21. Graphical COGO – Proposed R.O.W.

In this exercise we will demonstrate the use of another set of COGO tools, Graphical COGO. It is set up to store points graphically and can be used with visualized COGO elements to perform MicroStation like manipulations which translate into actual coordinate geometry stored in the GPK database.

For our exercise, we will store some proposed R.O.W. and annotate it using D&C Manager.

NOTE:
For complete documentation on setting up proposed R.O.W. and easements, refer to standard documentation file ProposedROW.pdf which can be found under Documentation at the T.D.O.T. Roadway Design Division web page address:

http://intranet.tdot.tn.gov/asstchiefengrdesign/Design/v8design/ProposedROW.pdf

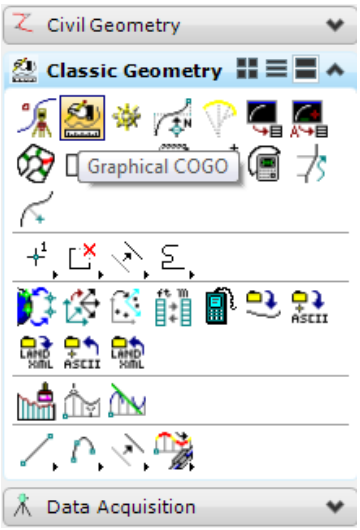
I.) Initial Set Up

1) Open the MicroStation file

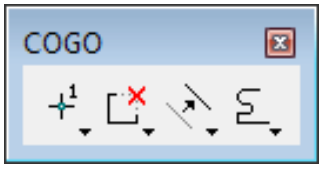
C:\Projects\Roane\SR95PoplarCr\ROSR95Proposed.dgn

Access Project Manager.

2) From the Classic Geometry task group, select the Graphical COGO icon (2nd from left).



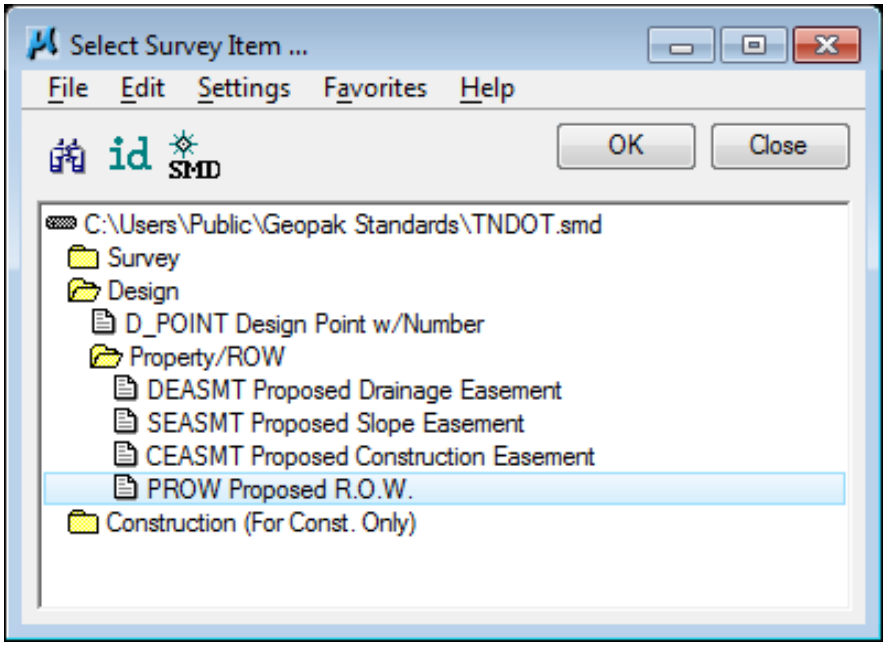
The COGO dialog opens and the Graphical COGO toolbox appears.



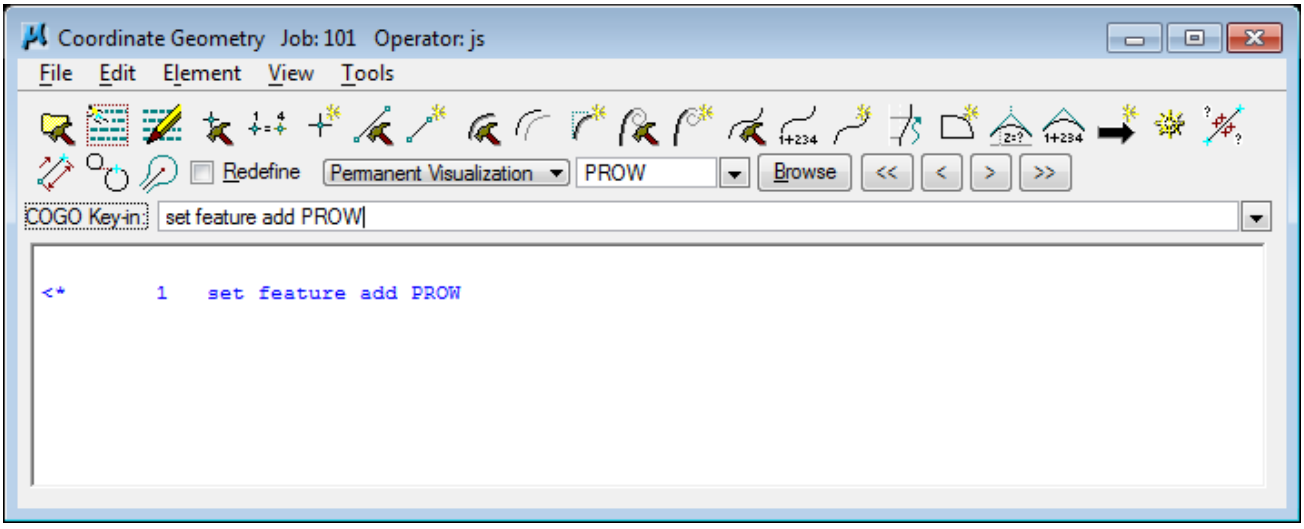
Note that in the Classic Geometry task display the second group of tools are the same so you can go directly to a given Graphical COGO tool if desired.

3) Before we store proposed R.O.W. points we need to set the feature PROW in COGO. Turn on Permanent Visualization and click the Browse button to set the feature.

Feature PROW is found under Design → Property/ROW.



4) Back in the main COGO dialog we can see our feature has been set. Minimize the COGO dialog to clear your screen area.

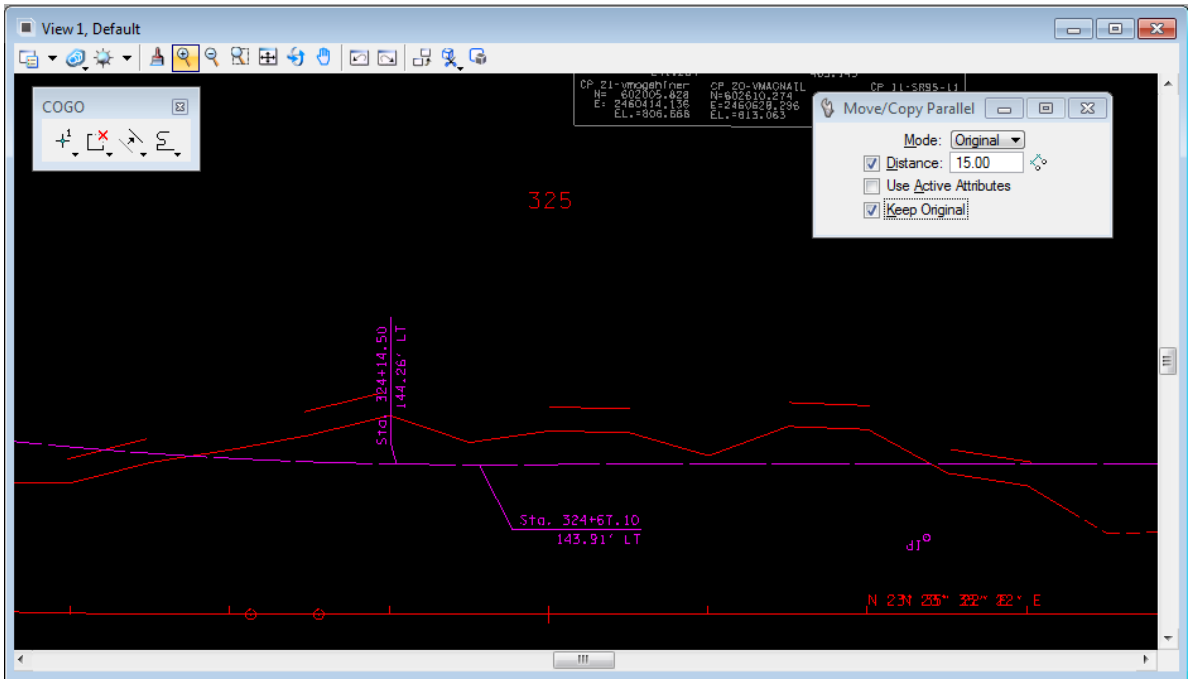


II.) Store Proposed R.O.W. Points/Breaks

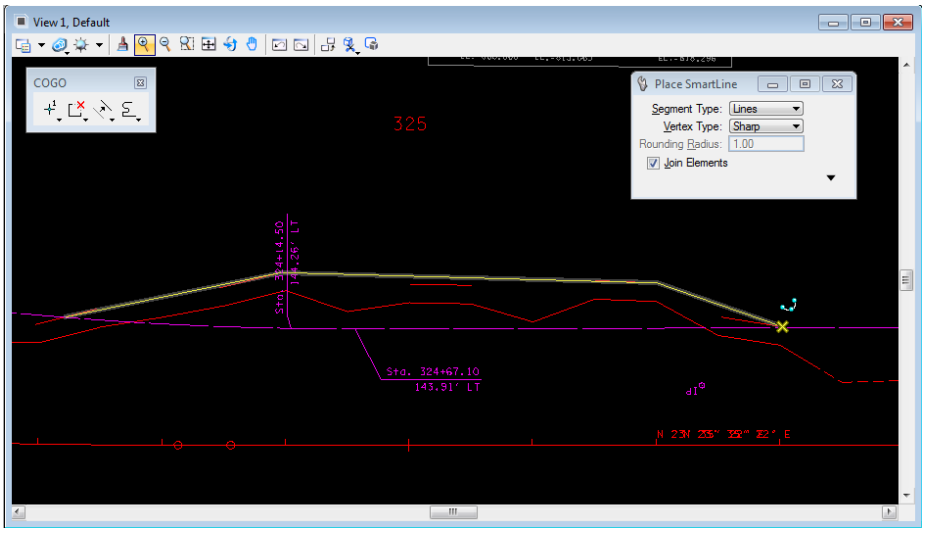
5) Zoom into the area near 325+00 and rotate the view to make the centerline horizontal. At this location our slopes go beyond the existing R.O.W. on the left so we will need some proposed R.O.W.

Use MicroStation's Level Display and the level filter Sheets - ROW Details to set the levels in the master file and all reference files. Switch back to Levels and turn on level DESIGN - ROW - ROW and Easement GPK Visualizations in the proposed file.

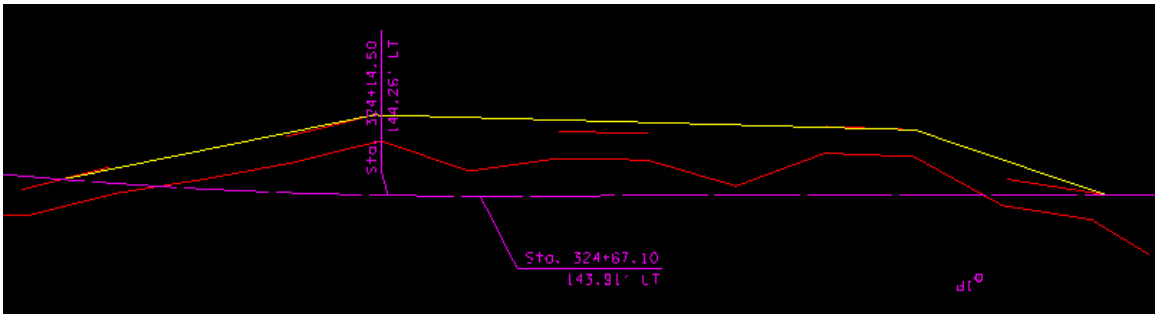
Use MicroStation's Copy Parallel command to locate the extreme points of the needed R.O.W. (Offset 15'). This will give those doing the construction plenty of room to construct the fill slopes. Turn off the graphic group lock so that you do not copy all of them parallel.



6) Now use MicroStation's Smart Line tool with sharp breaks to set a preliminary proposed R.O.W. line.



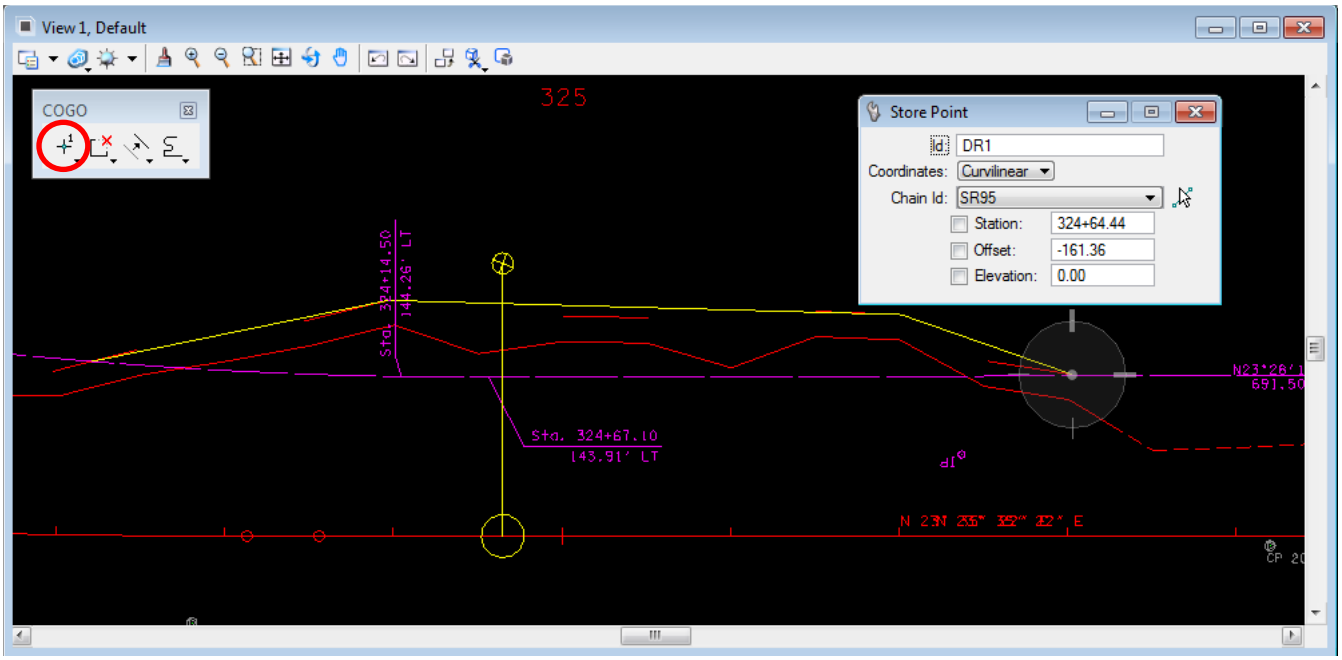
The finished preliminary line should appear similar to the one shown below.



7) Now we are ready to start storing our R.O.W. points.

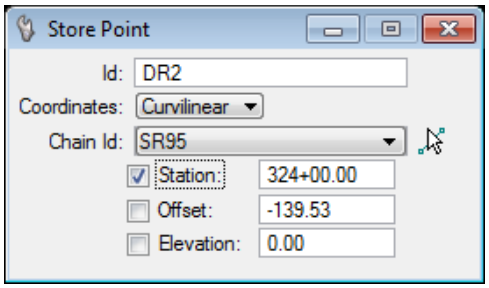
In the graphical COGO tool box or from the Classic Geometry tool options click on the Store Point icon at upper left.

Set the point Id to DR1 (begin point name), Coordinates control to Curvilinear and set chain SR95. You should now be tracking along the centerline.

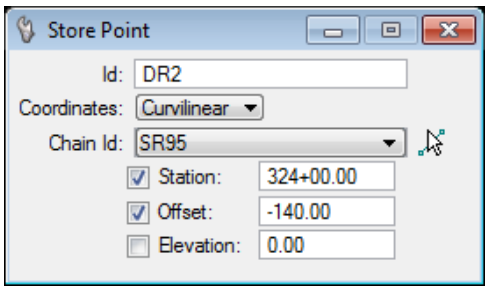


8) Using Intersection snap, locate the first point at the intersection with the existing R.O.W. on the left. Data point to store the point DR1.

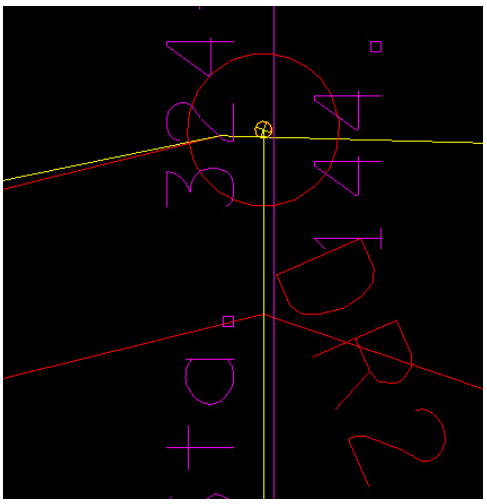
9) Go to the next break in the preliminary R.O.W. line and Keypoint snap to it but do not data point yet. Instead go to the tool settings box click on the Station value and round to the nearest even station which should be 324+00. Click the lock box to hold the new station value



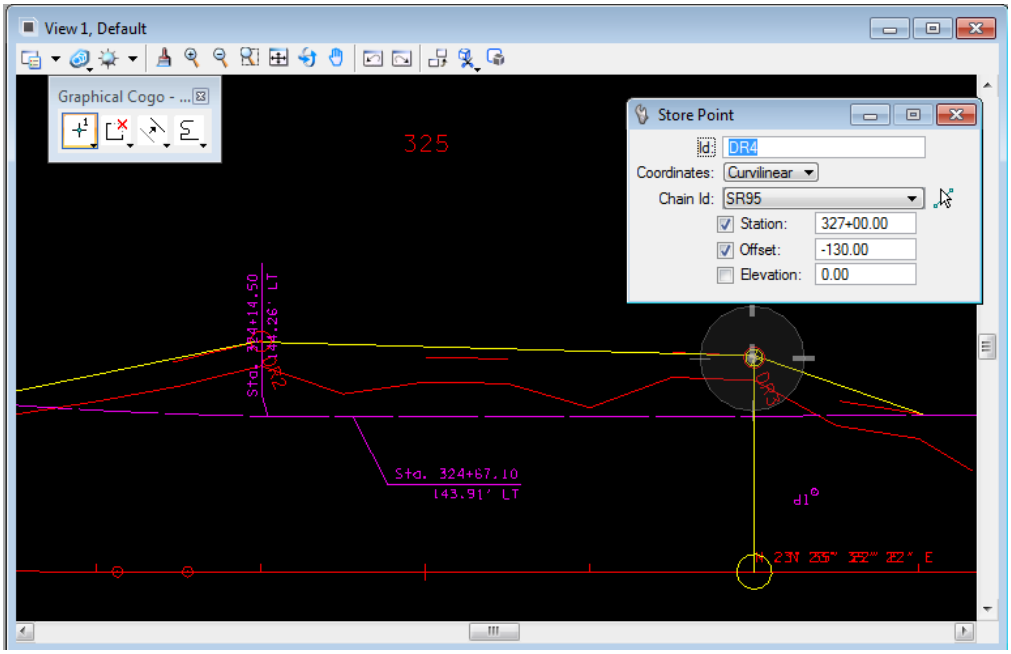
Now go down to the Offset and round to the nearest even foot which should be about -140. Don't forget the negative sign since we are on the left side of the road.



The station & offset should be locked in. Data point in the view to store the point DR2.

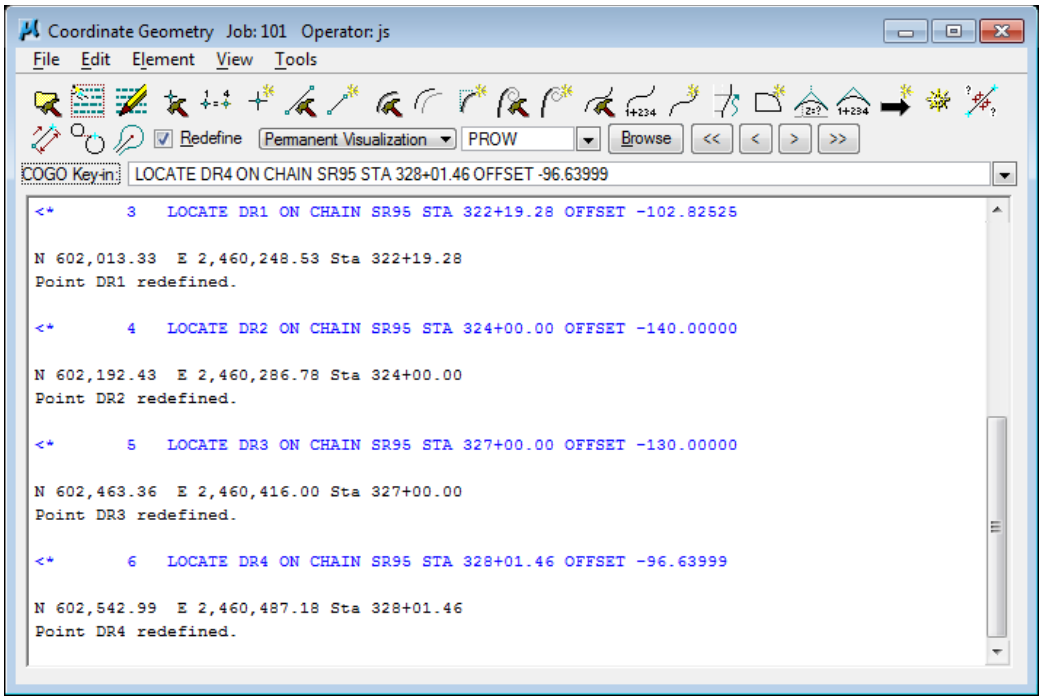


10) Repeat step 9 to store point DR3 at Station 327+00, Offset -130. You must click on the lock toggle boxes to un-lock the station and offset values and return to dynamic location mode.



11) Using Intersection snap, locate the last point at the intersection with the existing R.O.W. on the right. Data point to store the point DR4.

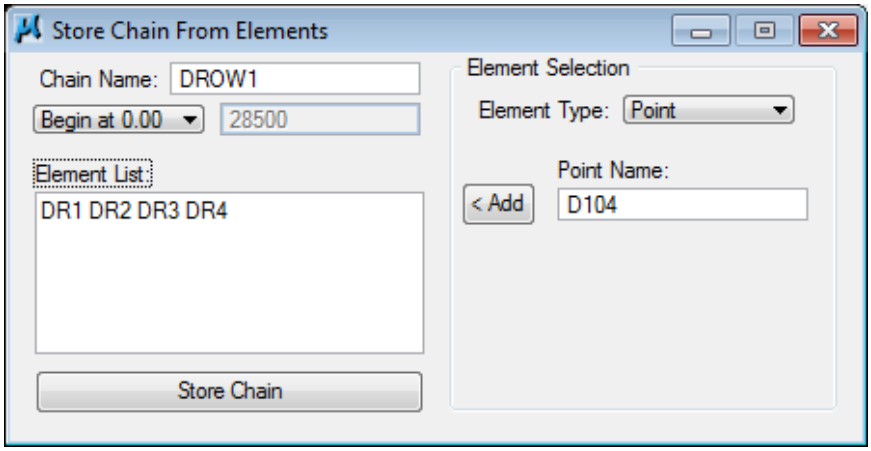
12) Open the main COGO dialog and we can see that our proposed R.O.W. points have been stored.



III.) Store Proposed R.O.W. Chain & Annotate

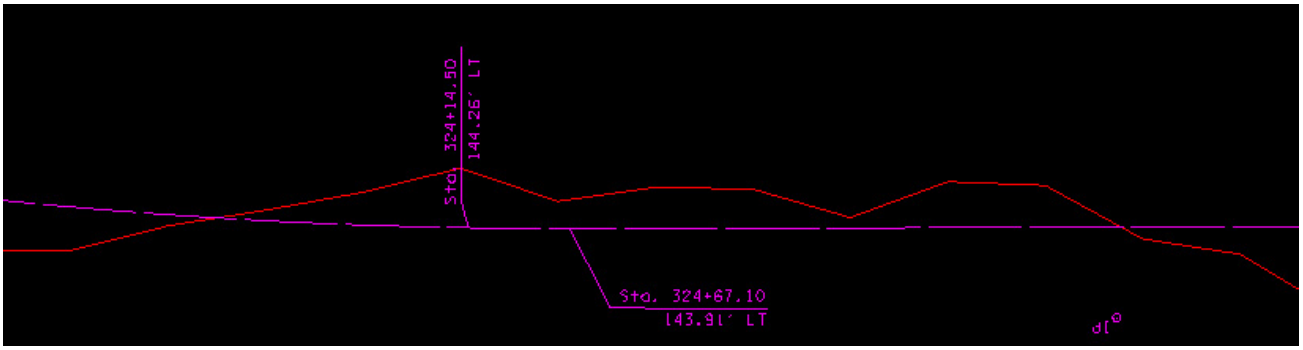
1) Now that our points are stored, we can build a chain from them. Click on the Chain from Elements icon in the main COGO dialog.

Key in chain name DROW1 and Double click on our visualized points in MicroStation to build the chain element list. Stationing really doesn't matter on R.O.W. chains just set it to begin at 0.

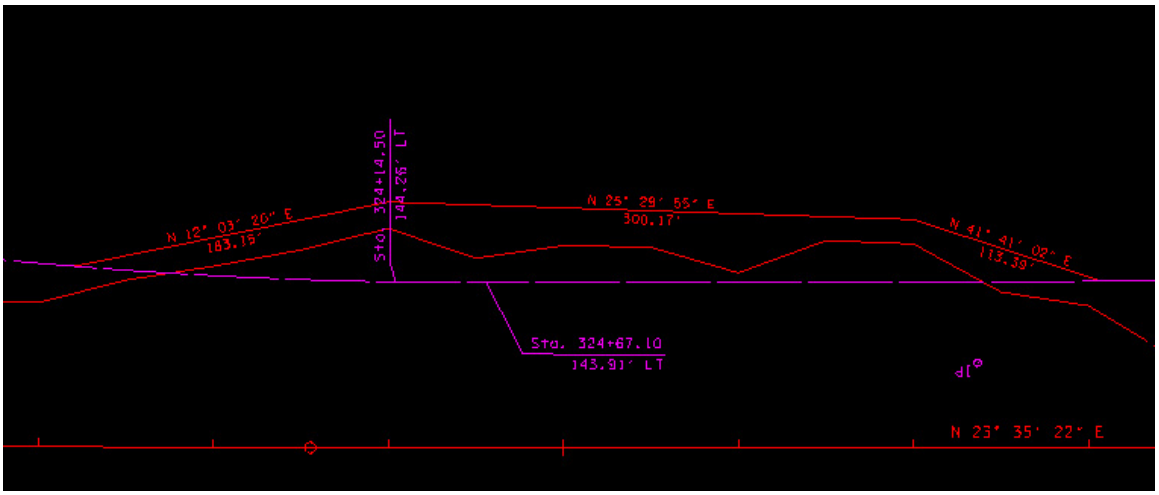


Click the Store Chain button.

2) Turn off the level DESIGN - ROW - ROW and Easement GPK Visualizations and delete the remaining temporary construction graphics we created to set our R.O.W.



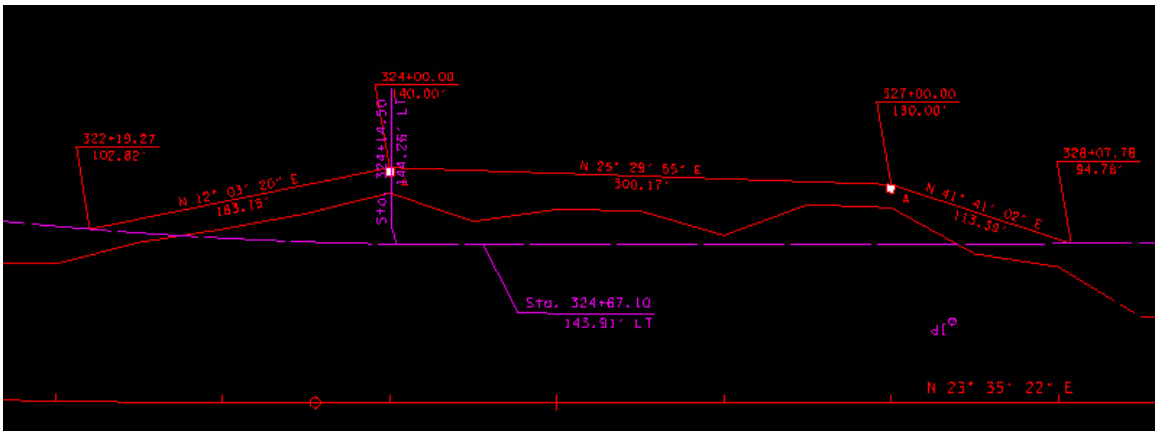
3) Open up D&C Manager and select item Drafting Standards → Prop. R.O.W.→ R.O.W. Prop. In the secondary dialog, click on the Draw Plan & Profile button. Set the dialog to chains and single click on our proposed R.O.W. chain DROW1. Linework and distance/bearing annotation is placed.



4) Add the proposed R.O.W. lines to a MicroStation selection set.

5) Double click on D&C Manager item Drafting Standards → Prop. R.O.W.→ ROW Flags.

When prompted enter Job number 101, roadway chain SR95 and click OK to place R.O.W. markers.



After applying R.O.W. flags in batch mode always review annotation for any clean up that might be needed so that all text is readable.

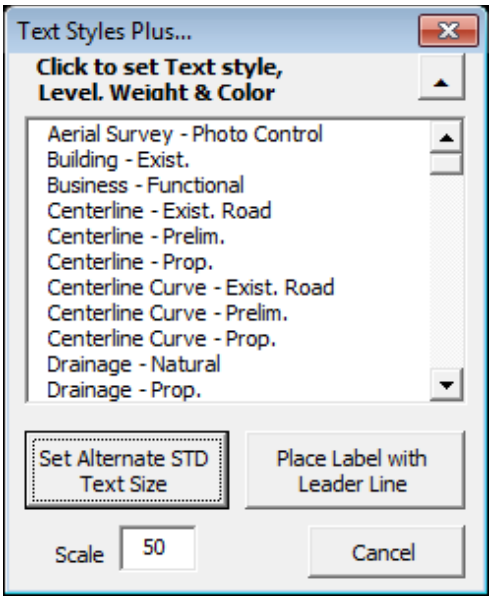
6) Close COGO and save an input file if you wish.

IV.) Alternate Labeling Tools

On the previous page we illustrated ways to apply annotation to proposed R.O.W. in a batch mode annotating multiple locations at one time. In some cases you may wish to annotate single segments or breaks of proposed R.O.W. when small changes are made. The T.D.O.T. Roadway Design Division provides the following tools to deal with those situations. Take the time to try each of these out on the proposed R.O.W. we have developed in this exercise.

1) Since these tools use the current active symbology and text settings, it is necessary to use T.D.O.T. Roadway Design Division's Text Styles Plus… tool to set those.

It can be accessed from Geopak's D&C Manager at Drafting Standards → Tools → Labeling → Textstyles Plus or with the T.D.O.T. Roadway Design Division interface from the MicroStation drop down menu TDOT → Text Styles Plus… or from the Roadway Design Division Tool Strip. The labeling tool dialogs provide an access point as well.

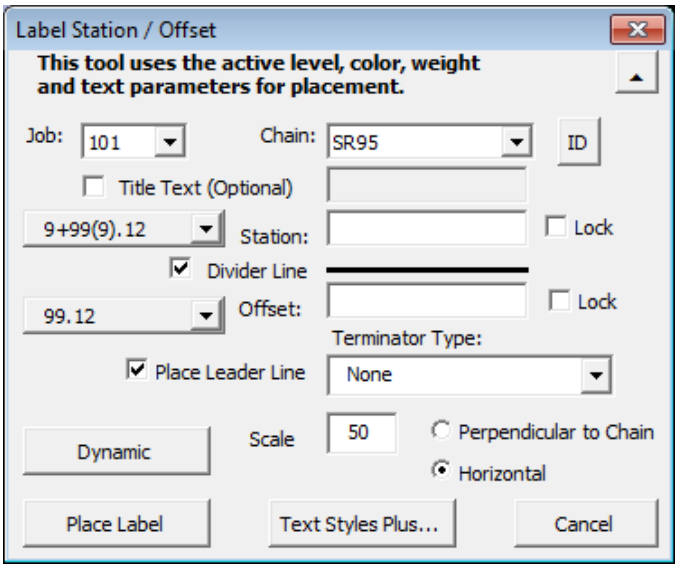


Make the following choices based on the type of annotation being placed:

ROW & Easements – Prop.	For generic labels such as “PROP. R.O.W.”
ROW Bearing & Distance – Prop.	For prop. R.O.W. & easement segments, also used when labeling arcs which are part of prop. R.O.W. or easements
ROW Sta. & Offset – Prop.	For prop. R.O.W. & easement breaks or intersections with R.O.W. or property lines

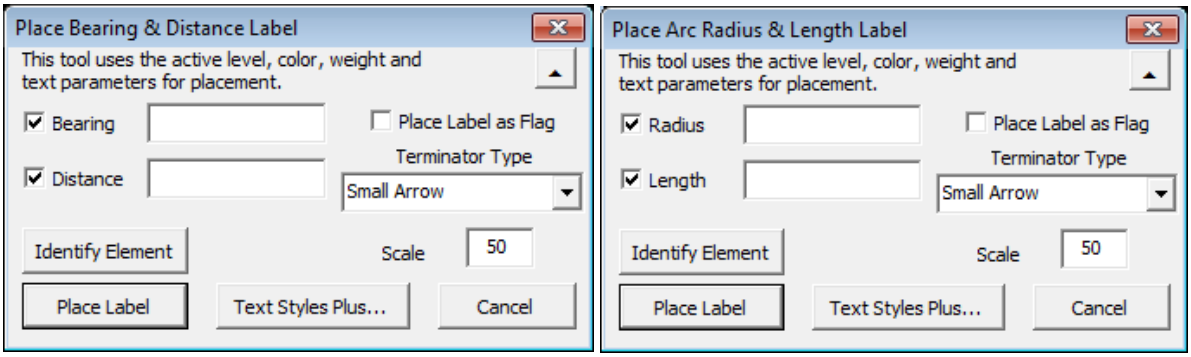
2) The Label Station/Offset tool can be used to label proposed R.O.W. breaks or intersections with property lines.

It can be accessed from Geopak’s D&C Manager at Drafting Standards → Prop. R.O.W. → StationOffset or with the T.D.O.T. Roadway Design Division interface from the MicroStation drop down menu TDOT → R.O.W. → Label Station & Offset



3) The Place Bearing & Distance Label and Place Arc Radius & Length tools can be used to label proposed R.O.W. segments. On short prop. R.O.W. lines or arcs these tools may be used to place the annotation with leader lines as a flag.

They can be accessed from Geopak's D&C Manager at Drafting Standards → Prop. R.O.W. → BearingDistance & RadiusLegth or with the T.D.O.T. Roadway Design Division interface from the MicroStation drop down menu TDOT → R.O.W. → Label Bearing & Distance & Label Arc Radius & Length



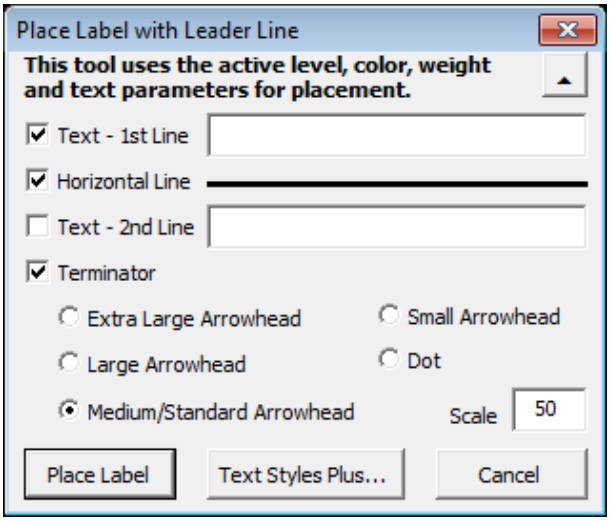
Proposed R.O.W. on Metric Projects

When annotating proposed R.O.W. on metric projects we are required to annotate dimensions in both metric and English units. The tools shown above automatically include both measurements when used in metric DGN files.

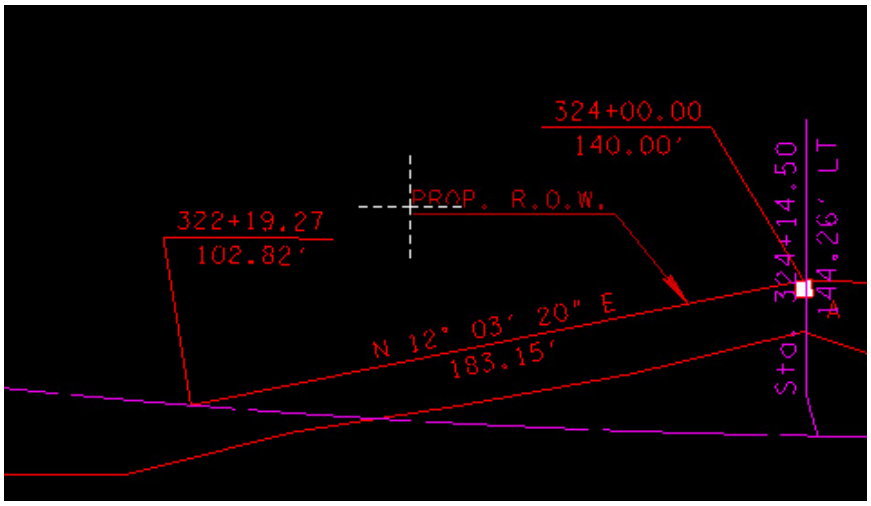
4) The Place Label with Leader Line tool can be used to place generic text labels for proposed R.O.W.

It can be accessed from Geopak's D&C Manager at Drafting Standards → Tools → Labeling → LabelwithLeader or with the T.D.O.T. Roadway Design

Division interface from the MicroStation drop down menu TDOT → Tools → Place Label with Leader



Example of label placement:



NOTE:
For complete documentation on special programs developed by T.D.O.T.'s Roadway Design Division for use in MicroStation with Geopak, refer to standard documentation file TDOTRoadwayDesignDivisionPrograms.pdf which can be found under Documentation at the T.D.O.T. Roadway Design Division web page address:

http://intranet.tdot.tn.gov/asstchiefengrdesign/Design/v8design/TDOTRoadwayDesignDivisionPrograms.pdf

GEOPAK Plan View Labeler:
As shown in chapter 18, the Geopak Plan View Labeler can be utilized as well to place annotation for proposed R.O.W. and other features in the project.