

LIZARD

Landscape Design and Ecology

MR. JAMIE ORTON

LAND ADJACENT TO SCYLD HORSEMERE GREEN LANE, CLIMPING

Arboricultural Impact Assessment and Method Statement

Prepared by	GS
Checked by	JJ
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Contents

1.0	Introduction.....	3
2.0	Existing Site Information.....	3
3.0	Development Proposal	4
4.0	Arboricultural Impact Assessment.....	5
5.0	Arboricultural Method Statement	9

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1.0 INTRODUCTION

- 1.1 Lizard Landscape Design and Ecology has been commissioned by Mr. Jamie Orton to undertake a detailed tree survey and arboricultural impact assessment for the proposed residential redevelopment of land adjacent to Scyld, Horsemere Green Lane, Climping.
- 1.2 The initial ecology visit to the site was undertaken on 04th July 2018 and followed by a tree inspection visit on 01st August 2018 to appraise the existing trees within the site area.
- 1.3 The Arboricultural Impact Assessment and Method Statement provides evaluation of the direct and indirect effects of the proposed design intent on the existing vegetation and trees and recommends mitigation where necessary. The report has been produced in accordance with the provisions of *BS 5837; 2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'*.
- 1.4 The Arboricultural Impact Assessment and Method Statement report for the Scyld site has been prepared by Joshua Harwood (*BSc (Hons) Assistant Ecologist; Lizard Landscape Design and Ecology*) and reviewed by Joe Jackson (*BA (Hons) LA DipLA CMLi; Director; Lizard Landscape Design and Ecology*).
- 1.5 This Arboricultural Impact Assessment and Method Statement should be read in conjunction with the associated arboricultural documentation including *LLD1488-ARB-DWG-003 and 004 – Tree Retention and Protection Plans; and LLD1488-ARB-SCH-001 – Existing Tree Schedule and Schedule of Tree Works*.

2.0 EXISTING SITE INFORMATION

The Site

- 2.1 The site is located within the rural area of Climping, West Sussex (*Grid Reference: SU 997 022*). The site is located c. 4.0 m above sea level with freely draining slightly acidic loamy soils. The site is surrounded by an area of dense foliage sheltering the site from the rest of Climping to which the site is centered. The area of Climping is boarded by arable land to the east, south, and west, with Rudfield Industrial Estate to the north.

MR. JAMIE ORTON
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HORSEMERE GREEN LANE, CLIMPING
LLD1488-ARB-REP-001 /GS / 20.05.19

- 2.2 The site is accessible through Horsemere Green Lane to the north.
- 2.3 The area of the site red line boundary is approximately 8,500 m² and encompasses the land surrounding one existing residential building surrounded by a small area of hard standing ground with amenity grassland, introduced scrub, tall ruderal, and scattered trees filling the remainder of the site.

Existing Site Vegetation

- 2.4 The site is located within an area of known broadleaved woodland (*National Forest Inventory*) forming over half of the site.
- 2.5 Wooded habitats within the site are not considered to be that of priority habitat but are listed as 'Broadleaved' on the *National Forest Inventory*. The nearest area of protected habitat is that of deciduous woodland bordering Crookthorn Lane to the south.
- 2.6 Through reference to *arun.gov.uk*; the site is not covered by any TPO's (*Tree Preservation Order*) and as such no specialist requirements regarding tree removal or alterations are required.
- 2.7 The existing trees and tree species on and surrounding the site have been identified and recorded with their tree conditions on; *LLD1488-ARB-SCH001-ETS*; and identified on the following drawings alongside their tree *Root Protection Areas (RPA's)* and canopy spreads; *LLD1488-ARB-DWG-001-TCP*; *LLD1488-ARB-DWG-002-TCP*; *LLD1488-ARB-DWG-003-TRPP*; *LLD1488-ARB-DWG-004-TRPP*.

3.0 DEVELOPMENT PROPOSAL

- 3.1 The development proposals seek to extend the residential area into the site by adding 9 no. houses with accompanying garages and a new access road within the site boundary. The scheme proposals retain the existing property of Scyld which is in separate ownership and seek to maintain the majority of the existing vegetation to the site frontage and surrounding the existing property.

MR. JAMIE ORTON
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HORSEMER GREEN LANE, CLIMPING
LLD1488-ARB-REP-001 /GS / 20.05.19

- 3.2 The new buildings would be erected in the centre of the site with the first building starting adjacent to the existing 'Scyld' building and each building thereafter moving southwards within the existing site area along the proposed access road.

4.0 ARBORICULTURAL IMPACT ASSESSMENT

Effects of Development Proposals on Existing Vegetation

- 4.1 The development would require the full removal of 26 no. trees, tree groups, hedges, and additional partial retention / partial removal of 2 no. tree lines would be required. Trees requiring removal are categorised from '*unviable for retention*' to '*moderate*' quality and value trees (*Category U, C, and B*). Works to be completed within but not directly affecting the trees RPA shall be completed with ground operation zones in place to protect the existing and remaining trees. Trees not under direct affect from development proposals shall have appropriate tree protective fencing in place (*as indicated in LLD1488-ARB-DWG-003-TRPP; LLD1488-ARB-DWG-004-TRPP – Tree Retention and Protection Plans*).
- 4.2 The proposed development could potentially adversely impact the existing trees by removing them to facilitate the development, or in the future, by adversely affecting their potential for retention through disturbance of the tree *Root Protection Areas (RPAs)* or through post development pressures to prune or remove.
- 4.3 The development proposals would involve the following site operations that could impact upon the existing trees:
- *Contractor movements; site access and operations;*
 - *Storage and compound;*
 - *Plant, vehicle, and material cleaning;*
 - *Installation of construction elements; ground work / general site operations;*
 - *Construction in proximity to trees;*
 - *Demolition / removal of existing structures;*
 - *Installation of services and underground apparatus;*
 - *Future maintenance;*
 - *Removal of existing vegetation not for retention;*
 - *Removal of protective measures.*

Tree Retention and Protection

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 HORSEMER GREEN LANE, CLIMPING
 LLD1488-ARB-REP-001 /GS / 20.05.19

- 4.4 The existing vegetation encompasses scattered specimen trees around the site with tree lines bordering the northern and eastern site boundaries.
- 4.5 The retained trees and measures of their protection have been indicated on the drawings; *LLD1488-ARB-DWG-003 and 04; Sheets 1 and 2 – Tree Retention and Protection Plans*.

Disturbance to Root Protection Areas

- 4.6 In accordance with principles of *BS 5837; 2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'*, existing ground levels should be retained within the RPA to avoid damage to tree roots. Intrusion into soil (*other than for piling*) within the RPA is generally not acceptable. However, limited manual excavation within the RPA might be acceptable, subject to careful specification and workmanship. This should be undertaken carefully, using hand-held tools, and preferably by compressed air soil displacement.
- 4.7 Limited excavation within RPAs of existing trees (*T15, T40, T56, T57, and T58*) would be required by the Contractor to enable vehicular access to construct the new access road and for the construction of certain areas of the new access road encompassed by retained tree RPA's.
- 4.8 The affected trees grow in close proximity to surrounding tree groups and tree lines. The surrounding trees will provide greater protection with prevailing winds in combination with an increased chance / rate of interconnecting root systems providing strong stability to the trees. The proposed excavation is limited though, but still likely to affect the shallow root systems of the trees.
- 4.9 The existing northern tree line is considered to contribute to the landscape character of the existing site with a high number of species and providing screening to the site from Horsemere Green Lane to the site frontage and provides character to the road despite the poor quality of the individual trees. It is therefore envisaged that at least the majority of this tree line is retained to the site frontage, or higher quality trees and diversity of species replacing the existing poor-quality trees within the final development landscape scheme.

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HORSEMER GREEN LANE, CLIMPING
LLD1488-ARB-REP-001 /GS / 20.05.19

- 4.10 The extents of excavation required has been indicated on the drawings; *LLD1488-ARB-DWG-003 and 04; Sheets 1 and 2 – Tree Retention and Protection Plans.*

Construction in Proximity to Existing Trees

- 4.11 The proposed extension to the site and the buildings and access road is in close proximity to several 'low' quality trees (*Category C*) and some 'moderate' quality (*Category B*) trees. The resulting proximity of the new structures is likely to result in pressures on the existing trees. This could include:
- *Ongoing need to prune the canopy back to prevent damage to the buildings and facilitate maintenance of the building façade and glazing; and access to footpaths / access road;*
 - *Manual excavation zones during construction to protect retained tree roots;*
 - *Altered soil conditions including surfacing and installation of foundations.*
- 4.12 The 'moderate' quality trees contribute to the visual amenity on site and are likely to have some value for local wildlife, providing food and shelter. It seems apparent however, that in some cases the retention of these trees may not be feasible due to the very close proximity of the proposed dwellings and access road. All trees deemed not suitable for retention have been discussed in the subsequent paragraphs and indicated on the drawings *LLD1488-ARB-DWG-003 and 04; Sheets 1 and 2 – Tree Retention and Protection Plans.*

Tree Pruning, Canopy Reduction or Lifting

- 4.13 A single tree line has been identified where the canopy spread may potentially limit or impede movement of vehicles and plant within the site or create conflicts with the proposed development:
- *TL23 – Ash, Sweet Chestnut (*Fraxinus excelsior*, *Castanea sativa*) – overall crown reduction to ensure the proposed garage building is not affected by the tree line and that the tree line does not suffer any unsustainable pressures.*

Tree / Vegetation Removal

- 4.14 A moderate number of existing trees and other woody vegetation have been identified to potentially be removed. The majority of the trees proposed for removal are of 'low' quality – *Category C* trees as defined within the tree survey. These include:
- *T08 – Cypress sp. (*Cupressus* sp.) – **Category C;***
 - *TG10 – Sycamore; Cherry sp. (*Acer pseudoplatanus*, *Prunus* sp.) – **Category C;***

- TL11 – Mixed Species Tree line – **Category C; Partial Removal;**
- T13 - Ash (*Fraxinus excelsior*) – **Category U;**
- T14 – Sycamore (*Acer pseudoplatanus*) – **Category C;**
- T15 – *Fraxinus excelsior* (Common Ash) – **Category C;**
- H16 – Hornbeam (*Carpinus betulus*) – **Category C;**
- T17 – Tulip Tree (*Liriodendron tulipifera*) – **Category B;**
- T18 – Alder (*Alnus glutinosa*) – **Category C;**
- T19 – Poplar sp. (*Populus* sp.) – **Category C;**
- TL20 – Mixed Species Tree Line – **Category C; Partial Removal;**
- TG24 – Mixed Species Tree Group – **Category C;**
- T25 – Poplar sp. (*Populus* sp.) – **Category C;**
- TL27 – Sycamore (*Acer pseudoplatanus*) – **Category C;**
- TG29 – Mixed Species Tree Group – **Category C;**
- TG30 – Silver Birch (*Betula pendula*) – **Category C;**
- T31 - Silver Birch (*Betula pendula*) – **Category C;**
- TG32 – Silver Birch (*Betula pendula*) – **Category C;**
- T33 - Leyland Cypress (*Cupressus x leylandii*) – **Category C;**
- T34 – Malus sp. (Apple) – **Category C;**
- H35 – Cotoneaster (*Cotoneaster* sp.) – **Category C;**
- T36 – Prunus sp. (Cherry) – **Category C;**
- TG37 – Hawthorn (*Crataegus monogyna*) – **Category C;**
- T38 – Cherry sp. (*Prunus* sp.) – **Category C;**
- T39 – Apple sp. (*Malus* sp.) – **Category C;**
- T40 – Indian Bean Tree (*Catalpa bignonioides*) – **Category C;**
- T43 – Apple sp. (*Malus* sp.) – **Category C;**
- T59 – Lawsons cypress (*Chamaecyparis lawsoniana*) – **Category B.**

4.15 Trees identified for removal have been indicated on the drawings LLD1488-ARB-DWG-003 and 04; Sheets 1 and 2 – Tree Retention and Protection Plans.

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 LLD1488-ARB-REP-001 /GS / 20.05.19

Impact of Loss of Existing Trees

- 4.16 Due to a very small number of trees identified as unsuitable for retention due to condition – *Category U*; their loss is not considered as having significant impact on the site. The remainder of trees being removed are identified as trees of ‘low’ or ‘moderate’ quality. The landscape of the site frontage shall be retained in part with the retention of the majority of the site frontage tree line and the trees surrounding the existing Scyld property. A replacement mitigation tree planting scheme and landscape strategy for the development scheme should be included within the final development landscape scheme in order to enhance the species diversity of the tree planting within the site and also to add back long-term value in terms of tree planting throughout the development.

5.0 ARBORICULTURAL METHOD STATEMENT

Protection and Retention of Existing Trees and Habitats

- 5.1 The Contractor shall exercise due care when performing operations beneath the canopy of existing mature trees and vegetation designated for protection and avoid at all times damage to the roots, trunk and branches. The Contractor shall train all members of the construction workforce operating within the proximity of valued habitats and make such persons aware that there shall not be, without having sought prior notification, the following operations undertaken within the protected areas:
- *Dumping of spoil or rubbish, excavation or disturbance of topsoil, parking of vehicles or plant, storing of materials or placing of temporary accommodation within an area which is the larger of the branch spread of the tree or an area with a radius of half the tree's height, measured from the trunk, and within the specified tree Root Protection Areas;*
 - *Roots exceeding 25 mm in diameter must not be severed. If unintentionally severed; notice shall be given, and specialist arboricultural advice sought;*
 - *Changes to the level of the ground within the specified tree Root Protection Areas;*
 - *Vegetation clearance to site boundaries should take place outside the bird nesting season (nesting season: March-September inclusive) or alternatively under a watching brief from a suitability qualified ecologist.*

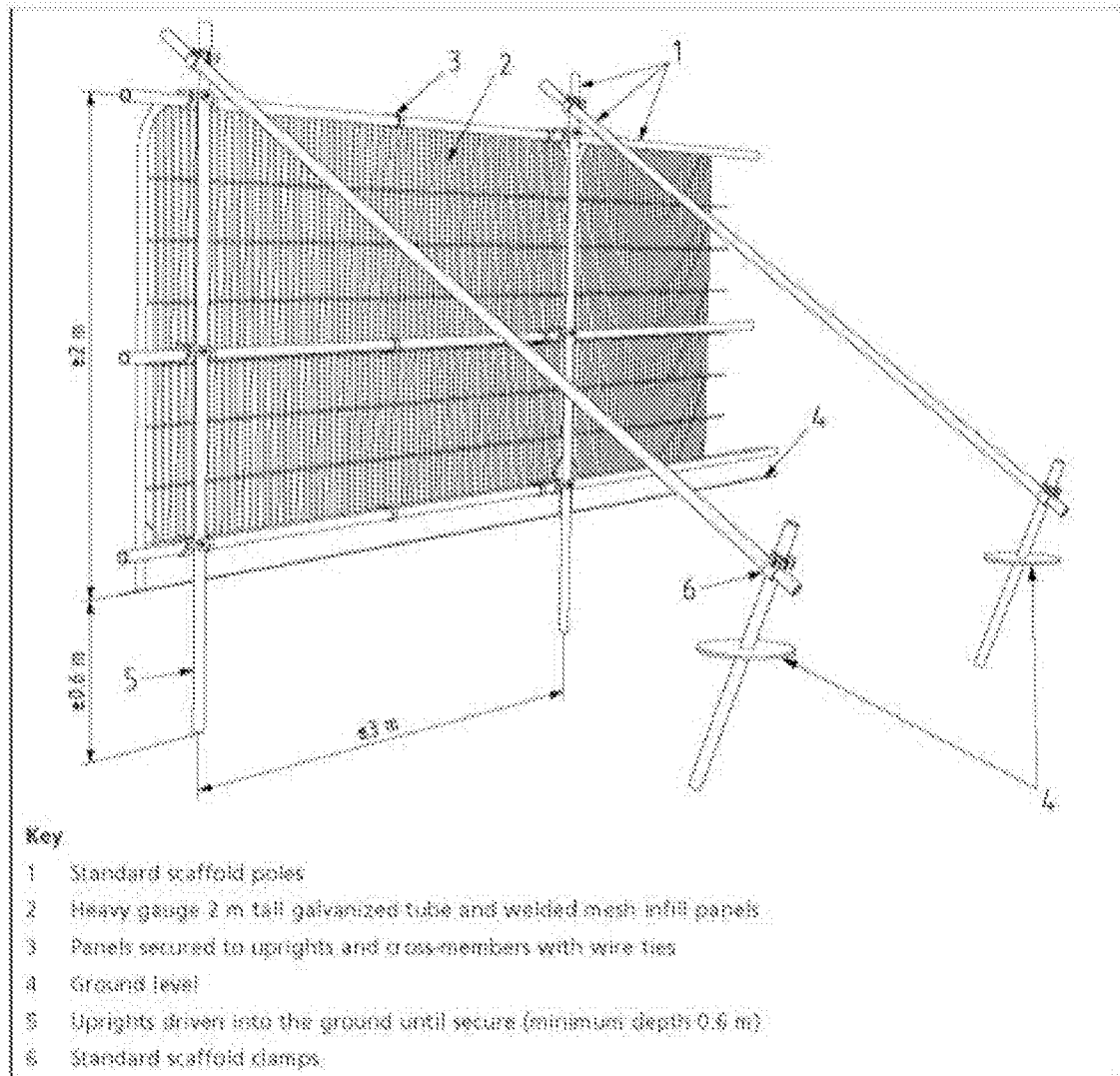
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Tree Protection Barriers

- 5.2 The Contractor shall exercise due 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.
- 5.3 All trees to be retained on site shall be protected with barriers erected around the area of mature vegetation in accordance with *BS 5837: 2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'*. The barrier 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.
- 5.4 The installed protective barrier shall be 2.0 metres minimum 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. Where existing ground conditions do not allow for the above method, the Welded Wire Mesh Fencing Panels may be mounted on concrete or rubber feet, supported on the inner side with stabiliser struts fixed on a block tray or secured with ground pins; and positioned as specified. The barrier should be strained, and fixed to fences, walls, knee rails where possible to provide a complete protected area (*Refer to Figure 2 and Figure 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 drawings *LLD1488-ARB-DWG-003 and 04; Sheets 1 and 2 – Tree Retention and Protection Plans*.

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LLD1488-ARB-REP-001 /GS / 20.05.19

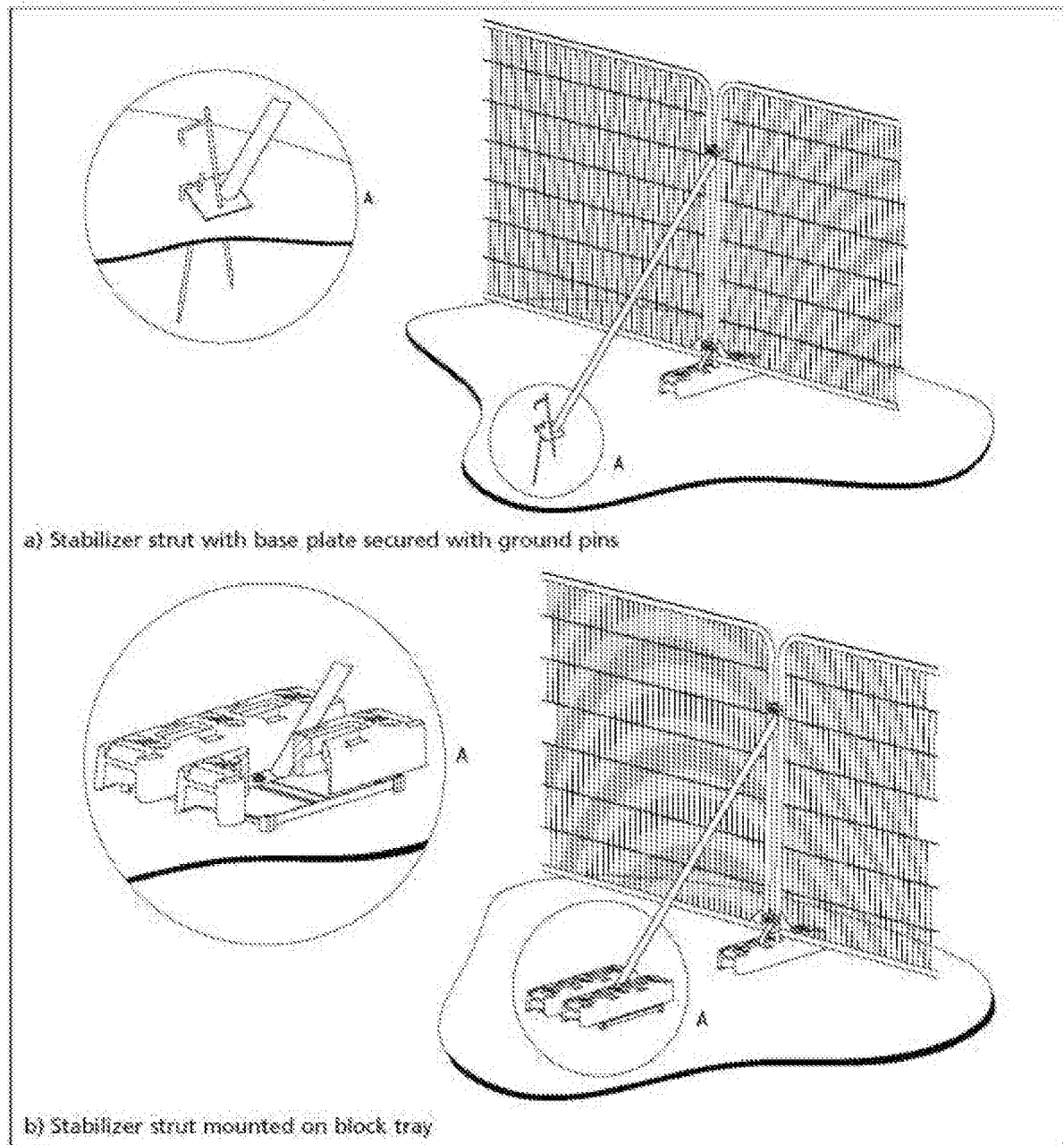
Figure 2 Default specification for protective barrier



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Figure 3 Examples of above-ground stabilizing systems



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LLD1488-ARB-REP-001 /GS / 20.05.19

- 5.5 Day-glo ribbons shall be maintained during the main works by the Main Contractor attached to the top of the barrier to ensure that the fencing is clearly visible during the works. The tree protection barrier shall display all-weather notices starting '*Construction Exclusion Zone – NO ACCESS*'.
- 5.6 All such barriers 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 should occur prior to the inspection of the installed tree and ground protection by the Arboricultural Consultant.* Repositioning of the protective barrier during the course of the contract as the contract works progress shall need prior agreement with the *Arboricultural Consultant*.
- 5.7 Within the protected areas the following activities must not take place;
- *No vehicles are to be used in the fenced off areas;*
 - *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.*

Ground Protection Measures

- 5.8 Where construction operations require activity within the exposed unmade ground of any existing tree Root Protection Area, a temporary ground protection measures should be implemented allowing for access, limited traffic and operations during the construction period.
- 5.9 A temporary '*Ground Protection Zone*' shall allow for the passage of construction vehicles to the site and should be implemented without intrusion or change of existing ground levels within the defined tree Root Protection Areas of existing trees. The ground protection measures should be implemented prior to the main construction works.
- 5.10 The temporary ground protection measures should remain in place for the duration of the construction period.

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HORSEMER GREEN LANE, CLIMPING
LLD1488-ARB-REP-001 /GS / 20.05.19

- 5.11 Ground protection measures must be fit for the purpose of supporting the level of traffic entering or using the site within RPAs without being distorted or causing compaction of underlying soil. The appropriate solutions include:
- *For pedestrian movements or the erection of scaffolding within the RPA – single layer of scaffold boards either on top of a driven scaffold frame, to form a suspended walkway, or on top of a compression-resistant layer; such as 100 mm depth of woodchip laid onto a geotextile;*
 - *For pedestrian-operated plant (up to a gross weight of 2 t) – proprietary, inter-linked ground protection boards or panels laid on top of a compression-resistant layer; such as 150 mm depth of woodchip laid onto a geotextile membrane;*
 - *For vehicular access (exceeding a gross weight of 2 t) – an alternative system subject to engineer's specification appropriate for expected loads, designed in consultation with the project Arboriculturist / Landscape Architect.*
- 5.12 The surface material should be contained with timber edging boards and spikes for pathways; timber sleepers should be used as a kerb edge restraint for vehicular areas and anchored with non-intrusive pinning (*such as road pins*) in order to maintain the existing levels within the specified tree Root Protection Areas.

Manual Excavation

- 5.13 Where the development proposals necessitate the tying 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. The excavation should be executed with due care and attention not to disturb exposed unmade ground and any existing tree roots present within it.
- 5.14 Roots over 25mm diameter or those occurring in clumps must not be severed without Arboricultural advice. Tree roots below such size should 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.

New Structures in Proximity to Trees

5.15 In shrinkable soils, the foundation design should take account of the risk of indirect damage.

5.16 Root damage can be minimised by implementation of pile and beam construction techniques. The following aspects of the design should be accounted for:

- *Piles – optimal location determined through site investigation, to avoid damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement (air lance), to a minimum depth of 600 mm. The smallest practical pile diameter should be used to minimise the risk of striking a major root. The smallest practical pile rig should be used to facilitate works within the canopy spread of existing trees. To protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, the use of sleeved bored pile or screw pile should be accounted for;*
- *Beams – laid at or above ground level and cantilevered as necessary and to avoid tree roots identified by site investigation.*

New Surfacing and Means of Access within Root Protection Areas

5.17 Where new surfacing and means of access within tree Root Protection Areas have been proposed, the construction method should be implemented to avoid intrusion into or change of existing ground levels within the tree Root Protection Areas of existing trees.

5.18 A 'No Dig' Construction should allow for the paving of specified areas within or adjacent to tree Root Protection Areas.

5.19 Ground levels should not be raised or lowered within the existing tree Root Protection Areas. A permeable surface treatment should be laid over the existing ground allowing water to permeate and allow for nutrient access and gaseous exchange.

MR. JAMIE ORTON
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HORSEMERE GREEN LANE, CLIMPING
LLD1488-ARB-REP-001 /GS / 20.05.19

- 5.20 The construction area / existing ground within the existing tree RPA is to be overlain with a geo-membrane and covered with a granular fill of no fines - open graded aggregate Type 3 incorporated within a 3-dimensional cellular confinement system. This should ensure a minimum supportive depth of 200 mm for vehicular access / 100 mm for pedestrian footpaths, above which a permeable surface treatment should be laid. The pH of the aggregate must be near neutral to avoid damage to pH-sensitive tree species.
- 5.21 Existing paving material overlying the RPA of existing trees should be left undisturbed during the construction period in order to protect the Root Protection Area of the tree to be retained. The existing paving / hard standing can then be reused as a base for the proposed surfacing, subject to Engineer's specification.
- 5.22 All retaining kerb restraints / edge supports are to be secured above ground and no general excavation within existing tree RPAs should be permitted.
- 5.23 Where stepped or ramped access have been proposed within the RPAs of existing trees, this should be constructed with limited disturbance to the existing ground. A raised frame supported upon posts concreted in the ground is recommended. The holes for footing to posts should be dug out using handheld tools. The sides of the holes should be lined with an impermeable membrane to prevent the caustic and toxic effects of wet cement in the concrete from damaging tree roots.

Services in Proximity to Existing Trees

- 5.24 The location and direction of new services should be designed to allow for services to be routed away from the RPAs of existing trees. Existing service runs should always be used wherever possible.
- 5.25 Where the proposed routing of services impinges upon the tree RPA of any existing tree to be retained; the routing should be undertaken as a minimum standard in accordance with *NJUG Volume 4, issue 2: 'Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'*.
- 5.26 A '*Manual Excavation Method*' to be followed to carefully hand dug and route the apparatus most directly to and from the exterior of the RPA radius.

MR. JAMIE ORTON
LAND ADJACENT TO SCYLD
HORSEMER GREEN LANE, CLIMPING
LLD1488-ARB-REP-001 /GS / 20.05.19

- 5.27 Services are to be routed together wherever possible to create the minimum impact upon the roots of the existing trees to be retained. Trench excavation across the tree Root Protection Area radius beside an existing tree should be avoided, whereby tree roots would become severed. Where services are to cross the edge of an existing RPA, they should be routed via a hand dug ducting sleeve, avoiding damage to roots.

Contractor Movements - Site access and Operations - Storage and Compound Areas

- 5.28 The Contractor Site Compound shall be located outside of any prescribed tree Root Protection Area and shall be permitted for the storage and securement of materials only within a temporary compound.
- 5.29 The compound area shall be located so as to not incur damage or injury to the 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 site 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.
- 5.30 All site operations and construction procedures for the duration of the construction period shall seek to protect the existing site vegetation and root protection areas in accordance with *BS 5837:2012*.

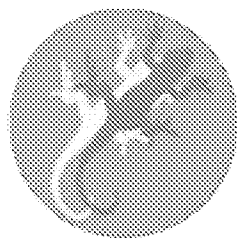
Tree Surgery

- 5.31 Any significant defects found in the trees during the course of the scheduled work shall be reported to the *Arboricultural Consultant*. All scheduled and arising tree work shall be undertaken by an approved and qualified tree surgeon in accordance with *BS 3998: 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.

Removal of Existing Vegetation

- 5.32 All existing trees to be designated for removal are to be removed in accordance with the *LLD1488-ARB-DWG-003 and 04 -Tree Retention and Protection Plan*. All tree work and removal shall be carried out in accordance with *BS 5837:2012*. 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 *Arboricultural Consultant*. Trees shall be felled 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.
- 5.33 Stumps shall be removed and cut away so that the top of the stump shall be at least 450 mm 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 *Arboricultural Consultant*. Where the depth is greater than 450 mm the areas shall be backfilled with topsoil to the required level.
- 5.34 The removal of shrub or scrub material within the 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 Root Protection Area and reduce any damage to existing tree roots within the protected root zone. Adjacent trees shall not be utilised as anchors or levers to facilitate the removal of adjacent vegetation.
- 5.35 Vegetation clearance to site boundaries should take place outside the bird nesting season (*nesting season: March-September inclusive*) or alternatively under a watching brief from a suitability qualified ecologist.

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