4.7 Following the above considerations for trees and noted tree works, the trees are clear of the active construction area. However, the installation of temporary tree protection will be required to ensure no impact on trees from access, vehicles, material storage etc.

4.8 Further to the above, the following tree works are required prior to site works.

TREE WORK SUMMARY

NUMBER	TREE REMOVALS / PRUNING WORKS	
T4, T13 - T16, T18, T23 - T25, part of G1, G2, G8, G9 & G10	Remove	Remove in order to facilitate and in conjunction the scheme: - to be replaced with new tree planting and site landscaping.
Retained trees		Protection by placement of fixed Heras panels around the crown/RPA extents, to have no access during construction.

4.9 Further to the above review and in consideration for the tree removals and need to protect retained trees, the following section contains said details as an Arboricultural Method Statement (Application Stage).

5. METHOD STATEMENT (Application Stage)

5.1 Arboricultural Construction Restrictions

5.1.1 The following restrictions are considered relevant for tree protection purposes which are illustrated on the appended Tree Protection Plan:

- a) Tree works; are to be completed prior to any and all site works: additional tree works (or leaning against or attaching of objects to a tree) are not permitted unless agreed in writing by the council.
- b) Protective Barrier Fencing (hereafter; PBF); is to be installed around the retained trees immediately after the tree works and prior to the site works commencing.
- c) Construction Exclusion Zone (hereafter; CEZ); following the installation of PBF the fenced off section is to act as a CEZ and be supplemented with ground protection for RPA sections outside of fenced off areas as the CEZ.
- d) Material Handling; no chemicals / materials are to be transported / stored / used / mixed within exposed grounds on site; all chemical / cement storage, transport or use will be pre-prepared with impermeable liner and detail within a Construction Management Plan.
- e) Site Management; no fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of a tree's canopy, within a RPA / CEZ, and the RPA / CEZ may not be breached, i.e. no mechanical digging or scraping is permitted within a RPA / CEZ.
- f) Sensitive Landscape; only following construction completion can the PBF be removed and any remaining soft landscape works be undertaken (ground levels to be retained within RPAs and works undertaken manually with non-mechanical hand tools).

5.2 Arboricultural Site Monitoring / Supervision

5.2.1 The site should be checked by a qualified arboriculturist throughout the construction processes to ensure the tree protection measures are adhered to, thus -

- (a) pre-commencement to confirm tree removals;
- (b) after PBF installation;
- (c) during construction to ensure adherence to this AMS; and
- (d) prior to removal of site hoarding after construction completion to sign off the site for correct tree protection and planting.

5.3 Protective Barrier Fencing (PBF) Specification

5.3.1 Barrier fencing is to be installed (and signed off by way of arboricultural supervision) following the completion of the tree works. It is illustrated on the Tree Protection Plan and is to remain in situ for the entire duration of preparation/construction processes unless otherwise agreed in writing by the council.

5.3.2 The barrier fencing is to consist of a series of Heras panels secured in place by driven scaffold posts or a scaffold frame to ensure that the fencing lines are well braced to resist impact, and site hoarding around the application boundary to prevent access to the RPA/CEZ areas around the approved works.

5.4 Underground utilities

5.4.1 Underground utilities are to be installed as per a dedicated plan and be clear of RPA by design. Otherwise, and if RPAs cannot be avoided, the following restrictions are recommended for underground utilities within RPAs:

- Any necessary excavations to be undertaken sensitively using either a no-dig method (e.g. Air-Spade) and/or under arboricultural supervision;
- Any exposed roots shall be packed with a clean damp sand (not builders sand) and wrapped in hessian sacking to protect them;
- Small roots which are identified (those less than 25mm diameter) may be carefully pruned back with a clean sharp tree saw; and
- Larger roots which are identified (those greater than 25mm in diameter) are to be retained and protected as they may be necessary for a tree's health and stability.

5.5 Ground Works within RPAs

5.5.1 No direct RPA incursion is anticipated, with exception of soft and hard landscaping - retained levels detail to be demonstrated by the client in the form of a 'site levels plan'.

5.5.2 Any excavations within a RPA or designated CEZ (the area enclosed by PBF) must:

- Only be undertaken when the construction works are completed; and
- Use sensitive excavation techniques to protect the tree roots and their existing growing conditions.

5.6 Landscape Detail

5.6.1 The finer details of the site landscaping proposals are to be illustrated on a landscape plan. This is to include the exact proposals for hard and soft landscaping together with the details for any new trees' planting locations, species and stock selection, installation and maintenance; this is to be undertaken by the appointed landscape architect who will have the full support of the arboricultural consultant where required.

5.7 Report Handling

- 5.7.1 This report is released to the client and architect to be distributed at their discretion and the consultant is available for queries relating to this report and/or trees.
- 5.7.2 The proposed scheme is reviewed in respect of the arboricultural constraints and is considered to be achievable in line with the BS5837 guidance. The recommendations herein may be approved by the council as a means of authorised tree works and tree protection, for which the planning approval will be subject to a final and detailed Arboricultural Method Statement based on the approved information and other detail perhaps not available at the pre-planning approval stage, i.e. utility layout, final landscape plan, construction management plan (CMP) etc.
- 5.7.3 This AMS and the TPP may be approved by the council in support of the application, subject to a conditioned final AMS and TPP as a means of authorised tree protection measures; all site personnel will have access to a copy and the tree work and protection details are to be inspected as per s.5.2 for '*Arboricultural Monitoring / Supervision*'.

This concludes our advice.

Caveat

Any and all information supplied to Indigo Surveys Ltd by/on behalf of the client is assumed to be accurate unless otherwise informed. | This advice is limited to the observations made on the date of inspection as detailed herein and any deletion, editing or alteration will result in the advice being null and void in its entirety. | This advice in its entirety may be deemed null and void if remedial works are undertaken on any area of the site, on or after the date of the survey. | No liability is assumed by the author or by Indigo Surveys Ltd for any misuse, misinterpretation or misrepresentation of this advice. | This advice is not valid in adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events. | No responsibility is assumed either by the author of this advice or by Indigo Surveys Ltd for any legal matters that may arise as a consequence. | Neither the author nor Indigo Surveys Ltd will be required to attend court or give testimony as part of this agreement. | The responsibility for any works undertaken on the basis of the recommendations of this advice does not form part of this agreement.

Appendix II

Terms and Definitions

“Arboriculturist” - person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.

“Competent Person” - person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.

“Topographical survey” - an accurately measured land survey undertaken to show all relevant existing site features. *A method of carrying out topographical surveys is given in RICS specification* Surveys of land buildings and utility services at scales of 1:500 and larger.

“BS5837 Tree survey” - should be undertaken by an arboriculturist to record information about the trees on or adjacent to a site. The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development.

“Tree categorisation method” - trees should be categorised in accordance with the BS5837 cascade chart by an arboriculturist. This is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring.

“Root protection area (RPA)” - 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, shown as an arboricultural constraint in m². The radius is calculated using the BS5837 calculation method. An arboriculturist may change the shape of an RPA but not reduce its area.

“Arboricultural implications assessment” - a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

“Arboricultural method statement” - methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.

“Tree protection plan” - a scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Appendix III

Data Table:	As appended (BS5837 Tree Survey Key & Table)
Tree Constraints Plan:	As appended (21676/TCP/01)
Tree Protection Plan:	As appended (21676/TPP/01)

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'																
CLIENT: John McCall Architects					PROJECT REF: 21676					SITE: Land at Mercury Way, Skemersdale						
CONTACT:					SURVEY DATE: 29th Jun & 28th September 2021					ARB CONSULTANT: Tony Banner TechCert (ArborA) TechArborA						
TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T1	Oak; Quercus, Fagaceae	M	12	3	4	4	6	500	6.0	/	/	Fair	10 - 20	Part of collective canopy group, thick ivy into crown.	C 2	Sever ivy and reassess tree's condition.
T2	Oak; Quercus, Fagaceae	M	18	5	9	5	6	610	7.3	2	4	Normal	20 - 40	Part of collective canopy group, deadwood in crown, rope swing attached in crown.	B 2	
G1	Sycamore, Oak & Ash	M	18	/	/	/	/	350	4.2	1	/	Normal	40 +	Collective canopy group, scrubby understorey.	B 2	Scrub clearance recommended.
T3	Oak; Quercus, Fagaceae	M	18	4.5	4.5	4.5	4.5	420	5.0	/	/	Normal	20 - 40	Part of collective canopy group, inset to group.	B 2	
T4	Oak; Quercus, Fagaceae	M	18	5	8	6	4	520	6.2	/	/	Normal	20 - 40	Part of collective canopy group, no access to base due to dense understorey.	B 2	
T5	Oak; Quercus, Fagaceae	M	18	5	5	4	5	560	6.7	/	/	Normal	20 - 40	Part of collective canopy group, no access to base due to dense understorey.	B 2	
G2	Oak; Quercus, Fagaceae	EM - M	12 - 18	/	/	/	/	400	4.8	0	/	Normal	20 - 40	Collective canopy group, dense scrubby understorey - no access to base.	B 2	Scrub clearance recommended.
G3	Sycamore, Hazel & Oak	M	4 - 18	/	/	/	/	300	3.6	0	/	Normal	20 - 40	Collective canopy group, dense scrubby understorey - no access to base.	B 2	Scrub clearance recommended.
T6	Sycamore; Acer, Aceraceae	M	12	4.5	5	5	5	480	5.8	2	2	Normal	20 - 40	Part of collective canopy group in G4, no access to base.	B 2	
G4	Sycamore & Oak	M	12 - 18	/	/	/	/	350	4.2	0	/	Normal	20 - 40	Collective canopy group, dense scrubby understorey - no access to base.	B 2	Scrub clearance recommended.
T7	Sycamore; Acer, Aceraceae	M	18	5	6	6	3	420	5.0	2	/	Normal	20 - 40	Part of collective canopy group in G4, no access to base.	B 2	
G5	Sycamore, Cherry, Hawthorn & Oak	M	18	/	/	/	/	500	6.0	0	/	Normal	20 - 40	Collective canopy group, mainly Sycamore, dense scrubby understorey, thick ivy in parts, no access to base.	B 2	Manage ivy in group to prevent establishment to allow future tree inspection.
G6	Goat Willow & Hawthorn	M	< 12	/	/	/	/	200	2.4	0	/	Normal	20 - 40	Collective canopy group, scrubby in parts.	B 2	
G7	Hazel, Field Maple & Alder	M	< 10	/	/	/	/	200	2.4	0	/	Normal	20 - 40	Collective canopy group as understorey and road side group.	B 2	
T8	Oak; Quercus, Fagaceae	M	18	6	5	5	5	560	6.7	3.5	/	Normal	20 - 40	Growing towards boundary, G7 as understorey, deadwood in crown.	B 2	Monitor tree's condition
T9	Sycamore; Acer, Aceraceae	M	18	4.5	5	4	4.5	480	5.8	/	/	Normal	20 - 40	Growing towards boundary, G7 as understorey, deadwood and thick ivy in crown.	C 2	Sever ivy and reassess tree's condition.
T10	Sycamore; Acer, Aceraceae	M	18	4.5	4.5	4.5	4.5	580	7.0	/	/	Normal	20 - 40	In G5.	B 2	
T11	Sycamore; Acer, Aceraceae	M	18	4.5	4.5	4.5	4.5	450	5.4	/	/	Fair	10 - 20	In G5, thick ivy into crown.	C 2	Sever ivy and reassess tree's condition.
T12	Sycamore; Acer, Aceraceae	M	18	4.5	4	4.5	4.5	350	4.2	/	/	Fair	10 - 20	In G5, thick ivy into crown.	C 2	Sever ivy and reassess tree's condition.
T13	Sycamore; Acer, Aceraceae	M	18	4.5	4.5	4.5	4.5	380	4.6	/	/	Poor	< 10	In G5, thick ivy into crown, decay from base to 2m.	U	Fell as part H&S tree work.
T14	Oak; Quercus, Fagaceae	SM	7	4	4	2.5	4	230	2.8	1	2	Normal	20 - 40	Current young form and small scale.	C 2	
T15	Oak; Quercus, Fagaceae	SM	5	2.5	3	3	3.5	180	2.2	/	/	Normal	20 - 40	Current young form and small scale.	C 2	
T16	Ash; Fraxinus, Oleaceae	SM	8	2.5	3	2.5	2	230	2.8	1	/	Normal	10 - 20	Current young form and small scale.	C 2	
T17	Ash; Fraxinus, Oleaceae	SM	8	2.5	3.5	2.5	2.5	170	2.0	1	/	Fair	10 - 20	Current young form and small scale, crown dieback.	C 2	Monitor tree's condition
G8	Oak; Quercus, Fagaceae	SM	< 5	/	/	/	/	150	1.8	0	/	Normal	10 - 20	Sapling group.	C 2	

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T18	Oak; Quercus, Fagaceae	SM	5	3	3.5	3.5	3	160	1.9	0	/	Normal	10 - 20	Current young form and small scale.	C 2	
G9	Sycamore, Oak & Alder	SM	< 8	/	/	/	/	200	2.4	0	/	Normal	10 - 20	Sapling group.	C 2	
G10	Oak, Alder & Goat Willow	SM	< 6	/	/	/	/	200	2.4	0	/	Normal	10 - 20	Sapling group.	C 2	
T19	Oak; Quercus, Fagaceae	M	18	6	6	6	4	570	6.8	/	/	Normal	20 - 40	Part of collective canopy group, deadwood and ivy in crown.	B 2	Sever ivy and reassess tree's condition.
T20	Oak; Quercus, Fagaceae	M	18	5	6	6	6	540	6.5	/	/	Normal	20 - 40	Part of collective canopy group, deadwood and ivy in crown.	B 2	Sever ivy and reassess tree's condition.
T21	Oak; Quercus, Fagaceae	M	16	7	0	4	3	460	5.5	/	/	Normal	10 - 20	Part of collective canopy group, deadwood and ivy in crown, one sided growth due to location in group, snap-outs in crown.	C 2	
T22	Beech; Fagus, Fagaceae	M	22	8	6	7	8	760	9.1	/	/	Normal	40 +	Part of collective canopy group	A 2	
T23	Beech; Fagus, Fagaceae	M	22	8	8	7	9	900	10.8	/	/	Fair	< 10	Part of collective canopy group, decay in base, large Ganoderma bracket at base, thick ivy in crown.	U	Fell as a preventative H&S measure.
T24	Oak; Quercus, Fagaceae	M	18	6	5	5	6	510	6.1	1	1	Normal	20 - 40	Part of collective canopy group, deadwood, ivy into crown.	B 2	Sever ivy and reassess tree's condition.
T25	Oak; Quercus, Fagaceae	M	18	0	7	2	2	480	5.8	2	/	Poor	< 10	Part of collective canopy group, decay in base, failed tree resting in crown, one side growth.	U	Fell T25 and remove failed stem.
T26	Oak; Quercus, Fagaceae	M	20	8	3	9	8	530	6.4	2	/	Normal	20 - 40	Part of collective canopy group, deadwood in crown.	B 2	
T27	Oak; Quercus, Fagaceae	M	18	6	4	5	4	450	5.4	2	/	Normal	20 - 40	Part of collective canopy group, thick ivy into crown.	B 2	Sever ivy and reassess tree's condition.
T28	Oak; Quercus, Fagaceae	M	18	5	5	4	5	390	4.7	2	/	Normal	20 - 40	Part of collective canopy group, co-dominant at 2.5m.	B 2	
T29	Birch; Betula, Betulaceae	M	15	2	4	4	4	310	3.7	3.5	/	Normal	20 - 40	Slight lean south.	B 2	
G11	Hawthorn, Sycamore & Beech	SM - M	< 12	/	/	/	/	250	3.0	1	/	Normal	20 - 40	Part of collective canopy group towards boundary with residential gardens.	B 2	

TREE SURVEY 'KEY' - BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

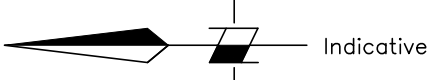
FIELD KEY:

TPO/CA	-	On client request: presence of Tree Preservation Orders (TPO) / site location within a Conservation Area (CA) & date checked;
TREE REF. #	-	Tree reference number: tag or plan number (T - individual tree, G - group of trees/shrubs, H - hedge);
SPECIES	-	Genus, species and/or common name;
AGE	-	Age classification (NP - new planting, Y - young, SM - semi mature, EM - Early-Mature, M - mature, LM - late mature, OM - over mature);
HEIGHT (in m)	-	Approximate height of tree in metres;
CANOPY (in m) N - S - E - W	-	Approximate branch spread in metres of the four principal compass points;
STEM (in mm)	-	Stem diameter in millimetres: measured in accordance with s.4.6 of BS5837;
RPA (in m)	-	Circle radius of the Root Protection Area: calculated using the stem diameter (single/multiple stem variant, as outlined within BS5837);
CLEARANCE (in m)	-	Crown clearance in metres above the adjacent ground level;
IST BRANCH (in m)	-	Clearance in metres to first significant branch and direction of growth (where relevant);
VITALITY	-	Physiological condition typically gauged from canopy cover and annual extension growth (good, fair, poor, dead);
ESTIMATED REMAINING CONTRIBUTION	-	Approximate number of years the tree will continue to make a contribution without the need for oppressive arboricultural intervention, categorised in years as <10, 10-20, 20-40 and >40;
NOTES	-	Structural and physiological condition observations;
BS CAT.	-	BS5837 tree quality assessment category: resulting from structural/physiological condition and remaining contribution (approximate Standard retention category U : in such a condition that any existing value would be lost within 10 years;
	-	Standard retention category A : high quality and value, in such a condition as to be able to make substantial contribution of 40+ years;
	-	Standard retention category B : moderate quality and value, in such a condition as to make a significant contribution of 20+ years;
	-	Standard retention category C : low quality and value, currently in adequate condition to remain until new planting could be established
	-	Standard retention sub-category, mainly due to: 1 - Arboricultural values, 2 - Landscape values, 3 - Cultural values, including conservation;
MANAGEMENT	-	Preliminary management recommendations (as appropriate);
' * '	-	Within the survey schedule denotes an estimate

KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.
- Tree Condition Category
 - A
 - B
 - C
 - U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'



REV.	DESCRIPTION	DWN	CHK'D	DATE		
CLIENT John McCall Architects						
PROJECT 21676						
TITLE Tree Constraints Plan						
DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RCK	07/10/2021	TB	08/10/2021			1:500

(Mail) Second Floor, 1 Hunter's Walk, Canal Street, Chester, CH1 4EB
Telephone: 0333 123 7080 www.indigosurveys.co.uk

Drawing Number
21676/TCP/01

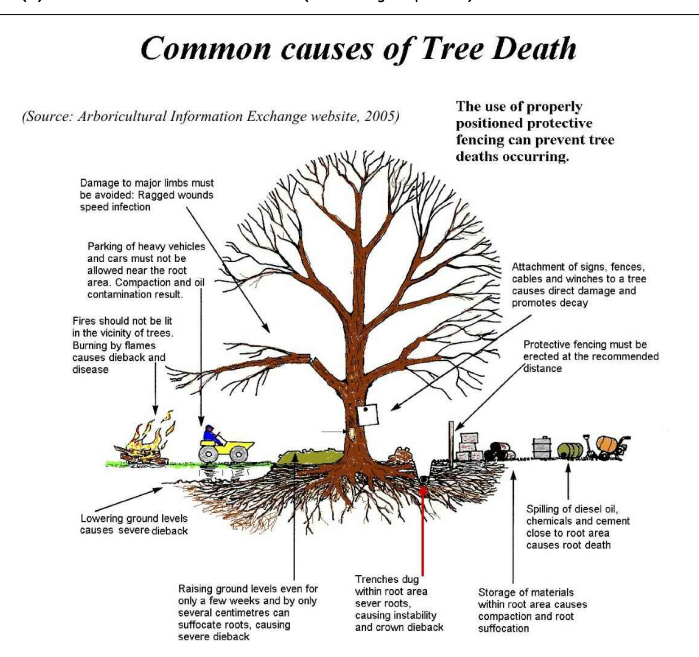
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REV.

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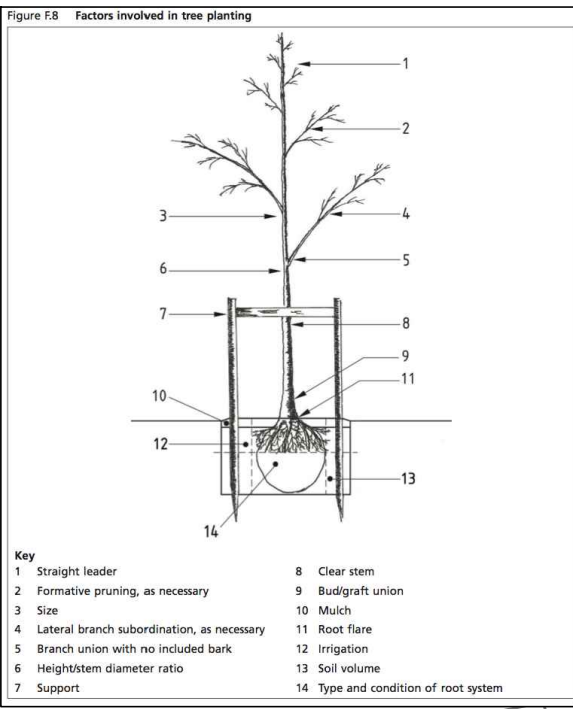
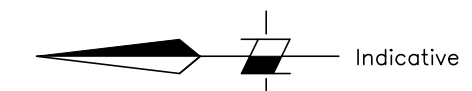


Figure 2 Default specification for protective barrier



Protective Barrier Fencing (PBF):
Heras panels to be installed (as per the illustration on this plan) to exclude retained trees from active construction site, with tree protection signs, to be fixed in place for the duration of site works for tree protection and to remain until demolition and construction completion.

- The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Construction - Recommendations'



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CLIENT
John McCall Architects

TITLE	Tree Protection Plan
-------	----------------------

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