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Landscape Design and Ecology

# ARBORICULTURAL IMPACT ASSESSMENT & METHOD STATEMENT

## Southdownview Road, Worthing, West Sussex

On Behalf of: HNW Architects

| | | | | |
|---|---|---|---|---|
| **Client:** | HNW Architects | | | |
| **Project:** | Southdownview Road, Worthing, West Sussex | | | |
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## 1.0 INTRODUCTION

1.1 Lizard Landscape Design and Ecology (LLDE) has been commissioned by HNW Architects to undertake an Arboricultural Impact Assessment & Method Statement for the proposed development at Southdownview Road, Worthing, West Sussex, (*located around central grid reference: TQ 1567 0434 – hereafter 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 2nd of January 2025– this survey information is presented in Appendix A and summarised in section 1.8 below.

1.4 This report, and accompanying Tree Schedule and Tree Retention and Protection 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 covers an area of c. 0.93ha and consists of an irregularly shaped plot comprising a surfaced car park to the rear of a residential building. There are several narrow strips of grassland surrounding the footprint of a former building and along an elevation change in the centre of the site. The site is included within East Worthing Industrial Estate and Broadwater, Business Park, as are the neighbouring business and commercial premises.

### Surrounding Landscape

1.6 The site is situated within the urbanised area of East Worthing. East Worthing Industrial Estate forms the immediate surrounding area to the north and east. The landscape then transitions into agricultural fields and hedgerow boundaries. The area to the west and south of the site is defined as the urban centre of Worthing, which is dominated by residential houses and gardens. East Worthing train station lies c. 600m southeast.

### Existing Site Vegetation

1.7 A narrow strip of trees is present to the northwestern and western boundaries of the site, this is dominated by mature willow species *Salix sp*, which are all in fair to good condition. Other species present here are cherry species *Prunus sp*, birch species *Betula sp*, black walnut *Juglans regia*, *Acer campestre* field maple, and *Aesculus hippocastanum* horse chestnut, all of which are considered to be in fair to good condition. There is also one *Quercus rubra* red oak, in good condition, and various younger *Alnus glutinosa* common alder which are considered lower value.

1.8 There are several hedgerows present along the site margins, in addition to a shallow ditch which forms the ownership boundary to the northeast. The main body of the site was dominated by a hard-standing parking area, with small parcels of species-poor grassland which was considered to be a habitat of very low ecological value.

1.9 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 | 12 | 0 | 0 | 12 |
| C | 7 | 4 | 3 | 14 |
| U | 2 | 0 | 0 | 2 |

### Development Proposals

1.10 This application seeks consent for the: Construction of 3no. buildings providing 11no. flexible industrial units comprising light industrial (Class E(g)) and storage/distribution (Class B8) with associated car parking and landscaping.

## 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 TRPP in Appendix B.

***Table No. 03 – Trees and Hedges Proposed for Removal***

| BS Category | Tree/Group/Hedge Numbers | Total |
|---|---|---|
| **B** | **T10** | **1** |
| **C** | **H02, H03, TG05, T19, T27, H28** | **6** |
| **U** | **T04** | **1** |

2.3 **H03** - Mixed Species Ornamental Hedgerow; C; is a partial removal of 16m2 of ornamental hedgerow.

2.4 **TG05** - *Prunus sp*; C, is a partial removal of one tree from the group.

2.5 The trees listed above in *Table 03* will need to be removed to accommodate the development proposals.

2.6 Category U trees may have existing or potential conservation value desirable to preserve, such as standing deadwood valuable for ecology, and as such not all category U trees are proposed for removal.

2.7 **T04 –** *S, nigra*; U, RPA min. 3.9 m, is proposed for removal and the arisings from its removal will be used to construct a log pile in the nearby woody habitats.

2.8 **T17** – *A, glutinosa*; U, RPA min. 1.5 m; is not proposed for removal as it is not impacted by the development and has been assessed as very low risk in terms of health and safety.

**Tree Pruning, Canopy Reduction, or Lifting**

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

***Table No. 04 – Tree Surgery Works***

| Ref. Number | Category | Description of Works |
|---|---|---|
| **T06** | **B** | T06- The western aspect will require crown lifting to provide a minimum of 3m long-term clearance. The southern aspect will require a reduction of 2m to the southern aspect to provide clearance from the unit. |
| **T07** | **B** | T07- The southern aspect will require a reduction of 1.4m to provide long-term clearance from the unit. |
| **T11** | **B** | T11- It is recommended that the crown is pollarded and allowed to regenerate. This recommendation is considered necessary as there will be a significant RPA incursion which will involve an amount of root pruning. |
| **T12** | **B** | T12- The southwestern aspect will require crown lifting to provide a minimum of 3m long-term clearance from the ground. |
| **T15** | **B** | T15- The southern aspect will need to be crown-raised to provide long-term clearance of 3m from the ground. |
| **T16** | **B** | T16- The southern and southwestern aspects will need to be crown-raised to provide long-term clearance of 3m from the ground. |
| **T18** | **B** | T18- The southern and southwestern aspects will need to be crown raised to provide long-term clearance of 3m from the ground |
| **T23** | **B** | T23- will require the southern aspect of the crown to be reduced by 1.0m. |
| **TG25** | **C** | TG25- the most western tree in the group will require the southwestern aspect of the crown to be reduced by 1.0m. |

**Construction access and storage**

2.10 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.

2.11 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**

2.12 The RPAs of several trees have been recalculated to form more accurate asymmetric RPAs, this has been appropriate due to the following factors; due to the long-term present of the existing hard-standing and where trees from the *Salicaceae* family are concerned, the hydrophilic habitat of this family would have caused the roots to be present in significantly higher densities and spreads to the north and northwest, which is moving towards the stream.

2.13 Trees with calculated asymmetric RPAs are as follows; **T06, T07, T15, T16 and T18.**

2.14 These predictions are in line with the recommendations from BS 5837-2012_Trees in relation to design, demolition and construction, *sections **4.6.2 and 4.6.3.***

2.15 ***4.6.2;** The RPA for each tree should initially be plotted as a circle centred on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution. **4.6.3** Any deviation in the RPA from the original circular plot should take account of the following factors whilst still providing adequate protection for the root system:*

- *a) the morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus);*
- *b) topography and drainage;*

- *c) the soil type and structure;*
- *d) the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.*

2.16 The vast majority of trees on site and to the boundaries of the site are being retained and will be protected using Tree Protective Barriers to prevent any incursion into the root protection area (RPA). A number of trees however will require enabling works and/or an operation zone within their RPA's. Trees which would be impacted are detailed below:

2.17 The remaining section of **H03 (C)** shall be impacted by the removal of the existing hardstanding within the RPA and potentially by the required excavations to install a short drainage run. **TG05 (C), T06 (B), T07 (B), T11 (B), T15 (B) and T16 (B),** shall be impacted by the removal of the existing hardstanding and replacement of new areas of hardstanding within the RPAs and there will be further impacts where there are additional excavations into the perimeter of the bank edge.

2.18 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 tree and potential soil contamination. Collectively these impacts can cause a significant loss in overall vitality possibly causing the decline or the death of the tree. To minimise impacts, the Tree Protection Barrier will be installed in a Primary Location to establish a root protection zone to prevent damage during demolition of the hard surfacing. Entry into these areas will only be permitted under Arboricultural Supervision only. After the demolition work has taken place the tree protection fencing must be installed in the final location.

2.19 The ground protection measures, as detailed in the below Arboricultural Method Statement shall then be installed, and these will 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 complete the ground protection can be removed. The location of required ground protection measures are shown in Appendix B.

2.20 All Tree Protection and Tree Protection Barriers are 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.

**Demolition within Root Protection Areas**

2.21 The RPAs of the following trees and hedgerow sections will require the removal of existing hard surfaces within them; the remaining section of **H03 (C)**, **TG05 (C), T06 (B), T07 (B), T11 (B), T15 (B) and T16 (B),** have potential to be impacted by the removal of the existing hardstanding within the RPAs and could be disturbed through the removal of existing hard surfaces using inappropriate methods.

2.22 The removal of 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 and the use of ground protection measures where required shall minimise harm to these trees and ensure their retention. A Limited Manual Excavation / Demolition Zone shall be implemented, in accordance with BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'. The removal of the hard standing and excavations in this area of the site shall be undertaken with due care with handheld tools under Arboricultural Supervision only. Entry into the root protection zone areas will only be permitted under Arboricultural Supervision. It is proposed to then carefully break up surfaces under arboricultural supervision, whereupon any subbase or other such materials below will be manually dug out where necessary.

2.23 Where any roots of trees to be retained are exposed, these will be pruned back by the supervising arboricultural consultant. Due to the recalculated asymmetric RPAs, it is expected that any root pruning has been minimised. Areas of manual excavation are shown in Appendix B.

**New Hard Surfaces Within Root Protection Areas**

2.24 The proposals shall require the construction of new hard surfaces within the RPAs of trees **H03 (C)**, **TG05 (C), T06 (B), T07 (B), T11 (B), T15 (B) and T16 (B).**

2.25 The RPA's of the above trees shall be left undisturbed for as long as possible during the construction period in order to protect the tree-rooting zone. All tree protection fencing should stay in situ at the edge of the RPA for as long as practical, and should only be repositioned when works to install the new hard surface are to begin. Additional ground protection may be required at this point, as shown on the TRPP in Appendix B. When construction work is complete, the ground protection can be removed.

2.26 Once the small areas of manual excavations have been completed, the construction of parking bays shall take place. As the tree roots have been pruned out of the area there is not a requirement to install a load-bearing permeable system installing the new hard surfacing. However, the installation of permeable hard surfacing near the bank to the stream would be considered desirable.

**Building Construction within Root Protection Area's**

2.27 With the current proposals, there is no requirement for building construction within the RPAs of retained trees.

**Installation of services**

2.28 There will be potential significant negative impacts to multiple high-quality trees when it comes to the installation of services due to the proximity of proposed dwellings and gardens to trees and tree groups. Trenching will not be possible without significant negative impacts and disturbance. All services installation will need to avoid RPAs as this normally involves an amount of trenching. Should any service installation be required in the RPA a specialist method statement would need to be provided.

2.29 It is proposed for a section of drainage run to be installed within the RPAs of **T21 (C),** **T22 (C),** and at the perimeter of **T23 (C).** Entry into this Tree protection area will only be permitted under supervision. Due to the relatively small change in ground leaves in this area and the short length of the run the option of directional drilling is considered not practical on this occasion. A Limited Manual Excavation Zone shall be implemented, in accordance with BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'. The excavations in this area of the site to install the drainage run shall be undertaken with due care with handheld tools under Arboricultural Supervision only. Trial trenches will be dug under supervision, small diameter roots can be pruned, and larger diameter roots will need to be retained and protected, they will be wrapped in dry hessian for further protection. The drainage run will then be threaded under the retained roots and carefully backfilled to complete the installation. Minor adjustments will need to be made to the location of the pipe to further minimise impacts to the trees listed above.

**Future Pressures to Retained Trees and Hedges**

2.30 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.

2.31 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.

2.32 There will be moderate pressures to prune back or lift the canopy of the following trees; The southern and western aspects of **TG05 (C),** the southern aspects of **T06 (B)** and **T07 (B),** the southwestern aspects of **T12 (B), T15 (B)** and **T16 (B).** Also, the southern aspect of **T23 (B)** and **t**he southern and western aspects of **TG05 (C).**

2.33 There will be minor pressures to prune back the spread of new growth on a bi-annual basis to prevent intrusion into the proposed footpaths and roadway areas. The impacts of these pressures however shall be negligible.

**Tree and Hedgerow Loss Mitigation Measures**

2.34 It is recommended that a scheme of soft landscaping is submitted, 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.

2.35 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.

2.36 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.

**Conclusion**

2.37 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 installed and any ground protection 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 AMS and TTP 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 (Appendix B). All tree work and 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 clearly marked on site with white paint. 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.

**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**

3.5 All tree work as detailed within the Tree Retention and Protection Plan 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.

3.6 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.

3.7 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.

3.8 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.

3.9 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.

3.10 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**

3.11 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.

3.12 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.

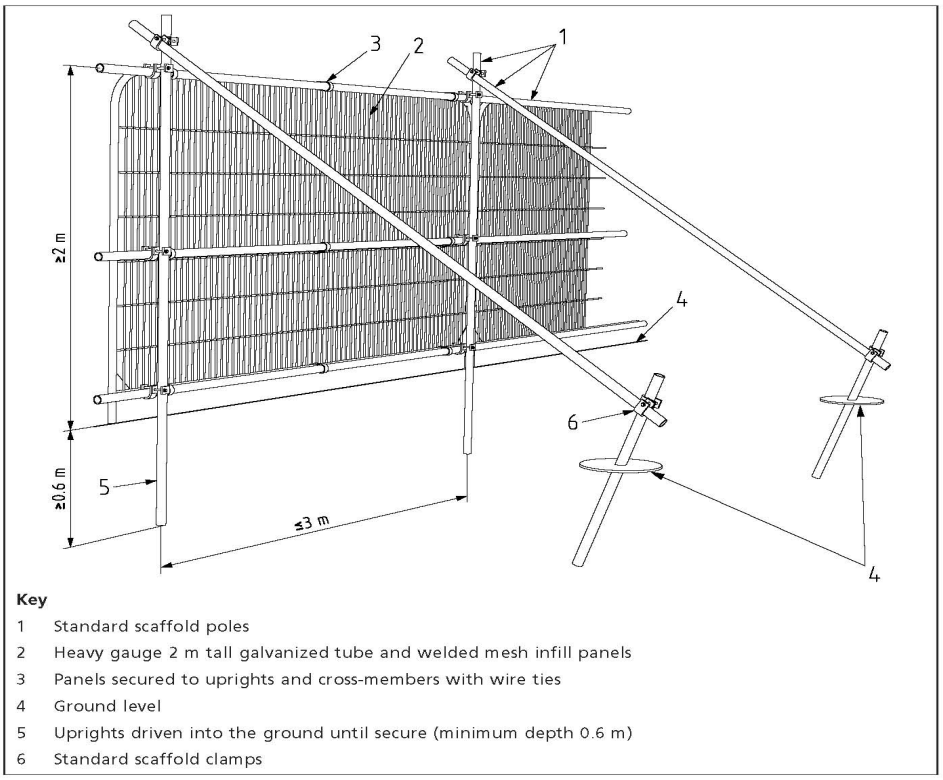
**Tree Protection Fencing**

3.13 All trees to be retained on site shall be protected with barriers installed at the location as shown in the TRPP in Appendix B. The barrier shall be installed, protected and maintained during the main works by the appointed contractor.

3.14 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'*.

3.15 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**

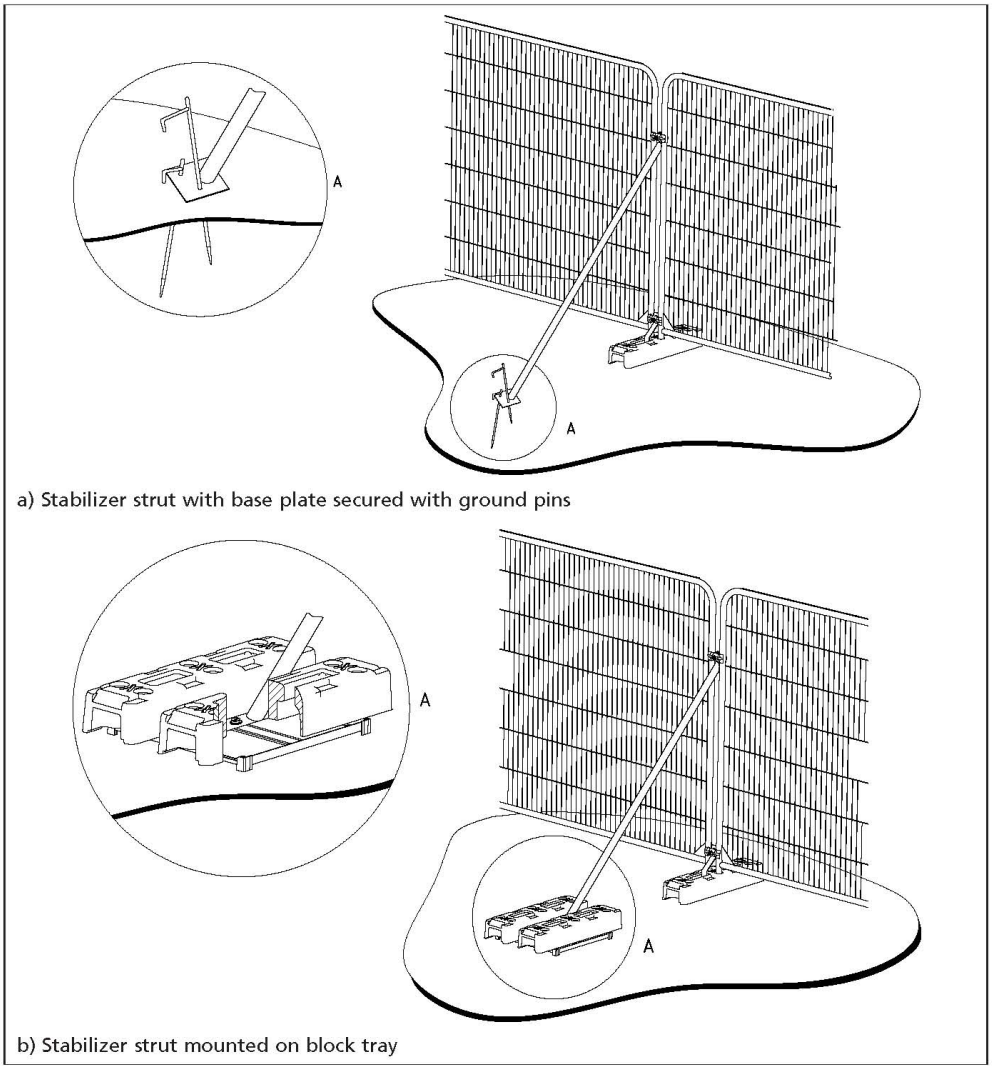



**Key**

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

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




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

3.17 Once installed the protection fencing will be inspected by the Project Arboriculturalist before any construction works begin;

3.18 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.

3.19 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.

**Site Compound, Haulage Routes and Car Parking**

3.20 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.

**Protection and Retention of Existing Trees and Habitats**

3.21 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.

3.22 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**

3.23 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 on the TRPP. The ground protection measures should be accurately laid out by a surveyor, and implemented before the main construction works.

3.24 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.

3.25 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 Appendix 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**

3.26 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.

3.27 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 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**

3.28 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.

3.29 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.

3.30 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.

**New Hard surfacing within Root Protection Areas**

3.31 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.

3.32 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.

3.33 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.

3.34 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.

3.35 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.

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

3.37 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**

3.38 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.

3.39 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'*.

3.40 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.

3.41 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**

3.42 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**

3.43 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.

3.44 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.

3.45 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**

3.46 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.

3.47 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**

3.48 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**

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

3.50 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.

3.51 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.

3.52 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**

3.53 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.

3.54 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. Photographic evidence shall be taken at each stage such that a final completion report can be provided.

***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**

LIZARD
Landscape Design and Ecology
The Old Bank, 34 South Street, Tarring, Worthing, West Sussex, BN14 7LH
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# EXISTING TREE SCHEDULE

## Southdownview Road, Worthing, West Sussex

## HNW Architects

| | |
|---|---|
| Prepared | GO |
| Approved | KM |
| Date | 15/01/2025 |
| Project Reference | LLD-3395-ARB-SCH |
| Revision | 2 |
| Status | PLANNING |

**Jan-25**

| *Tree No.* | *Species* | *Diameter @1.5m* | *Height (approx.)* | *Spread (approx.)* | *Age* | *Condition/Preliminary Recommendations* | *Category* | *Status* |
|---|---|---|---|---|---|---|---|---|
| T 01 | *Acer campestre*<br>(Field Maple);<br>**(4.5m Radius of nominal circle; RPA 64m²)** | 353 mm | 6.0 m<br>Clear Stem Height<br>1.5m W | N: 3.0 m<br>E: 3.0 m<br>S: 3.0 m<br>W: 3.5 m | Early Mature<br>Estimated Remaining Contribution<br>20 + Years | An off site tree. Located at entrance to carpark. No obvious defects. Normal vitality. | B<br>1 | **Retain** |
| H 02 | Mixed Species Ornamental Hedgerow;<br>**(1.2m Radius of nominal circle; RPA 5m²)** | 80 mm | 2.0 m<br>Clear Stem Height<br>0.0 m | N: 0.5 m<br>E: 0.5 m<br>S: 0.5 m<br>W: 0.5 m | Mature<br>Estimated Remaining Contribution<br>10 + Years | Species included are Pyracantha and Cotoneaster. Boundary hedge to the south west of the site. Small areas of dead wood. Ivy ingress throughout. Normal vitality for the majority. | C<br>1 | **Remove** |
| H 03 | Mixed Species Ornamental Hedgerow;<br>**(1.8m Radius of nominal circle; RPA 10m²)** | 127 mm | 2.5m<br>Clear Stem Height<br>0.0 m | N: 0.5 m<br>E: 0.5 m<br>S: 0.5 m<br>W: 0.5 m | Mature<br>Estimated Remaining Contribution<br>10 + Years | Species include Rhus typhinus (Staghorn Sumac) and Berberis growing as a group with gaps on the northern boundary. The Sumac is gradually spreading eastwards. Normal vitality with minor deadwood.<br>***Recommendations; a part removal of a 16m section will be required. | C<br>1 | **Partial Retain / Partial Remove** |
| T 04 | *Sambucus nigra*<br>(Common Elder);<br>**(3.9m Radius of nominal circle; RPA 48m²)** | 318 mm | 4.0 m<br>Clear Stem Height<br>1.5m E | N: 1.5 m<br>E: 1.5 m<br>S: 1.5 m<br>W: 1.5 m | Over-Mature<br>Estimated Remaining Contribution<br><10 Years | Sparse crown with dieback. Major ivy ingress. Major deadwood. Sumac saplings surrounding.<br>***Recommendations; not suitable for long term retention. | U | **Remove** |

| *Tree No.* | *Species* | *Diameter @1.5m* | *Height (approx.)* | *Spread (approx.)* | *Age* | *Condition/Preliminary Recommendations* | *Category* | *Status* |
|---|---|---|---|---|---|---|---|---|
| TG 05 | *Prunus sp.*<br>(Cherry sp.)<br>**(3.6m Radius of nominal circle; RPA 41m²)** | 286 mm<br>Average | 6.0 m<br>Clear Stem Height<br>1m W | N: 2.0 m<br>E: 2.0 m<br>S: 2.0 m<br>W: 3.0 m | Mature<br>Estimated Remaining Contribution<br>10 + Years | Group of six small trees with major ivy ingress. Normal vitality. Sumac saplings around the base.<br>***Recommendations; one tree from the group will require removal. | C<br>2 | **Partial Retain / Partial Remove** |
| T 06 | *Salix sp.*<br>(Willow sp.);<br>**(8.1m Radius of nominal circle; RPA 206m²)** | 653 mm | 13.0 m<br>Clear Stem Height<br>2.0 m | N: 5.5 m<br>E: 5.0 m<br>S: 6.0 m<br>W: 5.0 m | Mature<br>Estimated Remaining Contribution<br>20 + Years | Bramble cover up to 0.5m. Ivy ingress up to 4m. Lowest branch south at 3m has been reduced in length due to failure. Normal vitality. ***Proposed Tree Surgery<br>T06- The western aspect will require crown lifting to provide a minimum of 3m log term clearance. And the southern aspect will require a reduction of 2m to the southern aspect to provided clearance from the proposals. | B<br>2 | **Retain** |
| T 07 | *Salix sp.*<br>(Willow sp.);<br>**(7.8m Radius of nominal circle; RPA 191m²)** | 649 mm | 13.0 m<br>Clear Stem Height<br>2m E | N: 5.0 m<br>E: 6.5 m<br>S: 5.0 m<br>W: 1.0 m | Mature<br>Estimated Remaining Contribution<br>20 + Years | Bramble cover up to 0.5m. Ivy ingress up to 4m. Bird box located at 2m high on the southern - lowest branch. Normal vitality. Proposed Tree Surgery<br>T07- The southern aspect will require a reduction of 1.4m to the southern aspect to provided clearance from the unit. | B<br>2 | **Retain** |

| *Tree No.* | *Species* | *Diameter @1.5m* | *Height (approx.)* | *Spread (approx.)* | *Age* | *Condition/Preliminary Recommendations* | *Category* | *Status* |
|---|---|---|---|---|---|---|---|---|
| TG 08 | *Betula sp*<br>( Birch sp);<br>**(2.7m Radius of nominal circle; RPA 23m²)** | 223 mm | 9.0 m<br>Clear Stem Height<br>0.0 m | N: 2.0 m<br>E: 2.0 m<br>S: 2.0 m<br>W: 0.5 m | Early Mature<br>Estimated Remaining Contribution<br>10 + Years | Bramble cover up to 0.5m. Group of two trees. Ivy ingress on both. Northern most tree has low vitality and is carrying major amounts of dead ivy. Southern tree as normal vitality and bias crown growth notheasterly. | C<br>2 | **Retain** |
| T 09 | *Crataegus monogyna*<br>(Hawthorn)<br>**(5.4m Radius of nominal circle; RPA 92m²)** | 427 mm | 4.0 m<br>Clear Stem Height<br>1m S | N: 2.0 m<br>E: 2.0 m<br>S: 2.0 m<br>W: 2.0 m | Mature<br>Estimated Remaining Contribution<br>10 + Years | Bramble cover up to 0.5m. Multi stemmed from 1m. Major ivy ingress. Moderate deadwood throughout the crown. Reduced vitality. | C<br>2 | **Retain** |
| T 10 | *Salix sp.*<br>(Willow sp.);<br>**(10.5m Radius of nominal circle; RPA 346m²)** | 869 mm<br>CSD | 12.0 m<br>Clear Stem Height<br>1m W | N: 5.0 m<br>E: 5.0 m<br>S: 5.0 m<br>W: 5.0 m | Mature<br>Estimated Remaining Contribution<br>20 + Years | Bramble cover up to 0.5m. Multi stemmed tree with a compression union at 0.5m. Epicormic growth from base. Ivy up to 4m. Minor deadwood in crown. Normal vitality. ***Recommendations; Scheduled for removal, with the stump retained for deadwood habitat. | B<br>2 | **Remove** |

| *Tree No.* | *Species* | *Diameter @1.5m* | *Height (approx.)* | *Spread (approx.)* | *Age* | *Condition/Preliminary Recommendations* | *Category* | *Status* |
|---|---|---|---|---|---|---|---|---|
| T 11 | *Salix sp.*<br>(Willow sp.);<br>**(11.1m Radius of nominal circle; RPA 387m²)** | 917 mm<br>CSD | 13.0 m<br>Clear Stem Height<br>1m S | N: 4.0 m<br>E: 6.0 m<br>S: 6.0 m<br>W: 3.0 m | Mature<br>Estimated Remaining Contribution<br>20 + Years | Bramble cover up to 0.5m. Multi stemmed tree with a compression union at 0.5m. Epicormic growth from base. Ivy up to 4m. Minor deadwood in crown. Bird box located at 2.5m on western stem. Normal vitality. ***Proposed Tree Surgery<br>T11-It is recommended that the crown is pollarded and allowed to regenerate. This recommendation is considered necessary as there will be a significant RPA incursion which will in involve an amount or root pruning. | B<br>2 | **Retain** |
| T 12 | *Salix sp.*<br>(Willow sp.);<br>**(8.7m Radius of nominal circle; RPA 238m²)** | 726 mm | 11.0 m<br>Clear Stem Height<br>2m N | N: 5.0 m<br>E: 5.5 m<br>S: 5.5 m<br>W: 6.0 m | Mature<br>Estimated Remaining Contribution<br>20 + Years | Bramble cover up to 0.5m. Epicormic growth at base. Ivy ingress up to 2m. Bird box located at 2.5m on the southern aspect. Minor deadwood in crown. Normal vitality. ***Proposed Tree Surgery<br>T12- The southwestern aspect will require crown lifting to provided a minimum of 3m long term clearance from the ground. | B<br>2 | **Retain** |
| T 13 | *Salix sp.*<br>(Willow sp.)<br>**(10.2m Radius of nominal circle; RPA 327m²)** | 828 mm | 14.0 m<br>Clear Stem Height<br>2m S | N: 4.0 m<br>E: 6.0 m<br>S: 3.0 m<br>W: 3.0 m | Mature<br>Estimated Remaining Contribution<br>20 + Years | Bramble cover up to 0.5m. Beginning of ivy ingress. Stem leans north up to 3m then self corrects. Bird box located at 2.5m on the western stem. Minor deadwood in crown. Normal vitality. | B<br>2 | **Retain** |

| *Tree No.* | *Species* | *Diameter @1.5m* | *Height (approx.)* | *Spread (approx.)* | *Age* | *Condition/Preliminary Recommendations* | *Category* | *Status* |
|---|---|---|---|---|---|---|---|---|
| T 14 | *Acer campestre*<br>(Field Maple);<br>**(2.1m Radius of nominal circle; RPA 14m²)** | 172 mm | 4.0 m<br>Clear Stem Height<br>1m E | N: 2.0 m<br>E: 2.5 m<br>S: 1.5 m<br>W: 1.0 m | Semi-Mature<br>Estimated Remaining Contribution<br>10 + Years | Bramble cover up to 0.5m. Stem leans east. Suppressed by T12. Minimal crown to the west. Normal vitality. | C<br>2 | **Retain** |
| T 15 | *Acer campestre*<br>(Field Maple);<br>**(5.4m Radius of nominal circle; RPA 92m²)** | 446 mm<br>@ 1.0 m | 8.0 m<br>Clear Stem Height<br>1.5m E | N: 3.0 m<br>E: 2.0 m<br>S: 3.5 m<br>W: 2.0 m | Mature<br>Estimated Remaining Contribution<br>20 + Years | Bramble cover up to 0.5m. Tensile unions at 1.2m and 1.4m. Bias crown growth north. No obvious defects. Normal vitality. ***Proposed Tree Surgery T15- The southern aspect will need to be crown raised to provided long term clearance of 3m from the ground. | B<br>2 | **Retain** |
| T 16 | *Juglans regia*<br>(English Walnut);<br>**(3.3m Radius of nominal circle; RPA 34m²)** | 255 mm | 7.0 m<br>Clear Stem Height<br>1m N | N: 4.0 m<br>E: 4.0 m<br>S: 4.0 m<br>W: 4.0 m | Early Mature<br>Estimated Remaining Contribution<br>20 + Years | Bramble cover up to 0.5m. Upright form. No obvious defects. Two bird feeders located at 1.5m on the southern aspect and 1.8m on the western aspect. Normal vitality. ***Proposed Tree Surgery T16- The southern and southwestern aspects will need to be crown raised to provided long term clearance of 3m from the ground. | B<br>1 | **Retain** |

| *Tree No.* | *Species* | *Diameter @1.5m* | *Height (approx.)* | *Spread (approx.)* | *Age* | *Condition/Preliminary Recommendations* | *Category* | *Status* |
|---|---|---|---|---|---|---|---|---|
| T 17 | *Alnus glutinosa*<br>(Alder)<br>**(1.5m Radius of nominal circle; RPA 7m²)** | 121 mm | 7.0 m<br>Clear Stem Height<br>1.5m W | N: 1.5 m<br>E: 1.0 m<br>S: 1.0 m<br>W: 0.5 m | Early Mature<br>Estimated Remaining Contribution<br><10 Years | Ivy and bramble ingress up to 1m. Poor form. Minor - major deadwood in crown. Reduced vitality. | U | **Retain** |
| T 18 | *Quercus rubra*<br>(Red Oak);<br>**(5.1m Radius of nominal circle; RPA 81m²)** | 414 mm | 8.0 m<br>Clear Stem Height<br>2m S | N: 5.5 m<br>E: 5.5 m<br>S: 5.5 m<br>W: 5.5 m | Early Mature<br>Estimated Remaining Contribution<br>20 + Years | Bramble cover up to 0.5m. Ivy ingress up to 3m. Minor and moderate deadwood in crown. Bird box located at 2.2m on the north western aspect. Normal vitality. ***Proposed Tree Surgery T18- The southern and southwestern aspects will need to be crown raised to provided long term clearance of 3m from the ground | B<br>1 | **Retain** |
| T 19 | *Prunus cerasifera*<br>(Cherry Plum);<br>**(3.3m Radius of nominal circle; RPA 34m²)** | 264 mm<br>CSD | 3.0 m<br>Clear Stem Height<br>0.5m W | N: 0.5 m<br>E: 2.0 m<br>S: 3.0 m<br>W: 2.0 m | Mature<br>Estimated Remaining Contribution<br>10 + Years | Bramble cover up to 0.5m. Lower branchs to the south have been reduced in length away from the car park, with epicormic growth present. Minor deadwood in crown. Normal vitality. | C<br>2 | **Remove** |

| *Tree No.* | *Species* | *Diameter @1.5m* | *Height (approx.)* | *Spread (approx.)* | *Age* | *Condition/Preliminary Recommendations* | *Category* | *Status* |
|---|---|---|---|---|---|---|---|---|
| T 20 | *Aesculus hippocastanum*<br>(Horse Chestnut);<br>**(5.4m Radius of nominal circle; RPA 92m²)** | 430 mm | 7.0 m<br>Clear Stem Height<br>1.5m N | N: 3.0 m<br>E: 3.0 m<br>S: 3.0 m<br>W: 3.0 m | Early Mature<br>Estimated Remaining Contribution<br>20 + Years | Bramble cover up to 0.5m. Ivy ingress up to 2.5m. Minor deadwood in crown. Normal vitality. | B<br>1 | **Retain** |
| T 21 | *Alnus glutinosa*<br>(Alder)<br>**(3.0m Radius of nominal circle; RPA 28m²)** | 232 mm | 7.0 m<br>Clear Stem Height<br>1.5m W | N: 0.5 m<br>E: 3.0 m<br>S: 1.5 m<br>W: 3.0 m | Early Mature<br>Estimated Remaining Contribution<br>10 + Years | Growth supressed by surrounding trees. Bird box located at 2m on the southern aspect. Poor form. Normal vitality. | C<br>2 | **Retain** |
| T 22 | *Alnus glutinosa*<br>(Alder);<br>**(3.0m Radius of nominal circle; RPA 28m²)** | 229 mm | 8.0 m<br>Clear Stem Height<br>3m W | N: 1.0 m<br>E: 2.0 m<br>S: 0.5 m<br>W: 2.0 m | Early Mature<br>Estimated Remaining Contribution<br>10 + Years | Growth supressed by surrounding trees. Poor form. Minor and moderate deadwood in crown. Normal vitality. | C<br>2 | **Retain** |

| *Tree No.* | *Species* | *Diameter @1.5m* | *Height (approx.)* | *Spread (approx.)* | *Age* | *Condition/Preliminary Recommendations* | *Category* | *Status* |
|---|---|---|---|---|---|---|---|---|
| T 23 | *Acer campestre*<br>(Field Maple);<br>**(6.3m Radius of nominal circle; RPA 124m²)** | 509 mm<br>@ 1.0 m | 8.0 m<br>Clear Stem Height<br>0.5m W | N: 5.0 m<br>E: 5.0 m<br>S: 5.0 m<br>W: 5.0 m | Mature<br>Estimated Remaining Contribution<br>20 + Years | No obvious defects apart from minor deadwood in the crown and ivy ingress. Bird box located at 2m on the eastern aspect. Normal vitality. ***Proposed Tree Surgery T23- will required the southern aspect of the crown to be reduced by 1.0m. | B<br>2 | **Retain** |
| T 24 | *Acer pseudoplatanus*<br>(Sycamore);<br>**(2.7m Radius of nominal circle; RPA 23m²)** | 223 mm<br>(Estimated) | 11.0 m<br>Clear Stem Height<br>5m N | N: 2.0 m<br>E: 2.5 m<br>S: 1.5 m<br>W: 2.0 m | Early Mature<br>Estimated Remaining Contribution<br>10 + Years | Stem leans 90 degrees from base and self corrects at 1m. Bias crown growth east. Normal vitality. | C<br>2 | **Retain** |
| TG 25 | *Alnus glutinosa*<br>(Alder)<br>**(2.4m Radius of nominal circle; RPA 18m²)** | 191 mm<br>Average | 6.0 m<br>Clear Stem Height<br>0.0 m | N: 2.0 m<br>E: 2.0 m<br>S: 2.0 m<br>W: 2.0 m | Early Mature<br>Estimated Remaining Contribution<br>10 + Years | Group of five trees. Bramble cover up to 2m hindering inspection. Normal vitality. ***Proposed Tree Surgery TG25- the most western tree in the group will required the southwestern aspect of the crown to be reduced by 1.0m. | C<br>2 | **Retain** |
| TG 26 | *Acer pseudoplatanus*<br>(Sycamore);<br>**(2.4m Radius of nominal circle; RPA 18m²)** | 191 mm<br>Average | 4.5 m<br>Clear Stem Height<br>0.0 m | N: 2.0 m<br>E: 2.0 m<br>S: 2.0 m<br>W: 2.0 m | Young<br>Estimated Remaining Contribution<br>10 + Years | Group of five trees. Ivy ingress up to 3.5m hindering inspection. Normal vitality. | C<br>2 | **Retain** |

| *Tree No.* | *Species* | *Diameter @1.5m* | *Height (approx.)* | *Spread (approx.)* | *Age* | *Condition/Preliminary Recommendations* | *Category* | *Status* |
|---|---|---|---|---|---|---|---|---|
| T 27 | *Prunus cerasifera*<br>(Cherry Plum);<br>**(3.0m Radius of nominal circle; RPA 28m²)** | 239 mm<br>(Estimated) | 3.5 m<br>Clear Stem Height<br>0.0 m | N: 2.0 m<br>E: 2.0 m<br>S: 3.0 m<br>W: 3.0 m | Mature<br>Estimated Remaining Contribution<br>10 + Years | Major ivy ingress up to 3m hindering inspection. Normal vitality. | C<br>2 | **Remove** |
| H 28 | Single-Species Native Hedgerow;<br>**(1.5m Radius of nominal circle; RPA 7m²)** | 111 mm | 3.0 m<br>Clear Stem Height<br>0.0 m | N: 1.0 m<br>E: 1.0 m<br>S: 1.0 m<br>W: 1.0 m | Mature<br>Estimated Remaining Contribution<br>10 + Years | Major ivy ingress up to 2m hindering inspection. Located on the southwest boundary. Minor deadwood in places. Normal vitality. | C<br>2 | **Remove** |

**CATEGORY DIVISION - *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'***

| | ***1.*** *Mainly Arboricultural Qualities* | ***2.*** *Mainly Landscape Qualities* | ***3.*** *Mainly cultural values, including conservation* |
|---|---|---|---|
| ***Trees to be considered for retention*** | | | |
| ***Category A*** - *Trees whose retention is most desirable to include; trees of high quality having an estimated longevity of over 40 years;* | - Trees that are particularly good examples of their species, especially if rare or unusual | - Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features | - Trees of significant historical, commemorative or other value, or good specimens of rare or unusual species |
| ***Category B*** - *Trees where retention is desirable to include; trees of moderate quality having an estimated longevity of over 20 years;* | - Trees that might be included in the higher category, but because of significant impaired but remediable condition are downgraded | - Trees present in numbers offering a higher collective categorisation than as individually rated; trees occurring in groups but due to situation, offering little contribution in the context of the wider locality | - Trees having some material conservation or cultural value |
| ***Category C*** - *Trees of low quality having an estimated longevity of over 10 year, or young trees with a stem diameter below 150mm;* | - Trees in adequate or impaired condition, or those which can be retained with minimal tree surgery, but not worthy for inclusion in the high or moderate category | - Trees present in numbers without having significant landscape value | - Trees having no material conservation or other cultural value |
| ***Trees unsuitable for retention*** | | | |
| ***Category U*** - *Trees not for retention within the context of existing land use;* | - Trees that are unviable due to serious, irremediable structural defect; early loss is expected due to collapse;<br>- Trees that are dead or showing signs of significant, immediate, irreversible decline;<br>- Trees infected with pathogens of significance to health and subsequent safety, and threat thereof to trees nearby;<br>- Trees of very low quality suppressing the development of those of greater quality;<br>- Trees that will become unviable after the removal of other trees for reasons above. | | |

***CSD*** *– Combined Stem Diameter;*
- Root Protection Areas calculated for multiple stemmed trees based upon a combined stem diameter in accordance with *BS 5837:2012.*

**Appendix B – Tree Retention and Protection Plan**

Estate

**T06** - *Salix sp*; B, RPA min. 8.1 m

**Proposed Tree Surgery**
**T06-** The western aspect will require crown lifting to provide a minimum of 3m long term clearance. And the southern aspect will require a reduction of 2m to the southern aspect to provided clearance from the unit.

**H03** - Mixed Species Ornamental Hedgerow; C; RPA min. 1.8 m

**TG05** - *Prunus sp*; C, RPA min. 3.6 m

**Proposed Tree Surgery**
**TG05-** One tree from the group will require removal.

**T04** - *Sambucus nigra*; U, RPA min. 3.9 m

Contractor to locate Manholes and establish connectivity, line & level and report to engineer prior to commencement

**Tree Protection Zone - Manual Excavation / Demolition**
A *Limited Manual Excavation / Demolition Zone* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The removal of the hard standing and excavations in this area of the site shall be undertaken with due care with hand held tools under *Arboricultural Supervision* only.

**Tree Protection Zone - Manual Excavation / Demolition**
A *Limited Manual Excavation / Demolition Zone* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The removal of the hard standing and excavations in this area of the site shall be undertaken with due care with hand held tools under *Arboricultural Supervision* only.

**Tree Protection Barrier- Primary Location**
**After tree work has taken place the tree protection fencing must be installed in this primary location, before demolition of hard-standing takes place.**
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.

**Tree Protection Barrier- Primary Location**
**After tree work has taken place the tree protection fencing must be installed in this primary location, before demolition of hard-standing takes place.**
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.

UNIT 2
UNIT 3
UNIT 4
UNIT 5
UNIT 6
UNIT 11

PERMEABLE PAVEMENT
32% VOIDS.
450MM STORAGE DEPTH
IL3.75

PERMEABLE PAVEMENT
32% VOIDS.
450MM STORAGE DEPTH
IL3.95

PERMEABLE PAVEMENT
32% VOIDS.
450MM STORAGE DEPTH
IL3.200

S14
CL4.500
IL3.450

Existing Curb Line

Existing Curb Line

Bins/ Bikes

Bins

Bins/ Bikes

**H28** - Single Species Native Hedgerow; C, RPA min. 1.5 m

**T01** - *Acer campestre*; B; RPA min. 4.5 m

Totem at site entrance -subject to separate advertising consent

SUNDOWN HOUSE SW DRAINAGE INVESTIGATION REQUIRED

The CCTV Survey records indicate that an existing Private SW Pump serves the site.

This is blighted by the proposed buildings and will require re-location.

EXISTING MANHOLE SW7 JUNCTION DIVERTED NORTH OF FENCE. REPLACE WITH 12000 CATCHPIT (BETTERMENT) CL 3.500 IL 2.500

EXISTING MANHOLES/COVERS MAY REQUIRE LOCAL ADJUSTMENT TO SUIT NEW KERBLINE

Acoustic Fence

Acoustic Fence

Relocated substation

Removed

Ex SWMH 5351
Size: TBC
CL 3.020
IL 2.220
D 0.900

225Ø Public Surface Water Sewer

NEW CONNECTION TO PUBLIC SURFACE WATER SEWER, SUBJECT TO SECTION 106 APPLICATION

MANHOLE WITH HYDROBRAKE FLOW CONTROL DEVICE LIMITING DISCHARGE. Max Flow: 9.0l/sec Max Head: 1.0m

GEOCELLULAR TANK 95% VOIDS. 110SQM MINIMUM 700mm COVER, HGV LOADING. 400mm DEPTH ( ROW) IL 1.950

Contractor to locate Manholes and establish connectivity, line & level and report to engineer prior to commencement.

SEPARATE SURFACE WATER SYSTEM FOR LOWER LYING ACCESS ROAD ONLY. EXISTING BROWNFIELD CATCHMENT INFORMS BASELINE FLOWS OF THE RODER OF 18.75l/sec. WSCC POLICY DICTATES 50% BETTERMENT, THEREFORE DESIGN FLOW RATE SHALL BE 9.3l/sec

SW Rising Main DIVERSION
Size: 90mm OD (78.7mm Bore)
Type: PE100 SDR17
Length: 110m (TBC)
Willow Pumps to advise on spec & jointing to existing riser.

SW Rising Main DIVERSION
Size: 90mm OD (78.7mm Bore)
Type: PE100 SDR17
Length: 110m (TBC)
Willow Pumps to advise on spec & jointing to existing riser.

Rising Main
Size: 90mm OD (78.7mm Bore)
Type: PE100 SDR17
Length: 200m (TBC)
Willow Pumps to advise on spec
Off-Site routing TBC; 3rd party approval may be required

Kiosk & ducting location to be confirmed on site.

Vent pipe location TBC.

S106 Foul Sewer Connection
- Connections via new off-site RISING (Dominion Way) to be determined at detailed design stage and subject to site investigations and CCTV condition survey.
- 'Line & Level' to be agreed with Southern Water Clerk of Works under Section 106 Agreement.

Foul Private Pumping Station supplied by Willow Pumps (Ref: WQ-TBC).

24hr emergency storage within the foul pump chamber below the lowest inlet invert level (0.000) down to the point of high level alarm amounts to approx. 4.5m³ which is suitable for a maximum population (30 people / 150 litres / per person / per day.

New brick substation

Site Boundary Line

**H02** - Mixed Species Ornamental Hedgerow; C; RPA min. 1.2 m

SUNDOWN HOUSE

SOUTHDOWN VIEW ROAD

N

0 1 2.5 5 10 m

Scale 1:250

# Tree Works and Demolition Plan
# Southdownview Road, Worthing, West Sussex

## Legend

**T02** **Tree and Shrub Numbers.**

**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 B Trees**
Trees of Moderate Quality and Value to be Retained.

**Category C Trees**
Trees of Low Quality and Value to be Retained.

**Category U Trees**
Trees unsuitable for long term retention.

**Existing Hedges and Shrub Vegetation**

**Existing Structures to be removed.**

**Existing Trees to be Removed**
Tree Surgery operations to be in accordance with *BS3998:2010 - 'Tree Works - Recommendations'*.

**Existing Shrubs and 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.

**Proposed Tree Surgery Works**
Existing trees to have Tree Surgery prior to protection measures being implemented. Tree Surgery operations to be in accordance with *BS 3998:2010 - 'Tree Works - Recommendations'*.

**Tree Protection Zone - Manual Excavation / Demolition**
*Limited Manual Excavation / Demolition Zone* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The excavations in this area of the site shall be undertaken with due care with hand held tools under *Arboricultural Supervision* only.

Notes:
1. Drawing to be read in colour.
2. For details of existing trees and vegetation refer to: *LLD3395-ARB-SCH-001 - Existing Tree Schedule;*
3. *For assessment of effects of the proposed development on existing trees refer to LLD3395-ARB-REP-001- Arboricultural Impact Assessment and Method Statement.*

## PLANNING ISSUE

| Rev | Description | Date | Initials |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| 02 | Planning Issue | 15.01.25 | GO |
| 01 | Draft Issue | 13.01.25 | GO |
| 00 | Draft Issue | 08.01.25 | GO |

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*Client*
HNW Architects
*Project Title and Location*
**Southdownview Road**
Worthing, West Sussex
*Drawing Title*
**Tree Works and Demolition Plan**

| *Scale* | *Drawn* | *Approved* | *Date* |
|---|---|---|---|
| **1:250 @ A1** | GO | KM | 08/01/2025 |

*Drawing No* **LLD3395-ARB-DWG-020** *Revision* 02

**T10** - *Salix sp*; B, RPA min. 10.5 m

**T09** - *Crataegus monogyna*; C, RPA min. 5.4 m

**TG08** - *Betula sp*; C, RPA min. 2.7 m

**T07** - *Salix sp*; B, RPA min. 7.8 m

**Proposed Tree Surgery**
**T07-** The southern aspect will require a reduction of 1.4m to provide long term clearance from the unit.

**T06** - *Salix sp*; B, RPA min. 8.1 m

**Proposed Tree Surgery**
**T06-** The western aspect will require crown lifting to provide a minimum of 3m long term clearance. And the southern aspect will require a reduction of 2m to the southern aspect to provided clearance from the unit.

**H03** - Mixed Species Ornamental Hedgerow; C; RPA min. 1.8 m

**TG05** - *Prunus sp*; C, RPA min. 3.6 m

**Proposed Tree Surgery**
**TG05-** One tree from the group will require removal.

**T04** - *Sambucus nigra*; U, RPA min. 3.9 m

**T11** - *Salix sp*; B, RPA min. 11.1 m

**Proposed Tree Surgery**
**T11-** It is recommended that the crown is pollarded and allowed to regenerate. This recommendation is considered necessary as there will be a significant RPA incursion which will in involve an amount or root pruning.

**Proposed Tree Surgery**
**T12-** The southwestern aspect will require crown lifting to provide a minimum of 3m long term clearance from the ground.

**T12** - *Salix*; B, RPA min. 8.7 m

**T13** - *Salix sp*; B, RPA min. 10.2 m

**T14** - *Acer campestre*; C, RPA min. 2.1 m

**T15** - *Acer campestre*; B, RPA min. 5.4 m

**Proposed Tree Surgery**
**T15-** The southern aspect will need to be crown raised to provide long term clearance of 3m from the ground.

**T16** - *Juglans regia*; B, RPA min. 3.3 m

**Proposed Tree Surgery**
**T16-** The southern and southwestern aspects will need to be crown raised to provided long term clearance of 3m from the ground.

**T17** - *Alnus glutinosa*; U, RPA min. 1.5 m

**T18** - *Quercus rubra*; B, RPA min. 5.1 m

**Proposed Tree Surgery**
**T18-** The southern and southwestern aspects will need to be crown raised to provided long term clearance of 3m from the ground

**T19** - *Prunus cerasifera*; C, RPA min. 3.3 m

**T20** - *Aesculus hippocastanum*; B, RPA min. 5.4 m

**T21** - *Alnus glutinosa*; C, RPA min. 3.0 m

**T22** - *Alnus glutinosa*; C, RPA min. 3.0 m

**T24** - *Acer pseudoplatanus*; C, RPA min. 2.7 m

**T23** - *Acer campestre*; B, RPA min. 6.3 m

**Proposed Tree Surgery**
**T23-** will required the southern aspect of the crown to be reduced by 1.0m.

**TG25** - *Alnus glutinosa*; C, RPA min. 2.4 m

**Proposed Tree Surgery**
**TG25-** the most western tree in the group will required the southwestern aspect of the crown to be reduced by 1.0m.

**TG26** - *Acer pseudoplatanus*; C, RPA min. 2.4 m

**T27** - *Prunus cerasifera*; C, RPA min. 3.0 m

**H28** - Single Species Native Hedgerow; C, RPA min. 1.5 m

**Tree Protection Zone - Manual Excavation / Demolition**
A *Limited Manual Excavation / Demolition Zone* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The removal of the hard standing and excavations in this area of the site shall be undertaken with due care with hand held tools under *Arboricultural Supervision* only.

**Tree Protection Barrier- Primary Location**
**After tree work has taken place the tree protection fencing must be installed in this primary location, before demolition of hard-standing takes place.**
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.

Contractor to locate Manholes and establish connectivity, line & level and report to engineer prior to commencement.

Existing Curb Line

Bins/ Bikes

UNIT 2

UNIT 3

UNIT 4

UNIT 5

UNIT 6

UNIT 7

UNIT 8

UNIT 9

UNIT 11

PERMEABLE PAVEMENT 32% VOIDS 450MM STORAGE DEPTH IL3.75

PERMEABLE PAVEMENT 32% VOIDS 450MM STORAGE DEPTH IL3.95

PERMEABLE PAVEMENT 32% VOIDS 450MM STORAGE DEPTH IL3.200

PERMEABLE PAVEMENT 32% VOIDS 450MM STORAGE DEPTH IL3.425

GEOCELLULAR TANK 95% VOIDS. 200SQM MINIMUM 700mm COVER, HGV LOADING 800mm DEPTH (2 LAYERS) IL 2.700

MANHOLE WITH HYDROBRAKE FLOW CONTROL DEVICE LIMITING DISCHARGE Max Flow: 3.2l/sec Max Head: 1.675m

MANHOLE TO INCLUDE PENSTOCK

OUTFALL ROUTING TO BE COORDINATED WITH RPZ (DETAILED DESIGN) SCOUR PROTECTION TO BE INCLUDED

OUTFALL WITH ANTI-FLOOD VALVE INTO WATERCOURSE

WATERCOURSE CONNECTION
- NO WORKS TO ORDINARY WATERCOURSE ARE PERMITTED UNTIL THE LPA HAS GRANTED LAND DRAINAGE CONSENT.

Bypass Seperator: S17
Drainage Area: 2407sqm
CL 26.550
IL (IN) 25.100
IL (OUT) 25.000
UNIT NSBP004 (max 2500sqm)

DRAINAGE COLLECTION AT REAR TO BE REVIEWED AT DETAILED DESIGN STAGE TO MINIMISE IMPACTS TO RPZ AREAS.

ALTERNATIVELY REAR FOOTPATHS MAY BE INSTALLED AS PERMEABLE PAVEMENTS TO SUBTLE EASTERLY FALLS TOWARDS WATERCOURSE.

Foul Private Pumping Station supplied by Willow Pumps (Ref: WG-TBC).

24hr emergency storage within the foul pump chamber below the lowest inlet

Existing Curb Line

New brick substation

Bins

Overgrown - No access

Bank of watercourse

Tree Protection Barrier- Primary Location
After tree work has taken place the tree protection fencing must be installed in this primary location, before demolition of hard-standing takes place.
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.

Tree Protection Zone - Manual Excavation / Demolition
A *Limited Manual Excavation / Demolition Zone* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The removal of the hard standing and excavations in this area of the site shall be undertaken with due care with hand held tools under *Arboricultural Supervision* only.

Tree Protection Zone - Manual Excavation / Demolition
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Tree Protection Zone - Manual Excavation / Demolition
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N

0 1 2.5 5 10 m

Scale 1:250

# Tree Works and Demolition Plan
# Southdownview Road, Worthing, West Sussex

## Legend

**T02** **Tree and Shrub Numbers.**

**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 B Trees**
Trees of Moderate Quality and Value to be Retained.

**Category C Trees**
Trees of Low Quality and Value to be Retained.

**Category U Trees**
Trees unsuitable for long term retention.

**Existing Hedges and Shrub Vegetation**

**Existing Structures to be removed.**

**Existing Trees to be Removed**
Tree Surgery operations to be in accordance with *BS3998:2010 - 'Tree Works - Recommendations'*.

**Existing Shrubs and 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.

**Proposed Tree Surgery Works**
Existing trees to have Tree Surgery prior to protection measures being implemented.
Tree Surgery operations to be in accordance with *BS 3998:2010 - 'Tree Works - Recommendations'*.

**Tree Protection Zone - Manual Excavation / Demolition**
*Limited Manual Excavation / Demolition Zone* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The excavations in this area of the site shall be undertaken with due care with hand held tools under *Arboricultural Supervision* only.

Notes:
1. Drawing to be read in colour.
2. For details of existing trees and vegetation refer to: *LLD3395-ARB-SCH-001 - Existing Tree Schedule;*
3. *For assessment of effects of the proposed development on existing trees refer to LLD3395-ARB-REP-001- Arboricultural Impact Assessment and Method Statement.*

## PLANNING ISSUE

| Rev | Description | Date | Initials |
|---|---|---|---|
| | | | |
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| | | | |
| 02 | Planning Issue | 15.01.25 | GO |
| 01 | Draft Issue | 13.01.25 | GO |
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*Client*
HNW Architects

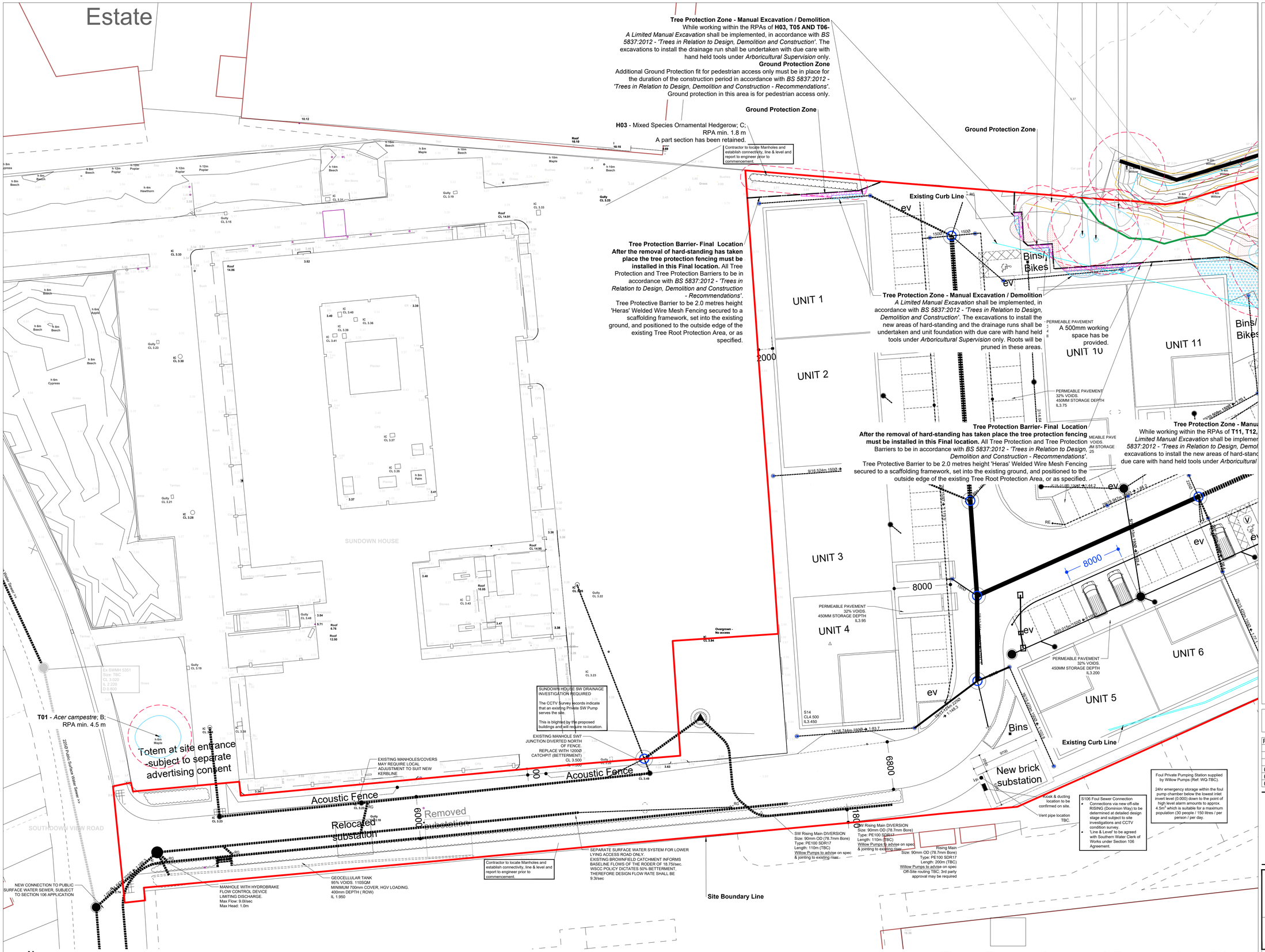
*Project Title and Location*
**Southdownview Road**
Worthing, West Sussex

*Drawing Title*
**Tree Works and Demolition Plan**

| *Scale* | *Drawn* | *Approved* | *Date* |
|---|---|---|---|
| **1:250 @ A1** | GO | KM | 08/01/2025 |

*Drawing No* **LLD3395-ARB-DWG-021**

*Revision* 02




# Tree Retention and Protection Plan
# Southdownview Road, Worthing, West Sussex

## Legend

**T02** **Tree and Shrub Numbers.**

**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 B Trees**
Trees of Moderate Quality and Value to be Retained.

**Category C Trees**
Trees of Low Quality and Value to be Retained.

**Category U Trees**
Trees unsuitable for long term retention.

**Existing Shrub Vegetation**

**Existing Structures 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.

**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- Recommendations'.*

**Ground Protection Zone - Operation Zone During Construction.**
An Operation Zone to enable construction work within the Root Protection Area is to be secured 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 - Manual Excavation / Demolition**
*Limited Manual Excavation / Demolition Zone* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'.* The excavations in this area of the site shall be undertaken with due care with hand held tools under *Arboricultural Supervision* only.

Notes:
1. Drawing to be read in colour.
2. For details of existing trees and vegetation refer to: *LLD3395-ARB-SCH-001 - Existing Tree Schedule;*
3. *For assessment of effects of the proposed development on existing trees refer to LLD3395-ARB-REP-001- Arboricultural Impact Assessment and Method Statement.*

## PLANNING ISSUE

| Rev | Description | Date | Initials |
|---|---|---|---|
| | | | |
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| 02 | Planning Issue | 15.01.25 | GO |
| 01 | Draft Issue | 13.01.25 | GO |
| 00 | Draft Issue | 08.01.25 | GO |


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*Client*
HNW Architects
*Project Title and Location*
**Southdownview Road**
Worthing, West Sussex
*Drawing Title*
**Tree Retention and Protection Plan**

| *Scale* | *Drawn* | *Approved* | *Date* |
|---|---|---|---|
| **1:250 @ A1** | GO | KM | 08/01/2025 |

*Drawing No* **LLD3395-ARB-DWG-022** *Revision* 02

**T06** - *Salix sp*; B, RPA min. 8.1 m- Asymmetric RPAs have been applied.

**T07** - *Salix sp*; B, RPA min. 7.8 m- Asymmetric RPAs have been applied.

**TG08** - *Betula sp*; C, RPA min. 2.7 m

**T09** - *Crataegus monogyna*; C, RPA min. 5.4 m

**T11** - *Salix sp*; B, RPA min. 11.1 m

**T12** - *Salix*; B, RPA min. 8.7 m

**T13** - *Salix sp*; B, RPA min. 10.2 m

**T14** - *Acer campestre*; C, RPA min. 2.1 m

**T15** - *Acer campestre*; B, RPA min. 5.4 m- Asymmetric RPAs have been applied.

**T16** - *Juglans regia*; B, RPA min. 3.3 m- Asymmetric RPAs have been applied.

**T17** - *Alnus glutinosa*; U, RPA min. 1.5 m

**T18** - *Quercus rubra*; B, RPA min. 5.1 m- Asymmetric RPAs have been applied.

**TG05** - *Prunus sp*; C, RPA min. 3.6 m

**Tree Protection Zone - Manual Excavation / Demolition**
While working within the RPAs of **H03, T05 AND T06**- *A Limited Manual Excavation* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The excavations to install the drainage run shall be undertaken with due care with hand held tools under *Arboricultural Supervision* only.
**Ground Protection Zone**
Additional Ground Protection fit for pedestrian access only must 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'*. Ground protection in this area is for pedestrian access only.

**Ground Protection Zone**

**H03** - Mixed Species Ornamental Hedgerow; C; RPA min. 1.8 m
A part section has been retained.

Contractor to locate Manholes and establish connectivity, line & level and report to engineer prior to commencement.

**Ground Protection Zone**

**Existing Curb Line**

**Tree Protection Barrier- Final Location**
**After the removal of hard-standing has taken place the tree protection fencing must be installed in this Final location.** 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.

**Tree Protection Zone - Manual Excavation / Demolition**
*A Limited Manual Excavation* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The excavations to install the new areas of hard-standing and the drainage runs shall be undertaken and unit foundation with due care with hand held tools under *Arboricultural Supervision* only. Roots will be pruned in these areas.

PERMEABLE PAVEMENT
A 500mm working space has be provided.

PERMEABLE PAVEMENT
32% VOIDS
450MM STORAGE DEPTH
IL3.75

**Tree Protection Barrier- Final Location**
**After the removal of hard-standing has taken place the tree protection fencing must be installed in this Final location.** 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.

**Tree Protection Zone - Manual Excavation / Demolition**
While working within the RPAs of **T11, T12, T15, T16, and T18 and** - *A Limited Manual Excavation* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The excavations to install the new areas of hard-standing shall be excavated with due care with hand held tools under *Arboricultural Supervision* only. Roots will be pruned in these areas.

A 500mm working space has be provided.

PERMEABLE PAVEMENT
32% VOIDS
450MM STORAGE DEPTH
IL3.200

PERMEABLE PAVEMENT
32% VOIDS
450MM STORAGE DEPTH
IL3.200

PERMEABLE PAVEMENT
32% VOIDS
450MM STORAGE DEPTH
IL3.95

PERMEABLE PAVEMENT
32% VOIDS
450MM STORAGE DEPTH
IL3.425

GEOCELLULAR TANK
95% VOIDS: 2005CM
MINIMUM 700mm COVER, HGV LOADING
700mm DEPTH (2 ROWS)
IL 2.700

MANHOLE WITH HYDROBRAKE FLOW CONTROL DEVICE LIMITING DISCHARGE.
Max Flow: 3.2l/sec
Max Head: 1.675m

MANHOLE TO INCLUDE PENSTOCK

OUTFALL RO
BE COORDIN
RPZ (DETAILED DESIGN)
SCOUR PROTECTION
TO BE INCLUDED

OUTFALL WITH
ANTI-FLOOD VALVE
INTO WATERCOURSE

WATERCOURSE CONNECTION
- NO WORKS TO ORDINARY WATERCOURSE ARE PERMITTED UNTIL THE LPA HAS GRANTED LAND DRAINAGE CONSENT.

Bypass Separator: S17
Drainage Area: 2407sqm
CL 26.550
IL (IN) 25.100
IL (OUT) 25.000
UNIT NSBP004 (max 2500sqm)

**Tree Protection Zone - Manual Excavation / Demolition**
While working within the RPAs of **T18 and T20**- *A Limited Manual Excavation* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The excavations to install the new areas of hard-standing shall be excavated with due care with hand held tools under *Arboricultural Supervision* only. Roots will be pruned in these areas.
**Ground Protection Zone**
Additional Ground Protection fit for pedestrian access only must 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'*. Ground protection in this area is for pedestrian access only.

**T20** - *Aesculus hippocastanum*; B, RPA min. 5.4 m

**T21** - *Alnus glutinosa*; C, RPA min. 3.0 m

**T22** - *Alnus glutinosa*; C, RPA min. 3.0 m

**T24** - *Acer pseudoplatanus*; C, RPA min. 2.7 m

**T23** - *Acer campestre*; B, RPA min. 6.3 m

**TG25** - *Alnus glutinosa*; C, RPA min. 2.4 m

**TG26** - *Acer pseudoplatanus*; C, RPA min. 2.4 m

**Tree Protection Barrier- Final Location**
**After the removal of hard-standing has taken place the tree protection fencing must be installed in this Final location.** 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 **TG25 and T23** is to be secured 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'*. Ground protection in this area is for pedestrian access only.

**Tree Protection Zone - Manual Excavation / Demolition**
While working within the RPAs of **TG25 and T23**- *A Limited Manual Excavation* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The excavations to install the new areas of hard-standing shall be excavated with due care with hand held tools under *Arboricultural Supervision* only. Roots will be pruned in these areas.

DRAINAGE COLLECTION AT REAR TO BE REVIEWED AT DETAILED DESIGN STAGE TO MINIMISE IMPACTS TO RPZ AREAS.

ALTERNATIVELY REAR FOOTPATHS MAY BE INSTALLED AS PERMEABLE PAVEMENTS TO SUBTLE EASTERLY FALLS TOWARDS WATERCOURSE.

Foul Private Pumping Station supplied by Willow Pumps (Ref: WQ-TBC).

24hr emergency storage within the foul

UNIT 1
UNIT 2
UNIT 3
UNIT 4
UNIT 5
UNIT 6
UNIT 7
UNIT 8
UNIT 9
UNIT 10
UNIT 11

Bins/ Bikes

Bins

New brick substation

Existing Curb Line

Bank of watercourse

Overgrown - No access

Gully CL 3.23

Gully CL 3.22

Gully CL 3.49

Ic Fence

N

0 1 2.5 5 10 m

Scale 1:250

# Tree Retention and Protection Plan
# Southdownview Road, Worthing, West Sussex

## Legend

**T02** **Tree and Shrub Numbers.**

**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 B Trees**
Trees of Moderate Quality and Value to be Retained.

**Category C Trees**
Trees of Low Quality and Value to be Retained.

**Category U Trees**
Trees unsuitable for long term retention.

**Existing Shrub Vegetation**

**Existing Structures 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.

**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- Recommendations'*.

**Ground Protection Zone - Operation Zone During Construction.**
An Operation Zone to enable construction work within the Root Protection Area is to be secured 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 - Manual Excavation / Demolition**
*Limited Manual Excavation / Demolition Zone* shall be implemented, in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*. The excavations in this area of the site shall be undertaken with due care with hand held tools under *Arboricultural Supervision* only.

Notes:
1. Drawing to be read in colour.
2. For details of existing trees and vegetation refer to: *LLD3395-ARB-SCH-001 - Existing Tree Schedule;*
3. *For assessment of effects of the proposed development on existing trees refer to LLD3395-ARB-REP-001- Arboricultural Impact Assessment and Method Statement.*

## PLANNING ISSUE

| Rev | Description | Date | Initials |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| 02 | Planning Issue | 15.01.25 | GO |
| 01 | Draft Issue | 13.01.25 | GO |
| 00 | Draft Issue | 08.01.25 | GO |


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*Client*
HNW Architects
*Project Title and Location*
**Southdownview Road**
Worthing, West Sussex
*Drawing Title*
**Tree Retention and Protection Plan**

| *Scale* | *Drawn* | *Approved* | *Date* |
|---|---|---|---|
| **1:250 @ A1** | GO | KM | 08/01/2025 |

*Drawing No* **LLD3395-ARB-DWG-023** *Revision* 02



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