

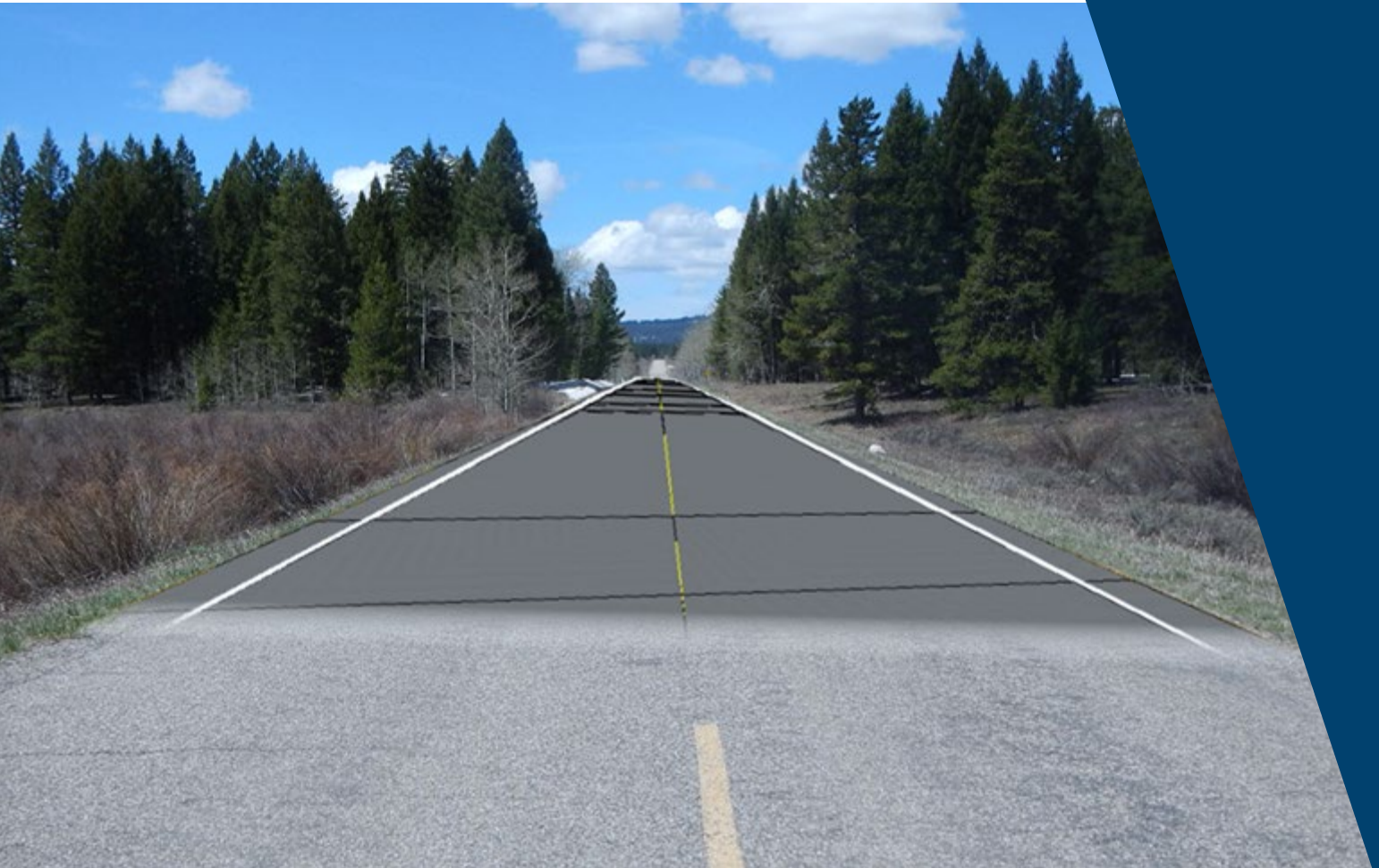
# OpenRoads Designer User Manual



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

## Chapter 17

FEATURE DEFINITIONS



## Chapter 17 Feature Definitions

Feature Definitions are used in drafting, 3D modeling, and quantity calculations. This chapter explains the various types of Feature Definitions used in the ORD software, as well as editing and creating new Feature Definitions.

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## 17A – INTRODUCTION TO FEATURE DEFINITIONS

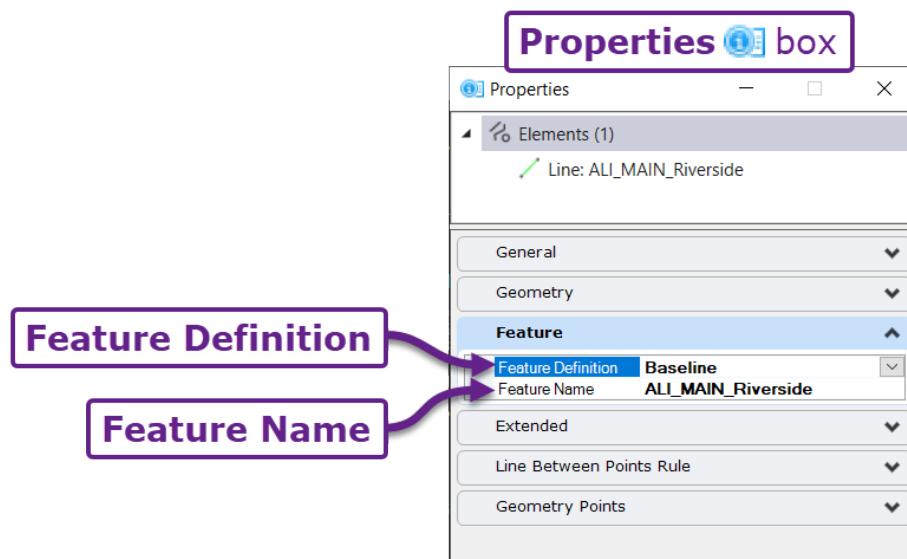
Feature Definitions are assigned to ORD geometry elements, Terrain Models, Corridors and many other element types. Feature Definitions are used to organize elements based on their material type or function in 3D modeling and drafting. When quantities are calculated, all elements of the same Feature Definition are summed together in the quantities report.

**NOTE:** MicroStation Elements (i.e., Smart Lines, Line Strings, and Complex Chains) do NOT contain a Feature Definition or Feature Name. However, a MicroStation Element can be manually assigned a Feature Definition with the *Set Feature Definition* tool.

A Feature Definition is a set of attributes that affect the Level, symbology (Color, Line Style, Weight), behavior, and functionality of an element. For example, changing the Feature Definition for a Terrain Model affects which component elements (i.e., contours, boundary, triangles) are shown.

The behavior and functionality of Feature Definitions depends on the element type. For example, **Linear** Feature Definitions are relatively simple and primarily affect the Level, Color, and Line Style of an element. In contrast, **Corridor** Feature Definitions affect modeling and display settings for the Corridor, such as the density (Template Drop interval multiplier) of the Corridor model.


Feature Definitions are shown and switched in the Properties  box.



**Feature Name:** Every element with a Feature Definition also contains a Feature Name. The Feature Name conforms to the FLH Feature Naming Convention. The FLH Feature Naming Convention is shown in [3F – Naming Convention for Proposed ORD Features](#). In general, assign significant geometrical elements a logical and appropriate Feature Name. Name all Baselines (Centerline), Profiles, Culverts, Terrain Models, Corridors, Linear Templates, and Surface Templates.

The Feature Name is assigned in creation of the element. If a Feature Name is NOT manually entered, then a default name is automatically assigned based on the name of the Feature Definition.

Elements should always be assigned a logical Feature Name for the following reasons:

- When Alignment, Profiles, Corridors, and Terrain Models are exported as **Physical Data** for construction staking, the Feature Name is embedded in the exported file.
- If Feature Names are NOT assigned, then it is very difficult to distinguish between elements in the **OpenRoads Modeling** drop-down found in the Explorer .

## 17A.1 Feature Definitions and Levels

The Feature Definition controls the Level, Color, Line Style, Weight and other graphical properties of the element. Changing the Feature Definition will automatically change the Level and other graphical properties.

The diagram shows two side-by-side screenshots of a software interface. The left screenshot shows a road element with a red and blue line, labeled "Feature Definition: 'Baseline'" and "Level: 'P\_HAL\_Centerline'". The right screenshot shows the same road element with a yellow line, labeled "Feature Definition: 'Edge of Pavement'" and "Level: 'P\_RDW\_Edge\_of\_Pavement'". A purple arrow points from the left to the right. Below each screenshot is a "Properties" window. The left "Properties" window shows the "Feature" section with "Feature Definition" set to "Baseline". The right "Properties" window shows "Feature Definition" set to "Edge of pavement". A purple box labeled "1" points to the "Feature Definition" dropdown in both windows, with the text "Feature Definition is changed from 'Baseline' to 'Edge of Pavement'". A purple box labeled "2" points to the "Level" property in both windows, with the text "Level, Color, Line Style, and Weight is automatically changed".

**Feature Definition: "Baseline"**  
Level: "P\_HAL\_Centerline"

**Feature Definition: "Edge of Pavement"**  
Level: "P\_RDW\_Edge\_of\_Pavement"


**1**  
Feature Definition is changed from "Baseline" to "Edge of Pavement"

**2**  
Level, Color, Line Style, and Weight is automatically changed

**WARNING:** If an element is assigned a Feature Definition, do NOT manually change the Level. When the element is edited, the Level will automatically revert to the Feature Definition's default Level.

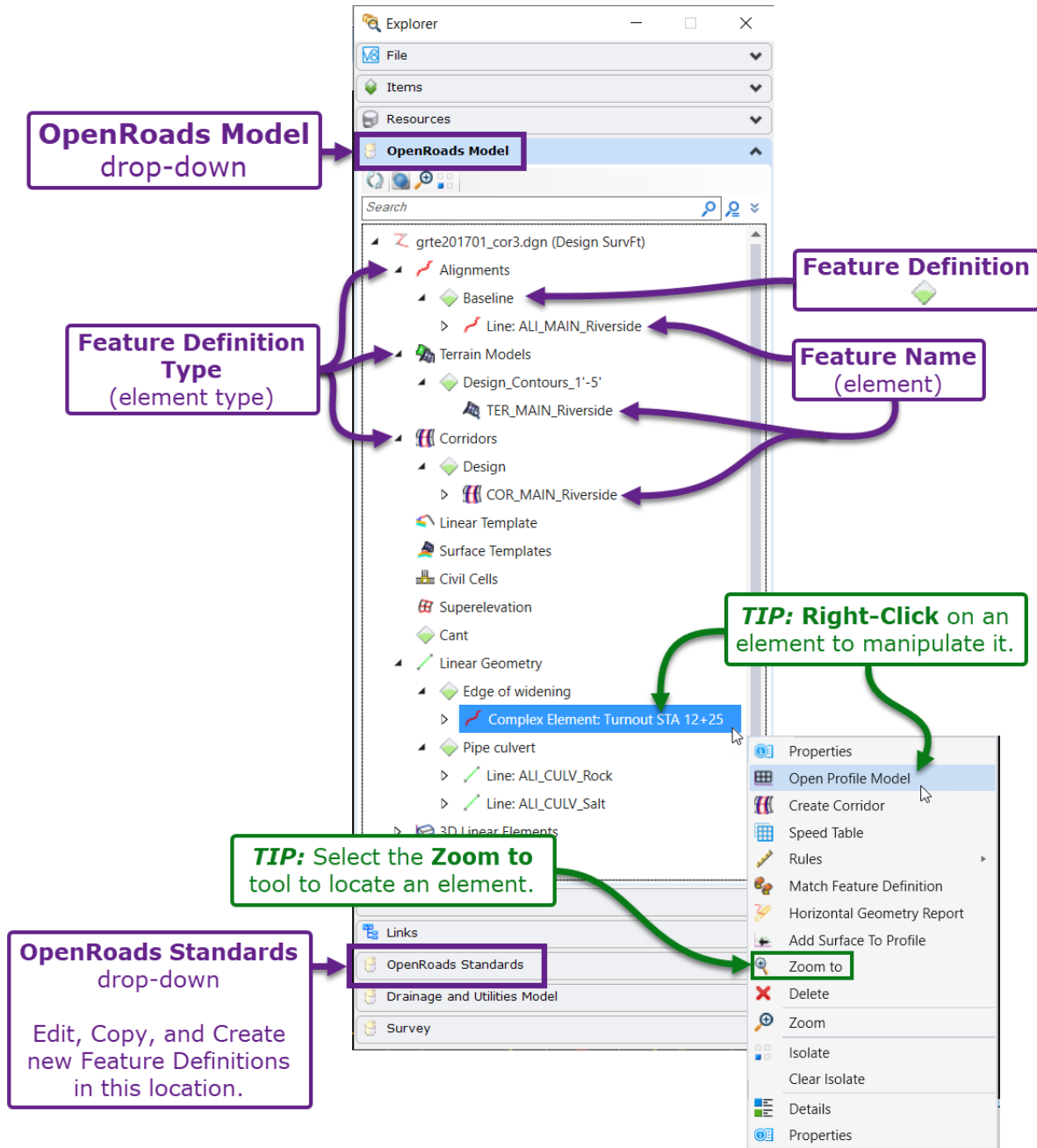
**BACKGROUND INFORMATION:** Each Feature Definition is assigned an Element Template. An Element Template is a set of properties and attributes, such as Level, Color, Line Style, Weight, and Material. To view the Element Template and other properties assigned to a Feature Definition, see [17C.2 Edit an Element Template](#).

## 17A.2 Featurized Elements in the Explorer (OpenRoads Model)

Every element that contains a Feature Definition is shown and organized in the Explorer  under the **OpenRoads Model** drop-down. Also, elements can be directly manipulated from this location.

The OpenRoads Model drop-down is organized by:

**Feature Definition Type** → **Feature Definition** → **Feature Name (element)**



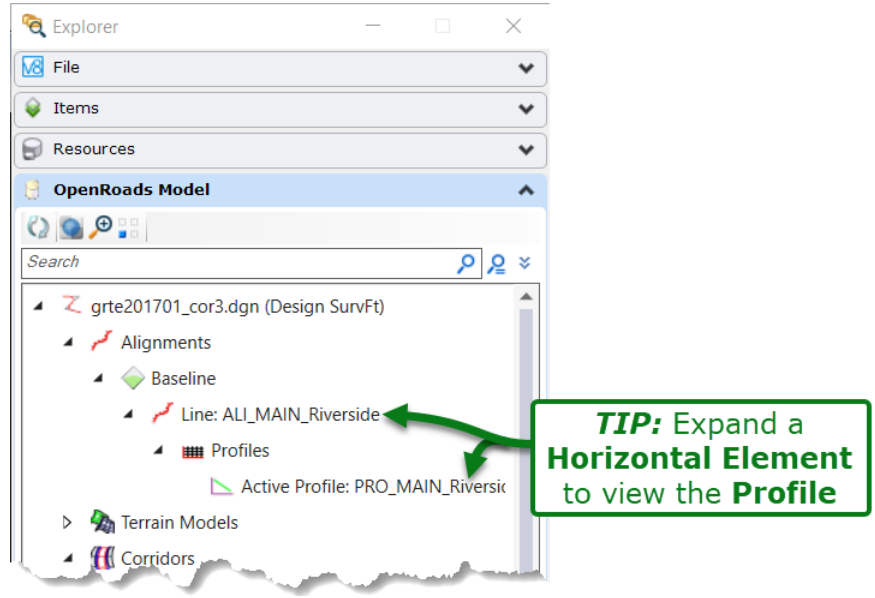
The screenshot shows the Explorer window with the following callouts and annotations:

- OpenRoads Model drop-down**: Points to the 'OpenRoads Model' folder in the Explorer.
- Feature Definition Type (element type)**: Points to the 'Alignments' folder.
- Feature Definition**: Points to the 'Baseline' folder.
- Feature Name (element)**: Points to the 'Line: ALI\_MAIN\_Riverside' element.
- TIP: Right-Click on an element to manipulate it.**: Points to the context menu for the 'Complex Element: Turnout STA 12+25'.
- TIP: Select the Zoom to tool to locate an element.**: Points to the 'Zoom to' option in the context menu.
- OpenRoads Standards drop-down**: Points to the 'OpenRoads Standards' folder in the Explorer. Below it, text reads: "Edit, Copy, and Create new Feature Definitions in this location."

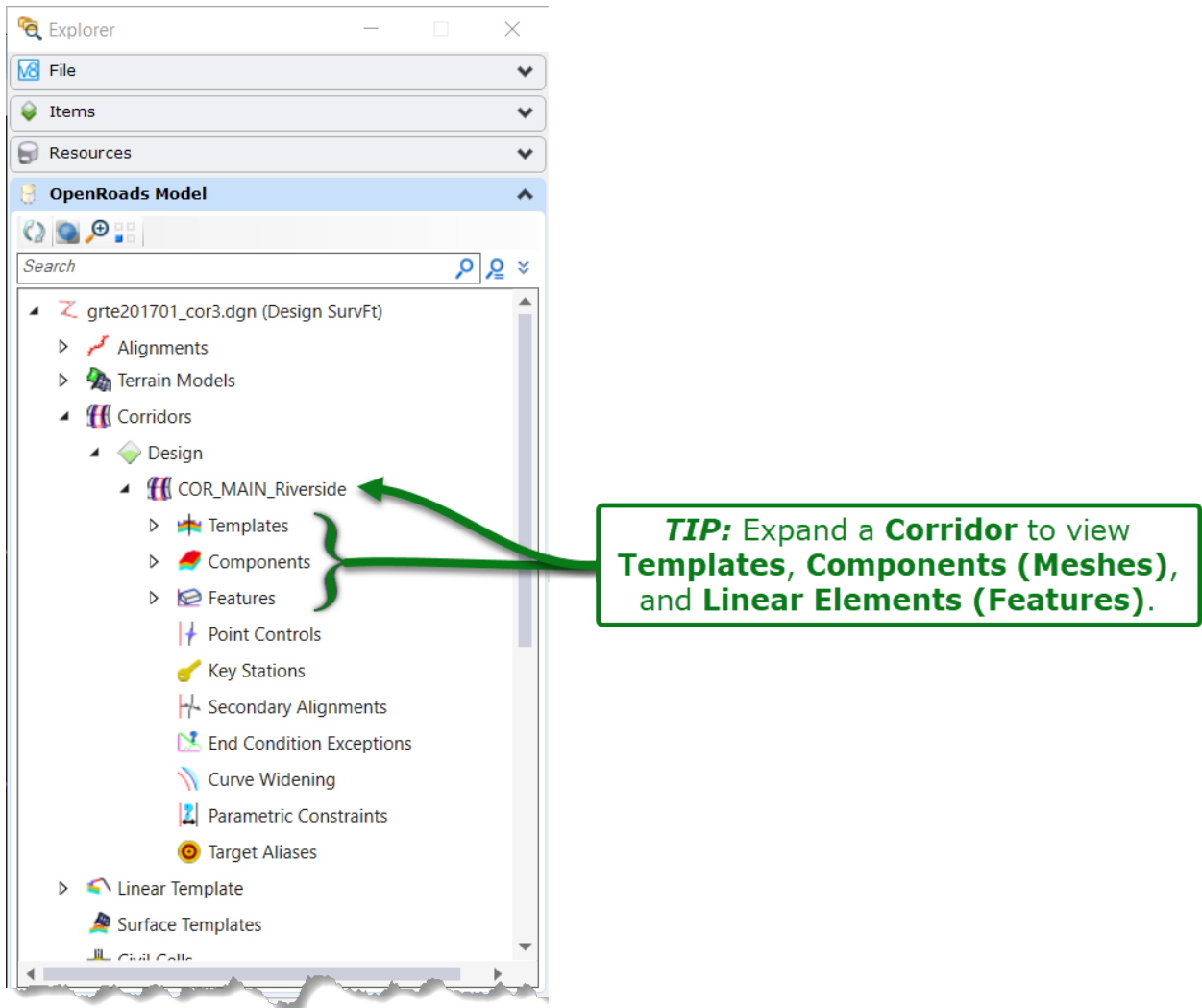
**NOTE:** The **OpenRoads Model** drop-down (shown above) is for organizing and manipulating elements created in the current ORD File. The **OpenRoads Standards** drop-down shows all Feature Definitions in the FLH Workspace and can be used to edit or create a new Feature Definitions.

**NOTE:** Always assign featurized elements an appropriate Feature Name. If Feature Names are NOT assigned, then it is difficult to distinguish between elements in the OpenRoads Standards drop-down.

**TIP:** For Alignments and Linear Geometry, the corresponding Profile element can be seen by expanding the horizontal element.



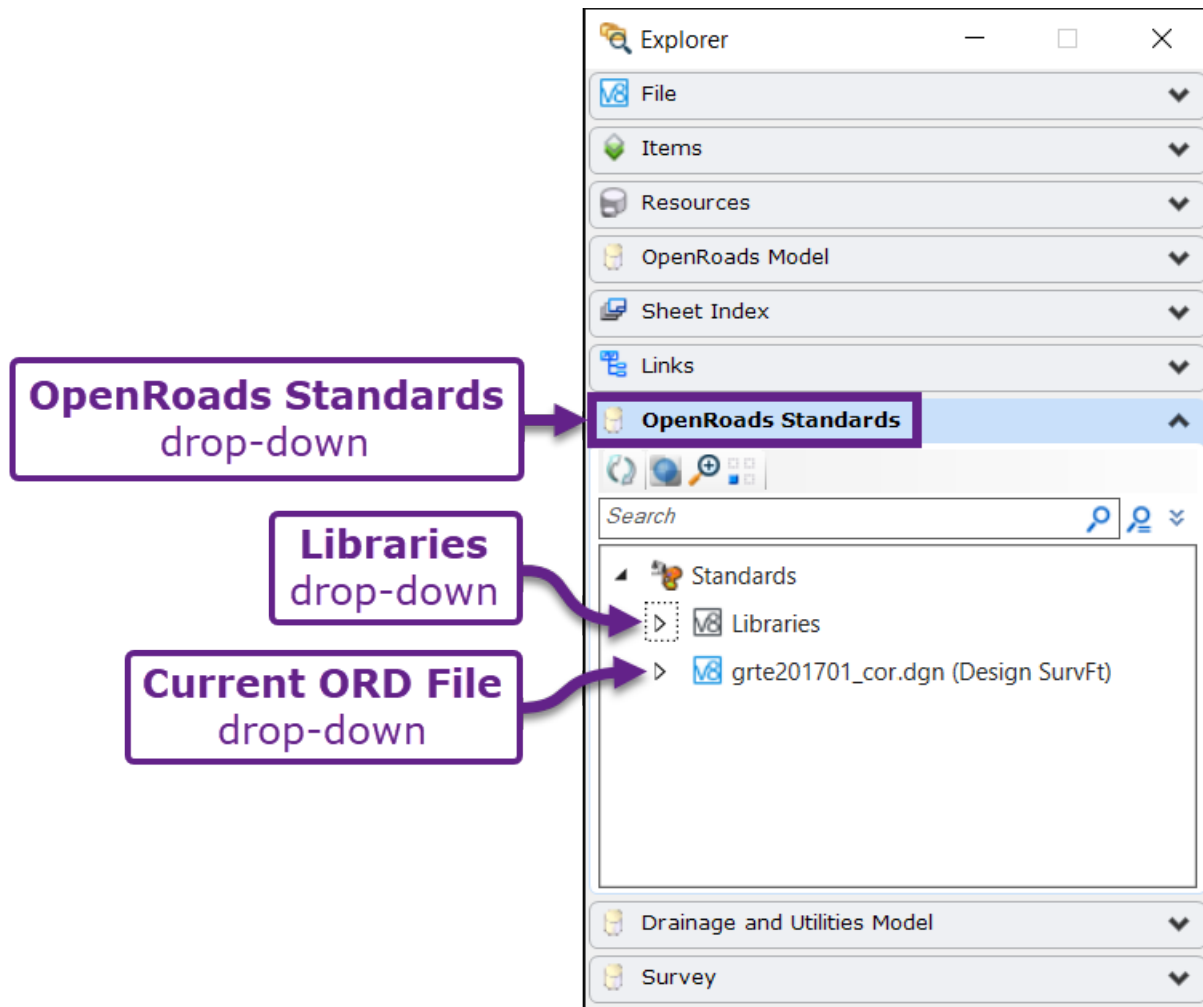
**TIP:** Expand a Corridor to view all Linear Elements (Features) and Components (Meshes) that are generated by the Corridor.



### 17A.3 Feature Definitions in the Explorer (OpenRoads Standards)

Feature Definition are shown and edited in the OpenRoads Standards drop-down in the Explorer.

The OpenRoads Standards drop-down is organized into two parts: the Libraries drop-down and Current ORD File drop-down.



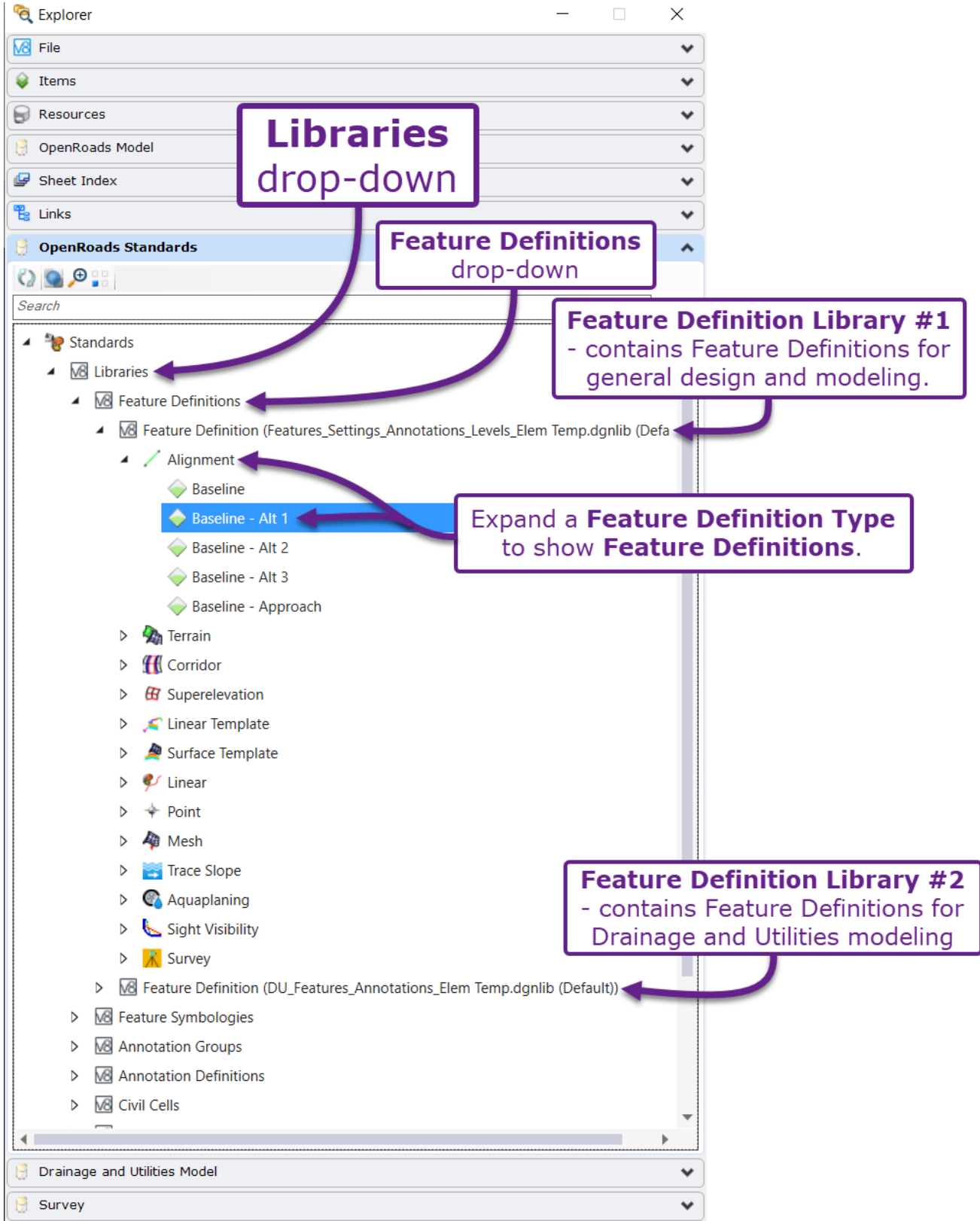
**Libraries:** All Feature Definitions in the FLH WorkSpace are shown in the Libraries drop-down. However, Feature Definitions CANNOT be edited from the Libraries location.

**Current ORD File:** The second drop-down is named after the current ORD File. Only Feature Definitions that are used in the current ORD File are shown in this location. Any Feature Definition found in this drop-down can be edited.

**Libraries:** Under the Libraries drop-down, there are two Feature Definition Libraries.

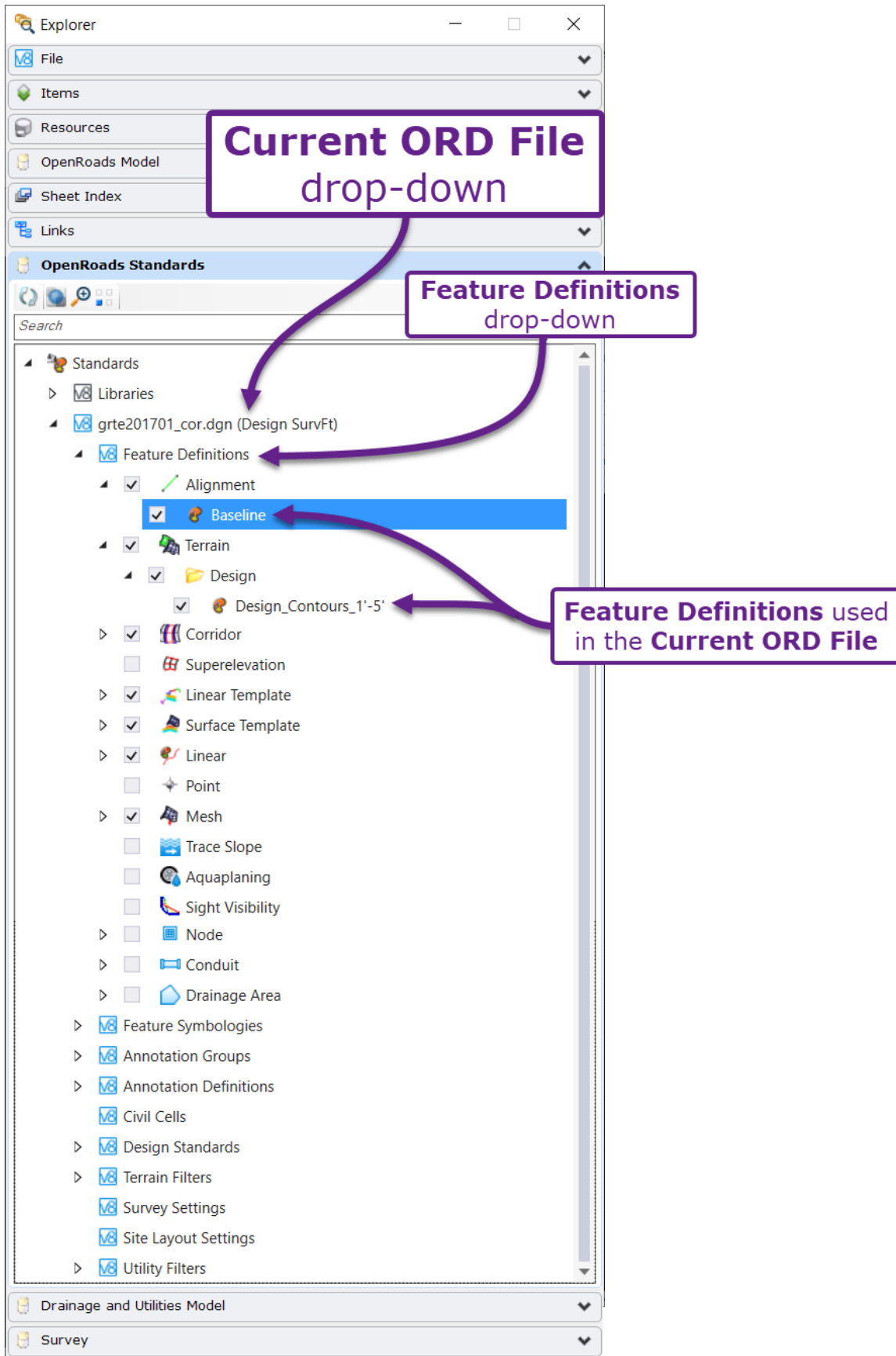
**Feature Definition Library #1: Features\_Settings\_Annotations\_Levels\_Elem Temp.dgnlib** – This library contains the vast majority of Feature Definitions in the FLH Workspace.

**Feature Definition Library #2: DU\_Features\_Settings\_Annotations\_Elem Temp.dgnlib** – This library ONLY contains Feature Definitions used in Drainage and Utilities (SUDA) modeling.





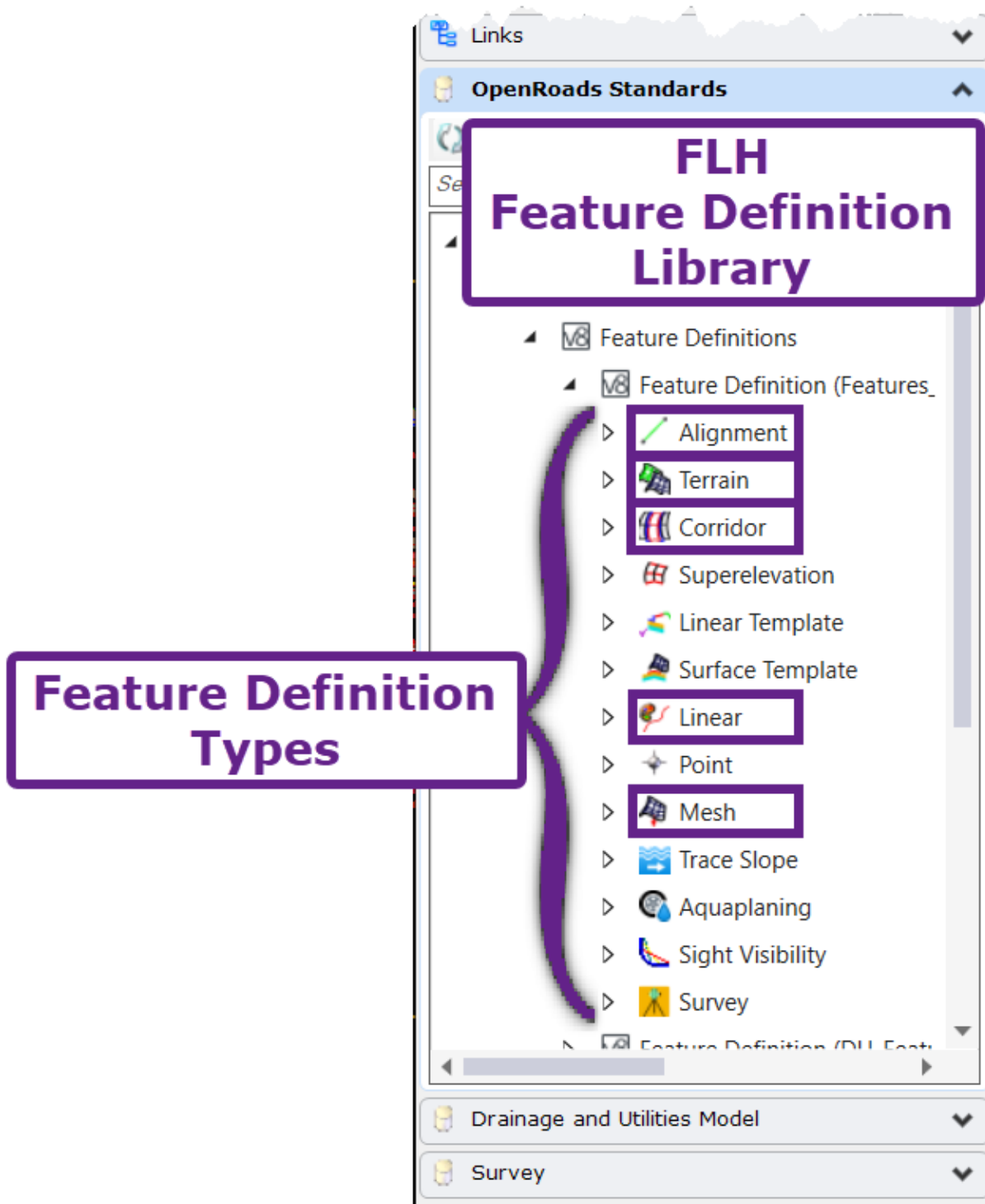
**Current ORD File:** Only Feature Definitions used in the current ORD File are shown in this location.



**TIP:** To view and edit properties of a Feature Definition, right-click on it and select *Edit Feature Definition*.

## 17B – FEATURE DEFINITION TYPES AND LIBRARIES

Feature Definition libraries are sorted by element type. The graphic below shows all Feature Definition types used in the FLH WorkSpace.



The following Feature Definition Types are commonly used: Alignment, Terrain, Corridor, Linear, and Mesh.

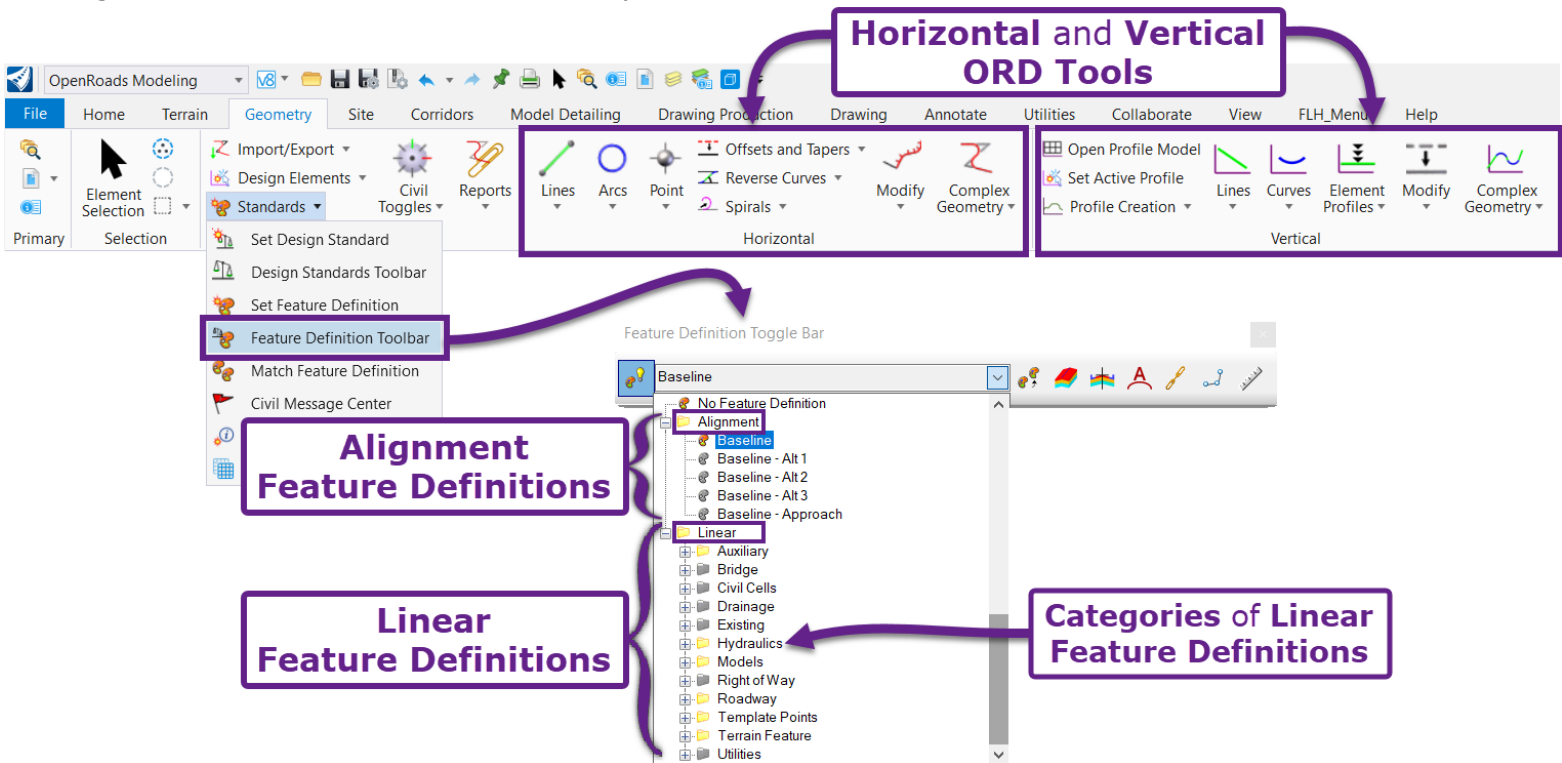
Understanding the functionality of these Feature Definition Types is necessary for modeling and quantities calculation operations.

## 17B.1 Alignment and Linear Feature Definitions

The **Alignment** and **Linear** Feature Definitions are used to draw Horizontal and Vertical (profile) ORD Elements.

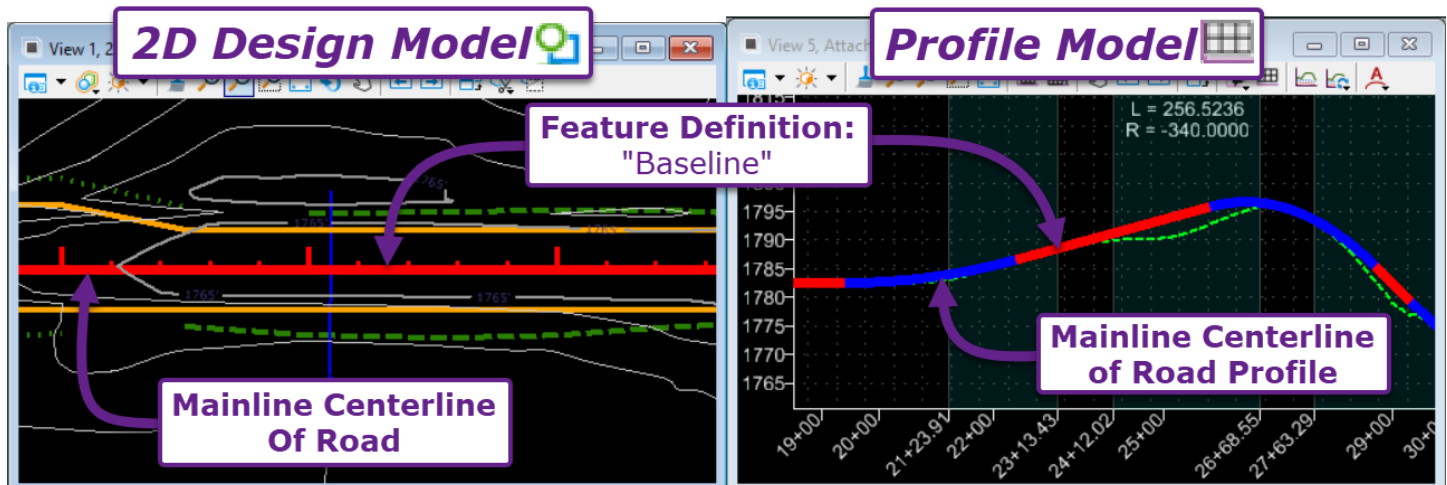
All **Alignment** and **Linear** Feature Definitions in the FLH Library are shown in the Feature Definition Tool Bar. The Feature Definition Toolbar is discussed in [7B.3 Feature Definition Toolbar](#).

**BEST PRACTICE:** Explore and become familiar with the categories and organization of the Alignment/Linear Feature Definition library.

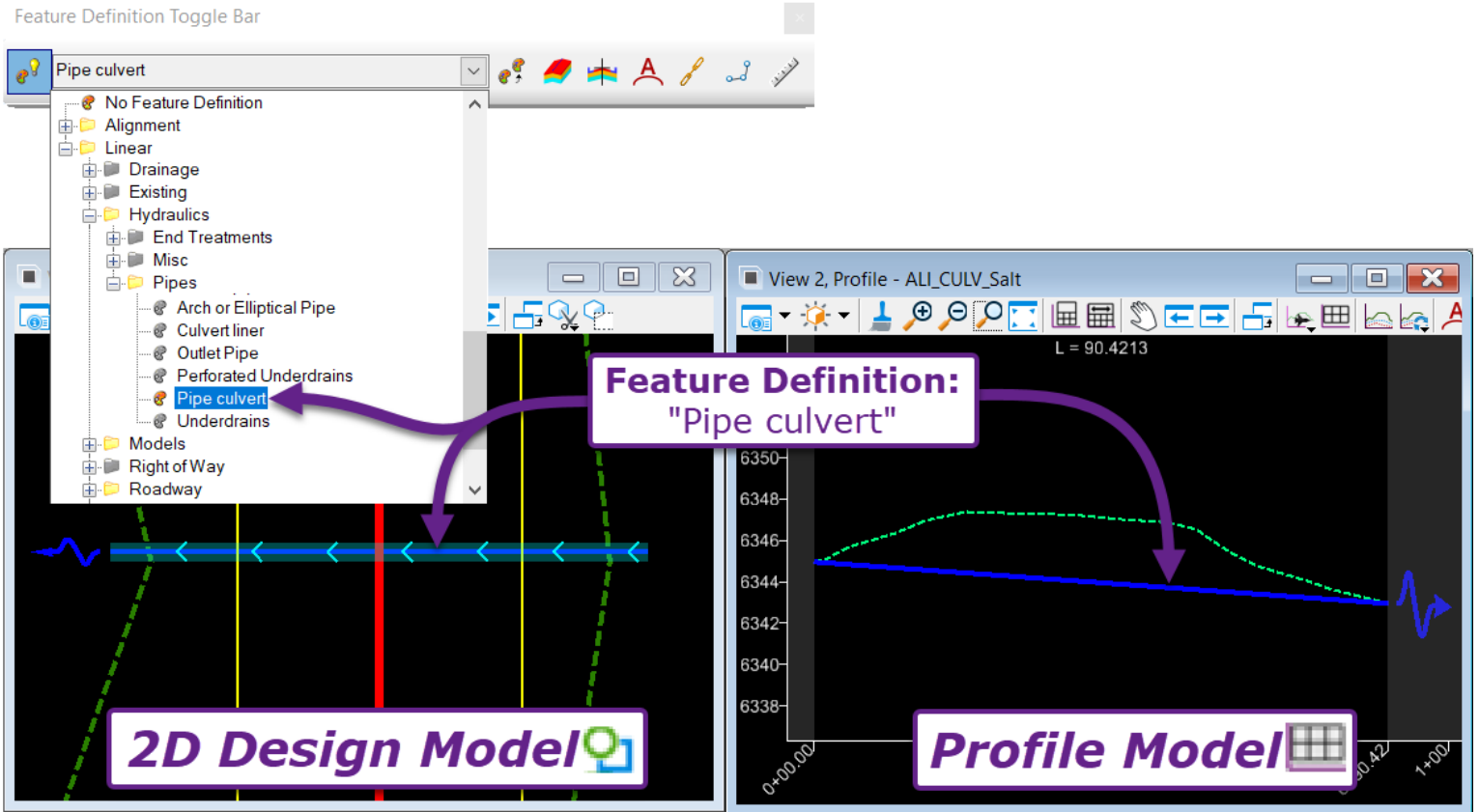


**Alignment Feature Definitions:** These Feature Definitions are specifically used to draw horizontal and vertical geometry for the proposed centerline of road. For example, the mainline centerline of road should be drawn with the "Baseline" Feature Definition. An intersecting approach centerline should be drawn with the "Baseline - Approach" Feature Definition.

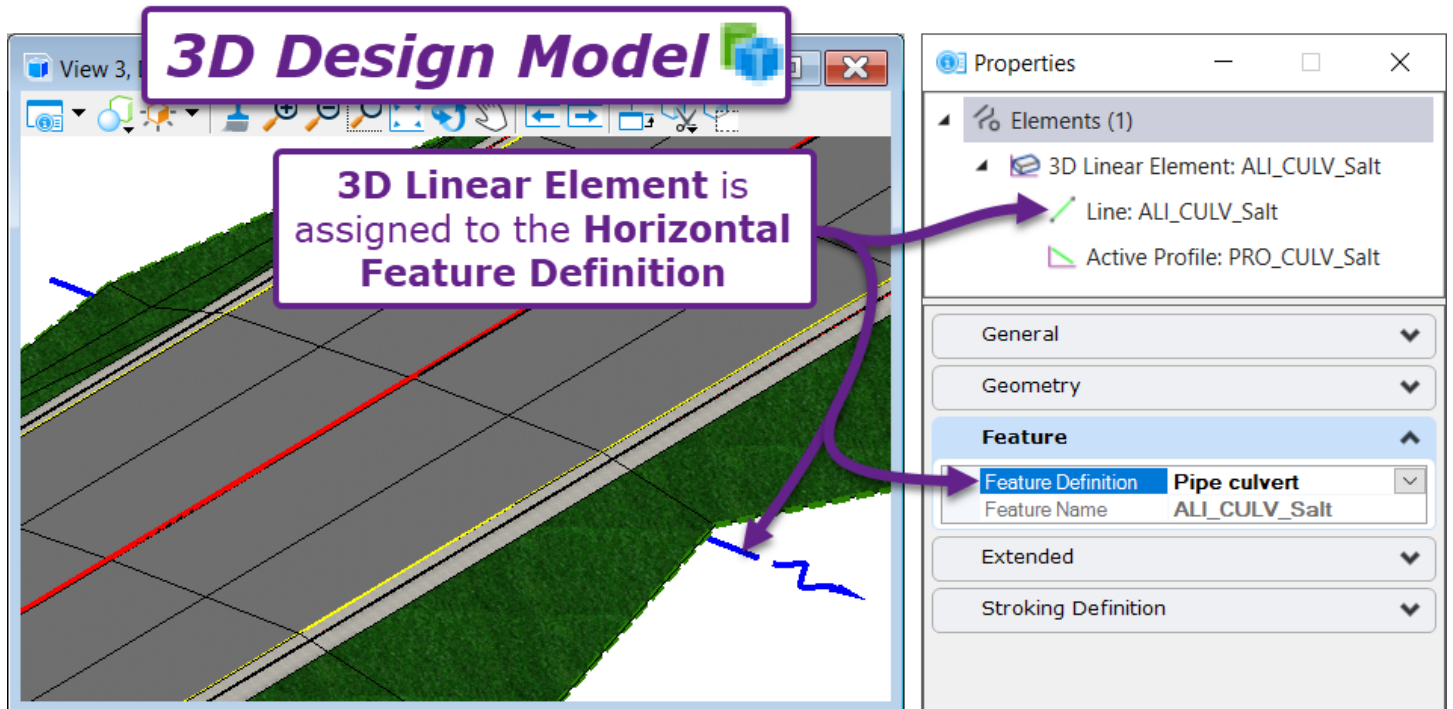
The "Baseline - Alt 1,2,3" Feature Definitions are intended for alternate alignments and temporary traffic control detour alignments.



**Linear Feature Definitions:** These Feature Definitions are used to draw horizontal and geometry. For example, the centerline and profile of a Culvert should be drawn with the "Pipe culvert" Feature Definition.

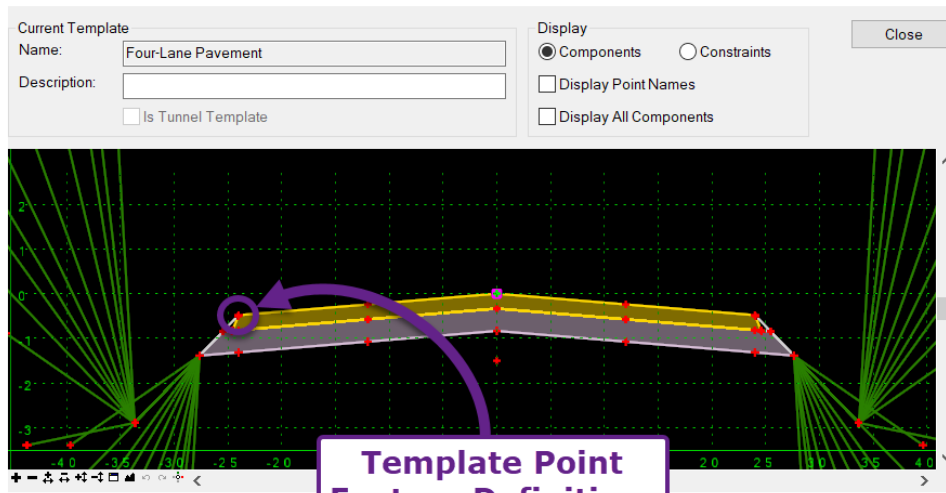


After the Profile element is *activated*, then a 3D Linear Element is created in the *3D Design Model*. The 3D Linear Element is assigned to the same Feature Definition as the horizontal element (in the *2D Design Model*).

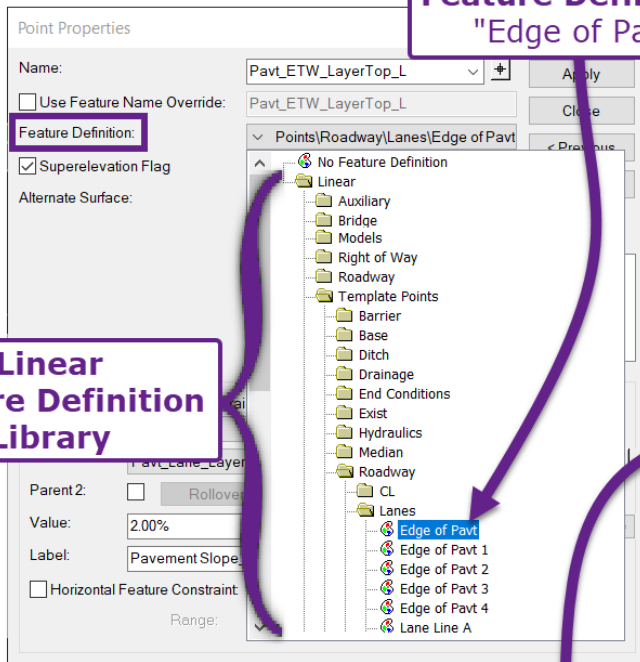


## 17B.1.a Linear Feature Definitions in Corridor Modeling

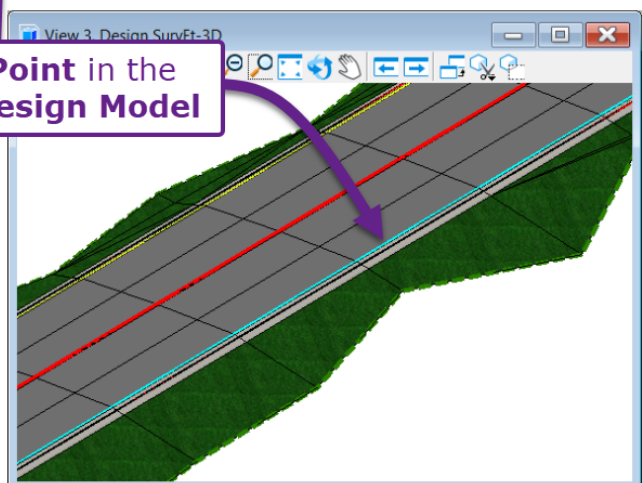
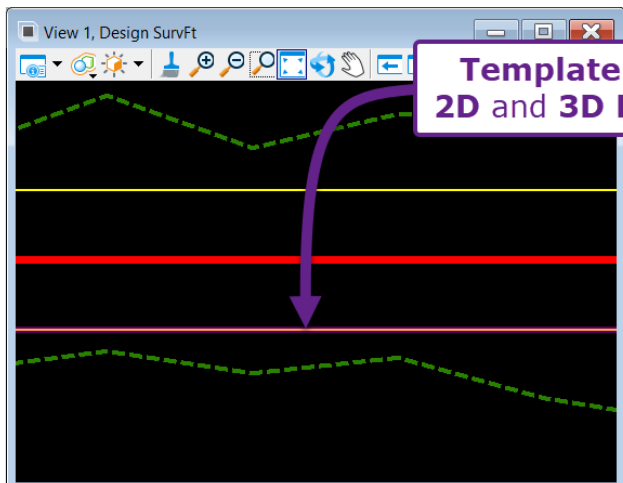
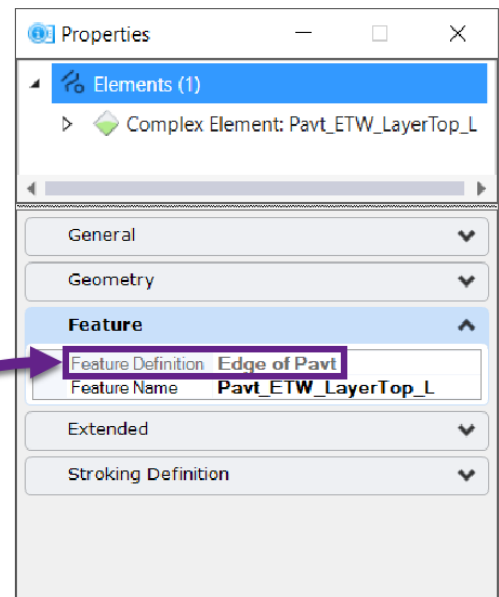
In Corridor modeling, **Template Points** are extruded as 2D and 3D Linear Elements. Feature Definitions for the resulting 2D and 3D Linear Elements are assigned in the Template Point Properties menu. Template Points utilize the Linear Feature Definition library.



Template Point Feature Definition: "Edge of Pavt"



Linear Feature Definition Library



Template Point in the 2D and 3D Design Model

## 17B.1.b Create Template Geometry Setting for Corridor Modeling

By default, a small selection of Template Points is created directly in the *2D Design Model* as 2D Linear Elements. The Feature Definition determines if a 2D Linear Element is created from a Template Point.

For example, the "Edge of Pavt" Template Point produces a 2D Linear Element in the *2D Design Model*. The "Subgrade" Template Point does NOT.

The "Create Template Geometry" Feature Definition setting enables the creation of a 2D Linear Element. For the "Subgrade" Template Point, "Create Template Geometry" is set to False, which means a 2D Linear Element is NOT created.

The image is a composite screenshot illustrating the relationship between feature definitions and their resulting 2D Linear Elements in the design model. It includes the following components:

- Explorer:** Shows the 'OpenRoads Standards' tree with 'Subgrade' and 'Edge of Pavt' selected under the 'Linear' category.
- Current Template Panel:** Shows the 'Four-Lane Pavement' template with 'Display Point Names' and 'Display All Components' options.
- 2D Design Model:** A top-down view of a road layout. A callout box points to a yellow line, stating: 'Template Point Feature Definition: "Edge of Pavt" Created as a 2D Linear Element'. Another callout points to a grey area, stating: 'Template Point Feature Definition: "Subgrade" NOT shown in the 2D Design Model'.
- Subgrade Feature Definition Properties:** A 'Properties' window for 'Subgrade' showing 'Create Template Geometry = False'.
- Edge of Pavt Feature Definition Properties:** A 'Properties' window for 'Edge of Pavt' showing 'Create Template Geometry = True'.

**NOTE:** Feature Definition settings are accessed through the OpenRoads Standards drop-down in the Explorer. Accessing and editing Feature Definition settings is discussed in [17C – Feature Definition Settings and Editor](#).

## 17B.2 Mesh Feature Definitions

Mesh Feature Definitions are assigned to **Template Components** in Corridor, Linear Template, and Surface Template modeling.

The image displays a software interface for defining mesh features. It includes several windows and panels:

- Current Template:** Shows 'Name: Four-Lane Pavement' and 'Description:'. It has radio buttons for 'Components' (selected) and 'Constraints', and checkboxes for 'Display Point Names' and 'Display All Components'. A 'Close' button is present.
- 3D View:** A top-down view of a road cross-section with a mesh overlay. A callout box points to a specific layer: **Template Component Feature Definition: Pavement Layer 4**.
- Component Properties:** A central window with fields for 'Name: PavementLayer 4', 'Use Name Override: PavementLayer 4', and 'Description:'. The 'Feature Definition' dropdown is set to 'Mesh\Pavement\Pavement Layer 4'. A tree view on the right shows the hierarchy: Mesh > Pavement > Pavement Layer 4 (highlighted in blue). Other options include 'No Feature Definition', 'Leveling', 'Milling', 'Pavement Layer 1-5', and 'Pavement Surface'. Buttons for 'Apply', 'Close', 'Previous', and 'Next >' are on the right.
- Mesh Feature Definition Library:** A callout box pointing to the tree view in the Component Properties window.
- 3D Design Model:** A perspective view of the road design. A callout box points to a specific layer: **Pavement Layer 4** Level: P\_RDW\_Pavement\_Layer4. A callout box at the bottom identifies it as the **3D Design Model**.
- Properties:** A window showing 'Elements (1)' with 'Pavement Layer 4' selected. The 'Feature' section shows 'Feature Definition: Pavement Layer 4' and 'Feature Name: Pavement Layer 4'. The 'Civil Quantities' section includes:

Top Sloped Area	58902.8144 Sq.'
Planar Area	58574.1458 Sq.'
Volume	54300.7403 Cu.'

The 'Component Layer' section includes:

Description	
Start Station	0.000000
End Station	982.883284
Volume Option	Design

## 17B.2.a Mesh Feature Definitions in Quantity Calculations

When quantities are calculated, Template Components of the same Mesh Feature Definition are summed together in the report.

For example, if two disconnected Template Components are assigned the same Feature Definition, then their volumes will be summed together in the quantities report.

Current Template Name: Curb and Sidewalk

Display:  Components  Constraints

Display Point Names

Display All Components

**Feature Definition: Pavement Layer 4**

**These two Template Components are summed together in the report.**

Station	Named Boundary Name	Material	Count	Length	Top Sloped Area	Volume
N.A. Totals						
		Fill:			2925.285	
	Pavement Layer 4:		7373.149			2457.012
	Sidewalk Layer 1:		5898.517		1965.767	
	Curb Top:				1890.836	985.841
	Prop Clearing:		450.000			
	Edge of pavement:		982.883			
	Curb Back Agg Bot:		982.883			

Assign the disconnected Template Components different Feature Definitions to separate them in the quantities in the report.

Current Template Name: Curb and Sidewalk

Display:  Components  Constraints

Display Point Names

Display All Components

**Feature Definition: Curb Bottom**

**Feature Definition: Sidewalk Layer 4**

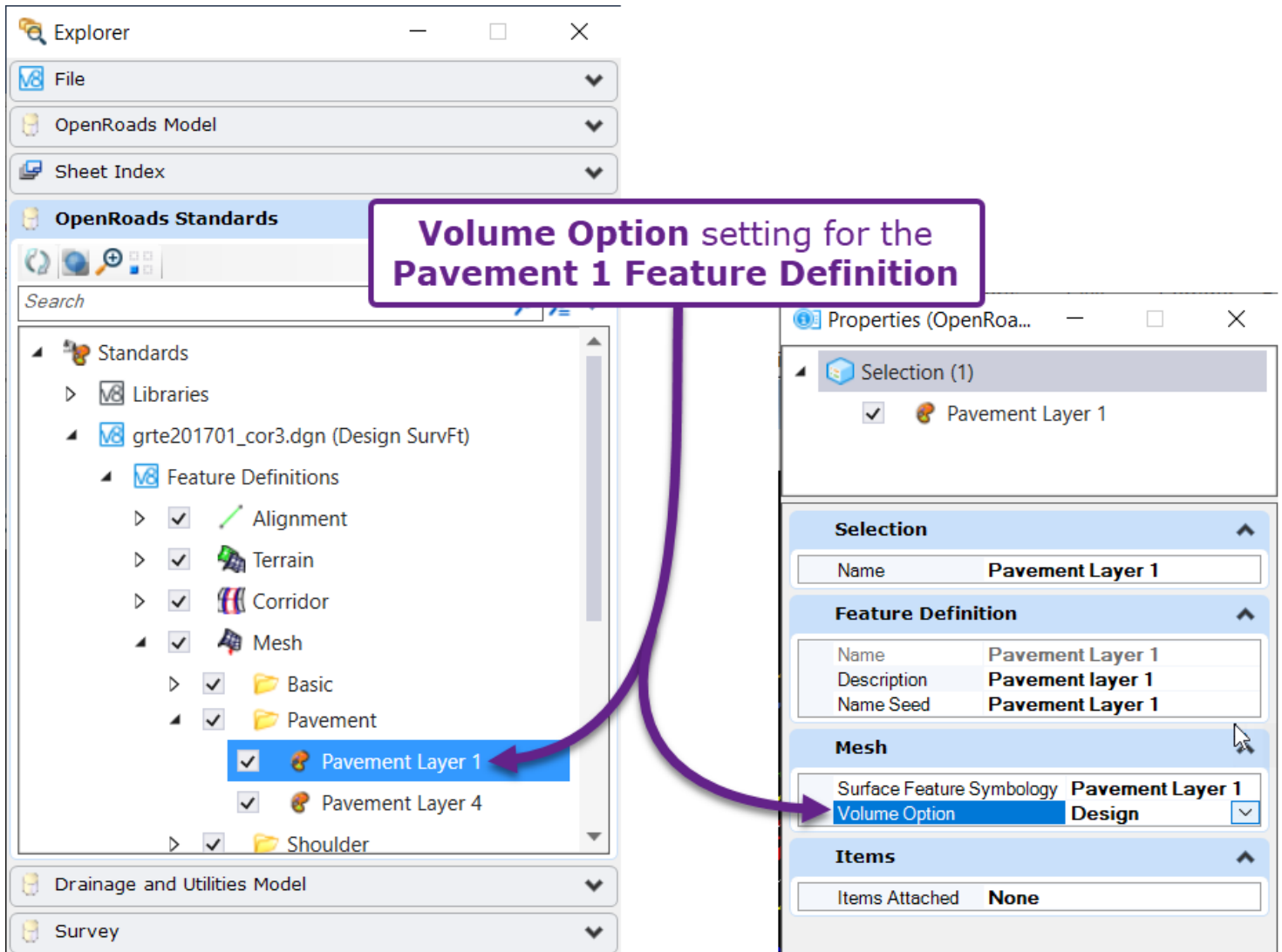
**These two Template Components are separated in the report.**

Station	Named Boundary Name	Material	Count	Length	Top Sloped Area	Volume
N.A. Totals						
		Fill:			2925.285	
	Curb Bottom:		1474.631			491.442
	Curb Top:		1890.836		985.841	
	Sidewalk Layer 1:		5898.517		1965.767	
	Sidewalk Layer 4:		5898.517		1965.570	
	Prop Clearing:		450.000			
	Edge of pavement:		982.883			
	Curb Back Agg Bot:		982.883			
	Curb Back Bot:		982.883			



## 17B.2.b Volume Option Setting for Earthwork Calculations

Volume Option is a Feature Definition setting that applies to Mesh and Terrain Feature Definitions ONLY. The Volume Option determines how Meshes and Terrains are analyzed in earthwork calculations. Volume Option is discussed in [20G – Advanced Information: Component Feature Definition and Volume Options](#).



**NOTE:** In the FLH WorkSpace, the Volume Option for each Mesh and Terrain Feature Definition is pre-configured. In most circumstances, it is unnecessary to alter the Volume Option.

When creating new Mesh Feature Definitions, ensure the Volume Option is set appropriately.

Proposed materials (i.e., asphalt and aggregate) should be set to the "Design" Volume Option for consideration in earthwork calculations. When an element is set to the "Design" Volume Option, then the cut/fill quantities are calculated for placement of the element, with respect to the existing ground elevation.

If a new Mesh Feature Definition should NOT be considered in earthwork calculations, then set the Volume Option to "None".

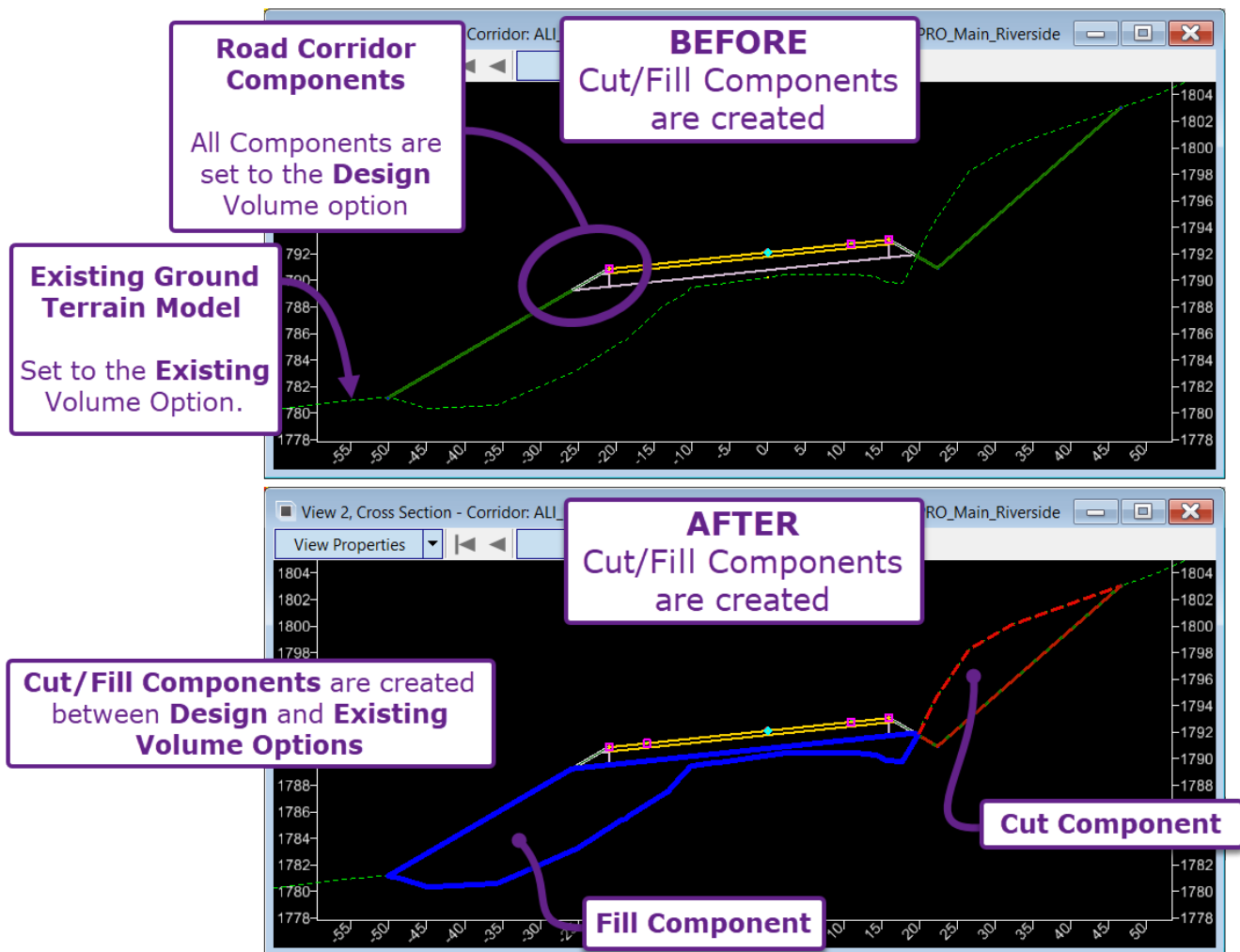
**BACKGROUND INFORMATION:** The *Create Cut Fill Volumes* tool creates Cut and Fill Mesh components, which are summed and tallied in quantities reports. To generate Cut and Fill Meshes, the Volume Option for all Template Components and Terrain Models are analyzed.

**NOTE:** The *Create Cut Fill Volumes* tool is discussed in **20B – Create Cut Fill Volumes tool and Earthwork Calculations.**


In the example shown below, ALL Road Corridor Components are assigned to the “Design” Volume Option. The *Create Cut Fill Volumes* seeks out the bottom of the “Design” Components to create a sub-grade datum.

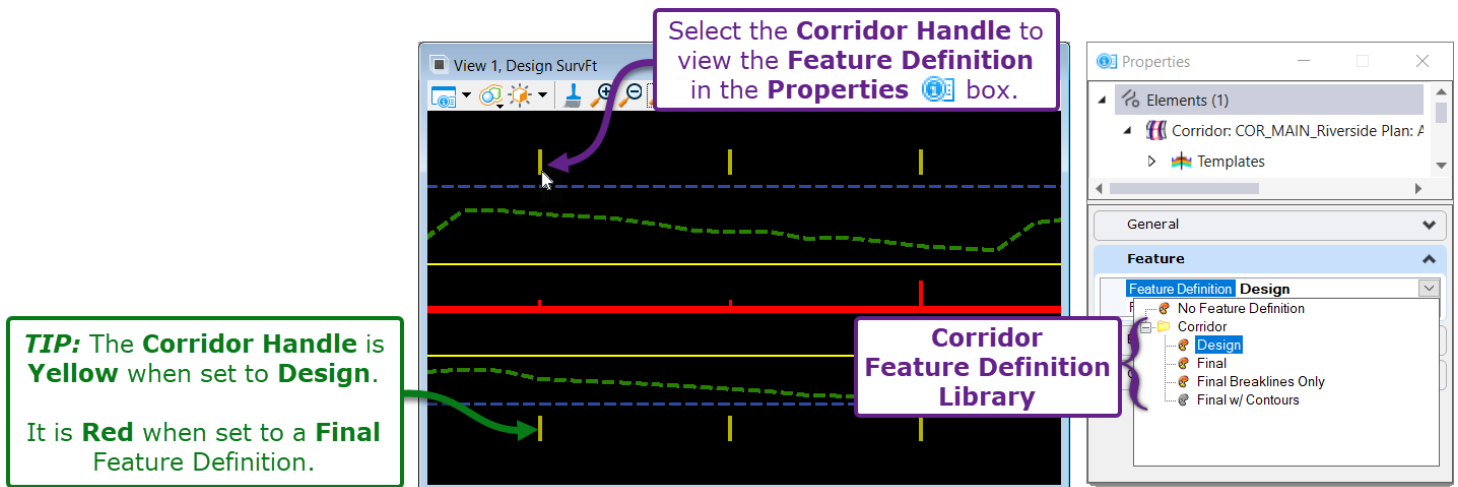
The Existing Ground Terrain Model is assigned to the “Existing” Volume Option.

Cut and Fill Components are created between the “Existing” Terrain Model and the sub-grade datum of the “Design” Components.



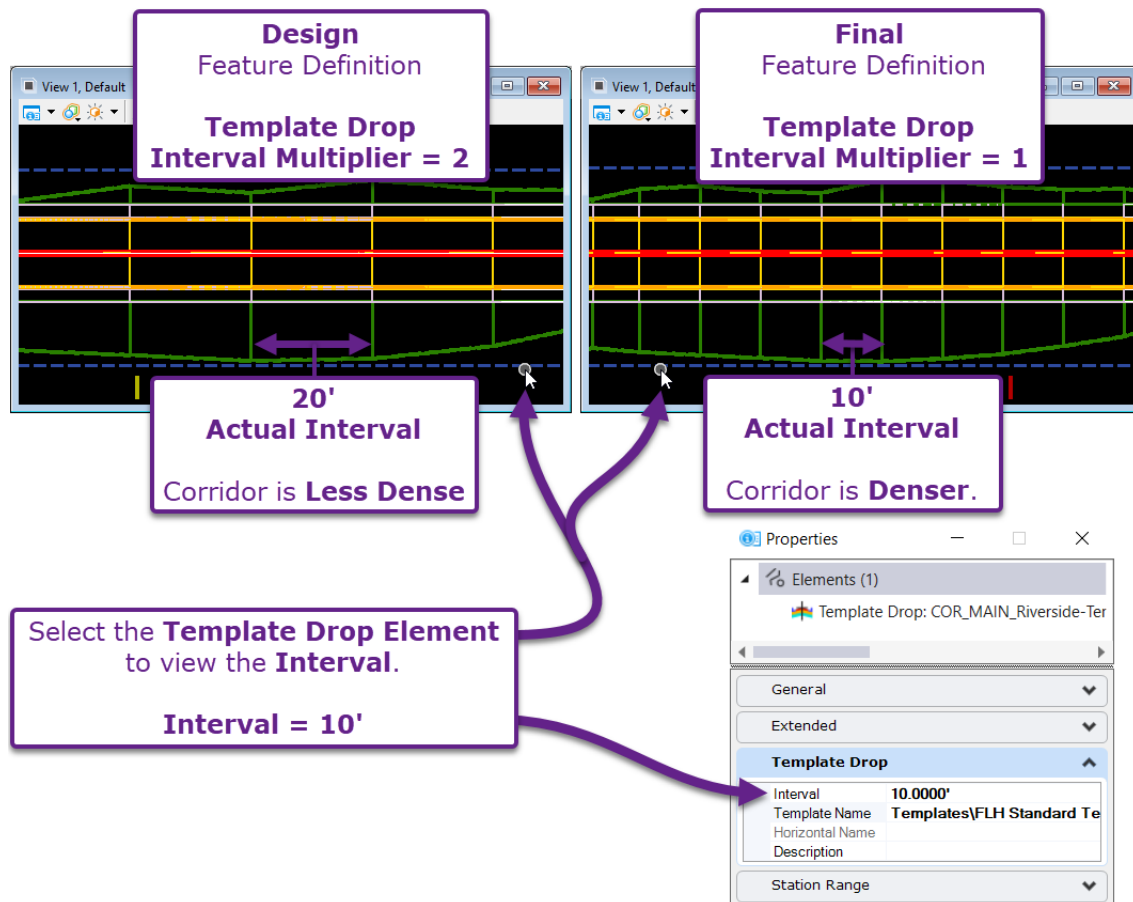
## 17B.3 Corridor Feature Definitions

The Corridor Feature Definition primarily affects the density of the Corridor. The Corridor Feature Definition Library is found and changed in the Properties  box when the Corridor Handle is selected. This section provides a high-level overview of the Corridor Feature Definitions. However, for more information, see [9D.2 Corridor Feature Definitions: Design and Final](#).



**Design:** When the Corridor Feature Definition is set to **Design**, the Interval is multiplied by 2. As shown below, the Interval is set to 10 feet in the Template Drop element properties. However, the actual Interval is 20 feet due to the Interval Multiplier imposed by the **Design** Feature Definition.

**Final:** When set to **Final**, the Template Drop Interval is set to 1. The actual Interval matches the Interval set in the Template Drop element properties.



**BEST PRACTICE:** The **Final** Feature Definition is easier to work with because there is no multiplier applied to the Template Drop Interval. However, the **Final** Feature Definition may increase processing times because the Corridor is denser. When set to the **Design** Feature Definition, the Corridor is less dense and will process faster.


It is acceptable to set and leave the Corridor Feature Definition assigned to **Final** if processing times are acceptable. For example, relatively simple Corridors will NOT suffer a significant performance decline when set to the **Final** Feature Definition.




For complex Corridors, it is recommended that the Corridor Feature Definition is set to **Design** when edits are being made to the Corridor, Alignment, Profile, and all elements that interact with the Corridor. Set the Corridor to the **Final** Feature Definition when performing the following tasks:

- **Calculating Quantities:** Quantities will be more accurate if the Corridor is denser.
- **Creating Proposed Terrain Models from the Corridor:** The Proposed Terrain Model will be smoother, and a more accurate surface is produced.
- **Printing Road Plan and Profile Sheets:** When the Corridor is set to **Final**, the Cut/Fill linework will slightly alter because more Template Drop sections are added. It is advised that the Cut/Fill linework aligns with the resulting Proposed Terrain Model and Quantities Calculations.


After performing the tasks listed above, change the Corridor Feature Definition back to **Design**.

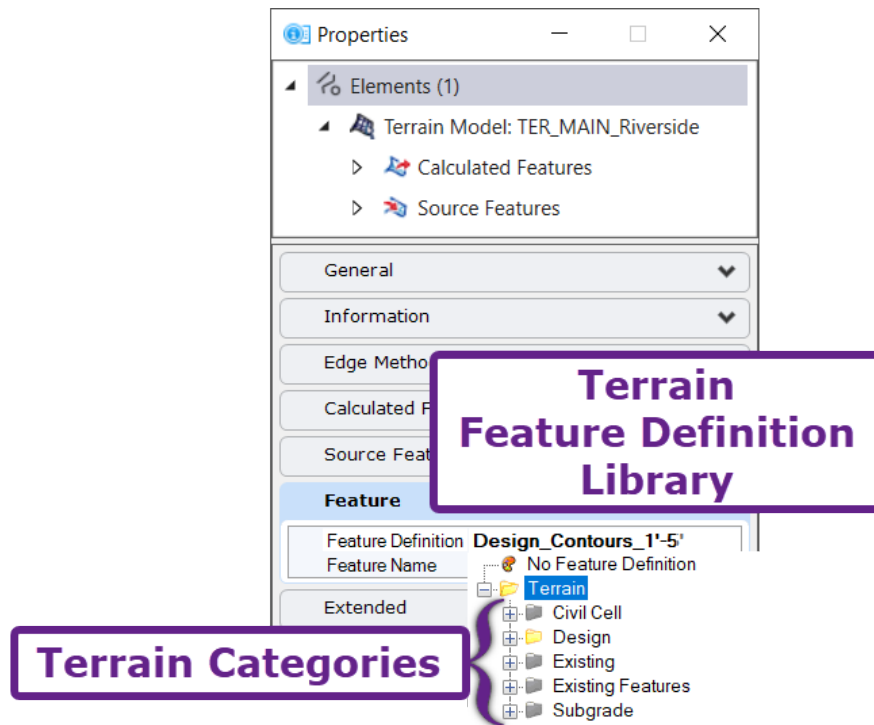
**Other Final Feature Definitions:** There are two other **Final** Feature Definitions that are used for specific tasks.

**Final Breaklines Only:** This Feature Definition is ONLY utilized when generating the 3D Breaklines DXF File for Physical Data package. See [23H – Proposed 3D Breaklines in DXF File Format](#). When switched to this Feature Definition, ONLY 3D breaklines are shown from the Corridor in the *3D Design Model* . All other Corridor elements (i.e., Components and Meshes) are hidden, making it easy to select the 3D Breaklines.

**Final w/ Contours:** When switched to this Feature Definition, elevation contours are shown around the Corridor Model. **NOTE:** The contours are placed in *3D Design Model* . The contours can only be seen in the *2D Design Model*  if the display for the *3D Design Model*  **reference** is toggled ON.

## 17B.4 Terrain Feature Definitions

Terrain Feature Definitions are used with Terrain Model elements. The Terrain Feature Definition Library is shown in the Properties  box when a Terrain Model is selected.



There are 5 categories of Terrain Feature Definitions:

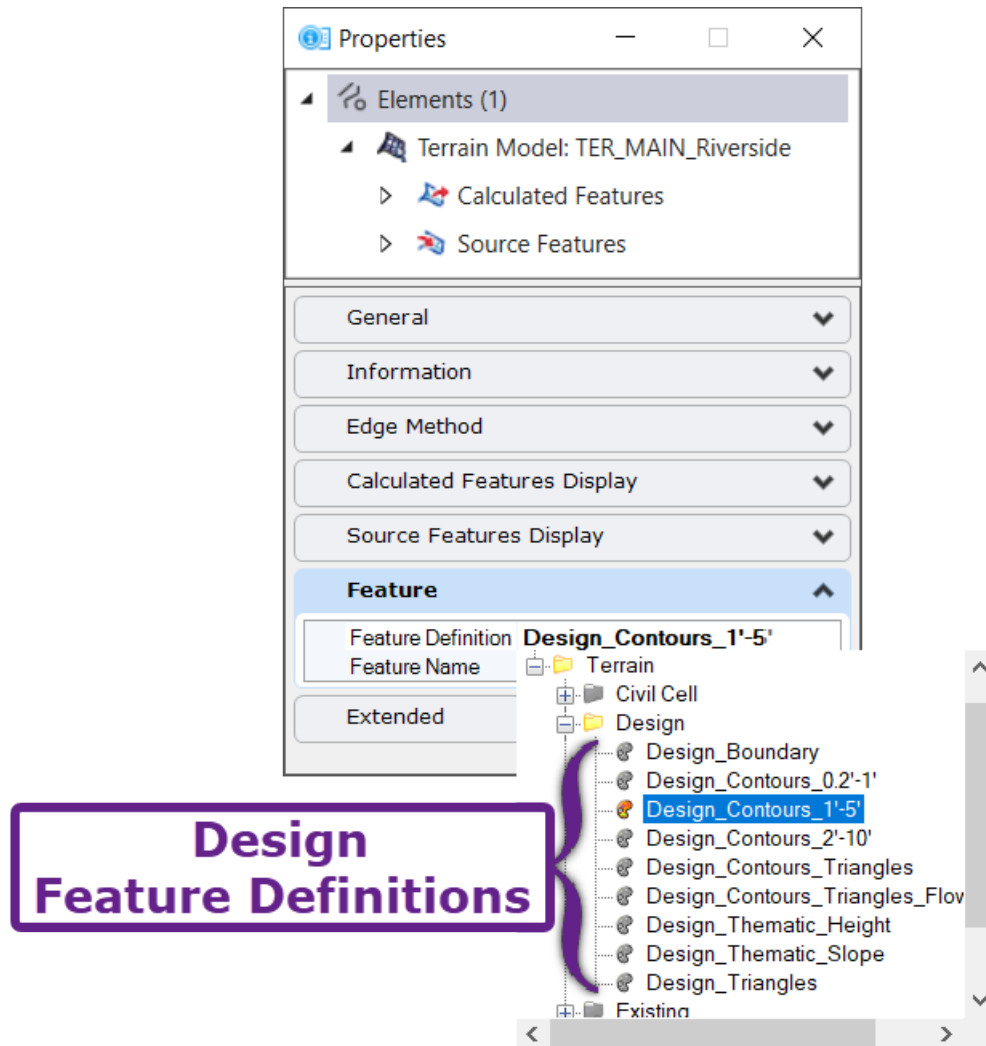
Terrain Model Feature Definition Categories		
Category:	Description:	Volume Option
<b>Existing</b>	Terrain Models that represent the Existing Ground surface.	Existing
<b>Existing Features</b>	Terrain Models that represent Existing Features, such as existing buildings, existing topsoil, existing gravel, and existing pavement. Existing Feature Terrain Models are primarily used to calculate and account for unsuitable materials in earthwork quantities.	None
<b>Design</b>	Terrain Models that represent the Finished Grade surface of a proposed feature.	Design
<b>Subgrade</b>	Terrain Models that represent the Subgrade surface of a proposed features.	Subgrade
<b>Civil Cell</b>	For use in Terrain Models within Civil Cells.	None

The category has two primary effects on a Terrain Model:

- **Printed Appearance:** When printed on paper or PDF, the category affects the color and line weights of the contours and contour labels. For example, the **Existing** category produces contours and labels that are light in color and line weight. The **Design** category produces darker and heavier weight contours.
- **Quantity Calculations:** The **Volume Option** is a Feature Definition setting that determines how the Terrain Model is treated in earthwork quantities calculations. The Volume Option setting also applies to Mesh Feature Definitions and is explained in [17B.2.b Volume Option Setting for Earthwork Calculations](#).

When a category drop-down is expanded, a list of Feature Definitions is shown. All Terrain Feature Definition adhere to the same naming convention. The Feature Definition name indicates which Terrain Model components are displayed.

For example, "Design\_Boundary" only shows the boundary of the Terrain Model. "Design\_Contours\_1'-5'" shows the minor and major contours (in 1' and 5' increments respectively) and the boundary of the Terrain Model.



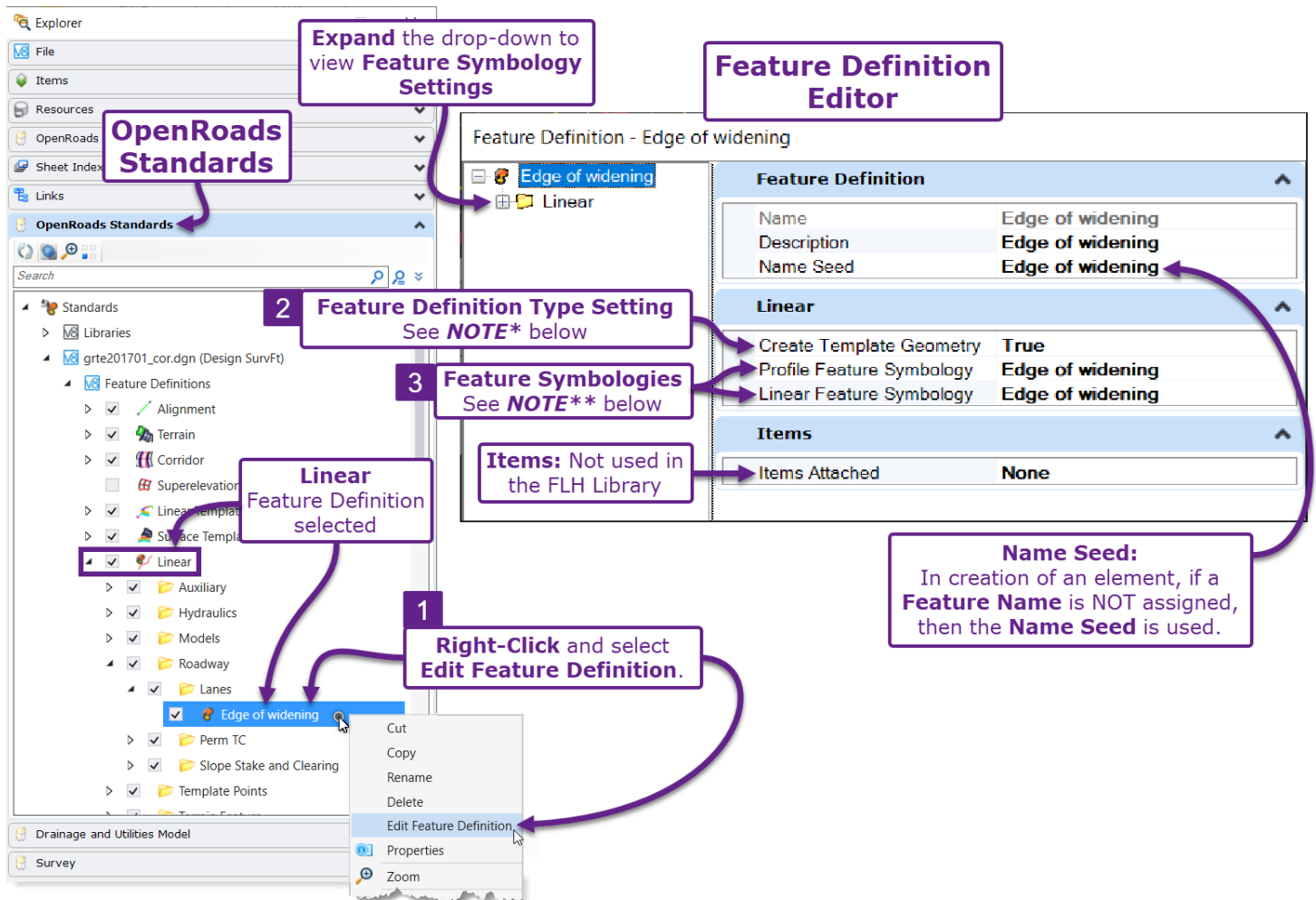
**NOTE:** Terrain Feature Definitions are graphically demonstrated in [5B.1 Feature Definition Settings for the Existing Ground Terrain Model](#).

## 17C – FEATURE DEFINITION SETTINGS AND EDITOR

Feature Definition settings are shown and edited in the Feature Definition Editor. The Feature Definition Editor is accessed through the **OpenRoads Standards** drop-down in the Explorer .

1

To open the Feature Definition Editor, right-click on a Feature Definition and select the **Edit Feature Definition** tool.



**OpenRoads Standards**

**Expand the drop-down to view Feature Symbology Settings**

**Feature Definition Editor**

**Feature Definition**

Name	Edge of widening
Description	Edge of widening
Name Seed	Edge of widening

**Linear**

Create Template Geometry	True
Profile Feature Symbology	Edge of widening
Linear Feature Symbology	Edge of widening

**Items**

Items Attached	None
----------------	------

**Linear Feature Definition selected**

**Items: Not used in the FLH Library**

**Name Seed:**  
In creation of an element, if a **Feature Name** is NOT assigned, then the **Name Seed** is used.

**1 Right-Click and select Edit Feature Definition.**

**2 Feature Definition Type Setting See NOTE\* below**

**3 Feature Symbologies See NOTE\*\* below**

The graphic above shows the general settings for a **Linear** Feature Definition. Feature Definition settings are slightly different, depending on the selected Feature Definition Type.




2

**Feature Definition Type Settings:** These settings are unique to the type of Feature Definition.

**NOTE\*:** The "Create Template Geometry" setting is shown when a Linear Feature Definition is selected. The "Volume Option" setting is shown when a Mesh or Terrain is selected.

3

**Feature Symbology:** The Feature Symbology setting determines the graphical appearance and annotation capabilities of the Feature Definition. On the left-side of the editor, expand the drop-downs to show Feature Symbology settings.

**NOTE\*\*:** Most Feature Definition Types only have a single Symbology setting. However, the **Alignment** and **Linear** types have two Symbologies: **Linear** and **Profile**. The **Linear Feature Symbology** controls the Feature Definition appearance in the *2D Design Model*  and *3D Design Model* . The **Profile Feature Symbology** controls the appearance in the *Profile Model* .

## 17C.1 Feature Symbolgies and Element Templates

Feature Symbolgies are a collection of settings that determine how the Feature Definition appears in different Models and Dynamic Views.

Feature Symbolgies use **Element Templates** to set the graphical properties and attributes for the Feature Definition in specific Models and Dynamic Views. Typically, the Element Template is simple set of properties consisting of a Level, Color, Line Style, and Weight. However, other settings can be assigned to an Element Template, such as Cells and Materials.

**Feature Symbolgy Settings**

Feature Definition - Edge of widening

Edge of widening

- Linear
  - Linear Feature Symbolgy
  - Defaults
    - Default Element Template
  - Plan
    - Element Template
  - Profile Intersection
    - Element Template
  - 3D
    - Element Template
  - Dynamic Cross Section
    - Element Template
  - Profile Feature Symbolgy

Parent Feature Definition	
Linear Feature Symbolgy	Edge of widening
1 Defaults	
Default Element Template	Proposed\Pavement\Edge of Widen
2 Plan	
Annotation Group	None
Element Template	None
Arc Element Template	None
Spiral Element Template	None
3 Profile Intersection	
Element Template	Proposed\Profiles\Intersecting Profile
4 3D	
Annotation Group	None
Element Template	None
5 Dynamic Cross Section	
Crossing Point Element Template	None

Applied Element Templates

Expand each Sub-Folder to reveal Element Templates.

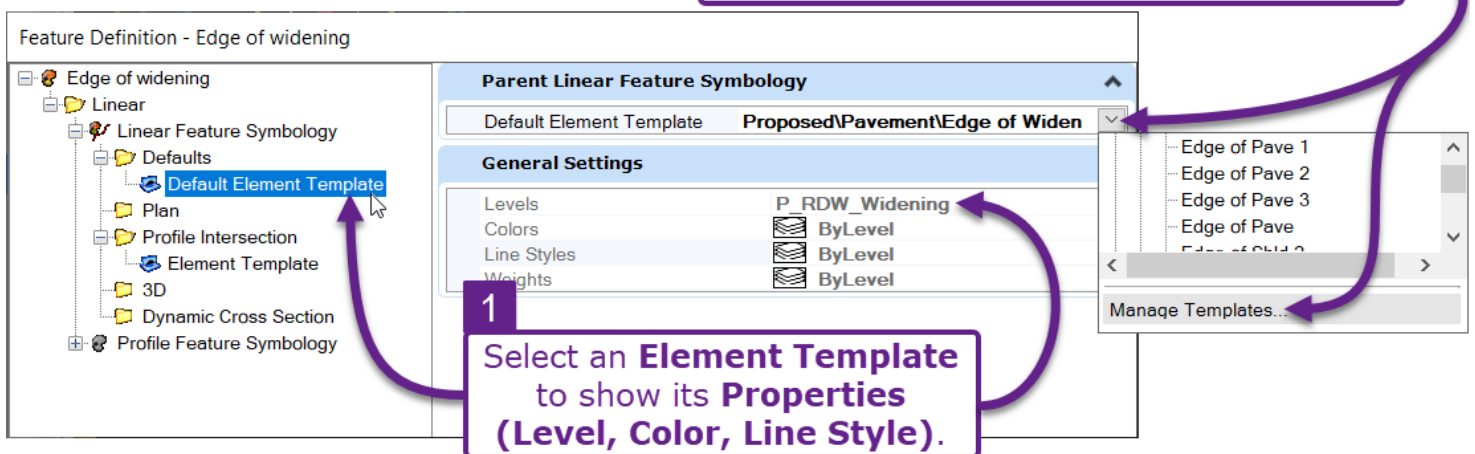
<b>1</b>	<p><b>Defaults:</b> This is the master Element Template. The Default Element Template is used when an Element Template is NOT assigned in a View category (i.e., Plan, Profile Intersection, 3D, Dynamic Cross Sections).</p> <p>For example, in the graphic above, the <b>3D Element Template</b> is set to None meaning that the Default Element Template is used when the Feature Definitions is shown in <i>3D Design Model</i> 🏗️.</p>
<b>2</b>	<p><b>Plan:</b> Determines the Feature Definition properties in the <i>2D Design Model</i> 🗺️ (plan view). This category is unique because a separate Element Template can be assigned for the <b>Arc</b> and <b>Spiral</b> portions of the Linear element.</p> <p><b>NOTE:</b> The “Baseline” Feature Definition utilizes these options to show the <b>Line</b> portions in Red, <b>Arcs</b> in blue, and <b>Spirals</b> in white.</p>
<b>3</b>	<p><b>Profile Intersection:</b> This category is relevant when the <i>Profile Intersection Point</i> tool is used.</p> <p><b>NOTE:</b> Most Feature Definitions use the “Proposed/Profiles/Intersecting Profile” Element Template to show a pink dot when the <i>Profile Intersection Point</i> tool is used.</p>
<b>4</b>	<p><b>3D:</b> Determines the Feature Definition properties in the <i>3D Design Model</i> 🏗️.</p>
<b>5</b>	<p><b>Dynamic Cross Section:</b> Determines the Feature Definition properties in <i>Dynamic Cross Section View</i> 🗺️ for a Corridor.</p> <p><b>NOTE:</b> Guardrail Feature Definitions use an Element Template that contains a Cell to show a guardrail graphic in the <i>Dynamic Cross Section View</i> 🗺️.</p>



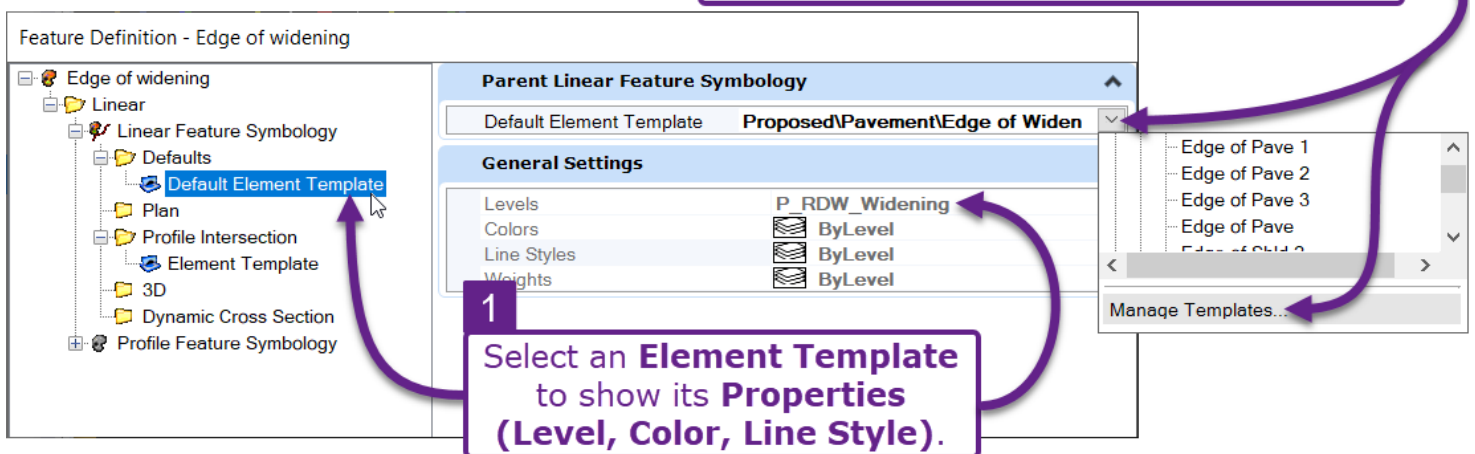
## 17C.2 Edit an Element Template

Element Templates are edited in the Element Template Manager. Opening the Element Template Manager is shown below:

**2** Expand the Element Template drop-down and select **Manage Templates...**

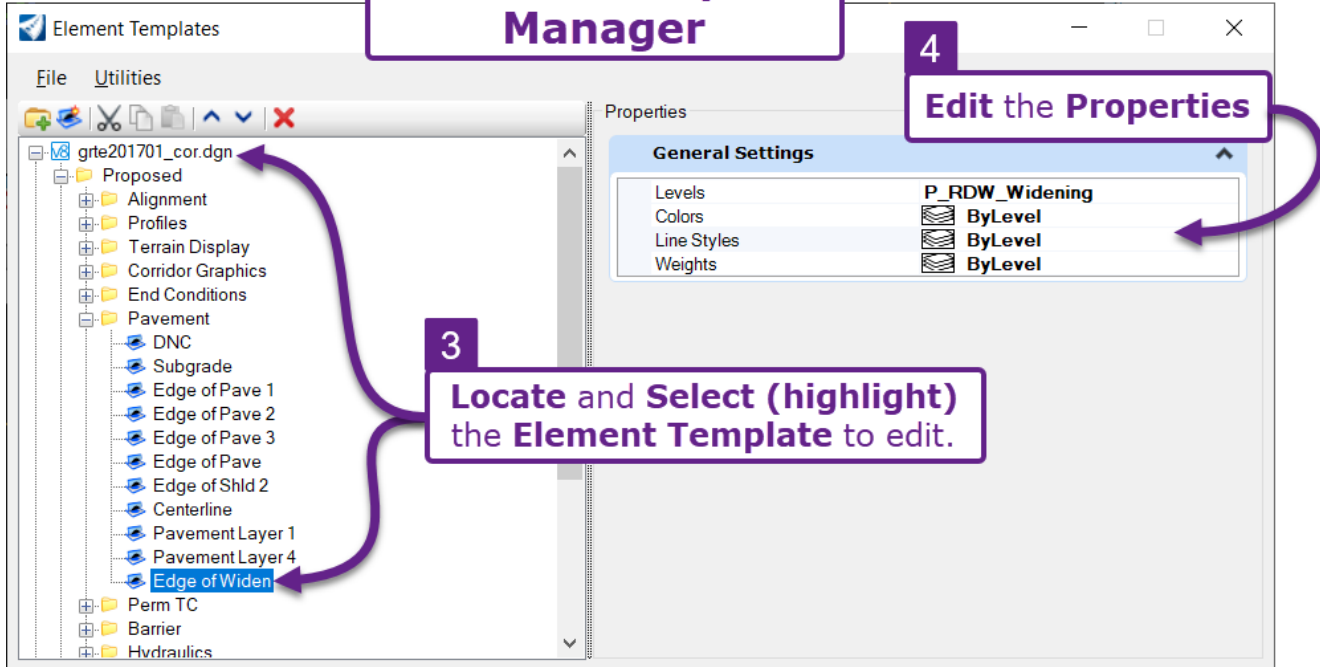


**1** Select an **Element Template** to show its **Properties (Level, Color, Line Style)**.

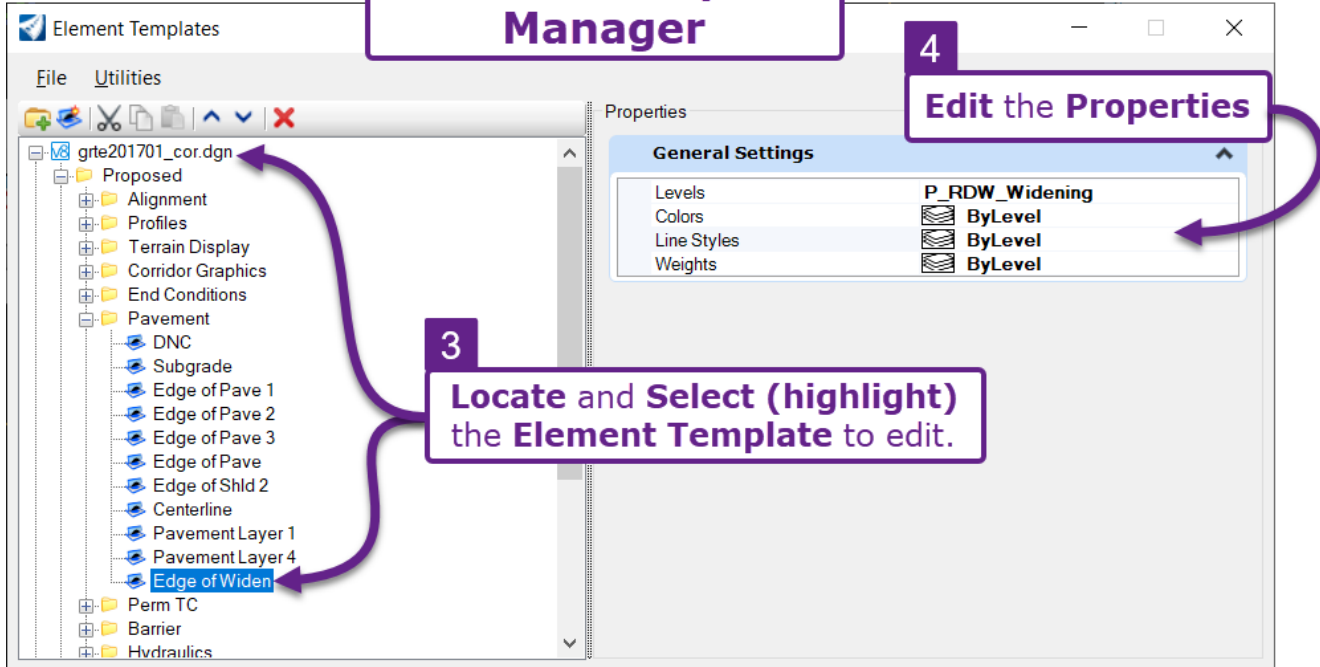


**Element Template Manager**

**4** **Edit the Properties**



**3** **Locate and Select (highlight) the Element Template to edit.**



## 17D – CREATE A NEW FEATURE DEFINITION

In this demonstration, a new Mesh Feature Definition is created for use in a Corridor, Linear Template, or Surface Template. After this workflow, the new Feature Definition is selectable in the Template Editor. However, the new Feature Definition is **ONLY** available in the ORD File that it was created in.

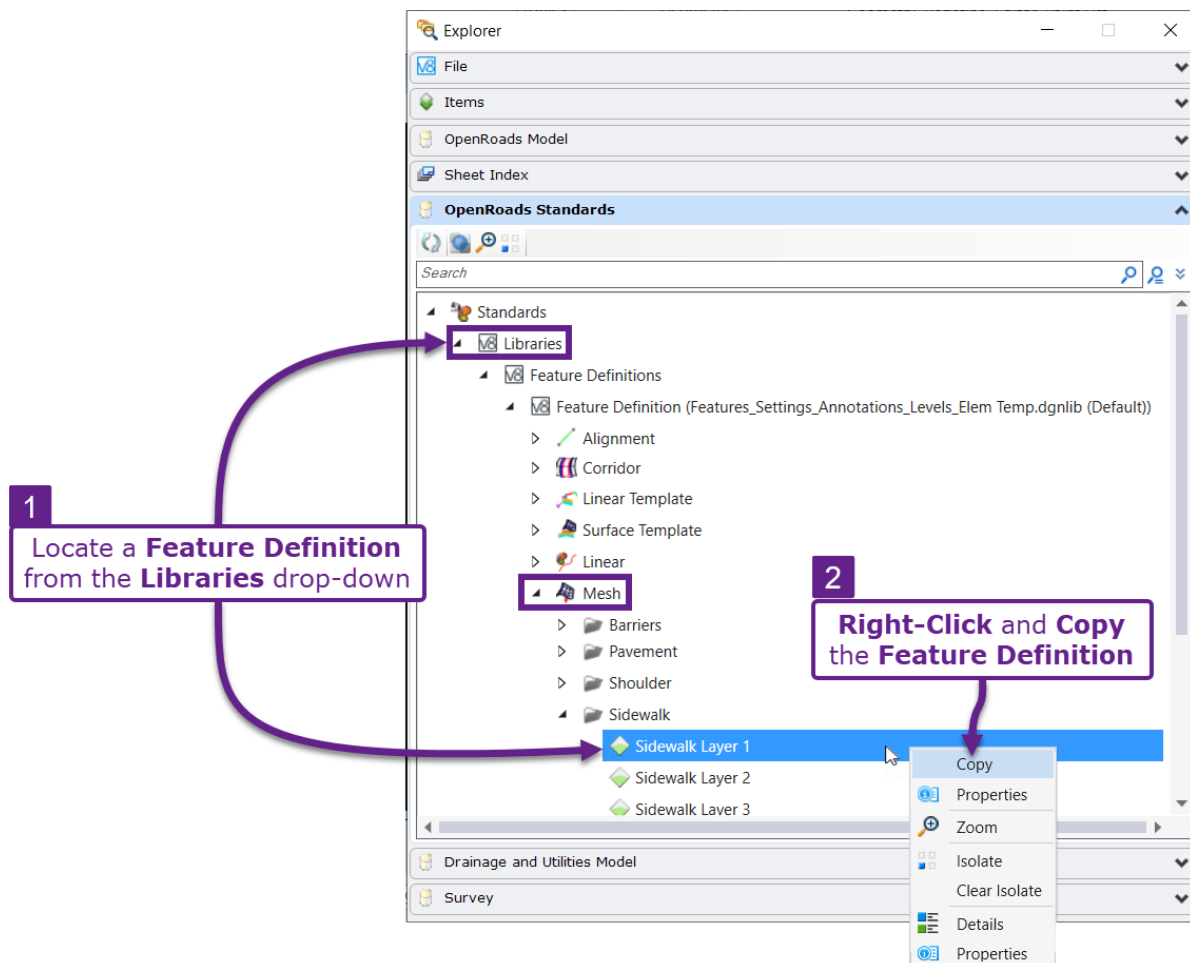
**NOTE:** This workflow is applicable to any Feature Definition Type, including Linear and Alignment Feature Definitions.

**BEST PRACTICE:** Creating a new Feature Definition from scratch is **NOT** encouraged. Instead, create a copy of a similar Feature Definition and rename it.

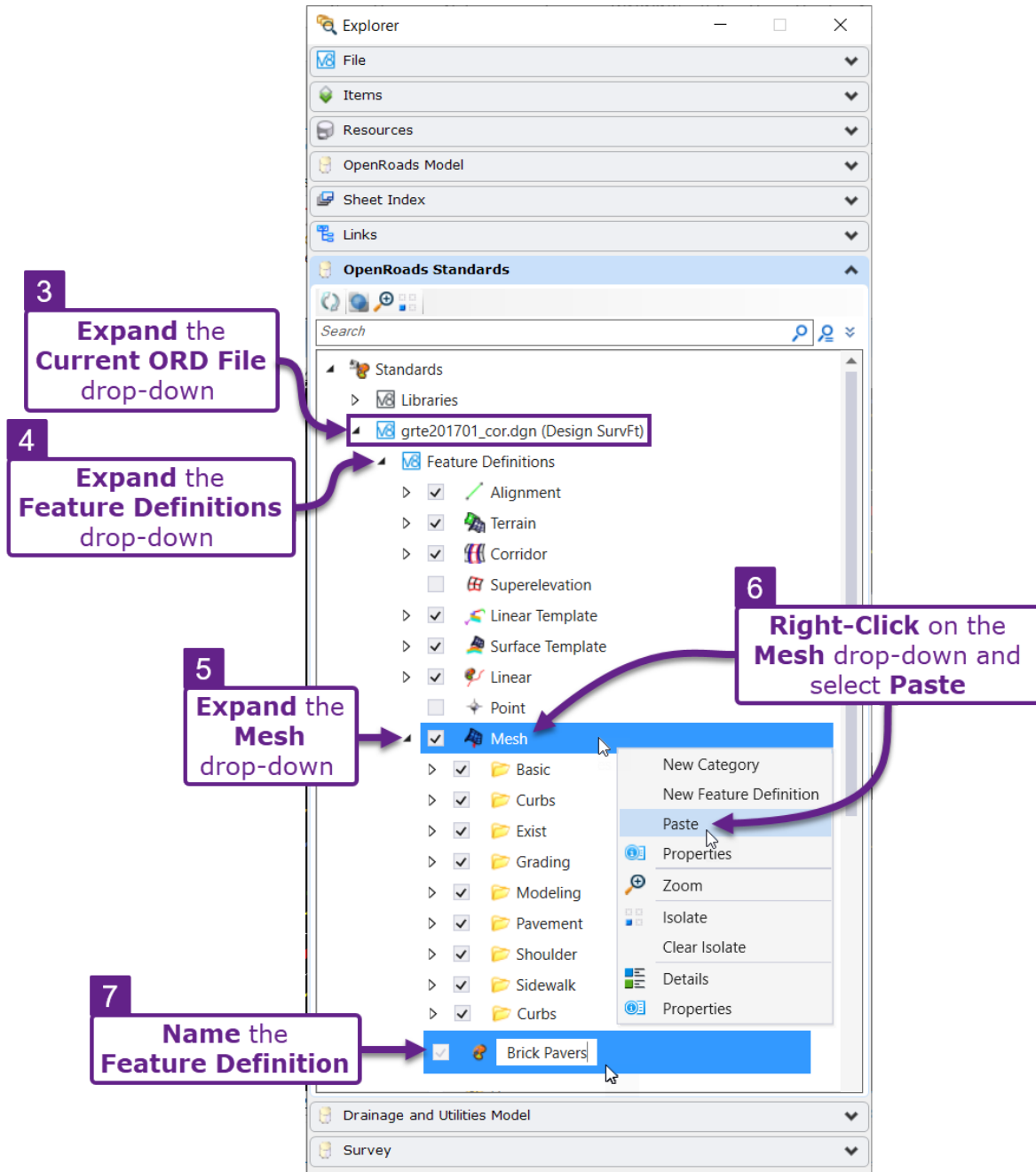
**WARNING:** Creating a new Feature Definition should **ONLY** be done if a suitable Feature Definition **CANNOT** be found in the FLH Feature Definition Library.

In this workflow, a Mesh Feature Definition is needed to represent Brick Pavers. The FLH Feature Definition Library does not have a Brick Feature Definitions. Instead, the "Sidewalk Layer 1" Feature Definition is copied as the basis for the new Feature Definition.

1	Browse the FLH Feature Definition Library to locate a comparable Feature Definition. <b>NOTE:</b> Locate a Feature Definition from the <b>Libraries</b> drop-down. The entire FLH Feature Definition Library is shown from this location.
2	Right-Click on a Feature Definition and select <b>Copy</b> .

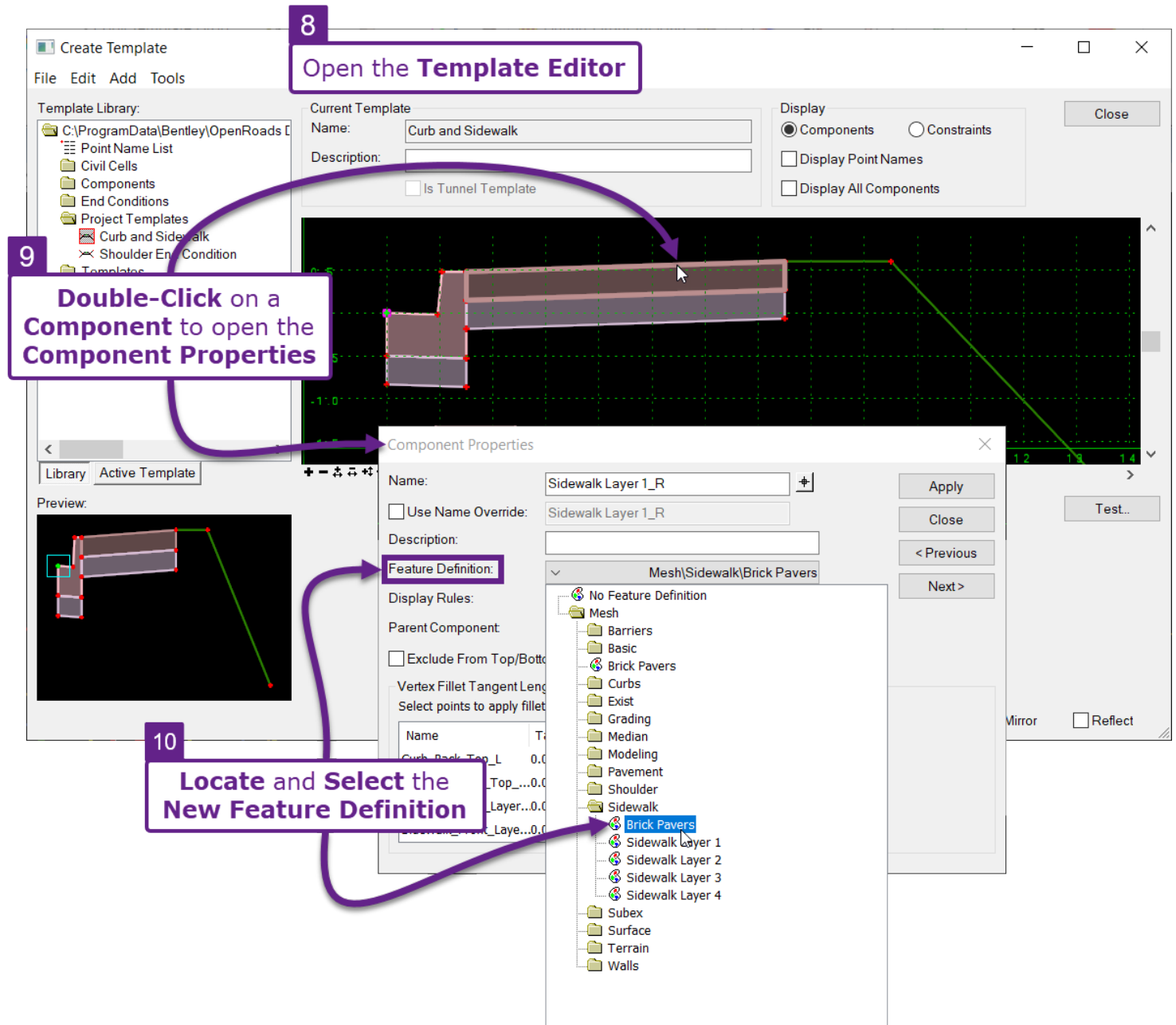


- 3 Expand the **Current ORD File** drop-down. In this case, the "grte201701\_cor.dgn (Design SurvFT)" drop-down.
- 4 Expand the **Feature Definitions** drop-down.
- 5 Expand the **Mesh** drop-down.
- 6 Right-Click on the **Mesh** drop-down and select **Paste**.
- 7 Assign the new Feature Definition an appropriate **Name**.



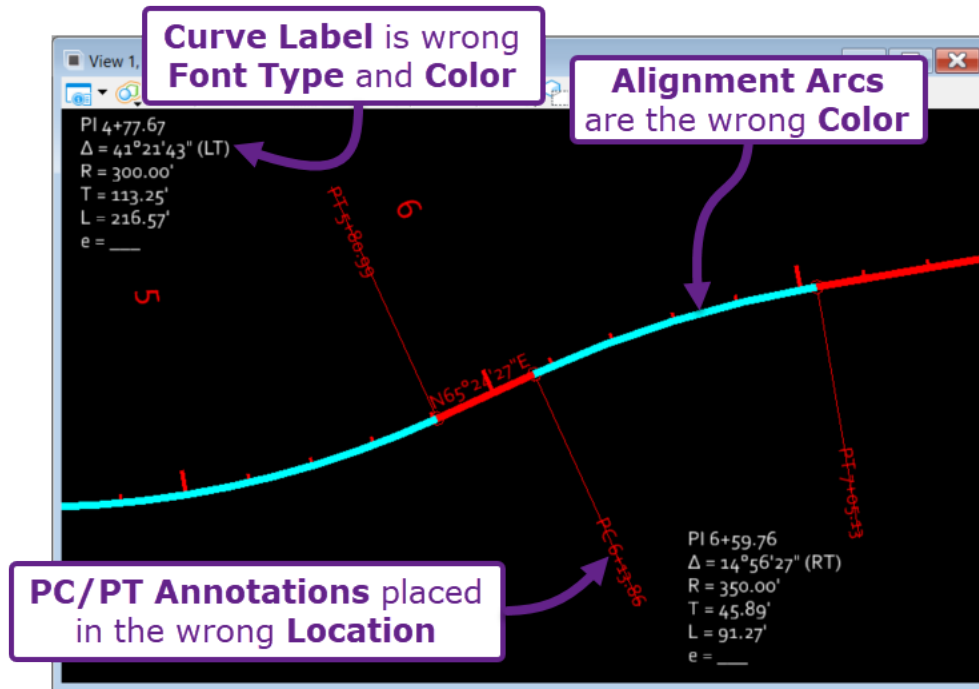
**NOTE:** The new Feature Definition will have the same Level, attributes, and properties as the copied Feature Definition. To edit the Feature Definition and corresponding Element Templates, see **17C – Feature Definition Settings and Editor**.

After the new Feature Definition is created, it will be shown in the FLH Feature Definition Libraries. As shown below, the new Feature Definition is available in the Template Editor and can be assigned to the desired Component.

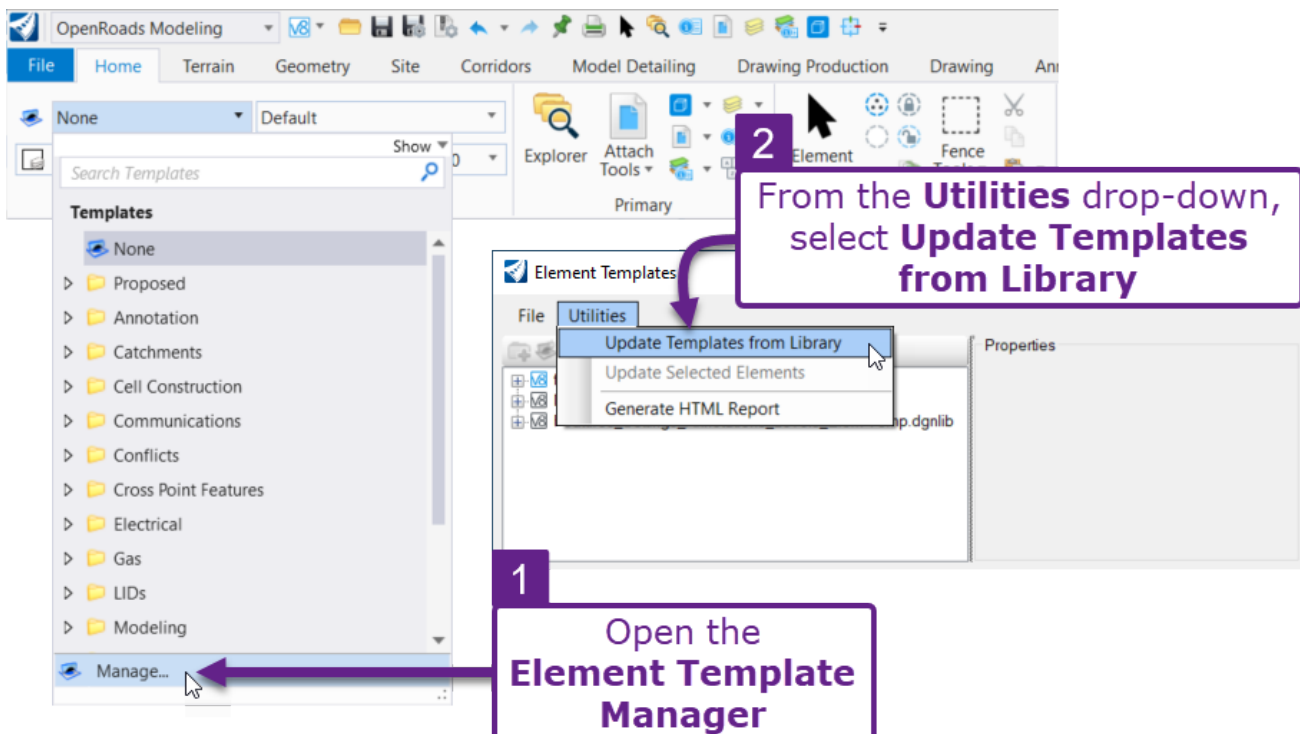


## 17E – FIX UNSYNCHRONIZED FEATURE DEFINITIONS AND ALIGNMENT ANNOTATIONS

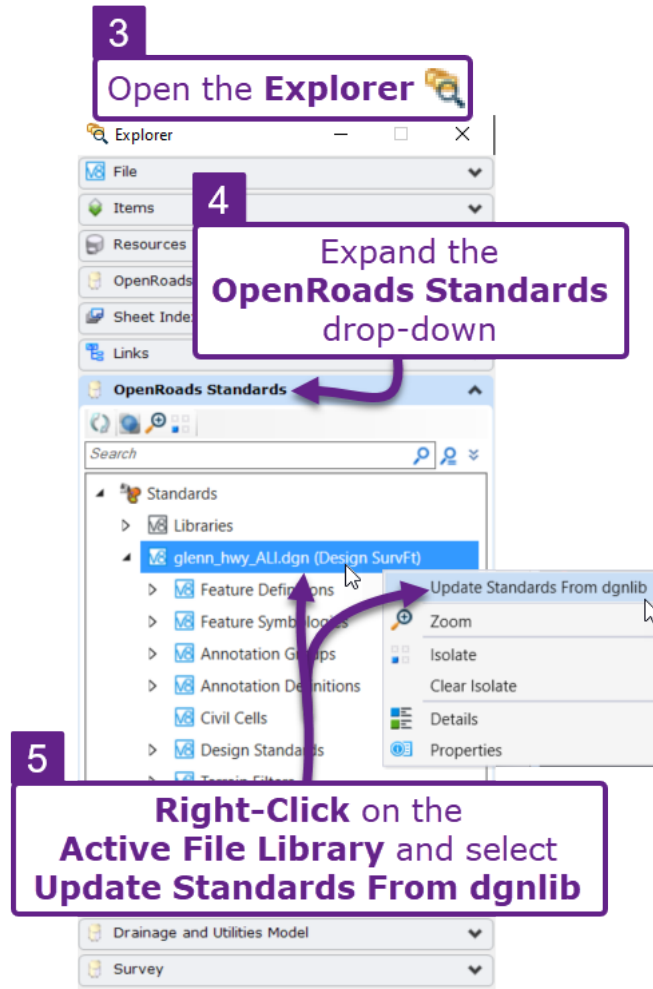
Occasionally, elements that contain Feature Definitions and Alignment Annotations become unsynchronized with the default FLH Standards. When this happens, Alignment Annotation text may be placed in the wrong location and contain incorrect text characteristics, such as font, color, and height. Elements with Feature Definitions may be out of sync with the FLH Standards if shown with the incorrect Color, Line Style, or Line Weight.



Updating the Feature Definition and Alignment Annotations to FLH Standards is a two-part process. First, open the **Element Template Manager** and run the **Update Templates from Library** tool.



Next, open the **OpenRoads Standards** drop-down in the Explorer 🔍. Right-Click on the Active File Library and select **Update Standards From dgnlib**.



After standards have been updated in both the Element Template Manager and OpenRoads Standards drop-down, Feature Definitions and Alignment Annotations should reflect the default FLH Standards:

