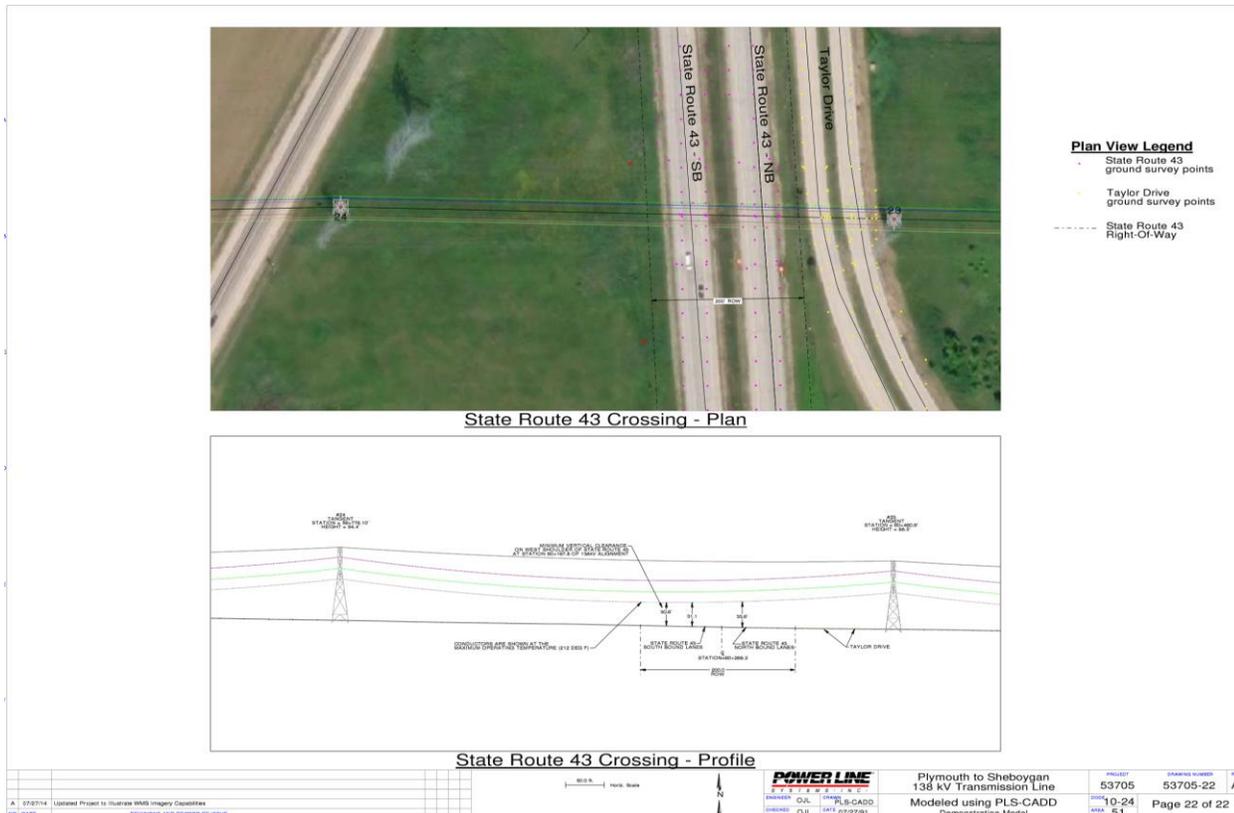


Creating Crossing Permit Drawings in PLS-CADD

Introduction

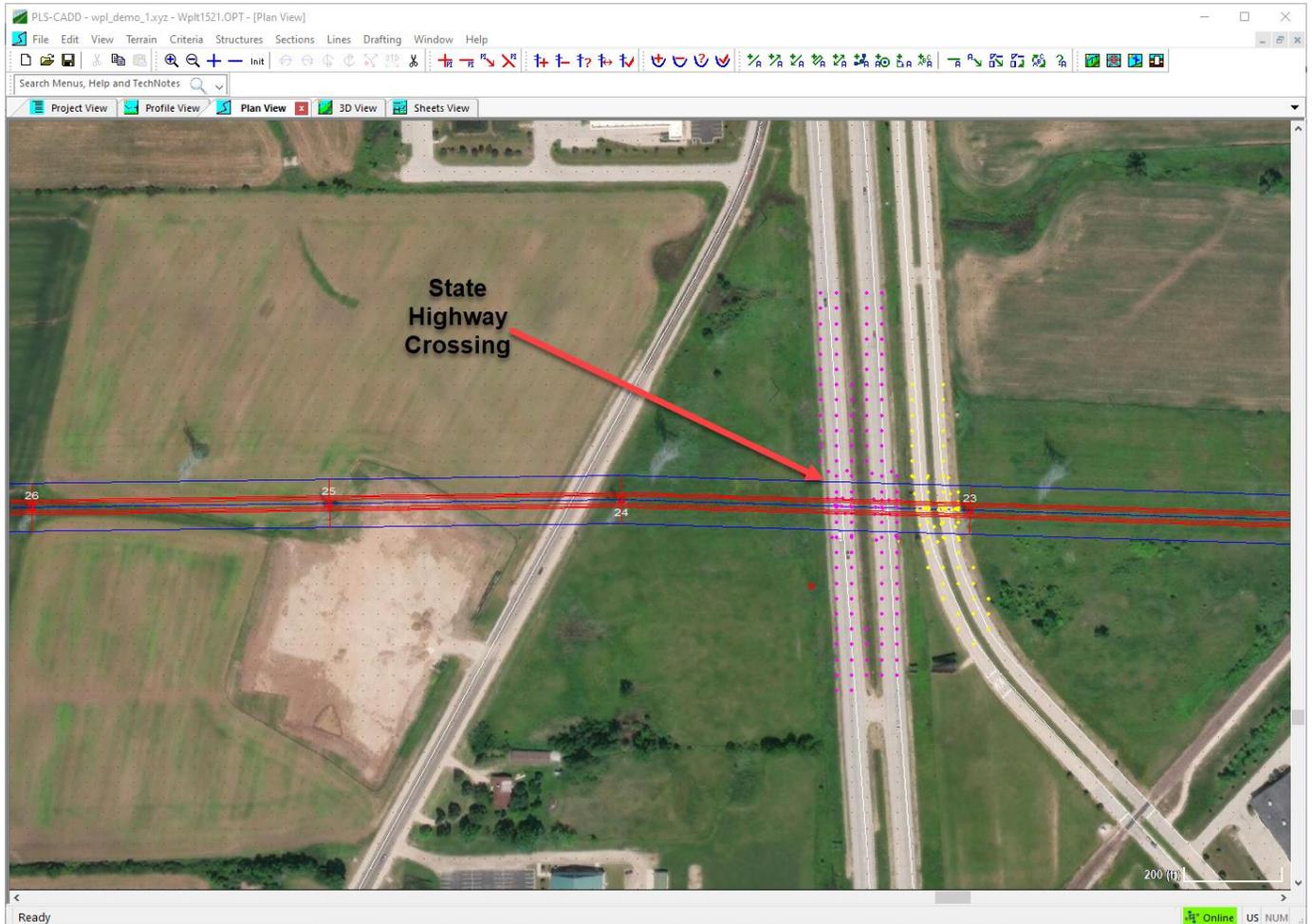
When overhead lines cross over Interstates or State Highways, railroads or some navigable waterways then a permit may be required for work to be done within these existing Right-Of-Ways. PLS-CADD can leverage the structures, sections, terrain and files attached to the project like imagery or shp/dxf files to help users create drawings depicting an overhead line crossing over these Right-Of-Ways where construction activities requires a permit application. Many times as part of this permit application a drawing is needed to graphically show the conditions of an overhead line crossing.

This technical note will cover the basic process of using the drafting functions and, new inset view features within v16.85 and later of PLS-CADD to quickly produce a crossing permit drawing that depicts the location of a crossing, identifies the adjacent structures, and calls out the minimum clearances to road, ground, railroad tracks or water. Shown below is a sample highway crossing permit drawing that could be requested by a permitting team from a utility to accompany the permit application to the State DOT for work within the ROW. There is also a pdf of this sample drawing permit crossing drawing embedded in this document that can be extracted from Adobe reader. The following pages describe a procedure to quickly produce such a drawing within PLS-CADD.



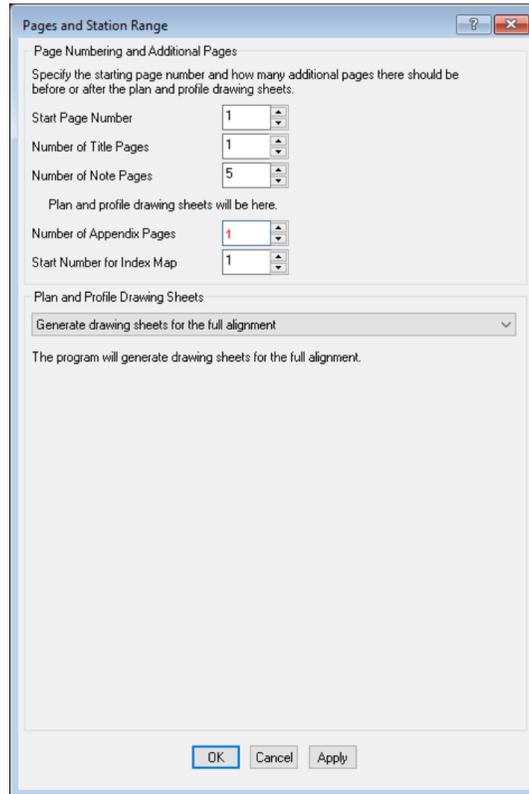
Procedure

This technical note will use the *wpl_demo.xyz* example project. This project example is included within the installation instructions for the PLS software and is typically located at *C:\Users\Public\Documents\PLS\pls_cadd\examples\projects* on any machine the PLS software is installed on. This project has a state highway crossing on the east end of the line between structures 23 and 24. This procedure will describe the steps needed to create a new sheet and utilize the inset views to develop a drawing showing the clearances, ROW encroachment, adjacent structures to the highway crossing and other information that may be required for drawings that accompany the permit application for work within the ROW.



PLS-CADD – Setting up Sheets View:

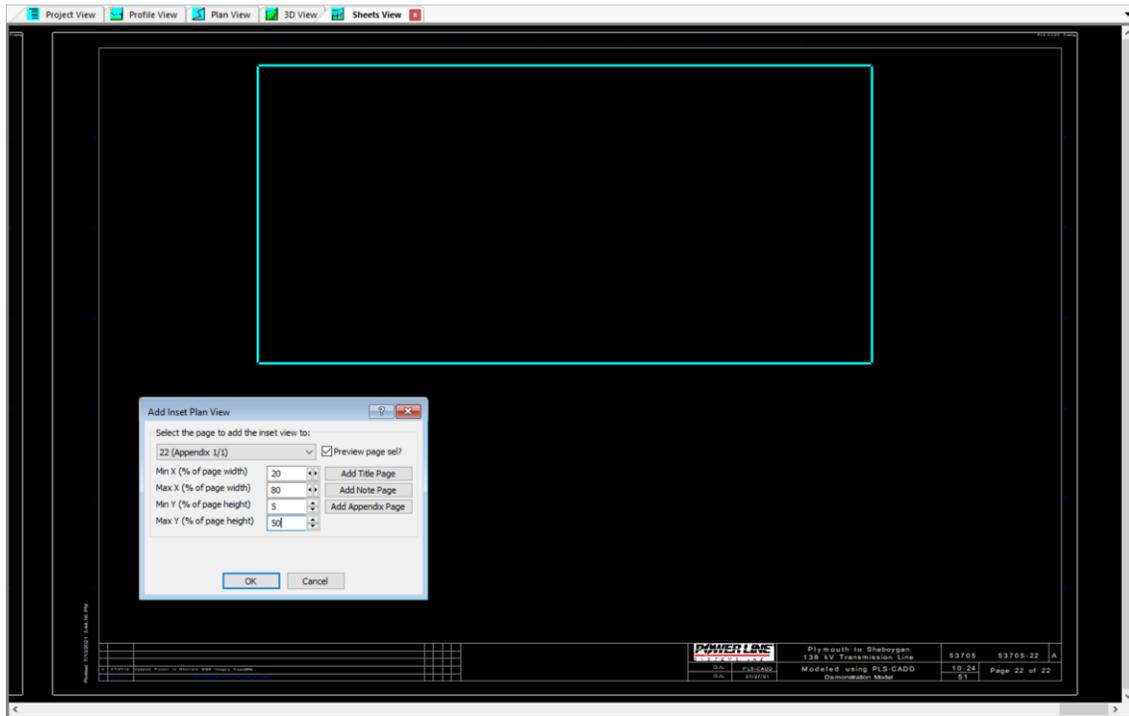
Sheets view within the *wpl_demo.xyz* example project has previously been established with 1 title page, 1 index map, 5 note pages which contain phasing diagrams and 14 plan & profile sheets. The Pages and Station Range dialog can be accessed with the menu command **Drafting/Plan & Profile Sheet Configuration/Pages and Station Range...** and contains the configurations for quantity of pages required for the title, notes, appendix and plan and profile sheets. The highway crossing permit drawing will be created on an Appendix Page, so a value of 1 has been added (see red 1 below) to the dialog to create a blank Appendix Page which will be found after the last plan & profile sheet (sheet 22 of 22).



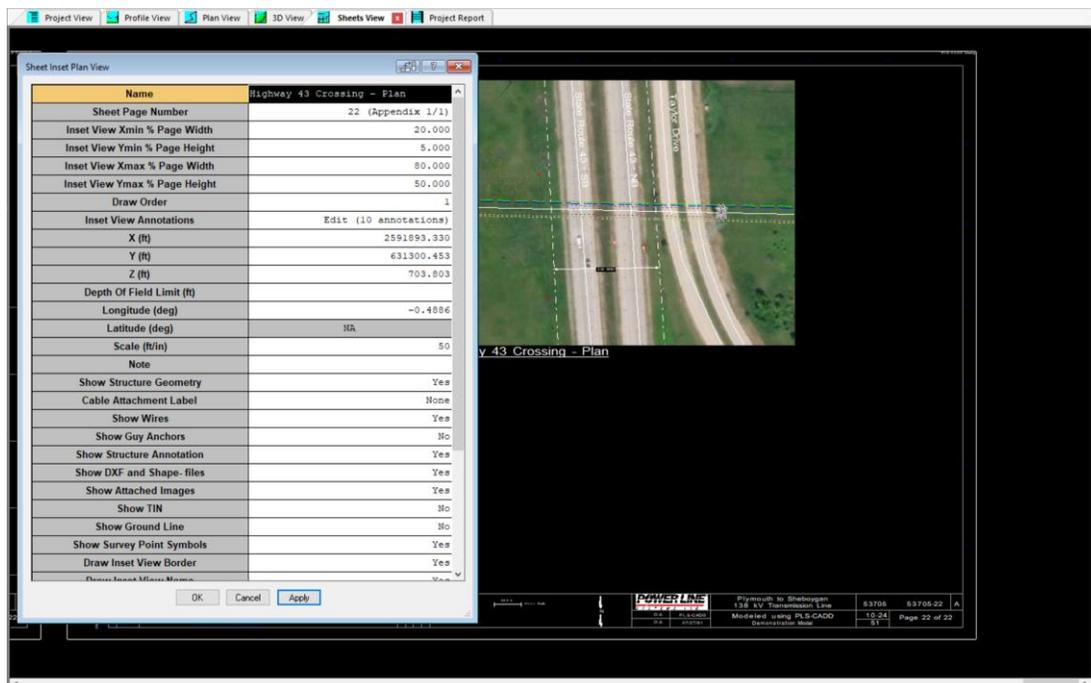
PLS-CADD – Setting up Inset Plan View on Sheets:

To add inset views to the Appendix page that was created in the previous step, begin by creating an inset plan detail with the menu command **Drafting/Inset Views/Add/Inset Plan Detail....** Begin this command by first drawing a rectangle to define the area you want to show in the inset view within the plan view window.

After selecting the area to be defined in the inset plan detail the user will be prompted to define the page to place the inset plan detail and size of the inset plan detail on that sheet. The size of the inset view can be seen in the cyan box on the page that is specified, see the screen shot below. In this case it is the appendix page created in the previous step and is page 22 of 22 (Appendix Sheet 1/1).

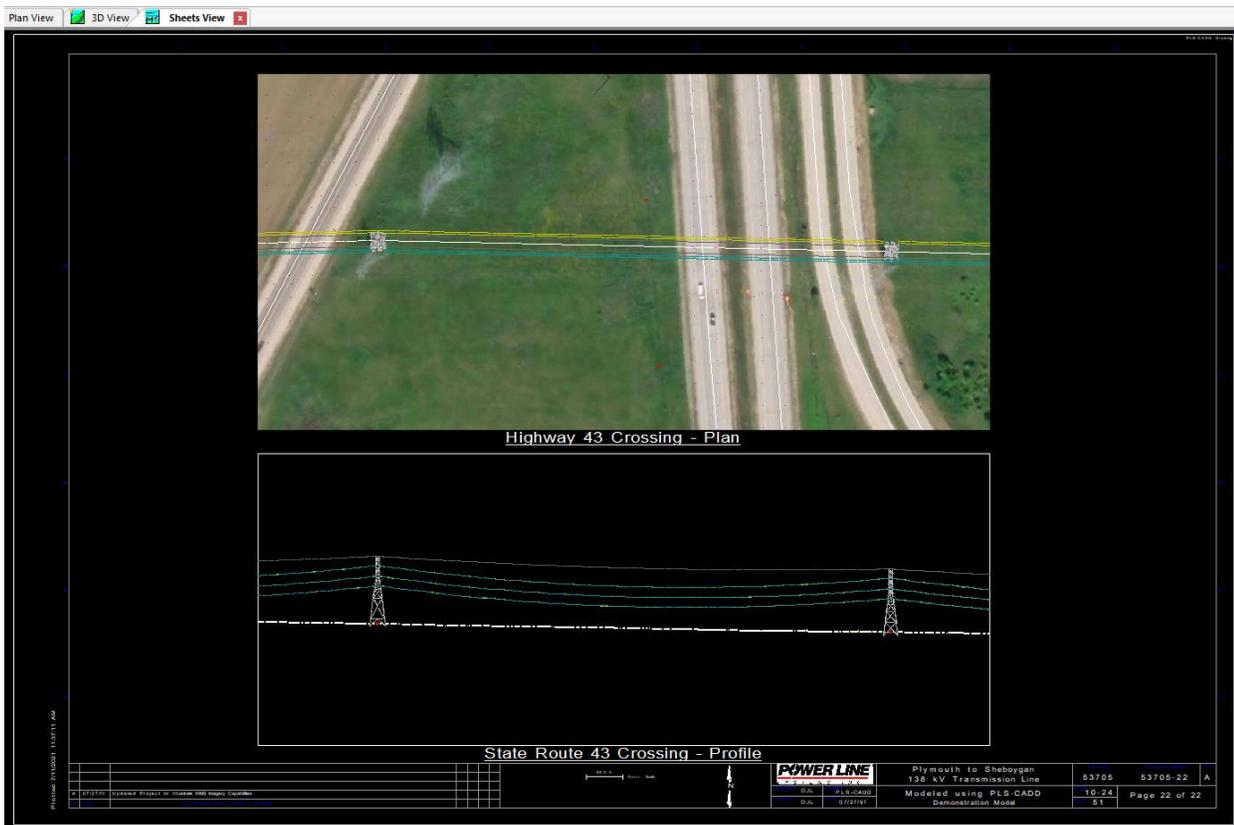


Once the size and sheet of the inset plan detail is defined, then the software allows the user to adjust the Sheet Inset Plan View options for this inset view. Within these settings the user can name the inset view, set a scale, adjust display options, and add annotation. The menu command **Drafting/Inset Views/Resize Inset View** also allows for resizing of the inset view if updates to the inset view are required.



PLS-CADD – Setting up Inset Cross Section View on Sheets:

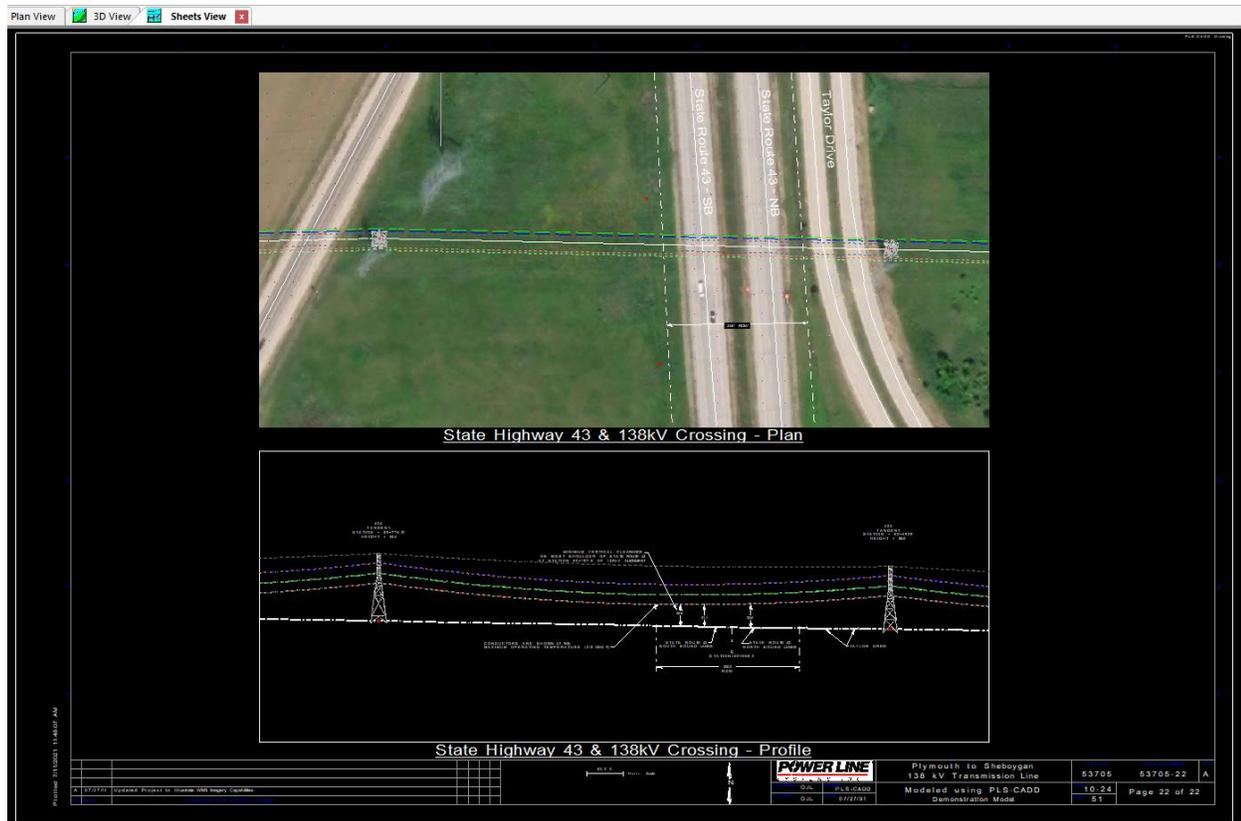
Next an inset view for the profile can be created. To create a profile view along a defined line a new menu command **Drafting/Inset Views/Add/Inset Cross Section View...** can be used. This command will create an inset view along a line picked by two points that shows the profile of the overhead line and clearances to the state highway crossing. Once again this command needs to be run in the plan view and this command is not accessible in other views. This command was first introduced into a general release of the PLS software in v16.85. After selecting this menu command, a point on the centerline west of structure 24 and east of structure 23 were selected to form a line to define the cross section inset view. After the line for the cross section is defined then the user can specify what size the inset view should be and what sheet it should be displayed on. Next the Sheet Inset Plan View dialog will appear which has many of the same display options for the inset plan view. These steps are similar to setting up the Plan Inset view in the previous step. As shown below we have now effectively created a plan and profile sheet for a single span using the inset view commands that can be used for highway permit crossing exhibit.



PLS-CADD – Using Drafting commands to add detailed information to Inset views:

Next, users can set the display of the sections to the desired weather case in the sections table or the sections display options. Typically, this is the worst case weather case and condition that produces the maximum sag for as defined by the line's design criteria. With this worst case maximum sag weather case the minimum clearances over the highway can be determined. This minimum clearance distances and other information can be labeled using the annotation menu commands located at **Drafting/Lines and Annotation/Add**. Below you can see that dimensions, text, lines and leaders have been added to call out minimum clearances as well as the location of the State Route ROW, lanes of travel and more.

*A small drafting tip...*When wanting to force annotation to draw as straight lines then holding the Control key down will force lines horizontal or vertical.



This technical document shows how the information contained within the PLS-CADD model can be leveraged to quickly create a drawing that graphically describes the details of an overhead line crossing over a roadway, railroad, waterway or other ROW where a permit may be required. A pdf of the above permit crossing drawing is attached to this document as an example.