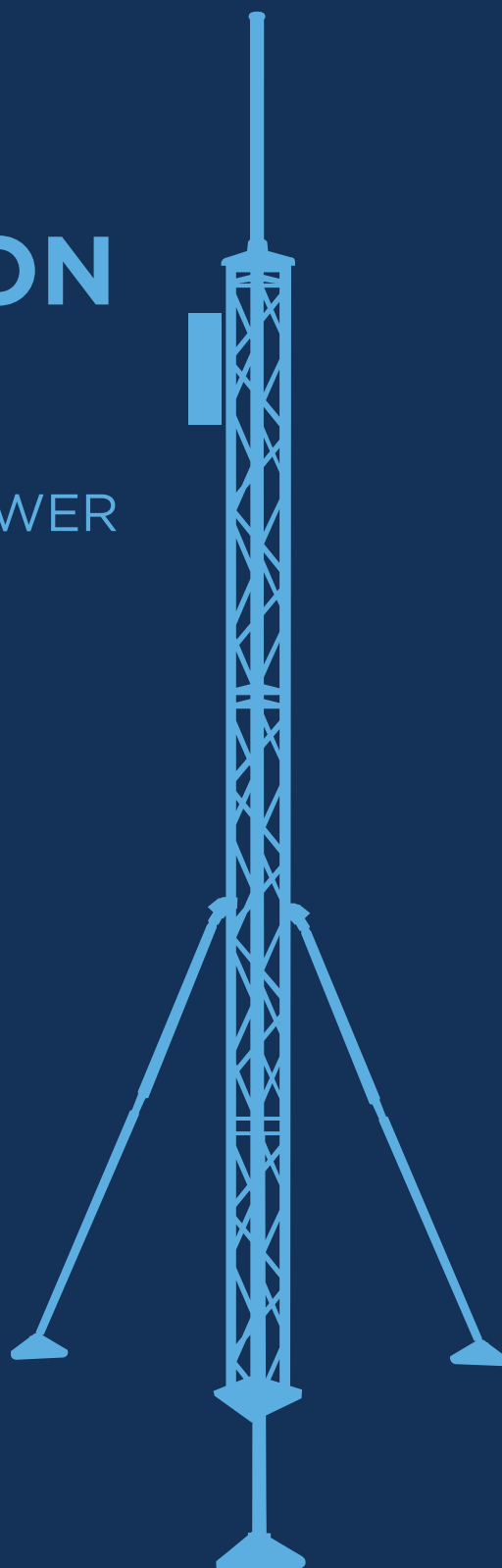


BLUETOWN

INSTALLATION MANUAL

BLUETOWN REACH TOWER
BLUETOWN WAP



INTRODUCTION

This manual describes the installation of the products BLUETOWN REACH TOWER and BLUETOWN WAP. Both products are included in the box and can be setup with the included tools.

Before starting the installation, read this manual and ensure that you meet the required guidelines.

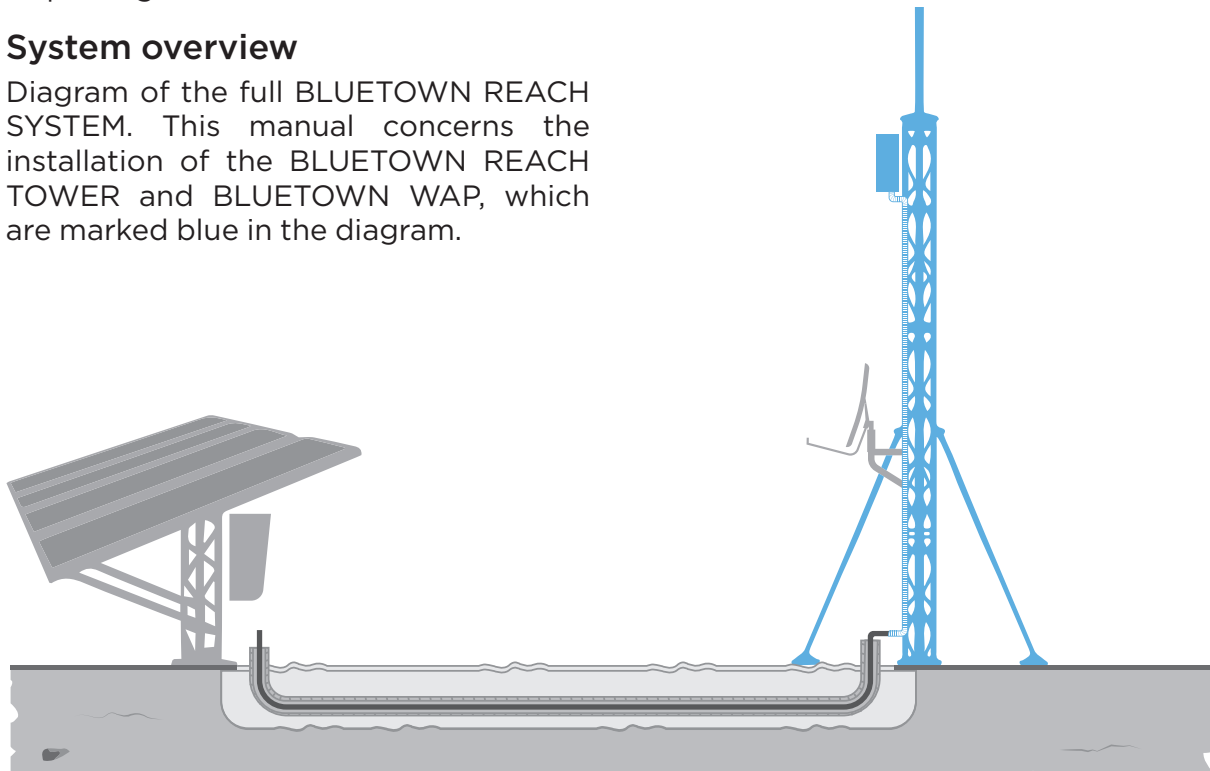
System overview

Diagram of the full BLUETOWN REACH SYSTEM. This manual concerns the installation of the BLUETOWN REACH TOWER and BLUETOWN WAP, which are marked blue in the diagram.

Terms & Conditions

This product is subject to BLUETOWN's general terms and conditions.

Refer to www.bluetown.com



Safety during installation of BLUETOWN REACH TOWER

A minimum of two people are required for the installation.

Make sure that the persons performing the installation are experienced installation technicians, holding documented education or certification proving knowledge on safe handling of electrical installation and battery handling.

Make sure that the persons performing the installation have received the necessary training and qualification.

Do not perform the installation during thunder and lightning storms.

Make sure that the installation area is only accessible to people participating in the installation.

Installation of other BLUETOWN REACH modules on site

If other BLUETOWN REACH modules are included (e.g. BLUETOWN BLUE ONE SOLAR) ensure that there is allocated space for the installation of these modules.



Planned work sequence at the site

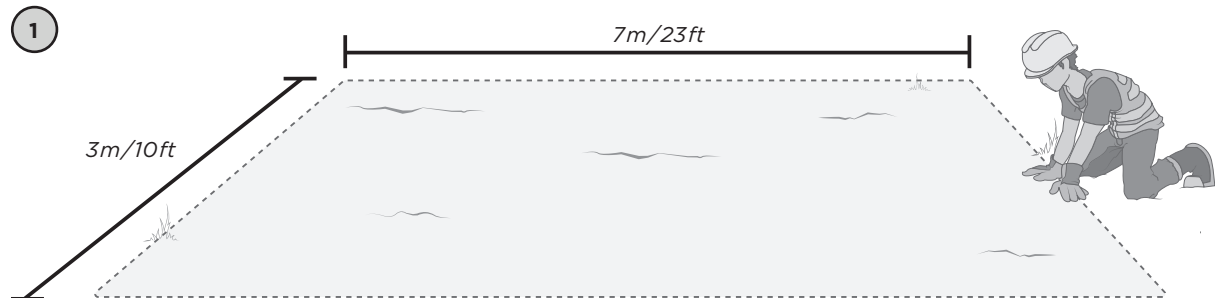
Task description	Persons needed	Time
Reach installation and testing		Approx 6-8 hours
Risk assessment	2	
Preparation of the installation site	2	
Mark up of the REACH TOWER site	2	
Placement of earth screws for TOWER/ support legs	2	
Assembly of the TOWER	2	
Installation of equipment brackets and cables in the TOWER	2	
Erection of the TOWER	2	
As build documentation	1	

SITE PREPARATION

Make sure that the ground can support the fully installed BLUETOWN REACH system and that the site is not installed in areas that may be flooded or where the

ground may become unstable at a later time.

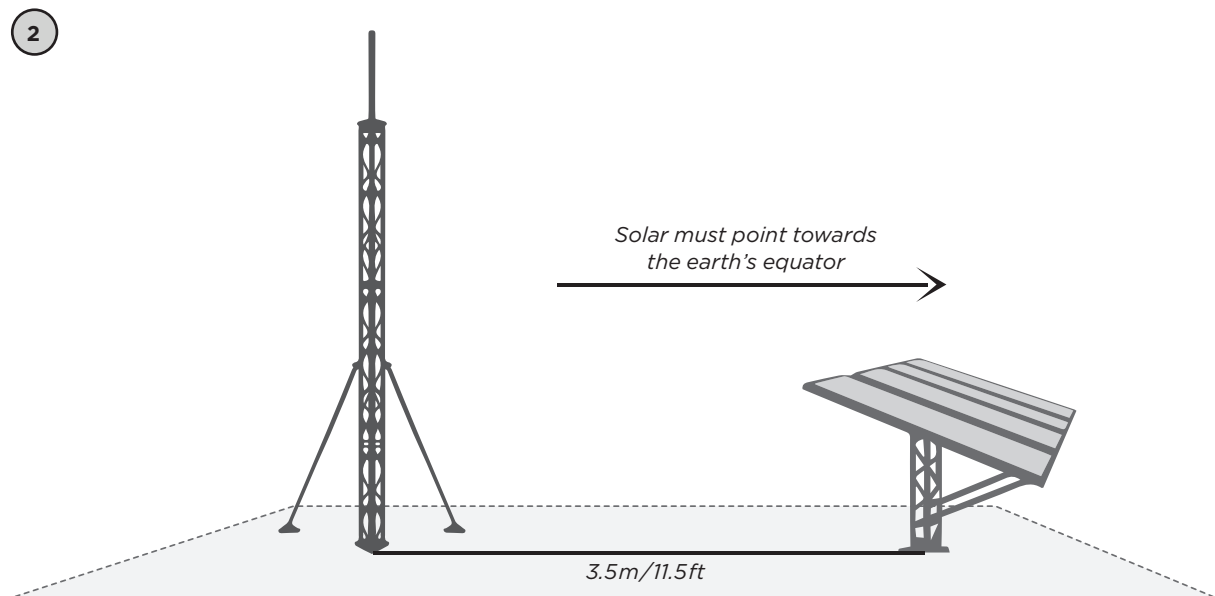
Ensure that there is an area of 21m²/230ft² free of vegetation and with a horizontal surface.



If a BLUETOWN BLUE ONE SOLAR product is also included, ensure that there is a minimum of 3.5m/11.5 ft between the tower and solar module.

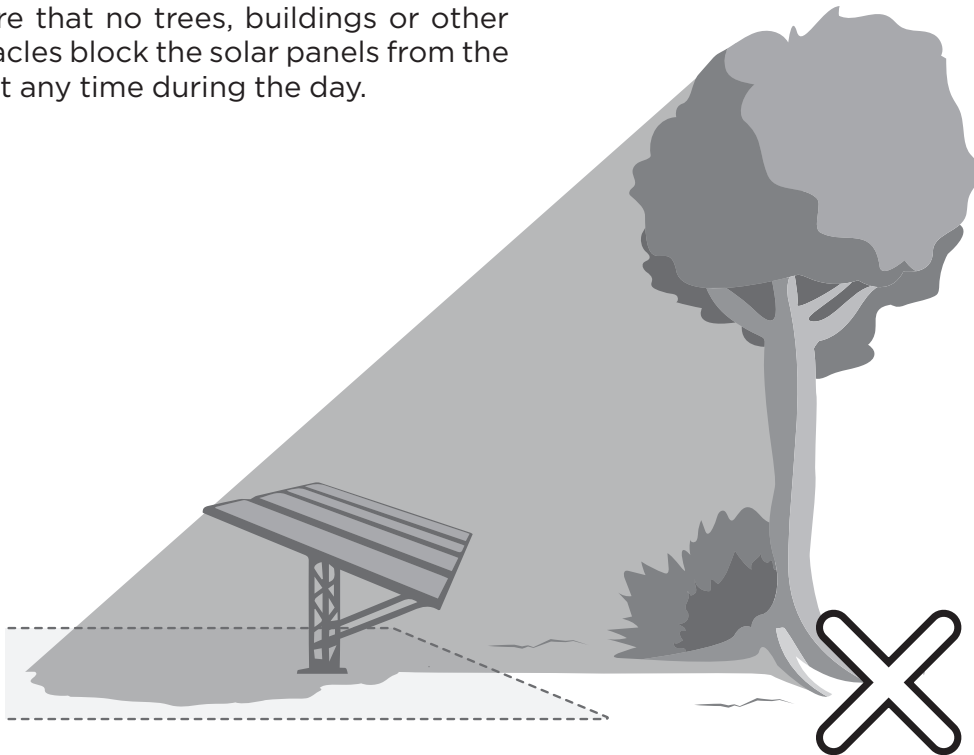
the site is located on the northern hemisphere and north if the site is located on the southern hemisphere. Use the in box supplied compass to ensure proper orientation

The solar panels must be oriented towards equator. Orientation is south if



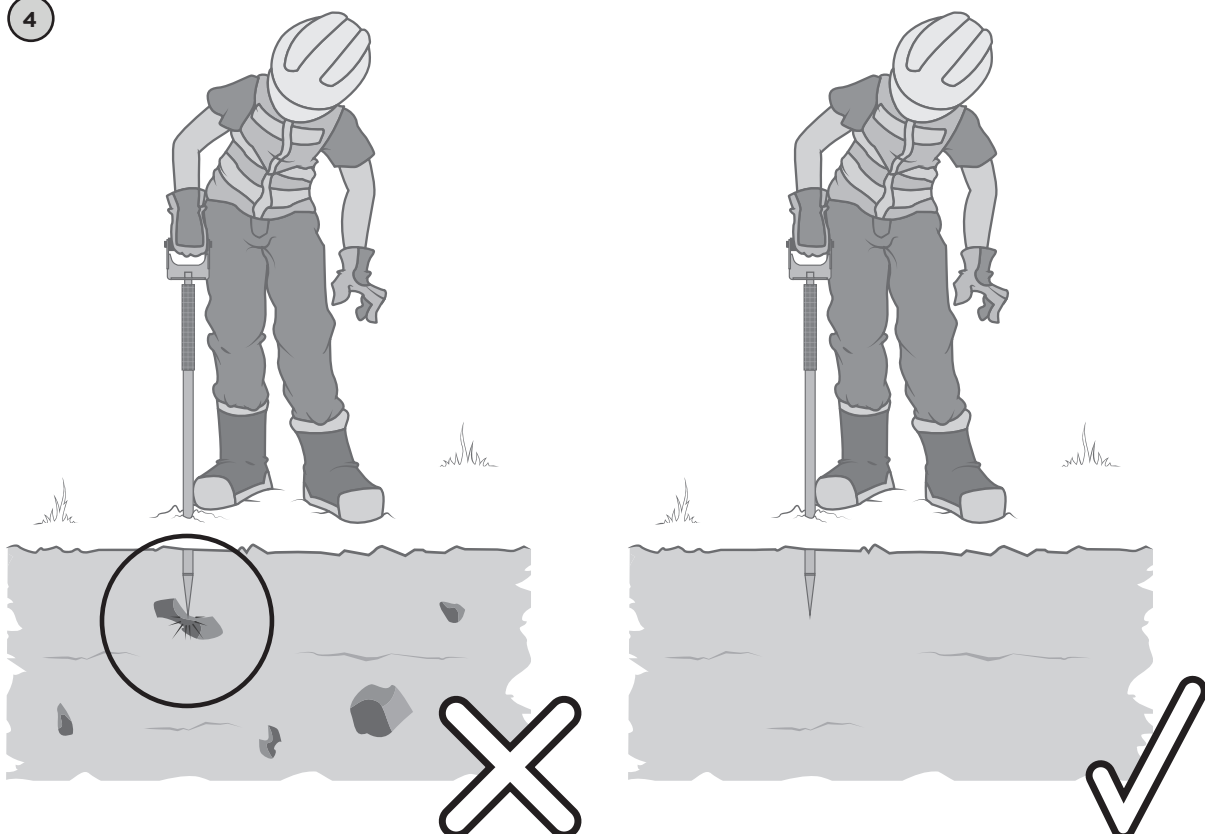
Ensure that no trees, buildings or other obstacles block the solar panels from the sun at any time during the day.

3



The ground must be free from potential obstacles and dangers such as rocks, cables or pipelines before any ground penetration work is performed.

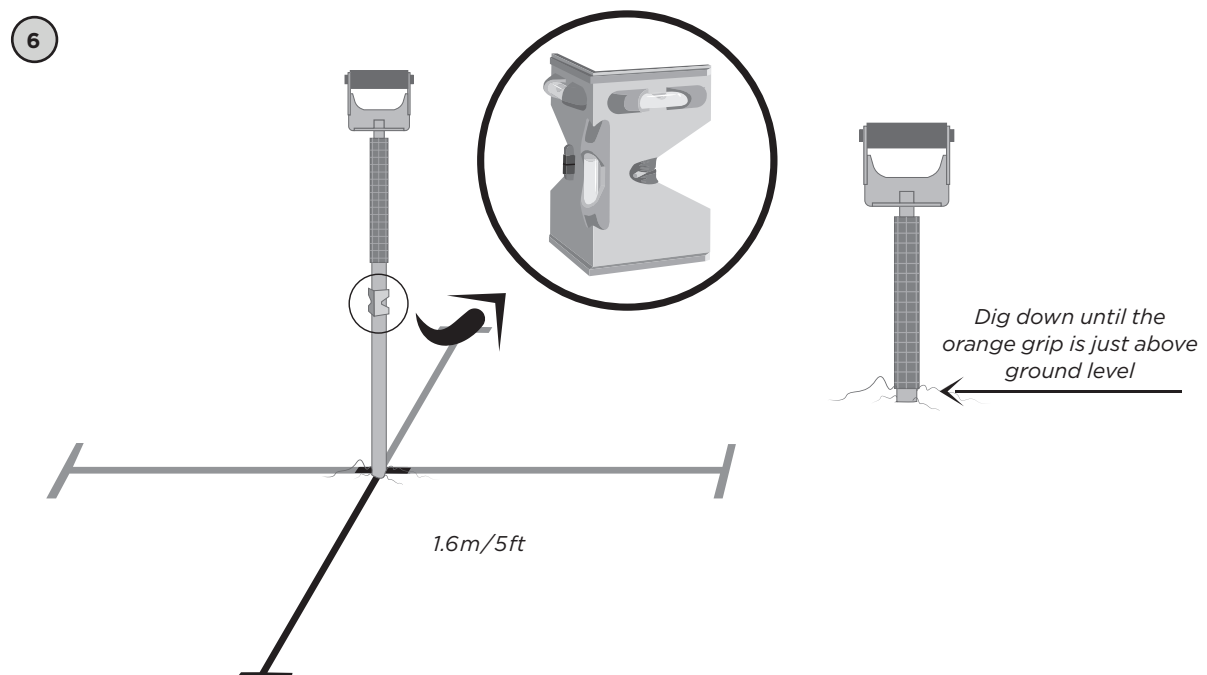
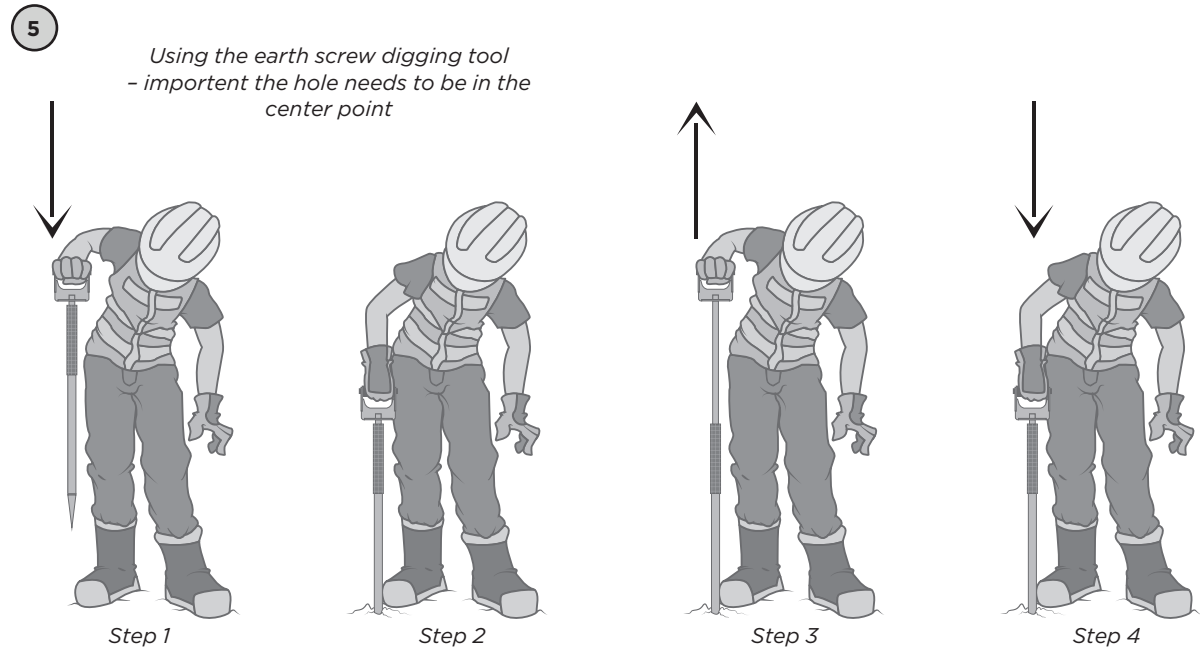
4



CREATING THE FOUNDATION LAYOUT

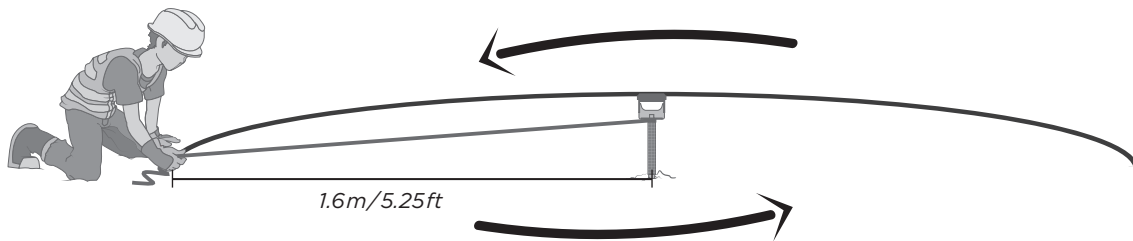
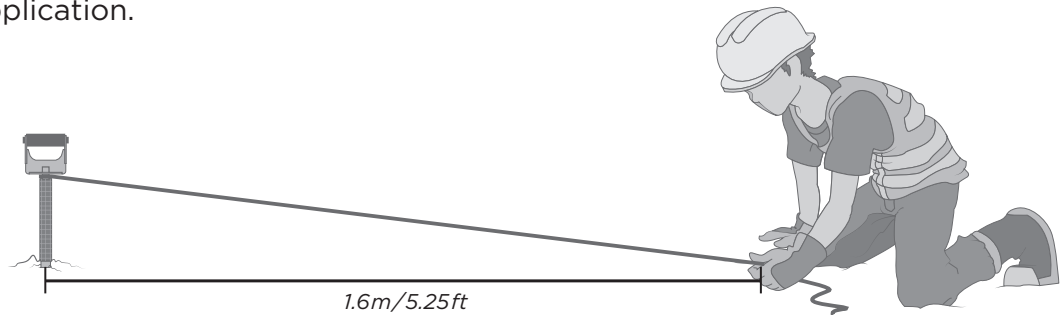
Mark the center point where the tower is to be installed using the earth screw

digging tool. Use the earth screw digging tool to make a pilot hole straight into the ground at the tower center point. Hammer until the orange grip part is just above the surface of the soil. Make sure that the pilot hole is vertical aligned by continuously using the supplied pole spirit level.



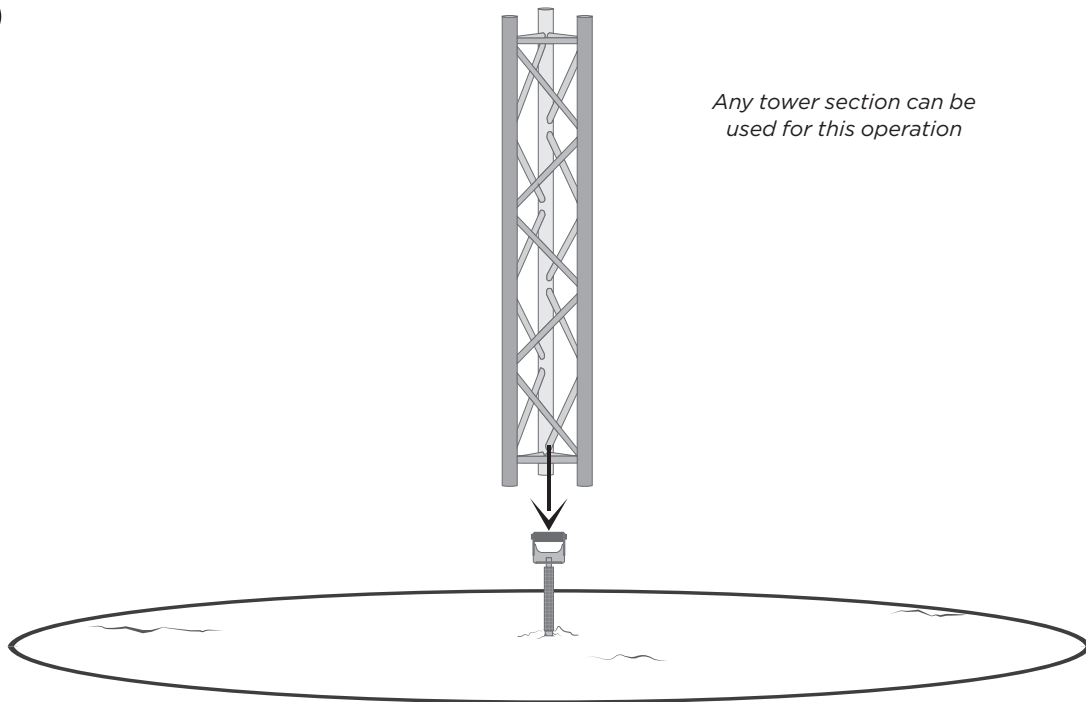
Tie the string to the earth screw installation tool and use it to create a circle with a radius of 1.6m/5.25ft. String is supplied for this application.

7



Place a tower section centered on the pilot hole.

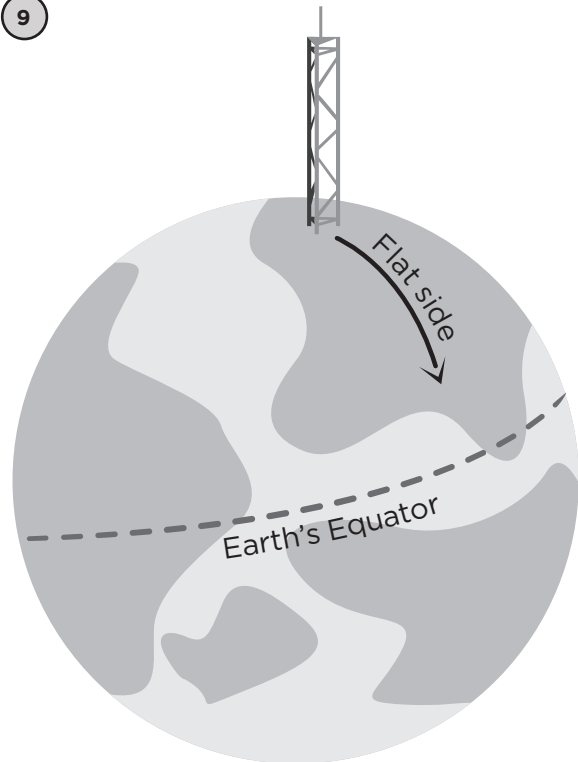
8



Any tower section can be used for this operation

Rotate the tower section so one flat side faces satellite azimuth. If the satellite is geostationary, the flat side must be oriented towards the equator. *If you have not located the equator follow the instruction in step 2.*

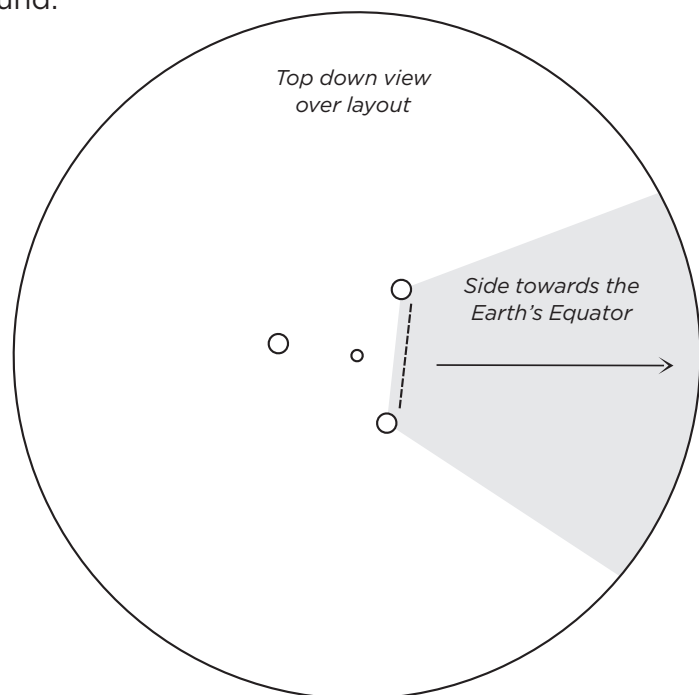
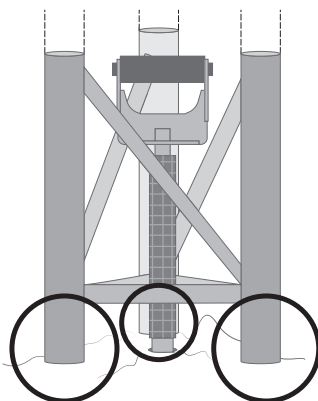
9



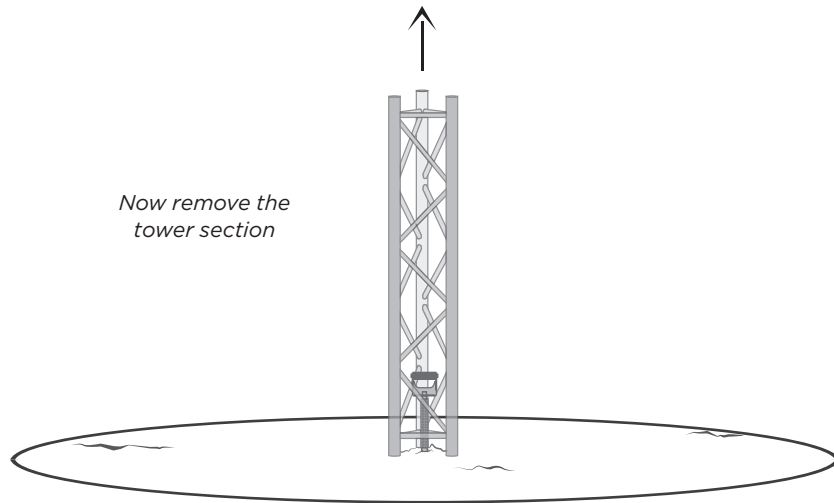
When the tower is positioned correctly, mark the three points where the tower section's three pipes touch the ground.

10

Mark these points
on the ground



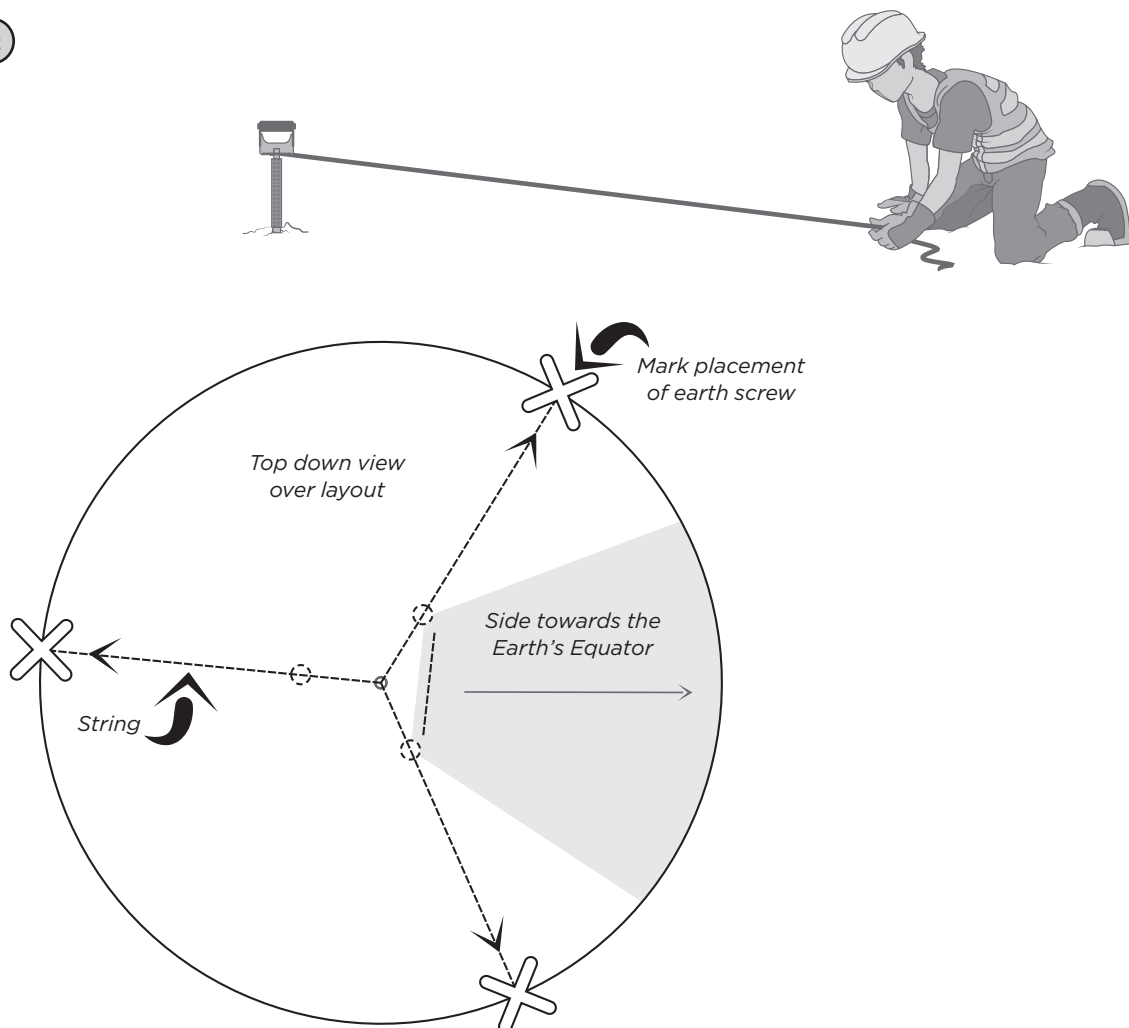
11



Use the supplied string to mark the placement of the earth screws for the tower support legs. Tie the string to the earth screw digging tool. Mark the placement of each support leg earth screw by holding the string tight from the earth screw

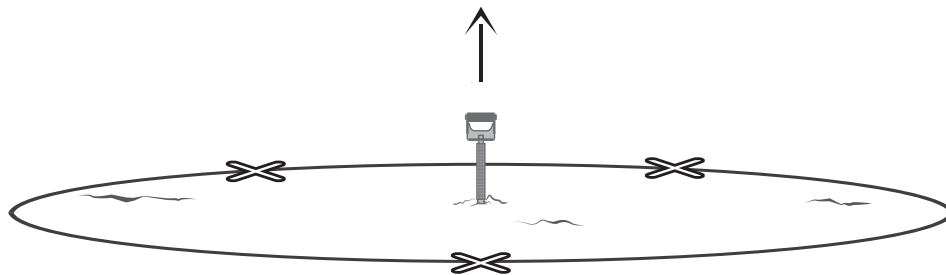
digging tool and out to the circle drawn in step 7. The placement of the three support leg earth screws are marked where the string goes exactly over the markings of the tower pipe markings done in step 10 (see figure).

12



When the placement of the support leg earth screws has been marked, the digging tool is removed from the center hole.

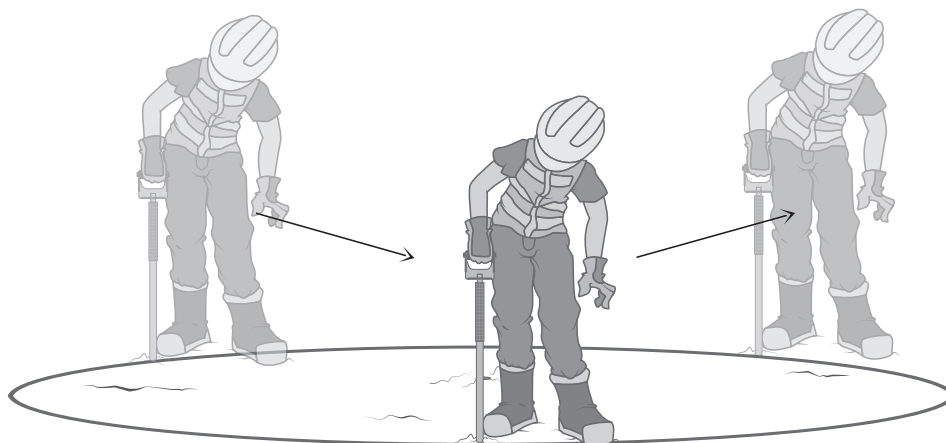
13



Use the supplied earth screw installation tool to make the remaining pilot holes for the support legs foundation. Make sure that the pilot holes are vertical aligned by continuously using the supplied pole spirit.

If the BLUETOWN BLUE ONE SOLAR module is also to be installed, refer to the manual of that product before continuing the installation.

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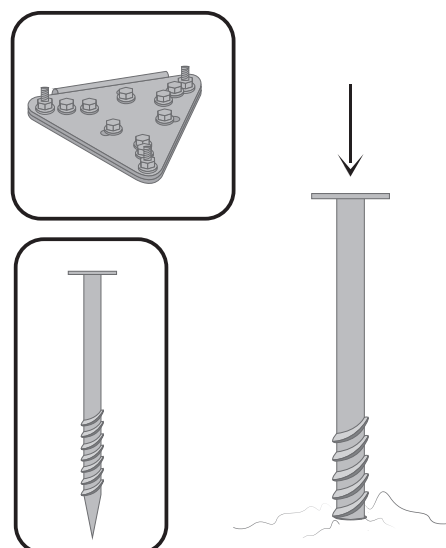


EARTH SCREW INSTALLATION

Before starting the installation of the earth screws, an earth screw installation bracket must be built by using the tower hinge base plate.

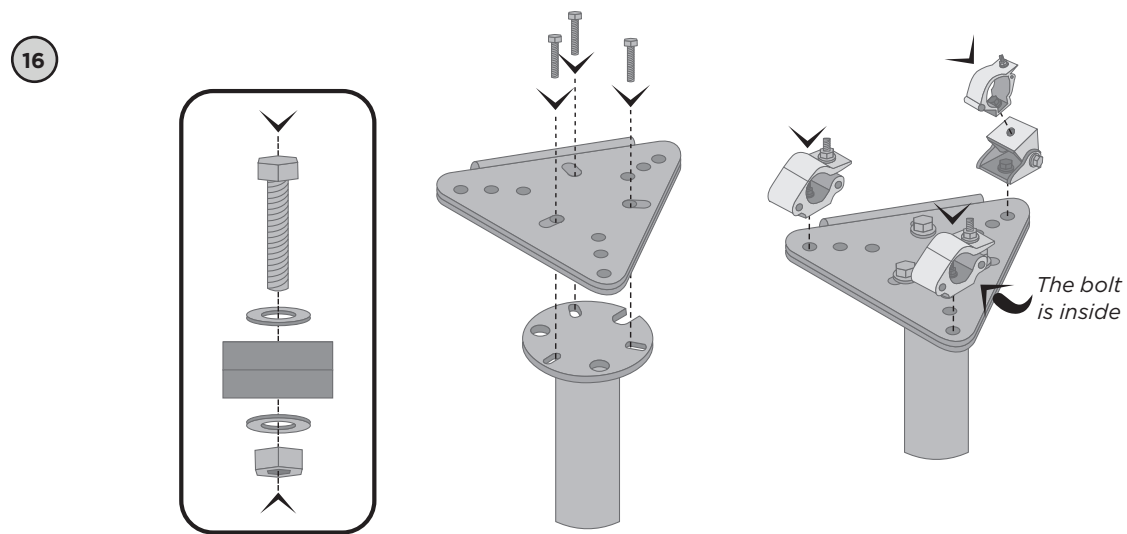
Start by placing the earth screw firmly into the center hole. Turn the earth screw by hand until the windings engage with the sides of the hole.

15

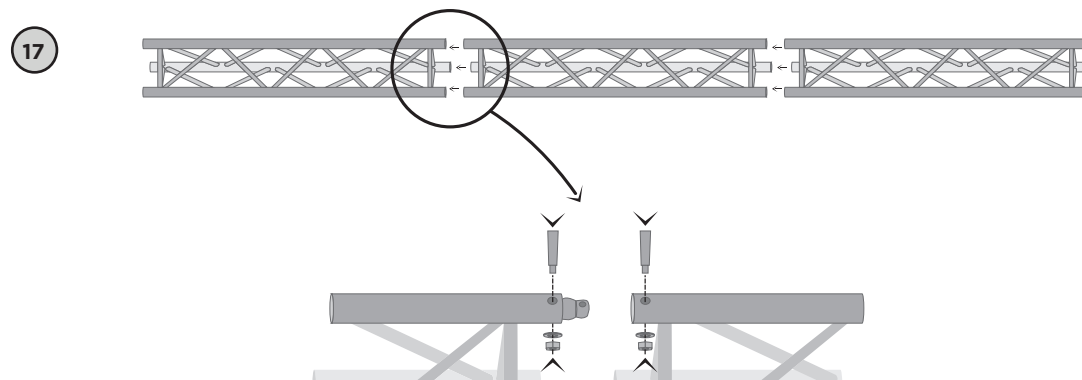


Remove all nuts and bolts from the tower hinge plate. Make sure to store them in a safe place. Attach the plate to the

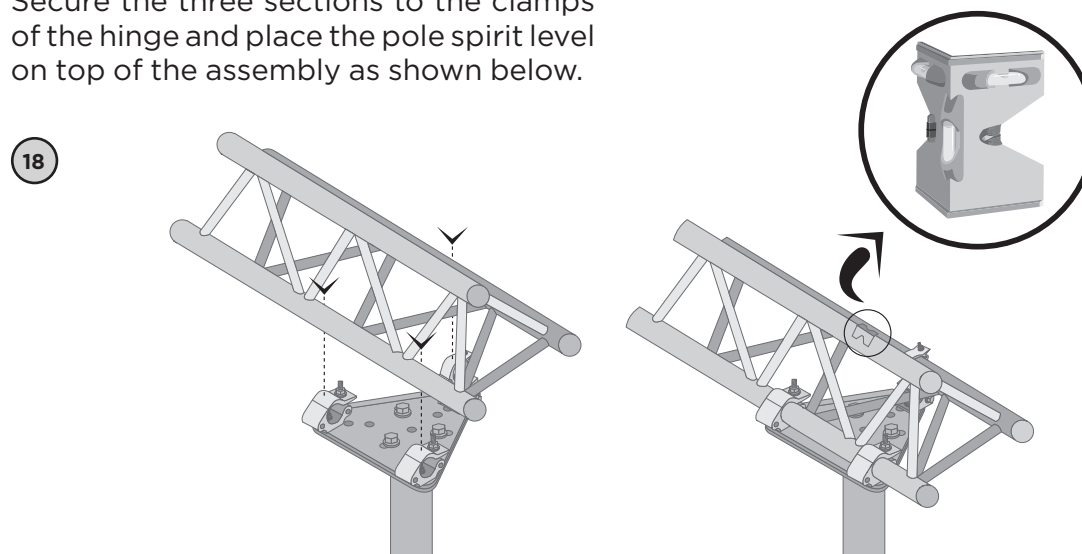
earth screw as shown below. Attach the clamps at the outermost position of the hinge base plate.



Assemble the three tower sections that do not have the antenna attached.



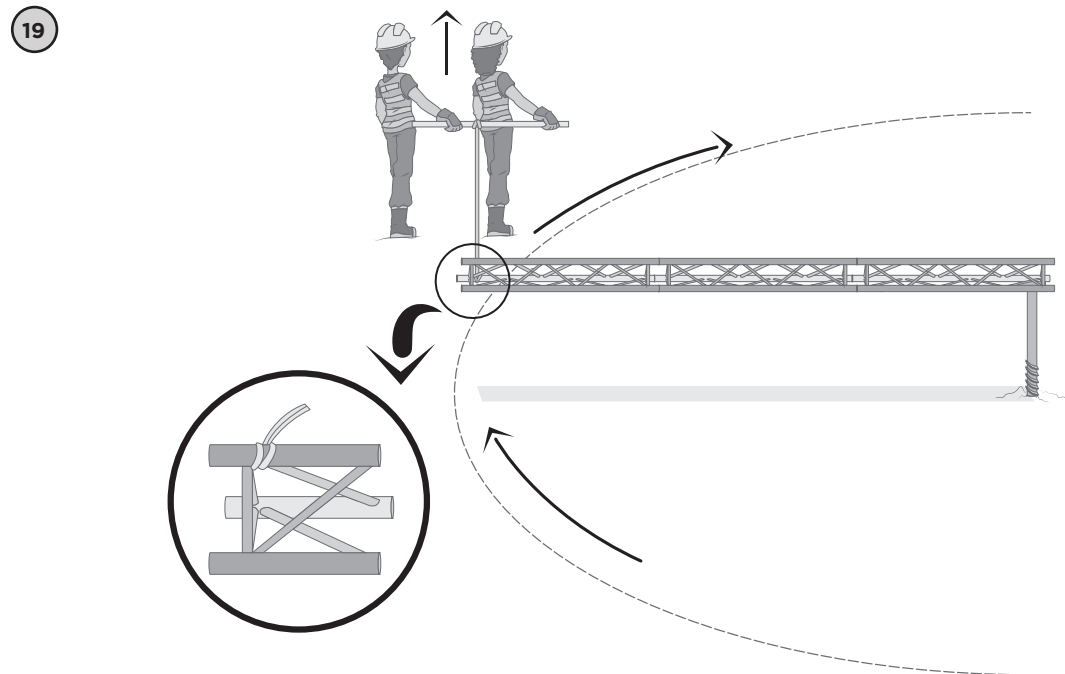
Secure the three sections to the clamps of the hinge and place the pole spirit level on top of the assembly as shown below.



Secure the closed loop sling to the end of the tower sections and attach the other end to a pipe from one of the support legs. The first few rotations of the earth screw should be done by turning the hinge. Check the pole spirit level to

ensure that the earth screw is vertical aligned to the surface.

When the load becomes too high, two people can pull on the attached pipe to gain more leverage.

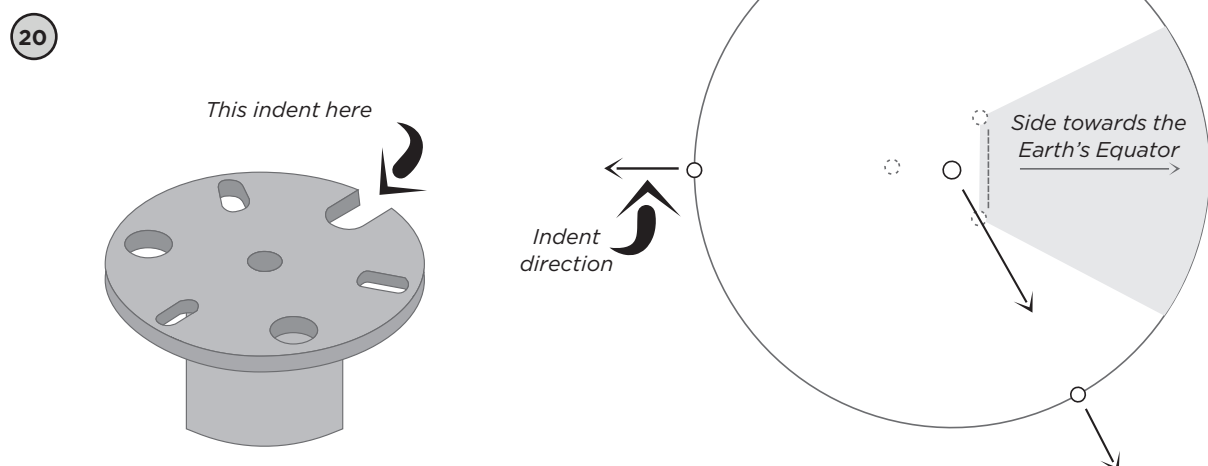


The earth screw is properly installed when a maximum of 10cm/4in of the earth screw flange protrudes from the ground surface.

from the earth screw flange and place it on the next earth screw. Repeat step 17-19 until all earth screws are installed. Afterwards, remove and disassemble the installation bracket. Do not disassemble the three tower sections.

The indent of the earth screw flange must be oriented as shown below.

When the center earth screw has been installed, remove the installation bracket

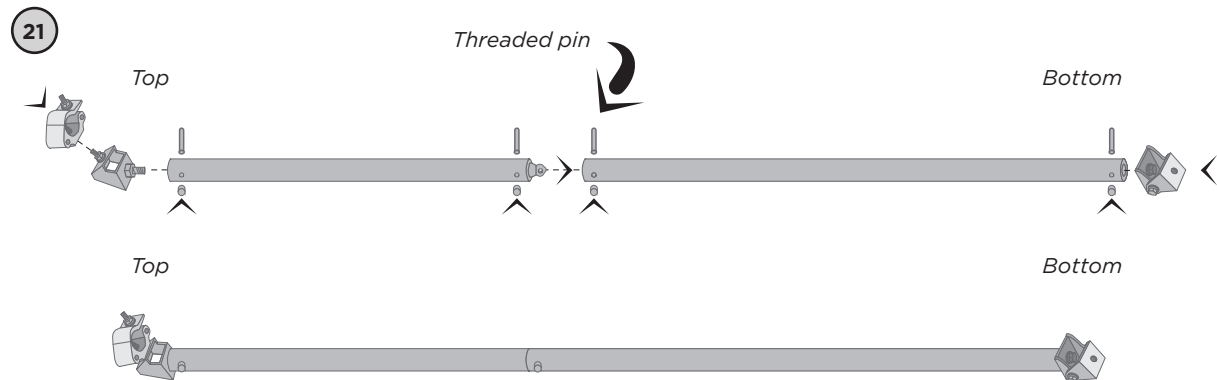


INSTALLATION OF TOWER SUPPORT LEGS

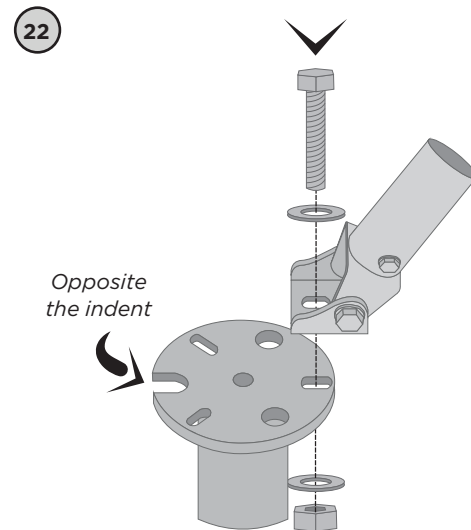
Some of these must be removed during this sub-assembly and re-installed and tightened after the sub-assembly before moving on to the next step. Assemble the support legs as shown below:

Start by preparing the three support legs needed for the tower. The parts come pre-installed with threaded pins.

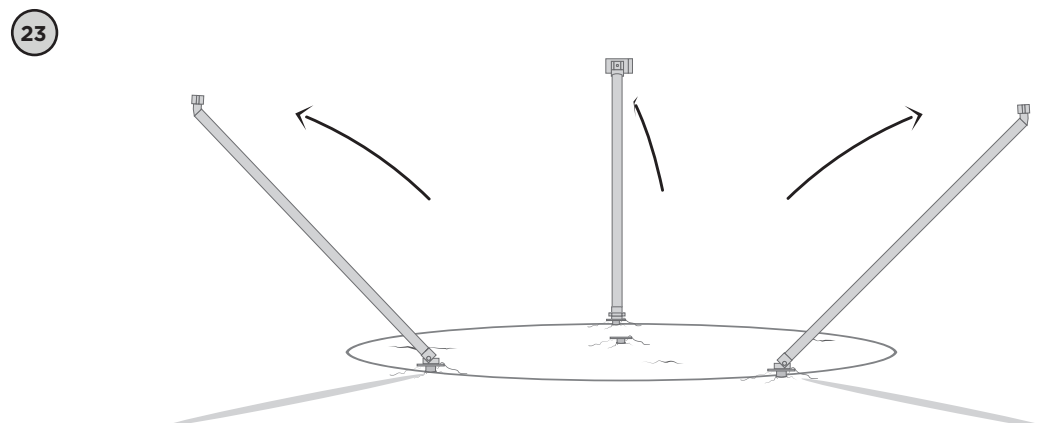
Tip: If the threaded pins rotate while tightening the nuts, give the pins a tap with the supplied hammer.



Using the pre-installed bolt, connect one support leg to each outermost earth screws as shown.



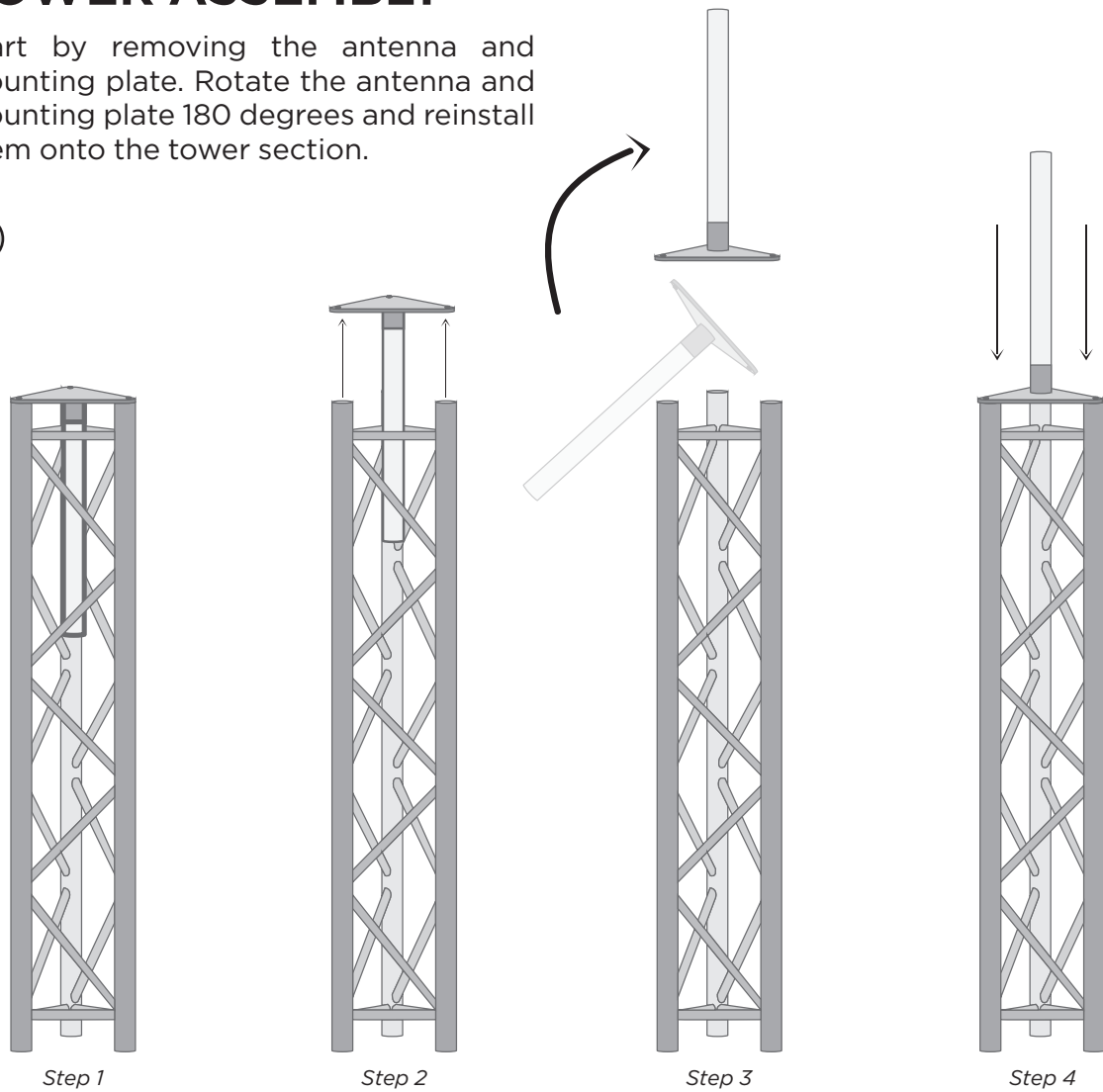
After installation, point the three support legs away from the center of the circle.



TOWER ASSEMBLY

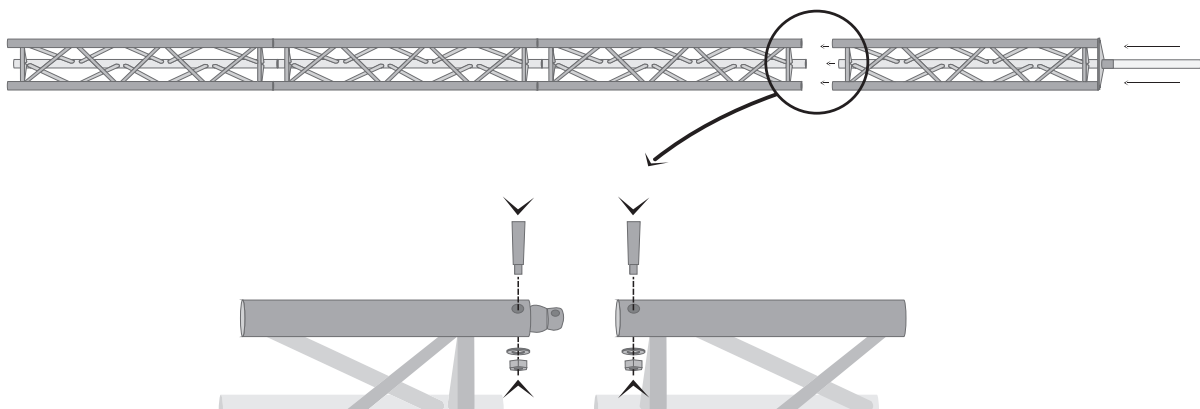
Start by removing the antenna and mounting plate. Rotate the antenna and mounting plate 180 degrees and reinstall them onto the tower section.

24



Connect the tower section with the antenna with the three tower sections already assembled.

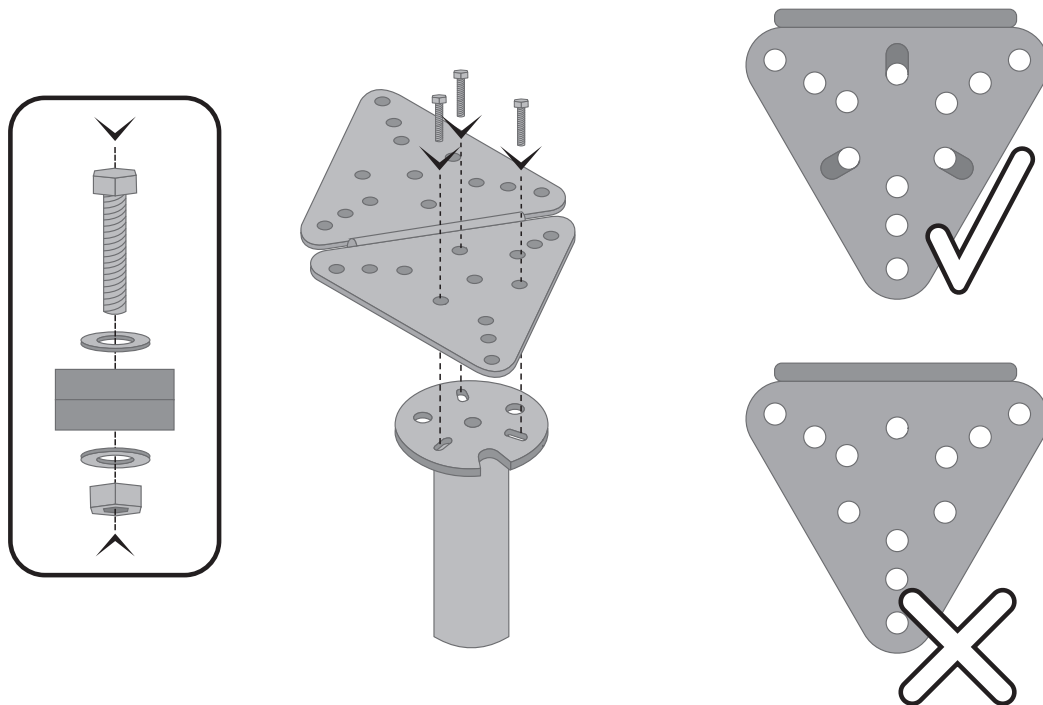
25



Place the hinge plate onto the center earth screw. Note: The hinge flange with three oversized slots must point upwards.

The hinge bushing must point away from the indent in the earth screw flange.

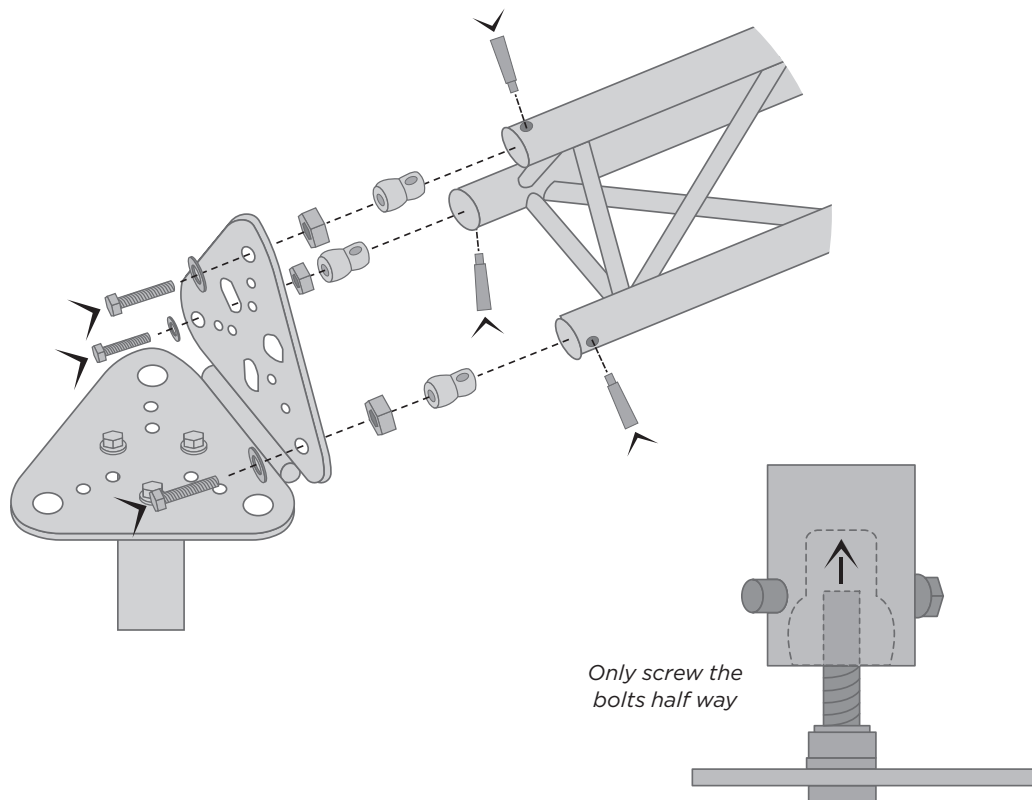
26



Open the hinge and install the bottom of the tower onto the hinge. Do not raise the tower just yet, since installation of

equipment on the very top of the tower still remains.

27



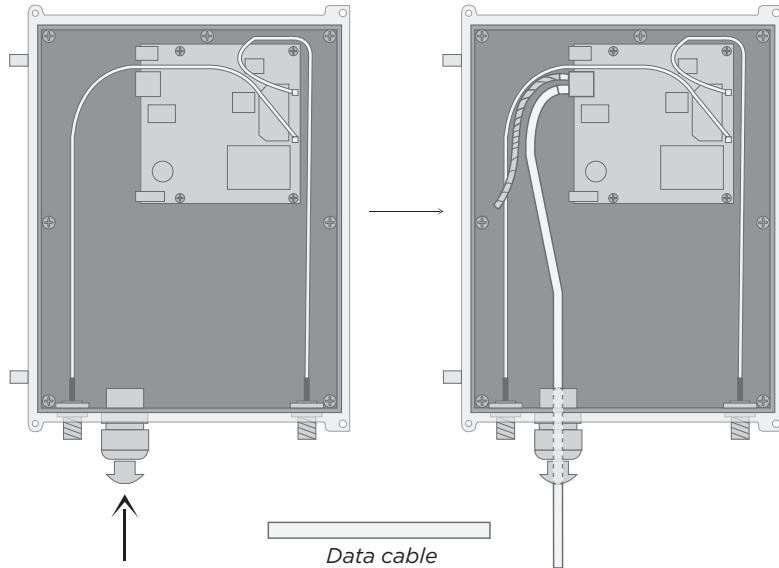
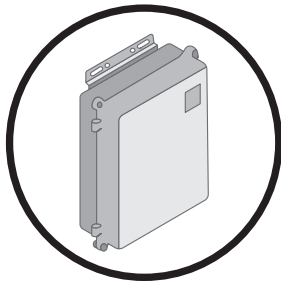
INSTALLATION OF BLUETOWN WAP & ANTENNA CABLES

Open the enclosure that contains the wireless access point by unscrewing the screws in each corner of the lid.

Install the provided 15m/49ft data cable by guiding the cable through the cable gland.

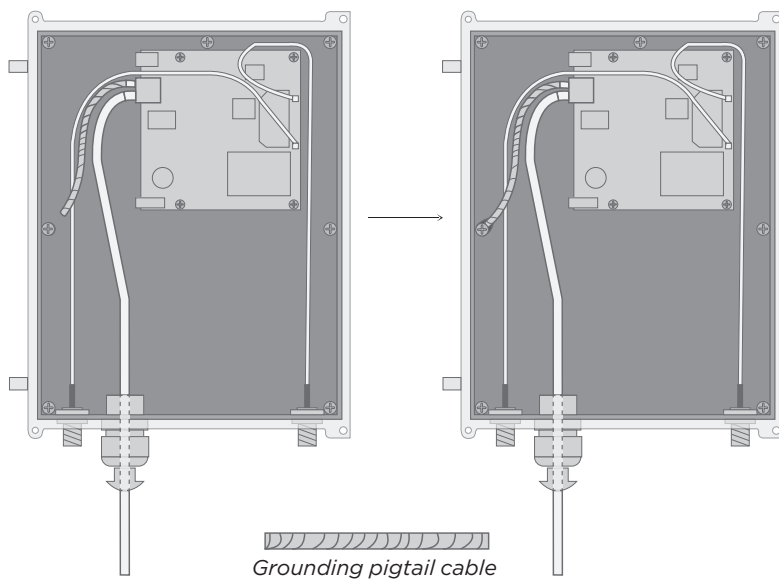
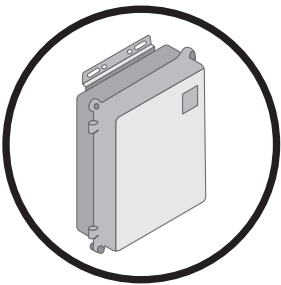
Connect the data cable to the wireless access point as shown on the picture. Tighten the cable gland.

28

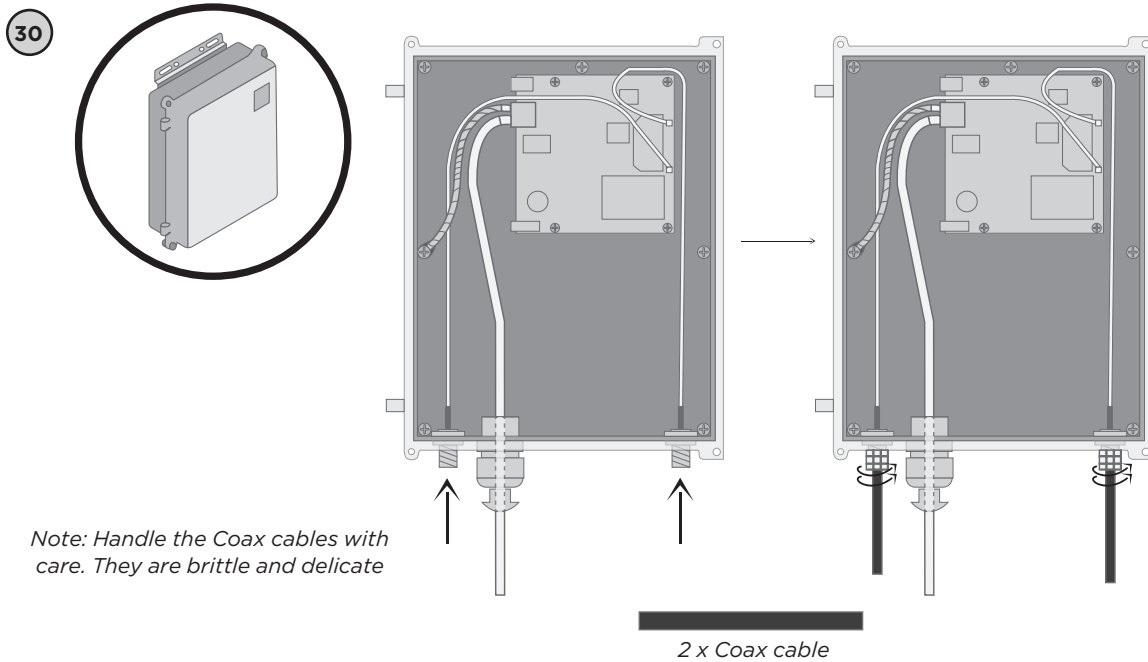


Secure the grounding pigtail from the data cable to one screw on the enclosure installation plate.

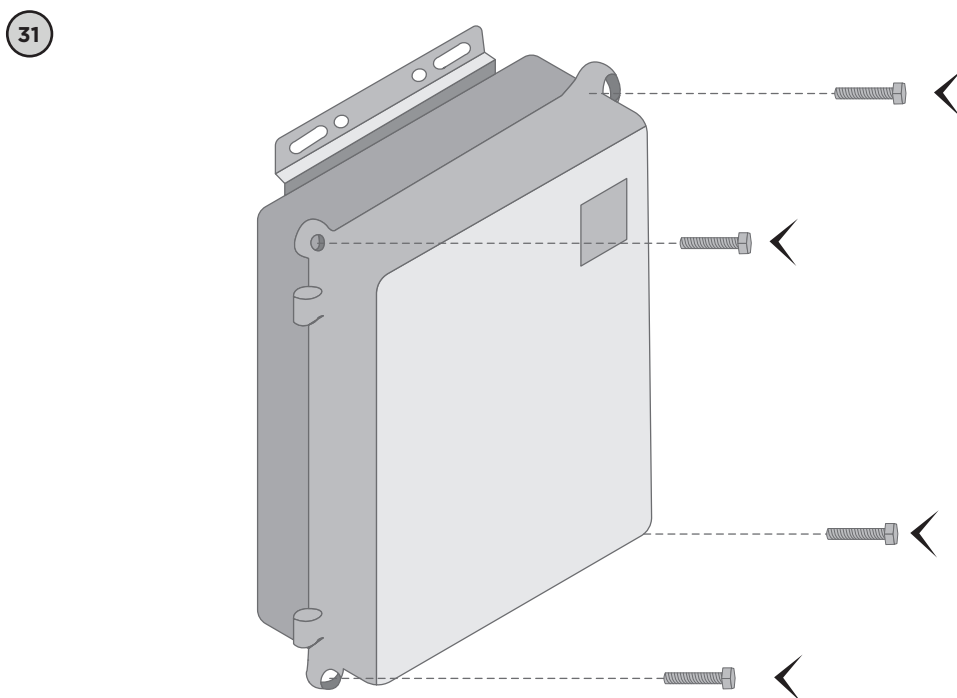
29



Attach the two coax cables to the two connectors at the bottom of the BLUE-TOWN WAP enclosure.

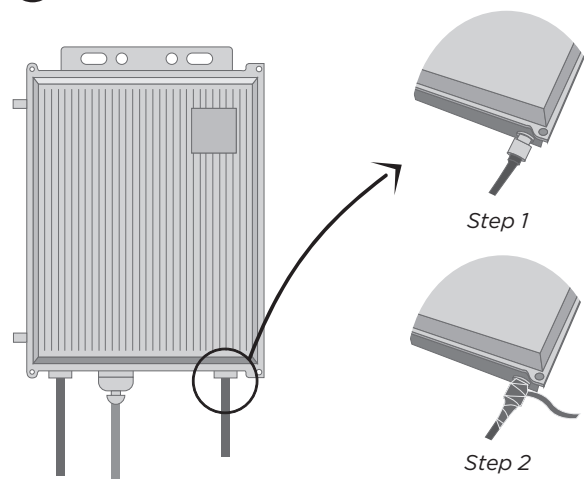


Close the enclosure and tighten the screws.



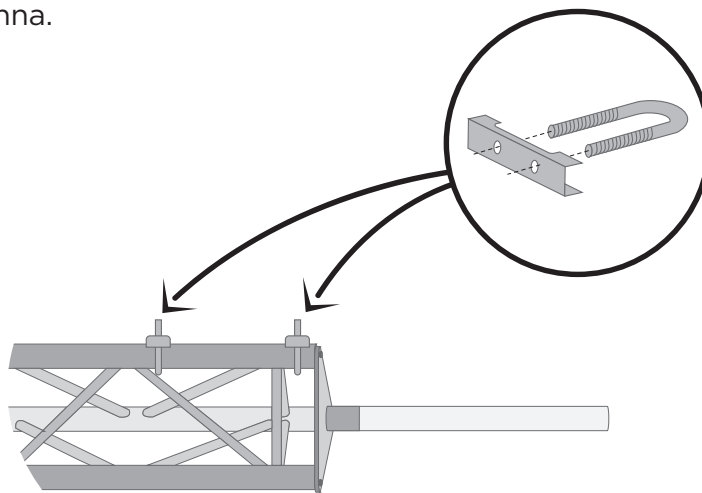
Wrap self-amalgamating tape (supplied in the box) to the coax cable connectors. Start from the bottom up.

32



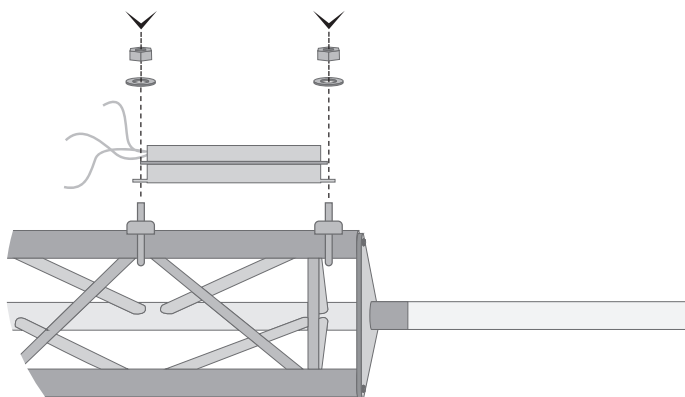
Install two u-bolts onto the tower close to the antenna.

33

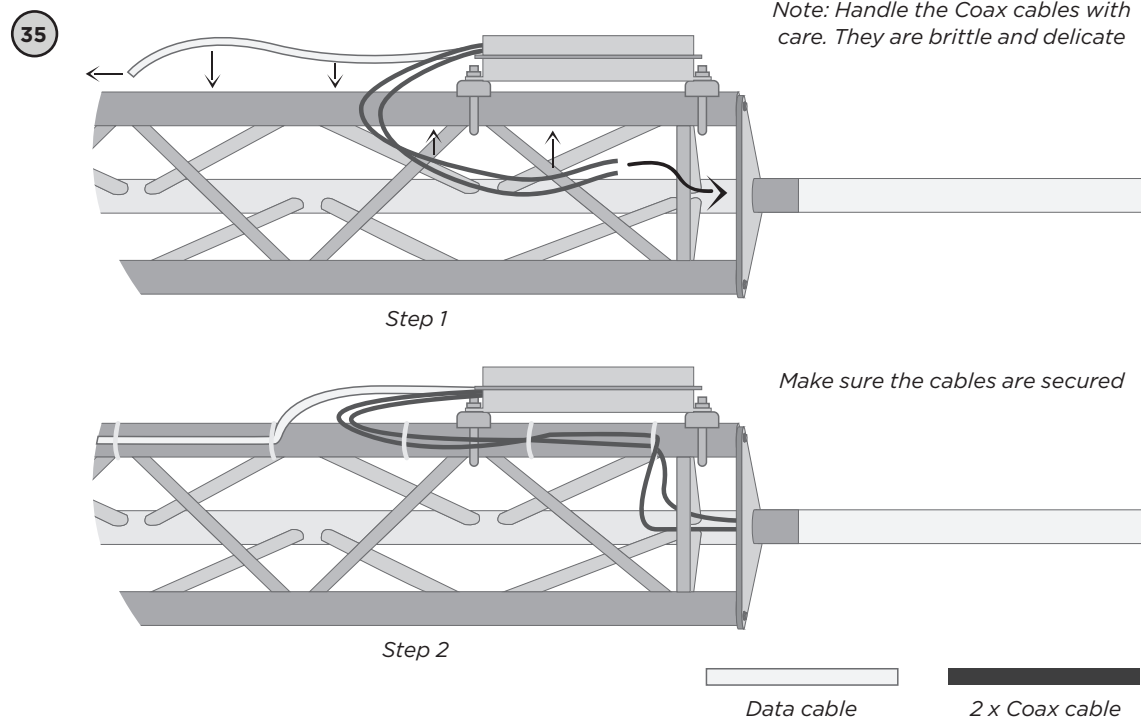


Attach the BLUETOWN WAP enclosure to the u-bolts using washers and nuts.

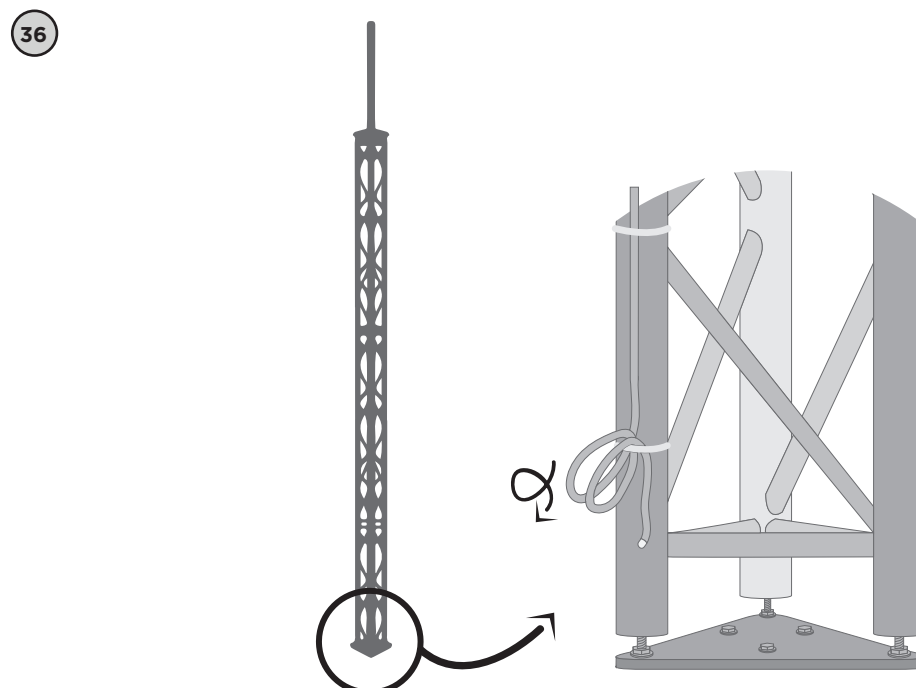
34



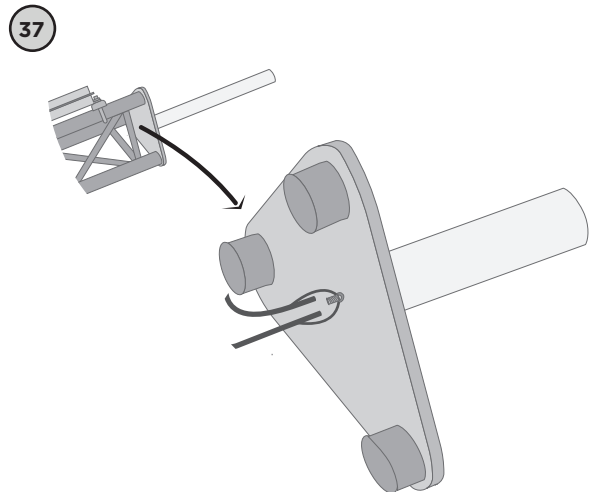
Route the data cable along the tower sections using cable strips for each 20cm/8in. Connect the coax cables to the antenna and wrap the connection with self amalgamating tape.



Make a cable loop near the bottom of the tower and secure the loop to the tower using cable strips.



Connect the pigtails from the coax cables to the threaded M4 hole in the triangular top plate and secure them with the pre-installed bolt.



RASING THE TOWER

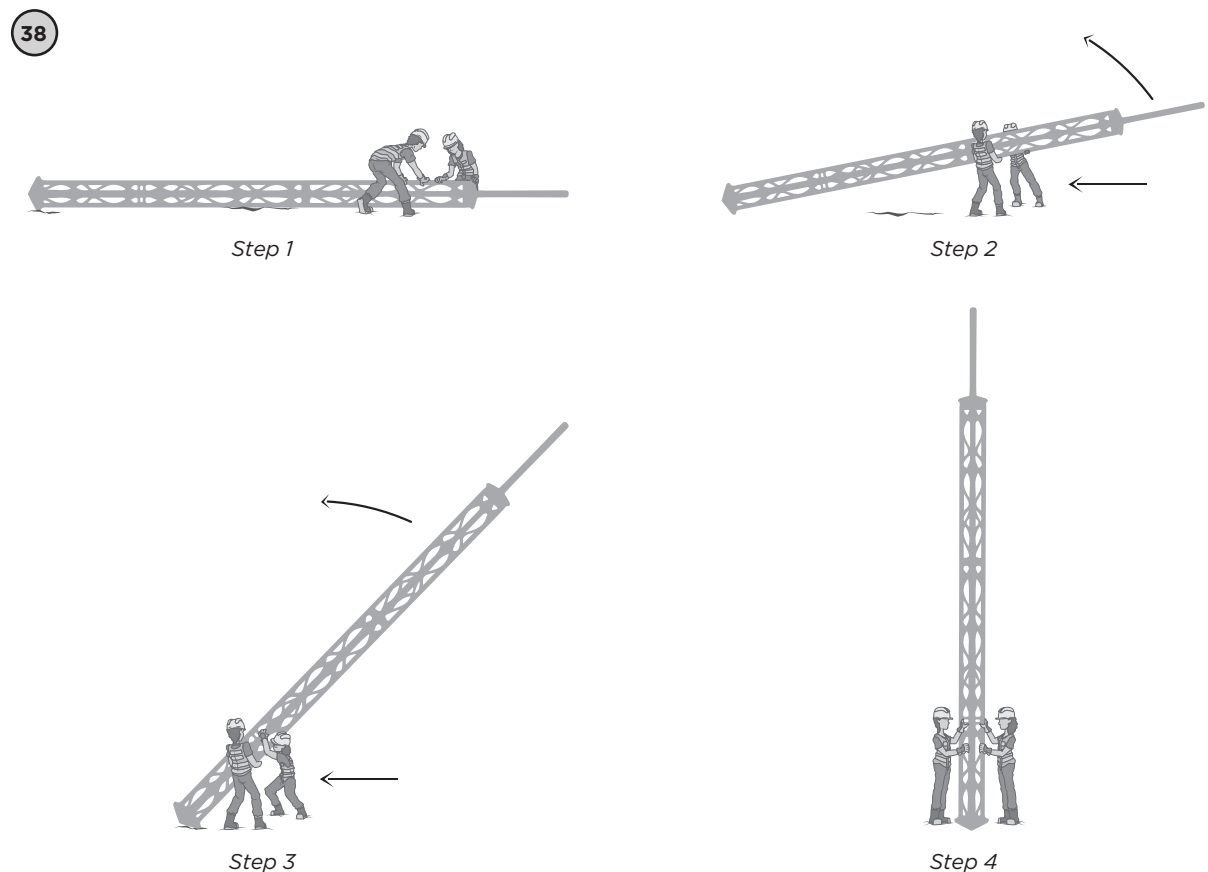
Before raising the tower make sure that:

- The area is free of people not involved in the work being conducted.
- All equipment and tools are available and within in reach for the installation team.

- Tower support legs are ready to be attached to the tower.

There must be at least two people involved in raising the tower.

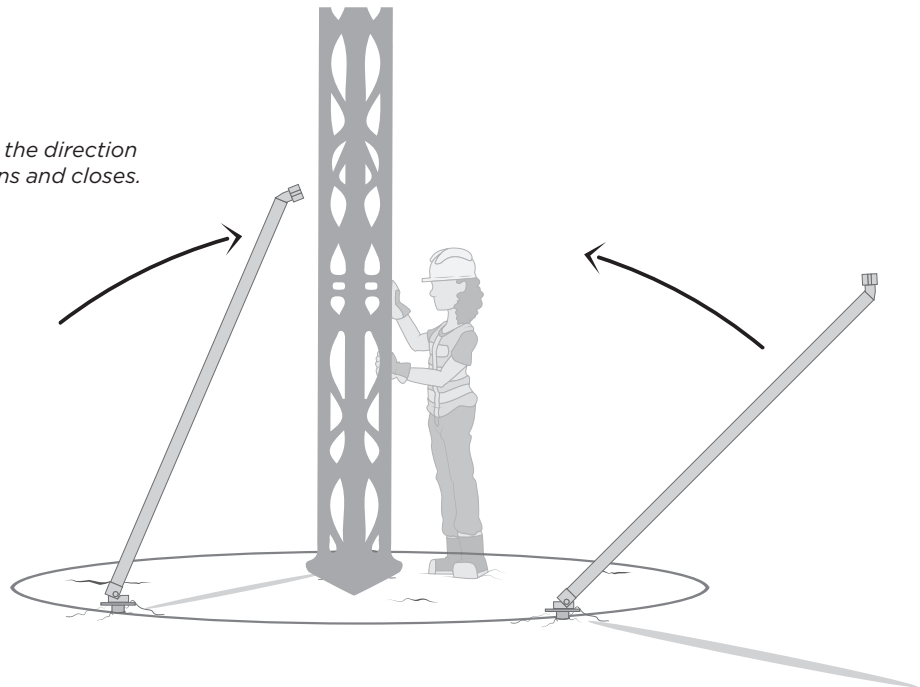
Start at the tower top end where the antenna is located. Lift the tower from the ground and walk slowly towards the tower base while raising the tower.



When the tower reaches its vertical position, one crew member holds the tower while the other crew member secures the support legs to the tower.

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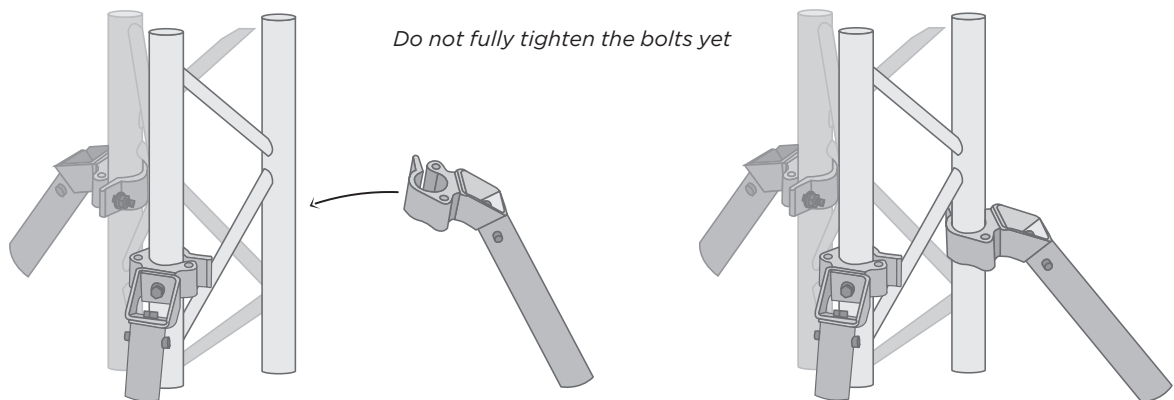
Note: Never stand in the direction where the hinge opens and closes.



Connect the support leg clamps to the tower, but do not fully tighten the nuts onto the clamps. The clamps must be

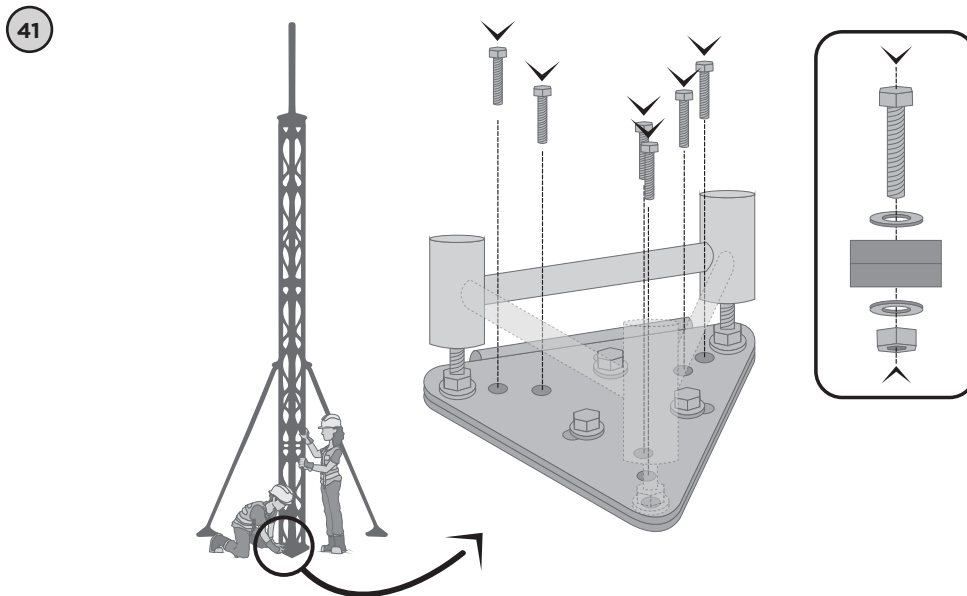
secured so they cannot open, but the tower will need final adjustments before these are fully tightened.

40



Install nuts, washers and bolts that were previously removed from the hinge plate. All holes in the hinge plate should be

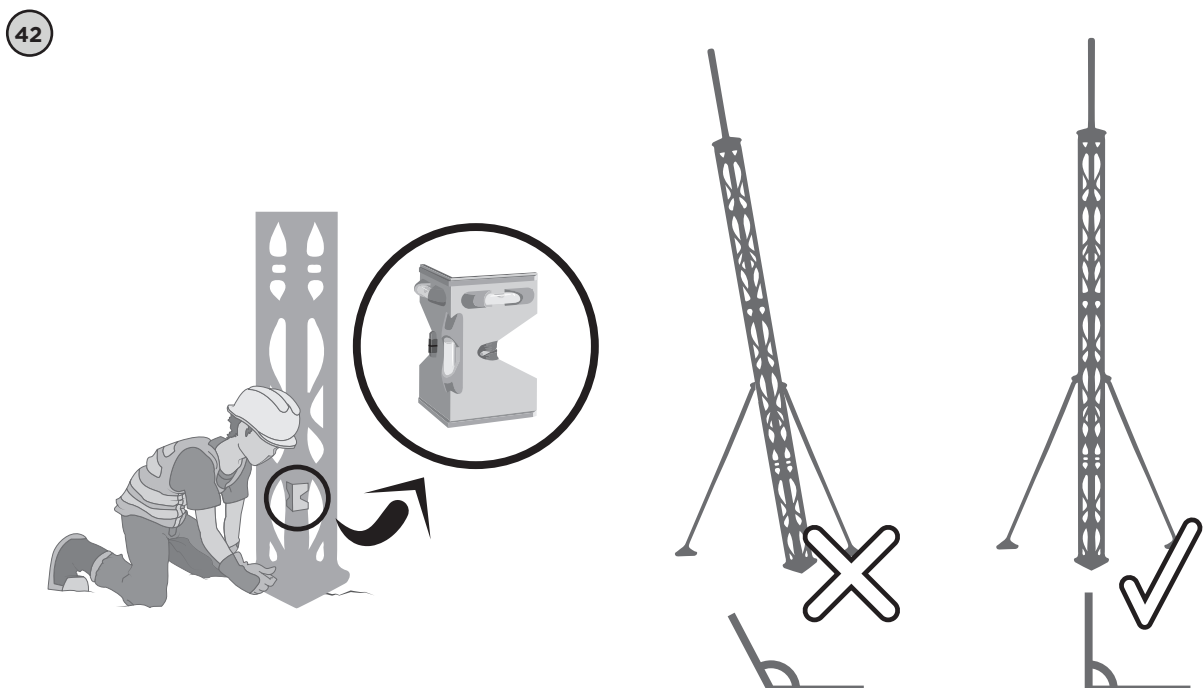
populated so the hinge is secured to the earth screw flange and loads are distributed evenly.

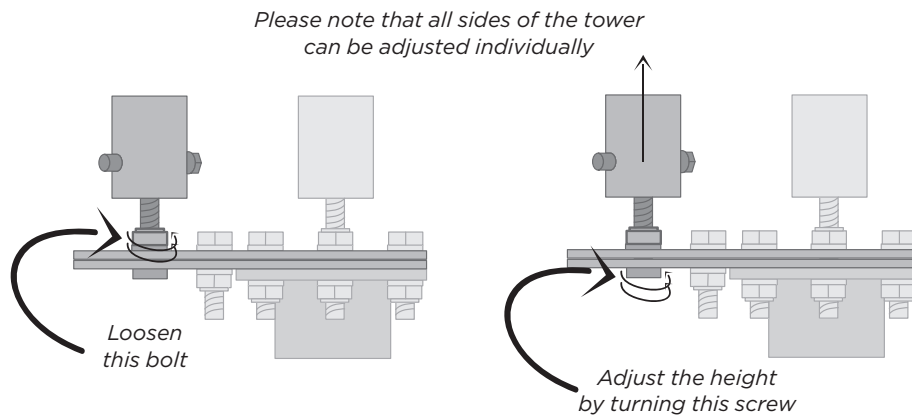


Adjust the angle of the tower so the tower is vertical aligned. The supplied pole spirit level should be placed on the tower section around 1m/3ft above ground.

Start by loosening the lock-nut that is installed on the bolt that connects

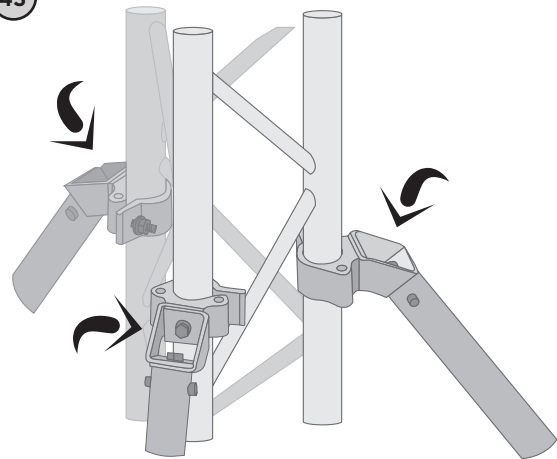
the tower to the hinge. By rotating the bolt, the tower inclination can be adjusted. All three bolts can be used to align the tower vertically by using this procedure. When the tower is vertical aligned, all nuts must be fully tightened and remove the pole spirit level.





Tighten the three nuts at the top of the support legs.

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SAFETY & INSPECTION

Ensure that all cables are properly fixated.

Use the provided cable ties to secure the cables to the tower sections.

Double check that all fasteners are properly secured. The installation is now complete.

BLUETOWN is a global Internet and content service provider founded with a vision of making connectivity accessible and affordable for everyone.

See more about BLUETOWN's products and services on our website