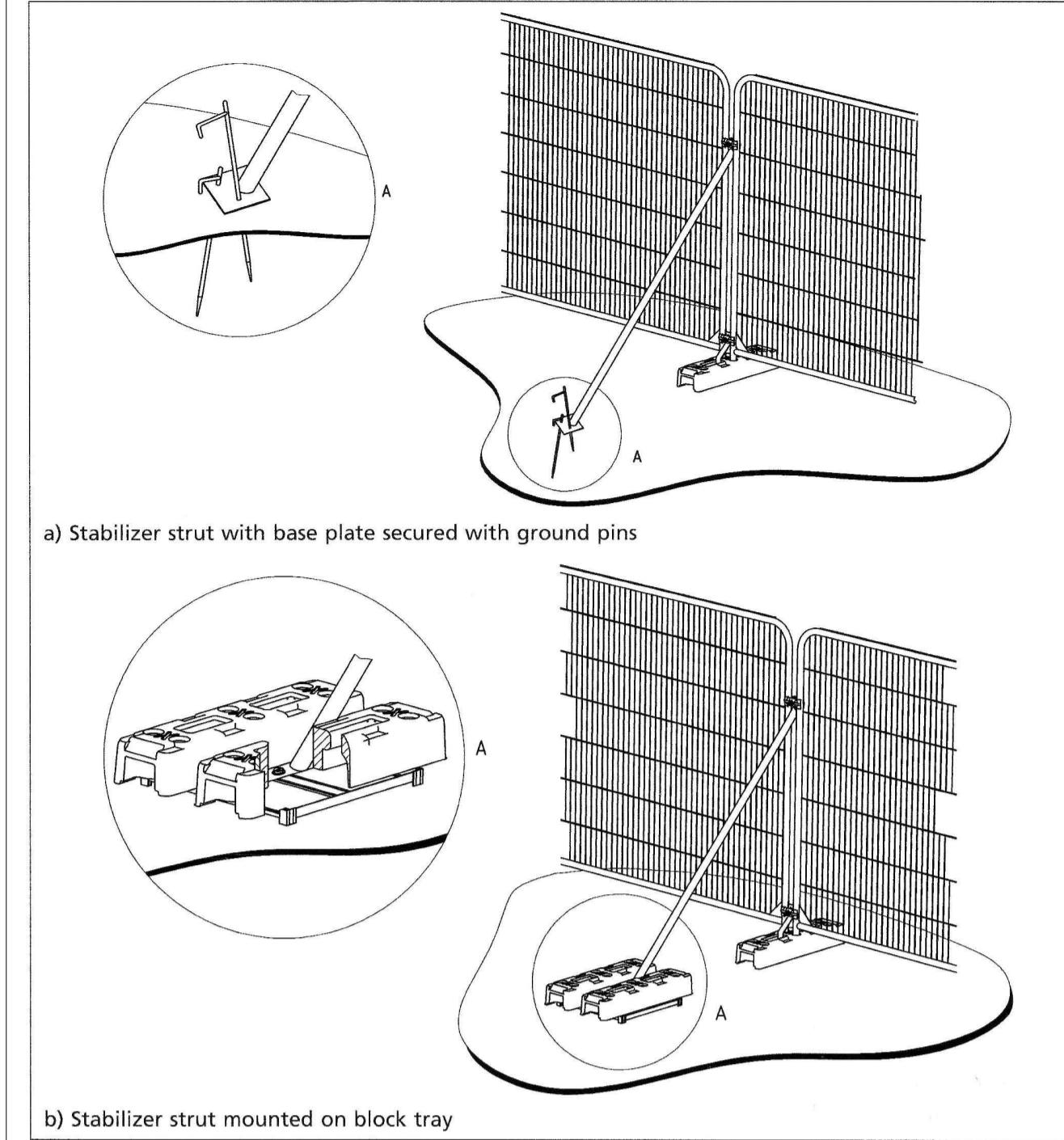


Figure 3 Examples of above-ground stabilizing systems



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

REQUIRED TREEWORKS:

Tree No	Species	Single/ Multi- Stemmed (S or MS)	Stem Diam (mm)	Initial Linear Root Protection Distance (Radius m)	Root Protection Area (m ²)	Required Tree Works
1	Horse Chestnut <i>Aesculus hippocastanum</i>	S	1000	12.0	452	None
2	Common Ash <i>Fraxinus excelsior</i>	S	400	4.8	72	Crown lift all round to provide 3.0m ground level clearance
3	Common Ash <i>Fraxinus excelsior</i>	S	400	4.8	72	Crown lift all round to provide 3.0m ground level clearance
4	Common Ash <i>Fraxinus excelsior</i>	S	450	5.4	92	Crown lift all round to provide 3.0m ground level clearance
5	Wellingtonia <i>Sequoiadendron giganteum</i>	S	880	10.6	350	None
6	Purple Beech <i>Fagus sylvatica 'Purpurea'</i>	S	540	6.5	132	None
7	Monterey Cypress <i>Cupressus macrocarpa</i>	S	1010	12.1	462	None
8	Caucasian Wingnut <i>Pterocarya fraxinifolia</i>	MS<5	980	11.8	435	None
9	Caucasian Wingnut <i>Pterocarya fraxinifolia</i>	MS<5	1110	13.3	557	None
10	Caucasian Wingnut <i>Pterocarya fraxinifolia</i>	MS<5	1050	12.6	499	Crown lift all round to provide 4.0m ground level clearance
11	Crack Willow x2 <i>Salix fragilis</i>	S	940	11.3	400	Fell to ground level the dead Willow
12	Common Ash <i>Fraxinus excelsior</i>	S	170	2.0	13	None
13	Common Ash <i>Fraxinus excelsior</i>	MS<5	330	4.0	49	None
14	Weeping Ash <i>Fraxinus excelsior Pendula'</i>	S	540	6.5	132	None
15	Common Holly <i>Ilex aquifolium</i>	MS<5	260	3.1	31	None
16	Purple Beech <i>Fagus sylvatica 'Purpurea'</i>	S	720	8.6	235	None
17	Purple Beech <i>Fagus sylvatica 'Purpurea'</i>	S	650	7.8	191	None
18	Common Lime <i>Tilia x europea</i>	S	630	7.6	180	Crown lift on southern side to provide 3.0m ground level clearance
19	Purple Beech <i>Fagus sylvatica 'Purpurea'</i>	S	430	5.2	84	None
20	Purple Beech <i>Fagus sylvatica 'Purpurea'</i>	S	530	6.4	127	None
21	Common Beech <i>Fagus sylvatica</i>	S	440	5.3	88	None
22	Common Lime <i>Tilia x europea</i>	S	490	5.9	109	Crown lift on southern side to provide 3.0m ground level clearance
23	Common Lime <i>Tilia x europea</i>	S	560	6.7	142	Crown lift on southern side to provide 3.0m ground level clearance
24	Common Ash x2 <i>Fraxinus excelsior</i>	S	210	2.5	20	Fell to ground level
25	Willow	-	-	-	-	Dead fell
26	Crack Willow <i>Salix fragilis</i>	-	-	-	-	Dead fell
27	Common Ash <i>Fraxinus excelsior</i>	S	170	2.0	13	Fell to ground level
Grp 1	Elder Hawthorn	S	90	1.1	4	Coppice at ground level



Culvert Removal and Mitigation Works

- 1.1 All trees are plotted indicatively. Tree trunks have been measured to provide the correct distance to ensure sufficient tree roots and rooting volume are protected during any site works. The schedule details the linear distances (measured from the centre of the trunk radially outward away from the trunk). This data must be used onsite to mark out and identify the areas available for the mitigation works so that these excavated areas will avoid trees' root protection areas and provide sufficient mitigation for the culvert removal.
- 1.2 Once the root protection linear distance has been measured and marked out, temporary tree protective fencing can be set up for the duration of all site works to ensure that the tree protection areas are fully respected and not damaged by appointed contractors completing works to remove the culvert and carry out the required mitigation works.
- 1.3 Once set up, an assessment of the available area for the mitigation works will be made to inform the design of the mitigation for the culvert removal. The setting up of the tree protection will also inform the available space for access and where potentially access is required within these areas for plant machinery to traverse through them.
- 1.4 The majority of work will be completed from the southern side of the stream to avoid the continued tracking of plant over root protection areas.
- 1.5 Excavation works for the removal of the culvert and mitigation areas should not start until such time as the required areas for the mitigation have been designed and fully set out to avoid tree root protection areas and agreed with the client, the projects arboricultural consultant and the Planning Authority and tree protection measures have been correctly established.
- 1.6 Where areas of ground protection are required (likely near Trees 2-5, 7-11 and 16-18 but to be confirmed and agreed prior to work commencing on site) this will be fit for purpose. It will consist of a minimum of engineered track mats pinned in situ to provide a continuous surface over the root protection areas with protective fencing adjusted to limited plant machinery movements.
- 1.7 The tracking of plant machinery in close proximity to trees will be completed so that the boom and cab do not damage any tree branches.
- 1.8 Removal of the culvert itself must be completed from the southern side of the stream. Its removal must be carried out to reduce the extent of soft ground removed to reduce the possibility of damaging tree roots. The majority, if not of all the excavation for the mitigation works whereby areas of ground are removed to allow water in, must also be completed where possible from the southern side so that excavator arms and buckets reach over and in between trees and bring the spoil away from the trees into dumpers that have a longer clear area to operate and manoeuvre without being detrimental to trees. This will reduce the number of plant movements on the northside of the stream and the extent of work activity carried out, thus reducing the number of plant machinery movements across trees' root protection areas.
- 1.9 Prior to site works commencing, the tree protection measures will be checked as fit for purpose by the project's Arboriculturist. Any areas that are considered not to be suitable for the task in hand will be advised to the client with details of the appropriate and required amendments needing to be made before site works can commence.

NOTE: All the trees are protected by a Conservation Area. Therefore the works detailed above must be notified to Havant Borough Council and the tree works not started until at least six weeks after the notified date. The notified works can be carried out after this six week notification period if the Local Planning Authority do not serve a Tree Preservation Order.

