

KNOWSLEY IMAGE BUSINESS PARK LTD

SITE 3, IMAGES BUSINESS PARK, KNOWSLEY

**ARBORICULTURAL IMPACT ASSESSMENT
TO BS 5837:2012**



our ref:	2180 / EH / AIA001
date:	7 th September 2021
prepared by:	E.C.H
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arboricultural impact assessment



1.0 INTRODUCTION:

- 1.1 This Arboricultural Impact Assessment has been prepared by Bea Landscape Design Limited on behalf of Knowsley Image Business Park Ltd for the proposed development at Image Business Park, Knowsley in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'
- 1.2 The assessment has been prepared to accompany a detailed planning application based on the layout prepared by the project architects Hale Architecture.

2.0 SUMMARY OF TREE SURVEY:

2.1 Tree Survey:

- 2.1.0 The tree survey for the above site was carried out by Bea Landscape Design (refer to Appendix A) on behalf of Knowsley Image Business Park Ltd on the 27th July 2021 in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'.
- 2.1.1 The following trees are scheduled to be felled, or removed due to their poor condition, being dead or structurally dangerous and unsuitable for retention T17, T26, G29, G30 & G31.

2.2 Tree Constraints:

- 2.2.0 As part of the survey a Tree Constraints Plan 21-80-02 has been prepared to inform future development proposals identifying the root protection areas and shadow patterns in accordance with BS 5837:2012 for those A to C Category trees.
- 2.2.1 The tree survey also identifies the constraints provided by tree species with particular characteristics that may affect any proposed development and schedules the ultimate predicted tree height and canopy spread.

2.3 Regulatory Protection

- 2.3.0 It is our understanding that none of the surveyed trees are protected by a Tree Preservation Order and the site is not within a Conservation Area.

3.0 IMPACTS OF THE PROPOSED DEVELOPMENT

3.1 Site Layout

- 3.1.0 A site layout has been prepared for the development area including for a 120,000 square foot light industrial unit with associated service yard, car parking and ancillary structures. In order to assess the impact of the development of the site and the existing trees the proposed site layout was superimposed into the Tree Constraints Plan as illustrated below.



21-80-02 Tree Constraints Plan Overlay

- 3.1.1 The proposed development has been designed to retain the majority of the existing trees particularly those to the boundary that have good screening effects. However to accommodate the proposed development it will be necessary to remove a number of trees within the site in addition to those deemed unsuitable for retention within the tree survey.

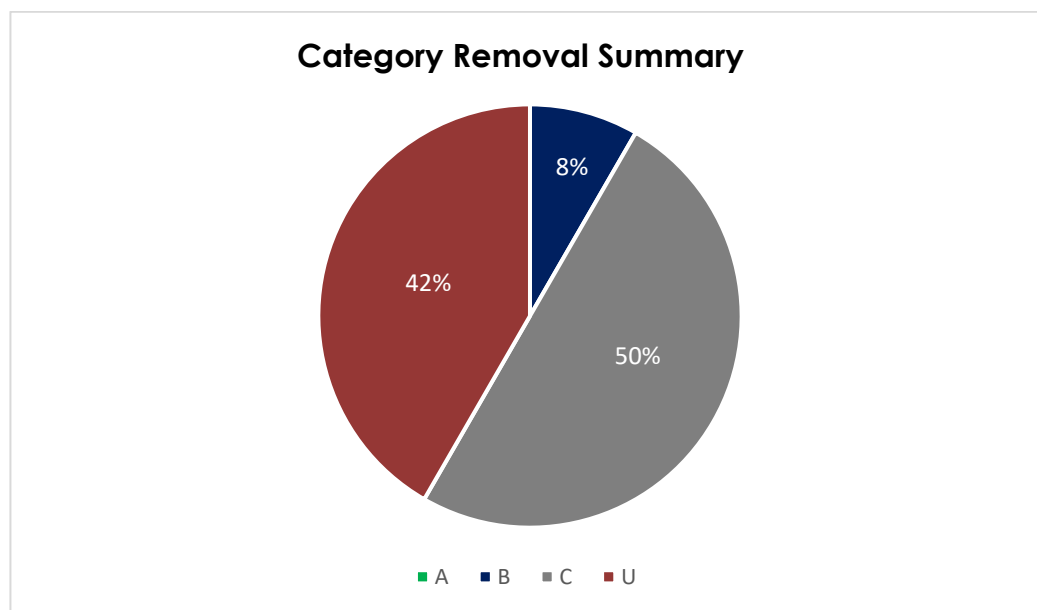
3.2 Tree removal

- 3.2.0 The assessment highlighted a number of trees that would need to be removed as a result of the development of the site as listed within Table 1 below and as identified within the Tree Retention & Removal Plan 21-80-03. The majority of these trees are to the Western boundary of the site behind the line of existing trees within the grass verge to Acornfield Road and their loss will have little impact to the surrounding landscape. Further to the Southwest where the line of trees stops the loss of the trees will open views into the site from Acornfield Road.

Table 1: Trees to be removed:			
No.	Common Name	Cat.	Reasons for Removal
T15	Rowan	B2	To facilitate the proposed development.
T17	Rowan	U	Unsuitable for retention.
T21	Rowan	C1	To facilitate the proposed development.
G25	Ash	C1	To facilitate the proposed development.
T26	Ash	U	Unsuitable for retention.
G29	Crack willow with Ash & Sycamore	U	Unsuitable for retention.
G30	Crack willow	U	Unsuitable for retention.
G31	Osier willow	U	Unsuitable for retention.
T32	Ash	C2	To facilitate the proposed development.
T33	Ash	C1	To facilitate the proposed development.
G34	Birch, Goat willow & Buddlejia	C1	To facilitate the proposed development.
G35	Birch, Ash, Alder, Goat willow & Buddlejia	C1	To facilitate the proposed development.

- 3.2.1 In summary the proposed development will mean the removal of 6 trees, 6 groups of trees 42% of the removed trees considered Unsuitable for retention, 50% considered to be low quality and value and 8% of moderate quality and.
- 3.2.2 It should be noted that trees T17, T26, G29, G30 & G31 were deemed unsuitable for long term retention in the Tree Survey 2180/EH/TR001. The removal of these trees would be required due to their poor condition and their loss should not be considered as a material consideration in the planning process.
- 3.2.3 The majority of the remaining trees, groups that will require removal are considered to be of low to moderate quality and value within the tree survey. The proposed development includes for tree planting within the site including to the Western boundary which will mitigate for their loss. The removal of these trees is therefore not considered to be a constraint to the proposed development of the site.





3.3 Tree retention & pruning:

- 3.3.0 The assessment also identified a number of trees that should be retained as part of the development proposals as identified within Table 2. below and as identified within the Tree Retention & Removal Plan 21-80-03.
- 3.3.1 The trees identified for retention are located outside of the site boundary and within the grass verge to Acornfield Road and are of low and medium quality and value.
- 3.3.2 As part of the proposed development it will be necessary to undertake the preliminary management surgery to T01 as identified within the tree survey. The works to the remaining trees are not necessary for the proposed development and have not been included as they are within third party ownership.
- 3.3.3 It will also be necessary to undertake access facilitation pruning to a number of the retained trees T12 and T22 to minimise the potential for damage to branches during access and construction.
- 3.3.4 The tree pruning required is likely to be of a minor extent and is not considered to have a significant impact on the long term health or visual quality of the retained trees.

Table 2: Trees to be retained:			
No.	Common Name	Cat.	Pruning Works Required
T01	Lime	B2	Remove suspended / broken limb & epicormic growth. Raise low canopy to East to clear fence line. NB landowners permission required.
T02	Single leaved ash	C1	No works proposed.
T03	Himalayan birch	B2	No works proposed.
T04	Himalayan birch	B2	No works proposed.
T05	Himalayan birch	B2	No works proposed.
T06	Himalayan birch	B2	No works proposed.

T07	Himalayan birch	B2	No works proposed.
T08	Himalayan birch	B2	No works proposed.
T09	Himalayan birch	B2	No works proposed.
T10	Himalayan birch	B2	No works proposed.
T11	Himalayan birch	B2	No works proposed.
T12	Single leaved ash	C1	Access facilitation pruning. Reduce canopy to East by 2 metres.
T13	Himalayan birch	B2	No works proposed.
T14	Himalayan birch	B2	No works proposed.
T16	Himalayan birch	B2	No works proposed.
T18	Himalayan birch	B2	No works proposed.
T19	Himalayan birch	B2	No works proposed.
T20	Himalayan birch	B2	No works proposed.
T22	Single leaved ash	C1	Access facilitation pruning. Reduce canopy to East by 2.5 metres
T23	Himalayan birch	B2	No works proposed.
T24	Himalayan birch	B2	No works proposed.
T27	Lime	C2	No works proposed.
T28	Lime	C2	No works proposed.

4.0 IMPACTS OF CONSTRUCTION - DEMOLITION OPERATIONS

- 4.0.1 The proposed development requires the removal of the demolished building foundations and surrounding hard surfaces including the tarmac hard surfacing and kerbs to the Western boundary.

4.1 Removal of Hard Surfaces

- 4.1.0 The proposed development requires the removal of the existing tarmac internal road and redundant bell mouth hard surfacing in close proximity to the root protection (RPA) of the retained trees T02, T12, T18, T22, T27 & T28.

5.0 IMPACTS OF CONSTRUCTION – DIRECT

- 5.0.1 The construction of the proposed development directly impacts the retained trees T02, T12 & T22 including works within the root protection area and under the canopy as identified in Table 3 below.

5.1 Root Protection Area

- 5.1.0 The proposed development has been designed to avoid the need for major works within the root protection area (RPA) of the trees to be retained. However as listed below there are a small number of trees affected by some elements of the proposed development which require work to be undertaken within or at the edge of their root protection areas.

Table 3: Work within the Root Protection Area:			
No.	Common Name	Cat.	Works Required
T02	Single leaved ash	C1	Soft landscaping.
T12	Single leaved ash	C1	Cellweb reinforced slope. Soft landscaping.
T22	Single leaved ash	C1	Cellweb reinforced slope. Soft landscaping.
T28	Lime	C2	Cellweb reinforced slope. Soft landscaping.

Cellweb reinforced slope:

- 5.1.6 The proposed levels indicate a slope from the edge of the paved building apron to the Western boundary of the site. Where the slope overlaps with the RPA of the retained trees T12, T22 & T28 the slope is to be reinforced with Cellweb TRP.

Soft Landscaping:

- 5.1.5 Areas of soft landscaping are proposed within the RPA of trees T02, T12 and T22.

5.2 Canopy Spreads

- 5.2.0 The construction of the service yard and paved building apron will require works to be undertaken beneath the canopies of trees to be retained T02, T12 & T22. To minimise potential damage access facilitation pruning is recommended to trees T12 & T22 as detailed within Table 2.

- 5.2.1 The canopy of the tree T02 at the edge of the service yard is 5 metres above ground level and as such no facilitation pruning is required.

6.0 IMPACTS OF CONSTRUCTION – INDIRECT

6.1 Site Construction Access

- 6.1.0 Access to the site for all visitors and construction traffic is to be from the internal estate roads of the existing and proposed development.

6.2 Site Compound

- 6.2.0 The site compound, including porta cabins and portable toilet facilities is to be located at the construction traffic site entrance and outside of the Construction Exclusion Zones.

6.3 Delivery & Storage of materials

- 6.3.0 The delivery and storage of materials will be undertaken using the haul roads as described above with materials being delivered locally to the building under construction. All materials are to be stored outside of the Construction Exclusion Zones as identified on the Tree Protection Plan 21-80-04.

6.4 Contractors Parking

- 6.4.0 A contractors and visitors parking area is to be located adjacent to the site compound.

7.0 IMPACTS POST DEVELOPMENT

7.1 Shading of buildings / open space

- 7.1.0 The retained trees are to the Western boundary of the site and as such will cast shade onto edges of the proposed service yard, car park and industrial unit.

7.2 Privacy & Screening

7.2.0 As already described above the loss of the trees to the Southwestern site boundary will reduce the screening of views into the site.

7.3 Direct damage

7.3.0 Trees T12 and T22 are in close proximity to the proposed building and will require management to prevent future growth causing damage to the proposed building.

7.4 Seasonal nuisance

7.4.0 Lime trees are medium to large leaved deciduous tree species that are attractive to aphids that produce honeydew. When the tree is in leaf the honeydew will be a potential nuisance.

7.5 Species characteristics

7.5.0 Trees are living organisms and exhibit structural and seasonal characteristics that may give rise to conflicts in proximity to buildings, footpaths and hard standing areas.

7.5.1 Ash trees are a large spreading deciduous tree species with an upright branching habit, often exhibiting co-dominant stems with included bark. Heavy branches are susceptible to splits, cracks and branch failures. The lower shaded branches in the canopy have the propensity to die off and drop. This can result in increased maintenance requirements to surfaces and possible damage to structures located in the immediate vicinity.

7.6 Future pressure for removal

7.6.0 The proposed development will increase the pressure for removal of trees T12 and T22 however they are located outside of the site boundary requiring third party approval for their removal.

8.0 MITIGATION OF DEVELOPMENT:

8.0.1 As detailed above the proposed development will entail the loss of a number of the existing trees to the Western site boundary. The loss of the trees is to be mitigated with replacement tree planting with tree protection measures to provide mitigation where the proposed development construction works are in close proximity to the retained trees.

8.1 Replacement Tree Planting

8.1.0 Mitigation for trees required to be removed to facilitate the development are to be provided in the form of replacement tree planting within the proposed development. Tree species are to in keeping with the character of the surrounding landscape including species such as Cherry, Hornbeam, Field maple, Rowan and Whitebeam.

8.2 Special construction techniques

Cellweb Reinforced Slope.

- 8.2.0 To minimise ground compaction and root damage the slope in the vicinity of the retained trees T12, T22 & T28 is to be constructed and reinforced with layers of Cellweb TRP filled with porous aggregate to engineers details.

Soft landscaping

- 8.2.1 To minimise potential root damage during the implementation of soft landscaping no cultivation of topsoil is to be carried out within the RPA with shrubs to be pit planted by hand.

8.3 Tree Protection:

- 8.3.0 The trees are to be protected from damage during the course of the works in accordance with the guidance of BS5837:2012. The majority of offsite trees are protected by the existing 1.8m high chainlink and concrete post fence which is to be retained as part of the project.
- 8.3.1 The protection of those trees to be retained has been detailed within the Tree Protection Plan 21-80-04 which both identifies Construction Exclusion Zones, the locations of protective barriers, trunk and ground protection as well as other restrictions outlined in the above BS 5837:2012

8.4 ARBORICULTURAL METHOD STATEMENT:

- 8.4.0 In order to inform the carrying out of the proposed works in proximity to the retained existing trees a detailed method statement is to be prepared to specify the working practices to be followed by the contractor to comply with BS5837:2012 and mitigate for the proposed works.
- 8.4.1 An Arboricultural Method Statement is therefore to be prepared that addresses the following;
- a) tree and ground protection measures
 - b) site construction access;
 - c) space for site huts, temporary toilet facilities (including their drainage) and their temporary structures;
 - e) space for storing (whether temporary or long-term) materials, spoil and fuel and the mixing of cement and concrete;
 - f) contractors' car parking;
 - j) the space needed for foundation excavations and construction works;
 - h) working space for cranes, plant, scaffolding and access during works;
 - i) demolition of existing buildings and surfacing

j) all changes in ground level, including the location of retaining walls, steps and making adequate allowance for foundations of such walls and backfilling;

k) cellweb reinforced slope

l) soft landscaping

m) arboricultural supervision

APPENDIX A

TREE SURVEY

KNOWSLEY IMAGE BUSINESS PARK LTD

SITE 3, IMAGES BUSINESS PARK, KNOWSLEY

TREE SURVEY TO BS 5837:2012



our ref:	2180 / EH / TR001
date:	28 th July 2021
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SITE 3, IMAGE BUSINESS PARK, KNOWSLEY

1.0 Introduction:

- 1.1 The tree survey for the site at Image Business Park, Knowsley was carried out by Bea Landscape Design on behalf of Knowsley Image Business Park Ltd on the 27th July 2021 for submission to the local planning authority Knowsley Metropolitan Borough Council.
- 1.2 The tree survey inspection was carried out from ground level only and no invasive diagnostic tools were used. This is a pre-development site inspection prepared in accordance with BS5837: 2012 'Trees in relation to design, demolition and construction – Recommendations' and the report is valid and relevant only as part of the planning process.
- 1.3 It should be noted that tree surveys carried out at specific times of year are subject to seasonal limitations. For example; in spring leaves are not present or are just emerging and fungi are generally not visible (depending on species) which limits the assessment of a trees physiological condition, in summer trees are in leaf which reduces the visibility of the crown and can limit the ability to assess the structural condition with fungi not generally visible (depending on species), in autumn there is a decline in leaf quality / cover affording an improved view of the crown and fungal fruiting bodies can be present, in winter the structure of the crown can be easily assessed however assessment of physiological condition is limited and fungi are generally not visible.
- 1.4 Trees are dynamic natural structures and require frequent monitoring if predictable failures are to be identified. As such the trees should be re-inspected within at least a two year period from the date of this report or when changes occur to the trees (such as appearance of fungal growths, splits in branches etc.) or changes in their immediate environment occur. Any recommendations for action should also be carried out within this period unless identified in the report as requiring immediate action.
- 1.5 Some tree failures are not predictable such as those occurring during 'freak weather' conditions and those without external symptoms, these types of failure are not covered by this report.
- 1.6 The tree survey schedules document 2180/EH/TS001 and survey drawing 21-80-01 are included within this report. The tree survey is based on the topographical survey carried out by Survey & Engineering Projects in April 2018. It should also be noted that a number trees surveyed T01, T21, T24, G25, T26, G29, G30, G31, T32, T33, G34 & G35 were not identified on the original topographical survey. The location of these trees has been estimated using triangulation and their location should not be relied on for the construction purposes.
- 1.7 In accordance with British Standard 5837: 2012 the survey records the tree common names (refer to Appendix A for a key to scientific names), height, stem diameter and branch spread and existing height above ground level of the canopy or first significant branch including life stage, general observations (such as structural, physiological condition and/or preliminary management recommendations) and the estimated remaining contribution in years.
- 1.8 Each tree is also awarded a category grading based on Table 1 'Cascade Chart for Tree Quality Assessment' of the British Standard as included within Appendix C.

The following are an explanation of the terms used to describe the life stage, physiological condition and sizes referred to within the tree survey schedule.

Life Stage

<i>Young</i>	A tree in the first third of its expected life span.
<i>Semi-mature</i>	A tree within the second third of its expected life span.
<i>Mature</i>	A tree within the final third of its expected life span.
<i>Over mature</i>	A tree in natural decline.
<i>Notable</i>	A mature tree that stands out in the local environment because it is large in comparison with other trees around it. The tree doesn't have any obvious veteran characteristics, but may be taller than ancients and fatter than some veterans. Notable trees are usually worthy of recognition and can be potential, next generation veteran trees.
<i>Transition veteran</i>	A mature tree that shows three veteran features i.e rot sites, holes & water pockets, deadwood, hollowing and fungal fruiting bodies. Transition veterans have some habitat characteristics and may become potentially important veteran trees for biodiversity in time.
<i>Veteran</i>	Non ancient trees of any diameter that show four or more veteran features i.e rot sites, holes & water pockets, deadwood, hollowing and fungal fruiting bodies. These trees show the habitat characteristics of veteran trees that are thought to be important in terms of biodiversity. A veteran tree is a survivor that has developed some of the features found on an ancient tree but not necessarily as a consequence of time, but of its life or environment.
<i>Ancient</i>	An over mature tree identified primarily by the girth. Likely to have abundant veteran tree features. An ancient tree has great aesthetic appeal and is defined by the following characteristics; a small canopy exhibiting stag headedness following crown retrenchment; with a very wide hollowing trunk relative to other trees of the same species and one or more openings to the outside exhibiting the fruiting bodies of heart rot fungi

Physiological condition

<i>Good</i>	The tree appears to have no obvious defects.
<i>Fair</i>	The trees condition is slightly compromised and considered to be remediable.
<i>Poor</i>	The trees condition is significantly compromised and considered non-remediable. Significant defects.

Sizes:

Minor	A diameter of less than 25 millimetres.
Moderate	A diameter of between 25 to 50 millimetres.
Major	A diameter of greater than 50 millimetres.

- 1.9 This report does not consider any potential influence that trees may have upon load bearing soils beneath existing or proposed structures through abstraction of water by their roots (i.e. soil shrinkage and expansion and subsequent building subsidence and heave). The advice of a structural engineer should be sought with regard to appropriate foundation depths for new buildings with reference to NHBC standards Chapter 4.2 (NHBC, 2011).

2.0 Context:

- 2.1 The site is located at Image Business Park in the Kirby area of the Knowsley Metropolitan Borough as identified in Figure 01. Location Plan.

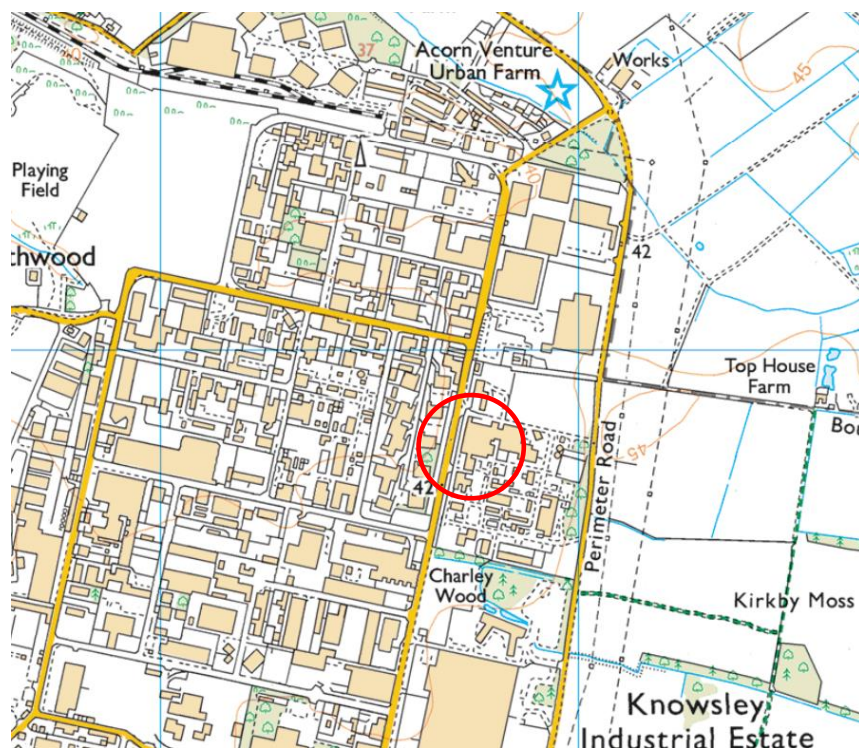


Figure 01. Location Plan

- 2.2 The area surveyed is currently occupied by the footings and foundations of the former industrial buildings and the verge between the site and Acornfield Road to the West (refer to Figure 02. Aerial Photograph below).
- 2.3 The topography of the site is relatively level with a gradual fall from North to South.



Figure 02. Aerial Photograph

- 2.4 In order to inform the design of any future development taking account retained, removed and proposed trees; it is recommended that a soil assessment or geotechnical survey is undertaken to determine the soils shrinkability. This can affect the extent of the root protection area, tree protection and ultimately foundation design.

3.0 Tree Survey Summary:

- 3.1 The majority of the trees surveyed (T01 to T14, T16, T18-T20, T23-T24, T27 & T28) are within the grass verge between Acornfield Road and the Western boundary of the site including a number of Himalayan Birch which form a distinctive arboricultural feature (refer to Figure 3 below) with occasional Single leaved ash & Lime and are considered to be of low to moderate quality and value.



Figure 3. View looking South towards T01 to T28

- 3.2 Between the Western site boundary fence and the edge of the internal road are a number of planted and self set trees (T15, T17, T21, G25, T26, G29, G30, G31, T32 & T33 including Rowan, Ash, Crack willow and Osier considered to be of moderate, low and U quality and value.



Figure 4. View looking South towards T26 to T33

- 3.2 Within the site are a number of stumps of felled Ash and Alder with two areas of self set Birch, Ash, Goat willow and Buddleia saplings G34 & G35 of low quality and value.



Figure 5. View looking South towards G35

4.0 Tree Preservation Orders & Conservation Areas

- 4.1 It is our understanding that there are currently no Tree Preservation Orders designated within the survey area, the site is not within a Conservation Area and no surveyed trees are considered to be Veteran or Ancient or listed on the Woodland Trust Ancient Tree Inventory. For the avoidance of doubt we would recommend that the local authority tree officer is contacted and confirmation obtained.

5.0 Protected Species

- 5.1 The Wildlife & Countryside Act 1981 forms the legislative basis for protecting Britain's flora and fauna, together with its 1985 and 1991 amendments, the subsequent variations to the schedule of orders, and strengthening amendments made within the Countryside & Rights of Way Act 2000.

- 5.2 Nesting birds are afforded statutory protection by the Wildlife & Countryside Act 1981. The bird nesting season is officially from February until August with the busiest time for nesting birds from the 1st March until the 31st July according to species.
- 5.3 As such, consideration should be given to the presence of nesting birds when clipping hedges, pruning or removing trees or removing ivy or other climbing plants during the bird nesting season. Trees, hedges and ivy should be inspected for nests prior to pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young have fledged. Hedges provide valuable nesting sites for a wide range of birds and clipping should therefore be avoided during the months of March to July.
- 5.3 In Britain all bats are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and under Schedule 2 of the Conservation (Natural Habitats) Regulations 1994 (as amended). In England, under current legislation, it is an offence to:
- Deliberately capture, injure or kill a bat;
 - Deliberately disturb in a way that would significantly affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
 - Damage or destroy a bat roost (note – this is an ‘absolute’ offence whereby intent or recklessness does not have to be proved).
 - Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat;
 - Intentionally or recklessly disturb at bat roost; and
 - Intentionally or recklessly obstruct access to a roost.
- 5.4 In this respect it should be noted that bats utilise tree cavities, cracks and dense ivy as roosts. It is also possible that unidentified bat habitat features may be located high up in the tree crowns and all personnel subsequently carrying out tree works at the site should therefore be vigilant and mindful of the possibility that roosting bats may be present. If any bats roosts are identified during tree works then it is essential that the works are halted immediately and an ecologist investigate them prior to works continuing.

6.0 Tree Surgery & Removal:

- 6.1 The following trees are scheduled to be felled, or removed due to their poor condition, being dead or structurally dangerous and unsuitable for retention; T17, T26, G29, G30, G31.
- 6.2 The preliminary tree management works and tree removal are to be carried out by an Arboricultural Association accredited tree surgeon in accordance with BS 3998: 2010 ‘Tree Work - Recommendations’ with particular care to be taken where trees are in confined spaces or adjacent to highways.
- 6.3 The stumps of tree species that sucker from roots or stumps such as Alder, Ash, Beech, Birch, Cherry, Elm, Lime, Maple, Oak, Poplar, Rowan, Sycamore, Tree of heaven and Willow are to be treated on removal with glyphosate plugs i.e ‘Ecoplug Max Tree Stump Killer’ in accordance with the manufacturer’s instructions and specifications.

7.0 Root Protection Area

- 7.1 In order to inform the future retention of existing trees the root protection area has been calculated for each tree in accordance with BS 5837:2012 Annex D, Table D.1 – Root Protection Area and using the two calculation methods as detailed within clause 4.6.1. The root protection areas are illustrated on the Tree Constraints Plan 21-80-02.
- 7.2 Where Veteran trees have been identified within the tree survey the root protection area has been based on a minimum of 15 times the diameter of the trunk in accordance with the standing advice from Natural England and the Forestry Commission.
- 7.3 Where pre-existing site conditions (i.e the presence of retaining walls) or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area had been illustrated
- 7.4 All trees that are being retained on site should be protected by barriers and/or ground protection before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. These 'Construction Exclusion Zones' are to be protected by barriers and ground protection in accordance with section 6.2 of BS 5837:2012 and as specified and indicated on an approved Tree Protection Plan to be prepared by the project arboriculturalist.
- 7.5 Of particular importance on sites where there are significant level changes it should be noted that existing ground levels are to be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ and any re-grading works or the location of retaining features should take this into account. The advice of an arborist should be sought where underground structures are present within the RPA are, or will become, redundant. In general it is preferable to leave such structures in situ, as their removal could damage adjacent tree roots.
- 7.6 Where construction operations are proposed and permitted within the Root Protection Area precautions should be taken and specified within an Arboricultural Method Statement prepared by the project arboriculturalist to maintain the condition and health of the root system in accordance with Section 7 'Demolition and construction in proximity to existing trees' of BS 5837:2012.
- 7.7 Where permanent hard surfacing within the RPA is considered unavoidable, site-specific and specialist arboricultural and construction design advice should be sought to determine whether it is achievable without significant adverse impact on trees to be retained. As a general guide new permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA.

8.0 Above Ground Constraints

- 8.1 In addition to the condition of the tree the probable impact on proposed buildings or development of trees considered for retention should be assessed to take into account the root protection areas, shadow patterns, species characteristics, maintenance requirements and allowances for space and future tree growth.

Shading:

- 8.2 In order to assess any unreasonable obstruction of sunlight or daylight to any proposed development tree shadow patterns are also illustrated on the Tree Constraints Plan 21-80-02.
- 8.3 The orientation of the site on a North to South axis means that shadows from the more significant and larger trees along the Western boundary shade parts of the site.
- 8.4 The survey includes species that have typically have dense canopies such as Lime and further consideration should be given in respect of these shading characteristics. The ultimate height and spread of the tree (as noted below) will also affect the shading of the site in the future.

Species Characteristics:

- 8.5 Trees are living organisms and exhibit structural and seasonal characteristics that may give rise to conflicts in proximity to buildings, footpaths and hard standing areas.
- 8.6 Ash trees are a large spreading deciduous tree species with an upright branching habit, often exhibiting co-dominant stems with included bark. Heavy branches are susceptible to splits, cracks and branch failures. The lower shaded branches in the canopy have the propensity to die off and drop. This can result in increased maintenance requirements to surfaces and possible damage to structures located in the immediate vicinity.
- 8.7 Silver birch are short lived trees intolerant of hard pruning. They are prone to branch failures on dense branch ends and stem and branch failures due to wood decay and weak wood. Sensitive to fungal pathogens and storm damage from snow, ice and wind.
- 8.8 Lime trees are susceptible to aphids that secrete honeydew which can be damaging to surfaces and vehicles. Tolerant of hard pruning increased maintenance maybe required to control epicormic growth.
- 8.9 Willow trees are large spreading deciduous tree species that have a propensity for branch drop or failure particularly in high winds. This can result in increased maintenance requirements to surfaces and possible damage to structures located in the immediate vicinity. Pollarded Willow will require regular tree surgery and management.
- 8.9 The following trees species are identified within the NHBC Standards Chapter 4.2 as of high water demand and therefore impacting significantly on foundation design on high shrinkability soils; Cypress, Elm, Eucalyptus Hawthorn, Oak, Poplar and Willow.

Ultimate Height and Spread:

- 8.10 Where surveyed trees are classified as young to semi mature their future growth in terms of predicted height and canopy spread at maturity (refer to Appendix B) should be considered to prevent direct potential damage to structures or buildings, minimise future pressure for removal and increase the effect of shading as described above.

Appendix A: Scientific Names

<i>Common names:</i>	<i>Scientific Name</i>
Common alder	<i>Alnus glutinosa</i>
Crab apple	<i>Malus sylvestris</i>
Common ash	<i>Fraxinus excelsior</i>
False acacia	<i>Robinia pseudacacia</i>
Silver birch	<i>Betula pendula</i>
Downy birch	<i>Betula pubescens</i>
Common beech	<i>Fagus sylvatica</i>
Wild cherry	<i>Prunus avium</i>
Bird cherry	<i>Prunus padus</i>
Cherry plum	<i>Prunus cerasifera</i>
Horse chestnut	<i>Aesculus hippocastanum</i>
Sweet chestnut	<i>Castanea sativa</i>
Cypress	<i>Chamaecyparis cultivar</i>
Leyland cypress	<i>Cupressus x leylandii</i>
Lawson cypress	<i>Chamaecyparis lawsoniana</i>
Douglas fir	<i>Pseudotsuga menziesii</i>
Common hawthorn	<i>Crataegus monogyna</i>
Common hornbeam	<i>Carpinus betulus</i>
Holly	<i>Ilex aquifolium</i>
Laburnum	<i>Laburnum anagyroides</i>
Small leaved lime	<i>Tilia cordata</i>
Common lime	<i>Tilia x europaea</i>
Large leaved lime	<i>Tilia platyphyllos</i>
European larch	<i>Larix decidua</i>
Field maple	<i>Acer campestre</i>
Norway maple	<i>Acer platanoides</i>
Sycamore	<i>Acer pseudoplatanus</i>
Common oak	<i>Quercus robur</i>
Sessile oak	<i>Quercus petraea</i>
Holm oak	<i>Quercus ilex</i>
Pear	<i>Pyrus communis</i>
Scots pine	<i>Pinus sylvestris</i>
Aspen poplar	<i>Populus tremula</i>
Lombardy poplar	<i>Populus italica</i>
Hybrid black poplar	<i>Populus x canadensis</i>
London plane	<i>Platanus x hispanica</i>
Norway spruce	<i>Picea abies</i>
Rowan	<i>Sorbus aucuparia</i>
Whitebeam	<i>Sorbus aria</i>
Wild service tree	<i>Sorbus torminalis</i>
Crack willow	<i>Salix fragilis</i>
Goat willow	<i>Salix caprea</i>
White willow	<i>Salix alba</i>
Weeping willow	<i>Salix babylonica</i>
Yew	<i>Taxus baccata</i>

Appendix B: Predicted Tree Height & Canopy Spread

<i>Common name</i>	<i>Height (m)</i>	<i>Canopy Spread (m)</i>
Common alder	25	10
Crab apple	9	7
Common ash	30	20
False acacia	25	15
Silver birch	25	10
Downy birch	20	10
Common beech	25	15
Wild cherry	20	10
Bird cherry	15	10
Cherry plum	10	10
Horse chestnut	25	20
Sweet chestnut	30	15
Cypress	15-40	2-5
Leyland cypress	35	5
Lawson cypress	15-40	2-5
Douglas fir	25-50	6-10
Common hawthorn	10	8
Common hornbeam	25	20
Holly	25	8
Laburnum	8	8
Small leaved lime	25	15
Common lime	35	15
Large leaved lime	30	20
European larch	30	4-6
Field maple	10	8
Norway maple	25	15
Sycamore	30	25
Common oak	35	25
Sessile oak	30	25
Holm oak	25	20
Pear	15	10
Scots pine	15-30	6-9
Aspen poplar	20	10
Lombardy poplar	30	5
Hybrid black poplar	35	20
London plane	30	20
Norway spruce	20-40	6
Rowan	15	7
Whitebeam	10-25	10
Wild service tree	20	12
Crack willow	15	15
Goat willow	10	8
White willow	25	10
Weeping willow	12	12
Yew	10-20	8-10

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
TREES UNSUITABLE FOR RETENTION				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	- Trees that have 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 U category trees (i.e. 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.</i>			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
	1 Mainly arboricultural values	2 Mainly landscape values	3 Mainly cultural values, including conservation	
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)	LIGHT GREEN
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	MID BLUE
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.	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	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	GREY

Appendix D: Root Protection Area

Single stem diameter <i>mm</i>	Radius of nominal circle <i>m</i>	Root Protection Area (RPA) <i>m²</i>
75	0.90	3
100	1.20	5
125	1.50	7
150	1.80	10
175	2.10	14
200	2.40	18
225	2.70	23
250	3.00	28
275	3.30	34
300	3.60	41
325	3.90	48
350	4.20	55
375	4.50	64
400	4.80	72
425	5.10	81
450	5.40	92
475	5.70	102
500	6.00	113
525	6.30	124
550	6.60	137
575	6.90	150
600	7.20	163
625	7.50	177
650	7.80	191
675	8.10	206
700	8.40	222
725	8.70	238
750	9.00	255
775	9.30	272
800	9.60	290
825	9.90	308
850	10.20	327
875	10.50	346
900	10.80	366
925	11.10	387
950	11.40	408
975	11.70	430
1000	12.00	452
1025	12.30	475
1050	12.60	499
1075	12.90	519
1100	13.20	547
1125	13.50	573
1150	13.80	598
1175	14.10	625
1200	14.40	652
1225	14.70	679
1250	15.00	707

Appendix E: Technical Definitions

Access Facilitation Pruning:	One off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
Arboricultural Impact Assessment	An evaluation of the direct and indirect effects of the proposed design on the trees identified within the Tree Survey, where necessary recommending mitigation or amendments to the design.
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.
Construction Exclusion Zone	An area based on the root protection area from which access is prohibited for the duration of a project
Root Protection Area (RPA)	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 considered a priority
Tree Protection Plan	A scale drawing informed by descriptive text where necessary, based upon finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Disclaimer:

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Any recommendation, opinion or finding stated in this report is based on circumstances and facts as they existed at the time that Bea Landscape Design performed the work. The content of this report has been provided in accordance with the provisions of the BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.

Nothing in this report constitutes legal opinion. If legal opinion is required the advice of a qualified legal professional should be secured. Observations relating to ecology and the condition of built structures have been made from an arboricultural point of view and, unless stated otherwise, do not constitute structural or ecological advice.

Tree Survey in accordance with BS5837:2012

Estimated dimensions (for offsite or otherwise inaccessible trees where accurate data cannot be recovered).

Tree / Group Number	Common Name	Height (m)	Stem(s) Diameter (mm)	Branch Spread (m)				Canopy Height (m) / First Significant Branch	Life Stage	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Remaining Contribution (years)	Category Grading	Root Protection Area (m2)
				N	E	S	W								
T01	Lime	10	310	5	5	3.5	4	2 E	Young	Good	Restricted root environment; growing in grass verge with road to North, West & East. Basal trunk epicormic growth; random past pruning/surgery.	Remove suspended or broken limb to South & epicormic growth. Raise low canopy to West to 3m above pavement and clear fenceline to East.	40+	B2	43
T02	Single leaved ash	12	360, 240	5.5	6	6	5	3	Semi mature	Poor	Restricted root environment; growing in verge at edge of road to East. Moderate deadwood snags. Ivy. Twin stemmed tree. Crown dieback. Past pruning/surgery.	Sever Ivy.	10+	C1	84
T03	Himalayan birch	9	150	3	3	3	3	2	Young	Good	Restricted root environment; growing within grass verge with road to East & West. Major bark wounds at base (trimmer damage). Random past pruning/surgery.	No action required.	20+	B2	10
T04	Himalayan birch	9.5	180	3.5	2	3.5	3.5	2	Young	Good	Restricted root environment; growing within grass verge with road to East & West. Major bark wounds at base (trimmer damage). Random past pruning/surgery. Suppressed crown to East.	Raise low canopy to give 3m clearance to footpath.	20+	B2	15
T05	Himalayan birch	9.5	230	6	6	6	6	2	Young	Good	Restricted root environment; growing within grass verge with road to East & West. Random past pruning/surgery.	Raise low canopy to give 3m clearance to footpath.	20+	B2	24

Tree Survey in accordance with BS5837:2012

Estimated dimensions (for offsite or otherwise inaccessible trees where accurate data cannot be recovered).

Tree / Group Number	Common Name	Height (m)	Stem(s) Diameter (mm)	Branch Spread (m)				Canopy Height (m) / First Significant Branch	Life Stage	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Remaining Contribution (years)	Category Grading	Root Protection Area (m2)
				N	E	S	W								
T06	Himalayan birch	11	240	4	4	4	4	2.5	Young	Good	Restricted root environment; growing within grass verge with road to East & West. Major bark wounds strimmer damage to base. Random past pruning/surgery.	Raise low canopy to give 3m clearance to footpath.	20+	B2	26
T07	Himalayan birch	11	210	5	5	5	5	2	Young	Good	Restricted root environment; growing within grass verge with road to East & West. Random past pruning/surgery.	Raise low canopy to give 3m clearance to footpath.	40+	B2	20
T08	Himalayan birch	10	270	4.5	4.5	4.5	4.5	2	Young	Good	Restricted root environment; growing within grass verge with road to East & West. Random past pruning/surgery. Major bark wounds strimmer damage at base.	Prune from bus stop sign.	20+	B2	33
T09	Himalayan birch	9	170	3.5	3.5	3.5	3.5	2	Young	Good	Restricted root environment; growing within grass verge with road to East & West. Random past pruning/surgery. Major bark wounds strimmer damage at base.	Raise low canopy to give 3m clearance to footpath.	20+	B2	13
T10	Himalayan birch	9	180	3.5	3.5	3.5	3.5	2	Young	Fair	Restricted root environment; growing within grass verge with road to East & West. Random past pruning/surgery. Major bark wounds strimmer damage at base. Rubbing / fused limbs.	Raise low canopy to give 3m clearance to footpath.	20+	B2	15

Tree Survey in accordance with BS5837:2012

Estimated dimensions (for offsite or otherwise inaccessible trees where accurate data cannot be recovered).

Tree / Group Number	Common Name	Height (m)	Stem(s) Diameter (mm)	Branch Spread (m)				Canopy Height (m) / First Significant Branch	Life Stage	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Remaining Contribution (years)	Category Grading	Root Protection Area (m2)
				N	E	S	W								
T11	Himalayan birch	11	170	5	2.5	2	5	2	Young	Good	Restricted root environment; growing within grass verge with road to East & West. Suppressed crown. Major bark wounds trimmer damage at base.	Raise low canopy to give 3m clearance to footpath.	20+	B2	13
T12	Single leaved ash	16	460	4.5	6	6.5	6	3	Semi mature	Fair	Restricted root environment; growing in verge close to road to East with road to West. Major deadwood snags. Ivy. Random past pruning/surgery.	Sever Ivy.	10+	C1	96
T13	Himalayan birch	10	220	3	3	4.5	4.5	2	Young	Good	Restricted root environment; growing within grass verge with road to East & West. Suppressed crown. Random past pruning/surgery.	Raise low canopy to give 3m clearance to footpath.	20+	B2	22
T14	Himalayan birch	10	180	4	4	4	2	2	Young	Fair	Restricted root environment; growing within grass verge with road to East & West. Large bark wounds at base to West. Random past pruning/surgery.	No action required.	20+	B2	15
T15	Rowan	6	180	3.5	3.5	3.5	3.5	2	Semi mature	Good	Restricted root environment; growing at edge of road.	No action required.	20+	B2	15
T16	Himalayan birch	10	180	4	4	4	4	2	Young	Good	Restricted root environment; growing within grass verge with road to East & West. Major bark wound at base. Random past pruning/surgery.	No action required.	20+	B2	15

Tree Survey in accordance with BS5837:2012

Estimated dimensions (for offsite or otherwise inaccessible trees where accurate data cannot be recovered).

Tree / Group Number	Common Name	Height (m)	Stem(s) Diameter (mm)	Branch Spread (m)				Canopy Height (m) / First Significant Branch	Life Stage	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Remaining Contribution (years)	Category Grading	Root Protection Area (m2)
				N	E	S	W								
T17	Rowan	4	90	1	1	1	1	2	Young	Poor	Restricted root environment; road to East. Trunk lean to East.	Remove to ground level.	<10	U	4
T18	Himalayan birch	12	200	5	5	5	5	2	Young	Good	Restricted root environment; growing in roadside verge with road to North, East & West. Random past pruning/surgery.	Raise low canopy to give 3m clearance to footpath.	20+	B2	18
T19	Himalayan birch	10	200	3.5	3.5	3.5	3.5	2	Young	Good	Restricted root environment; growing in grass verge with road to East & West. Major bark wounds at base. Random past pruning/surgery.	Raise low canopy to give 3m clearance to clear pavement.	20+	B2	18
T20	Himalayan birch	9	180	4	4	4	4	2	Young	Good	Restricted root environment; growing in grass verge with road to East & West. Major bark wounds at base strimmer damage. Random past pruning/surgery.	Raise low canopy to give 3m clearance to clear pavement.	20+	B2	15
T21	Rowan	6	130	3	2	1	2	2	Young	Fair	Restricted root environment; growing at edge of road. Suppressed crown.	No action required.	10+	C1	8
T22	Single leaved ash	14	380	6	6	6	6	3	Semi mature	Fair	Restricted root environment; growing at edge of road in grass verge, road to West. Major deadwood snags. Major branch socket cavity to stub to North. Random past pruning/surgery.	No action required.	10+	C1	65

Tree Survey in accordance with BS5837:2012

Estimated dimensions (for offsite or otherwise inaccessible trees where accurate data cannot be recovered).

Tree / Group Number	Common Name	Height (m)	Stem(s) Diameter (mm)	Branch Spread (m)				Canopy Height (m) / First Significant Branch	Life Stage	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Remaining Contribution (years)	Category Grading	Root Protection Area (m2)
				N	E	S	W								
T23	Himalayan birch	10	170	4	2.5	2.5	4.5	2.5	Young	Good	Restricted root environment; growing at edge of road in grass verge, road to West. Random past pruning/surgery. Suppressed crown.	Raise low canopy to give 3m clearance to clear pavement.	20+	B2	13
T24	Himalayan birch	11	220	3.5	3.5	4	4	2	Young	Good	Restricted root environment; growing @ edge of road in grass verge, road to West; random past pruning/surgery.	Raise low canopy to give 3m clearance to clear pavement.	20+	B2	22
G25	Ash	7.9	<200	3#	3#	3#	3#	1.5	Young	Fair	Restricted root environment; self set trees between feneline and road to East. Twin stemmed/multi stem. Compression forks / included bark.	No action required.	10+	C1	18
T26	Ash	8	250	2	3.6	2	3	1.5	Young	Fair	Restricted root environment road to East. Suppressed crown. Random past pruning / surgery. Mishapen crown.	Remove to ground level.	<10	U	28
T27	Lime	11	320	5.5	4	3	4	2	Young	Fair	Restricted root environment; growing in grass verge with road to West & East. Corrected/trunk lean. Unbalanced/suppressed crown. Longitudinal bark split / wound to South with decay evident.	No action required.	10+	C2	46

Tree Survey in accordance with BS5837:2012

Estimated dimensions (for offsite or otherwise inaccessible trees where accurate data cannot be recovered).

Tree / Group Number	Common Name	Height (m)	Stem(s) Diameter (mm)	Branch Spread (m)				Canopy Height (m) / First Significant Branch	Life Stage	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Remaining Contribution (years)	Category Grading	Root Protection Area (m2)
				N	E	S	W								
T28	Lime	12	400	4	4.5	4.5	4.5	2	Semi mature	Fair	Restricted root environment; growing in grass verge with road to West & East. Random past pruning/surgery. Longitudinal bark split / wound to South with decay evident.	No action required.	10+	C2	72
G29	Crack willow with occasional Ash & Sycamore sapling	10-15	<300 Av					/	Over mature	Poor	Restricted root environment; growing at edge of road. Major deadwood snags. Major branch socket cavities. Twin stemmed/multi stem. Trunk lean. Compression fork / included bark. Fractures on limbs. Random past pruning / surgery. Storm damage.	Remove to ground level & treat stumps.	<10	U	41
G30	Crack willow	10-15	<300 Av					/	Over mature	Fair	Restricted root environment; growing at edge of road. Major deadwood snags. Major branch socket cavities. Twin stemmed/multi stem. Trunk lean. Compression fork / included bark. Fractures on limbs. Random past pruning / surgery. Storm damage.	Remove to ground level & treat stumps.	<10	U	41
G31	Osier willow	5	<200					/	Over mature	Poor	Restricted root environment' growing at edge of road to East. Random past pruning / surgery.	Remove to ground level & treat stumps.	<10	U	18

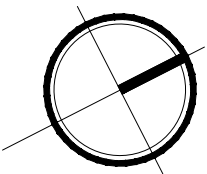
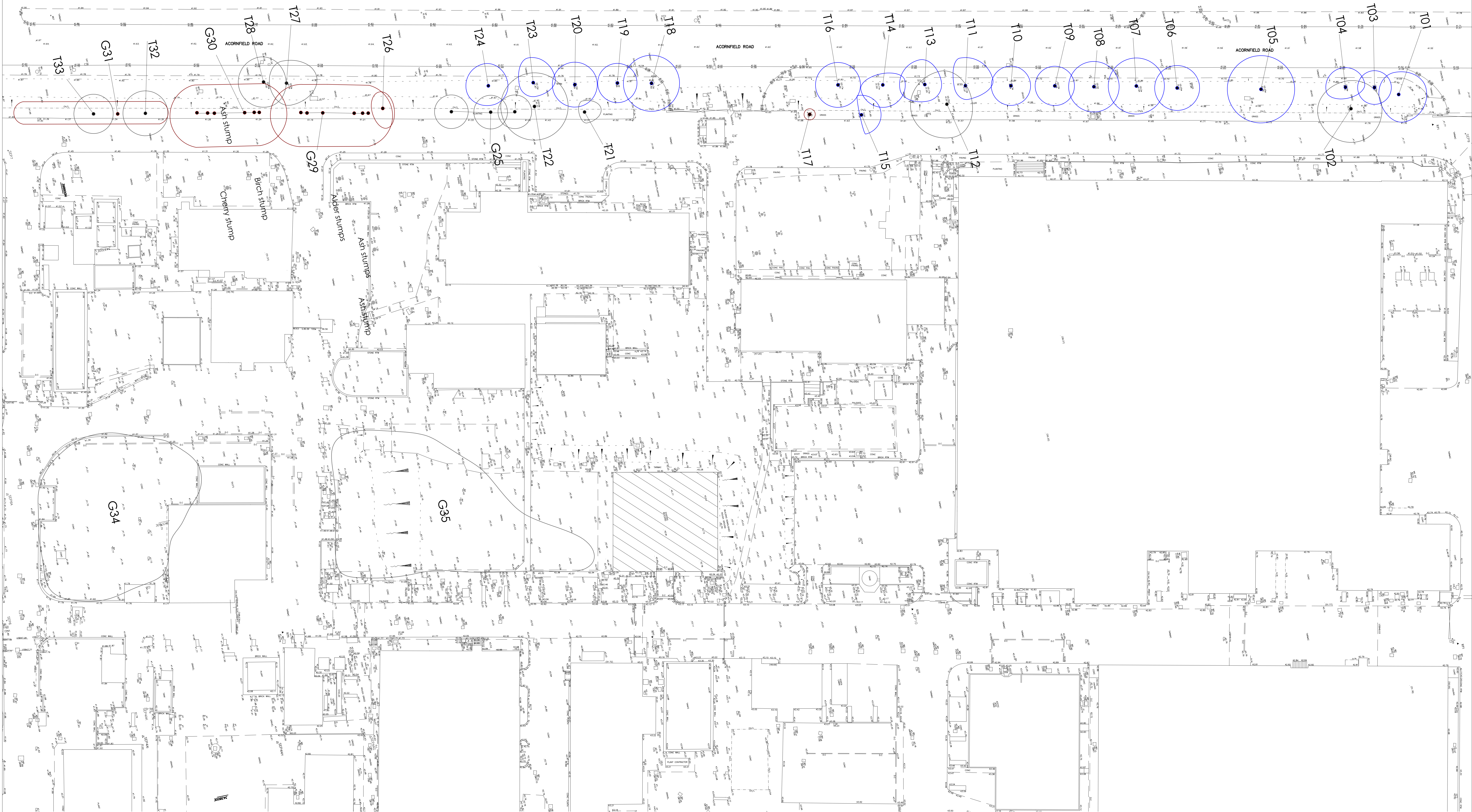
Tree Survey in accordance with BS5837:2012

Estimated dimensions (for offsite or otherwise inaccessible trees where accurate data cannot be recovered).

Tree / Group Number	Common Name	Height (m)	Stem(s) Diameter (mm)	Branch Spread (m)				Canopy Height (m) / First Significant Branch	Life Stage	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Remaining Contribution (years)	Category Grading	Root Protection Area (m2)
				N	E	S	W								
T32	Ash	10	180	4	4	4	4	2	Young	Fair	Restricted root environment; growing at edge of road to East.	No action required.	20+	C2	15
T33	Ash	8	110	3.5	3.5	3.5	3.5	2	Young	Fair	Restricted root environment; growing @ edge of road to East; corrected/trunk lean.	No action required.	20+	C1	5
G34	Birch, Goat willow & Buddlejia	3-5	<75					/	Young	Good	Self set scrub.	No action required.	40+	C1	3
G35	Birch, Ash, Alder, Goat willow & Buddlejia	5-8	<150					/	Young	Good	Self set scrub.	No action required.	40+	C1	10
															0

LEGEND: TREE SURVEY TO BS 5837:2012
NB The original of this drawing was produced in colour - a monochrome copy should not be relied upon)

- T1
Category A: High quality and/or value.
- T2
Category B: Moderate quality and /or value.
- T3
Category C: Low quality and/or value
- T4
Category U: Trees unsuitable for retention.



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client: KNOWSLEY IMAGE
BUSINESS PARK LTD

project:
SITE 3, IMAGE BUSINESS PARK
KNOWSLEY

title:
TREE SURVEY PLAN

status:
PLANNING

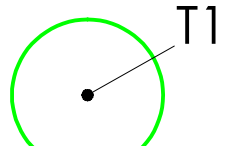
date: JUL 21	drawn: E.C.H.	number: 21-50-01
scale&AD: 1:250	checked: T.G-W	revision: (-)

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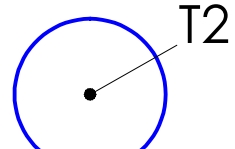
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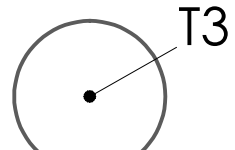
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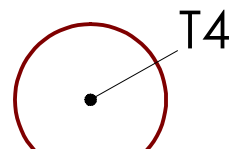
Category A: High quality and/or value.



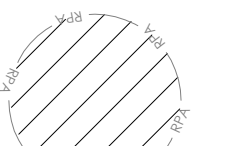
Category B: Moderate quality and /or value.



Category C: Low quality and/or value



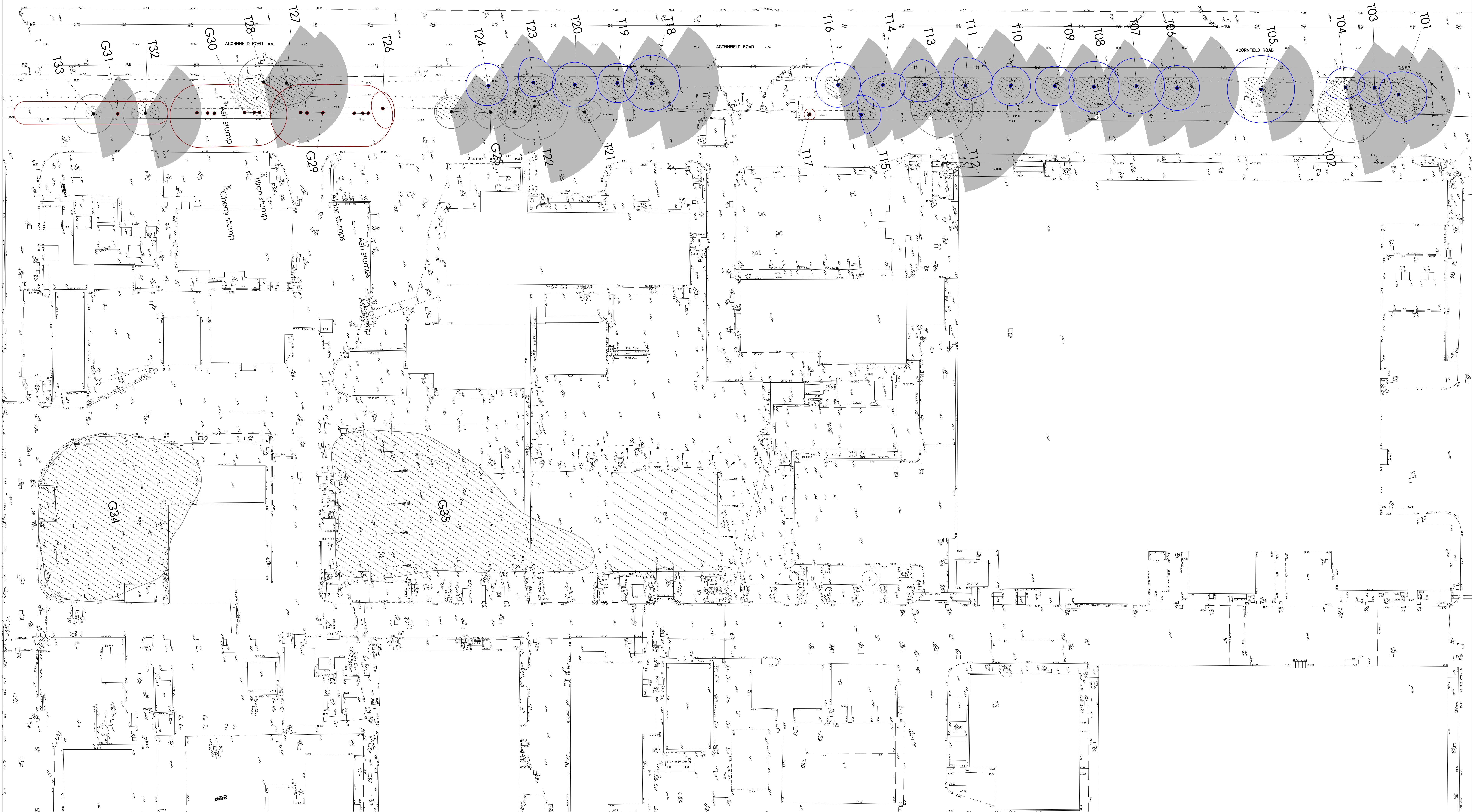
Category U: Trees unsuitable for retention.



RPA: Root Protection Area: minimum area to be protected during construction in accordance with BS 5837:2012.



Shadow Arc



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client: KNOWSLEY IMAGE
BUSINESS PARK LTD

project:
SITE 3, IMAGE BUSINESS PARK
KNOWSLEY

title:
TREE CONSTRAINTS PLAN

status:
PLANNING

date: JUL 21	drawn: E.C.H	number: 21-50-02
scale@AD: 1:250	checked: T.G-W	revision: (-)

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