Arboricultural Method Statement

CROWN Tree Consultancy 08000 14 13 30

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Date: 21 / 04 / 2021	Revision: 1	CCL ref No: 10781	Client: Alex Shaw

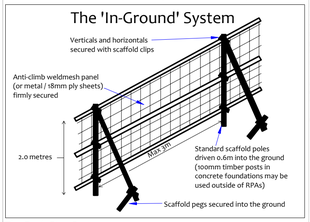
Tree Protection Barriers

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 In-Ground System

This system may be installed where indicated by a solid purple line on the Tree Protection Plan. It should be robust enough to withstand occasional knocks by plant machinery and, once installed, shall remain in place throughout the entire construction phase.

Vertical scaffold poles are driven into the ground, onto which are affixed horizontal scaffold poles and diagonal bracing struts. Weldmesh panels (or similar – e.g. Heras type fencing panels, or 18mm plywood boards) are secured to this scaffold framework using sturdy clips e.g. standard scaffold clips. The system is illustrated in the diagram to the right and is based on BS 5837 guidelines.

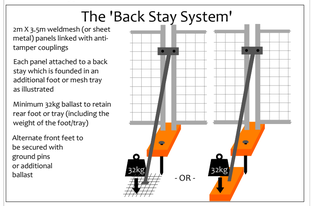


The Back-Stay System

This system may be installed where indicated by a solid or dashed purple line on the Tree Protection Plan. It is more practical over existing hard surfaces or where the fencing needs to be moved to enable permitted activities within a Restricted Activity Zone. This system should be able to withstand occasional knocks by machinery and should not be relocated except with the consent of the site manager and the approval of the local authority.

Within this system, weldmesh fencing panels (minimum height 2m) are affixed into rubber or concrete feet and clipped together with anti-tamper couplers. Two couplers should be used, spaced at least 1m apart. Alternate panels should be attached to a diagonal back stay connected to an additional foot or baseplate secured with ground pins or additional ballast. Where ground pins are not used, the total weight of the foot/plate plus ballast should total not less than 32kg.

Where it is not possible to install diagonal struts (such as very close to a hedge) then the front feet shall be secured using ground pins or ballast.



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 24mm OSB boards laid at double thickness and screwed together to prevent slippage. The ground shall first be made even by raking, or by adding a few centimetres 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/or 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 100mm of 7–40mm angular gravel installed in 3D cellular confinement system (e.g. Cellweb TM).

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.

Construction Exclusion Zones

Within Construction Exclusion Zones the following restrictions shall apply:

- Tree Protection Barriers shall be erected and maintained throughout the entire project as indicated on the Tree Protection Plan and under the header -*Tree Protection Barriers*.
- These shall remain in place at all times except when authorised landscaping works are being undertaken. At such times, adequate ground protection measures shall be installed, and excavation shall be limited to that required for new planting. Furthermore, the project arborist shall be consulted prior to any works being undertaken in these zones.
- No construction activity or excavation shall occur unless agreed otherwise by the project arborist and local authority.
- No vehicles or plant machinery shall be driven or parked.
- No tree works, other than those specified on this document shall be undertaken.
- No alterations of ground levels or conditions shall occur.
- No chemicals or cement washings permitted.
- No temporary structures shall be installed.
- No spoil shall be stored.
- No fires shall be permitted.
- All hazardous materials (including non-essential cement products) shall be forbidden.
- Removal of hard surfaces, structures or turf shall be done using hand operated tools only and supervised by the project arborist.

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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 wall, steps or patio.
- 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 150mm. 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 sacking during times that they are unearthed. Any roots in excess of 10mm 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.

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

- Excavation shall be limited to 250mm.
- Excavation shall be undertaken using hand tools only and under the supervision of the project arborist.
- If significant rooting activity is encountered, the finished surface shall be raised to accommodate them.
- Any edging structure used shall be installed without excavation below this depth.
- Any sub-base used shall not contain any fines (finely crushed aggregate material).
- Favours shall be used and dry jointed (i.e. no mortar joints) to permit infiltration of rainwater through to the ground beneath.

Restricted Activity Zone B

In this zone foundations are to be installed. In order to minimise the impact on roots it is proposed to utilise the Hand-Dig Method. The following restrictions shall apply:

- Excavation shall be overseen by the project arborist.
- Hand tools shall be used during the excavation to a depth of 600mm. Below this depth a carefully marshalled mechanical excavator may be used.
- The excavation shall not extend more than 250mm beyond the footprint of the proposed building walls in the direction of the trees.
- If roots in excess of 25mm diameter are encountered close to the edge of the excavation, they shall be retained wherever possible and protected with damp sacking during times that they are unearthed. Any roots that need to be severed shall be pruned with secateurs.
- If roots in excess of 50mm diameter are encountered they shall be retained intact and the foundations shall bridge over them. The exposed roots shall be adequately shuttered off using timber and a suitable protective packaging material such as damp cloth or polystyrene prior to any concrete being cast.
- Any shuttering structure shall be designed to prevent any ingress of concrete to within at least 50mm of any root surface. It shall be removed or retained after casting as determined best by the project arborist. Enough room will be left surrounding each root to enable future growth (at least 30mm gap containing loose soil or compressible material).
- If roots in excess of 25mm but less than 25mm diameter are encountered close to the edge of the excavation, they shall be retained wherever possible and protected with damp sacking during times that they are unearthed. Any roots that need to be severed shall be pruned with secateurs.

General Restrictions - Throughout the Site

Use of Heavy Plant

All machinery operatives are to be made aware of any Construction Exclusion Zones and Restricted Activity Zones that apply to this site.

All machinery operatives are to respect these zones and ensure that no damage occurs to trees due to the careless use of machinery.

Mechanical excavators should have tracks rather than wheels to help spread their load. They should be carefully marshalled when working close to tree canopies.

Scaffolding

If scaffolding is required in areas containing ground protection measures, the protective boards shall need to remain in-situ and be strengthened and stabilised to bear the weight of scaffold poles.

Prior to the installation of any scaffolding within 0.5m of any tree branches, the project arborist shall be consulted to specify any pruning works that may be required.

General Restrictions - Throughout the Site - Continued

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:

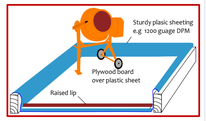
- No machinery in excess of 2m shall pass beneath the canopy of any tree without being carefully marshalled in order to ensure that no branches are damaged.
- If materials require installation or delivery beneath tree canopies, this shall be done without the use of overhead cranes.
- If materials are 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 trees (see diagram for example). Mixers and barrows shall 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 1.5m 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 25mm shall be retained wherever possible.
- Roots in excess of 10mm 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 25mm 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 10mm 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.

Timing of Operations

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

Order	Phase	Activity
1st.	Pre-Construction Phase	Planning conditions relating to trees to be identified and discussed with the Project arborist and site manager.
2nd.		Install the tree protection barriers (fencing and ground protection boards - see Headers -*Tree Protection Barriers* and *Ground Protection Measures*).
3rd.		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. Scaffold restrictions to be agreed. Scope of future inspections / monitoring to be agreed.
4th.		Arboricultural Method Statement to be revised and approved if necessary.
		Protection measures confirmed acceptable by the local authority
5th.	Demolition and Construction Phase	Demolish existing structures and remove existing surfaces where applicable.
6th.		Install new extension, hard surfaces and services taking into account restricted activities as specified in this Arboricultural Method Statement.
7th.	Post-Construction Phase	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.
8th.		Remove protective barriers (fencing and ground protection measures as applicable).
9th.		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.
Site Manager	Insert Details	Insert Details	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.
Project Arborist	Crown Tree Consultancy	08000 14 13 30 0203 797 7449 Info@crowntrees.co.uk	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.
Local Authority	Kirklees Council	Planning Department (01484) 221000 trees.planning@kirklees.gov.uk	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.
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 inducted 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)
Monthly Inspection and Reporting To occur once per calendar month throughout the entirety of the project until the local authority agree that tree protection measures may be removed.	Site manager and project arborist.*	Tree protection fencing locations & specification checked. Ground protection measures checked. Past month, present and future month – activities and adherence to Arboricultural Method Statement discussed and checked. Report on findings to be sent to the local authority tree officer within 5 working days.
Overseeing Installation of patio in Restricted Activity Zone A. Excavation and initial stage of installation to be overseen.	Site manager and project arborist.*	Two week's notice to be given prior to commencement. Preparatory excavations to be overseen. Commencement of installation to be overseen. Activities to be recorded and photographed. Mitigation measures to be employed specified by the project arborist.
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 as 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.
Any other ground disturbance in Restricted Zones & Construction Exclusion Zones Including, service trenches etc.	Site manager, project arborist.	Two week's notice to be given prior to commencement. Excavation to be as specified in this Method Statement. Excavations 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 (T = Tree, G = Group, H = Hedge)	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N E W S	Scaled Tree Diagram (m)	Notes	Recommendations (Independent of any development proposals): Priority	Recommendations: Inspect Freq (yrs)	Vigour: Physiological Condition	Vigour: Structural Condition	Amenity Value: Life Expectancy (yrs)	Amenity Value: Retention Category
T1	Early-Mature **Sycamore** Acer pseudoplatanus.	20	10	92	4, 5.5, 5.5, 7	15 / 3	Position: Within the rear garden. Form: Multi-stemmed at 2m with a slightly unbalanced crown. History: Significant pruning wounds due to recent crown lifting on north and eastern sides. **Defects: Tight union's with included bark at 5.6m (acceptable condition at present). Minor decay present at central stem junction.**	No action required.	n/a	Moderate Good Good	Moderate 40+	B
H2	Semi-Mature **Beech** Fagus sylvatica.	2.5	0	17	0.2, 0.2, 0.2, 0.2	15 / 3	Position: Adjacent western boundary. Form: Boundary hedge. History: Recently topped at 2m. **Defects: Over pruned back to stem leaving little to no canopy.**	No action required.	n/a	Very Low Very Poor Good	Low <10	C -
T3	Semi-Mature **Elder** Sambucus nigra.	4	2	24	1, 2, 2, 0	15 / 3	Position: Situated on third party land. Form: Multi-stemmed at ground level with an unbalanced crown. History: Previously topped at 2m. **Defects: No significant defects observed.** Other: Four stems with diameters of 12cm.	No action required.	n/a	Moderate Good Good	Low <10	C

Tree Protection Plan

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BS 5837 Root Protection Area (radius = 12xstem diameter)

Root Protection Area needing amendment due to site conditions, e.g. presence of exising road or building.

Root Protection Area having been amended to account for for site conditions

T1 = Tree No 1 G2 = Group No 2 H3 = Hedge No 3

Tree Retention Categories
Stems & canopies shown

Category A tree	Trees of high quality with an estimated life expectancy of 40+ years. Usually large trees with significant presence or smaller trees with excellent form. Retention of these trees is highly desirable.
Category B tree	Trees of moderate quality with a life expectancy of 20+ years. Usually maturing trees, or younger trees with good form. Retention of these trees is desirable though less than Category A trees
Category C tree	Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.
Category U tree	Trees unsuitable for retention due to their very poor condition.

Drawing No:	CCL 10781 / TPP Rev: 1
Title:	Tree Protection Plan (Existing Layout with Proposals Overlaid)
Site:	100 Lower Town End Road Holmfirth
Scale: 1:200	Paper Size: A1

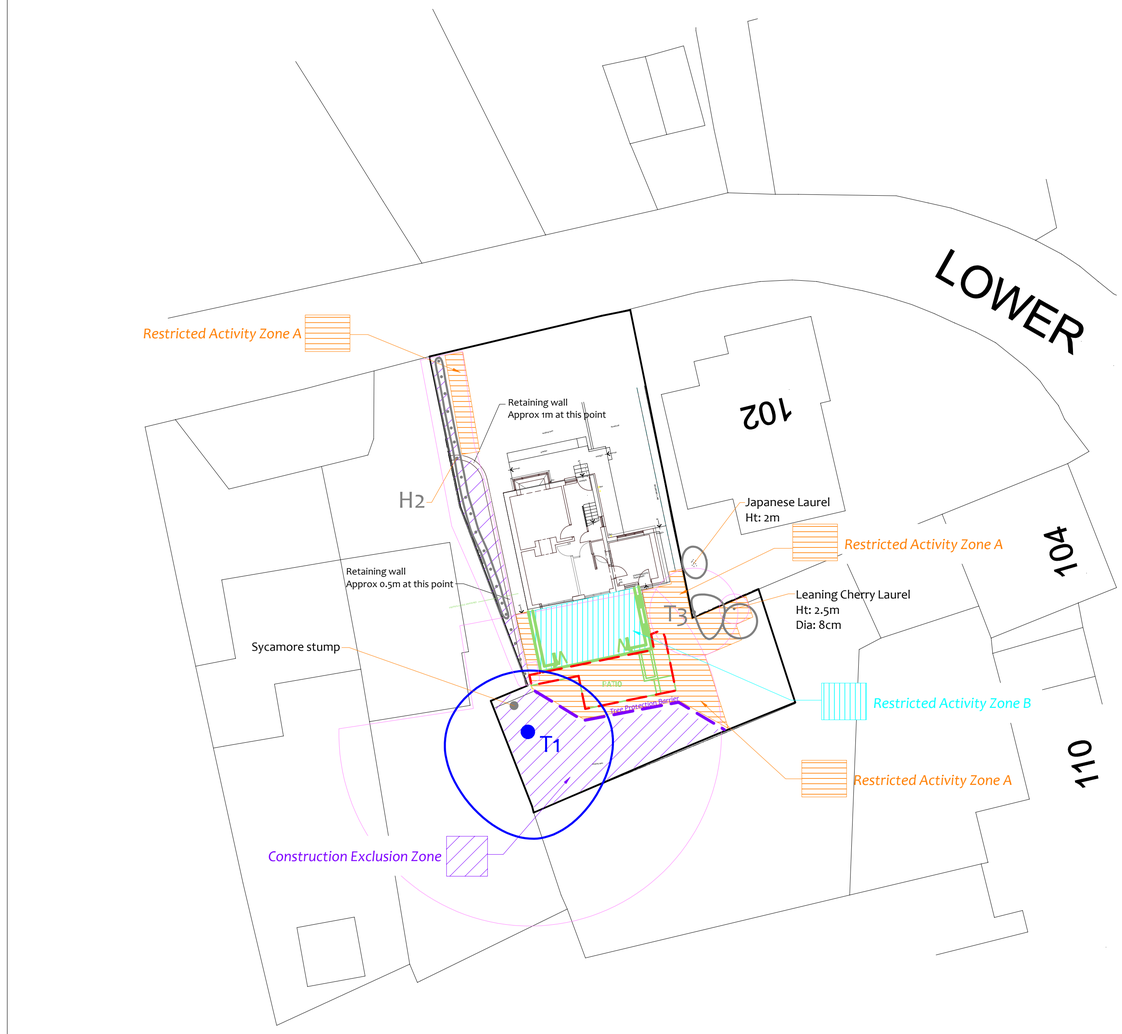

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7