

CERTIFICATE OF CONFORMANCE

The undersigned, sponsor of the sewer project designated

In accordance with the policy adopted by the Pine Bluff Wastewater Utility Commission, does hereby certify that the construction of the sewer facilities in said sewer project were completed in accordance with the approved plans and specifications of the Pine Bluff Wastewater Utility for said project; that the cost of the said project was the total sum of \$ _____; and that all bills and accounts for materials, labor and services have been paid in full.

Executed this _____ day of _____, 20

ACKNOWLEDGEMENT

STATE OF ARKANSAS } SS

COUNTY OF _____ }

BE IT REMEMBERED that on this day came before me, the undersigned, a Notary Public within and for the county and state aforesaid, duly commissioned and acting, to me well known as the Grantors in the foregoing instrument, and acknowledged that they each had executed the same for the consideration and purposes therein mentioned and set forth.

WITNESS my hand and seal as such Notary Public on this _____ day of _____, 20____

NOTARY PUBLIC

My commission expires: _____

BILL OF SALE

STATE OF ARKANSAS } SS

COUNTY OF _____ }

KNOW ALL MEN BY THESE PRESENTS:

That the undersigned _____
for and in consideration of the permission and consent of the Pine Bluff Wastewater Utility, to
connect the sewer facilities hereinafter described to the Pine Bluff Sanitary Sewer System and
the sum of One Dollar to the undersigned cash in hand paid by the Pine Bluff Wastewater Utility,
the receipt of which is hereby acknowledged, does hereby bargain, sell, convey, assign, transfer
and deliver to the Pine Bluff Wastewater Utility the following described property:

The completed sewer project known as

including all pipe, machinery, equipment, pumps, casements, fixtures and any and all other
property installed in the completed sewer project mentioned above.

TO HAVE AND TO HOLD the same unto the Pine Bluff Wastewater Utility, its
successors and assigns forever.

The undersigned does hereby warrant that all of the costs of the installation of the
sanitary sewer project mentioned above have been paid in full and that the same is free from any
and all encumbrances.

The undersigned does also warrant and guarantee all materials, equipment, and
workmanship to be free of defects, deficiencies, failures, and errors for a period of twelve (12)
months from the date of substantial completion as prescribed in the SANITARY SEWER
DESIGN GUIDELINES provided by the Pine Bluff Wastewater Utility.

WITNESS our hands and seals this _____ day of _____, 20 _____

ACKNOWLEDGEMENT

STATE OF ARKANSAS } SS

COUNTY OF _____ }

BE IT REMEMBERED that on this day came before me, the undersigned, a Notary Public within and for the county and state aforesaid, duly commissioned and acting, to me well known as the Grantors in the foregoing instrument, and acknowledged that they each had executed the same for the consideration and purposes therein mentioned and set forth.

WITNESS my hand and seal as such Notary Public on this _____ day of _____, 20____

NOTARY PUBLIC

My commission expires: _____

SEWER MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That, _____, as Principal and,
_____, as Surety are held and firmly bound
unto the Pine Bluff Wastewater Utility, as Obligee, in the amount of
_____ Dollars (\$_____)
for the payment whereof Principal and Surety bind themselves, their heirs, executors,
administrators, successors, and assigns, jointly and severally, firmly by these presents:

Now, therefore, the condition of this obligation is such that if the Principal, upon receiving notice within a period of twelve (12) months from the date of acceptance of these sanitary sewer lines and appurtenances by the Pine Bluff Wastewater Utility, of defects, deficiencies, and/or errors in the following improvements: SANITARY SEWER PROJECT designated

shall promptly correct said defects and perform the necessary maintenance in keeping with the requirements of the approved plans and specifications for this project then such obligation shall be null and void; otherwise, it shall remain in full force and effect. Any suit under this bond must be instituted before the expiration of three (3) months from the end of the period of notification referred to above.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators, or successors of Owner.

Signed and sealed this _____ day of _____, 20 _____

PRINCIPAL

By _____

SURETY

By _____

Insurance Binder Attached

RIGHT OF WAY EASEMENT

Individual
Married
Corporation

KNOW ALL MEN BY THESE PRESENTS:

THAT I (WE), _____ and _____ Grantor (s) , for and in consideration of the sum of One Dollar (\$1.00) cash in hand paid by the Pine Bluff Wastewater Utility Commission, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, do hereby grant, bargain, sell and convey unto the City of Pine Bluff, for the use and benefit of the Pine Bluff Wastewater Utility Commission, Grantee, and unto its successors and assigns forever, a perpetual right, privilege and easement for the purpose of (1) laying, constructing, operating, maintaining, repairing, replacing, reconstructing, testing, inspecting and adding sewer mains and sewer lines, whether one or more, and appurtenances thereto, now and at different times in the future; (2) keeping the easement clear of all buildings and other improvements of any kind that would conflict or interfere with the Grantee's use of the easement; and (3) having the right of free ingress and egress across adjacent lands of the Grantor(s) to the lands more particularly described below.

The easement herein conveyed is over, upon, under, and across lands situated in the City of Pine Bluff, Jefferson County, Arkansas, and is more particularly described as follows:

An easement..... (description here)

Grantor(s), at the risk of Grantor(s), reserves the right to otherwise use the easement for purposes not prohibited herein so long as such use does not conflict or interfere with the Grantee(s) use of the easement in any way.

To have and to hold said easement, rights and privileges unto the said Grantee, and unto its successors and assigns forever, for the purpose aforesaid.

And said Grantor(s) covenant(s) with said Grantee, its successors and assigns, the Grantor(s) will forever warrant and defend the title to said easement and rights against the claims of all persons whomsoever and that said Grantee, its successors and assigns, shall have at all times the quiet use and enjoyment of said easement and rights.

IN WITNESS WHEREOF, I hereunto set my hand and seal this _____ day of _____, 20____

ACKNOWLEDGEMENT

STATE OF ARKANSAS } SS

COUNTY OF _____ }

BE IT REMEMBERED that on this day came before me, the undersigned, a Notary Public within and for the county and state aforesaid, duly commissioned and acting, to me well known as the Grantors in the foregoing instrument, and acknowledged that they each had executed the same for the consideration and purposes therein mentioned and set forth.

WITNESS my hand and seal as such Notary Public on this _____ day of _____, 20____.

NOTARY PUBLIC

My commission expires: _____

PINE BLUFF WASTEWATER UTILITY

CONTRACTOR/ENGINEERS/CONSULTANT APPLICATION FORM

Legal Name of Company or Firm (or Individual)		
Trade Name of Business (if different from above)		
Mailing Address		
Street Address (if different)		
City, State and Zip Code		
Name of Principal Officer, General Partner, or other Designated Authority		
Tax Identification Number		Date Company Started or Date of Incorporation
Telephone:	Facsimile:	E-Mail:

Type of Entity (check only one box)

- | | |
|---|---|
| <input type="checkbox"/> Sole Proprietor (SSN) ____ - ____ - ____ | <input type="checkbox"/> Partnership |
| <input type="checkbox"/> Corporation | <input type="checkbox"/> Personal Service Corporation |
| <input type="checkbox"/> Federal Government/Military | <input type="checkbox"/> State/Local Government |
| <input type="checkbox"/> Church or Church-Controlled Group | <input type="checkbox"/> Nonprofit Organization _____ |
| <input type="checkbox"/> Other (specify) _____ | |

Principal Activity of Business (check one box)

- | | | |
|--|---|--|
| <input type="checkbox"/> Construction | <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Warehousing | <input type="checkbox"/> Transportation | |
| <input type="checkbox"/> Finance/Insurance | <input type="checkbox"/> Wholesale | |
| <input type="checkbox"/> Retail | <input type="checkbox"/> Accommodation & Food Service | |
| <input type="checkbox"/> Engineering | <input type="checkbox"/> Consultant | |

Estimated Cost of Work to be performed: _____

Number of Employees: ☐ 1-5 ☐ 6-15 ☐ 16-25 ☐ 26-40 ☐ 41+ Estimate of Years in Business _____

Principal line of merchandise sold; specific construction work done; products produced; or services provided.

Has the applicant ever worked for Pine Bluff Wastewater Utility in the past? ☐ yes ☐ no
 If funding has been received from this organization in the past, please indicate the amount and for what purpose?

Under penalty of perjury, I declare that I have examined this application, and to the best of my knowledge and belief it is true, correct and complete.
Name and Title (type/print clearly)>
Signature >



**SEWER SERVICE APPLICATION
FOR NEW COMMERCIAL PROPERTY AND SUB-DIVISIONS**

APPLICATION DATE _____

APPLICANT NAME (Please Print) _____

MAILING ADDRESS OF APPLICANT _____

HOME/BUSINESS PHONE # _____ MOBILE # _____

DEVELOPER NAME _____

MAILING ADDRESS OF DEVELOPER _____

ENGINEER/CONSULTANT NAME _____

HOME/BUSINESS PHONE # _____ MOBILE # _____

ADDRESS/LOCATION OF PROPERTY _____

INTENDED USE OF THE PROPERTY: APARTMENTS _____ OFFICE _____ DUPLEX _____ CHURCH _____ OFFICE _____
INDUSTRIAL _____ MANUFACTURING _____ RETAIL _____ OTHER _____ EXPLAIN _____

PROJECTED DEVELOPMENT START DATE: _____

PROJECTED DEVELOPMENT COMPLETION DATE: _____

WILL THE FOLLOWING DEVICES BE REQUIRED?

OIL SEPARATOR:	YES _____	NO _____
SAND TRAP:	YES _____	NO _____
OIL/GREASE SEPARATOR:	YES _____	NO _____

**SITE PLAN OR SKETCH REQUIRED ON ALL PROJECTS, SHOWING BUILDINGS,
STREETS, HIGHWAYS, ETC.**

I, the undersigned, understand that this application for sewer service is for the Utilities information only. The latest revised edition of the Sanitary Sewer Extension Procedure and Detail (SSEPD) Specification manual has the necessary guidelines to proceed with this project. NO SEWER SERVICE INSTALLATION, BY PBWU OR OTHERS, IS PERMITTED WITHOUT PERMISSION AS OUTLINED IN THE SSEPD SPECIFICATION MANUAL.

SIGNATURE OF APPLICANT _____

DATE _____

SSEPD specification manual available via .pdf file at www.pbwastewater.com. Hardcopies may be printed from this site or by request at the office of Pine Bluff Wastewater Utility. Contact the Engineering Department for additional information @ (870) 535-6603.



PINE BLUFF WASTEWATER UTILITY
INVITATION TO BID -- NOT AN ORDER
1520 S. OHIO ST.
PINE BLUFF, ARKANSAS 71601
870-535-6603

BID NO: XX-XX

AD DATES: Day, Month, XX & Month X, 2018
BID OPENING DATE: Month XX, 2018

Sealed bids, subject to the conditions on the reverse hereof, and as may be attached hereto, will be received at the above address until 10:00 A.M., on Day, Month XX, 2018 and then publicly opened, for furnishing the crane as described below.

F.O.B.: Pine Bluff, AR

BY: David Dean
Division Director
870-543-0808

All Sales Tax and Delivery Charges must be itemized and included in the Bid amount submitted
Maximum delivery after issuance of Purchase Order by the Utility as noted below: 30 days

BID SCHEDULE

ITEM #	DESCRIPTION	QTY	UNIT	AMOUNT
X	XXXX	X	X	
	See attachment for detailed specifications			
		DLVY		\$
		TAX		\$
		TOTAL		\$

EXECUTION OF BID

We, the undersigned, have read all the requirements set forth in this bid proposal including specifications, instructions, conditions and pertinent information regarding the articles being bid on, and we agree to furnish these articles at the prices stated.

Date: _____

Arkansas Use Tax Register No. _____ Telephone: _____ Fax: _____

Federal Identification No. (Inc.) _____ Sole Proprietor Social Sec. # _____

Bidder _____ Address _____

By _____ City, State & Zip _____
(PERSON AUTHORIZED TO SIGN BIDS) (TITLE)

BIDS MUST BE SUBMITTED ON THIS FORM
UNSIGNED BIDS WILL BE REJECTED.
CONDITIONAL BIDS WILL BE REJECTED.

NOTICE TO BIDDERS: SEE REVERSE SIDE FOR INSTRUCTIONS AND CONDITIONS
BIDS MUST BE SUBMITTED ON THIS FORM

**PINE BLUFF WASTEWATER UTILITY
CONDITIONS OF BIDDING**

COMPLIANCE WITH THE FOLLOWING CONDITIONS IS NECESSARY FOR BID CONSIDERATION

1. SIGNATURE - This bid must be signed with the firm name and by an authorized officer, employee, or agent.
2. SALES OR USE TAX - **IS** to be included in the bid price, but is to be added by the vendor to the invoice billing to the Utility. The Utility is not exempt from Arkansas Sales & Use Tax.
3. FREIGHT/DELIVERY - charges to destination (at designated Utility facility) must be included on the bid submitted. Charges may not be added after the bid is opened.
4. DISCOUNTS - Show rate, total amount, and last day any discounts will be allowed after receipt of article and invoice, otherwise, Utility will deduct allowed discount when payment is made.
5. FIRM PRICE - All prices quoted will remain firm for at least 30 days from date of bid opening, unless otherwise specified by the Utility or bidder.
6. ARKANSAS PREFERENCE - The request for preference must be in writing (when bid is submitted) to be considered as a factor in awarding a contract.
7. IDENTICAL BIDS - In the event of two or more identical low bids, the contract may be awarded arbitrarily or for any reason to either bidder or split (in any proportion) between the lowest bidders at discretion of the Utility.
8. LIQUIDATED DAMAGES - Liquidated damages shall be assessed beginning on the first day following the maximum delivery or completion time entered on this bid form and/or provided for in the plans and specifications.
9. AMBIGUITY IN BID - Any ambiguity resulting from omission, error, lack of clarity or noncompliance by the bidder (i.e. specifications, instructions, and all conditions of bidding) shall be construed in the light most favorable to Utility.
10. The City reserves the right to reject any and all bids, to accept in whole or in part any bid, to waive any formalities in bids received. The City reserves the right to accept bids on materials or equipment with variations from specifications in those cases where efficiency of operation will not be impaired and (unless otherwise specified by the bidder) to accept any item in the bid. If unit prices and extensions thereof do not coincide, the Utility may accept the bid for the lesser amount whether reflected by the extension or by the correct multiple of the unit price.
11. CONFLICT OF INTEREST - any personal association with PBWU's employees or financial interest that interferes, or appears to interfere, with an individual's ability to do what is in the best interest of the Utility and may result in a direct or indirect personal gain or benefit to the individual.
12. FREEDOM OF INFORMATION ACT - Under the Freedom of Information Act (FOIA) all information pertaining to a bid/quote is accessible to the public following the bid opening.

**INSTRUCTIONS TO BIDDERS
(PLEASE READ CAREFULLY)**

1. Submit bids using the bid form on reverse side of this sheet.
2. Address all bids to Pine Bluff Wastewater Utility, Attention: Patricia Cole, Procurement Analyst. Please indicate the identifying bid number on the envelope containing your bid.
3. DO NOT include Federal Excise tax in bid. Utility will furnish exemption certificate.
4. State the Manufacturer, Brand Name, Model, etc. for each item bid.
5. Samples of items, when required, must be furnished free of charge. If those samples are not called for within 30 days from date of bid opening, they will be disposed of by the Utility.
6. Bids received after stated bid opening time will not be considered.
7. Read all conditions and verify amounts before submitting bids. No changes or additions will be allowed after the bid opening.
8. Guarantees and warranties should be attached (as a part of the bid) as they may be a consideration in awarding a contract.
9. Delivery date or contract completion time is to be shown on the bid. If time is of the essence, the delivery date may be a determining factor in the award.
10. Additional information may be obtained from the Division Director at 870-535-6603, Ext 113.

THIS CITY RESERVES THE RIGHT TO ACCEPT PART OR ALL OF ANY SPECIFIC BID OR BIDS,
AND TO ACCEPT ANY BID WITH OR WITHOUT TRADE-IN. THE CITY FURTHER RESERVES THE
RIGHT TO REJECT ALL BIDS, OR PART OR ALL OF ANY SPECIFIC BID OR BIDS.

PINE BLUFF WASTEWATER UTILITY

1520 S. OHIO ST. • PINE BLUFF, ARKANSAS 71601-6055 • PHONE: (870) 535-6603 • FAX (870) 535-6243

FOOD PREPARATION APPLICATION FOR NEW CONSTRUCTION

APPLICATION DATE _____

APPLICANT INFORMATION:

NAME _____

ADDRESS _____

CITY, ST, ZIP _____

TELE _____

CELL _____

BUSINESS INFORMATION:

NAME _____

ADDRESS _____

CITY, ST, ZIP _____

TELE _____

CELL _____

INTENDED USE OF THE PROPERTY:

RESTAURANT _____ SCHOOL _____ SOUP KITCHEN _____

CHURCH _____ DAYCARE _____ OTHER _____

FACILITIES PRESENT ON THE PROPERTY:

FLOOR DRAINS _____ BAR SINKS _____ MOP SINKS _____

3 COMP. SINKS _____ HAND WASH SINKS _____ DISHWASHERS _____

GRILL _____ DEEP FRYERS _____ OVEN _____

PIZZA OVEN _____ BROILERS _____ STOVE/RANGE _____

PROJECTED DEVELOPMENT START DATE: _____

PROJECTED DEVELOPMENT COMPLETION DATE: _____

PLUMBING PLAN REQUIRED ON ALL PROJECTS, SHOWING ALL FACILITIES.

I, the undersigned, understand that this application for sewer service is for the Utilities information only. The latest revised edition of the Pine Bluff Wastewater Utility Operations, Plans, and Procedures Manual has the necessary guidelines to proceed with this project. NO SEWER SERVICE INSTALLATION, BY PBWU OR OTHERS, IS PERMITTED WITHOUT PERMISSION AS OUTLINED IN PBWU OPERATIONS, PLANS, AND PROCEDURES MANUAL.

SIGNATURE OF APPLICANT _____

DATE _____

"Serving our Community while Protecting the Environment"

PINE BLUFF WASTEWATER UTILITY

1520 S. OHIO ST. • PINE BLUFF, ARKANSAS 71601-6055 • PHONE: (870) 535-6603 • FAX (870) 535-6243

GREASE TRAP SIZING FORM

Business Name _____

Street Address _____

Contact Person _____ Phone # _____

Other Information _____

Date Received _____ Date Due _____

Kind of Fixture	Units	# of Fixtures	Total	Comments
Floor Drain	1			
Bar Sinks	2			
Wash Sinks	3			
Hand Wash Sinks	1			
Constant Flow	2/gpm			
Misc.				
Dishwashers	See below			

Grand Total

Dishwasher FUs are based upon the maximum discharge rate divided by 7.5 gpm.

Trap Size (in gallons) = total FUs x 7.5 gpm x 12

COMMENTS: _____

TRAP SIZE REQUIRED _____

COMPLETED BY: _____

DATE: _____

MISSION

We are committed to provide our customers with efficient, reliable service while protecting the public health and maintaining a clean environment.

SANITARY SEWER EXTENSION CHECK OFF LIST

Project Title _____

Developer's Information

Name: _____

Address: _____

City, St, Zip: _____

Phone, Fax: _____

Website: _____

	<u>BY</u>	<u>DATE</u>
1. Preliminary Project Approval Given:	_____	_____
2. Construction Plans & Specs Received:	_____	_____
3. Construction Plans & Specs Approved:	_____	_____
4. R-O-W Easements Received/Approved:	_____	_____
5. Written Approval for Project Start:	_____	_____
6. Testing Completed & Accepted:	_____	_____
7. As-Built Plans Received & Approved:	_____	_____
8. R-O-W Easements Filed at Court House:	_____	_____
9. Certificate of Conformance Received:	_____	_____
10. Bill of Sale Received & Approved:	_____	_____
11. Maintenance Bond Received & Approved:	_____	_____
12. Project Final Inspection & Approval:	_____	_____
13. Written Approval Issued by Utility:	_____	_____
14. Project Accepted by Utility Commission:	_____	_____

VACUUM MANHOLE TESTING

The standard test of 10" Hg (Mercury) shall be used.

Start the vacuum pump assembly, open the inlet/outlet ball valve and evacuate the manhole to 10" Hg.

Close vacuum inlet/outlet ball valve, disconnect vacuum pump and monitor vacuum for the specified time period. (See Table Below) If the vacuum does not drop in excess of 1" Hg over the specified time period, the manhole is considered acceptable and passes the test.

VACUUM TEST TIMETABLE

DEPTH - FEET	DIAMETER - INCHES		
	48"	60"	72"
4'	10 sec.	13 sec.	16 sec.
8'	20 sec.	26 sec.	32 sec.
12'	30 sec.	39 sec.	48 sec.
16'	40 sec.	52 sec.	64 sec.
20'	50 sec.	65 sec.	80 sec.
24'	60 sec.	78 sec.	96 sec.
*	05 sec.	6.5 sec.	8.0 sec.
**Add "T" times for each additional 2' depth. (The values listed above have been extrapolated from ASTM designation C924-85.)			

Note: Repeat the above test procedure after backfilling for final acceptance test.

LOW PRESSURE AIR TESTING

1. For Testing: Clean pipe to be tested by propelling snug fitting inflated rubber ball through the pipe with water.
2. Plug all pipe outlets with test plugs. Brace each plug securely.
3. If the pipe to be tested is submerged in groundwater, insert a pipe probe by boring or jetting into the backfill material adjacent to the center of the pipe, and determine the pressure in the probe when air passes slowly through it. This is the back pressure due to ground water submergence over the end of the probe. All gauge pressures in the test shall be increased by this amount.
4. Add air slowly to the portion of the pipe installation under test until the internal air pressure is raised to 4.0 psig above back pressure, but less than 5.0 psig.
5. After an internal pressure of 4.0 psig above back pressure is obtained, allow at least two minutes for air temperature to stabilize, adding only the amount of air required to maintain pressure, but less than 5.0 psig.
6. When pressure decreases to 3.5 psig above back pressure, start stopwatch. Determine the time in seconds that is required for the internal air pressure to reach 3.0 psig. Minimum permissible pressure holding times for runs of single pipe diameter are indicated in the following table:

AIR TESTING

PIPE SIZE	TIME FOR VARIOUS PIPE LENGTHS								
INCHES	PIPE LENGTHS								
	50'	100'	250'	200'	250'	300'	350'	400'	450'
	TIME IN MINUTES & SECONDS								
6	5:40	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	9:26	9:26	9:26	9:26	11:52	13:51	15:49	17:48
12	11:20	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:47	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33

PRESSURE AND LEAKAGE TESTING OF FORCE MAINS

All force mains from the pump station to the discharge shall be pressure tested and tested for leakage prior to being accepted by PBWU and placed into service. Air testing of pressure pipe is prohibited. Force mains shall be hydrostatically tested as follows:

The pressure test shall be for a minimum of two (2) hours and shall be at a pressure of 150% of maximum working pressure or 50 psi, whichever is greater. (Minimum test pressure shall be 50 psi) The test shall be conducted in the presence of an authorized representative of PBWU, and shall be performed with a test pump and meter assembly specifically designed and manufactured for the purpose of pressure and leakage testing of water and sewage pressure pipelines. During the test period, the force main route shall be walked and carefully examined for evidence of leakage or surface disturbance, indicating movement of a blocked fitting. The test shall be as specified in the American Water Works Association (AWWA) Standard C600, latest revision. The allowable leakage shall be the water required by the test pump to maintain the test pressure in the line continuously during the test, with a drop of line pressure of no greater than 5% of the test pressure. The leakage metered by the test assembly shall not exceed the allowable leakage as specified in AWWA C600, latest revision, as calculated by the following formula:

$$L = SD\sqrt{P}/148,000$$

Where: L = allowable leakage in gallons per hour
S = length of pipeline section subject to test
D = nominal diameter of pipe subject to test
P = test pressure, psig
For closed valves subject to test, add 0.0078 gallons/hour/inch of nominal diameter of valve

Sample Calculation:

Force Main Diameter: 6 inches
Length of Test Section: 1,000 feet
Maximum Pressure during operation: 40 feet TDH = 17.32 psig. (Use minimum 50 psig)
2 – closed valves (discharge valves in Pump Station)

$$L = SD\sqrt{P}/148,000 = (1,000 \times 6 \times \sqrt{50})/148,000 + 2 \times .0078 \times 6 \\ = 42,426.41/148,000 + 0.09 =$$

L = 0.38 gallons per hour, or 0.76 gallons for a two hour test.

**ICM INSTRUMENT
REPAIRS & PARTS**[Pipe Lasers](#)[Rotating Lasers](#)[Gas Detectors](#)[Metal Detectors](#)[ICM News Page](#)[Used Equipment](#)[Email ICM](#)[Construction Info
& Link Page](#)[Employment](#)Credit Card Form
We Accept

Deflection Gauges (mandrels) are used to test flexible sewer pipes for out-of-roundness or deflection. This testing ensures that flexible pipe has been properly bedded and back-filled to give optimum performance.

(Per ASTM Designation D2321-89).

Cherne's adjustable aluminum gauges utilize a nine arm design to ensure the pipe is tested accurately-often required in mandrel design specifications. Accurately sized to .01" to meet ASTM requirements.

The Cherne Aluminum Fin Gauges are designed to allow gravel and debris to pass through easily. Other gauges can get hung up on rocks and obstructions causing a deflection test to fail even though the pipe is within deflection tolerances causing a great expense for the contractor.

- Constructed of lightweight aluminum, gauges will not rust and are up to 75% lighter than comparable steel models.

- Economical and versatile patented design features interchangeable fins for various pipe sizes.

- Cherne's unique fin design allows for accurate field size verification using a tape measurer or yardstick. Simply put two fins end-to-end and measure the width. Add one inch to that dimension and you have the outside diameter of the deflection gauge.

- Fins for gauges 4" through 15" have a skid size equal to the nominal pipe size, ensuring the gauge meets regional codes. This also guarantees that the gauge will not tip in the line.

- Fin design assembles easily without tools and all sizes fit through a standard 24" manhole.

- **Larger & Custom Sizes Available!**

Width + 1" = Deflection gauge outside diameter

Cherne's Fin Style Deflection Gauges are designed to be field verified by inspectors without the need for a proving ring. Simply place two fins end to end as pictured above and measure the width. Add one inch for the mandrel and you have the outside dimension of the gauge. Using this method simplifies the inspector's job of verifying sizing on deflection gauges.

Part Number	Set/Size(s)	Gauge Diameter	Pipe	Deflection	Product Weight
Aluminum Fin Set Kits (Includes Box, Fins, and Mandrel)					
285 688	6", 8" & 10"	Mandrel	SDR 26	5%	18 lbs (8.2kg)
285 698	8", 10" & 12"	Mandrel	SDR 26	5%	19 lbs (8.6kg)
285 005	6", 8" & 10"	Mandrel	SDR 35	5%	18 lbs (8.2kg)
285 021	8", 10" & 12"	Mandrel	SDR 35	5%	19 lbs (8.6kg)
285 013	6", 8" & 10"	Mandrel	SDR 35	7.5%	18 lbs (8.2kg)
285 048	8", 10" & 12"	Mandrel	SDR 35	7.5%	19 lbs (8.6kg)
Fin Sets (Using 10" Mandrel)					
285 617	10" Mandrel (Good for fins from 4" - 15")				4 lbs (1.8kg)
285 056	4"	3.70"	SDR 35	5%	2 lbs (0.9kg)
285 072	6"	5.46"	SDR 35	5%	4 lbs (1.8kg)
285 080	8"	7.28"	SDR 35	5%	5 lbs (2.3kg)
285 099	10"	9.08"	SDR 35	5%	6 lbs (2.8kg)
285 102	12"	10.79"	SDR 35	5%	6 lbs (2.8kg)
285 110	15"	13.20"	SDR 35	5%	6 lbs (2.8kg)
285 137	4"	3.60"	SDR 35	7.5%	2 lbs (0.9kg)
285 153	6"	5.31"	SDR 35	7.5%	4 lbs (1.8kg)
285 161	8"	7.09"	SDR 35	7.5%	5 lbs (2.3kg)
285 188	10"	8.84"	SDR 35	7.5%	6 lbs (2.8kg)
285 196	12"	10.51"	SDR 35	7.5%	6 lbs (2.8kg)
285 218	15"	12.86"	SDR 35	7.5%	6 lbs (2.8kg)
285 638	6"	5.33"	SDR 26	5%	4 lbs (1.8kg)
285 648	8"	7.11"	SDR 26	5%	5 lbs (2.3kg)
285 658	10"	8.87"	SDR 26	5%	6 lbs (2.8kg)
285 668	12"	10.55"	SDR 26	5%	6 lbs (2.8kg)
285 678	15"	12.86"	SDR 26	5%	6 lbs (2.8kg)
Fin Sets (Using 24" Mandrel)					
285 250	24" Mandrel (Good for fins 18" - 48")				11 lbs (5.0kg)
285 536	18"	16.13"	SDR 35	5%	8 lbs (3.6kg)

285 544	21"	19.00"	SDR 35	5%	8 lbs (3.6kg)
285 552	24"	21.36"	SDR 35	5%	8 lbs (3.6kg)
285 595	27"	24.06"	SDR 35	5%	9 lbs (4.1kg)
285 560	18"	15.70"	SDR 35	7.5%	8 lbs (3.6kg)
285 579	21"	18.50"	SDR 35	7.5%	8 lbs (3.6kg)
285 587	24"	20.80"	SDR 35	7.5%	8 lbs (3.6kg)
285 609	27"	23.43"	SDR 35	7.5%	9 lbs (4.1kg)
285 323	18"	16.53"	Spirolite	5%	8 lbs (3.6kg)
285 331	21"	19.30"	Spirolite	5%	8 lbs (3.6kg)
285 358	24"	22.08"	Spirolite	5%	8 lbs (3.6kg)
285 366	27"	24.84"	Spirolite	5%	9 lbs (4.1kg)
285 374	30"	27.62"	Spirolite	5%	9 lbs (4.1kg)
285 382	33"	30.38"	Spirolite	5%	10 lbs (4.5kg)
285 390	36"	33.15"	Spirolite	5%	11 lbs 5.0kg)
285 404	42"	38.68"	Spirolite	5%	12 lbs (5.4kg)
285 412	48"	44.21"	Spirolite	5%	13 lbs (5.9kg)

Part Number	Size	Pipe	Deflection	Product Weight
Proving Rings				
073 199	6"	SDR 35	5%	4 oz (.11kg)
073 202	8"	SDR 35	5%	4 oz (.11kg)
073 210	10"	SDR 35	5%	6 oz (.17kg)
073 229	12"	SDR 35	5%	6 oz (.17kg)
073 237	15"	SDR 35	5%	7 oz (.20kg)
075 968	18"	SDR 35	5%	9 oz (.26kg)
073 245	6"	SDR 35	7.5%	4 oz (.11kg)
073 253	8"	SDR 35	7.5%	4 oz (.11kg)
073 261	10"	SDR 35	7.5%	6 oz (.17kg)
073 288	12"	SDR 35	7.5%	6 oz (.17kg)
073 296	15"	SDR 35	7.5%	7 oz (.20kg)
075 876	18"	SDR 35	7.5%	9 oz (.26kg)
Larger & Custom Sizes Available				

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