JEFFERSON PARISH
PURCHASING DEPARTMENT

CYNTHIA LEE SHENG
PARISH PRESIDENT

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DIRECTOR

December 8, 2025

ADDENDUM # 1

Bid Number: 50-00149116

Due Date: December 11, 2025
Postponed Due Date: December 18, 2025

Purchase of Sluice Gates and Portable Actuators for The Jefferson Parish Department of Drainage

Question and Answer:

1. **Question:** Would you have an arrangement drawing of the existing sluice gate?

   Answer: I have added the drawing to the specifications.

*****PLEASE SEE THE REVISED SPECIFICATIONS ATTACHED. *****

*****PLEASE REMEMBER TO ACKNOWLEDGE THIS ADDENDUM BY NUMBER ON YOUR BID SUBMISSION****

Sincerely,

Stacey Champagne
Purchasing Specialist II
Jefferson Parish Purchasing Department

Bidders must acknowledge all addenda on the bid form. Bidder acknowledges receipt of this addendum on the bid form by indicating the addendum number listed above. Failure to list each addenda number on the bid form will result in bid rejection.

This addendum is a part of the contract documents and modifies the original bidding documents and specifications. The contents of this addendum shall be included in the contract documents. Changes made by this addendum shall take precedence over the documents of earlier date.

Addendum #1 Revised Specifications

Purchase of a Sluice Gates and Portable Actuators

Bid #50-00149116

The intent of this specification is to define the minimum requirements of the Parish of Jefferson for the purchase, testing, and delivery for one (1) new sluice gate assembly and one (1) portable actuator that will be installed at the at the Harahan Pump to River Pump Station.

Submittals:

If a vendor submits a bid with any exception to this specification, upon request from Jefferson Parish the vendor may be required to submit a letter attached to the documents listing in detail how it differs from the specifications within five business days from the initial request for submittal. Any bidder not able to supply information shall be considered non-responsive and shall not be accepted.

Mere attachment of brochures covering standard manufactured equipment when such differs from these specifications shall not be adequate to satisfy the letter of exceptions request. Such items may include:

- A complete specification and submittal of all major components for the proposed items
- One copy of all pump "Bill of Materials" of the unit's construction, cutaway drawings, and dimensions as offered to confirm compliance with the specifications.
- One descriptive brochure showing photographs and/or describing the items.

Quality Assurance:

The vendor shall furnish a qualified field representative for a minimum of two working hours before Jefferson Parish personnel installs units, and two hours after installation to provide guidance and train Owner's personnel in routine maintenance and troubleshooting procedures. This will be conducted at the Harahan Pump to River Pump Station located at 1088 Dickory Ave, Harahan, LA 70123. All inspection and consulting shall be done during operating hours between 8:00 AM and 4:00 PM Monday through Friday.

It is the responsibility of the vendor to verify field information and conformity which meets or exceeds this specification.

Vendor is responsible for field site visit to verify a seamless integration into the current system. Appointments may be scheduled by emailing Jamal Singleton (jsingleton@jeffparish.net) or calling 504-349-5037.

Delivery and Installation:

Installation of sluice gate shall be completed by Jefferson Parish personnel and delivery of all items shall be made to the Harahan Pump to River Pump Station located at 1088 Dickory Ave, Harahan, LA 70123. All deliveries shall be made during normal operating hours between 8:00 AM and 4:00 PM Monday through Friday. Deliveries will not be accepted on Jefferson Parish holidays. All freight shall be included in base bid.

Warranty:
The sluice gate shall have a 5-year manufacturer's warranty effective from the date of delivery. The portable actuator shall have a 1-year manufacturer's warranty effective from the date of delivery.

Specifications:

Item 0010 – Sluice Gate

- The sluice gate assembly's total channel, frame, and gate assembly width shall be ten (10) feet to match the existing sluice gate assembly.
- The sluice gate assembly's total channel height from the concrete box culvert invert to the top of the finished grade shall be two hundred twenty-seven (227) inches to match the existing sluice gate assembly.
- The sluice gate assembly's total height from the concrete box culvert invert to the top of the actuator mounting plate shall be two hundred fifty-seven (257) inches to match the existing sluice gate assembly.
- The sluice gate's total stem diameter shall be 2-1/2".
- The sluice gate's total stem length shall be 197".
- The sluice gate's total travel length shall be 84".
- The sluice gate's full open/close travel time shall be maximum 235 seconds.
- The slide gate shall be capable of seating and unseating with a head condition of 20 ft and be capable of providing sealed closure for the head condition from either side of the gate (bi-directional flow).
- The sluice gate shall be capable of fully opening/closing under maximum 300 cfs flow conditions.

PART 1 GENERAL

1.1 SCOPE OF WORK

This section covers stainless steel sluice gates with 4 sides sealing for submerged applications and their associated accessories for operation. The vendor shall furnish all labor, materials, equipment and incidentals required to deliver and field test the gate specified herein.

1.2 REFERENCES

A. Definitions

Design Head: The maximum differential head that will be applied on the gate under worst case conditions, measured from the gate invert.

Seating Head: Head applied on a wall mounted gate, in the direction that pushes the gate against the wall it is installed on.

Unseating Head: Head applied on a wall mounted gate in the direction pulling the gate away from the wall it is installed on.

Operating Head: The highest differential head that is to be applied on the gate when it needs to be operated, measured from the gate invert.

B. Reference Standards

ANSI/AWWA C561 – Fabricated Stainless Steel Sluice gates.

ANSI/AWWA C542 – Electric Motor Actuators for Valves and Sluice gates.

ASTM A240/A240M – Standard Specification for Chromium and Chromium Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications.

ASTM A276 – Standard Specification for Stainless Steel Bars and Shapes.

ASTM A-380 Cleaning, descaling, and passivation of Stainless Steel

ASTM A582/A582M - Standard Specification for Free-Machining Stainless Steel Bars.

ASTM A790/790M - Standard Specification for Seamless and Welded Ferritic / Austenitic Stainless-Steel Pipe.

ASTM B179 - Standard Specification for Aluminum Alloys in Ingot and Molten Forms for Castings from All Casting Processes.

ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.

ASTM D2000 - Standard Classification System for Rubber Products in Automotive Applications.

ASTM D4020 - Standard Specification for Ultra-High-Molecular-Weight Polyethylene Molding and Extrusion Materials.

ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

1.3 SUBMITTALS

A. Drawings

The sluice gates manufacturer shall submit, for acceptance by the purchaser, general arrangement drawings of the equipment supplied under this section. Drawings must indicate all dimensions that will allow the contractor to ensure coordination with dimensions of the installation environment. Drawings will also show sufficient details to determine compliance with the requirements, including the stainless-steel plate thickness used for all components. Drawings shall also include certification that the sluice gates supplied meet all requirements of the latest edition of AWWA C561.

B. Design Calculations

The gate manufacturer shall submit, for acceptance by the purchaser, design calculations demonstrating compliance with the design requirements of these specifications and those of the latest edition of AWWA C561. In particular, calculations shall be submitted for the following gate components:

- Slide
- Seat contact pressure
- Frame
- Yoke
- Stem, stem connection
- Lifting nut
- Manual actuator operating force
- Electric actuator load
- Anchors

C. Test Reports

The gate manufacturer shall submit upon request, for information, the leakage and operation test reports specific to the actual gates that are being supplied demonstrating their compliance with the maximum leakage rate and maximum operating force allowed.

D. Installation, Operation and Maintenance Manual

The gate manufacturer shall provide a manual containing the instructions for installation, operation and maintenance of the sluice gates. The manual shall also contain the detailed information on the terms of the 5-year warranty on the products.

1.4 QUALITY ASSURANCE

A. Qualifications

The gates supplied under this section shall be standard products of a manufacturer regularly engaged in the design and manufacturing of water control gates. The specifications are based on FONTAINE-AQUANOX Series 20 Sluice gates manufactured by ISE Metal Inc.

B. Standards and Certifications

The gates supplied under this section shall conform to all requirements of the latest edition of ANSI/AWWA C561. The sluice gate manufacturer must maintain an ISO-9001 certification and also a company certification for its welding operations from the CWB or AWS.

1.5 DELIVERY

The manufacturer shall use due and customary care in preparing the gates and accessories for shipment. Self-contained frame gates shall be shipped assembled with stem and manual operator. When shipping several gates together, every item shipped separately must be clearly marked to the gate it belongs to.

1.6 WARRANTY

The sluice gates and manual operating accessories shall be covered by a five (5) year warranty from the manufacturer against defects in materials, design and workmanship. The warranty period will start from the date of delivery of the equipment to the installation site.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Manufacturers

Gates supplied shall be FONTAINE-AQUANOX Series 20 Sluice gates, as manufactured by ISE Metal Inc., or approved equal.

B. Description

The gates shall be upwards opening of the 4 sides sealing type designed for submergence in water or wastewater applications. They shall have flow control capability by allowing only flow through the open area in partial opening situations. As specified in the gate schedule, each gate shall be either open-frame or self-contained-frame design and either rising or non-rising stem configuration.

C. Performance and Design

1. Slide

a) The slide consisting of a flat plate with welded reinforcing ribs shall be designed to withstand the design head specified in the gate schedule with a maximum deflection of 1/720 of the gate opening width or 1/16 in (1.6mm) whichever is less and with stresses in the slide limited to 25% of the ultimate tensile, compressive, and shear strength and 50% of the yield strength, whichever is less.

b) Minimum material thickness of all members of the slide shall be ¼ in (6mm).

2. Frame

a) The gate frame shall be made of formed plates or structural members creating the clear opening of the specified dimensions in a rigid one-piece unit. The mounting and bolting flange of the frame to the wall shall be separate and independent from the seating and sealing plane of the slide.

b) The bottom of the frame will be of the flush invert type.

c) Stresses in the frame under design head shall not exceed 25% of the ultimate tensile, compressive, and shear strength and 50% of the yield strength, whichever is less.

d) Minimum material thickness of all members of the frame shall be ¼ in (6mm).

3. Yoke

a) Gates specified as self-contained design shall include a yoke consisting of a beam made of formed plates or structural members mounted on top of the frame to permit mounting of the actuator with proper stem alignment by the use of slotted holes in both directions.

b) The yoke shall be sized to limit deflection under the design load to a maximum of 1/360 of the gate opening width or ¼ in (6mm) whichever is less. The yoke design load must be considered as the vertical thrust generated by a 80 lbs (356 N) force on the crank or handwheel (for a manual actuator) or by the actuator in locked rotor condition (for an electric actuator).

c) Per the latest edition of AWWA C561, the stresses in the yoke generated by the design load shall not exceed (for a manual actuator) 25% of the ultimate tensile, compressive, and shear strength and 50% of the yield strength, whichever is less, or (for an electric actuator) 2/3 of the yield strength.

4. Guiding and Seating

a) The slide shall seat and travel on guides made of ultra-high molecular weight polyethylene (UHMWPE) designed to perform for the life of the sluice gate without replacement.

b) The slide shall be kept in positive contact with the guides on both its upstream and downstream faces, all along its travel in the gate clear opening by an elastomeric cord. Above the gate clear opening, the guides shall extend high enough to ensure that the slide is supported on a minimum of 1/2 of its height when fully opened.

c) The low friction guides shall be secured to the frame by bolted retainers permitting field adjustment of the contact pressure with the slide.

d) Gates frames designed as channel shaped guides with added UHWPE pads simply bolted inside the channel, not providing adjustment of the slide contact pressure by bolts will not be allowed.

e) The surface of contact on the side seats shall be large enough to limit the stress under the design head to 600 psi (4137 KPa) without considering the top and bottom seats as load bearing.

5. Sealing

a) The guides combined with the elastomeric cord will provide sealing on both sides of the opening.

b) The compression cord shall push and close the UHMWPE seal as the gate opens to prevent grit and dirt to penetrate the guiding slot. Wide channel shaped guiding slots allowing accumulation of dirt and grit will not be accepted.

c) Sealing at the top section of the gate will also be achieved with a UHMWPE seat maintained in contact by an elastomeric cord.

d) At the gate invert, the slide shall close on a flush invert rubber seat/seal secured in the bottom member of the gate frame. Bottom seals attached to the slide and rubbing against the side seals will not be allowed, nor will rubber seals that are not flush bottom.

e) Under the design seating or unseating head specified in the gate schedule, the sluice gates shall restrict leakage to a maximum of 0.04 gpm/ft (0.5 l/min/m) of clear opening perimeter. Manufacturer shall be able to demonstrate that the sealing system will retain its performance even after 25,000 operating cycles.

6. Stem Connection

a) In the case of gates with rising stems, the stem or its extension will be connected to the slide by means of a pinned connection. For gates with non-rising stems, the connection to the slide shall be by means of a threaded thrust nut matching the stem threads.

b) Stem connection design shall limit the stress under the design load to a maximum of 25% of the ultimate tensile, compressive, and shear strength and 50% of the yield strength. The stem connection design load shall be the thrust and torque developed when a 80lbs (356N) efforts is applied the crank or handwheel (for a manual actuator), or 1.5 times the thrust and torque developed with the actuator installed condition (for electric motors).

7. Stem

a) The stem configuration shall be rising or non-rising according to the type specified in the schedule. The threads shall be machine rolled ACME left hand threads with double entry to minimize the number of turns required for operation and provide gate opening by counterclockwise rotation of the manual actuator. Surface finish of the machined threads will be 32 micro inch (0.813 μm) or better.

b) For manually operated gates with rising stem, the stem shall be equipped with an adjustable stop collar to prevent over-closing the gate and potentially damaging components.

c) The stem shall be sized so that its critical buckling load (as determined by the Euler column formula) is higher than the design compression load, defined as the vertical force developed by a 80lbs (356N) effort applied on the crank or handwheel (for a manual actuator), or 1.5 times the thrust and torque developed with the actuator installed condition (for electric motors).

8. Couplings

The required stem extensions shall be joined together or to the threaded stem by means of a bolted connection, passing through both pipe and stem.

9. Stem guides

Guides will be provided as required to meet the stem buckling design criteria and positioned per the manufacturer's recommendations to ensure that the length to radius of gyration ratio (l/r) does not exceed 200. The guides shall incorporate a UHMWPE bushing supported by a stainless-steel wall bracket adjustable in both horizontal directions.

D. Electric Actuators

Refer to the specification for Electric Actuators on page 10.

E. Anchor Bolts

1. The quantity, size and location of anchor bolts shall be determined by the gate manufacturer and shown on the submittal drawings. The minimum required load capacity of the anchors used for design must also be indicated on the drawings.

F. Materials

Slide, Frame and Yoke	Stainless Steel	ASTM A240, grade 316L or 304L
Side Seal/Guides and Top Seal	Ultra-High Molecular Weight Polyethylene (UHMWPE)	ASTM D4020
Flush Invert Bottom Seal	Ethylene Propylene (EPDM)	ASTM D2000
Compression Cord	Ethylene Propylene (EPDM)	ASTM D2000
Wall Gasket	Ethylene Propylene (EPDM)	ASTM D2000
Bolts and Hardware	Stainless Steel	ASTM F593, grade 316
Stem	Stainless Steel	ASTM A582, grade 316 or 304
Thrust Nut and Lift Nut	Aluminum Bronze or Manganese Bronze	ASTM B505, C95800 ASTM B584, C86300
Stem Couplings	Stainless Steel	ASTM A582, grade 316
Steam Guide Bracket	Stainless Steel	ASTM A582, grade 316

Stem Guide Bushing	Ultra-High Molecular Weight Polyethylene (UHMWPE)	ASTM D4020
Handwheel	Cast Aluminum	ASTM B179
Crank	Aluminum	ASTM B209, 6061-T6
Pedestal	Stainless Steel	ASTM F593, grade 316
Gearbox Housing	Cast Iron	ASTM A48 35B/40B
Square Nut	Cast Aluminum	ASTM B179
Stem Cover	Clear PVC	
Stem Cover Cap	PVC	

2.2 CLEANING

A. Before assembly, slide, frame, yoke, pedestal and all others welded parts shall be completely cleaned by abrasive blast using single-use glass bead or crushed glass, never recycled. All the surfaces of all parts shall be cleaned, in order to remove all contaminants and allow the stainless-steel surface to passivate by spontaneously forming a chemically resistant surface when exposed to air. Cleaning only the welds by paste or other chemical means is not an acceptable method to remove all contaminants from the fabrication process and achieve the required level of passivation per ASTM A-380.

2.3 FACTORY TESTING

The gates shall be tested in the factory for leakage and for operating force. Leakage shall be measured at the unseating design pressure. Operating force shall be measured with and without the design pressure. Factory test reports shall be available on request for all gates supplied.

PART 3 EXECUTION

3.1 FIELD TESTING

A. After installation, the gates must be field tested by the Vendor, in the presence of the Owner, to ensure compliance with the requirements of these specifications. Each gate shall be operated on its complete open-close cycle to confirm operation without binding, scraping or distorting. Operating effort on the crank, handwheel or T-wrench shall be observed or measured. In the case of motorized actuators, the operating torque shall be noted, and the initial set-up of each actuator shall be done in accordance with the instructions in the manual.

B. Each gate shall be water tested by the Contractor and sealing performance shall be observed.

C. The Contractor shall supply a detailed report of the field tests to the Engineer for review.

STAINLESS STEEL SLUICE GATES SCHEDULE

Item	ID TAG	Qty	SIZE (w X h) (inches)	DESIGN HEAD (ft) Seat	Uns.	FRAME TYPE	STEM TYPE	ACTUATOR TYPE	ACTUATOR MOUNTING	T-WRENCH Yes/No -- Qty

Abbreviations

Frame Type:

SC: Self-Contained

NSC: Non-Self-Contained

Actuator Types:

H: Handwheel

GC: Gearbox and Crank

GH: Gearbox and Handwheel

EM: Electric Motor Actuator

SN: Square Nut

Actuator Mounting

P: Pedestal Mounted

PB: Pedestal Mounted with Wall Bracket

F: Floor Box

Y: Yoke Mounted

Electric Actuator

General specification multi-turn electric actuators

1. General

The actuators shall be suitable for use on a nominal 460-volt, 3 phase, 60 Hz power supply and are to incorporate motor, integral reversing starter, local control facilities and terminals for remote control and indication connections housed within a self-contained, sealed enclosure.

As a minimum the actuators should meet the requirements set out in EN15714-2 and ISA SP96.02

In order to maintain the integrity of the enclosure, setting of the torque levels, position limits and configuration of the indication contacts etc. shall be carried out without the removal of any actuator covers and without mains power over an Infra-red or *Bluetooth*® wireless interface. Sufficient commissioning tools shall be provided with the actuators and must meet the enclosure protection and certification levels of the actuators. Commissioning tools shall not form an integral part of the actuator and must be removable for secure storage / authorized release. In addition, provision shall be made for the protection of configured actuator settings by a means independent of access to the commissioning tool. Provision shall be made to disable *Bluetooth®* communications or only allow a *Bluetooth®* connection initiated by an Infra-Red command for maximum security.

The actuator shall include a device to ensure that the motor runs with the correct rotation for the required direction of valve travel irrespective of the connection sequence of the power supply.

All stem machining shall be coordinated with the Drainage Department.

Complete drawings and O&M information shall be provided upon delivery.

Maximum 86 rpm input to gearbox.

Gearbox ratio: 4:1

Actuator shall be Rotork IQ35 series with IB9 gearbox or engineer approved equal.

2. Actuator Sizing

The actuator shall be sized to guarantee gate closure at the specified differential pressure and temperature. The safety margin of motor power available for seating and unseating the gate shall be sufficient to ensure torque switch trip at maximum torque with the supply voltage 10% below nominal.

3. Environmental

Actuators shall be suitable for indoor and outdoor use. The actuator shall be capable of functioning in an ambient temperature ranging from -33°C (22°F) to 70°C (140°F), up to 100% relative humidity. Actuators for hazardous area applications shall meet the area classification, gas group and surface temperature requirements specified in data sheet.

4. Enclosure

Actuators shall be o-ring sealed, watertight to IP66/IP68 7m for 72hrs, NEMA 4, 6. The motor and all other internal electrical elements of the actuator shall be protected from ingress of moisture and dust when the terminal cover is removed for site for cabling, the terminal compartment having the same ingress protection rating as the actuator with the terminal cover removed.

Enclosure must allow for temporary site storage without the need for electrical supply connection.

All external fasteners shall be plated stainless steel. The use of un-plated stainless steel or steel fasteners is not permitted.

5. Motor

The motor shall an integral part of the actuator, designed specifically for valve actuator applications. It shall be a low inertia high torque design, class F insulated with a class B temperature rise giving a time

rating of 15 minutes at 40°C (104°F) at an average load of at least 33% of maximum valve torque. Temperature shall be limited by 2 thermostats embedded in the motor end windings and integrated into its control. Electrical and mechanical disconnection of the motor should be possible without draining the lubricant from the actuator gearcase.

6. Motor Protection

Protection shall be provided for the motor as follows:

- Stall - the motor shall be de-energized within 8 seconds in the event of a stall when attempting to unseat a jammed valve.
- Over temperature - thermostat will cause tripping of the motor. Auto-reset on cooling
- Single phasing - lost phase protection.
- Direction – phase rotation correction.

7. Gearing

The actuator gearing shall be totally enclosed in an oil-filled gearcase suitable for operation at any angle. Grease lubrication is not permissible. All drive gearing and components must be of metal construction and incorporate a lost-motion hammer blow feature. For rising spindle valves the output shaft shall be hollow to accept a rising stem, and incorporate thrust bearings of the ball or roller type at the base of the actuator. The design should be such as to permit the opening of the gearcase for inspection or disassembled without releasing the stem thrust or taking the valve out of service. For 90° operating type of valves drive gearing shall be self-locking to prevent the valve back-driving the actuator.

8. Hand Operation

A handwheel shall be provided for emergency operation, engaged when the motor is declutched by a lever or similar means, the drive being restored to electrical operation automatically by starting the motor. The handwheel or selection lever shall not move on restoration of motor drive. Provision shall be made for the hand/auto selection lever to be locked in both hand and auto positions. It should be possible to select hand operation while the actuator is running or start the actuator motor while the hand/auto selection lever is locked in hand without damage to the drive train.

Clockwise operation of the handwheel shall give closing movement of the valve unless otherwise stated in the data sheet. For linear valve types the actuator handwheel drive must be mechanically independent of the motor drive and should be such as to permit valve operation in a reasonable time with a manual force not exceeding 400N through stroke and 800N for seating/unseating of the valve.

9. Drive Interface

The actuator shall be furnished with a drive bushing easily detachable for machining to suit the valve stem or gearbox input shaft. The drive bush shall be positioned in a detachable base of the actuator. Thrust bearings shall be sealed for life and the base shall be capable of withstanding five times the rated thrust of the actuator.

10. Local Controls

The actuator shall incorporate local controls for Open, Close and Stop and a Local/Stop/Remote mode selector switch lockable in any one of the following three positions: local control only, stop (no electrical operation), remote control plus local stop only. It shall be possible to select maintained or non-maintained local control.

The local controls shall be arranged so that the direction of valve travel can be reversed without the necessity of stopping the actuator. The local controls and display shall be rotatable through increments of 90 degrees to suit valve and actuator orientation.

11. Torque and Limits

Torque and turns limitation to be adjustable as follows:

- Position setting range – multi-turn: 2.5 to 8,000 turns, with resolution to 7.5 deg. of actuator output.
- Position setting range – direct drive part turns actuators: 90° +/-10°, with resolution to 0.1 deg. of actuator output.
- Torque setting: 40% to 100% rated torque.

Position measurement – Absolute position measurement should be incorporated within the actuator. The technology must be capable of reliably measuring position even in the case of a single fault. The design must be simple with the minimum amount of moving parts (no more than 5). Technologies such as LEDs or potentiometers for position measurement are considered unreliable and therefore not preferred.

Measurement of torque shall be from direct measurement of force at the output of the actuator. Methods of determining torque-using data derived from the motor such as motor speed, current, flux etc are not acceptable

A means for automatic “torque switch bypass” to inhibit torque off during valve unseating and “latching” to prevent torque switch hammer under maintained or repeated control signals shall be provided.

The electrical circuit diagram of the actuator should not vary with valve type remaining identical regardless of whether the valve is to open or close on torque or position limit.

12. Remote Valve Position and Status Indication

Four contacts shall be provided which can be selected to indicate any position of the valve; Provision shall be made for the selection of a normally closed or open contact form. Contacts shall maintain and update position indication during handwheel operation when all external power to the actuator is isolated.

The contacts shall be rated for 5mA to 5A, 120V AC, 30V DC.

As an alternative to providing valve position indication any of the four above contacts shall be selectable to signal one of the following:

- Valve opening, closing or moving
- Thermostat tripped, lost phase
- Motor tripped on torque in mid travel, motor stalled
- Remote selected
- Actuator being operated by handwheel
- Actuator fault

Provision shall be made in the design for an additional eight contacts having the same functionality.

A configurable monitor relay shall be provided as standard, which can be used to indicate either Availability or Fault. The relay should be a spring return type with a Normally Open / Normally Closed contact pre-wired to the terminal bung.

The Monitor (availability or fault) relay, being energized from the control transformer will de-energize under any one or more the following conditions:

Available Mode

- Loss of main or customer 24V DC power supply
- Actuator control selected to local or stop
- Motor thermostat tripped
- Actuator internal fault

Fault Mode

- Loss of main or customer 24V DC power supply
- Motor thermostat tripped
- Actuator internal fault

Provision shall be made in the design for the addition of a contactless transmitter to give a 4-20mA analogue signal corresponding to valve travel and / or torque for remote indication when required. The transmitter will auto range to the set limits

13. Local Position Indication

The actuator display shall include a dedicated numeric/symbol digital position indicator displaying valve position from fully open to fully close in 0.1% increments. Valve closed and open positions shall be indicated by symbols showing valve position in relation to the pipework to ensure that valve status is clearly interpreted. With mains power connected, the display shall be backlit to enhance contrast at all ambient light levels and shall be legible from a distance of at least 5m (16ft).

Red, green, and yellow LEDs corresponding to open, closed and intermediate valve positions shall be included on the actuator display when power is switched on. The yellow LED should also be fully programmable for on/off, blinker and fault indication. The digital display shall be maintained and updated during handwheel operation when mains power to the actuator is isolated.

The actuator display shall include a fully configurable dot-matrix display element with a minimum pixel resolution of 168 x 132 to display operational, alarm, configuration and graphical datalogger information. The text display shall be selectable between English and other languages such as: Spanish, German, French, and Italian. Provision shall be made to upload a different language without removal of any covers or using specialized tools not provided as standard with the actuator.

Datalogger graphical displays should as a minimum be able to display log and trend graphs on the local LCD for the following:

- Torque versus Position
- Number of Starts versus Position
- Number of starts per hour
- Dwell Time
- Average temperature

The main display shall be capable of indicating 4 different home-screens of the following configuration:

- Position and status
- Position and torque (analogue)
- Position and torque (digital)
- Position and demand (positioning)

Provision shall be made for the addition of an optional environmental cover to protect the display from high levels of UV radiation or abrasive materials.

The local controls and display shall be rotatable through increments of 90 degrees to suit valve and actuator orientation.

14. Integral Starter and Transformer

The reversing starter, control transformer and local controls shall be integral with the valve actuator, suitably housed to prevent breathing and condensation. The starter shall be suitable for 60 starts per hour and of rating appropriate to motor size. The controls supply transformer shall be fed from two of the incoming three phases and incorporate overload protection. It shall have the necessary tapping and be adequately rated to provide power for the following functions:

- Energizing of the contactor coils.
- 24V DC or 110V AC output for remote controls (maximum 5W/VA)
- Supply for all the internal electrical circuits.

15. Remote Control Facilities

The necessary control, wiring and terminals shall be provided integral to the actuator enclosure. Open and close external interlocks shall be made available to inhibit local and remote valve opening / closing control. It shall be possible to configure the interlocks to be active in remote control only.

Remote control signals fed from an internal 24V DC (or 110VAC) supply and/or from an external supply between 20V and 60 VDC or 40V and 120VAC, to be suitable for any one or more of the following methods of control:

- Open, Close and Stop control.
- Open and Close maintained or “push to run” (inching) control.
- Overriding Emergency Shut-down to close (or open) valve from a normally closed or open contact.
- Two-wire control, energize to close (or open), de-energize to open (or close).

Additionally, provision shall be made for a separate ‘drive enable’ input to prevent any unwanted electrical operation.

It shall be possible to reverse valve travel without the necessity of stopping the actuator. The motor starter shall be protected from excessive current surges during rapid travel reversal. The internal circuits associated with the remote control and monitoring functions are to be designed to withstand simulated lightning impulses of up to 2kV.

Provision shall be made for operation by distributed control system utilizing the modbus network system as well as hard wired start/stop and open close status. A 4 to 20 ma output signal shall be available.

16. Monitoring Facilities

Facilities shall be provided for monitoring actuator operation and availability as follows:

Actuator text display indication of the following status/alarms:

- Closed Limit, open limit, moving open, moving closed, stopped
- Torque trip closing, torque trip opening, stalled
- ESD active, interlock active
- Thermostat trip, phase lost, 24V supply lost, Local control failure
- Configuration error, Position sensor failure, Torque sensor failure
- Battery low, power loss inhibits

Integral datalogger to record and store the following operational data:

- Opening last /average torque against position
- Closing last /average torque against position
- Opening motor starts against position
- Closing motor starts against position
- Total open/closed operations
- Maximum recorded opening and closing torque values
- Event recorder logging operational conditions (valve, control and actuator)

The datalogger shall record relevant time and date information for stored data.

Datalogger data shall be accessed via non-intrusive *Bluetooth®* communication and data displayed on the local LCD. Sufficient standard intrinsically safe tools shall be provided for downloading datalogger and actuator configuration files from the actuators and subsequent uploading to a PC. The actuator manufacturer shall supply PC software to enable datalogger files to be viewed and analyzed.

17. Wiring and Termination

Internal wiring shall be tropical grade PVC insulated stranded cable of appropriate size for the control and 3-phase power. Each wire shall be clearly identified at each end. The terminals shall be embedded in a terminal block of high tracking resistance compound.

The terminal compartment shall be separated from the inner electrical components of the actuator by means of a watertight seal and shall be provided with a minimum of 3 threaded cable entries with provision for an additional 5 extra conduit entries.

All wiring supplied as part of the actuator to be contained within the main enclosure for physical and environmental protection. External conduit connections between components are not acceptable. A durable terminal identification card showing a plan of terminals shall be provided attached to the inside of the terminal box cover indicating:

- Serial number
- External voltage values
- Wiring diagram number
- Terminal layout

The code card shall be suitable for the contractor to inscribe cable core identification alongside terminal numbers.

18. Commissioning Kit

Each actuator shall be supplied with a start-up kit comprising installation instruction manual, electrical wiring diagram and cover seals to make good any site losses during the commissioning period. In addition, sufficient actuator commissioning tools shall be supplied to enable actuator set up and adjustment during valve/actuator testing and site installation commissioning.

19. Performance and Test Certificate

Each actuator must be performance tested and individual test certificates shall be supplied free of charge. The test equipment should simulate a typical valve load, and the following parameters should be recorded.

- Current at maximum torque setting
- Torque at max. torque setting
- Flash test voltage
- Actuator output speed or operating time.

In addition, the test certificate should record details of specification such as gear ratios for both manual and automatic and second stage gearing if provided, drive closing direction, wiring diagram number.

Item 0020 – Portable Valve Actuator

1.0 General Description

The portable valve actuator shall be a self-contained, lightweight, and robust tool designed to efficiently and safely operate manual valves of various types and sizes. The actuator shall improve operator safety and comfort while preventing damage to the valve and associated equipment.

2.0 Functional Requirements

2.1 The actuator shall be adaptable to operate all types of handwheels, keys, and valves.

2.2 The actuator shall have a high torque output to handle stubborn valves.

2.3 The actuator shall be portable and suitable for both indoor and outdoor use.

2.4 The actuator shall be powered by a rechargeable battery system for cordless operation. A main power connection shall be available as an option for extended use.

2.5 The actuator shall have an electronic torque limiter to prevent damage to the valve and the tool.

2.6 The actuator shall include a switch to control the direction of rotation (clockwise/counterclockwise).

2.7 The actuator shall have a speed control function with multiple settings.

2.8 The actuator shall have an option for a revolution counter to monitor the rotating speed and the number of turns.

3.0 Technical Specifications

3.1 **Torque:**

- The actuator shall have a maximum torque output of at least 850 Nm.
- The actuator shall have an adjustable torque limiter with a minimum of 13 settings.

3.2 **Speed:**

- The actuator shall have a speed range of 0 to 450 rpm.
- The actuator shall have a speed control with at least 4 adjustable positions.

3.3 **Power:**

- The actuator shall be powered by two 18V Lithium-Ion batteries.
- The battery shall provide continuous operation for up to 30 min.
- An additional battery shall be provided in the kit.

3.4 **Weight:**

- The weight of the actuator shall be between 7.7 lbs and 11.9 lbs, depending on the model.

3.5 **Safety Features:**

- The actuator shall be designed for use by trained professional operators.
- The actuator shall comply with European Directive 2006/42/CE and relevant UK legislation.
- The actuator shall include an electronic torque limiter to prevent damage.
- The actuator kit shall include a torque reaction system to ensure safe operation.
- The portable valve actuator includes a Digital revolution counter.
- The supplier shall provide safety guidelines and instructions for the safe operation of the actuator.

4.0 Accessories

- The actuator shall be compatible with a range of adapters and accessories for different valve types and operating conditions.
- The actuator shall include adapters to operate:
    - Underground valves with a 2" square nut.
    - Adapter for use with existing slide gate gearbox.
- A backpack which enables easy storage and transportation of the actuator, two batteries, charger, reaction arm, telescopic valve key, sockets, and adapters shall be included with the actuator kit
    - Backpack shall have pre-cut protective foam storage
    - Backpack shall be made from pvc fabric with double reflective striping
    - Total weight of backpack when filled with complete kit shall be less than 15kg

5.0 Safety and Compliance

5.1 The actuator shall be designed and manufactured to minimize the risk of injury to the operator.

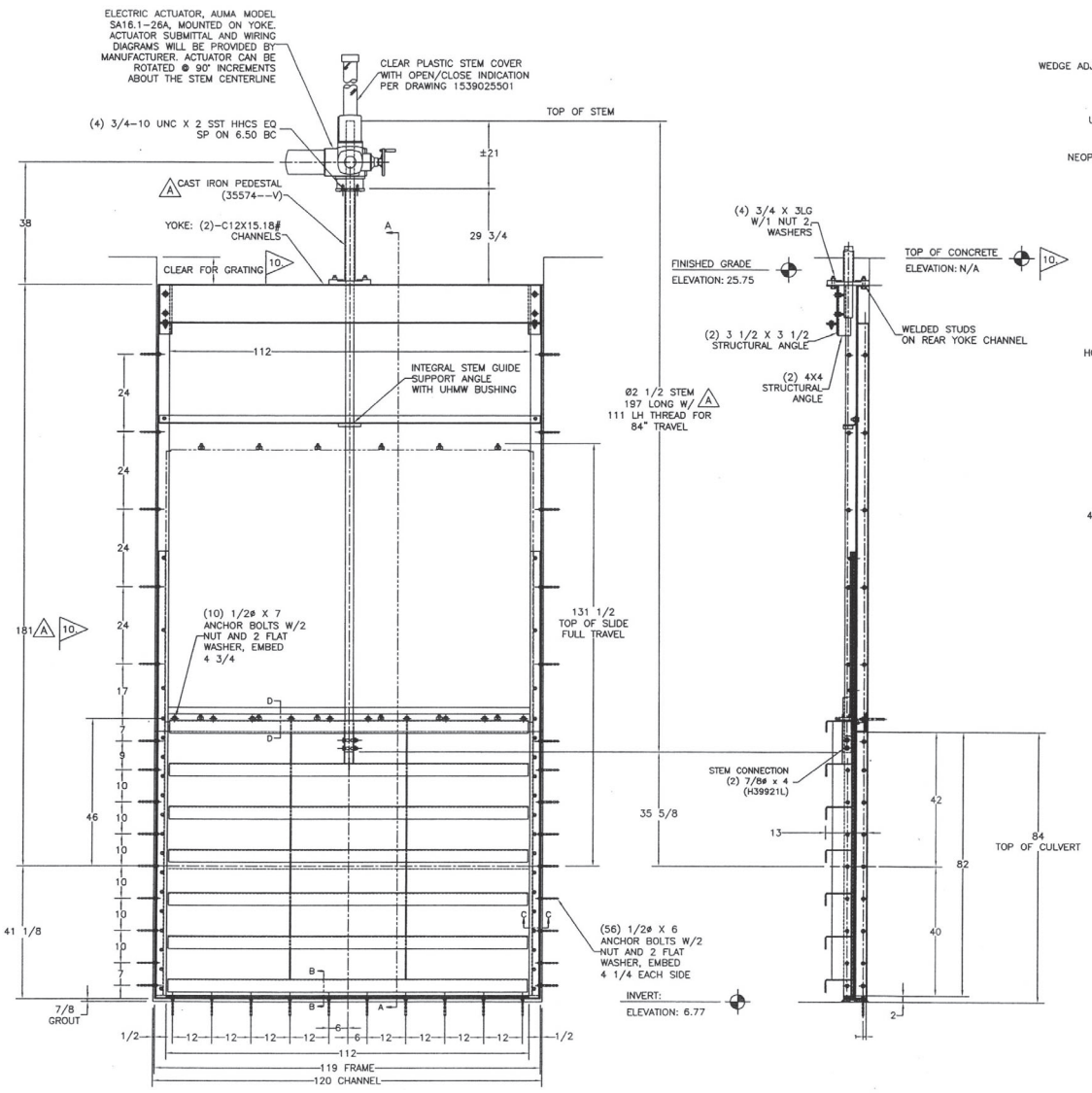
5.2 The supplier shall provide training to the operators on the safe and effective use of the actuator.

6.0 Training and Support

6.1 The supplier shall provide training to the operators on the safe and effective use of the actuator.

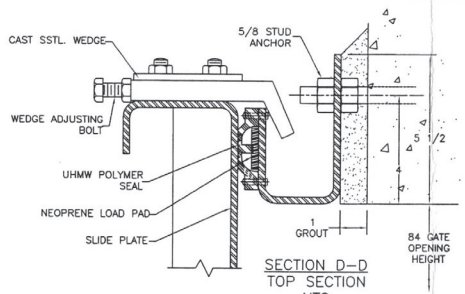
6.2 The supplier shall offer technical support and maintenance services for the actuator.

This specification is intended to define the minimum requirements for a portable valve actuator. Bidders are encouraged to highlight any additional features or capabilities of their products that exceed these requirements.

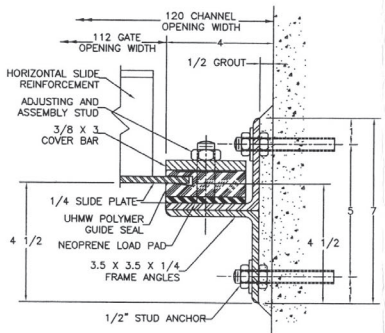


FRONT VIEW
GATE IN CLOSED POSITION
ENCASEMENT BOX REMOVED FOR CLARITY

SECTION A-A
ANCHORS/STEM REMOVED FOR CLARITY

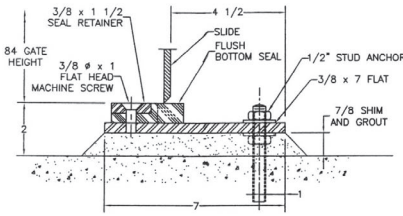


SECTION D-D
TOP SECTION
NTS



SECTION C-C
TYPICAL SIDE DETAIL
SCALE 4X

STUD ANCHOR DETAIL
(ADHESIVE NOT BY HYDRO)



SECTION B-B
TYPICAL INVERT DETAIL
SCALE 4X

NOTES:

1. CASTING TOLERANCES APPLY ON ALL UNMACHINED SURFACES.
2. SEE MANUAL G-2500 FOR INSTALLATION AND ADJUSTMENT INSTRUCTIONS.
3. ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
4. MATERIAL SPECIFICATIONS AND COATINGS PER DRAWING: 1539025500
5. GATE HEAD DESIGN SEATING: 16.5' MEASURED FROM GATE ℄ UNSEATING: 16.5' OPERATING DESIGN HEAD SEATING: 16.5' MEASURED FROM GATE ℄ UNSEATING: 16.5'
6. TAG: 120x84 HG561
7. LOCATION: DRAINAGE BOX CULVERT
8. REFERENCE SPECIFICATIONS SECTION: 35 20 16.53
9. REFERENCE PLAN DRAWINGS: C-106, C-107
10. PLEASE PROVIDE TOP OF CONCRETE ELEVATION OR SPECIFY DESIRED YOKE HEIGHT.

Hydro Gate

120" X 84" HG561 SLIDE GATE
SELF-CONTAINED, CHANNEL MOUNTED, RISING STEM
QUANTITY: ONE MATERIAL: 304 SST SCALE: 1"=3/8"

REV.	DATE	INITIALS
A	5/24/12	AJE

DRAWN BY	CUSTOMER NO.	SALES
AJE	MP1102-053	1539025
CHECKED BY	DATE	DRAWING NO.
AJE	4/24/12	1539025-01

MATERIAL SPECIFICATIONS

GATE PART OR ITEM OF ASSEMBLY	MATERIAL DESCRIPTION	MATERIAL CODE	MATERIALS SHOWN IN ASTM SPECIFICATION UNLESS NOTED OTHERWISE
EMBEDMENTS			
STUD ANCHORS	STAINLESS STEEL	(L)	A276, TYPE 304
STUD ANCHOR NUTS	STAINLESS STEEL	(L)	F594, ALLOY GROUP 1 (304)
GATE ASSEMBLY			
FRAME (SIDE ANGLES, FILLER AND COVER BARS) SLIDE PLATES AND REINFORCINGS	STAINLESS STEEL	(L)	A276, TYPE 304 (STRUCT.) A240, TYPE 304 (PLATES)
FASTENERS	STAINLESS STEEL	(L)	F593 (BOLTS), ALLOY GROUP 1 (304) F594 (NUTS), ALLOY GROUP 1 (304)
RETAINER	STAINLESS STEEL	(L)	A276, TYPE 304
FLUSH BOTTOM SEAL	EPDM	(BB)	D2000, GRADE 1BE625
UHMW SEATING SURFACE	POLYETHYLENE	(T)	D4020
STEM AND ACCESSORIES			
STEM	STAINLESS STEEL	(L)	A276, TYPE 304
△A LIFT PEDESTAL	CAST IRON	(A)	A126, CLASS B

COATING SPECIFICATIONS

CLEANING: ☒ BLAST CLEAN (PER STEEL STRUCTURES PAINTING COUNCIL)

NEAR WHITE BLAST GRADE SSPC-SP10

NON-SUBMERGED COATING: (PRIME COAT)

AMERON, AMERLOCK 400 HIGH SOLIDS EPOXY COLOR GR-2 MEDIUM GRAY

ONE SHOP COATS FOR A TOTAL DRY FILM THICKNESS OF 5 MILS MIN.

FOR THE FOLLOWING COMPONENTS:

NON-SUBMERGED COATING: (TOP COAT)

AMERON, AMERCOAT 450H POLYURETHANE COLOR GR-2 MEDIUM GRAY

ONE SHOP COATS FOR A TOTAL DRY FILM THICKNESS OF 3 MILS MIN.

FOR THE FOLLOWING COMPONENTS:

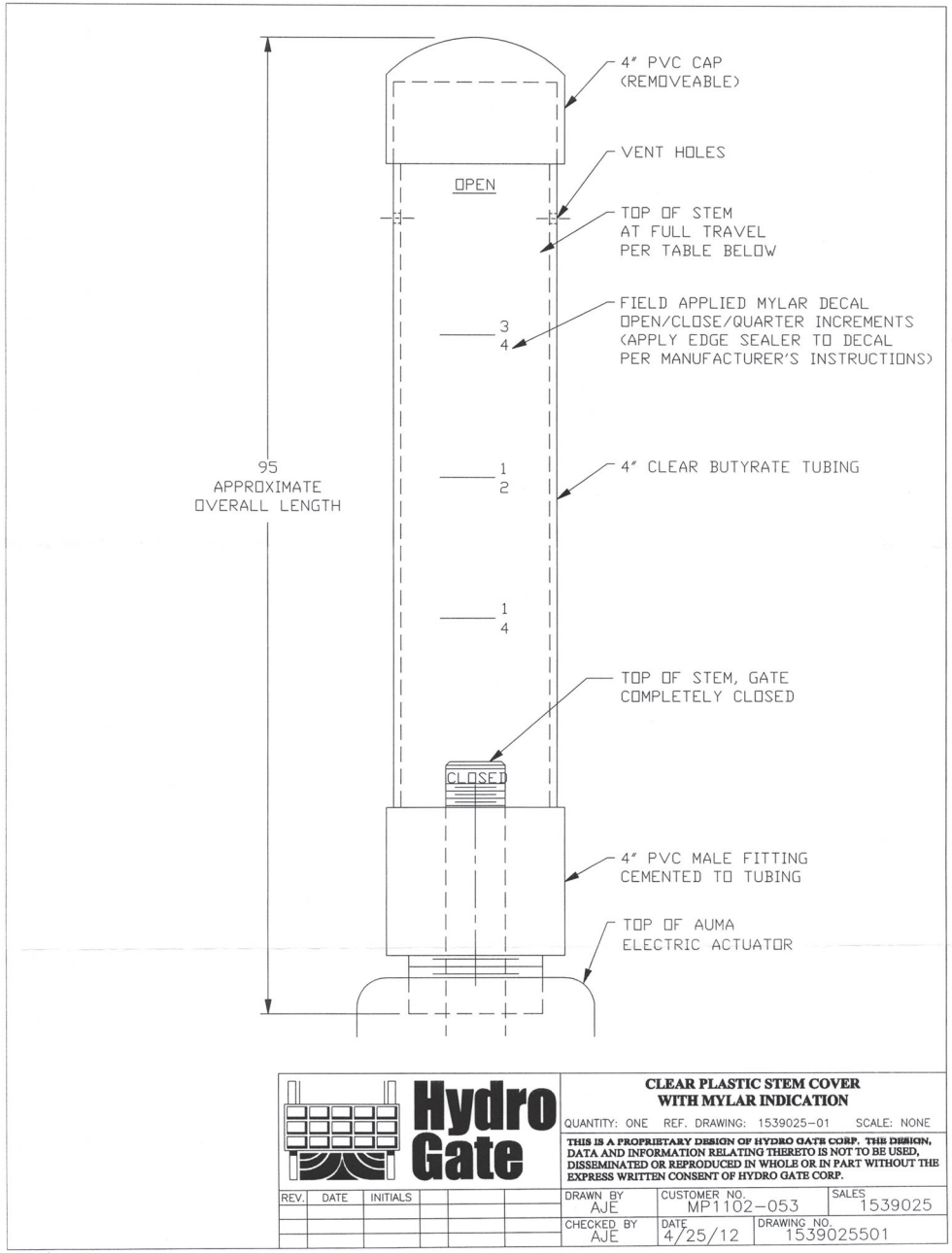
△A ☒ CAST IRON LIFT PEDESTAL

Hydro Gate

MATERIAL AND COATING SPECIFICATIONS FOR HG561S SLIDE GATES

REV.	DATE	INITIALS
A	5/24/12	AJE

DRAWN BY	CUSTOMER NO.	SALES
AJE	MP1102-053	1539025
CHECKED BY	DATE	DRAWING NO.
AJE	4/25/12	1539025500



Hydro Gate

CLEAR PLASTIC STEM COVER WITH MYLAR INDICATION

QUANTITY: ONE REF. DRAWING: 1539025-01 SCALE: NONE

REV.	DATE	INITIALS

DRAWN BY AJE	CUSTOMER NO. MP1102-053	SALES 1539025
CHECKED BY AJE	DATE 4/25/12	DRAWING NO. 1539025501