

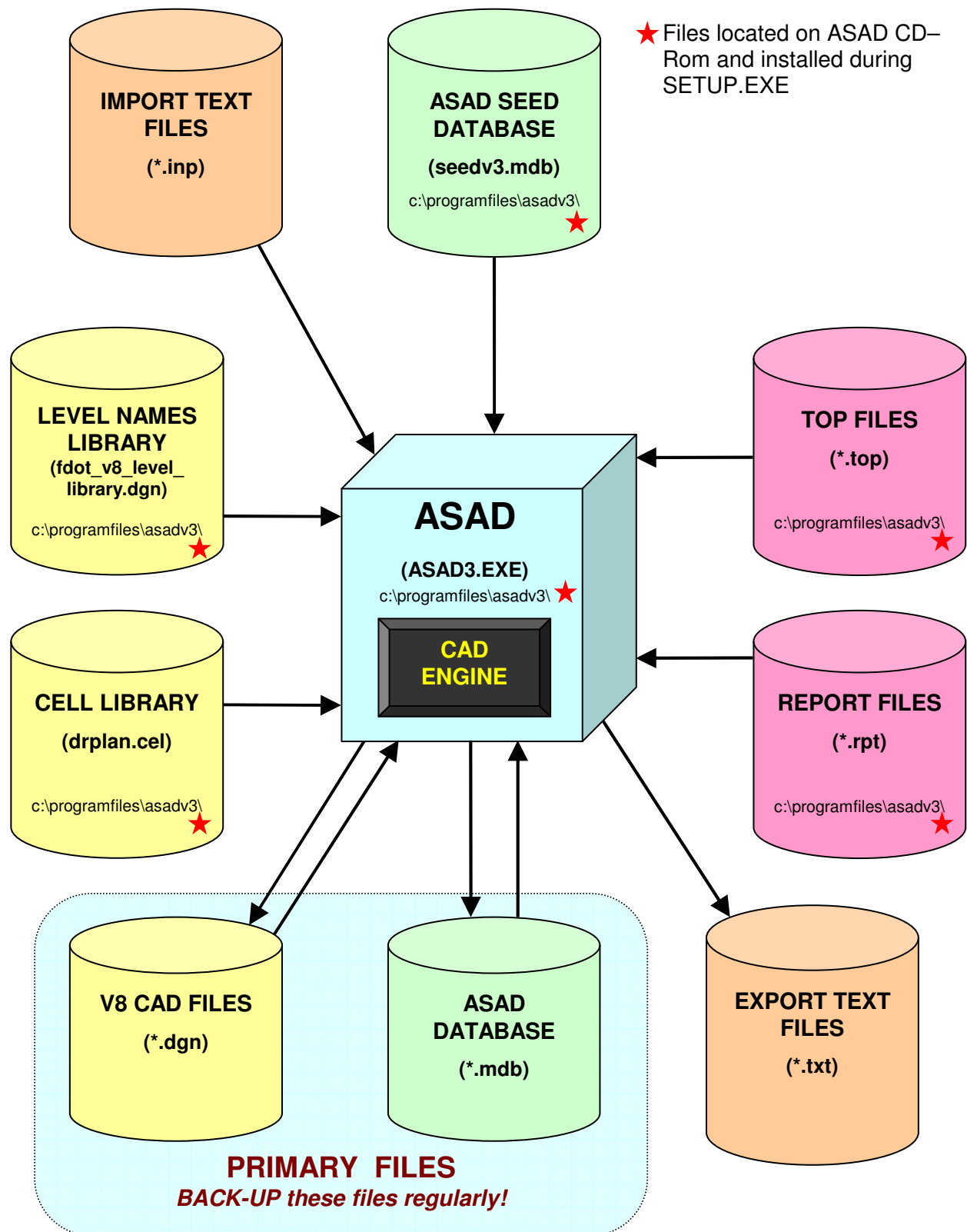
ASAD

CAD PLANS PREPARATION WORKSHOP

Outline

1. General Facts about ASAD
2. Files Structure
3. Secondary Files: Top Files/Report Files/Cell Libraries/Level Name Library
4. Setting up the CAD file
5. Cad Window
6. Reference Files
7. Levels & ASAD Master Level List
8. Drawing Templates & Setting Defaults
9. User Defined Text Variables
10. General Level/Symbology
11. Drawing in PLAN VIEW
 - Storm Sewer Layout
 - Areas
 - Cross Section Pattern Lines
 - Profile HighPoint & LowPoint Locations
12. Drawing in PROFILE VIEW
 - Storm Sewer Layout
13. Drawing CROSS SECTION VIEW of Drainage Structures
 - Single Structure using an Exact or Relative Datapoint
 - Multiple Structures using GEOPAK Cross Section Cells
 - Multiple Structures in a Plan Drawing
 - Multiple Structures in a Grid Layout
14. Drawing Cells in a Grid Layout

FILES STRUCTURE



SECONDARY FILES

Top Files/Report Files/Cell Libraries/Level Name Library

1) Verify the path to secondary ASAD files. Use pulldown File>Top Files/Report Files/Cell Libraries/Level Name Library

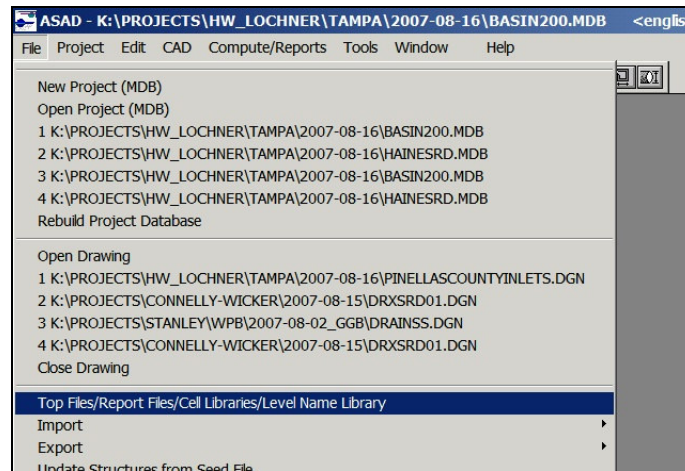


Figure 1

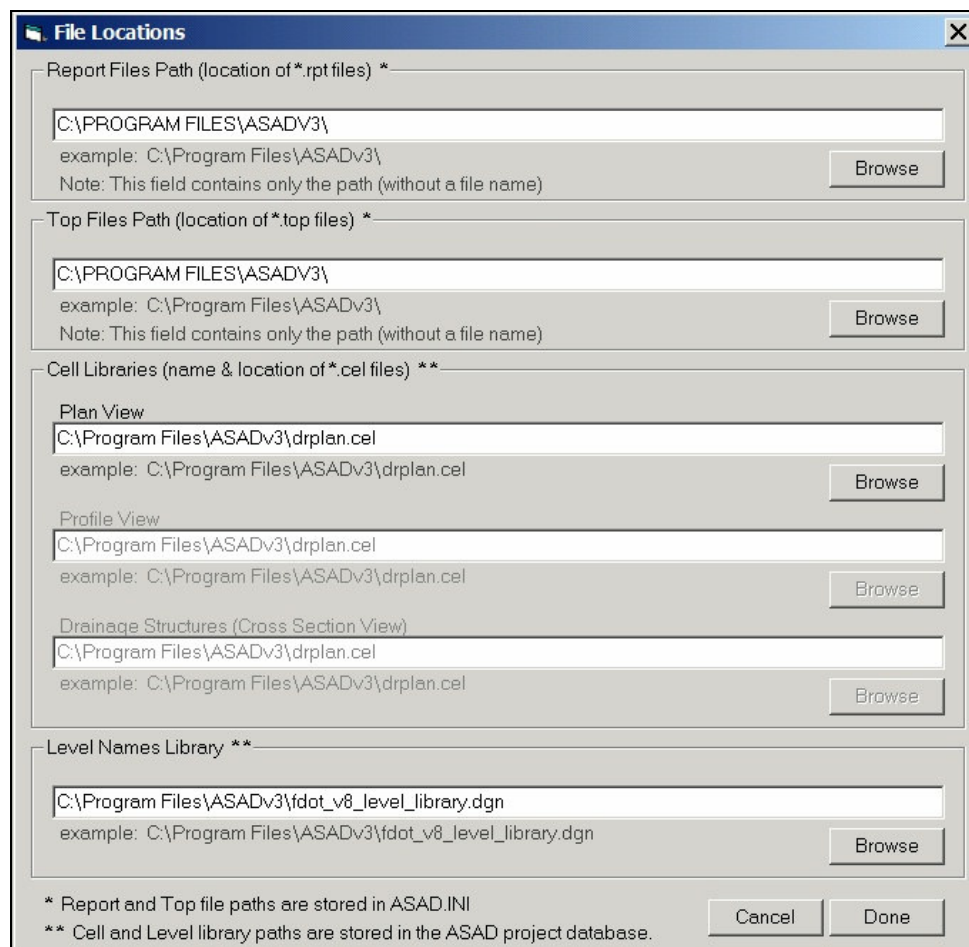


Figure 2

Setting up the CAD file

1. Start by copying the design CAD file (DSGNRD01.DGN) to another name such as DRAINSS.DGN. This will be a working CAD file that's used for daily drawing and deleting of plan & profile view drainage elements.
2. Using ASAD or MicroStation, open the CAD file (DRAINSS.DGN) and perform the following:
3. Rotate View to top. (VI=TOP). ASAD automatically does this when the file is opened.
4. Set Active Angle = 0
5. Place fence around all elements and delete.
6. Compress design file.
7. Attach the design file (DSGNRD01.DGN). Many other files will already be attached (such as ALGNRD01.DGN).
8. Detach very large files (such as TOPO), 3D files (DTM CAD files), and any files containing non-vector images such as JPG's.
9. Save Settings and Exit out of MicroStation.

CAD WINDOW

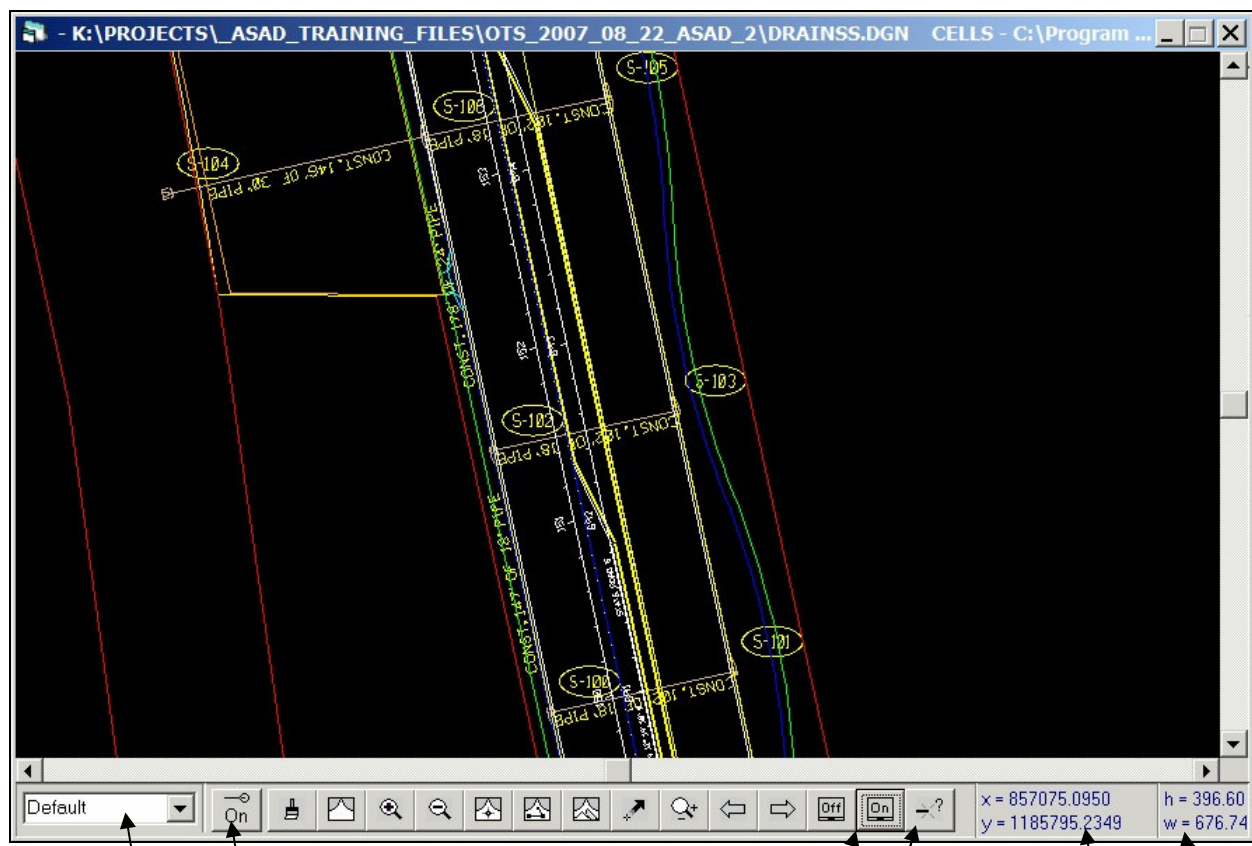


Figure 3

Models

SmartPick On/Off

View Controls

Reference Files On/Off

Cursor Location

Screen Width & Height

Locate Element (Sta/Offset)

REFERENCE FILES

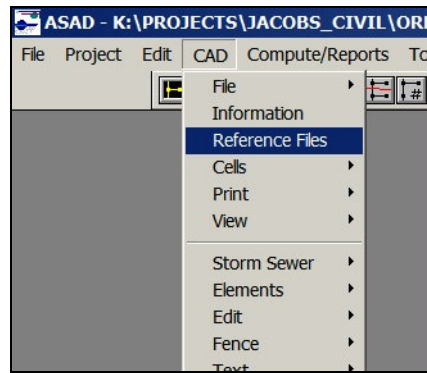


Figure 4

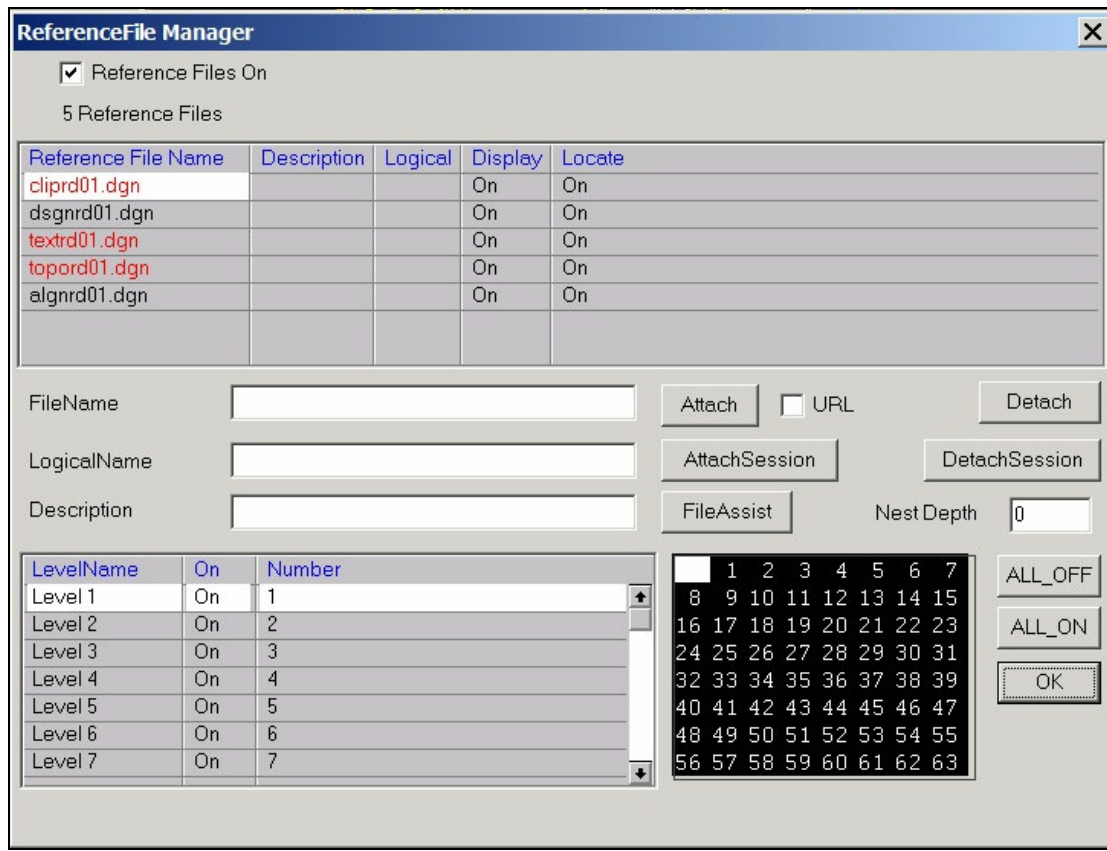


Figure 5

LEVELS & ASAD MASTER LEVEL LIST

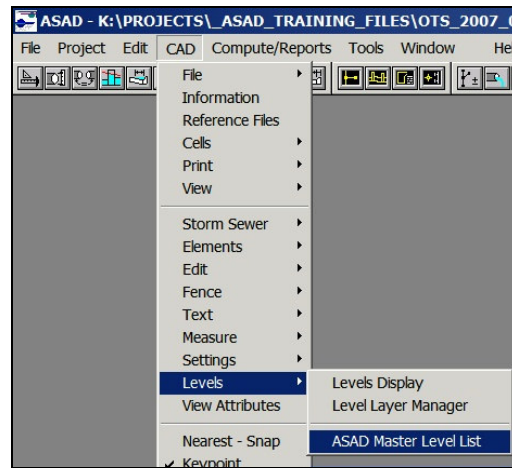


Figure 6

ASAD Master Level List							
LEVELS							
Name	Active	Description	Number	Color	Weight	Style	
HardscapeDetails	<input type="radio"/> Yes <input checked="" type="radio"/> No	Paving Details, Fence Railing, Stamped Asphalt	857	4	2	0	
HayBale	<input type="radio"/> Yes <input checked="" type="radio"/> No	Hay Bales	114	10	1	-25	
HerbicideArea	<input type="radio"/> Yes <input checked="" type="radio"/> No	Area to Receive Herbicide	883	5	1	0	
HubEthernet	<input type="radio"/> Yes <input checked="" type="radio"/> No	Ethernet Hub	777	1	1	0	
HubWireless	<input type="radio"/> Yes <input checked="" type="radio"/> No	Wireless Receiver and Transmitter	797	3	1	0	
Inlet_px	<input checked="" type="radio"/> Yes <input type="radio"/> No	Inlets on Cross Sections	339	10	2	0	
InletBottom_px	<input checked="" type="radio"/> Yes <input type="radio"/> No	Inlet Bottom on Cross Sections (All Types)	340	3	1	0	
InletBottomJ	<input checked="" type="radio"/> Yes <input type="radio"/> No	Inlet Bottom Type J	431	10	1	0	
InletBottomP	<input checked="" type="radio"/> Yes <input type="radio"/> No	Inlet Bottom Type P	432	10	1	0	
InletClosedFlume	<input checked="" type="radio"/> Yes <input type="radio"/> No	Closed Flume Inlet	433	10	2	0	
InletCurb	<input checked="" type="radio"/> Yes <input type="radio"/> No	Curb Inlet (All Types)	434	10	2	0	
InletDBI	<input checked="" type="radio"/> Yes <input type="radio"/> No	Ditch Bottom Inlet (All Types)	435	10	2	0	
InletGutter	<input checked="" type="radio"/> Yes <input type="radio"/> No	Gutter Inlet (All Types)	436	10	2	0	
InletMedian	<input checked="" type="radio"/> Yes <input type="radio"/> No	Median Barrier Inlet	437	10	2	0	
Insulator	<input type="radio"/> Yes <input checked="" type="radio"/> No	Insulator, Fiberglass	609	3	4	0	
InterconCable	<input type="radio"/> Yes <input checked="" type="radio"/> No	Cable Interconnect	610	1	1	-82	
InterconCable_ep	<input type="radio"/> Yes <input checked="" type="radio"/> No	Interconnect Cable (Existing)	611	1	0	-83	
IrrigationHeads	<input type="radio"/> Yes <input checked="" type="radio"/> No	Irrigation Heads (All Types)	858	5	2	0	
IrrigationMisc	<input type="radio"/> Yes <input checked="" type="radio"/> No	Irrigation Miscellaneous Items	859	0	2	0	
IrrigationSprayPat	<input type="radio"/> Yes <input checked="" type="radio"/> No	Irrigation Head Spray Pattern	860	1	1	1	
IrrigationWaterLine	<input type="radio"/> Yes <input checked="" type="radio"/> No	Irrigation Water Lines	894	1	2	0	
ITSDetail00	<input type="radio"/> Yes <input checked="" type="radio"/> No	ITS Details	660	0	0	0	

Levels: **699** Make All Levels: Make Levels Typical to ASAD Projects Active. All Others Inactive.

Figure 7

DRAWING TEMPLATES & SETTING DEFAULTS

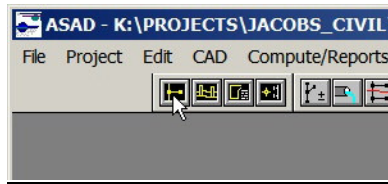


Figure 8

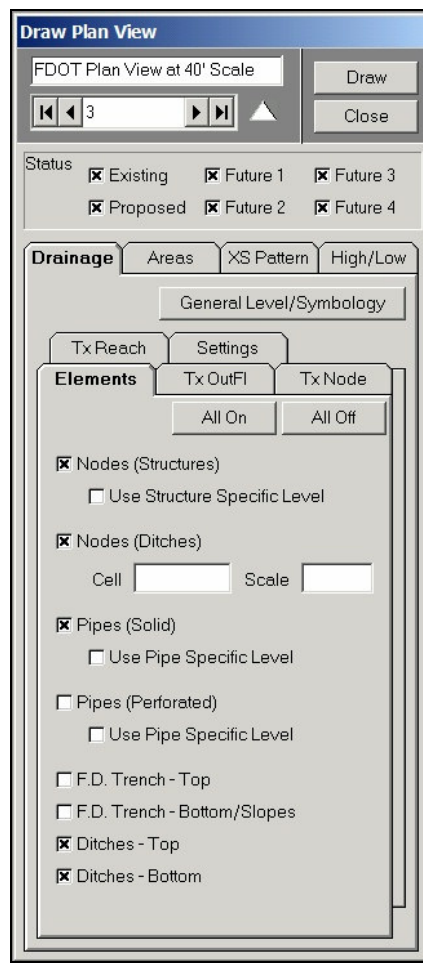


Figure 9

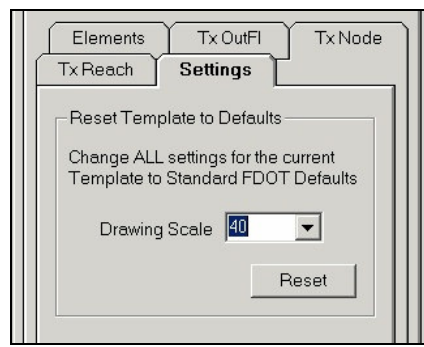


Figure 10

USER DEFINED TEXT VARIABLES

Elements Tx OutFI Tx Node

Tx Reach Settings

All On All Off

Orientation:

☒ Reach Bearing

☐ Set by Symbolology

Offset

X Y

☐ Pipe Name (Solid & Perf.) 0

☐ Reach Length 0

☐ Flow Line Elevations 0

☐ Ditch Dimensions 0

☒ User Defined 5.6

CONST. @d0@qlen' OF @pdesc

Dbt click text field to add variables

Decimal Places 2

Figure 11

User Defined Text Variables

Fields

NODE & STRUCTURE DATA

@nnam - Node Name

@sys - System

@snam - Structure Name

@topstat - Structure Top Status (Existing, Proposed, Future 1, etc.)

@botstat - Structure Bottom Status (Existing, Proposed, Future 1, etc.)

@bln - Baseline Name

@sta - Station

@off - Offset

@x - X (Easting) Coordinate

@y - Y (Northing) Coordinate

@angle - Structure Rotation Angle (plan view)

@mirror - Structure Mirror (plan view)

Functions

@abs - Absolute value. The absolute value of the following field will be shown.

@dn - 'n' is the decimal places of the next field

@SIDE - Displays 'LT', 'RT' or 'CL' based on the value (<0,>0,=0) of the previous field.

@Side - Displays 'Lt', 'Rt' or 'Cl' based on the value (<0,>0,=0) of the previous field.

Text Field 26 characters

CONST. @d0@qlen' OF @pdesc

Add to Text Field: <sp> <comma> Const Exist of Lf

<period> CONST EXIST OF LF

Write Close

Figure 12

GENERAL LEVEL / SYMBOLOGY

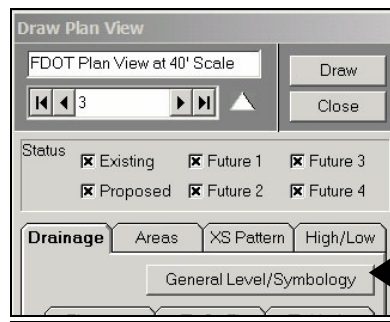


Figure 13

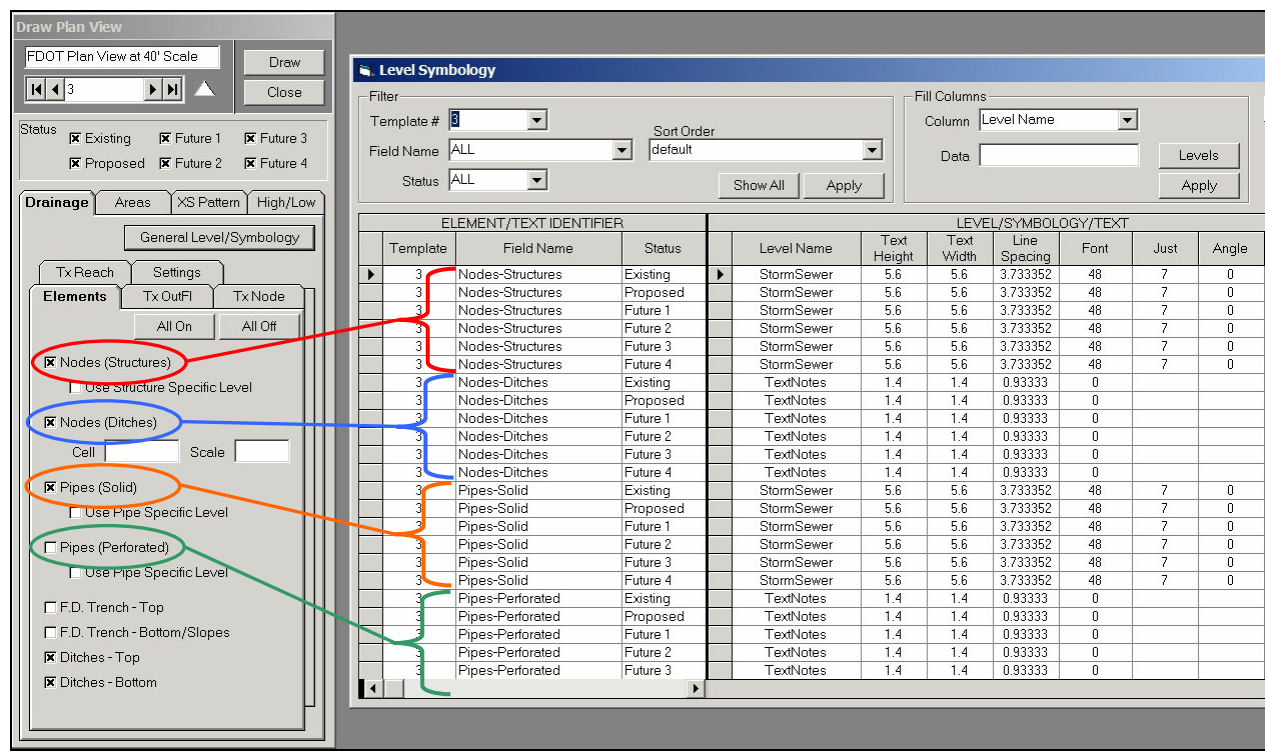


Figure 14

DRAWING in PLAN VIEW

(Storm Sewer Layout)

Draw Plan View

FDOT Plan View at 40' Scale

Draw Close

Status: ☒ Existing ☒ Future 1 ☒ Future 3 ☒ Proposed ☒ Future 2 ☒ Future 4

Drainage Areas XS Pattern High/Low

General Level/Symbology

Tx Reach Settings

Elements Tx OutFI Tx Node

All On All Off

☒ Nodes (Structures)
☐ Use Structure Specific Level

☒ Nodes (Ditches)
Cell Scale

☒ Pipes (Solid)
☐ Use Pipe Specific Level

☐ Pipes (Perforated)
☐ Use Pipe Specific Level

☐ F.D. Trench - Top
☐ F.D. Trench - Bottom/Slopes

☒ Ditches - Top
☒ Ditches - Bottom

Figure 15

Drainage Areas XS Pattern High/Low

General Level/Symbology

Tx Reach Settings

Elements Tx OutFI Tx Node

All On All Off

Dist from Node X Y

☒ Node Name (w/ Oval) 17 17
Oval Width 34 Height 17

☐ Node Name (no Oval) 0 0

☐ HGL to Inlet El. Clear. 0 0

☐ User Defined 0 0

Dbl click text field to add variables

Decimal Places 2

Figure 16

Drainage Areas XS Pattern High/Low

General Level/Symbology

Elements Tx OutFI Tx Node

Tx Reach Settings

All On All Off

Orientation:
☒ Reach Bearing
☐ Set by Symbology

Offset X Y

☐ Pipe Name (Solid & Perf) 0 0

☐ Reach Length 0 0

☐ Flow Line Elevations 0 0

☐ Ditch Dimensions 0 0

☒ User Defined 5.6

CONST. @d0@qlen' OF @pdesc

Dbl click text field to add variables

Decimal Places 2

Figure 17

Drainage Areas XS Pattern High/Low

General Level/Symbology

Tx Reach Settings

Elements Tx OutFI Tx Node

All On All Off

Dist from Node X Y

☒ Node Name (w/Oval) 17 17
Oval Width 34 Height 17

☐ Node Name (no Oval) 0 0

☐ HGL to Inlet El. Clear. 0 0

☐ User Defined 0 0

Dbl click text field to add variables

Decimal Places 2

Figure 18

Drainage Areas XS Pattern High/Low

General Level/Symbology

Elements Tx OutFI Tx Node

Settings

Reset Template to Defaults

Change ALL settings for the current Template to Standard FDOT Defaults

Drawing Scale 40

Reset

Figure 19

DRAWING in PLAN VIEW

(Areas)

Draw Plan View

Areas: Draw Close

Status: ☐ Existing ☐ Future 1 ☐ Future 3
☒ Proposed ☐ Future 2 ☐ Future 4

Drainage **Areas** XS Pattern High/Low

General Level/Symbology

Elements
☐ Boundary Lines
☐ Use Level/Symbology
☒ Mixed Colors

Text: All On All Off
☒ Areas Listed Separately
☒ Total Area
☐ User Defined

Dbl click text field to add variables or press button ... Variables

Figure 20

(Cross Section Pattern Lines)

Draw Plan View

XS Pattern Lines: Draw Close

Status: ☒ Existing ☒ Future 1 ☒ Future 3
☒ Proposed ☒ Future 2 ☒ Future 4

Drainage Areas **XS Pattern** High/Low

General Level/Symbology

691+00	S-100
691+00	S-101
692+50	S-102
692+50	S-103
694+30	S-104
694+30.00	S-105
694+30.73	S-106

Select All De-Select All

Lines Points

Pattern Line Offsets (+/-)

Figure 21

DRAWING in PLAN VIEW

(Profile HighPoint & LowPoint Locations)

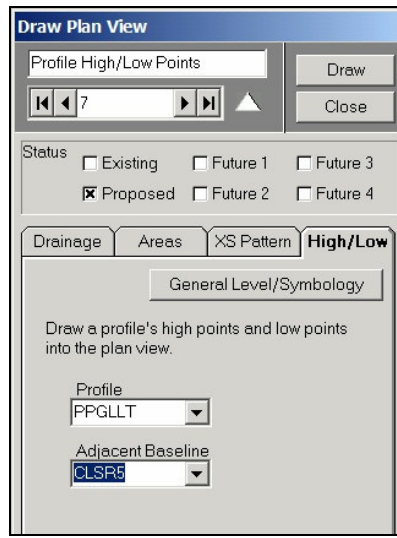


Figure 22

DRAWING in PROFILE VIEW (Storm Sewer Layout)

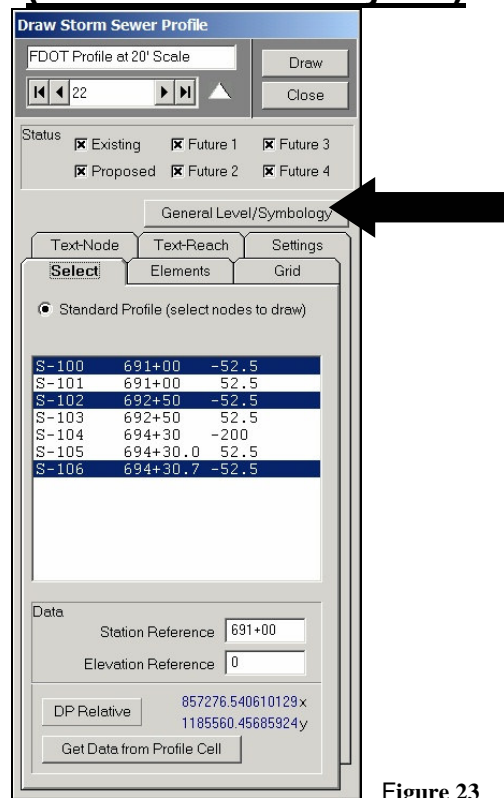


Figure 23

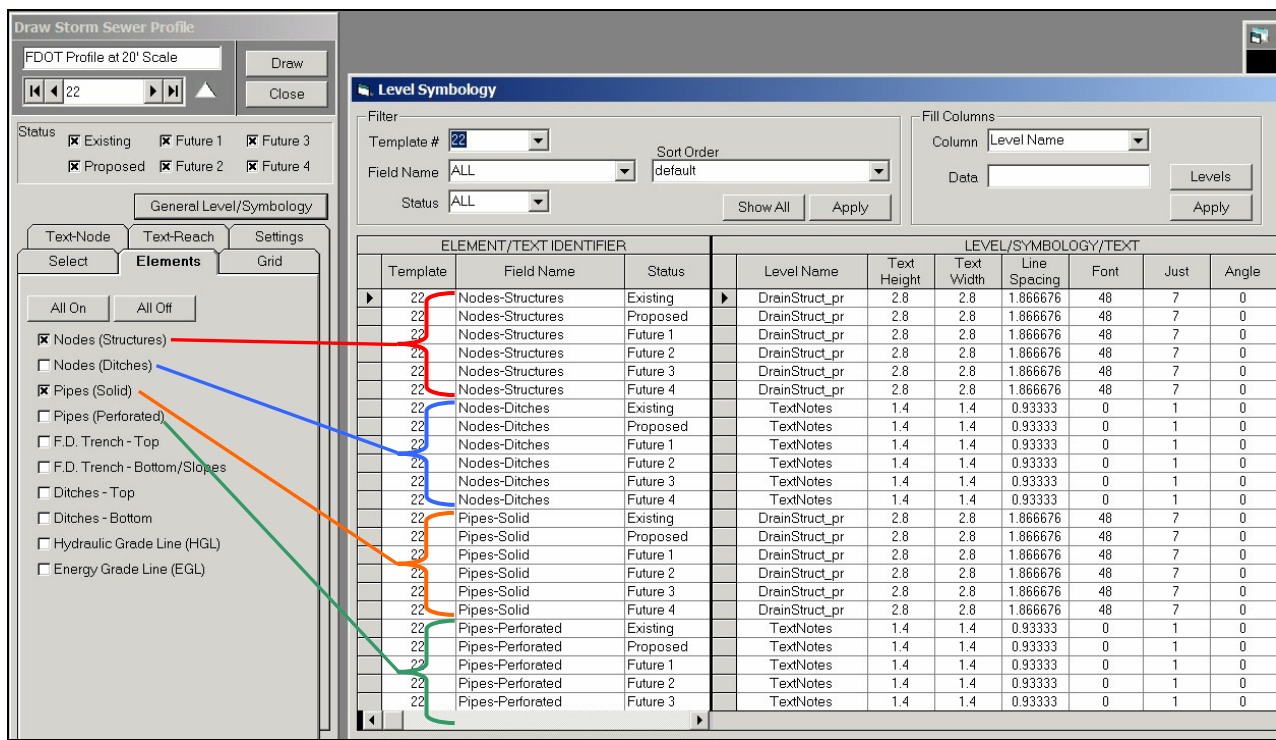


Figure 24

DRAWING CROSS SECTION VIEW

(Single Structure using Exact or Relative DataPoint)

Draw Drainage Structures

Select Settings Lines Labels

Mode
Single Structure: DP Exact or Relative

S-104	694+30	-200
S-100	691+00	-52.5
S-101	691+00	52.5
S-102	692+50	-52.5
S-103	692+50	52.5
S-105	694+30.0	52.5
S-106	694+30.7	-52.5

Previous Current Next

Draw Start Point

DP Exact ☒ 858569.348344594x
1185807.46337475y

DP Relative

XS Cell

Offset 0.00

Elevation 0.00

☐ Use previous data when available

Draw

Structure Paragraph Oval

Station Text

Pipes Intersecting this XSection

Close

Figure 25

DRAWING CROSS SECTION VIEW

(Multiple Structures using GEOPAK Cross Section Cells)

Draw Drainage Structures

Select | Settings | Lines | Labels

Mode: ☒ Draw
Multiple Structures: GEOPAK XS Cells ☐ Navigate

Step 1: List
List nodes in table below.
8 nodes
Current System | All Systems

Step 2: Select
Select Nodes to be Drawn. Click to Select (X will appear in 1st col).
All | None

Step 3: Synchronize
Scan X-Sections & Match Nodes.
Station Tolerance (+ or -) 5 ft
Scan & Match | XS Limit 125 ☐ List XS

Step 4: Draw
Draw Selected Structures in Cross Sections
Draw

X	System	Node	Type	Station	Offset	xsStation	xsElev	xsCoord (X)	xsCoord (Y)
<input type="checkbox"/>	SYS2	?	SSout	?	0		0	0.0000	0.0000
<input checked="" type="checkbox"/>	SYSTEM1S-104		SSout	694+30	-200		0	0.0000	0.0000
<input checked="" type="checkbox"/>	SYSTEM1S-100		SSnode	691+00	-52.5		0	0.0000	0.0000
<input checked="" type="checkbox"/>	SYSTEM1S-101		SSnode	691+00	52.5		0	0.0000	0.0000
<input checked="" type="checkbox"/>	SYSTEM1S-102		SSnode	692+50	-52.5		0	0.0000	0.0000
<input checked="" type="checkbox"/>	SYSTEM1S-103		SSnode	692+50	52.5		0	0.0000	0.0000
<input checked="" type="checkbox"/>	SYSTEM1S-105		SSnode	694+30.00	52.5		0	0.0000	0.0000
<input checked="" type="checkbox"/>	SYSTEM1S-106		SSnode	694+30.73	-52.5		0	0.0000	0.0000

Close | Print

Figure 26

Draw Drainage Structures

Select | Settings | Lines | Labels

Mode: ☐ Draw
Multiple Structures: GEOPAK XS Cells ☒ Navigate

Show Current System | Show All Systems | Scan XSections

☒ Wide View ☐ Narrow View (Centered @ Offset)

Previous Node | Next Node

System	Node	Station	Offset	xsCoord	xsCoord
SYS2	?	?	0	0.0000	0.0000
SYSTEM1S-104		694+30	-200	0.0000	0.0000
SYSTEM1S-100		691+00	-52.5	0.0000	0.0000
SYSTEM1S-101		691+00	52.5	0.0000	0.0000
SYSTEM1S-102		692+50	-52.5	0.0000	0.0000
SYSTEM1S-103		692+50	52.5	0.0000	0.0000
SYSTEM1S-105		694+30.00	52.5	0.0000	0.0000
SYSTEM1S-106		694+30.73	-52.5	0.0000	0.0000

Figure 27

DRAWING CROSS SECTION VIEW (Multiple Structures in a Plan Drawing)

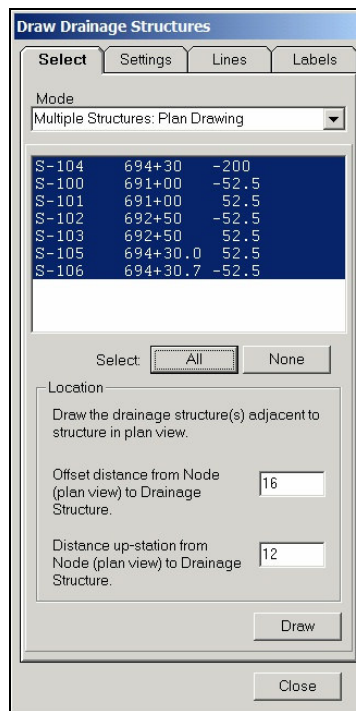


Figure 28

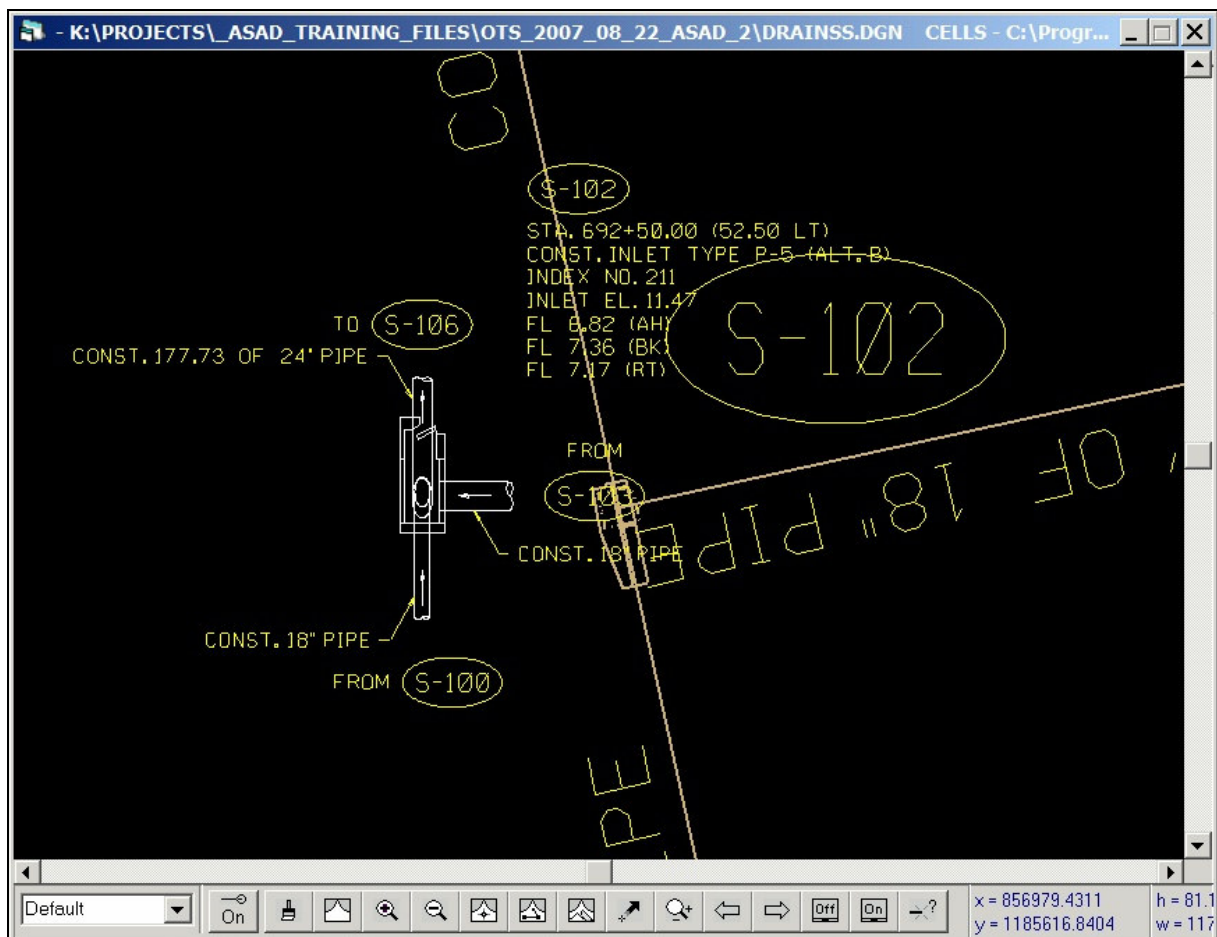


Figure 29

DRAWING CROSS SECTION VIEW

(Multiple Structures in a Grid Layout)

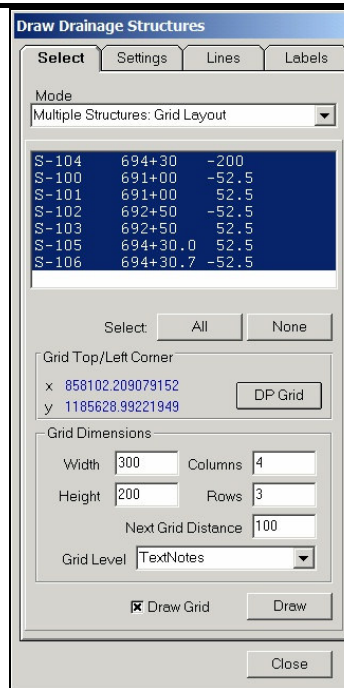


Figure 30

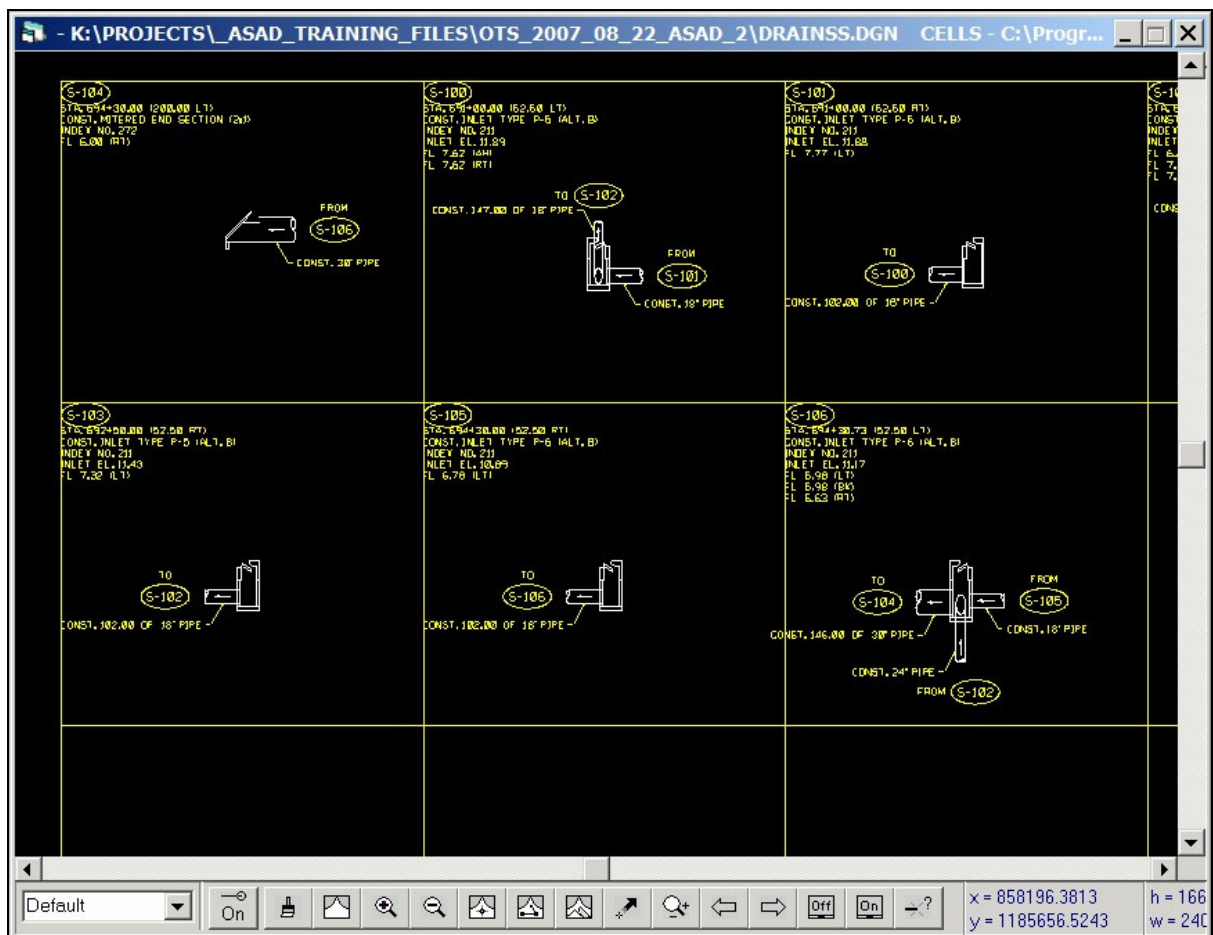


Figure 31

DRAWING CELLS in a GRID LAYOUT

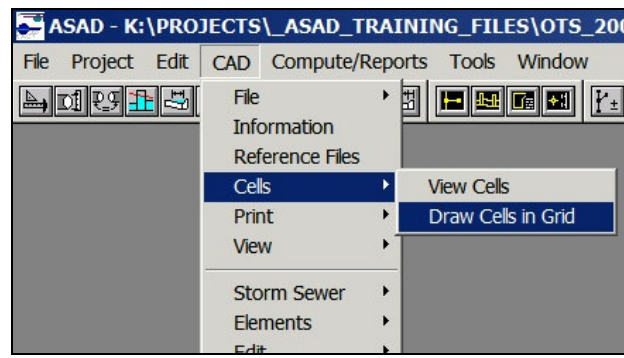


Figure 32

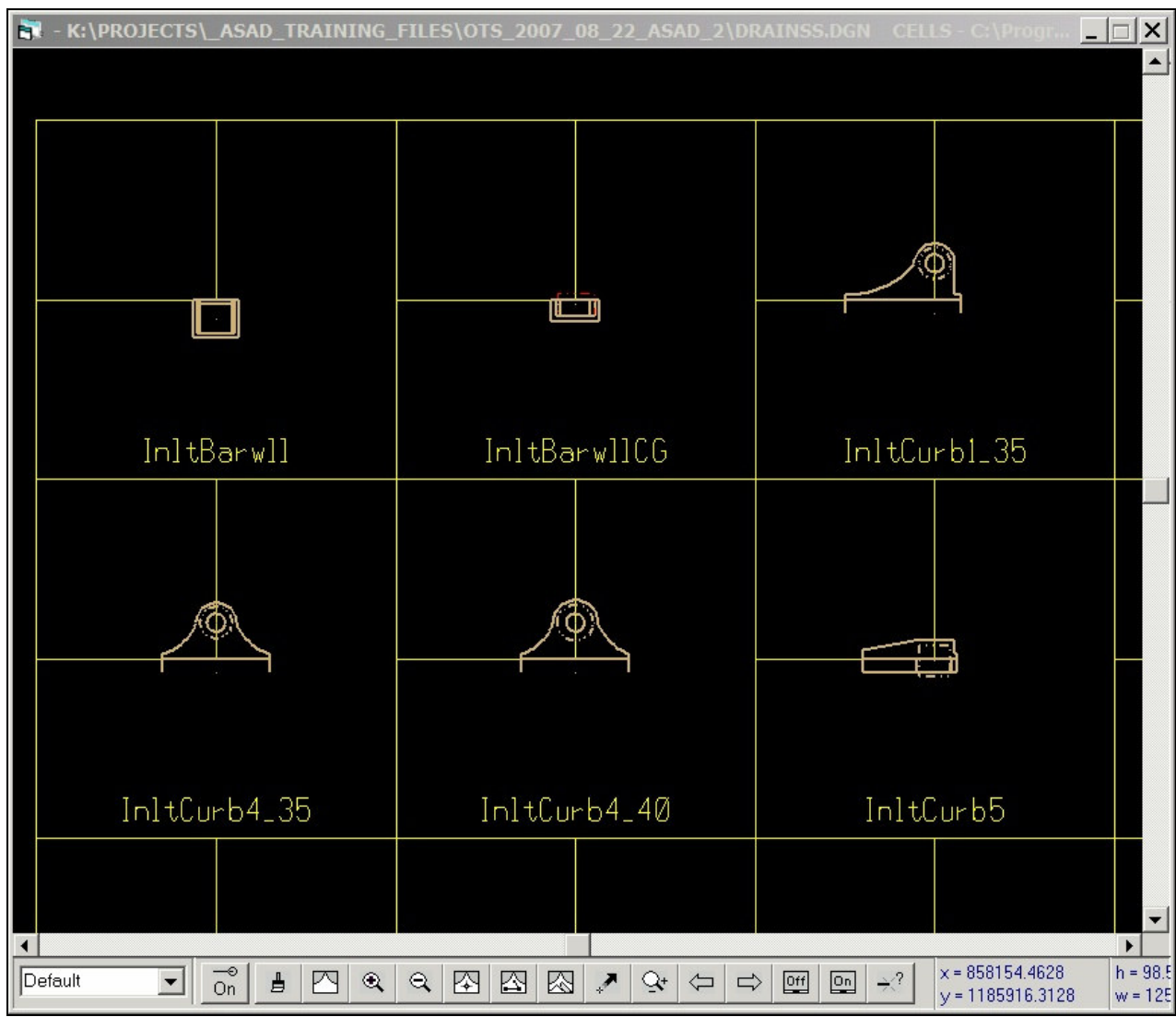


Figure 33