Addendum No. 2

for Construction of
WATER INFRASTRUCTURE
for the
MARSHALL COUNTY BOARD OF PUBLIC UTILITIES
in
MARSHALL COUNTY, TENNESSEE

CONTRACT 625 – WTP FILTER BUILDING

DATE: JUNE 19, 2026
BID DATE: JULY 9, 2026
BID TIME: 2:00 P.M. LOCAL TIME

THIS ADDENDUM IS ISSUED TO CLARIFY QUESTIONS RAISED BY BIDDERS AND TO MAKE MODIFICATIONS TO THE SPECIFICATIONS, PLANS, AND BID DOCUMENTS FOR THIS PROJECT. THE FOLLOWING CHANGES WILL BECOME A PART OF THE CONTRACT DOCUMENTS FOR THIS PROJECT. **ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID FORM.**

Clarifications:

This is a locally funded project. There are no Davis-Bacon Wage rates for this project.

This project does **NOT** require AIS or BABA compliance. American equivalent preference simply means that if a domestic equivalent is available at an equal price, then the OWNER would prefer the domestic equivalent, but it is NOT required.

The Geotechnical report has been uploaded to the website for review and use.

Nucor and Varco Pruden and subsidiaries of these named and Butler are approved for PEMB package for this project.

Wall Panels shall be Butlerib II, R-Panel or similar style. 24 Gage with factory installed manufacturer specific finish. Color to be selected by owner.

Metal building Submittals drawings shall be sealed and signed by an Engineer registered in the State of Tennessee. At a minimum, the loadings assumed shall be (Roof: 15 psf live/ 15 psf dead, wind: 30 psf, snow: 15 psf) and shall be accounted for in metal building calculation, along with any industry standard loadings. Loadings shall be run concurrently. Building shall meet ASCE 7 for wind.

In terms of building classification, project/building shall be considered a necessary or essential facility.

Interior spaces that are unfinished (treatment area, pump room, covered storage, chemical storage, etc. shall have liner panels installed. Liner panels shall be standard rib panel, 26 Gage with factory installed manufacturer specific finish. Color to be selected by owner.

Overhead doors shall be insulated coiling doors. Overhead door model 620 or equal. Provide weatherstripping on exterior and interior side of guides, along bottom bar and hood. Hood shall be fully enclosed and weathertight. Curtain shall be aluminum. Provide operator with chain override per schedule.

Overhead Crane system shall be supported by PEMB or may have a separate structural support system provided. Overhead crane shall be full motorized and rated for 4 Ton of lift capacity. Runway beam and trolley beam shall be properly sized for intended service class, wheel diameter and loading by Crane Manufacturer. Crane shall span the width of the pump room, less any required clear space along walls. Runway shall provide full depth access to the pump room.

1" HDPE chemical feed lines are proposed to be installed within the proposed 12" PVC pipe called out as Mark 5 on sheet C1.

Pump manufacturer will provide VFD/AFD drives as part of the pump and drive package.

Proposed fencing shall be black vinyl coated. Proposed gate located along Verona Caney shall be a sliding gate.

Window Mark "D" refers to the windows that are located within the clerestory of the building. These windows shall be fixed aluminum storefront style windows with grilles between the glass panels, sealed inside the insulated glass unit. These windows are **NOT** operable and do **NOT** require the noted sentry electric operator or pivoting center pane as noted.

WesTech contact will be confirmed with successful bidder. The selected General Contractor will coordinate equipment delivery with WesTech. The final delivery date is not finalized pending the selection of the prime contractor.

For bidding purposes, CONTRACTOR shall review provided geotechnical report for expected rock depth. All excavation on the site, including but not limited to, pipe ditches, manholes, clear well, footings, vaults, etc. shall be included in the bid price. No additional compensation shall be made for rock excavation required for base. All gravel for pipe bedding and pipe envelope, base stone for foundations, vaults, etc. shall be included in bid. No additional compensation shall be made for gravel required.

Specifications:

Find attached specification for submersible pumps and controls.

Find attached specification for swing check valves.

THIS ADDENDUM CONSISTS OF FIFTEEN (15) PAGES

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SECTION 11 J - SUBMERSIBLE PUMPS AND CONTROLS

PART 1 - GENERAL

11.1.01 DESCRIPTION

A. The General Contractor shall furnish, install, test and place in satisfactory operation, as shown on the Plans and specified, two wet-pit duplex submersible pump stations complete with all appurtenances, accessories and spare parts as will be required to produce a complete and workable installation.

11.1.02 SUBMITTALS

A. Data to be submitted:

The Contractor shall submit pump curves for the units which he proposes to supply, showing Total Dynamic Head, Pump Efficiency, Brake Horsepower, Power Input to Electric Drive Motor of Pumping Unit for the various conditions under which the units are to operate along with descriptive data and specifications describing in detail the construction of the complete units.

B. Dimensional Data:

The successful bidder shall submit to the **ENGINEER** for approval, shop drawings, showing all weights and dimensions necessary for the installation of foundations, anchor bolts, piping and valve connections.

PART 2 - MATERIALS

11.2.01 MANUFACTURERS

A. Manufacturer: Hydromatic, KSB or approved equal

Any pump manufacturer, other than specified, proposing to offer the following equipment must submit sufficient information to the Engineer to determine that the equipment complies with the requirements of the Contract Documents. This information must be received by the **ENGINEER** not less than 7 days prior to the Bid Date. **CONTRACTORS** and manufacturers are advised that a manufacturer named as an approved supplier is not excused from meeting all of the technical and performance requirements of this specification. The pre-bid qualification package shall include complete pump performance data, evidence of compliance with the installation experience requirements of this Section and a letter from an officer of the company of the pump manufacturer listing all exceptions to the specifications.

B. Pump Performance:

Each pump shall be capable of the following performance.

PART 2 – MATERIALS (continued)

11.2.01 MANUFACTURERS (continued)

	TRANSFER PUMP STATION	
Duty Point Flow, gallons per minute	2,100	
Duty Point Total Dynamic Head, feet	25’	
Minimum Hydraulic Efficiency at Duty Point, %	80%	
Maximum Nominal Motor Power, Horsepower	20	
Maximum Motor Speed, Revolutions Per Minute	875	
Minimum Shut-off Pressure, feet	37’	
Hydromatic Model (Basis of design)	S12LP2000M4	
KSB Model (Alternate acceptable)	KRT K200-316	

11.2.01 PUMP CONSTRUCTION

A. GENERAL

The sewage pumping units shall be vertical, non-clogging, centrifugal sewage pumps with bottom inlet and side discharge. The pumps shall be direct driven by integral electric induction motors. Each pump shall include motor, bearings, quick removal system, anchor bolts and all accessories specified herein.

B. **VOLUTE**

1. The volute shall be constructed of ASTM A48 minimum Class 30.

3. All nuts, bolts, washers, and other fastening devices supplied with the pumps shall be stainless steel.

4. All mating surfaces requiring a watertight seal shall be machined and fitted with Buna-n O-rings. Paper gaskets are not acceptable.

C. **IMPELLER**

1. Pump impellers shall be of the solids handling non-clog type. The impeller vane shall be smooth, finished throughout, and shall be free from sharp edges.
2. Enclosed type pump impellers shall be manufactured from ASTM A536 ductile iron. Semi-Open impeller shall be supplied in a hard metal design and supplied with a hard metal wear plate.

11.2.02 PUMP CONSTRUCTION

3. Impellers shall be key driven and securely held to the shaft by a streamlined impeller washer and bolt assembly specifically designed to reduce friction in the suction eye of the impeller. The arrangement shall be such that the impeller cannot unscrew or be loosened by torque from either forward or reverse rotation. Designs based on threaded connection between pump shaft and impeller will not be considered.

4. The impeller shall be capable of passing a 3 inch solid non-deformable sphere through the bottom inlet and out between the two shrouds. Designs which cannot pass a sphere through the impeller or rely on deforming, cutting or chopping solid materials shall not be acceptable.

D. WEAR RINGS

1. Enclosed impeller designs shall require the casing shall be provided with an AISI ASTM CA15, 410 grade stainless steel wear ring which is drive fitted to the bottom suction inlet. Semi-open impeller designs utilizing adjustable wear plates require the wear plate to be supplied in a hard metal design.

11.2.03 MOTORS

A. **SUBMERSIBLE MOTORS**

1. Each pump shall be furnished with a squirrel cage, induction motor enclosed in a watertight housing suitable for use and compatible with all variable frequency drive systems.

2. The motors shall be air-filled and constructed with moisture resistant NEMA Class F insulation and Class H slot liners and constructed to NEMA B design standards. The copper wound stator shall be triple dipped in epoxy enamel and baked to withstand a temperature of 155 degrees. Centigrade as defined in NEMA Standard MG-1. Each winding phase or layer shall be laced with type H glass lined paper. The rotor shall be statically and dynamically balanced after fabrication. The constructed motor shall be certified for continuous duty with a service factor of 1.15 and shall be non-overloading over the entire range of the impeller. Oil filled motors are acceptable but must be classified as premium efficient.

3. Motors shall be capable of sustaining 15 starts per hour (unlimited starts with VFD) at a minimum ambient temperature of 40°C.

4. Motors shall be capable of uninterrupted operation with a voltage drop of 10%.

5. The power cables entering the motor housing shall connect to individual terminal pins, which separates the incoming service from the pump motor.

11.2.03 MOTORS (continued)

6. Thermal switches shall be furnished to monitor stator temperatures. The stator shall be equipped with three (3) thermal switches, one per winding phase. Thermal switches shall automatically de-energize the motor when its temperature exceeds a preset limit as recommended by the manufacturer. .

7. The pump manufacturer's nameplates shall be engraved or stamped on stainless steel and fastened to the motor casing with stainless steel screws or drive pins.

B. **SHAFTS**

1. Pump shafts shall be AISI 416 stainless steel. Carbon steel shafts are not acceptable. The shaft shall be one piece construction without joints or stubs attached.

2. Multiple row lower bearings for axial thrust and a single row upper bearing for radial thrust shall support the motor/pump shafts. Bearings shall be sized to provide a minimum L-10 life of 50,000 hours anywhere on the flow versus head curve. Thrust bearings shall be restrained from thrust in both directions. Designs that do not protect the pump/motor from thrust in reverse directions shall not be acceptable.

3. All shafts shall be dynamically balanced and shall be amply sized to minimize shaft deflection. The distance from the lower bearing to the hub of the impeller shall not exceed 1.3 times the shaft diameter when the shaft diameter is measured at the lowest bearing.

4. Bearings shall be sealed and grease lubricated.

C. **MECHANICAL SEALS**

1. Each pump shall be provided with a dual mechanical seal system. Component type and cartridge type mechanical seals are acceptable means of sealing. Lower mechanical seal faces shall be silicon carbide vs. silicon carbide. Upper mechanical seal to be silicon carbide vs. silicon carbide or silicon carbide vs. carbon.

2. The seal shall be mounted in a separate and isolated seal chamber. The seal chamber shall be filled with non-conductive lubricating oil as recommended by the manufacturer.

PART 2 – MATERIALS (continued)

11.2.03 MOTORS (continued)

3. A moisture sensor shall be furnished to sense seal failure for each pump. This sensor shall be wired to the Pump Control Panel and shall activate an alarm light upon seal failure. The sensor probe shall be mounted in the seal chamber and shall be of the conductive type, sensing moisture intrusion above the lower seal, but below the upper seal. Alternate designs which utilize a conductive sensor in the stator housing is an acceptable alternate design.

D. **POWER AND CONTROL CABLES**

1. Power and control cables shall be furnished in lengths to run un-spliced from the pump to the pump control panel as shown on the Contract Drawings and as specified herein. Cables shall terminate with conductor sleeves that bundle the entire group of strands of each phase to improve termination at the pump control panel. The sleeves shall be provided to confirm that all strands of each conductor is terminated properly. Termination shall be coordinated with the connection to the Pump Control Panel.

2. Cables shall be approved for use in hazardous locations and shall conform to industry standards for loads, resistance under submersion against sewage, and be of stranded construction. The cables shall enter the pump through a heavy duty galvanized cast iron entry assembly which shall be provided with an external clamp assembly to protect against tension once secured providing a strain relief function as part of standard construction.

3. The cables for each pump shall pass through the galvanized cast iron strain relief component and then through a series of stainless steel disks and Buna-n grommet that is sandwiched between the disks to control compression of the grommet. The cable entry design shall be of the type recommended in the Factory Mutual Research Corporation specifications for Explosion Proof Certification. The entry shall be comprised of the cast iron fitting that will include the Buna-N strain relief grommet coupled with a poured conductor section. In the poured section, only Factory Mutual approved sealant shall be used to wick into each conductor strand that has the insulation removed in this area to provide a positively leak proof seal for the power and sensor cords.

11.2.04 REMOVAL SYSTEM

A. GENERAL DESCRIPTION

The removal system shall consist of a discharge base elbow that mounts in the bottom of the wet pit, a replaceable pump coupling, guide pipes and supports and hardware as required for a complete and operational system. Connections to piping shall be standard ANSI flanges.

11.2.04 REMOVAL SYSTEM (continued)

B. **DISCHARGE BASE ELBOW**

The ASTM A48 Class 30B or higher cast iron discharge base elbow shall be provided to support the full weight of the submersible pump in the installation and provide a leak proof connection in which the pump coupling mates using a conformed Buna-N seal which is held in place by the combined weight of the cantilevered pump and motor. The hydraulic pressure generated while the pump is in operation also aids the sealing. The discharge base shall be provided with guide pipe retention lugs.

C. **PUMP COUPLING**

The pump coupling shall be close grained gray cast iron construction. The coupling shall be located between the pump discharge flange and the vertical face of the discharge base. The purpose of the coupling shall be to allow use of a standard ANSI drilled pump-casing flange on the pump. The coupling acts as the intermediate part between the pump and the discharge base. The coupling vertical face is designed to seal against the vertical face of the discharge base using a replaceable Buna-N elastomeric compressible one piece seal that acts as both the discharge face seal and the gasket between the coupling and the pump flange. Wet pit installation designs which utilize the flat face of the pump flange to seal against the discharge base are not allowed.

D. **GUIDE RAILS**

304 stainless steel guide rails supported by upper and intermediate brackets of 316 stainless steel shall guide each pump. The guide rails shall consist of standard dimension schedule 40 piping with a minimum diameter of 1-1/4” and a maximum diameter of 4” as shown on the contract drawings. The guide rails shall be supported by a 316 upper guide rail bracket that will be mounted in the opening of the access cover to support and guide the pump/motor into and out of the wet well. Intermediate guide rail brackets will be provided for all installations deeper than 20 ft.

E. **LIFTING DEVICE**

Each pump shall be supplied with a lifting chain of 316 Stainless Steel, rated for 5 times the installed pump and coupling weight. The manufacturer shall provide information on recommended testing parameters that shall keep the lifting system capable of service for the life of the station. Recommendations shall be in written form and shall be discussed during startup training for the installation.

11.2.05 SHOP PAINTING

Primer and Finish Paint-Shop apply to all exterior ferrous surfaces of the pump and motor. Shop apply to exterior and interior surfaces of elbow

PART 3 - EXECUTION

11.3.01 WARRANTY

A. The pumps and motors will be covered by a five (5) year warranty that shall comprise the following terms:

MONTHS AFTER SHIPMENT: 0-18 = 100%
19-39 = 50%
40-60 = 25%

11.3.02 FIELD QUALITY CONTROL

A. Field Testing:

1. After the installation of the pumps, controls and all appurtenances, and when construction of other units of the pump station will permit, each complete pumping unit will be subject to field tests as specified herein under actual operating conditions.

2. The field tests shall be made by the Contractor under the direct supervision of a qualified factory trained engineer, and in the presence of, and as directed by the Engineer. The Contractor shall provide, calibrate and install all temporary gauges and meters, shall make necessary tapped holes in the pipes, and install all temporary piping and wiring required for the field tests.

4. The field tests shall determine the head, discharge flow and overall efficiency characteristics of each pumping unit and in addition, shall demonstrate that under all conditions of operation each unit:

- Has not been damaged by transportation or installation.
- Has been properly installed.
- Has no mechanical defect.
- Is in proper alignment.
- Has been properly connected.
- Is free of overheating of any parts.
- Is free of all-objectionable vibration and noise.
- Is free of overloading of any parts.

SECTION 11M - DUPLEX PUMP CONTROL PANEL

11.01 GENERAL

A complete duplex pump control system for each pumping station shall be furnished and installed as shown on the plans, including the specified electrical service and all field connections between the controls and their pumps and level switches. The electrical installation and all the components shall be in accordance with the National Electrical Code (NEC) and be in accordance with the following specifications.

The complete electrical control panel, including the enclosure, its components, and the internal wiring shall carry an Underwriters Laboratories, Inc. (UL) listed label and registration number.

11.02 ELECTRICAL SERVICE

The system shall operate on 460 Volt, three Phase, 60 Hertz electrical service with 120-Volt, 1-Phase, 60-Hertz controls. The source of the control power will be provided by an interna step-down transformer.

11.03 ENCLOSURE

The power and control components shall be factory installed and wired within an amply sized electrical control enclosure meeting all the requirements for type NEMA 4X enclosure. The enclosure shall have one or more hinged doors. Main doors to be provided with 3-point latch and windstop to hold the door(s) open.

A heavy steel back panel shall be bolted to welded studs on the inside of the enclosure backside to be drilled and tapped to receive the components directly. Back panels with holes and self tapping screws are not acceptable.

A. All switches, push buttons, pilot lights, and meters, as required, shall be mounted through a sub-door.

B. Materials of construction

1. The main enclosure shall be fabricated of Stainless Steel.
2. The sub door shall be fabricated of aluminum or powder coated steel.

11.04 FUNCTIONAL LEVEL AND CONTROL DESCRIPTION

On falling wet well, the lowest control point shall open to stop the operating pump(s). On a rising level, the second control point shall close to start the pump in the lead position. On a continuing level rise, the third control point shall close to start the standby or lag pump and at the upper control point, the fourth control point shall initiate and maintain the alarm signal until the wet well level has commenced to recede. An automatic 2-circuit alternator shall be provided to rotate the lead-lag pump on each succeeding duty cycle.

11.05 LEVEL CONTROLS

Primary level controller to be CMC PV2 PLC based standard controller. PLC to receive

analog input signal from a wet well installed submersible transducer which shall be a BlueRibbon birdcage. The control panel shall be supplied with a back-up system utilizing a 7-1/2' FOG Rod with relayed based control and duplex alternator. The back-up system is to be completely independent of the primary PLC/transducer control. Back-up control to be initiated by either a manual selector switch on the inner door or via the low contact on the FOG Rod or the higher back-up enable contact. Back-Up control to have the following contact levels:

- Low level – shut off all pumps and enable back-up system
- Pumps off
- Lead Start
- Lag Start
- Enable back-up
- High level alarm

11.06 **POWER COMPONENTS**

One (1) main circuit breaker with through door operator handle. Two (2) Motor circuit breakers with through door operator handles with lockout capability. The 20 HP transfer control panel is to be supplied with across the line motor contactors with adjustable overload relays. The 40 HP basin to river pump control panel is to be supplied with 2ea. ABB ACQ580 variable frequency drives. The VFDs are to be utilized as soft starters only. All wiring in accordance with the National Electric Code (N.E.C.). Control circuit breakers shall be molded-case, quick-trip design with individual trip settings in accordance with NEC requirements for their individual loads. They shall be mounted on heavy stand-offs to project their operators through door cut-outs.

11.07 **CONTROL COMPONENTS**

A 1-pole circuit breaker shall be provided for short-circuit protection of the control circuits. To facilitate field testing and replacement, all required control relays, including the alternating relay, shall be plug-in style with mating terminal bases to receive the factory wiring. In addition, the alternating relay for back-up control shall include a Pump #1 and Pump #2 LED on its enclosure top to indicate operating pump(s). The alternating relay shall also include a #1- Auto, #2-Toggle Selector Switch to facilitate manual alternation at the operator's option. All selector switches, push buttons, and pilot lights shall be heavy duty, NEMA 4X oil tight, push to test mounted on the sub-door. These to include:

- HOA's
- Run Lights
- ETM's
- Seal fail lights
- Motor over temp lights
- Motor overload light (across the line starters only)
- VFD fault lights (VFDs only)
- High level
- Low level
- Back-up active
- Back-up rest button
- 2 position Primary / Back-up level control

Moisture and thermal alarms shall shut down affected pump. Moisture shall disable until fault is rectified. High temperature can allow the pump to restart once the condition has cleared.

11.08 **ACCESSORIES**

The following accessories are to be provided:

- Lighting arrestor for the incoming 480 volt, 3 phase power.
- Interior enclosure LED light with automatic door switch.
- Enclosure heater with adjustable thermostat.
- Enclosure fan with intake louver and adjustable thermostat.
- Top mounted LED alarm light with flasher to be activated upon an active high water alarm. Audible alarm to be provided with an external push to silence button.

11.09 **CONNECTIONS FOR TELEMETRY**

The following discrete and analog signals to be provide via a terminal strip for SCADA connections:

- DO
    - P1 running
    - P2 running
    - P1 common fault
    - P2 common fault
    - High level alarm
- AO
    - Wet well level 4-20 mA

11.10 **WIRING AND WORKMANSHIP**

All conductors shall be properly sized and insulated in accordance with the NEC. Only stranded wire shall be used with terminal ends stripped and power wires tinned. Properly identified terminal blocks shall be provided for all electrical field connections entering or exiting the control enclosure. Control wiring shall be color-coded with an as-built, schematic
wiring diagram placed in the door pocket on the inside of the enclosure door. All control wiring shall be installed in horizontal and vertical runs and either neatly bundled and tied with plastic tie-wraps or placed within covered wiring troughs. Wiring between the back plate components and the sub-door components shall be bundled, tied, and provide an ample loop to preclude door restriction in its full open position. Ach switch, identified with name plates using engraved plastic plates. All components, wire runs, and nameplates shall be mounted in square, horizontal and vertical lines and the entire assembly shall be professional produced in a neat and workmanship like manner.

14. SWING CHECK VALVE

A. SCOPE

(1) This specification covers the design, manufacture, and testing of 2 in. through 24 in. Swing Check Valves suitable for cold working pressures up to 250 psig.

(2) The check valve shall be of the full flow body type, with a domed access cover and only two moving parts, the flexible disc, and the disc accelerator.

B. STANDARDS AND APPROVALS

(1) The valves shall be designed, manufactured, tested, and certified to American Water Works Association Standard ANSI/AWWA C508.

(2) The valves used in potable water service shall be certified to NSF/ANSI 61 Drinking Water System Components – Health Effects and certified to be Lead-Free in accordance with NSF/ANSI 372.

(3) Manufacturer shall have a quality management system that is certified to ISO 9001 by an accredited, certifying body.

C. CONNECTIONS

(1) The valves shall have flanges with drilling to ANSI B16.1, Class 250.

D. DESIGN

(1) The valve body shall be full flow equal to nominal pipe diameter at all points through the valve. The 4 in. (100mm) valve shall be capable of passing a 3 in. (75mm) solid. The seating surface shall be on a 45-degree angle to minimize disc travel. A threaded port with pipe plug shall be provided on the bottom of the valve to allow for field installation of a backflow actuator or oil cushion device without special tools or removing the valve from the line.

(2) The top access port shall be full size, allowing removal of the disc without removing the valve from the line. The access cover shall be domed in shape to provide flushing action over the disc for operating in lines containing high solids content. A threaded port with pipe plug shall be provided in the access cover to allow for field installation of a mechanical, disc position indicator.

(3) The disc shall be of one-piece construction, precision molded with an integral O-ring type sealing surface and reinforced with alloy steel. The flex portion of the disc contains nylon reinforcement and shall be warranted for twenty-five years. Non-Slam closing characteristics shall be provided through a short 35-degree disc stroke and a disc accelerator to provide a cracking pressure of 0.3 psig.

(4) The disc accelerator shall be of one-piece construction and provide rapid closure of the valve in high head applications. The disc accelerator shall be enclosed within the valve and shall be field adjustable and replaceable without removal of the valve from the line. The disc accelerator shall be securely held in place captured between the cover and disc. It shall be formed with a large radius to allow smooth movement over the disc surface.

(5) The valve disc shall be cycle tested 1,000,000 times in accordance with ANSI/AWWA C508 and show no signs of wear, cracking, or distortion to the valve disc or seat and shall remain drop tight at both high and low pressures.

E. MATERIALS

(1) The valve body and cover shall be constructed of ASTM A536 Grade 65-45-12 ductile iron or ASTM A126 class B gray iron for 30 in. (800mm) and larger. Optional body materials include ASTM A-351 Grade CF8M, stainless steel for sizes 3” (80 mm) through 12” (300 mm).

(2) The disc shall be precision molded Buna-N (NBR), ASTM D2000-BG.

(3) The disc accelerator shall be Type 302 stainless steel.

F. SELECTED OPTIONS

(1) A screw-type backflow actuator shall be provided to allow opening of the valve during no-flow conditions. Buna-N seals shall be used to seal the stainless-steel stem in a Lead-Free bronze bushing. The backflow device shall be of the rising-stem type to indicate position. A stainless-steel T-handle shall be provided for ease of operation.

(2) A mechanical indicator shall be provided to provide disc position indication on valves 3" (80 mm) and larger. The indicator shall have continuous contact with the disc under all operating conditions to assure accurate disc position indication.

G. **MANUFACTURER**

(1) Manufacturer shall demonstrate a minimum of five (5) years' experience in the manufacture of resilient, flexible disc check valves with hydraulic cushions.

(2) All valves shall be hydrostatically tested, and seat tested to demonstrate zero leakage. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals.

(3) The exterior and interior of the valve shall be coated with an NSF/ANSI 61 approved fusion bonded epoxy coating.

(4) Swing Check Valves shall be Surgebuster® Series #7200 as manufactured by Val-Matic® Valve & Mfg. Corporation, Elmhurst, IL. USA or approved equal.