## <u>Cheat Sheet – Pressure Pipes</u>

1. Edit the feature settings for the pressure network. Under the settings tab, right-click on "Pressure Network" and then select "Edit Feature Settings".

Property	Value	Override	Child Over	Lock	
H General					-
Degree of Curvature					
🗄 🕒 Labeling					
🗄 📄 Time					
Default Styles					
Appurtenance Default Style	Valve			8	
Fitting Default Style	Fitting			8	
Pressure Pipe Default Style	Centerline (Water)			8	
Fitting Plan Label Style	Nominal Diameter Bend Angle and Material	]		-	
Appurtenance Plan Label Style	Nominal Diameter Valve Type			8	
Pressure Pipe Plan Label Style	Nominal Diameter and Material			-	
Fitting Profile Label Style	Nominal Diameter Bend Angle and Material			8	
Default Parts List	Water			-	
Appurtenance Profile Label Style	Nominal Diameter Valve Type			æ	
Pressure Pipe Profile Label Style	Nominal Diameter and Material			8	
Render Material	_GLOBAL_		L.	8	
🗉 🕅 Default Name Format					
Appurtenance Name Template	Appurtenance - (<[Next Counter(CP)]>)			8	
Fitting Name Template	Fitting - (<[Next Counter(CP)]>)			8	
Pressure Pipe Network Name Template	Pressure Network - (<[Next Counter(CP)]>)			8	
Pressure Pipe Name Template	Pressure Pipe - (<[Next Counter(CP)]>)				
Alignment From Pressure Network Name Template	Alignment - (<[Pressure Pipe Network Name(CP)]>) - (<[Next Co			a	
🗆 🎢 Default Profile Label Placement					
Dimension anchor option for pressure pipes	Fixed			a	
Dimension anchor elevation value for pressure pi	0.00'			8	
Dimension anchor option for fittings	Fixed			8	
Dimension anchor elevation value for fittings	0.00'			8	
Dimension anchor option for appurtenances	Fixed			8	
Dimension anchor elevation for appurtenances	0.00'			8	

2. Right-click the part list you wish to use and select the edit button.

ormation Pressure Pipes Fittings	Appurtenances Summary				
Name	Style	Render Material		Pay Item	
🖃 🔏 Water					
🖶 🔏 ductile iron		Ę	Ę		14 14
🔏 10" D.I.	Centerline (Water)	🛷 ByLayer	۲	[none]	23
🔏 12" D.I.	Centerline (Water)	🛷 ByLayer	۲	[none]	24
🔏 16" D.I.	Centerline (Water)	💋 ByLayer	۲	[none]	23
🔏 6" D.I.	Centerline (Water)	💋 ByLayer	۲	[none]	23
🔏 4" D.I.	Centerline (Water)	💋 ByLayer	۲	[none]	23
🔏 8" D.I.	Centerline (Water)	💋 ByLayer	۲	[none]	23
🔏 14" D.I.	Centerline (Water)	💋 ByLayer	۲	[none]	23
🔏 18" D.I.	Centerline (Water)	🛷 ByLayer	۲	[none]	23
🔏 20" D.I.	Centerline (Water)	🛷 ByLayer	۲	[none]	23
🔏 24" D.I.	Centerline (Water)	🛷 ByLayer	0	[none]	23
🔏 30" D.I.	Centerline (Water)	🛷 ByLayer	0	[none]	53
36" D.I.	Centerline (Water)	🛷 ByLayer	0	[none]	23

## 3. Create and Edit a Parts List

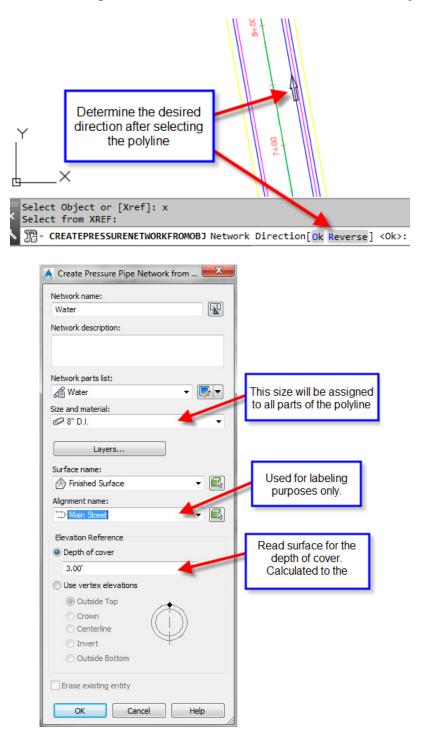
When using pressure pipes in Civil 3D 2017, new parts have been added. You might want to create parts lists for different materials since different parts exist for each material.

	1 🖨 🕤	• 🔿 •	🗘 Civil 3	D		Au	todesk Au	utoCAD Civil	3D 2017 Di	Vetwork Catalog	x
C3D Home	Insert A	Annotate	Modify	Analyze	View	Manage	Output	Survey	Autodesk 3		
۲۲ 🖻	💭 İmp	port Survey	Data 🎈	Parcel 🔹		Alignment	- 👭 -	5	• -		
Toolspace	-📌 Poi	nts 🝷		ナ Feature Lin	e • 🖬	Profile +	<b>#</b> -		5	a\Autodesk\C3D 2017\enu\Pressure Pipes Cata	e
	🛃 Sur	faces 🔹	6	🖇 Grading 🝷	<b>1</b>	Corridor	3 <u>1</u> -	ć	<b>*</b> -	e file:	
Palettes 🔻	Create	Ground Da	ta 🔻					Profile & S	ection Views	_PushOn.sqlite 👻	
			1	Create Figu	re from	Object	<b>°</b> 🕯 (	Create Netwo	ork Parts List	_Flanged.sqlite HDPE.sqlite	
			ų.	🛓 Create Sub	assembly	y from Polyli	ne 🗲 (	Create Full Pa	arts List	Mechanical.sqlite	
				🗄 Create Poly	line Fror	m Corridor	<b>i i</b> i i i i i i i i i i i i i i i i i	et Pipe Netv	work Catalog		
				Create Bou	ndary Fr	om Corridor	jog F	Part Builder		_Steel.sqlite	
			6	🎍 Set Pressur	e Netwo	rk Catalog					
			-)=			Create D	)esign			]	

Set the catalog to the desired material, and then create a new parts list for that material. For example, PVC contains a fire hydrant, while others do not.

CMI - PVC				
🖶 🔏 Butterfly Valve_ DI_ FF_ Long Body_ Class 150A_ AWWA C504		Ę	Ę	23
🗄 🔏 Butterfly Valve_ DI_ FF_ Long Body_ Class 150B_ AWWA C504		Ę	E,	23
🗄 🔏 Butterfly Valve_ DI_ FF_ Long Body_ Class 250B_ AWWA C504		Ę	E,	23
🗄 🔏 Butterfly Valve_ DI_ FF_ Short Body_ Class 150A_ AWWA C504		Ę	E,	24
🗄 🔏 Butterfly Valve_ DI_ FF_ Short Body_ Class 150B_ AWWA C504		Ę	E,	24
🗄 🔏 Butterfly Valve_ DI_ FF_ Short Body_ Class 250B_ AWWA C504		Ę	E,	24
Butterfly Valve_ DI_ MJF_ Class 250B_ AWWA C504		Ę	E,	24
Butterfly Valve_ DI_ WFR_ FF_ AWWA C504		Ę	E,	24
🖶 🔏 Gate Valve_ FF_ 200 PSI_ AWWA C500		E,	E,	23
🖶 🔏 Gate Valve_ FF_ NRS_ 200 PSIG_ AWWA C509		Ę	E,	23
🖶 🔏 Gate Valve_ FF_ OS&Y_ 200 PSIG_ AWWA C509		Ę	E,	23
Gate Valve_ FFxMJF_ NRS_ 200 PSIG_ AWWA C509		E,	E,	23
Gate Valve_MJF_ 200 PSIG_ AWWA C509		Ę	E.	24
Gate Valve_MJF_ 200 PSI_AWWA C500		Ę	E,	24
🖶 🔏 Gate Valve_MJF_ with Bypass_150 PSI_ AWWA C500		Ę	E,	23
🖶 🔏 Gate Valve_MJF_ without Bypass_150 PSI_AWWA C500		Ę	E,	23
🖶 🔏 Gate Valve_MJxMJ BELL_MJF_200 PSIG_AWWA C509		Ę	Ę	23
Gate Valve_PFS_200 PSIG_AWWA C509		e,	E,	23
Hydrant_MJ		Ę	Ę	23
Hydrant_42in_Bury Depth_MJ	CMI Fire Hydrant	📸 ByLayer	🔘 [none]	23
Hydrant_48in_ Bury Depth_ MJ	CMI Fire Hydrant	📸 ByLayer	🔘 [none]	23
Hydrant_54in_Bury Depth_MJ	CMI Fire Hydrant	📸 ByLayer	🔘 [none]	23
	CMI Fire Hydrant	📸 ByLayer	🛞 [none]	23
	CMI Fire Hydrant	📸 ByLayer	🛞 [none]	1월 4월
Hydrant_72in_Bury Depth_MJ	CMI Fire Hydrant	📸 ByLayer	🛞 [none]	23

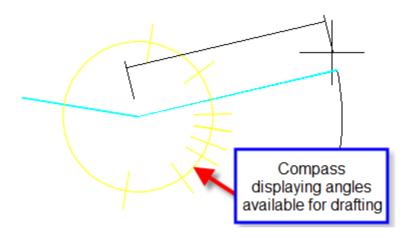
- 4. Two choices for creating a pressure pipe network: (a) Create from Object, (b) Pressure Network Creation Tools
  - a. "Home" ribbon tab > Pipe Network > Create Pressure Network from Object



b. "Home" ribbon tab > Pipe Network > Pressure Network Creation Tools



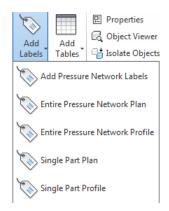
During the drawing process, the compass will guide you with only angles that the parts list has. If you draw pressure pipe while in a model view (3D), then you can change the plane of the compass for more choices.



5. "Modify" ribbon tab > Pressure Pipe Network > Network Tools > Draw Parts in Profile

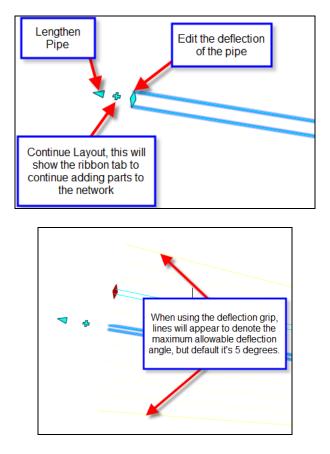
Either select the entire pipe network or select the parts you wish to show in the profile view. You can also click on a part, then right-click and choose add part to profile view. This is also available in the right-click menu after selecting a part. Alternatively, use the Pipe Network tab of the Profile View Properties to turn pipes on and off.

6. "Pressure Network" ribbon tab > Add Labels ... or "Home" tab > Add Labels



## 1. Using Grips

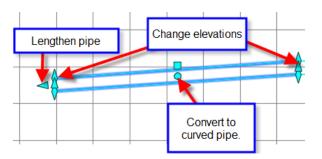
a. Plan View



You can edit the allowable deflection in the parts list by editing a pipe.

ormation Pressure Pipes Fittings	Appurtenances Summa	ry		
Name	Style		Render Material	Pay Item
🖃 🔏 Water				
🖃 🔏 ductile iron		ę		R
- 🞢 pipe-4 in-push o	n-ductile Double Line	(Water) 🔗	ByLayer	🛞 [none]
pip <del>p 6 in nuch</del>	n ductila Double Line		Pul avor	[none]
pipe-4	in-push on-ductile iron-3	50 psi-AWWA C149		
pip				
pip Proper	у	Value	Unit	
	l Diameter	4.000000	in	
pip Inner Di	ameter	4.000000	in	
pip Outer D	iameter	4.800000	in	
pip Wall Th	ckness	0.400000	in	
pip Cut Len	gth	18.000000	ft	
	le Deflection	5.000000	deg	
	m Flex Radius	0.000000	ft	

b. Profile View – You can hot grip the invert, centerline, or crown of a pipe. You can also multihot-grip grips by holding down shift while selecting the grip.



2. Using the pressure part properties

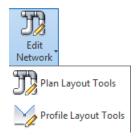
sure Pipe Properties	Value
ieneral	
Reference Surface	Finished Surface
Reference Alignment	<none></none>
ieometry	
Start Part	
End Part	Fitting - (1)
Bearing	S80° 42' 04"E
Start Station	
End Station	
Start Offset	
End Offset	
Slope	-0.65%
Pipe Start Easting	1655969.5002'
Pipe Start Northing	174642.1404'
Pipe End Easting	1656144.9052'
Pipe End Northing	174613.4205'
Start Centerline Elevation	38.78'
End Centerline Elevation	39.93'
Start Invert Elevation	38.36'
End Invert Elevation	39.52'
Start Outside Crown Elevation	39.24'
End Outside Crown Elevation	40.40'
2D Length	177.74'
3D Length	177.74'
Minimum Cover	2.92'
Maximum Cover	3.84'
art Data	
Part Family Name	pipe-push on-ductile iron-350 psi
Description	pipe-10 in-push on-ductile iron-350 psi-AWWA C151
Cut Length	18.00'
Diameter Inside	
Diameter Outside	11.100"
Type Description	standard
Minimum Flex Radius	0.00'
Thickness	0.550"
Nominal Diameter Description	10 in x 10 in
Id Coating Inside	
Id Coating Outside	
ld Material	ductile iron
Pressure Class	350psi
Maximum Pressure	
Schedule	
SDR	
Series	
Strength Class	
Thickness Class	
Compatible Standard	AWWA C151
Connection Point Count	2
Fid Manufacturer	
Model Name	
Version Number	

Fitting Pro	perties	Value	1
🗉 Gene	ral		
Ref	erence Surface	Finished Surface	
Ref	erence Alignment	<none></none>	
Geom	etry		
Ins	ertion Point Easting	1656145.2752'	Ξ
Ins	ertion Point Northing	174613.3599'	
Ins	ertion Point Elevation	39.94'	
Ins	ertion Point Station		
Ins	ertion Point Offset		
Re	sultant Horizontal Angle	22.4960 (d)	-
Re	sultant Vertical Angle	0.4318 (d)	
🗏 Part 🛛	Data		
Pre	ssure Part Type	Elbow	
Par	t Family Name	elbow-22.5 degree-push on-ductile iron-350 psi	
De	scription	elbow-10 in-22.5 degree-push on-ductile iron-350 psi	
Ang	gle	22.5000 (d)	
Cur	ve Radius		
Cut	back Angle		
Typ	e Description	elbow	-

3. Using the Edit Pipe Network Vista.

Name	Descripti	Style	Render	Nominal	Referenc	Reference Surface	Start Stat	Start Offs	End Stati	End Offset	Start Cover	End Cover	Minimu	Maximu	Sta
Pressure		Double Line	ByLayer	10 in x 10 in		Finished Surface			9		3.00'	3.01'	2.92'	3.84'	1655
Pressure		Double Line	ByLayer	10 in x 10 in		Finished Surface					3.00'	3.00'	2.33'	3.15'	1656
Pressure 🖉		Double Line	ByLayer	10 in x 10 in		Finished Surface					3.00'	2.99'	2.50'	3.06'	165
				3	-									1	1
													etween tabs to edit es of each part type		
					-										
				-										2	

4. Pressure networks allow for plan and profile layout tools during editing.

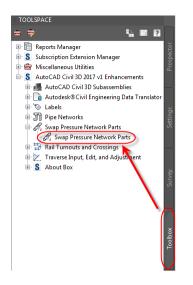


- Plan layout tools are the same commands described above in this document under pressure pipe layout tools.
- Profile layout tools allow the user to add additional parts as well as change values not allowed in the part properties, such as slope.

T	🗁 Finished Surface	•	⊐⊇	⊿ Add Pressure Pipe	10	•		\∞•	🖧 Swap Parts	Panorama	$\mathbb{X}$
⊇ ⊡≣ Network	<none></none>	•	Pipes &	🐉 Add Bend	elbow-10 in-11.25 degree-p	Ŧ	Curve	Follow	🚀 Break Pipe	餐 Change Slope	Close
	CMI Standard	•		📸 Add Appurtenance	gate valve-16 inch-push on	٣	Pipe	Surface	🖧 Delete Part	🚀 Change Elevation	Close
	Network Settings	out				Modify		Close			

http://www.cadmasters.com/c3d\_cheatsheets.html

- 5. Other Tips, Tricks, and Limitations
  - a. In Civil 3D 2017, the program allows the user to change the parts once drawn, in previous versions this is not available.



b. In Civil 3D 2018 and later, the user can swap the parts directly from the edit ribbon tab for pressure networks.

Network Properties	Finished Surface Innone> CMI Standard	Cover: 3.00'	10 •	es & Pipes ends Only	》 Add Fitting 黃 Add Appurtenance	elbow-10 in-11.25 degree-p 👻 gate valve-16 inch-push on 👻	& Swap Parts Slide Parts Break Pipe 🕞 Panorama A Move Parts		XX Close
	Network Settings		Layout			Insert	Modify	Compass 💌	Close

- c. The follow surface command in profile layout tools creates additional vertices to follow the surface more closely. The program does not allow the user to remove those vertices later, the user would have to delete the pipe and draw it again. This function only works with the Push On catalog.
- d. Use Design Check and Depth Check to analyze the pressure network for open connections and cover violations.
- e. Drawing pipes and bends in the profile view creates an efficient way to create these vertical bends. This can also be done in a 3d view.

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