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GEO-ENVIRONMENTAL CONSULTING



View of the trees looking towards where the proposed development is to be located

ARBORICULTURAL IMPACT ASSESSMENT

Date of the Inspection
12th September 2024

Site
Old Moat Lane
Old Moat
Manchester
M20 1DE

Description
The development of air source heat pump

Instructed by
Helmrig Ltd

Author
Andrew McLoughlin
Treestyle Consultancy Ltd

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Executive Summary

Treestyle Consultancy was commissioned to complete a survey to specifications set out in British Standard 5837:2012 *Trees in relation to design, demolition & construction - Recommendations.*

The Tree Survey recorded individual trees, groups of trees and hedges located all around the boundaries that are within influencing distance of the proposal.

- No trees were recorded as category A high quality with 40 years plus life potential.
- Two trees and two groups were categorised as B medium quality with up to 20 years life potential.
- Two hedges, a group of trees and an individual tree were recorded as low quality and value with up to 10 years life potential.
- No trees were recorded as category U, not realistically retainable.

- Generally the green infrastructure provides good screening from neighbouring areas. Many of the trees are of moderate to low quality and value. Some trees had a limited visual assessment due to dense vegetation or were fenced off.

The Proposal

- The construction of air source heat pump (ASHP).

The Arboricultural Impact Assessment (AIA)

- The development of the ASHP falls near to Root Protection Areas (RPA) of a category B tree.
- There are potential below ground constraints with neighbouring trees.
- There are groups of trees all around the boundaries with below-ground constraints; they are primarily of low quality and value and do not directly impact the development.
- There is potential for building materials to be leached into the soil profile of the remaining trees, specifically to the south.

Table 1 - Summary of BS5837 Categorisation Colours in relation to the tree to be retained and removed, the explanation of this categorisation can be read in Appendix C - BS 5837:2012 Cascade Chart for Tree Quality Assessment

Tree Category	Trees to be retained	Trees to be removed
A	-	-
B	T1, T2, T3, G7	-
C	H4, T5, H6, G8	-
U	-	-

It is important that the caveats and limitations of this report are understood.

1.0 Introductions

Instruction

1.1 I have been instructed by Helmrig Ltd to prepare an arboricultural impact assessment with regards to the proposed installation of a air source heat pump in accordance with BS 5837 Trees in Relation to design, demolition and construction - recommendations 2012.

Scope

1.2 The scope of this instruction has been to:

- The tree survey was to be conducted in accordance with the guidance provided in BS5837 (2012) *Trees in relation to design, demolition, and construction - Recommendations* ('BS5837').
- Prepare an Arboricultural Impact Assessment and plan for submission with a planning application.
- Provide recommendation on mitigation and compensation measures for tree loss.

1.3 All plans and reports following the tree survey were also to follow the recommended processes defined in BS5837 and any other industry advice that provides best practice guidance for managing the relationship between trees and construction processes.

Site description

1.5 Located within the busy area of Withington. There are predominately residential housing all around the boundaries. The southern entrance is accessed by Old Moat Lane were a narrow single track road leads to the Centre.

1.5.1 The ASHP is located at the front of the Centre where an existing entrance to an assumed boiler room can be seen. The area immediately in front of the proposal is a turning point for vehicles with parking surrounding the boundaries of this tight area.



Figure 1: Google Maps - This content is for educational and informative purposes; so, parts of it are reproduced from BSI Global

2.0 Tree Survey

2.1 The survey recorded hedges, groups of trees and mature individual trees both within and beyond the boundaries, these are listed below:

- The green infrastructure as a whole provides good greening with fantastic wildlife value. Whilst providing good screening the general condition of the trees are of moderate to low quality, half of which are located within neighbouring gardens.
- Some trees had limited visual assessment due to trees being beyond fencing or housed in by dense vegetation.
- The largest tree, a cherry *(Prunus padus)*, is within close proximity to the proposal. It is located to the south but has multiple stems and reduced life potential because of its form.
- Generally high occupancy target areas being buildings, residential properties and stationary vehicles.

N.B. Target areas are places where a tree or tree part could fall and land on a vehicle, structure or a person causing damage or injury or disruption.

Tree Category	Tree Identification
A	-
B	T1, T2, T3, G7
C	H4, T5, H6, G8
U	-

Table 2 - Summary of BS5837 Categorisation colours in relation to the tree numbers

General Data Capture

2.3 For reference, all individual trees are geo referenced with a Trimble TDC600 and a Catalyst DA2 with sub metre accuracy have been identified with the letter T and associated number on the Tree Schedule and on a plan showing the extent of tree constraints. The stem diameter of the trees on site was recorded using a rounded down diameter tape, measured at 1.5m above ground level. Measurements were recorded in millimetres, rounded to the nearest 10mm.

2.3.1 The height of the subject trees was estimated to the nearest metre.

2.3.2 Maximum crown spread of the subject tree was measured from the edge of the trunk to the tips of the live lateral branches taken at four compass points (N-E-S-W) using a Leica Disto digital laser measure. Crown spread measurements were taken in metres.

2.2.3 The trees age was estimated from visual indicators (such as tree size and appearance of bark) which is provided as a provisional guide.

2.2.4 Hedges are identified with the letter H and number on the associated schedule and plans. Each hedgerow was surveyed recording the species, the maximum height and the average width of the hedge. Any individual trees present within the hedgerow were recorded as an individual tree.

2.2.5 If direct access to a tree was not possible, estimations from appropriate vantage points were taken. Any limitations or estimations are presented within the survey limitations section and noted in the associated schedules.

Categorisation

2.3 In compliance with Table 1 of BS5837 the trees surveyed have been categorised according to their arboricultural quality and value (non-fiscal) which is summarised below in Table 2.

Quality Assessment

2.3.1 A summary of the assessment on the quality of the tree can be seen in table 3.

Category	Colour	Description
A	Green	Trees of high quality with an estimated remaining life expectancy of at least 40 years
B	Blue	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
C	Grey	Trees of low quality with an estimated remaining life expectancy of at least 10 years
U	Red	Those trees 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

Table 3 - Summary of BS5837 Tree Categorisation

3.0 Tree Constraints

Above Ground Tree Constraints

3.1 The above ground constraints posed by canopy spread are plotted on the Tree Constraints Plan as a circle around the tree with the extent of the canopy spread in the corresponding BS5837 retention category colour.

Below Ground Constraints

3.2 **Root Protection Areas**

3.2.1 The Root Protection Areas (RPA) of the trees were calculated in accordance with Section 4.6.1 in BS5837. This is calculated from the measurement of the stem diameter as recorded in the tree schedule attached to this report and is plotted on the TCP. Trees lining the southern boundary have had their RPA adjusted.

3.2.2 The RPA forms the initial Construction Exclusion Zone (CEZ) to protect the trees within and adjoining the site and is plotted on the plan by an orange line with the text RPA inscribed.

3.2.3 The RPA is initially plotted with the tree in the centre. Where site conditions may influence the shape and size of the RPA (e.g. the presence of roads, buildings or other structures), the shape and size of the RPA can be amended in accordance with Section 4.6.3 in BS5837.

3.2.4 The default position should be that no development will take place within the RPA of retained trees. However, where there is an overriding need for construction and associated activity within the RPA of trees, measures should be put in place to protect retained trees from harm while those activities are being carried out.

Soils

3.3 BS5837 recommends that a soil assessment be completed by a competent person to inform decisions relating to the RPA, tree protection, new planting design and foundation design. I am not able to provide this assessment as I have no formal qualifications in this area, and professional advice should be taken to provide any detailed reports.

3.3.1 However, generic soil data is freely available from online sources such as the Geology of Britain which can provide a broad indication of the underlying geology of a site. The results of a search for this site describes the texture as acid loamy and clayey soils with impeded drainage.

3.3.2 The soil type will have an impact on any recommendations for replacement or enhancement planting that may form a part of any landscape strategy for a planning application.

3.4 **TPO's and Conservation Areas**

3.4.1 Manchester City Councils interactive mapping showed there is no tree protection within the grounds.

4.0 Development Proposal

4.1 The proposal is for:

- The development of an air source heat pump

5.0 Arboricultural Impact Assessment (AIA)

5.1 This impact assessment will set out the principal direct and indirect impacts of the proposals on the trees on site and set out suitable mitigation measures for unavoidable tree removals and to allow for the successful retention of significant trees where appropriate.

Development can have an adverse impact on trees and other woody vegetation within a site, which can result in:

I. Immediate tree removal to facilitate the footprint of the development.

II. Potential future tree loss through the early decline of trees due to soil compaction or damage

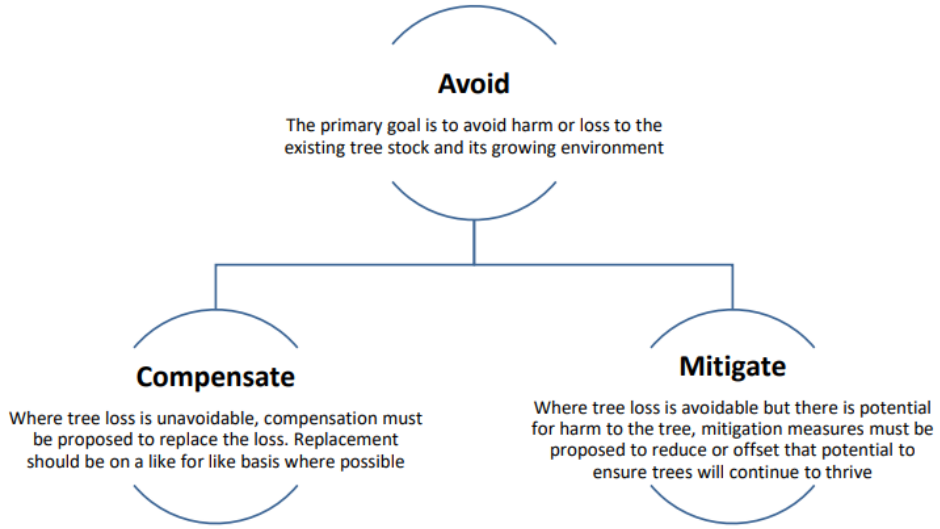
III. Root disturbance and damage within a tree's rooting area

IV. Canopy removal or damage due to plant movement.

Best practice guidance proposed by the arboricultural sector seeks to ensure that there is a harmonious relationship between trees and development that will ensure that both trees and structures can be retained in the long term.

Where practical, development should seek to work with the natural environment, and development schemes that might result in harm should follow a mitigation hierarchy to ensure harm is minimised.

To assist the planning decision makers, this scheme should use the following mitigation hierarchy to consider the influence that trees might have on site design while also continuing to make a positive contribution to the site and local character of the area, both during and post development:



The impact of any tree loss is assessed against a criterion in relation to the arboricultural significance of the loss, the detail of which is provided in Table 3. This table is not related to the quality categories provided in BS5837 but has a closer relationship to the sub-categories through assessing the impact that tree loss may have at the Site and its setting in the wider locality. This assessment is also useful in considering the impact of any potential loss against planning policy.

Table 3: Impact Assessment definitions

Scale of Impact	Definition
Major	Total loss or major/substantial alteration to key trees/features of the baseline (pre-development) conditions such that the post development character or composition will be fundamentally changed. This would generally apply to tree(s) that are of exceptional or high quality and condition and their loss would be irreplaceable. This would also include trees that have been categorised as being Ancient or Veteran, trees are rare examples of their species and or trees that offer significant amenity value to the character and setting of the area.
Moderate	Loss or alteration to one or more key trees/features of the baseline conditions such that post development character or composition of the baseline will be materially changed. This would generally apply to tree(s) that are of good quality and condition and make a notable contribution to the setting or character of the locality (visual amenity). This may include trees that would be hard to replace but for which there could be some mitigation over a medium timeframe (20-40 years).
Minor	A minor shift away from baseline conditions. Change arising from the loss/ alteration will be discernible/detectable but not material. The underlying character or composition of the baseline condition will be similar to the pre-development circumstances/situation. This would generally apply to tree(s) that are of low quality and condition and/ or their loss would have low impact on the locality. These trees would be relatively easy to replace within a short timeframe (10-20 years).
Negligible	Very little change from baseline conditions with any change barely distinguishable. This would generally apply to tree(s) that are of low quality and condition, and/ or their loss would barely be noticeable. Any replacement planting would offer an improvement to the setting of the site in a very short time frame (1-10 years)
No Change	There is no change to the baseline conditions to trees from the development proposal.

The impact can be assessed as being either negative, positive or neutral, each of which (for the purpose of this report) are defined as:

- Negative – a negative impact is one where the proposal will result in the loss or degradation of the range or quality of trees on a site, and which will negatively impact the local community.
- Positive – a positive impact is where the proposal will result in enhancements to the range or quality of trees on site (achieved through retention of existing trees and new planting), or an improvement(s) to the growing environment of trees that will result in improvements to the social and cultural setting of the site to the benefit of the local community.
- Neutral – there is no change to the baseline setting of the site in arboricultural terms.

5.2 **Effects of the trees with regards to the development.**

BS5837 Categorisation			
	A high quality 40 years plus life potential	B moderate quality up to 20 years life potential	C low quality Up to 10 years life potential
Remove	-	-	-
Prune	-	-	-
Protect	-	T1, T2, T3, G7	H4, T5, H6, G8
Arboricultural Investigation	-	-	-
Post development considerations	-	Regular assessments	Regular assessments

Table 4 highlights the summary of the impact on trees

5.2.1 The grounds have seen little or no tree management for a long time. Concerns with the changing environment surrounding these trees raise the risk level from low to high with sensitive targets such as people, vehicles, buildings and structures.

5.2.2 Trees can shed leaves, deadwood and occasionally branches. They can shade buildings and areas for recreation which can result in the occupants requesting tree works that can have a detrimental affect to tree health.

5.2.3 As trees grow and naturally expand their root areas, canopy development and stem thickening can present future issues. As they increase in height they will produce extra shadow onto land that was previously open.

5.2.4 Trees can produce effective screening from neighbouring properties, noise from roads, absorb pollution, increase wildlife and reduce energy bills in winter. Additionally deciduous trees in winter allow sunlight through, they also screen people from hot sun in summer and help to reduce air-conditioning costs. Having mature trees on a newly created development can add a sense of establishment and longevity, create social calming and reduce stress levels.

5.3 **Potential incompatibilities between the layout and the trees proposed for retention**.

5.3.1 Drawing 1 - Tree Constraints Plan shows where development incurs onto RPA's of trees to be retained. Development shall be carried out without soil compaction or soil stripping and laid in accordance with the Arboricultural Method Statement section 13 (Hard Surfaces).

5.4 **Infrastructure Requirements**

5.4.1 Services could have direct impact on retained trees, this information has not been provided as of yet.

5.5 **Mitigating Tree loss/new Planting**

5.5.1 Tree planting 2 - 1 in line with Manchester City Councils tree replacement policy.

5.6 **Proximity of Trees to the development**

5.6.1 The impact on trees by the proposal for an ASHP has been considered particularly in allowing for future growth. Tree size, future growth, light/shading, leaf and fruit nuisance etc have the potential to be an issue. This applies to all trees where there is potential for indirect impact on by the proposed development.

5.6.2 T1 cherry is located on the opposite side to the vehicle entrance to the proposal. The size of the tree produces below ground constraints with an RPA of 6m radius, however, these measurements may vary due to below ground constraints such as hard surfaces, drains and soil compaction.



5.6.3 G5, H6 & G8 can be seen lining the southern boundary and are located in neighbouring gardens. Storage of materials could have an impact on these trees.



5.6.4 Trees are located in an access area / playground fall near to the proposed development, as long as the gates are closed and restricted access they should not present a problem.



5.6.5 Overall the processes of the construction are likely to have a detrimental effect upon the health of the retained trees if the site is poorly managed. As long as the recommendations made in this report are adhered to at all times by the contractors e.g. the positioning of a fence between the retained trees, the storage of building materials, construction activities which should be in place prior to the commencement of works and remains intact and in position throughout the duration of the construction activities then minimal damage should occur to the trees.

6.0 Arboricultural Tree Constraints

6.1 There are above and below ground constraints all around the proposal.

6.2 The existing hard standing area of the car park could be utilised for the storage of building materials, however, storm water with building materials could create an issue to the surrounding green infrastructure.

6.3 There are above ground constraints with site access to be made aware of for site traffic.

6.4 The development of the ASHP falls near to the RPA of T1 cherry *(Prunus padus)*.

6.5 Access into the site is narrow as is the car park within with regards to storage.

6.2 **Construction Exclusion Zone (CEZ)**

6.2.1 Works undertaken within a CEZ shall have arboricultural supervision and be carried out with hand tools only. The CEZ is to be afforded protection at all times normally by fencing, unless permitted access is required and is part of the TPP. A protective fence shall be erected prior to the commencement of any site works e.g. before any materials or machinery are brought on site, development or the removal of the existing surfaces commences. The fence shall have signs attached to it stating that this is a CEZ and that NO WORKS are Permitted within the fence. The protected fence may only be removed following completion of all construction works.

6.2.2 The fence is required to be sited in accordance with the TPP enclosed with this method statement as Appendix D - Tree Fencing. However, the situation may not suit the requirements in BS 5837 2012 and therefore an alternative which must be fit for the purpose of excluding any construction activity.

7.0 Impact Assessment

7.1 The proposed scheme does not require the removal of any trees. This proposed development scheme will produce more new trees than are being removed and will provide an enhancement to the setting and character of the site.

7.2 Overall, the impact of this scheme, from an arboricultural perspective is assessed as being low.

8.0 Conclusion

8.1 Development activities can be managed without detrimentally impacting tree health. The green infrastructure is generally of low to moderate quality.

- Poor building materials management will present the greatest threat to the green infrastructure.
- Whilst the development does not directly affect the RPA of T1 cherry (Prunus padus), the landscaping of the surfaces is in close proximity to the tree's roots.
- Tight access needs to be addressed as does the small area for storage, parking and faculties.

Signed [redacted] Date 23rd September 2024

Consultant - Andrew McLoughlin MArborA
Treestyle Consultancy Ltd
[redacted]
Vat 426004731
Company Ref 13609835

9.0 Caveats and Limitations

9.1 While all reasonable efforts have been made to identify the condition and quality of the trees on site, the statements made in this report and schedules do not take into account the effects of extreme weather events, vandalism or accidents, or changes to the site that may affect trees that have taken place since the date of the survey.

9.2 I can confirm that the survey has been undertaken in accordance with industry best practice recommendations and guidance, but no warranty is provided in relation to changes to the site that occur after the date of the survey that may have an impact on the tree stock present at the time of the survey.

9.3 Unless stated differently in captions, all photographs used in this report have been taken by the author at the time of the site visit.

9.4 The comments and observations made within this report will cease to be valid either within two years of the date of the survey (unless specifically stated elsewhere within the report), or when site conditions change or any works to trees take place that have not been specified within this report, whichever is sooner.

9.5 The survey has been undertaken with the benefit of a mapping supplied by The Ordinance Survey. The location of all trees and groups detailed in this report have been taken from the topographical survey and no warranty is given as to the accuracy of this data.

9.6 This survey has been limited to identifying arboricultural features within the site. It does not include any ecological assessment or landscape appraisal of trees, groups, woodlands or hedges beyond the scope of BS5837.

9.7 Although I am occasionally involved in landscape, ecological and planning issues, I have no formal qualifications in these areas and any comments made in this report to such matters are limited to the general context in view of my familiarity through my day-to-day work, and professional advice should be obtained on these matters where required.

10.0 References

Barlow JF & Harrison G. 1999. Shade By Trees, Arboricultural Practice Note 5, AAIS, Farnham, Surrey.

British Standards Institute. 2012. Trees in Relation to Design, Demolition and Construction - Recommendations BS 5837: 2012 HMSO, London.

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Lonsdale D 1999. Research for Amenity Trees No.7: Principles of Tree Hazard Assessment and Management, HMSO, London.

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Mattheck C. & Breloer H. 1994. Research for Amenity Trees No.2: The Body Language of Trees, HMSO, London.

British Standards 3998 Tree Work Recommendations 2010

British Standards BS 5837, Trees in relation to design, demolition and construction – Recommendation 2012

British Standards 42020 Biodiversity - Code of Practice for Planning and Development 2013

British Standards 8545 Trees: from nursery to independence in the landscape - Recommendations 2014

International Society of Arboriculture Best Management Practice Tree Risk Assessment 2013

NTSG - Common Sense Risk Management of Trees

Principles of Tree Hazard Analysis and Management - D Lonsdale No 7

11.0 About the Author

11.1 Treestyle Consultancy's principle assessor is Andrew McLoughlin, the Managing Director of Treestyle Consultancy Ltd since 2001. I have a MArborA in Arboriculture. Qualified Arboriculturalist since 1998. I am also a qualified teacher and a LANTRA instructor and assessor. ISA Tree Risk Assessment Qualification, Quantified Tree Risk Assessor. Ancient and Veteran Tree Expert. Up to date Curriculum Vitae (which include records of up to date Continued Professional Development - CPD) can be provided upon request.

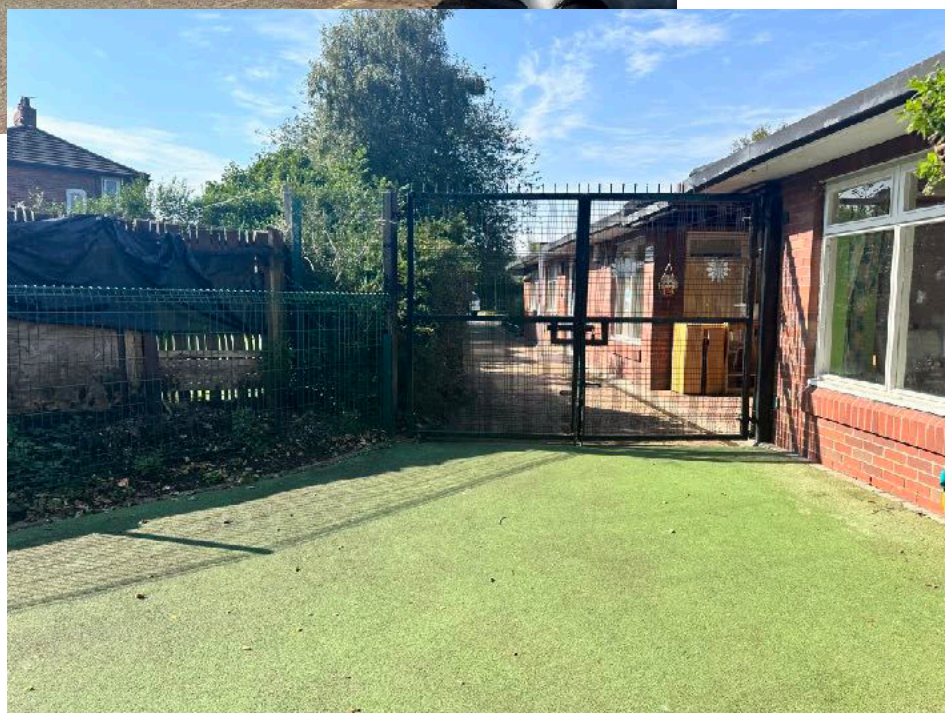
12.0 Site Photography



Left is looking west where G7 birch are fenced off and are already protected.

Below right is the entrance to the rear of the grounds, looking south.

Bottom left is another area potential used for



Helmrig Ltd

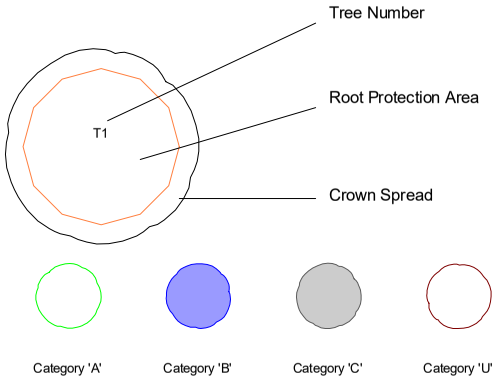
New Inn Farm, Dawson Lane, Leyland
sam@helmrig.com

SITE:
Old Moat Sure Start Centre

SCALE :	DATE :
1 : 500 @ A4	26/09/2024

Drawing Name: Tree Mapping

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0 40m

Proposal
Roads
Walls
Fences

The Proposal

The construction of air source heat pump (ASHP).

The Tree Survey recorded individual trees, groups of trees and hedges located all around the boundaries that are within influencing distance of the proposal.

No trees were recorded as category A high quality with 40 years plus life potential.
Two trees and tree groups were categorised as B medium quality with up to 20 years life potential.
Two hedges and a tree were recorded as low quality and value with up to 10 years life potential.
No trees were recorded as category U, not realistically retainable.
Generally the green infrastructure provides good screening from neighbouring areas.
Many of the trees are of moderate to low quality and value due to the self seeded nature with multiple stems and various stages of ash dieback (Hymenoscyphus fraxineus). Some trees had a limited visual assessment due to dense vegetation or were fenced off

Cat A = 40 years plus

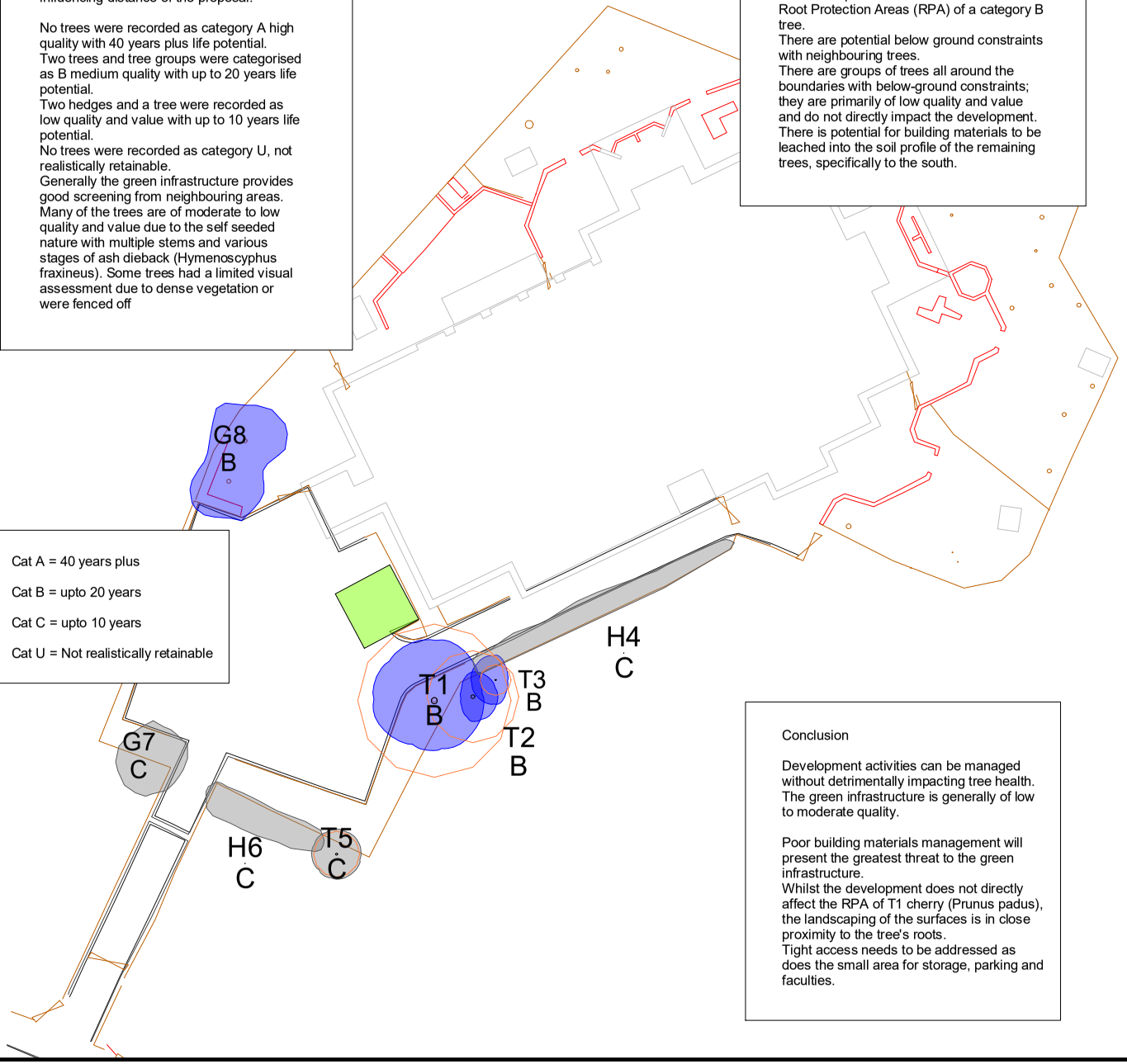
Cat B = upto 20 years

Cat C = upto 10 years

Cat U = Not realistically retainable

The Arboricultural Impact Assessment (AIA)

The development of the ASHP falls near to Root Protection Areas (RPA) of a category B tree.
There are potential below ground constraints with neighbouring trees.
There are groups of trees all around the boundaries with below-ground constraints; they are primarily of low quality and value and do not directly impact the development.
There is potential for building materials to be leached into the soil profile of the remaining trees, specifically to the south.



Conclusion

Development activities can be managed without detrimentally impacting tree health.
The green infrastructure is generally of low to moderate quality.

Poor building materials management will present the greatest threat to the green infrastructure.
Whilst the development does not directly affect the RPA of T1 cherry (Prunus padus), the landscaping of the surfaces is in close proximity to the tree's roots.
Tight access needs to be addressed as does the small area for storage, parking and faculties.

BS5837:2012 Tree Survey

Treestyle Consultancy Ltd

Jepps Lane
Barton
Preston
Lancashire
PR3 5AQ
Mobile: 07872064313

Client: Helmrig Ltd
Project: Old Moat Sure Start Centre
Survey Date: 19/09/2024
Surveyor: Andrew McLoughlin

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
G7											
A Group - -	5	1				M	A: 0 R: 0		C: Fair S: B:	No action :: No action A small group of neighbouring trees partially overhanging the entrance	C.1.2 <10 yrs
G8											
A Group - -	7	1	300	N 4 E 4 S 4 W 4	2 2 2	M	A: 40.7 R: 3.59	Good	C: Good S: Good B: Good	No action :: No action Two wonderful birch trees providing great screening and wildlife benefits fenced off but near to proposal	B.1 10 to 20 yrs
H4											
A Hedgerow - *Spp.*	3	0		N 0.5 E 5 S 0.5 W 1		M	A: 0 R: 0	Fair	C: Fair S: Fair B: Good	Protection :: Unspecified Good low level screening and wildlife benefits with various species	C.2 <10 yrs
H6											
A Hedgerow - *Spp.*	3	0		N 0.5 E 5 S 0.5 W 1		M	A: 0 R: 0	Fair	C: Fair S: Fair B: Good	Protection :: Unspecified Good low level screening and wildlife benefits with neighbouring privet	C.2 <10 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
T1											
Bird Cherry *Prunus padus*	6	1	500	N 5 E 4 S 4 W 5	2 2 2 2	M	A: 113.1 R: 6	Good	C: Good S: Fair B: Good	Protection :: Unspecified Great urban greening creating screening and wildlife benefits. Above and below ground constraints	**B.1** 20 to 40 yrs
T2										Estimated Measurements	
Downy Birch *Betula pubescens*	12	1	300	N 2 E 2 S 2 W 1	2 2 2 2	M	A: 40.7 R: 3.59	Good	C: Good S: Good B: Good	Protection :: Unspecified Neighbouring tree with below ground constraints	**B.1** 20 to 40 yrs
T3										Estimated Measurements	
Magnolia *Magnolia Spp.*	4	1	100	N 2 E 1 S 2 W 2	0 0 0 0	M	A: 4.5 R: 1.19	Fair	C: Good S: Fair B: Good	Protection :: Unspecified Small neighbouring tree with good screening	**B.1.2** 10 to 20 yrs
T5										Estimated Measurements	
Holly *Ilex Spp.*	5	1	150	N 2 E 2 S 2 W 2	2 2 2 2	M	A: 10.2 R: 1.8	Fair	C: Good S: Good B: Good	Protection :: Unspecified Neighbouring tree with below ground constraints	**C.1** 20 to 40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Appendix B - Glossary

Abbreviation	Term	Explanation
DBH	Diameter at Breast Height	The diameter of the tree trunk in question, 'breast height' is taken to be 1.3 metres above ground level. Multi-stem trees have their stems measured separately and indicated as so in the tree schedule. Trees with abnormal growths, branch unions or other obstructions at 1.3 m will have their measurements taken immediately below said obstructions.
RPA	Root Protection Area	The area in metres squared of the potential underground rooting constraints
AMS	Arboricultural Method Statement	This dictates the procedure for works to be carried out around the protected trees
RPA	Root Protection Area	Circular area surrounding tree with a radius based on the DBH of the tree, as calculated in BS 5837:2012. RPA Radius = 12 x DBH
AIA	Arboricultural Impact Assessment	What will the impact be on the trees with the proposed develeopment
VTA	Visual Tree Assessment	A system of tree inspection devised by Claus Mattheck using visual signs to read the body language of trees & aid with the diagnosis of potential defects.
TPP	Tree Protection Plan	This describes the process on how the work is to be carried out around the trees
BS5837 2012	British Standards	British Standard 5837:2012 *Trees in relation to design, demolition & construction - Recommendations.*
	Codominant stem	Two stems on a tree which can suggest a weakened union
	V union with bark inclusion	Usually with a codominant stem, as above but with up to an additional 42% weak union
Y	Young	Tree which has not yet established a significant rooting structure in the ground & has not developed a significant branching structure - its form is largely 'whip' like in nature & it could normally be easily transplanted or replaced.
EM	Early Mature	Tree which has established a significant rooting structure & has developed a noticeable internal scaffold structure, it differs from a mature version of its species only in size but not in relative proportions of its structure. Trees in this age class will still be developing significantly in height & spread.
M	Mature	Tree which has established a significant root-plate & which is over 50% of the way through its usual life expectancy. Trees in this age class will still be developing significantly in spread but less significantly in height.
OM	Over Mature	Tree which has fully established & will no longer be able to continue increasing in size due to its age, it may be showing signs of decline such as localised dieback but does not need to do so by definition. However it should be expected that signs of structural deterioration will soon become apparent.
V	Veteran	Tree which is showing veteran tree characteristics such as very significant crown retrenchment, extensive internal cavitation & possess significant cultural, ecological &/or historical value. Size is a common indicator of these characteristics but is not an essential requirement, for example, ancient coppices may possess veteran tree characteristics but may have a stunted form. Age is a stronger indicator but again not essential as veteran characteristics can be encouraged in younger trees.
-	Minor Deadwood	Deadwood under 50 mm in diameter
-	Major Deadwood	Deadwood which is equal to or greater than 50 mm in diameter
-	Retrenchment	Retrenchment: progressive reduction in the size of the crown of an old tree, by means of the dieback or breakage of twigs and small branches, accompanied by the enhanced development of the lower or inner parts of the crown.

Appendix C: BS 5837:2012 Cascade Chart for Tree Quality Assessment

Table 1 Cascade chart for tree quality assessment				**ID on plan**
Category and definition	**Criteria (including subcategories where appropriate)**			
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other U category trees i.e. where, for whatever reasons, 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 or significance to health and/or safety of other trees nearby (e.g. Dutch elm disease, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7.***			**RED**
	1 Mainly arboricultural values	**2 Mainly landscape values**	**3 Mainly cultural values, inc. conservation**	
Trees to be considered for retention				
Category A **Those of a 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 of 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)	**GREEN**
Category B **Those 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	**BLUE**
Category C **Those of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater 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 - General Tree Protection Considerations

Any tree retained within the design will require protection in accordance with BS 5837, regardless of its initial retention category. This protection will require tree to be fenced off in areas equal to the RPAs plotted on the attached Tree Constraints Plan, located in **Appendix A**.

A protective fence will be erected prior to the commencement of any site works e.g. before any materials are brought on site. The fence will have signs attached to it stating:

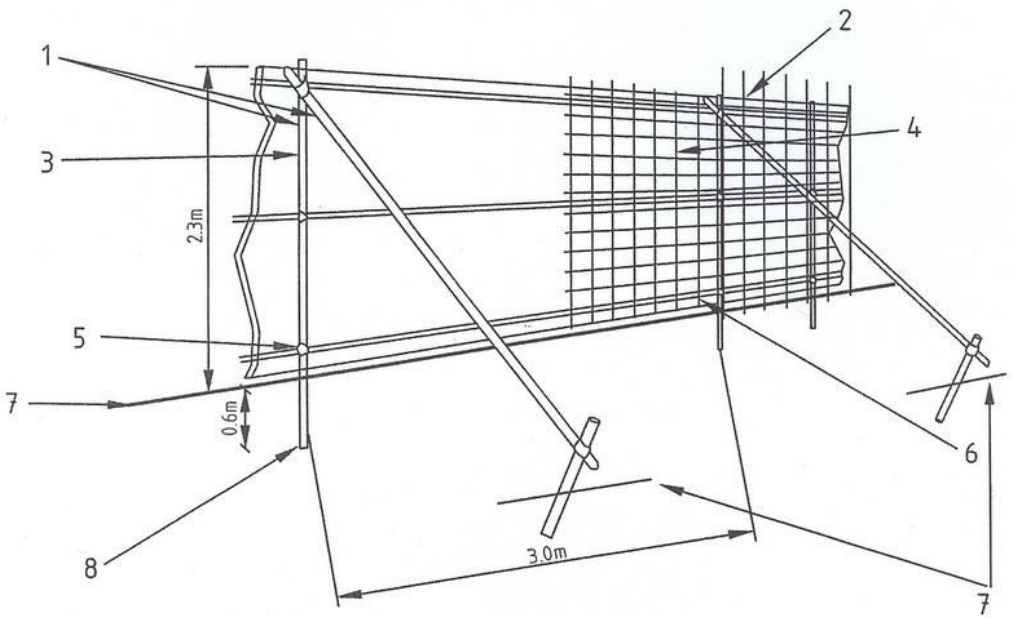
'CONSTRUCTION EXCLUSION ZONE – NO ACCESS'

The protected fence may only be removed following completion of all construction works.

The fence is required to be sited in accordance with the Tree Constraints Plan enclosed with this method statement as **Appendix A**. They must ideally be constructed as per figure 2 in BS 5837 and be fit for the purpose of excluding any construction activity (see diagram below). Any other fence/barrier used must be fit for the purpose (as decided by the project arborist.

Once erected all protective fencing will be regarded as sacrosanct, and will not be removed or altered without prior recommendation by the project arborist and approval by the local planning authority.

The diagram below demonstrates the required fence specifications of BS 5837 figure 2.



1 Standard scaffold poles
2 Uprights to be driven into the ground
3 Panels secured to uprights with wire ties and, where necessary, standard scaffold clamps
4 Weldmesh wired to the uprights and horizontals
5 Standard clamps
6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
7 Ground level
8 Approx. 0.6m driven into the ground

Figure 2. – Protective fencing for RPA

Appendix D - General Tree Protection Considerations (Cont.)

Should scaffolding be required to be erected within the RPA of any retained trees (so that building works may be carried out outside the extent of the RPA), this should be carried out to the following specifications:

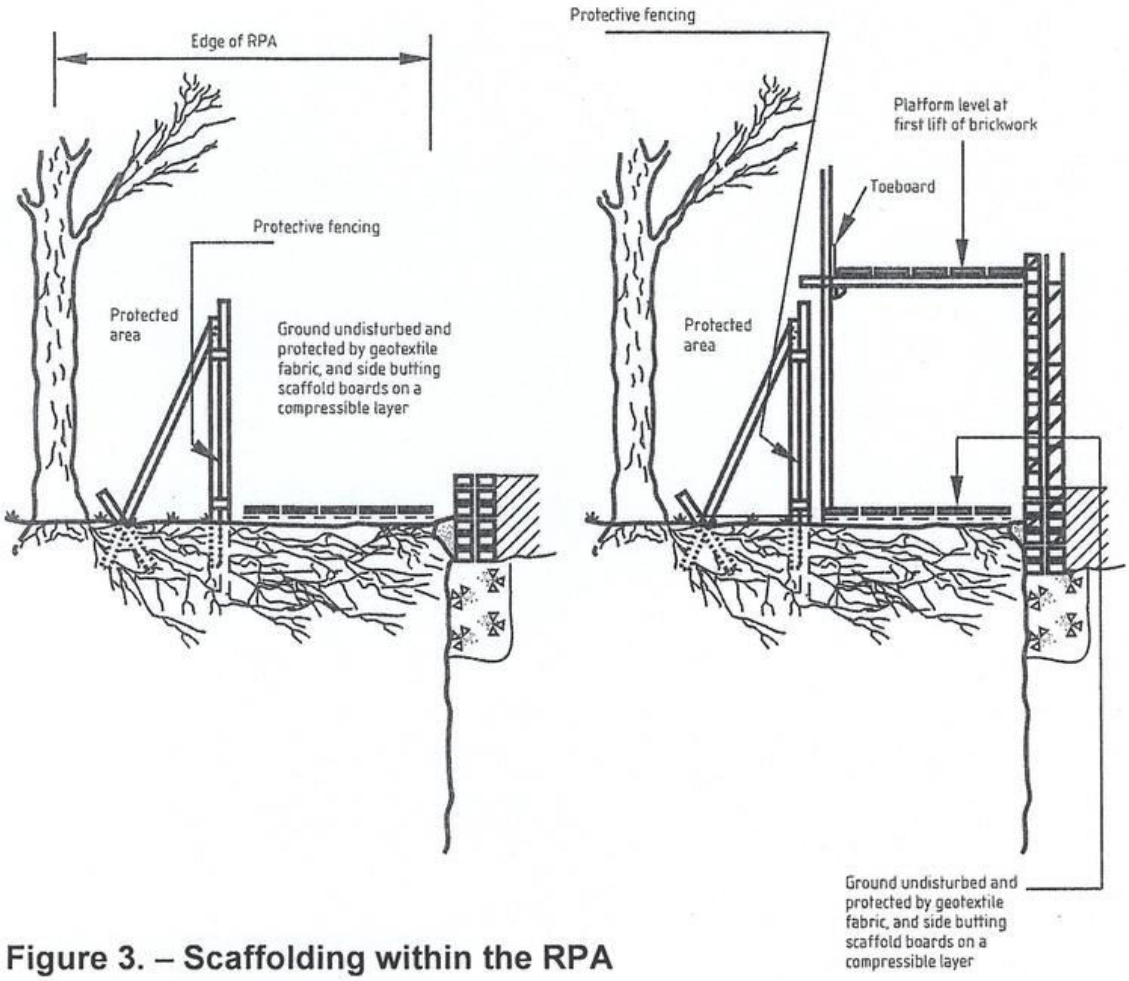


Figure 3. – Scaffolding within the RPA

CONSTRUCTION EXCLUSION ZONE

KEEP OUT

RESTRICTED ACCESS
NO VEHICLES
NO STORAGE OF MATERIALS

REPORT ANY TREE DAMAGE TO
TREESTYLE CONSULTANCY
ON

07872 064 313

Treestyle
CONSULTANCY

Appendix E - Guidance for Working in Root Protection Areas (RPAs)

1.0 Introduction

The following sets out the guidance for working in RPAs that should be followed to ensure successful tree retention. It is based on the guidelines and recommendations set out in British Standard 5837 2012 Trees in relation to design, demolition, and construction - Recommendations (hereinafter BS5837) and the National Joint Utilities Group: Guidelines for the planning, installation, and maintenance of utility services in proximity to trees. Volume 4, issue 2. London: NJUG, 2007 (hereinafter NJUG 4).

2.0 General Guidance for Working in RPA's

2.1 What is the purpose of this guidance?

The purpose of this guidance is to set out the general principles that must be followed when working in RPAs as follows.

a) pre site commencement: to demonstrate that tree protection issues have been properly considered and sets out how they must be implemented, and

b) post site commencement: to inform all site personnel of their obligations towards protected trees and how to meet them.

2.2 What are RPAs?

RPAs are the areas of root protection were.:

a) roots must not be severed, cut, or broken i.e. no excavation, no soil stripping

b) ground levels must not be changed i.e., no soil stripping, no soil level raising

c) soil must not be compacted - no movement of vehicles. All RPA's close to the construction area are illustrated on the tree protection plan within this report. Any and all works within RPAs must be carried out with great care if trees are to be successfully retained.

2.3 When must this guidance be followed are:

This guidance must be followed by all personnel entering into or working within an RPA.

The main scenarios where this guidance must be followed are.

a) demolition,

b) construction of new hard surfacing,

c) construction of new structures,

d) subterranean construction,

e) underground and above-ground utility apparatus, and

f) landscaping activities.

Broad definitions of surfacing, services, structures, and landscaping are set out in the following sections.

2.4 Arboricultural supervision:

- All work within RPAs must be carried out with care if trees are to be successfully retained. An arboriculturist must be consulted if there is any risk of misunderstanding or misinterpretation. Ongoing work must be inspected regularly, and, on completion, the work must be signed off by the Arboricultural consultant.

3.0 Demolition within RPA's

3.1 Basic principles:

- Demolition within the RPA should accord to the principle that the tree and soil structure take priority, and the most reliable way to ensure this is to preserve the RPA completely undisturbed.
- The ability of a tree to tolerate some disturbance and alteration of its growing conditions depends on specific circumstances, including prevailing site conditions, and in general, the older the tree, the less successfully it will adapt to new conditions.

3.2 Avoiding physical damage to the roots during demolition:

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

4.0 Construction of New Hard Surfacing within RPA's

4.1 Basic principles:

- The design should not require excavation, including changes of soil levels other than the removal of turf or other surface vegetation.
- The new hard surface must avoid localised compaction by evenly distributing the loading over the track width and wheelbase of any vehicles expected to use the access.
- New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA.
- If the new surface is likely to be subject to de-icing salt application, an impermeable barrier should be incorporated to prevent contamination of the rooting area and run-off should be directed away from the RPA.
- Where a permeable surface is to be used by vehicular traffic, a geotextile should be used at the base of construction to help prevent pollution contamination of the rooting area below.
- Where there is a risk of water-logging suitable land drainage must be incorporated.
- The new hard surface should be resistant to or tolerant of deformation by tree roots and should be set back from the stem of the tree and its above ground root buttressing by a minimum of 500 mm to allow for growth and movement.
- Mature and over-mature trees are more prone to suffer because of these changes than young and middle-aged trees. Adverse impact on trees can be reduced by minimising the extent of these changes within RPAs.
- The actual specification of the surfacing is an engineering issue that needs to be considered in the context of the bearing capacity of the soil, the intended loading, and the frequency of loading.
- Product and specification are beyond the scope of this guidance and must be provided separately by the appropriate specialist.

4.2 Sub-base and finishing layers:

- Appropriate sub-base options for new hard surfacing include three-dimensional cellular confinement systems. Alternatively, piles, pads or elevated beams can be used to support surfaces to bridge over the RPA or following exploratory investigations to determine location, to provide support within the RPA while allowing the retention of roots greater than 25 mm in diameter.
- Suitable surface finishes include washed gravel, permeable tarmac or block pavers set on a sand base.
- In some situations, limited width floating concrete rafts constructed directly on to the soil surface may be acceptable, but the design must not include any strip supports.

4.3 Edge retention:

- The excavation needed for the placement of kerbs, edgings, and their associated foundations and haunching's can damage tree roots. Within the RPA, this should be avoided either by the use of alternative methods of edge support or by not using supports at all.

4.4 Installing new hard surfacing on top of existing surfacing:

- In some instances, existing surfacing can be retained and used as a base for new surfacing. Normally, this will not result in significant excavation that could expose roots so special precautions are not necessary.
- If large roots already protrude above the proposed sub-base level, then the precautions and procedures set out above must be observed.

5.0 Construction of New Structures within RPA's

5.1 Basic principles:

- Construction within the RPA should accord to the principle that the tree and soil structure take priority, and the most reliable way to ensure this is to preserve the RPA completely undisturbed.
- The ability of a tree to tolerate some disturbance and alteration of its growing conditions depends on specific circumstances, including prevailing site conditions, and in general, the older the tree, the less successfully it will adapt to new conditions.
- Where alternative design solutions are not available such that construction is proposed within the RPA, the potential impact of the proposals on the tree should be assessed and a tree protection plan and Arboricultural method statement produced.
- Details of design proposals should be developed in conjunction with the project arboriculturist and, where required, input from a suitably qualified engineer.
- In order to demonstrate that the proposals are technically feasible such details should be included within planning applications. The exception to this is the installation of underground utility apparatus, where it can be demonstrated that this is achievable by the use of trench-less technology and where entry and retrieval pits can be formed outside the RPA.
- Where utility operations do not require planning permission, including those performed by statutory undertakers, they should still be undertaken in accordance with these principles.

5.2 Avoiding physical damage to the roots during construction:

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

6.0 Subterranean construction within RPAs

6.1 Basic principles:

- Where it is proposed to form subterranean structures, e.g., basement extensions, within the RPA, it is essential to avoid excavating down through routable soil if trees are to be retained. In some cases, it might be technically possible to form the excavation by undermining the soil beneath the RPA. 7.0 Underground and above-ground utility apparatus within RPAs

7.1 Basic principles:

- Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. For this reason, particular care should be taken in the routing and methods of installation of all underground apparatus.
- Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routing should be drawn up in conjunction with the project arboriculturist. In such cases, trench-less insertion methods should be used with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected excavation using handheld tools might be acceptable for shallow service runs.

8.0 Landscaping within RPA 's

8.1 Basic principles:

- The general treatment of areas around newly planted and existing trees should allow for adequate infiltration of water and free gas exchange, reduction of water evaporation and the retention of an open soil structure to encourage root growth.

8.2 Soil compaction and remediation measures:

- Soil that has been compacted will not provide suitable conditions for the survival and growth of vegetation, whether existing or new, and is a common cause of post-construction tree loss on development sites.
- Compacted soil will adversely affect drainage, gas exchange, nutrient uptake, and organic content, and will seriously impede or restrict root growth. The risk of soil compaction is greatest in soils with significant clay content and in wet conditions.
- Soil compaction should be avoided around existing vegetation, including trees, and in areas where new planting or seeding is proposed.
- Where soil compaction has occurred in the vicinity of existing trees, Arboricultural advice should be taken before carrying out any remedial or other works within RPAs to mitigate risk of further damage to roots.
- Remedial works may include sub-soil aeration using compressed air, and the addition of other materials, preferably of a bulky, organic nature (but excluding peat), to improve structure. Heavy mechanical cultivation such as ploughing or rotavation should not occur within the RPA.
- Any cultivation operations should be undertaken carefully by hand in order to minimise damage to the tree, particularly the roots. Decompaction measures include forking, spiking, soil auguring and tilthed radial trenching. Care should be taken during such operations to minimise the risk of further damage to tree roots.

8.3 Use of herbicides:

- The use of herbicides in the vicinity of existing trees should be appropriate for the type of vegetation to be killed, and all instructions, warnings and other relevant information from manufacturers should be strictly observed and followed. Care should be taken to avoid any damaging effects upon existing plants and trees to be retained, species to be introduced, and existing sensitive habitats, particularly those associated with aquatic or drainage features.

8.4 Tree work within RPAs:

- Care should be taken to ensure during tree removal or remedial work that damage to the retained trees and/or disturbance to the RPA is avoided. Precautions should include dismantling techniques to reduce the risk of accidental damage, and ground protection measures where excessive pedestrian movements or use of plant and machinery might lead to compaction. If temporary access is required for plant or vehicles within the RPA, this should be provided by means of temporary ground protection.

Appendix F - Legal

National Planning Policy Framework 2021

National Planning Policy is currently defined by the National Planning Policy Framework (NPPF). This provides the most current and up to date planning guidance.

At the heart of the NPPF is a presumption in favour of sustainable development, and specifically states that for decision making, the LPA should be approving development proposals that accord with the development plan without delay.

Section 12 of the NPPF recognises the importance of integrating trees into urban environments as part of achieving well-designed places. While the primary focus is on new tree planting, the importance of retaining existing trees and incorporation into proposals is a driving factor, stating that:

“Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.” (Paragraph 131)

In addition, Section 15 of the NPPF recognises the importance of conserving and enhancing the natural environment, and specifically acknowledges the role of trees and woodland in the provision of natural capital and ecosystem services.
a) “Planning policies and decisions should contribute to and enhance the natural and local environment by:
b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;” (Paragraph 174)

It further acknowledges the importance of ancient woodlands and veteran trees for habitats and biodiversity and requires that planning consent should be refused where development schemes require the removal of such features unless there are wholly exceptional reasons, stating that:

“development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.” (Paragraph 180, c)

Statutory Considerations

The site is located within the boundary of the Local Planning Authority (LPA). The LPA has a statutory obligation to ensure that provision is made for the protection of trees, through section 197 of the Town and Country Planning Act (1990). The principal form of protection comes through trees being subject to a Tree Preservation Order or being located in a conservation area. A search has been undertaken on the CDC website to determine the presence or otherwise of TPO or Conservation Areas.

Non-statutory considerations

An online search has also been undertaken to determine any non-statutory designations at the site that may be a consideration in relation to trees. This has revealed that the site has no Ancient Semi-Natural Woodland or Woodland Priority Habitat areas within the redline boundary.

Tree Preservation Orders & Conservation Area Designations

Local authorities reserve the right to create Tree Preservation Orders (TPO) to protect the amenity value conferred to a location by a tree or group of trees. Where a TPO is in place the lopping, topping, felling, uprooting or wilful damage is prohibited. Failure to comply may lead to prosecution or large fines. Work on a TPO'd tree requires permission from the local authority.

Section 211 of The Town and Country Planning Act 1990 (TCPA) relates to the preservation of trees in Conservation Areas. Under Section 211 anyone proposing to remove, uproot or destroy any tree within a Conservation Area is required to give the local planning authority six weeks' prior notice (a "section 211 notice"). During this period the Council may consider serving a Tree Preservation Order to prevent the proposed work from being undertaken.

Bats as a Protected Species

It is not uncommon for a mature tree with cavities or hollows to be a habitat for roosting bats. Bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), as well as under Schedule 2 of the Conservation of Species and Habitats Regulations 2010 and it is therefore an offence to cause damage to a bat roost.

Birds as a Protected Species

Nesting birds frequently use trees for nesting. They are protected under the Wildlife and Countryside act 1981 (as amended). This makes it an offence to intentionally or recklessly damage or destroy an active bird nest.

It is recommended that all tree work is carried out outside the bird nesting season which is March to August. If this is not possible then a detailed inspection of each tree should be undertaken by a suitably qualified ecologist prior to any tree work. Should an active nest be found then any work likely to affect the nest must be halted until the nest becomes inactive.

Appendix. G - Arboricultural Tree Constraints

Conflict Between Site Layout and Trees

Below Ground Constraints

Below ground tree roots and the soil environment in which they grow needs to be protected if the tree is to be retained. Trees grow in association with fungi and other soil organisms which are of key importance to tree health. Roots are essential for anchorage, the uptake of water and nutrients and the storage of energy (carbohydrates) for the future growth and function of the tree.

Roots can be damaged by physical severance or wounding (e.g., following excavation of the soil) which can lead to the development of decay and a decline in vitality and/or instability. Raising soil level effectively buries tree roots at a depth where suitable conditions for growth are less available. Toxic materials discharged into the soil (such as cement-based aggregates, fuel, and chemicals) can lead to root death and dysfunction. Soils can be compacted to levels inhospitable to tree growth with even a single pass of machinery, regular pedestrian traffic or the storage of plant and materials. Relieving compaction can be problematic and may require costly remedial works. Changes in drainage/water levels can also have significant long-term impacts for tree health.

The effects of these incursions may take many years to manifest, with a resulting decline in amenity value and potentially the death or failure of the tree. It should be noted that older trees are particularly sensitive to damage and changes in conditions.

The Root Protection Area (RPA) is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. This area is deemed to be particularly important for tree stability, growth, function, and health. However, roots may extend far greater distances, with the distribution of the root system relating directly to the availability of suitable conditions for growth (namely oxygen, water, and nutrients). It is generally accepted that tree roots are predominantly located in the upper 1000mm of soil; however, roots may develop at deeper levels where conditions allow.

The RPA of the existing tree stock is an important material consideration when considering site constraints and planning development activities. The RPA of significant trees on site is shown on the Tree Constraints Plans.

The default position must be that all development, including any associated services, will occur outside the RPA's of retained trees. Where this is unavoidable it may be appropriate to use special measures to install structures, services or surfacing within RPA's which allow the protection of roots and soil structure which are essential for tree growth and keep any incursion to a minimum.

Drainage and other service

Drainage runs, soakaways, and the installation of other services, can cause disruption to RPAs and result in important trees being damaged. It is preferable to keep all such services out of RPAs because the more encroachment there is, the less likely the LPA is to find proposals acceptable. We advise that these matters are considered at an early stage to avoid a justifiable reason for refusal further into the design process. Our experience is that demonstrating services will not encroach into RPAs often saves delays in processing planning applications and can sometimes be the difference between a consent and a refusal. If services do enter RPAs the use of hand digging as detailed in the National Joint Utilities Group publication 'Guidelines for the Planning, Installation and

Maintenance of Utility Services in Proximity to Trees' (NJUG 10, Volume 4, 2007) will be undertaken to minimise the impact on the tree roots.

New Structures and/or Surfacing with RPA's

If it is proposed to place any new structures and/or hard surfacing within RPAs, it is likely that the LPA will require detailed cross-sections as reassurance that what is proposed can be implemented without excavating into existing soil levels. These must be at a scale that allows the relationship between existing and proposed to be easily seen, i.e., it must clearly demonstrate that there will be no excessive disturbance of RPAs. There must be a separate cross-section for each significant tree that may be affected. Our experience is that providing this level of information at an early stage often saves delays in processing planning applications and can sometimes be the difference between a consent and a refusal.

The current site has ample room to house construction materials and be used for storage. This is the greatest threat to the remaining trees and hedge through the leaching of building material such as cement, normally a minimum of 10m distance from vegetation, however, due to the site sloping towards the trees then extra precautions are required.

Above Ground Constraints

Tree stems and branches can restrict available space on site. Damage or wounding (including excessive pruning) can significantly reduce the amenity contribution of the tree and may lead to the development of dysfunction and decay with significant long-term implications for tree health. The future impact of existing trees should be carefully considered, including individual species characteristics (such as potential future size, fruit fall, shade etc.) and how the tree will interact with any proposed development and future land use. Annual tree growth can lead to direct damage if stems/branches (or roots) come into physical contact with structures and this must also be taken into consideration.