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Landscape Design and Ecology

ARBORICULTURAL IMPACT ASSESSMENT & METHOD STATEMENT

Land adjoining No.2 and No.3. Townhouse Farm, Coolham Road, Thakeham, RH20 3EW

On Behalf of: Fowlers Land and New Homes

Client:	Fowlers Land and New Homes			
Project:	Land adjoining No.2 and No.3. Townhouse Farm, Coolham Road, Thakeham, RH20 3EW			
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1.0 INTRODUCTION

1.1 Lizard Landscape Design and Ecology (LLDE) has been commissioned by Fowlers Land and New Homes to undertake an Arboricultural Impact Assessment & Method Statement for the proposed development at Land adjoining No.2 and No.3. Townhouse Farm, Coolham Road, Thakeham, RH20 3EW (hereinafter referred to as the site).

1.2 The principal aim of this report is to detail construction control measures to protect retained trees and tree groups (including hedgerows) within, and adjacent to, the site in accordance with British Standard (BS) 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'.

1.3 This report has been produced based upon a BS 5837:2012 Arboricultural Survey undertaken by this company on the 9th of April 2025– this survey information is presented in Appendix A and summarised in section 1.10 below.

1.4 This report, and the accompanying Existing Tree Schedule, Tree Retention and Protection Plan and the Tree Works and Demolition Plan, sets out the arboricultural impacts of the proposals using the following considerations as a framework:

- Trees to be removed and trees to be retained.
- Remedial tree work to retained trees to allow development to take place.
- Suitable measures to protect retained trees.
- Special construction or engineering measures are required to enable trees to be integrated into the proposed development where impacts are unavoidable.

Existing Site Information

1.5 The site is privately owned, and the rear section is currently leased to a neighbouring dwelling (No.2 Townhouse Cottages) for use as additional residential garden. The front (west) section of the site is occupied by a container unit which stores agricultural equipment in association with the wider land at Townhouse Farm. It's located at Duke's Hill (B2139) along Coolham Road, Thakeham, approximately 500m to the East from The White Lion Inn and 800m to the south to the village of Abingworth.

Limitations

1.6 The trees were inspected at ground level and no decay detection equipment was used. Therefore, there is a small risk that any internal decay that may be present has gone undetected. Only preliminary recommendations for tree management are provided. A full hazard risk assessment comprising a more comprehensive analysis of the condition and potential risk to target areas is beyond the scope of this report.

1.7 Trees are living dynamic organisms and as such their health and condition will change with time. Therefore, this assessment remains valid for 18 months from the date of inspection, or until a weather event such as a severe storm (defined as a period of violent weather which is likely to cause damage to trees), after which time a new inspection is required.

Brief description of the site

1.8 The site is located on the outskirts of Thakeham, c.12km north of Arundel. There are no TPO's on the site, the nearest being to the east at The Street, Thakeham. Ancient Tree Inventory (ATI) have a recorded Veteran Oak – *Quercus sp* approximately 1km to the Northeast. Nearby is the A24, providing good connections from the south coast to London. To the south is the majority of Storrington's human infrastructure, including shops, community centres, school, church and residential estates. The surrounding landscape to the north, west and east is predominately arable fields, with some woodland parcels. These are well connected by mature tree lines and hedgerow.

Existing Site Vegetation

1.9 Hedgerows encompass much of the site boundary. There is a considerable tree presence from neighbouring properties. The existing site vegetation is mostly ornamental with various mature trees. Species include Ash – *Fraxinus excelsior*, Hazel – *Corylus avellana* and Hawthorn – *Crataegus monogyna*. Along the boundaries of the site are examples of well-maintained mature ornamental hedges, Laurel – *Prunus sp*, Garden Privet – *Legustrum sp* and Lawson Cypress – *Chamaecyparis lawsoniana*. The other areas of the site are laid to lawn and cultivated vegetable plots.

1.10 A summary of the relative retentive worth of the trees on site, as recorded during the tree survey and expressed by their categories, is given in Table 1.

Table 01 – Summary of Existing Site Vegetation

BS Category	No of Trees	No of Groups	No of Hedges	Total
B	**4**	**0**	**0**	**4**
C	**6**	**0**	**2**	**8**

Development Proposals

1.11 It is understood that the development proposals are as follows; Following a pre-application submission for 3 dwellings in October 2024 the planning application will now move forward for an application for 2no. new dwellings along with new trees and landscape planting proposals at Townhouse Farm.

2.0 ARBORICULTURAL IMPACT ASSESSMENT

2.1 This impact assessment is intended to evaluate the direct and indirect impacts on the trees on the site in relation to the proposed development. Any potential tree impacts below have been identified as per BS5837:2012 section 5.4, and details are given of proposed mitigation.

Removal of Trees and Vegetation

2.2 The development has been designed to avoid tree losses as far as possible, however, a small number of trees shall require removal to facilitate the development. Table 3 below describes the tree losses required to facilitate the development. Trees to be retained and removed are shown on The Tree Retention and Protection Plan B.

Table No. 03 – Trees and Hedges Proposed for Removal

BS Category	Tree/Group/Hedge Numbers	Total
B	**T01, T02**	**2**
C	**T03, T10, T11, H09, H12 (partial)**	**5**

Tree Pruning, Canopy Reduction, or Lifting

2.3 Some minor canopy reduction shall be required to allow adequate clearance between trees and built forms. This work will be undertaken according to industry best practice BS3998:2010. *Table 4 below* details works to retained hedges to facilitate development, which fall within levels of good arboricultural practice:

Table No. 04 – Tree Surgery Works

Ref. Number	Category	Description of Works
H12	**C**	A section of 10.0m of the northern end will be removed, the 8m section to the southern boundary will be retained

Construction access and storage

2.4 In the absence of mitigation, vehicular access might compact soils, harming tree roots. To avoid these impacts, there shall be a defined access route to and from all construction areas, and ground protection areas where access over RPAs is required.

2.5 Inappropriate storage of liquids such as fuel, paint or cleaning chemicals might result in spillages with a significant impact upon high value and or TPO trees. All such liquids will be stored at least 5.0 m from any RPA, and outside of any RPAs. Bunded containers with spill kits will be required and used to minimise the risk of spillage. This must be present on site before any work starts including ground preparations and tree works.

Compaction of Root Protection Areas

2.6 The majority of the trees to the boundaries of the site are being retained and will be protected using Tree Protective Barriers during the construction to prevent any incursion into the root protection area (RPA). A small number of hedges however will require enabling works and/or an operation zone within their RPAs. Hedges which would be impacted are detailed below:

2.7 Regarding **H12** the further most western section is within close proximity of the construction of the 02 carport, but the risk of any ground compaction is minimal.

2.8 In the absence of mitigation major negative impacts would occur in the form of; significant root damage which would facilitate pathogen colonisation and anchorage forces, loss of rooting area resulting in a reduction in water and nutrient availability, soil compaction resulting in a reduction of overall resources available to the hedge and potential soil contamination. Collectively these impacts can cause a significant loss in overall vitality possibly causing the decline or the death of the hedge.

Demolition within Root Protection Areas

2.9 In the absence of mitigation, the RPA of **T06** could be disturbed through the removal of existing Greenhouse using inappropriate methods. Due to its light form the removal of its existing hard surfaces may sever significant roots leading to decline and ultimately the failure of these trees if mitigation is not implemented, the ground is excavated to level the area and non-porous materials used within new hard surfaces. Mitigation measures including the manual removal of hard surfaces shall minimise harm to these trees and ensure their retention. It is proposed to carefully break up surfaces, whereupon any subbase or other such materials below will be manually dug out where necessary. Areas of manual excavation are shown in Appendix B.

New Hard Surfaces Within Root Protection Areas

2.10 The proposals have been designed so they do not require the construction of new hard surfaces within the RPAs of any retained trees or hedges.

2.11 Following all the tree and hedge removals the proposals have been designed so they do not require construction within the RPA's.

Installation of services

2.12 There could be potential impacts to trees, however details of services could be secured by condition to ensure no negative impact to trees exist. Should any service installation be required within the RPAs, a specialist method statement would need to be provided by an Arboriculturist.

Future Pressures to Retained Trees and Hedges

2.13 The resulting proximity of the new structures to retained trees and hedgerows may result in the following pressures.

- the 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.

2.14 The majority of future pressures have been avoided through the layout of the scheme which ensures adequate clearance between retained trees and the development. There are no undue tree shading or canopy encroachment issues anticipated from retained trees towards the proposed buildings and amenity spaces (such as gardens). This has been achieved by suitable development buffers from retained trees which also allows for future canopy development. Retained trees will not be located within private gardens to ensure that their long-term management remains favourable.

2.15 **H12** will require ongoing maintenance to alleviate any encroachments into the new landscaping scheme.

2.16 With the current proposals, it is planned to have one section removed from **H12** – Ornamental Hedge, for the construction of Plot 2. There will be minor pressures to prune back the spread of new growth on an annual basis to prevent intrusion into the proposed access areas. The impacts of these pressures however shall be negligible.

Tree and Hedgerow Loss Mitigation Measures

2.17 It is recommended that a scheme of soft landscaping can be secured by condition, this should include tree planting details which address any visual public amenity issues. The tree selection should be appropriate to the site conditions and species should be selected in accordance with any recommendations provided in the PEA and any subsequent ecology reports. Ideally, the species selected should be native and of proven ecological value to the local environment.

2.18 The locations and positioning of mitigation planting in relation to new or existing buildings should take full account of the final canopy height and spread of all trees included within the scheme. All planting should be located a sufficient distance from the predicted canopy line and rooting zones to avoid future pressures to undertake remedial works.

Conclusion

2.19 Over all impacts relating to tree and hedgerow removals is considered to be low, and impacts from any tree surgery are also considered low. It should be noted that the vast majority of potential impacts to trees around the boundary of the site are associated with the new landscaping. Regarding the 2no proposed plots, with the removal of 2no mature Ash it achieves minimal possible RPA incursions.

2.20 Provided that mitigation planting is in line with current guidelines and all other protection measures are properly enacted, the loss of trees from the site would be adequately compensated and the proposals would accord with the requirements of BS5837.

2.21 The protection, compensation and enhancement detailed herein have been designed to ensure the ongoing favourable status of retained trees and vegetation, and the species which use these. Additionally, adherence to the methods detailed will ensure that all works accord with the relevant wildlife legislation and planning conditions.

3.0 ARBORICULTURAL METHOD STATEMENT

Pre-Construction Meeting

3.1 A pre-construction meeting will take place between the Construction Manager and Project Arboriculturalist to discuss the programme of works and the timing and implementation of control measures.

Phasing of Operations

3.2 Implementation of tree protection shall be carried out as follows:

1) Tree removals and tree surgery
2) Tree protection fencing set out by the surveyor in accordance with approved plans.
3) Tree protective fencing is installed and any ground protection is installed as required.
4) Fencing and ground protection are to be inspected by the project arboriculturist.
5) Site set up including haulage routes and site compound.
6) Demolition / Site clearance followed by construction.
7) Inspection of any areas of construction within RPA's by project arboriculturist.
8) Removal of tree protective fencing.
9) Remedial tree surgery works (if required).

Contractor Induction

3.3 The key requirements of this method statement will be explained during site inductions for contractors. Trees and tree groups that are to be retained and protected will be identified before works commence. A copy of the Tree Retention and Protection Plan B, will be retained in the site offices for reference.

Tree Removal

3.4 All trees designated for removal are to be removed in accordance with the Tree Retention and Protection Plan B. All tree work and tree removal shall be carried out in accordance with BS 5837:2012 and BS 3998:2010. Prior to the removal and felling of trees, the tree positions shall be agreed on site with the Arboricultural Consultant, and trees designated for removal and felling shall be marked, on-site. 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.

3.5 Arisings should not be disposed of by burning on site unless:

- Other options are impracticable, or the material is affected or likely to become affected by a disease or pest for which sanitation is a necessary form of control.
- NOTE: Attention is drawn to regulations made under: ***The Clean Air Act 1993, The Plant Health Act 1967, The Weeds Act 1959, and the Wildlife and Countryside Act 1981,*** in respect of the prevention of the spread of plant and soil pests.

Tree Surgery

3.6 All tree work as detailed within the Tree Retention and Protection Plan B, 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.

3.7 Stumps to be removed should be cut away so that the top of the stump shall be at least 450 mm below the final topsoil level in order for the site can be reinstalled in accordance with the existing site levels. Where the depth is greater than 450 mm the areas shall be backfilled with topsoil to the required level.

3.8 Options for retention of and management of stumps, particularly those arising from dead trees should be considered as these subterranean deadwood habitats are of great ecological benefit. These stumps should not be treated with any form of pesticide or chemical application as this can be detrimental to the remaining trees, and local ecology.

3.9 The height of stumps for retention should be determined by management objectives and or site-specific conditions. Stumps should be left in a safe condition and or location that does not pose a hazard.

3.10 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.

3.11 Vegetation clearance should take place outside the bird nesting season (*nesting season: March-September inclusive*) or alternatively under a watching brief from an ecologist or suitability-qualified professional.

Tree Surgery and Removal Works– Arisings

3.12 The disposal, utilisation and retention of arisings must be in line with BS 3998: 2010 'Tree Work: Recommendations'. Retaining arisings on or near the site can have conservation benefits and allows the gradual recycling of the mineral nutrients and carbon that they contain. Effective financial gains can be achieved with efficient arisings management planning.

3.13 Before any work on a tree commences, it should be agreed on what is to happen to the arisings (such as retained or removed from the site). Any arisings remaining on the site should be stored safely in locations agreed with the client. The following should be taken into account when deciding what is eventually to be done with the arisings:

- Site usage: access, space, and safety;
- Scope for utilisation (such as use of woodchip for mulch, weed suppressant, etc.)
- Wildlife and habitat, particularly where veteran trees are present and invertebrate colonisation is likely.
- The disposal, utilisation and retention of arisings must be in line with BS 3998: 2010 'Tree Work: Recommendations'. Retaining arisings on or near the site can have conservation benefits and allows the gradual recycling of the mineral nutrients and carbon that they contain.

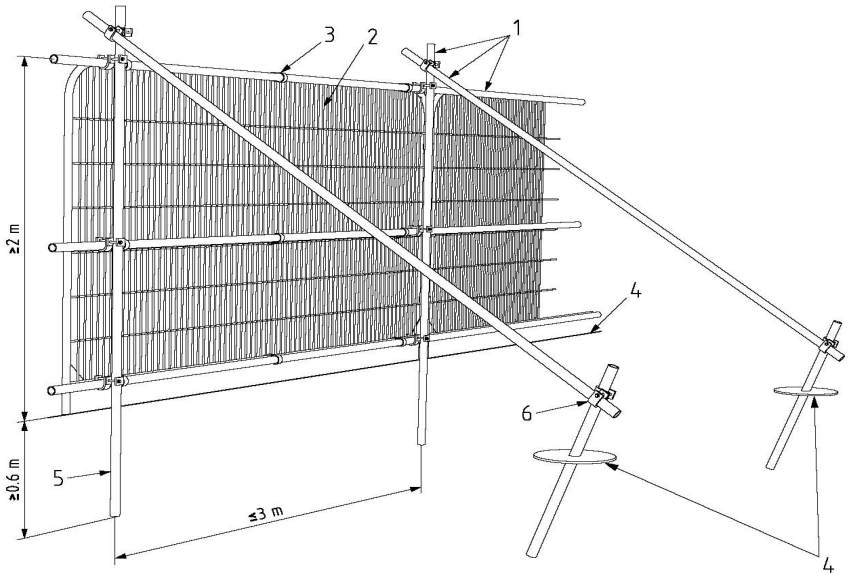
Tree Protection Fencing

3.14 All trees to be retained on site shall be protected with barriers installed at the locations as shown in the Tree Retention and Protection Plan B. The barrier shall be installed, protected and maintained during the main works by the appointed contractor.

3.15 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, and knee rails where possible to provide a completely protected area *(refer to Figure 2 and Figure 3 below; © British Standards Institute 2012)*. All tree protection is to be in accordance with *BS 5837: 2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'*.

3.16 Any requirement for modifications to the prescribed protection fencing specification, for example, where installation space is restricted, will be discussed and agreed upon with the Project Arboriculturist before being implemented.

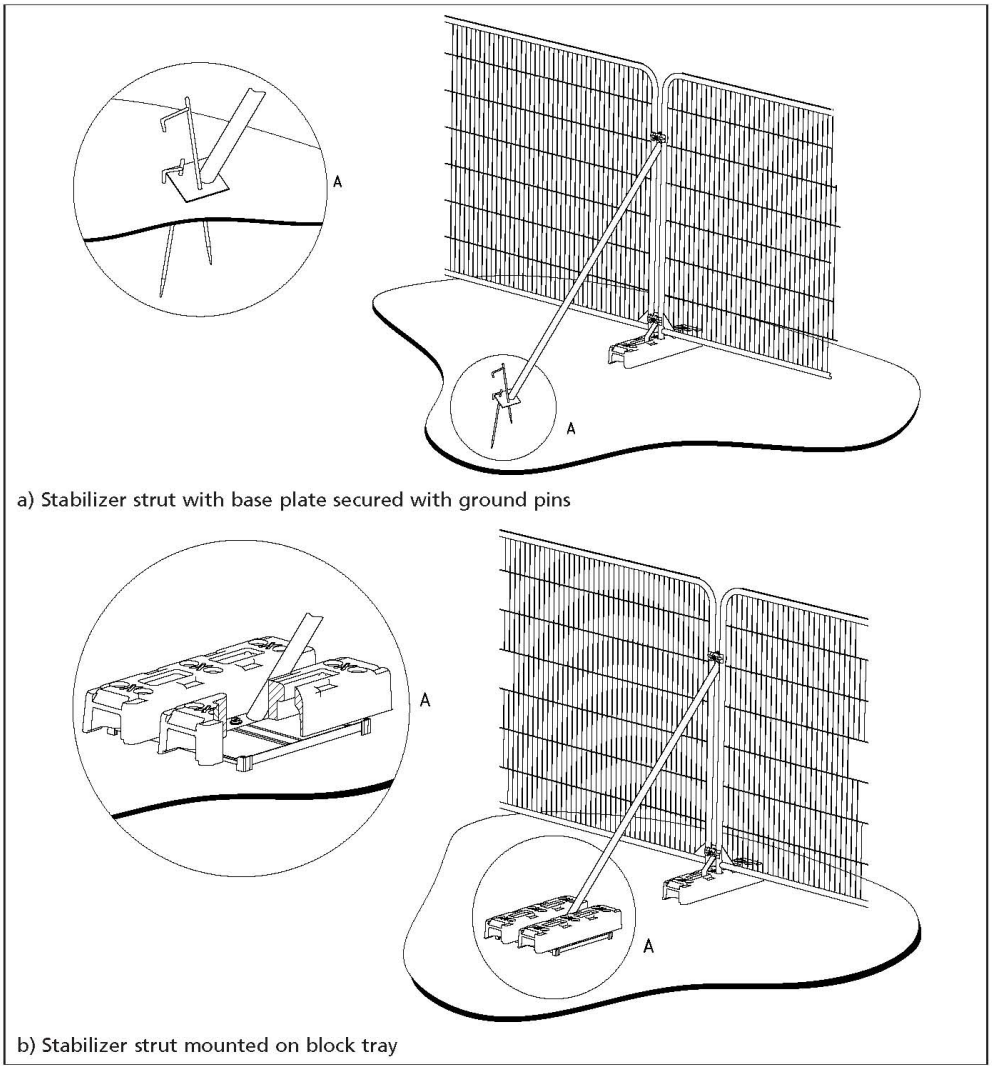
Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 3 **Examples of above-ground stabilizing systems**



3.17 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 stating '*Construction Exclusion Zone-Tree Root Protection Zone – NO unauthorised access,* as a minimum.

3.18 Once installed the protection fencing will be inspected by the Project Arboriculturalist before any construction works begin. Fencing locations will not be altered without prior approval of the supervising arboriculturist.

3.19 All such barriers shall be maintained for the full contract period. The Construction Manager will be directly responsible for ensuring the protection fencing remains rigid and complete during the entire works programme. Repairs will be acted upon immediately to ensure continued protection.

3.20 Within the protected areas the following activities must not take place;

- Fencing locations will not be altered without prior approval of the supervising arboriculturist.
- No unauthorised persons shall enter the protection area;
- No vehicles, machines or plant are to be used;
- 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.
- No chemicals and fuels should be stored within 5m of a Tree Root Protection Zone.

Site Compound, Haulage Routes and Car Parking

3.21 All site compounds, car parking and haul routes will be located outside of tree protection fencing. The compound area shall be located 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 to negate damage to the surrounding environment.

Pollution Control

3.22 Pollution control is intended to prevent pollutants from contaminating RPAs, and it will be necessary to control pollution risks wherever risk assessment identifies a significant risk of harm. Spilt solid or liquid chemicals which can reach RPAs can kill roots, prevent root growth, and cause harm which could result in the death of a tree or tree group. Suitable provisions must be made to minimise the risk of soil contamination within the normal risk management protocols for the site.

- All chemical stores and mixing areas must be located outside of RPAs.
- No chemicals and fuels should be stored within 5m of a Tree Root Protection Zone.
- Precautionary measures such as bunded spill kits and additional bunding sufficient to prevent contamination must be present on-site to be used to contain accidental spillages and prevent damage to retained trees.

Protection and Retention of Existing Trees and Habitats

3.23 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.

3.24 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.

Ground Protection Measures

3.25 Where construction operations require activity within the exposed unmade ground of any existing tree Root Protection Area, temporary ground protection measures should be implemented as shown in the Tree Retention and Protection Plan B. The ground protection measures should be accurately laid out and implemented before the demolition and/or construction works.

3.26 Ground protection 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 the underlying soil. The appropriate solutions include:

- For pedestrian movements or the erection of scaffolding within the RPA – a 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, e.g., 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, e.g., 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 the engineer's specification appropriate for expected loads, is designed in consultation with the project Arboriculturist.

3.27 The process for installation of ground protection is as follows:

1) Discuss the procedure with the project arboriculturist.

2) Dismantle primary protection fencing and re-erect in the secondary location as shown in the Tree Retention and Protection Plan B.

3) Any shrubs, saplings, or trees to be removed, are to be cut or ground out to just below ground level rather than grubbed or winched out, which can damage the roots of retained trees.

4) Lay woven geotextile over the existing ground surface by hand.

5) Cover the area with a compressible layer, woodchip, for example, using hand tools only.

6) Cover the compressible layer with side butting scaffold boards or plywood boards.

7) Confirm surface is acceptable for use with the project arboriculturist.

8) Area ready for construction access.

Manual Excavation

3.28 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, and pipe work; a *'Manual Excavation Method'* must be assumed using handheld 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.

3.29 Roots over 25mm in 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 and tied 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.

Demolition in Proximity to Trees

3.30 Sensitive demolition of buildings and structures within RPA's will occur under supervision from the project arboriculturist. Any existing tree protection fencing shall be removed to allow access to the demolition area. Buildings shall be demolished in such a way that the building folds in on itself. Debris may be removed by plant machinery provided appropriate ground protection is in place and no incursion into unprotected soft ground occurs.

3.31 The floor of the building / surrounding hard standing is to be broken up and carefully removed from the RPA. Underlying ground levels are to be retained, and any exposed roots and newly exposed areas of soft ground are to be covered with up to 100mm of topsoil (to BS3882:2015). Soil must be spread by hand to avoid compaction of the RPA. Tree protection fencing must be re-installed at the agreed location on completion of demolition works.

3.32 Best practice must be adhered to at all times to avoid any contamination of the soil by fuel or other chemicals. If such a situation arises the project arboriculturist must be notified to assess the situation and prescribe remedial measures.

Pile and Beam Construction

3.33 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.

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

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

3.36 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;

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

New Hard surfacing within Root Protection Areas

3.38 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.

3.39 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.

3.40 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.

3.41 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 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.

3.42 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 the Engineer's specification.

3.43 All retaining kerb restraints/edge supports are to be secured above ground and no general excavation within existing tree RPAs should be permitted.

3.44 Where stepped or ramped access has 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

3.45 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.

3.46 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'***.

3.47 A 'Manual Excavation Method' is to be followed to carefully hand-dug and route the apparatus most directly to and from the exterior of the RPA radius.

3.48 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.

Installation of Fencing

3.49 Proposed new fencing to residential gardens shall be installed following the removal of tree-protective fencing and ground protection measures. Post holes within the RPAs shall be manually dug, and shall not sever any major roots. Roots over 25mm in diameter or those occurring in clumps must not be severed without Arboricultural advice. Where absolutely necessary, tree roots below such size should be cut cleanly to the minimum extent to allow works to proceed.

Hard and Soft Landscaping

3.50 The Arboricultural Consultant should review any landscape operations that involve any work within the RPAs of retained trees and input additional site-specific methodology where necessary.

3.51 The existing ground levels within the RPA of the retained trees must be retained and incorporated into the finished landscaped development. Where changes in level occur these are to be either graded into the finished levels starting outside the RPA or alternatively, retaining wall structures are to be used to differentiate between the different levels.

3.52 All soft and hard landscaping within the RPAs must be carried out manually and the soil levels must not be lowered or raised resulting in root damage to the trees. All finished surfaces are to be porous to allow the free movement of water and gaseous exchange to the roots.

Future Tree Surgery Works - Dead branches

3.53 All deadwood features should be managed in accordance with BS 3998-2010: Tree work Recommendations.

- Safety needs should be balanced against wildlife habitat protection.
- Dead branches should be shortened or if necessary, removed if they pose an unacceptable risk to people or property and if other options (e.g. diverting a footpath) are not practicable.

3.54 When deciding whether dead branches or dead trees should be retained and, if so, to what extent they might need to be pruned, a balance should be made between the mitigation of risk and the maintenance of wildlife habitats. The unnecessary loss of deadwood habitats should be avoided when specifying pruning or other works, particularly if legally protected species are using the tree. The following risk factors should be taken into account:

- the location (e.g., whether the deadwood overhangs a target that cannot be readily moved, such as a highway);
- the wood properties and decay characteristics of the species concerned.
- the size of the deadwood.

Future Tree Surgery Works - Standing Dead Trees

3.55 Where standing dead trees are retained, their height should be reduced if this is required for mitigation of present or future risks. They should be inspected periodically, and further work should be undertaken (either felling or progressive reduction, depending on practicability) if necessary to keep risks within acceptable limits.

Further Ecological Enhancement Methods

3.56 Further enhancement can be/will be achieved with the utilisation of arisings resulting from vegetation removal or clearance works within the site.

3.57 Arisings will be retained for use as deadwood habitat log piles at the base of the existing trees and woodland foliage. Piles shall be made from arisings of native vegetation taken from the site or surrounding areas where possible. Piles should

contain both larger logs (with gaps between), brash and branches and smaller leaf litter and cuttings/ grass clippings, to create varied conditions.

3.58 All branches and stems larger than 75mm in diameter, can/will be retained for use as deadwood habitat log piles at the base of the existing foliage. These are best left in lengths of a metre or more, but smaller sections will also be suitable. In suitable areas, these can also be pushed under the bottom of the hedgerows and areas of scrub where they will provide suitable habitat for a plethora of invertebrates and in turn suitable refuge and forage for small mammals, birds, reptiles, and amphibians.

3.59 Retaining arisings on or near the site can have conservation benefits and allows for the gradual recycling of the mineral nutrients and carbon that they contain which will further enrich the trees on site.

Ongoing Management of Tree, Hedges and Native shrubs

3.60 To ensure the trees and/ or hedges continue to be a useful ecological feature, they shall not be cut overly frequently and shall be allowed to become relatively dense and tall. Any hedges on site shall be cut outside of the bird nesting season (which generally runs March-August inclusive) and not more than once every three years. Minor trimming of stray branches over paths etc. can be carried out more regularly if required.

3.61 Any sections of new planting or failed newly planted trees will need to be replaced and species and sizes will have to be matched with what has been lost.

4.0 SCHEDULE OF SUPERVISION

4.1 To ensure works accord with the recommendations and the British Standard, works shall proceed as per the below schedule of supervision. The below schedule must be provided to the main contractor – it is the responsibility of the landowner/developer to ensure compliance with the below. Failure to comply is likely to result in a breach of planning conditions and/or environmental legislation. Photographic evidence shall be taken at each stage such that a final completion report can be provided to the local planning authority to confirm works have been undertaken in accordance with this method statement.

Table No. 05 – Schedule of Supervision

Works	Responsibility	Notes	Sign off & Date
Pre-commencement Meeting	Construction Manager and Project Arboriculturist	To discuss the programme of works, the timing and implementation of the tree works and the tree protection measures.	
Tree removal works	Construction Manager and Project Arboriculturist	Project Arboriculturist to mark trees for removal and/or surgery works.	
Installation of tree-protective fencing and ground protection	Construction Manager and Project Arboriculturist	Set out as per TRPP. Fencing and ground protection measures are to be inspected by the project arboriculturalist.	
Monthly inspection of protective fencing	Construction Manager	Construction manager to inspect fencing. Any issues are to be reported to the project arboriculturalist.	
Demolition within RPA's	Construction Manager	All works are conducted as per the method statement. Photographic record to be sent to project arboriculturalist to evidence works.	
Trial Pits	Construction Manager and Project Arboriculturist	Trail pits are to be dug at an agreed location under arboricultural supervision.	

Manual excavation within RPA's	Construction Manager	Works undertaken in accordance method statement. Project arboriculturalist to be contacted should roots larger than 25mm diameter be encountered.	
Installation of hard surfaces within RPA's.	Construction Manager, Engineer and Project Arboriculturist	All works are conducted as per the method statement. Specification of no-dig construction is to be agreed upon with the engineer and arboriculturalist. Photographic record to be sent to project arboriculturalist to evidence works.	
Building Construction within RPA's	Construction Manager, Engineer and Project Arboriculturist	All works are conducted as per the method statement. Specification of foundation design to be agreed with engineer and arboriculturalist. Photographic record to be sent to project arboriculturalist to evidence works.	
Removal of tree protective fencing	Construction Manager and Project Arboriculturist	Only to be removed at the end of the construction period and following authorisation from the project arboriculturalist.	

Appendix A – Tree Survey Schedule

Appendix B – Tree Retention and Protection Plan

LIZARD

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