

## PLAN PROFILE SHEETS

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# PLAN PROFILE SETUP INTRODUCTION (ROADWAY DESIGN METHOD)

*ROADWAY DESIGN CURRENTLY RECOMMENDS USING THE GEOPAK METHOD OF SETTING UP PLAN/PROFILES SHEETS. The Geopak Method adds the ability to reference profiles, etc. This can give you significant advantages when revisions are made. We still support and allow the use of the Roadway Design method of sheet setup and this document is to be used for that purpose. This document also contains standard file requirements for sheets in design files that are to be followed when using the Geopak Method. See the Geopak In-House Manual for additional help with the Geopak method.*

This document describes in detail how to setup plan or plan/profile sheets using the Roadway Design method.

The procedure for setting up a sheet may seem complicated or awkward at first, but we think that once you understand the concepts you will be able to deal with most situations.

The topics covered include; requirements that you must meet before starting, the concepts of sheet setup and how to make them work, notes concerning references, how to use the sheet

setup commands, notes on using multiple/duplicate reference attachments and a procedure that can be used to make your projects numbers be references to your sheets, thus allowing quick revisions to your project number for many sheets.

# REQUIREMENTS - ROADWAY DESIGN METHOD: PLAN/PROFILE SETUP

## General Requirements

### Plan Sheet Size

Unless otherwise specified elsewhere in a job specific contract or instructions. The final paper (hard copy) printed plan sheet size will be 22" X 36". Normally the user will not have to concern themselves with the size of the printed sheet if they use the standard sheet cell located in our standard cell libraries. The actual plot size is 22" x 34.6", but the hard copy paper size is usually 22" x 36". Sometimes 22" on the paper version is slightly larger due to variable ways a plotter cuts the paper, but the printed data should not exceed 22". Electronic PDF plots may be shorter than 36" but will not be smaller than the 34.6" width. The height will be 22".

Before you can setup plan/profile sheets there are a few general rules you must follow to make sure the design files are correct that contain sheets.

***The sheet should NOT be created in a design file with a rotated view.***

Even though it is possible to use a rotated view, most Roadway Design users know that you should not create your plan profile sheets in a rotated view. Microstation itself does not care if the view is rotated when you set up your sheet. Completed sheets will by their appearance look okay in a rotated view. Plotting is usually where problems might occur. Some printer plot drivers can plot the file, but some cannot. Also, Roadway Designs "IPLOT" plotting software does not work well with rotated views that have reference files or raster data attached. In conclusion, NEVER setup you plan profile sheets in a rotated view. If you're not sure, always set the view to top (vi=top) before you begin setting up a sheet.

***The sheet MUST be in a 2D design file.***

No design file that is used for plotting sheets should be in 3D format. Some design processes require the use of 3-D design files. You are allowed to use as many 3-D design files as needed, but if the graphics produced need to be shown on final project sheets, then the sheet should be 2-D format and the 3-D format files can be referenced. For example, Geopak uses 3-D format dgn files to produce contours. The contours can be referenced to a 2-D format design file to

produce the final plotted sheet. The ultimate goal is that all sheets that are to be plotted to be in 2-D dgn format. If possible, all 3-D files should be converted to 2-D.

### ***Border File and Reference Attachment***

You should create a "Border" File to use as a guide when locating each sheet. The Border design file (usually called border.dgn) should be created with "border" cells placed in the location where you want the plan area of each sheet to be located. Spend enough time positioning these cells; for they represent the exact location of the plan area of each sheet. Once created the border is one of the references done during sheet setup. Use it to guide you through the sheet setup command process. Attach border references with the logical names b, b1, b2, or b3 if possible; for this is used internally in the command process to turn the display off for the border when the sheet is complete.

### ***Design Data that should NOT be used on Sheet Design Files***

Roadway Design is the central repository for all sheets which requires that we be able to plot any sheet without having to use some un-reasonable or non-standard procedure to plot the sheet.

Below is a list of items that should NOT be used in a design file because of our plotting requirements:

Filled Shapes that cover other required graphics: Since all sheets are plotted in monochrome (black and white) any filled shapes that cover other data will block out the graphics underneath and will print in solid black. The only exception is when pen tables or design scripts can circumvent this. If a table or script is needed, that file must be submitted with the sheet. This process can only be done if approved by Roadway Design. We recommend that you place large readable text outside the sheet that instructs the user on the name of the required table or script needed.

Blank Sheet Cell: Any design files that is used for sheet plotting should NOT contain a blank or un-used sheet cell. When using batch plotting in either Microstation or IPlot the software will look for a shape that is embedded in the sheet cell. If a blank sheet cell is found, it will be included in the sheets that are to be plotted. Since this is undesirable in a batch plot set you should not leave an un-needed sheet cell in your design files. If you find you want to leave old sheets in a design file you need to drop the sheet cell and remove or change the symbology of the plot shape embedded in the sheet.

### ***Plotting the Sheets***

Roadway Design Sheet cells contains a line of text located in the lower-left corner of the sheet. This text appears as follows: MMDDYY 00:00AMPM DGNFILENAME. This text is replaced at plot time. Roadway Design IPLOT settings files will automatically replace this text with the current

date, time, and filename. The sheet cells will all contains a text string called “\$PG\$” located in the sheet number field. This is designed to be replaced by an actual sheet number on printing of final plans. It provides an automatic sheet numbering that is needed to be quickly at the end of the design production. If you are printing sheets without sheet numbers, you can quickly turn off this level before printing. We also now require that plan profile sheet be plotted in a custom color combination that is performed with a pen table. All three of these routines can be done separately or together by using applying the appropriate settings file or applying the appropriate design script or pen table to files. More information on this can be found in the plotting chapter.

If you use Microstation to plot, you must use Roadway Design's Plot Configuration Files to plot sheets based on Roadway's standards. See the Plotting Chapter of the CADD Manual for detailed information about the plot configuration files you can use with Microstation.

## **CONCEPTS**

# **ROADWAY DESIGN METHOD PLAN/PROFILE SETUP**

### **General Concepts**

The general concept for creating the elements in the CADD process was to design and draw different aspects of a project in each design file.

For instance, the survey line would be designed and drawn in one design file, existing topography in another, proposed edges of pavement in another, pavement markings in another, etc.

This concept allows more versatility in your work. By the use of references, users can work on different aspects of the design without interfering with another user working on a different aspect of the design.

We also want references to be a key ingredient in the process of setting up a Plan/Profile sheet. By using reference elements on the sheets themselves, means that it would automatically be updated when the original file was changed. This is especially good when the plan sheet coverage overlapped. A Designer only has to make a change once instead of on every sheet the revision showed up on.

## Making the Concept Work

This concept seems to work well for Roadway Design, but it complicates the process of plotting plan sheets because of the fact we had to break down the files into sections to fit on that sheet. The tools for doing this are available in Microstation. But the problem was to put them all together, and at the same time make it easy for a designer to use them.

### *Discussion:*

The concept has to begin by referencing in the design files that will need to be shown on the sheet.

The next step is to determine the limit of elements that need to be on one sheet. Since the elements outside of the limits you want have to be clipped out of the file, you can only show one sheet at a time in each design file. The limits are determined by a border cell reference design file described later.

The clipping area has to contain the entire limits of the border cell no matter how many extra elements are in the clipping area. The extra elements can be clipped out later.

The plotting software then requires that the area to be plotted be in a rectangular shape. This shape must be orientated about a horizontal or vertical axis. For this reason, you must perform some sort of rotation process. The choices then become --Do I rotate the view or rotate the references? We chose the latter option because of several problems with plotting and clipping references in rotated views.

To achieve the rotation we had to devise a way to find the rotation angle and the point to rotate about. To solve this problem we decided to use a working design file that sets the limits for each sheet. The user can then reference in the design files that comprise the elements needed on the sheets. Then place a cell that represents the border limits of a sheet. The user can then place these cells along the project to determine where sheet coverage is needed. These cells can then be used to set the rotation angle and rotation point. By identifying the line along the longer side of the border cell you can calculate the rotation angle. For standardization purposes we always use the lower left corner of the border cell as the point to rotate about.

Once the references have been rotated, we can place a plan/profile sheet cell using the same origin that was used to rotate about, because the cell was created with that point being its origin.

The final step is to re-clip the reference files to get rid of the extra elements outside of the plan/profile border.

# SHEET SETUP COMMANDS

The Macros we have created make it much easier to set up sheet. There are currently two macros designed for this purpose. One of them is designed for plan sheets and the other for plan/profile sheets. The macros only set the plan section of the sheet. The profile section is added later by drawing it on the sheet using Geopak tools.

This document does not cover the Geopak method of sheet creation. The Geopak method provides some advantage by allowing you to add the profile to sheet at the same time as setting up the plan sections. The Geopak method is probably the preferred method, but it does have its disadvantages. It is not very versatile for setting up one sheet at a time as with local roads. The Non-Geopak method that is covered in this document may be better suited for those types of sheets. Either method can be used for setting up sheets.

Since the two macros work with ALL attached references, they cannot be used to add references to a sheet that is already setup. That process does not require a macro and is [covered later in this section](#).

These macros can be accessed from one of Roadway Design's menus. For explanation purposes I will give step by step instruction on setting up a plan/profile sheet macro. The other command works similar.

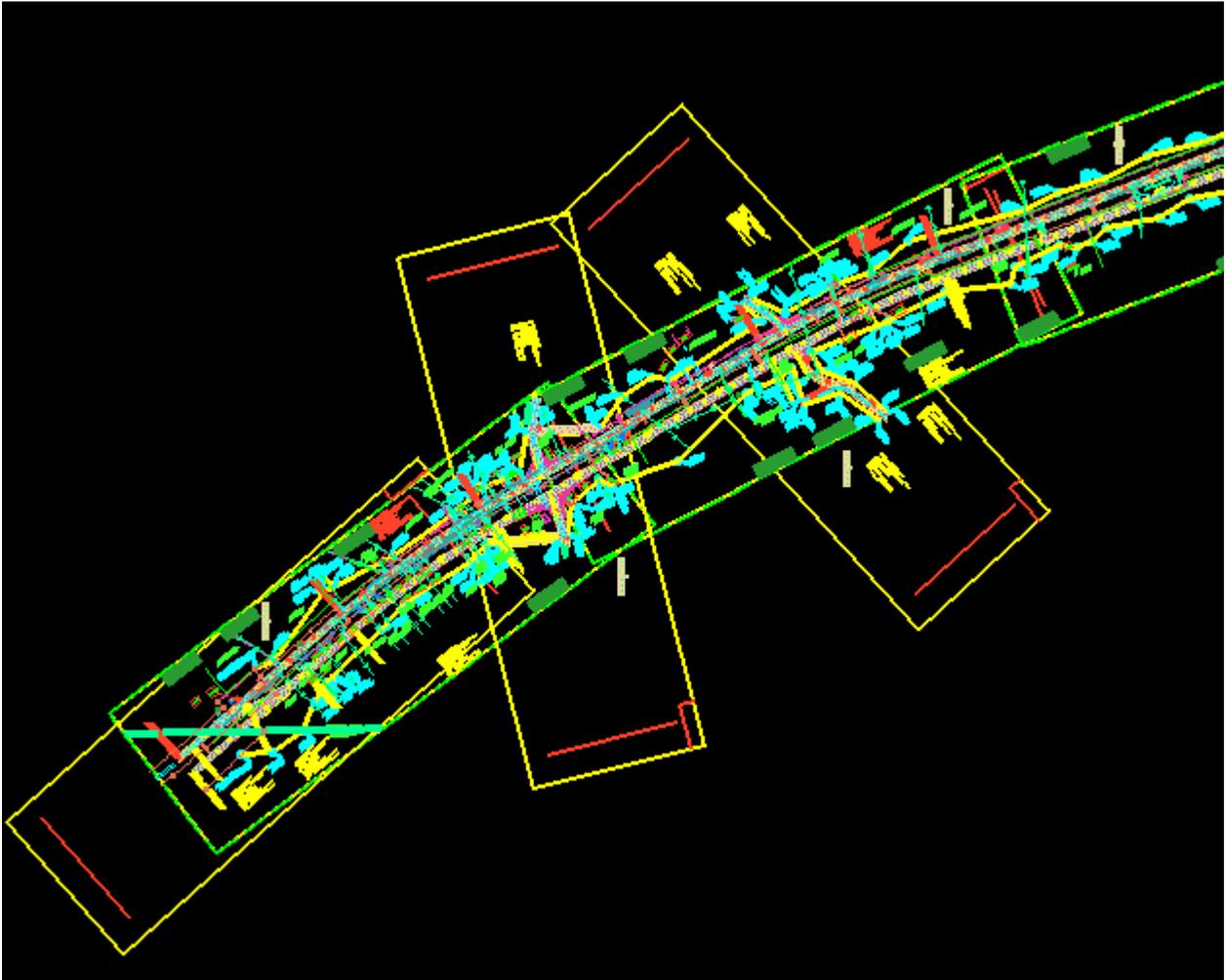
**Important Notes:** Before starting the command make sure you check two items.

1. That the view you will be using to set-up your sheet is not rotated. You can key-in: **vi=top**, to make sure the view is at a rotation of zero (0). In almost all cases it will be already set to top orientation.
2. Make sure you active scale is set to the active scale of the sheet. For example, if the sheet will be at the scale 1"=100', then you active scale should be set to 100 (as=100). Later when the command is started it will still prompt you and ask you if the current active scale is correct. If it is, you can continue; if not, you must enter the correct scale.

You will first have to attach each design file that is required to make up your sheet as a reference. You will also have to reference your sheet border file; it will be used as a guide when using the macro.

Increase your sheet setup process by attaching all your reference to the first file and then copy it for all the other sheets design files you will eventually need. This saves you from having to attach multiple references over and over again.

The following picture shows a partial example of what a design file may look like:



Start the macro command from Roadway Design Menus. We recommend that you focus your view around the sheet you intend to setup before you start.

The command will first prompt to see if active scale is correct:

**Reset if Scale is OK... or Keyin New (AS=\_\_\_)**

**Current Active Scale > AS=100**

Active scale of 100 is the default. If the scale is not correct, enter the new scale. Do not enter AS= in front of the scale, just enter a number; such as, 20.

The command will then prompt for:

**Rotation Preparation/ ID 1st Fence Corner**

**Place Around Entire Border / Reset to Exit**

It is necessary to define a fence block for clipping the reference files. Once defined, all attached reference files are clipped to get them ready for rotation. It is important to make sure that the border cell be completely inside the fence. When new to this process, most users have trouble at this point. Here are some pointers to help eliminate these problems:

1. **DO NOT CLICK ON THE PLACE FENCE COMMAND.** The macro has already done this for you. All you need to do is enter data point at locations of the fence corners.

2. The first fence corner does not need to be real close to the border cell. Give yourself plenty of room and move out away from the cell, so you can make sure the fence encompass the entire border limits. Remember this process only defines a clip needed for rotation. The extra stuff outside the border gets clipped away later.

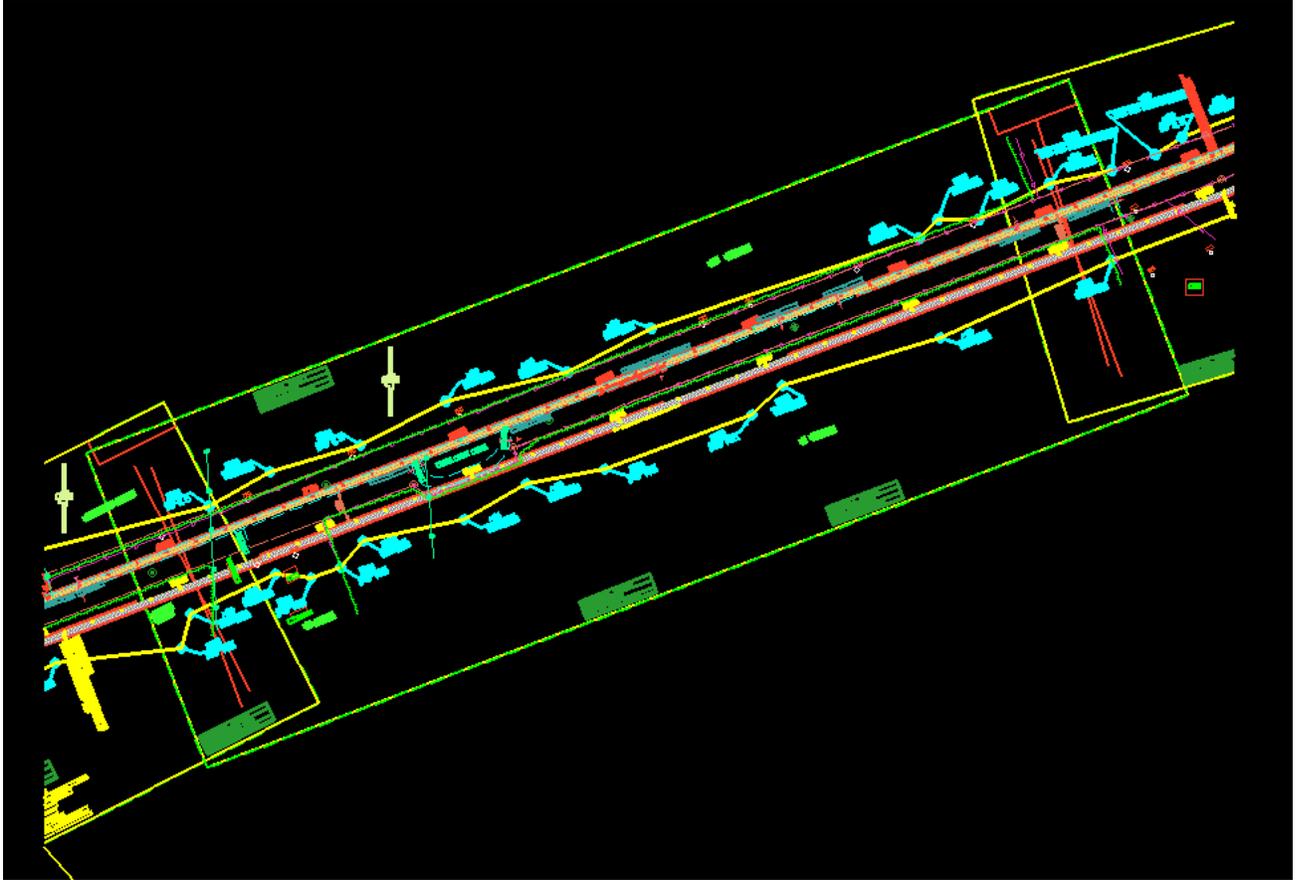
The command will then prompt for:

**ID 2nd Fence Corner**

**Reset to Redefine first corner**

As mentioned above, the second corner needs to work with the 1st point to encompass the entire border. As long as you can see the bottom two corners of the border you can continue, otherwise you can use the reset to re-define the first corner.

Here is an example view of what the clipping accomplishes. It is normal to have extra data outside the border. The purpose here is to make it ready for the rotation process.



The command will then prompt for:

**Snap & ID Lower-Left of Border**  
**Rotation Process /Reset to Exit**

The next two points you identify are critical, where they are identified will determine the angle of rotation and the lower (left) point will determine the point of rotation for the references. Lower left and right indicate the long line along the border cell that will match the bottom line on the plan area. The lower points can always be found because the border cell always contains a little rectangle shape in the upper right corner where the project number is located on our standard sheets.

**Snap & ID Lower-Right of Border**  
**Reset to Redefine lower-left**

After using your snap and data to identify the lower-left it will prompt to snap and id the lower-right corner. If you think you identified the wrong location for the first point you have the opportunity to reset to redefine it.

After the points are identified, the command will do all the additional steps automatically.



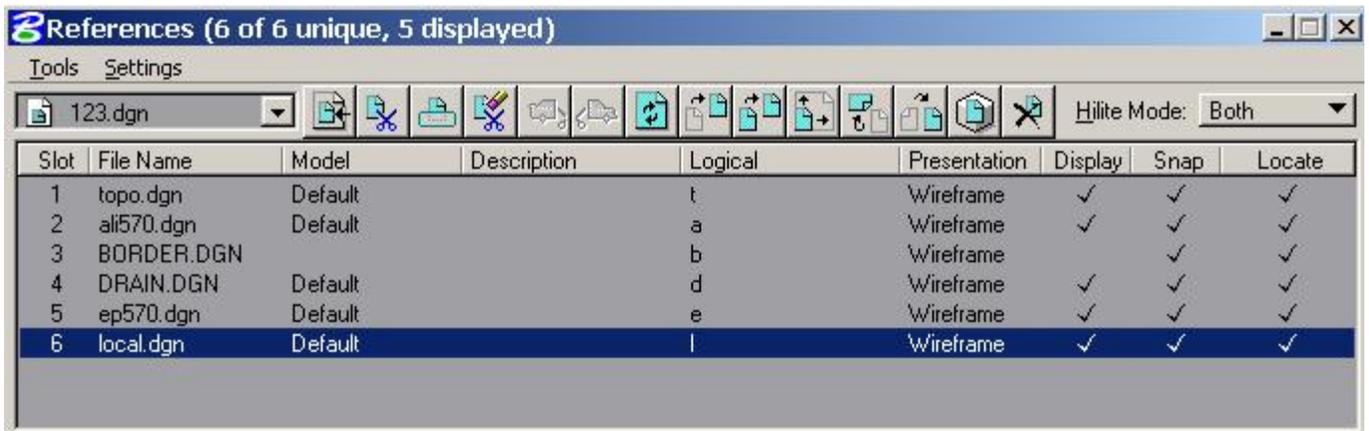
Notice that in the above picture that a fence shape was placed and the reference files were re-clipped. This step is not always necessary, but you may want to do this to clean up the appearance of the drawing.

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## Adding References to a Sheet that is already set

A method is available to add references to a sheet. It is not a built-in command, but is actually a way to trick Microstation. You can use Microstation Reference Copy command to copy one of the references that have already been rotated and clipped. Although the copy is the wrong file, you can edit the settings of the copied attachment and change the name of the design file. This retains the rotation and clipping and the result are that you add a missing reference.

To do this, open the reference dialog and select one of the references already there. It does not matter which one you select because you will change the name later. In this example, I selected the reference name "local.dgn".



Next click on the copy attachment command icon. 

In the tool setting box you can select how many copies to make. In this example, I entered only one, but you can should put the number of new files you will want to add.



The next two steps involve identifying data points to copy to and copy from. This indicates to Microstation the data location that you want to copy and the location you wish to place it.

Copy Reference Attachment > Enter point to copy from > With this prompt, data point some location that you can ID again in the next step.

Copy Reference Attachment > Enter point to copy to > With this prompt, data point the same location as above. This will make the copied reference be on the exact top of the original.

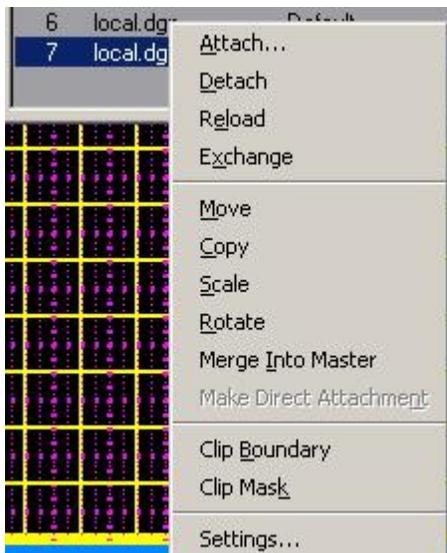
The important factor here is to make sure these two points are the same. The two references will be in the same identical location. This is critical because you change the name you want the reference to be in the same coordinate system.

You will now see the copy of local.dgn (I-1) and the original (I) in the dialog list.

6	local.dgn	Default	I	Wireframe	✓	✓	✓
7	local.dgn	Default	I-1	Wireframe	✓	✓	✓

The next step is to change the file name of the copy. You need to change local.dgn (I-1) to the file you are actually trying to add to the sheet.

To change the name, right click on the name of the copied file local.dgn (I-1). The following items show up when your right-click. Select the Settings item.



The setting dialog box will show next. At the top of the dialog is the name of the reference. Here you can change the name to the file you want. In this example I will change it to ROW.dgn.



I change it to what is shown below and click OK.



You now have completed adding a new reference with identical clipping and rotation. The dialog box below shows the final results.

6	local.dgn	Default	1	Wireframe	✓	✓	✓
7	row.dgn	Default	1-1	Wireframe	✓	✓	✓

Although I did not change the logical name in this example, you should do this also when you change the name. I should have given it a logical name of R.

## MULTIPLE/DUPLICATE REFERENCE ATTACHMENTS

A technique of using multiple reference attachments can be used when the user has more than one area of the design file that shows up on one sheet. An example of this technique is described below:

In this example the user needs to show two 600 foot sections of his proposed roadway for detailing pavement marking. The drawings are to be plotted at a ratio of 1"=20'. The first section is from station 10+00 to 16+00 and the second section from station 16+00 to 22+00. The sections will show the survey line and proposed edges of pavement. The user wants to show the first section at the top portion of a plan sheet and the second section in the lower portion of the plan sheet.

- First, the user should create a new design file. Reference in the files needed to determine the sections of the file that are to be broken up for each sheet and place a border cell around it. In this case one border cell is placed so that station 10+00 to 16+00 is positioned along the top half of the border area. Another border cell is placed so the station 16+00 to 22+00 is positioned along the bottom half of the border area. You would now have two border

sheets placed. These two borders will be referenced later and repositioned to become one sheet.

- > The pavement marking details should not be on the plan sheets. The designer should create a new design file. Then reference in the border design file and any other file that is needed while drawing the pavement marking details. The border reference will help in determining where to put notes and other details.
- > Create a design file for each sheet you need. Since each border only represents half of a sheet. You should only need to create one design file for every two borders.
- > In the first sheet design file, reference in the borders, pavement marking, and any other design file you want to show up on the sheet.
- > You can now use the Plan Sheet Setup (All) user command to set up the first half sheet. This will be the area from Sta. 10+000 to 16+00. When finished, you should have one pavement marking sheet in your design file. This sheet has only the first top half of the pavement marking sheet completed.
- > You now need to add the second bottom half of sheet. To do this you should reattach the same reference files that you did in the early steps. This is where you will use the technique of multiple reference attachments. To reattach the same files again you have to use new logical names. Logical names is the only way to let Microstation know you want to attach the same file again as a new reference. The logical names give them unique names.
- > Now that you have the same reference attached, your job will be to get the second bottom half sheet moved and rotated so that it shows up inside the first sheet that you setup previously.
- > This best way to do this is to use the Plan Sheet Setup (Select) user commands. We have to use the select method because we do not want to change the appearance of the references in the first top half sheet. Follow the steps of the command to setup the second bottom half border area. When the command has completed you should still have the first top half sheet in the design file and the second bottom half border area in the design file. You will notice that the second half has been clipped and rotated but has not been moved to match the first half of the sheet.
- > The steps to move the bottom half to match the top half have to be done manually. The trick to moving the bottom half reference file is to have a control point to move from and to. This is so they will line up correctly. The best control point to use is the bottom left corner or the border around the references. This point is available on both the bottom and top half sheets. Use the reference dialog to select the files, and the **reference move** command to move the references. Identify the from and to points properly and you on your way to a completed sheet.

>DO NOT move the second border reference file because it is being used as a control point to move the other references. Once you have moved all the other references you will need you can detach or turn of the second border reference.

>You should now have a completed multiple reference sheet.

## **SPEEDING UP THE SHEET SETUP PROCESS**

### **User Controlled Method**

To speed up the creation of sheet design files (wk3\_sh.dgn, wk4\_sh.dgn, etc.) you can create a template seed file that already has all the reference files attached.

Most people will create the first design file to set up a sheet. Let us say the name of the first design file is wk3.dgn. The user will enter the design file and start out by attaching the reference files they need on that sheet. These would be files like topo.dgn, ep.dgn, row.dgn, etc. Then you would go through the process of setting up the sheet using our command. Then they will create the next design file and repeat the process of attaching the reference files, etc., etc., etc.

As many of you know, attaching all those reference files can take up a lot of time. You can eliminate the step of attaching the reference files in every design file by creating a template (project specific sheet seed file). To do this, create a new design file and name it whatever you want. I would call it SHEETSEED.DGN. Attach ALL the reference files that you would need to show up on your sheet. If you haven't got all the files created at this point. You can still attach them by creating a blank design file(s) that will be used later. For example, you may not have created the proposed right-of-way design file. You could go ahead and create the design file (row.dgn) and leave it blank. Even though it is blank you will draw in it later, and since it will be a reference to your sheet design files, the elements will show up as you draw them.

After you have attached all the reference files you can exit the SHEETSEED design file and copy it for your other sheet design file creations. In other words, copy sheetseed.dgn to wk3\_sh.dgn, wk4\_sh.dgn, wk5\_sh.dgn, etc.

By doing this, you will not have to attach all those reference files in every sheet design file you create.

### **Macro Program Controlled Method**

Another option for attaching the references needed on a sheet is to use the project default reference macro (projrefs.ba) located on the DZine menu under sheets [ SHEETS > PROJ DEF REF ]. This command automatically attaches all the "default" design files to your sheet design file.

Requirement: ALL your design files must be named according to the "Standard File" file names listed in elsewhere in the Cadd Documents.

For example...

border.dgn  
ali.dgn  
topo.dgn  
row.dgn  
etc.

Any files not following the standard names will not be attached.

# PROJECT NUMBER REFERENCE TOOL

## WHAT IS THIS TOOL FOR?

Have you ever had to change your project number on every sheet on your project? If so, you know this can be a long, time consuming process. One answer to this problem is to make the project number a reference to your sheet design files. This will allow you to be able to change the project number only once and have it instantly show up on all your sheets.

## EXAMINING THE PROCESS

The following procedure has been setup to help you do this. Before we start, let us examine the process so you will understand what is happening:

What you want to be able to do is to reference a design file that contains the project number text. This file has to have the text in the proper locations so that the text will show at the proper places on either a plan or a plan/profile sheet. We have accomplished this by creating two design files that have the text in the proper places. They have been placed in the Roadway Design Group directory for you to copy to your project directory. The text are actually "enter-data fields", so you have to enter the copied design file and enter the appropriate text. Once the text has been entered you can then reference this file to your working plan or plan/profile sheets. This process is different than your normal sheet setup reference procedure because you have to deal with other issues. The first is the scale of the sheet -- since your working sheet file can be any number of scales, the project number file has to be referenced at that scale. The second is locating the appropriate area in the project number design file and matching it to your working sheet -- since the files do not share a coincident coordinate area you will have to have a way to locate the correct area in the project number file. This is accomplished using a saved view. The saved view has been created for you and is used in the reference process. The

origin of a saved view is always the center of the view. Since this point can be located, it is used later as the reference attachment point -- you must have a common point in both files so you can make them coincident. This has been preset by making the saved view point match the lower left corner of the "plan" area of the sheet your attaching the reference too.

As you can see there are a lot of steps required. Many of these steps have been done for you by both presetting the files you will be referencing and by using a program macro that will make the attachment process much easier. The steps you are required to do are presented below:

## **STEPS FOR PROJECT NUMBER REFERENCING**

### **Preparing the Project Number Design Files**

1. Locate one or both of these files and copy them to your project directory.

PJNOPLAN.DGN : for PLAN SHEETS

Copy this to your project directory for referencing to PLAN SHEETS only.

PJNOPPRO.DGN : for PLAN/PROFILE sheets

Copy this to your project directory for referencing to PLAN/PROFILE SHEETS only.

2. DO NOT change the names of these files. These file names are used automatically in the macro attachment process. They must be located in the same directory as the sheet design files you will be referencing them too.

3. Enter the copied design file and locate the "enter-data fields". These fields can be filled-out with the appropriate text. This will be the project number and/or county name. The graphics below indicate what these files should look like, edit these fields with the proper text:



The graphic above depicts the data fields for a PLAN sheet. The one located at the upper-right corner is for your PROJECT NUMBER. The ones at the bottom (Top to Bottom) are the PROJECT NUMBER and COUNTY NAME.



The graphic above depicts a the data fields for a PLAN/PROFILE sheet. The one locate at the upper-right corner is for your PROJECT NUMBER. The ones at the bottom (L to R) are the COUNTY NAME and PROJECT NUMBER.

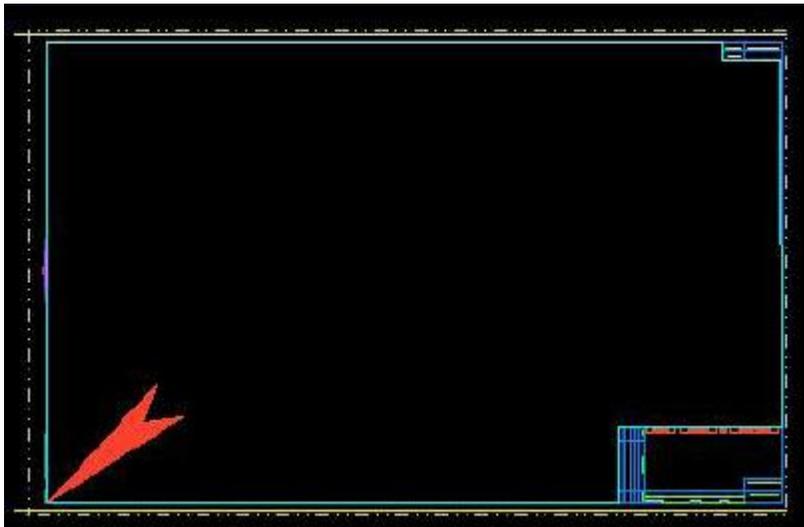
NOTE: It is not necessary to enter data for the county names, but if you don't you will have to do this on each individual sheet. County names don't change very often, but it would save you from having to enter this on every sheet.

## Referencing the Project Number files to your Sheet Files

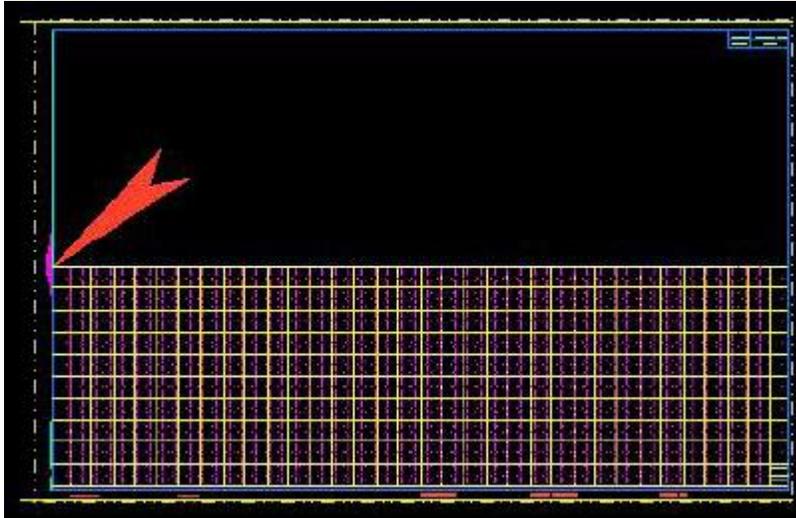
This procedure is a pure graphical method of creating a file with project numbers placed in key areas to allow them to be referenced to project sheet design files. Please note that an alternative tool is available by using Axiom Global File Changer. It can be used to search out the text string or project number and then change it to a new revised text string to represent the new project number and it can do this change in multiple design files in batch mode. This application is only available to Roadway Design users. Other users must continue with this method shown below...

1. Enter a design file that contains a sheet that has already been set up previously. You will need to be able to snap to, and identify the location of the lower-left corner of the "plan" area. The "plan" area is not the lower left corner of the sheet border or profile area; it must be the lower-left corner of the plan area. The graphics below indicate which points you should be able to locate on the screen.

This graphic below shows a PLAN SHEET. The arrow indicates the point you will need to be able to locate.

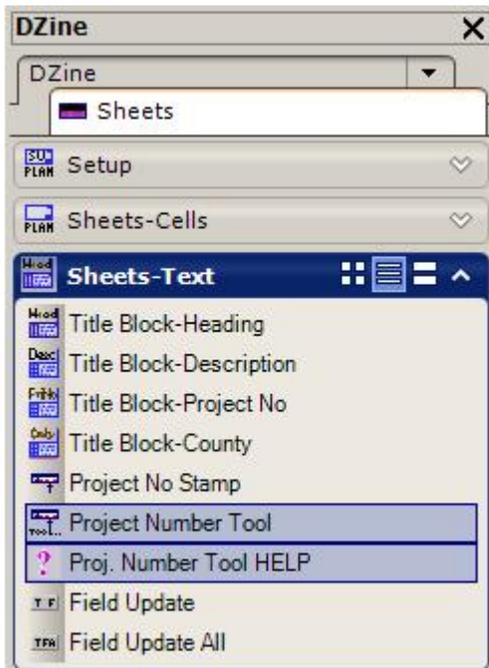


This next graphic below shows a PLAN/PROFILE SHEET. The arrow indicates the point you will need to be able to locate.



2. You now can reference one of the files that you have prepared previously with the project numbers and/or county names entered. This is accomplished with a program macro called "pjnotx.ba". You can access it via the DZINE menu at the following location:

DZINE > SHEETS > TEXT > PROJECT NUMBER TOOL



Note: You can use the Proj. Number Tool HELP command to read these instructions while in Microstation

You will be prompted to enter a scale:

> Enter Scale of Sheet (\_\_\_\_:1)

Reset to Exit

Enter the plotting scale that your original sheet was set up for...

Enter **100** if the sheet is 1"=100', or Enter **20** if the sheet is 1"=20', etc.

When referencing a file at another scale you enter the relationship between the file being referenced to the scale of the file you are currently in. This is why it requires the scale in the form of a ratio. In the prompt you will notice that only the first part of the ratio is blank. In this blank you can enter the scale that coincides with current sheet. For example, if you set up the sheet using a scale of 1" = 100' then you can enter "100" for the blank. This will scale the reference up 100 times to fit the current sheet.

Next, Enter a (D)ata button or a (R)eset button on the mouse, this tells the command if you wanting a PLAN sheet or a PLAN/PROFILE sheet. You must tell the command so it will know which design file to reference, either PJNOPLAN.DGN or PJNOPPRO.DGN.

> Select PLAN OR PLAN/PROFILE DGN

(D)PLAN (R)PLAN/PROFILE

Now the last step is to identify the location for attachment. The **ID point** is indicated as the Lower-Left Border point of the plan view. As previously indicated, you must ID the attachment point at the proper place to get the reference to a attach correctly

Attach Reference > ID Lower-Left Border Point of Plan View

Reset to Exit

## Additional Comments

After using the above procedures, you should now have the Project Number Design File attached as a reference to your sheet. It requires a little work to continue this same process in all design file that have a sheet, but you now have the advantage of being able to enter one design file to instantly change your project numbers for all your sheets.

Since the program macros automatically attaches the reference files, the logical names for the reference attachments must change when you have multiple sheets in one design file. The logical name is automatically incremented with each attachment. Below is an example of what takes place:

Sbt	File Name	Model	Description	Logical
1	PJNOPPRO.DGN	Default	PROJNO	PPRO
2	PJNOPPRO.DGN	Default	PROJNO	PPRO-1
3	PJNOPLAN.DGN	Default	PROJNO	PLAN
4	PJNOPLAN.DGN	Default	PROJNO	PLAN-1
5	PJNOPLAN.DGN	Default	PROJNO	PLAN-2

The SAVED VIEW that is used when automatically attaching the project number reference is called PJTX.

You can manually attach the project number file by using the following key ins:

Plan Sheet

RF=PJNOPLAN.DGN,[model\_name],[logical\_name],[description],PJTX,[scale:1]

Plan/Profile Sheet

RF=PJNOPPRO.DGN,[model\_name],[logical\_name],[description],PJTX,[scale:1]

Where:

[model\_name] is optional, should normally be left blank.

[logical\_name] must be entered if you have more than one to reference to a design file

[description] is optional

PJTX: is required, this is the name of the saved view

[scale:1] required, enter the plotting scale , example: 1"=100', you would enter 100

## REFERENCE NOTES

This section explains some concepts that are important when dealing with References and setting up Plan/Profile Sheets.

### Clipping References

After Clipping References you always have the option of re-clipping them again until you get the coverage you want.

Clipping a reference never affects the original file. The **Undo** command works great if you mess up. It can quickly get you back to a point before you messed up. Setting an Undo Mark can be useful before you start a clipping process. It will quickly get you back to the starting position.

### Using Undo with Sheet Setup

The **Undo** command is also good for backing up on a sheet setup process that did not come out the way you wanted it to. In many cases, it's a lot easier to use undo than to start over. The commands used to set a sheet up will automatically set an Undo Mark before it starts clipping or rotating. Making it real easy to go back to the point in history were you began the set up process.

## Reference Logical Names

If you do not know how to use reference file logical names, you should learn. Logical names are not always required, but we recommend that you use them every time you attach a reference.

Logical names have several advantages:

1. They give you a quick way to identify a reference when using any reference command.

For example, if you are moving a reference without a logical name you might have to key in the a reference file name (hwy3topo.dgn) to identify it. With a logical name you could type in the logical name (H3).

2. Always try to keep you logical names short, simple, and easy to remember. Roadway Design usually follows standard logical naming. (B) for border design files, (A) for alignments in the design files, (T) for topo,dgn, (R) for row.dgn, (D) for drainage.dgn, etc.

When using our sheet set up programs, it look for the common border logical names to automatically turn off the display of the border file.

3. The only way to attach the same design file twice is to use logicals. The logical name gives it a unique name. Attaching the same design file twice is something you will have to do on occasion.

## Key-In Commands for Reference Manipulation

Microstation is designed so that reference commands work in conjunction with the Reference Dialog. Although it is sometimes easier and quicker to use the key-in commands.

In some cases, key-in commands are the only way to do some reference commands. For example, without the dialog box up the only way to execute a reference command on all attached reference files is to type in the command with the word "all" at the end of the key-in (Example: reference rotate angle all).

The reference group commands only come in a key-in format (Reference Group Add and Reference Group Drop). There are no Icons in Microstation to perform these commands.

