Digital Signature Certification Workflow

This document goes through a workflow of how to create a set of plans that contain an Adobe CDS digital signature using Adobe Acrobat X Pro. There are several variances on how this can be done. Engineers should use their discretion on how to apply their seal, signature and date to abide by the Engineering Boards Regulations. Each plan sheet is required to be signed, just as a wet signature.

A. Definitions:

    a. A **digital signature** is a mathematical scheme for demonstrating the authenticity of a digital message or document. A valid digital signature gives a recipient reason to believe that the message was created by a known sender, and that it was not altered in transit. The Design Division uses the technology from the Entrust Company to authenticate our digital signatures.

    b. An **electronic signature** is any legally recognized electronic means that indicates that a person adopts the contents of an electronic message, such as a scanned representation of an individual's signature imported into a document, or electronic file.

B. Adobe CDS Certificates:

    A list of providers for the CDS certificates can be found at the Adobe website at the link listed below. Any of these companies can be used to provide the certificate.

**www.adobe.com/security/partners_cds.html**

C. Creating the Engineer's Seal from a MicroStation Cell as a File to Use as a Watermark.
    a. Open a blank MicroStation DGN file. Place the seal at a scale of 1.
    b. In MicroStation, go to File>Print
    c. Under **Printer and Paper Size**, change to Bentley Driver and select **TDOTjpeg.plt**
    d. Rotation should be set to **No Rotation** and Print Scale to **0.5**
   e. Go to File>Print and enter a name for the file

D. Adding the Electronic Generated Seal as a Watermark

Note: It is not required to add the engineer seal as a watermark. It can be done in each MicroStation SHT file if preferred.

    a. Once the pdf of the plan set is created, open Adobe Acrobat and navigate to **Tools>Pages>Edit Page Design>Watermark>Add**.
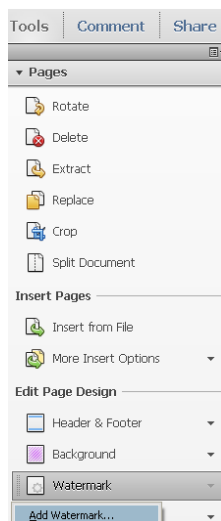
b. The Add Watermark dialog box will open. In the Source section, click on **File**. This allows you to choose the image for the watermark.   Select the **Browse** button and navigate to the file that contains your electronically generated seal. Once the file is selected, click on Open.
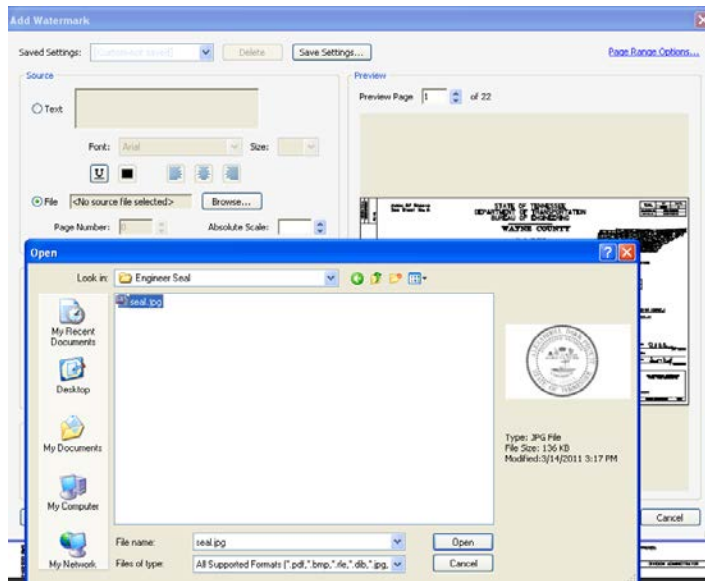
c. In the Preview window, you may notice that your seal is large. To correct this, set the Absolute Scale to a different scale to size the seal correctly. The scale relative to target page could also be adjusted.

d. In the Appearance dialog box, select Appear behind page.

e. In the Position section, change the Vertical and Horizontal Distance to place the seal in the seal box. In the Preview dialog, you can go to a different page to see the location of the seal on the plans.
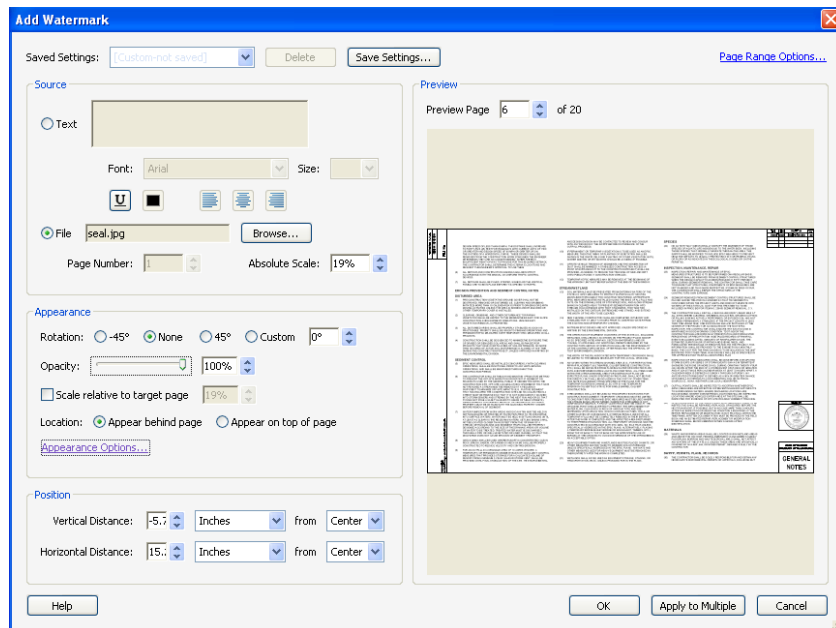

f. In the upper right corner, click on the **Page Range Options**. Select **Pages from** and change it to start at page **2**. Click **OK**. Starting the watermark at page 2 is so that the signed and dated electronic generated signature watermark will not appear on the Title sheet. This is because the seal box is located at a different location than the rest of the sheets. The title sheet watermark will be added separately.
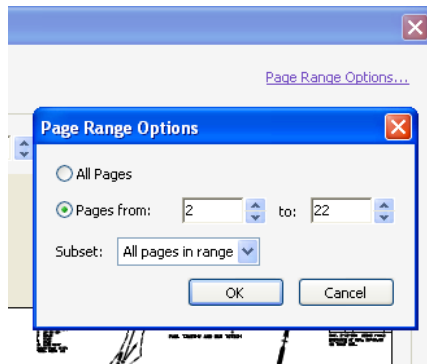
g. Once the settings are correct, choose Save Settings and give it a name. The settings can then be pulled up each time a watermark needs to be applied on a plan set.

h. Click OK on the Add Watermark dialog. The engineer seal should now appear as a watermark on each sheet.

i. To add the watermark to the title sheet, follow the procedure as above. When you go to Add Watermark, choose Add New on the next dialog window. When you get to the page range options, choose the title page only.
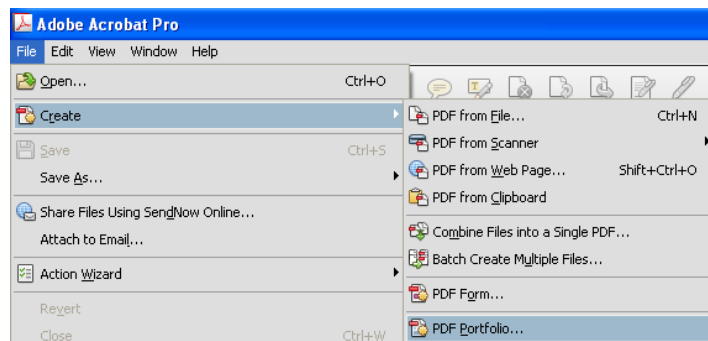
E. Creating a PDF Portfolio of individual plan sheets

a. In Adobe Acrobat, go to Document>Extract Pages

b. Choose your entire page range for From and To and select the box **Extract Pages As Separate Files**
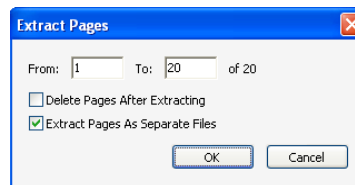
c. Select OK. Browse to the Destination Folder or Make a new folder to contain the individual pdf sheets.

d. Run the program called PDFRenamer.exe. This will re-name your files so that when you put them in the PDF Portfolio, they will be in numerical order.

File Names can be renamed inside Adobe Portfolio. The Display Names can also be modified as well if you prefer to have the actual sheet title displayed.

e. In Adobe Acrobat, File>Create >PDF Portfolio.

f. The Create PDF Portfolio dialog window will appear. Choose a layout – recommend Grid. Select Add Files in the lower right corner. Navigate to the folder with the individual plan sheets and select Open. All of the Individual sheets should now appear in the Portfolio. Folders can be added to a portfolio as well. For larger projects if you wanted to separate your files into folders labeled 2nd Sheets, EPSC

Sheets, XS Sheets, etc. it could be done. If you choose to use folders in your portfolio, then you should create the folders first, then add your individual pdf files to them.

g. **Optional** - To rename your files inside Adobe Portfolio, make sure you are in the Files view mode and hit edit. In the fields under Display Name, modify the name to what should be displayed.
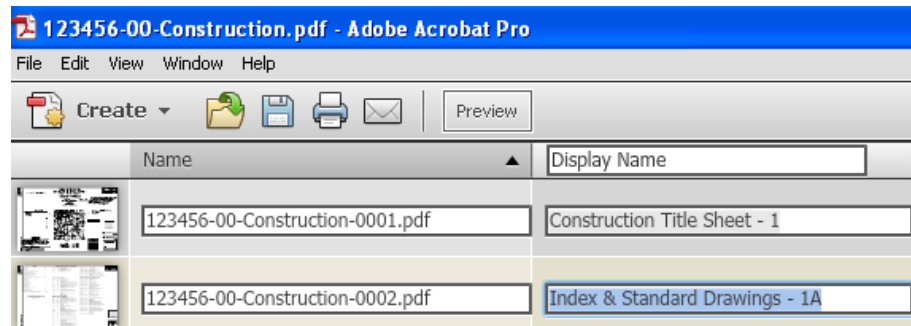
h. After making the changes, select the Preview button.
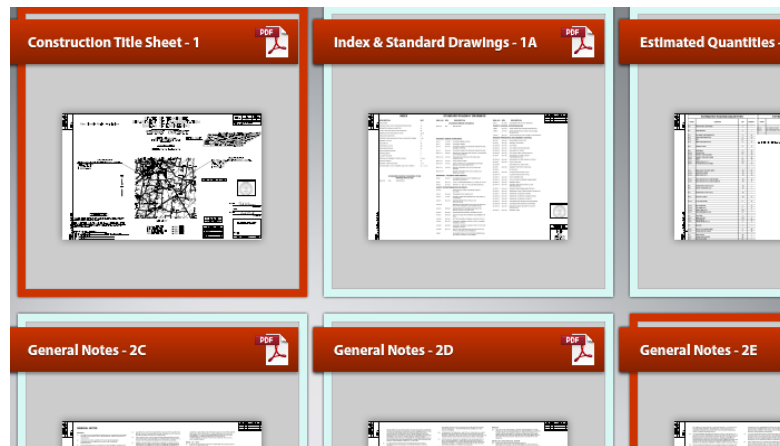
i. When finished, go to File>Save Portfolio and name the portfolio according to the proper FileNet naming convention.

F. Creating the Electronic Generated Signature and Date as your Digital Certification Appearance.

NOTE: This workflow can only be performed by the Registered Professional Engineer that is sealing the plans and cannot be designated to any other person to affix the signature and date.

This is only one method for creating your digital signature appearance with an image of your actual signature. Other processes are available, so use what is most familiar to you.

a. Scan your signature into a file. Cropping may be required and can be done through Adobe Acrobat or other editing software.

b. The background for the signature needs to be transparent. There are many programs that can be used to do this including Adobe PhotoShop, Illustrator, Streamline and GIMP.

c. If you did not use Adobe Acrobat to crop the file, the electronic signature file must be made into a pdf. Open Adobe Acrobat and navigate to **File>Create>PDF From File**. Select the file that you just created and then select **Open.**

d. Add the date field to the signature pdf image.
   i. Navigate to **Tasks>Add New Field** and select **Text Field**. The Create or Edit Form window will appear.

ii. For Choose Source, select **Use the current document or browse to a file**, then hit **Next**.
iii. The next window says Locate the document to convert. Choose **Use the current document** and hit **Next**.
iv. It is asking to now save the file before creating the form – select **Save**. Navigate to where you want the file saved. Select **No** for detecting form fields.
v. Another information window will appear asking you to save the change to create the form. select **Save**.   Now save the file as any name that you want.
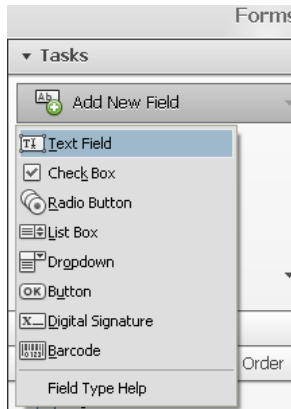
e. Move the cursor over the document and notice the blue box that is attached to the end. Put this in the general area that you want the date. The date field can be resized by using the mouse and clicking on the blue squares around the field box. Also, the field can be moved by using the mouse and clicking anywhere inside the field box.

f. Double-click on Text1 or right click in the shaded box and go to Properties. The Text Field Properties box will appear. Select the Format tab at the top. Select the format category as **Date** and format as **mm/dd/yyyy**.   Click on the **Format** tab and select **Date** as the Select format category. When finished, select Close. In the **Tasks** window on the right, choose **Close Form Editing**.
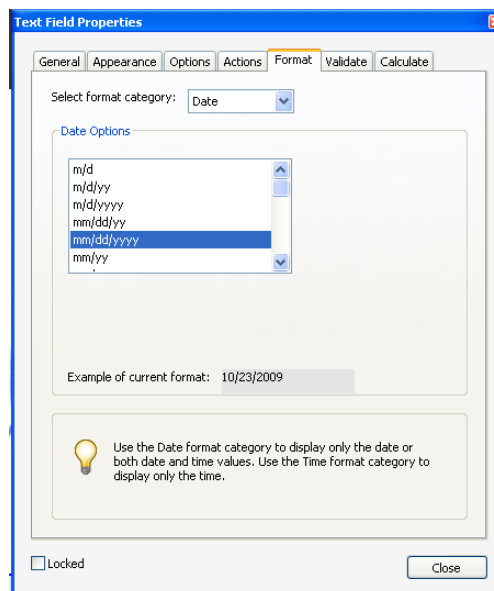
g. Inside the pdf, click in the date field and enter the date. If the date is not entered correctly, a warning message will appear.

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h. Save the file when you are finished. This file is your electronic generated signature and date.

   NOTE: When signing a set of plans with a different date, you will need to open this file and modify the date each time and save it. You do not need to create a new file for each date, just overwrite the one that you have.

G. Setting up the Electronic Generated Signature and Date of Signature as the Digital Certification Appearance to the PDF Plan Set
   a. **In Adobe Acrobat, go to Edit>Preferences>Security.**
   b. **In the Appearance section, select New.**
   c. **In Configure Graphic, choose Imported graphic and select File. Browse to the file that contains your signature and date field.**
   d. **In Configure Text, unselect all options shown.**
   e. **Select OK when finished.**

H. Adding the Electronic Generated Digital Signature Certification to the Plan Set

   a. In the Adobe Acrobat Portfolio, open up the project portfolio. Open a sheet.
   b. Verify that your Entrust Digital Signature USB Token is inserted into your computer. Navigate to **Tools>Sign & Certify** and select **Certify with Visible Signature**.
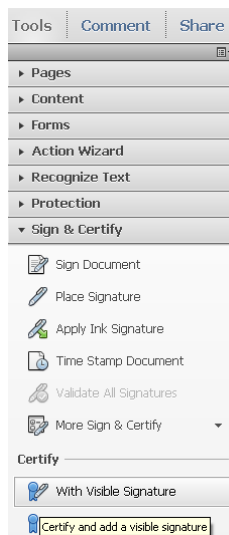

   c. The following information window may appear. Click on **OK**.
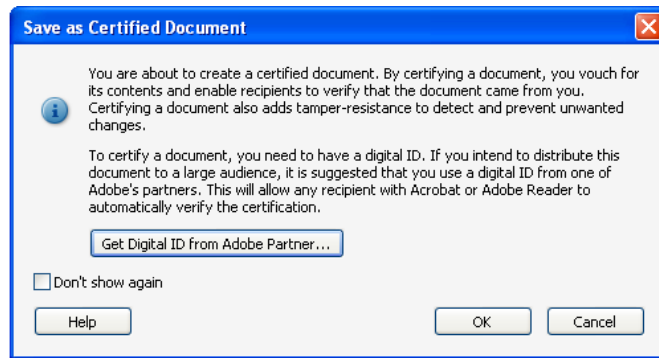
d. Another information window will appear as well. This window is alerting you that you need to create a signature field for the location of your digital signature. Click **OK**. Using your mouse, click and drag out the area to define this location.
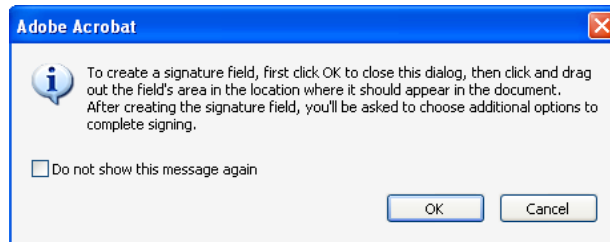

e. The Certify Document dialog window will appear.
   i. In the Sign As section, Verify that your name is in the Sign As section.
   ii. In the Appearance section, use the drop down box to choose your seal.
   iii. In the Reason section, you can leave it blank or choose a reason if needed.
   iv. In the Permitted Actions After Certifying section, select No Changes Allowed. If multiple signatures will be on a sheet, then change this to Form Fill-in and digital signatures.
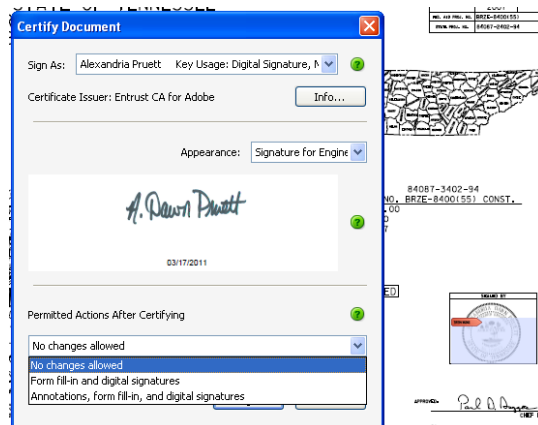
f. Click Sign when finished.

   Note: If the sheets are signed prior to adding them to Adobe Portfolio, then a Save As window will appear and you should name your file according to the FileNet naming convention.

g. A dialog box will appear for you to type in your password to your USB token.
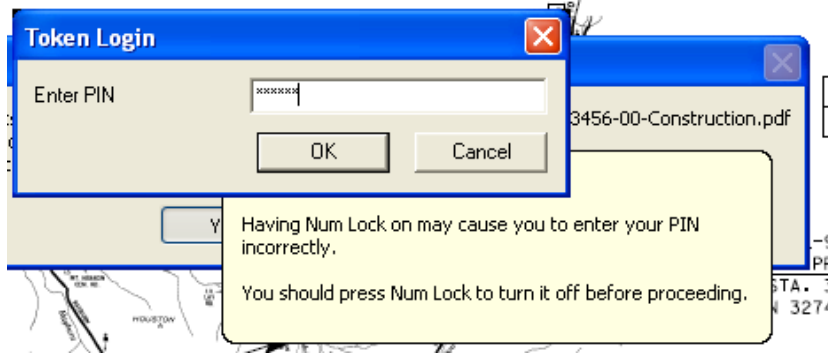
h. The electronically generated digitally certified signature now appears on the sheet. The blue ribbon at the top of your document that shows that the file is certified.