

# EAGLE POINT AND AUTO CAD

## HINTS:

**THE YELLOW QUESTION MARK ON THE TOP LEFT SIDE OF ANY DIALOG BOX IS A HELP FILE FOR EAGLE POINT OR HIT THE F1 KEY.**

**TO ADD OR REMOVE TOOLBAR, RIGHT CLICK ON TOOLS IN THE MENU AND CLICK ON CUSTOMIZE. CHECK OFF THE ONE YOU WISH TO HAVE ON THE SCREEN.**

**USE THE ESCAPE KEY TO BACK OUT OF A TOOLBAR COMMAND.**

**TO GET RID OF THE INTERNET BOX CLICK THE SMALL RED BOX IN THE TOP LEFT CORNER AND CLICK CLOSE.**

**TO DELETE A FILE, USE THE EAGLE POINT OPEN DIALOG BOX ( DIALOG BOX THAT FIRST COMES UP WHEN YOU OPEN EAGLE POINT) SELECT THE X ICON AT THE BOTTOM OF THE BOX, CHECK REMOVE FROM LISTING AND DRIVE, CLICK APPLY, CLICK DELETE.**

## TO START A NEW FILE AND LIST THE SURVEYS POINTS

1. **DOUBLE CLICK THE EAGLE POINT ICON OR CHOOSE THE START BUTTON, PROGRAMS AND EAGLE POINT**
2. **CLICK ON CREATE NEW PROJECT/ SUB PROJECT ICON ON THE OPEN DIALOG BOX. THIS ICON IS LOCATED IN THE BOTTOM LEFT HAND CORNER.**
3. **IN THE NEW DIALOG BOX, VERIFY THAT EAGLE POINT PROJECT IS HILIGHTED, CLICK ON THE NEXT BUTTON.**
4. **A NEW PROJECT DIALOG BOX COMES UP. ENTER A PROJECT DESCRIPTION AND PRESS TAB KEY. THIS COULD JUST BE A JOB NUMBER OR A NAME AND DESCRIPTION.**
5. **NOW YOU WILL WANT TO SUPPLY A DRAWING FILE THAT WILL BE THE "PLAN" VIEW OF YOUR PROJECT. YOU WILL WANT TO USE A DRAWING NAME THAT HAS NOT YET BEEN CREATED. TO CREATE A NEW DRAWING FILE YOU MUST TYPE THE LOCATION AND NAME OF THE FILE TO BE CREATED. IT IS STRONGLY RECOMMENDED THAT EACH PROJECT THAT YOU ADD TO EAGLE POINT BE IN IT'S OWN UNIQUE DIRECTORY. TYPE C:\ PROJECTS\ PROJECT NAME\ PROJECT NAME.DWG AND PRESS THE TAB KEY.**
6. **THE CONTENTS WITHIN A PROTOTYPE SETTINGS DESCRIPTION ALLOW YOU TO SET ITEMS SUCH AS UNITS, SCALES , TEXT HEIGHTS, ECT. FOR PROTOTYPE DRAWING YOU ARE SPECIFYING THE DRAWING FILE THAT CONTAINS ANY PROTOTYPE SETTINGS FOR THE PROJECT DRAWING. YOU CAN USE THIS OPTION TO INDICATE A DRAWING THAT HAS BEEN PREDEFINED TO CONTAIN ANY OF YOUR ORGANIZATION'S STANDARDS. FOR PROTOTYPE SETTINGS, SELECT EITHER A PROTOTYPE NRCS , OR A PROTOTYPE THAT YOU HAVE DEVELOPED, OR EAGLE POINT FEET DEFAULT.**
7. **VERIFY THE LINEAR UNITS IS SET TO FEET.**

8. LEAVE THE **PROTOTYPE DRAWING FIELD ALONE**. IT IS BASICALLY AUTOMATIC FROM WHAT YOU TYPED IN FOR YOUR PROTOTYPE SETTINGS. **YOU CAN CHANGE ANY SETTINGS LATER ,IF YOU NEED TO CHANGE THEM.**
9. **CLICK ON THE ADVANCED BUTTON**. NOW YOU WILL SPECIFY MULTIPLE DOCUMENT LOCATIONS. NEW IN EAGLE POINT IS THE ABILITY TO SEPARATE THE FILE OF A PROJECT TO DISTINCT LOCATIONS. THIS CAN BE USEFUL IF YOU WOULD LIKE TO DIRECT A PROJECT FILES TO A LOCATION WHERE CERTAIN PEOPLE CAN ACCESS THEM. SPECIFYING DATA\ PLOT FILE LOCATIONS IS TYPICALLY PERFORMED AS A NEW PROJECT IS ENTERED INTO EAGLE POINT. BY DEFAULT, EAGLE POINT STORES ALL FILES THAT COMPRISE A PROJECT IN THE SAME DIRECTORY AS THE MAIN PROJECT DRAWING; BY DOING THIS EAGLE POINT VIEWERS CAN EASILY SHARE THEIR DRAWINGS WITH ONE AND ANOTHER.
10. DATA FILE LOCATION IS WHERE THE DATA FILES FOR THE PROJECT ARE TO BE STORED. **TYPE C:\PROJECTS\PROJECT NAME\DATA**. PRESS THE **TAB KEY**.
11. PLOT FILE LOCATION IS THE LOCATION WHERE YOU WANT TO KEEP THE PLOT FILES. **TYPE C:\PROJECTS\PROJECT NAME\PLOT** . **CLICK OK**.
12. WHENEVER YOU SPECIFY A DIRECTORY THAT HAS NOT YET BEEN CREATED, EAGLE POINT WILL ASK YOU IF YOU WANT TO CREATE IT. **CLICK YES**.
13. **CLICK FINISH** IN THE NEW PROJECT DIALOG BOX. **CLICK OK** IN THE OPEN DIALOG BOX..
14. USING YOUR MOUSE, EXPAND THE **EAGLE POINT - FILE NAME DIALOG BOX** IN THE UPPER LEFT CORNER. SELECT **FILE**, SELECT **PRINT SETUP**, MAKE SURE **PRINTER IS SELECTED**, AND NOT FILE, **CLICK OK**.
15. **SPECIFYING PROJECT SETTINGS**. THESE SETTINGS SHOULD BE ESTABLISH BEFORE YOU BEGIN YOUR DESIGN/ ANALYSIS WORK, AND BEFORE YOU LOAD YOUR POINTS FILE. SETTING UP A PROTOTYPE IN THE FUTURE TO USE WILL TAKE CARE OF THESE SETTINGS.
16. IF YOU SELECTED A **NRCS PROTOTYPE** OR **YOUR OWN PROTOTYPE**, **JUMP TO STEP 27**. IF YOU USED A **EAGLE POINT PROTOTYPE** OR **KNOW THAT YOU WILL NEED TO CHANGE SOME SETTINGS**, CONTINUE WITH STEP 17.
17. SELECT **SYSTEM** ( NEXT TO FILES IN THE EAGLE PIONT DIALOG BOX) .
18. FIRST SPECIFY THE PROJECT UNITS. **SELECT UNITS**. **CLICK ON THE CATEGORY DROP LIST ARROW**. VERIFY THAT CATEGORY IS SET TO **ANGULAR** , AND THAT INPUT AND OUTPUT ARE SET TO **DEGREES, MINUTES, AND SECONDS**. **CLICK ON APPLY**.
19. **CLICK ON THE CATEGORY DROP LIST ARROW**. **HILIGHT DEGREE OF CURVATURE**. **CLICK ON INPUT/OUTPOUT LIST**. **SELECT THE ARC DEFINITION**. VERIFY THAT THE **LENGTH IS SET TO 100**. **CLICK APPLY**.
20. **CLICK ON THE CATEGORY DROP LIST ARROW**. **HILIGHT LINEAR**. **CHECK TO SEE THAT INPUT AND OUTPUT ARE IN FEET**. **CLICK APPLY**.
21. **CLICK ON THE CATEGORY DROP LIST ARROW**. **HILIGHT PLANIMETRIC AREA**. **CLICK ON INPUT/OUTPOUT LIST**. **CHECK TO SEE THAT INPUT AND OUTPUT ARE IN SQUARE FEET**. **CLICK APPLY**. **CLICK OK**.

22. SELECT **SYSTEM**. SELECT **FORMATS**. IN THE FORMAT BOX **ARROW THE CATEGORY TO HORIZONTAL DIRECTION**. SET FORMAT TO **NORTH AZIMUTH**. CLICK **APPLY**.
23. **ARROW CATEGORY TO NODES**. CHECK **POINT NUMBER PROTECTION**, **ID FORMAT SHOULD BE NUMERIC**, CLICK **APPLY**
24. **CLICK ON THE CATEGORY DROP LIST AND SELECT STATIONING**. VERIFY THAT **STATIONING IS SET TO +00**, CLICK **APPLY**, CLICK **OK..**
25. SELECT **SYSTEM**. SELECT **PRECISION**. VERIFY THAT **CATEGORY IS SET TO ANGULAR AND DEGREES MINUTES SECONDS IS SET TO THE NEAREST SECOND**, CLICK **APPLY**
26. **CLICK ON THE DROP CATEGORY LIST AND SELECT LINEAR**. VERIFY THAT THE **DISTANCE PRECISION IS 2**. **TYPE 2 FOR NORTHING AND EASTING AND 2 FOR ELEVATION**. USE THE TAB KEY TO GET AROUND. CLICK **APPLY AND OK**.
27. ON THE **EAGLE POINT MAIN MENU SELECT TOOLS**, SELECT **PLOT SCALES** AND SET YOUR **HORIZONTAL SCALE**. LEAVE THE VERTICAL SCALE ALONE FOR NOW. CLICK **OK**.
28. **FOR EAGLE POINT PROTOTYPE** , IN THE **EAGLE POINT BOX SELECT SYSTEM**, SELECT **NODE LIBRARY**, ON **CURRENT FIELD CODE** ARROW TO **EP DEFAULT SYMBOLS**, SELECT **32 DOT**, **UNCHECK PLACE ADDITIONAL SYMSBOL**, CLICK **AND CLOSE**. CLICK **CLOSE** ON THE NEXT **DIALOG BOX**.  
  
**FOR NRCS PROTOTYPE**, IN THE **EAGLE POINT BOX SELECT SYSTEM**, SELECT **NODE LIBRARY**, ON **CURRENT FIELD CODE** LIBRARY IT SHOULD SAY **NRCS**, IF IT DOES NOT, ARROW TO **NRCS**. UNDER **FIELD CODE** HILIGHT **G**, SELECT THE **SECOND ICON** FROM THE LEFT ( **MODIFY FIELD CODE** ). THERE ARE PROBABLY MANY WAYS TO APPROACH WANT WE NEED, THE FOLLOWING WILL WORK FOR EACH **LINE: G G DOT 1.0000000 V.Fcod.Misc 3 - Green Symbol and Point Topo Include** **UNCHECK** PLACE **ADDITIONAL SYMBOL**, **CHECK** USING **FIELD CODES LAYER AND COLOR** , **UNCHECK** USE **FIELD CODE AS LINE IN AS DATA COLLECTION**. CLICK **APPLY**, CLICK **CLOSE**.
29. SELECT **PRODUCTS**, **DATA TRANSFER ON EAGLE POINT TOOLBAR**. **DATA TRANSFER DIALOG BOX** COMES UP, **SELECT TRANSFER..**
30. SELECT **SETTINGS**, **TRANSFER SETTINGS DIALOG BOX** COMES UP, UNDER THE **IMPORT TAB** **UNCHECK DRAW LINES**, **CHECK PLACE POINTS AS**.
31. ARROW TO **NODES**, ARROW **DEFAULT FIELD CODE** TO **32 DOT** OR **G FOR NRCS PROTOTYPE**.
32. **NODE NUMBER TO ADD SHOULD BE ZERO**. **STARTING ID SHOULD BE ONE**.
33. PLACE A **CHECK ON USE POINT NUMBERS**, PLACE A **CHECK ON USE ELEVATIONS**.
34. CLICK **APPLY**, CLICK **OK**.
35. SELECT **TRANSFER**, **IMPORT FILE**. A **IMPORT FILE DIALOG BOX** COMES UP.
36. USE **THE OPEN FILE ICON** ON THE **RIGHT SIDE TO SELECT THE FILE YOU WANT**. IT MAY BE ON A **DISK** OR IN A **FILE YOU HAVE SET UP IN THE COMPUTER**.
37. LEAVE THE **FORMAT IN ABACUS SDC71**. CLICK **OK**
38. A **REPORT WARNINGS DIALOG BOX** COMES UP. THE **REPORT SHOULD STATE THE NUMBER OF NODES IMPORTED**. **PRINT IF YOU WISH**, AND CLICK **CLOSE**.

39. **LEAVE THE DATA TRANSFER BOX ACTIVE.** YOUR POINTS FILE SHOULD HAVE LOADED INTO YOUR DRAWING. TO SEE THE POINTS, ELEVS. DESCRIPTIONS USE THE **ZOOM EXTENTS ICON.**
40. FROM THE DATA TRANSFER DIALOG BOX, **SELECT REPORTS, AND NODES.**
41. A REPORT NODES DIALOG BOX COMES UP, PLACE A **DOT IN SELECT, ARROW TO ALL IN SELECTION METHOD.**
42. **CLICK APPLY, CLICK CLOSE.**
43. A NODE REPORT BOX SHOULD COME UP, **CLICK THE PRINT ICON AT THE BOTTOM RIGHT.**
44. **CHECK OFF THE FIRST 5 ITEMS ON THE LEFT AND HIT PRINT.**
45. **CLOSE THE DATA TRANSFER BOX.**
46. **SAVE YOUR DRAWING AS POINTS.**

**SEE THE NEXT PAGE FOR PLOTTING THE DRAWING**

## PLOTTING THE POINTS DRAWING

**HIT THE F1 KEY FOR HELP IN EP-ACAD ( YOU MAY NEED TO CLICK ON THE EAGLE POINT TOOL BAR FIRST).**

**BEFORE YOU PLOT THE DRAWING YOU MAY WISH TO SET UP YOUR POINT NUMBERS, ELEVATIONS AND DESCRIPTIONS SO THAT YOU WILL BE ABLE TO READ THEM. SOME MAY BE ON TOP OF EACH OTHER AT THIS TIME.**

TO CHANGE THE **SIZE** OF THE **ELEVATION, POINT NUMBER** AND **DESCRIPTION** OF THE POINTS IN THE DRAWING IN ORDER TO BETTER READ EACH POINT, USE THE FOLLOWING STEPS:

PICK **EP**, PICK **COGO**, PICK **NODES**, PICK **RESIZE**, A RESIZE NODES DIALOG BOX COMES UP. CHECK **SELECT** FOR SELECTION METHOD. ARROW TO **ALL** FOR SELECTION METHOD. CLICK ON **APPLY**. THE BOX SHOULD REAPPEAR WITH THE NUMBER OF NODES SELECTED. CLICK ON **NEXT**. PLACE A DOT IN SCALE ATTRIBUTES AND TYPE IN A VALUE SUCH AS 0.5 AND CLICK APPLY.

IF YOUR TEXT IS AS SMALL AS YOU POSSIBLY WANT TO PLOT, AND YOU STILL HAVE TEXT ON TEXT, YOU MAY USE SWIVLE TO ROTATE THE TEXT TO CLEAN UP THE DRAWING SOMEWHAT.

PICK **EP**, PICK **COGO**, PICK **NODES**, PICK **SWIVEL**, A SWIVEL NODES DIALOG BOX COMES UP. SET SELECTION **MODE** TO **SELECT**, SET SELECTION **METHOD** TO **AUTOCAD**, **CLICK ON THE NODE NUMBER (ID)** YOU WISH TO MODIFY ON THE SCREEN ( NOT THE DOT ) AND **HIT ENTER**. THE SWIVEL NODES DIALOG BOX COMES BACK UP. CLICK ON **NEXT** AND **TYPE** IN THE **ANGLE** AND CLICK ON **APPLY**. **TYPE** IN THE **DEGREES** OF ROTATION AND **HIT ENTER**. THE ID'S OF THE NODES YOU HAVE SELECTED SHOULD APPEAR. CLICK **APPLY**. IF YOU WISH TO LEAVE THE SWIVEL NOTES COMMAND SO THAT YOU CAN SELECT NODES WITH THE MOUSE, CLICK CLOSE. IF YOU WANT THE DIALOG BOX TO COME UP FIRST, CLICK REPEAT, CHANGE THE SELECTION METHOD TO ALL AND CLICK CLOSE.

ROTATE FUNCTION IN THE SAME MENU ALSO WILL WORK, BUT IF YOU DO NOT CHOOSE THE BASE POINT AS THE NODE THAT YOU ARE ROTATING, YOU WILL ALSO ROTATE THE POINT. WHILE SWIVEL TAKES A LITTLE LONGER TO USE, YOU ARE NOT GOING TO MESS UP YOUR SURVEY AS YOU POSSIBLY CAN WITH ROTATE.

1. HAVE YOUR POINTS DRAWING ON THE SCREEN. AT THIS TIME YOU WISH TO CALCULATE THE ACTUAL LENGTH OF THE PROJECT TO SET THE SCALE FOR THE BORDER THAT YOU PLAN TO USE, OR JUST WAIT TILL STEP 6.
2. PICK **EP** ( UPPER COMMAND BAR) PICK **DRAFTING**.
3. PICK **INSERT**, PICK **BORDER**.
4. PICK **HORIZONTAL OR VERTICAL** ( DEPENDING ON WHICH WAY YOU WANT YOUR DRAWING ORIENTATING ) USE THE **ARROW** TO GET WHAT YOU WANT 22" BY 34" FOR E SIZE DRAWINGS, 8.5" BY 11" FOR L SIZE DRAWINGS, 11" BY 17" FOR N SIZE DRAWINGS
5. PICK **OK**, USE THE MOUSE TO PLACE THE **BORDER** AROUND YOUR DRAWING. YOU MAY USE THE MOVE COMMAND UNDER MODIFY TO THE LEFT OF EP TO POSITION YOUR BORDER. YOU MAY ALSO USE THE UNDO ARROW AND START AGAIN.

6. IF YOUR DRAWING DOES NOT MATCH THE SHEET SIZE THAT YOU WANT, YOU WILL HAVE TO CHANGE THE SCALE OF THE DRAWING. ( IN THE EAGLE POINT - FILE NAME DIALOG BOX , SELECT TOOLS, SELECT PLOT SCALES, CHANGE THE HORIZONTAL SCALE , THIS IS A TRIAL AND ERROR PROCESS )
7. PICK **INSERT**, PICK **BAR SCALE** , TO PLACE A SCALE UNDER THE DRAWING. A INSERT DIALOG BOX COMES UP. CLICK ON INSERT TO PLACE THE BAR SCALE, OR MODIFY TO YOUR WISHES AND THEN INSERT THE SCALE.
8. PICK **INSERT**, PICK **ARROWHEAD** , SELECT ARROW 3 ON SYMBOL, UNCHECK ALIGN TO OBJECT, TYPE IN 20 OR WHATEVER WORKS FOR YOU IN THE SCALE FACTOR . IF NORTH IS TOWARDS THE TOP OF THE DRAWING, TYPE IN 90 FOR ROTATION,. CLICK ON INSERT TO PLACE A NORTH ARROW.
9. AT THIS POINT YOU MAY WISH TO ADJUST THE BAR SCALE, NORTH ARROW, OR THE BORDER, PICK MODIFY, PICK MOVE, FOLLOW THE INSTRUCTIONS NEAR THE BOTTOM OF THE SCREEN.

**AT THIS POINT YOU MAY WISH TO ENTER TEXT IN THE TITLE BLOCK (IF YOU DO NOT WISH TO ENTER TEXT, JUMP TO STEP 17). THERE ARE MANY WAYS TO ENTER TEXT. ONE OF THE EASIEST TO LEARN IS AS FOLLOWS:**

10. PICK **DRAW** TO THE **LEFT** OF **EP** IN THE AUTOCAD SECTION.
11. PICK **TEXT**, PICK **SINGLE LINE TEXT**.
12. AT THE BOTTOM YOU WILL BE PROMPTED FOR **START POINT**. USE THE MOUSE TO PICK THE START POINT FOR THE TEXT.
13. YOU WILL BE PROMPTED FOR THE **SIZE OF TEXT**. THE SIZE DEPENDS ON THE SCALE YOU ARE IN (15 TO 60 WORKS).
14. YOU WILL BE PROMPTED FOR **ROTATION ANGLE**. ROTATION SHOULD BE 90 FOR SIDE BORDERS OR VERTICAL TEXT. ROTATION SHOULD BE 0 FOR HORIZONTAL TEXT.
15. YOU WILL BE PROMPTED FOR **TEXT**, **TYPE** THE TEXT THAT YOU WANT AND **ENTER**.
16. IF WHAT YOU HAVE FOR TEXT ON THE DRAWING IS NOT WHAT YOU WANT, PICK **MODIFY** AT THE TOP, PICK **ERASE**, CLICK ON THE WORDS AND HIT ENTER TO ERASE. THEN TRY THE STEPS AGAIN STARTING WITH STEP 11.

## **PRINTING OR PLOTTING THE DRAWING**

17. PICK **FILE**, PICK **PAGE SETUP**. A PAGE SETUP DIALOG BOX COMES UP.
18. SELECT THE **PLOT DEVICE TAB**. ARROW TO THE PRINTER OR PLOTTER NAME THAT YOU WANT.
19. SELECT THE LAYOUT SETTINGS TAB. USE THE DROP ARROW TO SELECT THE PAPER SIZE, SUCH AS TABLOID FOR THE 2500 PRINTER.
20. SELECT THE DRAWING ORIENTATION.
20. IN PLOT SCALE SECTION, . **SET THE SCALE** TO THE SCALE THAT YOUR DRAWING IS SET TO BY TYPING IN THE SCALE.
22. PICK OK.
23. SELECT FILE, SELECT PLOT. A PLOT DIALOG BOX COMES UP. CHECK TO SEE THAT ALL INFORMATION IS CORRECT.
24. SELECT THE WINDOW BUTTON. WINDOW A **RECTANGLE** AROUND YOUR DRAWING. PREFERABLY JUST INSIDE THE CORNER TABS OUTSIDE OF THE BORDER.
25. SELECT **PARTIAL PREVIEW**, CHECK TO SEE IF THERE ARE ANY ERRORS.
26. SELECT **FULL PREVIEW**. ALLOW A FEW SECONDS FOR THE PREVIEW OF THE DRAWING TO COME UP.  
  
DOES THE DRAWING LOOK OK ? ( THIS PART IS A TRIAL AND ERROR PROCESS, YOU MUST MAINLY PRACTICE TO MATCH THE WINDOW WITH THE FINAL PLOT THAT YOU WANT).  
  
HIT THE **ENTER KEY** TO EXIT THE PREVIEW.
27. PICK **OK**. **THE DRAWING SHOULD BE PLOTTED**.

CHECK THE SCALE AFTER IT IS PLOTTED.

28. PICK **FILE**, PICK **SAVE AS**, SAVE YOUR DRAWING, CALL IT **POINTS** OR **POINTS1**.

**STATIONING A LINE WITH OR WITHOUT CROSS SECTIONS -- STATION OFFSET  
( THIS IS THE FASTEST METHOD, IF YOU CAN EASILY DETERMINE THE CL POINTS TO CLICK  
ON , ON THE SCREEN; IF YOU CAN'T, USE THE NEXT METHOD )**

TO CHANGE THE **SIZE** OF THE **ELEVATION, POINT NUMBER** AND **DESCRIPTION** OF THE POINTS ON THE SCREEN IN ORDER TO BETTER READ EACH POINT, USE THE FOLLOWING STEPS:

PICK **EP**, PICK **COGO**, PICK **NODES**, PICK **RESIZE**, A RESIZE NODES DIALOG BOX COMES UP. CHECK **SELECT** FOR SELECTION METHOD. ARROW TO **ALL** FOR SELECTION METHOD. CLICK ON **APPLY**. THE BOX SHOULD REAPPEAR WITH THE NUMBER OF NODES SELECTED. CLICK ON **NEXT**. PLACE A DOT IN SCALE ATTRIBUTES AND TYPE IN A VALUE SUCH AS 0.5 AND CLICK APPLY.

IF YOU STILL HAVE TEXT ON TEXT, YOU MAY USE SWIVLE TO ROTATE THE NODE TEXT TO CLEAN UP THE SCREEN DRAWING SOMEWHAT.

PICK **EP**, PICK **COGO**, PICK **NODES**, PICK **SWIVEL**, A SWIVEL NODES DIALOG BOX COMES UP. SET SELECTION **MODE** TO **SELECT**, SET SELECTION **METHOD** TO **AUTOCAD**, **CLICK** ON THE **NODE NUMBER (ID)** YOU WISH TO MODIFY ON THE SCREEN ( NOT THE DOT ) AND **HIT ENTER**. THE SWIVEL NODES DIALOG BOX COMES BACK UP. CLICK ON **NEXT** AND **TYPE** IN THE **ANGLE** AND CLICK ON **APPLY**. **TYPE** IN THE **DEGREES** OF ROTATION AND **HIT ENTER**. THE ID'S OF THE NODES YOU HAVE SELECTED SHOULD APPEAR. CLICK **APPLY**. IF YOU WISH TO LEAVE THE SWIVEL NOTES COMMAND SO THAT YOU CAN SELECT NODES WITH THE MOUSE, CLICK **CLOSE**. IF YOU WANT THE DIALOG BOX TO COME UP FIRST, CLICK **REPEAT**, CHANGE THE SELECTION METHOD TO **ALL** AND CLICK **CLOSE**.

ROTATE FUNCTION IN THE SAME MENU ALSO WILL WORK, BUT IF YOU DO NOT CHOOSE THE BASE POINT AS THE NODE THAT YOU ARE ROTATING, YOU WILL ALSO ROTATE THE POINT. WHILE SWIVEL TAKES A LITTLE LONGER TO USE, YOU ARE NOT GOING TO MESS UP YOUR SURVEY AS YOU POSSIBLY CAN WITH ROTATE.

1. PUT YOUR **POINTS DRAWING ON THE SCREEN**.
2. MAKE SURE THE RUNNING OBJECT SNAP IS ON FOR SNAP TO NODES. PICK **EP** AND **AUTOCAD**, PICK **OPTIONS**, PICK **RUNNING OBJECT SNAP**, CLICK ON **APPLY**, CLICK ON **OK**.
3. SNAP TO NODE AND TO NEAREST MUST BE ON. PICK **EP**, PICK **AUTO CAD**, PICK **TOOLS**, PICK **DRAFTING** PICK **SETTINGS**, PICK **OBJECT SNAP ON**, **CENTER CHECKED**, **NODE CHECKED**, **NEAREST CHECKED**.
4. ARROW AND ZOOM TO START NODE FOR STATIONING. PICK **DRAW**, PICK **3D POLYLINE**,
5. NOTICE THE STATEMENT UNDER THE COMMAND LINE. **CLICK FROM NODE TO NODE** WITH THE MOUSE STARTING FROM THE BEGINNING OF THE LINE YOU WISH TO STATIONWHEN YOU HAVE FINISHED, HIT THE **ENTER** KEY.
3. PICK **EP**, PICK **COGO**.
4. PICK **LAYOUT**, PICK **CONVERT OBJECTS TO ALIGNMENT**, LEFT **CLICK ON THE LINE** FOR SELECTED ALIGNMENT, HIT **ENTER**.
5. THE COMMAND LINE WILL ASK YOU TO **PICK POINT NEAR THE BEGINNING** OF THE ALIGNMENT.

6. A CONVERT OBJECTS TO ALIGNMENT DIALOG BOX APPEARS. **GIVE THE ALIGNMENT A NAME SUCH AS CL.**
7. **FILL IN THE BEGINNING STATION**, SUCH AS 0+00 OR 10+00. CLICK **APPLY**, THE DIALOG BOX WILL DISAPPEAR.
8. PICK **REPORT**, PICK **STATION/OFFSET**. A REPORT STATION/ OFFSET DIALOG BOX SHOULD COME UP.
9. HILIGHT THE **NAME OF YOUR ALIGNMENT** AND CLICK **NEXT**.
10. ANOTHER REPORT STATION/OFFSET BOX COMES UP. PICK SELECTION MODE **SELECT**, SELECTION METHOD **ALL**, **CHECK LEFT AND RIGHT**, **FILL IN THE DISTANCE** YOU WANT TO REACH OUT ON SECTIONS. **CLICK APPLY**.
11. **CLICK CLOSE** ON THE NEXT STATION/OFFSET BOX..
12. **A REPORT STATION/OFFSET DIALOG BOX SHOULD COME UP.**
13. CLICK ON **PRINT ICON** IN THE BOTTOM LEFT CORNER . A STATION OFFSET PRINT OPTIONS DIALOG BOX SHOULD COME UP.
14. CHECK OFF **ID, ELEVATION, DESCRIPTION, STATION, AND OFFSET AS A MINIMUM.**
15. CLICK THE **PRINT BUTTON** FOR OUTPUT. CLOSE THE BOX IF YOU WISH, AFTER YOU ARE SURE YOU HAVE A PRINTOUT.

EACH **NODE** THAT HAS A **ZERO** VALUE FOR **OFFSET** IS A **CENTERLINE POINT**. THE PROGRAM WILL REACH TO ANY POINTS THAT ARE PERPINDICULAR TO THE CENTERLINE OUT TO THE DISTANCE YOU REQUESTED.

THE **OFFSET SHOTS** THAT APPEAR TO BE FAIRLY PERPINDICULAR TO THE CENTERLINE NODE WILL STILL NOT HAVE THE EXACT STATIONING AS THE CENTERLINE NODE. FOR THE WATERWAY PROGRAM THE STATIONING OF **OFFSET SHOTS** SHOULD BE CHANGED TO THE CENTERLINE NODE STATIONING UNLESS THE SHOTS ARE WAY OFF FROM PERPINDICULAR WITH THE CENTERLINE STATION. ( THE SHOTS THAT ARE USED IN A LASER LEVEL SURVEY ARE NOT PERFECTLY PERPINDICULAR TO THE CENTERLINE .)

THERE IS SMALL SEGMENT ON THE OUTSIDE OF ANY CURVE ON A PROFILE THAT IS NOT PERPINDICULAR TO EITHER LINE AT THE CENTERLINE NODE. THE PRINTOUT WILL SHOW THESE SHOTS OR NODES AS **N/A**.

TO GET THE DISTANCE TO THESE POINTS FOR SECTIONS, **TYPE IN DIST** IN THE COMMAND SECTION. CLICK ON THE TWO POINTS AND HIT ENTER.

NOTE: ORTHO MUST BE TURNED OFF. ( BUTTON BELOW COMMAND LINE)  
 SNAP TO NODE AND TO NEAREST MUST BE ON. ( EP, AUTO CAD, TOOLS, DRAFTING SETTINGS, OBJECT SNAP ON, CENTER CHECKED, NODE CHECKED, NEAREST CHECKED. )

## **STATIONING A LINE WITH OR WITHOUT CROSS SECTIONS -- STATION OFFSET ( USING POINT NUMBERS TO MAKE THE LINE )**

1. IF ALL THE CENTERLINE POINTS THAT YOU WANT TO STATION HAVE BEEN CODED, AND ARE IN CONSECUTIVE ORDER, SKIP PART TWO.
2. USING THE POINTS DRAWING AND THE POINTS LIST, **MAKE A LIST ON THE SIDE OF THE POINTS** IN THE ORDER THAT YOU WOULD LIKE TO HAVE THEM STATIONED. IF POINTS ARE ON TOP OF EACH OTHER YOU SHOULD BE ABLE TO USE THE DESCRIPTIONS IN THE POINTS FILE TO DETERMINE WHICH POINT YOU WANT. YOU CAN ALSO CLICK ON A DESCRIPTION ON THE SCREEN TO HIGHLIGHT IT, AND TELL WHICH POINT NUMBER IT IS, AND JUST WHERE THE NODE IS. ANOTHER METHOD THAT MAY HELP IS TO RESIZE THE NODES TEXT TO A MUCH SMALLER SIZE ON THE SCREEN. SEE THE NEXT TWO PARAGRAPHS.

TO CHANGE THE **SIZE** OF THE **ELEVATION, POINT NUMBER** AND **DESCRIPTION** OF THE POINTS ON THE SCREEN IN ORDER TO BETTER READ EACH POINT, USE THE FOLLOWING STEPS:

PICK **EP**, PICK **COGO**, PICK **NODES**, PICK **RESIZE**, A RESIZE NODES DIALOG BOX COMES UP. CHECK **SELECT** FOR SELECTION METHOD. ARROW TO **ALL** FOR SELECTION METHOD. CLICK ON **APPLY**. THE BOX SHOULD REAPPEAR WITH THE NUMBER OF NODES SELECTED. CLICK ON **NEXT**. PLACE A DOT IN SCALE ATTRIBUTES AND TYPE IN A VALUE SUCH AS 0.5 AND CLICK APPLY.

IF YOU STILL HAVE TEXT ON TEXT, YOU MAY USE SWIVLE TO ROTATE THE NODE TEXT TO CLEAN UP THE SCREEN DRAWING SOMEWHAT.

PICK **EP**, PICK **COGO**, PICK **NODES**, PICK **SWIVEL**, A SWIVEL NODES DIALOG BOX COMES UP. SET SELECTION **MODE** TO **SELECT**, SET SELECTION **METHOD** TO **AUTOCAD**, **CLICK ON THE NODE NUMBER (ID)** YOU WISH TO MODIFY ON THE SCREEN ( NOT THE DOT ) AND **HIT ENTER**. THE SWIVEL NODES DIALOG BOX COMES BACK UP. CLICK ON **NEXT** AND **TYPE** IN THE **ANGLE** AND CLICK ON **APPLY**. **TYPE** IN THE **DEGREES** OF ROTATION AND **HIT ENTER**. THE ID'S OF THE NODES YOU HAVE SELECTED SHOULD APPEAR. CLICK **APPLY**. IF YOU WISH TO LEAVE THE SWIVEL NOTES COMMAND SO THAT YOU CAN SELECT NODES WITH THE MOUSE, CLICK CLOSE. IF YOU WANT THE DIALOG BOX TO COME UP FIRST, CLICK REPEAT, CHANGE THE SELECTION METHOD TO ALL AND CLICK CLOSE.

ROTATE FUNCTION IN THE SAME MENU ALSO WILL WORK, BUT IF YOU DO NOT CHOOSE THE BASE POINT AS THE NODE THAT YOU ARE ROTATING, YOU WILL ALSO ROTATE THE POINT. WHILE SWIVEL TAKES A LITTLE LONGER TO USE, YOU ARE NOT GOING TO MESS UP YOUR SURVEY AS YOU POSSIBLY CAN WITH ROTATE.

3. PUT YOUR **POINTS DRAWING ON THE SCREEN**.
4. MAKE SURE THAT THE RUNNING OBJECT SNAP TO NODES IS ON. PICK **EP AND AUTOCAD**, PICK **TOOLS**, PICK **OPTIONS**, PICK **USER PREF.**, PICK **RUNNING OBJECT SNAP**, CLICK **APPLY**, CLICK **OK**.
5. SNAP TO NODE AND TO NEAREST MUST BE ON. PICK **EP**, PICK **AUTO CAD**, PICK **TOOLS**, PICK **DRAFTING** PICK **SETTINGS**, PICK **OBJECT SNAP ON**, **CENTER CHECKED**, **NODE CHECKED**, **NEAREST CHECKED**.
6. PICK **EP**, **PROFILES**, **SETUP**, AND **PROFILE COORDINATE SYSTEM**. A DIALOG BOX APPEARS ON THE SCREEN
7. CLICK ON **NEW** ( ICON AT BOTTOM LEFT ), A NEW PROFILE COORDINATED SYSTEM DIALOG BOX APPEARS. **TYPE** IN A NAME, SUCH AS CL.
8. HIT **PICK** BUTTON ON TOP RIGHT, NOTE THE COMMAND LINE AT THE BOTTOM OF THE SCREEN. **CLICK OFF TO THE SIDE** FOR A BASE POINT, NEAR WHERE THE STATIONING WILL START, BUT

NOT IN THE AREA TO BE STATIONED. THE X AND Y COORDINATES SHOULD AUTOMATICALLY FILL IN THE BLANKS.

9. CLICK ON **STATION AND ELEVATION** AND **TYPE ZERO** FOR EACH. **CHECK LEFT TO RIGHT** THEN **PICK OK**. **PICK CLOSE**.
10. **PICK EP**, **PICK COGO**, **PICK CONSTRUCT**, **PICK THROUGH NODES**.
11. A **CONSTRUCT THROUGH NODES** DIALOG BOX COMES UP, LEAVE IN THE **LINE BY LINE END PTS** IN THE TOP BLANK OR USE THE ARROW TO GET **LINE BY LINE END PTS**. IN THE BLANK. AT THE BOTTOM OF THE BOX **ARROW TO 3D**.
12. **TYPE IN EACH POINT NUMBER**, **ENTER AFTER EACH END OF LINE POINT NUMBER**. START WITH THE POINT NUMBER THAT YOU WISH TO MAKE AS 0+00 AND ENTER IN CONSECUTIVE ORDER, **PICK APPLY**, **PICK CLOSE**.
13. **ZOOM IN** AND CHECK THE 3D LINE TO SEE IF IT CATCHES THE POINTS THAT YOU WANT AS THE CL.
14. **PICK EP**, **PICK COGO**, **PICK LAYOUTS** ( THE MENU MAY BE SETUP AT THE TIME TO JUST **PICK LAYOUT** ).
15. **PICK CONVERT OBJECTS TO ALIGNMENTS**. CHECK THE COMMAND LINE AT THE BOTTOM OF THE SCREEN.
16. USE THE MOUSE TO **CLICK ON THE LINE** (ALL SEGMENTS SHOULD BE DASHED AFTER CLICKING ON IT AND THE COMMAND LINE SHOULD SAY 1 OBJECT FOUND). USE **ENTER** IF THE LINE IS DASHED.
17. **PICK A POINT NEAR THE BEGINNING OF THE LINE** . ( COMMAND LINE STATEMENT)
18. THE **CONVERT OBJECTS** DIALOG BOX COMES UP. **TYPE IN THE NAME** YOU GAVE YOUR LINE FROM STEP 6.
19. CHECK THE BEGINNING STATION TO BE SURE IT WHAT YOU WANT SUCH AS 0+00 OR 10+00. **PICK APPLY**. THE DIALOG BOX SHOULD DISAPPEAR.
20. **PICK REPORT**, **PICK STATION OFFSET**. A REPORT STATION/OFFSET DIALOG BOX SHOULD COME UP.
21. **HIGHLIGHT THE ALIGNMENT NAME** THAT YOU WANT. **PICK NEXT >** ANOTHER REPORT STATION/OFFSET BOX COMES UP.
22. CHECK **SELECT** , CHECK **ALL**, CHECK **LEFT AND RIGHT AND RIGHT** , AND **TYPE** IN THE **DISTANCE** THAT YOU WANT YOUR CROSS SECTIONS TO REACH OUT TO. (**EXAMPLE 40 FT.**)
23. **PICK APPLY** , **PICK CLOSE**.
24. A **REPORT STATION/OFFSET DIALOG BOX SHOULD COME UP**.
25. CLICK ON **PRINT ICON** IN THE BOTTOM LEFT CORNER . A STATION OFFSET PRINT OPTIONS DIALOG BOX SHOULD COME UP.
26. CHECK OFF **ID, ELEVATION, DESCRIPTION, STATION, AND OFFSET AS A MINIMUM**.
27. CLICK THE **PRINT BUTTON** FOR OUTPUT. CLOSE THE BOX IF YOU WISH.

28. EACH **NODE** THAT HAS A **ZERO** VALUE FOR **OFFSET** IS A **CENTERLINE POINT**. THE PROGRAM WILL REACH TO ANY POINTS THAT ARE PERPENDICULAR TO THE CENTERLINE OUT TO THE DISTANCE YOU REQUESTED.

THE OFFSET SHOTS THAT APPEAR TO BE FAIRLY PERPENDICULAR TO THE CENTERLINE NODE WILL STILL NOT HAVE THE EXACT STATIONING AS THE CENTERLINE NODE. FOR THE WATERWAY PROGRAM THE STATIONING OF OFFSET SHOTS SHOULD BE CHANGED TO THE CENTERLINE NODE STATIONING UNLESS THE SHOTS ARE WAY OFF FROM PERPENDICULAR WITH THE CENTERLINE STATION. ( THE SHOTS THAT ARE USED IN A LASER LEVEL SURVEY ARE NOT PERFECTLY PERPENDICULAR TO THE CENTERLINE .)

THERE IS SMALL SEGMENT ON THE OUTSIDE OF ANY CURVE ON A PROFILE THAT IS NOT PERPENDICULAR TO EITHER LINE AT THE CENTERLINE NODE. THE PRINTOUT WILL SHOW THESE SHOTS OR NODES AS **N/A**.

TO GET THE DISTANCE TO THESE POINTS FOR SECTIONS, **TYPE IN DIST** IN THE COMMAND SECTION. CLICK ON THE TWO POINTS AND HIT ENTER.

NOTE: ORTHO MUST BE TURNED OFF. ( BUTTON BELOW COMMAND LINE)  
SNAP TO NODE AND TO NEAREST MUST BE ON. ( EP, AUTO CAD, TOOLS, DRAFTING SETTINGS, OBJECT SNAP ON, CENTER CHECKED, NODE CHECKED, NEAREST CHECKED. )