

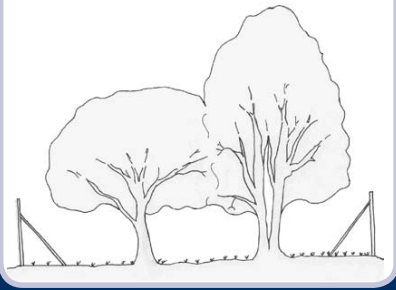
Appendix 4

Guidelines on Protecting Trees on Development Sites

DAMAGE TO TREES

- 1) Tree roots keep a tree healthy and upright. Most roots are found in the top 600mm of soil. They often grow out further than the tree's height. The majority of these roots are very fine; even close to a tree few will be thicker than a pencil. If roots are damaged, for example by excavation or re-grading a site, the tree may fall or lose its vigour and decline
- 2) Tree trunks and branches can easily be damaged, for example by impact from machinery, resulting in a loss of vigour, ingress of decay and decline.

Figure 1



Single Stem Trees: Distance equal to stem diameter (measured at 1.5m above ground) x 12.
Multi-Stem Trees: Distance equal to stem diameter (measured immediately above root flare) x 10.

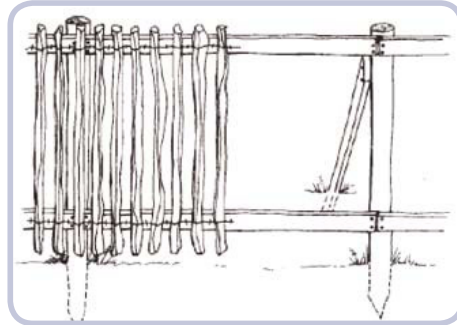
- 3) The compaction of material above tree roots, for example by repeated movement of machinery over the unprotected soil, not only damages the root structure itself but also seals the surface, significantly reducing the amount of water and oxygen available to the root system.

PROTECTIVE BARRIERS

- 1) Establish the root protection area for each tree or group of trees. Figure 1 illustrates the minimum requirement for this area. Section 5.2 of British Standard BS5837: 2005 Trees in Relation to Construction should be referred to for detailed guidance.

- 2) The root protection area should be defined on site by the erection of impact resistant barriers. The type of barrier is dependant on the scale of development and proximity to trees. Some suggested specifications are detailed below.

Small Scale Development / Low Activity Area - 1.2m Chestnut Paling



Posts: 75-100mm round top fence posts, 1.8m long at 1.5-2m spacings, driven in to the ground by at least 0.6m.

Top & Bottom Rails: 50mm x 75mm softwood, nailed to uprights.

Support Struts: 50mm x 75mm softwood, securely nailed to upright at every third post and at each corner or change of direction.

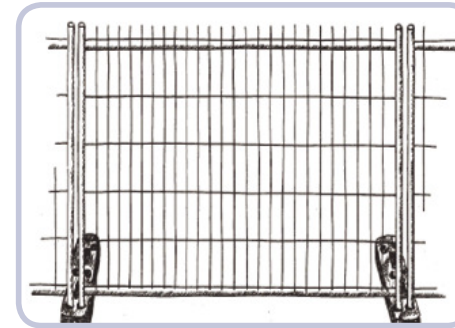
Paling: 1.2m high cleft chestnut paling or chain link (to BS1722: Part 1) securely affixed to timber framework.

General Development / Moderate Activity Area - 2.1m Weldmesh Panels

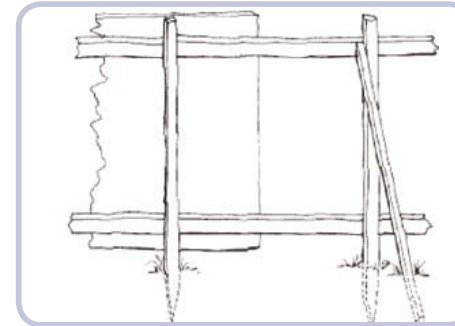
Bases: Panels supported in concrete bases (supplied with fencing), which are pinned to the ground by a 0.7m length of scaffold tube, driven not less than 0.45m into ground, a 0.2m length of scaffold tube fixed to form a 'T' to the top of the vertical tube to prevent movement of the base.

Panels: Panels butted together and fixed with 3no clamps to each joint.

Support Struts: Each panel supported by a 45o scaffold tube strut from the top rail of the panel back into the exclusion zone (see figure 2).



Large Development / High Activity Area - 2.4m Close Board



Posts: 100mm x 100mm x 3.5m long driven in to 1m depth at 2.5m spacings.

Top & Bottom Rails: 50mm x 75mm softwood, twice nailed to uprights.

Support Struts: 50mm x 75mm softwood, securely nailed to upright at every third post and at each corner or change of direction.

Plyboard: 2.4m high, min 20mm thick plyboard, securely affixed to timber framework.

- 3) The protective fencing should have signs attached to it to explaining the purpose of the fencing and that it should not be removed. The sign, which can be printed out, laminated and attached to the fencing, is shown on page 33. The sign is available in pdf format at www.doncaster.gov.uk.



Figure 2: Photograph of internally braced 2.1m Weldmesh Panels suitable for general development / moderate activity area

GROUND PROTECTION

- (1) Where it has been agreed that vehicular or pedestrian access for the construction operation may take place within the root protection area for a tree or group of trees the effects of compaction should be addressed with a system of ground protection.
- (2) For pedestrian movements and scaffolding a single thickness of scaffolding boards on top of a compressible layer laid on geotextile may be acceptable (see figure 3).
- (3) For vehicular access a system specifically designed by an engineer to accommodate the expected loading or a proprietary system should be employed.

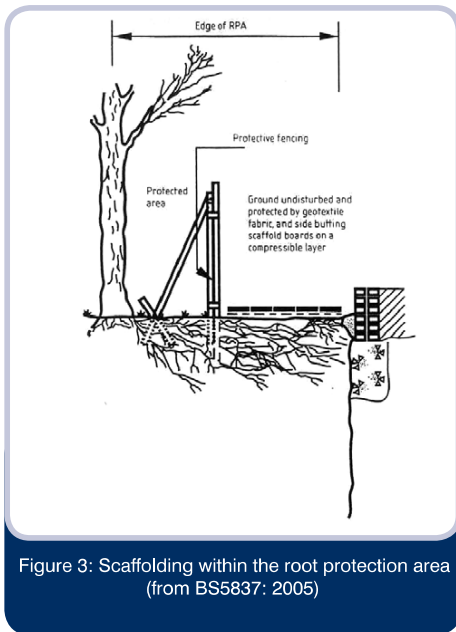
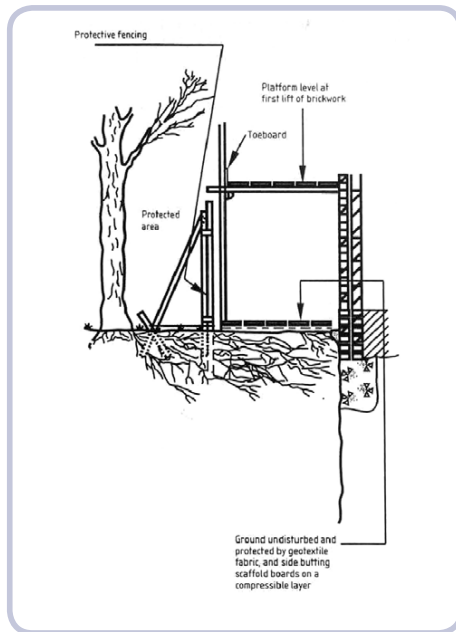


Figure 3: Scaffolding within the root protection area (from BS5837: 2005)



General Precautions

- (1) All operatives should be briefed on tree protection requirements and the following simple rules MUST be followed throughout development:
 - Don't remove the protective fencing for any reason without prior approval.
 - Repair any damage to the protective fencing immediately.
 - Don't park or operate machinery and equipment near trees.
 - Don't store materials within the protected area or leant against the tree or protective fencing. Contaminants (fuel, oil and chemicals) must be stored at least 10m away from the protected zone.
 - Don't mix cement near trees.
 - Don't light fires near trees and beware of flames drifting towards branches.
- Don't use trees or protective fencing as anchor points.
- Don't secure temporary overhead cables or floodlights to trees.
- Don't change the ground level or excavate within the branch spread.
- If a retained tree is damaged in any way, the contractor should contact the supervising Tree Officer or appointed Arboricultural Consultant immediately.
- (2) No tree protection shall be removed until the supervising Tree Officer or developers appointed Arboricultural Consultant has inspected the site. Failure to comply could prevent the full discharge of tree protection conditions.
- (3) Approval to remove protective fencing does not allow any restricted activities to take place within the identified protected zone.

