

Arboricultural Impact Assessment (AIA)

Version 4
01.06.2022

Client – Wates Construction Ltd.

Address – Land to the west of Rodney Street,
Manchester, M4 6JJ

Project – This City residential development,
Ancoats, Manchester

Prepared by Simon Brain *Chartered arboriculturist*

Contents

1.0 Introduction (Instruction, Scope, Methodology, Mitigation & Limitations)	3-4
2.0 Arboricultural Impact Assessment.....	5-8
3.0 Tree Preservation Orders	8
4.0 Trees to be removed and retained	8-9
5.0 Root Protection Areas (RPA)-modifications	9-10
6.0 Post construction considerations	10
7.0 Tree pruning to facilitate development and future pruning	9
8.0 New surfacing and ground level modifications	9
9.0 Construction Exclusion Zones and Special Measure Areas	9
10.0 Site supervision and monitoring	9-10
11.0 Installation of below ground infrastructure (utilities)	10
12.0 Design changes	11
13.0 Amenity Value	12
14.0 Concluding statement	12

Appendix

- 1 Tree Protection Plan
- 2 Survey sheets (updated as a result of AIA)

1.0 Introduction

1.1 Instruction, Scope, Methodology, Mitigation & Limitations

1.2 My name is Simon Brain, I am a chartered arboriculturist, with 25 years' experience holding the LANTRA Professional Tree Inspection certificate. I have been instructed by the client to prepare the following Arboricultural Impact Assessment for land to the West of Rodney Street, Manchester.

1.3 This Arboricultural Implications Assessment (AIA) is based on the proposed developments as shown on the Proposed Site Plan as drawn by Buttress and incorporated into the Tree Protection Plans (TPP) in Appendix 1 of this report.

Summary of the project – This City is a new kind of housing company, owned and run by Manchester City Council. They are a new venture that will develop high quality, low carbon housing for all Mancunians. The new homes will be a mix of market housing and homes designated for Manchester Living Rent (to be rented at or below Local Housing Allowance levels). Market housing will subsidise the provision of the Manchester Living Rent properties.

Application Description of Development – Erection of two residential apartment buildings (Use Class C3), one of 8 storeys (68 apartments) and one of 5 storeys (50 apartments), to form a total of 118 residential apartments; and erection of 10, 3 storey townhouses (Use Class C3); together with car and cycle parking provision, hard and soft landscaping including public realm, access, substation and other associated works

1.4 The assessment will be carried out in line with the recommendations in BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* and will evaluate the direct and indirect impacts of the proposed design and where necessary recommend mitigation.

- 1.5 The AIA considers constraints posed above and below ground and where appropriate makes recommendations to mitigate impacts associated with development sites and retained trees.
- 1.6 Where specialist design, construction techniques or in areas where supervision of the works is required a Special Measure Area (SMA) has been shown on the Tree Protection Plan (TPP) for the study areas.
- 1.7 Below ground constraints are influenced by the root protection area and are determined in line with the recommendations set out in BS 5837:2012. These recommendations quantify the root protection area based on a measured stem diameter in accordance with Annex C, and the root protection area is determined from Annex D.
- 1.8 It is important to understand that when considering the Root Protection Area (RPA) with regards to the circular plot as delineated on the TPP that a number of site factors can influence root morphology and disposition of tree roots.
- 1.9 Ground constraints are considered above and below ground and in line with the recommendations in BS 5837:2012 to include; shade, dominance, current and future crown spread as well as the ultimate height of those retained trees.
- 1.10 Impacts associated with development sites and retained trees can be associated with single or multiple site operations that can subject trees to multiple impacts (*root severance, compaction, loss of photosynthetic material*), where this is applicable it will be highlighted in the AIA.
- 1.11 The mitigation measures proposed in this report are essential to ensure that trees marked for retention are adequately protected during the period of post/preconstruction.

2.0 Arboricultural Impact Assessment

2.1 Area for proposed development

2.2 The proposed development has been embedded within the Tree Constraints Plan which indicates the following developments associated with this site to have an arboricultural impact:

- Installation of proposed development infrastructure requiring tree removal
- Access arrangements and new surfacing (including existing surface removal) in the vicinity of retained trees

2.3.1 The arboricultural impacts of these items have been identified below.

Installation of proposed development (and logistics planning / mast climbers used during construction and excavation for foundations) requires the removal of the following 22 tree references which is a total of 45 trees to be removed:

G11(1);T6;T11;T12;T13;T14;T18;T19;T20;T21;T22;T23;T24;G1(3);G2 (5);G3 (5);G6 (7);G7 (2);G8 (1);G9 (2);G12 (5);G13 (2)

2.3.2 Access arrangements and new surfacing (including existing surface removal) will take place in the vicinity of retained trees.

A permanent new surface is within the RPA of G11/T17 and a temporary (logistics) surface is within G8,T15 and T16 aswell as temporary surfacing for mast climbers to be used during construction, these are designated Special Measure Areas (SMA) and construction can only be proposed as 'no dig' construction if the following items can be achieved:

- A cross section of the existing and proposed ground levels is submitted for arboriculture review.

- A detailed engineer-based drawing specification of the no dig surface is produced for arboriculture review
- The California Bearing Ratio and soil structure are acquired and have undergone arboriculture review.
- Future maintenance, water interception, pollution potential and deformation potential of the new surface is assessed.
- A full AMS is needed when these matters have been managed which will detail sequencing, methods, materials, tree protection, personnel and a detailed supervisory timetable with the provision of compliance reporting at regular intervals.

These items are required as the trees are protected and the information is needed to demonstrate the acceptability of the proposal.

Typical no dig construction can consist of:

- Establishment of the California Bearing Ratio of the land to inform engineers of the type and capacity of load bearing cellular confinement system to be used.
- Appoint and confirm engineer for design and supply of a suitable load bearing geo cellular confinement system requiring no more than 25cm of excavation for top soil preparation only.
- The new surface is constructed and finished to the agreed specifications before any other general building activity commences on site unless otherwise agreed with the project arboriculturalist.
- The cellular confinement system shall be guaranteed by the supplier so as not to cause subsequent compaction for a period of ten years.
- Typically, a 'no dig' approach (based on APN12 Driveways close to trees) will be taken with the confinement system being laid directly onto

the existing ground level; where local cuts and fills are required this shall be no more than 75-100mm in depth.

- Typically, a confinement system of 150mm in depth is used.
- Edge restraints shall be required, and they shall be secured by means of small metal ties approximately 50cm+ long at appropriate intervals.
- The cellular confinement system shall be laid by pedestrian means under the consultant's on-site supervision. Small excavators can be used on the surface when it is newly laid and when ground boarding is provided.
- The system shall be filled with granular material that retains porosity and maintain a porous finished wearing surface such as pea gravel or resin bonded gravel. Proprietary surface coverings that may be suitable for some surfaces include Flexipave and Permadrive.
- All surface construction when complete shall be covered in on ground boarding throughout the SMA for the remainder of the build period in that part of site.
- All surface construction if acceptable will be located within Special Measure Areas (SMA) which are designated on the Tree Protection Plan (TPP). All construction shall be supervised on site by a qualified arboricultural consultant who shall record all progress and oversee all new surface installations in the RPA's affected and document the installation in the event of any future queries.

NOTE: The chronological order of events shall be as follows.

Following installation of the CEZ access is installed under supervision to the no dig specification provided and all new surfacing's are protected by on ground boarding such as scaffold boards prior to any other construction activity commencing in the vicinity. It is however critical

that ground boarding is proportionate to the load anticipated to be exerted on the surface. Therefore, in areas of proposed routes where vehicular (car) and pedestrian traffic is anticipated during / post construction scaffold boarding is enough above the newly laid surface. However, heavier construction related deliveries may be required and ground boarding shall be upgraded to bog mat or similar which must bear the anticipated load. Both types of on ground boarding are required for the construction duration in the relevant parts of site.

3.0 Tree Preservation Orders

- 3.1 According to Manchester City Council online mapping, the site is not located within a Conservation Area and is not covered by any Tree Preservation Orders.

4.0 Trees to be removed and retained

- 4.1 The following trees have been identified for removal due to their condition (Category U): None
- 4.2 A total of 45 trees are identified to be removed for the direct impact of development as listed in section 2.3.2.
- 4.3 The remaining trees are due to be retained and protected as outlined on the TPP by the methodology needed in an AMS.

5.0 Root Protection Areas (RPA)- modifications and RPA losses

- 5.1 Root Protection Areas have been plotted in line with the guidance given in BS 5837: 2012. where ground constraints have had or are likely to effect the root morphology of trees e.g. where underground utilities or building foundations have obstructed root growth this shall require formal confirmation by excavation to establish presence or absence of

significant rooting material. No RPA modifications have been shown for this scheme.

- 5.2 There are some RPA that are reduced because of development. The trees affected are however mature and well established and, in some cases, (*Tilia* sp) capable of withstanding minor RPA disruptions.

6.0 Post construction considerations

- 6.1 Not applicable due to lack of trees on southern and western boundary.

7.0 Tree pruning to facilitate development and future pruning

- 7.1 There are requirements for minor levels of tree pruning to facilitate the proposed development, listed in the survey sheets applying to T17 and G8/11 which require an approximate 3m clearance from the new building for mast climbers to be used during construction .

8.0 New surfacing and ground level modifications

- 8.1 New surfacing is required in the RPA of trees (permanent and temporary).

9.0 Construction Exclusion Zones and Special Measure Areas

- 9.1 The Construction Exclusion Zone has been shown as a black fenced polyline on the TPP in Appendix 1 and shall be constructed using heras panels and rubber feet securely staked to the ground.
- 9.2 The CEZ must be installed and signed off as fit for purpose before any other works commence on that part of site.

10.0 Site supervision and monitoring

- 10.1 Where a tree has been delineated on the TPP as requiring retention there will be a requirement to oversee construction operations in these areas in order to ensure that no damage occurs to the retained tree.

- 10.2 To ensure that there is an auditable system of site monitoring, reports will be compiled by an appointed arborist and following site visits they will be issued to the site manager and design team, copies of which will be available on site at all times for inspection by a Council planning/Tree officer.

11.0 Installation of below ground infrastructure

- 11.1 No detailed plans have been provided specifying the location of site utilities
- 11.2 Specialist advice with regards to the position of utilities will need to be sought from engineers and must be reviewed by the consulting arboriculturist prior to commencement on site.
- 11.3 The usual construction techniques for installing site utilities within an RPA will be unacceptable due to the level of root severance that would occur. The impact of root severance will have a detrimental effect on tree health as trees require a healthy root system in order to maintain water and mineral uptake from the soil. Trees need to maintain a balance between shoot and root growth to ensure that the resources supplied by each can meet the demand of the other. Severance of tree roots caused by trenching can lead to reduced water uptake which in turn impacts on the trees ability to supply water to the canopy, resulting in desiccation. A further complication associated with root severance can be problems associated with tree stability. The tree relies on an intact root system in order to maintain stability; this stability will be compromised by root severance.
- 11.4 The use of trenchless techniques can be acceptable provided the depth of service run that is excavated is below the anticipated root depth.

12.0 Design change requirements

- 12.1 Design change requirements have not been necessary.

13.0 Amenity Value

The retention of significant arboricultural assets has been achieved on the eastern boundary and therefore the visual amenity conferred by the existing trees in this position shall not change significantly as a result of the proposed tree losses because the periphery trees shall remain.

It is considered that the successful establishment of replacement trees as shown on landscape proposals shall mean an improvement in the long term wider visual amenity associated with the trees on the site.

14.0 Concluding statement

- 14.1 The proposed scheme was assessed in line with guidance provided in BS 5837:2012 *Trees in relation to design demolition and construction – Recommendations* with the aim to achieve a harmonious relationship between trees and structures that can be sustained in the long term.
- 14.2 It is my professional opinion as an arboriculturist that a harmonious balance of retained and removed trees has been achieved and the impact of tree removal on visual amenity is not significant because large mature trees are retained on the periphery of the eastern groupings.
- 14.3 It is considered that a significant improvement in the longer-term visual amenity associated with the site will materialise through the substantial planting shown on the landscape proposals which shall bolster long term sustained visual amenity conferred by trees into the wider landscape.

Appendix 1 Tree Protection Plan



TREE PROTECTION PLAN

Retention value key

(RETENTION VALUE A)

(RETENTION VALUE C)

(RETENTION VALUE B)

(RETENTION VALUE U)

Root Protection Areas (RPA) & Construction Exclusion Zones (CEZ)

Root Protection Areas (RPA's) have been identified and are based on BS5837:2012. RPA's and Construction Exclusion Zones (CEZ) have been shown as detailed below. The CEZ shall act as the protective barrier for retained trees.

CEZ (Protective barrier)

RPA

Canopy extent

CEZ

The CEZ's will require installation as shown on the TPP.

Special Measure Areas (SMA)

Special Measure Areas (SMA's) have been identified for construction in these areas and they have been shown as detailed below.

- No dig surfacing (temp. and permanent)

Construction Exclusion Zone (CEZ) Default specification for protective barrier (BS5837:2012)

Figure 2 Default specification for protective barrier

Key

- Standard scaffold poles
- Heavy gauge 2 m tall galvanized tube and welded mesh in-fill panels
- Panels secured to uprights and cross-members with wire ties
- Ground level
- Uprights driven into the ground until secure (minimum depth 0.6 m)
- Standard scaffold clamps

Client:

Wates Construction

Project:

Land to the West of Rodney Street

Detail:

TREE PROTECTION PLAN

Drawn By:

SB

Date:

01.06.22

Scale:

1:500@A3

Drg No:

TR-01

Revision:

V4

Appendix 2 Survey sheets (updated as a result of AIA)

Tree No.	Common Name	Latin Name	Life Stage	Diameter(mm)	Stem No.	Height(m)	Crown Height(m)	North(m)	South(m)	East(m)	West(m)	Category Rateing	Estimated Remaining Life Expectancev	Comments	Recommendations following AIA	RPR(m)	RPA(m)
T6	Ash	Fraxinus excelsior	M	450	1	12	4	5	5	5	5	A2	40+		Remove and replace within development	5.4	92
T7	Ash	Fraxinus excelsior	M	450	1	10	4	6	6	6	6	B2	40+		Unaffected directly, install CEZ	5.4	92
T8	Norway Maple	Acer platanoides	M	400	1	10	4	5	5	5	5	B2	40+		Unaffected directly	4.8	72
T9	Blackthorn	Prunus spinosa	M	450	1	10	4	3	6	5	5	B2	40+		Unaffected directly	5.4	92
T10	Norway Maple	Acer platanoides	M	325	1	10	4	3	3	3	3	B2	40+		Unaffected directly, install CEZ	3.9	48
T11	Norway Maple	Acer platanoides	M	450	1	11	4	4	4	4	4	A2	40+		Lost for development impact. Remove and replace within development	5.4	92
T12	Norway Maple	Acer platanoides	M	450	1	11	4	4	4	4	4	A2	40+		Remove and replace within development	5.4	92
T13	Sycamore	Acer pseudoplatanus	M	375	1	12	4	4	4	4	4	B2	40+		Remove and replace within development	4.5	64
T14	Sycamore	Acer pseudoplatanus	M	570	1	12	4	6	6	6	6	A2	40+		Remove and replace within development	6.8	147
T15	Bird Cherry	Prunus padus	M	450	1	12	4	4	4	4	4	A2	40+		Unaffected directly, install CEZ. SMA applies to temporary no dig surface due to logistics planning	5.4	92
T16	Bird Cherry	Prunus padus	SM	250	1	11	4	3	3	3	3	C2	40+		Unaffected directly, install CEZ. SMA applies to temporary no dig surface due to logistics planning	3	28
T17	Locust Tree	Robinia pseudoacacia	M	710	1	12	4	4	8	6	6	A2	40+		Minor RPA overlap, install CEZ. Facilitation pruning applies to western canopy approximatelty 3m shortening.	8.5	228
T18	Cherry Plum	Prunus cerasifera	M	375	1	12	4	3	5	3	3	A2	40+		Remove and replace within development	4.5	64
T19	Sycamore	Acer pseudoplatanus	M	600	1	12	4	6	6	6	6	A2	40+		Remove and replace within development	7.2	163
T20	Sycamore	Acer pseudoplatanus	M	500	1	12	4	6	6	6	6	A2	40+		Remove and replace within development	6	113
T21	Silver Birch	Betula pendula	M	375	1	12	4	4	4	4	4	B2	40+		Remove and replace within development	4.5	64
T22	Cherry Plum	Prunus cerasifera	SM	250	1	6	4	3	3	3	3	B2	40+		Remove and replace within development	3	28
T23	Sycamore	Acer pseudoplatanus	M	350	1	12	4	4	4	4	4	B2	40+		Remove and replace within development	4.2	55
T24	Sycamore	Acer pseudoplatanus	M	350	1	12	4	4	4	4	4	B2	40+		Remove and replace within development	4.2	55
G1	Rowan	Sorbus aucuparia	M	270	1	7	4	4	4	4	4	B2	40+		Remove and replace within development	3.2	33
G2	Ash	Fraxinus excelsior	M	300	1	12	4	3	3	3	3	B2	40+		Remove and replace within development	3.6	41
G3	Rowan	Sorbus aucuparia	M	250	1	6	4	3	3	3	3	C2	40+		Remove and replace within development	3	28
G6	Norway Maple Ash Common Lime	Acer platanoides, Fraxinus excelsior, Tilia X europaea	M	300	1	11	4	3	3	3	3	A2	40+		Remove and replace within development	3.6	41
G7	Crataegus spp.	Crataegus spp.	M	240	1	6	4	3	3	3	3	B2	40+		Remove and replace within development	2.9	26
G8	Silver Pendent Lime	Tilia petiolaris	M	600	1	12	4	6	6	6	6	A2	40+		Remove southern tree in Group due to RPA impact. Minor RPA overlap for remaining tree, install CEZ. SMA applies to temporary no dig surface due to logistics planning , refer to AIA for details. Facilitation pruning on western canopy approximately to provide approximately 3m clrance from building	7.2	163
G9	Ash	Fraxinus excelsior	M	500	1	14	4	5	5	5	5	A2	40+		Remove and replace within development	6	113
G10	Ash	Fraxinus excelsior	M	325	1	14	4	5	5	5	5	A2	40+		Unaffected directly, install CEZ	3.9	48
G11	Common Lime	Tilia X europaea	M	520	1	12	4	6	6	6	6	A2	40+		Partial loss for development. Provide a 3m clearance from building for mast climbers during construction	6.2	122
G12	Whitebeam Apple	Sorbus aria, Malus	M	200	1	6	4	3	3	3	3	B2	40+		Remove and replace within development	2.4	18
G13	Sycamore	Acer pseudoplatanus	M	500	1	12	4	6	6	6	6	A2	40+		Remove and replace within development	6	113