

# Typical Section Creation for Book Jobs

## Overview:

The following instructions are intended for Highway Department personnel who are tasked with creating 8.5 x 11 inch drawings of Typical Sections which are a part of pavement contracts, aka 'Book Jobs'.

- Copy the Typical Section files from the Y: drive to your local drive
- Have a VERY CLEAR idea of what the project's Typical Section looks like
- Decide on the best starting point for the Typical Section drawing, either
  - 'Template' dgns, or
  - 'From Scratch' dgns
- Once you have decided on a dgn file to start from, **save** it to your project folder and **open** it properly in MicroStation
- Create the Typical Section drawing for your project
- Print the Typical Section drawing as a pdf file

## Step One: Copy Master files to Local Drive

Before you start in on the drawings you need to first copy the master files from their location on the Y: drive to your own workstation hard drive.

Currently the folder on the Y: drive containing the master drawings used in creating Typical Sections for Book Jobs has the following path:

### **Y:\pin\BookTypicals**

This folder contains **MASTER FILES**. Rather than immediately working in them and overriding what is there, **PLEASE** copy the contents of this MSTA folder and paste them at some location on your local hard drive.

My suggestion would be to put it right under your local drive directory:

C:\ << folder here >>

## Step Two: Clear Vision of Your Project's Typical Section

Before you can start drawing the Typical Section you need to have a clear idea of what defines your project's Typical Section, (i.e. width of travelway and shoulder, slope of travelway and shoulder, is there curb, is there guardrail, dimensions, text), and how all these components will fit on a sheet. A sketch on paper of what you are going to draw may help.

Once you have a clear idea of what you are drawing for a Typical Section, you can start looking at the dgn files that you have copied over to your hard-drive and see which dgn is the best starting point. Preferably it will be the one that gets you the furthest along the process of

producing a Typical Section drawing. No matter which drawing you pick to start off from, you are going to do some work.

### Step Three: Find the Best Starting Point

With a 'clear vision' of the Typical Section for your project, you must now decide from which template dgn would be the best and most advantageous starting point. One option is to use one of a collection of dgn's that already has linework of the most common Typical Sections, or the second option is to start with a dgn that has no linework at all and start from scratch.

Note: The Typical Section template dgn files discussed below were originally found here:

**Y:\pin\BookTypicals\From Template**

Before you copied them to a location on your local hard-drive.

1. Below is the list of dgnos that are the most common Typical Sections (open them if necessary in MicroStation). See if any of them are similar to the Typical Section drawing that you are going to create. You may not find a dgn in this set that is an exact match of the Typical Section of your project, but is there one that can be modified with the least amount of effort to create your project's Typical Section? If there is one that is a fair representative of the Typical Section of your project then use that, or if there is one that with just a few modifications can be made to look like your project then use it.

-  3-4 INCH no curb-grd.dgn
-  3-4 INCH w curb-grd.dgn
-  MILL FILL 2 Lanes GR CURB w shim.dgn
-  MILL FILL 2 Lanes GR CURB wo shim.dgn
-  MILL FILL CURB Raised Island w shim.dgn
-  MILL FILL CURB Raised Island wo shim.dgn
-  MILL FILL CURB Typical.dgn
-  MILL FILL CURB w shim.dgn
-  MILL FILL CURB wo shim.dgn
-  MILL FILL CURB.dgn
-  MILL FILL MAINLINE w shim.dgn
-  MILL FILL MAINLINE wo shim.dgn
-  MILL FILL Type 1 Curb3+ Lanes w shim.dgn
-  MILL FILL Type 1 Curb3+ Lanes wo shim.dgn
-  Overlay CURB GR.dgn
-  Overlay.dgn

*The above Typical Section dgnos are intended to be used as a starting point (or template) for drawing your Typical Section.*

Once you have found a 'template' dgn to start from, **save** a copy of it to your current project folder (WIN folder).

Now jump down to the Instructions titled = **Step Four: Opening a dgn in MicroStation Properly**

2. If after going through the list of Typical Section template dgn's you didn't find any dgn similar to your project's Typical Section, you have to resign yourself to creating a Typical Section dgn from scratch.

Note: The "From Scratch" dgn files discussed below were originally found here:

**Y:\pin\BookTypicals\From Scratch**

Before you copied them to a location on your local hard-drive.

**From Scratch\_54ft width.dgn** ≈ Space for 50' wide Typical Section

**From Scratch\_72ft width.dgn** ≈ Space for 70' wide Typical Section

**From Scratch\_90ft width.dgn** ≈ Space for 90' wide Typical Section

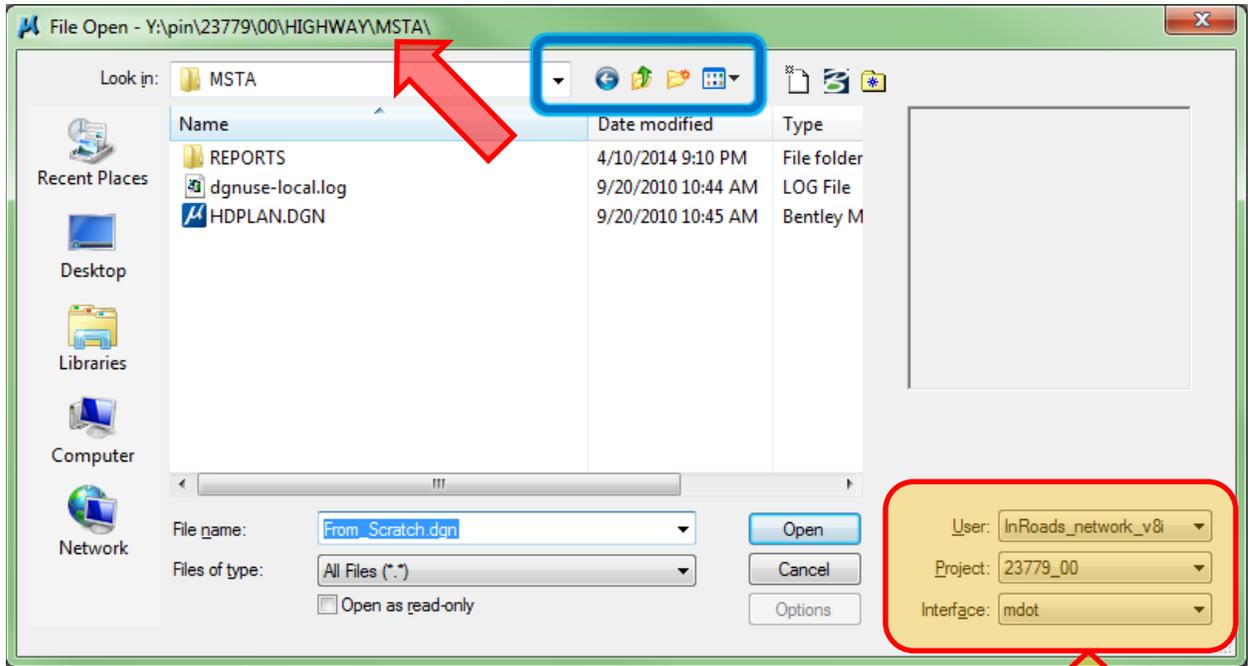
These "From Scratch" dgn's have no linework in them except for the 8.5 x 11 drawing border. You will have to create every figure that defines your Typical Section from scratch in MicroStation.

Once you have found a 'From Scratch' dgn to start from **save** a copy of it to your current project folder (WIN folder).

## **Step Four: Opening a dgn in MicroStation Properly**

You have decided on which dgn file you are going to start with to create your project's Typical Section. And it's saved in the project folder on the Y: drive, you need to now open it in MicroStation so you can start working on it. It sounds like an easy task, and it is, but there are some nuances to this simple task that are often overlooked. If a dgn is not opened correctly there's a chance that things could go wrong. Follow these steps to avoid trouble.

1. Open MicroStation and at the following File Open dialog box, do the following.



2. Go to the Lower Right-hand corner of the dialog box and select
  - User = InRoads\_network\_v8i
  - Project = Select the Win Number of the Book Job you are working on
  - Interface = mdot
3. Go to the Top of the Dialog Box (red arrow) and **verify** that the file path is the appropriate path of the Win Number of the Book Job you are working on. In other words, the same Win number should be shown in the lower-right hand corner and the top of the dialog box within the path of the file. **If NOT** return to the above step (2), repeat those actions, then **if necessary** navigate to the file that you just copied (your work drawing) using the windows navigation tools at the top of the Dialog Box (blue box).
4. **Open** the dgn file that you are going to use to draw your Typical Section in.
5. You are now all set to modify this dgn file to create your Typical Section.

### Step Five: Creating & Modifying Content in the dgn

After choosing the best dgn as a starting point, saving it in its proper place, then opening it correctly in MicroStation you can at last set down to work in the dgn.

Upon opening any of these dgns the Annotation Scales is Set, so that doesn't need to change. Now jump down to the Instructions titled = **Step Four: Opening a dgn in MicroStation Properly.**

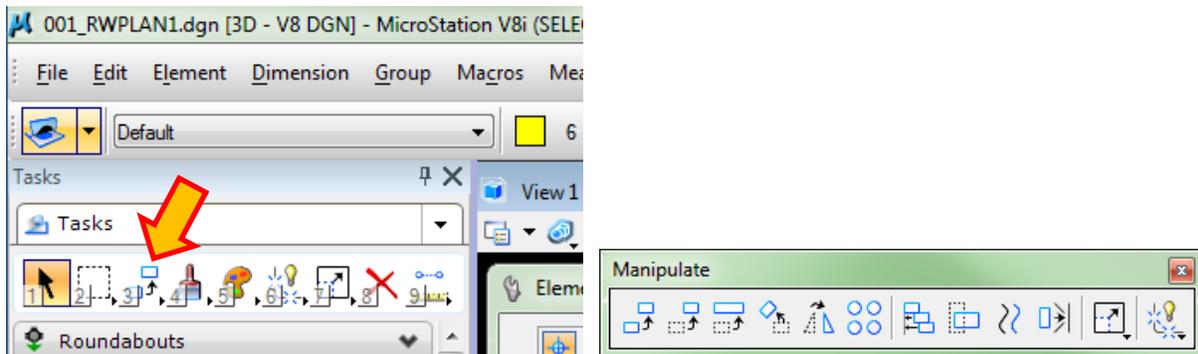
### Drafting Practices:

Now that you are ready to edit an existing template drawing or start creating linework from scratch, here are some things to keep in mind.

1. Check to see if the Annotation Scale is “on” and scale is correct.
2. Generally speaking, it is more efficient to modify existing elements rather than creating new ones. Try copying and modifying linework and annotation already found in the drawing, and repurpose it to complete the drawing rather than create new elements.
3. Edit and create the linework first before adding annotation, dimensions, and cells to the drawing.
4. Make sure the correct Annotation Scale is applied and finish the drawing by adding annotation, dimension, and cells.

To draw your project’s Typical Section which will become be a page in the contract book, you will need to create and edit various MicroStation elements. The following gives a general direction where the commonly used MicroStation tools can be found to do these actions.

- To **Modify** existing elements, the common tools that you’ll need are the “Manipulation” commands.



You can find the “Manipulate” tools either at the top of the “Main” Taskbar (as shown on Left, at the ‘arrow’) or on the “Manipulate” toolbar (at Right) which can be displayed by going to the dropdown menu then navigating to:

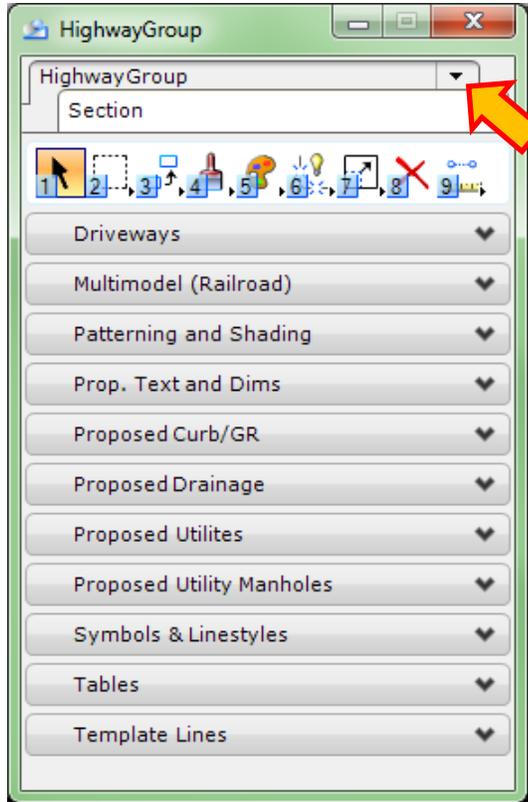
**Tools > Manipulate > Open as ToolBox**

*\* Some of the “Manipulate” tools can be found by pressing and holding the right mouse button, then a menu will appear with what there is of these commands.*

- To **Create** new elements (such as lines, notes, dimensions, etc.) use the tools found in the **Highway Group Tasks** under the **Section** tab. Using the **HighwayGroup Tasks**, make sure the color, linestyle, and lineweight are correct according to MaineDOT drafting standards. If the Taskbar is not already displayed you can display it by navigating along the pulldown menu:

**Maine DOT WorkGroups > HighwayGroup**

This will display the Highway Group Tasks. To display only the commands contained in the **Section** tab find the “dropdown arrow” to the right of “HighwayGroup” (see arrow), click on it and choose “Section”.



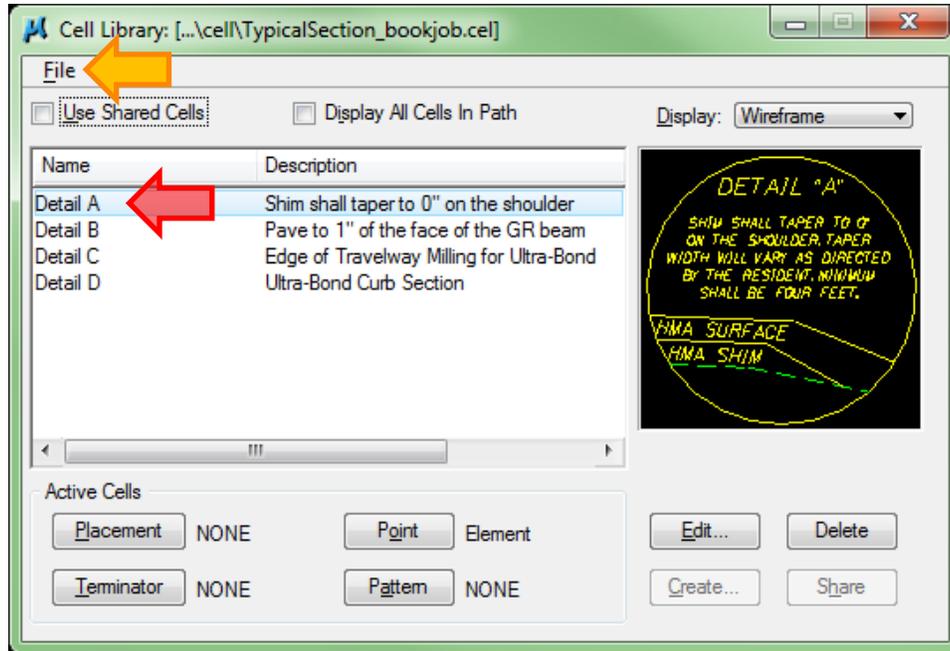
The following are suggestions of which commands to use and where to find them in the **HighwayGroup** under the **Section** tab:

- To draw new lines, use the commands found under the **Template Lines** tab.
- To insert cells of curbs and guardrails, look under the **Proposed Curb/GR** tab.
- To create new text, leaders, and dimensions look under the **Prop. Text and Dims** tab.

- Before you start populating the drawing with Cells, Text, and Dimensions, it would be a good idea to verify the Annotation Scale and make sure it is set to what you need.

When you do apply the Annotation Scale the following will tell you what the Annotation Scale should be for you particular drawing (this is also explained within the drawing itself).

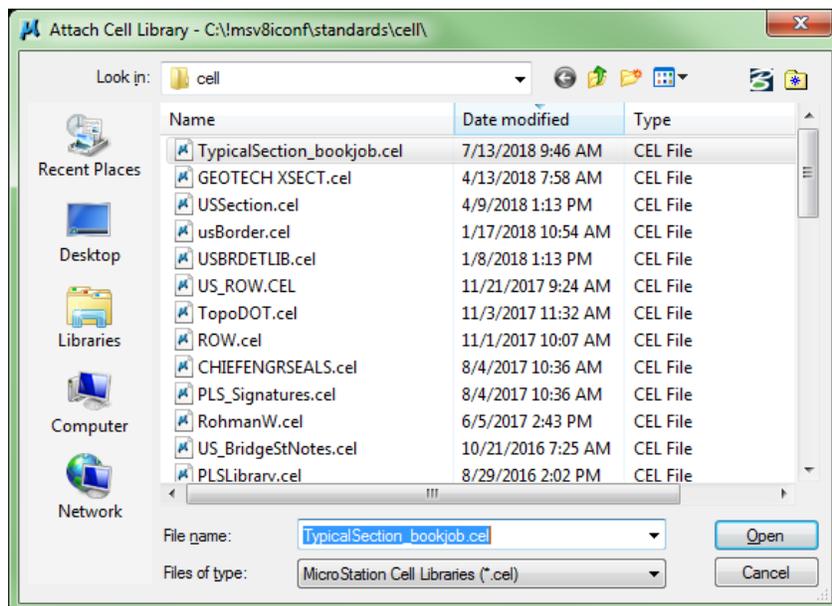
- To Insert the “Detail Cells” commonly found in ‘Typical Sections’ you first need to load the appropriate Cell Library. Left-Click on this icon  (the “Cells” icon is found on the “Primary Tools” toolbar) and the Cell Library Dialog Box appears:



On the Cell Library dialog box go to the upper left-hand corner and click on **File** (orange arrow). Then from the dropdown choose **Attach File...** then navigate to:

**C:\!msv8iconf\standards\cell**

on your local hard drive and choose the “TypicalSection\_bookjob.cel” cell library, and click “Open”:



The Cell Library dialog box should then display the contents of this loaded library - as depicted in the second previous screenshot. It displays four details, A through D, and a preview of them to the right of the dialog box.

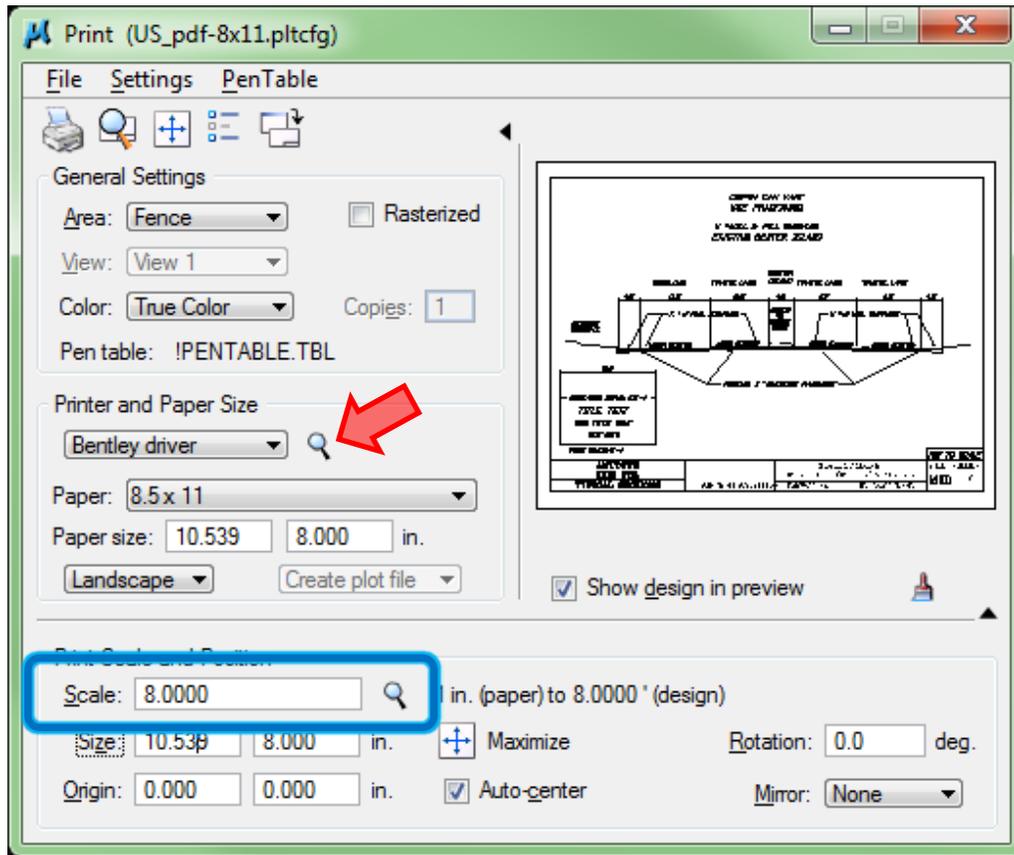
To **insert** one of these cells simply “double click” on the desired cell (red arrow) and the cell will appear on the end of the cursor in the workspace.

- Make sure you “Save the drawing” and “Save Settings” (both can be found under the pulldown menu **File**), whenever you are at a good stopping point and before you print.

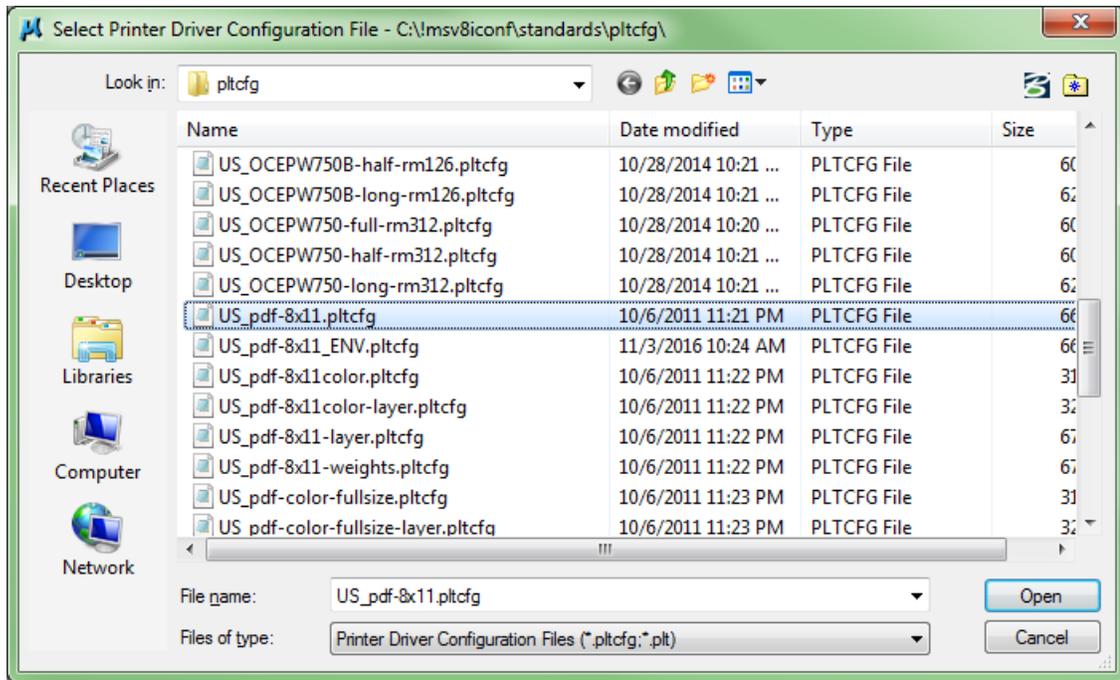
### Step Six: Printing to a pdf File

After completing the drawing you will then need to print it to pdf so that it can be incorporated into the project’s contract book.

1. To print a drawing go to the pulldown menu: **File > Print**



2. The Print Dialog Box appears, the default print driver is not what you want for printing to pdf, so click on the magnifying glass (red arrow) to choose the correct driver. Select the correct print driver from the “Select Printer Driver Configuration File” dialog box, in this case “**pdf-8x11.pltcf**” and click “Open”.



3. Make sure the Print Scale is correct for your drawing before you print (see blue box in second previous screenshot). Refer to Print Scale setting notes below:

- Print Scale for ALL your dgn's that used one of the "Template" dgn's as a starting point should be set to:  
**"Template" dgn's Print Scale are All set to 8.0**
- Print Scale for your dgn's that use the "From Scratch" depends on which "From Scratch" dgn used:  
**"From Scratch\_54ft width.dgn" Print Scale set to 6.0**  
**"From Scratch\_72ft width.dgn" Print Scale set to 8.0**  
**"From Scratch\_90ft width.dgn" Print Scale set to 10.0**

4. End of workflow.

- o Annotation Scale for ALL your dgn's that used one of the "Template" dgn's as a starting point should be set to:

**"From Template" dgn's Annotation Scale set to 1" = 5.5'**

- o Annotation Scale for your dgn's that use the "From Scratch" depends on which "From Scratch" dgn used:

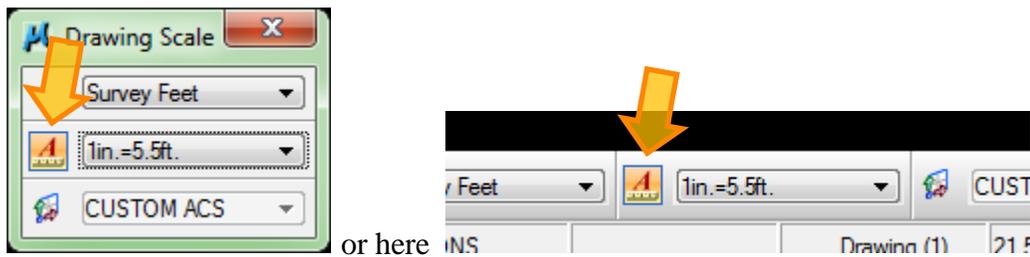
**"From Scratch\_54ft width.dgn" Annotation Scale set to 1" = 4'**

**"From Scratch\_72ft width.dgn" Annotation Scale set to 1" = 5.5'**

**"From Scratch\_90ft width.dgn" Annotation Scale set to 1" = 7'**

- o Make sure that the Annotation Scale is "On".

It can be found on the Drawing Scale toolbar if it is "orange" it is "On" = , If it is "Not orange" it is "Off" = 

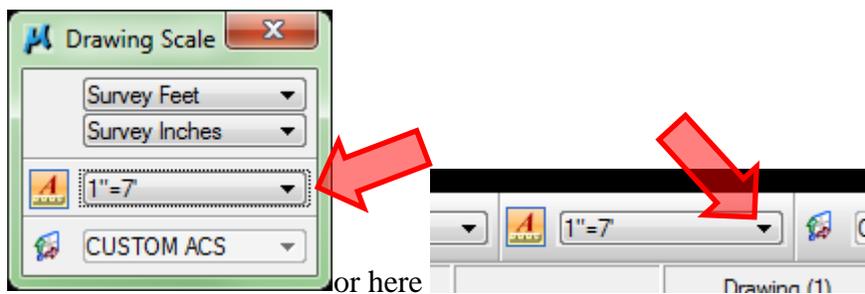


If you don't see this icon & its associated pulldown menu follow these steps:

From the MicroStation pulldown menu:

**Settings > Drawing Scale**

- o To change the Annotation Scale the pulldown menu is here:



*Note: Using the correct Annotation Scale tells MicroStation what the proper size and proportions the elements created by HighwayGroup Tasks are to be.*