Part 3: BS: 5837 Arboricultural Method Statement Report & 'Final' Tree Protection Plan

Site:

Highgate Cemetery
Swain's Lane
Highgate
London
N6 6PJ

Prepared for:

Gustafson Porter + Bowman
1 Cobham Mews
Agar Grove
London
NW1 9SB

Prepared by:

Mr James Percy-Lancaster
Senior Arboricultural Consultant

Bartlett Project Reference:

JPL/210717/R3

BARTLETT CONSULTING
A DIVISION OF THE F.A. BARTLETT TREE EXPERT COMPANY

Consultancy Office
Unit 22-25 Cross Lane Farm
Cross Lanes, Pill
Bristol,
BS20 0JJ

T: +44 (0)1275 371 000 Option 2
E: consultancy@bartlett.com

Submitted on 4th October 2024

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued…)

1.0 SCOPE OF REPORT

1.1 Instruction

1.1.1 I was previously instructed to undertake a Tree Survey and compose two Arboricultural Impact Assessment (BS: 5837) and Draft Tree Protection Plans, following the guidance contained within British Standard 5837: 2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*, gathering data on trees and vegetation within the boundary of Highgate Cemetery (East & West Cemetery), Swain's Lane, Highgate, London, N6 6PJ, considered to be within influencing distance of the proposed Hardscape Plan.

1.1.2 My Arboricultural Method Statement (AMS) is a methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree identified as suitable for retention.

1.1.3 My AMS takes into consideration construction operations undertaken in the vicinity of the trees. It will deal with such issues as site access, intensity of construction activity, space required for works, location of designated material storage areas and positioning of service runs.

1.1.4 My AMS is accompanied with the Final Tree Protection Plan (FTPP). The FTPP outlines tree to be retained and removed, types of barrier to be installed and the preliminary location of the protective barriers. This method statement also contains a timetable indicating timeframes for construction as well as how method of specific works adjacent to tree should be conducted.

1.2 Documents & Supporting Information

1.2.1 I was provided with the following documentation and plans prior to the composition of this report. They were sent to me via email in both PDF and DWG file format:

- HIG-GPB-ZZ-ZZ-L-DR-1100 – Hardscape Plan - West
- HIG-GPB-ZZ-ZZ-L-DR-1101 – Hardscape Plan - East
- HIG-GPB-ZZ-ZZ-L-DR-4100
- HIG-GPB-ZZ-ZZ-L-DR-4101
- HIG-GPB-ZZ-ZZ-L-DR-4102
- HIG-GPB-ZZ-ZZ-L-DR-4103
- J7048-MXF-XX-XX-DR-P-11000
- 389_HIG_TREES AND DRAINAGE

1.2.2 I previously composed the following reports and plans:

- JPL/210717/R1 - BS: 5837 Tree Survey & Tree Constraints Plan (East & West Cemeteries Combined)
- JPL/210717/R2a - Arboricultural Implications Assessment & 'Draft' Tree Protection Plan (East Cemetery)
- JPL/210717/R2b - Arboricultural Implications Assessment & 'Draft' Tree Protection Plan (West Cemetery)

1.3 Aspects Excluded from Report

1.3.1 The contents of my report does not include discussions regarding subsidence and/or heave as a result of retention or tree removal, nor does this report consider the water demands of trees present to determine foundation design and depth. If required, this can be provided on request.

1.3.2 Current or proposed structures in relation to the indirect influence of trees are not considered within the report unless directly instructed. It is considered that such considerations are best dealt with in a different report having liaised with the structural engineer.

1.0 SCOPE OF REPORT (Continued…)

1.4 Report Author

1.4.1 This report has been completed by me, Mr. James Percy-Lancaster. I have a certificate in arboriculture, am a Professional Member of the International Society of Arboriculture, a Technical Member of the Arboricultural Association, and have over twenty years' experience in the profession; nine years as a Local Planning Authority Tree & Landscape Officer; and a further eleven years as a Arboricultural Consultant – currently holding the position of Senior Arboricultural Consultant for Bartlett Consulting, a division of Bartlett Tree Experts.

1.4.2 Specifically, in relation to this project, I was an Tree & Landscape Officer between 2004 – 2013, during which time I managed and delivered all tree & planning obligations for the local authority, as well as attending court as an expert witness prosecuting breaches in TPO & CA legislation. I have worked on both small-scale residential developments through to large scale civil engineering projects.

1.4.3 I specialise in tree surveying, advanced assessments and risk assessments; hold the LANTRA Professional Tree Inspector qualification; and am a qualified tree risk assessor using: International Society of Arboriculture (ISA) TRAQ risk assessment methodologies.

1.5 Availability & Application of this Arboricultural Method Statement

1.5.1 Copies of this document shall be made available for all site visits and kept in the Highgate Cemetery office.

1.5.2 The appointed Site Manager shall hold a copy of this document, including the supporting Tree Protection Plan, and all site inductions shall include the contents and requirements of this document.

2.0 PROJECT PERSONNEL CONTACT INFORMATION

2.1 Table 1: Names and Contacts numbers of parties concerned

Role	Company / Organisation	Contact Name	Contact Details
Applicant	Friends of Highgate Cemetery Trust	Mrs Leighann Heron	Email: leighann@highgatecemetery.org Tel: 02083401834
Project Landscape Architect	Gustafson Porter + Bowman Ltd.	Mr Neil Porter	Email: nporter@gp-b.com Tel: 02072848950
Appointed Building Contractor	TBC	TBC	Email: TBC Tel: TBC
Arboricultural Consultant	Bartlett Tree Experts Ltd. Bartlett Consulting	Mr James Percy-Lancaster	Email: jpercy-lancaster@bartlett.com Tel: 07719521510
Arborist Representative	Bartlett Tree Experts Ltd.	Mr Kevin Woodham	Email: kwoodham@Bartlett.com Tel: 07808915881
Planning Case Officer	London Borough of Camden	TBC	TBC Tel: 02079745939
Tree & Landscape Officer	London Borough of Camden	Mr Nick Bell	Email: Nick.Bell@camden.gov.uk Tel: 02079745939

2.1.0 Table 1 above to be completed prior to commencement of construction activities.

3.0 SEQUENCE OF EVENTS

3.1 Table 2: Sequence of events

3.1.1 Grey sections within the table below denote key stages when the appointed Project Arboriculturalist is required to attend site.

Sequence	Description	Arboricultural Input
1	Pre-commencement site meeting	• Review of all tree protection requirements • Setting out of tree protection measures • Questions, clarifications, etc.
2	Tree works & facilitation pruning	• N/A • Please refer to Section 6.0 Table 3 below
3	Removal of existing hard standing to subbase level (plant machinery)	• N/A • To be completed in accordance with AMS / FTPP
4	Initial excavations for replacement footpaths and underground services (French Drains, Piped Surface Water Drainage, Foul Water Pipe and Soakaways) occurring within calculated RPA's of retained trees, to establish best working practices.	• Site visit to provide Arboricultural site supervision & complete feasibility study • Site monitoring report to be completed • To be completed in accordance with this AMS / TPP
5	Installation of underground services (French Drains, Piped Surface Water Drainage, Foul Water Pipe and Soakaways)	• N/A • To be completed in accordance with this AMS / TPP
6	Construction of replacement pubic footpaths (PAV01 – Primary, PAV02 – Secondary, PAV03 – Tertiary, PAV07 – Raised Timber Boardwalk) occurring within calculated RPA's of retained trees.	• N/A • To be completed in accordance with this AMS / TPP
7	Construction of West Cafe	• N/A • To be completed in accordance with this AMS / TPP
8	Completion of Works Clearance of Plant / Machinery / Tools / Etc.	• N/A • To be in accordance with this AMS / TPP
9	Removal of all tree protection measures tree survey	• Final sign-off • Site monitoring report to be completed

3.1.2 The Project Arboriculturalist shall attend site as and when required for their guidance as well as on a cyclical basis, e.g. monthly or as determined by the London Borough of Camden planning conditions, to ensure compliance with the recommendations contained within this report.

4.0 TREE PROTECTION MEASURES

4.1 Physical Tree Protection Measures

4.1.1 The 'Final' Tree Protection Plans (hereafter referred to as FTPPa – East Cemetery and FTPPb – West Cemetery) can be found at Appendix 6 at the end of this report. My two FTPP's have been prepared in accordance with Section 5.5 of British Standard 5837: 2012 and illustrates tree protection requirements & how these measures may influence the free space around the site once construction activities commence.

4.1.2 Both temporary vertical barriers and ground protection will be required to safeguard the trees against damage which may be sustained due to the demolition and construction activities associated with the site logistics, excavations of existing footpaths, construction of replacement footpaths, construction of new timber boardwalk, as well as the requirement for a practical working zones within and adjacent to tree root protection areas occurring throughout the East and West Cemeteries of Highgate Cemetery.

4.1.3 Excavations should be conducted in accordance with NJUG guidance, employing (b) 'Broken Trench' methodology. Tree protection measures (vertical barriers & ground protection) once erected and established, both methods will be treated as sacrosanct, and must not be moved or adjusted without the prior written consent of London Borough of Camden Council and Bartlett Consulting, until completion of works.

4.1.4 It is anticipated that due to the scale of works associated with the Hardscape Plan, that the paths shall be worked on in sections. As such, all tree protection measures must accompany the movement of works throughout the site, erected prior to commencement of each section and dismantled following completion and repeated accordingly.

4.1.5 The protected areas shall not be used for the storage of materials or spoil, nor for the mixing of substances or the disposal of any residues. Materials, equipment and arising debris will not be stacked against the vertical barrier, even temporarily.

4.1.6 My two FTPP's has also been annotated to show indicative locations where, from an arboricultural perspective, there is free space for site logistics outside of the zone of influence for tree protection.

4.1.7 That said, it is understood due to the remoteness of some areas that it may not be practicable to transport excavated material from the working zone to the storage areas, as such a logical strategy must be employed on site, identifying suitable areas for the temporary storage of excavated materials where no harm shall come to retained trees, graves, listed monuments or existing structures.

4.1.8 Advice must be sought from the Project Arboriculturalist as to the appropriateness of the proposed designated temporary storage areas.

4.0 TREE PROTECTION MEASURES (Continued…)

4.2 Vertical Barriers

4.2.1 Vertical barriers are typically wire-mesh fencing (specification below) which will prevent machinery, site operatives, materials, and other site activities from occurring within the root protection area, as well as causing direct damage to tree stems and overhanging branches.

4.2.2 Vertical barriers should be fit for the purpose of excluding construction activities, and appropriate to the degree and proximity of the anticipated site operations. I currently recommend 2.0 metre tall x 3.5 metre length welded mesh panels on rubber or concrete feet, joined together using a minimum of two (2) anti-tamper couplers.

4.2.3 An illustration has been included below for reference.

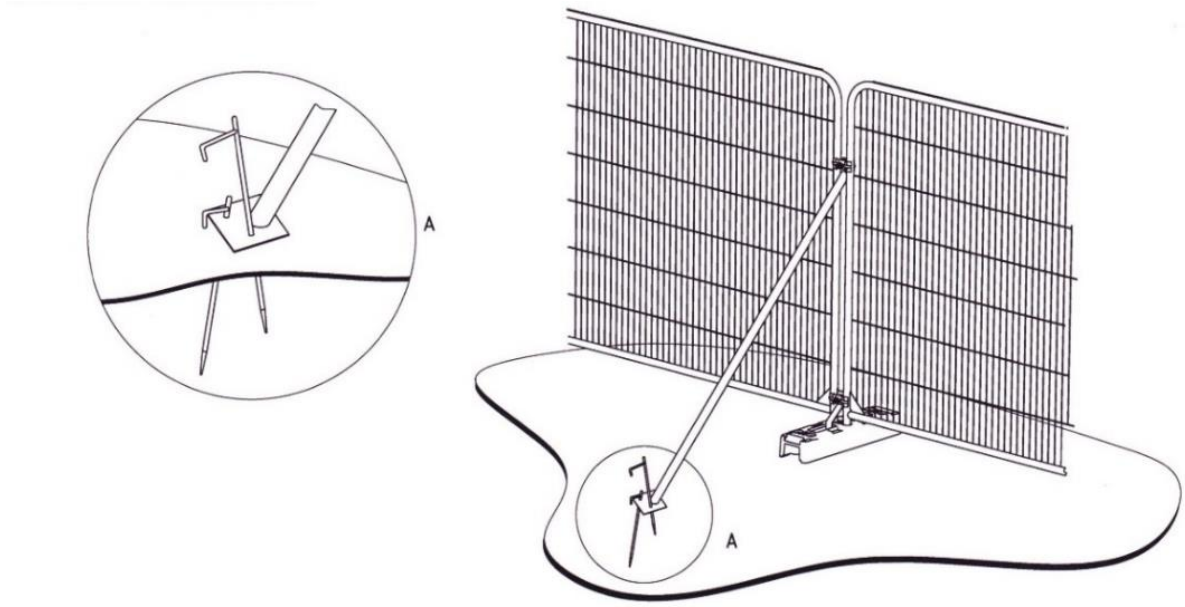


Figure 1: Illustration of vertical barrier reproduced from British Standard 5837:2012

4.0 TREE PROTECTION MEASURES (Continued…)

4.3 Bespoke Tree Protection Box

4.3.1 Erection of the typical wire-mesh fencing panels for tree; T293 – Common Yew, will cause a significant constraint upon car parking and site access to all personnel during the course of construction activities on site surrounding the tree.

4.3.2 The existing driveway and Highgate Cemetery car parking is surfaced with tarmacadam and is regularly occupied by parked vehicles, as such there is little to no risk of soil compaction.

4.3.3 The existing pedestrian footpath located to the west of the tree is currently surfaced with cobbles, similarly there is little to no risk of soil compaction whilst this remains on site.

4.3.4 However, once these two existing hard standing areas are removed by appropriate sized plant machinery, there is risk that the tree could be struck by the excavator.

4.3.5 I therefore prescribe the construction of a bespoke tree protection box, to protect the main stem of T293 – Common Yew. This can be achieved by the construction of a simple timber frame, clad in plywood or similar.

4.3.5 An illustration has been included below for reference.

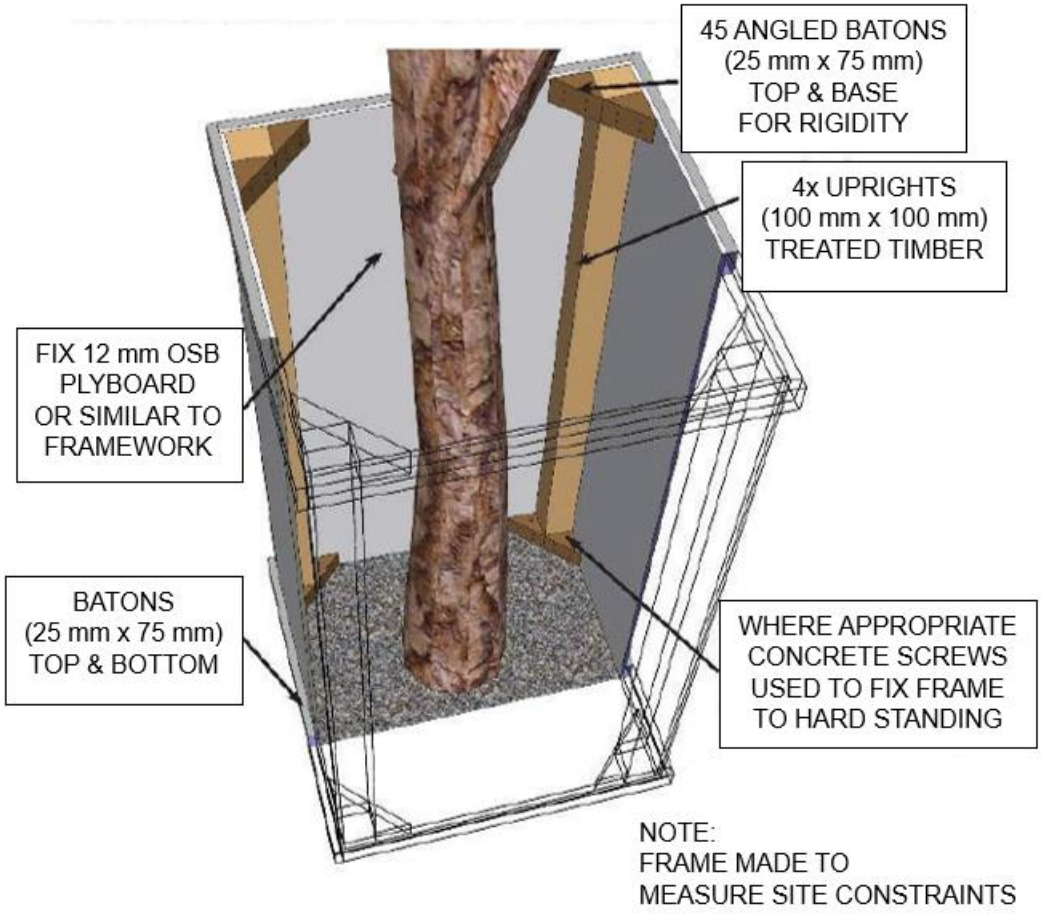


Figure 2: Illustration of an example of a bespoke tree protection box.

4.0 TREE PROTECTION MEASURES (Continued…)

4.4 Ground Protection

4.4.1 Many of the existing primary footpaths throughout the East and West Cemeteries are currently surfaced with tarmacadam hard standing. The tarmacadam still offers excellent and suitable non-compacting ground protection for the associated working areas associated with the hardscape project, negating the requirement of installing temporary non-compacting ground protection.

4.4.2 I anticipate that plant machinery shall be employed to remove the existing tarmacadam. An excavator of an appropriate size and weight may be employed to remove the tarmacadam, however it may only do so whilst working atop of retained hard standing. The excavation may only proceed by employing a 'Pull-Back' working methodology.

4.4.3 All excavated materials must be deposited atop of the retained tarmacadam only if not removed from the working area immediately by a front loading dumper truck.

4.4.4 Whilst working within the calculated Root Protection Areas of retained trees, all excavations using the plant machinery may only be conducted to a depth of the subbase. Thereafter hand excavations may only be conducted using hand tools.

4.4.5 Whilst working elsewhere throughout the site, upon the existing secondary and tertiary footpaths, temporary non-compacting ground protection will be required for 'all excavated materials' leading to and from the areas of construction activities, namely to and from areas of temporary storage.

4.4.6 I advise the laying of a geotextile membrane, with a layer of woodchip mulch, to a depth of 100 millimetres, topped with interlocking mats or boards such as *ProGaurd* or *DuraMatt* are placed atop, appropriate and sufficient for gross weight ≤2 tonnes. This also conforms with the guidance of British Standard 5837 (2012) Clause 6.2.3.3. Please refer to Figure 3 below for further details.

4.4.7 The mixing of cement or other chemicals must only take place of a concrete mixing tray.

4.4.8 There must be no storage of oils, fuels, chemicals or cement atop the ground protection.

4.4.9 Following completion of all construction activities, the woodchip used for group protection can then be used for woodchip mulch within the local area, which shall be beneficial to all trees and shrubs.

Figure 3: Photograph of appropriate ground protection mats.

5.0 SITE SPECIFIC WORKING METHODS

5.1 Breaking-up of Existing Hard-Surfacing

5.1.1 In order to facilitate the installation of the replacement footpaths PAV01 and PAV02, it will be necessary to break up the existing tarmacadam footpaths (primary and secondary).

5.1.2 For areas beyond the calculated RPAs of retained trees it is considered practical to employ an excavator of an appropriate size and weight to remove the hand standing together with the subbase.

5.1.3 All excavated materials must be deposited atop of the retained tarmacadam only if not removed from the working area immediately by a front loading dumper truck.

5.1.3 I anticipate that plant machinery shall continue to be employed to remove the existing tarmacadam within the calculated RPA's of retained tree. However, in these areas the excavation may only proceed by employing a 'Pull-Back' working methodology whilst working atop of retained hard standing.

5.1.2 Whilst the plant machinery is working within the calculated RPA's of retained tree, excavations may only proceed to the depth of the subbase. Thereafter, the sub-base must only be broken-up using hand held tools. Acceptable tools including by not limited to a pneumatic drill, a pneumatic hammer, and/or a sledgehammer, spade, shovel, fork, mattock and hand trowel. . A pick-axe and cutting maul can be employed should the material be heavily compacted.

5.1.3 All broken pieces of concrete, stonework, hardcore etc… within the trees RPA's of retained trees must be carefully lifted using hand tools such as a crowbar, pick-axe, or maul. Plant machinery is prohibited to be employed during this phase of operations.

5.1.4 Removal of the sub-base to achieve the sub-grade within the RPA of all retained trees on site : must be undertaken and completed using hand tools only.

Figure 4: Photograph of tarmacadam carefully broken up with an excavator..

5.0 SITE SPECIFIC WORKING METHODS (Continued…)

5.2 Tree Root Investigation Excavations within Tree Root Protection Areas

5.2.1 Stripping of subsoils, and sub-grades within the calculated RPAs of retained trees: will be necessary for the installation of various below ground surface water drainage solutions, soakaways and construction of replacement pedestrian footpaths throughout the site.

5.2.2 Excavations shall be conducted in accordance with the guiding document National Joint Utilities Group (NJUG) *Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees – Issue 2 (2007)*.

5.2.3 Due to the extent of works associated with this project, Option (*b) Broken Trench – Hand Dug,* shall be the most appropriate working method, striking a balance between practical construction methods, whilst ensuring usability and functionality of a working cemetery and tourist attraction.

5.2.4 In the first instance and where site conditions permit, an Air Spade shall be employed in combination with hand tools. Acceptable tools including by not limited to spade, shovel, fork, mattock and hand trowel.

5.2.5 This working method will carefully and delicately expose and identify the tree root pattern allowing for careful and informed development of the scheme.

3.2.6 Note: Excavations conducted with plant machinery are prohibited beyond the subbase.

3.2.7 As and when employing hand tools, avoid causing accidental damage to the bark of the expose tree root by using a fork to loosen the soil and assist in locating any substantial tree roots.

3.2.8 By employing smaller tools such as a hand trowel and hand brush it is possible to clear the soil away from tree roots without causing physical damage to the bark of the exposed tree roots.

3.2.9 It is essential that care and attention is paid to remove all excavated material from the working area without causing further disturbance to the local rooting environment.

3.2.10 Where masses of smaller fibrous roots are encountered, manipulate to reposition either temporarily or permanently beyond the area being excavated without causing damage.

Figure 5: Photograph of successfully completed tree root investigation excavations.

5.0 SITE SPECIFIC WORKING METHODS (Continued…)

5.3 Root Pruning

5.3.1 Where deemed necessary cut exposed roots, severance must be conducted cleanly using sterilised sharp hand tools, such as secateurs, loppers and/or hand saw approximately 150 millimetres beyond the cut face of the excavation works.

5.3.2 All exposed tree roots to be retained must be protected from direct sunlight, desiccation, and from the extremes of temperature, by covering them with wetted hessian sheets and/or ground boards over the excavated trench (whatever is the most practical solution for the site).

5.3.3 As necessary, insignificant tree roots with a measured diameter less than 25 millimetres can be severed using sharp, sterilised hand tools without consulting the Project Arboriculturist, allowing for excavations to continue.

5.3.4 The default position is to retain all significant tree roots with and measured diameter of 25 millimetres and greater, including masses of smaller diameter tree roots where possible. Tree root severance will only be agreed by the Project Arboriculturist or the Local Authority Tree Officer.

5.3.5 NOTE: If there is a prolific amount of smaller roots (≤25 millimetres in diameter) pruning these roots can have just as negative an effect on tree health and vigour as pruning one or two large roots. A decision will be made by the Project Arboriculturalist as to the appropriateness of severing a large quantity of smaller tree roots.

Figure 6: Photograph of successfully protected tree roots.

5.0 SITE SPECIFIC WORKING METHODS (Continued…)

5.4 Installation of Underground Services

5.4.1 The proposed hardscaping scheme seeks to provide below ground level drainage beneath each of the replaced pedestrian footpaths; PAV01 – Primary Path, PAV02 – Secondary Path and PAV03 – Tertiary Path.

5.4.2 The majority of all existing paths are to be accompanied with a Sustainable Urban Drainage Solution (SUDs). Both PAV01 and PAV02 shall include the installation of a piped surface water drainage system at approximately 500 millimetres below ground level, whilst PAV03 shall include a French Drain to be excavated to a depth of approximately 350 millimetres

5.4.3 The proposed depth of excavations associated with both PAV01 and PAV02 paths are to conclude to an approximately depth of 1200 millimetres below ground level. PAV01 – Primary Path will be surfaced with exposed aggregate concrete with a stone edge, whilst PAV02 – Secondary Path surfaced with self-binding gravel with a metal edge.

5.4.4 Whereas, PAV03 – Tertiary Path shall be excavated to a depth of 350 millimetres, feature a French Drain for drainage and will be surfaced with organic mulch.

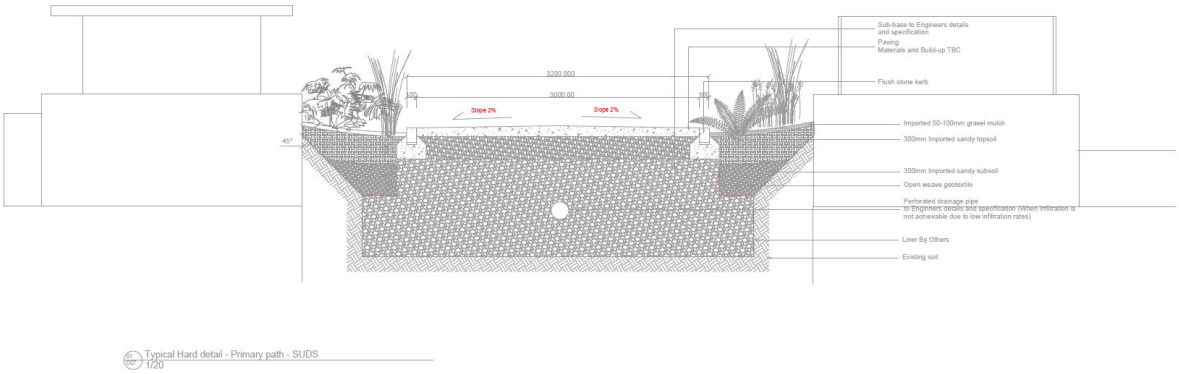


Figure 7: Section drawing of PAV01 – Primary Path, as provided by Gustafson, Porter + Bowman.

5.4.5 Following the successful completion of staged tree root investigation excavations, using a broken trench technique and by employing an Air Spade and hand tools, I do anticipate that tree roots shall be encountered within the calculated RPA's of retained trees.

5.4.6 It will be essential to conduct a 'Feasibility Study' following the completion of the tree root investigation works. As it may be possible to install the proposed drainage; e.g. piped at 500 millimetres or French Drain at 350 millimetres without causing any negative impact upon any tree roots. However, I do anticipate that excavations shall dissect the tree's rooting horizon, typically found between 500 and 1000 millimetres below ground level. As such there may be instances where it may not be practical to complete, or may require an amendment to the proposed design.

5.4.7 As such, it will be necessary to have some flexibility with the implementation of the drainage system, where the Project Arboriculturalist provides guidance to the Drainage Design for a practical solution.

5.4.8 Naturally, and wherever practical and applicable to do so, the proposed piped surface water drainage system and French Drains shall be installed in such a manner as not to cause damage to any retained tree roots.

5.0 SITE SPECIFIC WORKING METHODS (Continued…)

5.5 New Hard Standing – Paths

5.5.1 Following the successful competition and construction of the Sustainable Urban Drainage Solutions (SUDs) throughout the East and West Cemeteries, the final surfacing of PAV01 – Primary Path and PAV02 – Secondary Paths will be required.

5.5.2 PAV01 – Primary Paths shall be surfaced with exposed aggregate concrete and feature stone edging, whilst PAV02 – Secondary Path shall be surfaced with self-binding gravel and feature metal edging.

5.5.3 PAV03 – Tertiary Paths shall be surfaced with organic woodchip mulch.

5.5.4 Care and attention must be paid to ensure soil compaction and direct damage is not incurred during this final construction phase of works.

6.0 SCHEDULE OF TREE WORK

6.0.1 I recommend and specify the following tree removals to ensure implementation of the consented planning permission.

6.0.2 The prescribed tree works have been reproduced from the Part 2 – Arboricultural Impact Assessment Reports (JPL/210717/R2a & JPL/210717/R2b) also accompanying this report.

6.1 Table 3: Tree works to be carried out prior to construction

Tree Ref	Species	Category	Schedule of works prior to erection of tree protection barriers
T39	English Yew *(Taxus baccata)*	B2	• Remove.
T40	Bird Cherry *(Prunus padus)*	B2	• Remove.
T41	Bird Cherry *(Prunus padus)*	B2	• Remove.
T42	Ash *(Fraxinus excelsior)*	B2	• Remove.
T232	English Elm *(Ulmus procera)*	B2	• Remove.
T314	Hornbeam *(Carpinus betulus)*	B1	• Remove.

7.0 SUPERVISION AND MONITORING

7.1 Monitoring and Supervision

7.1.1 Good tree protection cannot be reliably implemented without regular arboricultural input and periodic site monitoring, the nature and extent of which will vary according to the complexity of the development proposals.

7.1.2 Furthermore, phasing of arboricultural involvement, including proper budgeting, can only be factored into the overall work program if project management takes full account of tree issues.

7.1.3 Therefore, Bartlett Consulting or another appointed project arboriculturist, will be instructed to work within the guidance of this report, overseeing implementation of protection measures and tree management proposals as detailed within this report.

7.1.4 Bartlett Consulting, or another appointed project arboriculturist will complete a site supervision form during and immediately after all scheduled site visits and submit the completed form to both the client as well as the London Borough of Camden Council within 72 hours of that visit.

7.2 Phasing of Arboricultural Involvement throughout the Development

7.2.1 A Project Arboriculturalist must be involved in the following phases of construction, with all site visits completed in-person and on-site (as opposed to video calls or other forms of remote working).

7.2.2 At the commencement of each site visit, Bartlett Consulting (or appointed project arboriculturist) will have a conversation with the site operatives about the careful working practices and sensitivity required for working within and adjacent to tree root protection areas.

7.2.3 The appointed project arboriculturist will visit site during the following phases of redevelopment:

1 Pre-commencement site meeting

2 Erection of temporary vertical barriers & installation of non-compacting ground protection

3 Supervise initial excavations of underground services with RPAs of retained trees

4 Regular and routine monitoring visits (e.g. monthly)

5 To survey & inspect trees after removal of all tree protection measures

7.0 SUPERVISION AND MONITORING (Continued…)

7.3 Recommendations for Site Monitoring and Supervision

7.3.1 A pre-commencement meeting should be held on site before any of the tree work and construction work begins. This should be attended by the appointed Site Manager, another other contractors appointed to work within the RPA's of retained trees, and the appointed Project Arboricultural Consultant.

7.3.2 The Project Arboricultural Consultant will inform the local planning authority (London Borough of Camden) in writing of the details of meetings held. All tree protection measures detailed in this document must be discussed so that they are fully understood by all the parties.

7.3.3 Clarification or modifications to the consented details must be recorded and circulated to all parties in writing. These documents should then form the basis of any supervision arrangements between the Arboricultural Consultant and the proposer, as agreed with the local planning authority where applicable.

7.3.4 The Project Arboricultural Consultant will visit during the phases as set out in Table 2 above. The Consultant's role is to advise on the development in relation to the trees, as well as liaise as necessary between the Site Manager and the local planning authority to ensure that appropriate protection measures are in place.

7.3.5 The role will involve monitoring compliance with any/all arboricultural conditions (where applied) and advising on any tree problems as they arise. A development site monitoring form (please see Appendix 5 for an example), will be completed by the Project Arboricultural Consultant during each site visit, to include the following;

1. Date of visit.
2. List of those in attendance on site.
3. Findings in relation to trees.
4. Details of any non-compliance.
5. Recommendations to be actioned so that the non-compliance is addressed and remedied.
6. List of the parties concerned to whom the monitoring sheet has been sent.
7. Date that Monitoring sheet emailed/ posted to the recipients.

7.0 SUPERVISION AND MONITORING (Continued…)

7.4 Appointed Building Contractor's Responsibilities

7.4.1 It will be the appointed building contractor's responsibility to ensure that the requirements set out within this Arboricultural Method Statement are known and understood by all site personnel.

7.4.2 The site manager will brief all personnel involved with the demolition and site clearance operations. This methodology shall form part of all site induction procedures and written into appropriate site management documents.

7.4.3 It will be the appointed demolition contractor's responsibility to ensure all tree protection measures are to the specifications and details provided within this report, as well as in accordance with the positions and locations shown on my Final Tree Protection Plan's.

7.4.4 The following pertinent points should be explained to all personnel:

a) The specification of vertical barriers & ground protection

b) The requirements and reasons for tree protection measures

c) Damage which can be sustained to trees and soil through compaction

d) What a construction exclusion zone is and how to maintain one

e) Consequences of breaching tree protection zones and causing damage to protected trees

7.4.5 It will be the appointed demolition contractor's responsibility to maintain a clean and legible copy of this report, as well as the Final Tree Protection Plan, in an easily accessible location for all members of staff and site operatives.

7.5 Appointed Project Arboriculturists Responsibilities

7.5.1 The appointed arboriculturist will complete site monitoring forms and keep the client as well as local planning authority informed of the details of on-site discussions as well as tree protection measures.

7.5.2 Clarification or modifications to agreed programmes, working methods and tree protection measures will be recorded on the site monitoring form(s) and circulated to all parties in writing and via email.

7.5.3 Any modifications through site monitoring, as recoded on the site monitoring form shall for the basis of future site supervision and tree protection measures between the client, appointed contractor and Project Arboriculturist, as agreed with the local planning authority, moving forward.

7.5.4 The appointed Project Arboriculturist will visit during the phases as set out in Section 7.2.3 above and monitor compliance with any / all conditions of planning permission where applicable and advise on any arising issues.

7.5.5 The appointed Project Arboriculturist will be on-hand to advise on the demolition in relation to the trees, guide and inform about tree protection and retention, and provide on-hand and on-site assistance to the appointed contractor and employees.

7.6 Variations

7.6.1 Any variations to the tree protection measures will need to be agreed in writing by the local planning authority; London Borough of Camden Council before implementation. The variation will be set out in writing, detailing the reasons leading to the change and the modifications required.

8.0 CONTINGENCY PROCEEDURES

8.0.1 If there is a breach of tree protection or a variation of this method statement; unauthorised soil contamination and/or compaction within the designated tree root protection areas; any direct damage to the root system of the protected trees (outside the scope of this method statement), root collar, main stem, or overhead branching it is critical that work temporarily stop whilst specialist advice is sought from Bartlett Consulting or the appointed Project Arboriculturist immediately.

8.0.2 A photographic record of the breach and/or damage must be made by the senior appointed on-site contractor supervisor and retained for perpetuity.

8.0.3 Bartlett Consulting or the appointed Project Arboriculturist may have to attend site and evaluate the incident. It may also be necessary for the appointed Project Arboriculturist to make direct contact with London Borough of Camden Council and inform them of the incident.

8.0.4 Following any incident, all associated works must cease immediately, until professional direction is given by the appointed project arboriculturist. The following table outlines the *best practice* to follow:

8.1 Table 4: Contingency Procedure Flow Table

Procedure	Timeframe
1. Immediately stop all works near breach	At occurrence
2. Works Supervisor and Client to document (via photograph) nature of breach (pedestrian trespass / spillage / root damage / etc.) and contact Bartlett Consulting or appointed Project Arboriculturist (telephone call)	Within 15 minutes
3A. Works Supervisor to reinstate tree protection and continue works (if advised by Bartlett Consulting / Project Arboriculturist as no damage)	Within 120 minutes
3B. Reinstate tree protection but continue to cease work in area pending site visit(if advised by Bartlett Consulting / Project Arboriculturist as damage occurred)	Within 120 minutes
4. London Borough of Camden Council informed of situation by Works Supervisor / Client / Project Arboriculturist (via telephone or email after initial contact and prior to site visit)	Within 1 day of step 3
5A. Damage will be documented by Bartlett Consulting / Project Arboriculturist, qualified and quantified as appropriate, and recorded via digital photography. 5B. Any immediate corrective action and compensation will be undertaken by Bartlett Consulting / Project Arboriculturist at the time of their visit. The Works Supervisor / Client will be advised of further compensation and mitigation required as result of damage. 5C. Reinstate tree protection measures and re-commence with works in area	During site visit During site visit and within 2 working days of visit At conclusion of site visit
6. Implementation of further tree compensation and mitigation	As / when appropriate
7. Formal Site Supervision form to be sent to London Borough of Camden Council & Client	Within 5 days of step 5

APPENDIX 1: LIMITATIONS OF REPORT

Limitations of the Arboricultural Method Statement

- Please also refer to sections 1.2 and 1.3 at the beginning of this report.
- The report is based on information provided by third parties and the specifications and recommendations is dependent upon information provided therein.
- This report does not consider the possible implications to any present or future built structures other than those considered within the report.

Findings of the Survey and the Report

- Validity, accuracy and findings of the report are directed by the accuracy of information provided to Bartlett Consulting at the time of conducting the tree survey and during report writing.
- Checking of independent data/information will not be undertaken, with particular reference given to scaled maps and drawings provided to Bartlett Consulting

Timing of the Survey and the Report

- The considerations/ findings in this method statement are valid for one year.
- Such considerations/ findings will become invalid if any building works are undertaken, soil levels are altered or tree work undertaken outside of the scope of works as detailed and presented at the time of compiling this report.
- If there are any alterations to either the property or soil levels, or if tree works are carried out, it is recommended that a new tree report is undertaken.

Trees in relation to other Properties:

- This report/survey only considers the trees in relation to the site as identified.
- It 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.
- Neighbouring owners of trees that are identified as posing a possible risk to the property/site in question should seek their own advice as to possible effects of the recommendations given within this report.
- Damage to, or possibility of damage to, any other structure that is not referred to within the report is not considered unless otherwise specified. This includes both neighbouring structures and any other structure on the property.

Trees in Relation to Subsidence, Heave and Direct damage

- This report does not deal with issues relating to subsidence or heave in relation to any built structures and surrounding vegetation whether the structure or vegetation falls within the boundaries as considered or lies beyond the boundaries.
- The report does not consider issues relating to subsidence or heave in relation to any proposed built structures or future vegetation whether within the boundaries as considered or beyond the boundaries
- It is prudent to consider the effects of heave on any property if trees are removed.
- Similarly, the issue of direct damage (when the roots of a tree have physical contact with a structure) is not considered within this report.

Trees subject to statutory controls:

- Whilst Bartlett Consulting has made attempts to ascertain if any of the trees subject to this report are 'protected', their status is always subject to change. Therefore the final responsibility for checking statutory protection for trees rests with the employed contractor and not with Bartlett Consulting
- Any prescribed tree works to a protected tree are provided due to perceived hazard and risk, and should be considered acceptable by the Local Planning Authority (LPA). However appropriate notification must still be provided to the LPA as they may take an alternative point of view.

Trees are subject to environmental factors:

- The statements, findings and preliminary recommendations made within this report do not take into account any effects of extreme climate and weather incidences, vandalism, changes in the natural and built environment around the tree(s) after the date of this report, nor any damage whether physical, chemical or otherwise.

Copyright:

- All rights in this report are reserved. Its content and format are for the exclusive use of the addressee in dealing with this site. It may not be sold, lent, hired out or divulged to any third party not directly involved in this site without the written consent of Bartlett Consulting.

APPENDIX 2: REPORT REFERENCES

As a progressive company, we keep abreast of research data relating to Arboriculture. All observations, recommendations and works are based on current industry standard reference material and a selection of pertinent items is shown below.

This survey and report has evolved from industry material including the following:

- BS 5837: (2012) *Trees in Relation to Design, Demolition and Construction – Recommendations*
- BS 3998: (2010) *Tree Works - Recommendations*
- Town & Country Planning Act (Tree Preservation) (England) Regulations 2012
- Town & Country Planning Act (As amended) 1990
- Mattheck, C, Bethge K, Weber K. (2015) *The Body Language of Trees – Encyclopaedia of Visual Tree Assessment*, Karlsruhe Institute of Technology Campus North.
- National Joint Utilities Group (2007) *Publication Volume 4: Issue 2 Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.*
- National House Building Council Standard, Part 4.2 – *Building Near Trees*

Bartlett Consulting's arboricultural expertise has been used to interpret these references for practical application to the site and the trees which are the subject of this report, and to provide the most appropriate advice and guidance at this stage of project planning.

APPENDIX 3: TREE PROTECTION PLANNING

The 'Final' Tree Protection Plan's (FTPP) referenced JPL/240241/FTPPa (East) and JPL/210717/FTPPb (West) can be found as an appendix at the end of this report. The FTPP has been prepared in accordance with Section 7.1 of British Standard 5837:2012.

Before the commencement of any works on site (other than those set out in the schedule of tree works, contained in this document), protective vertical barriers must be erected. The location of the barriers is illustrated on the 'Final' Tree Protection Plan. However, it must be noted that these locations are now final, construction methodologies have been considered and the barrier locations should not require amendment or supplementing.

The barriers will remain in place until completion of the main construction phase and then only removed once each phase is completed.

Other than works detailed within this method statement or approved in writing by the local planning authority, no works shall take place within the exclusion zones defined by the protective fencing.

The vertical barriers shall completely exclude access during all phases of site operations. The protected areas shall not be used for the storage of materials or spoil, nor for the mixing of substances or the disposal of any residues. Materials, equipment and arising debris will not be stacked against the vertical barrier, even temporarily. A4 sized Notice Signs must be laminated and attached to the vertical barrier at regular intervals so all visitors and operatives are aware of the tree protection requirements.

Figure 10: Showing appropriate on site notices to apply to tree protection barriers.

APPENDIX 4: GENERAL SITE CONDITIONS AND TREE PROTECTION MEASURES

Storage of Materials
Designated areas for storage of materials and site office will be decided by the Site Manager before any works can commence. Suggested suitable areas are marked out on the Tree Protection Plan (TPP). It is advisable to consult with the Arboriculturist if the storage areas or site office deviates from that area as outlined by the TPP.

Discharge of Contaminants
No materials that are likely to have an adverse effect on tree health, such as oil, bitumen or cement will be discharged within the RPA of any of the trees to be retained. It is advised that the disposal of all waste materials is carried out in an appropriately sustainable fashion.

Contingency Plans
Should there be any contamination of soils either within or adjacent to the RPA these should be dealt with as quickly as possible with a proprietary emergency clean up kit. The situation should then be assessed as to whether it is appropriate to remove soils. An Arboriculturist should be consulted before a decision is made. The protection barriers erected should be able to be removed relatively easily to access the area in event of an emergency.

Changes in Ground Levels and Soft Surface Ground changes within the RPA's of trees
It is considered certain operations may require ground level changes but these changes should be limited to a minimum. Landscaping operations within the RPA of trees to be retained should be carried out with minimum disruption to the existing landscape avoiding removal of topsoil and re-introduction of foreign soils.

Where there are areas to be re-turfed within the RPA of trees to be retained, existing turf should be removed with minimum disruption to the soils, removing no more than 25 to 50mm of topsoil. Similarly, in new amenity grass areas that encroach RPAs, the ground levels should not be raised in excess of 50mm above existing. Soils used should be from the site or clean imported topsoil.

Access to the area of proposed works
Main access to the site for renovation of the Barn is understood to be from the adjacent farm area. Access to the swimming pool, car port and driveway construction will be from the site of Park Hall. It is considered that these would be the only access points into the site for the purposes of carrying out the development as proposed. If there are any other proposed access points into the site, this should be agreed prior to use with the Arboriculturist.

Cranes and Lifting Equipment
All lifting equipment, including cranes if utilised, should be so positioned that they operate without contact with the retained trees. Care must be taken so that the arc of the boom fitted to the lifting equipment is sufficiently clear of the retained trees.

Boundaries/ Scope of the Site
The appointed Arboricultural Supervisor must be consulted if the site boundaries of the site are extended or if excavations/ storage/ construction related to this development is to be carried out on other parts of the site, outside of the development site as indicated on the Tree Protection Plan.

APPENDIX 5: BARTLETT TREE EXPERTS LTD SITE MONITORING FORM

Arboricultural Consultant's Details	
Consultant's Name: **Tel:** **Mobile:**	Mr James Percy-Lancaster, Senior Arboricultural Consultant 01428 682 043 077195215610
Development Site Details	
Address: **Planning Application Ref:**	Highgate Cemetery, Swain's Lane, Highgate, London, N6 6PJ TBC
Local Authority Details (LPA):	
LPA: **LPA Tree Officer:** **LPA Planning Case Officer/ Contact:**	London Borough of Camden TBC TBC
Landscape Architects Details	
Practice name: **Address:**	Gustafson Porter + Bowman Ltd. 1 Cobham Mews, Camden, London NW1 9SB
Contractor Details:	
Contractor name: **Contact name:**	TBC TBC
Date	
Stage of Development	
Purpose of visit	
Protective Barriers	
Ground Protection	
Compaction	
Damage to retained trees	
Other notes	
Photos attached	
Further action required:	
Date of next site visit:	

APPENDIX 6: FINAL TREE PROTECTION PLAN

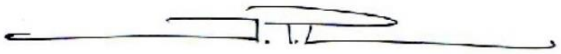
I trust that the contents and recommendations contained within this report were informative, easy to understand and helpful to you, with regards to managing your tree. Should you have any further questions or concerns, please do not hesitate to contact me again.

REPORT CLASSIFICATION: BS: 5837 Arboricultural Method Statement & Final Tree Protection Plan

REPORT STATUS: Final

REPORT COMPLETED BY: Mr James Percy-Lancaster *CertArb TechArborA*
Senior Arboricultural Consultant

SIGNATURE:



DATE: Tuesday 2nd October 2024

REPORT CHECKED BY: Mr Gareth Davies *MArborA*
Senior Arboricultural Consultant

SIGNATURE:

DATE: Friday 4th October 2024

Bartlett Consulting

Bartlett Tree Experts Ltd. Unit 2D Kallos Building Coopers Place
Combe Lane, Wormley, Surrey GU8 5SY
E: consultancy@bartlettuk.com W: bartletttree.co.uk

FINAL TREE PROTECTION PLAN EAST

SCALE : 1 : 1250 @ A3

DATE : 07/10/2024

MAP FILENAME : JPL/210717/FTPPa - HIGHGATE CEMETERY

0 100m

LEGEND

- PAV07 - Raised Timber Boardwalk
- PAV06 - Entrance Self Binding Gravel
- PAV05 - Entrance Yorkstone Setts
- PAV04 - Entrance Granite Setts
- PAV03 - Tertiary Path
- PAV02 - Secondary Path
- PAV01 - Primary Path
- Tree Root Investigation Works
- Gardeners Compound
- Tree Protection Barriers
- Retained Tree
- Removed Tree

Bartlett Consulting

Bartlett Tree Experts Ltd. Unit 2D Kallos Building Coopers Place
Combe Lane, Wormley, Surrey GU8 5SY
E: consultancy@bartlettuk.com W: bartletttree.co.uk

FINAL TREE PROTECTION PLAN WEST

SCALE :	DATE :
1 : 1250 @ A3	07/10/2024

MAP FILENAME :
JPL/210717/FTPPb - HIGHGATE CEMETERY

N

0 100m