NC Department of Transportation

Location & Surveys Unit

Poles User Guide

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Chapter 1 Introduction

The Poles Application Data Process

Pole data should be generated on all utility poles in the project area. This data should be collected and shown in ASCII format by utilizing the Pole Data program developed by NCDOT.

The following information should be collected in this file:

- Station and offset from center of the pole to nearest design alignment
- Distance from center of existing road
- All utilities carried on pole
- Pole ownership and owner's pole ID# (if this can be determined).

For in-house projects, normal collection of pole data occurs in the following order:

1. **Photo classification** or **plan sheet field survey** (for bridge jobs)
   Field collection of pole data information (counter number, owner, distance from center of existing road, utilities carried, etc.) occurs at this time.
2. The ***counter*** **/** ***tag*** **number** will be placed on the photograph.
3. The **Photogrammetry Unit** will key in the **pole counter number** as classified on the photographs to map the location of the poles by utilizing stereo compilation to obtain the correct location coordinates for the poles.
   (NCMAP currently has a routine that will accomplish this.)
4. At the same time a project is transmitted to **Location & Surveys** to compute property ties, **Pole Data Station** and **Offset** can be computed.
5. The **project data** should be transmitted to the **Location & Surveys Unit**, where the **Property Surveys** section will compute the **final pole data sheets**. **MicroStation plan sheet files**, **Geopak files containing alignment chains**, and the **original ASCII pole data file** need to be part of the transmittal. An MDL application developed by NCDOT (poles.ma) that runs inside of MicroStation will allow this procedure to be done through CADD.

For Design Services turnkey projects, the above-described process can occur if the route survey and photogrammetry work are contracted as part of the scope of work, along with the roadway design. The contracted route location survey engineer and photogrammetric consultant will be responsible for their respective roles as described in the in-house process.

However, for projects in which the location surveys are completed by in-house NCDOT forces, the project data should be transmitted to the Location & Surveys Unit, where the Property Surveys section will compute the final pole data sheets. MicroStation plan sheet files, Geopak files containing alignment chains, and the original ASCII pole data file need to be included in the transmittal.

Occasionally the NCDOT in-house forces will complete the photogrammetric, location and survey work. The roadway design work will be contracted to consultants. In these instances, the contracted route location survey engineer will be responsible for the entire process; including keying the pole number in to the MicroStation CADD file, generating the ASCII pole file, and generating the final pole data sheet. This will be included in the scope done by the route location survey engineer at the initial scoping meeting.

Chapter 2 Application Access

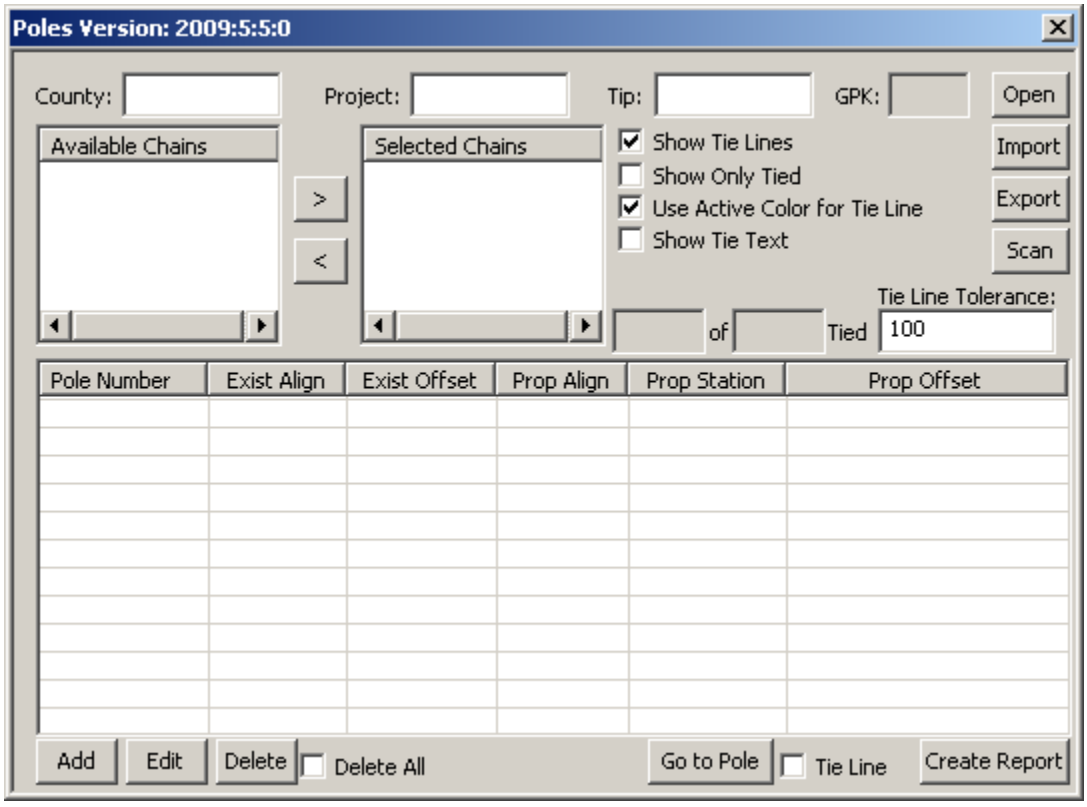
Accessing the Poles Application via the Key-in Field

The **Poles** application can be accessed 2 different ways:

Step	Action	Result
1	Type **MDL Load Poles** in the **KEY-IN** field.	N/A

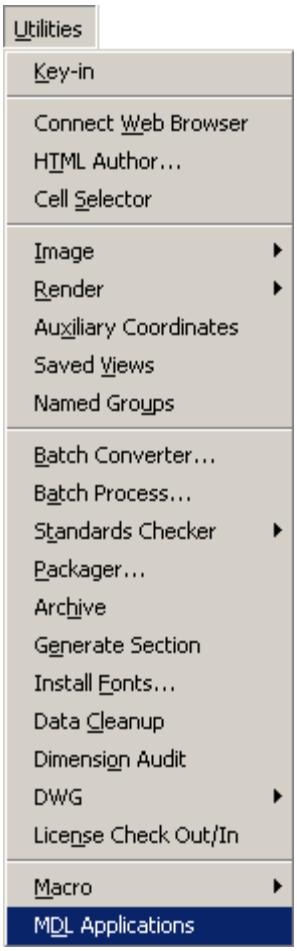
(*Key-in field*)

2	Press the Enter key.	The **Poles** window will appear.



(*Poles Window*)

Accessing the Poles Application via the Utilities Menu



(*Utilities Menu*)

Step	Action	Result
1	From the **UTILITIES** drop-down menu, select, **MDL APPLICATIONS**.	The **MDL Applications** box will appear.

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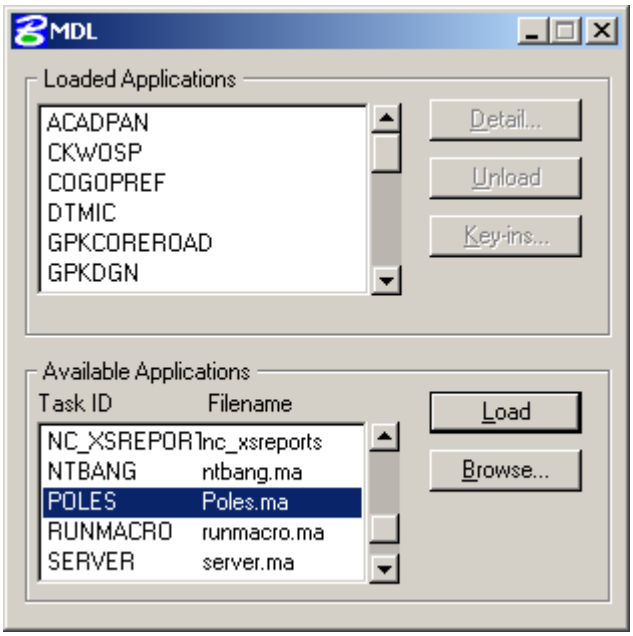
Accessing the Poles Application via the Utilities Menu

(Continued)



(*MDL Applications Box*)

2	In the **AVAILABLE APPLICATIONS** section, scroll until you find **Poles**.	N/A
3	Select the **Poles** application. (**Poles.ma**)	N/A
4	Click the **LOAD** button.	The **Poles** window will appear.

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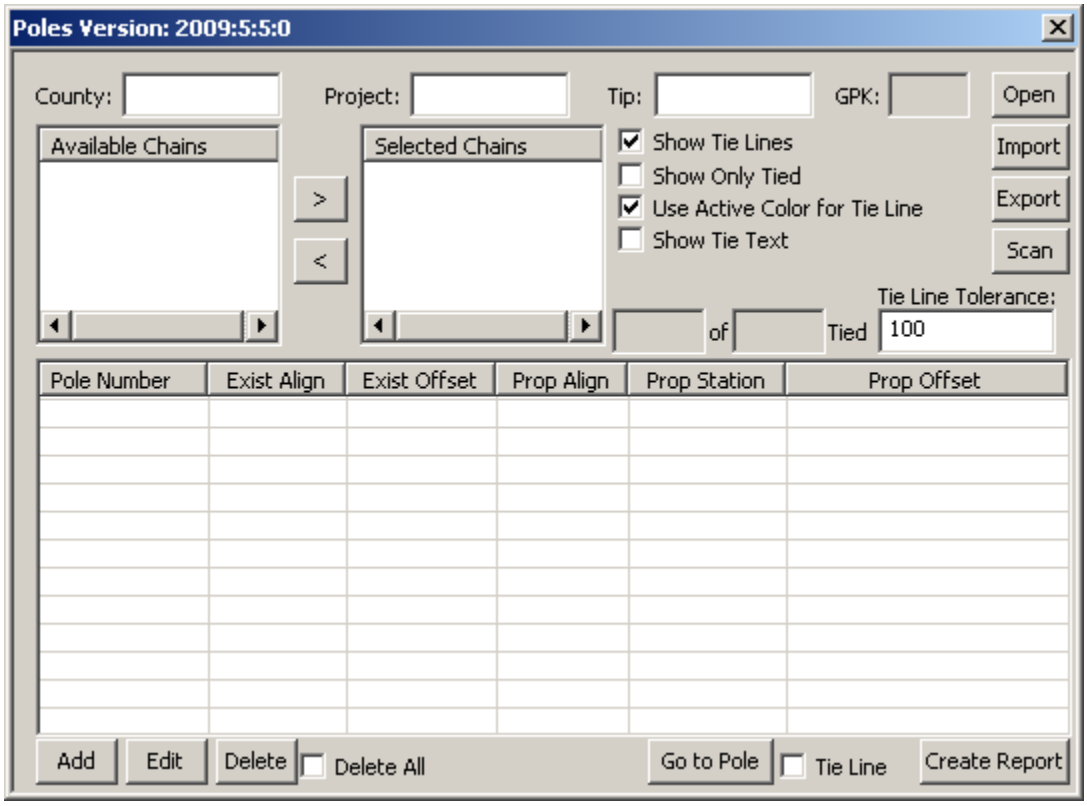
Accessing the Poles Application via the Utilities Menu

(Continued)

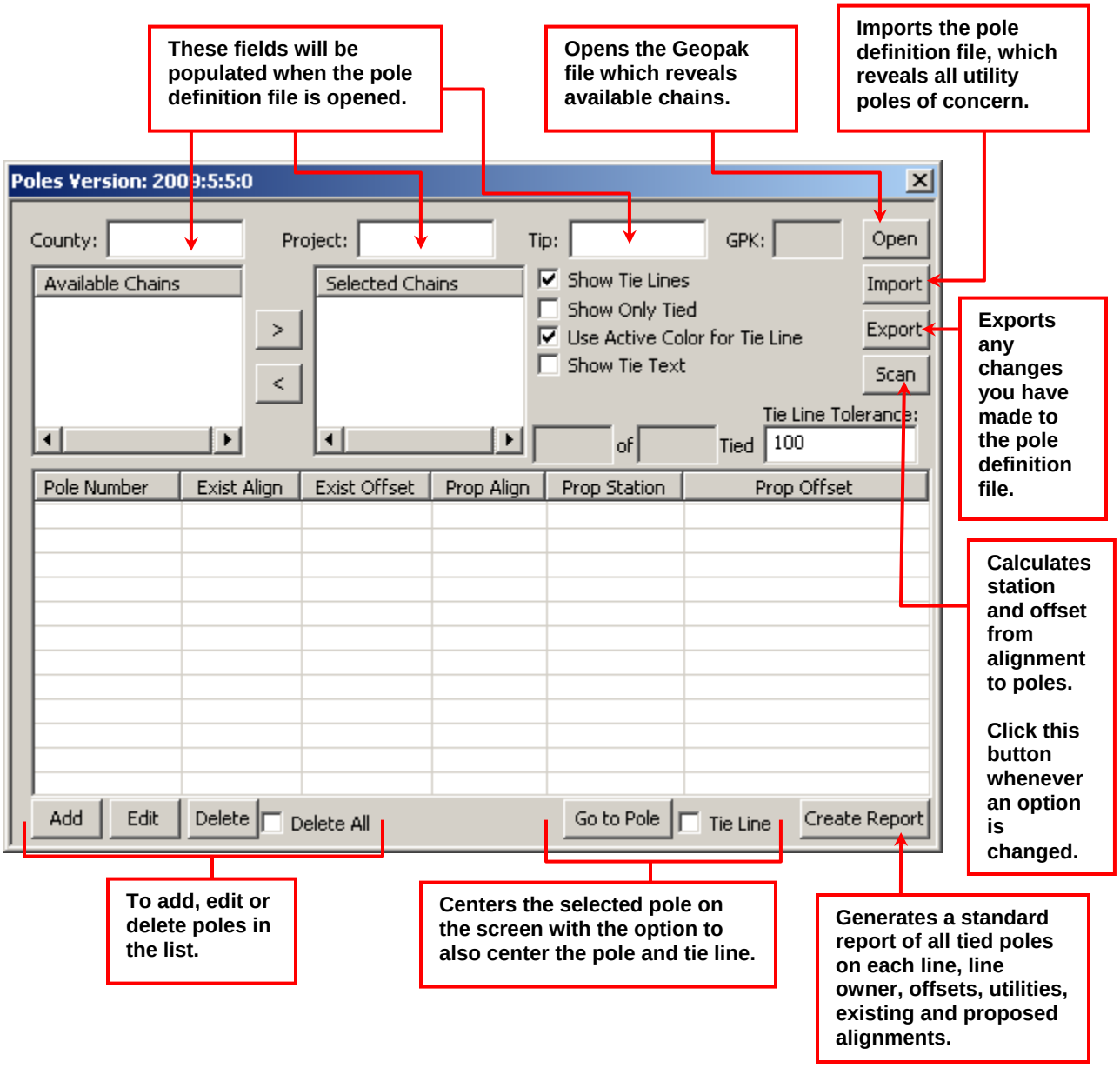


(*Poles Window*)

Chapter 3 Application Navigation

The Poles Application Interface

The purpose of the **Poles** application is to establish if existing poles lie within a proposed right-of-way.



Opening the Geopak (GPK) File

The Geopak (GPK) file must exist in the same directory as the DGN file.

From the **Poles** application main window:

Step	Action	Result
1	Click the **OPEN** button.	The **Open GPK** dialog box will appear.

(*Open GPK dialog box*)

2	Select the **Geopak(.GPK)** file	N/A
3	Click the **OK** button.	The **Geopak** file will open, revealing the available utility pole chains.

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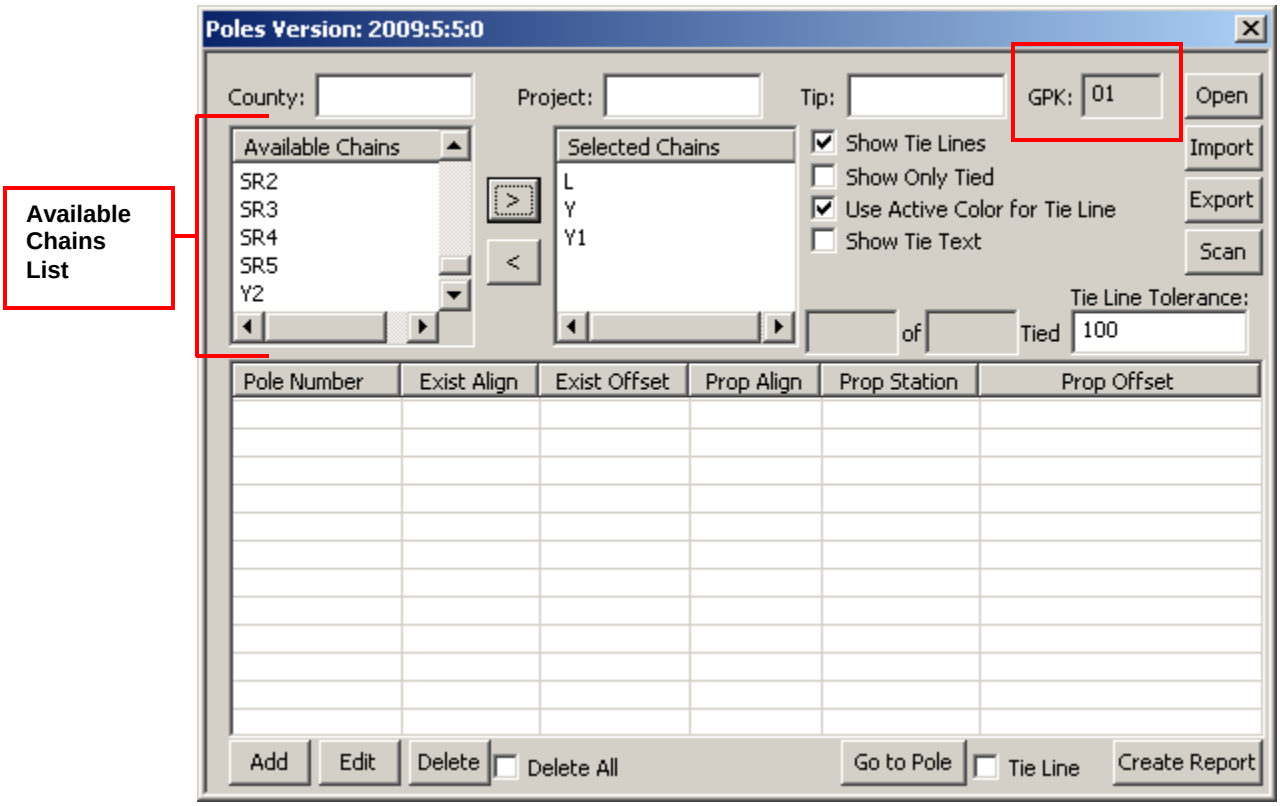
Opening the Geopak (GPK) File

(Continued)



(*Poles Window*)

The Geopak file name will default into the **GPK** field.

Available chains will appear in the **AVAILABLE CHAINS** list.

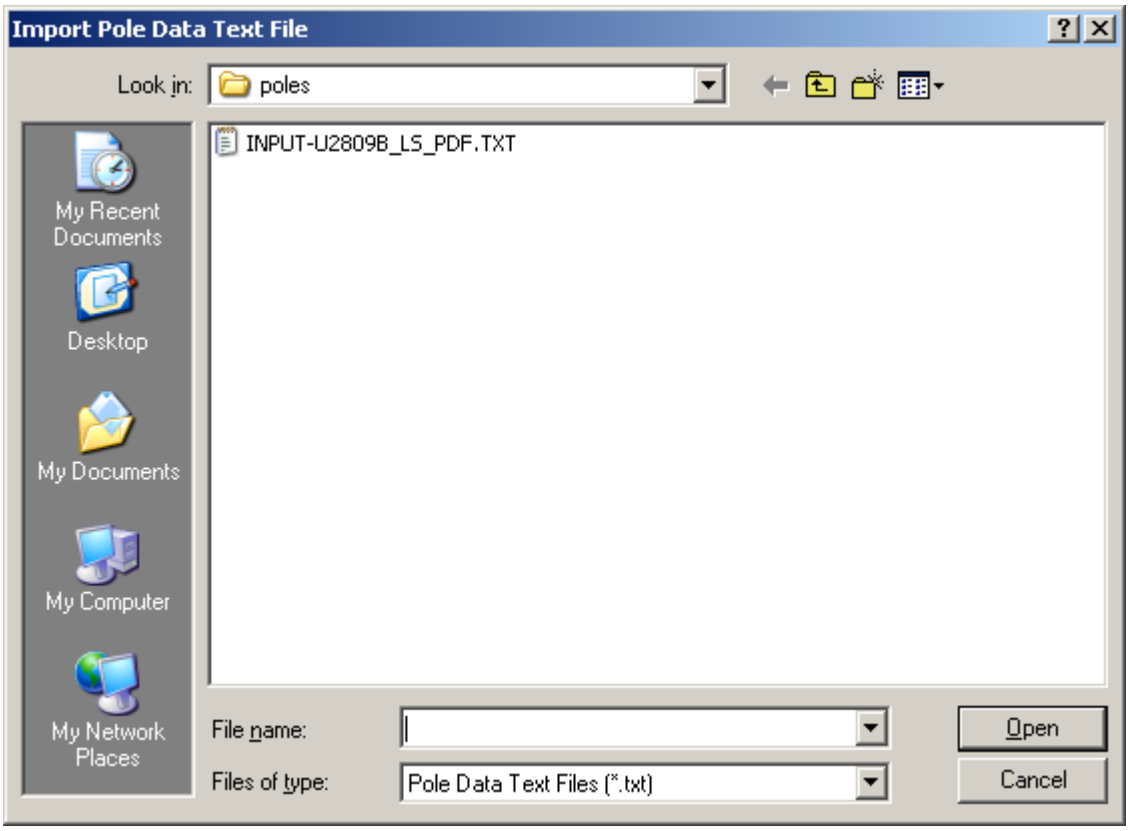
4	To select a chain, click the chain name in the **AVAILABLE CHAINS** list, then click the right arrow [>] button. **NOTE:** For multiple chains, hold down your [Ctrl] key as you select.	The selected chain will appear in the **SELECTED CHAINS** list.

NOTE: To move the selected chain back from the **SELECTED CHAINS** list to the **AVAILABLE CHAINS** list, select it and click the left arrow [<] button.

Importing the Pole Definition File (PDF)

From the **Poles** application main window:

Step	Action	Result
1	Click the **IMPORT** button.	The **Import Pole Data Text File** dialog box will appear.



(*Import Pole Data Text File dialog box*)

2	Select the **Pole Definition File** that you wish to import.	N/A

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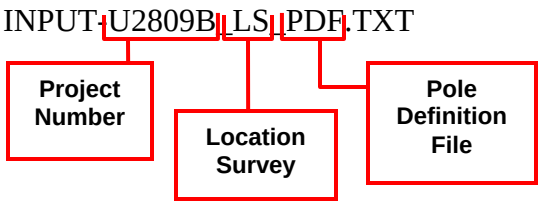
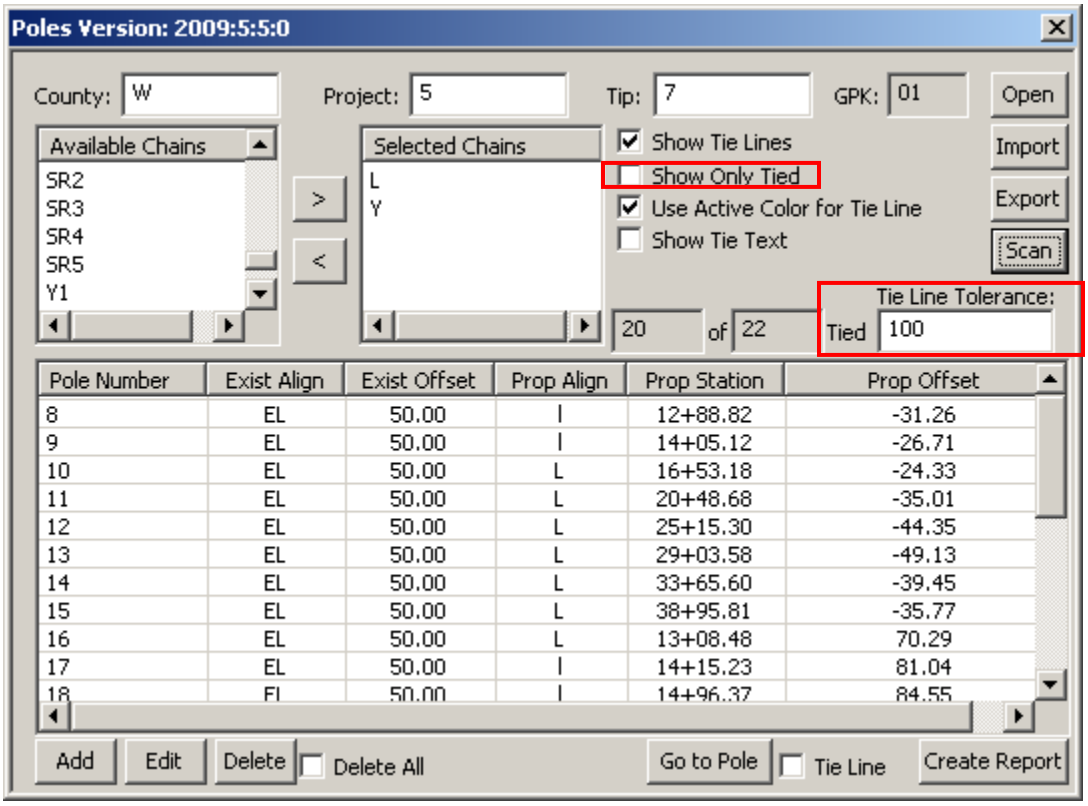
Importing the Pole Definition File (PDF)

(Continued)

Pole Definition File (Standard Naming Convention)



3	Click the **OPEN** button.	All poles in the pole definition file will be listed.



(*Poles Window*)

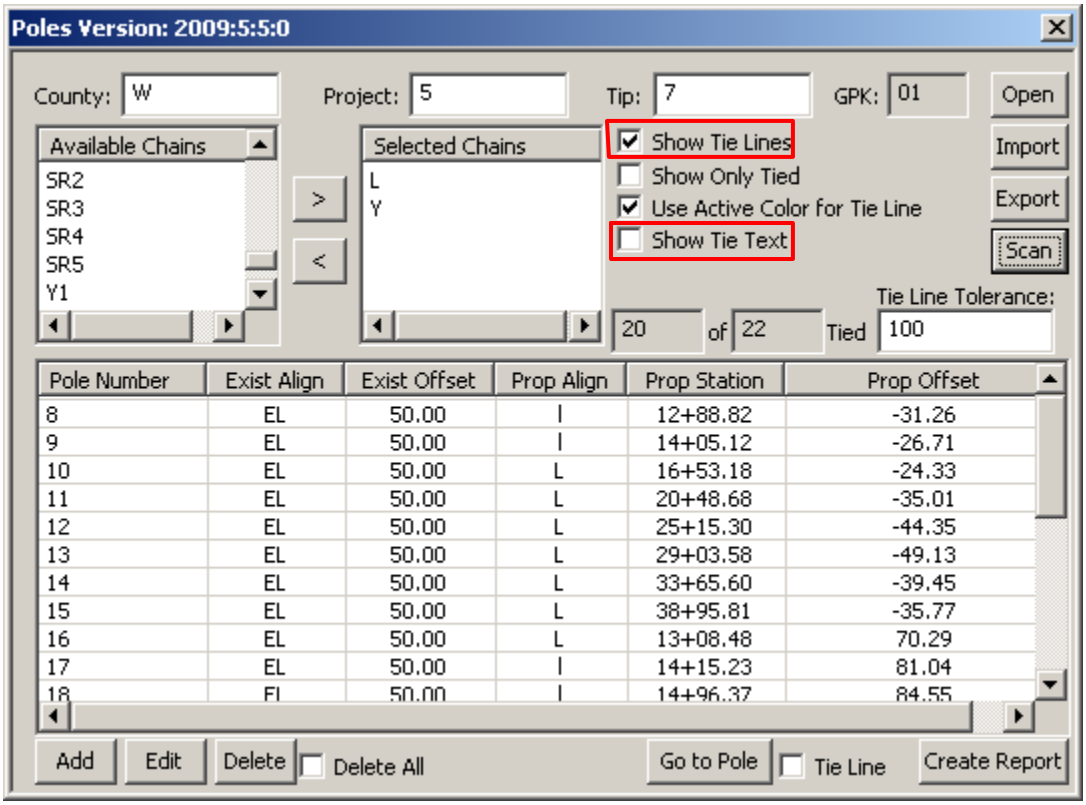
4	To narrow the selection to only tied poles, check the **SHOW ONLY TIED** button.	Only tied poles will appear in the list.

NOTE: To expand a scan range, increase the value in the **TIE LINE TOLERANCE** field.

Viewing Options

There are several customizable viewing options that can be changed within the **Poles** application.

From the **Poles** application main window:



(*Poles Window*)

Step	Action	Result
1	To view the **tie lines** in the design file, click the check box in the **SHOW TIE LINES** field.	The tie lines will be displayed.
2	To view the **tie line text**, click the check box in the **SHOW TIE TEXT** field.	The tie line text will be displayed.

NOTE: Uncheck the applicable box to turn each option off.

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Viewing Options

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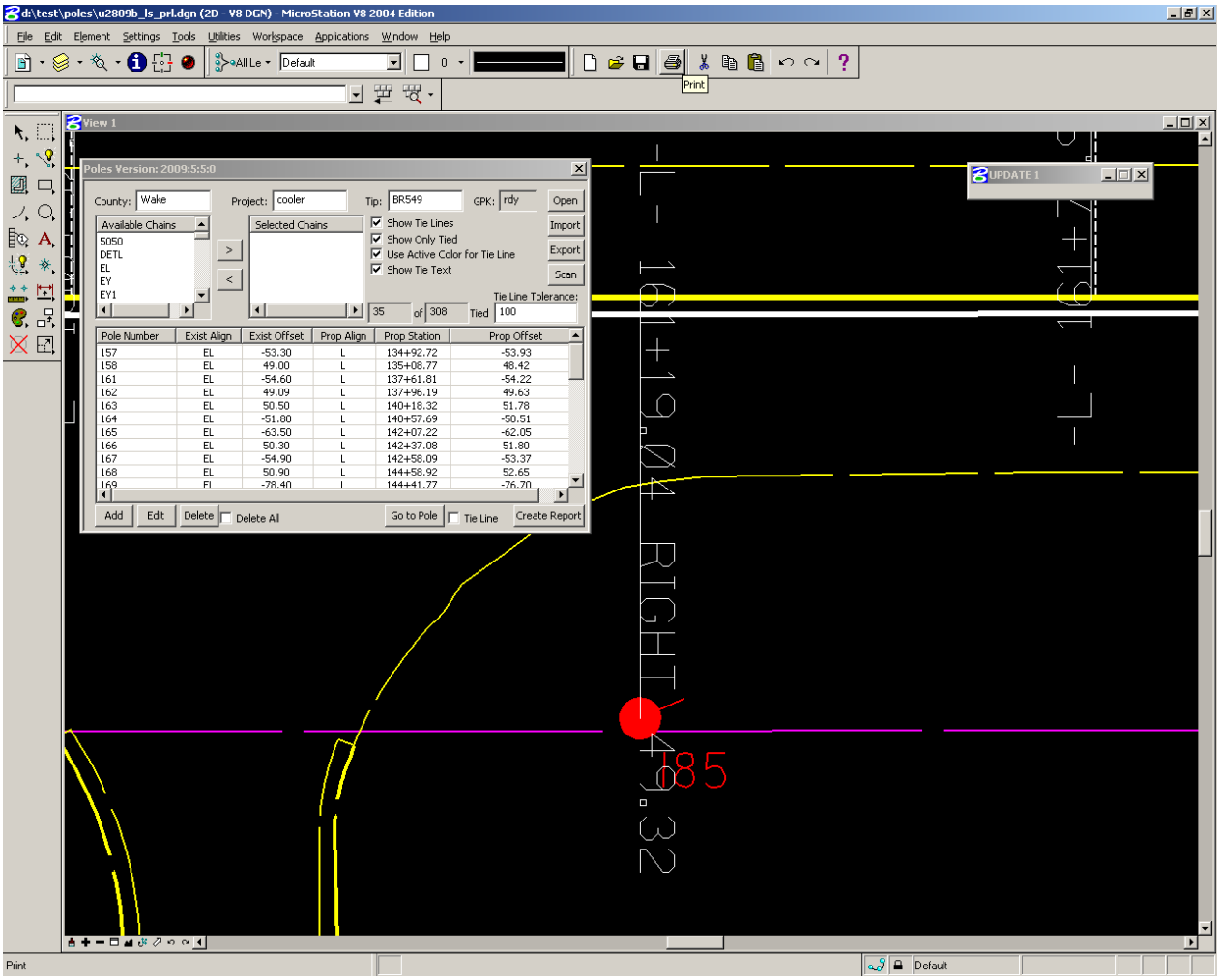

(*MicroStation Design File – Pole and Tie Line with Text*)

3	To view the tie lines in the *active color*, click the check box in the **USE ACTIVE COLOR FOR TIE LINE** field.	

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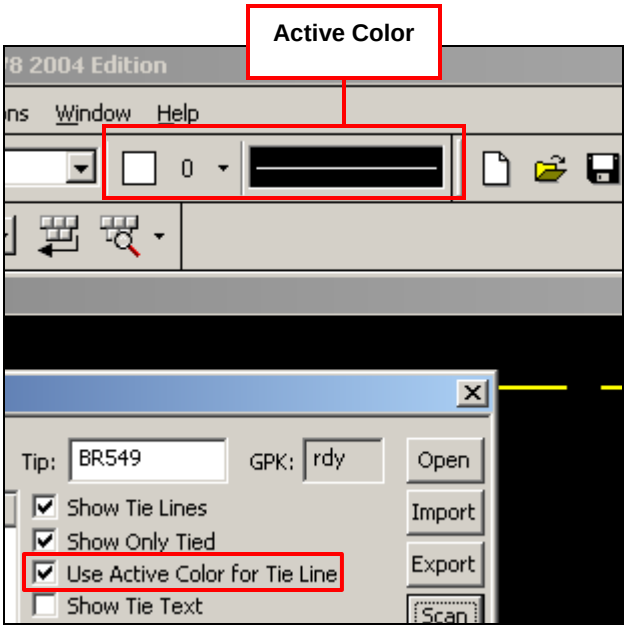
Viewing Options

(Continued)

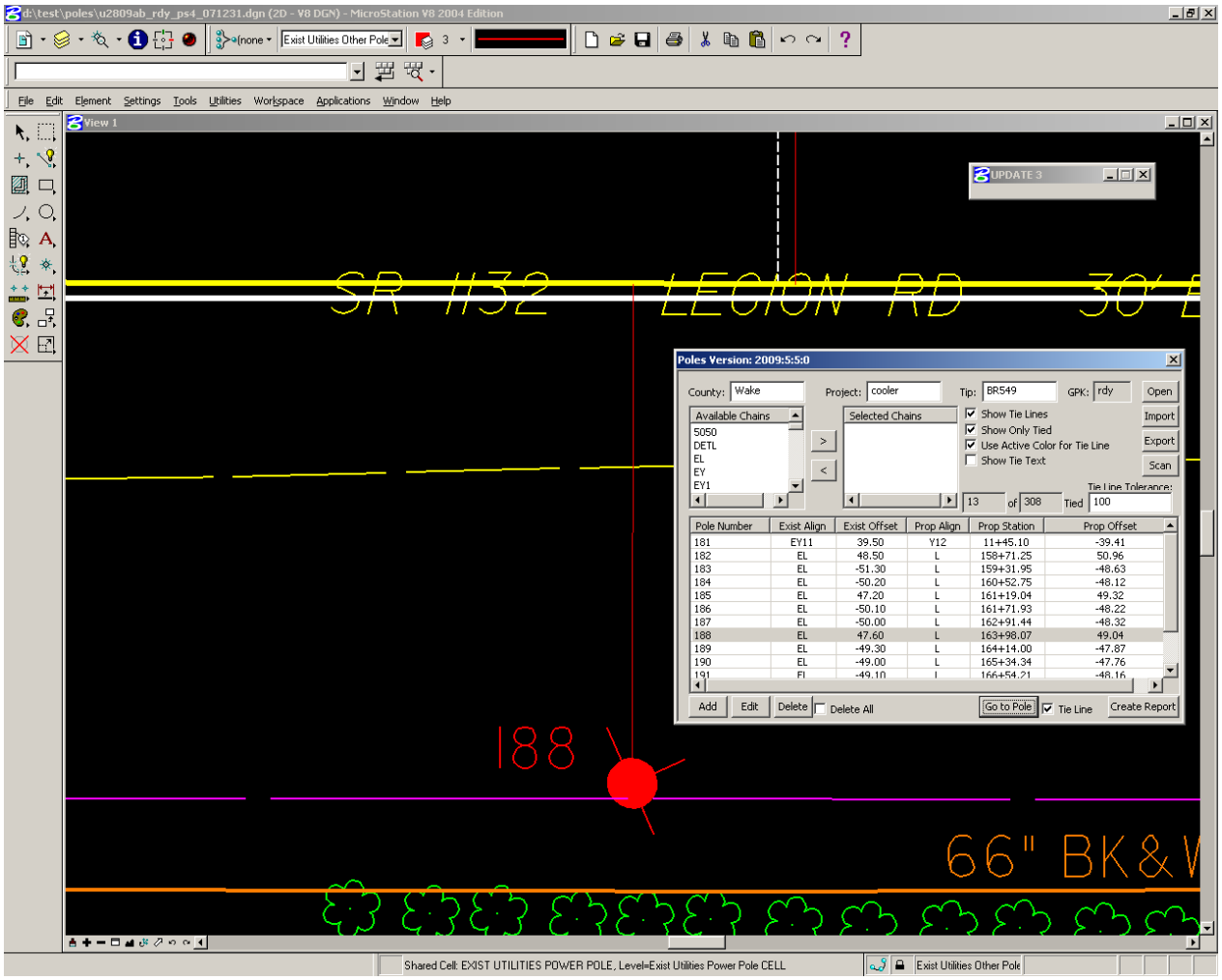


(*Active Color Check Box and Selection*)

Locating the Pole in the Design File

From the **Poles** application main window:

Step	Action	Result
1	Select **the pole record you wish to locate** by clicking on it.	N/A
2	If you want to view the tie line as well, check the **TIE LINE** check box	N/A
3	Click the **GO TO POLE** button.	The selected pole (or pole and tie line) will appear.



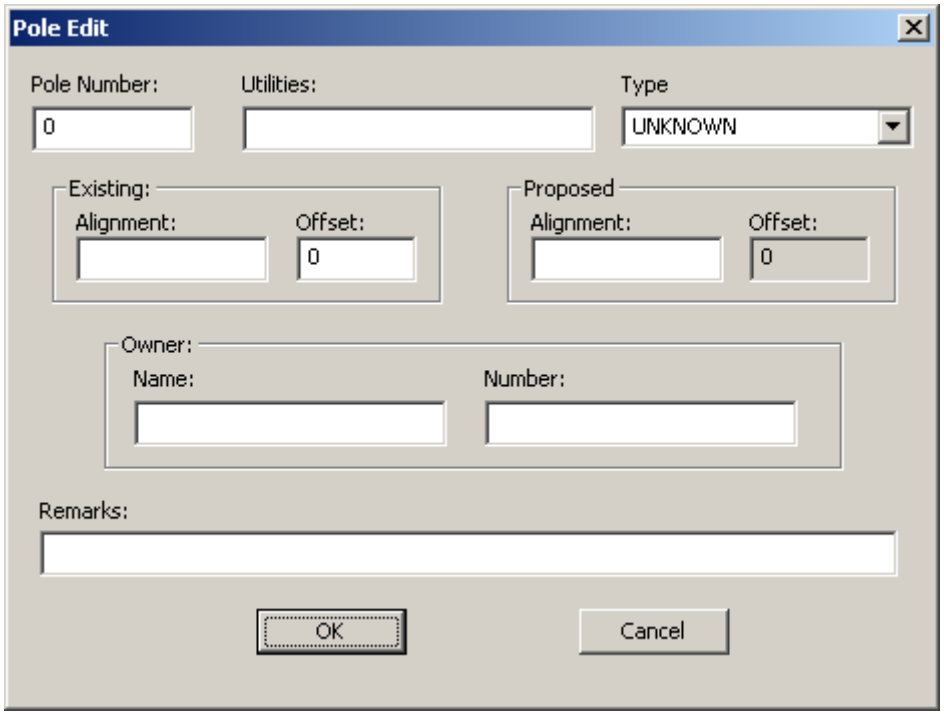
(*MicroStation Design File – Pole and Tie Line*)

Chapter 4 Procedures

Adding a Pole Record

From the **Poles** application main window:

Step	Action	Result
1	Click the **ADD** button.	The **Pole Edit** dialog box will appear.



(*Pole Edit Dialog Box*)

2	Type the **pole number** in the **POLE NUMBER** field.	N/A
3	Type the **types of utilities on the pole** in the **UTILITIES** field.	N/A
4	Select the **type** from the drop-down list in the **TYPE** field.	N/A

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Adding a Pole Record

(Continued)

In the **EXISTING** section:

5	Type the **chain** in the **ALIGNMENT** field.	N/A
6	Type the **distance** in the **OFFSET** field.	N/A

In the **PROPOSED** section:

7	Type the **chain** in the **ALIGNMENT** field.	N/A

In the **OWNER** section:

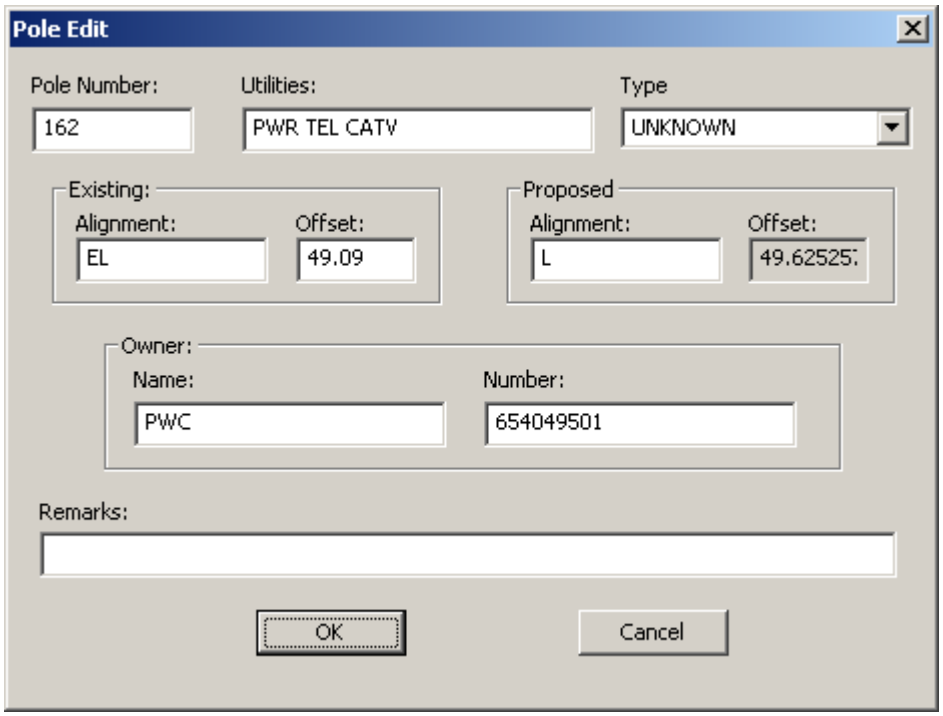
8	Type the **name of the owner company** in the **NAME** field.	N/A
9	Type the **vendor number** in the **NUMBER** field.	N/A
10	Type **any remarks about the pole** in the **REMARKS** field.	N/A
11	Click the **OK** button.	The **pole record** will be saved to the list.

Editing a Pole Record

From the **Poles** application main window:

Step	Action	Result
1	Select **the pole record you wish to edit** by clicking on it.	N/A
2	Click the **EDIT** button.	The **Pole Edit** dialog box will appear.

🗁**NOTE:** You can also double click a pole record to edit it.



(*Pole Edit Dialog Box*)

3	Edit information in the editable fields.	N/A
4	Click the **OK** button.	The **pole record** will be saved to the list.

Deleting a Pole Record

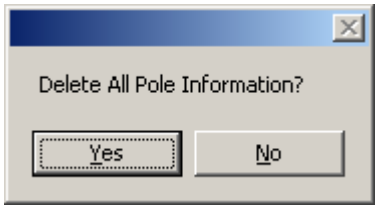
From the **Poles** application main window:

Step	Action	Result
1	Select **the pole record you wish to delete** by clicking on it.	N/A
2	Click the **DELETE** button.	The **pole record** will be deleted from the list.

Repeat **Steps 1** and **2** for each record you wish to delete.

NOTE: If you wish to delete all pole records from the list, check the **DELETE ALL** box, then click the **DELETE** button.

If you do this, the following dialog box will appear.



(*Delete All Dialog Box*)

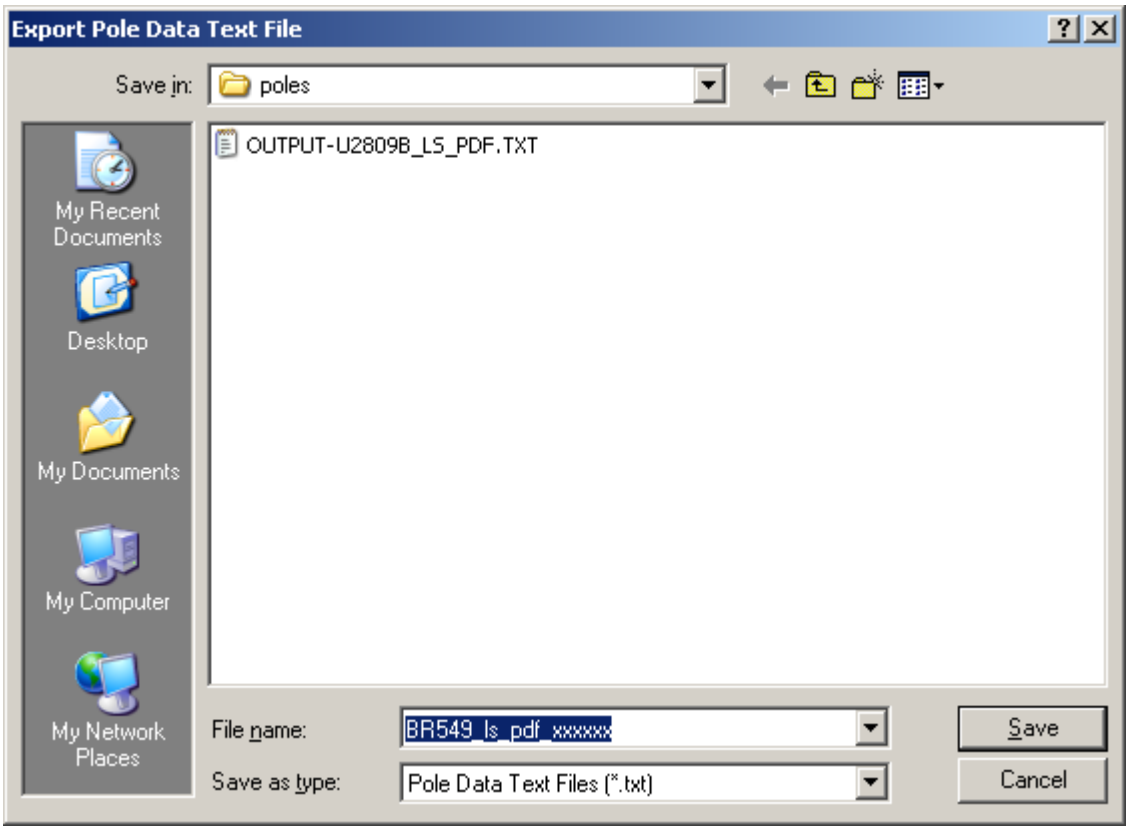
Click the **YES** button to remove all pole records from the list.
Click the **NO** button to return to the **Poles** application main window, list intact.

Exporting Pole Definition Files

When you make any changes to pole information in the **Poles** application, you can export these changes in the form of a new **Pole Definition File**.

From the **Poles** application main window:

Step	Action	Result
1	Click the **EXPORT** button.	The **Export Pole Data Text File** dialog box will appear.



(*Export Pole Data Text File dialog box*)

2	Type the **name of the new exported file** in the **FILE NAME** field,	N/A
3	Click the **SAVE** button.	The file has been saved.

Creating A Report

The **Report** function creates a text file containing all tied utility poles within the selected project. This report assists in determining which poles are in conflict with highway construction

The report groups poles by **Owner**, and provides the following:

Pole Tag Number for use with the **Preliminary Plans**, to identify the general location of the pole.

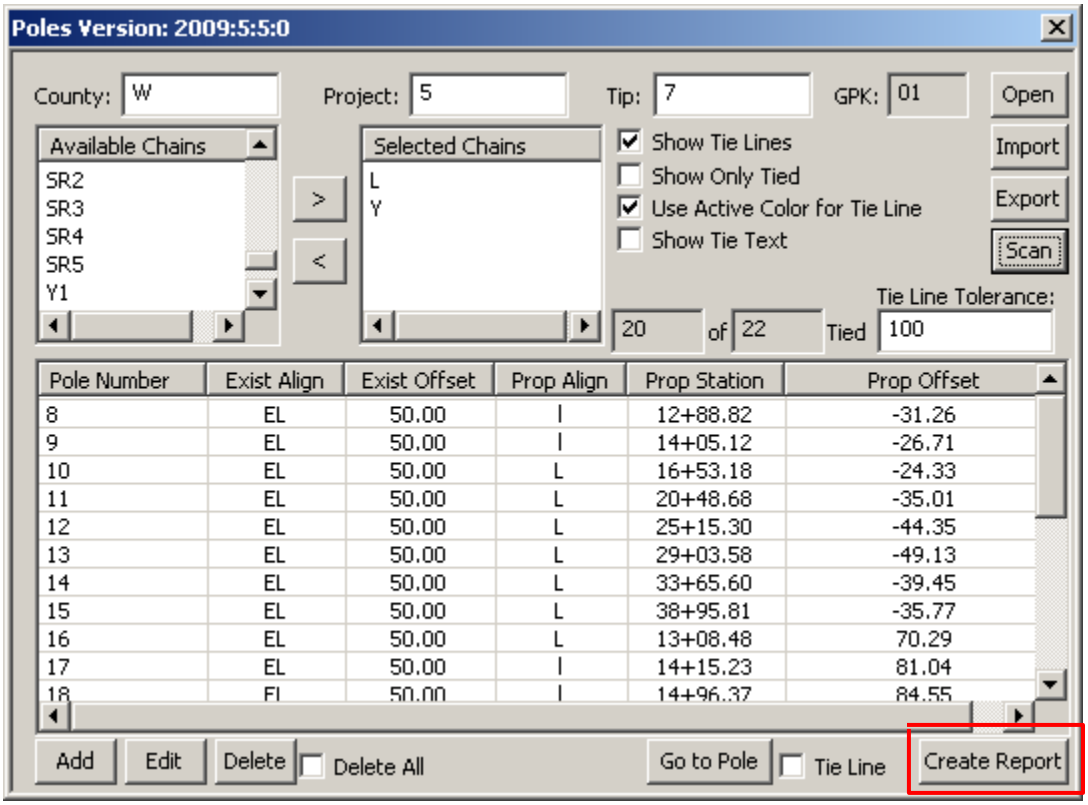
Owner's Number (if available).

Utilities type of utilities carried on the pole.

Offset distance from center of the pole to an **Existing Alignment**.

Station and **Offset** to the nearest **Proposed Design Alignment**.

From the **Poles** application main window:



(*Poles Window*)

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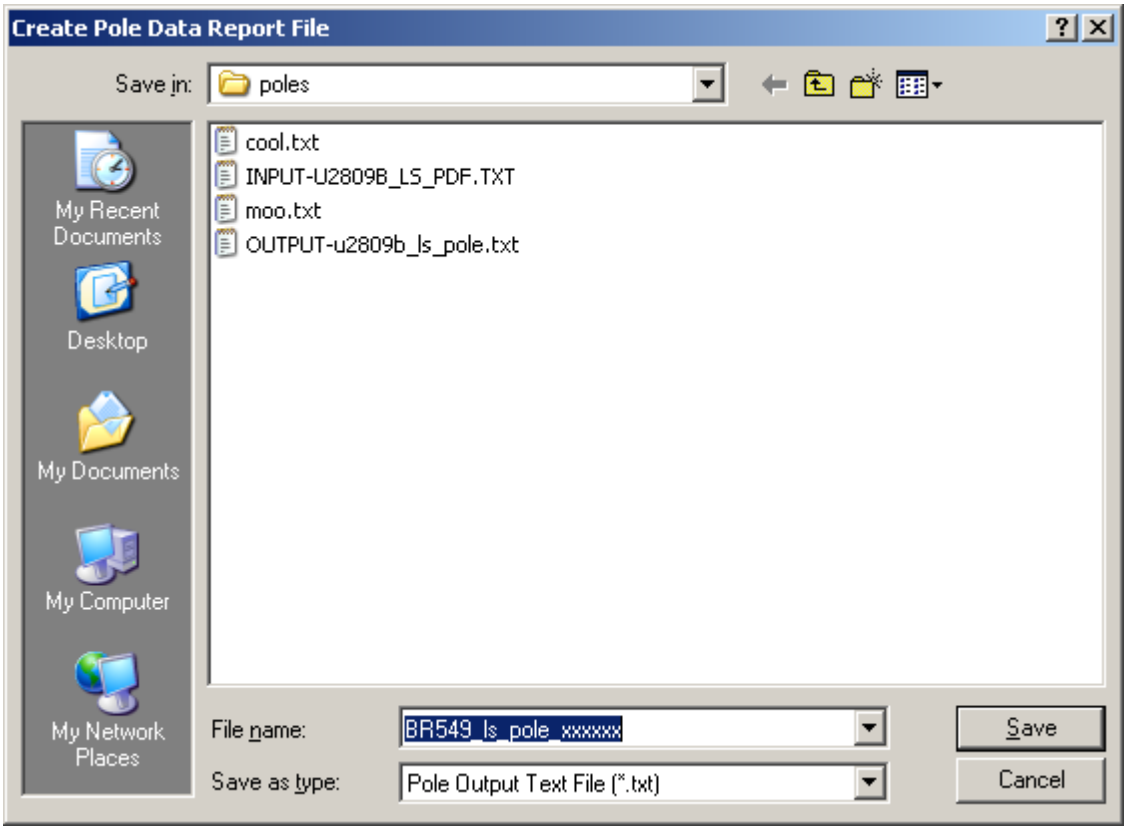
Creating A Report

(Continued)

Step	Action	Result
1	Click the **CREATE REPORT** button.	The **Create Pole Data Report File** dialog will appear.



(*Create Pole Data Report File Dialog Box*)

2	Type the **name of the new report file** in the **FILE NAME** field,	N/A
3	Click the **SAVE** button.	The file has been saved.

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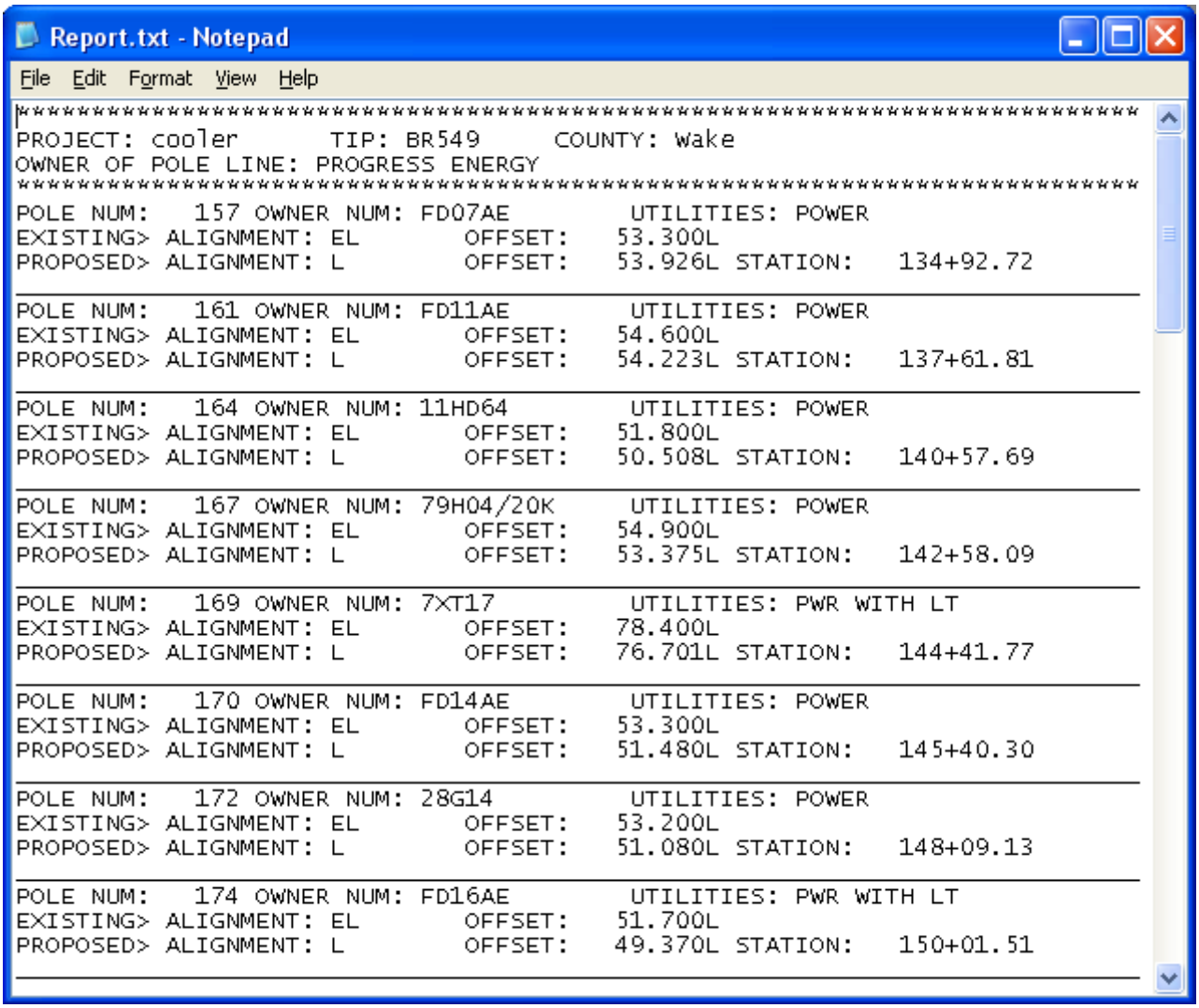
Creating A Report

(Continued)

The report will look like this.



Report.txt - Notepad

File Edit Format View Help

```
********************************************************************************
PROJECT: cooler       TIP: BR549      COUNTY: Wake
OWNER OF POLE LINE: PROGRESS ENERGY
********************************************************************************
POLE NUM:   157 OWNER NUM: FD07AE         UTILITIES: POWER
EXISTING> ALIGNMENT: EL        OFFSET:    53.300L
PROPOSED> ALIGNMENT: L         OFFSET:    53.926L STATION:    134+92.72
--------------------------------------------------------------------------------
POLE NUM:   161 OWNER NUM: FD11AE         UTILITIES: POWER
EXISTING> ALIGNMENT: EL        OFFSET:    54.600L
PROPOSED> ALIGNMENT: L         OFFSET:    54.223L STATION:    137+61.81
--------------------------------------------------------------------------------
POLE NUM:   164 OWNER NUM: 11HD64         UTILITIES: POWER
EXISTING> ALIGNMENT: EL        OFFSET:    51.800L
PROPOSED> ALIGNMENT: L         OFFSET:    50.508L STATION:    140+57.69
--------------------------------------------------------------------------------
POLE NUM:   167 OWNER NUM: 79H04/20K      UTILITIES: POWER
EXISTING> ALIGNMENT: EL        OFFSET:    54.900L
PROPOSED> ALIGNMENT: L         OFFSET:    53.375L STATION:    142+58.09
--------------------------------------------------------------------------------
POLE NUM:   169 OWNER NUM: 7XT17          UTILITIES: PWR WITH LT
EXISTING> ALIGNMENT: EL        OFFSET:    78.400L
PROPOSED> ALIGNMENT: L         OFFSET:    76.701L STATION:    144+41.77
--------------------------------------------------------------------------------
POLE NUM:   170 OWNER NUM: FD14AE         UTILITIES: POWER
EXISTING> ALIGNMENT: EL        OFFSET:    53.300L
PROPOSED> ALIGNMENT: L         OFFSET:    51.480L STATION:    145+40.30
--------------------------------------------------------------------------------
POLE NUM:   172 OWNER NUM: 28G14          UTILITIES: POWER
EXISTING> ALIGNMENT: EL        OFFSET:    53.200L
PROPOSED> ALIGNMENT: L         OFFSET:    51.080L STATION:    148+09.13
--------------------------------------------------------------------------------
POLE NUM:   174 OWNER NUM: FD16AE         UTILITIES: PWR WITH LT
EXISTING> ALIGNMENT: EL        OFFSET:    51.700L
PROPOSED> ALIGNMENT: L         OFFSET:    49.370L STATION:    150+01.51
--------------------------------------------------------------------------------
```

(*Create Pole Data Report File Dialog Box*)