


“Field to Finish” Working with AutoCAD Civil 3D

Shawn Herring
Civil Applications Engineer @ ProSoft, Inc
Training & Support Manager



Autodesk
Approved Instructor

AutoCAD
Civil 3D 2013
Certified Professional
Autodesk


Introduction:

Shawn Herring

- **9 years in Civil Engineering Community**
 - Drafter/Designer
 - CADD Manager
 - Project Manager
 - Civil Engineer
- **3+ Years with Autodesk Reseller**
 - Teach and Support Civil 3D, Map 3D, SSA and AutoCAD
 - Civil 3D Certified Professional Since 2007
 - Speak at numerous User Groups across the country
 - Manage Support/Training Staff
 - Multiple Social Media Sites

Jason Jenkins, PLS

- Jason is a Professional Land Surveyor, Licensed in the State of Utah. He has 19 years' experience in surveying and land planning, with a strong background in Civil Engineering. He was the Chief Designer and CAD Manager for an engineering firm for 9 years and has owned his own surveying firm for the last 10 years. Jason is the most recent addition to the ProSoft staff and will be a valuable asset to the civil engineering and surveying community.



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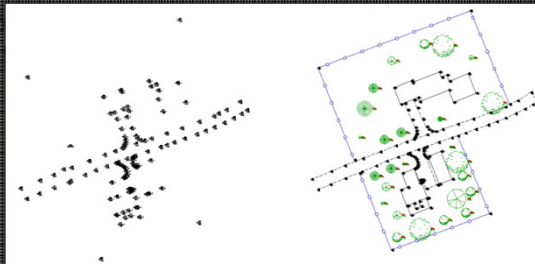
Blog – ProSoftAEC

<http://prosoftaec.blogspot.com/>

Agenda

“Field to Finish”

- Figure Prefix Database
- Linework Code Set
- Data Collection
- Editing Survey Figures
- Bonus Information
- Questions



Agenda

2:15 – 3:30 (Field)

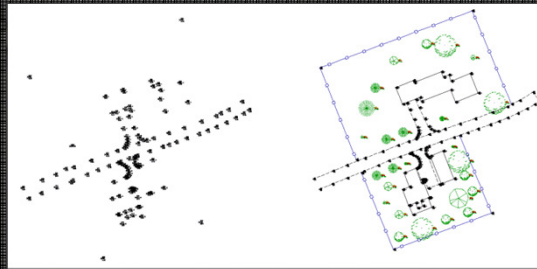
Overview of Field Collection
Survey Parking Lot!!

3:30 – 4:00

Break

4:00 – 5:30 (Finish)

Create Civil 3D Setup
Import Database
Inspect and Finish!!



Goals:

At the end of today's session...

- Learn the components and procedures required to collect linework in the field.
- Witness a workflow that will work with any survey data collection equipment.
- Learn how to quickly and easily edit survey figures
- Understand the business benefits of collecting field data in a way that line work is created automatically.

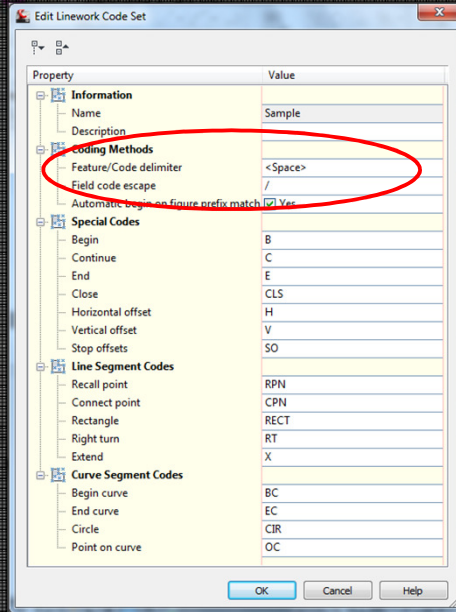
Let's Get Started....

Linework Code Set

Coding Method

Before or After
Point Description

Ex: B TBC
TBC B

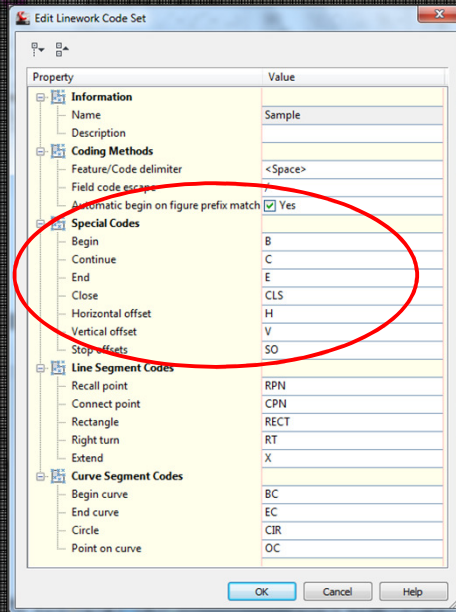


Linework Code Set

Special Codes (Most Used)

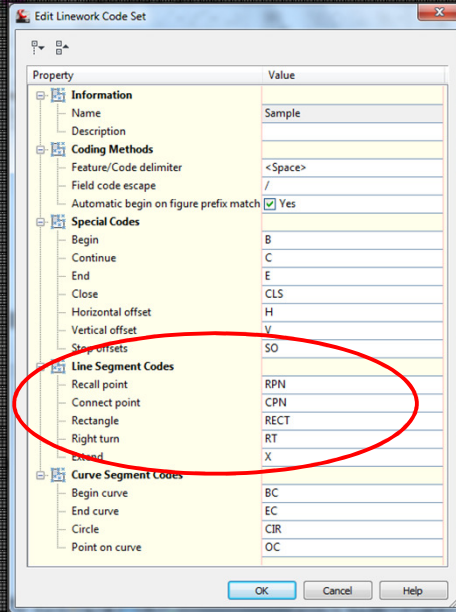
Begin and End linework

Start and Stop Horizontal
and Vertical Offsets



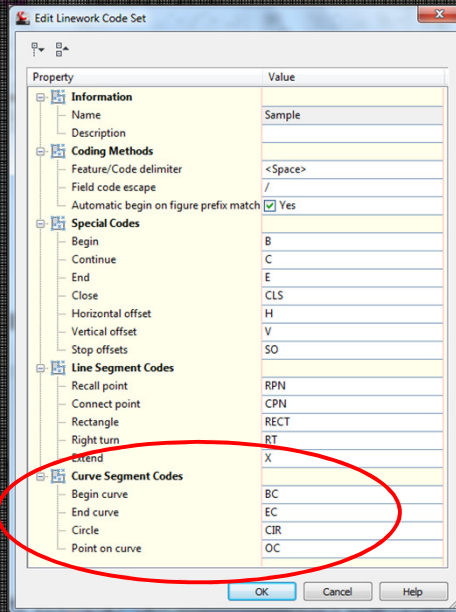
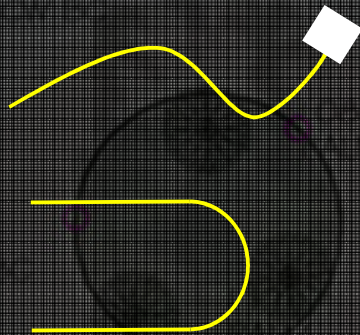
Linework Code Set

Line Segment Instructions



Linework Code Set

Curve Segment Instructions

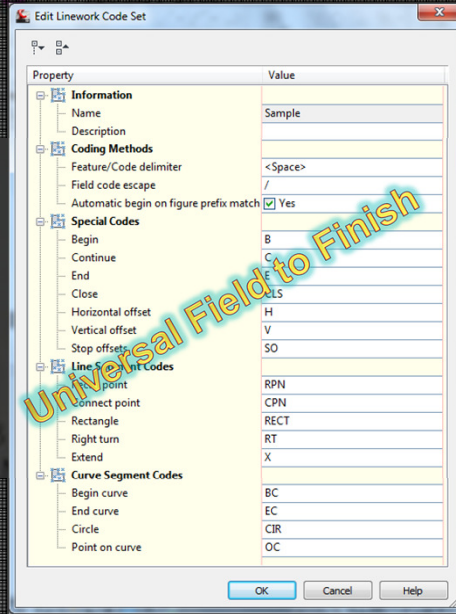


Linework Code Set

Any Code is Customizable!

Ex: **B** for Begin
 + for Begin

E for End
 - For End

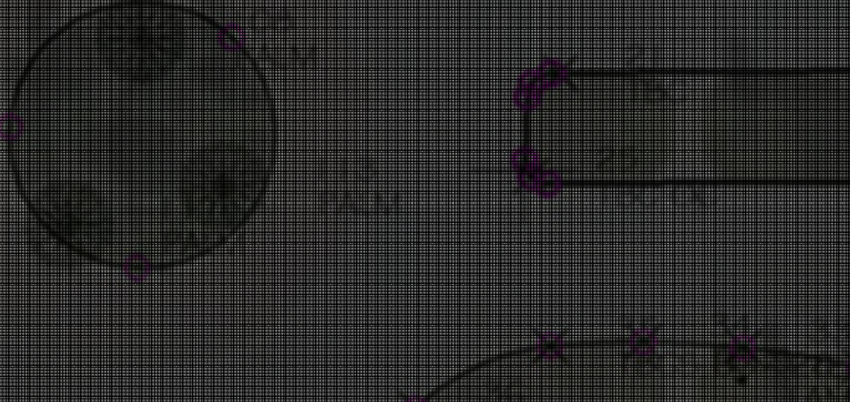


New Linework Code Set – Universal F2F

• **TBC1 B**



Lines (figures) are automatically created by connecting point descriptions if a linework code is used.

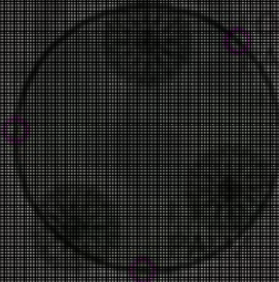


New Linework Code Set – Universal F2F

- TBC1 B
- **CL B**

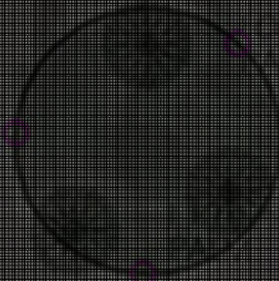


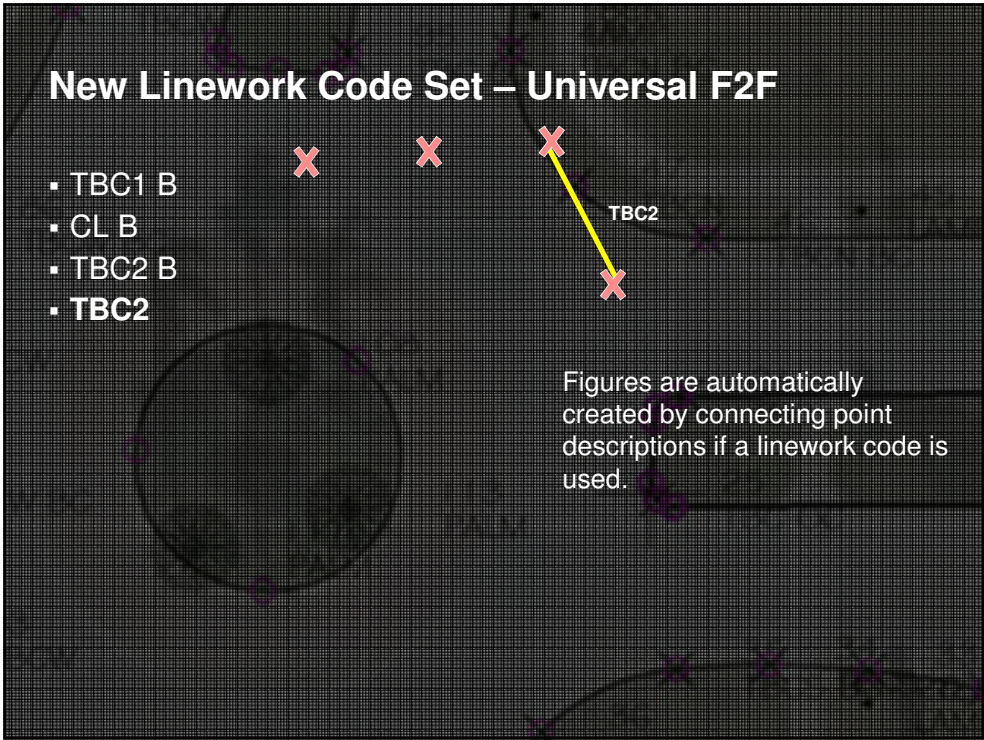
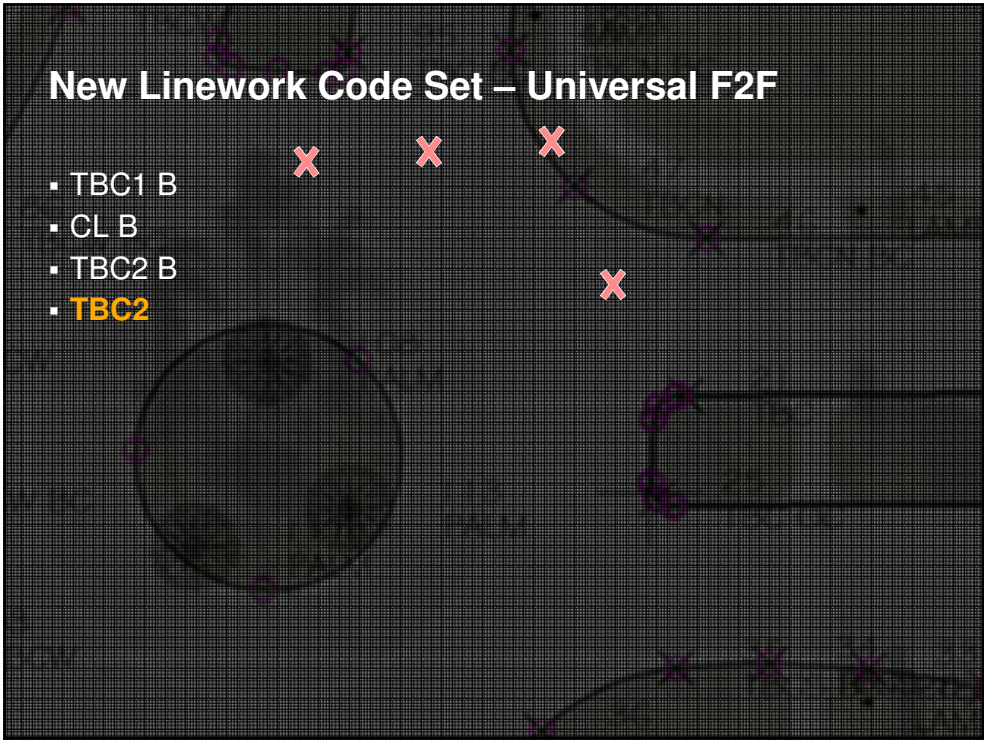
In this example B is added to the descriptions to begin linework (figures).

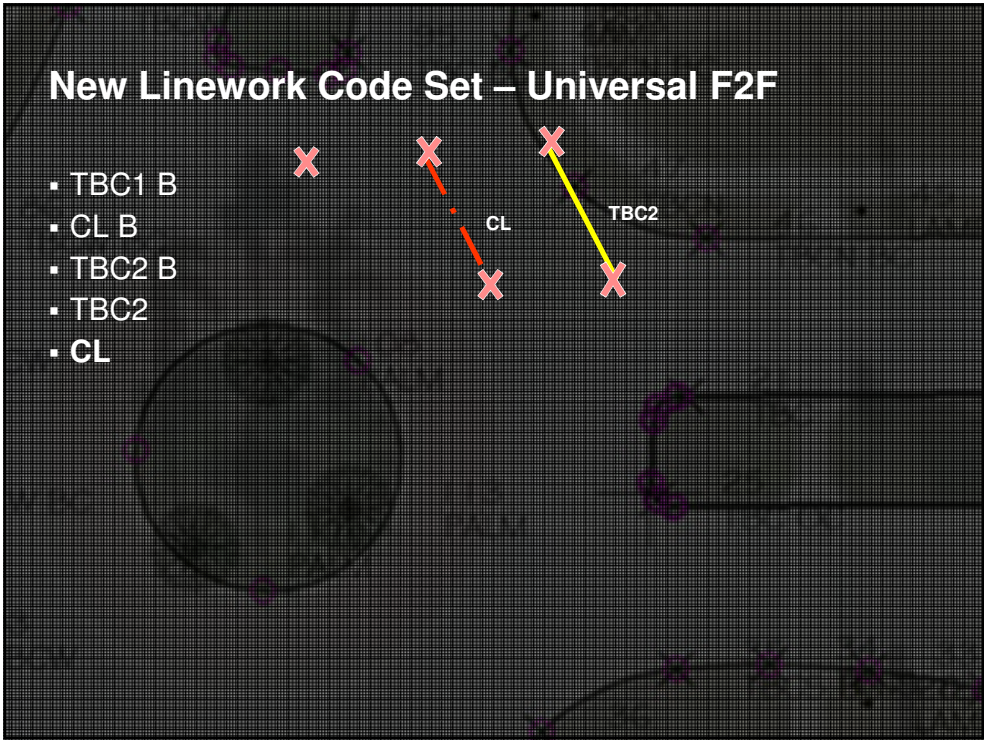
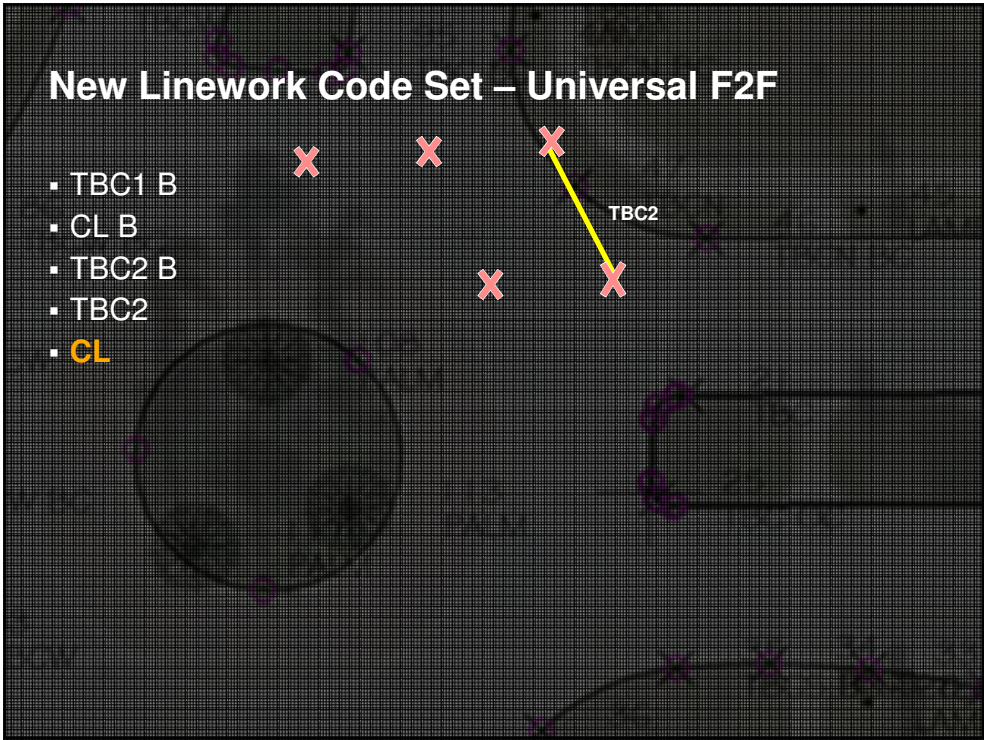


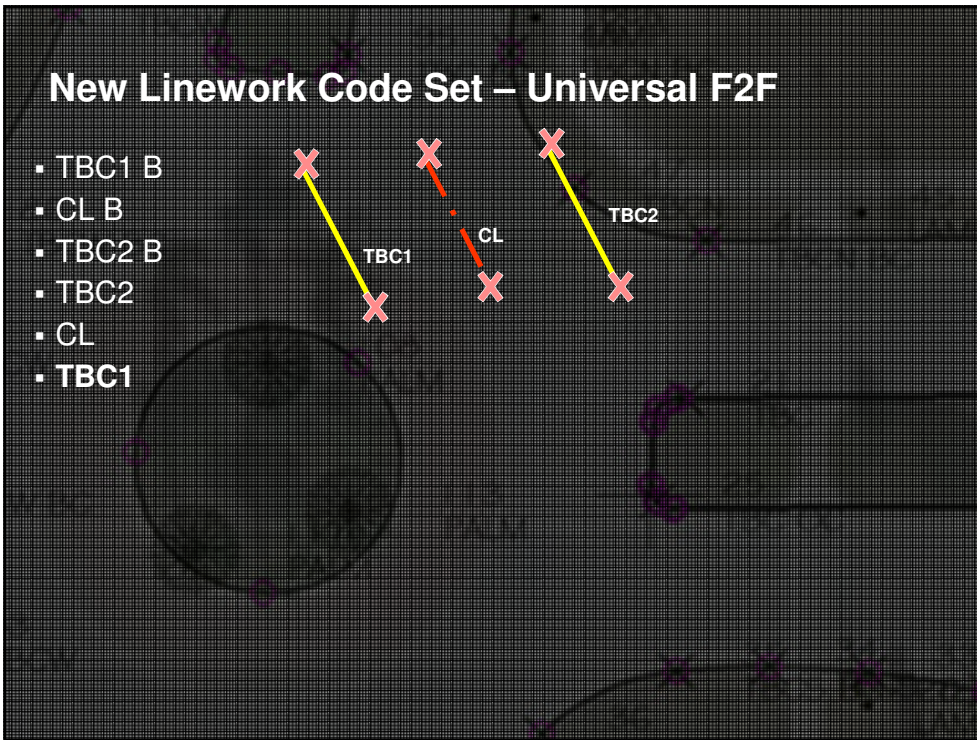
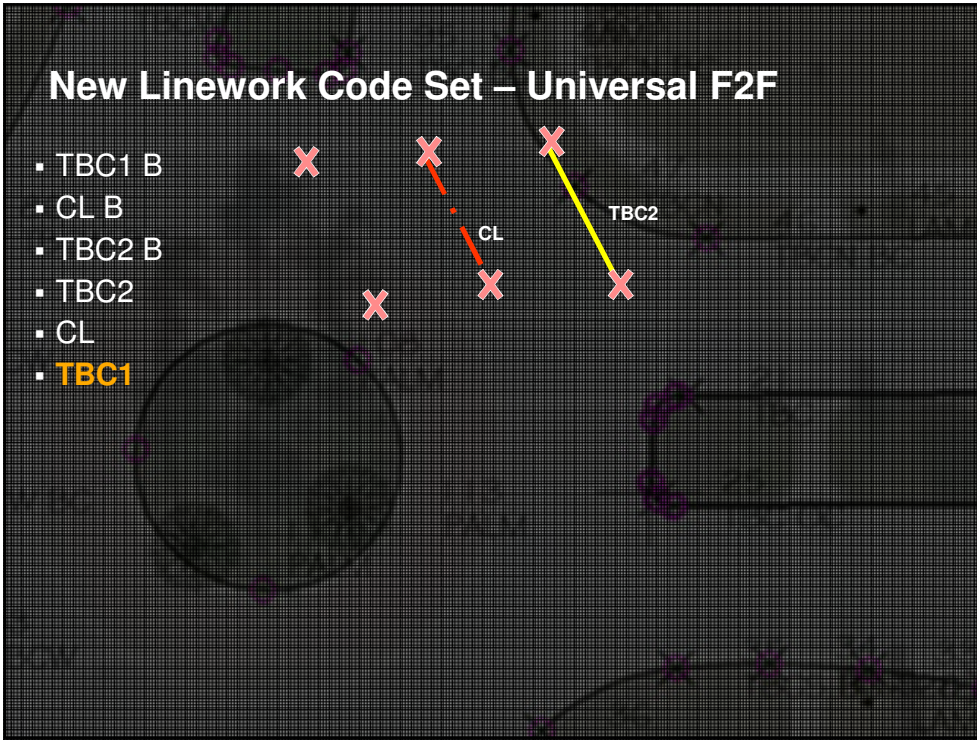
New Linework Code Set – Universal F2F

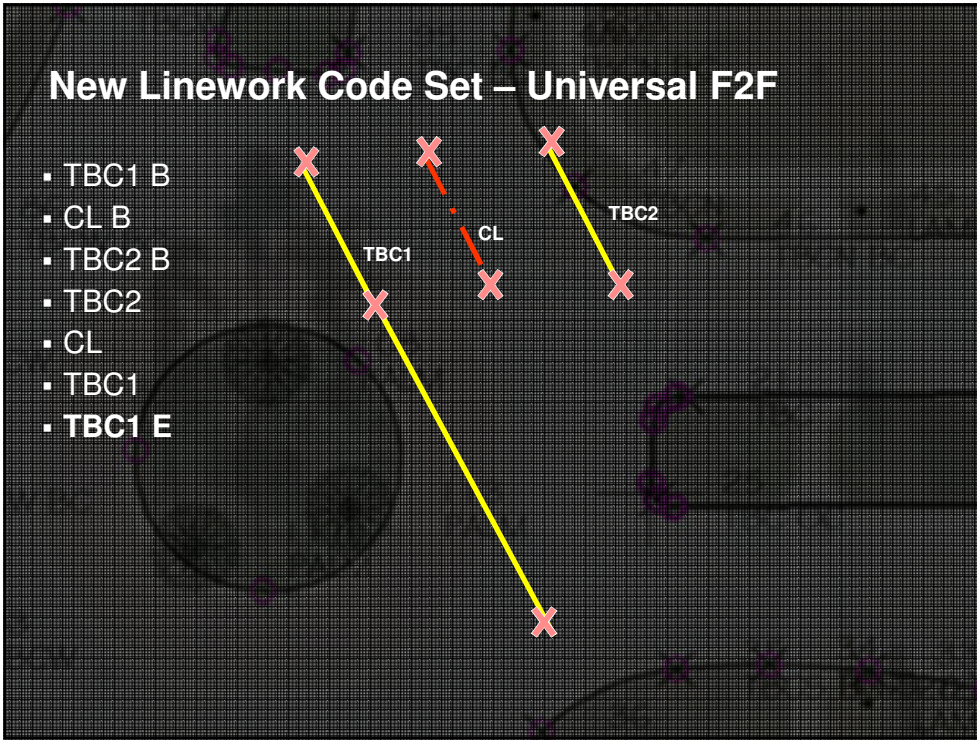
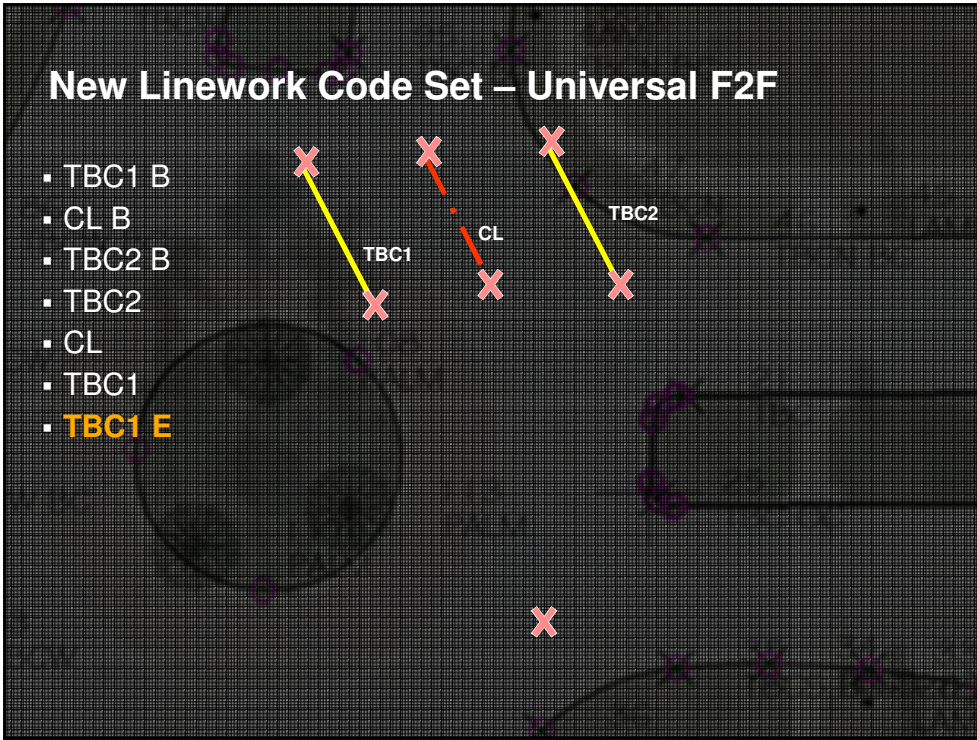
- TBC1 B
- CL B
- **TBC2 B**

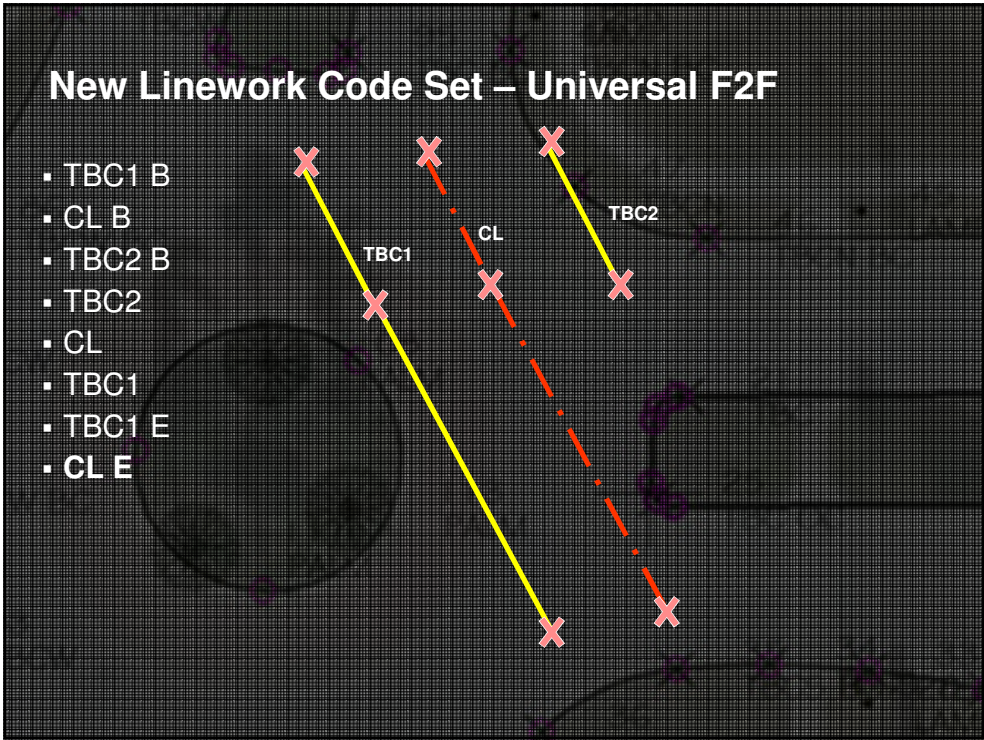
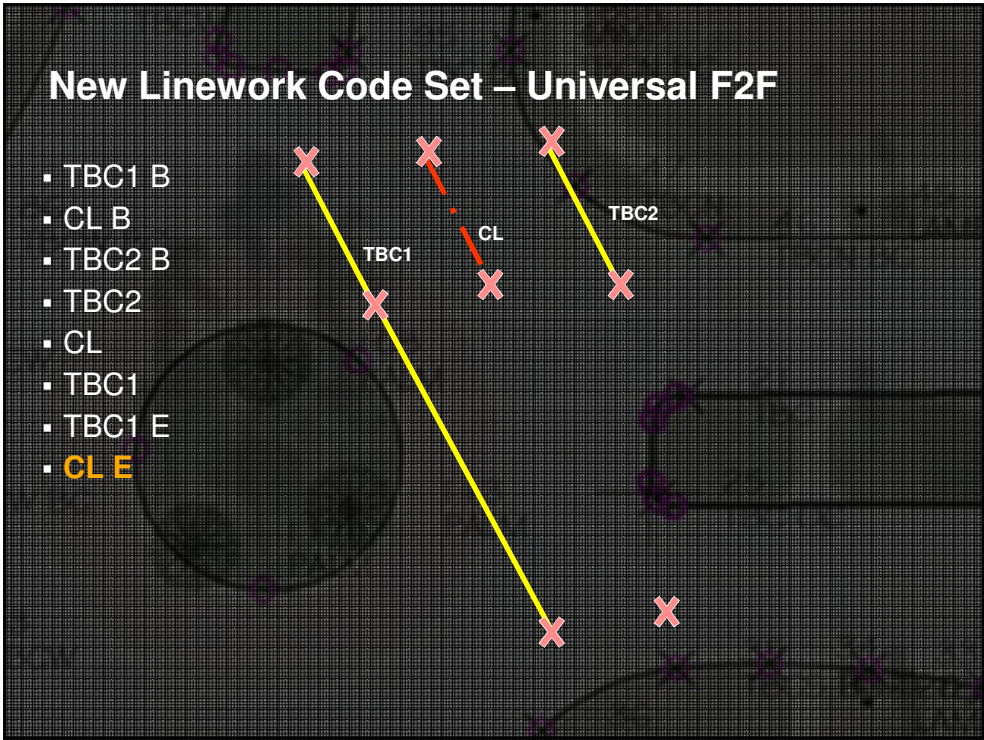


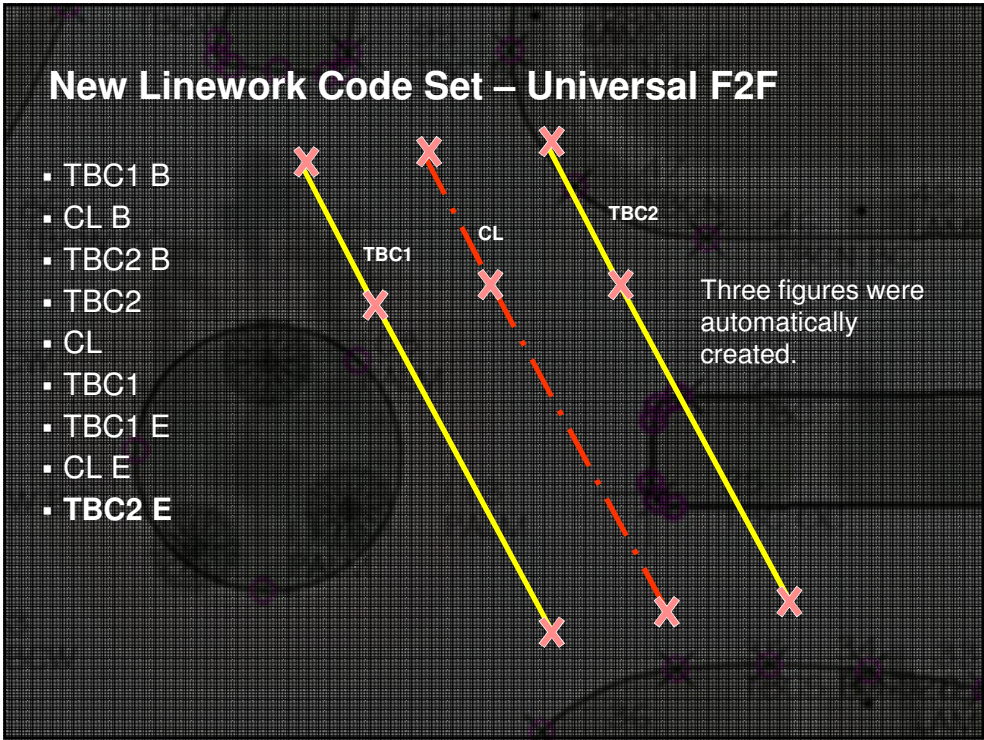
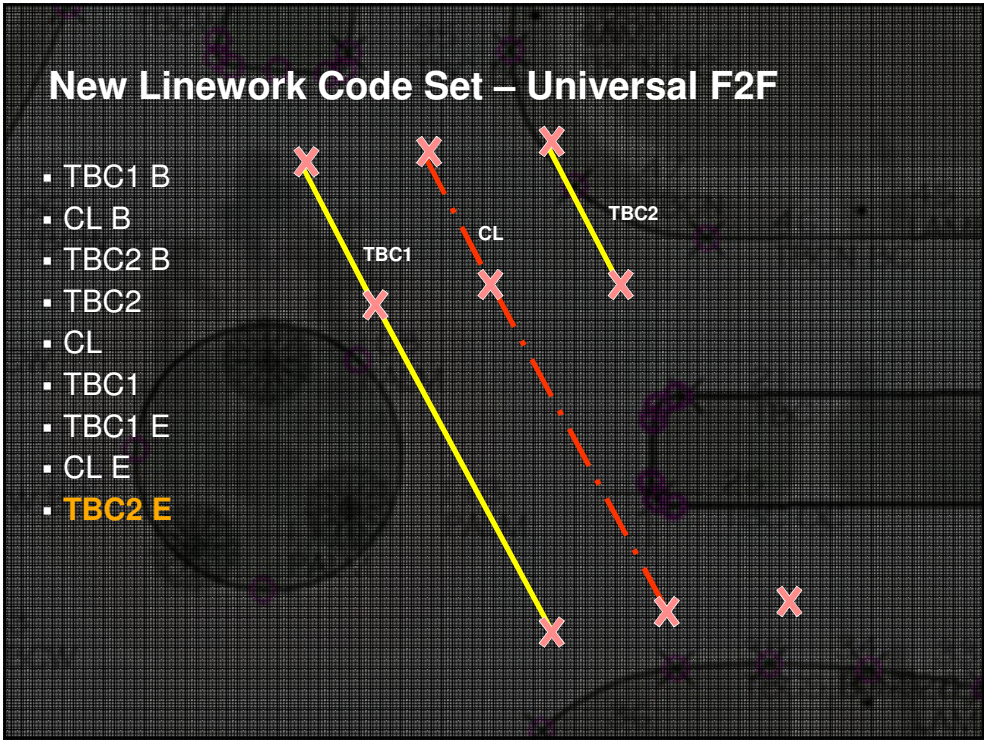




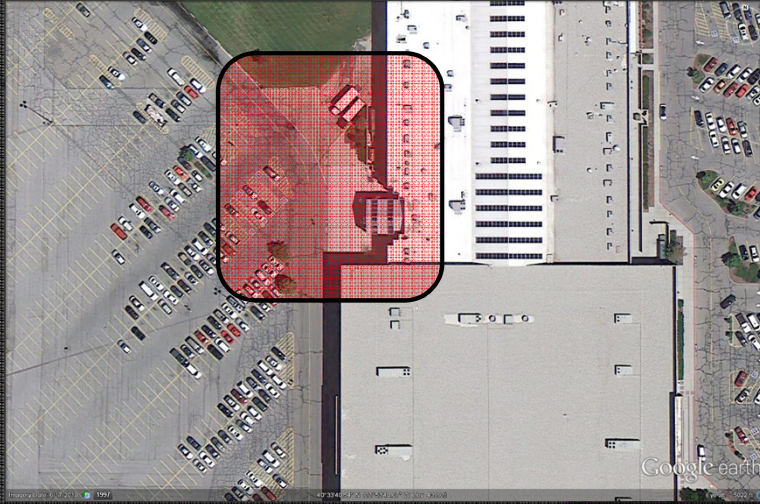








Field Demo – Parking Lot



Demonstration

- *Linework Code Set*
- *Figure Prefix Database*
- *Setup Civil 3D/Prepare to Import*

Linework Code Set

Any Code is Customizable!

Ex: **B** for Begin
 + for Begin

E for End
 - for End

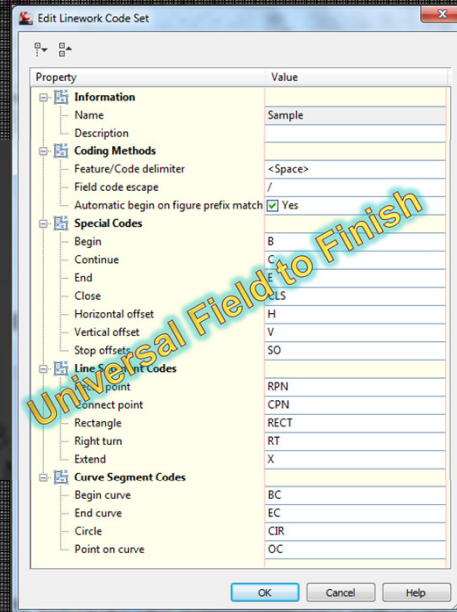
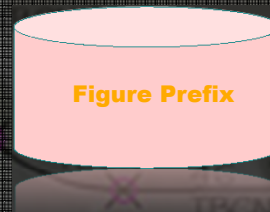


Figure Prefix Database



Name	Breakline	Lot Line	Layer	Style	Site
CFN	<input type="checkbox"/> No	<input type="checkbox"/> No	X-Chain-Link-Fer	JWB-Fences	Survey Site
TOC	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	X-CG	JWB-Curb	Survey Site
GUT	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	X-CG	JWB-Curb	Survey Site
EBC	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	X-Build	JWB-BLDG	Survey Site
SW	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	X-SW	JWB-SW	Survey Site
ASPH	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	X-Asphalt	JWB-Asphalt	Survey Site
EOP	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	X-EOP	JWB-EOP	Survey Site
OE	<input type="checkbox"/> No	<input type="checkbox"/> No	X-OE	JWB-OE	Survey Site
CONC	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	X-CONC	JWB-CONC	Survey Site
WDFN	<input type="checkbox"/> No	<input type="checkbox"/> No	X-WoodFence	JWB-WoodFence	Survey Site

Demonstration

- "FINISH"
- *Edit and Queries*
- *Surface creation*

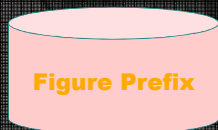
Survey Database Files:



- Survey Database



- Equipment Database



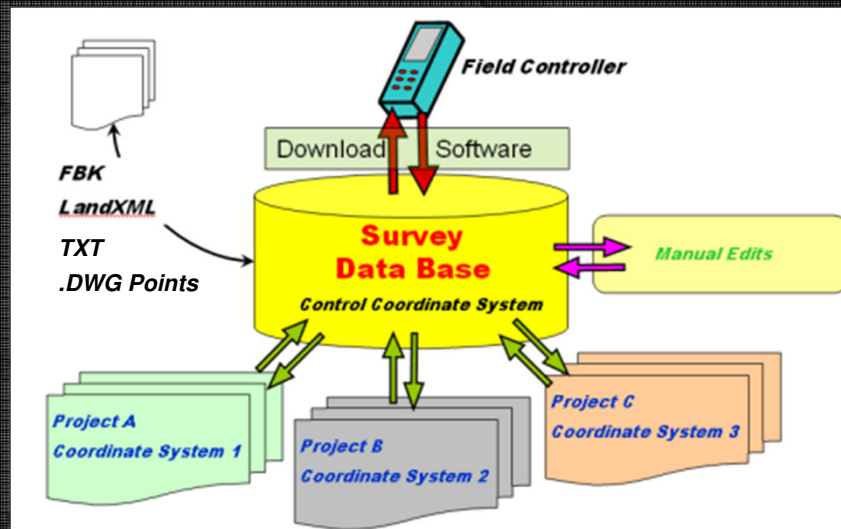
- Figure Prefix Database

Survey Database:

- **Import Events**
Who, What, When...
- **Networks**
An Event in the Field
- **Figures**
Linework
- **Survey Points**



Survey Database:

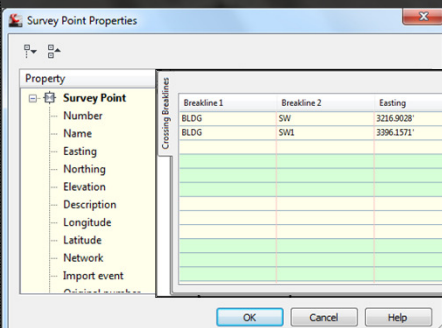


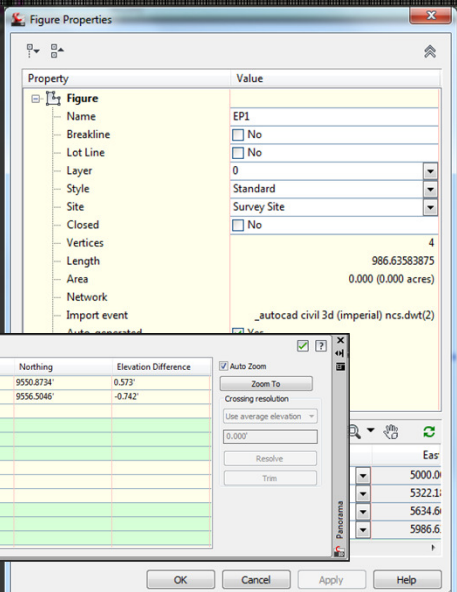
Demonstration

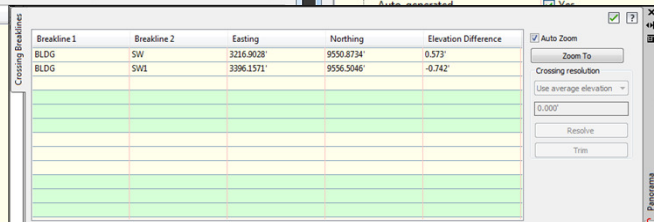
- *Process Field Data*
- *Simulate Data Collection*
- *Lines, Curves, Double Coding...*

Editing Survey Figures:

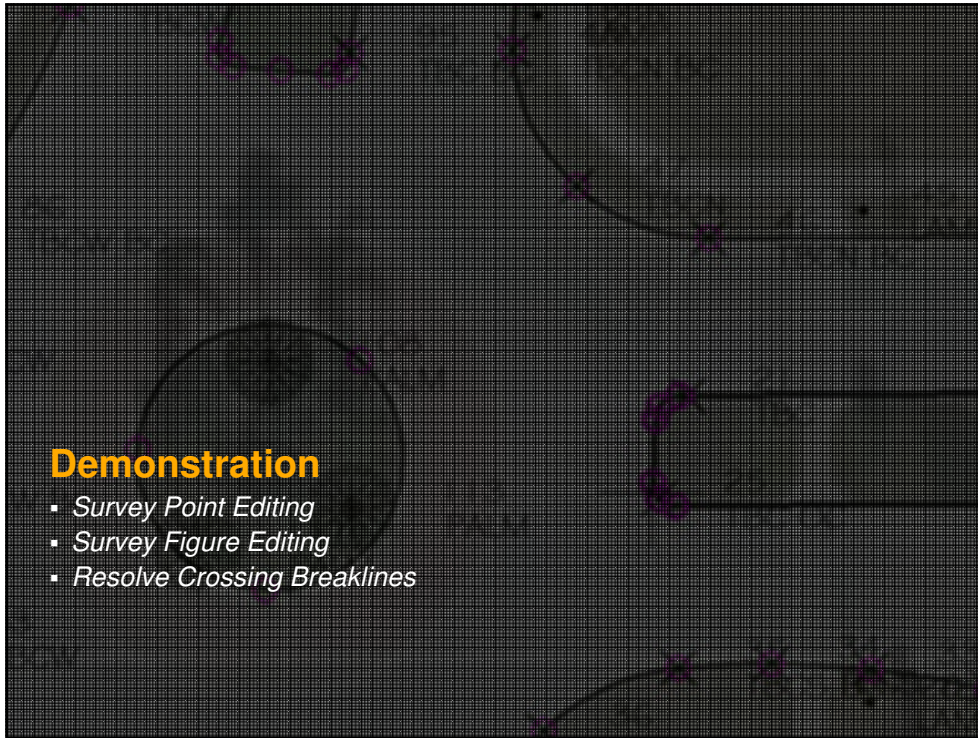
- Survey Point Properties
- Survey Figure Properties
- Resolve Crossing Breaklines







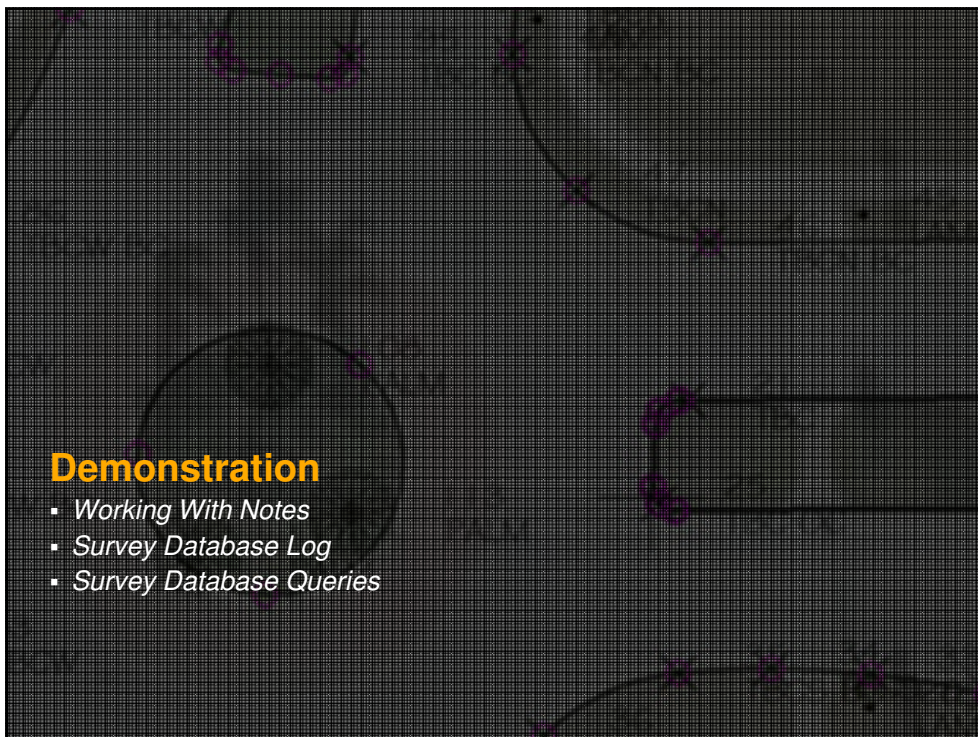
Breakline 1	Breakline 2	Easting	Northing	Elevation Difference
BLDG	SW	3216.9028	9550.8734	0.573
BLDG	SW1	3396.1371	9556.5046	-0.742



Demonstration

- *Survey Point Editing*
- *Survey Figure Editing*
- *Resolve Crossing Breaklines*

The image shows a dark, textured background representing a survey map. It features several purple markers (crosses) placed along various lines, including a curved line at the top, a horizontal line in the middle, and another curved line at the bottom. A circular callout highlights a specific area on the left side of the map.



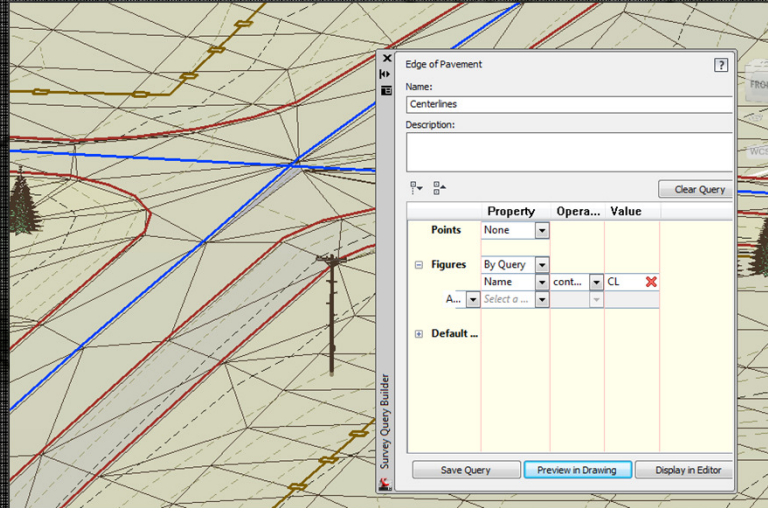
Demonstration

- *Working With Notes*
- *Survey Database Log*
- *Survey Database Queries*

This image is identical to the one above, showing a survey map with purple markers and a circular callout. The list of demonstration topics is different, focusing on database and note management.

New Survey Query

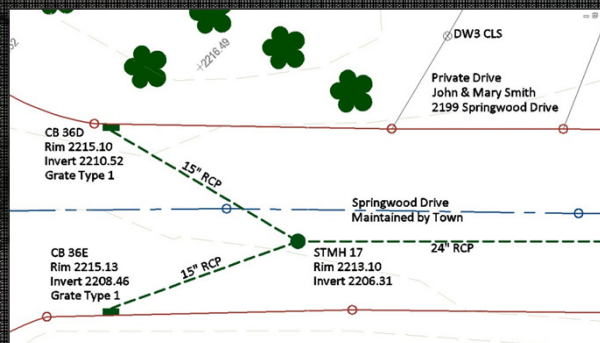
- Points and Figures
- Dynamic Surface Creation



New Survey Tools

Access to Field-Collected Survey Data

- Import
- Label
- Query



Bonus Information:

- Working with "Notes"
- Database Log

Survey Database Change Report						
Generated:	2010-11-29 19:05:03					
By user:	bartelj					
Logfile:	C:\Cred 3D Project\AU2010\AU2010.log					
User	Level	Date/Time	Source/Description	Field	Old Value	New Value
bartelj		12010-11-29 19:01:29	prj	Survey project settings saved	LoggingEnabled	No Yes
bartelj		12010-11-29 19:02:52	fig	Survey figure (355) EP1 saved	Field	Old Value New Value
				LastAz	269.1013	83.5809
				LastDist	239.106	252.613
				LastPX	2601.9114	3486.1453
				LastPY	8308.5257	8301.8904
bartelj		12010-11-29 19:02:52	nod	Survey figure node (288) 3 saved	Field	Old Value New Value
				Double0	2964.9052 (Easting)	2601.9114 (Easting)
				Double1	8251.9899 (Northing)	8308.5257 (Northing)
				Point0	76	80
				X	2964.9052	2601.9114
				Y	8251.9899	8308.5257
bartelj		12010-11-29 19:02:52	nod	Survey figure node (289) 4 saved	Field	Old Value New Value
				Double0	3234.9299 (Easting)	2830.9933 (Easting)
				Double1	8374.3485 (Northing)	8311.8433 (Northing)
				Point0	373.4230 (Easting)	3730.0033 (Easting)
				X	3234.9299	2830.9933
				Y	8374.3485	8311.8433

Mapcheck Tool / Curve Calculator Survey Link DC / Geodetic Calculator / COGO Geometry Editor

The screenshot displays four overlapping software windows:

- Coordinate Geometry Editor:** Shows a toolbar with icons for scale and rotate, and a table for traverse control with columns for Port Name / Number, Easting, Side Type, Angle/Direction, Distance, and Radius.
- Geodetic Calculator:** A property window with fields for Zone Description (NAD83 datum, Central Zone, US Foot), Point Number, Latitude (N20° 31' 27.66667336" degree DD°MM'SS.SS), Longitude (W116° 02' 57.11641970" degree DD°MM'SS.SS), Grid Northing, Grid Easting, Local Northing, Local Easting, Local Elevation, Scale Factor (1.054274685252), Convergence (-2° 54' 50.83022980" degree DD°MM'SS.SS), Sea level corrections applied, and Grid scale factor applied.
- Curve Calculator:** A property window for curve definition with fields for Degree of Curve Definition (Arc Definition), Fixed Property (Delta Angle), Degree of Curve (0°00' degree DD°MM'SS.SS), and Delta Angle (0°00' degree DD°MM'SS.SS).
- Survey Link DC 7.5.5:** A main application window with a menu bar (File, View, Transfer, Conversions, Options, Geodetic, Tools, Help) and a 'Transfer' dialog box. The 'Transfer' dialog has 'Send' and 'Receive' tabs, a dropdown for 'Which Data Collector or Total Station Is Used' (set to TDS Data Collector - HP 48), and a list of output devices including TDS Data Collector - DDS (and Onboard), TDS Data Collector - CE (Plunger and Pocket PC), Trimble Data Collector - CE (TSC4), Topcon DL-100 Digital Level, Topcon GTS210/220/010 Total Station, Nikon DS-48 Total Station, Nikon DTM-300 Total Station, Nikon DTM-310 Total Station, Nikon DTM-400 Series Total Station, Nikon DTM-500 Series Total Station, Nikon DTM-700 Total Station, Nikon DTM-800 Total Station, and Leica TC095/TC095/TC095. A note at the bottom of the dialog says: 'Note: Use this to get a file from your Data Collector into "Send" mode. Hint: Set your Data Collector into "Send" mode.' Buttons for 'Receive', 'Close', 'Stop', 'Setup...', and 'Help' are at the bottom.

Summary:

- Learn the components and procedures required to collect linework in the field.
- Witness a workflow that will work with any survey data collection equipment.
- Learn how to quickly and easily edit survey figures
- Understand the business benefits of collecting field data in a way that line work is created automatically.



Thank you!!

For further information contact us at:

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And remember to follow us at any of the below!!

