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Arboricultural Report

Client: Mulberry House School
(On behalf of BDG architecture and design)

Site: Mulberry House School 7 Minster Road Cricklewood, London

Survey undertaken: Trees in relation to design, demolition and construction – Recommendations.

Author: Frank Parsons
RFS certificate in Arboriculture
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24th April 2017

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1. Background:

This report is in conjunction to the tree survey attached, which has been undertaken to identify any trees within or affected by the proposed development at the site address that should be removed or retained and therefore protected during the proposed development. This report will outline tree categorization methodology with reference to BS 5837:2012.
The proposed site is within a conservation area. The local authority is the Royal Borough of Camden.

2. Clients Brief:

- To undertake a tree survey within the rear gardens of affected properties. Plan supplied by BDG architecture and design.

- To provide an Arboricultural report identifying the trees to be retained, removed or worked on within the proposed development and outline and evaluate the constraints posed by the trees retained on site via:

- Root Protection Area (RPA) – Layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of a tree, shown in plan form.

- Construction Exclusion Zone – Area based on the RPA, identified by an arboriculturalist, to be protected during development, including demolition and construction work, by the use of barriers and or ground protection, fit for purpose to ensure the successful long term retention of a tree.

- Tree Protection Plan (TPP) – Scale drawing prepared by an arboriculturalist showing the finalized layout proposals, tree retention and tree landscape protection measures detailed within the arboricultural method statement (AMS), shown in plan form.

- Arboricultural Implications Assessment – Study undertaken by an arboriculturalist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

- Arboricultural method statement (AMS) – Methodology for the implementation of any aspect of development that has the potential to result in loss or damage to a tree. N.B. The AMS is likely to include details of an on site tree protection monitoring regime, construction traffic management plan in relation to trees and a tree pruning schedule.

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3. Scope:

The survey has been conducted in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

4. Site Observations:

Mulberry House school is located on the junction of Shoot Up Hill and Minster Road. There is an outdoor play area that is to the rear of site, which is the area of proposed development. Minster road runs alongside this playground. The ground surface is currently a soft surface, which slopes up from the school building to No.1 Minster Road. Within this area there is a staff room, sheds and stores on east (rear) boundary and a modern escape staircase located in the middle of the playground. One street tree grows adjacent to the staff room another grows further down Minster road towards Shoot Up Hill. Residents parking bays are outside the school on Minster Road. The school gates and access is also located on Minster Road. The weather at the time of survey was sunny with no wind.

5. The Proposed Development:

Demolition of existing staff room in the playground area. Installation of a two storey design build to improve use of space and increase interior work areas and stores. The proposed development is not subterranean. Please refer to architects drawings for further information.

6. (i) Tree Survey
*Attached as a separate pdf documents: Reference - **FP/TS/237***

(ii) Survey Map - *attached as a separate pdf document identifying tree numbers and BS Tree Categories: Reference – **TMS Mulberry House School***

Below: Table 1 – Cascade chart for tree quality assessment

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

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

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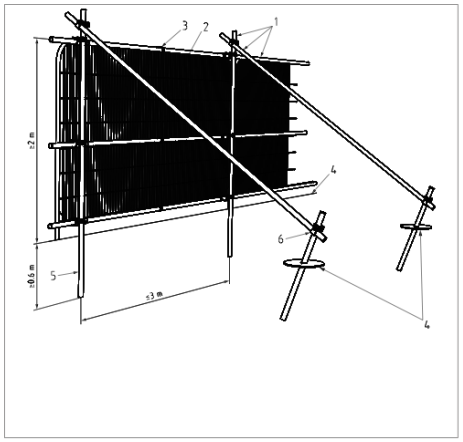
(iii) Tree Constraints Plan:
Attached as a separate pdf drawing: Reference ***TCP Mulberry House School***

(iv) Tree Protection Plan:
Attached as a separate pdf drawing: Reference ***TPP Mulberry House School***

7. (i) ***Construction Exclusion zones (CEZ's):***

Barriers and/or ground protection should protect trees that are being retained on site before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone. Erection and retention of a 2m high sturdy secure temporary fence, typically heras style, on a scaffold framework should be positioned along the CEZ calculated along side the RPA's of retained trees.
Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree. Barriers should be maintained to ensure that they remain rigid and complete. Pins can be driven in to the ground to ensure rigidity, or demarcation of barriers with spray will indicate whether or not the barriers have been moved. The mixing and storage of materials is prohibited within the construction exclusion zones, contractors and machinery are also prohibited within CEZ's to mitigate soil compaction. This should be communicated via the project manger at commencement of each stage of the development.

Fig.1 BS 5837:2012:
Example of typical tree protection fencing used to demarcate the calculated construction exclusion zone.



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(ii) ***Recommendations to mitigate or eliminate damage to tree roots within RPA's***

To mitigate severance of roots for foundation construction specialist methods should be used:
Shallow piles, with site investigation used to determine their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 750 mm.

Beams, laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation. Designs for foundations that would minimize adverse impact on trees should include particular attention to existing levels, proposed finished levels and cross-sectional details. In order to arrive at a suitable solution, site-specific and specialist advice regarding foundation design should be sought from the project architect, developer and an engineer.

(iii) ***Appropriate measures to eliminate or mitigate severance of roots for construction of a utility service***:

Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. For this reason, particular care should be taken in the routing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA.
Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routing should be drawn up in conjunction with myself. Trenchless insertion methods should be used with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs where applicable.

8. Arboricultural Implications Assessment:

The installation of the proposed development will need to consider the London Plane tree (T1) growing adjacent to the school boundary wall by the exiting staff room. T2, Silver Birch has been included in the survey with regards to the construction traffic management.
T1 has been recently reduced to approximately 11m in height; it has a street tree management plan and is regularly maintained. The ground level in the playground at the location of the proposed development slopes up towards no1. Minster Road and pavement ground level is on average 0.5m below that of the playground. The rooting area of T1 will continue into the school grounds but at approximately 1m below pavement ground level. Proposed plans indicate new foundations to be installed at existing depth without excavation below pavement surface level. In this case the rooting area of T1 will be undisturbed during the proposed development with regards to foundation design. The south-east limb of T1 will potentially come into contact with the proposed building once installed, this will cause future issues of encroachment if not dealt with prior to installation.

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Drainage channels run into Minster road from the School grounds and construction materials are likely to seep into these channels and contaminate the T1 planting pit causing ill health in the tree. Crane and hiab operations underneath the canopy of T1 may cause mechanical damage to the stem and canopy branches. Similarly the stem of T2 adjacent to the school on Minster road is liable to this also.

9. Site Observations

Photo 1: Illustrates proximity of T1 to school boundary wall (proposed site of new design build)

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Photo 2: Existing staff room in playground. Ground level slopes up right towards No.1 Minster Road. Area of proposed development.

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Photo 3: Brickwork wall adjacent to tree stem is the street side boundary of the staff room. Drainage channel present left of staff room. Measurement between tree stem and boundary wall: 180cm.

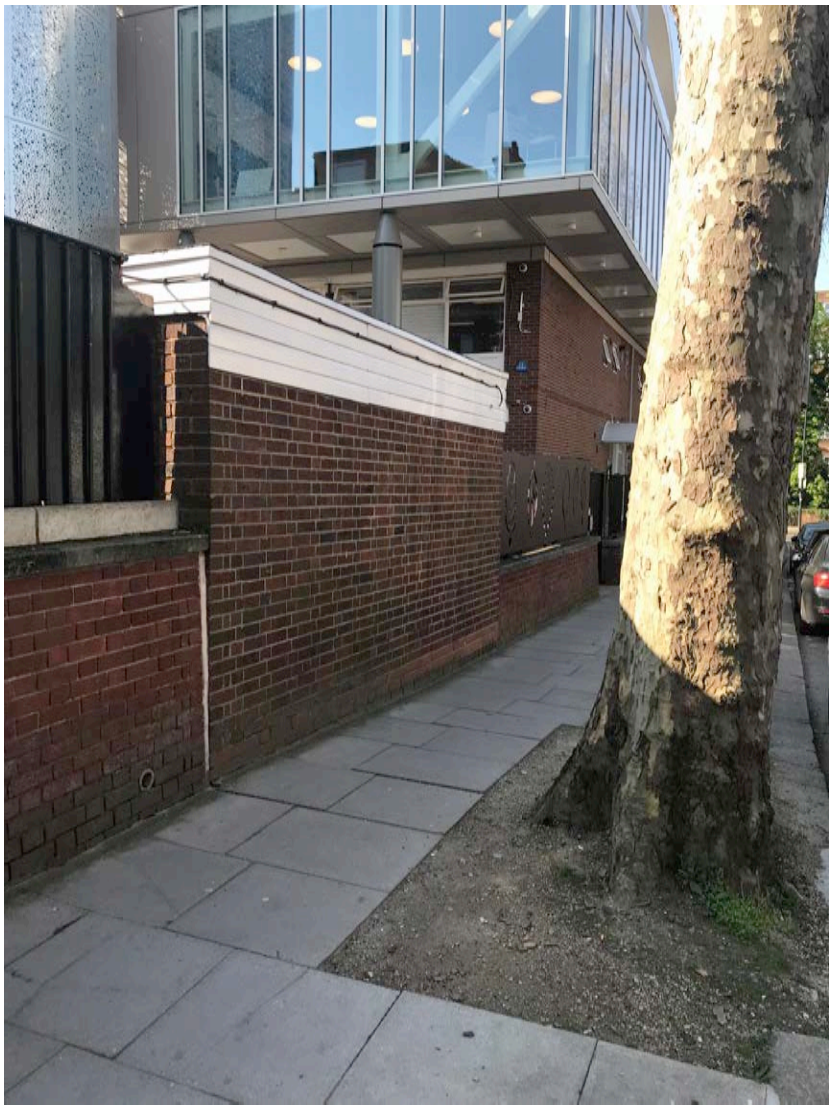

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Photo 4: Taken from boundary line facing south-west. Further illustrating the site of proposed development and changes in ground levels.

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10. Arboricultural Method Statement:

To ensure the health and existing vitality of trees that grow around the proposed site, the AMS should be used in conjunction with the tree protection plan attached to this report. (*TPP Mulberry House School*) See below trees that require protection during demolition and construction.

T1: Street Tree: RPA should not be impacted by proposed development. Street tree canopy is at statutory height @ 5m over highway allowing vehicles to unload nearby without causing mechanical damage to branch structure.
Construct and install 3m-timber hording around the tree stem prior to demolition and construction. No crane activity to be carried out underneath the canopy of T1.
The proposed development will not impact or make contact with T1. Therefore pruning or limb removal on T1 will not be necessary to facilitate the build nor cause damage to the tree so long as the notes in this report are followed during Construction.
T2: Street Tree: RPA not impacted by proposed development. Construct and install 3m-timber hording around the tree stem prior to demolition and construction.

11. CTMP – construction traffic management plan with regards to trees that grow in the vicinity of Mulberry house school Minster Road.

The 2 parking bays adjacent to the tree stem of T1 should NOT be used for construction vehicle activity to safe guard the health of this tree. Photo illustrates where not to unload materials and if the use of a crane is specified it must be away from the canopy of this tree:

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12. Conclusion

The London Plane adjacent to the proposed site of development should be protected during the demolition and construction stages of this project. This is to mitigate the potential of mechanical damage from cranes and vehicles during the development. As the proposed foundations are to existing depths I do not foresee root desiccation in this instance. It has been calculated that the new build will not make contact with the canopy or limbs of T1 and that there is adequate clearance to install the structure without tree surgery. T2 is a reasonable distance away from the site access and will not be affected by the proposed development.

The Tree Protection Plan annotates measures to protect trees during the proposed development as per BS 5837:2012. I will oversee the tree protection plan prior to works commencing, during and after the proposed development for continuity should the client gain planning. *Tree work to be undertaken in accordance with British Standards 3998:2010*

This report is to be submitted in conjunction with ***Tree Survey*** *– FP_TS_237* ***Site Plans*** *– TMS Mulberry House School, TCP Mulberry House School, and TPP Mulberry House School.*

13. References:

- BS 5837:2012 – Trees in relation to design, demolition and construction – Recommendations
- Original scale site survey supplied by BDG Architecture and design.