



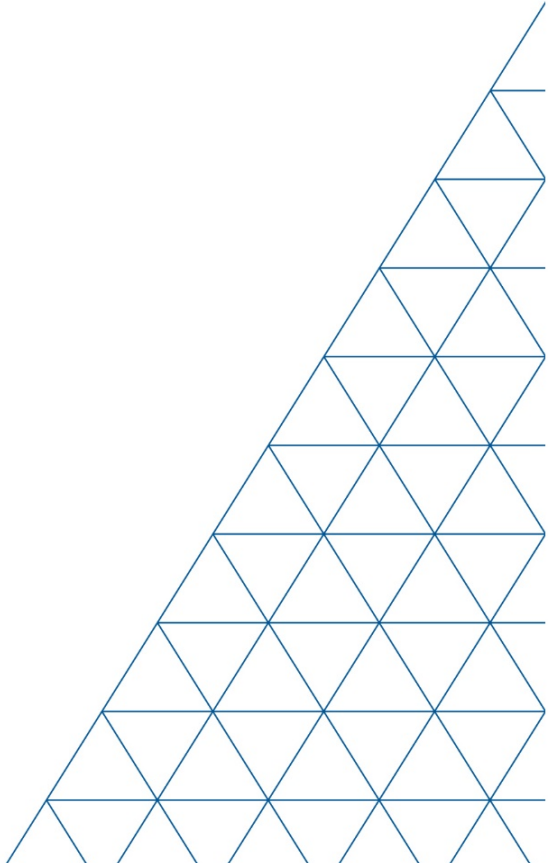
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Field Reference Guides

SITEWORKS GNSS 900MHZ VERISON 1.2

[SITECH SOUTHEAST TEXAS](#)

SITECH-SETX.COM



Field Reference Guide

Siteworks GNSS 900MHz

Version: 1.20

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Semi-Permanent Base Station Setup

1. Material List

- 4"x 4" x 8' or 10cm x 10cm x 2.5m pressure treated wood post
- 1ea. bag of cement
- 1" x 1' or 2.5cm x 30cm galvanized pipe
- 1" or 2.5cm galvanized T
- 1" or 2.5cm galvanized mounting plate,
- 4" x 5/8" or 10cm x 1.587cm coarse bolt
- 2ea. 5/8" or 1.587cm flat washers
- 1ea. 5/8" or 1.578cm lock washer
- 1ea. 5/8" 1.587cm coarse nut
- 4ea. 2" or 5cm wood screws



2. Determine Base Station Location

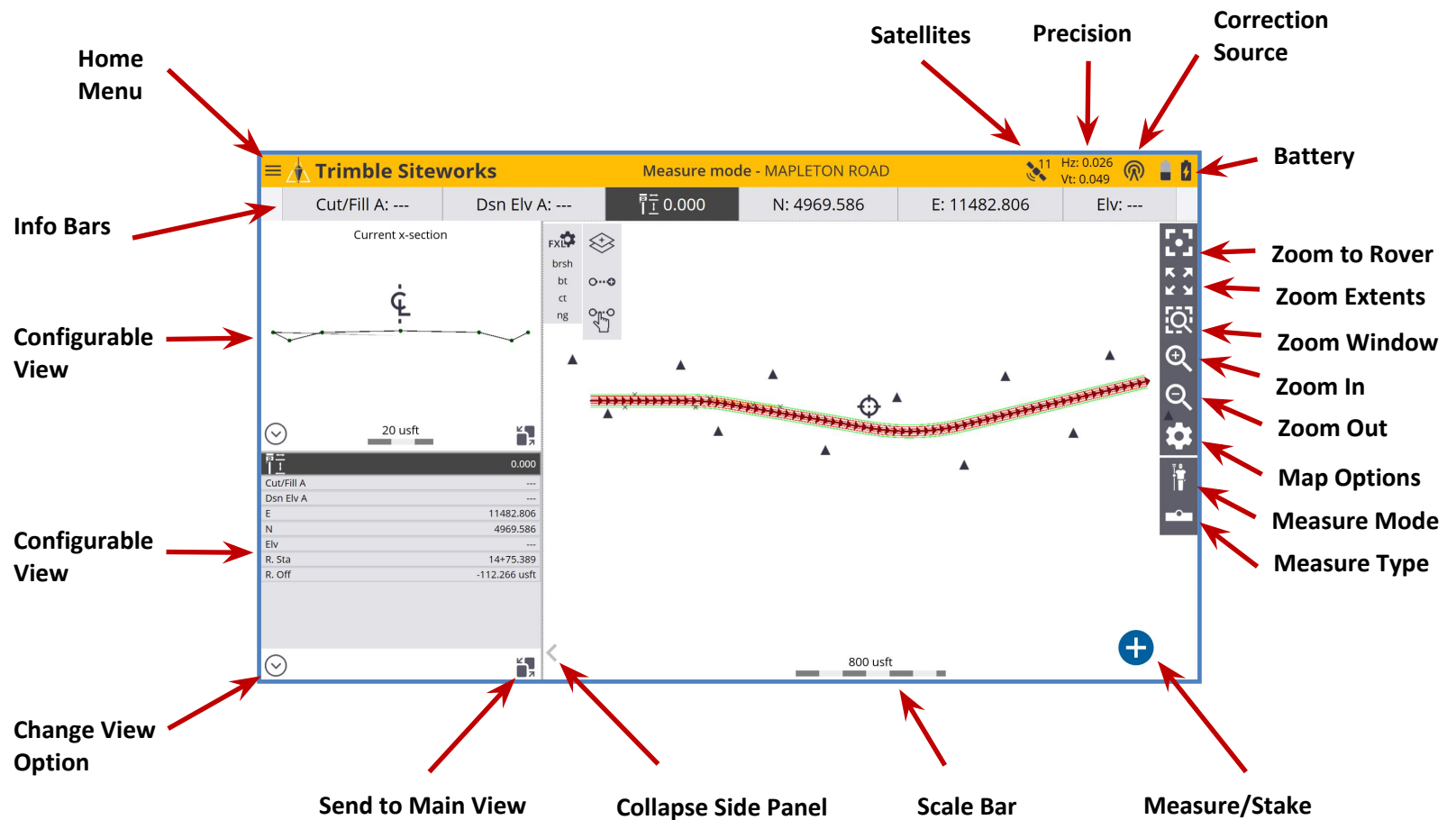
- Must be in a safe location outside of the work area
- Should be centralized to the entire project
- Should be at the highest possible elevation
- No obstructions such as trees, building, vehicles, above the 15° Elevation Mask

Semi-Permanent Base Station Setup





1. Dig a hole approximately 2' or 60cm deep and 10-12" or 25-30cm diameter
2. Mix the bag of cement
3. Plumb up the wood post and add the cement
4. Assemble the arm by screwing the T connector on one end of the pipe and the mounting plate on the other end.
5. Mount the arm on the wood post using the 4 wood screws. Ensure the T connector is plumb.
6. Place one flat washer on bolt; Insert the bolt (threads up) into the T connector; Place the 2nd flat washer, lock washer and nut on the bolt and tighten.
7. Attach the Zephyr Antenna to bolt, do not over tighten.
8. Use the Yellow GNSS cable to connect the Zephyr Antenna to the Base Station.
9. Setup the Base Station (See FRG Base Setup)





Main Screen Layout






Create a New Site / Work Order

1. **Power On** TSC7 Data Collector
2. Press **“Trimble Siteworks”** 
3. Select **“”** and **Enter Project Name** in the Project pull down menu
4. Select the desired units for **“Distance” “Angles” “Coordinate Order” “Grid coordinate” “Azimuth” “Stationing”** and Press **“Next”**
5. If a site map is available on the collector check the checkbox and **“tap to select file”**
6. If a calibration file is available on the collector check the checkbox and **“tap to select file”**
7. If a control point file is available on the collector check the checkbox and **“tap to select file”**
8. To define a coordinate system check the checkbox and select the desired coordinate system
 - If a site calibration is to be performed do not select a Coordinate System.
9. Press **“Finish”**
10. Select **“”** to add a new **Work Order**
11. Enter **Work Order Name** and add instructions (optional) and Press **“Finish”**
12. Select **“(No design needed)”** if no design files are on the collector.
 - Select **“”** if design files are on the collector. Name the design; check the checkbox for the design components you wish to include and **“tap to select file”** Press **“Finish”**
13. Press **“Accept”**





Create New Design from Hard Disk / USB

1. **Power On** TSC7 Data Collector
2. Press “**Trimble Siteworks**” 
3. Select “**Project**” and “**Work Order**”
4. Select “” to add **New Design**
5. Plug Hard disk into USB port
6. Enter the Design Name
7. Check the box next to Select design file
8. Tap in the Box to Browse to the location on the USB that holds the design surface file
9. Highlight then tap “**Accept**”
10. Check the box next to Select design map
11. Tap in the box to Browse to the location on the Hard Disk that holds the design map file
12. Highlight then tap “**Accept**”
13. Check the box next to Select stakeout points
14. Tap in the box to Browse to the location on the Hard Disk that holds the stakeout point file
15. Highlight then tap “**Accept**”
16. Press “**Finish**”
17. Press “**Accept**”





Configure Information Bar / Panel

1. From the main Trimble Siteworks screen Press 
2. Press **“Settings”**
3. Press **“Info Bar/Panel”**
4. Information Bar: Check the following boxes:
 - **Cut/Fill A**
 - **Design elevation A**
 - **Antenna/ Target height**
 - **Northing**
 - **Easting**
 - **Elevation**
5. Press - hold and Drag “” to match order above
6. Press Information Panel at the top of the screen: Check the following boxes.
 - **Cut/Fill A –**
 - **Design elevation A**
 - **Antenna/ Target height**
 - **Northing**
 - **Easting**
 - **Elevation**
 - **Reference Station**
 - **Reference Offset**
7. Press - hold and Drag “” to match order above
8. Press **“Accept”**




Start Base 900MHz before Site Calibration

1. **Power On** TSC7 Data Collector
2. Press “**Trimble Siteworks**” 
3. Select “**Project, Work Order and Design**” Press “**Accept**”
4. Press 
5. Select “**Project Setup**” then select “**Connect Device**”
6. Press 
7. Select “**Base**” as **Mode** and “**Bluetooth**” as **Connection Type**
8. Select Model and SN of the Base or select “  ” if your device is not listed
9. Select Correction Method “**Radio in Receiver**”
10. Select Network ID for the base to broadcast on
11. Select the Base position “**Unknown position**”
12. Enter a Base name
13. Select the Antenna type of the antenna being utilized
14. Select the Measure method “**Bottom of antenna**”
15. Enter the Vertical height “**0.00 usft**” or “**0.000m**” and Press “**Accept**”
16. Set Elevation mask to 10
17. Select Corrections method “**CMRx**” and Press “**Accept**”
18. Review Info. screen then select “**OK**”

Start Base 900MHz after Site Calibration

1. **Power On** TSC7 Data Collector
2. Press **“Trimble Siteworks”** 
3. Select **“Site, Work Order and Design”** Press **“Accept”**
4. Press 
5. Press **“Project Setup”** , then **“Connect Device”**
6. Press 
7. Select **“Base, Bluetooth”**
8. Select **Model and SN** of the Base or select  to scan if your device is not listed
9. Select Correction Method **“Radio in Receiver”**
10. Select the **Network ID** of the Base Station
11. Allow the base station to scan the network to ensure nothing else is on the radio channel
12. Select the Base position **“Control point”**
13. Select the Point name from the map or Point name drop down list and Press **“Select”**
14. Select the Antenna type of the antenna being utilized
15. Select the Measure method **“Bottom of antenna”**
16. Enter the Vertical height **“0.00usft”** or **“0.000m”** and Press **“Accept”**
17. Set Elevation mask to 10
18. Select Corrections method **“CMRx”** and Press **“Accept”**
19. Review Info. screen then select **“OK”**

Start Rover Using Internal 900MHz Radio

1. **Power On** TSC7 Data Collector
2. Press **“Trimble Siteworks”** 
3. Select **“Site, Work Order and Design”** Press **“Accept”**
4. Press 
5. Press **“Project Setup”** then **“Connect Device”**
6. Press 
7. Mode **“Rover”**
8. Connection type **“Bluetooth”** Press **“Select”**
9. Select **Model** and **SN** of the Rover
10. Select Correction Method **“Radio in Receiver”**
11. Select Base Station Broadcast Network ID
12. Select Base Station Name
13. Specify if using Quick Release
14. Specify if using tilt compensation
15. Enter Antenna height and Press **“Accept”**

Enter / Edit Control or Stakeout Points

1. From the main Trimble Siteworks screen Press **“Menu”**



2. Press **“Data Management”**

3. Press **“Point Manager”**

4. Press **“Enter/ Edit Control Points”**



5. To Add a control point, select **“Add”**





- Select Type either **“1D, 2D, 3D”**
- Enter **“Point name and code”**
- Enter **“Northing and Easting”** if applicable
- Select Point's elevation Type either **“Key-in ,Extract from point or Extract from surface”** if applicable
- Enter Elevation if applicable
- Select **“Save”**

6. To Edit a control point, select **“Edit”**







- Edit the desired element of the control point
- Select **“SAVE”** when finished




Site Calibration

1. Open the Site, and create a new work order
2. Connect to the rover
3. It will ask you “Rover setup is complete. Do you want to calibrate the site now?” Press “**Yes**”
4. Press  to add point
5. Select the first point to be calibrated
 - Touch point on screen or
 - select from the list  Press “**Accept**” then Press “**Select**”
6. Select **Measurement method** and enter your **Vertical Height**
7. **Horizontal** and **Vertical Tolerances** should be set to “**0.082 usft or 0.025m**”
8. Enter your **Minimum measurement** time (15 Seconds is default)
9. Plumb the rod over the point using a bi-pod then press “**Start**”
10. After the point is measured **repeat steps 4-9** until all control points have been measured
 - ***After all points have been measured edit both the horizontal and vertical components of the points until the calibration is within the projects tolerances.***
11. Press “**Finish**” after editing is complete
12. Press “**Yes**” to “**Accept Calibration**”
13. Press “**Yes**” to “**Do you want to save the base station location as a control point?**”
14. To check the calibration utilizes the **recheck system** function. Ensure that you are checking on points that were not utilized during the calibration

Recheck System Setup

1. From the main Trimble Siteworks screen Press 
2. Press **“Project Setup”**
3. Press **“Recheck System”**
4. Select control point to check by Pressing the point on the screen or selecting from list 
5. Press **“Measure”** 
6. Select Measure method that pertains to your setup
7. Enter Vertical height that corresponds with measure method selected
 - If unsure Press  for more information
8. Set Horizontal and Vertical Tolerance **“0.082usft” or “0.025m”** (default)
9. Select Minimum measuring time **“15 Seconds”** (default)
10. Press **“Start”**
11. Check that all measured values for deviation from control are acceptable to your tolerances
12. Press **“Accept”**

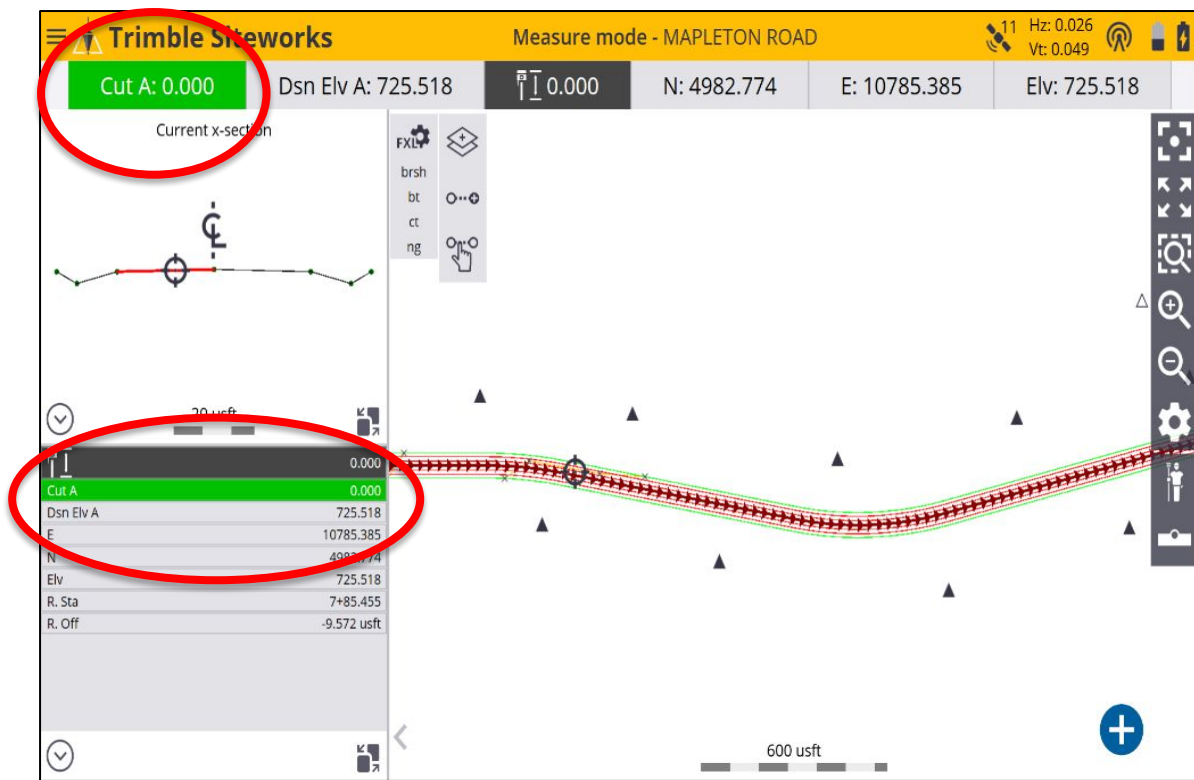
Measure New Control Points

1. From the main Trimble Siteworks screen Press 
2. Press **“Measure”**
 - If menu closes Press **“Measure”** again
3. Press **“Measure Control Point”**
4. Plum the rod over the control point then Press  to add point
5. Enter point name and code press **“Accept”**
6. Select Measure method that pertains to your setup
7. Enter Vertical height that corresponds with measure method selected
 - If unsure Press  for more information
8. Set Horizontal and Vertical Tolerance **“0.082”** or **“0.025m”** (default)
9. Select Minimum measuring time **“15 Seconds”** (default)
10. Press **“Start”**





Check Grade

1. Connect to your device and load the design you would like to utilize to check grade.
 - Refer to previous reference guides for instructions
2. Plumb the rod over the spot in which you would like to check grade.
 - Must be within a roadway or site model to calculate Cut/Fill Values
3. Cut/Fill information will be located on the top left hand corner on the info bar or on the info panel







NOTE: To add Lightbar to side panel select  on either side panel then select “Lightbar”









Measure Point: Standing

1. From the main Trimble Siteworks screen Press 
2. Press “**Measure**”
3. To select measurement method Press 
4. Press “**Standing**” 
5. Select if a Quick release is being used
6. Enter the Antenna Height and Press “**Accept**”
7. Navigate to the location you would like to measure and plumb the rod
8. Press  to measure a new point
9. Define Point name (it is recommended to allow the system to name the point)
10. Define Point code
11. Select point type
 - Surface point is intended to be a point that will help define a surface
 - Feature is intended to be a point that defines a feature on your project
12. Define if you would like the dialog box to Show every time
13. Press “**Accept**”







Measure Point: Walking Distance

1. From the main Trimble Siteworks screen Press 
2. Press **“Measure”**
3. To select measurement method Press 
4. Press **“Walking”** 
5. Select if a Quick release is being used
6. Enter the antenna Height: Height should be height of rod + distance held off the ground
7. Record Mode **“Fixed Distance”**
8. Enter Horizontal Interval at which you would like the points recorded
9. Enter Vertical change at which you would like additional points recorded and Press **“Accept”**
10. Navigate to the location you would like to start measuring and plumb the rod and Press 
11. Define Point name (it is recommended to allow the system to name the point)
12. Define Point code
13. Select point type
 - Surface point is intended to be a point that will help define a surface
 - Feature is intended to be a point that defines a feature on your project
14. Show every time **“No”** and Press **“Accept”**
15. Walk the desired route in which you would like to collect points.
16. Press the  to add a point in-between automatic shots
17. Press **“Stop”** when finished 







Measure Point: Walking Time

1. From the main Trimble Siteworks screen Press 
2. Press **“Measure”**
3. To select measurement method Press 
4. Press **“Walking”** 
5. Select if a Quick release is being used
6. Enter the antenna Height: Height should be height of rod + distance held off the ground
7. Record Mode **“Fixed Time”**
8. Enter the time interval at which you would like the points to record and Press **“Accept”**
9. Navigate to the location you would like to start measuring and plumb the rod and Press 
10. Define Point name (it is recommended to allow the system to name the point)
11. Define Point code
12. Select point type
 - Surface point is intended to be a point that will help define a surface
 - Feature is intended to be a point that defines a feature on your project
13. Show every time **“No”** and Press **“Accept”**
14. Walk the desired route in which you would like to collect points.
15. Press the  to add a point in-between automatic shots
16. Press **“Stop”** when finished 







Measure Point: Vehicle Distance

1. From the main Trimble Siteworks screen Press 
2. Press **“Measure”**
3. To select measurement method Press 
4. Press **“Vehicle”** 
5. Select if a Quick release is being used
6. Enter the antenna Height: Height should be the distance from the ground to bottom of antenna or bottom of quick release
7. Record Method **“Fixed Distance”**
8. Enter Horizontal Interval at which you would like the points recorded
9. Enter Vertical change at which you would like additional points recorded and Press **“Accept”**
10. Press **“OK”** to the warning after reading
11. Navigate to the location you would like to start measuring and Press 
12. Define Point name (it is recommended to allow the system to name the point)
13. Define Point code
14. Select point type
 - Surface point is intended to be a point that will help define a surface
 - Feature is intended to be a point that defines a feature on your project
15. Show every time **“No”** and Press **“Accept”**
16. Drive the desired route in which you would like to collect points.
17. Press the  to add a point in-between automatic shots
18. Press **“Stop”** when finished 




Measure Point: Vehicle Time

1. From the main Trimble Siteworks screen Press 
2. Press **“Measure”**
3. To select measurement method Press 
4. Press **“Vehicle”** 
5. Select if a Quick release is being used
6. Enter the antenna Height: Height should be the distance from the ground to bottom of antenna or bottom of quick release
7. Record Mode **“Fixed Time”**
8. Enter the time interval at which you would like the points to record and Press **“Accept”**
9. Press **“OK”** to the warning after reading
10. Navigate to the location you would like to start measuring and Press 
11. Define Point name (it is recommended to allow the system to name the point)
12. Define Point code
13. Select point type
 - Surface point is intended to be a point that will help define a surface
 - Feature is intended to be a point that defines a feature on your project
14. Show every time **“No”** and Press **“Accept”**
15. Drive the desired route in which you would like to collect points.
16. Press the  to add a point in-between automatic shots
17. Press **“Stop”** when finished 


Stakeout Point

1. From the main Trimble Siteworks screen Press 
2. Press “**Stake**”
3. Select the point to stake by either
 - Pressing the point on the screen
 - Selecting the list icon and selecting it from the list 
4. Press “**Accept**”
5. If first time staking a point, set the Stakeout setting
 - Horizontal tolerance: Set to project tolerance “**.082’ or 0.025m**” (default)
 - Stake marking method: select from drop down “**Ground Surface**” (default)
 - For more information, Press 
 - Working stake length: Length of stake above ground
 - For more information, select Press 
 - Cut/Fill interval: Set to round number “**0.50usft or .150m**” recommended
 - Min bottom and top stake spacing: Set to round number “**0.50 usft or 0.150 m**”
6. Press “**Accept**”
7. Navigate to the point in which you have selected to stake
8. Once you are within the projects horizontal tolerances plumb the rod and Press 
9. Review the Stake Report and Press “**Accept**” to accept or  to reshoot the point
10. If “**Accept**” is Press the point will be stored

Measure and Compute Stockpile Volume



1. Open the Site, and create a new work order
2. Connect to the rover
3. Start the stockpile topo by shooting the base of the pile
4. Mark the start location of the stock pile base topo
5. Set Measure type to 'New Line' Line Type to 'Volume Boundary'
6. Plumb the rod, press  to record the points along the toe line
7. Show every time **"Yes"** and Press **"Accept"**
8. Walk the perimeter of the pile recording a point every 10'-15' or 3-5m repeating **steps 6 and 7** until you are back near the starting point.
9. Change Measure Type to Point
 - Change the Point code to **"Top"**
 - Point Type to Surface
10. Measure points on the top of the pile by pressing the Button 
11. After all points defining the top are measured press 
12. Press **"COGO"**
13. Press **"Review & Edit Data"**

Cont. Measure and Compute Stockpile Volume



14. Press 
15. Select the **Boundary** created in **step 8**
16. Press the top **Drop down caret** and select Stockpile.
17. Add Expansion or Shrinkage percent by selecting the second **drop down caret**
18. Press "**Accept**"
19. Volume Calculations will be displayed
20. Save Volume Calculations enter **Description** and press "**Accept**"

▼ Stockpile	
▼ Expansion	0.000%


Start IBSS Base before Site Calibration

1. **Power On** TSC7 Data Collector
2. Press **“Trimble Siteworks”** 
3. Select **“Site, Work Order and Design”** press **“Accept”**
4. Select **“Base, Bluetooth”**
5. Select Model and SN of the Base or select  to scan if your device is not displayed
6. Select Correction Method **“IBSS”**
7. Receiver internet option Select **“Other”**
8. Enter your TCC Organization and Device Password
9. Select the Base position **“Unknown position”**
10. Enter Base name and Press **“OK”**
11. Transmit via radio select **“No”** and Press **“OK”**
12. Select the Antenna type of the antenna being utilized
13. Select the Measure method **“Bottom of antenna”**
14. Enter the Vertical height **“0.00 usft”** or **“0.000 m”** and Press **“Accept”**
15. Select Corrections method **“CMRx”** and Press **“Accept”**
16. Review Info. screen then select **“OK”**


Start IBSS Base after Site Calibration

1. **Power On** TSC7 Data Collector
2. Press “**Trimble Siteworks**” 
3. Select “**Site, Work Order and Design**” Touch “**Accept**”
4. Select “**Base, Bluetooth**”
5. Select Model and SN of the Base or select  to scan if your device is not displayed
6. Select Correction Method “**IBSS**”
7. Receiver internet option Select “**Other**”
8. Enter you TCC Organization and Device Password
9. Select the Base position “**Control point**”
10. Select the Point name from the map or Point name drop down list and Press “**OK**”
11. Transmit via radio select “**No**” and Press “**OK**”
12. Select the Antenna type of the antenna being utilized
13. Select the Measure method “**Bottom of antenna**”
14. Enter the Vertical height “**0.00usft**” or “**0.000m**” and Press “**Accept**”
15. Select Corrections method “**CMRx**” and Select “**Accept**”
16. Review Info. screen then select “**OK**”



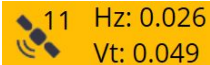
Start Rover using IBSS

1. **Power On** TSC7 Data Collector
2. Double Press **Trimble Siteworks** 
3. Select **“Site, Work Order and Design”** Press **“Accept”**
4. Select **“Rover, Bluetooth”**
5. Select Model and SN of the Rover
6. Select Correction Method **“IBSS”**
7. Enter Organization and Password, Press **“Accept”**
8. Select IBSS base from pull down list, Press **“Accept”**
9. Specify if using **“Quick Release”**
10. Enable **“Tilt Compensation”**
11. Enter Antenna height and Press **“Accept”**


Start Rover using VRS

1. **Power On** TSC7 Data Collector
2. Double Press **Trimble Siteworks** 
3. Select **“Site, Work Order and Design”** Press **“Accept”**
4. Select **“Rover, Bluetooth”**
5. Select Model and SN of the Rover
6. Select Correction Method **“Internet”**
7. Enter the VRS **“Server Address, Port number, User name, Server Password”**
8. Select the Correction Type, Press **“Accept”**
9. Specify if using **“Quick Release”**
10. Enable **“Tilt Compensation”**
11. Enter Antenna height and Press **“Accept”**

Start Rover using RTX before Datum Shift

1. **Power On** TSC7 Data Collector
2. Double Press **Trimble Siteworks** 
3. Select **“Site, Work Order and Design”** Press **“Accept”**
4. Select **“Rover, Bluetooth”**
5. Select Model and SN of the Rover
6. Select Correction Method **“Centerpoint RTX”**
7. Set horizontal and vertical precision to **“.082”**
8. Specify if using **“Quick Release”**
9. Disable **“Tilt Compensation”**, this must be disabled to perform a Datum Shift
10. Enter Antenna height and Press **“Accept”**
11. Select **“Yes”** to the prompt, **“A datum shift is required if your base position was not established using RTX. Would you like to measure a datum shift?”**
12. Select a control point to measure from the map view or the list 
13. Press **“Measure”**
14. Verify **“Measure Method”**, **“Antenna Height”**
15. Press **“Start”**
16. Press **“Accept”**
17. Press  then press **“Settings”**
18. Press **“Enable Tilt Compensation”** select **“Yes”**, press **“Accept”**

Start Rover using RTX after Datum Shift

1. **Power On** TSC7 Data Collector
2. Double Press **Trimble Siteworks** 
3. Select **“Site, Work Order and Design”** Press **“Accept”**
4. Select **“Rover, Bluetooth”**
5. Select Model and SN of the Rover
6. Select Correction Method **“Centerpoint RTX”**
7. Set horizontal and vertical precision to **“.082”**
8. Specify if using **“Quick Release”**
9. Enable **“Tilt Compensation”**
10. Enter Antenna height and Press **“Accept”**