

NORTHUMBERLAND

Northumberland County Council

Trees and Construction

As urban areas expand, new land is developed into commercial and residential sites. Homes are built on sites containing trees to take advantage of their aesthetic and environmental benefits. Properties surrounded by trees can be worth as much as 20% more than those without any trees.

Unfortunately, the process of construction can be harmful trees if not planned and carried out correctly. Sometimes damage can occur during construction and the effects are not immediately apparent. In some instances it can take several years for the symptoms of root damage to show.

It is possible for trees and buildings to coexist providing the correct measures are taken. The most important step is to hire the services of an arborist, who can advise during the planning stages of the project. An arborist can help identify which trees can be saved, which to removed, and the best method of protection.

How Trees are Damaged During Construction

If a tree is exposed to construction traffic and close to the footprint of a new building, it can be damaged in a variety of ways.

- Damage to the trunk and crown
- Cutting roots
- Soil compaction
- Smothering roots
- Exposure to the elements

Damage to the trunk and crown

Construction equipment can cause serious injury to the above parts of a tree by breaking branches, tearing the bark and wounding the trunk. These injuries are permanent, and if extensive, can be fatal.

Cutting of the roots

The trenching and digging necessary to install foundations and utilities can sever a portion of a tree's root system. The roots of a mature tree can extend far beyond the drip line of the canopy. The closer the excavation is to the base of the tree, the greater the likelihood of major damage.

As major roots are important for anchoring a tree in the ground, the severing of any major root has the potential to lead to a weakening of the tree's stability.

Soil compaction

An ideal soil comprises 50% pore space. These pores, between soil particles hold water and air. If the soil is compacted, the size of the pore spaces is greatly reduced. This reduces the amount of oxygen in the soil and the also the ability for new roots to penetrate the surrounding soil.

Smothering roots by adding soil

The majority of a tree's fine roots can be found in the upper 15-30cm of soil. This is because it is the optimum place for water absorption and gas exchange. If soil is added to the surface layer then these processes will be affected and the tree will decline.

Exposure to the elements

Trees growing in a stand, copse or woodland belong to a community which supports each other from the elements. These trees grow tall and straight with high canopies. If trees are removed from this group to construct a dwelling, the remaining trees are opened up to sunlight and wind. The sunlight may cause scald to their bark, while the wind can result in instability to the tree.

Getting advice

In the early stages of a project, it is important to obtain professional advice from an arborist. The trees on your property can be assessed to determine which are worthy of retention and which should be removed.

Also as part of the planning process advice can be sought from your local authority planning office. As part of the planning application it will be necessary to provide the council with a range of documents from a topographical survey, arborist's report, site plan, Tree Constraints Plan and Tree Protection Plan. The Tree Constraints Plan is designed to identify the location of the trees on site and their Root Protection Area (RPA) in relation to the proposed dwelling. The Tree protection Plan (TPP) identifies the location of any protective fencing on site as well as any special construction measures to be used during the construction phase, to prevent any soil compaction. **Does it also include the location of building material storage, means of access etc?**

Protective fencing

Prior to construction it is important to install protective fencing at an appropriate distance around those trees to be retained. This fencing should be erected in accordance with the guidelines of BS5837, Trees in relation to construction.

Communication

Throughout the planning and construction process, it is essential to maintain good communication between the client, builder, arborist and council planning department. This will ensure that the project proceeds smoothly without any unnecessary damage to the trees on site.

BS5837: Trees in Relation to Construction

BS5837 gives guidance on the principles to be applied prior and during the planning and construction phase of a project.

British Standard Institute (BSI) publications are available from ([insert address](#))

For further information regarding trees in relation to construction you can contact Northumberland County Council on 0845 6006400 and ask to speak to your local Tree and

Woodlands Officer, or alternatively, contact the International Society of Arboriculture at www.isa-uki.org (check web address)