OpenRoads Designer User Manual

U.S. Department of Transportation
Federal Highway Administration

Chapter 15

STATIONING, ANNOTATIONS, AND DIMENSIONING

2021 R2 Update 10 – Version 10.10.21.04 – WorkSpace 10.10V
January 2023

Chapter 15 Stationing, Annotations, and Dimensioning

This chapter covers the creation of Annotations, such as Plan Notes and annotation of Alignments (stationing) and Profiles.

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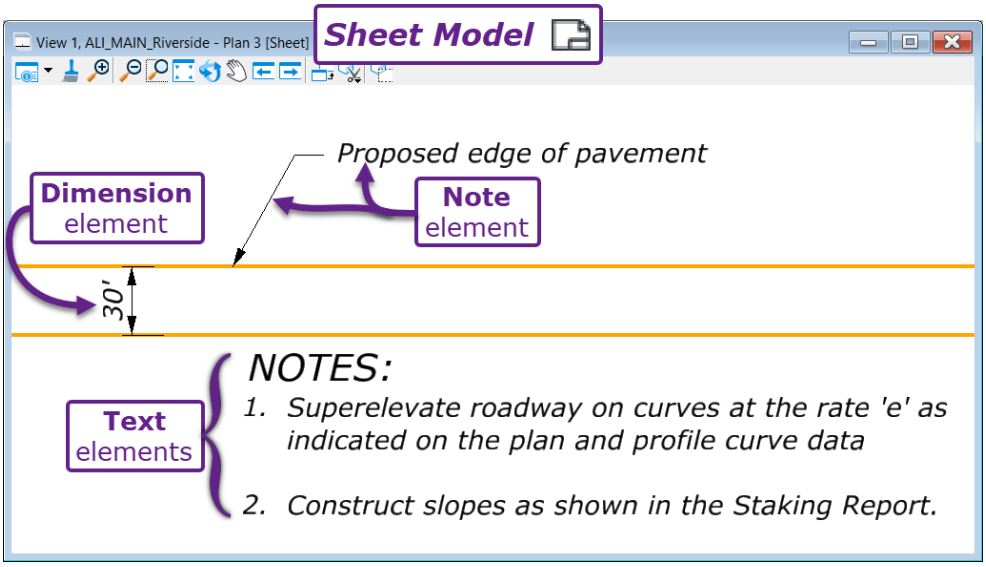
15A – INTRODUCTION TO ANNOTATIONS AND ELEMENT TEMPLATES

This chapter covers three major Annotation types used in drafting FLH Plan Sets:

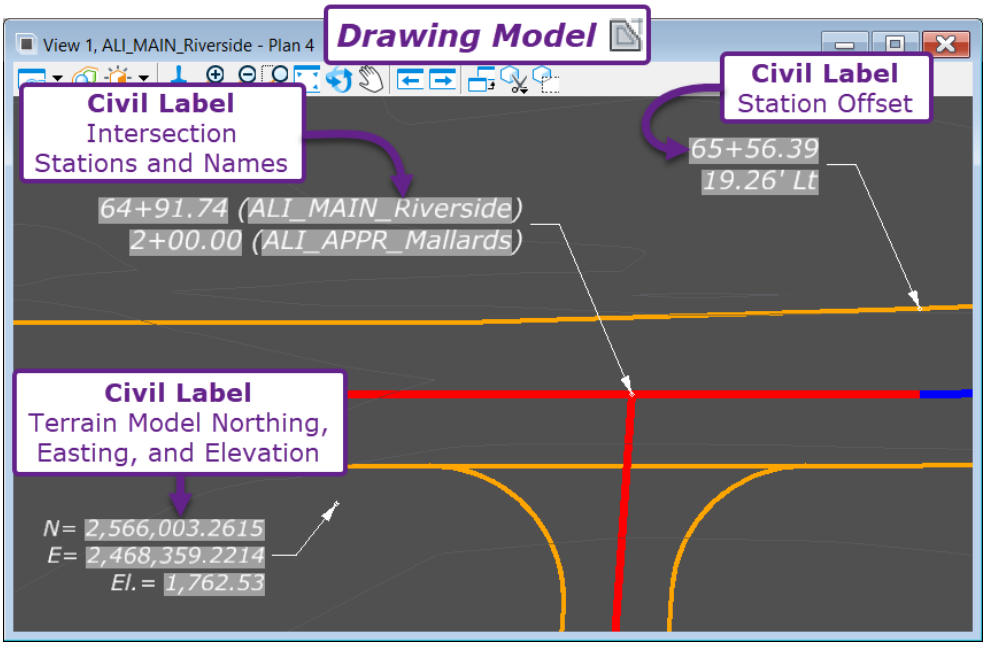
Text, Note, and Dimension Elements: Text, Note, and Dimension elements are simple annotations that are manually populated. A Text element is a stand-alone text string. A *Note* element contains a text string and a leader/arrow. ***IMPORTANT:*** Set an Element Template style before creating Text, Note, and Dimension elements. *Element Templates* ensure annotation elements conform to FLH Drafting Standards.

See *15B - Text, Notes, and Dimension Elements* and *15A.3 Element Templates*.



Civil Labels: Civil Labels are pre-made, intelligent annotations that can perform civil analysis. *Fields* and *Text Favorites* are embedded into Civil Labels to populate text and data fields automatically. FLH has created a library of Civil Labels for common drafting situations. Civil Labels can perform a wide variety of tasks; such as calculating Station/Offset. Civil Labels are created with the *Civil Labeler* tool.

See *15C - Fields, Text Favorites, and Civil Labels*.



Civil Annotations: Civil Annotations are used to station and label Alignments and Profiles. A set of Civil Annotations is called an *Annotation Group*.

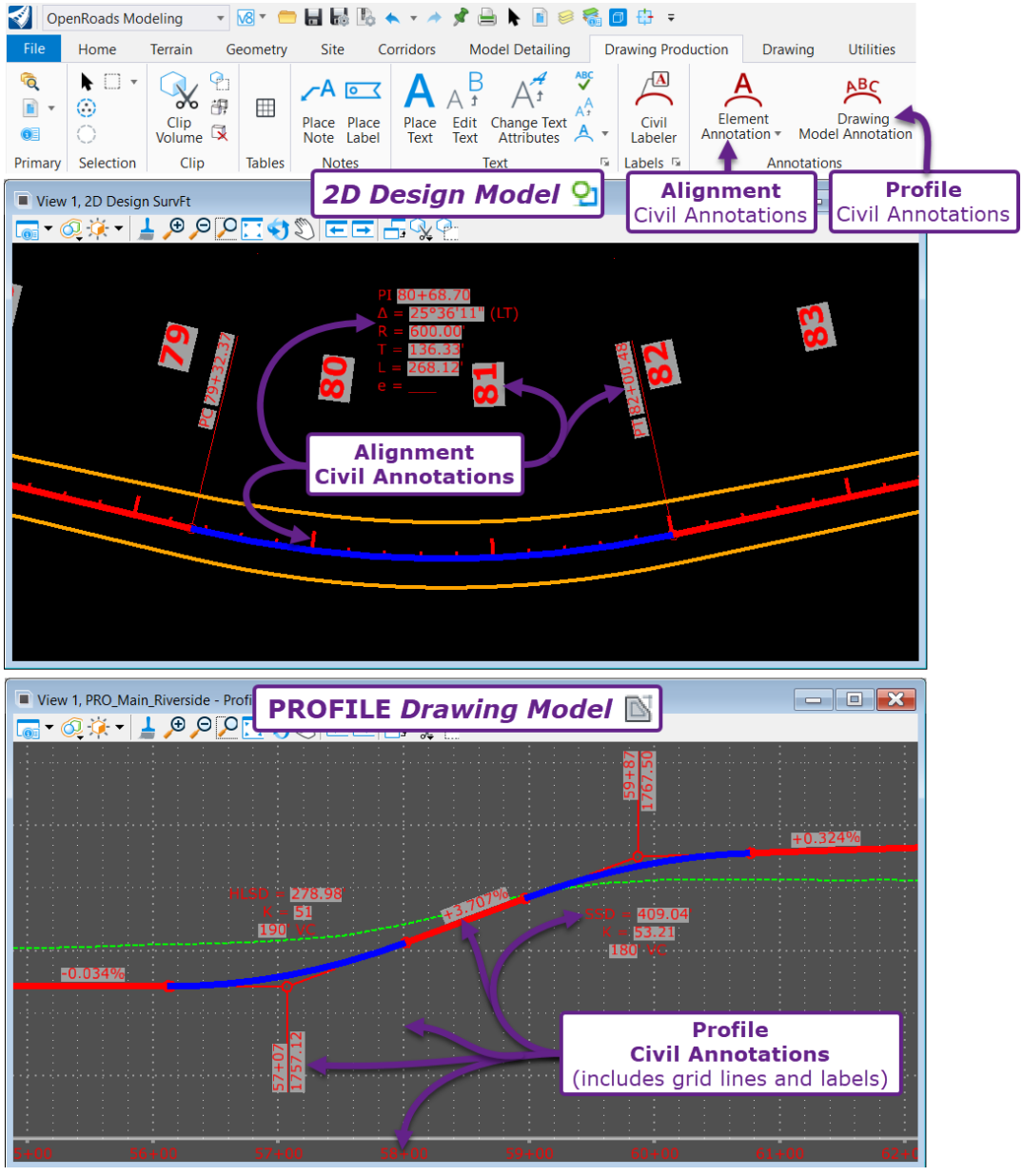
Alignments Civil Annotations are created with the *Annotate Element* tool.

> ***BEST PRACTICE:*** Create Alignment Civil Annotations in the *2D Design Model* of the Alignment File. Alignment Civil Annotations can be placed in the PLAN *Drawing Model*, but is discouraged.
>
> ***IMPORTANT:*** Before creating Alignment Civil Annotations, set the *Annotation Scale* to match the plan and profile Design Scale (i.e., 1"=100'). See *15A.2 Annotation Scale*.

Profile Civil Annotations are created with the *Annotate Drawing Model* tool. Profile Civil Annotations are primarily used to annotate the Grid of a Profile. Profile Civil Annotations must be created in the PROFILE *Drawing Model*.

> ***NOTE:*** Typically, Profile and Profile Grids are automatically labeled in creation of the PROFILE *Drawing Model*.

See *15D – Civil Annotations (Stationing & Profile)*.



15A.1 Best Practices for Which Model to create Annotations in

Before creating any type of Annotation elements, decide which Model the annotations will be placed in.

The ***BEST PRACTICE*** recommendations for which model to create Annotations in is based on the Annotation element type:

Text, Notes, and Dimensions: Create in *Sheet Models* (preferred) or *Drawing Models*. Creation in the 2D *Design Model* is strongly discouraged. See ***WARNING*** below.

> ***NOTE:*** Placing of Text, Note, and Dimensions in *Sheet Models* is preferred to provide a consistent Model location for placing and editing Annotation elements.
>
> Placement in *Drawing Models* is acceptable, but inevitably, some plan notes must be placed in the *Sheet Model*. For example, the "Begin Project" annotation (found on the first page of plan and profile sheets) must be created in a *Sheet Model* because it extends into both the PLAN and PROFILE *Drawing Models* areas. When possible, maintain Model location consistency when placing Text, Notes, and Dimension elements.

Civil Labels: Create in *Drawing Models* (preferred) or *2D Design Model* (see ***WARNING*** below).

> ***NOTE:*** When placed in the *Sheet Model*, Text Fields do NOT calculate correctly for Civil Labels. Also, when used in the *Sheet Model*, the Civil Labeler tool will often crash the software.

BEST PRACTICE CONSIDERATION: If Civil Labels are used extensively, then consider placing Text, Notes, and Dimensions together with Civil Labels in *Drawing Models*. This provides a consistent Model location for Annotation elements.

Alignment Civil Annotations: Create in the *2D Design Model* of the Alignment ORD File.

> ***NOTE:*** Alignment Civil Annotations can be created in PLAN Drawing Models or any ORD File which the Alignment is referenced into. However, it is ***BEST PRACTICE*** to create Alignment Civil Annotations in the Alignment ORD File, because station labels are shown in many sheets throughout the plan set. Creating Alignment Civil Annotations in the Alignment ORD File assures that station labels are shown whenever the Alignment ORD File is referenced into a different ORD File.

WARNING – Annotating in the 2D Design Model: Placing annotations in the *2D Design Model* is discouraged for the following reasons:

- Civil Label, Text, and Note elements do NOT auto-rotate for correct orientation with the *Sheet Model*. The *2D Design Model* must be rotated to the orientate with the *Sheet Model* before creation of these annotation elements.
- **Annotation Scale:** Before annotating in the *2D Design Model*, set the Annotation Scale to correspond with the final Design Scale (i.e., 1"=50'). If the Annotation Scale is set incorrectly, then annotative elements appear to be at different sizes when viewed in the *Sheet Model*. See *15A.2 Annotation Scale*.

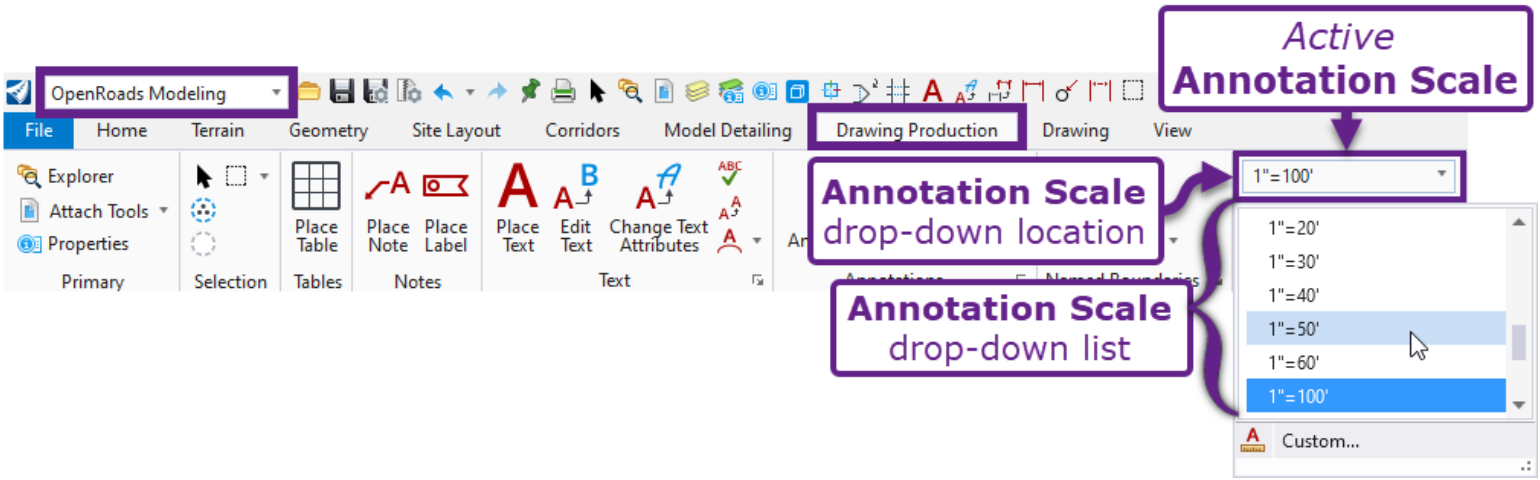
15A.2 Annotation Scale

Annotation Scale is a multiplier applied to the size of Annotative elements (i.e., text and dimensions).

The purpose of the Annotation Scale is to ensure that Annotative elements placed in the *2D Design Model* are the appropriate size when referenced and scaled down into *Sheet Models*.

The Annotation Scale is shown and changed from the following ribbon location:

> **OpenRoads Modeling** workflow → **Drawing Production** tab → **Drawing Scale** panel



IMPORTANT: Before creating or manipulating annotation elements in the *2D Design Model*, ***set the Annotation Scale to match the Design Scale (i.e., 1"=100')***. By default, the Annotation Scale for a new ORD File is set to 1" = 50' (in the *2D Design Model*).

For example, if the plan and profile sheets are to be shown at a 1" = 100' Design Scale, then the Annotation Scale set in the *2D Design Model* must be set to 1" = 100'.

The currently set Annotation Scale is unique to each Model in the ORD File. The Annotation Scale may be set differently for each Model within an ORD File.

> For example, changing the Annotation Scale in the *2D Design Model* does NOT affect the Annotation Scale set in *Drawing Models* and *Sheet Models*.

DRAWING MODELS NOTE: The Annotation Scale for *Drawing Models* is automatically set by the Drawing Seed used in the creation of Named Boundary elements. Do NOT manually change the Annotation Scale for *Drawing Models*.

> Like the *2D Design Model*, the *Drawing Model* is a "real-world space". Annotation elements created in the *Drawing Models* depend on an Annotation Scale multiplier for appropriate size display when referenced and scaled down into *Sheet Models*.

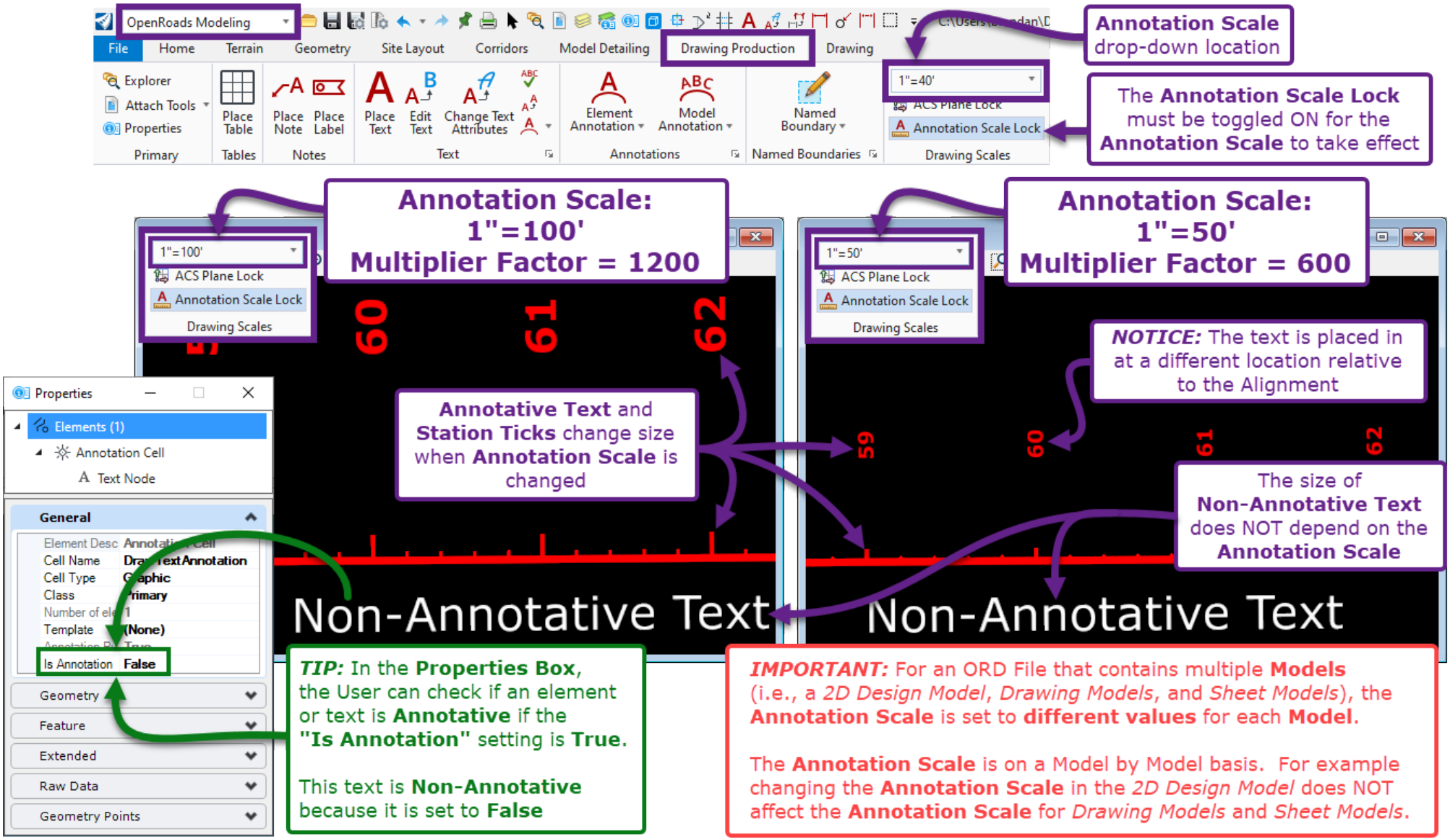
SHEET MODELS NOTE: The Annotation Scale for *Sheet Models* is ALWAYS set to "Full Size 1 = 1". This means there is NO multiplier applied to annotation elements placed in *Sheet Models*. Do NOT manually change the Annotation Scale for *Sheet Models*.

> The *Sheet Model* is a "paper space" that measures to 0.9166' (11") x 1.4166' (17)".

15A.2.a Behavior of Text and Annotative Elements in the 2D Design Model

An Annotative element is any element that will expand or contract in size when the Annotation Scale is changed. Annotative elements are usually text-related elements. However, geometrical element can be annotative, such as Cells, Patterns, and Hatches.

TIP: The User can determine if an element is annotative in the Properties Box – as shown below.



15A.3 Element Templates

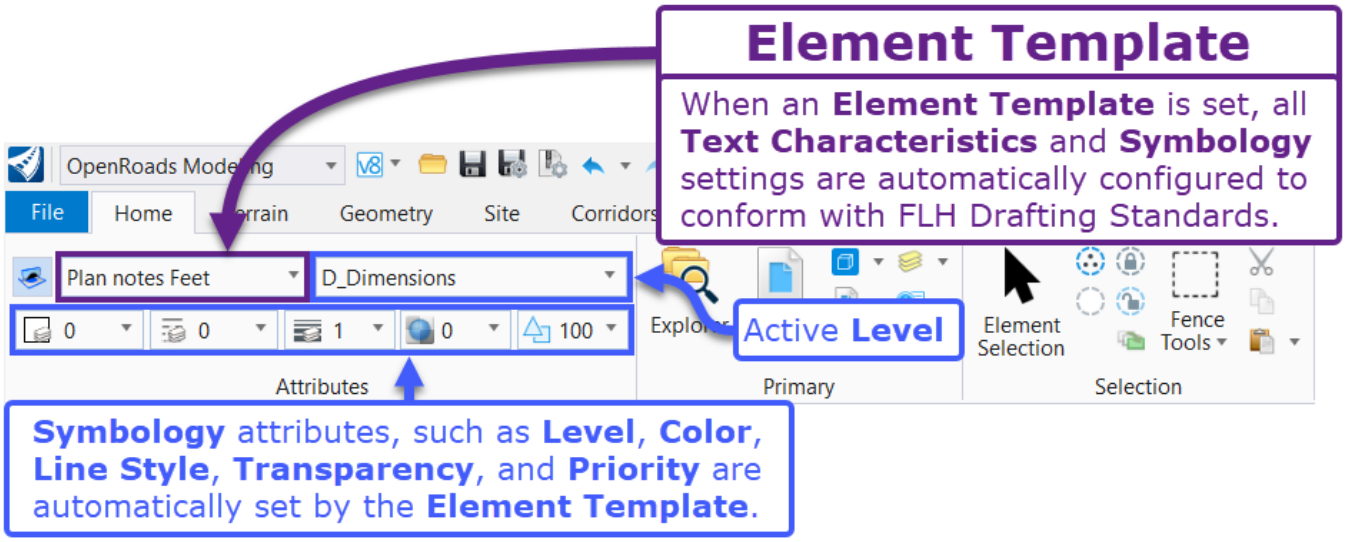
Set an *Element Template* style before creating a Text, Note, or Dimension element.

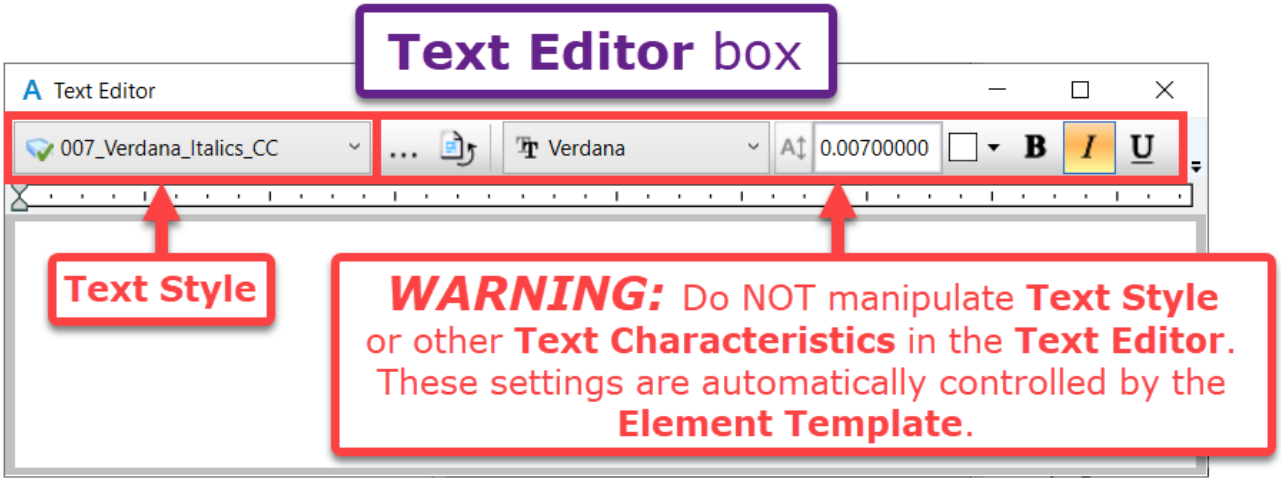
Element Templates ensure annotation elements are created in accordance with FLH Drafting Standards. FLH Element Templates are discussed in *15A.3.b FLH Element Templates*.

Element Templates are set from the dropdown in the *Attributes panel*, which is found in the Ribbon at the following locations:

Drawing workflow → **Home** tab → **Attributes** panels

OpenRoads Modeling workflow → **Home** tab → **Attributes** panels





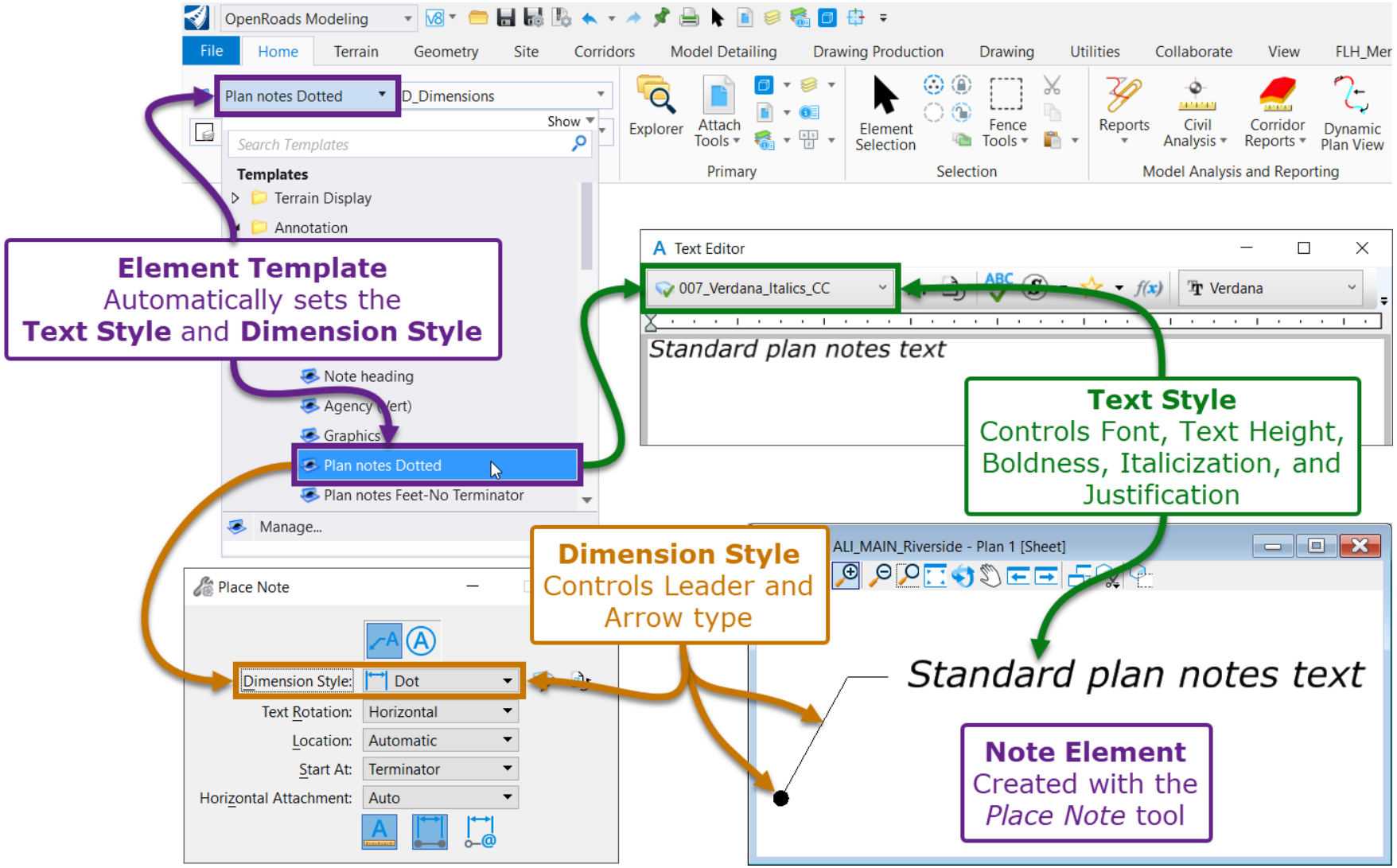
When an Element Template style is set, the resulting annotation is assigned the appropriate Symbology attributes (i.e., Level, Color, Line Style, Transparency, and Priority).

Similarly, Element Templates ensure the appropriate **Text Style** and **Dimension Style** is used. See the next page for more information on **Text Styles** and **Dimension Styles**.

Element Templates automatically set the appropriate **Text Style** and **Dimension Style**:

Text Styles: For Text and Note elements, the **Text Style** controls text characteristics. Font, Text Height, Color, Italicization, Boldness, Underline, Background Mask, Line/Paragraph Spacing, and Justification are set by the **Text Style**.

Dimension Styles: For Note and Dimension elements, the **Dimension Style** controls parameters related to terminator (i.e., arrow or dot), leader, landing, and text position.

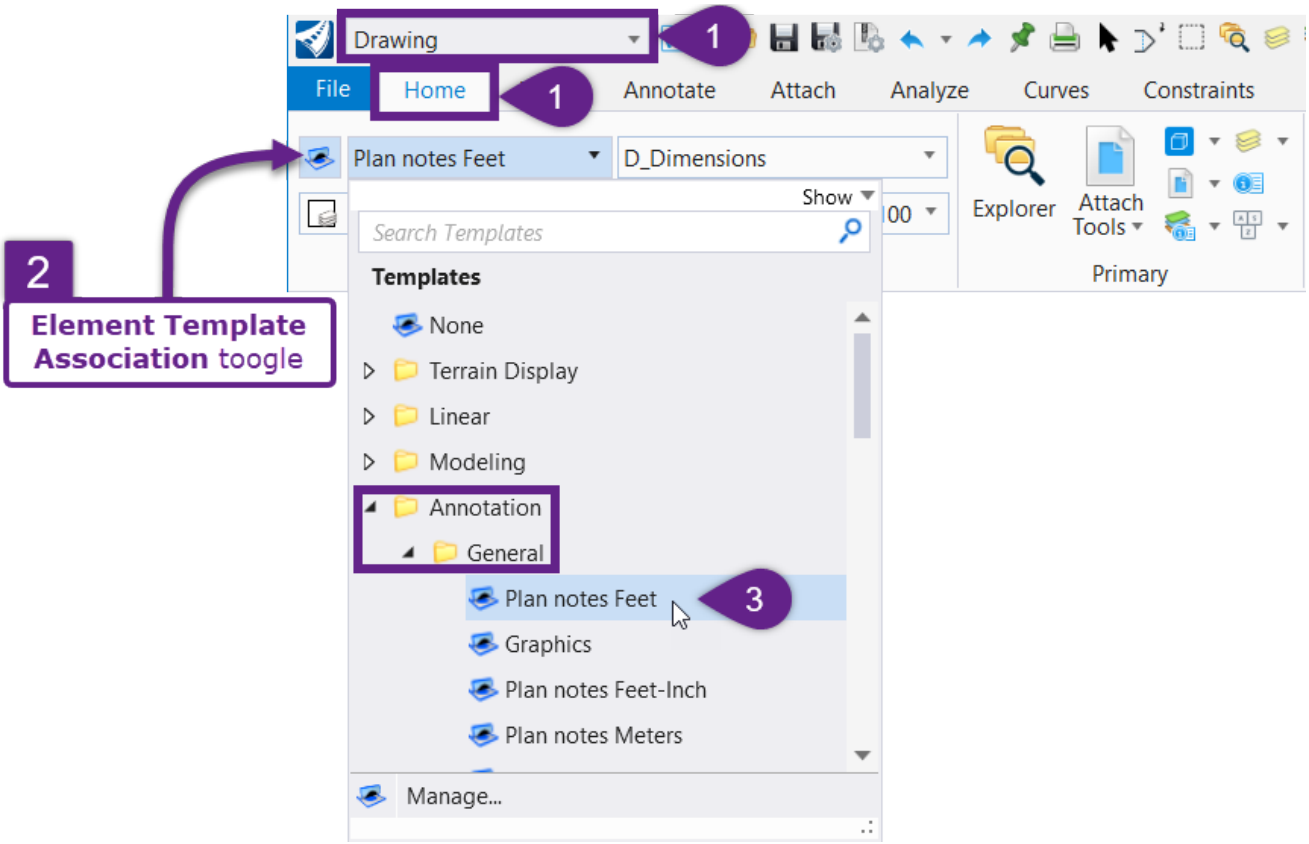


15A.3.a Set the Element Template

This workflow shows how to set an Element Template style prior to the creation of Text, Note, and Dimension elements. Specifically, the FLH Element Template called "Plan notes Feet" is used.

WARNING: ONLY use Element Template styles found in the **Annotation** → **General** folder. Disregard all Element Template styles found in other folders. See *15A.3.b FLH Element Templates*.

TIP: The "Plan notes Feet" style is the most common Element Template style and is used for standard call-outs that require an arrow terminator.



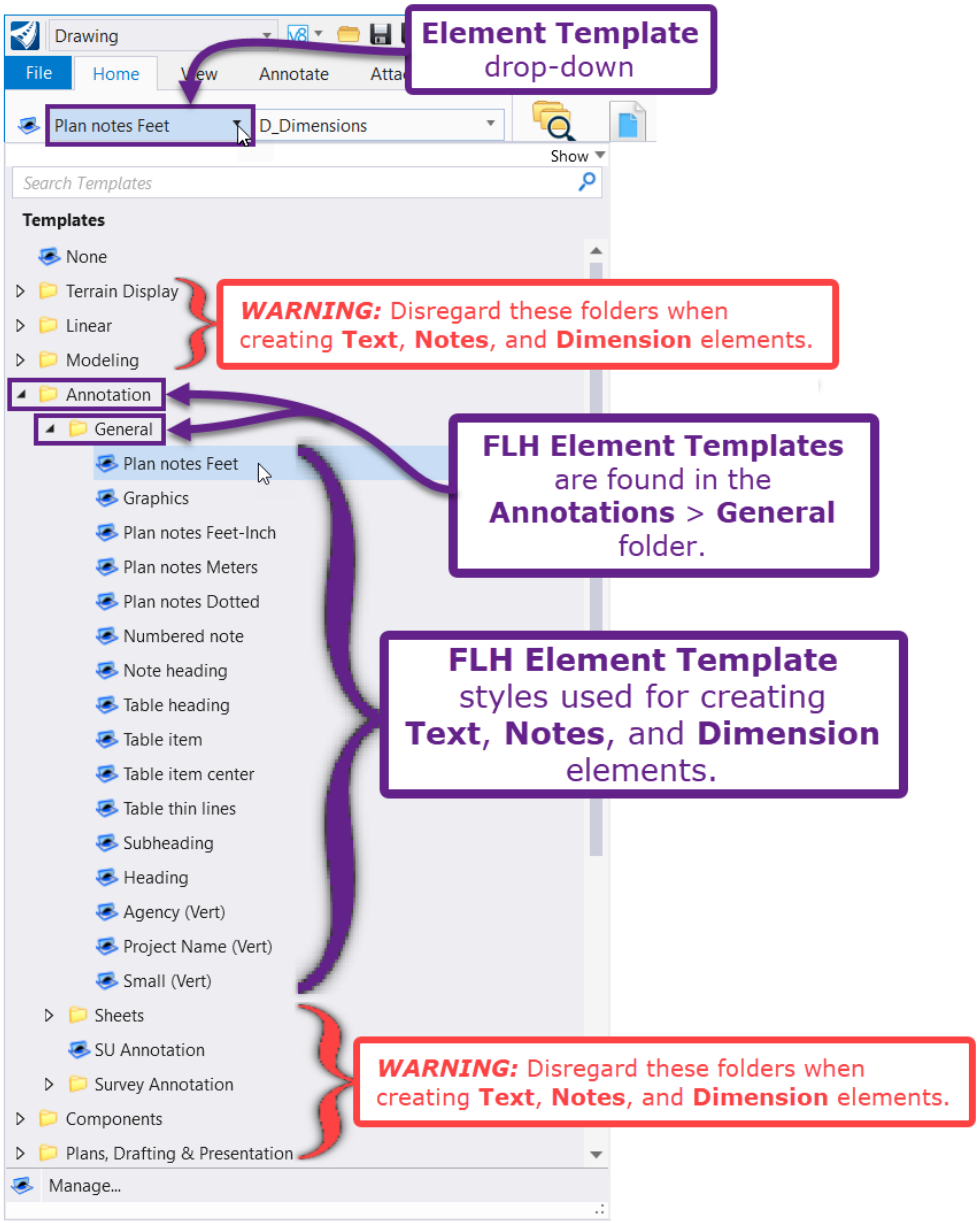
1	Navigate to a Ribbon location that shows the **Attributes Panel**. The **Attributes Panel** can be found in many locations, including: [**Drawing** → **Home** → **Attributes**].
2	In the **Attributes Panel**, toggle ON the Element Template Association icon. When Text, Note, and Dimension elements are created with this icon toggled ON, then they will contain an association to the selected *Element Template* style. Later, if the *Element Template* style is to be modified (overridden in the *Element Template Manager*), then all associated Text, Note, and Dimension elements will automatically update to reflect the modifications. ***BEST PRACTICES:*** Overriding *Element Template* styles is NOT advised in typical circumstances. However, toggling ON this icon provides flexibility an override is required.
3	In the **Attributes Panel**, open *Element Template* drop-down and navigate to the **Annotation** → **General** folder. Select the "Plan Notes Feet" Element Template.

After this preliminary procedure, continue to create Text, Note, and Dimensions as shown in:
15B.1 Text Elements *15B.2.a Note Elements* *15B.2.b Dimension Elements*

15A.3.b FLH Element Templates

The FLH workspace contains a library of Element Template styles for a vast majority of annotation creation scenarios. FLH Element Template Styles are found in the **Annotation** → **General** folder.

WARNING: When creating Text, Note, and Dimension elements, ONLY use Element Template styles that are found **Annotation** → **General** folder. Disregard all Element Template styles found in other folders.



Appropriate use of *FLH Element Template* styles is discussed on the FLH Website in the following location: https://highways.dot.gov/federal-lands/cadd-support/standards/element-templates.

Each FLH Division has a set of Sample Drawings to assist in determining the appropriate *Element Template* for the particular situation:

WFL Sample Drawings: https://highways.dot.gov/federal-lands/design/plan-prep-wfl-samples

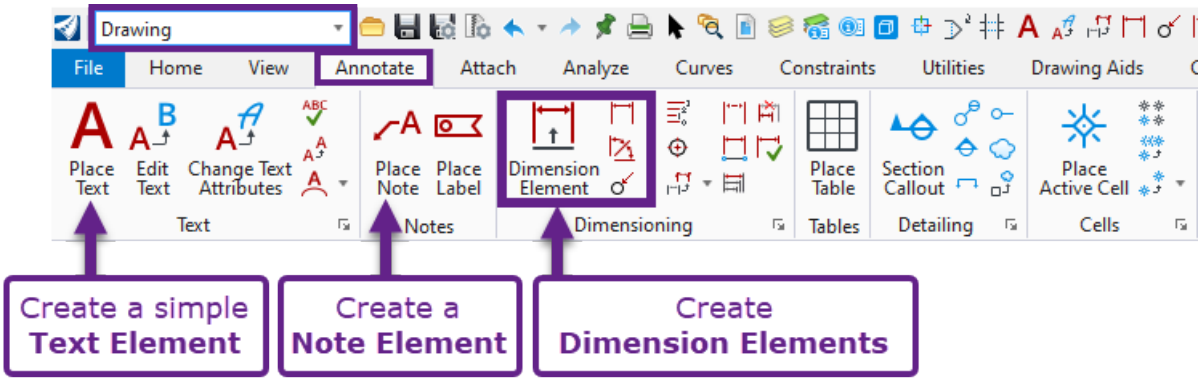
CFL Sample Drawings: https://flh.fhwa.dot.gov/resources/design/plans/cfl/sample-plans/

EFL Sample Drawings: *Place Holder*.

15B – TEXT, NOTES, AND DIMENSIONS ELEMENTS

The tools used to create/edit Text, Notes, and Dimension elements are found in the following location:

Drawing workflow → **Annotate** tab → **Text**, **Notes**, and **Dimension** panels



BEST PRACTICE: Always set an **Element Template** before creating a Text, Note or Dimension element. See *15A.3 Element Templates*.

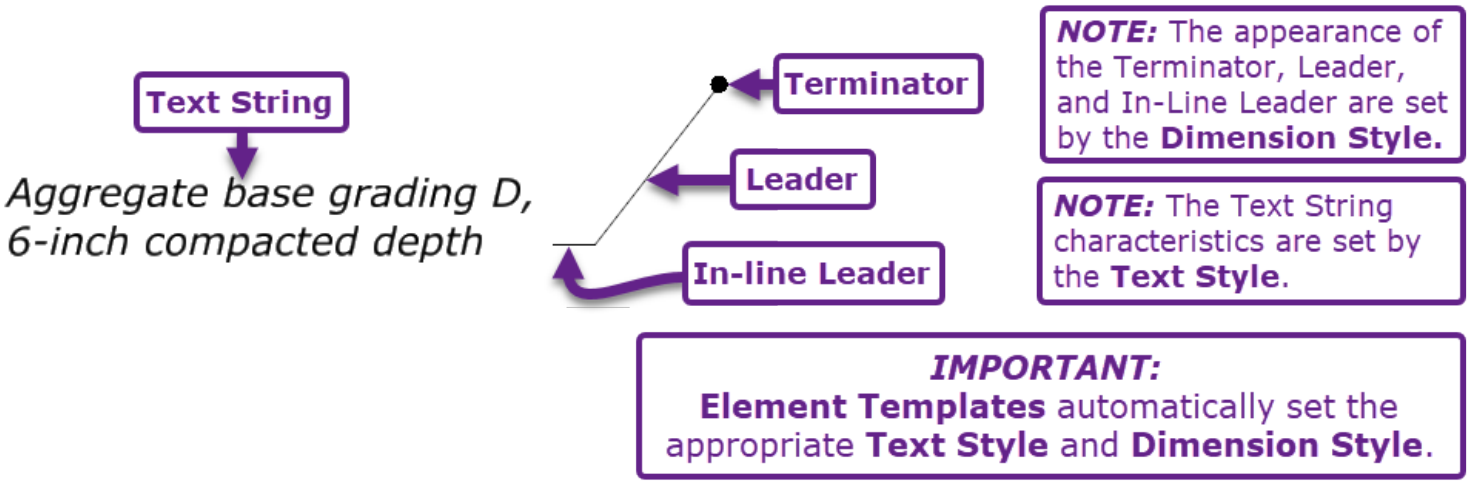
Text elements: A Text element is a simple, stand-alone piece of text, created with the *Place Text* tool. The Font characteristics of a Text element is determined by the *Text Style*, which is automatically set by the selected *Element Template*.

The Text element shown below was created with the "Heading" *Element Template* and is appropriate for custom detail headings.

CURB DETAIL (HEADING)

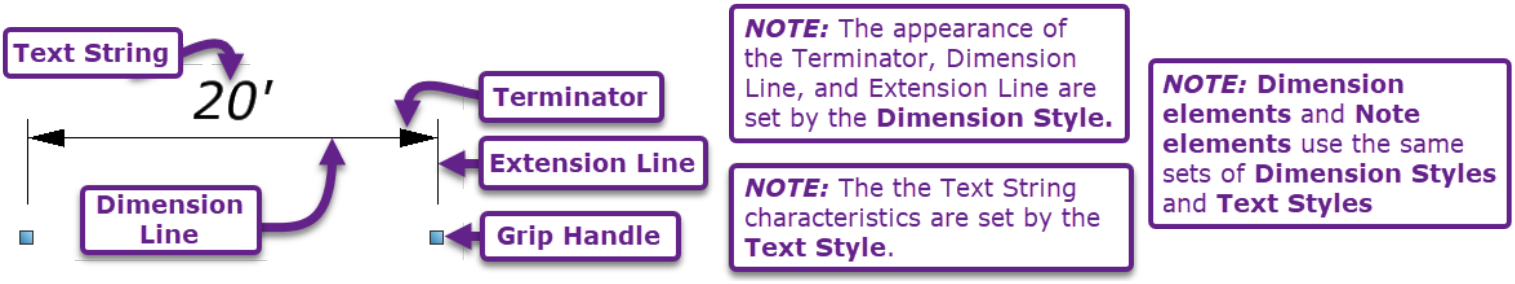
Note element: A Note element contains a leader, terminator (i.e., an arrow or dot), and text. In conventional engineering nomenclature, a Note element is referred to as a "callout". The leader/terminator of a Dimension element is determined by the *Dimension Style*, which is automatically set by the selected *Element Template*.

The Note element shown below was created with the "Plan notes Dotted" *Element Template*.



Dimension elements: The text string for a *Dimension* element is automatically measured and populated based on the measured distance between the grip-handle locations. The dimensional units (i.e., decimal feet, feet and inches, meters, etc.…) and terminator type is determined by the *Dimension Style*, which is automatically set by the selected *Element Template*.

The Dimension element shown below was created with the "Plan notes Feet" *Element Template*. This common FLH *Element Template* uses arrow terminators and is measured in decimal feet units.



There are three types of Dimension Elements:

Linear Dimensions: A Linear Dimension is used to dimension a distance (as shown above).

Radial Dimensions: A Linear Dimensions is used to dimension the radius of a circular element.

Angular Dimensions: An Angular Dimension is used to dimension the deflection angle between two elements.

15B.1 Text Elements

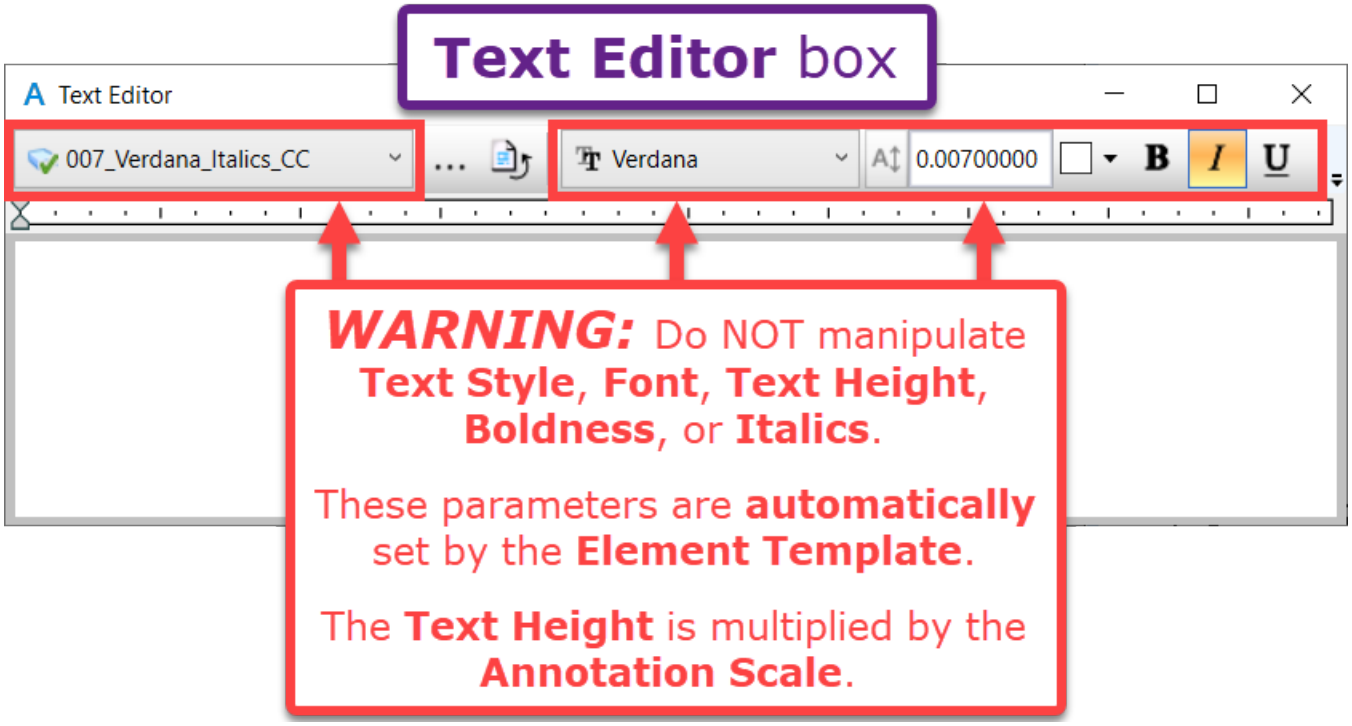
A Text element is a stand-alone piece of Text.

BEST PRACTICE: Always set an appropriate *Element Template* style before creating Text elements. See *15A.3 Element Templates*.

> **BACKGROUND INFORMATION:** The *Element Template* automatically sets the appropriate *Text Style* in the Text Editor box. In turn, the *Text Style* controls the text characteristics such as Font, Text Height, Boldness, and Italicization. When using *Element Templates*, there is NO need to change the *Text Style* or other text characteristics in the Text Editor Box. *Text Styles* are discussed in *15B.4 Text Styles and Dimension Styles*.

WARNING: In the Text Editor box, do NOT manually change the **Text Height**. Commonly, the **Text Height** of a Text Element appears too large or too small because the *Annotation Scale* is set incorrectly in the *2D Design Model* . See *15A.2 Annotation Scale*.

For special needs, such as exhibits, it may be necessary to modify the Text Style and Text Height. However, avoid doing so when possible.

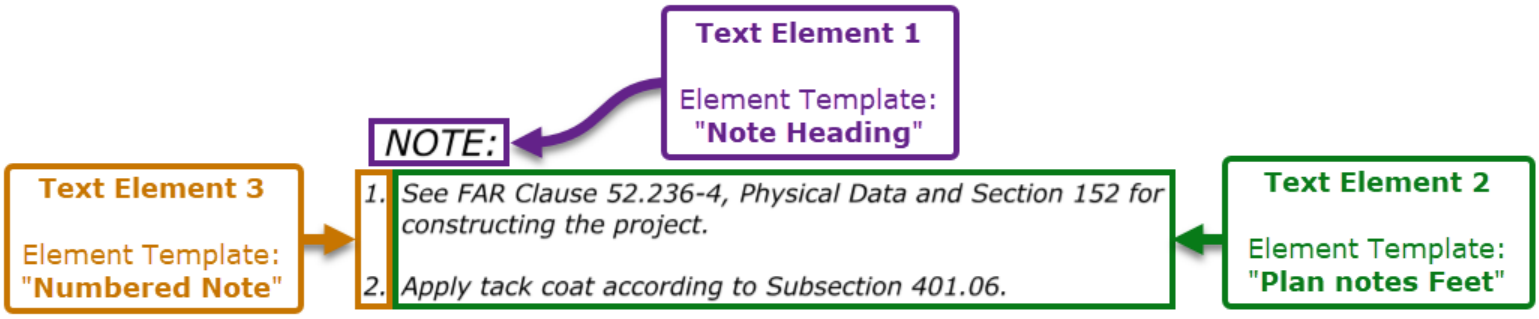


15B.1.a Create a Text Element – Workflow

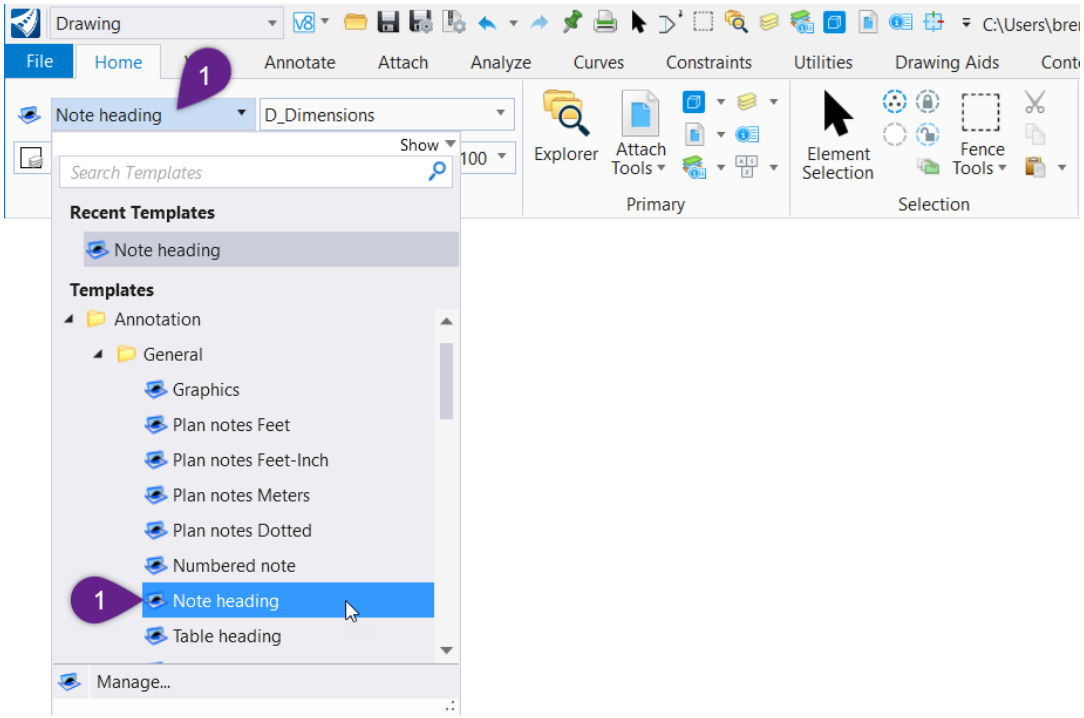
In this workflow, the Text elements used for the "NOTE:" assembly are created.

BEST PRACTICE: Always set an Element Template before placing a *Text* element. See *15A.3 Element Templates*.

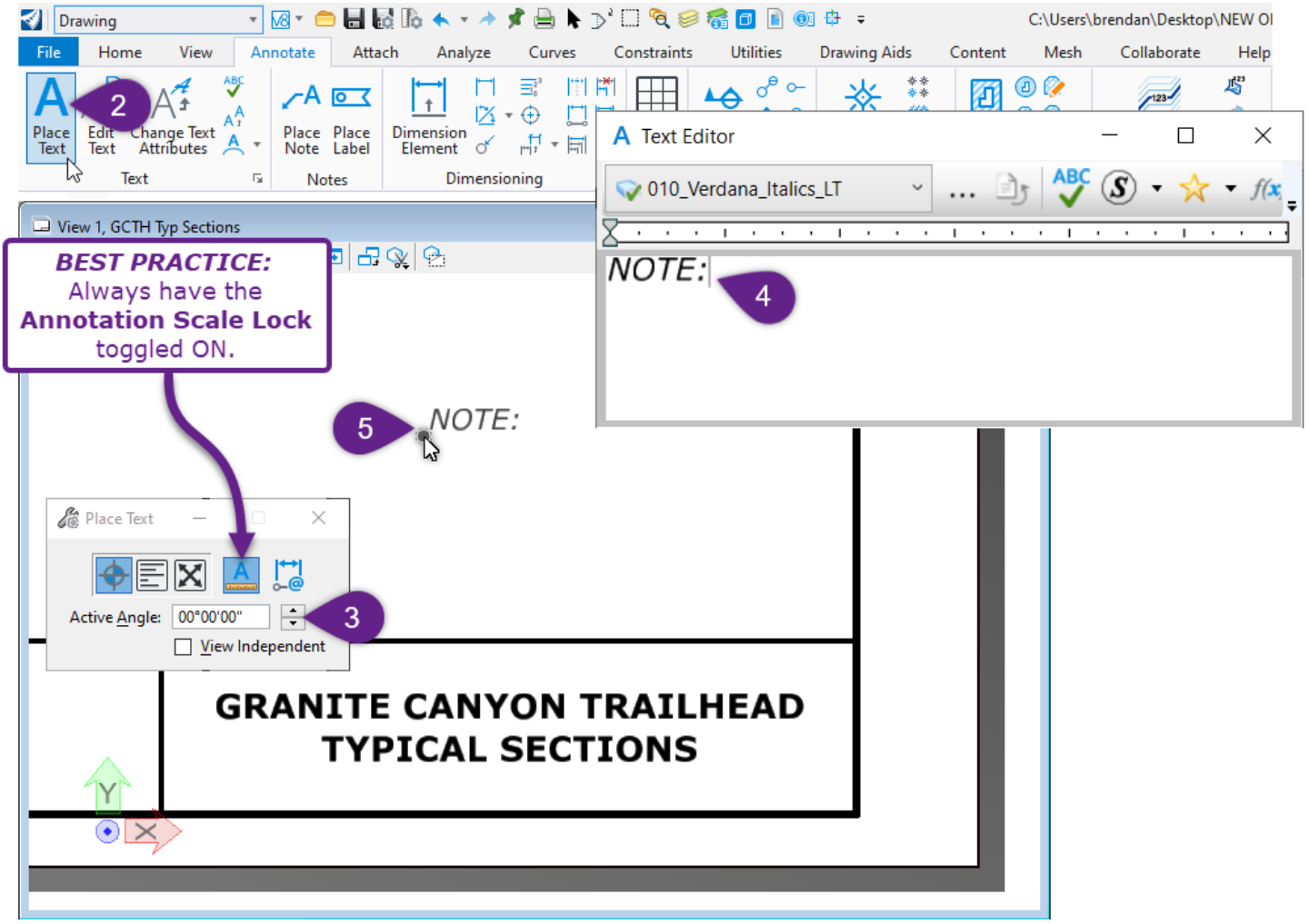
The "NOTE:" assembly is created from three separate Text elements. As shown below, each Text element is derived from a different Element Template.



Create Text Element 1 ("Note Heading"): This Text element is created from the "Note Heading" Element Template.

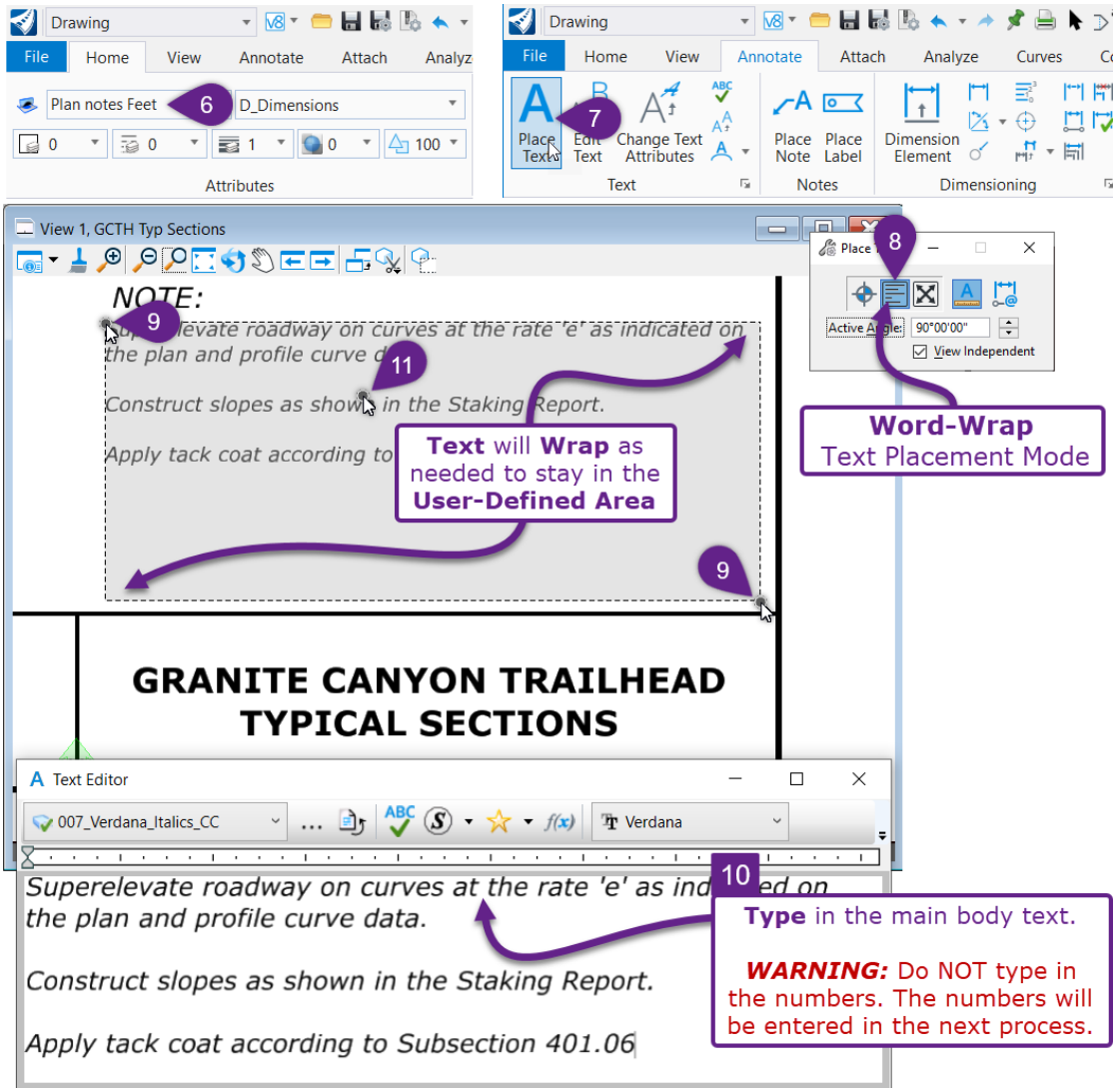


1	Navigate to a *Ribbon* location that shows the **Attributes Panel**. The **Attributes Panel** can be found in many locations, including: [***Drawing*** → ***Home*** → ***Attributes***]. In the drop-down, set the *Element Template* to: "Annotate/General/**Note heading**".



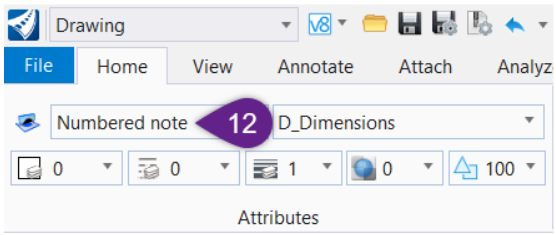
2	From the Ribbon, select the *Place Text* tool: [***Drawing*** → ***Annotate*** → ***Text***].
3	In the *Dialogue Box,* ensure the **Active Angle** is set to 00°. ***TIP:*** For more information on the other options in the *Place Text* dialogue box, see *15B.1.b Place Text Dialogue Box*.
4	In the Text Editor, type in "NOTE:"
5	Place the Text element by Left-Clicking in the desired location.

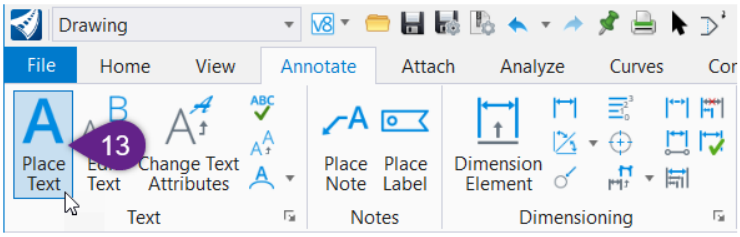
Create Text Element 2 ("Plan notes Feet"): The main text body uses the "Plan notes Feet" *Element Template*. This Text element is placed using the **Word-Wrap** mode. This mode allows the User to specify the specific area that the text can occupy. This option is useful to ensure the text does NOT sprawl past the Sheet Border or into other undesirable locations. See *15B.1.b Place Text Dialogue Box*.

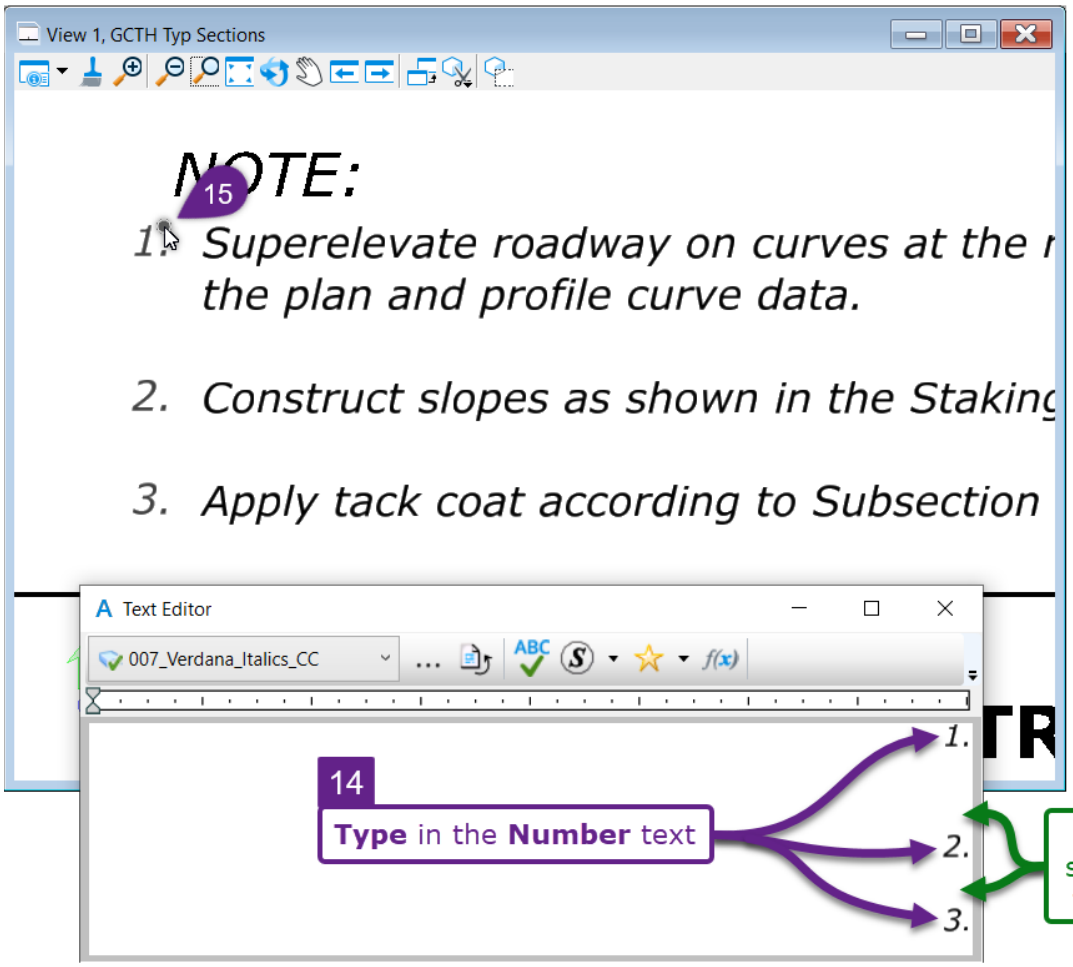


6	Set the *Element Template* to: "Annotate/General/**Plan notes Feet**". See step 1 for more info.
7	From the Ribbon, select the *Place Text* tool: [***Drawing*** → ***Annotate*** → ***Text***].
8	In the *Dialogue Box,* set the **Text Placement Mode** to **Word-Wrap** .
9	*Prompt: Place Text > Place first corner point* *Prompt: Place Text > Place second corner point* – Using two Left-Clicks, specify the desired area for the text to be placed.
10	In the *Text Editor*, type in the main body text as desired. ***WARNING:*** Do NOT type in the numbers (i.e., "1.", "2.", "3." etc.). The numbers will be entered as part of **Text Element 3 ("Notes Numbered")**, as shown on the next page.
11	Place the Mouse Cursor in the dashed box and Left-Click to accept placement of the Text element.

Create Text Element 3 ("Numbered Note"): The numbered text is created with the "Numbered Note" *Element Template*.





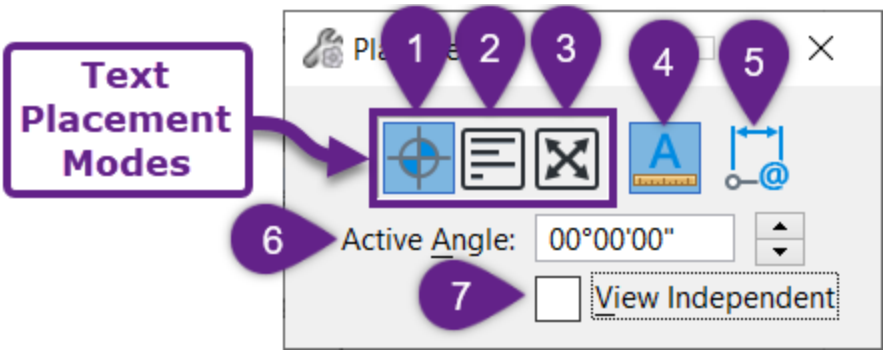


12	Set the *Element Template* to: "Annotate/General/**Numbered Note**". See step 1 for more info.
13	From the Ribbon, select the *Place Text* tool: [***Drawing*** → ***Annotate*** → ***Text***].
14	In the Text Editor, manually type out the numbers corresponding to the main body text.
15	Place the Text element by Left-Clicking in the desired location.

15B.1.b Place Text Dialogue Box

This section explains the options found in the *Place Note* dialogue box.

The **Text Placement Modes** change the procedure for how the text is place or fitted in the *View.*



1		**By Origin** text mode	With this placement mode, the Text String is typed into the *Text Editor*. Next, the Text element is placed. This is the default mode for placing Text.
2		**Word-Wrap** text mode	With this placement mode, the User specifies a box shape for which the text will be confined to. The text will not sprawl out of the box shape. This method is demonstrated in *15B.1.a Create a Text Element – Workflow*.
3		**Fitted** text mode	This placement mode allows the User to control the Text Height and Rotation with the Mouse Cursor. Placing Text elements precisely is very difficult with this mode. Typically, this mode is NOT used.
4		**Annotation Scale Lock**	When this icon is toggled ON, the resulting Text element will be *annotative* – which means it is affected by the *Annotation Scale Multiplier*. If this icon is toggled OFF, the resulting element will NOT be subject to the *Annotation Scale Multiplier*. See *15A.2 Annotation Scale*. ***BEST PRACTICE:*** Always keep this icon toggled ON.
5		**Enable to create relative associations to elements**	If this icon is toggled ON, then the resulting Text element will be anchored to another element. If the anchor element is moved, then the Text element will move in kind. For more information on associations, see *15B.2.c.i Annotation Associations to Elements*.
6		**Active Angle**	Specifies the angle at which the Text element is placed. Use 00° to place the Text element horizontally. Use 90° to place the text vertically.
7		**View Independent**	If this box is CHECKED, then the resulting Text element will always remain at the specified **Active Angle**, even if the *View* is rotated. In other words, if this box is CHECKED, the Text element will NOT rotate when the *View* is rotated. If this box is UNCHECKED, the Text element will remain horizontal when the *View* is rotated.

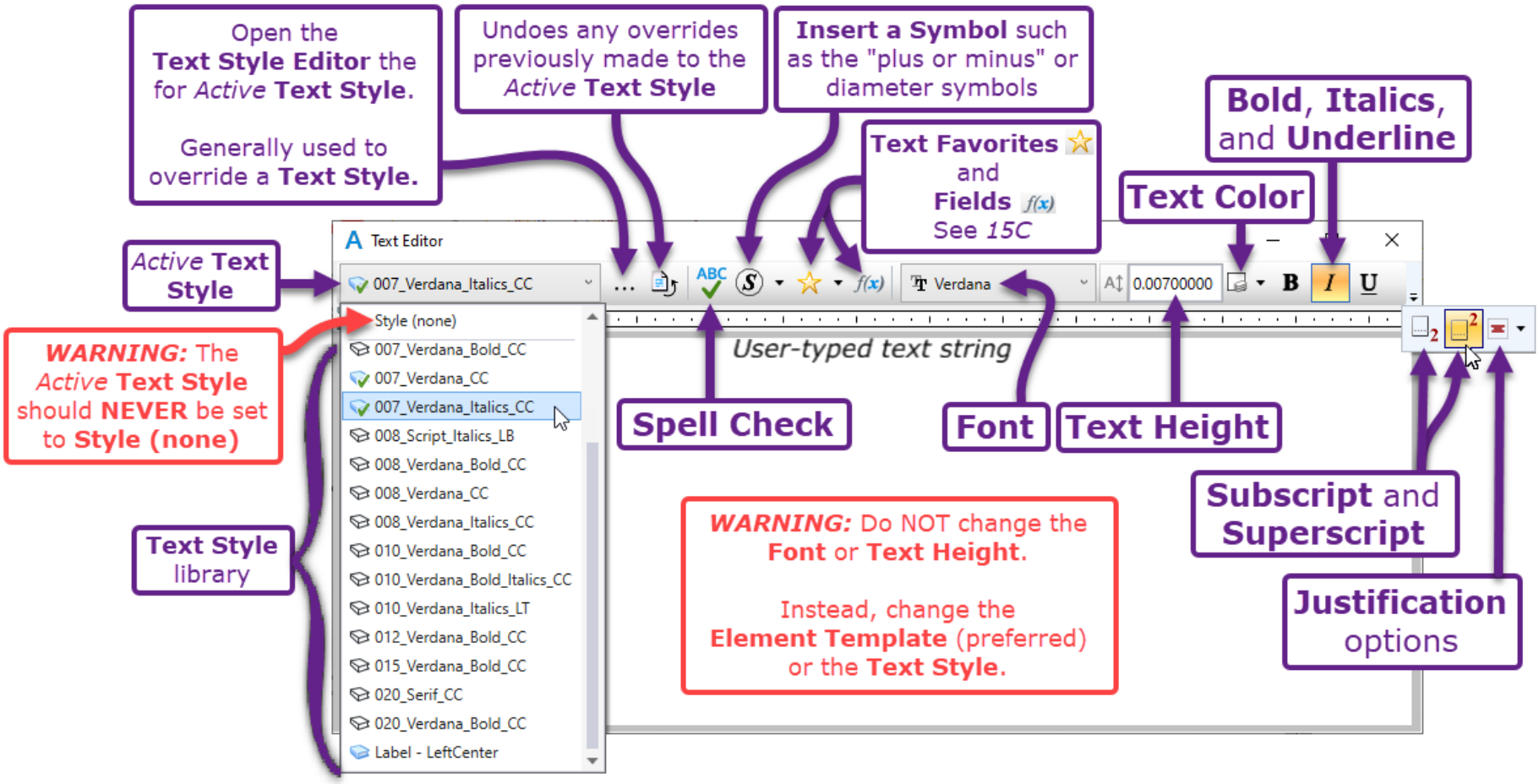
15B.1.c Text Editor Overview

Regardless of the Annotation tool used (i.e., Text, Notes, Dimension tools), text strings are created and modified from the Text Editor. The Text Editor appears when creating or editing Annotation elements.

IMPORTANT: When using Element Templates (*15A.3 Element Templates*), it is typically NOT necessary to configure any settings in the *Text Editor* box. The Element Template will automatically set the appropriate Text Style. The *Text Style* will set the appropriate text characteristics: such as Font, Text Height, Bold, Italicization, and Justification. See *15B.4 Text Styles and Dimension Styles*.

> ***TIP:*** To change the Element Template of a previously-created element, see *15B.3.a Change the Element Template*.

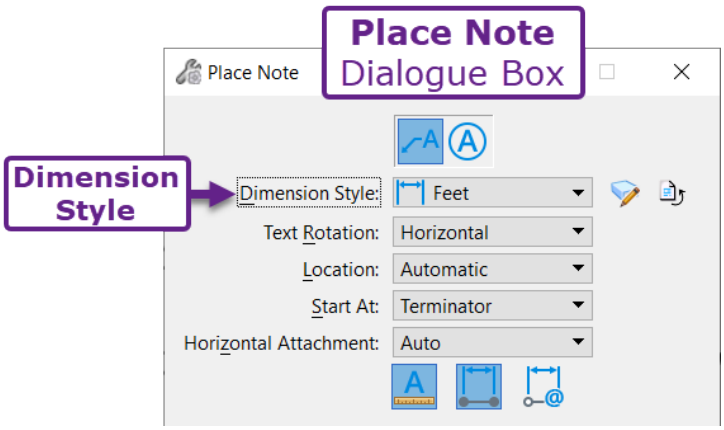
WARNING: In the Text Editor, the **Text Height** value will be small (i.e., 0.007'). The **Text Height** value shown here is unadjusted for the Annotation Scale. This is the real **Text Height** measured in the *Sheet Model* or on paper.



15B.2 Note and Dimension Elements

Both element types use *Dimension Styles* and *Text Styles* to control their overall appearance. See *15B.4 Text Styles and Dimension Styles*.

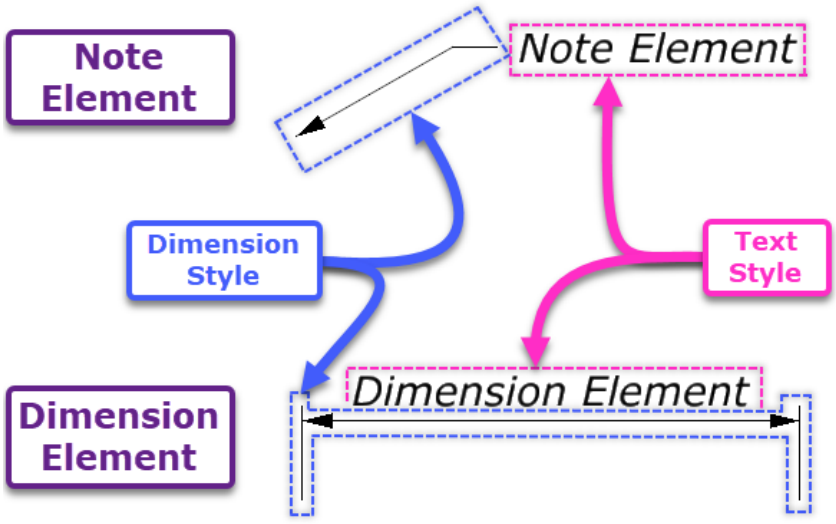
Dimension Style: The Terminator (i.e., arrow, dot, tilde) and overall appearance of Note and Dimension elements is controlled by the *Dimension Style*. Also, the unit of measurement (i.e., decimal feet, feet-inches, meters) is controlled by the *Dimension Style*.



Text Style: The text characteristics (i.e., Font, Text Height, Boldness, Italicization) of Note and Dimension elements is controlled by the *Text Style*.

> **BACKGROUND INFORMATION:** If an *Element Templates* is set prior to creation of a Note or Dimension, then it is NOT necessary to manually set the *Dimension Style* and *Text Style*. This discussion provides insight of the background mechanics of Note and Dimensions. See *15A.3 Element Templates*.

TIP: Standard Note and Dimension elements that contain an **Arrow** terminator use the "Plan notes Feet" or "Plan notes Feet-Inch" *Element Template* styles. A **Dot** Terminator is created with the "Plan notes Dotted" *Element Template*. These *Element Templates* are used for a most annotation tasks.



WARNING: Note and Dimension elements are sensitive to the Annotation Scale multiplier when placed in the *2D Design Model*. If the Terminator and Text appears too large or too small, then check to see if the *Annotation Scale* is set correctly in the *2D Design Model*. See *15A.2 Annotation Scale*.

15B.2.a Note Elements

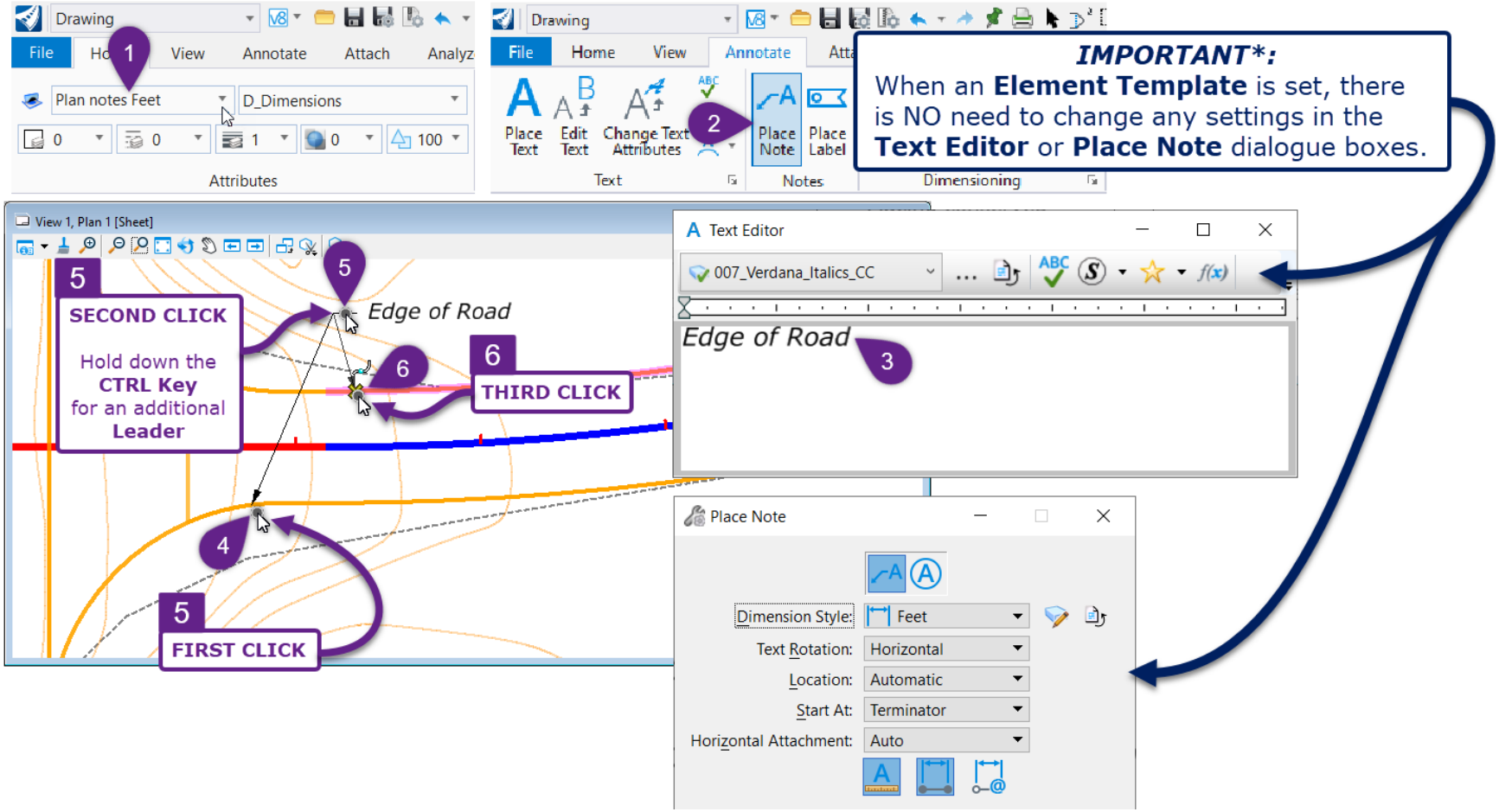
15B.2.a.i Place a Note with Multiple Leaders

In this workflow, a *Note* element is created with two leaders.

> ***BEST PRACTICE:*** Always set an appropriate Element Template style before creating Note and Dimension elements. See *15A.3 Element Templates*.

> ***TIP:*** Standard Note elements that contain an Arrow terminator use the "Plan notes Feet" *Element Template* style.

IMPORTANT: The best method for creating two leaders is to hold down the CTRL keyboard key when placing the **Text Component -** which occurs at the **SECOND CLICK** (as shown below in Step 6). When holding down the CTRL key, the second leader will be generated. This technique can be used to place any number of leaders for a single Note element.



1	**Set the Element Template:** Navigate to a *Ribbon* location that shows the **Attributes Panel**. The **Attributes Panel** can be found in many locations, including: [***Drawing*** → ***Home*** → ***Attributes***]. In the drop-down, set the *Element Template* to: "Annotate/General/**Plan notes Feet**".
2	From the Ribbon, select the *Place Note* tool: [***Drawing*** → ***Annotate*** → ***Notes***].

When the *Place Note* tool is initiated, then two boxes are presented: the *Place Note* dialogue box and the *Text Editor*.

IMPORTANT*: The advantage of setting the *Element Template* is that there is little or no configuration required for either box. For more information about the drop-downs and icons found in the *Place Note* dialogue box, see *15B.2.c Place Note and Place Dimension Dialogue Boxes*.

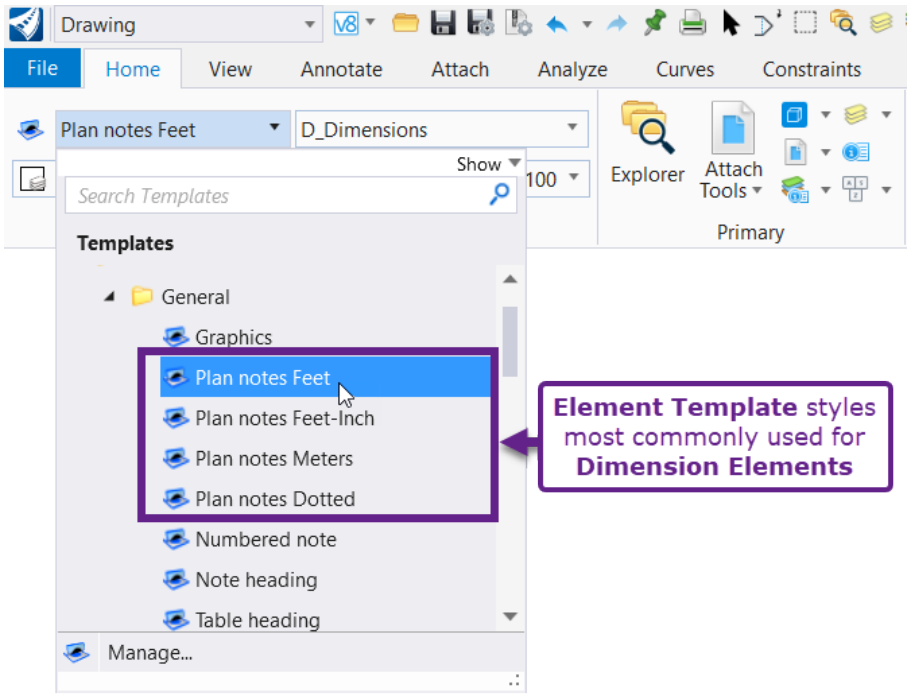
3	In the *Text Editor*, type in the desired Text String. In this case, "Edge of Road" is typed out.
4	Determine the Terminator location for the first leader (Dimension Component) **[FIRST CLICK]**
5	***IMPORTANT:*** While holding down the **CTRL keyboard key**, determine the location for the *Text Component*. If the **CTRL keyboard key** is held, then a second leader will be produced. **[SECOND CLICK]**
6	Determine the Terminator location for the second leader. **[THIRD CLICK]**. ***TIP:*** If the **CTRL keyboard key** is held down during this step, then a third leader will be produced.

15B.2.b Dimension Elements

BEST PRACTICE: Always set an appropriate *Element Template* style before placement of a Dimension element. See *15A.3 Element Templates*.

For Dimension elements, the *Element Template* controls what type of units are used (i.e., Decimal Feet, Feet-Inches, meters) and the appearance of the Terminators (i.e., arrow or dot).

Most Dimensions use the *Element Template* styles shown below. The difference between these styles corresponds to units of measurement and the terminator type.



Element Templates commonly used for Dimensioning			
Element Template	**Terminator Type**	**Units of Measurements**	**Example Dimension**
Plan notes Feet	Standard Arrow	Decimal Feet	10.6'
Plan notes Feet-Inches	Standard Arrow	Feet and Inches	10'-7 11/16"
Plan notes Meters	Standard Arrow	Decimal Meters	10.639 m
Plan notes Dotted	Dot	Decimal Feet	10.6'

15B.2.b.i Dimension Tools - Overview

There are three common types of Dimension elements types that are used in roadway design workflows:

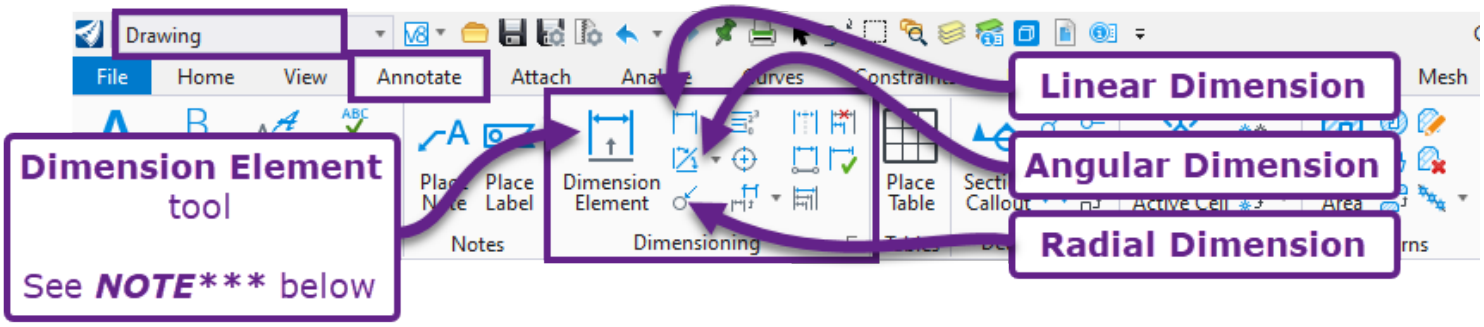
Linear Dimensions: Linear Dimensions are used to annotate the length of a linear or line element.

Angular Dimensions: Angular Dimensions are used to annotate the angle between any two elements.

Radial Dimensions: Radial Dimensions are used to annotate the radius or diameter of a circular or arc element. ***NOTE:*** Radial Dimensions can be used to annotate an individual radius or diameter component that belongs to a longer *Complex Element* or Alignment.

All Dimensioning and Dimension Editing tools are found in the following location:

Drawing workflow → **Annotate** tab → **Dimension** panel

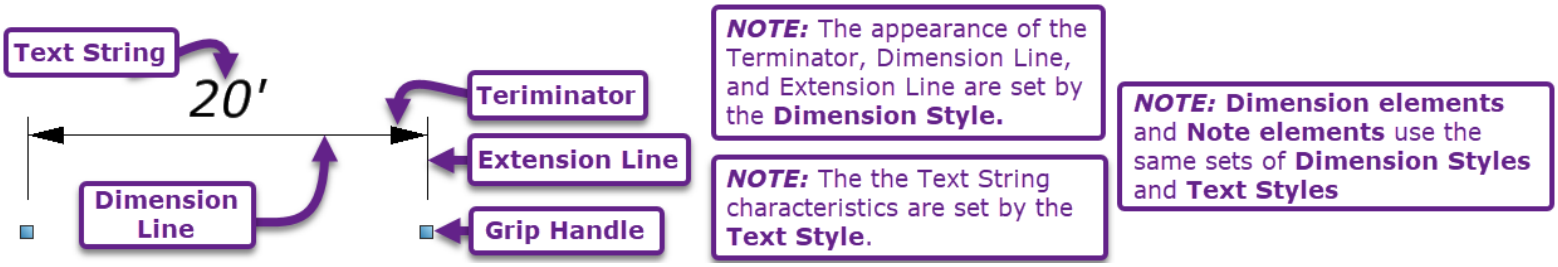


NOTE:*** The *Dimension Element* tool changes depending on the geometrical type of element selected. This tool places a Linear or Radial dimension, depending on the type of element selected. For Linear Dimensions, it is recommended that this tool is NOT used, because it does NOT allow the User to select exactly where the dimension is placed.

Anatomy and Terminology for a Dimension

The graphic below is meant to provide definitions for terms used throughout this section. In the background, *Text Styles* and *Dimension Styles* control the overall appearance of a Dimension element.

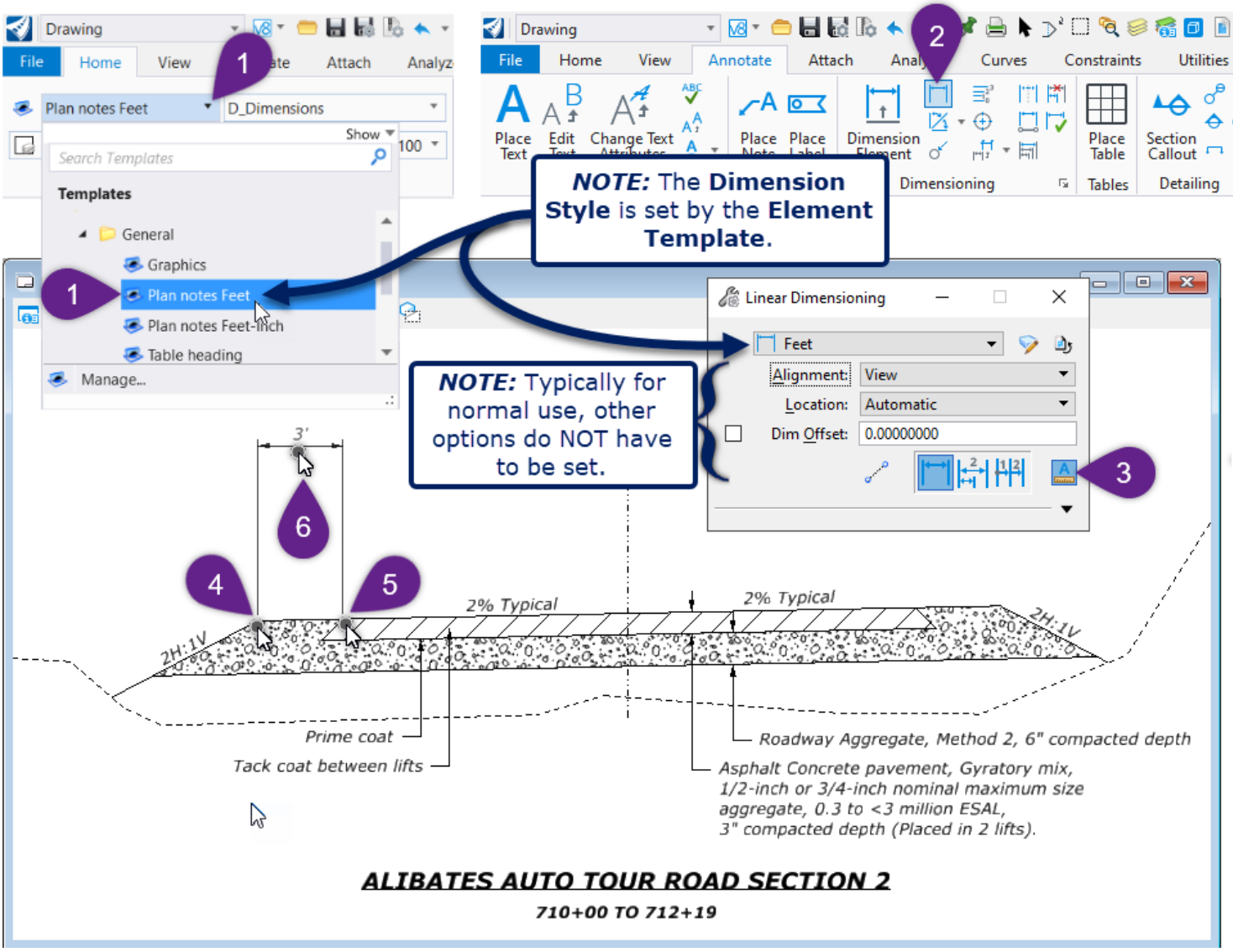
IMPORTANT: However, *Text Styles* and *Dimension Styles* do NOT need to be manually set if an *Element Template* is set prior to Dimension creation.



15B.2.b.ii Placing a Linear Dimension – Workflow

This workflow shows how to place a series (stack) of Linear Dimensions for a Typical Road Section sheet. It also explains all parameters related to the placement of the Linear Dimension.

TIP: Typically, the "Plan notes Feet" or "Plan notes Feet-Inches" *Element Template* styles are used for dimensioning. See *15A.3 Element Templates*.



1	Navigate to a *Ribbon* location that shows the **Attributes Panel**. The **Attributes Panel** can be found in many locations, including: [***Drawing*** → ***Home*** → ***Attributes***]. In the drop-down, set the *Element Template* to: "Annotate/General/**Plan notes Feet**".
2	From the Ribbon, select the *Dimension Linear* tool: [***Drawing*** → ***Annotate*** → ***Dimensioning***].

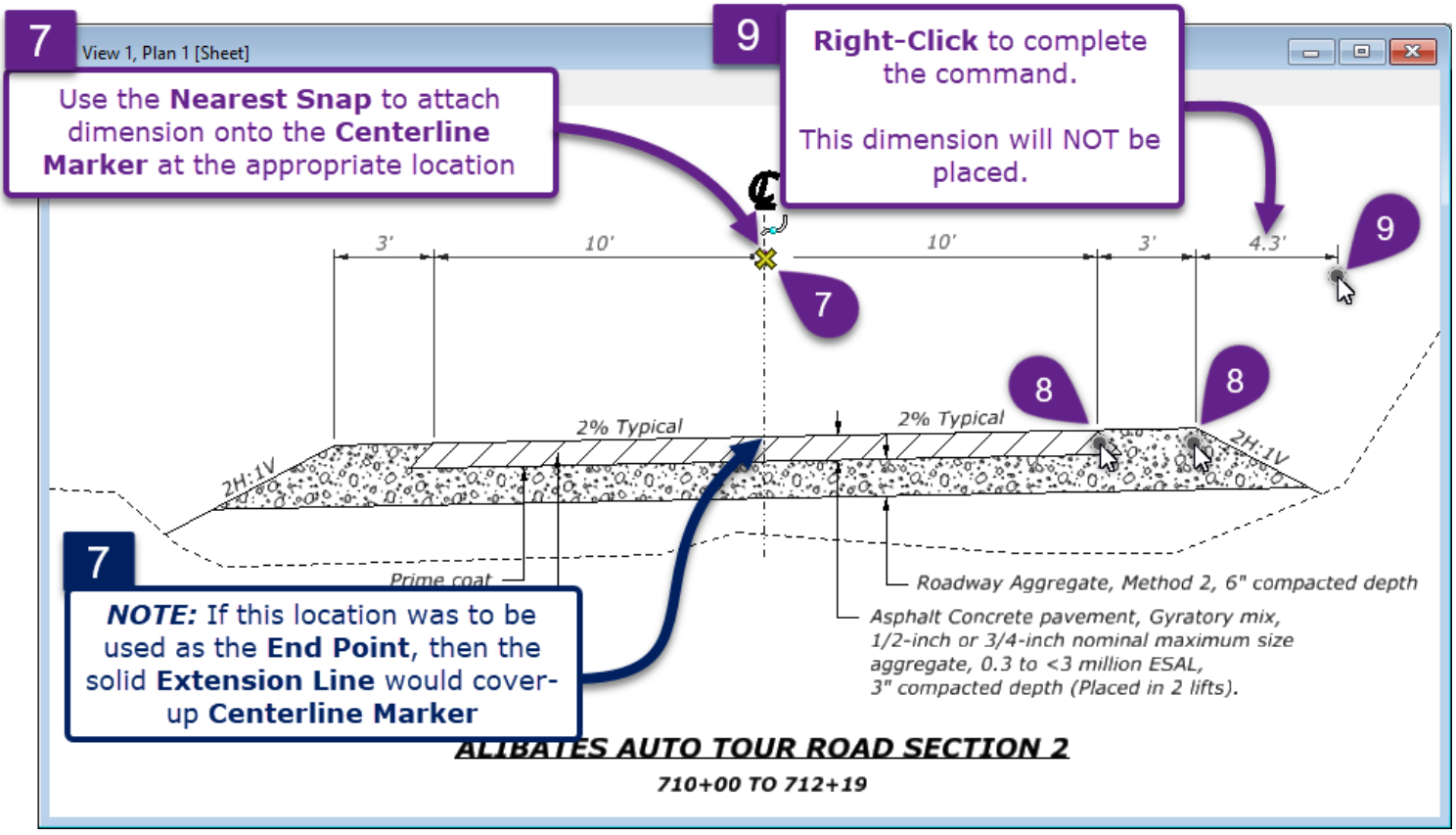
When using *Element Templates*, there is little of no configuration required in the dialogue box.

The various drop-downs and icons are explained at the end of this workflow.

3	***IMPORTANT:*** Always ensure the *Annotation Lock* A icon is toggled ON. If this is toggled OFF, then the resulting element will NOT be *Annotative*. See *15A.2 Annotation Scale*.
4	*Prompt: Dimension Linear Size > Select start of dimension* – Left-Click at the starting location for the dimension. ***TIP:*** Enable the *Key Point Snap* for precise placement of the dimension.
5	*Prompt: Associative Point* – Left-Click at the ending location for the dimension.
6	*Prompt: Associative Point* – In this step, the Dimension Text and Dimension Line are placed vertically (relative to the starting and ending location). Left-Click at the desired vertical location for the Dimension Text and Dimension Line.

If the desire is to place a single Dimension, then Right-Click (reset) after 6 to complete the command. If the desire is to place multiple Dimensions in series, then proceed to 7 .

7	*Prompt: Dimension Linear Size > Select Dimension End Point* – Left-Click at the ending location for the next dimension in the series. In this case, the Centerline marker is snapped to with the *Nearest Snap*.
8	*Prompt: Dimension Linear Size > Select Dimension End Point* – Repeat 7 for the remaining dimensions that need to be placed.
9	After all the desired dimensions have been placed, **Right-Click (reset)** to complete the command.



The unique drop-downs and parameters found in the *Dimension Linear* dialogue box are discussed below. All other options are discussed in *15B.2.c Place Note and Place Dimension Dialogue Boxes*.

Alignment drop-down options	
View	The Linear Dimension will always measure in the horizontal or vertical direction. The *Linear Dimension* is always placed horizontal or vertical relative to the rotational orientation of the *View*. This option is ideal for this example of a Typical Road Section.
Drawing	The Linear Dimension always measure in the true X or Y direction, even if the *View* has been rotated. If the *View* is unrotated, then the **View** and **Drawing** options produce the exact same result.
True	This option is used to measure on a skew or "diagonally". Use this option to measure at an angle. The resulting Linear Element will contain extension lines that are exactly perpendicular to the two points being measured.
Arbitrary	This option is similar as the **True** options. The exception is that the extension lines for the Linear Dimension do NOT have to be at right angles to the two points measured.

Location drop-down options	
Automatic	The Dimension Text is placed according to *Justification* setting found in the *Dimension Style*.
Semi-Auto	If the Dimension Text can fit nicely within the Dimension Extension Lines, then the Text will be **Automatically** placed. If the Dimension is measuring something relatively small and the Dimension Text CANNOT fit between the Dimension Extension Lines, then the Text is placed **Manually** by the User (typically, attached to the Dimension Line with a Leader).
Manual	The Dimension Text is placed in a User-specified location. The Dimension Text is usually attached to the Dimension Line with a Leader.

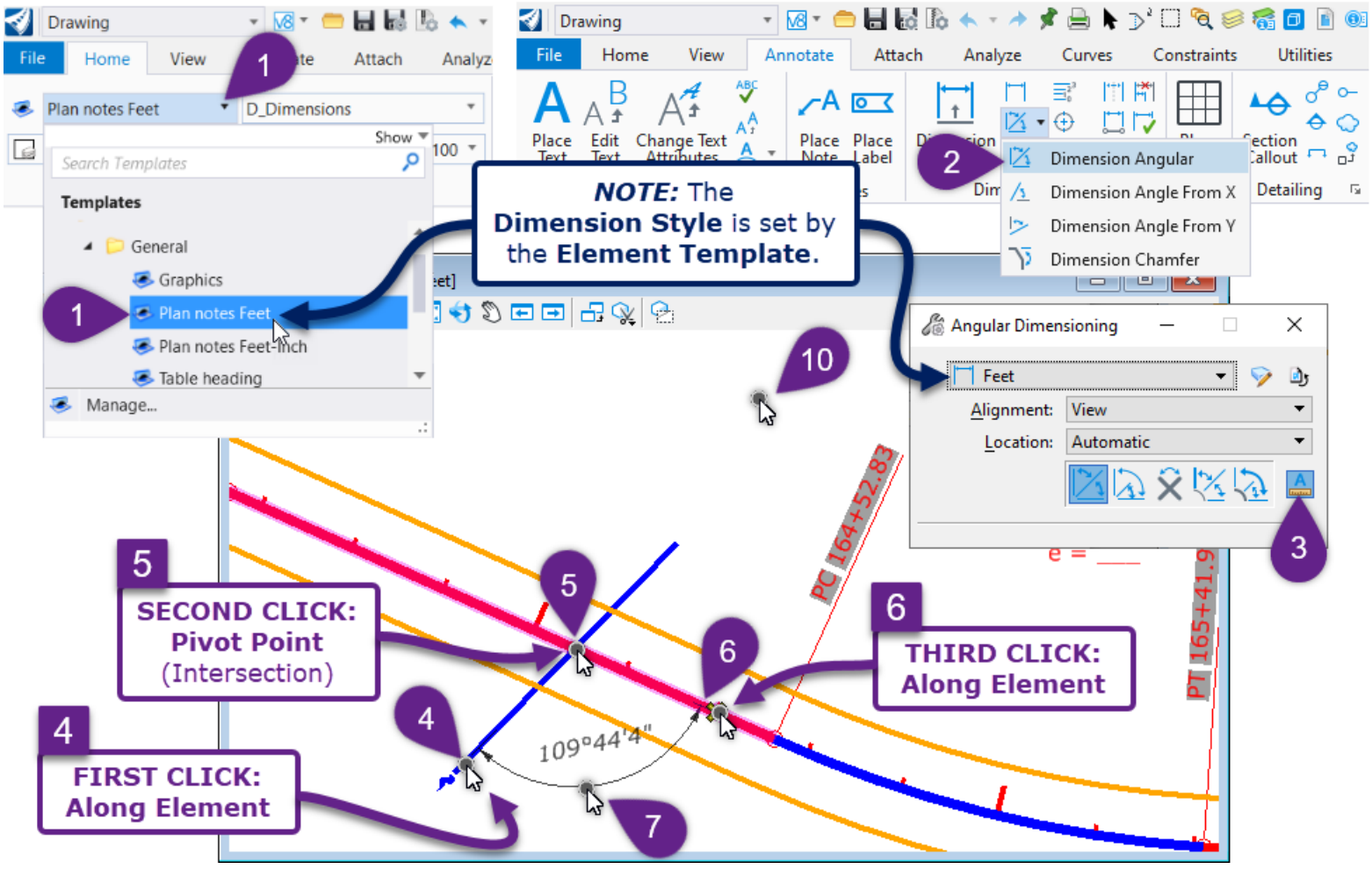
Dim Offset option
If this box is CHECKED and a value is placed in the adjacent box, then the Dimension Text and Dimension line will be placed at a fixed offset from the element being dimensioned. If this box is UNCHECKED, then the Dimension Text and Line are manually placed by the User. ***NOTE:*** This option is typically NOT used (UNCHECKED).

Dimension Stacking modes		
Linear Size		Multiple Dimensions are placed adjacent to each other. This option is used is most often used in FLH Plans – specifically for Road Typical Section sheets.
Linear Stacked		Multiple Dimensions are placed atop of each other. Each dimension has the same starting location.
Linear Single		Dimensions are placed similarly to the *Linear Size* options, except all arrows are pointed in the same direction. ***WARNING:*** This option is typically NOT used in FLH Plan Sets.

15B.2.b.iii Placing an Angular Dimension - Workflow

In this workflow, an Angular Dimension is placed to annotate the angle between a new Culvert and Centerline of Road Alignment.

TIP: Typically, the "Plan notes Feet" *Element Template* style is used for Angular Dimension elements. See *15A.3 Element Templates*.



1	Navigate to a *Ribbon* location that shows the **Attributes Panel**. The **Attributes Panel** can be found in many locations, including: [***Drawing*** → ***Home*** → ***Attributes***]. In the drop-down, set the *Element Template* to: "Annotate/General/**Plan notes Feet**".
2	From the Ribbon, select the *Dimension Angular* tool: [***Drawing*** → ***Annotate*** → ***Dimensioning***].

When using *Element Templates*, there is little of no configuration required in the dialogue box.

The various drop-downs are explained at the end of the workflow shown in *15B.2.b.ii Placing a Linear Dimension – Workflow*.

3	***IMPORTANT:*** Always ensure the *Annotation Lock* icon is toggled ON. If this is toggled OFF, then the resulting element will NOT be *Annotative*. For more information about Annotations Scales, see *15A.2 Annotation Scale*.

4	*Prompt: Dimension Linear Size > Select start of dimension* – Left-Click at the starting location for the dimension. ***IMPORTANT:*** The starting location should be along one of the element's being dimensioned. The starting location should NOT be the pivot point. ***TIP:*** Enable the *Nearest Snap* for easy attachment to the element being dimensioned.
5	*Prompt: Associative Point* – Left-Click at pivot point between the two elements being dimensioned. ***TIP:*** Enable the *Intersection Snap* to precisely locate the pivot point.
6	*Prompt: Associative Point* – Left-Click at the ending location for the dimension. ***IMPORTANT:*** The ending location should be along the other element being dimensioned. The starting location should NOT be the pivot point.
7	*Prompt: Associative Point* – In this step, the Dimension Text and Dimension Line are placed. Left-Click at the desired location of the Dimension Text and Dimension Line.

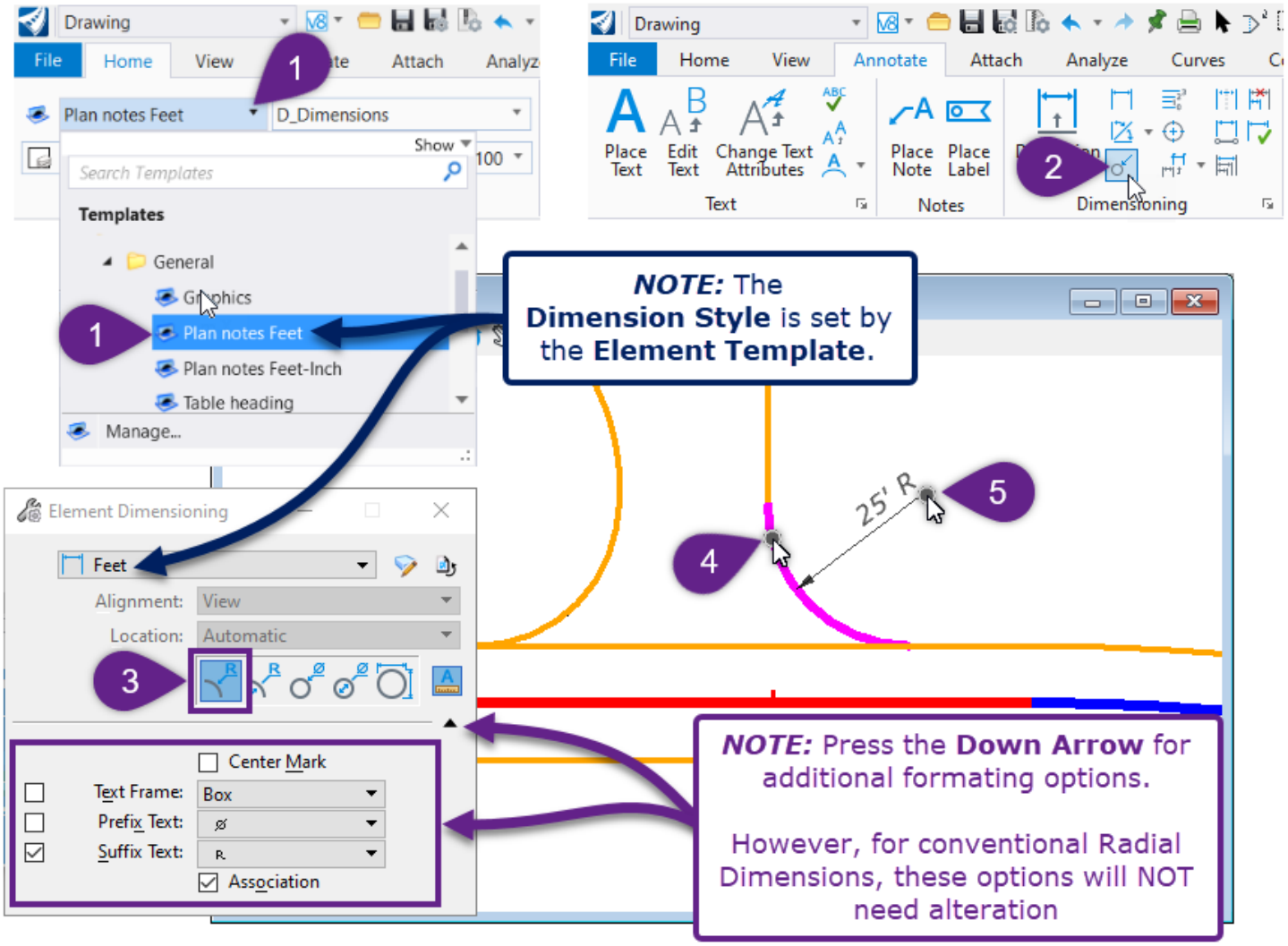
If the desire is to place a single Angular Dimension, then Right-Click (reset) after 7 to complete the command. If the desire is to place multiple Angular Dimensions in series, then proceed to 8. In this workflow, no additional Angular Dimensions are need.

8	*Prompt: Dimension Linear Size > Select Dimension End Point* – Left-Click at the ending location for the next dimension in the series. (Not performed in this workflow)
9	*Prompt: Dimension Linear Size > Select Dimension End Point* – Repeat 10 for the remaining dimensions that need to be placed. (Not performed in this workflow)
10	After all the desired dimensions have been placed, **Right-Click (reset)** to complete the command.

15B.2.b.iv Placing a Radial Dimension – Workflow

In this workflow, a Radial Dimension is placed to annotate the radius of a parking lot approach return.

NOTE: For the *Dimension Radial* tool, the **Alignment** and **Location** drop-downs will ALWAYS be greyed out and inaccessible. Even though these options are shown in the *Dialogue Box*, this tool does NOT utilize the **Alignment** and **Location** settings for correct calculation and placement of the radial dimension.



1	Navigate to a *Ribbon* location that shows the **Attributes Panel**. The **Attributes Panel** can be found in many locations, including: [***Drawing*** → ***Home*** → ***Attributes***]. In the drop-down, set the *Element Template* to: "Annotate/General/**Plan notes Feet**".
2	From the Ribbon, select the *Dimension Radial* tool: [***Drawing*** → ***Annotate*** → ***Dimensioning***].

3	Set the **Radial Dimension Mode**. The **Radial Dimension Mode** can be set to either *Radius* or *Diameter*. **Dimension Radius**  **:** Creates a **Radius** Dimension (contains a "R" suffix) on either side of the circular element. This mode is standard for conventional Radius call outs in FLH Plan Sets. **Dimension Radius Extended**  **:** This mode functions the same as the *Dimension Radius* mode, with the exception that a Terminator (arrow) and Leader are ALWAYS placed on the inside of the circular element – even if the User places the Text String on the outside of the circular element. **Dimension Diameter**  **:** Creates a **Diameter** Dimension (contains a "Ø" suffix) on either side of a circular element. **Dimension Diameter Extended**  **:** This mode functions the same as the *Dimension Diameter* mode, with the exception that a Terminator (arrow) and Leader are ALWAYS placed on the inside of the circular element – even if the User places the Text String on the outside of the circular element. **Dimension Diameter Parallel**  **:** Creates a Linear Dimension on the outside of the circular element to annotate the diameter of a circular element.
4	*Prompt: Dimension Element > Select element to dimension (Tool will change depending on element type)* – Left-Click on the circular component or element that will receive the Radial Dimension. ***NOTE:*** If a non-circular element (such as a Line) is selected, then the tool will automatically change into the *Dimension Element* tool.
5	*Prompt: Dimension Radius > Select location of dimension, Accept/Reset* – Use the Mouse Cursor to place the Radial Dimension in the desired location. ***NOTE:*** The Radial Dimension can be placed on either side of the circular element.

15B.2.b.v Dimension Element tool

The *Dimension Element* tool is a "multi-tool" that will function differently, depending on the **Dimension Element Mode** that is used:

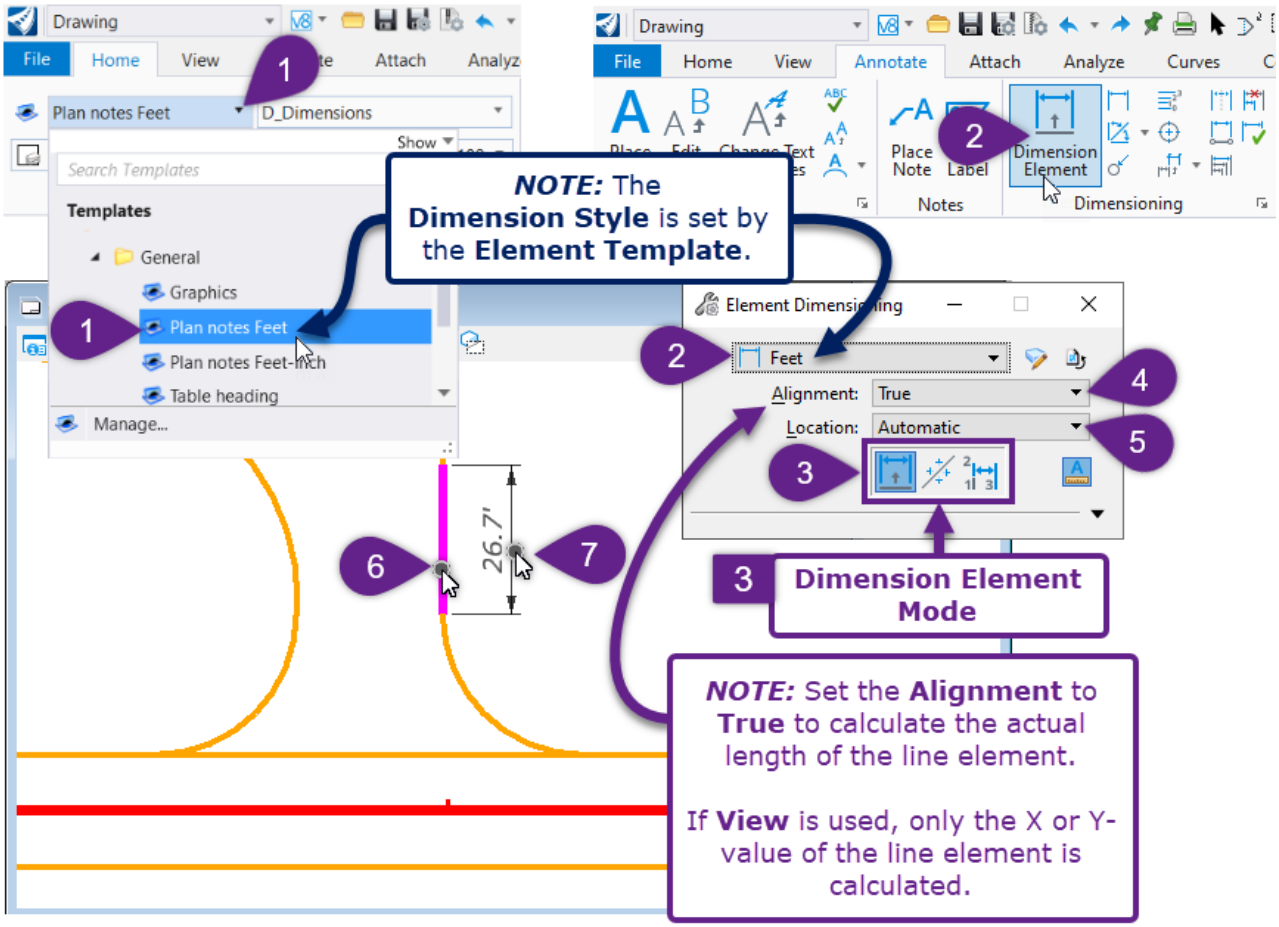
Dimension Element*:* The length of a line element (or the line element component within a *Complex Element*) or the radius/diameter of a circular element is dimensioned.

Label Line: The Length and Bearing Angle of a line element is annotated.

Dimension Size Perp – Line: A dimension is created that is perpendicular to the Line element. The Start location begins at the selected line. The end location is determined by the User's next Mouse Click.

NOTE: When annotating a circular element, this *Dimension Element* tool works exactly the same as the *Dimension Radial* tool discussed in *15B.2.b.iv Placing a Radial Dimension*.

In this workflow, a line segment within a *Complex Element* is annotated.

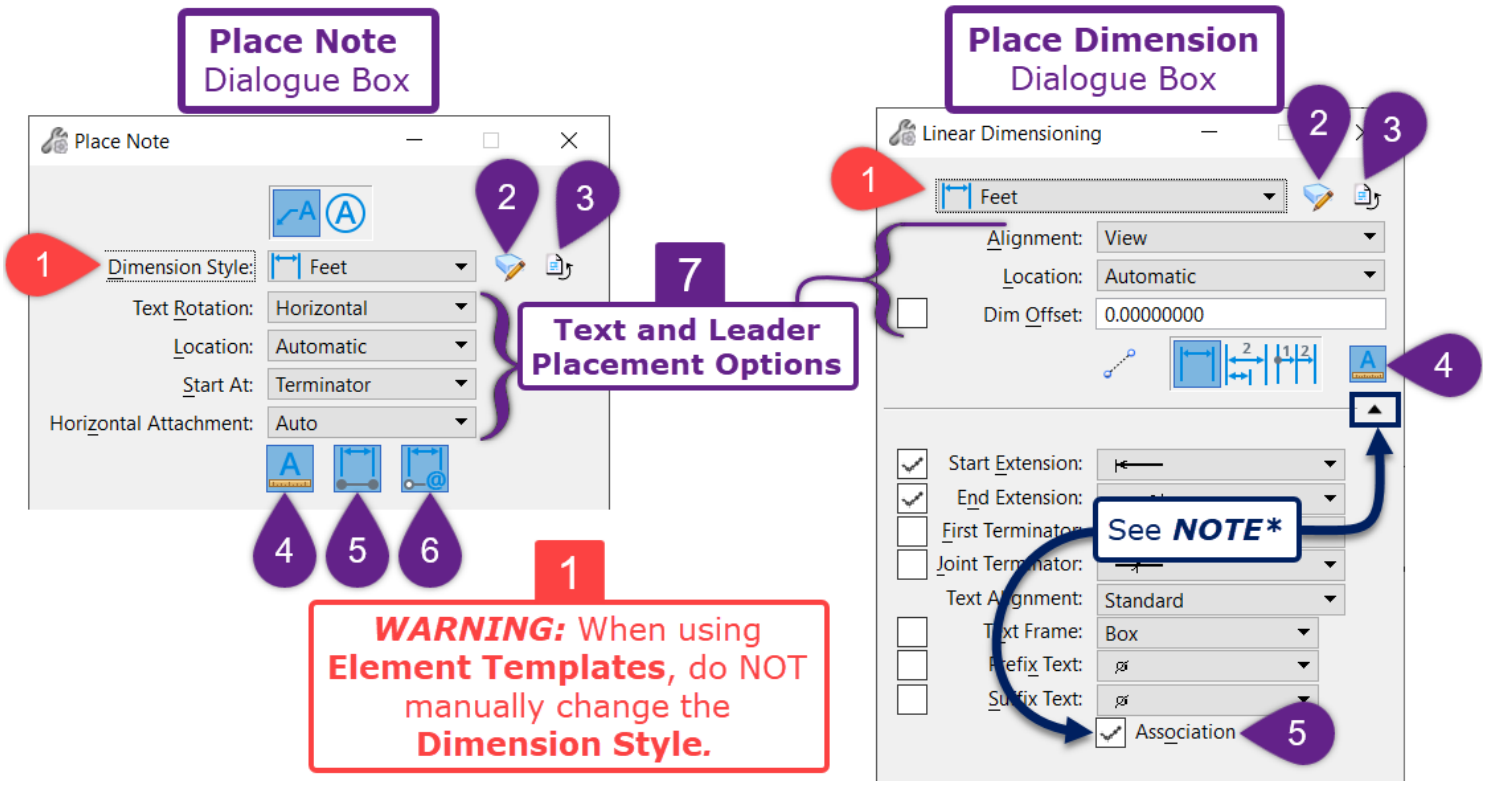


1	Navigate to a *Ribbon* location that shows the **Attributes Panel**. The **Attributes Panel** can be found in many locations, including: [***Drawing*** → ***Home*** → ***Attributes***]. In the drop-down, set the *Element Template* to: "Annotate/General/**Plan notes Feet**".

2	From the Ribbon, select the *Dimension Linear* tool: [***Drawing*** → ***Annotate*** → ***Dimensioning***].
3	Set the **Dimension Element Mode**. In this example, the *Dimension Element* mode is used. **Dimension Element**  **:** Used to annotate the length of a line or radius/diameter of a circular element. **Label Line**  **:** Used to annotate the length and bearing angle of a line. **Dimension Size Perp – Line**  **:** Creates a length dimension that is perpendicular from the selected element.
4	Before placing the Dimension, set the **Alignment** in the *Dialogue Box*. Typically, the **True** option is typically used for measuring the actual length along an element. If the default **View** option is used, then only the X or Y-component of the line element will be calculated and displayed in the annotation. For an explanation of the **Alignment** options, see Step 3 of *15B.2.b.ii Placing a Linear Dimension – Workflow*.
5	The **Location** refers to the placement of the Dimension Text. Typically, the *Automatic* option is used. For an explanation of the **Alignment** options, see Step 4 of *15B.2.b.ii Placing a Linear Dimension – Workflow*. ***TIP:*** After creation of the Dimension, the **Location** of the Dimension text can be re-position with the *Modify Element* tool. See *15B.3.f Reposition the Text String and Leader for a Dimension Element*.
6	*Prompt: Dimension Element > Select element to dimension (Tool will change depending on element type)* – Left-Click on the Line element that will receive the dimension. ***NOTE:*** If a circular element (such as a Line) is selected, then the tool will automatically change into the *Dimension Radial* tool.
7	*Prompt: Dimension Linear Size > Select location of dimension, Accept/Reset* – Use the Mouse Cursor to place the Length Dimension in the desired location. Left-Click to accept the placement.

15B.2.c Place Note and Place Dimension Dialogue Boxes

This section explains the drop-downs and parameters found in the *Place Note* and *Place Dimension* dialogue box. The options discussed here are common to both Note and Dimension elements.



1		**Dimension Style**	This drop-down displays the active *Dimension Style*. It is ***BEST PRACTICE*** to select an appropriate *Element Template* before using the Note and Dimension tools. The *Element Template* will automatically set the appropriate *Dimension Style*.
2		**Dimension Style Editor**	When this icon is pushed, the *Dimension Style Editor* box is opened. The *Dimension Style Editor* is used to override FLH *Dimension Styles*. See *15B.4.c Dimension Style Editor*.
3		**Dimension Style Reset**	When this icon is pushed, an overridden *Dimension Style* is reverted to its last SAVED state. ***IMPORTANT:*** This icon may NOT revert the *Dimension Style* to the default FLH configuration. If the overridden *Dimension Style* is saved in the *Dimension Style Editor*, then it returns to the last SAVED configuration. ***TIP:*** To revert a Dimension Style back to the default FLH Configuration, use the Update From Library icon in the Dimension Style Editor. See *15B.4.c.ii Dimension Style Editor Overview*.
4		**Annotation Scale Lock**	When this icon is toggled ON, the resulting Dimension or Note element will be *annotative* – which means the resulting element will be sensitive to the *Annotation Scale Multiplier*. If this icon is toggled OFF, the resulting element will NOT be subject to the *Annotation Scale Multiplier*. See *15A.2 Annotation Scale*. ***BEST PRACTICE:*** Always keep this icon toggled ON.

5		**Enable to create associations to element**	When this icon is toggled ON, then the software remembers which elements were snapped to in creation of the Note or Dimension element. If the element is moved, then the Note or Dimension will move in kind. If this option is toggled OFF, then no associations are created to the elements used to create the Note or Dimension. See *15B.2.c.i Annotation Association to Elements*. ***NOTE*:*** In the *Place Dimension Dialogue* box, this option appears as a checkbox. Click the additional options arrow to reveal this option. ***BEST PRACTICE:*** Always keep this icon toggled ON.
6		**Enable to create relative associations to element**	When this icon is toggled ON, the Text String component will move with the Note or Dimension terminators. If this icon is toggled OFF, then the Terminators will move, but the Text String will stay in the original location. See *15B.2.c.i Annotation Association to Elements*. ***BEST PRACTICE:*** Always keep this icon toggled ON.
7		**Text and Leader Placement Options**	For typical drafting purposes, these parameters do NOT have to be changed. Do NOT change the *Text Rotation*, *Location*, *Start At*, or *Horizontal Attachment* parameters.

15B.2.c.i Annotation Association to Elements

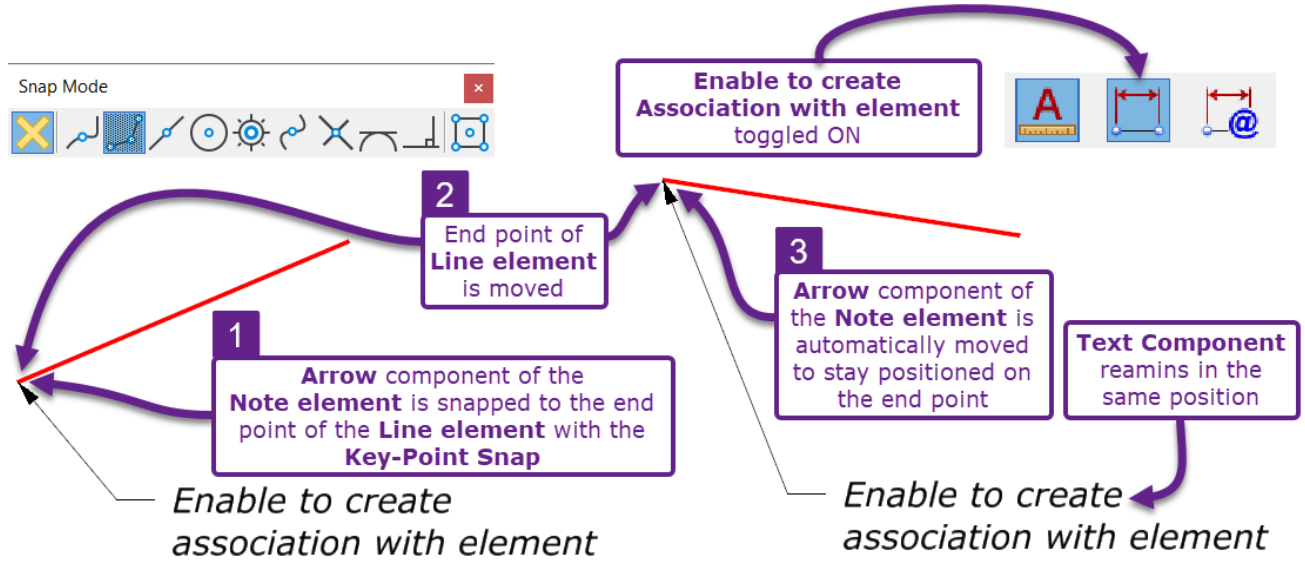
The *Enable to create association to element* button and the *Enable to create relative associations to elements* button create a dynamic link between *Dimension* and *Text* components and the graphical element that is being annotated.

If enabled, when the graphical element moves, then the Annotation Leader and Arrow (Dimension Component) and/or the Text Component will automatically move in the same relation as before.

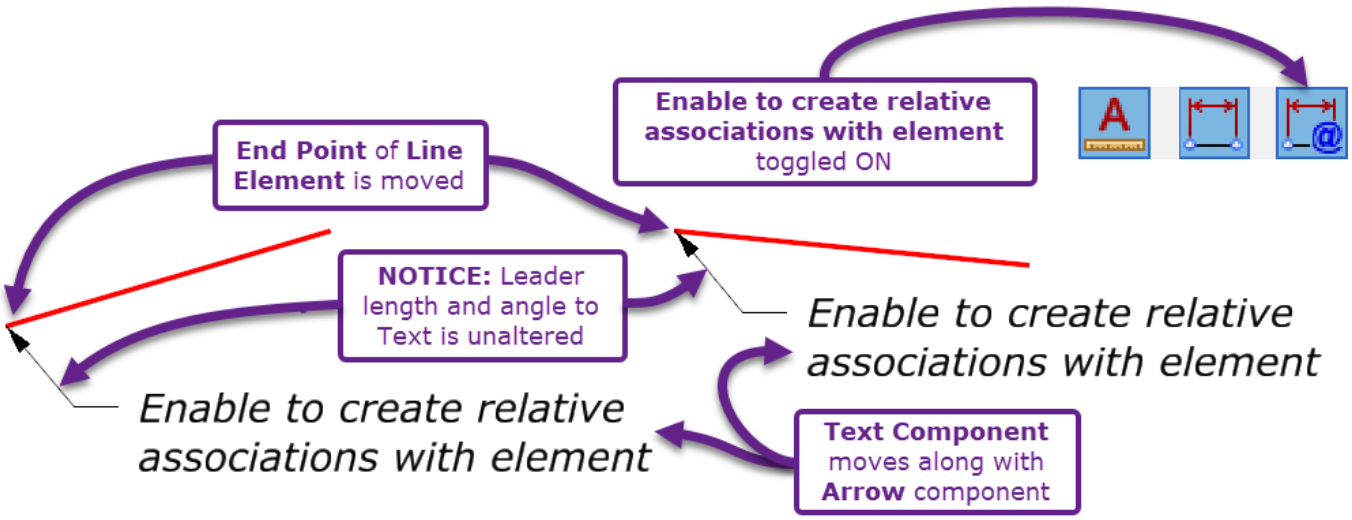
Enable to create association to element : For *Note* elements, a dynamic link is created between the Terminator (i.e., arrow) and the graphical element. If the graphical element moves, then the Terminator will automatically move and remain in the same relative location to the element.

For *Dimension* elements, a dynamic link is created at the Terminator points used to define the Dimension.

NOTE: The *Note* or *Dimension* element must be attached (snapped) to the graphical element with **AccuSnaps** for this function to take effect.



Enable to create relative associations to element : When this button is toggled on, then the **Text Component** will also automatically move, if the graphical element is moved.



15B.3 Edit and Manipulate Text, Notes, and Dimension Elements

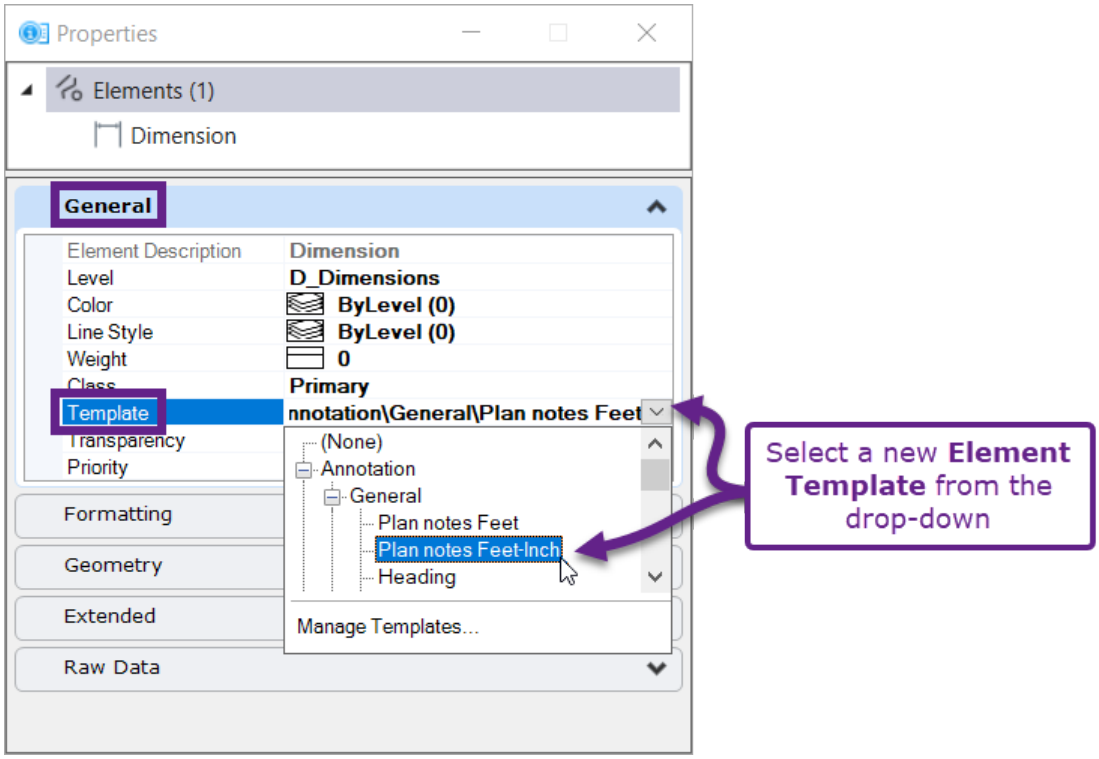
15B.3.a Change the Element Template

The *Element Template* style can be changed in the Properties box of a previously created Text, Note, or Dimension element.

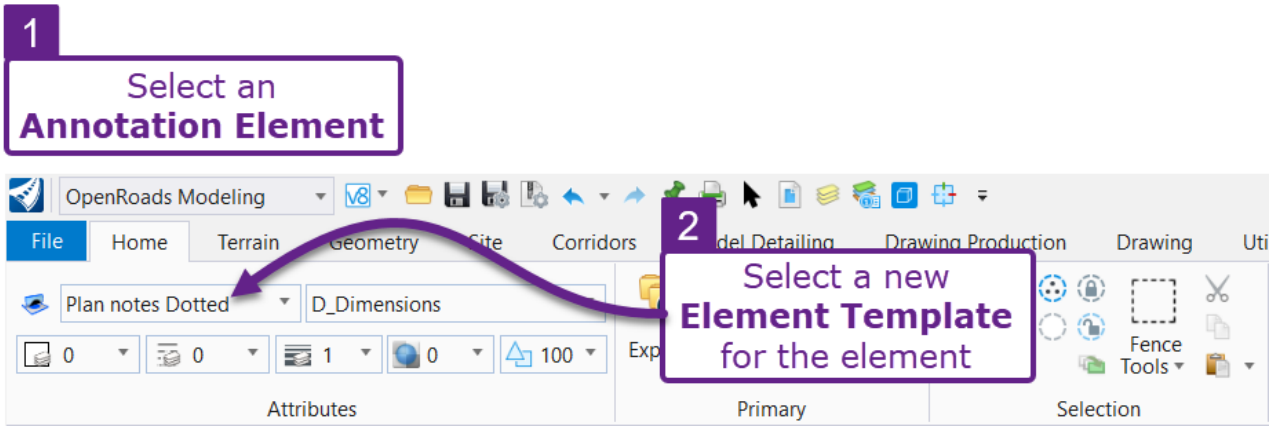
This process is commonly performed for the applications:

- Change the Units of a Dimension element (i.e., from decimal feet to feet-inches).
- Change the text characteristics of a Text, Note, or Dimension element.
- Change the Dimension appearance of a Note or Dimension element (i.e., change the appearance of the terminator from an arrow to a dot).

To change the *Element Template* style, select the annotation element. In the Properties box, change the *Element Template* style shown in the *Template* drop-down (found under the *General* tab).



ALTERNATE WORKFLOW: Select an annotation element and change the *Element Template* in the *Attributes* panel.



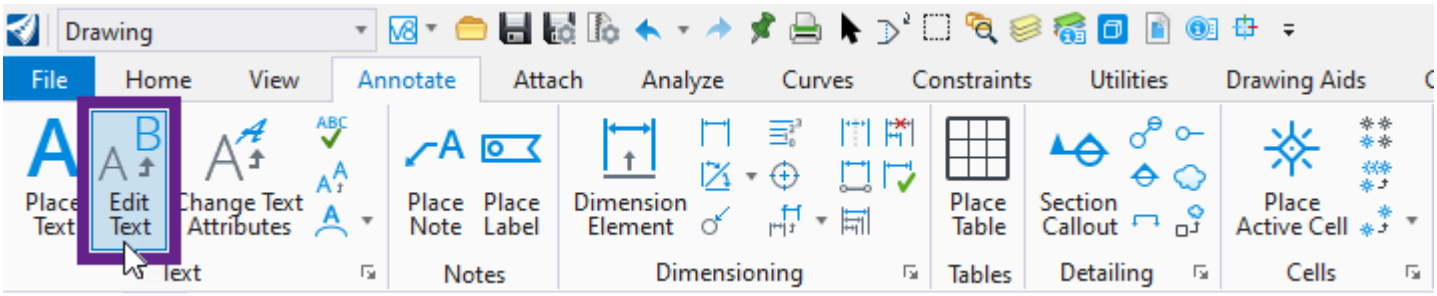
15B.3.b Edit Text

The *Edit Text* tool is used to change the Text String within a previously-created Annotation element. The *Edit Text* tool will bring up *Text Editor.*

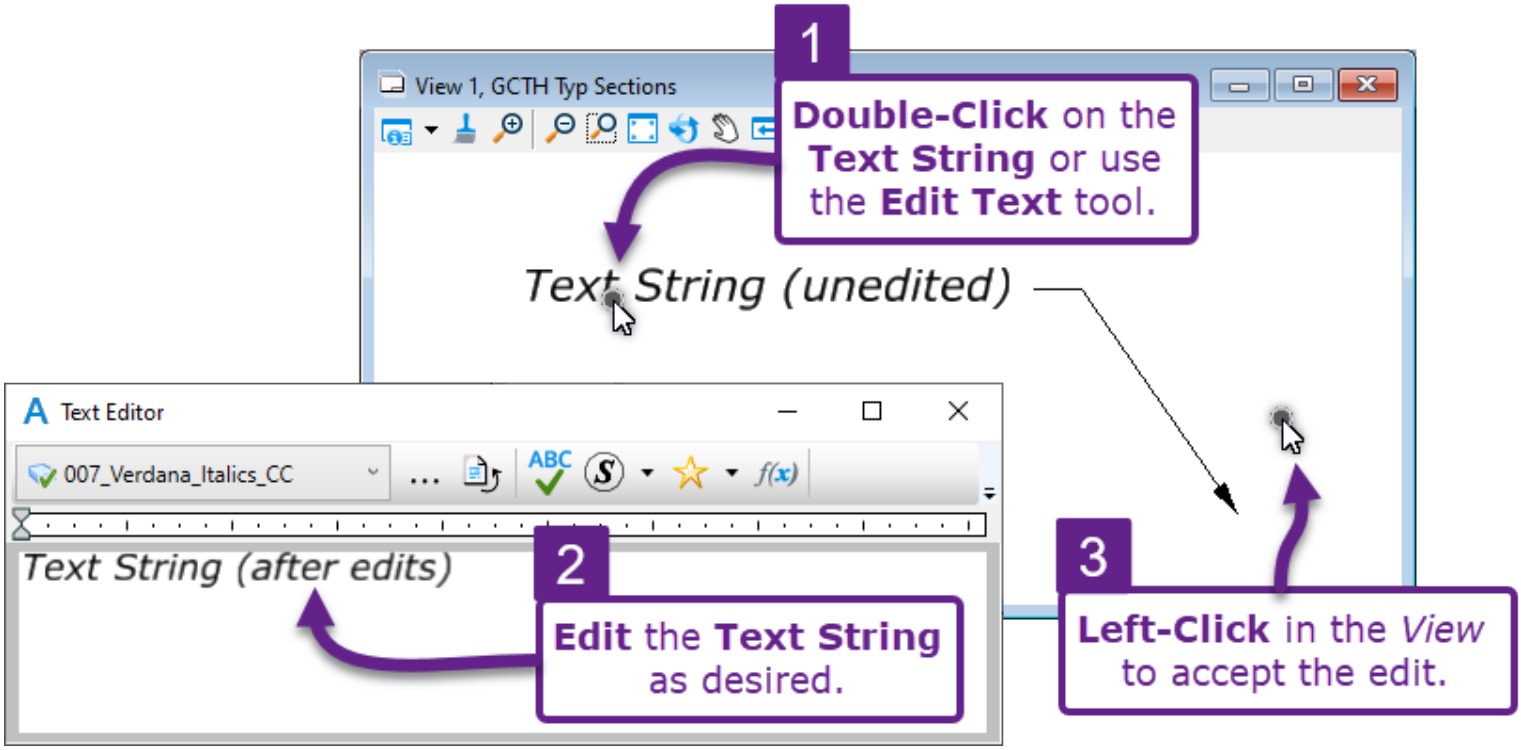
ALTERNATIVELY: To edit text, simply double-click on the Text String component of an Annotation element to bring up the *Text Editor*.

Change Text Attribute tool Location:

Drawing workflow → **Annotate** tab → **Text** panel



Type in the desired text into the *Text Editor*. When satisfied with contents shown in the *Text Editor*, Left-Click anywhere in the *View* to apply.



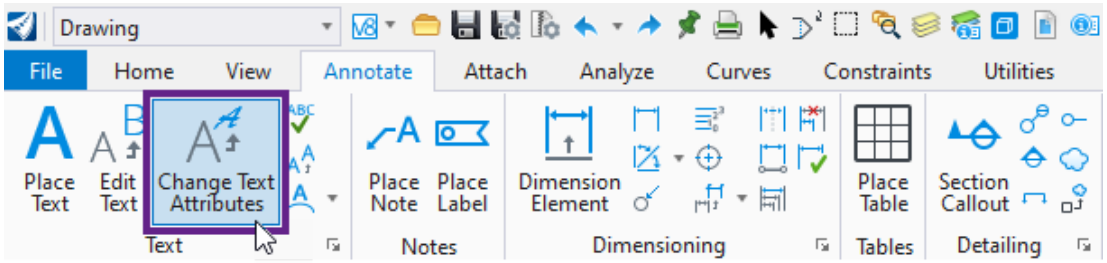
15B.3.c Edit Text Characteristics and Formatting with the Change Text Attributes tool

The *Text Style* and other formatting characteristics of text strings can be edited with the *Change Text Attributes* tool.

BEST PRACTICE: Attempt to change the *Element Template* style before using this tool. See *15B.3.a Change the Element Template*.

Change Text Attribute tool Location:

Drawing workflow → **Annotate** tab → **Text** panel



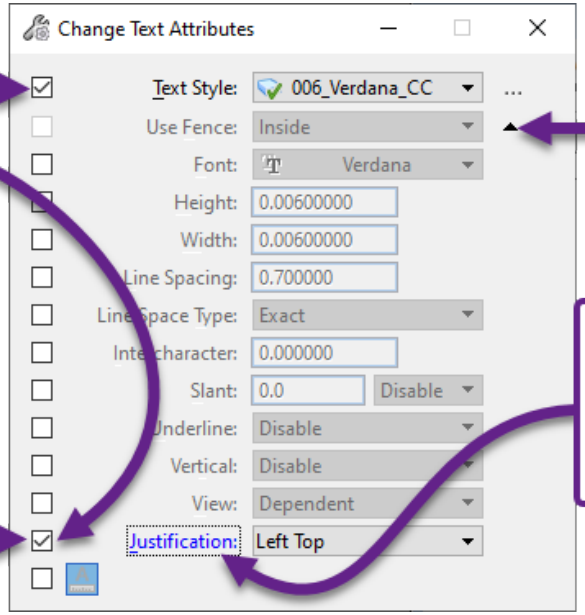
BEST PRACTICE: Find a *Text Style* that corresponds with the desired formatting. In other words, it is ***BEST PRACTICE*** to ONLY have the *Text Style* box checked when using this tool. The *Text Style* controls Font, Height, Width, Boldness, Italicization and other parameters. When changing the *Text Style*, these parameters do NOT have to be checked.

If a *Text Style* for the desired formatting configuration CANNOT be found, then find a similar *Text Style* to the desired configuration and CHECK additional options for override customization.

RESULTS: If the configuration shown was applied to a **Annotation Element**, then the **Text String** would be changed to the **"006_Verdana_CC"** Text Style.

However, the **Text String** would be **Justified** to the **Left Top**, because the **Justification** box is CHECKED.

By default, the **"006_Verdana_CC"** Text Style is **Justified** to the **Center Center** - which is explains why the **Justification** is shown in **BLUE.**



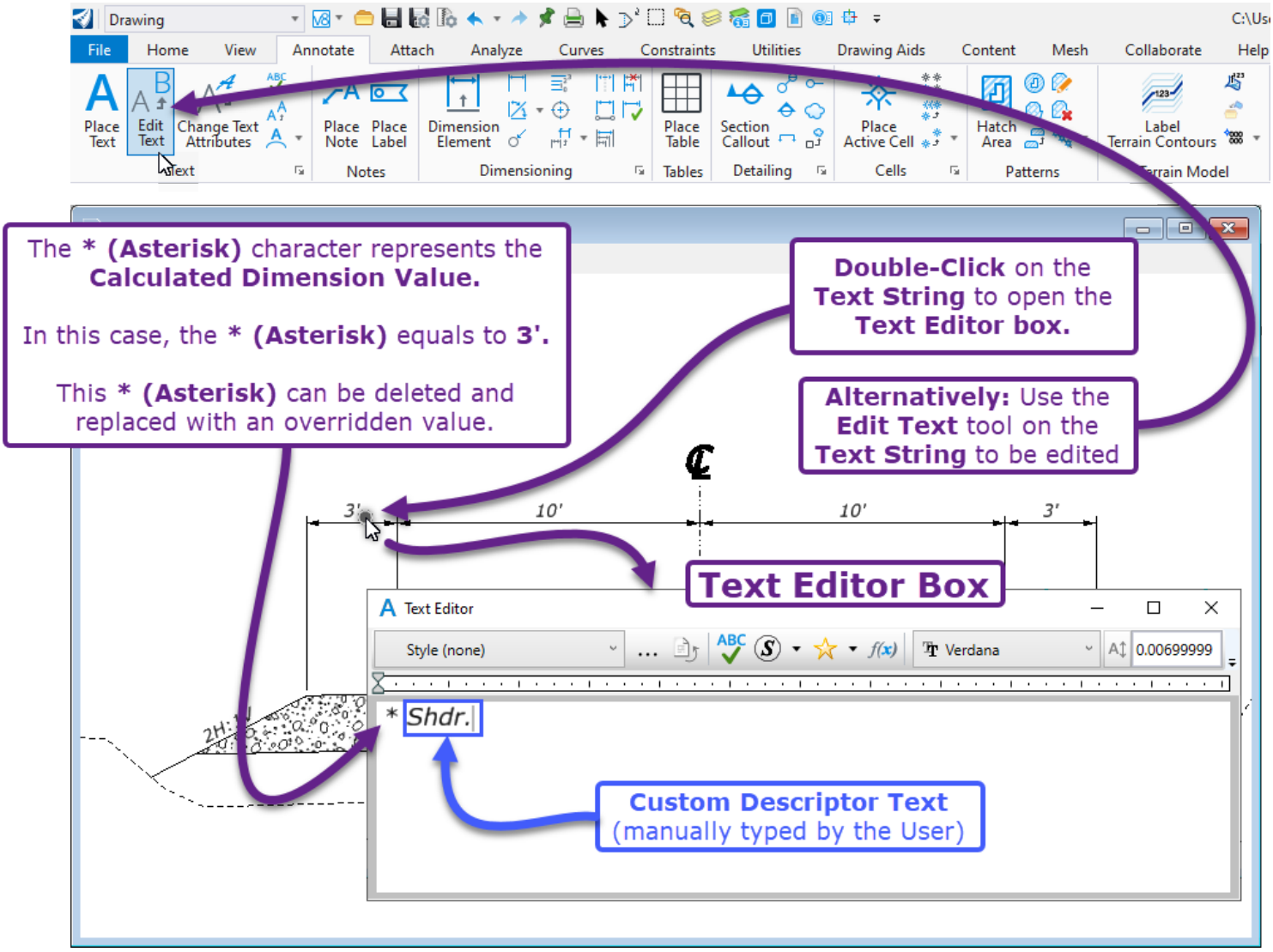
Expand the **Arrow** to reveal additional **Attribute Customization Options**

If an **Attribute** is CHECKED and conflicts with the default setting within the selected **Text Style**, then the **Overridden Attribute** will be shown in **BLUE.**

15B.3.d Add Text to a Dimension Element

It is very common to add custom text around the measured value of a Dimension. This is accomplished by double-clicking on the Dimension text to open the *Text Editor* box. In the *Text Editor* box, add the custom text around the ***** (asterisk mark).

IMPORTANT: The ***** (asterisk mark) represents the *Calculated Dimension Value*. The units of the *Calculated Dimension Value* is included in the ***** expression. The units depend on the Element Template assigned to the Dimension.



15B.3.e Override a Dimension Value

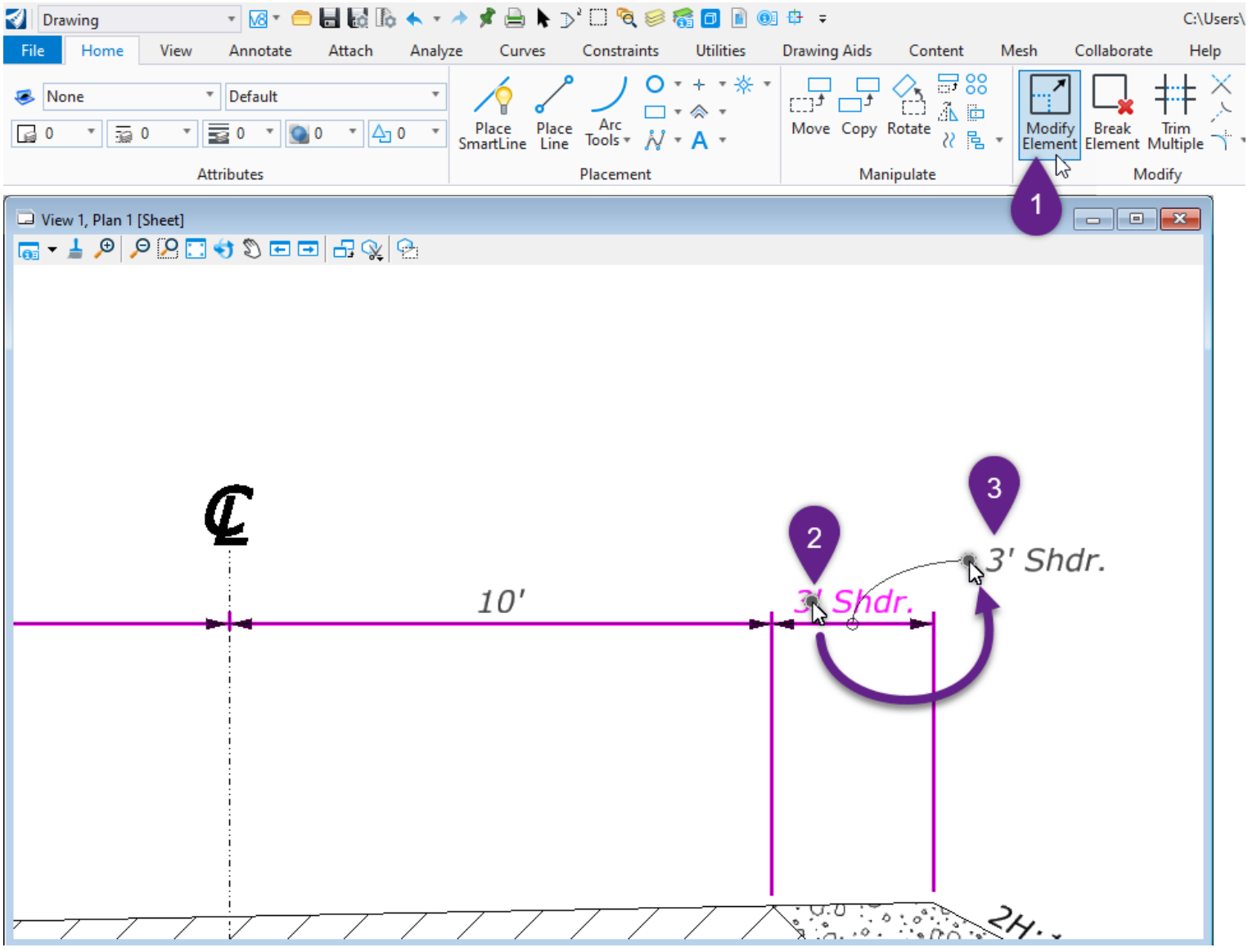
For design graphics that are NOT drawn to scale, it may be desirable to override the *Calculated Dimension Value*. To override a Dimension, delete the ***** (asterisk mark) and manually enter the desired override value. Include the proper measuring units at the end of the override value.

WARNING: Do NOT override a Dimension if the units of measurement (i.e., feet, feet-inch, meters) is shown incorrectly. Instead, change the Element Template to a style that corresponds with the desired units of measurements. See *15B.3.a Change the Element Template*.

15B.3.f Reposition the Text String and Leader for a Dimension Element

Using the *Modify Element* tool, the Text String of a Dimension element can be moved into a new position. Depending on the new position, a Leader may be created too. The process for repositioning a Text String for a Dimension element is as follows:

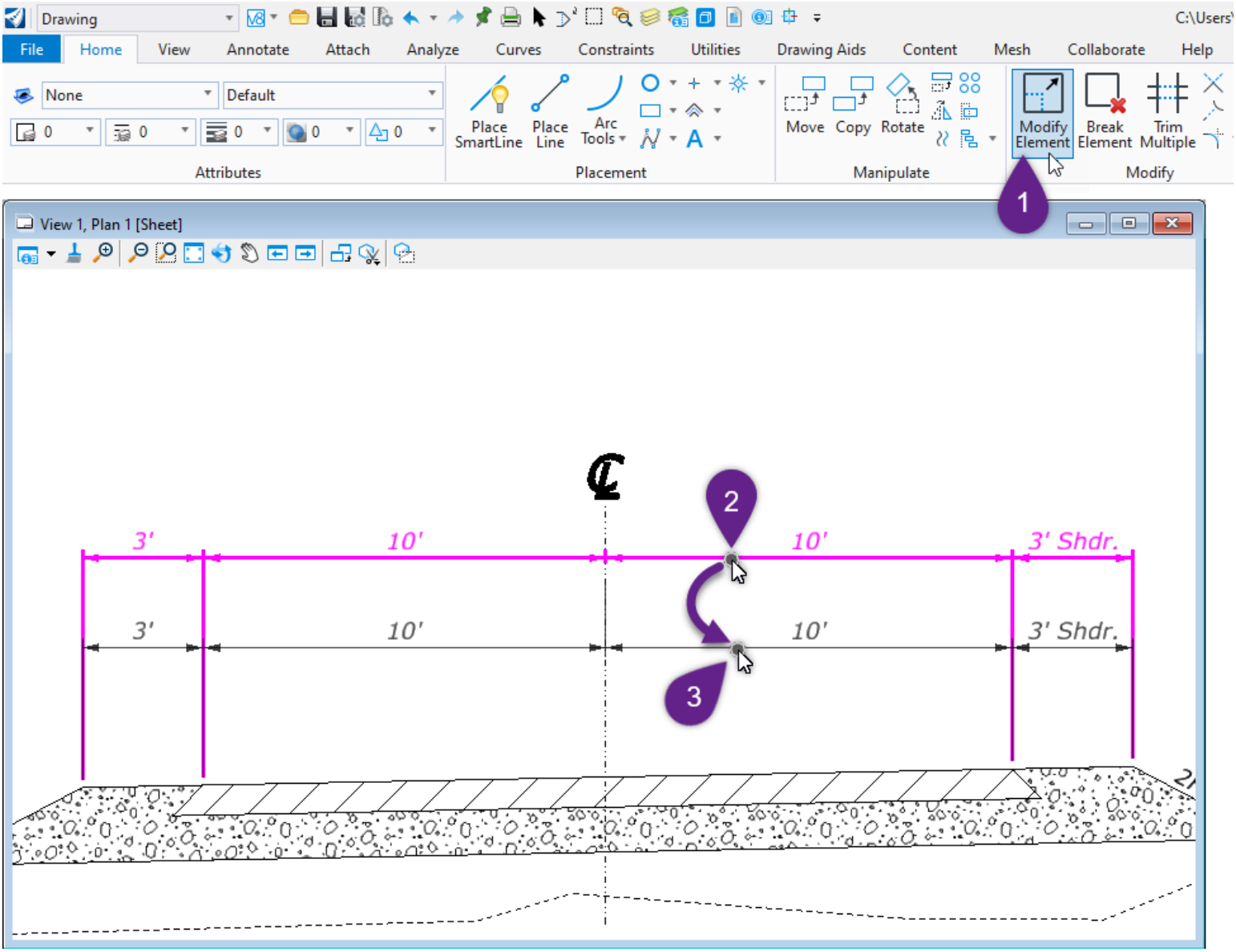
1	From the Ribbon, select the *Modify Element* tool: [***Drawing*** → ***Home*** → ***Modify***].
2	*Prompt: Identify Element* – Left-Click on the **Text String** component of the Dimension. Do NOT click on the Dimension Line.
3	*Prompt: Modify Element > Accept/Reject* – Using the Mouse Cursor, place the Text String in the desired location. Left-Click (Accept) to finalize placement.



15B.3.g Reposition (Move Up or Down) the Dimension Line

The Dimension Line and Text assembly can be moved up or down with the *Modify Element* tool.

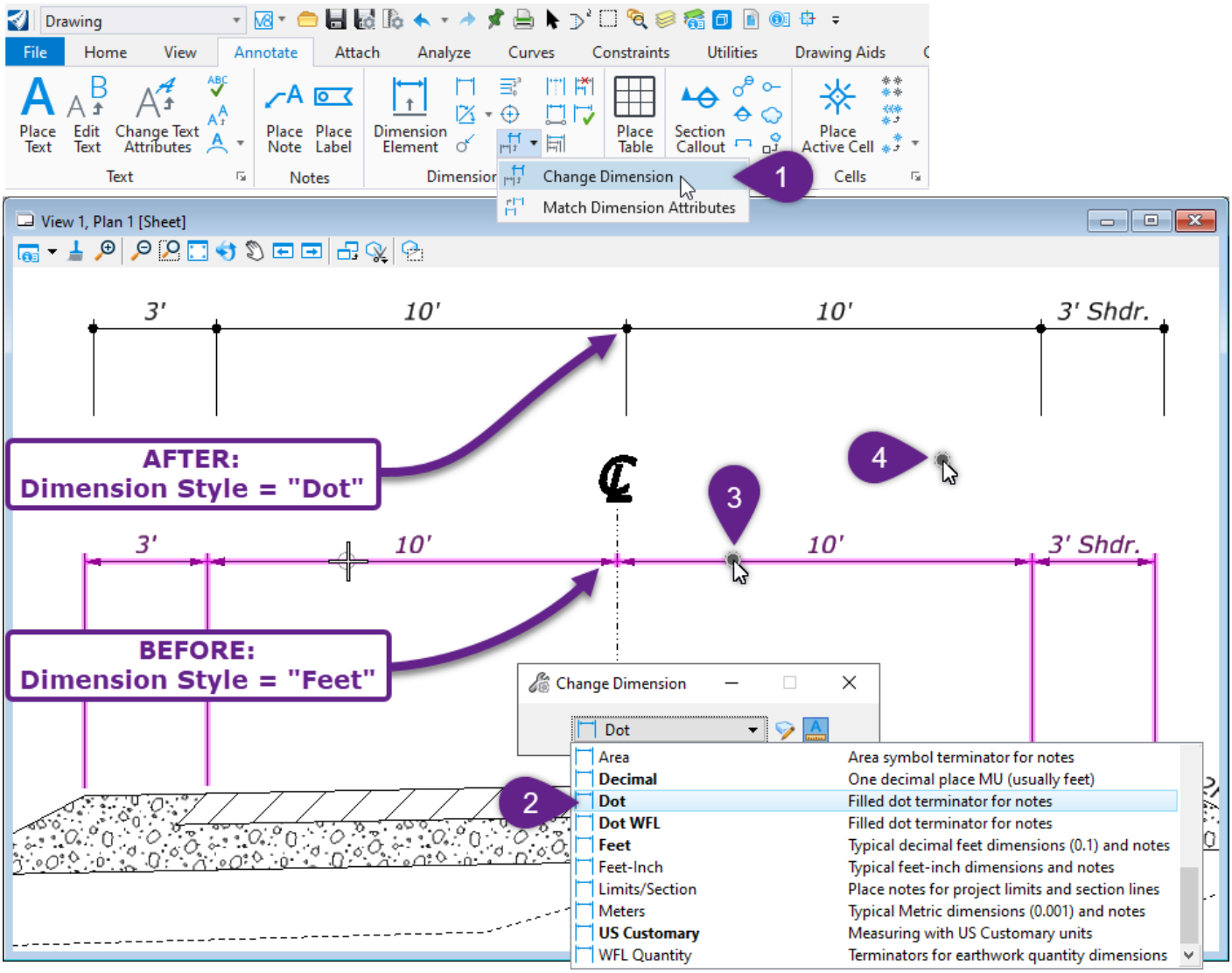
1	From the Ribbon, select the *Modify Element* tool: [***Drawing*** → ***Home*** → ***Modify***].
2	*Prompt: Identify Element* – Left-Click on the **Dimension Line** component of the Dimension. Do NOT click on the Text String.
3	*Prompt: Modify Element > Accept/Reject* – Using the Mouse Cursor, place the Dimension Line in the desired location. Left-Click (Accept) to finalize placement.



15B.3.h Change the Dimension Style

The *Change Dimension* tool is used to change the *Dimension Style* for a previously-created Dimension or Note element.

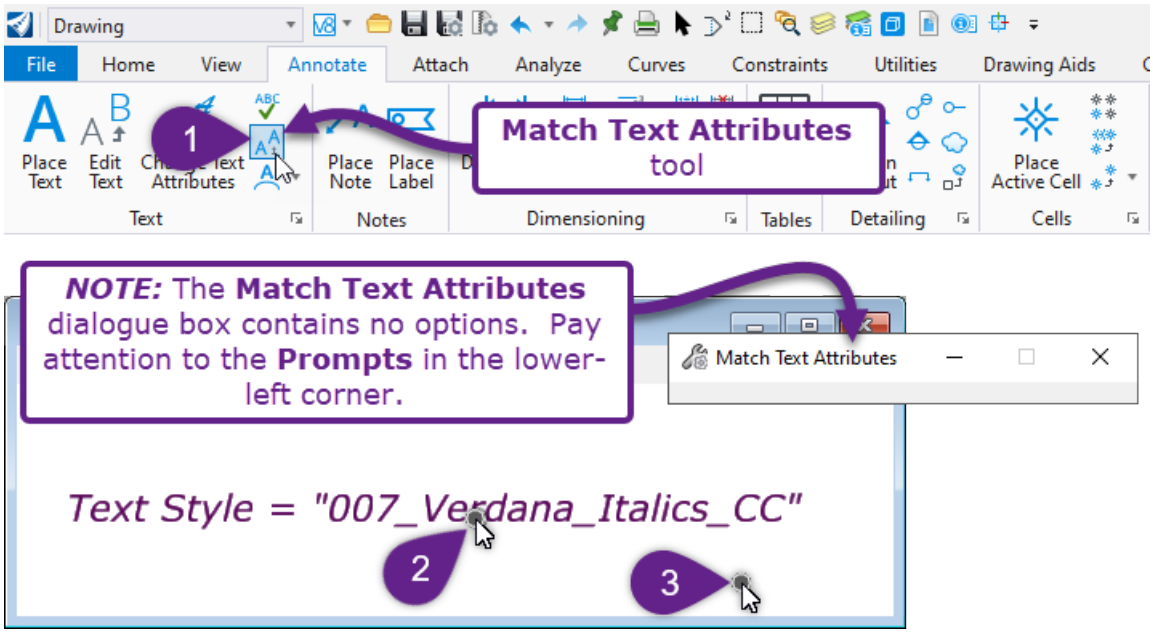
> ***BEST PRACTICE:*** Before manually changing the Dimension Style (which is shown here), attempt to switch the Element Template style. Changing an Element Template style is shown. *15B.3.a Change the Element Templates*.



1	From the Ribbon, select the *Change Element* tool: [***Drawing*** → ***Annotate*** → ***Dimensioning***].
2	Before proceeding with the *Prompts* in the lower-left corner of the software interface, set the *Dimension Style* in the *Dialogue Box*. Expand the drop-down and set the *Dimension Style* that the previously-created Dimension or Note element will be changed to.
3	*Prompt: Change Dimension > Identify Element* – Left-Click on the previously-created Dimension or Note element that will have its *Dimension Style* changed.
4	*Prompt: Change Dimension > Change to Standard Dimension Symbology* – Left-Click anywhere in the *View* to accept the *Dimension Style* change and complete the command.

15B.3.i Match the Text Attributes of an Existing Annotation Element

With the *Match Text Attributes* tool, the User can select a previously-created annotation element to automatically set the Text Attributes for the next annotation element to be created.

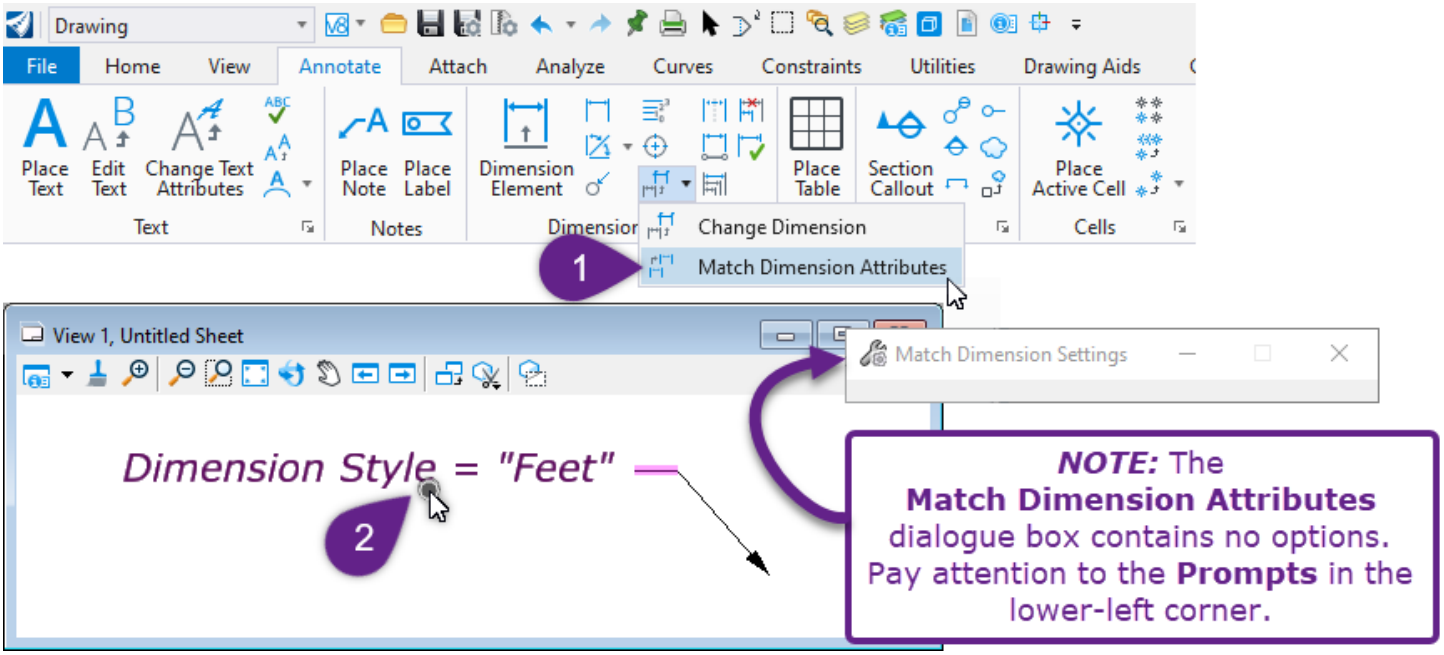


1	From the Ribbon, select the *Match Text Attributes* tool: [***Drawing*** → ***Annotate*** → ***Text***].
2	*Prompt: Match Text Attributes > Identify Element* – Left-Click on the previously-created annotation element to be matched.
3	*Prompt: Match Text Attributes > Accept/Reject (select next input)* – Left-click in the *View* to accept the match

After this process is completed, all newly-created annotation elements will have the same Text Attributes as the matched element.

15B.3.j Match the Dimension Style of an Existing Note or Dimension

With the *Match Dimension Attributes* tool, the User can select a previously-created Note or Dimension element to automatically set the *Dimension Style* and Attributes for the next Note or Dimension to be created.



1	From the Ribbon, select the *Match Dimension Attributes* tool: [***Drawing*** → ***Annotate*** → ***Dimensioning***].
2	*Prompt: Match Dimension Settings* > *Identify Element* – Left-Click on the previously-created Note or Dimension element to be matched.

After this process is completed, all newly-created Note and Dimension elements will have the same *Dimension Style* and Attributes as the matched element.

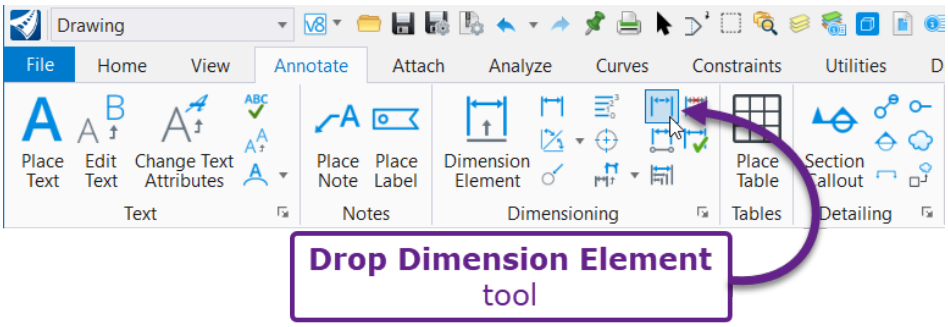
15B.3.k Drop a Note or Dimension Element to Individual Components

The *Drop Dimension Element* tool is used to break up a Note or Dimension Element to base components.

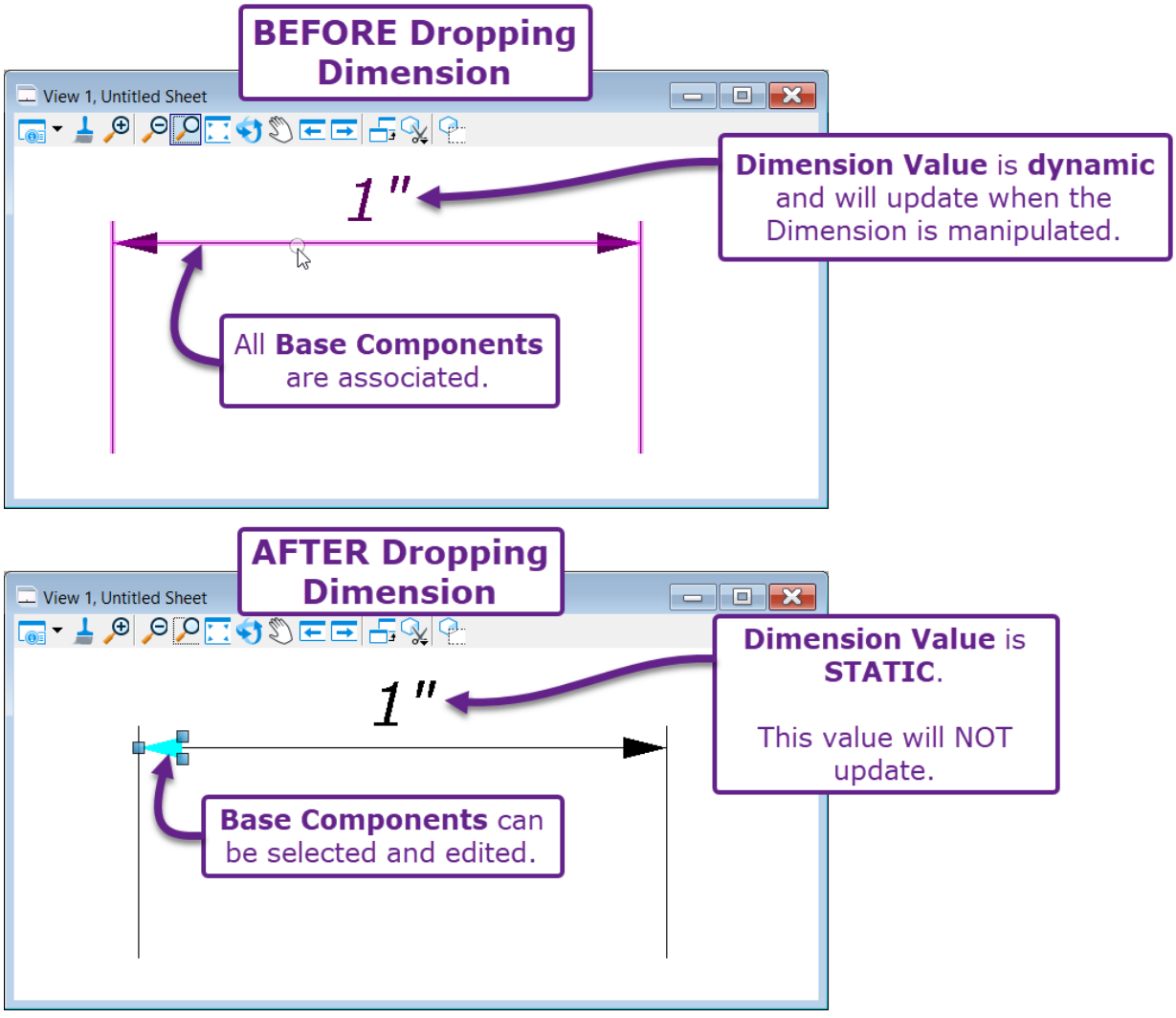
WARNING: Avoid dropping Notes and Dimensions if possible. Dropped Dimension elements loose measuring functionality. The original measured value will be displayed even after edits are made, but becomes static text. Dropped Notes and Dimensions are static text and geometric elements.

Drop Dimension Element tool Location:

Drawing workflow → **Annotate** tab → **Dimensioning** panel



The graphic below shows what happens when a Dimension Element is dropped. All components in the Dimension Element become dissociated. After the Dimension Element is dropped, base component elements can be selected and edited.



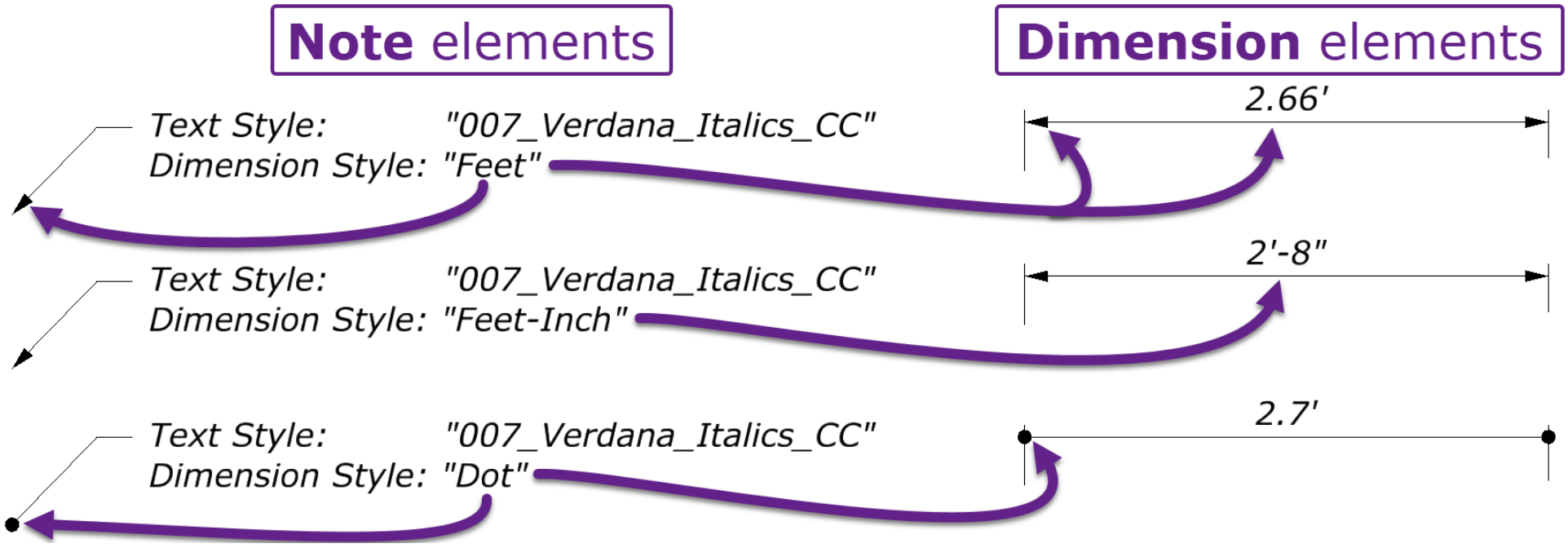
15B.4 Text Styles and Dimension Styles

Text Styles and *Dimensions Styles* control the appearance of annotation elements. *Text Styles* and *Dimensions Styles* are included in *Element Template* definitions. When an *Element Template* is set, it is unnecessary to interact with *Text Styles* and *Dimension Styles*. However, advanced configuration of *Civil Labels*, *Element Templates*, and *Annotation Groups* require a pre-requisite knowledge of *Text Styles* and *Dimension Styles*.

Text Styles control parameters related to the text font. Specifically, Font Style, Font Height, Font Color, Italicization, Boldness, Underline, Background Mask, Line/Paragraph Spacing, and Justification.

Dimension Styles control parameters related to terminator (i.e., arrow or dot), leader, landing, and text position.

As shown in the graphic below, the same sets of Text and Dimension Styles are applicable to both Note and Dimension Elements.



TIP: Standard Note and Dimensions elements use the following styles:

Text Style = "007_Verdana_Itallics_CC" | **Dimension Style =** "Feet".

15B.4.a Guide to FLH Text Styles and Dimension Styles

FLH *Text Styles* and *Dimension Styles* are named to convey information related to their text characteristics and leader/arrow appearance.

15B.4.a.i FLH Text Styles - Naming Convention

FLH *Text Styles* have been specifically named to convey information related to Text Height, Font Type, Boldness, Italicization, and Justification.

Example *Text Style* Name: "010_Verdana_Bold_Italics_CC". (This *Text Style* is used for the heading of a User-created custom detail)

[Text Height*]	***_ [Font Type] _***	***[Boldness]***	***_ [Italicization] _***	***[Justification**]***
[010 or 0.010-feet*]	[Verdana]	[Will show as Bold]	[Will show in Italics]	[CC=Center-Center]

Resulting Text → ***CURB DETAIL (HEADING)***

IMPORTANT: If the name of a *Text Style* does NOT contain "_Bold_" or "_Italics_", then the resulting *Text Style* will NOT be bolded or italicized. For example, the *Text Style* named "008_Verdana_Bold_CC" is bolded, but NOT italicized.

Text Height*:** Text Height is specified in **decimal feet** units as physically measured in the *Sheet Model* or on paper. It is assumed that a decimal point is placed in front of the leading zero of the Text Height prefix. For example, the *Text Style* named "007_Verdana_Italics" will result in text that is 0.0070 feet (0.084 inches) in height, when measured on paper or in the *Sheet Model*. ***IMPORTANT: See *15A.2 Annotation Scale* for behavior of text elements with the Annotation Scale.

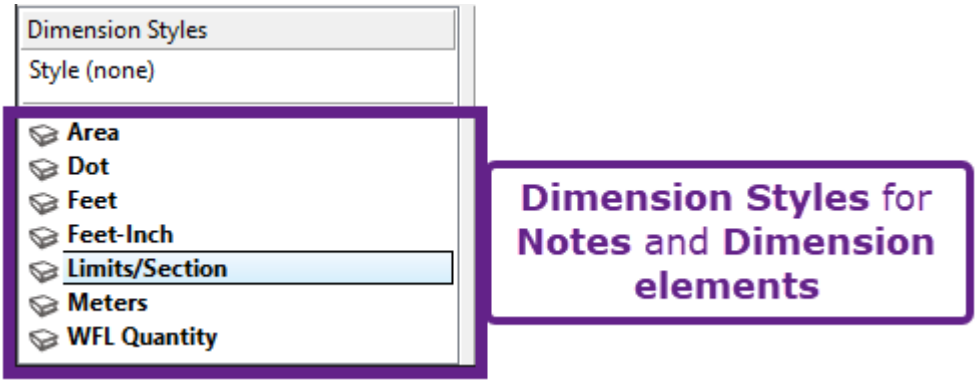
***Justification*:** For the *Justification* component of the *Text Style* name, the first letter denotes the horizontal justification (i.e., L=Left, C=Center, R=Right). The second letter denotes the vertical justification (i.e., T=Top, C=Center, B=Bottom). For *Note* and *Dimension* elements, the justification is set in the *Dimension Style*.

15B.4.a.ii FLH Text Styles - Descriptions and Usages

Descriptions and usages for all FLH *Text Styles* are discussed on the FLH Website at the following location: https://highways.dot.gov/federal-lands/cadd-support/text-dimension-styles.

15B.4.a.iii FLH Dimension Styles

Dimension Styles apply to both *Note* elements and *Dimension* elements.

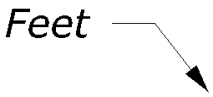
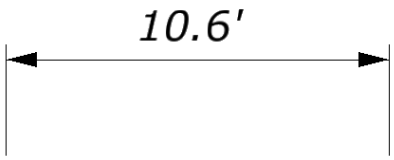
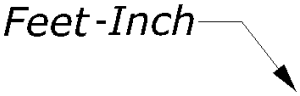
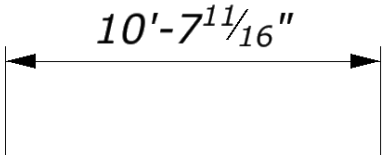
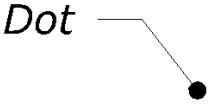
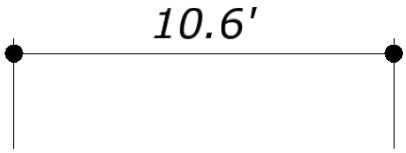
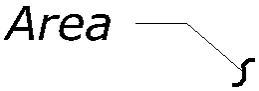
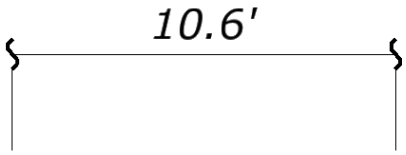
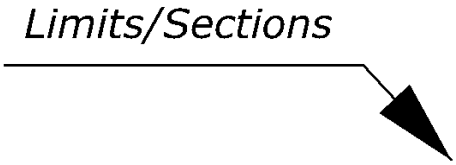
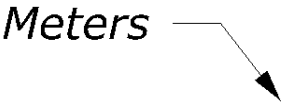
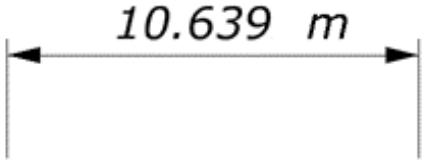


The following charts show the *Dimension Styles* found in a typical FLH Plan Set. FLH *Dimension Styles* are discussed on the FLH Website at the following location:

https://highways.dot.gov/federal-lands/cadd-support/standards/text-dimension-styles.

FLH Dimension Styles Chart			
Dimension Style	**Terminator Type**	**Units of Measurements (Dimension Elements ONLY)**	**Common Usages**
Feet	Standard Arrow	Decimal Feet	Standard Notes and Dimension elements. The most commonly used Dimension Style in FLH Plan Sets
Feet-Inches	Standard Arrow	Feet and Inches	Structural Dimensioning, Guardrail dimension, and general dimensions that include inches.
Dot	Dot	Decimal Feet	Notes referring to and delineating an area or infill feature.
Area	Tilde (squiggle)	Decimal Feet	Structural Notes referring to and delineating an area or infill features. ***WARNING:*** This Dimension Style is intended for structural drafting only. In roadway drafting, use the "Dot" Dimension Style for Notes referring to an area.
Limits/Section	Large Arrow	Decimal Feet	"Begin/End Project" Notes on first and last page of Plan & Profile sheets.
Meters	Standard Arrow	Decimal Meters	Metric Plans

NOTE: The "Feet", "Feet-Inches", and "Meters" *Dimension Styles* all contain the same arrow **Terminator** type, but are associated with different **Units** of measurement.

FLH Dimension Styles Chart		
Dimension Style	**Note Element**	**Dimension Element**
Feet		
Feet-Inches		
Dot		
Area		
Limits/Section		Not Used
Meters		

15B.4.b Text Style Editor

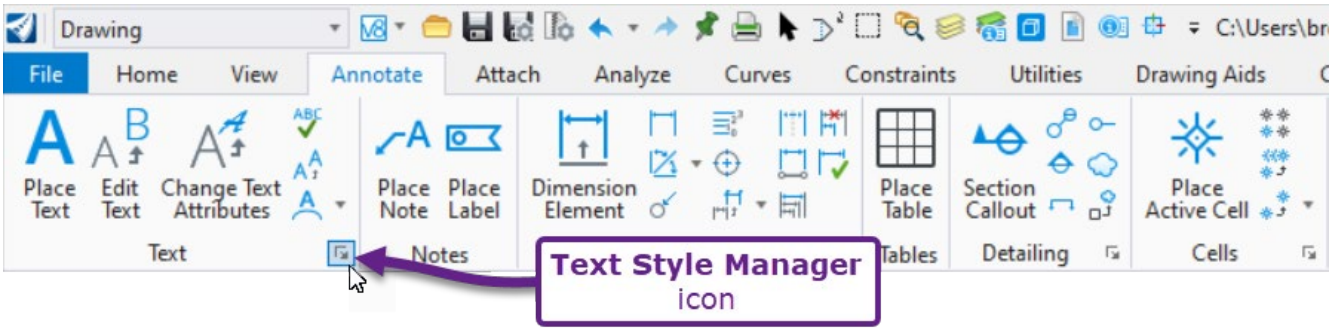
Text Styles are created and edited in the *Text Style Editor*.

WARNING: The direct editing (override) of *FLH Text Styles* is DISCOURAGED unless strictly necessary.

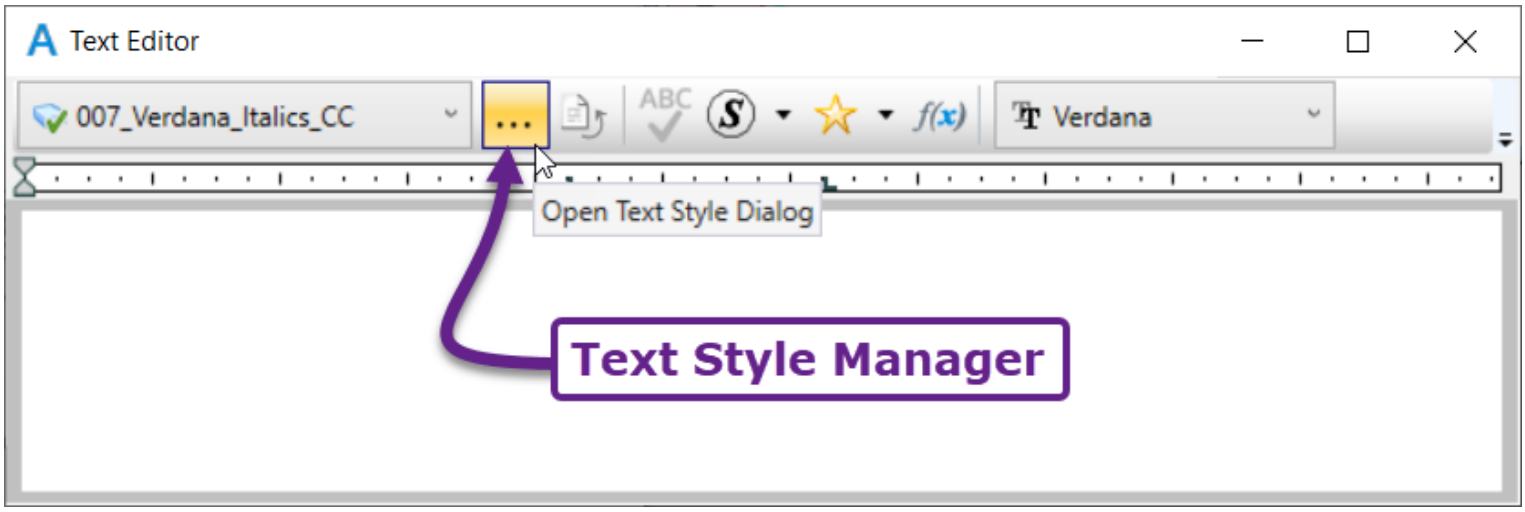
15B.4.b.i Access the Text Style Editor

The *Text Style Editor* is accessed from two locations:

Ribbon Location: In the Ribbon, select the small box located at the bottom-right corner of the *Text* panel. [***Drawing*** → ***Annotate*** → ***Text***].

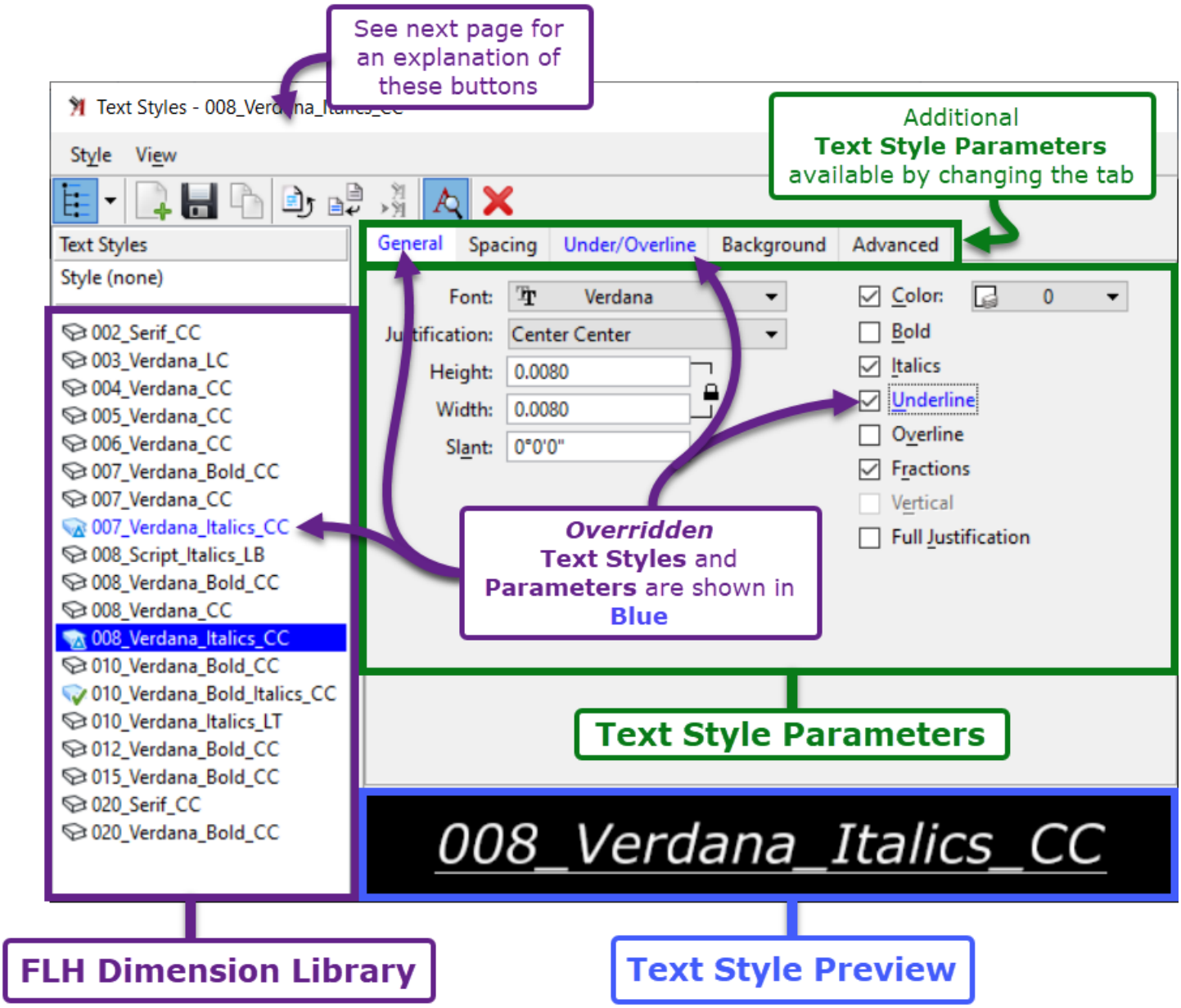


Text Editor Location: Another access location for the *Text Style Editor* is contained within the *Text Editor*. Push the ... icon to access the *Text Style Editor*.



15B.4.b.ii Text Style Editor Overview

Below shows the basic layout of the *Text Style Editor*:



Text Style icons in the FLH Text Library list:

The icons shown next to Text Styles represent the status of the Text Style in the active ORD File.

Text Style NOT used in active ORD File.

Text Style used in active ORD File and matches the FLH Text Library configuration.

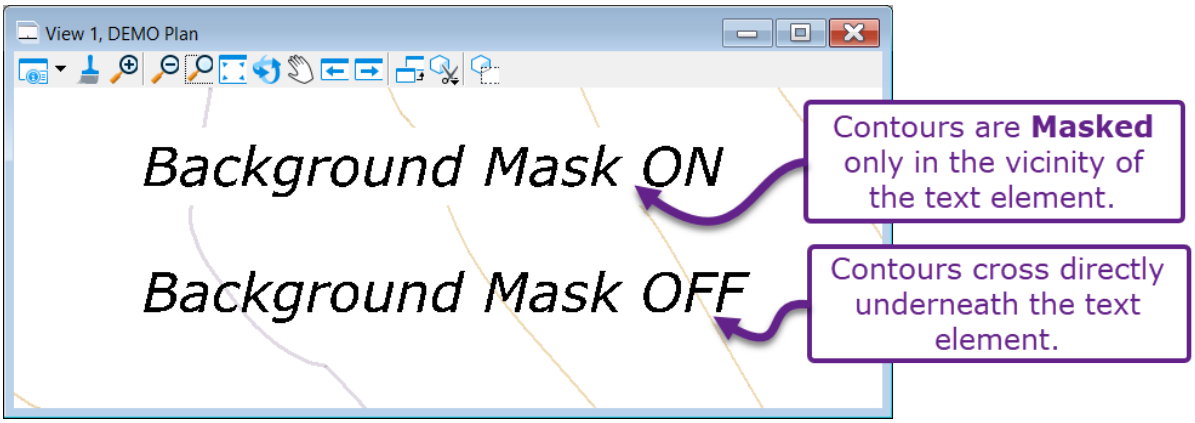
Text Style is OVERRIDDEN and differs from the FLH Text Library configuration.

Text Style Editor Buttons		
Button		Description
	**Create Style**	Create a brand-new Text Style from scratch (not recommended).
	**Save Style**	After override edits are made to a Text Style, use the Save Style button to remember the edits.
	**Copy Style**	Used to Copy a Text Style. ***BEST PRACTICE:*** Do NOT make override edits directly to a FLH Text Style. Instead, **copy** the Text Styles and make override edits to the copied Text Style.
	**Reset Style**	If a FLH Text Style has been overridden (edited), then this button will revert the Style back to its original configuration as found in the FLH WorkSpace.
	**Update From Library**	If the FLH Text Style Library were to change within the FLH WorkSpace, then this button is used to sync the Text Styles in the active ORD File with the updated Styles in the FLH WorkSpace. This button would potentially be used if a new version of the FLH WorkSpace was release in the midst of on-going project.
	**Set Active Style**	Sets the selected (highlighted) as the Active Text Style when Annotation tools are used.
	**Toggle Preview**	Simply shows the **Text Style Preview** module in the *Text Style Editor*.
	**Delete Style**	Deletes a Text Style. In the active ORD File, if there are annotation elements that are currently assigned to the deleted file, then the User will be prompted to re-assign the annotation elements to a new Style.

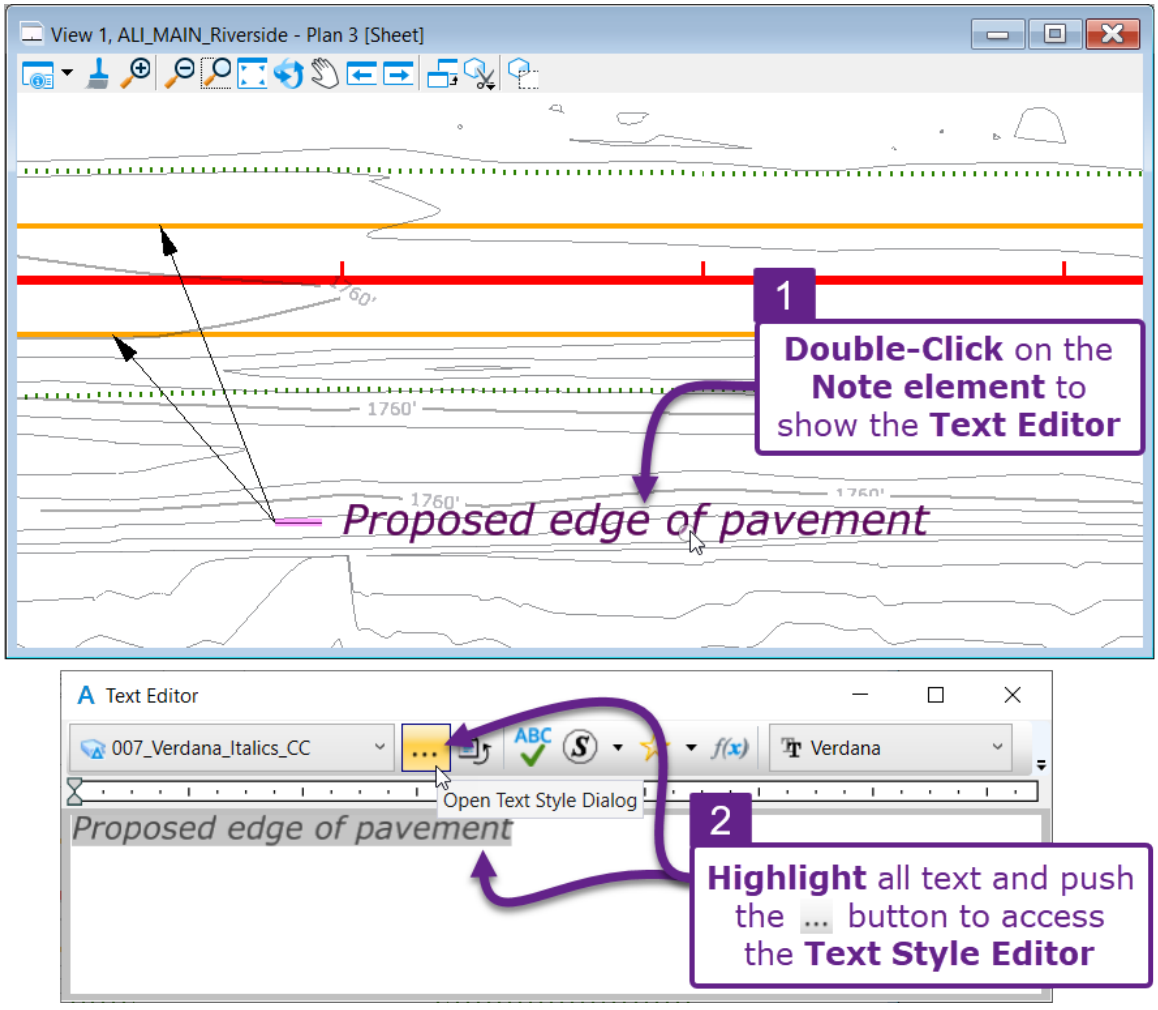
15B.4.b.iii Add a Background Mask – Workflow

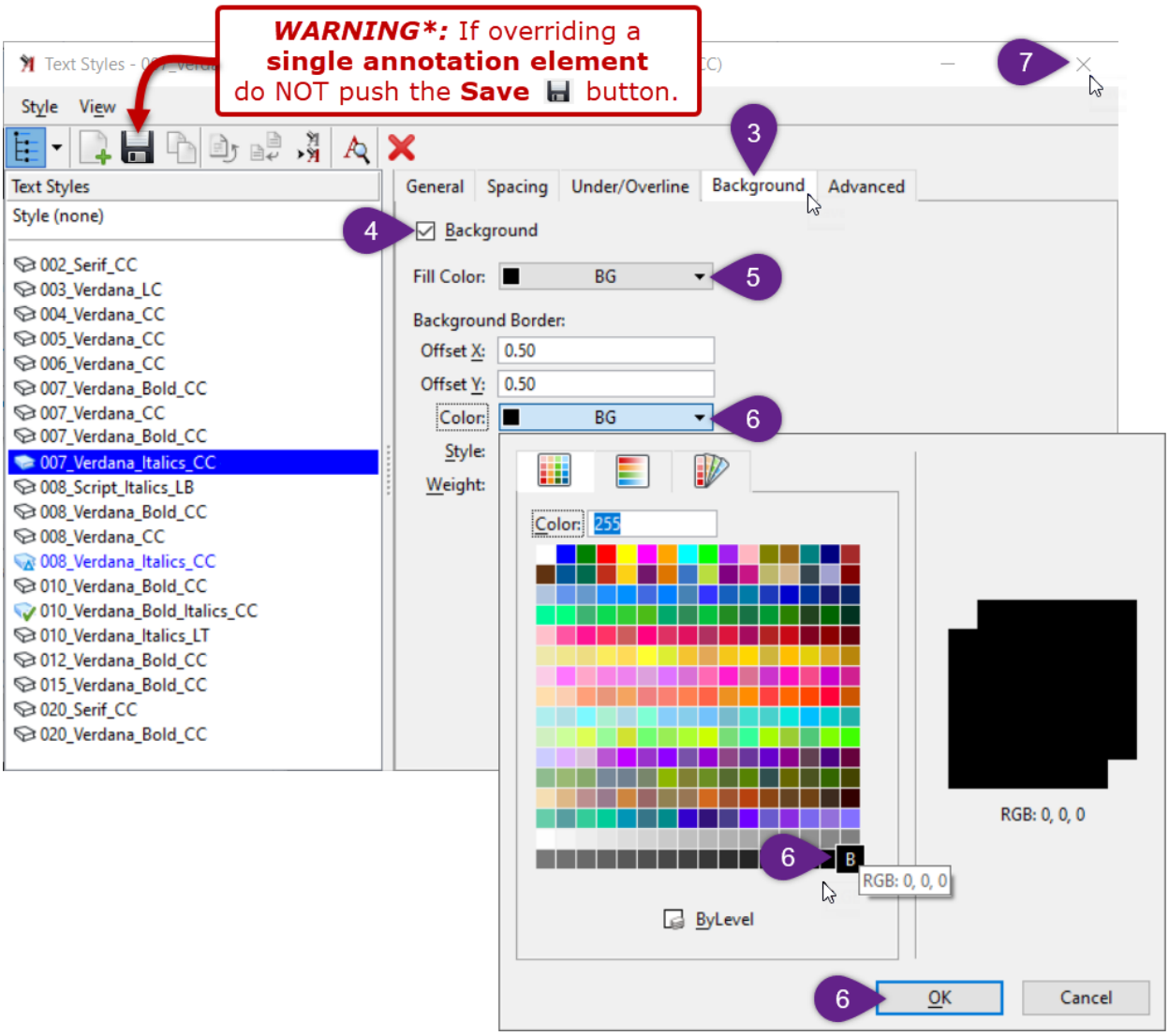
In this workflow, a Background Mask is added to a previously-created Note element.

The graphic below compares a Text element that contains a Background Mask with a Text Element that contains NO Background Mask.



1	Double-Click the previously-created text element to show the *Text Editor*.
2	In the *Text Style Editor*, highlight the text. Push the ... button to access the *Text Style Editor*.





3	Left-Click on the "Background" tab.
4	CHECK the *Background* box.
5	Expand the *Fill Color* drop down. Select the color in the lower left corner, marked with a B. This color will mimic the background of the *2D Design Model* or *Sheet Model*. Select *OK* to accept the *Fill Color*.
6	Repeat Step 7 with the *Background Border Color*. Select B.
7	***WARNING*:*** If overriding a single annotation element, do NOT push the **Save** button after edits are made in *Text Style Editor*. If the **Save** button is pushed, then the override edits will be applied to all annotation elements use the *Text Style* in the current ORD File. Instead, **Exit** out of the *Text Style Editor*.
8	Left-Click in the View to apply the overrides to the single, previously-created annotation element.

15B.4.c Dimension Style Editor

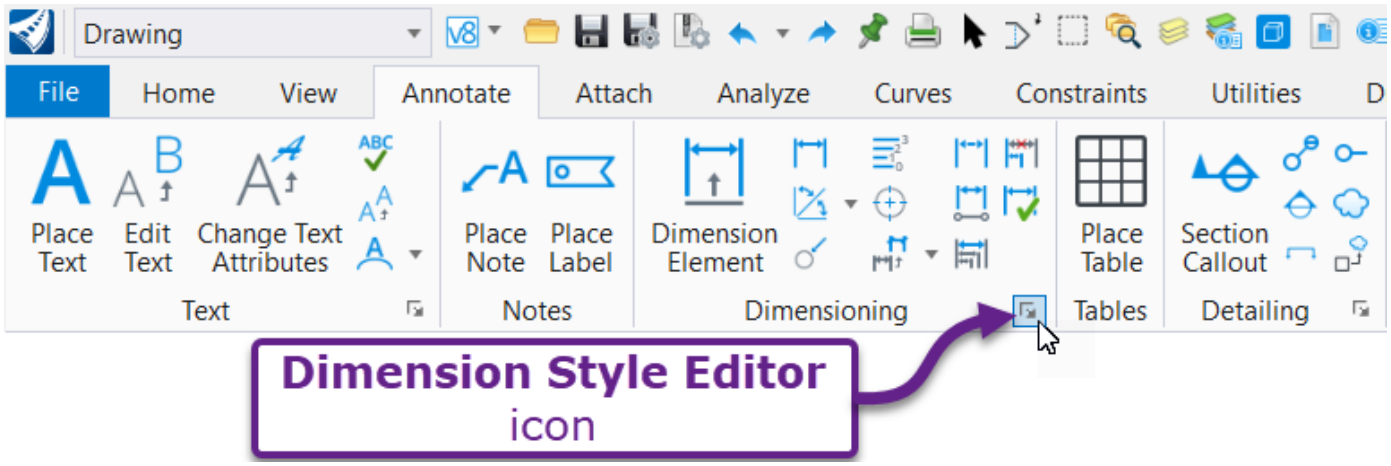
Dimension Styles are created and edited in the *Dimension Style Editor*.

WARNING: The direct editing (override) of Dimension Styles is DISCOURAGED unless strictly necessary.

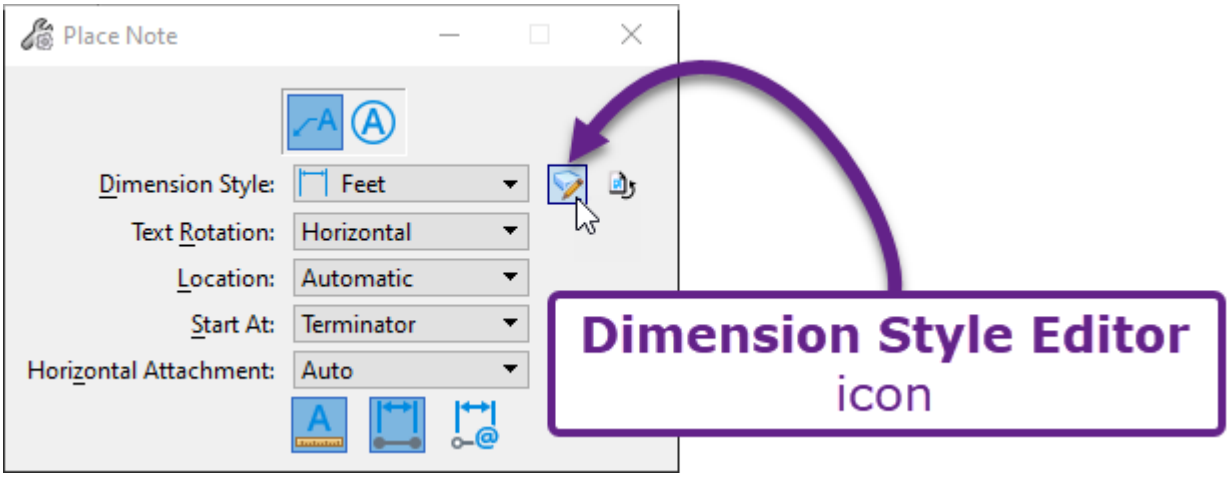
15B.4.c.i Access the Dimension Style Editor

The *Dimension Style Editor* is accessed from two locations:

Ribbon Location: In the Ribbon, select the small box that is located at the bottom-right corner of the *Annotate* panel. [***Drawing*** → ***Annotate*** → ***Dimensioning***].

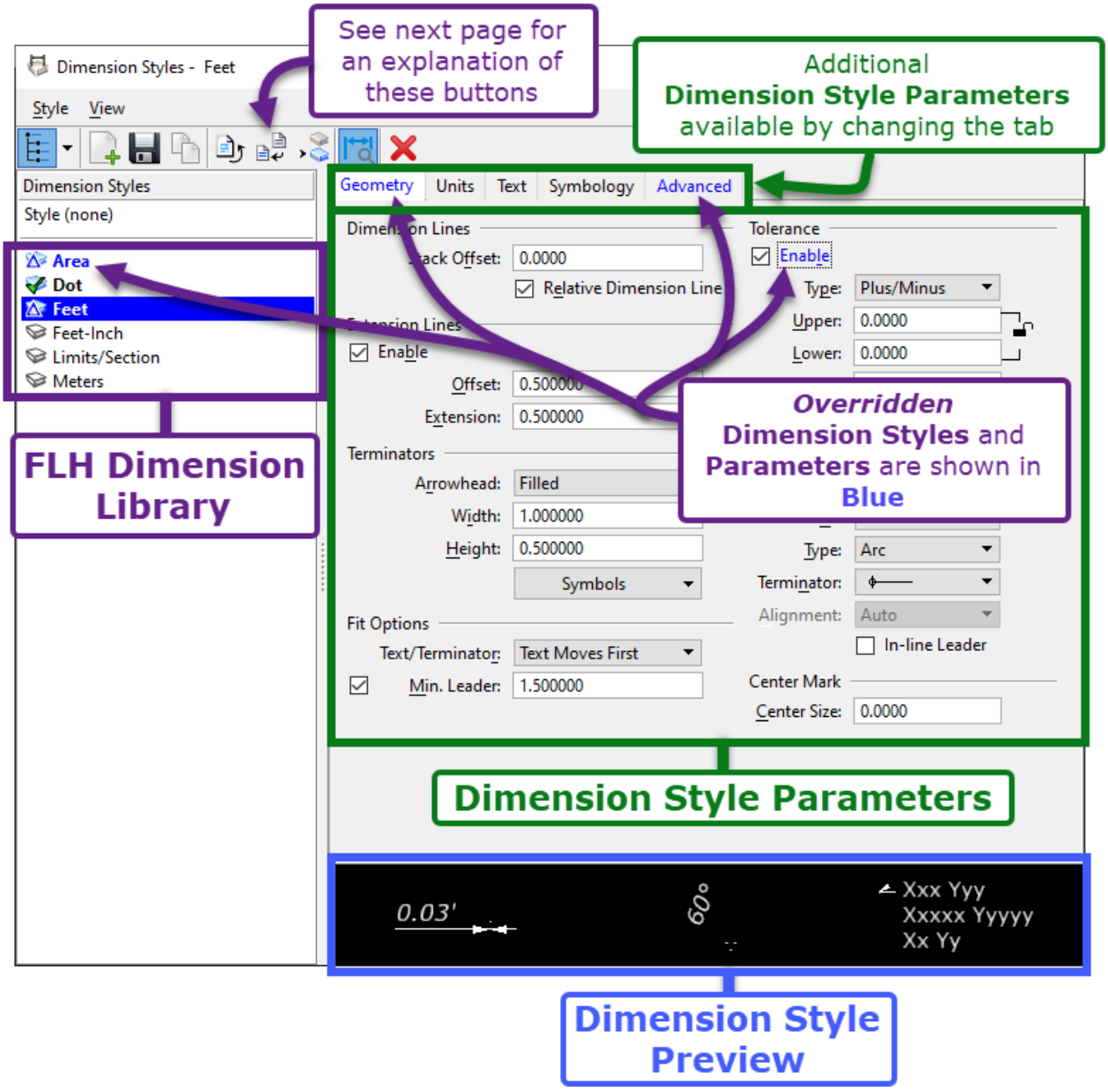


Dialogue Box Location: In the *Place Note* or *Place Dimension* dialogue box, push the icon to access the *Dimension Style Editor.*



15B.4.c.ii Dimension Style Editor Overview

Below shows the basic layout of the Dimension Style Editor.



Dimension Style icons in the FLH Dimension Library list:

The icons shown next to Dimension Styles represent the status of the Dimension Style in the active ORD File.

Dimension Style NOT use in active ORD File.

Dimension Style used in active ORD File and matches the FLH Dimension Library configuration.

Dimension Style is OVERRIDDEN and differs from the FLH Dimension Library configuration

Dimension Style Editor Buttons		
Button		Description
	**Create Style**	Create a brand-new Dimension Style from scratch (not recommended).
	**Save Style**	After override edits are made to a Dimension Style, use the Save Style button to remember the edits.
	**Copy Style**	Used to Copy a Dimension Style.
	**Reset Style**	If a FLH Dimension Style has been overridden (edited), then this button will revert the Dimension Style back to its original configuration set in the FLH WorkSpace.
	**Update From Library**	If the FLH Dimension Style Library were to change within the FLH WorkSpace, then this button is used to sync the Dimension Styles in the active ORD File with the updated Styles in the FLH WorkSpace. This button would potentially be used if a new version of the FLH WorkSpace was release in the midst of on-going project.
	**Set Active Style**	Sets the selected (highlighted) as the Active Dimension Style when Annotation tools are used.
	**Toggle Preview**	Simply shows the **Dimension Style Preview** module in the *Dimension Style Editor*.
	**Delete Style**	Deletes a Dimension Style. In the active ORD File, if there are annotation elements that are currently assigned to the deleted file, then the User will be prompted to re-assign the annotation elements to a new Style.

15C – FIELDS, TEXT FAVORITES, AND CIVIL LABELS

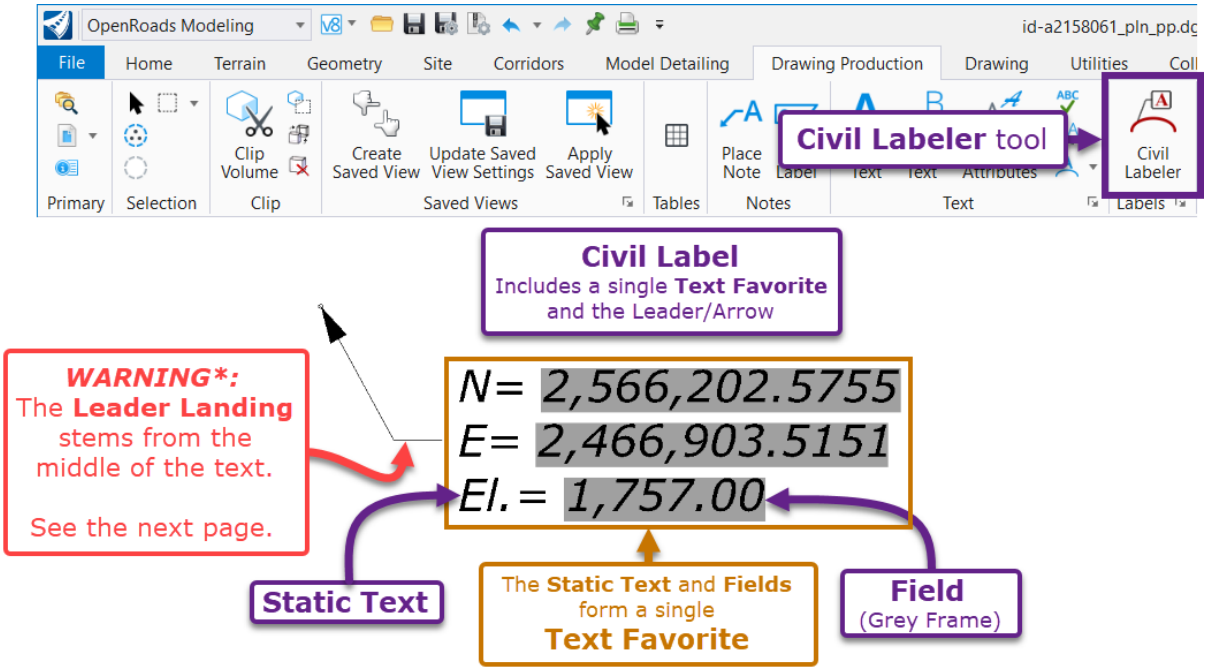
Fields are "smart", dynamic pieces of text. Fields have a wide variety of uses, such as populating the Sheet Number in the *Sheet Model* border or calculating a Station/Offset at a certain point. See *15C.1 Fields*. Typically, Fields are embedded in *Text Favorite* expressions, which are then applied as *Civil Labels*.

Text Favorites are expressions comprised of Fields and/or conventional, static text. FLH has created a library of Text Favorites for usage with the *Civil Labeler* tool and other Annotation tools. See *15C.2 Text Favorites*. To create a custom *Civil Label*, first a corresponding Text Favorite must be created.

Civil Labels are dynamic annotations used to perform civil analysis. The text content of a Civil Label is a single *Text Favorite.* Civil Labels are intended to be placed in a *Drawing Models* or the *2D Design Model*. See *15C.3 Civil Labeler tool*. The table below shows common applications for Civil Labels:

Civil Label Applications	
Model Type:	**Application:**
PLAN *Drawing Model* and ***2D Design Model***	• Calculate an Alignment station and offset at a specified point location. • Place a Civil Label at a user-specified station and/or offset value. • Calculate the Active Profile elevation at a point location along an Alignment. • Calculate the bearing angle of a line segment. • Calculate the Northing and Easting of a specified point location. • Calculate the Terrain Model elevation at a specified Point location.
PROFILE *Drawing Model*	• Calculate the station and elevation at a specified point location. • Calculate the Slope of a Profile line segment. • Calculate the mainline Station of an intersecting Profile (i.e. intersecting Culvert).
CROSS SECTION *Drawing Model*	Civil Labels could be used for custom labeling a single CROSS SECTION. • Calculate the offset and elevation at a specified point location. • Calculate the slope or length of a segment.

The graphic below shows a **Civil Label** element used to label Northing, Easting, and a Terrain Model elevation (**Target** element). The text string consists of a single **Text Favorite** expression.



WARNING*: As shown in the graphic above, the Leader Landing of the **Civil Label** stems from the middle of the text – which does NOT conform to FLH Drafting Standards. FLH Drafting standards calls for the Leader Landing to stem from the top text line (if the leader is on the left-side) or the bottom text line (if the leader is on the right-side).

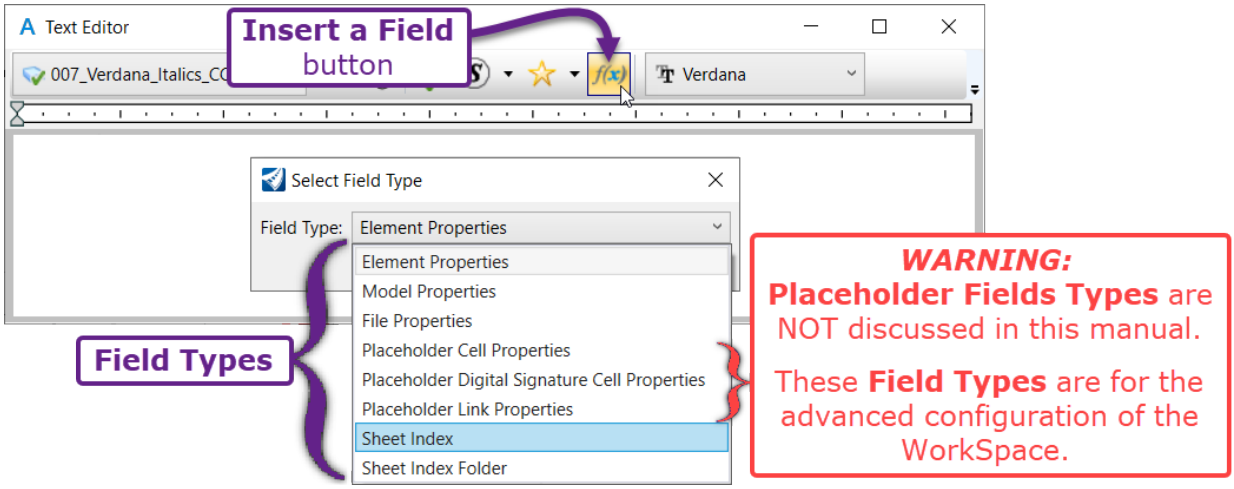
At this time, it is NOT possible to re-configure Leader Landing placement to conform with FLH Drafting Standards. However, this functionality is anticipated for future updates of the software.

15C.1 Fields

Fields are pieces of "smart" text that are dynamically linked to an element's geometric characteristics, or properties relating to the current WorkSet or Model properties.

> ***IMPORTANT:*** For civil analysis applications, such as labeling the bearing angle of a line segment, use the *Civil Labeler* tool. See *15C.3 Civil Labeler tool*. For more simple *Field* applications, such as displaying the FLH Project Number, *Fields* can be inserted directly into a Note or Text element.

For inserting a *Field* directly into a Note or Text element, push the *Insert Field* f(x) button found in the Text Editor. Next, choose a *Field Type*:



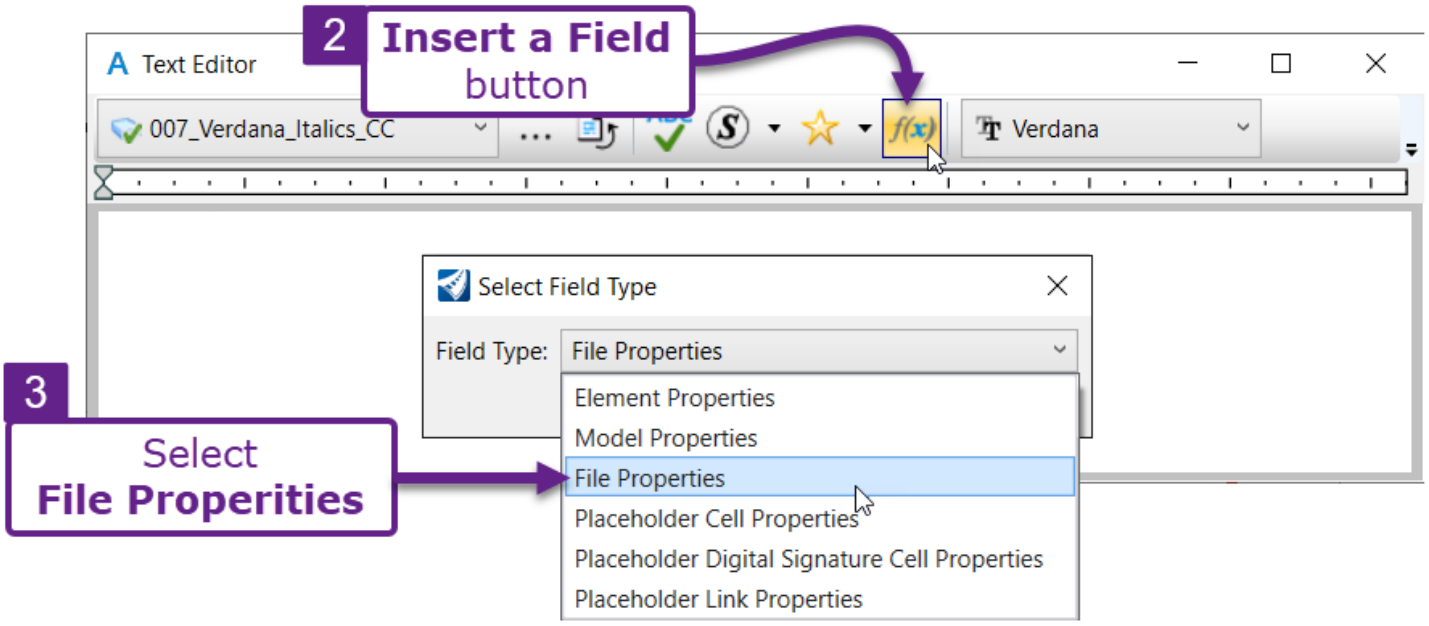
Field Types		
Field Type:	**Description:**	**Practical Examples:**
Element Properties	Creates a link to any Property of a geometrical element. ***TIP:*** Use the Civil Labeler tool to label Element Properties.	• Calculate the Length, Radius, or Bearing Angle of an Element. • Display the Name, Feature Definition, or Level or an Element.
Model Properties	Creates a link to the Properties of the current Model. Typically, this Field Type is used from the Sheet Model.	• Display the Sheet Number or Name of the current Sheet Model. • Display the Sheet Size (height and width) of the current Sheet Model.
File Properties	Creates a link to the Properties of the current ORD File.	• Display WorkSet Properties, such as Project Name, State, and Project Number. • Display the File Path of the current ORD File.
Sheet Index*	Creates a link to the Properties of the Parent Folder of the Sheet Index.	• Display the Total Sheet Count for the Sheet Index.
Sheet Index Folder*	Creates a link to the Properties of a Sub-Folder in the Sheet Index.	• Display the Name of a Sub-Folder – which should correspond to the plan set section. • Display the Total Sheet Count for a Sub-Folder Sheet Index.

***SHEET INDEX WARNING:** The ORD software is NOT capable of creating a *Field* reference to an external Sheet Number of a *Sheet Model* in the Sheet Index. Sheet Number refences can only be created to the currently opened *Sheet Model*. This functionality is anticipated for future updates to the ORD Software.

15C.1.a Create a Field to reference a Project Number – Workflow

This workflow demonstrates how to create a *Field* within the text string of a Note or Text element. The *Field* is linked to the Project Number, which is set in the project WorkSet properties. Before beginning this workflow, set the project WorkSet properties. See *2D.1 Create WorkSet Properties for Sheet Borders*.

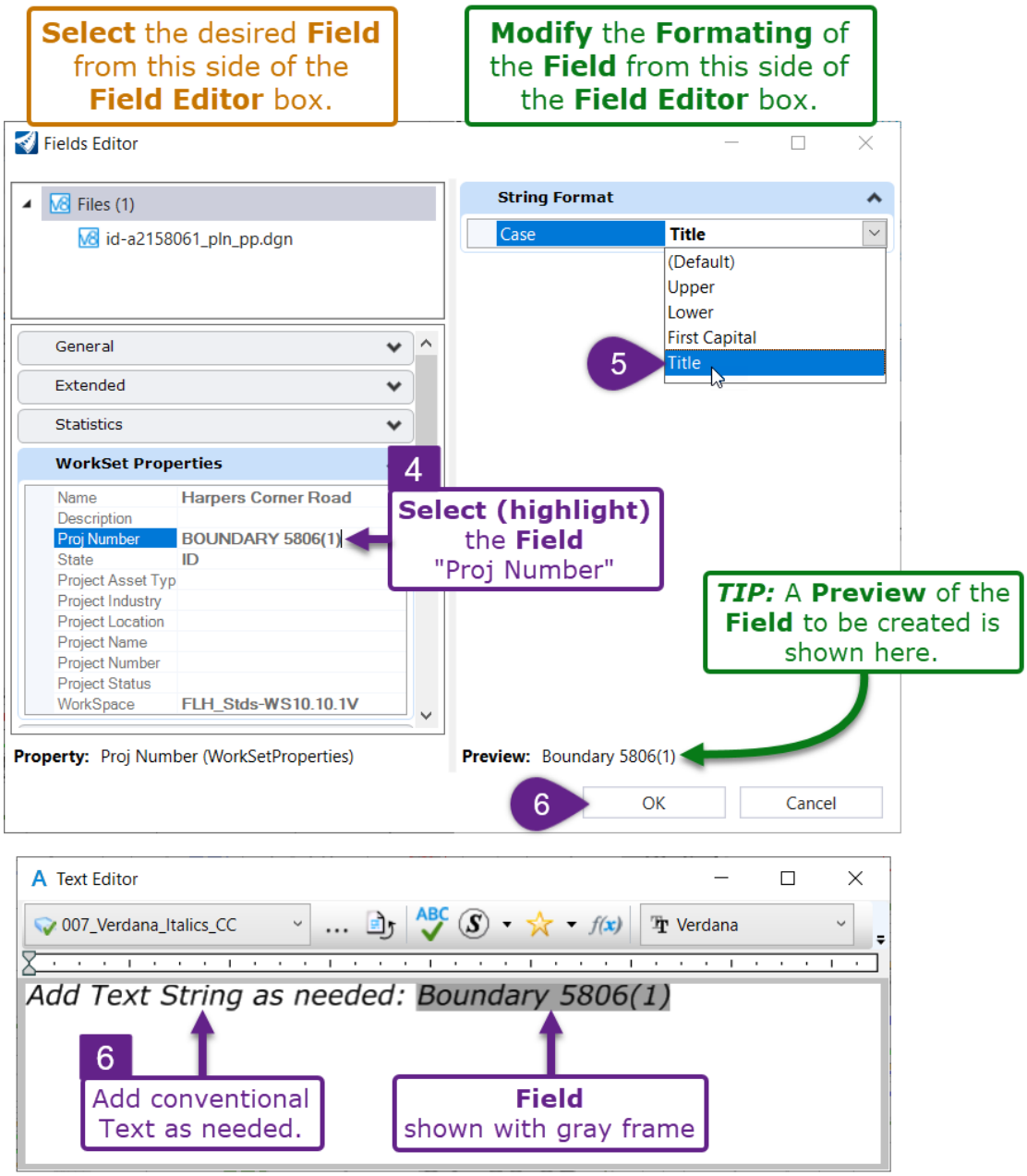
1	Open the *Text Editor* box by creating a new Text or Note element. Alternatively, edit a previously-created Text or Note element to open the *Text Editor* box.



2	From within the *Text Editor* box, select the *Insert Field* icon f(x).
3	Select the **File Properties** type from the drop-down. Push OK to access the *Field Editor* box.

IMPORTANT: The Field Editor box is divided into two sides. The **Right-Side** is used to select a Field. The **Left-Side** is used to modify the formatting of the Field text.

4	From the right-side of the *Field Editor* box, select (highlight) the desired Field. The "Proj Number" Field is located under the **WorkSet Properties** drop-down.
5	From the left-side of the *Field Editor* box, make formatting modifications to the Field text. ***TIP:*** The **Preview** shows how the Field will be formatted when placed in the Text or Note element. If the **Case** modifier is left as **Default**, then the Field text would be in all capitals, which is how the "Proj Number" was originally typed in the WorkSet Properties. In this example, the **Case** modifier is changed to **Title** so that ONLY the first letter of the word is capitalized.
6	Push OK to insert the *Field* into the Text Box Editor. Manually type in conventional text as needed.

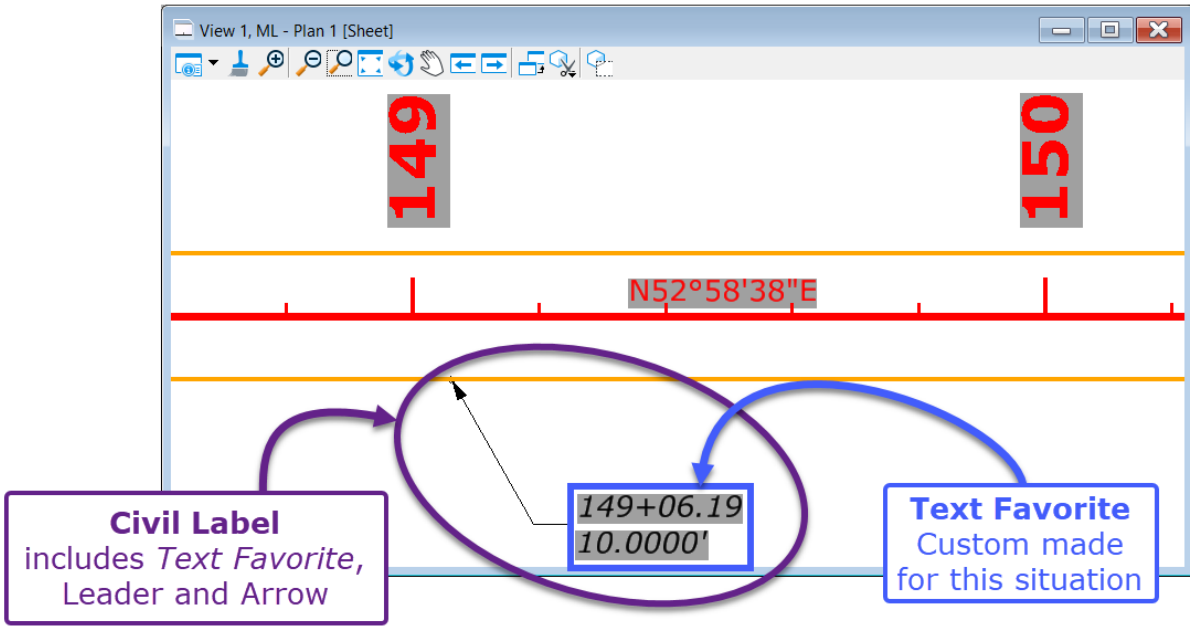


15C.2 Text Favorites

A *Text Favorite* is a pre-made string of text that includes dynamic *Fields* and/or static, conventional text.

IMPORTANT: *Text Favorites* are placed as annotation elements with the *Civil Labeler* tool (preferred) or the *Place Label* tool. See *15C.3 Civil Labeler tool*.

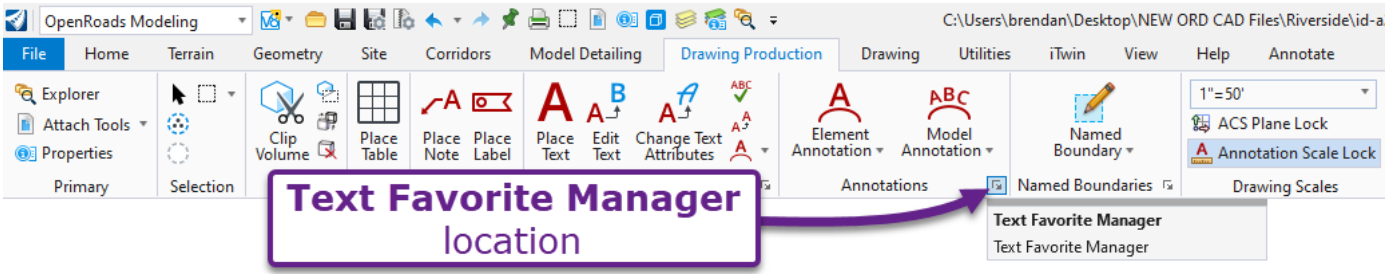
For a detailed workflow in creating a new *Text Favorite*, see *15C.4 Create and Configure a New Civil Label and Text Favorite*.



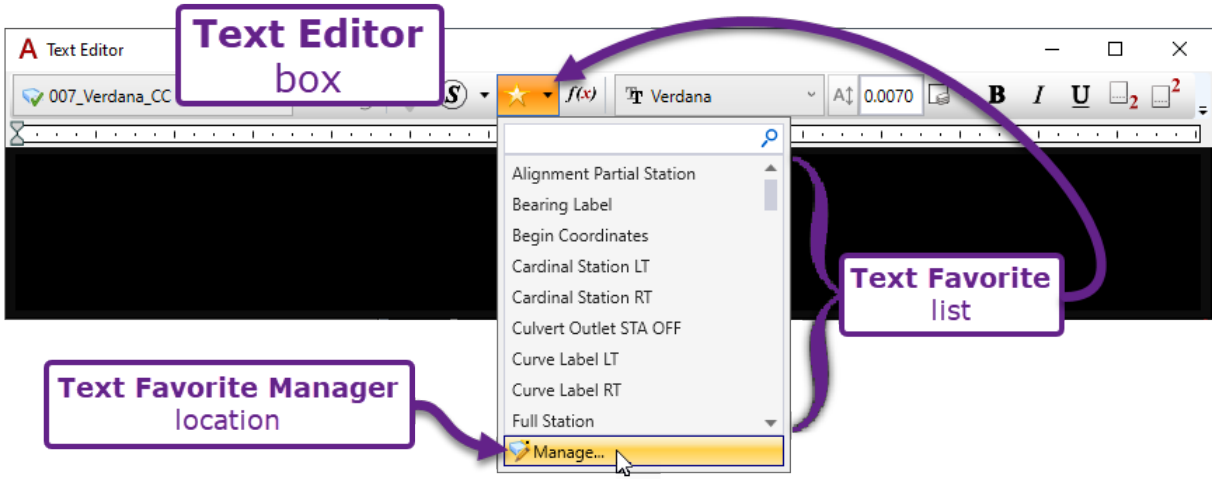
15C.2.a Access and Navigation of the Text Favorite Manager

Custom *Text Favorites* are created in the *Text Favorite Manager*. The *Text Favorite Manager* can be accessed from several locations:

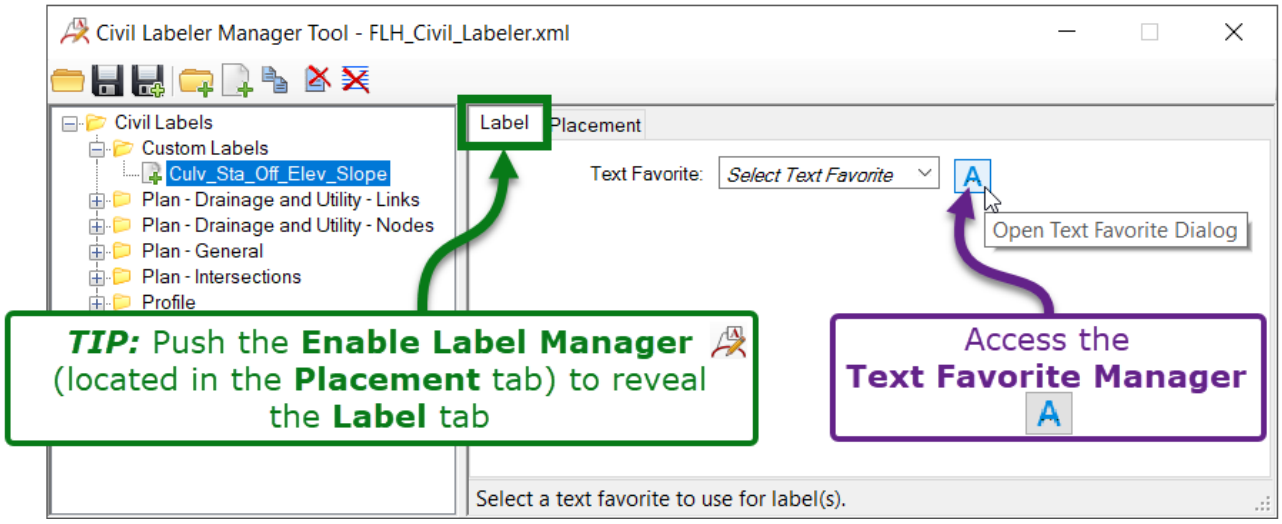
Ribbon Location: In the Ribbon, select the small box that is located at the bottom-right corner of the *Annotate* panel. [***OpenRoads Modeling*** → ***Drawing Production*** → ***Annotations***].



Text Editor Location: Select either the *Place Note* tool or *Place Text* tool to open the ***Text Editor*** **box**. The *Text Favorite Manager* is opened by expanding the *Text Favorite* list and selecting *Manage…* button at the bottom of the list.

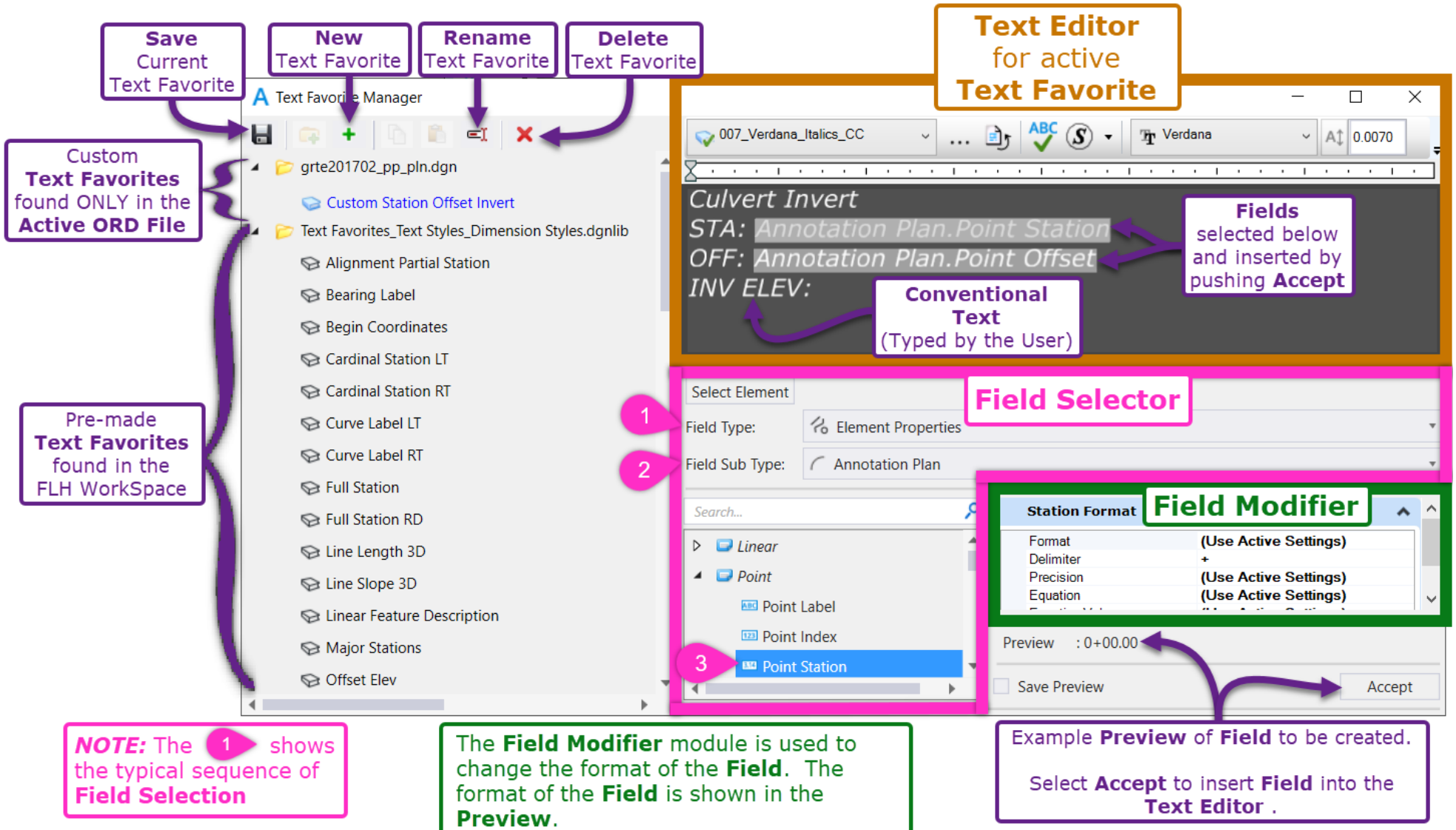


Civil Labeler Location: From the **Label** tab of the **Civil Labeler tool**, select the button to access the *Text Favorite Manager*. ***TIP:*** Push the **Enable Label Manager** button to reveal the **Label** tab.



15C.2.b Navigating the Text Favorite Manager

The graphic below shows the layout and sub-modules within the *Text Favorite Manager*. When satisfied with the appearance and content of the *Text Favorite* (as shown in the **Text Editor**), push the **Save** button and exit out of the *Text Favorite Manager*.



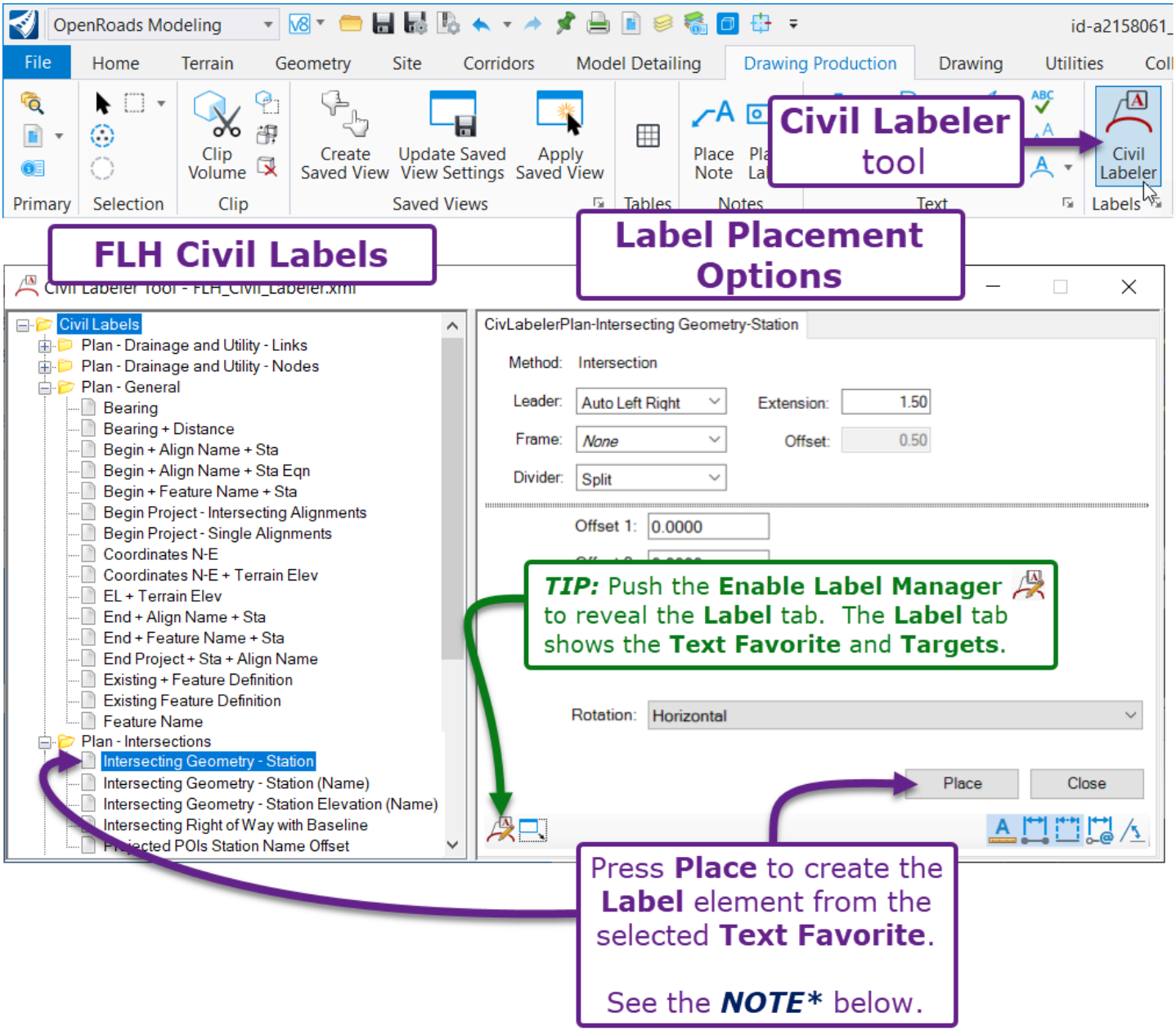
15C.3 Civil Labeler tool

The *Civil Labeler* tool creates annotations that analyze **Targeted** element(s). For example, an Alignment can be chosen as the **Target** element to label the station and offset at a specified point location.

WARNING: At this time, Leader Landing location of *Civil Labels* do NOT conform with FLH Drafting Standards. See the graphic and ***WARNING**** in *15C – Fields, Text Favorites, and Civil Labels*.

TIP: The *Civil Labeler* tool can be used to label elements in the PROFILE and CROSS SECTION *Drawing Models*.

WARNING: The *Civil Labeler* tool CANNOT perform civil analysis (i.e. station and offset labeling) from the *Sheet Model*. *Civil Labels* that do NOT require a **Target** element can be placed in the *Sheet Model*.

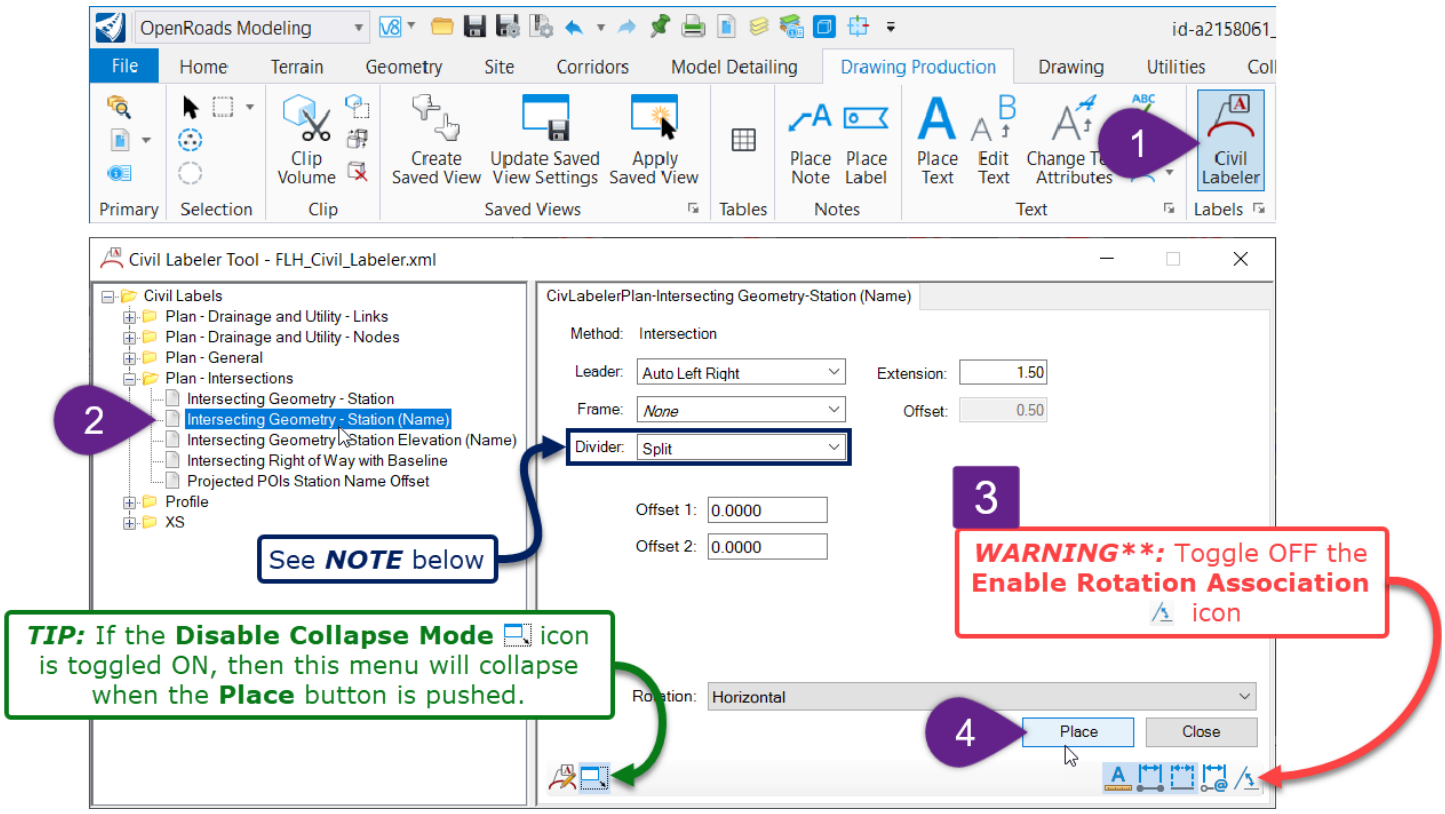


NOTE*: After the **Place** button is pushed, observe the **Prompts** in the lower-left hand corner. Each *Civil Label* contains a different set of **Prompts** depending on the function of the *Label*. The unique **Prompts** will inform on the element to be selected as the **Target**.

15C.3.a Place a Civil Label

To demonstrate the *Civil Labeler* tool, the intersection of an Approach Alignment and Mainline Alignment is labeled. To perform this task, the *Civil Label* called "Intersecting Geometry – Station (name)" is used.

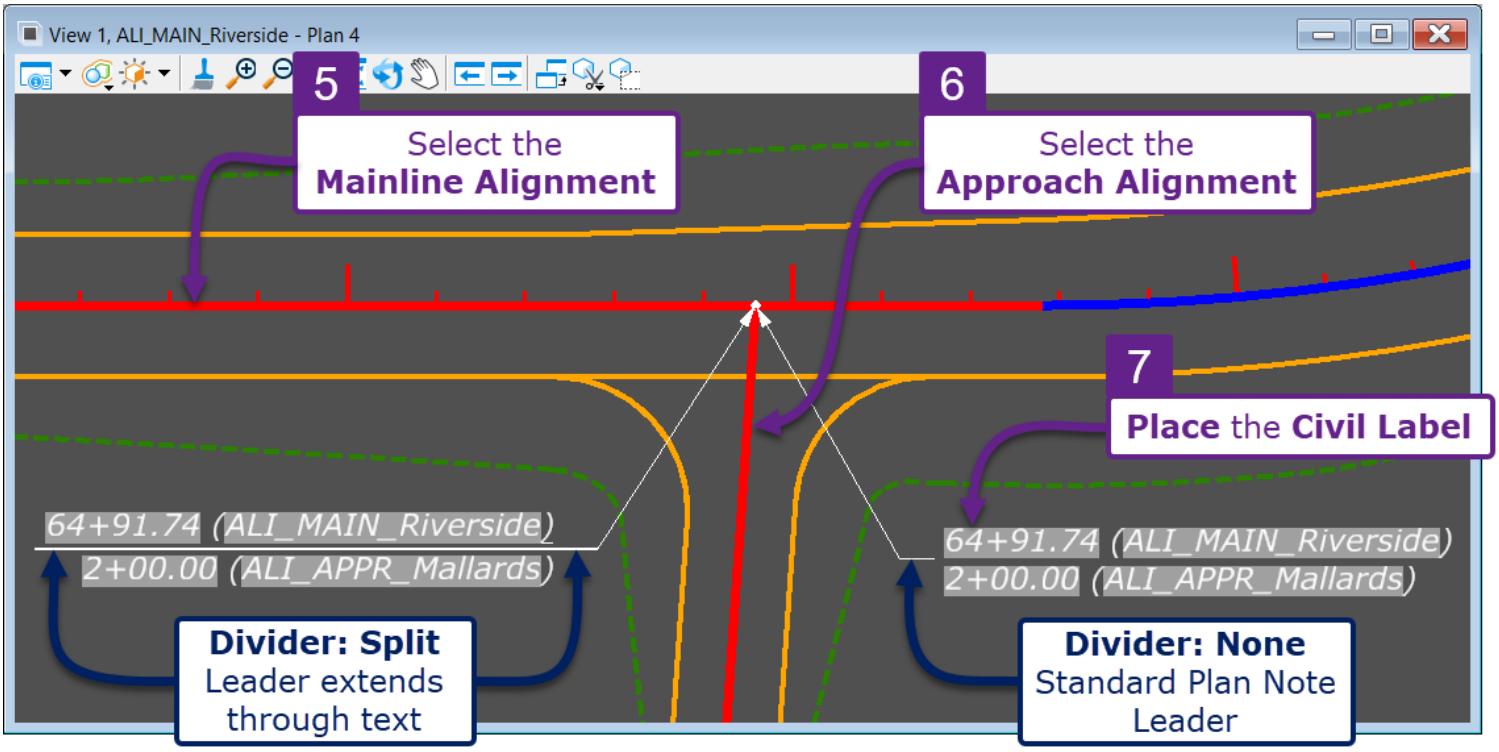
BEST PRACTICE: For Plan-View annotating, place *Civil Labels* in the *Drawing Model* (preferred) or the *2D Design Model*. ***WARNING:*** If *Civil Labels* are placed in the *Sheet Model*, then the software will crash or the resulting *Civil Label* will contain incorrect values.



1	From the Ribbon, select the *Civil Labeler* tool: [***OpenRoads Modeling*** → ***Drawing Production*** → ***Labels***].
2	Select (highlight) the "**Intersecting Geometry – Station (Name)**" *Civil Label*.
3	***WARNING**:*** Toggle OFF the **Enable Rotation Association** icon before placement of the *Label*. If the targeted element is moved, then the resulting *Label* text will rotate and re-position in a manner that is difficult to predict.
4	Select the **Place** button.

NOTE: It is typically NOT necessary or recommended to change any placement settings. However, the **Divider** setting is important to appearance of the Leader. As shown on the next page, if the **Split** setting is used, then the Leader extends all the way through the text (i.e., splits the top line and the bottom line). If the **None** setting is used, then a standard Plan Note Leader is created.

IMPORTANT: After the **Place** button is pushed, pay close attention to **Prompts** in the lower-left corner. Each *Civil Label* will have a unique set of **Prompts**. The **Prompts** shown in steps 5 through 7 are unique to the "Intersecting-Geometry – Station (Name)" *Civil Label*.



5	*Prompt: Identify first intersecting geometry* – select the **Mainline Alignment**.
6	*Prompt: Identify second intersecting geometry* – select the **Approach Alignment**.
7	*Prompt: Place Label* – left-click at the desired placement location for the *Civil Label*.

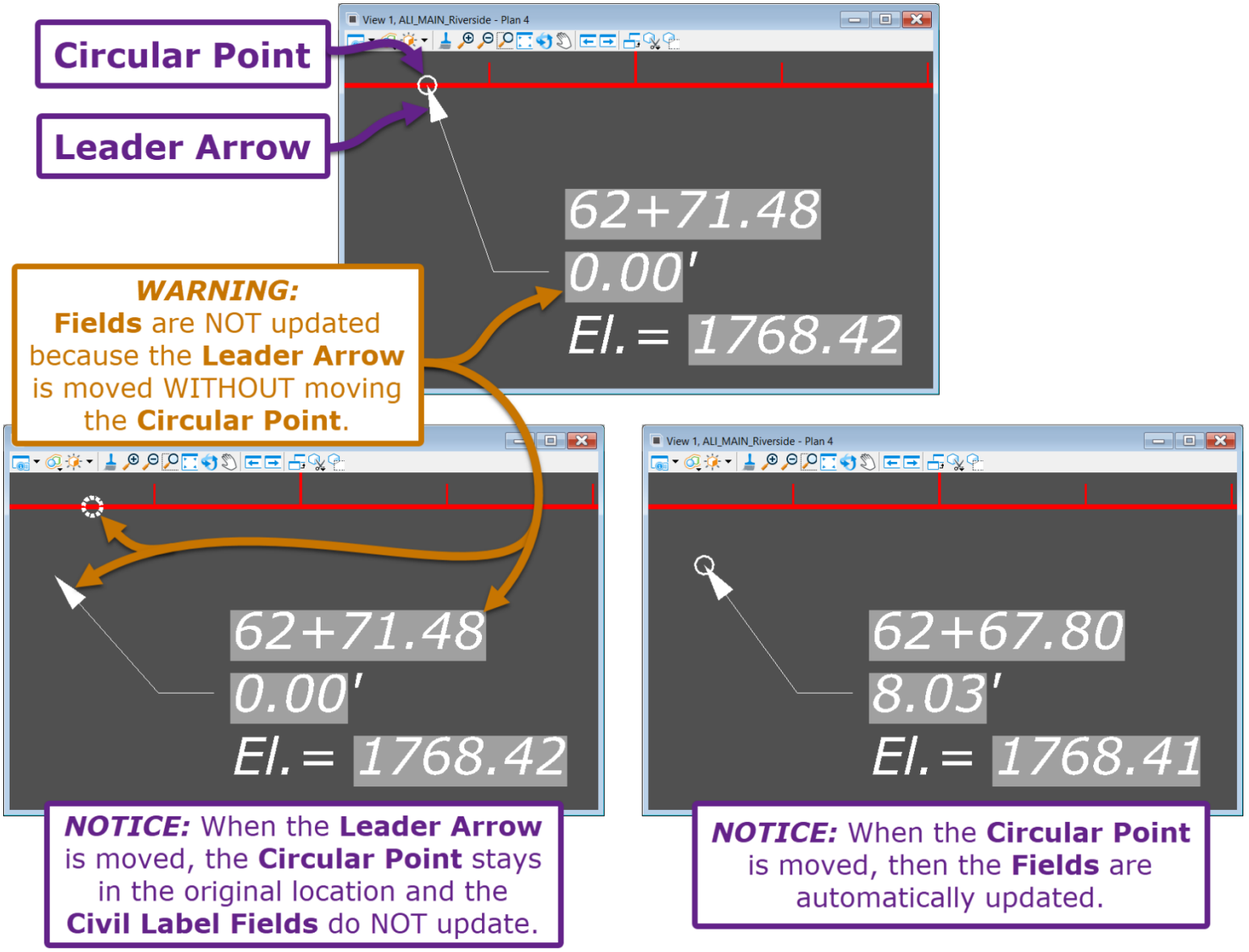
15C.3.b Moving Civil Labels

Civil Labels contain a small, **Circular Point** located at the tip of the **Leader Arrow**. The **Fields** within a *Civil Label* are linked to the **Circular Point** location, NOT the **Leader Arrow** location.

NOTE: The Circular Point is very small. Zoom in on the tip of the Leader Arrow to reveal the Circular Point.

WARNING: Do NOT move the Leader Arrow. Instead, move the Circular Point. When the Circular Point is moved, then the Leader Arrow will automatically follow.

As shown below, if the **Leader Arrow** is moved and the **Circular Point** remains in the same position, then the **Fields** will NOT update.

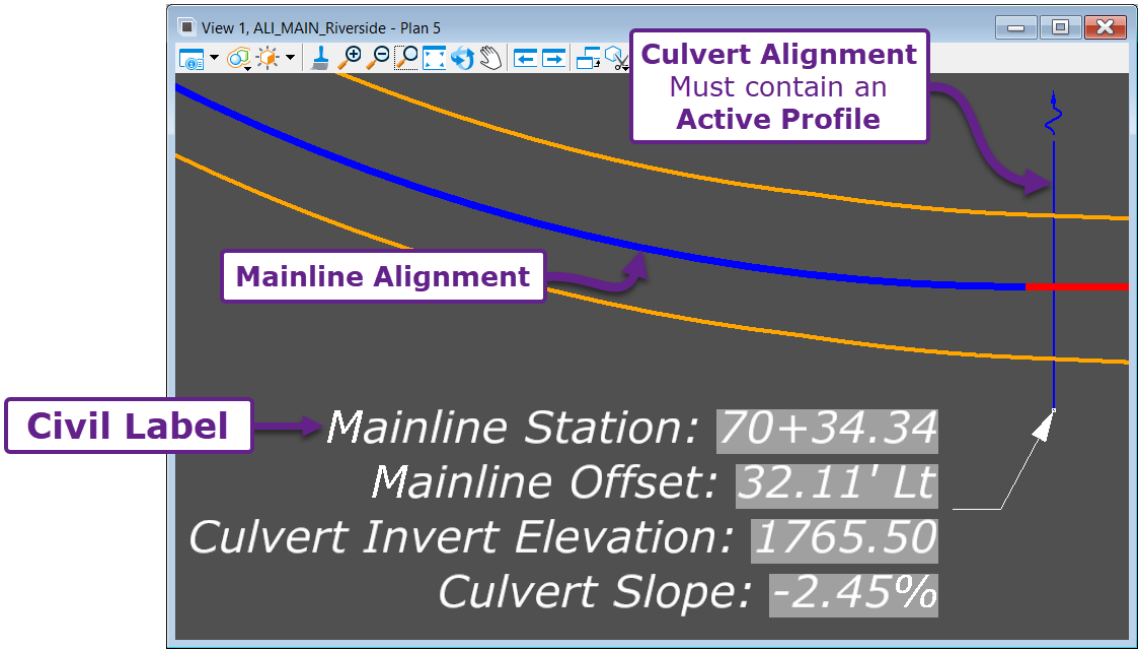


15C.4 Create and Configure a New Civil Label and Text Favorite

In this workflow, a new *Civil Label* is created to calculate the Mainline Alignment Station and Offset at a Culvert Outlet Point. Also, the Culvert Profile is analyzed to calculate the Invert Elevation and Slope at the same Outlet Point.

This advanced *Civil Label* workflow demonstrates how to retrieve **Field** information from two **Target** elements: the Mainline Alignment and the Culvert Alignment.

DISCLAIMER: The *Civil Label* shown below does NOT conform to FLH Drafting Standards. Specifically, the station formatting and culvert labeling conventions would NOT be found in a FLH Plan Set. This is an academic workflow and solely intended to demonstrate advanced functionality of **Text Favorites** and **Civil Labels**.

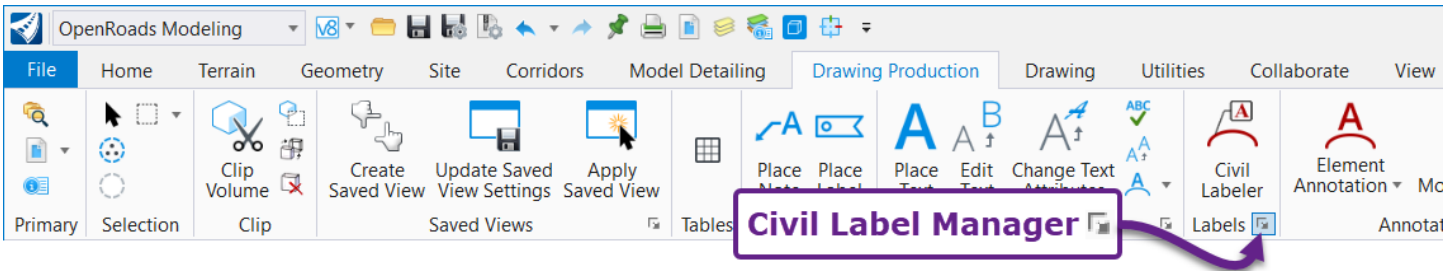


There are three main procedures for creating a new Civil Label:

15C.4.a Create a new Civil Label and Text Favorite
15C.4.b Configure the Civil Label Placement Settings
15C.4.c Place the Civil Label

15C.4.a Create a new Civil Label and Text Favorite

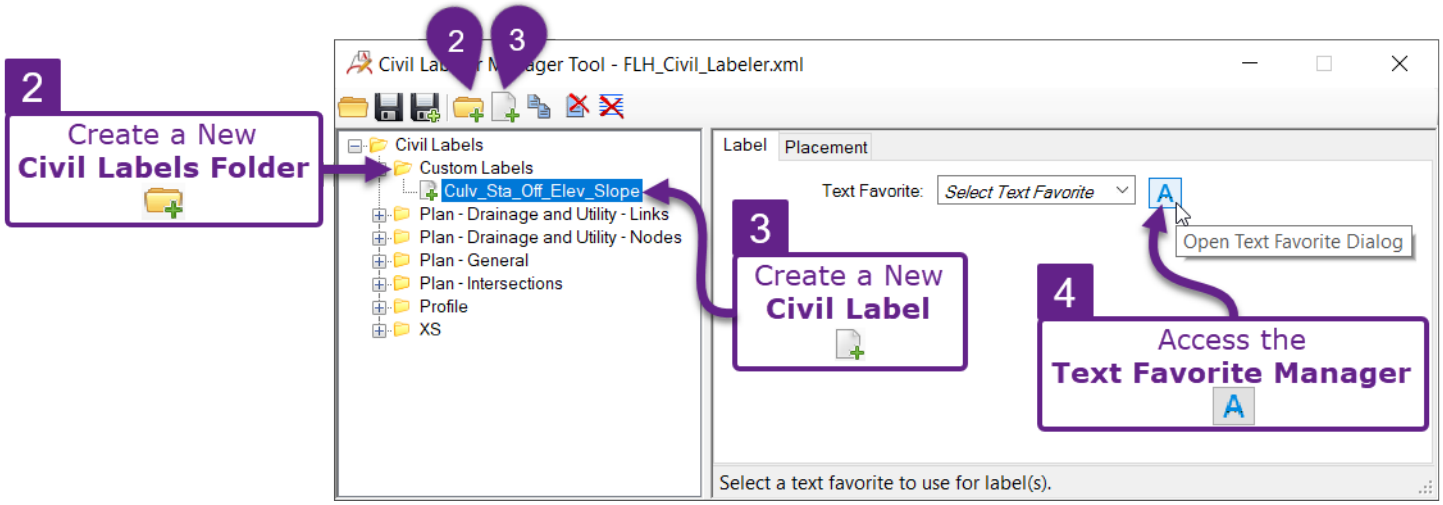
A new Civil Label and Text Favorite can be created through the *Civil Label Manager*.



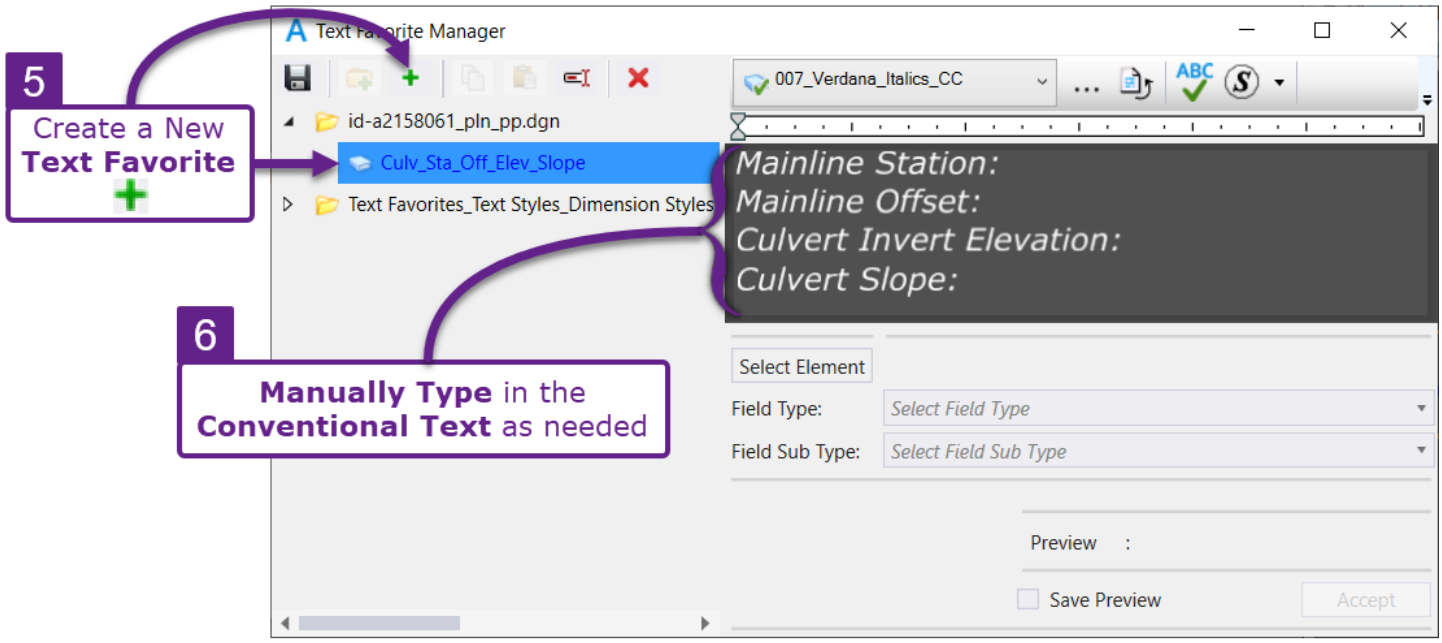
1	Access the **Civil Label Manager** through the icon in the **Labels** panel. [***OpenRoads Modeling*** → ***Drawing Production*** → ***Labels***].

Create a New Civil Label:

2	Within the *Civil Labeler Manager*, **create a new Civil Labels Folder** to place custom labels in.
3	**Create a new Civil Label**. In this case, the Civil Label is named "Culv_Sta_Off_Elev_Slope".
4	Access the **Text Favorite Manager**



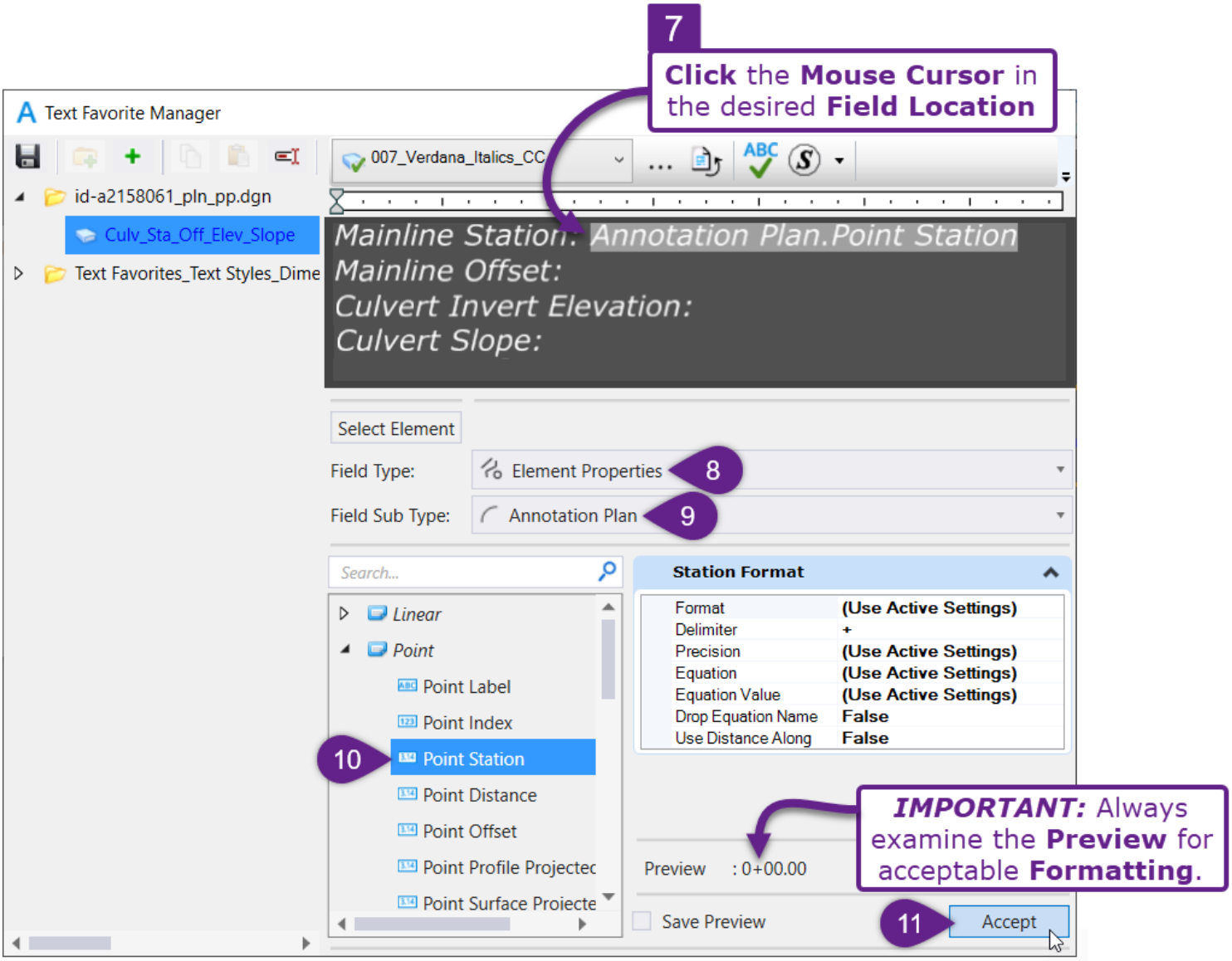
Create a New Text Favorite:



5	In the *Text Favorite Manager*, **create a new Text Favorite**. In this case, the new Text Favorite is named "Culv_Sta_Off_Elev_Slope".
6	Before creating *Fields*, **manually type in conventional text** as needed.

Create the Point Station Field:

The Field configuration shown below is used to analyze the Station value at a single Point location.



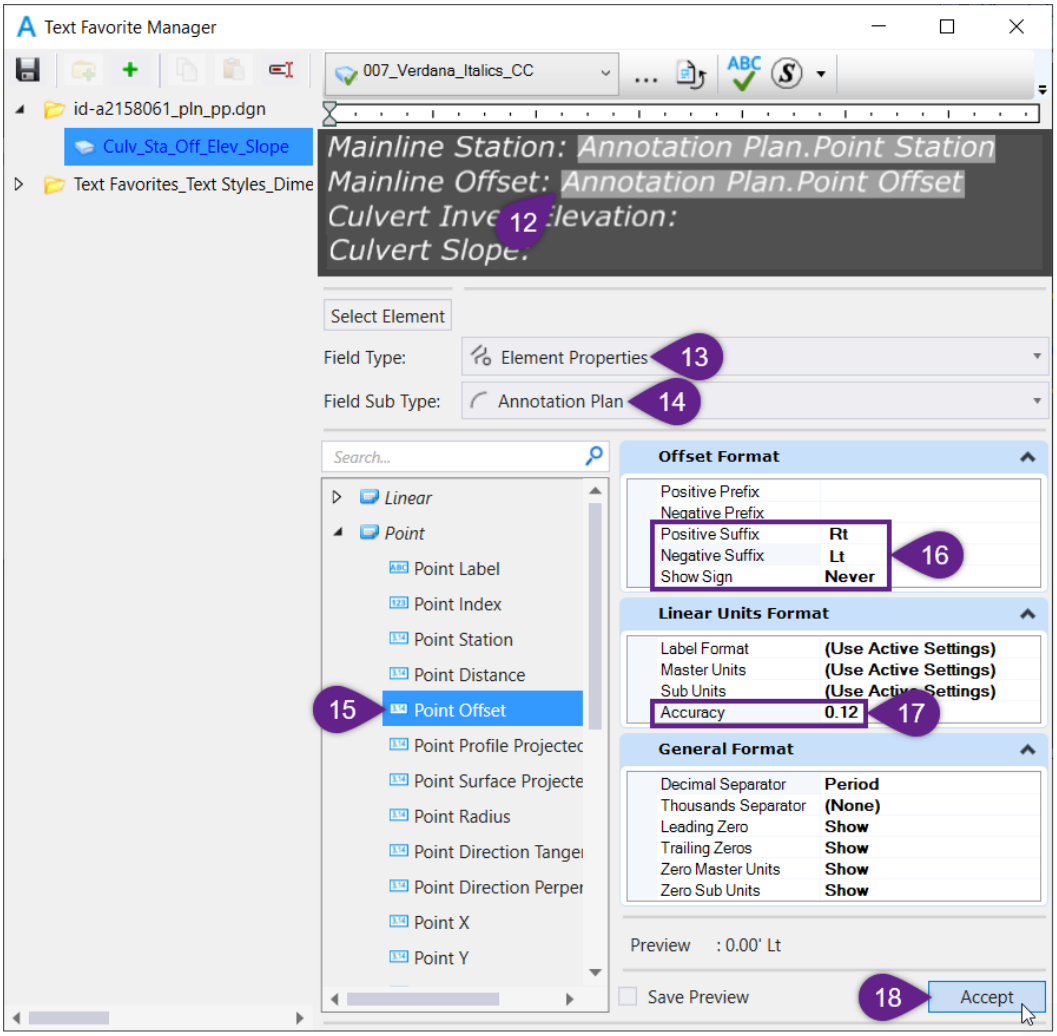
7	In the *Text Editor* portion, click the **Mouse Cursor** where the Field should be inserted. The Field will be created whenever the **Accept** button is pushed.
8	**Field Type:** Select **Element Properties**.
9	**Field Sub Type:** Select **Annotation Plan**.
10	**Field:** Select **Point Station** from the **Point** drop-down .

IMPORTANT: Before pushing the **Accept** button, examine the **Preview** for formatting of the Field. For this specific Field, there is NO additionally formatting necessary. However, the remaining Fields to be created will require formatting edits.

11	Ensure the mouse-cursor is positioned in the desired insertion location and ush the **Accept** button.

Create the Point Offset Field:

The Field configuration shown below is used to analyze the Offset value at a single Point location.



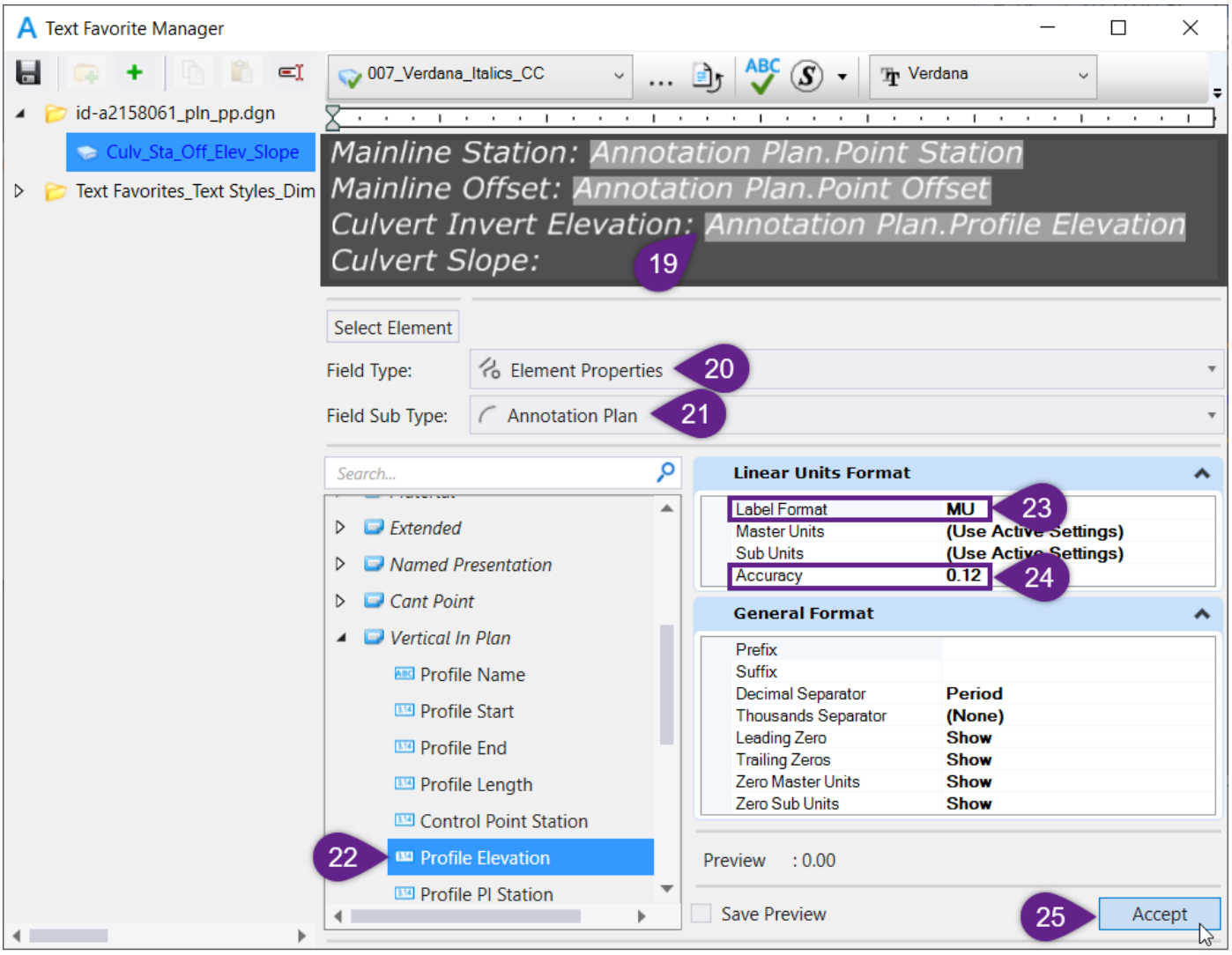
12	In the *Text Editor* portion, click the **Mouse Cursor** where the Field should be inserted.
13	**Field Type:** Select **Element Properties**.
14	**Field Sub Type:** Select **Annotation Plan**.
15	**Field:** Select **Point Offset** from the **Point** drop-down .

IMPORTANT: Examine the **Preview** for formatting of the Offset Field. The default formatting is typically unacceptable for display in Plan Notes.

16	**Offset Format:** To display " Lt" or " Rt" after the Offset Field, populate the **Positive Suffix** and **Negative Suffix** (include a space character before " Lt" and " Rt"). Change the **Show Sign** to **Never**. If suffixes are used, then positive and negative signs are unnecessary.
17	**Linear Units Format:** Change the **Accuracy** to "0.12" to show 2 decimals in the Field. By default, the Field is configured to show 4 decimals.
18	Push the **Accept** button.

Create the Profile Elevation Field:

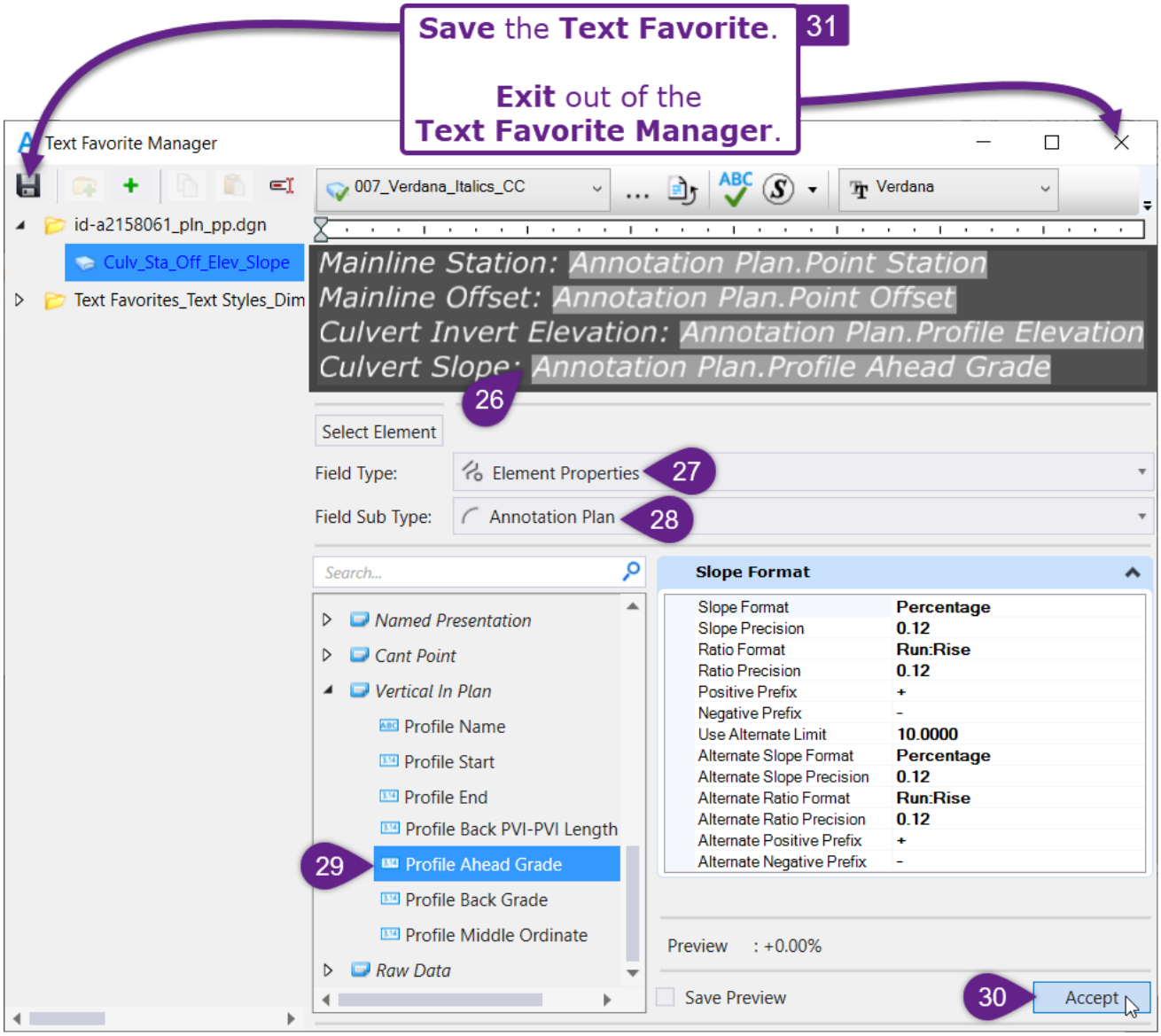
The Field configuration shown below analyzes the elevation of an Alignment's *Active Profile* at a specific Point location in the **Plan View**.



19	In the *Text Editor* portion, click the **Mouse Cursor** where the Field should be inserted.
20	**Field Type:** Select **Element Properties**.
21	**Field Sub Type:** Select **Annotation Plan**. ***WARNING:*** Do NOT use Fields from the **Annotation Profile** Field Sub-Type. The **Annotation Profile** Field Sub-Type is strictly used to place *Civil Labels* in the PROFILE *Drawing Model* .
22	**Field:** Select **Point Offset** from the **Vertical In Plan** drop-down.
23	**Linear Units Format:** Change the **Label Format** to **MU**. This prevents a ` (feet symbol) from being placed with the Elevation Field.
24	**Linear Units Format:** Change the **Accuracy** to "0.12" to show 2 decimals in the Field.
25	Push the **Accept** button.

Create the Profile Slope Field:

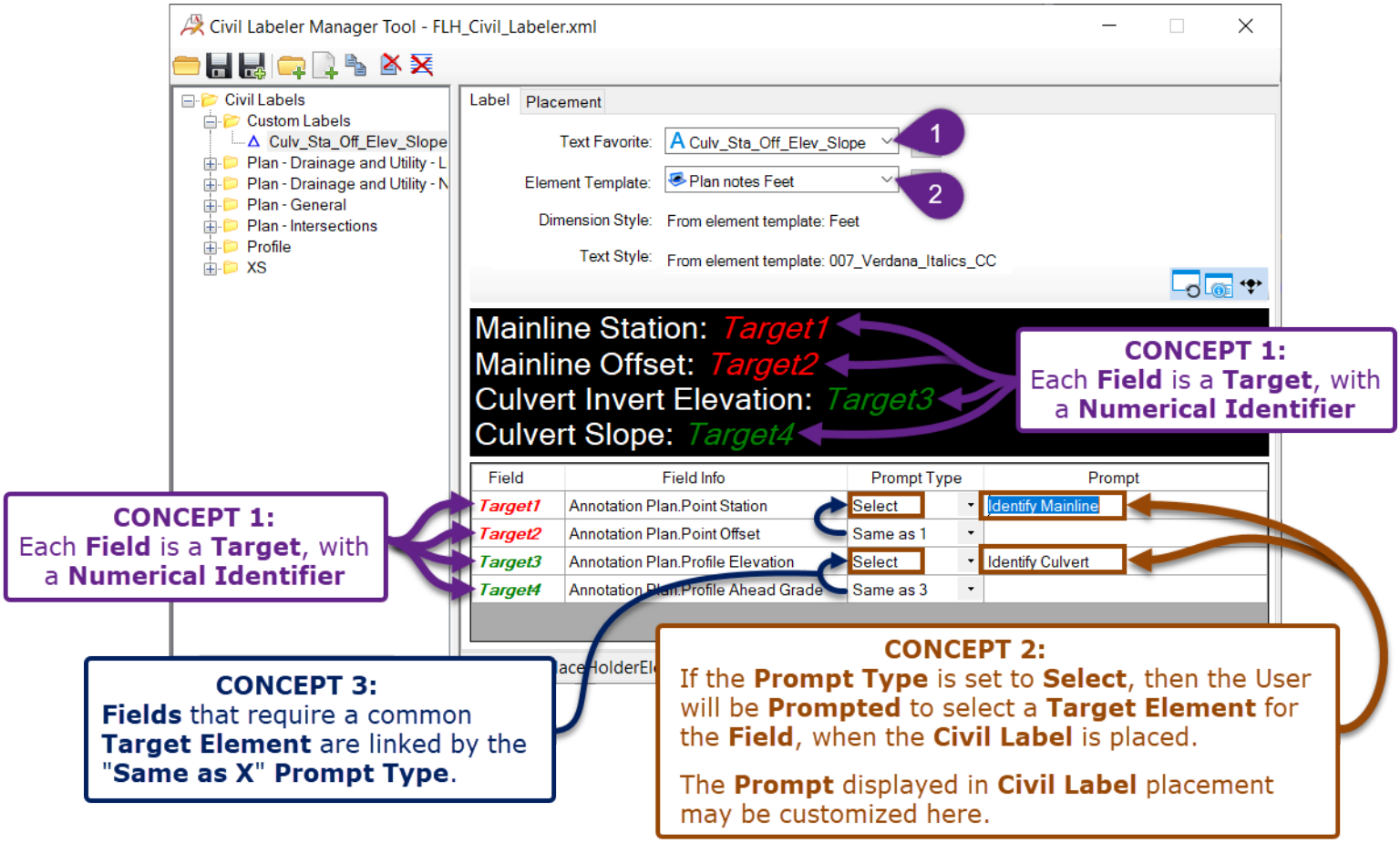
The Field configuration shown below is used to analyze the slope of an Alignment's *Active Profile*, at whichever point location is specified in the **Plan View**.



26	In the *Text Editor* portion, click the **Mouse Cursor** where the Field should be inserted.
27	**Field Type:** Select **Element Properties**.
28	**Field Sub Type:** Select **Annotation Plan**. ***WARNING:*** Do NOT use Fields from the **Annotation Profile** Field Sub-Type. The **Annotation Profile** Field Sub-Type is for *Civil Labels* to be placed in the PROFILE *Drawing Model*.
29	**Field:** Select **Profile Ahead Grade** from the **Vertical In Plan** drop-down.
30	Push the **Accept** button.
31	**Save** the **Text Favorite** and **Exit** out of the **Text Favorite Manager**.

15C.4.b Configure the Civil Label Placement Settings

1	From the *Civil Label Manager*, select the **Text Favorite** created in the previous procedure. In this case, the "Culv_Sta_Off_Elev_Slope" Text Favorite is selected.
2	Select the **Element Template**. The **Element Template** determines the appearance of the **Text** and **Leader/Arrow** for the resulting *Civil Label*. See *15A.3 Element Templates*.



Setting Targets for Civil Labels:

For each **Field** in the **Text Favorite**, the **Prompt Type** setting will affect how **Target Elements** are selected when the Civil Label is placed.

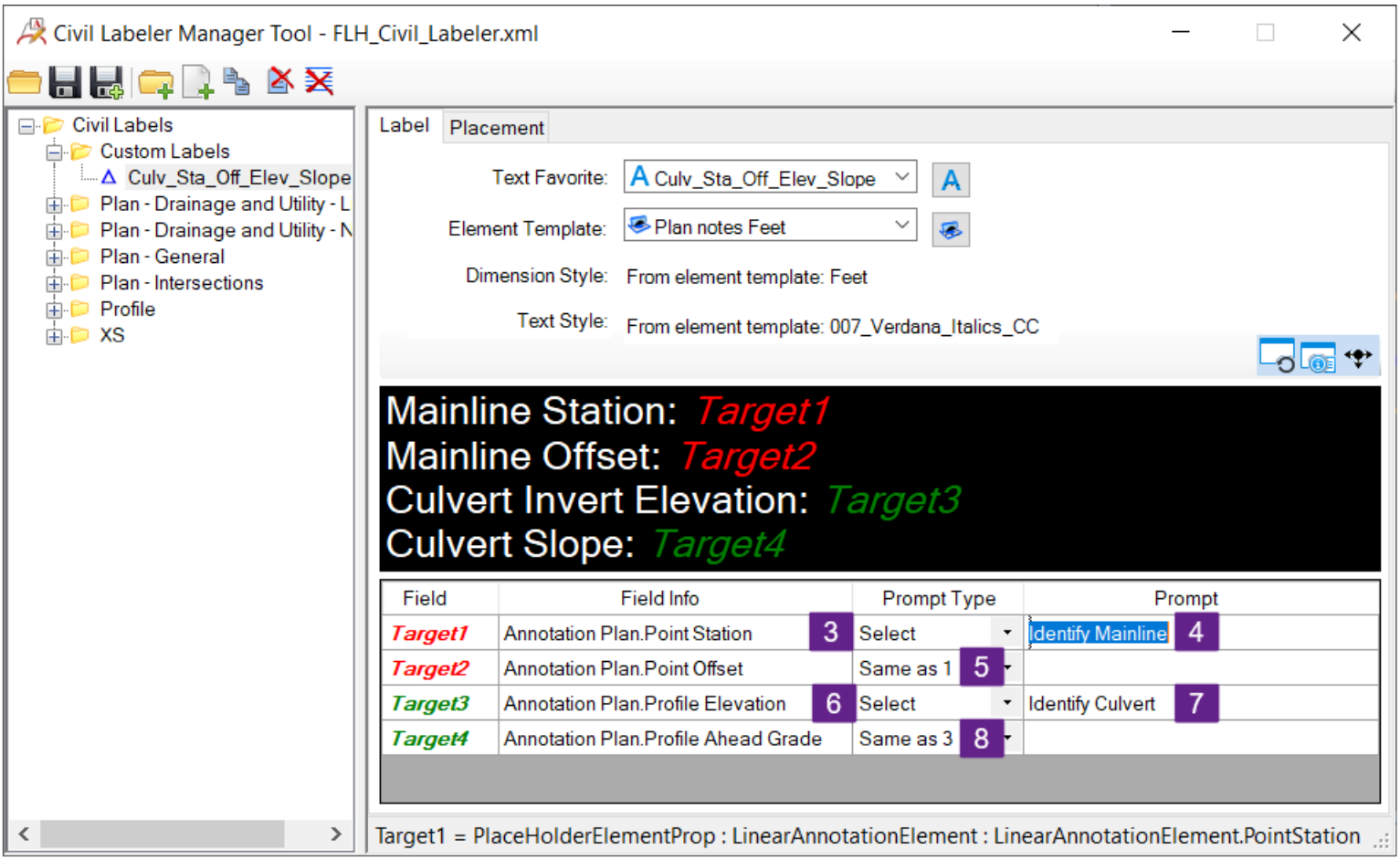
CONCEPT 1: Each unique **Field** is designated as a **Target** with a numerical identifier. For example, **Target3** represents the "Culvert Invert Elevation" **Field**.

CONCEPT 2: If the **Prompt Type** is set to **Select**, then the User will be **Prompted** to select a **Target Element** for analyzation of the **Field** when the Civil Label is placed.

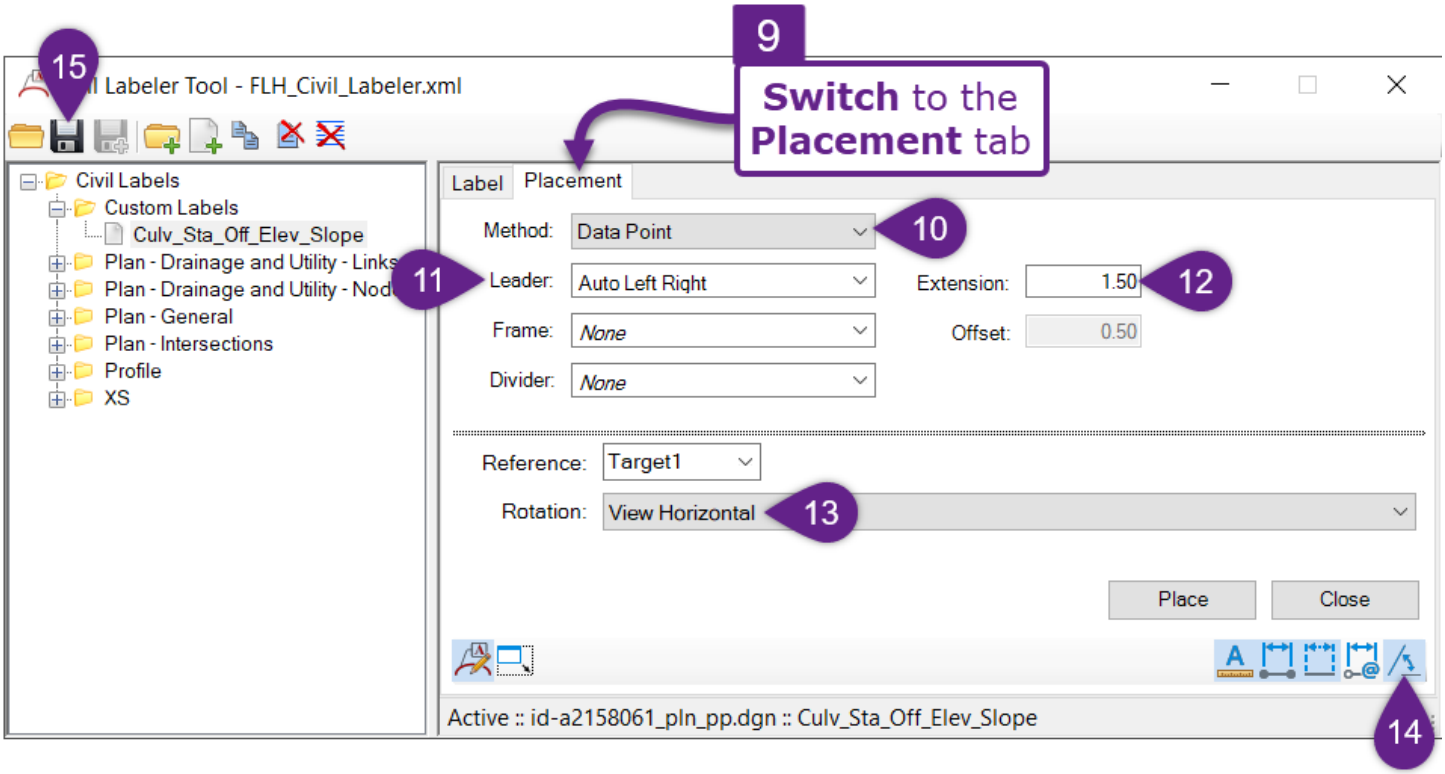
As shown above, the **Prompt:** "Identify Mainline" will be given for analyzation of **Target1** (Mainline Station). Also, the **Prompt:** "Identify Culvert" will be given for **Target3** (Culvert Invert Elevation).

CONCEPT 3: Use the **Same as X** Prompt Type to link Fields that share a common a **Target Element**. In creation of the Civil Label, no **Prompt** will be given for Fields with this **Prompt Type**.

As shown above, **Target2** (Mainline Offset) is set to the **Same as 1**. This means that the **Target2** (Mainline Offset) will analyze the same **Target Element** as **Target1** (Mainline Station).

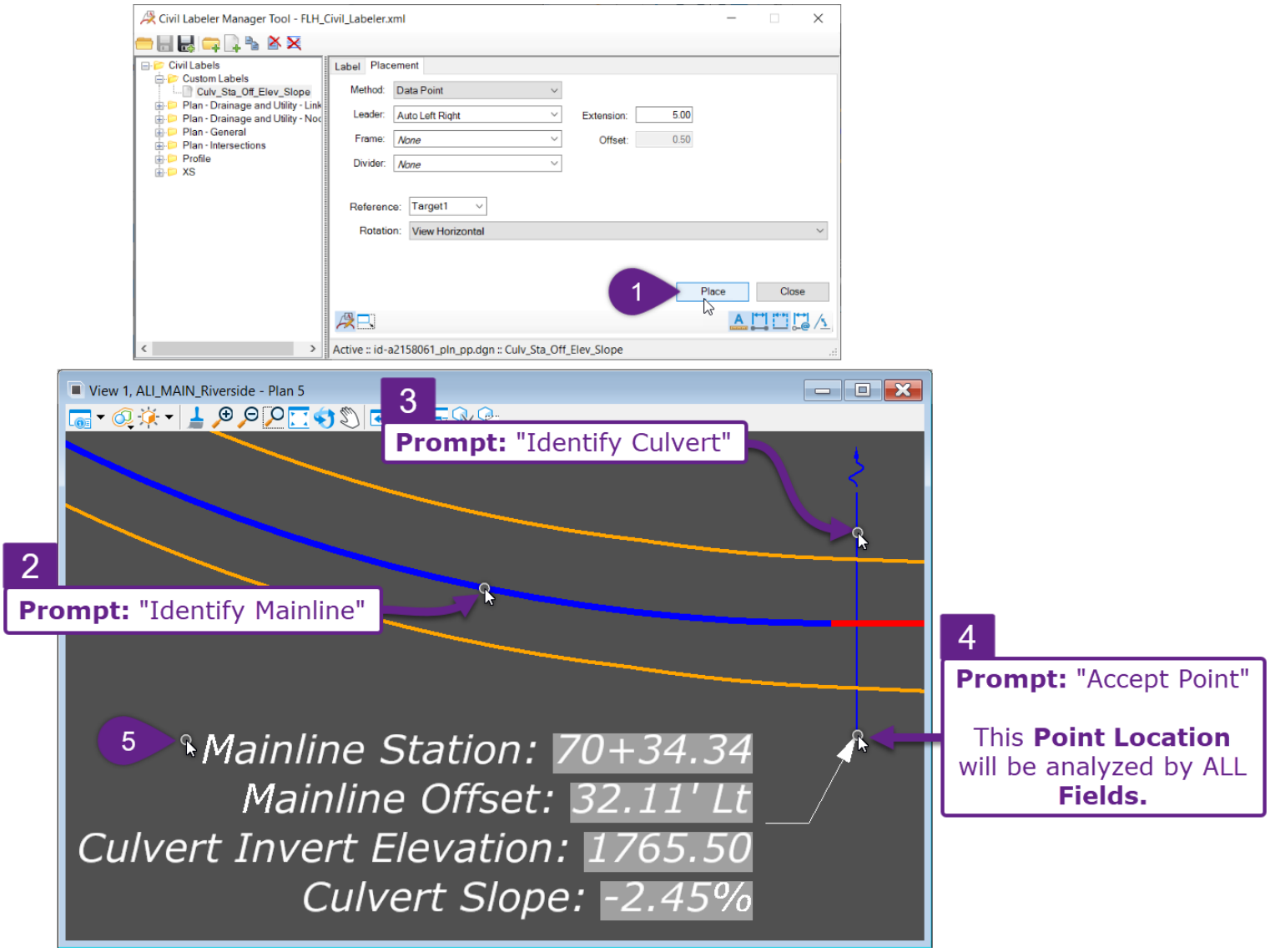


3	For **Target1** (Mainline Station), change the **Prompt Type** to **Select**.
4	Enter a custom **Prompt** for the selection of **Target1** (Mainline Station). In this case, "Identify Mainline" is manually typed out. This **Prompt** will be displayed in placement of the label. See *15C.4.c Place the Civil Label*.
5	For **Target2** (Mainline Offset), change the **Prompt Type**, to **Same as 1**. ***NOTE:*** This means that **Target2** (Mainline Offset) will analyze the same **Target Element** as **Target1** (Mainline Station).
6	For **Target3** (Culvert Invert Elevation), change the **Prompt Type** to **Select**.
7	Enter a custom **Prompt** for the selection of **Target3** (Culvert Invert Elevation). In this case, "Identify Culvert" is manually typed out. This **Prompt** will be displayed in placement of the label. See *15C.4.c Place the Civil Label*.
8	For **Target4** (Culvert Slope), change the **Prompt Type**, to **Same as 3**. ***NOTE:*** This means that **Target4** (Culvert Slope) will analyze the same **Target Element** as **Target3** (Culvert Invert Elevation).



9	Switch the **Placement** tab.
10	Set the **Method** to **Data Point**. This setting controls how the **Point Location** to be analyzed by the **Fields** in the **Text Favorite** is selected.
11	Set the **Leader** to **Auto Left Right**. This setting controls the location and orientation of where the Leader stems from the Text.
12	Set the **Extension** to **1.50**. This setting controls the Landing length of the Leader. FLH Drafting Standards require a 1.50 Landing length.
13	Set the **Rotation** to **View Horizontal**. This setting controls the rotation of the Civil Label text. In this case, the desire is to place the text horizontal relative to the current *View* orientation. ***NOTE:*** The **Reference** setting is inconsequential when **View Horizontal**. However, if the **Rotation** was set to **InLine**, then the resulting text would be parallel with the **Reference Target Element**.
14	Toggle OFF the **Enable Rotation Association** icon. If the targeted elements are moved, then the resulting *Label* text will rotate and reposition in a manner that is difficult to predict.
15	**Save** the **Civil Label**.

15C.4.c Place the Civil Label



1	Select the **Place** button from the *Civil Labeler* tool menu. ***IMPORTANT:*** After the **Place** button is pushed, pay close attention to **Prompts** in the lower-left corner.
2	*Prompt: Identify Mainline* – Left-Click on the **Mainline Alignment**. ***NOTICE:*** This is the same **Prompt** set in *15C.4.b Configure the Civil Label Placement Settings*. This Prompt is used to identify **Target1** (Mainline Station) and **Target 2** (Mainline Offset).
3	*Prompt: Identify Culvert* – Left-Click on the **Mainline Alignment**. ***NOTICE:*** This is the same **Prompt** set in *15C.4.b Configure the Civil Label Placement Settings*. This Prompt is used to identify **Target3** (Culvert Invert Elevation) and **Target 4** (Culvert Slope).
4	*Prompt: Accept Point* – Specify the **Point Location** to be analyzed by ALL **Fields** in the Civil Label. In this case, the Culvert Outlet End Point is snapped to.
5	*Prompt: Associative Point* – Left-Click at the desired text placement location.

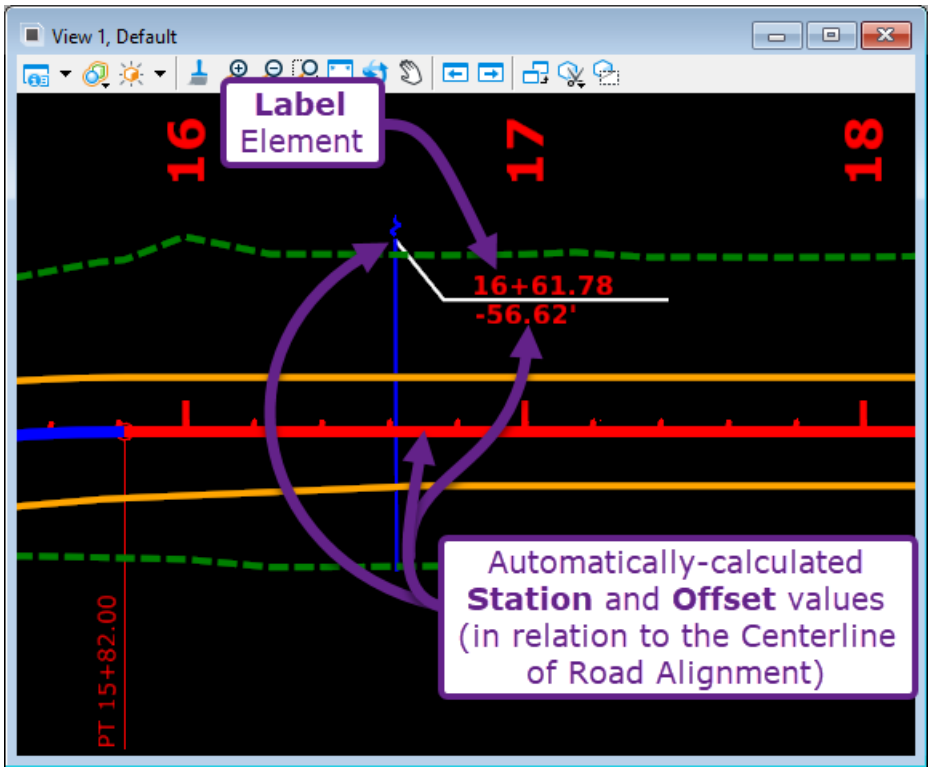
15C.5 Place Label tool

The *Place Label* tool is like *Civil Labeler* tool. However, the *Civil Labeler* tool has greater functionality and is more User-friendly. ***BEST PRACTICE:*** Use the *Civil Labeler* tool in lieu of the *Place Label* tool. See *15C.3 Civil Labeler tool*.

The *Place Label* tool contrast from the *Civil Labeler* tool in the following ways:

- The *Place Label* tool can ONLY **Target** a single element. The *Civil Labeler* tool can target multiple targets.
- The *Place Label* tool can place Cell annotations. However, FLH does NOT use Cell annotations in typical annotation workflows.
- The *Place Label* tool can place *Text Favorites* or *Civil Labels*. However, searching through the *Favorites* list is cumbersome and disorganized.

In the graphic below, a *Label* element is used to calculate the Station and Offset values for a culvert outlet point location – in relation to the road alignment.

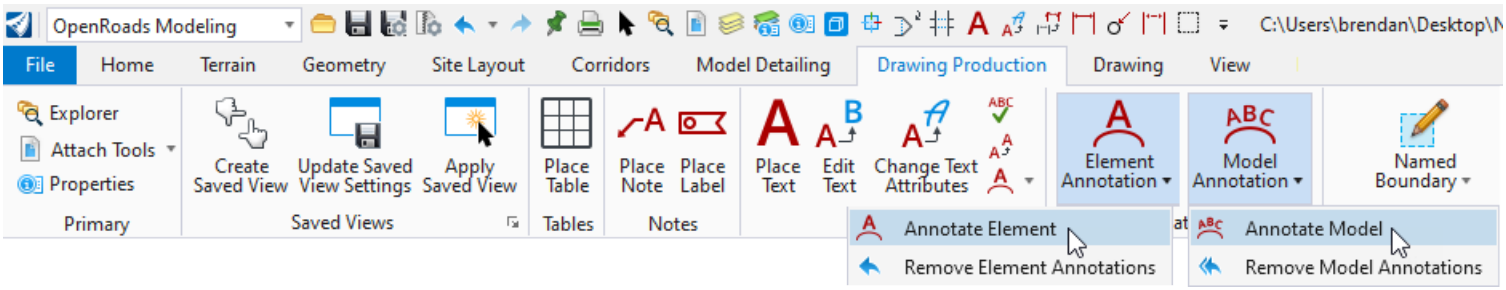


15D – CIVIL ANNOTATIONS (STATIONING & PROFILE)

Alignment, Profile, and Profile Grid labels are collectively referred to as a *Civil Annotations*.

Alignment station and geometry labels are created with the *Annotate Element* tool. Profile geometry and Profile Grid labels are created with the *Annotate Drawing Model* tool.

Civil Annotations are deleted with the *Remove Element Annotations* and *Remove Model Annotations* tools.



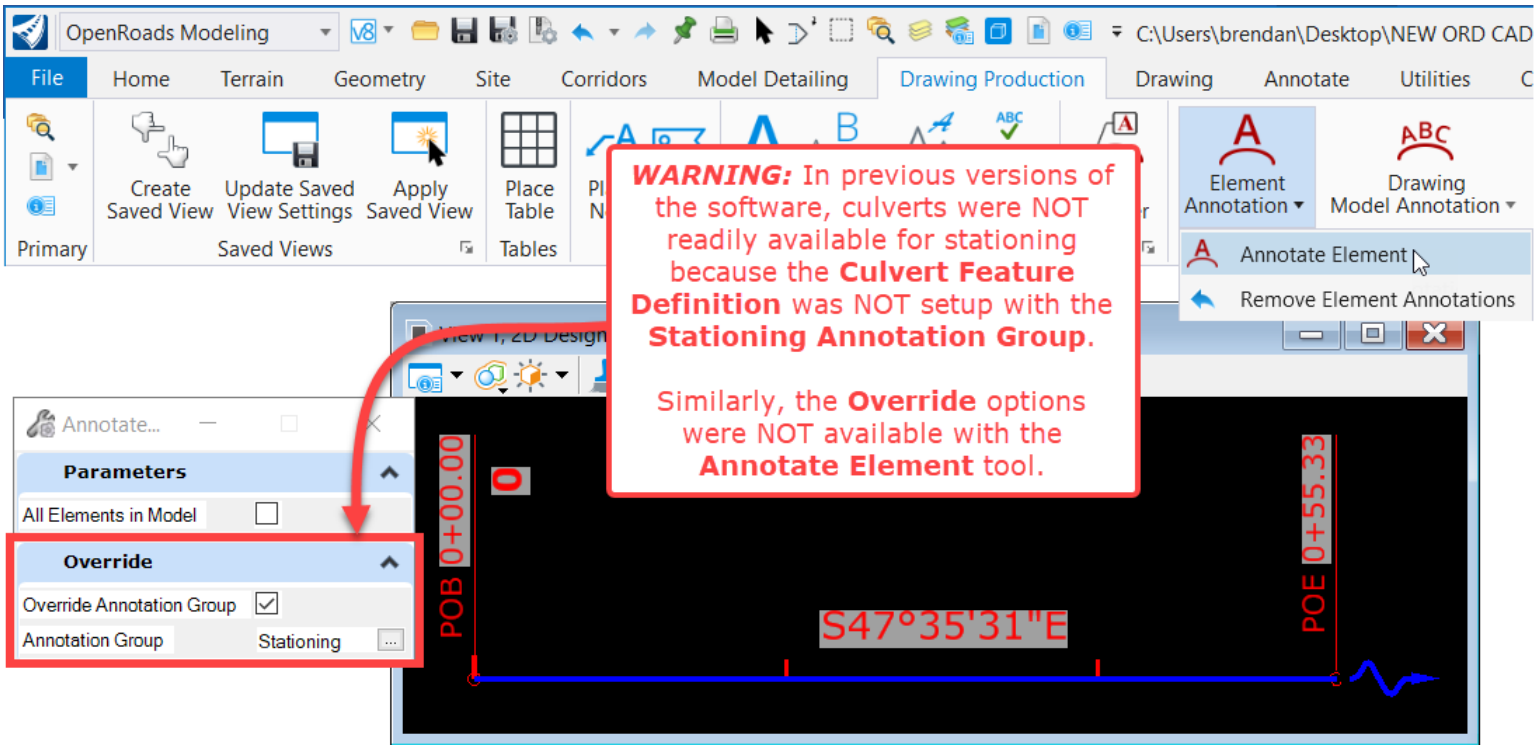
Annotate Element tool: The operation of this tool is extremely simple. After an Annotation Group is selected with the "Override Annotation Group" setting, an Alignment or Profile is selected, and stationing/geometry labels are automatically created. For Alignment stationing labels, use the "Stationing" Annotation Group. For Profile stationing labels, use the "Profile Annotation" group.

> ***NOTE:*** For Alignments, this tool should be used in the *2D Design Model*.
>
> ***NOTE:*** For Profile, this tool should be used in the PROFILE *Drawing Model*.
>
> ***WARNING:*** The *Annotate Element* tool SHOULD NOT be used in the *Profile Model*. This tool should be used in a PROFILE *Drawing Model* to create Profile geometry labels.

Annotate Drawing Model tool: This tool must be used in a PLAN, PROFILE, or CROSS SECTION *Drawing Model*. The most common application of this tool is to replace the Profile Grid Annotations in the PROFILE *Drawing Model*. This tool prompts the User to specify which *Annotation Group* to be used. The Annotation Group corresponds with the spacing of major and minor grid labels.

> ***NOTE:*** Typically, Profile and Profile Grid labels are automatically created in the creation of the PROFILE *Drawing Models*. Typically, the *Annotate Drawing Model* tool is used to re-create the Profile Grid in a different configuration. See *14E.4 Recreate and Manipulate the Profile Grid*.

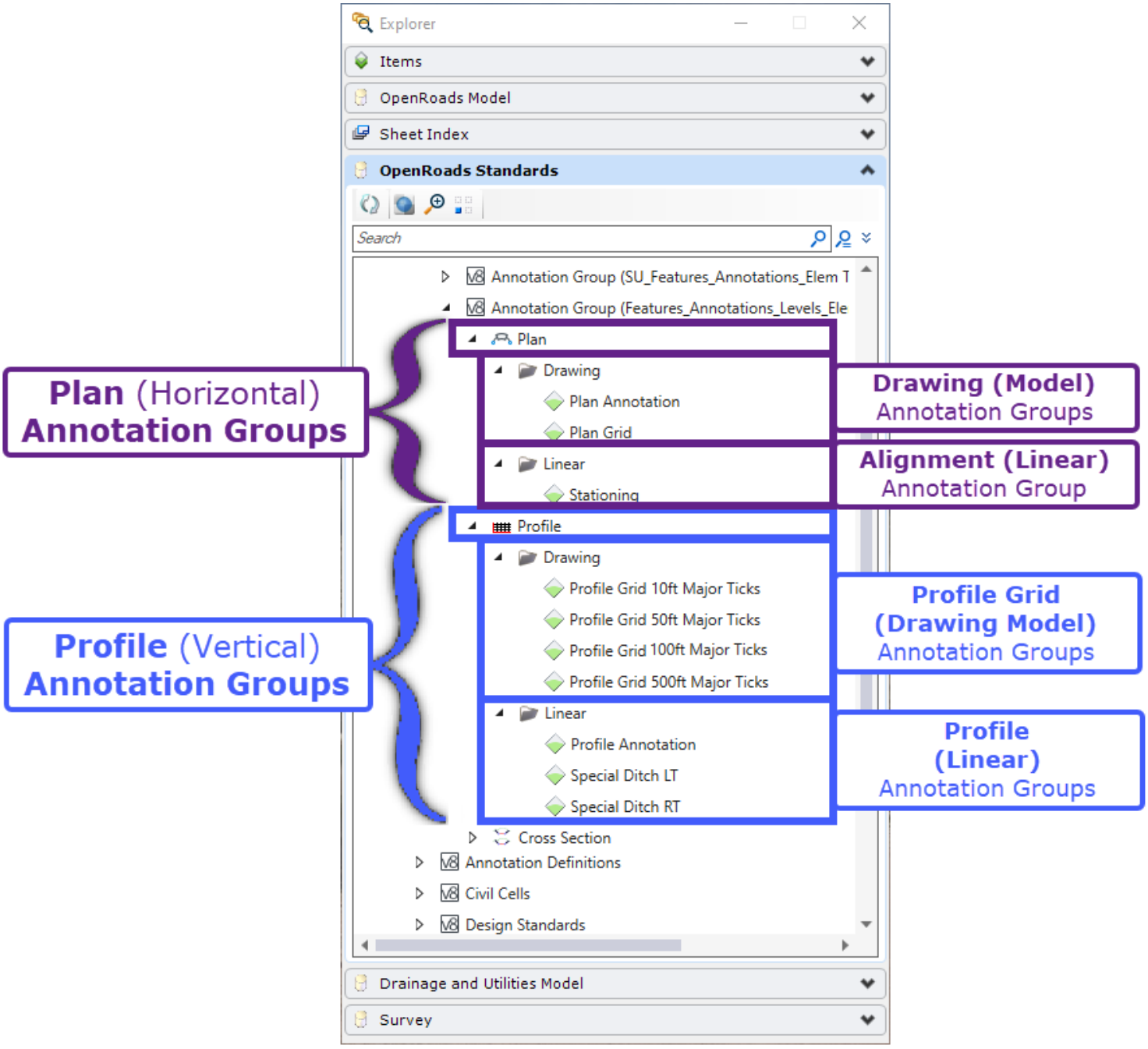
NOTE:*** In version 2021 R1 Update 10 – Version 10.10.01.03 and later, the *Annotation Element* tool can override the default Annotation Group assigned to Feature Definition. This means that ANY Feature Definition can show Alignment Annotations. In previous versions of the software, only Alignments assigned to a "Baseline" Feature Definition had the ability to show Alignment Annotations. For example, in new versions, Culvert Alignments can be stationed.



15D.1 Civil Annotation Groups in the FLH WorkSpace

To promote conformity amongst all FLH projects and plan sets, the FLH WorkSpace contains pre-made *Annotation Groups* used to label Alignments, Profiles, and Profile Grids. For typical FLH projects, these *Annotation Groups* do NOT need to be edited. However, the editing of Annotation Groups is discussed in *15D.5 Editing Alignment (Plan) Annotation Groups* and *15D.9 Editing Profile and Profile Grid Annotation Groups*.

The graphic below shows all *Civil Annotation Groups* found in the FLH WorkSpace.



Plan Annotations – Includes both **Alignment (Linear) Annotation Groups** and **Drawing (Model) Annotation Groups:**

Plan – Drawing Annotation Groups Options	
Annotation Group	**Description**
Plan Annotation	The Annotation Group simply places a North Arrow in the upper-right hand corner of a PLAN Drawing Model. Typically, this Annotation Group is automatically used when PLAN Drawing Models and Sheet Models are created (shown in *14B.6 STEP 8: Create Drawing Models and Sheet Models*). If the North Arrow is absent, go into the PLAN Drawing Model and use the Drawing Model Annotation tool with this Annotation Group.

Plan – Alignment (Linear) Annotation Groups Options	
Annotation Group	**Description**
Stationing	This Annotation Group is used to create stationing, horizontal curve labels, bearing angle labels, and PC/PT Geometry Point labels for an Alignment. The labels that comprise this Annotation Group are discussed in detail in *15D.3 Overview of Alignment Annotation Level Assignments*.

Profile Annotations – Includes both **Profile (Linear) Annotation Groups** and **Profile Grid (Drawing Model) Annotation Groups:**

Profile – Profile Grid (Drawing) Annotation Groups Options	
Annotation Group	**Description**
Profile Grid 10ft Major Ticks	**Vertically**, places Major Grid Lines and Labels at a **5' intervals**. **Horizontally**, places Major Grid Lines and Labels at **10' intervals**. This Annotation Group is most appropriate for Design Scales of 1"=10' or 1"=20'.
Profile Grid 50ft Major Ticks	**Vertically**, places Major Grid Lines and Labels at a **2' intervals**. **Horizontally**, places Major Grid Lines and Labels at **50' intervals**. This Annotation Group is most appropriate for Design Scales of 1"=40', 1"=50', or 1"=60'.
Profile Grid 100ft Major Ticks	**Vertically**, places Major Grid Lines and Labels at a **10' intervals**. **Horizontally**, places Major Grid Lines and Labels at **100' intervals**. This Annotation Group is most appropriate for Design Scale of 1"=100'.
Profile Grid 500ft Major Ticks	**Vertically**, places Major Grid Lines and Labels at a **10' intervals**. **Horizontally**, places Major Grid Lines and Labels at **500' intervals**. This Annotation Group is most appropriate for Design Scale of 1"=200' or larger.

Profile – Profile (Linear) Annotation Groups Options	
Annotation Group	**Description**
Profile Annotation	This Annotation Group is appropriate for Road Profiles. This Annotation Group will create Slope Labels, VPI Labels, Vertical Curve Labels, and other Road Profile Labels. The components in this Annotation Group are discussed in detail in *15D.8 Overview of the Profile and Profile Grid Annotation Group Level Assignments*.
Special Ditch LT	This Annotation Group is used to label Special Ditches that are located to the **Left** of the Mainline Alignment. Includes Slope Labels and VPI (Station/Elevation) Labels at vertical deflection points.
Special Ditch RT	This Annotation Group is used to label Special Ditches that are located to the **Right** of the Mainline Alignment. Includes Slope Labels and VPI (Station/Elevation) Labels at vertical deflection points.

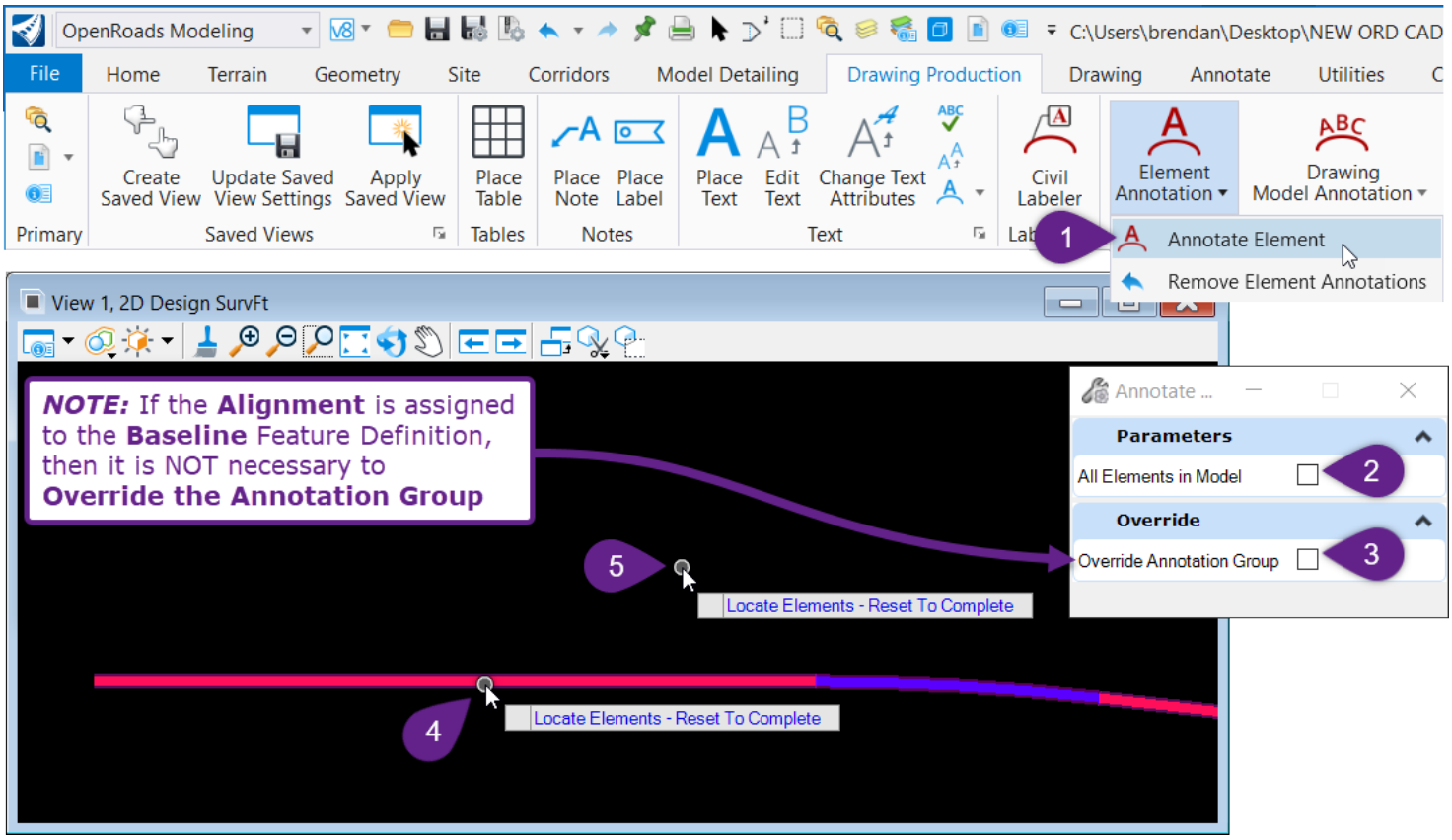
15D.2 Alignment Annotations - Workflow

This workflow demonstrates how to create stationing and geometry labels along an Alignment.

IMPORTANT: The Alignment element must be assigned to the "**Baseline**" Feature Definition.

BEST PRACTICE: Set the starting station for the Alignment before performing this workflow. To set the start station, see *7E.4.a Start Station*.

BEST PRACTICE: Create Alignment Annotations in the *2D Design Model* of the Alignment File.

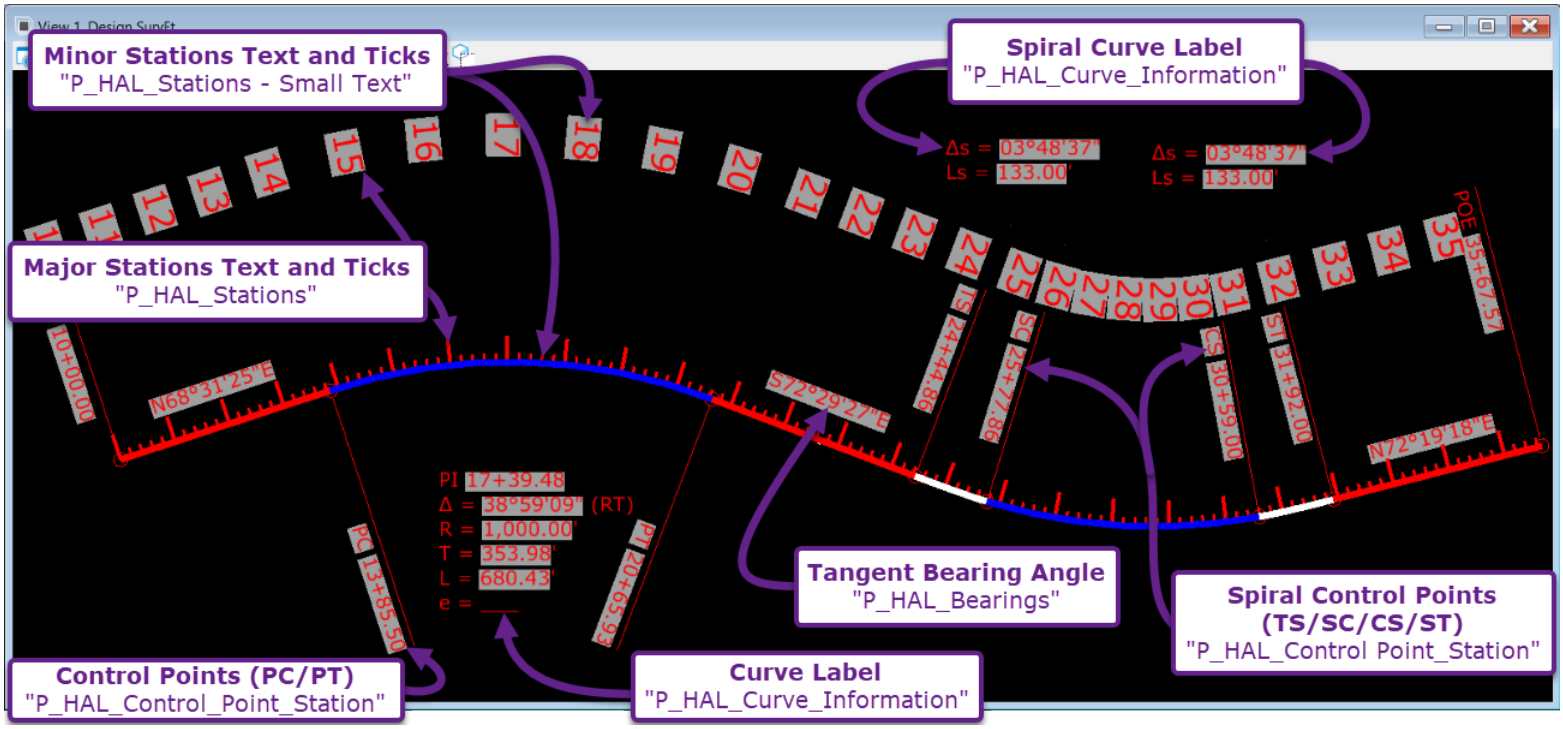


1	From the Ribbon, select the *Annotate Element* tool: [***OpenRoads Modeling*** → ***Drawing Production*** → ***Element Annotation***].
2	In the *Dialogue Box*, UNCHECK the *All Elements in Model* box. If this box is CHECKED, then all Alignments (assigned to the **Baseline** Feature Definition) in the ORD File would be Annotated/Stationed. This includes all Alignments that are referenced into the active ORD File.
3	In the *Dialogue Box*, UNCHECK the *Override Annotation Group* box. It is NOT necessary to override the Annotation Group for Alignments that are assigned to the **Baseline** Feature Definition. By default, the **Stationing** Annotation Group is assigned in the Explorer. For Alignments that are assigned to non-**Baseline** Feature Definitions (i.e., Culvert, Waterway, PL_MSE Wall), then CHECK the *Override Annotation Group* setting and select an appropriate Annotation group (i.e., "Stationing").
4	*Prompt: Locate Elements – Reset To Complete* – Left-Click on the Alignment to be Stationed.
5	*Prompt: Locate Elements – Reset To Complete* – Right-Click ("Reset") in the *View* to complete the command.

15D.3 Overview of the Alignment Annotation Level Assignments

To isolate and display certain labels, there are a few different Levels that User must be aware of.

Alignment Stationing Levels	
Level	**Description**
P_HAL_Stations – Small Scale	Contains both Major and Minor Station ticks and texts (i.e., 10, 11, 12 etc..). The ticks and text elements found on this Level is intended for Plans that have a smaller Design Scales. This Level is intended for Plans sheets shown at 1”=10’, 1”=20’, or 1”=40’ Design Scales.
P_HAL_Stations	Contains only MAJOR Station ticks and text (i.e., 10, 15, 20 etc..). ***NOTE:*** For common MAJOR Stations, tick and text elements are created for both the “P_HAL_Stations – Small Scale” and “ P_HAL_Stations” Levels. In other words, at Major Stations, there is two overlapping text elements that are assigned to different layers. This Level is intended for Plan sheets shown at 1”= 60’, 1”=100’ or larger Design Scales.
P_HAL_Curve_Information	Contains only text elements related to Curve Data. Includes Spiral Curve Data.
P_HAL_Control_Point_Station	Contains text and line/circle segments that are related to PC/PT, beginning/end (POE/POE), and spiral geometry points.
P_HAL_Bearings	Contain only Bearing Angle text elements. Bearings are only labeled for tangent segments. (i.e., N68°26'34"E)



15D.4 Reposition Alignment Annotation Labels

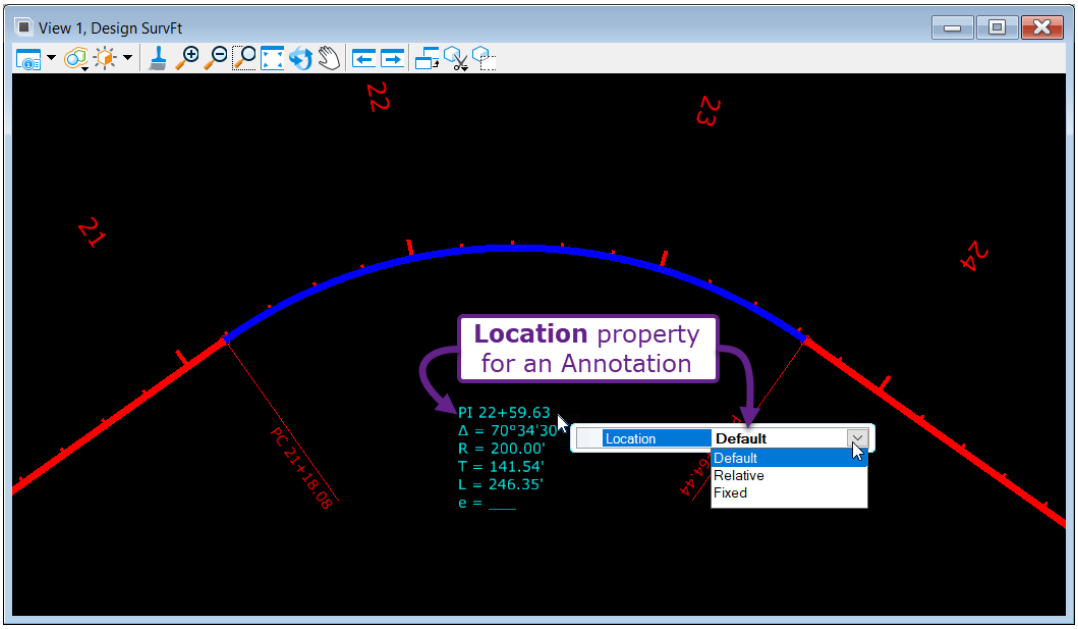
As of FLH WorkSpace Version 10.10.31.00V, Alignment Annotations will NOT revert back to their default position when edits are made to the Alignment.

Alignment Annotations have a **Location** property, which determines how the annotation will automatically relocate after the Alignment is edited. There are three **Location** settings: **Default**, **Relative**, and **Fixed**.

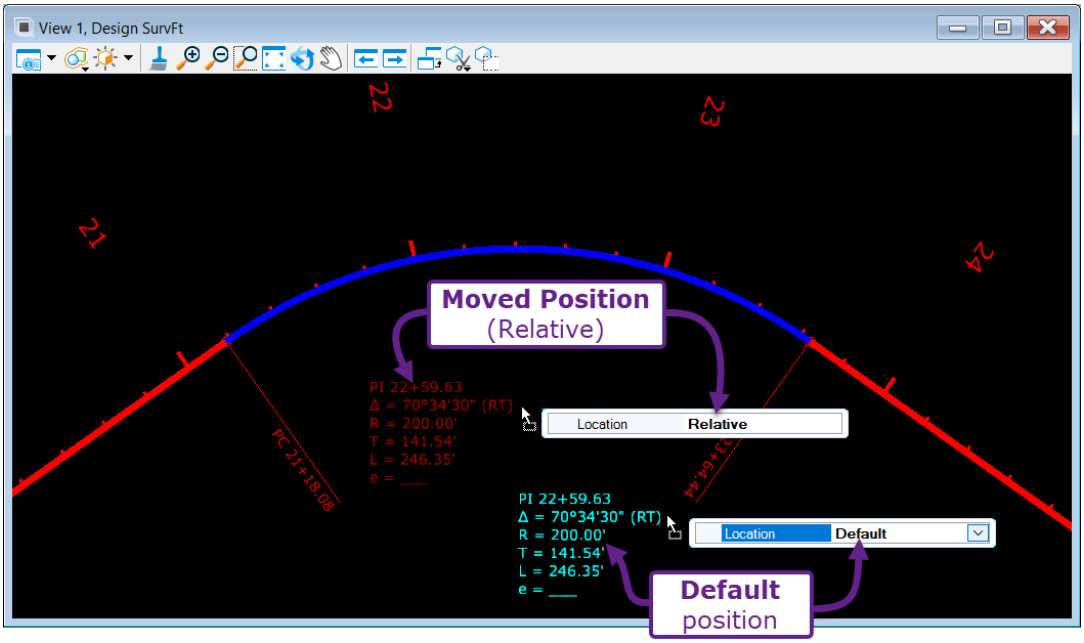
The **Location** property is revealed by selecting an Annotation element and summoning the *Pop-Up Icon Menu*. For more information on the *Pop-Up Icon Menu*, see *1A.2.c Pop-Up Icon Menu*.

BEST PRACTICE: After repositioning an Annotation, set the Location to **Fixed**. See the next page.

When Alignment Annotations are first created, their **Location** properties are set to **Default**. If the Alignment is edited then the Annotation will automatically relocate to the new Default position.

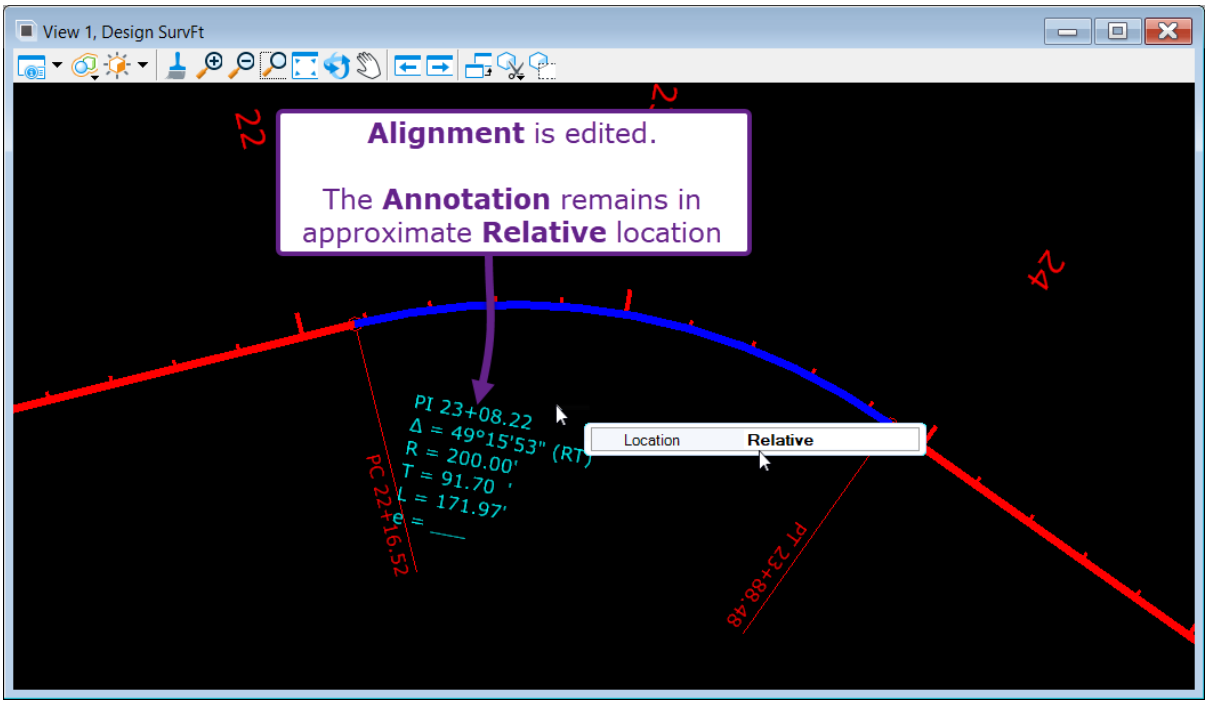


When an Annotation is manually moved or dragged from the default position, the label is automatically set to **Relative**.

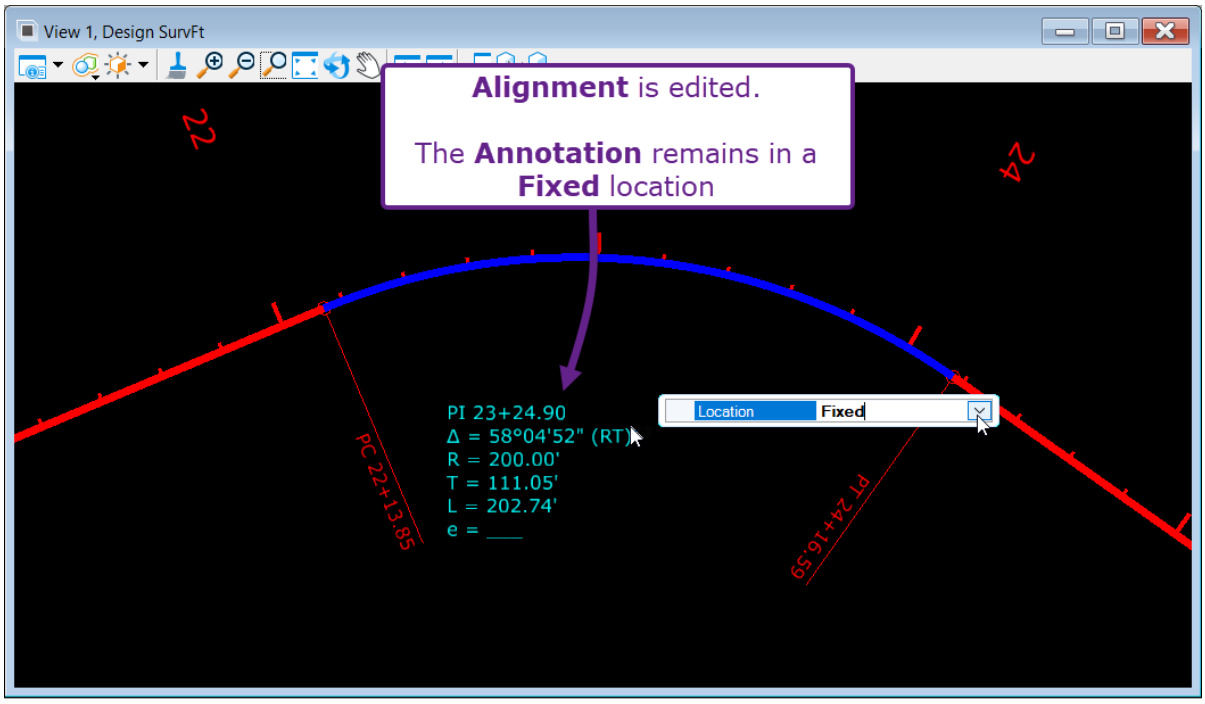


When set to **Relative**, the Annotation remains in the approximate **Relative** location after the Alignment is edited.

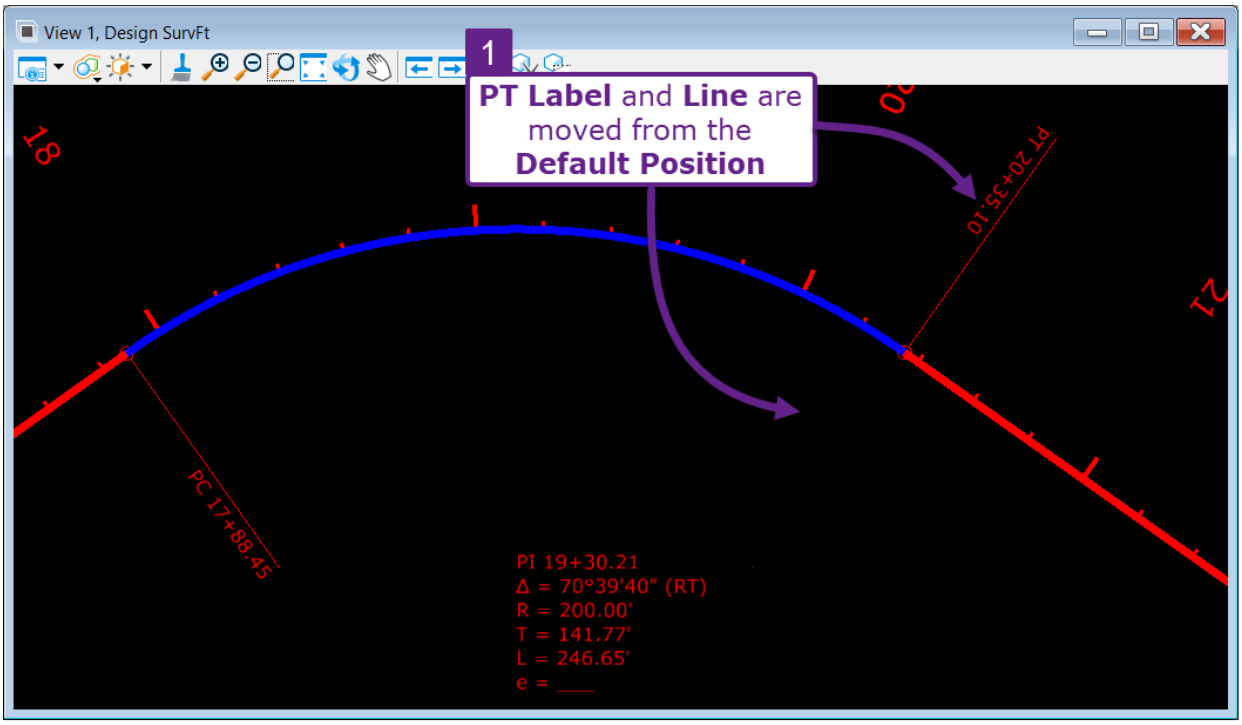
WARNING: Annotations set to **Relative**, may rotate unexpectedly when the Alignment is edited. As show below, the Annotation text is no longer rotated in line with the *View* window after the Alignment is edited.

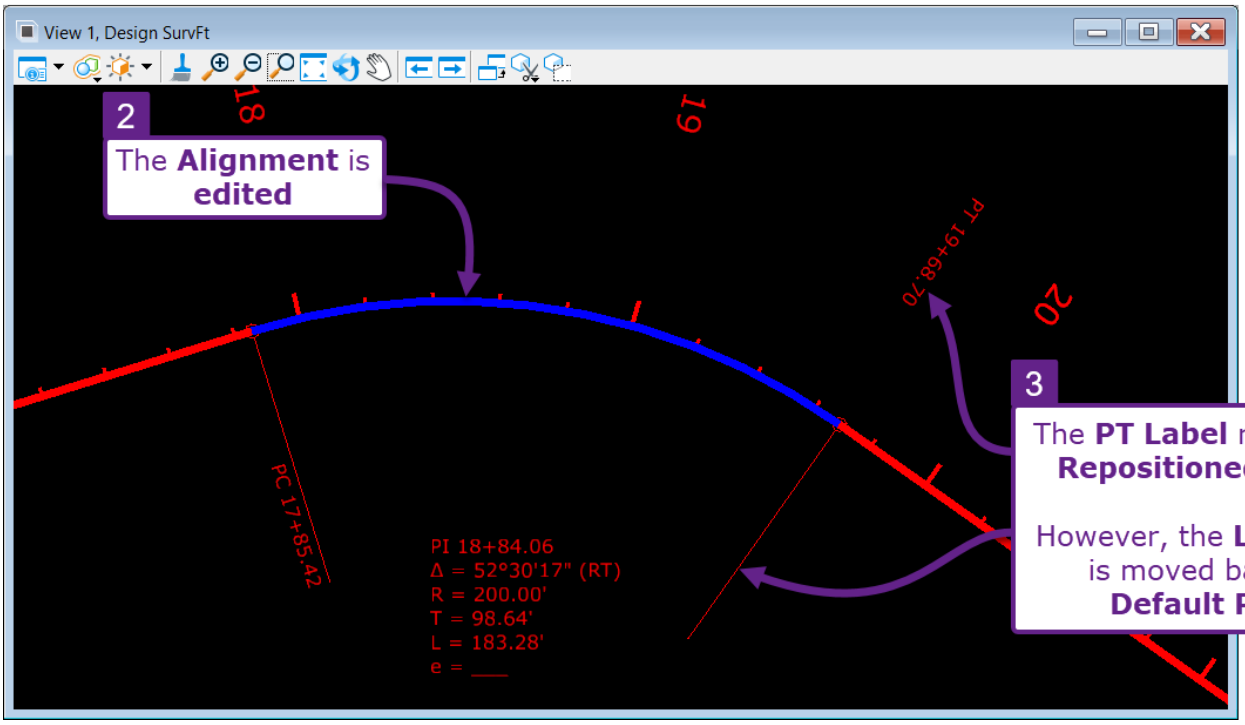


When set to **Fixed**, the Annotation will NOT automatically reposition after edits are made to an Alignment. The Annotation becomes **Fixed** to its set location.



WARNING: The **Location** property is NOT available for Alignment Annotation elements that do NOT have a text component. For example, the Line elements associated with the PC and PT labels do NOT have a **Location** property. If these Line elements are manually repositioned, then they will revert back to the default location after the Alignment is edited.





15D.5 Editing Alignment (Plan) Annotation Groups

The most used Annotation Group is the "Stationing" group.

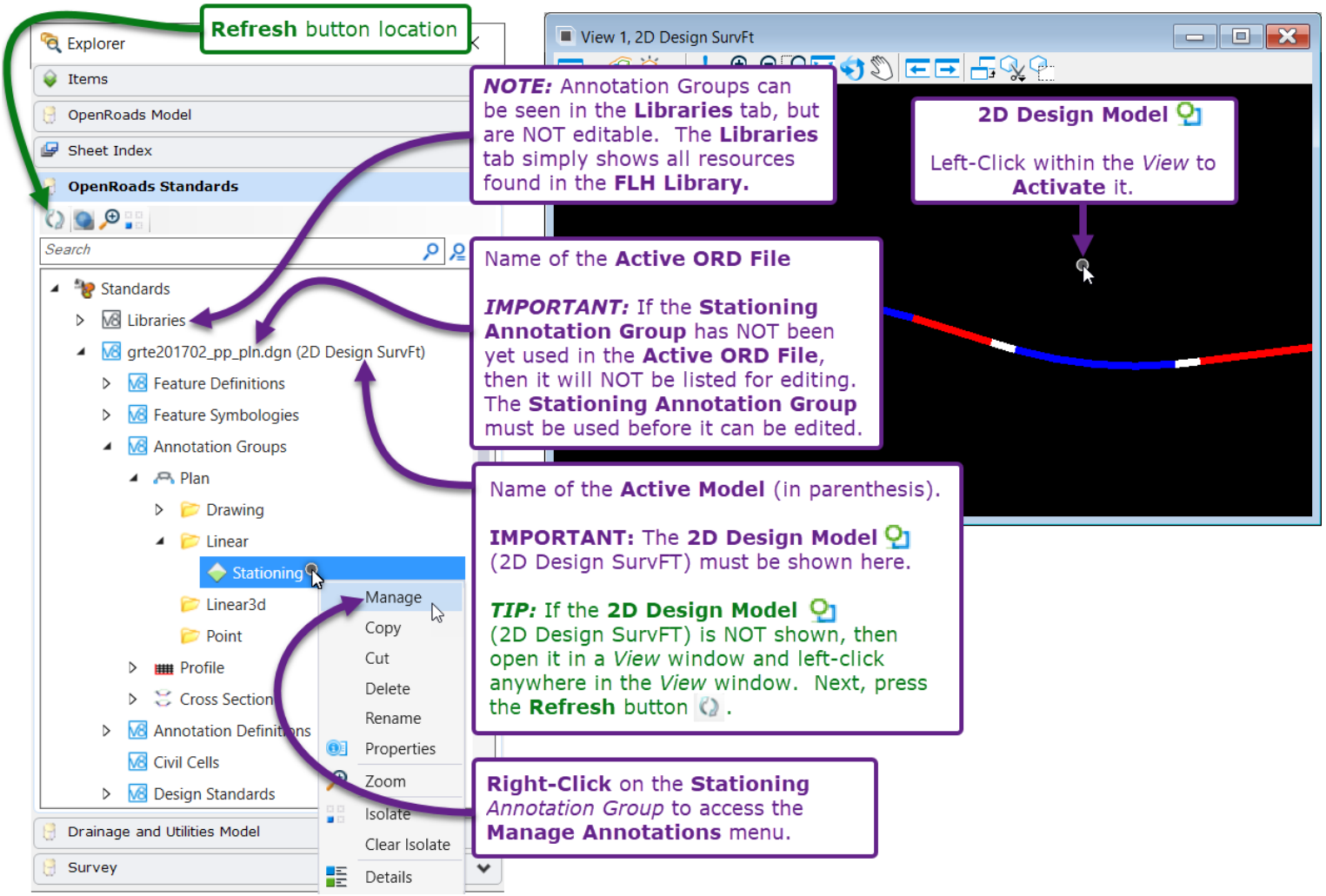
The "Stationing" Annotation Group can be edited (overridden) ONLY for the active ORD File. Edits made to the "Stationing" Annotation Group are NOT reflected in the other ORD Files. Using the *Annotate Element* tool in other ORD Files will produce the default "Stationing" elements and labels.

Editing an Annotation Group is accomplished through the Explorer in the following location:

OpenRoads Standards → Standards → *Active ORD File* (2D Design SurvFT)*** → Annotation Groups → Plan → Linear → "Stationing"

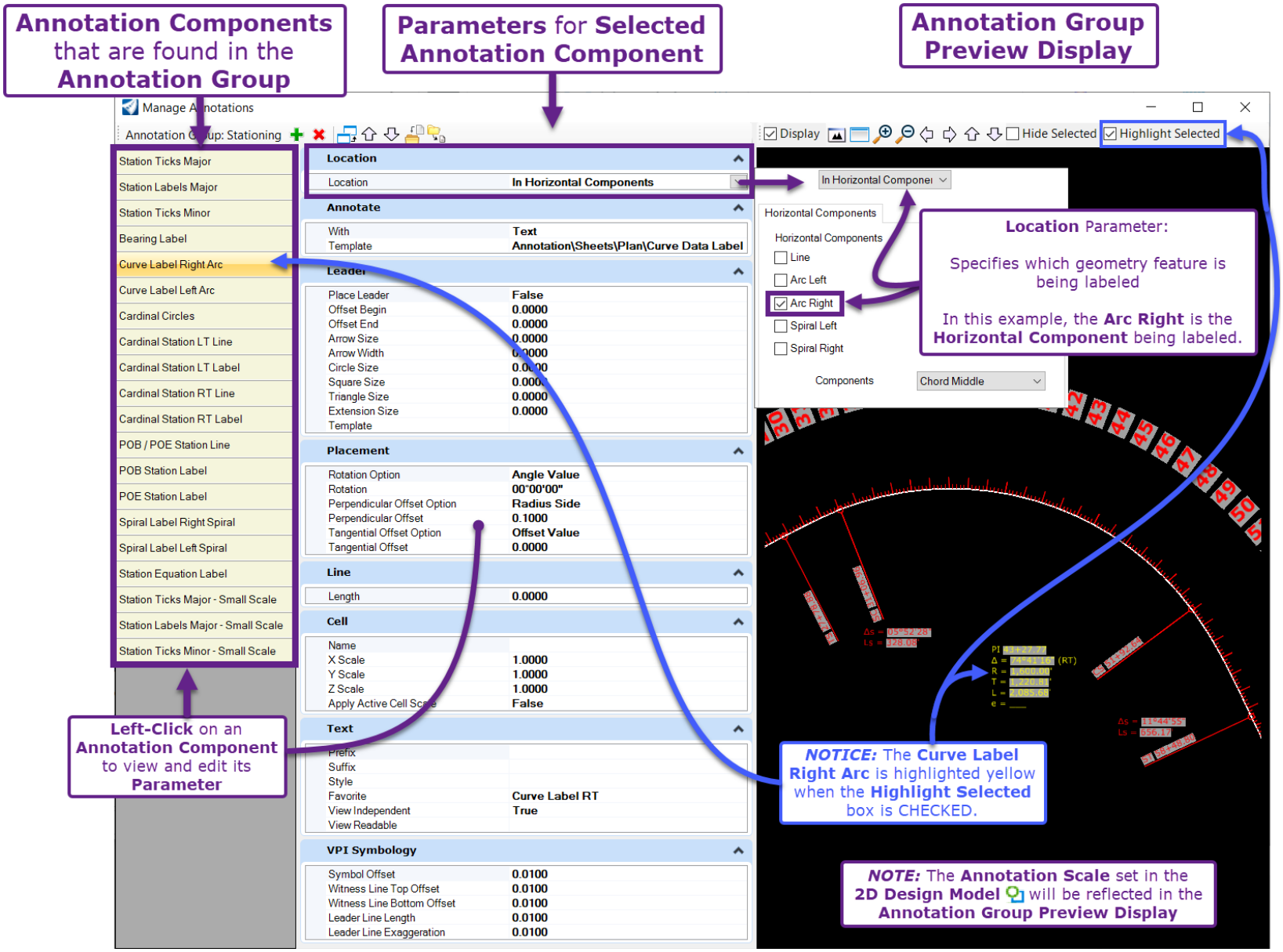
WARNING:*** Annotation Groups are only accessible when the *2D Design Model* is active. In other words, Left-click anywhere in a *View* that is showing the *2D Design Model* before attempting to access an Annotation Group. See the ***TIP*** below.

WARNING: A specific Annotation Groups is NOT shown in the Explorer until used in the active ORD File. In other words, an Annotation Group must be used and applied to an element before it can be edited in the active ORD File.



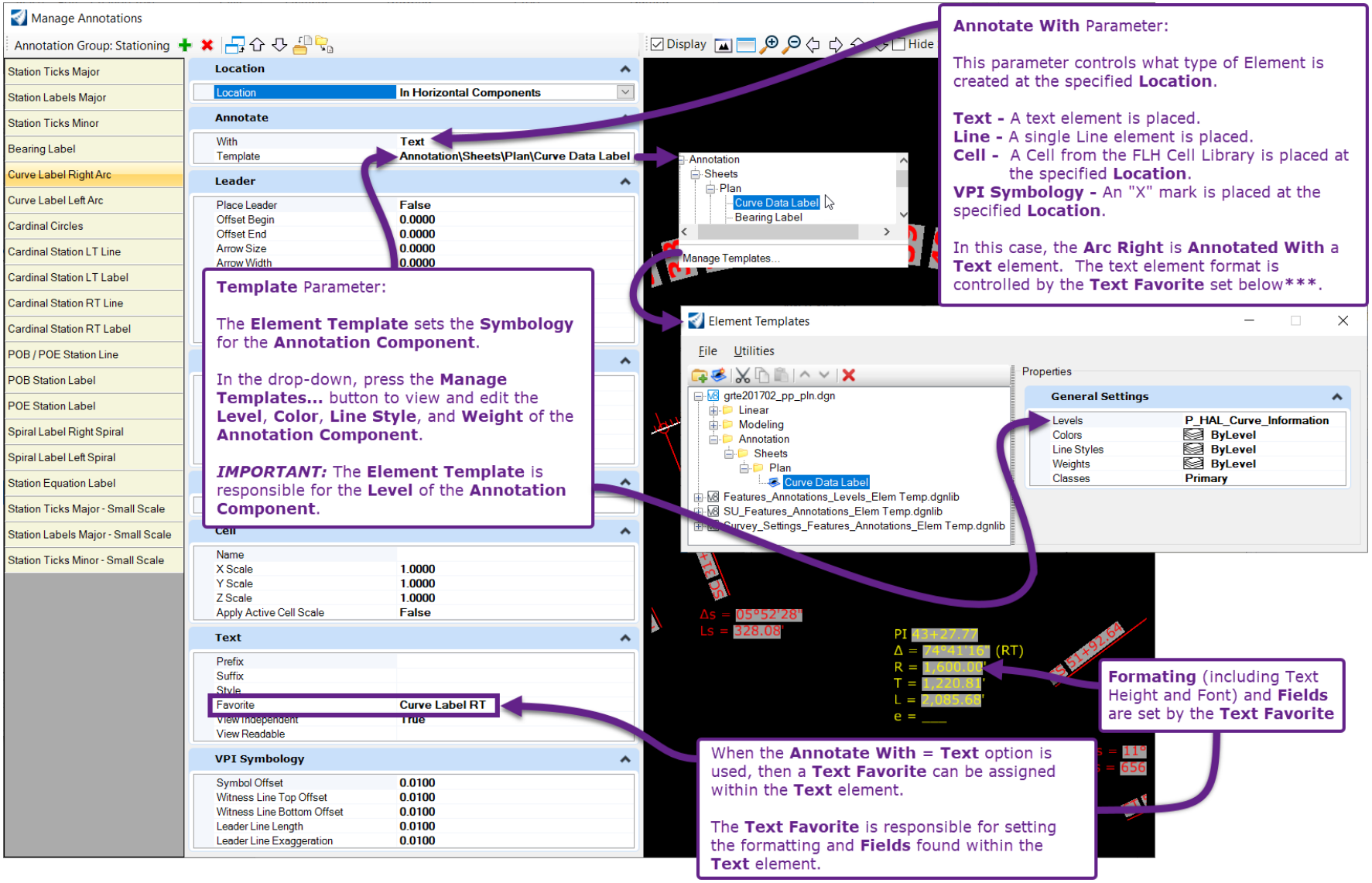
15D.5.a Manage Annotation Menu Overview

The *Manage Annotation* menu is split into three sub-modules. The left module shows all **Annotation Components** that belong to the Annotation Group. The middle module shows the **Parameters** for the selected (highlighted) **Annotation Component**. The right module is a **Preview** that shows all **Annotation Components** in the Annotation Group.

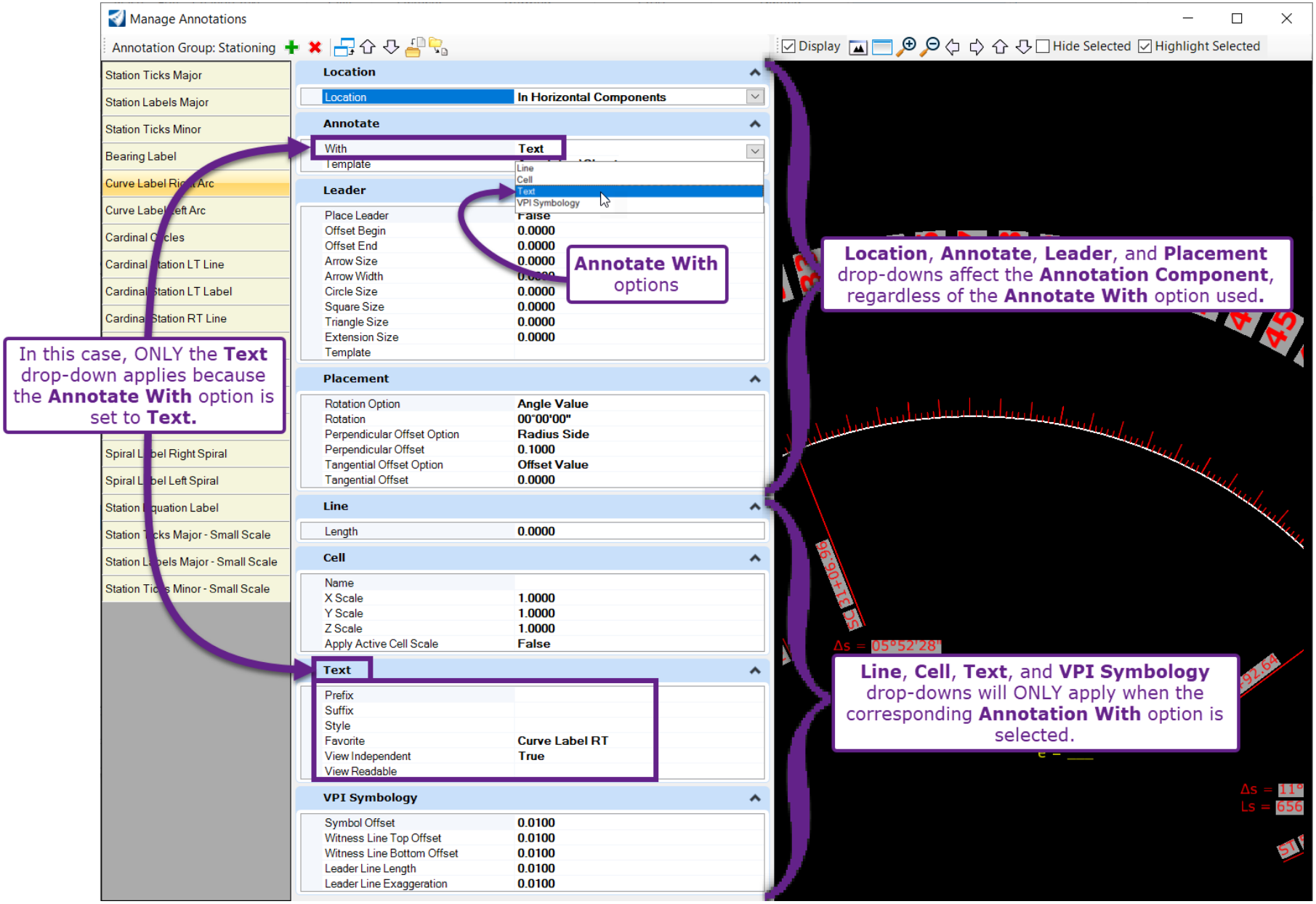


As shown on the previous page, the geometry feature to be labeled (i.e., Arc Left, Line [Tangent], Spiral, etc..) is determined by the **Location** parameter. The Annotation type that is produced (i.e., Text element, Line element, Cell element, VPI Symbology element) is determined by the **Annotate With** parameter. When the **Text** option is used with the **Annotate With** parameter, then a **Text Favorite** expression can be used to determine the formatting, text content, and *Fields* of the Annotation Component.

The **Template** parameter is used to assign an **Element Template** to the Annotation Component. The **Element Template** sets the Level and other Symbology properties of Annotation Component.



Many of the drop-down menus shown in **Parameters** module are dependent on the selected **Annotate With** option. For example, when the **Text** option is selected with the **Annotate With** option, then the **Line**, **Cell**, and **VPI Symbology** drop-downs are irrelevant. When the **Text** option is used, then only the **Text** drop-down will affect the Annotation Component. ***NOTE:*** The **Location**, **Annotate**, **Leader**, and **Placement** drop-downs apply to all Annotation Components, regardless of the **Annotate With** option used.

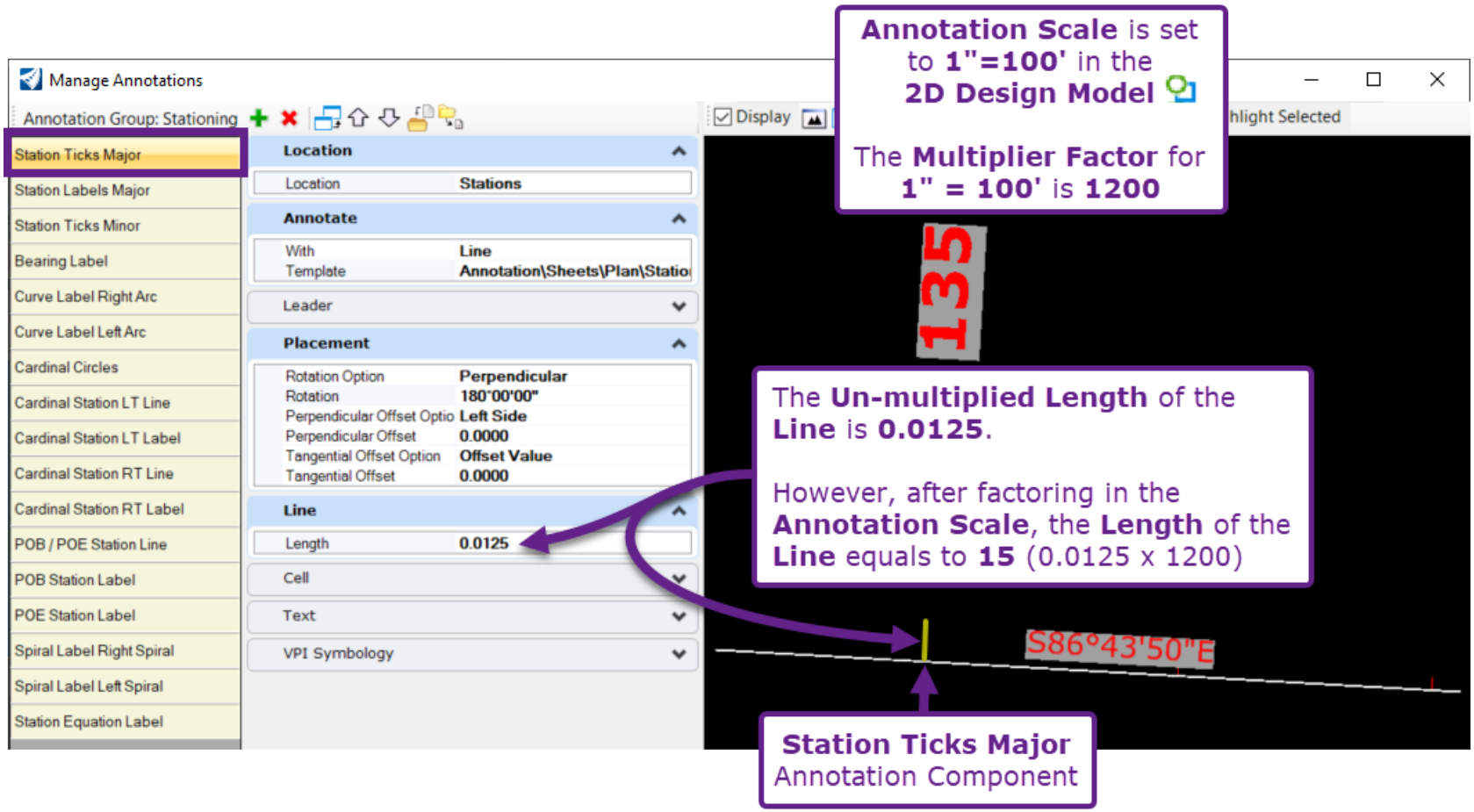


15D.5.b Understanding the Annotation Scale within the Manage Annotation Menu

For demonstrative purposes, the "Station Ticks Major" component is examined. This Annotation component is set to **Annotate With** a **Line** element. The *Length* of the **Line** element is set to 0.0125, which is the un-multiplied length and does NOT accounting for the Annotation Scale multiplier when placed in the *2D Design Model*.

The actual **Length** of the **Line** element depends on the Annotation Scale set in the *2D Design Model*. In this example, the actual **Length** will be 0.0125 multiplied by the **Annotation Scale Multiplier Factor**. In this case, the Annotation Scale is set to 1"=100', which corresponds to a multiplier value of 1200 (100 x 12). The actual length of the **Line** element will be 15 feet – which equals to 0.0125 x 1200. For more information about the Annotation Scale and its multiplicative effects on Annotative elements, see *15A.2 Annotation Scale*.

IMPORTANT: The Annotation Scale concepts presented in this section applies to all numerical values found in Profile, Profile Grid, and Cross Section Annotation Groups.

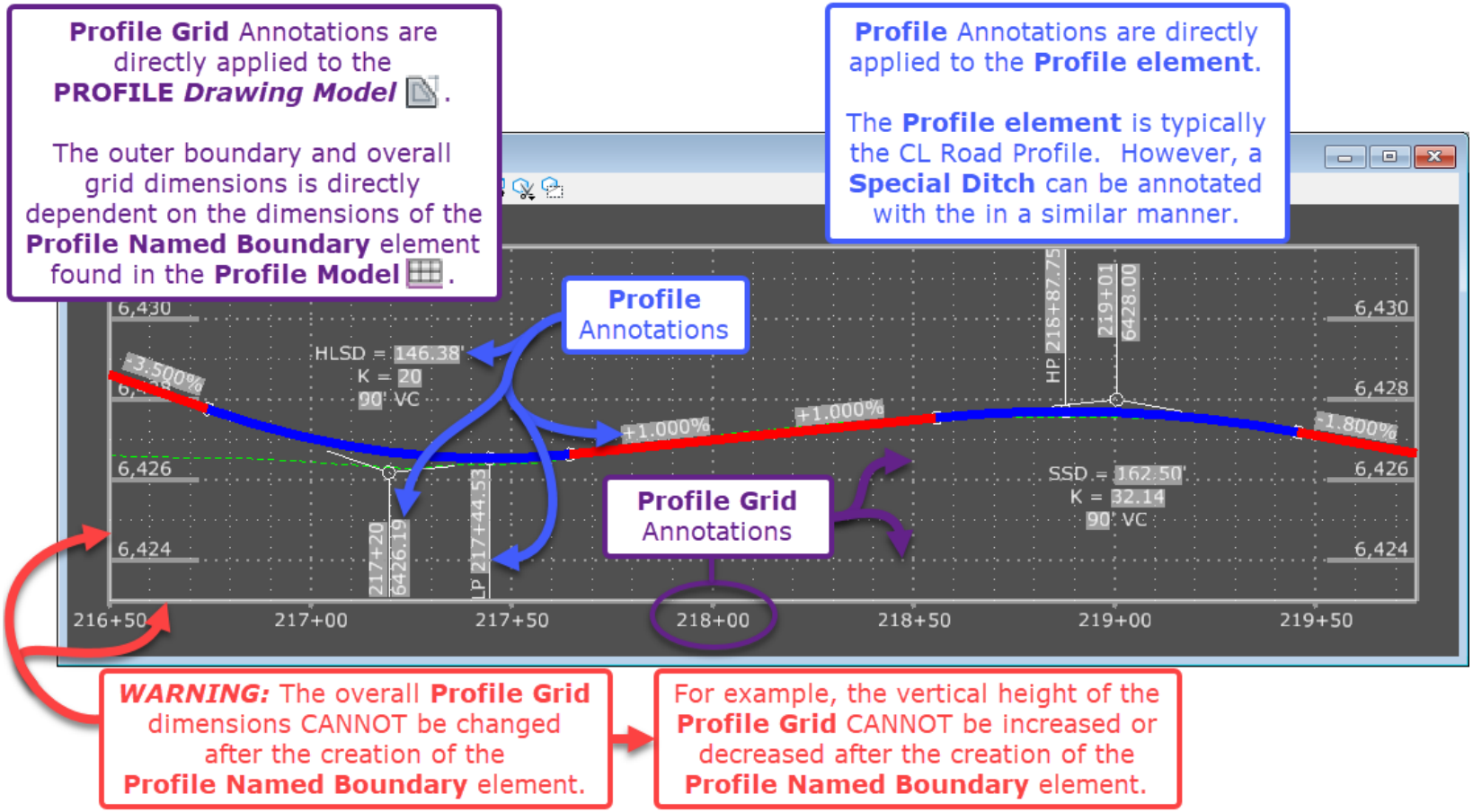


15D.6 Profile and Profile Grid Annotations

Profile and Profile Grid Annotations should be automatically created when PROFILE *Drawing Models* are created. ***IMPORTANT:*** Profile and Profile Grid Annotations are created and manipulated within PROFILE *Drawing Models*. The initial creation of PROFILE *Drawing Models* and Profile/Profile Grid Annotations is shown in *14B.5 STEPS 5-7: Create PROFILE Named Boundary Elements* and *14B.6 STEP 8: Create Drawing Models and Sheet Models*.

WARNING: If the procedures shown above are NOT followed, then the PROFILE *Drawing Models* may NOT contain Profile and Profile Grid Annotations. Specifically, Profile and Profile Grid Annotations will be absent when the Profile Annotation Group is NOT specified in the *Drawing Dialogue Box* (shown in *14B.6 STEP 8: Create Drawing Models and Sheet Models*).

If Profile and Profile Grid Annotations are absent from the PROFILE *Drawing Models*, then manually create the Annotations using procedures shown in *14E.3 Profile Vertical Curve Labels and Slope Labels do NOT Show* and *14E.4 Recreate and Manipulate the Profile Grid*.

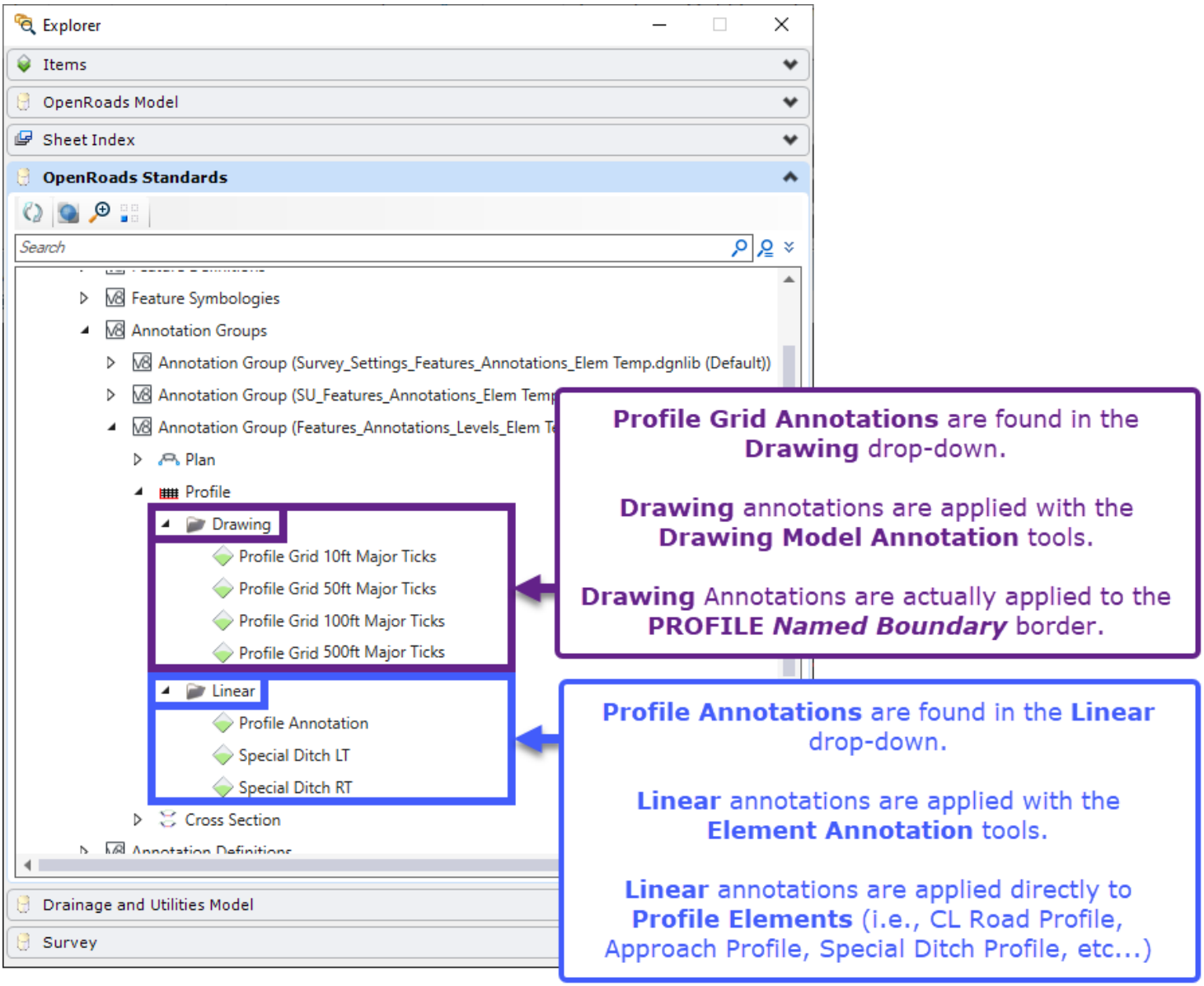


15D.7 Profile vs Profile Grid Annotations in the Explorer

In the software, there is a functional distinction between Profile and Profile Grid Annotations:

Profile Grid Annotations – Profile Grid Annotations are applied and removed with the *Drawing Model Annotation* tools. As discussed on the previous page, Profile Grid Annotations are applied directly to the boundary of the PROFILE *Drawing Model* . The corresponding Profile Named Boundary element serves as the clipping shape for the PROFILE *Drawing Model* and determines the overall dimensions of the Profile Grid. There are several different Profile Grid options available in the FLH WorkSpace. The different options are intended for showing a Profile at different Design Scales (i.e., 1"=10', 1"=50', 1"=100', etc.).

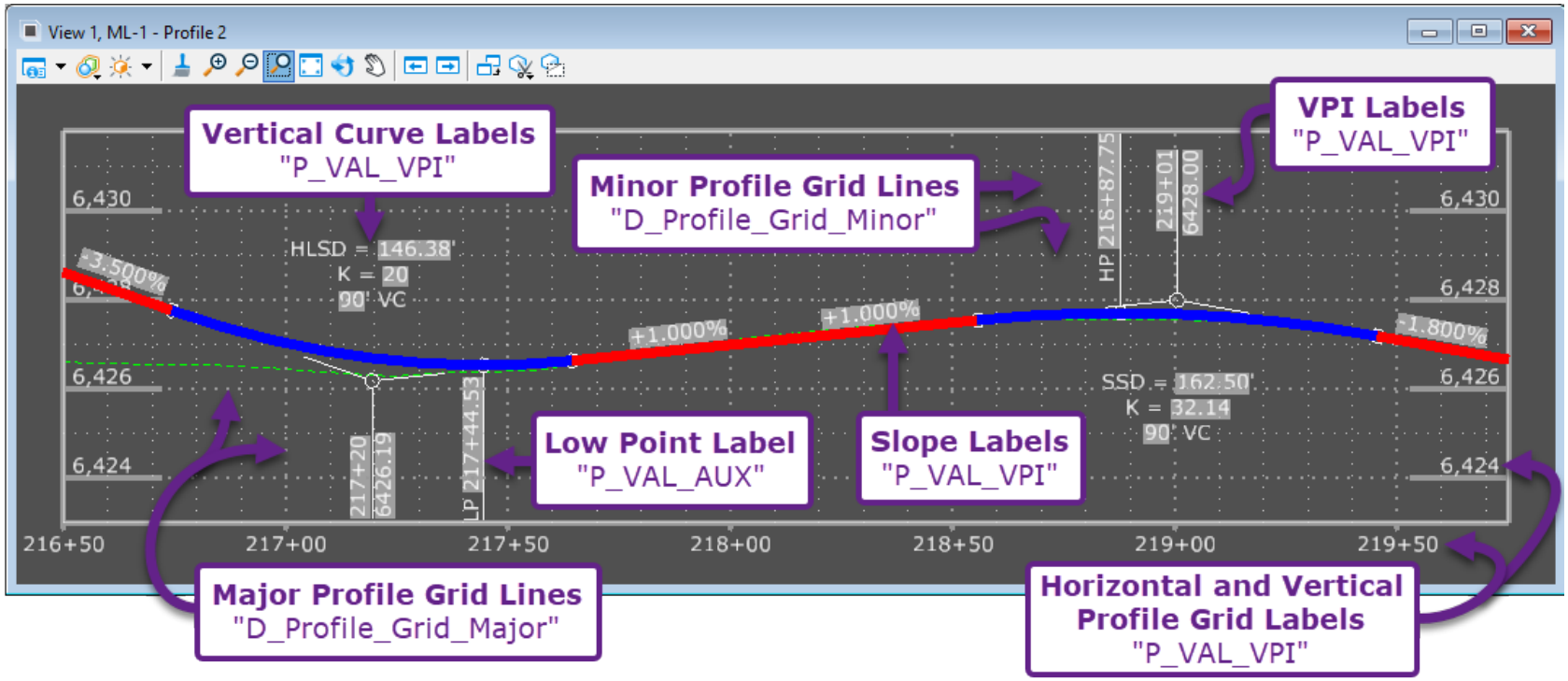
Profile Annotations – Profile Annotations are applied directly to linear elements with the *Element Annotation* tools. As shown below, in the Explorer, Profile Annotations are found under the **Linear** drop-down because they are applied Linear Profile Elements (i.e., CL Road Profile, Approach Profile, Special Ditch Profile, etc...).



15D.8 Overview of Profile and Profile Grid Level Assignments

Compared to Alignment Annotations, it is less common for the User to need to isolate certain Levels belonging to Profile and Profile Grid Annotations. In general, the Level Assignments for Profile and Profile Grid Annotations are as follows:

Profile and Profile Grid Levels	
Level	**Description**
P_VAL_VPI	Most Profile Annotations belong to this Level – including: • Slope Labels • Vertical Curve Labels (includes HLSD, SSD, K-Value, and Curve Length) • VPI Labels (includes VPI Station and VPI Elevation) Also included on this Level are a few Profile Grid Annotation components: • Horizontal (Station) Grid Labels (i.e., 217+50, 218+00, 218+50, etc.) • Vertical (Elevation) Grid Labels (i.e., 6,424, 6,426, 6,428, etc.)
P_VAL_AUX	Includes Profile Low Points and Profile High Point Labels.
D_Grid_Minor	Includes only **MINOR** Profile Grid Lines (horizontal and vertical).
D_Grid_Major	Includes **MAJOR** Profile Grid Lines (horizontal and vertical). Also includes major Grid Label Tick Marks and the Outer Border Lines.



15D.9 Editing Profile and Profile Grid Annotation Groups

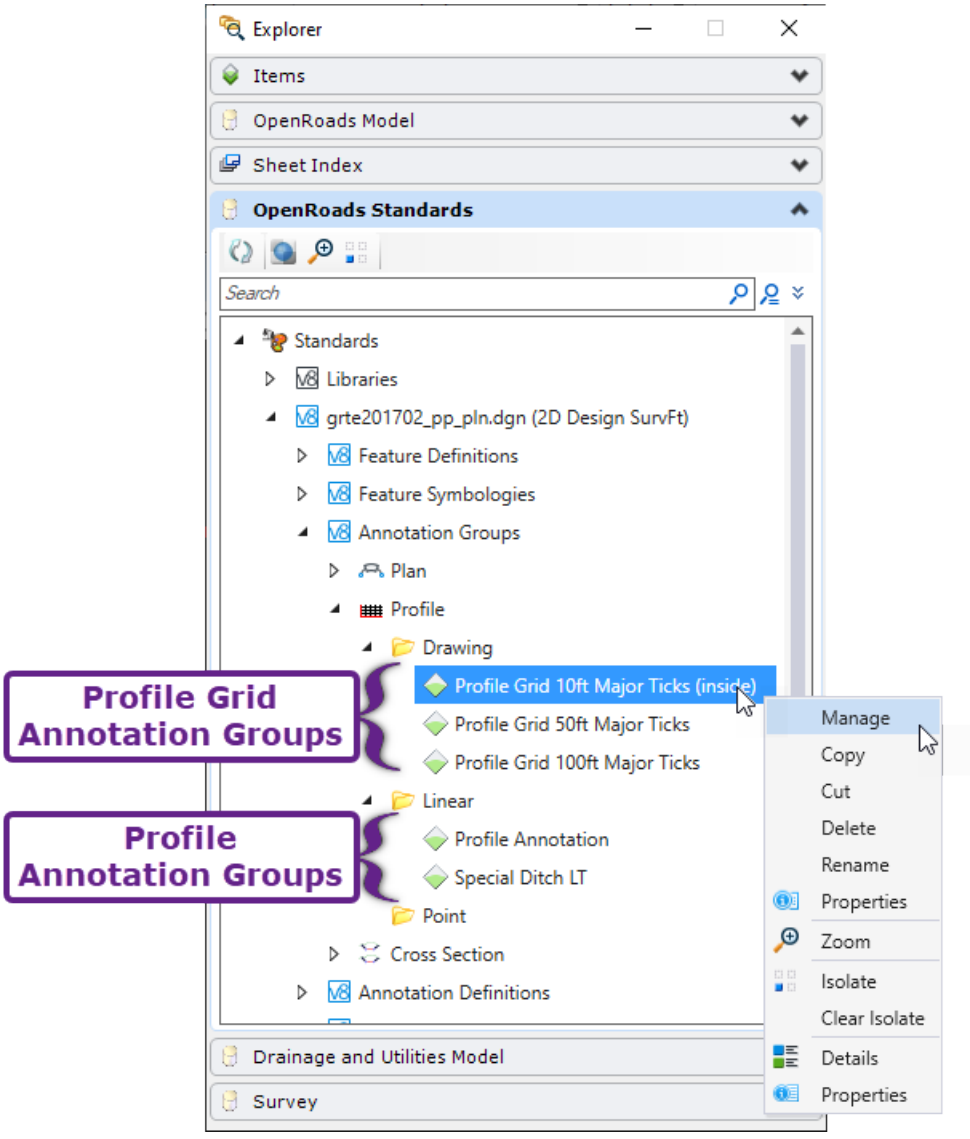
Annotation Groups are edited similarly to Alignment (Plan) Annotation Groups. Before reading this section, refer to *15D.5 Editing Alignment (Plan) Annotation Groups* for an overview of the Manage Annotations menu.

Profile and Profile Grid **Annotation Groups** are accessed through the Explorer in the following location:

OpenRoads Standards → Standards → *Active ORD File* (2D Design SurvFT)*** → Annotation Groups → Profile → Drawing (Profile Grid)/Linear (Profile)

WARNING:*** The Profile Grid (Drawing) and Profile (Linear) **Annotation Groups** are only accessible when a *View* showing the *2D Design Model* is active. In other words, Left-click anywhere in a *View* that is showing the *2D Design Model* before attempting to access the Annotation Group. **Annotation Groups CANNOT be accessed when the *Drawing Model* is active**.

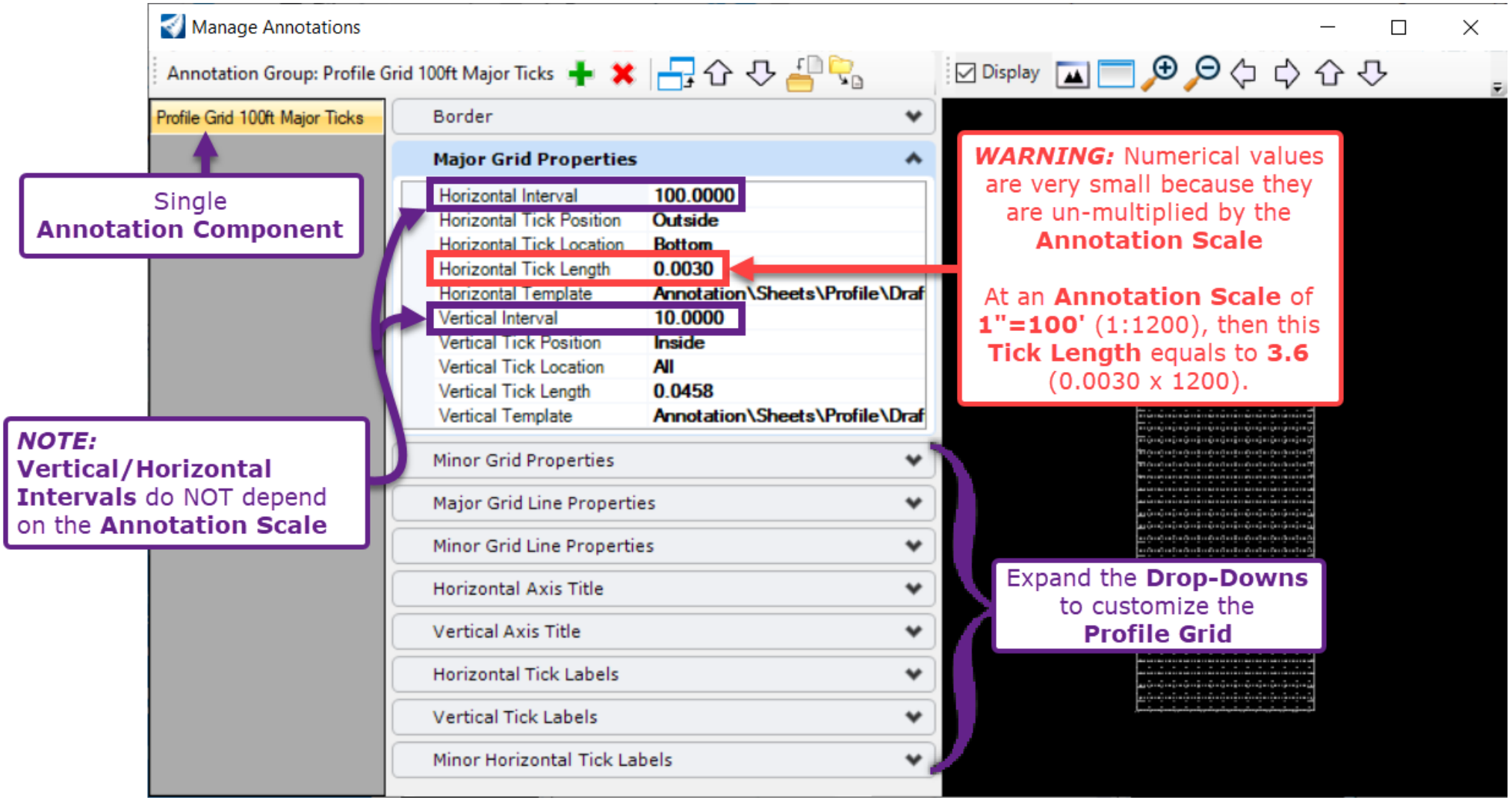
WARNING: The Profile and Profile Grid **Annotation Groups** will NOT be shown in the *Explorer* until they are used in the active ORD File. This means that the Profile and Profile Grid **Annotation Groups** CANNOT be edited until PROFILE *Drawing Models* are created and annotated.



15D.9.a Editing Profile Grid Annotation Groups Overview

Differing than Alignment and Profile Annotations Groups, the Profile Grid Annotation Group consists of a single Annotation Component. Within the single Annotation Group component, every aspect of the Profile Grid can be customized.

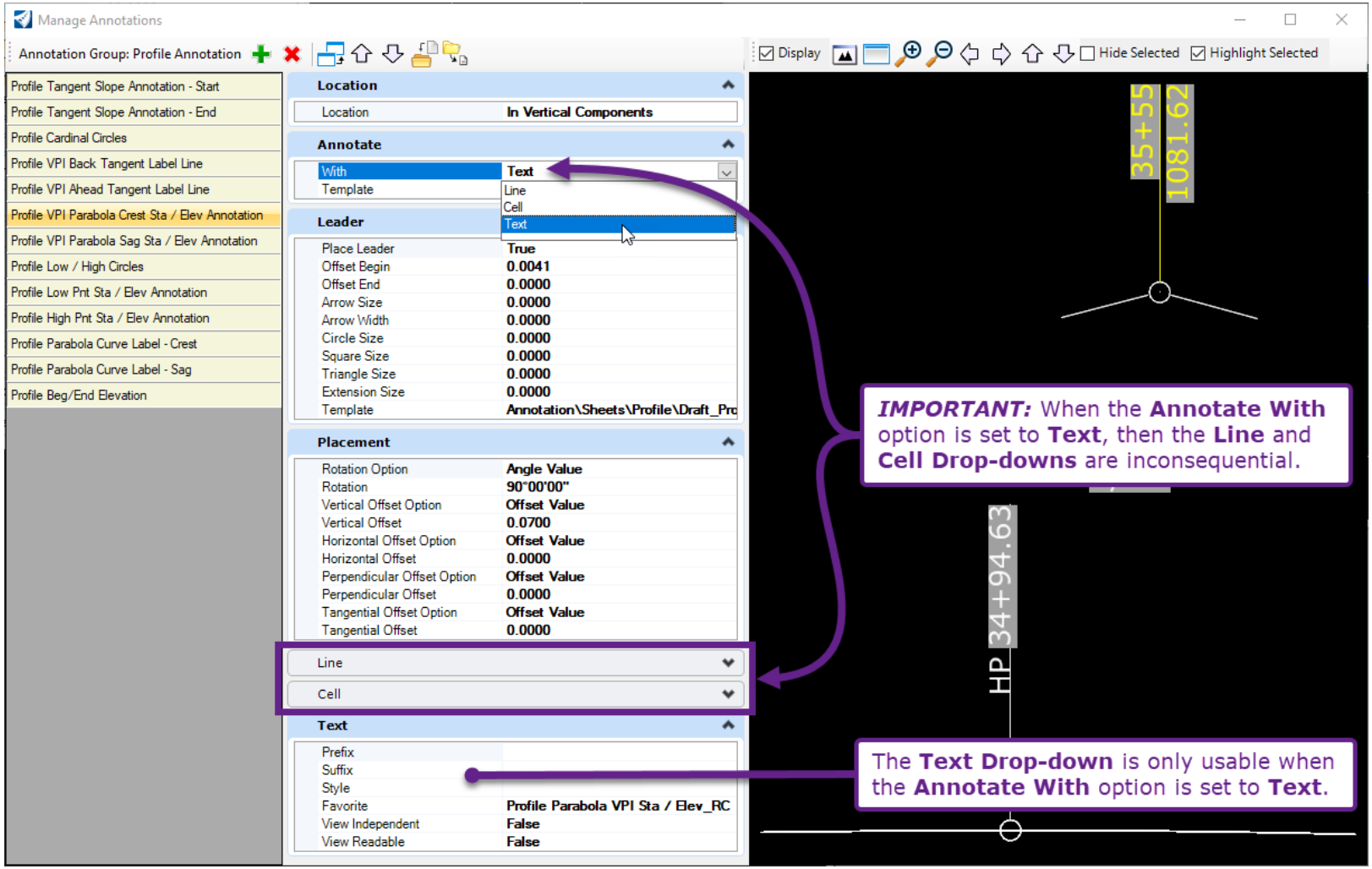
WARNING: Numerical values found in the Profile Grid Annotation are very small. These small numerical values are un-multiplied by the **Annotation Scale** (which is set in *2D Design Model*). This concept is explained in detail in *15D.5.b Understanding the Annotation Scale within the Manage Annotations Menu*.



15D.9.b Editing Profile Annotation Groups Overview

Editing Profile Annotations Groups is very similar to editing (Plan) Alignment Annotation Groups. An important concept to carry over from (Plan) Alignment Annotation Groups is that some of the parameters drop-downs may NOT be applicable – depending on which **Annotate With** option is selected. For example, if the **Annotate With** option is set to **Text**, then the **Line** and **Cell** parameter drop-downs have absolutely NO EFFECT.

WARNING: Numerical values found in the Profile Annotation are very small. These small numerical values are un-multiplied by the **Annotation Scale** (which is set in *2D Design Model*). This concept is explained in detail in *15D.5.b Understanding the Annotation Scale within the Manage Annotations Menu*.

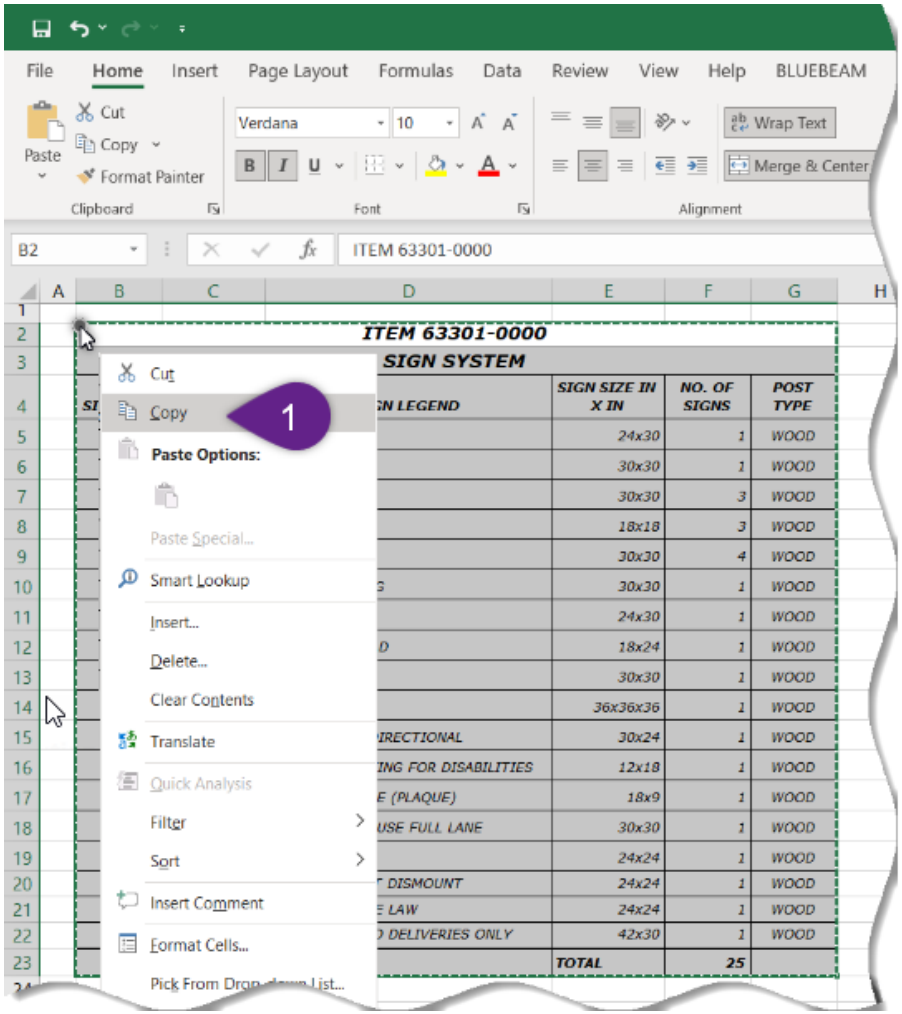


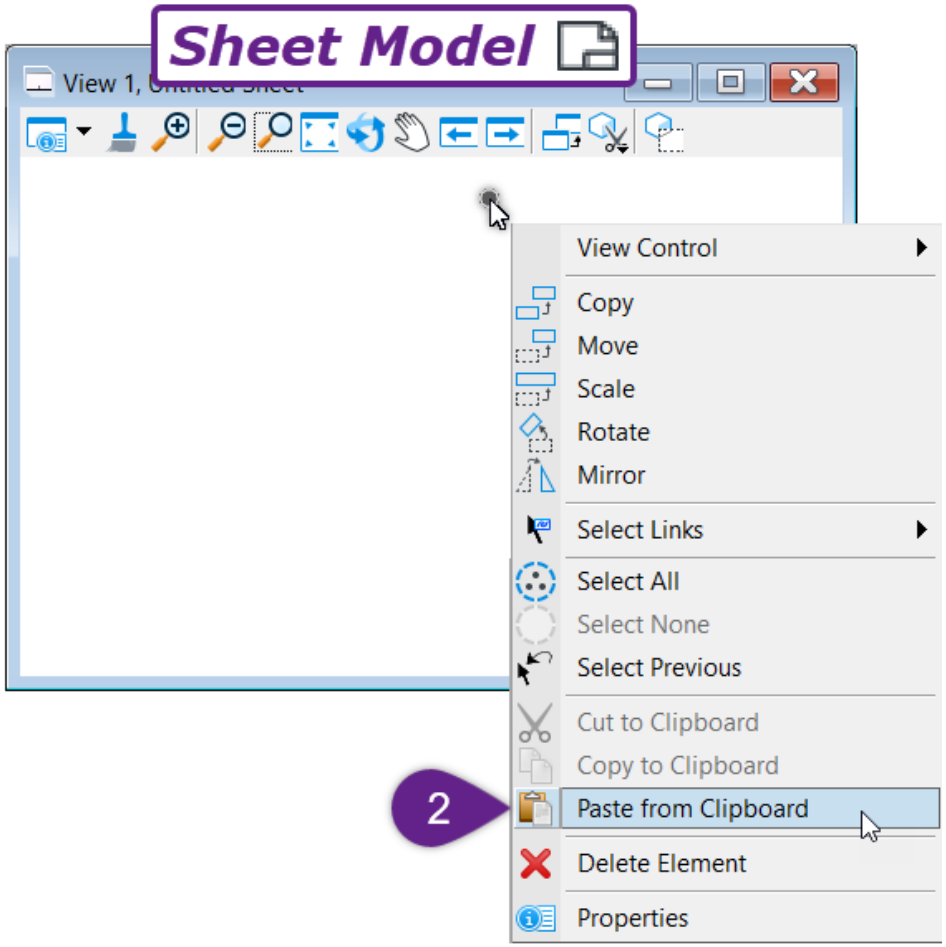
15E – MISCELLANEOUS ANNOTATIONS WORKFLOWS

This section covers miscellaneous annotation workflows that are common in an FLH plan set.

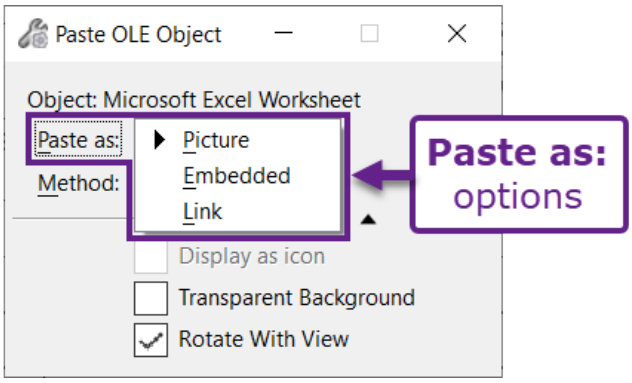
15E.1 Pasting Microsoft Excel Tables into a Sheet Model

1	In Microsoft Excel, select and copy <CTRL+C> the desired table range.
2	In a *Sheet Model*, paste the Microsoft Excel table. Press <CTRL+P> or right-click and select *Paste from Clipboard*.



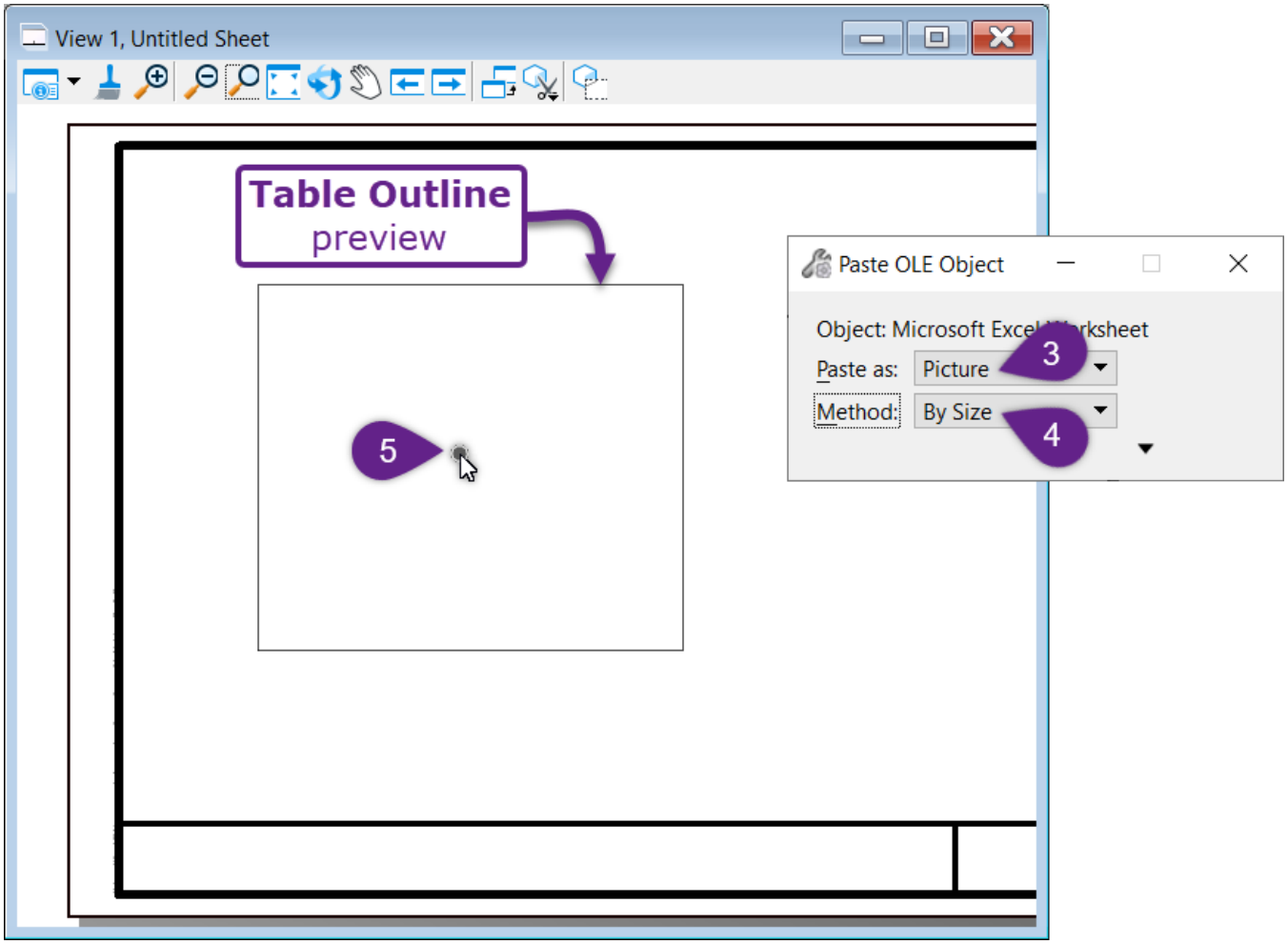


In the *Dialogue* Box, there are three **Paste as** options for pasting an Excel Table into the ORD software:



Paste As options	
Picture	The table is pasted as a flattened image in ORD. If the table is edited in Excel, then it must be re-pasted into ORD.
Embedded	The pasted table can be directly edited in the ORD software (by double-clicking on it), but is NOT linked to the original Excel table. ***WARNING:*** Editing "Embedded" tables directly in the ORD software is discouraged. Edits made to the ORD table will NOT be reflected in the Excel table – which creates a discrepancy between the two tables. Excel tables and ORD tables should ALWAYS be coordinated and reflect the same data.
Link	The table pasted in ORD is linked to the original Excel table. This method has two major disadvantages: ***DISADVANTAGE 1:*** Edits made to the Excel table are NOT reflected in the ORD table until the Edit Links tool is used. The ORD table will NOT automatically update when the Excel table is edited. Failure to use the Edit Links tool creates a discrepancy between the Excel and ORD tables. ***DISADVANTAGE 2:*** The ORD table is linked to a specific cell array in Excel. If additional rows or columns are added to the Excel table, then the ORD table must be deleted and re-created to reflect the expanded cell array.

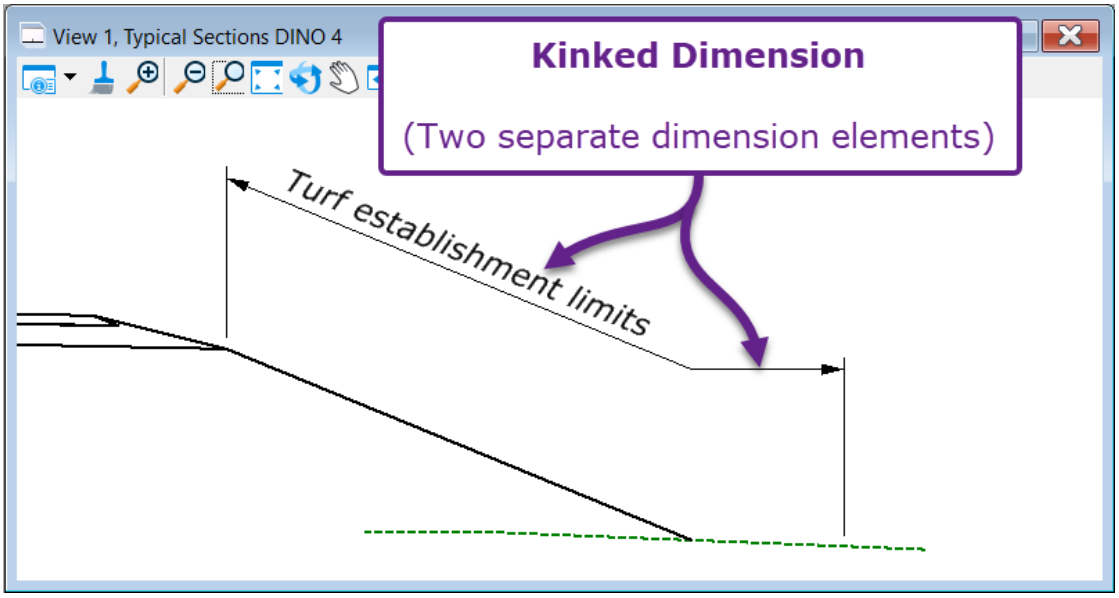
BEST PRACTICE: The preferred **Paste as** option is **Picture**. This option is "low-tech" and requires the table to be re-pasted into ORD when edits are made. However, with consistent use of this method, fewer discrepancies are likely to occur when compared to the **Embedded** and **Link** options.



3	**Paste as:** Select **Picture**.
4	**Method:** Select **By Size**. ***IMPORTANT:*** When pasting table into a *Sheet Model* , always use the **By Size** option. This option ensures the table contains the correct font height when pasted into ORD.
5	Paying close attention to the Table Outline Preview, left-click in the desired placement position.

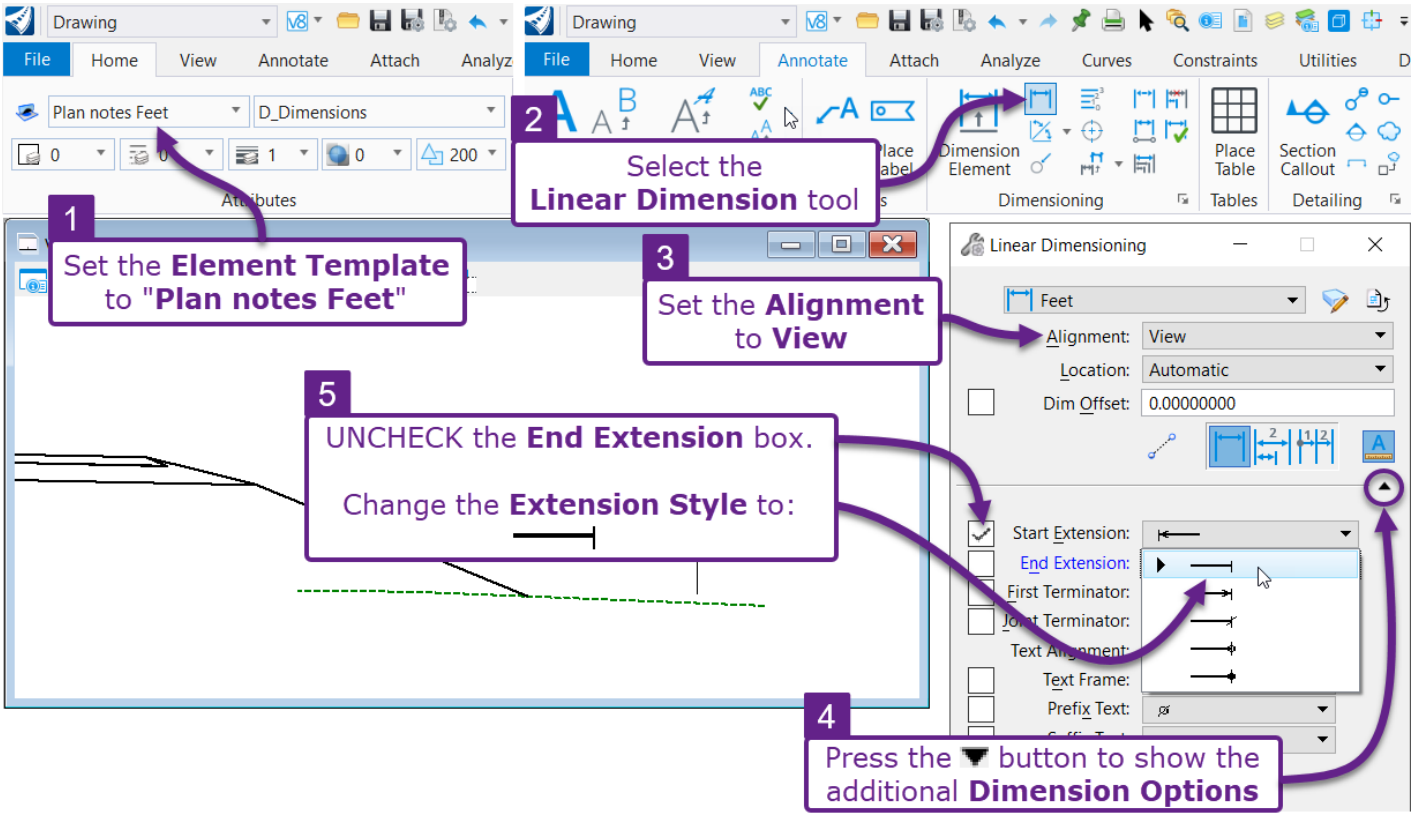
15E.2 Create a Kinked Dimension for Road Typical Section Sheets

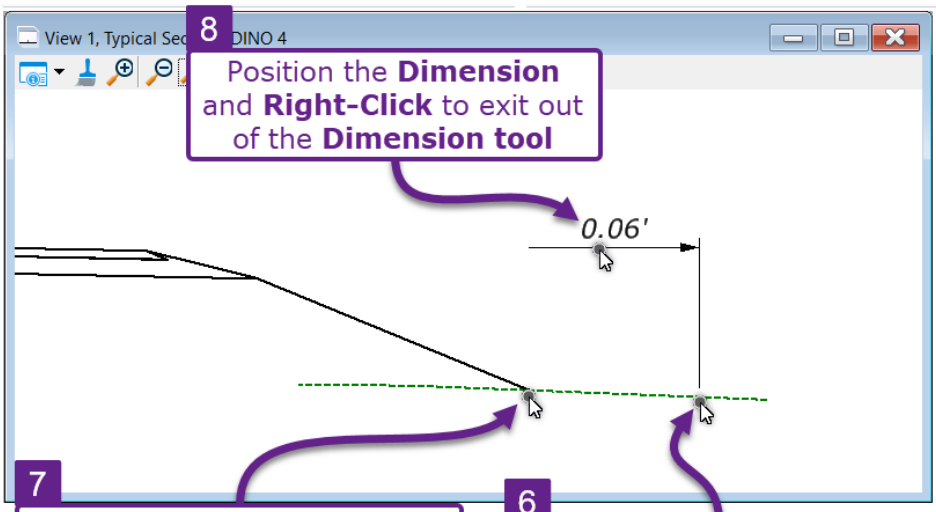
Commonly, a kinked dimension for turf establishment is shown on the road typical section sheet. The kinked dimension is drawn as two separate dimension elements.

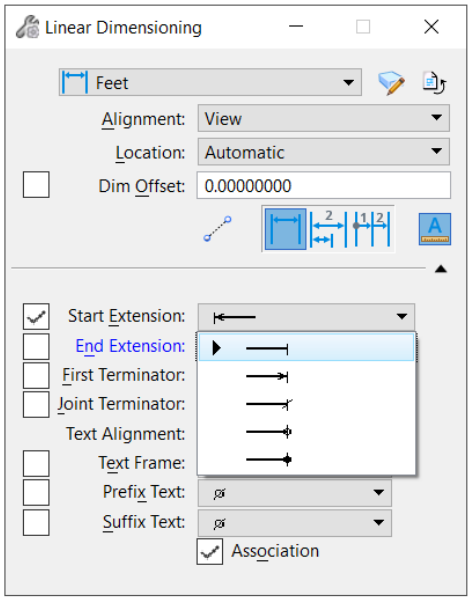


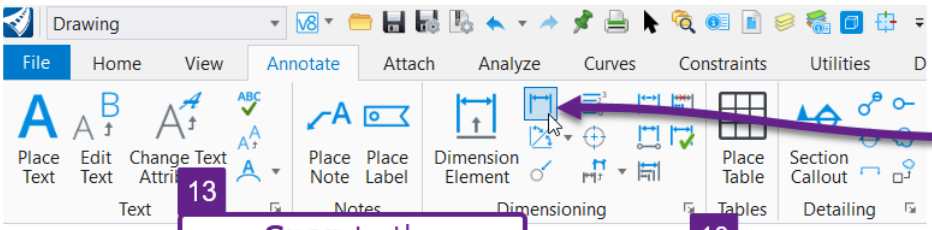
The **Linear Dimension** tool is used twice to create the kinked dimension. In both uses of the tool, the **End Extension** box must be UNCHECKED and the **Extension Style** must be changed to ——|.

The procedure for creating the kinked dimension is shown below:

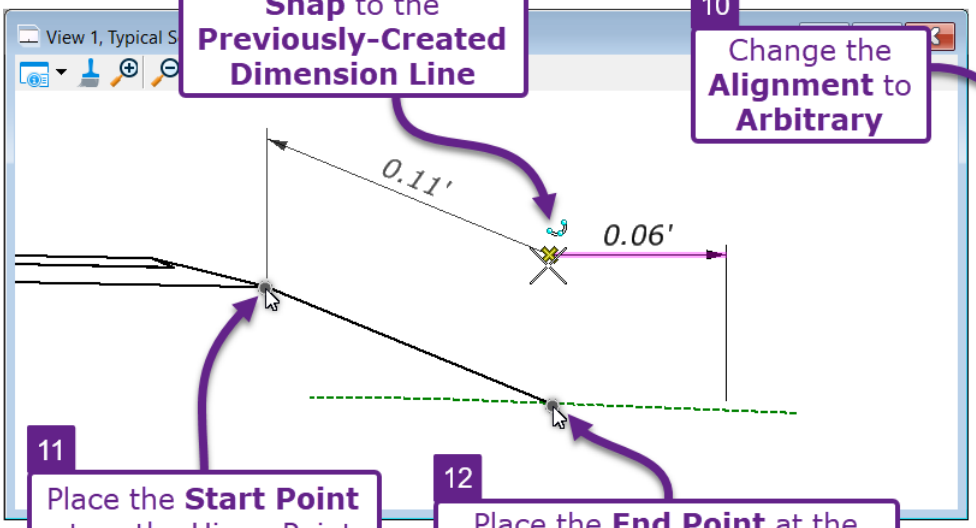




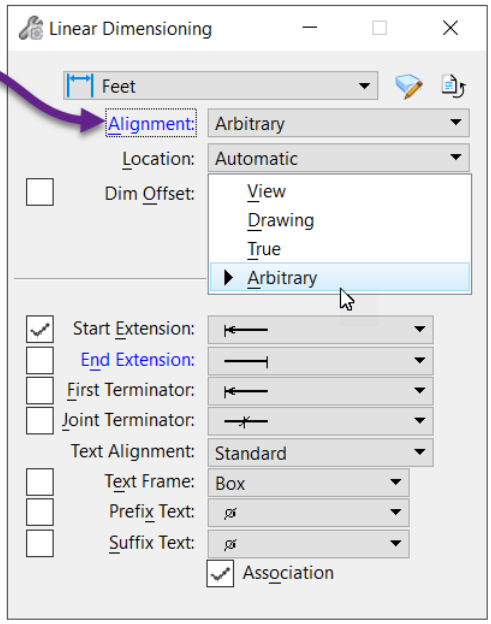


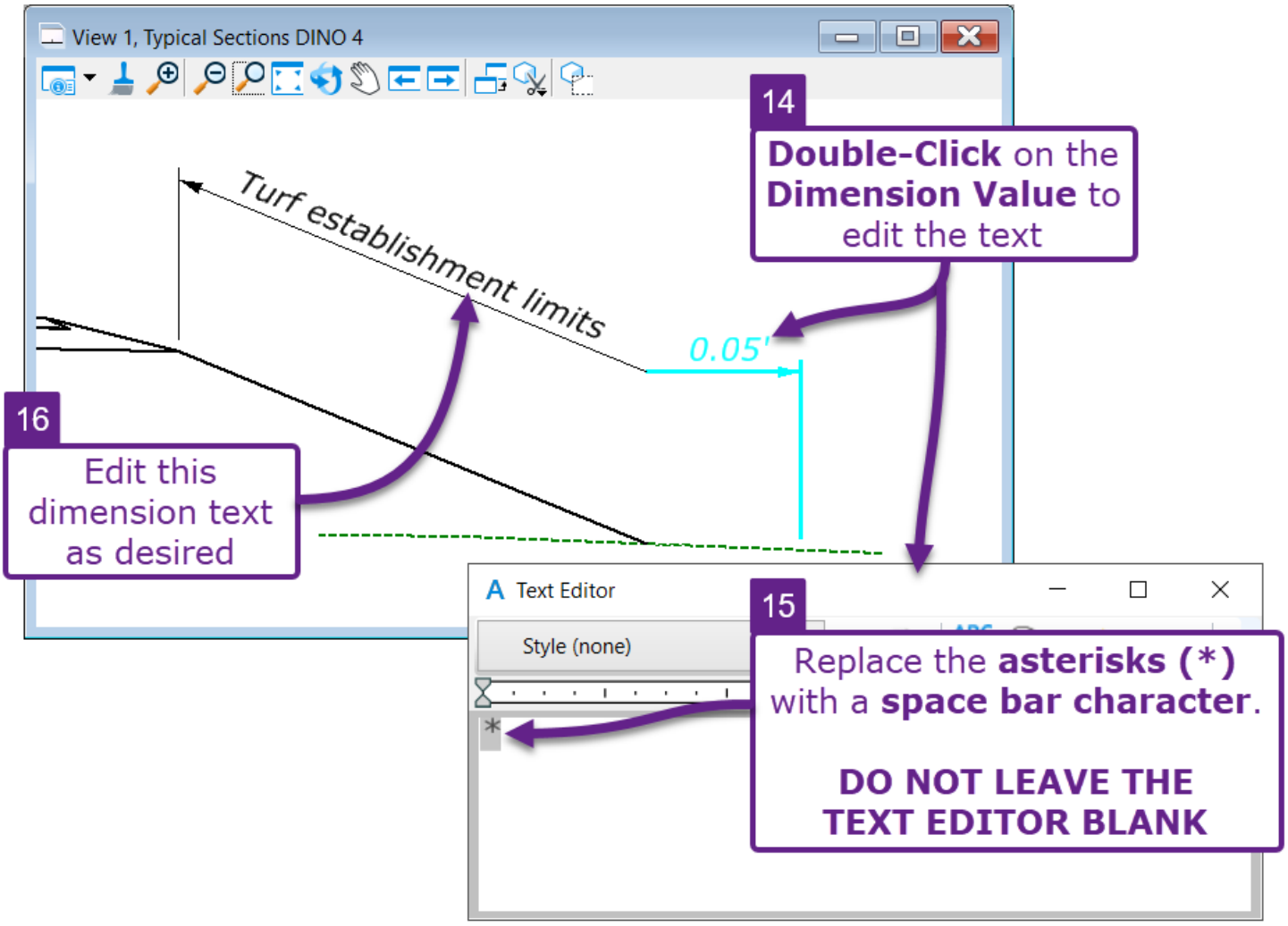


9
Select the **Linear Dimension** tool for a second time



10
Change the **Alignment** to **Arbitrary**




View 1, Typical Sections DINO 4
Turf establishment limits
0.05'
14
Double-Click on the Dimension Value to edit the text
16
Edit this dimension text as desired
Text Editor
Style (none)
15
Replace the asterisks (*) with a space bar character.
DO NOT LEAVE THE TEXT EDITOR BLANK