1949

Papers Concerning Logan Water Works; Estimates, bids quotes

Dean F. Peterson
Utah State University

Alvin A. Bishop
Utah State University

June 29, 1949

Logan, Utah
Letting: 5:00 P.M.
July 6, 1949

Gentlemen:

In reply to your inquiry for bids to be received until 5:00 P.M., July 6, 1949, we are pleased to offer the following quotation for your acceptance within ten days after opening date of bids and subject to the conditions noted under the date line of this letterhead:

A.S.A. CLASS 100 BELL AND SPIGOT PIPE USING 18-40 METAL IN 12-FT. LENGTHS; SUPER-deLAVAUD CLASS 100 BELL AND SPIGOT PIPE CENTRIFUGALLY CAST IN 18-FT. LENGTHS AS PER FEDERAL SPECIFICATION WW-P-421 TYPE ONE; A.W.W.A. CLASS B BELL AND SPIGOT FITTINGS. ALL MATERIAL TO BE TAR COATED.

5,900-ft.	36" Class 100 B&S Pipe, 12' lgths., having a metal thickness of .87" and a weight per foot of 351.7#.	$ 19.88/ft.
10,422-ft.	30" Class 100 B&S Pipe, 12' lgths., having a metal thickness of .79" and a weight per foot of 266.6#.	15.07/ft.

As an alternate to the 30" pipe:

10,422-ft.	24" Class 100 B&S Pipe, 18' lgths., having a weight per foot of 168.6#.	9.56/ft.

Qty.	Class				Wgt. Each	Price Each
1	B	36" x 24"	Reducer	S.E.B.	1411#	$ 177.80
7	B	36" 11-1/4°	Bends	B&S	2100	264.60
9	B	36" 22-1/2°	"	"	2916	367.40
10	B	30" 11-1/4°	"	"	1540	194.0[illegible]
7	B	30" 22-1/2°	"	"	1528	192.[illegible]

Qty.	Class		Wgt. Each	Price Each
4	B	30" 45° Bends B&S	1684#	$ 212.20
6	B	24" 11-1/4° Bends B&S	1080	130.70
6	B	24" 22-1/2° " "	1072	129.70
4	B	24" 45° Bends B&S	1181	142.90
1	B	30" x 24" Reducer, S.E.B., Short Pattern	1063	133.95
1	B	30" x 24" S&F (Flange for steel OD)	1000	146.00
	B	24" x 6" B&B&F Tee	1324	186.70
	B	30" x 6" " "	1448	211.40
	B	36" x 6" " "	2070	302.20
	B	24" B&S Blow-Off Branches - No Manhole	916	129.15
	B	30" ditto, except with manhole	2152	313.80
	B	36" " " " "	2745	400.45

Prices quoted are f.o.b. cars our foundry with carload freight allowed to Logan, Utah, exclusive of unloading charges, sales and use tax, based on present published carload freight rate. Any variation in this rate at time of shipment to be for your account. This carload rate is based on a 60,000# minimum car.

Under present conditions we estimate we could start shipment of the 36" pipe within seven months, start shipment of the 30" pipe within four and one-half months and start shipment of the 24" pipe within three months. On shipment of the different diameters of pipe we would proceed with shipments at a rate to meet reasonable construction needs. This shipment, of course, is based on our receipt of the order and full information at shop, subject to prior sale of space and all conditions beyond our control.

Terms - Net cash thirty days from date of invoice.

We thank you for the opportunity of submitting our quotation and hope that in the event you are the low bidder you will favor us with an order.

Very truly yours,

J. Leslie Hart

J. Leslie Hart
Asst. Western Sales Manager

JLH:eh

QUOTATION

HARDESTY DIVISION

ARMCO DRAINAGE & METAL PRODUCTS, INC.

SALT LAKE CITY BOISE CALDWELL TWIN FALLS JEROME ONTARIO NYSSA DENVER
643 SO. 3RD WEST STREET, SALT LAKE CITY 10, UTAH P. O. BOX 926 TELEPHONES 3-3873, 3-6257

Project Logan City Corp. - Water Works Improvements
Dewitt Spring to Davis Camp - Logan Canyon
Logan, Cache County, Utah

Bids Opening *Date* July 6, 1949
Time 5:00 P. M.
Place Logan City offices

Item No.	Description	Weight	Unit Price
	Following Spiral Welded Steel Pipe & Fittings as per Specifications, furnished in 50' lengths with Beveled Ends		
	5900' 36" O. D. per ft.	113.0#	$11.87
	10442' 30" O. D. " "	93.5	8.82
	Alternate 10442' 24" O. D. per ft.	74.6	6.89
	1 - 36 to 30" Reducer each	400	111.32
	Alternate 1 - 36" to 24" Reducer each	370	110.32
	1 - 30" to 24" Reducer "	320	97.74
	1 - 6" Standpipe - not attached "	42	17.46
	1 - 36" x 6' Intake Sleeve - Flanged one End each	808	165.27
	1 - 36" Flange - not attached "	208	78.60
	1 - 36 x 36" - Model 115 Headgate complete, with 7' Frame each	950	214.90
	Approx. 30' 6" -10 ga. Spiral Welded Steel Pipe - Drain Line - Dipped & Wrapped per ft.	8.3	1.08
	1 - 6" -90° Elbow - Flanged each	49	28.79
	1 - 6" c. S. Flanges attached to above Pipe each	12	6.75
	6 - Air Relief Chamber Vent Pipes consisting of 12' of 6" -12 ga. Dipped & Wrapped Pipe with 1 - 90° Elbow attached each	100	25.00
	Style 40 Dresser Couplers		
	Approx. 15 - 36" O. D. each	373	191.78
	" 26 - 30" O. D. "	311	158.41
	" 26 - 24" O. D. Alternate "	249	99.02

Terms: *F. O. B.*

Above prices quoted for immediate acceptance unless otherwise stated; apply only to Project specified, subject to conditions on reverse side of this sheet. *Shipment*

Accepted, subject to being awarded contract

By _____

Date _____

Armco Drainage & Metal Products, Inc.

By D. J. Stoker

Title State Manager - Utah & Idaho

Sheet 2 of
2 sheets

QUOTATION

HARDESTY DIVISION

ARMCO DRAINAGE & METAL PRODUCTS, INC.

SALT LAKE CITY BOISE CALDWELL TWIN FALLS JEROME ONTARIO NYSSA DENVER
643 SO. 3RD WEST STREET, SALT LAKE CITY 10, UTAH P. O. BOX 926 TELEPHONES 3-3873, 3-6257

Project Logan City
Dewitt Springs - Davis Camp

Bids Opening *Date* July 6, 1949
Time 5:00 P. M.
Place Logan City Offices

Item No.	Description	Weight	Unit Price	
	Style 38 Dresser Couplers for all Couplers joints, alternate to field welding, as per Addendum #2			
	Approx. 120 - 36" O. D. Each	160#	$30.38	
	" 220 - 30" O. D. "	135	24.74	
	" 220 - 24" O. D. "	105	19.82	
	ALL THE ABOVE PRICES ARE SUBJECT TO 2% UTAH STATE SALES TAX			

Terms: ½ of 1% 10 days, net 30 days with interest at 6% per annum thereafter

F. O. B. All items except Dresser Couplers - jobsite Stockpiles where accessable to trucks & trailer. Dresser Coupler - cars Logan

Shipment commence approx. 60 days and complete in approx. 30 days thereafter.

Above prices quoted for immediate acceptance unless otherwise stated; apply only to Project specified, subject to conditions on reverse side of this sheet.

Accepted, subject to being awarded contract

By _____

Date _____

Armco Drainage & Metal Products, Inc.

By L. J. Stoker

Title State Manager - Utah & Idaho

3100

THE GALIGHER COMPANY

ESTABLISHED 1901

CABLE ADDRESS
GALSAL

TELEPHONE
ELgin 9-8731

545-585 WEST EIGHTH SOUTH STREET
P. O. BOX 209
SALT LAKE CITY 10, UTAH

— QUOTATION —

DATE April 4, 1961

YOUR INQUIRY

QUOTATION NO. 33757

IN REPLY PLEASE REFER TO QUOTATION NUMBER

Mr. Dean Peterson
71 North Second West
Logan, Utah

Subject: Deep Well Turbine Pump for
2250 GPM at 60' TDH

In reply to your request for quotation, we are pleased to quote as follows:

4 ea. Peerless Deep Well Turbine Pumps, water-lubricated, consisting of 40 HP, 1760 RPM, 440 volt, 3 phase, 60 cycle, vertical hollowshaft, high thrust, dripproof motor, 10 x 10 x 16½ discharge head with manual pre-lubrication, 60' of 10" column with 1-3/16" shaft, 1 stage of 14HXB cast iron bowl with bronze impeller, 10" cone-type galvanized suction strainer.

PRICE f.o.b. Los Angeles with freight allowed to destination---$2,490.00 ea.
$9,960.00 lot

4 ea. General Electric Pumping Plant Panels #EOW6A4T.

PRICE f.o.b. Logan, Utah----------$ 270.00 ea.
$ 1,080.00 lot

2760 / 40 / 60'

TERMS: To be arranged at time of order.

DELIVERY: 3 - 4 weeks after receipt of order and approval of drawings.

In the event of an order, or future correspondence, kindly refer to our Quotation No. 33757.

We trust that this proposal will have your favorable consideration.

THE GALIGHER COMPANY

Enc: Bulletin #B-139-1,
Curve #2812677

Sam J. Potts

Sales Engineer
Sam J. Potts/db

THE GALIGHER COMPANY

ESTABLISHED 1901

CABLE ADDRESS
GALSAL

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545-585 WEST EIGHTH SOUTH STREET
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THE GALIGHER COMPANY

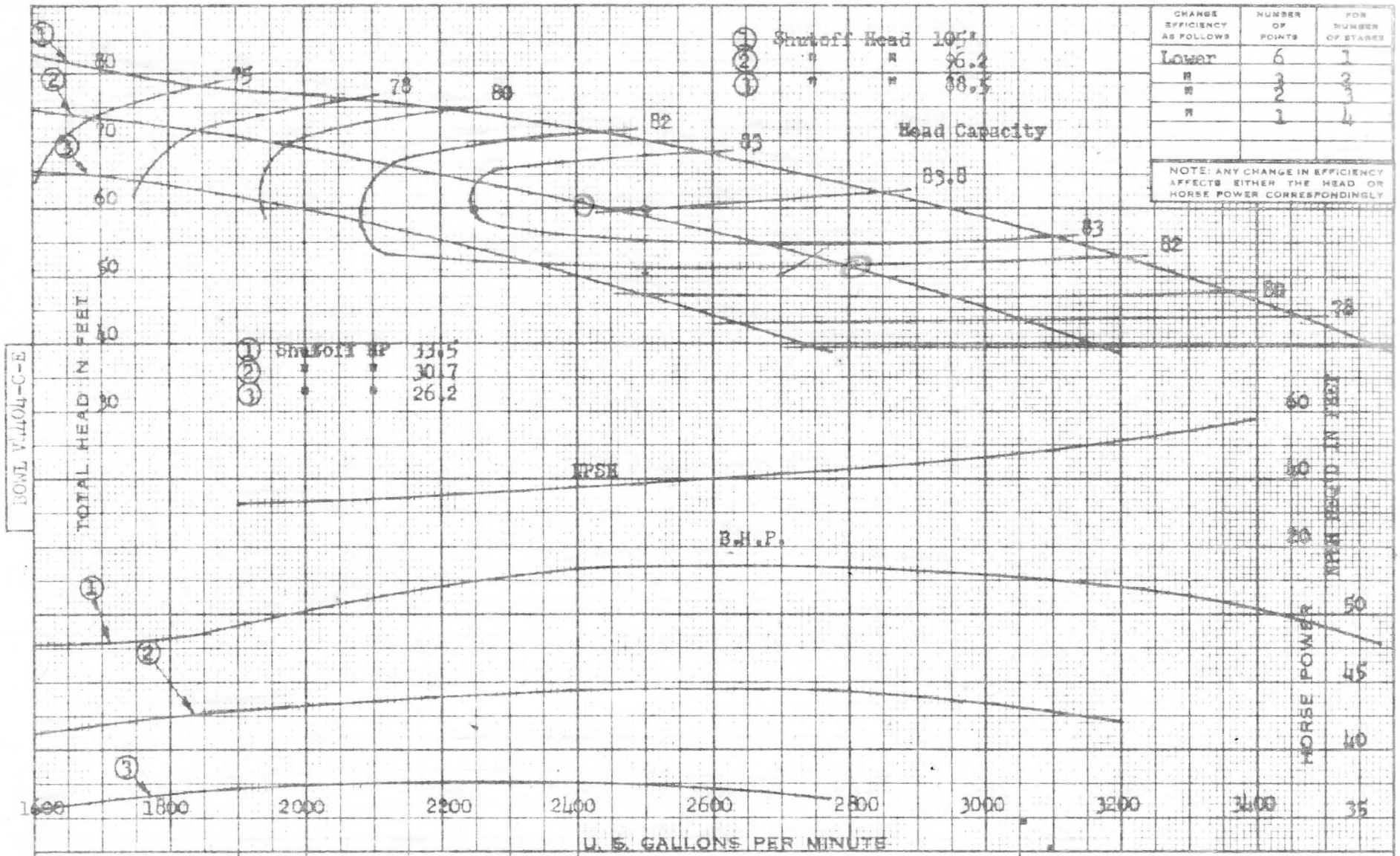
Enc: Bulletin #B-139-1,
Curve #2812677

Sam J. Potts
Sales Engineer
Sam J. Potts/db

SUBJECT TO CONDITIONS ON REVERSE SIDE

Supplies and Equipment for Every Industry

Manufacturers · Mining · Milling · Laboratory Equipment · Ore Testing · Plant Designing · Construction · Operation



CHANGE EFFICIENCY AS FOLLOWS	NUMBER OF POINTS	FOR NUMBER OF STAGES
Lower	6	1
"	3	2
"	2	3
"	1	4

NOTE: ANY CHANGE IN EFFICIENCY AFFECTS EITHER THE HEAD OR HORSE POWER CORRESPONDINGLY

BOWL VL400-C-E

HYDRAULIC PERFORMANCE (GUARANTEED AT THE DESIGNATED POINT ONLY)	CURVE NO.	IMPELLER NO.	IMPELLER DIA.	TAKEN FROM
Efficiency must be reduced for bronze & special material bowls - See Application Section	1	VL400C	9-7/16 x 10-13/16	27677
	2	VL400C	9-1/16 x 10-7/16	27807
	3	VL400C	8-11/16 x 10-7/16	

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
LOS ANGELES 31, CALIFORNIA

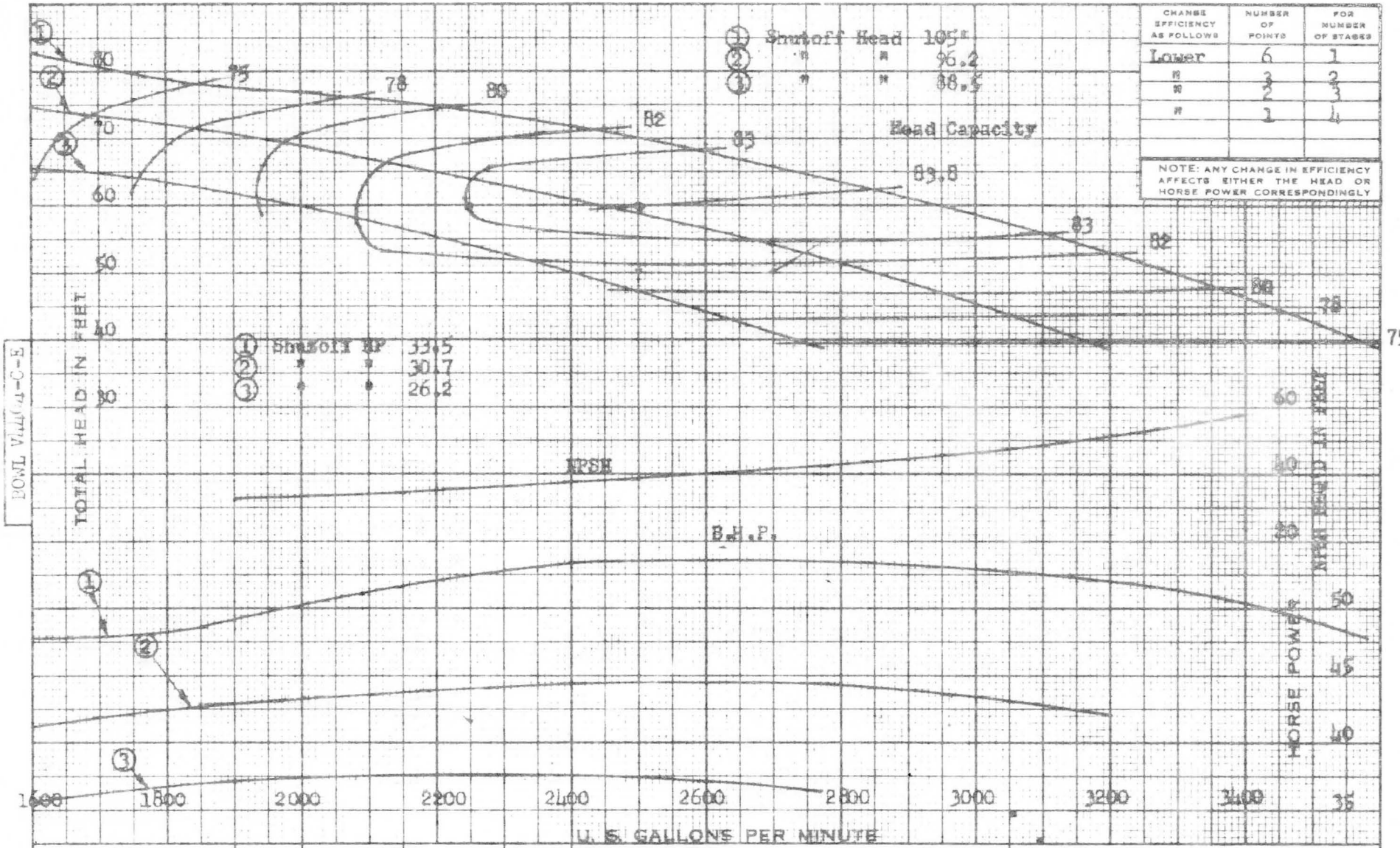
PERFORMANCE PER STAGE

14 HXB

1760 R. P. M.

SHEET NO. 2-12677

DISTRIBUTED BY THE GALIGHER CO.
545 West 8th South — P. O. Box 209
SALT LAKE CITY 10, UTAH - ELgin 9-8731



CHANGE EFFICIENCY AS FOLLOWS	NUMBER OF POINTS	FOR NUMBER OF STAGES
Lower	6	1
"	3	2
"	2	3
"	1	4

NOTE: ANY CHANGE IN EFFICIENCY AFFECTS EITHER THE HEAD OR HORSE POWER CORRESPONDINGLY

HYDRAULIC PERFORMANCE (GUARANTEED AT THE DESIGNATED POINT ONLY)	CURVE NO.	IMPELLER NO.	IMPELLER DIA.	TAKEN FROM
Efficiency must be reduced for bronze & special material bowls - See Application Section	1	VL400C	9-7/16 x 10-13/16	27677
	2	VL400C	9-1/16 x 10-7/16	27807
	3	VL400C	8-11/16 x 10-1/16	

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
LOS ANGELES 31, CALIFORNIA

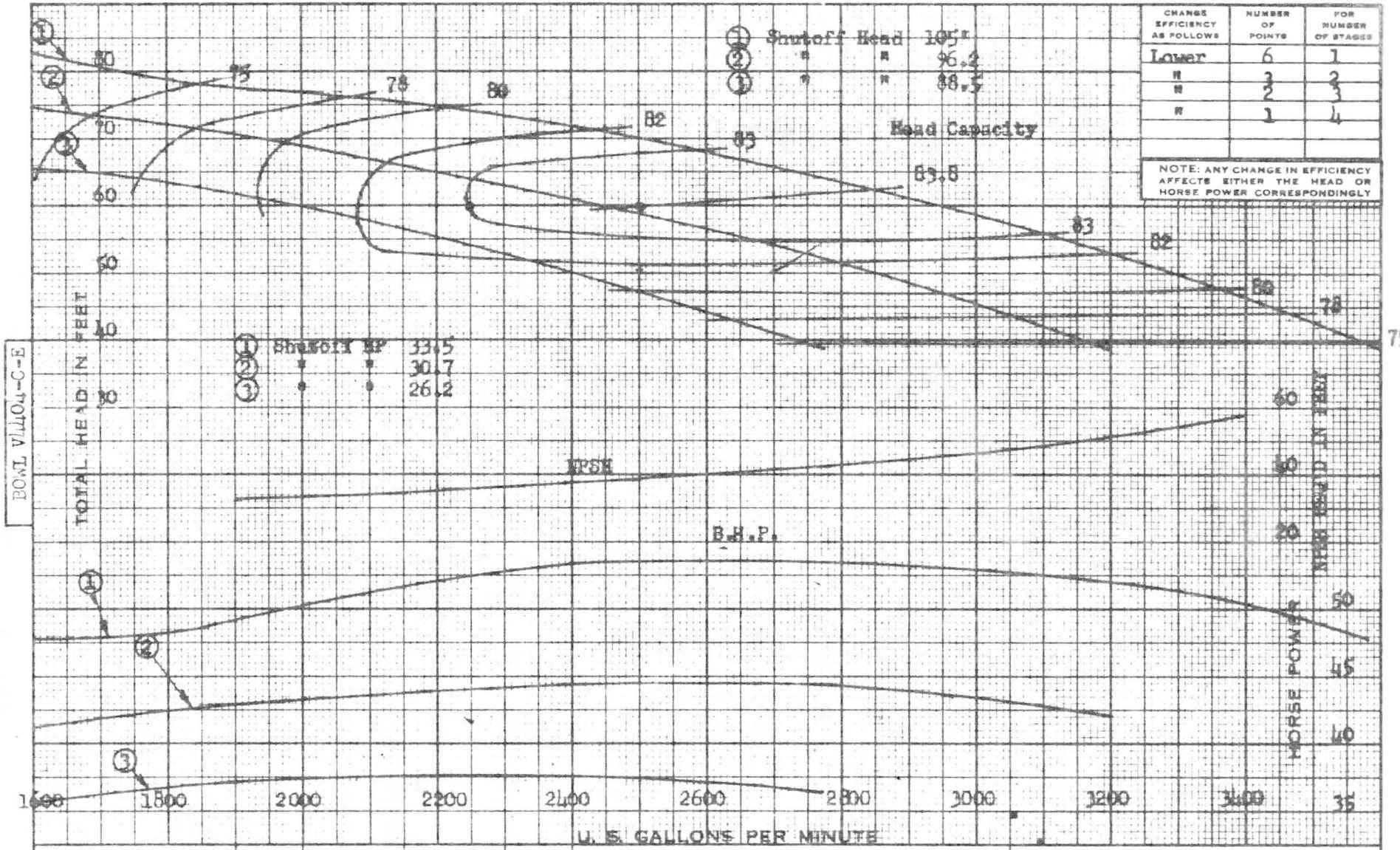
PERFORMANCE PER STAGE

14 HXB

1760 R. P. M.

SHEET NO. 2512677

DISTRIBUTED BY THE GALIGHER CO.
545 West 8th South — P. O. Box 209
SALT LAKE CITY 10, UTAH - ELgin 9-8731



CHANGE EFFICIENCY AS FOLLOWS	NUMBER OF POINTS	FOR NUMBER OF STAGES
Lower	6	1
"	3	2
"	2	3
"	1	4

NOTE: ANY CHANGE IN EFFICIENCY AFFECTS EITHER THE HEAD OR HORSE POWER CORRESPONDINGLY

HYDRAULIC PERFORMANCE	CURVE NO.	IMPELLER NO.	IMPELLER DIA.	TAKEN FROM
GUARANTEED AT THE DESIGNATED POINT ONLY. Efficiency must be reduced for bronze & special material bowls - See Application Section	1	VL4000C	9-7/16 x 10-13/16	27677
	2	VL4000C	9-1/16 x 10-7/16	27807
	3	VL4000C	8-11/16 x 10-1/16	

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
LOS ANGELES 31, CALIFORNIA

PEERLESS PUMP

PERFORMANCE PER STAGE

14 HXB

1760 R. P. M.

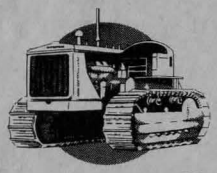
SHEET NO. 2-12677

13.	Perforating production wells 300 feet at $3.50 per ft.	$1050.00
14.	Testing production wells 150 hours at $17.50 per hour	2625.00
		$55,935.00

PETERSON AND BISHOP

Glenn F. Peterson

Wayne Briggs



PROFIT WITH Caterpillar REG.U.S. PAT.OFF.

Wheeler MACHINERY CO.

330 WEST 21ST SOUTH STREET
SALT LAKE CITY 15, UTAH
TELEPHONE HUNTER 7-7811

June 22, 1962

TO Logan City Corporation
Logan, Utah

QUOTATION

THIS QUOTATION REFLECTS PRESENT PRICES, BUT IS SUBJECT TO ADJUSTMENT TO WHATEVER MANUFACTURERS PRICES EXIST AT TIME OF SHIPMENT.

WHETHER OR NOT SPECIFICALLY SET FORTH, THIS QUOTATION IS SUBJECT TO FEDERAL OR STATE TAX THAT MAY BE APPLICABLE; ALSO TO FREIGHT CHARGES IF QUOTATION IS FOB FACTORIES.

WE ARE PLEASED TO QUOTE ON THE FOLLOWING, SUBJECT TO CONDITIONS LISTED BELOW.

QUANTITY	DESCRIPTION OF MATERIAL	GROUP NUMBER	APPROX. WT. POUNDS	UNIT PRICE	EXTENSIONS
1	Caterpillar G342 Naturally Aspirated Natural gas engine, 10.5:1 compression ratio----------		5,350	5,835.00	
	With the following installed equipment:				
	Air cleaner service indicator ---------		3	20.00	
	Rail type base ----------		220	172.00	
	Free flow engine cooler----------	18-61-24	1,200	520.00	
	Primary fuel filter ----------	3L8402	4	28.00	
	Maxim M21 (12-6") muffler for residential silencing, includes flex adapter------	5L8225	294	370.00	
	Enclosed clutch ----------	5L1375	400	430.00	
	Direct electric starting system------- 24 volt, batteries not included	5L5571	89	280.00	
	Charging generator----------	1L9677	70	140.00	
	Safety shutoff, overspeed oil pressure and water temp. actuated----------	4L3738	24	285.00	
	Gas shut-off valve----------	5L9314	7	75.00	
	Total FOB Factory ----------		7,661	8,155.00	
	Estimated Freight----------			459.66	
	FOB Salt Lake City __----------			8,614.66	

F. O. B.

Terms:

Approximate Delivery:

CONDITIONS:—This quotation subject to change without notice. Prices quoted are subject to existing taxes.

PROFIT WITH Caterpillar REG.U.S. PAT.OFF.

July 2, 1962

Honorable Logan City Commission
Logan, Utah

Gentlemen:

Our estimate for the cost of installing a deep-well turbine pump of 3150 G.P.M. capacity, 170 feet lift complete with electric motor drive; magnetic, reduced voltage starter; and 30 feet of outlet pipe and appurtenances for the well at Site No. 3 as detailed in our specifications dated June 19, 1962 complete in operable condition is Eleven Thousand Seven Hundred and Fifty Dollars, ($11,750.)

Dean F Peterson

Bishop & Peterson

Dec. 10, 1962

Mr. Ray Hugie
City Engineer
Logan, Utah

COPY

Dear Mr. Hugie

We have made an estimate for the cost of completing the well program based on the following assumptions:

1. Well 1 will be drilled to 1,000'; Well 2 to 900'. These two wells are estimated at 5 c.f.s. each.
2. Well 4 will be redrilled to 600' and will produce 10 c.f.s. We will take credit for the amount already paid the driller.
3. A booster pump station will be installed at Well 3 to pump 7.5 c. f. s. into the system whenever the reservoir or the line pressure drops below a certain amount. This will require approximately 75' of 16" pipe and a gate valve to be installed by the City.
4. A booster pump station will be installed at Well 2 to pump 5 c.f.s. into the line. This will require some work on the distribution system, tentatively estimated at 4,000' of 12" pipe and a check valve to be installed by City forces or by contract.

Paid prior to July 1, 1962	$23,202.00	
Paid since July 1, 1962	44,735.00	
Total to date		$67,937.00
Complete Well 1 with deep well pump	$21,537.50	
Complete Well 2 with deep well pump	15,550.00	
Redrill Well 4 and install deep well pump	24,512.00	
Regulate Canyon line	7,500.00	
Retention due T.S.I	6,130.00	
Engineering, etc	6,000.00	
Additional cost to complete wells equipped with deep well pumps and to regulate line to prevent waste		$81,229.50

Dec. 10, 1962

Booster at Well 3 including 75' 16" C.I. pipe and engineering		$30,000.00
Booster at Well 2 including 4,000' 12" C.I. and engineering		
Booster	$24,000.00	
Pipe	30,000.00	
		$56,000.00
Cost of booster program		$86,000.00

This would give us a good versatile system at this stage. It would probably require one year to fully complete. Some costs could be deferred by not installing the deep well pumps on some of the wells or by deferring one or both of the booster installations.

Consideration might be given to replacing the 7,800' 20-in. steel canyon line with 30-in. This would probably cost $175,000 to $200,000 although we have not gone into this from a price standpoint. We would imagine, also that you would want to place a higher priority than this on your master distribution system development.

DFP.

Bishop and Peterson

COPY

PACIFIC STATES CAST IRON PIPE CO.

McWANE-PACIFIC BOLTITE MECHANICAL JOINT • BELL AND SPIGOT PRESSURE PIPE • GATE VALVES • FIRE HYDRANTS

General Office and Foundries — P. O. Box 18, Provo, Utah

SALES DEPARTMENT

December 18, 1962

Logan City Corporation
c/o Engineering Department
Logan, Utah

Quotation No.

SUBJECT: Cast Iron Pipe & Valves

WE ARE PLEASED TO QUOTE YOU ON MATERIALS SET FORTH BELOW CONFORMING TO SPECIFICATIONS IN OUR CATALOG AND SUBJECT TO THE TERMS AND CONDITIONS AS MENTIONED ON THE BACK OF THIS SHEET AND HEREBY MADE A PART HEREOF ON THIS PROPOSAL, EXCEPT AS HEREINAFTER MODIFIED:

4" Class 250 tyton joint, thin cement lined, seal coated, Super DeLavaud cast iron pipe, (18'-1½" lgths)		PER FT.	1.41
6"	Ditto	"	2.13
8"	Ditto	"	3.04
10"	Ditto	"	4.01
12"	Ditto	"	5.14
14"	Ditto	"	6.72
4" Class 250 Boltite mechanical joint thin cement lined, seal coated, Super DeLavaud cast iron pipe, (18'-2" lgths)		PER FT.	1.47
6"	Ditto	"	2.21
8"	Ditto	"	3.15
10"	Ditto	"	4.15
12"	Ditto	"	5.31
14"	Ditto	"	6.95
4" List 4 Boltite hub end gate valve, with 2" sq. O.N., O.L., NRS			42.60
6"	Ditto		66.75
8"	Ditto		101.15

(Continued on Sheet No. 2)

PACIFIC STATES CAST IRON PIPE CO. Quotation No.

To **Logan City Corporatinn** Date **12/18/62** Sheet No. **-2-**

10" List 4, Boltite hub end gate valve with 2" sq. O.N., O.L., NRS	157.85
12" List 4, Boltite hub end gate valve with 2" sq. O.N., O.L., NRS	206.30
14" Mueller, mech. joint, gate valve with 2" sq. O.N., O.L., NRS	534.36

TERMS: NET 30 DAYS

PRICES ARE QUOTED F.O.B. TRUCKS, JOBSITE WHERE READILY ACCESSIBLE TO STANDARD TRUCK & TRAILER EQUIPMENT IN 42,000# MINIMUM TRUCKLOAD QUANTITIES. CUSTOMER TO FURNISH MEN & EQUIPMENT TO UNLOAD MATERIALS.

There are no agreements or verbal understandings outside of this proposal. The foregoing shall become a contract agreement only when accepted by you as purchaser and approved in writing by an executive officer of our company at our home office at Provo, Utah. And subject to the Terms and Conditions printed on the back of the first sheet of this quotation.

PACIFIC STATES CAST IRON PIPE COMPANY
PER: WATERWORKS EQUIPMENT COMPANY
By .....
William J. Speir*m Sales Office

(John J. Perkins)

To the PACIFIC STATES CAST IRON PIPE CO.:

Your proposal as above is hereby accepted this

.....day of.....19.....

.....

By: .....
(Title)

APPROVED AT PROVO, UTAH, this

.....day of.....19.....

By: .....
Vice-President and Treasurer

PACIFIC STATES CAST IRON PIPE CO.

McWANE-PACIFIC BOLTITE MECHANICAL JOINT • BELL AND SPIGOT PRESSURE PIPE • GATE VALVES • FIRE HYDRANTS

General Office and Foundries — P. O. Box 18, Provo, Utah

SALES DEPARTMENT

December 29, 1962

Logan City Corporation
c/o Engineering Department
Logan, Utah

Quotation No.

SUBJECT: C.I. Pipe & Valves

WE ARE PLEASED TO QUOTE YOU ON MATERIALS SET FORTH BELOW CONFORMING TO SPECIFICATIONS IN OUR CATALOG AND SUBJECT TO THE TERMS AND CONDITIONS AS MENTIONED ON THE BACK OF THIS SHEET AND HEREBY MADE A PART HEREOF ON THIS PROPOSAL, EXCEPT AS HEREINAFTER MODIFIED:

THIS SUPERSEDES & CANCELLS OUR QUOTATION DATED 12/18/62

4" Class 150 Tyton Loint, Thin Cement Lined, Seal Coated, Super DeLavaud Cast Iron Pipe, (18'-1½" Lgths)		per ft.	1.425
6"	Ditto		2.135
8"	Ditto		3.04
10"	Ditto		4.01
12"	Ditto		5.14
14"	Ditto		6.72
16"	Ditto		8.005
4" Class 150 Boltite Mech. Joint Thin Cement Lined Seal Coated, Super De Lavaud Cast Iron Pipe, (18'-2" lgths)		per ft.	1.485
6"	Ditto		2.215
8"	Ditto		3.15
10"	Ditto		4.15
12"	Ditto		5.31
14"	Ditto		6.95
16"	Ditto		8.265

(Continued on Sheet No. 2)

PACIFIC STATES CAST IRON PIPE CO. Quotation No.

To **Logan City Corporation** Date **12/29/62** Sheet No. **2**

4" List 4 Boltite Hub End Gate Valve, with 2" Sq. O.N., O.L., NRS	**42.60**
6" Ditto	**65.75**
8" Ditto	**101.15**
10" Ditto	**157.85**
12" Ditto	**206.30**
14" Mueller, Mech. Joint Gate Valve with 2" Sq. O.N., O.L., NRS	**534.36**
16" Ditto	**702.56**

TERMS: NET 30 DAYS

PRICES ARE QUOTED F.O.B. TRUCKS, JOBSITE WHERE READILY ACCESSIBLE TO STANDARD TRUCK & TRAILER EQUIPMENT IN 42,000# MINIMUM TRUCKLOAD QUANTITIES. CUSTOMER TO FURNISH MEN & EQUIPMENT TO UNLOAD MATERIALS.

PRICES FOR ESTIMATING ONLY

CC: Dr. Dean Peterson
School of Engineering
Utah State University
Logan, Utah

There are no agreements or verbal understandings outside of this proposal. The foregoing shall become a contract agreement only when accepted by you as purchaser and approved in writing by an executive officer of our company at our home office at Provo, Utah. And subject to the Terms and Conditions printed on the back of the first sheet of this quotation.

PACIFIC STATES CAST IRON PIPE COMPANY
Per WATERWORKS EQUIPMENT COMPANY
By .....

(John J. Perkins **William J. Speir*Sales Office**

To the PACIFIC STATES CAST IRON PIPE CO.:

Your proposal as above is hereby accepted this

.....day of.....19.....

.....

By: .....
(Title)

APPROVED AT PROVO, UTAH, this

.....day of.....19.....

By: .....
Vice-President and Treasurer

ESTIMATE FOR CONTROL WORKS. LOGAN LINE

by John Perkins - Dec. 1962

Butterfly Valve	#2,300	
Controls For Spring and Chlor.	5,000	
Chlorinator	3,000	
By-Pass Valves	2,000	
	#12,300	Est by Perkins
Valve Pit, engrg, Contingencies	1700	Est by D.F.P.
	#14.000	

Estimate Booster Station - Well 3

Building

Excavation and Backfill	**Item**	**Price**	
Ftgs 1.33 x 1.0 x 18.0 = 24.0			
2.0 x 2.0 x 5 = 32.0			
56.0	56 cy	2.00	112 00
Backfill - 20 c.y @	20 cy	2.00	40 00
Concrete			
Ftgs 80' x 3/2 x 2/3 = 80	80 c.f		
Walls 12.5 / 17.0 / 20.0 / 11.0 = 60.5' x 4.0	242		
10/21 x 5.67	176		
498 x 2/3 =	332.		
Beam - 2/3 x 2/3 x 5	2.		
Floor - 5/12 (16 x 19 = 304			
~~5 x 7.5 = 37.5~~ 3			
7 x 3 = 21.0			
3.5 x 3.5 = 12.3			
33.3 33 / 271 x 5/12	113		
Eqt Fdn 21 x 2	42		
Vault Cover 3 x 6.3 x 1/3	6.		
Roof 21 x 18 x 1/3 =	126		
	701		
	26.0 c.y.	100.00	2600 00
Brick work	3.25 M	140.00	455 00
14.0 / 17.0 / 20.0 / 9.0 = 60.0'	40 x 90 = 3600 less windows & doors		
	7 x 6 = 42		
	13.5 x 2.3 = 31		
73 a'	73 x 6.5		
3/2 x 12/11 (4) = 6.5 lb/a' = 500 lbs			
Tile - 60 x 9 = 540			
	73		
	477 a' @ .80		384 00
Carpentry			
2x6 x 10.0' x 17 = 170.0 BF			
2x8 x 10.0 x 9 = 120			
Plywood 9.8 / 20.0 = 29.8 x 8 x 2	480		
Siding - 10 x 17.	170	1 MBF 200.00	200 00
	940		3791.00
Roofing - 3.2 □ @ 50 00			- 160.00
Painting - 2.5 □ @ #20			50 00
			3901 00

Fwd 3901

Struct Steel

57' @ 11.8 = 674
22' @ 6.5 = 143
8 X 10 X 2.75 = 220
6 X 5/12 X 5/12 X 15.3 16
Clips - 10
1363 #

1720 # 0.20 354.00

Door frame. 14'. @ 11.5 # 161
Lintels. 21' @ 9.8 206
367

Doors - Installed 120.00
Windows - Installed 180.00

Misc Hardware - 75.00

Ventilator - 150.00
Heater 35.00
Electrical 100.00

20X17

$4915
10% 491
5406.00

16"

5400'
800'
2200
500
1780
1400

12080
1900
1300

15,280 ' 16" @ 10 - 152,800
16 500
$169 300

Loop to Crockett ave

~~4649~~ Valves 22 @ $750

Leave out Crockett Ave Loop

$120,800 @
17 Valves 12,750
$133,550

1,000,000 gal
Reservoir $75,000 -

6N. 64500
6000

19500
2250
21750

36,800
4500
41300

1950
6.75

13150
·630

86000
4900
400

17900
840
18740

60000
5

48,950
3350
300

~~32 40~~
13
31,200
2250
33 450

Logan City Corporation

Operating Cost on Well, Caterpillar Natural Gas Engine

Well #3, 3150 GPM, 185' design head
Estimated pump efficiency - 85%

HP required = $\frac{\text{GPM X H}}{\text{3960 x pump eff.}} = \frac{\text{3150 X 185'}}{\text{3960 X .85}}$ = 203 HP

Engine Required - Caterpillar G342NA, 10.5:1, 225 HP continuous @ 1200 RPM

Estimated Operating Cost Cat G342NA

Lube Oil Filters (required)--		2	
Cost each		1.14	
Change Period (hours)		300	
Cost/hour = $\frac{2 \times 1.14}{300}$	=	.0076	.008
Lube Oil Capacity (gallons)		8.75	
Cost per gallon		1.15	
Change Period (hours)		300	
Cost/hour = $\frac{8.75 \times 1.15}{300}$	=	.033	.033
Make Up Oil (GPH) = $\frac{225}{5000}$	=	.045	
Cost/hour = .045 x 1.15		.052	.052
Spark Plugs (quantity)		6	
Cost each		2.28	
Change Period (hours)		10,000	
Cost per hour = $\frac{6 \times 2.28}{10,000}$	=	0.001	0.001
Fuel Consumption			
BTU/BHP-HR (LHV)		7100	
BTU/Ft^3 gas		900	
Cost per 1000 Ft^3		0.345	
Cost per hour = 7.100 x .225 x .345 =		0.55	0.55
Maintenance & Overhaul			
Cost at 30,000 hours		1200	
Cost per hour = $\frac{1200}{30,000}$	=	.04	0.04

Total Cost per Hour =	$	0.684
Total Cost Per BHP/Hr		0.00304
Total Cost Per KWH		0.0054
Total Cost Per Month based on 720 hrs/month	$	491.38

Estimated Operating Cost of 210 HP Electric Motor

Based On the following:

$0.05 first 30 KW
0.04 next 90 KW
0.03 next 270 KW
0.02 next 810 KW
0.01 all over 1200 KW

$$KW = \frac{HP \times .746}{\text{Motor eff.}} = \frac{210 \times .746}{.90} = 174.1$$

KWH per month = 174.1 x 720 = 125,352

First 30 KW @ .05 =	$	1.50
Next 90 KW @ .04 =		3.60
Next 270 KW @ .03 =		8.10
Next 810 KW @ .02 =		16.10
124,152 KW @ .01 =		1241.52

Total power cost per month for 210 HP Motor $ 1,270.82

Savings per month of "Cat" engine versus electric motor $ 779.44

January 25, 1963

Mr. Dennis Thompson
Waterworks Equipment Co.
502 West Third South
Salt Lake City, 10, Utah

Dear Mr. Thompson:

In reference to your telephone call to Dr. Bishop our estimates for NSPH at the inlet of the centrifugal pump are as follows:

Q	NSPH
3000 g.p.m.	54
3250	48
3500	35
3750	18
3975	0

A review of our studies on the line indicates that a specification of 3400 g.p.m. at 216' is still the best design judgement we can make. The 10" 5813 impeller, trimmed to 15", curve furnished us satisfies this criterion. This curve shows 198' at 3750 g.p.m. which with 12' suction head and 12' friction losses between the pump and city main would coincide with 176' in the main, which we believe would rarely occur. In any case the back pressure valve can be set so that the NSPH can be controlled at any value necessary to prevent cavitation. A vacuum indicating guage has been included near the pump inlet so that this adjustment may be made under actual operating conditions and it is our intention to check this out under a performance test before placing in regular service. Although requested, we have been unable to obtain information from your company on permissable NSPH. If the 18' specification is unrealistic, please advise us what is permissable.

For the motor the rated horsepower shall be equal to or greater than required to drive the pump within the limits of the head and discharge requirements stated and under a load of 1.15 times such rated horsepower the temperature rise shall not exceed 40 degrees C. at altitude 4500'. We are clarifying this point by an addendum to the specifications.

I hope we may have pricing information for our estimate soon.

Yours very truly,

DHT

cc: City Engineer

Summary of Bids. Pumping Plants for Webbs No. 1 and 4. Logan, Utah. April 21 1964

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Clair D Berntsen	26663	7402 -	2473 -	5814 -	2267	5467 -	8317	4333	4997 -	3942 -
Subtotals						50106 -				21589
Total										71695
ACE RAYMOND	28442	8110	2763	6384	2474	5595 85	9740	5276 20	5297	3564 99
Subtotals	28442	8110	2763	6384	2474	53768 85				23878 19
Total										79647 04
A. H. PALMER	21685 -	4987 -	2047 -	6142 -	2446 -	6275 -	12424	2424	2502	5043 -
Sub totals						43582 -				22393 -
Total										65975 -
JOHNSON CONST CO	27399	4010	1426	6096	4377 -	10025 -	11350	6277 -	1382	7618
Sub totals										
Total						53933 -				26627 -
										79960 -
Subtotal										
Total										
Subtotal										
Total										
Subtotal										
Total										

Subcontractors

Berntsen
Electrical - Thomson Electric
Masonry - Reed or LaVon Nielson
Equipment - Waterworks Equip. Co

Raymond
Pumps - Layne & Bowler

Johnson
Pumps - Byron Jackson

Palmer
Pumps - Johnston
Valves - Ross
Meter - Sparling
Controls - Waterwork
Bldg - Dave Phillips
Elect. Thomson.

Engineers Estimate	28000	7500	3500	7500	3200	8000	12300	3000	3500	5000
						57700				23810
										81500

Water

1.	16,400	Pump & driver	30500
2.	6,551	Sp. Valves	7000
3.	2,146	Meter	4000
4.	5,254	Pipe & Fittings	7500
5	10,650	Control Panel	2600
6.	,450	Fittings Heater Vent fan also	7500
7.	6,488	Does this include starter? Pump & Motor ~~& piping~~	13000
8	2,645	Valves valves & fittings Not incl Discharge piping; concrete Pipe	Canal 2500
9.	3,500	Recorder & starter	3300
10	,587	Valves & fittings	5000
	54,671		
	1,200	install Pumps ~~each~~ ? both.	

54675
3
162025
273
16932

John Perkins estimate

No tailpiping

Headgate + grating are included.

No anti-cavitation valve.

Sales tax 3½%

10% Markup.

54675
1200
tax 1893
5467
Purchase 5587
7950
1800
78572

Est April 14

	16400	Pump & drives	
	7200	Starter	
	23600		
	2360	+10% Mark up	
	708	3½% Sales	
	118	Install pump	
	600	Hook up	
	200		
	27586		
Item #1			28,000
Item # 2	6551	Cost	
	655	10%	
	217	Sales	
	150	Install	
	7573		7,500
Item 3	2146	Water Meter	
	800		
	2946		
	103		
	295		
	150		
	3494		3,500
Item 4	same		7,500
Item 5	2650		3,200
	265		
	93		
	150		
	3158		
Item 6			8,000
Item 7	6488	Pump & motor	
	1364	Starter	
	2300		
	10152		
	1015	10%	
	356	Tax	
	000	Install	
	150		
	12,273		12,300
Item 8	350	gates & grating	
	50	tax & profit	
	1500	Box	
	800	pipe	
	2700		3,000
			73,000

	73 000
Item 9	3500
Item 10	5,000
	$81,500

PRELIMINARY ESTIMATE ~~10[illegible] #0~~ WELL 1 + 4

FM 25000 - Feb. 11 '64

ITEM 1

Motor	GE	9,775 —	
Starter	GE	9,400 —	
Pump & Motor	- Johnson	17,100 -	
		9 400 -	
		26,500	
		1 000	Hookup
		27,500	
		200	Gage
		27,700	
	+10 %	2 770	
		$30,470	30,500

ITEM 2

14"	GIP	2400	
16"		3000	
10"	50 -	700	
		300	
		6,400 -	
		600	
			7,000

3.

Meter	2600	
	800	
	3400	
	200	
Profit	360	
		4.000

4 -

	4" Air Inlet	300	14" x 8" Tee -	300
	45° 16" Ell	200	14" X 3' Spool -	120
2	Flange Spigot - 4 1/2	450	14" Ell	150
	16" Dresser	200	114' 14" Steel pipe	700
	16" Tee -	400	14" Flap gate	200
	16" Spool 1'	50	2" Gate Valve —	25
3 -	16" 90° Ell	600	2" G.I. 23' —	25
	16" 3 1/2' Spool	175		
	16" X 8" Tee	400		
	16" - 8 Spool 1 1/2'	125	2 - 8" Flg - 1' Ea	60
	16" BF Valve	600	8" Dresser —	100
	16" Spool 7'	350	Pressure gage	20
	16" Flge 7'	350		17 18
	Bolt & Nuts	100		1700
		4300		4300
				6000

7500

5 — 2600

#6 — 7500

#7 — Pump + Driver - Installed 10,000

2 16" Ells	400
1 - BF Valve	600
14' Piping	700
1 Dresser	200
Air Inlet & Ga	25
Swing Check - -	400
	2325
	235
	2560
Profit	260
	2820

13,000

#8 — Concrete Pipe - 80' @ $10 800

Gate structure - Concrete 1000

Gates 2 250

Grating 6x4 24' 100

2150

Misc & Profit 350 — 2,500

9/1 — 3,300

10/1 — 5000

#1	#4
30500	13,000
7000	2500
4000	3300
7500	5000
2600	23,800
7500	
$ 59,100	
23,800	
$ 82,900	

April 20, 1964

Mr. Ray Hugie
City Engineer
Logan, Utah

Dear Mr. Hugie:

Following is our estimate for the cost of the pumping stations at Water Supply Wells 1 and 4.

Well No. 1

Item 1.	Pump and Driver	$28,000
Item 2.	Special valves	7,500
Item 3.	Water Meter and Recorder	3,500
Item 4.	Piping and Fittings	7,500
Item 5.	Automatic Panels and Controls	3,200
Item 6.	Pumphouse	8,000
	Subtotal, Well No. 1	$57,700

Well No. 4

Item 7.	Pump and Driver	$12,300
Item 8.	Canal Discharge Line and Outlet	3,000
Item 9.	Measuring and Recording Equipment	3,500
Item 10.	Pumphouse	5,000
	Subtotal, Well No. 4	$23,800
	Total Construction cost	$81,500
	Engineering and Contingencies, 15%	12,225
	Total Project cost	$93,725

BISHOP AND PETERSON

Dean F Peterson

DP

Mr Ray Hugie
City Engineer
Logan, Utah

Dear Mr. Hugie:,

Following is our estimate for the cost of the pumping stations at Water Supply Wells 1 and 4

Well No. 1

Item 1, Pump and Driver ~~Equipment~~	$28,000
Item 2. Special Valves	7,500
Item 3. Water Meter and Recorder	3,500
Item 4. Piping and Fittings	7,500
Item 5. Automatic Panels and Controls	3,200
Item 6. Pumphouse	8,000
Subtotal, Well No 1	$57,700

Well No 4

Item 7. Pump and Driver	$12,300
Item 8. Canal Discharge Line and Outlet	3,000
Item 9. Measuring and Recording Equipment	3,500
Item 10. Pumphouse	5,000
Subtotal, Well No 4	23,800
Total Construction Cost	$81,500
Engineering and Contingencies, 15%	12,225
Total Project Cost	$93,725

BISHOP AND PETERSON