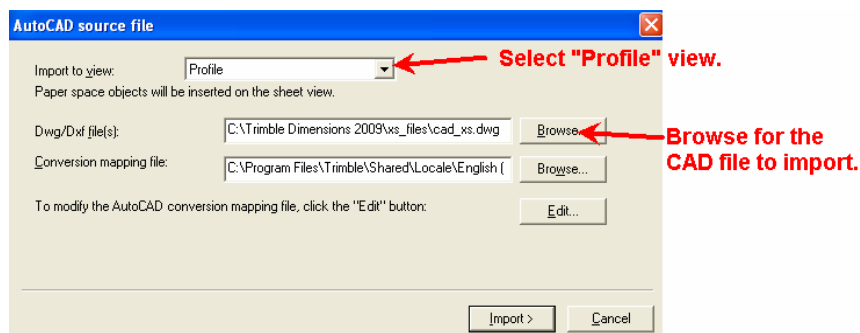


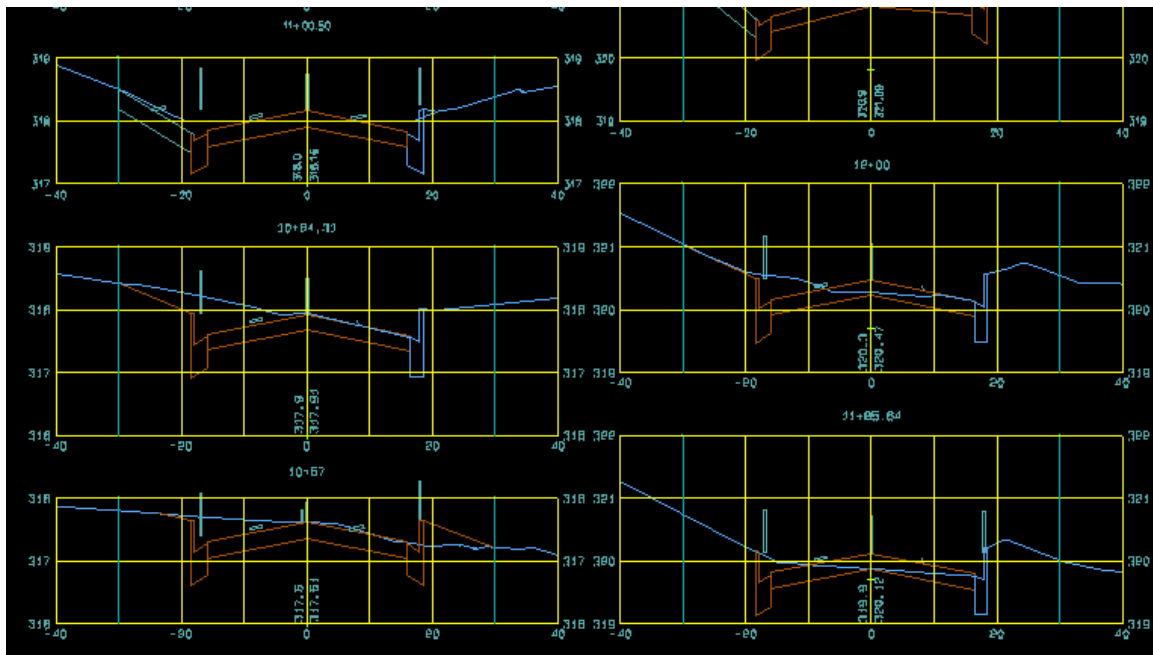
Convert CAD Cross Sections to Roads

Import CAD data into Terramodel. Import into the **PROFILE** view.

- Create a NEW project in Terramodel. **File/New/select a project folder/type a name for the project.**
- Set the Measurement units. **File/Measurement units/select the correct units for your project.**
- Import CAD data into the PROFILE view.
 - o **File/Download-Import/Autocad or MicroStation.**
 - o Specify the "Profile" view when prompted.



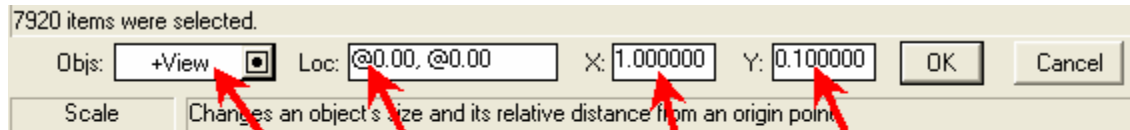
The data will look similar to this...



Note: The reason I import into a PROFILE view, is to keep the look of the cross section with an exaggeration factor after the data is scaled properly. Use **Settings/View settings** to set the vertical exaggeration. Then run **View/All**.

Scale the data.

- Use the **Distance** command to check the horizontal and vertical scales. (**Reports/Distance**)
- Use the **Scale** command to correct the scale. **Modify/Scale**.



Use the "VIEW" selection option to select the entire Profile view.

Pivot on (0,0)

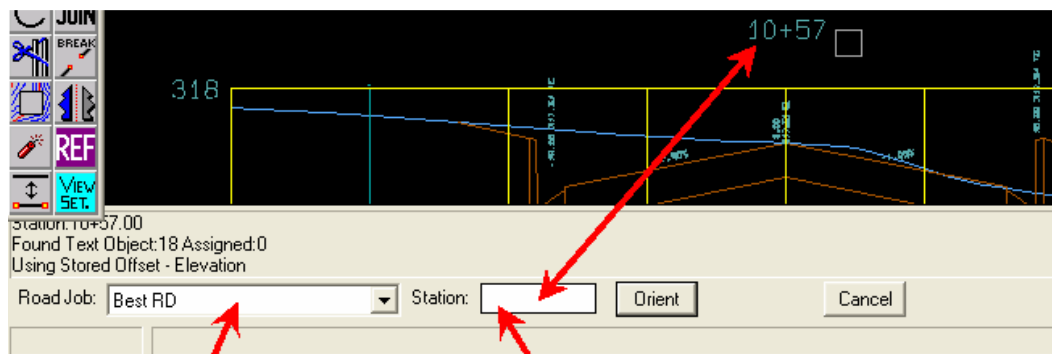
Horizontal scale

Vertical scale

- Next, use the **Distance** command again and check the horizontal and vertical scale again. Just to be sure. **It is very important to scale these correctly.**

Move the data to the XSECT view.

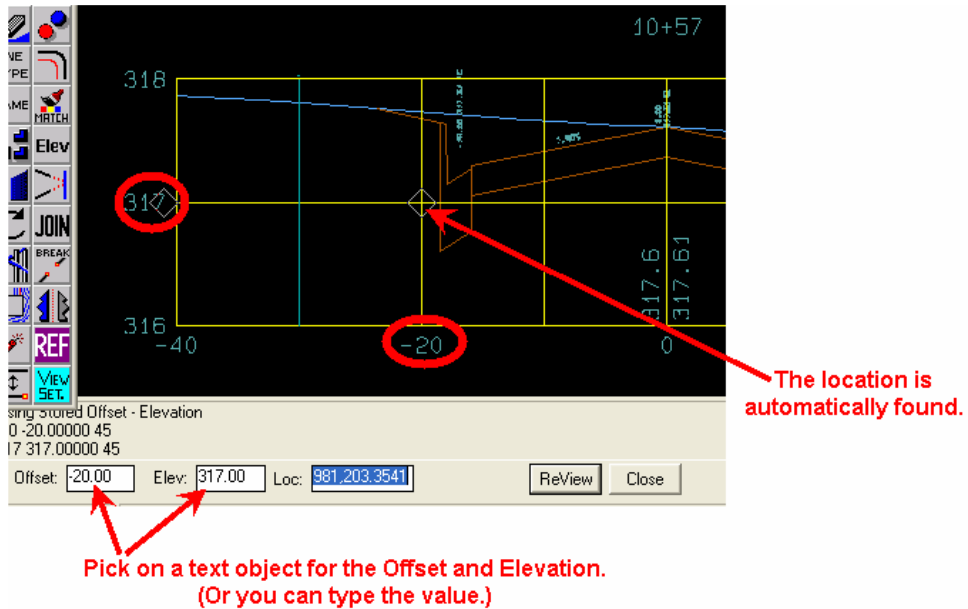
- A centerline and road job will need to be created.
 - o Draw a centerline (PLINE) in the PLAN view.
- Use the Roadjob wizard to create a roadjob.
 - o **Roads/Road job workflow guide...**
 - o Be sure to assign "existing" and "proposed" surfaces.
- Use the TMLStore command, **Sheet2XS** to move each cross section from the profile view to the XSECT view. With this command, the sections will be placed at the correct offset and elevation.
 - o Select the "Road job".
 - o Type or Select the "Station".



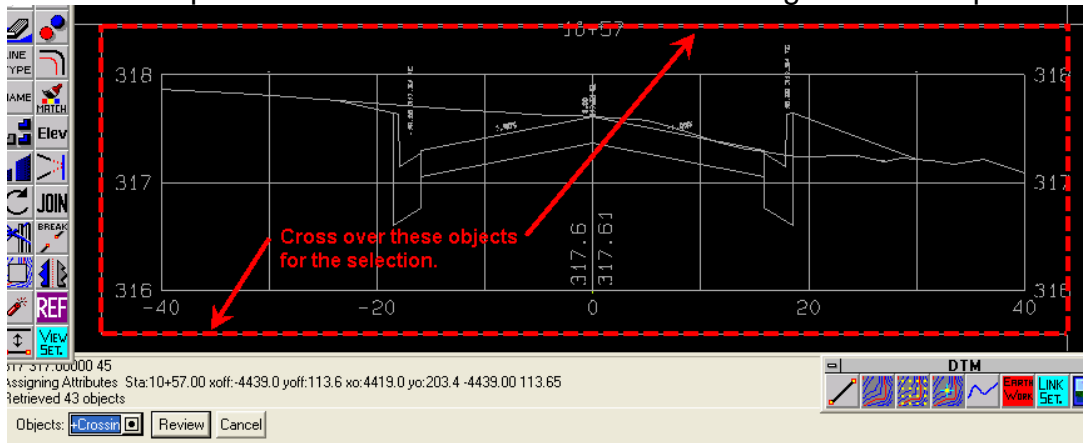
1. Select the Road job.

Pick on the text, "10+57" and the station will be set.

- You will be prompted for the “Offset” and “Elevation” values. You may select the text or type in the values. The location will automatically be found, but be careful; it intersects from the insertion points of the text objects, which may not be centered on the grid.



- After the “Offset” and “Elev” and “Loc” are selected, pick “ReView”.
- You are prompted to select objects. Select all of the object for this one particular cross section. Use the “Crossing” selection option.

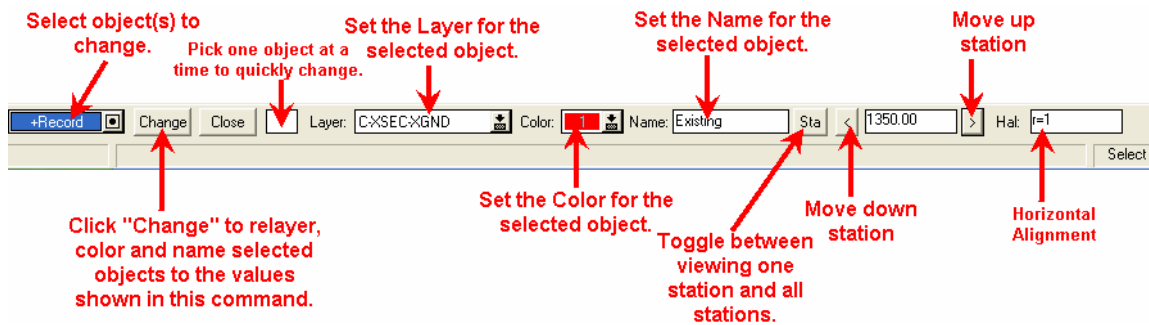


- Select “Review” and the objects will be moved to the **XSECT** view in the correct location. (All of the Offsets and Elevations will be positioned correctly.)
 - If any objects were forgotten, or missed with the object selection, then click “Orient” and then “ReView” without changing any of the settings and you can select the objects you missed for that one cross section.

- Repeat the process by selecting the next “station” value. Picking on the station text is the fastest and most efficient way.
- Select the “Location” of the Offset and Elevation in this cross section.
- Select the objects for this section to be reviewed.
- Repeat these options for each cross section that you imported.

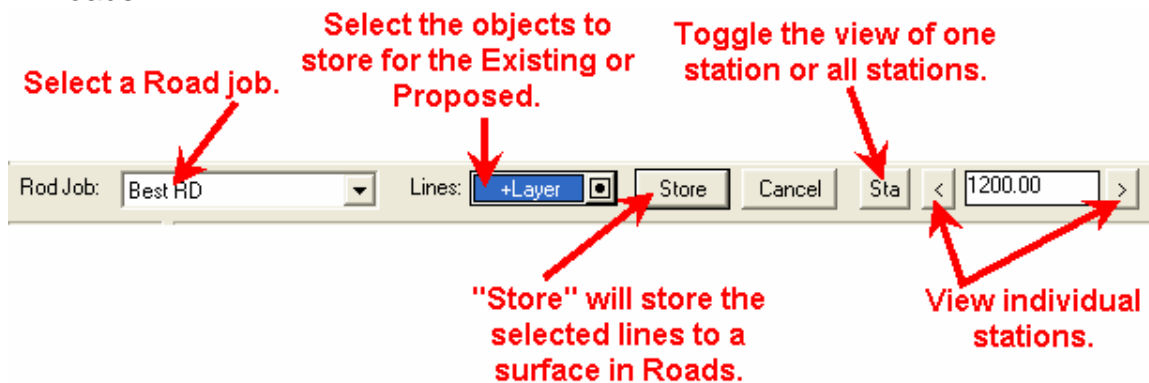
Check the data – Look for Existing/Proposed objects

- Remember the data was imported from an outside source. The existing and proposed lines may or may not be on different layers.
- Change your focus to the **XSECT** view. **View/New view/Xsect**.
- Use the TMLStore command, **LCN** to quickly move between cross sections and assign lines to a specific **layer, color and/or name**.



Store the Cross Sections in Roads

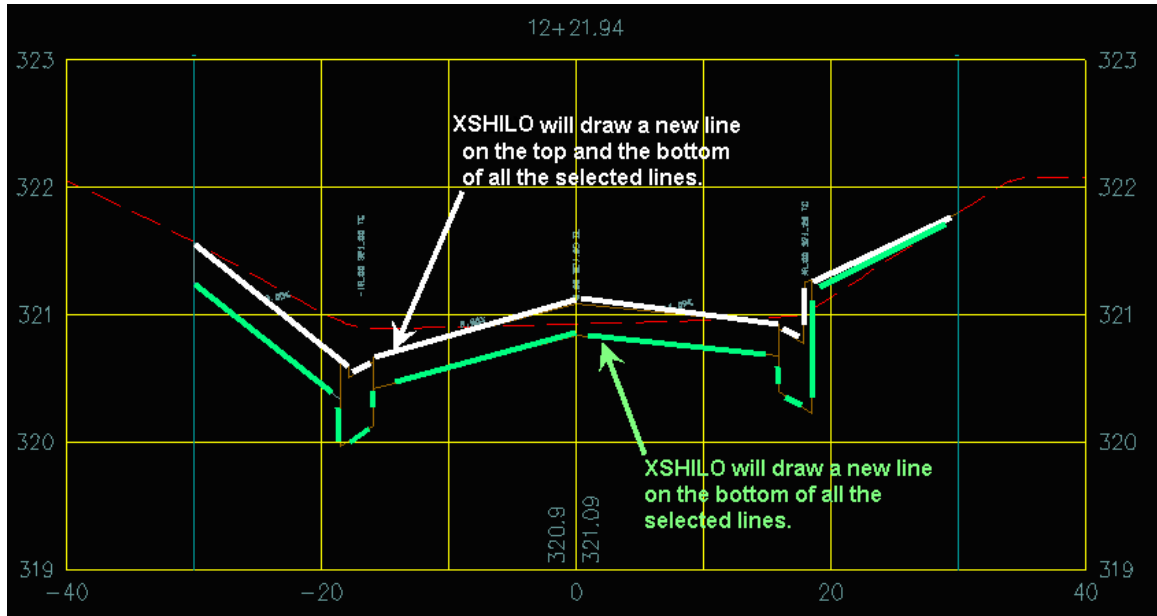
- Use the TMLStore command, **StoreXS** to quickly store cross sections in roads.



- The **StoreXS** command will store the selected linework to a surface **IF** the selected linework is on the same layer as the “surface” defined in Roads, or if it is “named” the same as the “surface” defined in Roads.
 - Note: only one line gets stored for each surface per station.
 - You may need to **Join** lines before **StoreXS**.

Linework will need to be fixed before StoreXS

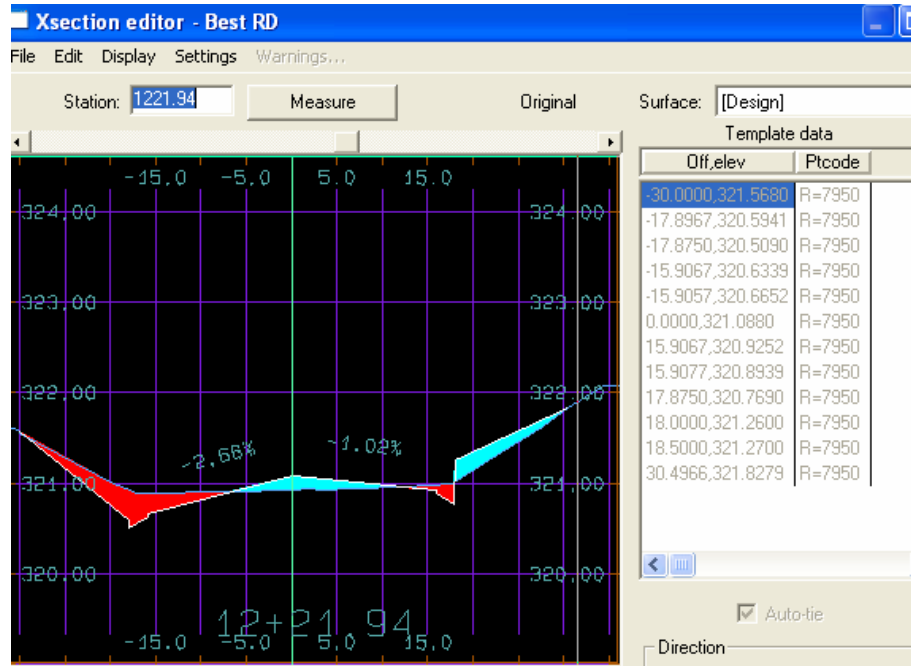
- Use the TMLStore command, **XSHiLo** to quickly generate lines that represent the top of the finish surface and the bottom of the finish subgrade surface. This command will also help you “clean up” linework that is disconnected and difficult to manually fix.



- o **XSHiLo** will help you define the Finish and Subgrade surfaces for quick and easy volume calculations.
- o You may want to run **XSHiLo** on the existing to be sure you get all of the lines. Sometimes it comes in disconnected.
 - **Note:** only one line per surface is stored in the XS Manager.
- Run **StoreXS** after **XSHiLo**.

View the Cross Sections in Roads

- Select **Roads/Road design/Cross section manager**.
- Select *Edit*, and scroll through the sections.



Calculate Volumes

- If the Existing and Design have been stored with **StoreXS.tml**, then you may calculate volumes.
 - o Select **Roads/Reports/Earthwork**.

Earthwork Report

Road Job: Best RD

Station	Avg End-Area			Inc Volume			Acm Volume			Curve %		
	Cut S.F.	Fill S.F.	Unsuit. S.F.	Cut C.Y.	Fill C.Y.	Unsuit. C.Y.	Total C.Y.	Cut C.Y.	Fill C.Y.		Unsuit. C.Y.	Acm Tot C.Y.
10+57.00:2	15.74	2.25	0.00									
10+84.31:2	17.31	0.00	0.00	16.7	1.1	0.0	15.6	16.7	1.1	0.0	15.6	*
11+00.50:2	13.91	0.12	0.00	9.4	0.0	0.0	9.3	26.1	1.2	0.0	24.9	*
11+50.00:2	12.45	0.00	0.00	24.2	0.1	0.0	24.0	50.2	1.3	0.0	48.9	*
11+66.43:2	10.41	0.03	0.00	7.0	0.0	0.0	6.9	57.2	1.3	0.0	55.9	*
11+85.64:2	7.36	0.01	0.00	6.3	0.0	0.0	6.3	63.5	1.3	0.0	62.2	*
12+00.00:2	10.36	0.03	0.00	4.7	0.0	0.0	4.7	68.2	1.3	0.0	66.9	*
12+21.94:2	16.80	1.38	0.00	11.0	0.6	0.0	10.5	79.3	1.9	0.0	77.4	*
12+22.67:2	14.86	0.28	0.00	0.4	0.0	0.0	0.4	79.7	1.9	0.0	77.8	*
12+50.00:2	20.24	0.91	0.00	17.8	0.6	0.0	17.2	97.4	2.5	0.0	94.9	*
12+89.48:2	35.54	0.00	0.00	40.8	0.7	0.0	40.1	138.2	3.2	0.0	135.1	*
13+00.00:2	27.18	0.00	0.00	12.2	0.0	0.0	12.2	150.4	3.2	0.0	147.3	*
13+45.38:2	27.41	0.00	0.00	45.9	0.0	0.0	45.9	196.3	3.2	0.0	193.1	*
13+50.00:2	27.52	0.00	0.00	4.7	0.0	0.0	4.7	201.0	3.2	0.0	197.8	*
14+00.00:2	28.10	0.00	0.00	51.5	0.0	0.0	51.5	252.5	3.2	0.0	249.3	*
14+50.00:2	23.44	0.00	0.00	47.7	0.0	0.0	47.7	300.2	3.2	0.0	297.1	*