Arboricultural Method Statement

Protection and Retention of Existing Habitats

The Contractor shall exercise extreme 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 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;*
- *Roots exceeding 25mm 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 Root Protection Areas;*
- *Vegetation clearance should take place outside the bird nesting season (nesting season: March-September inclusive) or alternatively under a watching brief from a suitability qualified ecologist.*

Contractor Movements. Site access and operations. Storage and Compound Areas

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. The compound shall be fenced (*2.0m minimum height Heras Weld Mesh Fencing*) and shall allow designated contractor access without obstruction for construction vehicles entering the site.

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.

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*.

Removal of Existing Vegetation

All vegetation designated for removal are to be removed in accordance with the *LLD1845-ARB-DWG-002 - Tree Retention and Protection Plan*. All removal works shall be carried out in accordance with *BS 5837:2012*. Care should be taken during the removal process to avoid any damage to any trees, hedgerows or shrubs which are designated to be retained.

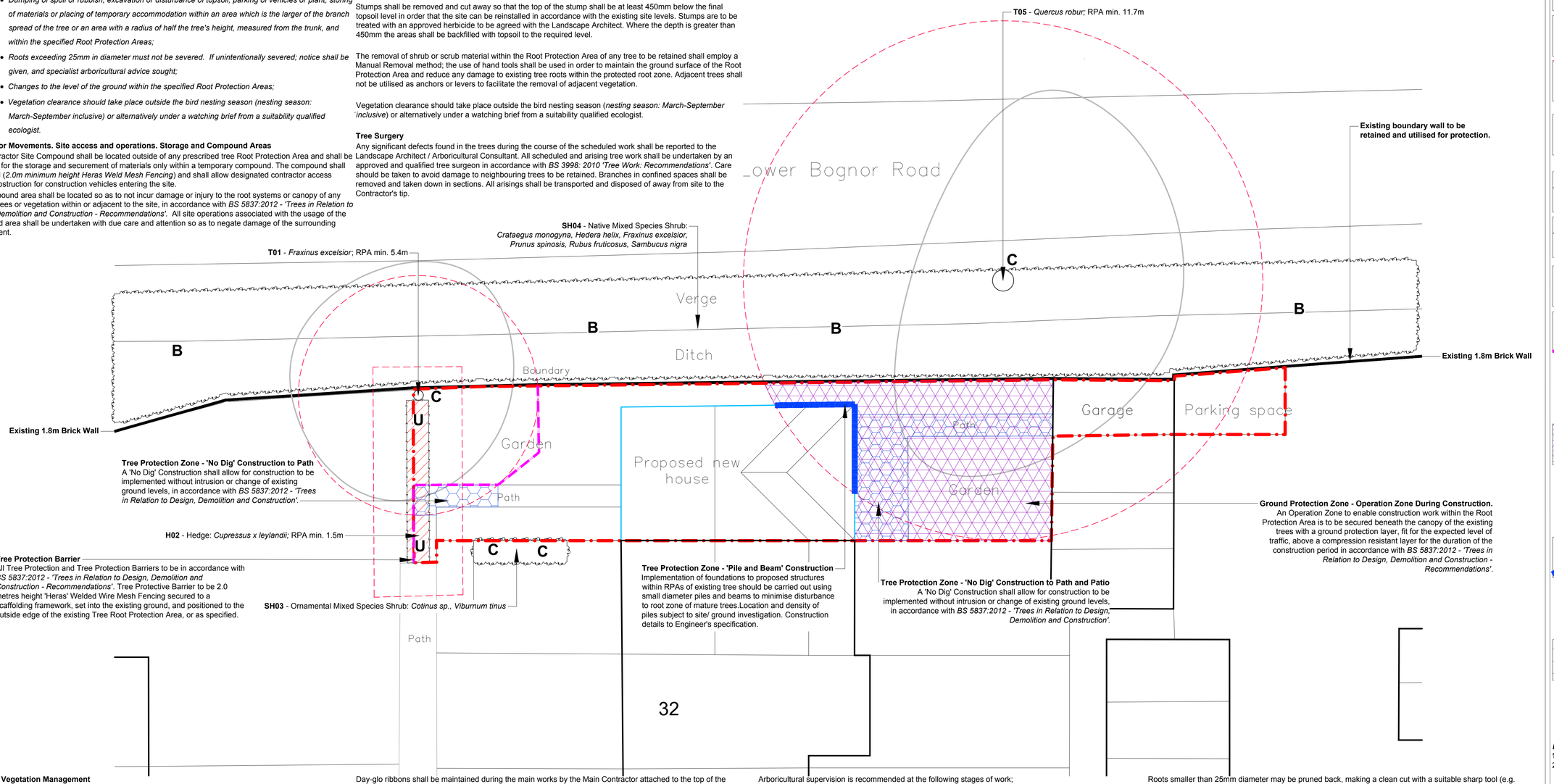
Stumps shall be removed and cut away so that the top of the stump shall be at least 450mm below the final topsoil level in order that the site can be reinstalled in accordance with the existing site levels. Stumps are to be treated with an approved herbicide to be agreed with the Landscape Architect. Where the depth is greater than 450mm the areas shall be backfilled with topsoil to the required level.

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.

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

Tree Surgery

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.



Tree and Vegetation Management

For Tree and Vegetation Retention and Removal Proposals refer to the accompanying *LLD1845-ARB-SCH-001 - Existing Tree Schedule and Schedule of Tree Works.*

Protection and Retention of Existing Vegetation

The Contractor shall exercise extreme 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.

All excavations, cultivation and grading beneath the canopy of existing mature trees and within the specified Root Protection Areas of the existing trees and vegetation shall be carried out using hand tools, taking care not to damage or disturb any existing tree roots.

Tree Protective Barriers

Tree Protective barriers shall be installed after completion of removal of existing vegetation in accordance with *LLD1812-ARB-DWG-002 - Tree Retention* and *Protection Plan.* All trees to be retained on site shall be protected with Tree Protective Barriers (or existing walls) consisting of fencing erected around the area of mature vegetation in accordance with *BS 5837; 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'*. The fencing shall be installed, protected and maintained during the main works by the Contractor who shall be responsible for protecting any area beneath the canopy of the existing trees and within the specified Root Protection Areas.

The installed protective barriers shall be 2.0m 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 fencing shall be strained, and fixed to fences, walls, knee rails where possible to provide a complete protected area. 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 *LLD1845-ARB-DWG-002 - Tree Retention and Protection Plan.*

Day-glo ribbons shall be maintained during the main works by the Main Contractor attached to the top of the fencing to ensure that the fencing is clearly visible during the works. The tree protection fencing shall display all-weather notices starting '*Construction Exclusion Zone - NO ACCESS'.*

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 Architect / Arboricultural Consultant.* Repositioning of the protective barriers during the course of the contract as the contract works progress shall need prior agreement with the Landscape Architect / Arboricultural Consultant.

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

- ***No vehicles are to be used in the fenced off areas;***
- ***No materials are to be stockpiled or stored;***
- ***No chemicals are to be stored;***
- ***No excavation or increase in the soil level shall occur;***
- ***No fires shall be lit on site.***

Existing service runs should always be used wherever possible. Where the proposed routing of services impinges upon the root protection area of any existing tree to be retained, the routing shall be undertaken in accordance with a manual excavation method; to be carefully hand dug and routed most directly to and from the exterior of the tree root protection area radius. Services are to be trenched and routed together wherever possible to create the minimum impact upon the tree roots of the existing trees to be retained. Trench excavation across the tree root protection area radius beside an existing tree shall be avoided, whereby tree roots will become severed. Where services are to cross the edge of an existing tree root protection area, they should be routed through existing tree roots, via a hand dug ducting sleeve, avoiding damage to existing tree roots within the root protection zone.

Phasing of the construction works should be considered to minimise the requirement for ground protection and avoid vehicular movements over unmade ground.

Arboricultural supervision is recommended at the following stages of work;

- Installation / checking of tree protection measures;
- Method statement briefing for site staff;
- Checking of ground protection measures prior to first use;
- Supervision of manual excavation;
- Specification and Installation of 'No-Dig' Construction;
- Removal of tree protection measures.

Ground Protection Measures

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.

A temporary 'Ground Protection Zone - Operation Zone During Construction' shall allow for the passage of construction plant equipment 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.

The temporary ground protection measures should remain in place for the duration of the construction period.

The ground protection shall be in place for the duration of the construction period in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'*. When construction work is completed the ground protection can be removed.

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-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 150mm depth of woodchip laid onto a geotextile membrane.

When grading the ground, any exposed roots shall immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any such wrapping shall be removed prior to backfilling.

Roots smaller than 25mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25mm diameter and over shall not be severed without consultation with the Project Arboriculturalist.

The exposed roots shall be backfilled as soon as possible. Prior to backfilling, retained roots shall be surrounded with topsoil or uncompacted sharp sand (builders' sand should not be used), or other loose inert granular fill, before soil or other suitable material is replaced. Such material shall be free of contaminants and other foreign objects potentially injurious to tree roots.

'Pile and Beam' Construction

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 600mm. 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;

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

'No Dig' Construction Method

'No Dig Construction method' shall allow for the implementation of pedestrian access footpaths and patio within the site and shall be implemented without intrusion or change of existing ground levels within the Root Protection Areas of existing trees. A permeable open graded surface treatment shall be laid over the existing ground which will allow water to flow through to the tree roots, and allow for nutrient and gaseous exchange.

The surface material shall be contained with timber edging boards and spikes for pathways in order to maintain the existing levels within the Tree Root Protection areas.

Proposed hard landscape paving within the Tree Root Protection areas will be created with a Permeable Surface Treatment to allow water flow and natural nutrient and gaseous exchange. Snow and ice to permeable paving areas within Tree Root Protection Areas are to be removed by manual methods only with no spreading of salt / chemicals which could leach through to the top soil and damage existing tree roots.

N

0 1 2.5 5 m

Scale 1:100

Tree Retention and Protection Plan
34 Wakefield Way, Aldwick, Bognor Regis, West Sussex

Legend

- **Red Line Boundary**
- **Proposed Build Footprint**
- **Tree/ Shrub Group/ Hedge Identification Label** — T/ SH/ H
- **Tree Root Protection Areas** — Tree Root Protection Areas calculated and specified in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'*.
- **Category C Trees** — Trees of Low Quality and Value. (C)
- **Native Mixed Species Shrub Vegetation** — Shrub Vegetation of Moderate Quality and Value. (B)
- **Ornamental Mixed Species Shrub Vegetation** — Shrub Vegetation of Low Quality and Value. (C)
- **Existing Hedges to be Removed**
- **Tree Protection Barrier** — All Tree Protection and Tree Protection Barriers to be in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'*. Tree Protective Barrier to be 2.0 metres height 'Heras' Welded Wire Mesh Fencing secured to a scaffolding framework, set into the existing ground, and positioned to the outside edge of the existing Tree Root Protection Area, or as specified.
- **Ground Protection Zone - Operation Zone During Construction.** — An Operation Zone to enable construction work within the Root Protection Area is to be secured beneath the canopy of the existing trees with a ground protection layer, fit for the expected level of traffic, above a compression resistant layer for the duration of the construction period in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'*.
- **Tree Protection Zone - 'Pile and Beam' Construction** — Implementation of foundations to proposed structures within RPAs of existing tree should be carried out using small diameter piles and beams to minimise disturbance to root zone of mature trees. Location and density of piles subject to site/ ground investigation. Construction details to Engineer's specification.
- **Tree Protection Zone - 'No Dig' Construction** — A 'No Dig' Construction shall allow for construction to be implemented without intrusion or change of existing ground levels, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*.

Notes:

1. Drawing to be viewed in colour;
2. Refer to *LLD1845-ARB-SCH-001 - Existing Tree Schedule and Schule of Works and LLD1845-ARB-REP - Arboricultural Impact Assessment - Method Statement.*

PLANNING ISSUE

Rev	Description	Date	Initials
00	Planning Issue	07.11.19	TT

LIZARD
Landscape Design and Ecology
The Old Bank, 34 South Street, Tarring, Worthing, West Sussex, BN14 7LH
T. 01903 216033 E. lizardlandscape@btconnect.com W. lizardlandscapeecology.com

Client
Mr and Mrs Paul

Project Title and Location
34 Wakefield Way
Aldwick, Bognor Regis, West Sussex

Drawing Title
Tree Retention and Protection Plan

Scale	*Drawn*	*Approved*	*Date*
1:100@A1	TT	KM	07/11/19

Drawing No **LLD1845-ARB-DWG-002** *Revision* 00