



KINGS COPSE
AVENUE
HEDGE END
EASTLEIGH

ARBORICULTURAL
IMPACT
ASSESSMENT &
METHOD
STATEMENT

for

EASTLEIGH
BOROUGH COUNCIL

Written By:	Henry Pinn
Checked By:	Andrew Bigg
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1. Executive Summary

- 1.1. For the Arboricultural Method Statement see section 4.
- 1.2. The site is currently open grassland to the south of Kings Copse Avenue, Eastleigh. The main field is bounded by trees and vegetation growth of varying degrees on all sides. To the northern and eastern aspects of the site is a strip of land separated from the main central field by an internal tree boundary which acts as a natural buffer between existing residential properties to the north and the main site.
- 1.3. The proposed development is the construction of 192 residential dwellings (delivered in the form of 102 individual residences and x4 residential blocks with associated highway and drainage infrastructure, and the widening of Kings Copse Avenue including a new pedestrian crossing point.
- 1.4. This impact assessment is intended to evaluate the direct and indirect effects of the proposed design on the trees on site, and where necessary recommends mitigation.
- 1.5. The development proposals are in accordance with BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. Adequate protection can be provided to ensure all retained trees are protected throughout development in the form of barriers and/or ground protection.
- 1.6. Given the number of trees on the site, the development proposals incorporate the majority of the better, more sustainable specimens.
- 1.7. Number of trees to be removed as a direct result of the current design (see section 4 for details):

BS Category	Number of individual trees	Tree Groups
U	0	0
A	0	0
B	6	0
C	3	1

- 1.8. Trees and groups T104, T152, G155(x4), T156, T157, G161 and T164 are proposed for removal to facilitate the development proposals.
- 1.9. Pruning and sectional removal from groups G2, G28, G106, G138 and G171 is required to facilitate the development proposals.
- 1.10. All of the 'A' category trees are to be retained and protected throughout the development.
- 1.11. The removal of x6 'B' category trees on the site frontage is required to facilitate a new pedestrian crossing point and deliver suitable highways infrastructure.
- 1.12. Excavation associated with the proposed highway widening and surface infrastructure is specified within the RPA of x6 retained 'B' category trees – this is to be carried out using a sensitive methodology as per the Arboricultural Method Statement included in this report.
- 1.13. Existing overhead services are proposed to be buried which will require sectional removal from boundary groups.

- 1.14. Tree protection fencing has been specified to allow a minimum 0.5m offset for working room from proposed surfacing and SUDs basin footprints. Where SUDs basins are located adjacent to trees to be retained, the fencing alignment has been plotted in 3m intervals to ensure a feasible and accurate alignment can be delivered onsite which does not encroach into the 0.5m working room buffer. Where this offset results in minor RPA exposure outside the fencing alignment, ample additional rooting medium is available within the construction exclusion zone directly adjacent to affected RPAs.
- 1.15. Tree surgery and Access Facilitation Pruning will be required to facilitate erection of Tree Protection Fencing and to allow adequate clearances of canopies from proposed surfacing.
- 1.16. The relationship between the buildings and retained trees is sustainable and does not result in any situations which may result in unreasonable pressure to prune requests from future occupants.
- 1.17. The Arboricultural Method Statement (AMS) has been compiled in conjunction with the Tree Protection Plan (TPP) for the purpose of feasibility and planning, as per Figure 1 of BS5837:2012. These detail any mitigation which will be necessary to ensure the protection of retained trees throughout the development.
- 1.18. Tree loss onsite will be mitigated by meeting or exceeding the Tree Replacement Policy which can be seen at Appendix 1 of the Eastleigh Borough Council Trees and Development SPD (April 2022).
- 1.19. The requirement to provide a safe crossing point across Kings Copse Ave. as part of any development of the site will require widening of the road to deliver. Given the presence of an existing watermain to the North, the road must be widened to the south which will require the loss of trees T156, T157 and x4 constituents of G155.

2. Introduction

- 2.1. ACD Environmental have been instructed to prepare the following Arboricultural Impact Assessment and Method Statement by Eastleigh Borough Council. This report should be read in conjunction with the latest revision of the corresponding Tree Protection Plan (ACD drawing reference: EBC24408-03).
- 2.2. This Method Statement is to be made available to all operatives on site during the construction process, so that they understand the scope and importance of the measures set out for tree protection. Implementation of the protection methods and other details within this report are integral to ensuring protection for the retained trees.
- 2.3. For details of trees to be retained, and locations and types of special protection methods, reference should be made to the latest revision of Tree Protection Plan (ref: EBC24408-03), which should be displayed prominently on site for all staff to see.
- 2.4. To ensure accuracy and avoid future costly adjustments, the Tree Protection Fence must be set out by a surveyor/engineer with all node points being marked clearly on site for the fencing contractor to work to. The AutoCAD version of the Tree Protection Plan is available on request.
- 2.5. This report is based on the recommendations given in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- 2.6. The controlling authority is Eastleigh Borough Council (EBC), who can be contacted at:

Address: Eastleigh House, Upper Market Street, Eastleigh, Hampshire, SO50 9YN.

Email: Planning@eastleigh.gov.uk

Telephone: 023 8068 8264.
- 2.7. The interactive mapping service provided on the Eastleigh Borough Council website¹ in April 2025 indicates that 'Area' Tree Preservation Order (TPO) reference: '606-E' is in force against all trees and vegetation (of all species) along the footpath to the north of the junction of Kings Copse Avenue and Tanhouse Lane. A copy of the boundary line shown on the EBC website has been included on the Tree Protection Plan.
- 2.8. Any questions relating to the content of this report should be directed in the first instance to: ACD Environmental, Unit 7, Godalming Business Centre, Woolsack Way, Godalming, GU7 1XW, 01483 425714, quoting the site address and report reference number.
- 2.9. The following abbreviations have been used throughout this document:
 - Root Protection Area – RPA.
 - Construction Exclusion Zone – CEZ.
 - Tree Protection Plan – TPP.
 - Tree Protection Fencing – TPF.

¹ <https://emaps.eastleigh.gov.uk/WebMaps/Map.aspx?MapName=Trees&initialDialog=layersDialog>

3. Arboricultural Impact Assessment

- 3.1. The site is currently open grassland to the south of Kings Copse Avenue, Eastleigh. The main field is bounded by trees and vegetation growth of varying degrees on all sides. To the northern and eastern aspects of the site is a strip of land separated from the main central field by an internal tree boundary which acts as a natural buffer between existing residential properties to the north and the main site.
- 3.2. The proposed development is the construction of 192 residential dwellings (delivered in the form of 102 individual residences and x4 residential blocks, with associated highway and drainage infrastructure, and the widening of Kings Copse Avenue including a new pedestrian crossing point.
- 3.3. 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 are identified as per BS5837:2012 section 5.4, and details are given of proposed mitigation.
- 3.4. Any potentially damaging activities proposed in the vicinity of retained trees are identified, such that mitigation to significantly reduce or avoid this impact can be detailed in the Arboricultural Method Statement and Tree Protection Plan as recommended in BS5837:2012 section 5.4.2.
- 3.5. The development proposals are in accordance with BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. Adequate protection can be provided to ensure all retained trees are protected throughout the development.
- 3.6. The tree survey for the site is at Appendix 2 of the Tree Report for the site ACD reference EBC24408tsA.
- 3.7. This assessment is based upon the supplied layout drawing produced by MH Architects Ltd., drawing reference: 22-148 KCA MHA ZZ XX DR A 0003 P17. (This drawing has been amended within the corresponding Tree Protection Plan, at request of the client, to remove a footpath from the northeastern aspect of the site).
- 3.8. **Evaluation of impact of proposed tree losses**

Table 1: Trees to be removed as a direct consequence of development

BS Category	Number of individual trees	Tree Groups
U	0	0
A	0	0
B	6	0
C	3	1

- 3.8.1. Those trees which are to be removed are shown with a red dashed canopy outline, and a red hatch infill on the latest revision of the corresponding Tree Protection Plan (ACD drawing reference: EBC24408-03).
- 3.8.2. Trees and groups T104, T152, G155(x4), T156, T157, G161 and T164 are proposed for removal to facilitate the development proposals.

- 3.8.3. x6 'B' category trees (T156, T157 and x4 constituents of G155) are to be removed to facilitate the widening of Kings Copse Avenue and delivery of a new pedestrian island crossing point. The resulting encroachment and lowering of levels required within the RPA of these trees is considered too great to suitably retain them in a safe manner. Mitigation for this tree loss can be provided through replacement planting as part of a suitable landscape scheme for the development which meets or exceeds the requirements stated at Appendix 1 of the Eastleigh Borough Council Trees and Development SPD (April 2022). It is further noted that much time and effort was given by the design team reviewing this element of the layout to try to avoid tree loss, though ultimately due to the presence of an existing watermain to the north, the road must be widened to the south which will require the removal of the aforementioned trees.
- 3.8.4. It is further reasoned that given the species of G155 is Ash, the x4 specimens proposed for removal are susceptible to Ash Dieback (*Hymenoscyphus fraxineus*) which is an aggressive fungal pathogen prevalent in the UK which has decimated European Ash trees nationwide over the last 30 years. Due to the highly infectious nature of the disease and the linear positioning of the trees, it is considered there is a high likelihood that these specimens will eventually succumb to Ash Dieback sometime within the next circa 20 years, regardless of development. Given that the industry benchmark in the UK generally sets a minimum 60 year lifespan on new residential developments, it is reasoned that removal and replacement of these trees as part of any consented planning permission will secure more robust, long-term green infrastructure on the site frontage for the future rather than existing tree stock failing prematurely without a guarantee of replacement.
- 3.8.5. Whilst not necessary to deliver the development, for the reasons set out above it is reasoned that consideration should be given to the fact that any planning consent granted would also be an opportunity to remove and replace additional constituents of G155 whilst securing adequate replacement planting capable of establishing into higher value green infrastructure. This would be considered a future investment rather than trees being replaced in a reactive and piecemeal fashion following completion of the development, which would also have no guarantee of being provided in the event of any decline or failure.
- 3.8.6. A section of boundary group G28 to the south of site is proposed for removal to facilitate burying of existing overground services. G28 is a 'C' category group made up of relatively low-value trees and scrub. Due to the existing presence of overhead services, the surrounding area within this section of G28 has been historically managed to allow continued clearance from the tower structure and overhead lines. As such it is considered that the sectional removal from the group as specified on the Tree Protection Plan is not of a significance to cause constraint to the development, and that this area will eventually return a state similar its current character (potentially achieving higher value given there will no longer be a requirement to routinely manage trees and vegetation from the above ground infrastructure).
- 3.8.7. The remaining trees to be removed are 'C' category, and due to their relatively low-inherent amenity value, their removal is not considered to be of a significance to warrant constraint to an otherwise satisfactory development.
- 3.8.8. In relation to the conception and design of development proposals, BS5837:2012 section 5.1.1 states: *"The constraints imposed by trees, both above and below ground should inform the site layout design, although it is recognised that the*

competing needs of development mean that trees are only one factor requiring consideration. Certain trees are of such importance and sensitivity as to be major constraints on development or to justify its substantial modification. However, care should be taken to avoid misplaced tree retention; attempts to retain too many or unsuitable trees on a site can result in excessive pressure on the trees during demolition or construction work, or post-completion demands for their removal”.

- 3.8.9. It is therefore deemed acceptable to remove the listed trees and, as part of the detailed landscape design for the scheme, include suitable and sustainable replacements as and where appropriate to providing robust long term tree cover in keeping with the proposal and surrounding properties.

3.9. Trees to be pruned

At this time the following tree surgery works are proposed:

Tree number	Species	Operation
G2	Goat Willow	Prune back group as shown on TPP to provide 0.5m offset from proposed surfacing for working room and protective fencing erection.
G106	Bramble	Sectional removal from group as shown on TPP to facilitate new pedestrian footpath routes.
G138	Holly, Hawthorn, Hazel	Sectional removal from group as shown on TPP to facilitate drainage routes and SUDs basins.
G171	Oak, Willow, Ash, Blackthorn, Field Maple, Hawthorn, Bramble	Prune back group as shown on TPP to provide 0.5m offset from proposed surfacing for working room and protective fencing erection.

- 3.9.1. Further to the above, all trees will be subject to Access Facilitation Pruning which is to be conducted as required throughout the duration of the development and shall not exceed the following thresholds:

Tree number	Operation
All Trees	Lift lower crowns overhanging proposed pedestrian surfaces to 3.5m.
All Trees	Lift lower crowns overhanging proposed vehicular surfaces to 5.5m.
All Trees	Reduce crowns to allow 0.5m clearance from proposed surfacing footprints
All Trees	Reduce crowns to allow 1.5m clearance from proposed building footprints

- 3.9.2. BS5837:2012 describes the term ‘Access Facilitation Pruning’ as “*One-off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site*”. For any Access Facilitation Pruning required to be conducted, the project arboriculturist should first be consulted to ensure that pruning is conducted to the bare minimum required to allow the continuation of the development.
- 3.9.3. Should any become necessary it should comply with BS3998:2010 Tree Work or more recently accepted arboricultural good practice and be approved by the LPA and project arboriculturist prior to any commencement.

3.10. **Protection for retained trees (Tree Protection Fencing)**

- 3.10.1. BS5837:2012 section 6.2.1. states: *“All trees that are being retained on site should be protected by barriers and/or ground protection (see 5.5) before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone”*.
- 3.10.2. A specification for adequate protective fencing is shown below and included on the corresponding Tree Protection Plan. This consists of interlocking weld-mesh panels (e.g., Heras) well braced by attachment to scaffold pole uprights driven firmly into the ground. Should any alternative method of barrier construction be proposed the design should be approved by the Eastleigh Borough Council.
- 3.10.3. A minimum 0.5m offset has been allowed for working room between the Tree Protection Fencing alignment and all proposed surfacing and excavation footprints.
- 3.10.4. Where Tree protection fencing has been shown surrounding SUDs basins adjacent to the RPA of retained trees (including ‘A’ category specimens T125, T129 and T133), the fencing alignment has been plotted in 3m increments to ensure an achievable fencing alignment can be provided onsite around the complex footprints of the SUDs basins which allow for adequate working room whilst still providing protection for the RPA of retained trees. Where these offsets result in minor exposure of retained RPAs outside of the fencing alignment, affected trees have access to ample additional rooting mediums adjoining the respective RPAs within the construction exclusion zones.
- 3.10.5. Fencing is to be clearly indicated as Tree Protection Fencing by attached signage and should be erected onsite before commencement of any development works whatsoever.

3.11. **Demolition**

- 3.11.1. The widening of Kings Copse Avenue will require the removal and replacement of section of existing surfacing shown within the projected RPA of retained trees T158 and constituents of G155.
- 3.11.2. Removal of existing surfacing within retained RPAs must be conducted carefully using the methodology set out in the Arboricultural Method Statement below.

3.12. Ground works and level changes

- 3.12.1. Full details of any changes in ground levels on site remain to be finalised. Any alterations to levels close to trees may damage roots and affect tree health and stability. Landscaping operations within the RPAs of retained trees must be carried out in a sensitive manner and be subject to a detailed method statement and arboricultural supervision.
- 3.12.2. SUDs basins adjacent to retained trees, these have been designed alongside the supplied BS5837:2012 RPA constraint data to ensure any impact to potential underlying rooting structures is minimised, whilst considering wider site constraints such as surface easements, drainage flow and provided adequate volume.
- 3.12.3. The periphery of the proposed SUDs basins have been designed to include a raised bund to reduce the need for excavation within retained RPAs. Whilst it is acknowledged that both increasing and reduction of levels within RPAs can have negative implications for rooting structures, it is considered that the ground compaction associated with increased levels is preferable to the severance of rooting structures due to excavation.
- 3.12.4. In cases of ground compaction due to limited level raising, it is reasoned that soil structure can be repaired either through natural means of soil conditioning from the burrowing of microorganisms or other animals over time and the seasonal freeze/thaw of the soil, or alternatively through artificial means such as soil aeration. It is further reasoned that by raising levels, the pre-existing rooting is retained for future utilisation by the trees in contrast excavation of soil levels which severs rooting structures and permanently removes areas of potential rooting environment.

3.13. New Hard Surfaces within RPAs

- 3.13.1. New hard surfacing is proposed within the RPA of retained trees, T147, T158, T179, T222 and constituents of G155. It is confirmed that as per the recommendations of BS5837:2012 section 7.4.2.3, the new permanent hard surfacing does not exceed 20% of any currently unsurfaced soft ground within any affected RPA.
- 3.13.2. With the exception of T179, all instances of new surfacing within RPAs are to be conducted through use of a sensitive methodology as specified within the Method Statement below, and all trees have access to additional rooting medium adjoining the RPA within the specified fencing alignment equivalent or greater than the area of encroachment.
- 3.13.3. In regard to T179, given the minor area of encroachment and presence of existing surfacing located between the stem and the new surface footprint it is reasoned that root growth in this area will likely have been suppressed and the incursion is not significant enough to have a detrimental impact to the tree, therefore no special mitigation has been specified.
- 3.13.4. Where new surfacing is proposed within retained RPAs, the area of existing soft ground must be protected prior to the installation of the final surface either through a temporary fencing alignment or use of adequate Ground Protection. A specification for adequate ground protection can be found in the Method Statement below. Following installation, the new surface is to act as adequate ground protection for the RPA exposed outside of the specified fencing alignment.

3.14. Construction within RPAs

- 3.14.1. BS5837:2012 states at section 5.3.1: 'The default position should be that structures (see 3.10) are located outside the RPAs of trees to be retained. However, where there is an overriding justification for construction within the RPA, technical solutions might be available that prevent damage to the tree(s) (see Clause 7). If operations within the RPA are proposed, the project arboriculturist should:
- a) demonstrate that the tree(s) can remain viable, and that the area lost to encroachment can be compensated for elsewhere, contiguous with its RPA:
 - b) propose a series of mitigation measures to improve the soil environment that is used by the tree for growth.'
- 3.14.2. It is confirmed that there is no construction proposed within the RPAs of retained trees.

3.15. Shade and future pressure to prune

- 3.15.1. The site layout has been assessed in terms of shading and future pressure to prune, and projected shading arcs can be seen on the corresponding Tree Protection Plan.
- 3.15.2. Given the orientation of the site, and the relationship between the proposed buildings and the retained trees, the juxtaposition is viable for long-term tree retention, and it is considered that shading by trees is unlikely to be a concern to future residents. As a result, it is considered unlikely that there would be any undue pressure to remove trees or excessively prune from any future occupants.

3.16. Services

- 3.16.1. It is fundamental to tree protection that infrastructure design is sensitively approached, as trenching close to trees may damage roots and affect tree health and stability.
- 3.16.2. Details of proposed service routes are not available at the time of writing. The Tree Protection Plan, showing the constraints posed by retained trees will be passed to the infrastructure engineers to inform their design, ensuring that all services avoid areas of potential conflict.
- 3.16.3. As per BS5837:2012 Figure 1, once further details become available as part of the detailed/technical design for the site, the TPP and AMS will be revised to incorporate these details for services for inclusion in the Tender documentation.
- 3.16.4. SUDs basins required for attenuation onsite are shown on the Tree Protection Plan. Where adjacent to trees a fencing alignment has been plotted in 3m segments to ensure that an accurate alignment of Heras fencing panels can be installed to protect retained RPAs whilst allowing a minimum 0.5m working room buffer.
- 3.16.5. The proposed SUDs, basins have been designed in contrast to the BS5837:2012 tree Survey RPA constraint data and include a peripheral bund feature to ensure that excavation within RPAs is not required.

3.17. **Boundaries**

- 3.17.1. All plot boundaries will need to be designed, positioned and installed to avoid damage to retained trees. When within RPAs, this will include hand excavation of all post holes, and the lining of any post holes with a non-porous membrane to stop leachates from the concrete damaging tree roots.

3.18. **Supervision & monitoring**

- 3.18.1. A pre-commencement site meeting is advised to ensure the suitability of the protection measure installed onsite prior to any development work starting.
- 3.18.2. The development process should be subject to arboricultural supervision where incursion into the RPA of retained trees is required. (e.g. removal of hard surfaces and sensitive excavation within RPAs).
- 3.18.3. Bi-monthly site monitoring visits are recommended to ensure that protection measures are adequately retained onsite for the duration of the development, and any potential arboricultural issues can be identified quickly and suitable remediation measures specified.

4. Arboricultural Method Statement

TO BE READ IN CONJUNCTION WITH THE LATEST REVISION OF THE CORRESPONDING TREE PROTECTION PLAN REFERENCE: EBC24408-03

4.1. Phasing of operations for tree protection

4.1.1. Implementation of tree protection measures on the site must be carried out in the following order:

- 1) Tree removals and tree surgery.
- 2) Line of tree protection fence to be set out to node points by surveyor.
- 3) Accurate erection of tree protection fence and ground protection.
- 4) Pre-commencement site meeting with project arboriculturist, Local Authority Tree Officer, site manager and groundworkers.
- 5) Site accessible to construction/demolition traffic.
- 6) Demolition/site clearance.
- 7) Construction.
- 8) Removal of tree protection fencing.
- 9) Remedial tree surgery (if required).

4.1.2. The above phasing must not be changed without approval from the project arboriculturist and agreement with the Council.

4.2. Site supervision

4.2.1. The development process will be subject to arboricultural supervision where construction work inside the construction exclusion zone is required, and for the installation of any special detail (e.g., no-dig surface). Therefore, input and/or supervision from the project arboriculturist will be required at the following stages:

- 1) Tree removals and Access Facilitation Pruning.
- 2) Site meeting with project arboriculturist, Local Authority Tree Officer and site manager to ensure accurate erection of tree protection measures, and identify areas of special detail (e.g. sensitive excavation).
- 3) Removal of hard surfaces within retained RPAs.
- 4) Sensitive excavation within retained RPAs.

4.2.2. Arboricultural supervision is to be carried out at all crucial stages throughout the development process to ensure detailed tasks are carried out as per the approved methodology, and during any other, unplanned incursions into protection areas, for whatever reason.

4.2.3. This supervision will usually require the arboriculturist to be present throughout the task, to ensure all the arboricultural objectives are met, however, if the task is to take a long period of time or consist of repetitive tasks, provided the arboriculturist is satisfied with the prior conduct of those involved, and after an additional 'tool-box talk', the supervision may be reduced to telephone contact between the site foreman/contractor and arboriculturist, with photos supplied as required.

4.2.4. Following all instances of onsite monitoring or supervision, a summary will be produced, suitable for submission to Eastleigh Borough Council to provide a record of tasks conducted and any remediation required.

4.2.5. It is the responsibility of the client to ensure required instances of supervision and monitoring are suitably instructed and organised with a adequately trained arboriculturist.

4.3. Restrictions within tree protection areas

4.3.1. Inside the exclusion area of the fencing, the following shall apply:

- No mechanical excavation whatsoever.
- No excavation by any other means without arboricultural site supervision.
- No hand digging without a written method statement having first been approved by the project arboriculturist.
- No lowering of levels for any purpose (except removal of grass sward using hand tools).
- No storage of plant or materials.
- No storage or handling of any chemical including cement washings.
- No vehicular access.
- No fire lighting.

4.3.2. In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builders sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees.
- No fire shall be lit such that flames come within 5m of tree foliage.

4.4. Avoiding damage to stems and branches

4.4.1. Care shall be taken when planning site operations in proximity of retained trees to ensure that wide or tall loads, or plant with booms, jibs and counterweights, can operate without coming into contact with retained trees. Such contact can result in serious injury to them and might make their safe retention impossible.

4.4.2. Consequently, any transit or traverse of plant in proximity of trees shall be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is at all times maintained. In some circumstances, it may be impossible to achieve this without pruning works known as 'access facilitation pruning'.

4.4.3. Access facilitation pruning shall be kept to the barest minimum necessary to facilitate development and shall be carried out in strict accordance with the guidance below (Tree Surgery). Under no circumstances shall construction personnel undertake any tree pruning operations.

4.5. Site storage, parking, welfare facilities

4.5.1. The site will require provision for; site storage, contractor parking, welfare facilities, temporary services/drainage, material drop of points, etc.

4.5.2. No details of these provisions are available at the time of writing of this report.

4.5.3. None of the above provisions will be sited within RPAs of retained trees without the input or the project arboriculturist and the consent of the Local Authority.

4.6. **Tree protection fencing**

- 4.6.1. The Tree Protection Plan (see the latest revision of: EBC24408-03) shows the alignment of Tree Protection Fencing (TPF), which is to be installed prior to any of the following taking place:
- Demolition.
 - Plant and material delivery.
 - Soil stripping.
 - Utility installation.
 - Construction works.
 - Landscaping.
- 4.6.2. Stages for installation of TPF:
- 1) Hand clearance of any vegetation to allow clear working access.
 - 2) Setting out of fencing points.
 - 3) Fencing erected.
 - 4) Site accessible to demolition/construction traffic.
- 4.6.3. To ensure accuracy and avoid future costly adjustments, the Tree Protection Fence must be set out by a surveyor with all node points being marked clearly on site for the fencing contractor to work to. A CAD copy of the Tree Protection Plan is available upon request for use by fencing contractors to ensure accurate erection of fencing onsite.
- 4.6.4. Once erected, all TPF will be regarded as sacrosanct, and will not be removed or altered without prior recommendation by the project arboriculturist and approval of the Eastleigh Borough Council.
- 4.6.5. The typical TPF construction is suitable for areas of high intensity development, and shall comprise of interlocking weld-mesh panels, well braced to resist impacts by attachment to a scaffold framework that is set firmly into the ground. A detailed specification can be found on the TPP.
- 4.6.6. Should any alternative method of barrier construction be proposed, consultation with the project arboriculturist will be obtained to clarify the efficacy of the revised design prior to informing the local planning authority and obtaining their consent.
- 4.6.7. Once the exclusion zone has been protected by barriers and/or ground protection, construction work can commence.
- 4.6.8. All weather notices should be erected on the barriers (for example see figure below).



Figure 1: Tree protection sign (download from) <http://www.acdenvironmental.co.uk>

TREE PROTECTION FENCING & EXCLUSION ZONE

All Tree Protection Fence (TPF) shall be installed prior to any plant activity on site whatsoever, including demolition, utility installation, groundworks, and soil stripping. Once erected, all TPF will be regarded as sacrosanct, and will not be removed or altered without prior recommendation by the project arboriculturist and approval of the local planning authority.

Tree Protection Fence shall comprise of Heras type panels on 'boots', well braced by attachment to scaffold pole uprights driven firmly into the ground. Once the exclusion zone has been protected by barriers and/or ground protection, construction work can commence. All weather notices may be erected on the barriers.

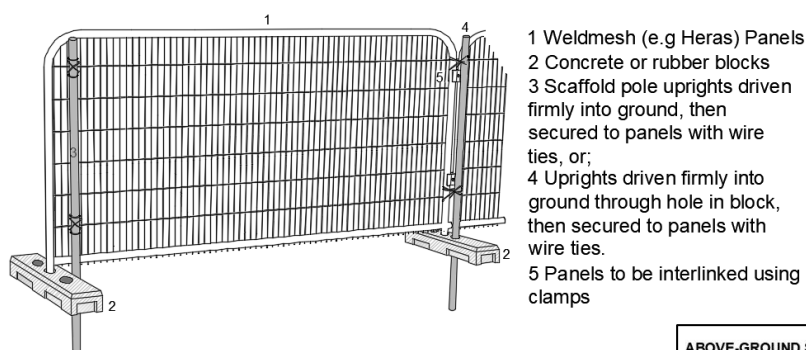
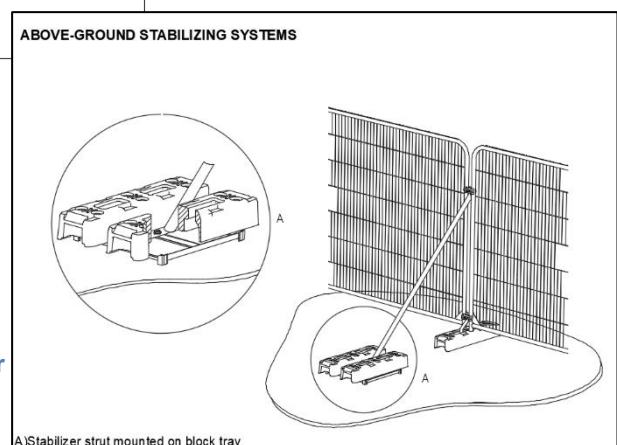


Figure 2: Adequate Tree Protection Fencing specification

Figure 3: Above ground stabilisation method for TPF where bracing cannot be secured into the ground (such as hard surfacing)



4.7. Ground protection

- 4.7.1. Prior to the installation of hard surfacing within retained RPAs, the area of encroachment should first be protected by adequate, temporary Ground Protection.
- 4.7.2. Temporary Ground Protection must be capable of supporting the expected loads without distorting and avoiding rutting, compaction and damage to the underlying soil.
- 4.7.3. As advised in BS5837:2012 section 6.2.3, temporary ground protection might comprise one of the following:
- a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g., 100 mm depth of woodchip), laid onto a geotextile membrane:
 - b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g., 150 mm depth of woodchip), laid onto a geotextile membrane:
 - c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g., proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.
- 4.7.4. Stages for ground protection installation²:
- No plant machinery to be used in the area of ground protection for whatever reason
- 1) Discuss procedure with project arboriculturist.
 - 2) Dismantle primary TPF and re-erect in secondary location as shown on TPP.
 - 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 roots of retained trees.
 - 4) Lay woven geotextile over existing ground surface by hand.
 - 5) Cover the area with compressible layer, woodchip for example, using hand tools only.
 - 6) Cover compressible layer with side butting scaffold boards or plywood boards.
 - 7) Confirm surface is acceptable for use with project arboriculturist.
 - 8) Area ready for construction access.
- 4.7.5. To ensure accuracy and avoid future costly adjustments, the Ground Protection must be set out by a surveyor with all node points being marked clearly on site for the fencing contractor to work to.
- 4.7.6. There is to be no-excavation within ground protection area whatsoever. This includes installation of services and associated utilities.

²For protection from foot traffic only

4.8. Tree surgery and removal

4.8.1. Those trees which are to be removed or pruned are shown with a red dashed canopy outline and a red hatched infill on the latest revision of the corresponding Tree Protection Plan (ACD drawing reference: EBC24408-03).

4.8.2. The following surgery works are to be carried out:

Tree number	Species	Operation
G2	Goat Willow	Prune back group as shown on TPP to provide 0.5m offset from proposed surfacing for working room and protective fencing erection.
T104	Ash	Remove to ground level. Grind out remaining stump.
G106	Bramble	Sectional removal from group as shown on TPP to facilitate new pedestrian footpath routes.
G138	Holly, Hawthorn, Hazel	Sectional removal from group as shown on TPP to facilitate drainage routes and SUDs basins.
T152	Goat Willow	Remove to ground level. Grind out remaining stump.
G155	Ash	Remove x4 group constituents as shown on TPP to ground level. Grind out remaining stumps.
T156	Oak	Remove to ground level. Grind out remaining stump.
T157	Oak	Remove to ground level. Grind out remaining stump.
G161	Goat Willow	Remove group to ground level. Grind out remaining stumps.
T164	Ash	Remove to ground level. Grind out remaining stump.
G171	Oak, Willow, Ash, Blackthorn, Field Maple, Hawthorn, Bramble	Prune back group as shown on TPP to provide 0.5m offset from proposed surfacing for working room and protective fencing erection.

4.8.3. Further to the above site specific tree surgery works, the following Access Facilitation Pruning is to be conducted as required throughout the duration of the development:

4.8.4. Access Facilitation Pruning will be subject to all trees as required throughout the duration of the development and shall not exceed the following thresholds:

Tree number	Operation
All Trees	Lift lower crowns overhanging proposed pedestrian surfaces to 3.5m.
All Trees	Lift lower crowns overhanging proposed vehicular surfaces to 5.5m.
All Trees	Reduce crowns to allow 0.5m clearance from proposed surfacing footprints
All Trees	Reduce crowns to allow 1.5m clearance from proposed building footprints

4.8.5. If any further tree surgery works are required, a proposed specification will be submitted to and approved by Eastleigh Borough Council before any works are carried out onsite.

4.8.6. All work will be carried out in accordance with BS 3998:2010 Recommendations for Tree Work, or more recent industry best practices and in line with any works already agreed with the Council.

- 4.8.7. The tree surgery contractor is responsible for carrying out any relevant health and safety risk assessment, and insurance, prior to any work being carried out.
- 4.8.8. The statutory protection afforded by the Wildlife and Countryside Act and Countryside and Rights of Way Act will be adhered to. If further advice is required, particularly if bats are discovered during tree work, it will be obtained from Natural England or other competent persons and recommendations adhered to.
- 4.8.9. The stumps of any trees removed from within the Construction Exclusion Zone or the RPAs of retained trees will be either; cut flush to ground level and left in situ or ground out using a stump grinder. They will not be winched out.
- 4.8.10. All operations shall be carefully carried out to avoid damage to the trees being treated or neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.
- 4.9. **Resurfacing/repair of existing roads**
 - 4.9.1. Tree protection measures will remain in place until work commences and when removed all personnel to be working within the area are to be made aware of the extent and nature of the area.
 - 4.9.2. All work within protected areas to be supervised at all times by project arboriculturist.
 - 4.9.3. Stages for repair/replacement of existing hard surface within tree protection areas:
No plant machinery to be sited on any exposed rooting area
 - 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
 - 2) Remove TPF to allow access to area.
 - 3) Plant machinery to run only on existing tarmac surface.
 - 4) Plant may be used to carefully peel up existing tarmac.
 - 5) Other hard landscape features are to be removed by hand (paving etc.) or carefully lifted with plant.
 - 6) Sub-base to be retained.
 - 7) Sub-base to be enhanced if required.
 - 8) New tarmac surface to be installed.
 - 4.9.4. Should any roots over 25mm diameter be encountered during deconstruction of the old profile, their removal will only be carried out under arboricultural supervision and with the approval of the LPA.
 - 4.9.5. Any new kerbing must be installed within the current hard construction profile.
 - 4.9.6. No new excavation closer to the tree will be permitted.

4.10. **Hard surface removal**

4.10.1. No hard surface removal within RPAs will occur without arboricultural supervision.

4.10.2. Stages for hard surface removal within tree protection areas:

No plant machinery to be sited on any exposed rooting area

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Dismantle fencing as required to access area.
- 3) Plant machinery to run only on existing hard surfaces with consent from arboriculturist.
- 4) Plant may be used to carefully peel up existing tarmac and concrete.
- 5) Other surfaces are to be removed by hand (paving etc.).
- 6) Where any subbase is not likely to contain roots, and only on approval from project arboriculturist, it may also be carefully removed.
- 7) Underlying ground levels to be retained. No excavation to occur.
- 8) Any exposed roots³ and surrounding newly exposed areas to be covered with up to 100mm of topsoil, from elsewhere on site, or imported topsoil (to BS3882:1984). Soil may be placed in area by plant but must be spread by hand.
- 9) Tree protection fencing to be erected in final position as shown on plan.

4.10.3. If the area around the retained trees is to be left following the removal of the existing hard surface, before a new hard surface is laid or soft landscaping implemented, then the line of protective fencing **MUST** be correctly re-established immediately the hard surface removal work has been completed.

4.10.4. If, for whatever reason there is a delay before the area is left exposed prior to awaiting a new surface, then a temporary surface must be implemented, or the area fenced off.

³Should any roots over 25mm diameter, have grown above the final soil level and be a hindrance to any new surface installation, their removal will only be carried out under arboricultural supervision and with the approval of the LPA.

4.11. Installation of underground services within RPAs

4.11.1. If for whatever reason installation within RPAs is required, the project arboriculturist and local authority must be notified prior to any tree protection barrier removal and the following details adhered to.

4.11.2. Stages for installing services within tree protection areas:

No plant machinery to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Remove just enough tree protection fencing to allow access to area and facilitate trenching.
- 3) Remove any surface vegetation or existing hard surfaces using hand tools.
- 4) Excavate the trench using hand tools only, keeping to minimum dimensions required.
- 5) Roots below 25mm should preferably be retained, however if required can be cut cleanly using secateurs or hand saw.
- 6) Roots over 25mm diameter will be retained and kept damp by covering with hessian (re-wetted as required).
- 7) Feed in services.
- 8) Back fill trench with 200-300mm depth of excavated soil, or a mixture of excavated and imported top-soil (to BS3882:2015), firming down with heels.
- 9) Repeat step 7 until trench is filled.
- 10) Re-erect tree protection fencing as per approved plan.

4.11.3. An alternative to the method of excavation above, for trenching within RPA's, is by using an 'air-spade' or similar. This tool utilises compressed air to remove soil from around tree roots causing minimal damage and can be run off a typical site compressor. ACD can provide details of contractors supplying air-spade services if required.

4.11.4. Alternatively, trenchless technology such as thrust boring can be used in some instances and is particularly effective as it can pass directly under the tree, at a depth which is likely to avoid almost all impact on roots of the subject tree. As no access/thrust pits will be located within the RPAs of the subject trees, the need for arboricultural supervision is limited.

4.11.5. Reference can be made to National Joint Utilities Group Publication Volume 4 (NJUG Vol 4) for guidance, but any approach must be approved by the project arboriculturist.

4.12. Sensitive Excavation within RPAs

4.12.1. All areas of required sensitive excavation (including an allowance for working room) are indicated on the corresponding Tree Protection Plan

4.12.2. Stages of excavation within RPAs:

- 1) Contact project arboriculturist to hold pre-start site meeting, 'toolbox talk' and supervise the operation.
- 2) Remove TPF to allow access to area (if required).
- 3) Identify sensitive area to be excavated and mark out with spay or pegs
- 4) Where realistically feasible excavated using hand-tools only with additional use of an air-spade as required.
- 5) For more significant excavations or dense soils, use of a digger with a no-tines bucket may be used under close supervision from the project arboriculturist.
- 6) If roots 25mm^Ø or over are found during excavation, clear by hand around them, ensuring they are not damaged, and cover with damp material (e.g. hessian) and keep moist until backfilled.
- 7) Roots under 25mm^Ø may be severed as required to implement the required excavation.
- 8) Significant roots may only be severed following assessment and approval by the project arboriculturist - including a photographic record made of roots prior to pruning to be used for reference if required at a later date.
- 9) Roots severance should proceed as below:
 - i. Cleanly sever roots with bypass secateurs, loppers or pull cut saw at right angles to root.
 - ii. Avoid tearing or ripping the root.
 - iii. Backfill as soon as possible to cover cut root ends.

4.12.3. If for whatever reason, the project arboriculturist feels that a tree's stability has been compromised during the excavation operation, then the LPA shall be contacted, and the arboricultural officer (or appropriate landscape officer) notified. A decision can then be made as to the best way forward.

4.13. Soil remediation measures for compaction within RPAs (if required)

4.13.1. Stages for soil remediation for compaction within RPA. The following works must be undertaken by a suitably qualified and experienced soil remediation contractor:

- 1) Soil test to be undertaken to identify soil texture, nutrient content and pH. Based on the results, appropriate remediation measures to be undertaken.
- 2) Compaction test to be undertaken to identify soil compaction level.
- 3) Appropriate soil decompaction measures using a Terravent to reduce any compaction that may have occurred. To be used in a 1m matrix over the entire area previously covered by the fill.
- 4) Add layer of well composted mulch to a depth of 100-200mm over the RPA area.

4.13.2. Contamination of the soil by fuel and lubricant leaks must be avoided at all costs. If such a situation arises the project arboriculturist must be notified to assess the situation and prescribe remedial measures.

4.13.3. No plant machinery to be used in the area for whatever reason.

4.14. **Soft landscaping within RPA**

- 4.14.1. All landscaping and associated ground preparation within exclusion zones will be carried out sensitively to ensure root damage is mitigated as much as is practicable. At no time is any heavy plant to be used within any protected area. Removal of existing vegetation will be carried out by hand; turf may be removed using a mechanical turf stripper or by hand.

4.15. **Turfing**

- 4.15.1. Stages for turfing gardens and open spaces:

No plant machinery⁴ to be used in the area for whatever reason

- 9) Remove TPF to allow access to area.
- 10) Do not reduce any high spots or excavate in any way.
- 11) Existing poor-quality turf may be removed with a turf stripper.
- 12) Use good quality topsoil to level any low-lying areas and hollows and provide a fine tilth to lay turf on. This imported soil must not result in a level increase of more than 100mm in any area.
- 13) Import turves by hand in wheelbarrow.
- 14) Lay turves.

4.16. **Planting**

- 4.16.1. Should the soil be compacted or have a poor structure which may hinder the development of any new planting, soil decompaction techniques may be used upon consultation with the project arboriculturist.

- 4.16.2. Stages for planting within tree protection areas:

No plant machinery to be used in the area for whatever reason

- 1) Remove TPF to allow access to area.
- 2) Remove existing vegetation by hand, turf may be removed using a mechanical turf stripper.
- 3) Do not reduce any high spots or excavate in any way.
- 4) Import good quality topsoil by hand (with wheelbarrow) into area.
- 5) Level to a depth of no more than 100mm with hand tools.
- 6) Dig individual planting pits for each plant by hand (including hedging which must not be trench planted).
- 7) Any mulch should also be imported and spread by hand.

- 4.16.3. No works will be carried out within any protected areas if the soil moisture is of a level likely to allow compaction to occur.

⁴ Including rotovators

4.17. Installation of boundary fencing within protected areas

4.17.1. Stages for installing wooden fence posts:

No plant machinery to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Remove TPF to allow access to area.
- 3) Dig post holes using hand tools, avoiding damage to the protective bark covering larger roots. Roots smaller than 25mm diameter may be pruned back using either secateurs or a hand saw, leaving a clean cut.
- 4) Damage or severance of roots above 25mm diameter must be avoided. If roots of this size are discovered, the hole should be relocated. If there are a large number of such roots it may be necessary to relocate the hole by half a fence panels length and adjust the fence panels accordingly.
- 5) Line hole with non-porous lining, for example durable polythene bag.
- 6) Insert post and fill post hole with concrete to ground level.
- 7) Trim polythene to ground level.

Henry Pinn *Arb L4 (ABC)*
Senior Arboriculturist

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