

# APPENDIX A

## SECTION 00 43 25

### SUBSTITUTION REQUEST FORM

#### PART 1 -- GENERAL

- A. General - Proposed substitutes and “or equal” items shall be submitted in accordance with Sacramento County Standard Specifications 5-14 “Substitutions”, and as specified herein:
- B. Requirement - Whenever equipment/material items are indicated in the Contract Documents by using the name of a proprietary item or the name of a particular Manufacturer/Supplier, the naming of the item is intended to establish the type, function, and quality required. If the Technical Specification indicates that a substitution is permitted, equipment or materials of other Manufacturers/Suppliers may be accepted if sufficient information is submitted to allow the OWNER to determine that the equipment/material proposed is equivalent or equal to that named, subject to the following requirements:
1. The burden of proof as to the type, function, and quality of any such substitution product, material or equipment shall be upon the submitting Manufacturer or Supplier.
  2. The OWNER will be the sole judge as to the type, function, and quality of any such substitution and the OWNER's decision shall be final.
  3. The submitting Manufacturer or Supplier shall furnish technical information and data about the proposed substitution that will allow the OWNER to evaluate conformance with the Contract Documents. In addition, an installation list with references of comparable installations shall be provided.
  4. The OWNER may require the submitting Manufacturer or Supplier to furnish a special performance guarantee or other surety with respect to any substitution.
  5. Acceptance by the OWNER of a substitution item shall not relieve the submitting Manufacturer or Supplier of the responsibility for full compliance with the Contract Documents and for the adequacy of the substitution.
  6. The submitting Manufacturer or Supplier shall be responsible for resultant changes including design and construction changes resulting from the changes which the accepted substitution requires in the Contractor's WORK, the WORK of its Subcontractors, and the work of other contractors.
- C. The procedure for review by the OWNER will include the following:
1. If the submitting Manufacturer or Supplier wishes to provide a substitution of an “or-equal” item, they shall make written application to the OWNER on the attached "Substitution Request Form" within 15 days of the Advertisement Date.
  2. Wherever a proposed substitution item has not been submitted within said 15-day period, or wherever the submission of a proposed substitution material or equipment has been judged to be unacceptable by the OWNER, the proposed substitution item will not be added to the Contract Documents via an Addendum and will not be allowed for use on the project.

3. The submitting Manufacturer or Supplier shall certify that the proposed substitution will perform adequately the functions and achieve the results called for by the general design, and be similar and of equal substance to that indicated, and be suited to the same use as that specified.
  4. The OWNER will evaluate each proposed substitution prior to the Bid date. If a proposed substitution is acceptable to the Owner, the Owner will revise the affected Technical Specifications and the Equipment/Material Supplier Listing.
- D. The submitting Manufacturer's or Supplier's application using the attached "Substitution Request Form" shall contain the following statements and information which shall be considered by the OWNER in evaluating the proposed substitution:
1. The evaluation and acceptance of the proposed substitution will not prejudice the achievement of Field Acceptance within the Contract Time.
  2. Whether or not acceptance of the substitution for use in the WORK will require a change in any Contract Documents to adopt the design to the proposed substitution.
  3. Whether or not incorporation or use of the substitution in connection with the WORK is subject to payment of any license fee or royalty.
  4. All variations of the proposed substitution from the items originally specified will be identified.
  5. Available maintenance, repair, and replacement service will be indicated. The Manufacturer or Supplier shall have a local service agency (within 150 miles of the site) which maintains properly trained personnel and adequate spare parts and is able to respond and complete repairs within 24 hours.
  6. The proposed substitute item meets or exceeds the experience and/or equivalency requirements listed in the appropriate Technical Specifications section.

- END OF PROPOSED SUBSTITUTIONS OR "OR EQUAL" ITEMS -

*Substitution Request Form*

To: \_\_\_\_\_  
\_\_\_\_\_

Project: \_\_\_\_\_  
Sacramento Regional County Sanitation  
Owner: District \_\_\_\_\_

Specified Item: \_\_\_\_\_

Section	Page	Paragraph	Description
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The undersigned requests consideration of the following:

**Proposed Substitution:** \_\_\_\_\_

Attached data includes product description, specifications, drawings, photographs, performance data, and test data adequate for evaluation of the request. Applicable portions of the data are clearly identified.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitution does not affect the equipment layout or dimensions shown on the Plans and will not require a change in any of the Contract Documents.
2. The proposed substitution provides equipment and/or material that is equal to or better than the equipment and/or material specified in the Technical Specifications.
3. The proposed substitution will have no adverse effect on the construction schedule (specifically the date of all schedule Milestones), or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.
5. The incorporation or use of the substitute in connection with the work is not subject to payment of any license fee or royalty.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item.

Submitted by: \_\_\_\_\_ Reviewed by: \_\_\_\_\_

Signature _____	<input type="checkbox"/> Accepted	<input type="checkbox"/> Accepted as Noted
	<input type="checkbox"/> Not Accepted	<input type="checkbox"/> Received too Late

Firm \_\_\_\_\_ By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_ Date: \_\_\_\_\_

Telephone: \_\_\_\_\_ Remarks: \_\_\_\_\_

Attachments: \_\_\_\_\_

**SECTION 00 43 33**

**PROPOSED PRODUCTS FORM**

Proposers shall designate the manufacturer of the equipment, materials and systems listed below. The listed manufacturers have products that comply with the requirements of the specifications. Circle one manufacturer for each item. If no manufacturer is circled below, the first manufacturer listed shall be provided. The circling of more than one for each item to be furnished shall not be permitted. Failure to comply with this requirement may render the Proposal non-responsive and may cause its rejection.

Proposer may request a proposed substitution in accordance with the SUBSTITUTION REQUEST FORM Section (00 43 25).

Item	Description	Section	Manufacturer/Supplier
1.	HEAVY-DUTY FABRICATED STAINLESS STEEL SLIDE GATES	40 05 59.34 40 05 57.13	a. H. FONTAINE b. WATERMAN IND. c. WHIPPS, INC. d. GOLDEN HARVEST e. _____
2.	PORTABLE ACTUATORS	40 05 59.62	a. GATE MANUFACTURER b. MILWAUKEE c. _____

**\*\*END OF SECTION\*\***

**SECTION 00 45 17**

**PROPOSER'S STATEMENT OF EXPERIENCE AND SUPPLEMENTAL  
INFORMATION**

**1.01 GENERAL**

As specified in the Request for Proposal Content, page 3, this statement of experience and supplemental information shall be submitted with the sealed Proposals. Failure to properly submit the following information will result in a non-responsive Proposal:

**1.02 EXPERIENCE – PASS/FAIL REQUIREMENTS**

An answer of “no” to any of the following questions will disqualify the Proposer:

1. Has the Proposer been manufacturing fabricated stainless steel slide gates from the same factory in the past 10 years?  
 Yes  No
  
2. Does the Proposer have a service center within 500 miles of the project site (8521 Laguna Station Rd, Elk Grove, CA, 95758)?  
 Yes  No
  
3. Has the Proposer manufactured and supplied fabricated stainless steel slide gates in North America to at least three projects in the last five years that each contained at least two gates with unseating heads greater than 25 feet, in a raw wastewater application?  
 Yes  No

Provide details on each of the three projects below:

Project Name \_\_\_\_\_  
Owner \_\_\_\_\_  
Owner's Contact Information (Name/Title/Phone No/Email) \_\_\_\_\_  
\_\_\_\_\_  
Date of Installation \_\_\_\_\_  
Total Number of Gates \_\_\_\_\_  
Size of Gates \_\_\_\_\_  
Maximum unseating head. \_\_\_\_\_  
Fluid \_\_\_\_\_

Project Name \_\_\_\_\_  
Owner \_\_\_\_\_  
Owner's Contact Information (Name/Title/Phone No/Email) \_\_\_\_\_  
\_\_\_\_\_  
Date of Installation \_\_\_\_\_  
Total Number of Gates \_\_\_\_\_  
Size of Gates \_\_\_\_\_  
Maximum unseating head. \_\_\_\_\_  
Fluid \_\_\_\_\_

Project Name \_\_\_\_\_  
Owner \_\_\_\_\_  
Owner's Contact Information (Name/Title/Phone No/Email) \_\_\_\_\_  
\_\_\_\_\_  
Date of Installation \_\_\_\_\_  
Total Number of Gates \_\_\_\_\_  
Size of Gates \_\_\_\_\_  
Maximum unseating head. \_\_\_\_\_  
Fluid \_\_\_\_\_

**1.03 DESIGN AND PERFORMANCE**

Include the following design and performance data with the statement of experience:

1. Design criteria per HEAVY-DUTY FABRICATED STAINLESS STEEL SLIDE GATES Section (40 05 59.34).
2. On-site storage and installation requirements (e.g. lubrication schedules, lifting restrictions, etc.).
3. A statement that there are no exceptions, clarifications, functional differences, or discrepancies between the proposed equipment (heavy-duty fabricated stainless steel slide gates) and the contract requirements.

Additional numbered pages outlining this portion of the Proposal may be attached to this document. Each page shall be headed PROPOSER'S STATEMENT OF EXPERIENCE AND SUPPLEMENTAL INFORMATION Section (00 45 17) and shall be signed by the Proposer.

#### 1.04 AFFIDAVIT

We, the undersigned, \_\_\_\_\_(name) as the authorized representatives for \_\_\_\_\_(firm) an interested gate manufacturer for the N19 Stainless Steel Slide Gates and Actuator - RFP No. 8307 do hereby attest that all statements and representations made herein are true and correct to the best of our knowledge. These statements are made openly and freely without intent to influence or embellish actual conditions or circumstances that occurred. I declare under penalty of perjury under the laws of the State of California that the foregoing is correct.

We acknowledge that we have received Addendum \_\_\_\_\_ through \_\_\_\_\_.

We understand that Regional San will investigate any and all statements and representations made by us and our firm in this Statement of Experience and Supplemental Information and we freely give our permission for them to do so. Should releases be required by any of our professional, financial, or bonding institutions to release verification of the enclosed data, we have provided them. We agree to waive any claims against Regional San, Engineer and/or any third party designated by Regional San for the release of the information necessary to evaluate this Statement of Experience and Supplemental Information Package.

We further understand that any false statement or representations made in this application will result in disqualification of our firm as a Proposer for the Project. If it is determined that these false statements or representations were purposefully made to change, hide, or obscure negative information from Regional San in an attempt to qualify under these false pretenses, the action will result in loss of eligibility for our firm to qualify for any Regional San contracts for a minimum period of one (1) year and a maximum period of five (5) years from the date of discovery. If the discovery of false representation occurs after the contract is awarded to our firm, we understand and agree that Regional San reserves the right to terminate the contract for cause and to seek legal remedy under the prevailing statutes.



\_\_\_\_\_

(Name)

\_\_\_\_\_ (Signature)

\_\_\_\_\_ (Title)

Attested:

Corporate Seal

\_\_\_\_\_ (Name)

\_\_\_\_\_

(Signature)

\_\_\_\_\_ (Title)

Date \_\_\_\_\_, 2018

**\*\*END OF SECTION\*\***

## SECTION 01 33 00

### SUBMITTAL PROCEDURES

#### PART 1 -- SUBMITTALS

##### 1.01 GENERAL

- A. A submittal consists of descriptive literature, information, plans, calculations, test data, details and drawings for items proposed for the Work. Sufficient information shall be provided to demonstrate compliance with the Contract Documents. A sample or mock-up of a product or material shall be included with a submittal where required.
- B. A submittal is required for all materials, products, equipment, or systems that that will become part of the Work. Specific submittal requirements are indicated in the respective specification sections. Components or items that comprise a unit or system shall be packaged in a single submittal.
- C. Submittal information and drawings from subcontractors and suppliers shall be coordinated, reviewed and submitted by Contractor.
- D. District and Design Consultant will review submittals for conformance with the Contract Documents, codes and standards. Review does not indicate suitability or acceptability.
- E. A submittal does not relieve, alter, waive or change the requirements of the Contract Documents. Alternates or substitutions shall not be proposed in a submittal.
- F. District does not have a duty to identify inconsistencies, errors, fit-up requirements or to determine compatibility of the proposed items. Coordination and compatibility of individual submittals is the responsibility of Contractor. Contractor shall verify all dimensions, measurements and quantities required for a submittal.
- G. A resubmittal is required whenever a change occurs affecting a prior submittal.

##### 1.02 PROCEDURE

- A. A complete list of submittals shall be furnished within 10 days following the Notice to Proceed. District will review the list and return within 10 days.
- B. Submittals shall be consecutively numbered. Resubmittals shall use the prior number with a sequential letter suffix.
- C. Sufficient information shall be provided to describe what is proposed. The applicable sections of the Contract Documents shall be listed.
- D. Submittals with more than one item shall have sections for the respective items. Items shall be clearly identified.

- E. Submittals shall be complete and shall be timely in submission to avoid delay of the Work. The priority of each submittal shall be indicated. The schedule shall provide time for preparation and review of submittals and resubmittals.
- F. All deviations and exceptions to the Contract Documents shall be conspicuously noted in the submittal and transmittal form.
- G. Provide submittals in electronic Portable Document Format (PDF). Each submittal shall include a transmittal form. Submittals shall be high quality and legible.
- H. Shop drawings shall have drawing numbers, scale, revision date and number, Contractor name, subcontractor name, supplier name, name of detailer or engineer who prepared the document, relation to adjacent structures, materials, drawing cross references, standard references, Contractor's certification stamp, and registered engineer's stamp, if required, shown on them.
- I. Submittals shall be transmitted with a transmittal form containing the following information as a minimum:
  - 1. Date.
  - 2. Submittal or resubmittal number.
  - 3. Contract title and number.
  - 4. Contractor's name and address.
  - 5. List of documents being submitted, by preparer, number and version.
  - 6. Contract documents references (including specific specification section and drawing numbers) for each submittal document.
  - 7. Previous submittal number and item number for each submittal document.
  - 8. Notification of deviation(s) from contract documents for each submittal document.
  - 9. Contractor's certification of having reviewed and coordinated the submittal.
  - 10. Description of intended use in this contract.
- J. The Contractor shall submit shop drawings with generic tag numbers associated with the equipment (i.e. valves, HVAC, electrical outlets, etc). During the District shop drawing review, District staff will assign final equipment numbers and the Contractor shall update the submittal accordingly. It is the Contractor's responsibility to use the new designated equipment numbers in all design documents from the shop drawing approval through as-built generation.

### **1.03 REVIEW**

- A. Final Submittal procedures will follow standard District guidelines with the following timing
1. The first submittal to be received no later than 30 days after Contract is awarded.
  2. Submittals will be reviewed and returned within 15 days.
  3. Submittal revisions will be resubmitted within 15 days of comment receipt.
  4. Submittals for “or equal” items will require approximately 30 days for review. Resubmittals will require approximately 15 days for review.
- B. Submittals that are incomplete or do not demonstrate compliance with the Contract Documents will be returned without review.
- C. Review Criteria:
1. “A” indicates the submittal conforms to the Contract Documents.
  2. “B” indicates the submittal would conform to the Contract Documents after review comments have been incorporated.
  3. “C” indicates that changes or additional information are necessary to comply with the Contract Documents. A resubmittal is required.
  4. “D” indicates that the submittal does not comply with the Contract Documents. A resubmittal is necessary.
  5. “E” indicates that the submittal has not been compared with the Contract Documents.
  6. “F” indicates that the submittal has been received and no action is needed by District.

**\*\*END OF SECTION\*\***

## SECTION 01 78 23

### OPERATION AND MAINTENANCE DATA

#### PART 1 -- GENERAL

##### 1.01 GENERAL REQUIREMENTS

###### A. SCOPE

1. Operation and Maintenance (O&M) instructions shall be provided in accordance with this section, when required in the technical specification sections.
2. O&M instructions shall be submitted and returned “No Exceptions Taken” or “Make Corrections Noted” prior to the start of on-site training and prior to start of reliability testing.
3. The District will accept electronic copies of any and all documents. Submit electronic documents on a Compact Disc.

##### 1.02 VALUES (NOT USED)

##### 1.03 SUBMITTAL PROCEDURE FOR O&M INSTRUCTIONS

###### A. GENERAL:

1. Submittal procedure for O&M instructions varies from submittal procedure stated in Section SUBMITTAL PROCEDURES. O&M instructions shall follow the submittal procedure as stated herein.
2. O&M instructions shall not be submitted before the subject equipment or material submittal has been approved. Equipment or material submittal approval is defined in Section SUBMITTAL PROCEDURES. If O&M information is included with the equipment or material submittal, the submittal will be returned un-reviewed.
3. Include sufficient time in the schedule for an initial District review of O&M instruction submittal and a minimum of one re-submittal review period.

###### B. PREPARATION:

1. O&M instructions shall be prepared for approved equipment or materials. O&M instruction submittal shall be reviewed and coordinated before submittal. O&M instruction submittal shall be complete and fully identified.
2. Each O&M instruction submittal shall contain documents which are related to only one equipment, material, product or system. Normally, a separate transmittal form shall be used for each specific item or class of equipment material, product or system. Exceptions may be allowed only when the items

taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates checking or review of the group or "package" as a whole.

### C. DISTRICT REVIEW:

1. Normally, the O&M instructions submittal will be returned within 20 working days, exclusive of any time awaiting clarification or further information. Submittal review may exceed 20 working days, depending upon the complexity of the submittal or the total number of submittals being processed simultaneously.
2. District's Representative will return a submittal transmittal indicating one of the following four actions for each item number:
  - a. If review and comment indicates no exceptions, the transmittal letter will be returned indicating "NO EXCEPTIONS TAKEN." District's Representative will retain three copies of the approved O&M instructions.
  - b. If review and comment indicates limited corrections are required, the transmittal letter will be returned indicating "MAKE CORRECTIONS NOTED." District's Representative will retain three copies of the O&M instructions. Make the corrections indicated and submit copies of corrections for insertion and final acceptance by District's Representative.
  - c. If review and comment indicates insufficient or incorrect data has been submitted, the transmittal letter will be returned indicating "AMEND AND RE-SUBMIT" with an outline of deficiencies. One copy of the O&M instructions will be retained and the remaining two copies will be returned for revision. Revise the O&M instructions and re-submit two O&M instructions, plus one set of revisions for the copy retained by District's Representative, with detailed insertion instructions for District's Representative's review.
  - d. If review indicates that the O&M instructions submittal is unacceptable, and will not be reviewed beyond the preliminary review stage, the transmittal letter will be returned indicating "REJECTED - SEE REMARKS." One copy of the O&M instructions will be retained and the remaining two copies of the O&M instructions will be returned for revision. Revise the O&M instructions and re-submit two copies for District's Representative's review, plus one set of revisions for the copy retained by District's Representative, with detailed insertion instructions for District's Representative's review.
3. When submittal documents are referred to in these specifications as "approved," or "accepted," this means that they are stamped "NO EXCEPTIONS TAKEN".

#### D. RE-SUBMITTALS:

1. Revise returned submittal documents as indicated and as required. Re-submit using the same submittal procedure as for an initial submittal. Use the previous submittal number with a letter suffix and refer to the previous item numbers.
2. Re-submittals shall address all comments from District's Representative. Partial re-submittals may be returned "REJECTED." Contractor will be responsible for District's Representative's review costs for each re-submittal in excess of the first re-submittal. These costs will be back charged and deducted from progress payments.
3. When O&M instructions are retained by the District's Representative, submit revised data for insertion along with insertion instructions.
4. The District review time for re-submittals of O&M instructions shall be 40 working days.

## **PART 2 -- PRODUCTS**

### **2.01 GENERAL REQUIREMENTS FOR O&M INSTRUCTIONS**

#### A. GENERAL:

1. Each set of O&M instructions shall be assembled as described below. The subject equipment or material technical specification shall specify whether Type "A" or Type "B" O&M instructions are to be submitted.
2. The documents contained within each set of O&M instructions shall be grouped into tabbed sections. Each section shall have tabbed dividers marked with the tab number and title.
3. Each document in the O&M instructions shall include the equipment and associated auxiliary equipment numbers that it represents.
4. Manufacturer's standard documents shall be neatly marked with arrows to indicate the specific information which is applicable to the equipment, assembly, subassembly or material supplied. Non applicable items shall be crossed out. Highlighting is not acceptable.

#### B. BINDING:

1. Each set of O&M instructions shall be organized in the binders in numerical order by equipment number.
2. All documents shall have a binding edge of not less than 3/4 inch so that the information is not obliterated by the binding process.

C. QUANTITY:

1. Prepare and submit three copies of each set of O&M instructions for review.

D. QUALITY:

1. All O&M materials shall be made up of either original materials or a first generation photocopy accompanied by a matching electronic copy. Original materials shall be published literature or computer printouts with resolution of at least 600 dots per inch (dpi). Photo copies and FAX transmittals are not acceptable.
2. Minimum size lettering height on all O&M instructions shall be 12 point for typewritten documents, 1/16 inch height for 8-1/2 x 11 inch and 11 x 17 inch documents and 1/8 inch height for documents larger than 11 x 17 inches.
3. The District reserves the right to be the sole authority on quality and legibility of O&M materials.

E. OVERSIZE DOCUMENTS:

1. Documents which are larger than 8-1/2 inches by 11 inches shall be folded to fit within the 8-1/2 inch by 11 inch size of the binders. Each oversize document shall have reinforced holes. They shall be folded so that their title block is readable when folded and so that they can be unfolded without removal from the binder. Alternatively, the folded oversize document may be contained within an 8-1/2 inch by 11 inch envelope which is held in place by the binder.

**2.02 TYPE "A" O&M INSTRUCTIONS**

A. Type "A" O&M instructions shall be organized as follows:

1. COVER SHEET: The cover sheet shall show a function title of the equipment or material; list of the equipment number(s), including all associated auxiliary equipment number(s), and corresponding functional description(s); revision date; and specification reference
2. TAB 1 – TABLE OF CONTENTS: The table of contents shall give a detailed description of what is behind each tab, including applicable equipment numbers.
3. TAB 2 – REFERENCE DATA: The following information shall be contained behind this tab:
  - a. Warranties and guarantees.
4. TAB 3 – TECHNICAL INFORMATION: A complete copy of the manufacturer's standard O&M instructions manual for the equipment or material shall be provided.



5. TAB 4 – SUBMITTAL DATA: All items from the approved equipment or material submittal shall be provided.

### **2.03 TYPE “B” O&M INSTRUCTIONS (NOT USED)**

## **PART 3 -- EXECUTION**

### **3.01 CONTRACTOR RESPONSIBILITIES**

- A. Review O&M instruction submittals before they are transmitted to District's Representative to ensure that they are complete.
- B. Notify the District's Representative when the submittal may concern work by another contractor or the District. Contractor is responsible for errors and omissions in submittals even though District's Representative reviews the submittal.
- C. District's Representative shall be notified in writing at the time the submittal is transmitted of deviations from the requirements of the contract documents. Contractor is responsible for correcting deviations from the contract documents even though District's Representative has reviewed the submittal, unless the deviations are clearly described in writing in the submittal transmittal form and are approved by District's Representative.
- D. Contractor may authorize a material or equipment supplier to deal directly with District's Representative with regard to such submittals; however, ultimate responsibility for the accuracy and completeness of the information contained in the submittal shall remain with Contractor.
- E. Coordinate O&M instruction submittals with the work so that work will not be delayed. Submittals shall be coordinated and scheduled into different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals. Do not proceed with work related to a submittal until the submittal process is complete and the submittal document has been returned stamped "No Exceptions Taken".

### **3.02 PROPRIETARY INFORMATION**

- A. All of the information required herein shall be provided even though it may be considered to be proprietary. If any of the information required herein is considered to be proprietary, District's standard proprietary agreement in Section PROPERTY INFORMATION AGREEMENT shall be executed between District and Contractor, prior to contract award, stipulating that all such information will be supplied and kept confidential by District.
- B. Not more than 90 percent of all work shall be paid for until all proprietary information has been submitted and approved. Proprietary information shall describe the final as-built work. No part of the work covered by the proprietary agreement shall be modified after proprietary submittal acceptance until after updated

proprietary information has been submitted and accepted by District. Updated proprietary information shall fully document all modifications to be implemented.

C. All proprietary data shall be marked "PROPRIETARY".

### **3.03 AS-BUILT REQUIREMENTS**

A. When required for the particular equipment or material, as-built information showing actual field conditions at the time of substantial completion shall be included in O&M instructions. As-built requirements are specified in Section PROJECT RECORD DOCUMENTS.

### **3.04 PAYMENT (NOT USED)**

**\*\*END OF SECTION\*\***

## **SECTION 01 78 43**

### **SPARE PARTS**

#### **1.01 GENERAL**

- A. The Contractor shall provide for each item of mechanical, electrical, and instrumentation equipment a supply of the spare parts and special tools required for the starting, testing and adjusting of equipment, the testing and reliability testing of completed portions of the work, functioning as a completed facility, and the testing and reliability testing of the completed project, functioning as a completed facility. Spare parts and special tools shall be as recommended by the equipment manufacturer. The Contractor shall be responsible to have on hand sufficient spare parts and special tools to meet the start-up and testing schedule and contract completion schedule. Spare parts and special tools will not be provided by the District.
- B. No spare parts shall be furnished to the District by the Contractor, unless specified in the technical specifications.

**\*\*END OF SECTION\*\***

## SECTION 01 79 10

### TRAINING

#### PART 1 -- GENERAL

##### 1.01 DESCRIPTION

- A. The Supplier shall make available experienced factory-employed representatives of the manufacturers to provide training for the District's personnel in the operation and maintenance of the sluice gates and actuators.
- B. The manufacturer representatives for operations instruction shall be factory-trained, have a minimum of two years of experience at the manufacturer's factory, and shall be experienced in the installation, operation, startup, and troubleshooting of the sluice gates and actuators.
- C. The manufacturer representatives for maintenance instruction shall, at a minimum, be factory-trained service technicians with a minimum of two years of experience at the manufacturer's factory. The time required for this training shall be as specified for the systems or equipment items.
- D. Qualifications of the individual(s) providing the training shall be provided with the lesson plan submittals.
- E. The number and duration of the vendor training sessions are specified in Attachment B, Vendor Training Sessions. In the case of conflict between Attachment B and the individual technical specification sections, Attachment B shall prevail.
- F. In accordance with the OPERATION AND MAINTENANCE DATA Section (01 78 23), the Draft vendor equipment O&M manuals shall be used as the principal basis for instruction in the training described herein. The vendors shall review contents of the Draft O&M manuals with personnel in detail to explain all aspects of operation and maintenance. The vendors shall prepare and insert data into the O&M manuals (i.e., submitted with the Final O&M manual) when the need for such data becomes apparent during instruction.
- G. Vendor training shall consist of a combination of both classroom and field training. Vendor shall coordinate training date with the District. Training to occur after gates are installed.

##### 1.02 SEQUENCE

- A. Coordination and scheduling of the training sessions with District staff shall be initiated immediately after the District issues the Purchase Order for the sluice gates. The

District's representative shall coordinate the training sessions with the Supplier. The training schedule shall be included with any specified commissioning testing schedule.

- B. In accordance with the SUBMITTAL PROCEDURES Section (01 33 00), the Supplier shall submit the training lesson plans and materials at least 60 calendar days prior to the scheduled training session. The District will provide comments to the Supplier within 21 calendar days after receipt of the lessons plans. A formal response to the comments shall be provided to the District within 14 calendar days after receipt of the District comments. Formally agreed upon comments and responses shall be incorporated into the lessons plans and materials.
- C. Unless otherwise specified, all training for the valves and actuators shall be conducted on consecutive working days. At the direction of the District Representative, certain sessions of training may be required to be conducted on specific days of the week to accommodate the attendees' scheduling requirements.
- D. At least 7 calendar days' notice shall be given to the District Representative if the Supplier must postpone any training (including additional training). If any training session is postponed or canceled by the Supplier without at least 7 calendar days' notice, the Supplier shall pay to the District all expenses incurred by the District as a result of the postponement or cancellation. The Supplier is advised that such expenses shall include, but not be limited to, labor for all scheduled attendees, possibly on overtime. At least 21 calendar days' notice shall be required to reschedule any training session postponed at the Supplier's request.

## **PART 2 -- PRODUCTS**

### **2.01 LESSON PLANS**

- A. Formal written lesson plans shall be prepared for each training session and shall include the subject of each training session, qualifications of the individual(s) conducting the training, and the tentative date and time of each training session. Lesson plans shall contain an outline of the material to be presented along with a description of visual aids to be used during the session. Each lesson plan shall contain a time allocation for each subject.
- B. A complete set of lesson plans, training manuals, handouts, visual aids, and reference materials shall be submitted in electronic format, in a form acceptable to the District. In addition, one complete set of original lesson plans, training manuals, handouts, visual aids, and reference materials shall be furnished and will be the property of the District. The documents shall be suitably bound for proper organization and easy reproduction at least one week prior to each training session.

- C. A skeleton lesson plan outline is included as Attachment A, Sample Lesson Plan Outline Contents. At a minimum, lesson plans shall include the information in the outline as well as other information as specified herein.

## **PART 3 -- EXECUTION**

### **3.01 FORMAT AND CONTENT**

- A. During the training, the maintenance instructors shall ensure the methods for performing maintenance activities is compliant with OSHA standards and regulations.
- B. Each training session shall be comprised of time spent both in the classroom and in the field. Attendees may include members of operations, mechanical maintenance, control and instrumentation maintenance, and other District personnel. The total hours of training specified shall be divided into sessions which shall be targeted towards the craft attending the session. As a minimum, the following services shall be provided for each item of equipment or system. Additional services shall be provided, where specifically required in the individual technical specification sections.
  - 1. FAMILIARIZATION:
    - a. Provide an introduction to center the training on the equipment of concern.
    - b. Review catalog, parts lists, drawings, etc., which have been previously provided for the plant files and O&M manuals.
    - c. Demonstrate the unit and indicate how all parts of the specifications are met.
    - d. Answer questions.
  - 2. SAFETY:
    - a. Demonstrate how to acquire, interpret, and apply required process safety information (PSI) for maintenance.
    - b. Discuss equipment PSI and lock-out/tag-out (LOTO) procedures.
  - 3. OPERATION:
    - a. Demonstrate how to acquire, interpret, and apply standard operating procedures (SOPs) for normal and non-routine modes of operation. The SOPs will reference PSI that explains interlocks and other safety systems.
    - b. Review reference literature.
    - c. Provide a working knowledge operating theory of the equipment.

- d. Explain the modes of operation such as startup, shutdown, normal operation, and emergency operating procedures.
  - e. Discuss, demonstrate, and perform SOPs and monitoring checklists used to make rounds. Discuss and perform startup and shutdown procedures. Formally signoff the District's personnel on proper use of the equipment.
4. PREVENTIVE MAINTENANCE (PM):
- a. Demonstrate how to acquire, interpret, and apply the PM work orders, SOPs, and LOTO procedures.
  - b. Review PM lists including:
    - 1) Reference material including the shop/repair manual.
    - 2) Daily, weekly, monthly, quarterly, semiannual, annual, biennial, or other PM activities.
    - 3) Routine PM, including specific details on lubrication and maintenance of the equipment and ancillary components for protection against corrosion per industry standards and regulations.
    - 4) Discuss and perform the PM activities.
    - 5) Equipment inspection and troubleshooting procedures including the use of applicable test instruments and the “pass” and “no pass” test instrument readings.
    - 6) Show District personnel what to look for as indicators of equipment problems; operator detection, without test instruments, of specific equipment trouble symptoms.
    - 7) Discuss known wear parts.
    - 8) Required equipment exercise procedures and intervals; perform the required equipment exercise procedures.
5. CORRECTIVE MAINTENANCE (CM):
- a. Provide discussion on the relationship between the corrective issues and the PMs intended to prevent them.
  - b. Provide a list of problems from similar installations going back 5 years, if available.
  - c. Discuss the repairs necessary to correct these problems.

d. Demonstrate routine disassembly and assembly of equipment (as judged by the District on a case-by-case basis) for purposes such as operator inspection of equipment.

e. Discuss overhaul and rebuilding of all components.

6. O&M MANUALS:

a. Review any other material submitted.

b. Update material as required.

**3.02 DIGITAL RECORDING**

A. The District may retain the services of a commercial digital recording service (or in house service) to record each training session. After recording, the material will be edited and supplemented with professionally produced graphics to provide a permanent training record.

**3.03 LOCATION**

A. Unless otherwise directed, the classroom portion of the training sessions shall take place at the site of the Sacramento Regional Wastewater Treatment Plant.

**3.04 TRAINING SCHEDULE**

A. Classes shall be scheduled such that classroom sessions are interspersed with field instruction in a logical sequence. The Supplier shall coordinate the training sessions to prevent overlapping sessions. Sessions shall be arranged so that individual operators and maintenance technicians do not attend more than two sessions per week, or more than four hours per day. Training sessions shall be provided for each work shift listed below during the time periods shown and as coordinated with the District. Pooling of shifts will not be permitted unless a written request is accepted by the District.

**Training Sessions**

Craft	Day	Time
Operations	Tuesday Wednesday Thursday	Morning session: 7:00 am – 11:00 am Afternoon session: 11:00 am – 3:00 pm
Mechanical Maintenance		
Instrumentation Maintenance		



### **3.05 ACCEPTANCE**

- A. Upon completion of the training for an individual piece of equipment or system, the Supplier shall provide a completed training instruction certification form for the District Representative's signature. These forms will be entered into the District's training management database.

**\*\*END OF SECTION\*\***

## ATTACHMENT A

### SAMPLE LESSON PLAN OUTLINE CONTENTS

Class Title:

Concept/Topic to Teach:

Recommended crafts in attendance:

Industry and Regulatory Standards and Codes Addressed:

General Goal(s):

Specific Objectives:

Required Materials:

Lead-In (start time: finish time: )

Step-by-Step Outline of Presentation (with durations):

1. Familiarization
  - a. Introduction
  - b. Purpose and relationships
  - c. Etc.
2. Safety
  - a. Process safety information
  - b. Lock out / Tag out
  - c. Etc.
3. Operation
  - a. Theory of operation
  - b. Modes of operation
  - c. SOPs
  - d. Etc.
4. Preventive Maintenance
  - a. Recommended PMs
  - b. Parts
  - c. Etc.

5. Corrective Maintenance
  - a. Relationship between corrective issues and recommended PMs
  - b. Repairs
  - c. Parts
  - d. Etc.
6. Additional Discussion Points

Plan for Hands-On Training/Exercises (with durations):

Wrap-Up (Reflect Lead-In) (start time: finish time):

Assessment Based On Objectives:

Connections to Other Training Sessions/Topics:

**Attachment B  
Vendor Training Sessions**

<b>Equipment</b>	<b>Specification No.</b>	<b>Vendor Training Hours</b>			
		<b>Operations</b>		<b>Maintenance (Mechanical, Electrical, and/or Instrumentation)</b>	
		<b>Sessions</b>	<b>Hrs. Ea.</b>	<b>Sessions</b>	<b>Hrs. Ea.</b>
Slide Gates	40 05 59.34	1	2	1	2
Portable Actuators	40 05 59.62	1	1	1	1

**SECTION 40 05 57.13**  
**MANUAL ACTUATORS**

**PART 1 -- GENERAL**

**1.01 GENERAL REQUIREMENTS**

A. SCOPE:

1. Gate actuators.
2. Hand-cranked geared actuators.
3. Floor Boxes.
4. Floor stands.
5. Bench stands.
6. Accessory equipment and floor boxes.

**1.02 REFERENCES**

- A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of the referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

<u>Reference</u>	<u>Title</u>
AA DAF-45	Designation System for Aluminum Finishes
AWWA	American Water Works Association
NEMA 250	Enclosures for Electrical Equipment (1000V Maximum)
NEC	National Electrical Code

B. DEFINITIONS:

1. NEMA
  - a. Type 4X enclosure in accordance with NEMA 250.
  - b. Type 7 enclosure in accordance with NEMA 250.

**1.03 SUBMITTALS**

- A. The following information shall be submitted for review in accordance with SUBMITTAL PROCEDURES Section (01 33 00):
  - 1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.
  - 2. Manufacturer's information and catalog data showing compliance with this specification and a full description of the product.
  - 3. Shop drawings: Include shop drawings and product data with associated gate as an integrated unit.

#### **1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (NOT USED)**

#### **1.05 UNIT RESPONSIBILITY (NOT USED)**

#### **1.06 QUALITY ASSURANCE**

- A. Provide portable actuators intended to operate more than 1 gate.
- B. Provide similar actuators by 1 manufacturer.
- C. Provide gates and hand operating lifts by 1 manufacturer.
- D. All electronic components shall be rated for service in a Class 1, Division 1, environment.

### **PART 2 -- PRODUCTS**

#### **2.01 GATE ACTUATORS**

- A. Gate actuators:
  - 1. Portable actuators are specified in PORTABLE ACTUATORS Section (40 05 59.62).
  - 2. Manual actuators:
    - a. Material: Type 316 stainless steel. Carbon steel parts will only be acceptable where stainless steel is not available and where a coating system is submitted that will protect from biogenic sulfide corrosion.
    - b. Design: Hand crank operator with 2-inch AWWA nut for portable operator.
    - c. Spring release handle: 12-inch.
    - d. Notch plate: 10 position.

- e. Secure with mounting bolts.
  - f. Locking device so that gate can be locked in any position with a wing nut.
3. Stem and cover:
- a. Provide extension stem as indicated on the Drawings.
4. Limit switches: Provide limit switches on manually actuated gates:
- a. Limit switches: Heavy-duty, industrial grade, oiltight, with not less than 2 auxiliary contacts.
  - b. Rating: Rated for 10 amps, 120 volts alternating current.
  - c. Enclosure: Provide switch with NEMA Type 7 enclosure with stainless steel levers and arms.
- B. Stem covers:
1. Ultraviolet light resistant, clear butyrate plastic or polycarbonate pipe:
- a. Capped on the upper end.
  - b. Either threaded into the top of the gate operators or held in place by bolt-down aluminum brackets.
  - c. Capable of covering threaded portion of greased stems that project above actuators when gates are opened or closed.
- C. Gate stem covers: Concentric with stem.
- D. Position indicators:
- 1. For all aboveground worm gear or traveling nut manual actuators, provide position indication on the actuator enclosure.
  - 2. Tail rods on hydraulic cylinders, or dial indicators with clear full-open and closed position indicators, calibrated in number of turns or percentage of opening.
- E. Manual or power actuator size:
- 1. Sized to deliver maximum force required under most severe specified operating condition, including static and dynamic forces, seat and wedge friction, and seating and unseating forces with safety factor of 5, unless otherwise specified.
- F. Actuator size: Capable of supporting weight of suspended shafting unless carried by bottom thrust bearings; shaft guides with wall mounting brackets.

- G. Provisions for alternate operation: For all gates, position and equip crank or handwheel operated geared gate actuators or lifts for alternate operation with tripod mounted portable gate actuators.
- H. Operation: Counterclockwise to open with suitable and adequate stops, capable of resisting at least twice normal operating force to prevent overrun of gate in open or closed position.
- I. Open direction indicator: Cast arrow and legend indicating direction to rotate actuator on handwheel, chain wheel rim, crank, or other prominent place.
- J. Worm gear actuators: Provide gearing on worm gear actuators that is self-locking with gear ratio such that torque in excess of 160 foot-pounds will not need to be applied to operate gate at most adverse conditions for which gate is designed.

## **2.02 HAND-CRANKED GEARED ACTUATORS**

- A. Type: Single removable crank; fully enclosed.
- B. Mounting: Floor and bench stand. Unless otherwise indicated on the Drawings position actuator 36 inches (nominal) above top of walkway surface.
- C. Operating nut: AWWA 2-inch operating nut for portable actuators.
- D. Teeth on gears, spur pinions, bevel gears, and bevel pinions: Cut.
- E. Lift nuts: Cast manganese bronze.
- F. Bearings above and below flange on lift nuts: Ball or roller; capable of taking thrust developed by opening and closing of gates under maximum operating head; with bronze sleeve bearings and sufficient grease fittings for lubrication of moving parts, including bearings and gears.
- G. Crank rotation indicator: Cast arrow with word OPEN in prominent location readily visible indicating correct rotation of crank to open gate.
- H. Hand cranks: 15-inch radius; requiring maximum 40 pounds pull to operate gate at maximum operating head; with:
  - 1. Revolving brass sleeves.
  - 2. Gears, spur pinions, bevel gears, and bevel pinions with cut teeth.
  - 3. Cast manganese bronze lift nuts.
- I. Indicator: Dial position type mounted on gear actuator; enclosed in aluminum housing with clear plastic cover; marked with fully open, 3/4, 1/2, 1/4, and closed positions.

## **2.03 FLOOR STAND**



- A. Manufacturers: To match gate manufacturer or as approved.
- B. Floor stand assemblies: 316 stainless steel, suitable for mounting specified actuator.

## **2.04 BENCH STANDS**

- A. Manufacturers: To match gate manufacturer or as approved.
- B. Bench stands: Hand crank, geared actuators conforming to hand-cranked geared actuator requirements, except capacity to be mounted on haunch, wall bracket, or self-contained gate yoke.

## **2.05 ACCESSORY EQUIPMENT**

- A. Wall brackets or haunches: As indicated on the Drawings or as required.
- B. Stems: 316 stainless steel; sized to match output of actuator; minimum gate operating stem diameter; maximum 200 slenderness ratio.
- C. Stem couplings: 316 stainless steel; internally threaded to match stem; lockable to stem by set screw.
- D. Stem guides: 316 stainless steel with silicon bronze bushing; maximum 200 slenderness ratio; capable of being mounted with wall bracket; adjustable in 2 directions.
- E. Wall brackets: 316 stainless steel, capable of withstanding output of actuator, adjustable in 2 directions.
- F. Stem stuffing boxes: 316 stainless steel, with adjustable gland and packing.
- G. Fasteners: Type 316 stainless steel.
- H. Anchor bolts: Material shall be Type 316 stainless steel. Anchoring specifications will be provided to the installing contractor according to structural and manufacturer requirements.
- I. Accessory equipment for gates requiring portable actuators: Operating stems, stem couplings, stem guides, wall brackets, and stem stuffing boxes.

## **PART 3 -- EXECUTION**

### **3.01 GENERAL (NOT USED)**

### **3.02 INSTALLATION**

- A. After installation of gate and stem covers, mark stem covers at point where top of stems are at full-open position and at closed position.

- B. Attach floor stand to structure with anchor bolts.
- C. Install stem stuffing boxes where operating stems pass through intermediate concrete floor slabs.

**3.03 TESTING (NOT USED)**

**3.04 TRAINING (NOT USED)**

**\*\*END OF SECTION\*\***

## **SECTION 40 05 59.34**

### **HEAVY-DUTY FABRICATED STAINLESS STEEL SLIDE GATES**

#### **PART 1 -- GENERAL**

##### **1.01 GENERAL REQUIREMENTS**

###### **A. SCOPE:**

1. Heavy-duty fabricated stainless steel slide gates.

###### **B. SHIPMENT**

1. Mandatory requirements prior to shipment of equipment:
  - a. Engineer approved shop drawings.
  - b. Manufacturer leakage testing results
2. Prepare products for shipment by:
  - a. Tagging or marking products to agree with delivery schedule or shop drawings.
  - b. Including complete packing lists and bills of material with each shipment.
  - c. Packaging products to facilitate handling and protection against damage during transit, handling, and storage.
  - d. Securely attach special instructions for proper field handling, storage, and installation to each piece of equipment before packaging and shipment.
3. Transport products by methods that avoid product damage.
4. Deliver products in undamaged condition in manufacturer's unopened containers or packaging.

###### **C. SPARE PARTS, MAINTENANCE PRODUCTS, AND SPECIAL TOOLS**

1. Provide a list of spare parts and maintenance products to be supplied with equipment
2. Provide one set of special tools required to install or service the equipment.
3. Box, tag, and clearly mark items.

## 1.02 REFERENCES

A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of the referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

<u>Reference</u>	<u>Title</u>
AWWA C560	Cast-Iron Slide Gates
AWWA C651	Fabricated Stainless Steel Slide Gates
ASTM A276	Standard Specification for Stainless Steel Bars and Shapes
ASTM B584	Standard Specifications for Copper Alloy Sand Castings for General Application
ASTM D1248	Standard Specification for Polyurethane Plastics Extrusion Materials for Wire and Cable
ASTM D2000	Standard Classification for Rubber Products in Automotive Applications
ASTM D4020	Standard Specification for Ultra-High Molecular-Weight Polyethylene Molding and Extrusion Materials

## B. DEFINITIONS:

1. Slenderness ratio ( $l/r$ ): The largest ratio obtained by dividing the unsupported length of the stem by the radius of gyration of the stem cross section.
2. Design head: Depth from surface of water to centerline of gate. Use value specified in the gate schedule.
3. Seating head: Pressure applied to gate slide from weight of water column above gate centerline that forces gate slide into seat.
4. Unseating head: Pressure applied to gate slide from weight of water column above gate centerline that forces gate slide away from seat.
5. Substantially similar:
  - a. Similar in size, design head, and service.
  - b. Utilizes the proposed design for critical components including guides and seals.

## 1.03 SUBMITTALS (TO BE PROVIDED AFTER RFP SELECTION UNLESS NOTED)

A. The following information shall be submitted for review in accordance with the following general instructions and requirements in SUBMITTAL PROCEDURES Section (01 33 00):

1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.
2. Manufacturer's information and catalog data showing compliance with this specification and a full description of the product.
3. Manufacturer is responsible to determine and verify all field measurements. Please include one (1) trip to verify field measurements. The trip must be coordinated with the District Safety Office in advance. A District Access Request form is attached to this section and must be submitted and approved by the District Safety Office before access to the station is allowed.

**B. Product data:**

1. For each item of equipment:
  - a. Design features.
  - b. Load capacities.
  - c. Material designations by UNS alloy number or ASTM Specification and Grade.
  - d. Data needed to verify compliance with the Specifications.
  - e. Catalog data.
  - f. Nameplate data.
  - g. Clearly mark submittal information to show specific items, materials, and accessories or options being furnished.
2. Coating system information including:
  - a. Factory coatings to be applied.
  - b. Coating manufacturer data sheets.
  - c. Coating maintenance instructions.

**C. Calculations:**

1. Gate opening and closing thrust forces that will be transmitted to the support structure with operator at extreme positions and load.
2. Torque required to open and close the gate, including maximum torque at any point along gate travel. Indicate thrust value and stem factor.
3. Breakaway torque from seat. Indicate thrust value and stem factor.

4. Substantiate equipment base plates, supports, bolts, anchor bolts, and other connections meet minimum design requirements specified and seismic design criteria for nonstructural components in the current California Building Code.
- D. Vendor operation and maintenance manuals: As specified in OPERATION AND MAINTENANCE DATA Section (01 78 23).
- E. **(Provide the following Preliminary Shop Drawings and Calculations with RFP)**

Shop drawings:

1. General requirements for shop drawings:
  - a. Drawings that include cut-away drawings, parts lists, material specification lists, and other information required to substantiate that proposed equipment complies with specified requirements.
  - b. Outline drawings showing equipment, driver, driven equipment, pumps, seal, motor(s) or other specified drivers, variable frequency drive, shafting, U-joints, couplings, drive arrangement, gears, base plate or support dimensions, anchor bolt sizes and locations, bearings, and other furnished components.
  - c. Installation instructions including leveling and alignment tolerances, grouting, lubrication requirements, and initial Installation Testing procedures.
  - d. Recommended or normal operating parameters such as temperatures and pressures.
  - e. Alarm and shutdown setpoints for all controls furnished.
2. Layout and installation drawings for each gate size and type.
3. Box out and mounting details for all surfaces.
4. Wall plate design for attachment to existing thimble.
5. Submit calculations and design data substantiating conformance with the Drawings and Specifications.
6. Gate opening and closing thrust forces that will be transmitted to the support structure with operator at extreme positions and load.
7. Torque required to open and close the gate with the manual actuator and the portable operator proposed, including maximum torque at any point along gate travel. Indicate thrust valve and stem factor.
8. Breakaway torque from seat. Indicate thrust valve and stem factor.

## **1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (NOT USED)**

## **1.05 UNIT RESPONSIBILITY (NOT USED)**

## **1.06 DESIGN REQUIREMENTS**

- A. Except as modified or supplemented as specified in this Section, all gates and operators shall conform to the requirements of AWWA C561, latest edition.
- B. Gate components:
  - 1. Frames:
    - a. Design for the design head scheduled with a minimum safety factor of 5 with regard to ultimate tensile, compressive, and shear strength.
    - b. Self-contained gates: Where frames extend above the operating floor, design to be self-supporting so that no further reinforcing or support is required.
  - 2. Stem: Select stem diameter, stem guide quantity and stem guide spacing based on following criteria:
    - a. Slenderness ratio ( $l/r$ ): Shall not exceed 200.
    - b. Maximum diameter: Provide stem guides at a spacing to maintain stem diameter of 2 inches or less.
    - c. Tensile strength: Suitable to withstand the force generated by the operator with the application of a 200 pound force applied to the crank or handwheel or a 250 foot-pound torque applied to the wrench nut.
    - d. Compressive strength:
      - 1) Suitable to withstand buckling due to the force generated by the operator with the application of an 80 pound force applied to the crank or handwheel or a 100 foot-pound torque applied to the wrench nut.
      - 2) Determine buckling load using Euler Column formula in accordance with AWWA C 561, where  $C = 2$ .
    - e. Design force for power actuators:
      - 1) Hydraulic cylinder operators: 1.25 times the output thrust at maximum hydraulic fluid operating pressure.
      - 2) Electric or pneumatic motor operators: 1.25 times the output thrust in the stalled-motor condition.
    - f. Gates having widths greater than 2 times the height: Provide with 2 lifting mechanisms connected by a tandem shaft.

3. Thrust nut: Suitable to withstand thrust developed by operator with the application of a 40 pound force on the crank or handwheel with safety factor of 5. Base design on ultimate strength of material used.
4. Yokes for self-contained gates:
  - a. Design yoke using design loading criteria for stem with safety factor of 5 based on the ultimate strength of the material used.
  - b. Maximum deflection at design load: Not to exceed 1/360th of the span.
5. Slide:
  - a. Deflection shall be less than or equal to 1/1000 of the span of the gate or 1/16 inch, whichever is less, when under the design head.
  - b. Design for the maximum design head specified with a minimum safety factor of 5 with regard to ultimate tensile, compressive, and shear strength.

## **1.07 PERFORMANCE REQUIREMENTS**

- A. Maximum allowable leakage shall be 0.10 gallons per minute per foot of sealing perimeter, the allowable limits set forth in AWWA C561. Leakage testing shall be conducted in accordance with AWWA C561.

## **1.08 WARRANTY**

- A. Provide warranty for fabrication and workmanship for a period of one (1) year from the date of delivery that follows the following minimum requirements:
  1. Covers all costs associated with the correction of the defect, including but not limited to removal of defective parts, new parts, labor, and shipping.
  2. When correcting warranted Work that has failed, remove and replace other Work that had been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
  3. Provides a timely response to correct the defect.

## **PART 2 -- PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Manufacturers: One of the following or equal.
  1. Golden Harvest, Series GH-100.
  2. H. Fontaine, Series 20.



3. Waterman Ind., SS-250.
4. Whipps, Inc., Series 900.

B. Operator anchor bolts and wall thimbles: Provided by manufacturer of slide gates.

## **2.02 MATERIALS**

A. Stainless steel: ASTM A276, Type 316:

1. Components or structural shapes which are welded: ASTM A276, Type 316L.
2. All wetted and unwetted parts including all fasteners and hardware, except as specified in this Section, shall be stainless steel.

B. Ultra-high molecular weight polyethylene: ASTM D1248 and D4020.

C. Neoprene: ASTM D2000, Grade 2 BC 510.

D. Manganese bronze: ASTM B584, UNS Number C86500 or Alloy 432.

E. Silicon bronze: ASTM B584 UNS Number C87300.

## **2.03 COMPONENTS**

A. Slide:

1. Type 316L stainless steel.
2. Rectangular or square.
3. Fabricated with a flat plate reinforced with formed plates or structural members.

B. Frame:

1. Construct gate frame of Type 316L stainless steel structural members or formed plate welded to form a rigid 1-piece frame.
2. Mounting: As indicated on the Drawings and in the Slide Gate Schedule. Provide method details in shop drawing.
3. Adjustable ultra-high molecular weight polyethylene pressure pads.
4. Flush bottom type.
5. Allow replacement of top, side, and bottom seals without removing the gate frame from concrete or mounting surfaces.
6. Machine surfaces matching with mounting plate. Provide seal between gate frame and mounting surfaces that will meet leakage performance requirements.

7. Embedded gates: Extend frame to provide access to pressure pad adjusting screws (For seal design alternatives A and B only).
  8. Mounting plate: Type 316L stainless steel.
    - a. Bolt mounting plate to existing thimble per the requirements identified in Figure 1.
- C. Yoke for self-contained gates:
1. Type 316L stainless steel.
  2. Extend guides and frame so that bottom of yoke is at least 12 inches above top of slide at full open position.
  3. Bolt or weld to frame.
  4. Provide mounting plate on top of yoke to mount operator.
  5. Design yoke to allow removal of gate slide.
- D. Guides:
1. Type 316L stainless steel with ultra-high molecular weight polyethylene insert in contact with gate.
  2. Minimum face width of 1 inch.
  3. Length: To support the slide fully in the open position.
  4. Anchor bolts shall not pass through the guides and seals.
- E. Seals:
1. Designed to achieve the specified leakage requirements.
  2. Sealing and sliding surfaces shall provide a low coefficient of friction with the surface of the slide.
  3. Field replaceable without removing gate from concrete or wall thimble.
  4. Anchor bolts shall not pass through the guides and seals.
  5. J-bulb seals are not acceptable.
  6. Minimum seating surface width: 3/4 inch in contact with slide.
  7. Bottom seal:
    - a. Resilient neoprene, minimum durometer of 45.

- b. Attached to the bottom of the slide or embedded in gate frame invert.
8. Side and top seals:
- a. Provide one of the seal design alternatives listed below.
  - b. Seal design alternative A:
    - 1) UHMWPE fixed sealing surfaces that surround the clear opening.
    - 2) Held in place in the guide with Type 316 stainless steel fasteners.
    - 3) Seal compression shall be maintained by UHMWPE field adjustable pressure pads mounted to the slide with Type 316 stainless steel fasteners.
  - c. Seal design alternative B:
    - 1) Neoprene crown seal with UHMWPE bearing bars.
    - 2) Attached to the slide with Type 316 stainless steel fasteners.
    - 3) Crown seal shall be actuated by water pressure in either the seating or unseating direction.
    - 4) Primary contact with the slide shall be through the UHMWPE bearing bar. The neoprene shall not be solely relied upon for the contact seal.
    - 5) Seal compression may be maintained by UHMWPE field adjustable pressure pads mounted to the guide with Type 316 stainless steel fasteners.
  - d. Seal design alternative C:
    - 1) UHMWPE self-adjusting type seals: Utilize a continuous compression cord to ensure contact between the seals and the slide.
    - 2) Side seals:
      - a) Attach to frame using one of the following approaches.
        - (1) Held in place between the front and back angles of the guide with Type 316 stainless steel bolts passing through the guide and seal along the length of the guide.
        - (2) Held in place between front and back of a formed, 1 piece, rigid channel guide. Attach seals to frame using Type 316 stainless steel bolts.
      - b) Design and installation shall provide access to and removal of the bolt to allow removal of the side seal without removing the gate from the concrete.

- 3) Top Seal: UHMWPE self-adjusting type seal with double compression cord.

F. Stem:

1. Type 316 stainless steel.
2. Machine cut or rolled threads.
3. Stem couplings:
  - a. Silicon bronze or Type 316 stainless steel.
  - b. Threaded and keyed to stem or threaded and bolted to stem.
4. Stem guides:
  - a. Type 316 stainless steel.
  - b. Split collar.
  - c. Adjustable in 2 directions.
  - d. Ultra-high molecular weight polyethylene bushing.
5. Provide manganese bronze stop collar on stem above actuator.
6. Drill and connect stem to slide structural sections with Type 316 stainless steel bolts.
7. Minimum Stem Diameter: 1-1/2 inch.
8. Coordinate the selection of the gate stem configuration with the gate operator and operating speed.
  - a. The selected gate stem configuration shall provide the most efficient combination of stem diameter/pitch/lead and keep the operating temperature at the stem nut to a minimum during operation.

G. Operating nut:

1. Locate at operator level.
2. Material: Manganese bronze.

H. Gate operators: As specified in MANUAL ACTUATORS Section (40 05 57.13).

I. Coordination with portable actuator supplier:

1. Sizes and model numbers of motorized operators for gates are estimated in PORTABLE ACTUATORS Section (40 05 59.62). Gate manufacturer's responsibility shall extend to confirming these sizes and model numbers for each gate based on:
  - a. Design seating and unseating head.
  - b. Open/close speed specified in PORTABLE ACTUATORS Section (40 05 59.62).
  - c. Torque safety factor of 1.4, minimum, applied to the maximum torque requirement, including breakaway from seat.
2. Verify, in writing, that single portable actuator is adequately sized to operate all of the scheduled gates in this Section. A torque limiting device shall be provided if necessary for safe operation.
3. If the portable actuator is not properly sized for each furnished gate, notify the Engineer immediately.
4. The gate supplier shall provide proper mounting adaptation, and adaptation hardware to ensure adequate interface between the portable actuator and the slide gates.

J. Bolts, nuts, and fittings: Type 316 stainless steel.

K. Anchor bolts:

1. Type 316 stainless steel.

## **2.04 FINISHES**

A. Stainless steel:

1. Shot blast gates after fabrication to remove weld splatter and to polish scratches.
2. Clean the entire surface to produce an even color and sheen.

B. Carbon steel operators, stands, and other accessory equipment: Surface preparation, factory prime, field prime, and finish coats as specified below:

1. Coatings must be compatible with immersion and non-immersion, corrosive environments, and suitable for headspace environments that are subject to biogenic sulfide corrosion.
2. Surface preparation in accordance with Society of Protective Coatings (SSPC) standards:
  - a. Bare surfaces: SSPC-SP5, White Metal Blast Cleaning.

- b. Shop primed surfaces: SSPC-SP7, Brush-Off Blast Cleaning.
  - c. Damaged primer or rust: SSPC-SP5, White Metal Blast Cleaning and spot prime.
3. Final system coating intended or factory-applied must meet or exceed the performance of a blended amine cured epoxy designed for a total dry film thickness of 20 to 40 mils.
  4. Field coating application will be provided by installing contractor.

## **2.05 FABRICATION**

### **A. Shop assembly:**

1. Gates shall be factory assembled, adjusted, and tested.
2. Mount all accessories and appurtenances including, but not limited to, motor operators and limit switches so that the complete system may be tested at the factory.

## **PART 3 -- EXECUTION**

### **3.01 GENERAL (NOT USED)**

### **3.02 INSTALLATION**

- A. Mount wall plates and gates plumb in both vertical planes and level in horizontal plane.
- B. Coat seating surfaces between frame and wall plate with a waterproof plastic compound or provide EPDM gasket prior to tightening frame studs.
- C. Adjust wedges or other parts of the gate to the point where it will not be possible to insert a 0.004 inch feeler gauge between the gate slide and the gate frame at any point.
  1. Securely lock wedges into position after adjustment.
- D. Adjust limit switches in electric and hydraulic operators in accordance with manufacturer's instructions.
- E. Face mounted gates:
  1. Where wall thimbles or plates are not specified, mount gate to wall with anchor bolts and provide a 1-inch grout pad in accordance with manufacturer's recommendations.
- F. Embedded gates:
  1. Provide blockouts in sidewalls and channel bottom for installation of gates.

2. After gate placement, adjustment, and alignment in accordance with manufacturer's recommendations, grout frame with non-shrink grout.

### **3.03 TESTING**

#### **A. Slide Gates:**

1. Test witnessing: Witnessed.
2. Leakage tests:
  - a. Conduct in accordance with AWWA C 561. Comply with specified allowable leakage limits
  - b. After gate installation and checking, run gates through at least 2 full cycles from the closed position to full open position and back to the closed position.

### **3.04 TRAINING**

- #### **A. Provided according to TRAINING Section (01 79 10).**

### **3.05 COMMISSIONING**

#### **A. Manufacturer services:**

1. Provide certificates:
  - a. Manufacturer's Certificate of Installation and Functionality Compliance.
2. Manufacturer's Representative on-site requirements:
  - a. Installation: 1 trip, 1 day minimum.
  - b. Functional Testing: 2 trips, 1 day minimum each.
3. Process operational period:
  - a. As required by Owner or Contractor.

### **3.06 SCHEDULE**

- #### **A. The Slide Gate Schedule is included on the following page(s). The Slide Gate Schedule is not a take-off list. Contractor shall provide gates per specifications and as indicated on the Drawings.**

**HEAVY-DUTY FABRICATED STAINLESS STEEL SLIDE GATE SCHEDULE**

Gate Tag Number or Mark Number	Drawing Number	Location	Opening Size W X H (inches)	Wall Opening Shape	Gate Opening Direction	Type of Closure <sup>(1)</sup>	Gate Design Pressure <sup>(2)</sup>		Gate Mounting <sup>(3)</sup>	Type of Frame <sup>(4)</sup>	Stem Type <sup>(5)</sup>	Type of Operator <sup>(6)</sup>	Minimum Gate Travel (inch)
							Seating (feet)	Unseating (feet)					
G01101	Figure 1	Wet Well	64 X 66 <sup>(7)</sup>	Rectangular	Upward	FB	18	18	EC	SC	RS	CO <sup>(9)</sup>	Full Height
G01102	Figure 1	Wet Well	48 X 78 <sup>(8)</sup>	Rectangular	Upward	FB	29	29	FM	NSC	RS	CO, PS <sup>(10)</sup>	Full Height

**Notes:**

- (1) Closure: DO = Downward Opening; FB = Flush Bottom; STD = Standard. See Figure 1 for additional installation details.
- (2) Gate design pressure applied at invert of gate.
- (3) Mounting: FM = Face Mounted with Mounting Plate; EC = Inside Existing Channel; EMB = Embedded; SP = Spigot back; FWT = "F" Wall Thimble; EWT = "E" Wall Thimble; See Figure 1 for additional installation details.
- (4) Frame: SC = Self-Contained; NSC = Non-Self Contained; F = Flatback; FL = Flange back.
- (5) Stem: RS = Rising Stem; NRS = Non-Rising Stem.
- (6) Operator: CO = Hand crank operator with 2-inch AWWA nut for portable operator; HW = Handwheel; HC = Hand crank; MO = Motor Operator; MOD = Modulating Motor Operator; HO = Hydraulic Operator; MHO = Manual Hydraulic Operator (Hand Pump); BS = Bench Stand; FS = Floor Stand; IFS = Interconnect Floor Stand; PS = Pedestal Support.
- (7) Approximate dimensions between mounting surfaces/locations. See Figure 1 for installation location.
- (8) Approximate dimensions of opening at the mounting face/existing thimble. See Figure 1 for installation location.
- (9) Provide yoke-mounted pedestal (torque tube) to transfer thrust from operator to gate frame.
- (10) Offset pedestal installed on wall corbel. May reuse wall existing corbel if possible, but replacement will be acceptable if necessary.

**\*\*END OF SECTION\*\***



**SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT**

# ACCESS REQUEST

Prime Contractor	Contract #	Date
Sub-Contractor	AR #	Revision
Contact for Contractor	Work Item #	CPM Activity #
Phone	<input type="checkbox"/> Work Plan Attached	<input type="checkbox"/> Drawing Attached

**PART 1 – CONTRACTOR WORK PERMIT**

Start Date/Time	Completion Date/Time
-----------------	----------------------

Reference Contract Drawings/Specifications

Equipment or System to be Worked On

Location of Work

Provide RMP/MOC no. for work affecting SRWTP Gas Mgmt. or Chemical Handling Areas:

Type of Work (check all that apply)	<input type="checkbox"/> Civil	<input type="checkbox"/> Mechanical	<input type="checkbox"/> Electrical	<input type="checkbox"/> Instrumentation
	<input type="checkbox"/> Process	<input type="checkbox"/> Coating	<input type="checkbox"/> Hotwork	<input type="checkbox"/> Other (specify)
	<input type="checkbox"/> Mobilization	<input type="checkbox"/> Traffic/Ped. Access	<input type="checkbox"/> Shutdown	

Description of Work \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Anticipated Hazards  
 \_\_\_\_\_  
 \_\_\_\_\_

Tools/Equipment to be Used	<input type="checkbox"/> Cutting/Welding Torches	<input type="checkbox"/> Arc Welders	<input type="checkbox"/> Jack Hammers
	<input type="checkbox"/> Power Saws	<input type="checkbox"/> Grinders	<input type="checkbox"/> Pneumatic Tools
	<input type="checkbox"/> Backhoe	<input type="checkbox"/> Crane	<input type="checkbox"/> Radioactive Test Device

Revised 11-2015

Access Request – Page 1 of 3

**Access Request Instructions**

- Contractor fills out AR with sufficient information to define the work and anticipated safety hazards and signs at bottom of page 2.
- If it is a CIP - R.E. reviews AR and signs on page 3 prior to delivering AR to District Representative.
- District Representative(s) reviews and approves the AR with conditions, restrictions, or additional Safety items (all additional safety items on page 2 will be initialed).
- District Rep/RE gives approved AR back to contractor prior to contractor performing the work.
- Contractor reviews AR conditions and Safety page prior to beginning work.

Note: For ARs for utility or outside agency work, contractor interacts directly with District Representative

## PART 2 – CONTRACTOR SAFETY PRECAUTIONS

All items checked will be complied with/used in accordance with applicable safety standards (CalOSHA, UFC, etc.) and the requesting contractor's safety program.

<b>HOT WORK PLAN</b> <input type="checkbox"/> Isolate Combustibles <input type="checkbox"/> Fire watch <input type="checkbox"/> Fire Extinguishers <input type="checkbox"/> Flash Protection	<b>REVIEW EMERGENCY PROCEDURES/ALARMS</b> <input type="checkbox"/> Chlorine/Sulfur Dioxide Areas <input type="checkbox"/> Oxygen Handling Areas <input type="checkbox"/> Gas Management Areas <input type="checkbox"/> Other _____
<b>AIR MONITORING</b> <input type="checkbox"/> Continuous <input type="checkbox"/> Periodic <input type="checkbox"/> Frequency _____	<b>HOUSEKEEPING</b> <input type="checkbox"/> Debris Removal <input type="checkbox"/> Dust Control <input type="checkbox"/> Maintain access to/through worksite
<b>POTENTIAL ATMOSPHERIC HAZARDS TO BE MONITORED</b> <input type="checkbox"/> Oxygen Deficiency <input type="checkbox"/> Oxygen Enrichment <input type="checkbox"/> Combustible Gases <input type="checkbox"/> Toxic Gases <input type="checkbox"/> Other _____	<b>EXCAVATION/TRENCHES</b> <input type="checkbox"/> Shoring <input type="checkbox"/> Sloping <input type="checkbox"/> Benching <input type="checkbox"/> Barricades <input type="checkbox"/> Excavation Plan Submittal Number _____
<b>HAZARDOUS MATERIALS TRAINING</b> <input type="checkbox"/> Substance(s) _____	<b>ELEVATED AREAS</b> <input type="checkbox"/> Fall Protection <input type="checkbox"/> Guardrails
<b>ENERGY CONTROL PROCEDURES</b> <input type="checkbox"/> Lockout <input type="checkbox"/> Blockout <input type="checkbox"/> Tagout	<b>PIPING/EQUIPMENT OPENING AND/OR ENTRY</b> (ensure prior to opening) <input type="checkbox"/> Effectively Isolated <input type="checkbox"/> Depressurized <input type="checkbox"/> Drained <input type="checkbox"/> Purged/Flushed of Hazardous Substance(s)
<b>VENTILATION</b> <input type="checkbox"/> Natural only <input type="checkbox"/> Auxiliary, continuous	<b>ABATEMENT ACTIVITIES</b> (Title 8, Construction Safety Orders) <input type="checkbox"/> Asbestos (Article 4 § 1529) <input type="checkbox"/> Lead (Article 4 § 1532.1)
<b>CONFINED SPACE PROCEDURES</b> <input type="checkbox"/> Permit Required <input type="checkbox"/> Personnel Retrieval System <input type="checkbox"/> Non-permit <input type="checkbox"/> Communication w/ Entrant <input type="checkbox"/> C-5 <input type="checkbox"/> Rescue Personnel @ site <input type="checkbox"/> Entry Permit @ site <input type="checkbox"/> Supplied Air	<b>OTHER SAFETY PRECAUTIONS</b> <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____

### AR SUBMITTAL SIGNATURE BLOCK

Contractor signs below after page 1 and 2 are filled out with sufficient detail to allow AR to be reviewed. Contractor identifies all anticipated safety items prior to signing below. Safety Office staff will initial next to any additional safety items that have been checked off during the AR review process.

_____ Contractor Representative	_____ Date
------------------------------------	---------------

RE Comments	<input type="checkbox"/> See Attachment
Reviewed by Resident Engineer (If Applicable)	Date

**PART 3 – APPROVERS’ REMARKS**

Safety Office Comments	<input type="checkbox"/> See Attachment

Approved By: Regional San Safety Office	Date
---	------

O&M Support Comments	<input type="checkbox"/> See Attachment

Approved By: Regional San O&M Support/District Representative	Date
---	------

**SIGNATURE BLOCK**

The work described by this Access Request has been reviewed. The work methods described and identified in Parts 1 & 2, and the additional safety precautions identified in Parts 2 & 3 will be complied with and effectively communicated to personnel assigned this task. If the contractor does not agree with additional safety precautions, work shall not start until resolution is attained.

Contractor Representative	Date
---------------------------	------

- Distribution:**
- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Operation Support            | <input type="checkbox"/> O&M Manager 1 (2)   | <input type="checkbox"/> Electrical Supervisor |
| <input type="checkbox"/> Safety Office Representative | <input type="checkbox"/> Process Team Leader | <input type="checkbox"/> Facility Maintenance  |
| <input type="checkbox"/> Resident Engineer            | <input type="checkbox"/> Other _____         | <input type="checkbox"/> Project Engineer      |
| <input type="checkbox"/> Contractor (supplied by RE)  |  |  |
- \*Note – Provide copies of approved ARs to applicable sections, always include O&M Manager 1’s in the distribution.**

**SECTION 40 05 59.62**  
**PORTABLE ACTUATORS**

**PART 1 -- GENERAL**

**1.01 GENERAL REQUIREMENTS**

A. SCOPE:

1. Portable electric gate operators.

**1.02 REFERENCES**

- A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of the referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

<u>Reference</u>	<u>Title</u>
AWWA C542-16	Electric Motor Actuators for Valves and Slide Gates

**1.03 SUBMITTALS**

- A. The following information shall be submitted for review in accordance with:
1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.
  2. Manufacturer's information and catalog data showing compliance with this specification and a full description of the product.
  3. Shop drawings for stand and torque reaction equipment.
  4. Indicate opening/closing time at design head and calculated operating torque for each slide gate in HEAVY-DUTY FABRICATED STAINLESS STEEL SLIDE GATES Section (40 05 59.34).

**1.04 OPERATION AND MAINTENANCE INSTRUCTIONS**

- A. Submit operation and maintenance (O&M) instructions in accordance with the OPERATION AND MAINTENANCE DATA Section (01 78 23) by submitting a copy of the OPERATION AND MAINTENANCE DATA Section (01 78 23) with each

paragraph check marked to show compliance. O&M instructions shall be submitted after all submittals specified above have been returned marked “No Exceptions Taken” or “Make Corrections Noted.” O&M instructions shall reflect the approved materials and equipment.

## **1.05 UNIT RESPONSIBILITY**

- A. Equipment systems made up of two or more components shall be manufactured and assembled as a unit by the responsible manufacturer. The responsible manufacturer shall select all components of the system to assure compatibility, ease of construction and efficient maintenance. The responsible manufacturer shall coordinate selection and design of all system components such that all equipment furnished under the specification for the equipment system, including equipment specified elsewhere but referenced in the specification, is compatible and operates properly to achieve the performance requirements specified. Unless otherwise specified in the particular equipment specification, the responsible manufacturer shall be the manufacturer of the driven equipment. Agents, representatives or other entities who are not a direct component of the manufacturing corporation will not be acceptable as a substitute for the manufacturer's corporation in meeting this requirement.
- B. The associated gate manufacturer shall ensure that all equipment systems provided for the project are products for which unit responsibility has been accepted by the responsible manufacturer. Certificates shall be signed by an officer of the manufacturer's corporation.

## **PART 2 -- PRODUCTS**

### **2.01 PORTABLE ACTUATORS**

#### **A. ACCEPTABLE PRODUCTS**

- 1. Electric:
  - a. One of the following or equal:
    - 1) Named Gate Manufacturer
    - 2) Milwaukee, Model 2404-1

#### **B. OPERATING CONDITION**

- 1. For intermittent use in an NEC Class 1, Division 2 environment, sanitary wet well.

#### **C. MATERIALS/EQUIPMENT**

- 1. For all types:
  - a. Manually operated

- b. Mounted on tripod or other self-supporting device which transfers both tool load and torque away for the operating personnel.
    - 1) Mounting device frame shall be fabricated from aluminum to ensure the device is not overly cumbersome. Type 316 stainless steel may be used for fasteners and other parts where aluminum is not appropriate or recommended.
    - 2) Mounting device must be adjustable or gate operators must be positioned to allow the portable actuator to access operating nuts.
    - 3) Portable actuator must be able to be removed from the mounting device for ease of transport and storage.
  - c. Suitable for use with crank-operated geared valve or gate operators with AWWA 2-inch operating nut.
  - d. Capable of limiting torque to the safe operating torque for all gate components calculated in HEAVY-DUTY FABRICATED STAINLESS STEEL SLIDE GATES Section (40 05 59.34).
  - e. Capable of operation in both clockwise and counter-clockwise directions.
2. Electric-type:
- a. 120 volt, 60 Hz, single phase power
  - b. Capable of use with a minimum of 100 feet of extension cord

## **PART 3 -- EXECUTION**

### **3.01 TESTING**

- A. Proof-of-Design and Performance Test Reports in accordance with AWWA C542
- B. Proof of Field Operation during Commissioning for HEAVY-DUTY FABRICATED STAINLESS STEEL SLIDE GATES Section (40 05 59.34).

### **3.02 TRAINING**

- A. To be coordinated and included in the Training for HEAVY-DUTY FABRICATED STAINLESS STEEL SLIDE GATES Section (40 05 59.34).

**\*\*END OF SECTION\***

# APPENDIX B

1

2

3

4

5

### GENERAL SHEET NOTES

- METAL SHAFT GUIDES NOT SHOWN. LOCATION AS REQUIRED AND PROVIDED BY GATE MANUFACTURER.
- HEAVY-DUTY FABRICATED STAINLESS STEEL GATES PER SPECIFICATION 40 05 59.34.

### SHEET KEYNOTES

- EXISTING THIMBLE AND ANCHORS. ANCHORS TO BE UNSCREWED, REMOVED, OR CUT FLUSH DURING DEMOLITION.
- EXISTING 4-INCH PIPE SLEEVE THROUGH 2'-0" x 2'-6" CONCRETE CORBEL. REFER TO FIGURE 2 FOR PHOTOS.
- DESIGN OF FRAME AND GATE TO BE DETERMINED BY MANUFACTURER. INSTALLATION METHOD MUST INDICATE IF GATE AND FRAME CAN BE LOCATED TO ACCOMMODATE REUSE OF THE UPPER CORBEL. ANCHORS FOR GATE AND FRAME SHALL BE DESIGNED BY GATE MANUFACTURER.
- NOTE THAT CHANNEL SIDES DO NOT CONTINUE ABOVE ELEVATION 3.0; FRAME AND GATE DESIGN MUST BE SELF-SUPPORTING ABOVE THIS ELEVATION. REFER TO FIGURE 2 FOR PHOTO.
- LOCATION OF FRAME AND GATE TO BE DETERMINED BY MANUFACTURER'S INSTALLATION METHOD.
- CENTERLINE FOR TOP SEAL ANCHORS TO BE NO LESS THAN 4 INCHES FROM TOP EDGE OF EXISTING THIMBLE. PER MANUFACTURER DESIGN TO MEET SPECIFICATION 40 05 59.34.
- SIDE RAILS AND SEALS PER MANUFACTURER DESIGN TO MEET SPECIFICATION 40 05 59.34.
- BOTTOM SEALS PER MANUFACTURER DESIGN TO MEET SPECIFICATION 40 05 59.34. BOXOUT SIZE TO BE INDICATED WITH GATE MANUFACTURER SUBMITTALS. ASSUME CONTRACTOR WILL BOX OUT CHANNEL BOTTOM CONCRETE TO FACILITATE FLUSH BOTTOM INSTALLATION.
- 0.75-INCH TO 1.5-INCH THICK STAINLESS STEEL (SST) PLATE TO BE DESIGNED (THROUGH COORDINATION BETWEEN GATE MANUFACTURER AND ENGINEER) TO BE ATTACHED TO EXISTING THIMBLE AND CHANNEL. REFER TO FIGURE 3 FOR EXISTING THIMBLE BOLT LAYOUT. REUSE OF EXISTING THIMBLE ANCHOR POSITIONS IS ASSUMED AT THIS TIME WITH REDUNDANT ANGLE ANCHORAGE TO THE CHANNEL WALLS. ASSUME WELDED OR TAPPED STUDS WILL BE FABRICATED WITH THE SST PLATE IN OFFSET POSITION FROM EXISTING STUD PATTERN TO AFFIX NEW FRAME AND GATE TO THE SST PLATE. PLATE SHALL BE SUPPLIED BY THE GATE MANUFACTURER.
- INSULATING AND SEALING MATERIAL TO BE SELECTED FOR THIMBLE TO SST PLATE INTERFACE.
- NO DRILLING OR MOUNTING WITHIN 3-INCHES OF VENT.
- NEW GATE STEM IN EXISTING GATE STEM LOCATION. EXISTING STEM PASSES THROUGH EXISTING 4-INCH WIDE SLOTS IN ABANDONED CONCRETE CORBEL AND LEDGE. SEE IMAGES ON FIGURE 2.



**CAROLLO ENGINEERS**  
 2890 GATEWAY OAKS DR., SUITE 300  
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 CONTACT: RYAN HOOK  
 WWW.CAROLLO.COM

### PRELIMINARY

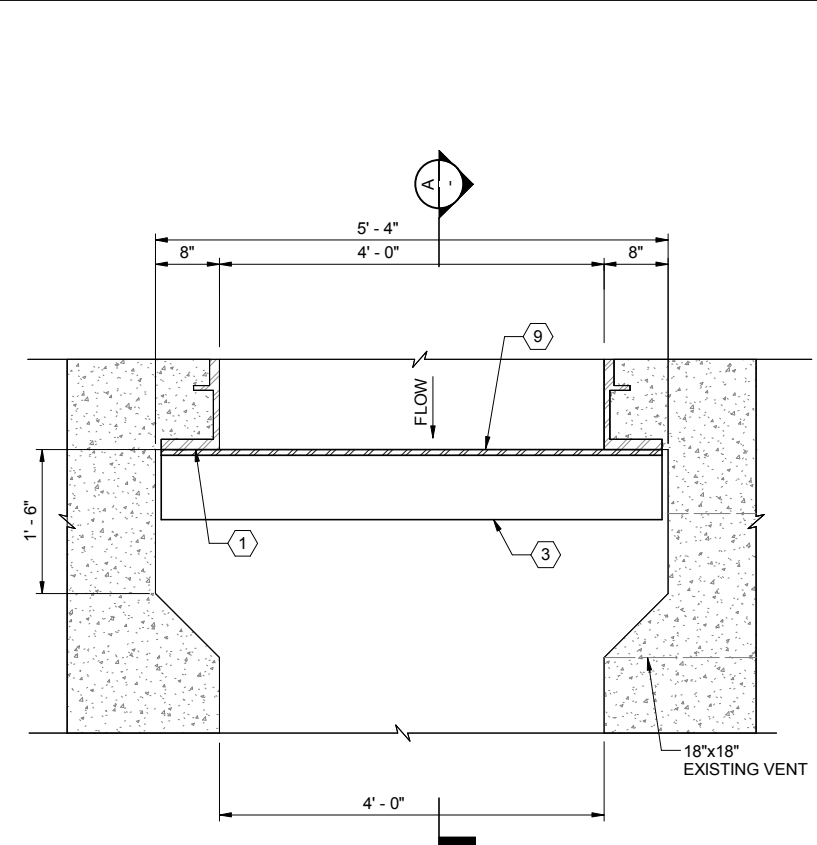
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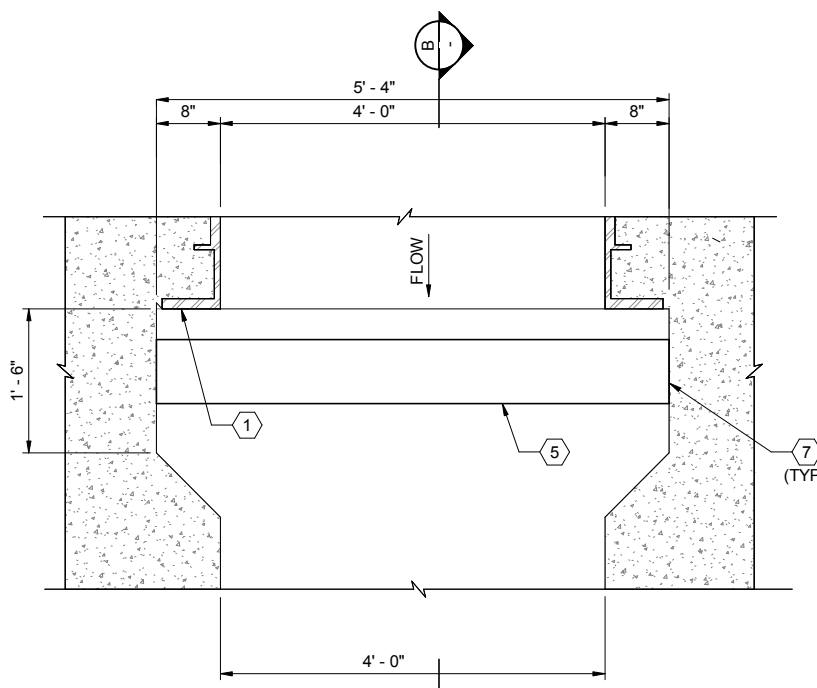
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		DRAWN WELCH
		CHECKED PARKER
		APPROVED Approver
		FILENAME 10935A1000S801
		DESIGNER PROJECT NUMBER 10935A.10
		CONTRACT NUMBER
		CONTRACT SEQUENCE NUMBER
		DISCIPLINE STRUCTURAL
		GATE INSTALLATION PLANS AND SECTIONS

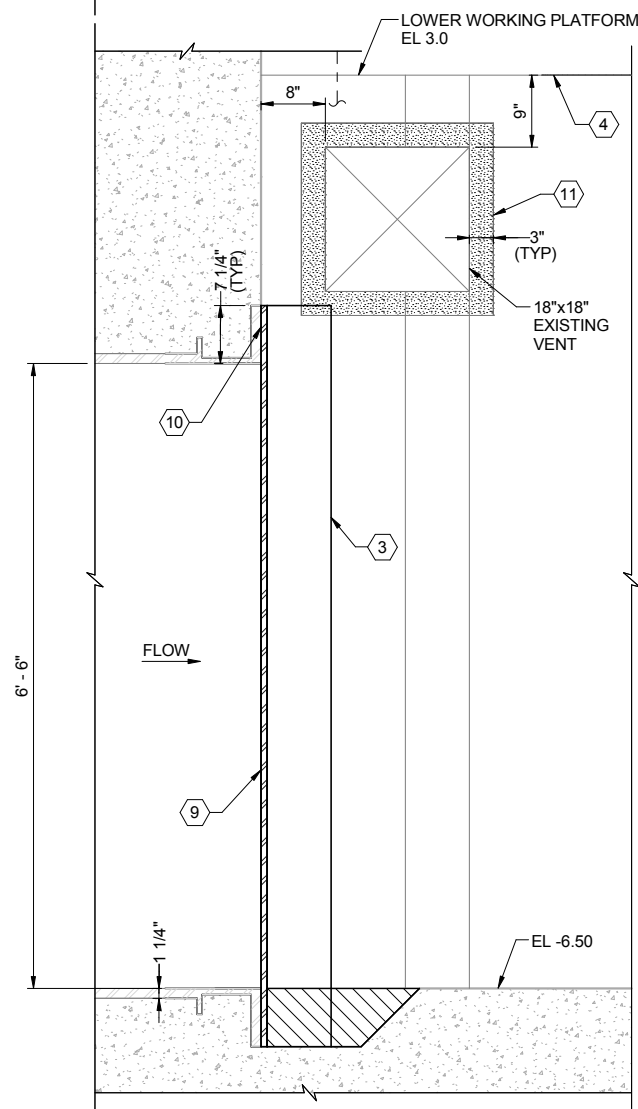
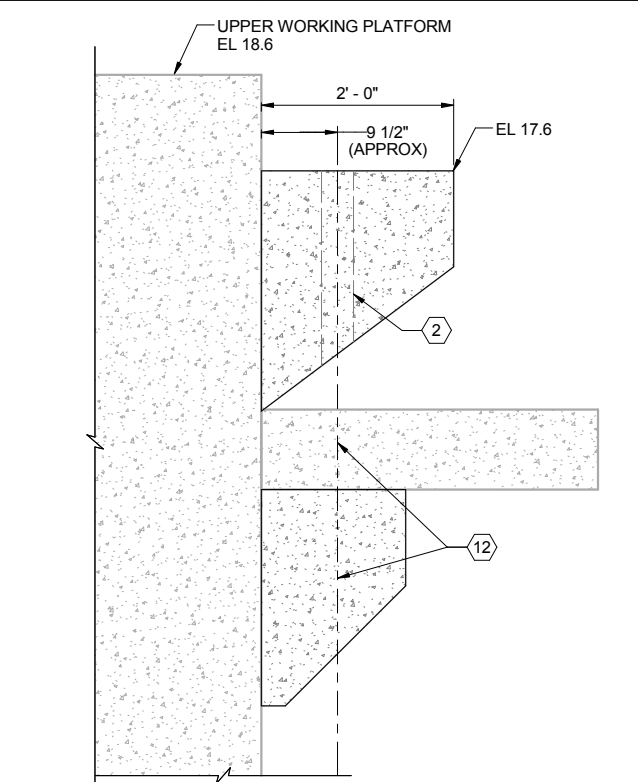
DRAWING NUMBER	OF
<b>FIGURE 1</b>	XXXX



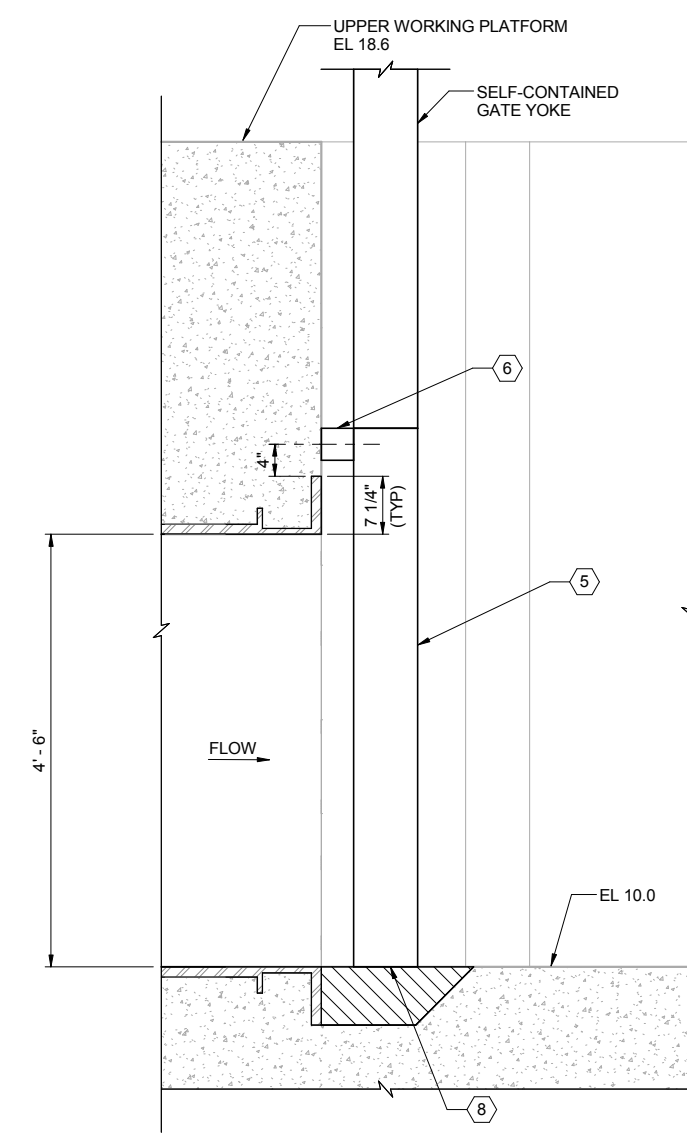
**DRY CREEK INTERCEPTOR GATE CHANNEL (G01102) PARTIAL FLOOR PLAN**  
 SCALE: 1" = 1'-0"



**McCLELLAN INTERCEPTOR GATE CHANNEL (G01101) PARTIAL FLOOR PLAN**  
 SCALE: 1" = 1'-0"



**SECTION A**  
 SCALE: 1" = 1'-0"



**SECTION B**  
 SCALE: 1" = 1'-0"

PLOT DATE: 8/22/2018 11:34:13 AM  
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