Part 700 Pipe Data Sheet

Section 701 Introduction

The pipe data sheets list all the pipes and water-related structures that are included on the project. This part provides guidance for creating the pipe data sheet from the reference and seed files in the workspace and completing the pipe data sheet with project-specific information.

Section 702 Creating Pipe Data Sheet

The project's drainage or roadway designer is responsible for defining the information included in the pipe data sheet(s). The designer should coordinate with the CAD Technician to complete the table in the plans. Develop the pipe data sheets after sufficient design information is available for the designer to determine the pipe sizes, structures, and pipe material. The pipe data sheets are normally developed at the later milestones of a project, but typically not later than the Advance Plans milestone.

702.1 MicroStation Sheet Model

Create a new DGN file and sheet model in MicroStation. Use the following steps:

1. Begin by follow the steps in the *"Create New DGNs" document* on the ODOT EAST PDF List website to create a new DGN file in the **1_Design > 2_Plan_Sheets** folder in ProjectWise. Use "*CAD_Resources/Seed/Microstation/MicroStation_Seed2D.dgn*" as the seed file. Select the **Document Description** of "*<Sheet-No> - Pipe Data Sheets*".
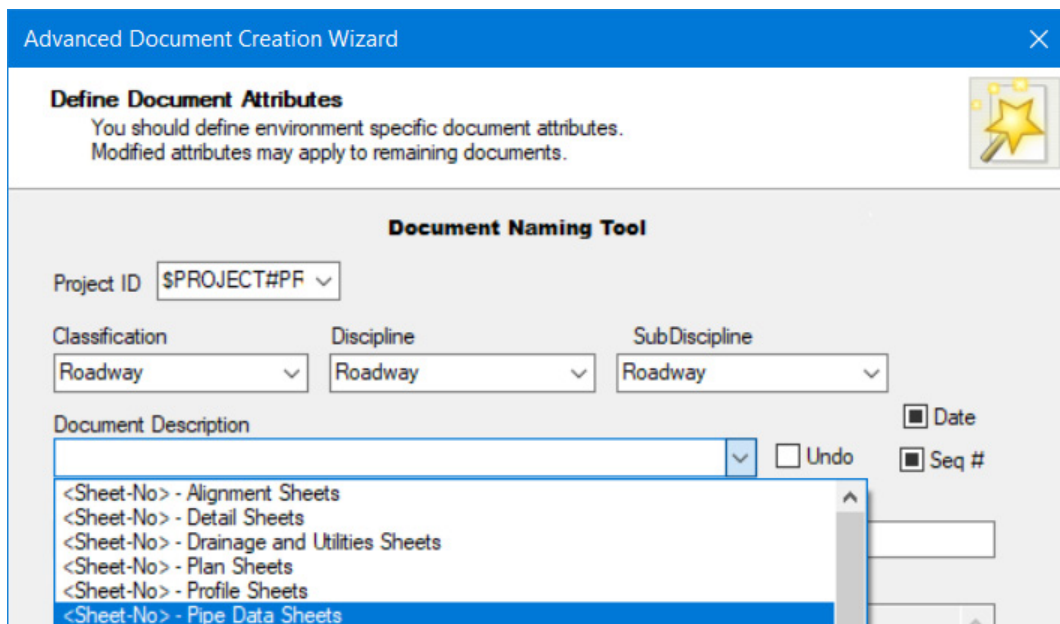
2. Once the DGN document has been created, right-click the file name in ProjectWise, select **Rename…,** and rename with the sheet numbers in the description (Example "BD01 - Pipe Data Sheets").

3. Open the new Pipe Data Sheet DGN file with MicroStation.

4. Open the Models Dialogue and create a new Sheet Model using the button on the far left side of the menu.
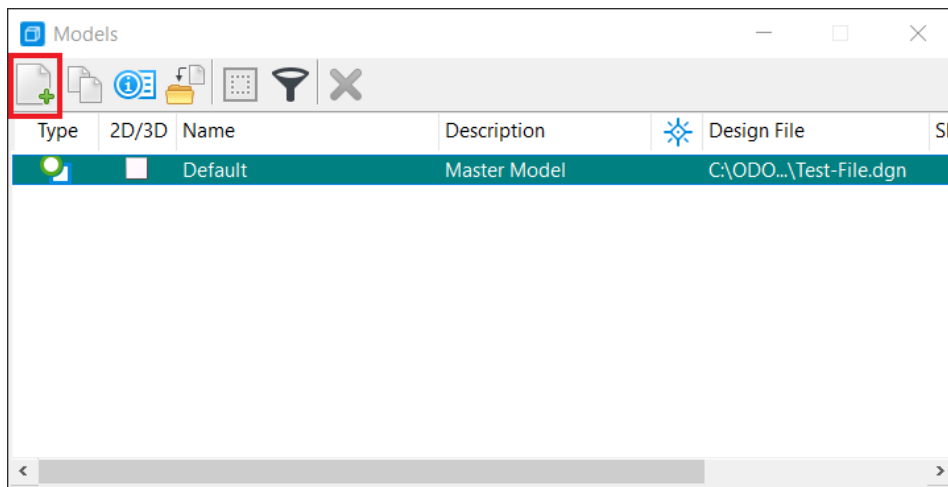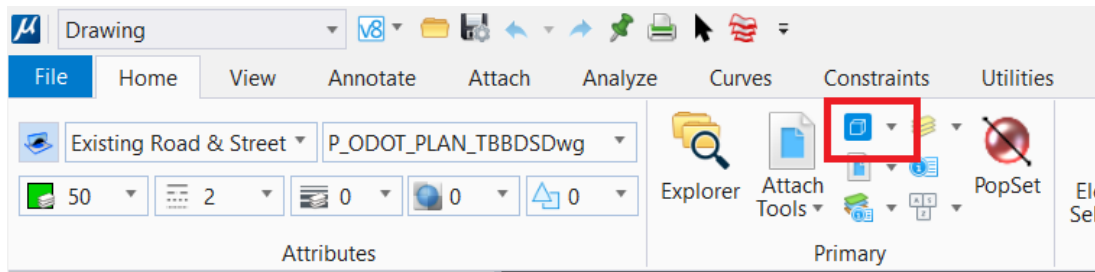
5. Select **Type:** *Sheet From Seed*
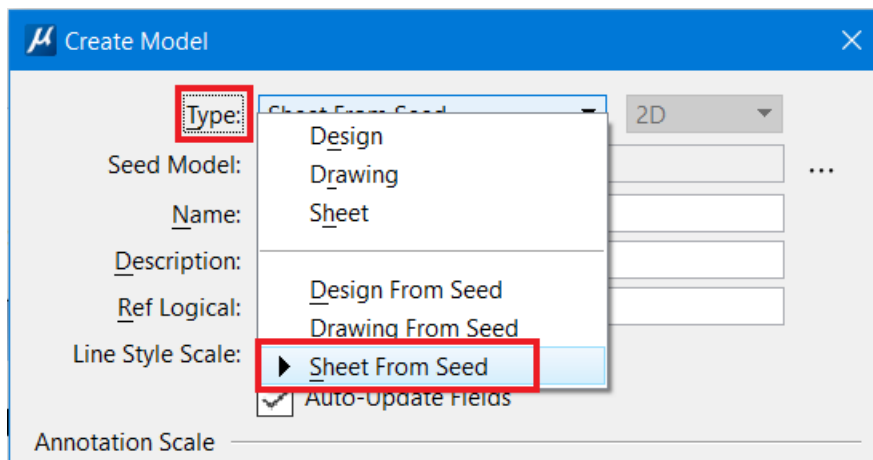
6. Click the three dots next to **Seed Model:**
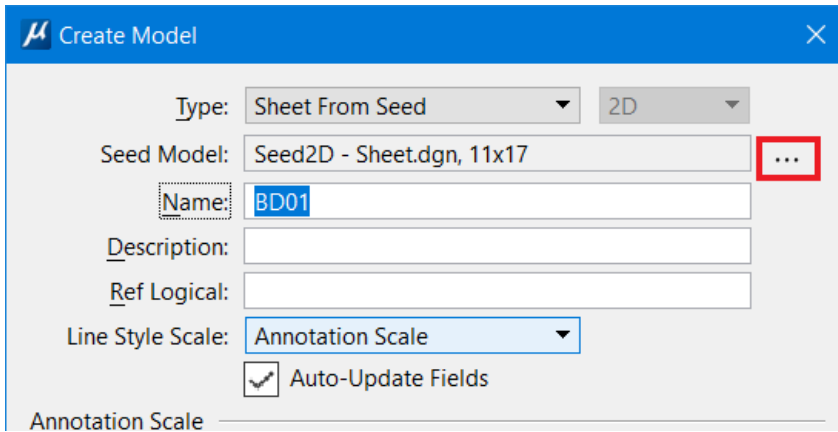
7. If the following window opens, click *Cancel*

8. In the next window, select *Seed2D - Sheet.dgn* and click *Open* to bring up the **Select Model** window.
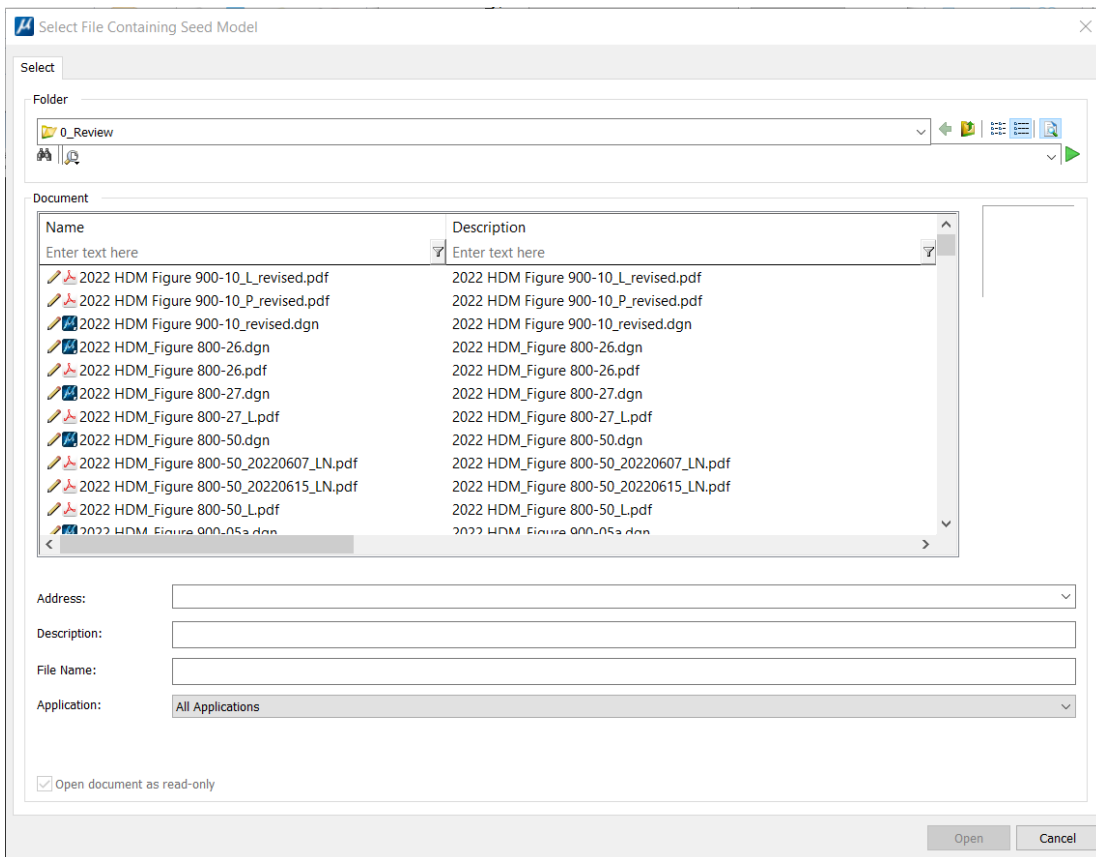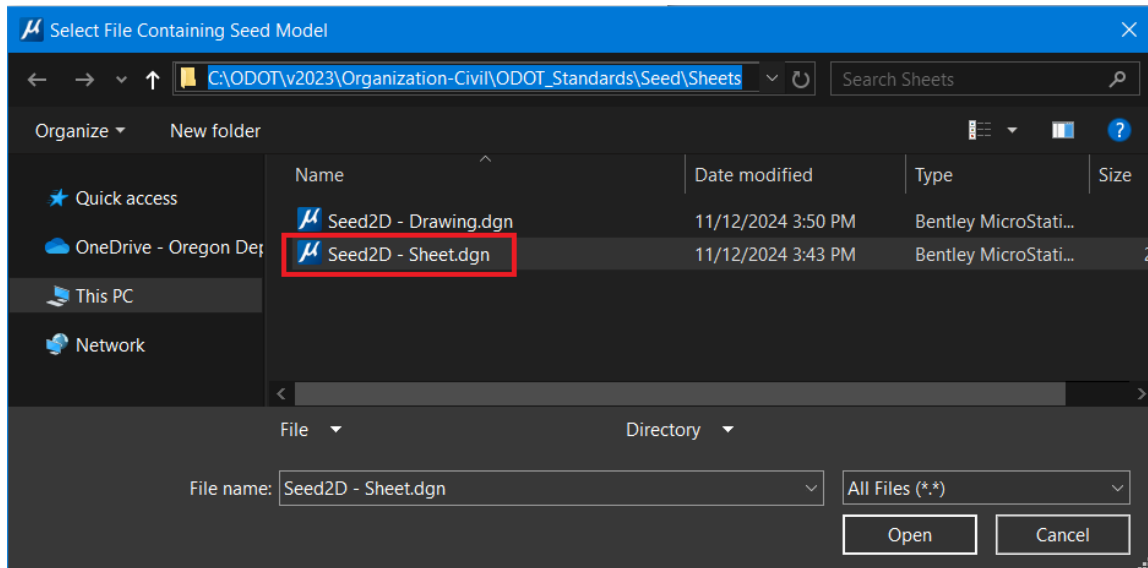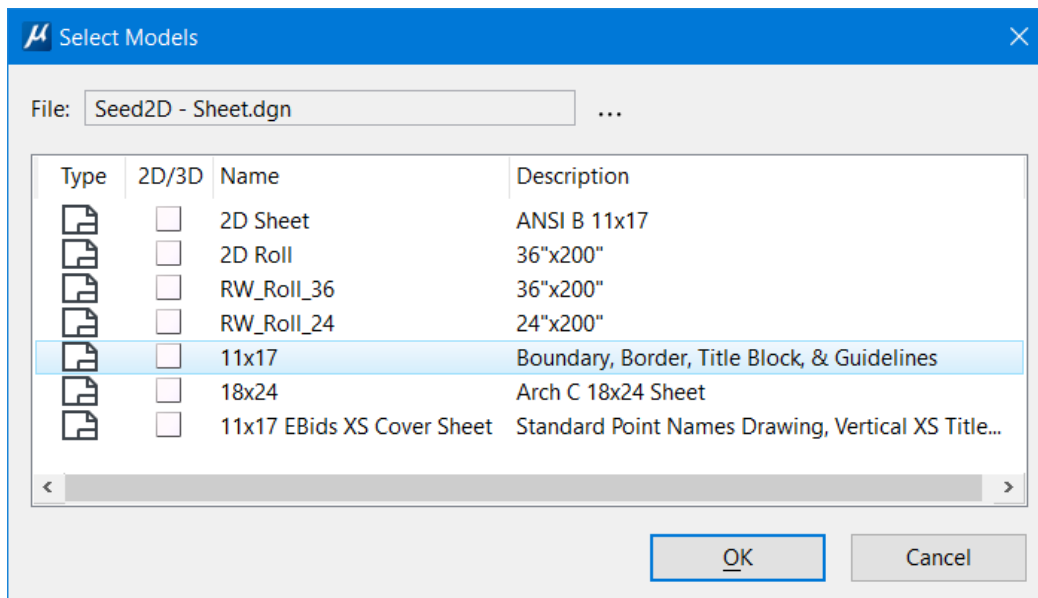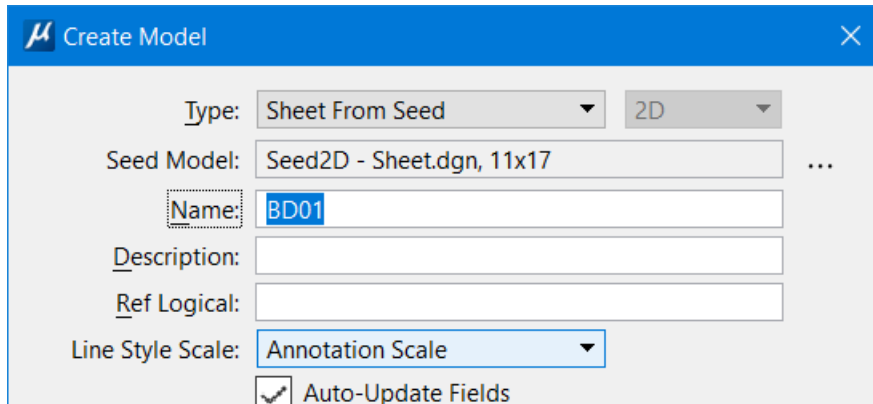

9. Choose *11x17* in the **Select Models** window and click *OK*.

10. Enter the sheet number in the **Name:** field and click *OK*.

Create Model	
Type:	Sheet From Seed / 2D
Seed Model:	Seed2D - Sheet.dgn, 11x17 ...
Name:	BD01
Description:	
Ref Logical:	
Line Style Scale:	Annotation Scale
	☑ Auto-Update Fields

702.2 Inserting Pipe Data Sheet

Once the Pipe Data Sheet DGN file and sheet models have been created, use one of the following two methods to populate the pipe data sheet with project-specific information:

1. **Linked Excel Spreadsheet Method**

    With this method, project-specific information is entered into an excel spreadsheet, then imported into the MicroStation sheet model. See Section 702.3.

2. **Pipe Data Sheet DGN Reference Method**

    This method uses a pipe data sheet reference file from the workspace. The DGN file is referenced into the sheet model, then project-specific information is entered directly into the MicroStation file. See Section 702.4.

702.3 Linked Excel Spreadsheet Method

This section provides step by step information for creating a pipe data sheet using the linked Excel spreadsheet methods.

For additional information, see the instructional video provided by ODOT EAST at:
Engineering Tips 20230104: December Updates and Pipe Data Table Spreadsheet

702.3.1 Creating Pipe Data Sheet Excel File

Begin by creating a new pipe data excel spreadsheet in the *1_Design > 3_Base_Files* folder in ProjectWise.

1. Navigate to the *1_Desgin > 3_Base_Files* folder for your project in ProjectWise.

2. In the ProjectWise menu at the top of the screen, select **Document** > **New** > **Document…** Alternatively, selecting **Advanced Wizard…** will bypass Step 3.
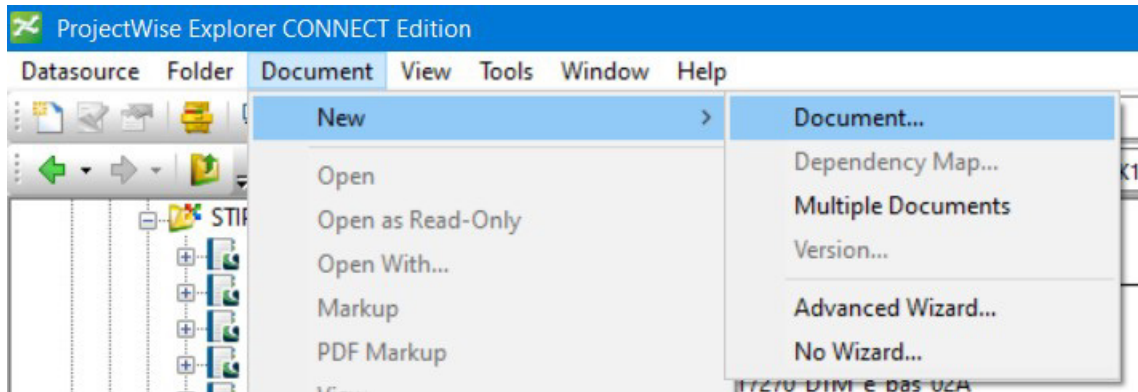
3. If prompted by the **Select a Wizard** dialog, select *Advanced Wizard* and *OK*.
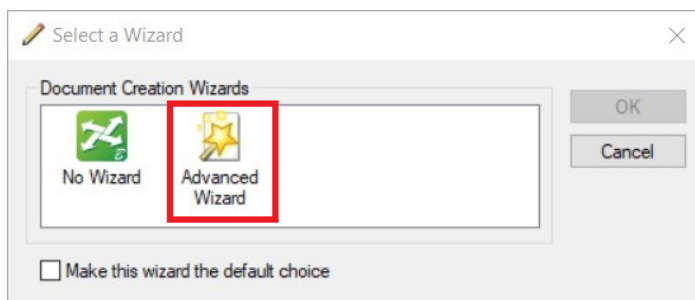
4. On the **Welcome to the Advanced Document Creation Wizard** window, select *Next >*

5. Verify that the *3_Base_Files* folder is selected in the correct project and select *Next >*
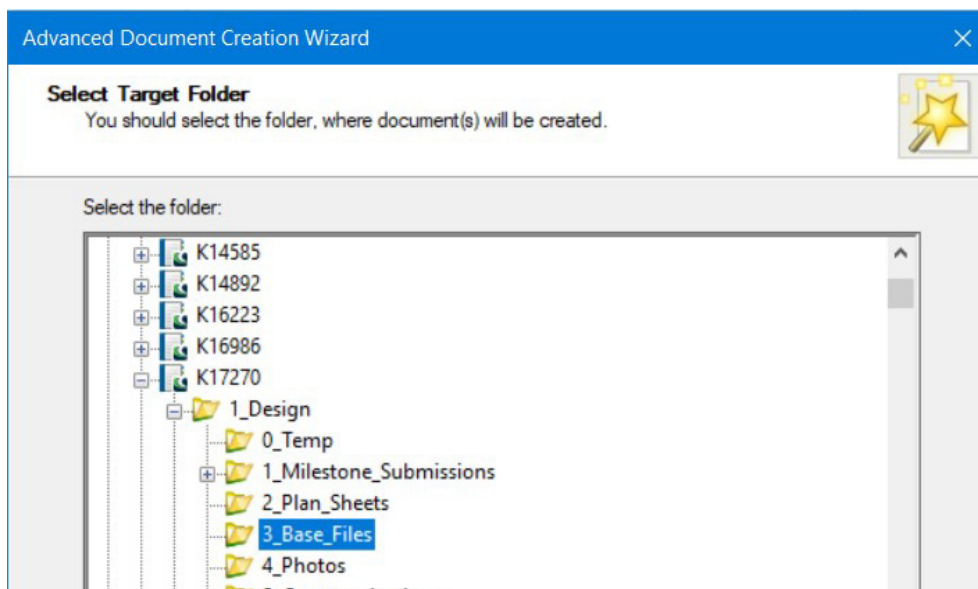
6. In the **Select a Template** window, select *Use ProjectWise document as template* and click *Select…*
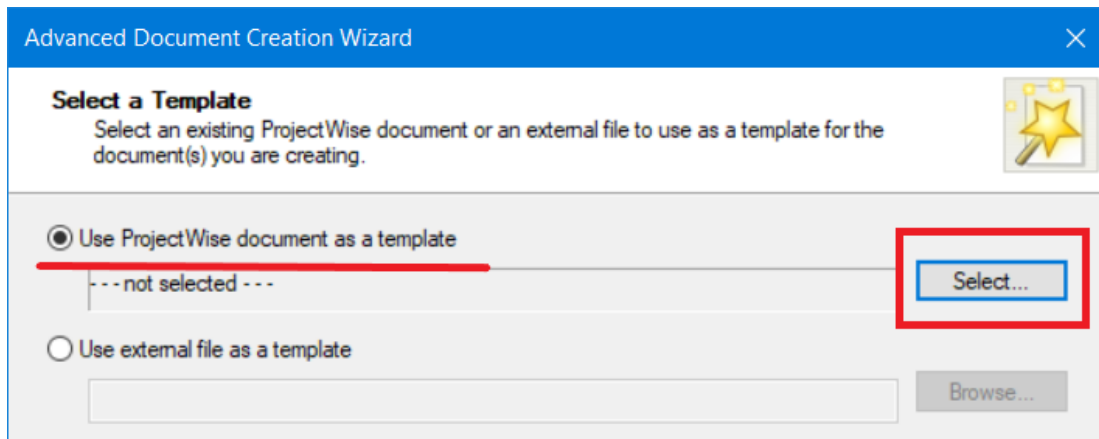
7. Using the folder dropdown, navigate to *CAD_Resources/Seed/Pipe_2022.xlsx*, then click *Open*.
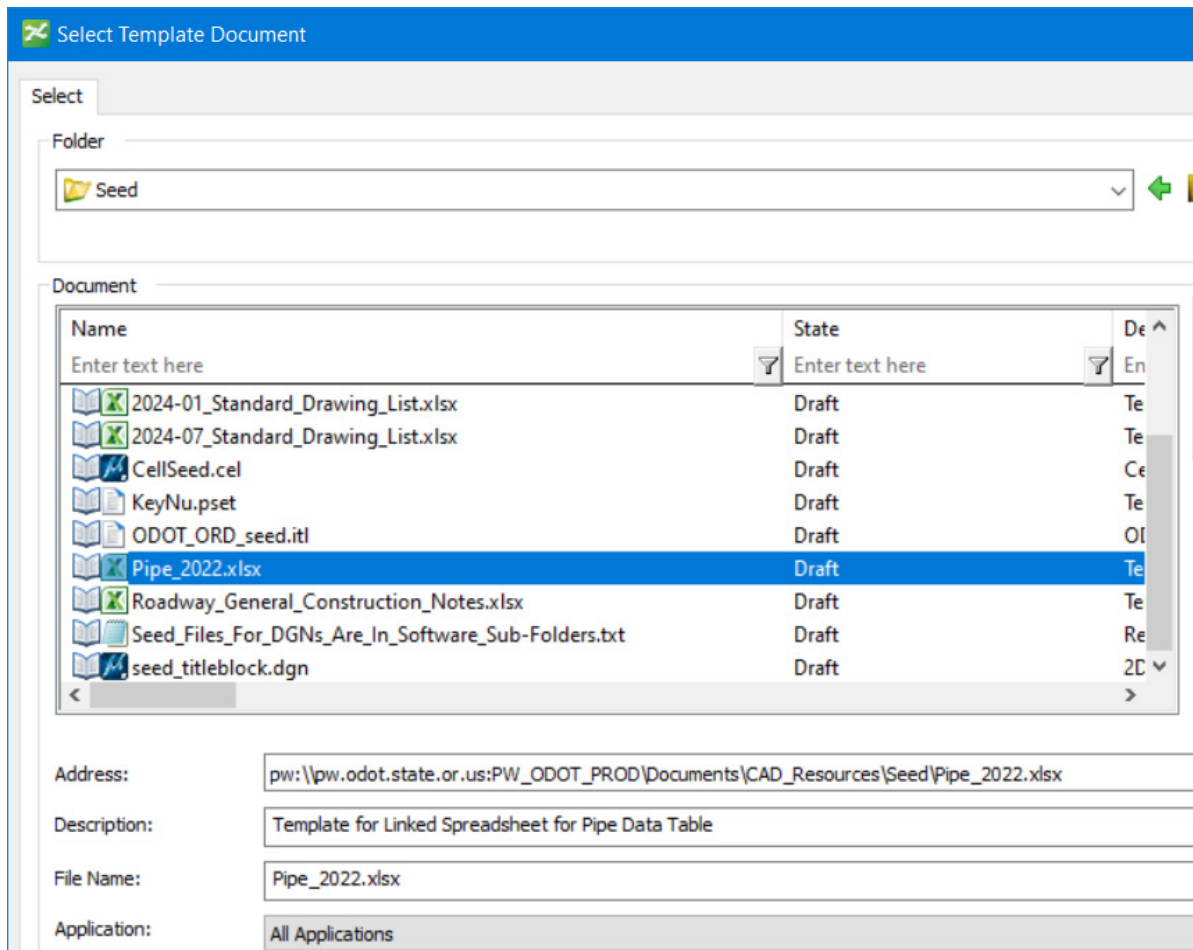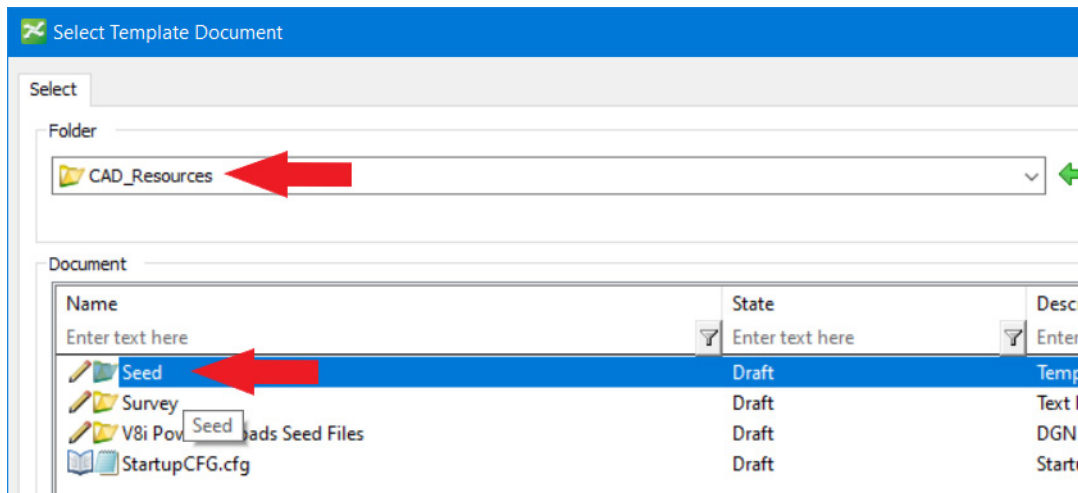
Note: The filename may contain a date other than "2022", as the file is periodically updated. Select the file with the most recent year listed.

8. Back at the **Select a Template** window, click *Next >*

9. Click *Next >* at the **At the Advance Document Creation Wizard** window

10. Ensure **Classification**, **Discipline**, and **Sub Discipline** are all set to "*Roadway*", select a Document Description of "*Roadway Notes/Table <Title> Linked to DGN*", then continue to select *Next >* until the excel document is created.
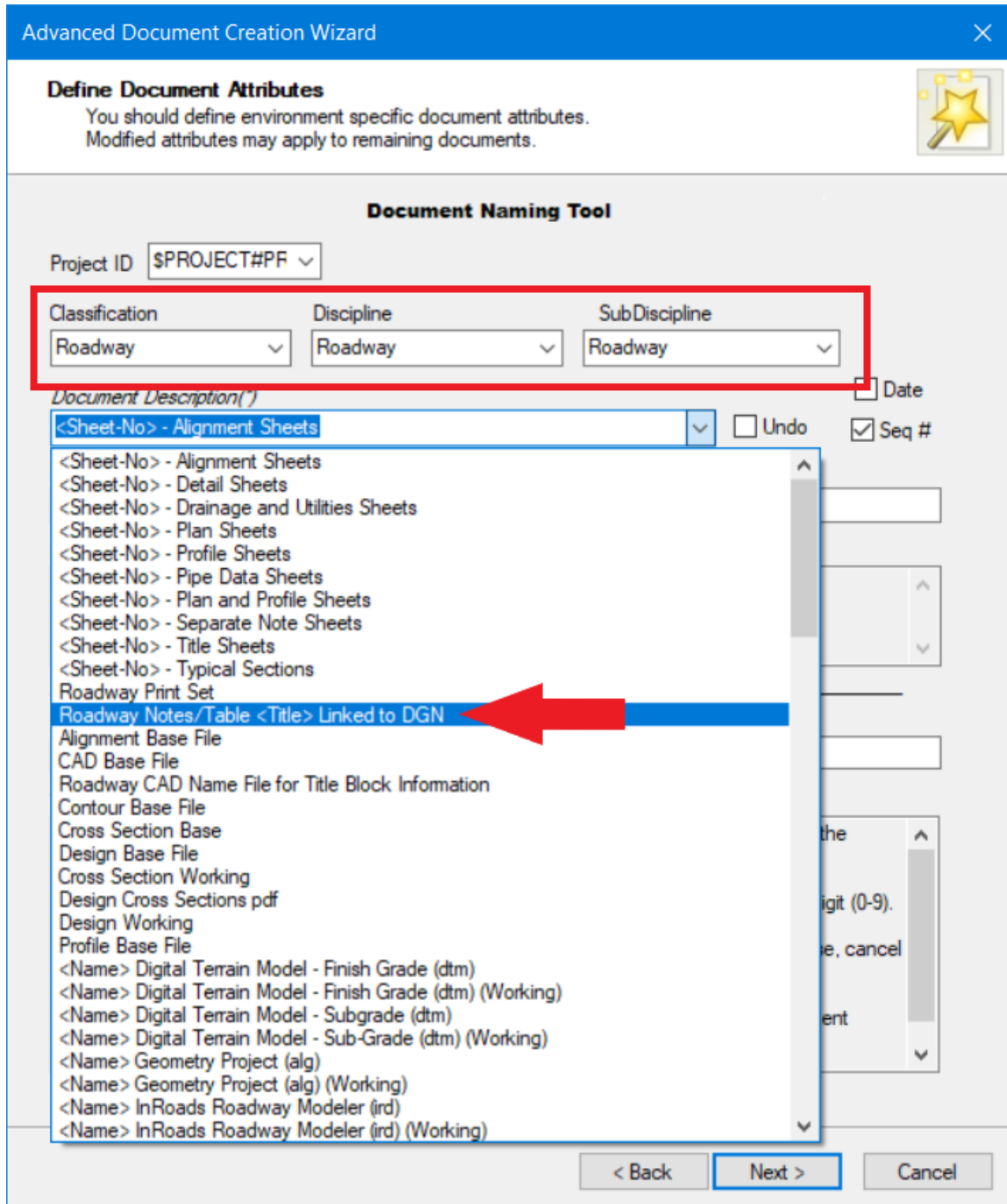
11. Once the excel document has been created, right click the file name in ProjectWise and select *Rename*. In the **Rename Document** widow, under the **Description:** field, rename the document to "*Roadway Notes/Table Pipe Data Linked to DGN*" and click OK.
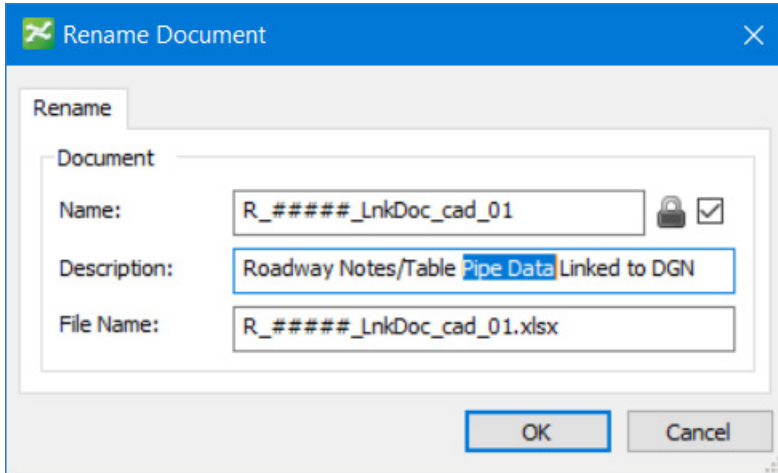
12. Open the newly created Pipe Data spreadsheet and populate the appropriate pipe information fields. Instructions for populating the sheet are contained on the first tab of the file. Save the file.

    See Section Section 703 for additional information about individual fields in the pipe data sheet.

702.3.2 Inserting Excel File into MicroStation

1. After populating the pipe data sheet excel file with project-specific information, select all the cells for inclusion on the plan sheet (including the heading cells). An easy way to select all the cells in the spreadsheet is to click the triangle in the upper left corner by cell A1.
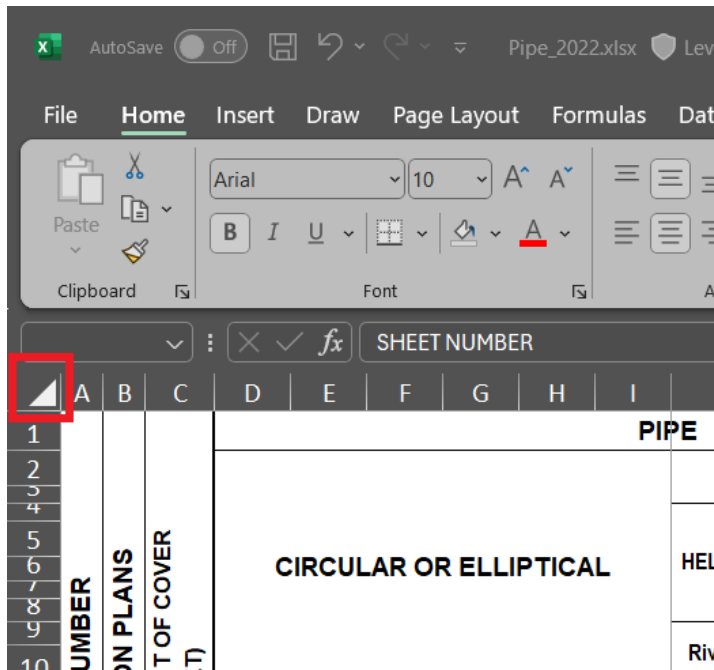
2. Copy the selected cells (Ctrl+C).
3. Open the MicroStation sheet model created in Section 702.1.

4. In the **Drawing** workflow, under the **Home** tab, select *Paste Special*.
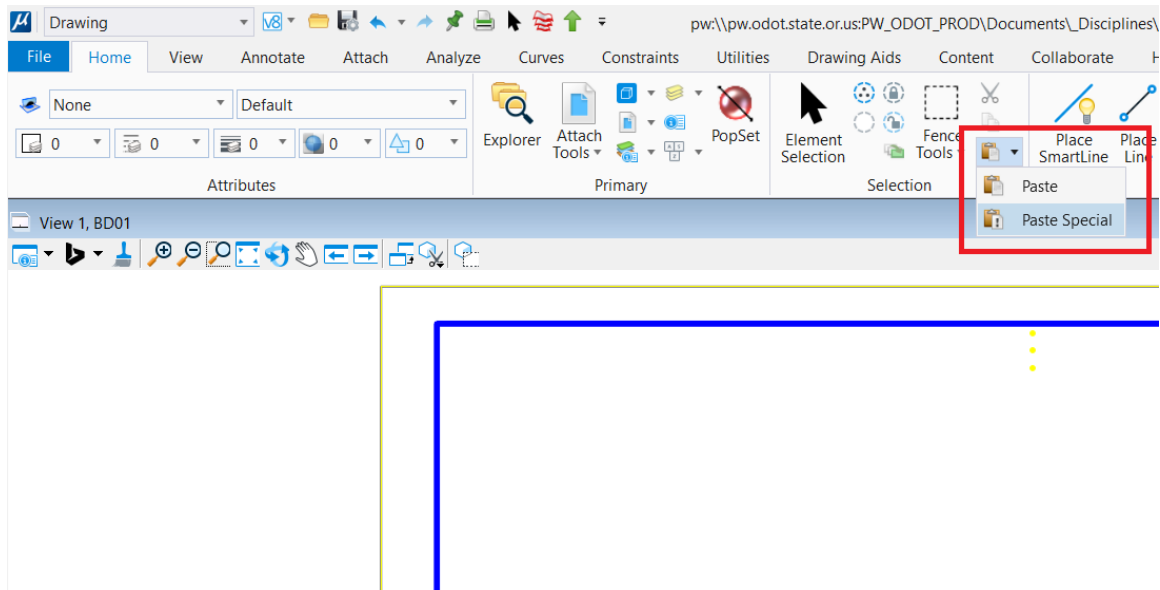
5. In the **Paste Special** window, select *Linked Microsoft Excel Worksheet* and click *Paste*.
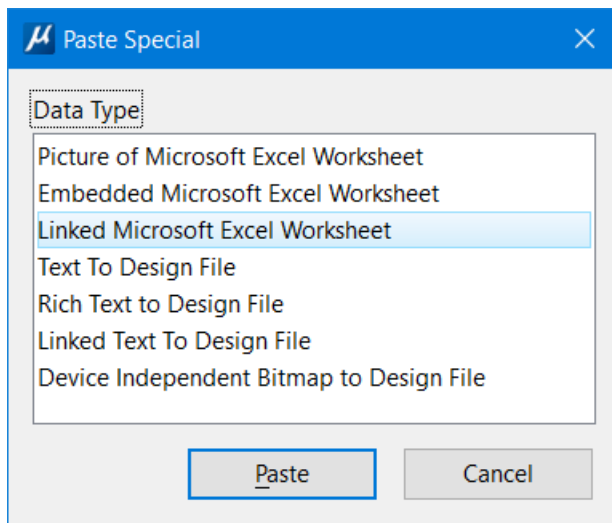
6. In the **Paste OLE Object** window, set the **Paste as:** field to *Link* and the **Method:** field to *By Corners*
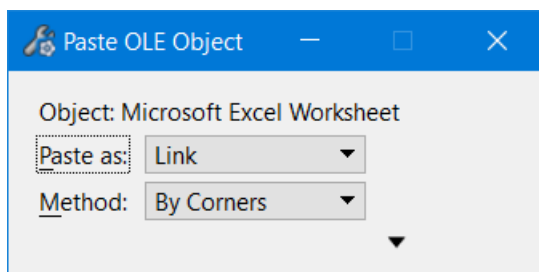
7. Tentatively snap the upper left corner of the sheet border by hovering the cursor over the corner and pressing the *left and right mouse buttons at the same time*. The crosshair should snap to the corner of the border. Once snapped, accept the position with a *single left click*.
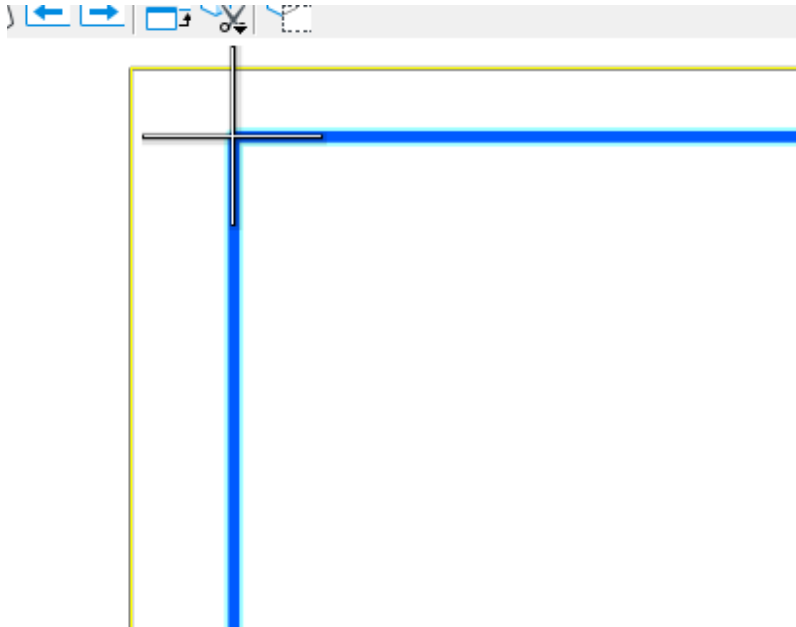
8. Next, tentatively snap and select to the upper right corner of the sheet border using the same method. The copied excel will appear in the sheet model.
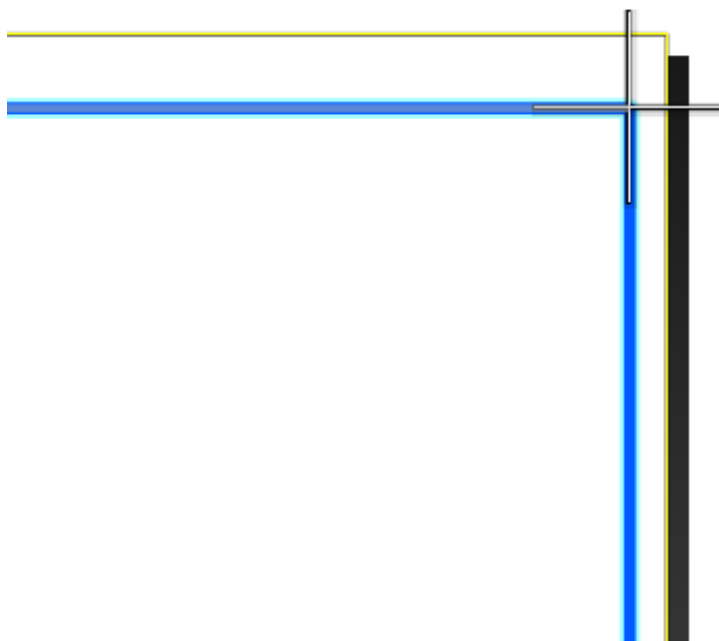
9. Next place the standard pipe data sheet notes at the bottom of the plan sheet. Us the **Place Active Cell** command and use the **Active Cell:** of P*ipeData_Legend* in the ODOT.cel cell library.
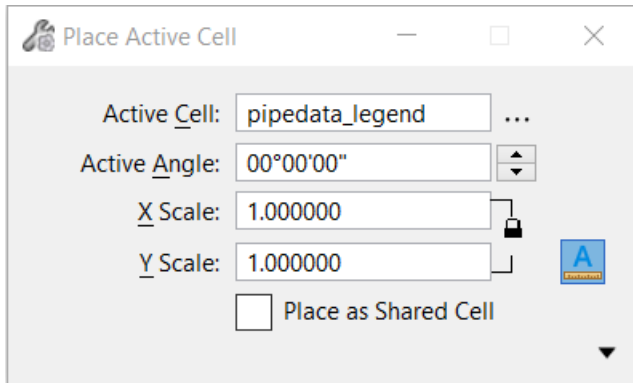
10. Place the PipeData_Legend cell at the bottom left of the sheet model. See 703.7 for instructions on how to select the relevant standard drawings for the project.
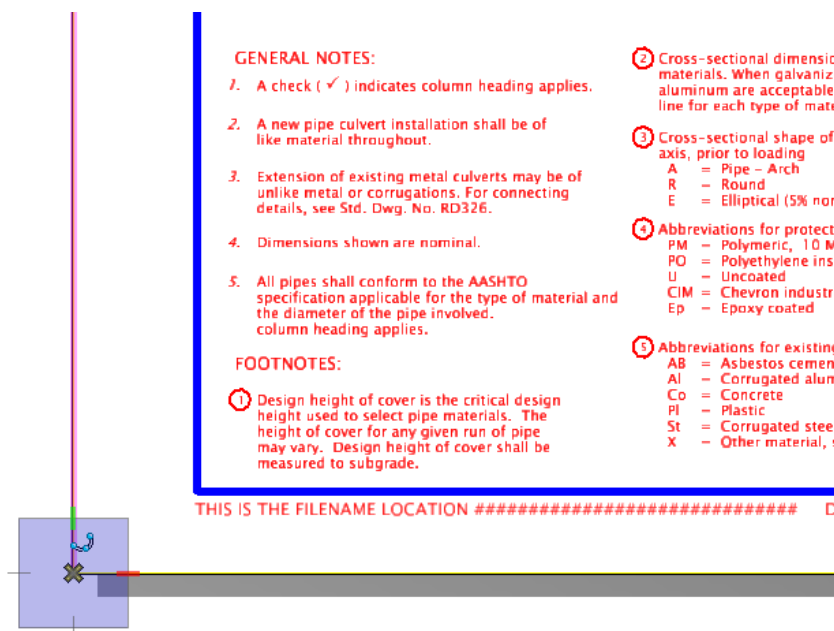
702.3.3 Updating the Linked Worksheet

1. To update the spreadsheet content after it has been placed in the MicroStation sheet model, open the Excel spreadsheet document, make the necessary edits, then *Save and Close* the document.

2. In the Microstation sheet model, select *Edit Links* from the **OLE** tool on the **Utilities** tab in the **Drawing** workflow
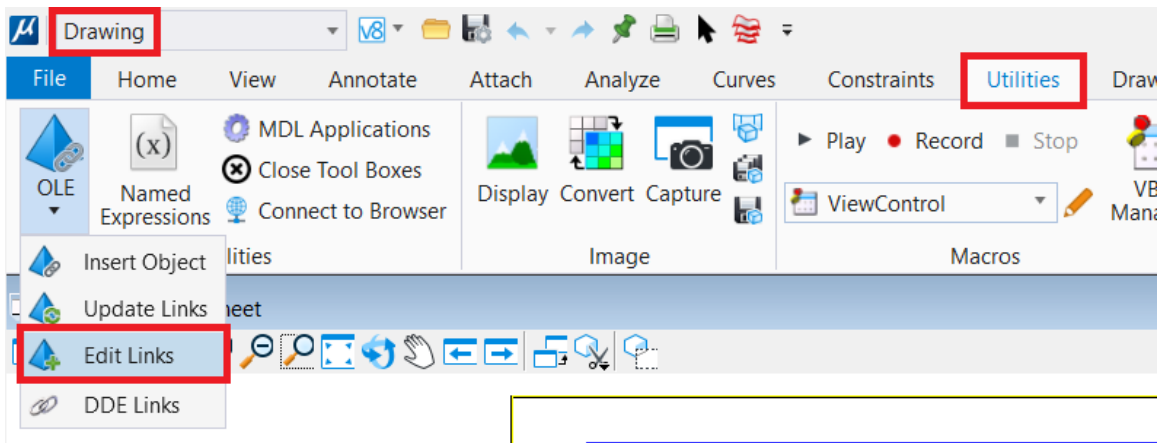
3. In the **Links** window, ensure the pipe data sheet Excel document is highlighted, and select *Update Now*.

   Note: The linked table in the sheet model will not update until the **Links** window is closed.
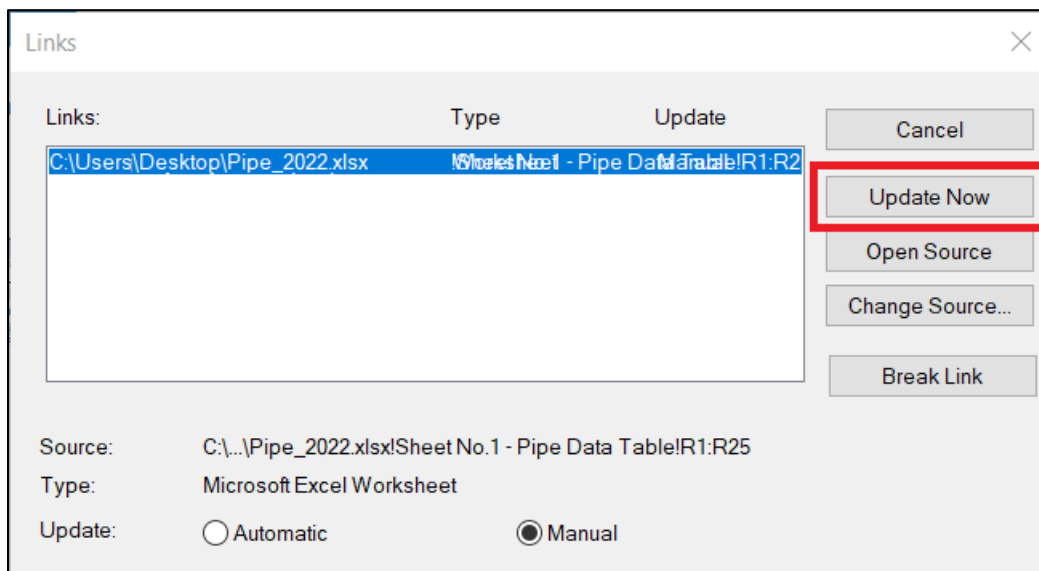
702.4 Pipe Data Sheet DGN Reference Method

Produce pipe data sheets using the following procedures.

1. Create a new sheet model by following the steps in Section 702.1.

2. Attach the reference file Pipe_2024.dgn to the sheet model. For internal ODOT users, the reference file is in the ODOT MicroStation workspace at:

    C:\ODOT\V2023\Organization-Civil\ODOT_Standards\ref

    The reference file has a plan sheet border and the pipe data sheet grid in the file. The file origin is set to XY=0,0 (lower left corner of the plan sheet border). Merge or copy the Pipe_2021.dgn file into the sheet model, making it an active element in the sheet model.

3. Attach the project's title block file, referencing the 'B_Sheets' model with live nesting set at "1". At this point, the file will look similar to Figure 700-1.

4. Begin adding the drainage information to the pipe data sheet(s).

Section 703 Figure 700-1: Pipe Data Sheet Base

(Pipe Data Sheet form table — column groupings: PIPE, USE / INSTALLATION CRITERIA, TERMINAL TREATMENT, ALTERNATE MATERIALS, APPURTENANCES, EXTENSION, REMARKS)

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 Std. Dwg. 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 Abbreviations for protective coatings for metal pipe
   PM = Polymeric, 10 Mil. thkn. coated both sides
   PO = Polyethylene inside lining, polymeric outside
   U = Uncoated
   CIM = Chevron industrial membrane
   Ep = Epoxy coated

⑤ Abbreviations for existing pipe materials
   AB = Asbestos cement
   Al = Corrugated aluminum
   Co = Concrete
   PI = Plastic
   St = Corrugated steel
   X = Other material, see remarks column

RD300	Trench Backfill, Bedding, Pipe Zone And Multiple Installations
RD302	Street Cut
RD304	Arch Pipe Backfill/Compaction
RD306	Concrete Encasement, Cradle, and Cap Details
RD308	Bore Casing Detail
RD310	Shallow/Deep Trench Service Connection, Blocking and Markers
RD312	Subsurface Drain
RD316	Sloped Ends For Metal Pipe
RD317	Culvert Embankment Protection And Riprap Pads
RD318	Sloped Ends For Concrete Pipe
RD319	Miscellaneous Culvert Details
RD320	Safety End Section For Culverts 60" Maximum Pipe Size
RD321	Paved End Slope With Removable Safety Bar(s)
RD322	Safety End Section For Metal Pipe
RD324	Safety End Section For Concrete, PVC, HDPE & Polypropylene Pipe
RD325	Coupling Bands For Corrugated Metal Pipe
RD326	Coupling Bands For Corrugated Metal Pipe
RD327	Coupling Bands For Corrugated Metal Pipe
RD328	Slotted CMP Drain Details
RD330	Pipe Slope Anchors – Metal
RD332	Pipe Slope Anchors – Concrete
RD334	Locator Post
RD335	Standard Storm Sewer Manhole
RD336	Standard Manhole Details
RD338	Standard Sanitary Sewer Manhole
RD339	Pipe To Structure Connections
RD340	Storm Sewer Pollution Control Manhole
RD342	Shallow Manholes
RD343	24" Manholes
RD344	Standard Manhole Base Section
RD345	Pipe To Manhole Connections
RD346	Large Precast Manhole

RD348	Manhole With Inlet
RD350	Sanitary Sewer Piped Inside Drop Connection for Manholes
RD352	Outside Drop Manholes
RD354	Carry Through Manhole – Storm
RD356	Manhole Covers And Frames
RD358	Manhole Slope Protectors
RD360	Manhole Frame Adjustment
RD362	Sanitary Cleanout
RD363	Gutter Transition At Inlet
RD364	Concrete Inlets Type G–1, G–2, G–2M, and G–2MA
RD365	Frames & Grates For Concrete Inlets
RD366	Concrete Inlets Type CG–1, CG–2
RD367	Curb Inlet Channel
RD368	Concrete Inlets Type M–E, M–O, B And B–SL
RD370	Ditch Inlet Type D
RD371	Concrete Inlet Base Type CG–3
RD372	Concrete Inlet Top, Option 1 Type CG–3
RD373	Concrete Inlet Top, Option 2 Type CG–3
RD374	Area Drainage Basin Or Field Inlet
RD376	Miscellaneous Drainage Structures Siphon Box, Inlet Cap & Inlet Adjustment
RD378	Type "3" Catch Basin, Frame and Grate
RD380	Fill Height Tables For Aluminum & Steel Corrugated Pipe
RD382	Fill Height Tables For Aluminum & Steel Arch Pipe
RD384	Fill Height Tables For Aluminum & Steel Spiral Rib Pipe
RD386	Fill Height Tables For Circular Concrete Pipe
RD388	Fill Height Tables For PVC Pipe
RD390	Fill Height Table For Corrugated HDPE Pipe
RD391	Fill Height Table For Steel Reinforced HDPE Pipe
RD393	Fill Height Tables For Polypropylene Pipe
RD398	Culvert ID Marker
RD399	Stormwater Treatment and Storage Facility Field Markers

OREGON DEPARTMENT OF TRANSPORTATION

PROJECT TITLE
HIGHWAY
COUNTY

Designer: Name   Reviewer: Name

Drafter: Name   Checker: Name

**PIPE DATA**   SHEET NO. **BD01**

Section 704 Inputting Project Pipe Data

The process for filling out a pipe data sheet requires care to ensure the information is in the correct row and column of the sheet. List pertinent data for each pipe or structure, such as length and diameter, installation criteria and terminal end treatment, alternate materials, and appurtenances. The data on the pipe data sheets must match the information indicated on the other plan sheets.

Use the "ODOT_Notes" text style, center-center justified. Text is typically placed on the P_RDWY_PLAN_NotesTx level within the active file. MicroStation "Active Points" are available for centering the pipe data text.

Check marks will be required to complete the pipe data sheet information. See Figure 700-2 for the specific location of the check mark button, which is in the "ODOT Plan Sheet Creation" ribbon workflow. Checkmarks can also be placed using the symbol drop down in the "Text Place/Edit" dialogue box.

Section 705 Figure 700-2: Checkmark on MicroStation Ribbon
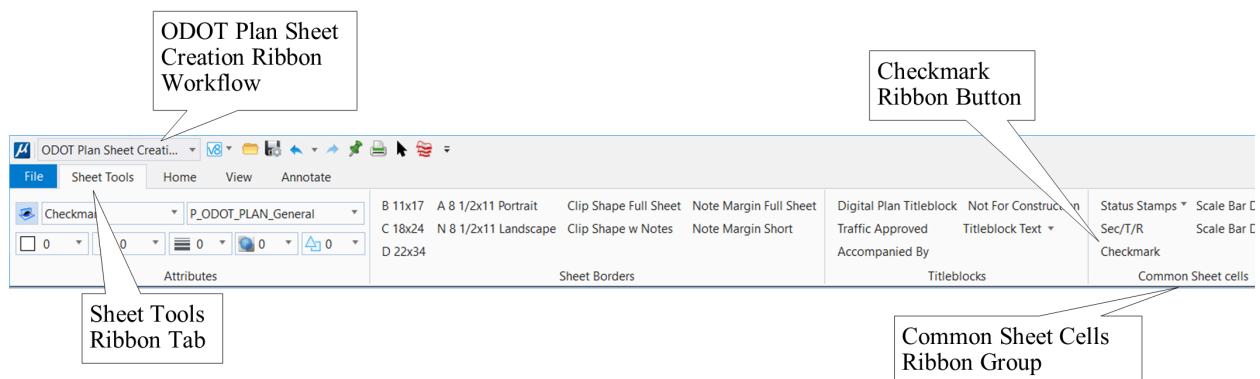
For each separate plan sheet listed, always leave an empty row at the top of the plan sheet number and at least one empty row at the bottom. The empty rows provide visual separation between the plan sheet numbers. Figure 700-3 provides general guidance for completing fields in the pipe data sheet.

Section 706 Figure 700-3: Begin Filling Out the Sheet

SHEET NUMBER	NOTE No. ON PLANS ①	DESIGN HEIGHT OF COVER (FEET)	PIPE — CIRCULAR OR ELLIPTICAL — SIZE IN (Inches) / LENGTH IN FEET — 6	8	12	18	HELICAL Riveted Welded or Lock Seam — EQUIV. RND SIZE (Inches)	LENGTH (Feet)	PIPE – ARCH CROSS-SECTIONAL DIMENSIONS — SPAN	RISE (Feet-Inches)	CORNER RADII (Inches) ②	DRAIN (PERFORATED)	CULVERT (ROAD APPROACH)	CULVERT (CONDUIT)	CULVERT	IRRIGATION	SIPHON	STORM SEWER	SANITARY SEWER	OTHERS (SEE REMARKS)	WATERTIGHT JOINTS	SLOPE ANCHORS	IMPERFECT TRENCH	PH	RESISTIVITY (HUNDREDS)
C01	2	2.5	30																✓							
	3	3.0		120															✓							
	5	2.5			450														✓							
	6	1.5				100									✓											

Annotations:
- Note numbers match the note numbers on the plan sheets
- Sheet number matches the sheet number on plan sheets. Use arrows to show limits of each plan sheet number
- Leave first and last row blank for each plan sheet number
- Adjust text width as required to fit within the boxes
- Between plan sheet numbers, change line weight to '5'
- Checkmark, see Figure 700-2 for details
- Text style ODOT Notes, center-center justified

706.1 Pipe Sizes – Circular and Arch

List the pipes left to right in order from smallest diameter to largest diameter. If space is available, leave an empty column between the pipe sizes. Only include the pipe sizes that are shown on the listed plan sheet numbers. For example, Figure 700-4 shows pipe sizes of 6, 8, 12, 18, and 48 inches for plan sheets C01 and C02B. The project may also have a 36-inch pipe on another plan sheet, but that pipe size is not listed because there are no 36-inch pipes shown on the plan sheets listed on this specific pipe data sheet. If necessary, include multiple pipe data sheets in a project plan set to show all the pipes, pipe sizes, and structures.

Section 707 Figure 700-4: Sheet Number to Pipe Size Example

SHEET NUMBER	NOTE No. ON PLANS ①	DESIGN HEIGHT OF COVER (FEET)	\[PIPE — CIRCULAR OR ELLIPTICAL — SIZE IN (Inches) / LENGTH IN FEET\]					EQUIV. RND SIZE (Inches)	(Feet)	SPAN	RISE
			6	8	12	18	48			(Feet-Inches)	
C01	1		30								
	3	3.0			120						
	5	2.5				450					
C02B	3	1.5			220						
	4	1.5	100								
	5	1.5				230					
	6	1.5					100				

Annotations on figure:
- PIPE – ARCH: Include only the pipe sizes required. Leave empty columns between the sizes, when possible
- Do not show design height of cover when pipe run is on or in a structure. List design height to nearest tenth of a foot.
- Round pipe lengths up to the nearest 2-foot increment

Section 708 Figure 700-5: Pipe Arch

Height of cover is not indicated if the pipe is in or on a structure

SHEET NUMBER	NOTE No. ON PLANS	DESIGN HEIGHT OF COVER (FEET) ①	PIPE								
			CIRCULAR OR ELLIPTICAL						PIPE – ARCH		
									HELICAL	LENGTH	CROSS-SECTIONAL DIMENSIONS ②
			SIZE IN (Inches)						Riveted Welded or Lock Seam		
			6	12					EQUIV. RND SIZE (Inches)		SPAN	RISE	CORNER RADII
			LENGTH IN FEET							(Feet)	(Feet-Inches)	(Inches)
C01	1								18	30	2'4"	1'6"	3
	3	3.0		120								
	3	2.2	36									
	3	2.3	27									
	5	2.5		450								

Pipe arch equivalent diameter in inches

Length of pipe in feet, rounded up to even 2' increments

Span and rise are equal to the dimensions of the width and height of the pipe arch

When more than one pipe is included in the construction note, list each pipe on a separate row. For example, a storm sewer manhole could have three pipes included in one construction note. One pipe is the mainline of the storm sewer and two pipes from flanking inlets. This note number would require three rows of data.

There are specific data requirements to be included when an arch pipe is used. This includes the equivalent round size of the pipe, the length of the pipe, the span and rise dimensions and the corner radii.

708.1 Installation Criteria and Terminal Treatment

The next section of the Pipe Data Sheet identifies the specific use of the pipe and any special end treatment requirements.

Provide pH and Resistivity values when CMP pipe material is used. See the [ODOT Hydraulics Design Manual](#) for requirements about watertight joints.

Culverts beneath road approach (parallel to the main roadway) are listed as "CULVERT (ROAD APPROACH)". Cross culverts that cross under the mainline are listed as "CULVERT" and require a skew number that is the angle in degrees of the crossing.

Use the "SLOPED ENDS" column to define sloped ends requirements for each end of the pipe. Define left and right for ends of pipes by viewing ahead on an alignment (from the centerline, looking in the direction of increasing stationing or milepoint) or from the centerline of the main alignment looking toward an approach road. Ends slopes for both ends of the pipe are labeled in a single box with a diagonal line dividing left from right. If half of the box is blank, that end of the pipe does not require a sloped end. If the box does not have a diagonal line and a single number is shown, that slope applies to both ends of the pipe.

Section 709 Figure 700-6: Installation Criteria and Terminal Treatment

709.1 Alternate Pipe Material

The materials are Corrugated Pipe – Aluminum and Steel, Concrete, Plastics – HDPE, PVC, and Polypropylene, and Ductile Iron. The roadway designer or the hydraulic designer will determine which material is available for use at each location. Each pipe material that meets the site requirements should be included for the contractor to select for use.

Listing alternate materials may require more than one row because different pipe materials may require different pipe sizes. For example, concrete and plastic pipe materials have a lower Mannings number than corrugated metal pipe (CMP), so CMP may can require a larger diameter pipe to accommodate the same design flows. In this example, where CMP requires a larger pipe diameter than concrete or plastic, the concrete and plastic would be listed on one row and the CMP alternate material would be listed on a separate row in the sheet.

Oregon Standard Drawings RD380 through RD393 show the fill height tables for the various pipe materials. Review the data in the fill height tables to ensure the data placed on the pipe data sheet is within the limits shown on the standard drawing. Items like the fill height of all pipe materials and the thickness and corrugation size of CMP pipe can be quickly checked when filling in the data is a part of the review process.

Pipe Data Sheet

Section 710 Figure 700-7: Alternate Pipe Material

Iron and steel pipes are galvanized or aluminized. Include additional coatings as required

Use the lowest class of concrete pipe for the site conditions

Reinforced HDPE cannot have sloped ends

ALTERNATE MATERIALS

HELICAL CORRUGATED METAL																			RIGID			PLASTIC & IRON					
ALUMINUM					ALUMINIZED OR GALVANIZED IRON AND STEEL											PRE-CAST CONCRETE REINF.											

Table columns (Aluminum): RIVETED, WELDED OR LOCK SEAM — 1½" x ¼" (PLATE THKN. Inches), CROSS SECTION ③; 2⅔" x ½" (PLATE THKN. Inches), CROSS SECTION ③; 3" x 1" (PLATE THKN. Inches), CROSS SECTION ③, COATING ④; LOCK SEAM SMOOTH WALL SPIRAL RIB ¾" x ¾" @ 7½" O.C. Or ¾" x 1" @ 11½" O.C. (PLATE THKN. Inches), CROSS SECTION ③, COATING ④.

Aluminized or galvanized iron and steel: RIVETED, WELDED OR LOCK SEAM — 1½" x ¼" (Inches), CROSS SECTION ③; 2⅔" x ½" (Inches), CROSS SECTION ③; 3" x 1" (Inches), CROSS SECTION ③, COATING ④ GALVANIZED ④ ALUMINIZED; LOCK SEAM SMOOTH WALL SPIRAL RIB ¾" x ¾" @ 7½" O.C. Or ¾" x 1" @ 11½" O.C. (PLATE THKN. Inches), CROSS SECTION ③, COATING ④ GALVANIZED ④ ALUMINIZED.

RIGID PRE-CAST CONCRETE REINF.: III, IV, V. PLASTIC & IRON: CORRUGATED HDPE, SOLID WALL HDPE, REINFORCED HDPE, PVC – PSI STIFFNESS, POLYPROPYLENE DOUBLE WALL, POLYPROPYLENE TRIPLE WALL, DUCTILE IRON – PIPE CLASS.

Data rows (Aluminum 2⅔"x½" PLATE THKN / CROSS SECTION, 3"x1" COATING; Iron&Steel 2⅔"x½" PLATE THKN / CROSS SECTION, 3"x1" COATING; RIGID IV, V; Plastic CORRUGATED HDPE; DUCTILE IRON):

(AL) 2⅔" PLATE THKN	CROSS SEC	(AL) 3" COATING	(FE) 2⅔" PLATE THKN	CROSS SEC	(FE) 3" COATING	III	IV	V	CORR HDPE	SOLID HDPE	REINF HDPE	DUCTILE IRON
.060	R	U	0.64	R	U		✓		✓			✓
.060	R	U	0.64	R	U		✓		✓			✓
.060	R		0.64	R	PM	✓			✓			✓

(bottom summary row): CORRUGATED HDPE ✓; REINFORCED HDPE ✓; DUCTILE IRON – PIPE CLASS 52

For cross-sectional shape of pipe, see footnote 3 in Figure 700-10

For protective coatings for metal pipe, see Footnote 4 in Figure 700-10

Place a checkmark in appropriate box to indicate allowable pipe materials

Ductile iron pipe class number

710.1 Appurtenances

Use the appurtenances section of the pipe data sheet to list manhole and inlet data for the project.

Manholes require the depth of the manhole to the nearest tenth of a foot, measured from the lid to the invert of the outlet pipe. Designate the manhole type on the sheet using a check mark.

Inlets require the type and number of inlets. Some manhole locations are in sag locations and have a number of flanking inlets flowing into the one manhole.

Section 711 Figure 700-8: Appurtenances

711.1 Culvert Extensions and Remarks

Culvert extensions can be on the left, right, or both ends of the pipe. The existing pipe material of the culvert to be extended is important. Dissimilar materials may cause the extension pipe to be unable to join to the existing culvert.

Note, for pipes at a perpendicular angle to the construction centerline, left or right pipe ends are determined by positioning on the centerline and looking in the direction of increasing stationing. For pipes running parallel to the centerline, left and right are determined by looking at the pipe from the construction centerline.

Remarks provide additional data that is not otherwise addressed.

Section 712 Figure 700-9: Culvert Extension and Remarks

712.1 General Notes and Footnotes

The general notes and the footnotes are found on the lower left corner of the pipe data sheet. These provide overall explanations and definitions for pipe material. Do not edit the general notes or the footnotes. They must remain the same for all contract plans.

Section 713 Figure 700-10: General Notes and Footnotes

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 Std. Dwg. 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 Abbreviations for protective coatings for metal pipe
   PM = Polymeric, 10 Mil. thkn. coated both sides
   PO = Polyethylene inside lining, polymeric outside
   U   = Uncoated
   CIM = Chevron industrial membrane
   Ep = Epoxy coated

⑤ Abbreviations for existing pipe materials
   AB = Asbestos cement
   Al = Corrugated aluminum
   Co = Concrete
   Pl = Plastic
   St = Corrugated steel
   X   = Other material, see remarks column

713.1 Standard Drawing List

The standard drawing list is along the bottom of the pipe data sheet. On the first pipe data sheet in the plan set, select all the required standard drawings for the project. Create a fill shape that matches the size of the squares next to the drawing number. Use "Opaque" for the "Fill Type". Copy and/or place the fill shapes on all the squares next to the desired standard drawings.

Section 714 Figure 700-11: Standard Drawing List

☐	RD300	Trench Backfill, Bedding, Pipe Zone And Multiple Installations	☐	RD348	Manhole With Inlet
☐	RD302	Street Cut	☐	RD350	Sanitary Sewer Piped Inside Drop Connection for Manholes
☐	RD304	Arch Pipe Backfill/Compaction	☐	RD352	Outside Drop Manholes
☐	RD306	Concrete Encasement, Cradle, and Cap Details	☐	RD354	Carry Through Manhole – Storm
☐	RD308	Bore Casing Detail	☐	RD356	Manhole Covers And Frames
☐	RD310	Shallow/Deep Trench Service Connection, Blocking and Markers	☐	RD358	Manhole Slope Protectors
☐	RD312	Subsurface Drain	☐	RD360	Manhole Frame Adjustment
☐	RD316	Sloped Ends For Metal Pipe	☐	RD362	Sanitary Cleanout
☐	RD317	Culvert Embankment Protection And Riprap Pads	☐	RD363	Gutter Transition At Inlet
☐	RD318	Sloped Ends For Concrete Pipe	☐	RD364	Concrete Inlets Type G–1, G–2, G–2M, and G–2MA
☐	RD319	Miscellaneous Culvert Details	☐	RD365	Frames and Grates For Concrete Inlets
☐	RD320	Paved End Slope For Culverts 60" Maximum Pipe Size	☐	RD366	Concrete Inlets Type CG–1, CG–2
☐	RD321	Paved End Slope With Removable Safety Bar(s)	☐	RD367	Curb Inlet Channel
☐	RD322	Safety End Section For Metal Pipe	☐	RD368	Concrete Inlets Type M–E, M–O, B And B–SL
☐	RD324	Safety End Section For Concrete, PVC, HDPE & Polypropylene Pipe	☐	RD370	Ditch Inlet Type D
☐	RD325	Coupling Bands For Corrugated Metal Pipe	☐	RD371	Concrete Inlet Base Type CG–3
☐	RD326	Coupling Bands For Corrugated Metal Pipe	☐	RD372	Concrete Inlet Top, Option 1 Type CG–3
☐	RD327	Coupling Bands For Corrugated Metal Pipe	☐	RD373	Concrete Inlet Top, Option 2 Type CG–3
☐	RD328	Slotted CMP Drain Details	☐	RD374	Area Drainage Basin Or Field Inlet
☐	RD330	Pipe Slope Anchors – Metal	☐	RD376	Miscellaneous Drainage Structures Siphon Box,
☐	RD332	Pipe Slope Anchors – Concrete			Inlet Cap and Inlet Adjustment
☐	RD334	Locator Post	☐	RD378	Type "3" Catch Basin, Frame and Grate
☐	RD335	Standard Storm Sewer Manhole	☐	RD380	Fill Height Tables For Aluminum and Steel Corrugated Pipe
☐	RD336	Standard Manhole Details	☐	RD382	Fill Height Tables For Aluminum and Steel Arch Pipe
☐	RD338	Standard Sanitary Sewer Manhole	☐	RD384	Fill Height Tables For Aluminum and Steel Spiral Rib Pipe
☐	RD339	Pipe To Structure Connections	☐	RD386	Fill Height Table For Circular Concrete Pipe
☐	RD340	Storm Sewer Pollution Control Manhole	☐	RD388	Fill Height Tables For PVC Pipe
☐	RD342	Shallow Manholes	☐	RD390	Fill Height Table For Corrugated HDPE Pipe
☐	RD343	24" Manholes	☐	RD391	Fill Height Table For Steel Reinforced HDPE Pipe
☐	RD344	Standard Manhole Base Section	☐	RD393	Fill Height Tables For Polypropylene Pipe
☐	RD345	Pipe To Manhole Connections	☐	RD398	Culvert ID Marker
☐	RD346	Large Precast Manhole	☐	RD399	Stormwater Treatment and Storage Facility Field Markers

Section 715 Figure 700-12: Selecting Standard Drawings

☐	RD378	Type "3" Catch Basin, Frame and Grate
☐	RD380	Fill Height Tables For Aluminum and Steel Corrugated Pipe
☐	RD382	Fill Height Tables For Aluminum and Steel Arch Pipe
☐	RD384	Fill Height Tables For Aluminum and Steel Spiral Rib Pipe
☐	RD386	Fill Height Table For Circular Concrete Pipe
☐	RD388	Fill Height Tables For PVC Pipe
■	RD390	Fill Height Table For Corrugated HDPE Pipe
☐	RD391	Fill Height Table For Steel Reinforced HDPE Pipe
☐	RD393	Fill Height Tables For Polypropylene Pipe
■	RD398	Culvert ID Marker
☐	RD399	Stormwater Treatment and Storage Facility Field Markers

Example of opaque fill shape sized to fit the selection square

Section 716 Checklist

Ensure the Pipe Data Sheet(s) included in the contract plan documents show all applicable information from the following list:

☐ Sheet title, sheet number, and "V" Number

☐ Standard ODOT border and title block

☐ 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 row at the beginning and end of space provided for each individual plan sheet number, when possible

☐ A heavy separation line (weight 5) to separate pipe data for each plan sheet