GENERAL CONDITIONS FOR
Pressure Reducing Valves

I. CONTRACT PERIOD

The period of this contract will be for **One Year** from the date the bid is awarded. This contract may be renewed for up to **THREE (3) Years** from the initial award date upon the agreement of both parties. Bid price will remain firm during the period of the contract.

II. DELIVERY

Deliveries shall be made within seven (7) working days from the date of order. The vendor shall notify Water Plant Operator or Shelby County Water Services personnel (the person who ordered the product) of any problems in meeting the mandatory seven (7) working day deadline, and the vendor must schedule specific delivery day and time with personnel if the deadline is not met. Excessive failure to deliver within seven (7) working days shall be grounds for rejection of the vendor for future purchases, at the sole discretion of Shelby County.

Rejection of an unacceptable delivery method shall not excuse the vendor from the seven (7) working day delivery requirement.

All quoted prices shall include delivery charges (including, but not limited to, shipping charges and surcharges). Deliveries shall be made to the following addresses:

Shelby County Field Operations – Westover
82 Big Oak Circle
Westover, AL 35185

Shelby County Field B2 Office
10610 Old Hwy 280
Chelsea, AL 35043

III. BILLING

Invoice payments shall be based solely on the quantity of items received, and the vendors stated bid price. Product shall be billed in ***items received*** and all prices shall include shipping. ***Shelby County Water Services does require a Purchase Order for every order placed.*** Shelby County Water Services is tax-exempt (tax exempt #63-6001694).

All invoices shall be billed to:

Shelby County Water Services
200 West College Street, Room 145
Columbiana, AL 35051
ap-water-landfill@shelbyal.com

IV. ESTIMATED ANNUAL USE

Products will be ordered on an *AS-NEEDED* basis. Estimated quantities for products are on the attached bid documents.

V. BID QUALIFICATIONS

All BIDDERS must submit product information with bids. Information to be submitted must show that the product proposed meets all the specifications listed below and list **ALL EXCEPTIONS** to the specifications in a separate document.

Shelby County Water Services
Pressure Reducing Valve

THE UNDERSIGNED OFFERS THESE PRICES, TERMS, AND DELIVERY AS PER BID GENERAL CONDITIONS AND SPECIFICATIONS:

NAME OF COMPANY: _____

BY: (Please Print): _____

SIGNATURE: _____

COMPANY ADDRESS: _____

_____

PHONE: _____

E-MAIL: _____

BIDS SUBMITTED ARE FIRM AND NO CLAIMS FOR ERRORS WILL BE MADE AFTER BIDS ARE OPENED AND SUBSEQUENT THEREOF.

Sworn to and subscribed before me this

the_____day of_____,_____.

_____, Notary Public

My Commission Expires:_____

SHELBY COUNTY WATER SERVICES
BID FOR PRESSURE REDUCING VALVES

BID ITEM	MAKE OR MANUFACTURER	MODEL #	ESTIMATED ANNUAL QUANTITY NEEDED	UNIT PRICE EACH (DELIVERED)	TOTAL COST
2” Singer 106 – PR (threaded) or equal PRV shall have 3 isolation Valves PRV shall have a pilot strainer			1		
2” Singer 106 – PR (flanged) or equal PRV shall have 3 isolation Valves PRV shall have a pilot strainer			1		
3” Singer 106 – PR (threadeded) or equal PRV shall have 3 isolation Valves PRV shall have a pilot strainer			1		
3” Singer 106 – PR (flanged) or equal PRV shall have 3 isolation Valves PRV shall have a pilot strainer			1		
4” Singer 106 – PR or equal			1		
4” Singer 106 – PR – 48 or equal			2		
4” Singer 106 – PR – SM or equal			2		
6” Singer S106 – PR or equal			1		
6” Singer S106 – PR – 48 or equal			3		
6” Singer S106 – PR – SM or equal			3		
8” Singer S106 – PR or equal			1		

8” Singer S106 – PR – 48 or equal			**3**		
8” Singer S106 – PR – SM or equal			**3**		
12” Singer S106 – PR or equal			**1**		
12” Singer S106 – PR – 48 or equal			**1**		
12” Singer S106 – PR – SM or equal			**1**		

All valves shall be equipped with a visual position indicator.

All strainers to be stainless steel.

All valves to have stainless steel pilot braided tubing.

All valves must be capable of coming from factory preset to SCWS specifications.

Pilot system and fittings to be stainless steel

In the event of discrepancies, Unit Prices shall govern.

PRESSURE REDUCING VALVE (Singer 106-PR & Singer S106-PR)

1.01 PRESSURE REDUCING VALVE

A. Function: The valve shall be a pilot operated pressure reducing valve which will reduce a high inlet pressure to a low outlet pressure. The valve shall maintain a relatively constant downstream pressure regardless of fluctuations in supply pressure or flow rate.

B. Operation: The pilot shall be a normally open Singer Model 160 Pressure Reducing Pilot that reacts to small changes in downstream pressure which acts to modulate the main valve bonnet pressure to hydraulically adjust the inner valve assembly position to maintain a constant downstream pressure.

1.02 Quality Assurance

A. The control valve shall be tested prior to shipment. The standard test shall include a functional stroke, pressure and leak test of valve body, seat, fitted pilots and accessories.

B. The control valve shall be covered by a minimum three (3) year warranty against defects in materials and workmanship. The AISI 316 stainless steel seat ring shall be covered by a lifetime guarantee.

C. All control valve maintenance and repairs shall be possible without removing the main valve body from the line, when installed in accordance with manufacturer's recommendations.

1.03 Main Valve

A. The main valve shall be a Singer 106 or S106 single chamber and diaphragm actuated.

B. Main valves, 6" (150mm) and larger, shall provide smooth frictionless motion to ensure a low flow stability achieved using SRD-Single Rolling Diaphragm technology.

C. The main valve, bonnet and removable stem cap shall be constructed of ASTM A536 (Grade 65/45/12) ductile iron.

D. Main valves of 2.5” (65mm) and larger shall have a removable stem cap for access to the main valve stem for alignment check, spring installation and ease of service and assembly.

E. The main valve bonnet shall be located using two or more locating guide pins to maintain the inner valve assembly alignment and for ease of maintenance.

F. The main valve trim, consisting of seat ring and stem shall be constructed of AISI 316 stainless steel. The valve stem shall have wrench flats for ease of maintenance.

G. The main valve shall provide a drip-tight seal using a mechanically retained resilient disc, having a rectangular cross section, against the stationary AISI 316 stainless steel seat ring.

H. The stationary AISI 316 stainless steel seat ring of main valves 2.5” (65mm) and larger shall be held in place using Spiralock® self-locking screws and seat ring retainers.

I. All internal and external ferrous components, including all mating surfaces, shall be coated with an NSF-61 approved fusion bonded epoxy to a minimum of 10 mils DFT-Dry Film Thickness.

J. The main valve elastomers: diaphragm, resilient disc and seals, shall be of EPDM or Buna-N.

K. All main valve fasteners (bolts, nuts, studs, cap screws) shall be supplied as AISI 18-8 or 304 stainless steel. All bonnet bolts shall be fitted with stainless steel washers to prevent damage to the bonnet coating.

L. Valve shall have flanged, threaded or grooved end connections. Flanged connections shall be Class 150#flange drilled, faced and rated. Threaded connections shall be NPT.

M. Due to the potential for noise, vibration and erosion damage from cavitation, the valve manufacturer shall provide, upon request, a computerized sizing and cavitation analysis, using independent third party software. Cavitation analysis shall provide the status of cavitation based on customer supplied parameters as to valve size, flow rate requirements and pressure conditions. The cavitation analysis shall also provide information as to Cv factor, percent of valve lift, cavitation index and noise level.

N. The valve manufacturer shall be able to supply cavitation control trim which shall be engineered to be optimized to the actual operating parameters of the control valve

application and warranted to perform correctly and prevent main valve cavitation damage under the stated conditions. Orifice plates or other non-engineered cavitation control devices shall not be used to prevent or minimize valve cavitation.

1.04 Pilot Controls

A. The pressure reducing pilot shall be a Singer Model 160 normally open pilot with a spring to adjust the pressure setting. The pilot shall be self-cleaning and self-flushing with the outlet of the pilot located at the bottom of the pilot flow with the pilot stem out of the waterway and guide free from any debris build-up.

B. The pilot trim, consisting of a seat ring, stem and yoke shall be constructed of AISI 316 stainless steel.

C. The pilot elastomers: diaphragm, inner valve and seals, shall be of EPDM or Buna-N.

D. The adjustable pilot spring range shall be supplied with a spring range of either 20 to 200psi, 5-50psi, 10-80psi or 100-300psi. The pilot shall be factory preset as stated at the time a purchase order is generated.

E. The pilot body and spring casing shall be constructed of specify material ASTM A351 CF8M stainless steel.

F. A fixed restriction shall be supplied as AISI 303 stainless steel with an orifice bore selected by the manufacturer based on the valve size and operation.

G. The adjustable flow stabilizer shall be a Singer Model 26 self-cleaning opening speed control, supplied as a stainless steel assembly. Optional for main valve sizes 10” (250mm) and larger.

H. The pilot fittings shall be supplied as AISI 316 stainless steel.

I. The pilot tubing shall be supplied as PTFE lined flexible braided stainless steel.

J. For valves 4” (100mm) and larger, (3) pilot isolation ball valves shall be supplied as standard. Pilot isolation ball valve(s) shall be constructed of stainless steel with stainless steel handle operator.

K. For valves 4” (100mm) and larger, a pilot strainer shall be supplied as standard. Strainer material to be ASTM A351 CF8M stainless steel with a 40-mesh or 80-mesh 316 stainless steel screen. The external pilot strainer shall have a removable plug for

easy maintenance access to the pilot screen and have provision for installation of a ball valve for pilot screen flushing.

PRESSURE REDUCING VALVE with LOW FLOW BYPASS (Singer 106-PR-48 & Singer S106-PR-48)

2.01 PRESSURE REDUCING VALVE with LOW FLOW BYPASS

A. Function: The valve shall be a pilot operated pressure reducing valve which will reduce a high inlet pressure to a low outlet pressure. The valve shall maintain a controlled and stable downstream pressure regardless of fluctuations in supply pressure or flow rate. A direct acting pressure reducing valve, piloted in parallel and part of the main valve assembly, shall provide stable controlled outlet pressures at very low flow rates. The main valve and pilot assembly shall provide stable pressure reducing control at greater flow rate demands.

B. Operation: The direct acting bypass pressure reducing pilot valve shall be a Singer Model J0196A, which shall supply low flow rate demands and maintain pressure at 5psi (0.35 bar) higher than the main valve pressure reducing pilot, to override and close the main valve under very low flow rate demands. High flow rate demands, which exceed the capacity of the direct acting bypass pilot valve, resulting in a 5psi (0.35 bar) drop in outlet pressure, will allow the main valve to open to provide flow rate capacities based on the size and series of the main valve. The main valve pressure reducing pilot shall be a normally open Singer Model 160 Pressure Reducing Pilot that reacts to small changes in downstream pressure which acts to modulate the main valve bonnet pressure to hydraulically adjust the inner valve assembly position to maintain a constant downstream pressure.

2.02 Quality Assurance

A. The control valve shall be tested prior to shipment. The standard test shall include a functional stroke, pressure and leak test of valve body, seat, fitted pilots and accessories.

B. The control valve shall be covered by a minimum three (3) year warranty against defects in materials and workmanship. The AISI 316 stainless steel seat ring shall be covered by a lifetime guarantee.

C. All control valve maintenance and repairs shall be possible without removing the main valve body from the line, when installed in accordance with manufacturer's recommendations.

2.03 Main Valve

A. The main valve shall be a Singer 106 or S106 -PG single chamber, diaphragm actuated model.

B. Main valves, 6" (150mm) and larger, shall provide smooth frictionless motion to ensure a low flow stability achieved using SRD-Single Rolling Diaphragm technology.

C. The main valve, bonnet and removable stem cap shall be constructed of ASTM A536 (Grade 65/45/12) ductile iron.

D. Main valves of 2.5" (65mm) and larger shall have a removable stem cap for access to the main valve stem for alignment check, spring installation and ease of service and assembly.

E. The main valve bonnet shall be located using two or more locating guide pins to maintain the inner valve assembly alignment and for ease of maintenance.

F. The main valve trim, consisting of seat ring and stem shall be constructed of AISI 316 stainless steel. The valve stem shall have wrench flats for ease of maintenance.

G. The main valve shall provide a drip-tight seal using a mechanically retained resilient disc, having a rectangular cross section, against the stationary AISI 316 stainless steel seat ring.

H. The stationary AISI 316 stainless steel seat ring of main valves 2.5" (65mm) and larger shall be held in place using Spiralock® self-locking screws and seat ring retainers.

I. All internal and external ferrous components, including all mating surfaces, shall be coated with an NSF-61 approved fusion bonded epoxy to a minimum of 10 mils DFT-Dry Film Thickness.

J. The main valve elastomers: diaphragm, resilient disc and seals, shall be of EPDM or Buna-N.

K. All main valve fasteners (bolts, nuts, studs, cap screws) shall be supplied as AISI 18-8 or 304 stainless steel. All bonnet bolts shall be fitted with stainless steel washers to prevent damage to the bonnet coating.

L. Valve shall have flanged, threaded or grooved end connections. Flanged connections shall be Class 150# flange drilled, faced and rated. Threaded connections shall be NPT.

M. Due to the potential for noise, vibration and erosion damage from cavitation, the valve manufacturer shall provide, upon request, a computerized sizing and cavitation analysis, using independent third party software. Cavitation analysis shall provide the status of cavitation based on customer supplied parameters as to valve size, flow rate requirements and pressure conditions. The cavitation analysis shall also provide information as to Cv factor, percent of valve lift, cavitation index and noise level.

N. The valve manufacturer shall be able to supply cavitation control trim which shall be engineered to be optimized to the actual operating parameters of the control valve application and warranted to perform correctly and prevent main valve cavitation damage under the stated conditions. Orifice plates or other non-engineered cavitation control devices shall not be used to prevent or minimize valve cavitation.

2.04 Pilot Controls

A. The bypass direct acting pressure reducing pilot valve shall be a Singer Model J0196A with a spring to adjust the pressure setting. The Model J0196A shall be supplied with a spring range of 30 to 145psi or 10-35psi. The pilot shall be factory preset as stated at the time a purchase order is generated.

B. The main valve pressure reducing pilot shall be a Singer Model 160 normally open pilot with a spring to adjust the pressure setting. The pilot shall be self-cleaning and self-flushing with the outlet of the pilot located at the bottom of the pilot flow with the pilot stem out of the waterway and guide free from any debris build-up.

C. The 160 pilot trim, consisting of a seat ring, stem and yoke shall be constructed of AISI 316 stainless steel.

D. The 160 pilot elastomers: diaphragm, inner valve and seals, shall be of EPDM or Buna-N.

E. The 160 adjustable pilot spring range shall be supplied with a spring range of 20 to 200psi, 5-50psi, 10-80psi or 100-300psi. The pilot shall be factory preset as stated at the time a purchase order is generated.

F. The 160 pilot body and spring casing shall be constructed of ASTM A351 CF8M stainless steel.

G. A fixed restriction shall be supplied as AISI 303 stainless steel with an orifice bore selected by the manufacturer based on the valve size and operation.

H. The adjustable flow stabilizer shall be a Singer Model 26 self-cleaning opening speed control, supplied as a stainless steel assembly. Optional for main valve sizes 10” (250mm) and larger.

I. The pilot fittings shall be supplied as AISI 316 stainless steel.

J. The pilot tubing shall be supplied as PTFE lined flexible braided stainless steel.

K. For valves 4” (100mm) and larger, (4) pilot isolation ball valves shall be supplied as standard. Pilot isolation ball valve(s) shall be constructed of stainless steel with stainless steel handle operator.

L. For valves 4” (100mm) and larger, a pilot strainer shall be supplied as standard. Strainer material to be ASTM A351 CF8M stainless steel with a 40-mesh or 80-mesh 316 stainless steel screen. The external pilot strainer shall have a removable plug for easy maintenance access to the pilot screen and have provision for installation of a ball valve for pilot screen flushing.

PRESSURE REDUCING VALVE with INTEGRAL BACK-UP (Singer 106-PR-48 & Singer S106-PR-48)

3.01 PRESSURE REDUCING VALVE with INTEGRAL BACK-UP

A. Function: The valve shall have a primary and a secondary main valve operating system, which shall be independently operated by separate primary and secondary pilot control systems. The primary operation shall be a pilot operated pressure reducing valve which will reduce a high inlet pressure to a low outlet pressure. The valve shall modulate to maintain a relatively constant downstream pressure regardless of fluctuations in supply pressure or flow rate. Should a failure of the primary valve operation or primary pilot system occur, resulting in downstream pressure increase, the secondary valve and pilot operating system shall quickly override the primary valve and pilot system to modulate and maintain a steady outlet pressure.

B. Operation: The primary pressure reducing pilot shall be a normally open Singer Model 160 Pressure Reducing Pilot that reacts to small changes in downstream pressure, which modulates the lower primary main valve bonnet pressure, hydraulically adjusting the inner valve assembly position to maintain a constant downstream pressure. The secondary (back-up) downstream pressure control pilot shall be a normally closed Singer Model 81-RP, which acts to open when pressure rises 3-5psi above the pressure setting of the primary Model 160 pilot. When downstream pressure meets or exceeds the pilot set point of the 81-RP pilot, the pilot opens to direct inlet supply pressure into the upper secondary bonnet, assuming full control of the inner valve assembly to modulate valve position and maintain a constant downstream pressure at the higher Model 81-RP pilot set point.

3.02 Quality Assurance

A. The control valve shall be tested prior to shipment. The standard test shall include a functional stroke, pressure and leak test of valve body, seat, fitted pilots and accessories.

B. The control valve shall be covered by a minimum three (3) year warranty against defects in materials and workmanship. The AISI 316 stainless steel seat ring shall be covered by a lifetime guarantee.

C. All control valve maintenance and repairs shall be possible without removing the main valve body from the line, when installed in accordance with manufacturer's recommendations.

3.03 Main Valve

A. The main valve shall be a Singer specify main valve model number Singer 106 or S106-PGM double chamber, dual diaphragm actuated model.

B. Main valves, 6" (150mm) and larger, shall provide smooth frictionless motion to ensure a low flow stability achieved using SRD-Single Rolling Diaphragm technology.

C. The main valve, adapter and bonnet shall be constructed of ASTM A536 (Grade 65/45/12) ductile iron.

D. The main valve bonnet and adapter shall be located using two or more locating guide pins to maintain the inner valve assembly alignment and for ease of maintenance.

E. The main valve trim, consisting of seat ring and primary and secondary stems shall be constructed of AISI 316 stainless steel. The valve stems shall have wrench flats for ease of maintenance.

F. The main valve shall provide a drip-tight seal using a mechanically retained resilient disc, having a rectangular cross section, against the stationary AISI 316 stainless steel seat ring.

G. The stationary AISI 316 stainless steel seat ring of main valves 2.5” (65mm) and larger shall be held in place using Spiralock® self-locking screws and seat ring retainers.

H. All internal and external ferrous components, including all mating surfaces, shall be coated with an NSF-61 approved fusion bonded epoxy to a minimum of 10 mils DFT-Dry Film Thickness.

I. The main valve elastomers: diaphragms, resilient disc and seals, shall be of EPDM or Buna-N.

J. All main valve fasteners (bolts, nuts, studs, cap screws) shall be supplied as AISI 18-8 or 304 stainless steel. All bonnet bolts shall be fitted with stainless steel washers to prevent damage to the bonnet coating.

K. Valve shall have flanged, threaded or grooved end connections. Flanged connections shall be Class 150# flange drilled, faced and rated. Threaded connections shall be NPT.

L. Due to the potential for noise, vibration and erosion damage from cavitation, the valve manufacturer shall provide, upon request, a computerized sizing and cavitation analysis, using independent third party software. Cavitation analysis shall provide the status of cavitation based on customer supplied parameters as to valve size, flow rate requirements and pressure conditions. The cavitation analysis shall also provide information as to Cv factor, percent of valve lift, cavitation index and noise level.

M. The valve manufacturer shall be able to supply cavitation control trim which shall be engineered to be optimized to the actual operating parameters of the control valve application and warranted to perform correctly and prevent main valve cavitation damage under the stated conditions. Orifice plates or other non-engineered cavitation control devices shall not be used to prevent or minimize valve cavitation.

3.04 Pilot Controls

A. The pressure reducing primary pilot shall be a Singer Model 160 normally open pilot with a spring to adjust the pressure setting. The pilot shall be self-cleaning and self-flushing with the outlet of the pilot located at the bottom of the pilot flow with the pilot stem out of the waterway and guide free from any debris build-up.

a. The pilot trim, consisting of a seat ring, stem and yoke shall be constructed of AISI 316 stainless steel.

b. The adjustable pilot spring range shall be supplied with a spring range of 20 to 200psi, 5-50psi, 10-80psi or 100-300psi. The pilot shall be factory preset as stated at the time a purchase order is generated.

c. The pilot body and spring casing shall be constructed of specify material CF8M stainless steel.

B. The surge control secondary pilot shall be a Singer Model 81-RP normally closed pilot with a spring to adjust the pressure setting.

a. The pilot trim, consisting of a seat ring, stem and inner valve, shall be constructed of AISI 316 stainless steel.

b. The adjustable pilot spring range shall be supplied with a spring range of 20 to 200psi, 5-50psi, 10-80psi or 100-300psi. The pilot shall be factory preset as stated at the time a purchase order is generated.

c. The pilot body and spring casing shall be constructed of ASTM A351 CF8M stainless steel.

d. The pilot elastomers: diaphragm, inner valve and seals, shall be of EPDM or Buna-N.

C. A fixed restriction shall be supplied as AISI 303 stainless steel with an orifice bore selected by the manufacturer based on the valve size and operation.

D. The adjustable flow stabilizer shall be a Singer Model 26 self-cleaning opening speed control, supplied as a stainless steel assembly. Optional for main valve sizes 10” (250mm) and larger.

E. The pilot fittings shall be supplied as AISI 316 stainless steel.

F. The pilot tubing shall be supplied as PTFE lined flexible braided stainless steel.

G. For valves 4” (100mm) and larger, (3) pilot isolation ball valves shall be supplied as standard. Pilot isolation ball valve(s) shall be constructed of stainless steel with stainless steel handle operator.

H. For valves 4” (100mm) and larger, a pilot strainer shall be supplied as standard. Strainer material to be ASTM A351 CF8M stainless steel with a 40-mesh or 80-mesh 316 stainless steel screen. The external pilot strainer shall have a removable plug for easy maintenance access to the pilot screen and have provision for installation of a ball valve for pilot screen flushing.

I. The control valve shall be supplied with a Singer Model X107 Position Indicator as standard. The valve position indicator shall provide a visual reference to the main valve open position. The indicator stem rod shall be AISI 316 stainless steel, threaded or pinned to the main valve stem. The indicator rod shall move within a 303 stainless steel hexagonal housing having a clear Pyrex sight glass. A cap and bleed valve shall be provided to purge any air that may become trapped within the main valve bonnet and stem cap.