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InRoads XM

Mike Wilson
Director of Development, Road and Site Design
Bentley Civil

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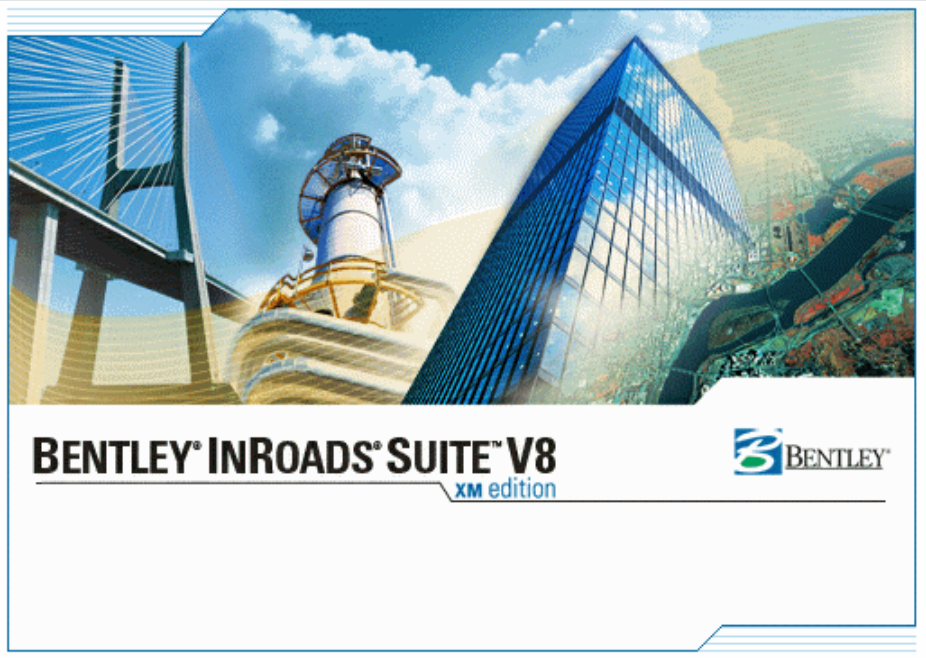
InRoads Release Update

- InRoads XM Family of Products
  - Released December, 2006
  - SP1 released in May, 2007
  - **SP2 target date is December, 2007**



InRoads Release Update

- PowerSurvey for InRoads XM
  - Released in April, 2007
  - InRoads version decoupled from the comprehensive Bentley PowerSurvey installation

Product	Download CD	Version	Date	FileSize
Bentley PowerSurvey XM for InRoads Users		08.09.00.51	4/18/2007	298.69 MB
Dependencies				
MicroStation V8 XM Edition Software Prerequisite Pack		08.09.03.09	1/24/2007	123.92 MB

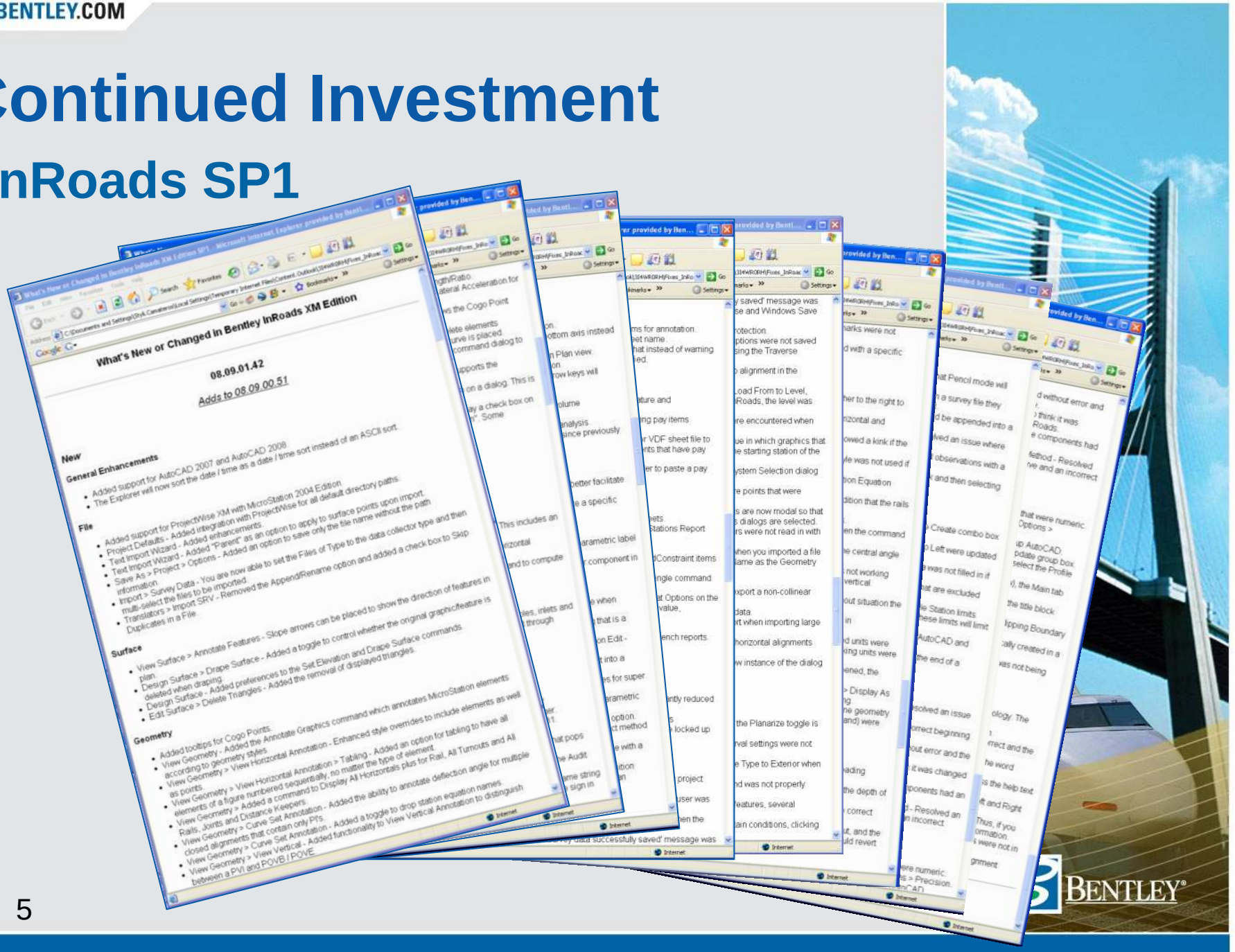
InRoads Release Update

- MicroStation EC for InRoads XM
  - Released in March, 2007
  - InRoads version decoupled from the comprehensive MicroStation Civil Extension installation

Product	Download CD	Version	Date	FileSize
MicroStation Civil Extension XM for InRoads Users		08.09.00.51	3/21/2007	110.63 MB
Dependencies				
MicroStation V8 2004 Edition		08.05.02.35	6/16/2005	221.35 MB
MicroStation V8 XM Edition		08.09.03.48	11/30/2006	176.49 MB
MicroStation V8 XM Edition Software Prerequisite Pack		08.09.03.09	1/24/2007	123.92 MB

Continued Investment

InRoads SP1



InRoads XM SP1

- Initial release allowed support for …
  - MicroStation XM with ProjectWise XM or
  - MicroStation 2004 with ProjectWise 2004 or
- SP1 adds support for …
  - MicroStation 2004 with ProjectWise XM
  - AutoCAD 2007 and 2008

InRoads XM SP2

- SP2 will contain…
  - Survey Enhancements
  - Small number of minor fixes
  - **And we always come away from this conference with ideas, suggestions and other items from YOU that need to be addressed.**

“Peaceful Coexistence”

- Mike’s definition: The ability for multiple versions of InRoads to reside on the same machine and work peacefully without interfering with the other version(s).
- Bottom line: The ability for you to begin moving to the next version of InRoads and keep using the previous version for your “projects in the pipeline”.

InRoads 8.5 SP7

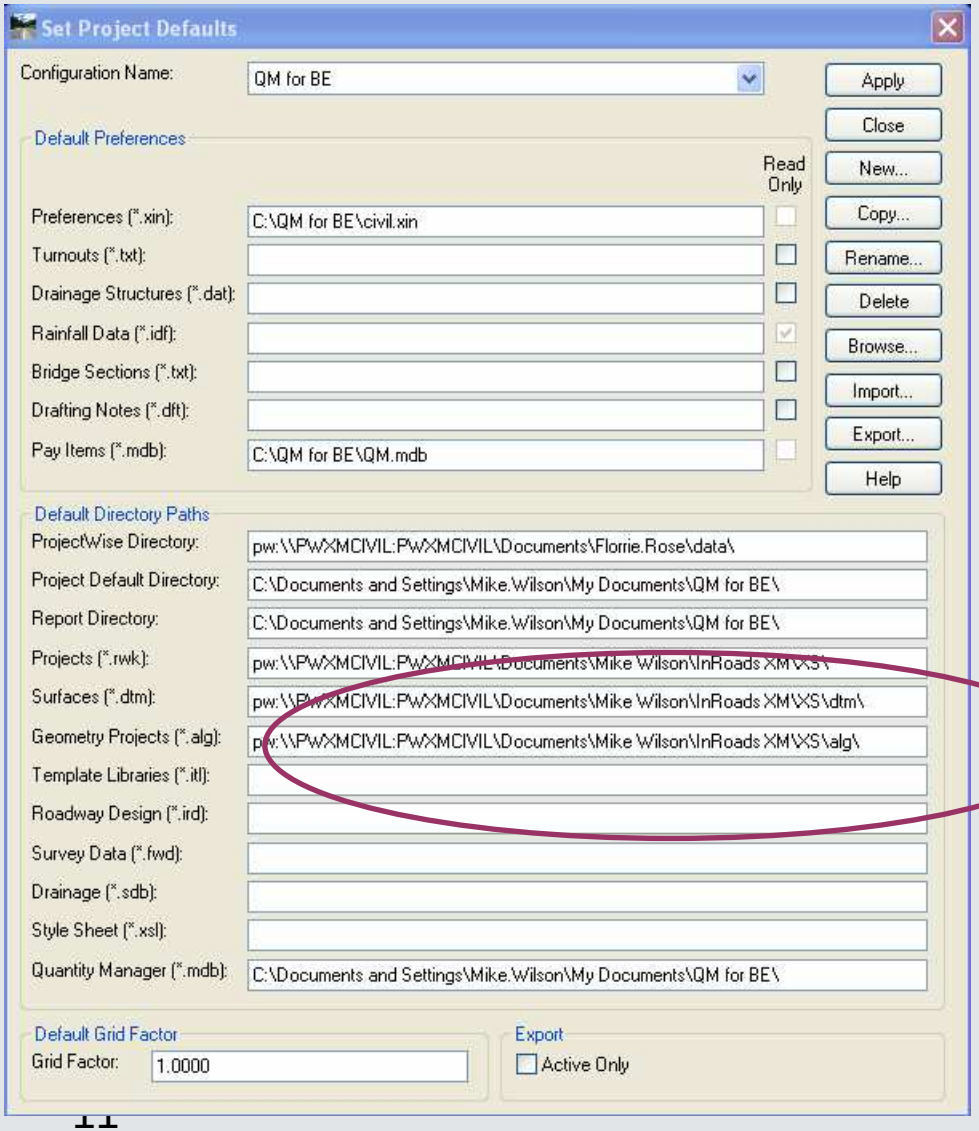
- Continue our “Peaceful Coexistence” effort
- Added support for ProjectWise XM
  - Stay on MicroStation 2004 and InRoads 8.5
- Allows for incremental XM deployment
  - Move up to ProjectWise XM first
  - Then move to MicroStation XM and InRoads XM
- Released April 24th, 2007
- Complete details in the README

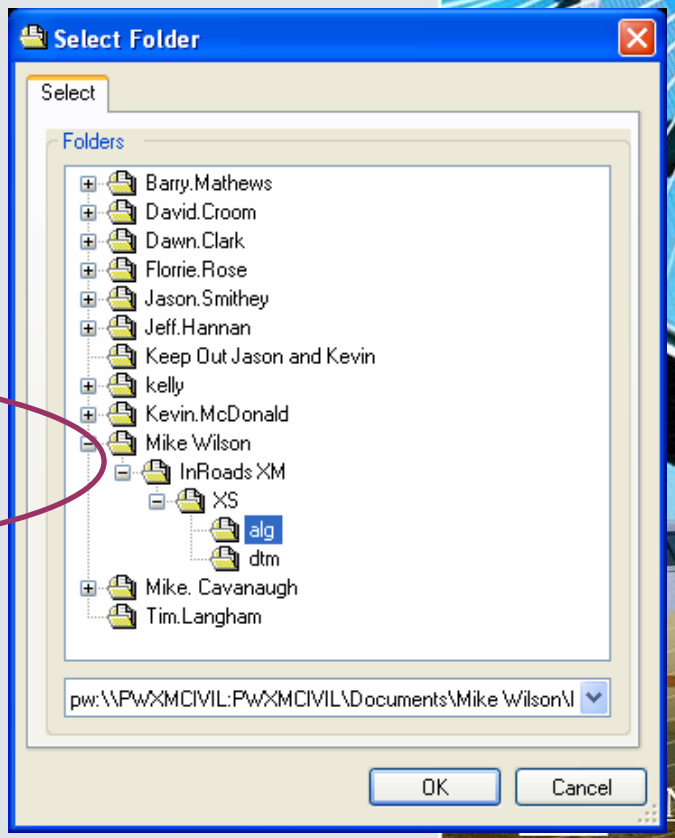
InRoads Family of Products

- "Peaceful Coexistence"
  - Multiple InRoads Versions
    - » InRoads 8.5 – February 2004
    - » InRoads 8.7 – June 2005
    - » InRoads 8.8 – June 2006
    - » InRoads 8.9 – December 2006

	InRoads			
	8.5	8.7	8.8	8.9
MicroStation 2004	X	X	X	X
ProjectWise 2004	X	X	X	X
MicroStation XM				X
ProjectWise XM	X			X

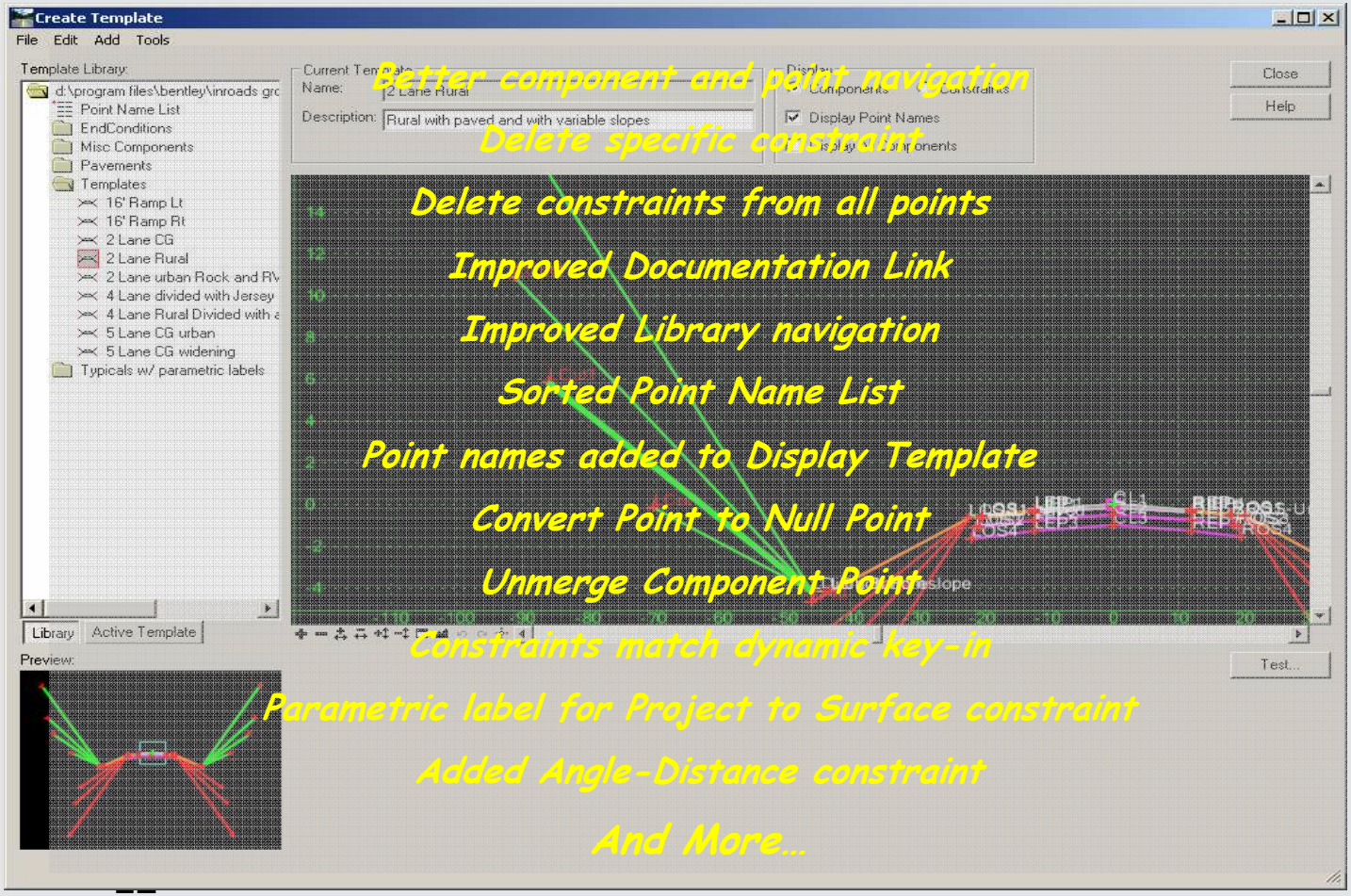
Improved ProjectWise Integration in SP1





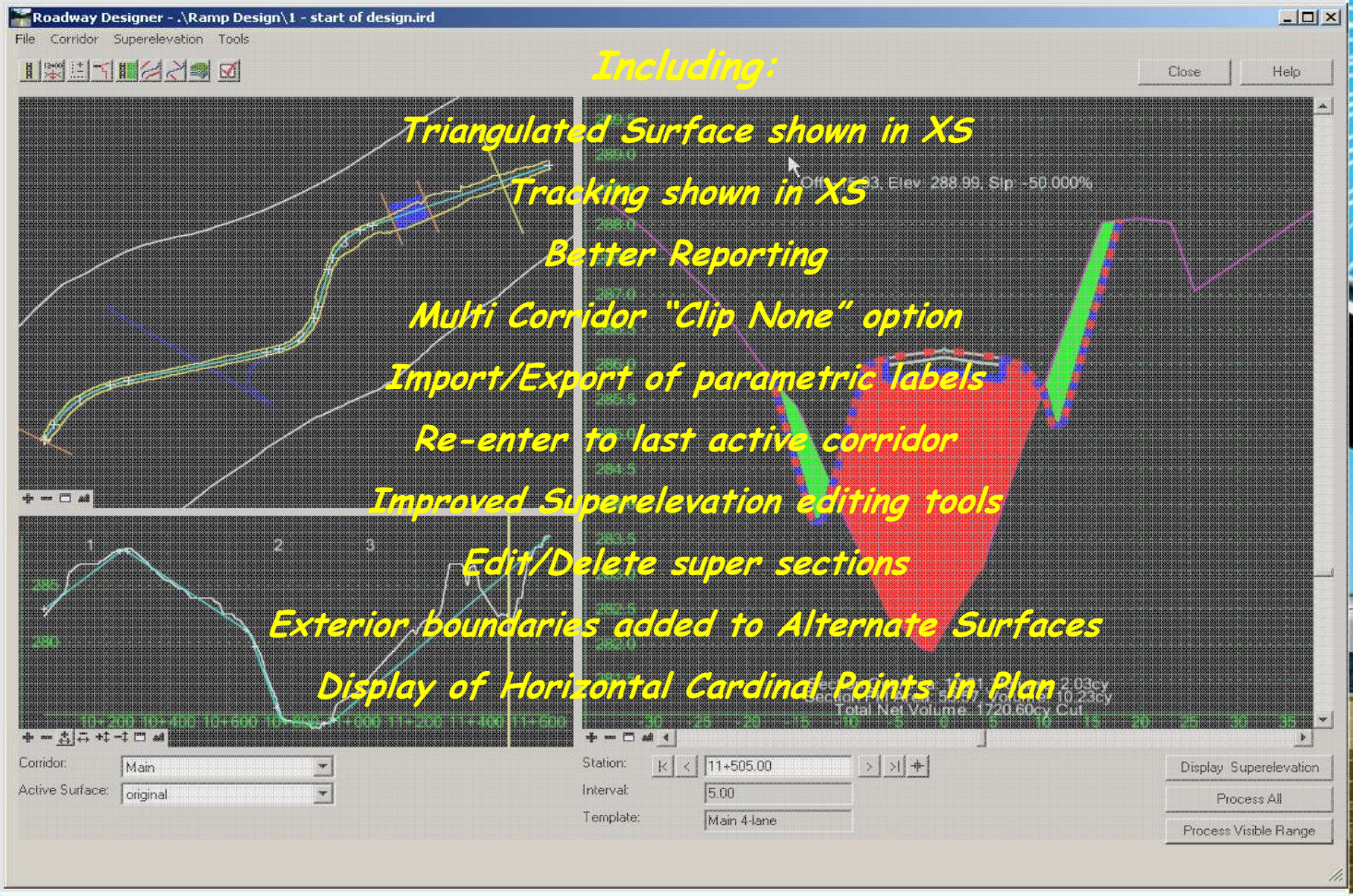
Create Template

- Continued enhancements for productivity and workflow



Roadway Designer

- Again, continued enhancements!!



Quantities Enhancements

Quantities from Graphic Elements

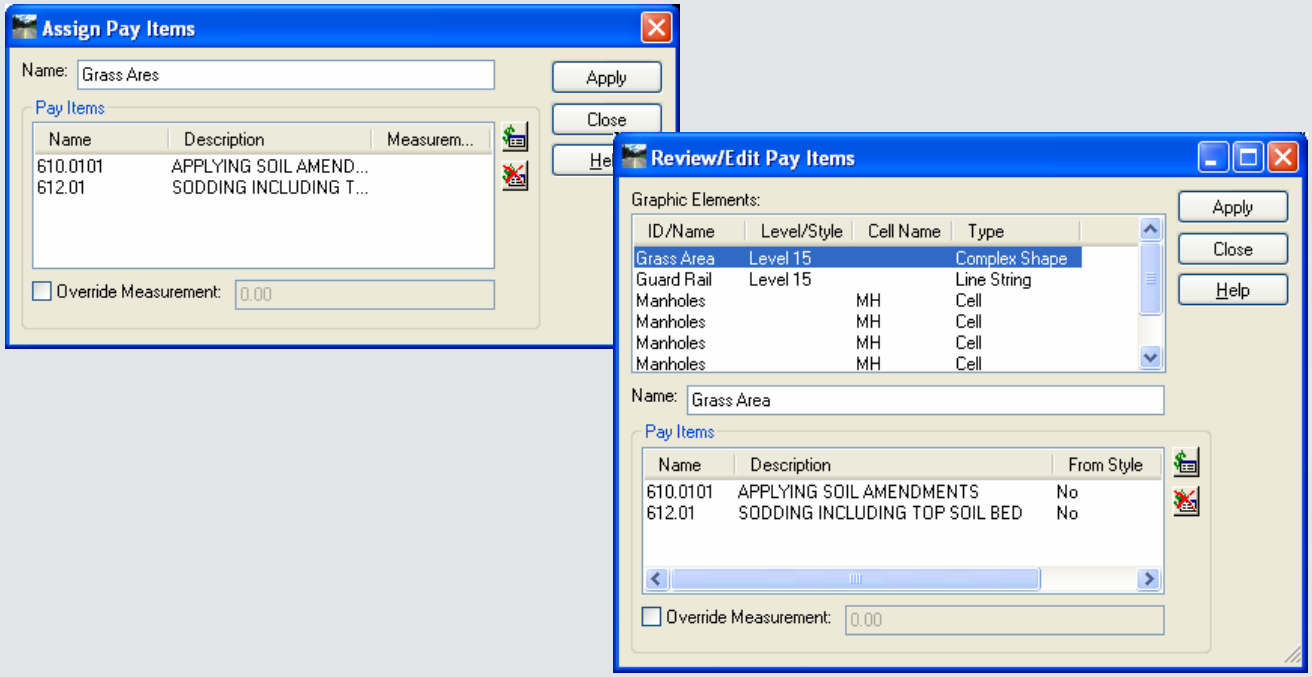
- Pay Items can be assigned to graphic elements.
- Graphic elements are quantified like features.
- Names can be associated with graphic elements.
- An element's measurement can be overridden.

Automated Sheet Quantities

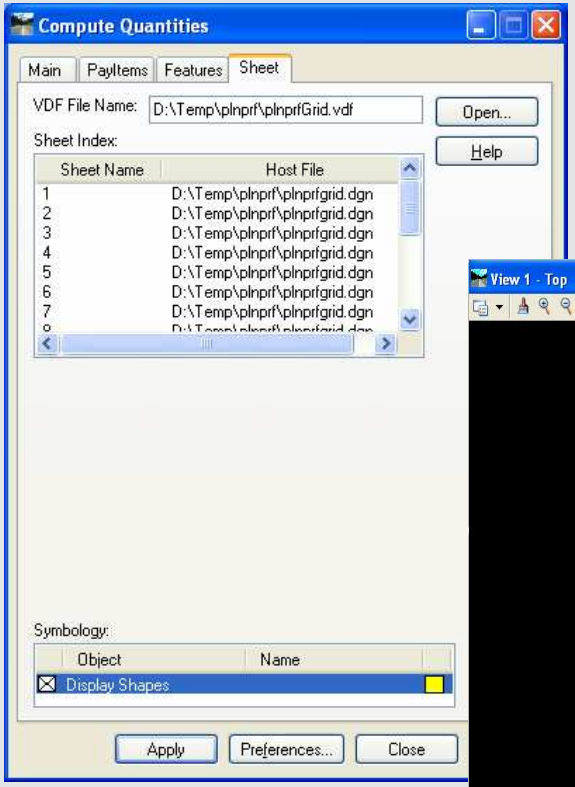
- New *Sheet* mode produces quantities by sheet.
- Sheet mode takes VDF files as input.

New Pay Item Commands

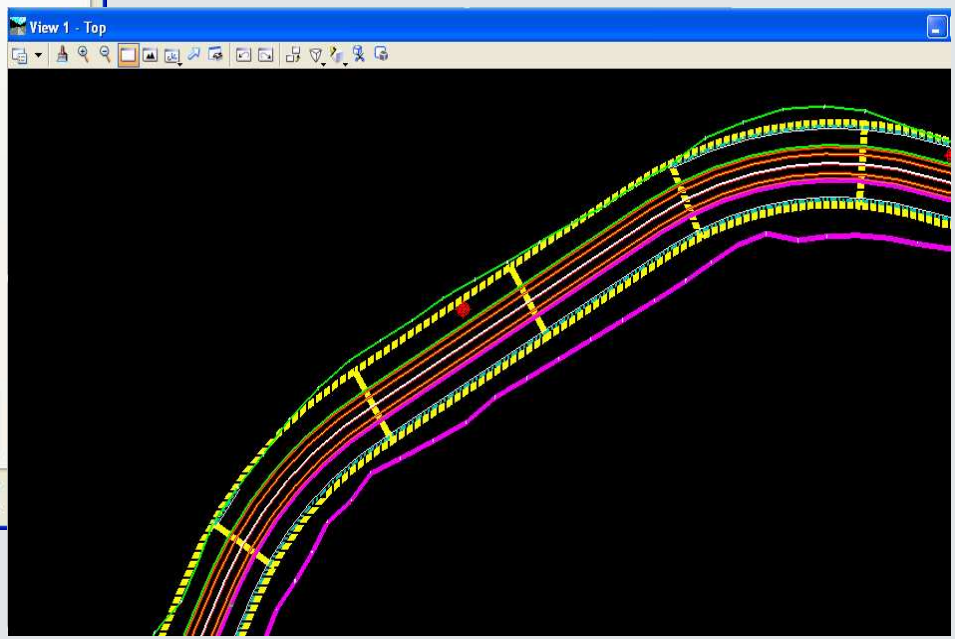
Assign Pay Items and *Review/Edit Pay Items* provide the ability to assign and manage pay items on graphic elements and DTM features.



Automated Sheet Quantities



Sheet names and boundaries are extracted from the selected VDF file.



Quantity Manager

Sheet quantities are separated by sheet.

Quantities from graphic elements report Element Id, DGN Filename, and other MicroStation specific information.

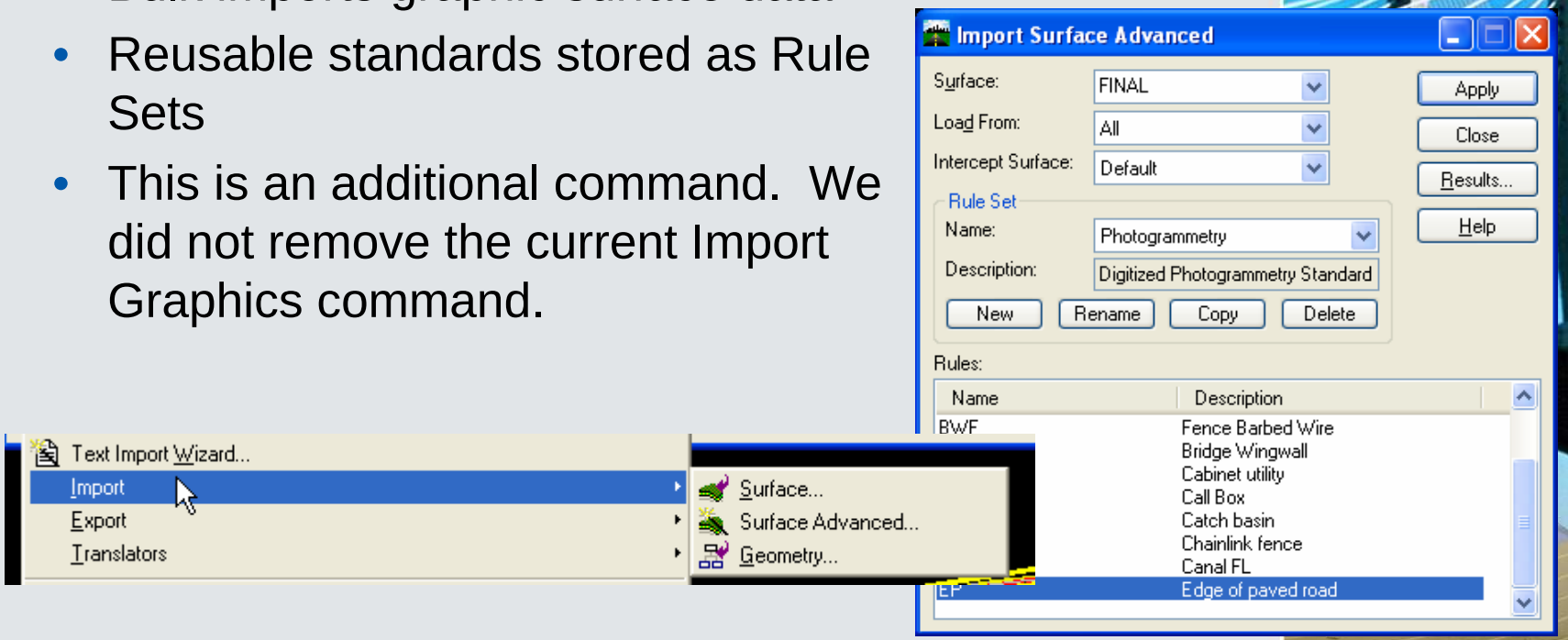
Payitem	Run Name	Boundary	Net Value	Measurement Basis	Measurement Value	Computed Value	Rounded Value
604.5	By Sheet	Sheet : 1	1.000	Each	1.000	1.000	1.000
604.5	By Sheet	Sheet : 2	1.000	Each	1.000	1.000	1.000
604.5	By Sheet	Sheet : 4	1.000	Each	1.000	1.000	1.000
604.5	By Sheet	Sheet : 5	1.000	Each	1.000	1.000	1.000
604.5	By Sheet	Sheet : 6	1.000	Each	1.000	1.000	1.000

Elements | Adhoc Attributes | Payer Participation | Funding Participation | Funding Rules

Name	Type	Native Id	Document	Begin X	Begin Y	Begin Stati...	Begin Reg...	Format
Manholes	Cell	23283	D:\Temp\plnprf\ModelCenterline.dgn	11,737.440	11,800.804	100.000	1	1+00.00

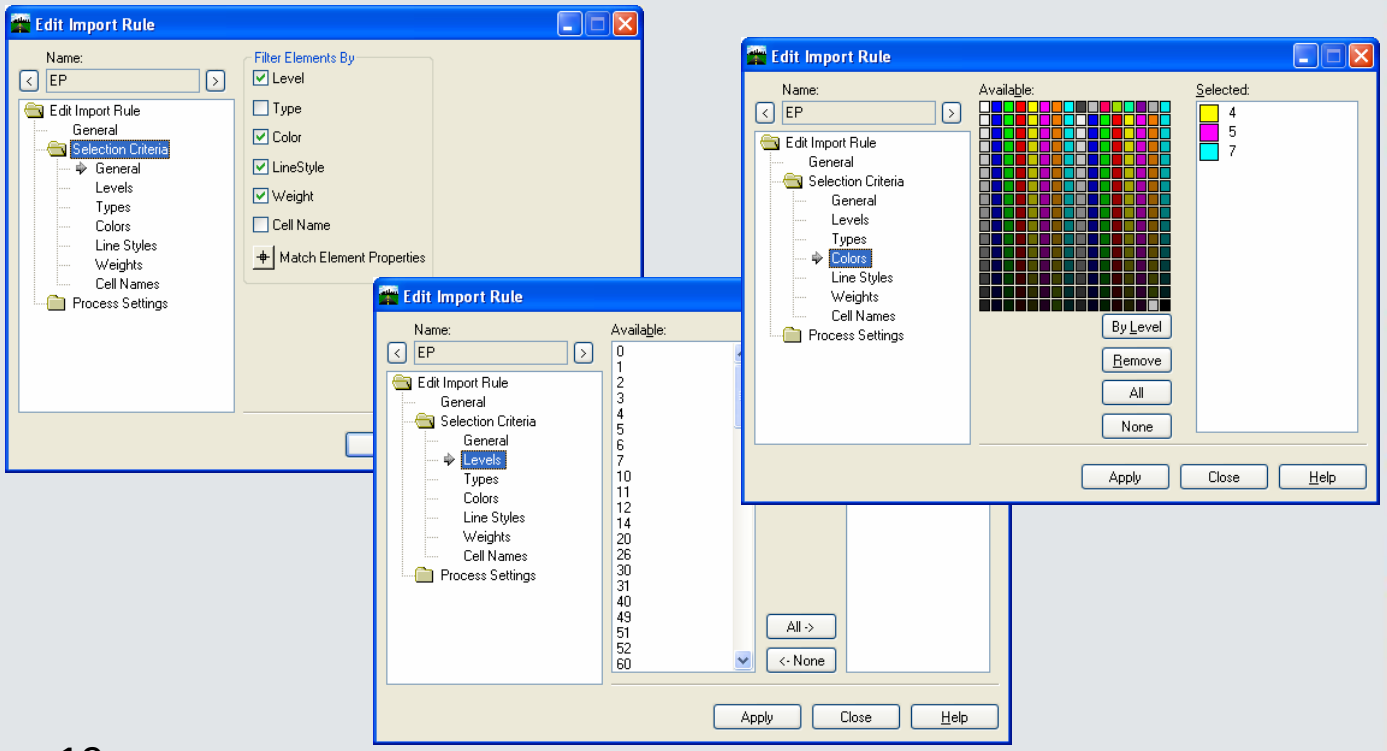
Importing Data

- Import -> Surface Advanced
  - The tool for photogrammetry data
  - Bulk imports graphic surface data
  - Reusable standards stored as Rule Sets
  - This is an additional command. We did not remove the current Import Graphics command.



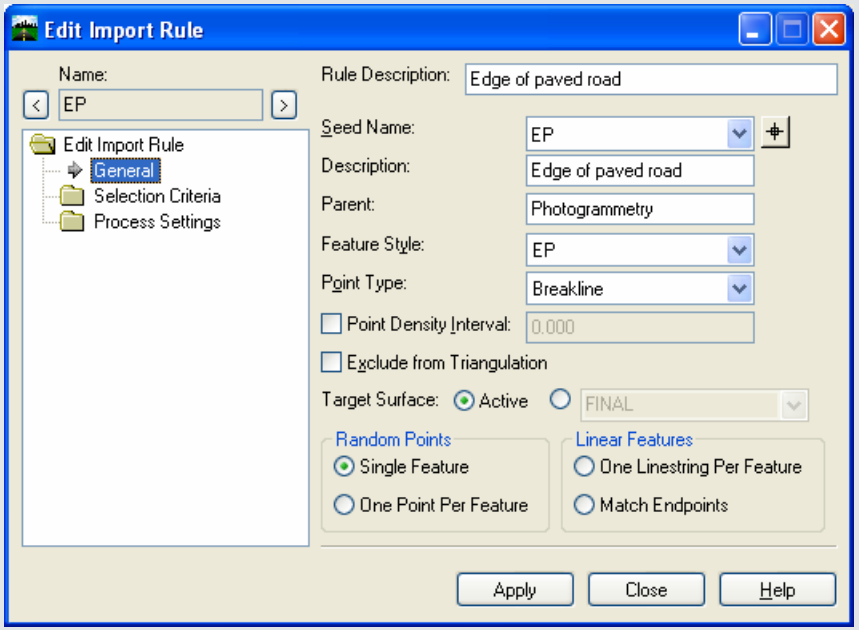
Importing Data

- Import -> Surface Advanced
  - User definable rules filter elements by graphic properties (type, level, color, weight, style).



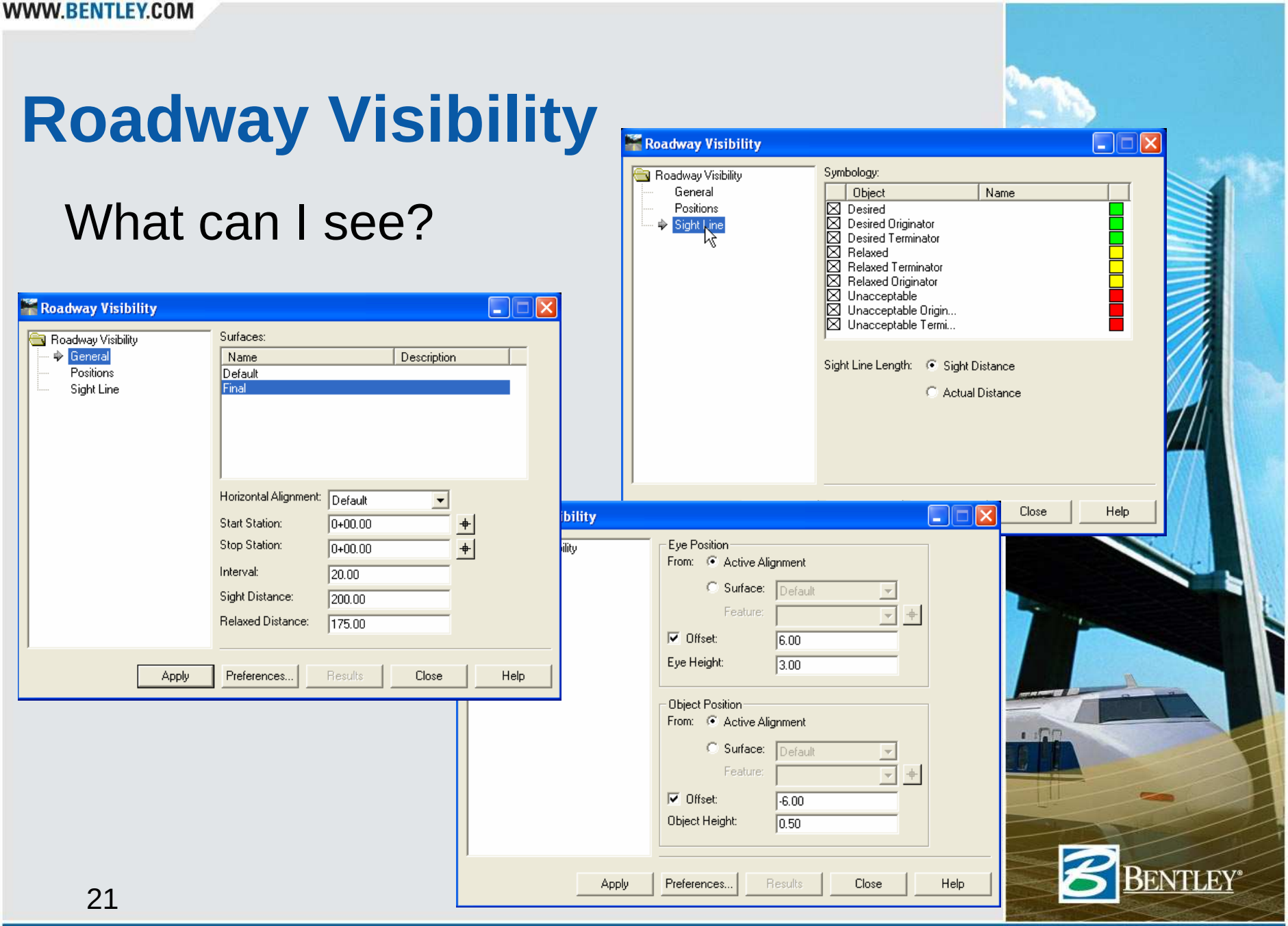
Importing Data

- Import -> Surface Advanced
  - Rules determine the feature properties of imported elements. (Name, Type, Style, etc.)

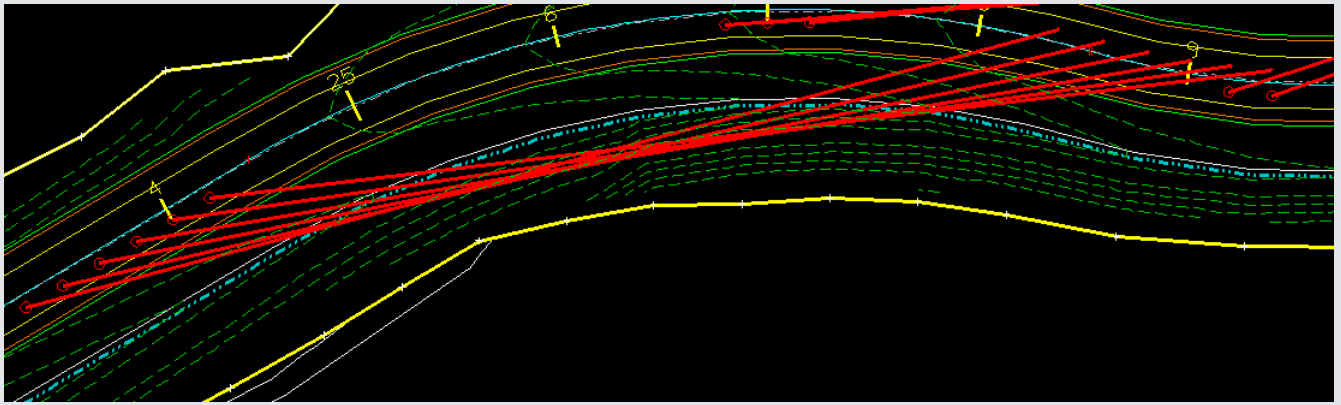


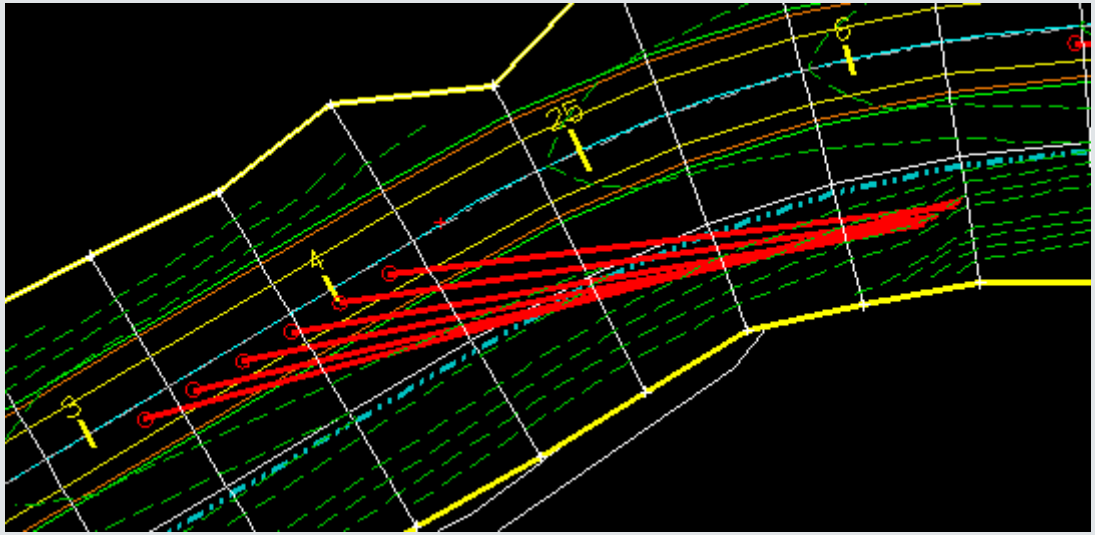
Roadway Visibility

What can I see?

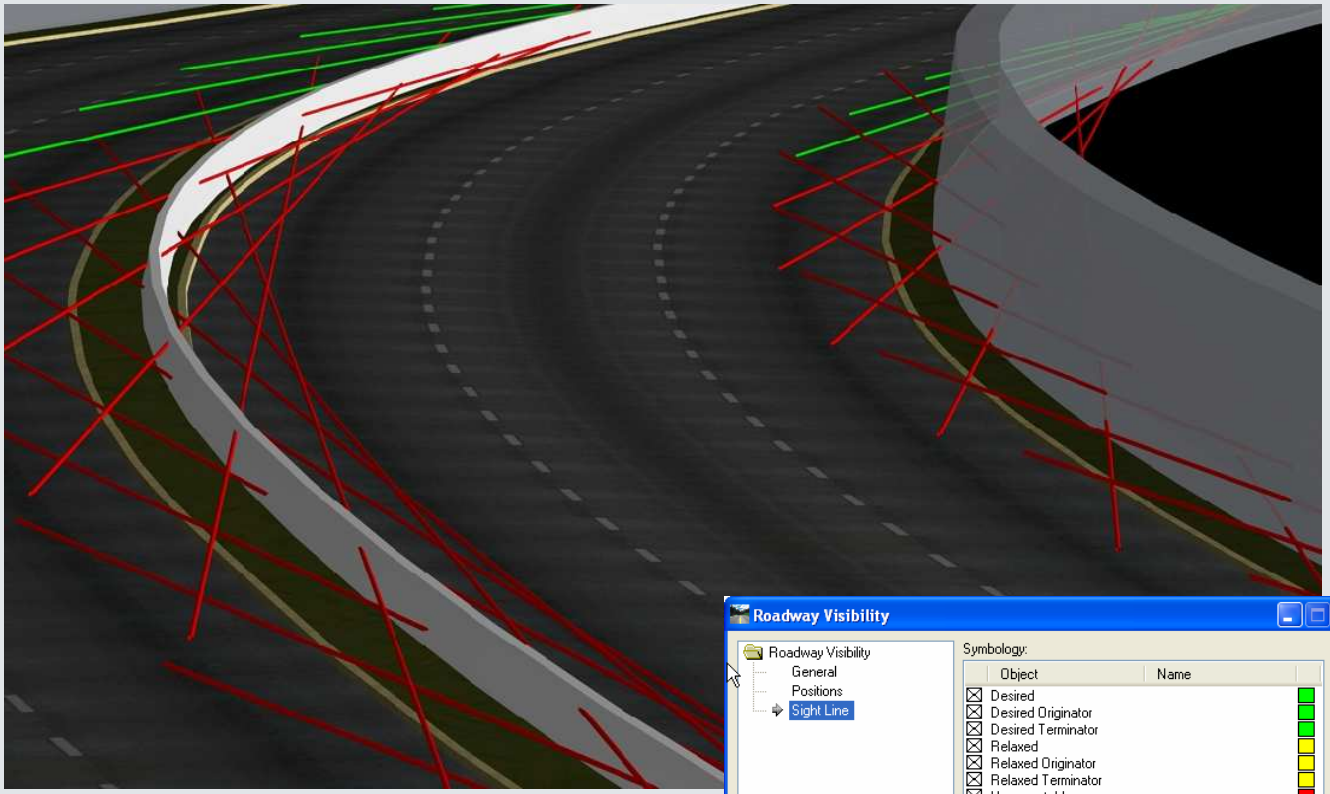


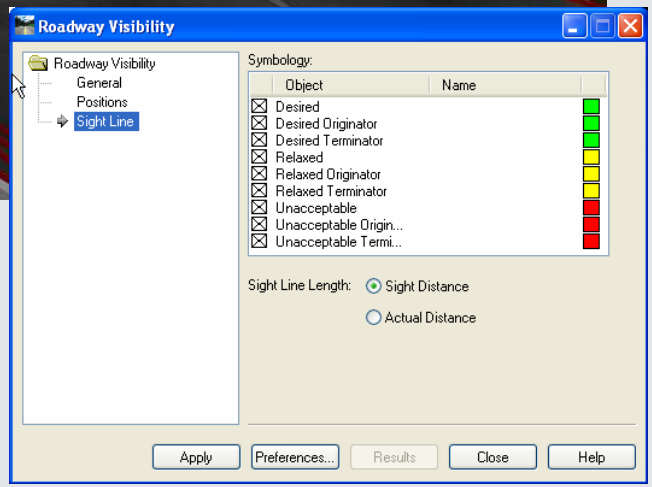
Roadway Visibility





Roadway Visibility





ARUP

Surface Visibility

New tools for visibility analysis of DTMs.

Three modes of operation:

Surface Points

Displays all DTM points and distinguishes those that are visible from those that are not visible; from a given eye position.

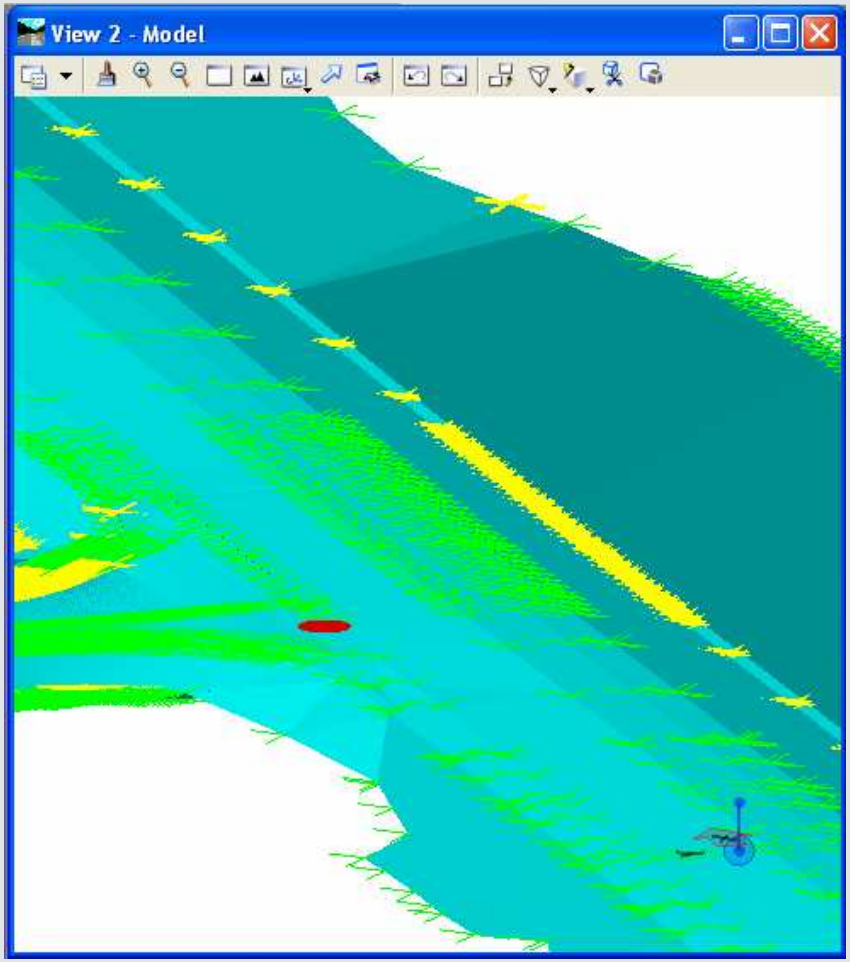
Surface Regions

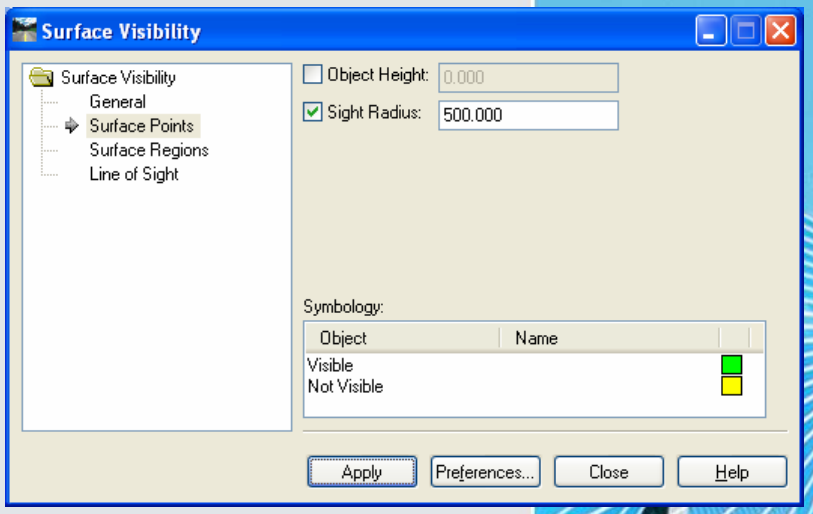
Generates and drapes lines of sight that radiate outward from an eye position. Distinguishes between visible and not visible portions of the lines of sight.

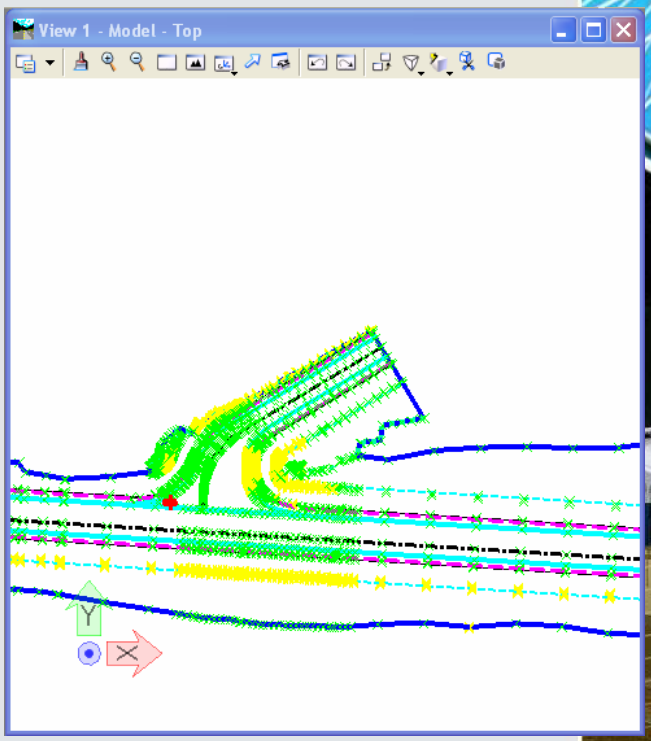
Line of Sight

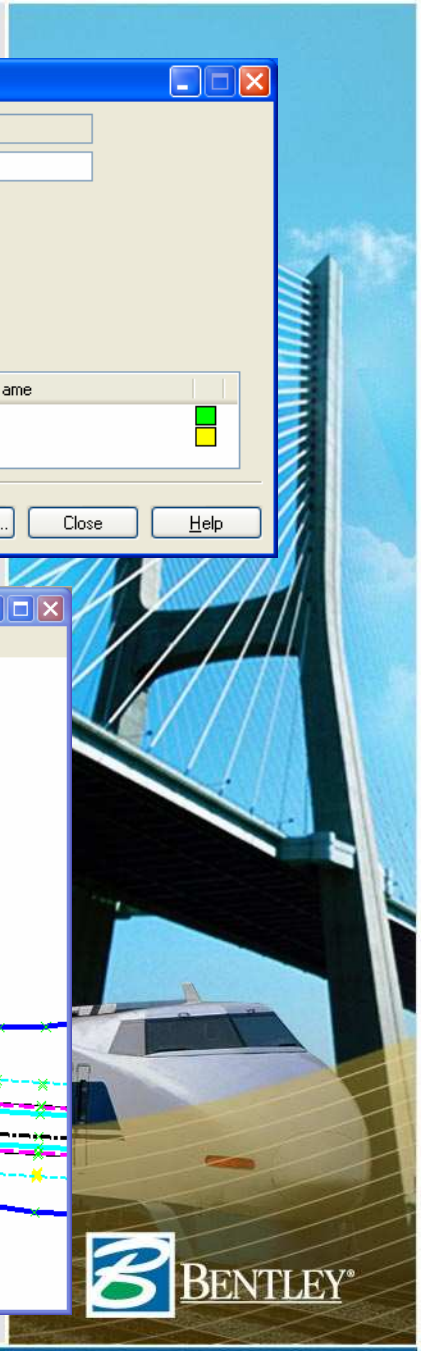
Determines if an object position is visible from an eye position. Then distinguishes between portions of the line of sight that are above ground and below ground.

Surface Points

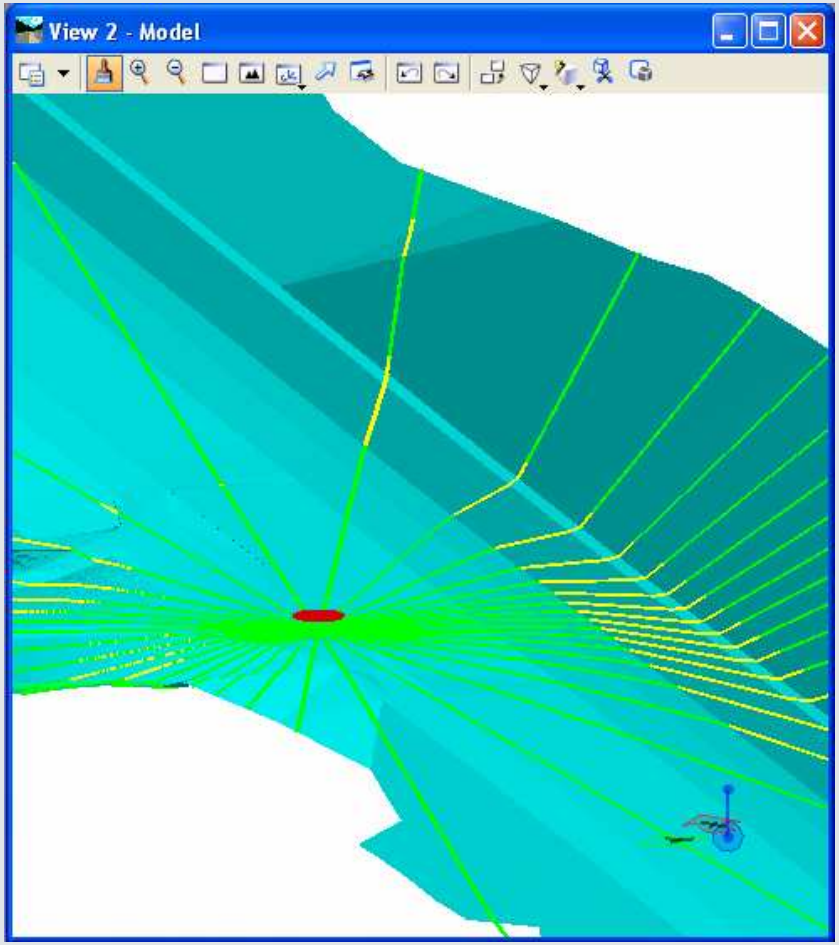


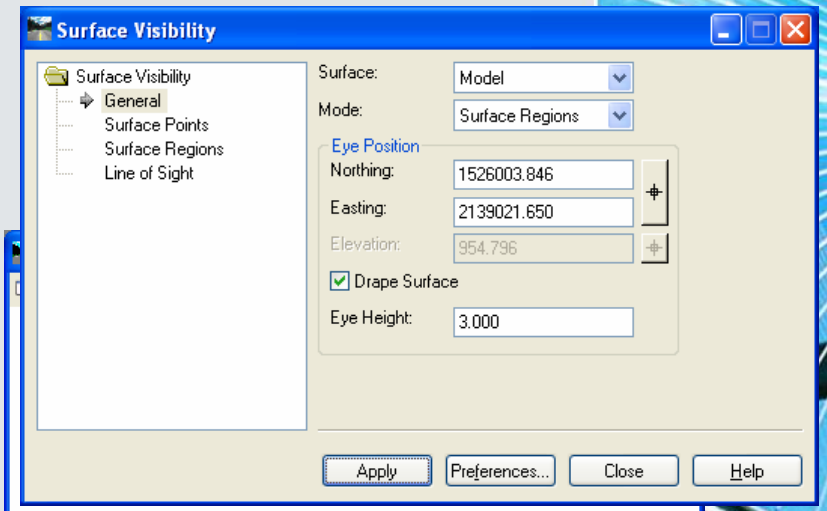


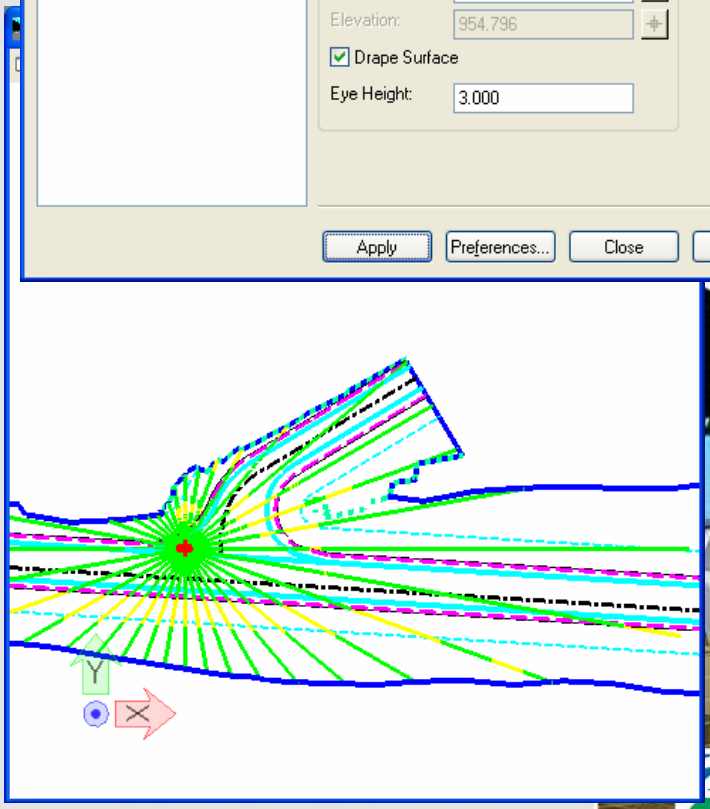




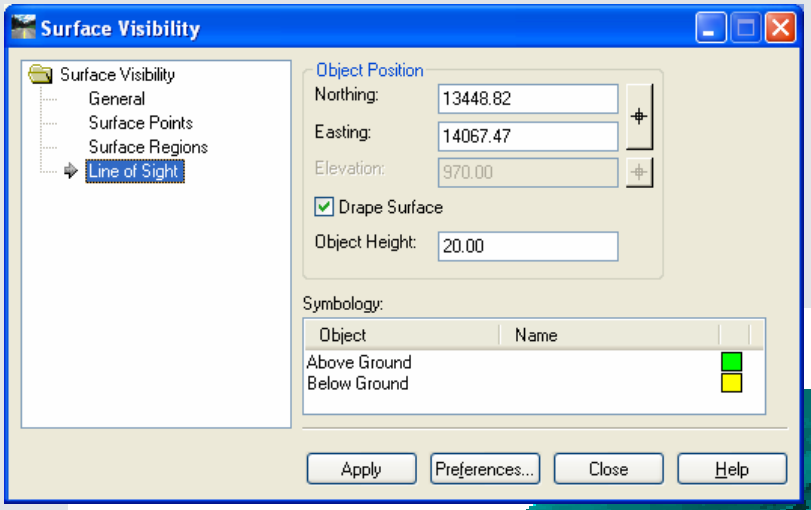
Surface Regions

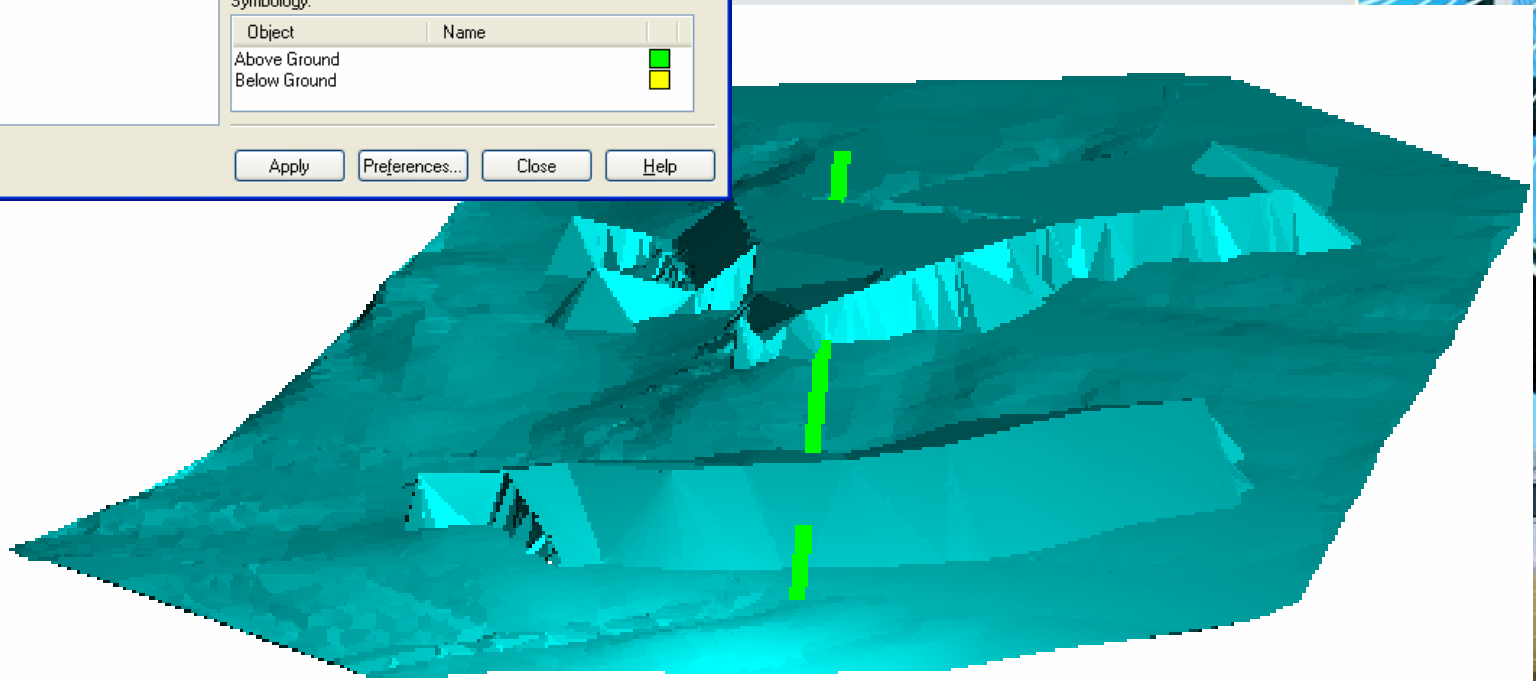






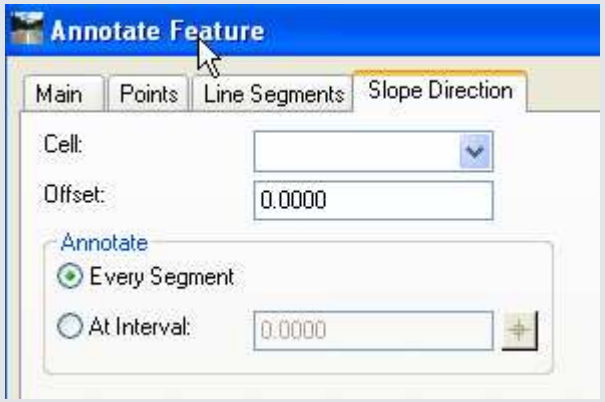
Line of Sight

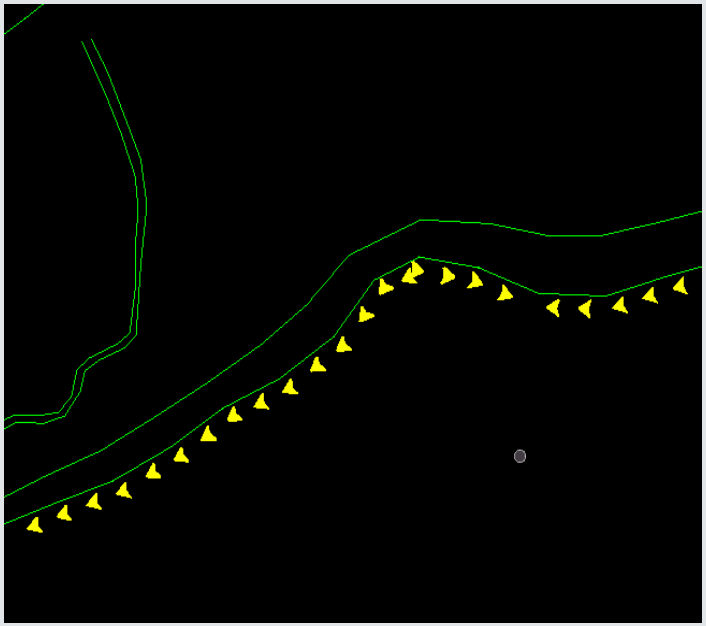




Annotate Slope Direction

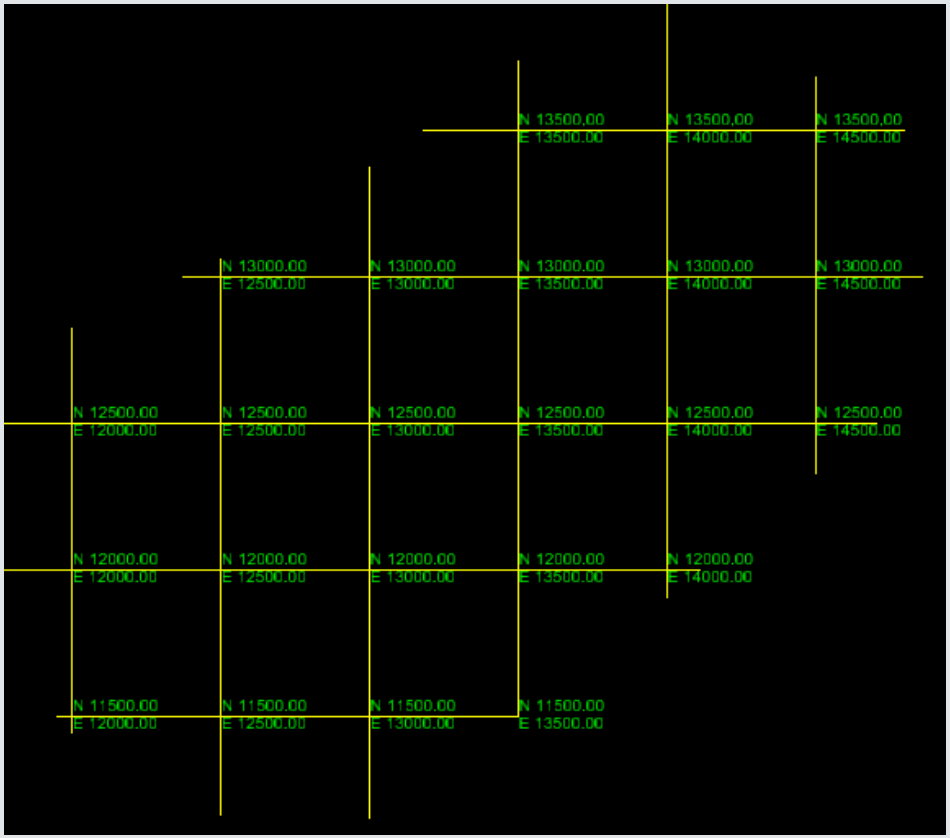
- This command allows the user to place flow arrowheads on a feature at a certain interval and offset.
- It places the cells oriented along the feature to show the slope (flow) of the feature.





Place Coordinate Grid

- Places coordinates and grid-lines at user specified intervals.
- Part of the drafting tools.

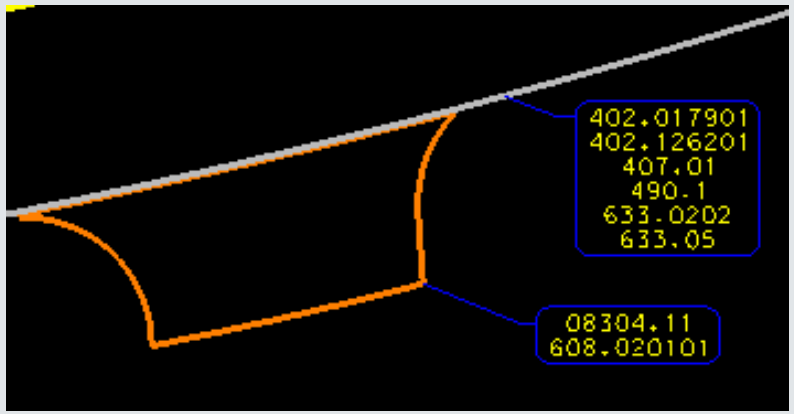


Quantities in Drafting Notes

- Added keywords for pay item name, code, description, and unit.
- Also added keywords for pay item block and end block so multiple pay items on a single feature can be annotated.

Pay Items

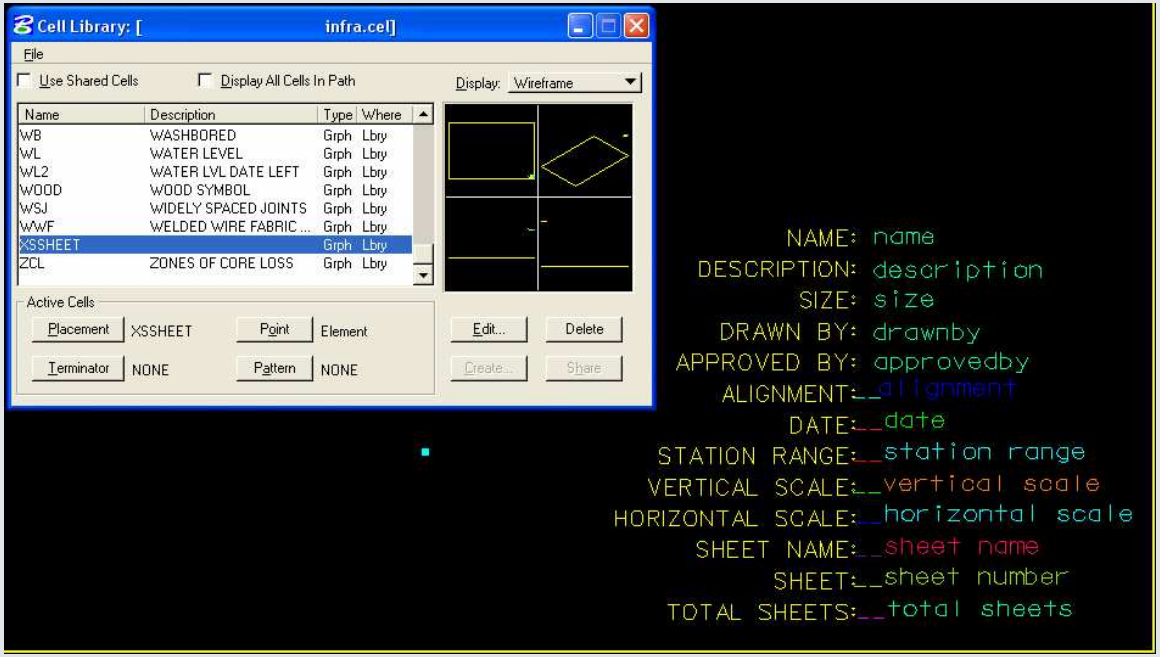
Name	Description	Fr
402.017901 50mm average	TRUE & LEVELING F9, SUPERPAVE HMA, 70 SERIES COMPACTION	No
402.126201 40mm	12.5MM F2 SUPERPAVE HMA, 60 SERIES COMPACTION	No
407.01 Milled Surfaces	TACK COAT	No
490.1	PRODUCTION COLD MILLING BITUMINOUS CONCRETE	No
633.0202	CLEANING EXISTING PAVEMENT AND/OR SHOULDERS	No

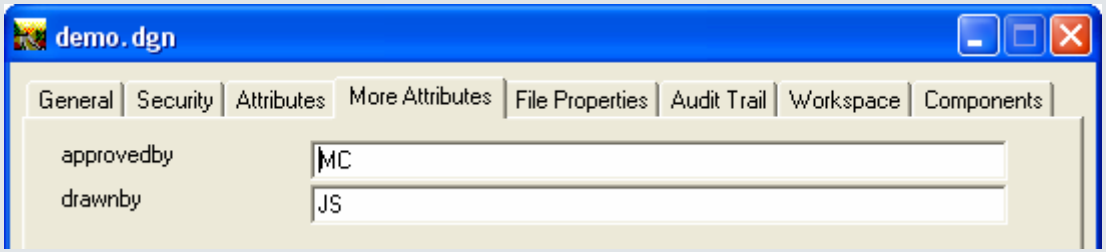


ProjectWise Title block Integration with Cross Sections

- Two methods:
  - Tagged attributes can be placed directly within border cell
  - Title block cell can be attached by InRoads when using reference file as border

NAME:	demo.dgn
DESCRIPTION:	demo
SIZE:	11X17
DRAWN BY:	JS
APPROVED BY:	MC
ALIGNMENT:	demo_ha1
DATE:	3/27/2007
STATION RANGE:	0+00 TO 8+00
VERTICAL SCALE:	10.00
HORIZONTAL SCALE:	20.00
SHEET NAME:	A
SHEET:	1
TOTAL SHEETS:	6

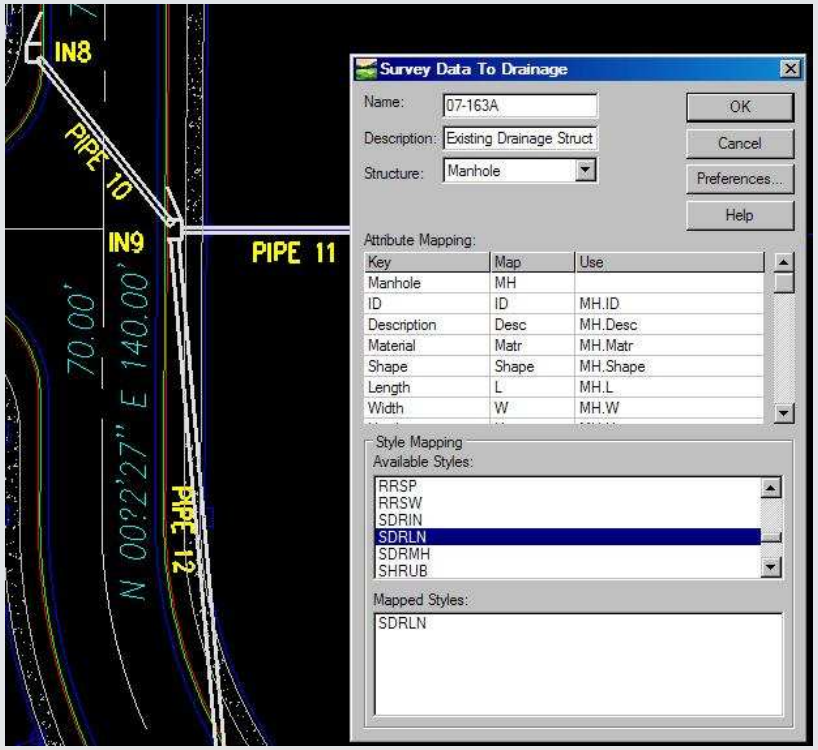

Cell Library: [infra.cel]
File
Use Shared Cells
Display All Cells In Path
Display: Wireframe
Name Description Type Where
WB WASHBORED Grph Lbry
WL WATER LEVEL Grph Lbry
WL2 WATER LVL DATE LEFT Grph Lbry
WOOD WOOD SYMBOL Grph Lbry
WSJ WIDELY SPACED JOINTS Grph Lbry
WWF WELDED WIRE FABRIC ... Grph Lbry
XSSHEET Grph Lbry
ZCL ZONES OF CORE LOSS Grph Lbry
Active Cells
Placement XSSHEET
Point Element
Terminator NONE
Pattern NONE
Edit...
Delete
Create...
Share
NAME: name
DESCRIPTION: description
SIZE: size
DRAWN BY: drawnby
APPROVED BY: approvedby
ALIGNMENT: alignment
DATE: date
STATION RANGE: station range
VERTICAL SCALE: vertical scale
HORIZONTAL SCALE: horizontal scale
SHEET NAME: sheet name
SHEET: sheet number
TOTAL SHEETS: total sheets


demo.dgn
General
Security
Attributes
More Attributes
File Properties
Audit Trail
Workspace
Components
approvedby
MC
drawnby
JS

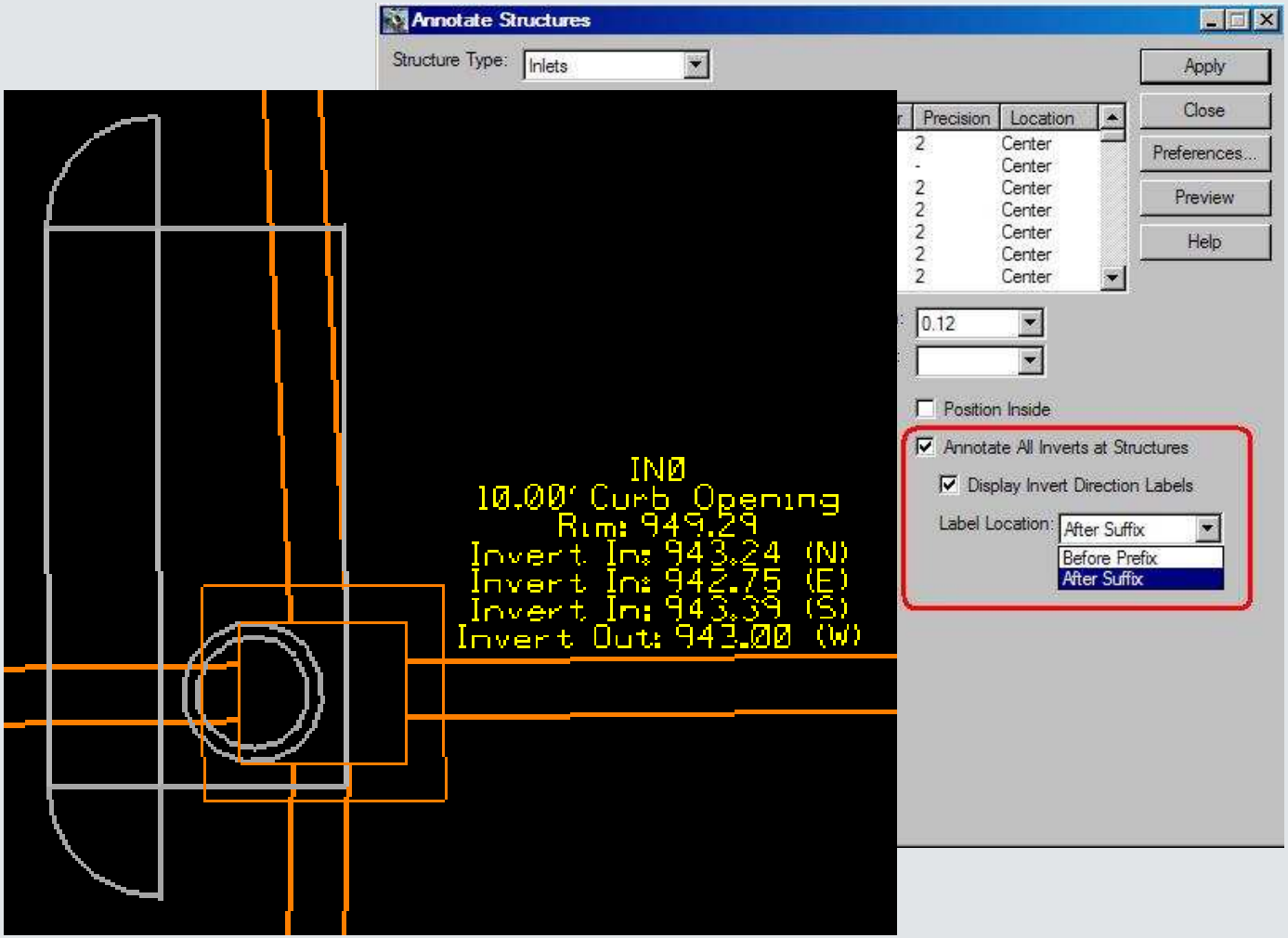
BENTLEY

Survey to Drainage

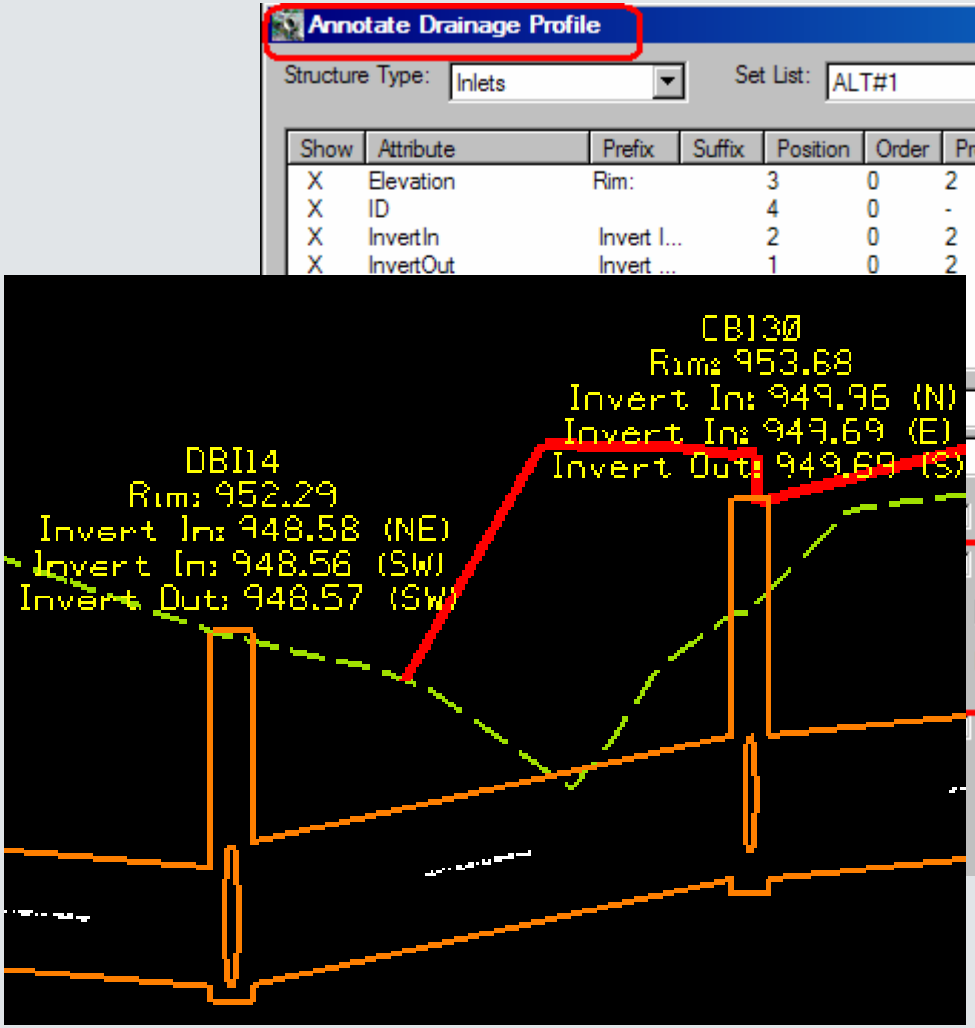
- Move your attributed survey data to a functioning Storm & Sanitary database
  - Supports manholes, pipes, culverts, inlets
  - Supports utilities
  - Channels, curved pipes, multiple junctions, areas, and pumps are not be supported



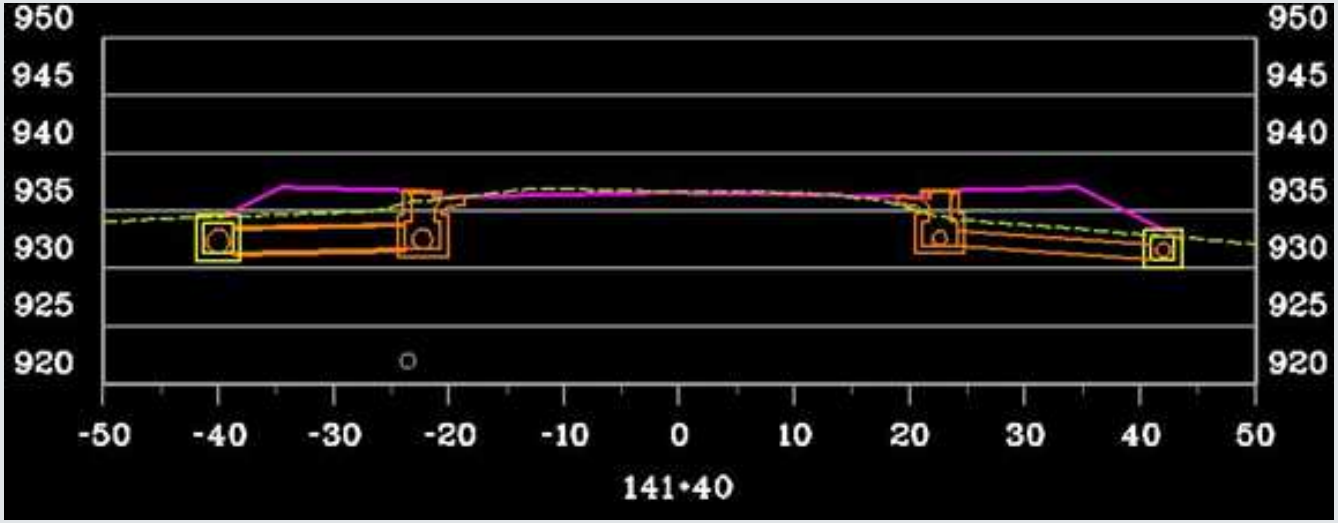
Annotate ALL inverts at structures for plan…

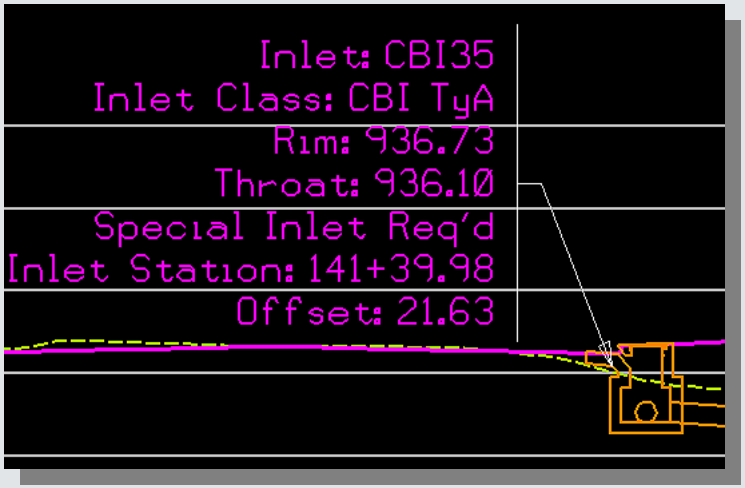


…and for profile.

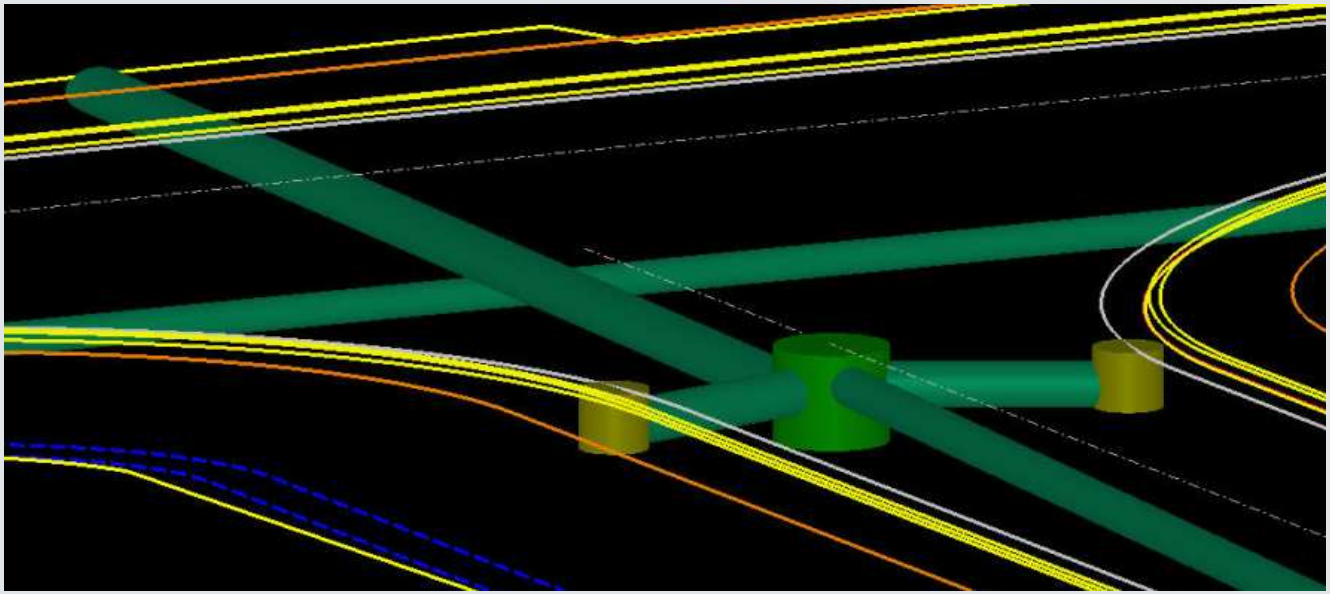


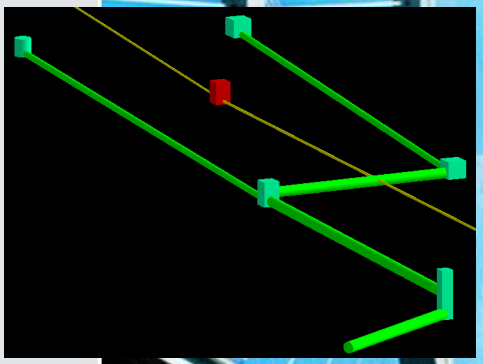
Drainage Cross Sections

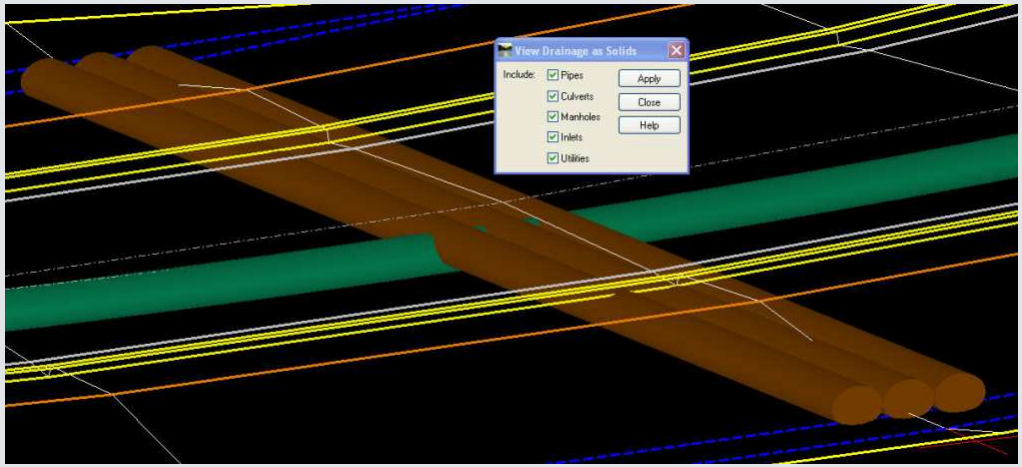


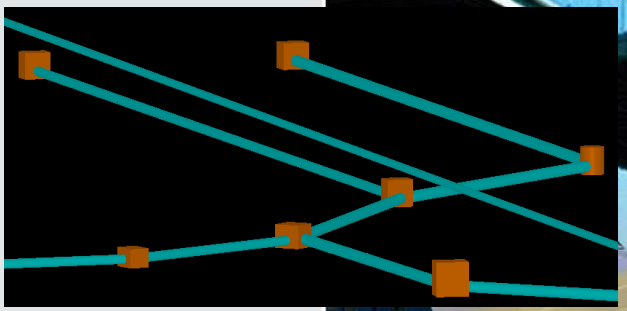


Solids for S&S Networks in SP1



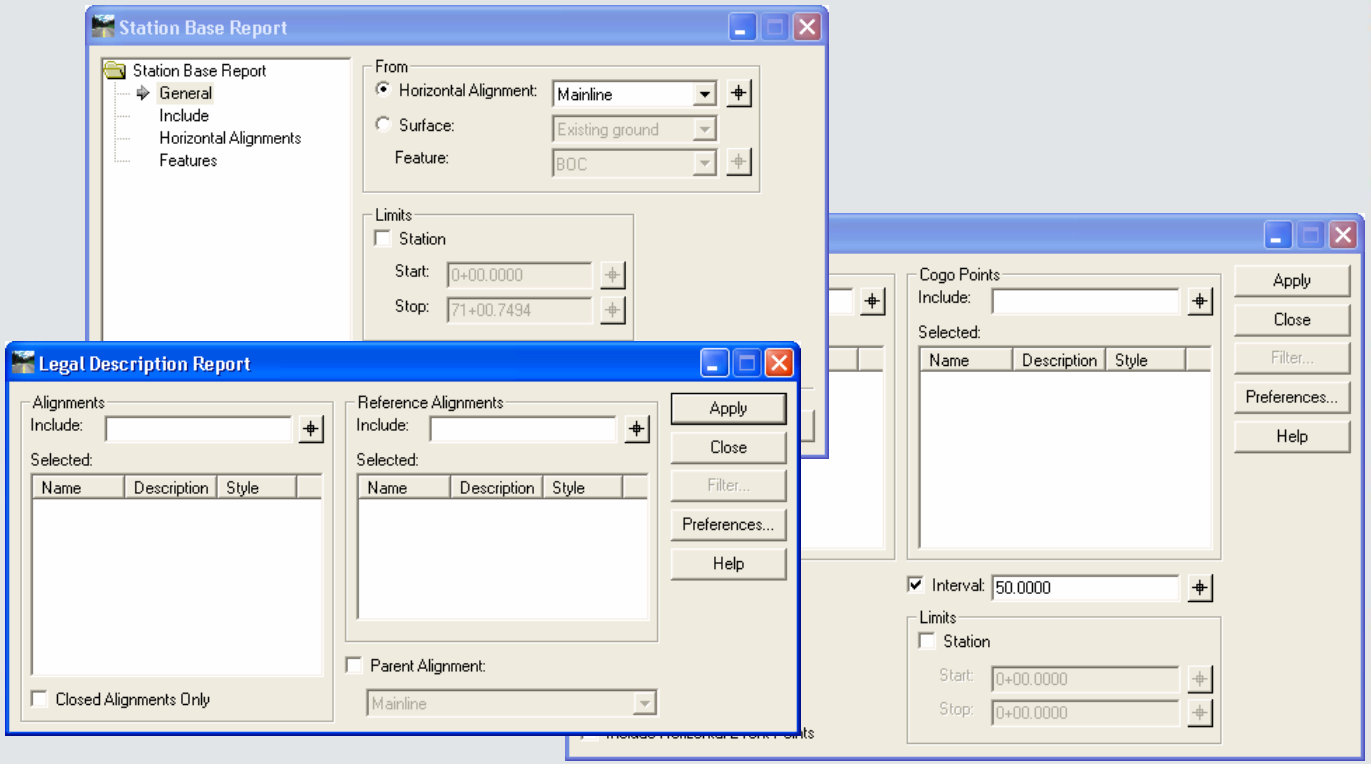






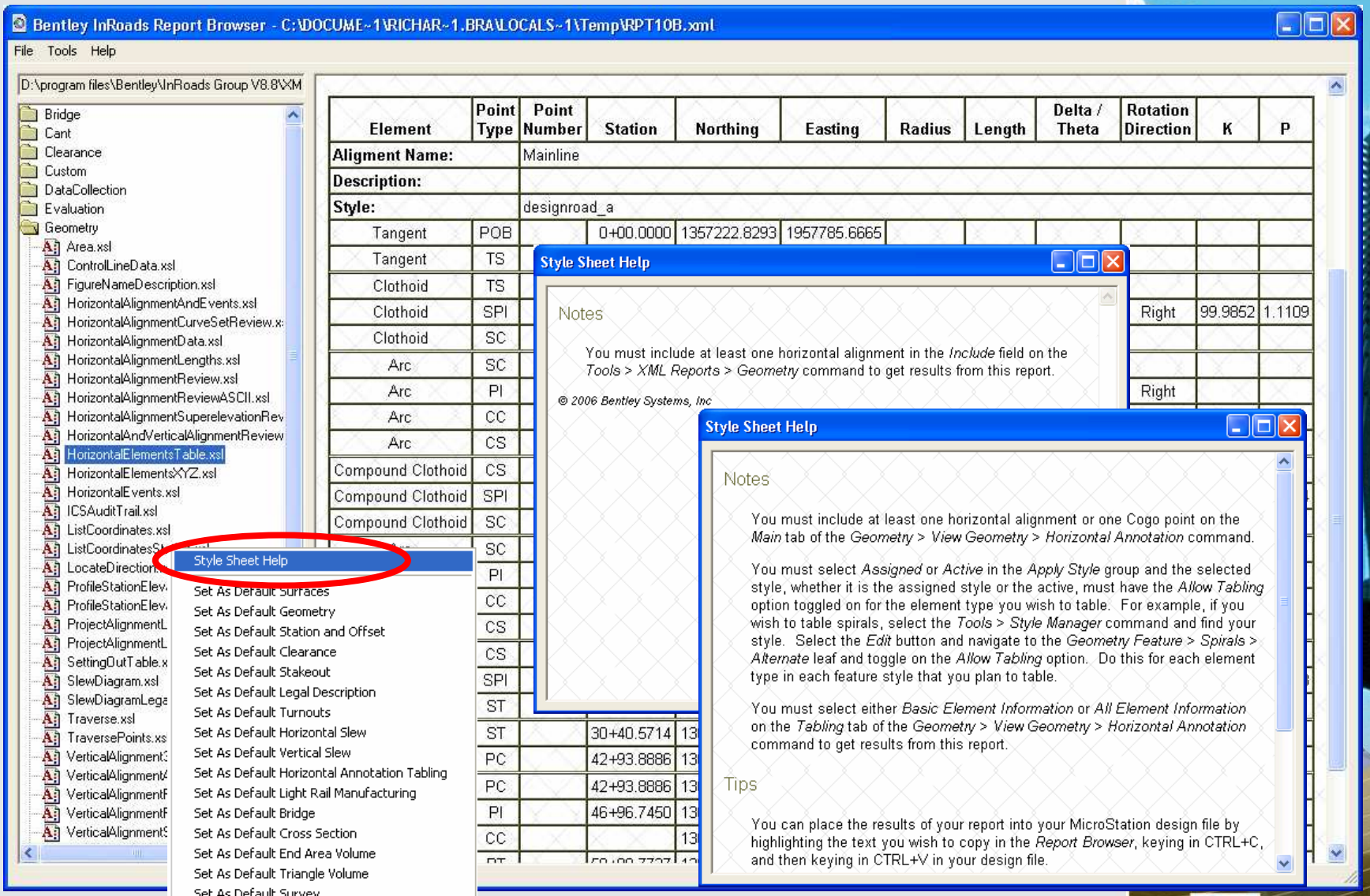
XML Reporting

- Reorganized into multiple commands
- Fewer steps
- XML file is transient



XML Reporting

- **InRoads Survey** data now supports XML
- Style sheet help
  - » Help is available with each style sheet
  - » Right click over the style sheet in the ***Report Browser***
  - » User created style sheets can use the same mechanism as Bentley developed style sheets.
  - » Additional delivered style sheets
- Documented XML Schema in *\program files\Bentley\InRoads Group V8.9\XML Data\Schemas\Documentation\InRoadsSchema.chm*


Bentley InRoads Report Browser - C:\DOCUME~1\RICHAR~1.BRA\LOCALS~1\Temp\RPT10B.xml
File Tools Help
D:\program files\Bentley\InRoads Group V8.8\XM
Bridge
Cant
Clearance
Custom
DataCollection
Evaluation
Geometry
Area.xsl
ControlLineData.xsl
FigureNameDescription.xsl
HorizontalAlignmentAndEvents.xsl
HorizontalAlignmentCurveSetReview.x
HorizontalAlignmentData.xsl
HorizontalAlignmentLengths.xsl
HorizontalAlignmentReview.xsl
HorizontalAlignmentReviewASCII.xsl
HorizontalAlignmentSuperelevationRev
HorizontalAndVerticalAlignmentReview
HorizontalElementsTable.xsl
HorizontalElementsXYZ.xsl
HorizontalEvents.xsl
ICSAuditTrail.xsl
ListCoordinates.xsl
Style Sheet Help
Set As Default Surfaces
Set As Default Geometry
Set As Default Station and Offset
Set As Default Clearance
Set As Default Stakeout
Set As Default Legal Description
Set As Default Turnouts
Set As Default Horizontal Slew
Set As Default Vertical Slew
Set As Default Horizontal Annotation Tabling
Set As Default Light Rail Manufacturing
Set As Default Bridge
Set As Default Cross Section
Set As Default End Area Volume
Set As Default Triangle Volume
Set As Default Survey
Set As Default Roadway Design
Set As Default Superelevation
Set As Default Template Library
Element
Point Type
Point Number
Station
Northing
Easting
Radius
Length
Delta / Theta
Rotation Direction
K
P
Aligment Name:
Mainline
Description:
Style:
designroad_a
Tangent POB 0+00.0000 1357222.8293 1957785.6665
Tangent TS
Clothoid TS
Clothoid SPI
Clothoid SC
Arc SC
Arc PI
Arc CC
Arc CS
Compound Clothoid CS
Compound Clothoid SPI
Compound Clothoid SC
SC
PI
CC
CS
CS
SPI
ST
ST 30+40.5714
PC 42+93.8886
PC 42+93.8886
PI 46+96.7450
CC
Right 99.9852 1.1109
Right
Style Sheet Help
Notes
You must include at least one horizontal alignment in the Include field on the Tools > XML Reports > Geometry command to get results from this report.
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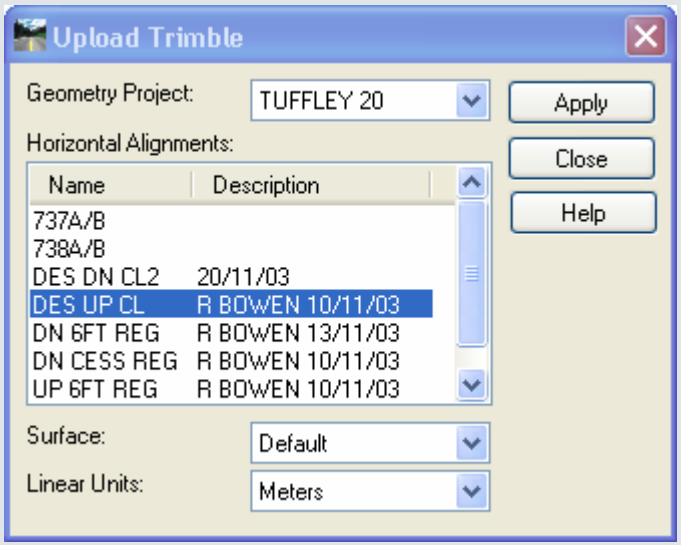
Style Sheet Help
Notes
You must include at least one horizontal alignment or one Cogo point on the Main tab of the Geometry > View Geometry > Horizontal Annotation command.
You must select Assigned or Active in the Apply Style group and the selected style, whether it is the assigned style or the active, must have the Allow Tabling option toggled on for the element type you wish to table. For example, if you wish to table spirals, select the Tools > Style Manager command and find your style. Select the Edit button and navigate to the Geometry Feature > Spirals > Alternate leaf and toggle on the Allow Tabling option. Do this for each element type in each feature style that you plan to table.
You must select either Basic Element Information or All Element Information on the Tabling tab of the Geometry > View Geometry > Horizontal Annotation command to get results from this report.
Tips
You can place the results of your report into your MicroStation design file by highlighting the text you wish to copy in the Report Browser, keying in CTRL+C, and then keying in CTRL+V in your design file.

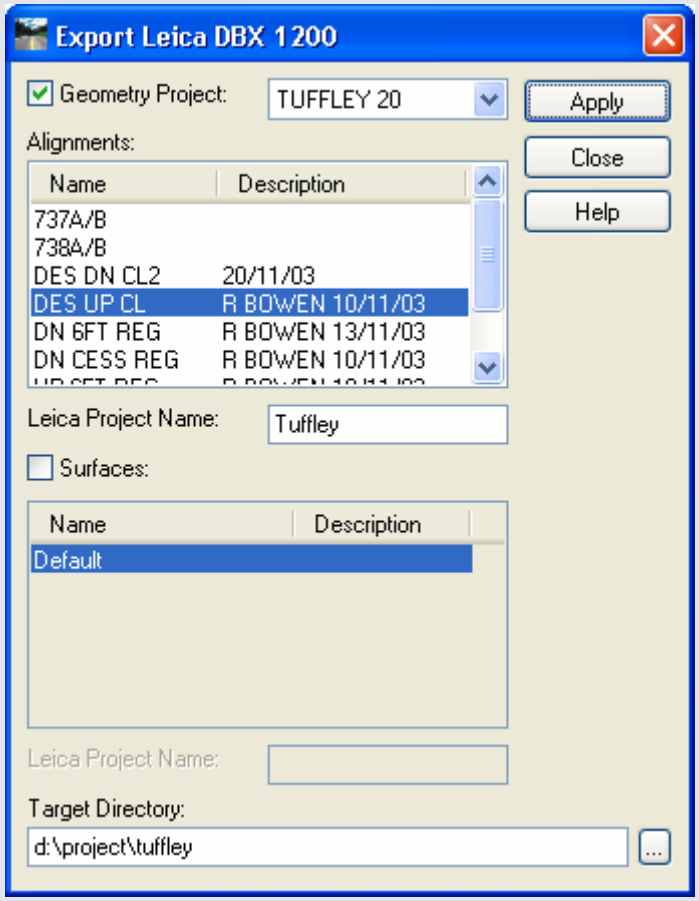
Design to Construction

- In the delivery directory look for the *Exporting InRoads Data for Construction.pdf* document.
- It defines steps for exporting design data to either field instruments or machine control equipment.

Design to the Field

- Trimble
- Leica





Thank You!