



South Carolina
Department of Transportation

INSTRUCTIONAL BULLETIN NO. 2009-5

SUBJECT: Storm Sewer Pipe on Cross Sections

EFFECTIVE DATE: June 30, 2009

SUPERSEDES: None

RE: None

Methods have been developed to show pipe on plan cross sections. This should improve coordination of storm sewers with subsurface utilities and, also, can be used to verify the vertical and horizontal location on the pipe. For the pipe to show on the cross sections, the pipe must have been hydraulically designed using GEOPAK Drainage software as prescribed in "SCDOT Specifications and Support Manual for GEOPAK Drainage". Attachment 1 describes the method to draw sideline pipe on cross sections. Attachment 2 describes the method to draw crossline pipe on cross sections.

Storm sewer sideline pipe will be shown on the regular roadway cross section sheets. Crossline pipe will be shown in the cross sections by generating a special roadway cross section along the centerline of the crossline pipe for the full width of the roadway cross section. The special roadway cross sections showing crossline pipe will be included after the regular roadway cross section sheets. Attachment 3 demonstrates, both, the sideline pipe and crossline pipe cross sections.

Designers are encouraged to begin showing pipe on cross sections immediately in all applicable projects with full implementation on appropriate projects by the April 2010 highway letting. For questions, please contact the Design Automation Office.

Approved: _____

E. S. Fargle

Preconstruction Support Engineer

ESE:afg

Attachment

cc:

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Jim Feda, Director of Maintenance

Milt Fletcher, Materials and Research Engineer

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Steve Ikerd, FHWA

File:PC/ESE

Matt Lifsey, RP Engineer - Lowcountry

Mitchell Metts, RP Engineer - Pee Dee

Randall Young, RP Engineer - Midlands

Mark Lester, RP Engineer - Upstate



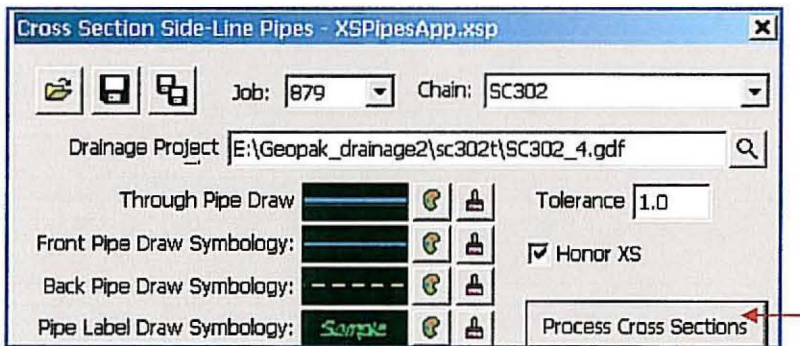
Draw Side Line Pipes on Cross Sections

Requirements:

- ✓ Drainage project database: *.gdf
 - ✓ COGO database *.gpk
 - ✓ Cross sections DGN file to draw cross line pipes: *.dx.dgn
- A plan view DGN file showing pipes, drainage boxes, and pattern lines to be used **for review purpose only.**

Procedures:

- (1) Open *.dx.dgn file. Run "XS Pipes" VBA from <D&C manager>. Select the "Job number", "chain name", and "GDF file". Using the default settings for pipe drawings or adjust to your preference. Click on <Process Cross Section>.



Notes:

- A program setting file - "XSPipesApp.xsp" will be generated to remember the settings for next run.
- If pattern line touches drainage inlet, program will draw pipe(s) projected from the front and/or the back of the inlet.
- If cross sections are drawn 10:5 scale, program can honor the scale.
- A pipe report file (.csv) can be created for further review using Excel program.
- Pipe drawings in cross sections need to be reviewed by roadway and hydraulics designers.
- User can cut cross section at any location to check for pipe location.

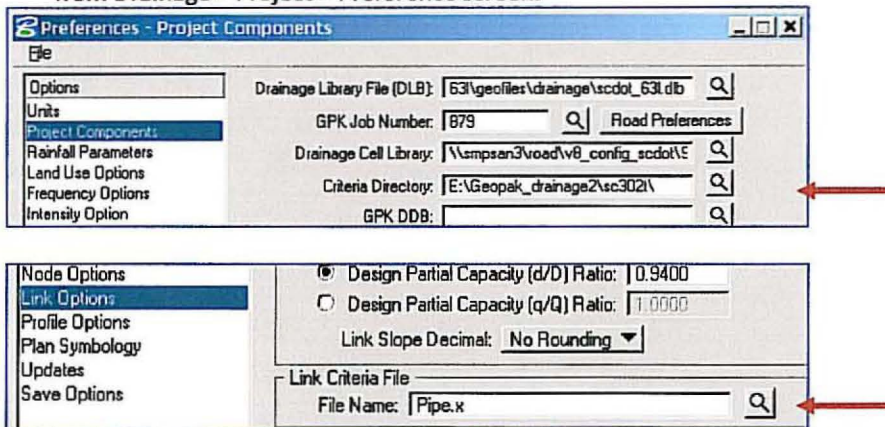
Draw Cross Line Pipes on Special Cross Sections

Requirements:

- ✓ Drainage project database: *.gdf
- ✓ Drainage library if it is different from the standard: *.dlb
- ✓ Plan view DGN file to include drainage (Tools > Update Pay Items) *pp.dgn
- ✓ Special cross sections DGN file to draw cross line pipes: (New) *xp.dgn

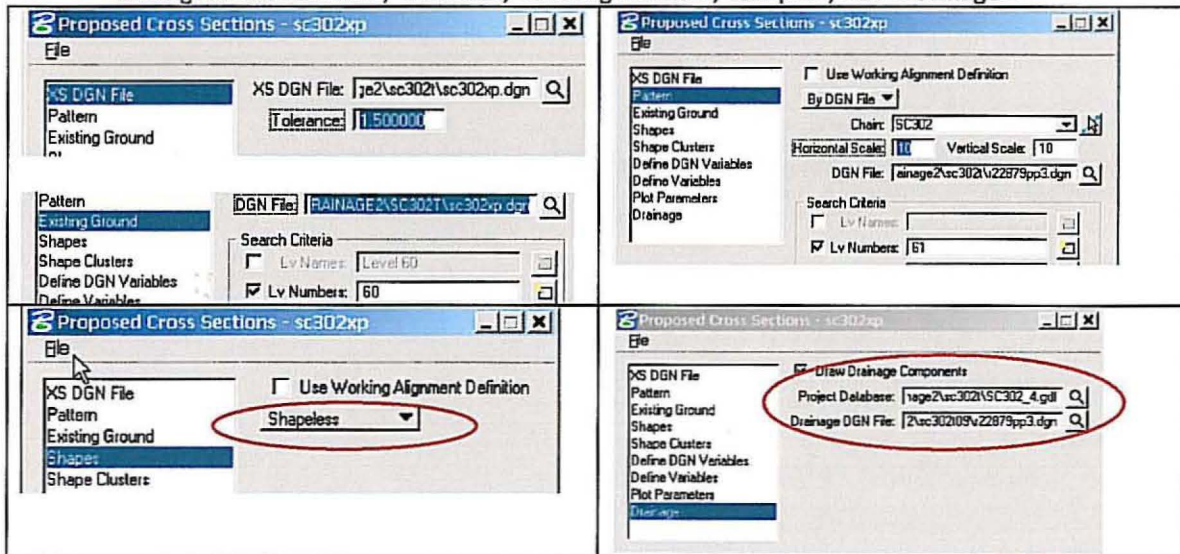
Procedures:

- (1) Draw special drainage pattern line (strings) for each cross line pipe using Microstation "draw line" command or run "Drainage Patterns" VBA from <D&C manager>.
- (2) Cut special existing and proposed cross sections in *xp.dgn using special drainage pattern lines. Notice cross sections can be skewed or "kinked".
- (3) Open the GDF file. Verify and adjust the settings of <Project Components> and <Link Options> from Drainage > Project > Preference screen:

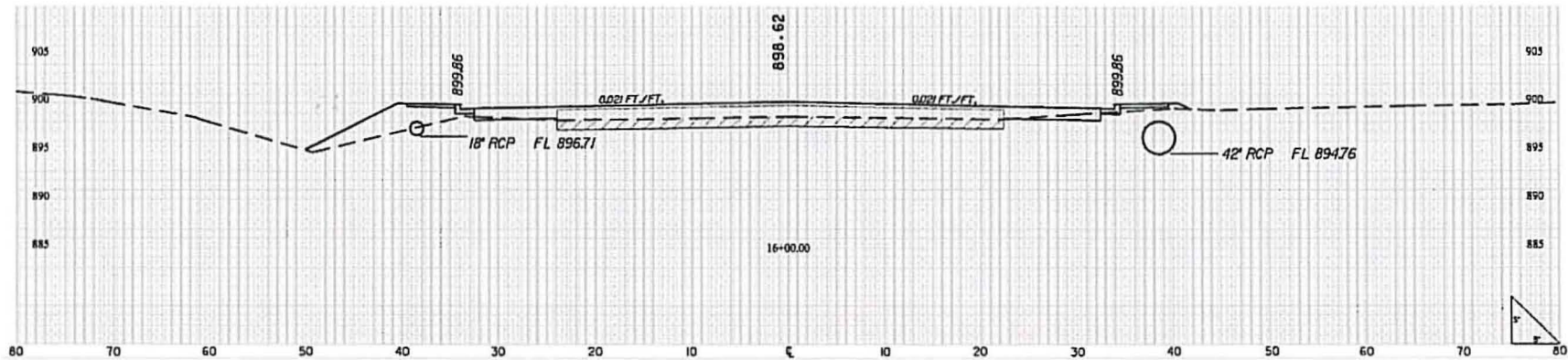


Note: "Pipe.x" can be copied from "Q:\Hydraulics\GEOPAK" folder to your project folder.

- (4) Create a "run" (e.g. sc302xp) in Geopak Project Manager > Proposed Cross Section. Adjust the settings in <XS DGN file>, <Pattern>, <Existing Ground>, <Shapes>, and <Drainage>:



Shown below is an example of a normal roadway cross section showing the sideline storm sewer pipe.
 (See Attachment 1)



Shown below is an example of a roadway cross section showing a crossline storm sewer pipe. This cross section is cut on a skew to the roadway centerline. The plan sheet will show the location of the pipe ends.
 (See Attachment 2)

