



Plate Mega Anchor Installation & Selection Guide



Mega Anchors

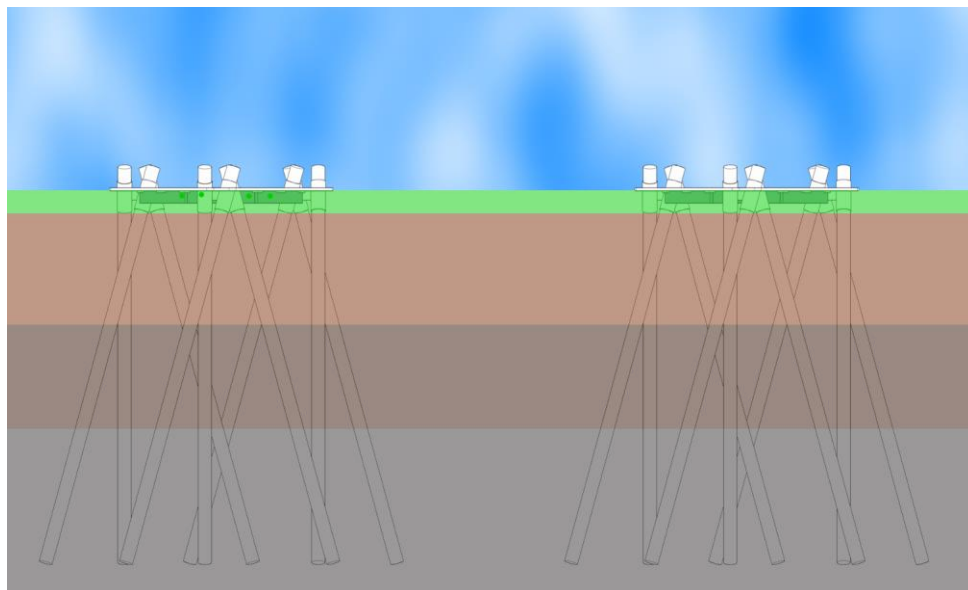
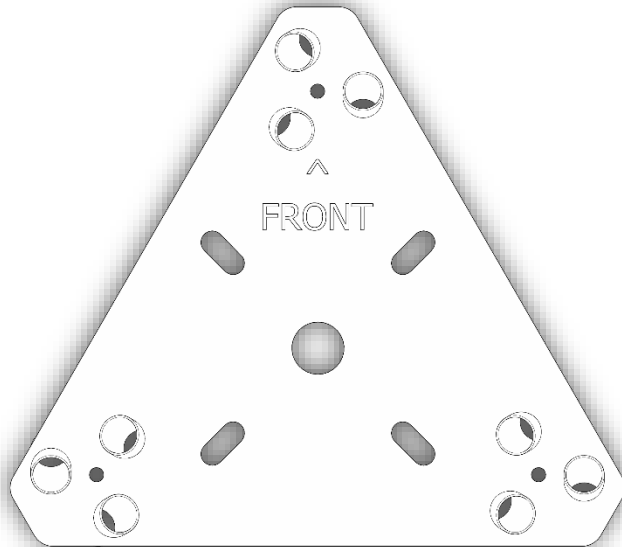
Plate Mega Anchor

MATA9# 9 Pile Plate Mega Anchor

The MATA9# 9 pile plate Mega Anchor was developed in 2006 for applications in the Australian Defence Force.

The 9 pile plate Mega Anchor is designed to support a selection of structural beams, bearers, posts and can be used as a heavy duty tie down.

Its triangular shape includes 3 sets of the original Mega Anchor pile configurations providing 3 times the capacity a single 3 pile Mega Anchor. Having the pile configuration spread out over the plate provides exceptional lateral support with each group of piles reacting against each other when lateral loads are applied. The plate is equipped with a selection of mounting holes for attaching a variety of post including light poles and other larger structural beams that require increased lateral capacity. The MATA9# also has 3 stabilising holes to assist with securing the plate in position, enhancing ease of installation.



Mega Anchor Tools

MAJHD#

Mega Anchor Jack Hammer Dolly

The MAJHD# Mega Anchor jack hammer dolly slides into the jack hammer the design of the dolly allows it slide easily inside the pile so it can be driven into the ground.



MAHD#

Mega Anchor Hand Dolly

The MAHD# Mega Anchor hand dolly is used to assist with installing the piles manually with a sledge hammer the dolly slides into the end of the pipe reducing deformation in the pile.



IT3250#

Mega Anchor Alignment Tool

The IT3250# alignment tools sleeve into centre hole in the plate Mega Anchor to assist in holding the plate Mega Anchor in place while it is being installed.



ITPIN#

Plate Mega Anchor Stabilising Pin

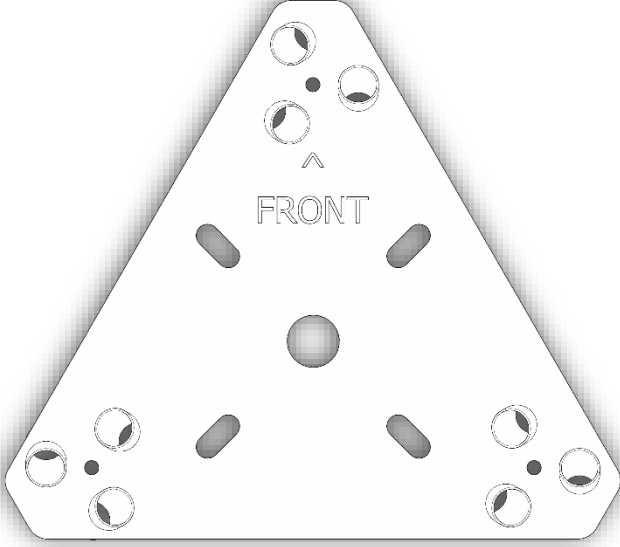
The ITPIN# is a stabilising pin that is used during installation to assist with securing the plate in position during installation.



Product Selection Guide

Product Selection Introduction

Your Plate Mega Anchor pile cap will be selected based on the characteristics and specification of your project. The table below is a guide to selecting the correct Mega Anchor pile cap.

Mega Anchor	Selection Criteria
MATA9# 9 Pile Plate Mega Anchor 	The 9 pile plate Mega Anchor can be selected when • Wind A, B, C and D according to AS/NZS 1170.2:2011 • Has a SWL of 90kN • Domestic and Commercial applications
Note: For more information on selecting the correct Mega Anchor for your project please contact Mega Building Industries at info@megabuildingindustries.com.au	

Material Selection Guide

Material selection introduction:

Selecting the type of material to be used in your project is essential.

This material selection guide has been constructed in accordance with the relevant Australian Standards, AS 2159–2009 and AS 4312-2008.

This section guide will guide you through selecting the correct material and inform you of allowances that should be made when selecting materials for your project.

Note: The steel corrosion calculations in this section are based on corrosion rates of uncoated steel (un-galvanised / un-painted)

When selecting your Mega Anchor and piles you need to be aware of the atmospheric corrosion conditions and ground corrosion conditions. The pile material for the Mega Anchor footing system is 32NB galvanised pipe. The galvanised pipe is available in different thicknesses from 2mm to 4mm, stainless steel piles are also available for extreme conditions. The correct pile material should be selected for your project.

General Information:

The conditions both “Atmospheric Corrosivity” and “Soil Aggressiveness” adopt an exposure classification depending on the aggressiveness of the environment.

This table represents the classifications of soil and atmospheric corrosivity levels as per AS. 2159-2009.

Soil corrosivity	Atmospheric corrosivity
Non Aggressive	Very Low
Mild	Low
Moderate	Medium
Severe	High
Very Severe	Very High

In ground corrosion allowances of uncoated steel (un-galvanised).

The in ground corrosion allowances apply to the piles and Mega Anchors that are buried below the ground.

The table below outlines the rate that uncoated steel deteriorates in each corrosivity classification as per AS. 2159-2009.

Classification	Corrosion Allowance mm/Year
Non Aggressive	<0.01
Mild	0.01-0.02
Moderate	0.02-0.04
Severe	0.04-0.1
Very Severe	>0.1

Note: Corrosion allowances do not apply for stainless steel materials

Note: The Mega Anchor has an average galvanising coating thickness of 300g/m or 42 microns and is galvanised in accordance with, AS. 4680 2006

Soil Aggressiveness:

When calculating the soil aggressiveness there are two base soil conditions:

1. Soil Conditions A
2. Soil Conditions B

Soil condition A is high permeability soils like sand and gravel that are in ground water.

Soil condition B is Low permeability soils like silts and clays or all soils above ground water.

This table identifies the soil aggressiveness classifications in comparison A & B soil conditions and the HP levels per AS. 2159-2009

Soil HP	Soil Conditions A Soil Aggressiveness	Soil Conditions B Soil Aggressiveness
>5	Non Aggressive	Non Aggressive
4-5	Mild	Non Aggressive
3-4	Moderate	Mild
3-2	Severe	Moderate
<2	Very Severe	Severe

Open Air Aggressiveness:

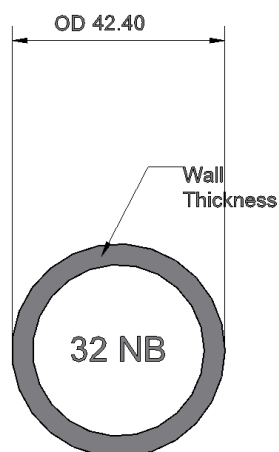
Atmospheric corrosivity is easily identified as each area in Australia has its own classification

This table identifies the region and the atmospheric corrosivity classification per AS. 4312-2008

Atmospheric corrosivity Area	Atmospheric corrosivity
C 1	Very Low
C 2	Low
C 3	Medium
C 4	High
C 5	Very High

Material Selection Sizing Table:

Galvanized Steel Selection								
	Pipe Size for Mega Anchor Plate Anchor Piles			Extra Light Galv. (Green) C350LO	Light Galv. (Yellow) 350LO	Medium Galv. (Blue) C250LO	Bundling Data For Sling Lots	
Plate Mega Anchor	NB(mm)	OD (mm)	Length (m)	Wall Thickness (mm)	Wall Thickness (mm)	Wall Thickness (mm)	Lengths Per Sling	Metres Per Sling (m)
6 Pile Plate Mega Anchor	32NB	42.4mm	6.5	2.0	2.6	3.2	61	396.5
12 Pile Plate Mega Anchor	32NB	42.4mm	6.5	2.0	2.6	3.2	61	396.5

Pipe Sizing Diagram**Pile Material**

Mega Anchor Material Selection:

The Plate Mega Anchor is a galvanised steel product. It is also available in Stainless Steel. Depending on the conditions the correct Mega Anchor product should be selected for your project.

This section will help you select the type of Mega Anchor you require based on the corrosion conditions.

Plate Mega Anchor Selection Atmospheric corrosivity.

Atmospheric corrosivity	Galvanised Plate Mega Anchor	Stainless Steel Mega Anchor
Very Low	☒	☒
Low	☒	☒
Medium	☒	☒
High	☒	☒
Very High	☒	☒

Plate Mega Anchor Selection Soil Corrosivity.

Soil corrosivity	Galvanised Mega Anchor	Stainless Steel Mega Anchor
Non Aggressive	☒	☒
Mild	☒	☒
Moderate	☒	☒
Severe	☒	☒
Very Severe	☒	☒

Note: This section does not allow for galvanising protection and is based on a worst case scenario.

The micro environment should be considered when selecting the type of Mega Anchor.

Pile and Riser Material Selection:

The correct pile material should be selected for your project.

Galvanised Pile & Riser Selection for atmospheric and soil corrosivity:

Soil Aggressiveness	Pile 2mm Wall Thickness	Pile 2.6mm Wall Thickness	Pile 3.2mm Wall Thickness	Pile 4mm Wall Thickness
Non Aggressive	☒	☒	☒	☒
Mild	☒	☒	☒	☒
Moderate	☒	☒	☒	☒
Severe	Not Suitable	Not Suitable	Not Suitable	Not Suitable
Very Severe	Not Suitable	Not Suitable	Not Suitable	Not Suitable
Atmospheric Corrosivity	Riser 2.3mm	Riser 2.9mm	Riser 3.6mm	Riser 4.5mm
Very Low	☒	☒	☒	☒
Low	☒	☒	☒	☒
Medium	☒	☒	☒	☒
High	Not Suitable	Not Suitable	Not Suitable	☒
Very High	Not Suitable	Not Suitable	Not Suitable	Not Suitable

Note: This section does not allow for galvanising protection and is based on a worst case scenario. The micro environment should be considered when selecting piles and risers.

Stainless steel pile & Riser Selection for atmospheric and soil corrosivity:

Exposure Classification	Soil Aggressiveness	Exposure Classification	Atmospheric Corrosivity
	2.8 mm Pile		2.8 mm Pile
Non Aggressive	☒	Very Low	☒
Mild	☒	Low	☒
Moderate	☒	Medium	☒
Severe	☒	High	☒
Very Severe	☒	Very High	☒

Note: For more information on selecting the correct materials for your project please contact Mega Building Industries at info@megabuildingindustries.com.au

Mega Anchor General Design Principles

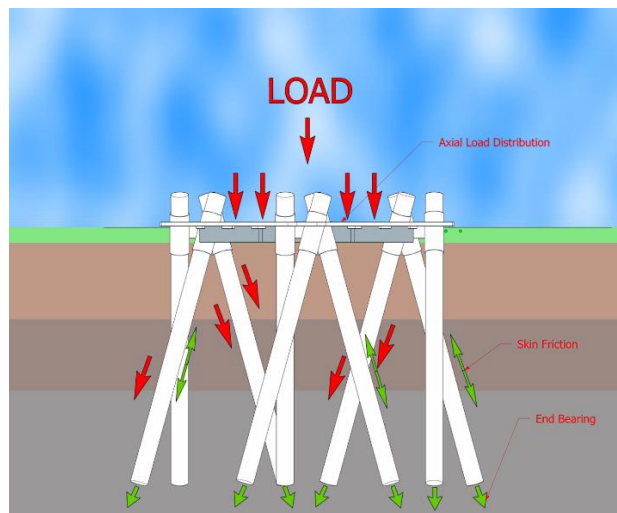
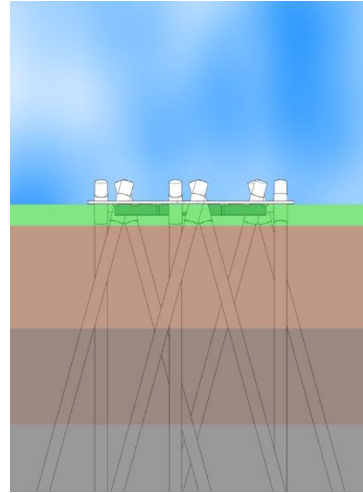
General Design Principles:

The Plate Mega Anchor is a pile cap that shares 3 main aspects to create the foundation.

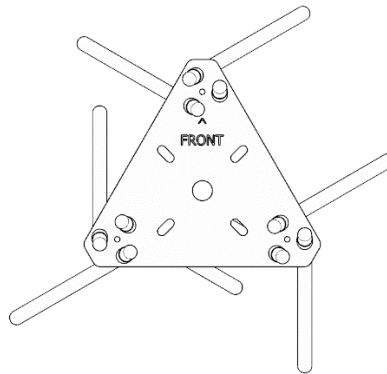
The piles rely on friction and end bearing support and plate provides axial load distribution

It is a combination of friction, end bearing and axial support by the incline piles geometric configuration (Axial load distribution).

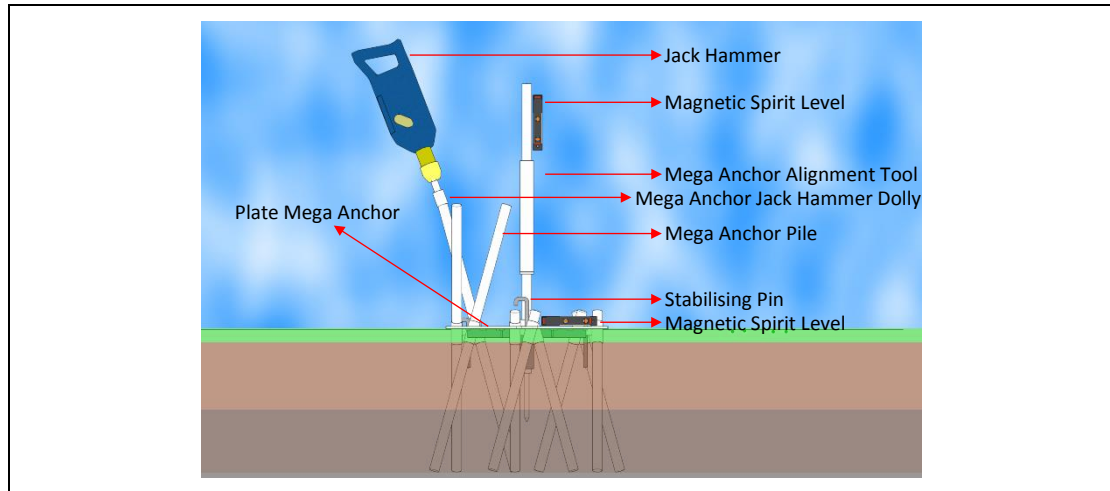
The Mega Anchor has 3 main design factors structural capacity of the Plate Mega Anchor components structural integrity of the pile material and the structural capacity of the founding material.



Axial Load Distribution



Mega Anchor Installation



Safety Notes:



Warning: Before installing any Mega Anchor product, make sure you have checked to see if there is any unground services or hazards, The Mega Anchor pile driving method can cause significant damage to underground services which can result in; damage to underground assets, damage to tools and equipment, this can result in costly repairs, serious injury or death. We recommend using the Dial Before You Dig Service



Warning: Appropriate safety equipment must be worn when installing Mega Anchor products.



Basic installation:

The plate Mega Anchor is placed on the ground in the location where it is required. The alignment tool holds the plate Mega Anchor in place while it is being installed.

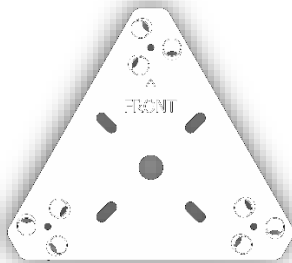
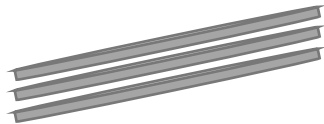
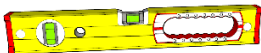
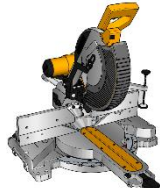
The piles are then driven into the ground through the plate Mega Anchor pile guides. The piles are screwed to the Mega Anchor frame locking the Mega Anchor in place.

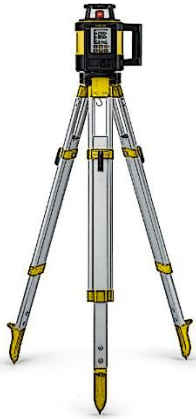
After the plate Mega Anchor has been installed structural supports brackets and bearers can be bolted or welded to the plate.

Detailed Installation:**Before you Start Checklist:**

Before you start any Mega Anchor installation it is important to make sure you have all tools, equipment, materials and relevant permits and approvals before starting.

This checklist outlines the essential tools equipment and materials required to install a Mega Anchor.

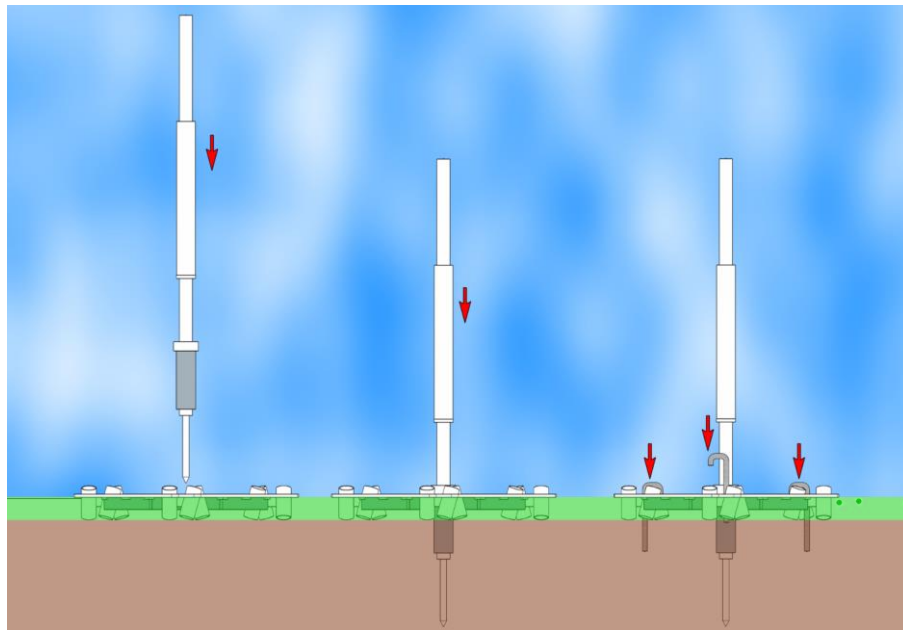
Item	Visual	Check
Materials:		
Plate Mega Anchor Frame		
Piles (Hot Dip Galv)		
Screws (14g Hex Tek) Class 3 or Class 4		
Tools:		
Mega Anchor Alignment Tool		
Mega Anchor Jack Hammer Dolly		
Magnetic Spirit Level		
Jack Hammer		
Drill		
Metal Cutting Saw		

Item	Visual	Check
Levelling Device		
Tape Measure		
Sledge Hammer		
Hammer		
Hex Drill Bit		

Step 1, Aligning the Mega Anchor

When the Mega Anchor is set in the required position, use the Mega Anchor alignment tool to align temporarily hold the plate Mega Anchor in place.

1. Place the plate Mega Anchor in its required location.
2. Insert the alignment tool spike through the center of the plate Mega Anchor.
3. Use the slide hammer to drive the alignment tool spike into the ground until the plate anchor meets the alignment tool adapter.
4. Use a spirit level to check that the plate is level.
5. Drive the stabilizing pins into ground to further secure the plate in position.



Step 2, Driving the piles

Using a demolition hammer drive the piles to the specified depth or to the point of practical refusal whichever is specified in the design.

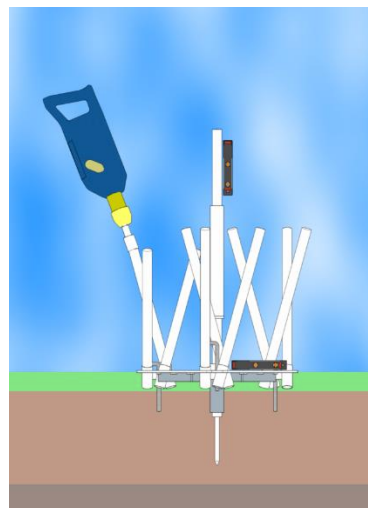
Note: A sledge hammer can also be used to drive the piles into the ground.

Note: When using the demolition hammer to drive the piles into the ground it is important to keep the Mega Anchor jack hammer dolly square with the top of the pile.

Tip: Partially driving a pile in on 2 opposing corners of the plate Mega Anchor will help keep the plate in position.

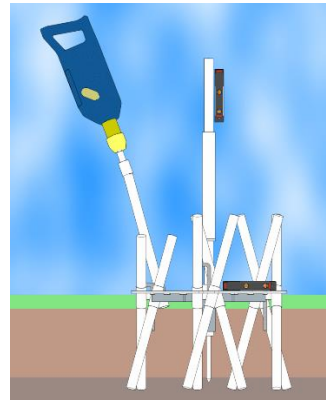
Tip: Using a sledge hammer to drive the ends of pile guides into the ground will help keep the plate in position

1. Place the piles into the plate Mega Anchor pile guides.
2. Before driving the piles use a level to check that the plate is level.

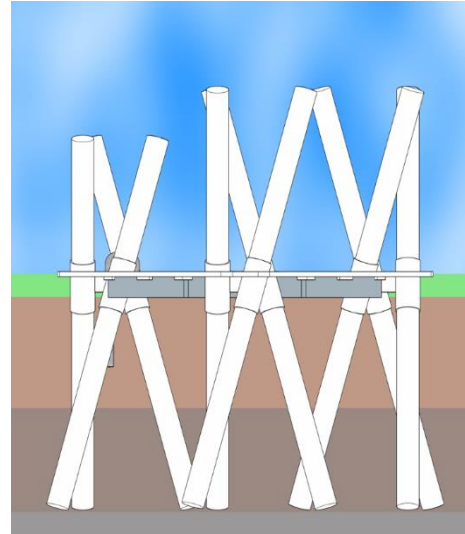


Driving the piles, continued

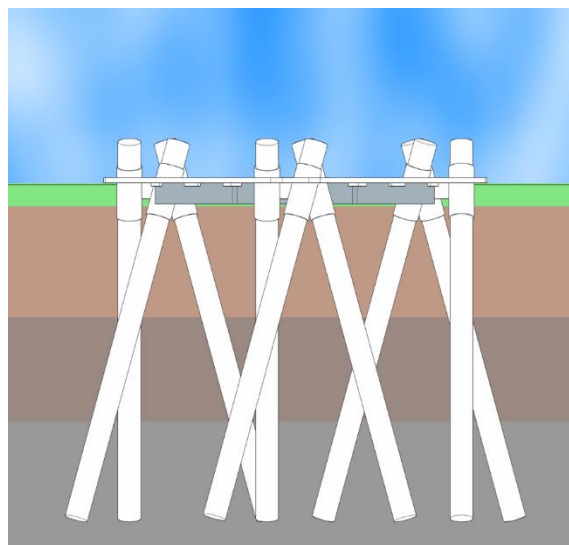
3. Drive the piles through the Plate Mega Anchor pile guides approximately 200 to 300mm
4. Check the plate Mega Anchor is level and adjust accordingly.
Tip: You can use a sledge hammer or the jack hammer to adjust the plate during the installation.



5. When the piles have been driven half way into the ground remove the alignment tool and stabilising pins from the plate Mega Anchor.
Note: After the Mega Anchor piles have been installed half way there will be minimal adjustment, it is important to keep the Mega Anchor plumb while driving the piles.
Tip: After you have removed the alignment tool and stabilising pins and start setting up the next Mega Anchor. A second person can finish driving the piles for the Mega Anchor while the next one is being setup.



6. Finish driving the piles into the ground
Note: If the piles reach the point of practical refusal and the pile cannot be driven all the way into the ground, the excess can be cut off.
Tip: in some cases, it is best to leave the Mega Anchor half installed and move onto the next Mega Anchor. Then come along later to finish driving them in.



Step 3, Fixing the Piles

Using a drill fix the piles to the Plate Mega Anchor frame, there are 2 pre-drilled holes in each pile guide that mark the location for the tek screws. The engineering design will determine the number of screws required.

Note: In some cases it may not be possible to drill through the pre drilled holes, in this case you can drill through the pile guide.

Note: In some cases bolts may be used to connect the piles to the Plate Mega Anchor frame.

