

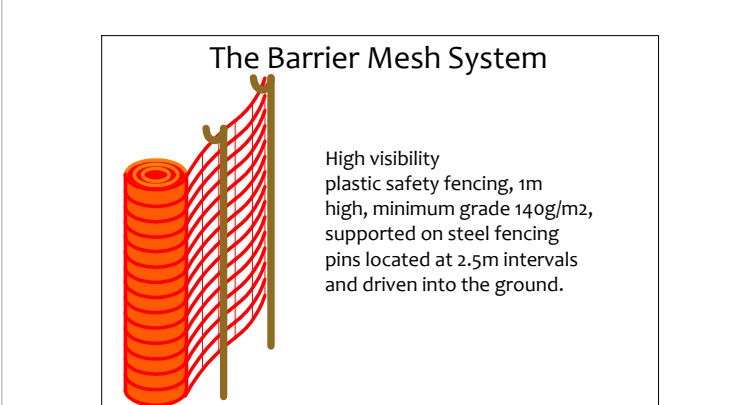
Tree Protection Barriers

The purpose of tree protection barriers is to keep construction activity away from Restricted Activity Zones or Construction Exclusion Zones. They should be appropriate to the nature and proximity of activity within the site. The barriers should be erected prior to the commencement of all activity including demolition, soil stripping and delivery of materials and demolition (except where existing structures require demolition to enable the barriers to be installed). Barrier systems are specified below and should be installed according to the legend on the Tree Protection Plan.

The Barrier-Mesh System

Where indicated by a thick red line (solid or dashed) on the Tree Protection Plan, it shall be acceptable to install a less robust system than usually required to protect trees during construction. This is because of the nature of construction activity or its distance from tree protection areas. The purpose of such a system shall be to demonstrate the protection zone. It is not intended that such fencing will withstand knocks by construction machinery.

In this system, high visibility plastic safety fencing, 1m high, minimum grade 140g/m² is supported on steel fencing pins located at 2.5m intervals.



Stem Protection – Cloth and Chestnut Paling Wrap

Where indicated by a turquoise star on the Tree Protection Plan, it is proposed to protect a tree stem using sturdy cloth and chestnut paling double wrapped around the stem and other tree protection barriers, such as those specified above, are not considered appropriate due to the proximity of the tree stem to proposed activity.

The tree stem and any low limbs shall be protected from ground level to a height of 5m by wrapping them at least three times with a sturdy material such as hessian cloth or similar. Around this, chestnut paling shall be wrapped at least twice around and secured.

The wrappings shall be secured using string, wire or plastic cable clips. They shall not be secured by driving nails or tacks into the tree stem or bark.

Notices

Suitable weather-proof notices should be displayed to identify tree protection zones. They should state the purpose of the fencing and that it should not be moved, or traversed, other than by authorised personnel.

Removal of Tree Protection Barriers

Removal of protective fencing or ground protection measures shall be done after all major construction work is complete and their removal has been approved by the appointed arborist.

Ground Protection Measures

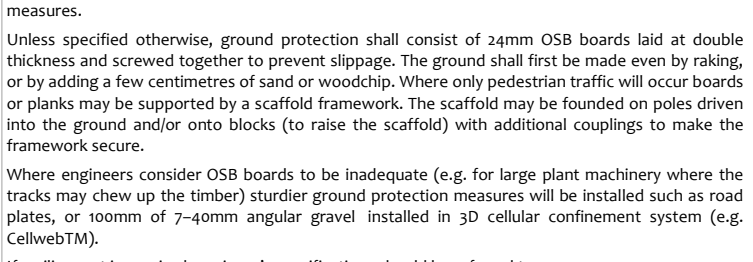
Within Restricted Activity Zones, soils containing roots may be subject to compaction due to general construction activity (including pedestrian activity and use of plant machinery). In order to minimise compaction, it is proposed to ensure that a suitable load-spreading surface is in place at all times. Any existing hard surfacing may be retained where engineers consider it adequate to spread the load of construction traffic. Otherwise it shall be reinforced or replaced with adequate ground protection measures.

Unless specified otherwise, ground protection shall consist of 34mm OSB boards laid in double thickness and screwed together to prevent slippage. The ground shall first be made even by raking, or by adding a continuous layer of sand or woodchip. Where only pedestrian traffic will occur boards or planks may be supported by a scaffold framework. The scaffold may be founded on poles driven into the ground and onto blocks (to raise the scaffold) with additional couplings to make the framework secure.

Where engineers consider OSB boards to be inadequate (e.g. for large plant machinery where the tracks may chew up the timber) sturdier ground protection measures will be installed such as road plates, or viom of 7-10mm angular gravel installed in 3D cellular confinement system (e.g. CellvetM).

If a piling mat is required, engineer's specifications should be referred to.

The ground protection measures shall be installed and approved before commencement of demolition and construction activity and before the arrival of plant machinery or materials. They shall remain in place until all heavy construction activity is complete or until they are due to be replaced with a new hard surface.



The image below shows the canopy of T1 in relation to the area where the garden room is proposed:



Restrictions in Specific Zones

Restricted Activity Zone A

Within this zone trees roots are likely to be present where access will be required to facilitate construction. The following restrictions shall apply:

- No vehicles or plant machinery shall park or operate unless a suitable load spreading surface is in place. The load spreading surface shall be installed and/or maintained as specified under the heading **Ground Protection Measures**. This shall remain in place throughout the entire demolition and construction phase or until any new permanent hard surfacing is installed. Any pedestrian activity other than very occasional shall also require a suitable load spreading surface.
- Removal of existing structures such as walls, steps and hard surfaces (where applicable) shall be undertaken using hand tools or a mechanical excavator operating from outside the Restricted Activity Zone and carefully marshalled by the project arborist.
- No excavation shall occur beneath any existing hard surfacing and its sub-base or beneath the foundations of any structure such as walls, steps or patios.
- No further excavation shall occur in this zone without consulting the project arborist and obtaining approval from the local authority.
- Existing ground levels shall be retained undisturbed or raised by no more than 100mm. Ground levels may only be raised using granular topsoil (not rich in clay) or where new surfacing is proposed.
- No new permanent or temporary structures shall be erected other than those shown on the planning application documents unless approved by the local authority.
- Underground services shall not be installed in this area without prior consultation with the project arborist and a methodology agreed and approved by the local authority.
- If roots are encountered in excess of 25mm diameter, they shall be retained wherever possible and protected with damp packing during times that they are unearthed. Any roots in excess of 50mm that need to be severed shall be pruned with secateurs.
- Storage of materials and spoil shall be avoided unless it has been agreed with the project arborist that the ground protection measures are adequate to ensure no soil compaction or contamination occurs. All hazardous materials (including non-essential cement products) shall be forbidden.
- No fires shall be permitted.

General Restrictions - Throughout the Site

Preparatory Works

No demolition, removal of surfaces, or soil stripping shall commence until the protective fencing and ground protection measures are installed to the satisfaction of the local authority.

Fires

No fires shall be permitted beneath any tree canopy or within 5m of any tree stem, branch or foliage. No fires shall be permitted within any Construction Exclusion Zone or Restricted Activity Zone. No fires shall be permitted in the vicinity of any exposed tree roots.

Canopy Protection

In order to protect tree canopies the following restrictions shall apply throughout the site:

- No machinery in excess of 2m shall pass beneath the canopy of any tree without being carefully marshalled in order to ensure that no branches are damaged.
- If materials require installation or delivery beneath tree canopies, this shall be done without the use of overhead cranes.
- If materials are to be installed or delivered close to tree canopies (but not beneath them) and a crane is required, they shall be carefully marshalled in order to ensure that branches are not accidentally damaged.

Storage of Spoil and Materials

Storage of materials and spoil shall be avoided in any Construction Exclusion Zones and Restricted Activity Zones unless it has been agreed with the project arborist that the ground protection measures are adequate to ensure no soil compaction or contamination occurs. All hazardous materials (including non-essential cement products) shall be forbidden.

Hazardous Materials

Any mixing of cement based materials shall take place outside the Construction Exclusion Zones and Restricted Activity Zones. Where cement is to be mixed at considerable distances from trees and water run-off cannot enter Root Protection Areas, then no further special measures are required. Otherwise, provision shall be made to ensure that the mixing area is contained so that no water run-off enters the Root Protection Area of any tree (see diagram for example). Mixers and barrows will be cleaned within this area.

All other chemicals hazardous to tree health, including petrol and diesel, shall be stored in suitable containers as specified by current COSHH Regulations, and kept away from Root Protection Areas.

Underground Services

No underground services (including soak-aways) shall be located in any part of the Construction Exclusion Zones or Restricted Activity Zones unless done so in a manner detailed in a specific Method Statement and approved by the local authority.

Site Hoarding

If site hoarding shall be installed over the Root Protection Area of any tree, the following restrictions shall apply:

- Ground levels shall be maintained as existing.
- Post holes shall not exceed 300mm x 300mm.
- No post hole shall be excavated within 15m of any tree stem.
- Post holes shall be excavated using hand tools or by a post-hole auger attached to plant machinery sited outside of Root Protection Areas.
- Roots in excess of 20mm shall be retained wherever possible.
- Roots in excess of 50mm shall be pruned with sharp secateurs.
- Pruning shall be minimal and only undertaken where absolutely necessary to facilitate the site hoarding. It shall be undertaken by a reputable tree surgeon working to BS 3998 (2010).
- Site hoarding may be installed in place of the specified tree protection measures subject to the approval of the local authority with regard to its location and specification.

Siting of Cabins

Cabins shall be located outside of Construction Exclusion Zones and Restricted Activity Zones unless agreed otherwise by the project arborist. Where this is being considered, the project arborist shall be consulted and specific tree protection measures agreed. The following general restrictions will apply:

- All services to and from site cabins shall be installed above ground through any Root Protection Areas.
- No excavation shall occur within Root Protection Areas to enable cabins to be installed.
- The cabins shall be founded on a suitable load spreading surface.

Fence Posts or Decking Posts

If permanent fencing or decking is to be installed within Root Protection Areas, the following restrictions shall apply:

- All post holes shall be excavated by hand and kept as narrow as possible (maximum diameter 300mm).
- Exploratory post holes shall be dug before committing to post / panel positions. If any roots in excess of 50mm are encountered they are to remain intact and the post hole shall be relocated slightly. The fencing system must permit such flexibility (i.e. where fixed panel widths are used all post holes must be excavated before committing to the final location).
- Any roots in excess of 100mm which are severed shall be neatly pruned back with secateurs. This will encourage healing and reduce the likelihood of infection.

Walls shall be avoided over Root Protection Areas unless their foundations may be spanned over roots using a beam system.

Hedges may be planted within Root Protection Areas using hand tools to minimise excavation.

When installing the new pedestrian surface over the Root Protection Area of T1 and T3, the following restrictions shall apply:

- No other building works shall be permitted.
- Prior to the new surface being installed, no vehicles or plant machinery shall drive, operate or park until unless ground protection measures are implemented as specified under the heading **Ground Protection Measures**.
- Excavation shall be limited to the removal of any existing vegetation and loose topsoil to a maximum depth of 200mm. Furthermore, if any roots in excess of 50mm are encountered, all excavation shall cease in order to enable the roots to be retained intact, and the new surface shall be installed above them.
- Any edging structures used shall be installed without excavation below this depth.
- Any sub-base used shall not contain any fines (fines crushed aggregate material). Favourable should be used and dry jointed (i.e. no mortar joints) to permit infiltration of rainwater through to the ground beneath.

Restricted Activity Zone B

Within this zone demolition of the existing garden room and construction of a new garden room is proposed within the Root Protection Areas of T1, T2 and T3. In order to avoid any detrimental impact upon the systems of these trees, following additional restrictions shall apply:

- When demolishing the existing outbuilding, hand tools only should be used during demolition. The adjacent walls shall be demolished into the footings of the structure, and foundations/surfaces carefully lifted. Tree protection measures shall be installed prior to commencement of demolition.
- No vehicles or plant machinery shall park or operate unless a suitable load spreading surface is in place. The load spreading surface shall be installed and/or maintained as specified under the heading **Ground Protection Measures**. Any pedestrian activity other than very occasional shall also require a suitable load spreading surface.
- Storage of materials and spoil shall be avoided unless it has been agreed with the project arborist that the ground protection measures are adequate to ensure no soil compaction or contamination occurs. All hazardous materials (including non-essential cement products) shall be forbidden.
- Deep strip foundations shall not be used.
- Instead an above ground raft or beam supported on narrow piles shall be installed.
- The narrow piles shall be hand augered into the ground. Before installing such piles, their location shall be determined by trial pits excavated to a depth of 600mm using hand tools. If any roots in excess of 40mm diameter are encountered they shall be retained intact and the pile shall be relocated. If any roots between 50mm and 40mm are encountered, they shall be retained intact wherever possible and the pile shall be relocated. Any roots that need to be severed shall be pruned with secateurs.
- In the event of the roots being too close to each other, or there is no more tolerance, a hand driven helical anchor shall be employed. Such anchors have a much slimmer profile, once the fins are hand manoeuvred past the roots.
- Excavation for the trial pits shall be overseen by the project arborist.
- No further excavation shall occur below existing ground levels (other than that required to remove any existing vegetation or any existing hard surface and its sub-base).
- A ventilated void shall be maintained beneath the entire foundation.
- Provision shall be made for a controlled amount of rainwater to be diverted into the void. An example of such a provision would include a 100mm gravel surface beneath the slab foundation for rainwater to be diverted onto. This may be done via a controlled overflow system or an automatic pumped system controlled by moisture sensors as is the preference of engineers and designers.

Timing of Operations

Activity within the site shall be phased according to the following chronology:

| Order | Phase | Activity |
|---|-----------------------------------|---|
| 1st. | | Planning conditions relating to tree to be identified and discussed with the Project arborist and site manager. |
| 2nd. | | All specified tree pruning to be undertaken (see Header -Tree Works Schedule). |
| 3rd. | Pre-Construction Phase | Install the tree protection barriers (fencing and ground protection boards - see Headers -Tree Protection Barriers and Ground Protection Measures). |
| 4th. | | Pre-Commencement site meeting: Tree protection barriers inspected. Additional protection measures to be agreed. Variances to be agreed. Location of underground services to be agreed. Extents of excavation to be agreed. Scope of future inspections / monitoring to be agreed. |
| 5th. | | Arboricultural Method Statement to be revised and approved necessary. |
| Protection measures confirmed acceptable by the local authority | | |
| 6th. | Demolition and Construction Phase | Demolish existing structures and remove existing surfaces where applicable. |
| 7th. | | Install new garden room, hard surfaces and services taking into account restricted activities as specified in this Arboricultural Method Statement. |
| 8th. | | Site meeting with project arborist. Landscaping restrictions to be agreed. Condition of retained trees to be assessed and mitigation agreed. Ground conditions to be assessed and ground remediation to be agreed. |
| 9th. | Post-Construction Phase | Remove protective barriers (fencing and ground protection measures as applicable). |
| 10th. | | Undertake restricted landscaping operations within Root Protection Areas, including (where applicable) boundary treatments, pedestrian surfaces, decking and any proposed tree planting. |

Personnel and Accountability

This table should be completed at the Pre-Start Meeting or earlier

| Position | Name | Contact Phone & email | Roles |
|---------------------------|----------------------------|--|--|
| Project Manager | Insert Details | Insert Details | Liaising with site manager & project arborist regarding any potential issues relating to trees. Scheduling of meeting, excavations and inspections. Overseeing this monitoring schedule. Instructing the project arborist and arranging access. Liaising with local authority regarding discharge of planning conditions and variances to the Arboricultural Method Statement. Day to day monitoring of tree protection measures. Fortnightly supply of site photographs showing all tree protection measures. Induction of all contractors. Reporting to the Appointed Arborist of any incidents or potential variations to the agreed tree protection measures. Liaising with LPA Tree Officer over all arboricultural matters. Initial inspection and signing off of tree protection barriers including ground protection measures. Monthly site visits and inspections. Oversight of excavation for basement down to 1.2m in Restricted Zones. Reporting to the local authority following site inspections and any variation or incidents. Receipt of reports from the appointed arborist. Liaising with the appointed arborist to agree suitability of tree protection measures and any variations. Enforcement. Advice and assistance with the discharge of planning conditions relating to trees. |
| Site Manager | Insert Details | Insert Details | |
| Project Arborist | Crown Tree Consultancy Ltd | 08000 14 13 30 0203 797 7449 Info@crowntrees.co.uk | |
| Local Authority | London Borough of Camden | Nick Bell 020 774 5939 Nick.Bell@camden.gov.uk | |
| Additional Contact | Insert Details | Insert Details | Insert Details |
| Additional Contact | Insert Details | Insert Details | Insert Details |

Site Monitoring Schedule

| Inspection | Site Attendees | Comments |
|--|---|--|
| Pre-Start Desk-top To occur prior to any works taking place on the site. | N/A. | Project Manager and Site manager to study this Method Statement & contact the Project Arborist to agree all protection measures. |
| Pre-Start Meeting After tree works completed & tree protection barriers / ground protection measures installed. Prior to any other activity, inc. demolition & soil stripping. | Site manager, project arborist, Tree Officer invited. | Tree protection fencing locations & specification checked. Ground protection measures checked. Contractors to be indicated to all relevant aspects of the Arboricultural Method Statement. Responsibilities checked and acknowledged. Adherence to the Arboricultural Method Statement to be discussed and agreed. Report on findings to be sent to the local authority tree officer (see accompanying reporting template) |
| Overseeing Installation of Foundations in Restricted Activity Zone B. All excavation to be overseen. | Site manager and project arborist.* | Two week's notice to be given prior to commencement. Excavation to be specified in this Method Statement. Roots to be retained or pruned as specified in this Method Statement. Activities to be recorded and photographed. Mitigation measures to be employed specified by the project arborist. |
| Post-Construction Meeting Post external construction activity but prior to removal of fencing & landscaping operations. | Site manager, project arborist, Tree Officer invited. | Retained trees inspected. Ground conditions assessed and mitigation measures agreed where appropriate. Further landscaping operations and restrictions to be agreed. |

* Where agreed with the L.A. it may be acceptable to supply photographs of the fencing to avoid the necessity for a site visit.

Tree Data Schedule

| Reference to Tree | Age & Species | Height (m) | DBH (cm) | Crown Spread (m) | Scaled Tree Diagram (m) | Notes | Recommendations (based on any development proposals) | Health Condition | Priority | Provisional Retention Condition | Life Expectancy (yrs) | Assess Value | |
|-------------------|-----------------------------|------------|----------|------------------|-------------------------|-------|--|--|---------------------|---------------------------------|-----------------------|--------------|-------|
| T1 | Semi-Mature Ash | 8 | 3 | 29 | 4 | 3.5 | 4 | Form: History: Defects: Single stemmed and bearing with a sparse crown. No significant defects observed. Significant cavities developing at 2.5 meters and 5 meters above ground level. Severe minor dead branches throughout. T1 has been plotted according to measurements provided to Crown Consultants following the original site survey. | No action required. | Very Low | Very Poor | Low | 10-20 |
| | Fraxinus excelsior. | | | | | | | Position: Form: History: Defects: Adjacent rear boundary. Shrub with multiple entangled stems. No evidence of significant pruning. No significant defects observed. | No action required. | High | Good | Low | 10-20 |
| T2 | Semi-Mature Elder | 4.5 | 2 | 22 | 2 | 2 | 2 | Position: Form: History: Defects: 6.2 meters from rear boundary. Multi-stemmed at ground level with a compact crown. Maintained by regular trimming. No significant defects observed. | No action required. | High | Good | Low | 20-40 |
| T3 | Young Bay Laurel | 2.5 | 1 | 22 @ Base | 1 | 1 | 1 | Position: Form: History: Defects: Situated on third party land. Multi-stemmed at ground level with a compact crown. No evidence of significant pruning. No significant defects observed. Limited inspection, dimensions estimated. | No action required. | Moderate | Good | Fair | 20-40 |
| T4 | Semi-Mature Strawberry Tree | 3 | 1.5 | 20 @ Base | 2 | 1.5 | 2 | Position: Form: History: Defects: Situated on third party land. Multi-stemmed at ground level with a compact crown. No evidence of significant pruning. No significant defects observed. Limited inspection, dimensions estimated. | No action required. | Moderate | Good | Fair | 20-40 |
| T5 | Semi-Mature Prunus | 5.5 | 3 | 19 | 1.5 | 1.5 | 1.5 | Position: Form: History: Defects: Situated on third party land. Multi-stemmed at ground level with a compact crown. No evidence of significant pruning. No significant defects observed. Limited inspection, dimensions estimated. | No action required. | Moderate | Fair | Low | 10-20 |

