



ORD ENVIRONMENTAL FIELD DATA

GEODETIKS OFFICE

September 2025

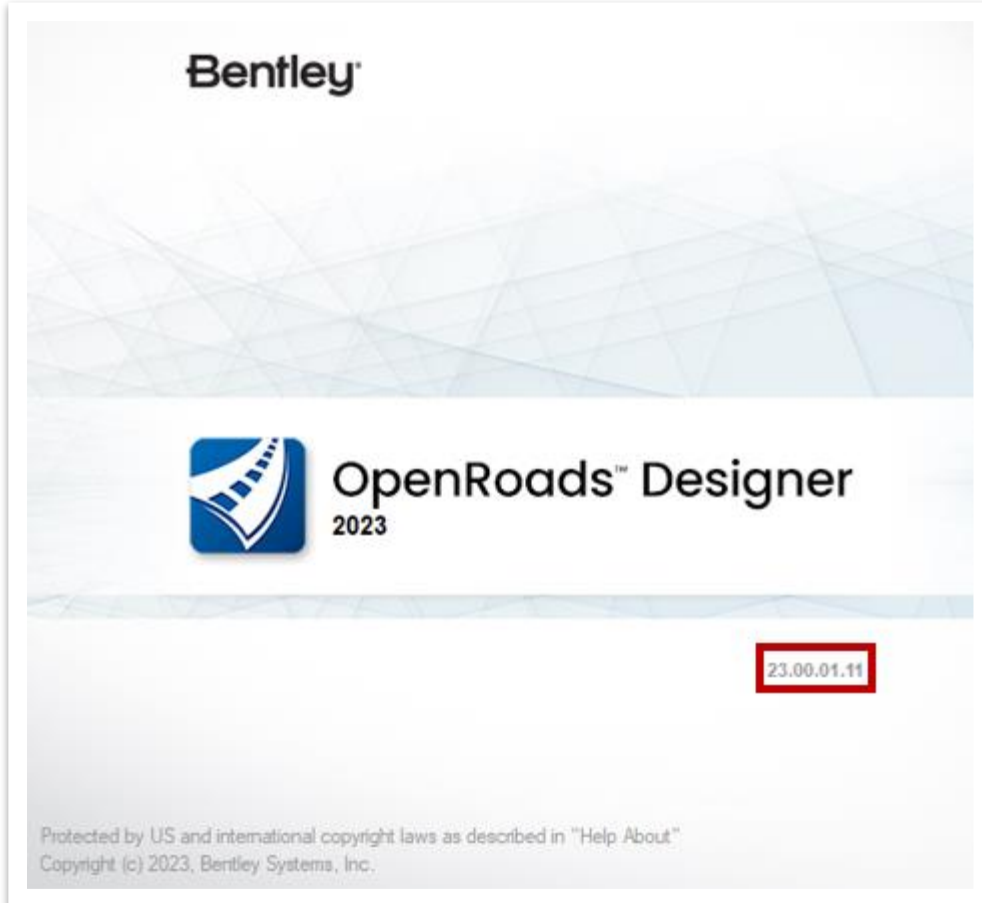
ORD Environmental Field Data

Before processing any **Environmental** features, make sure you have the latest [TDOT ORD 2023 workspace](#), released in September 2025. The files listed below (along with the file location) contain all Environmental items in the configuration.

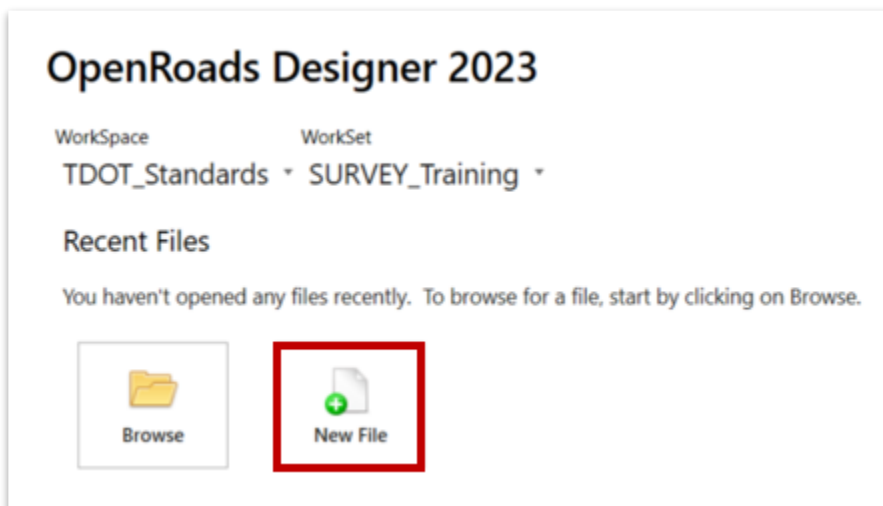
- **TDOT Environmental.cel**
 - *C:\ProgramData\Bentley\OpenRoads Designer 2023.00\Configuration\Organization-Civil\TDOT_Standards\Cell*
- **TDOT_Dimension Styles_Text Favorites_Text Styles_Labeler.dgnlib**
 - *C:\ProgramData\Bentley\OpenRoads Designer 2023.00\Configuration\Organization-Civil\TDOT_Standards\Dgnlib\Feature Definitions*
- **TDOT_Environmental_Features_Annotations_Levels_Elem Temp.dgnlib**
 - *C:\ProgramData\Bentley\OpenRoads Designer 2023.00\Configuration\Organization-Civil\TDOT_Standards\Dgnlib\Feature Definitions*
- **TDOTSeed3DEnvironmental.dgn**
 - *C:\ProgramData\Bentley\OpenRoads Designer 2023.00\Configuration\Organization-Civil\TDOT_Standards\Seed*

Importing Environmental Field Data

1. Launch **OpenRoads Designer** (ORD) 2023. You will see the initial screen below showing the ORD version that is being used: **23.00.01.11**.



2. Select the **TDOT_Standards** Workspace and the **SURVEY_Training** Workset from the drop-down menus, and then click **New File**.





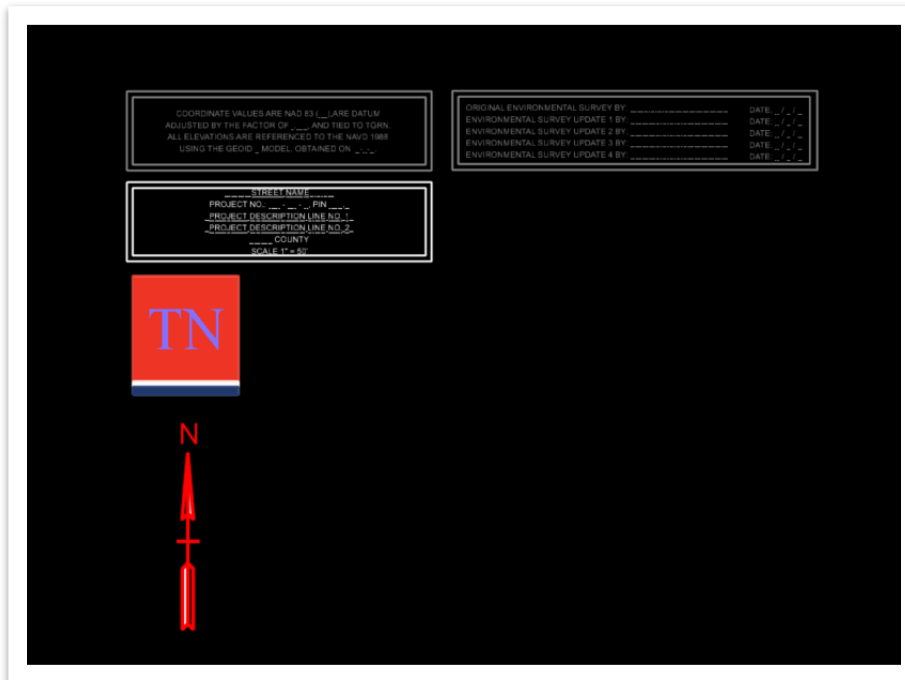
Take Note!

On an actual project, remember to use the TDOT ORD naming convention (**PRJ NAME-ENV-Features.dgn**) when creating the environmental file. For more information, refer to the [TDOT ORD File Naming Convention Standards](#) document. In addition, if there is a project workset, please use the **project workset** instead of the **SURVEY_Training** workset.

- Browse to the location you want to save the file. In the **File name** field, key-in **ENV-Features**. Click **Browse** and select the **TDOTSeed3DEnvironmental.dgn** seed file and then click **Save**.

File name: ENV-Features Save
Save as type: MicroStation DGN Files (*.dgn) Cancel
Seed: C:\ProgramData\Bentley\OpenRoads Designer 2023.00\Co Browse

- Notice the embedded environmental notes that are included in the ORD Environmental seed file. **Note:** It is recommended that you move these notes near your project location from their original location and populated, as necessary. This process will be demonstrated later in this document.



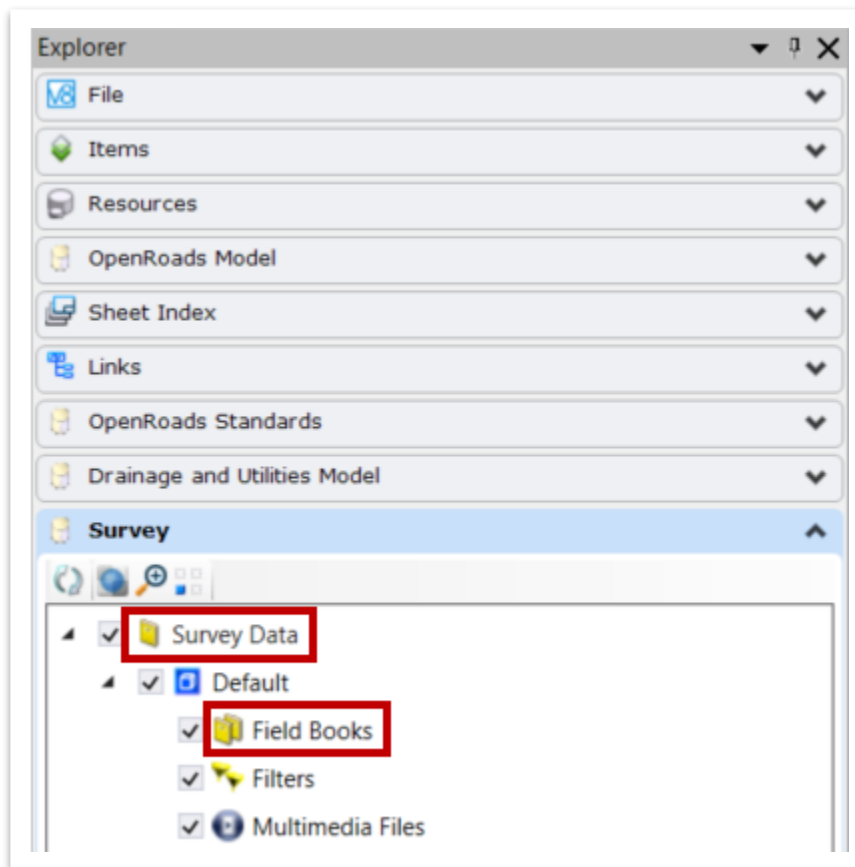
- Next, open **File Explorer** and browse to the location of your surveyed Environmental field data text files. **Note:** The **ENVinput2.txt** file will be used for this example.

- For proper importing in the TDOT workspace, surveyed Environmental field data must be coded as comma delimited as shown in the example file below. **Note:** Linking codes and descriptors must also be included where required. Please see the **TDOT Environmental Feature Codes** document for additional reference.

PointName,Northing,Easting,Elevation,FeatureCode

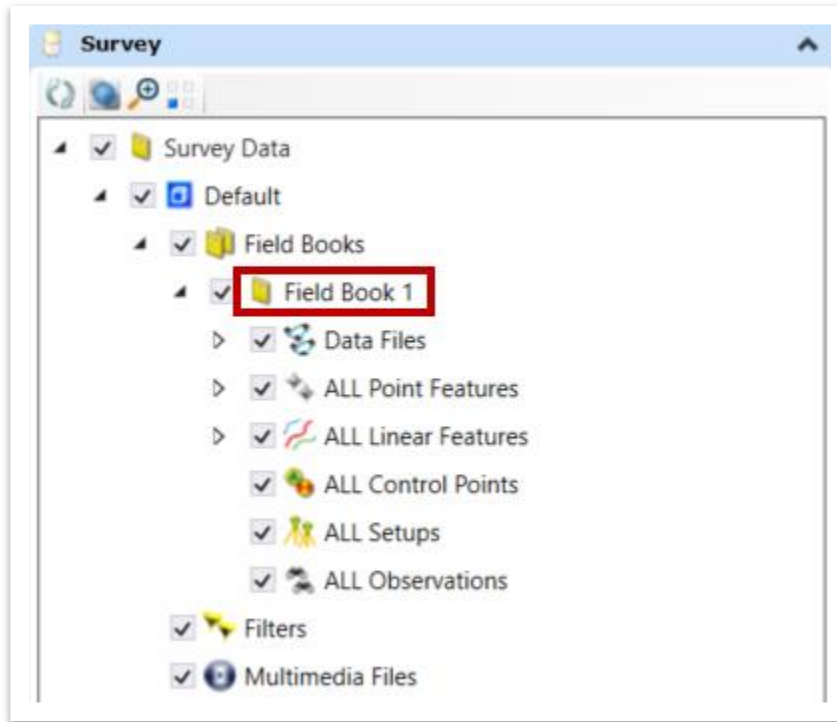
```
E196,672514.3544,1838908.442,561.9164,+TOB1=LDB  
E197,672453.5505,1838921.525,562.9664,+TOB2=RDB  
E198,672552.396,1839013.561,559.5164,TOB1  
E199,672482.3607,1839036.681,560.7564,TOB2  
E200,672568.6996,1839154.755,558.1164,TOB1  
E201,672530.1251,1839169.263,558.9464,TOB2  
E202,672628.4793,1839301.768,557.4764,TOB1  
E203,672547.5628,1839332.906,558.5664,TOB2  
E204,672613.8358,1839441.727,555.7964,-TOB1  
E205,672585.471,1839438.971,557.0764,-TOB2
```

- Drag and drop the **ENVinput2.txt** file into the **Survey Data** folder or the **Field Books** folder in ORD.

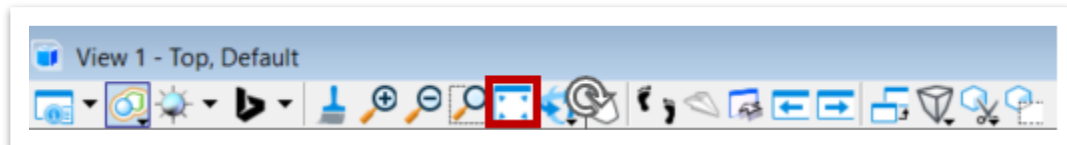


Importing Environmental Field Data

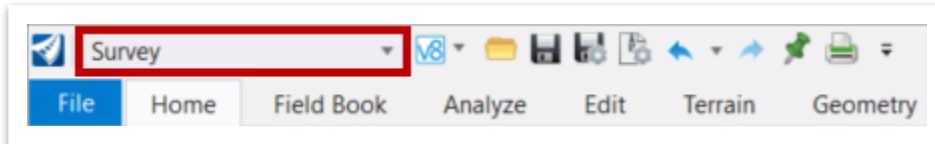
- Expand the **Field Books** folder and notice that a **Field Book 1** folder is automatically created. **Note:** You could rename your field book but for this example, we will leave the default name as-is.



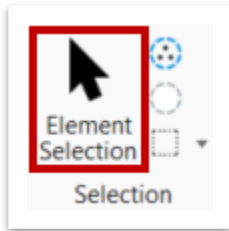
- Click **Fit View** to see the data and notice that it is very small. You can use other **View** tools to zoom into the two areas.



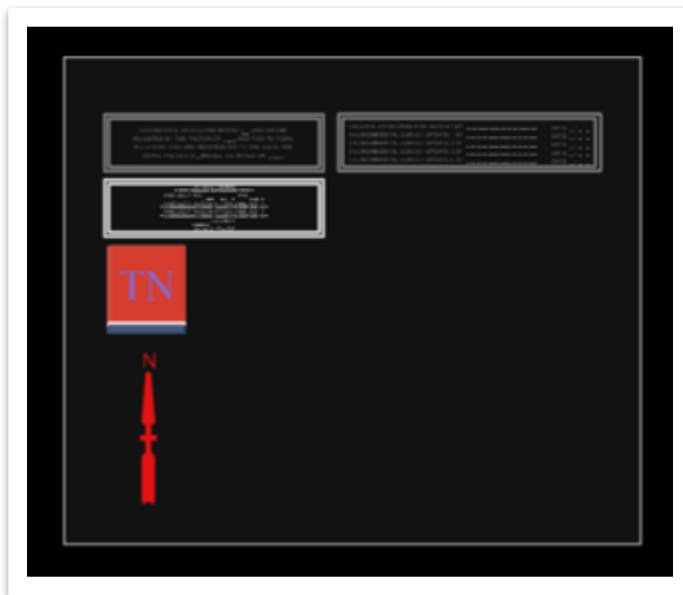
10. Make sure the **Survey** workflow is selected in the upper left corner of the screen.



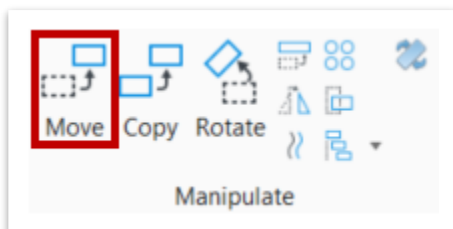
11. Now, we will move the embedded environmental notes to near our project location. Zoom in to the notes in your file and open the **Element Selection** tool (**Survey >> Home >> Selection**).



12. **Left** click (and hold) and drag a shape over all notes to select them.



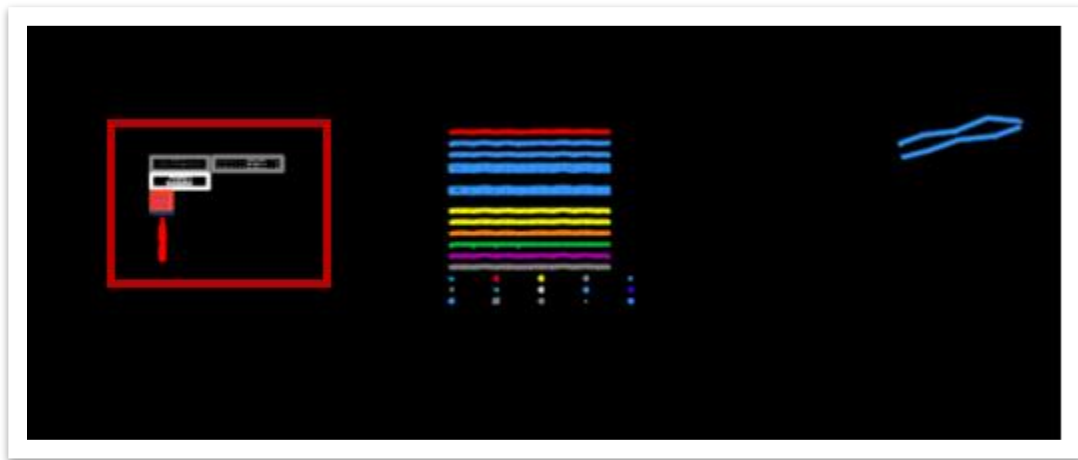
13. The notes will be all grey when selected. Open the **Move** tool (**Survey >> Drawing >> Manipulate**) and then **left** click on the screen anywhere in the black area. The notes should be active on your cursor.



14. Click **Fit View** and then click **Window Area**.



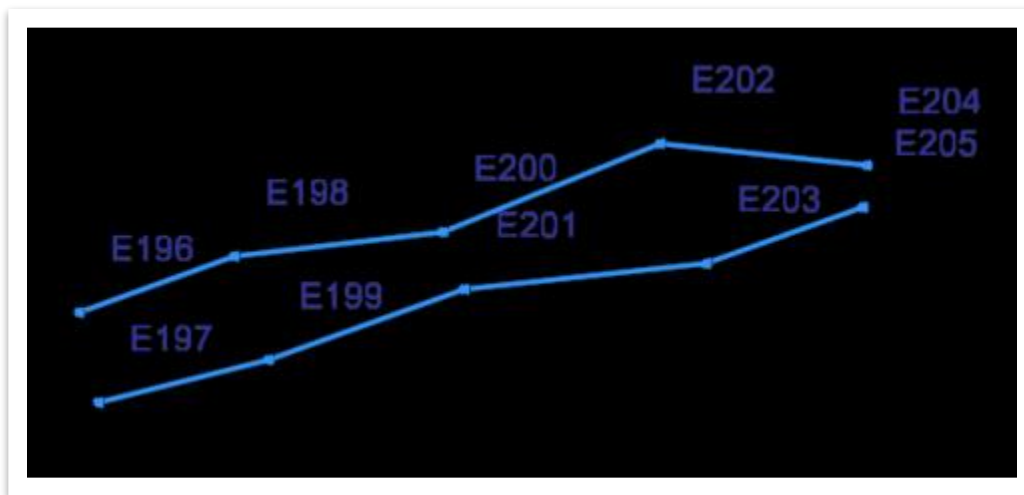
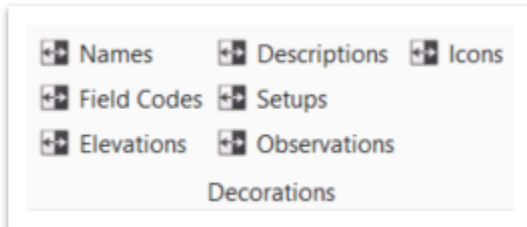
15. Draw a shape encompassing the area of the surveyed environmental field data. Once you are zoomed in, **right** click for the notes to reappear on your cursor and then **left** click to place the notes in the file. **Right** click to clear the tool. **Note:** You can also use your mouse wheel to zoom in and out.



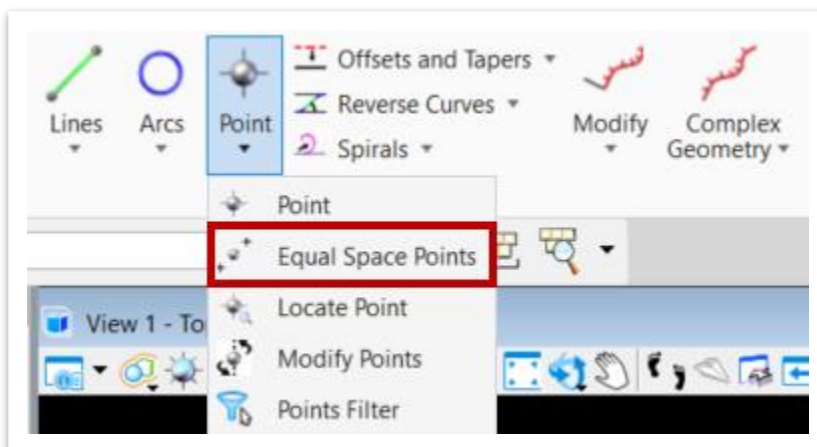
16. Click **Fit View** once again and all items in the file should show in your view.

Office Additions to Environmental Field Data

1. Zoom into the area where the **Top of Banks** (TOB) were located. You can turn on and off point **Names**, **Field Codes**, **Elevations**, and **Descriptions** using the **Decorations** tools (**Survey >> Analyze**) before writing any Element Annotation to the file. **Note:** The point **Names** are shown below.



2. We will now place the stream using the **TOB** features collected in the field. Open the **Equal Space Points** tool (**Survey >> Geometry >> Horizontal >> Point**).

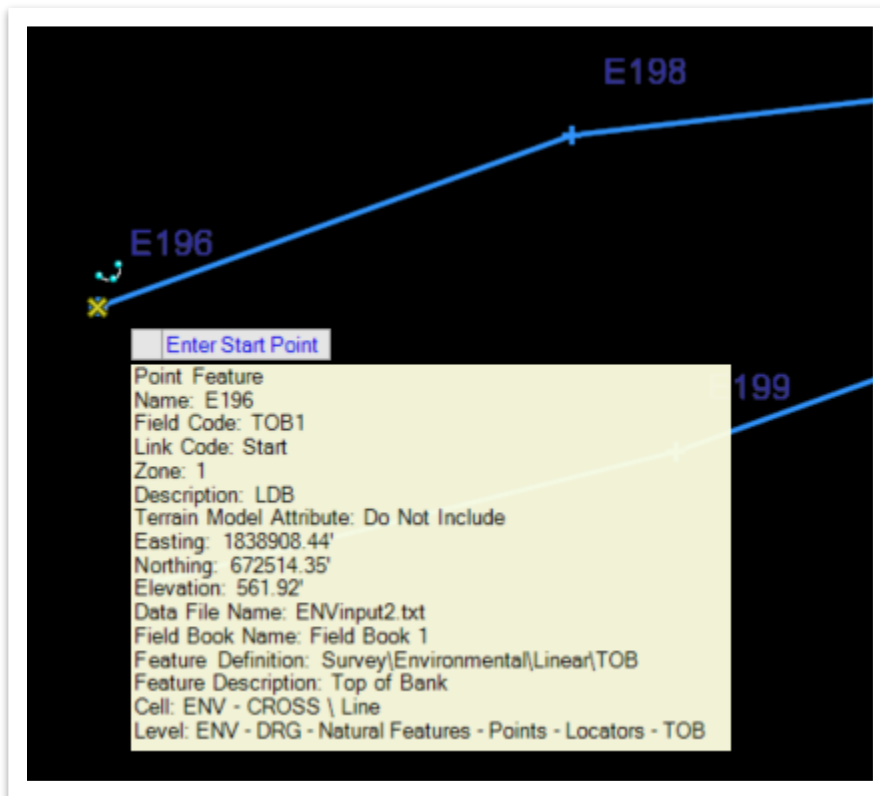


3. Within the **Equal Space Points** dialog box, select the following settings.
 - a. **Placement Mode:** Between Points
 - b. **Number Of Points:** 1
 - c. **Feature Definition:** XENV (**Point >> Environmental**)
 - d. **Name:** XENV (Default)
 - e. **Description:** You can leave blank for this example.

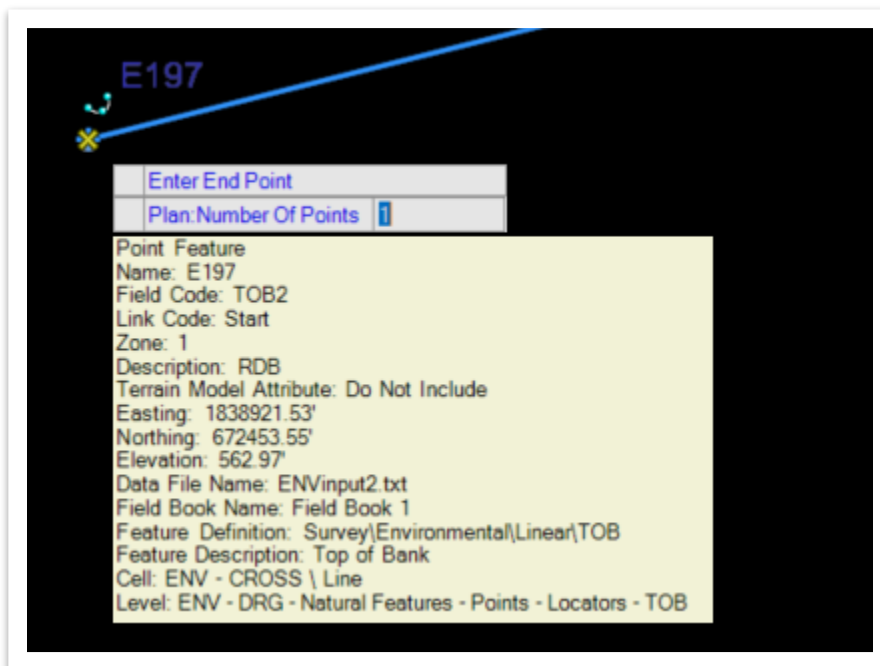
The screenshot shows the 'Equal Space Points' dialog box with the following settings:

- Plan:**
 - Placement Mode: Between Points
 - Interval: 0.00
 - Number Of Points: 1
- Elevation:**
 - Elevation Mode: None
- Rotation:**
 - Rotation Mode: Absolute Value
 - Rotation: N90°00'00"E
- Feature:**
 - Feature Definition: XENV
 - Name: XENV
 - Description: (blank)

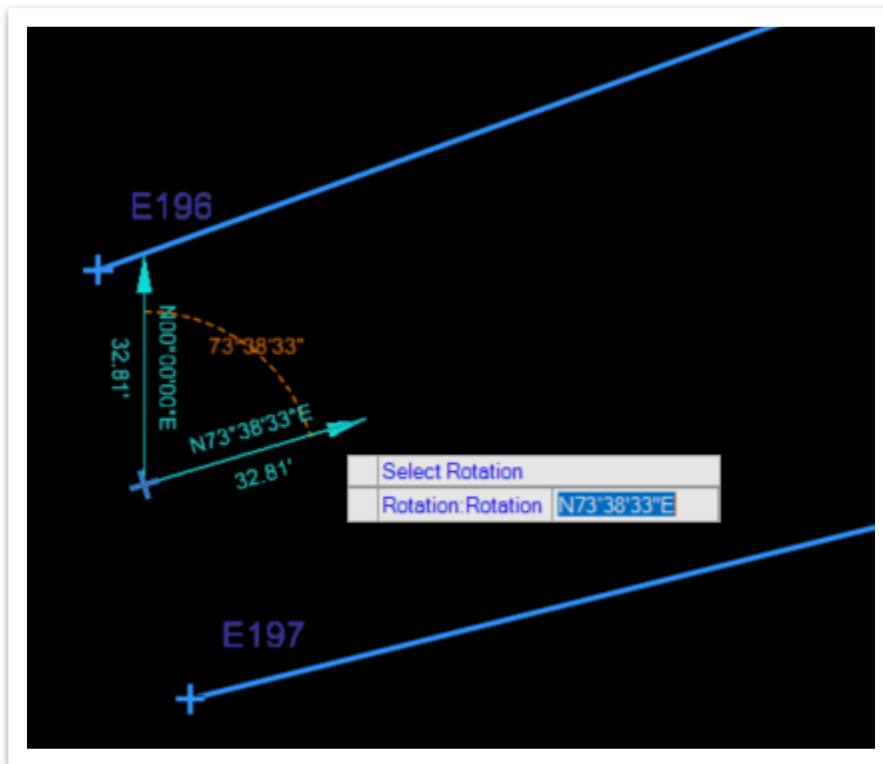
- Zoom in to the beginning of the top of bank area. **Left** click to accept the **Placement Mode** and then notice the cursor prompt: **Enter Start Point**. **Left** click on point **E196**.



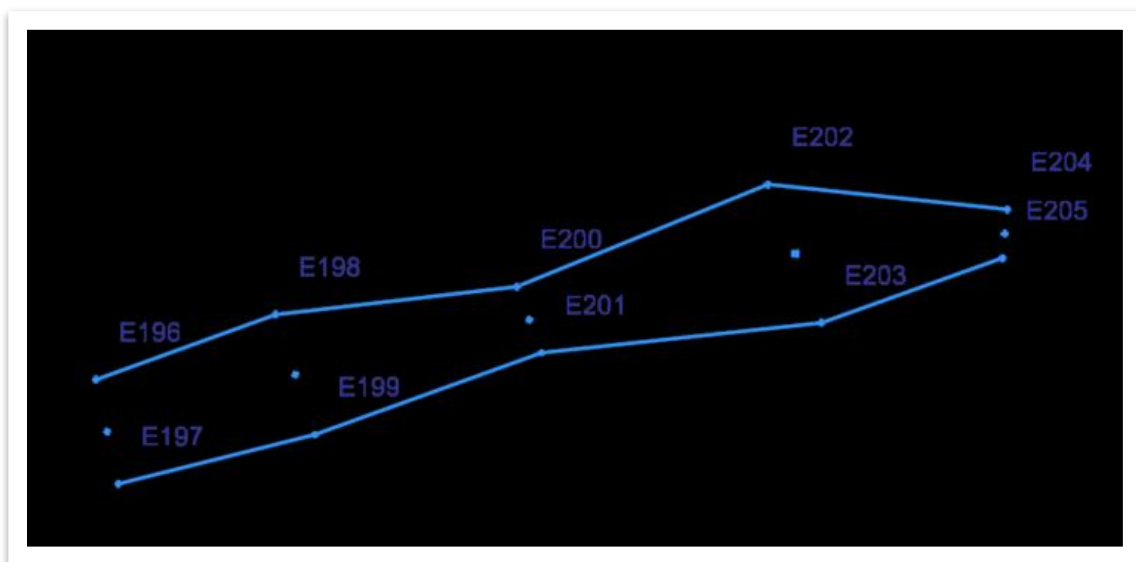
- Notice the next cursor prompt: **Enter End Point**. **Left** click on point **E197**.



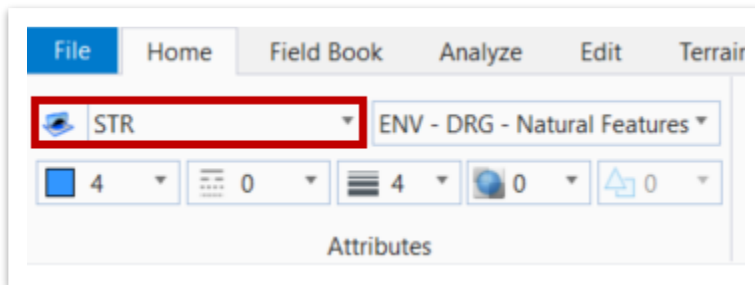
- The **Rotation** angle is not important for this workflow, so **left** click to select any rotation angle.



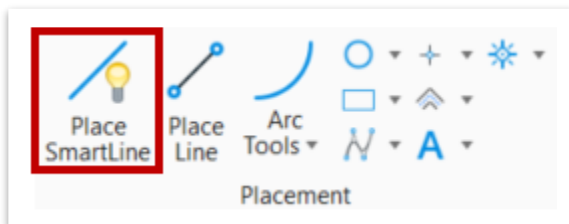
- A point has now been stored with the **XENV** feature. Repeat Steps 4-6 for the length of the TOB data collection to add the remaining points, and then **right** click to clear the tool.



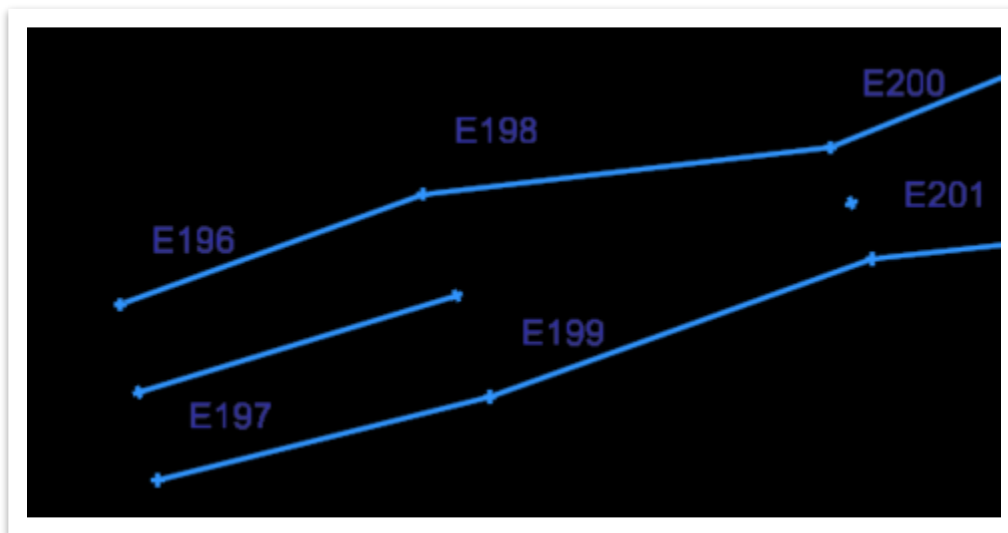
- We will now add the linework for the stream. Select the **STR** element template (**Environmental >> Lines**).



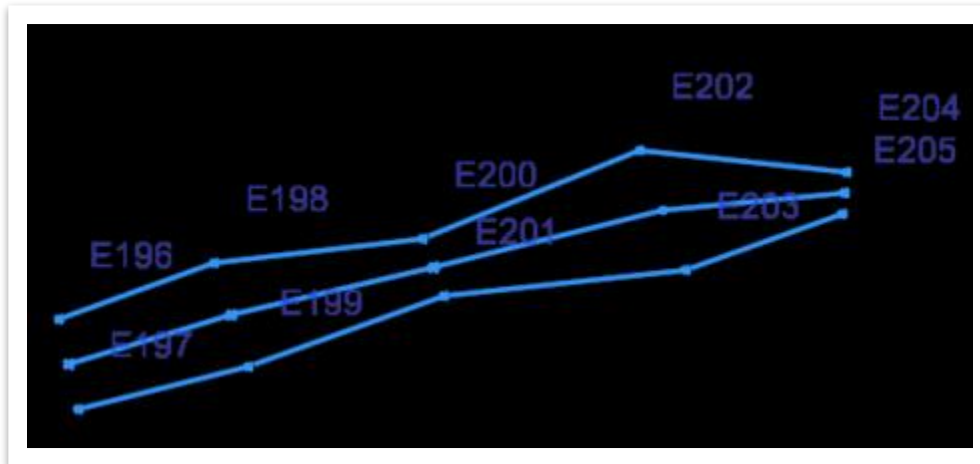
- Next, open the **Place SmartLine** tool (**Survey >> Drawing >> Placement**).



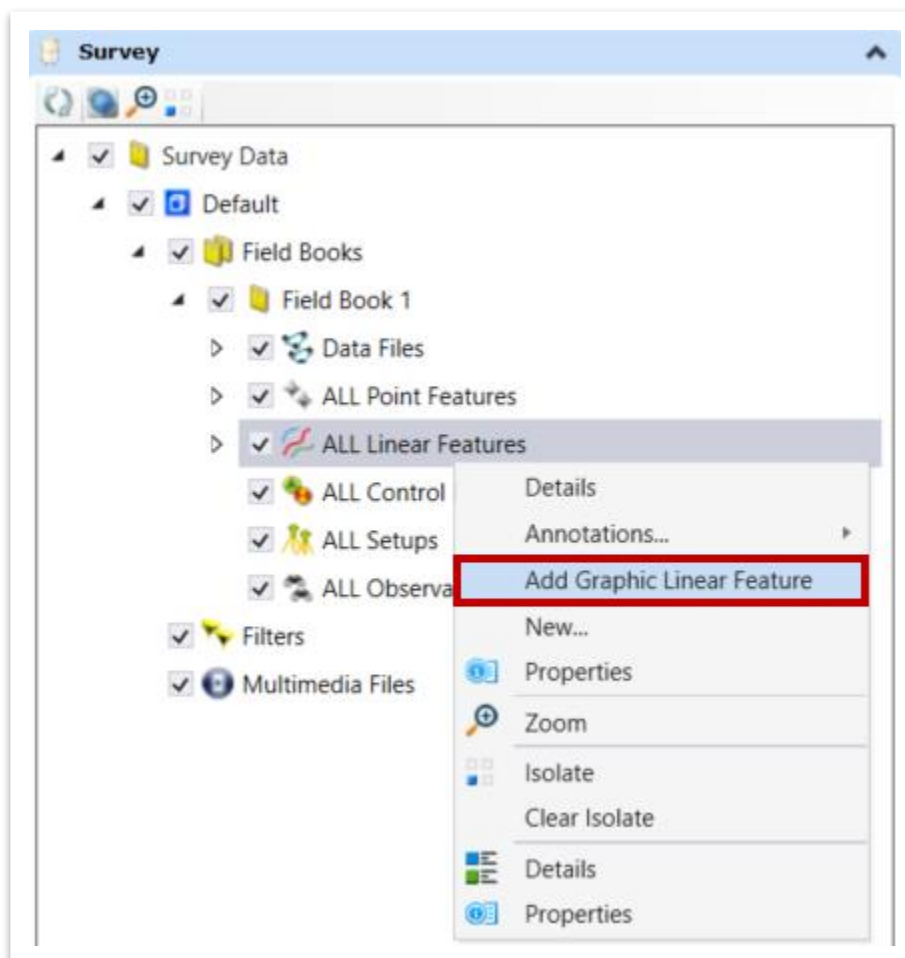
- Notice the prompt in the lower left corner: **Enter first vertex. Left** click on the first point and then **left** click on the next point to the right to create the first **STR** segment.



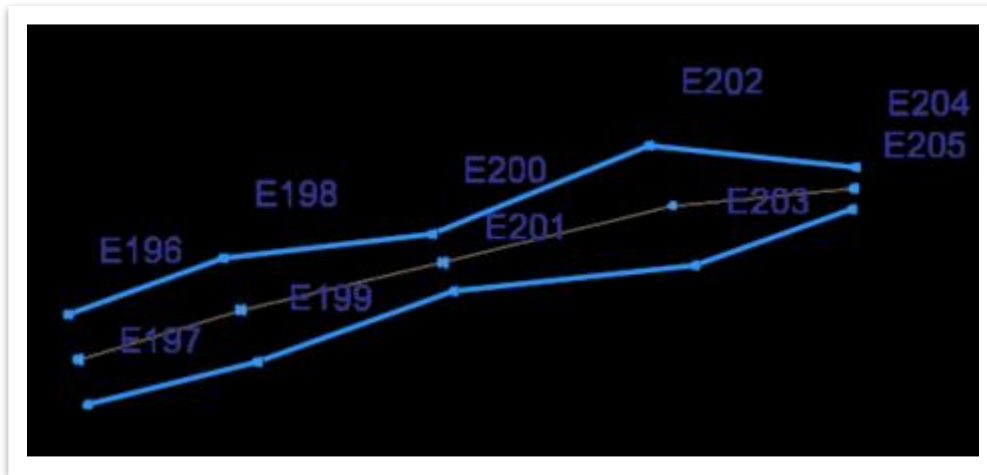
11. Repeat for the remaining three points and then **right** click to end the **STR** line.



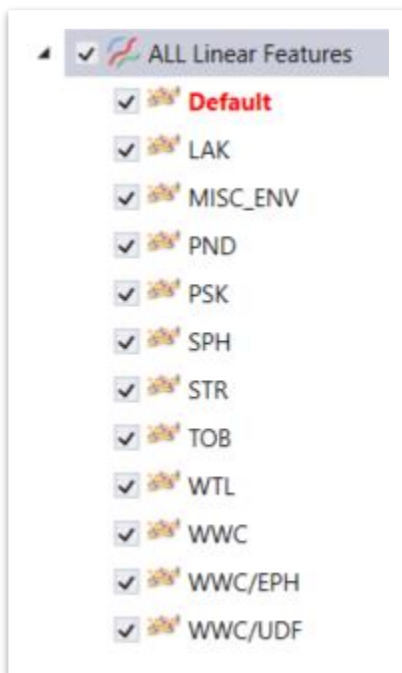
12. Now we will add the stream linear feature we just created to the ORD field book. Within the **Explorer**, expand **Field Book 1**. **Right** click on **ALL Linear Features** and select **Add Graphic Linear Feature**.



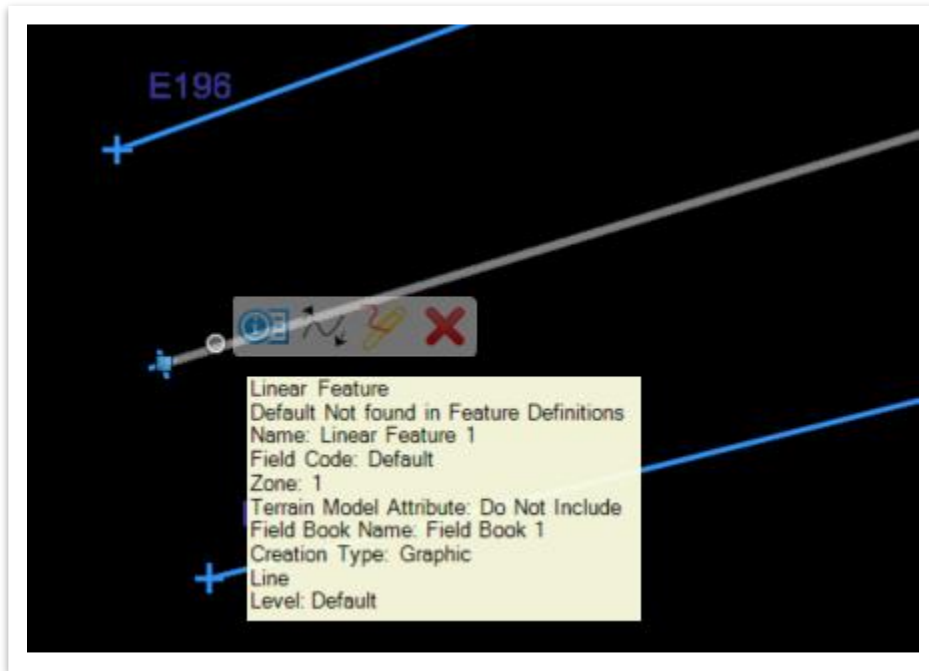
13. Notice the prompt in the lower left corner: **Identify Element**. **Left** click to select the **STR** line, and accept by **left** clicking again. After adding the linear feature to the field book, the color will be different.



14. Within the **Explorer**, expand **ALL Linear Features**. Notice the element that was just added is using the **Default** feature instead of **STR**.

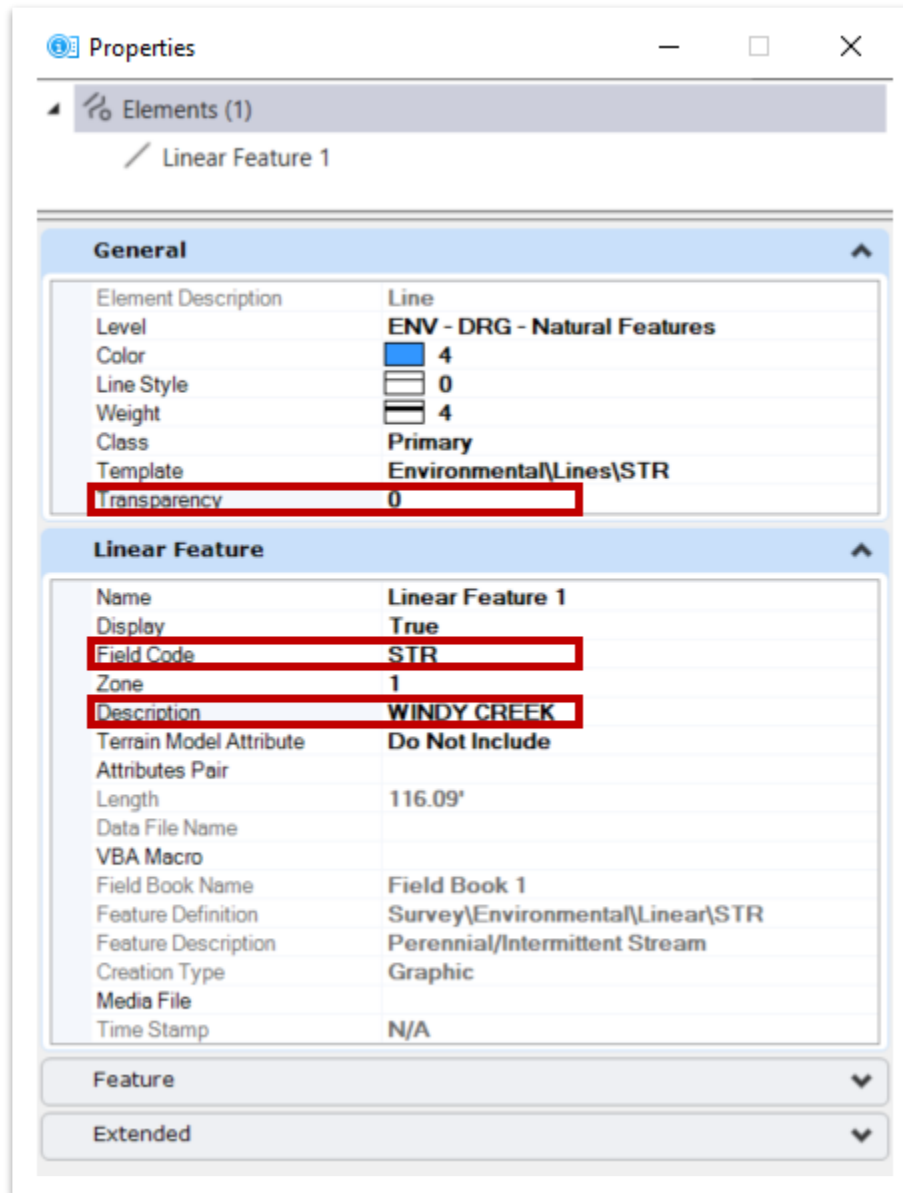


15. We will now update the feature to **STR**. Open the **Properties** window, if not already opened or docked. Then, open the **Element Selection** tool and select the linear feature we just added to your field book.

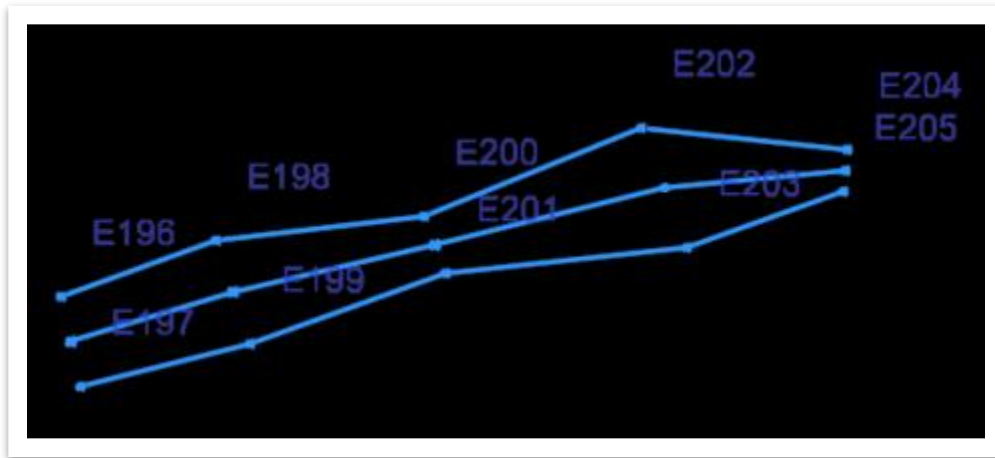
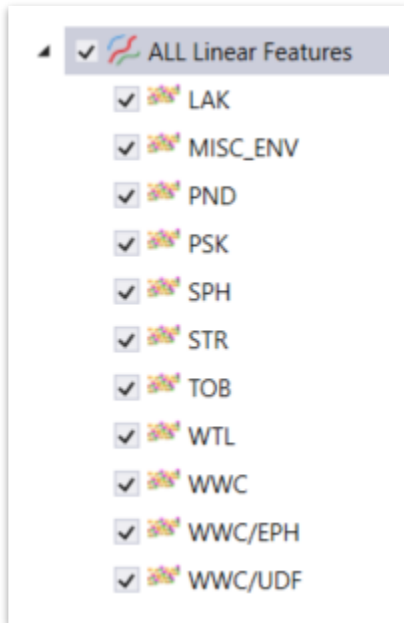


16. Within the **Properties** for this linear feature, modify the following settings.

- a. **Field Code:** STR (required)
- b. **Description:** WINDY CREEK (if desired for automatic element annotation)
- c. **Transparency:** 0 (required)

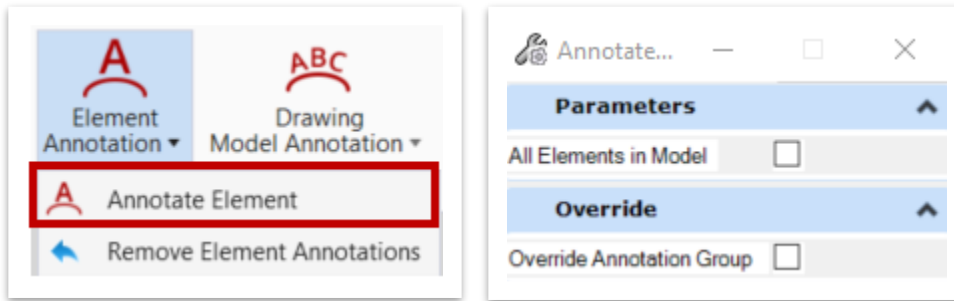


17. Now that the field code has been modified, the linear feature attributes should update and you will see the **STR** feature code corrected under **ALL Linear Features** in the field book.

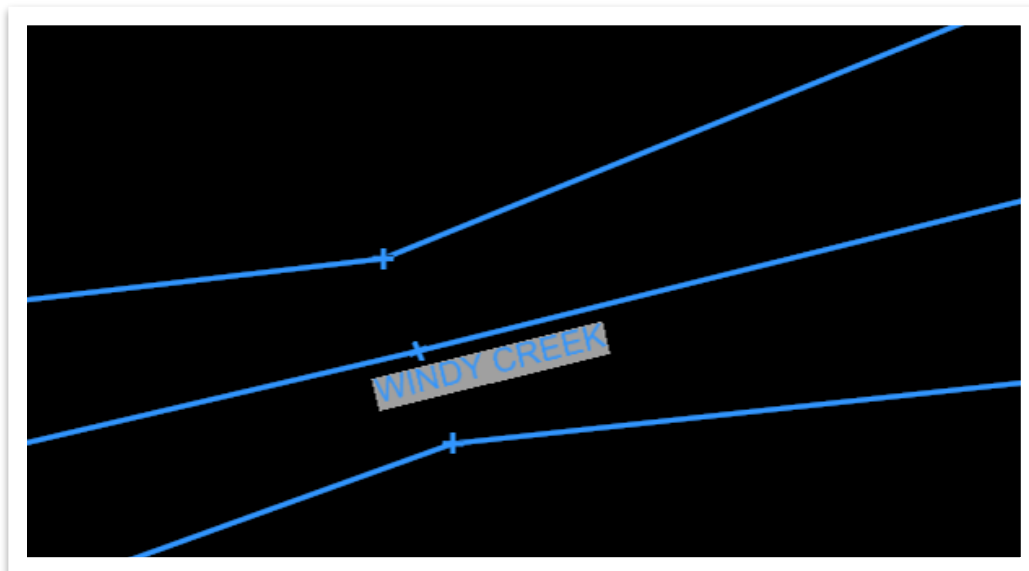


Annotating Environmental Field Data for Plan Production

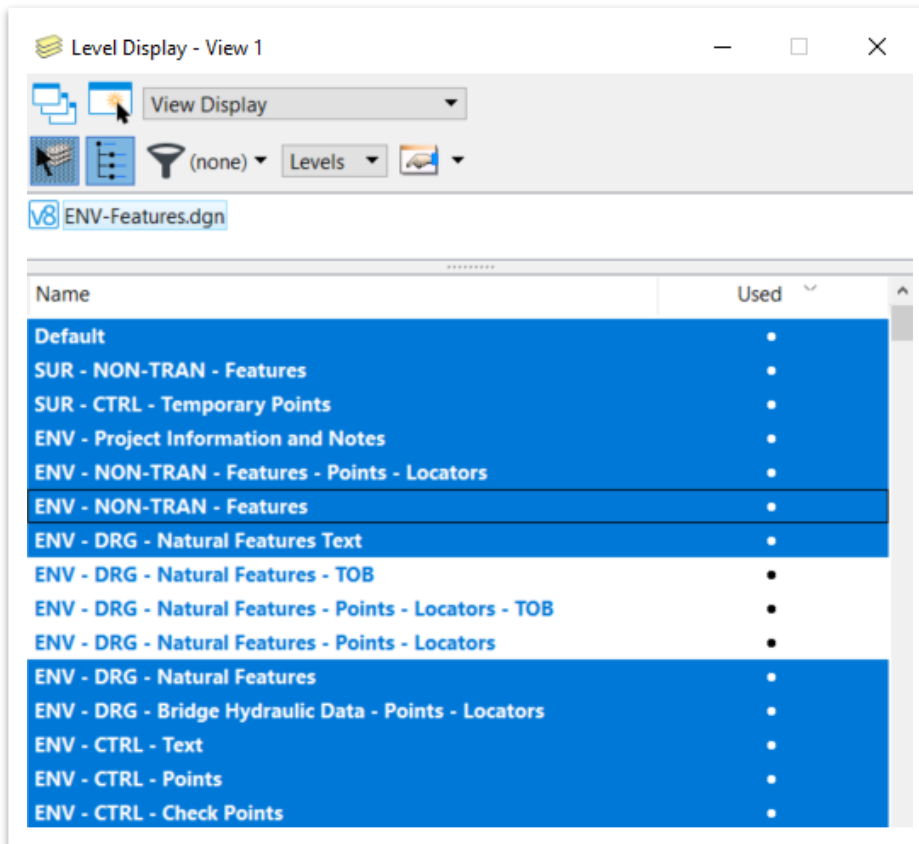
1. Open the **Annotate Element** tool (**Survey >> Drawing Production >> Annotations >> Element Annotation**) and leave the settings as shown below. **Note:** You can toggle to annotate all elements in the model or untoggle this setting to annotate based on a selection set in the model.



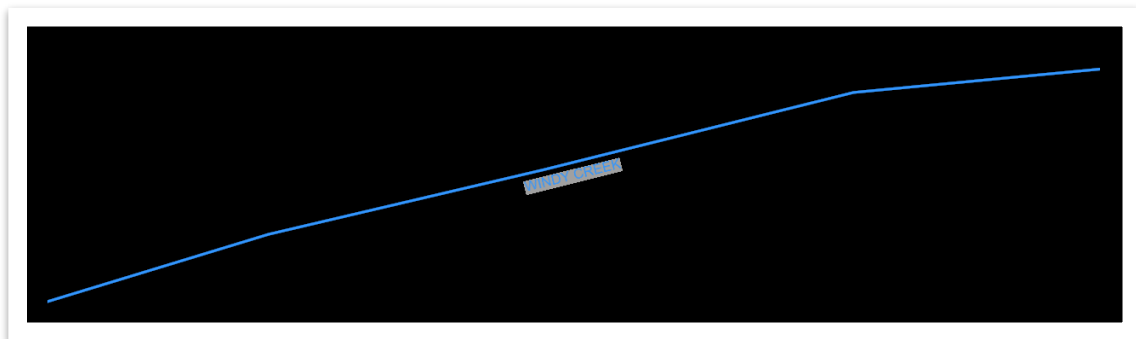
2. Notice the cursor prompt: **Locate Elements - Reset To Complete**. Left click on the **STR** linear feature and then **right** click to place the annotation. **Note:** The point name **Decorations** have been turned off (**Survey >> Analyze**).



- Next, open the **Level Display** window so we can turn off the **TOB** levels and point symbols. **Right** click in the blue area of the **Level Display** window and select **Off By Element**. Click the applicable elements in the file to turn off.

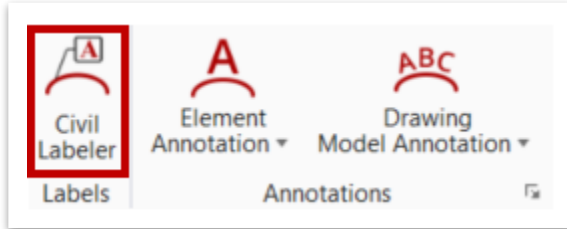


- After turning off the applicable levels, you should only see the stream and the annotation. **Note:** If you would like to preserve this view and Level Display when you close and reopen the file, remember to go to **File >> Save Settings**.

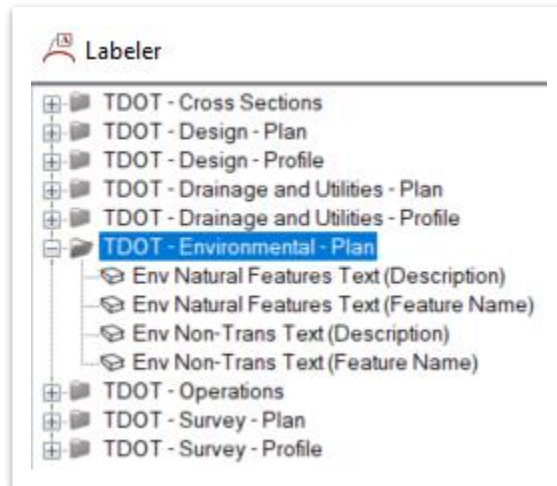


Annotating Environmental Field Data for Exhibits

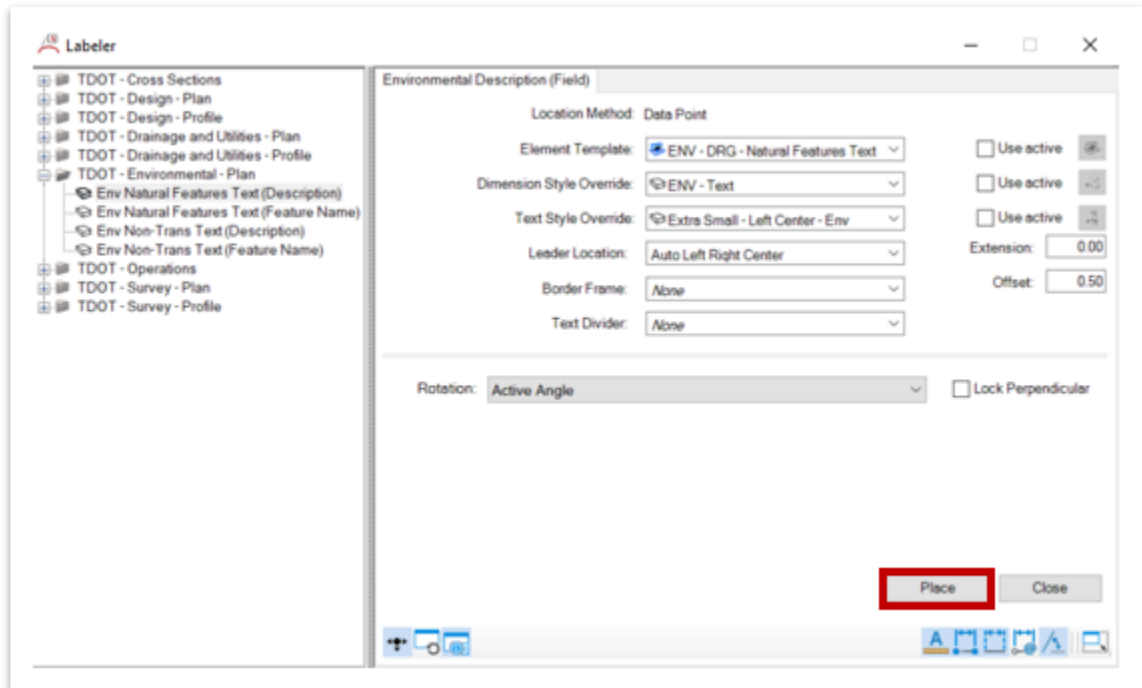
1. Open the **Civil Labeler** tool (**Survey >> Drawing Production >> Labels**) and give it a minute to open.



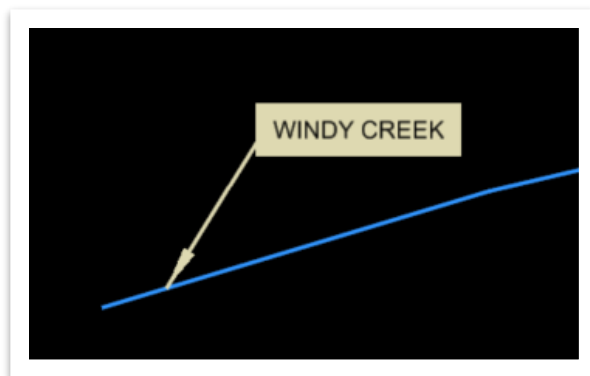
2. The TDOT ORD workspace has four predefined environmental labels located in the **TDOT - Environmental - Plan** folder.
 - a. Env Natural Features Text (Description)
 - b. Env Natural Features Text (Feature Name)
 - c. Env Non-Trans Text (Description)
 - d. Env Non-Trans Text (Feature Name)



- Once you have selected the applicable label, you must click the **Place** button in the lower right corner of the **Labeler** dialog box and then follow the prompts in the lower left corner of the ORD window.

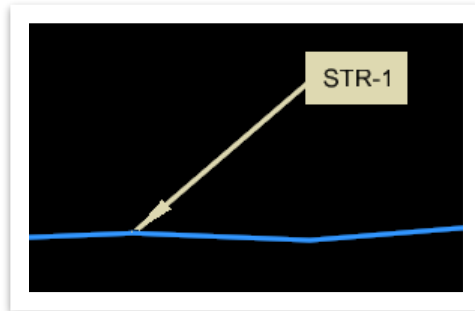


- Go ahead and select the **Env Natural Features Text (Description)** label and keep the default settings. Click the **Place** button and follow the tool prompts shown below in the lower left corner of the ORD window.
 - Identify Feature:** Select the STR feature to label.
 - Accept Point:** Data point to start the arrow end of your label.
 - No prompt provided:* Move your cursor where you would like to place the label.
 - No prompt provided:* **Left** click to place the label in the desired location.



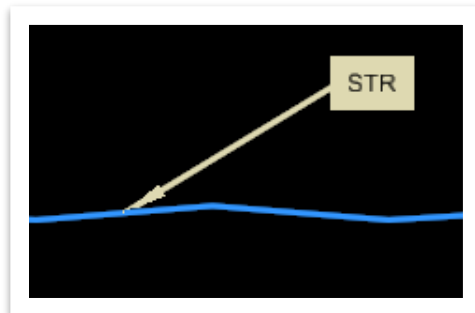
5. The following are examples of the different **TDOT - Environmental - Plan** labels for use along with the **Property** that the annotation is pulling from.

a. Env Natural Features Text (Description)



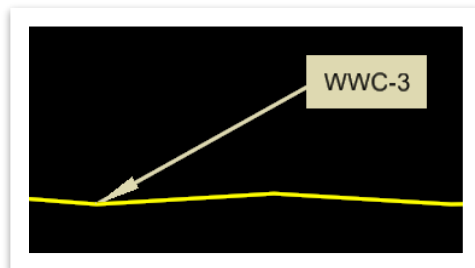
Linear Feature	
Name	STR
Display	True
Field Code	STR
Zone	1
Description	STR-1

b. Env Natural Features Text (Feature Name)



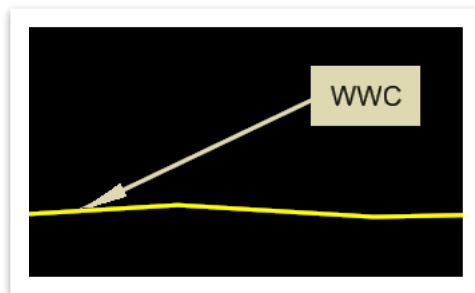
Linear Feature	
Name	STR
Display	True
Field Code	STR
Zone	1
Description	STR-1

c. Env Non-Trans Text (Description)



Linear Feature	
Name	WWC
Display	True
Field Code	WWC
Zone	1
Description	WWC-3

d. Env Non-Trans Text (Feature Name)



Linear Feature	
Name	WWC
Display	True
Field Code	WWC
Zone	1
Description	WWC-3