The CEDRA Corporation's

COMMAND OF THE MONTH

A monthly information bulletin November 2005

FEATURED COMMAND
Plan and Profile Generation

Application Description

Typically when one talks about GIS, the conversation usually pertains to tax mapping, cartography, geography or some sort of environmental, political or social application. For engineers who are involved in land development, highway design, utility or pipeline projects, GIS has generally not been employed to any great extent. For such engineers, the primary tool that has been used to perform this type of design work has been CAD or CADD systems, with GIS relegated to ancillary support functions.

With the growing awareness of GIS, and the need to incorporate existing GIS data into engineering applications, there needs to be a suite of tools that: (a) provide the requisite functionality of performing the prevalent design and drafting tasks in the type of projects mentioned above, and (b) function within a GIS environment.

Obviously, an engineering project involves a wide number of tasks which are well beyond the scope of this periodical. However, this month we address the issue of preparing plan and profile drawings (*P&P drawings*), which, as the reader may be aware of, is a staple of many types of engineering projects. Briefly, a P&P drawing is comprised of two parts.

- The top part constitutes the Plan View (top or aerial view) of the project, or portion thereof.
- The bottom part constitutes the Profile view (the longitudinal profile along the defined alignment of a roadway, water main, sewer line, transmission pipelines (gas, electric, etc.), or any line along which its profile may be required) within the extent of the Plan View.

Both, the plan view and the profile may depict existing as well as, design features, feature specific labels and any miscellaneous text.

Command Of The Month bulletin

This month's issue discusses the CEDRA-AVland methodology in creating plan and profile drawings.

The CEDRA Solution

The CEDRA-AVland™ engineering design and drawing preparation software possesses a number of tools which greatly facilitate the preparation of plan and profile drawings.

In preparing the P&P drawings (it is assumed that the design function has taken place), the approach utilized by CEDRA-AVland is that the drawings are a "by-product" of the design process. That is, the designer operates in a world coordinate environment without regard to the appearance of the drawings. Once the design has been completed, the designer employs a "cookie cutter" approach to generate the P&P drawings. As such, the designer considers as the plan view the overall project (10 acres, 100 acres, 100 square miles, etc.) with all its roads, pipes, buildings, and any other features. Likewise, the profiles of each road, pipe or other line that the engineer designs, represent the entire profile, not just the portion which will end up on an individual drawing sheet.

Once the overall project has been designed, the engineer applies a predefined sample drawing border and title block sheet along the various parts of the project, as may be necessary, at which point the CEDRA-AVland software performs the necessary work to establish the individual P&P drawings.

So how does this approach translate into ArcGIS®. In ArcGIS, the designer operates in a single *.mxd document file. Note, that the entire project can be performed within one document file within which there will be a minimum of three data frames:

1. **Plan View** Within this data frame the entire project site is displayed, similar to that appearing in Figure 1. When this data frame is activated the designer can view all of the contours, roadways, buildings, etc. which are within the project. The two rectangles shown in Figure 1 represent the areas of the Plan View that are to appear on the two P&P drawings.

Figure 1
Plan View of Overall Project

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2. **Profile View** Within this data frame the entire profile for a specific alignment will appear, similar to what is shown in Figure 2. If the project contains five roadways there will be five Profile View data frames, with each data frame corresponding to a specific roadway.

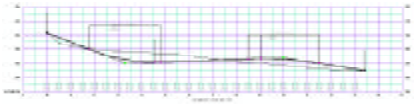

Figure 2
Profile View of Street Centerline

3. **Sheet Border** Within this data frame the typical drawing sheet of a project will appear (see Figure 3). This typical drawing sheet will contain the overall sheet extent, overall drawing border, title block, standard text and, if desired, the Plan View and Profile Area lines, see Figure 4.

   If the project is to be comprised of 10 P&P drawings, each of the 10 drawings will reference this single sheet border.

   Note that once a typical drawing sheet has been created it can be reused in other projects by simply adding the appropriate feature classes in the appropriate data frame. The user can then modify the drawing sheet border as may be required.

In addition to the above data frames, there will be additional data frames with each corresponding to one of the P&P drawings. So that if a project consists of a single roadway long enough to require 10 P&P drawings, there will be 10 data frames in addition to the 3 basic data frames identified above.

Similarly, if a project has three alignments, A, B and C, requiring 4, 5 and 2 P&P drawings respectively, the required data frames will be as follows:

1	The project's Plan View data frame
3	The Profile View data frames
1	The Sheet Border data frame
4	P&P data frames for alignment A
5	P&P data frames for alignment B
2	P&P data frames for alignment C

16	Total number of data frames

This approach enables the designer to operate in one document file.

Steps in Preparing a P&P Drawing

Over the years of preparing P&P drawings, we have found that the operational steps presented below offer an organized approach in producing P&P drawings. Note that these steps are performed after the data frames containing the overall plan and profile views have been created.

To prepare P&P drawings, the user should:

1. Create the project's typical Drawing Sheet Border and title block.
2. Determine the size of the Plan View Clip Windows to define the extent of the plan view to be displayed in the plan view portion of the P&P drawing.
3. Overlay the Plan View Clip Windows along the subject alignment in the overall plan view to define the plan view extent to be displayed in each of the required P&P drawings.
4. Reference the Plan View Clip Windows to the respective P&P drawings with respect to scale and position.
5. Clip the Plan View using the Plan View Clip Windows to position (copy) the area encompassed by the plan view clip window on the P&P drawing.
6. Define the Profile Clip Windows.
7. Clip the Profile View using the Profile View Clip Windows to position (copy) the area encompassed by the profile clip window on the P&P drawing.
8. Define the components which are to appear on a P&P Drawing Sheet.
9. Build (assemble) the P&P Drawing Sheet(s).

Figure 3
P&P Drawing Sheet Border

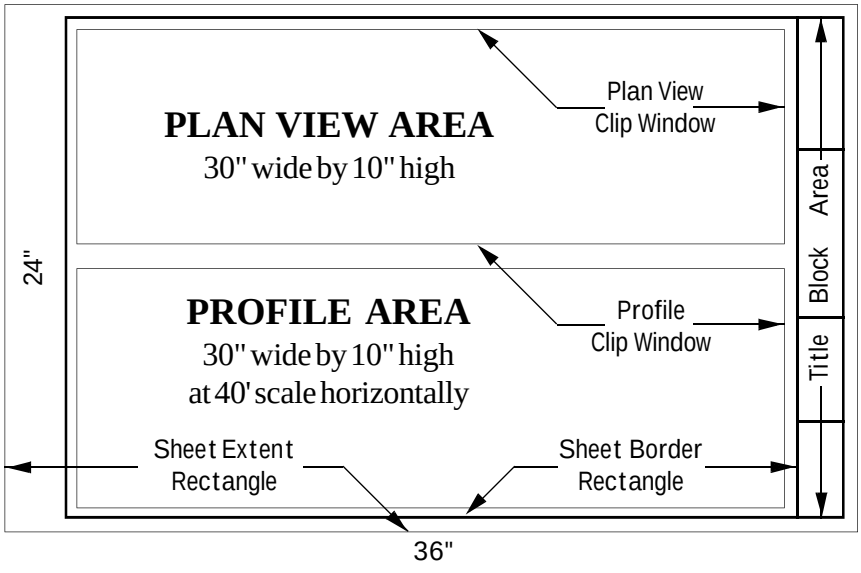

Figure 4 - Plan and Profile Drawing Sheet Layout

The above steps are discussed to a greater extent below.

1. Create the Drawing Sheet Border

To create the project's typical Drawing Sheet Border, the user should:

- Create a data frame that will contain the typical Drawing Sheet Border,
- Set the Map and Distance units of this new data frame to be inches (millimeters).
- Use the various CEDRA-AVland tools to create the Drawing Sheet Border. A sample is shown in Figure 3.

It is recommended that in creating the various features of the typical Drawing Sheet Border (points, lines, polygons and text), they should be stored in a personal geodatabase (PGD). In so doing all of the features that comprise said drawing sheet, including annotation, are contained in a single *.mdb file, rather than multiple shapefiles.

2. Determine the size of the Plan View Clip Windows

Shown at the top of the sample P&P drawing sheet of Figure 4 is a rectangle denoting the area in which the plan view is to appear. This area is referred to as the Plan View Clip Window. The border line of this window need not be a visible line in the Drawing Sheet Border data frame.

Our next step is to define the standard size of the Plan View Clip Window rectangle, and then position such clip window rectangles on the plan view along the path of the alignment of the roadway, utility, pipeline, or whatever alignment might there be. Note that:

(a) The plan view clip windows are polygon features with a hollow fill assigned to them.

(b) The placement of the plan view clip windows is done in the Plan View data frame.

(c) The size of the plan view clip window is to be determined in the world units of the project's plan view.

In determining the size of the plan view clip window, the user needs to be aware of:

(a) The scale at which the plan view is to be shown on the P&P drawing, and of

(b) How much area on the P&P drawing is to be used for the plan view.

For example, consider a 24" x 36" P&P drawing sheet which is to display the plan at a 1"=40' scale, within a 30" wide by 10" high area reserved for the plan view (see Figure 4). For this example, the size of the plan view clip window would be 1200 feet wide and 400 feet high. That is, 30 in x 40 ft/in = 1200 ft wide, and 10 in x 40 ft/in = 400 ft high.

It is noted that for projects with more than one type of alignment, it is conceivable that not all P&P drawings will need to be produced at the same plan view scale. Thus it is possible that different size plan view clip windows could be introduced as long as the above said criteria for scale and available plan view area in the Sheet Border are met.

3. Overlay the Plan View Clip Windows

Having determined the size of the plan view clip window (rectangle), we are now ready to overlay such rectangles along the various alignments of the project, and thus define the area extent to be displayed on the plan view section of the various P&P drawings.

Figure 5
CEDRA-Line3-Tools Toolbar

To overlay these clip window rectangles, the user should use the  tool in the **CEDRA-Line3-Tools** toolbar (see Figure 5). It is strongly recommended that all of the plan view clip windows be stored in a separate layer. In using this tool:

(a) The user clicks at a point along the appropriate alignment. This point is to define the center position of the clip window rectangle to be created.

(b) A dialog box prompts the user for the width and height of the rectangle, and presents the user with the option of creating either a polyline or a polygon feature.

(c) The user enters the width and height of the plan view clip window as determined above, and specifies that a polygon feature is to be created, not a polyline.

(d) The program displays the polygon (rectangle) centered about the click that was made in Step a, and aligned along the X axis.

(e) The dialog box presented in Step b above is re-displayed, at which point, the user can create another feature or select the Cancel button to abort the command. Select the Cancel button since we wish to create only one feature.

(f) The user may now reposition and/or rotate the rectangle to better define the extent of the plan view, which is to be displayed in the P&P drawing. To do so, the user can use the:

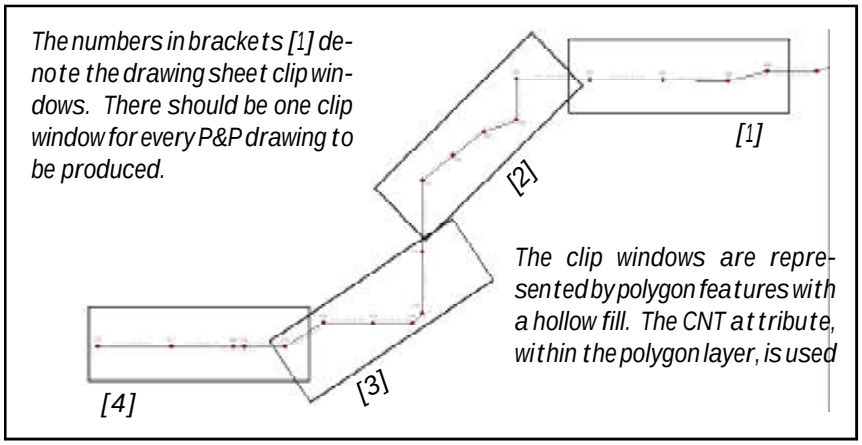

Figure 6 - Typical Plan View Clip Window Layout

Edit Tool on the Editor tool bar to reposition the polygon.

Rotate Tool on the Editor tool bar to rotate the polygon.

By using these tools, the user can position and orient the polygons accordingly. Shown in Figure 6 is a sample layout of plan view clip windows.

The layer in which the tool stores the polygons will contain an attribute called CNT. This attribute is used to store the drawing sheet number to which the plan view clip window corresponds. Every clip window polygon in the plan view clip window layer must be assigned a unique CNT value.

To assign the proper CNT value to the plan view clip windows, the user has the following options:

(a) Use the tool on the **CEDRA-EditFeature-Tools** toolbar to assign a CNT number to one clip window at a time.

(b) Use the [Sequential IDs] command within the **CEDRA-Skeletonization-Tools** toolbar to process:

(i) Selected features in the current active layer, or
(ii) All features if no features are selected.

Thus, depending upon the user's preference, each clip window polygon can be assigned a CNT number upon its creation, or all such windows can be assigned their CNT number en-mass after they all have been positioned.

4. Reference the Plan View Clip Windows

Once the plan view clip windows have been positioned, the user needs to define the scale and position of these windows on the respective P&P drawing sheets before proceeding any further. Once this has been done, the user is able to perform the clipping or cutout of the plan view areas. The **CEDRA-AVland-SheetBuildingMenus** combo box (see Figure 7) contains the two commands to carry out the said two tasks.

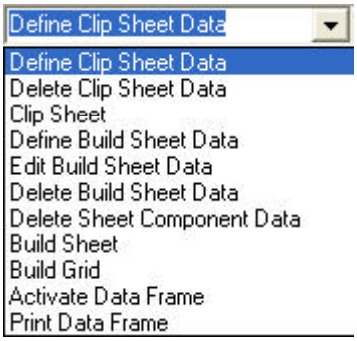

Figure 7
Sheet Building Commands ComboBox

(a) The [Define Clip Sheet Data] command is used to define the scale and position of the plan view clip windows, while

(b) The [Clip Sheet] command is used to cutout the clip windows.

To accomplish these tasks, the user should:

- Select the [Define Clip Sheet Data] command.

  Note that:

  (a) If this is the first time the user is defining plan view clip window information for the project, the user will be asked to specify the layer in the plan view data frame that contains the plan view clip windows.

  (b) Else, the next step will be skipped, and the dialog box of Figure 9 will be displayed.

  Shown in Figure 8 is a typical choice list message box displayed by the command. From the choice list, the user selects the layer which contains all of the plan view clip windows.

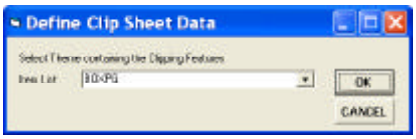

Figure 8
Define Plan View Clip Window Layer

- Scroll down and select the appropriate layer that contains the Plan View Clip Windows.

  Once the layer has been identified, the command will add, if not present, in the plan view clip window layer six attributes called:

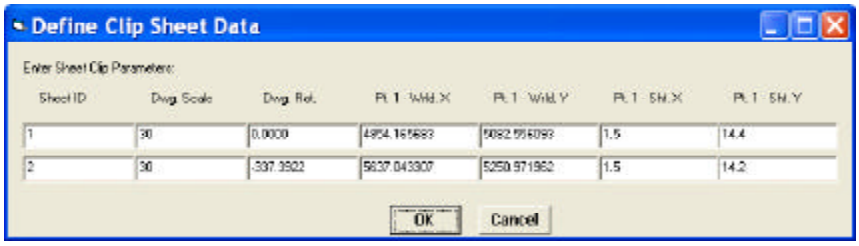

Figure 9 - Plan View Clip Window P&P Drawing Data Dialog box

DwgScale
DwgRotate
WrldXcoord
WrldYcoord
ShtXcoord
ShtYcoord

These attributes enable CEDRA-AVland to take plan view information from the plan view data frame and position it on a P&P drawing. A description of these attributes is presented below.

Once the layer which contains all of the plan view clip windows is known to CEDRA-AVland, the dialog box of Figure 9 is displayed. This dialog box contains all of the plan view clip windows and their associated P&P drawing data.

Using this dialog box the user is able to specify:

- The scale (DwgScale) at which the plan view is to be shown,
- The rotation (DwgRotate) to be applied to align the longitudinal direction of the plan view clip window with the X axis of the P&P drawing. Note that the command will compute a default rotation value from the geometry of the plan view clip window polygon,
- The world coordinates of the low left corner of the plan view clip window (WrldXcoord and WrldYcoord), and
- The coordinates on the P&P drawing sheet, in inches (millimeters) of said low left corner of the plan view clip window (ShtXcoord and ShtYcoord).

◗ Enter the scale that was used to determine the size of the plan view clip window.

◗ Accept the default rotation, and two sets of coordinates, or modify any one of these data, and click at the OK button is to confirm the data, and continue with the next group of plan view clip windows. This dialog box will be re-displayed until all plan view clip windows have been processed or until the user selects the Cancel button. Plan view clip windows are presented in groups of 10.

5. Clip the Plan View using the Plan View Clip Windows

Our next task is to tell CEDRA-AVland to clip, that is, copy the contents of the plan view within the area encompassed by each of the plan view clip windows, and paste it in a separate data frame. Thus, the user should:

◗ Select the [Clip Sheet] command which displays the choice message box of Figure 10.

Note that in Figure 10 there is no scroll down arrow, because there are only two P&P drawings required for this demonstration project. Such an arrow would be displayed if there are more P&P drawings than the choice dialog box can handle.

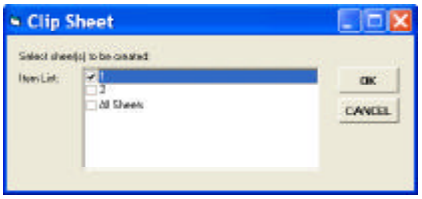

Figure 10
Plan View of Overall Project

◗ Scroll down and select the P&P drawing(s) to be clipped simply by clicking in the square to the left of the P&P drawing number, and then click the OK button to confirm the selection, and cause the program to perform the clipping process.

During the clipping process, the command creates a new data frame called *Sheet X of Frame Z* for each P&P drawing, where:

- *X* denotes the sheet number and
- *Z* denotes the name of the plan view data frame.

Thus, if Sheet 1 of the plan view data frame Layers is clipped, a new data frame called Sheet 1 of Frame Layers would be created.

In addition, the contents of the new data frame are stored in a new personal geodatabase (PGD) called *frame.mdb*, where *frame* denotes the name of the plan view data frame. So that, if the plan view data frame is called Layers, a PGD called layers.mdb would be created in the current working directory.

Within *frame.mdb*, the command will create a feature dataset called *sheet_x* for each sheet that is clipped, where *x* denotes the sheet number. So that, if sheets 1 and 2 are clipped, the user will find the datasets *sheet_1* and *sheet_2* within the PGD *frame.mdb*.

6. Define the Profile Clip Windows

With the plan view clip windows defined, and the individual plan view clip windows clipped, the user can proceed with processing the profile. In a manner similar to that of clipping the plan view, the user will need to define profile clip windows, from which, the profile can be copied and pasted in a separate data frame. Note that whereas in the plan

view the clip windows were defined by creating rectangles, for the profile the clip windows are to be defined by specifying alignment station and elevation values.

This process is accomplished by invoking the [Annotate Vertical Alignments] command, which is located in the {Vertical Alignment commands} combo-box (see Figure 11) of the **CEDRA-AVland-VAlignmentTools** toolbar. Thus, the user should:

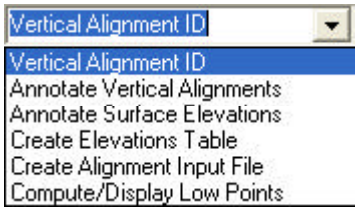

Figure 11
Vertical Alignment commands

- Activate the data frame containing the profile to be processed.
- Select the [Annotate Vertical Alignments] command to display the choice list message box of Figure 12.

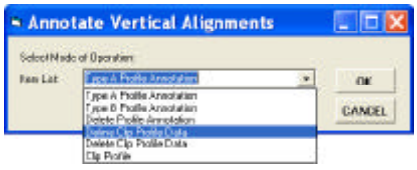

Figure 12
Annotate Vertical Alignments Options

- Scroll down, select the *Define Clip Profile Data* option, and then click at the OK button to confirm the selection, and display the choice list box of Figure 13 prompting the user for the P&P drawing to be processed.

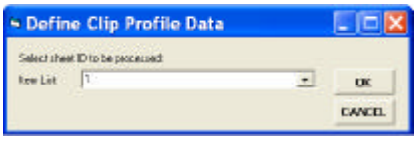

Figure 13
Profile Clip Window ID Dialog Box

- Enter a specific sheet number, or scroll down and select the drawing number from the choice list, and then click at the OK button to display the Define Clip Profile Data dialog box of Figure 14.

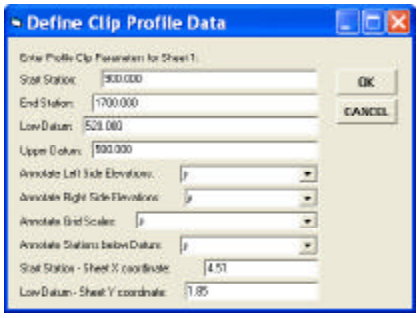

Figure 14
Profile Clip Window Data Dialog Box

To define a profile clip window in the dialog box of Figure 14, the user needs to specify: (a) the profile clip window limits, (b) the profile annotation parameters, and (c) the positional coordinates of the profile within the P&P drawing.

(a) The profile clip window limits are defined by the specification of the following:
- The profile's start and end station values.
- The profile's low and upper grid elevations. These elevations should be low and high enough to provide room for any ancillary labeling and annotation.

The above four parameters are sufficient to define a rectangle from which the program can clip the profile.

(b) For the program to annotate the profile in the P&P drawing, the user needs to specify whether the following annotations should be generated or not:
- Elevations at the left side of the grid.
- Elevations at the right side of the grid.
- Horizontal and vertical grid scales.
- Station values.

(c) For the clipped profile to be positioned in the P&P drawing, the user needs to specify in inches (millimeters) the following:
- X coordinate of the P&P drawing corresponding to the start profile station value.
- Y coordinate of the P&P drawing corresponding to the low profile elevation.

So for the above specified P&P drawing, the user should:

- Enter the desired profile clip window limits and P&P drawing coordinates, scroll down and select the desired annotation choices, and click at the OK button to confirm the data entries and continue with the next profile clip window. The dialog box of Figure 13 will be redisplayed and the same profile clip window or another profile clip window can be processed. This process continues until the user selects the Cancel button.

Note the following:
- The data that is entered by the user is stored in a table called ProfileClipData. This dBase table contains all of the profile clip window data and is stored in the current working directory.
- If a profile clip window, which has been previously defined, is being processed, the data that was previously entered for the profile clip window will be displayed as the default values for the various profile clip window parameters.

7. Clip the Profile View using the Profile View Clip Windows

Our next task is to tell CEDRA-AVland to clip, that is to copy the contents of the profile within the area encompassed by each of the profile clip windows, and paste it in a separate data frame. Thus, the user should:

- Activate the data frame containing the profile to be processed.

- Select the [Annotate Vertical Alignments] command. At this point, the choice list message box of Figure 12 will be displayed.

- Select the *Clip Profile* option, and then click at the OK button to confirm the selection, and display the choice list box of Figure 15 prompting the user for the P&P drawing to be processed.

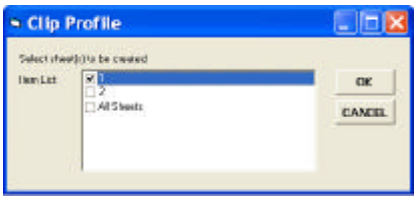

Figure 15
Clip Profile Dialog Box

- Scroll down and select the P&P drawing(s) to be clipped simply by clicking in the square to the left of the P&P drawing number, and then click the OK button to confirm the selection, and cause the program to perform the clipping process.

  During the clipping process, the command creates a new data frame called *Sheet X of Profile Z* for each P&P drawing, where:
  - *X* denotes the sheet number and
  - *Z* denotes the name of the vertical alignment number associated with the profile.

  Thus, if Sheet 1 of vertical alignment number 1 is clipped, a new data frame called Sheet 1 of Profile 1 would be created.

  In addition, the contents of the new data frame are stored in a new personal geodatabase (PGD) called *profileX.mdb*, where *X* denotes the vertical alignment number. So that, if the vertical alignment number is 1, a PGD called profile1.mdb will be created in the current working directory.

  Within *profileX.mdb*, the command will create a feature dataset called *sheet_x* for each sheet that is clipped, where *x* denotes the sheet number. So that, if sheets 1 and 2 are clipped, the user will find the datasets *sheet_1* and *sheet_2* within the PGD *profileX.mdb*.

8. Define the Components comprising a P&P Drawing Sheet

At this point we have created the plan and profile components which are to appear on the P&P drawing. It is now time to define the specific components which are to appear on an individual P&P drawing.

To do so we will utilize the [Define Build Sheet Data] command within the {Sheet Building commands} combo-box on the **CEDRA-AVland-SheetBuildingMenus** toolbar (see Figure 6). The [Build Sheet] command is the command which will create the individual P&P drawing sheets. However, before building the P&P drawing sheet, the user must specify which components are to appear on the P&P drawing. Thus:

- Activate the data frame containing the plan view.

- Select the [Define Build Sheet Data] command.

  At this point, the input message box of Figure 16 will be displayed.

- Enter a specific sheet number, or scroll down and select the drawing number from the choice list, and

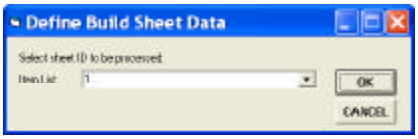

Figure 16
Drawing Sheet ID Dialog Box

  then click at the OK button to display the file navigation dialog box, see Figure 17, enabling the user to select the component(s) to be added to the P&P drawing sheet.

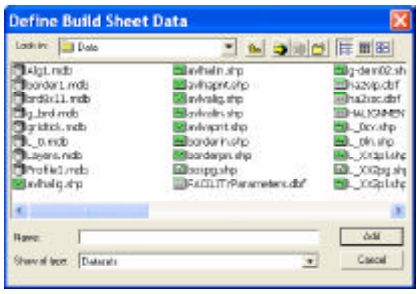

Figure 17
File Navigation Dialog Box

The user is able to select: (a) a shapefile, (b) a feature dataset, or (c) a feature class. If a feature dataset is selected, all feature classes comprising the feature dataset will be added to the P&P drawing.

To select a feature dataset, the user can double-click on the name of the PGD, at which point, all of the feature datasets within the PGD will appear (see Figure 18).

It is important to note that:
- More than one shapefile or feature dataset can be selected at a time as shown in Figure 18.

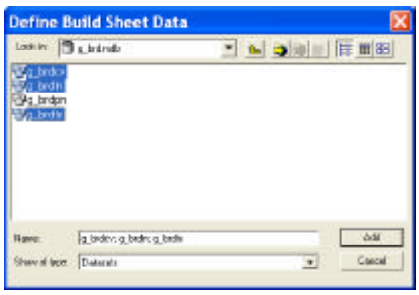

Figure 18
Personal GeoDatabase DataSets

- However, the user can not select a shapefile and a feature dataset at the same time.

- Select the desired shapefiles and/or feature datasets, and then click at the Add button, to display the Build Sheet Component Dialog Box (see Figure 19).

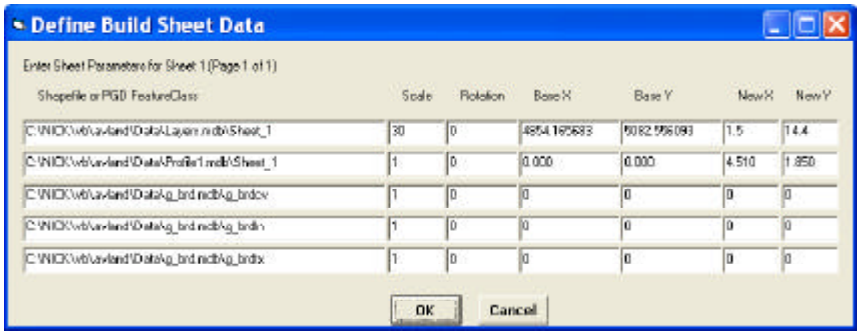

Figure 19 - Define Build Sheet Data Component Display

Using this dialog box, the user can customize the position and scale of the component that was introduced. In so doing, note the following:

- The directory path of each component of the P&P drawing is displayed in the left most column.
- The values which appear under the New X and New Y columns are in inches (millimeters), and denote the location of the low left corner of the component on the P&P drawing.
- Note that all of the values for the g_brd*.* feature classes are zero, except for the scale which is set to one (1). The reason for this is that the g_brd*.* feature classes represent the drawing sheet border which was drawn at a 1 to 1 scale in inches. The features in these feature classes are already positioned as they should be on the P&P drawing. That is why all of the values are zero and the scale is set to one (1).
- Any shapefile, feature dataset, feature class can be added as a component to a P&P drawing.
- There is no limit to the number of components that can appear on a P&P drawing.

◗ Make any desired changes, click at the OK button to confirm and continue, and display again the drawing sheet ID dialog box of Figure 16.

The user can then: (a) process the same drawing sheet to add another component or (b) specify another drawing sheet for processing.

The data that is entered by the user is stored in a table called SheetData. This dBase table will contain all of the drawing sheet component data and is stored in the current working directory.

9. Build the P&P Drawing Sheets

The last task of the overall P&P drawing preparation process includes the assembly of the various P&P drawings, the components of which were created as per the above described steps.

◗ Select the [Build Sheet] command to display the dialog box of Figure 20.

◗ Scroll down and select the P&P drawing(s) to be built simply by clicking in the square to the left of

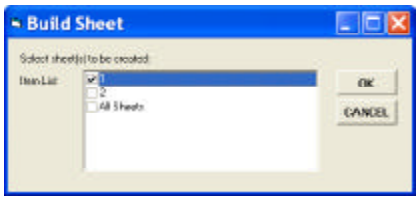

Figure 20
Build Sheet ID Dialog Box

the P&P drawing number, and then click the OK button to confirm the selection, and cause the program to perform the sheet assembly process.

During this process, the command creates a new data frame for every sheet that is to be created using the *Sheet X* convention, where *X* denotes the sheet number. So that, if drawing sheet 1 is to be built, a data frame called Sheet 1 would be created.

In addition, all of the data which comprises the drawing sheet will be stored in a PGD called *sheetX.mdb*, where *X* denotes the sheet number, in the current working directory. Following up on the example mentioned above, the contents of the data frame Sheet 1 would be stored in the PGD, *sheet1.mdb*.

Shown in Figure 21 is a fully assembled P&P drawing produced with the [Build Sheet] command. Should the user desire to make any modifications to a P&P drawing, the user can utilize any of the applicable CEDRA-AVland commands or native ArcMap functionality to edit the drawing.

Special Notes

1. A sample drawing sheet border, residing in a PGD called g_brd.mdb, can be downloaded from:
   http://www.cedra.com/border/

   To download the file:
   - Right-click on the g_brd.mdb name,
   - Select the Save Target As... menu item,
   - Navigate to a location on your hard drive, and
   - Select the Save button.

2. When working with personal geodatabases, the user should be cognizant that:
   - Special characters such as *, ^, %, -, # and so forth should be avoided, not only in the name of a layer or a PGD, but also in the pathname of where the PGD will reside.

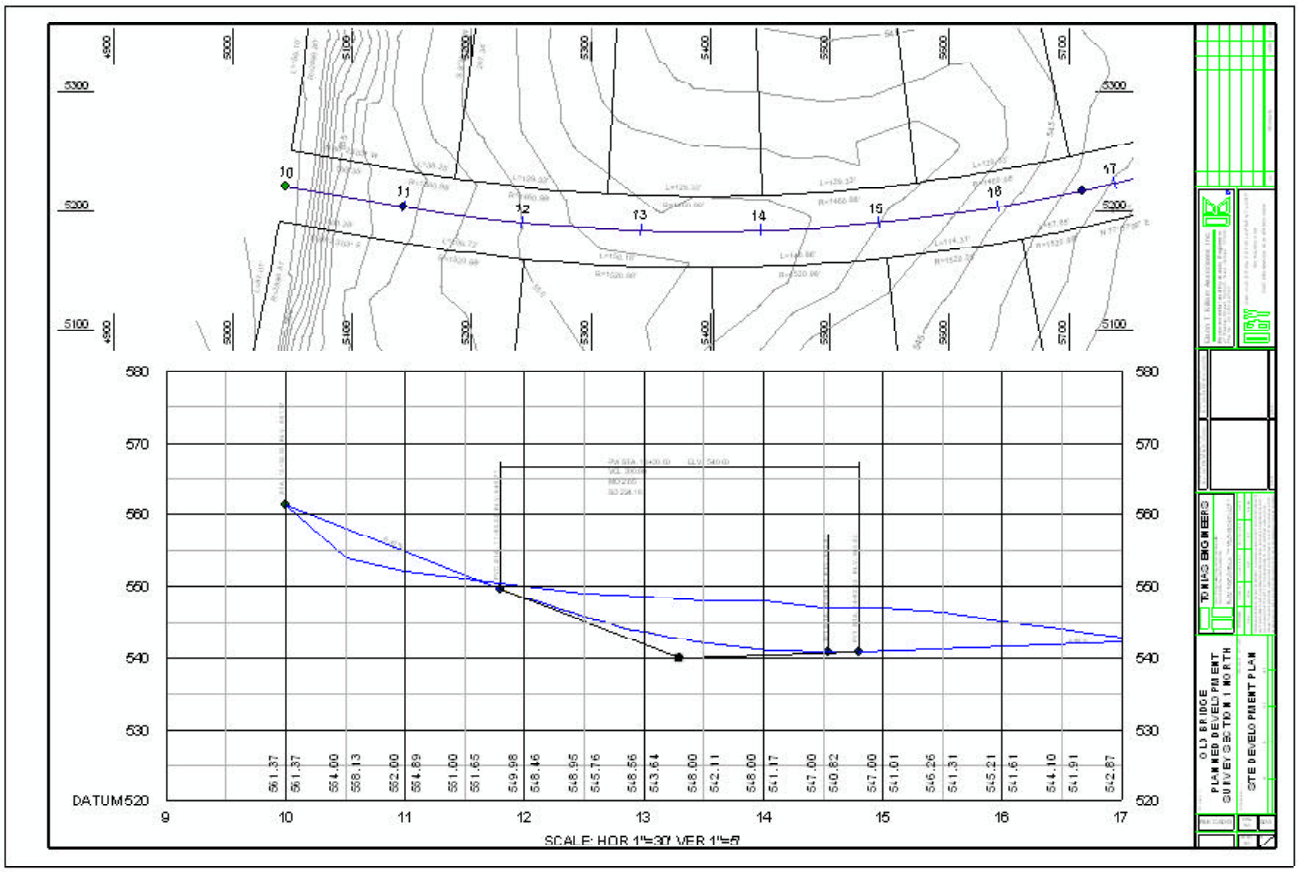

Figure 21 - Plan and Profile Drawing created with the Build Sheet command

- In addition to the special characters, blanks or spaces should be avoided as well.

- Note that the underscore character (_) is acceptable and should be used in place of a blank or space character.

3. When it is necessary to split a profile on a P&P drawing, the best approach is to create two components for the profile (see Figure 22), rather than one, which is the case shown in Figure 4.

   In assigning sheet numbers to the two profile components, since both components are associated with P&P drawing sheet number 1, the profile sheet numbers could be called *1a* and *1b*. That is to say, the sheet numbers can contain non-numeric characters. The maximum number of characters which comprise a sheet number is 20.

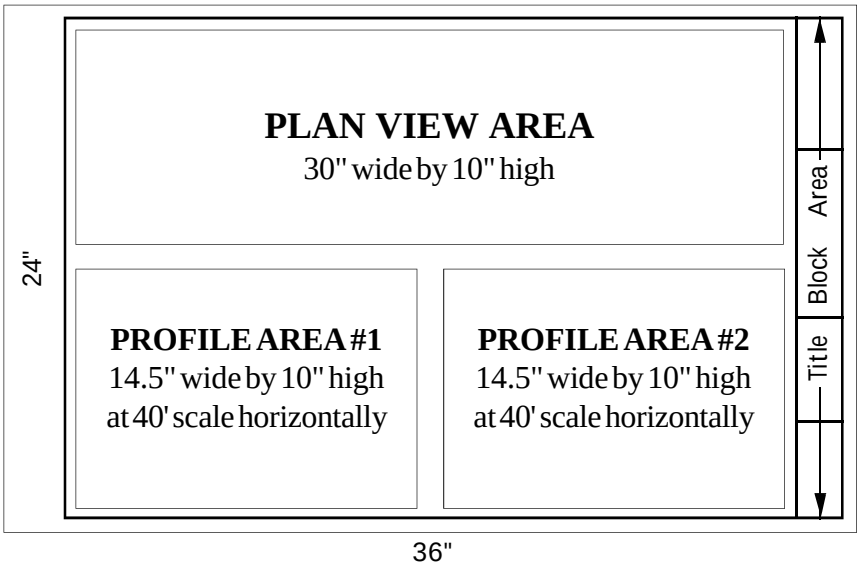

Figure 22 - P&P Drawing with a Split Profile

4. Shown in Figure 23 is the Table of Contents for an ArcMap document file where two P&P drawings are to be produced for a project containing a single roadway. A description of the contents of each of the data frames is presented below:

   Border contains the drawing sheet border that is included in the two P&P drawings.

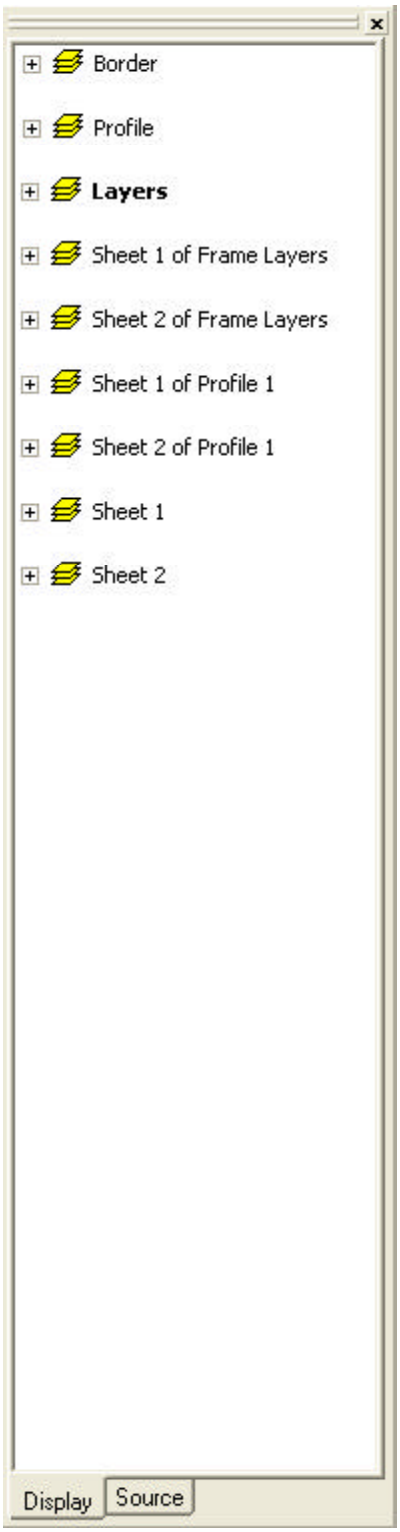

Figure 23
Data Frames Created in Producing Two P&P Drawings

Profile contains the overall profile for the alignment.

Layers contains the overall plan view.

Sheet 1 of Frame Layers contains the cutout for the plan view to be included in P&P drawing sheet 1.

Sheet 2 of Frame Layers contains the cutout for the plan view to be included in P&P drawing sheet 2.

Sheet 1 of Profile 1 contains the cutout for the profile view to be included in P&P drawing sheet 1.

Sheet 2 of Profile 2 contains the cutout for the profile view to be included in P&P drawing sheet 2.

Sheet 1 contains the final assembled P&P drawing sheet 1.

Sheet 2 contains the final assembled P&P drawing sheet 2.

Summary

Although we have been discussing the preparation of P&P drawings, the above process can be applied to producing any other type of drawing. The [Define Build Sheet Data] and the [Build Sheet] commands provide the user the ability to bring data from various locations and assemble them into one single PGD. During the assembly process, the user is able to apply various transformations to the individual datasets.

If you have a request for Command Of The Month, feel free to phone, fax or e-mail your request to The CEDRA Corporation.