Tree Survey BS5837:2012

Land at Audrey Street, Manchester, M9 4PF

One Manchester

Revision B – November 2023

QUALITY ASSURANCE

REPORT TYPE	SITE NAME	REVISION
Tree Survey BS5837:2012	Land at Audrey Street, Manchester, M9 4PF	B

CLIENT	COMMISSION DATE
One Manchester	May 2023

	NAME	QUALIFICATIONS	DATE
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REVISION HISTORY			
REVISION	**DATE**	**AUTHOR**	**DESCRIPTION**
A	July 2023	EM	Original based on Schedules and Site Plan – Drawing No. 105 Rev. 1
B	November 2023	EM	Revised in line with Schedules and Site Plan – Drawing No. 105 Rev. 11

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A INTRODUCTION

A.1 Background to Survey

1 In May 2023 LM Ecology was commissioned by One Manchester to carry out a tree survey BS5837:2012 at the location detailed in Table 1 below. The principal author of this report is Elizabeth McBride BSc (Hons).

Table 1. Site details

SITE ADDRESS	GRID REFERENCE
Land at Audrey Street, Manchester M9 4PF	SD8699401489

2 The survey has been commissioned to support a planning application to construct five bungalows at the site, with associated gardens and parking.

3 LM Ecology has been provided with the plans as shown within Table 2 below.

Table 2. Pre-existing Information

TYPE	ITEM TITLE / REFERENCE	PRODUCED BY	DATE PRODUCED
Plan	Topographical Survey	Survey & Engineering Projects Ltd	March 2021
Plan	Proposed Site Plan – Drawing No. 105 Rev. 11	BTP Architects	15th June 2021 (Updated 26.05.23)

A.2 Site Location and General Description

4 The site consists of a rectangular public greenspace to the east of Audrey Street, in the Moston area of Manchester. The immediate surrounding area supports a mix of terraced and semi-detached houses.

5 The site supports mown grassland and a total of 23 amenity trees of Norway maple, horse chestnut and Swedish whitebeam.

B SURVEY DETAILS AND LIMITATIONS

6 The fieldwork was carried out on 22nd June 2023 by Elizabeth McBride, assisted by Louisa Molloy. Elizabeth has a degree in Environmental Science and a Level 4 Diploma in Arboriculture. She has worked as an ecologist since 2006.

7 The survey was undertaken in accordance with BS 5837:2012 Trees in relation to Design, Demolition and Construction – Recommendations.

8 Tree locations were taken from the topographical plan provided and the trees were surveyed visually from the ground.

9 Please note this report represents a BS5837 tree survey and should not be accepted as a tree safety inspection report.

10 Details of the trees present can be found in Table 3. The tree locations, canopy size, retention category and root protection areas are shown on the Tree Constraints Plan in Appendix F.1. Photographs are included in Appendix F.2.

11 Trees within close proximity to each other and of similar age and species have been surveyed in groups, as defined in BS 5837.

12 Saplings and shrubs were deemed insignificant and omitted from the survey.

13 Root protection areas were calculated from stem diameter.

14 Some trees develop multiple stems either from ground level or close to the ground. Where possible for these trees the average stem diameter is calculated and the number of stems recorded. A calculation can then be carried out to estimate the root protection area.

C RESULTS

C.1 Tree Data

15 See Table 3 and accompanying Tree Constraints plans in Appendix F.1. Photographs are included in Appendix F.2.

Table 3: Tree data

Tree reference	Species	Life stage	Estimated height (metres)	Estimated crown height (metres)	Estimated crown spread (metres) N W E S	Stem diameter (mm)	Physiological condition	Structural condition	Observations	Estimated remaining contribution (years)	Retention category
T1	Norway maple *Acer platanoides*	EM	16	2	4 6 4 7	668	Good	Moderate	Twin stemmed at 2m.	40+	B1
T2	Norway maple *Acer platanoides*	EM	16	2.5	8 9 7 5	605	Good	Good	Single stem tree. Minor deadwood in canopy.	40+	A1
T3	Horse chestnut *Aesculus hippocastanum*	SM	12	3	3 4 4 3	382	Fair	Fair	Slight leaf miner (*Cameraria ohridella)* damage to leaves. Tree is potentially suffering from bleeding canker (*Pseudomonas syringae pv aesculi*) although no fluid visible – bark on stem is cracking and falling away, exposing wood below. Stunted canopy and minor die back.	10+	C1
T4	Horse chestnut *Aesculus hippocastanum*	SM	15	2	3 5 5 3	512	Good	Fair	Slight leaf miner damage to leaves.	20+	B1
T5	Norway maple *Acer platanoides*	EM	16	2	3 9 7 3	484	Good	Fair	Single stem. Long curved upper limb. Minor deadwood in canopy.	40+	B1
T6	Norway maple *Acer platanoides*	EM	15	2	5 8 6 3	540	Good	Good	Single stem. Slightly constrained by proximity of adjacent trees	40+	A1
T7	Norway maple *Acer platanoides*	EM	15	2	5 6 4 5	454	Good	Good	Minor deadwood in lower canopy.	40+	A1
T8	Norway maple *Acer platanoides*	EM	15	3	3 7 5 4	468	Fair	Good	Some deadwood in canopy. Compacted ground at base.	40+	B1
T9	Norway maple *Acer platanoides*	EM	15	3	3 7 3 7	365	Fair	Good	Some deadwood in lower canopy.	40+	B1
T10	Norway maple *Acer platanoides*	EM	14	3	4 6 6 4	432	Fair	Good	Constrained canopy. Some deadwood in lower canopy and low leaf cover.	40+	B1
T11	Norway maple *Acer platanoides*	EM	13	3	7 5 3 2	398	Good	Good	Single stem tree.	40+	A1
T12	Norway maple *Acer platanoides*	EM	14	3	6 3 3 6	443	Fair	Good	Deadwood in lower canopy.	40+	B1

Tree reference	Species	Life stage	Estimated height (metres)	Estimated crown height (metres)	Estimated crown spread (metres) N W E S	Stem diameter (mm)	Physiological condition	Structural condition	Observations	Estimated remaining contribution (years)	Retention category
T13	Norway maple *Acer platanoides*	EM	14	2	5 3 6 6	454	Good	Fair	Minor damage to lower stem but appears fully occluded. Lower limb has been removed and tree has slight lean to east.	40+	B1
T14	Swedish whitebeam *Sorbus intermedia*	EM	13	1.5	4 4 3 1	392	Fair	Poor	Damage extending from 0.5 to 1.5m up stem – appears fully occluded. Lower limbs on east side have been severely pruned resulting in lopsided canopy. Some deadwood in canopy.	10+	C1
T15	Norway maple *Acer platanoides*	EM	15	3	5 3 5 3	442	Fair	Good	Minor deadwood in canopy.	40+	B1
T16	Swedish whitebeam *Sorbus intermedia*	M	15	10	5 2 2 4	332	Fair	Fair	Developed a high canopy to reach the light. Frequent deadwood in lower canopy and compacted ground at base. Large area of bark loss on lower stem from 1.5 to 2m high.	10+	C1
T17	Swedish whitebeam *Sorbus intermedia*	M	15	10	4 2 3 5	395	Fair	Poor	Developed a high canopy to reach the light. Cavity in lower stem from ground level to 1m and decay extending upwards. Deadwood in lower canopy.	10+	C1
T18	Horse chestnut *Aesculus hippocastanum*	SM	14	3	4 4 6 3	489	Fair	Fair	Slight leaf miner damage to leaves. Large area of bark damage to west side of stem extending from 0.5 to 2m – appears fully occluded. Further smaller area of damage on east side of stem with peeling bark. No cavity developed. Tree still has good leaf cover.	20+	B1
T19	Horse chestnut *Aesculus hippocastanum*	SM	14	3	2 5 6 5	460	Fair	Good	Slight leaf miner damage to leaves. Small areas of bark damage on stem. Some compacted ground at base.	20+	B1
T20	Swedish whitebeam *Sorbus intermedia*	M	15	1.5	5 4 5 3	563	Good	Good	Large single stem tree. Minor deadwood in lower canopy. Good example of species.	40+	A1
T21	Swedish whitebeam *Sorbus intermedia*	M	15	1	4 3 4 4	509	Good	Fair	Two areas of bark damage to lower stem ground level to 1m – one area is fully occluded but other is recent damage. Compacted ground at base. Minor deadwood in canopy but good leaf cover.	40+	B1
T22	Swedish whitebeam *Sorbus intermedia*	M	14	1	3 3 4 4	336	Fair	Fair	Bark damage to stem from ground level to 1m with rot. Minor deadwood in lower canopy. Ground level at base may have been raised at some point – earth/gravel against tree.	20+	C1
T23	Swedish whitebeam *Sorbus intermedia*	M	14	1	3 2 5 5	378	Good	Fair	Constrained by adjacent Norway maple.	40+	B1

Key to Table 3

Life stage

Y Young – in first quarter of life

SM Semi-mature – in second quarter of life

EM Early mature – in third quarter of life

M Mature – in final quarter of life

OM Over mature – in natural decline

Height

The height of the tree in metres from the stem base - estimated using a clinometer.

Crown height

The average height in metres of the crown – estimated using a clinometer.

Crown spread

Measured from the centre of the stem base to the tips of the branches in all 4 cardinal points

Stem diameter

The diameter of the stem measured at 1.5m from the base

Physiological condition

Good – Healthy and in good vigour

Fair – Vigour of tree is impaired

Poor – Vigour of tree is extremely low

Structural condition

Good – No obvious defects

Fair – Slightly compromised with minor structural defects

Poor – Significantly compromised with major structural defects

Estimated remaining contribution

An indication of the number of years before removal of the tree may be required

Categories:	< 10	less than 10 years
	10+	
	20+	
	40+	

Retention Category

A – Trees of high quality – marked green on the plan

Further subdivided as follows:

A1 – Trees that are particularly good examples of their species or essential components of groups

A2 – Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features

A3 – Trees, groups or woodlands of significant conservation, historical or commemorative value

B – Trees of moderate quality – marked blue on the plan

Further subdivided as follows:

B1 – Trees that have been downgraded from A because of impaired condition or trees lacking in the special quality necessary to merit the category A designation

B2 – Trees present in numbers that attract a higher collective rating than as individuals

B3 – Trees with material conservation or other cultural value

C – Trees of low quality – marked grey on the plan

Includes all young trees with a stem diameter below 150mm.

Further subdivided as follows:

C1 – Unremarkable trees of limited merit or impaired condition

C2 – Trees in groups or woodlands with limited collective landscape value

C3 – Trees with low material conservation or cultural value

U – Trees unsuitable for retention - marked red on the plan

These trees are in such a condition that they cannot be realistically retained for longer than 10 years e.g. due to serious structural defects, disease, or death

C.2 Root Protection Areas

16 The root protection radius for each tree is shown below in Table 4.

Table 4: Root protection area and root protection radius

Tree Number	RPA (m^2)	RPA Radius (m)
T1	206	8.1
T2	177	7.5
T3	72	4.8
T4	124	6.3
T5	113	6.0
T6	137	6.6
T7	102	5.7
T8	102	5.7
T9	64	4.5
T10	92	5.4
T11	72	4.8

Tree Number	RPA (m^2)	RPA Radius (m)
T12	92	5.4
T13	102	5.7
T14	72	4.8
T15	92	5.4
T16	55	4.2
T17	72	4.8
T18	113	6.0
T19	102	5.7
T20	150	6.9
T21	124	6.3
T22	55	4.2
T23	72	4.8

C.3 Legal Status

17 Manchester City Council planning office confirmed by email on 13th July 2023 that there are no Tree Preservation Orders (TPO) covering the site or adjacent land and the site is not located within a Conservation Area.

C.4 Summary of Results and Discussion

18 The tree survey revealed a total of 23 individual trees. Five trees were identified as retention category A (high quality), 13 trees were identified as retention category B (moderate quality) and five trees were identified as retention category C (low quality). This information is summarised in Table 5 below.

19 All 23 are amenity trees and have clearly been planted within the greenspace as they are in rows and for the most part are evenly spaced. They consist of twelve Norway maple trees, seven Swedish whitebeam trees and four horse chestnut trees. Although tree age can be difficult to estimate as it depends on many different factors, the trees are likely to be over 50 years old.

Table 5: Summary of Tree Categories

	Tree	**Total**
Category A Trees of high quality	T2, T6, T7, T11, T20	5
Category B Trees of moderate quality	T1, T4, T5, T8, T9, T10, T12, T13, T15, T18, T19, T21, T23	13
Category C Trees of low quality	T3, T14, T16, T17, T22	5
Category U Trees unsuitable for retention		0

D ARBORICULTURAL IMPACT ASSESSMENT

D.1 Proposed Development

20 The proposals for the site include the construction of five bungalows with associated private gardens and parking. (Proposed Site Plan, Drawing No 105, dated 15/16/2021, Rev 11).

D.2 Impact Assessment

21 The proposed layout will require the removal of all 23 trees. Based on the proposed site plan, it would not be possible to retain any of the trees without significant impacts to the root protection areas.

22 The trees are visible from Lily Lane and Audrey Street and the houses along Brocklehurst Street, which back on to the site. The site is publically accessible and there are signs of frequent use, such as compacted ground and the remains of old tree swings. It is within 50 metres of Lily Lane Primary School. There are no street trees in the surrounding area and the majority of trees within the residential estates to the north, east and west are located within private gardens or school grounds. To the south, the large greenspace at Moston Vale and the public greenspace north of Church Lane support grassland, trees and woodland.

23 Although a few of the trees are of low quality due to structural defects, damage or dieback, the majority are of moderate or high quality. The value of urban trees should not be underestimated and therefore the loss of 23 well established trees is considered to significantly impact the urban tree resource of the local area.

24 The extensive root protection areas of the trees and the small size of the site mean it is unlikely that any minor changes to the proposed layout will allow many trees to be retained. Only significant layout changes, such as reducing the number of dwellings, would allow a significant number of trees to be retained.

D.3 Mitigation Proposals

25 As none of the on-site trees are to be retained and there are no adjacent off-site trees, protective measures will not be required.

26 The layout plan shows three planted trees in the bungalow gardens. There is potential for further tree planting at the site. However, all trees will be within private gardens, so there is no guarantee that they will be retained. It is recommended that any new trees consist of native species or species with known wildlife value. Examples include rowan, cherry, apple, hazel, bird cherry and hawthorn. These trees should be managed and monitored so any that fail can be replaced.

E REFERENCES

British Standards Institution. (2012) *BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations.*

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Strouts, R. G. and Winter, T.G. (2000) *Diagnosis of Ill Health in Trees* (Research for Amenity Trees). 2nd Edition.

Watson, G. and Green, T. (2011) Fungi on Trees: An Arborist's Field Guide. The Arboricultural Association.



Legend

- Tree Location
- Root Protection Area (RPA)
- Site Boundary

Retention Categories

- Category A Tree - Canopy Spread
- Category B Tree - Canopy Spread
- Category C Tree - Canopy Spread

Based on topographical data.

Project	Land at Audrey Street, Manchester M9 4PF
Title	F.1 Tree Constraints Plan
Client	One Manchester
Date	July 2023
Ref	[LM0118]F.1[REV A]TCP

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F.2 Photographs

Photographs taken during the site visit.



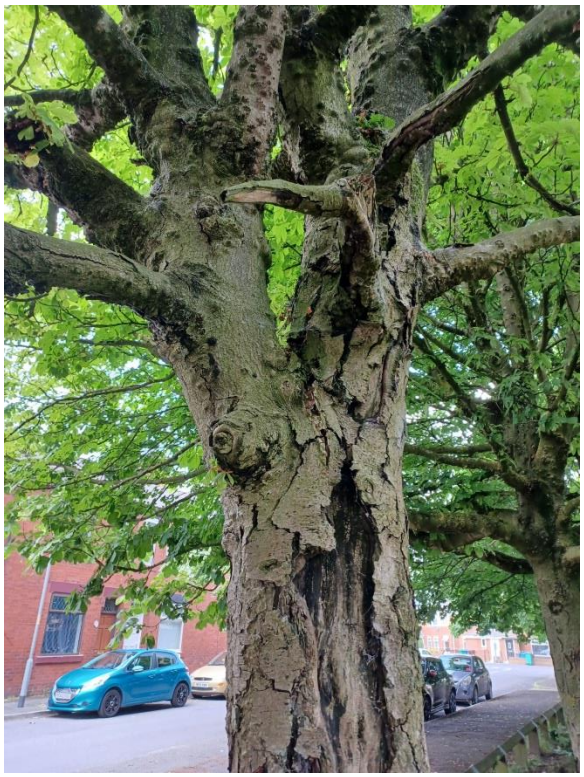
Photograph 1: Northern end of the site



Photograph 2: Southern end of the site



Photograph 3: Trees T10 to T13



Photograph 4: Tree T3

	
Photograph 5: Cavity in tree T17	Photograph 6: Tree T20 with T23, T1 & T2 beyond