

ADA CURB RAMP PLAN PRODUCTION IN OPENROADS DESIGNER & MICROSTATION

The outlined plan production methodology allows designers to place station, offset, elevation, slope and distance information, using the Civil Labeler tool. Text placed by the Civil Labeler will automatically update based on changes made to the curb ramp design without the need for redlines. By allowing the CAD Technician to set up named boundaries and example text prior to using the civil labeler, text can be oriented correctly placed in a way that does not conflict with other text/detail elements.

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ADA CURB RAMP DESIGN FILE SET UP | DESIGNER

I. Curb Ramp Alignment Annotation Published File Set up

Curb ramp alignment (curve data) annotation should be housed in a separate published file from the curb ramp civil labeler annotation (distance-slope, station/offset/elevation, etc.). You can group multiple curb ramp alignments into one alignment annotation published file (ie. group together curb ramp alignments by intersection or, if there are only a handful of ramps, group all of them into one file).

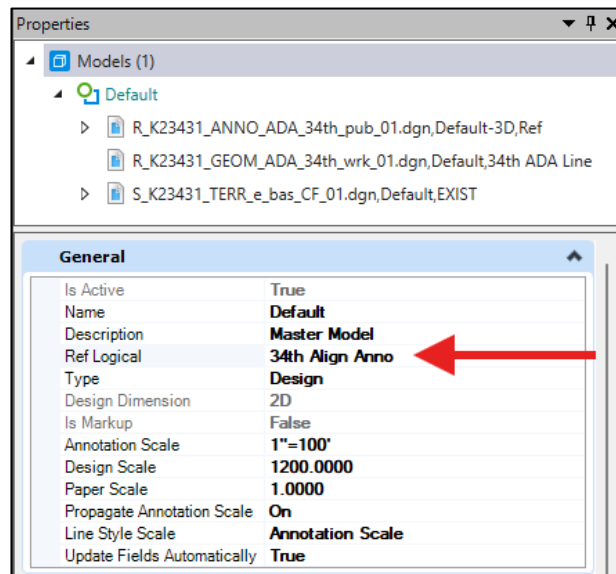
1. Create a Curb Ramp Alignment Annotation Published File from a Seed2D.dgn.

- i. Example Naming:

- a. The blue italicized text in the example name, description and logical reference name should be filled in with project specific information.

Name	Description
<i>R_KXXXXX_ANNO_ADA_34th_pub_01.dgn</i>	<i>"CR06" & "CR07" - ADA (34th Street NE & SE Curb Ramps) - Alignment Annotation Published File</i>

- ii. In the Default model, reference the following files:
 - a. Existing Survey Terrain Base Container File (Live Nesting, Depth 1)
 - b. Curb Ramp Geometry Published File (No Nesting)
 - iii. Make the existing survey terrain active
 - iv. Set the annotation scale to 1" = 5'
 - v. Change the logical reference name in the *General* section of the file's **Properties** toolbox to an appropriate description (e.g. *34th Align Anno*). Using a logical reference name will help with reference organization.



2. Annotate the curb ramp alignment directly in the Default model.
 - i. Navigate to ***Drawing Production > Annotations > Annotate Element*** select the *Override Annotation Group* checkbox then navigate to ***Plan > Linear > Curb_Ramp_CrvLt*** or ***Curb_Ramp_CrvRt*** from the *Annotation Group* Drop-down.
 - ii. Follow the prompts and select the curb ramp alignment. Turning on the *Override Annotation Group* toggle allows for the ***Rdwy_Curb_P*** linear feature definition to be annotated as if it were a ***Curb_Ramp*** alignment feature definition.
 - iii. Continue to annotate all curb ramp alignments in the file.

II. Curb Ramp Civil Annotation Published File Set up

Curb ramp civil labeler annotation (distance-slope, station/offset/elevation, etc.) should be housed in a separate published file from the curb ramp alignment (curve data) annotation. Each civil annotation file should only house one curb ramp corner.

1. Create a Curb Ramp Civil Annotation Published File from a Seed2D.dgn.

i. Example Naming:

- a. The blue italicized text in the example name, description and logical reference name should be filled in with project specific information.

Name	Description
<i>R_KXXXXX_ANNO_ADA_34th_NE_pub_02.dgn</i>	<i>"CR06" - ADA (34th Street NE Curb Ramps) - Civil Annotation Published File</i>

ii. In the Default model, reference in the following files:

- a. Existing Survey Terrain Base Container File (Live Nesting, Depth 1)
- b. Curb Ramp Geometry Published File (No Nesting)
- c. Curb Ramp Alignment Annotation Published File(s)(No Nesting)
- d. Geometry Base Container File (No Nesting)
 - The Geometry Base Container File should be attached with no nesting as it will only be used to display the hatching and patterning housed directly in the container file.
- iii. Make the existing survey terrain active.
- iv. Set the annotation scale to 1" = 5'.
- v. Change the logical reference name in the *General* section of the file's **Properties** toolbox to an appropriate description (e.g. *34th NE Civil Anno*). Using a logical reference name will help with reference organization.

2. Begin Placing Detail Elements and Civil Labeler Annotation

- i. Place General Elevation PT nodes at all locations where station/offset/elevation information will be labeled. The General Elevation PT can be found on the **ODOT Roadway > Curb Ramp Details > Legend Items** ribbon.
- ii. Navigate to **OpenRoads Modeling > Drawing Production > Civil Labeler > ODOT_Plan-ADA > Dist_Slope-Inline_1 > Place** then select the 3D lines that you want to annotate using **Midpoint** or **Near Snap Point** snap mode.
 - a. With use of the civil labeler tool, it is important to insert vertices along the horizontal geometry lines at locations such as top back of curb, sidewalk intersection points, etc. during design. This will allow the Civil Labeler to dimension the distance and slope between the vertices correctly. If dimensions look incorrect, check the curb ramp geometry pub file to ensure that errant vertices were not placed.
- iii. Place "DE" text in front of any elements that require a design exception.

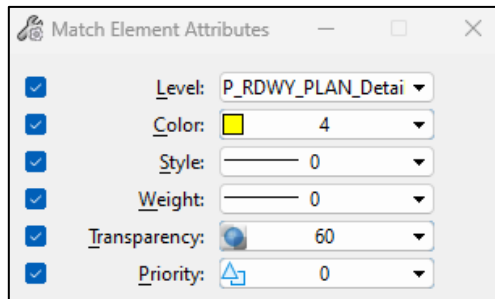
III. Container Files

1. Create an ADA Ramp Annotation Base Container File in the 6_Civil_Data folder. The ADA Ramp Annotation Base Container File is separate from the Main and Minor Alignment Annotation Container File.
 - i. In the Default model, reference in the following files:
 - a. All ADA Curb Ramp Annotation Published Files
 - Curb Ramp Alignment Annotation Published Files (No Nesting)
 - Curb Ramp Civil Annotation Published Files (No Nesting)
 - b. Set the container file annotation scale to 1" = 5'.
 - ii. Annotation container files are different than other types of container files. Unlike other types of container files, it is not recommended to attach a terrain and set it active in an annotation container file because the file is not intended to contain or manage civil data itself.
 - iii. Turn off all numbered levels.
 - iv. Save settings, exit and check in the DGN to preserve the level settings.

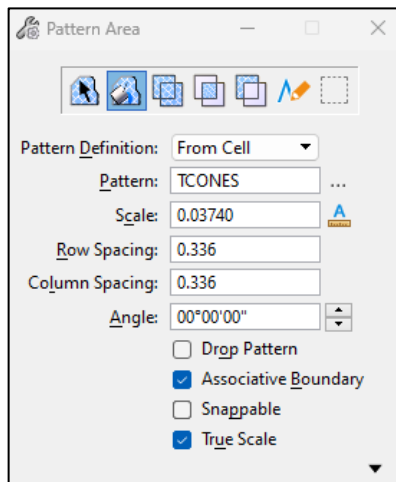
2. A linework geometry container file (*R_KXXXXX_GEOM_bas_CF_02.dgn - Roadway Design Linework Base Container File*) should already be available in the 6_Civil_Data folder for the CAD Technician and others to reference. The Linework Geometry Container File should reference all the project linework geometry published files, including those associated with the ADA curb ramps. Truncated domes, cross hatching and patterning should be placed directly in the Default model of the Linework Geometry Container File rather than referenced from another file.

- i. Place Truncated Domes in the Linework Geometry Container File

- a. Set the following Element Attributes



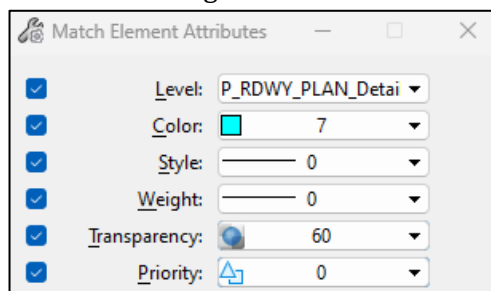
- b. Draw a shape for the truncated domes which will house the pattern.
 - c. Reference in the *cache_ADA.dgn* file in the ADA folder of the Roadway Crew Share.
 - d. Navigate to **Drawing > Annotate > Patterns > Match Pattern Attributes** and check the **Match Symbology** box. Select the truncated domes from the *cache_ADA.dgn* reference.
 - e. Navigate to **Drawing > Annotate > Patterns > Pattern Area**. The Pattern Area window should be set to the following. Be sure to de-select the annotation scale button to turn it OFF.



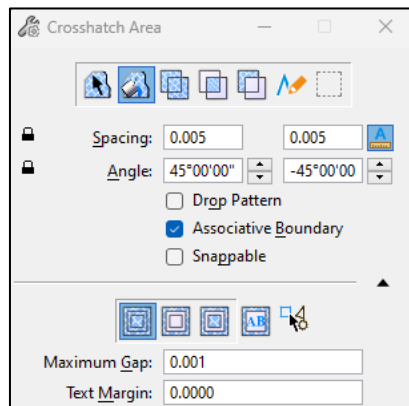
- f. Click within the truncated domes shape to apply the pattern.

ii. Place Cross Hatching for Turning Spaces in the Linework Geometry Container File

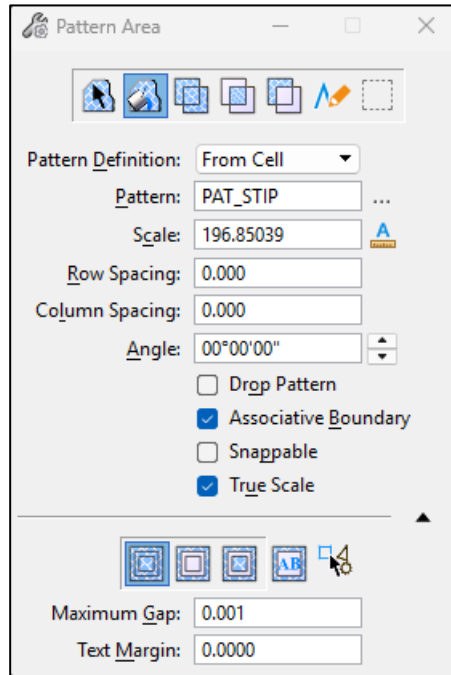
a. Set the following Element Attributes



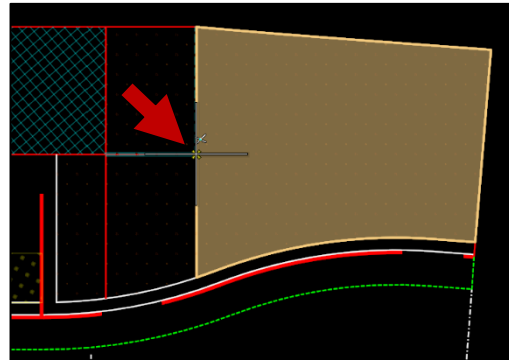
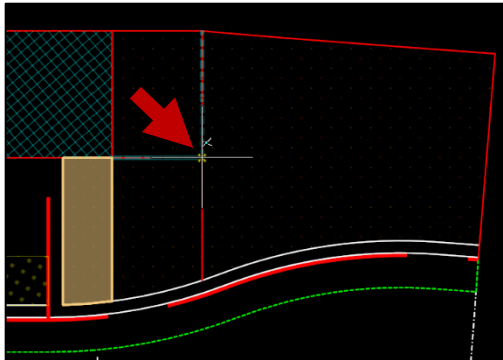
b. Navigate to **Drawing > Annotate > Patterns > Crosshatch Area** and set the following. The Angle directions will be variable depending on the configuration of the ramp.



- iii. Place Sidewalk Stippling in the Linework Geometry Container File
 - a. Navigate to **Drawing > Annotate > Patterns > Match Pattern Attributes** and check the **Match Symbology** box. Select the sidewalk stippling from the *cache_ADA.dgn* reference.
 - b. Navigate to **Drawing > Annotate > Patterns > Pattern Area**. The Pattern Area window should be set to the following. Be sure to de-select the annotation scale button to turn it OFF.



- c. To place the pattern consistently through grade breaks, click each section to select and click on a common location to accept/place.



IV. Initial Coordination with CAD Technician

1. Meet with the CAD Technician to go over project details. The CAD Technician will place named boundaries, oriented in a way that best fits the ramp geometry, which can be referenced into the Curb Ramp Civil Annotation Published File(s). Before meeting, have a 1" = 5' Curb Ramp Annotation Container File and Linear Geometry Container File ready for the CAD Technician. Information regarding these two container files can be found in the previous section.
 - i. At this point, the Curb Ramp Civil Annotation Published Files only need to have nodes placed where station/offset/elevation text will be labeled and dimension/slope text placed by the civil labeler at breaklines. The station/offset/elevation labels generated by the civil labeler should not yet be placed. Inform the CAD Technician where the applicable container files can be found in the 6_Civil_Data folder so they can start their sheet layout.

ADA CURB RAMP PLAN PRODUCTION | CAD TECHNICIAN

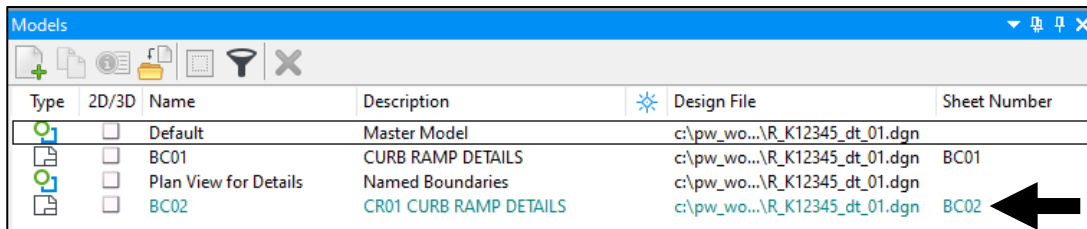
I. Plan Sheet File Set Up

1. Using MicroStation, set up the curb ramp detail file from seed. Using a design model to contain all of the design files, named boundaries are used to layout sheets.
 - i. Create an ADA detail file from the *DT-TY-Sheets_Seed2D.dgn* seed file. In the **Plan View for Details** model, reference in the following container files from the ProjectWise **6_Civil_Data** folder:

Name	Description	Nesting Depth
S_KXXXXXX_TERR_e_bas_CF_01.dgn	Survey Terrain Base Container File	1
S_KXXXXXX_GEOM_rw_bas_CF_01.dgn	Survey RW Base Container File	1
R_KXXXXXX_GEOM_bas_CF_02.dgn	Roadway Design Linework Base Container File	1
R_KXXXXXX_ANNO_ADA_bas_CF_01.dgn	ADA Curb Ramp Annotation Base Container File	1

- a. Set annotation scale to 1" = 5'.
 - b. Set the correct level display from the attached references for the ADA detail sheets (e.g. turn off unwanted numbered levels).
 - c. If line styles (such as curb lines) aren't displaying correctly, the CAD Technician may need to navigate to the references and click the sixth toggle from the left "Scale Line Styles by Reference Scale" for the associated geometry file.
- ii. Begin populating the BC0X models.
 - a. Delete the BA01 and BB01 models.
 - b. Switch to the **BC01** model and reference the *nm_CAD.dgn* file and *cache_ADA.dgn*. The BC01 sheet is meant to display the cross section, legend and general note information for the curb ramp details.
 - c. Move the applicable detail information into the sheet border and remove any details that are not pertinent to the specific project.
 - d. Copy the BC01 model and rename it BC02. Put the curb ramp number (CR01, CR02, etc.) in the description. BC02 will be the first plan view curb ramp detail sheet.
 - e. Switch to the **BC02** model and delete the cross-section details within the model.
 - f. Change the sheet number in the **Models** window. This will automatically update the sheet number in the lower corner of the title block.
 - g. Attach any cache or example files needed for reference.

- h. Copy BC02 as many times as needed for the number of plan view curb ramp detail sheets. Copying the BC02 model, rather than making new models, will save the time needed to attach the *nm_CAD.dgn* and *cache_ADA.dgn* files.
- Change the sheet number in the **Models** window for each of the copied BC## models, as done previously for BC02.

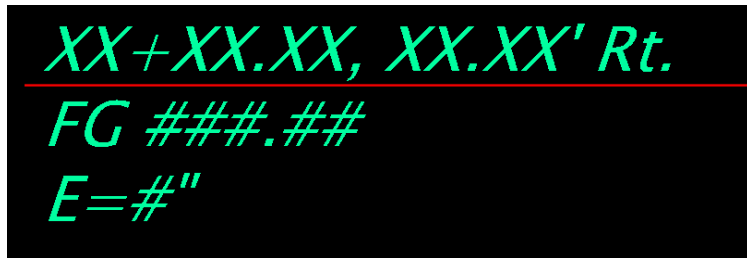


- iii. Place cell borders for each curb ramp detail.
- a. Switch to the **Plan View for Details** model.
 - b. Navigate to **ODOT Plan Sheet Creation > Sheet Border > Clip Shape Full Sheet**. Position and rotate the cell to best fit around the first curb ramp's linework. The designer and CAD Technician can work together to determine the best positioning so that all pertinent curb ramp info is incorporated. Repeat this action for each of the project curb ramps.

II. Populate Curb Ramp Detail Elements

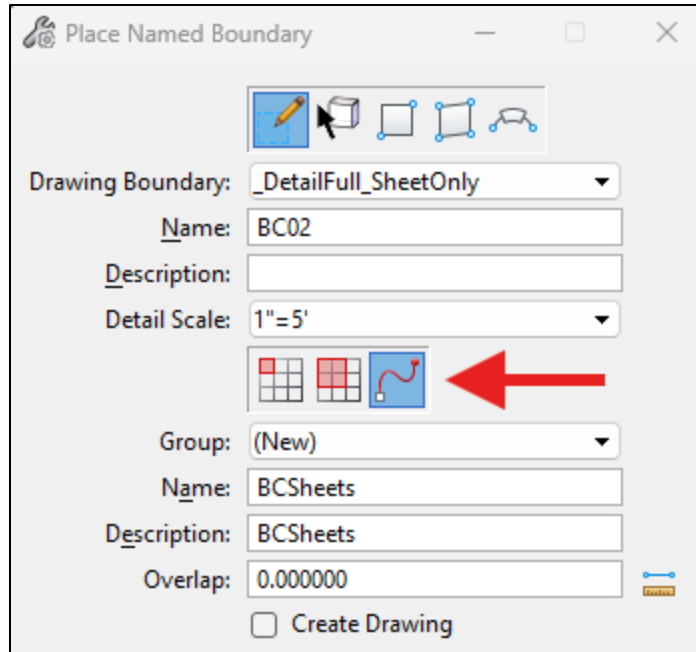
1. Place leader lines and example text for each curb ramp detail.

- i. Remain in the ***Plan View for Details*** model. Beginning with the first curb ramp, use the 2-point rotation method to rotate the plan view so that it is oriented to the sheet border cell. This will allow the text and named boundaries to be placed in the correct orientation.
 - a. Place leader lines and example text from the *cache_ADA.dgn* reference.
 - The example text should be placed on a separate level from the leader line so that it can be turned off. The purpose of the example text is to indicate where the designer should place the civil labeler text and to check for conflicts with other text/detail elements.

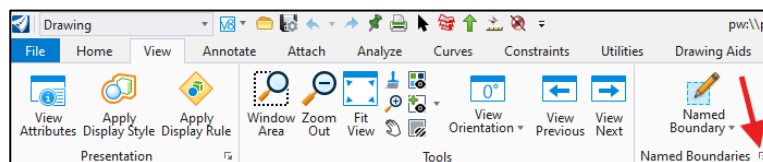


- b. After placing the initial leader lines and example text, check to make sure there aren't any conflicts or overlaps with other text or design elements. Where there are overlaps, move the leader lines and example text accordingly. Use Level 8 to circle any potential conflicts with the slope/distance text (which was previously placed by the designer) that you want to make them aware of.

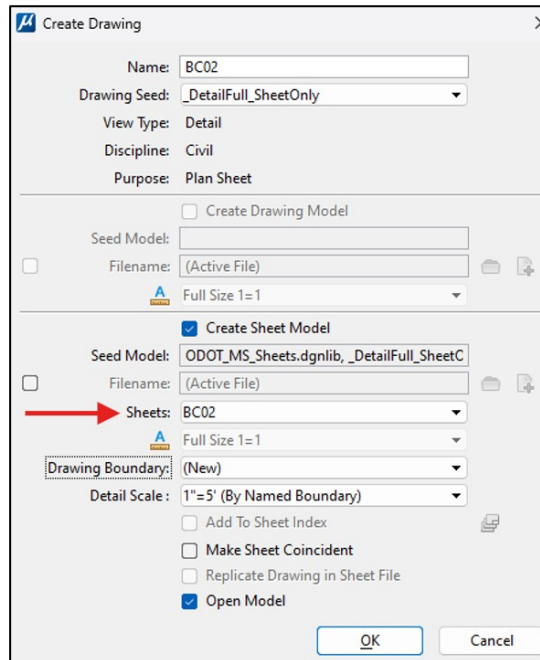
2. Place named boundaries for each curb ramp detail and produce the detail sheets.
 - i. Navigate to **Drawing > View > Named Boundary > Place Named Boundary** to set up the first named boundary.
 - a. Change the active level to S_NamedBoundary and color to orange.
 - b. In the Place Named Boundary dialogue box, fill out the following:



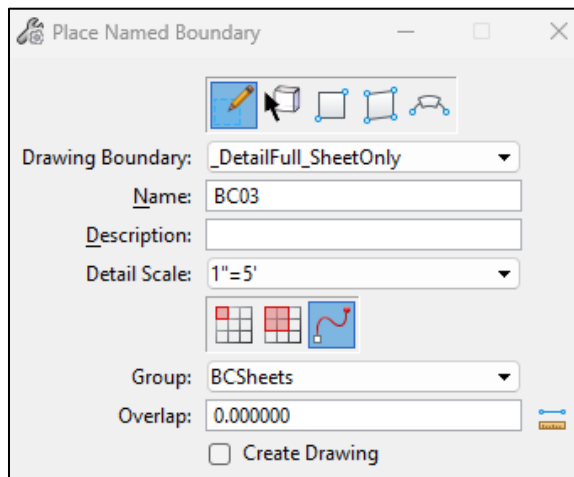
- c. Match the named boundary name to the appropriate sheet number (e.g. BC02) and keep the Group set as (New).
- d. A rectangular named boundary shape will appear on the right side of the cursor. With the *Place an array of named boundaries along a path* toggled on, snap the rectangular named boundary to the very faint dotted line located in the middle-left of the previously placed clip shape. Left click again place the named boundary along the path of the faint dotted line.
- e. Right click on the named boundary and select **Create Drawing**. If you are having trouble selecting and right-clicking on the named boundary you can alternatively navigate to the little box next to **Drawing > View > Named Boundaries** to launch the named boundary organizer. Right click on the sheet number in the named boundaries organizer to access the **Create Drawing** command.



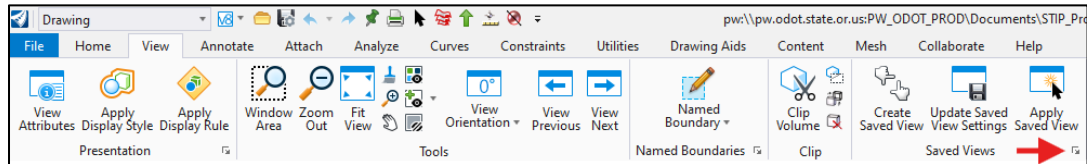
- f. In the *Sheets*: dropdown, select the associated sheet name. Keep all other inputs the same.



- g. Add vertices to the named boundary to fit around the title block.
- h. Repeat steps a. through g. for each curb ramp until all the plan view curb ramp detail sheets are populated. Each named boundary, placed after the first, should be put into the BCSheets group.



3. Check the sheet layout in the BCXX models to ensure they display as intended.
 - i. If you need to reposition a Name Boundary:
 - a. In the BCXX sheet model, detach the **Plan View for Details** reference.
 - b. Select the little box next to **Drawing > View > Saved Views** and delete the applicable BCXX Saved View from the Saved Views pop-up box.



- c. Move/reposition the clip shape and named boundary.
 - d. Repeat steps e. through g. under step 2 above.
 - ii. Inform the designer when leader lines, example text and named boundaries are available in the curb ramp detail file and ready for reference into the curb ramp civil annotation pub files.

ADA CURB RAMP CIVIL ANNOTATION | **DESIGNER**

I. Curb Ramp Civil Annotation File Population

1. Open each of the Curb Ramp Civil Annotation Published Files. In the Default model, reference in the CAD technician's ***Plan View for Details*** model from their curb ramp detail file. This will allow the designer to see the sheet orientation from the named boundaries, clip shape, leader lines and example text.
 - i. Using the Two Points method, orient the view to follow the clip shape/named boundaries.

2. Annotate Station/Offset/Elevation using the Civil Labeler
 - i. Turn on the 3D curb ramp alignment and 2D linework.
 - ii. Navigate to ***OpenRoads Modeling > Drawing Production > Civil Labeler > ODOT_Plan-ADA > Stack-FG_Sta_Off_ProfElev*** or ***Stack-Gtr_Sta_Off_ProfElev_Exp*** depending on if you want a "FG" (finish grade) or "GTR" (Gutter) prefix. Select the 3D curb ramp alignment first, the 2D element second, and finally the node location third. Snap the text to the correlating example text provided by the CAD Technician. Ensure the two hollow white circles (data nodes) display in the location that you want to annotate. The orange curved leader will be turned off by the CAD Technician and will not be printed.
 - a. If you need to move the civil labeler text without moving the arrow, highlight the text and use the move tool. If you first select the move tool, then attempt to move the text, the leader and data nodes will move as well. This will potentially change the values in your callout and lead to errors.
 - b. If needed, the "FG" and "GTR" can be replaced with other appropriate prefixes (TFC [Top Face of Curb], TBC [Top Back of Curb], etc.).
 - c. Manually edit the "E" exposure.

3. Place Slope Arrows & Curb Ramp #
 - i. Place any additional arrows and elements from the appropriate OpenRoads ribbon workflow. Slope Arrows and Curb Ramp # can be found in the ***ODOT Roadway > Curb Ramp Details > Legend Items*** ribbon workflow.

ADA CURB RAMP COORDINATION | **DESIGNER & CAD TECHNICIAN**

I. Designer and CAD Technician Coordination to Finalize Text Placement

1. CAD Technician finalizes the curb ramp detail and checks for conflicts with civil labeler text.
 - i. Once the Roadway Designer places their civil labeler text, the CAD technician can open their curb ramp detail file to continue adding information to the detail sheet (R/W labels, alignment information, street name text, etc.). The CAD Technician should also look through the sheet to ensure that there are not any conflicts with the text placed by the designer. If there are, the CAD Technician should circle the conflict, use Level 8, and inform the designer of the conflict.
 - a. CAD Technician to turn off the P_ODOT_PLAN_General level in the curb ramp detail file.
2. Roadway Designer checks for conflicts with civil labeler text.
 - i. The Roadway Designer should look through the Curb Ramp Civil Annotation Published Files to ensure that there aren't any conflicts with the text they placed. If there are, the designer should circle the conflict, use Level 8, and inform the designer of the conflict.
3. Any changes to the design of the curb ramp elements will automatically be reflected in the elevation, slope and distance labels when the designer opens the Curb Ramp Civil Annotation Published File. If an element is deleted and replaced, it will need to be relabeled with the civil labeler.