



Parish of Ascension

www.ascensionparish.net

KENNY MATASSA
ASCENSION PARISH PRESIDENT

BID NOTICE

Sealed bids will be received by the Ascension Parish Government at the Ascension Parish Government Purchasing Office, 615 E. Worthey St., Gonzales, Louisiana 70737 (mailing address PO Box 2392, Gonzales, LA 70707-2392) on July 11, 2017, at 10:00 a.m. local time for the following:

15", 18", 21", 24", 30", 36", 42", 48", 54" 60" CORRUGATED POLYETHYLENE PIPE

15", 18", 21", 24", 30", 36", 42", 48", 54", 60", SURE-LOK TEE

15", 18", 21", 24", 30", 36", 42", 48", 54", 60" SURE-LOK REDUCING TEE

22°, 45°, 90°, SURE-LOK CORRUGATED POLYETHYLENE FITTING

All fittings to have "Bell and Gasket Joints"

The pipe is to be picked up at the vendor's yard within a fifteen (15) mile radius or delivered to Ascension Parish Government Department of Public Works located at 42077 Churchpoint Rd. Gonzales, Louisiana 70737.

LA. R.S. 38:2212(F) (2)

Whenever in specifications the name of a certain brand, make, manufacturer, or definite specifications utilized, the specifications, shall state clearly that they do not restrict bidders to the specific brand, make, manufacturer, or specification named; that they are used only to set forth and convey to prospective bidders the general style, type character, and quality of the product desired and that equivalent products will be acceptable...

Bid will be awarded based on total corrugated polyethylene pipe prices only.

Bids are to be submitted for a one-year period.

Bidding Documents may be obtained at the Ascension Parish Government Purchasing Department located at 615 E. Worthey St. Gonzales, Louisiana. Electronic Bids are accepted at Central Bidding. Central Bidding can be accessed at <http://www.centraauctionhouse.com>. Bidding Documents are available at Central Bidding. For questions related to the electronic bidding process, please call Central Bidding at 225-810-4814.

The Parish of Ascension reserves the right to disqualify any Bid, response to a Request for Qualifications, or Request for Proposals if it is determined that the submitting business entity is not in good standing with the Louisiana Secretary of State or is not authorized to do business in the State of Louisiana.

Ascension Parish Government reserves the right to reject any and all bids for just cause.

ASCENSION PARISH GOVERNMENT
KENNY MATASSA, PARISH PRESIDENT

WEEKLY- Please publish 06/22, 06/29, 07/06

CHIEF - Please publish 06/22, 06/29, 07/06

ADVOCATE - Please publish 06/22, 06/29, 07/06

CORPORATE RESOLUTION

EXCERPT FROM MINUTES OF MEETING OF THE BOARD OF DIRECTORS OF
CIMSCO, INC.
INCORPORATED.

AT THE MEETING OF DIRECTORS OF CIMSCO INC.
INCORPORATED, DULY NOTICED AND HELD ON November 1, 2016
A QUORUM BEING THERE PRESENT, ON MOTION DULY MADE AND SECONDED. IT
WAS:

RESOLVED THAT Jeffrey De Villier, BE AND IS HEREBY
APPOINTED, CONSTITUTED AND DESIGNATED AS AGENT AND ATTORNEY-IN-
FACT OF THE CORPORATION WITH FULL POWER AND AUTHORITY TO ACT ON
BEHALF OF THIS CORPORATION IN ALL NEGOTIATIONS, BIDDING, CONCERNS
AND TRANSACTIONS WITH THE PARISH OF JEFFERSON OR ANY OF ITS AGENCIES,
DEPARTMENTS, EMPLOYEES OR AGENTS, INCLUDING BUT NOT LIMITED TO, THE
EXECUTION OF ALL BIDS, PAPERS, DOCUMENTS, AFFIDAVITS, BONDS, SURETIES,
CONTRACTS AND ACTS AND TO RECEIVE ALL PURCHASE ORDERS AND NOTICES
ISSUED PURSUANT TO THE PROVISIONS OF ANY SUCH BID OR CONTRACT, THIS
CORPORATION HEREBY RATIFYING, APPROVING, CONFIRMING, AND ACCEPTING
EACH AND EVERY SUCH ACT PERFORMED BY SAID AGENT AND ATTORNEY-IN-
FACT.

I HEREBY CERTIFY THE FOREGOING TO BE
A TRUE AND CORRECT COPY OF AN
EXCERPT OF THE MINUTES OF THE ABOVE
DATED MEETING OF THE BOARD OF
DIRECTORS OF SAID CORPORATION, AND
THE SAME HAS NOT BEEN REVOKED OR
RESCINDED.

Ashtley Riviere
SECRETARY-TREASURER

7/10/17
DATE

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Ascension Parish Government Purchasing Department
 P.O. Box 2392
 Gonzales, Louisiana 70707

BID FOR: Ascension Parish Government
 Corrugated Polyethylene Pipe
 Sure Lok Tee's
 Sure Lok Reducing Tee's and Pipe Fittings

The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents, and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:				Corrugated Polyethylene Pipe 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	Linear Foot	7.49	7.49		
DESCRIPTION:				Corrugated Polyethylene Pipe 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined		10.07	10.07		
DESCRIPTION:				Corrugated Polyethylene Pipe 21"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	Linear Foot	N/A			
DESCRIPTION:				Corrugated Polyethylene Pipe 24"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	Linear Foot	16.24	16.24		
DESCRIPTION:				Corrugated Polyethylene Pipe 30"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	Linear Foot	23.56	23.56		
DESCRIPTION:				Corrugated Polyethylene Pipe 36"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	Linear Foot	28.39	28.39		
DESCRIPTION:				Corrugated Polyethylene Pipe 42"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	Linear Foot	38.89	38.89		

DESCRIPTION:		Corrugated Polyethylene Pipe 48"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	48.27	48.27
DESCRIPTION:		Corrugated Polyethylene Pipe 54"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	N/A	—
DESCRIPTION:		Corrugated Polyethylene Pipe 60"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	79.97	79.97
DESCRIPTION:		Sure-Lok Tee 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Each	480-	480-
DESCRIPTION:		Sure-Lok Tee 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Each	751-	751-
DESCRIPTION:		Sure-Lok Tee 21"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Each	N/A	—
DESCRIPTION:		Sure-Lok Tee 24"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Each	1538-	1538-
DESCRIPTION:		Sure-Lok Tee 30"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Each	2136-	2136-
DESCRIPTION:		Sure-Lok Tee 36"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Each	2351-	2351-
DESCRIPTION:		Sure-Lok Tee 42"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Each	4145-	4145-

DESCRIPTION:						
REF. NO.	QUANTITY:	Sure-Lok Tee 48"	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	UNIT OF MEASURE: Each	4474-	4474-		
DESCRIPTION:						
REF. NO.	QUANTITY:	Sure-Lok Tee 54"	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	UNIT OF MEASURE: Each	N/B			
DESCRIPTION:						
REF. NO.	QUANTITY:	Sure-Lok Tee 60"	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	UNIT OF MEASURE: Each	6072-	6072-		
DESCRIPTION:						
REF. NO.	QUANTITY:	Corrugated Polyethylene Fittings 15" - 22 Degree Bend	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	UNIT OF MEASURE: Each	260-	260-		
DESCRIPTION:						
REF. NO.	QUANTITY:	Corrugated Polyethylene Fittings 18" - 22 Degree Bend	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	UNIT OF MEASURE: Each	315-	315-		
DESCRIPTION:						
REF. NO.	QUANTITY:	Corrugated Polyethylene Fittings 21" - 22 Degree Bend	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	UNIT OF MEASURE: Each	N/B			
DESCRIPTION:						
REF. NO.	QUANTITY:	Corrugated Polyethylene Fittings 24" - 22 Degree Bend	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	UNIT OF MEASURE: Each	564-	564-		
DESCRIPTION:						
REF. NO.	QUANTITY:	Corrugated Polyethylene Fittings 30" - 22 Degree Bend	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	UNIT OF MEASURE: Each	1148-	1148-		
DESCRIPTION:						
REF. NO.	QUANTITY:	Corrugated Polyethylene Fittings 36" - 22 Degree Bend	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	UNIT OF MEASURE: Each	1461-	1461-		
DESCRIPTION:						
REF. NO.	QUANTITY:	Corrugated Polyethylene Fittings 42" - 22 Degree Bend	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)		
	Undetermined	UNIT OF MEASURE: Each	1907-	1907-		

DESCRIPTION:	Corrugated Polyethylene Fittings 48" - 22 Degree Bend		UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	
	Undetermined	Linear Foot	2345-	2345-
DESCRIPTION:	Corrugated Polyethylene Fittings 54" - 22 Degree Bend			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	n/a	
DESCRIPTION:	Corrugated Polyethylene Fittings 60" - 22 Degree Bend			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	4765-	4765-
DESCRIPTION:	Corrugated Polyethylene Fittings 15" - 45 Degree Bend			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	512-	512-
DESCRIPTION:	Corrugated Polyethylene Fittings 18" - 45 Degree Bend			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	751-	751-
DESCRIPTION:	Corrugated Polyethylene Fittings 21" - 45 Degree Bend			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	n/a	
DESCRIPTION:	Corrugated Polyethylene Fittings 24" - 45 Degree Bend			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	1538-	1538-
DESCRIPTION:	Corrugated Polyethylene Fittings 30" - 45 Degree Bend			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	2136-	2136-
DESCRIPTION:	Corrugated Polyethylene Fittings 36" - 45 Degree Bend			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	2350-	2350-
DESCRIPTION:	Corrugated Polyethylene Fittings 42" - 45 Degree Bend			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	4145-	4145-

DESCRIPTION:	Corrugated Polyethylene Fittings 48" - 45 Degree Bend		UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
REF. NO.	QUANTITY:	MEASURE:	UNIT PRICE	
	Undetermined	Linear Foot	4473-	4473-
DESCRIPTION:	Corrugated Polyethylene Fittings 54" - 45 Degree Bend			
REF. NO.	QUANTITY:	MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	N/A	-
DESCRIPTION:	Corrugated Polyethylene Fittings 60" - 45 Degree Bend			
REF. NO.	QUANTITY:	MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	6072-	6072-
DESCRIPTION:	Corrugated Polyethylene Fittings 15" - 90 Degree Bend			
REF. NO.	QUANTITY:	MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	291-	291-
DESCRIPTION:	Corrugated Polyethylene Fittings 18" - 90 Degree Bend			
REF. NO.	QUANTITY:	MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	371-	371-
DESCRIPTION:	Corrugated Polyethylene Fittings 21" - 90 Degree Bend			
REF. NO.	QUANTITY:	MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	N/A	-
DESCRIPTION:	Corrugated Polyethylene Fittings 24" - 90 Degree Bend			
REF. NO.	QUANTITY:	MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	604-	604-
DESCRIPTION:	Corrugated Polyethylene Fittings 30" - 90 Degree Bend			
REF. NO.	QUANTITY:	MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	1283-	1283-
DESCRIPTION:	Corrugated Polyethylene Fittings 36" - 90 Degree Bend			
REF. NO.	QUANTITY:	MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	1891-	1891-
DESCRIPTION:	Corrugated Polyethylene Fittings 42" - 90 Degree Bend			
REF. NO.	QUANTITY:	MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	2581-	2581-

DESCRIPTION:		Corrugated Polyethylene Fittings 48" - 90 Degree Bend	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2964-
UNIT PRICE EXTENSION (Quantity X Unit Price) 2964-			
DESCRIPTION:		Corrugated Polyethylene Fittings 54" - 90 Degree Bend	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	5704-
UNIT PRICE EXTENSION (Quantity X Unit Price) 5704-			
DESCRIPTION:		Corrugated Polyethylene Fittings 60" - 90 Degree Bend	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	5704-
UNIT PRICE EXTENSION (Quantity X Unit Price) 5704-			
DESCRIPTION:		Sure Lok Reducing Tee 15" x 8"	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	405-
UNIT PRICE EXTENSION (Quantity X Unit Price) 405-			
DESCRIPTION:		Sure Lok Reducing Tee 15" x 10"	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	444-
UNIT PRICE EXTENSION (Quantity X Unit Price) 444-			
DESCRIPTION:		Sure Lok Reducing Tee 18" x 8"	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	522-
UNIT PRICE EXTENSION (Quantity X Unit Price) 522-			
DESCRIPTION:		Sure Lok Reducing Tee 18" x 10"	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	577-
UNIT PRICE EXTENSION (Quantity X Unit Price) 577-			
DESCRIPTION:		Sure Lok Reducing Tee 18" x 15"	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	669-
UNIT PRICE EXTENSION (Quantity X Unit Price) 669-			
DESCRIPTION:		Sure Lok Reducing Tee 18" x 12"	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	677-
UNIT PRICE EXTENSION (Quantity X Unit Price) 677-			

DESCRIPTION:	Sure Lok Reducing Tee 21" x 8"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			—
DESCRIPTION:	Sure Lok Reducing Tee 21" x 10"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			—
DESCRIPTION:	Sure Lok Reducing Tee 21" x 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			—
DESCRIPTION:	Sure Lok Reducing Tee 21" x 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			—
DESCRIPTION:	Sure Lok Reducing Tee 24" x 8"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			—
DESCRIPTION:	Sure Lok Reducing Tee 24" x 10"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	796-
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			796-
DESCRIPTION:	Sure Lok Reducing Tee 24" x 12"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	871-
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			871-
DESCRIPTION:	Sure Lok Reducing Tee 24" x 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	879-
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			879-
DESCRIPTION:	Sure Lok Reducing Tee 24" x 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	928-
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			928-
DESCRIPTION:	Sure Lok Reducing Tee 30" x 12"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	1046-
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			1046-
DESCRIPTION:	Sure Lok Reducing Tee 30" x 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	1155-
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			1155-

DESCRIPTION:	Sure Lok Reducing Tee 30" x 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	1264-
DESCRIPTION:	Sure Lok Reducing Tee 30" x 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	1360-
DESCRIPTION:	Sure Lok Reducing Tee 30" x 24"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	1767-
DESCRIPTION:	Sure Lok Reducing Tee 36" x 12"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	1534-
DESCRIPTION:	Sure Lok Reducing Tee 36" x 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	1708-
DESCRIPTION:	Sure Lok Reducing Tee 36" x 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	1984-
DESCRIPTION:	Sure Lok Reducing Tee 42" x 12"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2595-
DESCRIPTION:	Sure Lok Reducing Tee 42" x 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2636-
DESCRIPTION:	Sure Lok Reducing Tee 42" x 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2804-

DESCRIPTION:	Sure Lok Reducing Tee 42" x 24"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2866-
DESCRIPTION:	Sure Lok Reducing Tee 42" x 30"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2901-
DESCRIPTION:	Sure Lok Reducing Tee 42" x 36"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	3445-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 12"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2628-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2655-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2829-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 24"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	3022-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 30"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	3351-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 36"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	3766-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 42"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	4262-
DESCRIPTION:	Sure Lok Reducing Tee 42" x 24"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2866-
DESCRIPTION:	Sure Lok Reducing Tee 42" x 30"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2901-
DESCRIPTION:	Sure Lok Reducing Tee 42" x 36"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	3445-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 12"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2628-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2655-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	2829-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 24"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	3022-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 30"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	3351-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 36"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	3766-
DESCRIPTION:	Sure Lok Reducing Tee 48" x 42"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	4262-

DESCRIPTION:	Sure Lok Reducing Tee 54" x 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
DESCRIPTION:	Sure Lok Reducing Tee 54" x 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
DESCRIPTION:	Sure Lok Reducing Tee 54" x 24"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
DESCRIPTION:	Sure Lok Reducing Tee 54" x 30"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
DESCRIPTION:	Sure Lok Reducing Tee 54" x 36"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
DESCRIPTION:	Sure Lok Reducing Tee 54" x 42"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
DESCRIPTION:	Sure Lok Reducing Tee 54" x 48"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
DESCRIPTION:	Sure Lok Reducing Tee 60" x 12"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	N/A
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
DESCRIPTION:	Sure Lok Reducing Tee 60" x 15"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	5122-
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			5122-
DESCRIPTION:	Sure Lok Reducing Tee 60" x 18"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	5268-
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			5268-
DESCRIPTION:	Sure Lok Reducing Tee 60" x 24"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	5596-
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			5596-
DESCRIPTION:	Sure Lok Reducing Tee 60" x 24"		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE
	Undetermined	Linear Foot	5596-
DESCRIPTION:	UNIT PRICE EXTENSION (Quantity X Unit Price)		
			5596-

DESCRIPTION:	Undetermined	Linear Foot	5950-	5950-
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	6160-	6160-
DESCRIPTION:	Undetermined	Linear Foot	6653-	6653-
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot	6993-	6993-
DESCRIPTION:	Undetermined	Linear Foot	7594-	7594-
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity X Unit Price)
	Undetermined	Linear Foot		

NAME OF BIDDER: Cmsco

ADDRESS OF BIDDER: 1840 LTA ROAD MARIANELA 70001

NAME OF AUTHORIZED SIGNATORY OF BIDDER: JEFF SEVICION

TITLE OF AUTHORIZED SIGNATORY BIDDER: SALES

SIGNATURE OF AUTHORIZED SIGNATORY BIDDER: 

DATE: 7-10-17

All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

Standard Specification for

**Corrugated Polyethylene Pipe,
300- to 1500-mm (12- to 60-in.)
Diameter**

**AASHTO Designation: M 294-16
Release: Group 2 (June 2016)**

AASHTO

**American Association of State Highway and Transportation Officials
444 North Capitol Street N.W., Suite 249
Washington, D.C. 20001**

Standard Specification for

Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter

AASHTO Designation: M 294-16
Release: Group 2 (June 2016)



1. SCOPE

- 1.1. This specification covers the requirements and methods of tests for corrugated polyethylene (PE) pipe, couplings, and fittings for use in surface and subsurface drainage applications.
- 1.1.1. Nominal sizes of 300 to 1500 mm (12 to 60 in.) are included.
- 1.1.2. Materials, workmanship, dimensions, pipe stiffness, slow crack growth resistance, joining systems, brittleness, and form of markings are specified.
- 1.2. Corrugated PE pipe is intended for surface and subsurface drainage applications where soil provides support to its flexible walls. Its major use is to collect or convey drainage water by open gravity flow, as culverts, storm drains, etc.
- Note 1**—When PE pipe is to be used in locations where the ends may be exposed, consideration should be given to protection of the exposed portions due to combustibility of the PE and the deteriorating effects of prolonged exposure to ultraviolet radiation.
- 1.3. *Units*—The values stated in SI units are to be regarded as standard. Within the text, the U.S. Customary units are shown in parentheses, and may not be exact equivalents.
- 1.4. This specification does not include requirements for bedding, backfill, or earth cover load. Successful performance of this product depends upon proper type of bedding and backfill, and care in installation. The structural design of corrugated PE pipe and the proper installation procedures are given in *AASHTO LRFD Bridge Design Specifications*, Section 12, and *LRFD Bridge Construction Specifications*, Section 30, respectively. Upon request of the user or engineer, the manufacturer shall provide profile wall section detail required for a full engineering evaluation.
- 1.5. The following precautionary caveat pertains only to the test method portion, Section 9.4, of this specification. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- R 16, Regulatory Information for Chemicals Used in AASHTO Tests
 - T 341, Determination of Compression Capacity for Profile Wall Plastic Pipe by Stub Compression Loading

- 3.7. *reworked plastic*—a plastic from a processor's own production that has been reground, pelletized, or solvated after having been previously processed by molding, extrusion, etc. (ASTM D883).
- 3.8. *slow crack growth*—a phenomenon by which a stress crack may form. A stress crack is an external or internal crack in plastic caused by tensile stresses less than its short-time mechanical strength.
- 3.9. *virgin polyethylene material*—PE plastic material in the form of pellets, granules, powder, floc, or liquid that has not been subject to use or processing other than required for initial manufacture.

4. CLASSIFICATION

- 4.1. *The corrugated PE pipe covered by this specification is classified as follows:*
 - 4.1.1. *Type C*—This pipe shall have a full circular cross section, with a corrugated surface both inside and outside. Corrugations shall be annular.
 - 4.1.1.1. *Type CP*—This pipe shall be Type C with perforations.
 - 4.1.2. *Type S*—This pipe shall have a full circular cross section, with an outer corrugated pipe wall and a smooth inner liner. Corrugations shall be annular.
 - 4.1.2.1. *Type SP*—This pipe shall be Type S with perforations.
 - 4.1.3. *Type D*—This pipe shall consist of an essentially smooth liner braced circumferentially or spirally with projections or ribs joined to an essentially smooth outer wall.
 - 4.1.3.1. *Type DP*—This pipe shall be Type D with perforations.
- 4.2. Two classes of perforations are as described in Sections 7.3.1 and 7.3.2.

5. ORDERING INFORMATION

- 5.1. *Orders using this specification shall include the following information, as necessary, to adequately describe the desired product:*
 - 5.1.1. AASHTO designation and year of issue;
 - 5.1.2. Type of pipe (Section 4.1);
 - 5.1.3. Diameter and length required, either total length or length of each piece and number of pieces;
 - 5.1.4. Number of couplings;
 - 5.1.5. Class of perforations (Class 2 is furnished if not specified) (Section 7.3); and
 - 5.1.6. Certification, if desired (Section 12.1).

7.2.2. *Liner Thickness*—The liner of Type S pipe, and both liner and outer wall of Type D pipe shall have the following minimum thicknesses when measured in accordance with Section 9.6.4.

Diameter, mm (in.)	Liner Thickness, Min ^a , mm (in.)
300 (12)	0.9 (0.035)
375 (15)	1.0 (0.04)
450 (18)	1.3 (0.05)
525 (21)	1.5 (0.06)
600 (24)	1.5 (0.06)
675 (27)	1.5 (0.06)
750 (30)	1.5 (0.06)
900 (36)	1.7 (0.07)
1050 (42)	1.8 (0.07)
1200 (48)	1.8 (0.07)
1350 (54)	2.0 (0.08)
1500 (60)	2.0 (0.08)

^a For Type D profile, the minimum liner thickness shall also apply to the outer wall.

7.2.3. *Inside Diameter Tolerances*—The tolerance on the specified inside diameter shall be 4.5 percent oversize and 1.5 percent undersize, but not more than 37 mm (1.5 in.) oversize when measured in accordance with Section 9.6.1.

7.2.4. *Length*—Corrugated PE pipe may be sold in any length agreeable to the user. Lengths shall not be less than 99 percent of the stated quantity when measured in accordance with Section 9.6.2.

7.3. *Perforations*—When perforated pipe is specified, the perforations shall conform to the requirements of Class 2, unless otherwise specified in the order. Class 1 perforations are for pipe intended to be used for subsurface drainage or combination storm and underdrain. Class 2 perforations are for pipe intended to be used for subsurface drainage only. The perforations shall be cleanly cut so as not to restrict the inflow of water. Pipe connected by couplings or bands may be unperforated within 100 mm (4 in.) of each end of each length of pipe. Pipe connected by bell and spigot joints may not be perforated in the area of the bells and spigots.

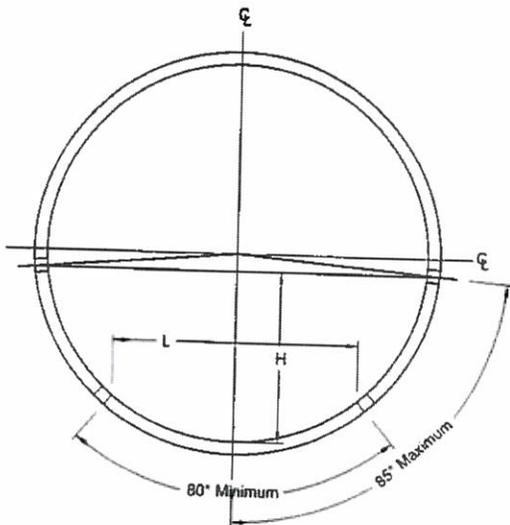


Figure 1—Requirements for Perforations

Table 1—Rows of Perforations, Height *H* of the Centerline of the Uppermost Rows above the Invert, and Chord Length *L* of Unperforated Segment, for Class 1 Perforations

Nominal Diameter, mm (in.)	Rows of Perforations ^a	<i>H</i> , Max, ^b mm (in.)	<i>L</i> , Min, ^b mm (in.)
300 (12)	6	138 (5.4)	192 (7.5)
375 (15)	6	172 (6.75)	240 (9.5)
450 (18)	6	207 (8.15)	288 (11.3)
525 (21)	6	241 (9.5)	336 (13.2)
600 and larger (24 and larger)	8		

^a Minimum number of rows. A greater number of rows for increased inlet area shall be subject to agreement between purchaser and manufacturer. Note that the number of perforations per meter in each row (and inlet area) is dependent on the corrugation pitch.

^b See Figure 1 for location of dimensions *H* and *L*.

^c $H(\text{max}) = 0.46D$, $L(\text{min}) = 0.64D$, where *D* = nominal diameter of pipe, mm.

7.3.1. **Class 1 Perforations**—The perforations shall be approximately circular and shall have nominal diameters of not less than 5 mm (0.2 in.) nor greater than 10 mm (0.4 in.) and shall be arranged in rows parallel to the axis of the pipe. For Type CP and SP pipe, the perforations shall be located in the external valleys with perforations in each row for each corrugation. (The perforations shall not cut into the corrugation sidewalls.) For Type DP pipe, perforations shall be located in the center of the cells. The perforations shall not cut into the vertical sections of the cells. The rows of perforations shall be arranged in two equal groups placed symmetrically on either side of the lower unperforated segment corresponding to the flow line of the pipe. The spacing of the rows shall be uniform. The distance between the centerlines of the rows shall not be less than 25 mm (1 in.). The minimum number of longitudinal rows of perforations, the maximum height of the centerlines of the uppermost rows of perforations above the bottom of the invert, and the inside chord lengths of the unperforated segments illustrated in Figure 1 shall be as specified in Table 1.

7.3.2. **Class 2 Perforations**—Circular perforations shall be a minimum of 5 mm (0.2 in.) and shall not exceed 10 mm (0.4 in.) in diameter. The width of slots shall not exceed 3 mm (0.1 in.). The length of slots shall not exceed 70 mm (2.75 in.) for 300 mm (12 in.) and 375 mm (15 in.) pipe and 75 mm (3 in.) for 450 mm (18 in.) and larger pipe. Perforations shall be placed in the external valleys for Type CP and SP pipe and in the center of the cells for Type DP pipe. Perforations shall be uniformly spaced along the length and circumference of the pipe. The water inlet area shall be a minimum of 30 cm²/m (1.5 in.²/ft) for pipe sizes 300 to 450 mm (12 to 18 in.) and 40 cm²/m (2 in.²/ft) for pipe sizes larger than 450 mm (18 in.). All measurements shall be made in accordance with Section 9.6.3.

7.4. **Pipe Stiffness**—The pipe shall have a minimum pipe stiffness at 5 percent deflection as follows when tested in accordance with Section 9.1.

Diameter, mm (in.)	Pipe Stiffness, kPa (psi)
300 (12)	345 (50)
375 (15)	290 (42)
450 (18)	275 (40)
525 (21)	260 (38)
600 (24)	235 (34)
675 (27)	205 (30) ^a
750 (30)	200 (29) ^a
900 (36)	155 (22.5) ^a
1050 (42)	145 (21) ^a
1200 (48)	135 (20) ^a
1350 (54)	120 (18) ^a
1500 (60)	105 (15) ^a

^a For diameters 675 mm (27 in.) and larger, the stiffness test is conducted at a higher loading rate than ASTM D2412 as described in Section 9.1.

- 7.5. *Pipe Flattening*—Pipe specimens shall show no visual evidence of cracking, splitting, delamination, or buckling. Pipe specimens shall not show a decrease or downward deviation in the load-deflection curve during the pipe flattening test when the pipe is tested in accordance with Section 9.2. Either visual evidence or a downward deviation in the load-deflection curve would constitute a failing test result.
- 7.6. *Brittleness*—Pipe specimens shall not crack or split when tested in accordance with Section 9.3. Five nonfailures out of six impacts will be acceptable.
- 7.7. *Stub Compression Test*—Profile compression capacity in any specimen in the stub compression test shall not be less than 50 percent of the gross cross-sectional area times the minimum specified yield strength when tested in accordance with Section 9.8. The stub compression test, AASHTO T 341, shall be a material and wall design qualification test conducted twice a year or whenever there are changes in wall design or material distribution. Computing the minimum capacity requires determining the cross-sectional area of the pipe wall. This can be accomplished conveniently by optically scanning the profile and determining the section properties using a computer drafting program.
- 7.8. *Fitting Requirements:*
- 7.8.1. The fittings shall not reduce or impair the overall integrity or function of the pipe line.
- 7.8.2. Common corrugated fittings include in-line joint fittings, such as couplings and reducers, and branch or complementary assembly fittings such as tees, wyes, and end caps. These fittings are installed by various methods.
- 7.8.3. All fittings shall be within an overall length dimensional tolerance ± 12 mm (0.5 in.) of the manufacturer's specified dimensions when measured in accordance with Section 9.6.2.
- 7.8.4. Fittings shall not reduce the inside diameter of the pipe being joined by more than 12 mm (0.5 in.). Reducer fittings shall not reduce the cross-sectional area of the small size.
- 7.8.5. Couplings shall be corrugated to match the pipe corrugations and shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Couplings shall be bell and spigot or split collar. Split couplings shall engage at least two full corrugations on each pipe section.
- 7.8.6. The design of the fittings shall be such that when connected with the pipe, the axis of the assembly will be level and true when tested in accordance with Section 9.5.2.
- 7.8.7. Other types of coupling bands or fastening devices that are equally effective as those described, and that comply with the joint performance criteria of *AASHTO LRFD Bridge Construction Specifications*, Section 30, may be used when approved by the purchaser.
- 7.9. Only fittings supplied or recommended by the pipe manufacturer should be used. Fabricated fittings should be supplied with joints compatible with the overall system. All joints shall meet the requirements of a soiltight joint unless otherwise specified by the owner/designer.
- 7.9.1. *Soiltight joints* are specified as a function of opening size, channel length, and backfill particle size. If the size of the opening exceeds 3 mm (0.12 in.), the length of the channel must be at least four times the size of the opening. A backfill material containing a high percentage of fine-graded soils requires investigation for the specific type of joint to be used to guard against soil infiltration. Information regarding joint soiltightness criteria can be found in *AASHTO LRFD Bridge Construction Specifications*, Section 30, "Thermoplastic Pipe."

- 7.9.2. *Silt-tight joints* should be used where the backfill material has a high percentage of fines. Silt-tight bell and spigot joints will utilize an elastomeric rubber seal meeting ASTM F477. Silt-tight joints must be designated to pass a laboratory pressure test of at least 14 kPa (2 psi).
- 7.9.3. *Watertight joints* must meet a 74 kPa (10.8 psi) laboratory test per ASTM D3212 and utilize a bell and spigot design with a gasket meeting ASTM F477.

8. CONDITIONING

- 8.1. *Conditioning*—Condition the specimen prior to test at 21 to 25°C (70 to 77°F) for not fewer than 24 h in accordance with Procedure A in ASTM D618 for those tests for which conditioning is required, and unless otherwise specified.
- 8.2. *Conditions*—Conduct all tests at a laboratory temperature of 21 to 25°C (70 to 77°F) unless otherwise specified herein.

9. TEST METHODS

- 9.1. *Pipe Stiffness*—Select a minimum of two (2) pipe specimens and test for pipe stiffness (PS), as described in ASTM D2412 except for the following: (1) the test specimens shall be a minimum of one diameter length for 300-mm (12-in.) to 600-mm (24-in.) diameter pipe, and one-half diameter length for pipe diameters greater than 600 mm (24 in.); (2) locate the first specimen in the loading machine with an imaginary line connecting the two seams formed by the corrugation mold (end view) parallel to the loading plates, when applicable. The specimen must lie flat on the plate within 3 mm (0.12 in.) and may be straightened by hand bending at room temperature to accomplish this. Use the first location as a reference point for rotation and testing of the other specimen. Rotate the second specimen 90 degrees from the orientation of the first specimen and test. Test each specimen in one position only; (3) the deflection indicator shall be readable and accurate to ±0.02 mm (0.001 in.); (4) the residual curvature found in tubing frequently results in an erratic initial load-deflection curve. When this occurs, the beginning point for deflection measurement shall be at a load of 20 ± 5 N (4.5 lbf ± 1.1 lbf). The point shall be considered as the origin of the load-deflection curve; (5) the crosshead speed shall be the faster of 12.7 mm min (0.5 in./min) or 2 percent of the nominal inside diameter per minute.

Note 2—The parallel plates must exceed the length of the test specimen as specified above.

Note 3—Additional pipe specimens may be tested at other orientations for pipe stiffness and flattening if desired.

- 9.2. *Pipe Flattening*—Flatten the two pipe specimens from Section 9.1 until the vertical inside diameter is reduced to the buckling deflection limit calculated in Section 9.2.1. The rate of loading shall be the same as in Section 9.1. The specimen shall fail if the load-deflection curve decreases in load-carrying capacity (i.e., buckling) at or below the deflection point determined by the equation in Section 9.2.1. The specimen shall fail if buckling, cracking, splitting, or delamination is observed with the unaided eye. The observations for cracking, splitting and delamination shall be made while the specimen is at maximum deflection, and immediately after the load is released from the specimen; observation for buckling shall be as defined in Section 3.4.

- 9.2.1. The buckling deflection limit shall be determined by the following equation:

$$\Delta b = \frac{6.15\% \times 0.5D}{D_f \times 0.6 \times hp}$$

which simplifies to:

$$\Delta b = \frac{1.20D}{hp}$$

where:

- Δb = Minimum buckling deflection limit, percent (%)
- D = Inside diameter of pipe, mm (in.)
- D_f = Shape factor = 4.27
- hp = Corrugation height, mm (in.)

Note 4—The constant value 6.15 percent in the equation is the factored combined strain limit for HDPE pipe per *AASHTO LRFD Bridge Design Specifications*, Section 12.

Note 5—The constant value 0.6 in the equation is an estimated centroidal distance for typical profiles produced per this specification.

- 9.2.2. It is permissible to run the pipe stiffness test in conjunction with the pipe flattening test as long as individual evaluations are made for their respective criteria as specified under Sections 7.4 and 9.1 (stiffness) and Sections 7.5, 9.2, and 9.2.1 (flattening).
- 9.3. *Brittleness*—Test pipe specimens in accordance with ASTM D2444 except six specimens shall be tested, or six impacts shall be made on one specimen. In the latter case, successive impacts shall be separated by 120 ± 10 degrees for impacts made on one circle, or at least 300 mm (12 in.) longitudinally for impacts made on one element. Impact points shall be at least 150 mm (6 in.) from the end of the specimen. Tup B shall be used, with a mass of 4.5 kg (10 lb). The height of drop shall be 3.0 m (10 ft). Use a flat plate specimen holder. Condition the specimens for 24 h at a temperature of $-4 \pm 2^\circ\text{C}$ ($25 \pm 3.6^\circ\text{F}$), and conduct all tests within 60 s of removal from this atmosphere. The center of the falling tup shall strike on a corrugation crown for all impacts.
- 9.4. *Slow Crack Growth Resistance of Polyethylene Pipe*—Test specimens from the pipe liner for stress crack resistance in accordance with ASTM F2136, the NCLS test, except for the following modifications:
- 9.4.1. The applied stress for the NCLS test shall be 4100 kPa (600 psi).
Note 6—The notched depth of 20 percent of the nominal thickness of the specimen is critical to this procedure.
- 9.4.2. The liner NCLS test specimens shall be die cut longitudinally from the pipe liner and notched on the outer surface of the liner, perpendicular to the direction of flow, as shown below in Figure 2.

9.6. *Dimensions:*

9.6.1. *Inside Diameter*—Measure the inside diameter of the pipe with a tapered plug in accordance with ASTM D2122. As an alternative, measure the inside diameter with a suitable device accurate to ± 3.0 mm (0.12 in.) by taking two inside diameter measurements, the first at the seam and the second 90 degrees from the seam, and averaging the two measurements. The average inside diameter shall meet the requirements of Section 7.2.3.

9.6.2. *Length*—Measure pipe with any suitable device accurate to ± 6.0 mm in 3 m (0.25 in. in 10 ft). Make all measurements on the pipe while it is stress-free and at rest on a flat surface in a straight line. These measurements may be taken at ambient temperature.

9.6.3. *Perforations*—Measure dimensions of perforations on a straight specimen with no external forces applied. Make linear measurements with instruments accurate to 0.2 mm (0.008 in.).

9.6.4. *Liner Thickness*—Measure the liner thickness in accordance with ASTM D2122.

9.7. *Delamination*—Examine Type S pipe for evidence of delamination as defined and described in Section 3.9 by cutting the pipe at the corrugation crest as shown in Figure 3 and attempting to insert a feeler gauge between the liner and the corrugation valley as shown in Figure 4. The feeler gauge should not pass through the corrugation valley into a void at any location along the circumference of the pipe.

Examine Type D pipe for evidence of delamination as defined and described in Section 3.9 by cutting a section through the pipe as shown in Figure 3 and attempting to insert a feeler gauge between the internal supports and the liner and outer wall as shown in Figure 4. The feeler gauge should not pass between the internal support and the liner or outer wall at any point along the circumference of the pipe.

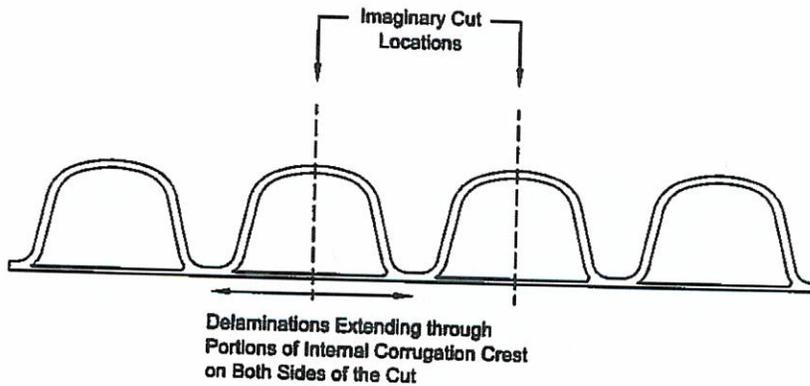


Figure 3—Location of Pipe Cut

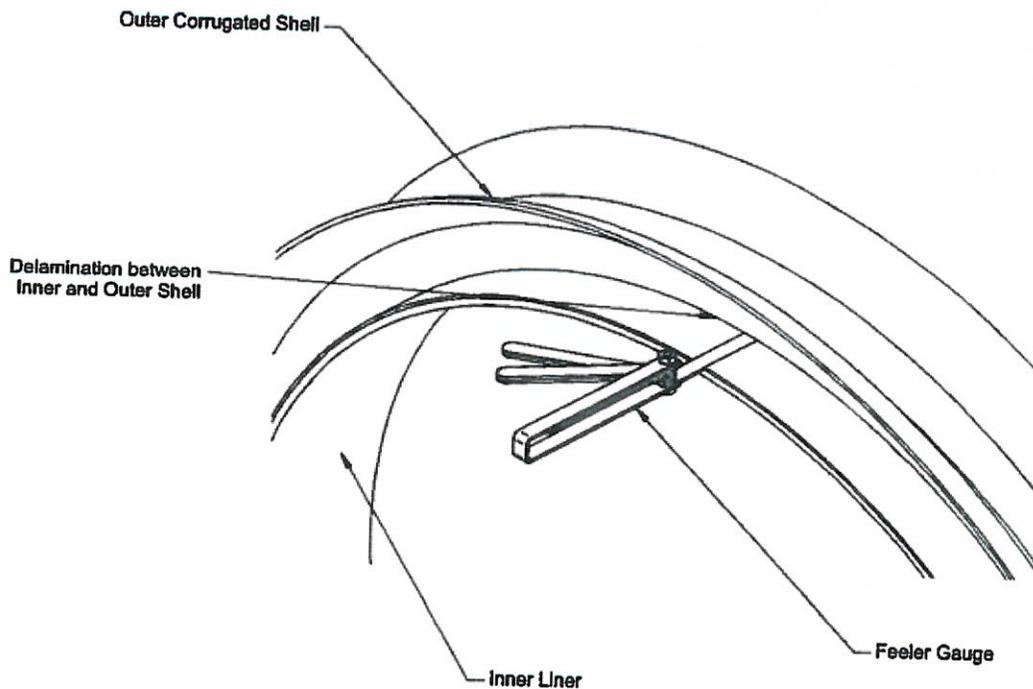


Figure 4—Feeler Gauge Insertion

- 9.8. *Stub Compression Capacity*—Determine the stub compression capacity of the pipe section in accordance with T 341. Conduct four tests on specimens cut from the same ring of pipe at 90-degree intervals around the circumference.

10. INSPECTION AND RETEST

- 10.1. *Inspection*—Inspection of the material shall be made as agreed upon by the purchaser and the seller as part of the purchase contract.
- 10.2. *Retest and Rejection*—If any failure to conform to these specifications occurs, the pipe or fittings may be retested to establish conformity in accordance with agreement between the purchaser and seller. Individual results, not averages, constitute failure.

11. MARKING

- 11.1. *All pipe shall be clearly marked at intervals of no more than 3 m (10 ft) as follows:*
- 11.1.1. Manufacturer's name or trademark;
- 11.1.2. Nominal size;
- 11.1.3. This specification designation, M 294;
- 11.1.4. The plant designation code; and

- X1.3.1.3. The methods of identification for each lot of material during manufacture, testing, storage, and shipment. The method of identification shall allow the specifying agency to trace the finished product to the material provider;
- X1.3.1.4. The method of sampling and testing of raw materials and finished product, including lot sizes and types of tests performed; and
- X1.3.1.5. A plan for dealing with nonconforming product, including how the producer plans to initiate immediate investigation and how corrective action will be implemented to remedy the cause of the problem.
- X1.4. *Approved Laboratory:*
- X1.4.1. All tests must be conducted at laboratories approved by the specifier. Each manufacturer may establish and maintain its own laboratory for performance of quality control testing or may utilize an approved independent laboratory. Records of instrument calibration and maintenance and sample collection and analysis must be maintained at the laboratory.
- X1.5. *Quality Control Technician:*
- X1.5.1. All samples must be taken and tested by the quality control technician designated by the producer. The designated quality control technicians will be responsible for overall quality control at the producing plant.
- X1.6. *Annual Update:*
- X1.6.1. An annual update may be required. If required, the annual update may be submitted by the manufacturer to the specifying agency by December 31st of each calendar year.
- X1.7. *Plant Approval:*
- X1.7.1. The plant approval process requires the manufacturer to submit an annual update to the specifying agency. The update must identify the specific product manufactured at the plant.
- X1.7.2. The specifying agency will review the manufacturer's written quality control plan and a plant inspection may be scheduled. This inspection will verify that the quality control plan has been implemented and is being followed and that at least one designated quality control technician is on-site and will be present when material is being produced under this program. The laboratory will be inspected and approved if it meets the requirements.
- X1.8. *Sampling and Testing:*
- X1.8.1. The quality assurance plan approved for each manufacturer, and/or manufacturer's location, shall detail the methods and frequency of sampling and testing for all raw materials and products purchased or manufactured at that location. All testing shall be in accordance with current specifications and procedures referenced in M 294.
- X1.8.2. Samples of materials and pipe may be taken by the specifying agency.
- X1.8.3. The specifying agency may require an annual third-party independent assurance test.
- X1.9. *Sample Identification and Record Keeping:*
- X1.9.1. Manufacturer's Quality Control samples are to be uniquely identified by the producing plant.

- X1.9.2. Quality control and quality assurance data are to be retained by the manufacturer for 2 years and made available to the specifying agency upon request.
- X1.9.3. Quality control test reports shall include the lot identification.
- X1.9.4. Unless requested at the time of ordering, test reports do not have to be filed for specific projects.
- X1.9.5. Reports shall indicate the action taken to resolve nonconforming product.

HANCOR SURE-LOK® ST IB PIPE (per AASHTO) SPECIFICATIONS

Scope

This specification describes 4- through 60-inch (100 to 1500 mm) Hancor Sure-Lok ST IB pipe (per AASHTO) for use in gravity flow drainage applications.

Pipe Requirements

Sure-Lok ST IB pipe (per AASHTO) shall have a smooth interior and annular exterior corrugations.

- 4- through 10-inch (100 to 250 mm) shall meet AASHTO M252, Type S.
- 12- through 60-inch (300 to 1500 mm) shall meet AASHTO M294, Type S or ASTM F2306.
- Manning's "n" value for use in design shall be 0.012.

Joint Performance

Pipe shall be joined using a bell & spigot joint meeting AASHTO M252, AASHTO M294 or ASTM F2306. The joint shall be soil-tight and gaskets, when applicable, shall meet the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. A joint lubricant supplied by the manufacturer shall be used on the gasket and bell during assembly.

Fittings

Fittings shall conform to AASHTO M252, AASHTO M294, or ASTM F2306. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle gasket meeting the soil-tight joint performance requirements of AASHTO M252, AASHTO M294 or ASTM F2306.

Material Properties

Virgin material for pipe and fitting production shall be high density polyethylene conforming with the minimum requirements of cell classification 424420C for 4- through 10-inch (100 to 250 mm) diameters, or 435400C for 12- through 60-inch (300 to 1500 mm) diameters, as defined and described in the latest version of ASTM D3350, except that carbon black content should not exceed 4%. The 12- through 60-inch (300 to 1500 mm) virgin pipe material shall comply with the notched constant ligament-stress (NCLS) test as specified in Sections 9.5 and 5.1 of AASHTO M294 and ASTM F2306, respectively.

Installation

Installation shall be in accordance with ASTM D2321 and Hancor recommended installation guidelines with the exception that minimum cover in trafficked areas for 4- through 48-inch (100 to 1200 mm) diameters shall be one foot (0.3 m) and for 54- and 60-inch (1350 and 1500 mm) diameters shall be 2 ft (0.6 m) in single run applications. Backfill for minimum cover situations shall consist of Class 1, Class 2 (minimum 90% SPD) or Class 3 (minimum 90%) material. Maximum fill heights depend on embedment material and compaction level; please refer to Technical Note 2.01. Contact your local Hancor representative or visit our website at www.hancor.com for a copy of the latest installation guidelines.

Pipe Dimensions

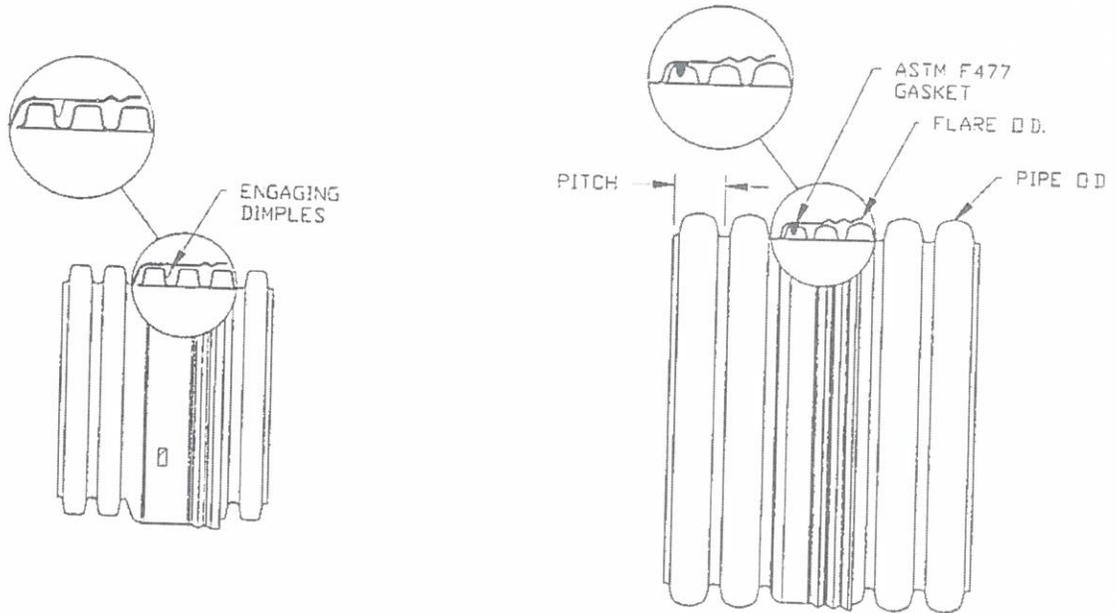
Pipe I.D. in (mm)	Nominal Diameter, in (mm)													
	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	15 (375)	18 (450)	24 (600)	30 (750)	36 (900)	42 (1050)	48 (1200)	54* (1350)	60 (1500)
Pipe O.D.** in (mm)	4.8 (122)	6.9 (175)	9.1 (231)	11.4 (290)	14.5 (368)	18 (457)	22 (559)	28 (711)	36 (914)	42 (1067)	48 (1219)	54 (1372)	61 (1549)	67 (1702)
Perforations	All diameters available with or without perforations													

*Check with sales representative for availability by region.

**Pipe O.D. values are provided for reference purposes only, values stated for 12- through 60-inch are ± 1 inch. Contact a sales representative for exact values.

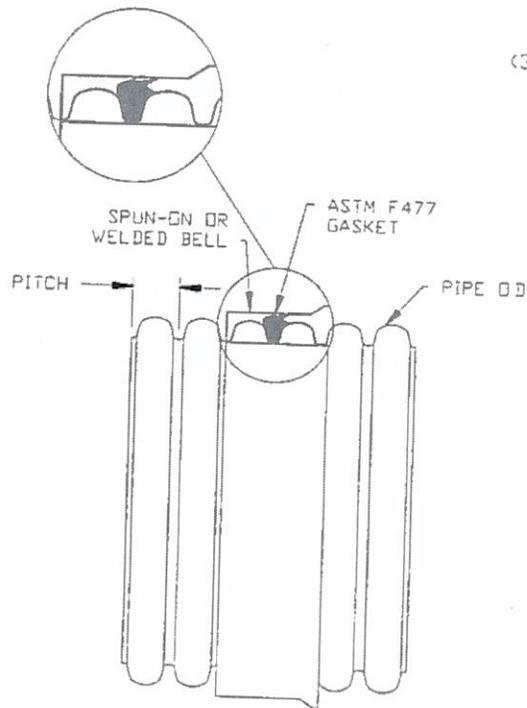
SURE-LOK® ST IB PIPE (per AASHTO) JOINING SYSTEM

(Joint configuration & availability subject to change without notice. Product detail may differ slightly from actual product appearance.)



4" - 10"
(100-250 MM)

12" - 60"
(300-1500 MM)



4" - 60"
(100-1500 MM)