ADDENDUM NO. 1
for
22-0028-UT East Water Reclamation Facility Screw Pump
Clearwater, Florida

DATE: April 12, 2024

SUBJECT: Addendum No. 1

TO: Prospective Bidders and Others Concerned

CLARIFICATION: All bidder questions shall be submitted to the Engineer via email at tleduc@jonesedmunds.com; cc: gfruecht@jonesedmunds.com.

All Addenda and Notices will be posted on the City's website: https://www.myclearwater.com/business/bid-information

Bidders on the above project are hereby notified that the following Addenda are made to the Contract Documents:

1. **Question:** Note 6 on sheet M4 and section 01815-3.02.E.2 of the project specifications states that the peak hourly flow is 17.2 MGD, however, the minimum daily flow is 10.5 MGD and the average daily flow is 12.0 MGD. Please confirm if the 17.2 MGD is the peak daily or the peak hourly flow. If 17.2 MGD is the peak daily flow, can a peak hourly flow please be provided?

   Answer: Awarded Contractor is responsible for coordinating with Engineer and Owner to confirm actual flow rate ranges as part of the temporary bypass plan. For the purposes of bidding, the flow rates were estimated.
   The Screw Pump Station handles:
   - Influent Plant Daily Flow (Q)
   - Internal Recycle Flow (~4Q)
   - Return Activated Sludge Flow (~Q)

   The Internal Recycle Flow and Return Activated Sludge Flow modulate over 12-24 hour flow averages and are not directly impacted by peak flows into the plant, dampening the overall flow peaks.
   Influent Daily Flow may average 2.0 MGD with minimum flow estimated as 0.5 MGD and peak flow estimated as 7.2 MGD. This results in:
   - Minimum Estimated Flow: 10.5 MGD
   - Average Estimated Flow: 12.0 MGD
   - Peak Estimated Flow: 17.2 MGD.

   These are estimates for the sake of providing a rough order of magnitude. The bidder is encouraged to estimate pump requirements based on the information above.

2. **Question:** Please confirm if a field office will be required.
   Answer: Specification 01500 - Temporary Facilities does not require a field office. The Contractor will be required to maintain on-site redline As-Builts and access to review approved submittals.

3. **Question:** Will daily reports need to be submitted as outlined in specification section 01355-1.30.C?
   Answer: Yes. Daily compliance is required for this special provision specification. The reports shall be provided directly to the Engineer electronically.

4. **Question:** The Excel bid tabulation sheet provided includes bid item #8 "All Other Work Required to Complete the Base Bid," however, this bid item is not included as part of the pay item descriptions provided in specification section 1200 part 2. Please confirm if bid item #8 is to be used.
   Answer: See attached revised Bid Form and the original Measurement and Payment descriptions. Measurement and Payment Item #2 is intended to encompass "all other work required to complete the base bid".

5. **Question:** Can as-built drawings from the O&Ms for the slide gates please be provided? If as-built drawings cannot be provided, please confirm the size of the slide gates & provide all known information.
   Answer: As-Builts for this installation are not available. O&Ms available are herein attached. **A Site Visit will be conducted at 3141 FL SR 60, Clearwater, FL 33759 on Wednesday, April 17, 2024, at 2:30 pm (meeting at the Control Building for Sign-In), however no questions will be addressed during this time. Any questions will need to be submitted in writing following the meeting.** All bidders are encouraged to be in attendance to examine the existing conditions and slide gates.

6. **Question:** If new slide gates are to be provided, will they be installed / embedded in the same manner as the existing slide gates?
   Answer: This item is a deductive bid alternate. The purpose of these Deductive Alternates is to demonstrate another method to achieve design intent and potential cost savings to the Owner. The bidder is responsible for determining the approach needed to achieve the bid items as described.

7. **Question:** Note 6 on sheet M2 &M3 states that the slide gate manufacturer (Waterman Valve LLC) will need to inspect / assess the existing slide gates and provide a detailed report for the refurbishment or replacement including an itemized list of costs which will be submitted to the owner & engineer for review / approval. As the base bid is to include costs for refurbishing the slide gates and the bid alternate is to include costs for replacing the slide gates, has this report already been prepared and reviewed? IF this report has not yet been prepared, as site visit will be needed to inspect the current slide gates and determine the costs for refurbishment. Will a site visit be available for this project? If a site visit is not possible, can a list of the slide gate components that need to be refurbished please be provided?

   Answer: A detailed report by the manufacturer of the slide gate conditions and refurbishment requirements will be required by the awarded Contractor. The bidder is responsible for making an evaluation of existing field conditions to determine an estimate for refurbishment costs. **A Site Visit will be conducted at 3141 FL SR 60, Clearwater, FL 33759 on Wednesday, April 17, 2024, at 2:30 pm (meeting at the Control Building for Sign-In), however <u>no</u> questions will be addressed during this time. Any questions will need to be submitted in writing following the meeting.** All bidders are encouraged to be in attendance to examine the existing conditions and slide gates.

8. **Question:** We will need the following to be able to provide pricing for the new slide gates:
   1- What are the sizes of the existing slide gates? We're not finding it in the documents.
   2- Will we be embedding the new slide gates the same as the existing gates?
   3- Could you provide the as-built submittal drawings for the existing slide gates? They would be included in the O&M Manual. The drawings should have all the info for the existing gates: size, model #, etc.

   Answer: Refer to the above response to Questions 5 and 6.

9. **Question:** The drawings state that "the contractor shall coordinate with the slide gate manufacturer to inspect and assess the existing slide gates and provide a detailed report for refurbishment or replacement including an itemized list with costs of parts and instructions". However, the bid form is asking us to price the refurbishment of the slide gates? How are we supposed to quantify that price without the report? There is no way to know this pricing prior to the bid.

   Answer: Refer to the response above to Question 7.

10. Question: Can you provide a quantity of expansion joint repair, crack injections and spall repair to be assumed for bidding purposes? We see on the plans where a "minimum" amount is to be assumed, but that is not enough information for us to provide accurate pricing. For example, provide bid items like "Expansion Joint repair – 50 LF", "Crack Injections – 200 LF" and "Spall Repair – 10 SF" and then have them bid as unit prices so that everyone is on the same page? This also goes for the work in the effluent channel. No one that does this type of work will provide a price with the information provided.

Answer: Sheet S2 repair notes identify a minimum of quantities of these items that were identified during the design phase. Bidders are required to estimate current field conditions and incorporate them into their bid. **A Site Visit will be conducted at 3141 FL SR 60, Clearwater, FL 33759 on Wednesday, April 17, 2024, at 2:30 pm (meeting at the Control Building for Sign-In), however no questions will be addressed during this time. Any questions will need to be submitted in writing following the meeting**. All bidders are encouraged to be in attendance to examine the current / existing conditions pertaining to the extent of crack injections and surface repairs.

11. Question: For the bid item #6 "Individual Bypass", can a plan on how this would work be performed? You've shown on the plans one way to do it, but not the other. This seems like a means & methods issue, but with not knowing how it can be accomplished we would not be able to provide accurate pricing for this item. Knowledge of how this could be bypassed individually would need to be provided in order to provide pricing. For example, there is no where showing how the effluent channel can be isolated or manipulated to allow continuous flow.

Answer: Refer to the above response to Question 6.

12. Question: The bid form, in general, is very confusing. What is bid item 8 for? We do not see any description in the measurement & payment section and therefore "all other work" is not defined. This is especially confusing by calling it a "deductive bid alternate".

Answer: Refer to the above response to Question 4.

13. Question: We also don't understand the term "Deductive Alternates". Are these supposed to be negative numbers? Are these supposed to be only the difference between one option and another? Are these total costs?

Answer: Refer to the above response to Question 6. There may be some reduced schedule timeframe beneficial to the Owner established within the deductive bid alternate that does not necessarily reflect a negative cost differential. These items should reflect cost differential from the implied base bid item.

14. Question: Is the 10% Contingency going to be applied to all bid items, even the "Deductive: ones? It seems like this could be a lot simpler by having a clear "base bid" and then having some a la cart items by unit price in case they are needed?

Answer: Refer to the above response to Question 4.

15. Question: Please confirm the quantity of anchors required to reattach the existing screw pump covers.

Answer: **A Site Visit will be conducted at 3141 FL SR 60, Clearwater, FL 33759 on Wednesday, April 17, 2024, at 2:30 pm (meeting at the Control Building for Sign-In), however no questions will be addressed during this time. Any questions will need to be submitted in writing following the meeting**. All bidders are encouraged to be in attendance to examine the current / existing conditions. Sheet S2 Note 4 provides additional requirements pertaining to this item.

16. Question: Bypass Pumping Questions:

1- Can you confirm the Peak HOURLY Flow is 17.2 MGD? It says minimum daily flow is 10.2 MGD and Average Day is 12 MGD.
2- Is the peak daily flow 17.2 MGD? If so, can we get a peak hourly flow too?
3- What is elevation of suction access area?
4- What is elevation of Discharge Channel?

Answer: Refer to the above response for Question 1. A survey was not performed for this project. Record Drawing information is referenced on the demolition sheets for order of magnitude elevations. Bidders are responsible for estimating requirements for Bypass Operation based on the information available.

17. Question: How will the project be awarded? Based on any combination of the items on the bid form?

Answer: Please refer to Section II, Article 18 – Award of Contract and the Attached Bid Form. The Owner may select any aggregate of Base Bid, Deductive Bid Alternates, and or other considerations that are in the best interest of the City.

18. Question: How are we to handle the "deductive" bib items if the costs associated are more that the base bid items? Examples: What if the cost to replace the slide gates is more that the cost to refurbish them? What if the costs of the "Individual Bypass" is more than the base bid bypass setup?

Answer: Refer to the above response to Question 13. If the Contractor does not wish to submit a Deductive Bid Alternate, please populate field with N/A.

19. Question: Is it acceptable to discharge the bypass pumping flow directly into the oxidation reactor? We don't see how it's possible to bypass into the effluent channel and also be able to get into the channel to inspect/repair any concrete.

Answer: See Notes 2 and 4 on Sheet M4 of the Bid Documents. Refer to the above response to Question 6 for reference to effluent channel inspection/repair of concrete. The intent of that deductive bid alternate item is for the Bidder to demonstrate the cost savings that could be observed by not bypassing the effluent channel and foregoing the inspection and repair of that concrete (or proposing an alternative method to inspect).

20. Question: Whipps, Inc. is fully compliant with specification section 11282 for the Fabricated Gates. Please consider Whipps, Inc as an equal manufacturer for the material pertaining to this section.

Answer: All bids shall be posted based on the Contract Documents including the specified materials and components. After the Contract is awarded, the City may consider other options if they are in the best interest of the project and the Owner.

BIDDER'S PROPOSAL

PROJECT: CLEARWATER EAST WRF SCREW PUMP REPLACEMENT (22-0028-UT)

_____

CONTRACTOR: _____

BIDDER'S GRAND TOTAL: $_____ (Numbers)

BIDDER'S GRAND TOTAL: _____

_____

_____ (Words)

Item No.	Spec. No.	Item Description	Qty.	Unit	Unit Price	Amount
BASE BID						
1	01200	Mobilization/Demobilization and General Conditions (not to exceed 8% of the Base Bid)	1	LS	$	$
2	01200	Screw Lift Station Upgrades	1	LS	$	$
3	01200	Refurbishment of Slide Gates	1	LS	$	$
4	01200	Owner's Contingency (10% of Base Bid)	1	LS	$	$
		Total			$	$
DEDUCTIVE BID ALTERNATE						
A	01200	Slide Gate Replacement	1	LS	- $	- $
B	01200	Individual Bypass	1	LS	- $	- $
C	01200	Omitting Concrete Repair of Effluent Channel	1	LS	- $	- $

THE BIDDER'S GRAND TOTAL ABOVE IS HIS TOTAL BID BASED ON HIS UNIT PRICES AND LUMP SUM PRICES AND THE ESTIMATED QUANTITIES REQUIRED FOR EACH SECTION. THIS FIGURE IS FOR INFORMATION ONLY AT THE TIME OF OPENING BIDS.

THE CITY WILL MAKE THE TABULATION FROM THE UNIT PRICES AND LUMP SUM PRICE BID. FOR DETERMINATION OF APPARENT LOW BIDDER, BIDS WILL BE COMPARED ON THE BASIS OF THE AGGREGATE AMOUNT OF THE BASE BID, PLUS ANY COMBINATION OF THE DEDUCTIVE ALTERNATES AS DETERMINED BY THE OWNER. IF THERE IS AN ERROR IN THE TOTAL BY THE BIDDER, IT SHALL BE CHANGED AS ONLY THE UNIT PRICES AND LUMP SUM PRICE SHALL GOVERN.

THE CONTRACTOR SHALL PROVIDE COPIES OF A CURRENT CONTRACTOR LICENSE/REGISTRATION WITH THE STATE OF FLORIDA AND PINELLAS COUNTY IN THE BID RESPONSE.

WATERMAN INDUSTRIES, INC.

OPERATION AND MAINTENANCE MANUAL

FOR:

SLIDE GATES, STOP GATES &
PORTABLE OPERATOR

FOR:
MARSHALL STREET ADVANCED
POLLUTION CONTROL FACILITY
CL - 87056 - 2
CLEAR WATER FLORDIA

FOR: SCE. INC. 801 5th AVE. NORTH BRMINGHAM, AL.	JOB NO. J-8039
	QUOTE NO SQ88 - A - 207

WATERMAN INDUSTRIES, INC.

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ENGINEERING DRAWINGS

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INSTALLATION OF SLIDE OR STOP GATE TO CONCRETE WALL

1. Secure all anchor bolts in proper position in forms, checking carefully to see that size, projection, perpendicular, and horizontal alignments conform to requirements shown on our installation drawings. EXTREME CARE must be exercised in this initial procedure in that bolts which are improperly set will cause gate warpage and therefore excess leakage between the seating surfaces. DO NOT FORCE GATE ON TO MISALIGNED BOLTS.

Optional method of mounting could be with concrete anchors or studs. Install concrete anchor per manufacturer's recommended procedure, insuring stud projections are as shown on drawing. Use guide rail as template.

2. The wall mounted guide frame must be set plumb and straight regardless of the condition of the vertical concrete wall on which it is to be mounted. The wall may need to be grout faced if it is unduly rough or badly out of plumb. Any small voids between the guide frame and the wall should be filled with a mastic sealant or with grout in an extreme case. The amount of sealing required will depend solely on the accuracy with which the wall is formed or faced. We emphasize that the guide frame is sufficiently flexible that it will follow the contour of the wall if all bolts are pulled tight. If grout is used in any of this sealing, it should be of non-shrink type so as to maintain its seal after hardening.

3. The guide frame should be hung loosely on the mounting bolts, tightening each nut a small amount each time until the guide touches the wall initially. The guide should then be checked to insure that both legs are parallel and plumb. At this time the need for shims or sealant will be quite apparent. After the wall has been dressed to provide a good mounting surface for the guide frame all bolts should be tightened and the guide frame again checked for straightness.

INSTALLATION OF SPIGOT BACK GATES TO CONCRETE WALL

Spigot back gates are installed in the same manner as flatback gates specified above, with the following additions.

1. When setting the anchor bolts in form, form blockout for spigot, to dimensions specified in drawing.

2. After gate is installed, and nuts tightened on bolts, grout in voids around spigot back with a non-shrink grout.

INSTALLATION OF SLIDE GATES WITH J-BULB SEALS

Follow same procedure as for spigotback or flatback gates as described above, with the following additions.

Check clearance between seal and slide following installation with a .002 inch feeler gauge. Gauge should not pass at any point around seal perimeter with gate in fully closed position. If adjustment of seal is necessary, refer to P. 5.6 of this manual, procedure for replacing and adjusting J-bulb seals for fabricated slide gates.

INSTALLATION OF EMBEDDED SLIDE OR STOP GATE

1. A gate and its guide frame are normally shipped with the gate in the guide and the assembly banded together, thus forming a compact factory-aligned unit. Two methods are available for installation.

OPTION 1: INSTALLING GATE AT TIME OF CONCRETE POUR

2. Place the gate in a vertical and plumb position in the forms, and secure in place. Use timbers or other bracing on the inside of the opening to support the gate and prevent warpage during the pour. This is especially true on larger gates,

3. Pour concrete, being EXTREMELY CAREFUL not to get concrete in guide area.

4. After concrete has set, remove forms and bracing. Thoroughly clean gate and guide of any concrete spash or splatter.

OPTION 2: INSTALLING GATE AFTER CONCRETE POUR

5. Form blockout in concrete to dimensions specified on installation drawing.

6. After concrete has set and forms have been removed, align gates in blockout, insuring gate is vertical and plumb.

7. Secure gate into place with non-shrink grout.

8. After grout has hardened, thoroughly clean gate and guide.

INSTALLATION OF EMBEDDED SLIDE GATE WITH J-BULB SEALS

Install as described above with the following addition.

INSTALLATION OF SLIDE GATES WITH J-BULB SEALS

Follow same procedure as for spigotback or flatback gates as described above with the following additions.

Check clearance between seal and slide following installation with a .002 inch feeler gauge. Gauge should not pass at any point around seal perimeter with gate in fully closed position. If adjustment of seal is necessary, refer to P 5.6 of this manual, procedure for replacing and adjusting J-bulb seals for fabricated slide gates.

PROCEDURE FOR INSTALLING STEMS & STEM GUIDES

1. Stems are shipped with thrust nuts and couplings attached; these must be removed prior to installation.

2. After the gate has been mounted and shipping stops have been removed, lower short-threaded end of stem through holes in upper ribs of cover.

3. With thrust nuts located in gate pocket, thread stem into thrust nut until stem is flush with bottom of nut.

4. Tighten set screws on nut into indents in stem.

5. Mount stem guides in order from bottom up as stem is installed. Do not tighten stem guide assembly bolts.

6. Install stem couplings as required, being sure to install keys, to tighten all set screws, or to drive in pins as required.

7. Take care not to bend stems or damage threads during installation.*

8. Thoroughly clean and grease stem threads with heavy duty grease, such as Mobilox grease #2EP or equal. (See maintenance section for equivalent greases.)

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* This is true on electric motor operated lifts. Extra care should be taken with stems for these operators.

INSTALLATION OF LIMIT NUTS

1. IMPORTANT: In those cases where limit nut is used to stop upward gate travel, and pedestal lift also used, limit nut must be installed on stem prior to installing lift.

2. After lift is installed, screw limit nut down on stem until it just starts to bottom out on top of lift nut.* Tighten set screws.

*If gates have wedges which require adjustment, final setting and tightening of nut will have to be done after gate wedges are adjusted.

INITIAL OPERATION of GATES

1. After gate, stem guides, stem, lifting mechanism, and other necessary appertance has been installed, check the following prior to operation.

   a. Check all assembly and mounting hardware for proper tightness.

   b. Apply tension to stem and check for proper alignment.

   c. Remove any shipping stops on gates.

   d. Check gate guide grooves for any foreign matter and clean as necessary.

2. If not done previously, or if gate stem has set some time after installation, thoroughly clean stem threads and lubricate* in accordance with stem installation instruction.

3. Open gate slide to fully open position. All lifts are factory lubricated, so there is no need for additional lubrication.

   a. For manually operated lifts, turn handwheel or handcrank in direction noted on handwheel or lift housing.

   b. Electric operators should be opened manually a minimum of the first three (3) inches and the last three (3) inches of gate travel until all limit and torque switches are set and checked. Electrical operation is accomplished by actuating pushbuttons on operator.*

      * In those cases where operator has both local and remote controls or remote controls only, operator should be operated only with local controls or with maximum caution during this phase.

   c. Pressure must be applied to bottom side of cylinder piston to get gate to rise. This should be done with manually actuated controls, rather than automatic controls, with pressure being applied very slowly and carefully.*

      *On pneumatic operators gate will "jump" out of closed position then begin steady rising movement. There is no way to prevent this.

   Regardless of operator, operation should be easy and unlabored. If not, check for binding or other casuses by reviewing previously mentioned installation and start-up procedures. Do not apply any excess force to handwheel or handcranks on operators.

4. Clean all dirt, paint, concrete splatter, or other foreign material from seating surfaces, wedges, flushbottom seals, etc.

5. Grease any and all seating and wedging surfaces with water resistant grease as noted following:

   a. For machined iron or bronze seating or wedging surfaces, grease with Intertol Grease Coating, as manufactured by Koppers, Inc., or equal.*

      *See lubrication chart for equivalent lubricants.

   b. Grease stainless steel seats and wedging surfaces with Never-Seez, manufactured by Never-Seez Corporation or equal.* For best results mix Never-Seez with an equal portion of ten-weight oil.

      *See lubrication chart for equivalent lubricants.

   c. Seating surfaces of aluminum or fibergalss slide gates, including gates with UHMW polyethelene bearing strips require no lubrication.

6. Close gate completely and check for proper closure. See CAUTION following.

   a. On all cast iron sliding gates (also applicable to flap gates and shear gates) check excessive seat clearance with .004 feeler gauge. Best results can be obtained by checking seat faces from back side of gate when installation permits. Adjust any wedges as necessary per applicable wedge adjustment procedures following, until .004 feeler gauge cannot be inserted between seats.

   b. On fabricated slide gates, check to see slide fits flat against seating surface. Check to be sure frame not warped.

   CAUTION: Be extremely careful when closing gate so as not to apply excessive compressive force on stem. The stem under a compressive load is the weakest link in the system and can buckle (bow) if excessive force is applied to operator.

7. Set any limit nuts or position indicators as required per applicable instructions following.

8. Cycle gates with operators to insure proper installation, alignment, and operation.

OPERATION WITH PORTABLE OPERATOR (ELECTRIC)

1. With handcrank, slightly open gate to 'break' gate out of wedges.

2. Unloosen set screw on handcrank and remove handcrank from lift.

3. Position portable operator support so socket of portable operator lines up with input shaft. Adjust height as necessary.

4. Slip socket on input shaft until fully engaged (minimum 1 inch). Tighten set screw on socket.

5. Plug in operator only into 115V-60HZ power source; be sure outlet is grounded type.

6. Set forward-reverse switch (forward is clockwise rotation) as required for proper gate operation. Direction to open gate is shown on lift above input shaft.

7. Depress trigger switch on portable operator handle to start unit. Operator will continue to run as long as switch is depressed.

8. When limit nut is reached or if overload occurs, overload release clutch will automatically release, so no further torque is applied to input shaft. CAUTION: Soon as clutch releases, turn off electric motor; clutch can be damaged if run for period of time in released state.

9. To reset clutch, either reverse rotation or disengage and remove portable operator from lift, and electrically 'jog' operator. Clutch will automatically reset within a couple of revolutions.

10. See manufacturer's Operating and Maintenance Instructions located in separate section for other operation precautions.

PROCEDURE FOR REPLACING AND ADJUSTING J-BULB SEALS FOR FABRICATED SLIDE GATES

1. Adjustment on J-bulb seals are made at factory and should not need to be field adjusted, but if adjustment is necessary carefully note the following instructions:

   a. To adjust J-bulb seal, slide should be in the fully closed position. Begin by checking clearance between seals and slide with a .002 inch feeler gauge around entire perimeter, noting any points which allow passage of the gauge. Loosen hex head machine bolts adjacent to points requiring adjustment just enough to allow the seal to be moved. Push seal against the slide until feeler gauge will not enter, retighten bolts. Recheck entire perimeter and readjust if necessary.

      Under full design head, slide is engineered not to deflect more than 1/360th of the width of the gate opening. The amount of deflection is dependent upon the amount of head, thus gates which are subject to constant maximum heads may need the top or bottom seals adjusted to compensate for the deflection, especially toward the center of the gate.

   b. To replace J-bulb seal, remove hex head machine bolt, nut plate seal retainer, and J-bulb seal, carefully noting the position of each. Remove old J-bulb seal and replace with new seal and assemble with seal retainer nut plate and hex head machine bolts. being careful not to over-tighten bolts. To adjust new seal, follow instructions above.

PROCEDURE FOR SETTING CLEAR PLASTIC STEM COVER INDICATORS

1. Indicators must be installed after lift and stem cover have been properly installed and gate adjusted for proper seating.

2. Thoroughly clean plastic stem cover.

3. Graduated, self-adhesive mylar tape has been supplied to provide gate open indication.

4. Mark plastic stem cover where top of stem comes with gate in closed position.

5. Remove protective covering from adhesive and smoothly apply mylar strip to plastic, being sure not to get any wrinkles or air bubbles under tape.

MAINTENANCE OF GATES OR VALVES

Other than periodic cleaning as required to maintain smooth operation or painting to maintain appearance, no maintenance is required on the following listed equipment.

SLUICE GATES, STOP GATES & PORTABLE OPERATOR

MAINTENANCE OF OPERATING STEMS

1. It is critical that operating stems be periodically cleaned and greased. Even though some environmental conditions are harsher than others and the use of pipe covers will protect stems, they still need to be cleaned and greased with Mobilux grease #2EP or equal* at least once every six (6) months. More often if the grease becomes dirty.

   *See lubrication chart for equivalent lubricants.

2. WARNING!!! Non-rising stem gates generally require a special maintenance program. If the level of the water or sewerage rises above the top of the opening, the threads on the stem may become coated with grit. Under this condition, frequent use of the gate will wear the threads in the thrust nut creating a dangerous and possible damaging position. Therefore the following maintenance procedure should be followed:

   a. If practical, the stem should be kept clean and greased.

   b. If the gate is cycled on the average of once a week, the thrust nut should be removed every year and inspected for wear. (More frequently after the first signs of wear or if the frequency of operation is greater or the conditions are very severe.)

MAINTENANCE OF GATE OPERATORS

1. At least three (3) times a year, all grease fittings on manual floor stands should be lubricated with a small amount of heavy duty grease, such as Zenaplex II manufactured by Pennwalt Keystone Company, or equal*

   *See lubrication chart for equivalent lubricants.

2. CAUTION: DO NOT OVERFILL, when filling pinion shafts on manual 3EP series lifts.

3. For electric motor operated or cylinder lifts see separate manufacturers O & M manuals.

MAINTENANCE OF PORTABLE ELECTRIC OPERATOR

1. When not in use, portable operator should be stored in dry, protected area, not exposed to the weather, with the cord neatly coiled or looped and off the floor.

2. Should operator be used in inclement weather, the operator and cord should be thoroughly cleaned off and dried prior to storage.

3. See manufacturer's Operating and Maintenance Instructions for lubrication.

4. In time, as clutch is run in and parts are worn in, the torque release setting may decrease making it necessary to reset the clutch. See manufacturer's Operating and Maintenance Instructions for instructions.

5. See manufacturer's Operating and Maintenance Instructions located in separate section for further information.

LUBRICATION CROSS REFERENCE CHART

STEMS

LUBRICANT	MANUFACTURER
Molykote Type G	Alpha Molykote Co.
Valvoline Wal-Lith #2EP	Ashland Oil & Refining Co.
No. 52 Grease	Atlantic Richfield (ARCO)
Dura Lith #2	Chevron Oil Co.
Lubriplate #630-2	Fiske Brothers Refining Co.
Gulf Crown EP2	Gulf Oil Co.
Mobilox Grease #2EP	Mobil Oil Co.
Mobil Grease #4	Mobil Oil Co.
Alvania #ZEP	Shell Oil Co.
MultiFak #2EP	Texaco Oil Co.
Tycol Azepro #11	Tidewater Oil Co.

LIFTS (also Aux. Gearboxes and Univeral Couplings)

LUBRICANT	MANUFACTURER
Lubriplate Type 630-AA	Fiske Brothers Refining Co.
Mobilplex #45	Mobil Oil Co.
Mobil Grease Special	Mobil Oil Co.
Zeneplex II	Penwalt Keystone Co.

MACHINED IRON AND BRONZE SURFACES SEATS AND WEDGES

LUBRICANT	MANUFACTURER
NO-OX-ID	W.R. Grace, Inc. (Dearborn Chemical Division)
Intertol Grease Coating	Koppers, Inc.

STAINLESS STEEL SURFACES (Seats and Wegdes)

Never-Seez	Never-Seez Corp.

SPECIAL TOOLS

The installation and adjustment of Waterman gates and equipment requires no special tools and can be accomplished using a minimum of the following standard tools:

10" or 12" Cresent wrench (2 required)
1/2" or 5/8" Allen wrench
.004 Feeler gauge

While these are the minimum tools required, installation time can be greatly decreased with such standard tools as socket wrenches and box-wrenches.

If electric motor operated lifts, or cylinder operators supplied, see separate manufacturer's O & M manual for special tools.

SPARE PARTS

Unless required by specifications and shown on appendix attached, no spare parts have been supplied for this equipment. Should it become necessary to replace a part, refer to enclosed installation and detail drawings for appropriate part. If electric motor operated lifts, or cylinder operators have been supplied, see separate manufac urer's O & M manual for details. See section on "Field Service" for where to call to order parts.

FIELD SERVICE

When trouble develops either in the installation, operation, or performance of the equipment, the installation manual and drawings should be checked to determine if the equipment has been installed properly. If proper performance and operation cannot be obtained, and assistance from the factory is desired, please contact the factory and REFERENCE THE JOB NUMBER J-8039, so that we may locate the project records and better assist you. Company may be contacted at:

WATERMAN INDUSTRIES, INC
P.O Box 458
Exeter, CA 93221

Phone--(209) 592-3174
(209) 562-1331

Arrangements will be made to send a man to the jobsite if this is required. This man will make a thorough examination of the problem and if the equipment is faulty in workmanship or material, the necessary repairs or adjustments will be made by the factory at no cost to the purchaser. If, however, the problem is due to faulty installation or adjustment, the cost of the field service will be charged to the purchaser.

If repairs are made in the field by the purchaser or authorized by the purchaser, backcharges for these repairs will not be accepted by the company unless the company has been notified prior to the incurring of these costs and has accepted the responsibility for these repairs. Any unauthorized repairs or changes to equipment will automatically void warranty.

The company will not be liable for contingent costs or costs of delay due to the faulty equipment and the repairs thereof.

FIELD SERVICE CHARGES

Field service charges begin from the time of departure until the return of the service man and include an daily rate plus travel and subsistence expenses. Premium day and hourly rates will be charged on Saturdays, Sundays, and Holidays and for time spent before 6 a.m. or after 5 p.m. or over eight hours per day. A schedule of Field Service charges can be obtained by calling Waterman Industries.

If service personnel are required for equipment produced by another manufacturer (i.e. for electric motor operator), that manufacturer's standard service charges will prevail.

LIMITED WARRANTY

Every effort is made to assure the highest quality merchandise free of any defects, which is warranted against defects in material and workmanship when used in accordance with the standards and/or instructions recommended by this catalog or other written quotation of this firm, but no warranty, expressed or implied, is made other than as follows:

Products manufactured by Waterman Industries, Inc. are warranted against defects in materials and workmanship for one full year from date of purchase, and such warranty can only be enforced by the original consumer purchaser. During the warranty period, the product willbe repaired or replaced at Waterman Industries, Inc.'s option and at no cost to the purchaser.

In the event a warranted product is believed defective, return to Waterman Industries Inc.'s nearest factory or warehouse location or contact Exeter, CA offices, attention service or sales department, for instructions. Refer to location addresses and phone numbers listed inour catalog, this policy or quote supplied to you. Provide date purchased and copy of invoice or shipping documents. Warranty excludes damage due to misuse or neglect.

Measure of damage is the price of defective material only. No charges for labor or expense required to remove or replace defective material or for any consequential damages will be allowed.

Any implied warranty of merchantability or fitness is limited to the one year duration of this written warranty. To the extent allowed by law, neither Waterman Industries, Inc. nor its selling dealer or agent shall have any responsiblity for loss of use of the product, loss of time, commercial loss or consequential damages.

Some states do not allow limitations on how long an implied warranty last or the exclusion or limitation of incidental or consequential damages, so the above limiation may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary fron state to state.

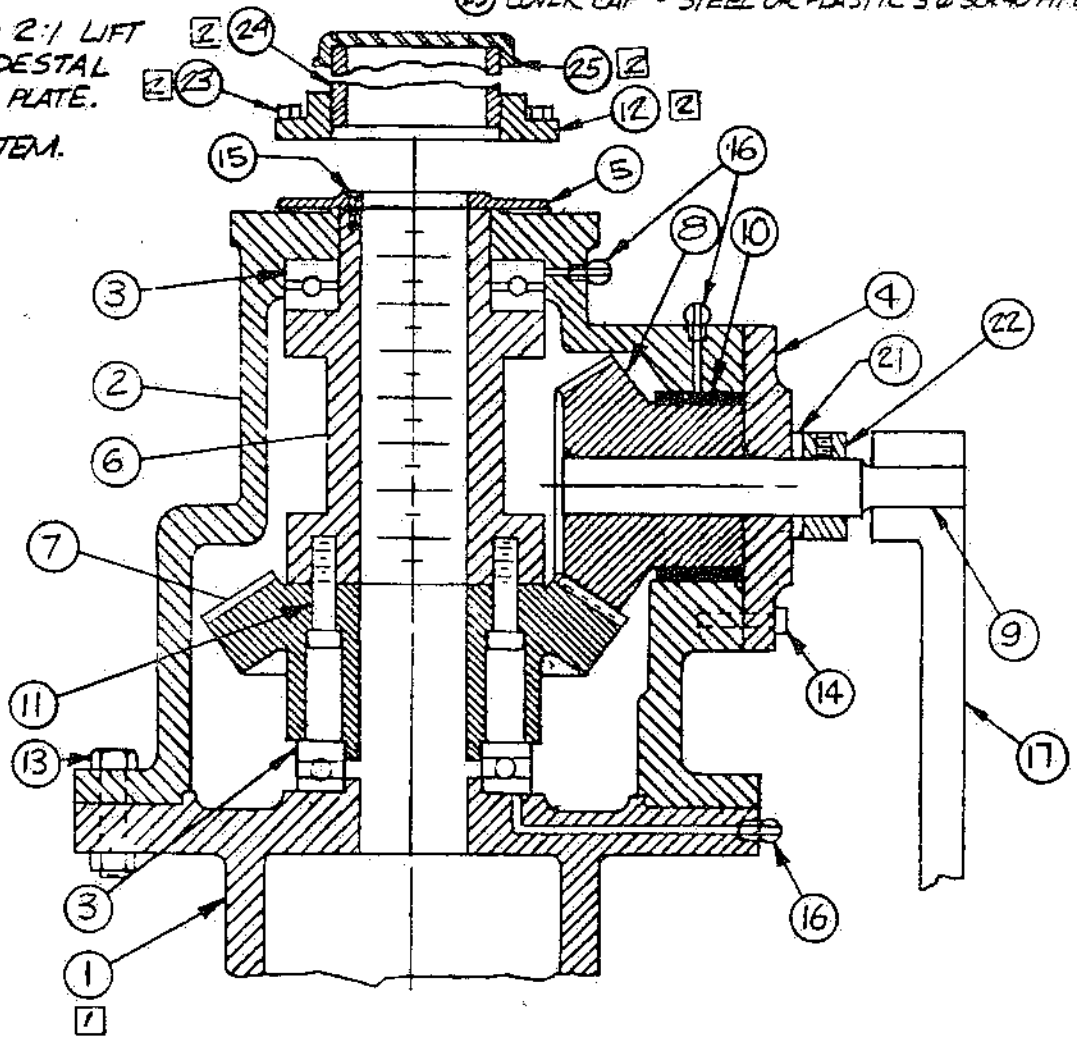
It is the policy of this company to encourage the settlement of disputes in an informal manner, and if such disputes arise over a warranty claim, an informal dispute settlement mechanism can be agreed upon at the time.

		QTY
1	PEDESTAL-(W-1550) BASEPLATE (W-1172) [1]	1
2	LIFT HOUSING - CAST IRON W-634-2	1
3	THRUST BEARING - STEEL - AETNA F-28	2
4	THRUST CAP - CAST IRON - W-640-2	1
5	RAIN SHIELD - CAST IRON W-650	1
6	LIFT NUT - BRONZE - W-532-B	1
7	BEVEL GEAR - BROWNING YSB5B30-20	1
8	PINION GEAR - BROWNING YSB5B15-20	1
9	SHAFT - STEEL 1" DIA. W/ 1/4" SQ @ CRANK	1
10	BUSHING - BRONZE - JOHNSON 1008 GP	1
11	ALLEN HEAD CAP SCREW - STEEL - 3/8 NC x 1"	4
12	STEM COVER ADAPTOR W-1264	1

		QTY
13	CAP SCREW - STEEL - 3/8" NC x 1 1/4"	4
14	CAP SCREW - STEEL - 5/16" NC x 1 1/4"	3
15	FLAT HEAD SCREW - 1/4" NC x 3/8"	3
16	GREASE FITTING - STEEL - 1/4-28	3
17	CRANK - CAST IRON - W-378	1
18		
19		
20		
21	BRASS WASHER 1" I.D. x 1 9/16 O.D. x 1/16 THK.	2
22	LOCK BUSHING, 1" I.D. x 1 3/4 O.D. x 3/4 THK.	2
23	MTG. SCREW - STEEL - 3/8 NC x 1 LG. HEX HD.	3
24	STEM COVER - PIPE (STEEL OR PLASTIC) 3" Ø SCH 40	1
25	COVER CAP - STEEL OR PLASTIC 3" Ø SCH 40 PIPE CAP	1

[1] FOR 3EOP-2:1 LIFT W-1230 PEDESTAL W/ADAPTOR PLATE.

[2] OPTIONAL ITEM.



WATERMAN SERIES
3E, 3EP & 3EOP-2:1
STANDARD LIFT

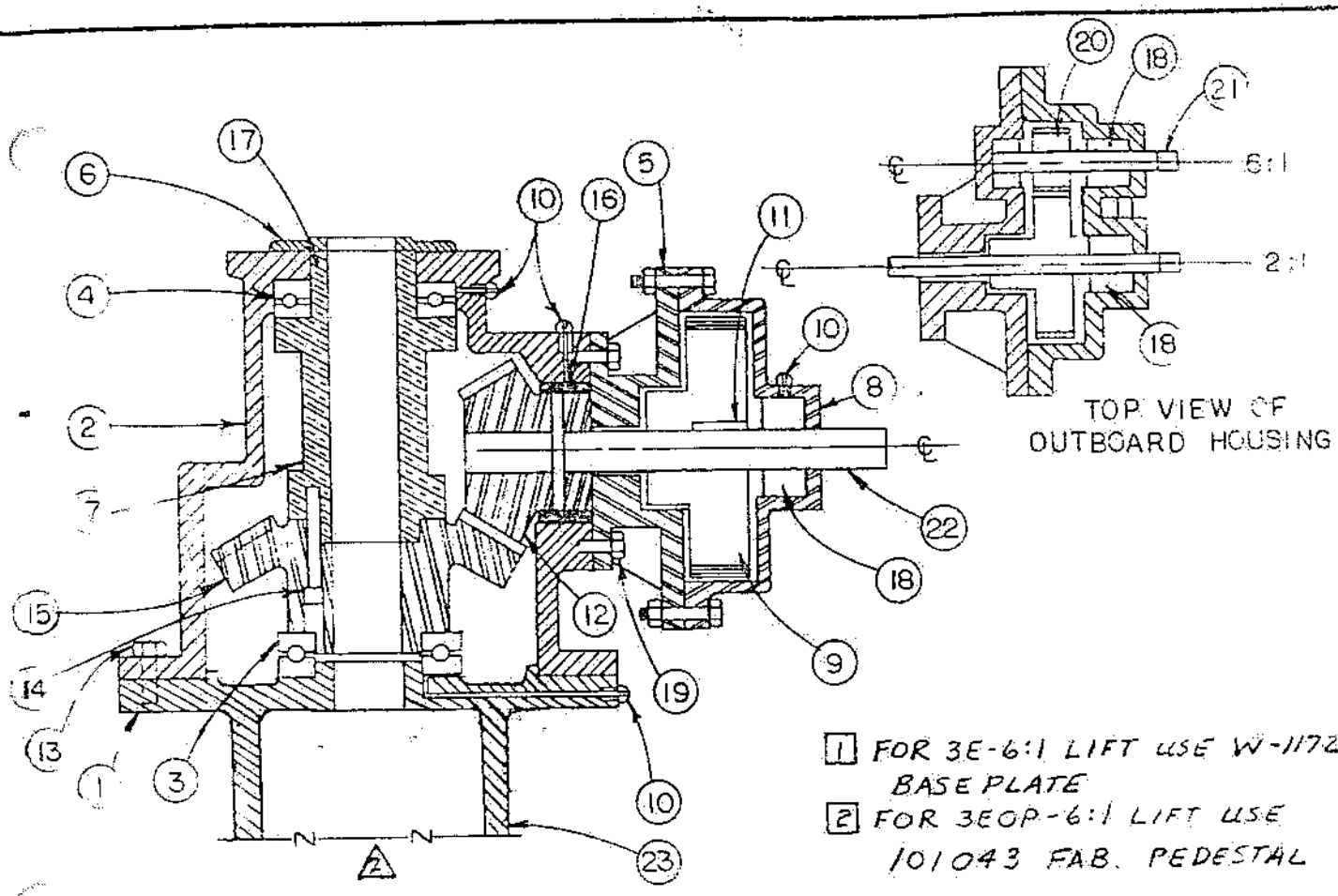
FOR: STANDARD

SEE 101007 FOR 3EOP-2:1 DIMENSIONS
SEE 101006 FOR 3EP-2:1 DIMENSIONS
SEE 101005 FOR 3EP-2:1 DIMENSIONS

JOB NO. REV. 4 E.O. 0113 11-13-79
REV. 3 E.O. 0085
DRAWN BY GB
CHECKED BY GT
SCALE NONE
DATE

RED TOP WATERMAN INDUSTRIES, INC.
DR. NO. 101004

PG. 15.8.1



[1] FOR 3E-6:1 LIFT USE W-1172 BASE PLATE

[2] FOR 3EOP-6:1 LIFT USE 101043 FAB. PEDESTAL

1. BOTTOM HOUSING PLATE & PEDESTAL - W-1550 [1] [2]
2. LIFT HOUSING - CAST IRON - W-634-2
3. LOWER THRUST BEARING - STEEL - AETNA F-28
4. UPPER THRUST BEARING - STEEL - AETNA F-28
5. ADAPTOR HOUSING - CAST IRON - W-895
6. RAIN SHIELD - CAST IRON - W-650
▷ 7. LIFT NUT - BRONZE - W-532.8, ASTM B-147
8. SPUR DRIVE HOUSING - CAST IRON - W-893
9. SPUR GEAR - W/CUT TEETH - BROWNING SS633
10. GREASE FITTING - STEEL - 1/4-28
11. KEY - STEEL - WATERMAN STANDARD
12. PINION GEAR - BROWNING YSB5815-20
13. CAP SCREW - STEEL - 3/8" N.C. X 1 1/4"
14. ALLEN CAP SCREW - STEEL - 3/8" N.C. X 1"
15. BEVELGEAR - BROWNING YSBEB30-20
16. BUSHING - BRONZE - JOHNSON 1008GP
17. FLAT HEAD SCREW - 1/8" N.C. 1 3/8"
18. BUSHING - BRONZE
19. CAP SCREW - STEEL 5/16" N.C. X 1 1/4"
20. SPUR GEAR W/CUT TEETH - BROWNING SS611
21. 6:1 INPUT SHAFT - WATERMAN STANDARD
22. INPUT SHAFT - STEEL - 1" ϕ W/3/4" SQ @ CRANK [2]
24. 15" CRANK - NOT SHOWN
25. LOCKING HUB - NOT SHOWN

▷ NOTE: ALL GEARS (ITEMS 9, 12, 15, 20) ARE HARDENED.

REV. 2	7-16-74	SHG
REV. 1	10-15-73	SHG

(PE 3E, 3EP, & 3EOP-6:1 LIFT PARTS LIST

FOR: STANDARD

JOB NO. REV 4 EO 3113 11-13-79

QUOTE NO. REV 3 EO 3042 8-16-79

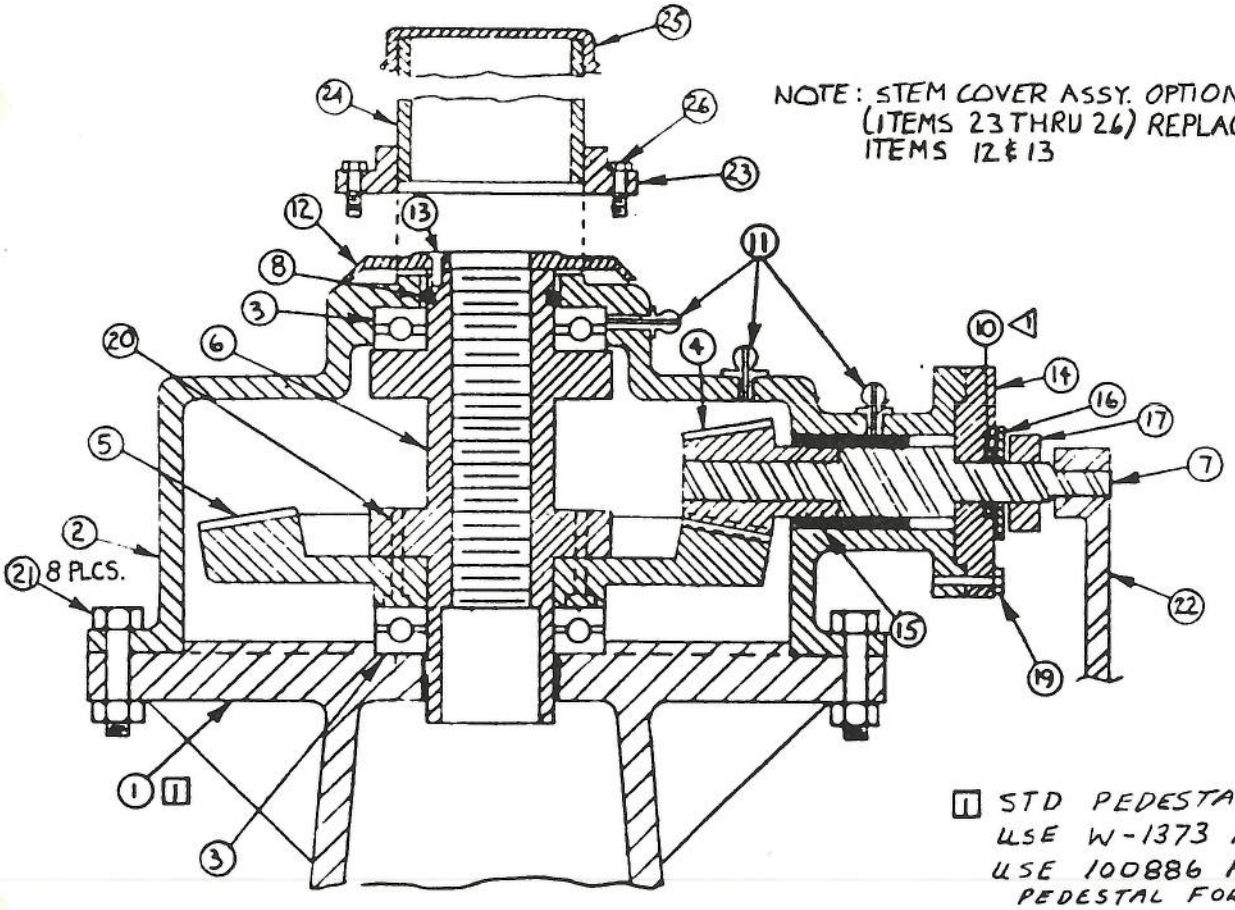
DRAWN BY	CHECKED BY
JPD	
SCALE: NONE	DATE: 7-15-73

DR. NO. 101043

RED TOP

WATERMAN INDUSTRIES, INC.
EXETER, CALIFORNIA 93221

15.8.3



NOTE: STEM COVER ASSY. OPTIONAL (ITEMS 23 THRU 26) REPLACES ITEMS 12 & 13

[1] STD PEDESTAL SHOWN
USE W-1373 FOR 3E-4:1;
USE 100886 FAB. STEEL PEDESTAL FOR 3EOP-4:1

REPLACEMENT PARTS LIST

ITEM	DESCRIPTION	MATERIAL	PART NO. OR SIZE	QTY
1.	PEDESTAL/BASE PLATE	CAST IRON ASTM A-126 CL-B	W-1279/W-1373 [1]	1
2.	LIFT HOUSING	" " " " "	W-1517	1
3.	THRUST BALL BEARING UNIT	STEEL	AETNA F-37(BOTTOM) AETNA F-45(TOP)	2
4.	PINION GEAR W/CUT TEETH	STEEL	BROWNING YSBSB15-40 OR EQUAL	1
5.	BEVEL GEAR W/CUT TEETH	STEEL	BROWNING YSBSB60-40 OR EQUAL	1
6.	LIFT NUT-THREADED	BRONZE-ASTM B-145(B3)	W-533 MB	1
7.	INPUT SHAFT	STEEL	2½"ø x 9½" LG.-MACH TO 1"ø & ¾"□ @ CRANK	1
8.	O-RING	RUBBER	2-230	1
9.	MECHANICAL SEAL	—	NATIONAL-450553	1
10.	MECHANICAL SEAL	—	NATIONAL-455364	1
11.	GREASE FITTING	STEEL	¼"-28	3
12.	RAIN SHIELD	CAST IRON	W-751	1
13.	FLATHEAD SCREW	STL.	⅛" NC x ½" LG	3
14.	END CAP	CAST IRON	W-640	1
15	BUSHING	BRONZE		1
16.	WASHER	COMM. BRASS	1 9/16 O.D. x 1" I.D. x 1/16" THK.	1
17.	LOCK BUSHING	STEEL	1¾" O.D. x 1" I.D. x ¾" LG.	1
18.				
19.	SCREW	STEEL	⅜" NC x 1" LG.	4
20.	ALLEN HD. SET SCREW	STEEL	⅜" NC x 2" LG	4
21.	ASSY. BOLT W/NUT	STEEL	½" NC x 1½" LG	8
22.	CRANK HANDLE	CAST IRON	W-378-1 W/ ⅜" NC x ⅞" LG. SET SCR.	1
23.	STEM COVER ADAPTOR	CAST IRON	W-1158 OR W-1136	1
24.	STEM COVER	PIPE-STEEL OR PLASTIC	4"ø SCHD. 40 PIPE	1
25.	COVER CAP	STEEL	STD. PIPE CAP	1
26.	MTG SCREWS	STEEL	⅜"-16 x 1"	3

WATERMAN TYPE 3EP-4:1
(3E-4:11) GEARED LIFT
(3EOP-4:1)

FOR: STANDARD

JOB NO. ⚠ E0 0113 11-13-79
QUOTE NO. REDRAWN E0 0092 8-6-79
DRAWN BY: I
CHECKED BY: G.T.
SCALE: NONE
DATE:

RED TOP

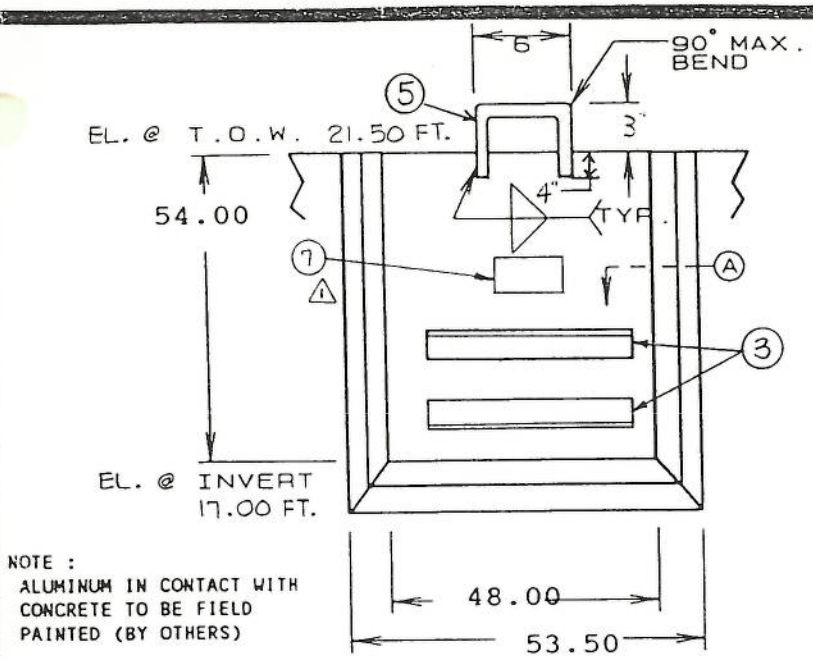
WATERMAN INDUSTRIES, INC.
EXETER, CALIFORNIA 93221

DR. NO. 101047

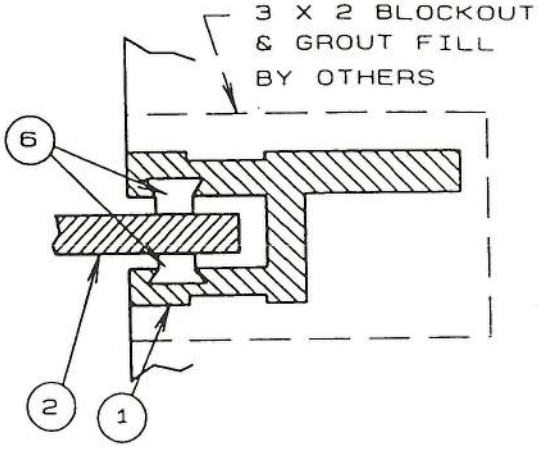
N2634A

PRINTED ON DATAPRINT 5010-P

PAGE 15.9.1



NOTE :
ALUMINUM IN CONTACT WITH CONCRETE TO BE FIELD PAINTED (BY OTHERS)



SECTION A

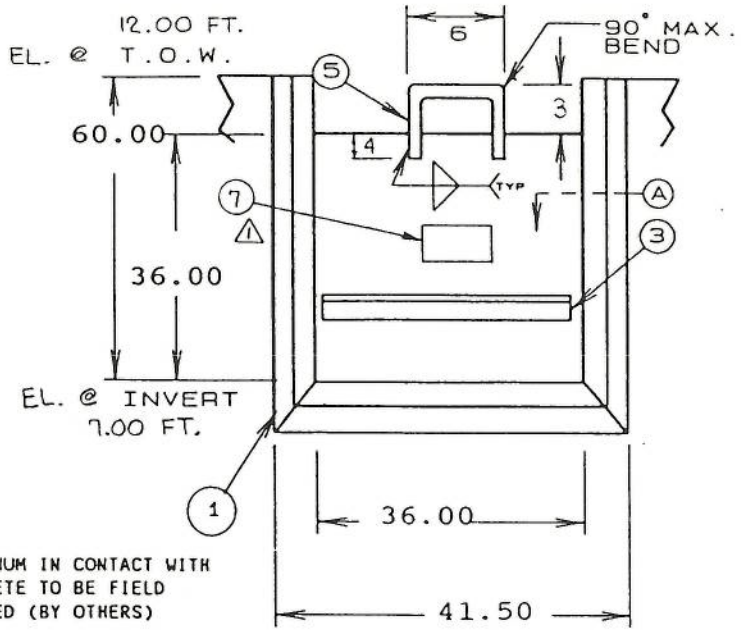
⚠	2-15-89	TC	DAN

DESCRIPTION	PART #/SIZE	MATERIAL	FIN	QTY	TOT	FINISH KEY
1. GUIDE RAIL	EXTR. 100987	ALUMINUM : ASTM B-209 AL. 6061-T6	2	1	4	1. AS CAST 2. MILL
2. SLIDE	50.00 X 55.13 X .375 PLATE	ALUMINUM : ASTM B-209 AL. 6061-T6	2	1	4	3. MACHINED 4. GALVANIZE ASTM A-123
3. STRONGRIB	3 x 2 x 1/4 ANGLE	ALUMINUM : ASTM B-209 AL. 6061-T6	2	2	4	5. GALVANIZE ASTM A-153
5. HANDLE	1/2 DIA. ALUM. ROD	ALUMINUM : ASTM B-209 AL. 6061-T6	2	1	4	
6. BEARING STRIP	EXTR. 100988	UHMW POLYETHYLENE	2	6	24	
7. I.D. TAG	REF RA-89-0265	304 STN. STL.	2	1	4	

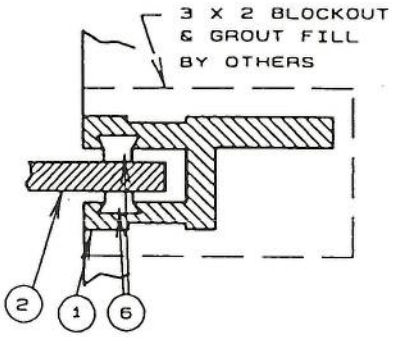
⚠

(4) GATES REQ'D @ INTERNAL RECYCLE PUMP STATION, MARK 10 REF PLN SHT 63

REF :	FOR :	JOB NUMBER	P/M
MARSHALL STREET ADVANCED POLLUTION CONTROL FACILITY CL-87056-2 CLEARWATER FL	SCE INC P O BOX 12887 BIRMINGHAM, AL 35201	J-8039-8	DAN
		QUOTE NUMBER SO-88-A-207	ITEM 16
		DRAWN BY DLB	CHECKED BY GM
48.00 X 54.00 WATERMAN ALUMINUM STOP GATE	P.O. NO. SC-4809	SCALE NONE	DATE 12-08-1988
WATERMAN INDUSTRIES INC. EXETER CA. 93221		DRAWING NUMBER RA-88-2379	



NOTE :
ALUMINUM IN CONTACT WITH CONCRETE TO BE FIELD PAINTED (BY OTHERS)



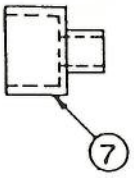
SECTION A

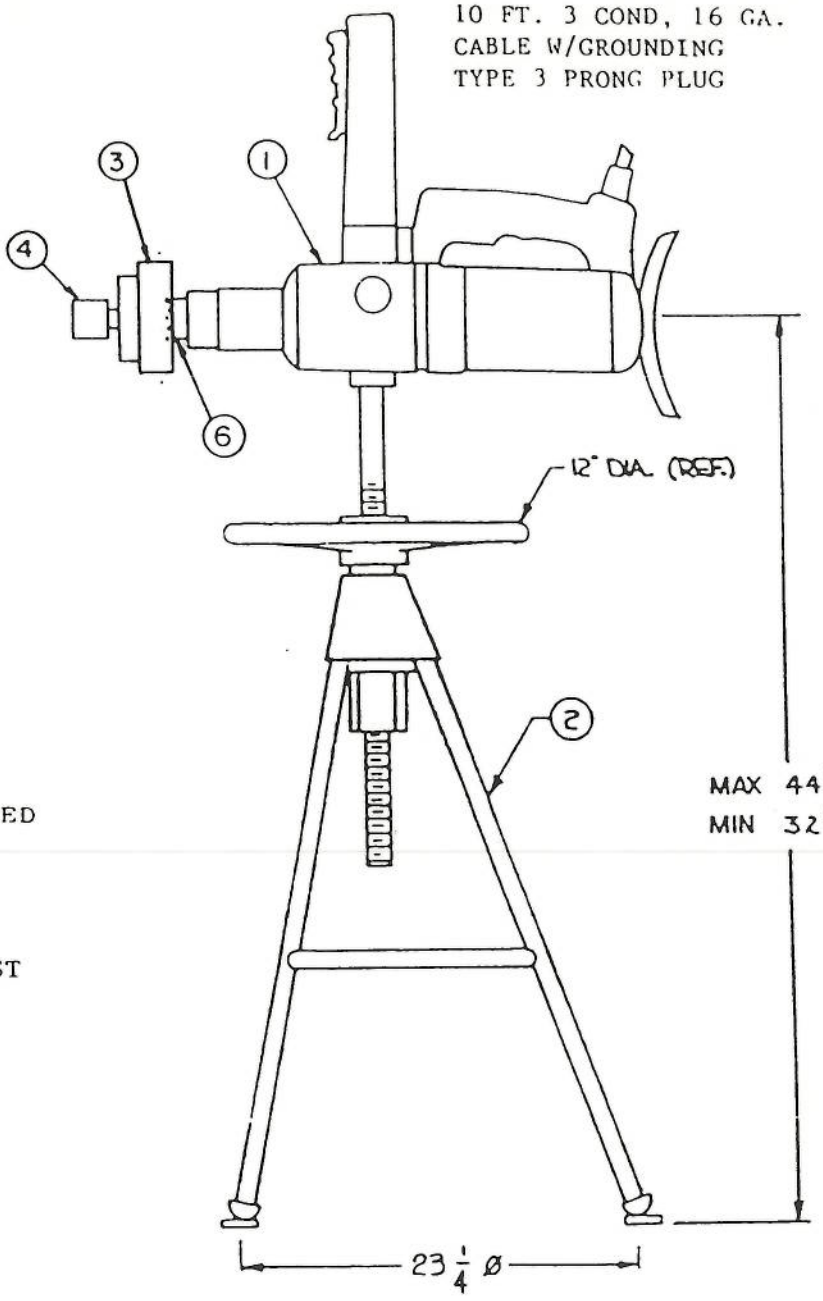
⚠1	2-15-89	TC	DAN

DESCRIPTION	PART #/SIZE	MATERIAL	FIN	QTY	TOT	FINISH KEY
1. GUIDE RAIL	EXTR. 100987	ALUMINUM : ASTM B-209 AL. 6061-T6	2	1	1	1. AS CAST 2. MILL
⚠1 2. SLIDE (3/8 PLT)	38.00 X 37.13	ALUMINUM : ASTM B-209 AL. 6061-T6	2	1	1	3. MACHINED
3. STRONGRIB	2 X 1-1/2 X 1/4 AN	ALUMINUM : ASTM B-209 AL. 6061-T6	2	1	1	4. GALVANIZE ASTM A-123
						5. GALVANIZE ASTM A-153
5. HANDLE	1/2 DIA. ALUM. ROD	ALUMINUM : ASTM B-209 AL. 6061-T6	2	1	1	
6. BEARING STRIP	EXTR. 100988	UHMW POLYETHYLENE	2	6	6	
⚠1 7. I.D. TAG	REF RA-89-0265	304 STN. STL.	2	1	1	

(1) GATE REQ'D @ EFW PUMP STA (MARK 14) REF PLN SHT 94/96

REF : MARSHALL STREET CONTROL FACILITY CLEARWATER FL	FOR : ⚠1 S.C.E. INC P.O. BOX 12887 BIRMINGHAM, AL. 35201	JOB NUMBER J-8039-8	P/M DAN
		QUOTE NUMBER SQ88-A-207	ITEM 17
36.00 X 36.00 WATERMAN ALUMINUM STOP GATE	P.O. NO. SC-4809	DRAWN BY DLB	CHECKED BY GM
		SCALE NONE	DATE 12-21-1988
WATERMAN INDUSTRIES INC. EXETER CA. 93221		DRAWING NUMBER RA-88-2380	





ITEMS

1. ELECTRIC OPERATOR - BLACK & DECKER #1437
2. ALUMINUM TRIPOD - REF. 100704
3. OVERLOAD RELEASE CLUTCH CENTRIC TYPE CFC, SIZE 2, LOAD RANGE B, AUTO-RESET (1"Ø BORE W/1/4" x 1/8" KEYWAY)
4. ADAPTOR - 1" DIA TO 3/4" SQ (STD) REF. 100705
5. TORQUE HANDLE (REMOVED) SHIPPED LOOSE W/TRIPOD
6. SHAFT(B&D 1437) (103694)
7. 2" SQ SOCKET (103713)

NOTES:

1. SEE EXPLODED VIEW DWG. FOR PARTS LIST
2. #1437 SPECIFICATIONS
   - MAX. TORQUE - [4]
   - 2 SPEED - 165/330 RPM
   - OPERATION - REVERSIBLE
   - POWER - 115V. AC. 60 HZ
   - OVERALL LGTH- 17½"
   - CURRENT DRAW = 10 AMP @ FULL LOAD
   - POWER REQ'D = 1700 WATT (@F.L)
3. WEIGHT - 70 LBS;

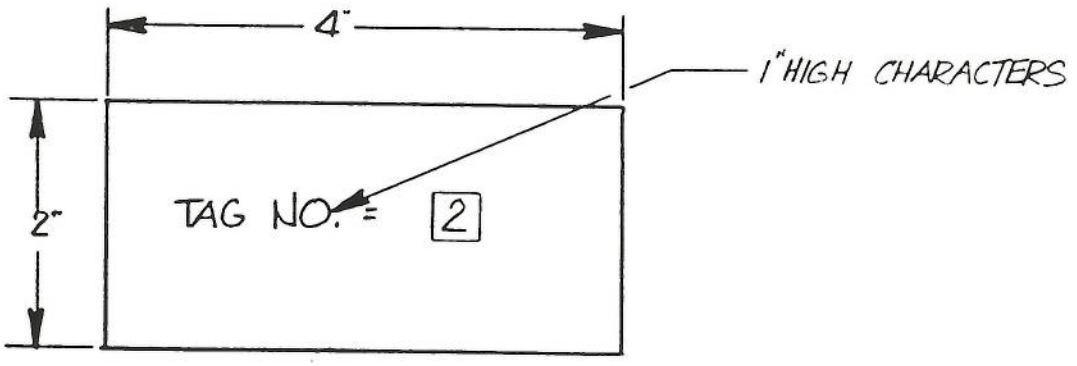
[4] CLUTCH RATING 300 - 1000 IN-LBS; SHOP SET AT 75 FT. - LBS.

5. ITEM (7) IS OPTIONAL ITEM

REF: MARSHALL STREET ADVANCED POLLUTION CONTROL
FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS AND PLANNERS

(1) REQ'D

WATERMAN TRIPOD MOUNTED PORTABLE ELECTRIC OPERATOR (165/330 RPM)	FOR SCE, INC. P.O. BOX 12887 BIRMINGHAM, AL. 35201	JOB NO. J-8039 QUOTE NO: SO-88-A-207 DRAWN BY DMP / CHECKED BY SCALE NONE / DATE 1-20-89
RED TOP WATERMAN WATERMAN INDUSTRIES, INC. EXETER, CALIFORNIA 93221		DR NO RA-89-0147



SHOP NOTE:
ATTACH TO EQUIPMENT
W/ DRIVE SCREW

NOTES: UNLESS OTHERWISE SPECIFIED
1. FABRICATED FROM STAINLESS STEEL SHEET
2. REFER TO SUBMITTAL DRAWINGS FOR TAG NUMBER

(74) I.D. TAGS REQ'D @ REF. DWGS. RA-88-2379 & 2380, RB-88-2367, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77 & 78

IDENTIFICATION TAG

FOR:
SCE, INC.
P.O. BOX 12887
BIRMINGHAM, AL
35201

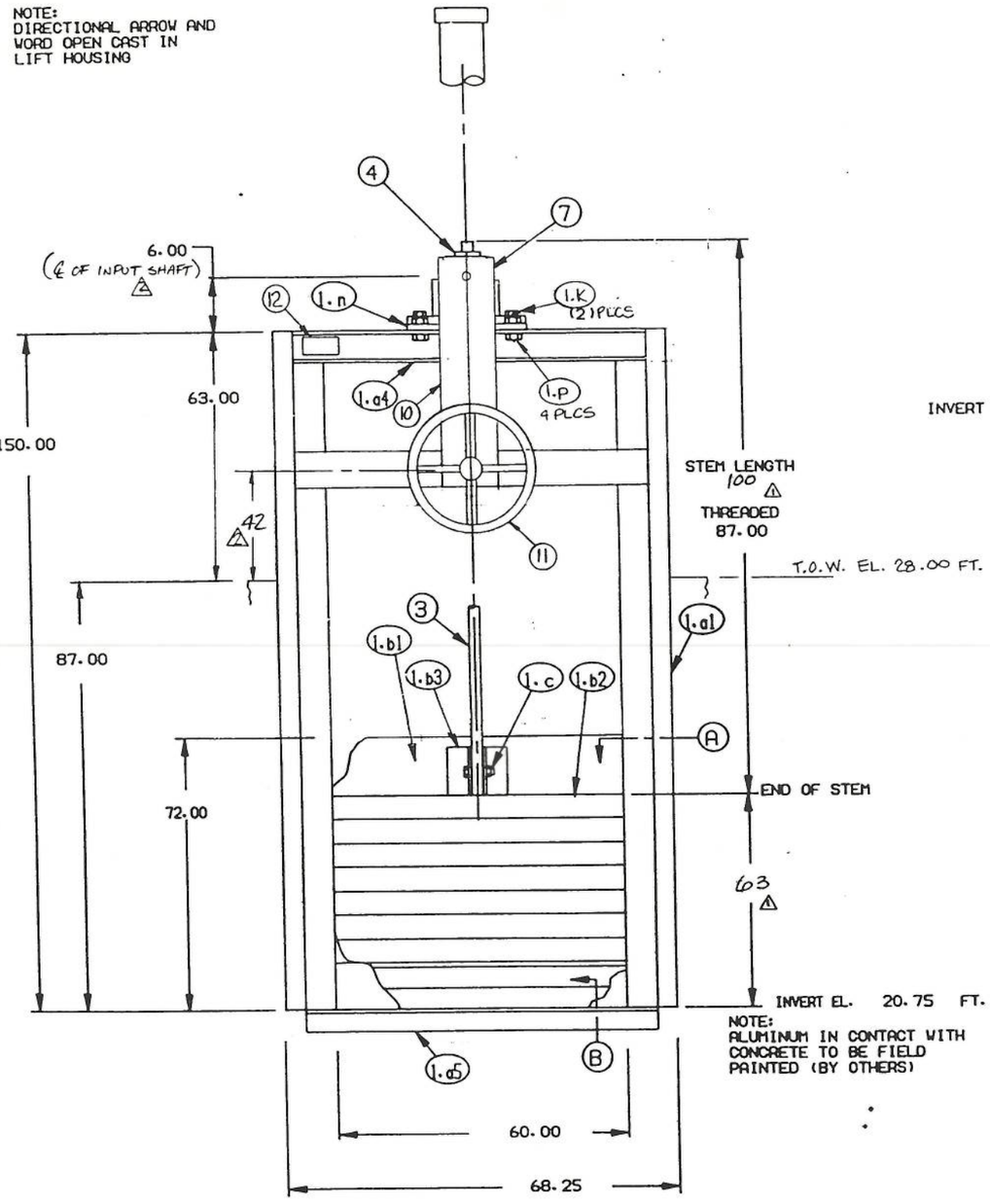
P.O. SC-4809

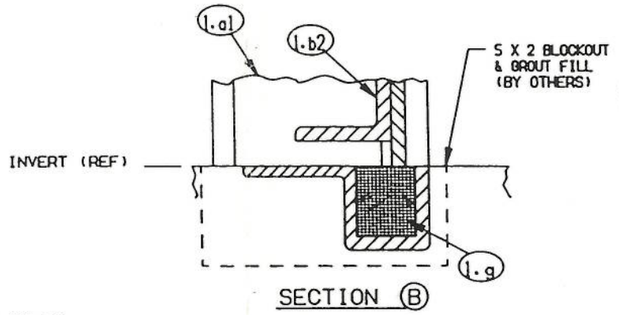
JOB NO	J-8039-8 DP
QUOTE NO	SQ88-A-207
DRAWN BY	TC
CHECKED BY	GM
SCALE	NONE
DATE	2-15-89
DWG NO	RA-89-0265

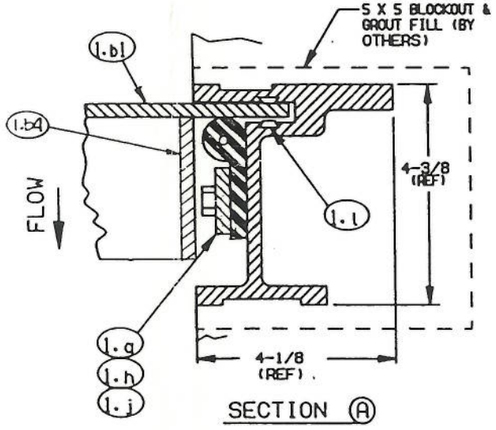
RED TOP WATERMAN

WATERMAN INDUSTRIES. INC.
EXETER, CALIFORNIA 93221

NOTE:
DIRECTIONAL ARROW AND WORD OPEN CAST IN LIFT HOUSING







MATERIAL KEY

1. CAST IRON: ASTM A-126 CL. B
4. MANG. BRZ.: ASTM B-584 AL. 865
9A. STN. STEEL: ASTM A-276 TY. 304
13. NEOPRENE RUBBER: ASTM D-2000
14. CLEAR PLASTIC BUTYRATE PIPE
15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & B8)
17. ALUMINUM: ASTM B-209 AL. 6061-T6
21. UHMW POLYETHYLENE

FINISH KEY

1. AS CAST
2. MILL
3. MACHINED
4. GALVANIZE-ASTM A-123
5. GALVANIZE-ASTM A-153

PAINT KEY

682-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6
6H-ALKYD ENAMEL-HB: 1CT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	2.
a) FRAME WELDMENT	-	-		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	C6 x 3.63 CHANNEL	2	
5) BOTTOM RAIL	17	2	REF. EXTRUSION 100509	1	
11) MOUNTING ANGLE	17	2	5 x 3 x 3/8 ANGLE	1	
b) SLIDE WELDMENT	-	-		1	
1) SLIDE PLATE	17	2	63.50 X 72 X 3/8 PLATE	1	
2) STRONGRIB	17	2	C3 X 2.70 CHANNEL	5.	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	2	
4) VERTICAL RIB	17	2	3/8 X 2 BAR	2.	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	1	
g) FLUSHBOTTOM SEAL	13	2	1-1/4 X 1 STANDARD EXTRUSION	1	
h) J BULB SEAL	13	2	REF 100159	2	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	2	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	4	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	4	
n) BASE PLATE	17	2	1/2 PLATE (REF 101096)	1	
p) HEX HEAD BOLT W/NUT	15A	2	1/2 NC X 2 LG	4	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
(3) STEM	9A	2,3	2.00 DIA. 4 TPI. RH: [5]	1	2.
(4) LIMIT NUT	1	5	2.00 DIA. 4 TPI. RH: STD	1.	2.
(7) LIFT ASSEMBLY				1	2.
a) LIFT	1,4	682,6H	TYPE 3E-2-1 W-1172	1	
b) BASE PLATE	1	682,6H	3 DIA. SCH'L 40 PIPE: 76. LG	1	
c) STEM COVER	14	2	W/ MYLAR STRIP INDICATOR	1	
(10) CHAIN WHEEL DRIVE WAY	-	-	SEE DETAILS ON PAGE 2	1	2
(11) HANDWHEEL	1,16	-	30 DIA.	1	2
(12) I.D. TAG	9A	2	REF. RA-89-0205	1	2

NOTES:
1. (GATE CAPACITY) MAX. SEATING HEAD = 10.00 FT.: MAX. UNSEATING HEAD = 10.00 FT.
2. OPERATING HEAD FROM ℄: SEATING = 2½ FT.: UNSEATING = 2½ FT.
3. LIFT CAPACITY, @ 40. LBS. PULL = 5920 LBS.
4. TURN HANDCRANK CW TO OPEN (RAISE) GATE.
[5] 29° MODIFIED STUB ACME THREADS.
6.

(2) GATES REQ'D @ GRIT REMOVAL STRUCTURE MARK 2 REF PLN SHT 43

REF: MARSHALL STREET ADVANCED POLLUTION CONTROL FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

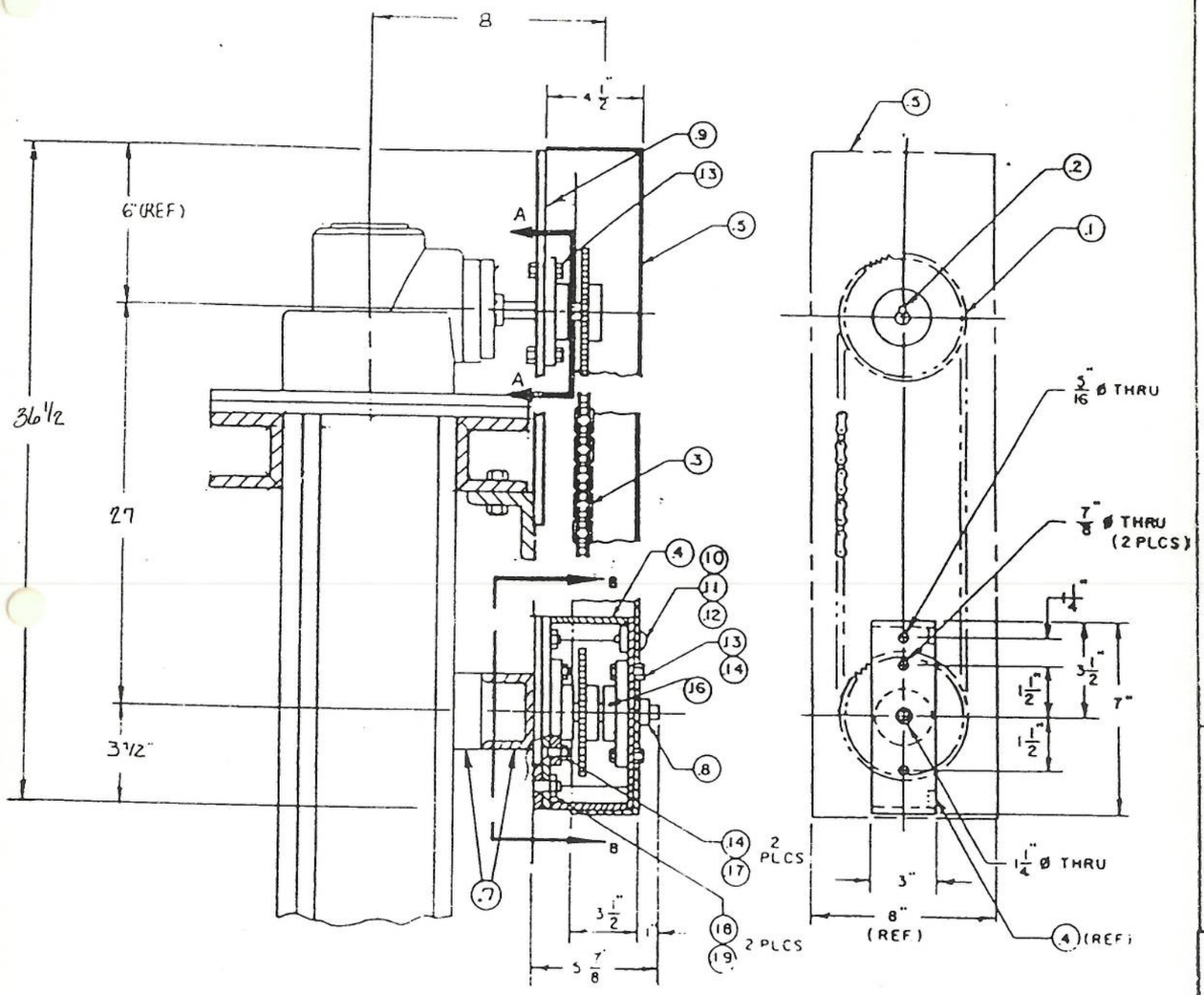
60. X 72. WATERMAN MODEL QAPR-10eJ-Y ALUMINUM SLIDE GATE

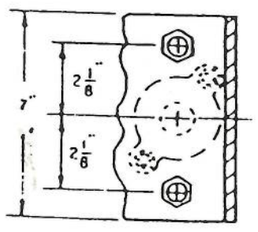
FOR: SCE, INC
P. O. BOX 12887
BIRMINGHAM, AL 35201

P.O. NO. SC-4809

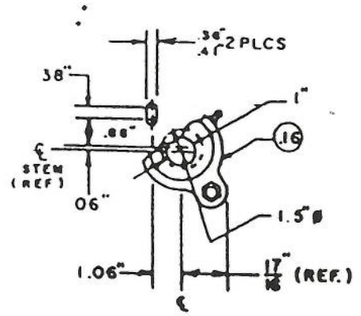
REV. NO.	DATE	BY	JOB NO.	PROJECT MANAGER
			J-8039-2	DP
REV. NO.	DATE	BY	QUOTE NO.	QUOTE ITEM NO.
			SQ-88-A-207	4.
REV. NO.	DATE	BY	DRAWN BY	CHECKED BY
			DLB	GM
REV. NO. 2	DATE 4-10-89 GH	BY DAN	SCALE NONE	DATE 12-15-88
REV. NO. 1	DATE 2-15-89 TC	BY DAN	DRAWING NO. RB-88-2367.	PAGE 1 OF 2

®WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221





VIEW "A"



VIEW "B"

26	CHAINDRIVE ASSEMBLY	MATL	FIN.	PART NO. OR SIZE	QTY.	TOT. QTY.
	(1) SPROCKET	STL	Z	BOSTON GEAR 40B-24	2	4
	(2) KEY	9A	2	1/4" X 1/4" X 1 1/4"	2	4
▷	(3) ROLLER CHAIN (SINGLE-STRAND)	—	—	BOSTON GEAR NO. 40; 1/2 PITCH, W/2 MASTER LINKS	1	2
▷	(4) HOUSING	17	—	REF A-74255	1	2
	(5) CHAIN GUARD	17	—	1/16" ALUMINUM STOCK	1	2
	(6)					
	(7) CHAIN DRIVE MOUNT	17	2	C3 x 2.70 W/ 1/4" PLATE	1	2
	(8) SHAFT INPUT	9A	2.3	1" Ø REF A-74255	1	2
	(9) MOUNTING PLATE	17	—	1/4 PLATE	1	2
	(10) ATTACHING SCREW	9A	2	1/4" NC X 1 1/4" LG	2	4
	(11) NUT PLATE	17, 9A	2, 3	1"X1"X3/8" ℄	2	4
	(12) WASHER	9A	2	1/4" Ø	2	4
	(13) HEX HD. MACH. SCREW	9A	2,3	5/16" NC X 1 1/4" LG	4	8
	(14) HEX NUT	9A	2	5/16" NC	6	12
	(15)					
	(16) BEARING	—	—	HUB CITY FB-160	3	6
	(17) FLAT HD SCREW	9A	2	5/16" NCX1" LG	2	4
	(18) HEX HD SCREW	9A	2	3/8" NCX1" LG	2	4
	(19) HEX NUT	9A	2	3/8" NC	2	4

NOTES:
1. ALL ITEM NUMBERS PRECEEDED BY A DECIMAL POINT REF TO ITEM10 (CHAIN DRIVE ASSY.)
2. REF SHT. 1 OF 2 FOR MATERIAL & FINISH KEY

REF
MARSHALL STREET ADVANCED POLLUTION CONTROL
FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

REV NO.	DATE	BY
REV NO.	DATE	BY
REV NO.	DATE	BY
REV NO.	DATE	BY
REV NO.	DATE	BY

CHAINDRIVE ASSEMBLY DETAILS FOR WATERMAN MODEL 60 x 72 QAPR-10EJ-Y SLIDE GATE

FOR
SCE, INC
P.O. BOX 12887
BIRMINGHAM, AL 35201

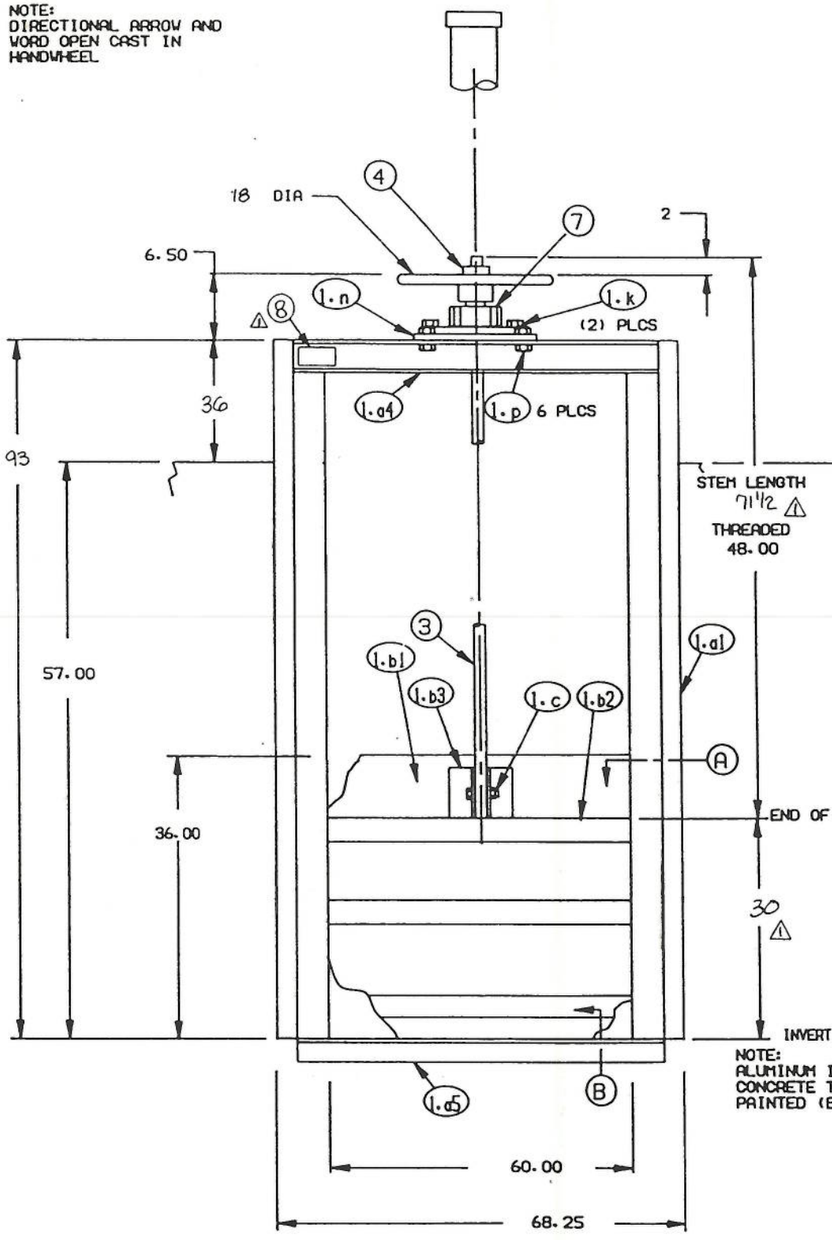
P.O. NO. SC-4809

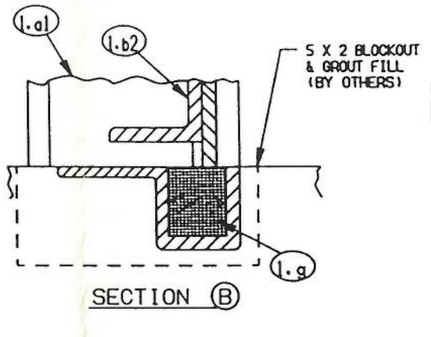
JOB NO. J-8039-8
QUOTE NO. SQ88-A-207
DRAWN BY TC
CHECKED BY
SCALE NONE
DATE 2-16-89
DR. NO. RB-88-2367
PAGE 2 OF 2

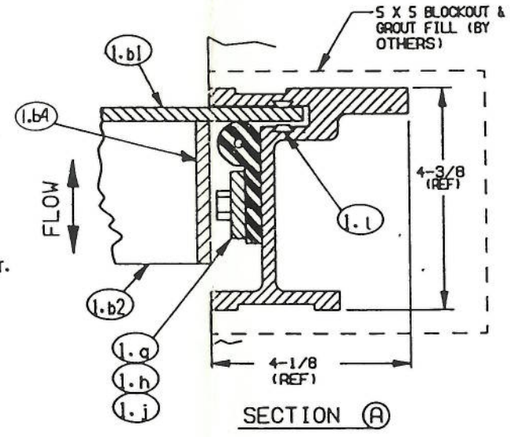
RED TOP WATERMAN

WATERMAN INDUSTRIES, INC.

NOTE:
DIRECTIONAL ARROW AND WORD OPEN CAST IN HANDWHEEL







MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. 865 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDV.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & 8B) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	682-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: 1CT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	1.
a) FRAME WELDMENT	–	–		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	C3 X 2.70 CHANNEL	2	
5) BOTTOM RAIL	17	2	REF. EXTRUSION 100509	1	
b) SLIDE WELDMENT	–	–		1	
1) SLIDE PLATE	17	2	63.50 X 36 X 3/8 PLATE	1	
2) STRONGRIB	17	2	C3 X 2.70 CHANNEL	3.	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	2	
4) VERTICAL RIB	17	2	3/8 X 2 BAR	2.	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	1	
g) FLUSHBOTTOM SEAL	13	2	1-1/4 X 1 STANDARD EXTRUSION	1	
h) J BULB SEAL	13	2	REF 100159	2	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	2	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	2	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	5.	
n) BASE PLATE	17	2	1/2 PLATE (REF 101095)	1	
p) HEX HEAD BOLT W/NUT	15A	2	3/8 NC X 1-1/2 LG	6	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
(3) STEM	9A	2,3	1.50 DIA. 4 TPI. RH: [5]	1	1.
(4) LIMIT NUT	1	5	1.50 DIA. 4 TPI.RH :STD	1.	1.
(7) LIFT ASSEMBLY				1	1.
a) LIFT	1.4	682.6H	TYPE 2 - 18 HANDWHEEL	1	
b) BASE PLATE	1	682.6H	STD. FOR TYPE 2 - 18 LIFT	1	
c) STEM COVER	14	2	3 DIA. SCH'L 40 PIPE: 40. LG W/ MYLAR STRIP INDICATOR	1	
(8) I.D. TAG	9A	2	REF. RA-89-0265	1	1

NOTES:
1. (GATE CAPACITY) MAX. SEATING HEAD = 10.00 FT.; MAX. UNSEATING HEAD = 10.00 FT.
2. OPERATING HEAD FROM ℄ : SEATING = 2.25 FT. : UNSEATING = 2.25 FT.
3. LIFT CAPACITY, • 40. LBS. PULL = 2510 LBS.
4. TURN HANDWHEEL CW TO OPEN (RAISE) GATE.
[5] 29° MODIFIED STUB ACME THREADS.
6.

(1) GATE REQ'D • GRIT REMOVAL STRUCTURE MARK 3 REF PLN SHT 43

MARSHALL STREET ADVANCED POLLUTION CONTROL
FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

60. X 36. WATERMAN MODEL QAPR-10 eJ-Y ALUMINUM SLIDE GATE

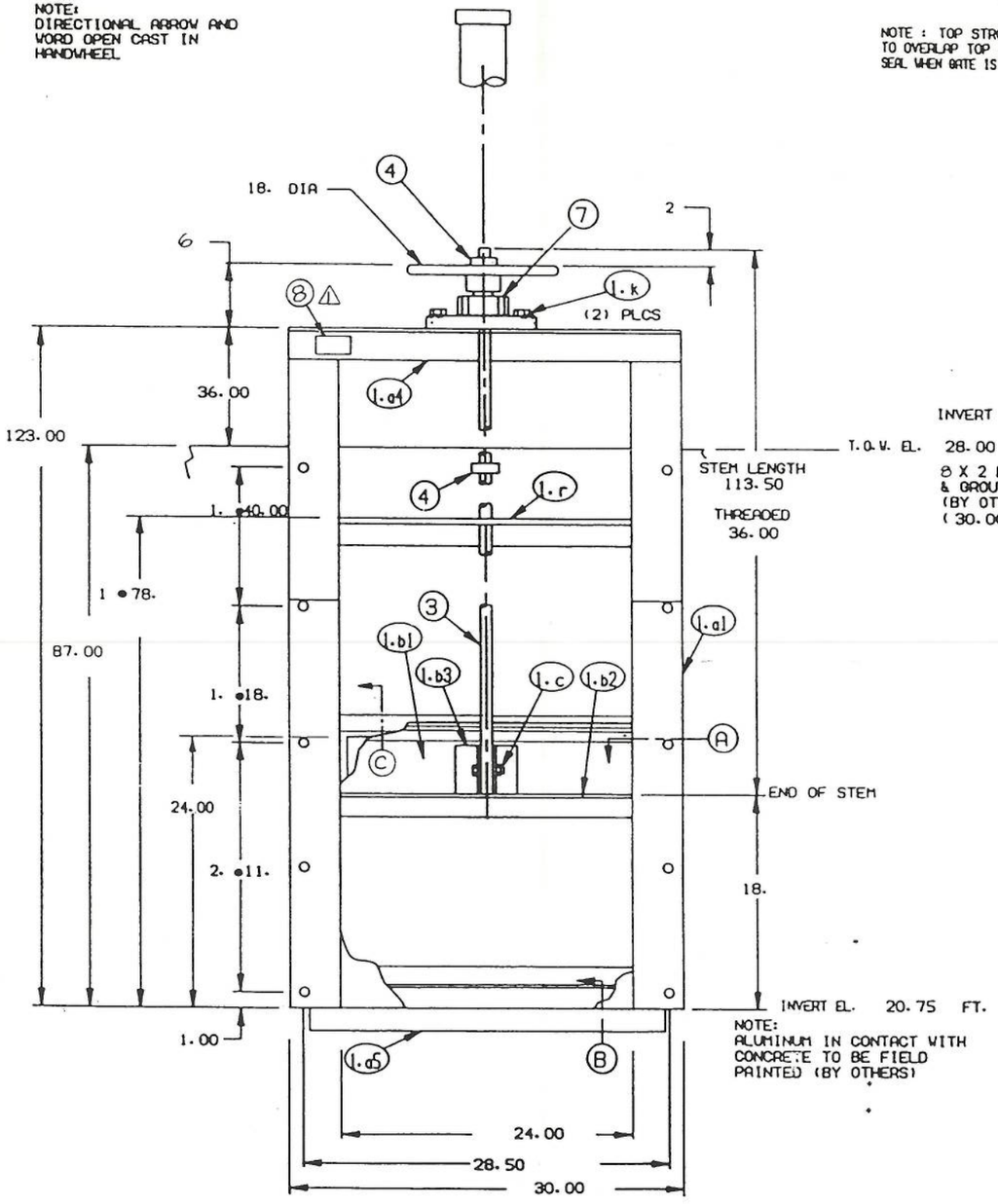
FOR: SCE, INC
P. O. BOX 12887
BIRMINGHAM, AL. 35201

P. O. NO. SC-4809

REV. NO.	DATE	BY	JOB NO.	PROJECT MANAGER
			J-8039-2	DP
REV. NO.	DATE	BY	QUOTE NO.	QUOTE ITEM NO.
			SQ-88-A-207	5.
REV. NO.	DATE	BY	DRAWN BY	CHECKED BY
			DLB	GM
REV. NO.	DATE	BY	SCALE	DATE
			NONE	12-15-88
REV. NO. 1	DATE 2-15-89 TC	BY DAN	DRAWING NO.	RB-88-2368.

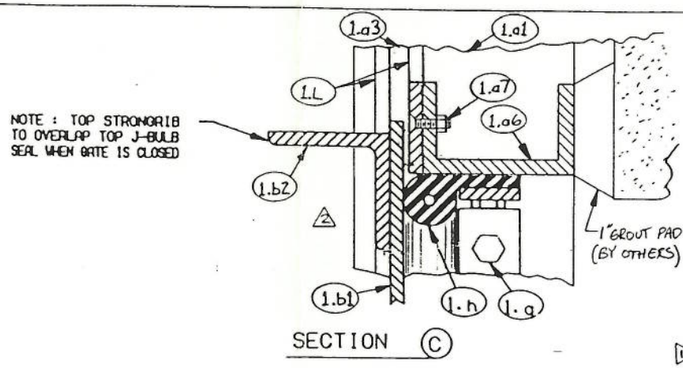
WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221

NOTE:
DIRECTIONAL ARROW AND WORD OPEN CAST IN HANDWHEEL

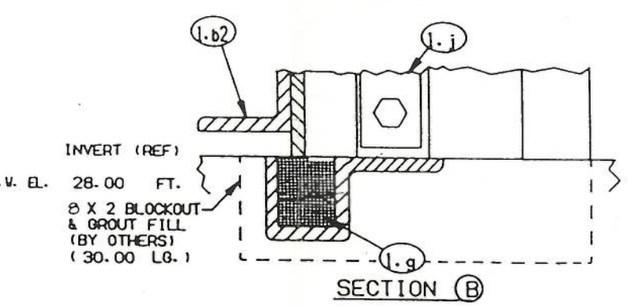


NOTE: ALUMINUM IN CONTACT WITH CONCRETE TO BE FIELD PAINTED (BY OTHERS)

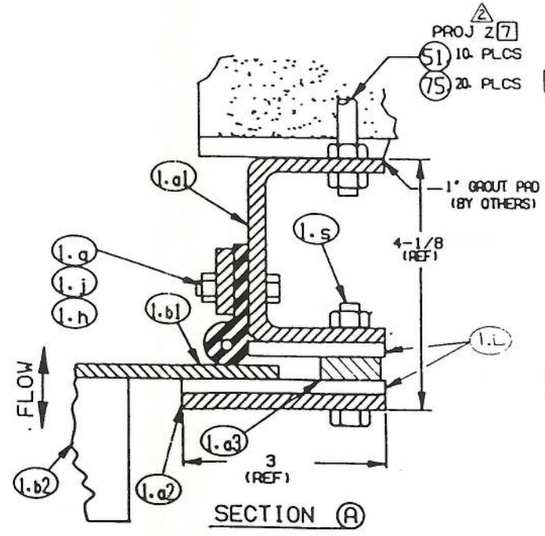
NOTE : TOP STRONGRIB TO OVERLAP TOP J-BULB SEAL WHEN GATE IS CLOSED



SECTION (C)



SECTION (B)



SECTION (A)

MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. 865 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & 8B) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	682-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: 1CT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	4.
a) FRAME WELDMENT	-	-		1	
1) GUIDE RAIL	17	2	C3 X 2.70 CHANNEL	2	
2) COVER GUIDE	17	2	1/4 x 3 BAR	2	
3) FILLER BAR	17	2	1/2 X 1 BAR	2	
4) HEADRAIL	17	2	5 X 3 x 3/8 ANGLE	1	
5) BOTTOM RAIL	17	2	REF. EXTRUSION 100509	1	
6) CROSS RAIL	17	2	C3 x 2.70 CHANNEL	1	
7) ATTACHING SCREW W/NUT	15A	2		A/R	
b) SLIDE WELDMENT	-	-		1	
1) SLIDE PLATE	17	2	27.25 X 26 1/2 x 3/8 PLATE	1	
2) STRONGRIB	17	2	2 X 1-1/2 X 1/4 ANGLE	3	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	2	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	1	
g) FLUSHBOTTOM SEAL	13	2	1-1/4 X 1" STD. EXTRUSION	1	
h) J BULB SEAL	13	2	REF 100159	3	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	3	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	2	
L) BEARING STRIP	21	2	1/4 x 2 & 1/4 x 3 BAR	3/2	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
r) STEM BRACE (REMOVABLE)	17	2	3 X 2 X 1/4 ANGLE	1	
s) HEX HEAD BOLT W/ NUT	15A	2	1/2 NC X 2 LG	8	
(3) STEM	9A	2,3	1.50 DIA. 4 TPI. RH: [5]	1	4.
(4) LIMIT NUT	1	5	1.50 DIA. 4 TPI. RH : STD	2.	8.
(7) LIFT ASSEMBLY				1	4.
a) LIFT	1,4	682,6H	TYPE 2 - 18 HANDWHEEL	1	
b) BASE PLATE	1	682,6H	STD. FOR TYPE 2 - 18 LIFT	1	
c) STEM COVER	14	2	3 DIA. SCH'L 40 PIPE: 28. LG W/ MYLAR STRIP INDICATOR	1	
(8) I.D. TAG	9A	2	REF. RA-89-0265	1	4
(51) ANCHOR BOLT	9A	2,3	1/2 NC X 10 LG	10	40
(75) HEX NUT	15A	2	1/2 NC	20	80

NOTES:
1. (GATE CAPACITY) MAX. SEATING HEAD = 10.00 FT.: MAX. UNSEATING HEAD = 10.00 FT.
2. OPERATING HEAD FROM ℄ : SEATING = 5.00 FT. ; UNSEATING = .00 FT.
3. LIFT CAPACITY, • 40. LBS. PULL = 2510. LBS.
4. TURN HANDWHEEL CW TO OPEN (RAISE) GATE.
[5] 29° MODIFIED STUB ACME THREADS.
[6].
[7] DIMENSION INCLUDES 1 INCH FOR GROUT PAD.

(4) GATES REQ'D • GRIT REMOVAL STRUCTURE MARK 17 REF PLN SHT 43

REF: MARSHALL STREET ADVANCED POLLUTION CONTROL FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

24. X 24. WATERMAN MODEL QAPR-10FFJ-Y ALUMINUM SLIDE GATE

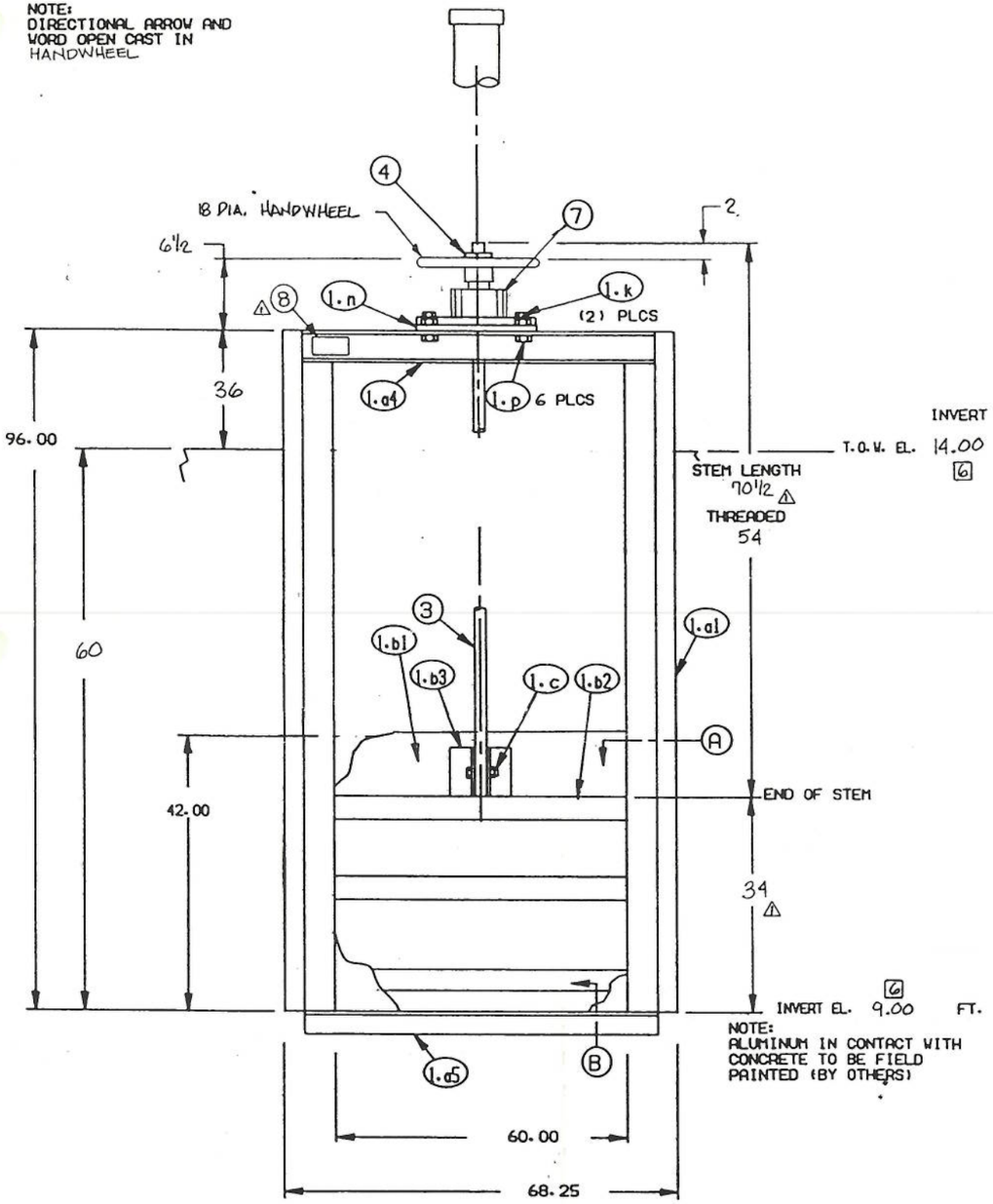
FOR: SCE, INC
P. O. BOX 12887
BIRMINGHAM, AL 35201

P. O. NO. SC-4809

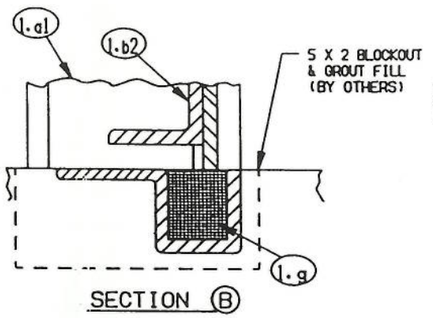
REV. NO.	DATE	BY	JOB NO.	PROJECT MANAGER
			J-8039-2	DP
REV. NO.	DATE	BY	QUOTE NO.	QUOTE ITEM NO.
			SQ-88-A-207	6.
REV. NO.	DATE	BY	DRAWN BY	CHECKED BY
			DLB	GM
REV. NO. △2	DATE 4-10-89 GH	BY DAN	SCALE NONE	DATE 12-15-88
REV. NO. △1	DATE 2-15-89 TC	BY DAN	DRAWING NO. RB-88-2369.	

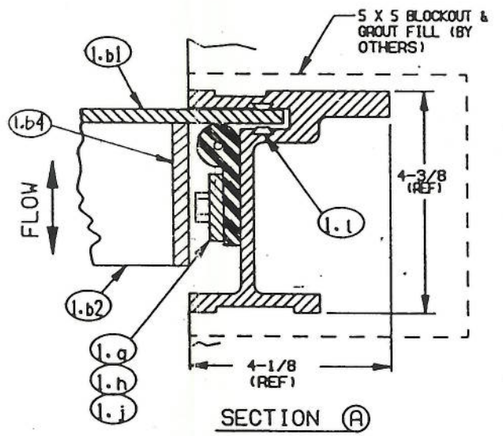
WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221

NOTE:
DIRECTIONAL ARROW AND
WORD OPEN CAST IN
HANDWHEEL



NOTE:
ALUMINUM IN CONTACT WITH
CONCRETE TO BE FIELD
PAINTED (BY OTHERS)





MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. 865 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & 8B) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	6B2-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: 1CT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	9.
a) FRAME WELDMENT	-	-		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	C3 X 2.70 CHANNEL	2	
5) BOTTOM RAIL	17	2	REF. EXTRUSION 100509	1	
b) SLIDE WELDMENT	-	-		1	
1) SLIDE PLATE	17	2	63.50 X 42. X 3/8 PLATE	1	
2) STRONGRIB	17	2	C3 X 2.70 CHANNEL	3.	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	2	
4) VERTICAL RIB	17	2	3/8 X 2 BAR	2.	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	1	
g) FLUSHBOTTOM SEAL	13	2	1-1/4 X 1 STANDARD EXTRUSION	1	
h) J BULB SEAL	13	2	REF 100159	2	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	2	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	4	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	4	
n) BASE PLATE	17	2	1/2 PLATE (REF 101095)	1	
p) HEX HEAD BOLT W/NUT	15A	2	3/8 NC X 1 1/2 LG	6	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
(3) STEM	9A	2,3	1.50 DIA. 4 TPI. RH: [5]	1	9.
(4) LIMIT NUT	1	5	1.50 DIA. 4 TPI. RH: STD	1.	9.
(7) LIFT ASSEMBLY				1	9.
a) LIFT	1.4	682.6H	TYPE 2-18 Ø HANDWHEEL STD FOR TYPE 2 LIFT	1	
b) BASE PLATE	1	682.6H	3 DIA. SCH'L 40 PIPE: 46. LG	1	
c) STEM COVER	14	2	W/ MYLAR STRIP INDICATOR	1	
⚠8 I.D. TAG	9A	2	REF. RA-89-0265	1	9

NOTES:
1. (GATE CAPACITY) MAX. SEATING HEAD = 10.00 FT.: MAX. UNSEATING HEAD = 10.00 FT.
2. OPERATING HEAD FROM ℄ ; SEATING = 3 FT. ; UNSEATING = 3 FT.
3. LIFT CAPACITY, ● 40. LBS. PULL = 2510 LBS.
4. TURN HANDWHEEL CW TO OPEN (RAISE) GATE.
[5] 29° MODIFIED STUB ACME THREADS.
[6] CONTRACTOR TO VERIFY OR SUPPLY.

(9) GATES REQ'D ● FERMENTATION & ANOXIC TANKS MARK 16 REF PLN SHT 47

REF: MARSHALL STREET ADVANCED POLLUTION CONTROL
ACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

60. X 42. WATERMAN MODEL QAPR-10 eJ-Y ALUMINUM SLIDE GATE

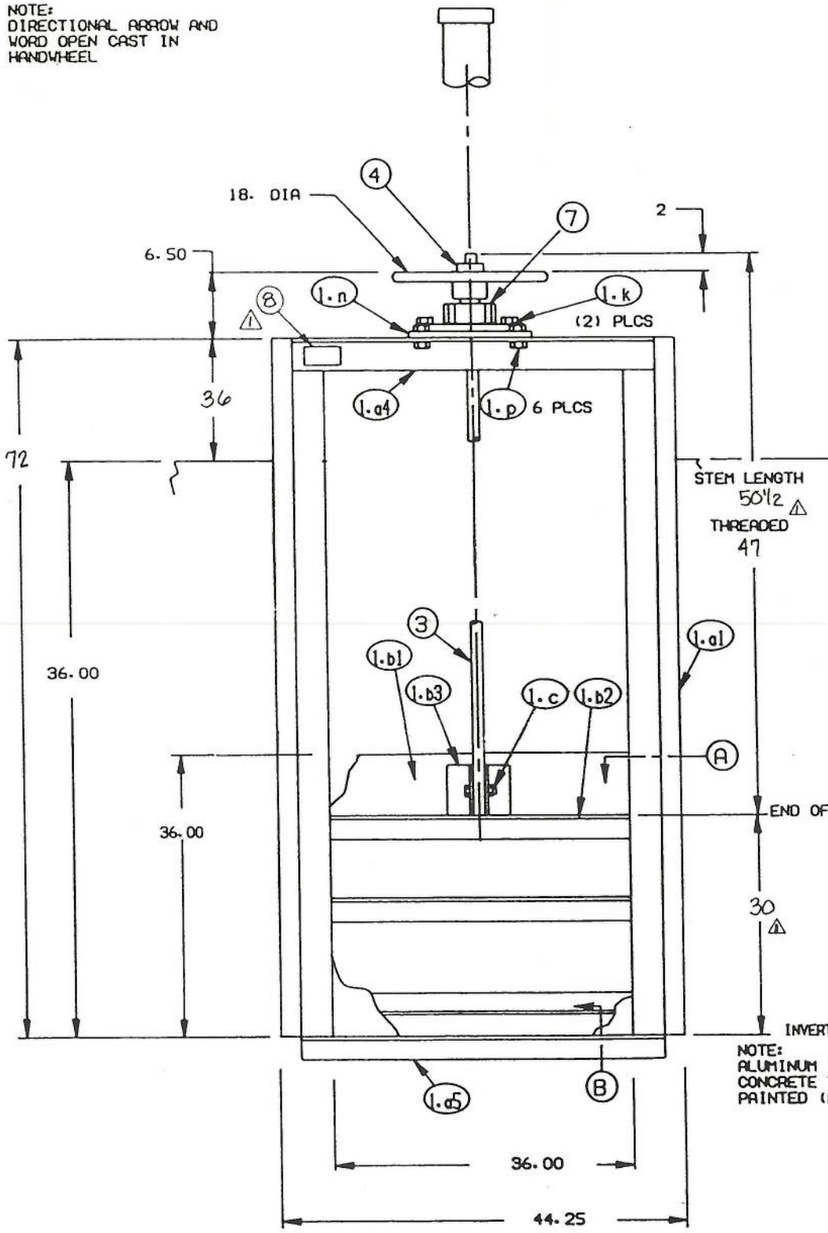
FOR: SCE, INC
P. O. BOX 12887
BIRMINGHAM, AL. 35201

P. O. NO. SC-4809

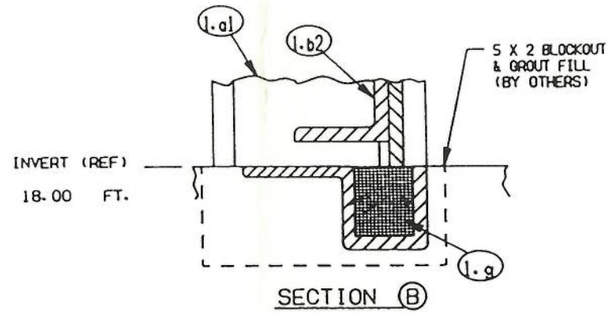
REV. NO.	DATE	BY	JOB NO.	PROJECT MANAGER
			J-8039-2	DP
REV. NO.	DATE	BY	QUOTE NO.	QUOTE ITEM NO.
			SQ-88-A-207	7.
REV. NO.	DATE	BY	DRAWN BY	CHECKED BY
			DLB	GM
REV. NO.	DATE	BY	SCALE	DATE
			NONE	12-15-88
REV. NO. ⚠1	DATE 2-15-89 TC	BY DAN	DRAWING NO.	RB-88-2370.

WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221

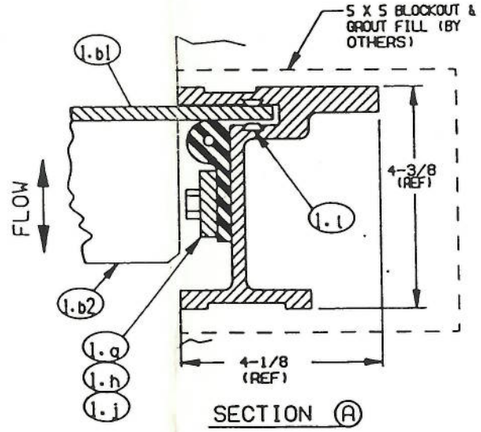
NOTE:
DIRECTIONAL ARROW AND WORD OPEN CAST IN HANDWHEEL



NOTE:
ALUMINUM IN CONTACT WITH CONCRETE TO BE FIELD PAINTED (BY OTHERS)



SECTION (B)



SECTION (A)

MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. 865 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & 8B) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	682-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: 1CT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TUFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	6.
a) FRAME WELDMENT	-	-		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	3 X 2 X 1/4 ANGLE	2	
5) BOTTOM RAIL	17	2	REF. EXTRUSION 100509	1	
b) SLIDE WELDMENT	-	-		1	
1) SLIDE PLATE	17	2	39.50 X 36 X 3/8 PLATE	1	
2) STRONGRIB	17	2	3 X 2 X 1/4 ANGLE	3.	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	2	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	1	
g) FLUSHBOTTOM SEAL	13	2	1-1/4 X 1 STANDARD EXTRUSION	1	
h) J BULB SEAL	13	2	REF 100159	2	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	2	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	2	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	4	
n) BASE PLATE	17	2	1/2 PLATE (REF 101095)	1	
p) HEX HEAD BOLT W/NUT	15A	2	3/8 NC X 1-1/2 LG	6	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
(3) STEM	9A	2,3	1.50 DIA. 4 TPI, RH; [5]	1	6.
(4) LIMIT NUT	1	5	1.50 DIA. 4 TPI.RH :STD	1.	6.
(7) LIFT ASSEMBLY				1	6.
a) LIFT	1,4	682,6H	TYPE 2 - 18 HANDWHEEL	1	
b) BASE PLATE	1	682,6H	STD. FOR TYPE 2 - 18 LIFT	1	
c) STEM COVER	14	2	3 DIA. SCH'L 40 PIPE: 40. LG	1	
			W/ MYLAR STRIP INDICATOR		
(8) I.D. TAGS	9A	2	REF. RA-89-0265	1	6

NOTES:
1. (GATE CAPACITY) MAX. SEATING HEAD = 10.00 FT.; MAX. UNSEATING HEAD = 10.00 FT.
2. OPERATING HEAD FROM ℄ ; SEATING = 1.45 FT. ; UNSEATING = 1.45 FT.
3. LIFT CAPACITY, @ 40. LBS. PULL = 2510. LBS.
4. TURN HANDWHEEL CW TO OPEN (RAISE) GATE.
[5] 29° MODIFIED STUB ACME THREADS.
6.

(6) GATES REQ'D @ RECYCLE CHANNEL MARK 11 REF PLN SHT 47

MARSHALL STREET ADVANCED POLLUTION CONTROL
FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

36. X 36. WATERMAN MODEL QAPR-10eJ-Y ALUMINUM SLIDE GATE

FOR: SCE, INC
P. O. BOX 12887
BIRMINGHAM, AL 35201

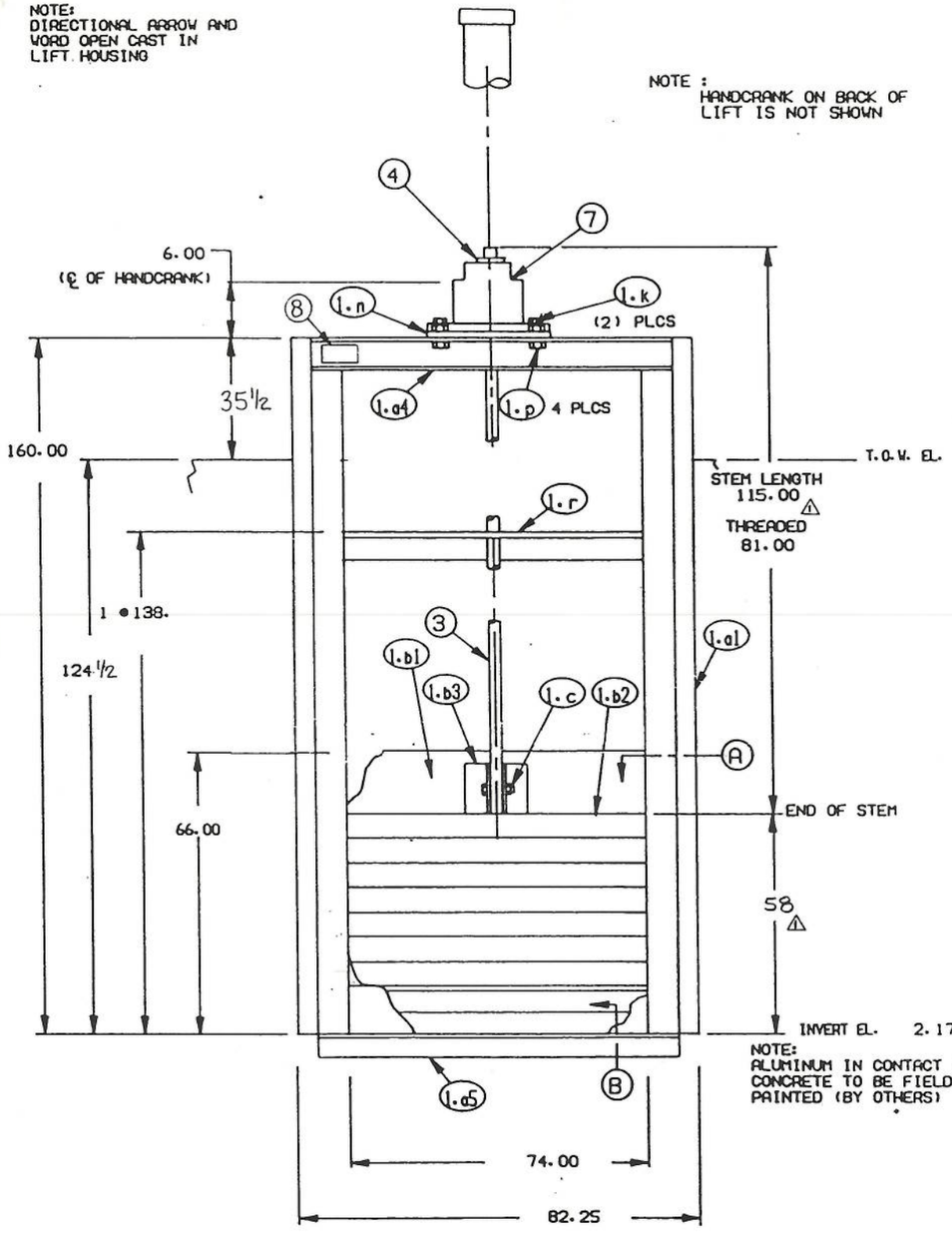
P. O. NO. SC-4809

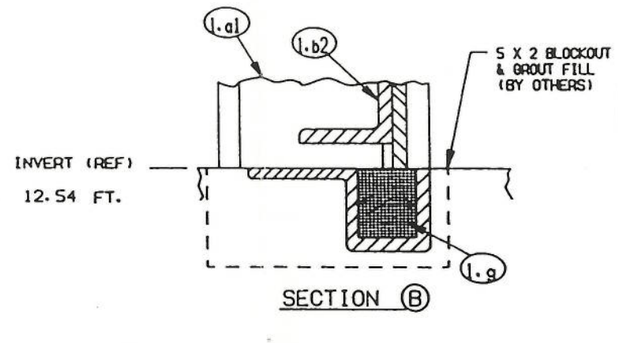
REV. NO.	DATE	BY	JOB NO.	PROJECT MANAGER
			J-8039-2	DP
REV. NO.	DATE	BY	QUOTE NO.	QUOTE ITEM NO.
			SQ-88-A-207	8.
REV. NO.	DATE	BY	DRAWN BY	CHECKED BY
			DLB	GM
REV. NO.	DATE	BY	SCALE	DATE
			NONE	12-15-88
REV. NO. 1	DATE 2-15-89 TC	BY DAN	DRAWING NO.	RB-88-2371.

WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221

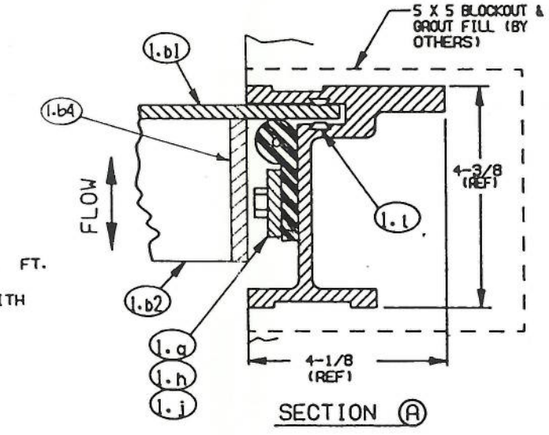
NOTE:
DIRECTIONAL ARROW AND WORD OPEN CAST IN LIFT HOUSING

NOTE :
HANDCRANK ON BACK OF LIFT IS NOT SHOWN





SECTION (B)



SECTION (A)

MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. 865 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & 8B) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	682-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: 1CT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	4.
a) FRAME WELDMENT	–	–		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	C8 X 4.75	2	
5) BOTTOM RAIL	17	2	REF. EXTRUSION 100509	1	
b) SLIDE WELDMENT	–	–		1	
1) SLIDE PLATE	17	2	77.50 X 66 X 3/8 PLATE	1	
2) STRONGRIB	17	2	EXT. 100734	5.	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	2	
4) VERTICAL RIB	17	2	3/8 X 2 BAR	2.	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	1	
g) FLUSHBOTTOM SEAL	13	2	1-1/4 X 1 STANDARD EXTRUSION	1	
h) J BULB SEAL	13	2	REF 100159	2	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	2	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	4	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	5.	
n) BASE PLATE	17	2	1/2 PLATE (REF 101096)	1	
p) HEX HEAD BOLT W/NUT	15A	2	1/2 NC X 2 LG	4	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
r) STEM BRACE (REMOVABLE)	17	2	3 X 2 X 1/4 ANGLE	1	
(3) STEM	9A	2,3	2.00 DIA. 4 TPI. RH: [5]	1	4.
(4) LIMIT NUT	1	5	2.00 DIA. 4 TPI. RH : STD	1.	4.
(7) LIFT ASSEMBLY				1	4.
a) LIFT	1, 4	682, 6H	TYPE 3E-4:1 W/ 15 IN. CRANK W-1373	1	
b) BASE PLATE	1	682, 6H	4 DIA. SCH'L 40 PIPE: 70. LG	1	
c) STEM COVER	14	2	W/ MYLAR STRIP INDICATOR	1	
(8) I.D. TAG	9A	2	REF. RA-89-0265	1	4

NOTES:
1. (GATE CAPACITY) MAX. SEATING HEAD = 10.00 FT.; MAX. UNSEATING HEAD = 10.00 FT.
2. OPERATING HEAD FROM ℄ : SEATING = 3.45 FT. ; UNSEATING = 3.45 FT.
3. LIFT CAPACITY, • 40. LBS. PULL = 12140 LBS.
4. TURN HANDCRANK CW TO OPEN (RAISE) GATE.
[5] 29° MODIFIED STUB ACME THREADS.
6.

(4) GATES REQ'D • SCREW LIFT PUMP STATION MARK 12 REF PLN SHT 72

SITE: MARSHALL STREET ADVANCED POLLUTION CONTROL
FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

74. X 66. WATERMAN MODEL QAPR-10eJ-Y ALUMINUM SLIDE GATE

FOR: SCE, INC.
P. O. BOX 12887
BIRMINGHAM AL. 35201

P. O. NO. SC-4809

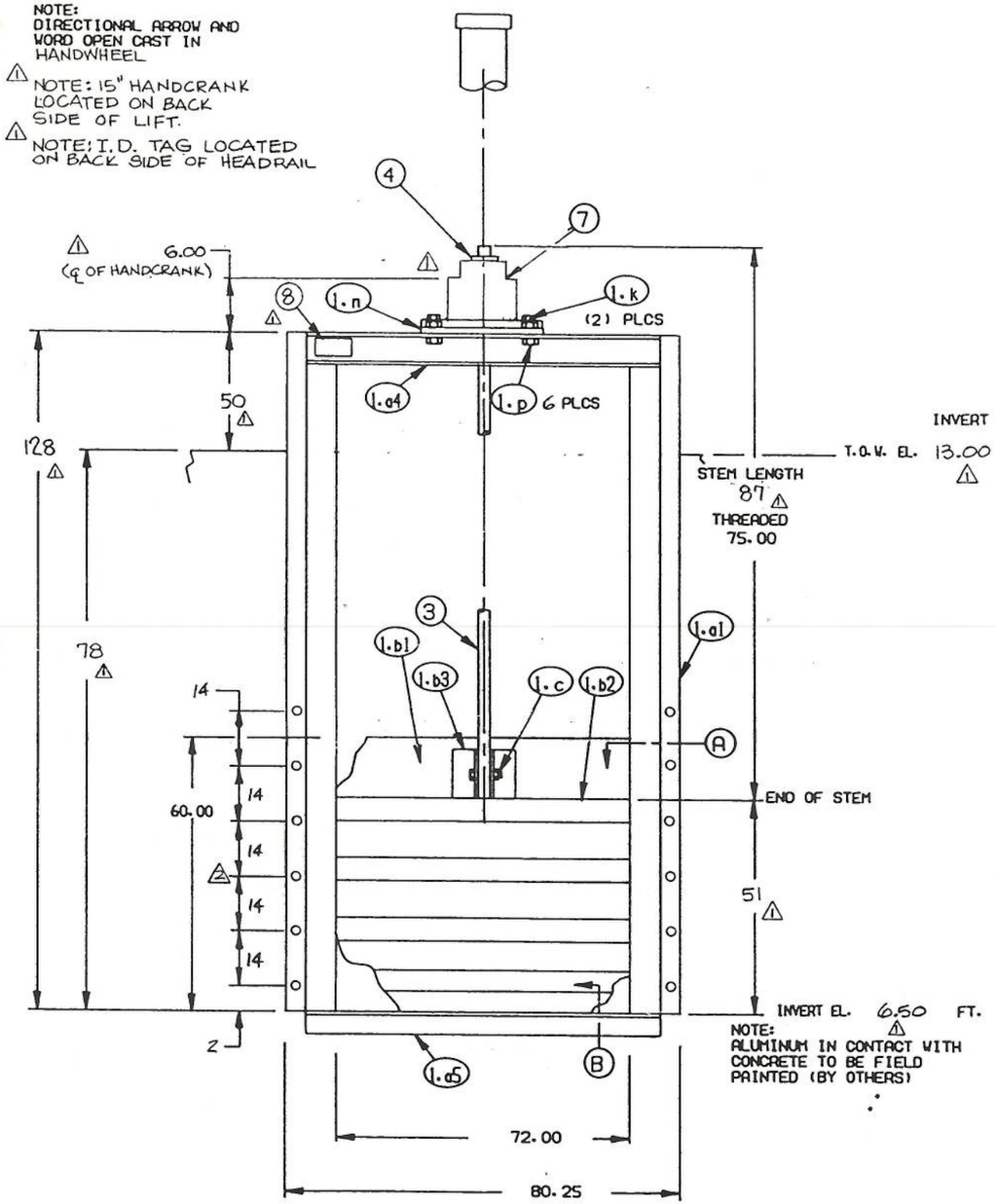
REV. NO.	DATE	BY	JOB NO.	PROJECT MANAGER
			J-8039-2	DP
REV. NO.	DATE	BY	QUOTE NO.	QUOTE ITEM NO.
			SQ-88-A-207	9.
REV. NO.	DATE	BY	DRAWN BY	CHECKED BY
			DLB	GM
REV. NO.	DATE	BY	SCALE	DATE
			NONE	12-15-88
REV. NO. ⚠1	DATE 2-15-89 TC	BY DAN	DRAWING NO.	RB-88-2372.

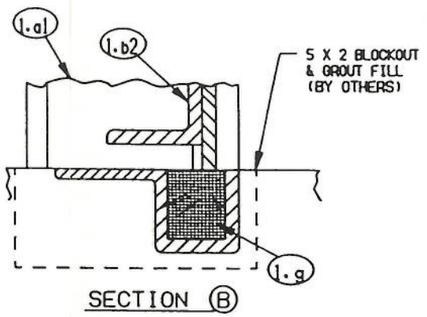
WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221

NOTE:
DIRECTIONAL ARROW AND WORD OPEN CAST IN HANDWHEEL

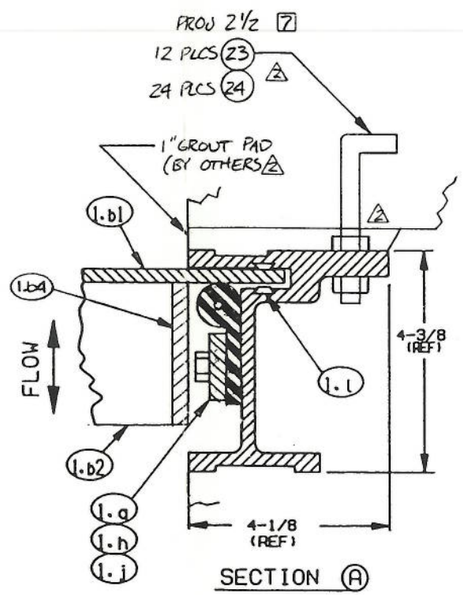
⚠ NOTE: 15" HANDCRANK LOCATED ON BACK SIDE OF LIFT.

⚠ NOTE: I.D. TAG LOCATED ON BACK SIDE OF HEADRAIL





SECTION (B)



SECTION (A)

MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. B65 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & 8B) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	682-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: ICT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	24.
a) FRAME WELDMENT	-	-		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	C6 X 3.63 CHANNEL	2	
5) BOTTOM RAIL	17	2	REF. EXTRUSION 100509	1	
b) SLIDE WELDMENT	-	-		1	
1) SLIDE PLATE	17	2	75.50 X 60 X 3/8 PLATE	1	
2) STRONGRIB	17	2	EXT. 100734	4.	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	2	
4) VERTICAL RIB	17	2	3/8 X 2 BAR	2.	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	1	
g) FLUSHBOTTOM SEAL	13	2	1-1/4 X 1 STANDARD EXTRUSION	1	
h) J BULB SEAL	13	2	REF 100159	2	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	2	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	4	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	4	
n) BASE PLATE	17	2	1/2 PLATE (REF 101095)	1	
p) HEX HEAD BOLT W/NUT	15A	2	1/2 NC X 2 LG	4	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
(3) STEM	9A	2,3	1½ DIA. 4 TPI. RH: 5	1	24.
(4) LIMIT NUT	1	5	1½ DIA. 4 TPI. RH: STD	1.	24.
(7) LIFT ASSEMBLY				1	24.
a) LIFT	1.4	682.6H	TYPE 3E-2:1 W/15 HANDCRANK W-1172	1	
b) BASE PLATE	1	682.6H	3 DIA. SCH'L 40 PIPE: 64. LG W/ MYLAR STRIP INDICATOR	1	
c) STEM COVER	14	2		1	
(8) I.D. TAG	9A	2	REF. RA-89-0265	1	24
(23) ANCHOR BOLT	9A	2,3	5/8 NC X 10 LG	12	288
(24) HEX NUT	15A	2	5/8 NC	24	576

NOTES:
1. (GATE CAPACITY) MAX. SEATING HEAD = 10.00 FT.: MAX. UNSEATING HEAD = 10.00 FT.
2. OPERATING HEAD FROM ℄ : SEATING = 2½ FT. : UNSEATING = 2½ FT.
3. LIFT CAPACITY, @ 40. LBS. PULL = 7520 LBS.
4. TURN HANDWHEEL CW TO OPEN (RAISE) GATE.
5. 29° MODIFIED STUB ACME THREADS.
6. CONTRACTOR TO VERIFY OR SUPPLY.
7. DIMENSION INCLUDES 1" FOR GROUT PAD

(24) GATES REQ'D @ AERATION REACTORS 6-13 MARK 5 REF PLN SHT 58

REF: MARSHALL STREET ADVANCED POLLUTION CONTROL
FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

72. X 60. WATERMAN MODEL QAPR-10 FJ-Y ALUMINUM SLIDE GATE

FOR: SCE, INC.
P.O. BOX 12887
BIRMINGHAM AL. 35201

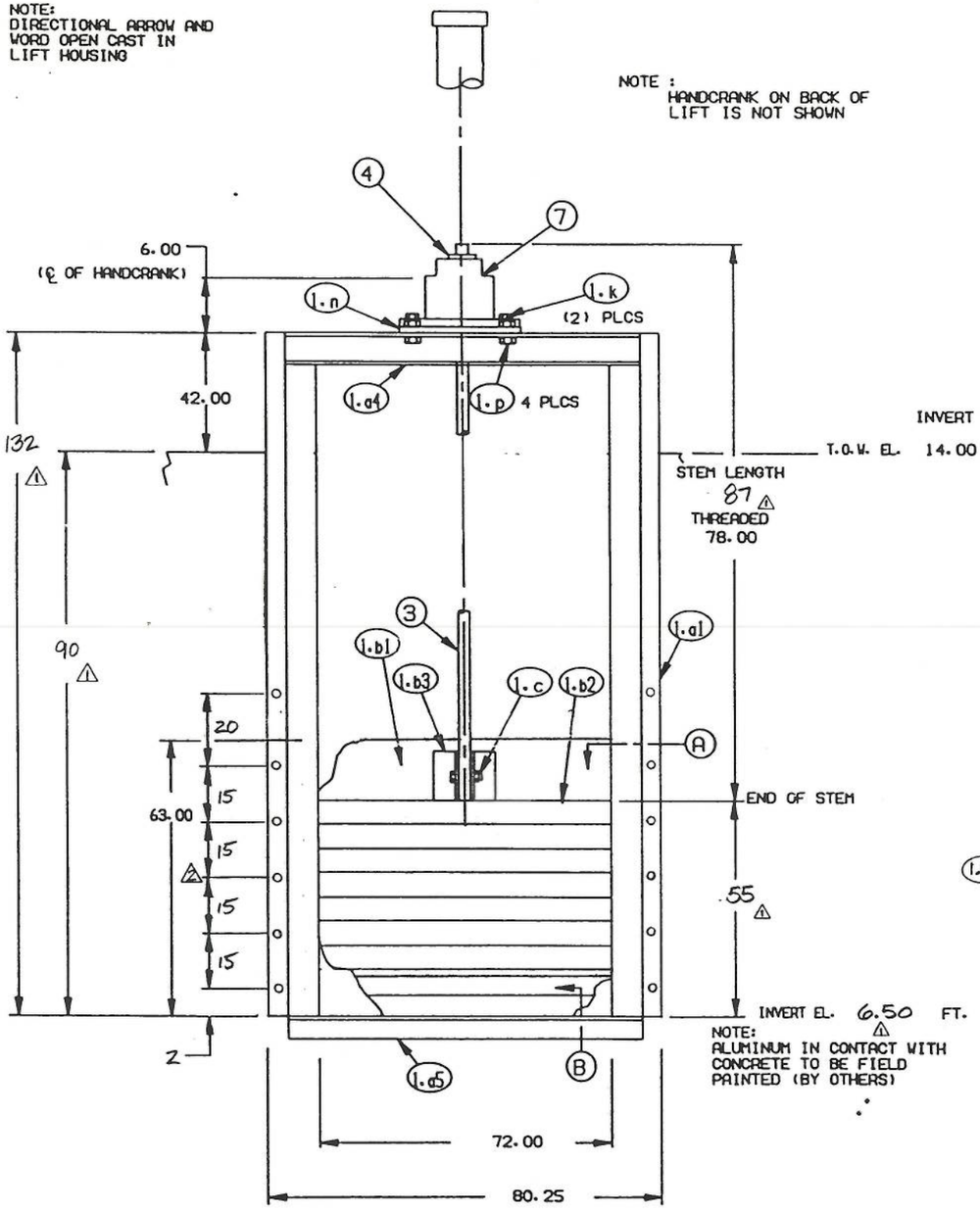
P.O. NO. SC-4809

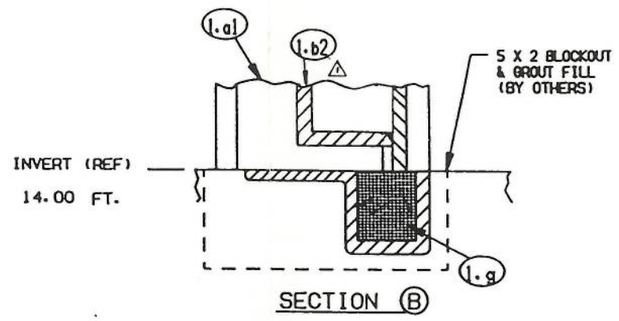
REV. NO.	DATE		BY	JOB NO.	PROJECT MANAGER
				J-8039-2	DP
REV. NO.	DATE		BY	QUOTE NO.	QUOTE ITEM NO.
				SQ-88-A-207	10.
REV. NO.	DATE		BY	DRAWN BY	CHECKED BY
				DLB	GM
REV. NO. 2	DATE 4-10-89	GH	BY DAN	SCALE NONE	DATE 12-15-88
REV. NO. 1	DATE 2-15-89	TC	BY DAH	DRAWING NO. RB-88-2373.	

®WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221

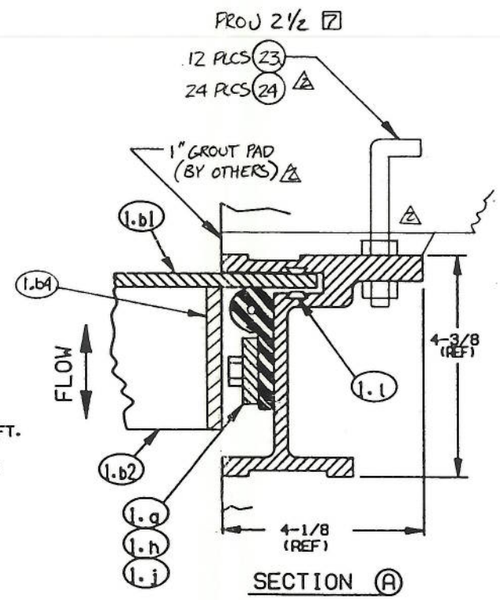
NOTE:
DIRECTIONAL ARROW AND WORD OPEN CAST IN LIFT HOUSING

NOTE :
HANDCRANK ON BACK OF LIFT IS NOT SHOWN





SECTION (B)



SECTION (A)

MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. B65 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & B8) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	682-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: 1CT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	6.
a) FRAME WELDMENT	-	-		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	C8 X 4.75 CHANNEL	2	
5) BOTTOM RAIL	17	2	REF. EXTRUSION 100509	1	
b) SLIDE WELDMENT	-	-		1	
1) SLIDE PLATE	17	2	75.50 X 63 X 3/8 PLATE	1	
2) STRONGRIB	17	2	EXT. 100734	5.	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	2	
4) VERTICAL RIB	17	2	3/8 X 2 BAR	2.	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	1	
g) FLUSHBOTTOM SEAL	13	2	1-1/4 X 1 STANDARD EXTRUSION	1	
h) J BULB SEAL	13	2	REF 100159	2	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	2	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	4	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	4	
n) BASE PLATE	17	2	1/2 PLATE (REF 101096)	1	
p) HEX HEAD BOLT W/NUT	15A	2	1/2 NC X 2 LG	4	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
(3) STEM	9A	2,3	2 DIA. 4 TPI. RH: 5	1	6.
(4) LIMIT NUT	1	5	2 DIA. 4 TPI. RH : STD	1.	6.
(7) LIFT ASSEMBLY				1	6.
a) LIFT	1, 4	6B2, 6H	TYPE 3E-2:1 W/ 15 IN. CRANK W-1172	1	
b) BASE PLATE	1	6B2, 6H	3 DIA. SCH'L 40 PIPE: 67. LG W/ MYLAR STRIP INDICATOR	1	
c) STEM COVER	14	2		1	
(8) I.D. TAG	9A	2	REF. RA-89-0265	1	6
(23) ANCHOR BOLT	9A	2,3	5/8 NC X 10 LG	12	72
(24) HEX NUT	15A	2	5/8 NC	24	144

NOTES:
1. (GATE CAPACITY) MAX. SEATING HEAD = 10.00 FT.; MAX. UNSEATING HEAD = 10.00 FT.
2. OPERATING HEAD FROM ℄ ; SEATING = 2.63 FT. ; UNSEATING = 2.63FT.
3. LIFT CAPACITY, @ 40. LBS. PULL = 5920 LBS.
4. TURN HANDWHEEL CW TO OPEN (RAISE) GATE.
5. 29° MODIFIED STUB ACME THREADS.
6.
7. DIMENSION INCLUDES 1" FOR GROUT PAD

(6) GATES REQ'D @ AERATION REACTORS 4-5 MARK 6 REF PLN SHT 58

REF: MARSHALL STREET ADVANCED POLLUTION CONTROL FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

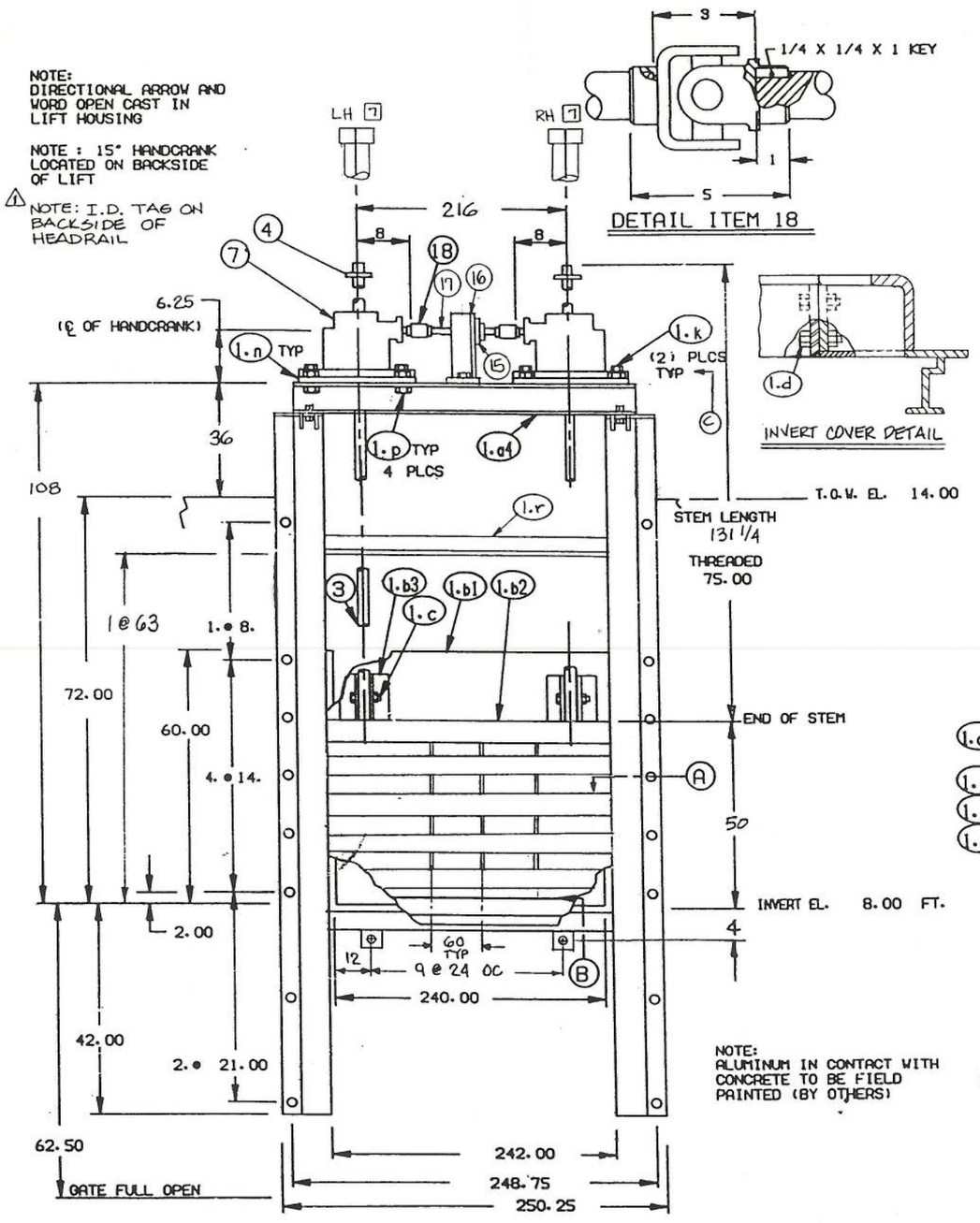
72. X 63. WATERMAN MODEL QAPR-10 FJ-Y ALUMINUM SLIDE GATE

FOR: SCE, INC.
P.O. BOX 12887
BIRMINGHAM AL. 35201

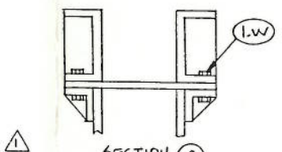
P.O. NO. SC-4809

REV. NO.	DATE		BY	JOB NO.	PROJECT MANAGER
				J-8039-2	DP
REV. NO.	DATE		BY	QUOTE NO.	QUOTE ITEM NO.
				SQ-88-A-207	11.
REV. NO.	DATE		BY	DRAWN BY	CHECKED BY
				DLB	GM
REV. NO. 2	DATE 4-10-89	GH	BY DAN	SCALE NONE	DATE 12-15-88
REV. NO. 1	DATE 2-15-89	TC	BY DAN	DRAWING NO. RB-88-2374.	

®WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221

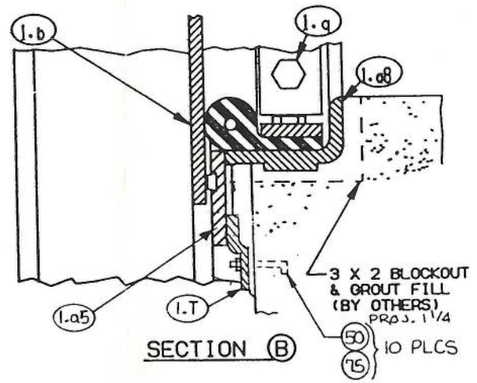


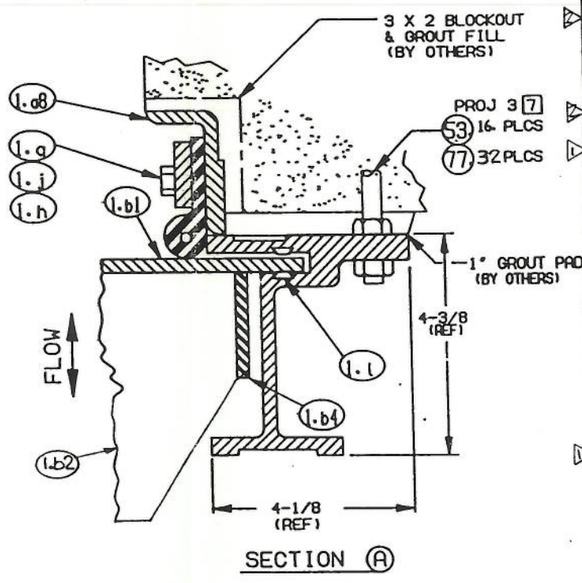
NOTE:
ALUMINUM IN CONTACT WITH CONCRETE TO BE FIELD PAINTED (BY OTHERS)



1 SHOP NOTE: BOLT ON HEADRAIL, STEM BRACE & SPIGOT RAIL. SHIP UNASSEMBLED

SHOP NOTE: CONTR. TO FIELD ASSEMBLE.





MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. B65 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & 8B) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	682-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: ICT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	3.
a) FRAME WELDMENT	–	–		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	C9 x 6.91	2	
5) BOTTOM RAIL	17	2	EXTRUSION 100942	1	
8) SPIGOT RAIL	17	2	REF. EXTRUSION 100510	3	
b) SLIDE WELDMENT	–	–		1	
1) SLIDE PLATE	17	2	245.50 X 62.50 X 3/8 PLATE	1	
2) STRONGRIB	17	2	C15 X 11.71 CHANNEL	5	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	4	
4) VERTICAL RIB	17	2	3/8 X 2 BAR	5	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	2	
d) HEX HEAD BOLT W/NUT	15A	2	3/8 NC x 1 1/2 LG	4	
h) J BULB SEAL	13	2	REF 100159	3	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	3	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	4	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	5	
n) BASE PLATE	17	2	3/4 PLATE (REF 101096)	2	
w) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2 LG	4	
p) HEX HEAD BOLT W/NUT	15A	2	1/2 NC X 2 LG	8	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
r) STEM BRACE (REMOVABLE)	17	2	5 x 5 x 3/8	1	
T) ANCHOR TAB	17	2	104183 (ALUM.)	10	
(3) STEM	9A	2,3	1 1/2 DIA. 4 TPI. 7 : 5	2	3.
(4) LIMIT NUT	1	5	1 1/2 DIA. 4 TPI. 7 : STD	2	6
(7) LIFT ASSEMBLY	1.4	6B2.6H	SINGLE 3E-2:1 & TANDEM TYPE 3E-6:1 WITH 15 IN REMOVERABLE HANDCRANK W-1172	1	3.
a) LIFT	1		3 DIA. SCH'L 40 PIPE: 64. LG W/ MYLAR STRIP INDICATOR	1ea	
b) BASE PLATE	14	2		2	
c) STEM COVER				2	
(9) I.D. TAG	9A	2	REF. RA-8A-0265	1	3
(16) BEARING	–	–	HUB CITY GEAR FB-160	1	3
(16) BEARING BRACKET	17	2	3 x 3 x 1/4 ANGLE & 1/2 PLATE	1	3
(17) EXTENSION SHAFT	9A	2,3	1 DIA X 194 LG.	1	3
(18) UNIVERSAL JOINT	STL	–	McMASTER-CARR 6452K5	2	6
(53) ANCHOR BOLT	9A	2,3	5/8 NC X 10 LG	16	48
(77) HEX NUT	15A	2	5/8 NC	32	96
(50) ANCHOR BOLT	9A	2,3	1/2 NC x 8 LG	10	30
(75) HEX NUT	15A	2	1/2 NC	10	30

NOTES:
1. (GATE CAPACITY) MAX. SEATING HD. = 10 FT.: MAX. UNSEATING HD. = 10 FT.
2. OPERATING HEAD FROM C ℄ SEATING= 2 1/2 FT.: UNSEATING= 2 1/2 FT.
3. LIFT CAPACITY, • 401 LBS. PULL= 1513O LBS. (@ 6:1 RATIO)
4. TURN HANDCRANK CW TO OPEN (LOWER) GATE. (@ 2:1 RATIO)
5. 29° MODIFIED STUB ACME THREADS.
6. CONTRACTOR TO VERIFY OR SUPPLY
7. SHOP NOTE: PROVIDE LH THREADS FOR 6:1 LIFT & RH THREADS FOR 2:1

(3) GATES REQ'D • AERATION REACTORS 1-3 MARK 4 REF PLN SHT 53

REF: MARSHALL STREET ADVANCED POLLUTION CONTROL FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

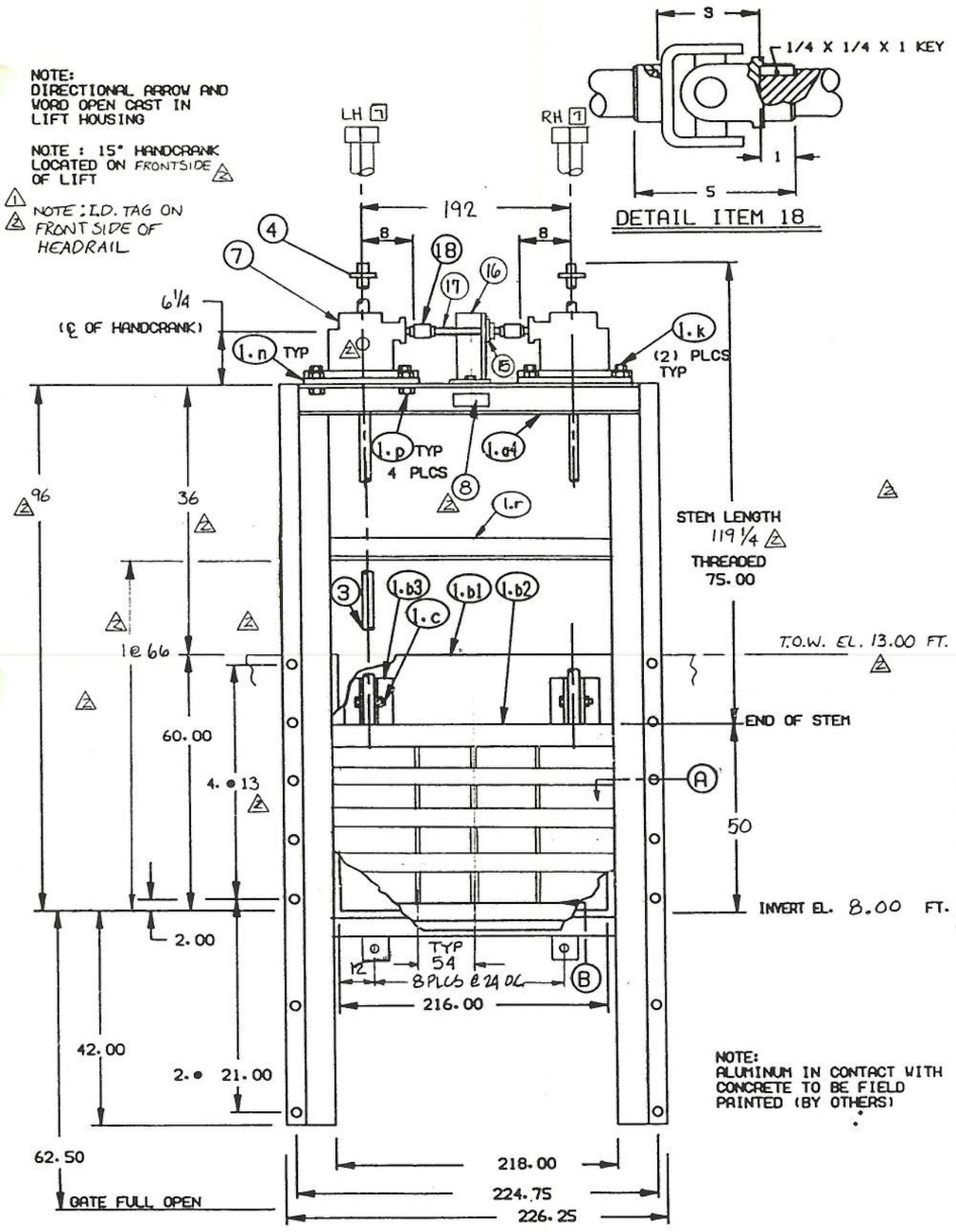
240. X 60. WATERMAN MODEL APR-10 SJ-Y-I ALUMINUM SLIDE GATE

FOR: SCE, INC.
P.O. BOX 12887
BIRMINGHAM AL. 35201

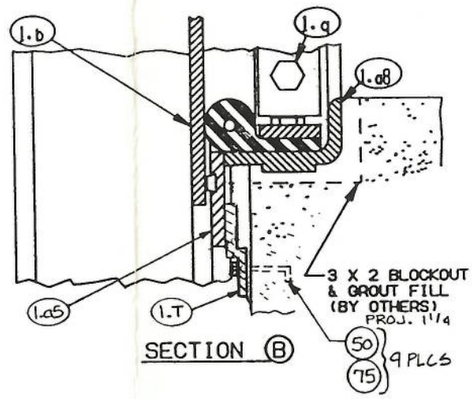
P.O. NO. SC-4809

REV. NO.	DATE	BY	JOB NO.	PROJECT MANAGER
			J-8039-2	DP
REV. NO.	DATE	BY	QUOTE NO.	QUOTE ITEM NO.
			SQ-88-A-207	12.
REV. NO.	DATE	BY	DRAWN BY	CHECKED BY
			DLB	GM
REV. NO. 2	DATE 4-10-89 GH	BY DAN	SCALE NONE	DATE 12-15-88
REV. NO. 1	DATE 2-15-89 TC	BY DAN/GT	DRAWING NO. RB-88-2375.	

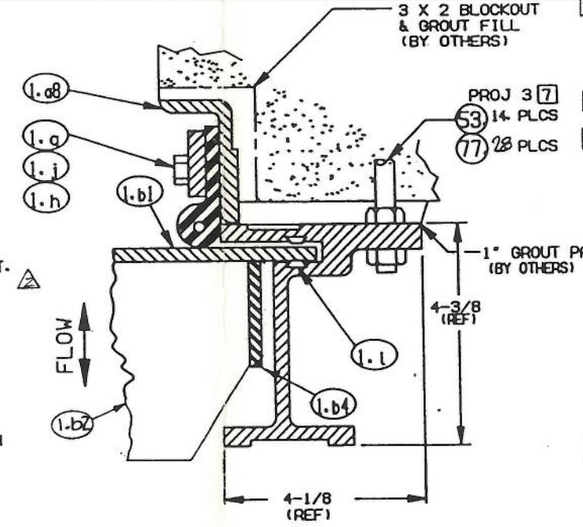
®WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221



DETAIL ITEM 18



SECTION (B)



SECTION (A)

NOTE:
ALUMINUM IN CONTACT WITH CONCRETE TO BE FIELD PAINTED (BY OTHERS)

MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. 865 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & 8B) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	6B2-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: 1CT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	4.
a) FRAME WELDMENT	–	–		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	C9 x 6.91	2	
5) BOTTOM RAIL	17	2	EXTRUSION 100942	1	
8) SPIGOT RAIL	17	2	REF. EXTRUSION 100510	3	
b) SLIDE WELDMENT	–	–		1	
1) SLIDE PLATE	17	2	221.50 X 62.50 X 3/8 PLATE	1	
2) STRONGRIB	17	2	C12 x 12.10 CHANNEL	5	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	4	
4) VERTICAL RIB	17	2	3/8 X 2 BAR	5	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	2	
h) J BULB SEAL	13	2	REF 100159	3	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	3	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	4	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	5	
n) BASE PLATE	17	2	3/4 PLATE (REF 101096)	2	
p) HEX HEAD BOLT W/NUT	15A	2	1/2 NC X 2 LG	8	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
r) STEM BRACE	17	2	5 x 5 x 3/8 ANGLE	1	
t) ANCHOR TAB	17	2	104183 (ALUM)	9	
(3) STEM	9A	2,3	1 1/2 DIA. 4 TPI. [7] : [5]	2	4.
(4) LIMIT NUT	1	5	1 1/2 DIA. 4 TPI. [7] : STD	2	4
(7) LIFT ASSEMBLY		6B2,6H	SINGLE SE-2:1 & TANDEM TYPE SE-6:1 WITH 15 IN REMOVEABLE HANDCRANK W-1172	1	4.
a) LIFT	1,4		3 DIA. SCH'L 40 PIPE: 64. LG W/ MYLAR STRIP INDICATOR	1ea	
b) BASE PLATE	1			2	
c) STEM COVER	14	2		2	
(8) I.D. TAG	9A	2	RA-89-0265	1	4
(15) BEARING	–	–	HUB CITY GEAR FB-160	1	4
(16) BEARING BRACKET	17	2	3 x 3 x 1/4 ANGLE & 1/2 PLATE	1	4
(17) EXTENSION SHAFT	9A	2,3	1 DIA X 170 LG.	1	4
(18) UNIVERSAL JOINT	STL	–	McMASTER-CARR 6452K5	2	8
(53) ANCHOR BOLT	9A	2,3	5/8 NC X 10 LG	14	56
(77) HEX NUT	15A	2	5/8 NC	28	112
(50) ANCHOR BOLT	9A	2,3	1/2 NC X 8 LG	9	36
(76) HEX NUT	15A	2	1/2 NC	18	72

NOTES:
1. (GATE CAPACITY) MAX. SEATING HD. = 10 FT.: MAX. UNSEATING HD. = 10 FT.
2. OPERATING HEAD FROM C℄ SEATING= 2 1/2 FT.; UNSEATING= 2 1/2 FT.
3. LIFT CAPACITY. ● 40 LBS. PULL= 5130 LBS. (@ 6:1 RATIO)
4. TURN HANDCRANK CW TO OPEN (LOWER) GATE. (@ 2:1 RATIO)
[5] 29° MODIFIED STUB ACME THREADS.
[6] CONTRACTOR TO VERIFY OR SUPPLY
[7] SHOP NOTE: PROVIDE LH THREADS FOR 6:1 LIFT & RH THREADS FOR 2:1

(4) GATES REQ'D ● AERATION REACTORS 10-13 MARK 7 REF PLN SHT 58

REF: MARSHALL STREET ADVANCED POLLUTION CONTROL FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

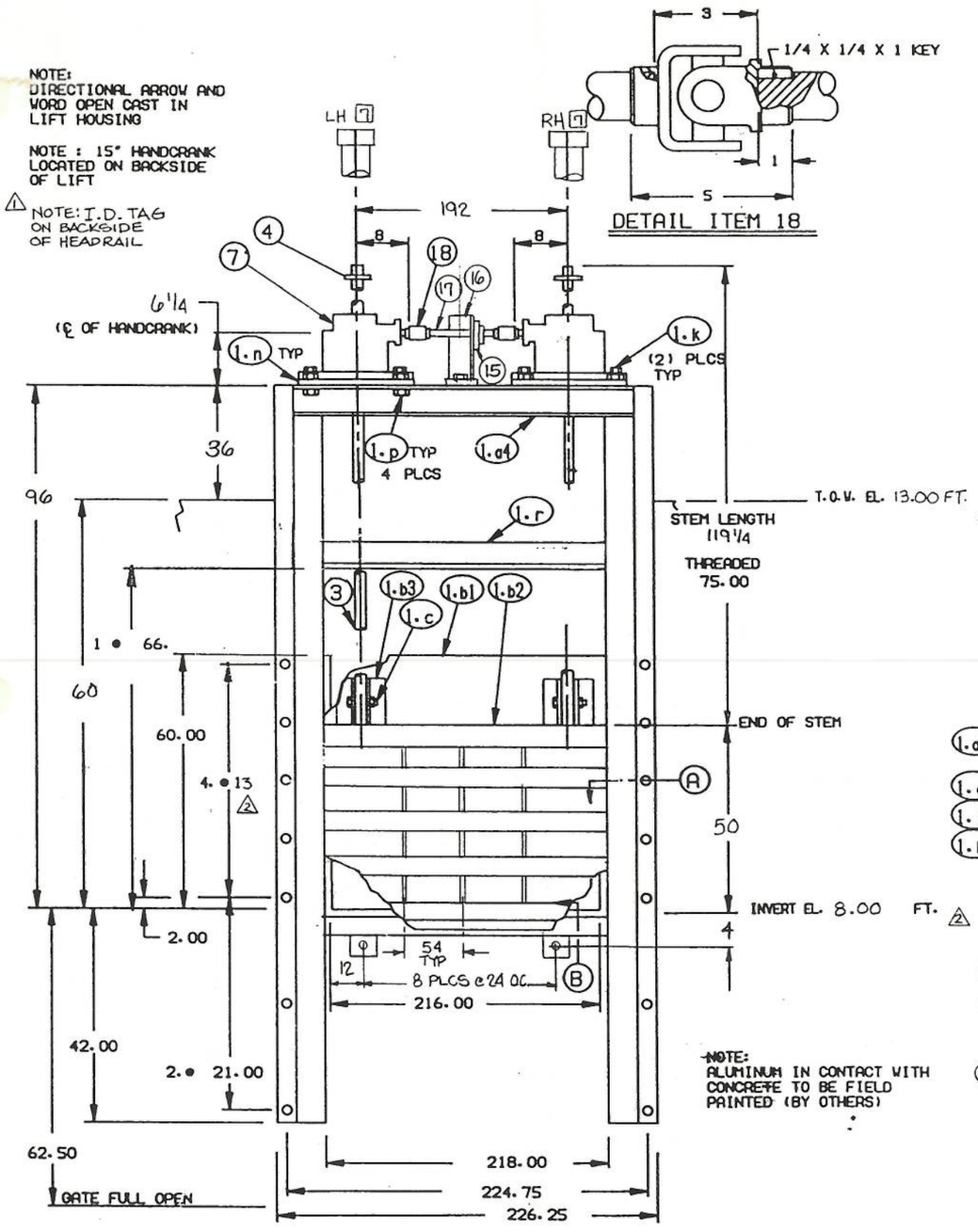
216. X 60. WATERMAN MODEL APR-10 SJ-Y-I ALUMINUM SLIDE GATE

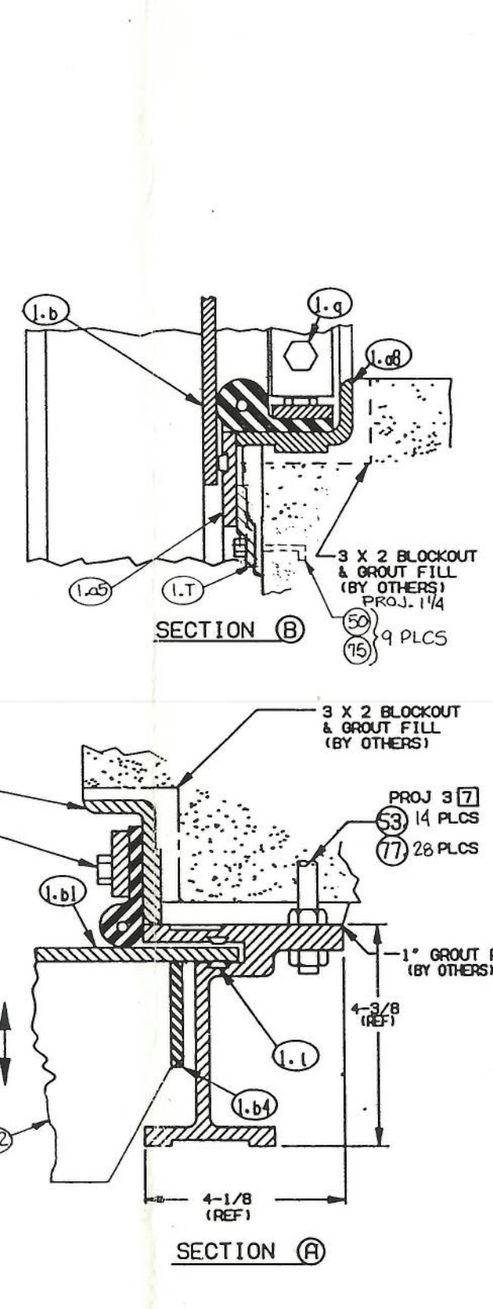
FOR: SCE, INC.
P.O. BOX 12887
BIRMINGHAM AL. 35201

P.O. NO. SC-4809

REV. NO.	DATE	BY	JOB NO.	PROJECT MANAGER
			J-8039-2	DP
REV. NO.	DATE	BY	QUOTE NO.	QUOTE ITEM NO.
			SQ-88-A-207	13.
REV. NO. 3	DATE 4-10-89 GH	BY DAN	DRAWN BY DLB	CHECKED BY GM
REV. NO. 2	DATE 3-2-89 GH	BY DAN	SCALE NONE	DATE 12-15-88
REV. NO. 1	DATE 2-15-89 TC	BY DAN	DRAWING NO. RB-88-2376.	

WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221





MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. 865 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & B8) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	68Z-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: 1CT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	4.
a) FRAME WELDMENT	–	–		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	C9 X 6.91	2	
5) BOTTOM RAIL	17	2	EXTRUSION 100942	1	
8) SPIGOT RAIL	17	2	REF. EXTRUSION 100510	3	
b) SLIDE WELDMENT	–	–		1	
1) SLIDE PLATE	17	2	221.50 X 62.50 X 3/8 PLATE	1	
2) STRONGRIB	17	2	C1 1/2 X 12.10 CHANNEL	5	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	4	
4) VERTICAL RIB	17	2	3/8 X 2 BAR	5	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	2	
h) J BULB SEAL	13	2	REF 100159	3	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	3	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	4	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	5	
n) BASE PLATE	17	2	3/4 PLATE (REF 101096)	2	
p) HEX HEAD BOLT W/NUT	15A	2	1/2 NC X 2 LG	8	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
r) STEM BRACE (REMOVABLE)	17	2	3 X 2 X 1/4 ANGLE	1	
T) ANCHOR TAB	17	2	104183 (ALUM.)	9	
(3) STEM	9A	2,3	1 1/2 DIA. 4 TPI. [7] : [5]	2	4.
(4) LIMIT NUT	1	5	1 1/2 DIA. 4 TPI. [7] : STD	2	4
(7) LIFT ASSEMBLY			SINGLE 3E-2:1 & TANDEM TYPE 3E-6:1	1	4.
a) LIFT	1, 4	6&2, 6H	WITH 15 IN REMOVERIBLE HANDCRANK W-1172	1ea	
b) BASE PLATE	1		3 DIA. SCH'L 40 PIPE: 64. LG	2	
c) STEM COVER	14	2	W/ MYLAR STRIP INDICATOR	2	
(8) I.D. TAG	9A	2	RA-89-0225	1	4
(15) BEARING	—	—	HUB CITY GEAR FB-160	1	4
(16) BEARING BRACKET	17	2	3 X 3 X 1/4 ANGLE & 1/2 PLATE	1	4
(17) EXTENSION SHAFT	9A	2,3	1 DIA X 170. LG.	1	4
(18) UNIVERSAL JOINT	STL	–	McMASTER-CARR 6452K5	2	8
(53) ANCHOR BOLT	9A	2,3	5/8 NC X 10 LG	14	56
(77) HEX NUT	15A	2	5/8 NC	28	112
(60) ANCHOR BOLT	9A	2,3	1/2 NC X 8 LG	9	36
(75) HEX NUT	15A	2	1/2 NC	18	72

NOTES:
1. (GATE CAPACITY) MAX. SEATING HD. = 10 FT.: MAX. UNSEATING HD. = 10 FT.
2. OPERATING HEAD FROM C ℄ SEATING= 2 1/2 FT.: UNSEATING= 2 1/2 FT.
3. LIFT CAPACITY, • 40 LBS. PULL= 15130 LBS. (@ 6:1 RATIO)
4. TURN HANDCRANK CW TO OPEN (LOWER) GATE. (@ 2:1 RATIO)
[5] 29° MODIFIED STUB ACME THREADS.
[6] CONTRACTOR TO VERIFY OR SUPPLY
[7] SHOP NOTE: PROVIDE LH THREADS FOR 6:1 LIFT & RH THREADS FOR 2:1

(4) GATES REQ'D • AERATION REACTORS 6-9 MARK 8 REF PLN SHT 58

REF: MARSHALL STREET ADVANCED POLLUTION CONTROL FACILITY CL-87056-2
CLEARWATER, FLORIDA
BRILEY, WILD AND ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

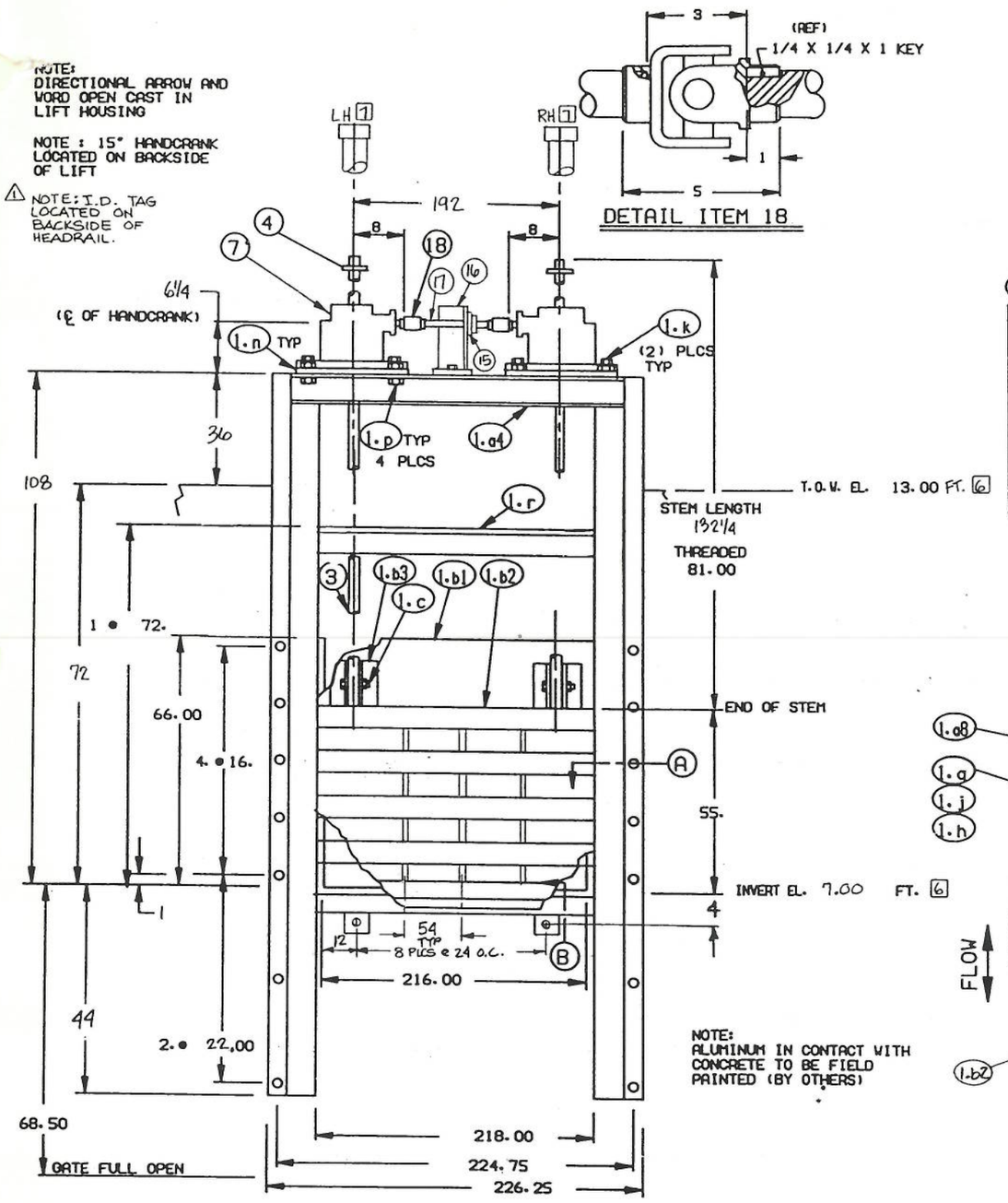
216. X 60. WATERMAN MODEL APR-10 SJ-Y-I ALUMINUM SLIDE GATE

FOR: SCE, INC.
P.O. BOX 12887
BIRMINGHAM AL. 35201

P.O. NO. SC-4809

REV. NO.	DATE	BY	JOB NO.	PROJECT MANAGER
			J-8039-2	DP
REV. NO.	DATE	BY	QUOTE NO.	QUOTE ITEM NO.
			SQ-88-A-207	14.
REV. NO. 3	DATE 4-10-89 GH	BY DAN	DRAWN BY DLB	CHECKED BY GM
REV. NO. 2	DATE 3-2-89 GH	BY DAN	SCALE NONE	DATE 12-15-88
REV. NO. 1	DATE 2-15-89 TC	BY DAN	DRAWING NO. RB-88-2377.	

WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221



MATERIAL KEY	FINISH KEY	PAINT KEY
1. CAST IRON: ASTM A-126 CL. B 4. MANG. BRZ.: ASTM B-584 AL. 865 9A. STN. STEEL: ASTM A-276 TY. 304 13. NEOPRENE RUBBER: ASTM D-2000 14. CLEAR PLASTIC BUTYRATE PIPE 15A. STN. STL. HDW.: ASTM A-193 & 194 TYPE 304 (GRADE 8 & 8B) 17. ALUMINUM: ASTM B-209 AL. 6061-T6 21. UHMW POLYETHYLENE	1. AS CAST 2. MILL 3. MACHINED 4. GALVANIZE-ASTM A-123 5. GALVANIZE-ASTM A-153	682-SURFACE PREP: COMMERCIAL BLAST CLEAN PER SSPC-SP6 6H-ALKYD ENAMEL-HB: ICT (2.5 MIL) TNEMEC SERIES 10 PRIMER & 2CT (1.5MIL/CT) SERIES 2 TNEME GLOSS TOFT 5.5MIL COLOR - LT. GRAY

ITEM DESCRIPTION	MATERIAL KEY	FIN KEY	PART NO. OR SIZE	QTY/ GATE	TOTAL QTY
(1) SLIDE GATE ASSEMBLY				1	2.
a) FRAME WELDMENT	-	-		1	
1) GUIDE RAIL	17	2	REF. EXTRUSION 101144 (4.79 LBS./FT.)	2	
4) HEADRAIL	17	2	C9 X 6.91 CHANNEL	2	
5) BOTTOM RAIL	17	2	EXTRUSION 100942	1	
8) SPIGOT RAIL	17	2	REF. EXTRUSION 100510	3	
b) SLIDE WELDMENT	-	-		1	
1) SLIDE PLATE	17	2	221.50 X 68.50 X 3/8 PLATE	1	
2) STRONGRIB	17	2	C12 X 12.10 CHANNEL	5	
3) STEM BRACKET	17	2	3 X 2 X 3/8 ANGLE	4	
4) VERTICAL RIB	17	2	3/8 X 2 BAR	5	
c) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 3-1/2 LG	2	
h) J BULB SEAL	13	2	REF 100159	3	
j) SEAL RETAINER	17	2	1/4 X 1-1/4 BAR	3	
k) HEX HEAD BOLT W/NUT	15A	2	3/4 NC X 2-1/2 LG	4	
l) BEARING STRIP	21	2	REF. EXTRUSION 100917	5	
n) BASE PLATE	17	2	3/4 PLATE (REF 101096)	2	
p) HEX HEAD BOLT W/NUT	15A	2	1/2 NC X 2 LG	8	
q) HEX HEAD BOLT	15A	2	1/4 N.C. X 1-1/4 LG.	A/R	
r) STEM BRACE (REMOVABLE)	17	2	5 X 5 X 3/8 ANGLE	1	
T) ANCHOR TAB	17	2	104183 (ALUM)	9	
(3) STEM	9A	2,3	2 DIA. 4 TPI. [7] : [5]	2	2.
(4) LIMIT NUT	1	5	2 DIA. 4 TPI. [7] : STD	2	4
(7) LIFT ASSEMBLY			SINGLE SE-2:1 & TANDEM TYPE SE-6:1	1	2.
a) LIFT	1,4	6B2,6H	WITH 15 IN REMOVERBLE HANDCRANK W-1172	1ea	
b) BASE PLATE	1		3 DIA. SCH'L 40 PIPE: 70. LG	2	
c) STEM COVER	14	2	W/ MYLAR STRIP INDICATOR	2	
(8) I.D. TAG	15	2	REF. RA-89-0265	1	2
(15) BEARING	-	-	HUB CITY GEAR FB-1600	1	2
(16) BEARING SUPPORT	17	2	3X3X1/4 ANGLE & 1/2 PLATE	1	2
(17) EXTENSION SHAFT	9A	2,3	1 DIA X 170 LG.	1	2
(18) UNIVERSAL JOINT	STL	-	McMASTER-CARR 6452K5	2	4
(53) ANCHOR BOLT	9A	2,3	5/8 NC X 10 LG	14	28
(77) HEX NUT	15A	2	5/8 NC	28	56
(50) ANCHOR BOLT	9A	2,3	1/2 NC X 8 LG	9	18
(75) HEX NUT	15A	2	1/2 NC	18	36

NOTES:
1. (GATE CAPACITY) MAX. SEATING HD. = 10 FT.: MAX. UNSEATING HD. = 10 FT.
2. OPERATING HEAD FROM ℄: SEATING= 2.75FT.: UNSEATING= 2.75 FT.
3. LIFT CAPACITY, • 40LBS. PULL= 4000 BS. (@ 6:1 RATIO)
4. TURN HANDCRANK CW TO OPEN (LOWER) GATE. @ 2:1 RATIO
[5] 29° MODIFIED STUB ACME THREADS.
[6] CONTR. TO VERIFY OR SUPPLY
[7] SHOP NOTE: PROVIDE LH THREADS FOR 6:1 LIFT & RH THREADS FOR 2:1

(2) GATES REQ'D • AERATION REACTORS 4-5 MARK 9 REF PLN SHT 58

DEC: MARSHALL STREET ADVANCED POLLUTION CONTROL FACILITY CL-87056-2 CLEARWATER, FLORIDA BRILEY, WILD AND ASSOCIATES CONSULTING ENGINEERS & PLANNERS

216. X 66. WATERMAN MODEL APR-10 SJ-Y-I ALUMINUM SLIDE GATE

FOR: SCE, INC.
P.O. BOX 12887
BIRMINGHAM AL. 35201

P.O. NO. SC-4809

REV. NO.	DATE	BY	JOB NO.	PROJECT MANAGER
			J-8039-2	DP
REV. NO.	DATE	BY	QUOTE NO.	QUOTE ITEM NO.
			SQ-88-A-207	15.
REV. NO.	DATE	BY	DRAWN BY	CHECKED BY
			DLB	GM
REV. NO. 2	DATE 4-10-89 GH	BY DAN	SCALE NONE	DATE 12-15-88
REV. NO. 1	DATE 2-15-89 TC	BY DAN	DRAWING NO. RB-88-2378.	

WATERMAN INDUSTRIES INC. EXETER, CALIFORNIA 93221