

Chapter 4

Oval Pipe



Culverts installed 40-50 years ago are failing at an alarming rate and are in desperate need of rehabilitation.

Finally, there's a no-dig solution to culvert lining and culvert rehab in the form of Snap-Tite®. Utilizing the Snap-Tite® Culvert Lining System for culvert rehabilitation and drainage solutions is an intelligent, cost-effective solution. Snap-Tite® rehabilitates a failing culvert lining system without the need to remove the existing deteriorated pipe.

Since one-third of existing culverts are arched, Snap-Tite® again has come up with a solution: oval pipe. It has the same benefits as smooth-wall HDPE Snap-Tite®, yet made for a better fit into an existing arched culvert.

The Snap-Tite® Culvert Lining System actually outperforms both the round and oval concrete and corrugated metal pipes it rehabilitates. Lightweight, flexible, durable HDPE has an indefinite service life and the Snap-Tite® culvert lining joining system assures a watertight seal at all joints.



Table 4-1
Flow in Lined CMP

Flow is based on slope of .1%. HDPE n= .00914 / CMP n= .024

CMP Size (Inches)	Equivalent Snap-Tite® Round OD (Inches)	Outside Liner Diameter (Inches)		Inside Liner Diameter (Inches)		Flow Q (cfs)	Snap-Tite® % of Flow
		Minor	Major	Minor	Major		
20 in. 28 in.	20	16.5	23	15.1	21.7	4.7	128%
24 in. 35 in.	24	18	29	16.4	27.1	7.0	111%
29 in. 42 in.	30	22.5	36	20.3	34	12.5	121%
33 in. 49 in.	36	30	41	27.7	38.7	23.0	153%
38 in. 57 in.	42	34	48.5	31.3	45.9	33.8	152%
43 in. 64 in.	48	39	55.5	35.9	52.3	48.3	158%
47 in. 71 in.	54	43	63	39.5	59.5	65.0	165%
52 in. 77 in.	54	47	60	43.5	59.6	74.7	148%
57 in. 83 in.	63	52	72.5	47.9	68.1	101.2	160%
63 in. 87 in.	63	58	67.5	53.9	63.5	109.1	141%



Oval Snap-Tite Pipe® with struts inside, before installation.



Snap-Tite® pipe coming through a deteriorating culvert during installation (struts will be removed once completed).



A culvert, rehabilitated with Snap-Tite® oval pipe.

**Table 4-2
Flow in Lined RCP**

Flow is based on slope of .1%. HDPE n= .00914 / concrete n= .015

RPC Size (Inches)	Equivalent Snap-Tite® Round OD (Inches)	Outside Liner Diameter (Inches)		Inside Liner Diameter (Inches)		Flow Q (cfs)	Snap-Tite® % of Flow
		Minor	Major	Minor	Major		
19 in. 30 in.	22	17	26	15.6	24.6	5.8	97%
24 in. 38 in.	28	21	33.5	19.2	33.6	11.4	102%
29 in. 45 in.	32	26	37	23.9	34.9	16.4	91%
34 in. 53 in.	40	31	46	28.4	43.6	27.6	100%
38 in. 60 in.	42	34	48.5	31.3	45.9	33.8	89%
43 in. 68 in.	48	39	55.5	35.9	52.3	48.3	92%
48 in. 76 in.	54	43	63	39.5	59.5	65.0	92%
53 in. 83 in.	63	48	75	55.9	70.2	95.7	105%
58 in. 91 in.	63	52	72.5	47.9	68.1	101.2	87%
63 in. 98 in.	63	58	67.5	53.9	63.5	109.1	76%

