

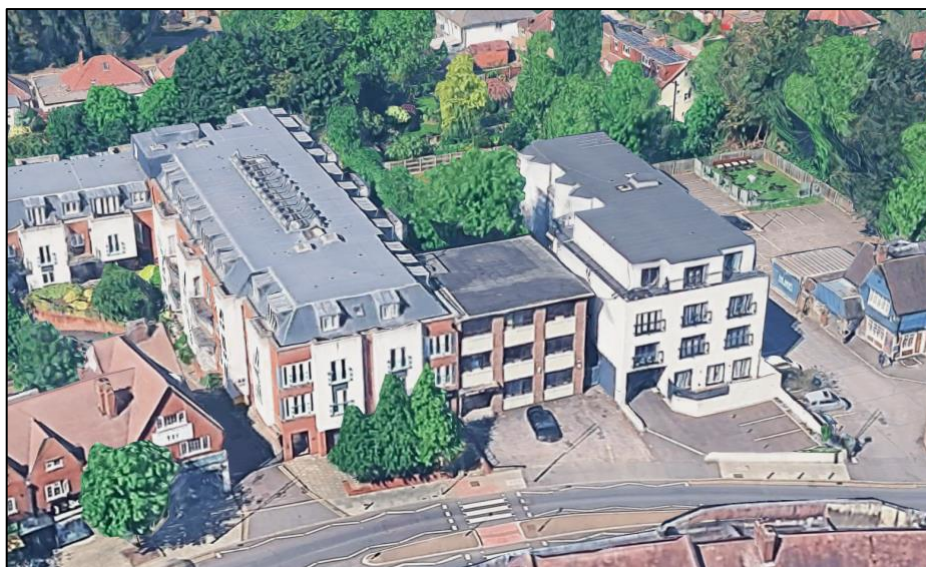


Holt Arboriculture

TREE CONSULTANCY

ARBORICULTURAL IMPACT ASSESSMENT AND METHOD STATEMENT TO ACCOMPANY A PLANNING APPLICATION

Conex House
148 Field End Rd
Ruislip
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1 Introduction

1.1 Brief and Context

- 1.1.1 Alex Needs (the author) is a Chartered Arboriculturist (www.icf.org.uk) and Registered Consultant with the Arboricultural Association (www.trees.org.uk). He holds the Cardiff University Bond Solon Civil and Criminal Expert Witness Certificates and is an Accredited Mediator. He has a degree in Linguistics and holds both the Technician's Certificate in Arboriculture and the Royal Forestry Society Certificate in Arboriculture. He is trained to the LANTRA Professional Tree Inspection standard. He has worked in arboriculture for over 20 years and since 2007 has held principal arboricultural roles in both public and private sectors.
- 1.1.2 Holt Arboriculture was instructed to provide an Arboricultural Impact Assessment and Arboricultural Method Statement, in accordance with British Standard BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations, of the effect of development proposals on trees in response to condition 5 of Hillingdon Council consent ref. 78364/APP/2024/2722 which states:

'Prior to development commencing on site (including ground works and site clearance), an Arboricultural Impact Assessment (in relation to all neighbouring trees in proximity to the site) outlining the sequence of development on the site, including demolition, building works, and tree protection shall be submitted to and approved by the Local Planning Authority, and the scheme thereafter implemented in accordance with the approved method statement.'

1.2 Report Purpose

- 1.2.1 This arboricultural assessment report provides sufficient information for the Local Planning Authority (LPA) to consider the effect of the proposed development on local character from a tree perspective. It is fully compliant with the BS5837 advice in relation to the planning application stage of the process, and it meets national standard planning application validation requirements.
- 1.2.2 The Standard recommends a sequence of activities that starts in the initial feasibility and design phase (RIBA Stage 2 'Concept Design') with a survey to qualify and quantify the trees on site and establish the arboricultural constraints to development (above and below ground) to inform the design in an iterative process, and continues with an assessment of the arboricultural impacts of the final design and measures to mitigate such impacts should they be negative. Detailed technical specifications for mitigation and protection measures are devised in the design phase that follows (RIBA Stage 3 and 4 'Spatial Coordination' and 'Technical Design'), and the sequence ends with the 'Handover' and 'Use' phases (RIBA Stages 6 and 7), with the implementation of those measures once planning permission is granted, guided by Arboricultural Method Statements (RIBA Stage 4 and 5, 'Technical Design' and 'Manufacturing and Construction') and professional guidance where appropriate.
- 1.2.3 This report comprises an Arboricultural Impact Assessment (AIA) which reports on the direct and indirect impacts of the proposed development on trees in terms of both the buildability of the proposals and the long-term impact of the finished scheme, and where necessary

presents mitigation for these impacts. And a preliminary Arboricultural Method Statement (AMS) detailing outline methodologies to demonstrate that, in principle, retained trees can be incorporated into the new landscape.

- 1.2.4 BS 5837:2012 recommends classifying trees into four quality and value categories to determine their relative retentive worth. A summary of the relative retentive worth of the trees on site as recorded during the tree survey and expressed by their categories is given in Table 1. Appendix A explains the BS5837 tree categorisation process.

1.3 Executive Summary

- 1.3.1 Table 1 shows data for the number of trees surveyed, their classification (Tree, Group, Woodland, etc.), and their BS5837 categorisation. Full data for each is presented within the Tree Schedule at Appendix A.

Category	Trees	Groups/Hedges	Total
A	0	0	0
B	0	1	1
C	0	0	0
U	0	0	0
Total	0	1	1

Table 1: Numbers of Trees/Groups in each Retention Category

- 1.3.2 Table 2 shows trees requiring removal to facilitate the scheme. Trees have been identified for removal where they come into direct conflict with structures, where construction cannot be achieved without their removal, or where their future relationship is considered unsustainable, having regard to their eventual potential size. Where high-quality trees have been found to be in conflict with the proposed design, the decision to remove such trees has been informed by an iterative process, following a review of alternative options. Please note that U category trees require removal regardless of the proposal and are only listed below if their removal is also necessary to facilitate the scheme.

Category A	Category B	Category C	Category U
None	None	None	None

Table 2: Trees and groups requiring removal by BS Category

- 1.3.3 Table 3 shows trees that will be subject to construction within their root protection areas and special measures are recommended to ensure that these trees are not damaged. These measures are detailed in AMS section of this report and are illustrated on the Tree Protection Plan at Appendix B. Please note that Table 3 does not include trees where standard ground protection measures are required to allow construction access into RPAs (see section 4).

Category A	Category B	Category C	Category U
None	G001	None	None

Table 3: Trees and groups requiring special measures by BS Category

- 1.3.4 Table 4 shows retained trees that will require pruning to facilitate the development or to reduce the likelihood of their being subject to excessive pressure after the completion of the development. These works are detailed in the Tree Schedule at Appendix A.

Category A	Category B	Category C	Category U
None	None	None	None

Table 4: Trees and groups requiring pruning by BS Category

1.4 The Proposal

- 1.4.1 The proposed scheme is for Change of use from Use Class E to Use Class C3 (dwellinghouses) and the construction of a part three and part four-storey residential apartment with three two-bedroom units and four one-bedroom units, following the demolition of the existing building

1.5 The Survey

- 1.5.1 The survey was undertaken without the benefit of a geo-referenced topographical survey. Trees were plotted onto the Ordnance Survey Master Map. Tree locations were plotted by eye to the best of our ability; however, some caution should be exercised over precise locations. Further information is available at Appendix D.

2 Existing Tree Population and Constraints

2.1 Existing site

- 2.1.1 A survey covering trees on site and trees on adjacent land close enough to be affected by the development was undertaken in accordance with the BS5837:2012 recommendations. Trees were measured using a diameter tape and laser clinometer. Where poor access prevented accurate measure, an estimate was made and a note made on the survey schedule. The full survey results are presented in the Tree Schedule at Appendix A and the above and below ground constraints are illustrated on the Tree Protection Plan at Appendix B. The survey method and limitations are set out in Appendix D.
- 2.1.2 Conex House in Pinner, currently an office block, has consent for redevelopment into residential dwellings, requiring an impact assessment, method statement, and protection plan for a conditioned discharge. Furthermore, a small rear garden is proposed to service the ground-floor flat. This new amenity space consisting of permeable paving and artificial grass will be situated on the site of an existing substation located to the rear of the office block, which is decommissioned and scheduled for removal by the local electricity provider in due course. The primary arboricultural feature of the site is a group of at least three large ash trees located immediately to the rear of the decommissioned substation.
- 2.1.3 The site's arboricultural constraints and opportunities are closely tied to the substation's decommissioning and the proximity of the mature trees. The exact subterranean makeup of the substation is currently unclear, though it appears to consist of equipment on a concrete plinth with a gravel subbase shuttered in ply boarding. While future restoration of this area to a garden amenity space is entirely possible, it must be achieved without significant intrusion into the root protection areas of the ash trees. This removal presents a key opportunity to establish the ground-floor garden, aligning the development with neighbouring properties that appear to have received relatively recent planning permission.

2.2 Constraints Table

Constraint	Details	Impact
Local Planning Authority (LPA)	Hillingdon	Planning Consent required.
Tree Equity Score https://uk.treeequityscore.org/	Canopy calc. 17% Tree Equity score = 93	Ranked 47th of 165 LSOAs in Hillingdon Priority: LOW
Tree Preservation Orders	None	Works are exempt if full planning permission granted. Works to trees not directly required to facilitate development will require consideration by the LPA.
Conservation Areas	None	Works are exempt if full planning permission granted.

		Works to trees not directly required to facilitate development will require consideration by the LPA.
Forestry Act (1967)	Exempt if full planning permission granted.	None
Ancient Semi-Natural Woodland (ASNW) https://magic.defra.gov.uk/	None	
Ancient Tree Inventory https://ati.woodlandtrust.org.uk/	None	
Other veteran trees	None	
Legal covenants and outstanding planning conditions	Not known	
British Geological Survey Bedrock: https://geologyviewer.bgs.ac.uk/	London Clay Formation-Clay, silt and sand.	If site specific investigations confirm shrinkable clay, then foundations should be designed with reference to the National House Building Council's Standards Chapter 4.2 Building near trees or similar guidance.
British Geological Survey Superficial Deposits: https://geologyviewer.bgs.ac.uk/	None recorded.	If site specific investigations confirm shrinkable clay, then foundations should be designed with reference to the National House Building Council's Standards Chapter 4.2 Building near trees or similar guidance.

Table 5: Site specific constraints (checked at time of writing)

2.3 Canopy coverage and Tree Equity

2.3.1 A Tree Equity Score is a nationwide, neighbourhood-level score ranging from 0 to 100 that highlights inequitable access to trees. The score is calculated based on tree canopy cover, climate, health and socioeconomic data. The lower the score, the greater priority for tree planting. The site-specific score is listed in Table 5. For context, the average tree canopy cover in England is approximately 14.9% of total land area (which serves as the baseline for the government's Environment Act target). When looking specifically at towns and cities, the urban average is about 16% to 17.3% (source: Forest Research).

2.4 Statutory tree protection

2.4.1 Tree Preservation Orders (TPO), Conservation Areas, ancient woodland designations, ancient or veteran trees, and Sites of Special Scientific Interest can all constrain a site. Details of site-specific constraints are listed in Table 5.

2.4.2 As TPO status can change, no felling or pruning of trees should be carried out until these statutory constraints have again been confirmed in writing by the appropriate authority immediately prior to the works.

2.5 Veteran and Ancient tree classification

- 2.5.1 The Ancient Tree Inventory (ATI) is an online list of trees that is created in part by the public. Due to the varying experience and knowledge of public contributors, a listing does not guarantee that a tree meets recognised criteria for veteran or ancient status. The Woodland Trust has stated that “...the ATI should never be used as a substitute for an independent on-the-ground ecological survey and assessment of all the trees on a potential development site. It is designed to be a useful information tool, but never to be taken as a definitive list of all the trees on a site.”. A recognised assessment methodology such as Recognition of Ancient, Veteran & Notable Trees (RAVEN 2) should be applied to understand if a tree can be considered important, and if a ‘15 x trunk diameter’ buffer zone should be applied (as recommended by the Natural England and Forestry Commission - *Ancient woodland, ancient trees and veteran trees: advice for making planning decisions*).
- 2.5.2 The classification and definition of ancient or veteran trees differs significantly between the National Planning Policy Framework (NPPF) and the regulatory framework established for Biodiversity Net Gain (BNG), often resulting in conflicting interpretations. The divergence primarily lies in the required degree of value, the combination of characteristics needed for designation, and the resulting legal implications. The NPPF Framework defines veteran or ancient trees by the standard that they must possess *exceptional* biodiversity, cultural, or heritage value due to their age, size, and condition. Inspector decisions have consistently reinforced this stringent requirement. In contrast, the BNG regulatory definition sets the qualifying value at *high*, a lower standard than the NPPF's *exceptional* requirement. The regulatory veteran tree definition under BNG triggers the requirement for bespoke compensation if the tree is lost, as it falls under the irreplaceable habitat exceptions for BNG calculation. A tree classified only as a regulatory BNG veteran does not automatically trigger NPPF s193c engagement and therefore no extended RPA is required.

2.6 Soil assessment

- 2.6.1 BS5837:2012 advises that soil properties should be considered as part of a tree survey report. This is necessary because trees can cause damage to structures founded on soils that shrink and swell with changes in moisture content (principally clays). Such movement is exacerbated by the influence of trees and therefore if a shrinkable soil is suspected foundations should be designed to extend below the likely zone of seasonal moisture change. Details of site-specific soil surveys are listed in Table 5.

3 Spatial and Arboricultural Impacts

3.1 Tree removal and retention

- 3.1.1 No tree removals will be required to enable the proposed development.

3.2 Facilitative tree pruning works

- 3.2.1 No tree pruning works will be required to enable the proposed development.

3.3 Tree juxtaposition and sustainable relationships

- 3.3.1 The design team has considered the location of trees in relation to the property with the project arboriculturist. The design has considered sunlight/daylight issues, leaf/litter drop, and potential occupier apprehension. As such the scheme has been carefully considered with fenestration, room layout, and light availability in mind.

3.4 Impact on the landscape and public visual amenity

- 3.4.1 If the recommendations within this report are followed, there will be no significant impact on either retained tree health or the value they offer to the local and wider landscape.

4 Demolition and Construction Impacts

4.1 General Principles

- 4.1.1 Retained trees will be protected during development by establishing a Construction Exclusion Zone (CEZ) around their Root Protection Areas (RPA). RPAs are a layout design tool, indicating the minimum area around a tree deemed to contain sufficient roots and soil to maintain the tree's viability. RPAs should be treated as a precautionary area within which activities such as ground compaction, excavation, the storing of materials, ground level changes and other construction activity are likely to cause damage to trees and should therefore be excluded. This CEZ can be achieved by the erection of barriers or temporary ground protection at the locations shown on the Tree Protection Plan at Appendix B and as detailed in the AMS at section 5 of this report.

4.2 Construction Access and Site Layout

- 4.2.1 The site has capacity to accommodate construction access, mixing, storage and welfare facilities outside of RPAs within the footprint of the building.

4.3 Modified RPAs and likely root distribution

- 4.3.1 The British Standard recommends a notional radial root zone is plotted around trees unless there are pre-existing site conditions that indicate that rooting has occurred asymmetrically. In this instance the sub-station, existing buildings, underground services, and hard surfacing may have constrained root distribution, however due to the heavily disturbed nature of the locality, any modification of the RPA shape would be, at best, an educated but unsubstantiated guess. For this reason, I have chosen to retain a typical group RPA and consider that in the absence of any other evidence, this is as reasonable an estimation of root distribution as any other.

4.4 Ground protection

- 4.4.1 Where it is necessary to temporarily breach the CEZ around trees in **G001** to facilitate the development to allow construction access, storage, and mixing of materials, the roots and soil structure within the RPAs of these trees will be protected by retaining the existing hard surfaces. Further information on pollution control measures can be found in the AMS at section 5 of this report.

4.5 Demolition and/or removal of sub-station and surfaces

- 4.5.1 The proposal requires the demolition and removal of the existing sub-station and associated hard surfaces from within the RPA of **G001**. I have reviewed the likely impact and consider that it can be minimised to an acceptable degree through the use of sensitive demolition methodologies, details of which can be reviewed in the AMS at section 5 of this report.

4.6 Hard and soft landscaping installation

- 4.6.1 The proposal requires the installation of hard and soft landscaping surfaces within the RPA of **G001**. These include a permeable path and artificial grass area. Installation will be undertaken using a minimal dig methodology and root pruning protocols, details of which can be reviewed in the AMS at section 5 of this report.

- 4.6.2 Where minor excavation is unavoidable to match levels, excavation will be undertaken following guidance, and where necessary, under supervision of the Arboricultural Consultant, who will provide the client with a monitoring record on completion. Details of which can be reviewed in the AMS at section 5 of this report.

4.7 Services installation

- 4.7.1 Information on the location of utility and service runs for the proposed development was not available at time of writing, however it is anticipated they will utilise existing infrastructure. In principle, traditional trench-installed utilities should be routed outside of the RPAs of retained trees to avoid root damage. Where routing utility runs within RPAs is unavoidable, all work should comply with The National Joint Utilities Group Volume 4 (issue 3) and will be implemented through the use of specialist methodologies, details of which can be reviewed in the AMS at section 5 of this report.

5 Arboricultural Method Statement

5.1 Scope and Limitations

- 5.1.1 The level of site-specific detail within this Arboricultural Method Statement (AMS) is dependent on the information available at the time of writing. At the planning application and design stages this may be minimal, in which case this document will set out a series of parameters for construction activity and outline methodologies to demonstrate that, in principle, trees can be retained within the landscape. However, at the pre-construction, technical, or specialist design stage an AMS will include input from other professions (e.g. structural engineers, architects, landscape architects, transport planning consultants) and offer a greater degree of specific detail.
- 5.1.2 This approach is supported by BS5837 which suggests planning applications may be accompanied by a 'heads of terms' AMS, as additional information. A detailed AMS being suggested as appropriate only for reserved matters applications or planning conditions discharge.

5.2 General Principles and Administration

- All work will be conducted under normal site risk assessment procedures and comply with wider site safety rules.
- Unauthorised damage to protected trees is a criminal offence and could lead to enforcement action.
- Operatives entering RPAs will have been briefed by the supervising arboriculturist or a site manager with a good understanding of this AMS, before work starts.
- A precautionary approach towards tree protection will be adopted. Operations within RPAs will be described to demonstrate a minimal risk of adverse impact.

5.3 Roles and Responsibilities

- If required by planning condition, a supervising arboriculturist will be appointed to monitor tree protection.
- The supervising arboriculturist will visit the site to check tree protection and, as necessary, advise on emerging issues.
- The supervising arboriculturist's initial role is to liaise with the developer to ensure protective measures are fit for purpose and in place before any works start. Once the site is working, the role switches to monitoring compliance with arboricultural planning conditions and advising on tree problems or necessary modifications.
- The supervising arboriculturist is employed by the client and does not report directly to the LPA.

5.4 Pre-Commencement Requirements

- If required by planning condition, a pre-commencement meeting will be held on site after tree protection has been installed but before construction work begins. This meeting would normally include the site manager, the supervising arboriculturist, and an LPA representative (if available).
- All tree protection measures described in the arboricultural method statement will be fully discussed to ensure their implementation and sequencing are understood by all parties.
- Any agreed clarifications or modifications to consented details will be recorded and circulated in writing.
- The programme of supervision/monitoring arrangements will be agreed and finalised at this meeting if not already done so.
- All retained trees must be protected by fencing and ground protection before any demolition, development, or soil stripping starts.
- The supervising arboriculturist must confirm with the client that tree protection has been installed as agreed before any significant site work starts.

5.5 Tree Protection Barriers

5.5.1 Retained trees will be protected during development by establishing a Construction Exclusion Zone (CEZ) around their Root Protection Areas (RPA). RPAs are a layout design tool, indicating the minimum area around a tree deemed to contain sufficient roots and soil to maintain the tree's viability. RPAs should be treated as a precautionary area within which activities such as ground compaction, excavation, the storing of materials, ground level changes and other construction activity are likely to cause damage to trees and should therefore be excluded.

5.5.2 Ground protection barriers:

- Ground protection prevents damage to the underlying soil and roots in RPAs. It will be installed at the locations shown on the tree protection plan. It must be fit for purpose, i.e., sufficient to prevent damage to RPAs.
- Where no-dig surfaces or specialist foundations are due to be installed within RPAs, soft landscape MUST be protected by suitable ground protection prior to installation.
- Where feasible, existing hard standing should be retained to act as ground protection.
- New ground protection must be installed where unmade ground is exposed. It will remain in place until there is no risk of harm from development activity.
- Ground protection will not be altered or removed without prior approval of the supervising arboriculturist.
- All demolition plant should operate outside the RPA or on ground protection installed before demolition starts.
- The design must support all anticipated loading and prevent compaction. The objective is to avoid soil compaction and prevent adverse impacts on root function.
- For pedestrian access ground protection shall comprise of single thickness scaffold boards, marine grade ply, or composite mats, laid on a compressible layer such as woodchip, above a geotextile membrane. The boards should be fixed together or pinned down to avoid movement.

- For vehicular or tracked machinery access ground protection shall comprise of steel road plates, steel trackway, pre-cast reinforced concrete slabs, or a temporary access road constructed with a 3D cellular confinement system above the existing ground level, with a no fines angular aggregate infill.

5.6 Site Operations and Activities within or near RPAs

5.6.1 Pollution Control:

- Spilled chemicals or toxic liquids can kill roots and prevent new root growth. Materials that could harm trees should be stored and handled well away from RPAs. Control measures will be put in place where there is a significant risk of RPA contamination. Pollution control measures must include containing spillages and clean-up procedures.
- Cement mixing and vehicle washing points must be located outside RPAs.
- Bunding or impermeable membranes should be used to prevent liquid contaminants or leachate (from poured concrete) reaching RPAs. This could comprise impermeable plastic sheeting under wooden boards, to prevent tears, surrounded by a raised lip.
- During wet weather periods where construction on clay soils may produce a liquefied soil run off, or on sites where mixing and washing is close to RPAs, the addition of plastic sheeting to fencing can prevent this.

5.6.2 Removing Surfacing and Structures (demolition):

- Careful consideration will be given to retaining structures and surfacing if their removal will cause excessive disturbance to retained roots. For example, retaining an existing footing to build a new wall on.
- Manually break up and remove debris using appropriate hand tools.
- Remove debris from the RPA without disturbing the adjacent rooting environment (e.g., lift out with machine outside RPA or carry over ground protection).
- Machines with a long reach can be used if working from outside RPAs or on ground protected areas, not encroaching onto unprotected soil.
- If structures are firmly incorporated into roots, it may be best to leave them in place.
- No vehicular or repeated pedestrian access is permitted unless existing ground protection is retained or new measures are installed.
- Demolition of buildings near retained trees should be done inwards within the footprint of the existing building.
- Existing surfacing should be removed with care; machines should work backwards over the area to prevent damage to exposed RPAs. It is preferable to leave existing sub-base if new surfacing is to be laid.
- All exposed RPAs must be protected until no further risk of damage.

5.6.3 Sensitive Excavation in Root Protection Areas:

- Conventional mechanical excavation is generally not permitted in RPAs.
- Excavation will be carried out using specialised compressed air tools or hand tools (forks, spades, trowels), with a preference for air tools.
- The priority is to remove soil without damaging the bark and wood of significant roots.
- Operatives must use a fork to loosen soil and a trowel to clear soil away from roots to avoid bark damage and then remove soil/material from the excavation without disturbing the adjacent rooting environment.
- Where soil or site conditions or access prevents safe use of hand tools then an excavator with a non-toothed bucket, under the control of an experienced operator may be used under the close supervision of a banksman to halt work when roots are discovered. At which point hand excavation will recommence.
- Flexible clumps of smaller fibrous roots should be retained if they can be displaced without damage.
- Exposed roots to be removed should be cut cleanly 10–20cm behind the final face of excavation.
- Individual roots and clumps less than 2.5cm diameter can be cut cleanly without consulting the supervising arboriculturist.
- Individual roots and clumps greater than 2.5cm diameter will be retained where possible and only cut if agreed with the supervising arboriculturist.
- Roots temporarily exposed but retained must be protected from direct sunlight, drying out, and temperature extremes by appropriate covering (e.g., damp hessian sacking).
- When backfilling around retained roots greater than 2.5cm diameter, place an inert granular material mixed with topsoil or sharp sand before light compaction.

5.6.4 Installing/Upgrading Surfacing in Root Protection Areas:

- Prior to installation soft landscape RPAs MUST be protected by suitable ground protection.
- If new surfacing is to be installed within RPAs and used for construction access, then it MUST be installed prior to other construction activity to avoid impact on RPAs. It must also be made impermeable during construction through the use of a sacrificial wearing course or pollution protection as detailed within this AMS.
- Conventional surfacing installation based on excavating and compacting a sub-base is not normally acceptable in RPAs.
- The surfacing design should protect roots and the rooting environment, provide load spreading, and allow permeability for water and gasses.
- Suitable methodologies include; three-dimensional cellular confinement systems filled with washed stone, concrete slabs cast directly onto the soil surface, or surfacing supported above the soil on piles/pads/posts.
- If excavation is required then the methodology '*Sensitive Excavation in Root Protection Areas*', should be followed.
- The cellular confinement system (CCS) must be suitable for the application which will be identified by the supplier. This is likely to be at least 150mm where traffic is to pass. Systems such as Greenfix Geoweb, Geosynthetics Cellweb, and Wrekin Protectaweb are available. The surface to be installed over the filled 3D cellular system is to be porous, to allow air and water to penetrate into the soil around the root system. Example cross sections can be seen below.

- Low points on undulating surfaces can be filled to an even level with agreed granular material (e.g., sharp sand or stone but not builders' sand) without mechanical compaction.
- Limited excavation, such as removal of a turf layer and surface vegetation (up to 5cm from surface), may be acceptable if agreed by the supervising arboriculturist. Deeper excavation needs assessment by the arboriculturist.
- If roots greater than 2.5cm diameter are exposed during limited excavation, cutting them may be too damaging; levels may need adjustment by filling, or the situation discussed with the arboriculturist.
- New surfacing should be set back from trunks and buttress roots by at least 50cm to allow for future growth and minimise distortion. Flexibility on this distance may be possible for mature trees with little growth potential if agreed by the arboriculturist.
- Edge retention should avoid significant excavation into soil levels, using non-invasive methods like pre-formed edging, metal pins, railway sleepers, wooden boards, or casting a concrete kerb in and above edge rows of the cellular confinement system.
- If concrete is poured directly onto permeable surfaces, an impermeable liner must be used to prevent soil contamination.
- When upgrading existing surfacing, the preferred option is to leave the original sub-base and surface in place and install new surfacing on top. Puncturing existing impermeable surfacing may improve conditions, if agreed with the arboriculturist.

5.6.5 Installing Structures in Root Protection Areas:

- Prior to installation soft landscape RPAs MUST be protected by suitable ground protection.
- Conventional installation using strip foundations is normally unacceptable.
- Substantial structures (heavy walls, garages, buildings) will be supported using piles, pads, screws, or posts, with provision for water and gaseous input beneath the structure.
- Support locations will be hand-dug to a depth of 60cm to check for roots greater than 2.5cm diameter. Or if screws are to be used, locations will be probed with a steel pin or probe to ensure it is clear of roots. Sufficient flexibility must be in the design to move locations to avoid these roots.
- The diameter and distribution of supports will be minimised. The smallest practical pile diameter should be used.
- Risk of harm from compaction during construction is reduced by ground protection as per the *Ground protection barriers* methodology above.
- Risk of chemical contamination is reduced by pollution control as per the *Pollution Control* methodology above.
- Pile type should protect from uncured concrete (e.g., sleeved bored pile, screw pile).
- Where feasible, existing below ground structures (footings) should be retained to support new structures.
- No excavation into existing soil levels will occur except where authorised for supports. Ground beams will sit above ground level onto supports.
- Slabs for minor structures (sheds, carports, bin stores with an area less than 20% unsurfaced RPA) will be supported by no-dig surfacing installed directly onto the existing soil surface.

- Where significant roots are encountered and cannot be cut, a bridging lintel (concrete or steel) can support the foundation slightly above the roots. Roots can be ducted through split plastic pipes.

5.6.6 Installing and removing services in Root Protection Areas:

- Where possible, all services will be outside RPAs. Installation in RPAs is a last resort.
- Underground services within RPAs should be shown on a plan prepared with the project arboriculturist. Consult with the supervising arboriculturist before considering installation within RPAs.
- The NJUG Volume 4 (Issue 3) protocol will be used to decide the appropriate method if installation in RPAs is agreed.
- Acceptable techniques, in order of preference: trenchless, hand-dug broken trench, hand-dug continuous trench. Mechanical trenching is not permitted in RPAs.
- For trenchless installation, the starting and finishing pits must be outside RPAs. A depth below 600mm is recommended for trenchless methods to avoid root damage. Avoid non-water lubricants in RPAs for trenchless methods.
- Backfilled material around excavated services will not be heavily compacted.
- If services are installed within RPAs, it is preferable to use common ducts. Inspection chambers should be sited outside the RPA.
- If service pipes, chambers, and ducts located within the root protection area of retained trees are to be made redundant, this will be achieved either through pipe bursting or by filling them with an inert material, such as foamed concrete. Cabling will only be recovered from within a root protection area if it is within ducting and can be removed by winching from an existing service manhole located beyond the root protection area.

5.6.7 Landscaping in Root Protection Areas:

- Soft landscaping includes re-profiling soil levels and covering with plants or mulch. Hard landscaping is installed according to above.
- No heavy mechanical cultivation such as ploughing or rotavation is permitted.
- Do not fill above original ground levels within RPAs without the precise depth of fill being agreed and authorised by the supervising arboriculturist.
- Never raise soil levels to leave soil touching a trunk that was previously exposed to air.
- Avoid soil compaction. If compaction has occurred, seek arboricultural advice on mitigation methods (e.g. forking, spiking, soil augering, radial trenching).
- New tree provision should follow the guidance and recommendations within *BS 8545:2014+A1:2026 - Trees from nursery to independence in the landscape – Code of practice*

5.7 Monitoring and Compliance

- If required by planning condition, the supervising arboriculturist will monitor tree protection and supervise works in RPAs.
- A suitable compliance monitoring schedule would require a pre-commencement meeting to take place after the tree protection is installed but before any significant demolition or construction occurs.

- Further compliance monitoring visits will then take place at intervals agreed at the pre-commencement meeting (normally every 4-6 weeks for general supervision, but flexible for sensitive works).
- Written records of monitoring and supervision will be prepared for the client. It is not the role of the arboriculturist to report directly to the Local Planning Authority.

5.8 Changes and Approvals

- The locations of fencing and ground protection, and precautionary areas, will not be altered without prior approval of the supervising arboriculturist.
- Fencing and ground protection will not be removed at the end of construction without prior approval of the supervising arboriculturist.
- Any variations to the restrictions behind fencing must be agreed by the supervising arboriculturist.

5.9 Tree Protection Examples



Image 8: Showing an example of a ply boarding above woodchip system of temporary ground protection.

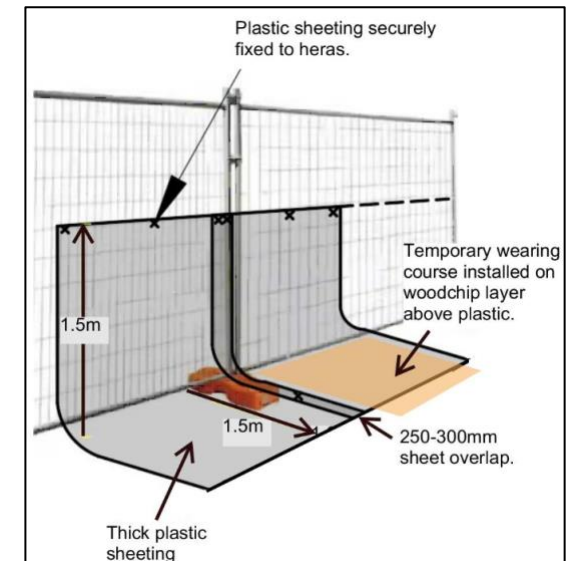


Image 9: Example system preventing liquid pollutants from moving into RPAs.

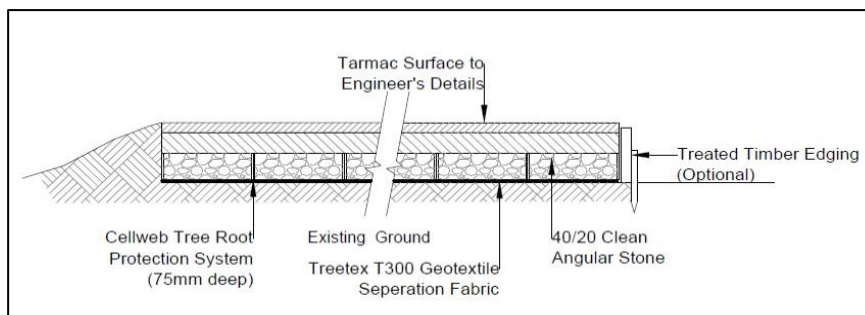


Image 10: Indicative 'no-dig' tarmac hard surfacing cross section using a CCS.

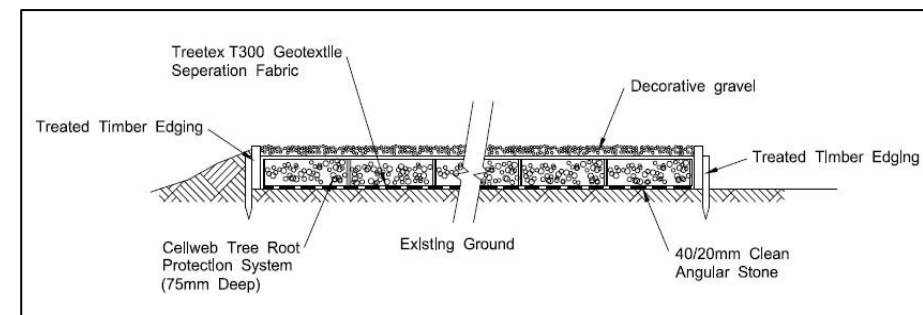


Image 11: Indicative 'no-dig' gravel hard surfacing cross section using a CCS.

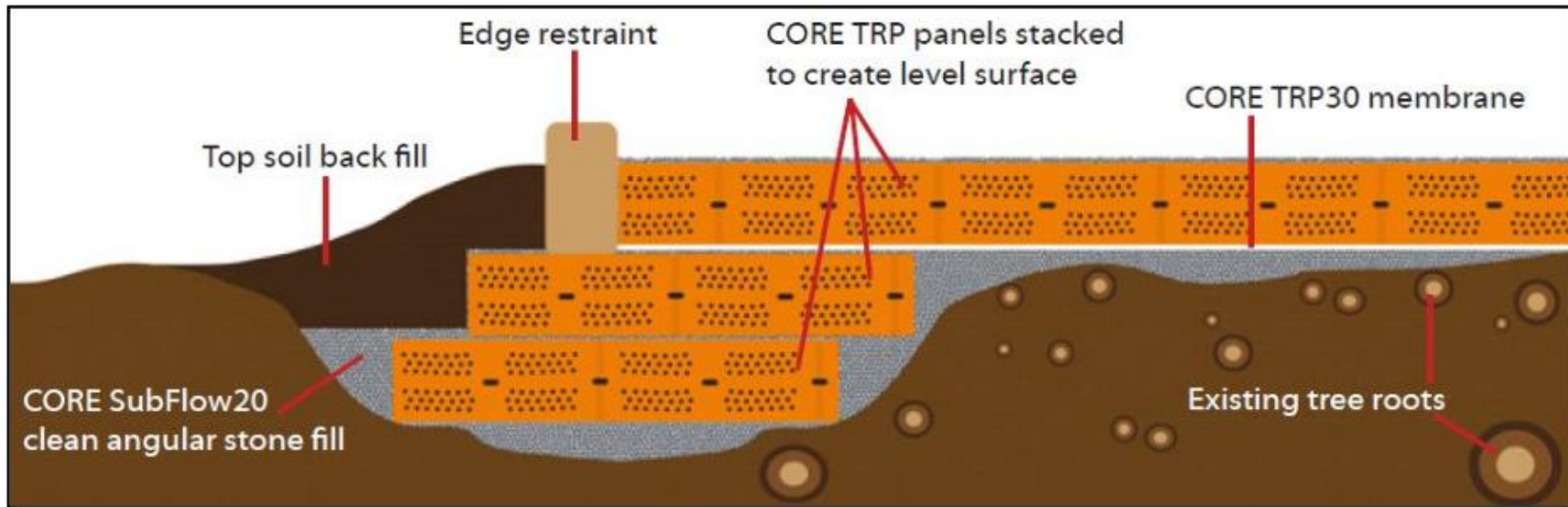


Image 12: Indicative 'no-dig' using a CCS in multiple layers to accommodate changes in level.



Image 13: Example of a modular paving subframe (Tectonic®).

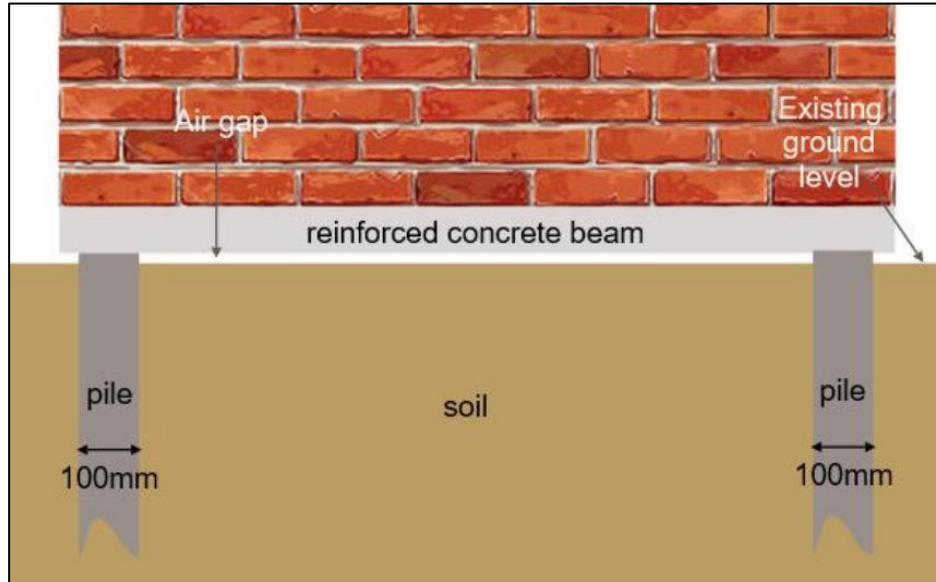


Image 14: Illustrative diagram showing pile-and-beam foundation construction.



Image 15: Showing ground screw pile installation.

6 Conclusions

- 6.1.1 A BS 5837:2012 tree survey was undertaken at Conex House, 148 Field End Rd, Pinner, HA5 1RJ, to assess the arboricultural implications of consented scheme. The scheme also entails the decommissioning and removal of an existing electrical substation to establish a private garden amenity space for the ground-floor residential flat.
- 6.1.2 The primary arboricultural feature of the site is a dominant group of mature ash trees (designated as **G001**, Category B) situated immediately to the rear of the decommissioned substation. These trees are highly representative of the wider local landscape, where neighbouring properties are similarly characterized by mature ash canopy cover.
- 6.1.3 The proposed layout is designed to achieve a sustainable relationship with the adjacent trees; no tree removals or facilitative pruning works are required to enable the development. All component trees of G001 are to be fully retained and protected.
- 6.1.4 To facilitate the creation of the new garden amenity space, a permeable path and an artificial grass area will be installed within the Root Protection Area (RPA) of G001. These surfaces will be constructed using a specialized "no-dig" cellular confinement system (CCS) and a minimal-dig methodology. The decommissioning and structural removal of the substation's concrete plinth will also be executed sensitively using hand tools and low-impact machinery operating from outside the RPA.
- 6.1.5 Throughout the demolition and construction phases, the retained tree group will be protected ground protection. This setup will establish a strictly managed Construction Exclusion Zone (CEZ) to safeguard the local soil structure and prevent root damage.
- 6.1.6 Subject to adherence to the Arboricultural Method Statement and the implementation of the specified protective barriers, the proposed development will pose no threat to the long-term health and physiological viability of the trees. The green character and public visual amenity of the surrounding landscape will be successfully preserved.

Appendix A

Tree Schedule

Appendix B

Tree Protection Plan

Appendix C

Tree Constraints Plan

Appendix D

Tree Survey Limitations

- The assessment of the trees was for the purposes relevant to planning and development and was made on the basis that they will be biennially inspected in the future to identify any changes in size and condition and review the original constraints and categorisations. For these reasons, the tree assessment advice only remains valid for two years from the date that the trees were last inspected.
- This survey is not a tree safety inspection. It is carried out in order to inform the planning process. Where clear and obvious hazards have been observed, these have been addressed in the recommendations (see Appendix A - Tree Schedule). A full assessment of the levels of risk posed by trees would need to consider site use together with tree hazards.
- All observations were of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level. No invasive or other detailed internal decay detection devices were used in assessing trunk condition.
- The conclusions relate to conditions found at the time of survey. Any significant alteration to the site that may affect the trees that are present or have a bearing on the planning implications (including level changes, hydrological changes, extreme climatic events, or other site works) will require a re-assessment of the trees and the site.
- Each tree, hedge, and group was inspected, and the numbering scheme is indicated on the plans. Where important trees were found on site that were not included on the provided plan, their approximate positions and canopy extents are indicated on the plan.
- Offsite trees within influencing distance of the site (typically those located within a distance of up to 12 times their stem diameter away from the site) were included in the survey.
- The data collection is fully compliant with the advice in subsection 4.4.2 of BS 5837.