



LIZARD

Landscape Design and Ecology

ARBORICULTURAL IMPACT ASSESSMENT AND METHOD STATEMENT

CRESCENT PLACE

STORRINGTON ROAD, STORRINGTON

Downsview Associates Ltd

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1.0 INTRODUCTION

- 1.1 Lizard Landscape Design and Ecology has been commissioned to undertake a detailed tree survey and produce arboricultural documentation for the proposed development at Crescent Place, Storrington Road, Storrington.
- 1.2 The Arboricultural Impact Assessment and Method Statement report provides assessment of the direct and indirect effects of the proposed design and, where necessary, recommends mitigation.
- 1.3 This written Arboricultural Impact Assessment and Method Statement should be read in conjunction with the associated tree survey documentation, including *LLD2853-ARB-DWG-100 – Tree Constraints Plan*, *LLD2853-ARB-SCH-100 – Existing Tree Schedule* and *LLD2853-ARB-DWG-200 – Tree Retention and Protection Plan*.

Existing Site Information

- 1.4 The survey area covers c. 0.4 (ha) and comprises 2no. neighbouring residential properties; Little Snapes to the north of the site and Crescent Place to the south. The boundaries of the properties are delineated by a mixture of hedgerows, trees and fencing. Outside of the dwellings the site is dominated by associated hardstanding, modified grassland and further. The site is located toward the northeast extremity of the village of Storrington in the Horsham district of West Sussex. The site is bordered by residential property to the north and south, Storrington Road to the west and a residential garden runs along the eastern boundary.

Existing Site Vegetation

- 1.5 Tree lines, hedgerows and hedgerows with trees make up the site boundary and delineate garden subsections within the site. Further to this various specimen trees exist within the various garden areas comprising both native and non-native coniferous species, and fruit cultivars. Most of the trees and hedgerows considered here have been assessed as of relatively low value and categorised as C.
- 1.6 The central site areas are dominated by category C trees (most numerous were mature western red cedar *Thuja plicata*) and any more valuable trees (category B) that were noted were scattered within and alongside the outer site boundary. A single category A mature Oak (*Quercus robur*) is located to the western boundary.

Development Proposal

- 1.7 It is understood that the proposals include the construction of a single residential dwelling with access and a garage building. Removal of 9 no. trees located centrally within the site are proposed for removal to facilitate the development, including a Birch tree identified for removal due to poor condition.

2.0 ARBORICULTURAL IMPACT ASSESSMENT

Impacts of Development Proposals on Existing Vegetation

- 2.1 The proposed development can have an adverse impact on the existing trees by removing them to facilitate the development, or in the future, by adversely affecting their potential for retention through disturbance in Root Protection Areas (RPAs) or through post development pressures to prune or remove.
- 2.2 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.
- 2.3 Trees on site are predominantly low value and many are young to early-mature and non-native.

Tree Retention and Protection

- 2.4 The following trees, tree groups and hedgerow will be retained and protected with tree protective barriers: H01, T02, TG03, TG04, T05-T10, and T19.
- 2.5 The following trees are proposed for removal: T11, T12, T13, TG15, T16 and 3 no. trees within TG21 to allow for the construction of the proposed dwelling and access. H20 will require canopy reduction along the eastern and southern aspects that run along the west and north of the proposed hardstanding / driveway.
- 2.6 Tree protective barriers will then be used along the western site boundary to protect T14, T17, T18, T19 and H20.
- 2.7 A final section of tree protective barrier run along the northern site boundary to fully protect H1, T02 and 2 no. of the 3no. groups of cypresses within TG03.
- 2.8 Without mitigation, proposals would adversely impact T14, T17 and 18. In the absence of mitigation, compaction or excavation of the soil around these trees may cause damage to the roots and reduce rooting area

Disturbance to Root Protection Areas

- 2.9 Construction of the proposed access hard-standing will impinge upon the RPAs of T14, T17 and T18, in each instance, impingement remains below 20% in area.
- 2.10 A manual, no-dig, construction method shall be used where construction of access falls within the RPA of the above trees. It is recommended that such activities will need to be carried out under arboricultural supervision. This method will avoid potential damage to any tree roots that may cause a decline in the health of the associated tree.

Construction in Proximity to Existing Trees

- 2.11 The resulting proximity of the new structure is likely to result in pressures on the existing trees. This would include:
- ongoing need to prune the canopy back to prevent damage to the building and facilitate maintenance of the building façade and glazing;
 - altered soil conditions including access to water and gas exchange, resulting from proposed surfacing and construction of foundations;
 - shading of the canopy of existing trees.
- 2.12 Construction access and storage will be required to the different areas of the site. In the absence of mitigation, vehicular access might compact soils, harming tree roots on the site. The proposed tree protective barriers and ground protection measures will avoid this potential risk.
- 2.13 Inappropriate storage of liquids such as fuel, paint or cleaning chemicals might result in spillages with a significant impact upon trees and woodland. All such liquids will be stored at least 10.0 m from any pond, spring or woodland and outside of RPAs. Bunded containers with spill kits will be used to minimise the risk of spillage.

Tree Pruning, Canopy Reduction or Lifting

- 2.14 H20 will require canopy reduction to allow for the construction of the proposed hardstanding / access. The canopy of this hedgerow is irregular in its depth and reduction will require removal of between 1.0 and 2.0 m where this hedgerow runs alongside the proposed hardstanding area.
- 2.15 T12 is a dead birch standing intact at mature height – it is highly recommended that this tree be felled due to condition. The main trunk may be left in tact as a monolith – it is suggested that this be no more than 3m height, lower may be appropriate. Dead wood and arising may be retained on site for ecological benefit.
- 2.16 Where possible arisings may be retained on site for ecological benefit.

Removal of Trees and Vegetation

- 2.17 All tree work shall be carried out in accordance with BS 3998:2010. The following trees will be removed to allow for the construction of the proposed dwelling, access and garage:

Tree No	Species	Category
T11	<i>Taxus baccata</i>	C
T12,13	<i>Betula pendula</i>	C/U
TG15	<i>Thuja plicata</i> (partial)	C
T16	<i>Quercus robur</i>	C

Tree Loss Mitigation Measures

- 2.18 Trees lost through the proposals should be compensated through provision of an appropriate soft landscape scheme.

3.0 ARBORICULTURAL METHOD STATEMENT

Protection and Retention of Existing Trees and Habitats

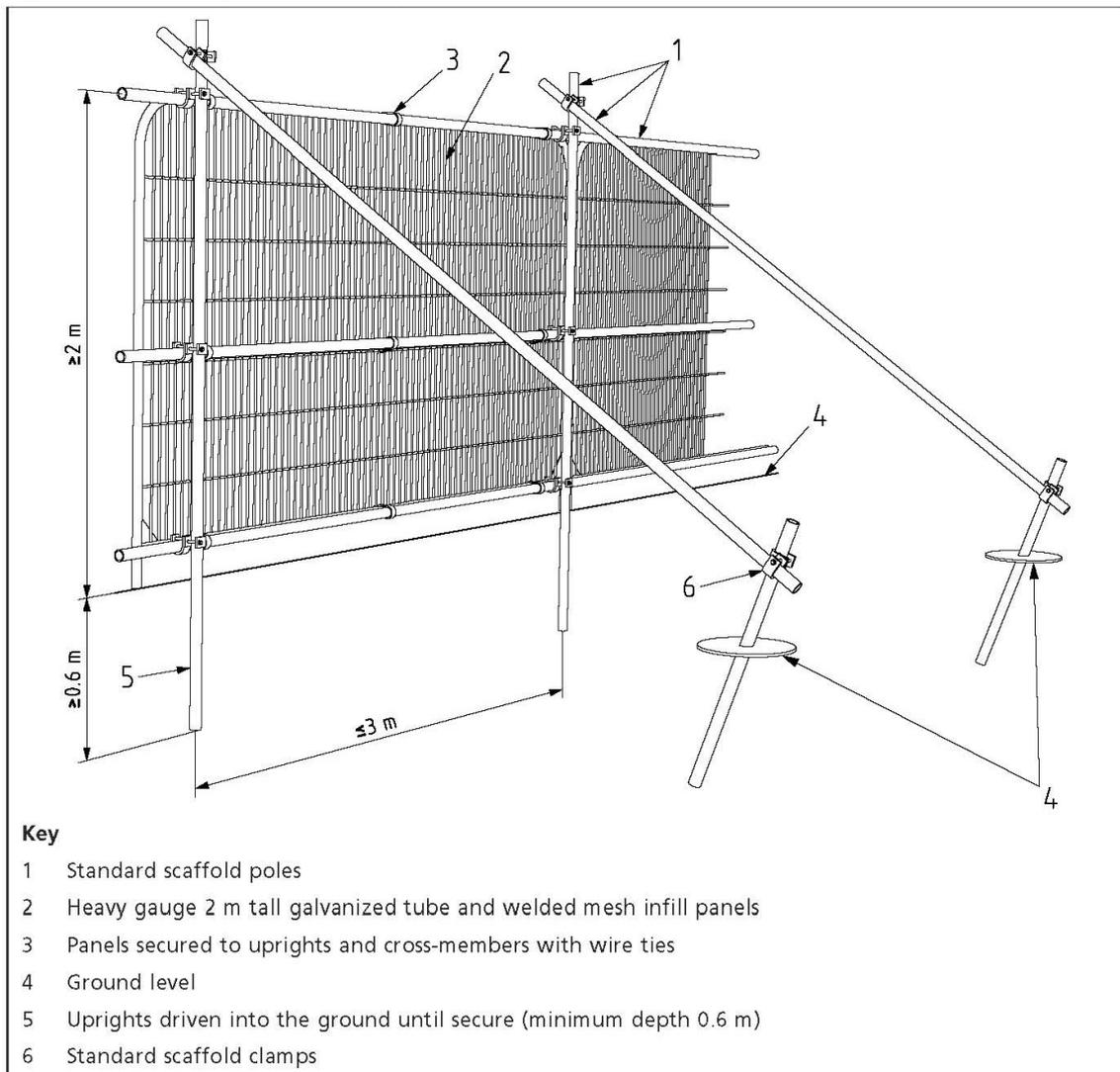
- 3.1 The Contractor shall exercise due care when performing operations beneath the canopy of existing mature trees and vegetation designated for protection and avoid at all times damage to the roots, trunk and branches.
- 3.2 The Contractor shall train all members of the construction workforce operating 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 Root Protection Areas;
 - Severance of roots exceeding 25 mm in diameter. If unintentionally severed; notice shall be given and specialist arboricultural advice sought;
 - Changes to the level of the ground within the specified Root Protection Areas;
 - Vegetation clearance to site boundaries during the bird nesting season (nesting season: March-September inclusive). Any clearance must be undertaken outside nesting season or alternatively under a watching brief from a suitability qualified ecologist.

Tree Protection Barriers

- 3.3 The Contractor shall exercise due care when performing operations beneath the canopy of existing mature trees and vegetation and within the specified Root Protection Areas designated for protection and avoid at all times damage to the roots, trunk and branches of existing trees proposed to be retained.
- 3.4 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 Root Protection Areas.

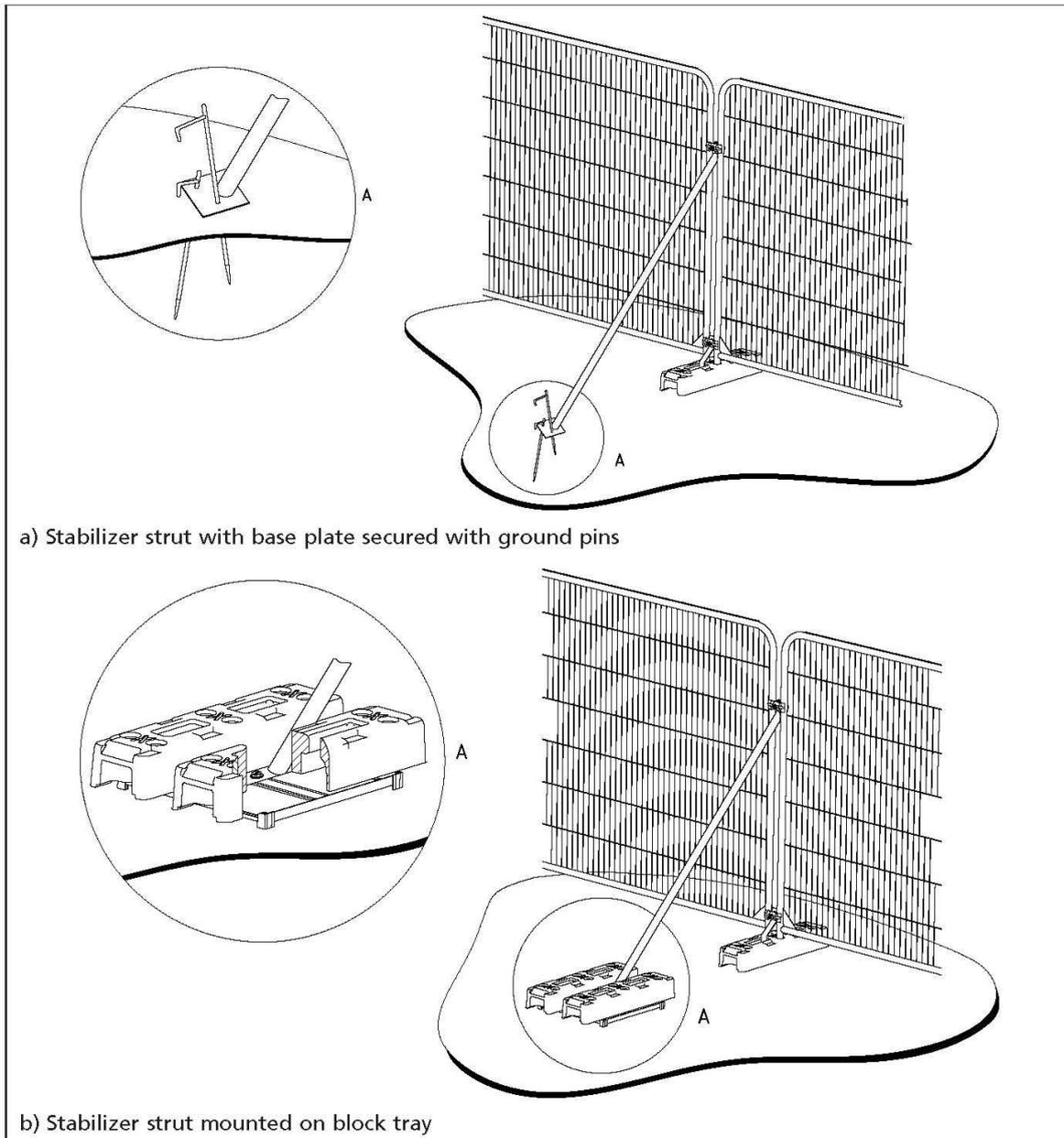
- 3.5 The installed protective barrier shall be 2.0 metres minimum height 'Heras' Welded Wire Mesh Fencing secured to a scaffolding framework, set into the existing ground, and positioned to the outside edge of the existing Tree Root Protection Area. Where existing ground conditions do not allow for the above method, the Welded Wire Mesh Fencing Panels may be mounted on concrete or rubber feet, supported on the inner side with stabilizer 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 *LLD2853-ARB-DWG-200 – Tree Retention and Protection Plan*.

Figure 2 Default specification for protective barrier



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Figure 3 Examples of above-ground stabilizing systems



- 3.6 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*'.
- 3.7 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 Landscape / Arboricultural Consultant.* Repositioning of the protective barrier during the course of the contract as the contract works progress shall need prior consultation with the Landscape / Arboricultural Consultant.
- 3.8 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.

New Structures in Proximity to Trees

- 3.9 The use of traditional strip footings can result in damage to roots and subsequent failure of trees and should therefore be avoided. For the purpose of retention of good quality trees, the application of specially engineered structures and solutions that would minimize impact on the existing trees are acceptable alternatives. A site-specific and specialist advice regarding foundation design should be sought from the Project Engineer.
- 3.10 In shrinkable soils, the foundation design should take account of the risk of indirect damage.
- 3.11 Root damage can be minimised by implementation of pile and beam construction techniques. The following aspects of the design should be accounted for:
- 3.12 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 minimize 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;

- 3.13 Beams – laid at or above ground level and cantilevered as necessary to avoid tree roots identified by site investigation.

New Surfacing and Means of Access within Root Protection Areas

- 3.14 Where new surfacing and means of access within 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.
- 3.15 A 'No Dig' Construction should allow for the paving of specified areas within or adjacent to tree Root Protection Areas to be constructed without disturbance to root systems.
- 3.16 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.
- 3.17 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 200mm for vehicular access / 100mm 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.
- 3.18 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.
- 3.19 All retaining kerb restraints / edge supports are to be secured above ground and no general excavation within existing tree RPAs should be permitted.

- 3.20 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

- 3.21 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.
- 3.22 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'*.
- 3.23 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.
- 3.24 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

- 3.25 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.
- 3.26 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.

- 3.27 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

- 3.28 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 *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

- 3.29 All existing trees to be designated for removal are to be removed in accordance with the *LLD2853-ARB-DWG-001 – 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 Landscape Architect / 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.
- 3.30 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 Landscape Architect. Where the depth is greater than 450 mm the areas shall be backfilled with topsoil to the required level.
- 3.31 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.

- 3.32 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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