

FIFTYPOINTEIGHT ARCHITECTURE

**44 New Brighton Road
Emsworth, Hampshire**

- Arboricultural Impact Assessment and Method Statement

Planning Issue

Prepared by	GS
Checked by	JJ
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**LLD1092 – 44 NEW BRIGHTON ROAD, WEST SUSSEX - RESIDENTIAL EXTENSIONS
ARBORICULTURAL IMPACT ASSESSMENT AND METHOD STATEMENT
Planning Issue - Rev 00; 13.12.16**

1.0 Introduction

- 1.1 FiftyPointEight Architecture has commissioned Lizard Landscape Design and Ecology to undertake a detailed tree survey and arboricultural impact assessment at 44 New Brighton Road, Emsworth. The residential development proposals are located to the existing residential property of 44 New Brighton Road, Emsworth. The property is located to the eastern edge of New Brighton Road within a highly urban residential area. The street is lined with garden boundary vegetation and timber close boarded fence lines and some low boundary walls. The street residential character has an enclosed and contained character due to the garden boundary vegetation and property boundary fence lines.
- 1.2 44 New Brighton Road is a large detached red bricked property surrounded by gravel driveway to the property frontage. The site is accessed from two separate access points from New Brighton Road. The property is a large 3 no. storey detached villa; red bricked and red clay tiles to the pitched roofs. There is a large bay to the property frontage which extends to the full 3 no. storeys height with a gabled frontage and pitched roof. The property has pitched and gabled roofs of red clay tiles. There is a two-storey flat roofed extension to the southern edge of the existing property used as a garage.
- 1.3 The garden boundaries are edged with some mature garden vegetation of both coniferous and deciduous vegetation and tree lines. The rear garden area is laid to lawn. There are neighbouring residential properties to all sides to the north, east, and south with their associated garden boundary vegetation. The rear garden area contains a number of mature specimen trees edged with boundary shrub and hedge line vegetation.
- 1.4 The New Brighton Road frontage is lined with existing mixed garden boundary vegetation and trees of Ash; Cherry Plum; Field Maple; and Laurel (*TL08 and TL09 - Category C Grade Trees and Vegetation*). There is a mature, wide-spreading Monterey Cypress tree which dominates the site frontage to the south-western edge of the property (*TL07 - Category B Grade Tree*).
- 1.5 The northern edge of the property to both the front and rear garden areas is lined with tree lines of Ash; Field Maple; and Laurel (*TL08 – Category C Grade Trees*) and mature Tree Groups of Field Maple and Ash (*T06 and TL05 – Category C Grade Trees*) to the front garden northern boundary. The rear garden northern boundary edged is line with large mature single specimens of Ash and Common Oak which overhang the garden boundary; the northern elevation and roofs of the property in close proximity and the rear grassed lawn area (*T01; T02; and T04 – Category C and B Grade Trees.*)
- 1.6 The southern edge of the garden area contains a mature Yew tree to the centre of the lawn (*T03 – Category B Grade Tree*) and mixed species mature shrubs of Laurel, Willow, Cherry and Rhus in close proximity to the existing southern elevations of the property on the southern boundary (*TG10 and SH11 – Category C Grade Trees and Shrubs*).

- 1.7 The existing trees, hedge lines, and shrubs within and adjacent to the 44 New Brighton Road, Emsworth site boundary have been surveyed in detail on site for tree condition, and are recorded within the attached report; *LLD1092 – Existing Tree Schedule and Schedule of Tree Works*; and identified on the following drawings; *LLD1092 / 01 – Tree Constraints Plan*; and *LLD1092 / 02 – Tree Retention and Protection Plan*. The Tree Retention and Protection Plan illustrates the impact of the proposed development upon the existing trees and setting out where vegetation is to be retained / removed and specifically measures for tree and root protection wherever existing trees and vegetation are to be retained and protected.
- 1.8 Following the proposed removal of any existing vegetation from the site in accordance with the drawing *LLD1092 / 02 – Tree Retention and Protection Plan* and accompanying Existing Tree Schedule, there are a number of existing trees within the vicinity of the development proposals that would remain and would be directly impacted upon by the development proposals. The existing retained trees are to be protected where possible in accordance with the guidance contained within *BS 5837; 2012 – ‘Trees in Relation to Design, Demolition and Construction – Recommendations’*.
- 1.9 The status, impact, and protective measures upon the existing trees and vegetation within the site affected by the development proposals are subject to the protective measures and construction method statement detailed in the following Arboricultural Method Statement.

2.0 Arboricultural Impact Assessment

- 2.1 The development proposals comprise a two-storey building extension with pitch roof to the southern aspect of the property over the footprint of the existing two storey garage building close to the southern garden boundary. The existing property is proposed to be extended also to the north-eastern building aspect with a single storey extension with pitched roof into the rear garden area. The rear garden area is also proposed to be redeveloped with an enhanced external paved terrace area to the south-eastern building aspect extending almost as far as the southern garden boundary.
- 2.2 The proposals affect a number of the existing trees on site; a handful of existing shrubs / trees shall require removal in order to implement the proposed construction work and others shall require detailed protection to enable their retention within the proposed scheme. All existing trees to be retained shall be protected where possible in accordance with *BS 5837; 2012 – Trees in Relation to Design, Demolition and Construction – Recommendations*.
- 2.3 The following trees and vegetation shall require partial removal in order to accommodate the development proposals of the southern building extension. The laurel shrubs to the southern garden boundary shall require partial removal in order to accommodate the footprint of the proposed southern building extension. The trees and shrub are of low quality and condition;
- *TG 10 – Laurus sp.; Category C;*

Northern Boundary – T01 – Quercus robur (Common Oak)

- 2.4 The mature Oak tree to the northern garden boundary has a large root protection area of 13.80 metres radius to the northern garden edge. This tree root protection area overlays the proposed building footprint to the north-eastern building extension. The proposed single storey pitched roof north-eastern building extension is proposed to be constructed using a micro pile and beam foundation design and construction above existing ground levels and the root plate of the existing Oak tree in order to protect the tree's root zone. This construction method avoids the use of trench excavated foundations into the underlying tree root protection area of the existing mature Oak tree.
- 2.5 The micro pile and beam foundations proposed would be constructed above the underlying existing tree roots. The proposed northern building extension would require structural engineer's input to locate the piles and steel beams to support the proposed northern extension above existing ground levels. The initial micro pile locations shall be trial pit excavated first to avoid major tree roots and re-adjusted if necessary if major tree roots are found during initial excavation. This would ensure that major tree roots are avoided; not severed; and are retained intact beneath the proposed foundations. All existing hard landscape surfacing construction materials present would be removed manually by hand within the trees RPAs where they currently exist. The construction area / existing ground beneath the existing tree canopy of the Oak tree shall be overlain with a geo-textile membrane and granular fill Type 3 compression protection layer for ground protection during construction surrounding the proposed building foundations.
- 2.6 The remainder of the tree root protection area within the site shall need to be retained and protected with both ground protection measures whilst construction work is in progress and 'no-dig' paving construction method where applicable for the new extended terrace area; protected during construction with interlocking metal plates above a compression resistant layer for the duration of the construction period in accordance with BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'.
- 2.7 The tree canopy of T01 - Oak would benefit from crown reduction to the south-western aspect of the tree to make allowance for the proposed construction activities and the new single storey building extension to the south-western aspect of the tree. The overall crown reduction would remove a maximum of 1.5m to the southern-western aspect of the oak tree. All tree pruning and crown reduction would be carried out in accordance with BS3998: 2010 – 'Tree Work: Recommendations'
- South Boundary – TG 10 – Laurus sp.**
- 2.8 The existing tree grouping of Laurel to the southern site boundary is proposed to be partially retained and partially removed in order to accommodate and facilitate the proposed construction of the southern two-storey building extension. The construction of the proposed extension foundation should be undertaken using a manual excavation method in order to protect all existing tree roots present.
- 2.9 Where the development proposals necessitate excavation of building foundations; the tie-in and re-grading of existing and proposed levels for vehicular access; or include the implementation of underground services such as services, cables, pipe work; a manual excavation method must be implemented using hand held tools to minimise the impact on existing trees and roots. The excavation shall be executed with due care and attention not to disturb exposed unmade ground and any existing tree roots present within it.

- 2.10 Roots over 25mm diameter or those occurring in clumps must not be severed without arboricultural advice. Roots below such size may be cut cleanly using specialised hand tools only and to the minimum extent to allow provision. All exposed roots should be immediately wrapped in dry Hessian to avoid drying. On completion of the excavation and at the earliest opportunity the wrapping should be removed, and the roots surrounded and protected with a loose granular fill (*clean washed sharp sand or topsoil free of contaminants or matter injurious to rooting systems*) prior to backfilling the excavation to the desired levels.

South Boundary – SH11 – Mixed Species Tree Group

- 2.11 The proposed extended hard landscape terrace to the southern eastern building aspect is proposed to be extended slightly into the tree root protection area of the mixed tree / shrub grouping to the southern property boundary. The proposed hard landscape terrace areas shall need to be implemented in close proximity to these boundary trees and shrubs with a 'no-dig' paving construction above existing site levels as detailed below.

3.0 Stages of Work / Programme

- 3.1 The 44 New Brighton Road building extension proposals shall involve the following site operations that could impact upon the existing tree cover;
- *Contractor movements; site access and operations; storage and compound;*
 - *Removal of existing vegetation not for retention;*
 - *Construction of building extension and; ground work operations; and hard landscape proposals for the extended terrace area;*
 - *Implementation of services and utilities;*

4.0 Arboricultural Method Statement

***Contractor Movements; Site Access and Operations;
Storage and Compound Areas***

- 4.1 The contractor site compound shall be located outside of the defined tree root protection areas for all trees and vegetation as indicated on drawing; LLD1092 / 02 – *Tree Retention and Protection Plan*.
- 4.2 The contractors site compound shall be located so as to not incur damage or injury to the tree root systems or canopy of any existing trees or vegetation within or adjacent to the site, in accordance with BS 5837; 2012 – '*Trees in Relation to Design, Demolition and Construction – Recommendations*'. All operations associated with the usage of the compound area shall be undertaken with due care and attention so as to negate damage of the surrounding environment.
- 4.3 Access to the site area shall be made at all times via the existing access points and entrance from 44 New Brighton Road. Pre-construction vehicular movement to facilitate the removal of existing vegetation and undertake tree surgery works shall be limited to the minimum requirement in order to fulfil the vegetation removal works and no vehicular access shall be permitted over unmade ground within the tree root protection area of existing trees to be retained and protected. Once the tree removal and tree surgery works have been completed the tree protective fencing works shall be put in place as specified on LLD1092 / 02 - *Tree Retention and Protection Plan*. Vehicular movements during the construction period shall be limited to the areas of existing hard standing or newly protected ground only.
- 4.4 Demolition of the existing structures where necessary shall be undertaken once the tree protective fencing measures have been put in place in order to protect existing tree canopies and tree root protection areas from vehicle movements and material storage.

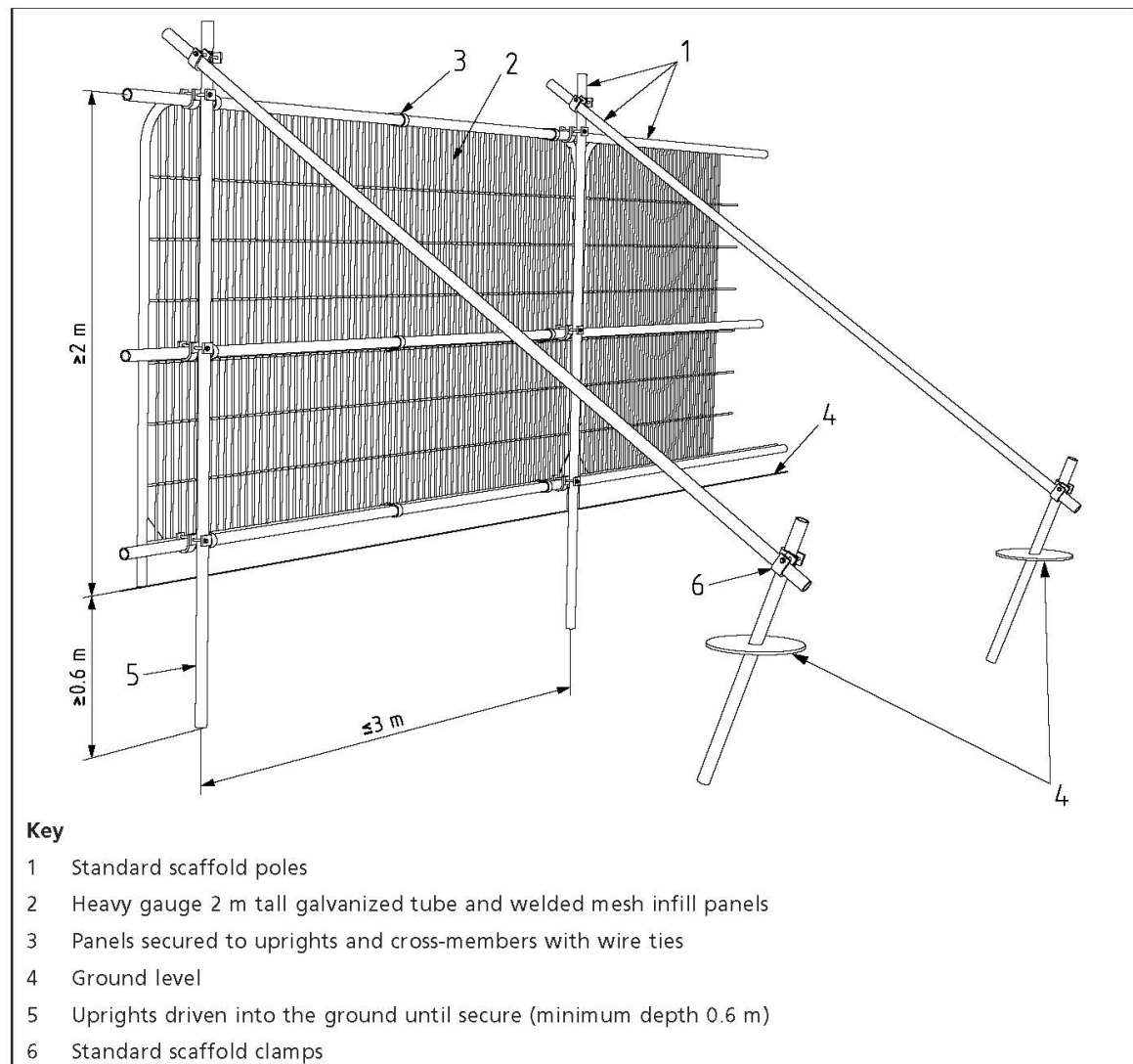
- 4.5 All site operations and construction procedures for the duration of the construction period shall seek to protect the existing site vegetation and tree root protection areas in accordance with *BS 5837; 2012 – 'Trees in Relation to Design, Demolition and Construction – Recommendations'*.

Removal of Existing Vegetation

- 4.6 All existing trees designated for removal are to be removed in accordance with the Tree Protection and Retention Drawing - *LLD1092 / 02 - Tree Retention and Protection Plan*. All tree work and removal shall be carried out in accordance with *BS 5837; 2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'* and *BS3998: 2010 – 'Tree Work: Recommendations'*. Trees designated for removal and felling shall be clearly marked on site with white paint. Prior to the removal and felling of trees, the required work and tree positions shall be agreed on site with the Landscape Architect / Arboricultural Consultant. Trees shall be felled, and tree surgery works undertaken prior to the erection of the Tree Protective Fencing. Care should be taken during the tree removal process to avoid any damage to any trees which are designated to be retained and protected.
- 4.7 Stumps shall be removed and cut away so that the top of the tree stump shall be at least 450 mm below the final topsoil level in order that the site can be reinstalled in accordance with the existing site levels. Stumps are to be treated with an approved herbicide to be agreed with the Landscape Architect / Arboricultural Consultant. Where the depth is greater than 450 mm the areas shall be backfilled with topsoil to the required level.
- 4.8 The removal of shrub or scrub material within the tree root protection area of any tree to be retained shall employ a manual removal method; the use of hand tools shall be used in order to maintain the ground surface of the tree root protection area, and reduce any damage to existing tree roots within the protected tree root zone. Adjacent trees shall not be utilised as anchors or levers to facilitate the removal of adjacent vegetation.
- Tree Surgery**
- 4.9 Tree surgery measures and works have been identified. Any significant defects found in the trees during the course of the scheduled work shall be reported to the Landscape Architect / Arboricultural Consultant. All scheduled and arising tree work shall be undertaken by an approved and qualified Tree Surgeon in accordance with *BS3998: 2010 – 'Tree Work: Recommendations'*. Care should be taken to avoid damage to neighbouring trees to be retained. Branches in confined spaces shall be removed and taken down in sections. All arisings shall be transported and disposed of away from site to the contractor's tip.
- Tree and Vegetation Management**
- 4.10 For tree and vegetation retention and removal proposals refer to the attached *Existing Tree Schedule*. For tree and vegetation management proposals refer to the tree surgery works and management prescriptions contained within the *Existing Tree Schedule and Schedule of Tree Works*.
- Protection and Retention of Existing Vegetation**
- 4.11 The contractor shall exercise extreme care when performing operations beneath the canopy of existing mature trees and vegetation and within the specified tree 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.
- 4.12 All excavations, cultivation, and grading beneath the canopy of existing mature trees and within the specified tree 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.

- 4.13 All trees to be retained on site shall be protected with fencing erected around the area of mature vegetation in accordance with *BS5837; 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 tree root protection areas.
- 4.14 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 area. 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 LLD1092 / 02 – *Tree Retention and Protection Plan*.
- 4.15 Day-glo ribbons shall be maintained during the main works by the 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*'.
- 4.16 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 and ground protection by the Landscape Architect / Arboricultural 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 / Arboricultural Consultant.
- 4.17 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.*

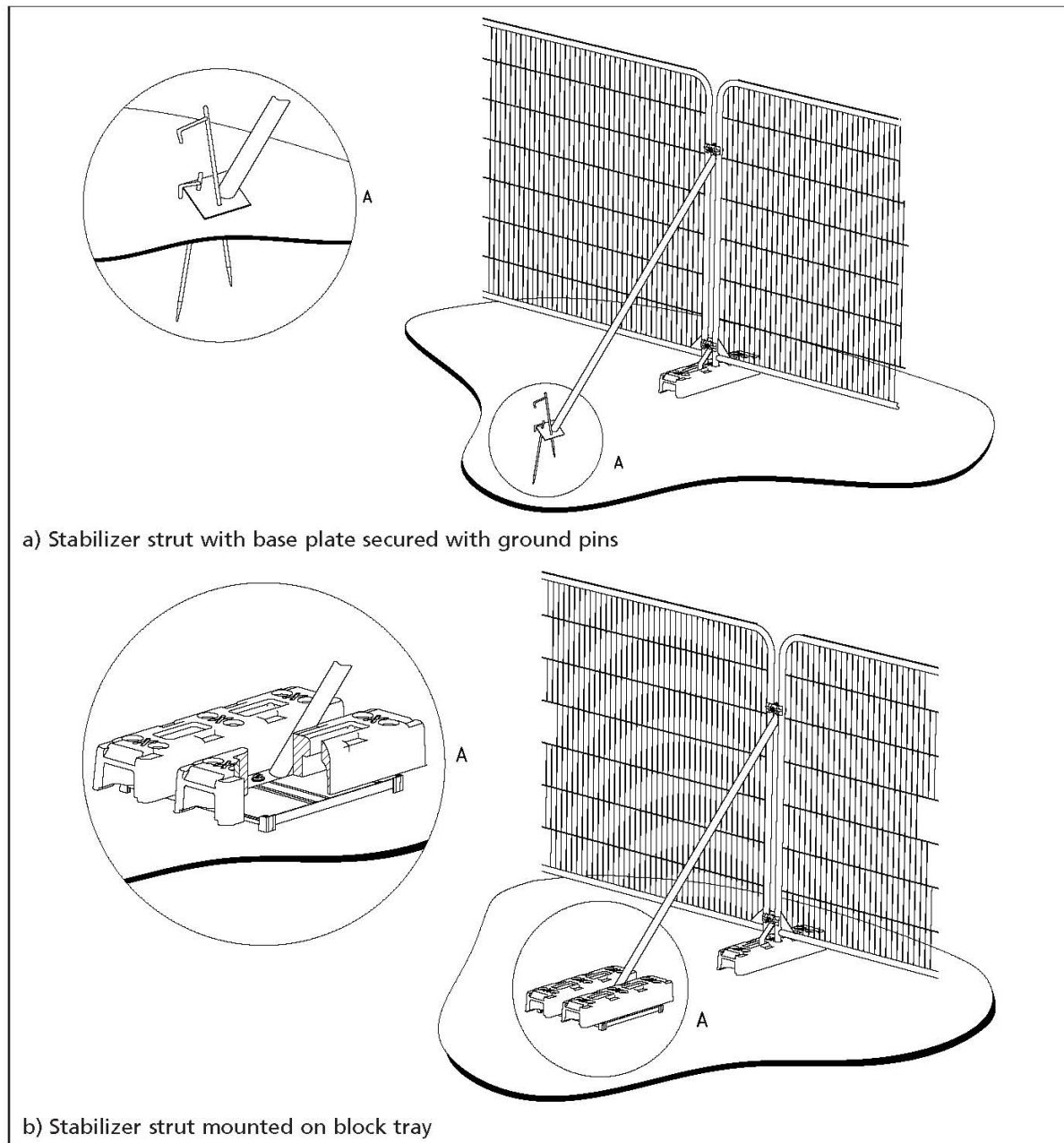
Figure 2 Default specification for protective barrier



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

Figure 3 Examples of above-ground stabilizing systems



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- 4.18 At the end of the contract period the contractor shall remove the tree protective fencing from the site. All retained vegetation shall be healthy and thriving at the handover date.

**Ground Protection; Tree Protection Zone
- Micro Pile and Beam Foundations**

- 4.19 The proposed residential extension to the north-eastern building elevation is proposed to be constructed within the site area using a micro pile and beam foundation design and construction which avoids the use of trench excavated foundations into the underlying existing tree root protection area. The micro pile and beam foundation design would be constructed above existing ground levels and above the underlying existing tree roots. The proposed building extension would be piled according to the structural engineer's specification to support the proposed building extension above existing ground levels. The initial micro pile locations shall be excavated by hand initially to avoid major tree roots. This ensures that major tree roots are not severed and are retained intact beneath the foundations. If necessary the location of the micro piles can be adjusted to suit the location of major tree roots. Positions of the micro piles would be agreed on site with the arboricultural consultant / Local Planning Authority.

**Ground Protection; Tree Protection Zone
- Operation Zone during Construction**

- 4.20 Where construction operations require activity within the exposed unmade ground of any existing tree root protection area, a temporary protection zone shall be implemented allowing for construction operations only, but no vehicular access close to existing trees during the construction period. The temporary ground protection measures are to be set out in accordance with drawing LLD1092 / 02 – *Tree Retention and Protection* and shall remain in place for the duration of the construction period. The temporary ground protection for construction operations only, but no vehicular access, shall comprise a single thickness of metal plates secured and supported upon a scaffold framework driven into the ground or by a retained non-compressible layer (*woodchip / Type 1*) of 150mm depth placed above a geo-textile separation membrane in order to protect existing tree roots.

Ground Protection; Tree Protection Zone – 'No-Dig' Construction

- 4.21 In accordance with BS 5837; 2012; *'Trees in Relation to Design, Demolition and Construction - Recommendations'* ground levels should not be raised or lowered within the existing tree root protection areas. A *'no-dig' Construction* method shall be employed in order to avoid damage to existing tree roots and localised compaction of subsoil within the tree root protection area.
- 4.22 Where new hard landscape surfacing is proposed within the tree root protection areas of the existing trees it shall be installed using a *'no-dig' permeable geo-grid construction*. Existing paving material shall be left undisturbed and retained during the construction period for as long as possible in order to protect the tree root protection area of the existing trees to be retained; existing surface hard landscape materials and sub-base layers only shall be removed carefully by hand within the existing tree root protection areas and shall not exceed the depth of the existing construction. Existing subsoil / topsoil layers shall be retained and protected in place in order to protect tree roots.
- 4.23 A ground stabilising geo-mesh shall be installed above the existing ground levels of the proposed hard landscape paving areas; prior to installation, all hollows within the existing construction are to be filled and no high points of existing undisturbed / unmade ground shall be skimmed. A ground stabilising mesh (*'TDP SN20 GeoGrid' or equal and approved*), shall be rolled out over the existing ground level and evenly covered with a No Fines - Open Graded Aggregate (*in accordance with Highways Agency Specification; Clause 805 (Type 3) or equal and approved.*)

- 4.24 The granular fill shall be incorporated within a 3 dimensional GeoCell (*Terram Geocell 250/100* or equal and approved) and shall ensure a minimum supportive construction depth of 100 mm. A geo-textile filter membrane is to be laid over the granular fill construction (*Geotextile filter membrane to be TDP 115 Non-woven Geotextile Fabric* or equal and approved.)
- 4.25 A permeable blockwork / slab paving system and construction method shall be installed over the prepared sub-base layers. A bedding layer of crushed aggregate (*to BS EN13242; range size; 04 - 14mm*) is to be laid level and compacted above the Geotextile filter membrane to a depth of 25 mm. A porous paving system of permeable blockwork / slab paving shall be installed above the bedding layer. The permeable blockwork / slab paving shall be infilled with permeable chippings to infill large joints between permeable blocks and ensure strong jointing.
- Ground Protection; Tree Protection Zone – Manual Excavation**
- 4.26 Where the development proposals necessitate excavation of building foundations; the tie-ing in and re-grading of existing and proposed levels for hard landscape areas; or include the implementation of underground services such services, cables, pipe work; a manual excavation method must be implemented using hand held tools to minimise the impact on existing trees and roots. The excavation shall be executed with due care and attention not to disturb exposed unmade ground and any existing tree roots present within it.
- 4.27 Roots over 25mm diameter or those occurring in clumps must not be severed without arboricultural advice. Tree roots below such size may be cut cleanly using specialised hand tools only and to the minimum extent to allow provision. All exposed roots should be immediately wrapped in dry Hessian to avoid drying. On completion of the excavation and at the earliest opportunity the wrapping should be removed, and the tree roots surrounded and protected with a loose granular fill (*clean washed sharp sand or topsoil free of contaminants or matter injurious to rooting systems*) prior to backfilling the excavation to the desired levels.
- 4.28 Existing service runs should always be used wherever possible. Where the proposed routing of services impinges upon a tree root protection area of any existing tree to be retained; the routing shall be undertaken in accordance with a manual excavation method; to be carefully hand dug and routed most directly to and from the exterior of the tree root protection area radius. Services are to be trenched and routed together wherever possible to create the minimum impact upon the tree roots of the existing trees to be retained. Trench excavation across the tree root protection area radius beside an existing tree shall be avoided, whereby tree roots will become severed. Where services are to cross the edge of an existing tree root protection area, they should be routed through existing tree roots, via a hand dug ducting sleeve, avoiding damage to existing tree roots within the root protection zone.
- 4.29 **Heras – Anti-climb Smart Weld Panel Fencing**
Supplier: *Safe Site Facilities*; or equal and approved
Address; *Old Selden Farm, Selden Lane, Patching, West Sussex, BN13 3UL*
Tel: *0845 463 5421*; Email: *info@safesitefacilities.co.uk*
Web: *www.safesitefacilities.co.uk*
Specifications; Galvanised anti-climb mesh; 2.0m height x 3.5m width; 13.8kg weight.

5.0 Arboricultural Method Statement – Notes; General

- 5.1 The principles and recommendations of *BS5837; 2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'* shall be adhered to where possible in order to prevent damage or undue stress upon the existing trees, soils and roots potentially impacted upon by the development proposals.
- 5.2 Destruction of soil structures through soil compaction, excavation or contamination shall be avoided at all times within the tree root protection areas. Physical damage to existing trees to be retained; roots, stems, branches shall be prevented wherever possible.
- 5.3 All tree protection measures are to be carried out, on site and within the development proposals, in accordance with the relevant approved drawings accompanying this method statement.
- 5.4 The loss through development of existing trees may occasionally be unavoidable. Wherever existing trees are removed to accommodate development, contingency should be made for relocation of removed trees if possible or the replanting of young trees with suitable species for the site location where relocation of existing trees is not viable.
- 5.5 The phasing of works might be appropriate in order to implement the proposed development. Where the construction operations impact upon existing trees to be retained the trees shall be fully protected where possible in accordance with *BS 5837; 2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'* for the duration of the construction period. The phased retraction of construction operations may allow for tree protection measures to be withdrawn / re-sited. The re-alignment or withdrawal of any Tree Protection Measure shall only be permitted with the agreement of the Project Arboricultural Consultant / Local Planning Authority.

6.0 Contact Details

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