NO.3 DOWNSHIRE HILL, HAMPSTEAD
ARBORICULTURAL IMPACT ASSESSMENT
TREE RETENTION AND PROTECTION – METHOD STATEMENT
Revision 01: Date; 13th November 2014 ***Page 1***

1.0 INTRODUCTION

1.1 The proposed redevelopment of No. 3 Downshire Hill, Hampstead includes the construction and excavation of a lower ground floor basement level to a depth of 3.5 metres beneath the existing property. The basement excavation would be extended partially into adjacent car park area to the eastern edge.

1.2 There are 2 no. mature trees species of both coniferous and deciduous tree species located within the northern garden area; *T01 – Thuja plicata (Western Red Cedar Tree) and T02 - Prunus cerasifera (Cherry Plum).* A flowering cherry tree is located within the adjacent northern property garden area, but this is as some distance from the development proposals and would remain completely unaffected.

1.3 The existing trees within the site and the adjacent northern neighbouring property have been subject to a detailed tree survey and the existing tree Root Protection Areas have been calculated and plotted in accordance with *BS5837; 2012 – 'Trees in Relation to Design, Demolition, and Construction - Recommendations'.* The proposed basement scheme proposals are located just immediately adjacent to the calculated tree root protection areas for all the existing trees; and the existing trees are located above the existing property above the existing retaining walls and structures that have already been formed and constructed against the northern garden area which are approximately 1.0 metres height where the existing tree root protection areas have been significantly reduced by the previous development proposals on the site.

Drawings and Reports

1.4 The Tree Retention and Protection Proposals at No.3 Downshire Hill comprise the following;

LLD622 / 02 – Tree Protection Plan;
LLD622 - Arboricultural Impact Assessment and Method Statement;
Appendix No. 1 - Site Photographs.

2.0 TREE SURVEY

2.1 A detailed tree survey within No. 3 Downshire Hill, Hampstead was undertaken on the 11th October 2013. There are 2 no. mature trees species of coniferous and deciduous tree species located within the northern garden area. *T01 – Thuja plicata (Western Red Cedar Tree)* is a single stemmed Western Red Cedar tree which is tall and upright with pendulous lower branches. The tree has been crown-lifted to 4.0 metres height through tree surgery works. The needles are showing signs of minor browning to the ends of the branches. The tree is tall and upright with long pendulous branches arching down into the garden area. The tree dominates the northern garden area *(Refer to Photographs No. 01, 02, and 03 – Appendix No. 1).*

2.2 *T02 - Prunus cerasifera (Cherry Plum)* is a single stemmed purple plum tree which forks at 2.5 metres height into 4 - 5 no. conjoined leaders. The branches are included and conjoined with multiple stems to approximately 4.0 metres height. The stems are thick, tall, and upright. The lower outer branches are pendulous and ascending into the rear garden area. The tree has a good spreading feathery tree canopy form *(Refer to Photographs No. 04, 06, and 07 – Appendix No. 1).*

2.3 The location and position of the trees has been plotted within the northern garden area; and the diameter of the tree trunks has also been measured at 1.5 metres height. The tree root protection areas have been calculated in accordance with *BS5837; 2012 – 'Trees in Relation to Design, Demolition, and Construction - Recommendations' (Refer to Drawing LLD622 / 02 – Tree Protection Plan).*

3.0 NO. 3 DOWNSHIRE HILL, HAMPSTEAD – TREE LOCATION AND CONTEXT

Retaining Walls

3.1 The existing mature trees within the northern garden area at No. 3 Downshire Hill are located above the existing dwelling house within the site. The property has been excavated and cut into the existing ground and is located at a finished floor level of approximately 1.0 metres beneath the level of the northern garden area where the existing trees are located. This has been achieved with the use of retaining walls, and structural walls within the property which create a retaining structure against the existing garden area. In creating these retaining structures the existing tree roots would have already been cut within the specified tree root protection areas of these existing mature trees *(Refer to Photographs No. 04, 05, 06 and 07 – Appendix No. 1).*

3.2 The proposed basement scheme proposals are located outside of the calculated tree root protection areas; and the existing trees are located above the existing property above the existing retaining walls and structures that have been formed against the northern garden area which is approximately 1.0 metres higher than the dwelling house internal and external levels.

Trial Holes

3.3 2 no. trial holes were formed within the tree root protection areas of the two existing trees to the northern edge of the basement proposals beneath the exiting retaining walls within areas of existing hard standing. These trial hole locations have been indicated on the attached *Tree Retention and Protection Drawing – LLD622 / 02.* The aim of implementing the trail holes was to establish whether any significant major tree roots exist within the tree root protection areas to the northern edge of the existing property beneath the existing retaining walls.

3.4 Trail Holes No. 1 to the western edge of the existing terrace was dug within the root protection area of *T01 – Thuja plicata* and *T02 – Prunus cerasifera 'Pissardii'.* The trial holes was implemented to the following dimensions; *1220mm length x 610mm width x 850mm depth (Refer to Photograph No.s 08, 09, and 10).* The trial hole demonstrates the depth of the sub-base construction beneath the existing retaining walls adjacent to the existing property, and the significant depth of concrete footing beneath the existing paving. The occurrence of the existing topsoil / subsoil layer was located extremely deep beneath the concrete footing. At this depth only very fine, small, and fibrous tree roots of the adjacent conifer tree were found in this trial hole. There were no significant tree roots found in close proximity to the development proposals.

3.5 Trail Hole No. 2 to the eastern edge of the existing terrace was dug through the existing paving area within the root protection area of *T02 – Prunus cerasifera 'Pissardii'*. The trial hole was implemented to the following dimensions; *1600mm length x 400 width mm x 600mm depth (Refer to Photograph No.s 11, 12, and 13)* Again, the trial hole demonstrates the depth of the sub-base construction beneath the existing retaining walls adjacent to the existing property, and the significant depth of concrete footing beneath the existing paving. The occurrence of the existing topsoil / subsoil layer was located extremely deep beneath the concrete layer into the trail hole. At this depth only very fine, small and fibrous tree roots of the adjacent plum tree were found in this trial hole around the existing drain. There were no significant tree roots of the adjacent tree found in close proximity of the development proposals.

4.0 ARBORICULTURAL IMPACT ASSESSMENT

4.1 At Clause 4.6.2 of *BS5837; 2012 – 'Trees in Relation to Design, Demolition, and Construction - Recommendations',* the guidance states that;
'The RPA for each tree should initially be plotted as a circle centred on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of the likely root distribution'.

4.2 We would suggest that in line with the British Standard the presence of the existing retaining walls formed along the northern edge of the existing property and the excavated car park area; that the tree root protection areas of the existing trees have previously been altered by the construction of the existing property which has been cut into the existing site area. The tree root protection areas of these existing mature trees can therefore be relocated further north away from the existing property which has been cut into the site. To the north of No. 3 Downshire Hill there is the adjacent residential property which has a large open garden area. The major tree roots of the existing trees would now be contained asymmetrically to the tree stem within the adjacent garden area; and therefore in conclusion the tree Root Protection Area of these trees would be outside of the existing building footprint of No. 3 Downshire Hill.

4.3 The proposed basement excavation is located within the existing building footprint of the existing property and the adjacent car park area which have been previously cut into the existing site cutting through the existing tree root protection areas. The construction and excavation of the lower ground level basement into the building footprint of No. 3 Downshire Hill would have minimal impact upon the tree root protection areas of the existing mature trees within the northern garden area. The trial hole excavations undertaken during October 2014 demonstrate and confirm that there are no significant tree roots present in close proximity to the development proposals.

4.4 In order to protect the existing mature trees within the proposed construction and excavation of the lower ground floor level basement, mitigation measures and tree protection measures should be put in place in order to protect the tree as detailed within *Section 5.0 – Tree Protection Measures.*

5.0 TREE PROTECTION MEASURES

Protection and Retention of Existing Vegetation

5.1 The Contractor shall exercise extreme care when performing operations beneath the canopy of existing mature trees and vegetation and within the specified root protection areas designated for protection and avoid at all times damage to the roots, trunk and branches of existing trees proposed to be retained.

5.2 All excavations, cultivation and grading beneath the canopy of existing mature trees and within the specified root protection areas of the existing trees and vegetation shall be carried out using hand tools, taking care not to damage or disturb any existing tree roots.

5.3 All trees to be retained on site shall be protected with fencing erected around the area of mature vegetation in accordance with *BS 5837; 2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'.* The fencing shall be installed, protected and maintained during the main works by the Contractor who shall be responsible for protecting any area beneath the canopy of the existing trees and within the specified root protection areas.

5.4 The installed protective fencing shall be 2.0 metres height 'Heras' Welded Wire Mesh Fencing secured to a scaffolding framework, set into the existing ground, and positioned to the outside edge of the existing tree root protection areas. The fencing should be strained, and fixed to fences, walls, knee rails where possible to provide a complete protected area *(Refer to Figure No. 2 and Figure No. 3 below; © British Standards Institute 2012)*. All tree protection to be in accordance with *BS 5837; 2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'* set out as specified within Drawing *LLD622 / 02 – Tree Retention and Protection*.

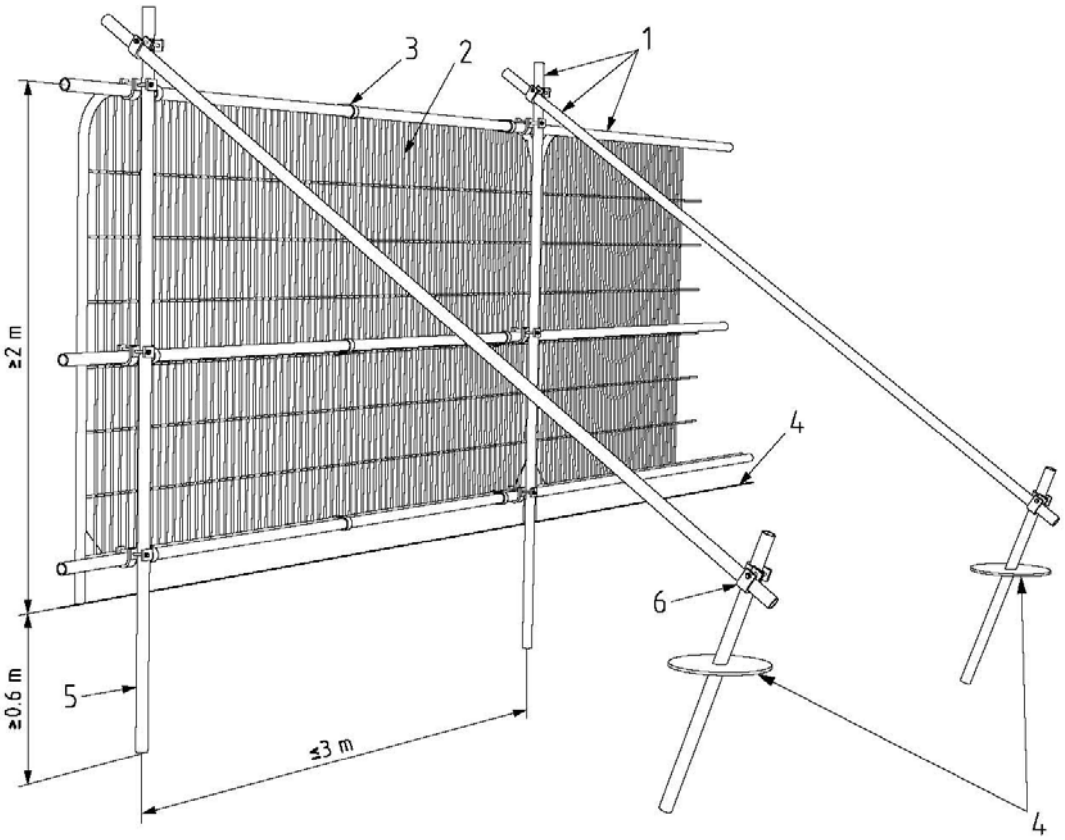
5.5 Day-glo ribbons shall be maintained during the main works by the Main Contractor attached to the top of the fencing to ensure that the fencing is clearly visible during the works. The tree protection fencing shall display all-weather notices stating '*Construction Exclusion Zone – NO ACCESS*'.

5.6 All such fencing shall be maintained for the full contract period. All necessary excavations, earthworks and cultivation beneath the canopy spread of any existing tree; shrub or hedge shall be undertaken by hand. No commencement of construction operations may occur prior to the inspection of the installed tree protection measures by the Landscape Architect / Arboricutural Consultant. Repositioning of the protective fencing during the course of the contract as the contract works progress shall need prior agreement with the Landscape Architect / Arboricutural Consultant.

5.7 Within the protected area the following activities must not take place;

- *No vehicles are to be used in the fenced off areas;*
- *No materials are to be stockpiled or stored;*
- *No chemicals are to be stored;*
- *No excavation or increase in the soil level shall occur;*
- *No fires shall be lit on site.*

Figure 2 **Default specification for protective barrier**

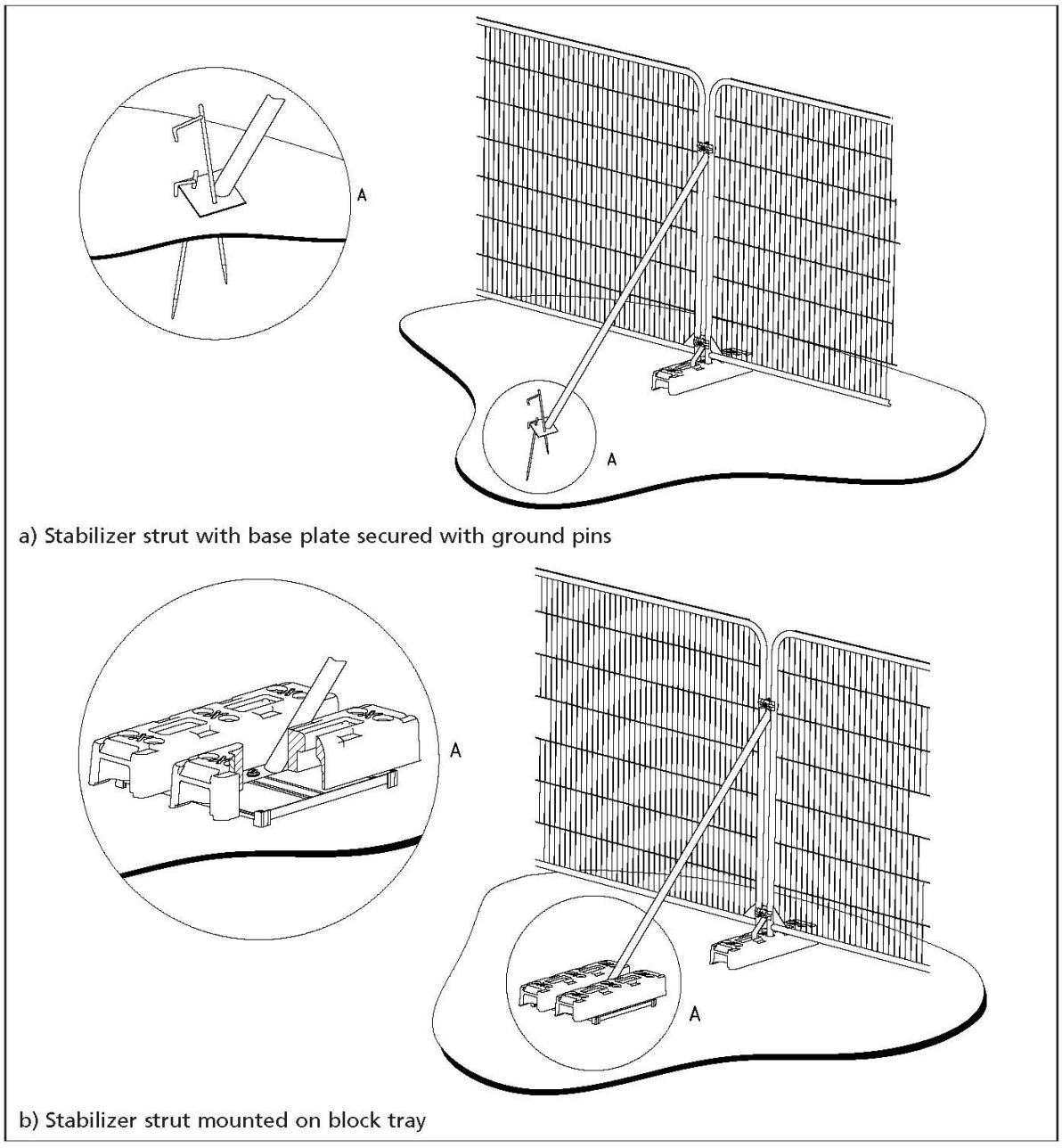


Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized 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 0.6 m)
6 Standard scaffold clamps

5.8 Care should be taken to avoid damage to unseen tree roots and underground services; a secondary fencing support system may be implemented as outlined in Figure No. 3 below.

Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

5.9 At the end of the contract period the Contractor shall remove protective fencing from the site. All retained vegetation shall be healthy and thriving at the handover date.

Joe Jackson
Principal
Landscape Architect BA (Hons) LA DipLA CMLI

Lizard Landscape Design and Ecology
Date; 13th November 2014

APPENDIX NO. 1 - SITE PHOTOGRAPHS

Photograph No. 01 - *T 01 - Thuja plicata* - Mature Western Red Cedar tree to the northern garden area. The tree is single-stemmed, tall, and upright.

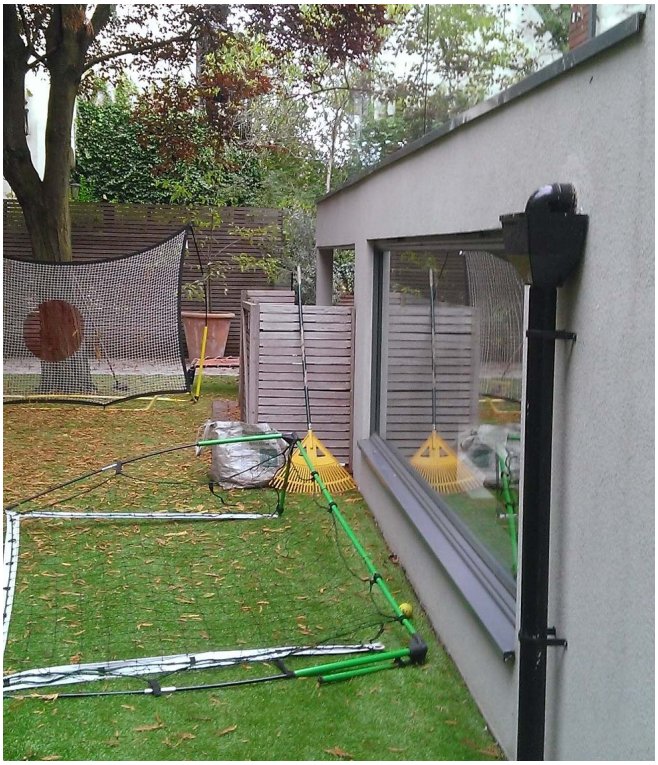
Photograph No. 02 - *T 01 - Thuja plicata* - Mature Western Red Cedar - The tree has pendulous hanging branches and needles; with minor browning to the end of the branches.

APPENDIX NO. 1 - SITE PHOTOGRAPHS

Photograph No. 03 - *T 01 - Thuja plicata* - Mature Western Red Cedar; single-stemmed crown-lifted tree within the northern garden area.

Photograph No. 04 - *T 02 - Prunus cerasifera 'Pissardii'* - The cherry plum tree is located above the car park area retaining wall of 0.95 metres height.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 05 - The existing building edge creates a retaining wall / structure to the edge of the northern garden area; approximately 1.0 metres depth / height.

Photograph No. 06 - *T 02 - Prunus cerasifera 'Pissardii'* - The cherry plum tree is located above the car park area retaining wall of 0.95 metres height.

APPENDIX NO. 1 - SITE PHOTOGRAPHS

Photograph No. 07 - *T 02 - Prunus cerasifera 'Pissardii'* - The single stemmed cherry plum tree is located above the car park area retaining wall of 0.95 metres height.

Photograph No. 08 - *Trial Hole No. 1* - The trial hole demonstrates the depth of concrete sub-base beneath the existing paving area. The existing topsoil / subsoil layer is located at a significant depth below the paving surface.

APPENDIX NO. 1 - SITE PHOTOGRAPHS

Photograph No. 09 - *Trial Hole No. 1* - The trial hole demonstrates the depth of concrete sub-base beneath the existing paving area. The existing topsoil / subsoil layer is located at a significant depth below the paving surface.

Photograph No. 10 - *Trial Hole No. 1* - There were no significant tree roots found within the trial hole, only small fibrous tree roots beneath the concrete sub-base layer of the adjacent conifer tree.

APPENDIX NO. 1 - SITE PHOTOGRAPHS

Photograph No. 11 - *Trial Hole No. 2* - The trial hole demonstrates the depth of concrete sub-base beneath the existing paving area. The existing topsoil / subsoil layer is located at a significant depth below the paving surface.

Photograph No. 12 - *Trial Pit No. 2* - There were no significant tree roots found within the trial hole, only small fibrous tree roots beneath the concrete sub-base layer of the adjacent plum tree, surrounding the drain cover.

APPENDIX NO. 1 - SITE PHOTOGRAPHS

Photograph No. 13 - *Trial Pit No. 2* - There were no significant tree roots found within the trial hole, only small fibrous tree roots beneath the concrete sub-base layer of the adjacent plum tree.