



LIZARD

Landscape Design and Ecology

LAND AT LAKE LANE BARNHAM, WEST SUSSEX

ARBORICULTURAL IMPACT ASSESSMENT TREE PROTECTION – METHOD STATEMENT

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Signed:

Position: Principal

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**LLD898 – LAND AT LAKE LANE, BARNHAM, WEST SUSSEX
RESIDENTIAL DEVELOPMENT - ARBORICULTURAL METHOD STATEMENT
Planning Issue - Rev 04; 12.03.19**

1.0 Introduction

- 1.1 The residential development proposals are located to the existing site of Land at Lake Lane, Barnham, West Sussex. There are 5 no. proposed detached residential units in total. The proposals are to be set on an area of land to the southern edge of Lake Lane. The area of land is triangular in shape, covers approximately 0.4 hectares and sits 8.0m above sea level. The nearest settlement is Barnham, the centre of which is 0.5 miles away to the west of the site.
- 1.2 The site is defined to the northern boundary by Lake Lane which has a narrow verge and ditch to its southern edge which has crossing points to gain access onto the site. The southern boundary is lined by a Poplar sp. tree line which backs onto an area of horticultural development that stretches from the eastern edge of Barnham and encircles a wider area around much of the site. The western boundary is the suburban edge of Barnham. The site boundaries are loosely defined by trees and ditches. A public right of way runs through the southern part of the site and would be retained and maintained in accordance with the development proposals.
- 1.3 Medium to large trees surround the site to its edges and a number of them are protected by Tree Preservation Orders (*TPO*). Details for mitigation have been provided within the following report, where existing trees are potentially impacted by the development proposals. The site proposals aim to retain as many trees as possible and the dwellings and their associated features have been positioned outside root protection areas (*RPA*) and canopies where possible. A large area of the site is covered in bramble and ruderal growth which would be cleared to the edges of the individual dwelling boundaries and the site access. The footpath runs through the bramble and has a surface of either rough grassland or bare earth.
- 1.4 The existing site access would be relocated slightly to the east of its current location to allow for the dwellings to be positioned to the western edge of the site and outside of the northern boundary tree's RPAs.
- 1.5 There are no built features on site that would require removal or excavation. However large areas of Bramble would require clearance and a number of trees would necessitate removal. Any such removal of vegetation within the RPAs of existing trees to be retained would be done so in accordance with *BS 5837; 2012 – 'Trees in Relation to Design, Demolition and Construction – Recommendations'*
- 1.6 The existing trees and habitat within and adjacent to the Land at Lake Lane site development boundary have been surveyed in detail for condition, and are recorded within the attached report; *LLD898 – Existing Tree Schedule and Schedule of Tree Works*; and identified on the following drawings; *LLD898 / 01 – Tree Constraints Plan*; and *LLD898 / 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 removed and specifically measures for tree and root protection wherever existing trees and vegetation are to be retained and protected.

- 1.7 Following the proposed removal of existing vegetation from the site in accordance with the drawing *LLD898 / 03 – 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’*.
- 1.8 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 residential layout with a mix of housing, parking, garden plots with adjoining vehicle access road. The proposals affect a number of the existing trees on site; a number shall require removal 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’*.
- 2.2 The following trees shall require removal in order to accommodate the development proposals or due to condition. The majority of the trees and shrub are of low quality and condition;
- *TG 03 – Quercus robur (a/b), Acer pseudoplatanus (c); Category C;*
 - *T 04 – Quercus robur - Category C;*
 - *TG 06 (c) – Quercus robur - Category C;*
 - *T 10 – Acer pseudoplatanus – Category U (Remove due to condition);*
 - *TG 18 – Alnus sp. (a/b) – Category C.*

Western Site Area – T 01 – Tilia x europaea (Lime); T 02 – Fraxinus excelsior (Ash); TG 03 – (a/b) Quercus robur (Pedunculate Oak) and (c) Acer pseudoplatanus (Sycamore) – Plot No. 1 Dwelling Footprint, Hard Landscaping, Driveway and Site Access.

- 2.3 The 2 no. Oak and 1 no. Sycamore (*Category C*) are situated in the proposed footprint of the Plot no.01 and the site access and would require removal to accommodate the proposals. The hard landscape areas of the Plot no. 01 encroaches slightly into the RPA of T 01 and T 02. The landscape areas within the RPAs of existing trees shall be installed using a manual excavation method, to avoid the severance of significant tree roots (*should they be discovered*).

Western Site Area – T 04 – Quercus robur (Pedunculate Oak) and TG 18 Alnus sp. (Alder sp.) – Plot No. 2 Proposed Dwelling Footprint.

- 2.4 The 1 no. Oak tree (*Category C*) and 2 no. Alders (*Category C*) all have a group TPO (*TPO/BN/1/13*) and would require removal to accommodate the dwelling footprint of Plot No. 02. Mitigation native tree planting would be implemented within the design scheme proposals and would be positioned as closely as possible to the original trees positions without compromising the long-term structural quality of the buildings.

Eastern Site Area – T 09 *Tilia x europaea* (Lime), T 10 *Acer pseudoplatanus* (Sycamore), T 11 *Tilia x europaea* (Lime), TG 12 Mixed Species Tree Group and TG 13 (a) *Quercus robur* (Pedunculate Oak) – PROW Footpath.

- 2.5 The public footpath running through the site encroaches upon the RPAs of several trees. Sections of this footpath will require hard surfacing. *No Dig Construction* methods would be required within the any tree RPAs to be retained where surface treatments are to be implemented. Any surface treatments would be permeable and would require specific construction methods detailed in this report and in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'*.

- 2.6 The north-eastern canopy of TG 13 (a) *Quercus robur* (Pedunculate Oak) would require lifting in order to give clearance above head height for members of the public using the public footpath. The lower scaffold branches which overhang the footpath below the height of 2.0 m would require removal to the base of the main stem in accordance with *BS3998: 2010 – 'Tree Work: Recommendations'*.

Northern Site Area – T 05 – *Quercus robur* and TG 06 – (c) *Quercus robur* (Pedunculate Oak) – Plots No. 3-5 Dwelling and Driveway Footprint.

- 2.7 1 no. Oak (TG 06 (c)) is situated within the plot and driveway area of unit no. 5 and would require removal to accommodate the proposals. The loss of this tree shall be mitigated through the planting of a suitable native replacement tree at a suitable location on the site boundary. 1 no. Oak (T 05) is situated adjacent to the proposed paving and garden shed of units no. 3 and 4 and would require crown reduction of 1.4 m to the south-eastern aspect to accommodate the proposals.

3.0 Stages of Work / Programme

- 3.1 The Land at Lake Lane residential development 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 dwelling houses; and ground work operations;
 - Implementation of services and utilities;

4.0 Arboricultural Method Statement

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

- 4.1 The contractors site compound shall be located outside of the defined tree root protection areas as indicated on drawing; *LLD898 / 03 – 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 point and entrance from Lake Lane (Later repositioned further east). 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. Vehicular movements during the construction period shall be limited to the areas outside of the root protection zones which is defined by the Tree Protection Fencing.
- 4.4 Demolition of the existing buildings 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 *LLD898 / 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 Works

- 4.9 Tree surgery measures and works have been identified with the attached *Existing Tree Schedule and Schedule of Tree Works*. 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

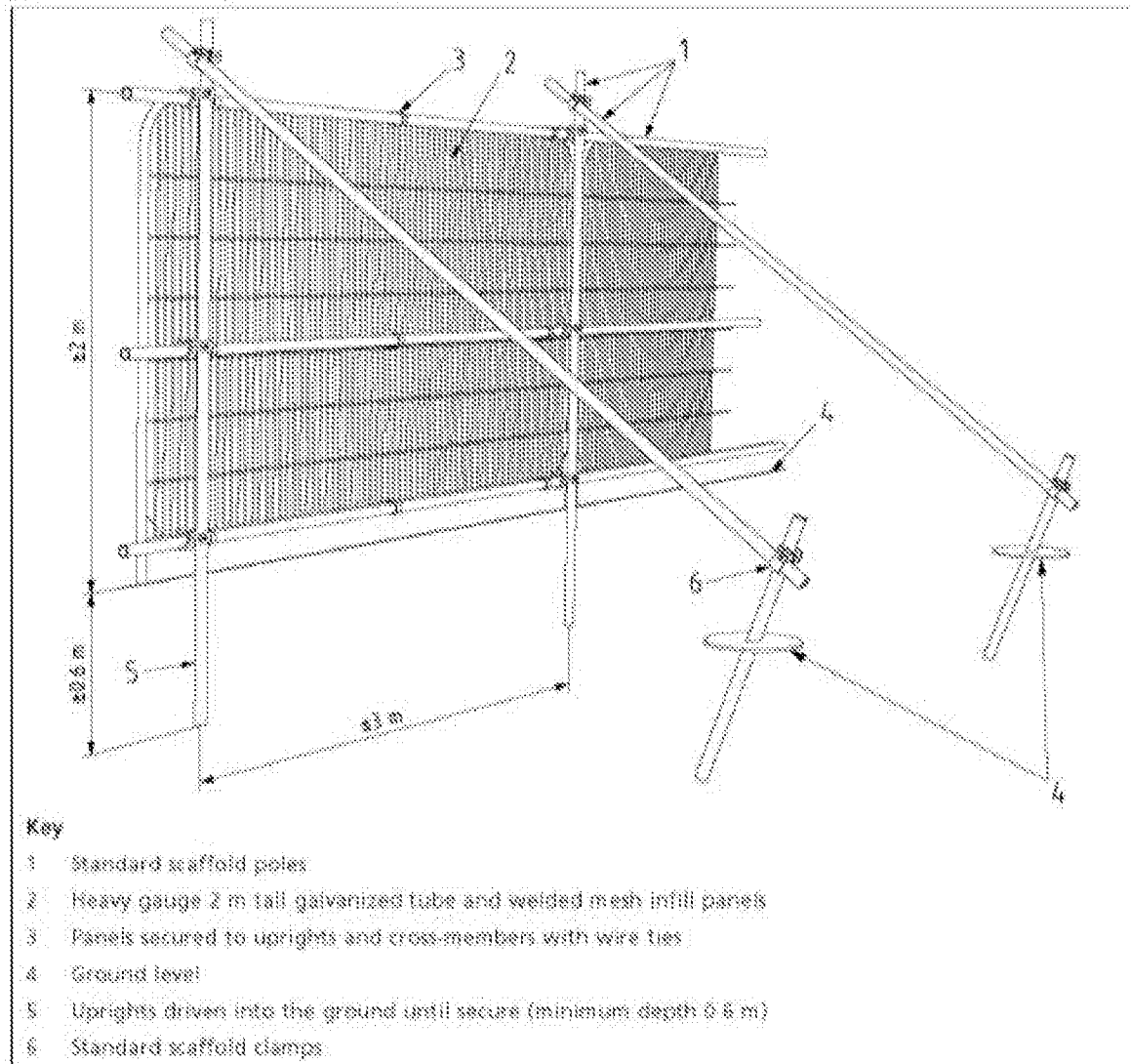
- 4.10 For tree and vegetation retention and removal proposals refer to the attached *Existing Tree Schedule*. For tree and vegetation management proposals refer to the tree surgery works and management prescriptions contained within the *Existing Tree Schedule and Schedule of Tree Works*.

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 *LLD898 / 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 as well the Local Authority Tree Officer. 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 Tree protection measures shall be inspected on a monthly basis by the Landscape Architect / Arboricultural Consultant, who shall provide a written report and photographic evidence to the Local Authority Tree Officer (via the case officer if necessary) to confirm the state of protective measures. Specifically, the location and integrity of all tree protective fencing shall be checked against the approved plans; the location and execution of both manual excavation and no-dig construction shall be monitored, with any tree roots discovered recorded, and the final excavation and construction layers photographed. Any defects or variations noted shall be rectified immediately and photographic evidence provided to confirm this to the Local Authority Tree Officer.

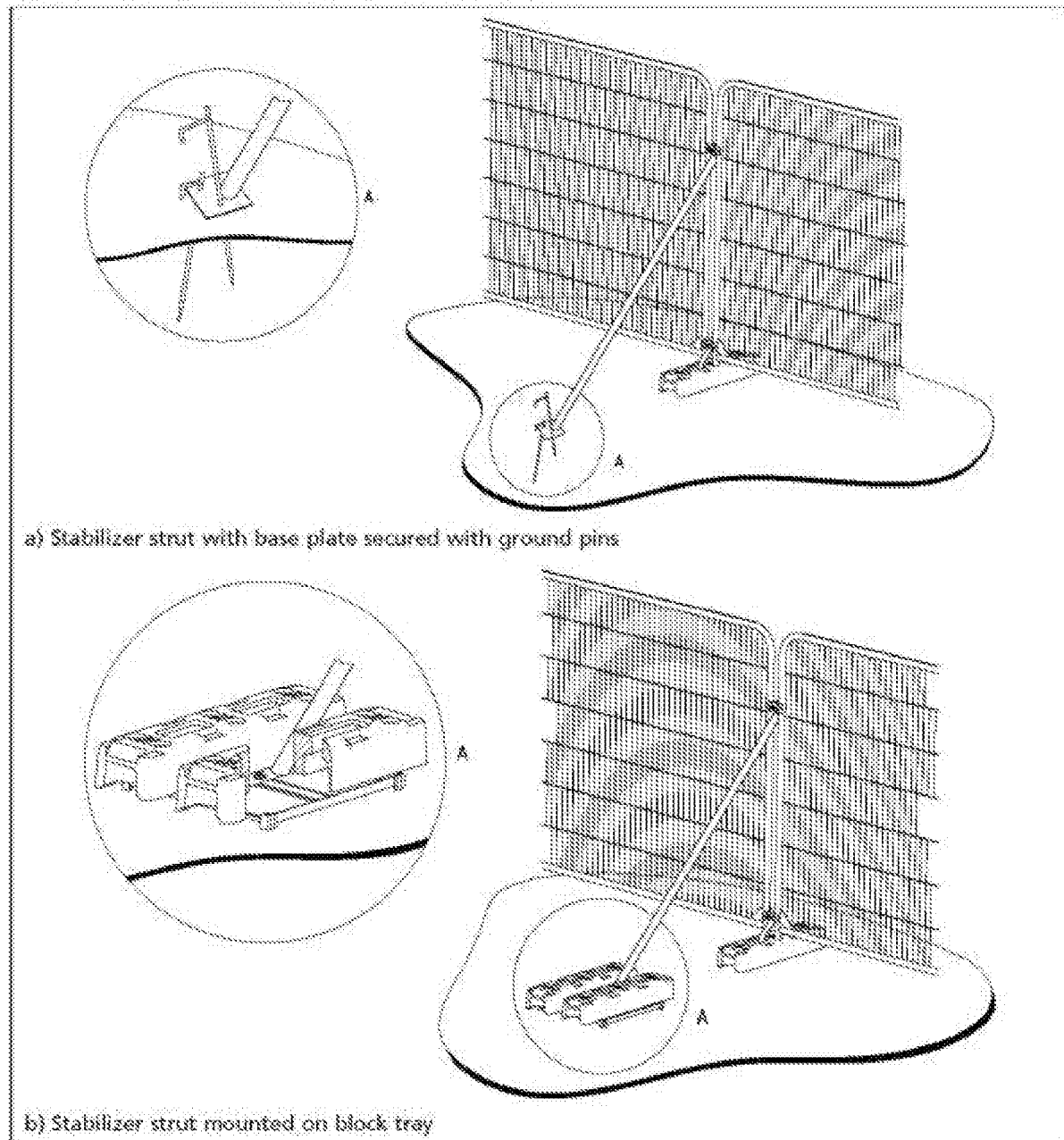
- 4.18 Within the protected area the following activities must not take place;
- *No vehicles are to be used in the fenced off areas;*
 - *No materials are to be stockpiled or stored;*
 - *No chemicals are to be stored;*
 - *No excavation or increase in the soil level shall occur;*
 - *No fires shall be lit on site.*
- 4.19 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.

Figure 2 Default specification for protective barrier



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Figure 3 Examples of above-ground stabilizing systems



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Ground Protection; Tree Protection Zone – ‘No-Dig’ Construction

- 4.20 The proposed surfacing of the public footpath running through the proposed development site would require detailed ground protection measures above the RPA of *TG 13 (a), T 09, T 11 and TG 12*.
- 4.21 Areas of proposed paving and 2 no. garden sheds would require detailed ground protection measures above the RPA of *T 01, T 02, TG 06 (a) and TG 06(b)*.
- 4.22 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.
- 4.23 Where new surfacing for the public footpath and paving areas is proposed within the tree root protection areas it shall be installed using a *'No-Dig' permeable geo-grid construction*. Existing subsoil / topsoil layers shall be retained and protected in place in order to protect tree roots.
- 4.24 A ground stabilising geo-mesh shall be installed above the existing ground levels of the proposed surfacing of the public footpath; 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.*)
- 4.25 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*).
- 4.26 A permeable surface treatment and construction method shall be installed over the prepared sub-base layers of the public footpath. A bedding layer of crushed aggregate (*to BS EN13242; range size; 4 - 14mm*) is to be laid level and compacted above the Geotextile filter membrane to a depth of 25 mm. A porous paving system shall be installed above the bedding layer.

Tree Protection Zone - Manual Excavation Area - Hard Landscape Areas

- 4.26 A Limited Manual Excavation Zone shall be implemented to allow for the construction of the hard landscape areas within the RPAs of existing trees. The excavation encroaches into the RPA of existing trees and therefore shall be undertaken with due care with hand held tools only.
- 4.27 No general trenching shall occur within the Root Protection Area. No roots shall be severed greater than 25mm thickness within the Root Protection Zone without specialist advice.

Tree Protective Fencing-Ply Hoarding and Heras Anti-climb fencing

- 4.28 A 2.0m high Ply Hoarding and/or Heras Anti-climb fencing may be used in place of tree protective fencing in pre agreed areas that will adhere to the purpose and benefit of tree protective fencing as outline in BS5837; 2012 - *'Trees in Relation to Design, Demolition and Construction - Recommendations'* And sections **4.11-4.18**.

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 Tree protection measures shall be inspected on a monthly basis by the Landscape Architect / Arboricultural Consultant, who shall provide a written report and photographic evidence to the Local Authority Tree Officer (via the case officer if necessary) to confirm the state of protective measures. Specifically, the location and integrity of all tree protective fencing shall be checked against the approved plans; the location and execution of both manual excavation and no-dig construction shall be monitored, with any tree roots discovered recorded, and the final excavation and construction layers photographed. Any defects or variations noted shall be rectified immediately and photographic evidence provided to confirm this to the Local Authority Tree Officer. Arboricultural Supervision shall be required at the following stages of work;
- *Installation of tree protection measures;*
 - *Method statement briefing for site staff;*
 - *Supervision of the 'no-dig' area prior to and for the implementation of the construction process;*
 - *Supervision of manual excavation of hard landscape areas;*
 - *Removal of tree protection measures.*
- 5.5 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.
- 5.6 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

Landscape Consultant

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