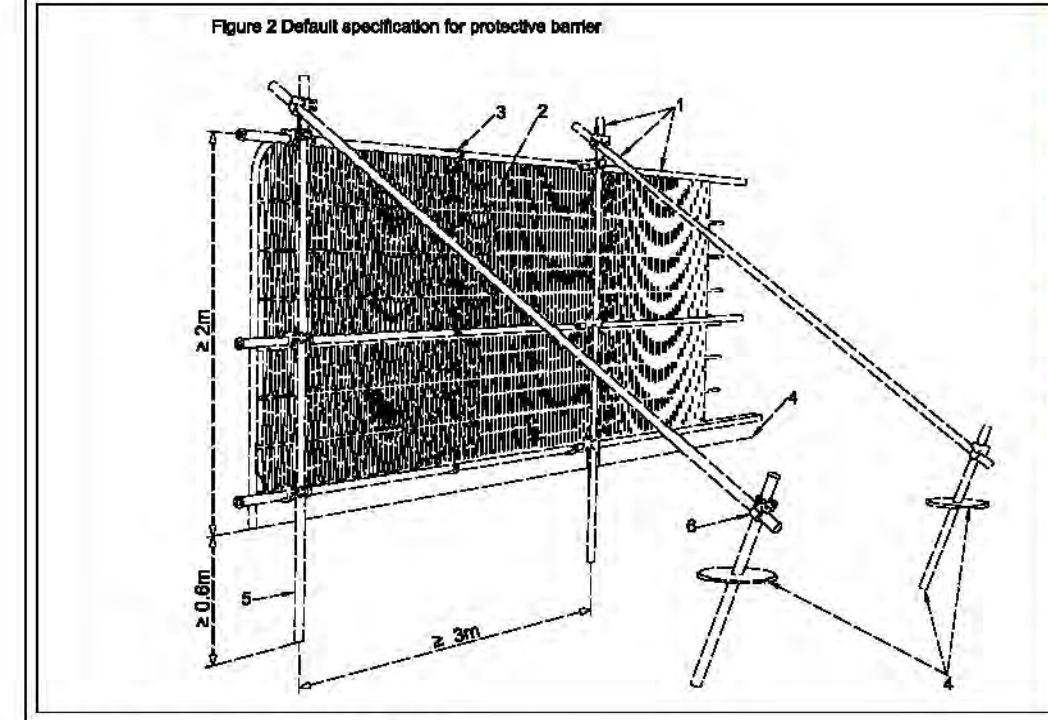
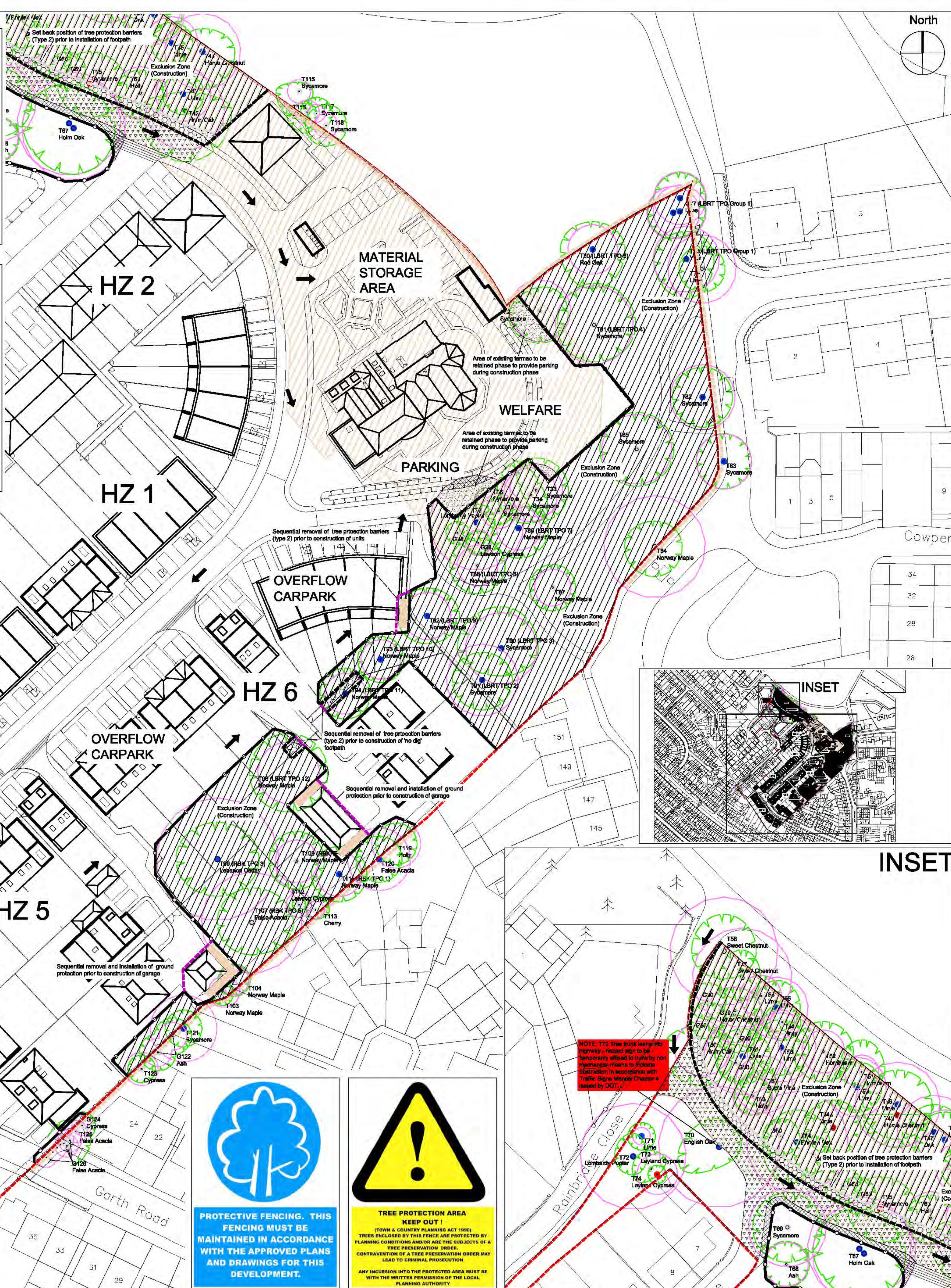
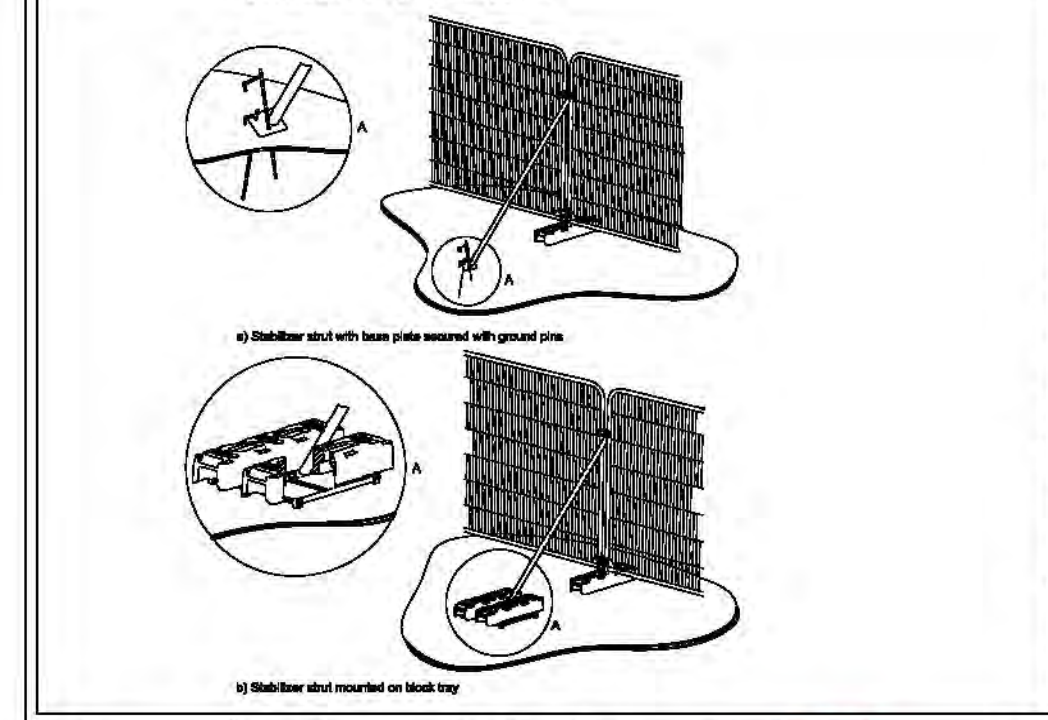


Tree Protection - Type 1 Barrier



Tree Protection - Type 2 Barrier



General

This illustrative plan provides information in respect of planning permission 14/12/144/FUL (Royal Borough of Kingston) and identifies the location of trees to be protected. The illustrative plan is intended to inform the location of protective barriers, other relevant physical protection and highlight precautionary areas for retained trees during the construction phase. This plan should be incorporated into subsequent drawings and contractors method statements and issued for use on site, to ensure that all parties are fully aware of the areas in which access and works may be carried out and may not take place.

Site Boundary
 Line of site boundary within RPA
Statutory Designations (trees)
 High Common Conservation Area
Site Hoarding
 Line of site hoarding within RPA
Tree Preservation Order (RPA and LBR)

Arboricultural Method Statement
 The primary purpose of this plan is to aid the preservation of retained trees through setting out the appropriate working practices, construction techniques and tree protection measures that are to be adopted when construction works are undertaken in the proximity of trees. The methodology of this Tree Protection Strategy follows a logical sequence of events. Variations to the sequence could significantly reduce the efficiency of the tree protection measures. This plan should be incorporated into subsequent drawings and method statements used for design purposes or issued for use on site, to ensure that all parties are fully aware of the areas in which access and works may and may not take place.

A summary of tree protection will be provided to all personnel through the Site Induction. This summarises the key precautionary measures and responsibilities of all site personnel to ensure an awareness of trees during site works and that they are successfully protected throughout the site establishment and construction works. It is the responsibility of the Site Manager to ensure that the Tree Protection Plan is implemented on site, maintained during the development process and understood by all site personnel and contractors prior to commencement of works.

Tree Roots - The majority of tree roots are typically concentrated within the top 600mm of the soil. Repeat tracking by vehicles, excavation or ground (including crane) over soft ground near trees is likely to cause root damage. This may have an adverse impact on the trees health and stability. Any tree roots exposed during operations should be treated as once. Exposed roots smaller than 25mm diameter may be pruned back, preferably to a side branch, using proprietary cutting tools. In the event that roots are required to be pruned, sharp cutting tools are to be used to ensure the minimum damage is caused. Clean cuts can result in the redevelopment of fine roots. Poor utility cuts can, however, result in root die back and decay. No roots greater than diameters of 25mm are to be pruned without prior agreement with the Project Arboriculturist.

Pre-construction meeting - A pre-construction meeting shall be held on site prior to commencement of enabling or construction works. This shall be attended by the Client Representative, Main Contractor and Project Arboriculturist. The Local Authority Tree Officer or Local Authority representative. The methods of tree protection outlined within this statement and revisions for the particular phases shall be fully discussed at the meeting, so that all aspects of their implementation and sequencing are made clear to all parties. Any clarifications or modifications to this statement shall be recorded and circulated to all parties in writing.

Breaches of tree protection & Unforeseen events - All damage to protective barriers or accidental damage to trees must be reported to the Site Manager immediately. Works occurring within the vicinity will cease immediately until appropriate tree protection measures are notified. A record of the damage will be made by the Site Manager and, if appropriate in consultation with the appointed Project Arboriculturist, remedial measures carried out. In the event of spillage the area shall be secured with warning on the line of the tree protection area and measures taken to distribute any spillage away from the protected area.

Root Protection Area (RPA) - Preliminary root protection area is the minimum Root Protection Area (RPA) recommended within British Standard BS5837:2012. The RPA is an area (not equivalent to a circle with a specified radius). The RPA is the minimum area in m² which should be left undisturbed. All measurements are rounded to the nearest 0.5m.

Tree Protection Barriers - All Type 1 Barriers (see below) are to be erected prior to commencement of any external works on site (including site establishment) and are to be retained throughout the construction process. All Type 2 Barriers (see below) are to be erected prior to commencement of any internal works on site (including site establishment) and are to be retained throughout the construction process unless otherwise stated. All barriers are to be fit for purpose. All damage to protective barriers or accidental damage to trees must be reported to the Client's Representative immediately. Works occurring within the vicinity will cease immediately until adequate tree protection measures are notified. Where appropriate the protection barriers will be aligned with the site hoarding.

Once the barriers have been properly installed and erected in position, the fenced area is to be considered sacrosanct and must not be removed or altered in any way without prior approval from the Project Arboriculturist. If 360-degree excavators or lifts are to be used during construction in close proximity to protective barriers, at no time is the arm to encroach over the position of the tree protection fence. Operation must always be in a way that avoids contact with branches.

All landscaping tree protection notices are to be fixed to the outside of all tree protection barriers. See Example - Tree Protection Signage.

Tree Protection Barriers Type 1 (To be erected prior to enabling works) - Type 1 Barriers should consist of a scaffold framework comprising of a vertical and horizontal framework, will be braced to resist impacts, with vertical bracing spaced at a maximum of 2m and driven into the ground. The barriers are to be secured with wire or scaffold clamps unless similar fixings are agreed with the Local Planning Authority. See Tree Protection Barriers - Type 1 (extract of Fig 2 BS5837:2012) - Default specification for protective barrier.

Tree Protection Barriers Type 2 (To be erected prior to enabling works) - Type 2 Barriers should consist of a scaffold framework comprising of a vertical and horizontal framework, will be braced to resist impacts, with vertical bracing spaced at a maximum of 2m and driven into the ground. The barriers are to be secured with wire or scaffold clamps unless similar fixings are agreed with the Local Planning Authority. See Tree Protection Barriers - Type 2 (extract of Fig 3 BS5837:2012) - Default specification for protective barrier.

Temporary Ground Protection - To be installed within RPA of T92, T96, T114, T120, T103, T104, T1070 Ground Protection will be installed to minimise compaction or root disturbance within the RPA immediately following removal of Tree Protection Barriers Type 2 - Sequential Removal and prior to commencement of works. Ground protection for pedestrian movements within the RPA will be in the form of a single thickness of scaffold boards placed on top of a driven scaffold frame, so as to suspend the walkway.

Excavation zone (Construction) - The construction exclusion zone is to remain sacrosanct with storage of materials, machinery or equipment, discharge of chemical substances, current wastelogs or other materials prohibited. No excavation or change of level is to occur within the area unless authorised in writing by the Project Arboriculturist. All personnel using the site including site managers, agents, supervisors, operatives and other relevant personnel are to be informed of the role of the tree protective fence and its importance.

Roads of access during construction (Road Road) - Existing hard surfacing will remain in place to provide ground protection to vehicular traffic. The hard surfacing will be monitored and any deterioration or soft areas treated immediately to provide a load bearing surface as specified by an engineer and in consultation with the Project Arboriculturist such as Ewekovey (www.evekovey.co.uk).

Removal of existing hard surfacing and re-installation to soft ground - Existing hard surfacing will remain in place to provide ground protection to vehicular traffic. The hard surfacing will be monitored and any deterioration or soft areas treated immediately to provide a load bearing surface as specified by an engineer and in consultation with the Project Arboriculturist such as Ewekovey (www.evekovey.co.uk).

Installation of 'no dig' footpaths - Following completion of practical construction or at a time otherwise agreed with the Project Arboriculturist, footpaths within the RPA will be installed using a 'no dig' construction method. It is three dimensional cellular confinement system such as Geocynetics or similar, in accordance with the engineers and manufacturers recommendations and the principles laid out in BS5837:2012 7.4 Permanent hard surfacing within the RPA.

Changes in land levels within RPA - Excavation within the RPA as part of the Approved Plans will be carried out using hand held tools or appropriate machinery and carried out under a watching brief by the Project Arboriculturist.

Prior to commencement of ground works, the line of excavation nearest to the tree will be marked out prior to commencement of works. The RPA will be excavated along this line using an air spade and hand held tools and any roots found during excavation will be recorded and severed by a qualified Arboriculturist ensuring that the roots are not ripped or torn. If during the excavation, the Project Arboriculturist feels that trees are being destabilised by the pruning, the technical design will be reviewed by an engineer having regard to the recommendations of the BS 5837:2012 and following consultation and agreement with the Local Authority Tree Officer.

Re-surfacing or installation of hard surfacing within previously disturbed areas - existing hard surfacing will remain in place to provide ground protection to vehicular traffic or contractors parking during the development process or until such time agreed with the Project Arboriculturist.

When installation of hard surfacing is proposed within an area of previously disturbed ground from previous hard standing or roadway, precautionary measures will be observed to minimise further root disturbance. Where hard surfacing remains within the RPA of a retained tree, precautionary measures and care must be observed to minimise potential disturbance of the tree. The removal of existing hard surfacing will be carried out in accordance with the principles outlined above within Removal of Existing Hard Surfacing. The presence and extent of surface roots of adjacent trees will be recorded and the proposed design and levels reviewed by an engineer having regard to the recommendations of the BS 5837:2012 and in consultation with the Project Arboriculturist. Tracking by vehicles is prohibited within the RPA until installation of the road is complete. During installation all vehicles will operate outside of the RPA and the road constructed so that machinery moves forward to the road and away from the RPA. Temporary load bearing surfaces such as Ewekovey (www.evekovey.co.uk), or similar shall be installed as specified by an engineer. The new sub-base or hard surfacing will then be installed at or above the soil ground exposed. Prior to installation a geotextile separator layer will be installed between the soil ground and sub-base.

Tree Works - For location of trees identified for removal or pruning to facilitate demolition see Tree Retention & Removal Plan [TPR151/TPR300] & Tree Works Schedule Plan [R151/TPW 500]. Tree Works during construction shall be phased as follows:

- Following practical completion, all trees shall be re-inspected and remedial tree works (including deadwood) agreed with the LPA and carried out in accordance with post development requirements.
- All tree works are to be carried out in accordance with BS 3998 (2010) Tree Work - Recommendations and current good arboricultural practice by a qualified and experienced tree contractor. Prior to commencement of tree works, the responsibilities under the Wildlife & Countryside Act (1981), as amended by the Countryside and Rights of Way Act 2000 must be observed.

No tree works or site clearance shall take place within the bird breeding season (March to August) unless a survey undertaken by a suitably experienced person establishes active nests are absent.

Piling Rigs, Cranes & Booms
 Where enabling works or construction is to occur within 2m of the crown extent of any retained tree, protection and precautionary measures must be observed. In addition to the site induction, all vehicles will operate with a ban on the limit of travel is observed. Where a crane is in operation, the exclusion zone formed by the tree constraints will be programmed into the crane operator's limiter. These precautionary measures are to be adopted by the contractor and provision made within the construction method statement.

Utilities & Drainage within the RPA - New services are not anticipated within the RPA of retained trees. Where existing utilities or drainage runs are to be retained active within the RPA and require maintenance the appropriate method will be used to ensure the safety of the site and the health and stability of the tree. Where feasible new connections will be made outside of the RPA. All services will be installed in accordance with the guidance provided in National Grid Utility Guidelines Vol. 4 Issue 2 dated Nov 07. Provision must be made within the contractor's method statement for tree protection and the RPA of retained trees. Prior to commencement of any works in connection with this operation, the line of the trench will be marked out by the Site Manager in agreement with the Project Arboriculturist. The narrowest proposed width of trench will be marked. The Site Manager will mark two levels to represent the minimum practice. Ground protection shall then be installed between the barrier and the roadside of the trench and from the far side of the trench to the edge of the RPA.

Surface vegetation or existing overburden will be removed using hand tools. Excavation shall be carried out using a piling rig to be used close proximity to the tree's crown and within the RPA the smallest practical rig will be used. The location and extent of the piling mat will be carefully considered to avoid overtopping of crown into the protection barrier or RPA and a geotextile separator layer used. Shaded piles shall be used to 2m depth and as specified by an engineer to avoid potential toxic effects of concrete.

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NOTE: T70 tree trunk (along the highway) - please sign to be removed during excavation. This tree trunk is to be removed in accordance with the recommendations of the BS 5837:2012 and following consultation and agreement with the Local Authority Tree Officer.

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Project
 LATCHMERE HOUSE
 RICHMOND

Drawing
 TREE PROTECTION & ARBORICULTURAL
 METHOD STATEMENT - CONSTRUCTION

Scale: 1:500 Date: NOV '15 Drawn: AR
 Drawing No: tf 913s1/TPP/302 Revision:

Legend:
 Preliminary
 Issued for Planning Approval
 Issued for Construction
 Issued for Design/Information
 Issued for Tender
 As Built

Drawing sheet size - A1
 Scale: 1:500