# VRI-iS
# Pivot Prescription Software
## Version 8.55

## User Guide

**0980276_0**

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# General Information

## About this User Guide

This user guide illustrates the proper installation and use of the Pivot Variable Rate Irrigation Individual Sprinkler (VRI-iS) Prescription software. This product works with the following 32- or 64-bit operating systems: Windows 7, Windows 8 or Windows 10.* And, it requires that Microsoft .NET, version 4.0 be installed.

All information in this manual is based on information available at the time of printing. Valmont Industries Inc. reserves the right to make changes at any time without notice and without incurring any obligation. Specifications are applicable to equipment sold within the United States, and may vary outside of the United States.

## Minimum Hardware Requirements

- 8 GB RAM
- i5 Processor - 2.0 GHz
- Intel HD Graphics 4400
- 128 GB Hard Drive
- USB 2.0 port with USB to serial adaptor Valmont part no. 0178021
- Wi-Fi Capability
- Serial connection (USB to RS232 converter).

### Valmont Recommended Laptop or Tablet Computer:

GETAC V110 or F110 preloaded with Valmont Applications available at www.integron.com/valley. This recommendation meets all the above minimum hardware requirements.

## Software and Manuals

Flash Drive delivery of Prescription Software and User Guides.

- Insert flash drive into the USB port, go to Windows Explorer and select the flash drive to access:

> **NOTE**
>
> **•Uninstall all previous versions of VRI prescription software from the computer before installing the new version.**

  - » Prescription Software, Open and run setup.exe
  - » User Guides, Adobe Reader 8.0, or later, recommended for viewing User Guides.

* Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

# Overview

### VRI-iS Control

Valley's Pivot Variable Rate Irrigation individual Sprinkler (VRIiS) operates with every sprinklers on the machine working individually. A prescription map assigns an application percentage to each sprinkler for every 1/10th of a degree of the field.

### Prescriptions

VRI Prescription software creates the irrigation plan that tells the irrigation system when and where to adjust the application depth in each sector in the field. This plan can be based on topography information, soil data maps, yield data, and other user-defined information.

# Introduction

## Glossary of Terms and Acronyms

The following are definitions of terms and acronyms used in this manual.

**AgSense ComanderVP** – Remote monitoring and communication device used to report changes in equipment operation to the user and to communicate user-initiated control commands to the equipment control panel.

**Base Station** – The combination of a computer with control software and hardware that is used to remote control or monitor a device. (i.e. a pivot or pump controlled with a computer).

**Center Pivot Irrigation** - A form of sprinkler irrigation consisting of several segments of pipe joined together in a span and supported by trusses, mounted on wheeled towers with sprinklers positioned along the length of the span. The system moves in a circular pattern and is fed with water from the pivot point at the center of the arc.

**GPS (Global Positioning System)** - A space-based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites.

**North Offset Angle** - An angular offset, in degrees, relative to the North Pole (zero-degrees north). This indicates the 0-degree pivot position for grid.

**Prescription** - Irrigation plan that tells the center pivot when and where to adjust the application percentage (depth) in specific irrigation management sectors in the field.

**Pivot Point** - The center point of the irrigation system which feeds water to all of the sprinklers in the spans.

**Pivot Length** - Length of the pivot as measured from the pivot point to the end of the machine which includes the overhang.

**Pivot Project** - Collection of all prescriptions related to a single pivot. One project per pivot.

**Pivot Road** - Road/path/line from the center of the pivot to the outer ring, preferably on a zero-degrees north angle.

**Remote Telemetry** - Measurement and transmission of data from a remote source.

**RTU ID (Remote Telemetry Unit Identification)** - Three-digit, user-defined number identifying the remote telemetry device associated with the pivot.

**Sprinkler Package** - A group of sprinklers with each sprinkler designed to deliver a specific amount of water based upon the sprinklers position along the length of the machine. This package also includes pressure regulators and required components to install the sprinkler on top, on the side or below the span pipeline.

**Road Angle** - Angle of road off of zero-degrees north. Valid values are 0 through 359.

**VRI** - Variable Rate Irrigation.

**VRI-iS – Variable Rate Irrigation individual Sprinkler.**

**Watering Rates** – Percent of water application depth.

## Create a Working Folder

Before you begin creating a pivot project, you must create a working folder. The working folder is where all the new pivots (projects), maps, images, and prescriptions, that you create or select with the Variable Rate Irrigation (VRI) Prescription software, are stored. The suggested format is as follows. See Figure 7-1.

Drive

- VRI Files
  - Folder <Name of Pivot A>
  - Folder <Name of Pivot B>
  - Folder <Name of Pivot C>
  - Folder <Name of Pivot D>
    - Images Folder
    - Maps Folder
    - Pivots-Projects Folder
    - Prescriptions Folder

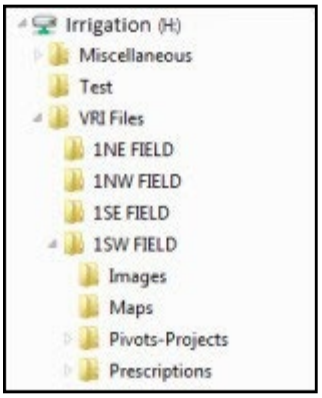


Figure 7-1 Folder format

## Opening the VRI Application

To open the VRI application, double click on the VRI icon on your desktop. (Refer to Figure 7-2.)

Figure 7-2 VRI Icon

The Project Selection screen appears. Choose VRI iS and Pivot then click OK. The Variable Rate Irrigation individual Sprinkler screen for Pivots appears. See Figure 7-3

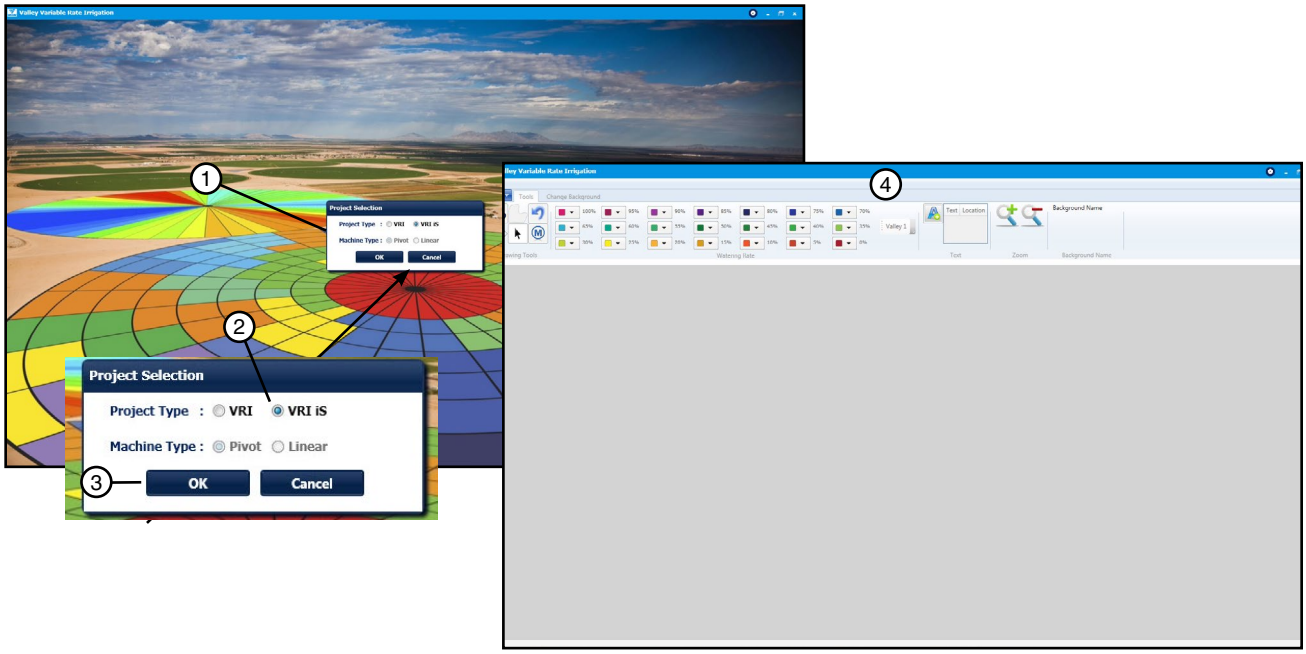


Figure 7-3
1. Project Selection screen
2. Choose VRI iS
3. Click **OK**
4. Variable Rate Irrigation screen appears

# Create a Project and Prescription

## Creating a Pivot Project

**Note:** Within VRI iS, each project defines one pivot. Each project can have multiple prescriptions. Multiple pivots will require multiple projects.

To create a VRI iS project, select **New Project** from the VRI drop-down menu. See Figure 8-1.

The Add New Pivot screen appears.

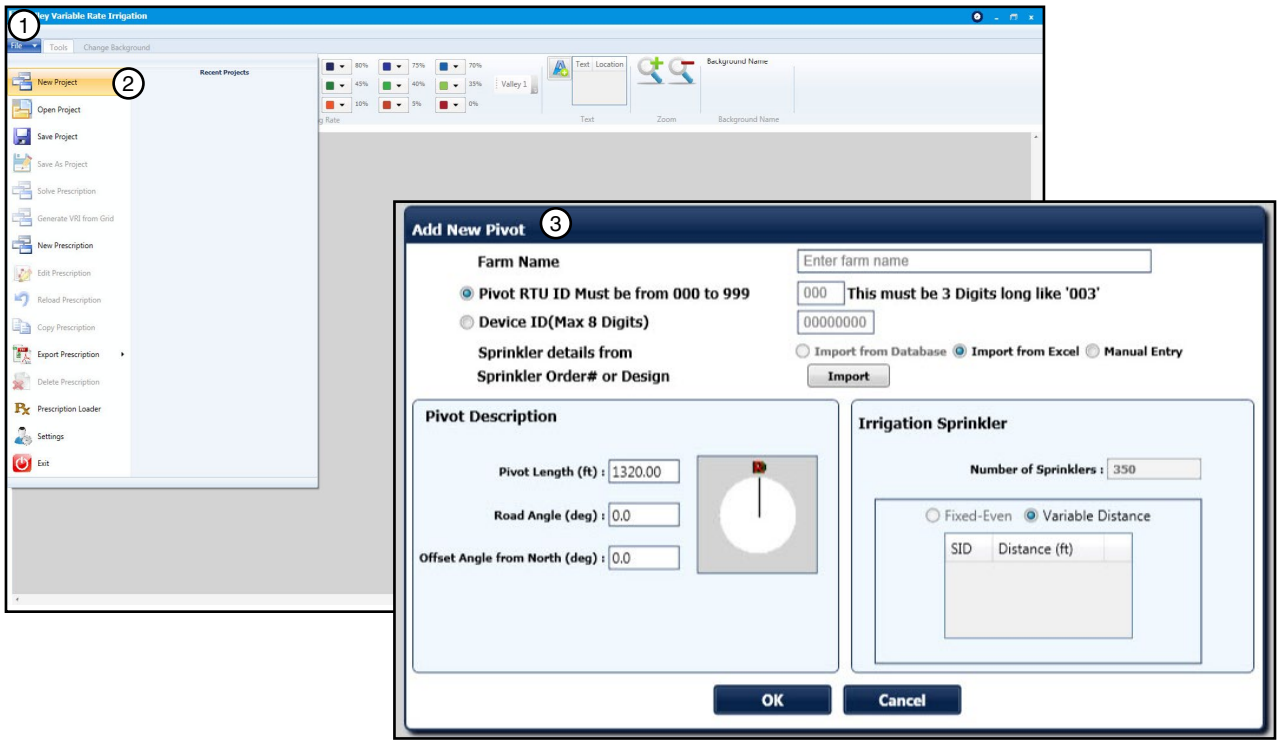


Figure 8-1 1. VRI Drop-Down Menu 2. Select New Project 3. Add New Pivot Screen

The Add New Pivot screen provides basic information regarding the layout of the field covered by the Pivot.

# Creating a Pivot Project

## Pivot Parameters

The Pivot Parameters section of the Add New Pivot screen provides fundamental information about the pivot. See Figure 9-1.

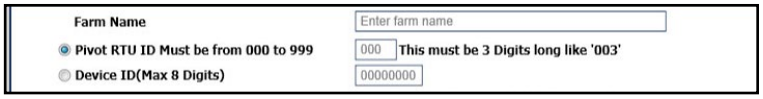


Figure 9-1 Pivot Parameters

1. Enter the farm name in the **Farm Name** field.
2. Select one of the following, and:
   - Enter the pivot's Remote Telemetry Unit (RTU) number in the **RTU ID** field. This is a user-defined number, and must be three digits long.

     or

   - Enter the Device ID in the **Device ID** field. The maximum length of this field is eight digits.

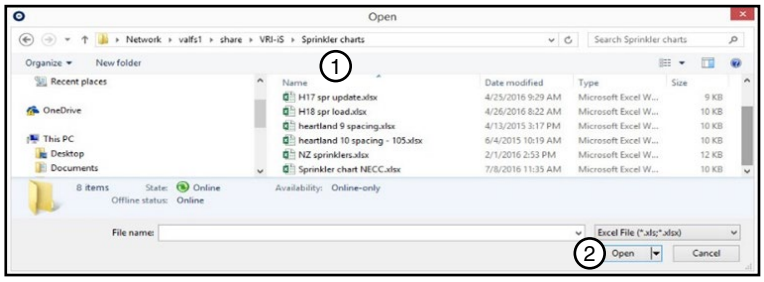


Figure 9-2 1. Excel Files 2. Open

3. Select one of the following:
   - Import from Excel. To do this select the Import button and find the Excel file and select Open. See Figure 9-2. The Excel file consists of Sprinkler numbers in column A and Distance (ft) from center in column B. See Image 9-3. In the Irrigation Sprinkler section the Number of Sprinklers is filled in, the SID (Sprinkler ID), and Distance (ft). See Figure 9-4. Note: This will also fill in Pivot Length with the last sprinkler location in the Pivot Description section of the screen. Refer to Pivot description section for more information.

     or

   - Select Manual Entry. Then select the Fixed Distance (in) spacing. See Figure 9-5. The number of sprinklers will be determined based on the spacing and the Pivot Length. Refer to Pivot description section for more information.

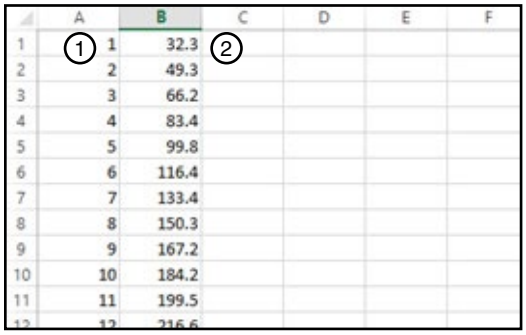


Figure 9-3 1. Sprinkler Number 2. Distance (ft) From Center

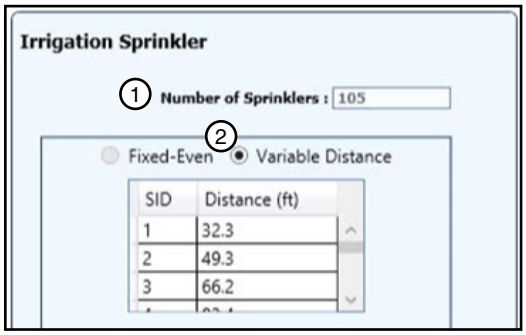


Figure 9-4 1. Number of Sprinklers
2. SID (Sprinkler ID) Distance (ft)

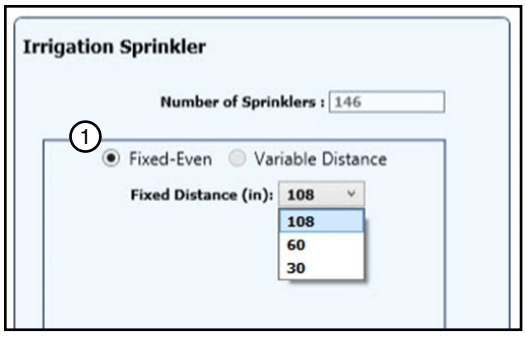


Figure 9-5 1. Fixed Distance (in)

# Create a Project and Prescription

## Pivot Description

The Pivot Description section of the Add New Pivot screen provides the physical and logistical information about the pivot. See Figure 10-1.

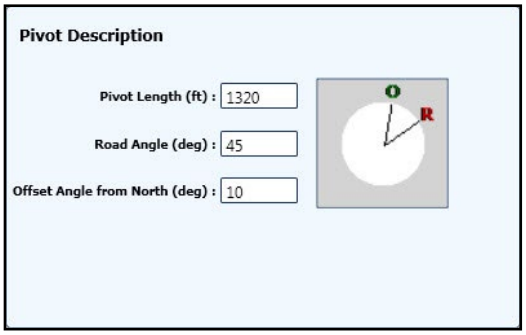


Figure 10-1 Pivot Description

1. Enter the pivot's total length in feet in the **Pivot Length** field. Length of pivot for VRI Prescriptions is from pivot point to end of machine which includes the overhang. The maximum length is 3,000 feet. The default length is 1320 feet.
   - If Import from Excel was selected the Pivot Length was changed to the location of the last sprinkler. This can be changed to the actual machine length.
   - If Manual Entry was selected then enter the Pivot Length and check the number of sprinklers and Distance between sprinklers.
2. If desired, enter the road angle in degrees (in relation to the Offset Angle from North) in the **Road Angle** field.
3. If desired, enter the offset angle in degrees in the **Offset Angle from North** field.
4. Click OK on the Add New Pivot screen once all selections are filled out correctly. See Figure 10-2.

   If any of the fields on the Add New Pivot screen have been left blank or need to be corrected, the List of Errors screen appears on the errors identified. You must correct the errors before continuing.

   If there are no errors, the Prescription Name Entry Screen appears. See Figure 10-3.

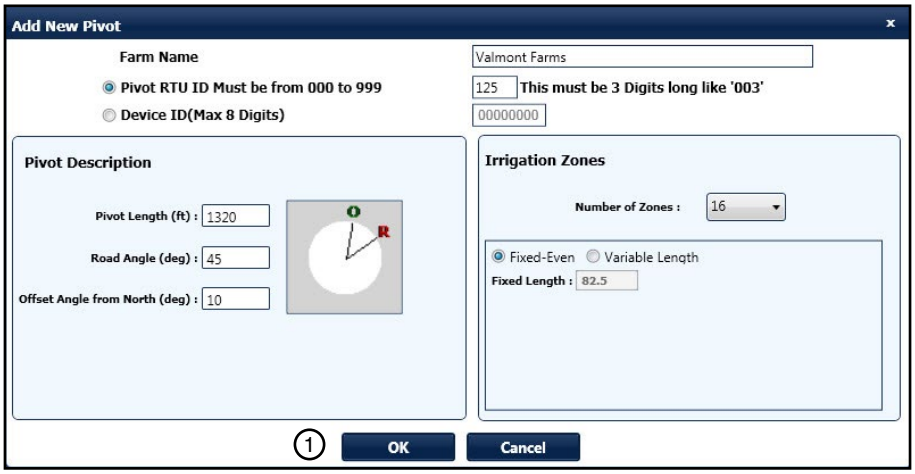


Figure 10-2 1. Click **OK**.

5. Enter the name of the pivot's prescription in the Prescription Name field.
6. Click OK.

Figure 10-3 Prescription Name Entry Screen

## Creating a Pivot Project

The Tools screen appears. You will use this screen to create a pivot prescription. See Figure 11-1.

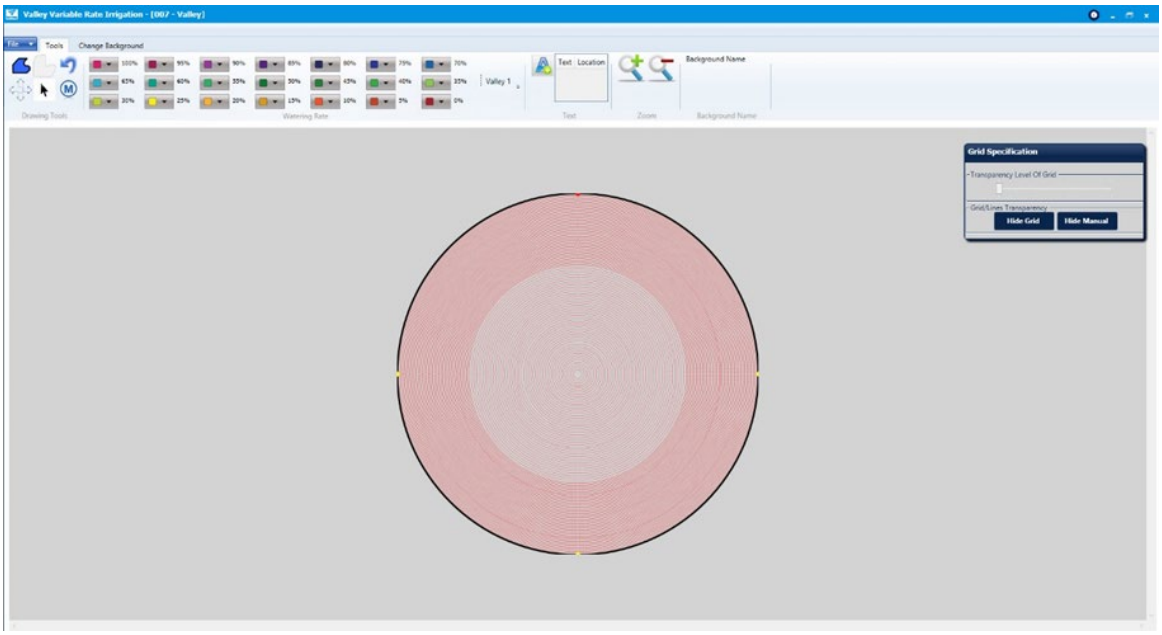


Figure 11-1

**NOTE**

- **When creating VRI iS Prescriptions, a good understanding of the overall hydraulics of the center pivot, pipeline (if any), and pump is necessary to ensure equipment is not damaged by shutting off too many zones at once, thereby decreasing flow to less than the minimum flow rate.**
- **Most pumps will experience an increase in pressure as the flow is decreased. The minimum flow rate must be determined in order to calculate the maximum changes that can be made.**
- **A variable speed pump is a good option.**

### VRI iS Control Tools Grid

The grid for the VRI iS Control pivot is a complete 360-degree circle with concentric red circles spaced to match the sprinkler locations. The black circle on the outside is the end of the pivot. Considering that you can control up to 495 sprinklers for the pivot, and that every 10th of a degree can be calculated, it is possible that you could have as many as 1,782,000 locations in the pivot grid. See Figure 11-2.

The red marker on the pivot grid indicates the zero-degree pivot position on the grid. This point is based on the setting you selected in the **Offset Angle from North** field on the Add New Pivot screen.

The yellow markers on the pivot grid appear at 90 degree increments.

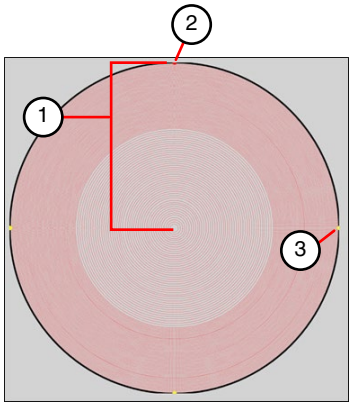


Figure 11-2 1. Pivot Length
2. Zero-Degree Pivot Position
3. Degree Marker

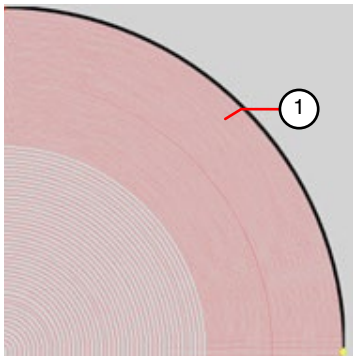


Figure 11-3 1. Each Red line is a sprinkler

# Create a Project and Prescription

## Selecting a Background Field Image

### Background Field Image

The first thing to do when creating a pivot prescription is to select the image of the field to be used as the map's background.

1. Click the **Change Background** tab on the Variable Rate Irrigation screen. See Figure 12-1.

   The Change Background screen appears.

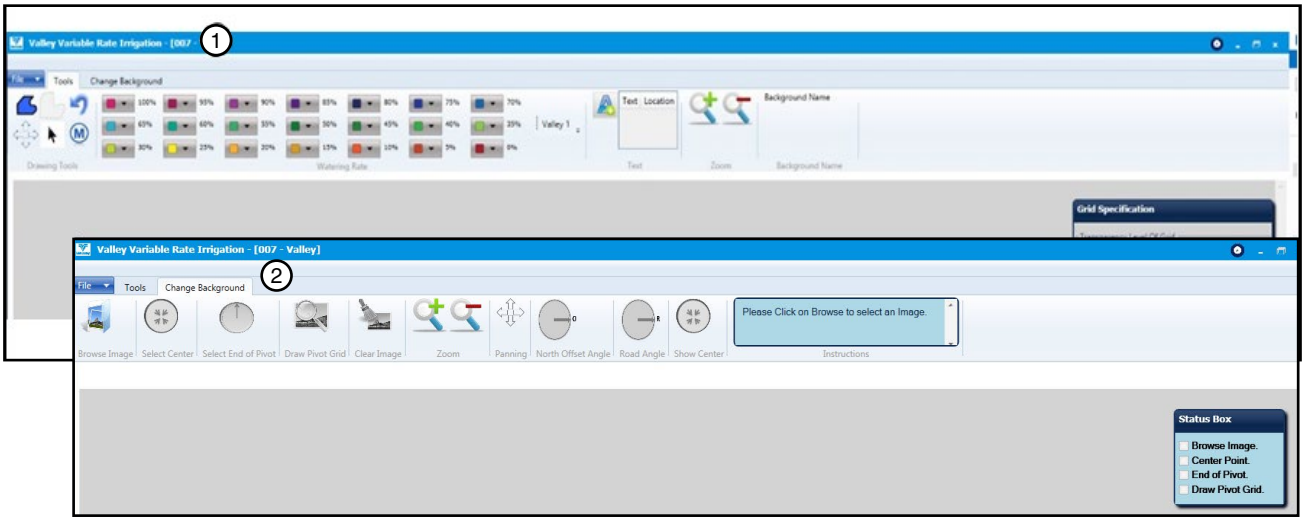


Figure 12-1 1. Change Background Tab
2. Change Background Screen

Following are descriptions of the buttons and boxes found on this screen.

| | | | | |
|---|---|---|---|---|
| | **Browse Image** - Opens the Images folder for the selection of the image of the field for which you are creating a prescription. | | | **North Offset Angle** - Displays a red arrow indicating the North Offset Angle selected when describing the pivot project. |
| | **Select Center** - Allows the selection of the center point of the pivot with the cross hairs tool. | | | **Road Angle** - Displays a yellow arrow indicating the Road Angle selected when describing the pivot project. |
| | **Select End of Pivot** - Allows the selection of the outer boundary of the pivot with the cross hairs tool. | | | **Show Center** - Places a red X on the image to indicate the center of the pivot. |
| | **Draw Pivot Grid** - Displays the zones selected when describing the project/pivot. | | | **Multiple Images** - Lists and displays all images related to the project/pivot. Individual images can be deleted from this list. |
| | **Clear Image** - Clears the selected image from the screen. | | | **Delete All Images** - Deletes all images from this list. |
| | **Zoom In** - Increases the detail of the image. | | | **Instructions** - Provides instructions for the Browse Image, Select Center, Select End of Point, and Draw Pivot Grid buttons |
| | **Zoom Out** - Decreases the detail of the image. | | | **Status Box** - Indicates which actions (Browse Image, Center Point, Boundary, and Orientation) have been completed. |
| | **Panning** - Used in conjunction with the **Zoom In** button to move the image around the screen. | | | |

# Selecting a Background Field Image

## Background Field Image (continued)

2. Click the **Browse Image** button on the Tools screen, select the image of the field for which the prescription is being created, and click **Open**. See Figure 13-1.

   The image appears on the screen. See Figure 13-1.

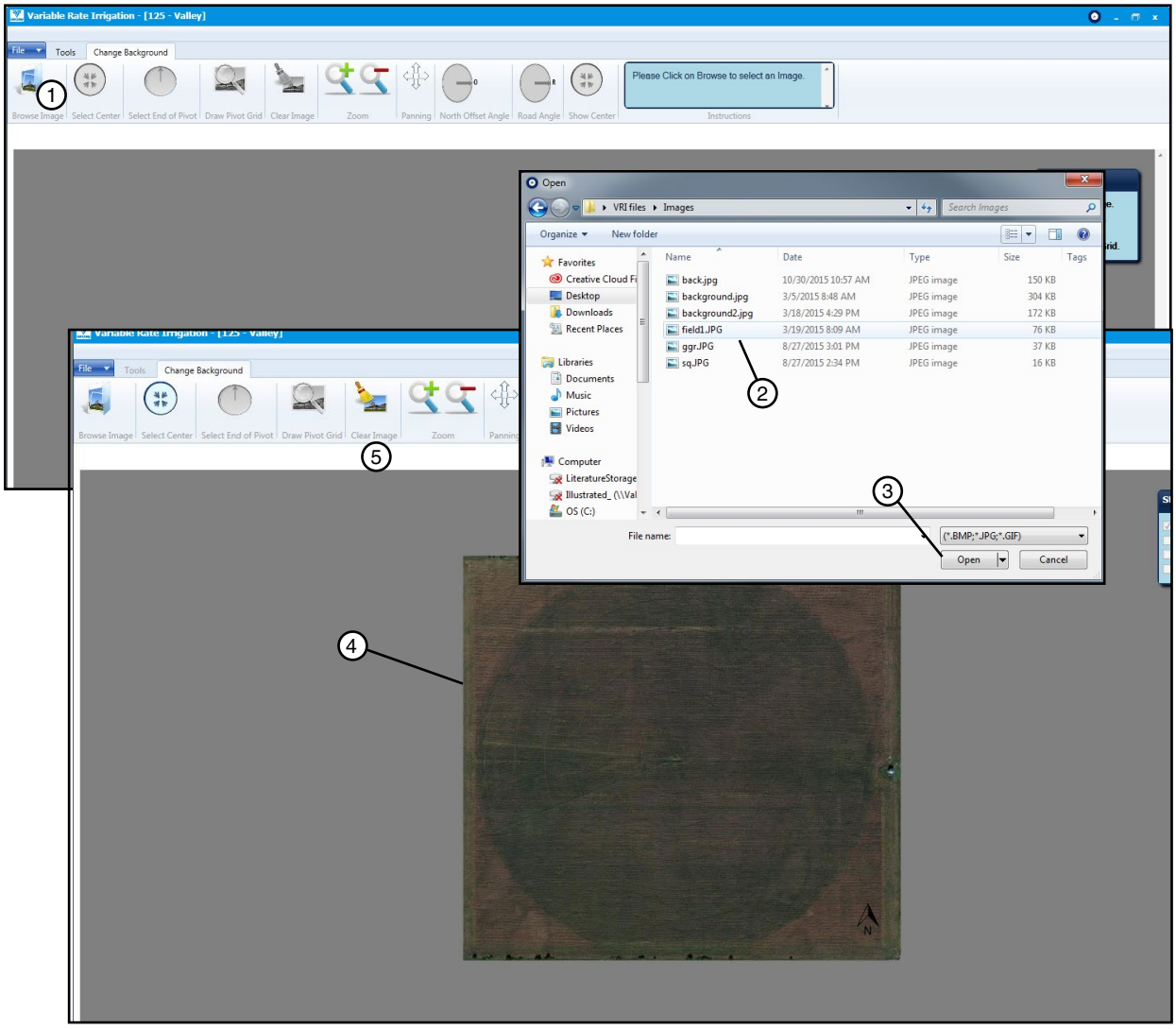


Figure 13-1
1. Browse Image button
2. Image Selection
3. Open
4. Background Image
5. Clear Image button

At any point in the Change Background process, you may remove the image from the screen and start over with a different image by clicking the **Clear Image** button.

# Create a Project and Prescription

## Selecting a Background Field Image

### Background Field Image (continued)

3. Click the **Select Center** button, position the cross hairs over the center of the field, and left-click to set the centerpoint. See Figure 14-1.
4. Click the **Select End of Pivot** button, position the cross hairs at the edge of the field to identify the outer boundary of the pivot, and left-click to set the end of pivot.

   Note that both the centerpoint and the boundary of the image can be moved by clicking on the centerpoint indicator and one of the four boundary nodes.
5. Click the **Draw Pivot Grid** button to align the center and edge of the pivot grid with the image.

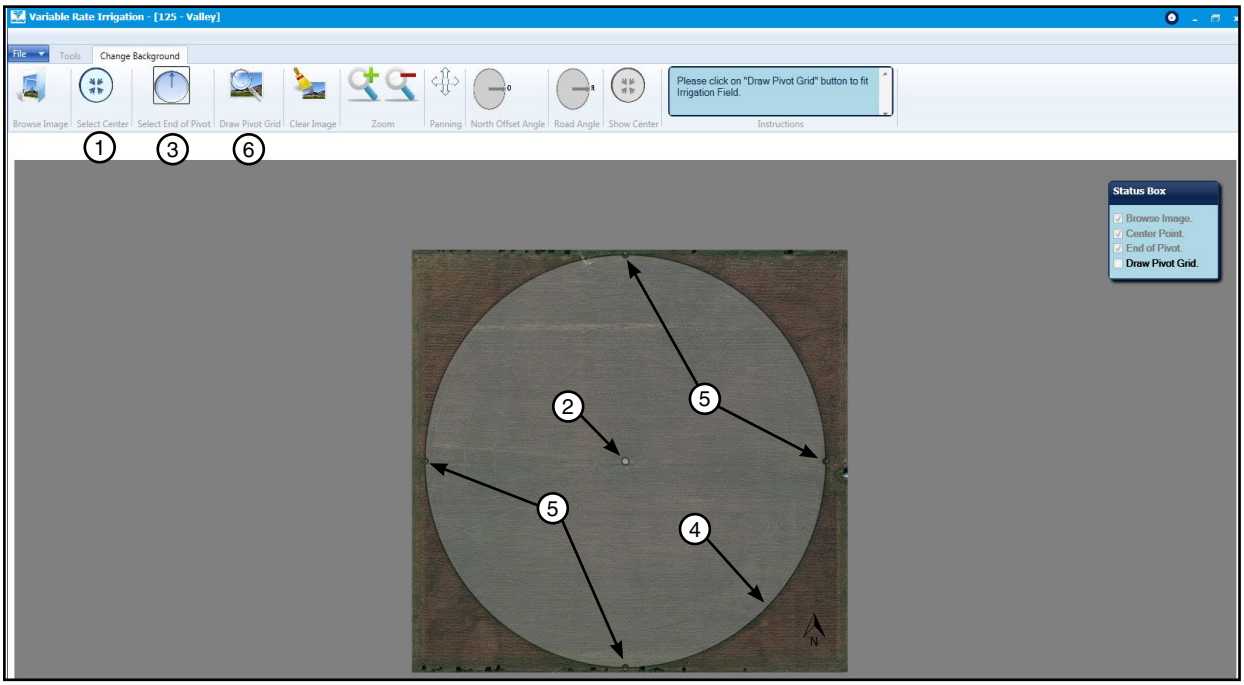


Figure 14-1 1. Select Center Button 2. Centerpoint Indicator 3. Select End of Pivot Button 4. Boundary 5. Boundary Node 6. Draw Pivot Grid Button

6. If you want, you may now click the **North Offset Angle** and **Road Angle** buttons to display these settings. See Figure 14-2.

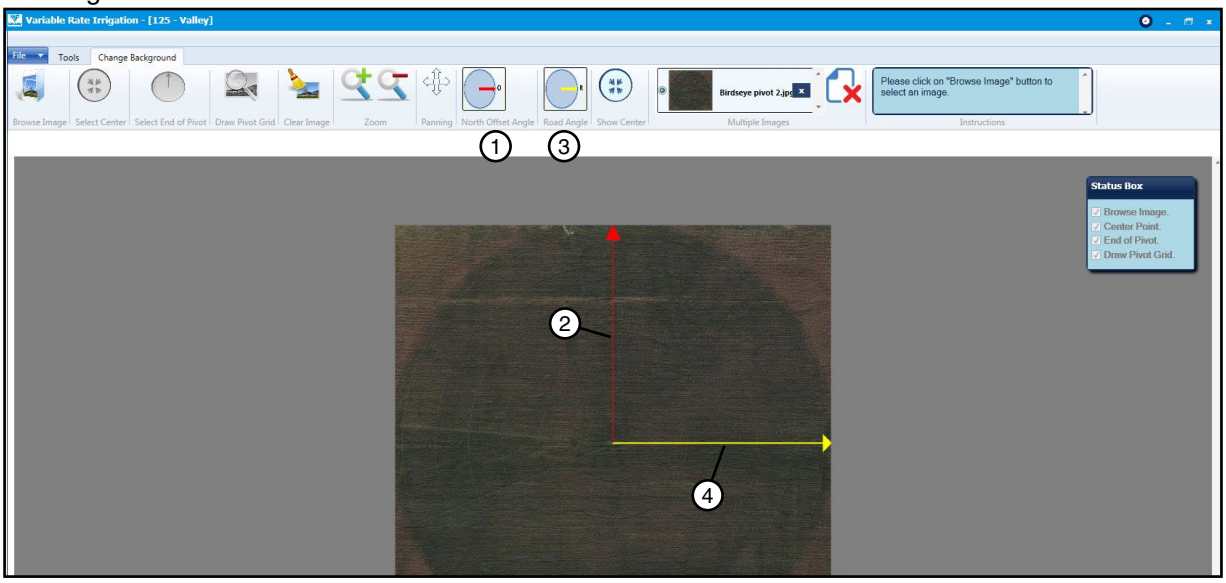


Figure 14-2 1. North Offset Angle Button 2. North Offset Angle at 0° 3. Road Angle Button 4. Road Angle at 90°

## Building a Prescription

After selecting the image of the field on the Change Background screen, you now will use the Tools screen to create the pivot's prescription.

Note that the RTU or Device ID and prescription name appear at the top of the screen.

1. Click the Tools tab on the menu bar. See Figure 15-1.

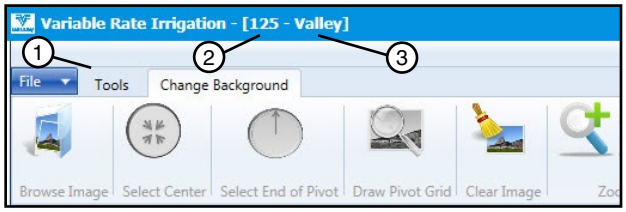


Figure 15-1 1. Tools Tab 2. RTU ID 3. Prescription Name

The Tools screen appears with the prescription grid overlaid on the image of the field. See Figure 15-2. The Tools screen is used to create a new VRI individual Sprinkler (VRI iS) map, or to edit an existing map. The red circles on the map indicate sprinklers.

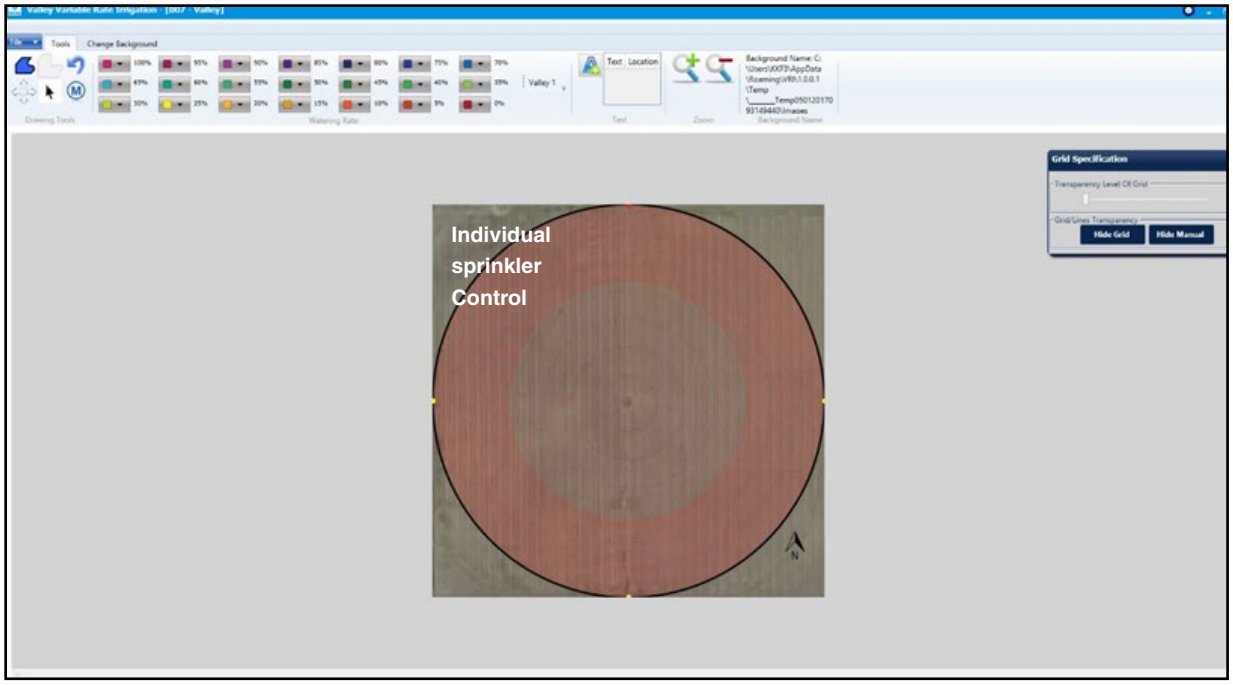


Figure 15-2 Tools Screen

# Create a Project and Prescription

## Building a Prescription (continued)

### Drawing Tools

The Drawing Tools section contains buttons that are used to define the area in which the watering rates are to be applied. See Figure 16-1.

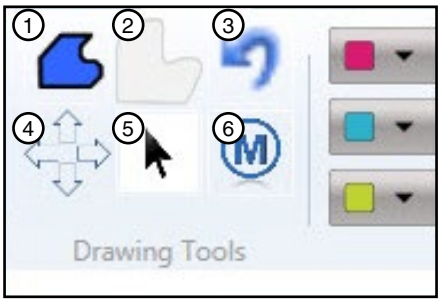


Figure 16-1
1. Polygon Tool
2. Hide Polygon Tool
3. Undo Tool
4. Panning TZAT
5. Sector Tool
6. Manual Entry Tool

2. Select one of the following tools to identify a watering area:

   (1) **Polygon Tool –** Draw a multi-sided shape by left-clicking the mouse button at each position, then right-click the mouse button to close and complete the shape and fill in the area of the polygon with the desired watering rate. When drawing to the edge of the pivot using the polygon tool the mouse crosshairs will turn into a hand when the mouse is about to snap to the pivot circle. See Ploygon Tool on the next page for an example.

   (2) **Hide Polygon Lines Tool –** Click to hide the lines of the polygon. Selecting it again will unhide the polygons.

   (3) **Undo Tool –** Selecting Undo will remove the previous polygon point. Continuing to select undo will remove sequential points until no more points are available to undo

   (4) **Panning The Zoomed Area Tool (Panning TZAT)** – Click and hold the left mouse button on the grid after zooming in to move the grid around the screen.

   (5) **Select Tool –** The Select tool will allow the user to select a polygon to be edited.

   (6) **Manual Entry Tool** – Select Manual Entry, select watering rate, and then click on the pivot. A popup window will appear. Enter the Start Angle, End Angle, Inner Sprinkler and Outer Sprinkler. Select OK when done. See Manual Entry Tool on the next page for an example.

# Building a Prescription (continued)

## Polygon Tool Example

Figures 17-1 to 17-6 illustrate steps used to create a polygon shape. Draw a multi-sided shape by left-clicking the mouse button at each position, then right-click the mouse button to close and complete the shape and fill in all sectors that are in the polygon (fully or partially) with the desired watering rate.

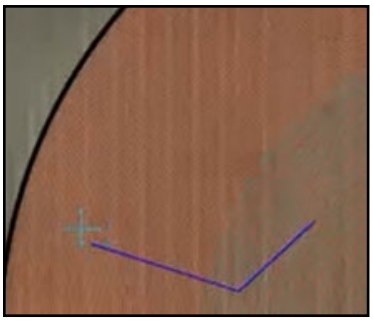

Figure 17-1

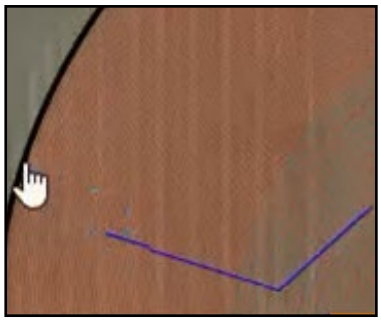

Figure 17-2

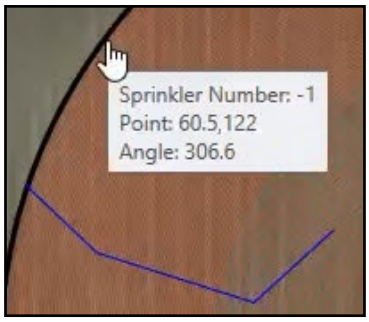


Figure 17-3

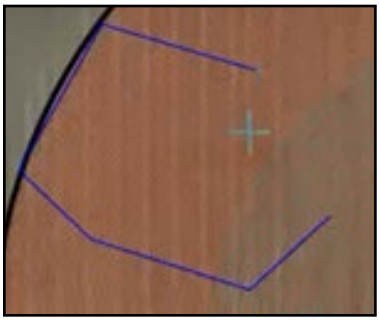

Figure 17-4

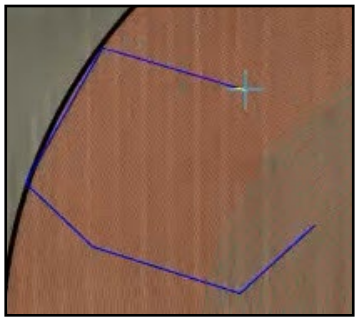

Figure 17-5

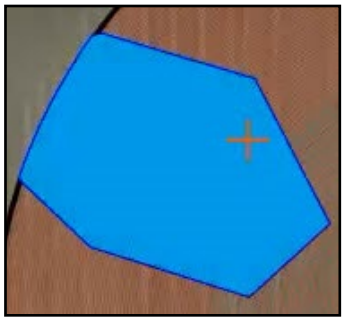

Figure 17-6

## Manual Entry Tool Example

Figure 17-7 illustrates the results when entering co-ordinates manually.

- Select the Manual Entry tool.
- Select watering rate, and then click on the pivot. The Circular Tool popup window will appear.
- Enter the Start Angle, End Angle, Inner Sprinkler and Outer Sprinkler.
- Select OK when done. The Manual Entry area will now appear on the screen.

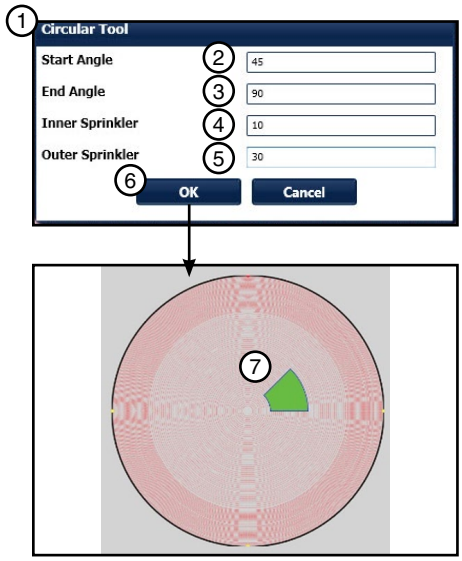


Figure 17-7 1. Circular Tool Window
2. Start Angle
3. End Angle
4. Inner Sprinkler
5. Outer Sprinkler
6. OK
7. Manual Entry Area

# Create a Project and Prescription

## Building a Prescription (continued)

### Watering Rate

The Watering Rate buttons are used with any of the Drawing Tools buttons to describe the amount of water to be applied to sectors. The color-coded buttons range in 5 percent increments from 0 to 100 percent. This is the percent of application depth. For example: If the application rate (base rate) is 1 in (0.0254 mm) and the water rate is 50% the applied rate would be 1/2 in (0.0127 mm) or AR x WR = Applied Rate. See Figure 18-1.

Note that the lowest watering rate percentage when applying water to the speed control grid will be 1% as to not stop the irrigation system.

3. Choose the Watering Rate Color pallet. As you may have noticed in Figures 18-1, 18-2 and 18-3 there is an open drop down menu that can be used to select 3 possible Watering Rate Color pallets.

   **Valley 1** (Figure 19-1) which is based off of a gradient system similar to that of a soil map.

Figure 18-1

**Valley 2** (Figure 19-2) designed with varying high contrast colors.

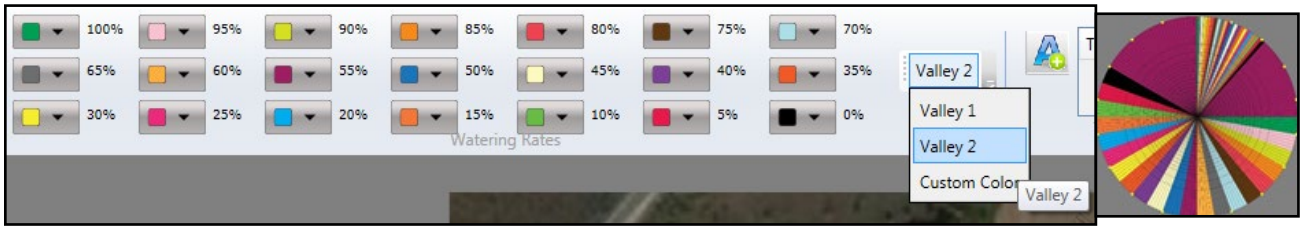


Figure 18-2

**Custom Color** (Figure 19-3) a user definable and savable color pallet.

Figure 18-3

# Building a Prescription (continued)

## Watering Rate (continued)

### Custom Color Selection

(a) To make your Custom Color pallet See Figure 19-1:

(b) Select **Custom Color** in the drop-down menu. **Note**: You can change colors in Valley 1 and Valley 2 but the program will ask you if you want to save this as your Custom Color pallet.

(c) At each watering rate there is a drop-down arrow. Select it and color options will appear.

(d) Choose the desired colors for your Custom Color pallet from the **Default Colors**

(e) Or select **More Colors**

(f) The **More Colors** screen will appear if selected. Choose a color shade then click on the watering rate drop-down arrow to exit color selection.

(g) Once you have chosen your colors try selecting **Valley 1** or **Valley 2**

(h) A popup window will appear asking “Do you want to save the color palette in Custom Colors.” Click **Yes** if you would like to save.

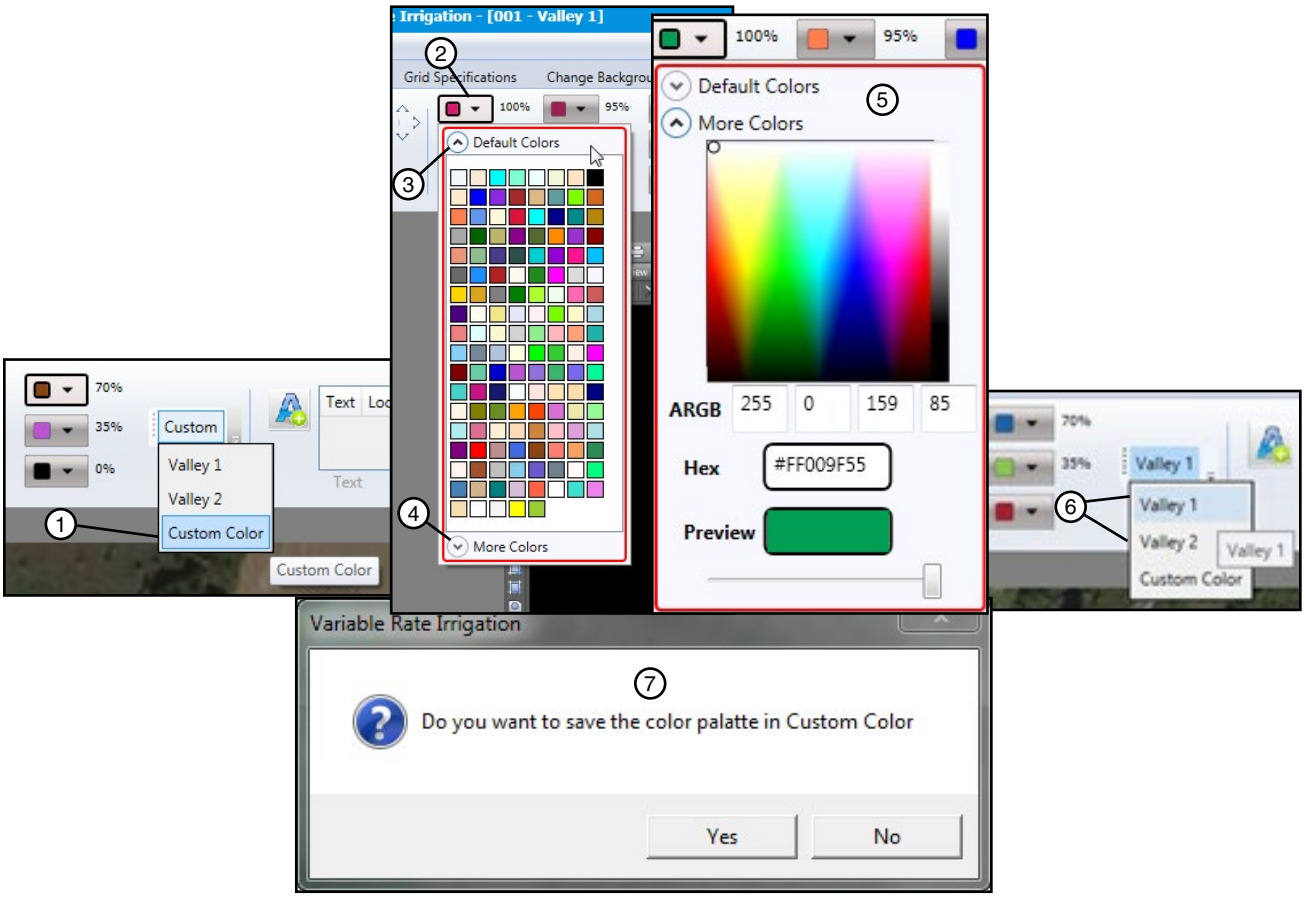


Figure 19-1
1. Custom Color
2. Watering rate drop-down arrow
3. Default Color
4. More Colors
5. More Colors Screen
6. Valley 1 or Valley 2
7. Save popup window

# Create a Project and Prescription

## Building a Prescription (continued)

### Watering Rate (continued)

4. Click the appropriate Watering Rate button.
5. Select the areas of the Zone Control prescription grid on which to apply the watering rate. See Figure 20-1.

   The example in Figure 20-1 displays the effect of using each of the drawing tools. Note that when you apply the Sector Ray tool (2) after first applying the Circular Sector tool (1), the Sector Ray overrides the Circular Sector. Likewise, applying the Circular Sector tool (3) after the Sector Ray tool (2) will cause another override.

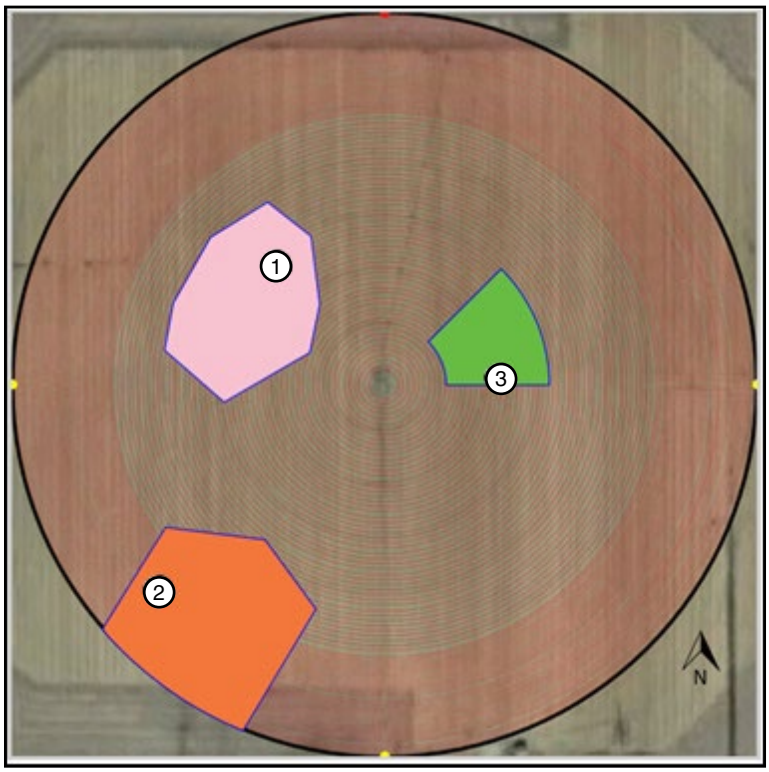


Figure 20-1 1. Polygon Tool Applied (95%) 3. Manual Entry Tool Applied (10%)
2. Polygon Tool Applied (15%)

**NOTE**

- **When creating VRI iS Prescriptions, a good understanding of the overall hydraulics of the center pivot, pipeline (if any), and pump is necessary to ensure equipment is not damaged by shutting off too many zones at once, thereby decreasing flow to less than the minimum flow rate.**
- **Most pumps will experience an increase in pressure as the flow is decreased. The minimum flow rate must be determined in order to calculate the maximum changes that can be made.**
- **A variable speed pump is a good option.**

# Building a Prescription (continued)

## Watering Rate (continued)

When drawing 2 areas next to each other in order not to get gaps in-between the areas it is best to draw the first area larger than you want it and then draw the second area over the first. See Figure 21-1.

Once you close the second polygon it will redraw the first polygons boundary to meet the second polygon. See Figure 21-2.

Polygons and Manual Entry areas can overlap. This is because Manual Entry areas are on a drawing layer above the Polygon layer. See figure 21-3.

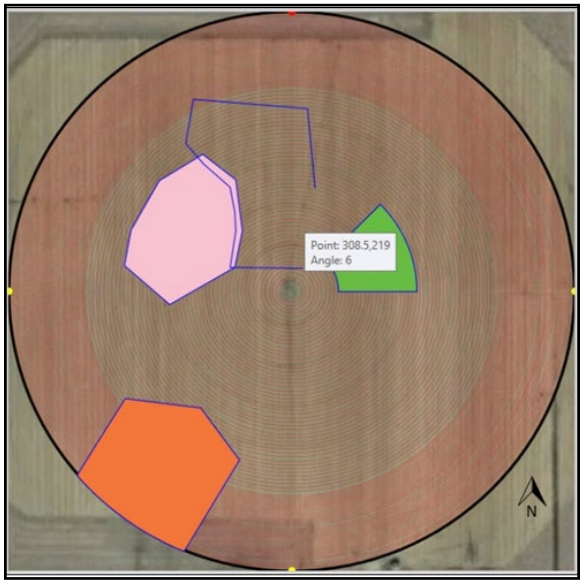


Figure 21-1

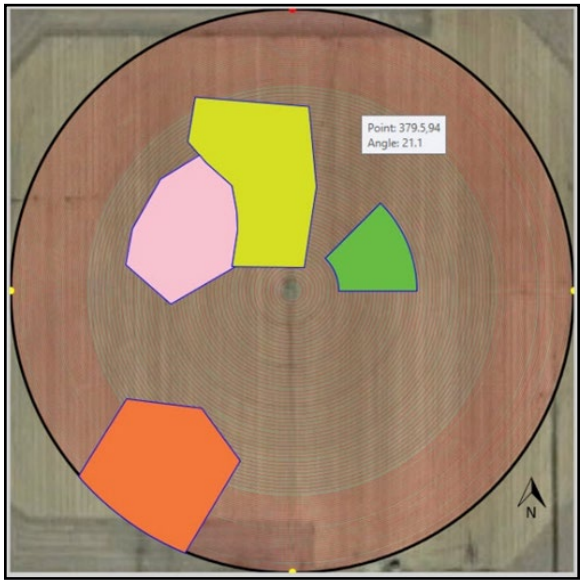


Figure 21-2

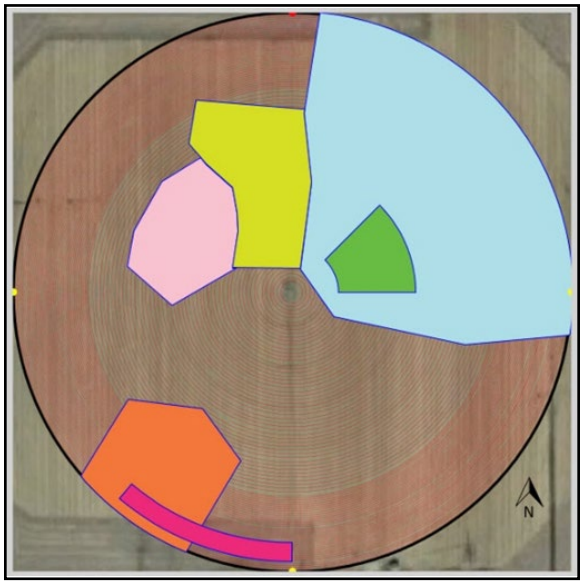


Figure 21-3

# Create a Project and Prescription

## Building a Prescription (continued)

### Grid Specification

The Grid Specification tool provides the means to change the appearance of the grid's transparency, hide grid lines, and hide Manual Entry areas. See Figure 22-1.

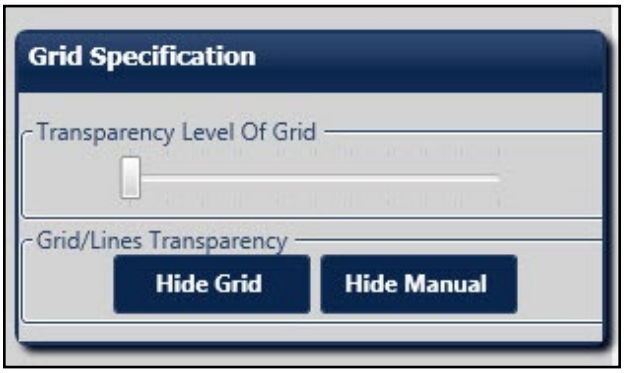


Figure 22-1

### Transparency

At some point you may want to increase the transparency of the grid to view it in relation to the image behind it. To do this, click on the slider in the Transparency Level of Grid and move it to the right as far as you need. See Figure 22-2.

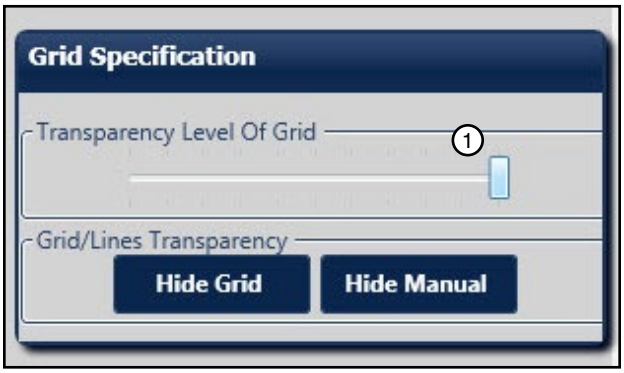


Figure 22-2 1. Slider

The before and after effects of this can be seen in Figure 22-3.

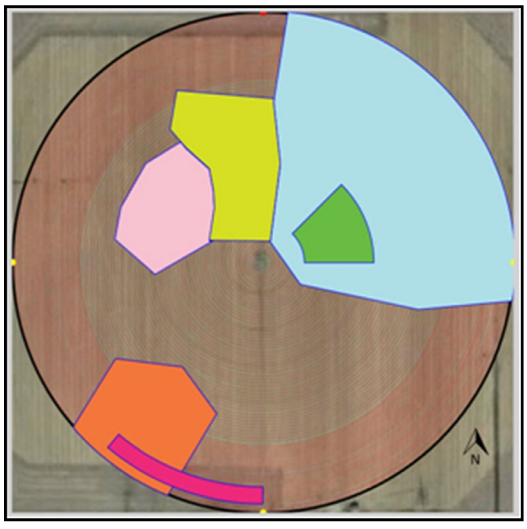

Figure 22-3 Image Before Increased Transparency

Image After Increased Transparency

## Building a Prescription (continued)

### Grid/Lines

You can hide the grid from view by clicking the Hide Grid button. See Figure 23-1 and 23-2.

To hide the polygon lines, click on the Hide Polygon Lines in drawing tool.

To display the grid, click Show Grid on the Grid Specification pop-up screen. See Figure 23-3

Figure 23-1 1. Hide Grid

Figure 23-2

Figure 23-3 1. Show Grid

# Create a Project and Prescription

## Building a Prescription (continued)

### Grid/Lines (continued)

You can hide just the Manual Entry areas by clicking the Hide Manual button. See Figure 24-1 and 24-2.

Note: You will still see any text you have added to the grid and, any polygon lines you may have drawn. To hide the polygon lines, click on the Hide Polygon Lines in drawing tool.

To display the Manual Entry areas again, click Show Manual on the Grid Specification pop-up screen. See Figure 24-3.

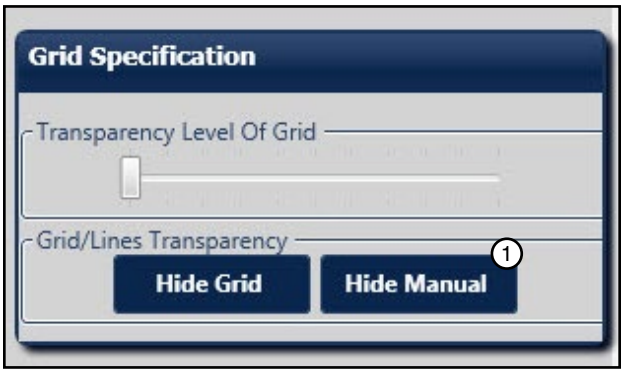


Figure 24-1 1. Hide Manual

Figure 24-2

Figure 24-3 1. Show Manual

# Building a Prescription (continued)

## Text

The **Text tool** is used to add text to the grid, and to edit or delete the text. See Figure 25-1.

Do the following to add text to the image.

1. Click the **text icon**.
2. Click on the area of the grid in which you want to place the text.

   The **Enter the Text** pop-up screen appears. See Figure 25-2.
3. Enter the text you want displayed on the grid.
4. Click the **Font** button to change the appearance of the text.

   The Select Font pop-up screen appears. See Figure 25-3.
5. Select the **Font Family**, **Style Weight Stretch**, and **Font Color** you want applied to the text.

   A sample of your selections appears in the Sample Text box.
6. Click **OK**.

   The **Enter the Text** box now displays the text as you want it to appear on the grid. See Figure 25-4.
7. Click **OK**.

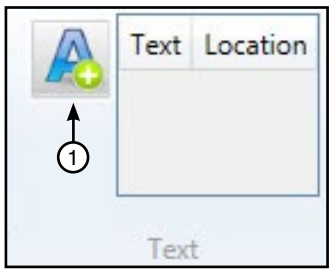


Figure 25-1 1. Text Icon

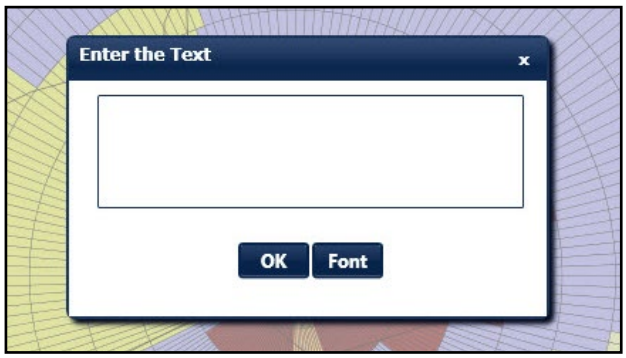


Figure 25-2 Enter Text Box

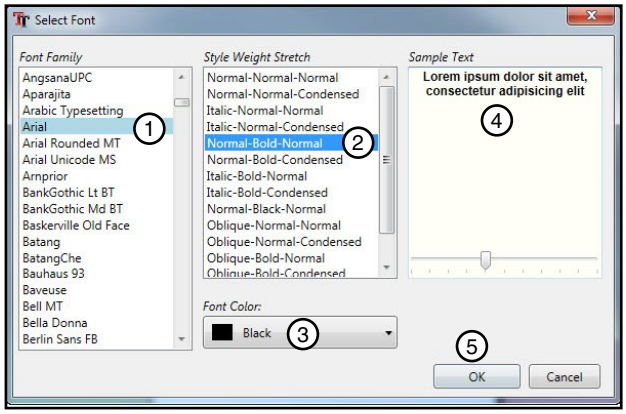


Figure 25-3 1. Font Family
2. Style Weight Stretch
3. Font Color
4. Sample Text
5. OK Button

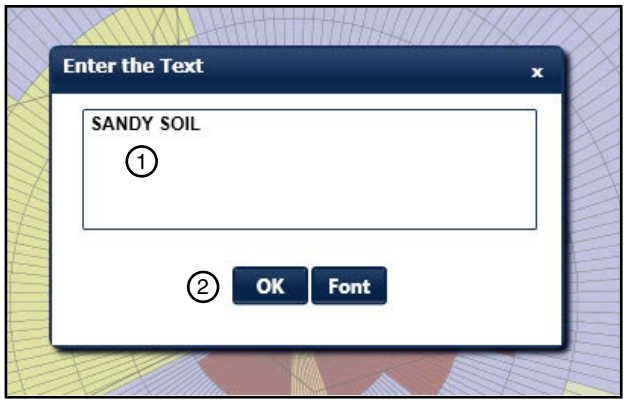


Figure 25-4 1. Desired Text 2. OK Button

# Create a Project and Prescription

## Building a Prescription (continued)

### Text (continued)

The text is now displayed on the grid in the desired position. See Figure 26-1.

The Text tool now displays the text that was inserted, and its location on the grid. See Figure 26-2.

If you want to remove the text, first select the text in the tool bar (See Figure 26-2) then the **Enter Text** box will appear (See Figure 25-4). Delete the text from the box and click **OK**. The text now is removed from the screen.

### Zoom

Use the **+** button to increase the size of the image, and use the **-** button to decrease it. See Figure 26-3.

### Background Name

The **Background Name tool** provides the file name and location of the background image being used for this grid. See Figure 26-4.

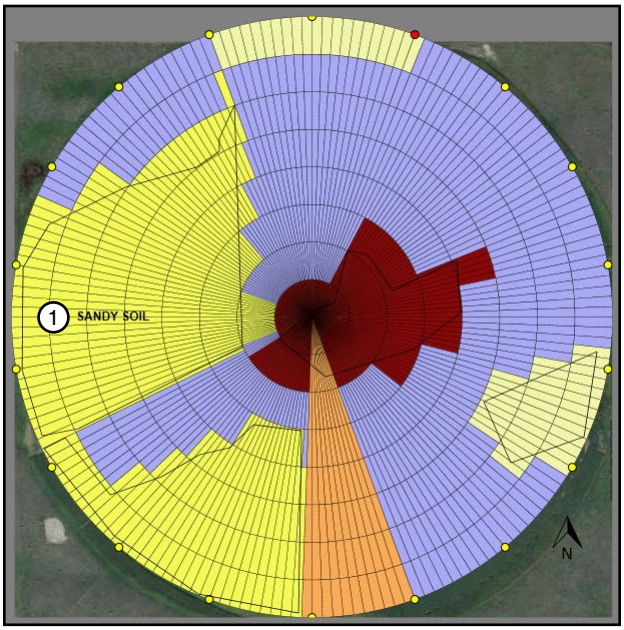


Figure 26-1 1. Inserted Text

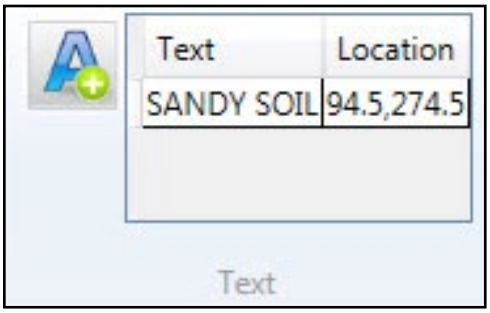


Figure 26-2 Text Tool with Text and Location

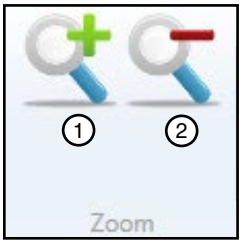


Figure 26-3 1. Zoom In
2. Zoom Out

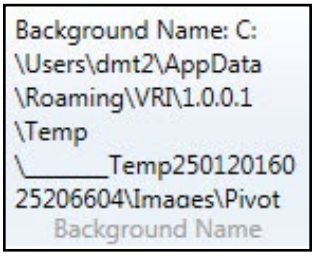


Figure 26-4 Background Name

# Building a Prescription (continued)

## Saving a Project

1. Select **Save Project** in the VRI drop-down menu. See Figure 27-1.

   The Save Project screen appears.

2. Locate the folder in which you want to save the project, give the file a name, and click **Save**. See Figure 27-2.

   A pop-up screen appears stating that the project has been successfully saved. See Figure 27-3.

3. Click **OK**.

   A folder has now been created for the project.

   In the folder there is an Image folder where the background image is saved and the *.vriis drawing file.

   Note: This saves the Project Drawing file for VRI iS as a *.vriis file format. The *.vriis file is just a drawing file and has to be Solved before the prescription can be used in the RxLoader.

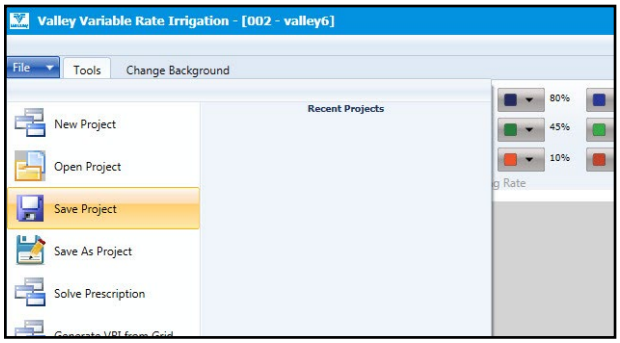


Figure 27-1 Save Project

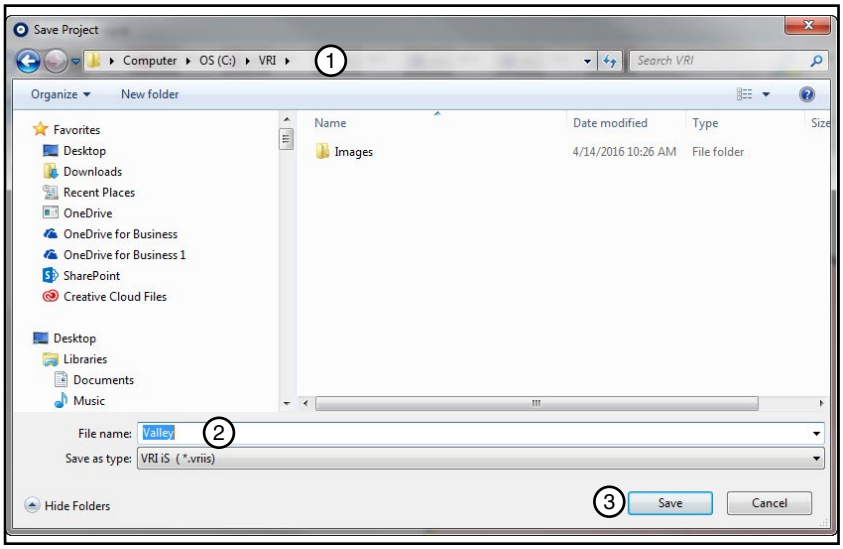


Figure 27-2 1. Folder Name
2. File Name
3. Save Button

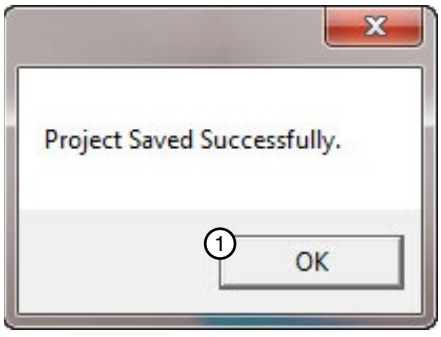


Figure 27-3 1. OK Button

# Create a Project and Prescription

## Working With Projects and Prescriptions

After you have created and saved a prescription, there are several things you can do with it, such as:

- Open
- Save As
- Solve Prescription
- Generate VRI from Grid
- New Prescription
- Edit
- Reload
- Copy Prescription
- Delete
- E-mail

### Opening a Project

In order to work with a prescription after it has been created and saved, you first need to open it. To do this, click on the VRI drop-down menu, and do one of the following. Remember in VRI iS the drawing file has the *.vriis file extension.

- Locate the project in the **Recent Projects** list, and click on its name to open it. See Figure 28-1.
- Click on **Open Project**, locate it in the appropriate project folder, and click on it to open it. See Figure 28-2.

  The project prescription opens on the **Tools** screen.

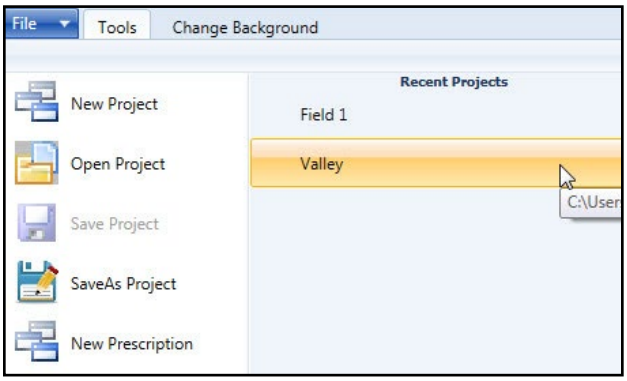


Figure 28-1 Open Recent Project

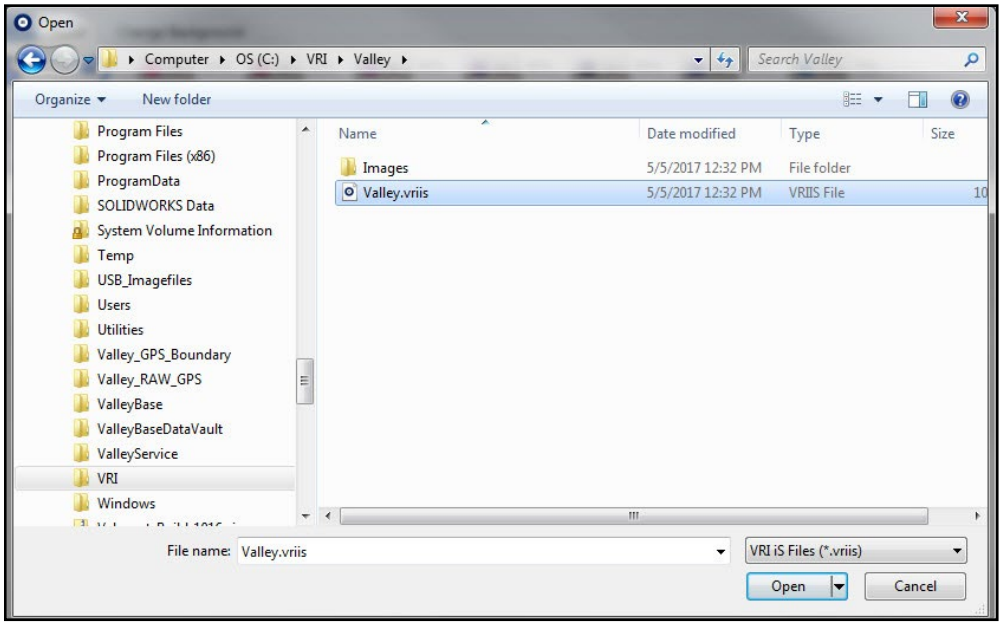


Figure 28-2 Open Project From Folder

# Working With Projects and Prescriptions (continued)

## SaveAs Project

You may want to save the project under a different name or in a different location. To do this, open the project and do the following:

1. Click on the VRI drop-down menu, and select **SaveAs Project**. See Figure 29-1.

   The Save As screen appears.

2. Locate the folder in which you want to save the new project; enter the new project name in the **File name** field, and click **Save**. See Figure 29-2.

   A pop-up screen appears verifying that the project has been successfully saved. See Figure 29-3.

3. Click **OK**.

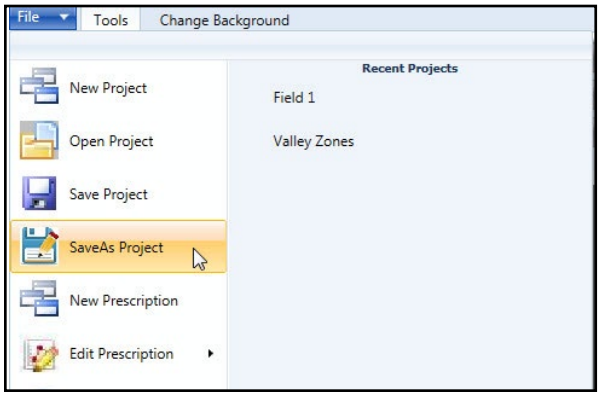


Figure 29-1 VRI Drop-down Menu

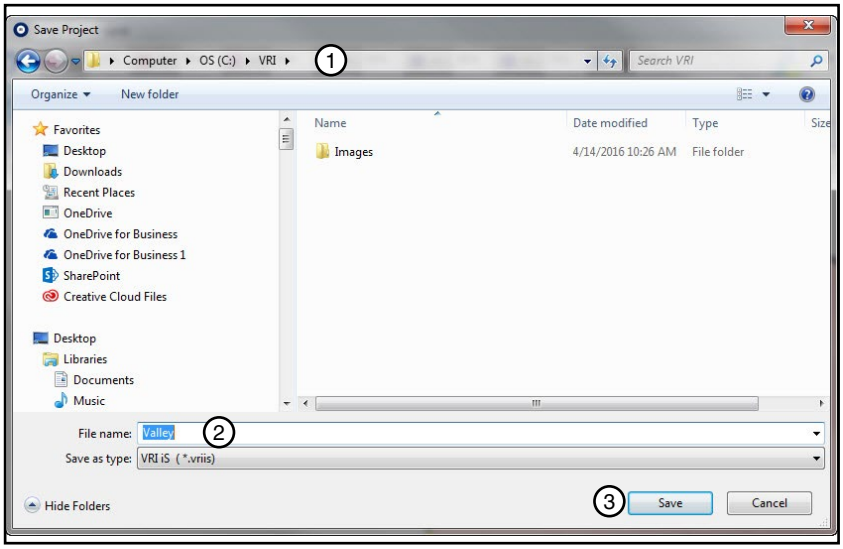


Figure 29-2 1. Folder Name
2. File Name
3. Save Button

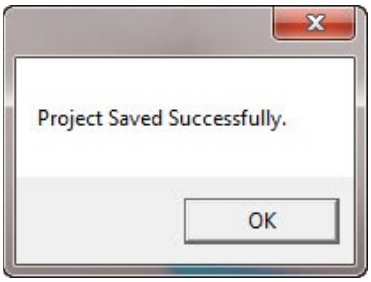


Figure 29-3 Successful Save

# Create a Project and Prescription

## Working With Projects and Prescriptions (continued)

## Solving a Pivot Prescription

4. Select Solve Prescription in the VRI drop-down menu. See Figure 30-1.

   The Solve Pattern screen appears. See Figure 30-2.

5. In the Solve Pattern Screen you first need to choose which polygons to solve first. See Figure 30-2.

   If the Polygon Tool Polygons is selected in Solve first then the program will solve the Polygon layer first then the Manual Entry layer second. See Figure 30.3 for example. But if the Manual Entry Tool is solved first the end result will look like Figure 30-4.

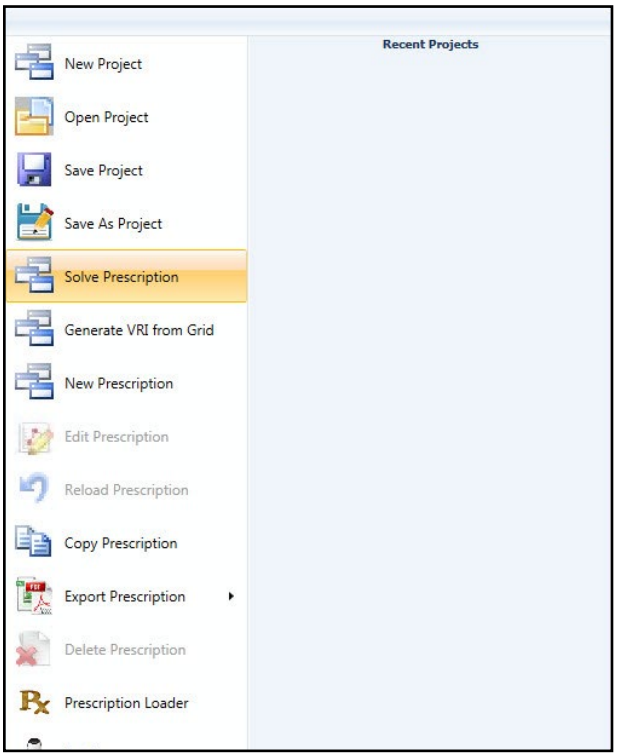


Figure 30-1 Solve Prescription

Figure 30-2

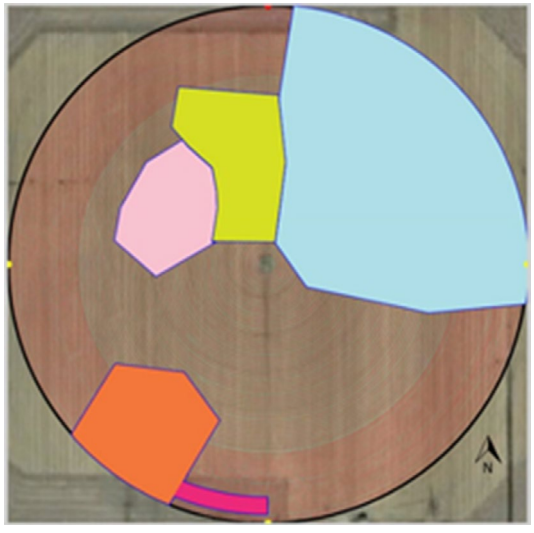

Figure 30-2

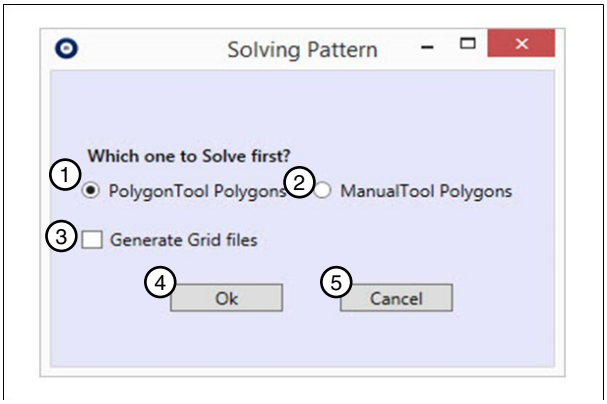


Figure 30-2
1. Polygon Tool Ploygons
2. Manual Tool Polygons
3. Generate Grid Files
4. OK
5. Cancel

## Working With Projects and Prescriptions (continued)

## Solving a Pivot Prescription (continued)

6. Next select if you want the solve function to generate the Grid files.

   See Figure 31-1. If you check the Generate Grid files 2 Excel files will be placed in the project folder. Both will have the prescription name followed by Angle Sprinkler 1.csv and Grid 1.csv. See Figure 31-2.

   The *Angle Sprinkler 1.csv file contains the input lines to be loaded into the panel but are in a spread sheet for easy viewing. See Figure 31-3.

   The *Grid 1.csv file is a spread sheet with each sprinkler number listed across the top and every 0.1 degree along the left side. The numbers in each square indicated the watering rate for that location. See Figure 31-4

   It may be easier to view the *Grid 1.csv file if in Excel you use the Find and Replace feature (see Figure 31-5) to fill in all of the different rates with different colors. See Figure 31-6.

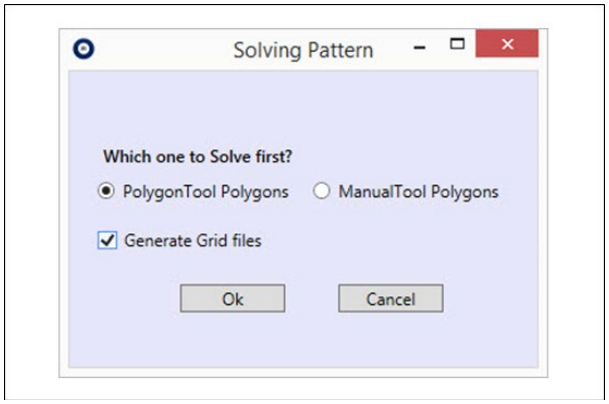


Figure 31-1

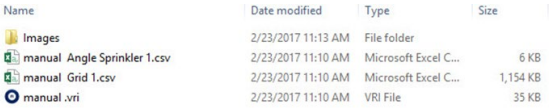


Figure 31-2 Grid Files

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | SprinklerRateId | StartAngle | StopAngle | InnerSprinkler | OuterSprinkler | WateringPercentage | |
| 2 | 1 | 334.1 | 18.1 | 5 | 5 | 90 | |
| 3 | 2 | 321.8 | 16.7 | 6 | 6 | 90 | |
| 4 | 3 | 314.2 | 15.6 | 7 | 7 | 90 | |
| 5 | 4 | 308.8 | 14.8 | 8 | 8 | 90 | |
| 6 | 5 | 304.7 | 14.1 | 9 | 9 | 90 | |
| 7 | 6 | 301.5 | 13.5 | 10 | 10 | 90 | |
| 8 | 7 | 299 | 13.1 | 11 | 11 | 90 | |
| 9 | 8 | 296.9 | 12.7 | 12 | 12 | 90 | |
| 10 | 9 | 294.9 | 12.3 | 13 | 13 | 90 | |
| 11 | 10 | 293.3 | 12 | 14 | 14 | 90 | |
| 12 | 11 | 293.2 | 11.7 | 15 | 15 | 90 | |
| 13 | 12 | 302.8 | 11.5 | 16 | 16 | 90 | |
| 14 | 13 | 309.1 | 11.2 | 17 | 17 | 90 | |
| 15 | 14 | 313.8 | 11 | 18 | 18 | 90 | |
| 16 | 15 | 317.5 | 10.9 | 19 | 19 | 90 | |
| 17 | 16 | 319.7 | 10.7 | 20 | 20 | 90 | |
| 18 | 17 | 321.6 | 10.6 | 21 | 21 | 90 | |
| 19 | 18 | 323.3 | 10.4 | 22 | 22 | 90 | |
| 20 | 19 | 324.9 | 10.3 | 23 | 23 | 90 | |
| 21 | 20 | 325.9 | 10.2 | 24 | 24 | 90 | |

Figure 31-3 *Angle Sprinkler Grid

| | A | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Angles | | | | | | | | | | | | | |
| 2 | 0 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 3 | 0.1 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 4 | 0.2 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 5 | 0.3 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 6 | 0.4 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 7 | 0.5 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 8 | 0.6 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 9 | 0.7 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 10 | 0.8 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 11 | 0.9 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 12 | 1 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 13 | 1.1 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 14 | 1.2 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 15 | 1.3 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 16 | 1.4 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 17 | 1.5 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 18 | 1.6 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 19 | 1.7 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 20 | 1.8 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 21 | 1.9 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 22 | 2 | 100 | 100 | 100 | 100 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |

Figure 31-4 *Grid 1 Grid

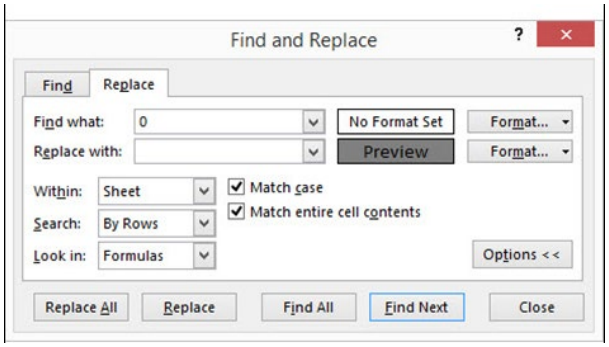


Figure 31-5

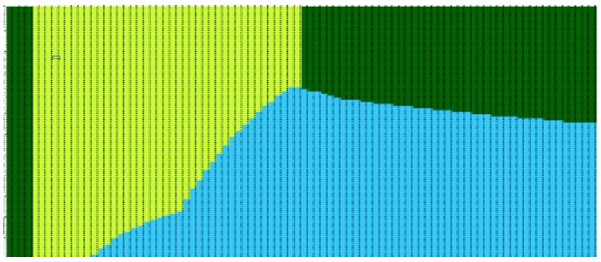

Figure 31-6 Colored Grid

# Create a Project and Prescription

## Working With Projects and Prescriptions (continued)

## Solving a Pivot Prescription (continued)

7. Select Ok to solve. See Figure 32-1.

   A pop-up window will appear that says “Please wait! Solving is in process….” This may take a few minutes. See Figure 32-2.

8. Once Solve has completed a pop-up window will appear and either say “Polygons have been solved Successfully!” (See Figure 33-3) or “lines got generated. Do you want to optimize to 1300 Lines” (See Figure 32-4).

   If you receive the second pop-up “lines got generated. Do you want to optimize to 1300 Lines” (See Figure 32-4) you will need to select Yes to try and optimize the output more.

   You may see this multiple times until the program has condensed it to 1300 lines. Figure 32-5 has less lines but did not reach 1300.

   The 1300 lines is in reference to the file size that can currently be loaded into the panels memory.

   Once you see the pop-up in Figure 32-3 optimization has been completed.

   Also if you had selected Generate Grid files an additional file will be in the Project folder named *Grid 2.csv. This file shows what the angles have been condensed to.

9. Click OK on Figure 32-3.

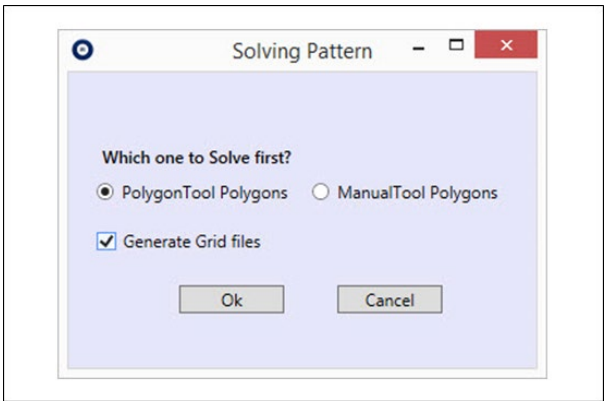


Figure 32-1

Figure 32-2

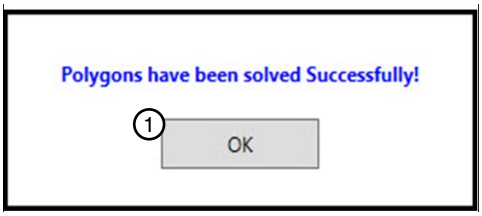


Figure 32-3 1. OK

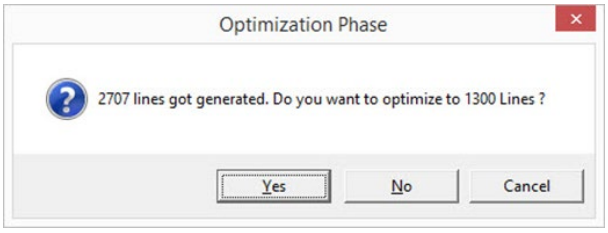


Figure 32-4

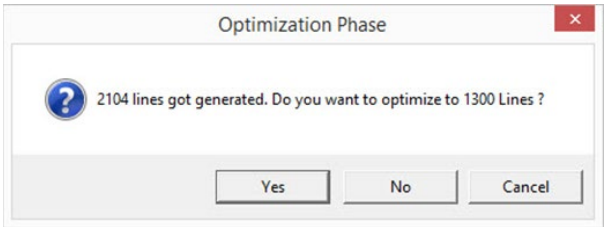


Figure 32-5

## Working With Projects and Prescriptions (continued)

### Generate VRI from Grid

10. Generate VRI from Grid makes a new *.vri file from the *Grid 1.csv.

    Before you select Generate VRI from Grid, you make changes to the grid in the file and save it. .

    After you have made changes to the file you can select Generate from Grid in the VRI drop-down menu. See Figure 33-1.

    The program will create a new prescription based on those changes

    Note: you may get the same optimizing screens as before in Solve Prescription. See Figure 33-2.

11. Keep selecting optimize until you get the pop-up window stating “Solve from grid is completed!! Please check file”. See Figure 33-3.

12. Click OK.

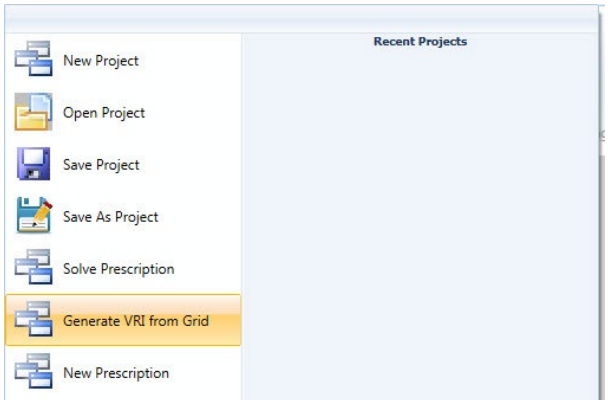


Figure 33-1 Generate From Grid

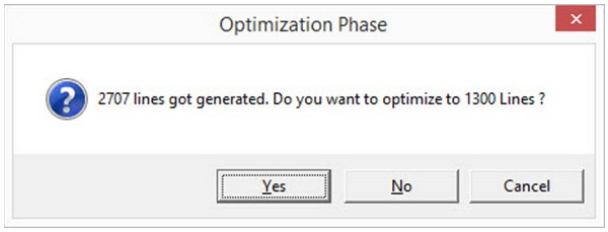


Figure 33-2 Optimize

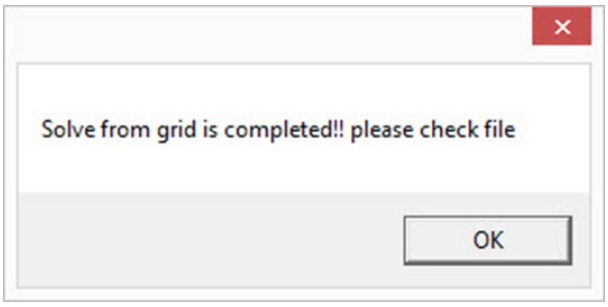


Figure 33-3

# Create a Project and Prescription

## Working With Projects and Prescriptions (continued)

### New Prescription

Once the project prescription has been opened, you can create a **New Prescription** in the same Project.

1. Select **New Prescription** in the VRI drop-down menu. See Figure 34-1.

   The Prescription Name Entry Screen appears. See Figure 34-2.

2. Enter the new prescription name and click **OK**.

   A pop-up screen appears verifying that the prescription has been successfully copied. See Figure 34-3.

3. Click **OK**.

**NOTE**

- **Your Project information remains the same but your previously designed prescription has been removed and a new drawing and design can be made and saved.**

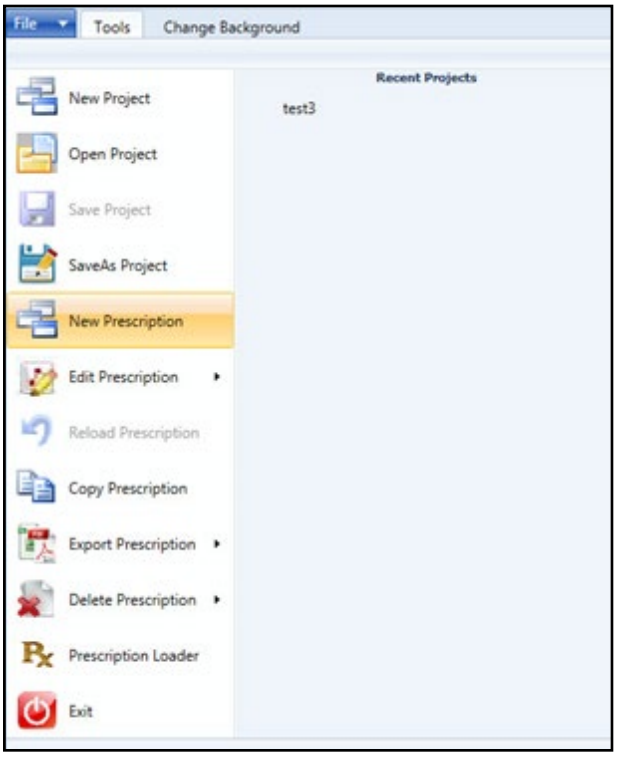


Figure 34-1 Select New Prescription

Figure 34-2 1. Enter Prescription Name

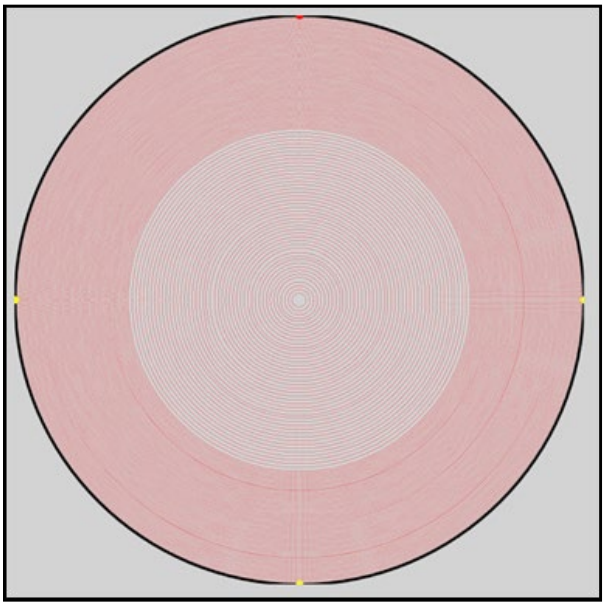

Figure 34-3 Successful New Prescription

# Working With Projects and Prescriptions (continued)

## Editing a Prescription

Once the project prescription has been opened, you can change the watering rates for sectors through the use of the **Drawing Tools** and **Watering Rate** buttons on the **Tools** screen. You can also change or delete any text you added to the grid. You can also change the background image using the **Change Background** screen.

To view or edit a specific prescription when multiple prescriptions exist:

1. Select **Edit Prescription** in the VRI drop-down menu. See Figure 35-1.
2. Select the name of the prescription in the right column. See Figure 35-1.
3. Once you have selected a prescription it will load. Check the name in the top menu bar to confirm the selected prescription has loaded. See Figure 35-2.

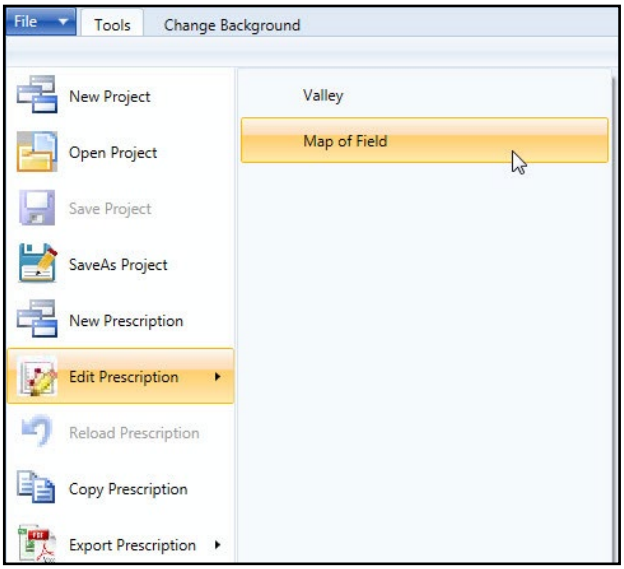


Figure 35-1 VRI Drop-down Menu Edit Prescription

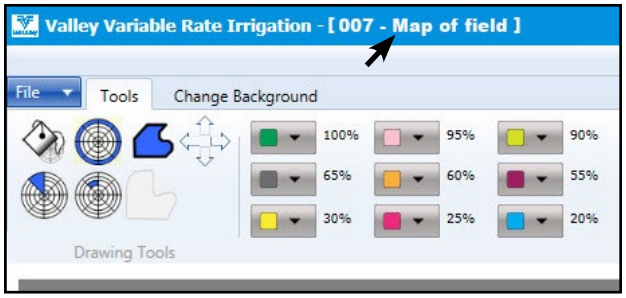


Figure 35-2 Top Menu Bar, Prescription Name

# Create a Project and Prescription

## Working With Projects and Prescriptions (continued)

### Copying a Prescription

Once the project prescription has been opened, you can copy it and save it under another prescription name.

1. Select **Copy Prescription** in the VRI drop-down menu. See Figure 36-1.

   The Prescription Name Entry Screen appears. See Figure 36-2.

2. Highlight the “Copy of...” prescription name and erase it, if you want.

3. Enter the new prescription name and click **OK**.

   A pop-up screen appears verifying that the prescription has been successfully copied. See Figure 36-3.

4. Click **OK**.

**NOTE**

- **Your previously designed prescription has been copied and can now be edited and saved.**

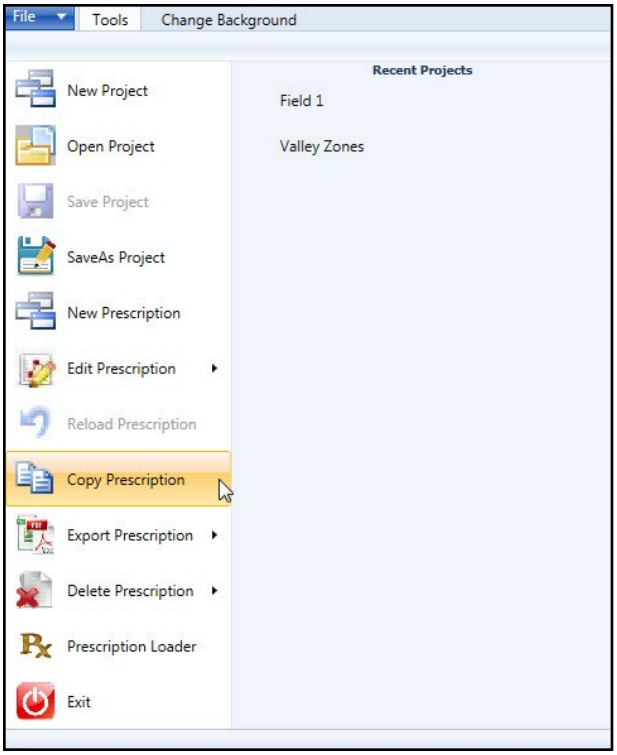


Figure 36-1 Select Copy Prescription

Figure 36-2 1. “Copy of...” Prescription Name Highlighted

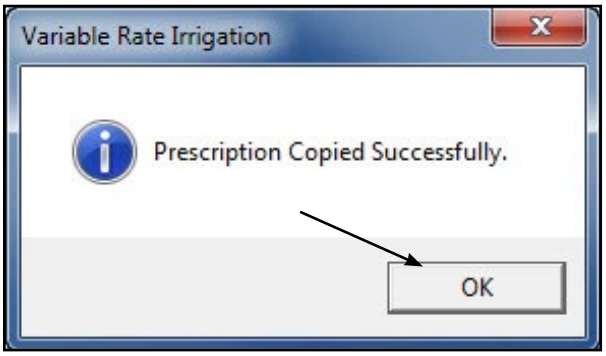


Figure 36-3 Successful Copy

## Reloading a Prescription

If, while you are editing a prescription but before you have saved the change, you find you have made a mistake or just want to change an edit you made you can reload the prescription and start over. To do this:

1. Select **Reload Prescription** in the VRI drop-down menu. See Figure 37-1.

   A pop-up warning screen appears. See Figure 37-2.

2. Click **Yes** if you want to discard your changes, or **No** if you do not.
3. If you select **No**, you are returned to the grid with the changes you have made.
4. If you select **Yes**, the prescription is reloaded without your changes.

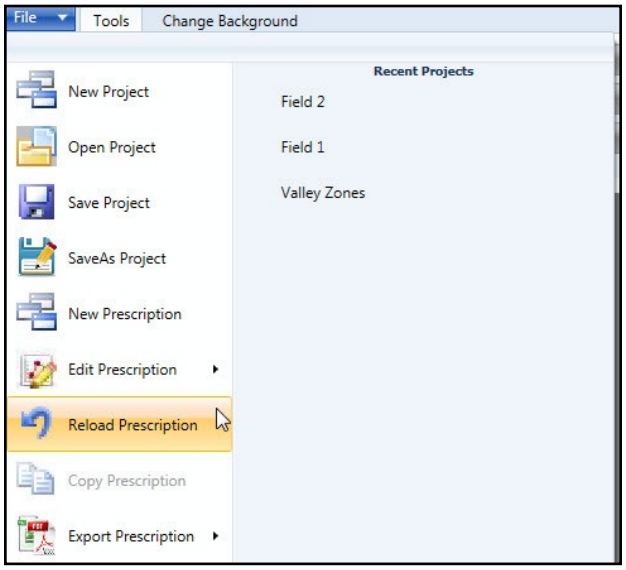


Figure 37-1 VRI Drop-down Menu Reload Prescription

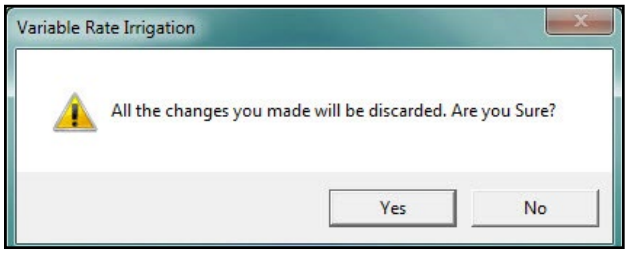


Figure 37-2 Discarding Changes Warning

# Create a Project and Prescription

## Working With Projects and Prescriptions (continued)

### Deleting a Prescription

Individual prescriptions for pivot projects can be deleted without deleting the project. To delete a prescription, do the following.

1. Open the project whose prescription you want to delete.
2. Select **Delete Prescription** in the VRI drop-down menu, and click on the name of the prescription in the right-hand column. See Figure 38-1.

   A pop-up decision screen appears asking if you are sure you want to delete the prescription.
3. Click **Yes**. See Figure 38-2.

   You can click **No** if you have changed your mind.

   A second pop-up screen appears confirming that the prescription was successfully deleted.
4. Click **OK**. See Figure 38-3.

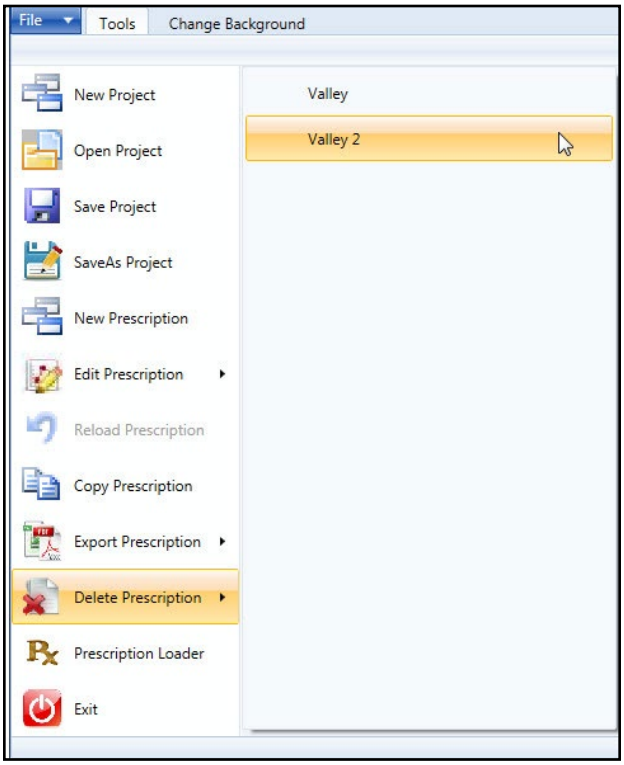


Figure 38-1 Delete Prescription

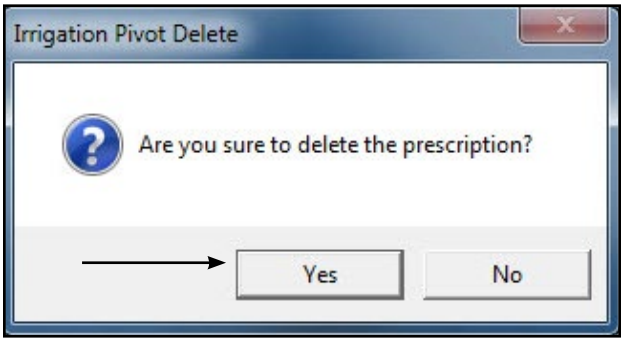


Figure 38-2 Delete Decision Pop-up

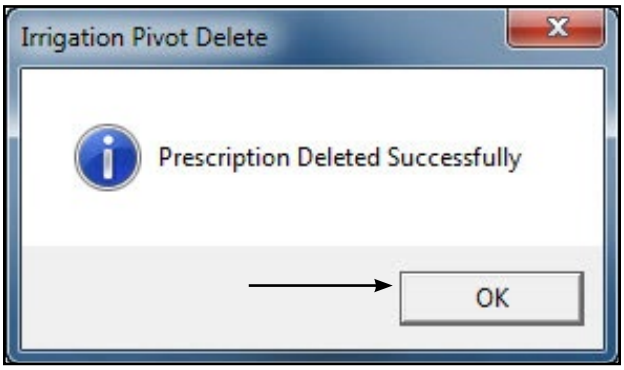


Figure 38-3 Deletion Successful

# Working With Projects and Prescriptions (continued)

## E-mailing or Exchanging a Prescription

Prescriptions can be e-mailed or exchanged from one user to another.

To e-mail the files properly, there must be an understanding of the file structure of a VRI Project file.

When a VRI Project is saved the program creates a Project folder inside of the folder in which it was placed.

In Figure 39-1 the prescription ABC Farms was saved in the Pivot-Projects Folder. The program created the ABC Farms folder and inside of that folder it created an Image folder (which contains the image/ images if any were used in the programs prescription) and the actual VRI file.

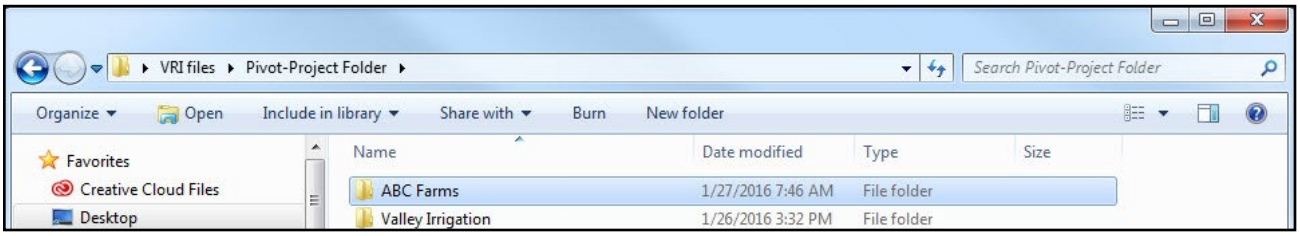


Figure 39-1

Additional information about these files:

1. The VRI file is all that is needed to load into a Panel. (Example: ABC Farms.vri) If the file is only going to be loaded with the RxLoader program only this file needs to be sent. Note: Sending only this file will not open properly in the VRI Program.
2. The second and preferred method for transfer is to exchange the entire ABC Farms folder. An easy way to do that is to Zip the folder with a zip program (most computers are equipped with the needed program). Right click on the file and a dropdown menu will appear select **Send to**, then choose **Compressed (zipped) Folder.** Figure 39-2

   You now have a Zipped file. Figure 39-3

   This gives the recipient the entire project with the imagery and VRI prescription. They will need all of it to properly view the prescription.

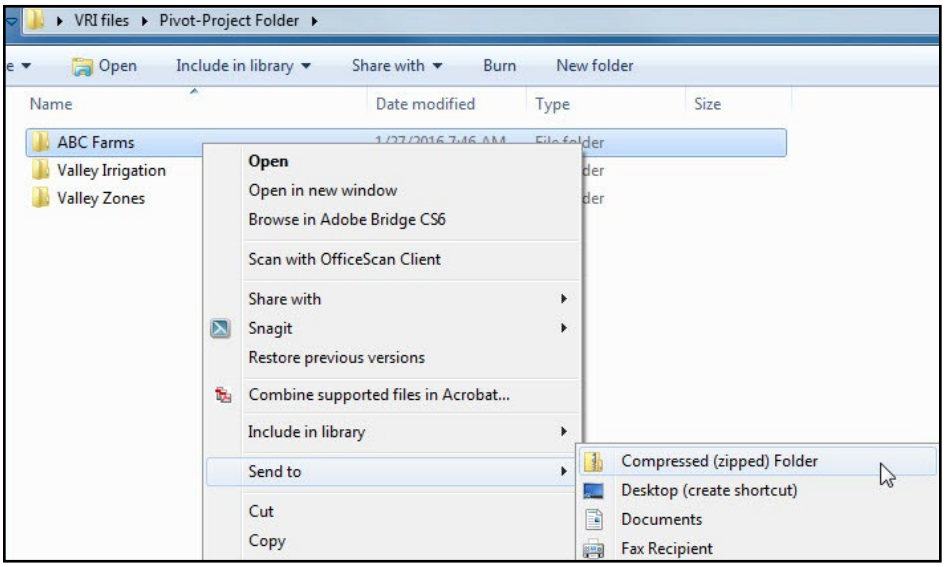


Figure 39-2

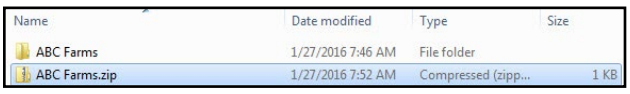


Figure 39-3

# Create a Project and Prescription

# VRI Prescription Loader Version 4.0.1

The VRI Prescription Loader application is used to convert the user-entered VRI prescription details into a format that can be read by a control panel in the field.

## Hardware and Software Requirements

- Pro2 control panel software v. 8.40 or higher (VRI Speed and VRI Zone), v. 9.02 or higher (VRI iS)
- Select2 control panel software version 1.20 or above (VRI Speed)
- BaseStation2-SM software version 8.3 or above
- BaseStation3 software version 3.0 or above

## Prescription Upload Methods

- Prescription loader: Upload or save a prescription created with the VRI prescription map program.
  - » Upload a prescription directly to a Pro2 or Select2 control panel through a serial cable connection with a personal computer.
  - » Save a prescription for use with BaseStation3, AgSense, or other remote loading methods.
- Use BaseStation3 or AgSense to upload a prescription to an ICON control panel.

# Uploading a Prescription

## Loading or Saving Prescriptions

To load a VRI prescription:

1. Open the pivot project.
2. Select **Prescription Loader** in the VRI drop-down menu. See Figure 42-1.

   The Prescription Loader screen appears. See Figure 42-2.
3. In the Data Source File Selection section of the screen, select one of the following to identify the prescription's source:
   - **Use Valley VRI program Generated XML** (default)
   - **Use Third Party program Generate XML**
4. Select the prescription that is to be loaded or saved by clicking the appropriate checkbox. See Figure 42-2.

   **Note:** In the file selection window the names of the prescriptions inside the project selected are displayed with the prescription Type, RTU ID, Map, and prescription name.

   There are 4 different Types: Pivot (Pivot Zone), SC Pivot (Pivot Speed), Linear (Linear Zone) and Next Gen (Pivot VRI iS).

   The RTU ID is the number created in the software.

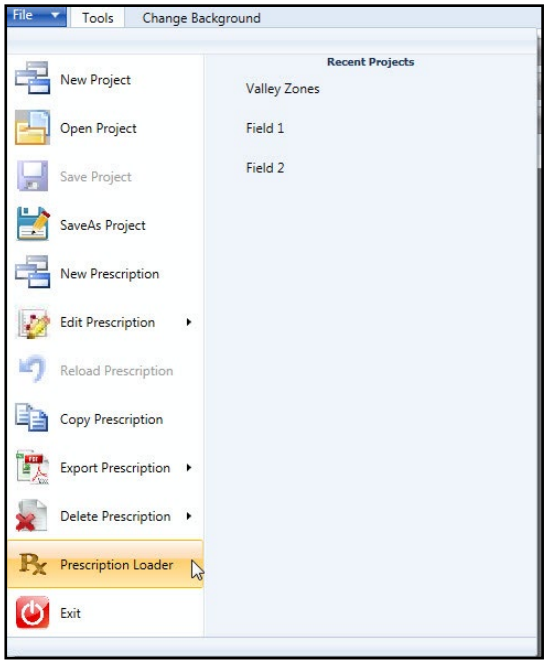


Figure 42-1 Select Prescription Loader

5. Select the Panel Type, either ICON or PRO 2 Panel (Pro2 , Select 2 or AutoPilot). This ensures the correct protocol type is Written to the panel or Saved to file. See Figure 42-2.
   ***Note: Write to panel only works with Pro2, Select2 or AutoPilot control panels.***

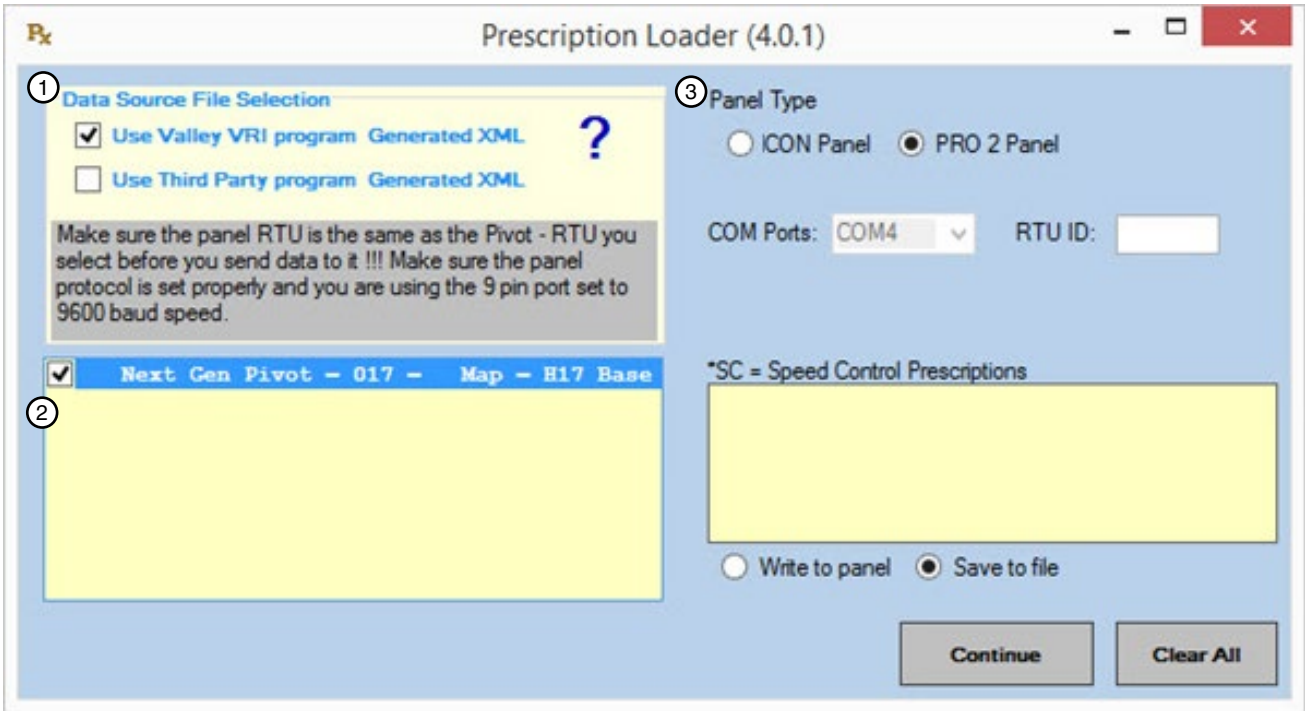


Figure 42-2 1. Data Source File Selection 2. Prescription Selection Section 3. Panel Type

## Loading or Saving Prescriptions (continued)

6. Enter the RTU ID of the panel. This will be used instead of the number created by the prescription software. See Figure 43-1.

   **NOTE:** ICON Panels need a 4 digit ID entered and can be 0-9 and/or A-F combination.

   *make sure it matches the RTU ID in the Panel.

7. Select one of the following by clicking on the appropriate checkbox: See Figure 43-1.
   - **Write to panel** - will cause the prescription to be sent directly to the control panel.
     *Note - Write to panel only works with Pro2, Select2 or AutoPilot control panels.*
   - **Save to file** - will save the prescription to the location you select.

8. **If you are writing to the panel**, select the COM port to be used in the drop-down menu. See Figure 43-1.

   **NOTE:** Use the 9-pin COM port on the control panel with constants set as Remote Control and with baud rate at 9600.

9. Click **Continue** to be taken to the next screen. Note: Clicking Clear All removes all selections you have made on the screen. See Figure 43-1.

10. Do one of the following:
    - If you selected Write to panel, continue with Write to panel on page 44.
    - If you selected Save to file, continue with Save to file on page 45.

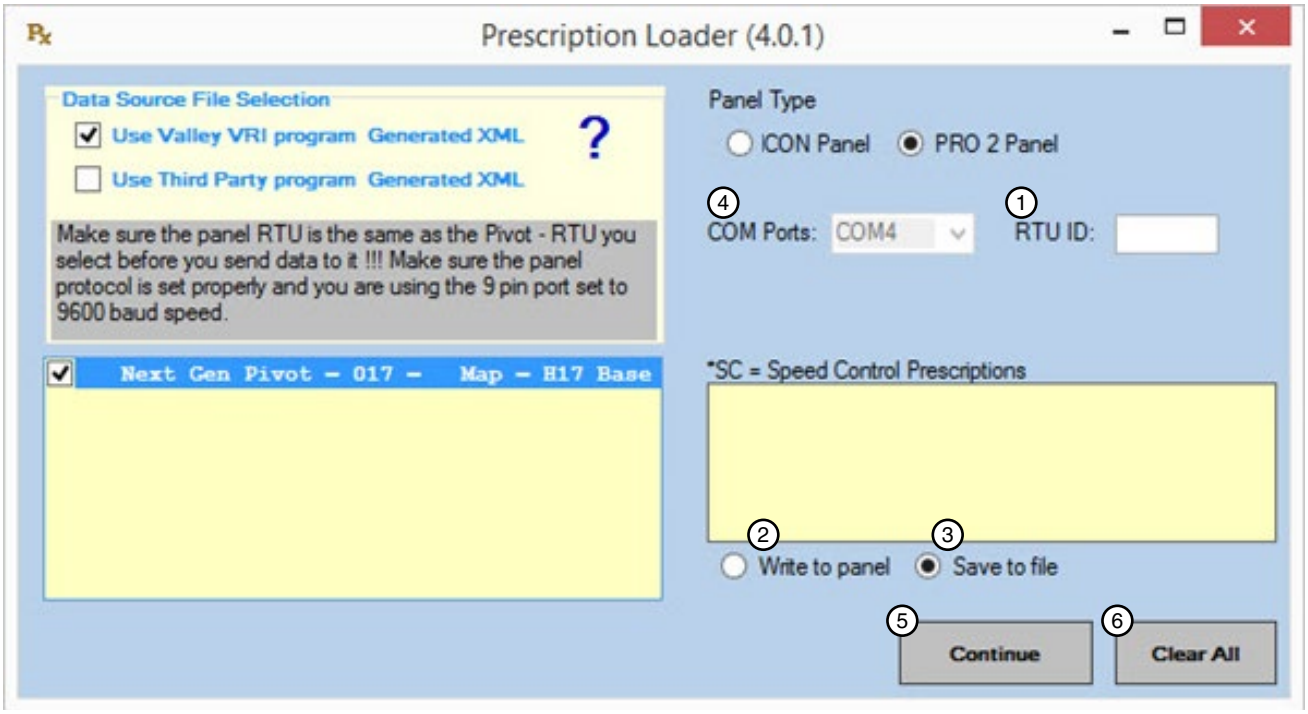


Figure 43-1 1. RTU ID 2. Write to panel 3. Save to file 4. COM ports 5. Continue 6. Clear All

# Uploading a Prescription

## Loading or Saving Prescriptions (continued)

### Write to Panel

If you selected **Write to panel** and clicked **Continue**, the file is sent to the control panel and the Upload pop-up screen indicates if the file has been uploaded to the control panel correctly. See Figure 44-1.

1. Click **OK**.

- The Prescription Loader screen is updated with the status of the data transmission. See Figure 44-2.

  **Note:** All “217 records loaded” defines the 1300 lines of a prescription. VRI iS prescriptions can have up to 1300 lines. Lines are passed 6 at a time. 1300/6 = 216.66 (217) records loaded.

2. Click the **Close** button on the Prescription Loader screen to exit the Prescription Loader application. See Figure 44-2.

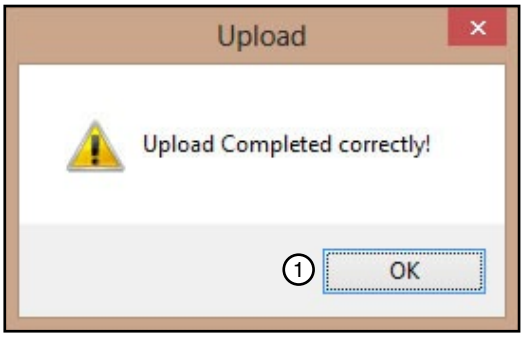


Figure 44-1 1. OK

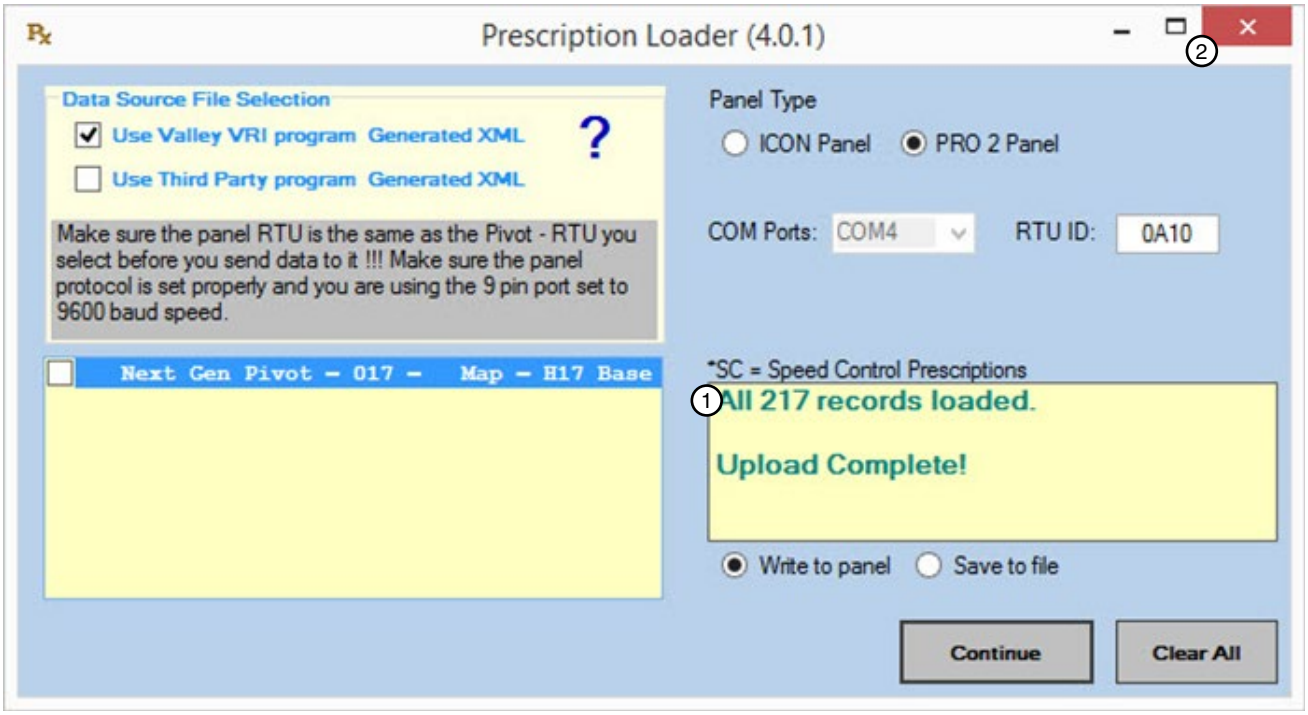


Figure 44-2 1. Data Transmission Status
2. Close

# Loading or Saving Prescriptions (continued)

## Save to file

If you selected **Save to file** and clicked **Continue**, the Browse For Folder pop-up screen appears. See Figure 45-1.

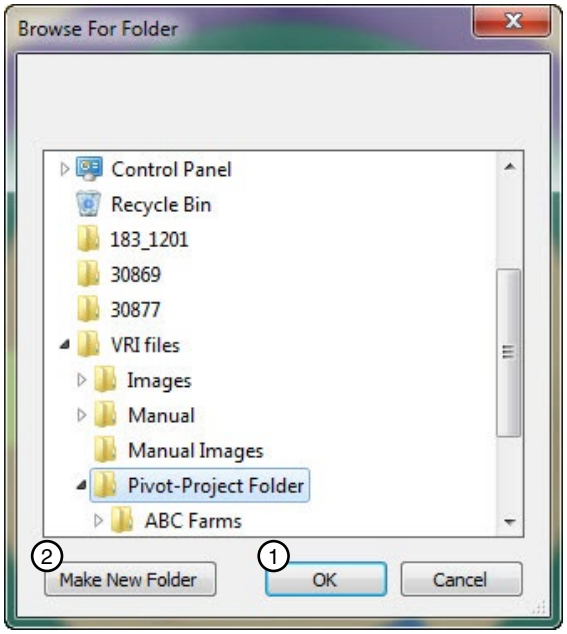


Figure 45-1 1. OK
2. Make New Folder

1. Locate the folder in which you want to store the file and click **OK**.
   - If you want to store it in a new folder, click **Make New Folder** and place it there.

   **Note:** The stored files that are made from "Save to file" have different file extensions based on the Panel type and the prescription type.

   Files will start with the Type, RTU, Map, Prescriptions name and have an extension at the end.

   There are 2 different output Types: Pivot & Linear

   There are 6 different file extensions: Zone, iZone, Speed, iSpeed, Vis, and iVis.

   The i in front of Zone, Speed and Vis indicates those files are for ICON panels. The ICON panels use a different protocol.

   Example: Pivot - 011 Map - Potatoes.Zone

   .Zone is the extension.

   - The the file is saved to the location and the Prescription Loader screen is updated with the file information. See Figure 45-2.
2. Click the **Close** button on the Prescription Loader screen to exit the Prescription Loader application. See Figure 45-2.

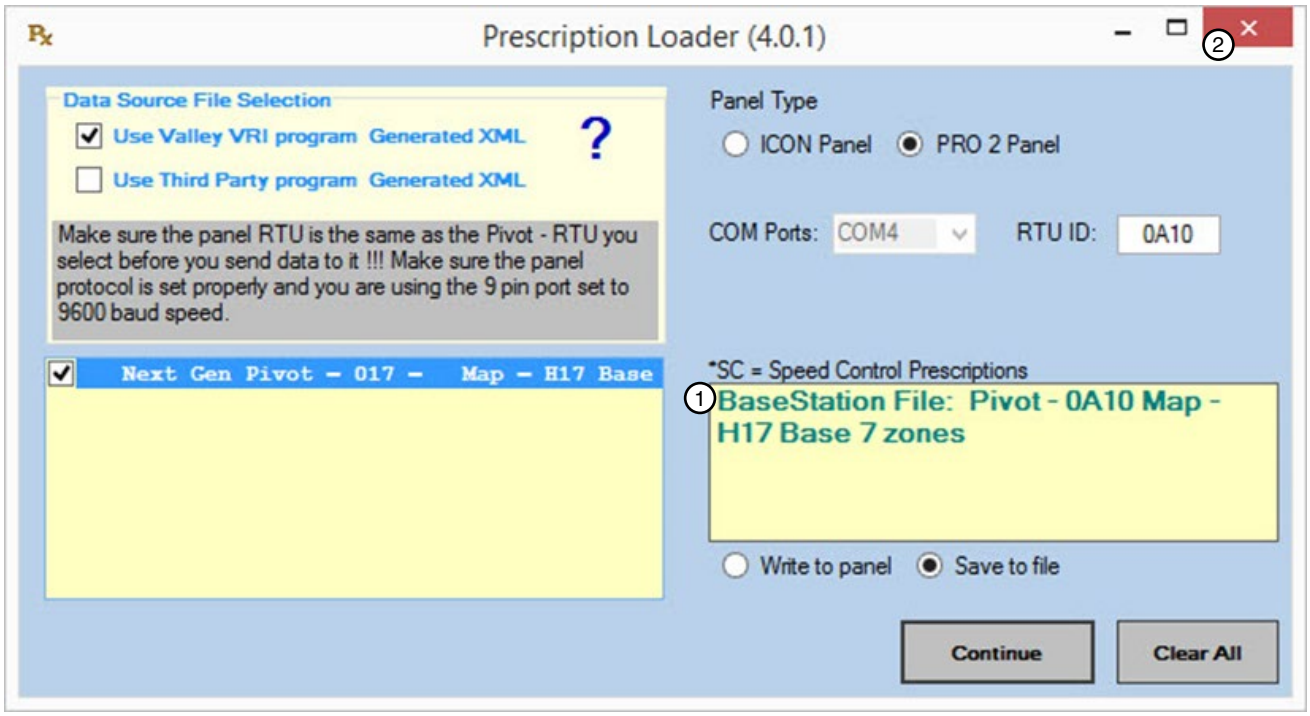


Figure 45-2 1. File Stored Indicator 2. Close

# Uploading a Prescription