



L I Z A R D

Landscape Design and Ecology

WOODPECKER PLC

COLDHARBOUR FARM EMSWORTH, HAMPSHIRE

Arboricultural Impact Assessment and Method Statement

Prepared by	JJ
Checked by	JJ
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Appendix No. 01 – Site Photographs

1.0 INTRODUCTION

- 1.1 Lizard Landscape Design and Ecology has been commissioned by Woodpecker Plc to undertake a detailed tree survey and arboricultural impact assessment for the proposed residential redevelopment at Coldharbour Farm, Coldharbour Lane, Emsworth, Hampshire.
- 1.2 The initial tree survey visit to the site was undertaken on the 06th June 2019 to appraise the existing trees and ecological value 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 Coldharbour Farm site area has been prepared 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 *LLD1726-ARB-DWG-001 – Tree Constraints Plan; LLD1726-ARB-DWG-002 – Tree Retention and Protection Plan; and LLD1726-ARB-SCH-001 – Existing Tree Schedule and Schedule of Tree Works*.
- 1.6 The development of the existing grassland paddock landscape at Coldharbour Farm to residential development can be supported arboriculturally in the context existing tree lines; hedge lines; and mature scattered trees surrounding the site area on the basis that the tree protection and mitigation measures outlined in this report and associated drawings are put in place within the development scheme and the construction phase.

2.0 EXISTING SITE INFORMATION

The Site

- 2.1 The site area is a grassland paddock landscape located to the western residential edge of Emsworth to the end of Coldharbour Farm Road. The paddock grassland is divided through the centre of the site with a dry ditch and a field drain to the eastern site edge. The site area is edged with encroaching dense scrub vegetation; boundary hedge lines; tree lines and scattered trees to the site boundaries. There is a public right of way footpath which runs along the eastern edge of the development area to the end of Coldharbour Farm Road which links in the north to the adjacent public park of Emsworth Park to the north-east and runs under the A27 motorway into Emsworth town. The development area is separated from the A27 dual carriageway with a semi-mature woodland tree belt. There is a petrol filling station associated with the A27 located to the immediate western edge of the site area.

- 2.2 The site is bounded to all sides with tree lines; dense scrub; and hedgeline vegetation. Soils on site are described as *'loamy soils with naturally high groundwater; texture: loamy; habitats: wet acid meadows and woodland; landcover: arable grassland and woodland; drainage: naturally wet'*

Surrounding Landscape

- 2.3 The site area is located to the north-western residential edge of Emsworth – New Brighton area. The surrounding landscape to the west is rural and dominated by arable and pastoral fields. Many of the fields are tree and hedge lined with limited woodland present throughout the landscape. The arable landscape provides separation of Emsworth from Warblington to the west.
- 2.4 The eastern sector of the site area is listed as a *Site of Nature Conservation Importance* between the two water courses. The site area is not covered by any other landscape or ecological statutory designations. The nearest woodland listed on *The National Forest Inventory* and listed as *UK Priority Habitat – Deciduous Woodland* is the woodland strip running along the southern edge of the A27 to the south-east. The woodland tree line to the southern edge of the site is not listed as such. With reference to Havant District Council's website (havant.gov.uk) there are no *Tree Preservation Order* trees listed within the site or in close proximity.

- 2.5 The southern edge of the site area is bordered with a mixed-species tree line of predominantly field maple and hawthorn. The tree line is likely to have been planted alongside the enlargement of the A27 dual carriageway. Along the western edge of the site area the development area is bordered by the adjacent petrol filling station. There are scattered trees and a mature mixed-species tree line running along this edge within the adjacent site of ash; birch; field maple; and hazel. The tree lined edge has becoming colonised with dense bramble scrub to this western edge of the site area. There is an over-mature oak tree located in this top corner of the paddock to the end of the tree line within the site boundary.
- 2.6 The northern edge of the site area is edged with an over-grown mixed-species hedge line of predominantly hawthorn and blackthorn. The hedgeline which characterizes the arable fields to the north would benefit from hard trimming to encourage dense regrowth. The centre of the site area is dominated by dense scrub vegetation surrounding the existing dry ditch running through the centre of the site area of predominantly blackthorn and elm scrub. The eastern edge of the site area is bordered with Emsworth Park which contains a mature mixed-species tree line running along the eastern edge of the site area of ash; horse chestnut; lime and oak.

Existing Site Vegetation

TL 01 - Mixed-Species Tree Line - *Acer campestre* (Field Maple); and *Crataegus monogyna* (Hawthorn)

- 2.7 A semi-mature mixed-species tree line to the southern site boundary overhangs the edge of the development area. The wooded tree belt along the northern edge of the A27 is dominated by hawthorn and field maple. The trees are very tightly spaced and are long tall and thin running as a dense woodland tree belt to the southern edge of the site area and along the northern edge of the A27.

T 02 and T03 - *Betula pendula* (Silver Birch)

- 2.8 These scattered birch trees are located within the adjacent petrol filling station. The trees have open well-rounded canopies with good tree form. T02 is the larger of the tree grouping and there is central heart rot through the east side of the tree bole to the base. T03 is the smaller of the tree grouping adjacent.

TL 04 - Boundary Tree Line - Acer campestre (Field Maple); Corylus avellana (Hazel); Fraxinus excelsior (Common Ash)

- 2.9 The tree line overhangs the western fenced site boundary by 3.0 – 4.0 metres approx. and is located within the adjacent petrol filling station. The tree line is semi-mature running along the western edge of the site area which overhangs the boundary to the development area. The wooded tree belt along the eastern edge of the petrol filling station is dominated by ash; field maple; and hazel. The trees are very tightly spaced and are long tall and thin running as a dense narrow tree belt to the western edge of the site area with the adjacent garage. The base of the tree line to the eastern edge within the site area has become dominated by dense scrub vegetation.

T 05 - Quercus robur (Common Oak)

- 2.10 An over-mature hedge line oak tree is located to the north-western corner of the site area located within the site and surrounded by existing hedge line vegetation to the north and adjacent tree belt to the west. There is significant dead wood within the tree canopy with rot to the central bole with exposed bark and heart rot to the base.

H 06 - Mixed-Species Native Boundary Hedge line; Crataegus monogyna (Hawthorn); Rosa canina (Dog Rose); Rubus fruticosus (Bramble); Prunus spinosa (Blackthorn)

- 2.11 The hedge line overhangs the site boundary by 3.0 m from the northern boundary fence line. The mature mixed-species native hedge line to the north-western edge of the site area has mature stems and root plate to the base. The hedge is extremely overgrown to the site edge. The hedge line has grown out over the development area and is long and leggy due to lack of routine management. The hedge is dominated by hawthorn and blackthorn and is encroached by dense scrub of bramble surrounding. The hedge would benefit from hard trimming to create a dense boundary feature.

SH 07 - Mixed-Species Dense Scrub Vegetation; Rubus fruticosus (Bramble); Prunus spinosa (Blackthorn)

- 2.12 The centre of the site area is dominated by a large encroaching mass of dense scrub vegetation surrounding the existing dry ditch feature which runs through the site area. The dense scrub is dominated by blackthorn and bramble with some elm scrub regenerated vegetation.

T 08 - Elm Scrub Vegetation - Ulmus glabra (Wych Elm)

- 2.13 There are standards of semi-mature elm scrub vegetation which have developed through the centre of the site area surrounding the existing dry ditch feature. The elm tree has central rot to the base of the tree bole where heart rot is visible. The tree is located in amongst the dense scrub of surrounding the dry ditch feature through the centre of the site area which has encroached the ditch and the site due to lack of management.

SH 09 and SH 10 - Dense Scrub Vegetation; Central Ditch Feature; Acer campestre (Field Maple); Crataegus monogyna (Hawthorn); Prunus spinosa (Blackthorn); Rosa canina (Dog Rose); Rubus fruticosus (Bramble); Ulmus glabra (Wych Elm)

- 2.14 Dense semi-mature scrub vegetation to the ditch feature encroaching upon the water course and the surrounding site area runs through the centre of the site. The dense scrub vegetation is dominated by blackthorn predominantly with regenerated elm and scrub encroachment by dense bramble.

H 11 - Mixed-Species Native Boundary Hedge line; Crataegus monogyna (Hawthorn); Rosa canina (Dog Rose); Rubus fruticosus (Bramble); Prunus spinosa (Blackthorn)

- 2.15 A mature mixed-species hedge line overhangs 7.0 m from the northern boundary fence line to the north-eastern edge of the site area. The hedge has mature stems and root plate to the base. The hedge line has grown out over the development area and is long and leggy due to lack of routine management. The hedge is dominated by hawthorn and blackthorn and is encroached by dense scrub of bramble surrounding. The hedge would benefit from hard trimming to create a dense boundary feature. The hedge feature creates a thicket to the edge of the site fence line.

SH 12 - Dense Scrub Vegetation; Eastern Water Course;***Crataegus monogyna (Hawthorn); Prunus spinosa (Blackthorn)***

- 2.16 There is dense semi-mature scrub vegetation to the western edge of the eastern water course feature encroaching upon the water course and the surrounding site area. The dense scrub vegetation is dominated by hawthorn and blackthorn predominantly and scrub encroachment by dense bramble.

T 13 and T 14 - Fraxinus excelsior (Common Ash)

- 2.17 These trees are located beyond the eastern edge of the site boundary within the adjacent park. Small semi-mature ash trees to the corner of the park, one of which appears to be dead.

T 15 - Tilia cordata (Small-leaved Lime)

- 2.18 A semi-mature small leaved lime tree is located beyond the eastern edge of the site boundary within the adjacent park. The tree is small with a well-rounded tree canopy.

T 16 - Fraxinus excelsior (Common Ash)

- 2.19 This tree is located beyond the eastern edge of the site boundary within the adjacent park; a small semi-mature Ash tree which is suckering from the base.

T 17 - Crataegus monogyna (Common Hawthorn);

- 2.20 A small semi-mature hawthorn tree is located beyond the eastern edge of the site boundary within the adjacent park.

T 18 - Aesculus hippocastanum spp. (Ornamental Horse Chestnut Tree)

- 2.21 Small semi-mature ornamental horse chestnut tree is located beyond the eastern edge of the site boundary within the adjacent park amongst the scattered tree grouping. The tree has rot and cracking to bark to the base of the tree on the western aspect of the bole.

T 19 - Fraxinus excelsior (Common Ash);

- 2.22 This ash tree is located beyond the eastern edge of the site boundary within the adjacent park. The tree is a tall, upright, and mature ash tree constrained by other mature trees running along the western edge of the existing public park and children's play area.

T 20 - Quercus robur (Common Oak)

- 2.23 This tree is located beyond the eastern edge of the site boundary within the adjacent park and is a mature tall and upright oak tree with some signs of dead wood within the tree canopy with no signs of rot to the base.

T 21 - Ulmus glabra (Wych Elm)

- 2.24 This small elm tree is located beyond the eastern edge of the site boundary within the adjacent park.

T 22 - Platanus x acerifolia (London Plane)

- 2.25 A mature tall and upright plane tree to western edge of the public park located beyond the eastern edge of the site boundary. The tree is constrained by the surrounding existing tree cover. There is evidence of some dead wood within the tree canopy.

T 23 - Quercus robur (Common Oak)

- 2.26 Mature oak tree wide spreading with low branching which is located beyond the eastern edge of the site boundary within the adjacent park.

T 24 - Tilia x europaea (Common Lime)

- 2.27 Semi-mature lime tree with wide-spreading arching branches located beyond the eastern edge of the site boundary within the adjacent park.

T 25 - Quercus cerris (Turkey Oak)

- 2.28 A mature oak tree with large cut leaf and hanging flowers / fruits; wide-spreading tree located beyond the eastern edge of the site boundary within the adjacent park.

T 26 - Acer platanoides (Norway Maple)

- 2.29 Semi-mature norway maple tree located beyond the eastern edge of the site boundary within the adjacent park.

T 27; T28; T29; and T30 - Quercus robur (Common Oak)

- 2.30 Mature oak trees, tall and wide spreading with signs of dead wood within the tree canopy located beyond the eastern edge of the site boundary within the adjacent park.

- 2.31 The existing trees and tree species on and surrounding the site have been identified and recorded with their tree conditions on; *LLD1726-ARB-SCH001-ETS – Existing Tree Schedule and Schedule of Tree Works*; and identified on the following drawings alongside their Tree Root Protection Areas (*RPA's*) and canopy spreads; *LLD1726-ARB-DWG-001-Tree Constrains Plan*; and *LLD1726-ARB-DWG-002 – Tree Retention and Protection Plan*.

3.0 DEVELOPMENT PROPOSAL

- 3.1 The development proposals include the construction of 44 no. residential properties within the site area with associated parking and private garden space. The site would be accessed from the south-east corner off Coldharbour Lane with a single-entry point into the site area. The access road includes a tabletop feature where the access point crosses the public right of way footpath running adjacent to the east of the site. To the eastern sector of the scheme a proposed SuDs flood attenuation system is proposed in the form of an embanked swale. Hard standing within the scheme is proposed to be tarmac surface treatments to the roads and pedestrian footpaths, with parking spaces proposed to be precast concrete blockwork to create a definition between the two hard surfaces.
- 3.2 The scheme has been designed to retain and protected the majority of the existing mature scattered trees and tree lines surrounding the site area to the site boundaries and the native mixed-species hedge lines to the northern edge of the site area with the adjacent arable landscape. Lizard Landscape Design and Ecology has provided a Landscape Masterplan (*Drawing no. LLD1726-LAN-FIG-010*) and Landscape Design Strategy (*Drawing no. LLD1726-LAN-REP-001*). The landscape design strategy proposes the implementation of native tree planting to mitigate against the loss of trees within the scheme and enhance the existing site boundaries. Areas of ornamental shrub planting, native understory shrub planting, and wildflower seeded areas area also proposed to enhance biodiversity within the scheme and enhance visual amenity.

4.0 ARBORICULTURAL IMPACT ASSESSMENT

Effects of Development Proposals on Existing Vegetation

- 4.1 The existing mature tree line to the southern edge of the development scheme is proposed to be retained and protected outside of the trees' root protection areas for the majority of the length of the tree line to the southern edge. There is a small section of the tree line which would be impacted by the proposed pedestrian footpath link to the nearby public right of way. This section of footpath would be implemented with a proposed no-dig construction technique over existing ground levels.
- 4.2 The dense scrub vegetation of bramble, blackthorn, and elm surrounding the existing dry ditch which has colonised and encroached across the site area is proposed to be removed throughout the centre of the site area and to the north-eastern and north-western corners of the site beneath the existing mature tree planting. The existing mixed-species hedge lines to the northern edge of the development area are proposed to be retained and protected within the scheme proposals but shall be hard-trimmed to 1.0 metres height in order to encourage dense regrowth. The hedge lines can be gapped up and reinforced within the final development landscape scheme.
- 4.3 The existing mature scattered trees to the eastern edge of the development area within Emsworth Park shall be retained and protected within the scheme proposals throughout the construction phase.

TL 01 - Mixed-Species Tree Line - *Acer campestre* (Field Maple); and *Crataegus monogyna* (Hawthorn)

- 4.4 A semi-mature mixed-species tree line to the southern site boundary overhangs the edge of the development area. The tree line shall be retained and protected within the scheme proposals and protected with tree protective fencing for the construction phase. The proposed short section of footpath to the southern edge of the proposed access road shall be implemented with a 'no-dig' construction technique above existing ground levels within the root protection areas of existing trees.

T 02 and T03 - Betula pendula (Silver Birch)

- 4.5 These scattered birch trees are located within adjacent petrol filling station. These trees outside of the site boundary shall be retained and protected within the scheme proposals and protected with tree protective fencing for the construction phase.

TL 04 - Boundary Tree Line - Acer campestre (Field Maple); Corylus avellana (Hazel); Fraxinus excelsior (Common Ash)

- 4.6 The tree line overhangs the western fenced site boundary by 3.0 – 4.0 metres approx. and is located within adjacent petrol filling station. The tree line is proposed to be removed of dense scrub vegetation of bramble to its base. The trees are proposed to be crown-reduced overall by 2.0 metres in order to open up the site area for the proposed residential garden areas to this western sector of the site area. The trees should also be crown-lifted where necessary to 3.0 metres height to allow for access during construction and also in operation within the final development landscape scheme. These trees outside of the site boundary shall be retained and protected within the scheme proposals and protected with tree protective fencing for the construction phase.

T 05 - Quercus robur (Common Oak)

- 4.7 An over-mature hedge line oak tree is located to the north-western corner of the site area located within the site and surrounded by existing hedge line vegetation to the north and adjacent tree belt to the west. This tree within the site boundary shall be retained and protected within the scheme proposals and protected with tree protective fencing for the construction phase. The tree should be crown-lifted where necessary to 3.0 metres height to allow for access during construction and also in operation within the final development landscape scheme. The tree contains dead wood within the tree canopy and would benefit from dead wood being removed.

H 06 - Mixed-Species Native Boundary Hedge line;***Crataegus monogyna (Hawthorn); Rosa canina (Dog Rose); Rubus fruticosus (Bramble); Prunus spinosa (Blackthorn)***

- 4.8 This hedge line overhangs the site boundary by 3.0 m from the northern boundary fence line. The hedge is extremely overgrown to the site edge. The hedge would benefit from hard trimming to create a dense boundary feature and is proposed to be hard trimmed to 1.0 metres height to encourage dense regrowth from the base. The hedgeline would benefit from gapping up and reinforcement within the final development landscape scheme.

SH 07 - Mixed-Species Dense Scrub Vegetation;***T 08 - Elm Scrub Vegetation - Ulmus glabra (Wych Elm)***

- 4.9 The hedgeline which runs along the northern edge of the site area where it runs across the top of this area of existing dense scrub vegetation should be retained and protected within the scheme proposals. This area of dense scrub which extends down from the northern site boundary is proposed to be removed through the centre of the site area.

SH 09 and SH 10 - Dense Scrub Vegetation; Central Ditch Feature

- 4.10 These areas of dense scrub are proposed to be removed through the centre of the site area.

H 11 - Mixed-Species Native Boundary Hedge line; Crataegus monogyna (Hawthorn); Rosa canina (Dog Rose); Rubus fruticosus (Bramble); Prunus spinosa (Blackthorn)

- 4.11 The hedge line overhangs the site boundary by 7.0 m from the northern boundary fence line. The hedge is extremely overgrown to the site edge. The hedge would benefit from hard trimming to create a dense boundary feature and is proposed to be hard trimmed to 1.0 metres height to encourage dense regrowth from the base. The hedgeline would benefit from gapping up and reinforcement within the final development landscape scheme.

SH 12 - Dense Scrub Vegetation; Eastern Water Course;***Crataegus monogyna (Hawthorn); Prunus spinosa (Blackthorn)***

- 4.12 These areas of dense scrub are proposed to be removed through the centre of the site area.

Emsworth Park – Mixed-Species Scattered Trees

- 4.13 The scattered trees listed below are all located beyond the eastern edge of the site boundary within the adjacent park. These trees outside the site boundary shall be retained and protected within the scheme proposals and protected with tree protective fencing for the construction phase;

- *T 13 and T 14 - Fraxinus excelsior (Common Ash);*
- *T 15 - Tilia cordata (Small-leaved Lime);*
- *T 16 - Fraxinus excelsior (Common Ash);*
- *T 17 - Crataegus monogyna (Common Hawthorn);*
- *T 18 - Aesculus hippocastanum spp. (Ornamental Horse Chestnut Tree);*
- *T 19 - Fraxinus excelsior (Common Ash);*
- *T 20 - Quercus robur (Common Oak);*
- *T 21 - Ulmus glabra (Wych Elm);*
- *T 22 - Platanus x acerifolia (London Plane);*
- *T 23 - Quercus robur (Common Oak);*
- *T 24 - Tilia x europaea (Common Lime);*
- *T 25 - Quercus cerris (Turkey Oak);*
- *T 26 - Acer platanoides (Norway Maple);*
- *T 27; T28; T29; and T30 - Quercus robur (Common Oak).*

Tree Protection Works

- 4.14 Works to be completed within but not directly affecting the trees calculated root protection areas shall be completed with ground protection and operation zones in place to protect the existing and remaining trees. Trees not under direct affect or impact from the development proposals shall have appropriate tree protective fencing in place prior to the commencement of development (*as indicated in LLD1726-ARB-DWG-02 – Tree Retention and Protection Plan*).
- 4.15 The development proposals would involve the following site operations in close proximity to the existing trees:
- *Contractor movements; site access and operations;*
 - *Storage and compound;*
 - *Plant, vehicle, and material cleaning;*
 - *Installation of construction elements; groundwork / 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

- 4.16 The existing vegetation encompasses scattered mature specimen native deciduous trees and dense scrub vegetation which has self-seeded itself around the existing structures.
- 4.17 The retained trees and measures for their protection have been indicated on the drawing; LLD1726-ARB-DWG-02 – *Tree Retention and Protection Plan*.

Disturbance to Tree Root Protection Areas

- 4.18 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.
- 4.19 Where tying-in is required for the proposed section of pedestrian footpath to the southern edge of the proposed access road limited excavation within RPAs of the existing tree line to the southern edge may be required by the contractor to enable construction of the proposed no-dig construction footpath access.
- 4.20 The affected mature trees grow as a woodland tree line to the southern edge of the site area for a short section. 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 however and should be undertaken using a manual excavation method following trial hole excavations in order to protect existing tree roots.
- 4.21 The existing mature native trees surrounding the site area are considered to contribute to the landscape character and setting of the existing site area with a mature landscape context to the paddock landscape; with the proposal to provide a diversity of new tree species replacing the existing poor-quality trees and dense scrub within the final development landscape scheme.

- 4.22 The extents of proposed no-dig construction required for the proposed pedestrian footpath has been indicated on the drawing; *LLD1389-ARB-DWG-002 – Tree Retention and Protection Plan*.

Development Proposals - Arboricultural Impact

- 4.23 The majority of the existing trees within the site area and to the site boundaries shall be protected with tree protective fencing as specified below and as indicated on the Tree Retention and Protection Plan. The tree protection works and tree surgery specification for each tree is scheduled below;
- 4.24 TL 01 - Mixed-Species Tree Line - *Acer campestre* (Field Maple); and *Crataegus monogyna* (Hawthorn)
- *Tree Protection Measures; tree protective fencing proposed to the northern edge of the tree line and tree root protection area;*
 - *Tree Protection Measures; short section of footpath to the southern edge of the access road shall be implemented with a no-dig construction technique above existing ground levels within the root protection areas of existing trees.*
- 4.25 T 02 and T03 - *Betula pendula* (Silver Birch)
- *Tree Protection Measures; Tree protective fencing proposed to the eastern edge of the trees and tree root protection areas.*
- 4.26 TL 04 - Boundary Tree Line
- *Tree Protection Measures; Tree protective fencing proposed to the eastern edge of the trees and tree root protection areas;*
 - *Tree Surgery Works; removal of dense scrub vegetation of bramble to the base;*
 - *Tree Surgery Works; proposed to be crown-reduced overall by 2.0 metres to the eastern canopy aspect of the tree;*
 - *Tree Surgery Works; proposed be crown-lifted where necessary to 3.0 metres height to allow for access during construction.*

4.27 T 05 – *Quercus robur*

- *Tree Protection Measures; Tree protective fencing proposed to the south-eastern edge of the tree and tree root protection area;*
- *Tree Surgery Works; tree proposed to be crown-reduced overall by 2.0 metres to the south-eastern canopy aspect of the tree;*
- *Tree Surgery Works; proposed be crown-lifted where necessary to 3.0 metres height to allow for access during construction;*
- *Tree Surgery Works; tree to be cleared of dead wood within the tree canopy.*

4.28 H 06 - Mixed-Species Native Boundary Hedge line;

- *Tree Protection Measures; Tree protective fencing proposed to the southern eastern edge of the hedge and hedge root protection area;*
- *Tree Surgery Works; Hedgeline to be hard trimmed to 1.0 metres height to encourage dense regrowth;*
- *Landscape Measures; Hedgeline to be gapped up and reinforced within the final development landscape scheme;*
- *Tree Surgery Works; Hedgeline to be hard trimmed to 1.0 metres height to encourage dense regrowth.*

4.29 SH 07 - Mixed-Species Dense Scrub Vegetation; T 08 - Elm Scrub Vegetation - *Ulmus glabra* (Wych Elm)

- *Tree Protection Measures; section of existing hedgeline running along the northern edge of the site area is proposed to be retained and protected within the final development landscape scheme; Tree protective fencing proposed to the southern edge of the existing hedge and hedge root protection area;*
- *Tree Surgery Works; Dense scrub vegetation proposed to be removed.*

4.30 SH 09 and SH 10 - Dense Scrub Vegetation; Central Ditch Feature

- *Tree Surgery Works; Dense scrub vegetation proposed to be removed.*

- 4.31 H 11 - Mixed-Species Native Boundary Hedge line;
- *Tree Protection Measures; Tree protective fencing proposed to the southern edge of the hedge and hedge root protection area;*
 - *Tree Surgery Works; Hedgeline to be hard trimmed to 1.0 metres height to encourage dense regrowth;*
 - *Landscape Measures; Hedgeline to be gapped up and reinforced within the final development landscape scheme.*
- 4.32 SH 12 - Dense Scrub Vegetation; Eastern Water Course
- *Tree Surgery Works; Dense scrub vegetation proposed to be removed.*
- 4.33 Emsworth Park – Mixed-Species Scattered Trees
- *Tree Protection Measures; Tree protective fencing proposed to the western edge of the existing tree line and tree root protection areas.*

Construction in Proximity to Existing Trees

- 4.34 The proposed development of the existing site area in close proximity to the mature ‘moderate’ quality scattered trees (*Category B*) to the northern-western and eastern site boundaries and the mixed-species tree line to the southern edge of ‘low’ quality trees (*Category C*). The resulting proximity of new structures and new surfaces is likely to result in pressures on the existing trees. This could include:
- *Ongoing need to prune the canopy back tree canopies to prevent overhanging to proposed residential garden areas and proposed dwellings building and facilitate maintenance of the building elevations; and access to footpaths / access road;*
 - *No-dig construction technique and manual excavation zones during construction to protect retained tree roots;*
 - *Altered soil conditions including surfacing and installation of foundations.*

- 4.35 The 'moderate' and 'low' quality trees on site are likely to contribute to the visual amenity on site and are likely to have some value for local wildlife, providing food and shelter. It is apparent however, that in some cases the retention of these trees may not be feasible due to the proposed development layout running across the centre of the site area. All existing trees deemed not suitable for retention have been discussed in the subsequent paragraphs and indicated on the drawings LLD1389-ARB-DWG-002 – *Tree Retention and Protection Plan*.

Tree Pruning, Canopy Reduction or Lifting

- 4.36 The mature overgrown hedge lines and trees surrounding the site area may potentially limit or impede movement of vehicles and plant within the site during construction or create conflicts with the proposed development and use of the site area post-construction. The following elements of tree surgery works have been proposed as part of the tree works package;
- *TL 04 - Boundary Tree Line; removal of dense scrub vegetation of bramble to the base; tree line proposed to be crown-reduced overall by 2.0 metres to the eastern canopy aspect of the tree; tree line proposed be crown-lifted where necessary to 3.0 metres height to allow for access during construction;*
 - *T 05 – Quercus robur; tree proposed to be crown-reduced overall by 2.0 metres to the south-eastern canopy aspect of the tree; proposed be crown-lifted where necessary to 3.0 metres height to allow for access during construction; tree to be cleared of dead wood within the tree canopy;*
 - *H 06 - Mixed-Species Native Boundary Hedge line; Hedgeline to be hard-trimmed to 1.0 metres height to encourage dense regrowth; Hedgeline to be gapped up and reinforced within the final development landscape scheme;*
 - *SH 07 - Mixed-Species Dense Scrub Vegetation; T 08 - Elm Scrub Vegetation - Ulmus glabra (Wych Elm); section of existing hedgeline running along the northern edge of the site area is proposed to be retained and protected within the final development landscape scheme; hedgeline to be hard-trimmed to 1.0 metres height to encourage dense regrowth; Hedgeline to be gapped up and reinforced within the final development landscape scheme;*

- *H 11 - Mixed-Species Native Boundary Hedge line; Hedgeline to be hard-trimmed to 1.0 metres height to encourage dense regrowth.*

Tree / Vegetation Removal

4.37 A low number of existing trees and other woody vegetation have been identified to be removed in order to accommodate the specific development proposals. The majority of the existing trees proposed for removal are of 'low' quality – *Category C* trees as defined within the tree survey. These include;

- *SH 07 - Mixed-Species Dense Scrub Vegetation; T 08 - Elm Scrub Vegetation - Ulmus glabra (Wych Elm); Dense scrub vegetation proposed to be removed;*
- *SH 09 and SH 10 - Dense Scrub Vegetation; Central Ditch Feature; Tree Surgery Works; Dense scrub vegetation proposed to be removed;*
- *SH 12 - Dense Scrub Vegetation; Eastern Water Course; Dense scrub vegetation proposed to be removed.*

4.38 Trees identified for removal have been indicated on the drawings *LLD1426-ARB-DWG-002 – Tree Retention and Protection Plan*.

Impact of Loss of Existing Trees

4.39 The existing tree and scrub cover within the site area proposed for removal is identified as trees of 'low' quality and has self-seeded and regenerated to the central dry ditch feature and to the north-western and north-eastern site boundaries.

4.40 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 proposed residential 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.*

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 *LLD1426-ARB-DWG-002 – Tree Retention and Protection Plan*.

Figure 2 Default specification for protective barrier

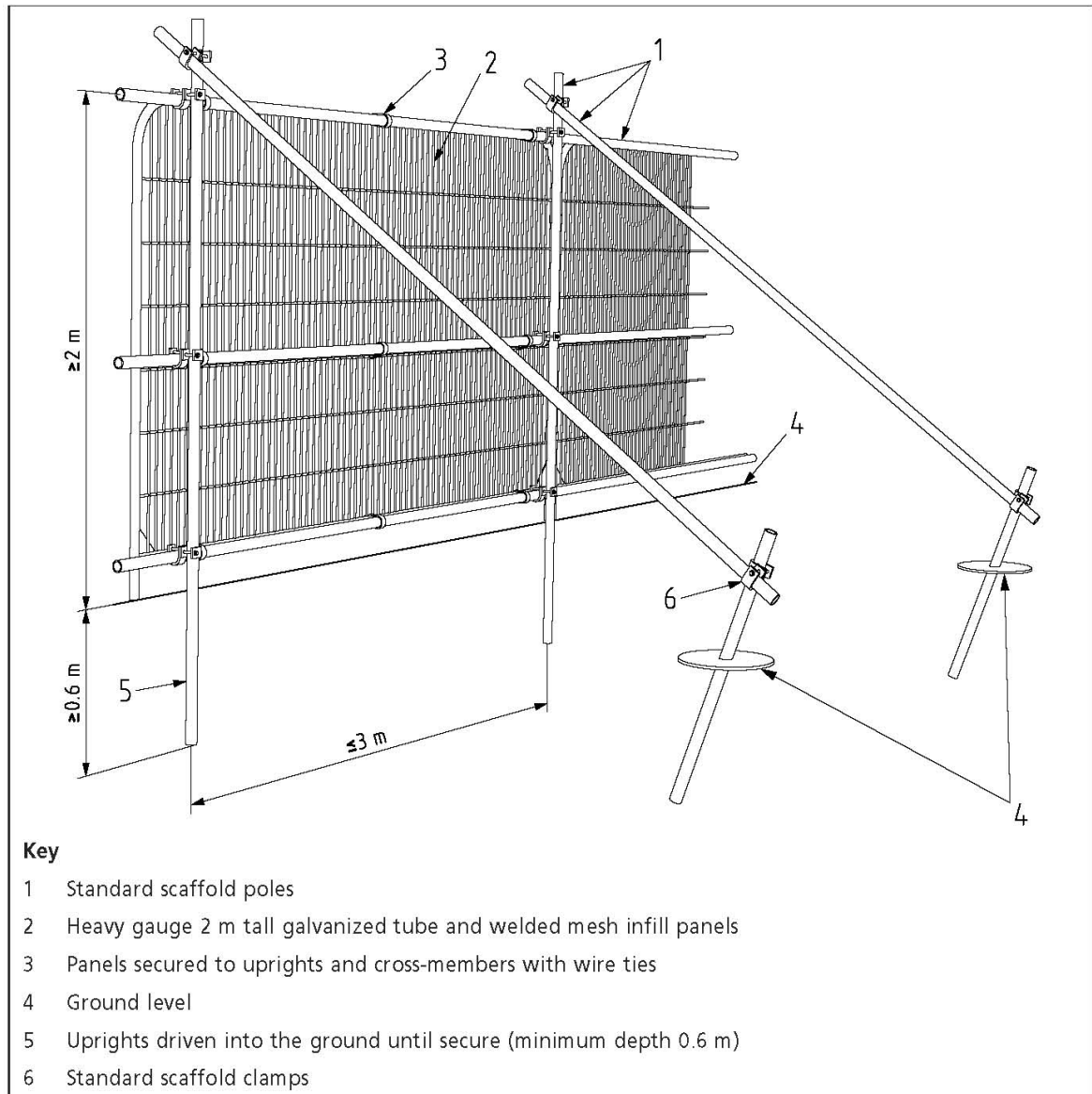
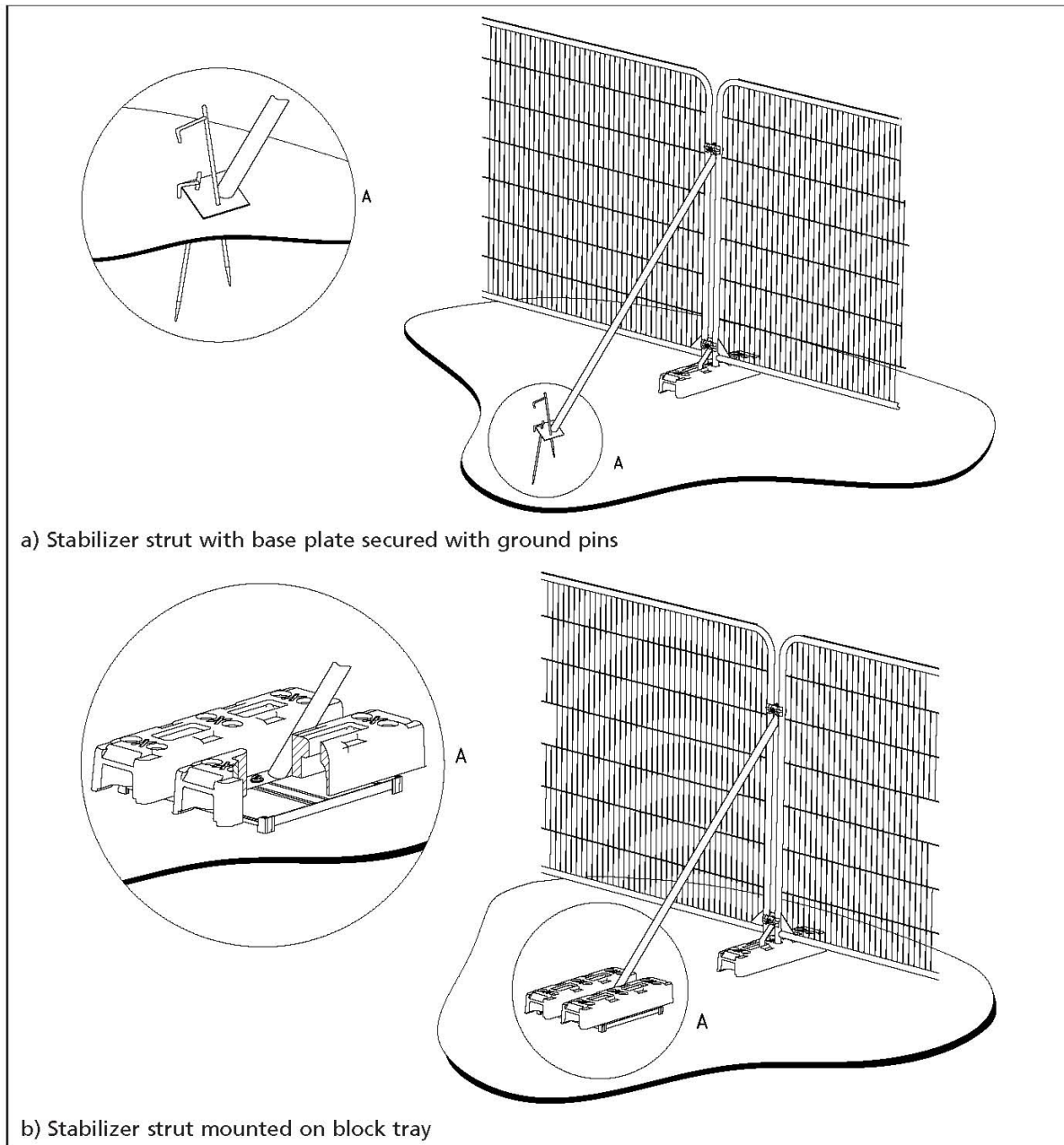


Figure 3 Examples of above-ground stabilizing systems



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- 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.

- 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.

Tree Protection Zone - No-Dig Construction - Proposed Footpath

- 5.15 A 'no-dig' Construction method shall be employed over existing ground levels and the root plate of existing trees in order to avoid damage to existing tree roots and localised compaction of subsoil within the tree root protection areas of trees TL 01 – mixed-species tree line running along the southern edge of the site area.
- 5.16 Existing surfacing materials shall be left undisturbed and retained during the construction period for as long as physically possible in order to protect the tree root protection area of the existing trees to be retained; existing soft ground layers; grass sward and loose topsoil shall be removed carefully by hand within the existing tree root protection areas.
- 5.17 A ground stabilising geo-mesh (*'TDP SN20 GeoGrid' or equal and approved*), shall be rolled out over the existing ground level and evenly covered with a No Fines - Open Graded Aggregate (*in accordance with Highways Agency Specification; Clause 805 (Type 3) or equal and approved.*) The granular fill shall be incorporated within a 3-dimensional GeoCell (*Terram Geocell 250/100 or equal and approved*) and shall ensure a minimum supportive construction depth of 100 mm. A geo-textile filter membrane is to be laid over the granular fill construction (*Geotextile filter membrane to be TDP 115 Non-woven Geotextile Fabric or equal and approved.*)
- 5.18 A permeable system and construction method shall be installed over the prepared sub-base layers. A bedding layer of crushed aggregate (*to BS EN13242; range size; 4 - 14 mm*) is to be laid level and compacted above the Geotextile filter membrane to a depth of 25 mm. A permeable top layer, which could consist of permeable tarmacadam, resin-bound gravel or permeable block-paving shall then be installed above the bedding layer to create the access driveways.

Services in Proximity to Existing Trees

- 5.19 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.

- 5.20 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'*.
- 5.21 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.
- 5.22 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

- 5.23 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.
- 5.24 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.
- 5.25 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

- 5.26 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

- 5.27 All existing trees to be designated for removal are to be removed in accordance with the *LLD1726-ARB-DWG-002 - 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.
- 5.28 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 reinstalled 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.
- 5.29 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.
- 5.30 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.



L I Z A R D

Landscape Design and Ecology

The Old Bank, 34 South Street, Tarring, Worthing, West Sussex, BN14 7LH
T. 01903 216033 E. lizard.landscape@btconnect.com W. lizardlandscapeecology.com

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 01 - TL01 – Mixed-species deciduous tree line to the southern site boundary to the eastern end.



Photograph No. 02 - TL01 – Mixed-species deciduous tree line to the southern site boundary to the western end.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 03 - TL01 – Mixed-species deciduous tree line to the southern site boundary viewed from the northern end of the development site area.



Photograph No. 04 - TL02 – *Betula pendula* (*Silver Birch*) located within the adjacent petrol filling station to the western site boundary.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 05 - TL03 – *Betula pendula* (*Silver Birch*) located within the adjacent petrol filling station to the western site boundary.



Photograph No. 06 - TL04 – Mixed-Species Boundary Tree Line located within the adjacent petrol filling station to the western site boundary.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 07 - TL04 – Mixed-Species Boundary Tree Line located within the adjacent petrol filling station to the western site boundary viewed across the site area from the east.



Photograph No. 08 - TL04 – Mixed-Species Boundary Tree Line located within the adjacent petrol filling station to the western site boundary with dense understorey scrub vegetation to the base.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 09 - T05 – *Quercus robur* (*Common Oak*) – oak tree located to the top north-western corner of the development site area.



Photograph No. 10 - H06 – Mixed-Species Native Boundary Hedge line running along the northern boundary of the site area to the north-western corner.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 11 - SH07 and SH09 – Mixed-Species Dense Scrub Vegetation running through the centre of the site area surrounding the existing dry ditch feature.



Photograph No. 12 - T08 – Elm Scrub Vegetation (*Ulmus glabra*) to the centre of the site area.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 13 - SH09 and SH10 – Mixed-Species Dense Scrub Vegetation running through the centre of the site area surrounding the existing dry ditch feature.



Photograph No. 14 - SH10 – Mixed-Species Dense Scrub Vegetation running through the centre of the site area surrounding the existing dry ditch feature.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 15 - H11 – Mixed-Species Native Boundary Hedge line running along the northern boundary of the site area to the north-eastern corner.



Photograph No. 16 - T13 and T14 – *Fraxinus excelsior* (*Common Ash*) to the eastern site boundary within the adjacent recreation ground.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 17 - T15 – *Tilia cordata* (*Small-Leaved Lime*) to the eastern site boundary within the adjacent recreation ground.



Photograph No. 18 - T16; T17; and T18 to the eastern site boundary within the adjacent recreation ground. Mixed-species mature tree planting of Ash; Hawthorn; and Horse Chestnut.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 19 - T19 - *Fraxinus excelsior* (*Common Ash*) to the eastern site boundary within the adjacent recreation ground.



Photograph No.20 - T20 - *Quercus robur* (*Common Oak*) to the eastern site edge within the adjacent recreation ground.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 21 - T27; T28; T29; and T30 - *Quercus robur* (*Common Oak*) to the eastern site edge within the adjacent recreation ground.