



LIZARD

Landscape Design and Ecology

DOMUSEA DEVELOPMENTS

Mistletoe Farm, Horsemere Green Lane, Climping, West Sussex

Arboricultural Impact Assessment and Method Statement

Tree Retention and Protection

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Planning Issue

1.0 Introduction

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- 1.1 The development site is situated south of the disused aerodrome at Ford and north of the A259 in a predominantly rural area. The site comprises an existing house building with adjacent large residential garden. The southern and western boundaries of the existing property are adjacent to scattered garden fruit trees and mature conifer hedge located along Wooldridge Walk. The northern boundary is edged with an mature mixed species treeline and understory shrubbery of different species, height and maturity. The eastern boundary includes scattered tree and overgrown and fragmented mixed species shrub groups. The southern boundary includes overgrown unmanaged hedge. The ornamental shrub areas are located to the front and the rear of the existing building.
- 1.2 The development proposals consist of the construction of a total 2 no. dwellings with associated parking arrangements, new vehicular access, alteration of existing vehicular access to the eastern boundary and associated landscape areas.
- 1.3 The existing trees within the site boundary and directly adjacent to the site, have been surveyed in detail for condition and are recorded within the attached report: *LLD1394-ARB-SCH-001 - Existing Tree Schedule* and identified on the following drawings; *LLD1394-ARB-DWG-001 - Tree Constraints Plan*, *LLD1394-ARB-DWG-002 - Tree Retention & 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 proposed to be removed and specifically measures for tree and root protection wherever existing trees and vegetation are proposed to be retained and protected.
- 1.4 Following the proposed removal of existing vegetation from the site in accordance with the drawing *Tree Retention & Protection Plan* and accompanying *Existing Tree Schedule*, there is some existing vegetation within the vicinity of the development proposals that would remain and would be directly impacted upon by the development proposals.
- 1.5 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 consist of the construction of a total 2 no. dwellings with associated parking arrangements, new vehicular access, alteration of existing vehicular access to the eastern boundary and associated landscape areas.
- 2.2 The proposals would affect the existing vegetation on site; mature and semi-mature trees, mature hedges and the ornamental shrub groups would require removal in order to accommodate proposed development; and other vegetation and trees would require detailed protection to enable their retention within the proposed scheme. The existing trees to be retained shall be protected in accordance with *BS5837: 2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'* and *BS3998: 2010 - 'Tree Work: Recommendations'*.

- 2.3 The following trees and vegetation would require removal from the site due to their condition:
- TG37 – 2 no. *Malus sp.*; Category U; eastern boundary;
- 2.4 The trees proposed for removal are Category U, unsuitable for retention. The loss of these trees is recommended to be mitigated through the planting of suitable trees within the site boundaries.
- 2.5 The following vegetation would require removal from the site in order to accommodate the development proposal:
- T07 – *Cupressus x leylandii*; Category C;
 - T08 – *Ilex aquifolium*; Category C;
 - T09 – *Ilex aquifolium*; Category C;
 - SH10 – Mixed Species Shrub; Category C; Partial removal;
 - TL23 – 4 no. *Populus nigra 'Italica'*; Category C;
 - H27 – *Cupressus x leylandii* Hedge; Category B;
 - T28 – *Crataegus monogyna*, Category C;
 - T32 – *Prunus sp.*, Category C;
 - T33 – *Prunus sp.*, Category C;
 - T34 – *Malus sp.*, Category C;
 - T35 – *Malus sp.*, Category C;
 - TG42 (III) – *Acer sp.*, Category C;
- 2.6 The proposed works should be carried out in the following phases:
- Removal of vegetation, as detailed in *Tree Retention of Protection Plan*;
 - Installation of Tree Protective Fencing, as detailed in *Tree Retention of Protection Plan*;
 - Construction of 'No Dig' permeable paving surface to the access driveway; working forward from the entrance into the site, so that the plant / machinery is not moving over the exposed unprotected ground.
 - Implementation of the Construction Site Access.
 - Installation of Ground Protection Measures to the Root Protection Areas of the tree T17 - *Crataegus monogyna* located adjacent to the proposed building on the Plot 1.
 - Commencement of construction works.
- All the works to be in accordance with BS 5837:2012 - '*Trees in Relation to Design, Demolition and Construction - Recommendations*'.
- 2.7 The proposed vehicular access and alteration of the existing access road located within RPA of the trees: TG05 / T111 - *Cupressus x leylandii*; T12/T19 – *Ilex aquifolium*; T17/T18 – *Crataegus monogyna*; T25 – *Fagus sylvatica*; T11/T14/T15/T16/T20/T21/T22/T26 - *Chamaecyparis lawsoniana* should be constructed, prior to site construction work commencement, with 'No-Dig' construction method using permeable surface treatment over the Cellweb TRP system (or equal and approved) to include: TreeTex membrane and min. 150mm of Cellweb TRP Cellular Confinement System filled with open graded aggregate such as MOT Type 3. All retaining kerb restraints / edge supports are to be secured above ground and no excavation within existing RPAs shall be permitted. The permeable construction shall allow for moisture infiltration gaseous diffusion to occur and shall prevent localised compaction of the existing soil structure in accordance with BS 5837:2012 - '*Trees in Relation to Design, Demolition and Construction - Recommendations*'.

- 2.8 The proposed building, on the plot 1, would be located in the close proximity to the RPA of tree T17 – *Crataegus monogyna* which is proposed for retention. In order to minimise damage to any roots within this area, the existing ground levels within the RPAs of trees to be retained are to be protected with Ground Protection Measures comprising 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'.

3.0 Stages of Work / Programme

- 3.1 The site development proposals shall involve the following site operations that could impact upon the existing tree / vegetation cover;
- Removal of existing vegetation not for retention;
 - Construction of 'No-Dig' hard landscape areas
 - Contractor movements; site access and operations; storage and compound;
 - Demolition of the existing buildings and structures;
 - Construction of new residential buildings and ground work operations;
 - Implementation of services and utilities.

4.0 Arboricultural Method Statement

Removal of Existing Vegetation

- 4.1 All existing trees and vegetation designated for removal are to be removed in accordance with the Tree Protection and Retention Drawing *Tree Retention & Protection Plan*. All tree work and removal shall be carried out in accordance with BS5837: 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.
- 4.2 Stumps shall be removed and cut away so that the top of the tree stump shall be at least 450mm below the final topsoil level in order that the site can be reinstated 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 450mm the areas shall be backfilled with topsoil to the required level.
- 4.3 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**
- 4.4 Any significant defects found in the trees during the course of the work shall be reported to the Landscape Architect / Arboricultural Consultant. Any 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. All Tree surgery is detailed within the attached LLD1394 – *Existing Tree Schedule and Schedule of Tree Works* report.

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

- 4.5 The contractor site compound shall be located outside of the defined tree root protection areas as indicated on drawing; *Tree Retention & Protection Plan*.
- 4.6 The contractor's 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 *BS5837: 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 to negate damage of the surrounding environment.
- 4.7 Pre-construction access to the site area shall be made at all times via the existing access road from the Horsmere Green Lane. Pre-construction vehicular movement to facilitate the removal of existing vegetation 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 defined tree root protection area of existing trees to be retained and protected. Once the tree removal has been completed the tree protective fencing works proposed shall be put in place. During the construction phase proposed development access is via existing access road from the Horsmere Green Lane. Vehicular movements during the construction period shall be limited to the areas of existing hard ground and newly protected ground only as illustrated on Tree Retention and Protection Plan.
- 4.8 All site clearance / demolition works 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.
- 4.9 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'*.

Tree and Vegetation Management

- 4.10 For tree and vegetation management including tree and vegetation retention and removal to accommodate the development proposal refer to the attached *Existing Tree Schedule* report.

Ongoing Inspection and Maintenance of Existing Vegetation

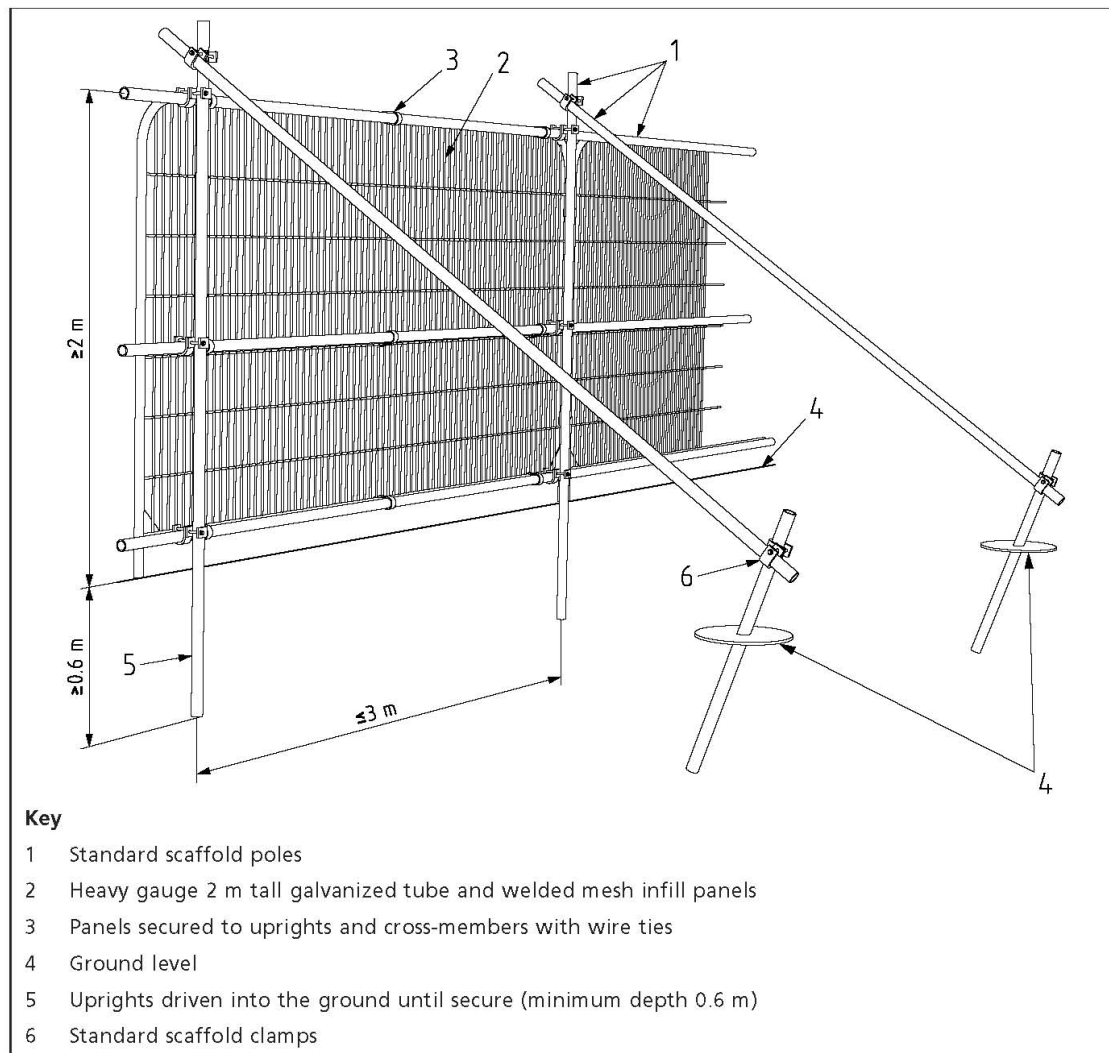
- 4.11 All retained vegetation on the site is recommended to undergo regular inspection (*annual inspection recommended*) and any remedial works undertaken as required to maintain trees in a safe and healthy state.

Protection and Retention of Existing Vegetation

- 4.12 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.
- 4.13 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 with Manual Excavation Method, taking care not to damage or disturb any existing tree roots.

- 4.14 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.
- 4.15 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 *Tree Retention & Protection Plans*.
- 4.16 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*'.
- 4.17 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.
- 4.18 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.*

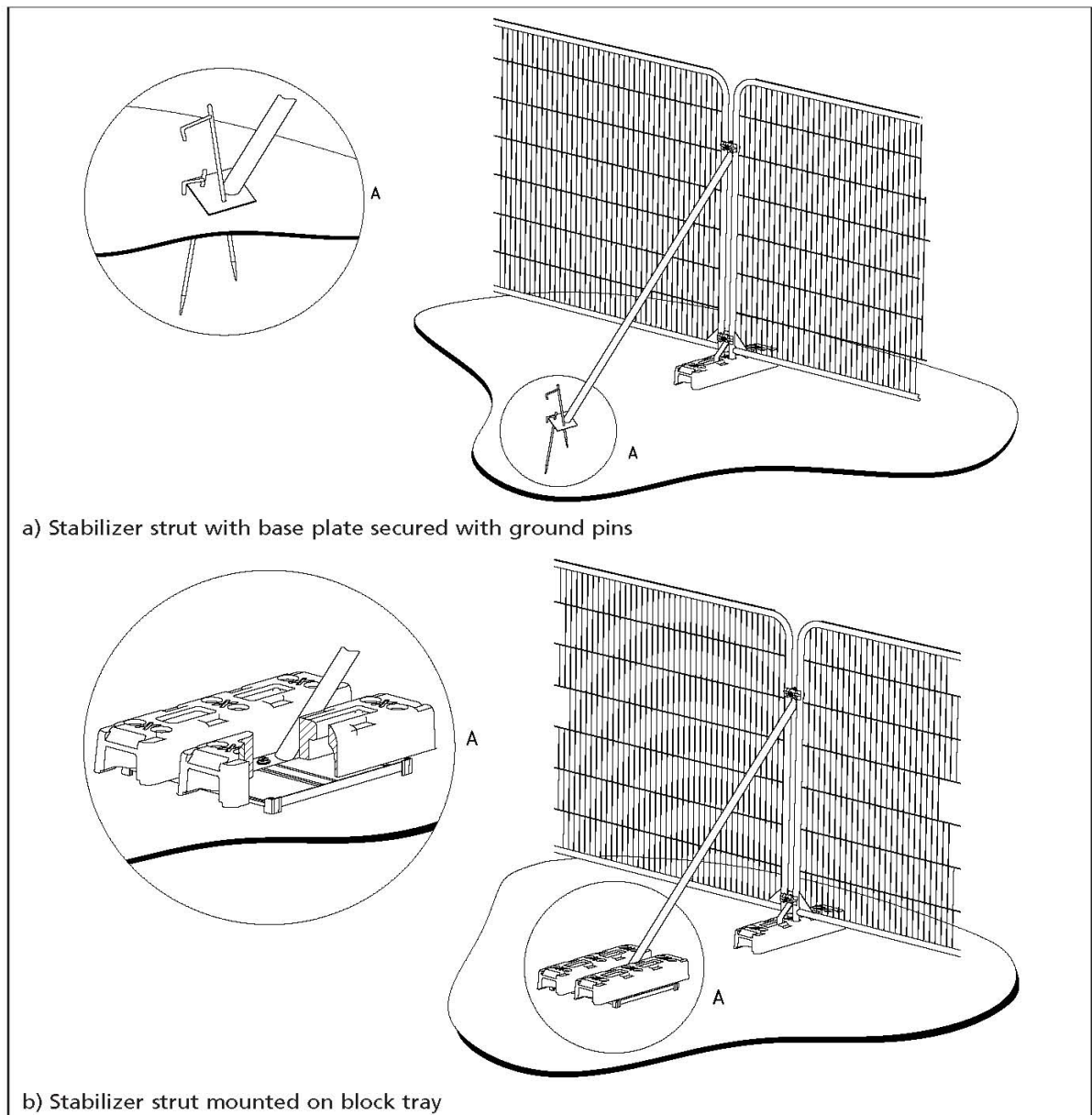
Figure 2 Default specification for protective barrier



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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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- 4.19 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.

- 4.20 **General Ground Protection – Manual Excavation in Proximity to Trees**
All excavation related operations within proximity of nearby trees shall be executed with due care and attention not to disturb exposed unmade ground and any existing tree roots present within it. Hand-held tools or appropriate machinery should be used (under arboricultural supervision) to remove the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground. If a new hard surface is to be laid, it might be preferable to leave any existing sub-base in situ, augmenting it where required.

- 4.21 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.
- 4.22 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.
- 4.23 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.
- Tree Protection Zone – ‘No Dig’ Construction – Permeable Surface Treatment**
- 4.24 Ground levels should not be raised or lowered within the existing Root Protection Areas. Where surfaces are proposed within the Root Protection Areas of existing trees they shall be installed using a 'No-Dig' Construction Method. Where possible, existing paving material to be retained should be left undisturbed during the construction period in order to protect the Root Protection Area of existing trees also to be retained.
- 4.25 Hard Landscape Surfacing to the access driveway within the specified Tree Root Protection Areas to be undertaken with a 'No-Dig' Permeable Paving Construction. Excavation shall be limited to the removal only of loose surface material / herb layer and implemented by a *Manual Excavation* method; existing ground levels shall be maintained.
- 4.26 The construction area / existing ground within the existing tree Root Protection Area (RPA) is to be Cellweb TRP system, or equal and approved, including: TreeTex membrane and min. 150mm of Cellweb TRP Cellular Confinement System filled with open graded aggregate such as MOT Type 3. All retaining kerb restraints / edge supports are to be secured above ground and no excavation within existing RPAs shall be permitted. The permeable construction shall allow for moisture infiltration gaseous diffusion to occur and shall prevent localised compaction of the existing soil structure in accordance with BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'.
- 4.27 Snow and ice to permeable surface areas within Tree Root Protection Areas are to be removed by manual methods only with no spreading of salt / chemicals which could leach through to the top soil and damage existing tree roots.
- Ground Protection Zone - Operation Zone During Construction**
- 4.28 Prior construction work commencing on the proposed buildings, the existing ground levels within the RPA of existing trees are to be protected with an appropriate ground protection system for the duration of the construction period in accordance with BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction' and as specified within the LLD1394 - *Arboricultural Impact Assessment and Method Statement*. No vehicular movements are to be made over unmade ground within the RPAs of existing trees.
- 4.29 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.

- 4.30 Existing service runs should be used to supply the proposed dwellings wherever possible. Where the proposed routing of services impinges upon the 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 routed together wherever possible to create the minimum impact upon the tree roots of the existing trees to be retained.

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 Arboricultural Supervision shall be required at the following stages of work;
- *Installation of tree protection measures;*
 - *Method statement briefing for site staff;*
 - *Demolition*
 - *Supervision of the Manual Excavation for foundation construction;*
 - *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

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