

SECTION C

RIGHT OF WAY

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1. SIMPLIFIED PROCEDURE FOR ESTABLISHING ROW UTILIZING THE INROADS COGO PROGRAM

1. Create a rPCN#.dgn file.
2. In the rPCN#.dgn file, open geometry and create a rPCN#.alg Internal & External Geometry files.
3. Reference the tPCN#r.dgn or tPCN#u.dgn into our rPCN#.dgn file.
4. Copy the PCN#lt.alg and/or PCN#org.alg from the Region Directory into the rPCN#.alg file, to get the land ties.
5. Delete the copies of the PCN#lt.alg and/or PCN#org.alg in the rPCEM.dgn file..
6. Display land ties and establish the boundary lines.
7. Create additional section, quarter and sixteenth corners from the land ties, by setting cogo points.
8. Create additional alignments for the section, quarter, sixteenth and property lines utilizing the Create/Edit Alignment command.
9. Utilizing the surveyed existing road centerline in the topography file, create an alignment for the existing road by either setting cogo points or by importing geometry from graphics.
10. Establish the existing ROW by paralleling the existing road alignment or by setting cogo points and creating alignments between same. Either way, you will be creating separate alignments.
11. Receive the Designers alignments by opening their ePCN#.alg file and making it your current geometry project. Then in Geometry, open Copy Geometry, Horizontals Tab and select the alignment you want to copy and your rPCN#.alg that you want to copy it into. Once that is done, be sure and go back into Active Geometry and make your rPCN#.alg the current project and then delete the ePCN#.alg in your file.
12. Go into the Active Geometry and select the alignment you just copied from the Designers file and make it your active alignment. Now go into View and display the active alignment and stationing.
13. Establish the new ROW by paralleling the construction alignment or by setting cogo points and creating alignments between same. Either way, you will be creating separate alignments.
14. Create the plat.dgn files that you will need and reference in the rPCN#.dgn file and clip accordingly.
15. Go into a plat file and open the geometry file.
16. Prior to running areas, you will have had to create alignments for each of the areas you want to run.
17. Open the Geometry, View Geometry Horizontal Alignment dialog box and create a binary file for the area you are going to run. Also in this same dialog box, under 'Setup' open Tabling and set the seed numbers to 1 and hit OK. (You will not have to change these numbers unless more than one area of taking is on a given plat.) If the areas of taking are to be combined on a given plat, then change the seed number after the first area is run, to the next available number and hit OK.
18. Under Tools, select Reports. In the Geometry Reports, select either the AREA_E_ROW report for the total acreage of taking, or the AREA_E_EXIST-ROW report for the total acreage of existing ROW. In the General Reports, select the TABLES_ALL-E_ROW report and this will provide a table showing the Line no., Bearing/Radius and Feet for each of the areas run. These reports will be displayed in the plat files and placed wherever you want them. NOTE: If your project is on State Plane Coordinates, then you will need to select the above templates that have the **_SF** on them. The SF templates have the Scale Factor incorporated into them.
19. Complete plats and have them checked. Make changes and job is done.

2. START INROADS AND OPEN GRAPHICS FILE rPCN#.dgn.

- a) Start InRoads using the shortcut you created for your project.
- b) You need to create rPCN#.dgn as a 3D graphics file in your PROJECT folder using MicroStation. Then open it. You will attach the topography file and land ties file as a reference file from the region (u:\regionXX\prj\COUNPCN#) folder.
- c) In Microstation, select **File > Save Settings**.

1. Open InRoads Files.

Create your geometry project. **File > Geometry > New**
Enter the internal name of the geometry project (rPCN#)

Save your geometry project. This creates a file with the .alg extension. **File > Geometry > Save**
Enter the external name of the geometry project (rPCN#)

HINT: It is useful to have the Write Lock, Delete Pen Lock and Pen Lock on at all times while in InRoads.

2. Open the geometry project.

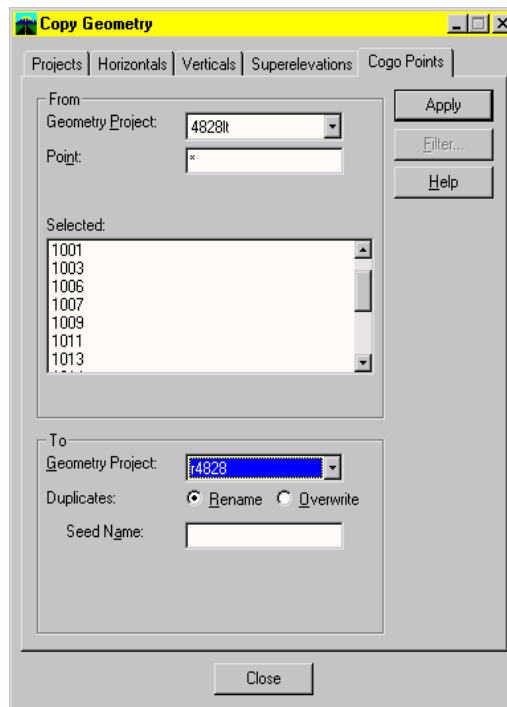
Choose **File > Geometry > Open:**

At this time you are to go back to the **regionxx directory** to select **PCN#lt** or **PCN#org**
u:\regionxx\prj\COUNPCN#\PCN#lt
u:\regionxx\prj\COUNPCN#\PCN#org

NOTE: Land tie information will be provided in the region directory either in the **PCN#lt** file or the **PCN#org** file.
The geometry file needs to be **opened** before you can **copy** information from one file into another.

3. Copy land tie information into the file.

Choose **Geometry > Copy Geometry > Cogo Points tab**



Information is being copied from the original PCN#lt file in the *region directory* into the rPCN# file in the *project directory*, utilizing the (*) wildcard so that everything is copied into rPCN#.

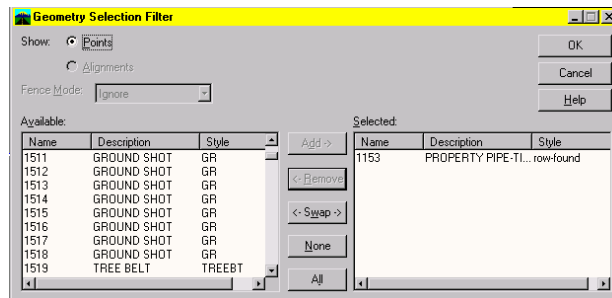
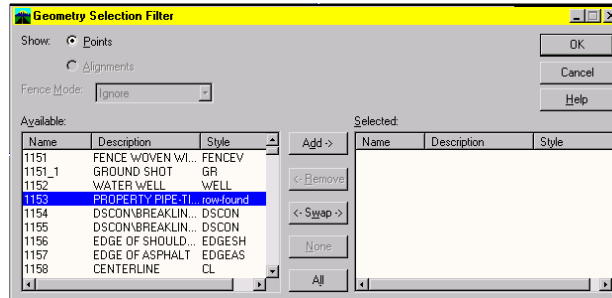
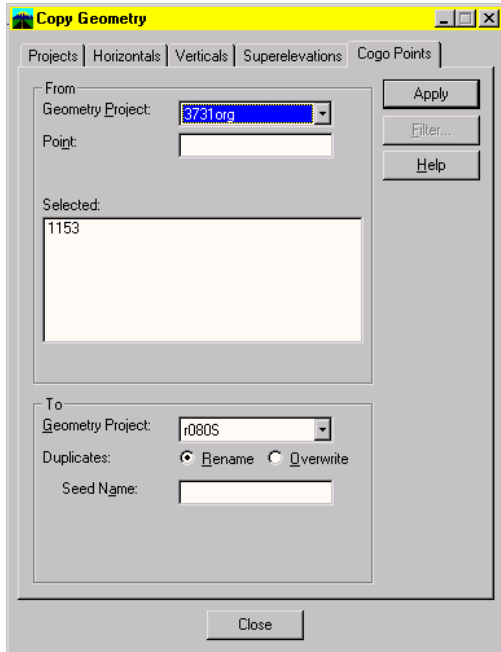
There may be times that you will need to copy land tie information from the PCN#org file into rPCN# file.

Under From

- a) **Geometry Project:** Select **PCN#org** from the pulldown list.
- b) **Point:** Data in the box and the "**Filter**" button will become active.
- c) Data on the **Filter** button and the **Geometry Selection Filter** dialog box comes up.
- d) Scroll through the **Available:** list and data on the point you want.
- e) Data the "**Add>>**" button and the point number will go into the **Selection:** list.
- f) After you have selected all the points you want, hit **OK**.

Under To

- g) **Geometry file:** Select the **project** from the pulldown list.
- h) **Duplicates:** toggle on **Rename**
- i) Hit **Apply**, then **Close**.

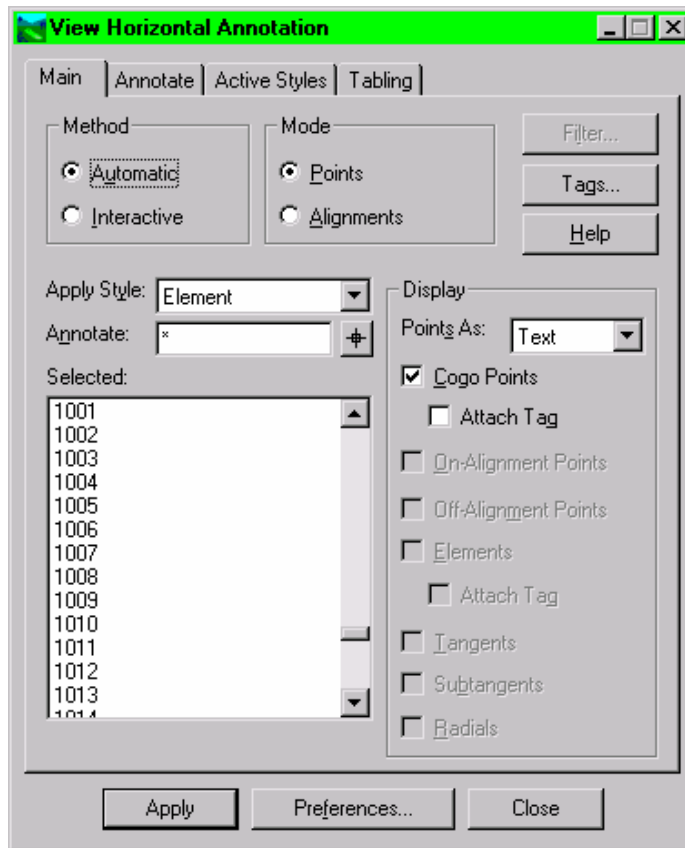


4. Make your geometry file active and close the other geometry files.

- a) Under Geometry Projects, select rPCN# and right click the mouse button and choose Set Active.
- b) Under Geometry Projects, select PCN#It and right click the mouse button and choose Delete. A box comes up asking if you want to delete PCN#It, hit Yes. Also, be sure and delete the PCN#org, if opened.
Note: This only closes the **COPY** of the file.
- c) Under Geometry Projects, data the + along side the rPCN# and scroll down the listing til you find the appropriate alignment and make it the active one by right clicking it with the mouse button and choosing Set Active.

5. To Display **Cogo Points**

Choose **Geometry > View Geometry > View Horizontal Annotation > Main tab**



a) **Preferences > Load > row-cogo-points**

b) **Main tab**

1. Under **Method**, **Automatic** is already toggled on.
2. Under **Mode**, Toggle on **Points**.
3. **Apply Style**: Select **Element**
4. **Annotate**: Either type in * for all points or type in the points you want. The selected points will be Listed in the **Selected:** box.
5. Under **Display**, **Points as:** Text is already selected.
6. Toggle on **Cogo Points**.

c) Hit **Apply** then **close**

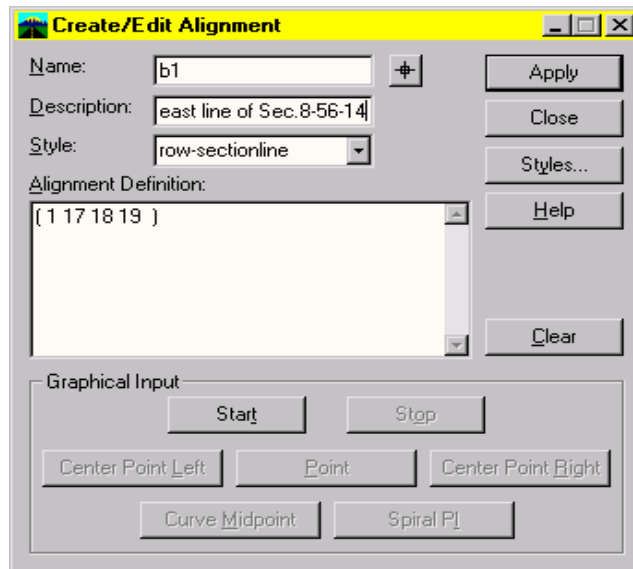
Note: At this time it's a good idea to do a fit window to see the graphics displayed.

6. Save the geometry project

Choose **File > Geometry > Save**

3. ESTABLISHING EXISTING ROW

1. Set the preference for boundaries such as section lines, quarter lines, sixteenth lines, property lines, etc.
 - a) Change the seed alignment name
 1. Choose **Tools > Options > Geometry**
 2. Change the **seed alignment name** to **b1**
 3. Hit **Apply**
2. Create alignments for section lines, quarter lines, sixteenth lines, property lines, etc.
Choose **Geometry > Utilities > Create/Edit Alignment by Cogo Points**



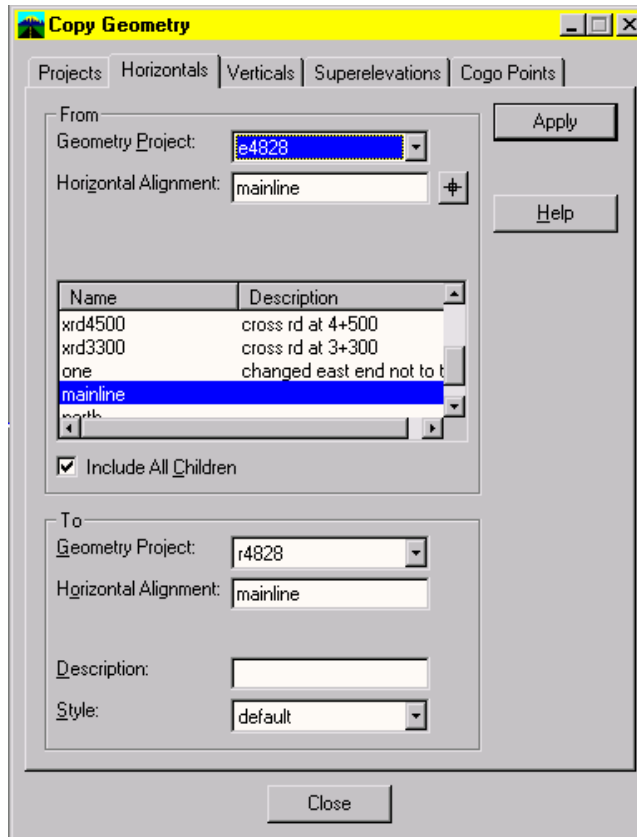
- a) **Name:** enter **b#** or leave blank. (If left blank, the previously set preference for the *seed alignment name* will automatically assign the next available alignment number.)
 - b) **Description:** Fill in. (optional)
 - c) **Style:** Select Preference from pulldown list.
 - d) Choose the **Start** button in the **Graphical Input** section.
 - e) Data near the chosen points
 - f) Choose the **Stop** button
 - g) Hit **Apply**.
NOTE: You can also type in the point numbers in the **Alignment Definition:** box.
 - h) This command will be repeated to establish all the section lines, quarter lines, sixteenth lines property lines, etc.
3. Establish the existing highway row and the row parallel to the section lines, etc.
 - a) Change the seed alignment name for existing row.
 1. Choose **Tools > Options > Geometry**
 2. Change the **seed alignment name** to **e1**.
 3. Hit **Apply**, then **Close**.
 - b) Choose **Geometry > Active Geometry > Horizontal Alignment**
 1. Change the **Type:** field to **Horizontal Alignment**
 2. Select the **Style:** pull down button
 - a) Select **row-exist**
 - b) Hit **Apply**, then **Close**.

NOTE: You can use the same steps to set the proposed row with the exception that the *seed alignment name* will be **A#** and the **Style** will be **row-new**.

- c). Choose **Geometry > Utilities > Parallel Horizontal by Element**
Select the appropriate alignment to parallel.
4. Utilize the surveyed existing road centerline, in the topography file, to create an alignment for the existing road by either setting cogo points or importing geometry from graphics
5. Create additional alignments and cogo points for existing row by utilizing the different **INROADS** commands.
 - a) Set the **Style** to **row-exist**

4. ESTABLISHING PROPOSED ROW

1. Copy the Designer's Alignments.
 - a) Choose **File > Open**
 1. Select **ePCN#**
 2. Hit **Open**



- b) Choose **Geometry > Copy Geometry > Select Horizontals Tab.**

1. Under **From**
 - a) **Geometry Project:** Select the appropriate **Geometry Project** from the pulldown list.
 - b) **Horizontal Alignment:** Select the appropriate **Horizontal Alignment** from the pulldown list.
 2. Under **To**
 - a) **Geometry Project:** Select **rPCN#** as the project.
 - b) **Horizontal Alignment:** Select the appropriate **Horizontal Alignment** from the pulldown list.
 - c) **Description:** Fill in (Optional)
 - d) **Style:** Select **preference** from pulldown list.
 3. Hit **Apply**, then **Close**.

2.

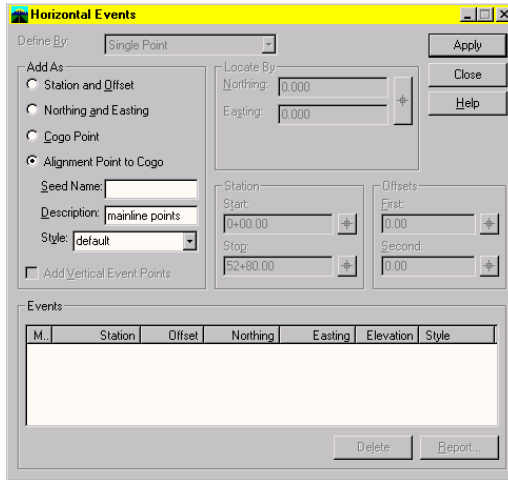
!!!!!!!!!!!! THIS IS VERY IMPORTANT !!!!!!!!!!!!!

Make your rPCN# the Active Geometry Project and then delete the ePCN#.

- a) Under Geometry Projects, select rPCN# and right click the mouse button and choose Set Active.
 - b) Under Geometry Projects, select ePCN# and right click the mouse button and choose Delete. A box comes up asking if you want to delete ePCN#, hit Yes.
NOTE: This only closes the COPY of the ePCEM. This MUST be done promptly after the alignments have been copied.
 - c) Under Geometry Projects, data the + alongside the rPCN# and scroll down the listing til you find the appropriate alignment and make it the active one by right clicking it with the mouse button and choosing Set Active.

3. To create usable Cogo points in the rPCN#, it will be necessary edit the alignment. When you try and edit it, a box comes up asking if you want to assign point names to the alignment. Hit yes, then Apply. To make these numbers usable Cogo points, do the following:

a) Choose **Geometry > Horizontal Curve Set > Events**

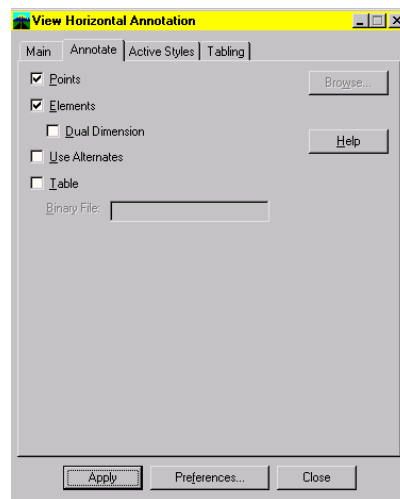
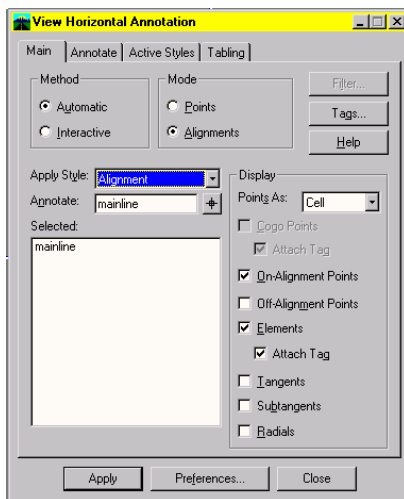


1. Under **Add As**, toggle on **Alignment Point to Cogo**.
2. **Description:** type in **mainline points** (Optional)
3. **Style:** Select **preference** from the pulldown list.
4. Hit **Apply** then **Close**.

b) Choose **File > Geometry > Save**. (This saves your latest entry)

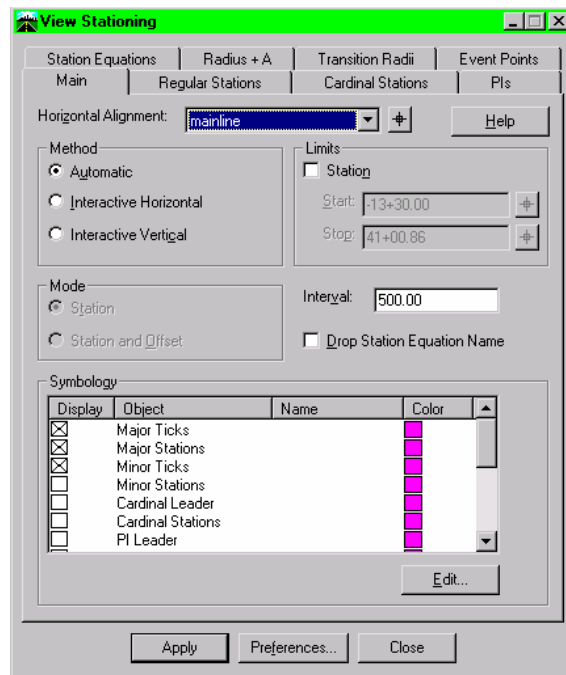
4. Draw the Horizontal Alignment with the display of the points assigned. The mainline centerline will be called by convention **mainline**. There will be other alignments that may be needed such as crossroads, detours, and ramps.

a) Choose **Geometry > View Geometry > View Horizontal Annotation > Main tab & Annotate Tab**



1. Under **Method**, **Automatic** is already toggled on.
2. Under **Mode**, toggle on **Alignments**.
3. **Apply Style:** Select **Alignment**
4. **Annotate:** Select **Alignment** (either type in the **Alignment** or you can data the collapsible box, then select an alignment graphically)
5. Hit **Annotate Tab**
6. Toggle on **Points**
7. Hit **Apply** then **Close**.

5. View the stationing for the Horizontal Alignment.
Choose **Geometry > View Geometry > Stationing > Main tab**



- a) Select the **Main** Tab.
 - b). **Horizontal Alignment**: Select the appropriate alignment from the pulldown list.
 - c) Under **Method**, Automatic is already toggled on.
 - d). Hit **Apply**, then Close.
6. Updating Horizontal Alignments from the ePCN#
If the Engineer has made changes to any alignments that affect Right of Way requirements, then the **rPCN#** will need to be updated. If the alignment already exists within the **rPCN#**, delete it using **Geometry > Delete Geometry > Horizontal Alignments**. Then proceed in copying the alignments from the ePCN# as previously described.

7. Buying Work limits.

Attach the dPCN#r as a reference file and turn on level 32 to see the locations of the work limits to be acquired. Then you need to create cogo points by Station & Offset, utilizing the **New Cogo Point** Command:

- a) Set the Active Horizontal Alignment to the appropriate roadway alignment, before going any further.
- b) Choose **Geometry > New Cogo Point**. Be sure the point snap is off.

New Cogo Point

Define By: Station/Offset

Name: 287

Northing: 0.000

Easting: 0.000

Elevation: 0.00

Horizontal Alignment: mainline

Station: 16+52.00

Offset: 102.00

Elevation: 1500.00

Description:

Style: row-new

Buttons: Apply, Close, Styles..., Help

1. **Define By:** Select **Station/Offset** from pulldown list.
2. **Name:** Either type in a number or leave blank and the next available number will be used.
3. **Horizontal Alignment:** Select **alignment** from pull down list.
4. **Station:** Type in the **station**, for the point you want to set.
5. **Offset:** Type in the **offset**, for the point you want to set.
6. **Elevation:** Type in 1500.00
7. **Styles:** Select the **preference** you want from the pull down list.
8. Hit **Apply** then **close**.

HINT: In the station & offset fields, you can place a data point in the collapsible box and then select a specific location on the graphics and data it. This will automatically put a station & offset in the appropriate box that you can either use or edit.

5. PLAT CREATION

1. Create **plat dgn** and name according to the beginning station, three (3) digits followed by a p.
EXAMPLE: A plat beginning at 10+00 would be 010p and beginning at 256+35 would be 256p.
In rural areas plat by quarters at a scale of 1 inch = 300 feet
2. Open first **dgn**
3. Reference in **rpcn#**
4. Attach plat cell library and place plat cell on the beginning area
5. Clip bound area and save settings.
6. **Save As** for each plat with the given area. Add 1 to the name of each additional one. (EX. 256p1.dgn)
7. Fill in data fields and do labeling
8. Place Geometry and General Reports and dimension area and ties.
9. Create file in plot organizer and add plats for each parcel.

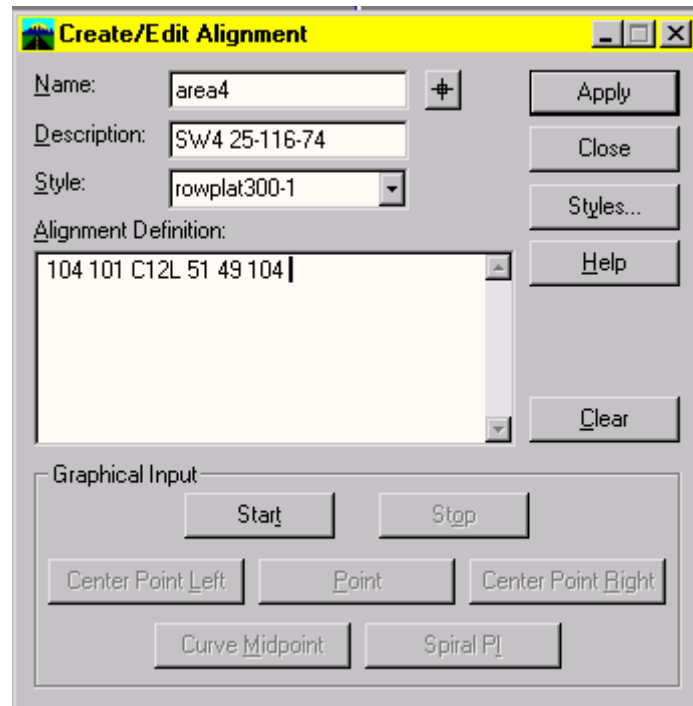
Information on PLATS: Use Font 3 Use UPPER and lower case unless otherwise noted (ac=xxxx are cells)

<u>Description</u>	<u>Level</u>	<u>Color</u>	<u>Weight</u>	<u>Text-(Scale)</u>
Levels to have on from the rpcn# – 1, 21-29				
1. Project No.				
2. County				
3. Scale (Normally 1" = 300' for Rural)				
4. Drawn By: Date:				
5. Checked By: Date:				
6. North Arrow				
7. City – ft=7, tx=50(1:100) tx=45(1:60) tx=37.5(1:50) tx=15(1:20)	20	50	2	varies
8. Sec. Line & Station (Labeling line use color 50 & station use color 6)	20	50 & 6	2	24
9. 1/4 Line & Station	20	50 & 6	2	24
10. 1/16 Line & Station and 1/32 Line & Station if needed	20	50 & 6	2	24
11. Prop. Line & Station	20	50 & 6	2	24
12. Lots, Blocks, Tracts, Subdivisions (check rpcn#)	20	50	varies	varies
13. Present Hwy.	20	50	2	24
14. Street names	20	50	2	24
15. Centerline Bearing	20	6	2	24
16. Curve Data	20	6	2	24
17. PI Data	20	6	2	24
18. Equation – ac = eqnote	20	3	varies	varies
19. Existing ROW Dimensions (cell = 66pl & 100pl)	20	50	2	
20. Proposed ROW Dimensions	20	9	2	
21. Heading	1	4		
22. Description	1	4		
23. Labeling Around Area - leader lines - lc = 1	1	9	0	
24. Table with Dimensions	1	4	2	24
25. Ties to Corners	1	9	0	
26. Acreage Note: - each area				
a. Proposed - - - Geometry & General Reports	1	4	2	24
b. Existing - - - - Geometry & General Reports	1	4	2	24
27. Corner Description				
a. ac = coraro arrow	1	9	2	24
b. ac = seccor Section Corner	1	9	2	24
c. ac = qtrcor 1/4 Corner	1	9	2	24
d. ac = sxtcor 1/16 Corner	1	9	2	24
e. ac = intsxt Interior 1/16 Corner	1	9	2	24
f. ac = intqtr Interior 1/4 Corner	1	9	2	24
28. Existing R.O.W. (Crosshatched) – hatch at 45° - space at 30	1	9	0	
29. Proposed Area Shaded – fill on, opaque	1	9	0	
30. Parcel ?				
31. Book/File No.				
32. Corner Coordinates	1	7	2	24
33. Revision Date	1			
34. Fill in State Plane note on State Plane Projects	20			
For plats other than 1" = 300' Edit plat if another scale used				24
a. 1" = 20' use as = 0.066667				1.2
b. 1" = 50' use as = 0.166667				4
c. 1" = 60' use as = 0.200000				5
d. 1" = 100' use as = 0.333333				8
e. 1" = 200' use as = 0.66667				16

6. CREATING HORIZONTAL ALIGNMENTS FOR AREA COMPUTATIONS

1. Establishing an Alignment for calculating areas

Choose **Geometry > Utilities > Create/Edit Alignment**



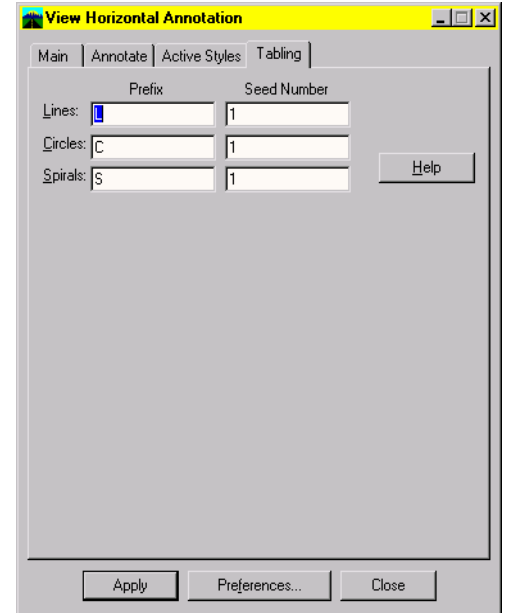
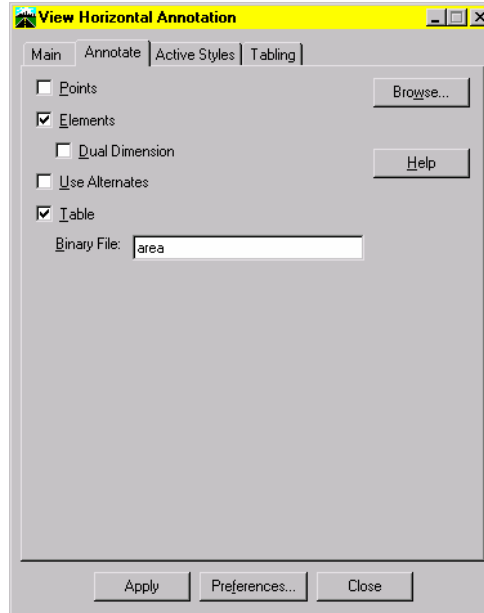
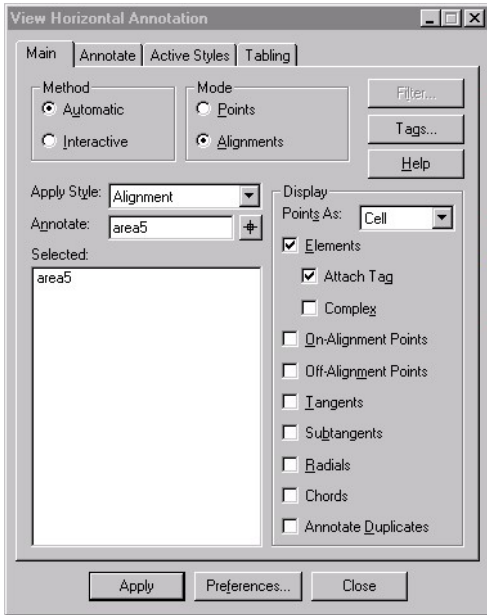
- Name:** Enter **area#** or leave blank. (If left blank, the previously set preference for the *seed alignment name* will automatically assign the next available alignment number.)
- Description:** fill in. (optional)
- Style:** Select preference in the pulldown list. (in this case **rowplat300-1**)
- Choose the **Start** button in the **Graphical Input** section.
- Data near the chosen points
- Choose the **Stop** button
- Hit **Apply**.

NOTE: You can also type in the point numbers in the **Alignment Definition:** box.

- This command will be repeated to establish all the alignments for calculating areas.

7. AREA RUNS

1. When running the areas around an alignment to establish the amount of taking required, you need to first open **Geometry > View Geometry > Horizontal Annotation**

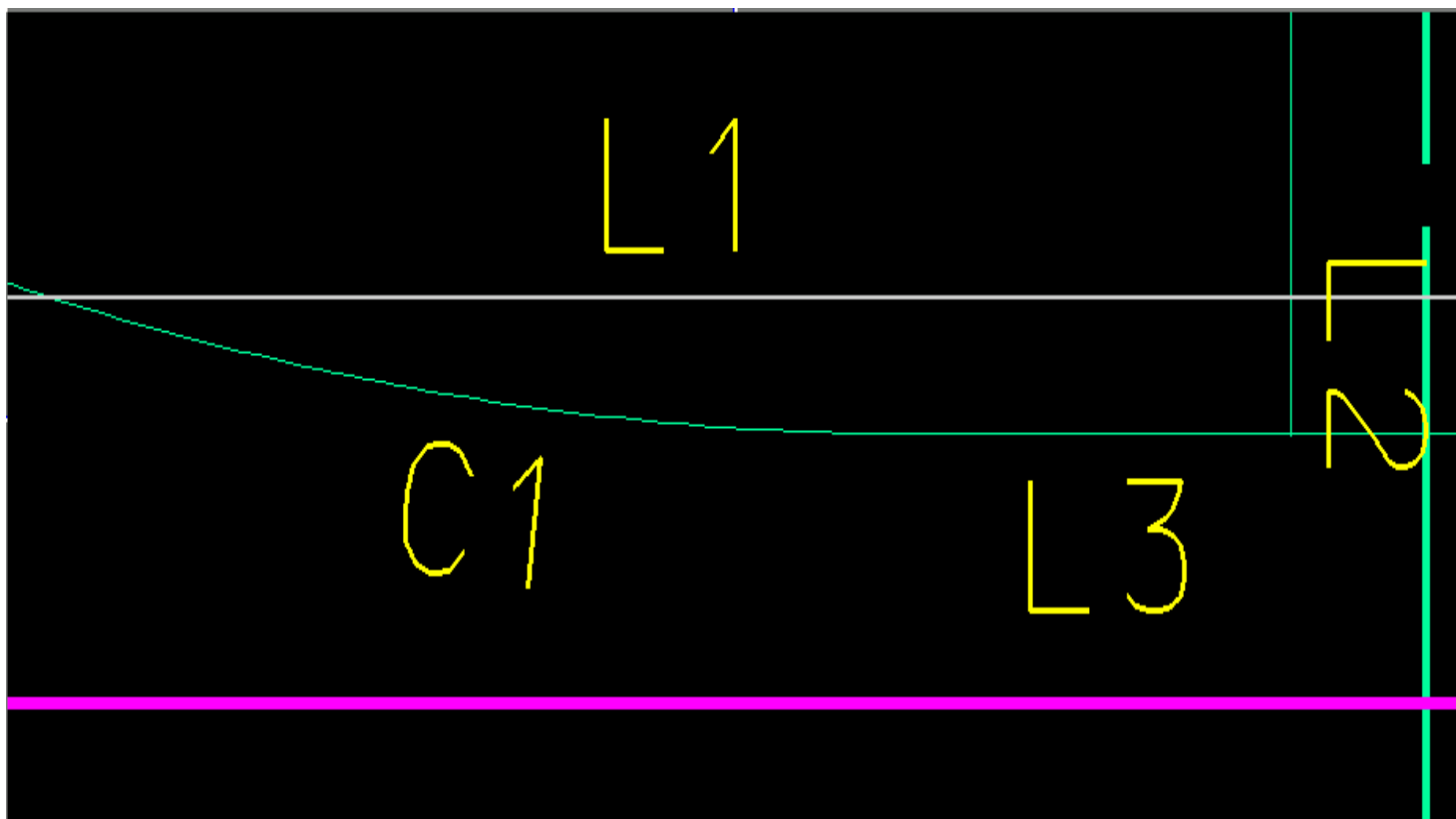


- a) Select **Main** Tab
- b) Under **Method**, **Automatic** is already toggled on.
- c) **Preferences...** Select **rowplats**, hit **Load**, then **Close**.
- d) Under **Mode**, **Alignments** is automatically toggled on.
- e) **Apply Style**: **Alignment** is automatically toggled on.
- f) **Annotate**: Type in the alignment you want to compute. (You can place a data point in the collapsible box and select the area graphically)
- g) Under **Display**, the toggles are automatically set.
- h) Select **Annotate** Tab
- i) **Elements** and **Table** are automatically toggled on.
- j) **Binary File**: Type in **area**.
 1. You will be creating a binary file for each of the areas that you will be running.
- k) Select **Tabling** Tab.
- l) Set the seed numbers.

NOTE: Each time before computing an area, you may need to *reset the Seed Number for Lines & Curves, back to 1.* (you will not have to change these numbers unless more than one area of taking is on a given plat.) If the areas of taking are to be combined on a given plat, then change the seed number after the first area is run to the next available number.

- m) Hit **Apply**, then **Close**.

You will notice on the plat that the area you are computing is being highlighted and the Line and Curve numbers are being annotated.

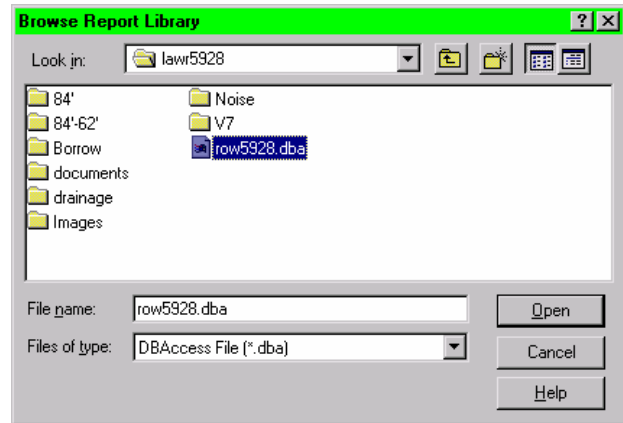
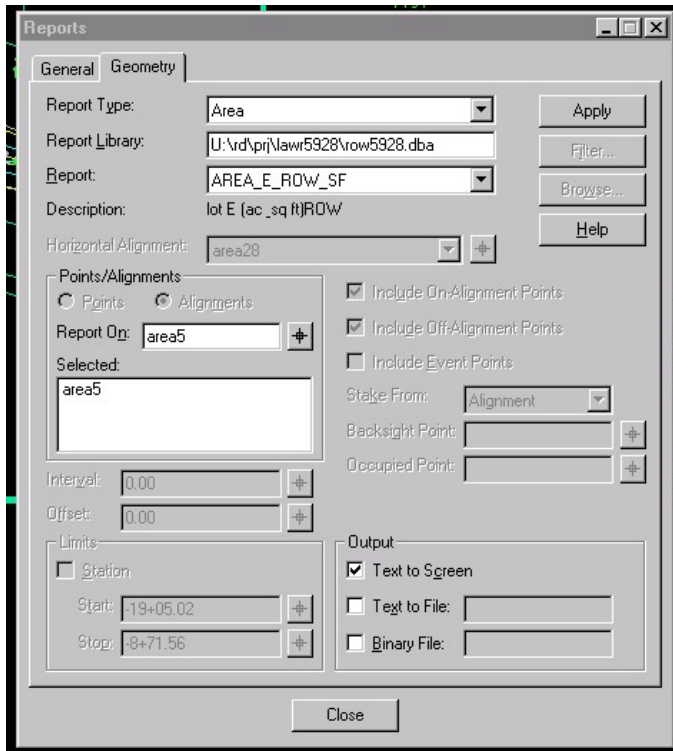


To get the area information that corresponds with the line numbers developed in the above procedure and print it out on the plat in a table form, you need to go into **Reports**.

8. REPORTS

1. To retrieve the area information and display it on the plat, you need to open **Reports**.

Choose **Tools > Reports**.



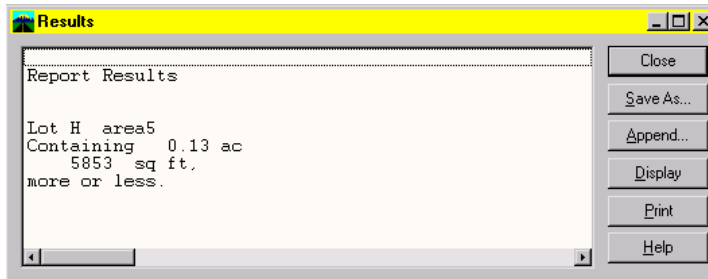
- a) Select **Geometry** Tab.
- b) **Report Type:** select **Area**.
- c) **Report Library:** data in the box and the **Browse** button becomes active.
 1. Data the **Browse** Button and select **u:\rd\prj\xxxPCN#\rowPCN#.dba** and hit **Open**. **
- d) **Report:** Select **AREA_E_ROW_SF** from the pull down list.

NOTE: The **SF** templates have the Scale Factor incorporated for State Plane Coordinates.
- c) **Output**
 1. **Text to Screen** is automatically toggled on.
- d) **Points/Alignments**
 1. **Report On:** Type in the alignment you want the report on. (Example: **area5**)
- e) Hit **Apply**.

NOTE:

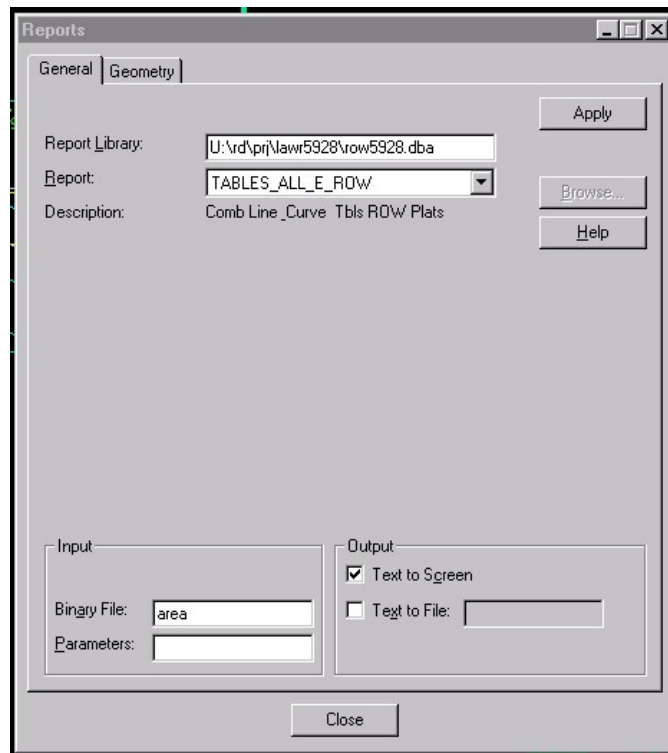
** If your project is NOT on State Plane Coordinates, then select **C:\Program Files\Bentley\Civil\data\ROW_E.dba**.

2. A box titled **Results** will pop up displaying the results of the newly generated report for this particular area..



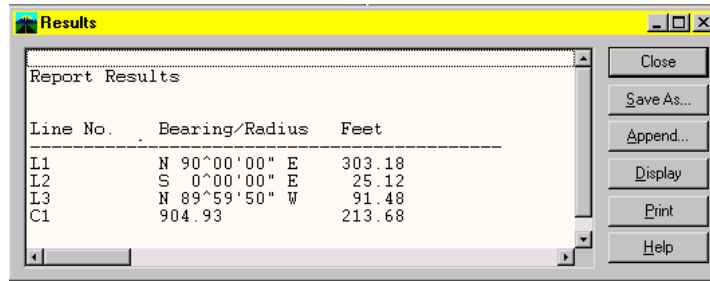
To transfer this information from the pop up box to the screen in your plat file:

- a) Hit the **Display** button. It will prompt you to data on the screen, the location where you want the report to be displayed.
 1. **Close** the **Results** box.
 2. You will have to edit the displayed text by deleting **Report Results**, adding an 'H' number and deleting area#.



3. To get a copy of the table showing the Line Nos., Bearing\Radius and Distances to put on the plat, select the **General** Tab.

- a) **Report Library:** data in the box and the **Browse** button becomes active.
 1. Data the **Browse** Button and select **u:\rd\prj\xxxPCN#\rowPCN#.dba** and hit **Open**. **
- b) **Report:** Select **TABLES_ALL_E_ROW** from the pull down list.
- c) **Input**
 1. **Binary File:** Type in **area**.
- d) **Output**
 1. **Text to Screen** is automatically toggled on.
- e) Hit **Apply**.



4. A box titled **Results** will pop up displaying the results of the newly generated report for this particular area.. To transfer this information from the box to the screen in your plat file:
- a) Hit the **Display** button. It will prompt you to data on the screen, the location where you want the report to be displayed.
 1. **Close** the Results box.
 2. You will have to edit the displayed text by deleting **Report Results**.

9. PRINTING TO THE .PDF

Open the projects PCN#_plats.IPS or PCN#_ROWplans.IPS

Highlight all the plats or photos.

This goes into the PDF_folder Via the F drive > PCN#_plats.PDF or PCN#_ROWplans.PDF > check the material for accuracy and **move** it into the appropriate project.

Always print from the Acrobat reader PCN#_plats.PDF or PCN#_ROWplans.PDF to insure the latest updated file.

NOTE: When updates or revisions occur the .PDF **MUST** be updated at that time.

PRINTING FROM THE .PDF

Open the projects PCN#_plats.PDF or PCN#_ROWplans.PDF

File > print

Page Scaling > None

Choose Paper Source by PDF page size

Preview should be 11 x 17 zoom 100%

Print according to your needs

Adding Preliminary as a Background

You do this in our photos.pdf

Document > **Add Watermark & Background...**

Select Type > **Add a Background**

Select Source > **From file** – Browse... select file

(U:\rd\Doc\PDF\Background_Preliminary.pdf)

Select **OK**

Save As

10. V8 ROWPHOTOS

Create and open **mosaic.dgn**. Attach the reference files in this order: dPCN# (d); rPCN# (r); tPCN# (t); and cgPCN# (cg); to your **mosaic.dgn**

Check flight height in imageinfo (AerialPhotos)

	(Photo Coverage)	(Photo Scale)	(Flight Height)
Place each block	7200' x 7200' (DL =7200,7200) for projects at	1" to 800'	4800'
Lv=63, Co=2	3600' x 3600' (DL =3600,3600) for projects at	1" to 400'	2400'
Do not delete	1500' x 1500' (DL = 2250,2250) for projects at	1" to 250'	1500'

Option 1: Attach raster reference files using Horizon Aerial photos to mosaic.dgn:

The workflow is Raster Manager > File > Attach > u:\rd\AerialPhotos\counpcn#\#.tif. Attach the appropriate #.tif using the above block sizes that corresponds with the topog. Display each #.tif and rotate images the direction of the project (if needed) using Raster Manager > Edit > Modify. Find common points in #.tif and topog reference file. Intersecting roads and buildings corners work well. Draw lines between image points and topog points. Note: you need at least three reference lines per image. Edit > Warp > method-Similitude (move, scale and rotate) using the ends of the lines warp image to match topog. Repeat for each #.tif files. **NOTE**: When attaching reference files make sure the toggle is **on** the Open Raster Files Read Only.

STARow.dgn (ROW Plans)

Create **STARow.dgn** by using **Save As** from mosaic.dgn. At the intersecting station of quarter/section lines etc. This retains all the #.tif files and reference files. Rotate the view the using Z axes L to R (if needed). Delete the #.tif(s) that are not needed for each STARow.dgn

Option 2: Attach raster reference files using FSA Aerial photos to mosaic.dgn:

Note: FSA photos are to be used **only** for rural Photos (200 Scale).

The workflow is Raster Manager > File > Attach >

M:\All_SD\GIS\BASE_DATA\IMAGERY\FSA_TrueColor\fsa_tc###.sid. Attach the appropriate fsa_tc###.sid. This displays the whole county. Display the fsa_tc###.sid and rotate images the direction of the project (if needed) using Raster Manager > Edit > Modify. Find common points in fsa_tc###.sid and topog reference file. Intersecting roads and buildings corners work well. Draw lines between image points and topog points. Note: you need at least three reference lines per image. Edit > Warp > method-Similitude (move, scale and rotate) using the ends of the lines warp image to match topog. Repeat for each fsa_tc###.sid files.

NOTE: When attaching reference files make sure the toggle is **on** the Open Raster Files Read Only.

STARow.dgn (ROW Plans)

Create **STARow.dgn** by using **Save As** from mosaic.dgn. At the intersecting station of quarter/section lines etc. This retains the fsa_tc###.sid file and reference files. Rotate the view the using Z axes L to R (if needed).

County FSA Aerial photo coding

<u>Code Name</u>	<u>Code Name</u>	<u>Code Name</u>	<u>Code Name</u>	<u>Code Name</u>
003 Aurora	035 Davison	067 Hutchinson	099 Minnehaha	135 Yankton
005 Beadle	037 Day	069 Hyde	101 Moody	137 Ziebach
007 Bennett	039 Deuel	071 Jackson	103 & 903 Pennington	
009 Bon Homme	041 Dewey	073 Jerauld	105 Perkins	
011 Brookings	043 Douglas	075 Jones	107 Potter	
013 Brown	045 Edmunds	077 Kingsbury	109 Roberts	
015 Brule	047 Fall River	079 Lake	111 Sanborn	
017 Buffalo	049 Faulk	081 Lawrence	113 Shannon	
019 Butte	051 Grant	083 Lincoln	115 Spink	
021 Campbell	053 Gregory	085 Lyman	117 Stanley	
023 Charles Mix	055 Haakon	087 McCook	119 Sully	
025 Clark	057 Hamlin	089 McPherson	121 Todd	
027 Clay	059 Hand	091 Marshall	123 Tripp	
029 Codington	061 Hanson	093 & 993 Meade	125 Turner	
031 Corson	063 Harding	095 Mellette	127 Union	
033 Custer	065 Hughes	097 Miner	129 Walworth	

STARow.dgn (LV, CO, WT, TX,)

AS = 1 200 Scale Rural (11 x 17 sheet)

Owner names, description, Lots, dimension, ¼ Lines, Section Line & ect. - Lv 20; Co 4; Wt 2; Tx 14; Ft 3
Proposed ROW dimension – Lv 20; Co 4; Wt 2; Tx 14; Ft 3 or AC= (75s / 75d)
Outlots & Blocks – Lv 20; Co 4; Wt 3; Tx 16; Ft 3
Additions – Lv 20; Co 4; Wt 3; Tx 18; Ft 3
Section Township & Range – Lv 20; Co 4; Wt 5; Tx 24; Ft 3
City – Lv 20; Co 4; Wt 2; Tx 80; Ft 7
Ex ROW hatching – Lv 20; Co 50; wt 0; Ls 0; (spacing 30; angle 45)

AS =.5 100 Scale Suburban (11 x 17 sheet)

Owner names, description, Lots, dimension, ¼ Lines, Section Line & ect. - Lv 20; Co 4; Wt 2; Tx 7; Ft 3
Proposed ROW dimension – Lv 20; Co 4; Wt 2; Tx 7; Ft 3 or AC= (75s / 75d)
Outlots & Blocks – Lv 20; Co 4; Wt 3; Tx 8; Ft 3
Additions – Lv 20; Co 4; Wt 3; Tx 9; Ft 3
Section Township & Range – Lv 20; Co 4; Wt 5; Tx 12; Ft 3
City – Lv 20; Co 4; Wt 2; Tx 40; Ft 7
Ex ROW hatching – Lv 20; Co 50; wt 0; Ls 0; (spacing 15; angle 45)

AS = .2 40 Scale Urban (11 x 17 sheet)

Owner names, description, Lots, dimension, ¼ Lines, Section Line & ect. - Lv 20; Co 4; Wt 2; Tx 3; Ft 3
Proposed ROW dimension – Lv 20; Co 4; Wt 2; Tx 3; Ft 3 or AC= (75s / 75d)
Outlots & Blocks – Lv 20; Co 4; Wt 3; Tx 4; Ft 3
Additions – Lv 20; Co 4; Wt 3; Tx 5; Ft 3
Section Township & Range – Lv 20; Co 4; Wt 5; Tx 6; Ft 3
City – Lv 20; Co 4; Wt 2; Tx 20; Ft 7
Ex ROW hatching – Lv 20; Co 50; wt 0; Ls 0; (spacing 10; angle 45)

V8 ROWPHOTO LEVELS AND REF LEVELS

STARow.dgn 1 thru 59

- (d) dPCN# 13, 17 & 32
- (r) rPCN# 1, 2, 13, 21-29
- (t) tPCN#? (1-63 temp)
- (cg) cgPCN# 19
- (p) planrow.bdr 1-56,

(Easements) hatch area in rPCN#.dgn

CO-3, LV-13, WT-0, LINE STYLE-1

Rural: spacing 10; angle 45
Suburban: spacing 5; angle 45
Urban: spacing 2.5; angle 45

Iplot organizer for photos

Create a new plot set from files you select COUNPCN#. Select the appropriate **starow.dgn(s)**
Select: Browse – photo.set – ok
Do a file SAVE AS u:/rd/prj/COUNPCN#/photos.ips

11. MISCELLANEOUS

A. In **COGO**, the delimiters are as follows:

- a** = **azimuth** between two points.
- g** = **gradient** between three points.
- d** = **distance** between two points.

B. To get a bearing and distance:

1. You can use the “**Inverse Direction**” command in the ‘**Geometry**’ palette.

To use it, you can either data or keyin the first point, then data the second point. You can read the information on the bottom of the screen.

C. To get coordinates of the P.I.’s, you need to annotate alignment with “off element point numbers” on.

D. Always leave the AUTO PLOT lock on.

E. Whenever you create a COGO point between two alignments, you have to be sure and go back in the “Horizontal Edit” command and insert the new COGO point in the alignment.

F. When storing an alignment and you get a message “unequal curve radii”, you can review horizontal alignment (single alignment) and see what the problem is.

G. **Geometry > Review Geometry Point.**

1. **Name:** Either type in the point number (in this case 52) or data the collapsible box and select a point graphically.
2. Under **Mode**, toggle on **All Points**.
3. Hit Tab and this will immediately give you the coordinates of the point and also will identify which alignment the point is associated with.

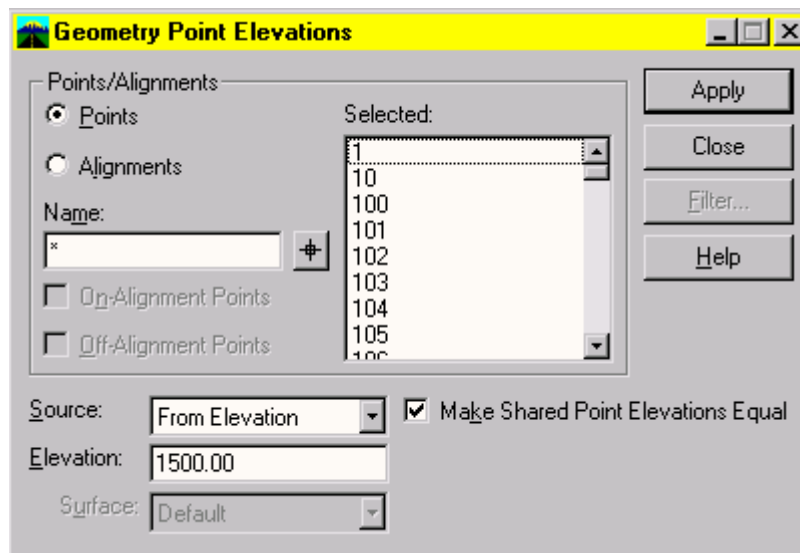
Point Type	Alignment
COGO	e4

4. Hit **Report...** and it will give you a listing of all the points and their coordinates.

H. Whenever you import points from an ASCII file and do not specify an elevation, you can go in after they have been displayed and establish an elevation for all the points at one time, utilizing the **Geometry Point Elevations** command.

Choose **Geometry> Utilities > Assign Elevations**

1. Toggle on **Points**.
2. **Name:** Either type in a **wild card ***, type in the actual **point numbers** or data the collapsible box and select a point graphically
3. **Source:** Select **Elevation** from the pulldown list.
4. **Elevation:** Type in **1500** for the elevation you want the points set at.
5. Toggle on **Make Shared Point Elevations Equal**. This will pick up the PI's, etc. that are being shared with the point.
6. Hit **Apply**, then **Close**.



7. Be sure and **save** Geometry.

I. The assigned levels to be used for right of way graphics files are as follows:

<u>Description</u>	<u>Level</u>	<u>Color</u>	<u>Weight</u>
a. Line Text for bearings & distances along a line.	15	50	0
b. Assumed Corners (land Ties established in the field)	16	7	1
c. Found Corners (Land Ties found in the field)	17	3	1
d. Existing Points (COGO Points for existing ROW, set in the Office)	18	50	0
e. Proposed Points (COGO Points for proposed ROW, set in the Office)	19	9	0
f. Property Descriptions (Lots, Blocks, Tracts, Addition, etc.)	20	4	1
g. Control of Access	21	10	1
h. County Lines	22	50	4
i. Section Lines	23	50	3
j. Quarter Lines	24	50	2
k. Existing Lines (Highway ROW, Lot, Block, Addition & Subdivision Lines)	25	50	0
l. Sixteenth Lines	26	50	1
m. New Lines (Proposed Highway ROW Lines)	27	9	1
n. Property Lines	28	50	1
o. State Line	29	50	5

05/26/2000