

## AGTEK Base Setup

- Set up and turn on the Base and Rover.
- Tap **AGTEK Base Setup** from the **Apps** Screen.
- Select the desired Base receiver to establish communication and initialize GPS.
- Tap **Connect** to begin initialization.
- Tap **Setup from GPS** to begin the base setup.
- Tap **Save** to save a base recover file to use **Setup From File** on future setup in this location.

## Starting SmartGrade

- Tap the **SmartGrade** icon on the Apps screen.
- Select the desired job file or tap **Access** to locate the Project folder.

## Alignment

There are two Alignment choices: Shoot Benchmarks, and Recover.

## Shoot Benchmarks

Shoot Benchmarks is used to align jobs the first time they are used and when the base has moved.

- Select the first Benchmark point on the screen, set the Rover over the point, then tap **Shoot**.
- Select the second Benchmark point on the screen, set the Rover over the point, then tap **Shoot**. The Deviation Report displays the difference between the theoretical distance of the Benchmarks and the actual distance.
- Tap **Accept** to complete the alignment. Tap **Reshoot** to reshoot the second benchmark.
- Tap **Yes** to save the alignment recover data to the file.

## Recover

Recover is for previously aligned sites and requires that the Base location and Rover rod height are exactly the same as when the job was originally aligned. If you are not sure, use Shoot Benchmarks.

- Tap **Recover**. The last saved Alignment is used and the Deviation Report is displayed.
- Tap **Accept** to complete alignment.

When the alignment is complete, the Mode screen is displayed. Select either **Grade** or **Stake** Mode.

**Note:** If you have already aligned the job in another file, tap the **Menu** button and tap **Import Recover** and select the aligned job file. Then tap **Recover**.

## Grade Mode

Grade Mode compares the survey shot to the Reference surface. The cut or fill reflects the difference between the reference elevation and shot elevation.



- 1 The Action bar includes New Line, 3D View, Save, Display Plan Sheets and Menu
- 2 Northing/Easting of current location and point label
- 3 Tap the Shoot button to record single shots
- 4 Tap the Stream button to record continuous points
- 5 Tap the Camera button to record photos
- 6 Current location
- 7 Base station location
- 8 Benchmark
- 9 Tap the green compass to toggle panning
- 10 The Cut/Fill bar includes the reference surface selection, the reference elevation, shot elevation and depth of cut/fill.

## Checking Existing Ground

- Tap the Surface Selection pulldown and select Existing as the Reference.
- The shot elevations will be compared to the existing surface. Any significant deviations should be recorded.
- Tap the **Shoot** button to take single shots.
- Points can be streamed by tapping the **Stream** button.

## Recording a ProgressTopo

- SmartGrade may be used to create a progress topo and calculate the volumes.
- Tap the **Shoot** button to take single shots.
- Points can be streamed by tapping the **Stream** icon. With stream on (button is green) points are recorded when Rover moves farther than the current Collection Distance (set in **Menu > Settings > Preferences**).
- When the topo is complete, tap the **Save** button. It is recommended to save the file as a new name to restore the original if needed.
- Tap the **Menu** button and tap **Progress Topo**.
- The progress topo surface will be generated.
- Tap the **3D View** icon to verify the topo.
- Tap the **Surface** pulldown to select the desired difference surface.
- Tap the **Report** button to view the quantities.
- Tap the **Menu** button and tap **Make Surface** to use this surface in the future.

## Labeling

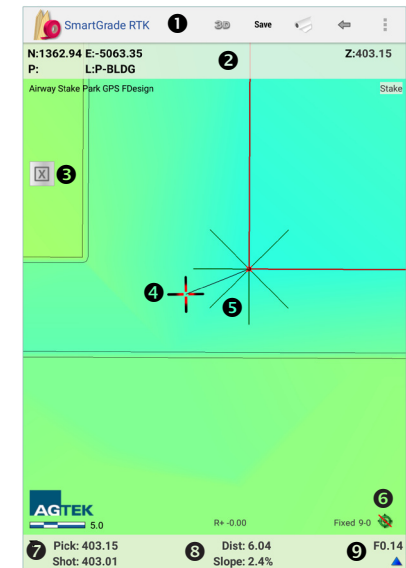
- Tap the **Menu** button, then tap **Labels**.
- Select the desired label from the label list.



- 1 The "Use Cut/Fill Labels" option labels topo shots with the cut/fill at that location.
- 2 The "Add Label" option allows you to add or edit labels.
- 3 The "Connect by Label" option labels topo shots using the selected label name, and connects them by label name, not sequence.

## Stake Mode

Use Stake Mode to select and find stake points. Stake points may be selected from Design lines or Stake List points created in Earthwork 4D.



- 1 The Action bar includes 3D View, Save, Display Plan Sheets, Undo last recorded point and Menu
- 2 Bar includes Northing/Easting of selected point, point label, line label and elevation
- 3 Tap to record stake point
- 4 Current location (connected to selected point)
- 5 Selected point offset lines
- 6 Tap the green compass to toggle panning
- 7 Elevation of selected point/shot point
- 8 Distance and slope to selected point
- 9 Cut/Fill amount of current location relative to the selected point

## Staking Points

- Tap a point to stake, then move the Rover to that point. A line connects the current location to the selected point. As the stake point is approached, the program zooms in and the distance to the point displays at the bottom of the screen.
- (Optional) Stake points can be recorded by tapping the **Record** button. Stake shots are labeled with stake point label, offset distance, slope to selected point, cut/fill from the survey point to the selected point, and can be selected for other purposes.

## Stake Mode (continued)

### Staking Offsets

To stake an offset:

- Tap a stake point to select it and the offset lines are shown perpendicular and at 45° to the selected point.
- When the Rover is perpendicular, or 45° to the selected point, the connecting line thickens and a chime will sound. (.050" tolerance on either side of the line).
- Move to the desired offset distance, stake the point, and (optional) record stake point data.

### Slope Staking

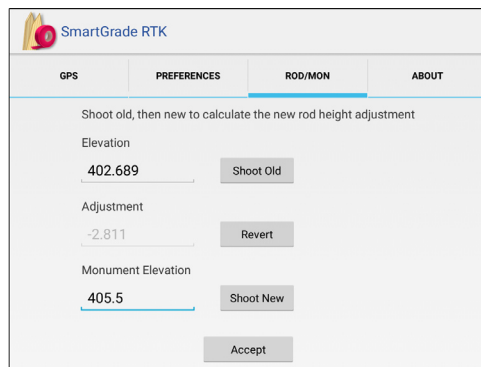
To stake a slope:

- Tap a stake point to select it then move the Rover until it is on the selected point.
- Move the Rover until the desired slope amount is reached, using the offset line for guidance, and stake the location. After a +/- 10% slope the display changes to a ratio (for example 2:1).
- (Optional) Record the stake point data.

## Changing Rod Height

A change in rover elevation, such as a change of rod height or moving the rover from the rod to an ATV, must be entered in SmartGrade.

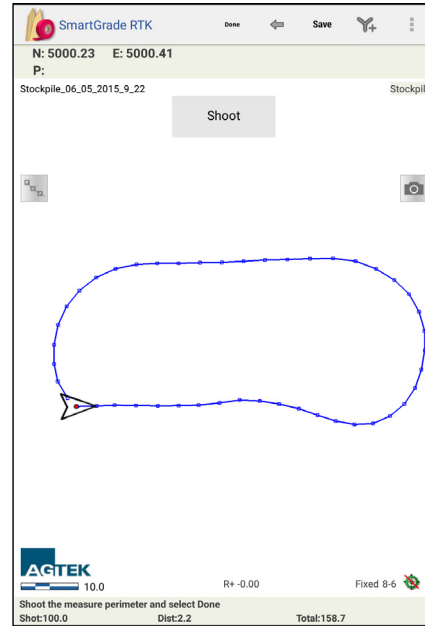
- Tap the **Menu** button, tap **Settings**, then tap the **Rod/Mon** tab.
- Tap **Change Rod Height**



- Place the Rover on a point and tap **Shoot Old**.
- Adjust the Rod height, place the Rover on the same point, then tap **Shoot New**. Tap **Accept**
- To revert to the original height, tap **Revert**.
- Use **Change to Monument Elevation** if you have a known elevation marked on the ground.
- Tap **Shoot Old**, then enter the known elevation

## New Measure Mode

New Measure Mode is used to measure stockpiles, areas, or lengths on a job site.



## Measuring a Stockpile

- On the file selection screen, tap the **New Measure** button. The program automatically aligns and shows the Rover relative to the Base.
- Move to the edge of the pile and tap the **Shoot** button for single shots, or tap the **Stream** button to turn on point streaming. Walk around the base of the pile until you return to the starting point.
- Tap **Done** from the Action bar when finished with the topo of the pile's base.
- Move to a starting point on the pile and tap **Stream** to begin toping the interior of the pile.
- When complete, tap the **3D View** button on the Action bar to verify the topo of the stockpile
- Tap the **Report** button on the Action bar. The stockpile volume is displayed.
- Tap the **Save Report** button. The report will be saved to a text file and uploaded to AGTEK Access.
- Tap the **Export KMZ** button to save a KMZ file containing the 3D view and reports to be uploaded to AGTEK Access and viewed on Google Earth.

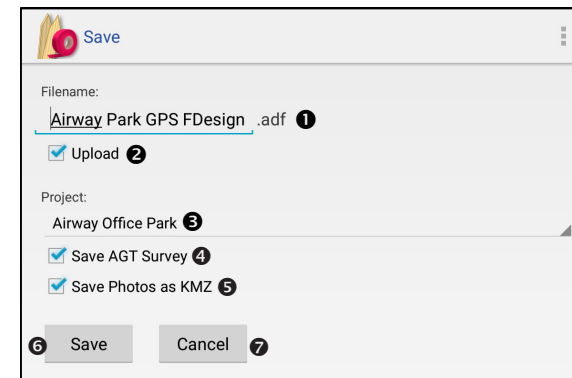
## Surveying a New Site

(When no Northings/Eastings are Available)

- From the file selection screen tap **New Survey**. The program automatically aligns and shows the Rover relative to the base.
- Place the Rover on a benchmark location, tap the **Menu** button, tap **Create benchmarks**, tap **Shoot**, then **OK**.
- Repeat for a second benchmark.
- Tap the **Shoot** button to take single shots that form lines to describe the surface.
- Points can be streamed by tapping the **Stream** button. With stream on (button is green) points are recorded when Rover moves farther than the current Collection Distance (set in **Menu > Settings > GPS**).
- When the topo is complete, tap the Save button to save and upload the files to AGTEK Access.

## Saving and Uploading data to AGTEK Access

- Tap the Save button on the Action bar to save and upload the files to AGTEK Access.



- 1 Tap to change the file name
- 2 Check the box to upload the file to AGTEK Access
- 3 Tap to change the Project Folder
- 4 Check the box to save the survey data to an AGT file for use in Earthwork 4D.
- 5 Check the box to save the photos to a KMZ file to be viewed on Google Earth
- 6 Tap to save the file
- 7 Tap to cancel the save

# SmartGrade

## Quick Reference

