

## **PROCESSING SURVEY DATA (1-1-2012)**

This document explains loading XY or XYZ points from an ascii text file to a Microstation DGN file. There are 3 options for doing this:

1. Data Acquisition – Preferred & described in the Data Acquisition Help file.
2. Through GeoPak Survey - If certain descriptions (PCODES) are used for each point Geopak automatically places Microstation elements (i.e. cells, line, etc.) as per Roadway Design's standard symbols & symbology. The PCODES (Point Description Codes) to be used for descriptions are maintained in a Geopak database (RWDVY.SMD). These PCODES, which should be used while collecting topographic information, are described in the DOT's Survey manual. LCODES signify the beginning or end of a line or arc. They can be whatever you wish because they are defined when you process the survey, but they are generally L(Begin Line), EL(End Line), C (Begin Curve), EC (End Curve).
3. Load Points 3PC Application – This is just a quick way to get points in a DGN file without Custom Line Styles & Cells being placed. Pcodes are ignored.

### **GeoPak Survey Steps**

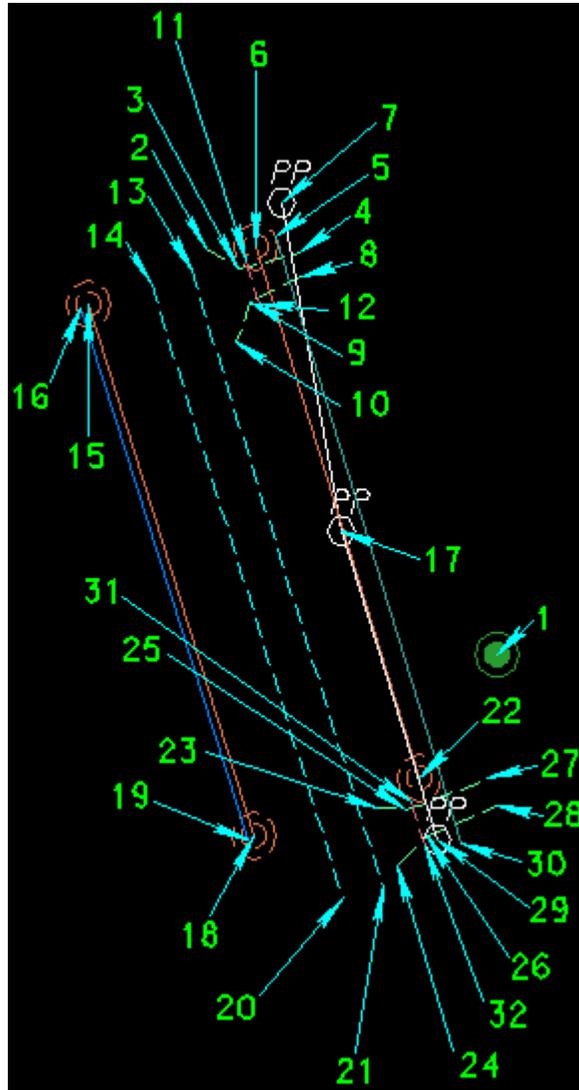
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## **Steps for loading XY or XYZ points**

The following steps will show how to load the XY points shown below. XYZ would require the same basic steps, except that the points would need to be loaded in a 3D design file and the Z (Elevation) value would have to be assigned. The figure below right is the finished product. You can see how Geopak automatically placed cells and lines with the correct symbology because of the pcodes and lcodes used while collecting the data.

### TOPO11.COR

1,	10000.00,	10000.00,	201.00,	HVCM	
2,	11717.89,	9333.30,	203.21,	GD,	L; ASPHALT
3,	11707.85,	9351.25,	203.35,	GD	
4,	11716.10,	9386.77,	202.92,	GD,	EL
5,	11725.15,	9372.63,	204.35,	GAS,	L
6,	11718.89,	9361.48,	204.56,	XROW,	L
7,	11718.90,	9361.75,	204.91,	PP,	L
8,	11702.91,	9387.80,	203.27,	GD,	L
9,	11689.87,	9358.36,	202.04,	GD	
10,	11667.83,	9349.93,	205.02,	GD,	EL
11,	11712.13,	9356.29,	203.24,	RCP18,	L
12,	11688.69,	9363.81,	203.00,	RCP18,	EL
13,	11706.99,	9325.35,	204.20,	PEL,	L
14,	11699.45,	9302.57,	204.51,	PER,	L
15,	11688.11,	9265.71,	203.13,	XROW1,	L
16,	11686.64,	9261.01,	202.32,	WATER,	L
17,	11566.30,	9410.56,	205.46,	PP,	L
18,	11402.72,	9360.82,	205.70,	XROW1,	EL
19,	11400.39,	9356.91,	205.48,	WATER,	EL
20,	11370.10,	9411.51,	204.10,	PER,	EL
21,	11376.63,	9434.96,	204.30,	PEL,	EL
22,	11434.13,	9455.70,	204.10,	XROW,	EL
23,	11417.97,	9431.58,	204.03,	GD,	L; GRAVEL
24,	11386.86,	9442.45,	204.36,	GD1,	L
25,	11417.18,	9447.19,	204.70,	GD	
26,	11402.76,	9459.58,	204.56,	GD1	
27,	11434.48,	9494.19,	205.34,	GD,	EL
28,	11419.36,	9499.66,	203.45,	GD1,	EL
29,	11401.10,	9465.65,	204.67,	PP,	EL
30,	11398.48,	9478.71,	203.30,	GAS,	EL
31,	11421.24,	9450.68,	202.20,	RCP24,	L
32,	11397.94,	9458.15,	202.45,	RCP24,	EL



### STEPS

1. Create a design file to load the points into. The name will be TOPO\*.DGN or TOPO3D\*.DGN.

**NOTE: The SEED design file which should be used is one of the following.**

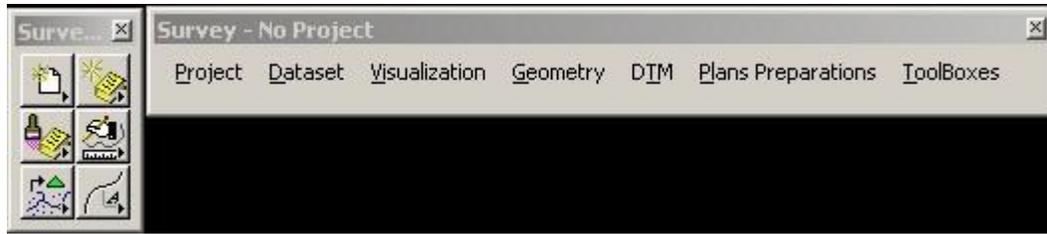
**c:\rwd\group\seed.dgn - English 2D**

**c:\rwd\group\seedz.dgn - English 3D**

**c:\rwd\mgroup\seed.dgn - Metric 2D**

**c:\rwd\mgroup\seedz.dgn - Metric 3D**

2) Invoke Geopak Survey and you should get the dialogs shown below:

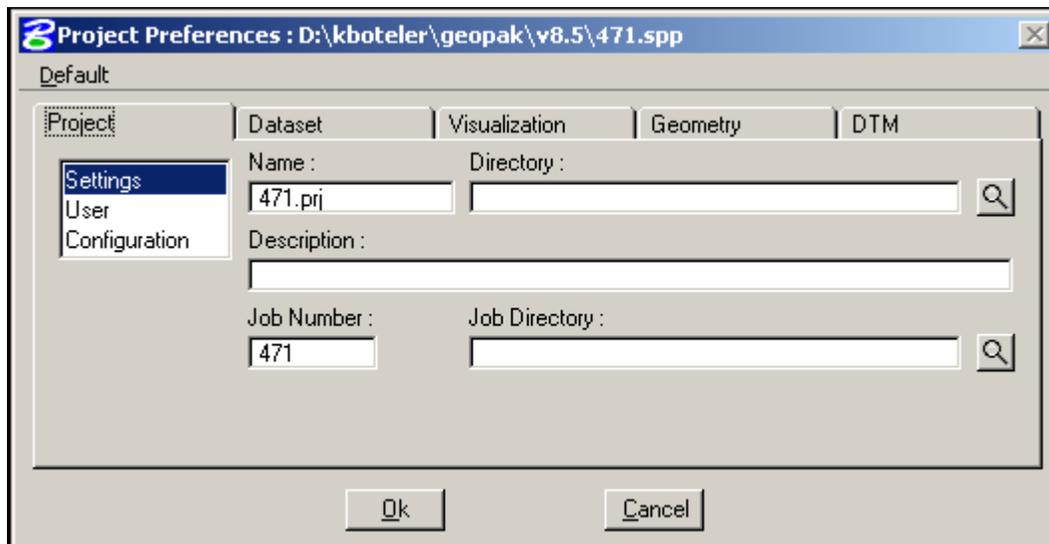


3-1) Tag PROJECT -> OPEN and open the project if you have already created a GeoPak Project.

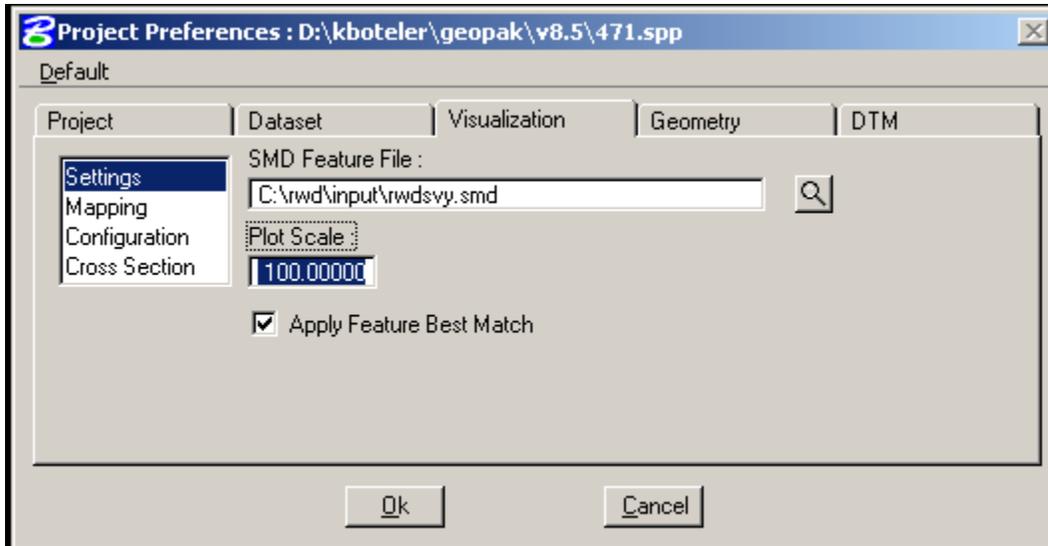
Or

3-2) Tag PROJECT -> NEW and enter a Project Name (i.e. 471) and select your JOB # (i.e. 471).

4) Tag Project -> Preferences -> to invoke the dialog below



5) Tag the VISUALIZATION TAB on the Project Preferences dialog and make sure the SETTINGS are set as shown below.



*RWDSVY.SMD is the database which contains our Feature Codes (or Point Descriptions). (See MDOT's Survey Manual for a complete list of Point Descriptions).*

Also go ahead & enter the PLOT SCALE:

1000 - Metric Rural

250 - Metric Urban

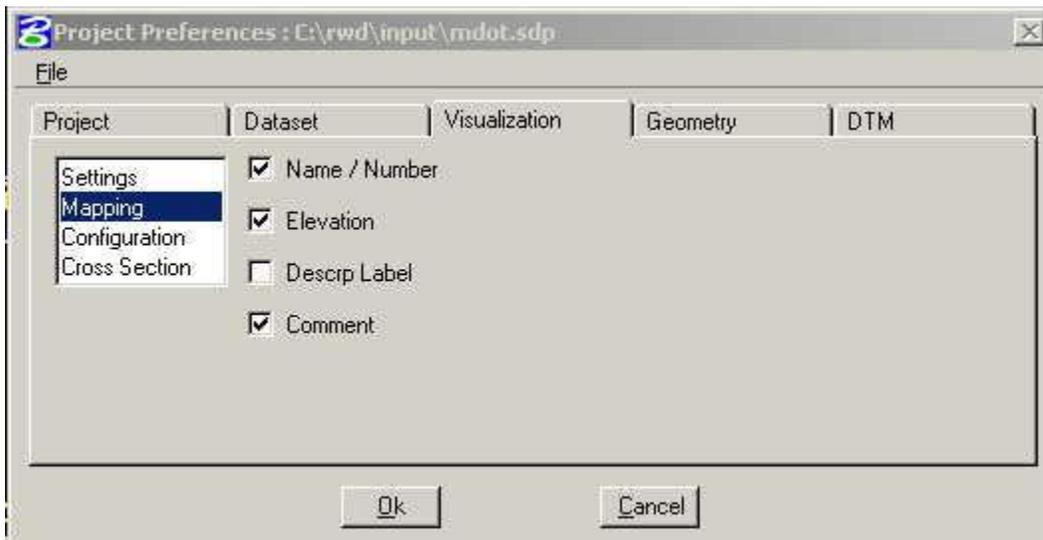
100 - English Rural

20 - English Urban

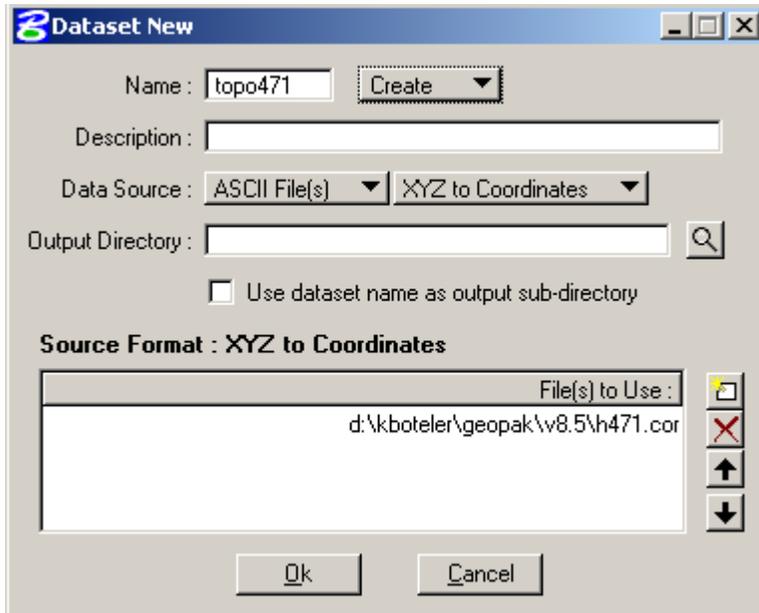
Also Check APPLY BEST MATCH FEATURE.

*This allows Geopak to read CD, CD1, CD2, etc. all CD, The reason you would want to describe the points like this is that this allows multiple lines of the same description to be collected at the same time, even though they are not the same CD.*

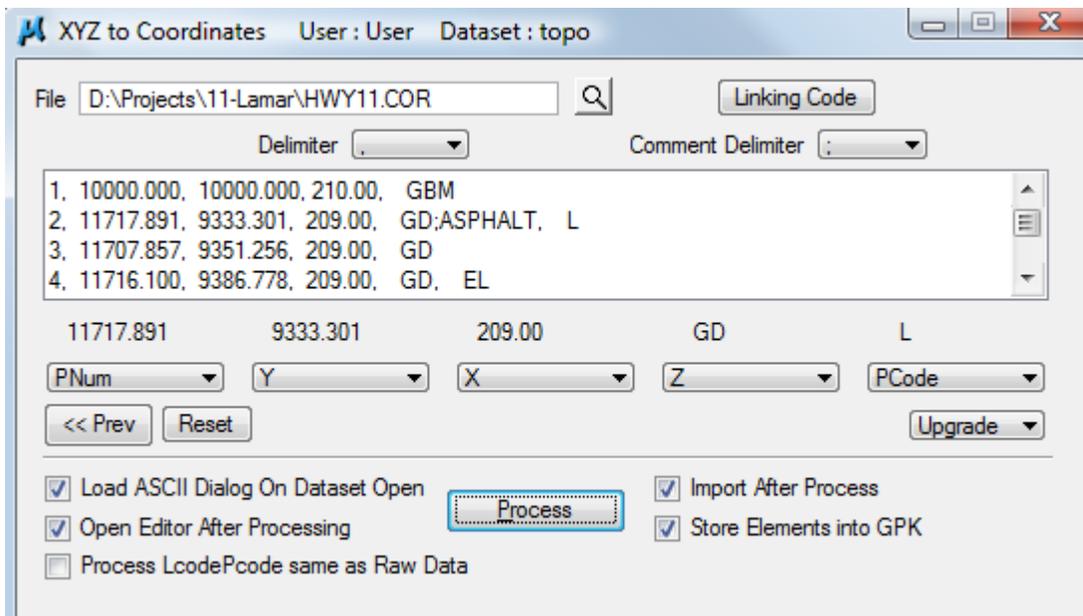
6) Tag the MAPPING button on the left and check the text you want to be displayed by each point in the DGN. Turn off "ELEVATION" if no elevation data was collected. Tag OK on the Preferences dialog.



- 7) Tag the Dataset tab to invoke the following dialog and set the following items
- 8) Tag OK on the Project preferences Dialog.
- 9) Tag DATASET -> NEW to invoke the dialog shown below.



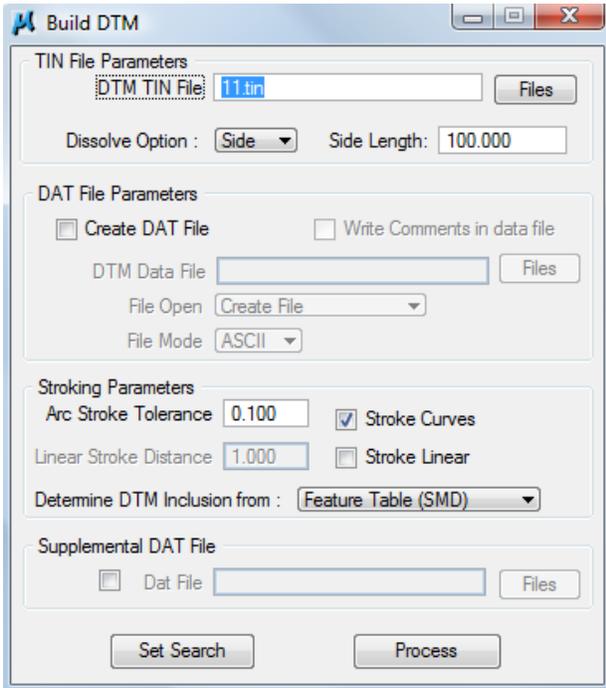
- 10) Enter a Dataset NAME (i.e. topo471), set the DATA SOURCE to ASCII FILE(s), and make sure the Source Format is set to XYZ to COORDINATES.
- 11) Tag the DATASET ADD SOURCE FILES TO LIST, choose the .COR file, tag ADD, and then DONE.
- 12) Tag OK on the dialog above and the XYZ-Coordinate dialog below appears.





21. Next you will edit your chains & points as needed. Check for crossing chains.

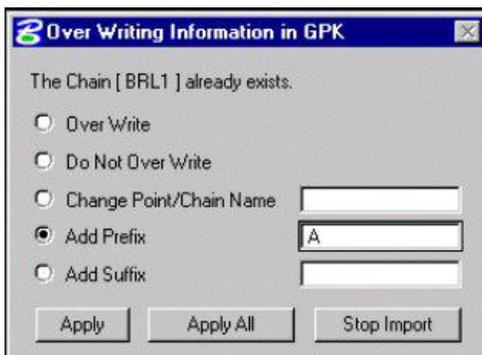
22. After the data is clean, choose to build a DTM from Survey and set this dialog as shown below. Note that Pcodes are assigned to be included or not be included as spots or break lines in the DTM.



**NOTE IF POINTS WRITTEN TO COGO:**

1. For subsequent data processed, it is advised to not assign the PNUM field if you use the same point numbers which have already been processed. Ideally, you should change the point numbers in the text file before they are processed. If you do assign the PNUM field in this case, you can expect bad results from GeoPak even if you add a Suffix or Prefix to the Point Numbers.

2. When you process subsequent data, GeoPak will warn that Chain [ ] already exists. Tag Add Prefix and place an A,B, or C, etc. in the field to the right of Prefix as shown below to make the new chains unique.



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## Post Processing Notes

**DTM** - If you collected Elevation data with the elements and loaded into a 3d file, you need to clean up the line work and points as necessary and then go to the DTM Chapter of this User Guide and follow the DTM FROM XYZ SPOT SHOT/BREAKLINE SURVEY steps to create a DTM. When all the points and linework is cleaned up, you also need to export the data in this file to a 2d file (topo.dgn) and label all the features accordingly.