LAB 7 - DTM Evaluation

Lab 7.1 - Exporting Survey Data to Surface for Evaluation

Exporting to a DTM surface will create a triangulation network used for displaying contours, features and spot elevations.

- 1. Verify the **12345SURVFieldbook01** fieldbook is active as this is the survey data to be exported to a DTM. You can tell which fieldbook is active by the red box around the fieldbook button.
- 2. Write Survey Data to Graphics if they are not already. The planimetrics will make viewing in the MicroStation model easier.
- 3. From the pull-down menu, select **File > New**. The *New* dialog will appear.
- 4. Select the **Surface** tab.
- 5. Key in the surface Name: **12345SURVSurface01**
- 6. Key in the Description: **CDOT Surface Evaluation**
 - **Note:** Key in any additional file information in the *Description* field of the dialog, such as **Date**, **User**, and **Design file** name. You have up to 34 characters even though you may not see all the characters in the Description field.
- 7. Keep the **Maximum Length** set to **0**
- 8. Set pick list to the Preference: Existing 10' Mjr 2' Minor

New 🛛			
Surface Geometry	Survey Data		
Type:	Existing	•	Apply
Name:	12345SURVSurfac	ce01	Help
Description:	CDOT Surface Eva	aluation	
Maximum Length:	0.00		
Preference:	Existing 10' Mjr - 2'	Mina 🔻	
Name	-	Descriptior	n
Default			

9. **<D>** the **Apply** then **Close** buttons.

10. From the pull down menu **Survey > Survey Data to Surface**. The *Survey Data to Surface* dialog will appear.

🔛 Survey Data To Surface	:	23
Surface Name:	12345SURVSurface01 -	ОК
Parent Name:		Cancel
Description:	Use Style Description 🔻	Filter
Tolerance:	0.00	Preferences
Maximum Segment Length:	0.00	
Curve Stroking Mode:	Horizontal and Vertical 🔻	Нер
V Always Use:	Alpha Code 🔹 🔻	
Triangulate Surface		
Empty Surface		
Duplicate Names: © Replace Rename		

- 11. Pick from the list in the Surface Name 12345SURVSurface01 in the Surface Name field.
- 12. Set the *Description* to Use Style Description
- 13. Keep the *Tolerance* and *Maximum Segment Length* set to 0.00
- 14. Set the *Curve Stroking Mode* to Horizontal Only
- 15. Check Always Use: Style
- 16. Check Triangulate Surface

Survey Data To Surface	:	23
Surface Name:	12345SURVSurface01 👻	ОК
Parent Name:	Survey Topo Fieldbook	Cancel
Description:	Use Style Description -	Filter
Tolerance:	0.00	Preferences
Maximum Segment Length:	0.00	
Curve Stroking Mode:	Horizontal Only -	Неір
Always Use:	Style 🔹	
Triangulate Surface		
Empty Surface		
Duplicate Names:		

17. **<D>** the **OK** button the *Survey Data to Surface* dialog will close and the *Triangulate Surface* dialog will appear.

- 18. Leave all settings unchecked. *Maximum Length* should be set to **0.00**.
- 19. **<D>** the **Apply** button. The Results section of the dialog should look similar to the image below. (Numbers may not match exactly)

Triangulate Surface	
Surface: 12345SURVSurface01	 Apply
Description:	Close
Maximum Length: 0.00	+ Help
Extended Data Checks	Lock Triangulation
Features Load Tagged Graphics	Results Number of Points: 7023
Delete Surface Contents	Number of Triangles: 13333
Filter Tolerance: 0.00	Elapsed Time (Seconds): 0
	More

20. **<D>** the **More** button. The *Surface Properties* dialog will appear.

Advanc	eu						
Surface:	12345SUF	RVSurface 🔻					Report
Name:	12345SUF	VSurface01					Help
Description:							
Maximum Lengt	th: 0.00						
Preference:	Default	-					
Гуре:	Existing	-	-Data Totals-	Active	Features	Deleted	Total
Use Extende	ed Data Check	ŝ	Random:	1000	89	506	1506
Lock Triang	ulation		Breakline:	6023	450	0	6023
Data Range			Contour:	0	0	0	0
Point Type:	Total	-	Inferred:	0		0	0
Northing:	Minimum 1531966 21	Maximum 1558577 52	Interior:	0	0	0	0
Fasting:	3236901.35	3303597.87	Exterior:	0	0	0	0
Elevation:	6348 55	6795 73	All Points:	7023	579	506	7529
Elevelion.	0040.00	0/00.70	Triangles:	13333		53	13386

- 21. Verify you are working with the correct surface 12345SURVSurface01.
- 22. Review the section for *Data Rang*e. The Northing, Easting, and Elevation values should fall within the project limits.

Main Advanced	i						
Surface:	12345SUF	VSurface 🔻					Report
Name:	12345SUR	VSurface01					Help
Description:							
Maximum Length:	0.00						
Preference:	Default	•					
Туре:	Existing	•	- Data Totals -	Active	Features	Deleted	Total
Use Extended	Data Checks	3	Random:	1000	89	506	1506
Lock Triangula	tion		Breakline:	6023	450	0	6023
Data Range			Contour:	0	0	0	0
Point Type:	Random	-	Inferred:	0		0	0
Northing: 1	Minimum 531966.21	Maximum 1558577.52	Interior:	0	0	0	0
Easting: 3	236901.35	3303597.87	Exterior:	0	0	0	0
Elevation:	6348.55	6795.73	All Points:	7023	579	506	7529
			Triangles:	13333		53	13386

23. In the *Data Range* section, change the drop down selection to **Random**.

- 24. Review the *Random* point range.
 - **Note:** As part of your evaluation of the surface you are looking for a large error in the data such as a zero elevation, or truncated coordinates.
- 25. In the *Data Range* section, change the drop down selection to **Breakline**.

ourface:	12345SUF	RVSurface 🔻					Report
lame:	12345SUF	VSurface01					Help
)escription:							
Maximum Leng	th: 0.00						
reference:	Default	•					
ype:	Existing	•	Data Totals	Active	Features	Deleted	Total
Use Extend	led Data Checks	s	Random:	1000	89	506	1506
Lock Triang	gulation		Breakline:	6023	450	0	6023
Data Range			Contour:	0	0	0	0
Point Type:	Breakline	•	Inferred:	0		0	0
Northing:	Minimum 1553644.87	Maximum 1556720.97	Interior:	0	0	0	0
Easting:	3277675.01	3290683.68	Exterior:	0	0	0	0
Elevation:	6388 11	6634.91	All Points:	7023	579	506	7529
Elevelon.	0000.11	0004.01	Triangles:	13333		53	13386

- 26. Review the *Breakline* point range.
 - *Note:* Having the flexibility to review our data by type can help when trying to track down errors in the DTM.

- 27. On the Advanced tab choose Cross Sections Symbology: T_Existing_Ground
- 28. On the *Advanced* tab choose **Profiles Symbology: T_Existing_Ground**

ain	Advanced							
Surfac	ce: 1234	5SURVSurface 👻						
Cross	Sections						He	ln
Symbo	ology: T_Exi	isting_Ground			•	Use F	eatures Only	*
Deefile								
Symbo	ology: T Exi	isting Ground			•	Lock	Symbologies	
Offset	Distance	Symbology		Color	Offset	Distance	Symbology	Со
1:	0.00	Default	-		9:	0.00	Default	
2:	0.00	Default	•		10:	0.00	Default	
3:	0.00	Default	•	Í	11:	0.00	Default	1
4:	0.00	Default	-		12:	0.00	Default	
5:	0.00	Default	•		13:	0.00	Default	
6:	0.00	Default	•		14:	0.00	Default	Ī
7:	0.00	Default	•	Ī	15:	0.00	Default	7
8:	0.00	Default	•		16:	0.00	Default	Ī
								_

- 29. **<D> Apply** then **Close** in the *Surface Properties* dialog.
- 30. **<D>** the **Close** button in the *Triangulate Surface* dialog.
- 31. Use the *Workspace* pane scroll **arrows** to view the *Surfaces* tab.
- 32. Verify 12345SURVSurface01 is the active surface.
 - Note: You can change the active surface from the pull down menu
 Surface > Active Surface; highlight the surface name and <D> the Apply button.
- 33. From the pull-down File > Save > Surface. The Save As dialog will appear with the Save as type set to Surfaces (*.dtm).

X Save As				2
Save in:	📗 Working	- () 🦸 📂 🛄	•
æ.	Name	Ŧ	Date modifi	ed
Recent Places		No items match your sear	rch.	
Desktop				
CDOT CDOT				
Computer				
	•	III		
Network	File name:	12345SURVSurface01.dtm	•	Save
INCLWOIK	Save as type:	Surfaces (*.dtm)	•	Cancel
				Help

34. Verify you are in the correct project directory. C:\Projects\12345\ROW_Survey\Working

- 35. The file name should match the **Active** name at the bottom of the **Save As** dialog. If necessary, use the drop-down arrow in the **Active** field and reselect the desired name to ensure the saved file name will match the surface name.
 - **Note:** Ensuring that the saved Surface name in the project folder matches the Surface name displayed in InRoads explorer will minimize any confusion.
- 36. **<D>** the **Save** then **Cancel** button. The file will be saved to disk and the *Save As* dialog will close.

Lab 7.2 - Correcting Crossing Segments

 From the pull-down menu select, Surface > View Surface > Crossing Segments. The View Crossing Segments dialog will appear.

🔣 View Crossii	ng Segments			• 🗙
Surface:	12345SURVSu	face0 🔻	-	pply
Fence Mode:	Ignore	-	0	lose
Crossing Segme	nt Character:	X	Re	sults
Mismatched Elev	0	Prefe	rences	
				Help
Symbology:				
Object		Name		
Segment Cr	ossing Point	InRoads	Misc	BYLEV
Mismatched	Elevation	InRoads	Misc	BYLEV

- 2. Verify from the *Surface* drop down **12345SURVSurface01** is selected.
- 3. **<D>** the **Preferences...** button. The *Preferences* dialog will appear.

Preferences	83
Name:	Close
Default	Load
	Save
	Save As
	Delete
	Help
Active Preference: CDOT	

- 4. *Select* the **CDOT** preference
- 5. **<D>** the **Load** then **Close** buttons.
- 6. **<D>** the **Apply** button from the *View Crossing Segments* dialog. The graphics *X* and *O* will be displayed and the *Results* button will be come active.

🔣 v	iew Crossin	ig Segments				
Surfa	ace:	12345SURVSur	face0 💌	Apply		
Fen	ce Mode:	Ignore	-	C	lose	
Cros	sing Segmer	nt Character:	X	Re	sults	
Misn	Mismatched Elevation Character:			Preferences		
				H	lelp	
Sym	bology:					
	Object		Name			
\boxtimes	Segment Cr	ossing Point	InRoads	Misc	BYLEV	
	Mismatched	Elevation	InRoads_	Misc	BYLEV	

7. **<D>** the **Results** button. The *Results* report will appear locating all mismatched and crossing segments.

🔣 View Crossing Segments 🛛 🗆 🖾							
Surfa	ice:	12345SURV9	Surface0	•	Apply		
Fenc	e Mode:	Ignore		-	Close		
Cross	sing Segmen	t Character:	X		Results	.)	
Mismatched Elevation Character			r: 0		Preference	s	
					Help		
Symb	ology:						
	Object		Name				
	Segment Cro	ossing P	InRoads	Mise		BYL	
\square	Mismatched	Elevatio	InRoads	_Miso	•	BYL	

8. Review the results.

Kesults	(
View Crossing Segments Mismatched elevation T_Terrain445 (Ignored) (3289039.42, 1554253.52, 6413.68) (3289036.87, 1554257.59, 6413.14) T_Terrain320 (3283817.50, 155536.22, 6522.71) (3289060.88, 1554250.54, 6415.31) Point of Intersection (3289037.74, 1554256.21, 6413.33) (2000020, 14, 1554256.21, 6413.33)	•	Close Save As Append Display Print Help
<	•	

Note: This report can be saved to the design file or text file if needed.

9. **<D>** the **Close** button on the *Results* dialog.

- 10. From the pull down menu, select **Survey > Find Point in View**
- 11. Find Point Name: 9622 Radius: 20



- **Note:** The terrain breakline running left to right is crossing multiple other terrain breaklines. In this particular situation a solution would be to break the terrain line using a Start control code.
- 12. **<D>** the *Fieldbook* **button** from the Survey toolbar. The survey *Fieldbook Data* dialog will appear.

- Tradition bala dialog.
- 13. Locate point name **9631** in the fieldbook using the **+** *Select Observation* button from the *Fieldbook Data* dialog.

14. **<R>** the point name **9631** and select **Edit** from the shortcut menu or double click the point name. The *Edit Observation* dialog will appear for point *9631*

Edit Observation					
Point Name: K	9631	>>	Notes:		Apply
Туре:	Fixed -				Close
Horizontal Observation:					Help
Vertical Observaton:					nop
Slope Distance:			Attributes:		
Code:	6001.00134		Code	Name	Value
Target Height:					
Northing:	1554779.68				
Easting:	3287407.54	+			
Elevation:	6421.58				

15. Type in the Code: 6001.00134 ST

🔣 Edit Observation					
Point Name: K	9631	×	Notes:		Apply
Туре:	Fixed -				Close
Horizontal Observation:					Help
Vertical Observaton:					Пор
Slope Distance:			Attributes:		
Code:	6001.00134 ST	1	Code	Name	Value
Target Height:		1			
Northing:	1554779.68				
Easting:	3287407.54	+			
Elevation:	6421.58				
		_			

- 16. **<D>** the **Apply** then **Close** buttons.
- 17. Review your results dynamically from the fieldbook. The terrain breakline was restarted so the breaklines are no longer crossing.



- 18. From the pull-down menu, select **Survey > Find Point in View**
- 19. Find Point Name: 14260 Radius: 20



Note: The terrain breakline is overlapping slightly where the line zig-zags. In this particular situation a solution would be to edit the XY location of the point.14

- 20. **<D>** the *Fieldbook* **(** button from the Survey toolbar. The survey *Fieldbook Data* dialog will appear.
- 21. Locate point name **14260** in the fieldbook using the **■** Select Observation button from the *Fieldbook Data* dialog.
- 22. **<R>** the point name **14260** and select **Edit** from the shortcut menu or double click the point name. The *Edit Observation* dialog will appear for point *14260*

Edit Observation					
Point Name: K	14260	<mark>>></mark>	Notes:		Apply
Туре:	Fixed 💌				Close
Horizontal Observation:					Help
Vertical Observaton:					nop
Slope Distance:			Attributes:		
Code:	6001.00236		Code	Name	Value
Target Height:					
Northing:	1554602.98				
Easting:	3287822.69	+			
Elevation:	6408.40				

23. **<D>** the **Target** button. The *Edit Observation* dialog will minimize allowing to select a point in the MicroStation view.

Point Name: K 14260 Notes: Type: Fixed ** Horizontal Observation: ** Vertical Observation: ** Slope Distance: **	Apply Close Help
Type: Fixed Horizontal Observation: Vertical Observaton: Slope Distance: Attributes:	Close Help
Horizontal Observation: Vertical Observaton: Slope Distance: Attributes:	Help
Vertical Observaton: Slope Distance: Attributes:	
Slope Distance: Attributes:	
Code: 6001.00236 Code	Name Value
Target Height:	
Northing: 1554602.98	
Easting: 3287822.69 +	
Elevation: 6408.40	

- 24. Using MicroStation snaps set the temporary snap to Nearest.
- 25. Hold down the **Ctrl** and **Shift** keys. This will enable AccuSnap when using an InRoads command.



26. Move the cursor to a point along the line string making sure the lines are not overlapping.

27. **<D>** a point in the MicroStation view to accept the point. The *Edit Observation* dialog will reappear. The new XYZ locations will be updated.

Edit Observation					- • •
Point Name: K	14260	>>	Notes:		Apply
Туре:	Fixed -				Close
Horizontal Observation:					Help
Vertical Observaton:					Holp
Slope Distance:			Attributes:		
Code:	6001.00236		Code	Name	Value
Target Height:					
Northing:	1554604.39				
Easting:	3287824.33	+			
Elevation:	6408.77				

28. **<D>** the **Apply** then **Close** buttons.

29. Review your results dynamically from the fieldbook. The terrain breakline was restarted so the breaklines are no longer crossing.



Lab 7.3 - Evaluate Surface Triangles

1. From the InRoads pull-down select, **Surface > View Surface > Triangles**. The *View Triangles* dialog will appear.

🔣 View Triangles		23
Surface:	12345SURVSurface 👻	Apply
Fence Mode:	Ignore 👻	Close
Colored Model		Preferences
Symbology:		Help
Object	Name	
Triangles		BYL

- 2. Verify **12345SURVSurface01** is the active surface.
- 3. **<D>** the **Preferences...** button. The **Preferences** dialog will appear.

Preferences	X
Name:	Close
CDOT Default	Load
Existing Proposed	Save
	Save As
	Delete
	Holo
	пер
Active Preference: CDOT	

- 4. Select the **Existing** preference.
- 5. **<D>** the **Load** then **Close** buttons.

🔀 View Triangles			83
Surface:	12345SURV	Surface 👻	Apply
Fence Mode:	Ignore		Close
Colored Model		(Preferences
Symbology:		(Help
Object	Nam	ne	
Triangles	DTM	_Ex_Triangle	s BYL

- 6. **<D>** the **Apply** button. The *View Triangles* dialog will minimize as the triangles are generated. The dialog will reappear when it is finished.
- 7. **<D>** the **Close** button in the *View Triangles* dialog.

8. Using MicroStation viewing commands Fit Active to review your results.



- 9. From the pull-down menu, select **Survey > Find Point in View**
- 10. Find *Point Name:* 1 Radius: 40



- 11. Using *MicroStation* viewing commands **Rotate View** to review your results.
 - A Rotate View
 Method: Isometric
- 12. From the tool settings dialog select Method: Isometric

 If you can not see all the triangles in the view. Go to the MicroStation pull down Settings > View Attributes and check off *Clip Back* and *Clip Front* then Apply and exit the dialog.

🔀 View Attributes	
<u>Vi</u> ew Number:	1 💌 📄 Apply To All
<u>D</u> isplay: Dista <u>n</u> ce Cueing:	Wireframe
ACS Triad	Fast Curves
<u>Background</u>	🔽 <u>Fi</u> ll
Boundary Display	y 🔲 <u>G</u> rid
Camera	Level Overrides
Clip Back	✓ Line Styles
Clip Front	Line Weights
Clip Volume	Pattems
Constructions	Pattem/Bump Maps
Dimensions	🔽 Tags
Data Fields	✓ Text
Displays <u>et</u>	Text Nodes
Fast <u>C</u> ells	Transparency

- 14. From the MicroStation pull down menu select, **Utilities > Render > Filled Hidden Line**.
- 15. Place a **<D>** in **View 1**
- 16. Review your results



- **Note:** The tree feature code 3077 that was added to the fieldbook had the elevation incorrect. The elevation error will be corrected back in the fieldbook.
- 17. Locate point name 1 in the fieldbook using the **Select Observation** button from the *Fieldbook Data* dialog.
- <R> the point name 1 and select Edit from the shortcut menu or double click the point name. The *Edit Observation* dialog will appear for point *1*.

Edit Observation					
Point Name:	1	K	Notes:		Apply
Туре:	Fixed 💌		Point added	graphically	Close
Horizontal Observation:					Help
Vertical Observaton:					Tholp
Slope Distance:			Attributes:		
Code:	3077		Code	Name	Value
Target Height:			3077	ROT	
Northing:	1555854.33				
Easting:	3283245.85	+			
Elevation:	6535.00				

19. Key-in the *Elevation:* 6525.00

Edit Observation				
Point Name: K	1	K<	Notes:	Apply
Туре:	Fixed	-	Point added graphically	Close
Horizontal Observation:				Help
Vertical Observaton:				
Slope Distance:			Attributes:	
Code:	3077		Code Name	Value
Target Height:			3077 ROT	
Northing:	1555854.33			
Easting:	3283245.85	+		
Elevation:	6525.00			

- 20. **<D>** the **Apply** then **Close** buttons.
- 21. From the View Survey toolbar toggle **ON View Planimetrics**
- 22. Review your results.
 - **Note:** The fieldbook data is now correct when the fieldbook is re-exported the Survey data to Surface the surface data will be corrected also.
- 23. From the View Survey toolbar toggle **OFF View Planimetrics**
- 24. In the MicroStation view border **Rotate** view to **Top**

Lab 7.4 - Evaluate Surface Contours

 From the InRoads pull-down select, Surface > View Surface > Contours. The View Contours dialog will appear.

View Contours		
Main Advanced L	abels	
Surface:	12345SURVSurface 🔻	Help
Fence Mode:	Ignore 👻	
Interval:	2.00	
Minors per Major:	4	
Symbology:		
Object	Name	
Major Contours Minor Contours Major Labels Minor Labels Major Depression Minor Depression	DTM_Ex_Contou DTM_Ex_Contou DTM_Ex_Contou DTM_Ex_Contou Co DTM_Ex_Contou Co DTM_Ex_Contou	ır_Major BYL ır_Minor BYL ır_Text BYL ır_Text BYL ır_Major BYL ır_Minor BYL
Apply	Preferences C	lose

- 2. Verify **12345SURVSurface01** is the active surface.
- 3. **<D>** the **Preferences...** button. The **Preferences** dialog will appear.

Name:	Close	
CDOT		_
Default	Load	
Existing		_
Existing 1' Mjr - 0.2 Minor	Save	
Existing 10' Mjr - 2' Minor		
Existing 100' Mjr - 20' Minor	Save A	s
Existing 5' Mjr - 1' Minor		-
Proposed	Delet	e
Proposed 1' Mjr - 0.2' Minor	+	-
Proposed 10" Mir - 7 Minor	Help	

- 4. Select the *Existing 10' Mjr 2'Minor* preference.
- 5. **<D>** the **Load** then **Close** buttons.

6. **<D>** the **Apply** button. The **View Contours** dialog will minimize as the triangles are generated. The dialog will reappear when it is finished.

View Contours	Labels			
Surface:	123459	SURVSurface 🔻 🚺	Help	
Fence Mode:	Ignore	-		
Interval:	2.00			
Minors per Major:	4	-		
Symbology: Object		Name		
Major Contours		DTM_Ex_Contour_Maj	or BYL	
Major Labels		DTM_Ex_Contour_Tex	t BYL	
Minor Labels		DTM_Ex_Contour_Tex	t BYL	
Major Depression	n Co	DTM_Ex_Contour_Maj	or BYL	
Minor Depressio	n Co	DTM_Ex_Contour_Min	or BYL	
Apply Preferences Close				

- 7. **<D>** the **Close** button in the **View Contours** dialog.
- 8. Using *MicroStation* viewing commands **Fit Active** to review your results.



9. From the pull-down menu, select **Survey > Find Point in View**

🔣 Find Poin	t in View
Point Name:	20005 • Apply - X - X - X
_ Radius:	40.00 Close
-	Help
1	
-0	

10. Find Point Name: 20005 Radius: 40

- **Note:** There is a problem with a random point in the roadway. The test hole location that were imported with the import wizard has a busted elevation.
- Locate point name 20005 in the fieldbook using the +
 Select Observation button from the *Fieldbook Data* dialog.
- 12. **<R>** the point name **20005** and select **Edit** from the shortcut menu or double click the point name. The *Edit Observation* dialog will appear for point **20005**.

Edit Observation				[
Point Name:	20005	K <	Notes:		Apply
Туре:	Fixed 💌				Close
Horizontal Observation:					Help
Vertical Observaton:					Tiop
Slope Distance:			Attributes:		
Code:	5950		Code	Name	Value
Target Height:			5950	ROT	
Northing:	1555939.22				
Easting:	3281241.59	+			
Elevation:	6571.51				

13. Key-in the *Elevation*: *6581.51*

Edit Observation					
Point Name: K	20005	K <	Notes:		Apply
Туре:	Fixed 💌				Close
Horizontal Observation:					Help
Vertical Observaton:					nop
Slope Distance:			Attributes:		
Code:	5950		Code	Name	Value
Target Height:			5950	ROT	
Northing:	1555939.22				
Easting:	3281241.59	+			
Elevation:	6581.51				

14. **<D>** the **Apply** then **Close** buttons. The elevation will be corrected for the final DTM export.

- 15. From the pull-down menu, select **Survey > Find Point in View**
- 16. Find Point Name: 8000 Radius: 40



Note: There is a problem with the breakline. The breakline has a bust in the rod height.

- 17. Locate point name 8000 in the fieldbook using the
 Select Observation button from the *Fieldbook Data* dialog.
- 18. **<D>** the point name *8000* then hold down the **Shift** key and select point name *8002*.

🔣 Fieldbook Data -	12345SUR\	/Fieldbook	01		C	
	🕂 📃 Duj	plicates Only		-	[Help
Stations:						
Station Name	Northing	Easting	Elevation	Code S	Status	Ba 🔺 \pm
2090	1555825.3.	.3282538.4	6547.98	1075 F	N	207
2100	1555711.4.	3283390.5	6531.03	1075 FI	N	209
10045000ID						•
Chainage: 🔣 <	6001.209		K (
Observations:						
Point Name North	ing Eas	sting E	levat Co	de	Target Heig	ht 🔺 🕂
7998 15559	17.59 3283	3142.27 65	30.65 164	2.07 -	13.27	
7999 15559	44 66 328	3143.01 65	30.22 164	207-	13.27	
8000 15559	49.45 328	3122.83 65	39.61 600	1.00209 ST	3.27	
8001 15559	47.94 328	3146.84 65	38.86 600	1.00209	3.27	
8002 15559	26.16 328	3150.09 65	38.53 600	1.00209	3.27	
8003 15559	26.17 328	3154.08 65	28.33 600	1.00210 ST	13.27	
8004 15558	82.83 3283	3148.57 65	29.00 600	1.00209	13.27	
8005 15558	69.69 328	3162.15 65	28.12 600	1.00209	13.27	-
4					10.07	•

19. **<R>** the selected list and select **Edit** from the shortcut menu. The *Edit Observation* dialog will appear.

Edit Observation					
Point Name:		> >	Notes:		Apply
Туре:	Computed -]			Close
Horizontal Observation:					Help
Vertical Observaton:]			Trop
Slope Distance:]	Attributes:		
Code:]	Code	Name	Value
Target Height:	3.27				
Northing:					
Easting:		-			
Elevation:		i	_		

- *Note:* The target height is the only field that can be edited because it has the same value for all 3 points.
- 20. Key-in the Target Height: 13.27

Edit Observation					
Point Name: < <		K <	Notes:		Apply
Туре:	Computed	-			Close
Horizontal Observation	:				Help
Vertical Observaton:					nop
Slope Distance:			Attributes:		
Code:			Code	Name	Value
Target Height:	13.27				
Northing:					
Easting:		-			
Elevation:					

- 21. **<D>** the **Apply** then **Close** buttons. The elevation will be corrected for the final DTM export.
 - **Note:** The fieldbook data is now correct when the fieldbook is re-exported the Survey data to Surface the surface data will be corrected also.
- 22. Save the Survey fieldbook. From the Workspace Bar **<R>** on **12345SURVFieldbook01** select **Save** from the shortcut menu.

Lab 7.5 - Multipoint Profile as Section check

- 1. From the pull-down menu, select **Survey > Find Point in View**
- 2. Find Point Name: 13121 Radius: 160



Note: Using the Multipoint Profile command will be used to evaluate key areas such as this culvert crossings.

- 3. Using MicroStation Level Display, Turn OFF all Terrain levels as shown above.
- 4. From the pull down menu select, **Tools > Global Scale Factors...** The *Scale Factors* dialog will appear.

Scale Fa	actors	
Text:	100.0000	Apply
Cell:	100.0000	Close
Line Style:	100.0000	

- 5. If Global Scale Factors is not an option go to the InRoads pull down menu and select: Tools > Application Add-Ins > Global Scale Factors Add-In
- 6. **<D>** the **Lock** button. The button display will change showing as unlocked.

Scale Factors			
Text:	100.0000		Apply
Cell:	1.0000	-	Close
Line Style:	100.0000		

- 7. Key-in scale **Cell: 1**
- 8. **<D>** the **Apply** then **Close** buttons.

9. From the pull down menu select, **Evaluation > Profile > Create Profile**. The *Create Profile* dialog will appear.

Create Profile General Source Include Offsets Controls	Set Name: Default Direction	Exaggeratio Vertical: Horizontal:	n 1.0000 1.0000	
Axes	Surfaces:			
Details	Object	Name		
ASCII	Default 12345SURVSurface01	Default T_Existing_Groun	d E Al	
	• [Non	ne 📃
		Prop	perties	

10. **<D>** the **Preferences...** button. The **Preferences** dialog will appear.

References		X
Name:		Close
10x Vertical 10xVert_Drain 1x Vertical		Load
1xVert_Drain 2x Vertical		Save
2xVert_Drain 5x Vertical		Save As
5xVert_Drain CDOT		Delete
SS Drain	-	Help
Active Preference: CDOT		

- 11. Select the preference name **5x Vertical**
- 12. **<D>** the **Load** then **Close** buttons.

- 13. On the General leaf key in Set Name: DTM Chk1
- 14. Verify 12345SURVSurface01 is checked in the Surfaces section.

🔣 Create Profile				
Create Profile Create Profile Source Include Offsets Controls Aves	Set Name: DTM Chk 1 Direction	Exaggeratio Vertical: Horizontal:	n 5.0000 1.0000	
Grid Details	Surfaces: Object Default 12345SURVSurface01 (III	Name Default T_Existing_Groun	d E All Poetties	3
		Apply Prefere	nces) Close	Help

15. **<D>** the **Include** leaf.

Create Profile		
Create Profile Create Profile General Source Cfisets Controls Axes Grid Axes Axes Axes Axes Axes Axes Axes Axes	Crossing Features Projected Features Bandwidth Left Offset: 0.00 Right Offset: 0.00 Include Features: Outside Band Outside Band Outside Band Outside Band Show Data Outside Elevation	
	Apply Preferences) Close	Help

- 16. Check ON the *Crossing Features* box.
- 17. Check ON the *Display Planimetrics* box.

- 18. **<D>** the **Controls > Limits** leaf.
- 19. Check Off the Window Clearance Apply box.

Create Profile	Elevation	Example
General Source		₽ T <u>P</u> P
Include	High: 1000.00	
Offsets	Low: 0.00	Contraction of the local division of the loc
Limits	From Cogo Points From Regression Points	воттом
Grid	Station	
🗎 Details	Use Use	
ASCII	Start: 0+00.00 +	
	Stop: 0+00.00 +	
	Window Clearance	
	Тор: 0.00 +	
	Bottom 50.00 +-	
		and the second second

20. **<D>** the **Apply** button. The dialog will minimize allowing you to select points in the MicroStation view.

- 21. **<D>** a point in the MicroStation view at the north end of the and center of the road.
 - There is no need to hold down on the Left mouse button.
- 22. Move the cursor, a line will begin to generate



- 23. **<D>** a second point perpendicular across the roadway crossing the culvert, as shown above.
- 24. **<R>** to quit defining profile extraction vertices.
- 25. **<D>** a location in the MicroStation view to draw the profile. The *Create Profile* dialog will reappear and the Profile is generated in the view.
- 26. Review your results.
- 27. Continue to Create Profiles at key locations.
 - Culvert Crossings
 - ♦ Driveway Entrances
 - ♦ Centerlines

When finished:

- 28. Using MicroStation Delete button. Delete all DTM Check profiles.
- 29. Save the Survey fieldbook. From the Workspace Bar **<R>** on *12345SURVFieldbook01* select Save from the shortcut menu.