

Protective Fencing

To be erected prior to the commencement of all works on site, and retained in place throughout construction. To comprise either 2.4m wooden stile boarding, or a 2.3m high scaffolding framework comprising of vertical and horizontal framework, well braced to resist impacts, with uprights to be spaced at a maximum of 3.0m intervals and driven into the ground by a minimum of 600mm. On this, standard anti-climb welded mesh panels are to be securely fixed to each other with at least two scaffold clamps and to the scaffold framework with wire. Standard anti-climb welded mesh panels on rubber or concrete feet are not resistant to impact and should not be used. All weather notices should be erected at regular intervals on the weld mesh panels with words such as "Construction exclusion zone - Keep out".

Figure 2 - Protective barrier

TREE PROTECTION FENCING as shown in BS 5837: 2005.

Ground boarding

Pedestrian: For pedestrian movement within the RPA the installation of ground protection in the form of a single thickness of supported boards on top of a compressible layer laid onto geotextile, or supported by a scaffold framework.

Vehicle: For wheeled or tracked construction traffic movements within the RPA the ground protection should be designed by a structural engineer to accommodate the likely loading and may involve the use of proprietary systems such as temporary timber mats or steel road plates (see Trackway or similar).

Once the exclusion zone has been protected all weather notices should be erected at regular intervals on the barriers with words such as "Construction exclusion zone - Keep out".

1 Standard upright pipes
2 Uprights to be driven into ground
3 Fixing concrete to uprights with sets and where necessary standard upright spacing
4 Standard rail to the uprights and base
5 Standard overhead pipes
6 If this barrier is covered on inside face of railing to avoid entry
7 Standard rail
8 Safety rope, 150 mm dia. 6 line steel

Figure 2 - Protective barrier

Ground boarding

Pedestrian: For pedestrian movement within the RPA the installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto geotextile, or supported by a scaffold framework.

Vehicle: For wheeled or tracked construction traffic movements within the RPA the ground protection should be designed by a structural engineer to accommodate the likely loading and may involve the use of proprietary systems such as temporary timber mats or steel road plates (see Trackway or similar).

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Diagram illustrating the RPA (Root Protection Area) for a tree. The diagram shows a tree with its root system extending underground. A red line marks the 'Edge of RPA'. A 'Protective fencing' is shown as a vertical barrier within the RPA. The area between the tree and the fence is labeled 'Protected area'. The ground outside the RPA is labeled 'Ground undisturbed and protected by geotextile fabric, and ground protection boards on a compressible layer'. A cross-section of the ground shows the 'compressible layer' and 'geotextile fabric'.

Manual Excavation

Excavation within the RPAs will be initially undertaken by hand under direct on-site arboricultural supervision to a maximum of 750mm depth of any excavation, whether for proposed foundations, hard surfacing or underground services. The soil is to be loosened with the use of a fork or pick and then cleared with the aid of an air-spade and air-vac. All roots to be cut will be cleanly severed with the use of a hand saw or secateurs. The edge of the excavation closest to the retained trees will be covered over with damp hessian to prevent drying out, and where necessary be shrouded to prevent soil collapse or contamination. For complete root removal, a pit at least 10m in diameter and 750mm may be shallowly, regular piled or individual piles. Any deeper excavations may be undertaken by a machine provided it works from outside of the RPA or has appropriate ground protection in place to move and work upon.

Above soil surfacing

Diagram illustrating the root system of a tree and the soil layers it interacts with. The tree is shown with its canopy and trunk. The root system is depicted below the ground surface, showing the main trunk (taproot) and lateral roots. Labels indicate the following components:

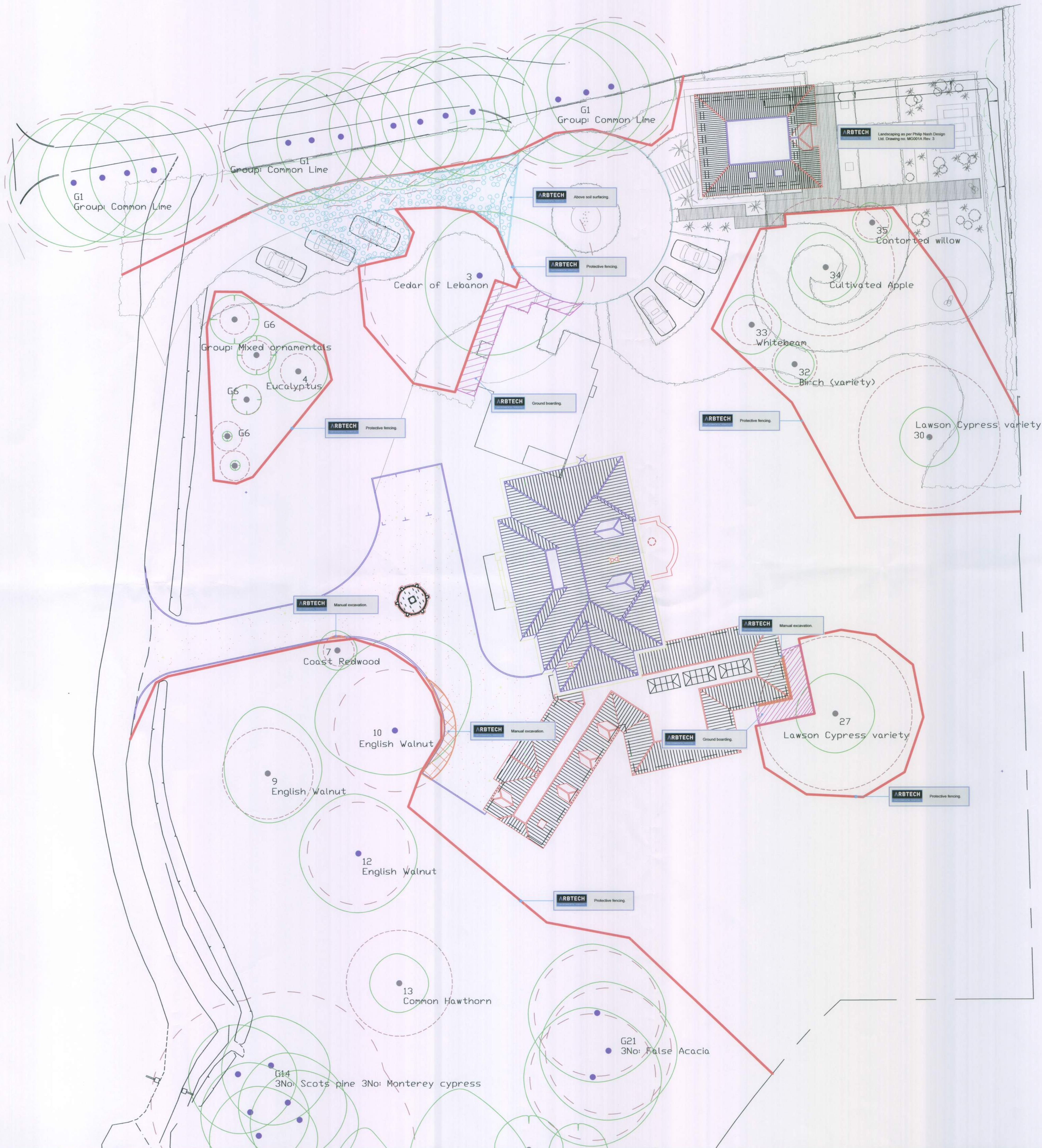
- Root system (main trunk)
- Root system (lateral roots)
- Soil surface
- Soil profile (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z)
- Soil layers (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z)
- Soil profile (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z)

Diagram illustrating a timber edging system. The system consists of a concrete slab (labeled "Timber") supported by a series of steel pins driven into the ground. The pins are labeled "Aggraplex, minimum 15mm particle size Forest 10/20 ground". The ground is labeled "Reduced ground". The diagram also shows a cross-section of a tree trunk and a layer of "10mm compacted sharp sand" beneath the slab. A "perforated ground" is indicated at the base of the slab.

Arboricultural Supervision

The arboricultural consultant will be required to attend site to directly supervise all demolition and construction works that have to be undertaken within the root protection areas. This will include:

1. Pre start meeting.
2. Location of protective fencing & ground boarding.
3. Manual excavation foundations within RPAs of tree nos. 10 & 27.
4. Any excavations within or adjacent to RPAs, including foundations, hard surfacing or underground services.
5. Removal of protective measures.



Trees are categorised in accordance with the cascade chart in Table 1 of the British Standard BS 5837:2005 'Trees in relation to construction - recommendations'

Root Protection Area

In order to avoid damage to the roots or rooting environment of retained trees, the Root Protection Areas (RPAs) should be plotted around each of the category A, B and C trees. This is a minimum area in m² which should be left undisturbed around each retained tree.

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The RPA is calculated using Table 2 - Calculating the RPA of the British Standard BS 5837:2005 'Trees in relation to construction - recommendations.

The area equivalent to a circle with a radius of 12 times the stem diameter for single stem trees and 10 times the basal diameter for trees with more than one stem arising below 1.5m above ground level.

Arboricultural Impacts	
Impacts	Nos. of trees
Trees to be removed	3
Groups to be removed	5
Trees with proposed incursions into RPAs	4
Trees that will require pruning	2

No.	Species	Works	Category
7	Coast redwood	Crown lift canopy to 3.5m over driveway.	C.
8	Falsete acacia	Fell to ground level and grind out stump.	C.
10	Cedar of Lebanon	Crown lift canopy to 3.5m over driveway.	B.
24	Norway spruce	Fell to ground level and grind out stump.	C.
25	Hazel	Fell to ground level and grind out stump.	C.
G5	Falsete acacia	Fell to ground level and grind out stumps.	C.
G23	Hazel	Fell to ground level and grind out stumps.	C.
G28	Leyland cypress	Fell to ground level and grind out stumps.	C.
G29	Various	Fell to ground level and grind out stumps.	C.
G36	Leyland cypress	Fell to ground level and grind out stumps.	C.

ARBTECH
ENVIRONMENTAL SERVICES

Client: 

Based on:

0311/SP01 A

Date: Sept 2011	Scale: 1:200 @ A1	Drawn: MGM
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Category 'A' trees:		Category 'B' trees:		Category 'C' trees:	
Protective fencing:		Ground boarding:		Manual excavation:	
Above soil surfacing:					

All dimensions should be checked on site. No dimensions are to be scaled from this drawing. Please notify us of any discrepancies found. Atchtech Consulting Ltd. cannot be held responsible for inaccuracies in the base drawing in which this plan was based.

This drawing is designed to reflect the principles of the layout or design only, and relates only to the protection of retained trees.

This is not to be read as a definitive engineering or construction method statement. An architect or structural engineer should be contacted over any matters of construction detailing or specification and for any standards or regulatory requirements related to proposed structures, hard surfacing or underground surfaces.

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