



**Laser Technology, Inc.**

**LaserSoft®**

# **Face Profiler**

**User's Guide**

**1<sup>st</sup> Edition for Android**

© ITI 2019 Face Profiler for Android 3210015-E

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## Section 1 - Introducing Face Profiler for Android

Thank you for purchasing LaserSoft® Face Profiler for Android from Laser Technology, Inc. (LTI). Combine Laser Technology's highly accurate surveying instruments with Face Profiler for a complete profile measurement and burden analysis solution. LTI measurement tools can automatically enter data into Face Profiler, which creates two-dimensional (2D) profile maps. Face Profiler Reports for Windows is accompanying free software that allows for adjusting, calculating and printing profile data at the office.

Blast design has never been simpler or more efficient than now with the release of Face Profiler for Android. In addition to keeping people safe and staying in compliance with mining regulatory agencies, profiling blasts with Face Profiler helps to:

- Create quick profiles for safe and effective blast designs.
- Control blast costs by getting it right the first time.
- Manage inventory effectively with burden results that satisfy demand exactly.

For the current and potential customers who do not print field reports, Face Profiler Reports for Windows provides the ability to calculate, adjust, and print reports from the desk with a larger view of the profile. The interactive screen has been enhanced for better "tap to delete" and depth and burden display functionality at any point along a profile. No other field profiling software can accommodate for bench corners by allowing the measurement of multiple profiles per drill hole. Formatted reports can be printed to a PDF file, making them more secure for sending to stakeholders.

### Technical Specifications

LaserSoft Face Profiler has been designed to run on Android operating platforms for use in conjunction with Laser Technology surveying instruments.

Specification	Description
<b>Operating Systems</b>	Android version 6.0 and later
<b>Connectivity</b>	Bluetooth
<b>Compatible Lasers</b>	<ul style="list-style-type: none"> <li>• TruPulse 200X</li> <li>• TruPulse 360B*</li> <li>• TruPulse 360R*</li> <li>• TruPulse 200B*</li> </ul>
<b>Hardware</b>	<ul style="list-style-type: none"> <li>• <b>Optional</b> MapStar TruAngle for use with TruPulse models</li> <li>• <b>Recommended:</b> X-Grip &amp; Mounting Claw for phones/tablets if using with a tripod, 7" version available via LTI, other sizes available here: <a href="http://www.rammount.com/search?search_type=search&amp;query=xgrip">http://www.rammount.com/search?search_type=search&amp;query=xgrip</a></li> </ul>
<b>Supported Languages</b>	English; template is available for translation

\* Only TruPulse 360B, 360R, and 200B lasers displaying the Bluetooth option "BT\_Enc" in the heads-up display are compatible for use with a TruAngle. Older models of these lasers may not display this option and are not compatible for use with a TruAngle.

### Warranty Information

For purchases including lasers, a copy of the LTI Limited Warranty should have shipped with the order. If needed, please contact LTI to obtain a copy of the LTI Limited Warranty. See the inside front cover for LTI contact information.

**NOTE** The tablet package includes the associated product literature, such as manuals and warranties. It is your responsibility to contact the manufacturing company to register the tablet.

## Instrument Configurations

Face Profiler Android is designed to work with various hardware configurations:

- TruPulse 200X without TruAngle (Figure 1A)
- TruPulse 200X with TruAngle (Figure 1B)
- TruPulse 360B/R (Figure 1C)
- TruPulse 200B (not pictured)

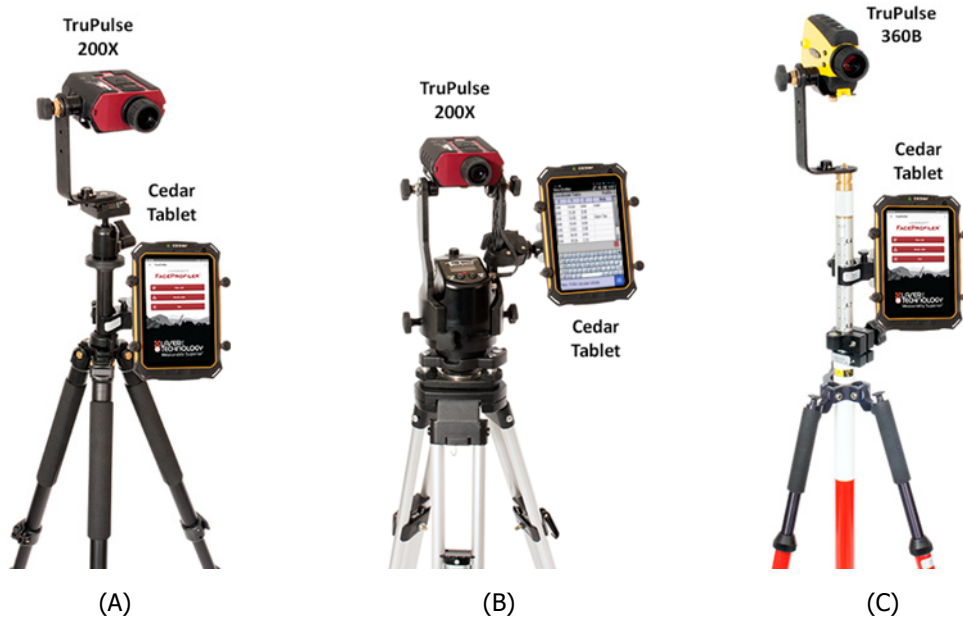


Figure 1

**NOTE** Since Face Profiler for Android requires a connection over Bluetooth; Impulse model lasers are not compatible.

## Laser Setup Notes

### **TruPulse 200X:**

Ensure that the laser's measurement mode is set to HD (Horizontal Distance) or SD (Slope Distance). When using a reflector, ensure the electronic filter is turned on AND that the mechanical foliage filter is affixed to the laser lens. The laser Bluetooth function needs to be turned on with "BT\_Enc" selected if using a TruAngle, and "BT\_On" selected if not. Set the desired measurement units in the laser to feet/in or meter/cm. Refer to the TruPulse 200X manual for further instruction.

### **TruPulse 200B/360B/R:**

Ensure that the laser's measurement mode is set to HD (Horizontal Distance) or SD (Slope Distance). When using a reflector, ensure the electronic filter is turned on AND that the mechanical foliage filter is affixed to the laser lens. The laser Bluetooth function needs to be turned on with "BT\_On" selected. If using a TruAngle, select the Bluetooth options "BT\_Enc" instead. Set the desired measurement units in the laser to feet or meter. Refer to the TruPulse 200B, 360B or TruPulse 360R manual for further instruction.

## MapStar TruAngle Setup Notes

The MapStar TruAngle provides the horizontal angle necessary for 3D mapping from one position using the Radial with Angle mapping method. A user-defined zero is set and all angle measurements from that specific position are based upon that zero.

In order to operate this device:

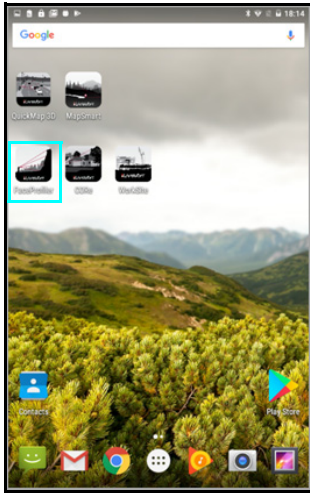
- Connect the laser to the TruAngle with the 4-pin cable included in the mapping package.
- Ensure the laser Bluetooth option is set for BT\_Enc.



## Launch Face Profiler

To launch the Face Profiler app:

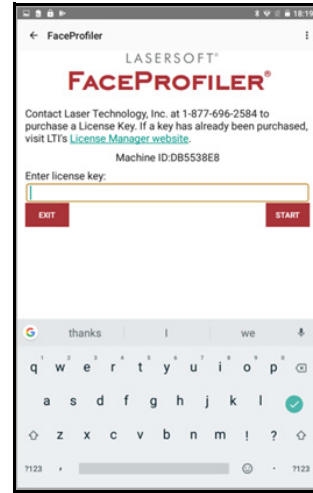
1. Find the Face Profiler icon on the smart device (Figure 5A).
2. Tap the Face Profiler icon (Figure 5B). The licensing screen will display (Figure 5C).



(A)



(B)



(C)

Figure 5



## Program Licensing

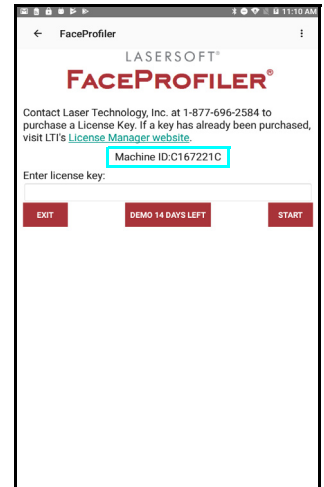
Upon any purchase of Face Profiler, Laser Technology generates a customer account on its License Manager website (<http://license.lasertechpartners.com/CustomerLogin.aspx>) that allows you to generate license keys. The first time Face Profiler is started, a short video will play before the licensing screen is displayed. Face Profiler can be used for 14 days from the date of download before a license key is required. Tap the Demo Status button to proceed past the licensing screen and use the program. At the end of 14 days, Face Profiler cannot be used without a license key (Figure 6A).

### About the 14-day Trial:

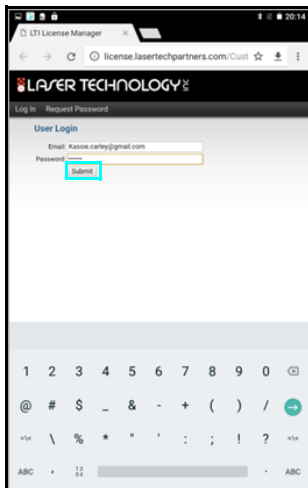
- The Demo Status button is in the center of the licensing screen, underneath the field where the license key is entered. The content on the button changes depending on how many days are left in the trial. In Figure 6A, the button shows DEMO 14 DAYS LEFT.
- Face Profiler is fully functional during the trial period. Surveys made during this time are accessible during the trial and can be re-accessed when the program is licensed.
- Contact an authorized dealer near you to purchase a license key or call LTI for more information (1-800-790-7364 or 1-303-649-1000).

To generate a license key:

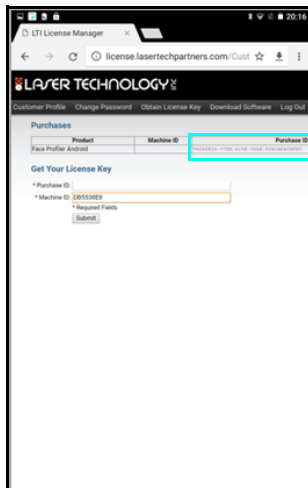
1. Notate the temporary password you received from [licensing@lasertechpartners.com](mailto:licensing@lasertechpartners.com) and open License Manager, <http://license.lasertechpartners.com/CustomerLogin.aspx>. If you followed the "License Manager website" link from the Face Profiler licensing screen on your smart device, **your Machine ID was automatically copied to the clipboard** (Figure 6A).
2. Tap the "Email" field to bring up the keyboard. Enter the email address associated with your purchase and the temporary password. Click [Submit] to log in (Figure 6B). If you do not have your temporary password, click the [Request Password] link at the top of the screen. Once successfully logged in, the "Obtain License Key" page displays.
3. Upon logging in, your purchase is displayed (Figure 6C).
  - **Machine ID** — If you followed the link from your smart device (Figure 6A), tap and hold the Machine ID field to paste the value. Or, enter the Machine ID manually (Figure 6C).
  - **Purchase ID** — Copy, tap and hold the "Purchase ID" in the Purchases Table (Figure 6C) and select the "Copy" option. Paste, tap and hold the "Purchase ID" field (Figure 6D) and select the "Paste" option (Figure 6E).



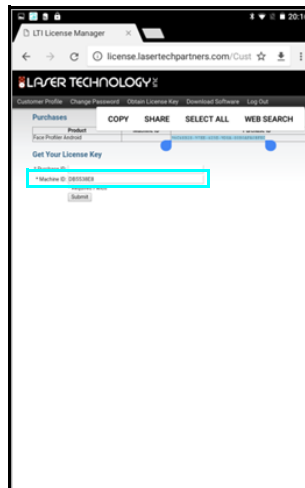
(A)



(B)



(C)



(D)



(E)

Figure 6

4. Click [Submit] and your license key will display below the entry fields, as well as in the Purchases Table.
5. **Copy**, tap and hold, or notate the License Key (Figure 7A) and return to Face Profiler (Figure 7B).
6. **Paste** or enter the key in the "Enter License Key" field and tap "Start" (Figure 7C). Tap and hold the "Enter License Key" file to display a prompt for pasting, then tap [Start].

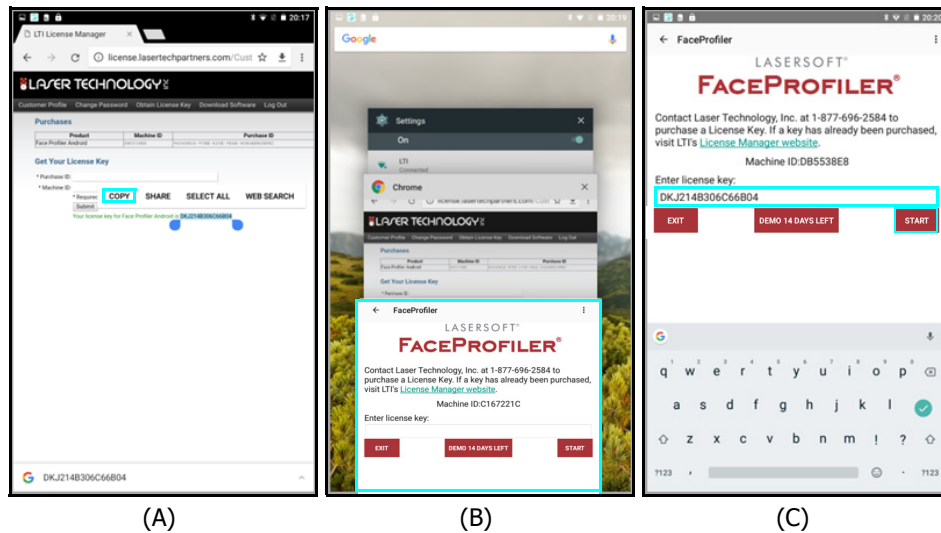


Figure 7

If an incorrect key is entered, the Face Profiler Main menu will not be displayed. Instead, the display will return to the device home screen.

For assistance contact: [Licensing@lasertechpartners.com](mailto:Licensing@lasertechpartners.com) or call 1-877-696-2584.

Please provide your name, company name, purchase ID (if known) as well as the Machine ID displayed on the Android device.

## Additional Information

### Localization

English is the default language for most Android devices; however, it can be changed.

To change the language:

1. Power on the Android device.
2. Tap the Settings icon on the device home screen.
3. Tap [Language & Input]
4. From the list of languages displayed, select the language to use for the text display on the device.
5. Press the Home button on the Android device to return to the Home screen.

### Serial Data Format

The Face Profiler app accepts data from LTI instruments that use a data format which is based on the NMEA 0183 Standard for Marine Electronic Navigational Devices, Revision 2.0. For more detailed information about serial data format, refer to the user's manual that shipped with the LTI instrument.

## Section 3 - Start Profiling

Face Profiler lets you organize your work into jobs, each of these jobs may contain one or more drill holes. Suppose that you're working at the C&M Quarry, and today you wish to survey two faces as shown in Figure 8.

In this example the day is organized into two jobs. Each job has its own name, drill angle, drill offset and burden values. The first job will be the "North Wall", and the other job will be the "SE Wall".

Drill Holes are numbered 1, 2, 3, etc. Each Drill Hole may have one or more Profiles associated with it; i.e. for profiling around bench corners. Profiles are numbered 1, 2, 3, etc. Each Profile can have its own Origin value, if there are known coordinates for the position of the equipment when the Profile is measured. If Origin coordinates are used, they may be entered by hand or determined by a laser shot from the current instrument position to the next one.

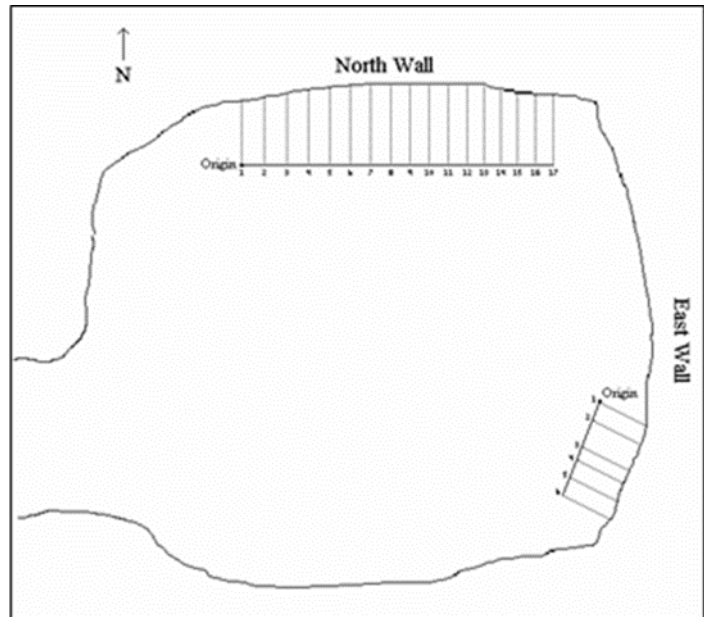


Figure 8

**NOTE** An easy way to establish relative coordinates for a series of profiles is to start at one end of the face, put a target in the ground, and then follow a straight line parallel with the face, shooting each profile's Origin relative to the target.

As a profile is measured, Face Profiler records the coordinate values of each shot and updates the drawing in the Android device's display. At any time, it is possible to navigate away from the Shoot Profile screen, go back and add values to a previous profile, calculate drill hole parameters, or calculate Depth vs. Burden data.

Face Profiler does not limit the number of Jobs, Drill Holes, or Profiles that may be stored on an Android device. The only storage limit is the total capacity of the Android device itself.

### About the Main Menu

Face Profiler Main Menu (Figure 9).

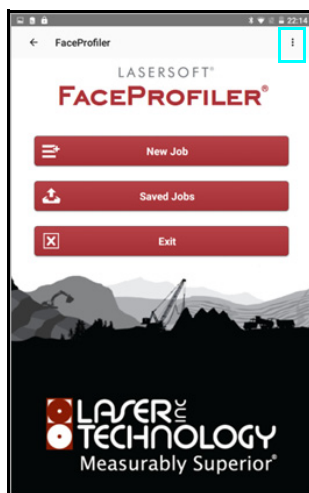





Figure 9

- Tap the back arrow  at the top of the screen to leave Face Profiler.
- Tap the Menu button  in the upper right corner of the screen to access:
  - Coordinate Table
  - Shot Table
  - Help
  - Face Profiler Options
  - About Face Profiler
- Tap [New Job] to begin a new job.
- Tap [Saved Surveys] to select an existing job and:
  - Open
  - Delete
  - Send Face Profiler proprietary file to support if there is a problem with the job.
- Tap [Exit] to close Face Profiler and return to the Android device main screen.

## Start a New Job

Ensure the laser is set to the desired units of measurement prior to beginning. Face Profiler will adopt the laser's setting. Refer to the instructions below to begin a new job from the Main Menu.

1. Tap the [New Job] button (Figure 10).
2. Enter the Job Name (Figure 11):
  - Job names are limited to 20 characters, and may not contain a blank space, ampersand character (&), or period character (.).
  - Tap  in the upper left corner of the screen to return to the Main Menu.
3. <optional> Enter a Note for the Job.
4. Device: Tap the drop-down menu and select the laser model to be used for the Job.
5. <optional> Enter a Drill angle, Drill Offset (setback from crest), Stem depth, Minimum burden value and/or Subdrill to create default values for each profile in the job. As each new profile is created, it will inherit these values. Later on, when doing calculations for individual profiles, the new calculated values for each profile will be saved with the profile, superseding the job's default values.
6. The Origin Coordinates box displays only when the following devices are selected: TruPulse 200X with TruAngle, TruPulse 360B or TruPulse 360R. If XYZ coordinates are desired for the job, the Origin Coordinates box must be checked so a prompt will appear allowing for entry of the first position coordinate and then all subsequent positions in the job. Otherwise, uncheck this box to skip the prompts for coordinates.
7. Tap the [Start] button to begin the job's first drill hole and profile - options are presented for changing the drill hole or profile names as well as adding a description for each.
8. <optional> Change the default drill hole name and/or enter a description of the drill hole or tap [Next] to skip. There are no limitations on characters (Figure 12A).
9. <optional> Change the default profile name and/or enter a description of the profile or tap [Next] to skip. There are no limitations on characters (Figure 12B).
  - Tap [Cancel] on either of these description screens to return to the Job menu.

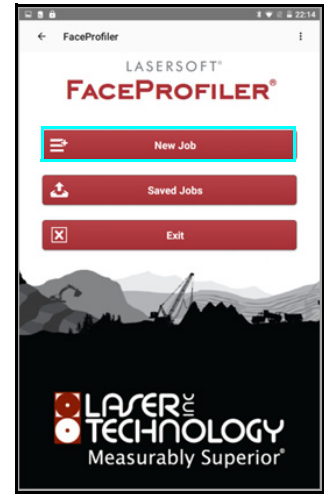


Figure 10

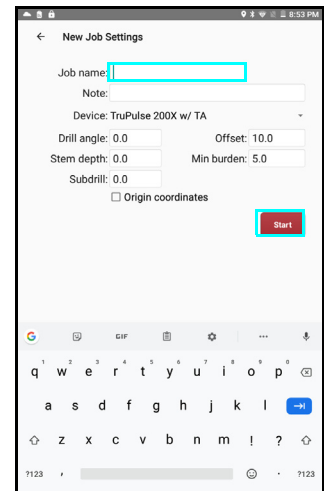


Figure 11

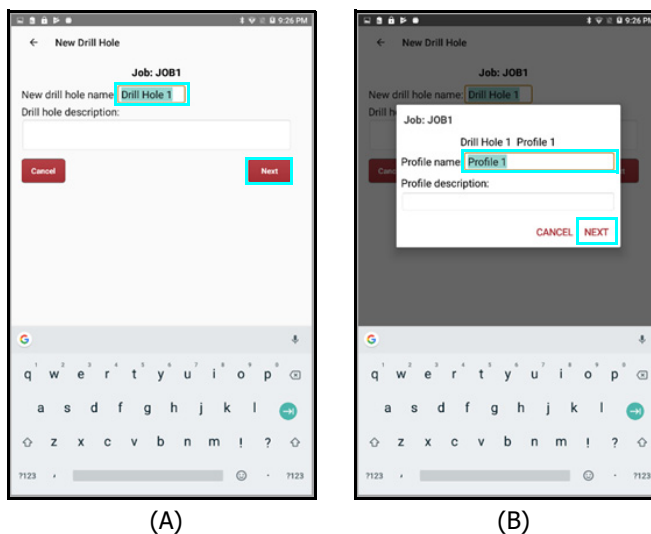


Figure 12

**NOTE** The Glossary includes a list of terms and definitions used within Face Profiler (Page 53).

- If the Origin Coordinates box was checked during initial file setup (Page 10), enter the XYZ values for the starting Origin point. Be sure to enter an accurate value for the Instrument Height. This value is important for calculating profile coordinates to the greatest possible accuracy (Figure 13A).
  - The Origin Coordinates checkbox only displays if the equipment in use is a TruPulse model with a TruAngle or a TruPulse 360 with Bluetooth/TruPulse 360R model.
  - If a TruAngle device is in use, the Set Reference buttons will appear at the bottom.
  - To enter known XY coordinates, tap [Enter XY Reference]. The Define Reference Point screen is displayed (Figure 13B).
  - To enter a reference Azimuth, tap [Enter Reference Azimuth]. The Define Reference Azimuth screen is displayed (Figure 13C).

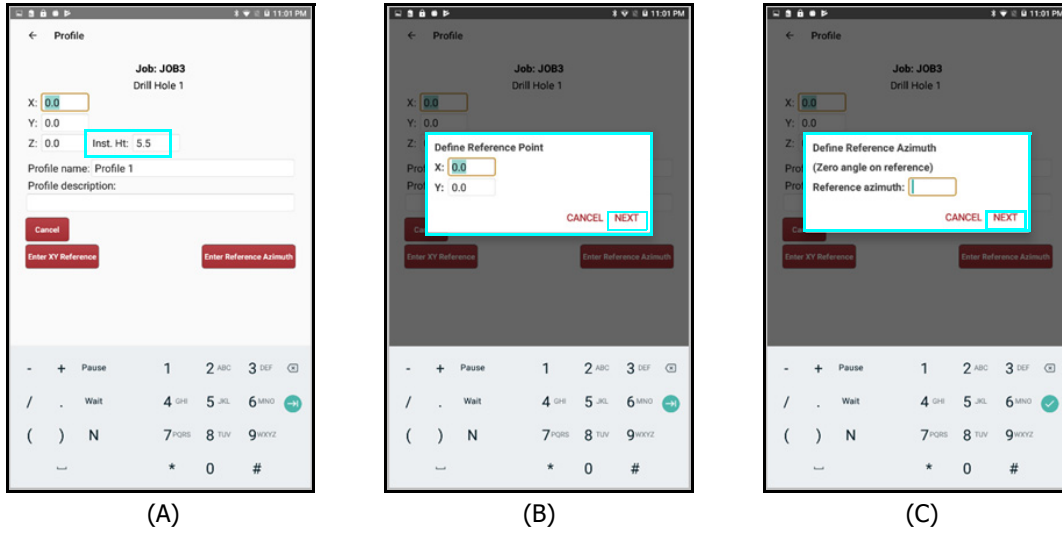


Figure 13

- Tap [Next] to accept the default values (or the values you entered) and the Shoot to Toe screen is displayed. For more information about shooting a profile, see Page 12.

## Access an Existing Job

To access an existing job:

1. Open Face Profiler and tap [Saved Jobs] (Figure 14A).
2. Tap the Job Name to select it, then tap [Open] (Figure 14B).
3. Tap the Drill Hole to select it, then tap [Open] (Figure 14C).
4. If the Drill Hole has more than one profile associated with it, tap the Profile to select it, then tap [Open] (Figure 14D). This screen only displays when the selected Drill Hole has more than one Profile.



Figure 14

About the Drill Hole and Profile List screens (Figure 14C and Figure 14D):

- **[New]** — Begin a new drill hole and profile that will be added to the selected job.
- **[Open]** — Open the selected drill hole. If the drill hole has only one profile associated with it, the shoot profile screen will display. If it has more than one profile associated with it, the Profile list will display so a profile may be chosen.
- **[Rename]** — Rename a Drill Hole or Profile.
- **[Delete]**: Delete the selected drill hole and the profile(s) associated with it. For more information about deleting the selected profile, see [Page 35](#).
- **[Reports]** — Generate Face Profiler reports. For more information about generating reports, see [Page 37](#).
- **[Reshoot]** — Reshoot the toe, crest or floor shots of the selected profile.
- **[XY Map]** — View the XY Map for any Job. This is only an option for Jobs that were shot in using a TruPulse model with a TruAngle or a TruPulse 360 model.
- **[Close]** — Return to the Face Profiler Main screen.

## Shoot a Profile

Each profile has its own Origin (the position of the laser system at the time the Profile is measured). The Origin for the first profile in a job is established manually by entering X, Y, and Z coordinate values and the Instrument Height as shown in [Figure 13A, Page 11](#). If the Origin coordinate option is left unchecked during job setup, the Origin coordinate for the instrument position of all profiles in a Job are assumed as "0."

## Equipment Setup and Field Measurement Notes

- For optimum screen display and accuracy, choose a location in front of the face that is equal distance from the face as the crest is high.
- All shots to the Floor, Toe, Crest, and Face should be taken in a vertical plane that is perpendicular to the face.
- TruPulse laser settings: The Measurement Mode should be set to Horizontal Distance (HD) the default startup mode or Slope Distance (SD). Bluetooth must be set to Bluetooth\_ON. Laser units should be set appropriately. **NOTE** the laser default units setting is Meters and not Feet.

## Take the Toe Shot

If the Origin coordinate box was checked during Job setup, the Shoot to Toe screen will display after entering Origin coordinate information. If the Origin coordinate box was not checked during Job setup, the Shoot to Toe screen will display after the Profile Description screen (Figure 15).

**NOTE** The Note field near the center of the screen may be edited before taking the Toe shot. The default description is the word "Toe."

- **[Prev]** — Return to the Set Origin screen if the Origin option was selected during Job setup OR return to the Profile Description Screen.
- **[Next]** — save manually entered data (azimuth, slope distance and inclination) for the Toe shot.

To take the Toe shot:

1. Aim the laser at the location where the face meets the floor (or the toe).
  2. <optional> Enter a Target Height in the TH field if a target is being used. Face Profiler will subtract the height of the target from the measurement so that the measurement will be on the ground. This feature is useful if debris or anything else is in the way of the Toe Shot.
  3. Press the laser's FIRE button. The Android device will beep when data arrives from the laser. The data will be stored; and screen will automatically advance to the Shoot to Crest screen (Figure 16A, Page 14).
- If there is muck at the bottom of the face, shoot the spot out in front of the face where the muck meets the floor. This material can be removed from the Calculations later (Page 26).
  - Once the Toe of the face has been defined, any shot with an inclination less than the inclination of the Toe shot will be interpreted as a Floor shot.

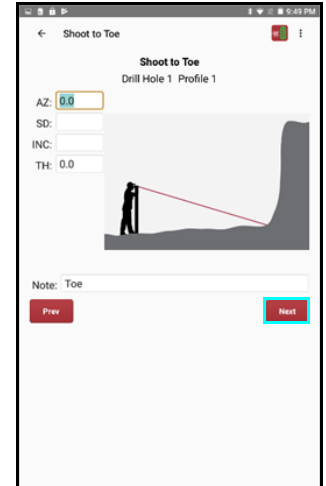


Figure 15

## Take the Crest Shot

The Crest Shot screen (Figure 16A) is automatically displayed after the Toe shot is taken.

**NOTE** The Note field near the center of the screen may be edited before taking the Crest shot. The default description is the word "Crest".

To take the Crest shot:

1. Aim the laser at the crest of the profile.
2. Press the laser's FIRE button (Figure 16A). You will hear a shot sound from the Android device and measurement data displays including the bench height for the profile (Figure 16B).
3. If the bench height displayed is acceptable, tap [Next] to accept the bench height and continue.
4. If the bench height displayed is unacceptable, continue to fire the laser until an acceptable bench height displays. For example, if the crest was missed on the first shot and hit the wall of the next bench up by accident. Tap [Prev] to return to the Toe Shot screen and reshoot the Toe.

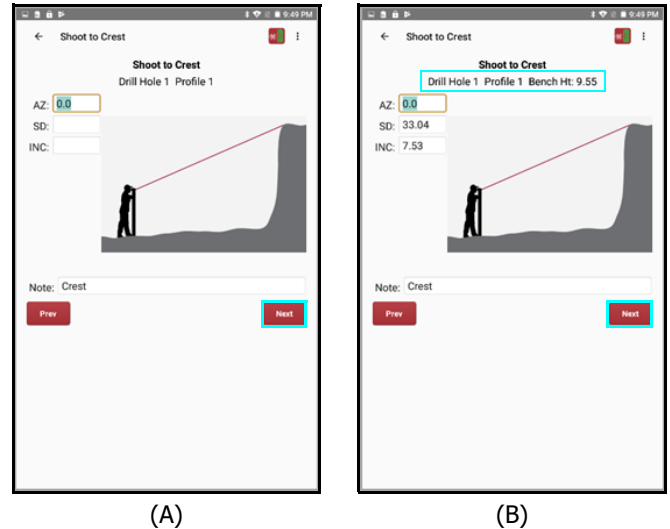


Figure 16

**NOTE** Profile Shots above this Crest point will not be accepted.

## Take the Floor Shot

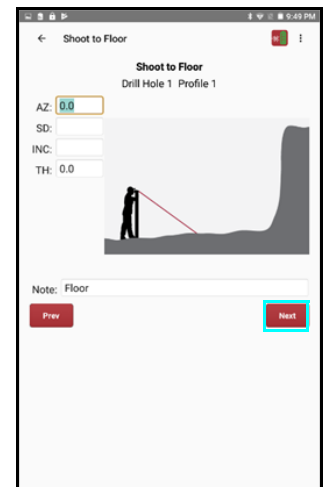
The Floor Shot screen is automatically displayed after taking the Crest shot and tapping [Next] (Figure 17).

**NOTE** The Note field near the center of the screen may be edited before taking the Floor shot. The default description is the word "Floor."

- **[Prev]** — return to the Crest Shot screen.
- **[Next]** — skip the Floor shot or save manually entered data (slope and inclination) as the Floor shot.

To take the Floor shot:

1. Aim the laser at a location on the floor directly in front of the toe.
2. <optional> Enter a Target Height in the TH field if a target is being used. Face Profiler will subtract the height of the target from the measurement so that the measurement will be on the ground. This feature is useful if debris or anything else is in the way of the Floor shot.
3. Press the laser's FIRE button. The Android device will beep when data arrives from the laser. The data will be stored; and the Shoot Profile screen will display (Figure 19, Page 15).





## Reshoot Profile Shots

At any time while a Profile is open, the Toe, Crest and Floor shots may be retaken.

To reshoot Floor, Toe, or Crest shots, tap **R** and choose "Reshoot Toe," "Reshoot Crest," or "Reshoot Floor" from the available options (Figure 18).

**Reshoot Profile** — Software is directed back to the Shoot to Toe screen where all profile shots can be retaken in succession.

**Reshoot Toe** — Software is redirected back to the Shoot Toe screen where the Toe shot can be retaken. Once the shot is taken, the display advances to the Shoot Crest screen (the normal succession of screens when setting up a new profile). If the Crest shot does not need to be retaken, tap [Next] to advance to the Floor shot screen, and [Next] again if the Floor shot does not need to be retaken (or if it was skipped originally).

**Reshoot Crest** — Software is redirected back to the Shoot Crest screen where the Crest shot can be taken and retaken as many times as desired before tapping [Next] to move to the Floor shot screen. If the Floor shot does not need to be retaken, tap [Next] again to return to the Shoot Profile screen.

**Reshoot Floor** — Software is redirected back to the Shoot to Floor screen where the Floor shot can be retaken. Tap [Next] to return to the Shoot Profile screen.

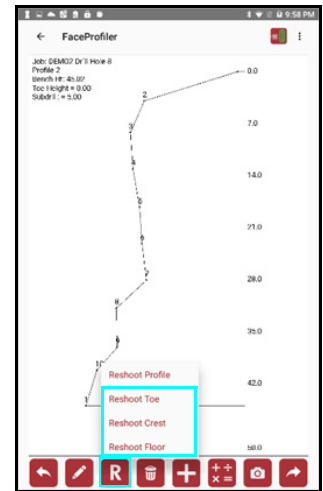


Figure 18

## Shoot in the Profile

After the Floor Shot is taken or skipped, the Shoot Profile screen is displayed (Figure 19). This example shows the initial plot, with a straight line from the Toe to the Crest. Remember that the toe, crest and floor shots may be retaken at any point in time while that profile is open.

Initial Plot Screen Overview:

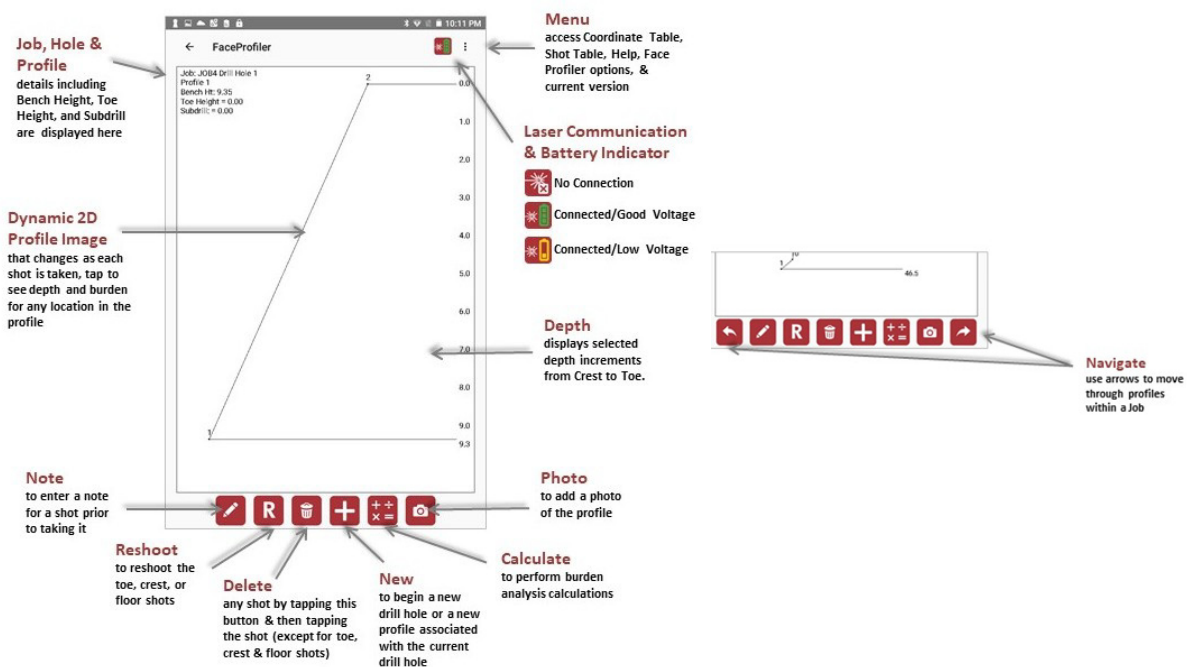





Figure 19

To take Profile shots:

1. Aim the laser at the face of the profile. Profile shots may be taken in any order and should be below the Crest and above the Toe.
2. Press the laser's FIRE button. The Android device will beep when data is received from the laser. The data will be stored and the plot will be updated with each new shot. Figure 20 is an example of how a profiled face may appear.
  - Move the laser in a vertical motion from the point that was the Crest shot to the point that was the Toe shot.
  - When finished measuring with the laser, tap:
    -  to add the next profile.
    -  to exit.
    -  to pull up the Calculate menu and make calculations (Page 26).

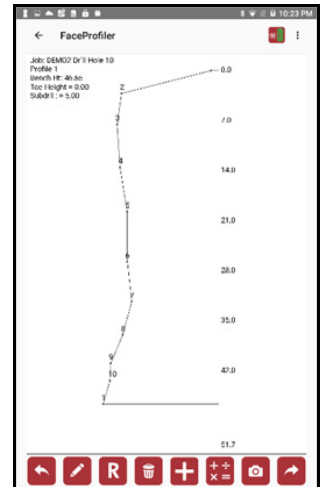



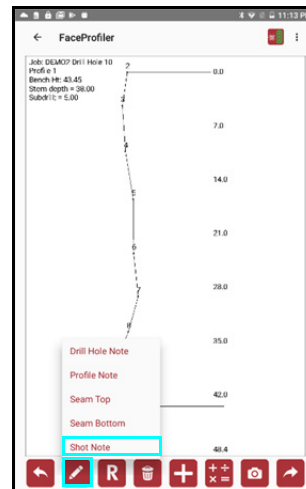
Figure 20

## Notes

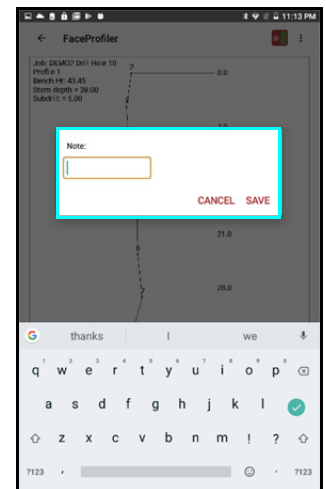
### Add a Note with a Shot:

1. Tap  (Figure 21A), before taking the shot. Select Shot Note and enter the note (Figure 21B), and then tap [SAVE].
2. Press FIRE on the laser device and the note will be associated with the shot new shot.

Shot notes will display in the note column in tables and printed reports.



(A)



(B)

Figure 21

## Add Seam Note with a Shot

To automatically add the Note "SEAM" to each of the depth increments between the points where the seam top and seam bottom were specified, tap [Seam Top] and [Seam Bottom] (Figure 21A Page 16) prior to shooting in the location of each.

In this example, there was only 1 foot of separation between where seam top and seam bottom were specified; therefore, "SEAM" only appears at one depth increment in the burden table (Figure 22A) and the printed reports.

On the Coordinate Table (Page 20) and Shot Table (Page 21), the "Seam Top" and "Seam Bottom" notes will show up with the values for the measured point (Figure 22B and Figure 22C).

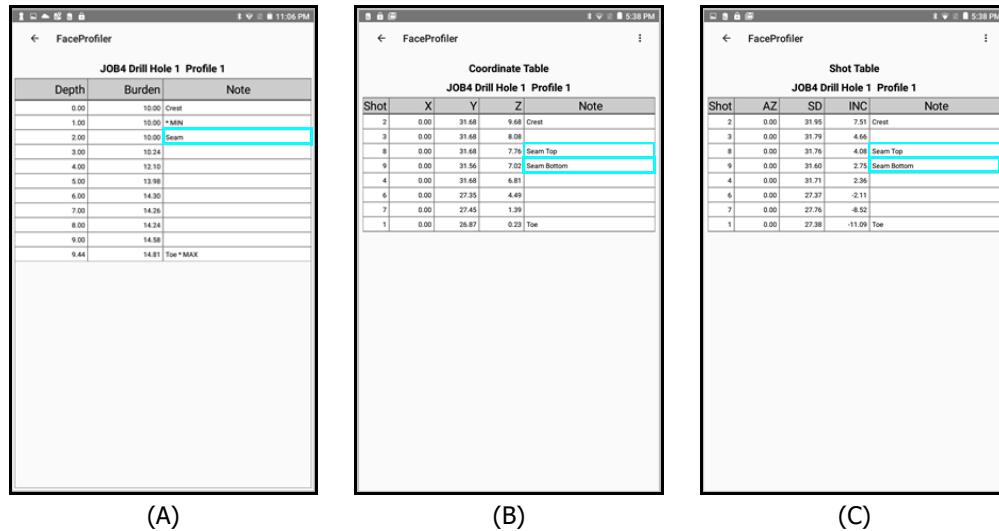


Figure 22

## Add a Note After a Measurement is Taken

Notes (including seam notes) can be added at any time while a profile is open and after a measurement has already been taken. To add a note to an existing measurement, access the Depth/Burden table, Coordinate Table, or Shot Table then tap the Note cell and enter the desired note. Tap [SAVE] to accept the changes (Figure 23).

## Edit a Note

A note (including seam, toe, crest, and floor notes) can be edited at any time while a profile is open. To edit a note, access the Depth/Burden table, Coordinate Table, or Shot Table then tap the Note cell and edit the note. Tap SAVE to accept the changes.

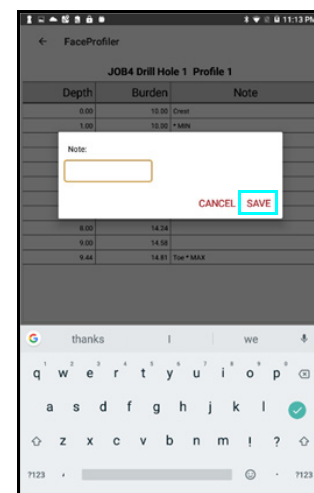



Figure 23

## Delete a Measurement

Measurement points can be deleted at any time while a profile is open. Measurements can be deleted by tapping them on the Shoot Profile screen and also by tapping them from the Coordinate and/or Shot Tables.

### Delete from the Shoot Profile screen:

1. Tap  and then tap the point to be deleted (Figure 24A).
2. A confirmation message will display. Tap [DELETE] to confirm the deletion, or [CANCEL] to abandon the operation (Figure 24B).
3. Upon tapping Delete, the point is removed from the screen (Figure 24C).

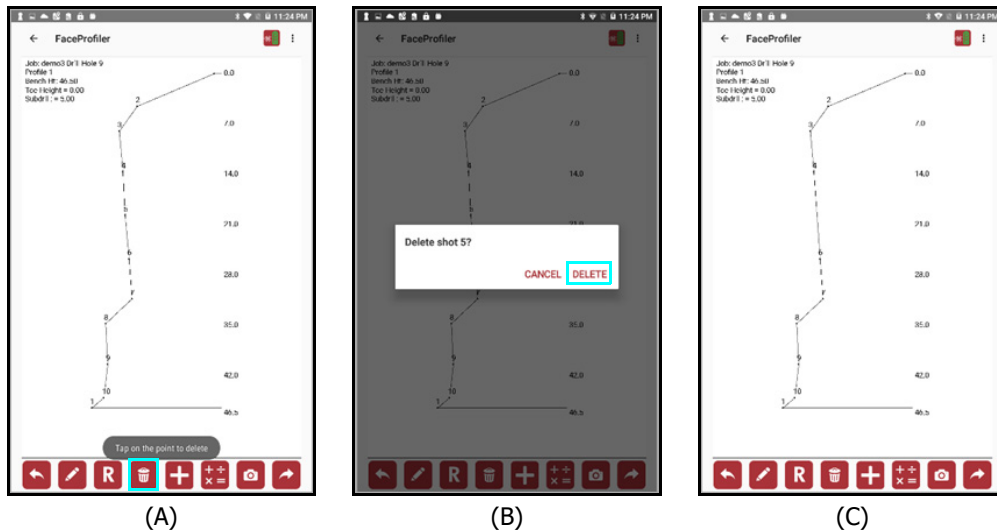



Figure 24

### Delete from the Coordinate or Shot Table:

1. Tap  in the upper right corner of the screen (Figure 25A).
2. Select Coordinate Table or Shot Table from the menu (Figure 25B).
3. Tap the line for the shot to be deleted, in this example, Shot 4 was tapped. Select Delete Shot from the options (Figure 25C).
4. Tap [DELETE] to confirm the deletion or [CANCEL] to abandon the operation (Figure 25D).

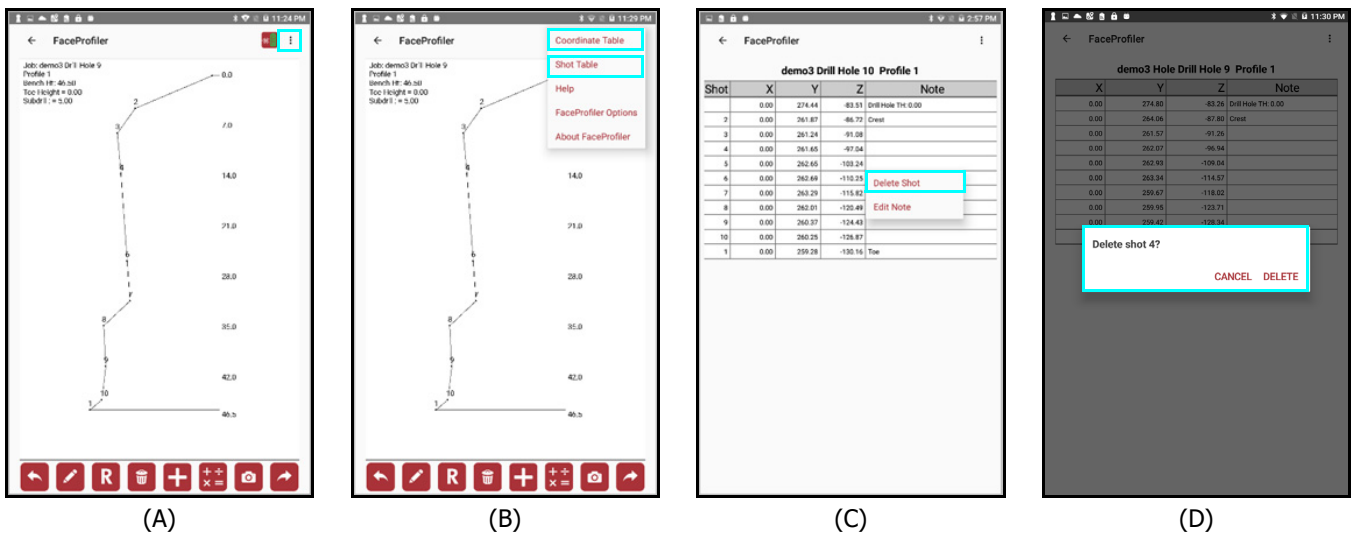





Figure 25

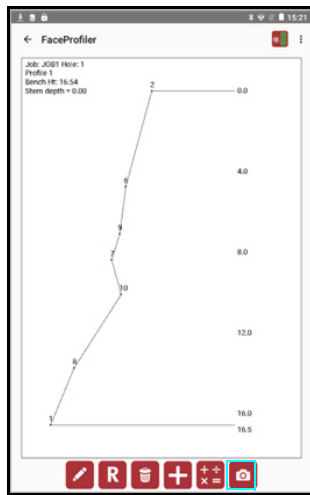
**NOTE** To leave this area with or without making changes to the notes, tap  in the upper left corner of the screen to return to the Shoot Profile screen (Page 12).

## Add a Profile Photo

Quickly and easily add a Profile photo to a Profile:

1. Tap  (Figure 26A).
2. The camera screen will display (Figure 26B). Each Android device with camera capability has a button that takes the image. Press the button when ready. Refer to the device manual to find the camera button, if necessary.
3. Tap  to keep the image or tap the "X" to try again (Figure 26C).
4. The image will be saved to the Profile data with a filename that matches the open Job, drill hole and profile number.

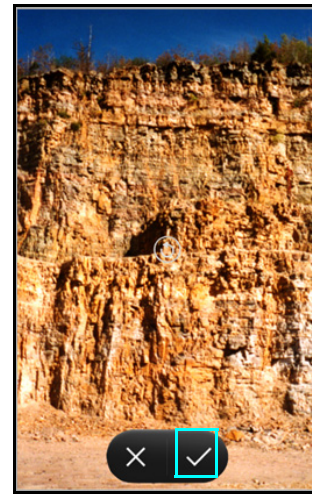
**NOTE** All saved Profile data, including images, can be found here:  
Device Storage\FaceProfiler\Job Name\



(A)



(B)






(C)

Figure 26

## Review Profile Data

Profile data may be reviewed at any time while a profile is open. Use the Coordinate Table, Shot Table, or XY Map to review profile measurements.

### Coordinate Table

1. Tap Menu .
  2. Tap [Coordinate Table] from the list of options (Figure 27A) and the Coordinate Table will display (Figure 27B).
- Origin data, Instrument Height and shot data are converted to XYZ coordinates and are displayed in the first three columns of the Coordinate Table. Depending upon the equipment used, the X field may or may not have data.
  - Any individual shot notes display in the Note column. Tap any Note field to edit existing note or to add a new one.
  - To return to the Shoot Profile screen, tap .
  - To review profile data as a Shot Table or XY Map, tap Menu  and choose one of those options. Remember, XY Map only displays as an options for Profiles shot using a TruPulse 360 model laser or a TruPulse model with a TruAngle.

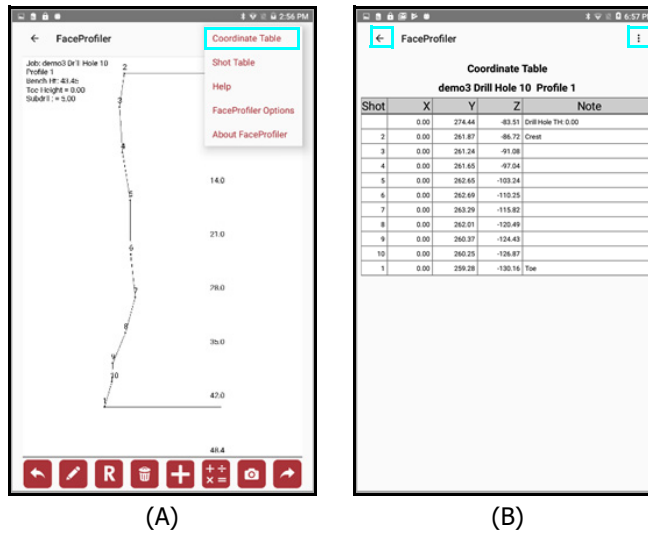





Figure 27

**NOTE** Different profiles in the same job may have different values for the X coordinate depending on how the Origin is set.

## Shot Table

1. Tap  Menu.
2. Tap [Shot Table] from the list of options (Figure 28A) and the Shot Table will display (Figure 28B).
  - The first three columns display the azimuth, slope distance, and inclination values received from the laser for each shot. Because some laser models have a compass and some do not, the azimuth field may or may not contain data.
  - Any notes entered about individual shots are displayed in the fourth column. Tap the any Note field to edit existing notes or to add new ones.
  - To return to the Shoot Profile screen, tap .
  - To review profile data in as a Coordinate Table or XY Map, tap  Menu and choose one of those options.
  - Do not return to a profile to add additional shots unless the exact instrument was marked. If there is no marked reference to the position, re-shoot the profile in its entirety.

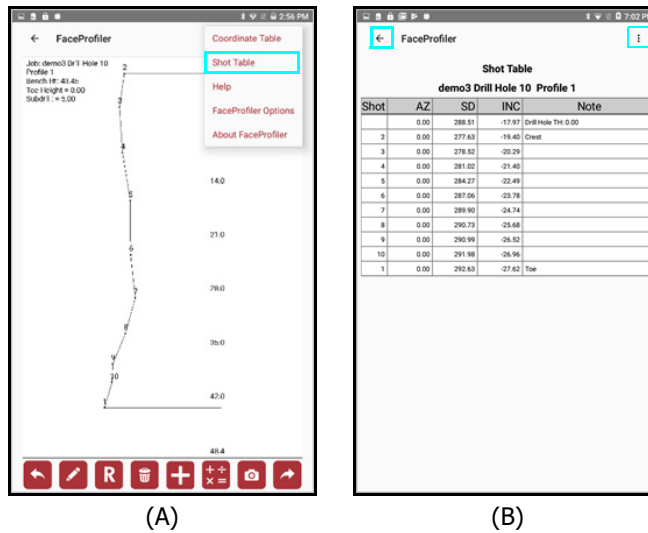




Figure 28

## XY Map

The XY Map will be accurate if the Origin coordinates box was checked during Job setup and new instrument positions were measured in with a TruPulse 360 or a TruPulse and TruAngle equipment setup.

1. Navigate to the Drill Hole menu (Figure 29A).
2. Tap the XY Map option. The display should look similar to Figure 29B.
  - **Drill Hole 1x** — the Origin point(s) for the profiles at Drill Hole 1; the position of the equipment setup at the time of measurement. The number will correspond to the Drill Hole number measured.
  - **Profile 1[]** — the Crest of Profile 1. The number will change and correspond to the Profile number measured.
  - **Profile 1.** — the Toe of Profile 1. The number will change and correspond to the Profile number measured.
  - To return to the Drill Hole menu, tap .
  - To review profile data in as a Coordinate Table or a Shot Table, open a Profile and select it from the  Menu.

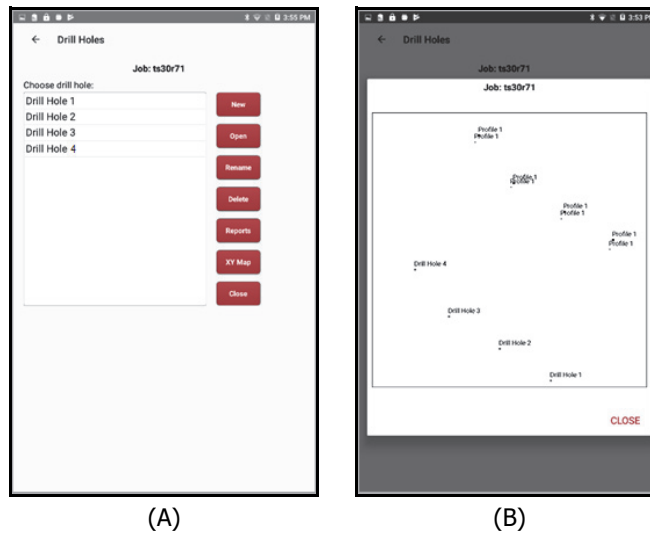



Figure 29



## Add the Next Drill Hole/Profile

While the Shoot Profile screen is displayed, tapping  will add the next Drill Hole or additional Profiles under the current drill hole.

1. Tap  from the Shoot Profile screen (Figure 30A).
2. Tap [New Drill Hole] (Figure 30B).  
 If [New Profile] is selected to add an additional profile measurement to the same drill hole, skip Step #3.
3. <optional> Edit the Drill Hole name and/or enter a description for the new drill hole.
4. Tap [Next] (Figure 30C); or tap [Cancel] to abandon the operation.
5. <optional> Edit the Profile name and/or enter a description for the new profile.
6. Tap [Next] (Figure 30D); or tap [Cancel] to abandon the operation.

The Shoot to Toe screen is displayed.

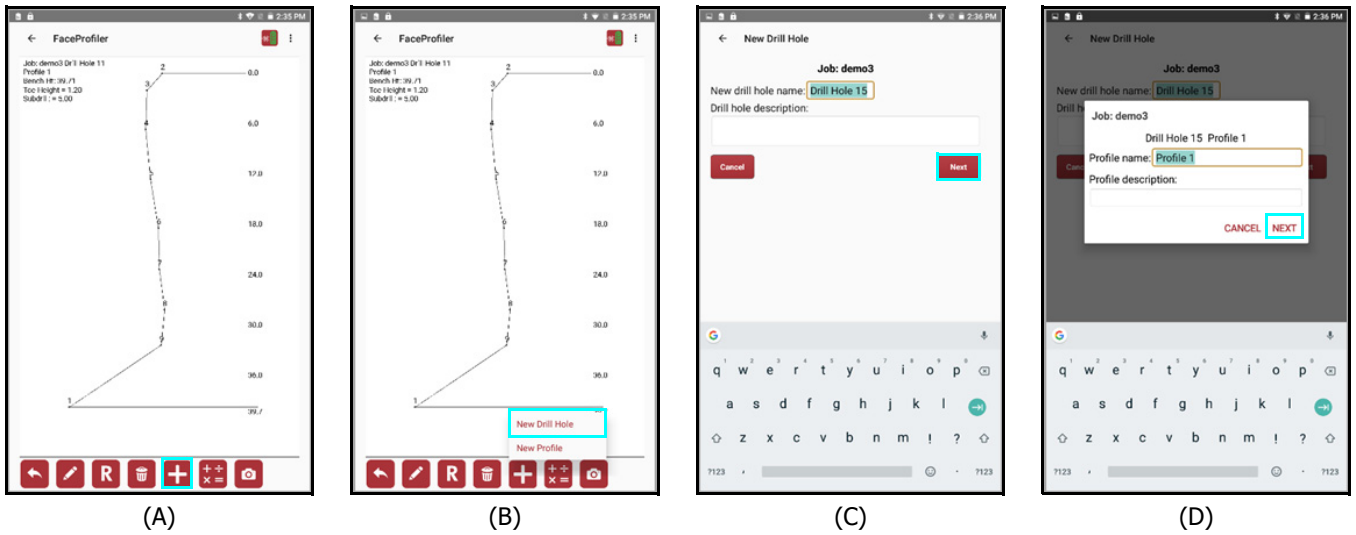


Figure 30

If the Origin Coordinates option was checked when setting up the Job, Set Origin options will be presented (Figure 31):

- SHOOT
- CANCEL
- MANUAL

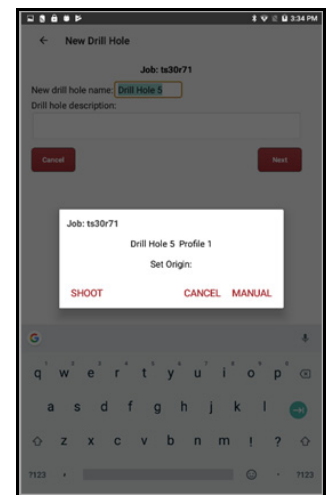


Figure 31

## Shoot Origin Coordinates

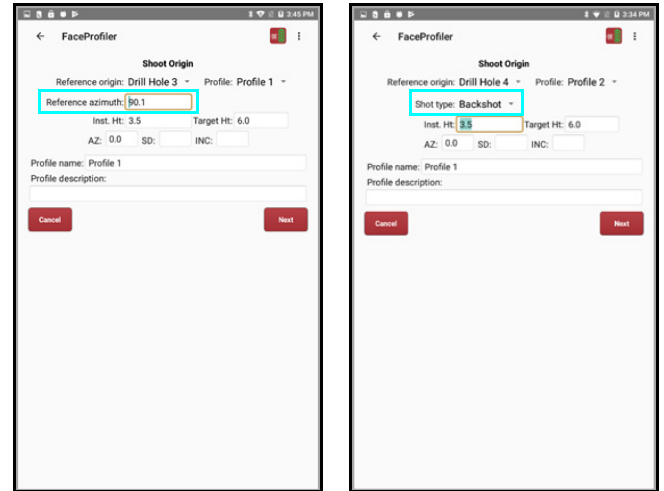
To establish a profile's Origin relative to the Origin of another profile with a laser measurement, tap the [Shoot] button. Face Profiler will display the Shoot Origin screen.

**NOTE** The screen's appearance depends on the Laser device selected on the New Job screen:

- TruPulse200X/TruAngle displays the Reference azimuth that will be used (Figure 32A).
- TruPulse 360/R displays the Shot type option (Figure 32B).

If using a laser with a compass and you moved to the new Origin location and forgot to shoot to it first, there is an option to shoot back to first location using the "Backshot" choice in the "Shot type" drop-down menu.

1. Tap [Shoot] and select which Origin point you are occupying (A).
  - Fire the laser at the next instrument position and the raw data fields will populate with values.
  - Measure Instrument and Target height and enter them in the fields. The values from the previous profile will carry over but can be updated (B).
2. Tap [Next] to move to the Shoot to Toe screen.



(A)

(B)

Figure 32

If using a TruAngle, after moving to the new location, zero the TruAngle back to the old location before starting to take new profile shots.

## Manual Origin Coordinates


To manually enter the Origin coordinates, tap the [Manual] button and proceed the same way as the first profile. Face Profiler will display the Set Origin screen (Figure 13 Page 11).

1. Enter a description for the new profile if desired.
2. Tap [Manual] to manually enter XYZ coordinate values for the new Origin.
  - Tap [Cancel] to abandon the operation.

Refer to the instructions below to shoot from (or to) an Origin that has already been stored in the current job.

1. Tap the arrow in the Reference Origin field and select the Drill Hole number from the drop-down list.
2. Tap the arrow in the Profile field and select the Profile number from the drop-down list.
3. Choose the applicable angle device and enter details. If an angle device is not used as a part of the hardware configuration, the X coordinates will assume a 90° angle from the previous Origin location.
4. Verify that the Reference azimuth (or Shot type), Instrument Height and Target Height are set properly.
5. Occupy the new profile Origin if the azimuth backsight method is used. Occupy the reference Origin if the azimuth foresight or angle method is used.
6. Fire the laser at the target and the AZ, SD, and INC fields will fill in.
  - Tap [Next] after the Origin offset is shot in properly and ready to advance to the Floor shot screen, see Page 14.
  - Tap [Cancel] to return to the previous screen.

## Face Profiler Options

Face Profiler Options can be accessed by tapping the Menu , then tap [Face Profiler Options] (Figure 33A) to display the current selected options and edit them (Figure 33B).

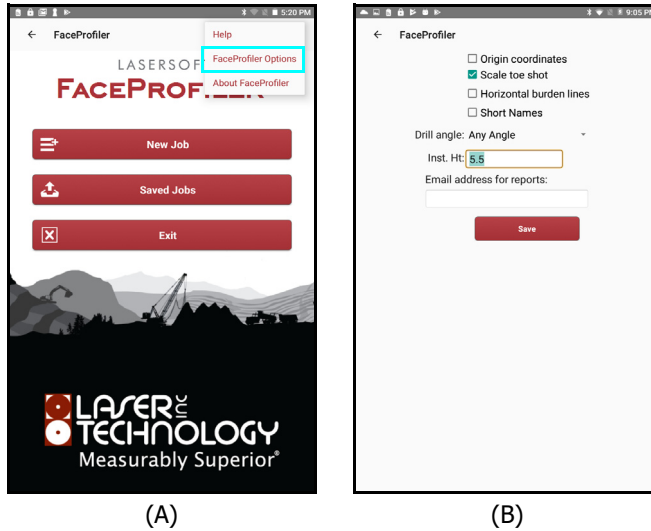


Figure 33

**Origin coordinates** — Check this box to enter origin coordinates for profiles. If unchecked, Face Profiler will skip over the Origin Coordinate screens and assume the XYZ to be 0,0,0.

**Scale toe shot** — Check this box to scale the toe shot in the profile plot.

**Horizontal burden lines** — Display horizontal burden lines in profile plot and reports that include plots.

**Short Names** — Display abbreviated names for Drill Hole and Profile numbers.

**Drill Angle** — Select a desired angle option from the drop-down menu:

**Any Angle** — Calculated results of drill hole angles are unrestricted.

**Positive Angles Only** — Calculated results will include drill holes with positive angles only.

**Vertical Angle Only** — Calculated results will include vertically angled drill holes only.

**Instrument Height (Inst. Ht)** — Measured from the ground to the center of the spotting scope if using the origin coordinates option.

**Email Address for Reports** — Enter an email address that will automatically be used when emailing Face Profiler reports.

## Section 4 - Adjustments and Calculations

When a profile is open, Face Profiler allows the user to make certain adjustments before performing any calculations. Results from some calculations are displayed on the screen, others can be displayed in a tabular report or as a graphic plot. The [Calculate] menu accesses four basic functions:

Adjustments

- Adjust
- Burden

Calculations


- Drill Hole
- Fixed Angle Increment

Each of the calculations screens will be described separately. You are free to navigate seamlessly between them, reviewing results and making adjustments until satisfied.

### Adjust the Profile

#### Remove Slough Material from the Toe

Slough (or muck) material at the bottom of a profile face can be removed from calculations so it does not show a larger burden value in that area than is actually there. Slough should be profiled in with the rest of the face and then removed with this procedure. Face Profiler will assume a straight line to the floor from the spot where the slough material meets the face so burden values will not extend beyond that point.

1. Tap  and then tap [Adjust] (Figure 34A).
2. Tap the checkbox next to "Adjust toe" (Figure 34B).
3. Tap to place cursor in the "Toe height" field (Figure 34B).
4. Tap the screen at the location where the slough material meets the profile face and a line will display at that position (Figure 34C).
5. Tap [Close] to return to the Shoot Profile and see the new toe location behind the slough (Figure 34D).

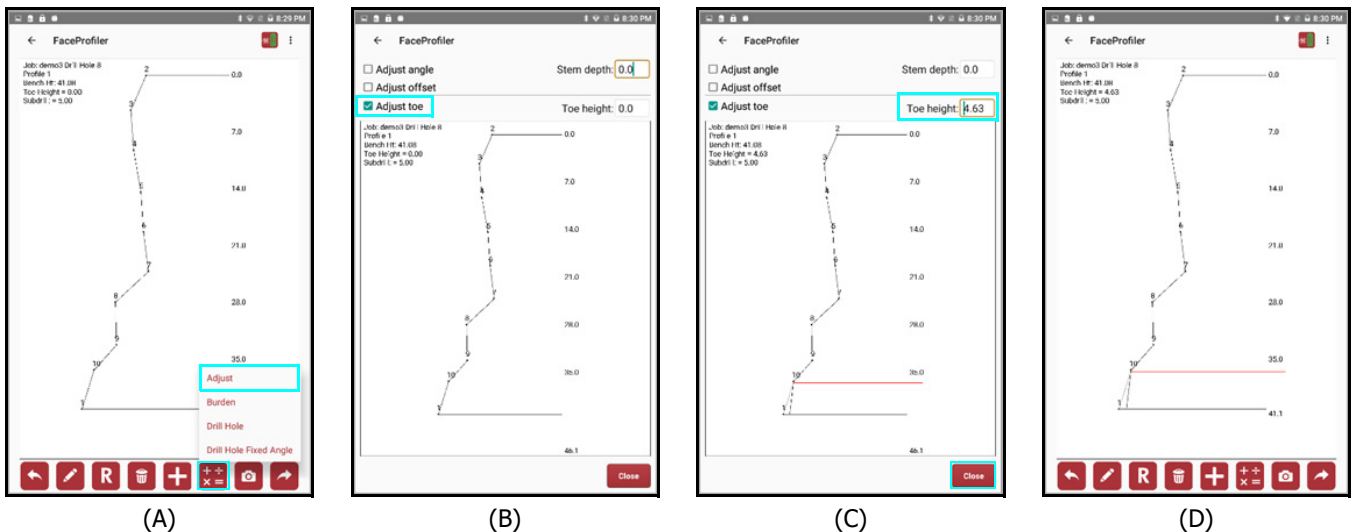


Figure 34

- If the wrong spot was tapped accidentally, simply tap the correct spot and the display will be updated.
- If a Toe height is entered, but Adjust Toe remains unchecked, a description will be placed for depths up to this height, but the calculations will not remove this material when determining burden values.
- Instead of tapping the position of the line placement, a toe height value may be manually entered using the device keyboard.

The adjusted toe value will be used in any subsequent calculation.

## Add a Stem Depth

To add a stem depth:

1. Access the [Calculate] menu, and select [Adjust] (Figure 35A).
2. Tap to place cursor in the Stem depth field (Figure 35B).
3. Tap the screen at the desired depth. The value displays in the Stem depth field and a horizontal line displays from the selected point to the drill hole (Figure 35C).

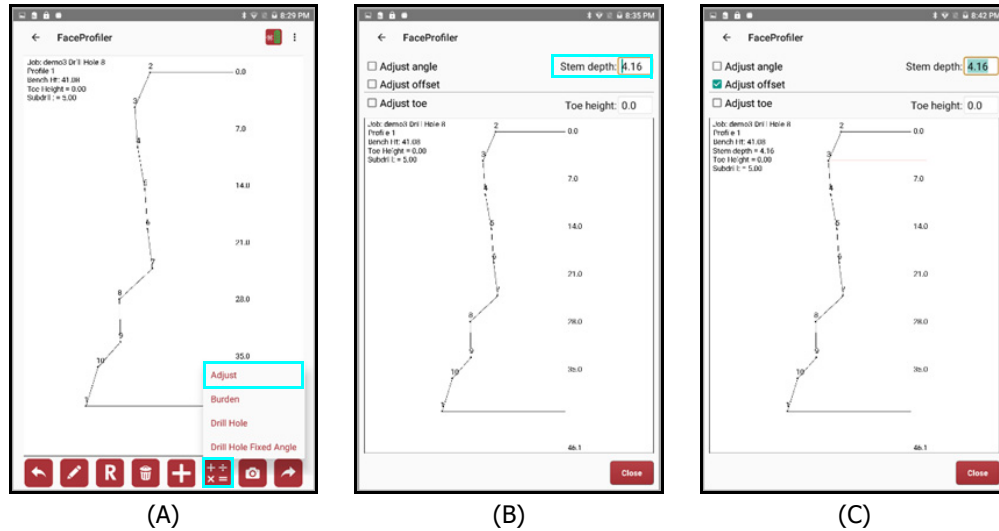


Figure 35

**NOTE** If the wrong spot was tapped accidentally, simply tap the correct spot and the display will be updated.

4. In order to:
  - Adjust the calculated hole offset using this data, tap the box next to Adjust offset. A check mark will appear in the box.
  - Exclude the data above this point from the hole angle calculation, by tapping the box next to Adjust angle. A check mark will appear in the box.

**NOTE** The Adjusted offset and/or the Adjusted angle value will be used in the subsequent calculation.

## Calculate Drill Hole Parameters

There are four ways to calculate Burden values and Drill Hole parameters:

- **Burden/Enter Hole Offset** — Manually enter the distance from Crest and Drill angle values.
- **Burden/Shoot Hole Location** — Shoot in the Hole Location to calculate the distance from Crest.
- **Drill Hole** — Optimize the Burden for an angled face and calculate the distance from crest and Drill Angle.
- **Drill Hole Fixed Angle** — Optimize the Burden for an angled face and calculate the distance from crest and Drill Angle at a Fixed Angle Increment.

### Calculate Burden - Enter Hole Offset

A distance from crest value can be entered for a profile to calculate burden results with specific parameters in mind.

About Enter Hole Offset Parameters (Figure 36):

- **HD from crest** — Enter the Hole Offset or the setback distance in the field labeled HD from crest.
- **Drill Angle** — Enter zero if the drill angle is perfectly vertical.
  - Enter a positive value if the hole angles toward the face.
  - Enter a negative value if the hole angles away from the face.
  - This entry may be restricted depending on the Drill Angle setting in Face Profiler Options (Page 25).
- **Depth increment** — Enter the number of feet (or meters) from the crest down the face at which data will be displayed in tables and reports; for example, every 3 feet or 1 meter.
- **Subdrill** — If the drill hole should extend below the floor of the profile, enter that value in the Subdrill field

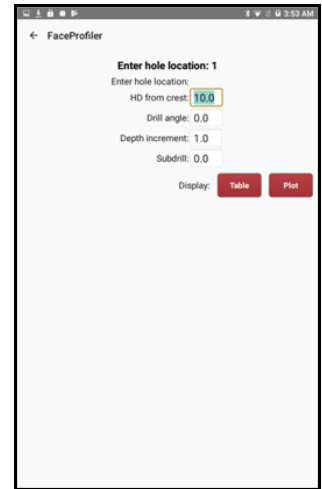



Figure 36

Procedure for Enter Hole Offset:

1. Tap  and select [Burden] (Figure 37A).
2. Tap the [Enter Hole Offset] option (Figure 37B).
3. Enter the Hole Offset, Drill angle, Depth increment and/or Subdrill in their relative fields (Figure 37C).

**NOTE** The values entered here will be saved for this profile, and will over-ride the values entered during initial job setup.

- Tap [Table] to view Depth vs. Burden data in tabular form (Figure 43, Page 33).
- Tap [Plot] to view the calculated data as a graphic plot (Figure 44, Page 33).



Figure 37

## Calculate Burden - Shoot Hole Location

Values for distance from Crest and the height above or below it can be measured by shooting in the hole location with the laser.

About Shoot hole location parameters (Figure 38):

- **SD and INC fields** — Will fill in with a shot from the laser.
- **TH field** — Enter in a Target Height if a target is in use.
- **Offset** — Distance from Crest is automatically calculated from the laser shot.
- **Above/below Crest** — Height is automatically calculated from the laser shot.
- **Drill angle** — Enter zero if the drill angle is perfectly vertical.
  - Enter a positive value if the hole angles toward the face.
  - Enter a negative value if the hole angles away from the face.
  - This entry may be restricted depending on the Drill Angle setting in Face Profiler Options ([Page 25](#)).
- **Depth increment** — Enter the number of feet (or meters) from the crest down the face at which data will be displayed in tables and reports; for example, every 3 feet or every 1 meter.
- **Subdrill** — If the drill hole should extend below the floor of the profile, enter that value in the Subdrill field.

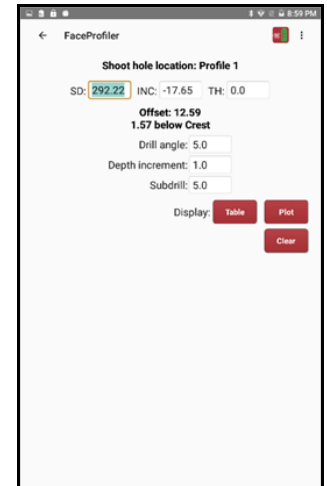



Figure 38

Procedure for Shoot Hole Location:

1. Tap  and tap [Burden] (Figure 39A).
  2. Tap the [Shoot Hole Location] option (Figure 39B). Face Profiler will display an entry screen for the drill hole parameters similar to [Figure 36, Page 28](#).
  3. <optional> Enter a Target Height in the TH field (Figure 39C). This value is the height of the target set up at the drill hole location.
  4. Press the laser's FIRE button to collect the raw data to the drill hole location. This will result in the automatic calculation of:
    - The drill hole Offset from the crest (Figure 39D).
    - The drill hole elevation change above/below the crest (Figure 39D).
    - The shot to the Drill Hole may be repeated if necessary, simply remeasure and overwrite the values.
  5. <optional> Enter the desired drill angle in the Drill angle field.
  6. Enter the depth increment down the hole to calculate burden values for. For example, every 2 feet or every 5 feet.
  7. <optional> Enter a subdrill value.
    - Tap [Table] to view Depth vs. Burden data in tabular form ([Figure 43, Page 33](#)).
    - Tap [Plot] to view the calculated data as a graphic plot ([Figure 44, Page 33](#)).
    - Tap [Clear] to clear out the raw data, offset and above/below values (Figure 39D).
- NOTE** The values entered here will be saved for this profile, and will over-ride the job's default values for drill hole parameters. The value above or below the Crest will be added to the original Bench Height and a new value is calculated (Figure 39E).

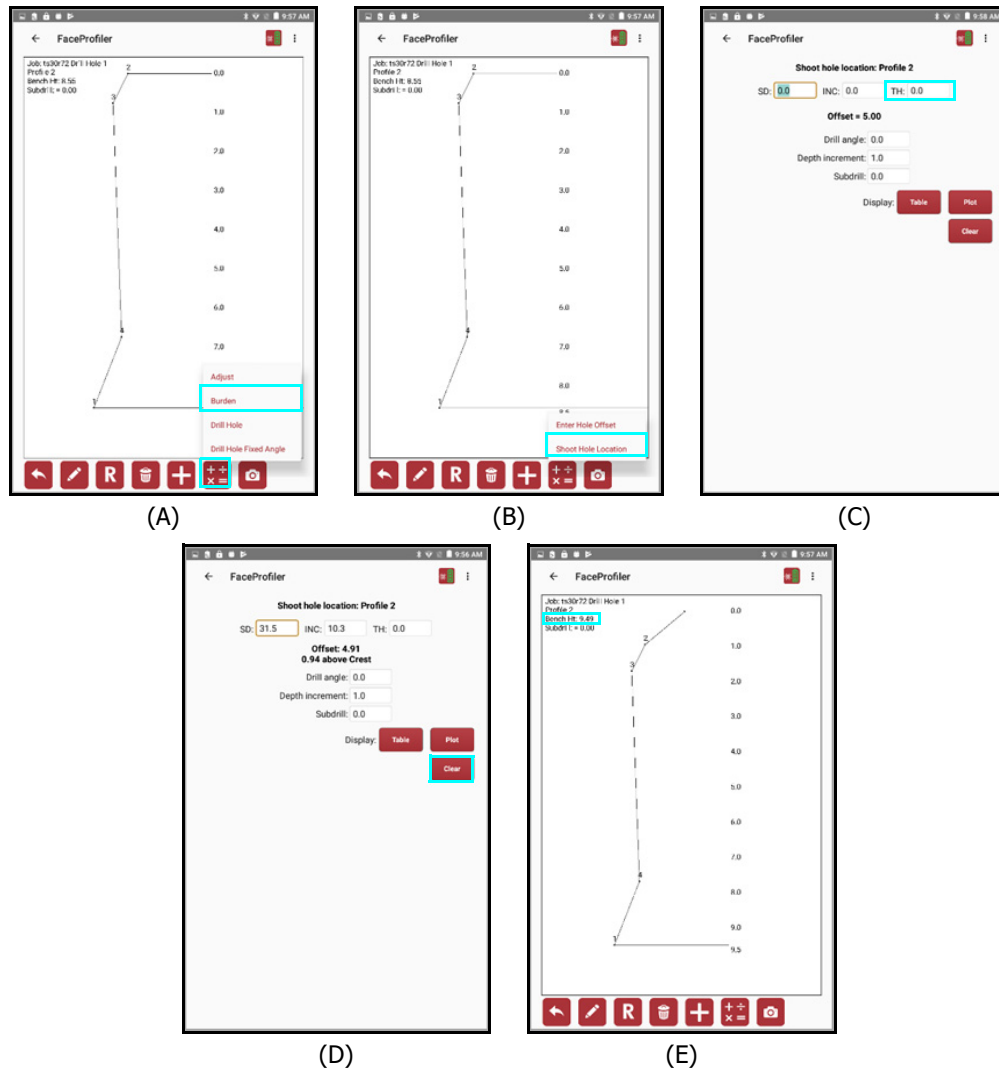



Figure 39



## Calculate Drill Hole Parameters for a Specified Burden

Refer to the instructions below to calculate drill hole parameters for a specified minimum or optimum burden. This routine will calculate the drill angle to 0.01 of a degree. Use the Fixed Angle routine (Page 32) for drill with a specific increment.

1. Tap  (Figure 40A).
2. Tap the [Drill Hole] option. Face Profiler will display the Drill Hole Calculation screen. The [Table] and [Plot] buttons will be available after the minimum or optimum burden value has been calculated.

### To calculate drill hole parameters for a minimum burden:

1. Enter the desired minimum burden in the Burden field.
2. Tap the [Calc Min] button to calculate and display the HD from crest, drill angle, and the Total Hole Depth (Figure 40B).
3. Enter any subdrill value if desired.
4. Enter the depth increment for which to calculate burden values (i.e. data displayed every 1 foot or every 3 feet down the drill hole).
  - Tap [Table] to view Depth vs. Burden data in tabular form (Figure 43, Page 33).
  - Tap [Plot] to view the calculated data as a graphic plot (Figure 44, Page 33).

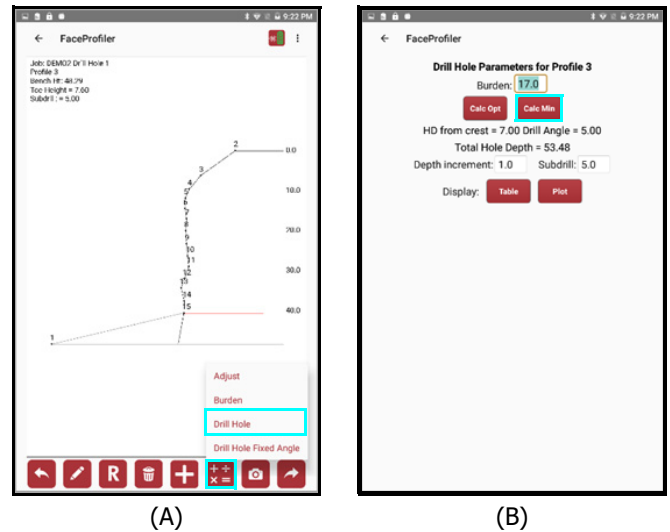


Figure 40

### To calculate drill hole parameters for an optimum burden:

1. Enter the desired optimum burden in the Burden field.
2. Tap the [Calc Opt] button (Figure 41A) to calculate and display the HD from crest, drill angle, and the Total Hole Depth (Figure 41B).
3. Enter any subdrill value if desired.
4. Enter the depth increment for which burden values will be calculated (i.e. data displayed every 1 foot or every 3 feet down the drill hole).
  - Tap [Table] to view Depth vs. Burden data in tabular form (Figure 43, Page 33).
  - Tap [Plot] to view the calculated data as a graphic plot (Figure 44, Page 33)

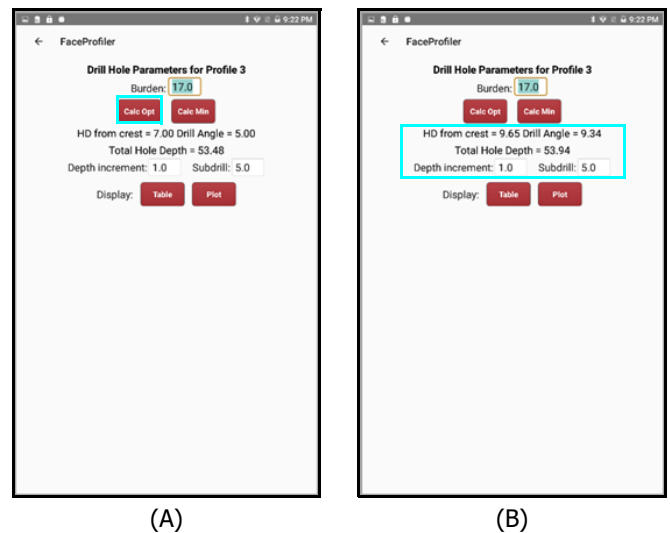



Figure 41

## Calculate Drill Holes for Specified Burden at a Fixed Angle Increment

When the drill can only be setup to operate at fixed angle increments:

1. Tap  and then the [Drill Hole Fixed Angle] option (Figure 42A).

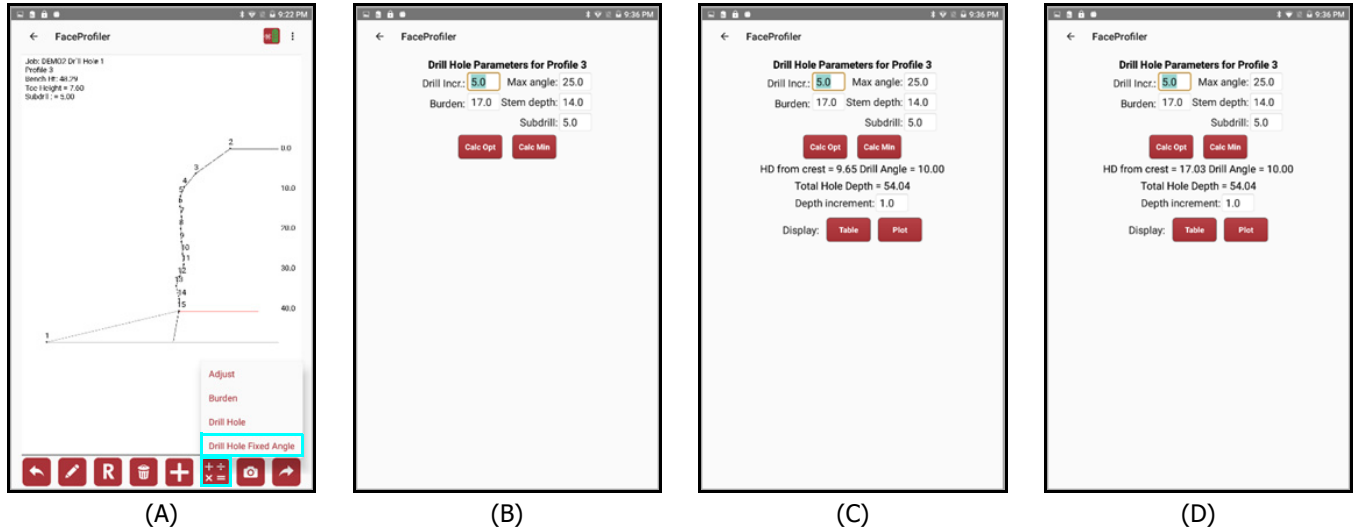



Figure 42

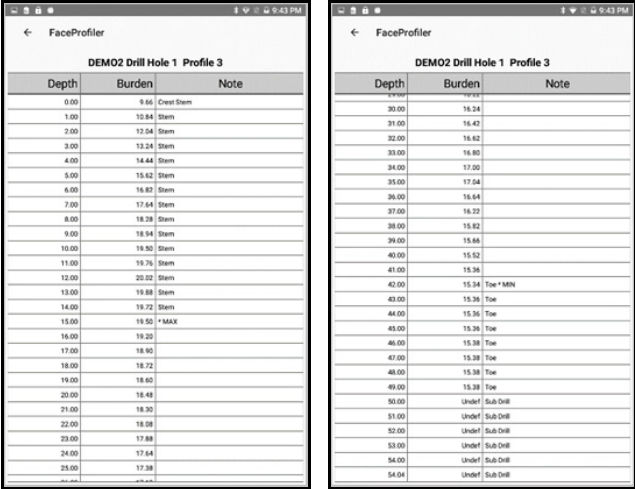
2. Enter the parameters for the Profile (Figure 42B):
  - **Drill Increment** — The precision to which the angle may be set on the drill.
  - **Max angle field** — Enter the max angle achievable by the drilling equipment to be used.
  - a desired optimum burden, check the box next to the Opt burden field and enter a value.
  - **Stem Depth** — If a stem depth was added to the profile, that value will appear in the Stem field. If not, enter a Stem value now if desired.
  - **Subdrill** — Enter a subdrill value in the subdrill field, if desired. If a subdrill was previously entered while doing other calculations, it will carry over here.
3. Once the parameters have been entered, tap [Calc Opt] or [Calc Min] to view results: Distance from crest to hole, drill angle, and total hole depth. Choose to keep or change the depth increment for the table/plot.
  - Tap [Table] to view Depth vs. Burden data in tabular form (Figure 43, Page 33).
  - Tap [Plot] to view the calculated data as a graphic plot (Figure 44, Page 33).

**NOTE** Some values will carry over from previous calculations, but the value fields are editable and can be changed at any time.

## Display Tabular Results

Refer to the instructions below to generate a tabular report.

1. Enter the information required and perform the actions needed to complete the desired calculation. For more information about the calculations, see [Page 28](#).
2. Tap the [Table] button to display the tabular depth/burden data (Figure 43A). The depths, burden values, and notes are displayed in a scrollable grid.
3. Swipe up to view the rest of the table (Figure 43B).
4. Tap  to return to the Calculation screen.




Depth	Burden	Note
0.00	9.66	Cross Stream
1.00	10.84	Stem
2.00	12.04	Stem
3.00	13.24	Stem
4.00	14.44	Stem
5.00	15.62	Stem
6.00	16.82	Stem
7.00	17.64	Stem
8.00	18.28	Stem
9.00	18.94	Stem
10.00	19.50	Stem
11.00	19.76	Stem
12.00	20.02	Stem
13.00	19.88	Stem
14.00	19.72	Stem
15.00	19.55	*MAX
16.00	19.20	
17.00	18.90	
18.00	18.72	
19.00	18.60	
20.00	18.48	
21.00	18.30	
22.00	18.08	
23.00	17.88	
24.00	17.64	
25.00	17.38	
26.00	17.10	
27.00	16.80	
28.00	16.48	
29.00	16.14	
30.00	15.78	
31.00	15.42	
32.00	15.02	
33.00	14.60	
34.00	14.16	
35.00	13.70	
36.00	13.22	
37.00	12.72	
38.00	12.20	
39.00	11.66	
40.00	11.10	
41.00	10.52	
42.00	9.92	Toe * MIN
43.00	9.30	Toe
44.00	8.66	Toe
45.00	8.00	Toe
46.00	7.32	Toe
47.00	6.62	Toe
48.00	5.90	Toe
49.00	5.16	Toe
50.00	4.40	Under/ Sub-Drill
51.00	3.62	Under/ Sub-Drill
52.00	2.82	Under/ Sub-Drill
53.00	2.00	Under/ Sub-Drill
54.00	1.16	Under/ Sub-Drill
54.04	0.30	Under/ Sub-Drill

(A) (B)

Figure 43

## Display the Burden Plot

Refer to the instructions below to generate and display a plot from the profile and drill hole data.

1. Enter the information required and perform the actions needed to complete the desired calculation. For more information about the calculations, see [Page 28](#).
2. Tap the [Plot] button. Figure 44 shows a sample plot.
3. Tap  to return to the calculation screen.
  - Burden lines are always drawn perpendicular to the drill hole by default. Horizontal lines may be drawn by checking the box in Face Profiler Options ([Page 25](#)).
  - When either a Table or Plot view is open, swipe Left/Right to view Table and Plot views.

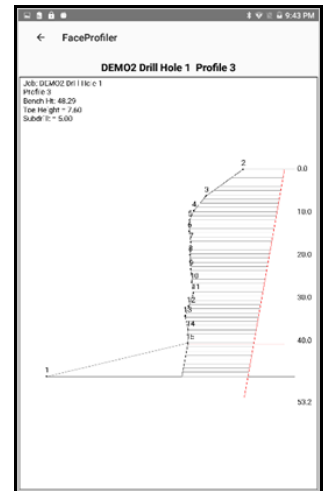




Figure 44

## Generate Profile Burden Reports

### To save a Profile Burden Report:

1. Tap  (Figure 45A).
2. Edit the filename or accept the default (Figure 45B).
3. Tap [OK] to save the file and store it in the Report folder (Page 39).
  - Tap [Cancel] to quit.

### To print a Profile Burden Report:

1. Tap  (Figure 45C).
2. Follow the prompts to specify the printer and print parameters (Figure 45D).
  - Tap [Cancel] at any time to quit the operation.

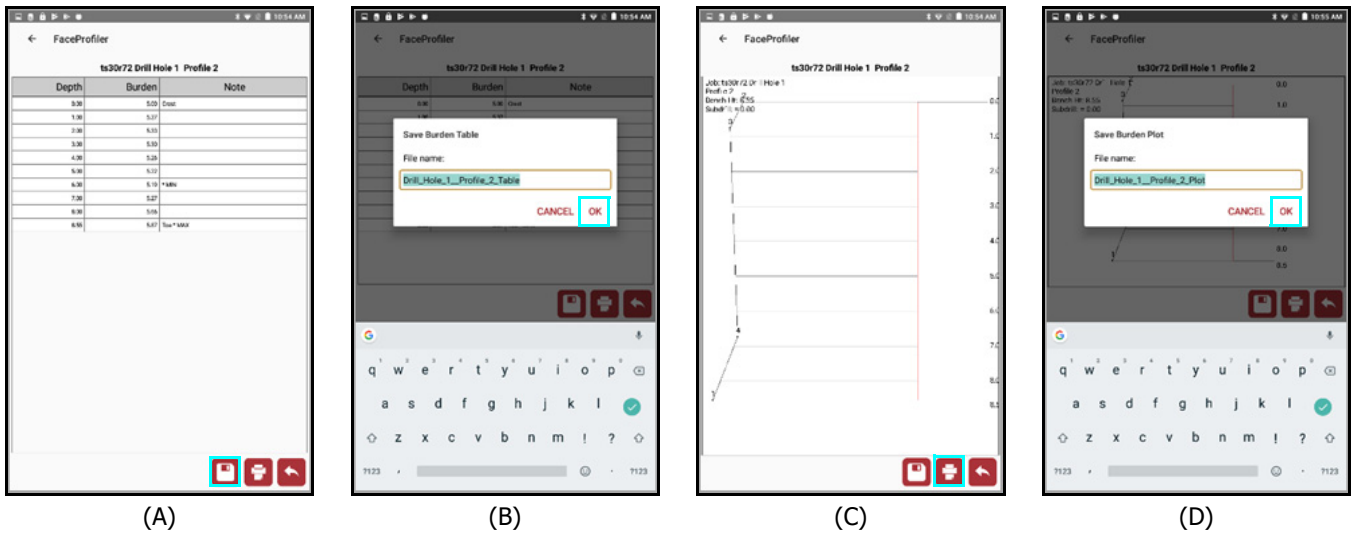


Figure 45

## Delete a Drill Hole or Profile

Refer to the instructions below to display a list of the Drill Holes associated with a particular job.

**NOTE** The Drill Hole menu is displayed when an existing job is opened.

For more information about the buttons that appear on the Job, Drill Hole or Profile Menus, see [Page 12](#).

1. Access the Drill Hole menu (Figure 46A).
2. Tap to highlight the name of the Drill Hole to be deleted.
3. Tap [Delete]. Face Profiler will require confirmation to delete the selected Drill Hole (Figure 46B).

- [DELETE] — delete the drill hole.
- [CANCEL] — abandon the operation.



Figure 46

Drill Holes can have one or more Profiles nested within them. To delete a Profile within a Drill Hole, do the following:

**NOTE** The Profile menu is displayed when an existing Drill Hole is open.

For more information about the buttons that appear on the Drill Hole or Profile Menus, see [Page 12](#).

1. Access the Profile menu (Figure 47A).
2. Tap to highlight the name of the Profile to be deleted.
3. Tap [Delete]. Face Profiler will require confirmation to delete the selected Drill Hole (Figure 47B).

- [DELETE] — delete the profile.
- [CANCEL] — abandon the operation.

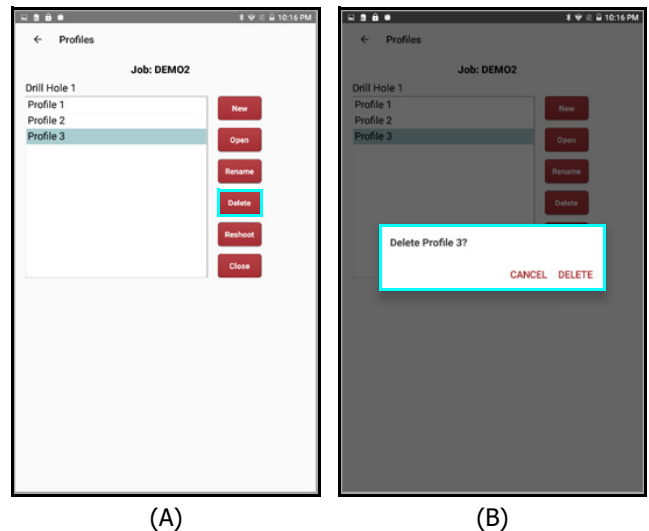



Figure 47

## Delete an Entire Job

Refer to the instructions below to display a list of the Face Profiler jobs stored on the Android device that may be chosen for deletion.

1. Access the Face Profiler Main screen and select [Saved Jobs] (Figure 48A).
2. Tap to highlight the Job to be deleted (Figure 48B).
3. Tap the . Face Profiler will require confirmation to delete the selected Job (Figure 48C).
  - [DELETE] — delete the Job.
  - [CANCEL] — abandon the operation.

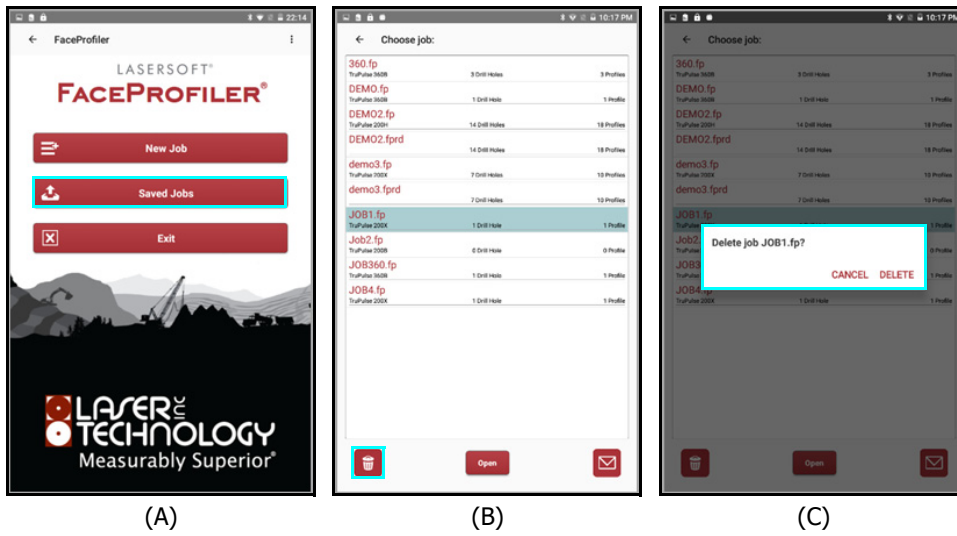


Figure 48

## Section 5 - Reports

Face Profiler can generate reports for survey data that are saved on the Android device and are transferable to a PC via cable connection or email. Saved reports can be created in a variety of different formats and can include various options.

**NOTES** Report files may also be generated for a single profile while displaying a Table or Plot from any of the calculation screens.

### Report Formats

Face Profiler can generate reports for survey data that are saved on the Android device and are transferable to a PC via cable connection or email. Saved reports can be created in a variety of different formats and can include various options.

- PDF Summary: \*.PDF file.
- Job Reports:
  - PDF: \*.PDF file.
  - Spreadsheet: \*.CSV file
  - Text: \*.TXT file.
- XY Map:
  - PNG: \*.PNG file.
  - PDF: \*.PDF file.
- Profile Lists:
  - Spreadsheet: \*.CSV file.
  - PDF: \*.PDF file.
  - Text: \*.TXT file.
- All Above Formats

## Save a Report

To save a Face Profiler report for a job:



1. Open a Job to access the Drill Hole menu and tap [Reports] (Figure 48A).
  - If the Job is already open, use  in the upper left corner of the screen to navigate to the Drill Hole menu.
2. Tap to check the boxes for the Drill Holes/Profiles to be included in the report and tap [Save As] (Figure 48B).
  - Tap to select individual drill holes.
  - Tap [Check All] to select all drill holes.
  - Tap [Clear All] to deselect all drill holes.
3. Edit the report options (Figure 48C):
  - Choose to keep the filename used when the survey was created or enter a new one.
  - Tap the Report Format drop down list to select the report format or select [All Above Formats] to get them all (Figure 48D).
  - <optional> Edit the depth increment value.
  - <optional> Tap to select your graph options:
    - Burden grid - Include a burden grid on Profile Plots
    - Horizontal burden lines - Burden lines will display horizontal whether the drill hole is angled or not.
    - Scale toe shot - Include toe shot in Profile Plot scaling.
    - Include shot table - Tap to include shot table.






Figure 48



4. Tap  to save the Reports (Figure 49A).
5. The saved reports will display in a scrolling menu in the bottom half of the screen (Figure 49B).

Tap to highlight any report in the list and tap:

-  to print.
-  to email.
-  to delete.

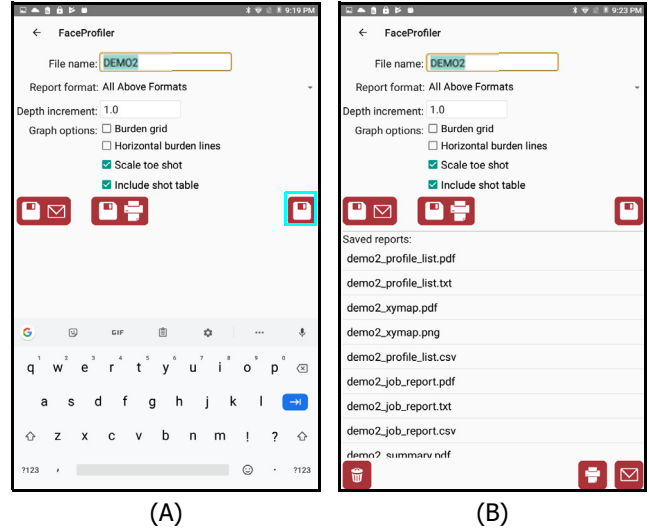


Figure 49

**NOTE** If using a cable to transfer saved reports to a PC, the reports can be found in the Face Profiler folder. Within the Face Profiler folder, a folder is automatically created and named after the Job. All reports and photos saved for a survey can be found in that folder (Figure 50).

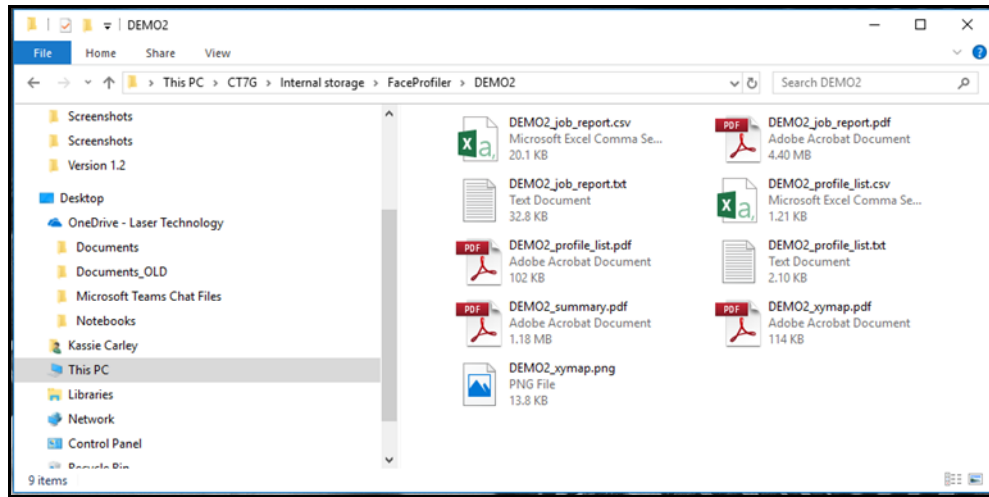

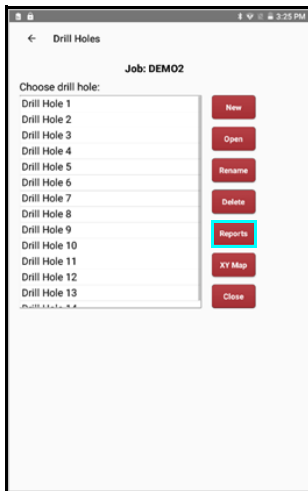


Figure 50

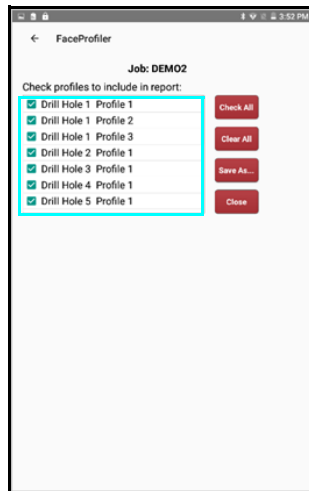
## Save and Send a Report

To save and send Face Profiler reports for a Job:

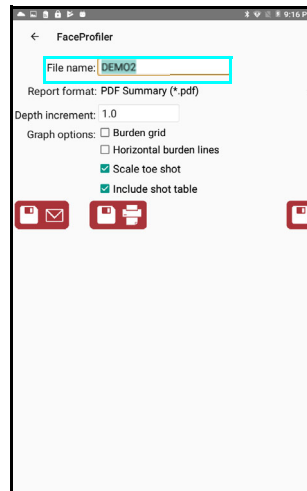
1. Open a Job to access the Drill Hole menu and tap [Reports] (Figure 51A). If the Job is already open, use  in the upper left corner of the screen to navigate to the Drill Hole menu.
2. Tap to check the boxes for the Drill Holes/Profiles to be included in the report and tap [Save As] (Figure 51B).
  - Tap to select individual drill holes.
  - Tap [Check All] to select all drill holes.
  - Tap [Clear All] to deselect all drill holes.
3. Edit the report options (Figure 51C):
  - Choose to keep the filename used when the survey was created or enter a new one.
  - Tap the Report Format drop down list to select the report format (or select All Above Formats to get them all) (Figure 51D).
  - <optional> Edit the depth increment value.
  - <optional> Tap to select your graph options:
    - Burden grid - Include a burden grid on Profile Plots.
    - Horizontal burden lines - Burden lines will display horizontal whether the drill hole is angled or not.
    - Scale toe shot - Include toe shot in Profile Plot scaling.
    - Include shot table - Tap to include shot table.



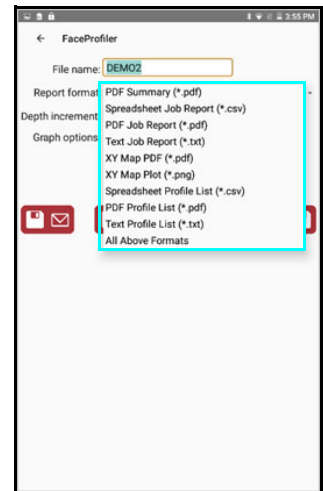
(A)



(B)





(C)



(D)

Figure 51

4. Tap  to save and send via email (Figure 52A).
5. The email options on the Android device will display. In this example, Gmail will be used to send the reports (Figure 52B).
6. The report(s) is automatically attached to the email (Figure 52C) and:
  - Sends from the default email address set up on the Android device.
  - Sends to the email address(es) assigned in Face Profiler Options (Page 25).  
- or email addresses can be entered.
  - Includes the Report file name as the email subject line.
7. Tap  (Figure 52C).

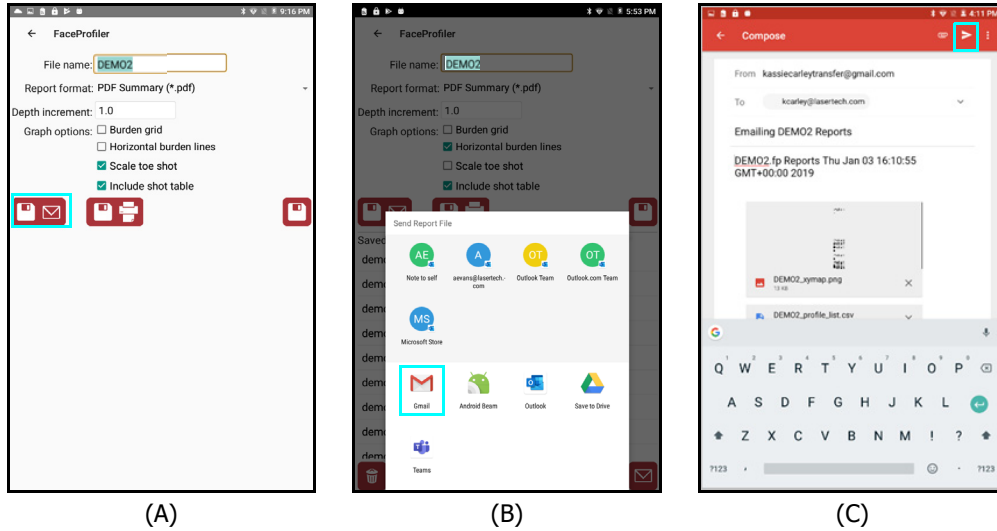



Figure 52

**NOTE** If using a cable to transfer saved reports to a PC, the reports can be found in the Face Profiler folder. Within the Face Profiler folder, a folder is automatically created and named after the survey. All reports and photos saved for a survey can be found in that folder (Page 39).

## Save and Print a Report

To save and print Face Profiler reports for a Job:

1. Open a Job to access the Drill Hole menu and tap [Reports] (Figure 53).

If the Job is already open, use  in the upper left corner of the screen to navigate to the Drill Hole menu.

2. Tap to check the boxes for the Drill Holes/Profiles to be included in the report and tap [Save As] (Figure 54A).
  - Tap to select individual drill holes.
  - Tap [Check All] to select all drill holes.
  - Tap [Clear All] to deselect all drill holes.
3. Edit the report options (Figure 54B):
  - Choose to keep the filename used when the survey was created or enter a new one.
  - Tap the Report Format drop down list to select the report format (or select All Above Formats to get them all) (Figure 54C)
  - <optional> Edit the depth increment value.
  - <optional> Tap to select your graph options:
    - Burden grid - Include a burden grid on Profile Plots
    - Horizontal burden lines - Burden lines will display horizontal whether the drill hole is angled or not.
    - Scale toe shot - Include toe shot in Profile Plot scaling.
    - Include shot table - Tap to include shot table.

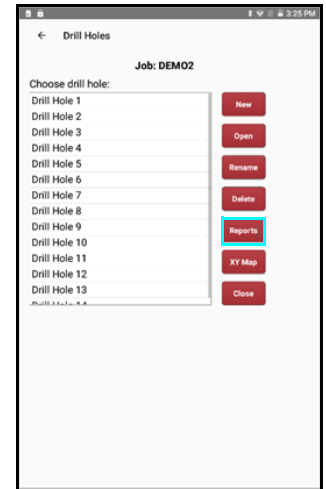



Figure 53

4. Tap  to save and print (Figure 54D).
5. The Android print setup screen will display. Select the printer that will be used and then tap Print. The printer in use must be compatible with Android device and the printer driver for the printer must be installed on the Android device in order to use this feature.

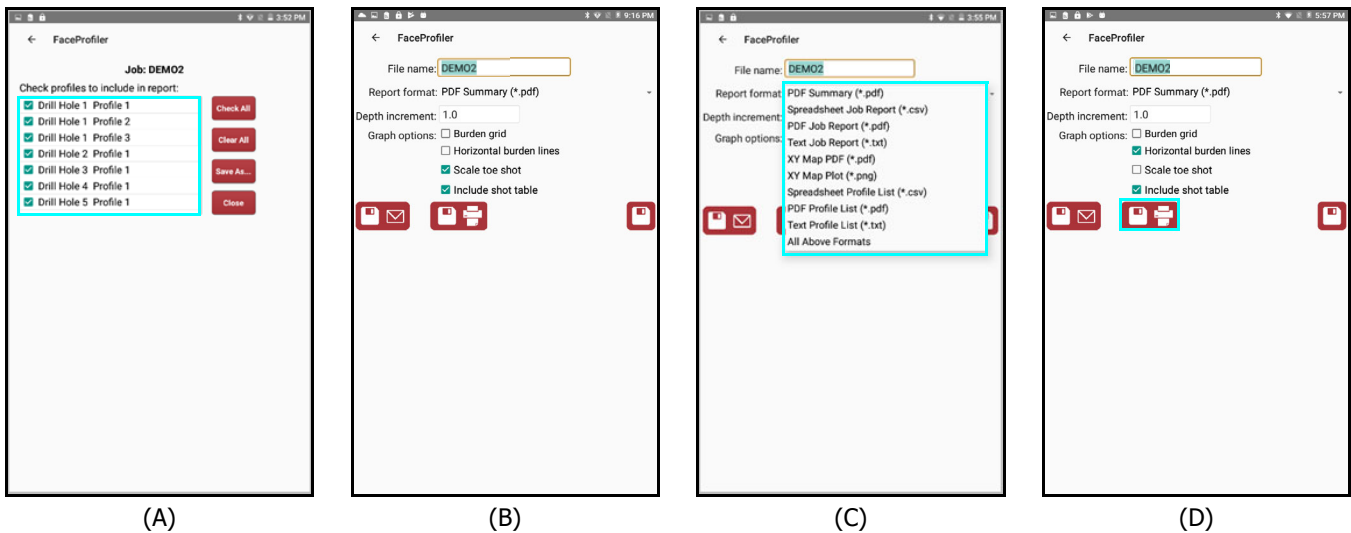




Figure 54

## Manage Saved Reports

Reports saved on an Android device can be sent, printed, or deleted from within Face Profiler. They can also be copied as a group to a PC using a cable connection. In order to manage saved reports for any Job, the Job must first be opened in Face Profiler.

### Send a Saved Report

1. Follow steps 1-3 from the Save a Report section (Page 38) to access the list of saved reports for any Job. Tap to select the Report in the scrolling list of saved reports (at the bottom half of the page) and tap  (Figure 55A).
2. The email options on the Android device will display. In this example, Gmail will be used to send the reports (Figure 55B).
3. The report(s) is automatically attached to the email (Figure 55C) and:
  - Sends from the default email address set up on the Android device.
  - Sends to the email address(es) assigned in Face Profiler Options (Page 25) - or email addresses can be entered.
  - Includes the Report file name as the email subject line.
4. Tap  (Figure 55C).

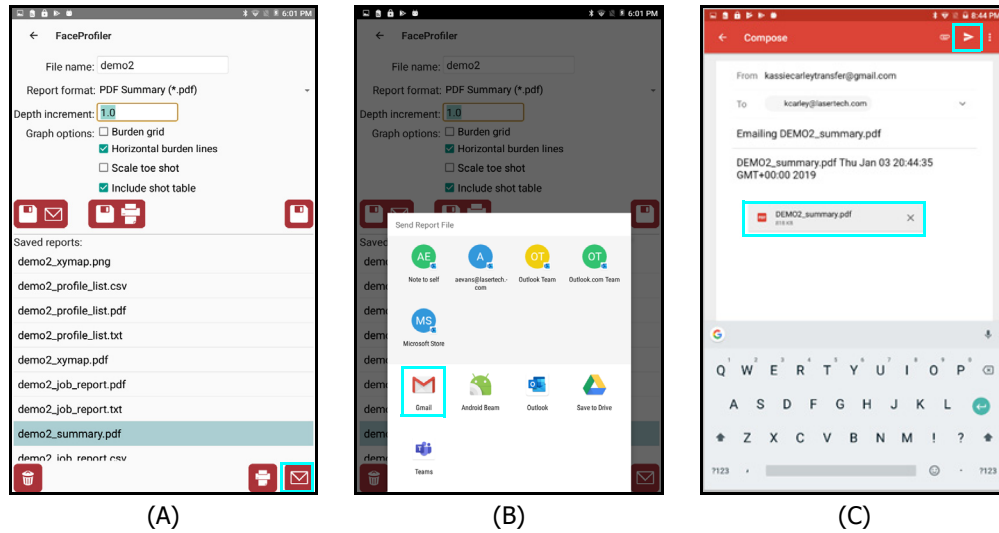



Figure 55

### Print a Saved Report

1. Follow steps 1-3 from the Save a Report section (Page 38) to access the list of saved reports for any Job.
2. Tap to select the Report in the scrolling list of saved reports (at the bottom half of the page) and tap  (Figure 56).
3. The Android print setup screen will display. Select the printer that will be used and then tap Print. The printer in use must be compatible with Android device and the printer driver for the printer must be installed on the Android device in order to use this feature.

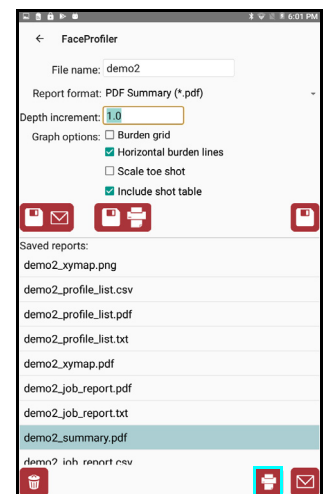



Figure 56

## Delete a Saved Report

1. Follow steps 1-3 from the Save a Report section (Page 38) to access the list of saved reports for any Job.
2. Tap to select the Report in the scrolling list of saved reports (at the bottom half of the page) and tap  (Figure 57A).
3. Tap [OK] to confirm the deletion of the report (Figure 57B).
  - Tap [Cancel] to abandon the operation.

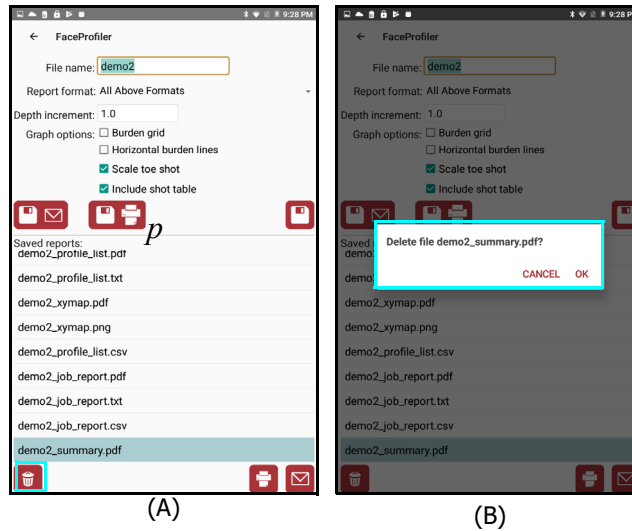


Figure 57

## Transfer Reports/Data to a PC

In addition to email, saved reports can also be transferred to a PC via the USB cable that accompanies the Android device. When Face Profiler is installed on a Android device, it creates a folder called Face Profiler for storing program settings, reports, and \*.FPRD format Job files. The \*.FPRD survey files can only be opened within Face Profiler and are located in a sub-folder called "Data". In addition to transferring survey reports to a PC, it is also a good idea to copy \*.FPRD files over as well once all edits and changes to the survey are complete. An \*.FPRD file can always be copied back over to the Android device if it becomes necessary to add more data points to a survey or make any other changes - and then reports can be re-created based on the updated file.

1. Connect the Android device to a PC with the USB cable that accompanies the device. Android devices typically connect as if they are a "Removable Disk" or external hard drive. If you are not using a tablet purchased through LTI, your device may connect differently. Please refer to the manual that shipped with your device to understand how it connects to a PC.
2. Swipe down from the top of the Android device screen to display the connection options for the Android device (Figure 58A).
3. Tap to select [File Transfer] from the USB connection options. If the Android device is set only to charge, it will not show up as a "Removable Disk" (Figure 58B).

**NOTE** Steps 2 and 3 typically only need to be done one time. The change is remembered by the device and the device only needs to be connected to the PC via cable from this point forward.

4. On the PC, open File Explorer and select the Removable Disk option that coincides with the Android device. In this example, it is "CT7G." When the drive is selected, its contents display on the right side of the File Explorer screen.
5. Double-click the Face Profiler folder (Figure 58C).

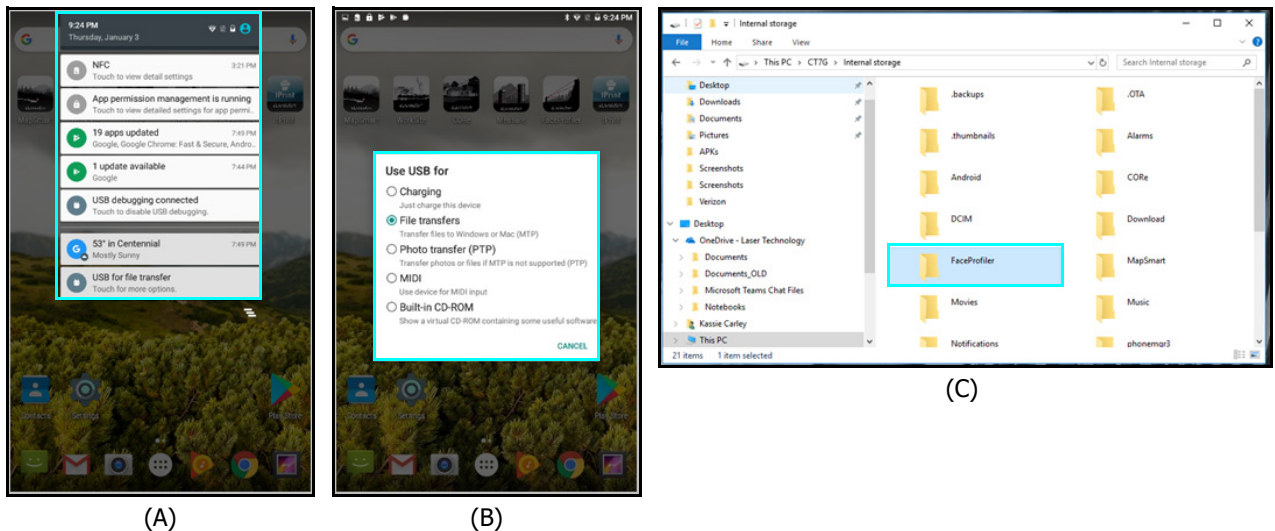


Figure 58

Continued on Next Page

6. Double-click the folder that coincides with the Job name and the saved Job reports will display (Figure 59A). Copy any of the individual reports, or copy the entire folder to transfer all the reports for the survey by highlighting them and then right-click/copy with your mouse.
7. Create a folder on your PC for storing your Face Profiler reports and \*.FPRD files. Double-click the folder, and then right-click/paste with your mouse.

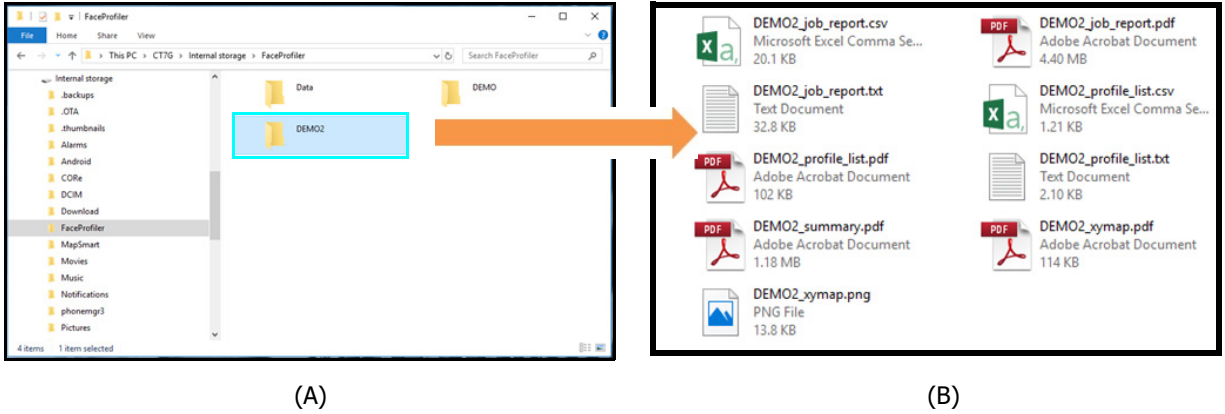


Figure 59



## Sample Reports

### Job Reports (\*.CSV, \*.TXT, \*.PDF)

Job reports include each of the items below. Please see Sample PDF Job Report (Figure 60):

- Job Name
- Drill Hole Number
- Drill Hole Description (if any)
- Profile Number
- Profile Description (if any)
- Date Created
- Date Modified
- Origin Coordinates
- Bench Height
- Stem Depth (if any)
- Toe Height (if any)
- Drill Offset
- Drill Angle (if any)
- Hole Depth
- Calculated Sub Drill (if any)
- Total Hole Depth
- Burden Plot (\*.PDF only)
  - Floor Shots, Burden Grid and Horizontal Burden lines - can be displayed if the boxes are checked (Figure 48C, Page 38).
- Depth/Burden Table with Notes
- Shot Table - Displayed in all formats but can be turned off PDF Job Report if needed.

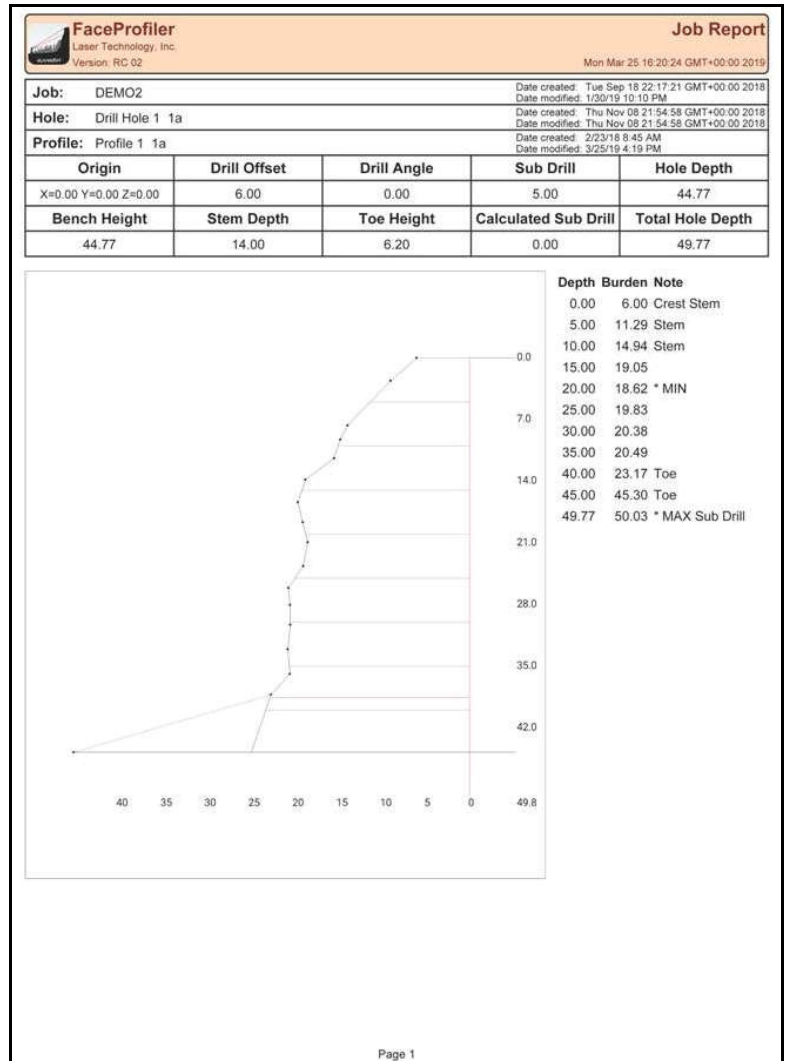


Figure 60

**Profile List Reports** (\*.CSV, \*.TXT, \*.PDF)

The Profile List report consists of a list of all the profiles in a job and includes the items listed below. See sample PDF Profile List report (Figure 61):

- Job Name
- Total Number of Drill Holes in the Job (PDF only)
- Total Number of Profiles in the Job (PDF only)
- Drill Hole Number
- Profile Number
- Bench Height
- Drill Offset
- Drill Angle (if any)
- Sub Drill (if any)
- Stem Depth (if any)
- Toe Height (if any)
- Total Hole Depth
- Profile Note

FaceProfiler									
Laser Technology, Inc.								Profile List	
Version: RC 02								Mon Mar 25 16:21:59 GMT+00:00 2019	
Job	Drill Holes	Profiles							
DEMO2	14	18							
Drill Hole	Profile	Bench Height	Drill Offset	Drill Angle	Sub Drill	Stem Depth	Toe Height	Hole Depth	Note
Drill Hole 1	Profile 1	44.77	6.00	0.00	5.00	14.00	6.20	49.77	1a
Drill Hole 1	Profile 2	48.19	6.00	15.00	5.00	15.00	5.30	54.89	
Drill Hole 1	Profile 3	48.29	9.65	10.00	5.00	14.00	7.60	54.04	
Drill Hole 2	Profile 1	47.25	6.00	5.00	5.00	14.00	5.70	52.43	
Drill Hole 3	Profile 1	46.08	9.00	5.00	5.00	14.00	5.20	51.25	
Drill Hole 4	Profile 1	46.06	8.00	5.00	5.00	14.00	10.00	51.23	
Drill Hole 5	Profile 1	46.03	9.00	5.00	5.00	0.00	8.50	51.20	
Drill Hole 6	Profile 1	46.84	10.00	5.00	5.00	14.00	9.40	52.02	
Drill Hole 7	Profile 1	45.37	18.00	5.00	5.00	14.00	14.60	50.55	
Drill Hole 8	Profile 1	44.26	14.00	5.00	5.00	14.00	14.90	49.43	
Drill Hole 8	Profile 2	41.08	12.59	5.00	5.00	36.00	0.00	46.24	
Drill Hole 9	Profile 1	41.95	10.74	0.00	5.00	30.00	0.00	46.95	
Drill Hole 10	Profile 1	43.45	12.57	0.00	5.00	38.00	0.00	48.45	
Drill Hole 11	Profile 1	39.71	11.41	0.00	5.00	33.10	1.20	44.71	
Drill Hole 12	Profile 1	31.28	14.31	0.00	5.00	14.00	0.00	36.28	
Drill Hole 13	Profile 1	25.49	15.78	0.00	5.00	14.00	0.00	30.49	
Drill Hole 14	Profile 1	10.99	17.73	0.00	5.00	0.00	0.00	15.99	
Drill Hole 14	Profile 2	25.23	17.78	0.00	5.00	12.00	0.00	30.23	

Figure 61

**Profile Summary Report (\*.PDF)**

The Profile Summary report consists of up to three profiles per page (depending on the size of the depth/burden table) and includes the items listed below. See sample PDF Profile Summary report (Figure 62):

- Job Name
- Hole Number
- Profile Number
- Profile Description (if any)
- Date Created
- Date Modified
- Origin Coordinates (if any)
- Bench Height
- Drill Offset
- Drill Angle (if any)
- Sub Drill (if any)
- Hole Depth
- Stem Depth (if any)
- Toe Height (if any)
- Calculated Sub Drill (if any)
- Total Hole Depth
- Burden Plot
- Depth/Burden Table with Notes

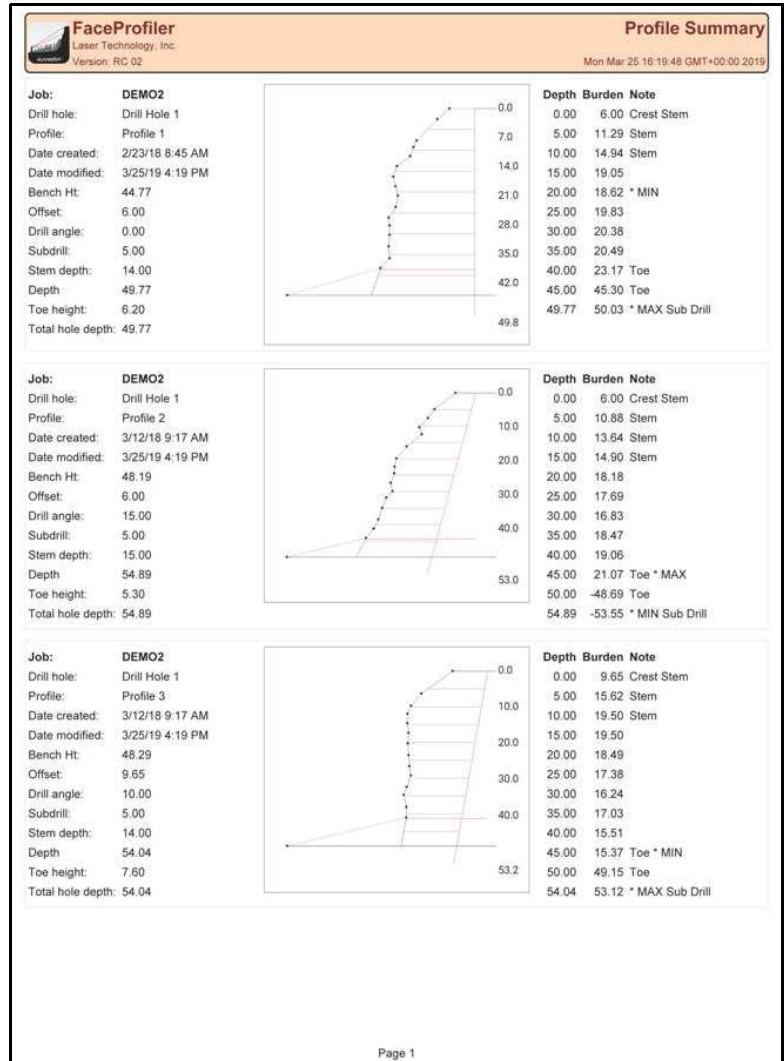


Figure 62

## Section 6 - Face Profiler Reports for Windows

Face Profiler Reports installs on Windows PCs for use in adjusting, calculating, and creating reports for profiles measured in the field with Face Profiler. This software works exactly the same as Face Profiler (Windows Mobile) for these functions, except that it installs on a PC and can print to any network printer.

**NOTE** Any files created using previous versions of Face Profiler (before version 5.0) are not compatible with Face Profiler Reports. Only files measured with versions 5.x or newer can be viewed and edited with this free reporting program.

### Install PC Reports

1. Navigate to the folder PC Reports on the CD that shipped with the equipment. This software may be downloaded for free from: <https://www.lasertech.com/Face-Profiler.aspx>
2. Double-click the FaceProfilerReports1.0.msi file to install. Click through the prompts to complete installation.
3. Click the Face Profiler Reports desktop icon to launch the program (Figure 63).

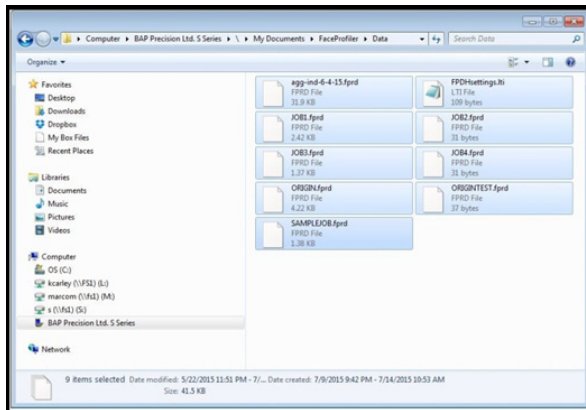


Figure 63

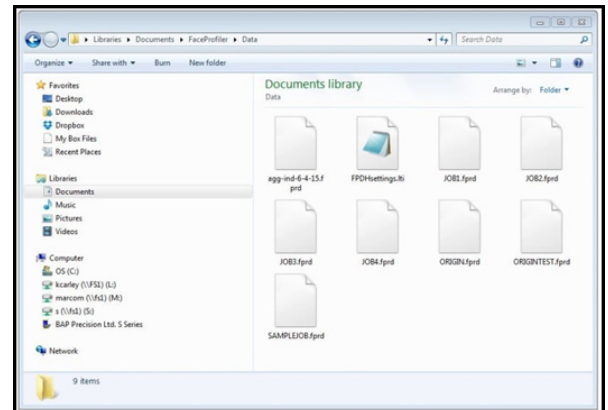
### Transfer Job Files to the Office PC

Moving Job files to the Office PC is very similar to the steps used to transfer reports to the Office PC (Page 45). The only difference is file location, both on the Android device and the Office PC.

- Job file location on the Android device: My Documents/Face Profiler/Data. (Figure 64A).
- The Job files must be pasted to this location on the Office PC: Documents/Face Profiler/Data (Figure 64B).



(A)



(B)

Figure 64

## Main Screen Overview

This section includes a detailed description of the Face Profiler Reports interface icons. All of these functions are available through the menus at the top of the screen. These menus are a mirror image of the choices on the Face Profiler for Android version v1.x. Also, like many Windows programs, descriptions of each icon appear when the mouse is rested on that icon. Depending on whether a Job is currently open, some icons may be inactive.

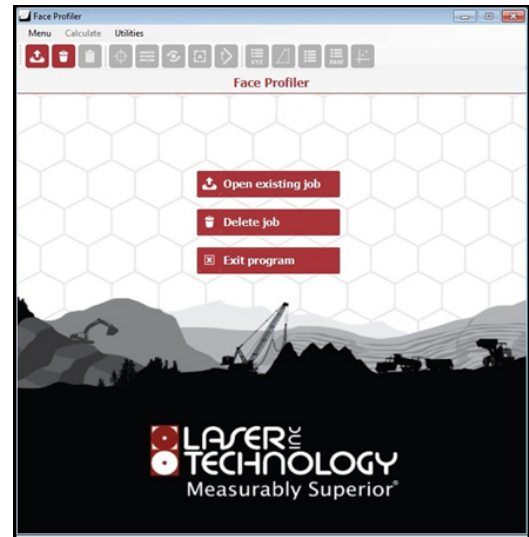



Figure 65

Icon	Description	How to
	Open an existing Job.	<a href="#">Page 12</a>
	Delete an entire Job (including all Profiles contained within the Job).	<a href="#">Page 36</a>
	Generate reports from profile data.	<a href="#">Page 38</a>
	Return to the profile screen from table and calculations screens.	<a href="#">Page 20</a>
	Make adjustments perform performing calculations: angle, offset, toe, Stem depth, and Toe height.	<a href="#">Page 26</a>
	Enter burden value to receive drill hole placement.	<a href="#">Page 31</a>
	Manually enter drill hole offset (measured or anticipated).	<a href="#">Page 28</a>
	For drill hole placement when drill has fixed angle increments and/or a max angle at which it can operate.	<a href="#">Page 32</a>
	Display coordinate table for open profile (Point #, X, Y, Z, and Note).	<a href="#">Page 20</a>
	Display the burden plot for the open profile.	<a href="#">Page 33</a>
	Display the burden table for the open profile (Depth, Burden, and Note).	<a href="#">Page 33</a>
	Display shot table for open profile (Point #, Azimuth, Slope Distance, Inclination, and Note).	<a href="#">Page 21</a>
	Display the XY Map of profiles and instrument positions for an open Job.	<a href="#">Page 22</a>
	Exit the PC Reports program.	<a href="#">Page 9</a>

## Printing

1. When a profile is open, click on the  button (Figure 66A).
2. Check the Drill Holes to be printed and then click [Print] (Figure 66B).
3. Select Print Options and click [Print] (Figure 66C).
  - **Report Type** — Choose Profile Details, Profile List or Profile Summary.
  - **Burden Interval** — Enter a value for desired depth and burden data to display down the profile (i.e. every 1 foot or 1 meter).
  - **Burden Grid** — Check to show horizontal and vertical lines on profile plots.
  - **Horizontal Burden Lines** — Check to make burden lines stay horizontal for angled holes.
  - **Print Shot Table** — Check to include a table of shot measurements with depth and burden data.
4. Select Printer and then click [OK] (Figure 66D).

**NOTE** If Adobe Acrobat is installed on the PC, the option for Adobe PDF will display in the list of available printers. Select this option to print to PDF if desired.

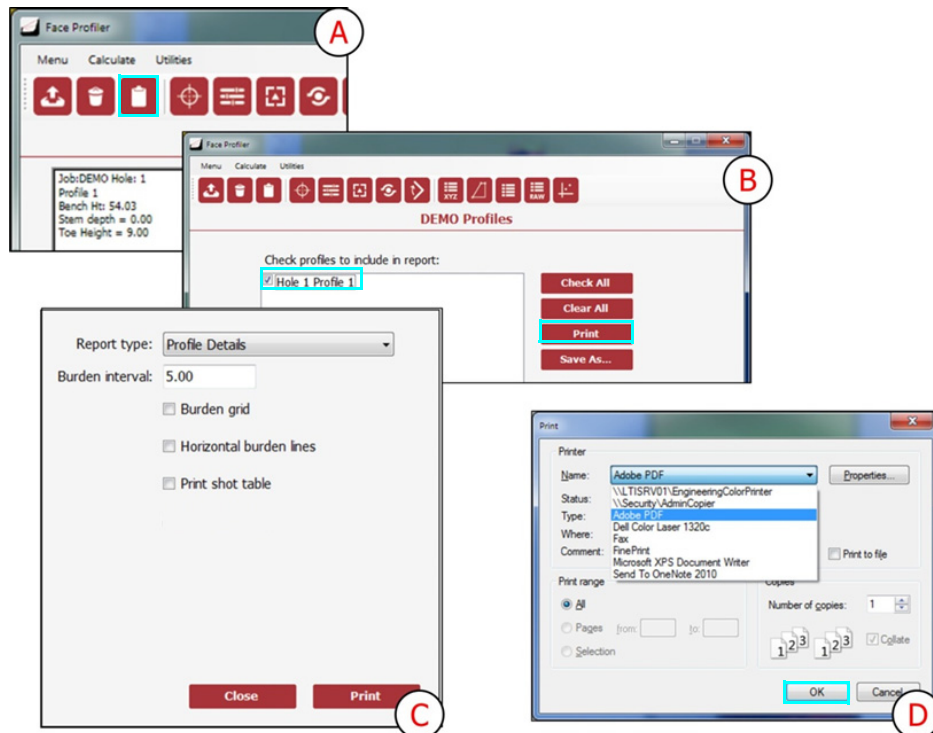


Figure 66

## Appendix A - Glossary

Term	Definition as Used Within Face Profiler	See Figure 67 on Page 54
<b>Bench</b>	A horizontal ledge from which holes are drilled vertically, or at a slight inclination, down into the material to be blasted.	<b>G</b>
<b>Bench Height</b>	The vertical distance from the top of the bench to the floor or to the top of the next lower bench.	<b>N</b>
<b>Best Fit Line</b>	Mathematical representation of the free face. The slope of which will be the optimum drill hole angle; and the position of which will be used as a reference for calculating the drill hole offset.	<b>D</b>
<b>Burden</b>	The distance between the bore hole and the nearest free face or the distance between bore holes measured perpendicular to the spacing. Also the total amount of material to be blasted by a given hole, usually measured in cubic yards, cubic meters, or tons.	<b>C</b>
<b>Crest</b>	The intersection point created by the top of a bench and the free face.	<b>F</b>
<b>Depth Increment</b>	User-defined spacing along the drill hole depth at which to calculate burden values for the tabular reports and plot views.	<b>L</b>
<b>Drill Hole</b>	Hole drilled vertically from the bench, behind the free face, in which explosives are placed for blasting.	<b>I</b>
<b>Drill Hole Angle</b>	The angle of the drill hole with respect to the vertical. Measured in positive degrees towards the face and negative degrees away from the face.	<b>O</b>
<b>Drill Hole Depth</b>	Distance down the drill hole starting from the bench to where the hole intersects the plane projected from the floor into the face.	<b>J</b>
<b>Drill Hole Offset</b>	The distance a given drill hole is located back from the crest. Measured along the top of the bench.	<b>H</b>
<b>Floor</b>	The surface that establishes working elevation out in front of the free face.	<b>A</b>
<b>Free Face or Face</b>	A rock surface exposed to air or water, which provides room for expansion upon fragmentation; sometimes called an open face.	<b>E</b>
<b>Minimum Burden</b>	The minimum amount of material to be blasted by a given bore hole or the minimum amount of burden between a given hole and the free face that should not be exceeded.	<b>M</b>
<b>Optimum Burden</b>	The burden that is calculated based upon the amount of material that can be blasted by a given bore hole, which produces the best overall results.	<b>K</b>
<b>Seam</b>	Layer of loose or unconsolidated material within the face.	<b>Q</b>
<b>Stem Depth</b>	Depth down to the bottom of an overlying layer of loose or unconsolidated material.	<b>R</b>
	Stemming: The practice of placing inert material in the drill hole corresponding to depths of seams or other loose material.	
<b>Subdrill</b>	The practice of drilling boreholes below floor level or working elevation to insure breakage of rock to working elevation.	<b>P</b>
	Calculated Subdrill: In the case of an angled hole, this is the depth below the floor which is needed to position the bottom of the hole perpendicular to the Toe	
<b>Toe</b>	The intersection point created by the floor and the free face.	<b>B</b>
<b>Toe Height</b>	The vertical distance from the floor to the point where the top of the slough material meets the face.	<b>S</b>
<b>Total Hole Depth</b>	The sum of the Drill Hole Depth plus the Subdrill Depth.	<b>J P</b>

<sup>1</sup>Some of these definitions are from the Society of Explosives Engineers, Inc. *ISEE Blaster's Handbook, 17th Edition* (International Society of Explosives Engineers, Cleveland, OH, 1998, second printing 2000).

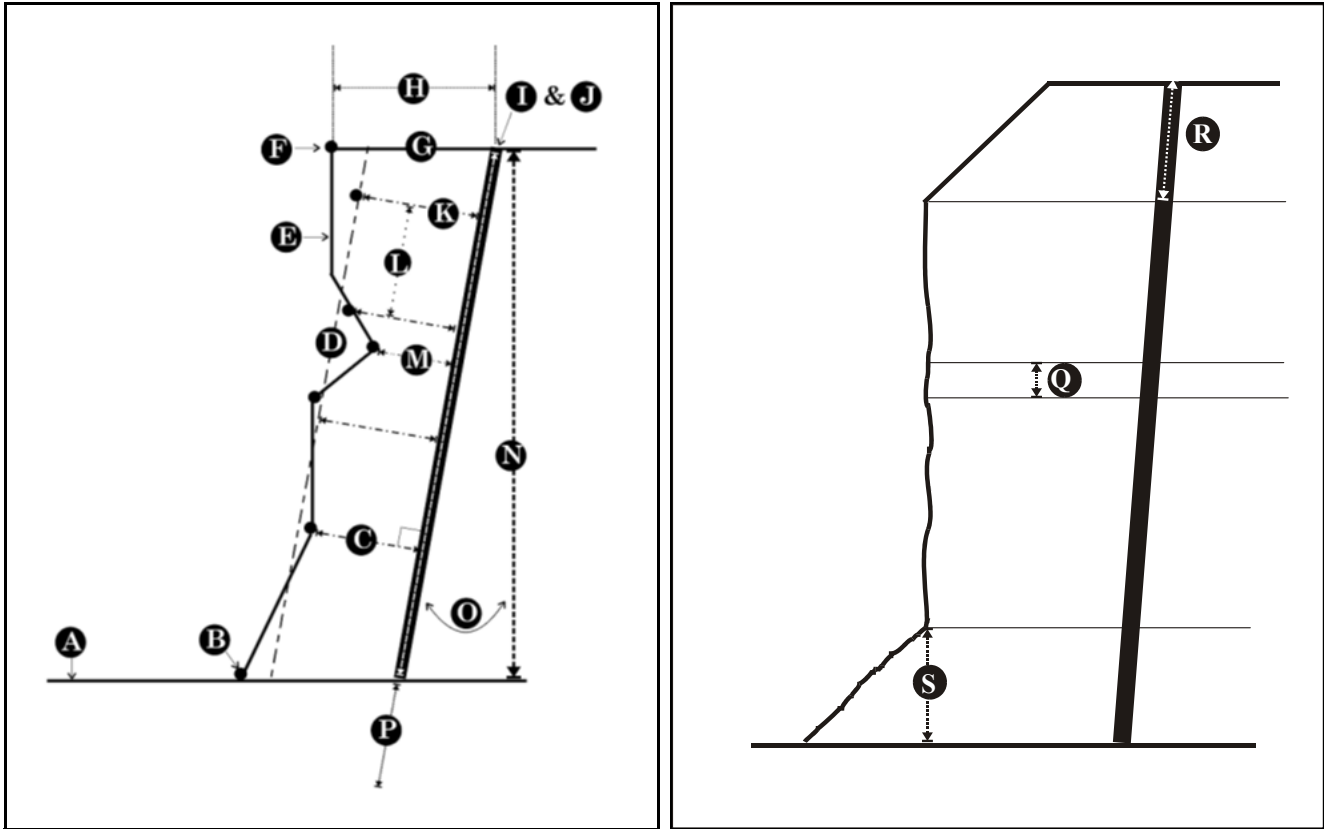


Figure 67



## Appendix B - Uninstall Face Profiler

Uninstall Face Profiler and then delete all Jobs and Reports to completely remove the app and all related files. The steps shown here are derived using a device running Android 6. Other devices running newer Android operating systems will require similar steps, but may not be exactly the same.

### Uninstall Face Profiler

1. Locate and tap the Settings icon on the Android device.
2. Tap [Apps] on the Settings list.
3. Tap Face Profiler.
4. Tap [Uninstall].
5. Tap [OK] to confirm.
  - Tap [Cancel] to abandon the operation.

### Delete All Jobs and Reports

Access Jobs and Reports files using the instructions from Transfer Reports/Data to a PC ([Page 45](#)). Right click on the Face Profiler folder and select [Delete].

## Appendix C - Troubleshooting Tips

**NOTE** Face Profiler for Android does not support Android devices running Android operating systems 6.0 and later. To check the version of the operating system of the Android device, navigate to "Settings" and then "About." Remedy steps may vary slightly depending on the specific Android device used.

Problem	Remedy
No communication between the laser and the Android device.	<ul style="list-style-type: none"> <li>• Tap the Laser Connection Indicator icon at the top of the data collection screen and try to take another measurement.</li> <li>• Verify that the Bluetooth feature in the laser is set to BT_Enc (when using a TruAngle) or BT_On (without a TruAngle).</li> <li>• Ensure that the laser is paired to the Android device via Bluetooth (Page 5). Lasers can only be paired to one device at a time.</li> <li>• If using a TruAngle: ensure that the 4pin to 4pin cable connecting the laser to the TruAngle laser connector is securely in place. Also verify that the TruAngle firmware is version 1.17 or better. Refer to the TruAngle manual for more information.</li> </ul>
The Android device locked up or doesn't seem to be working properly.	Power the Android device off and back on again. Press and hold the power button to see the options for resetting the device. No matter what, each measurement is saved as it is taken, and no data will be lost.
An error message was displayed while working in Face Profiler.	<p>Error messages are often self-explanatory. Clear the message and correct the error before proceeding. If the error continues, restart Face Profiler. If the error persists, reset the Android device (see above).</p> <p>Go to Face Profiler Help and select Email Tech Support to send a diagnostic file to support@lasertech.com</p>
A point was accidentally deleted.	Reshoot or manually re-add the data point. Point deletions cannot be undone.
Cannot see Android device as a "Removable Disk" when connected to a PC with the USB cable.	When the Android device is connected with the USB cable, swipe down from the top of the Android device screen and check the USB connection options. Ensure that "Mount SD Card" is selected and ensure that USB debugging is enabled. USB debugging options can be found in Settings/Developer Options on most Android devices.
Cannot save reports when trying to transfer them to a PC using a cable.	The Android device cannot be connected to the computer when reports are being saved. Unplug the cable, save the reports, and then plug the cable back in to access saved reports.