



# Creating PDF Files from MicroStation V8i DGN Files

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## Introduction

T.D.O.T. Design Division personnel have two methods available to them for producing PDF files from plan sheets in MicroStation. Both of these are described in this document. The recommended method is with InterPlot Organizer, which is used for batch plotting and generating PDF plan sets. They can also use MicroStation Print to produce individual sheet PDF files.

Consultants that use MicroStation's Print Organizer tool for batch plotting can use that section for guidance in producing PDF plan sets.

A single PDF file should be created that contains all required sheets for all plan sets except for the final construction plans turn in. For final construction plans, each individual sheet is generated as a separate PDF file. They can then be combined in a PDF portfolio where the project engineer can digitally sign them each.

## PDF Sheet Sizes

All Plan sheets in PDF files used for posting to FileNet **must** be set up at full size. Other PDF plans sheet submittals may be half size as stipulated in the T.D.O.T. Design Division Guidelines.

This document contains a section at the end describing the correct way to print from PDF files to avoid scaling errors. It shows document and paper sizes as well as how to print from either full or half size to generate any required prints you may need.

(If you are unsure how to proceed with the following steps, please contact [CADD Support](#), your office IT staff or submit a [Remedy helpdesk ticket](#).)

## Connecting to Printers/Plotters on new print servers:

Users must remove old plotters (which will be ghosted) and add to the newly named plotters  
- To connect to the plotters in your region/office, you will need to go to the **Start** menu. Once there type the appropriate dialog to access your plotters for your region/office:

- Headquarters: [\\HQPRINT](#)
- Region 1: [\\R1PRINT](#)
- Region 2: [\\R2PRINT](#)
- Region 3: [\\R3PRINT](#)
- Region 4: [\\R4PRINT](#)

Once you have found the plotter you want to connect to, right-click and select **Connect...** to connect to the plotter. Do this for each plotter you need connected.

## PURPOSE

This document provides instructions for a new plotting workflow for full size design files when using **Projectwise Interplot Organizer** and **IPLLOT** within MicroStation to match current needs and standards.

## CURRENT VERSIONS OF APPLICATIONS THAT USE SETTINGS FILES

- **IPLLOT** in MicroStation V8i Select Series 2 (08.11.07.443)
- **Projectwise Interplot Organizer** V8i Select Series 2 (08.11.07.420)
- **Projectwise Interplot Organizer** CONNECT Edition (10.00.00.52)

## HISTORY

The plotter migration to the new 2008 Windows servers changed the print server names and plotter names found hardcoded within each \*.set file. In most cases, there are many settings files for each plotter queue. Interplot settings files (\*.set) are located on users' computers in the following directory:

[C:\Users\Public\InterPlot Standards\Settings](#)

The hope is to streamline the process of creating/updating these files and plotter queues, as well as, providing users with better performance and adherence to current plotting standards.

## **BENEFITS OF NEW PLOTTING WORKFLOW**

By creating PDF settings files, this provides the following solutions:

- **Removes dependencies** found in current settings files by being hardcoded to specific plotters
- Users have **more flexibility** to print and plot by allowing them to select their device
- When instructions are followed, they provide a **more consistent printed product with the correct scales**
- **Less to manage and maintain** – all regions/offices get the same settings files
  - This should also reduce the number of plotter queues on the print servers
- **Creation of digital copy of every full size sheet** to be stored on network
- When instructions are followed, **full size PDF can be scaled down to half size** for printing to printers – **faster and less expensive** than printing to plotters; potential to reduce the number of plotters by replacing with additional printers for additional cost savings

## **PDF Plan Sets from InterPlot Organizer**

1. Open **InterPlot Organizer** and create a plot set.

The next several pages illustrate the set-up of sheets in InterPlot Organizer. They vary by type and when your plans were originally set up. Once you have your sheets set up in InterPlot Organizer you can skip to page 7 and step 2.

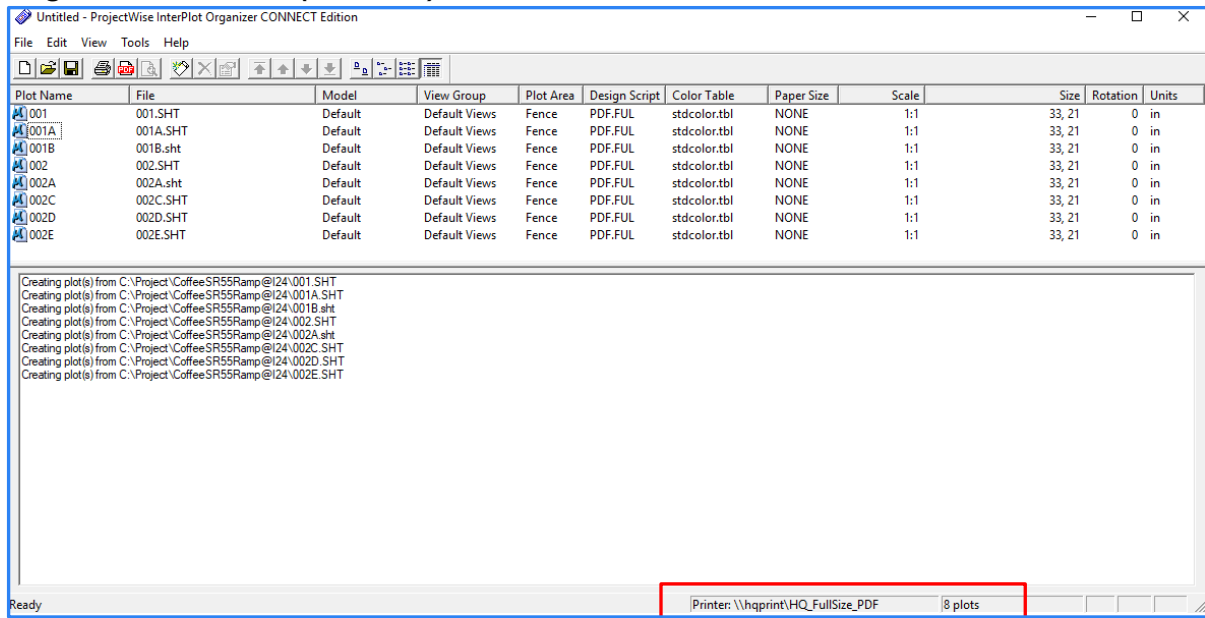
***NOTE: For users who cannot create PDFs with InterPlot Organizer due to issue with DGNs files embedded with Excel spreadsheet which was updated to Office 365 and this has caused PDFs creation in InterPlot Organizer for some. To resolve such issue, we recommend users to use Print Organizer as instructed on page 16 of this document.***

## Document Sheet Sizes

Regular Full Size: 33" X 21"

Cross Section Full Size: 33" X 21"

### Regular Plan Sheets (Full Size)



### Note:

Ensure documents are sent to correct printer directory.

Head Quarter - \\hqprint\HQ\_FullSize\_PDF

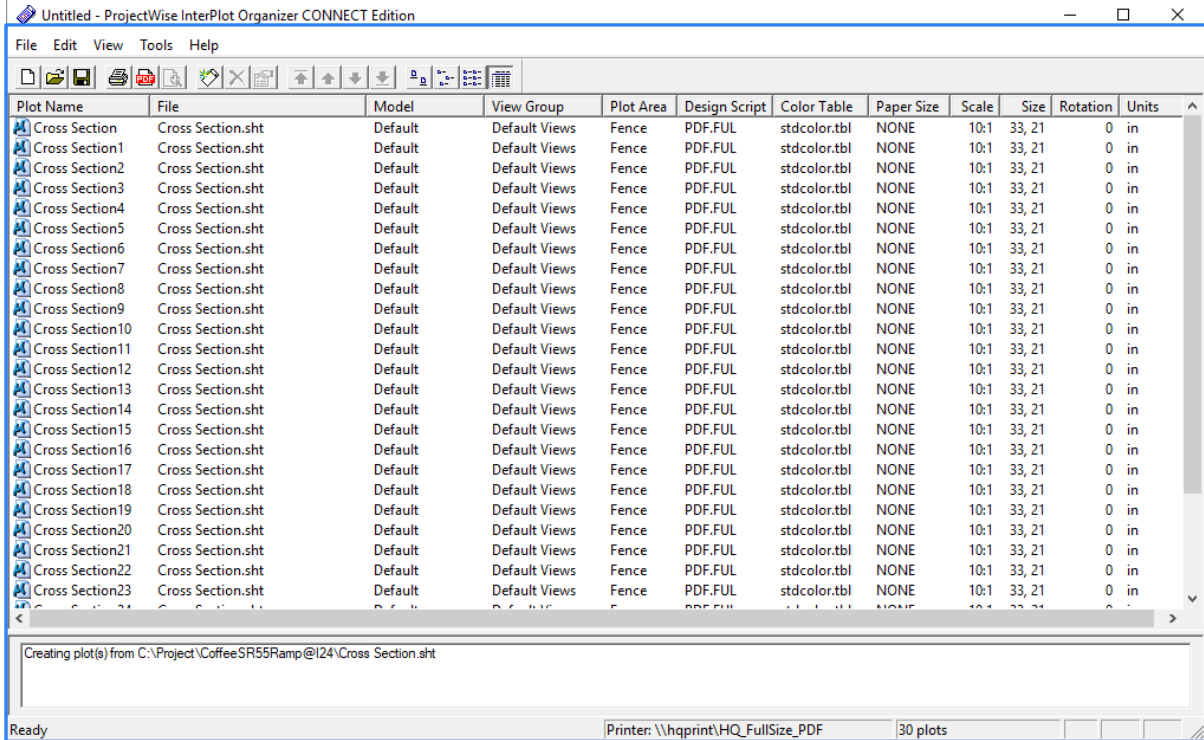
Region 1 - \\r1print\R1\_FullSize\_PDF

Region 2 - \\r2print\R2\_FullSize\_PDF

Region 3 - \\r3print\R3\_FullSize\_PDF

Region 4 - \\r4print\R4\_FullSize\_PDF

## Cross Section Sheets (Full Size)

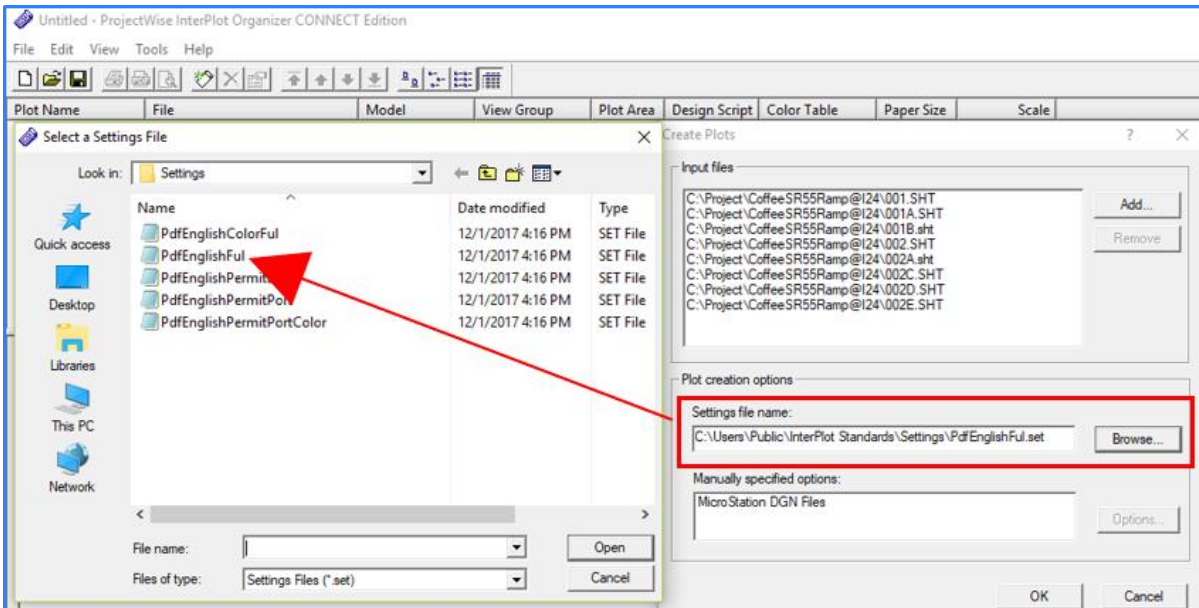


### Note:

The main difference between the regular ORG\* settings files normally used with Interplot Organizer and the PDF\* settings files are no paper size is set and they use an internal rotation setting of zero.

## Full Size PDF Selection in Interplot Organizer

Both Regular Plan and Cross Section Sheets must use PdfEnglishFul.



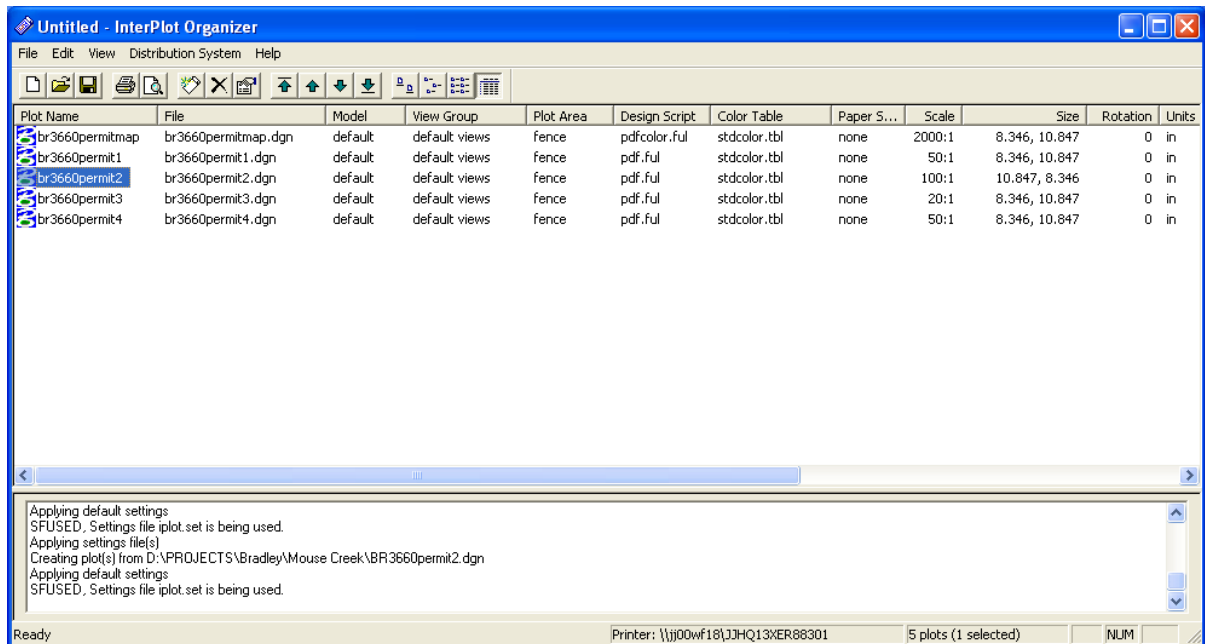
## For 8 1/2 X 11 Permit Sketches:

Create a plot set using the following settings files:

Settings File	B&W or Color	Orientation
<b>PdfEnglishPermitLand.set</b>	Black and White	Landscape
<b>PdfEnglishPermitPort.set</b>	Black and White	Portrait
<b>PdfEnglishPermitLandColor.set</b>	Color	Landscape
<b>PdfEnglishPermitPortColor.set</b>	Color	Portrait

\*These settings files utilize a PDF plot shape in the permit sketch borders that is drawn with color 253.

For permits set up prior to **October 2007** when the PDF plot shape was added to the permit sketch border cells, use the **Draw Plot Border** tool to set symbology and manually add the PDF plot shape by drawing over the outside border of the permit. This tool can be found under the TDOT drop down menu at **TDOT > Tools > Draw Plot Border** or from Geopak's D&C Manager at **Drafting Standards > Tools > Plot Border**.

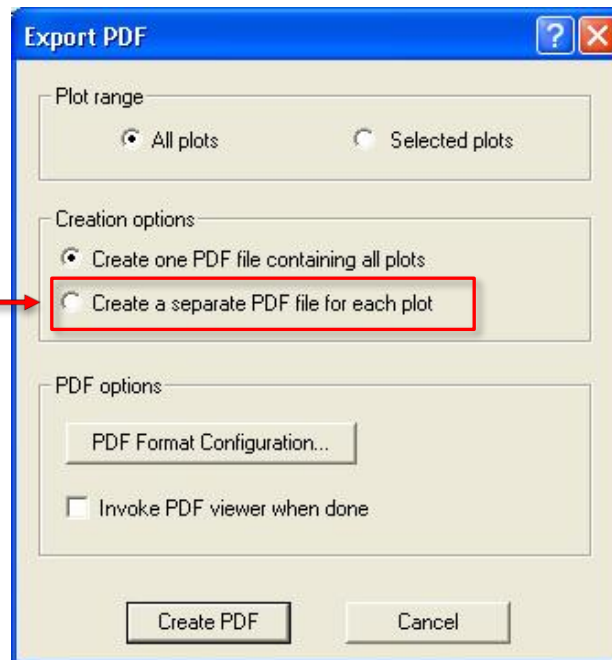


1. Go to **File > Export PDF**.

- When one or more plots are selected in the list, you can right click on your mouse and choose **Export PDF** from the pop-up menu. There is also an icon to launch this function on the menu bar



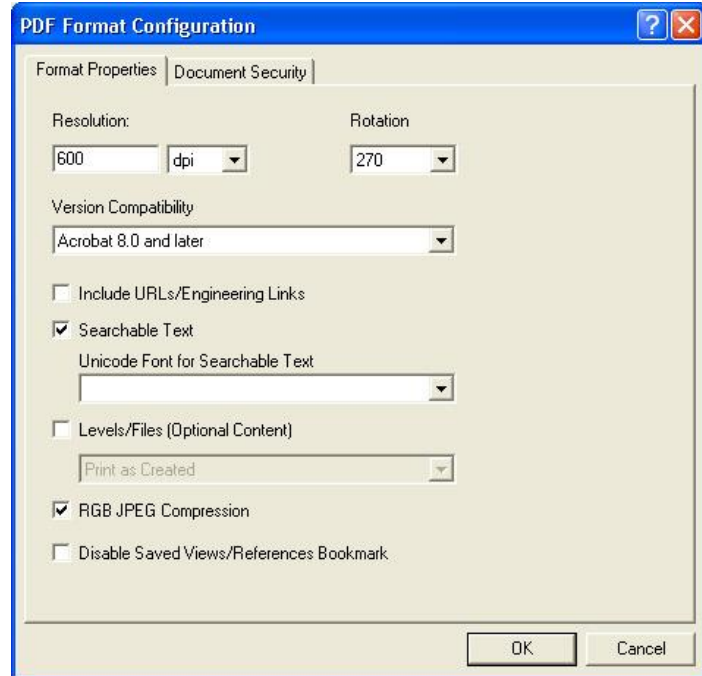
- The Export PDF dialog display varies slightly from previous versions and includes an option to create separate PDF files for each sheet. This option could be used when creating PDF documents for final construction plans.





2. In the Export PDF dialog, click on **PDF Format Configuration**.

- Make the following settings:
- **Resolution:** 600 dpi
- **Rotation:** 270
- **Version Compatibility:** Acrobat 8.0 and later
- **Searchable Text:** clicked On.
- **RGB JPEG Compression:** clicked On.



After the settings are made, select **OK** in the PDF Format Configuration dialog.

3. Back in the Export PDF dialog, you may wish to click on the option to **Invoke PDF viewer when done** to automatically open the new PDF file for review.

- Click **Create PDF**.

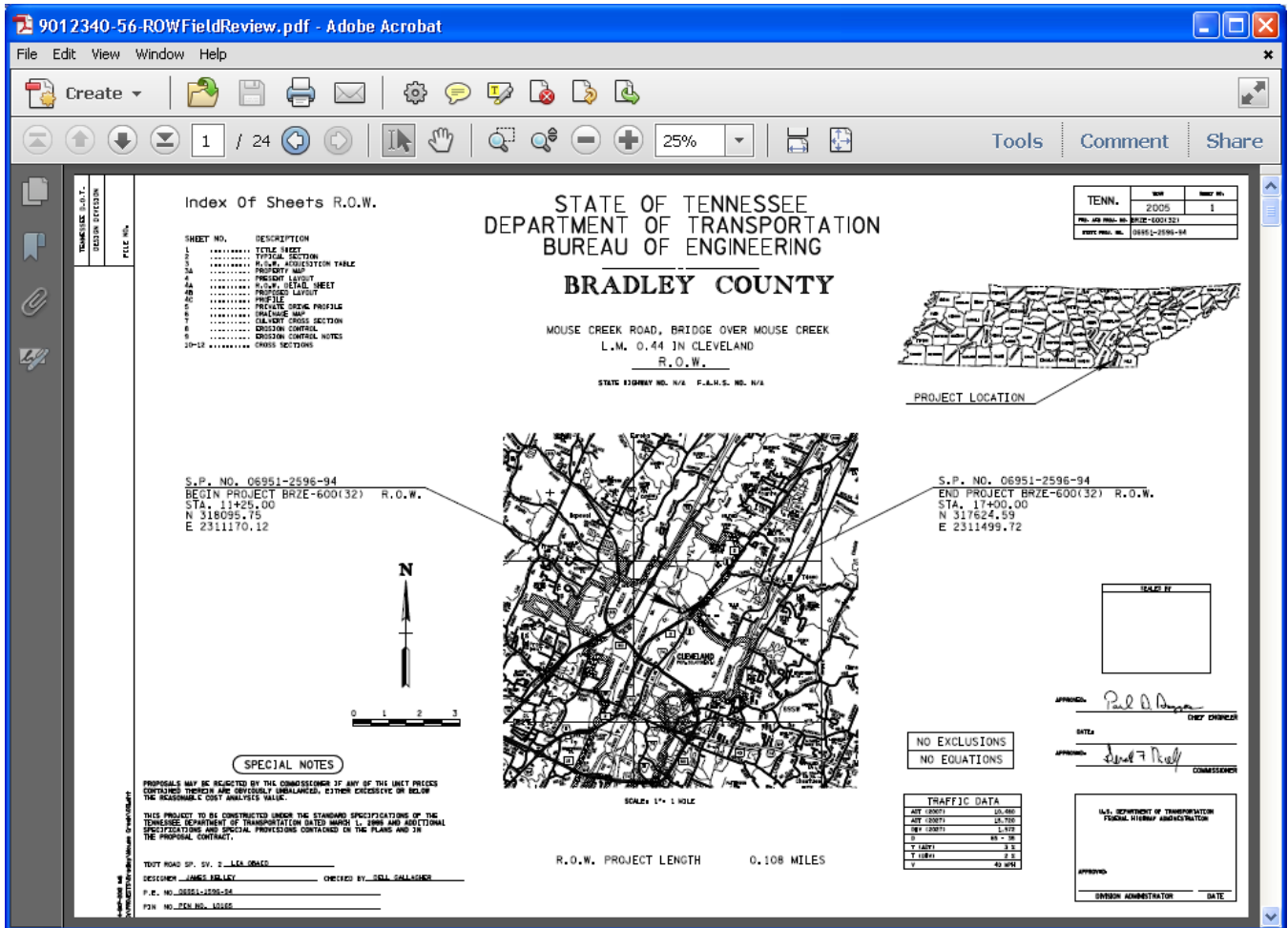
4. In the **Save PDF File** dialog, navigate to your project folder, enter a filename and click **Save**.



- If you had the **Generate a separate PDF file for each plot** clicked On then you are prompted for the folder to place the sheet PDF files in.



- If the option to Invoke PDF viewer when done was clicked, the new PDF file is opened when generation is completed.



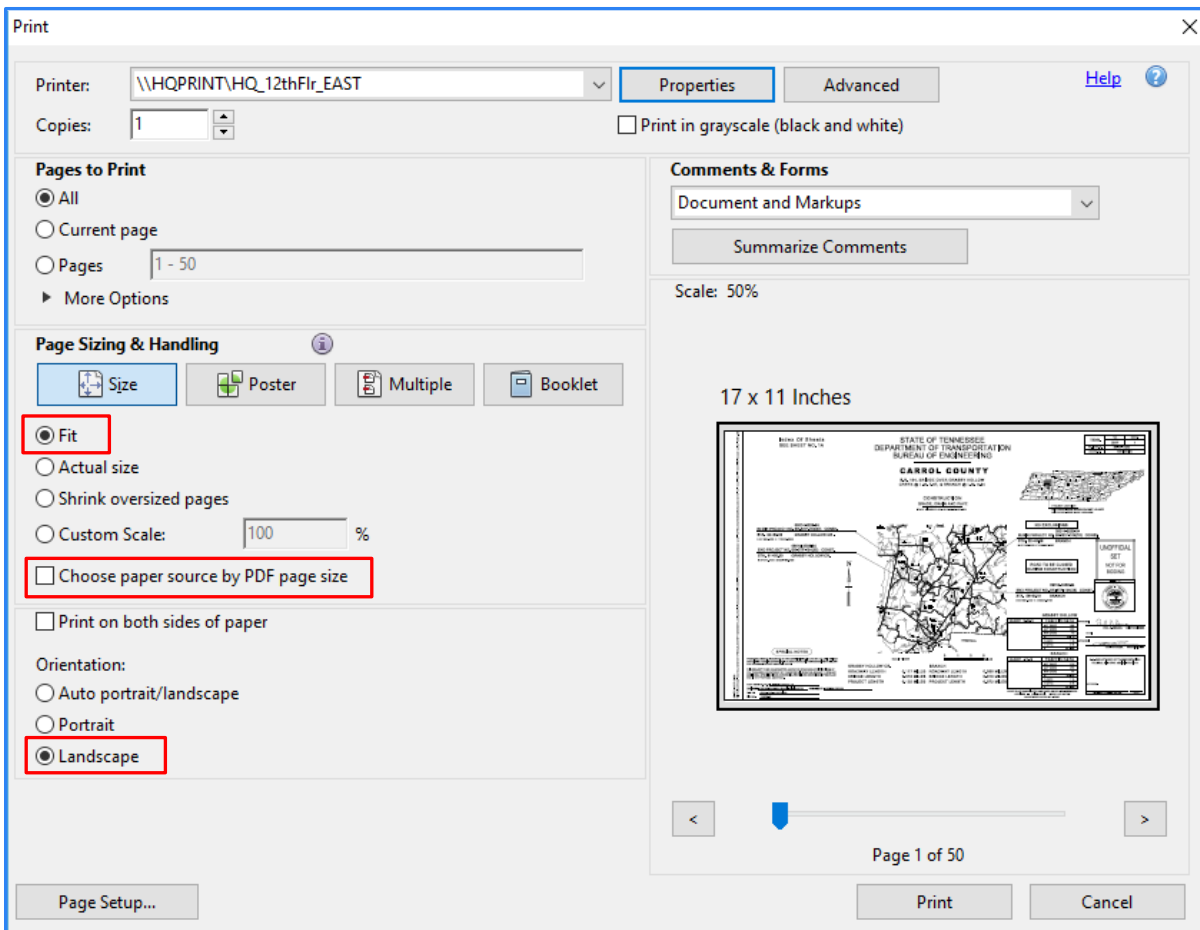
5. Back in the Interplot Organizer dialog, go to **File > Save** and save the plot set for later recall as needed.

## Creating PDF Portfolios for Final Construction Plans

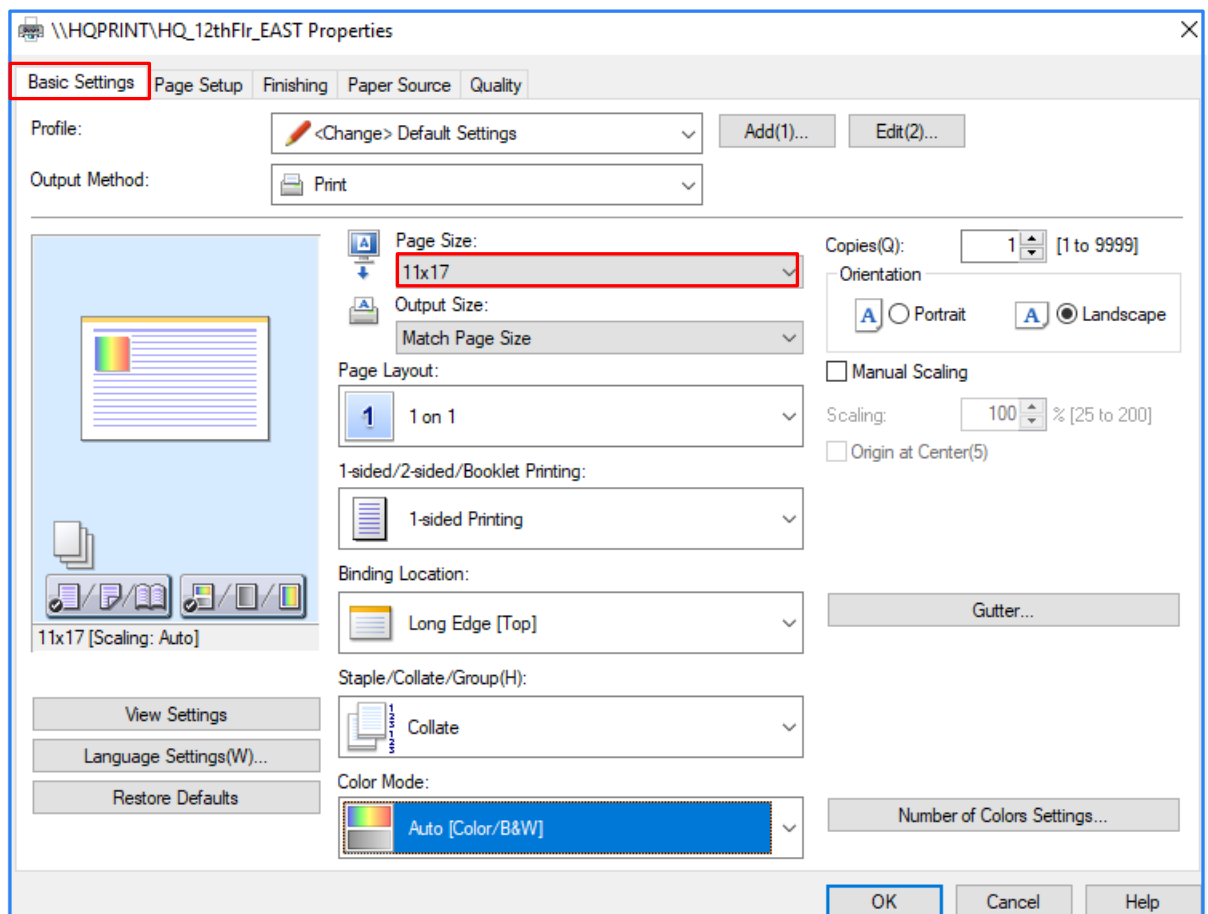
In the previous example, we created a plan set of all of the sheets. For final construction plans, each sheet must be a separate PDF. The previous steps can be used to create individual sheet PDF files as well. These individual PDF files are later combined in a portfolio so that each can be digitally signed by the engineer. For full documentation on creating PDF portfolios and digitally signing plans refer to documentation file [Digital Signature Certification Workflow.pdf](#) .

### Adobe Acrobat 11 Standard & Pro

- In the Print dialog under **Page Sizing & Handling** set:  
Select **Size** and **Fit**.  
**Choose Paper Source by PDF page size** clicked OFF.  
Turn **Landscape** ON under Orientation.

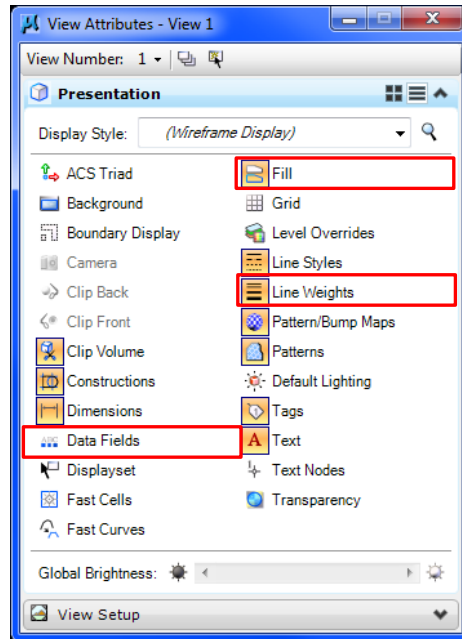


- In **Properties** tab under Basic Settings:  
Select **11x17** for Page Size.

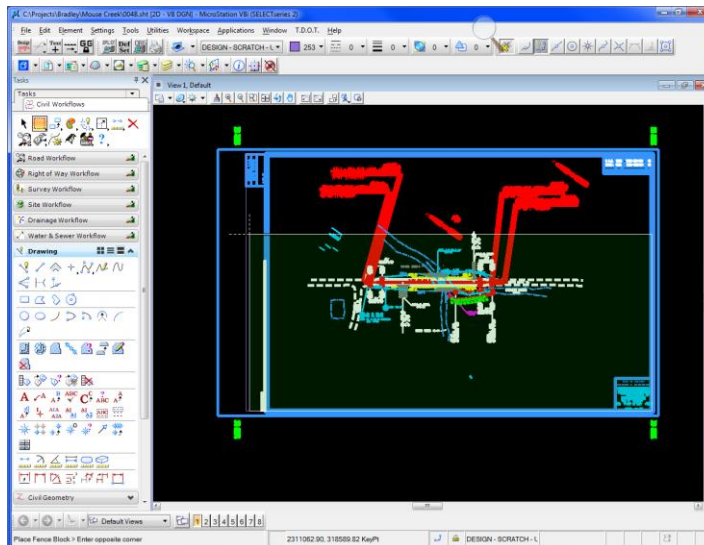


## Creating PDF files using MicroStation Print

1. In the MicroStation plan sheet DGN file, change the default view attributes to **Line Weights on**, **Data Fields off** and **Fill on**. Adjust other view attributes if needed as shown below



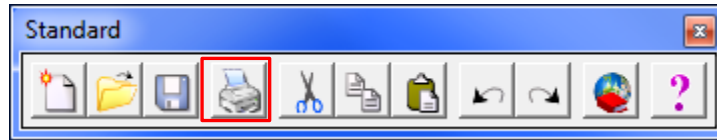
2. Turn on level **DESIGN - SHEET - Plot Shape** if it is not on. Snap to the corners of the purple PDF plot shape on that level to place a fence around the plan sheet. It follows the inside sheet border on the right and is visible to the left of the inside sheet border on the left. On cross section sheets, it drops below the offsets at the bottom of the sheet grid.



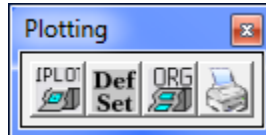
### Warning:

Do not use the plot snap points on the sheet border to set up the fence. These are set up for plotting to plotters that have the margins set at 0, not for PDF production.

- MicroStation Print uses the current view attributes to set up the plot parameters. Turn off levels **DESIGN - SHEET - Plot Shape** and **DESIGN - SCRATCH - User 1**.
- Open MicroStation Print. Go to **File> Print** or click the printer icon on the Standard tool strip.

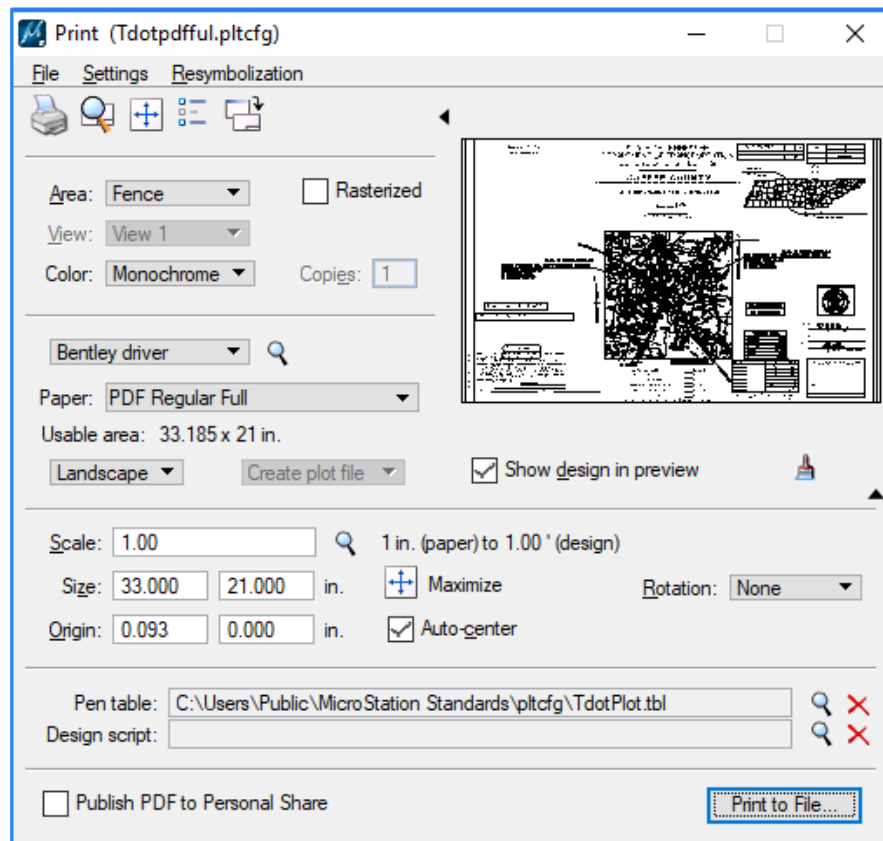


or from the **TDOT Design Division** tool strip, **Plotting** tool box

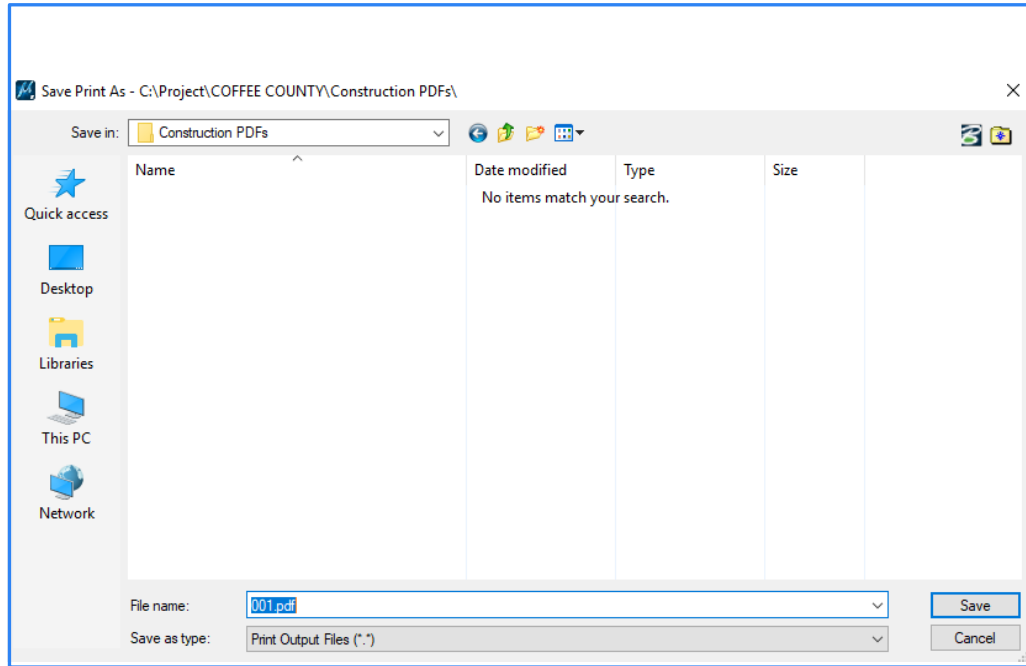


- Attach the desired Bentley driver. In the MicroStation Print dialog go to **File> Select Bentley Driver** or click the browse icon next to the Bentley driver option on the dialog. Use plot configuration files **Tdotpdfful.pltcfg**, **Tdotpdfulc.pltcfg** (full size color) or **Tdotpdfhaf.pltcfg** to create PDF files.

- Using the fullsize plot driver, the Paper Size will default to **PDF Regular Full (33 X 21)** for regular plan sheets. Other paper options include PDF XS Full and PDF Permit Full.
- The **Print Scale** should come out at the correct scale by default based on the Paper Size. If the scale is incorrect, the fence may need to be adjusted.



6. In the MicroStation Print dialog, click the **Print to File** icon. The **Save Print As** dialog opens. Adjust the folder and filename as needed and click **OK** to save the PDF file.





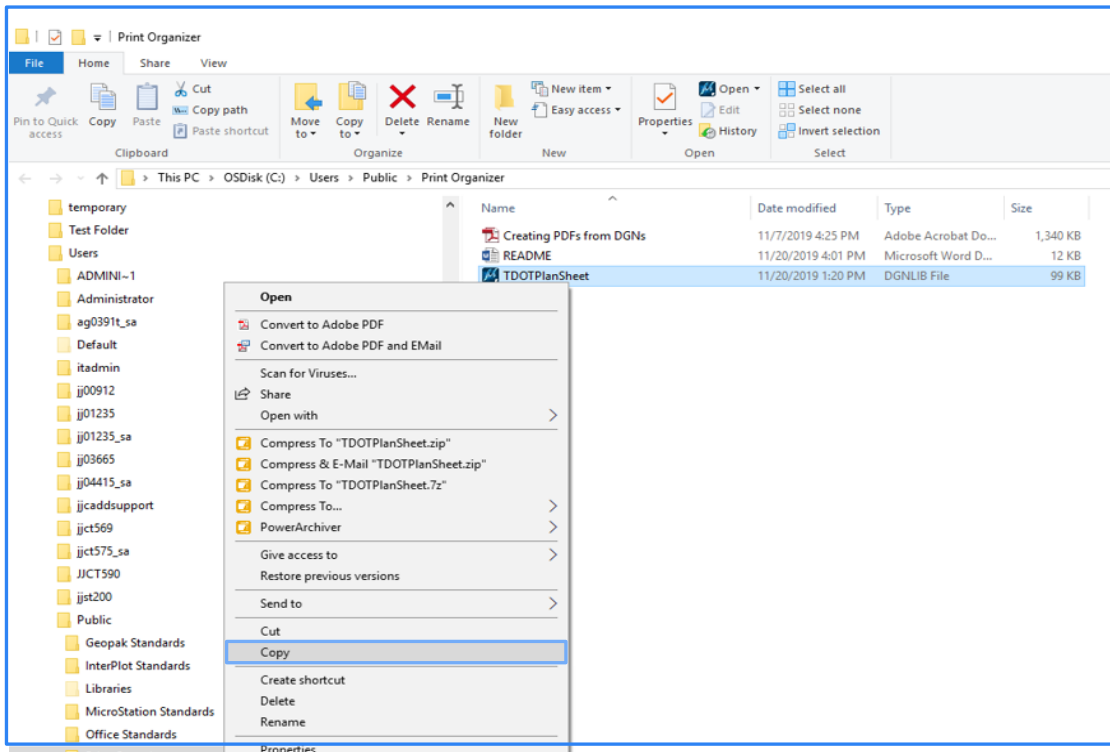
## PDF Plan Sets from MicroStation Print Organizer

Users that use MicroStation Print Organizer can utilize the same MicroStation Print plot configuration files to set up complete plan sets in a single PDF file. This is preferable to individual files for each sheet, which is only needed for final construction plans.

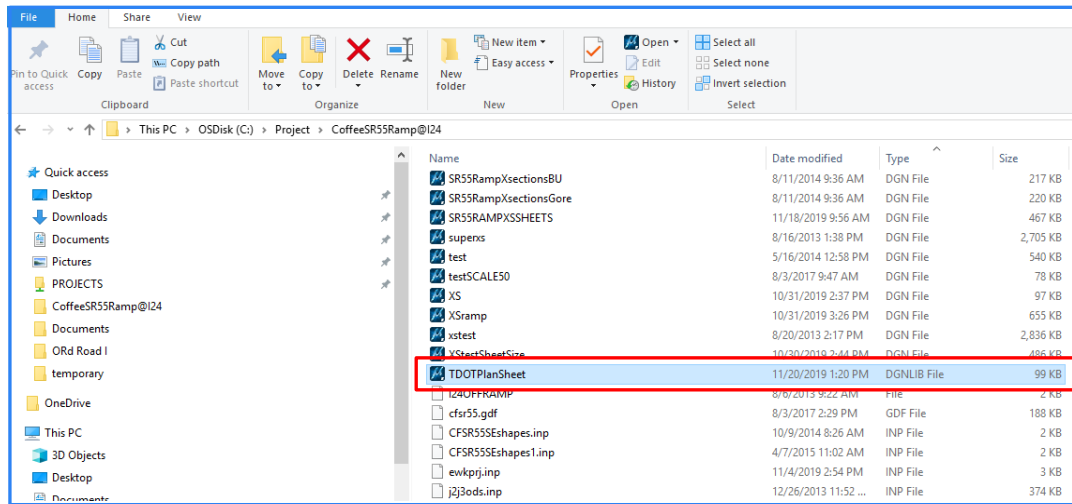
We have two printing methods for Print Organizer.

**Method 1. Our Recommendation** - For users that want to skip having to define print styles as shown in method 2. We recommend users to download **TDOTPlanSheet.dgnlib** from [CADD download](#) page and open Print Organizer from this file because print styles have already been predefined. When the file is downloaded and extracted, it resides in this directory [C:\Users\Public\Print Organizer](#). It is advisable to copy file from this directory and paste it in a project folder.

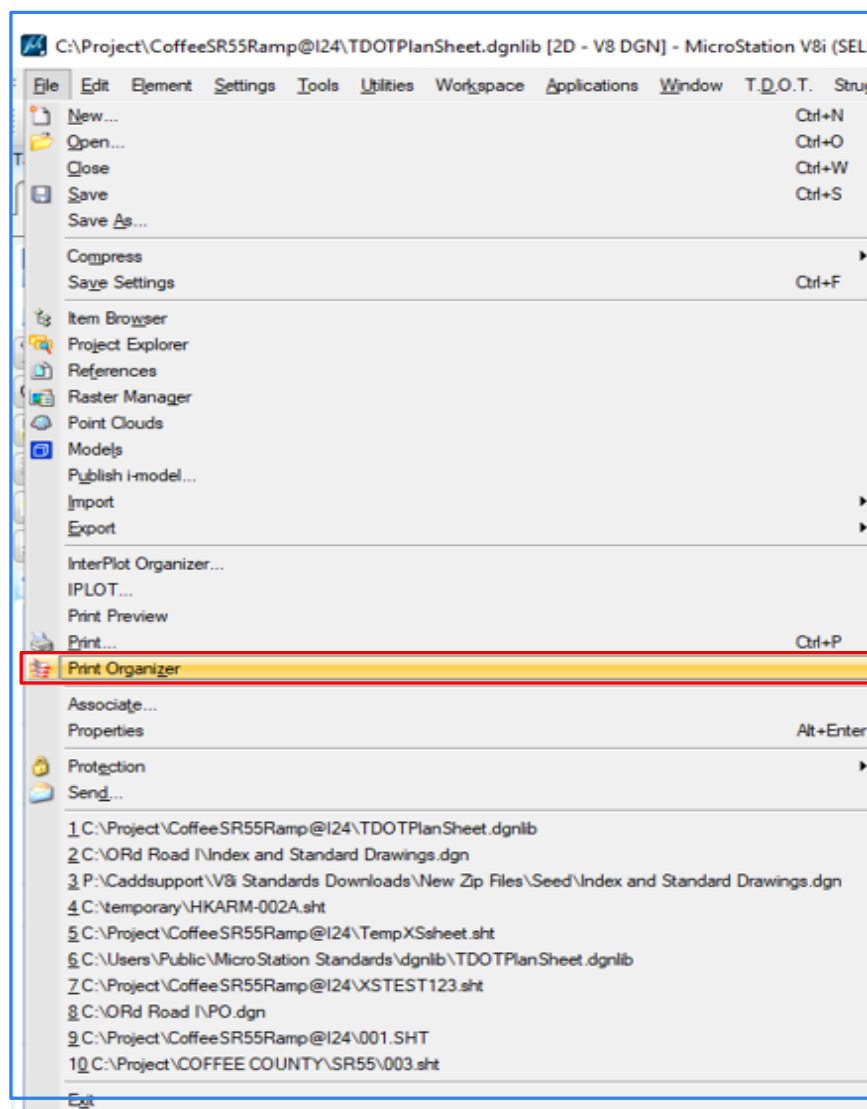
1. Copy **TDOTPlanSheet.dgnlib** from C:\Users\Public\Print Organizer.



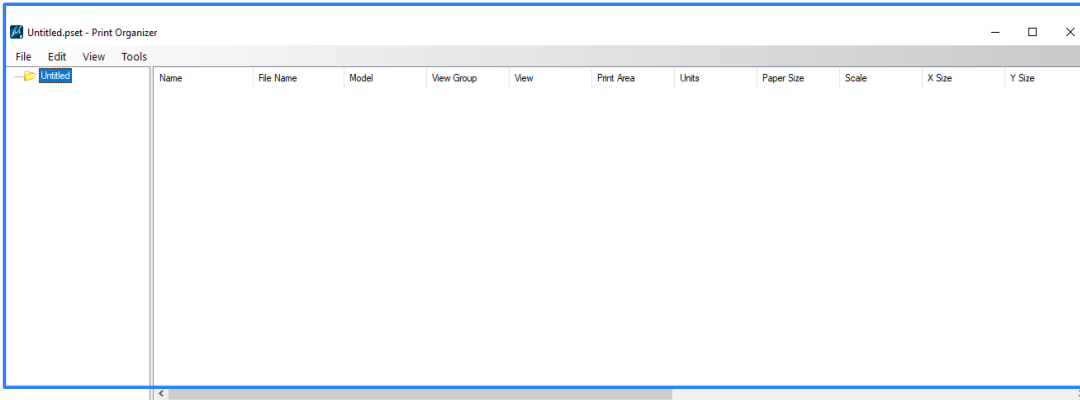
2. Paste **TDOTPlanSheet.dgnlib** into a project folder.



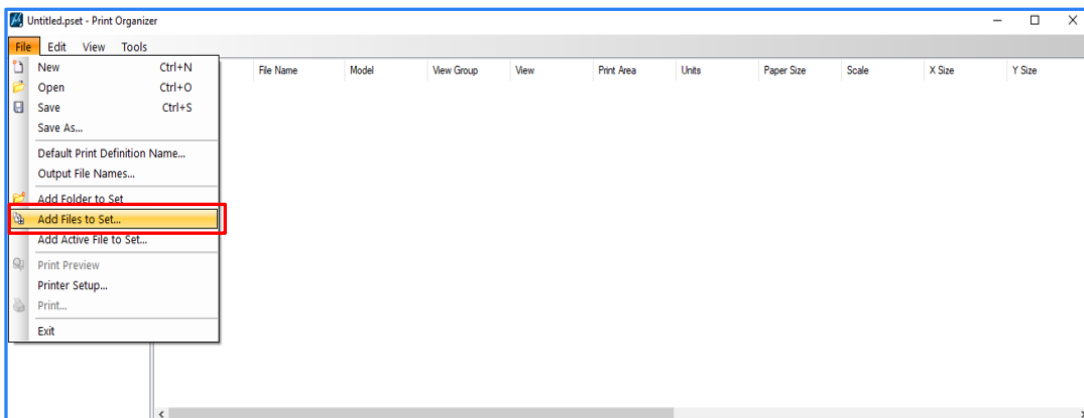
3. Open **TDOTPlanSheet.dgnlib** file then go to **File>Print Organizer**



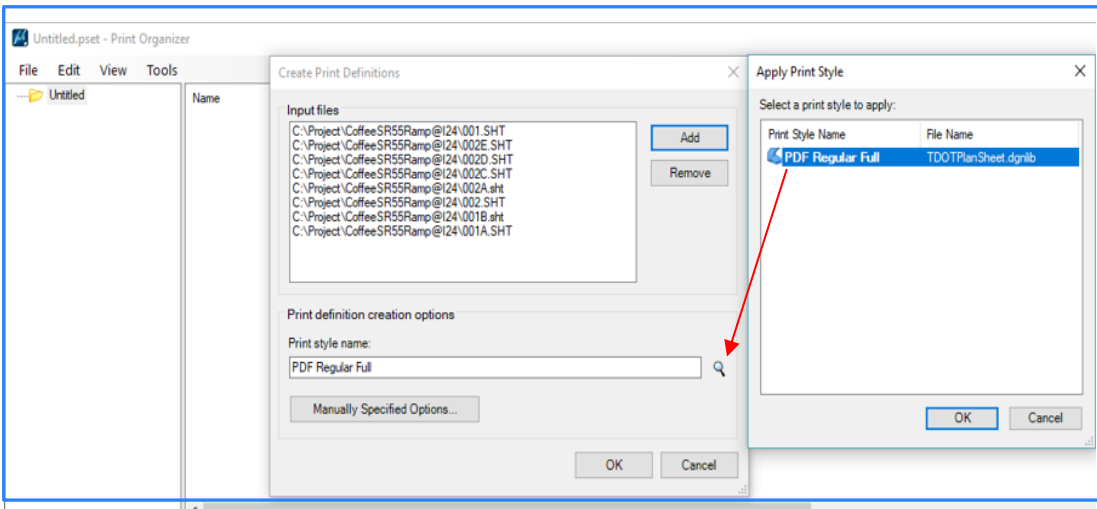
#### 4. Print Organizer window



5. To create PDF, go to **File>Add Files to Set**. The files can be added from any project folders if Print Organizer is opened from TDOTPlanSheet.dgnlib.



6. Add input files and apply print styles then click OK.



- Review the resulting **Print Area** and **Scale** values for each plot to make sure all sheets have been captured correctly. A Print Area defined by View rather than Fence with an odd Scale indicates problems finding the PDF plot shape.

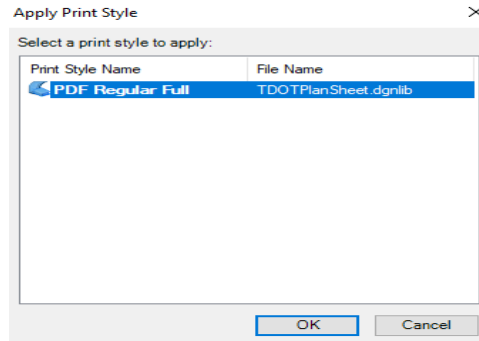
Name	File Name	Model	View Group	View	Print Area	Units	Paper Size	Scale	X Size	Y Size
<Root>										
001	001.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
002E	002E.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
002D	002D.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
002A	002A.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
002	002.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
001B	001B.sht	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
001A	001A.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000

- Input files without Print Styles applied, the scale would be off.

Name	File Name	Model	View Group	View	Print Area	Units	Paper Size	Scale	X Size	Y Size	X Origin
<Root>											
001	001.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	19.6507:1.0000	27.954	21.000	2.616
002E	002E.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	95.2268:1.0000	27.954	21.000	2.616
002D	002D.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	166.5934:1.0000	27.954	21.000	2.616
002C	002C.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	95.2346:1.0000	27.954	21.000	2.616
002A	002A.sht	Default	Default Views	View 1	View	in	PDF Regular Full	770.6961:1.0000	27.954	21.000	2.616
002	002.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	95.2346:1.0000	27.954	21.000	2.616
001B	001B.sht	Default	Default Views	View 1	View	in	PDF Regular Full	709.4575:1.0000	27.954	21.000	2.616
001A	001A.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	95.2346:1.0000	27.954	21.000	2.616


- To apply Print Styles, highlight all the sheets and go to **Tools>Apply Print Style** then choose PDF Regular Full.

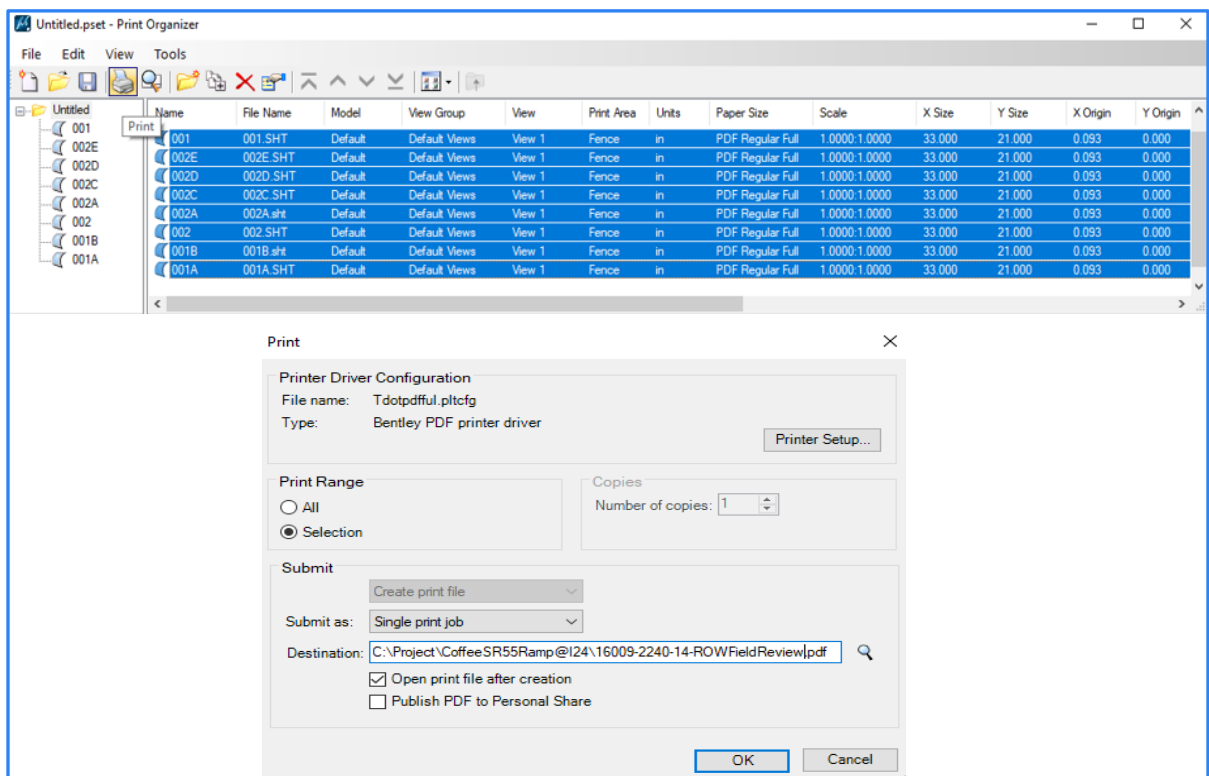
Name	File Name	Model	View Group	View	Print Area	Units	Paper Size	Scale	X Size	Y Size	X Origin	Y Origin
<Root>												
002E	002E.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	19.6507:1.0000	27.954	21.000	2.616	0.000
002D	002D.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	95.2268:1.0000	27.954	21.000	2.616	0.000
002C	002C.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	166.5934:1.0000	27.954	21.000	2.616	0.000
002A	002A.sht	Default	Default Views	View 1	View	in	PDF Regular Full	95.2346:1.0000	27.954	21.000	2.616	0.000
002	002.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	770.6961:1.0000	27.954	21.000	2.616	0.000
001B	001B.sht	Default	Default Views	View 1	View	in	PDF Regular Full	95.2346:1.0000	27.954	21.000	2.616	0.000
001A	001A.SHT	Default	Default Views	View 1	View	in	PDF Regular Full	709.4575:1.0000	27.954	21.000	2.616	0.000



10. The scale should be corrected after applying Print Styles.

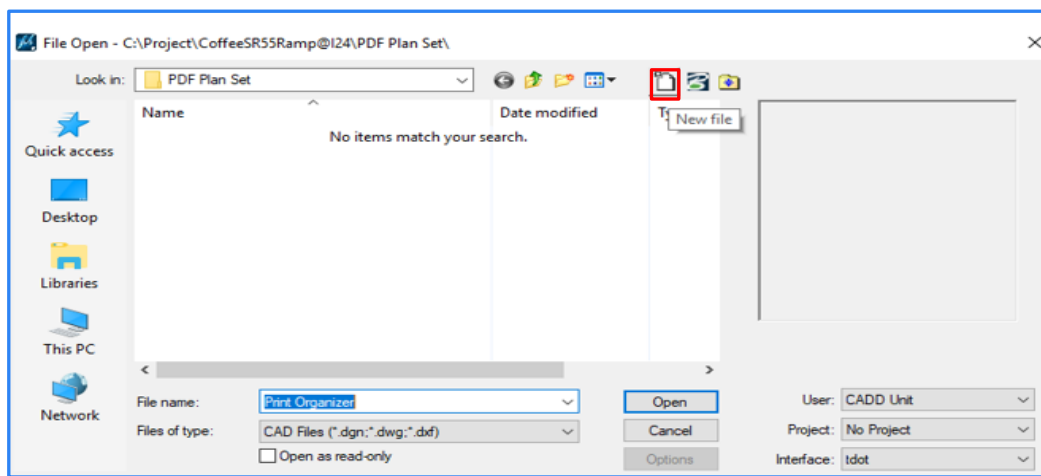
Name	File Name	Model	View Group	View	Print Area	Units	Paper Size	Scale	X Size	Y Size	X Origin	Y Origin
<Root>												
001	001.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000	0.093	0.000
002E	002E.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000	0.093	0.000
002D	002D.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000	0.093	0.000
002C	002C.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000	0.093	0.000
002A	002A.sht	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000	0.093	0.000
002	002.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000	0.093	0.000
001B	001B.sht	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000	0.093	0.000
001A	001A.SHT	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000	0.093	0.000

11. Click the **Print**  icon to open the dialog to generate the PDF file for the plan set. Name the file folder destination and click **OK** to general the PDF plan set.

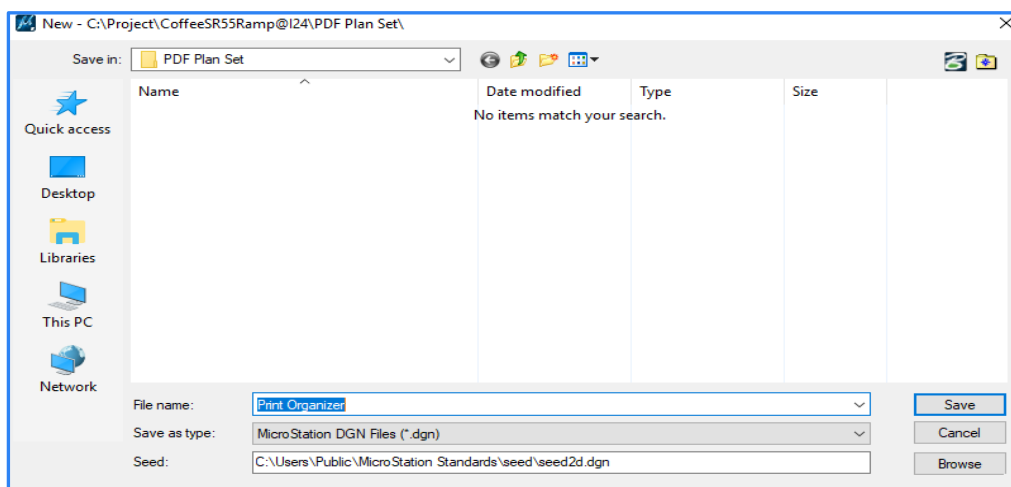


**Method 2.** Before opening Print Organizer, we suggest a blank DGN file be created then open Print Organizer from within the window. This procedure shall be followed if users desire to save print styles for future print jobs.

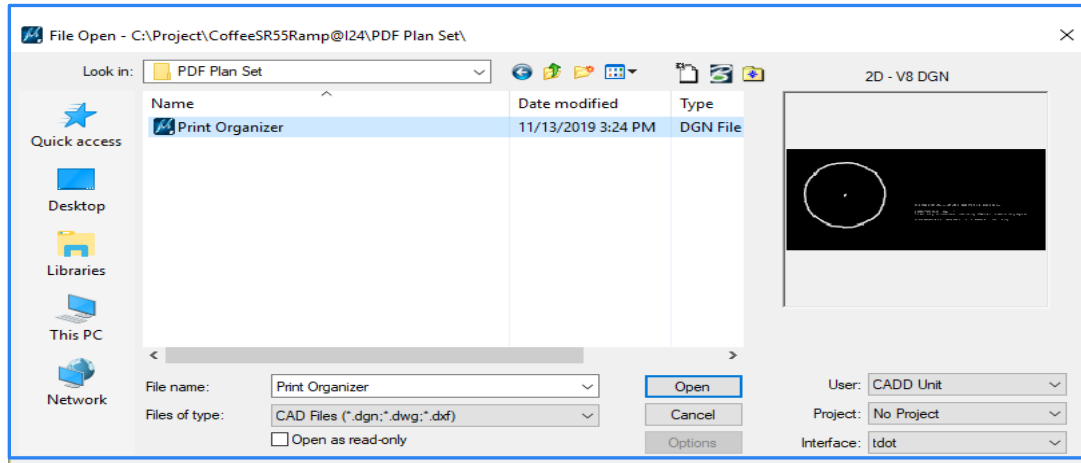
1. In MicroStation create new file window, click on **New file**



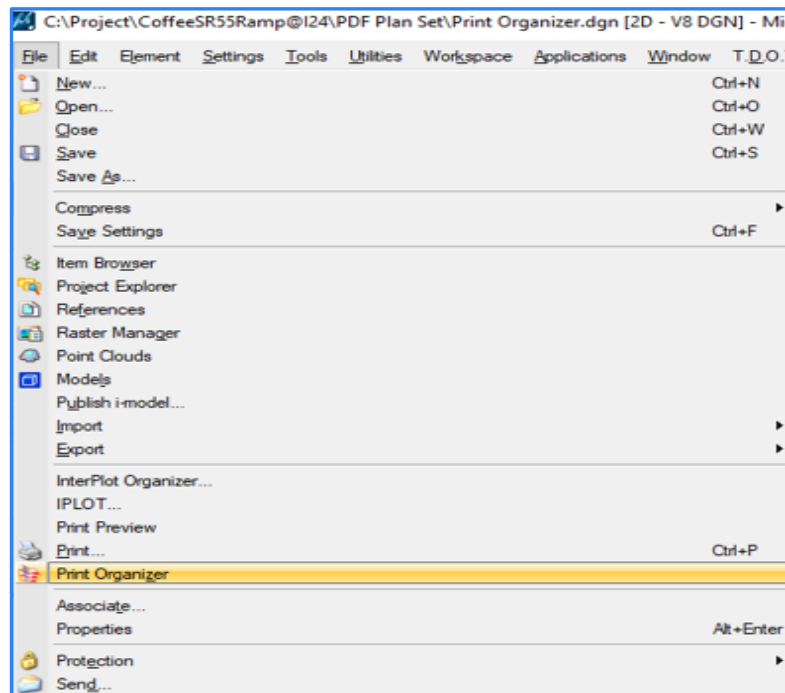
2. Enter File name and click **Save**



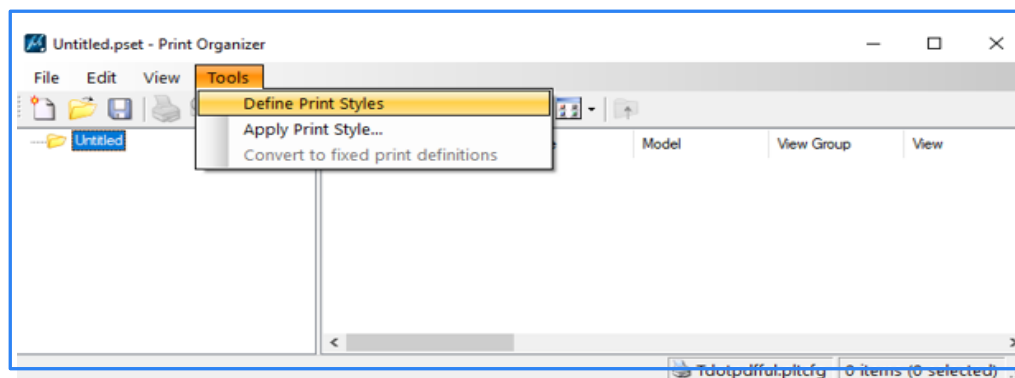
3. Select File name and click **Open**



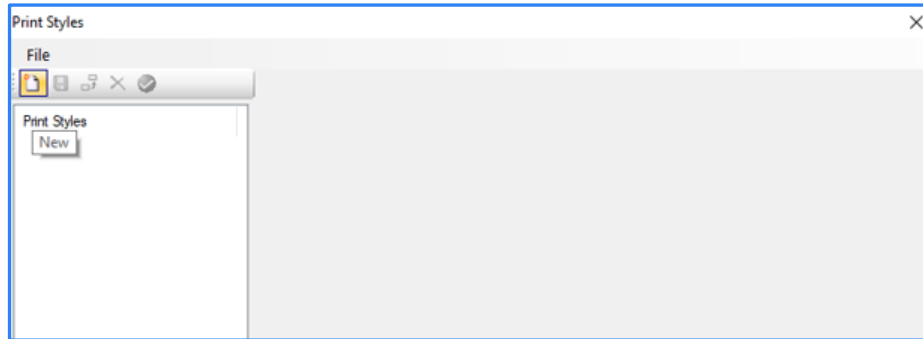
4. Open **Printer Organizer** in MicroStation



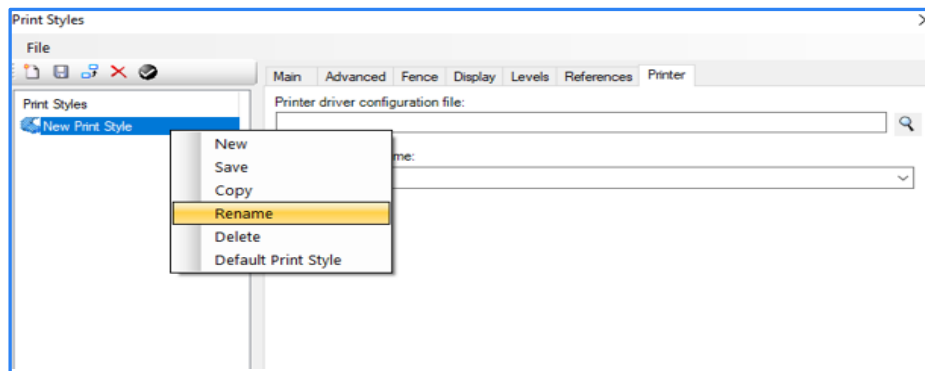
5. In Printer Organizer, select **Tools> Define Print Styles**



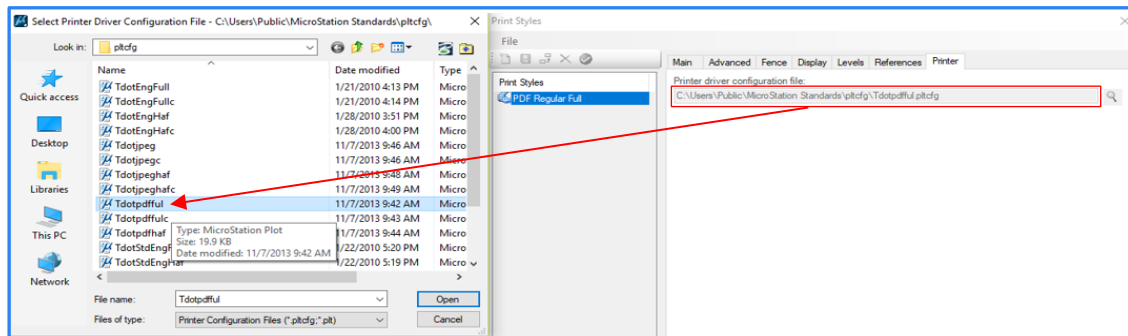
6. Choose **New** in Print Styles



7. Rename New Print Style to **PDF Regular Full**



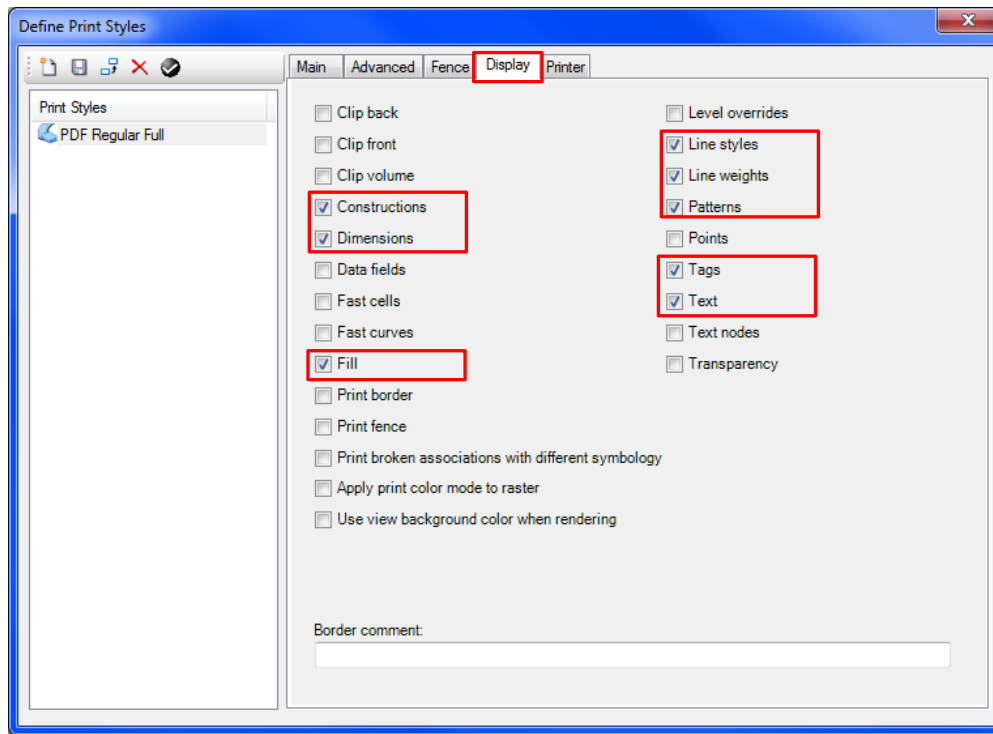
8. Under **Printer** tab, select **Tdotpdful** for Printer driver configuration file.



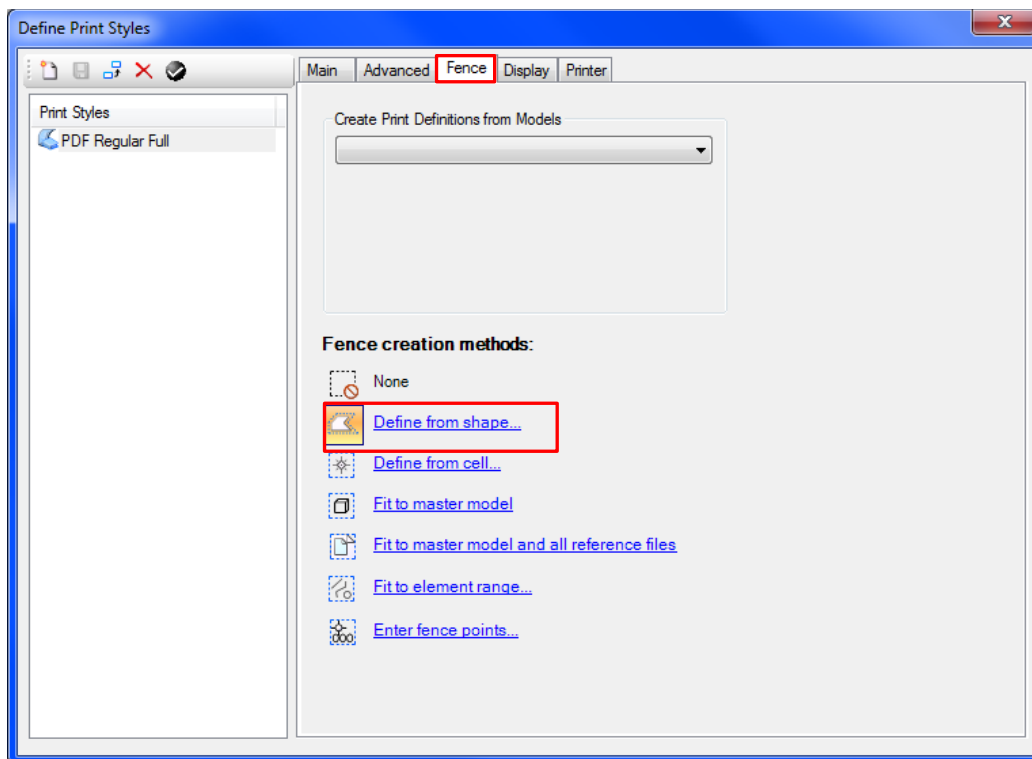


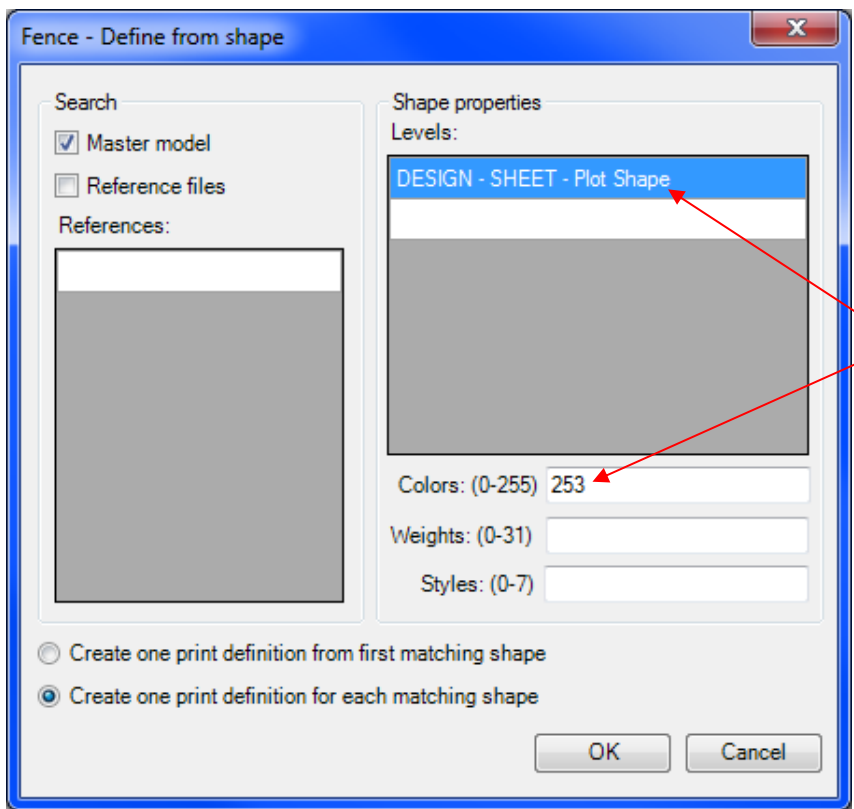
9. Fill in as shown for the rest of tabs.

## Display



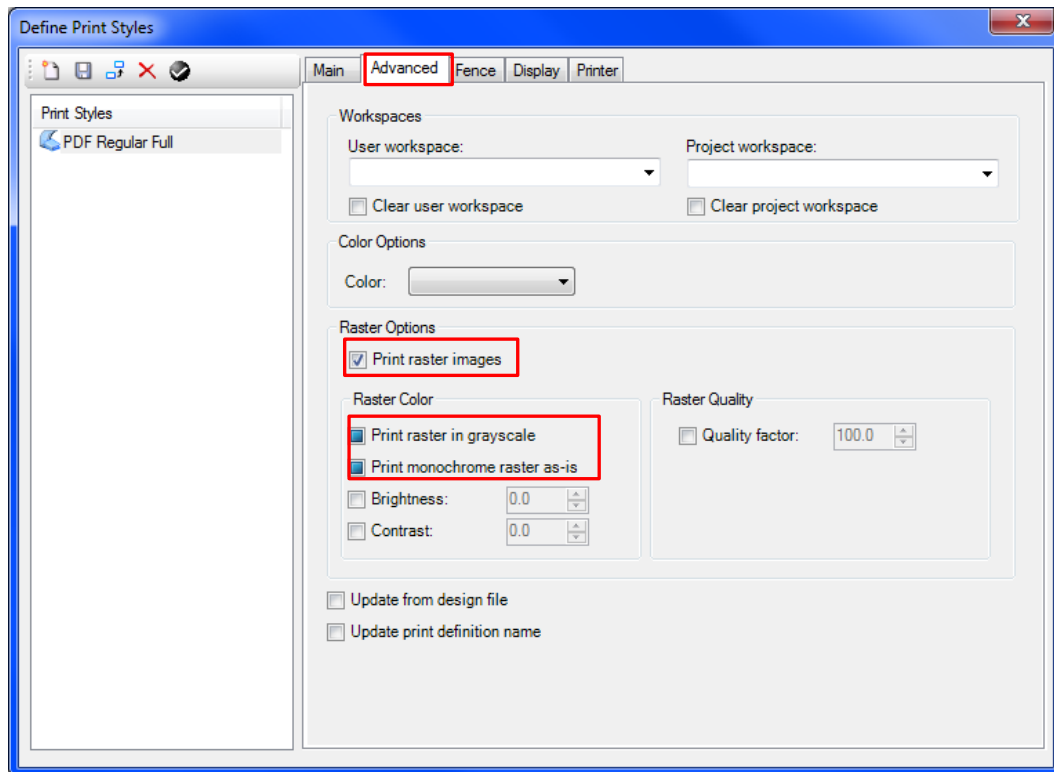
## Fence



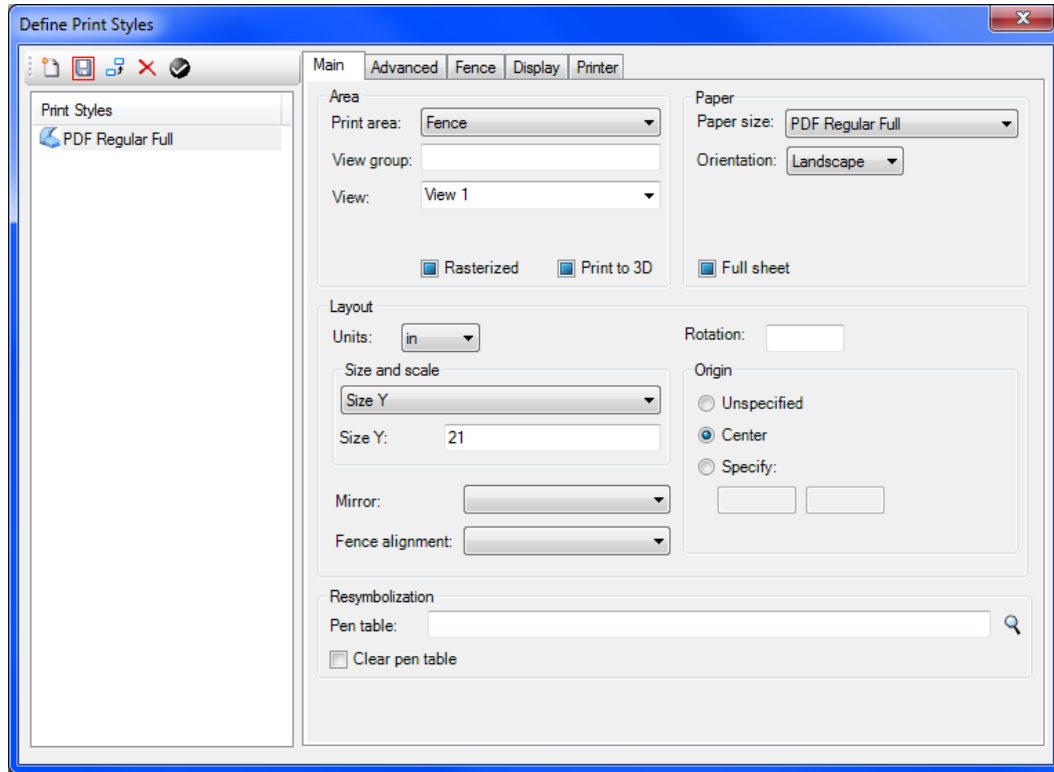



Type In

## Advanced

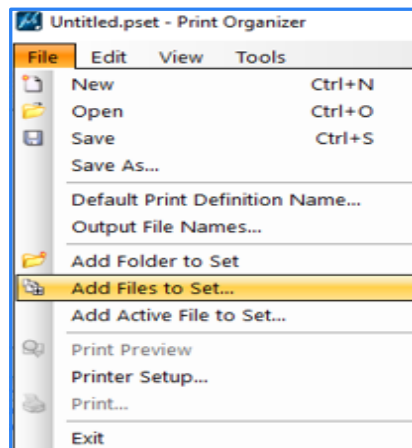


## Main

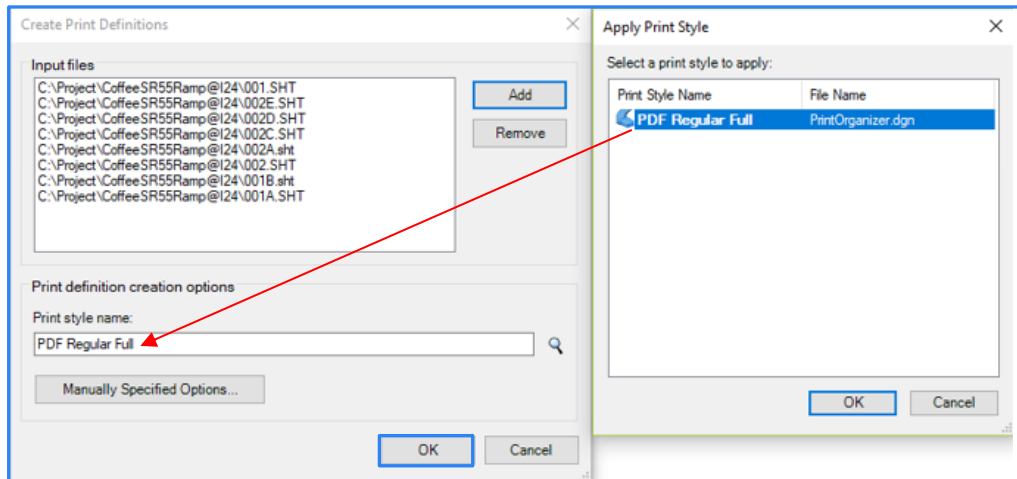


After all the settings for the print style have been made to control the output of the PDF file, you must save  the settings and close print style window.

10. . Then back in Print Organizer, go to **File>Add Files to Set** to add the individual DGN files for the sheets to the plot set.




- All added sheets appear as Input files in Create Print Definitions and ensure **PDF Regular Full** is selected for Print Style name.

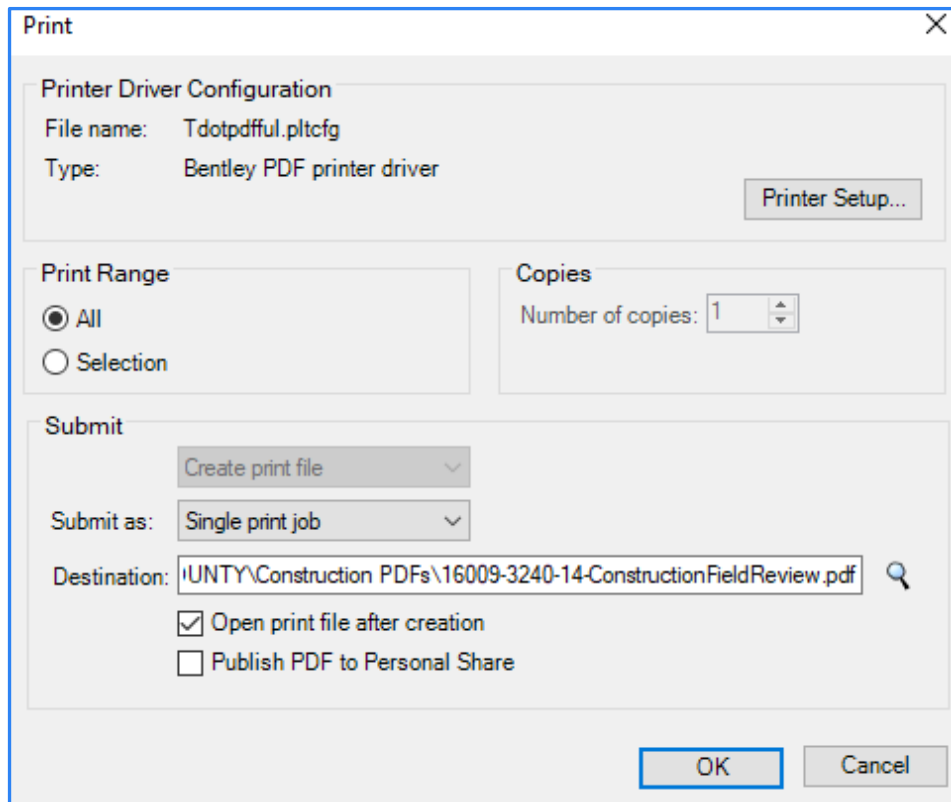


- Review the resulting **Print Area** and **Scale** values for each plot to make sure all sheets have been captured correctly. A Print Area defined by View rather than Fence with an odd Scale indicates problems finding the PDF plot shape.

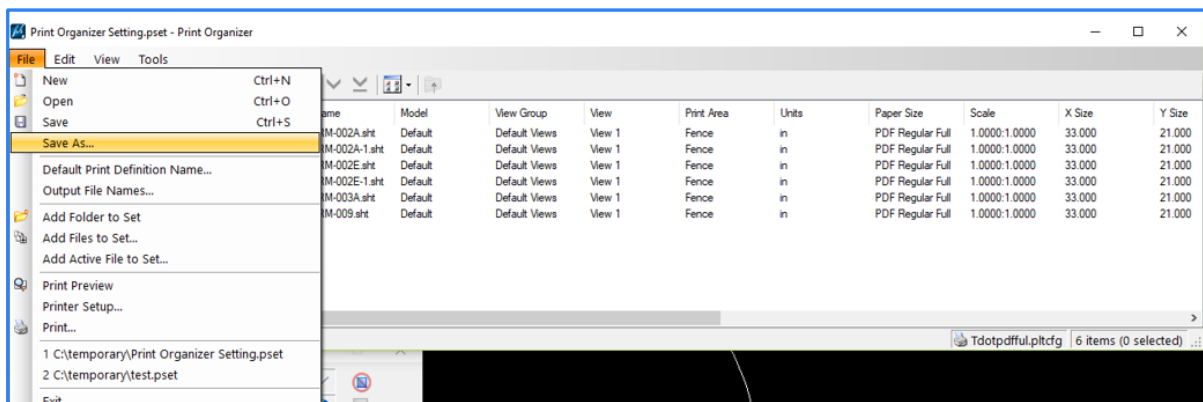
The screenshot shows the 'Print Organizer' application window with a table of print settings. The table has columns for Name, File Name, Model, View Group, View, Print Area, Units, Paper Size, Scale, X Size, and Y Size. The 'Print Area' column shows 'Fence' for all entries, and the 'Scale' column shows '1.0000:1.0000' for all entries.

Name	File Name	Model	View Group	View	Print Area	Units	Paper Size	Scale	X Size	Y Size
HKARM-002A	HKARM-002A.sht	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
HKARM-002A-1	HKARM-002A-1.sht	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
HKARM-002E	HKARM-002E.sht	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
HKARM-002E-1	HKARM-002E-1.sht	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
HKARM-003A	HKARM-003A.sht	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000
HKARM-009	HKARM-009.sht	Default	Default Views	View 1	Fence	in	PDF Regular Full	1.0000:1.0000	33.000	21.000

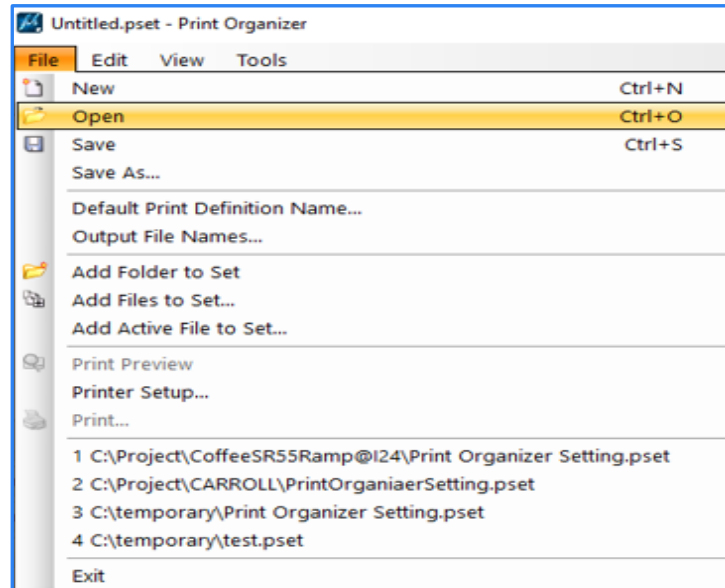
13. Click the **Print**  icon to open the dialog to generate the PDF file for the plan set. Name the file folder destination and click **OK** to general the PDF plan set.



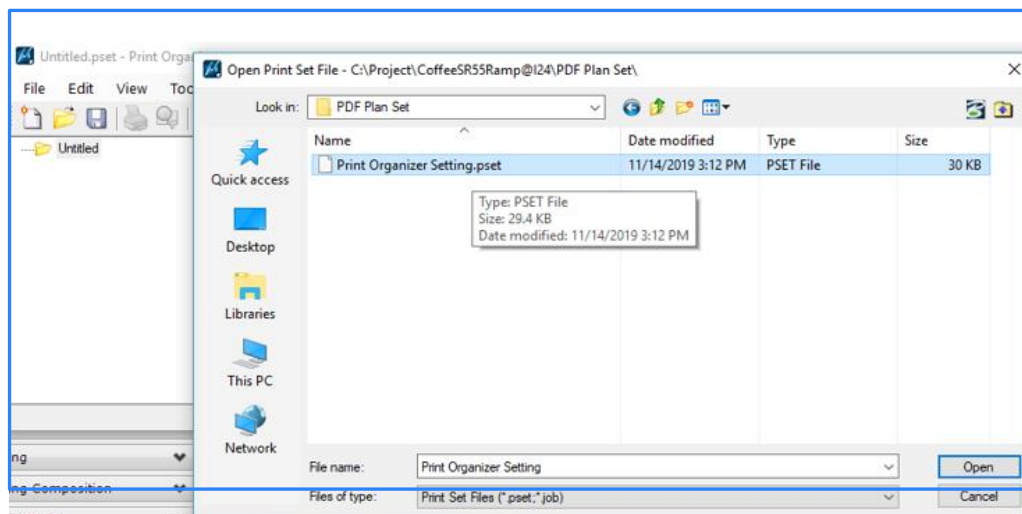
14. Before closing out of **Print Organizer**, go to **File>Save As** and this will be your print setting which will retain your Print Styles that you defined. This is a way to avoid having to define print styles every time you use Print Organizer and you must **Save** before existing each time.



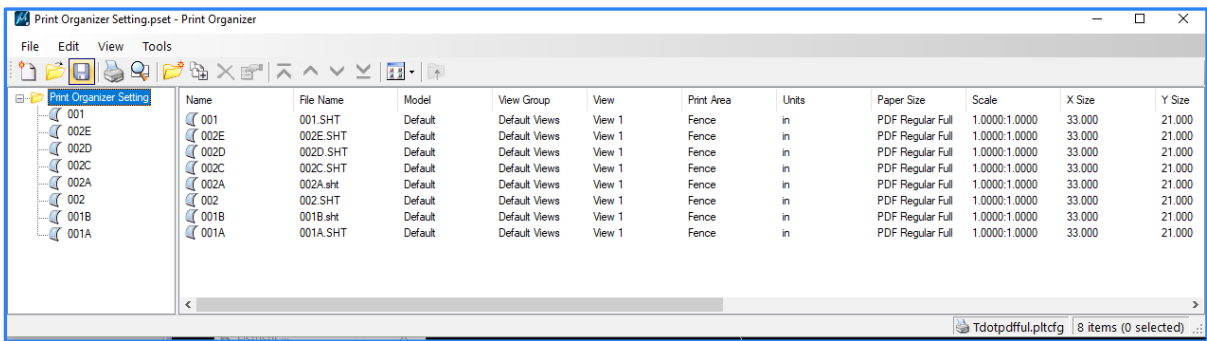
15. For next print job using the same print setting, open the same DGN file when print styles were created and go to **File> Print Organizer** then in Print Organizer go to **File>Open**



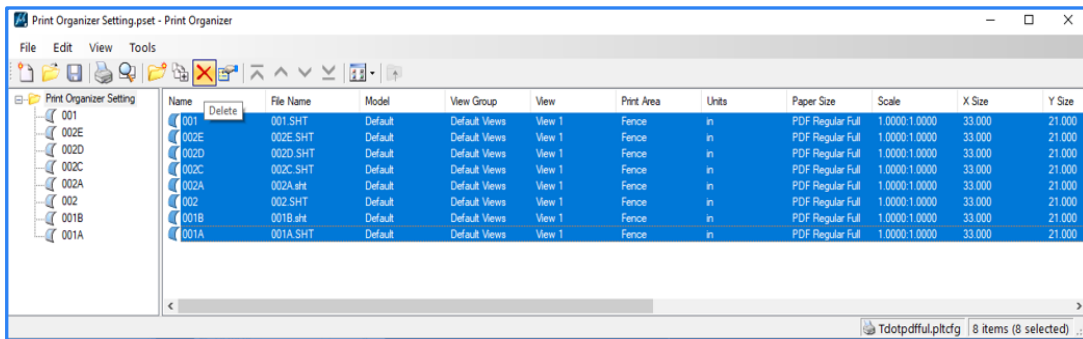
16. Select **Print Organizer Setting** that was saved from previous print job.



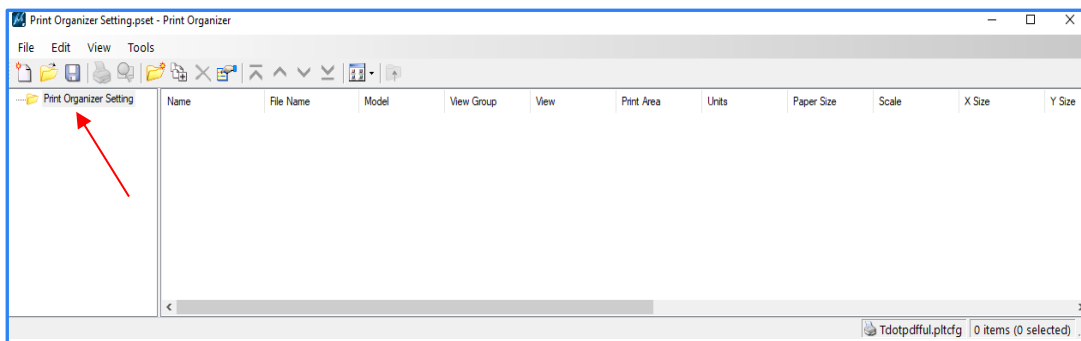
17. When Print Organizer Setting opens, you will see the list of files from your previous printing job.



18. To make new PDF plan set, **Delete** existing files

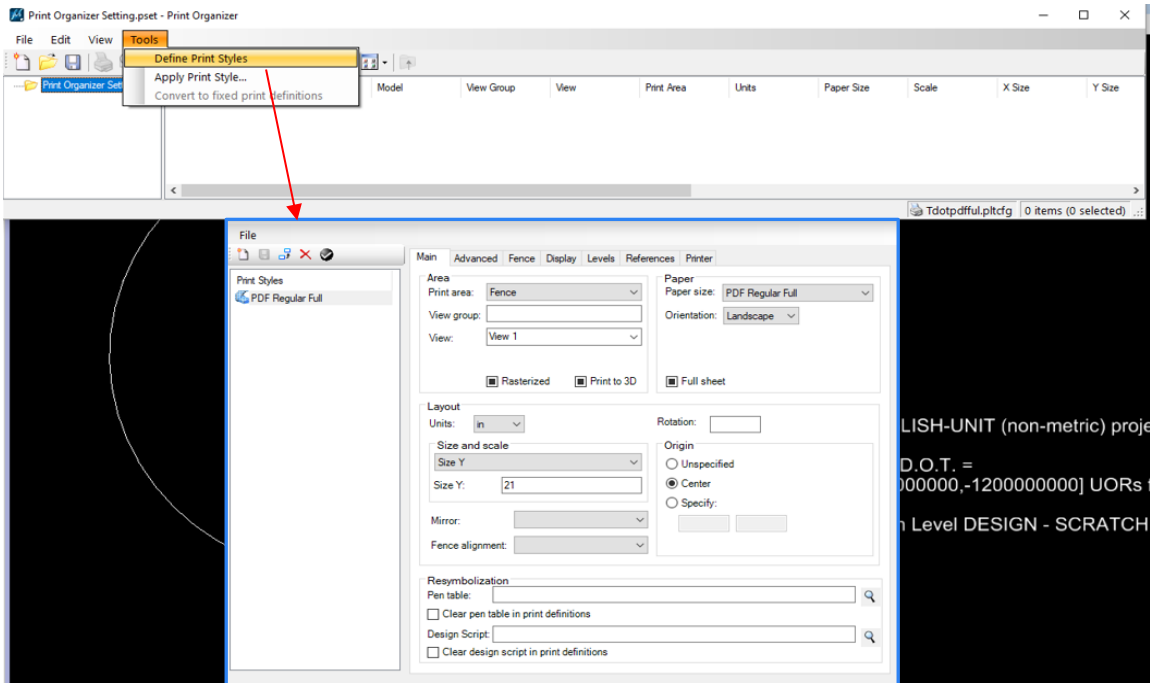


19. All files are clear but **Print Organizer Setting** remains.



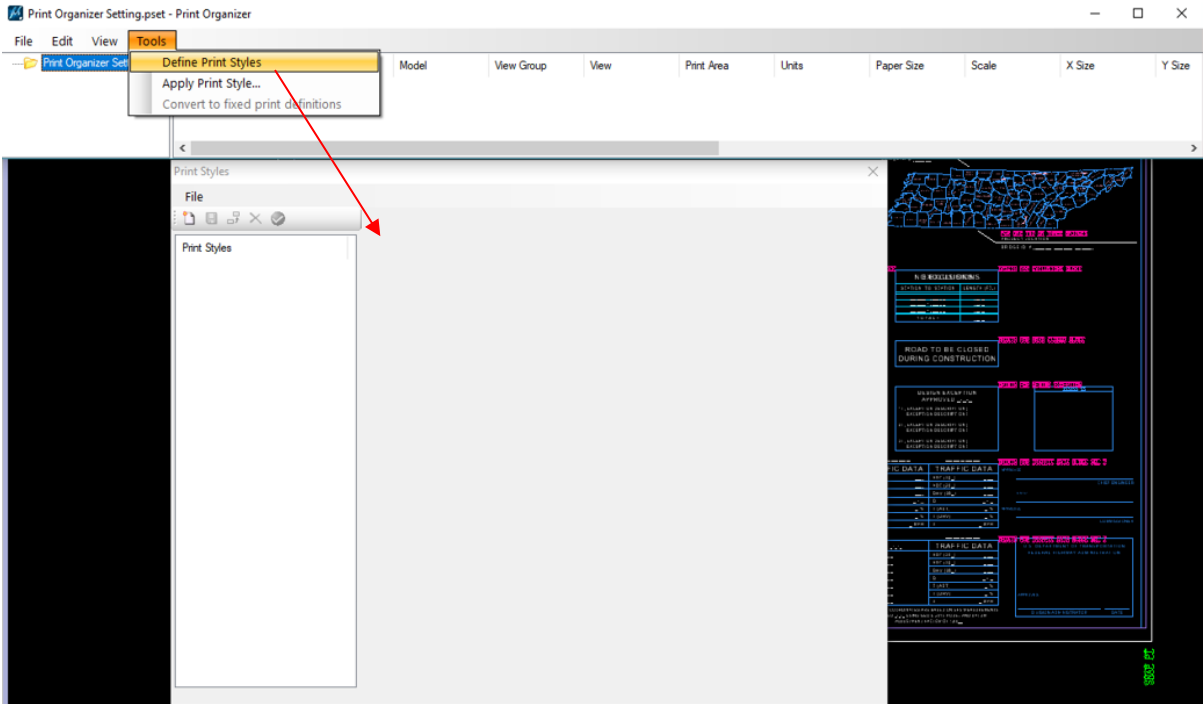
To add **new files**, refer to step 10 above.

Also, to determine if your print styles have been saved or not highlight your saved Print Organizer setting and go to **Tools>Define Print Styles**. Print Styles window should open with setting shown in step 9.



If Print Styles window opens with blank information, that means no Print Styles are saved.





Our recommendation is to have users open saved Print Organizer setting from original DGN file when Print Styles were set.

## Printing PDF plan sheet files

1. Open the PDF file with Acrobat.
2. Go to **File > Print** or click the Print icon
3. Make the following settings in the Print dialog to ensure that the sheets are scaled correctly.
  - Under **Printer** pick the printer or plot queue that has the desired sheet size for the plot.
  - In the Print dialog click on **Properties**:  
Under Paper Source or Page Setup (depends on printer), set **Paper Size** based on the **desired paper size when printed**. Use the following as a guide:  
17 x 11:                      **Tabloid or 11X17**