



No 2 Landwick Court | Metclaf Drive | Altham
Business Park | Lancashire | BB5 5GY
Office: 01254 377622 Mob: 07906 753583
www.bekenviro.co.uk

GEO-ENVIRONMENTAL CONSULTING

trees looking
the proposed
to be located



View of the
towards where
development is

ARBORICULTURAL IMPACT ASSESSMENT

Date of the Inspection

12th September 2024

Site

The Wells Centre
101 North Rd Clayton
Manchester
M11 4NE

Description

The development of Air Source Heat Pump
And Solar Panelling

Instructed by

Helmrig Ltd

Author

Andrew McLoughlin
Treestyle Consultancy Ltd

Contents

Executive Summary

1.0 - Introductions

- Instruction
- Scope
- Site Description

2.0 - Tree Survey and Constraints

- Tree Survey
- General Data Capture
- Categorisation
- Quality Assessment

3.0 - Tree Constraints

- Above Ground Constraints
- Below Ground Constraints
- Root Protection Area
- Soils

4.0 - Development Proposal

5.0 - Arboricultural Impact Assessment

- Impact Assessment definitions
- Effects of the Trees with regards to the development
- Potential Incompatibilities between labour and tree retention
- Infrastructure Requirements
- Mitigating Tree Loss/ New Planting
- Proximity of Trees to the Development

6.0 - Arboricultural Tree Constraints

7.0 - Impact Assessment

8.0 - Conclusion

9.0 - Caveats and Limitations

10.0 - References

11.0 - About the author

12.0 - Site Photography

Drawing 1 - Tree Constraints Plan

Appendix A - Tree Schedule

Appendix B - Glossary

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

Appendix D - Tree Fencing

Appendix E - Guidance for Working in Root Protection Areas (RPA's)

Appendix F - Legal

Appendix G - Arboricultural Tree Constraints

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**.
- Three trees and one group were categorised as **B medium quality with up to 20 years life potential**.
- A small 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)
- Solar PV Energy.

The Arboricultural Impact Assessment (AIA)

- The development of the ASHP falls near to Root Protection Areas (RPA) of a category B tree.
- The Solar PV Energy falls near to trees and access.
- There are potential below ground constraints with boundaries trees.
- There are a groups of trees north of 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	W1, T2, T3, T4	-
C	T5	-
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 Clayton. There are predominately residential housing around half of the boundaries. The eastern entrance is accessed by Clayton Street on to the car park with the main building to the south.
- 1.5.1 The ASHP is located at the rear of the Centre and the solar panels to front area lining North Road where trees line the inner boundaries. Access can be gained either side of the building to where the panels are to be installed.

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 a group of mature trees to the north and several individual trees within 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, most of which are located at the northern end of the car park.
- Some trees had limited visual assessment due to trees being beyond fencing or housed in by dense vegetation.
- The largest trees are two cherry (*Prunus padus*), their proximity to the building and public highways could present a future issue.
- 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	W1, T2, T3, T4
C	T5
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
 - Solar Panelling

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.

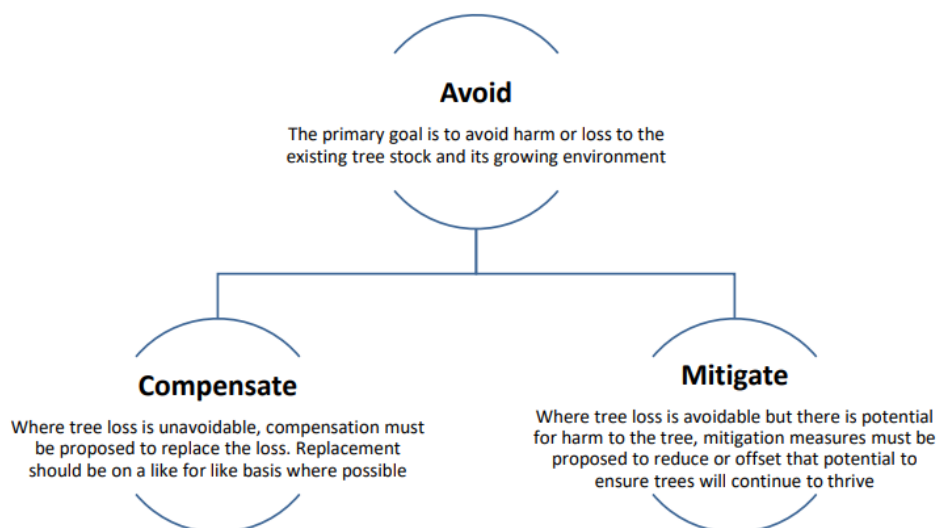
Development can have an adverse impact on trees and other woody vegetation within a site, which can result in:

- 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	-	T2, T4	-
Protect	-	W1, T2, T3, T4	T5
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 W1 is located on the opposite side to the northern half of the car park and its entrance. This area should be utilised for the storage of building materials and site facilities. Dead tree seen left of the CCTV.



- 5.6.3 T4 cherry (*Prunus padus*) can be seen lining the southern boundary with its large spreading canopy encroaching onto the building and public highway. This will partially shade the proposed solar paneling, therefore a pollarding management plan is recommended.



5.6.4 Trees are located in an access area which fall near to the RPA's and canopies of these trees.



5.6.5 Overall the processes of the construction are unlikely to have a detrimental effect upon the health of the retained trees. 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 install the solar panels.
- 6.4 T4 cherry (*Prunus padus*) has a large spreading canopy.
- 6.5 Access to the southern boundary to install the solar panelling is narrow from the car park, especially along the eastern boundary.
- 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 due to the low impact upon trees being only scaffolding.

7.0 Impact Assessment

- 7.1 The proposed scheme does not require the removal of any trees. However, future growth and restricted light availability for the solar power efficiency will require the pruning of T4 cherry (*Prunus padus*).
- 7.2 Access for solar panels cannot be gained from the eastern boundary access due to low canopies of trees.
- 7.3 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 T4 cherry (*Prunus padus*), the future pruning is required to allow full sunlight throughout the day.
 - Access needs to be addressed from the western boundary where materials and faculties are located.

Signed



Date 28th October 2024

Consultant - Andrew McLoughlin MArborA

Treestyle Consultancy Ltd

Tel - 07872064313

info@treestyleconsultancy.co.uk

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 Ordnance 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.

Centre for Ecology & Hydrology (CEH). 2006. Tree Roots in the Built Environment, HMSO, London.

Helliwell R (1980) Provision for New Trees; Landscape Design; July/August issue

International Society of Arboriculture (ISA). 1994. The Landscape Below Ground. ISA, Champaign, Illinois. USA.

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

Matheny, N; Clark, J. R.1998. Trees and Development: A Technical Guide to Preservation of Trees during Land Development. ISA, Champaign, Illinois. USA.

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 at the location of the ASHP.

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

Bottom left is an area potential used for storage

