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Arboricultural Impact Assessment/Statement and Tree Protection Plan

Proposal Redevelopment of Existing Vaults, South Square, Grays Inn, Holborn.

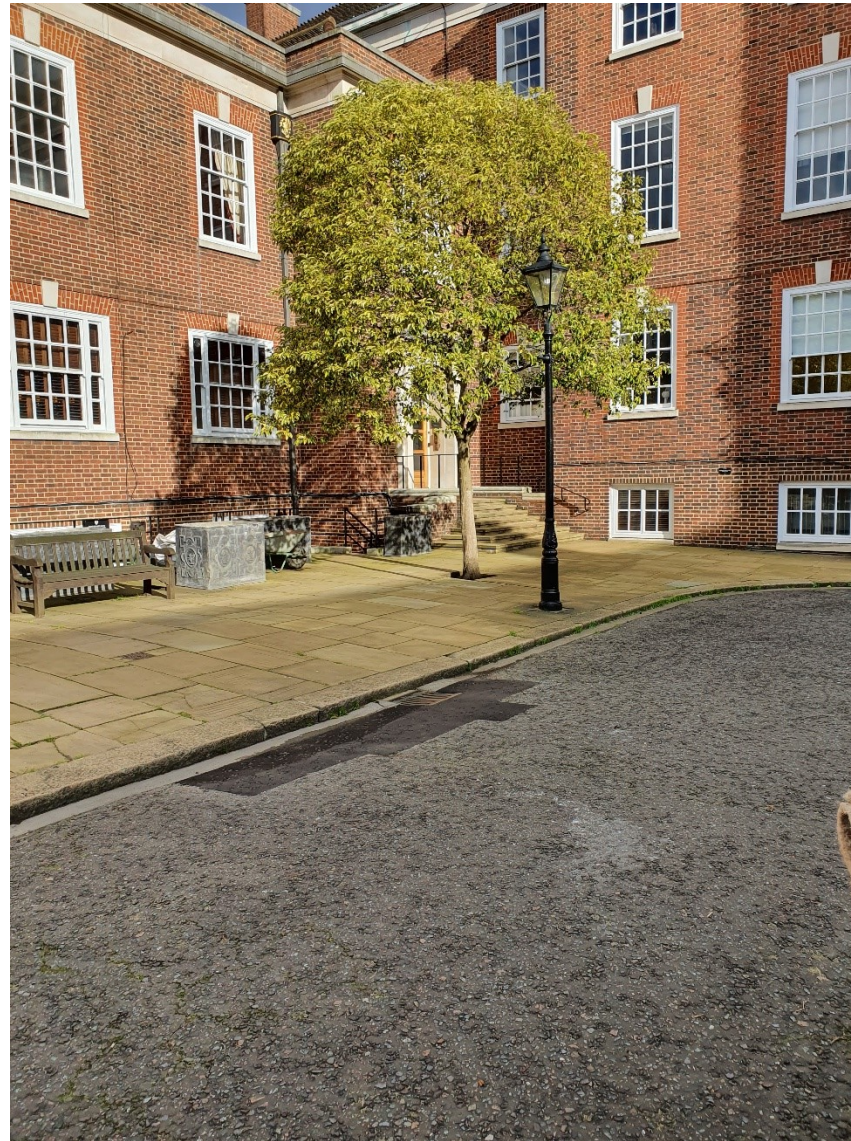


Figure 1 T1 Chinese Privet ~ South Square

1. Arboricultural Method Statement and Impact Assessment

1.1 The proposal is regarding redevelopment of existing vaults in South Square, Grays Inn.

1.2 The following Arboricultural method statement is to provide a protection strategy for the tree identified, refer to the following Tree Survey and Plan. The tree protection plan (TPP) shows the extent of the Root protection Areas (RPA). The proposal comprises of an existing vault area adjacent to a mature Chinese Privet tree T1. On observation T1 has approximately half a root system because the existing basement wall runs across the RPA at 40cms from the trunk of this specimen. It is estimated that there are no roots below the paving area on the building side. The excavation of the existing Vault will be undertaken by hand only within the canopy area. Two wire stays will be erected on the roadside of the canopy to support T1 and reduce the risk wind throw during construction. During the excavation of the wall under the canopy the area will be shored up any exposed roots will be covered with hessian to sustain the moisture levels around the RPA.

1.3 The construction areas should be designed to avoid damage over ground or underground of the RPA.

1.4 The protective barrier as specified in BS5837:2012 (see figure 2 Appendix 1 Page 14) is to be installed as detailed on the Tree Protection Plan.

2. Overground Constraints:

2.1 All construction activities will avoid damaging tree canopy and adhere to the exclusion areas under canopy as marked on the Tree protection Plan.

3. Underground Constraints

3.1 Protective fencing will be constructed to protect this area as detailed in the TPP and maintained during construction period. Services will be excluded from the RPA area. Construction work must only be undertaken in the RPA with agreement of the LA

4. **The project** will include a structured procedure of Arboricultural supervision to be detailed on in planning conditions. The following method statements should be available on site and conveyed to construction contractors before works commence.

5.Tree Survey: Schedule

5.1 Method: Visual Tree inspection references, Principles of Tree hazard Assessment and Management by David Lonsdale and the body language of trees by Claus Mattheck and Helge Breoer. The Arboricultural Association guidance note 7 tree surveys a guide to good practice. Lantra award Professional tree inspection. BS5837: 2012 Tree in relation to design, demolition and construction recommendations.

- **T1.**
- **•Species: Chinese Privet (Ligustrum ludicdum Excelsum Superbum Varigatum)**
- **•Height: 6m>**
- **•Stem diameter: 200mm**
- **•Crown spread: 2.4m**
- **•Clearance: 2.3m>**
- **•Root Protection Radius: 2.4m (as Annex D BS 5837:2012 table)**
- **•RPA m2 = 18m squared**
- **•Age Class: Mature**
- **•Physiological Condition: Normal (suppressed growth)**
- **•Structural Condition: Normal (Halve a root system)**
- **•Estimate Life expectancy: 20>**
- **•BS5837 Category: BS5837 Category: C**

- **Recommendation: Excavation of wall by hand only/ shore up area/ install hessian to protect RPA.**

6. Contacts:

Local Authority Arboricultural officer
Site Agent
Appointed arboriculturist

6.1 No contractors have been appointed at this stage. If there is a need to review any of the protection plans/method statements in light of additional requirements identified by contractors, written approval for any such modifications will be obtained from the LPA prior to commencement of any work.

7. Specific Methods to be applied during all operations:

7.1 The methodology of the tree protection measures follows a logical sequence of development events. Variations to the sequence could significantly reduce the efficiency of the tree protection measures. Variations to the proposed development will require input prior to commencement of the variations, from the appointed arboriculturist and/or the LPA Arboricultural officer.

Stage 1: Protective fencing will be constructed to protect this area as detailed in the TPP and maintained during construction period. Install 2no. wire stays to stop the risk of wind throw during construction.

Stage 2: RPA areas. Services will be excluded from the RPA area. Construction work must only be undertaken in the RPAs with agreement of the LA.

7.2 The LPA will be given notice in writing 5 full working days prior to the date of commencement of development to check all tree protection in place.

7.3 All development works within the RPA of any retained tree will be carried out strictly in accordance with the Arboricultural method statement.

7.4 It is recommended that works within the RPA, as well as the installation and modification of all tree protection measures, are carried out under supervision by an arboriculturist. It is the responsibility of the client to appoint an arboriculturist prior to commencement of works. Details of the appointed arboriculturist will be forwarded to the LPA.

7.5 A schedule of activities that will require Arboricultural supervision at various stages has been produced. This should form the minimum site attendance by the appointed arboriculturist, as well as the Local Authority tree officer (where relevant).

7.6 Periodic reports, along with supporting evidence, will be submitted to the LPA on the tree protection measures, as well as the results of activities within the RPA of retained trees.

8. Preliminary tree maintenance.

8.1 See recommendations in tree schedule above. Prior to carrying out any tree work, all trees recommended for tree work/removal including their immediately adjacent trees, will be inspected for bird nests (wholly and partially built ones). In the event nests are found, the tree work will not be carried out until the trees are found to be free of the nesting birds & their young. This is a requirement under the Wildlife & Countryside Act 1981 & The Countryside & Rights Of Way Act 2000.

8.2 All tree work will be carried out in accordance with **BS3998:2010** & will be carried out without harming the adjacent retained trees. **[Nonapplicable]**

9. Preliminary vegetation control.

9.1 **[Nonapplicable]** .

10. Preliminary Tree Protection Methods.

Prior to development, the following measures will be carried out:

10.1 All preliminary tree work should be carried out in a way that does not damage the retained trees and/or their rooting mediums and/or their roots.

10.2 Protective fencing of the type shown in the protection plan will be placed in the positions indicated on the protection plan. The fencing will be permanently fixed to the ground as shown in the plans or fixed to a permanent feature. Weatherproof signs will be attached to the fencing, stating their purpose and that they should not be moved. The protective fencing will delimit a construction exclusion zone and will be considered immovable. The positioning and installation of the protective fencing will be supervised by the appointed arboriculturist.

10.3 Ground protection may be necessary when working within the RPA on the protection plan will remain as shown on the plan. Any loading in excess of 1 ton will require the use of heavy-duty ground protection, as indicated. This will be supervised by the appointed arboriculturist.

10.4 Prior to commencing work on site, all contractors will be given an induction on the tree protection measures employed during the development project and on the potential consequences of disregarding them (pre-commencement meeting).

11. Arboricultural Methods and restrictions during all phases of development:

The following general tree protection measures will be adopted throughout the life of the development:

11.1 The fencing comprising the construction exclusion zone will not be moved, except if specified in the tree protection plans. All staff on site will understand the need for protective fencing, as well as any ground protection and to keep strictly within the designated access routes, when moving in/out the site.

11.2 Protective fencing will be maintained and inspected on a weekly basis by the site manager. Inspections will be recorded on an inspection form.

11.3 All damage to protective fencing or accidental damage to trees will be reported to the site manager immediately. Works occurring within the incident vicinity will cease immediately until adequate tree protection measures are re-established. A record of the damage will be made by the site manager and, in consultation with the appointed Arboricultural consultant, remediation measures carried out.

11.4 No materials and/or plant will be stored within the designated root protection area of any of the trees and/or within the delimited construction exclusion areas. Any liquid materials to be stored on site, will be located where, in any event of spillage, will allow for natural run-off to be away from the designated root protection areas and buffer zones and/or stored within a pre-constructed spillage containment area.

11.5 The mixing of concrete and mortar will be performed outside any root protection areas, in such an area where in the event of any spills, any liquid will drain away from the root protection areas and any buffer zones and/or within a pre-constructed spillage containment area.

11.6 The use and movement of any cranes/heavy lifting arms/digger arms and booms of delivery vehicles will be carried out without damage to any part of the retained trees.

11.6 No dry construction materials will be stored within the RPA of the retained trees, unless adequate ground protection (approved by the appointed arboriculturist), has been installed within the storage area.

11.7 No soil, demolition debris, or any other arisings will be stored within the RPA or under canopies of the retained trees, whichever is the greater.

11.8 No ground level changes will occur (no grading/levelling/raising), within any RPA of the retained trees, unless consented to by the LPA & supervised by the appointed arboriculturist. Changes to the ground levels within RPA of retained trees will follow the advice of the appointed arboriculturist.

11.9 No additional tree work will be carried out unless consented to in writing by the LPA

11.10 The positions of all site welfare and storage areas will also be located outside any canopy areas and RPA of the retained tree.

11.11 No fires will be lit within the site.

11.12 For the purposes of this method statement, significant roots referred to, constitute individual roots of diameters of 25mm and above, as well as dense fibrous root masses. The significance of both will be determined by an appointed arboriculturist upon discovery of either.

11.13 If roots 20mm and smaller in diameter are damaged that belong to retained trees, these should be cut cleanly and covered in damp Hessian or soil. If roots 25mm and larger are damaged or if a large number of smaller roots are damaged, these should be covered in damp Hessian or soil and advice should be sought from the appointed arboriculturist prior to treating them

12. Demolition/Preparation:

12.1 A pre-commencement site meeting will be carried out by all involved in the construction and the supervising arboriculturist, to clarify tree protection measures. The existing concrete paths and building bases should be carefully broken up by a small light weight machine to avoid compaction.

12.2 Tree protection measures will have been installed prior to any commencement of demolition site preparation.

12.3 No plant machinery will encroach on the RPA of the retained trees, unless the ground is adequately protected & the machinery is incapable of striking the canopy or tree stem. If plant machinery is to encroach on protected RPA of retained trees, this will be supervised by the appointed arboriculturist.

12.4 The protective fencing in the site (protecting trees), will be retained in situ until landscaping operations are to be undertaken. This will provide additional protection for the Root Protection Areas.

12.5 Debris from any preparation work will not be stored within any RPA of retained trees at any time.

12.6 The tree protection measures will be retained in the positions specified on the Protection Plan.

Structure foundations within RPA:

12.7 The foundations for the proposed does encroach on the RPA as detailed on TPP. If roots are encountered, these will be cut cleanly. Excavations in this area will be supervised by the appointed arboriculturist. See section 1.3 above.

12.8 Impermeable membranes will be used when pouring concrete for foundations, to avoid contamination of the soil and damage to any tree roots by wet cement, particularly within the RPA of the retained trees.

Underground services:

12.9 The excavations for any underground services will be routed outside any RPA. Underground services be run outside RPA. Any roots that span the trench during digging will not be cut but will have damp Hessian sacking placed around them. Damaged roots of up to 2cm diam. will, where possible, be cut cleanly and covered. Any substantial roots (larger than 25mm diam.), that become damaged or need to be removed, advice will first be sought from the supervising arboriculturist prior to any work being carried out on them. This will be carried out under Arboricultural supervision

12.10 If and when installing infrastructure for underground services, they will be done by hand within any RPA and care will be taken not to damage the exposed roots. Back-fill within an RPA will not be compacted and will possess the same soil profile as the surrounding soil. If there is a need to compact Backfill, in preparation for the reinstatement and/or installation of infrastructure within an RPA, then CU structural soil will be used as Backfill. The above will only be applicable with permission from the LA.

12.11 The timing of any excavations for underground services will coincide with the arrival of materials to be used for the construction of the underground services, to minimise the time that roots are exposed. Roots will not be left exposed for more than 24 hours.

13.Landscaping:

13.1 Landscaping operations will commence only when all main construction work has ceased. The protective fencing will be removed immediately prior to commencing these operations.

13.2 No soil lowering will occur within any RPA.

13.3 The existing soil levels will not be raised by more than 150mm within RPA of retained trees without seeking advice from the appointed Arboricultural consultant.

13.4 Excavations for planting within RPA carried out by hand only down to 600mm. The same will apply for introduction of topsoil, plant transport & mulching.

13.5 All landscaping work within RPA will also be carried out by hand only.

Footpaths/hard surfaces:

13.6 Any exposed roots will be covered with damp Hessian. Debris from the excavation will not be stored in this area but will be immediately removed from the RPA.

13.7 General purpose topsoil to BS3882:2007 will be used to replace the previous hard surface if necessary. N/A

13.8 The proposed garage building construction will follow procedures detailed to protect RPA of retained trees.

Boundary treatments within RPA:

13.9 Where new boundary fences are proposed to be installed within the RPA of retained trees, this will be carried out using hand tools only. Excavations will be undertaken using hand tools only at proposed fence post locations to confirm the existence of significant or insignificant roots. If significant roots are found, then an alternate location will be sought using the same method.

14. Post-development tree Care and amelioration

14.1 Once all construction and landscaping activities have been completed, any remaining ground protection/protective fencing will be removed.

14.2 A detailed visual inspection of the retained trees on the site & their RPA, will be carried out, to check for signs of development damage to both the trees and their rooting environment.

Appropriate remedial tree / soil work will then be recommended by an arboriculturist.

14.3 Any damaged branches will be removed or pruned cleanly in line with current good Arboricultural practice (BS3998:2010) and any specific Arboricultural advice. Any other remedial work will also be carried out as and when recommended.

14.4 An annual tree inspection regime will be implemented to monitor the health of the retained and replaced trees for an agreed period after the development project is complete. The appointed arboriculturist will provide reports to the client & the local authority tree officer at agreed times, on the condition of the retained trees and any remediation work recommended.

15. Site Supervision

15.1 BS5837:2012 recommends site supervision at regular intervals many local authorities are requesting detailed schedules for site supervision, as well as the details of the supervising arboriculturist. Details to be agreed subject to conditions.

This concludes the method statement.

Kim Gifford
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on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 3b).

NOTE 1 Examples of configurations for steel mesh perimeter fencing systems are given in BS 1722-18.

NOTE 2 It might be feasible on some sites to use temporary site office buildings as components of the tree protection barriers, provided these can be installed and removed without damaging the retained trees or their rooting environment.

6.2.2.4 All-weather notices should be attached to the barrier with words such as: "CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

Figure 2 Default specification for protective barrier

