

11.a

Trees root system

Most trees have been growing undisturbed on a site for many years and will have developed an extensive root system. There is a balance between the trees crown (which demands water) and the roots (which supply it). Any change in the soil conditions will upset this balance. During construction machinery can squeeze the soil causing compaction, this reduces the amount of oxygen available to roots preventing them growing through the soil. Any material placed over the roots of a tree will reduce air movement into and out of the soil resulting in the reduction of oxygen to the roots. This results in progressive shoot and branch dieback until a new balance can be reached. However, if damage is severe and a new balanced cannot be reached the tree will ultimately die.

11.b

Prevention of damage to roots

The majority of feeder roots occur in the uppermost 600mm of soil; changes in level should be minimised.

Kill ground vegetation using an appropriate herbicide such as glyphosate. Herbicide products containing sodium chlorate should not be used. All dead organic material should then be gathered up, this would prevent the build up of anaerobic conditions beneath the construction, which may otherwise occur if vegetation is allowed to decompose.

Construction should ideally be undertaken between May and October when the ground is driest and least prone to compaction.

All major protrusions such as tree or shrub stumps should be removed. Stumps should be ground out rather than excavated to minimise soil disturbance.

If excavation is so close to the tree that roots larger than 50 mm in diameter are encountered, extra care should be taken to avoid damage. Excavations should be undertaken by hand, avoiding damage to bark. The roots should then be surrounded with sharp sand before soil is replaced.

For roots to be retained undamaged no excavation, soil stripping or site grading should be carried out within the protected zone.

If it is necessary for a service trench to be taken closer to the tree than recommended, boring a hole for the service is acceptable. Provided the borehole is small root damage should be minimal. Boreholes should be kept as deep as possible. Alternatively a narrow trench can be excavated passing directly towards the tree along a radius no closer than 1 m from the trunk. Tunnel straight beneath the tree to a depth of no less than 750 mm. Provided the trench is kept as narrow as possible, root severance will be minimal.