Government Property Agency

AtkinsRéalis



MANCHESTER DIGITAL CAMPUS

Environmental Statement

Volume 4 - Appendix 8.3: Arboricultural Impact Assessment

NOVEMBER 2024

Notice

This document and its contents have been prepared and are intended solely as information for Government Property Agency and use in relation to the Environment Impact Assessment of the Manchester Digital Campus.

AtkinsRéalis UK Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 39 pages including the cover.

Document history

Document title: Environmental Statement Volume 4 Appendix 8.3 - Arboricultural Impact Assessment

Document reference: MDCX-ATR-XX-XX-RP-Z-000030

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	Planning submission issue	TD	NA	IL	TC	04/06/2024

Contents

1. Introduction 5

1.1. Terms of reference 5

1.2. Site location 5

1.3. The Proposed Development 6

1.4. Scope of works 7

2. Methodology 7

2.1. General 7

2.2. Planning policy and definition of veteran trees 7

2.3. Statutory protection 9

2.4. Spatial scope 9

2.5. Survey 9

2.6. Data gathering 10

2.7. Limitations to survey 10

3. Existing site conditions 12

3.1. Existing land use 12

3.2. Existing trees 12

3.3. Veteran trees 13

3.4. Statutory protection 14

4. Arboricultural impacts 15

4.1. General 15

4.2. Root protection areas 15

4.3. Arboricultural impacts and mitigation 15

4.4. Preliminary management recommendations 16

5. Outline Arboricultural Method Statement 17

5.1. General 17

5.2. Pre-commencement operations and site briefings 17

5.3. Work package plans and task briefing sheets 17

5.4. Contact details 18

5.5. Site supervision 18

5.6. Tree Protection Plan (TPP) 19

5.7. Construction Exclusion Zone (CEZ) 19

5.8. Hand excavations within RPAs 20

5.9. No-dig construction 20

5.10. Root pruning 21

5.11. In situ concrete 21
5.12. Tree protective barriers 21
5.13. Ground protection matting 22
5.14. Compound areas 22
5.15. Tree works 23
Appendix A. Key & British Standard 5837:2012 Survey Table 24
A.1. Survey key 24
A.2. Measuring table 26
A.3. BS 5837:2012 cascade chart from tree quality assessment 27
Appendix B. Tree survey schedule 28
Appendix C. Glossary of terms 33
Appendix D. Tree Protection Plan 36
Appendix E. Planning TPO/CA email 38

Tables

Table 4-1 – Arboricultural impact table 16

Table 5-1 – Programme of site supervision 18

Figures

Figure 1-1 - Site extents (EIA red line boundary) 6

Figure 5-1 - Tree protection fencing 22

1. Introduction

1.1. Terms of reference

1.1.1. AtkinsRéalis was commissioned by the Government Property Agency (GPA) (herein referred to as the 'Applicant') to undertake a tree survey in accordance with the British Standard BS5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' to support the design and planning submission of the Manchester Digital Campus, a new civil service campus (herein referred to as the 'Proposed Development').

1.1.2. The purpose of this report is to provide the information required to support the planning application for the Proposed Development. It forms an Appendix of the Environmental Statement (ES).

1.1.3. This report is an Arboricultural Impact Assessment (AIA), focusing on the trees within the extents of the Proposed Development. It reports on the impacts on the recorded trees from the proposals and is supplemented by the production of a Tree Protection Plan (TPP), which is included within Appendix D of this report.

1.2. Site location

1.2.1. The Proposed Development forms the western portion (Phase 1) of the Former Central Retail Park (FCRP) Strategic Regeneration Framework (SRF) area bounded by Great Ancoats Street to the south, Old Mill Street to the east, Hugh Oldham Way to the north and the Rochdale Canal to the west.

1.2.2. The Proposed Development EIA area is approximately 2.87 ha and is centred on National Grid Reference (NGR) SJ 85031 98455. The Proposed Development was formerly a retail park, which has since been demolished and is currently a vacant plot.

1.2.3. The Proposed Development currently comprises vacant brownfield land comprised mostly of hardstanding. There are existing trees / shrubs on the Site, mostly congregated on the southern, western, and northern boundaries. There is a significant level change across the Site, descending from the north to the southern extent at Great Ancoats Street.

1.2.4. Currently the Proposed Development site has a main vehicular access point located off Great Ancoats Street..

1.2.5. See Figure 1-1 for Site extents.

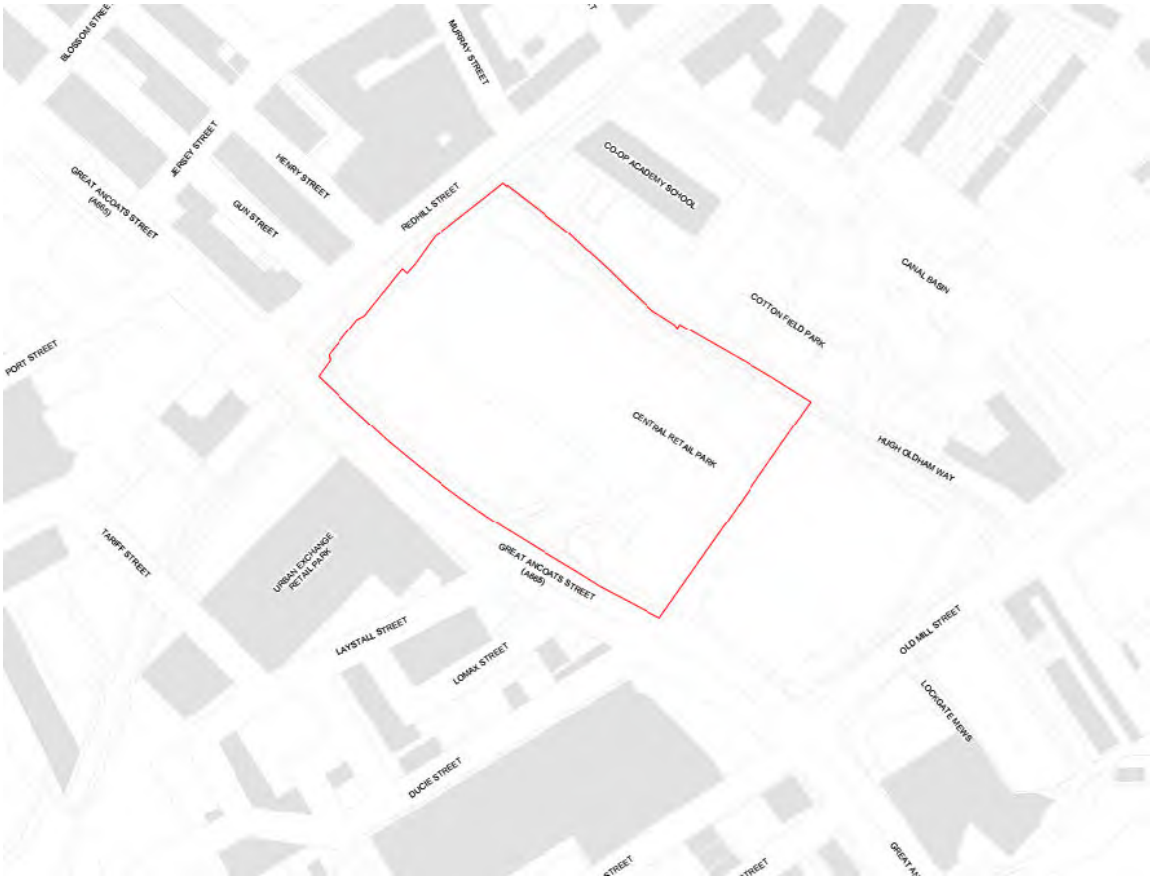


Figure 1-1 - Site extents (EIA red line boundary)

1.3. The Proposed Development

1.3.1. The Proposed Development comprises:

- A package of enabling works including the establishment of new site levels (including for the future Park development being brought forward by MCC under a concurrent separate application) and permanent boundaries, removal of services, highways alterations and other associated works; and,
- the development of a new civil service office campus including:
- North Building comprising basement, ground plus seven floors of offices, plus enclosed and exposed rooftop plant up to 92.950 AOD;
- South Building comprising basement, ground floor commercial uses, cycle parking, and occupiable office floorspace, plus six floors of offices plus enclosed and exposed rooftop plant up to Level 90.100 AOD;
- Basement level accessible car parking of 50 spaces with access via Great Ancoats Street (plus 5 spaces associated with facilities management and operations);
- The creation of new areas of public realm, including improved frontage to Great Ancoats Street, a Canal Plaza adjacent to the Rochdale Canal, and a new boulevard between the two buildings.
- An area of private landscaping adjacent to the North Building enclosed by a boundary wall and a private garden adjacent to the east elevation of the South Building; and
- Associated servicing and access arrangements.

1.3.2. The Proposed Development is shown on the TPP (Appendix D) and these have been used to confirm the impact of the current proposals on the tree stock within the site extents.

1.4. Scope of works

1.4.1. The scope of works includes:

- Tree survey covering those that could be impacted by the Proposed Development;
- The preparation of an AIA;
- The preparation of TPP drawing which displays in graphic form the trees surveyed and the current impact of the works.

1.4.2. This report has been prepared by an Arboriculturist with over 19 years' experience, and who is a Professional Member of the Arboricultural Association with a Level 6 qualification in Arboriculture.

2. Methodology

2.1. General

2.1.1. This tree survey has been undertaken in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations. The standard gives recommendations and guidance on the relationship between trees and the design, demolition and construction process, setting out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.

2.1.2. BS5837:2012 does not set explicit parameters for measuring the sensitivity of an arboricultural resource; nor does it assess the magnitude of impact of a proposed development on trees (other than by providing a record of the number or area of trees that would need to be removed to facilitate the development as presented at time of submission). Rather, the British Standard provides parameters which enable the Arboriculturist to assess the quality of all the trees and other arboricultural features, such as hedgerows or groups of trees and shrubs, that may be affected by the development that is proposed.

2.1.3. Whilst the BS categories are open to varied interpretation, the guidelines in the cascade chart of BS 5837:2012 (see insert A.1 in Appendix A of this report) provide details on how to determine tree qualities and can be used to inform the design process to retain those trees of higher quality where possible.

2.2. Planning policy and definition of veteran trees

2.2.1. The definition of veteran trees for the purposes of this assessment follows the core standing advice and planning policy.

2.2.2. The 'Standing Advice' on ancient woodland, ancient trees and veteran trees provides guiding principles for the classification of ancient and veteran trees. These principles are also covered within the Forestry Commission and Natural England (NE) guidance.

2.2.3. The standing advice clearly defines veteran trees as: *"All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value"*.

2.2.4. The is a degree of ambiguity in its definition but it does provide clear guiding principles, namely that veteran trees have:

- Decay features, such as branch death and hollowing; and
- These features contribute to its biodiversity, cultural and heritage value.

2.2.5. The definition of ancient trees supplements this by focusing the definition of veteran trees arguably (but not definitively) on:

- Great age;
- Size;
- Condition;
- Biodiversity value as a result of significant wood decay and the habitat created from the ageing process; and
- Cultural and heritage value.

2.2.6. Very few trees of any species become ancient.

2.2.7. As such this assessment has proceeded on the basis that the classification of veteran trees should take account of the specific features of trees (size and condition) alongside their biodiversity, cultural and heritage value.

2.2.8. The relevant planning policy is detailed within the National Planning Policy Framework (NPPF) 2023. The NPPF provides a joint definition of an ancient or veteran tree:

2.2.9. Ancient or veteran tree: ‘a tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage’.

2.2.10. This definition extends that within the standing advice to include additional criteria:

- Exceptional biodiversity, cultural or heritage value;
- Old relative to other trees of the same species.

2.2.11. Therefore, in line with this policy veteran trees have been classified in accordance with:

- Size.
- Condition (decay features, such as branch death and hollowing, plus associated species).
- Exceptional biodiversity value as a result of significant wood decay and the habit created from the ageing process.
- Exceptional cultural and heritage value.
- Old relative to other trees of the same species.

2.2.12. Further guidance to assist in classifying trees as old for their species based on stem size criteria was obtained from Figure 1.3 ‘Chart of girth in relation to age and developmental classification of trees’ from the Ancient and other veteran trees: further guidance on management (Lonsdale, 2013). This lists tree species against ascending girth measurements to help define whether a tree is locally notable; veteran/notable; ancient or late ancient.

2.2.13. This chart is not definitive and further criteria as detailed previously is also used in the classification of the trees as veteran or locally notable.

2.2.14. Locally notable trees for the purposes of this assessment include those that can be defined as mature and standing out locally because of large size in comparison to other trees in locality or given the

presence of veteran habitat features, but do not meet the criteria to be deemed a veteran tree in line with the approach adopted.

2.2.15. The Woodland Trust's Ancient Tree Inventory[1] was also accessed (May 2024) to identify if any trees with the Site extents have been registered on the Trust's inventory as veterans or ancient specimens. This is a material consideration as part of this assessment. However, it does not imply the Arboriculturist agrees with their classification, as the approach may have differed to that applied by the Arboriculturist and author of this report.

2.2.16. Further planning policy in relation to trees and their impacts is covered within Manchester City Council's Local Plan and the associated Places for Everyone (PfE) Joint Development Plan. This includes Policy JP-G7: Trees and Woodland that aims to deliver the objectives of the Greater Manchester Tree and Woodland Strategy, focusing on significantly increasing tree cover, protecting and enhancing woodland, and connecting people to the trees and woodland around them.

2.3. Statutory protection

2.3.1. Trees may be protected through a Tree Preservation Order (TPO) or through being located within a Conservation Area. The law on TPOs is in Part VIII of the Town and Country Planning Act 1990 as amended and in the Town and Country Planning (Tree Preservation) (England) Regulations 2012.

2.3.2. A TPO is made by a local authority in respect of a tree(s) as the tree is considered to bring amenity value to the surrounding area. A TPO makes it an offence to cut down, uproot, lop, top, wilfully damage or wilfully destroy a protected tree without authorisation.

2.3.3. The Local Planning Authority have been contacted via email exchange to confirm the presence of any TPOs or Conservation Areas within or adjacent to the Site extents.

2.4. Spatial scope

2.4.1. The survey works focused on trees within the Site extents.

2.4.2. This AIA is targeted at the impacts on the trees. It does not cover the subsequent impacts such tree removal would have on ecological or townscape receptors which are outlined in the ES Volume 2 by these professional disciplines.

2.4.3. The TPPs (see Appendix D) illustrate the trees that have been surveyed.

2.5. Survey

2.5.1. The approach to the survey involved a ground-level walked assessment by a qualified and experienced Arboriculturist which covered the entire former Retail Park site boundary and some trees adjacent to the site boundary. The survey was undertaken in September 2022 and the site re-visited in March 2024.

[1] Tree Search - Ancient Tree Inventory (woodlandtrust.org.uk)

2.5.2. The locations of individual trees and the start and end points of groups were plotted using proprietary GIS data capture software on Trimble hand-held mobile mappers. These locations were verified using available aerial imagery and topographical survey data showing tree locations.

2.5.3. The arboricultural features were numbered sequentially from 001: individual trees recorded were prefixed with a 'T' (e.g. T001) and groups of trees with a 'G'.

2.6. Data gathering

2.6.1. Data was collected following the guidance of BS5837:2012, as outlined in Appendix A of this report. The purpose of the tree categorisation method applied by the Arboriculturist was to identity the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained if development is to occur.

2.6.2. For a tree to qualify under any given category, it should fall within the scope of that category's definition as defined in Appendix A of this report (categories U, A, B, C) and, for trees in categories A to C, it should qualify under one or more of the three subcategories (1, 2, 3). Subcategories 1, 2 and 3 are intended to reflect arboricultural and landscape qualities, and cultural values, respectively.

2.6.3. Trees were recorded as individual specimens or as groups. Where trees were not recorded as an individual specimen, the tree survey data within the schedule is based on what is a reasonable average measurement of the trees/shrubs within the group extents or it's taken from one of the largest specimens within the group.

2.6.4. This level of survey meets the requirements of BS5837:2012, which states that 'trees growing as groups or woodland should be identified and assessed as such'. The standard defines the term group as 'trees that form cohesive arboricultural features either aerodynamically (e.g., trees that provide companion shelter), visually (e.g. avenues or screens) or culturally including for biodiversity (e.g. parkland or wood pasture)'.

2.6.5. Crown spreads of the surveyed trees were given as an average measurement where the tree's crowns were balanced or where recorded as a group. If there was a notable difference in crown spread to a cardinal point, these were recorded. The average measurement was taken from the cardinal point relevant to the direction of the Proposed Development.

2.6.6. This level of survey is deemed sufficient by the Arboriculturist to establish the extent of the crown spread in the direction of the Proposed Development. All crown spread measurements should be taken from the tree survey schedules (see Appendix B). The method of measuring diameters is defined in Appendix A of this report and has been applied where access permitted.

2.7. Limitations to survey

2.7.1. Where access permitted, trees were identified and inspected from ground level only and were not climbed. No invasive examination techniques (such as increment boring, or internal decay detection) were carried out and as such no assessment of the internal condition of the wood of these trees can be given.

2.7.2. The tree survey undertaken is not intended to be a tree risk management survey targeting safety-related issues. However, where specific hazards have been identified these have been recorded and management recommendations provided. These are detailed within the tree survey schedules (see Appendix B).

2.7.3. Validity, accuracy, and findings of the tree locations will relate directly to the accuracy of the supplied topographical survey data, available aerial imagery and the GIS data capture software used by AtkinsRéalis. As such the accuracy of the tree locations is potentially open to discrepancies and their locations should be checked via measured survey prior to construction.

2.7.4. Where tree groups have been illustrated as an outline this covers the extents of the tree group. It does not always illustrate individual trees within the groups. Where individual trees were identified they were plotted separately.

2.7.5. The report does not comment on possible effects of trees on neighbouring properties, including in relation to subsidence or heave, or with regard to possible hazards presented by trees surveyed.

2.7.6. Trees are living organisms subject to changes outside human control. Trees and their environment alter with the seasons and it is as well to inspect trees whilst in full leaf and when out of leaf. Following harsh or unexpected weather conditions, or heavy storms it is also prudent to inspect trees. Changes to ground water conditions will affect the root growth of a tree. Such changes are not always the result of human influence and other factors may be involved.

3. Existing site conditions

3.1. Existing land use

3.1.1. The Proposed Development was formerly a retail park, which has since been demolished.

3.1.2. The Proposed Development currently comprises vacant brownfield land, comprised mostly of hardstanding. Existing trees line the edge of the site and patches of shrub and grass vegetation are scattered across the site. The Co-Op Academy Primary School and Cotton Field Park adjoin the site to the north.

3.1.3. The Rochdale Canal is the closest waterbody to the Proposed Development Site, located adjacent to the western site boundary.

3.2. Existing trees

3.2.1. The existing trees on the site are a mixture of species and age classifications and confined to its boundaries, within linear planters or on linear strips of soft verge.

3.2.2. The survey recorded 32 no. arboricultural features, of which none were classified Category A; 14 no. as Category B; 15 no. as Category C and 3 no. as Category U.

3.2.3. The survey recorded no trees categorised under BS criteria as being ‘Category A’, which are trees “of high quality with an estimated remaining life expectancy of at least 40 years”.

3.2.4. The trees categorised under BS criteria as being Category B’ are trees “of moderate quality with an estimated remaining life expectancy of at least 20 years”. These trees are a mixture of species including Cherry, Robinia, Alder and Lime, growing as sporadic trees and one linear informal group reference G024. These are all growing on or close to the boundaries of the site. Some of the trees have been identified for preliminary management operations, including the removal of ivy and dead wood as part of tree risk management operations.

3.2.5. Tree group G024 is a linear group of mixed broad-leaf, semi-mature to early mature trees growing within a soft surface sloped bank along the northern boundary. The trees have received no obvious recent management. As such, suckering and epicormic growths are present on several specimens. The understorey shrubs have also grown out and now form dense masses of vegetation that are competing with the tree stock for available space within the border.

3.2.6. The whole group would benefit from management intervention, see insert 3-1 below for current condition. It should be noted that the presence of the retaining wall to the north of the group will have restricted root growth in this direction. The presence of the existing hard surface to the south may also have restricted root formation in that direction.



Insert 3-1: Tree group G024

3.2.7. Trees categorised under BS criteria as being ‘Category C’ are trees “of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm”. These trees generally were young to semi-mature specimens growing sporadically on or close to the boundaries of the site. The species present include Rowan, Lime, Ash and Norway Maple. These trees form part of the previous landscaping associated with the former use of the Site as a retail space. Again, some trees have been identified for preliminary management operations, including the removal of ivy to facilitate further visual assessment of the structural condition of the trees.

3.2.8. Tree group G023 is growing along the top of the retaining wall along the northern boundary of the Site. These trees appear to all have self-sown, with Goat Willow and Buddleia prevalent.

3.2.9. Trees categorised under BS criteria as being ‘Category U’ are 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” – and recommended for removal where deemed to be posing an unacceptable to risk to adjacent people or property. Trees T013 & T029 are in poor condition and have been recommended for removal on the grounds of safety and sound arboricultural management.

3.2.10. The survey schedule provided in Appendix B provides all the information on the recorded trees and includes preliminary management recommendations in relation to tree risk management operations and the risk of harm to adjacent people or property.

3.3. Veteran trees

3.3.1. No veteran trees have been recorded by AtkinsRéalis’ as part of their survey.

3.3.2. No veteran trees have been registered on the Ancient Tree Inventory within the Site extents. Tree Search – Ancient Tree Inventory (woodlandtrust.org.uk)

3.4. Statutory protection

3.4.1. The Local Planning Authority has confirmed that there are no TPOs or Conservation Areas that may be impacted upon by the Proposed Development. The email response from Manchester City Council's planning department is contained in Appendix E of this report.

3.4.2. Trees should be checked for protected species before works are undertaken. While it is outside of the scope of this tree survey to comment on the confirmed or likely presence of protected animal species, it is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations (2010). Likewise, nesting birds are protected by the Wildlife and Countryside Act (1981) (as amended). The presence of protected animal species as been assessed in the ES Volume 2, Chapter 8: Biodiversity.

4. Arboricultural impacts

4.1. General

4.1.1. This report determines the impact of the Proposed Development on the recorded tree stock. It provides details on the recorded trees including their condition and suitability for retention.

4.1.2. The report is supplemented by the TPP (Appendix D) that illustrates the Proposed Development and the recorded trees and trees that would require removal to facilitate the works.

4.1.3. The TPP is drawing number 5198632-ATK-ARB002 (rev P01).

4.1.4. The drawing covers the outline of the Proposed Development. This means a 'worst-case scenario' is currently presented in terms of tree removals as, during further progression of the design, bespoke engineering options could be explored in consultation with the Arboriculturist to retain trees where possible.

4.1.5. A final Arboricultural Method Statement (AMS) will be developed by the Principal Contactor that shall confirm protection measures for the retained trees. Section 5 contains an Outline AMS.

4.1.6. The tree survey schedules within Appendix B of this AIA cover all the trees recorded in line with the BS5837:2012 guidance.

4.2. Root protection areas

4.2.1. The root protection area (RPA), as defined in the BS5837:2012, is the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. This area should be protected from disturbance "in order to avoid unacceptable damage to the tree as a result of severance or asphyxiation of the root system."

4.2.2. The recommended minimum area (m²) to avoid potentially harmful disturbance has been calculated and entered into the tree schedules (see Appendix B) for all trees. The RPA for each individual tree has been illustrated on the TPP as a circle centred on the tree's stem, while the RPAs of the tree groups and woodlands have been illustrated as an offset from the canopy extents, unless trees have specifically been recorded within the groups.

4.2.3. The calculation of the RPA does not consider existing site conditions that could affect the morphology of the tree roots, and 'modifications to the shape of the RPA' (para 4.6.2; BS5837:2012) can be undertaken through arboricultural assessment. However, as part of this assessment no modifications have been undertaken. Where existing highway infrastructure is located the spread of the tree roots is likely to be highly modified, especially where retaining structures are present.

4.3. Arboricultural impacts and mitigation

4.3.1. The impacts of the Proposed Development have been assessed, and Table 4.1 below reflects the tree totals for the surveyed trees that require removal to facilitate the works. This includes numbers of trees to be removed and also areas to be removed where tree groups were recorded as an outline. These reflect the impact column of the survey schedule.

Table 4-1 – Arboricultural impact table

Arboricultural Features	BS Category Reference			
	Category A	**Category B**	**Category C**	**Category U**
Individual Tree (T) (no.) or Individually referenced trees within groups (no.)	0	T005 T006 T008 T009 T011 T015 T019 T020 T022	G007-A G007-B T010 T014 T016 T017 T018 T021 T030	T012 T013
Groups (G) (m^2)	-	G024 – 997m^2	G023 – 730m^2	-

4.3.2. These trees are located directly within the footprint of the Proposed Development. Where trees are partly within the footprint of the works the Arboriculturists have used the percentage of RPA encroachment to determine whether a tree(s) could be retained, also based on existing site conditions that could have inhibited root development.

4.3.3. Where over approximately 20% of their RPAs are severed by the works the trees have been identified for removal. The 20% figure is referenced within BS5837:2012 for what is deemed potentially acceptable in terms of RPA infringement. But this is also dependant on existing site conditions, which have also been considered by the Arboriculturist. The removals have also been informed by security requirements for the future use of the site.

4.3.4. The trees identified for removal are a mix of moderate and low-quality specimens. The ages of these range from young to early-mature specimens, meaning their size and scale are not significant at present. As part of the Proposed Development extensive replanting is proposed, with the details of the mitigation planting covered within other submitted documentation.

4.3.5. In some cases, trees are shown for retention and included within proposed new planters. The ability to retain these trees would need to be confirmed as part of any detailed design process. Sections of tree protective barriers are included on the TPP and have been recommended in order to define Construction Exclusion Zones (CEZs) around the trees. The locations of these barriers and other specific mitigation measures would need to be confirmed within a final AMS.

4.4. Preliminary management recommendations

4.4.1. The tree survey schedules (see Appendix B) show management recommendations for those trees which at the time of the survey were identified as requiring management intervention. These works being in response to hazards recorded during the tree survey.

5. Outline Arboricultural Method Statement

5.1. General

5.1.1. The purpose of this Outline Arboricultural Method Statement (Outline AMS) section is to describe the tree protection measures likely to be required during the implementation of the Proposed Development in line with guidance from the British Standard BS5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'.

5.1.2. The appointed Principal Contractor will develop this Outline AMS into a final version prior to the start of construction and construction stages.

5.1.3. This section describes the tree protection measures likely to be required prior to the start of construction and construction stages. It sets out the following information:

- Requirements and information for pre-commencement briefings
- The roles and responsibilities associated with the delivery of the protection measures, control and communication.
- Mitigation measures to be recorded and implemented.
- Review and monitoring mechanisms.

5.1.4. The production of the final AMS is to be undertaken by an experienced Arboriculturist with a minimum of a level 4 qualification in arboriculture and who is a professional member of the Arboricultural Association.

5.2. Pre-commencement operations and site briefings

5.2.1. As part of the development of the final AMS all the red hatched areas and red crosses for trees to be removed as illustrated on the TPPs are to be reviewed.

5.2.2. If any trees previously identified for retention are required to be removed to facilitate the construction of the Proposed Development, then this information shall form part of the consultation process with the relevant stakeholders. The appointed Principal Contractor would need to ensure that such changes do not give rise to any materially new or materially different environmental effects in comparison with those reported in this AIA.

5.3. Work package plans and task briefing sheets

5.3.1. The requirements for tree protection measures shall be included within Work Package Plans (WPPs) and Task Briefing Sheets (TBSs) produced by the appointed Principal Contractor as part of the planning of construction activities. All pre-commencement briefings shall make sure all members of staff working or visiting the area of site being worked upon are aware of the individual responsibilities regarding trees and the tree protection measures required to be in place to continue construction.

5.3.2. The pre-commencement site briefings shall be attended by the construction manager or suitable delegate. They shall raise awareness with the relevant parties of the trees within the working extents

and confirm the requirements for tree related information to be included within induction material and daily briefings to members of staff working or visiting that area of the Proposed Development.

5.3.3. The briefings shall confirm the following:

- The location of tree protective barriers
- Tree works to facilitate that phase of the Proposed Development
- Site specific mitigation measures
- Where/when arboricultural supervision will be required

5.4. Contact details

5.4.1. Overseeing management of the Proposed Development will be directed by the Client. The Client may delegate some site supervision roles and procure specialist consultants to supervise, monitor or check the appointed Principal Contractors procedures for sensitive activities where required.

5.4.2. The final AMS that will be produced by the appointed Principal Contractor shall confirm key roles and site contacts. The contacts list should include an Arboriculturist to support the construction phase of the Proposed Development.

5.5. Site supervision

5.5.1. The supervisory role shall be performed by a suitably qualified Arboriculturist. The frequency of these visits should align with key milestones identified in Table 5-1 below and shall be undertaken as required during the progression of the Proposed Development to enable an auditable succession of monitoring events for a review of the protection measures implemented for the trees.

Table 5-1 – Programme of site supervision

Programme	Arboriculturist or delegate	Supervision
Pre-commencement site meeting	Arboriculturist	a) Confirm location and specification of tree protective barriers b) Confirm tree works to be undertaken c) Confirm requirements for tree protection information to be included in induction details for the site d) Confirm requirements for reporting any tree related incidents e) Confirm ongoing arboricultural monitoring and contact details.
Setting out of protective barriers	Arboriculturist	a) Review location and specification of tree protective barriers b) Confirm any additional tree protection measure requirements c) Submit site monitoring pro forma to the Client

Programme	Arboriculturist or delegate	Supervision
During construction at appropriate stages.	Arboriculturist	a) Review location and specification of tree protective barriers b) Assess condition of retained trees, specifically for any construction related damage c) Confirm any additional tree protection measure requirements d) Submit site monitoring pro forma to the Client.
Post-construction	Arboriculturist	a) Inspect all retained trees to make sure they have not been damaged during the construction operations b) To instruct any remedial works that may be required should a tree defect be identified as a result of the construction operations.

5.5.2. On completion of each site visit a report or site note should be completed by the arboricultural specialist.

5.5.3. Where emergency matters arise regarding trees, e.g. unexpected access required within construction exclusion zones or damage to retained trees, then an Arboriculturist is to co-ordinate a visit to the site in person or delegate their powers to a suitably qualified person.

5.5.4. Any variations or incidents related to trees shall be reported in writing to the Client. Details of the variation(s) or incident(s) shall incorporate photographic evidence and site note(s) as appropriate. Suitable remedial measures, including potentially the provision of new planting where deemed appropriate.

5.6. Tree Protection Plan (TPP)

5.6.1. The Tree Protection Plan (TPP) (Appendix D) includes the locations of protection fencing likely to be required during the construction stage. Confirmation on the positioning would need to be confirmed by the appointed Principal Contractor as part of the final AMS.

5.6.2. The protected areas once installed shall not be moved or altered without approval by the Arboriculturist and, where necessary following consultation with the local planning authority.

5.7. Construction Exclusion Zone (CEZ)

5.7.1. The CEZs can be defined as all the soft surfaces within the RPAs of retained trees outside of the works areas and the areas behind the tree protection fencing or site hoarding.

5.7.2. Site operations not permitted in the CEZs without consultation with an Arboriculturist include storage of plant, equipment or materials, vehicular or plant access, washing down of vehicles or machinery, handling, discharge or spillage of any substances, including cement washings, and actions likely to cause localised waterlogging. No mechanical digging, scraping or excavation shall be permitted in the CEZs, nor earthworks or changes in the finished ground levels other than those agreed by an Arboriculturist.

5.8. Hand excavations within RPAs

5.8.1. Hand excavations within the RPAs of trees shall be specified as a last resort and following a review of the works in the location to make certain there are no other design solutions to avoid the RPA of retained trees.

5.8.2. Where hand excavations are specified, then this would broadly adhere to the following:

a. The area to receive excavations is to be clearly marked out on site and agreed with the Arboriculturist.
b. Hand tools are to be used, with all spoil to be positioned outside of the RPA of the tree.
c. Small plant maybe permitted in consultation with the Arboriculturist, or the use of a vacuum excavator positioned outside of the RPA of the trees to be retained.
d. The use of an air-spade rig to loosen the sub-base material can be instructed by supervising Arboriculturist if required to loosen clay based material or similar.
e. Once excavated if tree roots are located these are to be moved if sufficiently pliable or pruned only as a last resort on the advice of the Arboriculturist.
f. Tree roots to be retained where feasible through packing around with sharp sand.

5.9. No-dig construction

5.9.1. Where no-dig construction is specified this is due to works having to be undertaken within the RPAs of trees, and to limit their impact on the underlying tree roots. The exact locations for this approach would need to be confirmed within the AMS and prior to construction.

5.9.2. A no-dig construction approach uses a product such as Cellweb TRP® as supplied by Geosynthetics Limited (http://www.geosyn.co.uk). This cellular confinement system will laterally confine the sub-base material into three-dimensional interconnected honeycomb cells, reducing compaction and maintaining the soil bulk density at levels suitable for tree root growth. It also prevents direct tree root severance by building on top of existing ground levels. The product can be laid in multiple sections to account for level changes.

5.9.3. Where no-dig construction is specified, then this would broadly adhere to the following:

a. The area to receive the no-dig approach is to be clearly marked out on site and agreed with the Arboriculturist.
b. The existing turf layer within the works area is to be treated with a glyphosate-based herbicide as per the manufacturer's guidelines or removed using a turf cutter. This is to prevent any scraping of the turf layer and potential damage to underlying tree roots.
c. Where no turf layer is present then any hard surfacing would need to be broken up and removed using hand-tools.
d. The Cellweb product is then to be laid as per the manufacturer's guidelines, and the cells are to be filled with clean angular stone of sufficient type to maintain porosity; the surface course is to be a permeable tarmac.

5.9.4. Contractors should refer to The Arboricultural Association's *Guidance Note 12: The Use of Cellular Confinement Systems near Trees*, published in September 2020.

5.10. Root pruning

5.10.1. Where tree roots have to, as a last resort, be severed, the pruning points would need to be agreed with the supervision Arboriculturist and pruning undertaken using a sharp pair of secateurs or a hand saw, or if pliable moved out of the construction profile and re-covered within topsoil.

5.11. In situ concrete

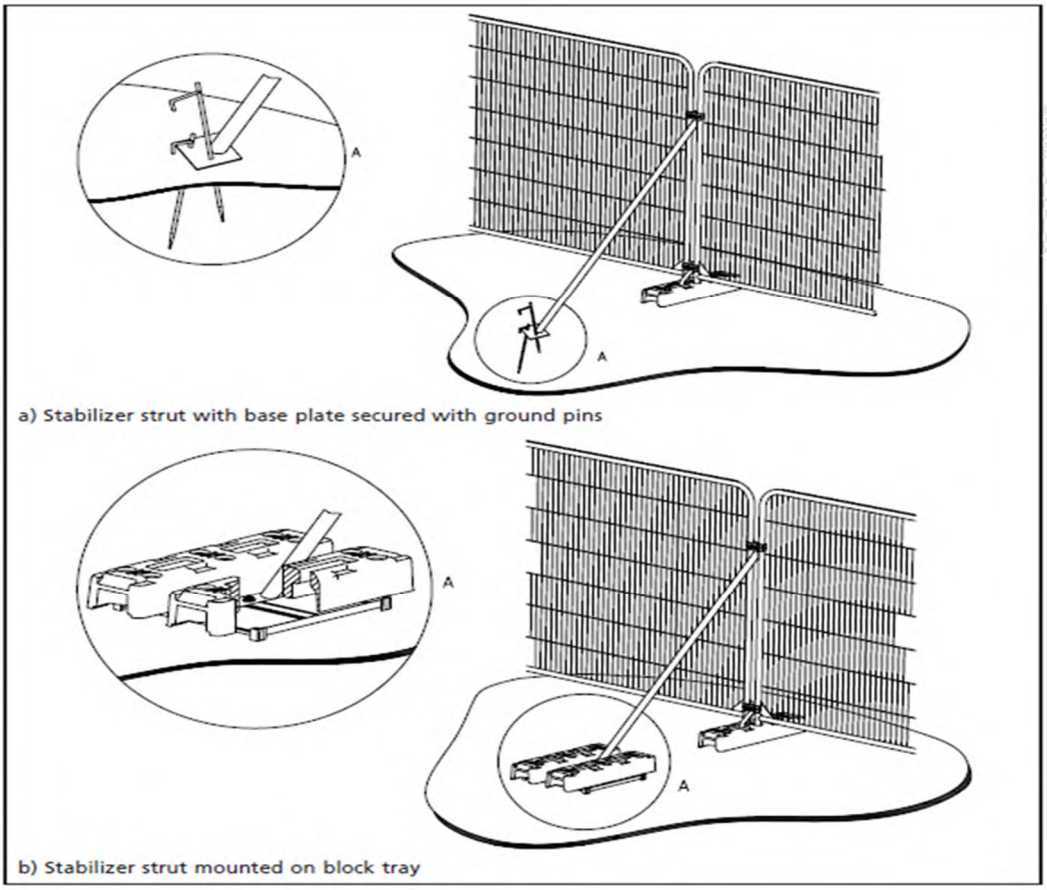
5.11.1. It should be noted that due to the highly alkaline and toxic leachate produced during the curing of wet concrete, concrete should not be poured within trees' RPAs unless an impermeable liner has been installed to contain the concrete (for example, where new fence posts or kerbs are to be installed).

5.12. Tree protective barriers

5.12.1. The locations of any protective fencing would need to be agreed prior to construction. The fencing is to be erected before the commencement of works and kept in place throughout the duration of the works.

5.12.2. The protective barriers are to comprise 2m tall welded mesh panels on rubber or concrete feet. The panels are to be joined together using a minimum of two anti-tamper couplers, installed so they can only be removed from inside the fence. The distance between the fence couplers is to be at least 1m and is to be uniform throughout the fence; the panels are to be supported by inner side stabiliser struts attached to a base plate secured on a block tray. See Figure 5-1 below.

Figure 5-1 - Tree protection fencing



5.12.3. The protected areas shall be seen as sacrosanct and once installed shall not be moved or altered without recommendation by an Arboriculturist.

5.13. Ground protection matting

5.13.1. The locations for ground protection matting have not been illustrated on the TPP, as it is not currently known where these would be required. Their locations would need to be agreed prior to the commencement of construction in coordination with a contractor.

5.13.2. Where ground protection matting is specified to protect tree roots and to minimise ground compaction within RPAs, then an example of a proprietary matting product is Ground-Guards (http://www.ground-guards.co.uk/solutions/tree-root-protection/). A double layer of Ground-Guards panels with a 150mm layer of wood chips sandwiched in-between will create a suitably cushioned base to facilitate access within RPAs where absolutely necessary.

5.14. Compound areas

5.14.1. The locations of site accommodation, temporary buildings and areas used for storage of materials are to be located outside of the CEZ of retained trees as defined within the TPP.

5.15. Tree works

5.15.1. All tree works are to be undertaken in line with current recommendations in accordance with BS3998:2010 Tree Work – Recommendations and comply with the current Arboriculture and Forestry Advisory Group (AFAG) or applicable Forestry Industry Safety Accord (FISA) advice published by the Health and Safety Executive (HSE) or FISA.

5.15.2. Tree works are to be planned to ensure protection of people, property and wildlife.

5.15.3. The trees to be removed or worked upon for facilitation, such as pruning, shall be clearly marked by the supervising Arboriculturist prior to any tree works commencing on site. The method of removal shall be informed by the site and ecological constraints.

5.15.4. The tree works contractor shall provide access routes for approval by the main contractor. These shall take into account the retention of trees and following existing access tracks or hard surfaces to try and reduce tree removals. The tree works contractor will have to submit a risk assessment and method statement for review by the Appointed Principal Contractor or Arboriculturist prior to commencing works on Site.

Appendix A. Key & British Standard 5837:2012 Survey Table

A.1. Survey key

Tree No: Sequential reference number given to the tree or group of trees as shown on the tree survey drawings.

Species: This is the common name given to the tree.

Height (Ht.): tree height from the base of the tree to its full stem height, measured in metres (m). Measurements are taken to the nearest half metre.

Stem diameter (mm): measured in accordance with Figure A2 below. Measurements are rounded to the nearest 10mm in some cases.

Branch spread (m): measurement of crown spread to the four cardinal points; if the crown is balanced a single measurement is given. Crown spread plotted on the tree survey drawings. Measurements are taken to the nearest half metre.

1st significant branch and direction of growth (m): measurement of the height of the first significant branch above ground level, given in metres and direction of growth e. g. 2. 4-N

Canopy height (m): height of the canopy above ground level. Measurements are taken to the nearest half metre.

Life stage: The following abbreviations are used:

Y = Young trees <1/5 life expectancy.

SM = Semi-Mature trees 1/5 – 2/5 life expectancy.

EM = Early Mature trees 2/5 – 3/5 life expectancy.

M = Mature trees 3/5 – 4/5 life expectancy

OM= Over-Mature trees >4/5 life expectancy

VET = veteran tree

Vitality: Good, fair, poor or dead

Good – a tree with little or no obvious physiological defects; leaf density and colour are typical for the species, bud, flower and fruit production are good and there are no signs of dieback at any point throughout the crown.

Fair – a tree with moderate physiological defects; leaf density is less than typical for the species, leaf cover is chlorotic, bud, flower or fruit production are deficient, there are signs of minor dieback within the crown, there is a moderate degree of deadwood within the crown.

Poor – a tree with major or multiple physiological defects; evidence of extensive crown thinning, bud, flower or fruit production is poor or missing, there are signs of advanced dieback throughout the crown, there is extensive or major deadwood throughout the crown.

Dead – a tree that has died due to either old age, drought, disease, pest infestation, physical damage to the main stem or rooting system, or a combination of these factors.

General observations, particularly of structural and/or physiological condition: e. g. observations of any decay and physical defect.

Preliminary management recommendations: any identified preliminary management to rectify defects recorded in general observations. These may include the need for further detailed inspection, or works to address immediate hazard to life or property.

Estimated remaining contribution, in years:

<10

10+

20+

40+

Category grading: As per BS 5837:2012 chart in accordance with Figure A3 below.

A – Illustrated as light green (RGB code 000-255-000)

B – Illustrated as mid blue (RGB code 000-000-255)

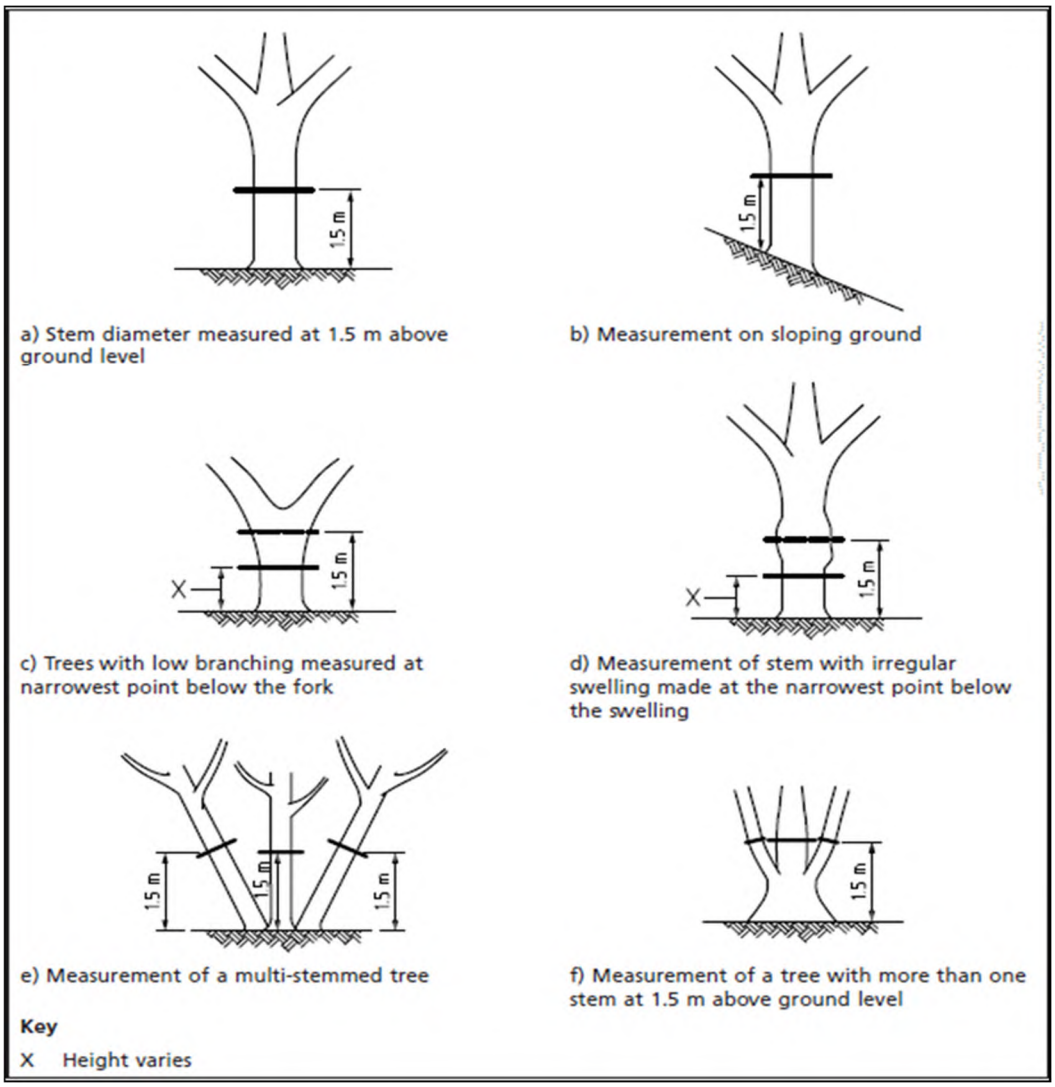
C – Illustrated as grey (RGB code 091-091-091)

U – Illustrated as dark red (RGB code 127-000-000)

Root Protection Area (m): plotted around each of the trees on relevant drawings, illustrating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability. The protection of the roots and soil structure is treated as of paramount importance.

A.2. Measuring table

Measurement of tree stems dependant on tree form.



A.3. BS 5837:2012 cascade chart from tree quality assessment

Table 1 **Cascade chart for tree quality assessment**

Category and 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 (e.g. 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.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
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 those that are essential components of groups or 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)	See Table 2
Category B **Trees 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	See Table 2
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 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 collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

Appendix B. Tree survey schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)
G001	Rowan	4	to 180	1.5	1.5	1.5	1.5	1.5	2	SM	Fair	5no trees in 2200mm wide brick planter, shrubs at base; crown vitality fair only; variably ivy-clad, but not established in crowns; basal growth	No requirement for works identified at time of survey	10+	C2	2.2
T002	Rowan	4	250 #	2.0	2	2	2	1.5	2	SM	Good	Marginally superior version of G001; stem densely ivy-clad to top of tree; exuberant basal growth; lighting column hard by to north	Remove ivy to enable fuller assessment and to improve future growth prospects	10+	C2	3.0
T003	Rowan	5	250 #	1.5	1.5	1.5	0.5	1.5	2	SM	Fair	Stem densely ivy-clad to top of tree; crown to west suppressed by neighbouring cherry	Remove ivy to enable fuller assessment and to improve future growth prospects	10+	C2	3.0
G004-A	Cherry	8	300 #	6.0	6	6	1.5	2	1	EM	Good	Pair of trees 2m apart in 5m wide brick planter; densely ivy-clad, limiting assessment; mutual crown suppression	Remove ivy to enable fuller assessment and to improve future growth prospects	20+	B2	3.6
G004-B	Cherry	8	300 #	6.0	1.5	6	6	2	1	EM	Good	As G004-A	Remove ivy to enable fuller assessment and to improve future growth prospects	20+	B2	3.6
T005	Cherry	8	300 #	6.0	6	6	6	2	1	EM	Good	In brick planter, stem ivy-clad into middle crown; lateral branch to west extending towards lighting column	Remove ivy to enable fuller assessment and to improve future growth prospects	20+	B2	3.6
T006	Robinia	11	350 #	5.0	5	5	5.5	2.5	2	EM	Good to fair	Densely ivy-clad to upper crown; growth to east slightly suppressed; occasional deadwood to 50mm diameter, mainly to west	Remove larger deadwood if adjacent to proposed works; remove ivy to enable fuller assessment and to improve future growth prospects	20+	B2	4.2
G007	Rowan	4	200 #	1.5	1.5	1.5	1.5	1	1	SM	Fair	Pair of trees 4m apart in location where planter narrows; overwhelmed by ivy - limited visible crown suggests western tree has marginally superior vitality	Remove ivy to enable fuller assessment and to improve future growth prospects	10+	C2	2.4
T008	Norway maple	12	400 #	6.0	6	6	6	2	1.5	EM	Good	In larger brick planter; rounded crown, good form; stem ivy-clad - diameter estimated	Remove ivy to prevent colonisation of crown	20+	B2	4.8
T009	Laburnum	5	280 #	3.0	3	3	3	1	1.5	EM	Good	Compact tree with rounded crown, in shrubbery within planter - no view of stem; many stems rising above shrubs - possible multistem?	No requirement for works identified at time of survey	20+	B2	3.4
T010	Lime	6	290	3.0	3	3	3	2	1.5	SM	Good	Single tree on car park island, surrounded by concrete setts; small-leaved lime or a cultivar; 1800mm steel tree guard surrounding tree - basal growth occluding around this; stem nearly but not quite occluding around it	Remove steel tree guard	10+	C2	3.5

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)
T011	Cherry	9	400	6.0	6	6	6	2	1	EM	Good	Largest and dominant tree among small group in brick planter, among shrubs; no ivy among this group	No requirement for works identified at time of survey	20+	B2	4.8
T012	Rowan	4.5	200	2.5	2.5	2.5	2.5	1.5	1.5	SM	Poor	Approximately 60% live crown growth	Consider removal due to limited life prospects	<10	C2 / U	2.4
T013	Robinia	7	280	2.0	2	2	2	2	2	SM	Dying	Almost dead tree - minimal live crown growth	Remove due to limited life prospects	<10	U	3.4
T014	Norway maple	7	200	3.0	3	3	3	2	2	SM	Good	Smaller version of T015; crown-lifted, good form	No requirement for works identified at time of survey	20+	C2	2.4
T015	Norway maple	9	300	5.0	5	5	5	2	1.5	EM	Good	Fair specimen with uncompromised form; co-dominant union at first fork appears sound; former crown-lifting	No requirement for works identified at time of survey	20+	B2	3.6
T016	Ash	9	150	2.5	1.5	3.5	2.5	2	2	SM	Good	Crown growth suppressed by neighbours	No requirement for works identified at time of survey	10+	C2	1.8
T017	Rowan	6	180	2.0	3	3.5	3	1.5	1.5	SM	Good	Crown-lifted, lighting column 1m to north-west; stake tie embedded at crown break	No requirement for works identified at time of survey	10+	C2	2.2
T018	Ash	9	230	4.0	2	3	5.5	2	1.5	SM	Fair	Crown sparse, suppressed to east; widespread foliage consumption by insects; infrequent fine deadwood	No requirement for works identified at time of survey	10+	C2	2.8
T019	Robinia	10	450	6.0	7	7	8	1.5	1	EM	Good	Tree in planter, mostly overwhelmed by ivy; lateral branches extending to south and west; vitality of visible crown appears good, despite occasional small diameter deadwood	Remove larger deadwood if adjacent to proposed works Ivy for fuller assessment	20+	B2	5.4
T020	Cherry	8	360	5.0	6.5	4	6.5	2	1.5	EM	Good	Dominant of pair, though tapering rapidly to top of tree	No requirement for works identified at time of survey	20+	B2	4.3
T021	Ash	12	240	3.0	4.5	5	6	2	1.5	EM	Good	Slight stem lean and crown growth away from T020	No requirement for works identified at time of survey	10+	C2	2.9
T022	Common alder	11	380	5.0	5	5	5	3	2	EM	Good	In small bed at corner of site; crown-lifted, with upright form	No requirement for works identified at time of survey	20+	B2	4.6
G023	Shrubby tree group	5	150	3.0	3	3	3	1	1	SM-EM	Good	Third-party shrubby trees overhanging site, on narrow strip behind top of retaining wall; goat willow, buddleia, infrequent birch; more intermittent at east end; dimensions shown are indicative	No requirement for works identified at time of survey	10+	C2	1.8

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)
G024	Mixed broadleaf group	10	300	4.0	4	4	4	1	1	SM-EM	Good	Broadleaf trees growing on banked bed in front of retaining wall, along site boundary; lime and field maple most frequent; also hawthorn, cherry, infrequent lower-vitality ash; dense shrubs at base; ivy growing up most trees, and occasionally dense within crowns; some trees coppiced, e.g. around security installations; 4-5m spacing typical between trees, but occasional gaps, and more intermittent at west end; dimensions shown are indicative	Removal of ivy recommended to improve future growth prospects	20+	B2	3.6
G025	Lime	8 ave.	250 ave.	3.0	3	3	3	2	0.5	SM	Good	8no trees in bed behind retaining wall; 4-5m typical spacing; crown-lifted; uniform shape; basal growth; light ivy encroachment	No requirement for works identified at time of survey	20+	B2	3.0
G026	Ash	8	to 280	3.5	3.5	3.5	3.5	2	2	Y-EM	Good to fair	4no trees amid shrubs in bed behind retaining wall; 4m average spacing; reasonable crown vitality; occasional small diameter deadwood; light mutual crown suppression; occasional bark-included unions	No requirement for works identified at time of survey	10+	C2	3.4
G027	Mixed broadleaf group	8	250	3.5	3.5	3.5	3.5	2	1.5	SM	Good	Informal group in wider plant bed; robinia, field maple, ash, the latter skinny, etiolated specimens at centre of group; mutual crown suppression; individual Norway maple recorded separately as dominant, superior specimen within group; dimensions shown are indicative	No requirement for works identified at time of survey	10+	C2	3.0
G027-A	Norway maple	8	300	4.5	4.5	4.5	4.5	2.5	1.5	EM	Good	Prominent tree at front of corner plot when viewed from road; frequent bark-included unions, notably at first fork	No requirement for works identified at time of survey	20+	B2	3.6
T028	Ash	10	250	2.5	2.5	2.5	2.5	2	2	SM	Good to fair	Upright form, occasional minor crown dieback	No requirement for works identified at time of survey	10+	C2	3.0
T029	Cherry	6	200 at 1m	2.0	2	2	2	1.5	1.5	SM	Dead	Dead tree among unmanaged shrubbery	Remove tree	<10	U	2.4
T030	Robinia	4	90	1.5	1.5	1.5	1.5	1	1.5	Y	Fair	Slight tree, base of stem growing hard against brick planter edge; Clematis vitalba growing into crown	No requirement for works identified at time of survey	10+	C2	1.1
T031	Common Oak	8.5	260	3.5	3.5	3.5	4	2-W	1.8	Y	Good	Crown previously lifted the to south. Unocluded wounds present. Broad crown.	No works presently required	40+	B2	3.1
T032	Goat Willow	6	150;200	4.0	4	4	4	N/A	1.5	EM	Good	Base not accessible. Measurements estimated. Multi stem form. Suggesting past felling and regeneration. Existing hard surface access road to south.	No works presently required	10+	C2	3.0
T033	Common Oak	3.5	100	1.5	1.5	1.5	1.5	N/A	1	Y	Dead	Standing dead tree. No live crown present.	Fell on the grounds of safety and sound arboricultural management	<10	U	1.2

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)
T034	Common Oak	11	280	5.0	5	5	5	4-S	4	SM	Good	Growing in maintained grass area. Hard surface access road to south. No obvious surface root activity visible. Crown previously lifted.	No works presently required	20+	B2	3.4
T035	Common Oak	12	300	2.0	4	4	4	3.5-S	3.5	SM	Good	1.2m from road. Crown suppression to north. Growing adjacent to hard surface access, no obvious direct damage recorded from surface root activity.	No works presently required	20+	B2	3.6
T036	Crack Willow	18	800	8.0	8	8	8	2.5-SE	4	M	Good	Balanced crown. Surface root activity visible. Scalped in places by mower activity. Crown previously lifted. Hunt up broken branch in middle crown	Remove hunt up branch	20+	B2	9.6
T037	Common Oak	8	260	4.0	4	4	4	2-SE	3.5	SM	Good	1.2m from road. Growing in maintained grass area. Hard surface access road to south. No obvious surface root activity visible. Crown previously lifted.	No works presently required	20+	B2	3.1
T038	Common Oak	10	260	4.0	4	4	4	2.5-SE	3	SM	Good	1.2m from road. Growing in maintained grass area. Hard surface access road to south. No obvious surface root activity visible. Crown previously lifted.	No works presently required	20+	B2	3.1
T039	Common Oak	12	300	6.0	6	6	6	N/A	3	SM	Good	1.2m from road. Growing in maintained grass area. Hard surface access road to south. No obvious surface root activity visible. Crown previously lifted.	No works presently required	20+	B2	3.6
T040	Common Oak	12	270	5.0	5	5	5	3-E	3.5	SM	Good	1.5m from road. Growing in maintained grass area. Hard surface access road to south. No obvious surface root activity visible. Crown previously lifted.	No works presently required	20+	B2	3.2
T041	Goat Willow	8	300;180;150;180;150	5.0	5	5	5	1.8-SE	2	EM	Good	Multi stem from approximately 1m. Suggesting past coppard. Crown lifted. Cavity at centre of multi stem union. Exposed surface roots to south and east.	No works presently required	10+	C2	5.4
T042	Scots Pine	14	350	3.5	3.5	3.5	3.5	N/A	6	EM	Good	Slight lean to east. Ground slightly raises at base. Potential heave.	Monitor	10+	C2	4.2
T043	Scots Pine	14	240	3.0	3	3	3	6-N	6	EM	Good	Growing in planted pit bound by stone circle. Lose gravel mulch layer. Drawn form. Mutual crown suppression.	No works presently required	20+	B2	2.9
T044	Scots Pine	14	330	3.0	3	3	3	N/A	6	EM	Good	Growing in planted pit bound by stone circle. Lose gravel mulch layer. Drawn form. Mutual crown suppression.	No works presently required	20+	B2	4.0

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)
T045	Scots Pine	14	320	3.0	3	3	3	N/A	6	EM	Good	Growing in planted pit bound by stone circle. Lose gravel mulch layer. Drawn form. Mutual crown suppression.	No works presently required	20+	B2	3.8
T046	Whitebeam	4.5	90;60	1.5	1.5	1.5	1.5	N/A	1.8	Y	Fair	Two stems from. Ground level. Central stem felled. Mutual crown suppression. Pockets of decay at old branch wounds	No works presently required	<10	U	1.7
T047	Whitebeam	4	110;100	3.0	3	3	3	N/A	1.8	SM	Good	Growing in planted pit bound by stone circle. Surface roots visible. Co dominant stems. Crossing and rubbing branches	No works presently required	10+	C2	1.8
T048	Goat Willow	10	200;200;200;200;100	5.0	5	5	5	N/A	3.5	M	Good	Growing in slight.depression. multi stem form. Occasional branch tear.	No works presently required	10+	C2	4.9
T049	Scots Pine	3	90	2.0	2	2	2	N/A	1.5	Y	Good	Toe of bank. Slight crown supp	No works presently required	10+	C2	1.1
T050	Goat Willow	6	230	3.0	3	3	3	N/A	1.5	SM	Fair	Growing at toe of bank. Line of trees.	No works presently required	10+	C2	2.8
T051	Goat Willow	6	180;180	3.0	3	3	3	N/A	1.5	SM	Fair	Co dominant stems. To get union. Crown lifted	No works presently required	10+	C2	3.1
T052	Goat Willow	6	150;150;150	3.0	3	3	3	N/A	1.5	SM	Fair	Fused stems at 1.5	Coppice	10+	C2	3.1

Appendix C. Glossary of terms

Term	Description
Access Facilitation Pruning	One-off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
Adaptive Growth	The process whereby wood formation is influenced both in quantity and in quality by the action of gravitational force and mechanical stresses on the cambial zone
Amenity Value	The environmental and landscape benefits of trees as opposed to their commercial value for timber
Ancient Woodland	Sites which have been wooded since at least 1600, as defined by English Nature and recognised as being of high nature conservation value, whether managed or not. They may be semi-natural or replanted.
Arboricultural Method Statement	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
Arboriculture	The study and care of trees and other woody vegetation
Arboriculturist	A person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.
Cavity	An open wound, characterised by the presence of decay and resulting in a hollow
Co-dominant stems	Where a tree's main stem splits into two leaders, can also be called twin-stemmed.
Competent person	A person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.
Construction	Site-based operations with the potential to affect existing trees.
Construction Exclusion Zone	The area based on the root protection area to which access is prohibited for the duration of a project.
Coppice	A traditional method of woodland management in which young tree stems are repeatedly cut down to near ground level. In subsequent growth years, many new shoots will emerge, and, after a number of years the coppiced tree, or stool, is ready to be harvested, and the cycle begins again
Crown clearance	This is the removal of all dead, dying and diseased branches; in addition branches that are cleared away from a specific hazard e. g. live railway line.
Crown lifting	The removal of lower branches to provide a desired amount of clearance above ground level. This can be achieved either by the complete removal of a branch or only parts of which extend below the desired height
Crown reduction	The overall reduction of both the height and spread of the crown.
Decay	Process of degradation of woody tissues by fungi and bacteria through decomposition of cellulose and lignin.
Deadwood	Deadwood is often present within the crown or on the stems of trees. In some instances it may be an indication of ill health; however, it may also indicate natural growth processes. If a target is present beneath the tree, and falling deadwood may cause injury or damage it

	should be removed; if no target is present the deadwood may be retained intact for conservation purposes (insects, fungi, birds etc.).
Epicormic growth	A secondary growth from dormant adventitious buds on the stem or main branches.
Failure	In connection with tree hazards, a partial or total fracture within woody tissue or loss of cohesion between roots and soil.
Hazard beam	A branch that has over-extended in which strong internal stresses may occur without the compensatory formation of extra wood (longitudinal splitting may occur in some cases).
Hung-up limb	Dead or fallen branch from within the crown or from another tree's crown that has failed and been caught up by, and resting on, branches of a tree
Included Bark Junction	Pattern of development at branch junctions where bark is turned inward rather than pushed out. Potential weakness due to a lack of a woody union.
Ivy Growth	Ivy growth may ascend into the tree's crown, increasing wind resistance, concealing potential defects and reducing the tree's photosynthetic capacity. Ivy growth is often acceptable in woodland areas as a conservation benefit.
Monolith	A large bulk of standing dead wood. Usually the trunk of the tree or the trunk with the base of the branch frame work. These should be retained for wildlife habitat when the risk is appropriate for the location.
Pollarding	This involves the removal of whole branches to leave only the main trunk. In species such as willows and poplars such significant pruning is acceptable with new branches developing from the pollard heads. Secondary pruning of the new wood can help form a new canopy to the tree several years after the initial pollard
Reaction Wood	Specialised secondary xylem, which develops in response to a lean or similar mechanical stress, attempting to restore the stem to the vertical.
Root Protection Area (RPA)	The layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Service	Any above or below ground structure or apparatus required for utility provision.
Stem	The principal above-ground structural component(s) of a tree that supports its branches.
Structure	A manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork.
Structural Defect	Internal or external points of weakness, which reduce the stability of the tree
Sub-dominant stem	A branch within the crown that is not the dominant leader
Suppressed	Trees which are dominated by surrounding vegetation and whose crown development is restricted from above.
TPO	A Tree Preservation Order is an order made by a Local Planning Authority which in general makes it an offence to cut down, lop, top, uproot, wilfully damage or wilfully destroy a tree without first getting permission. Tree Preservation Orders are usually made to protect trees that make a significant contribution to the amenity of an area. They may particularly be made when it is felt that a tree may be under threat.
Tree Constraints Plan	Abbreviated to TCP. Plans showing specific tree constraints including Root Protection Areas and Crown spread.

Tree Protection Plan	Abbreviated to TPP. Scaled drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.
Visual Tree Assessment	A non-invasive method of examining the health and structural condition of trees. Developed by Claus Mattheck and David Breloer 1994
Wound	Any injury, which induces a compartmentalisation response
Wound Wood	Wood with atypical anatomical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound as opposed to the ambiguous term “callus. ”

Appendix D. Tree Protection Plan

Millimetres 0 10 100

T022 G023* G024* T031 T032 T033 G023* T034 T035 T036 T050 T048 T051 T043 T052 T044 T049 T045 T047 T046 T042 T041 T040 T037 T038 T039 G023* G024* T020 T021 T019 T010* T011* T012* T030* T013* T014* T018* T017* T016* T015* T008* T009* G007-B* G007-A* T006* T005* T003 T002 G001 G004-B G004-A G025

NORTH BUILDING
PROPOSED BUILDING FFL 50500
REFER TO ARCHITECTS DRAWINGS FOR PROPOSAL DETAILS

SOUTH BUILDING
REFER TO ARCHITECTURAL LAYOUTS FOR DETAIL AND FFL

Scheme proposals

PLAN 1

Scale 1:500
10m 0m 10m 20m 30m

1 2

KEY PLAN

Scale 1:2500
50m 0m 50m 100m 150m

T029 T028 G027 G027-A G026 G025 G025

PLAN 2

Scale 1:500
10m 0m 10m 20m 30m

DO NOT SCALE

KEY

- EIA Site boundary
- Category A tree
- Category B tree
- Category C tree
- Category U tree
- Tree group (colour to BS category)
- Hedge (colour to BS category)
- Root Protection Area (RPA) of retained trees
- T/G001 Tree / Group ref. number
- Tree removal to facilitate works
- Tree group / hedge removal to facilitate works
- Protective fencing (indicative)

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

CONSTRUCTION
Refer to designer's risk assessment

MAINTENANCE/CLEANING
Refer to designer's risk assessment

DECOMMISSIONING/DEMOLITION
Refer to designer's risk assessment

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

Rev.	Date	Description	By	Chk'd	App'd
P02	30/10/24	Scheme update	NA	TD	JH

Drawing Status: For Information
Suitability: S2

Two Chamberlain Square
Birmingham
B3 3AX
Tel: +44 (0)121 483 5000
Fax: +44 (0)121 483 5252
www.atkinsrealis.com
© AtkinsRealis (2024)

Client: GOVERNMENT PROPERTY AGENCY

Project Title: FORMER CENTRAL RETAIL PARK

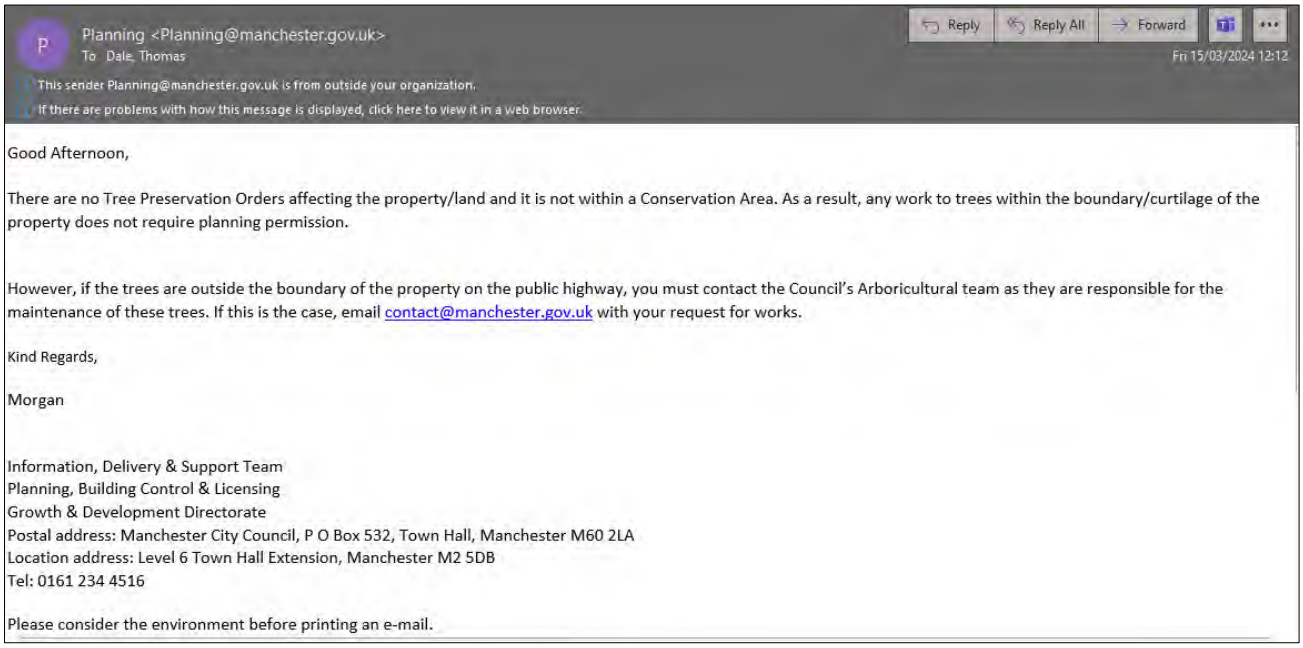
Drawing Title: TREE PROTECTION PLAN

Scale	Designed	Drawn	Checked	Authorised
1:500	-	NA	TD	JH
Original Size: A1	Date: -	Date: 30/10/2024	Date: 30/10/2024	Date: 30/10/2024

Drawing Number: 5198632-ATK-ARB002
Revision: P02

Atkins Project Number: 5198632

Appendix E. Planning TPO/CA email



Planning <Planning@manchester.gov.uk>
To Dale, Thomas

Reply | Reply All | Forward

Fri 15/03/2024 12:12

This sender Planning@manchester.gov.uk is from outside your organization.

If there are problems with how this message is displayed, click here to view it in a web browser.

Good Afternoon,

There are no Tree Preservation Orders affecting the property/land and it is not within a Conservation Area. As a result, any work to trees within the boundary/curtilage of the property does not require planning permission.

However, if the trees are outside the boundary of the property on the public highway, you must contact the Council's Arboricultural team as they are responsible for the maintenance of these trees. If this is the case, email contact@manchester.gov.uk with your request for works.

Kind Regards,

Morgan

Information, Delivery & Support Team
Planning, Building Control & Licensing
Growth & Development Directorate
Postal address: Manchester City Council, P O Box 532, Town Hall, Manchester M60 2LA
Location address: Level 6 Town Hall Extension, Manchester M2 5DB
Tel: 0161 234 4516

Please consider the environment before printing an e-mail.

AtkinsRéalis

AtkinsRéalis Manchester
3 Piccadilly Place,
M1 3BN,
Manchester,
United Kingdom

T: +44 1612 453400

www.atkinsrealis.com