

8.0 Pipe Data

8.1 Control

Responsibility for development of the pipe data sheets is in the hands of the project's drainage or roadway designer. Pipe data sheets should be developed after the drainage design is fairly complete, and are subject to review during the advance and final review phases.

During the normal review processes, the ODOT Standards Engineer will review the pipe data sheet for accuracy, adherence to standards, and proper usage of alternate materials. Final approval of the pipe data sheet and a signature must be given by the Standards Engineer before advertisement of the project for bid.

8.2 Sheet Setup

The pipe data sheets list all of the drainage pipes and drainage structures that are included on a specific project. Pertinent data are listed with each pipe or structure, such as length and diameter, installation criteria and terminal treatment, alternate materials, and appurtenances. The drainage data on the pipe data sheets must match the drainage information indicated on the plan, profile, and construction note sheets. Produce pipe data sheets using the following procedures.

Step 1 — Create an “Active File”

Create a new MicroStation™ file from the seed file named SEED2D.DGN found at:

Internal ODOT staff	http://Sdata3\odot_space\stadards\seed
External	ftp://ftp.odot.state.or.us/isb/appeng/Microstation/Version8/

and name it KEYNUFPD1, where “KEYNU” represents your project key number assigned by ODOT (to be filled in by you), “F” represents that this file is part of the final contract plans, and “.PD1” is the appropriate extension for the first file of pipe data sheets. This is your **active file**. Subsequent files should be named “.PD2”, “.PD3,” etc.

Step 2 — Add sheet borders

Enter ODOT's proprietary software, “Plotypus,” to automatically place borders (*File/Plotypus*). “Plotypus” automatically creates the borders at a pre-designated location in the design file. Choose the intended scale and sheet size, placing up to ten borders per design file. See Appendix D, “A Quickguide To Plotypus,” for more information on placing borders.

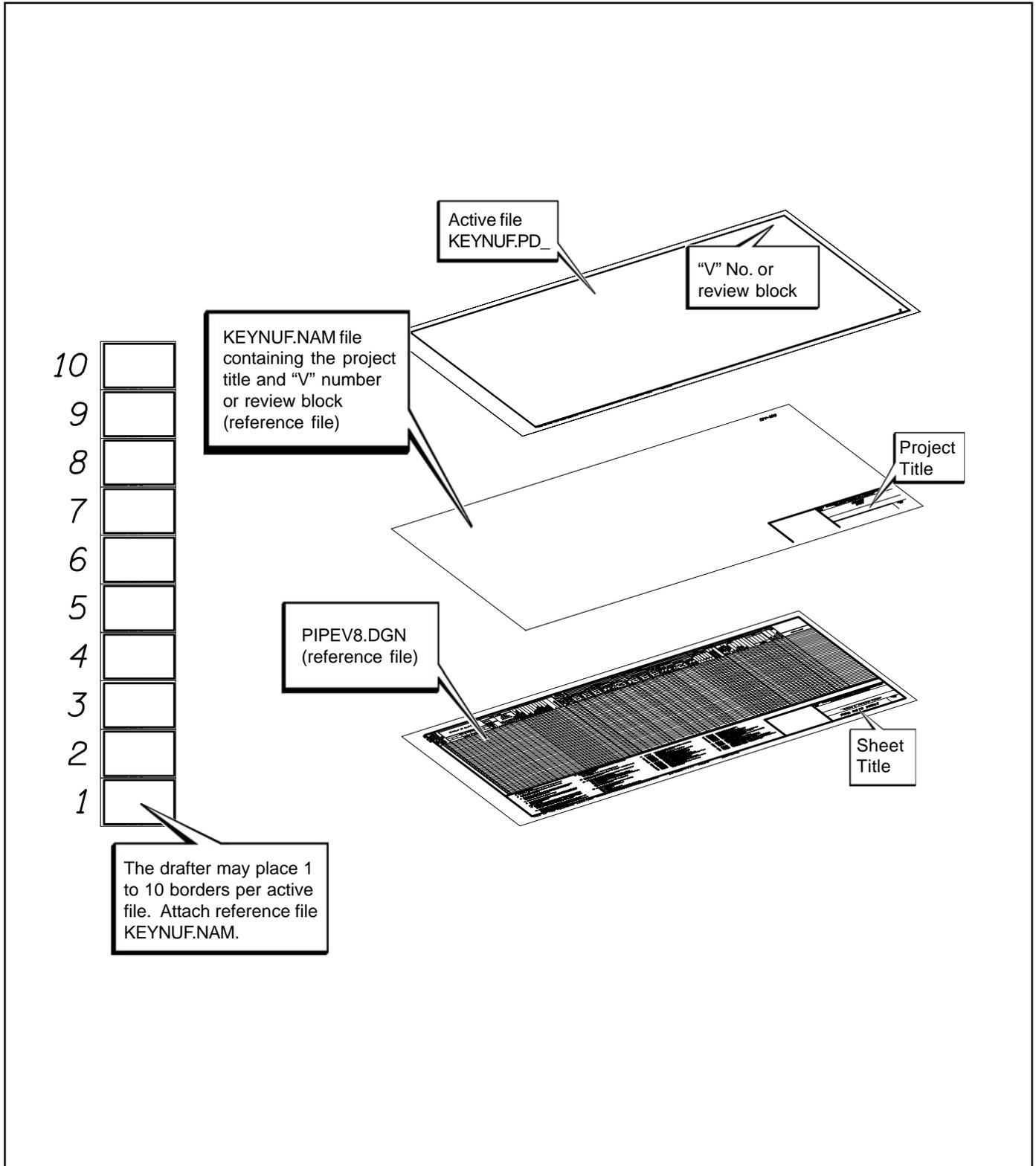
Note: For information on seed files, see Section 2.5, Volume 1.

Note: For file naming conventions, see Section 2.4, Volume 1.

Note: For information on title block text, see Section 2.8, Volume 1.

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Figure 8-1 Reference Files - Pipe Data Sheet



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8.2 Sheet Setup (Cont'd)

Step 3 — Create the Project Title and “V” Number Reference File

Create a new MicroStation™ file from the seed file named SEEDV8.NAM found at:

Internal ODOT staff	http://Scdata3\odot_space\Standards\seed
External	ftp://ftp.odot.state.or.us/isb/appeng/Microstation/Version8/

and name it KEYNUFNAM, where “KEYNU” represents your project key number (to be filled in by you), “F” represents that this file is part of the final contract plans, and “NAM” represents that this generic file is for the project title information. For example, a new file name might be 01234FNAM.

Warning

Clip masking and rotated views should be avoided.

Title block text is provided in two scales within SEEDV8.NAM for convenient editing.

Edit the project title text in the appropriate place within the title block. When the contract plans are complete and ready to be advertised for bid, the “V” number will be added to this file in the upper right hand corner of each plan sheet. For preliminary, advance and final review submittals, the appropriate block shall be placed here rather than the “V” number (from the cell library ODOT.cel).

Step 4 — Attach Reference Files

Open the new active file created in Step 1. Attach KEYNUFNAM as a reference file and assign a logical name as appropriate for your plan sheet.

When the pipe data information is completed, attach and use PIPE_E06.DGN found in the ODOT workspace:

Internal ODOT staff	http://Scdata3\odot_space\Standards\ref
External	ftp://ftp.odot.state.or.us/isb/appeng/Microstation/Version8/

and assign a logical name as appropriate for your plan sheet. Attach as many as necessary, assigning a logical name to each attachment, and move to each new border location.

Step 5 — Add Sheet Numbers

While in the *active file*, add the appropriate sheet numbers, snapping to the point provided in the space. The active file should now have blank pipe data sheets with the title blocks filled.

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8.2 Sheet Setup (Cont'd)

Step 6 — Add Professional Engineer Stamp

While in the *active file*, add the Professional Engineer's Stamp cell for the appropriate person signing the plans, snapping the cell to the point provided.

Step 7 — Sheet Information

The location, name and date of the *active file* are to appear in the lower left corner of the sheet as shown in Figure 8-2. For ODOT users, this will update automatically. Users outside ODOT must use an appropriate pen table.

Step 8 — Add Pipe Data Text

Begin by adding the drainage information to the pipe data sheets. The text may be placed on P_RDWY_PLAN_DetailTx within the *active file*. Figure 8-2 identifies the figures in this section that provide detailed information about the pipe data sheet.

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Figure 8-2 Pipe Data Sheet Legend

Figure 8-3
Figure 8-4
Figure 8-5
Figure 8-6
Figure 8-7
Figure 8-8

PIPE NUMBER SHEET NUMBER DATE	PIPE		PIPE - ARCH		USE / INSTALLATION CRITERIA		TREATMENT		ALTERNATE MATERIALS		APERTURANCES		EXTENSION		REMARKS
	CIRCULAR OR ELLIPTICAL	HELIICAL	CROSS-SECTIONAL DIMENSIONS	SPAN, RISE, SLOPE	PIPE MATERIAL	INSTALLATION CRITERIA	ALUMINUM	STEEL	ALUMINUM OR GALVANIZED IRON AND STEEL	PRECAST CONCRETE	MANHOLES	INLETS	EXTENSION		

The Pipe Data Sheet title is already located in the reference file, PIPEV8.DGN

MicroStation "Active Points" are available in seed file for centering pipe data text

Title Block (See section 2.4, Volume 1)

GENERAL NOTES:

- A check (✓) in the column heading applies.
- A new pipe substitution shall be of the material provided.
- Extension of existing metal culverts may be of the material provided. For connecting sections, see Standard Eng. No. 40326.
- Dimensions shown are nominal.
- All pipe shall conform to the AASHTO specification applicable to the type of material and the diameter of the pipe length.

FOOTNOTES:

- Depth of cover to the critical depth height used to select pipe material. The height of cover for any other section of the roadway. Design height of cover shall be measured to subgrade.
- Dimensional dimensions may vary with different materials. When galvanized iron or steel and aluminum are specified, specify pipe diameter for each type of material.

ABBREVIATIONS FOR PIPE MATERIALS:

- R0000 Trench Backfill, Bedding, Pipe Zone And Multiple Installations
- R0001 Stone/Crusher
- R0002 A/C Pipe Bedding/Compaction
- R0003 Subsurface Drain
- R0004 Open Graded HMA/Gr Drainage Details
- R0005 Sloped Ends For Metal Pipes
- R0006 Sloped Ends For Concrete Pipes
- R0007 Precast End Section Concrete Pipe
- R0008 Cast-In-Place Concrete Pipe
- R0009 Cast-In-Place Concrete Pipe
- R0010 Cast-In-Place Concrete Pipe
- R0011 Cast-In-Place Concrete Pipe
- R0012 Cast-In-Place Concrete Pipe
- R0013 Cast-In-Place Concrete Pipe
- R0014 Storm Sewer Pollution Control Methods
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- R0099 Storm Sewer Pollution Control Methods
- R0100 Storm Sewer Pollution Control Methods

REGISTERED PROFESSIONAL ENGINEER
XX,XXX
OREGON
JULY 28, 1993
LARRY L. JOHNSON
Expires Jun. 30, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

PROJECT SEC.
PROJECT HIGHWAY

Reviewed By:
Designed By:
In-Field By:

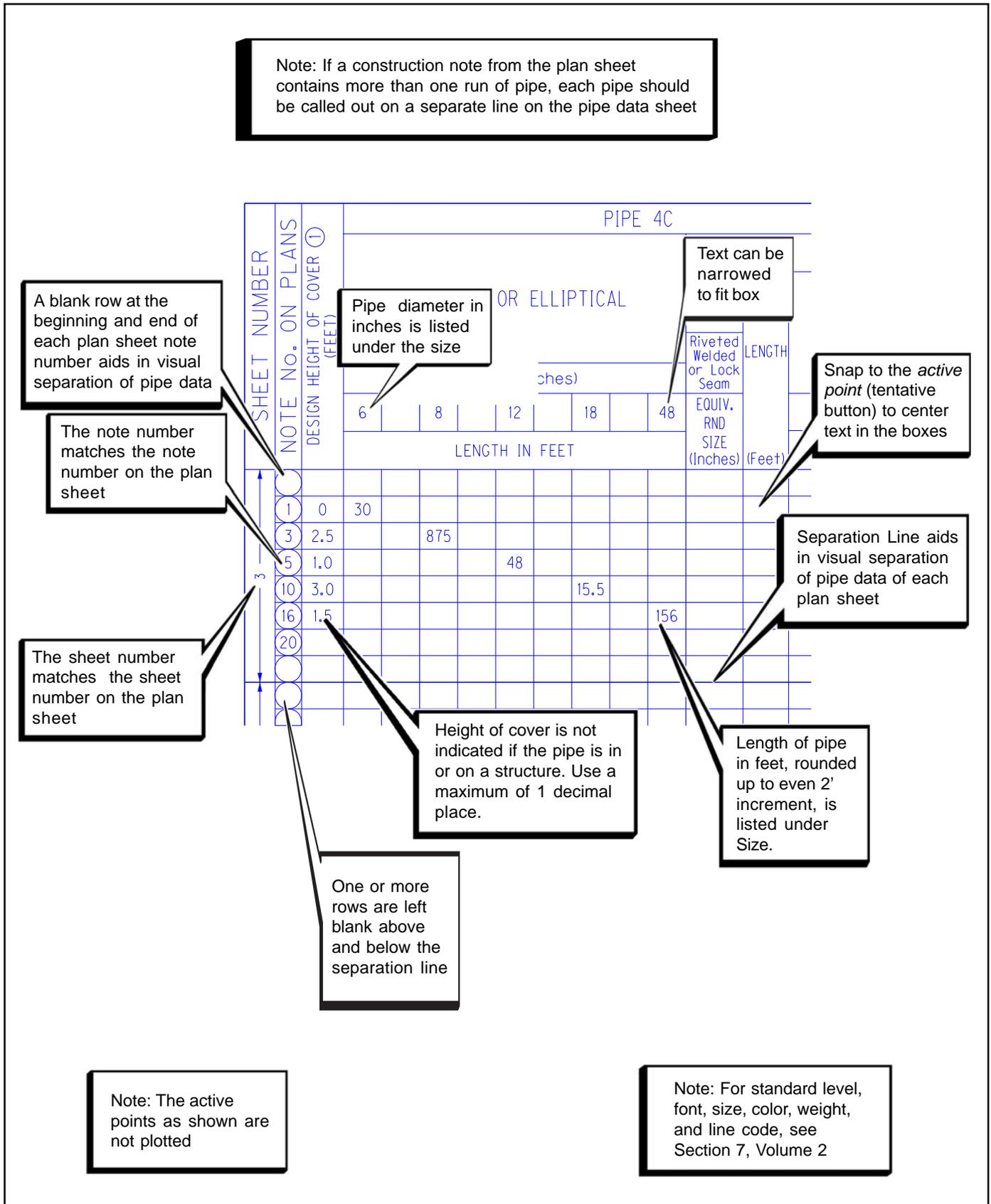
THIS IS THE FILENAME LOCATION ***** DD-MMM-YYYY HH:MM USERNAME

Figure 8-9

Figure 8-10

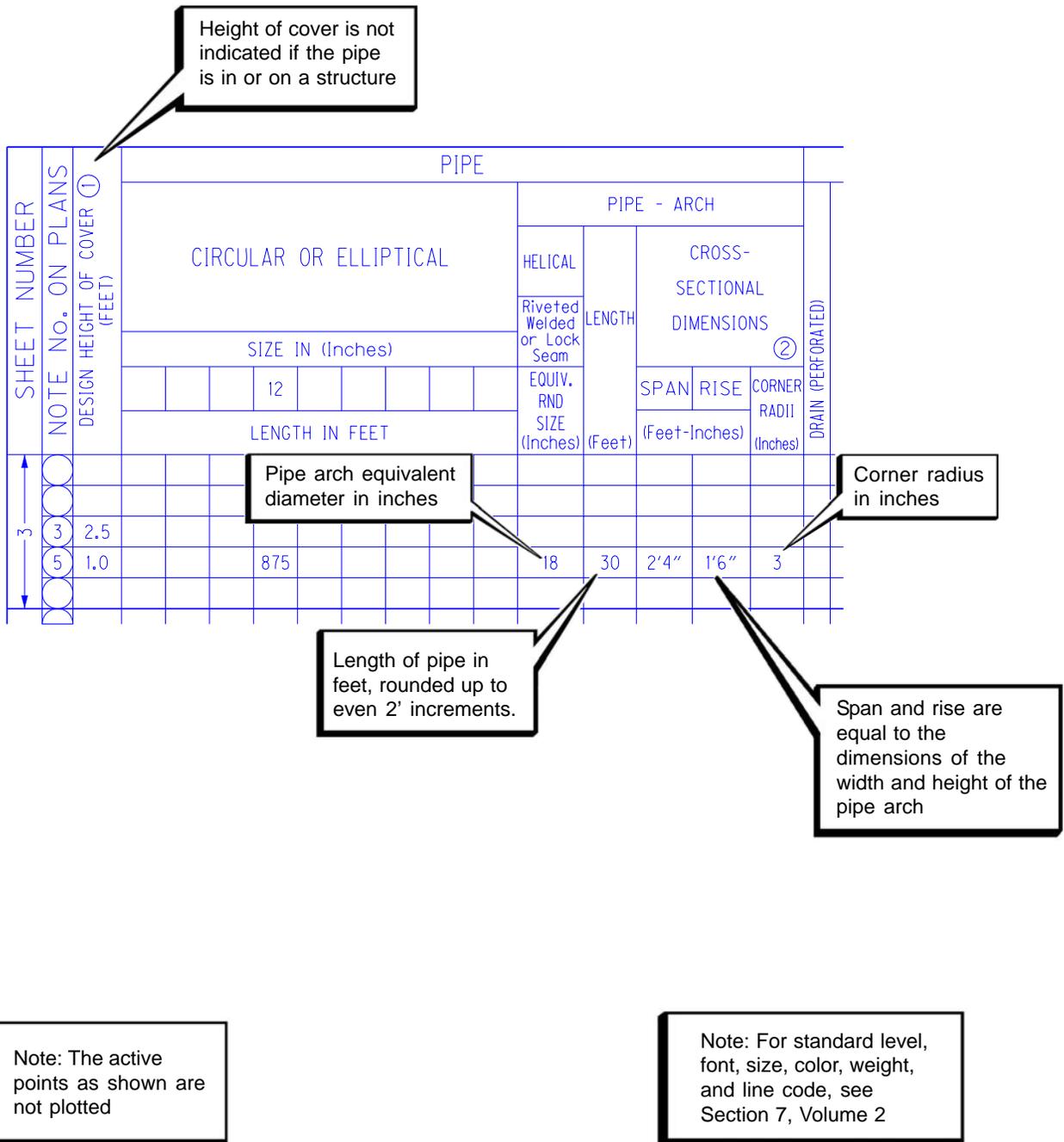
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Figure 8-3 Length and Diameter



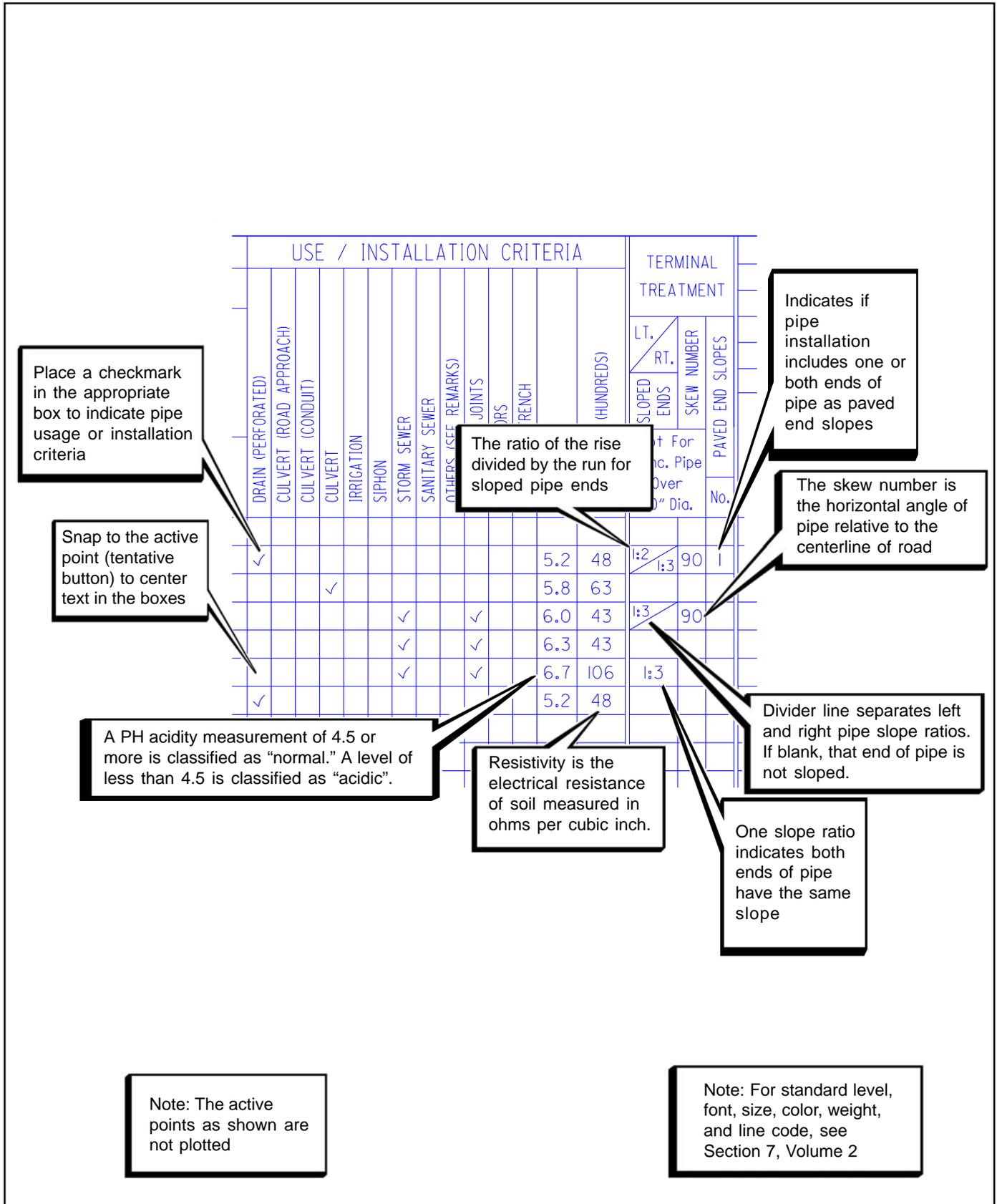
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Figure 8-4 Pipe Arch



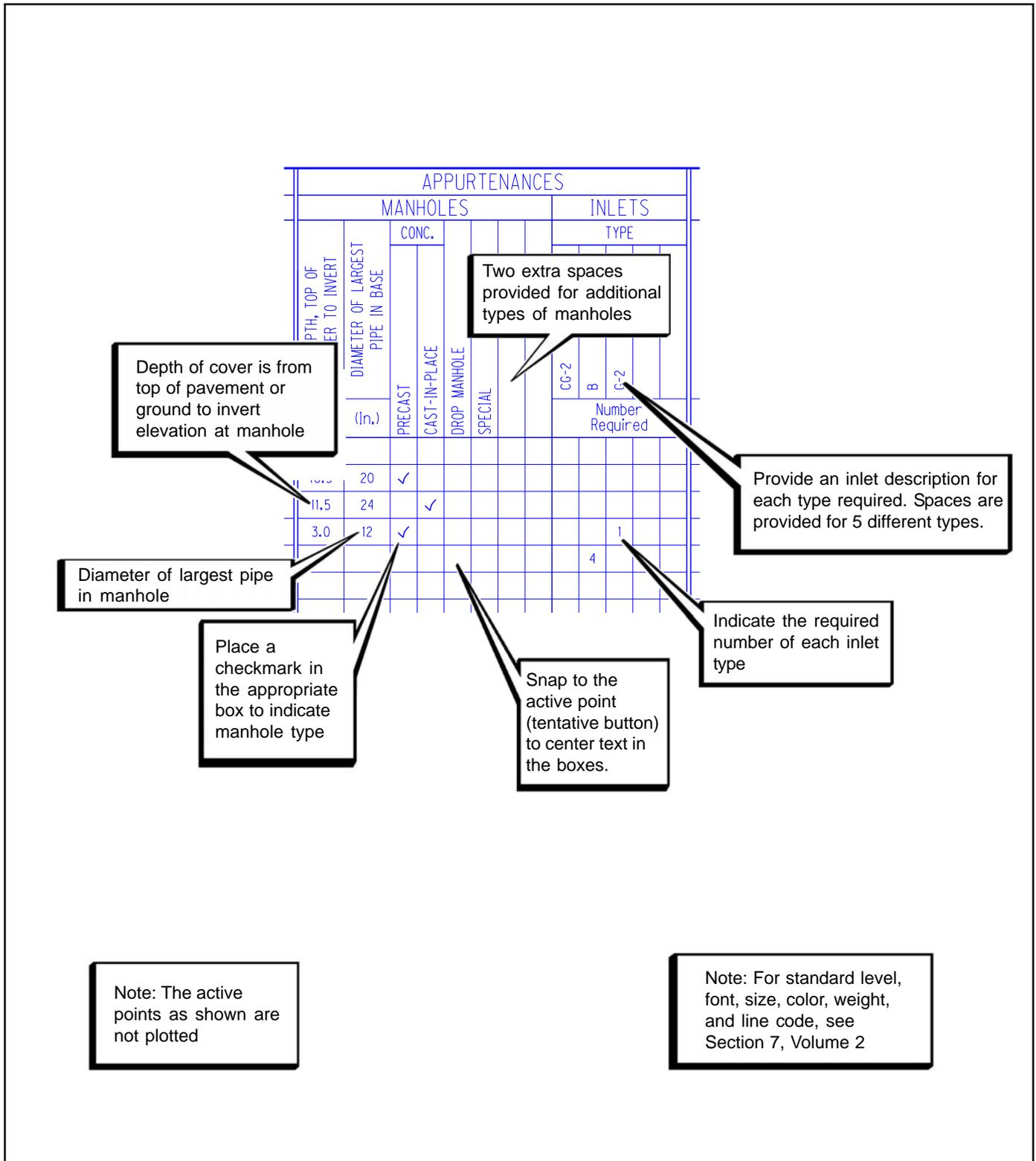
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Figure 8-5 Use and Installation Criteria and Terminal Treatment



8.0 Pipe Data

Figure 8-7 Appurtenances



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Figure 8-8 Extension and Remarks

Note: For pipes at a perpendicular angle to the construction centerline, pipe ends are determined by looking upstation on the centerline, left and right. For pipes running parallel to the centerline, left and right are determined by looking at the pipe from the construction centerline.

EXTENSION		EXTG. PIPE MATERIAL	REMARKS
LEFT (Feet)	RIGHT		
		AI	Connect To Extg. Pipe
44		Co	Conn. To Bridge Drain Pipe Manhole With Inlet 2-3 Pc. Elbow Conn.. To Extg. M.H. Conn.. To Extg. 18" Pipe Blind Conn. To 6'x3' R.C.B.C. Manhole With Inlet (For Details, See Sht. 2B-2) Lateral Section With Cleanout Gate & 3 Pc. Elbow

Length of extension at left or right end of existing pipe

Indicate the existing pipe material. See Footnote 6 in Figure 8-9.

Indicate in the remarks column — "highlighted" or special information from the construction notes

The expansion line links the second line to first line of remarks

Note: Text can be narrowed to fit the column

Note: The active points as shown are not plotted

Note: For standard level, font, size, color, weight, and line code, see Section 7, Volume 2

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Figure 8-9 General Notes and Footnotes

The General Notes and Footnotes included in the pipe data sheets refer to general specifications, explanations, and definitions for pipe data material. The General Notes and Footnotes are included in the reference file, PIPE_E06.DGN and are the same for all ODOT contract plans



GENERAL NOTES:

1. A check (✓) indicates column heading applies.
2. A new pipe culvert installation shall be of like material throughout.
3. Extension of existing metal culverts may be of unlike metal or corrugations. For connecting details, see Standard Drg. No. RD326.
4. Dimensions shown are nominal.
5. All pipes shall conform to the AASHTO specification applicable for the type of material and the diameter of the pipe involved

FOOTNOTES:

- ① Design height of cover is the critical design height used to select pipe materials. The height of cover for any given run of pipe may vary. Design height of cover shall be measured to subgrade.
- ② Cross-sectional dimensions may vary with different materials. When galvanized iron or steel and aluminum are acceptable alternates use a separate line for each type of material.

- ③ Cross-sectional shape of pipe normal to longitudinal axis, prior to loading
 A = Pipe - Arch
 R = Round
 E = Elliptical (5% nominal elongation)
- ④ Minimum allowable diameter for Class 1 nonreinforced concrete pipe is 15".
- ⑤ Abbreviations for protective coatings for metal pipe
 PM = Polymeric, 1/4" thkn, coated both sides
 PO = Polyethylene inside lining, polymeric outside
 U = Uncoated
 CIM = Chevron industrial membrane
 Ep = Epoxy coated
- ⑥ Abbreviations for existing pipe materials
 AB = Asbestos cement
 Al = Corrugated aluminum
 Co = Concrete
 Pl = Plastic
 St = Corrugated steel
 X = Other material, see remarks column

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Figure 8-10 Standard Drawing References

Selected boxes indicate the Standards Drawings which apply to and are included with the contract plans on the first pipe data sheet only.

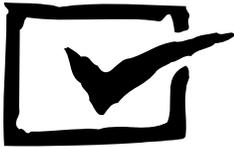
<ul style="list-style-type: none"> <input type="checkbox"/> RD300 Trench Backfill, Bedding, Pipe Zone And Multiple Installations <input type="checkbox"/> RD302 Street Cut <input type="checkbox"/> RD304 Arch Pipe Backfill/Compaction <input checked="" type="checkbox"/> RD312 Subsurface Drain <input type="checkbox"/> RD314 Open Grade HMA/C Drainage Details <input type="checkbox"/> RD316 Sloped Ends For Metal Pipes <input checked="" type="checkbox"/> RD318 Sloped Ends For Concrete Pipe <input type="checkbox"/> RD320 Paved End Slope For Culverts 5'-0" Maximum Pipe Size <input type="checkbox"/> RD322 Safety End Section Metal Pipe <input type="checkbox"/> RD324 Safety End Section Concrete Pipe <input type="checkbox"/> RD326 Coupling Bands For Corrugated Metal Pipe <input type="checkbox"/> RD328 Slotted C.M.P. Drain Details <input type="checkbox"/> RD330 Metal Pipe Slope Anchors <input type="checkbox"/> RD336 Standard Storm Sewer Manhole <input type="checkbox"/> RD340 Storm Sewer Pollution Control Manhole <input type="checkbox"/> RD342 Shallow Manholes <input type="checkbox"/> RD344 Standard 48" Diameter Manhole Base Section 	<ul style="list-style-type: none"> <input type="checkbox"/> RD346 Large Precast Manhole <input type="checkbox"/> RD348 Manhole With Inlet <input type="checkbox"/> RD352 Outside Drop Manholes <input type="checkbox"/> RD356 Manhole Covers And Frames <input type="checkbox"/> RD358 Manhole Slope Protectors <input type="checkbox"/> RD360 Manhole Frame Adjustment <input type="checkbox"/> RD364 Concrete Inlets Types G-1, G-2 & G-2M <input type="checkbox"/> RD366 Concrete Inlets Type CG-1, CG-2 And Curb Inlet Channel <input type="checkbox"/> RD368 Concrete Inlets Type ME, M-O, B And B-SL <input type="checkbox"/> RD370 Ditch Inlet Type D <input type="checkbox"/> RD372 Concrete Inlets Type CG-3 <input type="checkbox"/> RD374 Area Drainage Basin Or Field Inlet <input type="checkbox"/> RD376 Miscellaneous Drainage Structures Siphon Box & Inlet Adj. Cap <input type="checkbox"/> RD380 Fill Height Table - Alum. & Steel Corrugated <input type="checkbox"/> RD382 Fill Height Table - Alum. & Steel Pipe Arch <input type="checkbox"/> RD384 Fill Height Table - Alum. & Steel Spiral Rib Pipe <input type="checkbox"/> RD386 Fill Height Table - Concrete Pipe
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RD300

RD324

Create a filled box by placing and snapping (tentative point) an "inlet by edge" on the center of the left side of the box. Turn view attribute "Fill" on. AC=INCONBC (ROAD.CEL)

8.0 Pipe Data

**8.3 Checklist**

The Pipe Data Sheets that are included in the contract plan documents should show any or all of the following information:

- Project title, sheet number and “V” number
- Standard ODOT english borders and title block
- CAD file name and path
- Standard drawings identified
- Size and length of pipe or pipe arch
- Use and installation criteria
- Terminal treatment
- Alternate materials identified
- Appurtenances
- Pipe extensions
- Remarks
- A blank space at the beginning and end of each list of plan sheet note numbers, when possible
- A heavy line to separate pipe data for each plan sheet