

BS5837:2012 TREE SURVEY / Arboricultural Impact Assessment

Customer No: WYETH01
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Site Address:
Halewood Service Station
195 Higher Road
Liverpool, L26 1UN



Client:

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Site

Site: Halewood Service Station, 195 Higher Road, Liverpool. L26 1UN

Inspection date: 24th January 2023

Inspected by: Steve Launchbury

1.0 Terms of Reference

I am instructed by Wyeth Projects Services Ltd to carry out a BS5837:2012 Tree Constraints Survey and Arboricultural Implication Assessment at the above address.

This report contains survey information in accordance with BS 5837:2012 Trees in Relation to design, demolition and construction – Recommendations.

It details the quality and the value of the trees on site or immediately adjacent to the proposed development site.

A proposed development is to be considered in terms of an Arboricultural Impact assessment.

Remedial or other works may also be recommended along with Tree Protection measures as required.

A site visit was carried on 24th January 2023 to survey the site and immediately adjacent to prepare a Tree Constraints report. An Arboricultural Impact Assessment of the proposed development using the provided proposed site development plan. Preliminary detail for Tree Protection and other operations is included.

There are no trees on site, but a number of mature Leylandii conifers and Goat Willow are immediately adjacent to the rear boundary in third party properties.

Trees have been categorized as follows:

The line of Leylandii trees are generally Category B and the Goat Willows, Category C.

Trees or groups of trees that are categorized A or B should be considered as constraints to development and every effort should be made to keep them within the design. Trees categorized C will not usually be seen as a constraint unless by virtue of for example grouping, they attain a higher categorization. Trees categorized U are rarely a constraint to development and may generally be felled.

Steve Launchbury of Alltree Consultancy Ltd trained at Kew Gardens in Horticulture in the early 80's and specialised in Arboriculture.

Since then he has worked in the tree industry for nearly 40 years, gaining further professional qualifications including passing and further refreshing the Professional Tree Inspection course by Lantra.

2.0 General Information

2.1 The Brief

Visit site and assess Tree Constraints in relation to a proposed redevelopment of the Service Station site, to include 6 Electric Vehicle (EV) Charging bays and associated control equipment.

The site will also have 3 new Jetwash facilities.

Prepare an Arboricultural Impact Assessment of the proposed design in relation to the Tree Constraints.

2.2 Scope of Report

This report is a preliminary report and as such did not entail an examination of the root system, did not ascend the tree or use internal decay detection equipment.

Further inspections may be required as a result of these preliminary findings.

2.3 References

The British Standard Institute publication BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' is the basis for this report.

2.4 List of relevant documents provided by the client:

HALEW-WPS-MFG-538-P-02-A Existing Site Plan A1.pdf
HALEW-WPS-MFG-538-P-03-D Proposed Site Plan A1.pdf
2200738FUL - INVALID .pdf

2.5 Limitations

The information contained in this report is for the use of the client for whom it was prepared.

The contents are copyright and may not be used by third parties without written consent from Alltree Consultancy Ltd

This document is a report identifying trees, their locations and their condition in respect of planning.

It is not a tree health or safety report, it has not been prepared for use in a mortgage application or for insurance claims.

Detailed inspection, aerial access, drillings and soundings were not done for this report.

A tree owner is advised to have their trees regularly inspected, and again after strong winds or other severe weather.

This report is valid for one year from the Survey date.

2.6 Tree Preservation Orders

A visit to <https://secured.knowsley.gov.uk/myneighbourhood#> showed that there are no Tree Preservations or Conservation Area affecting the site or immediately adjacent.

Due to the planning process being under way, the trees in the neighbouring gardens to the rear of the site trees are effectively protected while the impact of the proposed development is determined. It is therefore prudent to liaise with the Knowsley Council Local Planning Authority before any tree-works are carried out. Even though 'Common Law allows for overhanging branches to be cut back to the boundary, it will be prudent to also agree permission with the owners of the trees before any treeworks are carried out.

Note that Leylandii trees will not generally regenerate foliage if excessively cut.

2.7 Disclaimer

This report was prepared for the named client and the Local Authority Planning Department.

This report does not constitute advice to any third party not directly involved. No liability for any loss or damage will be accepted from any third party reliant on this report who is able to access the content by any means.

3.0 The Tree Survey

Methodology

Data is collected in accordance with BS5837 requirements.

All data is collected from ground level without climbing or other potentially invasive methods including digging to expose the root system.

Tools normally used are a diameter tape, laser measure and a handheld GPS data capture device.

Heights may also be estimated by using a surveyor's pole next to the tree.

Measurements

Where there is no access into the next door property, measurements are estimated where 'hands on' measuring is not possible.

Complete accurate tree data is therefore not possible for trees on adjoining properties unless there is access granted and no reliance should therefore be made on the limited data possible.

Parts of the tree obscured by ivy or other climbing plants or materials cannot be assessed accurately and no reliance must be made without further inspection.

Data is plotted using PT-Mapper Professional from Pear Technology.

Where tree canopies are symmetrical, one measurement is taken of the radius. Where the crown is asymmetrical, readings are taken at North, East and South. These will give a general idea of the shape as a representation.

Tree stems are measured at 1.5m above ground level.

A Root Protection Zone figure is derived from this reading with variations for multiple stems.

Rooting Zone

Ground features or obstructions may limit or encourage root spread into an asymmetrical area rather than the plotted area.

The plotted data will show the Root Protection Area as an idealized area and must be subject to confirmation or otherwise by hand dug trial pits if required.

For the Constraints survey the trees are recorded as at the present with no reference to any proposed plan or development.

For the Arboricultural Impact Assessment, the tree data is used where applicable in conjunction with the proposed construction layout to establish Tree Protection requirements.

The survey data will detail the recorded measurements.

Survey findings are shown in the appendix.

4.0 Observations and Discussion

Category A and B trees should normally be retained and be a constraint to development. Category C trees should not normally be a significant barrier to development by that may depend on other controls and the LPA policy. Category U trees can normally be removed as good Arboricultural practice. Any trees within neighbouring properties that affect or are affected by a proposed development may then be subject to negotiation.

Root Protection Areas are recommendations due to the difficulty of mapping the extent of the root system. Hand digging is recommended to locate the main roots if required.

Ideally any conflicts with trees (roots, canopies, and trunks) should be designed out with careful consideration of building location and size and special design arrangements where required. Trees that overhang or are close to a new building are often subject to excessive pruning over time or even removal.

Surgery may be required to trees adjacent to new structures, but this should be kept to a minimum due to the potential adverse long term health impact and retention of the tree. All surgery works must be agreed beforehand and must conform to BS3998:2010

Before any works (including demolition) commence on site, storage of materials, or changes of levels, a plan must be submitted to and approved by the Planning Authority.

Protective fencing that is required must be set up and remain operational and not repositioned without the advice of the Arboricultural Consultant.

Consent for any works to protected trees (either Conservation Area, Tree Preservation Order or Planning Conditions) must be obtained prior to being carried out. If the trees are in adjoining properties under third party ownership, permission must be obtained in writing from the tree owner in addition.

The Application

An application 22/00738/FUL was made to Knowsley Council with the proposed Design HALEW-WPS-MFG-538-P-03-C Proposed Site Plan A1.pdf.

The proposed design contained an error, in which the EV Charging bays and Jet Wash Bays appeared to be located too close to the third party Leylandiis to the rear of the site.

The document 2200738FUL - INVALID .pdf therefore required a BS5837:2012 Survey.

As an initial result of the findings on site, an updated proposed design HALEW-WPS-MFG-538-P-03-D Proposed Site Plan A1.pdf was provided to include in this tree report to clarify the location of the EV Charging Bays and Jetwash Bays.

HALEW-WPS-MFG-538-P-03-D Proposed Site Plan A1.pdf has therefore been used within this report.

5.0 Arboricultural Impact Assessment

Assesses how the development will affect local character from a tree perspective

The Constraints

Tree quality statement:

The line of Leylandiis to the rear of the PFS form a visual feature visible from the highway and a significant number of people both visiting the PFS and present in the dwellings to the rear. The visual quality therefore is reasonably high, taken as a group quality from an Landscape perspective

The Proposal

The document HALEW-WPS-MFG-538-P-03-D Proposed Site Plan A1.pdf shows the location of the proposed development of 6 EV Charging Bays and associated control equipment. The location of the Jetwash Bays are also shown alongside the EV Chargers.

Implications of the proposal

Trees potentially affected:

Tree	Potential Impact from the proposed design
Leylandiis, T1 – T9	None
Goat Willow, T10, T11	None
Leylandii T12	None
	The rear line of the proposed design is just outside the line of the Canopies and Root Protection Areas of the trees as calculated according to BS5837:2012.
	The Root Protection Areas are shown graphically on the Survey Maps in the Appendix.

Impact on tree canopies:

None

Impact on RPA's

None

New surfaces

HALEW-WPS-MFG-538-P-03-D Proposed Site Plan A1.pdf shows no new surfaces to the rear of the EV Charging Bays.

Change in ground levels

No Changes to Ground levels are proposed in the document HALEW-WPS-MFG-538-P-03-D Proposed Site Plan A1.pdf

Impact of the development on the retained trees.

Adequate space has been allowed to the rear of the development and all retained trees. Consequently the proposal shall not result in increased pressure to remove or prune any of the retained trees.

Potential Conflict areas

With the proposal as shown in the document HALEW-WPS-MFG-538-P-03-D Proposed Site Plan A1.pdf, there are no potential conflicts PROVIDED no works, access, trenching or any other activity takes place behind the Tree Protection Fencing in the area designated as a Construction Exclusion Zone (CEZ)

Potential solutions

No Potential solutions are required provided the design is as per HALEW-WPS-MFG-538-P-03-D Proposed Site Plan A1.pdf and the Tree Protection is in place as per the drawings in the survey maps in the appendix.

Tree Protection

Tree Protection is required to limit access to the vicinity of the trees in the gardens immediately to the rear of the PFS, that have overhanging crowns over the rear of the PFS.

The position of the Tree Protection fencing is shown in the Survey maps – Tree Protection in the Appendix, and the specifications below.

Given the surface of the area is soft ground, the default BS5837:2012 Tree Protection Fencing Chapter 6 below, fig 2) will be the most suitable.

Soil Compaction.

The main reason for the Tree protection fencing is to prevent damage to the trees, and especially compaction of the soil in the vicinity of the Root Protection Areas and physical damage to the above ground portions of the tree.

The majority of tree roots lie within the upper 600mm. This is because the availability of oxygen decreases with depth and roots need to breathe to stay alive. In addition, nutrients are more readily available in the form of organic matter close to the soil surface.

Healthy soils contain about 25% air space between solid particles. Increased loading of the soils caused by construction activity causes air to be squeezed out as the soil becomes compacted preventing roots from breathing. Even an increase in pedestrian activity may cause some soil compaction.

Mitigation, eg planting area

No trees will be removed, no mitigation planting is required or proposed.

Summary

The proposed development as per the drawing HALEW-WPS-MFG-538-P-03-D Proposed Site Plan A1.pdf is just outside the area of the Canopy spread and Root Protection Areas of the trees immediately to the rear of the PFS in neighbours gardens.

The trees must be properly protected by Tree Protection Fencing as outlined in this document and according to BS5837:2012.

No works, activity of any kind must take place behind the Tree Protection Fencing, in the Construction Exclusion Zone.

Adherence to the above will ensure that the trees are not affected in any way by the proposed development.

6.0 Tree Protection

Tree Protection is required to protect the retained trees and their Root Protection Areas

Fencing extracts taken from BS5837:2012 to show a fencing example and stabilization methods.

Figure 2 Default specification for protective barrier

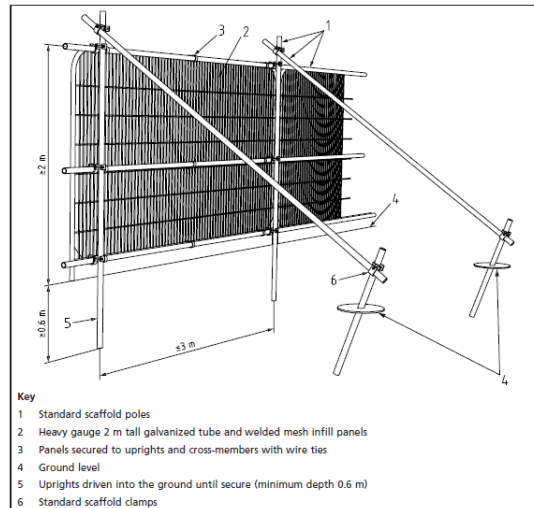
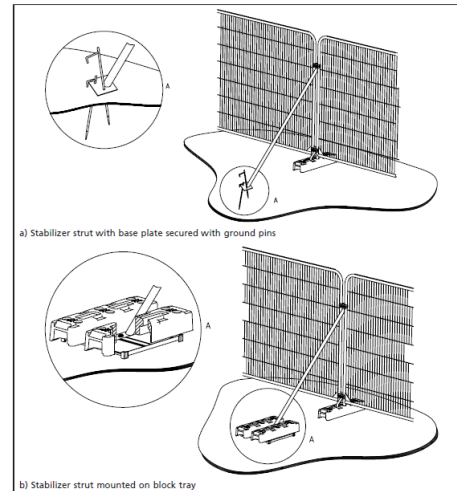


Figure 3 Examples of above-ground stabilizing systems



The fenced off area is to be protected and is to be regarded as sacrosanct.
A weatherproof warning notice is to be placed on the Tree Protection Barrier.



If required, preliminary tree removal or other works required before the site is set up may take place before the Tree Protection Fencing is installed.

The Tree Protection shall be erected before any plant or equipment is brought onto site.

The integrity of the fencing shall be maintained throughout the construction period.

The fencing shall only be removed once the construction phase is complete.

It is advisable to monitor daily the condition of the Tree Protection and its integrity and keep a record (signed) to verify that the condition and effectiveness of the Tree Protection is maintained.
Any intrusions into the Tree Protection Area must be recorded

7.0 Special Measures for working within a Root Protection Area

Unless specifically agreed with the Planning consent, there must be no digging or trenching within the RPA of any retained tree.

The area within the Root Protection Zone is to be considered a No Dig Area, with the only digging to be with hand tools.

Should any roots require being exposed, they must be protected by sacking and sharp sand (not building sand) or good soil and the hole filled in as soon as practical. Advice should also be sought from the project Arboriculturalist.

Any pipework or services should where possible be routed away from the Root Protection Areas.

Should any excavations, trenching for cable runs or service runs within Root Protection Areas be required, advice must be sought from the project Arboriculturalist who will also liaise with the Planners as appropriate.

Hand digging to plant shrubs is permitted but care must be taken to minimise damage, disturbance and compaction.

No foundations or bases are to be constructed even on the surface, eg to put machinery or other equipment unless approved by the Planning Consent with a suitable base. Advice should be sought from the project Arboriculturalist as to the construction and design of a suitable base,

8.0 Arboricultural Method Statement

The trees adjacent to the site are to be assumed to be protected under planning conditions as well as belonging to the neighbours. It is essential that the process detailed in this method statement is followed in order to prevent damage to the trees.

The site must be carefully managed in order to avoid damage within the Root Protection Areas.

No access is to be allowed within the Root Protection Area.

The Root Protection Area is the minimum area that must be protected. Please be aware that often the roots extend further or in different directions than indicated by the theoretical area dictated by the trunk size.

Where the roots are may be affected by different factors such as :

- Species of tree,
- Ground conditions (including man made obstacles such as foundations or trenches)
- The health of the tree, root damage or pruning.

An individual such as the Contract Manager is to be identified as a point of contact for arboricultural affairs during building works. This individual is to be fully aware of the arboricultural planning requirements on the site and is to be responsible for the monitoring and enforcement of tree protection measures.

It is advisable to have a Project Arboriculturalist who can oversee and direct Tree Protection and operations that involve the trees on site.

Operations that may damage trees

The following operations are likely to result in significant damage to trees. Damage resulting from these operations may take immediate effect resulting in the rapid death of a tree, or alternatively may result in years or even decades of gradual decline and ultimately an early death.

Compaction of Soil

Repeated pedestrian movements, vehicle parking, storage of materials or waste will result in a measure of soil compaction which within a Root Protection Area will inevitably lead to some root death and may reduce the longevity of a tree.

Storage or Spillage of Toxic Materials

The following materials that are commonly used on development sites are toxic to trees:

- Builders Sand which may contain some salt or other leachates.
- Cement
- Fuels eg Petrol, Diesel etc.
- Tarmac
- Washings eg from mixing cement or plaster

The uncontrolled storage or use of such materials within 10 metres of trees is likely to be detrimental to their long-term health.

Excavation, Soil Grading, Alteration of Soil Levels

Contrary to popular belief nearly all of a tree root system is located within the top 1 metre of soil, with the majority of roots found within 600mm of the soil surface.

Tree Root distribution may also be affected by steep banks.

The Root Protection Area must be considered the minimum area of protection required to retain a tree. The full root system of a tree will extend beyond this, usually to a distance at least equivalent to the height of the tree.

For this reason any excavations within a Root Protection Area present a risk of damage to the tree root system.

Damage to the larger structural roots may have an immediate detrimental effect to the stability of the tree as well as the longer term health.

Raising of Levels

Roots breathe, requiring gaseous exchange and take water from the soil and therefore normally develop in free-draining, aerated soil.

Where levels are raised over tree roots the ability to access oxygen and respire Carbon dioxide is reduced and moisture filtration hindered, tree roots will subsequently be starved of oxygen and water leading to root death, potential disease and reduced longevity.

Damage to the main stem and branches

Damage caused by equipment or plant movements and can result in long-term decline in tree health and serve as an entry point for decay fungi.

No access for plant/vehicles is permitted within the specified Root Protection Areas.

Pruning carried out by untrained operatives

Poor pruning practice can increase the risk of limb or complete tree failure, as well as providing entry points for decay fungi.

All tree work is to be carried out by a competent arborist in accordance with BS3998:2010 who is certified and insured.

Appendix

Contains

BS 5837:2012 Chart for Tree Quality Assessment

Photos

The survey data table

Survey maps

Table 1 (BS5837:2012) – Cascade Chart for Tree Quality Assessment.

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

Photos





Survey Data

Tree ID	Latin Name	Maturity	Likely Bat Habitat	Measurements Estimated	Height (m)	Number of Stems	Stem 1 (mm)	Spread N E W S (m)	Crown Height (m)	Crown	Stem	Basal Area	Category	Life Expectancy	Phys Condition
1	X Cupressocyparis leylandii	Mature	No	Yes	21	Estimated as group	550	5 5 5 5	2.5	Good	Good	Good	B2	20 to 40 yrs	Good
2	X Cupressocyparis leylandii	Mature	No	Yes	20	1	400	4 2 3.5 4	3	Good	Good	Good	B2	20 to 40 yrs	Good
3	X Cupressocyparis leylandii	Mature	No	Yes	20	1	380	3.5 4 4 2	3	Good	Good	Good	B2	20 to 40 yrs	Good
4	X Cupressocyparis leylandii	Mature	No	Yes	6	1	100	1 1 1 1	2.5	Poor	Fair	Fair	C2	10 to 20 yrs	Poor
5	X Cupressocyparis leylandii	Mature	No	Yes	18	1	400	4.5 4.5 4.5 4.5	3.5	Fair	Good	Good	B2	20 to 40 yrs	Fair
6	X Cupressocyparis leylandii	Mature	No	Yes	17	1	450	4.5 4.5 4.5 4.5	4	Good	Good	Good	B2	20 to 40 yrs	Good

Tree ID	Latin Name	Maturity	Likely Bat Habitat	Measurements Estimated	Height (m)	Number of Stems	Stem 1 (mm)	Spread N E W S (m)	Crown Height (m)	Crown	Stem	Basal Area	Category	Life Expectancy	Phys Condition
7	X Cupressocyparis leylandii	Mature	No	Yes	16	1	350	4.5 4.5 4.5 4.5	5	Good	Good	Good	B2	20 to 40 yrs	Good
8	X Cupressocyparis leylandii	Mature	No	Yes	5	1	100	1 1 2 1	2.5	Poor	Fair	Fair	U	<10 yrs	Poor
9	X Cupressocyparis leylandii	Mature	No	Yes	15	1	425	4.6 4.6 4.6 4.6	5	Good	Good	Good	B2	20 to 40 yrs	Good
10	Salix caprea	Mature	No	Yes	6	1	290	0 6 4.5 2.5	1	Fair	Fair	Fair	C2	10 to 20 yrs	Fair
11	Salix caprea	Mature	No	Yes	10	1	400	5 5 3 4	3	Fair	Fair	Fair	C2	10 to 20 yrs	Fair
12	X Cupressocyparis leylandii	Mature	No	Yes	13	1	450	4.5 4.5 4.5 4.5	2	Good	Good	Not seen	B2	20 to 40 yrs	Good

TPO Map – screenshot from LPA website

<https://secured.knowsley.gov.uk/myneighbourhood#>

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Planning Information

Property is not a Listed Building [Show on Map](#)

Property not in a Conservation Area [Remove from Map](#)

Planning Applications

Planning Application No	Date	Distance
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Tree Preservation Orders

[Remove from Map](#)

TPO No	Location
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100 m

**Halewood Service Station,
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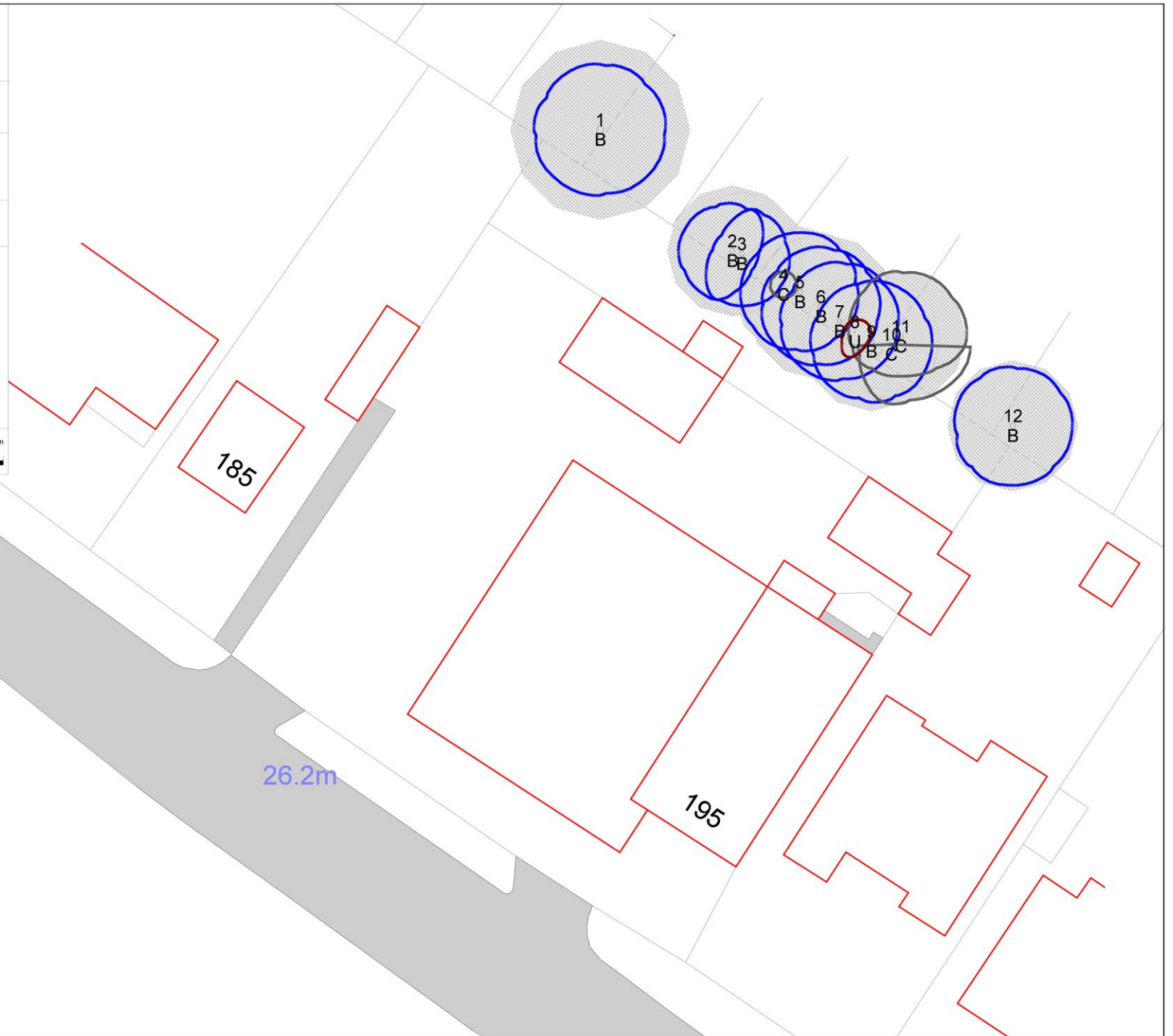
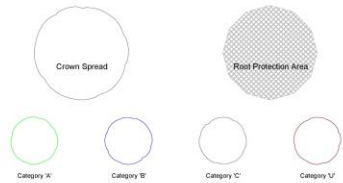
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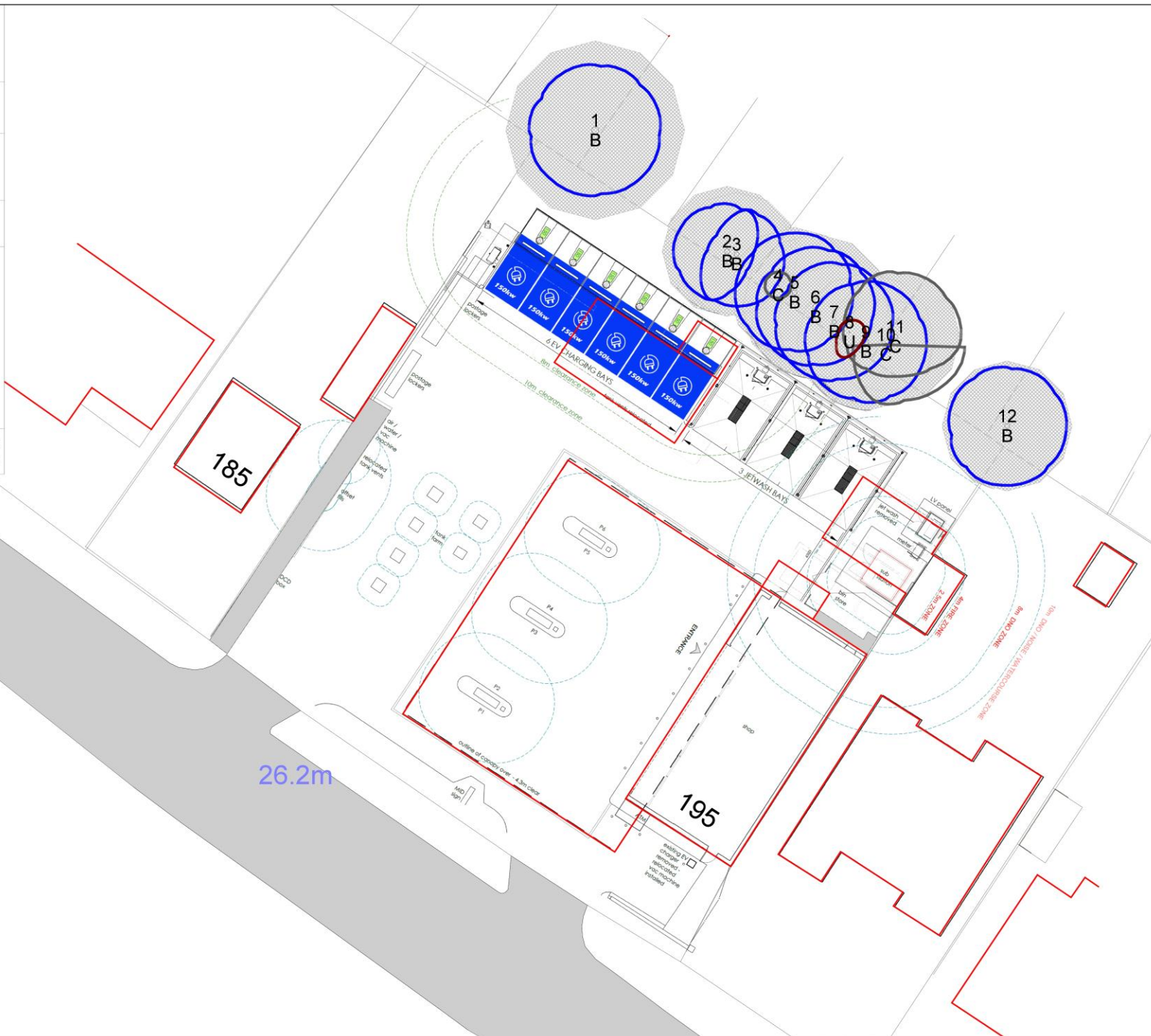
DATE :
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Tree Constraints

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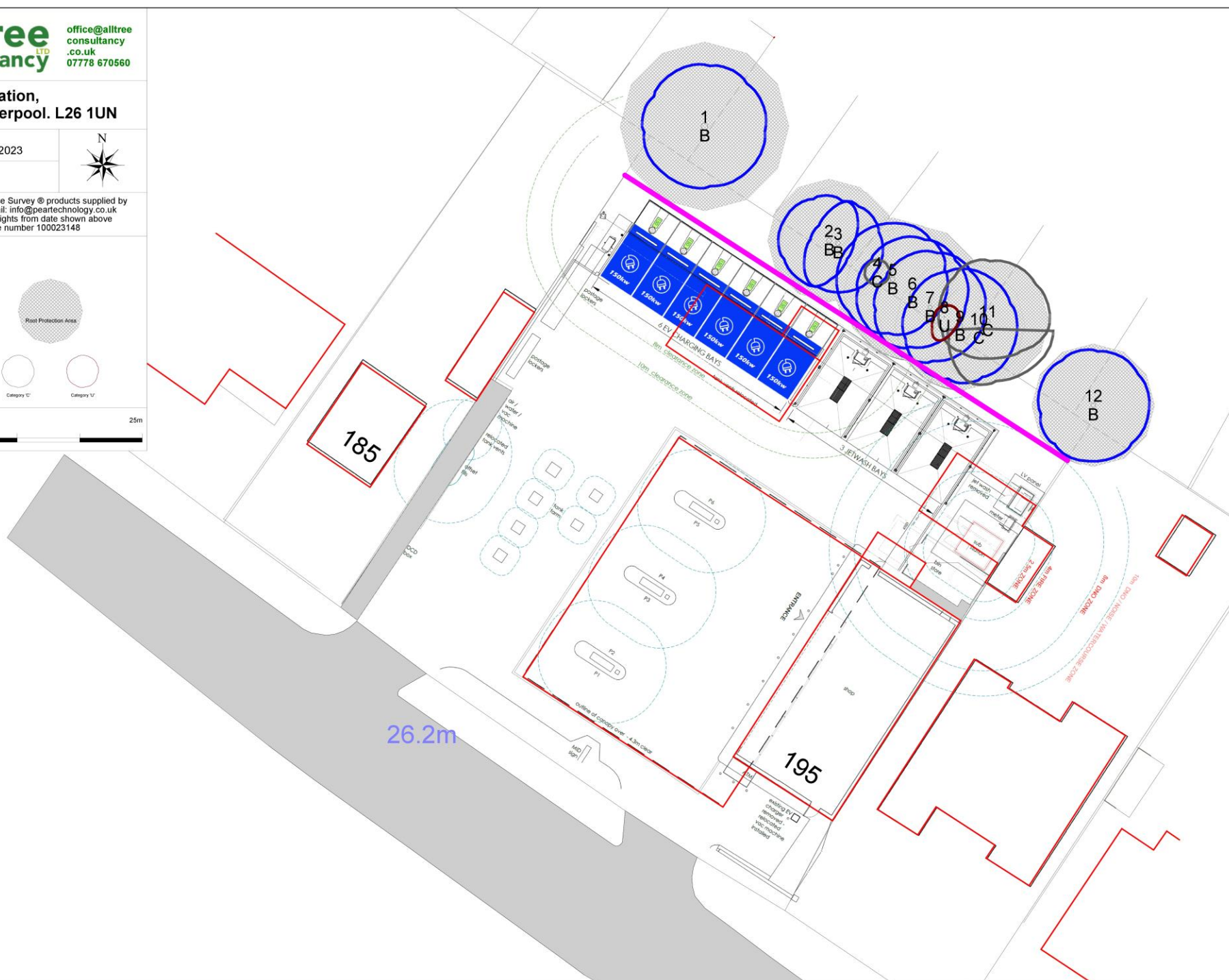
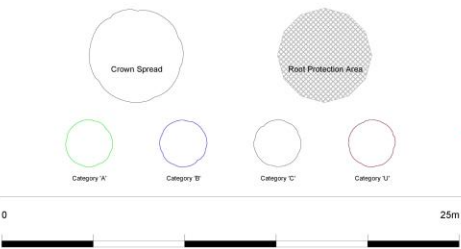
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Tree Protection

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Legend

 Tree Protection

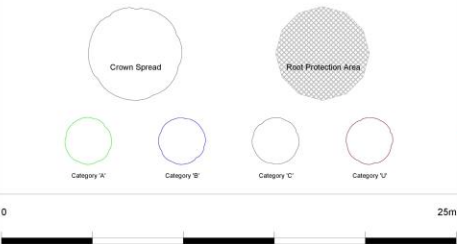
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Construction Exclusion Zone (CEZ)



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Legend

 Construction Exclusion Zone

 Tree Protection