HAYDEN'S
Arboricultural Consultants

Tree Survey, Arboricultural Impact Assessment
Arboricultural Method Statement & Tree Protection Plan
In Accordance with BS 5837:2012

Proj. No **6924**	**Turing House School, Hospital Bridge Road, Twickenham, London, TW2 6LH**		
Client:		Bowmer and Kirkland Ltd	
Date of Report:	11/04/2019	Revision:	A

Tree Survey, Arboricultural Impact Assessment, Arboricultural Method Statement & Tree Protection Plan – In Accordance with BS 5837:2012

Summary

The purpose of this report is to provide a consideration of the arboricultural implications created by the proposed development. In accordance with the feasibility and planning sections of BS5837:2012 *"Trees in relation to design, demolition and construction – Recommendations"*, trees deemed to be within the influencing distance of the projected construction have been evaluated for quality, longevity and initial maintenance requirements. Where trees do not have to be removed for health and safety reasons, a detailed and objective assessment has been made of the consequences of the intended layout.

In this circumstance it is intended to construct a new teaching block with associated access, parking and sports pitches. As a result forty nine individual trees, three groups of trees, four areas of trees and four hedges were inspected. The arboricultural related implications of the proposal are as follows:

1 In addition to trees which require felling irrespective of development, it is necessary to fell two category 'B', eight category 'C' and one category 'U' individual trees. One category 'C' group of trees and two category 'C' hedges also require felling, in addition to a section of one further category 'C' hedge and two category 'C' areas of trees in order to achieve the proposed layout. Six trees require minor work to permit construction.

2 Four trees have been identified for removal irrespective of any development proposals – T009, T014, T017 and T041. The removal of two of these trees, T009 and T017, coincide with the requirements of the proposed layout. One of the trees, T014, is understood to lie on neighbouring land and as such the relevant recommendations of this report relating to this tree should be communicated to the landowner as soon as possible.

3 The alignment of the proposed teaching block does not encroach within the Root Protection Area (RPA) of any trees that are to be retained. In view of this and as assessed in accordance with BS5837:2012, no specialist foundation designs or construction techniques will be required to prevent damage to tree roots. Specialist foundations may still be required for other reasons, including mitigating the influencing distance of tree roots, subject to expert advice from a Structural Engineer.

4 The alignment of the MUGA, parking and the footpath adjacent to the northern elevation of the proposed teaching block encroach within the Root Protection Areas of three trees, one areas of trees, one group of trees and one hedge that are to be retained. However, given the use of modern "no dig" construction techniques this is not considered to be a substantial issue, as discussed at items 4.4.3 and 4.4.4.

5 The alignment of parking encroaches within the RPA of one further tree to be retained. This has only minor influence on the affected tree's RPA and as such it is considered appropriate to undertake linear root pruning, thus obviating the need for specialist "no-dig" construction techniques at this location, as discussed at item 4.4.5.

6 One area of trees, A004, requires additional investigation. It is understood this feature lies on neighbouring land and as such the relevant recommendations of this report relating to this area should be communicated to the landowner as soon as possible.

7 Oak Processionary Moth nests were identified within the crowns of two retained Oaks – T023 and T024. Given the potential health risks to future occupiers of the site as a result of their presence, these two trees and the remaining Oaks within and adjacent to the site's curtilage need to be inspected and any new nests removed in accordance with current best practice guidelines.

8 This report recommends that specialist advice is obtained by expert practitioners in other disciplines. Such input should always be sought prior to the submission of this report in support of a planning application in order to demonstrate that the techniques and methods hereby proposed are achievable. In this particular circumstance it is necessary to contact the following:

- Structural Engineer (foundation design, item 4.4.1)
- Civil Engineer ("no-dig" surfacing, item 4.4.3)

9 All trees and landscape features that are to remain as part of the development should suffer no structural damage provided that the findings with this report are complied with in full. This includes ensuring that protective fencing is erected as detailed at items 4.6 and 5.1 of this report.

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1.0 Introduction

1.1 Terms of Reference

1.1.1 Hayden's Arboricultural Consultants Limited has been commissioned by Bowmer and Kirkland Ltd to prepare a Tree Survey, Arboricultural Impact Assessment, Arboricultural Method Statement and Tree Protection Plan for the existing trees at Turing House School, Hospital Bridge Road, Twickenham, London, TW2 6LH.

1.1.2 The site survey was carried out on the 08/08/2018. The relevant qualitative and quantitative tree data was recorded in order to assess the condition of the existing trees, their constraints upon the prospective development and the necessary protection and construction specifications required to allow their retention as a sustainable and integral part of the completed development.

1.1.3 Information is given on condition, age, size and indicative positioning of all the trees, both on and affecting the site. This is in accordance with the British Standard 5837:2012 *Trees in relation to design, demolition and construction - Recommendations.*

1.2 Scope of Works

1.2.1 The survey of the trees and any other factors are of a preliminary nature. The trees were inspected on the basis of the Visual Tree Assessment (VTA) method as developed by Mattheck and Breloer (1994). The trees were inspected from ground level with no climbing inspections undertaken. It is not always possible to access every tree and as such some measurements may have to be estimated. Trees with estimated measurements are highlighted in the schedule of trees. No samples have been removed from the site for analysis. The survey does not cover the arrangements that may be required in connection with the removal of existing underground services.

1.2.2 Whilst this is an arboricultural report, comments relating to non arboricultural matters are given, such as built structures and soil data. Any opinion thus expressed should be viewed as provisional and confirmation from an appropriately qualified professional sought. Such points are clearly identified within the body of the report.

1.2.3 An intrinsic part of tree inspection in relation to development is the assessment of risk associated with trees in close proximity to persons and property. Most human activities involve a degree of risk with such risks being commonly accepted, if the associated benefits are perceived to be commensurate. In general, the risk relating to trees tends to increase with the age of the trees concerned, as do the benefits. It will be deemed to be accepted by the client that the formulation of the recommendations for all tree management will be guided by the cost-benefit analysis (in terms of amenity) of the tree work.

1.3 Documentation

1.3.1 The following documentation was provided prior to the commencement of the production of this report;

- Email of instruction received from Richard Shawcroft on the 27/07/18
- Topographical survey - drawing no. JKK9319_01-05 A
- Proposed site layout - drawing no. ALA456L001H
- Fencing Arrangement – drawing no. EFATH-ALA-00-XX-DR-L-0005 P03

2.0 The Site

2.1 Overview

2.1.1. The site is an area of undeveloped land situated to the north of an existing nursery with access off Hospital Bridge Road. It is a level site and the trees surveyed were found to be of mixed species, maturity and condition and they are considered to provide a range of amenity benefits.

2.2 Soils

2.2.1 The soil type commonly associated with this site are loams with naturally high groundwater. They are of low fertility and mainly support wet acid meadows and woodland type habitats. This soil type constitutes approximately 1.7% of the total English land mass.

2.2.2 The data given was obtained from a desk top study which provides indications of likely soil types. By definition, this information is not comprehensive and therefore any decisions taken with regards the management, usage or construction on site should be based on a detailed soil analysis.

2.2.3 Further to item 2.2.2, this report provides no information on soil shrinkability. It may be necessary for practitioners in other disciplines (e.g. engineers considering foundation design) to obtain this data as required.

2.3 Statutory Tree Protection

2.3.1 Hayden's Arboricultural Consultants Limited have been informed that at the *date of the tree inspection* the trees concerned were not located within a Conservation Area or the subject of a Tree Preservation Order. As such, no written permission would be required from the Local Planning Authority (LPA), London Borough of Richmond upon Thames Council, prior to commencing works to trees. However, it should be noted that the LPA have the power to serve Tree Preservation Orders very rapidly. It is therefore incumbent upon owners, managers or any persons wishing to undertake work to any trees to contact the LPA prior to commencing works to ensure that the situation has not changed.

2.3.2 Felling Licence

All trees within the United Kingdom are protected under the Forestry Act. In general, anyone felling more than 5 cubic metres of timber in any calendar quarter requires a Felling Licence from the Forestry Commission. There are exemptions however and these are as follows:-

A Felling License is not required in the following instances:

- To fell trees in a garden, an orchard, a churchyard, or a designated open space (Commons Act 1899).
- To carry out tree work operations such as pruning, reduction, dead wooding or pollarding.
- To fell less than 5 cubic metres in a calendar quarter. (Please note that not more than 2 cubic metres in a calendar quarter may be sold).
- To fell trees that are 8 centimetres or less in diameter when measured 1.3 metres from the ground. Trees removed for thinning may have a diameter of up to 10 centimetres and trees managed under a coppice regime may have a diameter of up to 15 centimetres.

- To fell trees previously approved for removal under a Dedication Scheme, or where Detailed Planning Permission has been granted.

Substantial fines exist for not complying with the requirements of a Felling Licence.

2.3.3 **Hedgerow Regulations and Enclosure Act**

Certain hedgerows within the United Kingdom are protected under The Hedgerow Regulations 1997. The regulations apply to any hedgerow growing in, or adjacent to, any common land, protected land (local nature reserves and SSSI"s), or land used for agriculture, forestry or the breeding or keeping of horses, ponies or donkeys, if it: (a) has a continuous length of, or exceeding 20m; or (b) it has a continuous length of less than 20m and, at each end, meets another hedgerow. The regulations do not apply to hedgerows within the curtilage of, or marking a boundary of the curtilage of, a dwelling house.

Anybody wishing to remove or destroy a hedge must apply to their LPA for consent. Substantial fines exist for not complying with the requirements The Hedgerow Regulations.

Older hedges could be protected by old Enclosure Acts. These Acts may require that hedges are retained and managed in perpetuity.

It is recommended professional legal advice be sought before removing hedgerows to determine whether the hedgerow might be protected by the Enclosure Act. Details of the Enclosures Act are held by the Local Records Office.

3.0 Tree Survey

3.1 As part of this survey a total of forty-nine individual trees, three groups of trees, four areas of trees and four hedges have been identified. These have been numbered T001–T049, G001–G003, A001–A004 and H001–H004 respectively.

3.2 A topographical survey was provided which showed the position of the trees on site. However, it should be noted that topographical surveys are not always comprehensive and sometimes it is considered appropriate to record details of trees and landscape features omitted from or beyond the scope of the plan. If this circumstance occurs, the location of the individual tree or landscape feature is estimated. The position of each tree is shown on the attached drawing no. 6924-D-AIA rev. A.

3.3 In order to provide a systematic, consistent and transparent evaluation of the trees included within this survey, they have been assessed and categorised in accordance with the method detailed in item 4.3 of *BS 5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations"*. For further information, please see the attached Explanatory Notes.

3.4 The detailed assessment of each tree and its work requirements with priorities are listed in the attached Schedule of Trees.

3.5 Several items would benefit from tree surgery or additional investigation, be it for health and safety, cultural, aesthetic, or structural reasons as detailed in the attached Schedule of Trees. Including the trees recommended for felling, the items requiring the **most urgent** intervention are as follows:

As soon as possible:

A004	Detailed inspection to be undertaken by landowner (assessment of root damage and declining health).
T041	Fell (landowner to be advised).

Within six months:

T016	Remove Ivy from ground level to 3m. Re-inspect.
T017	Fell and poison stump
T021	Remove Ivy from ground level to 4m. Remove major deadwood. Re-inspect.
T022	Remove Ivy from ground level to 4m. Remove major deadwood. Re-inspect.
T023	Remove Ivy from ground level to 5m. Remove major deadwood. Remove OPM nest. Re-inspect.
T024	Remove rubbish deposited around base. Remove Ivy from ground level to 5m. Remove major deadwood. Remove OPM nest. Re-inspect.

3.6 In accordance with item 4.2.4 (c) of BS 5837:2012, the items inspected and detailed within this report have been selected for inclusion due to the likely influence of any proposed development on the trees, rather than strictly adhering to the curtilage of the site. However, it must be understood that there may be trees beyond the site and not included in this survey which may exert an influence on the development. Where works for cultural, health and safety, quality of life, or development purposes have been recommended on trees outside the ownership of the site, these can only progress with the agreement of the owner, except where it involves portions of the trees overhanging the boundary.

4.0 Arboricultural Impact Assessment

4.1 The Proposal

4.1.1 The proposal seeks to redevelop the site to create a new school. This involves the construction of a teaching block with associated access, parking areas and sports facilities and pitches to the west of the site.

4.2 Access

4.2.1 Site access is unencumbered by the RPAs of any trees to be retained. From a purely arboricultural perspective, it will therefore not be necessary to install a proprietary temporary load bearing road to protect tree roots.

4.3. Demolition

4.3.1 There is no demolition associated with this proposal.

4.4 Construction

4.4.1 Construction of the teaching block's foundations or structural supports do not encroach within the Root Protection Area (RPA) of any trees to be retained. From an arboricultural perspective, no specialised construction or foundation techniques will therefore be required to protect tree roots. However, dependent on the soil type, species and topography, trees may have an influence on the soil beyond their calculated RPA. It is therefore recommended that a Structural Engineer is consulted to assess the implications of the tree retention and planting on the required foundation design.

4.4.2 Security fencing is to be installed along each of the site's boundaries. The proposed boundary fences are to be installed within the RPA of fourteen retained trees and one group of retained trees - T010, T012, T015, T016, T018, T021, T022, T023, T024, T031, T032, T033, T034 and T035 and G001. The fencing supports will be secured in concrete pad foundations. Where the proposed pad foundation is located within the RPA of retained trees, excavation will be undertaken by hand and all roots encountered <50mm in diameter will be cleanly severed using secateurs or a handsaw. Prior to being backfilled, each foundation hole will be lined with a non-permeable geotextile membrane to prevent phytotoxic concrete adversely affecting the retained trees' roots. This activity will take place under arboricultural supervision and photographic evidence forwarded to the LPA.

4.4.3 Installation of new hard surfacing (i.e. parking and a footpath) encroaches within the RPA of one tree, one areas of trees, one group of trees and one hedge that are to be retained – T021, A002, G001 and H001 respectively. Provided that these work with finished levels and required load bearings without cutting into the ground, the surfaces should be attended to by the use of "no dig" construction methods. The exact specification must be designed by a Civil Engineer who can confirm that the finished levels and load bearings are achievable with this type of design without cutting into the ground. The final specification will be submitted to the LPA for written approval prior to development commencing on site. In order to protect the RPA of the affected trees, these areas will be constructed as a final phase of development with the RPA initially protected by fencing and / or ground protection.

4.4.4 Installation of the MUGA encroach within the RPA of two trees and one hedge that are to be retained – T021, T022 and H001. The MUGA is to be constructed using a 'no-dig' permeable surfacing and the final construction specification will also be submitted to the LPA for written approval prior to development commencing on site. In order to protect the RPA of the affected trees, these areas will be constructed as a final phase of development with the RPA initially protected by fencing and / or ground protection.

4.4.5 Installation of new hard surfacing (i.e. parking) encroaches within the RPA of one further retained tree – T012. Given the extent of the intrusion at this location, 10% of the RPA and that it has historically been pollarded / reduced to 1m in height, it is considered acceptable to undertake linear root pruning as part of the access facilitation pruning (AFP) works. This operation will obviate the need for "no dig" construction methods in this situation. The location where precautionary root pruning is proposed is identified on the attached drawing no. 6924-D-AIA rev. A.

4.5 Implications of Sloping Ground

4.5.1 The arboricultural implications of the proposed structures are based on an assumption that because there are no significant existing slopes on site, level changes will not occur within the RPA of trees that are shown to be retained.

4.6 Requirement for Tree Barrier Fencing

4.6.1 Prior to the commencement of construction and immediately after the completion of the necessary tree work, protective fencing will be erected and ground protection installed on site. This must be fit for purpose, in full accordance with the requirements of BS 5837:2012 and positioned as shown on the attached Arboricultural Impact Assessment & Tree Protection drawing no. 6924-D-AIA rev. A.

4.7 Compound

4.7.1 The site provides adequate internal space to locate a construction compound outside the RPA of any trees and landscape features that are to be retained.

4.8 Phasing

4.8.1 The approval involves the integration of a number of aspects that affect tree protection. For this reason, the project must be carefully phased to ensure the highest level of protection for retained trees at all times. Shown on the attached drawing no. 6924-D-AIA rev. A is a phasing recommendation to cover the salient operations on site as they affect retained trees.

4.9 Monitoring

4.9.1 In accordance with item 6.3 of BS 5837:2012, the site and associated development should be monitored regularly by a competent Arboriculturalist to ensure that the arboricultural aspects of the planning permission are complied with. Shown on the attached drawing no. 6924-D-AIA rev. A is an auditable monitoring schedule to assess the progress of key site events/activities.

4.10 Cultural Implications for Retained Trees

4.10.1 It is necessary to undertake access facilitation pruning (AFP) which includes below ground work to T012, as outlined in the *Schedule of Works to Allow Development* and discussed at item 4.4.5. It is also necessary to undertake above ground work to T031, T032, T033, T034 and T035 to facilitate installation of boundary fencing. Given the amount of pruning necessary and the location of the works, the AFP is not considered likely to have a significant adverse effect on the trees concerned.

4.11 Landscape Implications

4.11.1 In addition to trees and landscape features necessitating removal for health and safety, cultural or quality of life reasons, (as detailed in the attached Schedule of Works - Irrespective of Development) the items listed in the table below require felling to permit the proposed development to proceed: -

Feature No	Reason for Removal	BS Category*	Visual Amenity Assessment*
A002 (section)	To facilitate installation of the proposed boundary fence.	C	Moderate
A003 (section)	To facilitate installation of the proposed boundary fence.	C	Low
G002	To facilitate construction of proposed parking area and teaching block.	C	Low
H001 (section)	To facilitate installation of the proposed boundary fence.	C	Moderate
H002	To facilitate installation of the proposed boundary fence.	C	Moderate
H004	To facilitate construction of proposed footpath.	C	Moderate
T004	To facilitate construction of proposed access and parking area.	C	Low
T005	To facilitate construction of proposed access and parking area.	C	Low
T006	To facilitate construction of proposed access and parking area.	C	Low
T007	To facilitate construction of proposed access and parking area.	C	Low
T008	To facilitate construction of proposed parking area.	U	Low
T013	To facilitate construction of proposed parking area.	C	Low
T019	To facilitate construction of the proposed teaching block.	B	Moderate
T020	To facilitate construction of the proposed teaching block.	B	Moderate
T039	To facilitate construction of the proposed sports pitches.	C	Low
T040	To facilitate construction of the proposed sports pitches.	C	Low
T045	To facilitate construction of proposed access and parking area.	C	Low

* Please see definitions in the Explanatory Notes attached to this report.

4.12 Post Development Implications

4.12.1 No adverse arboricultural implications are considered reasonably foreseeable for the trees that remain provided that the recommendations of this report are complied with in full.

4.12.2 Due to the dynamic nature of trees and their interaction with the environment, their health and structural integrity is liable to change over time. Because of this it is recommended that all trees on or adjacent to the site be inspected on an annual basis.

4.12.3 As stated in BS 5837:2012, regular maintenance of newly planted trees is of particular importance for at least three years during the critical post-planting period and might, where required by site conditions, planning requirements or legal agreement, be necessary for five years or more. The designer of the new landscaping should, in conjunction with the landscape design proposals, prepare a detailed maintenance schedule covering this period and appropriate arrangements made for its implementation.

5.0 Design Advice, Arboricultural Method Statement & Tree Protection Plan

5.1 Securing of Tree Structure and Root Protection Areas (RPA)

5.1.1 The trees to be retained will be protected by the use of stout barrier fencing erected in the positions indicated on the attached Arboricultural Impact Assessment & Tree Protection drawing no. 6924-D-AIA rev. A. This fencing will be in accordance with the requirements of BS 5837:2012.

5.1.2 All fencing provided for the safeguarding of trees will be erected prior to development commencing on the site, therefore ensuring the maximum protection. This fencing, which must have all weather notices attached stating “Construction Exclusion Zone – No Access” will be regarded as sacrosanct and, once erected, will not be removed or altered without the prior consent of the LPA.

5.2 Location of Site Office, Compound and Parking

5.2.1 The position of the office, compound and parking will be agreed in writing with the LPA prior to commencement of any permitted development works. Any proposed re-location of these items through the various phases of development will be agreed prior to re-siting with the LPA.

5.3 On Site Storage of Spoil and Building Materials

5.3.1 Prior to and during all construction works on site, no spoil or construction materials will be stored within the RPA of any tree on, or adjacent to the site, even if the proposed development is to be within the RPA. This is to reduce to a minimum the compaction of the roots of the trees. Details of the RPA for each tree where no spoil or building materials will be stored are indicated on the attached Arboricultural Impact Assessment & Tree Protection drawing no. 6924-D-AIA rev. A. Any encroachment within this protected area will only be with the prior agreement of the LPA.

5.3.2 Any facilities for the storage of oils, fuels or chemicals shall be sited on impervious bases and surrounded by impervious bund walls. The volume of the bund compound shall be at least equivalent to the capacity of the tank plus 10%. If there is a multiple tankage, the compound shall be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks, plus 10%. All filling points, vents, gauges and sight glasses shall be located within the bund. The drainage system of the bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipe-work shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund.

5.3.3 All material storage facilities and work areas must consider the effects of sloping ground on the movement of potentially harmful liquid spillages towards or into protected areas.

5.4 Programme of Works

5.4.1 All tree work, once approved by the LPA, will be carried out prior to any other site works. Once completed, the proposed protective fencing will be erected along the lines indicated above. All of this will be carried out prior to commencement of any development works on the site. Outline details of the proposed programme are given in the Design and Construction and Tree Care flow chart attached (Appendix G-1).

5.5 Tree Surgery

5.5.1 All tree work will be agreed with the LPA and will be carried out in line with BS 3998:2010 (Recommendations for Tree Works). An arboricultural contractor approved by the LPA will carry out the work. Any alterations to the proposed schedule of works will be agreed with the LPA prior to commencement of works.

5.6 Levels

5.6.1 Other than for any specific exception which may be referred to at item 4.0, no alterations to soil levels within the RPA of retained trees are envisaged. However, if it is necessary for these to occur, appropriate measures must be taken to prevent or minimise any detrimental effects on the affected root systems as detailed in 5.6.2 and 5.6.3 below.

5.6.2 If it is necessary to excavate so close to trees that roots greater than 50mm diameter are likely to be encountered, particular care will be taken to avoid damage. Excavation in these areas will be undertaken by hand or using an air spade, avoiding any damage to the bark. The roots will be surrounded with sharp sand prior to the replacing of any soil or other material in the vicinity.

5.6.3 If it is necessary to raise levels, it is essential that adequate supplies of water and oxygen pass through the soil to the trees' roots. Therefore, where necessary, a granular material will be used which will not inhibit gaseous diffusion. Possible options are no-fines gravel, cobbles or, Type 2 road-stone. All hard surfaces will be of suitable specification to allow such gaseous diffusion, e.g. brick pavers.

5.7 Services

5.7.1 At the time of writing this report, no details on proposed services were available. However, the following principles should be adhered to when planning for their installation.

5.7.2 It is proposed that all underground service runs will be placed outside the RPA of the trees on or adjacent to the site. Where it is not possible to do this, the proposed length infringing the RPA will be hand dug 'broken trenches' (NJUG 4 paragraph 4) to ensure the maximum protection of the trees' roots. The trenches may also be excavated using an air spade, or trenchless technology can be employed if this methodology is considered appropriate by the relevant service company (thus allowing services to pass below and through the roots without the need for traditional excavation). If it is necessary to cut any small roots as part of any of these processes, they should be severed in such a way as to ensure that the final wound is as small as possible and free from ragged, torn ends.

5.7.3 All routes for overhead services will aim to avoid the trees. Where this is not possible, any tree work will be agreed prior to commencement with the LPA.

5.7.4 All service providers (Statutory Authorities) will be consulted prior to commencement of works with the aim of minimising the number of service runs on the site.

5.7.5 All service runs/trenches where they encroach within the RPA of retained trees will be agreed with the LPA prior to commencement of works.

5.8 Hard Surface Types & Construction within the Root Protection Area

5.8.1 Where it is necessary to construct footpaths, driveways, non-adoptable roads and other hard surfaces within the RPA as calculated in accordance with BS 5837:2012 (item 4.6.1), it is proposed that the design will comply with the 'no-dig' principles of the Arboricultural Advisory Information Services (AAIS) Practice Note 12 "*Through the Trees to Development*" - the only difference being that instead of a geo-grid, a geo-textile base is provided, and the no-fines road stone is incorporated in and retained by a geo-web cellular confinement system. Given the individual requirements of each site, it is essential that a specialist engineer is consulted to specify the construction detail. Where it is necessary to remove any existing hard surface, or lower the ground level within the RPA, this may expose roots. This operation must be undertaken using hand tools or an air spade. Any roots found should be treated with the greatest care and surrounded by sharp sand to provide a level base. Please note that 'no-dig' surfaces are not always considered acceptable for adoption.

5.8.2 Where it is shown that the construction of a boundary wall or dwelling encroaches within the RPA of a retained tree, the foundations of the wall or dwelling will be designed in such a manner so as to minimise the detrimental effect of the construction on the tree's roots. In these situations, any excavations within the RPA of an affected tree will only be undertaken following exploration of the existing root system with an air spade (or by hand digging if soil conditions preclude) and the necessary root pruning undertaken to allow excavation without unnecessary pulling and tearing of the roots to be retained. This will ensure minimal damage to tree roots where pad and beam or cantilever foundations are considered appropriate. Should a piling rig be required to create piles, any access facilitation pruning or felling necessary to allow access must be undertaken before the commencement of works and only with prior consent of the LPA.

5.9 **Reporting and Monitoring Procedures**

5.9.1 In accordance with item 6.3 of BS 5837:2012, the site and associated development should be monitored regularly by a competent Arboriculturalist to ensure that the arboricultural aspects of the planning permission (e.g. the installation and maintenance of protective measures and the supervision of specialist working techniques) are implemented. Furthermore, regular contact between the Site Manager and the Arboriculturalist allows them to effectively deal with and advise on any tree related problems that may occur during the development process. This system should be auditable. Should any issues arise during the arboricultural monitoring of the development the Arboriculturalist will contact the LPA and appropriate action taken only with the prior permission of Bowmer and Kirkland Ltd and the LPA.

6.0 Recommendations

6.1 It is recommended that the measures detailed in this report are implemented in full to provide retained trees with the highest level of protection during the process of construction.

6.2 Tree work should be completed as detailed in the Schedule of Trees. Where this has been identified for reasons other than to permit development, this work should be completed within the advised timescales irrespective of any development proposals.

6.3 The tree work proposed as part of this Survey are recommended to mitigate any identified problems that may be caused by trees in close proximity to the proposed development. To this end, should these recommendations be overruled, this Survey stands as the opinion of Hayden's Arboricultural Consultants Limited, and therefore any damage or injury caused by trees recommended by this practice for felling or tree surgery works, to which the proposed schedule of works has been altered or the tree has been requested to be retained by the LPA, cannot be the responsibility of this practice.

7.0 Limitations & Qualifications

Tree inspection reports are subject to the following limitations and qualifications.

General exclusions

Unless specifically mentioned, the report will only be concerned with above ground inspections. No below ground inspections will be carried out without the prior confirmation from the client that such works should be undertaken.

The validity, accuracy and findings of this report will be directly related to the accuracy of the information made available prior to and during the inspection process. No checking of independent third-party data will be undertaken. Hayden's Arboricultural Consultants Limited will not be responsible for the recommendations within this report where essential data are not made available or are inaccurate.

This report will remain valid for one year from the date of inspection but will become invalid if any building works are carried out upon the property, soil levels altered in any way close to the property, or tree work undertaken. It must also be appreciated that recommendations proposed within this report may be superseded by extreme weather, or any other unreasonably foreseeable events.

If alterations to the property or soil levels are carried out, or tree work undertaken, it is strongly recommended that a new tree inspection be carried out.

It will be appreciated, and deemed to be accepted by the client and their insurers, that the formulation of the recommendations for the management of trees will be guided by the following: -

1. The need to avoid reasonable foreseeable damage.
2. The arboricultural considerations - tree safety, good arboricultural practice (tree work) and aesthetics.

The client and their insurers are deemed to have accepted the limitation placed on the recommendations by the sources quoted in the attached report. Where sources are limited by time constraints or the client, this may lead to an incomplete quantification of the risk.

Signed:

April 2019
For and on Behalf of Hayden's Arboricultural Consultants Limited

8.0 References

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9.0 Appendices

Appendix **A** Species List & Tree Problems

Appendix **B** Schedule of Trees

Appendix **C** Schedule of Works - Irrespective of Development

Appendix **D** Schedule of Works to Allow Development

Appendix **E** Explanatory Notes

Appendix **F** Tree Preservation Order Enquiry/Response

Appendix **G** Advisory Information & Sample Specifications

1. BS 5837:2012 Figure 1 - Flow Chart – Design and Construction & Tree Care
2. European Protected Species and Woodland Operations Checklist (v.4)
3. BS 5837:2012 Figure 2 - Default specification for protective barrier
4. Figure 4 Detail of protective barrier where construction encroaches within BS5837:2012 Root Protection Area
5. Ground Guards

Appendix **H** Drawing no. 6924-D-AIA rev. A

Appendix A - Species List & Tree Problems

Species List:

Amur Maple	*Acer sp.*
Ash	*Fraxinus sp*
Birch	*Betula sp*
Cherry	*Prunus sp*
Cypress	*Cupressus sp*
Elder	*Sambucus sp*
Eucalyptus	*Eucalyptus sp*
Field Maple	*Acer sp*
Hawthorn	*Crataegus sp*
Hazel	*Corylus sp*
Holm Oak	*Quercus sp*
Hornbeam	*Carpinus sp*
Horse Chestnut	*Aesculus sp*
Jaquemont's Birch	*Betula sp*
Lime	*Tilia sp*
Lombardy Poplar	*Populus sp*
Maidenhair tree	*Ginkgo sp*
Norway Maple	*Acer sp*
Oak	*Quercus sp*
Pear	*Pyrus sp*
Pine	*Pinus sp*
Plum	*Prunus sp*
Purple Norway Maple	*Acer sp*
Robinia	*Robinia sp*
Rowan	*Sorbus sp*
Sycamore	*Acer sp*
Turkish Hazel	*Corylus sp*
Viburnum	*Viburnum sp*
Weeping Beech	*Fagus sp*
Yew (English)	*Taxus sp*

Tree Problems:

This gives a brief description of the problems identified in the attached Tree Survey.

Name: **Artist's Fungus** (*Ganoderma applanatum & adspersum*):	
Alternative or common names: “Ganoderma”	
Symptoms/Damage Type:	It causes heart rot in the infected tree, turning the wood white and ultimately soft and spongy as the rot consumes the lignin.
Consequence:	This rot causes the weakening of the tree and may eventually cause the tree to fall / snap or branches to break off. Some trees may remain structurally sound for many years depending upon the health of the affected tree and the rate and distribution of decay.
Control Measures:	No control is available, severely affected trees should be felled where there is potential for harm to persons or property by a falling branch or tree.

Name: **Deadwood**	
Symptoms/Damage Type:	This relates to dead branches in the crown of the tree. In the majority of cases, this is caused by the natural ageing process of the tree or shading due to its close proximity to neighbouring trees. However, in some situations, it may be related to fungal, bacterial or viral infection.
Consequence:	Depending upon the location and mass of dead wood removal of the affected tissue may be necessary to prevent harm to persons or property as the wood will become unstable as it decays and in some circumstances is likely to fall from the tree with little or no warning.
Control Measures:	Detailed monitoring should be undertaken on those trees showing signs of excessive deadwood production to identify the underlying cause.

Name: **Epicormic growth**	
Symptoms/Damage Type:	This is the production of numerous shoots on the main stem and branches of the tree. They are produced by the bursting into life of otherwise dormant buds. It is commonly associated with elevated levels of stress on the tree.
Consequence:	Whilst epicormic growth is usually symptomatic of an issue elsewhere within the tree heavy proliferation can cause the trees resources to become depleted or may mask significant structural weaknesses within the framework of the tree.
Control Measures:	Pruning off epicormic growth may be necessary to improve the visual amenity of the tree or prevent the development of a hazard or obstruction. No direct means of prevention are available other than therapeutic measures to alleviate stresses on the tree.

Name: **Ivy** *(Hedera helix)*	
Symptoms/Damage Type:	Ivy may grow to varying degrees on all areas of a tree from the base to the upper crown. It is possible that in doing so it will out-compete the host tree for available light thereby suppressing the host.
Consequence:	This is generally only harmful to the tree on already unhealthy specimens which may be constricted by large ivy stems around the trunk or may have their top growth suppressed by a mass of flowering shoots in the crown.

Control Measures:	Ivy should only be removed if absolutely necessary because it provides abundant cover to wildlife and then by severing twice close to the ground and removing a length of stem thereby causing the gradual dying away of the aerial parts of the plant providing extended benefit to wildlife whist relieving the pressure on the tree.

Name: **Oak Powdery Mildew** *(Microspheara alphitoides)*	
Symptoms/Damage Type:	Very common disease in Europe on most species of Oak. It appears around mid May onwards as a powdery white coat on the leaves and shoots.
Consequence:	It often cripples young plants. However on mature trees, although often prolific on young shoots and Lammas shoots in late summer, the effects are rarely serious unless attacked persistently for a large number of years.
Control Measures:	None required.

Name: **Tar Spot** *(Rhytisma acerinum)*	
Symptoms/Damage Type:	This is very common and widespread on Sycamore but can also affect numerous Acer species. The fungus causes large black bituminous blotches with yellow halos on the upper surfaces of the leaves from mid-summer onwards, preceded, but rarely noticed by yellowish patches in spring.
Consequence:	Fortunately whilst rather unsightly the blotches do little to damage the health of the tree unless an immature specimen is persistently infected.
Control Measures:	Unfortunately these blotches are not easily controlled. However it is recommended that all the leaf litter is collected and burnt in the autumn to prevent the spread of the spores.

Appendix B

Schedule of Trees

SCHEDULE OF TREES (AIA)

Turing House School, Hospital Bridge Road, Twickenham, London

Surveyed By: Nick Hayden Date: 08/08/2018
Managed By: Nick Hayden

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m^2)	Aspect	Aspect	SULE	Ground Cover						
A001	Oak, Holm Oak and Hawthorn	200	4		Moderate	N2.0, E2.0, S2.0, W2.0	Small area comprising of Holm Oak, Oak and Hawthorn at the apex of a bank adjacent to road. All dimensions are estimated due to restricted access. At current dimensions trees are considered to pose little risk.	C2	No work required.	4		
		2.4	0-2m		SM	High						
Yes		18.1			10 + years	Grass, Dense undergrowth						
A002	Ash, Hawthorn, Holm Oak, Pine and Robinia	250	12		Moderate	N3.0, E3.0, S3.0, W3.0	Area consisting predominantly of Hawthorn with Ash, Robinia, Pine and Holm Oak.	C2	No work required.	4	Fell section shown on drawing no. 6924-D-AIA rev. A to facilitate installation of boundary security fencing.	0
		3	0-2m		SM	High						
Yes		28.3			10 + years	Ivy, Dense undergrowth						
A003	Hawthorn and Plum	250	6		Low	N3.0, E3.0, S3.0, W3.0	Area of neglected Hawthorn and Plum. Dense bramble.	C2	No work required.	4	Fell section shown on drawing no. 6924-D-AIA rev. A to facilitate installation of boundary security fencing.	0
		3	0-2m		SM	Moderate						
Yes		28.3			10 + years	Dense undergrowth						
A004	Cypress	450	19		High	N99.0, E6.0, S99.0, W5.0	Prominent linear belt of Cypress separating site and cemetery. Off-site trees. Average height and estimated DBH provided. No stems plotted on TOPO. Dead stems within group. Many stems display evidence of notable dieback in their upper canopy and the remainder all show reduced vigour and impaired health. Within 1m of their stems, circa. 2/3rds of the northern most section of the belt, a new road has been constructed. Significant root severance evident where concrete haunching installed. Trees structural integrity and safe retention most likely severely compromised due to this. Detailed inspection to be undertaken by landowner. Stems within southern section of belt display, poor multi-stemmed form with tight unions.	U	Detailed inspection to be undertaken by landowner (root damage and declining health).	1		
		5.4	0-2m		M	High						
No		91.6			<10 Years	Mixed soft/hard surface						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m^2)	Aspect	Aspect	SULE	Ground Cover						
G001	Oak	610	12		High	N5.0, E5.0, S5.0, W5.0	Group of 3x Oak, 2 of which are multi-stemmed. Located towards the apex of a bank adjacent to the highway and railway. All trees have asymmetrical crowns but have matured to form one homogenous crown. Southern and central specimen have been heavily lifted and tipped back on their eastern aspect over the adjacent highway. Epicormic stem growth. Minor deadwood. No obvious indicators of disease or decay.	B2	Remove major deadwood.	3		
		7.32	0-2m		EM	High						
Yes		168.3			20+ years	Grass, Ivy, Light undergrowth						
G002	Birch, Hornbeam, Lime, Pear and Rowan	150	6		Low	N2.0, E2.0, S2.0, W2.0	Group of 28x Lime, Rowan, Birch, Pear, Hornbeam. Most likely nursery planting. Two dead trees within the group and remainder are of varied condition and health.	C2	No work required.	4	Fell to facilitate construction of proposed parking area.	0
		1.8	0-2m		Y	Moderate						
Yes		10.2			10 + years	Grass						
G003	Hawthorn	100	2.5		Low	N1.5, E1.5, S1.5, W1.5	Group of 10x young Hawthorn. Not plotted on Topo.	C2	No work required.	4		
		1.2	0-2m		Y	High						
Yes		4.5			10 + years	Grass						
H001	Hawthorn and Cherry	300	5		Moderate	N2.5, E2.5, S2.5, W2.5	Neglected Hawthorn hedge. 2x Ivy clad Cherries at western aspect of hedge.	C2	No work required.	4	Fell section shown on drawing no. 6924-D-AIA rev. A to facilitate installation of boundary security fencing.	0
		3.6	0-2m		EM	High						
Yes		40.7			10 + years	Grass, Ivy, Light undergrowth						
H002	Hawthorn and Elder	250	6		Moderate	N3.0, E3.0, S3.0, W3.0	Possibly off-site. Located between barbed wire fence and private rear boundaries. Neglected Hawthorn hedge with multiple dead stems. Ivy clad. Elder interspersed throughout.	C2	No work required.	4	Fell to facilitate installation of the proposed boundary fence (subject to landowner consent if located off-site).	0
		3	0-2m		EM	High						
No		28.3			10 + years	Dense undergrowth						
H003	Hawthorn and Elder	300	6		Moderate	N3.0, E3.0, S3.0, W3.0	Mainly off-site. Neglected Hawthorn hedge. Ivy clad and interspersed with Elder.	C2	No work required.	4		
		3.6	0-2m		EM	High						
No		40.7			10 + years	Dense undergrowth						
H004	Hazel and Viburnum	80	1.5		Moderate	N10.0, E1.0, S10.0, W1.0	Well maintained Hazel and Viburnum hedge.	C2	No work required.	4	Fell to facilitate construction of proposed footpath subject to landowner consent).	0
		0.96	0-2m		SM	Moderate						
No		2.9			10 + years	Grass, Tarmac						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m^2)	Aspect	Aspect	SULE	Ground Cover						
T001	Field Maple	380	8.5		Low	N4.0, E4.5, S4.0, W4.0	Multi-stemmed from ground level. Circa. 10x stems with average DBH of 120mm. Tight unions. Crossing, rubbing stems and branches. Canopy displays normal, healthy vigour. Whilst tree has impaired form, at its current dimensions it is considered to pose little risk.	C1	No work required.	4		
		4.56	0-2m		EM	Moderate						
Yes		65.3			10 + years	Grass						
T002	Lime	140	6		Low	N2.0, E2.0, S2.0, W2.0	No obvious indicators of disease or decay. At current dimensions tree is considered to pose little risk.	C2	No work required.	4		
		1.68	0-2m		Y	Moderate						
Yes		8.9			10 + years	Grass						
T003	Turkish Hazel	130	4		Low	N1.5, E1.5, S1.5, W1.5	Topped at circa. 4m. Crown displays reduced vigour. At current dimensions tree is considered to pose little risk.	C2	No work required.	4		
		1.56	0-2m		Y	Low						
Yes		7.6			10 + years	Grass						
T004	Horse Chestnut	160	5.5		Low	N3.5, E4.0, S3.0, W3.0	Tight unions. Branch wounds. Minor deadwood. Crown displays reasonable vigour. No obvious indicators of disease or decay. At current dimensions tree is considered to pose little risk.	C1	No work required.	4	Fell to facilitate construction of proposed access and parking area.	0
		1.92	0-2m		SM	Moderate						
Yes		11.6			10 + years	Grass						
T005	Norway Maple	170	8.5		Low	N2.0, E2.0, S2.0, W2.0	Fastigiate canopy. Recently crown lifted. Tight unions. Crossing, rubbing branches. Crown displays normal, healthy vigour. No obvious indicators of disease or decay. At current dimensions tree is considered to pose little risk.	C1	No work required.	4	Fell to facilitate construction of proposed access and parking area.	0
		2.04	2.1-4m		SM	Moderate						
Yes		13.1			10 + years	Grass						
T006	Norway Maple	150	7		Low	N2.0, E2.0, S2.0, W2.0	Fastigiate canopy. Recently crown lifted. Tight unions. Crossing, rubbing branches. Crown displays normal, healthy vigour. No obvious indicators of disease or decay. At current dimensions tree is considered to pose little risk.	C1	No work required.	4	Fell to facilitate construction of proposed access and parking area.	0
		1.8	2.1-4m		SM	Moderate						
Yes		10.2			10 + years	Grass						
T007	Norway Maple	160	7		Low	N2.0, E2.0, S2.0, W2.0	Fastigiate canopy. Recently crown lifted. Poor pruning. Tight unions. Crossing, rubbing branches. Crown displays normal, healthy vigour. No obvious indicators of disease or decay. At current dimensions tree is considered to pose little risk.	C1	No work required.	4	Fell to facilitate construction of proposed access and parking area.	0
		1.92	0-2m		SM	Moderate						
Yes		11.6			10 + years	Grass						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m^2)	Aspect	Aspect	SULE	Ground Cover						
T008	Jacquemont's Birch	60	3.5		Low	N1.5, E1.5, S1.5, W1.5	Twin-stemmed from ground level. DBH of stems is 2x 40mm. Poor union. Extensive strimmer damage at base. Stem decay. Crown displays poor vigour. At current dimensions tree is considered to pose little risk. Not plotted on TOPO.	U	No work required.	4	Fell to facilitate construction of proposed parking area.	0
		0.72	0-2m		Y	Low						
Yes		1.6			<10 Years	Grass						
T009	Cherry	160	5		Low	N1.5, E1.5, S1.5, W1.5	Significant stem decay from base to circa. 2m above ground level. Failed leader. Poor form and condition.	U	Fell to ground level.	3		
		1.92	0-2m		SM	Moderate						
Yes		11.6			<10 Years	Grass, Light undergrowth						
T010	Hawthorn	400	3		Moderate	N2.0, E2.0, S2.0, W2.0	Located at the apex of a bank adjacent to highway. Multi-stemmed from ground level and topped / maintained at circa. 1m above ground level. DBH estimated. At current dimensions tree is considered to pose little risk. An unremarkable specimen. Not plotted on TOPO.	C1	No work required.	4		
		4.8	0-2m		M	Moderate						
Yes		72.4			10 + years	Grass						
T011	Oak	210	7		Moderate	N2.5, E1.0, S4.0, W4.0	Located on the apex of a bank adjacent to the highway. Canopy heavily reduced on eastern aspect to ensure clearance of adjacent lamp column. Crown displays reasonable vigour. No obvious indicators of disease or decay. At current dimensions tree is considered to pose little risk.	C2	No work required.	4		
		2.52	0-2m		SM	High						
Yes		20			10 + years	Grass, Ivy						
T012	Hawthorn	450	6.5		Moderate	N3.5, E1.0, S4.0, W4.0	Located on the apex of a bank adjacent to the highway. Dense Ivy and vegetation impeded a detailed inspection of its base and stem. Multi-stemmed from circa. 1m above ground level. Historically topped. Canopy heavily reduced on eastern aspect to ensure clearance from adjacent highway. Crown displays reasonable vigour.	C2	No work required.	4	Undertake linear root pruning at the location shown on the attached drawing no. 6924-D-AIA re. A to permit development.	0
		5.4	0-2m		EM	High						
Yes		91.6			10 + years	Grass, Ivy						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m^2)	Aspect	Aspect	SULE	Ground Cover						
T013	Cherry	250	10		Low	N4.5, E5.0, S4.5, W4.0	Foreign object encased in stem on northern aspect at circa. 0.3m above ground level. Resin bleeding from stem. Tight unions. Crown displays reduced vigour. At current dimensions tree is considered to pose little risk.	C1	No work required.	4	Fell to facilitate construction of proposed parking area.	0
		3	0-2m		EM	Moderate						
Yes		28.3			10 + years	Grass						
T014	Ash	140	5		Low	N2.0, E2.0, S2.0, W2.0	Off-site. Located at the apex of railway line bank and directly adjacent to site boundary. Ash dieback throughout crown. At current dimensions tree is considered to pose little risk. Not plotted on TOPO.	U	Fell to ground level (subject to landowner consent).	3		
		1.68	0-2m		Y	Moderate						
No		8.9			<10 Years	Grass, Gravel						
T015	Cypress	270	7.5		Low	N2.5, E3.0, S3.0, W3.0	Contorted stem growth. Tight unions. No obvious indicators of disease or decay. At current dimensions tree is considered to pose little risk. An unremarkable specimen.	C1	No work required.	4		
		3.24	0-2m		EM	High						
Yes		33			10 + years	Grass						
T016	Norway Maple	320	9		Moderate	N3.5, E4.5, S3.5, W3.5	Stem lean to north, towards railway line. Dense Ivy impeded a detailed inspection of base and stem. Minor deadwood. Canopy displays reasonable vigour. Tar spot.	C2	Remove Ivy from ground level to 3m. Re-inspect.	2		
		3.84	0-2m		EM	Moderate						
Yes		46.3			10 + years	Ivy, Light undergrowth						
T017	Lombardy Poplar	580	24		High	N3.0, E3.0, S3.0, W1.0	Located adjacent to railway line. Dense Ivy impeded a detailed inspection of base and stem. However, tapping stem with a sounding mallet revealed presence of notable decay in stem. Given this species is poor at compartmentalising decay and its location adjacent to the railway, its removal is recommended. Crown chlorotic with notable dieback on its western aspect.	U	Fell and poison stump.	2		
		6.96	2.1-4m		M	High						
Yes		152.2			<10 Years	Ivy, Dense undergrowth						
T018	Lombardy Poplar	700	25		High	N3.0, E3.0, S3.0, W3.0	Off-site. Restricted access impeded a detailed inspection. Crown displays reasonable vigour. Ditch to south is likely to have impeded root development within the site.	C2	No work required.	4		
		8.4	2.1-4m		M	High						
No		221.7			10 + years	Ivy						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m^2)	Aspect	Aspect	SULE	Ground Cover						
T019	Oak	450	10		Moderate	N5.0, E5.0, S6.5, W6.0	Slight stem lean to south. Truncated branches. Moderate deadwood. Epicormic branch growth. Crown displays reasonable vigour. No obvious indicators of disease or decay.	B1	Remove major deadwood.	3	Fell to facilitate construction of proposed teaching block.	0
		5.4	2.1-4m		EM	High						
Yes		91.6			20+ years	Grass, Light undergrowth						
T020	Oak	260	9		Moderate	N4.5, E4.0, S4.0, W4.5	Detailed inspection impeded by dense undergrowth and Ivy. Canopy displays normal, healthy vigour. Not plotted on TOPO.	B1	Remove Ivy from ground level to 2m. Re-inspect.	3	Fell to facilitate construction of proposed teaching block.	0
		3.12	2.1-4m		SM	High						
Yes		30.6			20+ years	Ivy, Dense undergrowth						
T021	Oak	790	13		Moderate	N7.0, E6.0, S7.5, W6.5	Lapsed field boundary coppice. DBH of stems is 270, 280, 380, 390 and 410mm. Minor bark wounds at base of stems, however no active decay evident. Detailed inspection of base, unions and stems impeded by Ivy. Crossing, rubbing branches. Moderate deadwood. Epicormic growth in canopy. No obvious indicators of disease or decay. Crown displays normal, healthy vigour.	B1	Remove major deadwood. Remove Ivy from ground level to 4m. Re-inspect.	2		
		9.48	0-2m		M	High						
Yes		282.3			20+ years	Grass, Light undergrowth						
T022	Oak	590	12		Moderate	N6.0, E5.5, S6.5, W6.5	Detailed inspection of base and stem impeded by Ivy. Crossing, rubbing branches. Moderate deadwood. No obvious indicators of disease or decay. Crown displays normal, healthy vigour.	B1	Remove major deadwood. Remove Ivy from ground level to 4m. Re-inspect.	2		
		7.08	0-2m		M	High						
Yes		157.5			20+ years	Grass, Light undergrowth						
T023	Oak	750	17		High	N8.0, E8.5, S9.0, W8.0	Specimen potentially located off-site (behind barbed wire fence). Dense Ivy impeded a detailed inspection of base, stem and canopy. DBH therefore estimated. Multi-stemmed from circa. 3.5m above ground level, unions obscured by Ivy. Moderate deadwood. Crown displays normal, healthy vigour. Oak Processionary Moth (OPM) nest in northern aspect of crown.	B1	Remove major deadwood and OPM nest. Remove Ivy from ground level to 5m. Re-inspect.	2		
		9	0-2m		M	High						
No		254.5			20+ years	Ivy, Light undergrowth						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m^2)	Aspect	Aspect	SULE	Ground Cover						
T024	Oak	950	17		High	N8.0, E7.5, S8.5, W10.0	Specimen potentially located off-site (behind fence). Rubbish and dense Ivy impeded a detailed inspection of base, stem and canopy. DBH therefore estimated. Multi-stemmed form, unions obscured by Ivy. Moderate deadwood. Crown displays normal, healthy vigour. OPM nest in western aspect of crown at circa. 4.5m above ground level.	B1	Remove major deadwood. Remove rubbish deposited around base. Remove OPM nest. Remove Ivy from ground level to 5m. Re-inspect.	2		
		11.4	0-2m		M	High						
No		408.3			20+ years	Ivy, Light undergrowth, Detritus						
T025	Purple Norway Maple	370	8.5		High	N4.0, E4.0, S4.0, W4.0	Off-site. Average crown spread and height taken and applied to all in the linear belt. DBH measured. Detailed inspection not undertaken. Plotted for constraint purposes. Not plotted on TOPO.	B2	No work required.	4		
		4.44	2.1-4m		EM	Moderate						
No		61.9			20+ years	Grass						
T026	Purple Norway Maple	390	8.5		High	N4.0, E4.0, S4.0, W4.0	Off-site. Average crown spread and height taken and applied to all in the linear belt. DBH measured. Detailed inspection not undertaken. Plotted for constraint purposes. Not plotted on TOPO.	B2	No work required.	4		
		4.68	2.1-4m		EM	Moderate						
No		68.8			20+ years	Grass						
T027	Purple Norway Maple	380	8.5		High	N4.0, E4.0, S4.0, W4.0	Off-site. Average crown spread and height taken and applied to all in the linear belt. DBH measured. Detailed inspection not undertaken. Plotted for constraint purposes. Not plotted on TOPO.	B2	No work required.	4		
		4.56	2.1-4m		EM	Moderate						
No		65.3			20+ years	Grass						
T028	Purple Norway Maple	340	8.5		High	N4.0, E4.0, S4.0, W4.0	Off-site. Average crown spread and height taken and applied to all in the linear belt. DBH measured. Detailed inspection not undertaken. Plotted for constraint purposes. Not plotted on TOPO.	B2	No work required.	4		
		4.08	2.1-4m		EM	Moderate						
No		52.3			20+ years	Grass						
T029	Purple Norway Maple	520	8.5		High	N4.0, E4.0, S4.0, W4.0	Off-site. Average crown spread and height taken and applied to all in the linear belt. DBH measured. Detailed inspection not undertaken. Plotted for constraint purposes. Not plotted on TOPO.	C2	No work required.	4		
		6.24	2.1-4m		EM	Moderate						
No		122.3			10 + years	Grass						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m^2)	Aspect	Aspect	SULE	Ground Cover						
T030	Purple Norway Maple	430	8.5		High	N4.0, E4.0, S4.0, W4.0	Off-site. Average crown spread and height taken and applied to all in the linear belt. DBH measured. Detailed inspection not undertaken. Plotted for constraint purposes. Not plotted on TOPO.	B2	No work required.	4		
		5.16	2.1-4m		EM	Moderate						
No		83.6			20+ years	Grass						
T031	Purple Norway Maple	410	8.5		High	N4.0, E4.0, S4.0, W4.0	Off-site. Average crown spread and height taken and applied to all in the linear belt. DBH measured. Detailed inspection not undertaken. Plotted for constraint purposes. Not plotted on TOPO.	B2	No work required.	4	Crown lift to 2.5m to facilitate installation of boundary fencing (subject to landowner consent).	0
		4.92	2.1-4m		EM	Moderate						
No		76			20+ years	Grass						
T032	Purple Norway Maple	410	8.5		High	N4.0, E4.0, S4.0, W4.0	Off-site. Average crown spread and height taken and applied to all in the linear belt. DBH measured. Detailed inspection not undertaken. Plotted for constraint purposes. Not plotted on TOPO.	B2	No work required.	4	Crown lift to 2.5m to facilitate installation of boundary fencing (subject to landowner consent).	0
		4.92	2.1-4m		EM	Moderate						
No		76			20+ years	Grass						
T033	Purple Norway Maple	380	8.5		High	N4.0, E4.0, S4.0, W4.0	Off-site. Average crown spread and height taken and applied to all in the linear belt. DBH measured. Detailed inspection not undertaken. Plotted for constraint purposes. Not plotted on TOPO.	B2	No work required.	4	Crown lift to 2.5m to facilitate installation of boundary fencing (subject to landowner consent).	0
		4.56	2.1-4m		EM	Moderate						
No		65.3			20+ years	Grass						
T034	Norway Maple	200	6.5		Low	N3.0, E3.0, S3.0, W3.0	Self-set specimen. Twin-stemmed. DBH of stems is 2x140mm. Tight union. At current dimensions tree is considered to pose little risk.	C1	No work required.	4	Crown lift to 2.5m to facilitate installation of boundary fencing (subject to landowner consent).	0
		2.4	0-2m		Y	Moderate						
No		18.1			10 + years	Dense undergrowth						
T035	Sycamore	220	8.5		Low	N3.0, E1.0, S3.0, W2.5	Self-set specimen. Dense undergrowth impeded a detailed inspection. Asymmetrical canopy. At current dimensions tree is considered to pose little risk. An unremarkable specimen.	C1	No work required.	4	Crown lift to 2.5m to facilitate installation of boundary fencing.	0
		2.64	0-2m		SM	Moderate						
Yes		21.9			10 + years	Dense undergrowth						
T036	Norway Maple	120	7		Low	N1.5, E1.5, S1.5, W1.5	Nursery planting. Unremarkable specimen.	C2	No work required.	4		
		1.44	2.1-4m		Y	Moderate						
Yes		6.5			10 + years	Light undergrowth						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m^2)	Aspect	Aspect	SULE	Ground Cover						
T037	Norway Maple	120	7		Low	N1.5, E1.5, S1.5, W1.5	Nursery planting. Unremarkable specimen.	C2	No work required.	4		
		1.44	2.1-4m		Y	Moderate						
Yes		6.5			10 + years	Light undergrowth						
T038	Norway Maple	120	7		Low	N1.5, E1.5, S1.5, W1.5	Nursery planting. Unremarkable specimen.	C2	No work required.	4		
		1.44	2.1-4m		Y	Moderate						
Yes		6.5			10 + years	Light undergrowth						
T039	Oak	70	4		Low	N1.0, E1.0, S1.0, W1.0	Young Oak. Not plotted on TOPO.	C1	No work required.	4	Fell to facilitate construction of proposed sports pitches.	0
		0.84	0-2m		Y	High						
Yes		2.2			10 + years	Grass						
T040	Hawthorn	70	3.5		Low	N1.5, E1.5, S1.5, W1.5	Young Hawthorn.	C1	No work required.	4	Fell to facilitate construction of proposed sports pitches.	0
		0.84	0-2m		Y	High						
Yes		2.2			10 + years	Grass						
T041	Gum Tree	770	14		Moderate	N6.0, E7.5, S6.5, W6.0	Swept stem, however static imbalance has corrected itself. Possibly historic windblown specimen. Nevertheless, dieback throughout canopy and reduced vigour evident. Ganoderma sp. brackets at base on eastern aspect. Removal recommended given proximity to adjacent highway.	U	Fell to ground level.	1		
		9.24	2.1-4m		M	Moderate						
No		268.2			<10 Years	Shrub bed						
T042	Cypress	190	6.5		Low	N2.0, E2.0, S1.0, W1.5	No obvious indicators of disease or decay.	C2	No work required.	4		
		2.28	0-2m		SM	High						
No		16.3			10 + years	Shrub bed						
T043	Common Yew	170	3		Low	N1.5, E1.5, S1.5, W1.5	Topped and clipped specimen. No obvious indicators of disease or decay.	C2	No work required.	4		
		2.04	0-2m		SM	Moderate						
No		13.1			10 + years	Flower bed						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m^2)	Aspect	Aspect	SULE	Ground Cover						
T044	Amur Maple	250	6		Moderate	N4.0, E4.6, S3.0, W4.0	Located in container constructed of sleepers, circa. 2.5 x 2.5m wide and 0.7m deep. Lamp column in canopy to east.	C2	No work required.	4		
		3	2.1-4m			Moderate						
No		28.3			10 + years	Flower bed						
T045	Weeping Beech	250	9		Low	N2.5, E2.6, S2.5, W2.0	Located in container, circa. 2.5 x 2m wide and 0.7m deep.	C2	No work required.	4	Fell to facilitate construction of proposed access and parking area.	0
		3	2.1-4m			Moderate						
No		28.3			10 + years	Flower bed						
T046	Maidenhair Tree	180	11		Low	N2.0, E2.0, S2.0, W2.0	No obvious indicators of disease or decay	B2	No work required.	4		
		2.16	2.1-4m		SM	Low						
No		14.7			20+ years	Gravel						
T047	Maidenhair Tree	180	11		Low	N2.0, E2.0, S2.0, W2.0	No obvious indicators of disease or decay.	B2	No work required.	4		
		2.16	2.1-4m		SM	Low						
No		14.7			20+ years	Gravel						
T048	Maidenhair Tree	180	11		Low	N2.0, E2.0, S2.0, W2.0	No obvious indicators of disease or decay.	B2	No work required.	4		
		2.16	2.1-4m		SM	Low						
No		14.7			20+ years	Gravel						
T049	Maidenhair Tree	180	11		Low	N2.0, E2.0, S2.0, W2.0	No obvious indicators of disease or decay.	B2	No work required.	4		
		2.16	2.1-4m		SM	Low						
No		14.7			20+ years	Gravel						

Appendix C

Schedule of Works - Irrespective of Development

SCHEDULE OF WORK

Turing House School, Hospital Bridge Road, Twickenham, London

Surveyed By: Nick Hayden
Surveyed: 08/08/2018
Managed By: Nick Hayden

Tree No.	Species	Work required	Priority
A004	Cypress	Detailed inspection to be undertaken by landowner (root damage and declining health).	**1**
T041	Gum Tree	Fell to ground level.	**1**
T016	Norway Maple	Remove Ivy from ground level to 3m. Re-inspect.	**2**
T017	Lombardy Poplar	Fell and poison stump.	**2**
T021	Oak	Remove major deadwood. Remove Ivy from ground level to 4m. Re-inspect.	**2**
T022	Oak	Remove major deadwood. Remove Ivy from ground level to 4m. Re-inspect.	**2**
T023	Oak	Remove major deadwood and OPM nest. Remove Ivy from ground level to 5m. Re-inspect.	**2**
T024	Oak	Remove major deadwood. Remove rubbish deposited around base. Remove OPM nest. Remove Ivy from ground level to 5m. Re-inspect.	**2**
G001	Oak	Remove major deadwood.	**3**
T009	Cherry	Fell to ground level.	**3**
T014	Ash	Fell to ground level (subject to landowner consent).	**3**
T019	Oak	Remove major deadwood.	**3**
T020	Oak	Remove Ivy from ground level to 2m. Re-inspect.	**3**

Appendix D

Schedule of Works to Allow Development

SCHEDULE OF WORKS (AIA)

Turing House School, Hospital Bridge Road, Twickenham, London

Surveyed By: Nick Hayden
Surveyed: 08/08/2018
Managed By: Nick Hayden

Tree No.	Species	Work required	Priority
A002	Ash, Hawthorn, Holm Oak, Pine and Robinia	Fell section shown on drawing no. 6924-D-AIA rev. A to facilitate installation of boundary security fencing.	**0**
A003	Hawthorn and Plum	Fell section shown on drawing no. 6924-D-AIA rev. A to facilitate installation of boundary security fencing.	**0**
G002	Birch, Hornbeam, Lime, Pear and Rowan	Fell to facilitate construction of proposed parking area.	**0**
H001	Hawthorn and Cherry	Fell section shown on drawing no. 6924-D-AIA rev. A to facilitate installation of boundary security fencing.	**0**
H002	Hawthorn and Elder	Fell to facilitate installation of the proposed boundary fence (subject to landowner consent if located off-site).	**0**
H004	Hazel and Viburnum	Fell to facilitate construction of proposed footpath subject to landowner consent).	**0**
T004	Horse Chestnut	Fell to facilitate construction of proposed access and parking area.	**0**
T005	Norway Maple	Fell to facilitate construction of proposed access and parking area.	**0**
T006	Norway Maple	Fell to facilitate construction of proposed access and parking area.	**0**
T007	Norway Maple	Fell to facilitate construction of proposed access and parking area.	**0**
T008	Jacquemont's Birch	Fell to facilitate construction of proposed parking area.	**0**
T012	Hawthorn	Undertake linear root pruning at the location shown on the attached drawing no. 6924-D-AIA re. A to permit development.	**0**
T013	Cherry	Fell to facilitate construction of proposed parking area.	**0**
T019	Oak	Fell to facilitate construction of proposed teaching block.	**0**
T020	Oak	Fell to facilitate construction of proposed teaching block.	**0**
T031	Purple Norway Maple	Crown lift to 2.5m to facilitate installation of boundary fencing (subject to landowner consent).	**0**
T032	Purple Norway Maple	Crown lift to 2.5m to facilitate installation of boundary fencing (subject to landowner consent).	**0**
T033	Purple Norway Maple	Crown lift to 2.5m to facilitate installation of boundary fencing (subject to landowner consent).	**0**
T034	Norway Maple	Crown lift to 2.5m to facilitate installation of boundary fencing (subject to landowner consent).	**0**
T035	Sycamore	Crown lift to 2.5m to facilitate installation of boundary fencing.	**0**
T039	Oak	Fell to facilitate construction of proposed sports pitches.	**0**
T040	Hawthorn	Fell to facilitate construction of proposed sports pitches.	**0**
T045	Weeping Beech	Fell to facilitate construction of proposed access and parking area.	**0**

Appendix E

Explanatory Notes

Explanatory Notes

HAYDEN'S Arboricultural Consultants

Categories

Below is an explanation of the categories used in the attached Tree Survey.

No Identifies the tree on the drawing.

Species Common names are given to aid understanding for the wider audience.

BS 5837 Main Category Using this assessment (BS 5837:2012, Table 1), trees can be divided into one of the following simplified categories, and are differentiated by cross-hatching and by colour on the attached drawing:

Category A - Those of high quality with an estimated remaining life expectancy of at least 40 years;

Category B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years;

Category C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm;

Category U - Those trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

BS 5837 Sub Category Table 1 of BS 5837:2012 also requires a sub category to be applied to the A, B, C, and U assessments. This allows for a further understanding of the determining classification as follows:

Sub Category 1 - Mainly arboricultural qualities;

Sub Category 2 - Mainly landscape qualities;

Sub Category 3 - Mainly cultural values, including conservation .

Please note that a specimen or landscape feature may fulfil the requirements of more than one Sub Category.

DBH (mm) Diameter of main stem in millimetres at 1.5 metres from ground level. Where the tree is a multi-stem, the diameter is calculated in accordance with item 4.6.1 of BS 5837:2012.

Age Recorded as one of seven categories:

Y Young. Recently planted or establishing tree that could be transplanted without specialist equipment, i.e. less than 150 mm DBH.

S/M Semi-mature. An established tree, but one which has not reached its prospective ultimate height.

E/M Early-mature. A tree that is reaching its ultimate potential height, whose growth rate is slowing down but if healthy, will still increase in stem diameter and crown spread.

M Mature. A mature specimen with limited potential for any significant increase in size, even if healthy.

O/M Over-mature. A senescent or moribund specimen with a limited safe useful life expectancy. Possibly also containing sufficient structural defects with attendant safety and/or duty of care implications.

V Veteran. An over-mature specimen, usually of high value due to either its age, size and/or ecological significance

D Dead.

Height	Recorded in metres, measured from the base of the tree.
Crown Base	Recorded in metres, the distance from ground and aspect of the lowest branch material.
Lowest Branch	Recorded in metres, the distance from ground and aspect of the emergence point of the lowest significant branch.
Life Expectancy	Relates to the prospective life expectancy of the tree and is given as 4 categories: 1 = 40 years+; 2 = 20 years+; 3 = 10 years+; 4 = less than 10 years.
Crown Spread	Indicates the radius of the crown from the base of the tree in each of the northern, eastern, southern and western aspects.
Minimum Distance	This is a distance equal to 12 times the diameter of the tree measured at 1.5 metres above ground level for single stemmed trees and 12 times the average diameter of the tree measured at 1.5 metres above ground level tree for multi stemmed specimens. (BS 5837:2012, section 4.6).
RPA	This is the Root Protection Area, measured in square metres and defined in BS5837:2012 as "a 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". The RPA is shown on the drawing.. Ideally this is an area around the tree that must be kept clear of construction, level changes of construction operations. Some methods of construction can be carried out within the RPA of a retained tree but only if approved by the Local Planning Authority's tree officer.
Water Demand	This gives the water demand of the species of tree when mature, as given in the NHBC Standards Chapter 4.2 "Building Near Trees".
Visual Amenity	Concerns the planning and landscape contribution to the development site made by the tree, hedge or tree group, in terms of its amenity value and prominence on the skyline along with functional criteria such as the screening value, shelter provision and wildlife significance. The usual definitions are as follows: Low — An inconsequential landscape feature. Moderate — Of some note within the immediate vicinity, but not significant in the wider context. High — Item of high visual importance.
Problems/ Comments	May include general comments about growth characteristic, how it is affected by other trees and any previous surgery work; also, specific problems such as deadwood, pests, diseases, broken limbs, etc.
Work Required (TS)	Identifies the necessary tree work to mitigate anticipated problems and deal with existing problems identified in the "Problems/comments" category.

Work Required (AIA)	Identifies the tree work specifically necessary to allow a proposed development to proceed.
Priority	This gives a priority rating to each tree allowing the client to prioritise necessary tree works identified within the Tree Survey. **1** Urgent – works required immediately; **2** Works required within 6 months; **3** Works required within 1 year; **4** Re-inspect in 12 months, **0** Remedial works as part of implementation of planning consent.

BS 5837:2012 Terms and Definitions

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.
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.
Arboriculturist	Person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.
Competent Person	Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached. *NOTE - a competent person is expected to be able to advise on the best means by which the recommendations of this British Standard may be implemented.*
Construction	Site-based operations with the potential to affect existing trees.
Construction Exclusion Zone	Area based on the root protection area from which access is prohibited for the duration of a project.
Root Protection Area (RPA)	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. **NOTE** - examples include drainage, gas supplies, ground source heat pumps, CCTV and satellite communications.
Stem	Principal above ground structural component(s) of a tree that supports its branches.
Structure	Manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork.
Tree Protection Plan	Scale drawing, informed by descriptive text where necessary, based upon the finalized proposals, showing trees for retention and illustrating the tree and landscape protection measures.
Veteran Tree	Tree that, by recognized criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. **NOTE** - these characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem.

Appendix F

Tree Preservation Order Enquiry/Response

Gabrielle Justesen

From: Lorna Greenleaf <Lorna.Greenleaf@richmond.gov.uk> on behalf of Trees & Parks <Trees&Parks@richmond.gov.uk>
Sent: 31 July 2018 16:15
To: Gabrielle Justesen
Subject: RE: TPO Enquiry (6924) Turing House School, Hospital Bridge Road, Twickenham, London TW2 6LH

Dear Ms Justesen,

Thank you for your email.

I can confirm the address provided is not within a conservation area and that none of the trees at this address are under preservation orders.

We are conducting a Customer Experience Survey to gather customer feed-back to help improve our services. The survey only takes 5 minutes and can be completed by using the link below and selecting Customer Services.

www.richmond.gov.uk/customer_feedback

If you require any further assistance please do not hesitate to contact us.

Kind regards,

Lorna Greenleaf
Corporate Customer Services
London Borough of Richmond upon Thames
Tel: 020 8891 1411

For information about all the services provided by the London Borough of Richmond upon Thames please visit:
http://www.richmond.gov.uk

You can also follow us on Twitter for up to date information and news:
Twitter @LBRuT_Help

From: Gabrielle Justesen [mailto:Gabby@treesurveys.co.uk]
Sent: 31 July 2018 11:58
To: Trees
Subject: TPO Enquiry (6924) Turing House School, Hospital Bridge Road, Twickenham, London TW2 6LH

Dear Mr Ruddick,

Could you please advise if the above mentioned site is covered by TPO or is located within a Conservation Area?

I have attached a map for your use.

I look forward to hearing from you.

Kind regards

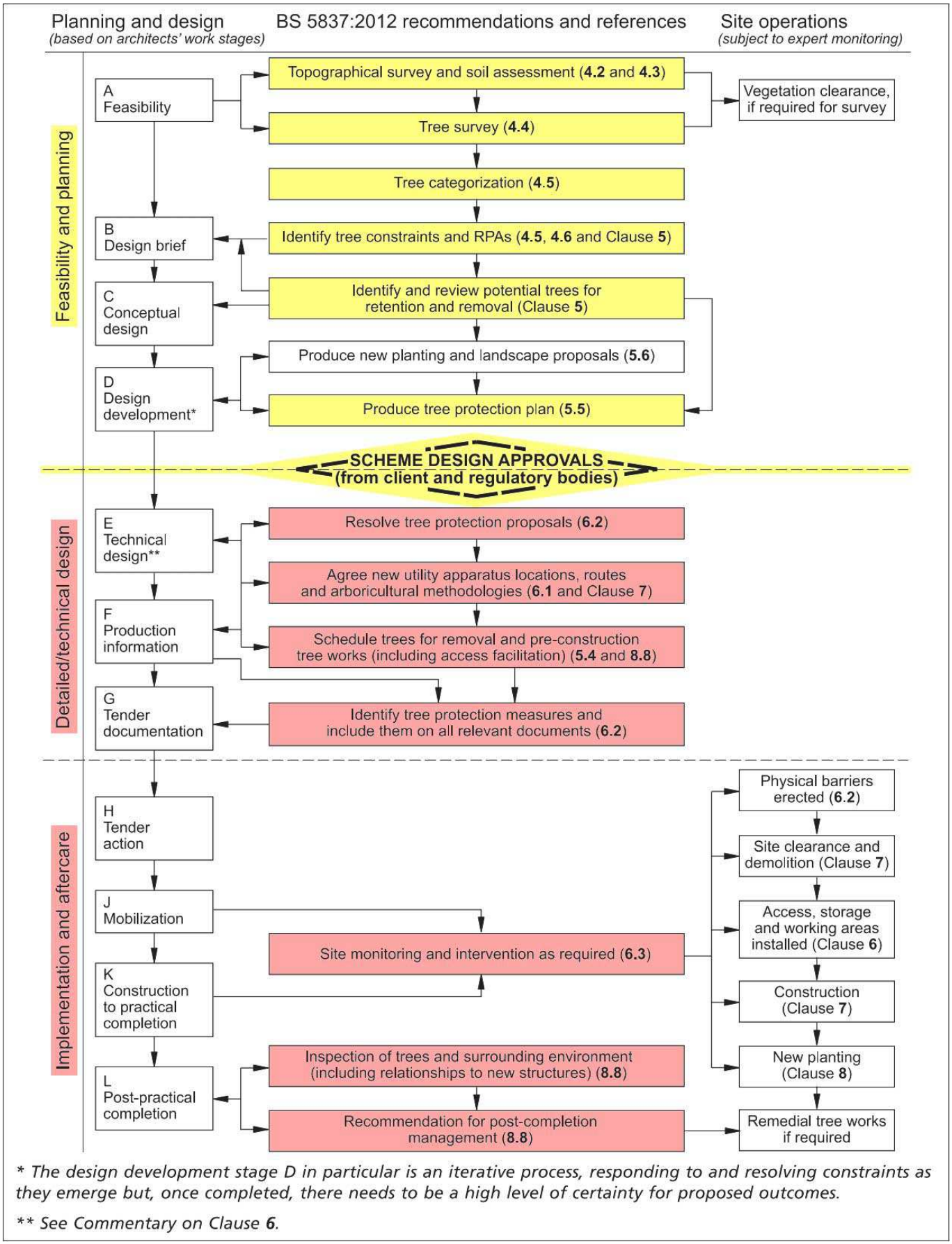
Gabby Justesen
Office Manager – South West Office

(Please note my working hours are 9am – 1pm)

Appendix G

Advisory Information & Sample Specifications

1. BS 5837:2012 Figure 1 - Flow Chart – Design and Construction & Tree Care



** The design development stage D in particular is an iterative process, responding to and resolving constraints as they emerge but, once completed, there needs to be a high level of certainty for proposed outcomes.*

*** See Commentary on Clause **6**.*

2.

European Protected Species and woodland operations. (V4)

Complete all sections of the Checklist

Checklist

1 Are you within, or close to, the known mapped range of any of the protected species OTHER THAN BATS which are potentially everywhere? Tick any that apply.
See distribution maps in the Good Practice Guidance for each species -

- ☐ Dormice
- ☐ Otters
- ☐ Great crested newts
- ☐ Sand lizards
- ☐ Smooth snakes

YES / NO

2 Does your wood contain any of the following habitats? Tick any that apply.

- ☐ Old trees with holes and crevices which might be used bats
- ☐ Species rich scrub/coppice, early growth stage plantations and forest interfaces
- ☐ Rivers on which otters might be found
- ☐ Ponds which might be occupied by great crested newts
- ☐ Open areas on heathy soils

YES / NO

3 Have any of the protected species been recorded in this wood or on adjoining sites? Tick any that apply.
Indicate which sources of information you have checked:

- ☐ National Biodiversity Network (www.nbn.org.uk)
- ☐ Local Biological Records Centre
- ☐ Local Wildlife Trust
- ☐ Other

Specify Other:

YES / NO

4 Have your inspections or any expert surveys found any of the following signs or evidence? Tick any that apply.

- ☐ Signs (e.g. otter spraint, nuts gnawed by dormice, leaves folded by newts)
- ☐ Sightings (or echo-location)
- ☐ Potential breeding or roosting sites (e.g. veteran trees, old trees with crevices, riverside hollow trees, ponds, timber stacks, large fallen deadwood)
- ☐ Confirmed breeding or roosting sites (i.e. evidence of sites actually being used)

Details:

YES / NO

CHECK POINT

If you have answered NO to ALL of the above then only bats need to be considered in your operations.

If you have answered YES to any of the above then the species concerned must be considered as well as bats.

5 Do the operations comply with Good Practice for bats and any other species found (or likely to be found in your wood) or can the operations be modified to do so?
Details: Use reverse of form to expand as required:

YES / NO

YES: A licence is not required but continue to sections 6 and 7 below

NO: You will need to obtain a licence BEFORE carrying out the work (see EPS Licence Application Forms and Notes)

6 Whether or not a licence is required...
Has the information been communicated to operators (including the location of breeding sites and sensitive areas)? Tick any that apply.

- ☐ Included in documentation (e.g. contract, letter of instruction, site assessment or other management plan)
- ☐ Shown to operators and/or their supervisor
- ☐ Marked with paint or hazard tape
- ☐ Shown on the site plan

Other means:

YES / NO

NO: You may commit an offence if you do not tell your operators about the protected species in your wood.

7 Have arrangements for supervision been made to ensure Good Practice guidance is complied with during the operations?
Details:

YES / NO

NO: You may commit an offence if you do not take steps to ensure that your operators comply with the Good Practice guidance.

Details

Name of Wood:

Grid Reference:

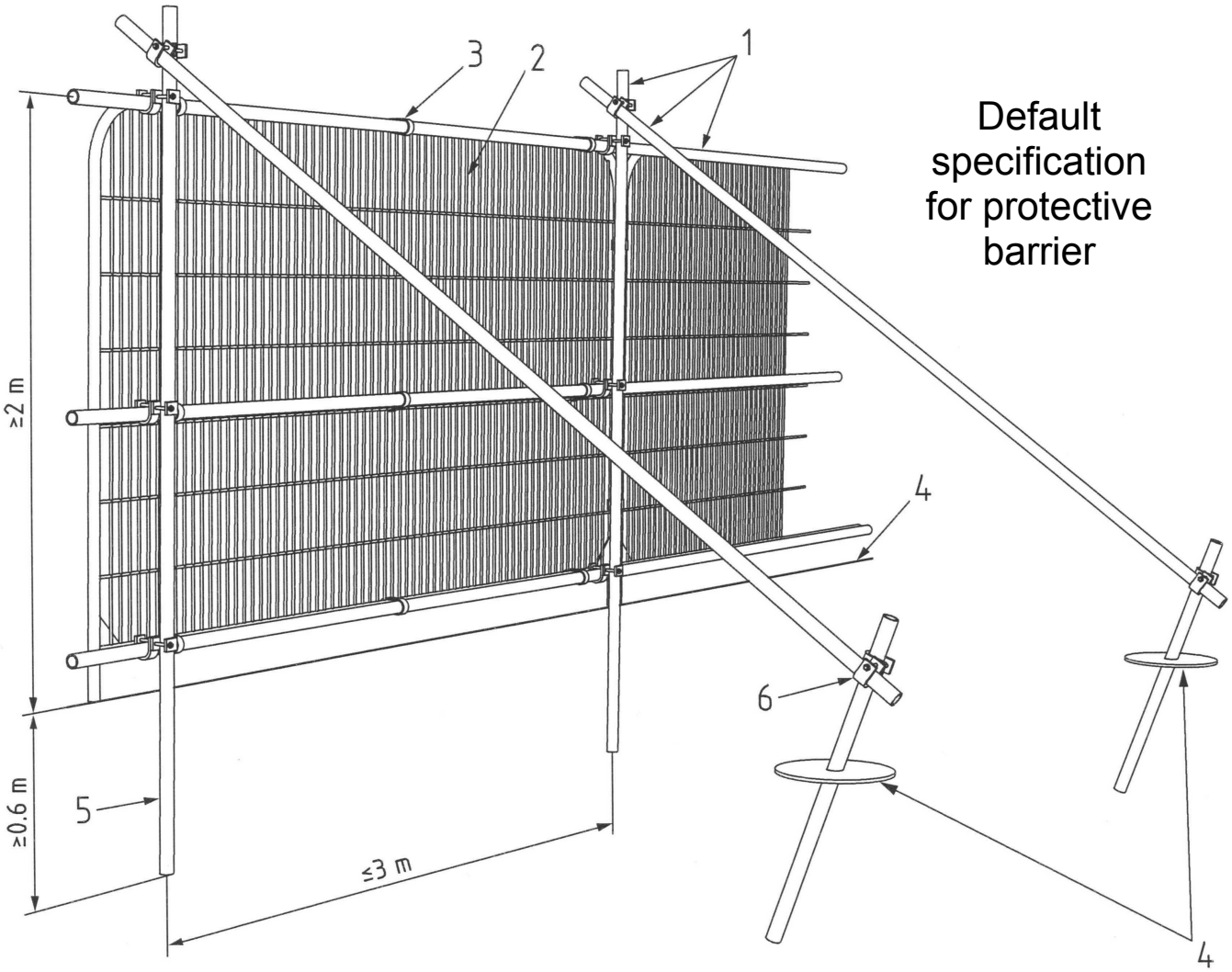
Area: (ha)

Date of Assessment:

Name of Assessor:

Notes

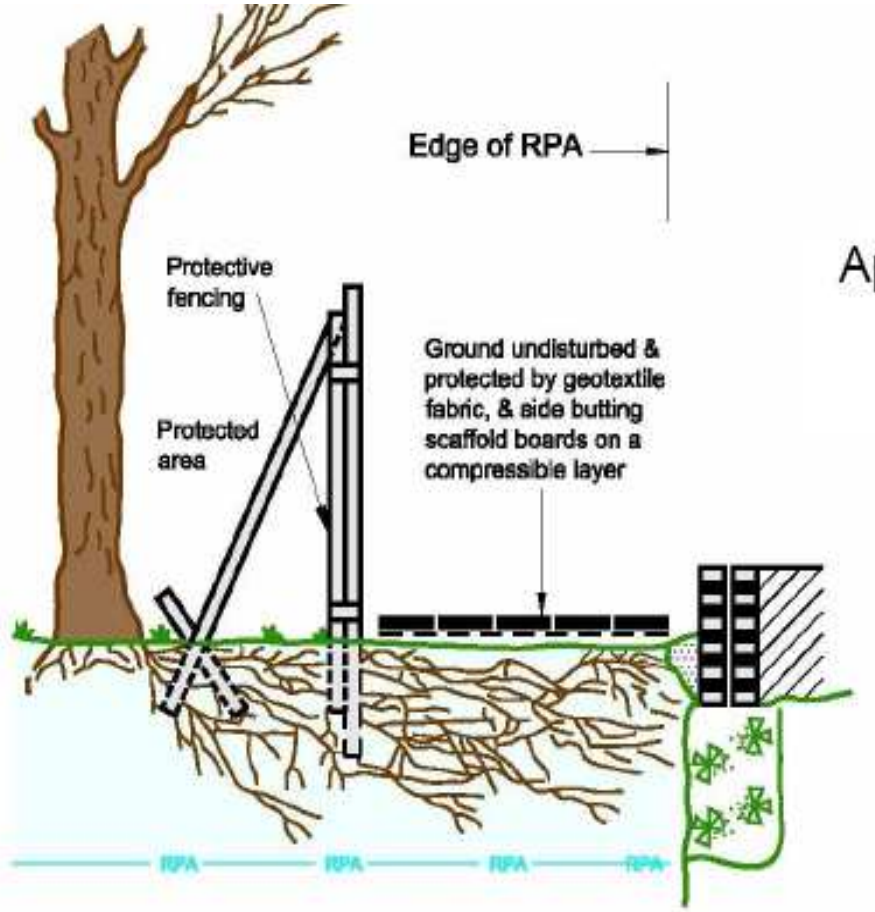
3. BS 5837:2012 Figure 2: Default specification for protective barrier



Key

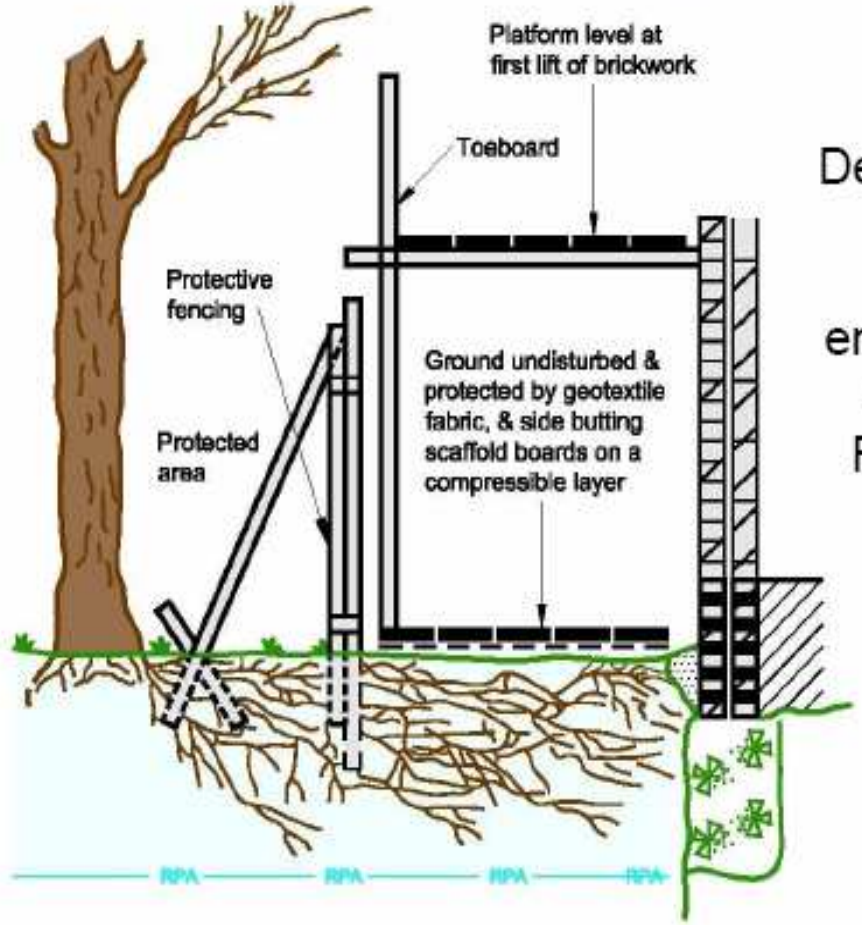
1	Standard scaffold pole
2	Heavy gauge 2m tall galvanised tube and welded mesh infill panels
3	Panels secured to uprights and cross-members with wire ties
4	Ground level
5	Uprights driven into the ground until secure (minimum depth 0.6m
6	Standard scaffold clamps

4. **Figure 4 Detail of protective barrier where construction encroaches within BS5837:2012 Root Protection Area**



Appendix No 2.1

Figure 4 –



Detail of protective barrier where construction encroaches within BS 5837:2012 Root Protection Area (RPA)

5. MultiTrack Ground Guards Specification

MultiTrack

THE UNBREAKABLE ORIGINAL

Watch this short video to see MultiTrack in action.

MultiTrack mats are the strongest in their category

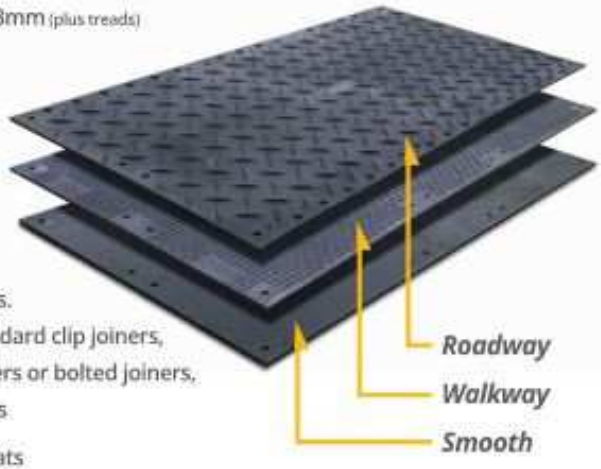
Mats are easily moved using a HandiHook

Standard no-tools joiners quickly clip the mats together

Low profile joiners for walkways plus bolted joiners

SafeStore stillages hold 25 mats

Material:	Special blend of HDPE recycled plastic, fully recyclable
Overall Size:	2435 x 1215 x 13mm (plus treads)
Surface Area:	2.95m²
Weight:	39kg
Tread Options:	Roadway, Walkway and Smooth, or a combination
Connectors:	10 joining points. A choice of standard clip joiners, low profile joiners or bolted joiners, plus anchor pins
Packed in:	Stillage of 25 mats
Stillage Pack:	**Weight:** 1105kg **Dimensions:** 2550 x 1260 x 900mm
Fire Rating:	UL94 HB
Slip Testing:	BS7976 part 2
Deflection:	Tested on varying CBR ground conditions using a 300mm diameter steel platen with 6 tonnes load to simulate the pressure of an HGV wheel



Ground CBR 11.35% : Deflection 17.68mm

Ground CBR 8.58% : Deflection 20.41mm

Ground CBR 4% : Deflection 22.00mm

Guarantee:

MultiTrack temporary roadway mats are guaranteed for life against breakage up to 120 Tonnes UDL (Uniformly Distributed Load).

It is the user's responsibility to assess the load-bearing capacity of the ground, and to only operate vehicles within the weight that the ground is capable of safely supporting. Ground-Guards Ltd accepts no liability whatsoever for any damage, loss or injury arising from the ground conditions on which these products are used.

MultiTrack mats are not suitable to use for bridging purposes. Damage caused by mechanical equipment (e.g. cuts by digger buckets) or sharp protrusions beneath the mats is not covered by this guarantee.

120 TONNES UNBREAKABLE GUARANTEED

* See www.ground-guards.co.uk

Ground-Guards®

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Appendix H

Drawing no. 6924-D-AIA rev.A

- Arboricultural Impact Assessments
- Arboricultural Method Statements
- Tree Constraints Plans
- Arboricultural Feasibility Studies
- Shade Analysis
- Picus Tomography
- Arboricultural Consultancy for Local Planning Authority
- Quantified Tree Risk Assessment
- Health & Safety Audits for Tree Stocks
- Tree Stock Survey and Management
- Mortgage and Insurance Reports
- Subsidence Reports
- Woodland Management Plans
- Project Management
- Ecological Surveys