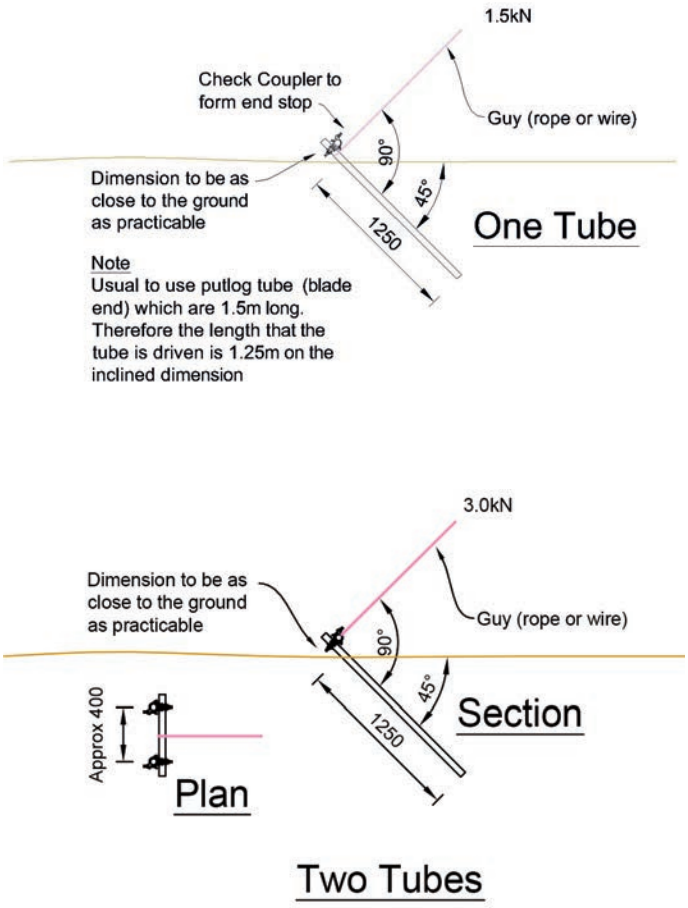
TG16:14

Anchoring to the Ground

NASC
National Access & Scaffolding Confederation

Figure 1: Strength of Tube Anchors



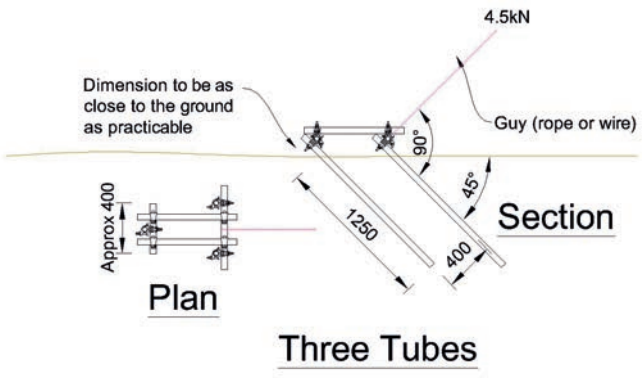
Many free standing temporary scaffolding structures, such as access towers, major signboards and protection enclosures, need to be anchored to the ground, primarily to resist wind forces.

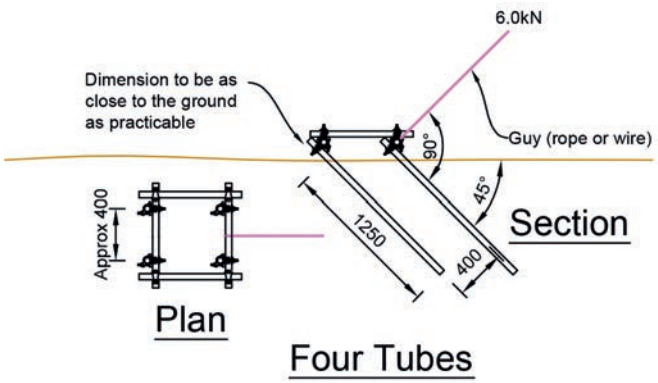
Individual anchor capacities are dependent on local ground conditions and so must be properly assessed, in every case. However, Fig 1 gives some possible solutions employing scaffold tube, with values of the anchor strength which can normally be achieved in good ground.

For guidance purposes, when tube is embedded a minimum of 300mm in concrete, the interface bond strength between scaffold tube and concrete may be taken as 45kN for direct pull out. The first 150mm of tube embedment length should be ignored in this calculation. Blinding concrete is unlikely to be strong enough.

Prior to anchoring in concrete, contractors must seek advice from a competent engineer.

There are other proprietary ground anchor systems available. Manufacturers recommendations and instructions must be complied with.





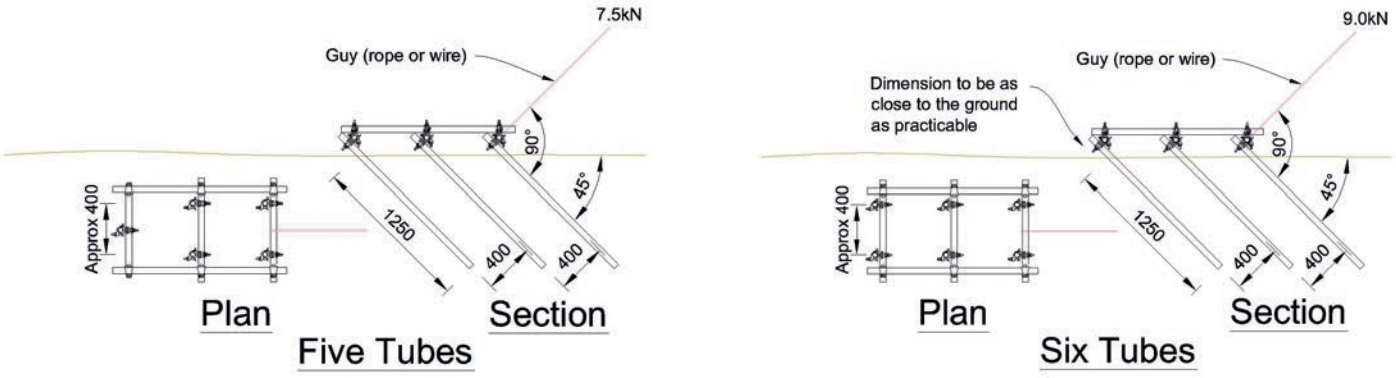
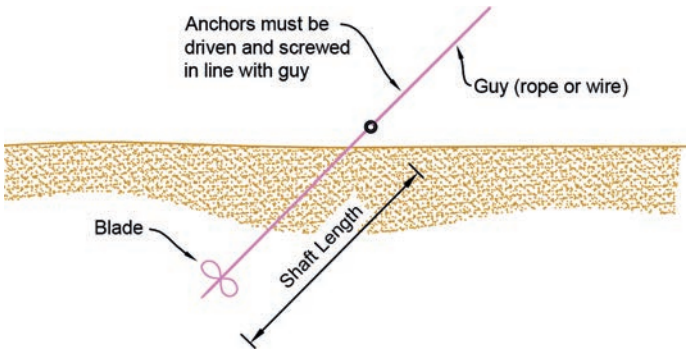


Figure 2: Temporary Screw Anchors



Details of temporary screw anchors are given in Fig 2 with an indication of the likely holding strengths in various types of ground. However these must be properly assessed, in every case.

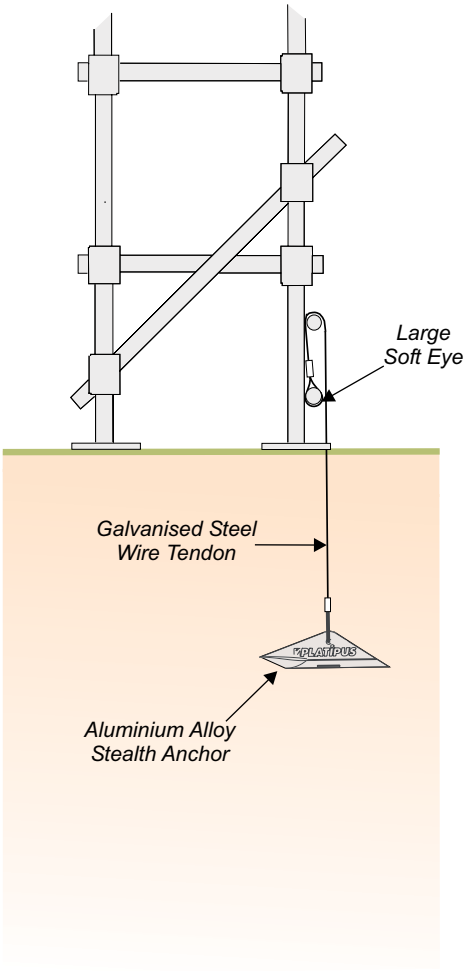
STANDARD SPECIFICATION

TYPE NO	T13.4.5	T30.6.5	T58.8.4	T60.10.3	T66.12.2
BLADE	101mm	153mm	203mm	254mm	304mm
SHAFT	12mm	18mm	25mm	28mm	29mm
SHAFT LENGTH	457mm	762mm	1219mm	1594mm	1676mm

MAXIMUM HOLDING CAPACITY (IN kN)

GROUND	T13.4.5	T30.6.5	T58.8.4	T60.10.3	T66.12.2
CHALK DAMP	8	30	47	73	84
CRUMBLY	6	23	34	45	53
FIRM MOIST	4	11	23	36	42
PLASTIC WET	2.5	8	12	19	25

Figure 3: Temporary Mechanical Anchors



Details of a temporary mechanical anchor system are provided in Figure 3.

An indication of likely holding strength and typical load range are shown in the tables below, however these figures must be verified by a site test.

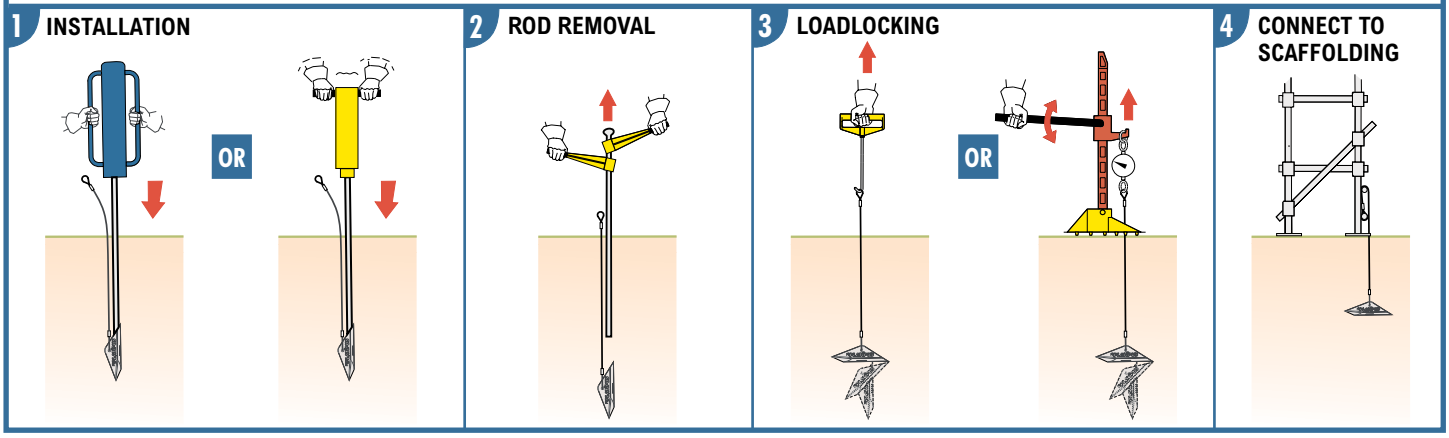
MAXIMUM HOLDING CAPACITY (IN kN)

GROUND	S6 Anchor	S8 Anchor
Chalky Damp	8	30
Crumbly	6	23
Firm Moist	4	11
Plastic Wet	2.5	8

Product Code	Description	Typical Load Range	Drive Rod	Rod Removal	Loadlocking
S64	S6 aluminium anchor, 1.2m of 6mm Ø galvanised wire tendon, large soft eye, double leg system	5 - 25kN*	HDRS6 or PDRS6	By Hand	Plati-Hook or SJ1
S65	S6 aluminium anchor, 1.2m of 6mm Ø galvanised wire tendon, large soft eye, single leg system	5 - 25kN*	HDRS6 or PDRS6	By Hand	Plati-Hook or SJ1
S84	S8 aluminium anchor, 1.5m of 8mm Ø galvanised wire tendon, large soft eye, double leg system	10 - 40kN*	HDRS8 or PDRS8	RR1	SJ1
S85	S8 aluminium anchor, 1.5m of 8mm Ø galvanised wire tendon, large soft eye, single leg system	10 - 40kN*	HDRS8 or PDRS8	RR1	SJ1

*The type and condition of the soil may affect the typical load range of an anchor system. In a cohesive soil (poor soil) the full driven depth may achieve the lowest typical load or less. In a non cohesive soil (good soil) the shortest driven depth may achieve the highest typical load or more.

HDR = Hand Drive Rod PDR = Power Drive Rod RR = Rod Removers SJ = Stressing Jack



The details of the temporary mechanical anchors has been supplied by Platipus Engineering Systems. If any other type of temporary mechanical anchor is used, then the manufacturers instructions must be followed.