



12375 Brown Ave., Riverside, CA
92509; 951.682.3307

Project Description

IPS Order # 12345
Customer & PO # Contractor/ 678
Owner/Agency: Mun. Water District
Project Name: Transmission main
Contacts: Sales / Layout

29-Apr-08

Pipe Wall Thickness Calculations

Conforms with Manual AWWA M-11, 4th Edition. Chapters 4 & 6, (Internal Pressure & External Loads). Values & Symbols used in calculations are based on M-11 and material/design constants noted on 'Cover page' of this package unless specified otherwise.

- Notes:
- * Wall thickness provided shall be the greater of "IPS min.", "Customer specified Min.", or M-11 Calculated thickness.
 - ** M-11 Calculated thickness is per chapter 4, Eq.4-1 (Barlow Formula).
 - *** Deflection Calculated per Chapter 6, using Marston (Dead Load) + HS-20 live load, and assuming a maximum trench width of twice the "Finished Pipe OD." No other loads considered.

Footage Jt. Lgth. Qty	Manufactured Dimensions (inches)							Cylinder Thickness Design Results				Shop & Field Supplemental Data						
	Item	Nom. Dia. & Class	Cyl. O.D.	Cement Lining	Cement Coating	* Wall Thick-ness	Max Wrkg Press	IPS Min "t"	Customer Spec'd Min 't'	**M-11, "t"= PD/2Fs	*** Pipe Deflec-tion	Finished Pipe OD (Dec.Ft)	Depth of Cover (min/max)	Lbs/ft; lbs/jt Jts/Ld	O-Ring Joint Data	Laying	Lap Welds Data	Laying
2,000 40 50 ea	Pipe # 1:	16	17.375	0.3125	0.75	0.135	272	0.1345	none	0.0745	Okay	1.57	(Dec.Ft.)	86	Max Pull: 3/4 (2.47°)	Max Pull: 1.in (3.29°)	414	@75% Fy
		CI.150	16.48	17	44.1	24.9	psi											
		A-139-B	Net I.D.	lb/lf	lb/lf	lb/lf						10.0	11	Min Curve 918	Min Curve 693			
2,000 40 50 ea	Pipe # 2:	24	25.75	0.375	0.75	0.164	223	0.1345	0.164	0.1104	Okay	2.27	(Dec.Ft.)	139.8	Max Pull: 3/4 (1.67°)	Max Pull: 1.in (2.22°)	339	@75% Fy
		CI.150	24.67	30.5	64.5	44.8	psi											
			Net I.D.	lb/lf	lb/lf	lb/lf						10.0	6	Min Curve 1,359	Min Curve 1,026			
2,000 20 100 ea	Pipe # 3:	30	31.875	0.375	0.75	0.188	206	0.1594	0.188	0.1366	Okay	2.78	(Dec.Ft.)	180.9	Max Pull: 3/4 (1.35°)	Max Pull: 1.in (1.8°)	313	@75% Fy
		CI.150	30.75	37.9	79.4	63.6	psi											
			Net I.D.	lb/lf	lb/lf	lb/lf						10.0	4	Min Curve 1,683	Min Curve 1,270			
1,500 40 38 ea	Pipe # 4:	36	37.875	0.375	0.75	0.189	175	0.1894	none	0.1623	Okay	3.28	(Dec.Ft.)	215.3	Max Pull: 3/4 (1.13°)	Max Pull: 1.in (1.51°)	265	@75% Fy
		CI.150	36.75	45.2	94	76.1	psi											
			Net I.D.	lb/lf	lb/lf	lb/lf						10.0	4	Min Curve 1,999	Min Curve 1,509			
1,000 40 25 ea	Pipe # 5:	42	43.875	0.5	0.75	0.219	175	0.2194	none	0.1880	Okay	3.78	(Dec.Ft.)	280.5	Max Pull: 3/4 (0.98°)	Max Pull: 1.in (1.31°)	265	@75% Fy
		CI.150	42.44	69.7	108.7	102.1	psi											
			Net I.D.	lb/lf	lb/lf	lb/lf						10.0	4	Min Curve 2,316	Min Curve 1,748			
5,000 40 125 ea	Pipe # 6:	48	49.875	0.5	0.75	0.249	175	0.2494	none	0.2138	Okay	4.28	(Dec.Ft.)	334.6	Max Pull: 3/4 (0.86°)	Max Pull: 1.in (1.15°)	265	@75% Fy
		CI.150	48.38	79.3	123.3	132	psi											
			Net I.D.	lb/lf	lb/lf	lb/lf						10.0	2	Min Curve 2,633	Min Curve 1,987			