

FILE FOLDER

DESCRIPTION ON TAB:

Tarawa Terrace TT-38

Water Plant

Outside/inside of actual folder did not contain hand written information

Outside/inside of actual folder did contain hand written information

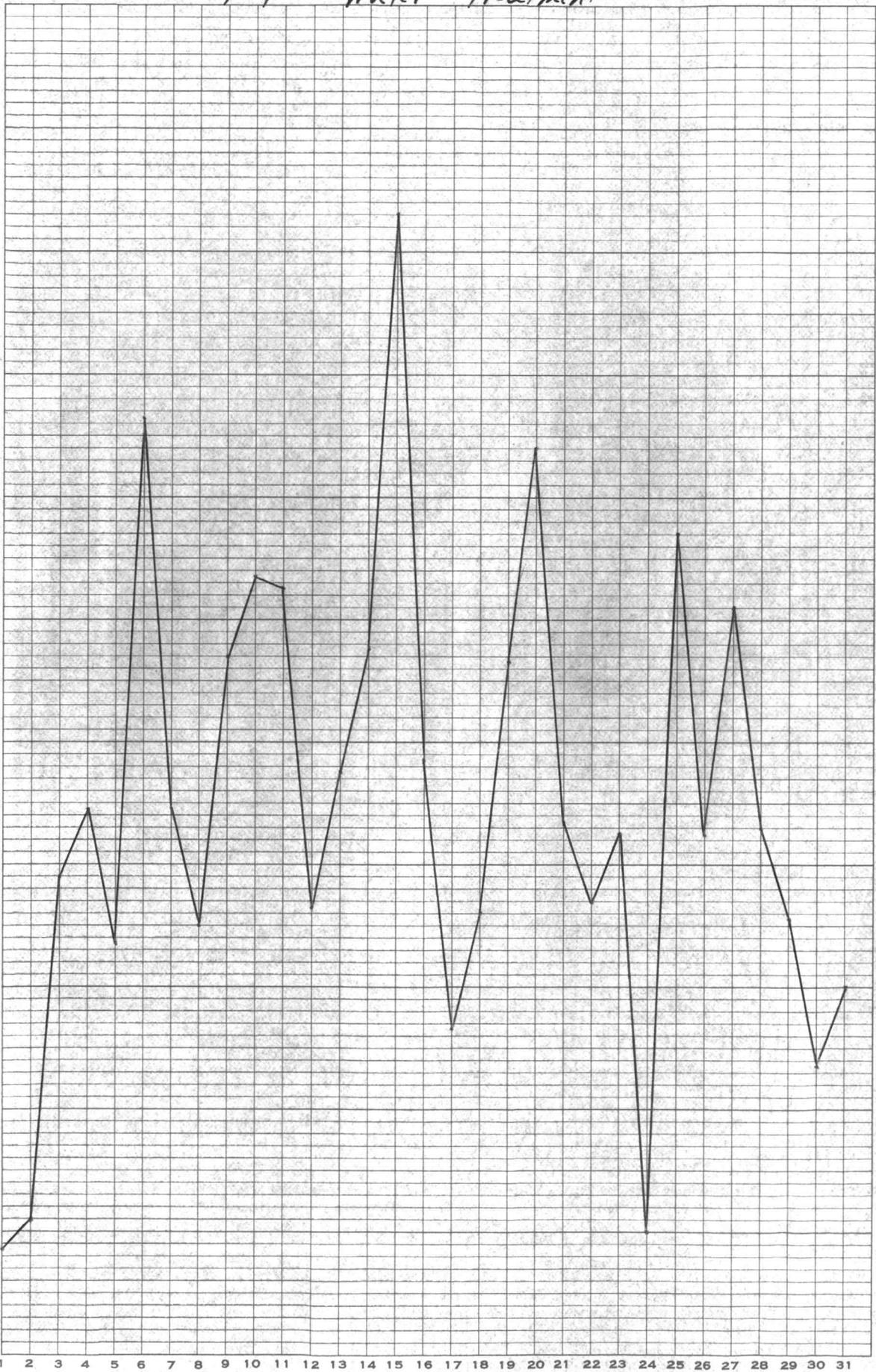
***Scanned as next image**

TT Water Treatment

DIETZGEN CORPORATION
MADE IN U.S.A.

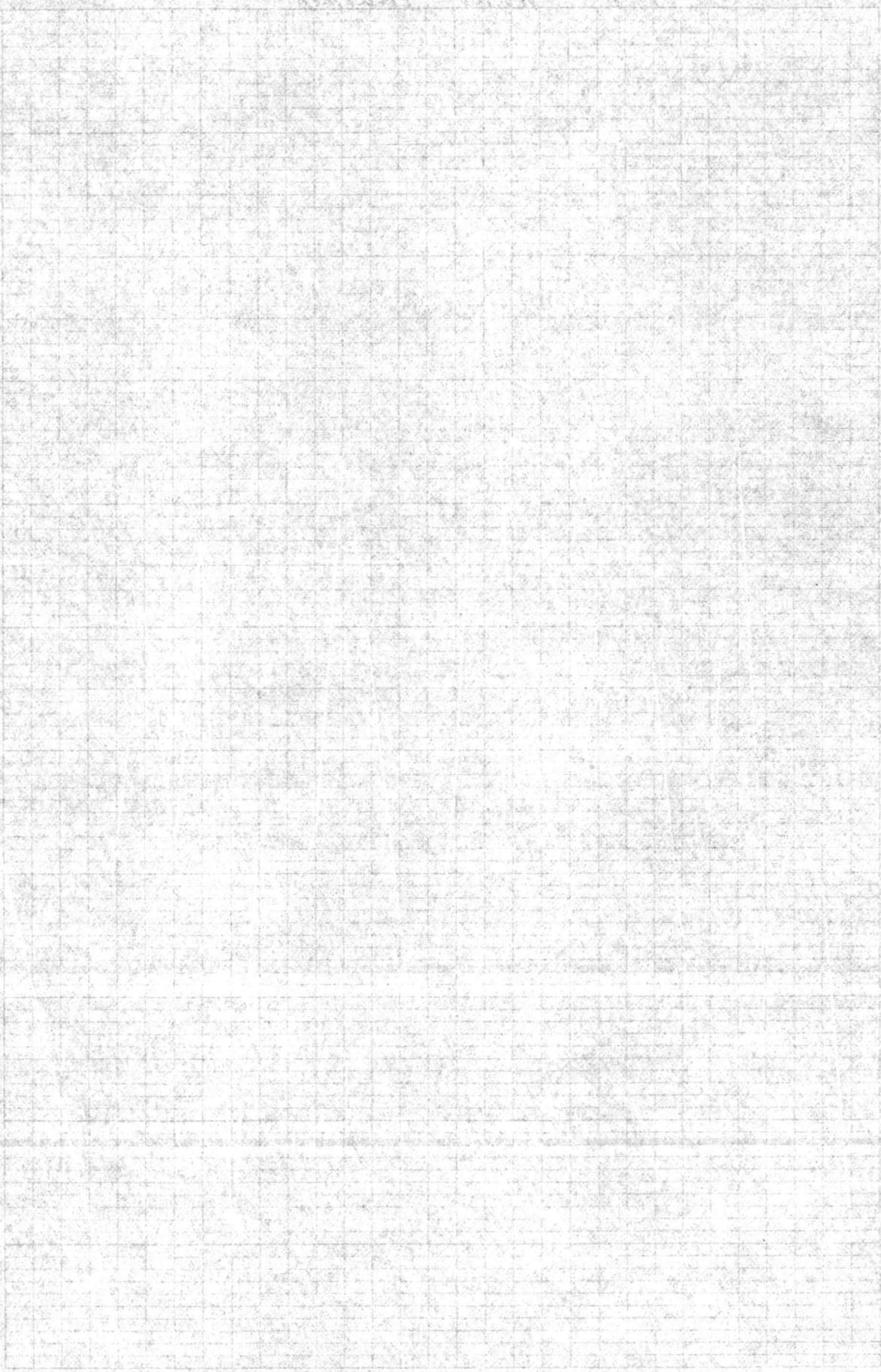
NO. 340-T6 DIETZGEN GRAPH PAPER
ONE MONTH BY DAYS

880,000
860,000
840,000
820,000
800,000
780,000
760,000
740,000
720,000
700,000
680,000



MONTH January 1929

Water Treatment



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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

MONTHLY WATER TREATMENT

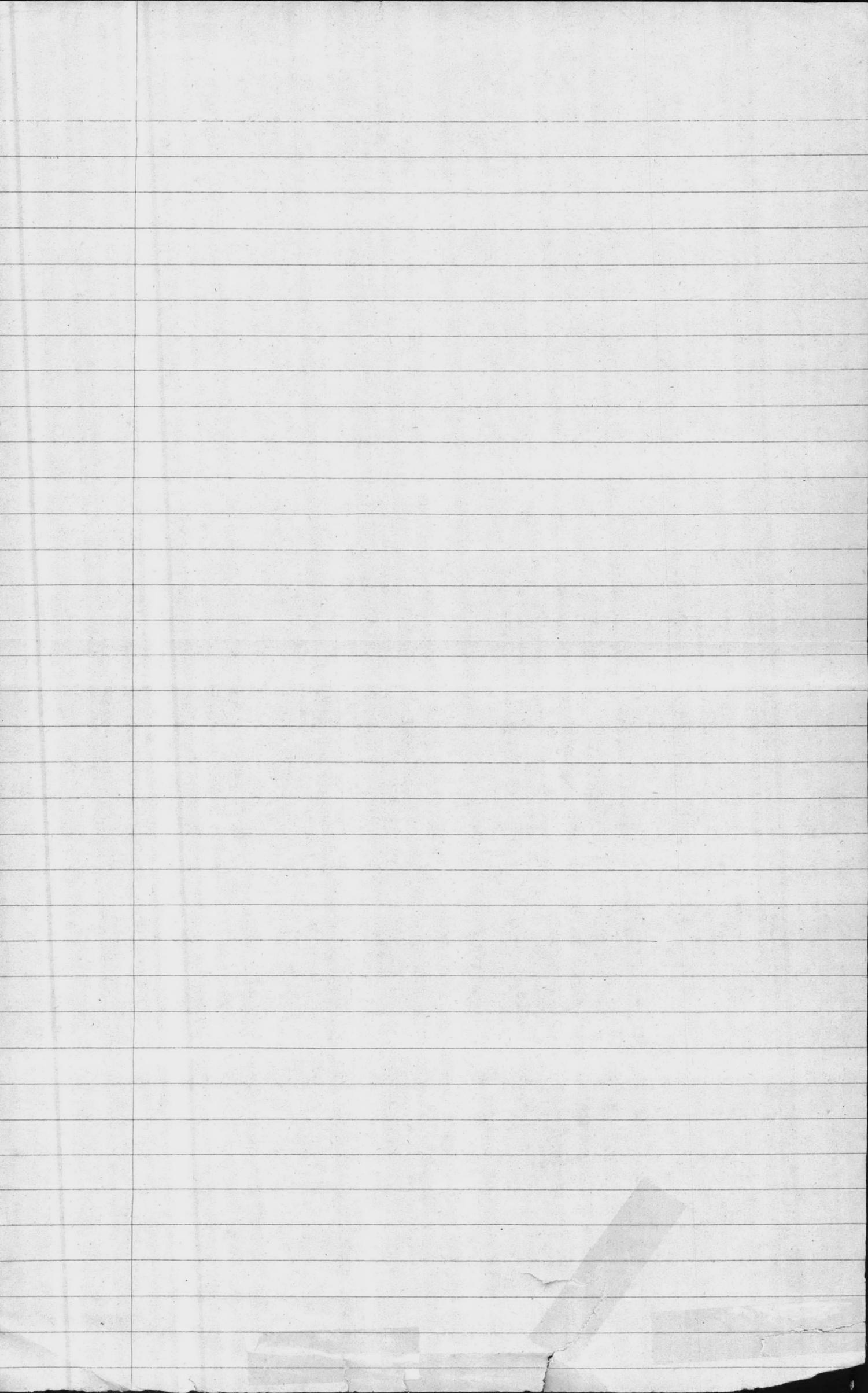
PROPERTY OF THE BUREAU OF SANITATION, DISTRICT OF COLUMBIA

Jan 1979 T T Water Treatment

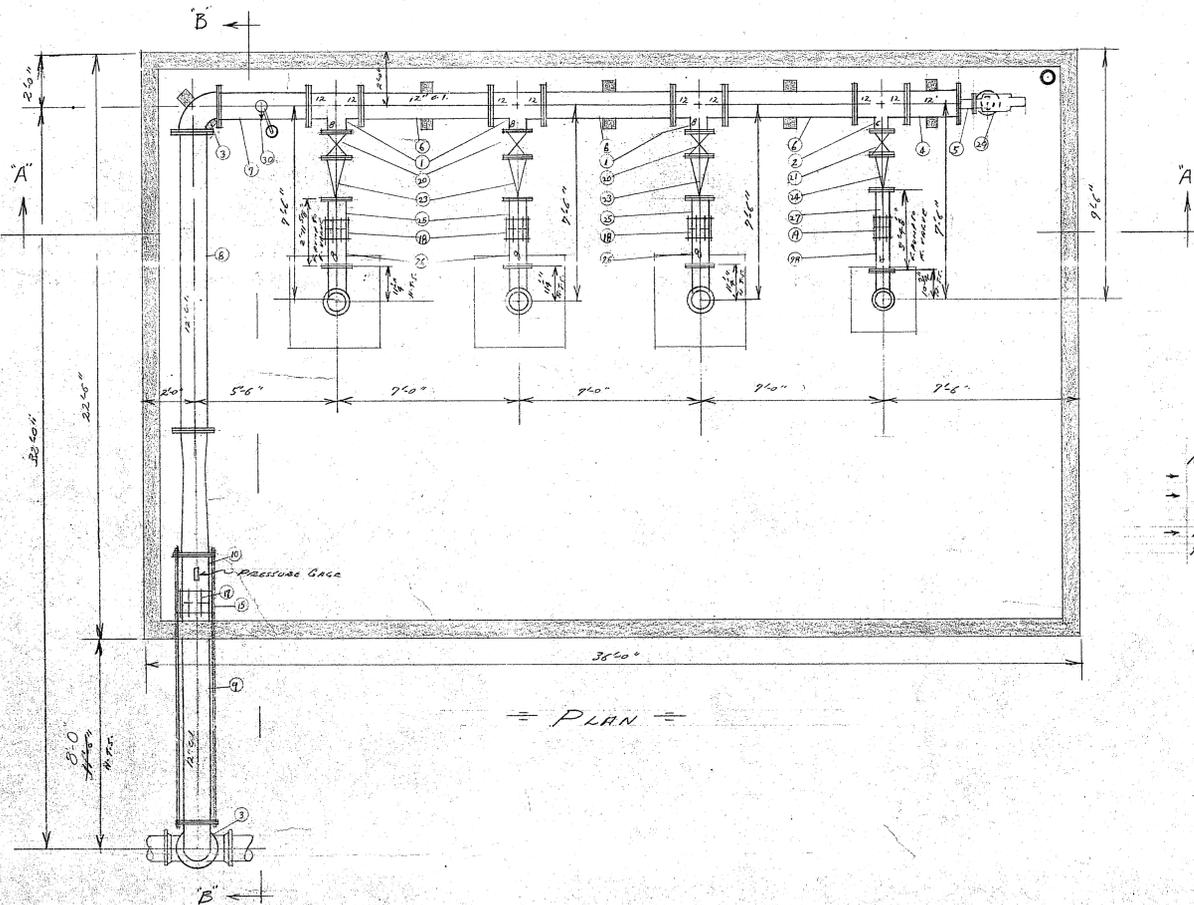
1	697,000	-
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3	758,000	
4	767,000	
5	747,000	
6	833,000	
7	767,000	
8	750,000	
9	794,000	
10	807,000	
11	805,000	
12	753,000	
13	775,000	
14	795,000	
15	866,000	-
16	777,000	
17	733,000	
18	752,000	
19	793,000	
20	828,000	
21	767,000	
22	754,000	
23	765,000	
24	700,000	
25	814,000	
26	765,000	
27	802,000	
28	766,000	
29	751,000	
30	727,000	
31	740,000	

60

3304
1775

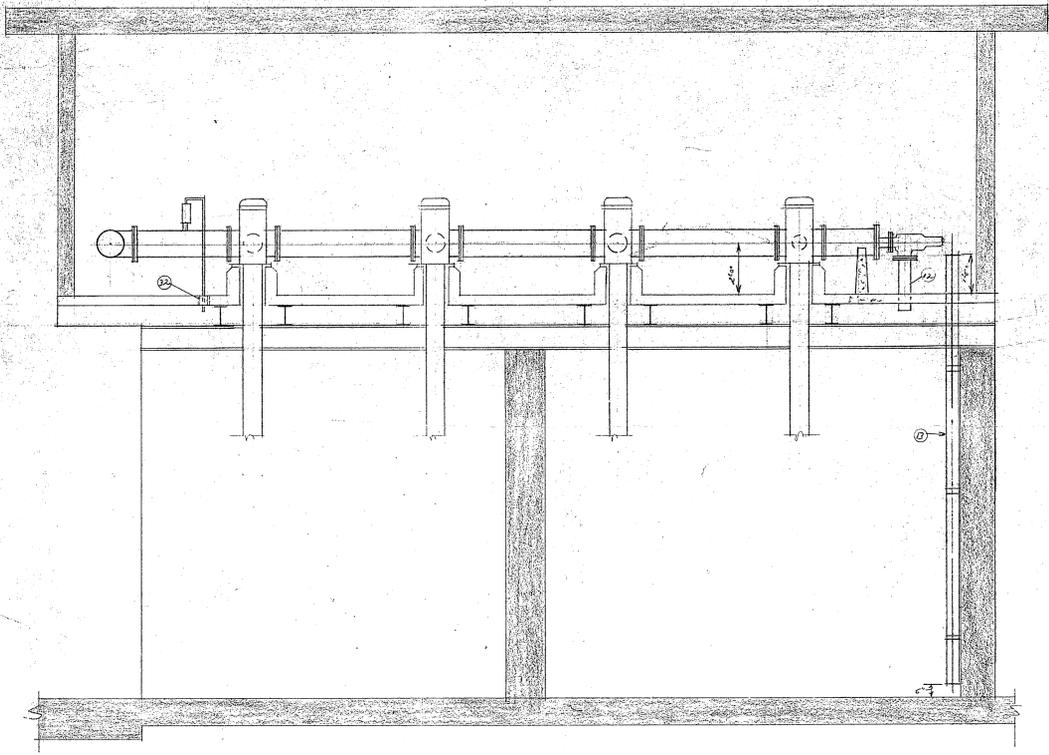


QTY	DESCRIPTION	DIM.	QTY
1	12x12x8 FLG. C.I. TEE	12.000"	1
2	12x12x6 DITTO	12.000"	1
2	12" DITTO 90° ELL	12.000"	2
1	12x10 1/2 F.F.C. C.I. PIPE		1
1	2x0-6 F.F.C. DITTO WITH 2x10 REC. PIP. OVERLAP 250" P.S. 10-0-0		1
3	12x 8-1/2 F.F.C. DITTO		3
1	12x 3-5/8 F.F.C. TAPERS FOR R.R. VALVE		1
1	12x 11-5/8 F.F.C. C.I. PIPE		1
1	12x 11-5/8 F.F.C. DITTO 8-10 1/2		1
1	12x 11-5/8 F.F.C. TAPERS FOR G.A. GAUGE		1
1	12x 8-1/2 F.F.C. C.I. PIPE		1
1	6x 2-0 F.F.C. PIPE		1
1	FLAT TUBES CONTR. TO STREET		1
1	12" W.P. C.I. TEE	12.000"	1
1	7/8" ROST. 3/4" DIA.		1
1	TIERS FOR 3/4" DIA.		1
1	12" STEEL 30 DRIVE COUPLING WITH CENTER RING REMOVED		1
3	8" DITTO		3
1	6" DITTO		1
3	8" ROD GATE VALVE N.E.S. 1804 OPEN LEFT	1/4" DIA.	3
1	6" DITTO		1
1	12" DITTO		1
3	8" GGG CHECK VALVE	1-1/2" DIA.	3
1	6" DITTO		1
3	8" x 11-5/8" F.F.C. C.I. PIPE		3
3	8x11-5 F.F.C. PIPE		3
1	6x11-5 F.F.C. PIPE		1
1	6x11-5 F.F.C. PIPE		1
1	8x6 COLLAPSE RESIST VALVE MODEL 4-11-208		1
1	1" CAPTIV. AIR VALVE		1
1	1/2" DIA. HEIGHT GAUGE 0-150 FT.		1
1	3"x30"x4" STEEL P.H.C. SCREEN		1

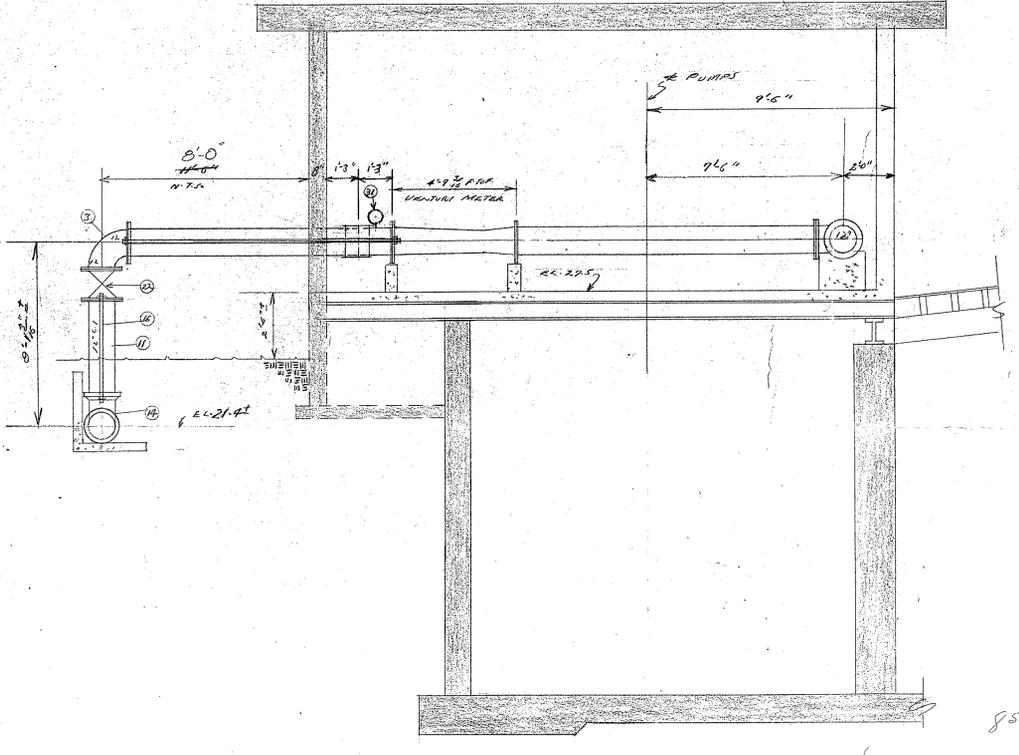


NOTES:
 → 1/2" ALLOWANCE W/IN BETWEEN EACH FLEX JOINT FOR CONCRETE
 → FACE TO FACE 1" CENTER TO FACE DIMENSIONS FOR VALVES, FITTINGS, ETC. SHOWN IN SEPARATE UNDER DRAWING "DIM"
 → PIPING SHOWN IS REPRESENTATIVE CORRECT PROVIDED DIMENSIONS & LINE BLVD. HAS SET AS SHOWN

PLAN



SECTION A-A



SECTION B-B

APPROVED:
 SUBJECT TO THE REQUIREMENTS OF
 CONTRACT NO. 4658 SING 4658/60
 W. G. CHURCH
 DISTRICT ENGINEER, U.S. ARMY
 DISTRICT OFFICE
 FEB 25 1963

859314
 PIPING DETAILS FOR
 RESERVOIR PUMP STATION
 TARAHA TERRACE
 MARINE BARRACKS
 CAMP LATRONS, N.C.
 PRISON & WINTMAN, ENGRS.
 BROWN CONSTRUCTION CONTR.
 GRINNELL COMPANY INC.
 CHARLOTTE, N.C.
 SCALE 3/8"=1'-0" 1-1-63 D.M.
 SHEET 1



AS BUILT

63
WATER SUPPLY IMPROVEMENTS, TARAWA TERRACE

at the

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

CONTRACT NBy-46508

DATE July 24, 1963
S. J. Taylor
INSPECTOR

SECTION 1. GENERAL PARAGRAPHS

1.13 Minimum wage rates and other labor standards. Fourth line, delete "AB-894 with Modification No. 1" and substitute therefor "AB-7798". Decision No. AB-7798 is attached to this addendum.

SECTION 19. INSTRUMENTATION AND CONTROLS

19.2.1 Transmitter. End of the third line, change "142" to "146"; fourth line, change "113 feet" to "112 feet"; after "operating", insert "and measuring". Fifth line, change "29 feet." to "35 feet."

19.2.2 Receiver and pump controller. Third line, after "uniformly" insert "and equally". Fourth line, change "30 feet." to "35 feet."

19.4.1 Transmitter. At the end of the subparagraph, add "The measuring range shall be 12 feet."

19.4.2 Receiver. Delete the fourth sentence in its entirety and substitute the following therefor: "The depth shall be recorded in feet, with a range of 0 to 12 on an equally spaced concentrically graduated chart having a diameter of approximately 12 inches."

19.6 Panelboard. At the end of the paragraph, add the following: "In lieu of the plywood panelboard specified and shown, the contractor, at his option, may provide an approved standard steel factory-made panelboard suitable for fulfilling the depicted functions. The contractor shall submit shop drawings for approval."

NOTICE

Each bidder shall refer in his bid to all addenda to this specification; failure to do so may constitute an informality in the bid.

Atlantic Division, Bureau of Yards and Docks
U. S. Naval Station, Norfolk 11, Virginia
29 October 1962

W. C. G. CHURCH, RADM, CEC, USN
Officer in Charge of Construction

19.6 Panelboard. At the end of the paragraph, add the following:
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Atlantic Division, Bureau of Yards and Docks
U. S. Naval Station, Norfolk 11, Virginia
29 October 1962

W. C. B. CHURCH, RADM, CEC, USN
Officer in Charge of Construction

16508/62 - ADD. NO. 3

DEPARTMENT, AGENCY, OR BUREAU

DEPARTMENT OF THE NAVY, BUREAU OF YARDS AND DOCKS

DESCRIPTION OF WORK:

Miscellaneous building construction (including incidental utilities and incidental paving), dredging, and marine construction.

54A

LOCATION (CITY OR OTHER DESCRIPTION)

Camp Lejeune

STATE

North Carolina

COUNTY

Onslow

DECISION NO.

AB - 7798

LAW CODE

DB

DATE OF DECISION

10 - 8 - 62

EXPIRES

1 - 7 - 63

SUPERSEDES DECISION NO.

12 - N. C.

1 - L

2 - L

	Per Hour		Per Hour
Air tool operators (jackhammermen, vibrator)	\$1.15	Marble setters	\$3.00
Asbestos workers	2.75	Marble setters helpers	1.25
Asbestos workers improvers:		Mason tenders	1.15
1st year	1.25	Mortar mixers	1.15
2nd year	1.64	Painters, brush	1.65
3rd year	1.85	Painters, spray	2.00
4th year	2.07	Painters, structural steel	2.00
Chalk rakers	1.20	Piledrivermen	1.65
Boilermakers - blacksmith	3.95	Pipe layers	1.50
Boilermakers helpers	3.70	Plasterers	2.50
Bricklayers	2.75	Plasterers tenders	1.15
Cable splicers	2.50	Plumbers	2.50
Carpenters	1.65	Roofers	1.65
Cement masons	2.00	Sheet metal workers	1.65
Electricians	2.50	Soft floor layers	1.95
Elevator constructors	2.20	Steam fitters	2.50
Helpers — 70% of J. R.		Stone masons	2.50
Helpers (probationary) — 50% of J. R.		Sprinkler fitters	3.925
Glaziers	1.64	Terrazzo workers	3.00
Groundmen	1.25	Terrazzo workers helpers	1.25
Iron workers, structural	1.65	Tile setters	3.00
Iron workers, ornamental	2.50	Tile setters helpers	1.25
Iron workers, reinforcing	1.15	Truck drivers	1.15
Laborers	1.15	Welders — receive rate prescribed for craft perform-	
Lathers	2.75	ing operation to which welding is incidental.	
Linemen	2.50		

12 - N. C.

APPRENTICE SCHEDULE

PERIOD AND RATE *

Craft	Interval	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Bricklayers	6 mos.	40	45	50	60	70	80				
Carpenters	year	\$1.05	1.15	1.25	1.40						
Cement masons	6 mos.	50	55	60	65	70	75	80	85		
Electricians	6 mos.	45	50	55	60	65	70	75	80		
Ironworkers	6 mos.	50	60								
Ironworkers	year		66-2/3								
Plumbers & Steam fitters	6 mos.	37½	40	45	50	55	60	66½	75		
Sheet metal workers	6 mos.	40	45	50	55	60	65	70	80		
Soft floor layers	year	\$1.05	1.15	1.25	1.40						
Sprinkler fitters	6 mos.	63	66	69	72	75	78	81	84	87	90

* The apprentice rate is by percentage of the journeymen's rate unless otherwise indicated.

12 - N. C. PEO

Power equipment operators:	Per Hour
Air compressors	\$1.25
Belts	2.125
Boom hoist	2.125
Bulldozers	2.00
Cableways	2.125
Cranes	2.125
Derricks	2.125
Distributors, asphalt	1.35
Draglines	2.125
Dredges or other floating equipment	2.25
Finishing machine	1.35
Fireman	1.55
Front end loaders	2.00
Hoist, double drum	1.875
Hoist, one drum	1.625
Mechanics	2.00

	Per Hour
Mixers (larger than 10-S)	\$1.75
Mixers (smaller than 10-S)	1.625
Motor graders	2.00
Oilers	1.55
Pavers	2.125
Pile drivers	2.00
Pumps over 2" discharge	1.75
Pumps under 2" discharge	1.625
Rollers, asphalt	1.35
Rollers, earth	1.75
Scrapers, wheel type	2.00
Shovels	2.125
Tractors, farm type	1.15
Tractors with attachments	2.125
Tractors without attachments	1.875
Trench machines	2.125
Truck cranes	2.125

N. C.
DREDGE - 2 - Atl.
4 - C

HYDRAULIC DREDGES — 20 inches & over	Per Hour
Levermen	\$2.75
Engineers	2.70
Derrick Operators	2.50
Mates	2.05
Firemen	1.80
Boys	1.75

HYDRAULIC DREDGES — 14" - 18"	Per Hour
Levermen	2.46
Welders	2.30
1st Engineer	2.24
2nd Engineer	2.14
3rd Engineer	2.02
Launchmen	1.81
Mate	1.80
Oilers	1.75
Deckhand, dredge	1.45
Shoremen	1.35

HYDRAULIC DREDGES — 12" & under	Per Hour
Engineer	1.90
Leverman	1.75
Assistant Engineer	1.50
Oiler	1.15
Mate	1.50
Laborer-Deckhand	1.15
Launchman	1.50
Steward	1.50
Mess Boy	1.25
Welder	1.50

DIPPER AND CLAMSHELL DREDGES	Per Hour
Operator — Leverman	\$2.75
Cranemen	2.65
Welders	2.30
1st Engineer	2.10
2nd Engineer	2.00
3rd Engineer	1.85
Mates	2.05
Launchmen	1.81
Firemen	1.80
Breastwire Tenders	1.70
Scowmen	1.60
Deckhands	1.55

TUG BOATS	Per Hour
Tug Captain	2.40
First Engineer	2.40
Engineer	2.05
Tug Mates	2.15
Cooks	1.60
Deckhands	1.50

GALLEY CREWS — Dredge 14" and up	Per Hour
Cooks	1.75
Mess Cooks	1.53
Janitors	1.45

WATER SUPPLY IMPROVEMENTS, TARAWA TERRACE

at the

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

CONTRACT NBy-46508

SECTION 1. GENERAL PARAGRAPHS

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Atlantic Division, Bureau of Yards and Docks
U. S. Naval Station, Norfolk 11, Virginia
29 October 1962

W. C. G. CHURCH, RADM, CEC, USN
Officer in Charge of Construction

1916 Parabolic. At the end of the paragraph, the contractor, at his option, may provide an approved standard steel I-beam parabolic suitable for fulfilling the depicted functions. The contractor shall submit shop drawings for approval."

NOTICE

Each bidder shall refer in his bid to all standards to this specification; failure to do so may constitute an informality in the bid.

Atlantic Division, Bureau of Yards and Docks
U. S. Naval Station, Norfolk 11, Virginia
29 October 1962

W. C. G. CHURCH, RADM, CSC, USN
Officer in Charge of Construction

16508\62 - ADD. NO. 3

DEPARTMENT, AGENCY, OR BUREAU

DEPARTMENT OF THE NAVY, BUREAU OF YARDS AND DOCKS

DESCRIPTION OF WORK:

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DECISION NO.

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LAW CODE

DB

DATE OF DECISION

10 - 8 - 62

EXPIRES

1 - 7 - 63

SUPERSEDES DECISION NO.

12 - N. C.
1 - L
2 - L

	Per Hour		Per Hour
Air tool operators (jackhammermen, vibrator)	\$1.15	Marble setters	\$3.00
Asbestos workers	2.75	Marble setters helpers	1.25
Asbestos workers improvers:		Mason tenders	1.15
1st year	1.25	Mortar mixers	1.15
2nd year	1.64	Painters, brush	1.65
3rd year	1.85	Painters, spray	2.00
4th year	2.07	Painters, structural steel	2.00
Shalt rakers	1.20	Piledrivermen	1.65
Boilermakers - blacksmith	3.95	Pipe layers	1.50
Boilermakers helpers	3.70	Plasterers	2.50
Bricklayers	2.75	Plasterers tenders	1.15
Cable splicers	2.50	Plumbers	2.50
Carpenters	1.65	Roofers	1.65
Cement masons	2.00	Sheet metal workers	1.65
Electricians	2.50	Soft floor layers	1.95
Elevator constructors	2.20	Steam fitters	2.50
Helpers — 70% of J. R.		Stone masons	2.50
Helpers (probationary) — 50% of J. R.		Sprinkler fitters	3.925
Glaziers	1.64	Terrazzo workers	3.00
Groundmen	1.25	Terrazzo workers helpers	1.25
Iron workers, structural	1.65	Tile setters	3.00
Iron workers, ornamental	2.50	Tile setters helpers	1.25
Iron workers, reinforcing	1.15	Truck drivers	1.15
Laborers	1.15	Welders — receive rate prescribed for craft perform-	
Lathers	2.75	ing operation to which welding is incidental.	
Linemen	2.50		

12 - N. C.

APPRENTICE SCHEDULE

PERIOD AND RATE *

Craft	Interval	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Bricklayers	6 mos.	40	45	50	60	70	80				
Carpenters	year	\$1.05	1.15	1.25	1.40						
Cement masons	6 mos.	50	55	60	65	70	75	80	85		
Electricians	6 mos.	45	50	55	60	65	70	75	80		
Ironworkers	6 mos.	50	60								
Ironworkers	year		66-2/3								
Plumbers & Steam fitters	6 mos.	37½	40	45	50	55	60	66½	75		
Sheet metal workers	6 mos.	40	45	50	55	60	65	70	80		
Soft floor layers	year	\$1.05	1.15	1.25	1.40						
Sprinkler fitters	6 mos.	63	66	69	72	75	78	81	84	87	90

* The apprentice rate is by percentage of the journeymen's rate unless otherwise indicated.

12 - N. C. PEO

Power equipment operators:	Per Hour
Air compressors	\$1.25
Winches	2.125
Boom hoist	2.125
Bulldozers	2.00
Cableways	2.125
Cranes	2.125
Derricks	2.125
Distributors, asphalt	1.35
Draglines	2.125
Dredges or other floating equipment	2.25
Finishing machine	1.35
Fireman	1.55
Front end loaders	2.00
Hoist, double drum	1.875
Hoist, one drum	1.625
Mechanics	2.00

	Per Hour
Mixers (larger than 10-S)	\$1.75
Mixers (smaller than 10-S)	1.625
Motor graders	2.00
Oilers	1.55
Pavers	2.125
Pile drivers	2.00
Pumps over 2" discharge	1.75
Pumps under 2" discharge	1.625
Rollers, asphalt	1.35
Rollers, earth	1.75
Scrapers, wheel type	2.00
Shovels	2.125
Tractors, farm type	1.15
Tractors with attachments	2.125
Tractors without attachments	1.875
Trench machines	2.125
Truck cranes	2.125

N. C.
DREDGE - 2 - Atl.
4 - C

HYDRAULIC DREDGES — 20 inches & over

	Per Hour
Levermen	\$2.75
Engineers	2.70
Derrick Operators	2.50
Mates	2.05
Firemen	1.80
Boys	1.75

HYDRAULIC DREDGES — 14" - 18"

Levermen	2.46
Welders	2.30
1st Engineer	2.24
2nd Engineer	2.14
3rd Engineer	2.02
Launchmen	1.81
Mate	1.80
Oilers	1.75
Deckhand, dredge	1.45
Shoremen	1.35

HYDRAULIC DREDGES — 12" & under

Engineer	1.90
Leverman	1.75
Assistant Engineer	1.50
Oiler	1.15
Mate	1.50
Laborer-Deckhand	1.15
Launchman	1.50
Steward	1.50
Mess Boy	1.25
Welder	1.50

DIPPER AND CLAMSHELL DREDGES

	Per Hour
Operator — Leverman	\$2.75
Cranemen	2.65
Welders	2.30
1st Engineer	2.10
2nd Engineer	2.00
3rd Engineer	1.85
Mates	2.05
Launchmen	1.81
Firemen	1.80
Breastwire Tenders	1.70
Scowmen	1.60
Deckhands	1.55

TUG BOATS

Tug Captain	2.40
First Engineer	2.40
Engineer	2.05
Tug Mates	2.15
Cooks	1.60
Deckhands	1.50

GALLEY CREWS — Dredge 14" and up

Cooks	1.75
Mess Cooks	1.53
Janitors	1.45

WATER SUPPLY IMPROVEMENTS, TARAWA TERRACE
at the
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA
CONTRACT NBy-46508

SECTION 1. GENERAL PARAGRAPHS

1.4 Form of Contract. At the end of the paragraph, add the following:

"Clause 2 of Standard Form 19A is deleted and the following clause is substituted therefor:

"WORK HOURS ACT OF 1962 -- OVERTIME COMPENSATION

"(a) No contractor or subcontractor contracting for any part of the contract work shall require or permit any laborer or mechanic to be employed on such work in excess of eight hours in any calendar day or in excess of forty hours in any workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all hours worked in excess of eight hours in any calendar day or in excess of forty hours in such workweek, whichever is the greater number of overtime hours.

"(b) In the event of any violation of the provisions of paragraph (a), the contractor and any subcontractor responsible for such violation shall be liable to any affected employee for his unpaid wages. In addition, such contractor or subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed, with respect to each individual laborer or mechanic employed in violation of the provisions of paragraph (a), in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of eight hours or in excess of forty hours in a workweek without payment of the required overtime wages.

"(c) The Contracting Officer may withhold, or cause to be withheld from any moneys payable on account of work performed by the contractor or subcontractor, the full amount of wages required by this contract and such sums as may administratively be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for liquidated damages as provided in paragraph (b)."

100-100000
100-100000
100-100000

UNITED STATES GOVERNMENT
DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D. C. 20535

The following information was obtained from the records of the Federal Bureau of Investigation, Department of Justice, Washington, D. C., on the above captioned matter:

On or about the date of the above captioned matter, the following information was obtained from the records of the Federal Bureau of Investigation, Department of Justice, Washington, D. C.:

The following information was obtained from the records of the Federal Bureau of Investigation, Department of Justice, Washington, D. C., on the above captioned matter:

On or about the date of the above captioned matter, the following information was obtained from the records of the Federal Bureau of Investigation, Department of Justice, Washington, D. C.:

The following information was obtained from the records of the Federal Bureau of Investigation, Department of Justice, Washington, D. C., on the above captioned matter:

On or about the date of the above captioned matter, the following information was obtained from the records of the Federal Bureau of Investigation, Department of Justice, Washington, D. C.:

NOTICE

Each bidder shall refer in his bid to all addenda to this specification; failure to do so may constitute an informality in the bid.

Atlantic Division, Bureau of Yards and Docks
U. S. Naval Station, Norfolk 11, Virginia
26 September 1962

W. C. G. CHURCH, RADM, CEC, USN
Officer in Charge of Construction

NOTICE

Notice is hereby given that the undersigned has been appointed as the agent for the collection of the estate of the late [Name], deceased, and that all claims against the estate should be presented to the undersigned within the time specified in the notice.

The undersigned is a resident of [Address] and is a member of the [Profession]. He is qualified to act as the agent for the collection of the estate of the late [Name], deceased, and is willing to accept the appointment.

WATER SUPPLY IMPROVEMENTS, TARAWA TERRACE

at the

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

CONTRACT NBy-46508

On the title page, in the upper left corner, under "NOTICE:" delete "District Public Works Office, Headquarters, Fifth Naval District" and substitute "Atlantic Division, Bureau of Yards and Docks".

Third line of the second paragraph, change "DPWO" to "DIRLANTDOCKS".

In the Table of Contents, delete "Section 13. Thermal Insulation" and substitute "13x. Gypsum Roof Plank".

SECTION 1. GENERAL PARAGRAPHS

1.4 Form of contract. At the end of the paragraph, add the following: "In Form 23A, paragraph (a) of clause 19 is amended to delete the words "and Executive Order 10582, December 16, 1954 (3CFR Supp.)". If this specification is included in a contract with an initial award amount of \$25,000 or more and this contract is for work to be performed in the 50 states of the United States or in Puerto Rico, the following paragraph hereby is added to NAVDOCKS Form 113, Additional General Provisions:

PRICE ADJUSTMENT FOR SUSPENSION, DELAY, OR INTERRUPTION OF THE WORK

(a) The contracting officer may order the contractor in writing to suspend all or any part of the work for such period of time as he may determine to be appropriate for the convenience of the Government,

(b) If, without the fault or negligence of the contractor, the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted by an act of the contracting officer in the administration of the contract, or by his failure to act within the time specified (or if no time is specified, within a reasonable time), an adjustment shall be made by the contracting officer for any increase in the cost of performance of the contract (excluding profit) necessarily caused by the unreasonable period of such suspension, delay or interruption, and the contract shall be modified in writing accordingly. No adjustment shall be made to the extent that performance by the contractor would have been prevented by other causes even if the work had not been so suspended, delayed, or interrupted. No claim under this clause shall be allowed (i) for any costs incurred more than twenty days before the contractor shall have notified

CONFIDENTIAL - SECURITY INFORMATION

MEMORANDUM FOR THE DIRECTOR, FBI

DATE: 10/15/54

TO: SAC, NEW YORK

FROM: SAC, NEW YORK

SUBJECT: [Illegible]

Reference is made to...

It is noted that...

On 10/10/54...

The following information...

It is suggested that...

Very truly yours,

[Illegible Signature]

Enclosure

the contracting officer in writing of the act or failure to act involved (but this requirement shall not apply where a suspension order has been issued) and (ii) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of such suspension, delay, or interruption but not later than the date of final settlement of the contract. Any dispute concerning a question of fact arising under this contract shall be subject to the Disputes Clause."

1.9 Specifications and standards. At the end of the list of FEDERAL specifications, add the following new specifications:

SS-S-439	Slabs, roofing, precast, gypsum
TT-P-641b	Primer, paint, zinc dust-zinc oxide, for galvanized surfaces
TT-P-56b	Primer coating (primer-sealer) pigmented-oil

1.13 Minimum wage rates and other labor standards, Fourth line after "AB-894" insert "with Modification No. 1". Modification No. 1 is attached to this Addendum.

1.37 Information regarding Buy-American Act. Delete the paragraph in its entirety and substitute the following new paragraph therefor:

"1.37x Notice regarding Buy American Act (Sep 1962)

(a) The Department of Defense has changed its Buy American Act Rules. Generally speaking, exception from the Buy American Act will be permitted only in the case of nonavailability of domestic construction materials. A bid or proposal offering nondomestic construction material will not be accepted unless specifically approved by the office of the Secretary of Defense,

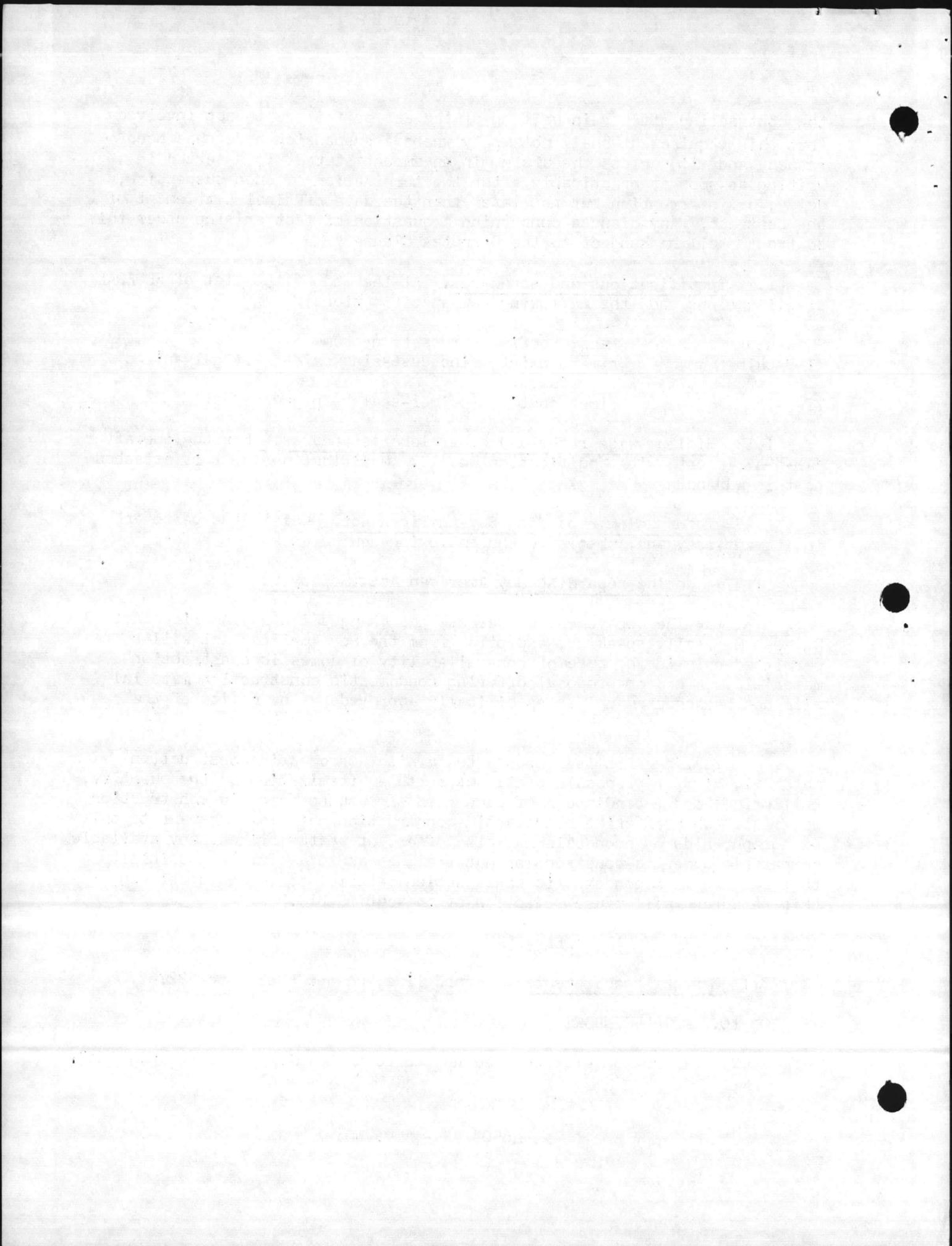
(b) Where it is proposed to furnish nondomestic construction material, bids or proposals shall set forth an itemization of the quantity, unit price, and intended use of each item of such nondomestic construction material. When offering nondomestic construction material pursuant to this paragraph, bids or proposals may also offer, at stated prices, any available comparable domestic construction material, so as to avoid the possibility that failure of a nondomestic construction material to be acceptable under this paragraph will cause rejection of the entire bid."

SECTION 7. STRUCTURAL STEEL WORK

7.1 General requirements. Second line, change "22Yc" to "22Ye".

SECTION 10. METAL WINDOWS

10.2.1 In the underlined heading, correct "Galzing" to read "Glazing".



SECTION 12. ROOFING, SIDING AND SHEET METAL WORK

12.2.4 Built-up roofing for application on insulation Delete the subparagraph in its entirety and substitute the following therefor:

"12.2.4x Built-up roofing for application on gypsum roof plank shall be Type 4TWS, Low slope asphalt and asphalt saturated felts may be used in lieu of coal tar pitch and tar saturated felts."

SECTION 13. THERMAL INSULATION

Delete the Section in its entirety and substitute the following therefor:

"SECTION 13X. GYPSUM ROOF PLANK

"13X.1 General requirements. Gypsum plank shall be in accordance with Type I roofing slabs, as specified in Federal specification SS-S-439, except as indicated or specified otherwise, and shall be 2 inches thick metal edge gypsum plank.

"13X.2 Clips and nails. The gypsum plank shall be secured to the joists with the plank manufacturer's standard galvanized clips. The quantity of clips shall be 200 clips per 1000 square feet of plank. Nails shall be 4d galvanized slaters or 1 inch smooth shank no. 11 gauge galvanized roofing nails. Two nails shall be used per clip.

"13X.3 Installation

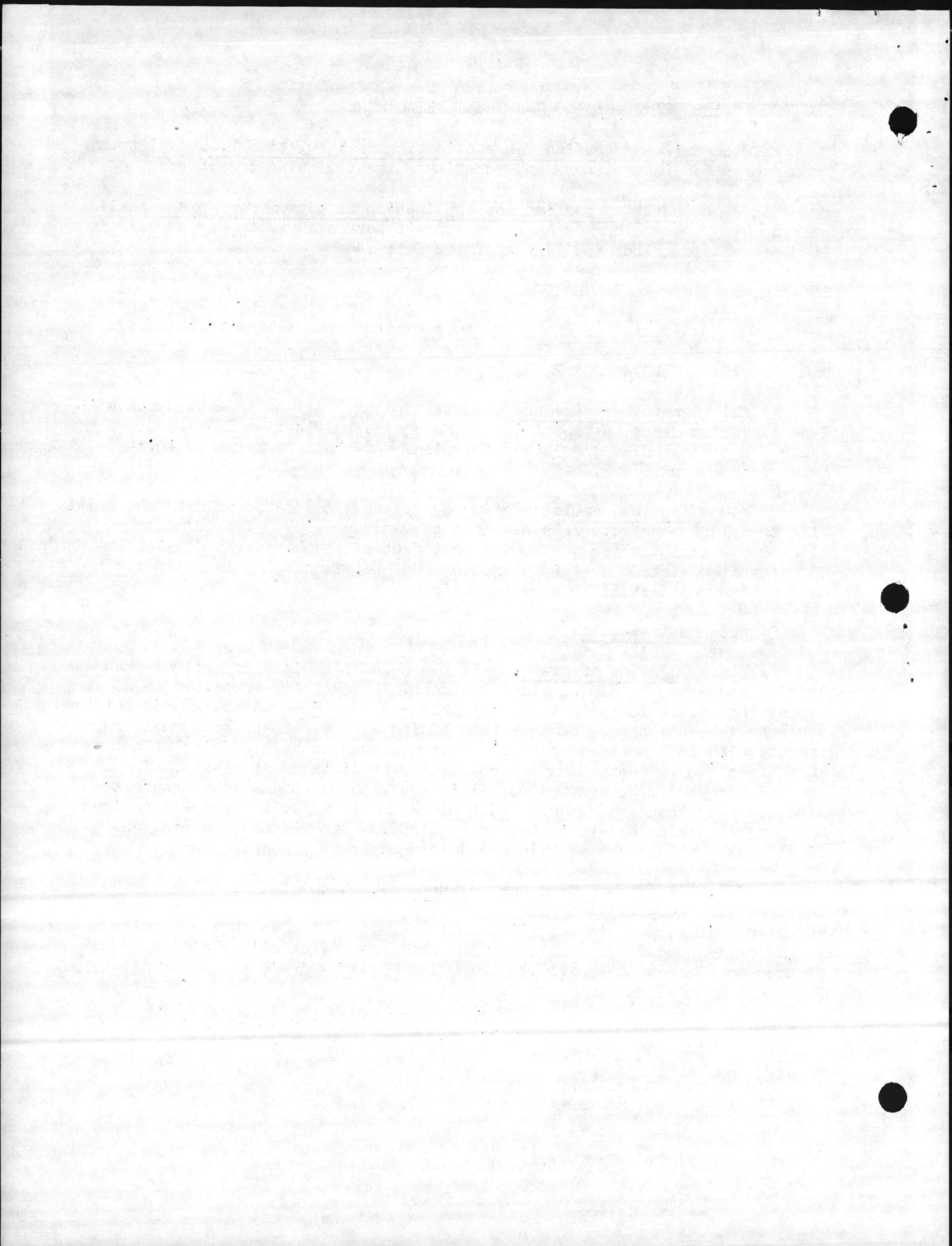
"13X.3.1 Placing of plank. All plank shall be laid dry with marked side up and with the GROOVE side advancing. Plank shall be placed on supporting steel with joints tightly interlocked. End joints in adjacent rows shall be staggered not less than 30 inches. Alternate rows shall be started with full units or cut peices long enough to have bearing at not less than two supports. End of rows shall be finished similarly. The remaining rows may be started (or finished) with cut plank long enough to have not less than one support. Cut plank to fit at walls, ridges, valleys and around openings as indicated or required. Plank in the starting and final rows shall be cut so that end joints occur over roof supports.

"13X.3.2 Anchorage of plank to supports. Each plank shall be anchored to supporting members with one galvanized clip at every point of support. Where possible, position of clips shall be alternated so that each clip is facing in opposite direction to the next one. Each clip shall be secured to plank with 2 nails."

---oOo---

SECTION 14. CARPENTRY

At the end of the section, add the following new paragraph:



"14.6 Ceiling insulation shall be mineral wool bats, Type I, Class B, conforming to specification HH-I-521c, having a "C" factor of 0.12. The insulation shall be placed over the entire ceiling area and shall be fitted between the ceiling joists."

SECTION 17. MECHANICAL EQUIPMENT

17.3.13 Gasoline engine... At the end of the subparagraph add the following: "The gasoline engine shall be installed in accordance with the requirements of National Board of Fire Underwriters Pamphlet No. 37."

17.3.14. Gasoline storage tank First line, after "constructed" insert "and installed".

SECTION 18. PIPING

18.1 General requirements. At the end of the paragraph, add the following: "Gasoline piping shall be installed in accordance with National Board of Fire Underwriters Pamphlet No. 30."

SECTION 19. INSTRUMENTATION AND CONTROLS

19.4.1 Transmitter. Add the following new subparagraph;

"19.4.1.1 Shut-down of pumps. The transmitter shall also be arranged to cause the pumps to shut down in the event of depletion of water supply in the ground level reservoir,"

SECTION 21. FIELD PAINTING

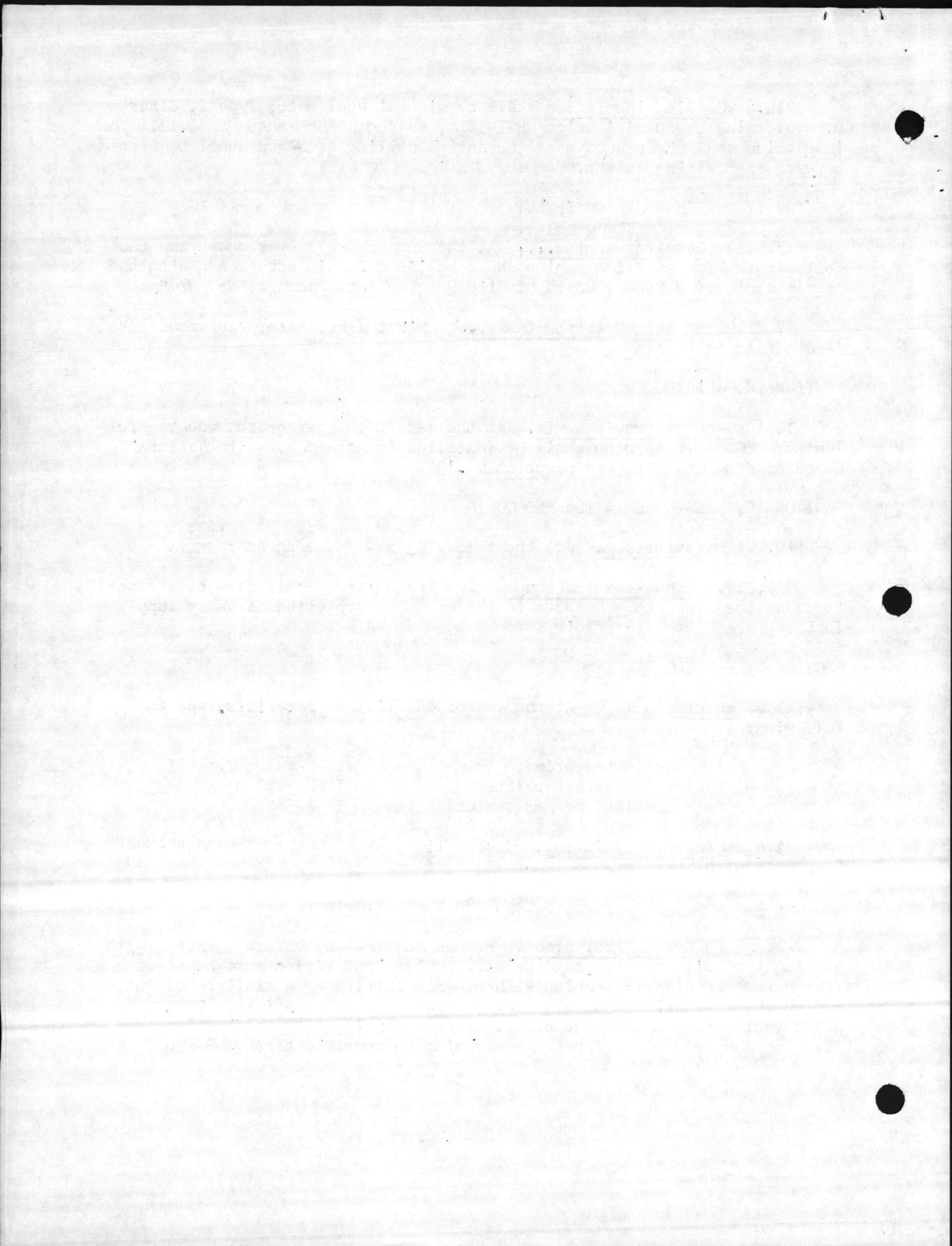
21.2 Materials At the end of the list of materials, add the following:

"Zinc dust metal primer	TT-P-641b, Type II
Interior latex-base paint	TT-P-29b
Primer coating (primer-sealer)	TT-P-56b"

21.4.2 Interior painting. Second line, after "gypsum board," insert "gypsum roof plank,"

At the end of the subparagraph add the following:

"(f) Gypsum roof plank. Planks must be dry before painting with sealing type oil or latex based paints. Galvanized edging must be freed from grease or oil by cleaning with mineral spirits or a similar solvent. Edging shall be painted with a coat of zinc dust metal primer. Gypsum plank shall receive one coat of a sealer conforming to specification TT-P-56b and two coats of paint conforming to specification TT-P-29b."



SECTION 23, BIDS

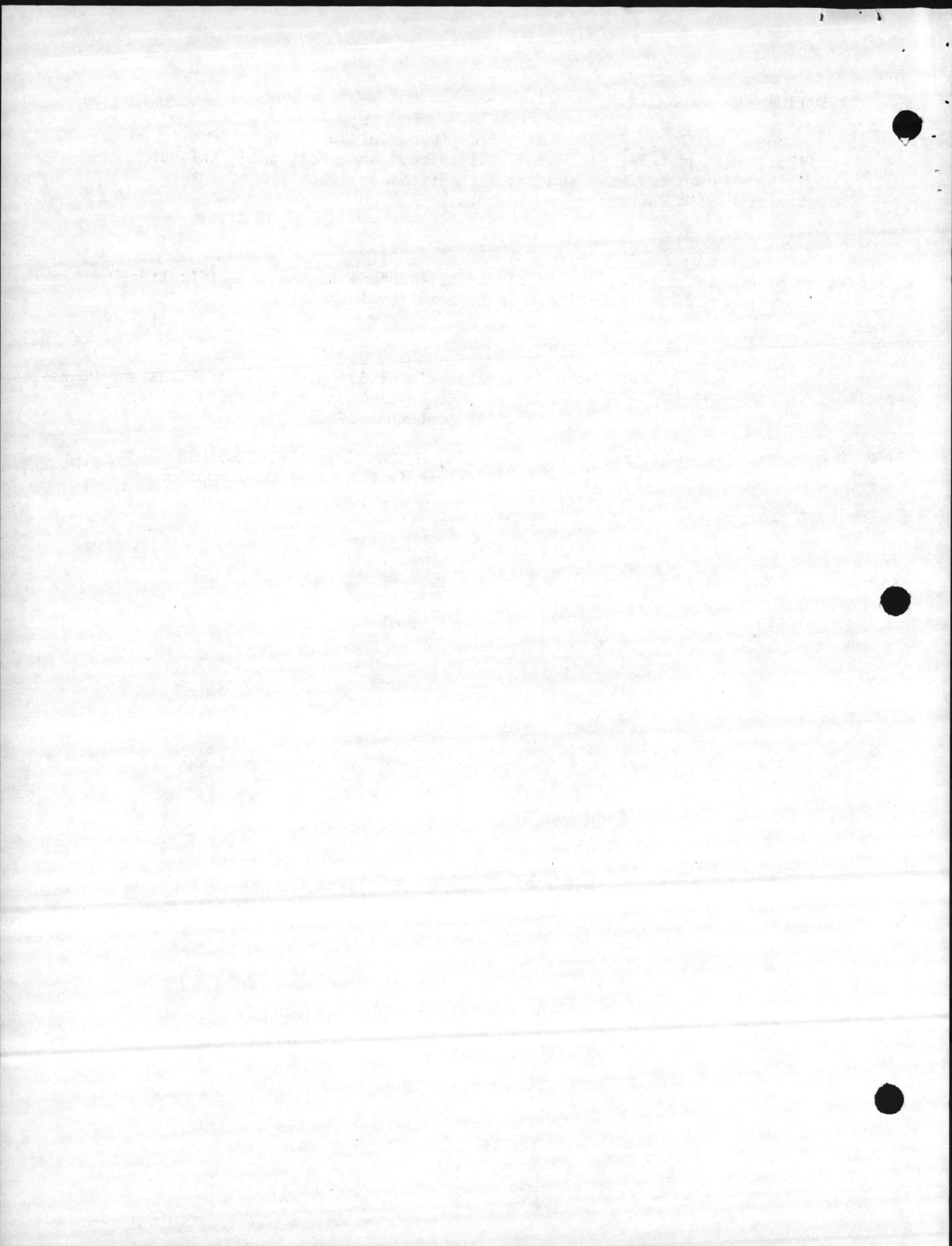
Under "NOTICE", second and third lines, delete "District Public Works Officer, Headquarters, Fifth Naval District," and substitute "Atlantic Division, Bureau of Yards and Docks", Fifth and sixth lines, delete "District Public Works".

NOTICE

Each bidder shall refer in his bid to all addenda to this specification; failure to do so may constitute an informality in the bid.

Atlantic Division, Bureau of Yards and Docks
U. S. Naval Station, Norfolk 11, Va.
25 September 1962

W. C. G. CHURCH, RADM, CEC, USN
Officer in Charge of Construction



U. S. DEPARTMENT OF LABOR
OFFICE OF THE SECRETARY
WASHINGTON

NOTICE OF MODIFICATION — DECISION OF THE SECRETARY

TO: Department of the Navy
Bureau of Yards and Docks

	DATE OF THIS MODIFICATION 8 - 7 - 62	MODIFICATION NO. 1
DESCRIPTION OF WORK Miscellaneous building construction (including incidental utilities and incidental paving), dredging and marine construction. 54A Camp Lejeune	DECISION NO. AB - 894	EXPIRES 10 - 26 - 62
	COUNTY Onslow	STATE North Carolina

Upon review of current data, changes as noted below are hereby directed. The rates in the enumerated wage determination decision, as amended by previous modifications, and as modified herein, are to be considered prevailing (or, in the case of the Federal Airport Act, as the minimum) in accordance with applicable law.

ADD: Apprentice Schedule

12 - N. C.

APPRENTICE SCHEDULE

PERIOD AND RATE *

Craft	Interval	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Bricklayers	6 mos.	40	45	50	60	70	80				
Carpenters	year	\$1.05	1.15	1.25	1.40						
Cement masons	6 mos.	50	55	60	65	70	75	80	85		
Electricians	6 mos.	45	50	55	60	65	70	75	80		
Ironworkers	6 mos.	50	60								
Ironworkers	year		66-2/3								
Plumbers & Steam fitters	6 mos.	37½	40	45	50	55	60	66½	75		
Sheet metal workers	6 mos.	40	45	50	55	60	65	70	80		
Soft floor layers	year	\$1.05	1.15	1.25	1.40						
Sprinkler fitters	6 mos.	63	66	69	72	75	78	81	84	87	90

* The apprentice rate is by percentage of the journeymen's rate unless otherwise indicated.

By direction of the Secretary,
/s/t/ CHARLES DONAHUE
Solicitor of Labor

DEPARTMENT OF LABOR
OFFICE OF THE SECRETARY
WASHINGTON

NOTICE OF APPEAL - DECISION OF THE SECRETARY

THE BOARD OF APPEALS HAS REVIEWED THE APPEAL OF [Name] AND HAS MADE THE FOLLOWING DECISION:

[Name] is entitled to a refund of the amount of [Amount] which was paid on [Date] for [Reason].

IT IS ORDERED that the amount of [Amount] be refunded to [Name] and that the [Agency] be reimbursed the same.

THIS ORDER IS SUBJECT TO THE APPLICABLE PROVISIONS OF THE FEDERAL LABOR RELATIONS ACT AND THE RULES OF THE BOARD OF APPEALS.

APPEAL FROM THIS DECISION MAY BE FILED WITH THE BOARD OF APPEALS WITHIN THE TIME PERIOD SPECIFIED IN THE NOTICE OF APPEAL.

FOR A COMPLETE LIST OF APPLICABLE PROVISIONS AND RULES, SEE THE FEDERAL LABOR RELATIONS ACT AND THE RULES OF THE BOARD OF APPEALS.

THE BOARD OF APPEALS IS COMPOSED OF THE SECRETARY OF LABOR, THE CHIEF OF BUREAU OF LABOR RELATIONS, AND THE CHIEF OF BUREAU OF EMPLOYMENT SECURITY.

NOTICE:
Bids to be opened at 2:00 P. M., EST
23 OCT 1962 at the District
Public Works Office, Headquarters,
Fifth Naval District, U. S. Naval
Station, Norfolk 11, Virginia

NAVDOCKS
SPECIFICATION
NO. 46508/62

WATER SUPPLY IMPROVEMENTS, TARAWA TERRACE

at the

Marine Corps Base, Camp Lejeune, North Carolina

CONTRACT NBy-46508

Appropriation: 17-97X4297.2570 ARRW

A priority rating shall apply to this contract upon award. The contractor will be required to follow the provisions of DMS Reg 1 and of all other applicable regulations and orders of Business and Defense Services Administration in obtaining controlled materials and other products and materials needed to fill this contract.

All questions concerning the bidding or any other phase of the plans and specifications occurring prior to bid opening shall be presented to the Engineering Division, DPWO, Building N-26, Room 345, U. S. Naval Station, Norfolk, Virginia, telephone MA 2-8211, extension 4481.

To inspect the site of the work before bid opening, prior appointment must be made with the Resident Officer in Charge of Construction, Jacksonville, North Carolina Area, Building 1005, Marine Corps Base, Camp Lejeune, North Carolina, telephone, Jacksonville, North Carolina, 346-2111, extension 7-5625.

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| 3. Earthwork | 15. Caulking |
| 4. Concrete Construction | 16. Glazing |
| 5. Brick and Concrete Masonry | 17. Mechanical Equipment |
| 6. Light Gauge Steel Construction | 18. Piping |
| 7. Structural Steel Work | 19. Instrumentation and Controls |
| 8. Steel Form Decking | 20. Electrical |
| 9. Miscellaneous Metal Work | 21. Field Painting |
| 10. Metal Windows | 22. Fencing |
| 11. Metal Doors, Frame and Hardware | 23. Bids |
| 12. Roofing, Siding and Sheet Metal Work | |

SECTION 1. GENERAL PARAGRAPHS

1.1 General intention. It is the declared and acknowledged intention and meaning to provide and secure Water Supply Improvements, Tarawa Terrace, complete and ready for use.

1.2 General description. The work includes the provision of a new pump house, approximately 23 by 36 feet, complete with pumping equipment, piping, controls, metering equipment and electrical services for power and lighting; the provision of two additional pressure filters complete with valves, piping and appurtenances; removal of existing pumping equipment together with piping and electrical services; and alterations and extension to yard piping, fencing and concrete walks. The work further includes alterations and repairs to the existing water plant building, renewal of asphalt shingles and built-up roofing, waterproofing exterior walls, interior and exterior painting, renewal of metal window screens and other incidental and associated work.

1.3 Location. The work shall be located at the Marine Corps Base, Camp Lejeune, North Carolina, approximately as shown. The exact location will be indicated by the Resident Officer in Charge of Construction.

1.4 Form of contract. The contract will be executed on U. S. Standard Form No. 23, January 1961, Construction Contract; U. S. Standard Form No. 23A April 1961, General Provisions; U. S. Standard Form No. 19A, January 1959, Labor Standards Provisions; and NAVDOCKS 113, revised June 1961, Additional General Provisions, with the following modification: the phrase "including connection charges" is inserted after the word "utilities" in the fifth sentence of Clause 30, Government Utilities, of NAVDOCKS 113.

1.5 Performance and payment bonds, executed on Standard Forms Nos. 25 and 25A, respectively, will be required as stipulated on the reverse side of U. S. Standard Form No. 20, January 1961, Invitation for Bids.

1.6 Time for completion. The entire work shall be completed within 180 calendar days after the date of receipt of a notice of award or any other communication authorizing the contractor to proceed.

1.7 Damages for delay in accordance with Clause 5 of U. S. Standard Form No. 23A shall be at the rate of \$50 per calendar day. The Government will take no action pursuant to Clause 5, Liquidated Damages to terminate the right of the contractor to proceed or to assess liquidated or actual damages where the failure of the contractor to complete the work within the time specified is due solely to the operation of the priorities and allocations system and is not otherwise caused by the fault or negligence of the contractor. It is understood and agreed that such delays will be considered an act caused by the Government and as such will be excusable within the meaning of Clause 5, and the contractor will be entitled to a time extension by reason thereof.

1.8 Drawings.

1.8.1 Drawings accompanying specification. The following drawings accompany this specification and are a part thereof. Drawings are the property of the Government and shall not be used for any purpose other than that contemplated by the specification. The drawings included with this specification are half-size. Full-size drawings are available at the bidder's or contractor's expense. Information on procuring these full-size drawings may be obtained from the Officer in Charge of Construction. Full-size drawings may be inspected during regular working hours, at the office of the Officer in Charge of Construction.

<u>Y&D Drawing No.</u>	<u>Title</u>
859314	Location and Index
859315	Site
859316	New Pump House and Fuel Tank Pit, Foundation and Floor Framing Details
859317	New Pump House Floor Plan, Elevations and Framing Details
859318	New Pump House, Miscellaneous Details
859319	Existing Plant and New Filter, Piping Plans and Details
859320	New Pump House, Piping and Equipment Layout
859321	Instrumentation and Controls
859322	Electrical
859329	Alterations to Existing Building

1.8.2 The following drawings are included for information purposes. They present the general construction of the existing water plant building and reservoir. The bidder is advised to visit the premises, determine existing conditions and the amount of work to be done.

<u>Y&D Drawing No.</u>	<u>Title</u>
613664	Water Facilities, 750,000 Gallon Reservoir
613655	Water Treatment Building
613656	Water Treatment Building

1.9 Specifications and standards. The specifications and standards in the following list, mentioned elsewhere herein, or referenced in these specifications or standards (including the addenda, amendments and errata listed) shall govern in all cases where references to specifications or standards are made. In case of difference between these specifications or standards and this specification or its accompanying drawings, this specification or its accompanying drawings shall govern to the extent of such difference, otherwise the specifications and standards shall apply. Extra care shall be exercised to refer in requests for quotations, in orders and in subcontracts to the specifications and standards and to all modifications thereof. The requirements for packaging, marking, packing and preparation for shipment or delivery included in the referenced specifications shall apply only to materials and equipment that are furnished directly to the Government and not to materials and equipment that are to be furnished and installed by the contractor. Unless specified otherwise in this specification, the following requirements included in referenced specifications are modified as follows:

- Radio interference suppression - not required
- Fungus control - not required
- Identification or name plate - manufacturer's standard acceptable
- Technical publications - manufacturer's standard acceptable
- Production test model - in lieu of tests performed on a production test model such tests, if required at the manufacturer's plant shall be performed on the equipment being furnished under this specification.

BUREAU OF YARDS AND DOCKS

7Yi	Feb 1962	Roofing, Siding, Sheet Metal Work; Dampproofing and Membrane Waterproofing
9Yg	Sep 1956	Electric Apparatus, Distributing Systems, and Wiring, including Addendum 1 and Change 2 to Addendum 1
10Yd	Dec 1960	Metal Windows (Steel and Aluminum) and Addendum 1
13Yf	Dec 1960	Concrete Construction
22Ye	Jan 1962	Structural Steelwork
28Yd	Jan 1960	Carpentry and Woodwork
32Yb	Jun 1961	Metal Doors, including Addendum 1
42Yb	Jan 1961	Drainage, Sanitary, Electrical and Water Service Appurtenances
49Ya	Dec 1961	Thermal Insulation for Buildings

MILITARY

When a number in parenthesis is suffixed to a Military specification, it denotes the effective amendment of the specification.

MIL-P-00735A	Primer Coating, Exterior Metal (yellow), Zinc Chromate, Alkyd Type
MIL-S-12935A	Sealer, Surface, Knot

MIL-P-15149	Paint, Stencil
MIL-C-15328B	Primer, Pretreatment (Formula No. 117 for Metals)
MIL-V-18436	Valves, Check
MIL-V-18634	Valves, Safety Relief (Shore Use)
MIL-V-18826	Valves, Globe and Angle, Cast Iron

FEDERAL

When a number in parenthesis is suffixed to a Federal specification, it denotes the effective amendment of the specification.

J-C-103b (2)	Cable, Power, Electrical, (Rubber-Insulated, Building-Type) and Wire, Electrical, (Rubber-Insulated, Building Type)
O-G-93	Galvanizing Repair Compound
W-P-131a (2)	Panelboards, Equipped with Automatic Circuit-Breakers
W-P-146 (1)	Panelboards, Equipped with Fuse-connections, or Switches and Fuse Connections
DD-G-451a (1)	Glass, Flat and Corrugated, for Glazing, Mirrors and other Uses
FF-H-106a (1)	Hardware, Builders, Locks and Door Trim
FF-H-116c (3)	Hinges, Hardware, Builders
FF-H-121c	Hardware, Builders, Door-Closing Devices
GG-G-76a	Gages, Pressure and Vacuum, Dial Indicating, (For Air, Steam, Oil, Water, Ammonia and Freon)
HH-F-341a	Filler, Expansion-Joint, Preformed, Nonextruding and Resilient Types (For Concrete)
HH-I-521c (1)	Insulation, Building, Mineral-Wool, Batts, Loose-Fill and Granular-Fill
HH-I-526a	Insulation Board, Thermal-Acoustical Mineral Wool (For Roofs)
QQ-L-00156a	Lead, Calking
QQ-S-741a (1)	Steel Plates, Shapes and Bars, Carbon, Structural
QQ-S-775b	Steel, Sheet, Carbon, Zinc-Coated
RR-F-183 (1)	Fence-Posts, Gates and Accessories
RR-F-191a	Fencing, Chain-Link Fabric
RR-F-221b (1)	Fencing, Barbed Wire, Woven Wire and Wire Netting
RR-S-141a (2)	Screening, Wire, Insect
SS-B-750b	Building Board, Asbestos-Cement, Corrugated
SS-C-188	Cement, Plastic, Fatty Acid Pitch Base
SS-C-192d	Cement, Portland
SS-Q-351	Quicklime, For Structural Purposes
SS-S-164 (1)	Sealer, Hot-Poured Type, For Joints in Concrete
SS-S-158a	Sealing Compoung, Cold Application Ready-Mixed Liquefier Type, For Joints in Concrete
SS-S-300	Shingles, Asphalt, Mineral-Surfaced, Uniform Thickness
SS-W-51a (2)	Wallboard, Gypsum
SS-W-00110	Water-Repellent, Colorless, Silocone Resin Base
TT-E-506c	Enamel, Tints and White, Gloss, Interior

TT-E-508 (4) Enamel, Interior, Semigloss, Tints and White
 TT-E-543 Enamel-Undercoat, Interior, Tints and White
 TT-P-21 (2) Paint, Cement-Water, Powder, White and Tints (For
 Interior and Exterior Use)
 TT-P-25a (1) Primer, Paint, Exterior (Undercoat for Wood, Ready-Mixed,
 White and Tints)
 TT-P-29b Paint, Latex Base, Interior, Flat, White and Tints
 TT-P-51e Paint, Oil, Interior, Flat, White and Tints
 TT-P-86c Paint: Red-Lead-Base, Ready-Mixed
 TT-P-102a Paint, Oil: Titanium-Lead-Zinc and Oil, Exterior,
 Ready-mixed, White and Light Tints
 TT-P-320a Pigment, Aluminum; Powder and Paste, for Paint
 TT-P-791a (1) Putty: Pure-Linseed-Oil, for Wood-Sash-Glazing
 TT-R-266a (1) Resin, Alkyd, Solutions
 UU-P-264a Paper, Concrete-Curing, Waterproofed (Kraft)
 WW-C-581d Conduit, Metal, Rigid; and Coupling, Elbow, and Nipple,
 Electrical Conduit: Zinc-Coated
 WW-H-171b Hangers and Supports, Pipe
 WW-P-421b Pipe, Cast-iron, Pressure (For Water and Other Liquids)
 WW-P-441b (2) Pipe, Wrought Iron (Welded, Black or Zinc-Coated)
 WW-T-799a (1) Tubing, Copper, Seamless (For use with Solder-Joint or
 Flared-Tube Fittings)
 WW-V-51a (2) Valves, Bronze, Angle, Check and Globe, 125-and 150-
 pound, Screwed and Flanged (For Land Use)
 WW-V-54 (2) Valves, Bronze, Gate, 125-and 150-Pound, Screwed and
 Flanged (For Land Use)

LLL-I-535 (1) Insulation Board, Thermal and Insulation Block, Thermal

GOVERNMENT

Government Safety Code

NON-GOVERNMENT

NOTE: Non-Government standards are not available for distribution by the Department of the Navy; application therefor should be made to the issuing organization. They may be examined at the office where the bids are being received.

American Institute of Steel Construction - Steel Construction Manual

American Iron and Steel Institute - Light Gauge Steel Manual and Design of Light Gauge Steel Structural Members

American Society Mechanical Engineers - Unfired Pressure Vessels

American Association State Highway Officials -

M-148-57
T180-57

American Society for Testing Materials -

A194-59T
A245-58T
A303-58T
A307-58T

C55-55
C62-58
C90-59
C91-59
C144-52T
C207-49

D1556-58T

American Standards Association - B16.3

American Water Works Association

C500-61
C504-58
C502

American Welding Society

Commercial Standard - CS120-58

National Board Fire Underwriters - Pamphlet No. 30

National Electrical Manufacturer's Association

Underwriters Laboratories, Inc.

1.10 Factory inspection. (See Clause 10 of U. S. Standard Form No. 23A and Clause 26 of NAVDOCKS 113). Factory inspection of material and equipment for which tests at the place of manufacture are required may be waived at the option of the Government, provided notarized copies of factory test reports are furnished that show compliance with the specification requirements. Factory inspection will not be required for lumber provided it is grade-marked and trade-marked by the association under whose rules it is graded, or provided it is accompanied by Certificates of Inspection issued by the association under whose rules it is graded or by another inspection agency that is satisfactory to the Officer in Charge. The Government reserves the right to charge to the contractor any additional cost of Government inspection and tests when materials and equipment are not ready at the time such inspection and tests are requested by the contractor.

1.11 Samples. The contractor shall submit for approval samples of the following and of such other materials and equipment as may be required whether mentioned specially herein or not.

1. Asphalt shingles

1.12 Information required of the contractor. The contractor shall submit for approval, and in accordance with Clause 25(f) of NAVDOCKS 113, such drawings, catalogue cuts and/or descriptive data as may be required. Shop drawings shall be submitted and approval obtained before commencing the fabrication of the work. Other data requested shall be submitted and approval obtained prior to installation of the item or associated item. Information shall include but not be limited to the following:

1. Reinforcing steel - shop drawings
2. Light gauge steel - shop drawings
3. Structural steel - shop drawings
4. Panelboards and switches - manufacturer's data and electrical characteristics
5. Electric motors and motor controllers - manufacturer's data and electrical characteristics including wiring diagram
6. Metal doors and windows - manufacturer's data
7. Insulation - manufacturer's data
8. Piping - shop drawings
9. Pumps - shop drawings, characteristic curves, and manufacturer's data
10. Filters - shop drawings, operational data and manufacturer's data

11. Instrumentation and controls:

- (a) Transmitter - shop drawings, manufacturer's data and operating data
 - (b) Receiver - shop drawings, manufacturer's data and operating data
 - (c) Pump programming control - shop drawings, manufacturer's data and operating data
 - (d) Venturi meter - shop drawings and characteristic curves depicting loss of head and efficiencies
 - (e) Wiring diagram depicting operation of functional components for each separate telemetering facility
 - (f) Existing raw water transmitter and receiver - shop drawings and manufacturer's data showing alterations for conversion to new capacity.
12. Valves - affidavit for compliance with AWWA standards
13. Auxiliary gasoline engine - shop drawings, characteristic curve and manufacturer's literature.

1.13 Minimum wage rates and other labor standards. The contractor shall pay mechanics and laborers employed or working directly upon the site of the work wage rates not less than those contained in the Wage Determination Decision of the Secretary of Labor No. AB-894, which is attached hereto. Any class of laborers and mechanics not listed in the Secretary's Decision, which will be employed on the contract, shall be classified or reclassified by the contractor or subcontractor conformably to the Secretary's Decision, subject to the approval of the Contracting Officer. Mechanics and laborers shall be classified in conformance with prevailing practice. In the event of any difference between the contractor and the Government concerning the proper wage rates to be paid, the classification of employees to conform to prevailing practice, the amount of wages due employees, or any other application or interpretation of the labor standards provisions of this contract, the differences shall be referred to the Contracting Officer (the Chief of the Bureau of Yards and Docks or his specially authorized representative), and the Contracting Officer shall determine the matter with advice from and reports to the Secretary of Labor as required by Department of Labor regulations. This determination shall not be appealable under the Disputes Clause, and the contractor shall promptly comply with the determination of the Contracting Officer. If the Contracting Officer determines that the contractor has not satisfied his obligations under the labor standards provisions of the contract, the Contracting Officer will forward a report on the violations to the Department of Labor and the Comptroller General for appropriate action.

1.13.1 Site work defined. Employment "directly upon the site of the work", referred to in 1.13 above, has been interpreted by the Secretary of Labor to include certain activities that, although physically located away from the geographical confines of the construction site, are nevertheless considered on site since they are set up for, and operated as an integral part of the construction work. These activities include, but are not limited to, operation of sand and gravel pits, rock crushers, material processing plants, batching plants and prefabrication plants that are established primarily to serve the needs of the particular contract work. Also, these activities include all hauling operations to and from the construction site when performed by employees of a contractor or subcontractor, but not when the hauling is performed by employees of a bonafide materialman who accomplishes such hauling in the due course of ordinary commercial supply operations. In the event of doubt as to whether particular anticipated work will be considered to be directly upon the site of the work within the meaning of the Davis-Bacon Act and this contract, bidders may obtain assistance from Regional Attorneys of the U. S. Department of Labor or from the Solicitor of Labor, U. S. Department of Labor, Washington 25, D. C.

1.13.2 Investigation of labor conditions. The Wage Determination Decision of the Secretary of Labor attached hereto is made a part of this contract solely for the purpose of setting forth the minimum hourly wage rates required to be paid by the Davis-Bacon Act and is not to be considered as a guaranty, warranty, or representation as to the Wage Determination Decision, the wage rates therein, the prevailing wages, or the availability of labor at the wage rates indicated. Bidders are advised to make their own investigations and to rely solely upon their own information as to local labor conditions, such as wage rates necessary to attract labor, the length of the work day and work week, overtime compensation, health and welfare contributions and available labor supply, and as to prospective changes or adjustments of wage rates or employment conditions in the area concerned which might affect the operations under the contract. Neither a mistake in attaching the Wage Determination Decision of the Secretary of Labor or in the determination or statement of the wage rates set forth therein, nor the payment of higher wage rates than those set forth therein shall entitle the bidder to the cancellation of his bid or contract, to an increase in the contract price, or to other additional payment or recovery, except when the Contracting Officer modifies the specified wage rates and when the requirements of the subparagraph 1.13.3 below are satisfied.

1.13.3 Modification of minimum wage rates. The Contracting Officer reserves the right to require the contractor to pay the minimum wages set forth in the Wage Determination which is applicable to this contract and in effect at the time of award (irrespective of the wage rates set forth in the specification) and, if necessary, to modify the contract accordingly. The Government shall not be liable to the contractor to increase the contract price or to make any other additional payment as a result of any such modification made by the Contracting Officer in the specified wage rates, except that an equitable contract price adjustment shall be made (1) when the contractor clearly demonstrates that his investigation of the wage rates at the site did not, and that a reasonable investigation could not, disclose that wage rates higher than those previously specified would have

to be paid, and (2) when the contractor clearly demonstrates that he actually and reasonably based his bid or proposal upon wage rates lower than those required to be paid by such modification.

1.13.4 Apprentices employed pursuant to this determination of wage rates must be registered in a bonafide apprenticeship program registered with a State apprenticeship council recognized by the Federal Committee on Apprenticeship, U. S. Department of Labor, or if no such recognized council exists in a State, it shall mean a program registered with the Bureau of Apprenticeship, U. S. Department of Labor. The ratio of apprentices to journeyman mechanics shall not exceed that recognized by the agency of registry as prevailing.

1.13.5 Posting of wage rates. Where compliance with Clause 1 of Form 19A requires posting the Wage Determination Decision in an exterior location, it shall, along with other documents required to be similarly posted, be displayed in a weatherproof display case.

1.14 Price adjustment for suspension, delay or interruption of the work.

1.14.1 The Contracting Officer may order the contractor in writing to suspend all or any part of the work for such period of time as he may determine to be appropriate for the convenience of the Government.

1.14.2 If, without the fault or negligence of the contractor, the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted by an act of the Contracting Officer in the administration of the contract, or by his failure to act within the time specified (or if no time is specified, within a reasonable time), an adjustment shall be made by the Contracting Officer for any increase in the cost of performance of the contract (excluding profit) necessarily caused by the unreasonable period of such suspension, delay or interruption, and the contract shall be modified in writing accordingly. No adjustment shall be made to the extent that performance by the contractor would have been prevented by other causes even if the work had not been so suspended, delayed, or interrupted. No claim under this clause shall be allowed (i) for any costs incurred more than 20 days before the contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply where a suspension order has issued) and (ii) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of such suspension, delay or interruption but not later than the date of final settlement of the contract. Any dispute concerning a question of fact arising under this contract shall be subject to the Disputes Clause.

1.15 Work outside regular hours. If the contractor desires to carry on work outside the regular hours or on Saturdays, Sundays or holidays, he must submit application to the Officer in Charge, but shall allow ample time to enable satisfactory arrangements to be made by the Government for inspecting the work in progress. At night he shall light the different parts of the work in an approved manner.

1.16 Optional requirements. Where a choice of materials and/or methods is permitted herein, the contractor will be given the right to exercise the option unless stated specifically otherwise.

1.17 Definitions. Where "as shown", "as indicated", "as detailed", or words of similar import are used, it shall be understood that reference to the drawings accompanying this specification is made unless stated otherwise. Where "as directed", "as required", "as permitted", "approved", "acceptance", or words of similar import are used, it shall be understood that the direction, requirement, permission, approval, or acceptance of the Officer in Charge is intended unless stated otherwise. As used herein, "provide" shall be understood to mean "provide complete in place", that is "furnish and install".

1.18 Approval of samples, cuts and drawings. Matter submitted for approval shall be accompanied by complete information concerning the material, articles and/or design proposed for use in sufficient detail to show compliance with the specification, and shall be approved before incorporation into the work. Approval thereof will not be construed as relieving the contractor of compliance with the specification, even if such approval is made in writing, unless the attention of the Officer in Charge is called to the noncomplying features by letter accompanying the submitted matter. Partial submittals or submittals of less than the whole of any system made up of interdependent components will not be considered. Approval of drawings, cuts and samples by the Officer in Charge shall not be construed as a complete check or approval of the detailed dimensions, weights, gauges and similar details of the proposed articles. The conformance of such details with the contract requirements, together with the necessary coordination of dimensions and details between the various elements of the work and between the various subcontractors and suppliers, shall be solely the responsibility of the contractor, approval of submitted matter notwithstanding.

1.19 Methods and schedules of procedure. The work shall be executed in a manner and at such times that will cause the least practicable disturbance to the occupants of the building and to the normal activities of the Base. Before starting any work, the sequence of operations, the methods of conducting the work and the schedule of the work shall have been approved. Should the contractor desire to modify the schedule during the construction period, such modifications likewise shall be approved. If the contractor proceeds without obtaining prior approval of the Officer in Charge, at the option of the Officer in Charge, any work accomplished shall be removed and replaced.

1.20 Operation of Base utilities. The contractor shall not operate nor disturb the setting of any control devices in the Base Utilities System, including water, sewer, electrical and steam services. The Government will operate the control devices as required for normal conduct of the work. The contractor shall notify the Officer in Charge, giving reasonable advance notice when such operation is required.

1.21 Examination of premises. Before submitting proposals, bidders are expected to visit and inspect the site of the work and satisfy themselves as to the physical conditions at the site; the general and local conditions, including availability of labor; the nature and extent of the work; the character and effect of existing adjoining and/or adjacent work; and other factors that can affect the cost of the performance of the contract to the extent that such information is reasonably obtainable.

1.22 Changed conditions. Wherever changed conditions as defined in Clause 4 of U. S. Standard Form No. 23A are encountered, and wherever conditions exposed during the course of the work necessitate a change from quantities indicated or specified as either estimated quantities or as a basis for bids, whether or not provision for a change in price for such variation is specified, the Officer in Charge must be notified in writing and written direction to do so must be obtained before quantities stated in the contract documents are exceeded.

1.23 Protection and repairs. The contractor shall comply with the fire prevention requirements, security rules and regulations of the activity; and shall provide approved means necessary for the protection of all Government or private property, including contents of buildings affected directly or indirectly by his operations. All damage to Government or private property, resulting directly or indirectly from the contractor's actions shall be made good by him without expense to the Government.

1.24 Existing work damaged or otherwise affected by the contractor's operations shall be restored to a condition as good as existed before the work was commenced, except where indicated or specified otherwise. Where new construction adjoins, connects to, or abuts the existing work, the junction shall be made in a substantial workmanlike and weathertight manner as the case requires. All new work shall match, as nearly as practicable, the existing adjoining and/or adjacent similar work unless indicated or specified otherwise. Except where specifically designated as being retained by the Government or to be reinstalled in the new construction, all materials, fixed equipment and/or debris resulting from demolition and removal operations, shall be removed by the contractor to designated areas at such times during the progress of the work as directed.

1.25 Lines and grades required for execution of the work shall be established by the contractor.

1.26 Payrolls and affidavits. The prime contractor, subcontractor and sub-subcontractors will be required to submit a copy of each weekly payroll together with a Contractor's Weekly Statement of Compliance covering the payroll to the Officer in Charge within seven days after the regular payment date of the payroll period. The receipt of these payrolls and statements is made a condition precedent to payment for any amounts due under the contract.

1.26.1 Payroll. The payroll shall be identified by the name of the contractor, contract number and the location of the site of the work. Payrolls shall state accurately and completely for each employee, his name,

classification, social security number, rate of pay, daily and weekly hours worked, wages earned, all deductions from such wages and the actual weekly wages paid. Contractors are required to submit employee's address with the payroll on which the employee's name first appears.

1.26.2 Contractor's Weekly Statement of Compliance shall be executed on the form furnished for the purpose by the Officer in Charge. Contractors shall list by title or name, all deductions made, omitting from the listing the dollar amount of the deductions.

1.26.3 A sworn affidavit accomplished by the contractor, stating that he and his subcontractors have complied with the labor standards provisions of the contract, must accompany each request for reimbursement. Affidavit forms will be furnished by the Officer in Charge.

1.27 Subcontractors and personnel. Promptly after the award of the contract, the contractor shall submit to the Officer in Charge, in triplicate, a list of his subcontractors and the work each is to perform. On this form shall appear the names of the key personnel of the contractor and subcontractors, together with their home address and telephone number for use in event of any emergency. From time to time as changes occur and additional information becomes available, the contractor shall amplify, correct and change the information contained in previous lists.

1.28 Storm protection. Should warnings of winds of gale force or stronger be issued, the contractor shall take every practicable precaution to minimize danger to persons, to the work, and to adjacent property. These precautions shall include closing all openings; removing all loose materials, tools, and/or equipment from exposed locations; and removing or securing scaffolding and other temporary work.

1.29 Safety requirements. A copy of the Department of the Army, Corps of Engineers, "Safety Requirements", referenced in Clause 24(d) of NAVDOCKS 113, may be examined on application to the office where the bids are being received. (Copies of this publication may be obtained upon application to the Office of Chief of Engineers, U. S. Army, Washington 25, D. C., at the established price.) Prior to commencement of the work, the contractor shall meet in conference with representatives of the Officer in Charge to discuss and develop mutual understandings relative to administration of the safety program.

1.30 Base regulations. The contractor will be required to comply with provisions of Marine Corps Base Orders issued by the Commanding General of this activity that pertain to his work. Information pertaining to these Base Orders will be supplied by the Officer in Charge prior to commencing work.

1.31 As-built drawings. On completion of the work, one print of each of the drawings accompanying this specification shall be neatly and clearly marked in red to show all variations between the construction actually provided and that indicated or specified in the contract documents, and delivered to the Officer in Charge. Where a choice of materials and/or

methods is permitted herein; and where variations in the scope or character of the work from the entire work indicated or specified are permitted either by award on bidding items specified for that purpose or by subsequent change to the contract; the as-built drawings shall define the construction actually provided. The representation of such variations shall conform to standard drafting practices and shall include such supplementary notes, legends, and details as may be necessary for legibility and clear portrayal of the as-built construction; the marked prints shall be subject to approval before acceptance.

1.32 Materials from Soviet-controlled areas. No materials, supplies, or manufactured products originating from sources within Soviet-controlled countries or areas shall be used, furnished or installed under this contract. The prohibited areas presently include: Albania, Bulgaria, China, including Manchuria (and excluding Taiwan (Formosa)) includes Inner Mongolia; the provinces of Tsinghai and Sikang; Sinkiang; Tibet; the former Kwantung leased territory, the present Port Arthur Naval Base area and Lisoning Province; communist-controlled area of Viet Nam and Communistic-controlled area of Laos, Cuba, Czechoslovakia, East Germany (Soviet zone of Germany and the Soviet section of Berlin), Estonia, Hungary, Latvia, Lithuania, North Korea, Outer Mongolia, Poland and Danzig, Rumania, Union of Soviet Socialist Republics.

(a) The contractor shall not acquire for use in the performance of this contract any supplies or services originating from sources within Soviet-controlled areas as listed above, or from Hong Kong or Macao, without written approval of the Contracting Officer.

(b) The contractor agrees to insert the provisions of subparagraph (a), including the Soviet-controlled areas listed above and this subparagraph (b) in all subcontracts hereunder.

1.33 Responsibility for testing. Where tests are specified to be made by the Government, the Government will make the initial tests at its expense. Should the initial samples fail to meet the requirements of the specifications, all succeeding tests of additional samples shall be made by an approved testing laboratory or agency at the expense of the contractor.

1.34 Schedule of prices. Within ten days after receipt of a notice of award or other advice to proceed, the contractor shall prepare and submit for approval a detailed breakdown of the contract price giving the quantities of the various kinds of work and the unit and the total price therefor. This breakdown shall be submitted to the Officer in Charge on NAVDOCKS Form 83 in octuplicate. The forms will be furnished by and shall be executed in a manner satisfactory to the Officer in Charge. The required data, when approved by the Officer in Charge, shall serve as a basis for estimating partial payments during the progress of the work, but shall not otherwise affect the contract terms.

1.35 Prints furnished to contractor. Five one-half size prints of each drawing accompanying this specification will be furnished the contractor without charge. Additional prints and full size prints required by the contractor shall be reproduced by him at his own expense.

1.36 Priorities, allocations and allotments. The contractor agrees, in the procurement and use of materials required for the performance of this contract, to comply with the provisions of all applicable rules and regulations of the Business and Defense Services Administration, including Defense Materials System Regulations. If the initial contract price hereunder does not exceed \$100,000 this project is made a rated order pursuant to DMS Regulation 2 and is assigned DO rating C-2. The contractor is hereby made a self-authorizing contractor as defined in Section 3(u) of that regulation and is required to use the self-authorization provision of Section 15 in obtaining controlled materials, as well as products and materials other than controlled materials needed to fill this rated order.

1.37 Information regarding Buy American Act.

1.37.1 Pursuant to the Buy American Act (41 U. S. Code 10 a-d), it is generally required that only domestic construction materials will be used in the performance of the contract. See Clause entitled "Buy American Act", of U. S. Standard Form No. 23A. This requirement does not apply to construction materials or their components, included in the list set forth in paragraph 6-206 of the Armed Services Procurement Regulation.

1.37.2 Additional exceptions are permitted if the Government determines as to particular construction materials that the requirement would be impracticable or would unreasonably increase the cost. Therefore, bids or proposals proposing the use of nondomestic construction materials (other than those referred to in paragraph 1.37.1 above), may be eligible for award if such nondomestic construction materials are specifically designated in the bid or proposal and if accompanied by data demonstrating that, as to each such designated nondomestic construction material, use of any corresponding domestic construction material would be impracticable or would unreasonably increase the cost. If the Government determines that an exception from the Buy American Act should be made, an exception for the particular construction materials designated will be noted in the contract and the findings which justified the exception may be inspected upon request.

1.37.3 To show that the use of a particular domestic construction material would unreasonably increase the cost, accompanying data must show that the cost of any available acceptable domestic construction material, delivered at the construction site, would exceed by more than six percent (6%) the cost of the designated nondomestic construction material delivered at the construction site (including any applicable duty). The accompanying data shall reflect a thorough canvass of dealers and suppliers handling the construction material involved.

1.38 Quarantine. The entire Camp Lejeune Reservation has been quarantined by the United States and North Carolina Departments of Agriculture for the White Fringed Beetle. Compliance with the quarantine regulations established by these authorities as set forth in the USDA Quarantine No. 72 and North Carolina State Quarantine No. 7 is required for operations hereunder. Pertinent requirements of the quarantine include the following.

1.38.1 Certification is required for the following articles and they shall not be moved from the Reservation unless accompanied by a valid inspection certificate issued by an authorized White Fringed Beetle Inspector.

(a) Soil, sand or gravel moved independently or attached to other articles, such as heavy equipment, including draglines, road grading machines, ditch diggers, bulldozers and equipment with tracks or cleats.

(b) Nursery stock, plants and sod.

(c) Scrap metal.

1.38.2 Authorization for movement of equipment shall be obtained from the Officer in Charge and requests for inspection shall be made sufficiently in advance of the date of movement to permit arrangements for the services of authorized inspectors. The equipment shall be prepared and assembled so that it may be readily inspected. Articles and materials requiring certification for movement shall be removed from the equipment by washing with water and such other means as are necessary to accomplish complete removal. Resulting spoil shall be wasted as directed.

1.39 North Carolina Sales and Use Taxes Clause for Construction Contracts performed in North Carolina.

The North Carolina Sales and Use Taxes on materials, equipment and supplies used in the performance of this construction contract with the United States are included in the contract prices as State taxes in effect and applicable to the performance of this contract in accordance with the contract General Provision entitled: FEDERAL, STATE AND LOCAL TAXES.

The Department of Justice contemplates litigation contesting the legality of the application of these taxes to construction contractors of the United States on the grounds that they discriminate against the United States and those with whom it deals.

Notwithstanding any other provision of the contract it is hereby expressly provided that:

(1) The Government reserves the right to direct the successful bidder to institute proceedings to contest these taxes and the contract price shall be equitably adjusted to cover the costs to the contractor of such action, including any reasonable attorneys' fees.

(2) If the contractor is not required to pay or bear the burden, or obtains a refund, in whole or in part, of these taxes, the contract price shall be correspondingly decreased or the amount of such relief or refund shall be paid to the Government, as directed by the Contracting Officer. The contract price also shall be correspondingly decreased if the contractor, through his fault or negligence or his failure to follow instructions of the Contracting Officer, is required to pay or bear the burden or does not obtain a refund of any such taxes, interest or penalty. Interest paid or credited to the contractor incident to a refund of taxes shall inure to the

benefit of the Government to the extent that such interest was earned after the contractor was paid or reimbursed by the Government for such taxes.

(3) The contractor shall maintain accurate records of all payments of North Carolina Sales and Use Taxes on materials and supplies used in the performance of this contract.

1.40 Construction equipment. Entry of construction equipment on the job site shall conform to the approved progress schedule. After entry on the job site, major construction equipment shall not be removed without approval of the Officer in Charge. Major construction equipment includes all equipment items more than two horsepower in size or not hand-held for operation.

1.41 Government work and material.

1.41.1 The Government will remove the existing chlorinating equipment from the chlorinator room and reinstall the equipment after the new floor slab is provided.

✓ 1.41.2 The Government through others will provide one pair of telephone wire for telemetering circuit from the terminal at the water tank site to terminal in instrument room of the water treatment plant.

✓ 1.41.3 The Government through others will provide new electric service drops to the new pump house and to the existing water treatment plant.

1.42 Special conditions.

1.42.1 It is intended that the water treatment plant remain in operation and that security of the area be maintained during the improvement work. The contractor shall carefully plan his operations to accomplish the work under these conditions.

1.42.2 It is necessary that the work be accomplished with a minimum of interference to the normal operations of the water treatment plant. The following procedure shall be followed.

(a) Work on new pump house shall not be started until all materials required for construction of floor system are on hand.

(b) The Government will drain the reservoir and leave it empty for a maximum period of ten days. The contractor shall expedite his operations and complete all work in the reservoir including alterations to existing roof, structural steel work, brick work, steel form decking, reinforcing steel, concrete floor slab, flashing and roof repairs. Openings in slabs for pump shafts and other equipment shall be temporarily sealed in a watertight manner to prevent possible contamination of the treated water. Upon completion of this work, the contractor shall sterilize the reservoir, as specified, and the reservoir shall be returned to service.

(c) Upon completion of pump house including pumping equipment and electrical work, connection shall be made to existing 12-inch main and valves installed and the main returned to service in such manner that both new and old pumps may be operated until the new equipment is tested under operating conditions.

(d) Piping and electrical work indicated for removal shall not be removed until similar replacement items are ready to be connected.

(e) Outages to electrical and water service shall not occur except as approved by the Officer in Charge. When outages are required, the contractor shall request them in writing at least 48 hours in advance giving the desired time and estimated length of outage, together with a schedule of work to be accomplished during the outage.

1.43 Salvageable items removed from existing work shall be delivered as directed. Distance of haul shall not exceed 10 miles.

1.44 Cleaning-up. Upon completion of the work, the contractor shall remove all debris from the site. All debris shall be hauled to a Government dump, a distance not exceeding one mile from the site of the work, and placed where directed and the premises shall be left free from all litter and refuse; exterior grounds shall be left in a raked, clean condition.

SECTION 2. DEMOLITION

2.1 General requirements. The work includes the removal of roofing materials on the existing water plant building, a portion of the roof construction over the existing concrete reservoir, concrete apron, concrete slab in chlorinator room and water pumps, together with suction and discharge piping, valves and fittings, concrete pump foundations, motors, gasoline engine and fuel tank, starters, switches, wiring, conduit and other incidental and associated items indicated, specified or required for accomplishment of the improvement work. The work of demolition shall be executed in a careful and orderly manner and the contractor shall provide all necessary safeguards for protection of those portions of the buildings and equipment that are indicated to remain in place.

2.2 Materials which have been removed and are not to be reused shall not be permitted to accumulate and shall be promptly removed from the site. Materials shall be hauled to selected sites as directed. All pumping equipment, piping, valves and fittings, gasoline engine, motors and all other electrical and mechanical items removed and not to be reused, shall remain the property of the Government and shall be delivered as directed.

SECTION 3. EARTHWORK

3.1 Elevations and obstructions. Bids shall be based on the following:

- (a) that the surface elevations are as indicated;
- (b) that no pipes or other artificial obstructions, except those indicated will be encountered; and
- (c) that hard material will not be encountered.

In case the actual conditions differ substantially from those stated and/or shown, the provisions of Clause 4 of Standard Form No. 23A respecting an adjustment for changed conditions shall apply, subject to the requirement of notification thereunder being given. Hard material shall be defined as solid ledge rock, boulders more than 1/2 cubic yard in volume or any cemented material requiring blasting for removal.

3.2 Topsoil shall be removed from all excavations having material suitable for topsoil. Topsoil shall be deposited in piles separate from other excavated material and shall be so located that the material may be used readily for finish surface grading and shall be protected and maintained until needed. Topsoil shall be spread uniformly over the ground in the areas where natural soil conditions has been disturbed by this contract.

3.3 Shoring and pumping. Excavations shall be shored and braced by members of suitable size and arrangements where necessary to prevent danger to persons or structures, injurious caving and erosion. Shoring, bracing and sheeting shall be removed as excavations are backfilled in a manner to prevent injurious cavings. Excavations shall be kept free from water while construction therein is in progress.

3.4 Excavation general. Excavations shall be made to the lines and grades indicated and shall extend a sufficient distance from walls and footings of structures to allow for placing and removing of forms, installation of services and for inspection.

3.5 Excavation for trenches. Trenches for pipe lines shall be excavated to the line and grade and, unless indicated otherwise, shall provide a minimum of six inches between the outside of the pipe and the sides of the trench or bracing, with a minimum width of trench of two feet. The bottom of the trenches shall be accurately graded to provide uniform bearing and support for each section of pipe and shaped to fit the lower 1/4 of the circumference of the pipe on firm soil throughout its length, except for portions of the pipe sections where it is necessary to excavate for bell holes and the proper sealing of joints. Such excavations shall be made after trench bottom has been graded. Minimum cover, unless indicated or specified otherwise, shall be two feet.

3.6 Filling, backfill and grading.

3.6.1 All backfill about structure shall be placed after the foundation wall has cured and shall be placed and compacted as directed.

3.6.2 Fill and backfill shall be constructed of approved materials and shall be free from vegetable matter, roots, refuse or other unsuitable material and the moisture content shall be of such that proper compaction will be obtained. If the mixture is excessively moistened by rain, it shall be aerated until the moisture content of the mixture is satisfactory. Fill shall be placed in layers of not more than six-inch thickness and thoroughly compacted to a minimum density of 95 percent at optimum moisture content as specified hereinafter. The mixture shall be compacted with pneumatic hand tampers. The surface layer shall be finished smooth and free from waves and inequalities.

3.6.3 Trench backfill. As soon as practicable after the pipe has been installed and joints have acquired a suitable degree of hardness, backfilling of the space between pipe and sides of the trench shall be packed by hand shovel with selected earth and thoroughly compacted with hand tamper as fast as placed up to a level one foot above top of pipe. The fill shall be placed uniformly on both sides of the pipe and neither horizontal nor vertical alignment of the pipe shall be disturbed. The remainder of the trench shall be filled with clean earth free from vegetable or other objectionable material and thoroughly compacted in layers not exceeding 12 inches in depth by mechanical tamping. If required, the backfill material shall be wet by sprinkling before tamping. Care shall be taken that lumps shall not become nested and that all voids between lumps shall be completely filled with fine material. No large masses of backfilling material shall be dropped into the excavation, as from a grab bucket, in such a manner as to disturb pipe or structure.

3.6.4 Grading. The contractor shall perform all grading in areas so indicated. Fill shall be brought to finished grades indicated and shall be graded to drain water away from structure. Existing grades which are to remain and which are disturbed by the contractor's operations shall be graded to provide surfaces suitable for the proper use of mowing machines.

3.7 Disposal of surplus material. Surplus material not required or unsuitable for fill, backfill or grading shall be wasted as directed; waste haul shall not exceed one mile.

3.8 Compaction tests. Wherever in the specifications, percentages of density are called for, the maximum density at optimum moisture content shall be determined in accordance with AASHO Standard Method T180-57. Determination of density of soil in place shall be made in accordance with ASTM Designation D1556-58T. Compaction test will be performed by the Government at no expense to the contractor.

3.9 Vegetation.

3.9.1 The work includes seedbed preparation in all areas specified to receive topsoil. Liming, fertilizing and seeding will be accomplished by others.

3.9.2 Seedbed preparation. The areas to be vegetated shall be prepared by plowing, heavy discing, or other approved equipment to thoroughly loosen the soil to a depth of four inches. After loosening the soil, all surface irregularities, where surface water could collect and pond, shall be smoothed out. A firm and compact seedbed is required, and after smoothing, it shall be lightly compacted with a land roller, such as a cultipacker. All tillage operations shall be as near on the contour as is practical.

SECTION 4. CONCRETE CONSTRUCTION

4.1 General requirements. Concrete construction, including reinforcing, shall be in accordance with Specification 13Yf, except as modified herein. Concrete for floor slabs shall be Class E-3/4. All other concrete except as specified or indicated otherwise shall be Class D-1. Horizontal wall steel not otherwise indicated shall return lap 18 inches at corners. Sidewalks shall be constructed as hereinafter specified.

4.2 Expansion joints and cleavage joints between vertical and concrete surfaces and slabs shall be 1/2-inch wide, unless otherwise indicated, and expansion joint material shall extend the full thickness of the concrete, except that at all exterior joints, it shall extend from the bottom of the slab to within 3/4-inch of the top of slab. Joints shall be filled with preformed joint filler conforming to Specification HH-F-341a. After concrete has cured, the top of the exterior joints shall be cleaned thoroughly and filled with joint filler conforming to Specification SS-S-164 or Specification SS-S-158a.

4.3 Surface finishes

4.3.1 All exposed surfaces cast against forms shall be given a special grout finish.

4.3.2 All exterior concrete pads, steps and slabs on grade shall be given a wood float finish.

4.3.3 All interior floor surfaces shall be given a dusted-on finish.

4.4 Setting miscellaneous material. All dowels, bolts, anchors, pipes, hangers, insets, sleeves, and all other material in connection with the concrete work shall be placed and secured in position, when practicable, before the concrete is placed.

4.5 Concrete sidewalks and driveways.

4.5.1 Materials.

(a) Concrete shall be Class D-1 normal concrete in accordance with Specification 13Yf, except that the water content shall not exceed 6.5 gallons per sack of cement.

(b) Joint filler shall conform to Type I, Class A, Specification HH-F-341a.

4.5.2 Forms shall be of wood or metal of the depth of the concrete, straight, or curved as required, free from warp or kinks and of sufficient strength. They shall be staked securely enough to resist the pressure of the concrete and of the finishing operations without springing. When ready for the concrete to be deposited, they shall not vary from true line and grade and shall be maintained in position until the concrete has set. All forms shall be cleaned and oiled each time before concrete is placed against them. Concrete shall not be placed until the forms have been inspected and approved.

4.5.3 Placing. Concrete shall be deposited on the prepared subgrade in approximately its final position, and spread by shovel. It shall be compacted thoroughly and brought to grade by screeding with an approved template. Concrete adjacent to the forms and expansion joints shall be tamped and spaded to prevent honey-combing along these surfaces.

4.5.4 Jointing.

(a) Expansion joints shall be provided between the ends and edges of sidewalks and all structures and pavement abutting thereto; and between the concrete of the sidewalks and any material passing through the sidewalks. They shall be 1/2-inch in thickness unless indicated otherwise. In addition, expansion joints shall be provided forming separate uniform slabs not more than 50 feet in length. The joint filler shall extend from the bottom of the concrete to within 1/8-inch of the finished surface. All expansion joints shall be fastened securely in place before concrete is placed, and if disturbed by the placing and finishing operation, shall be removed and re-set.

(b) Dummy joints shall be provided transversely to divide the walks into uniformed blocks not more than five feet in length. Dummy joints shall be cut to a depth of at least 1/3 the thickness of the concrete. They shall be formed by a "T" bar that will produce uniform edges, rounded as specified hereinafter. The edges of slabs and joints shall be rounded to 1/4-inch radius unless directed otherwise. Edging shall be accomplished after the water sheen has disappeared from the surface and before the concrete has attained its initial set.

(c) Finishing. Screeding shall be accomplished by advancing the template with a combined longitudinal and cross-wise motion, a small surplus of concrete being maintained ahead of the template. At expansion joints the template shall be worked in both directions away from the joints. Surfaces shall be sloped as indicated so that water shall drain readily from the surfaces. Prior to floating, all excess moisture shall be removed from the concrete surface. The surface shall then be worked with a wood float to produce a uniform texture. After the wood working, the surface shall be worked with a steel trowel to a smooth texture while the concrete is still plastic. After the steel troweling, just before the concrete becomes non-plastic, the surface of the slab shall be given a light broom finish. The broom shall be pulled gently over the surface of the sidewalk from edge to edge. Adjacent strokes shall be slightly over-lapped. Brooming shall be perpendicular to the center line of the sidewalk and so executed that the corrugations thus produced will be uniform in character and width. The broomed surface shall be free from porous spots, irregularities, depressions and small spots or rough spots, such as may be caused by accidentally disturbing particles of aggregate embedded near the surface.

(d) Curing. Concrete shall be cured by one of the following methods. The curing period for all damp curing methods shall be not less than seven days. Curing shall be applied as soon as the surface has set sufficiently so that it will not be damaged by the curing process.

(1) covering with wet burlap, straw or hay; the covering shall be kept saturated during the curing period;

(2) covering with concrete curing paper conforming to Specification UU-P-264a, Type I or II;

(3) ponding or continuous sprinkling;

(4) coating with transparent curing compound conforming to AASHO Designation M-148-57, applied in accordance with Specification 13Yf.

SECTION 5. BRICK AND CONCRETE MASONRY

5.1 General requirements. Masonry work of the types indicated shall be provided, and masonry work shall be properly coordinated with the work of other trades.

5.2 Materials. Cement, lime and other cementitious materials shall be delivered to the site and stored in unbroken bags, barrels, or other approved containers, plainly marked and labeled with the manufacturer's names and brands. Mortar materials shall be stored in dry, weathertight sheds or enclosures, and shall be stored and handled in a manner which will prevent the inclusion of foreign materials and damage by water or dampness. Masonry units shall be handled with care to avoid chipping and breakage and shall be stored as directed. Masonry materials shall be properly protected from contact with the earth and exposure to the weather, and shall be kept dry until used. Materials containing frost or ice shall not be used.

5.2.1 Common brick shall conform to ASTM Specification C62-58, Grade SW. The average dimensions of brick shall be within the range of 2-1/8 to 2-1/2-inches high, 3-3/8 to 4-inches thick, and 7-1/2 to 8-1/2-inches long, subject to the tolerances specified in ASTM Specification C62-58.

5.2.2 Concrete brick shall be Grade A conforming to ASTM Standard C55-55 and shall be natural color with surface texture matching that of the concrete masonry units. Size of brick shall conform to that specified for clay brick.

5.2.3 Concrete masonry units shall be Grade A conforming to ASTM Standard C90-59. The units shall be free from deleterious matter that will stain stucco, mortar, plaster or paint, or that will corrode ferrous metal. Cinders for aggregate is prohibited. All units shall have a coarse granular texture. Special units shall be provided as necessary, and shall be of the sizes and shapes suitable for the conditions for which they are to be used. Concrete masonry units may be air, water, or high pressure or high-temperature steam cured; air cured units shall be held in storage at the plant site a minimum of 28 days before use; high pressure and high-temperature steam cured block may be used after three days storage at the plant site. All concrete masonry units shall be protected and kept dry until used. All units shall be made by the same manufacturer of the same materials and by the same methods. The units shall be of uniform face dimensions nominally 8 by 16 inches of thickness indicated.

5.2.4 Special shapes, such as closures, header units, and jamb units shall be provided as necessary to complete the work, and shall conform to the applicable portions of the specifications for the units with which they are used.

5.3 Mortars.

5.3.1 Mortar for brick and concrete masonry unit work shall be mixed in the proportions by volume of one part Portland cement, one part lime paste, and six parts sand, or of one part masonry cement and three parts sand. The aggregates shall be introduced and mixed in such a manner that

the materials will be distributed uniformly throughout the mass, after which a sufficient amount of water shall be added gradually and the mass further mixed until a mortar of the plasticity necessary for the purpose intended is obtained. The mortar may be machine mixed in approved mixers of the type in which the quantity of water can be controlled accurately and uniformly. Mortar boxes, pans and/or mixer drums shall be kept clean and free of debris or dried mortar. The mortar shall be used so that it will be in place before the initial setting of the cement has taken place; retempering of mortar in which cement has started to set will not be permitted. The color of the cement and sand used in the exposed exterior work shall produce without the admixture of any coloring matter, a mortar of uniform shade.

5.3.2 Portland cement shall be Type I, conforming to Specification SS-C-192d.

5.3.3 Masonry cement shall be Type II, conforming to ASTM specification C91-59.

5.3.4 Lime paste shall be made with pulverized quicklime, or with hydrated lime, which shall be allowed to soak not less than 72 hours before use; except that hydrated lime, processed by the steam method, shall be allowed to soak not less than 24 hours and shall be made by adding the lime to the water. In lieu of hydrated-lime paste for use in mortar, the hydrated lime may be added in the dry form.

(a) Hydrated lime shall be Type S, conforming to ASTM Specification C207-49.

(b) Pulverized quicklime shall conform to Specification SS-Q-351, shall pass a No. 20 sieve, and 90 percent shall pass a No. 50 sieve.

5.3.5 Sand shall conform to ASTM Specification C144-52T.

5.3.6 Water for mixing shall be potable.

5.4 Mortar joints shall be uniform in thickness, and the average thickness of any three consecutive joints shall be 3/8 to 1/2 inch, unless specified otherwise. "Story poles" or "gage rods" shall be made and approved prior to starting the work, and shall be used throughout the work. Changes in coursing or bonding after the work is started will not be permitted. Exposed joints shall be tooled slightly concave with a round or other approved jointer, when the mortar is thumbprint hard. The jointer shall be slightly larger than the width of the joint, so that complete contact is made along the edges of the units, compressing and sealing the surface of the joint. Joints in masonry which will not be exposed shall be struck flush. Horizontal joints shall be tooled first. Joints shall be brushed to remove all loose and excess mortar. All horizontal joints shall be level; vertical joints shall be plumb and in alignment from top to bottom of wall within a tolerance of plus or minus 1/2-inch.

5.5 Work in freezing weather. Masonry shall not be laid when the air temperature is below 40 degrees F., on a falling thermometer, or when it appears probable that temperatures below 40 degrees F., will be encountered before the mortar has set, unless, subject to approval, proper precautionary measures are taken. Masonry work may be started at 34 degrees F., on a rising thermometer.

5.6 Workmanship. Masonry walls shall be carried up level and plumb all around. One section of the walls shall not be carried up in advance of the others, unless specifically approved. Unfinished work shall be stepped back for joining with new work; toothing shall not be permitted, except where specified. Heights of masonry shall be checked at sills and heads of openings to maintain the level of the walls. Door and window frames, anchors, pipes, and conduits shall be built in carefully and neatly as the masonry work progresses.

5.6.1 Brickwork. Brickwork shall be laid in common bond without through headers. The exterior and interior wythes shall be bonded together with an approved crimped or corrugated zinc-coated sheet steel ties not less than 0.034-inch thick by 7/8-inch wide by about seven inches long. Ties shall be placed not more than 24 inches on centers vertically and horizontally. All joints between bricks shall be filled completely with mortar. Bed joints shall be formed of a thick layer of mortar, which shall be smoothed or furrowed lightly. Head joints shall be formed by applying to the brick to be laid, a full coat of mortar on the entire end, or on the entire side, as the case requires, and then shoving the mortar covered end or side of the brick tightly against the brick laid previously; the practice of buttering the corners of bricks and then throwing mortar into the empty joints will not be permitted.

5.6.2 Concrete masonry unit work. Exterior walls shall be laid with the cells vertical. The first course shall be laid in a full bed of mortar for the full width of the unit; the succeeding courses shall be laid with broken joints. Concrete masonry units shall have the bed-joints formed by applying the mortar to the entire top surfaces of the inner and outer face shells, and the head joints formed by applying the mortar for a width of about one inch to the ends of the adjoining units laid previously. The mortar for joints shall be smooth, not furrowed, and shall be of such thickness that it will be forced out of the joints as the units are being placed in position. Where anchors, bolts, and ties occur within the cells of the units, such cells shall be filled with mortar or grout as the work progresses. Metal lath shall be placed under cells before they are filled. Concrete brick shall be used for bonding walls, working out the coursing, topping out walls under sloping slabs, distributing concentrated loads, backing brick headers, and elsewhere as required. Concrete masonry units shall not be dampened before or during laying

5.7 Wall coping. Terra-cotta wall coping shall be free from fractures, large or deep cracks, blisters and other defects. All wall coping corners, tees, closed ends and starters shall be provided as required for a complete watertight installation.

5.8 Cleaning. Upon completion, all masonry work shall be pointed where necessary. All exposed surfaces of exterior and interior brickwork shall be washed with a suitable solution of muriatic acid and rinsed thoroughly with clean water. All other work that might be damaged, stained or discolored shall be protected during the cleaning, and all work so affected by the process of cleaning shall be replaced.

SECTION 6. LIGHT GAUGE STEEL CONSTRUCTION

6.1 General requirements. Light gauge steel studs, channels, joists and incidental framing shall be designed in accordance with the Light Gauge Steel Manual and the Specifications for the Design of Light Gauge Steel Structural Members, latest revision, of the American Iron and Steel Institute. Connections shall be welded, unless otherwise indicated. All supplementary parts, miscellaneous fastenings and accessories necessary for the proper completion of the work are included.

6.2 Material. Steel shall conform to specifications ASTM A245-58T or ASTM A303-58T. Minimum thickness of material shall be .060 inch.

6.3 Connections. Connections shall be designed to transmit the maximum stress in the connected member with proper regard for eccentricity. Fusion and resistance welds shall be used and proportioned to conform to the referenced specifications. Welded connections shall be made in conformance with the code of the American Welding Society.

6.4 Fabrication. Fabrication shall be in accordance with the practice of modern structural shops. All materials shall be well formed to shape and size. Connecting members shall be cut along smooth lines for even, snug fit to provide proper surfaces for welding. Shearing or punching shall leave clean true lines and surfaces.

6.5 Handling and erection. Material shall be unloaded, stored and handled in a manner and with appliances and care that will prevent distortion and damage of the members and keep them clean and properly drained. Material that is damaged shall be replaced by and at the expense of the contractor. The various members forming parts of a completed frame or structure after being assembled, shall be aligned and adjusted accurately before being fastened. Erecting equipment shall be suitable for the work and shall be kept in first class condition. Members shall be set plumb and true, and temporary bracing shall be introduced wherever necessary to take care of all loads to which the structure may be subjected, including that of erection equipment and the operation of the same. Such bracing shall be left in place as long as may be required for safety. As erection progresses, the work shall be securely fastened to take care of all dead load, wind and erection stresses. All connections shall be made in accordance with the detailed shop drawings as furnished by the contractor and approved.

6.6 Shop painting. All steel framing shall be given a baked-on coat of rust-resisting red zinc-chromate or equivalent rust-resisting paint at the factory.

6.7 Field painting. All abrasions due to handling or erection shall be touched up in the field with a rust-resisting paint. All welds shall be sealed, cleaned and painted with a rust-resisting paint.

SECTION 7. STRUCTURAL STEEL WORK

7.1 General requirements. Steel work including shop painting, except as otherwise specified, shall be in accordance with Specification 22Yc, as specified or statically and dynamically loaded structures. Connections for which details are not indicated shall be designed in accordance with the latest edition of the Steel Construction Manual of the American Institute of Steel Construction. Connections shall be welded, except as indicated otherwise. Holes shall be provided where necessary for erection bolts and for securing other work to steel framing.

7.2 Structural steel shall conform to Specification QQ-S-741a, Type II, for welded work.

7.3 Fastenings. Bolts, clips, angles and other miscellaneous fastenings shown, specified or necessary for securing the work in place shall be furnished and installed.

7.4 Column cap plates shall be set accurately to elevations indicated using a grouting mortar to obtain uniform bearing on the concrete. Steel anchor bolts for securing the structural steel to existing concrete columns shall be provided as necessary.

7.5 Grouting mortar for setting base plates of steel columns or bearing plates shall be a non-shrinking type. Mortar shall be a mixture of one part blended Portland cement to two parts well graded fine aggregate and enough water to provide a stiff mix consistency suitable for the intended use. The blended Portland cement shall be a mixture of cement with 1/4-ounce of aluminum powder to each sack of cement. An acceptable and approved type of commercial expanding aggregate may be used with sand and normal cement in lieu of the above mix when proportioned and used in accordance with the manufacturer's recommendations. Surfaces to receive the mortar shall be clean and moistened thoroughly immediately before placement of mortar. Exposed surfaces of mortar shall be water cured with wet burlap for seven days.

7.6 Erection tolerances. Individual pieces shall be erected so that deviation from plumb or level shall not exceed one to 500.

7.7 Shop painting and surface protection. All structural steel work, except steel work which will be encased in concrete or mortar, shall be shop painted in accordance with the fabricator's standard practice. Surfaces, where the shop coat of paint has been damaged, shall be retouched using the same system as the original shop painting.

SECTION 8. STEEL FORM DECKING

8.1 General requirements. The work includes all material, equipment and labor required for the installation of high tensile steel sheets for forming concrete floor slab.

8.2 Material shall be ribbed or corrugated steel sheets not less than 0.024-inch thick with a tensile strength not less than 80,000 psi. Sheets shall be formed to a pattern of approximately 4-1/2 inches pitch by 1-5/16 inches depth. Section modulus per foot of width shall not be less than 0.136. Nominal overall width of sheets shall be not less than 30 inches with a cover width of approximately 27 inches. Sheets and accessories shall be hot-dipped, zinc-coated, 1.25 ounce per square foot coating class. Sheets shall be of lengths as necessary to span a minimum of three supports wherever practical.

8.3 Delivery and handling. Steel form decking shall be delivered, stored, handled, and installed in such manner that it will not be damaged or deformed. Special care shall be exercised not to damage or overload the roof deck during the concrete curing period. The maximum uniform distributed load shall not exceed 70 psf. The decking shall not be used for storage or as a working platform until the sheets have been welded in position. Decking stored at the site before erection shall be stacked on platforms, or pallets, and covered with tarpaulins, or other suitable weathertight covering.

8.4 Erection. Sheets shall be placed with corrugation edges up and with corrugations perpendicular to supports. Sheets shall be placed end-to-end along one side of building. Adjacent rows shall be placed in like manner, side lapping one corrugation with previously placed row. End laps shall occur over supporting beams and shall be centered over the support. Minimum end lap shall be two inches. Sheets shall be attached to supports by plug welding through special curved washers to supporting beam flange. Welded sheets shall have the following minimum welding requirements:

(a) end laps - weld top sheet in valley of side lap (through four sheet thicknesses) and again at middle of sheet;

(b) intermediate supports - weld in valley of side lap to every structural support;

(c) side laps - weld, bolt or clip not to exceed 36-inch centers.

A 16-gauge washer shall be placed in the rib or corrugation, atop the lapped sheets. The weld shall be made between the washer and the support. The electrode shall burn down through the sheets from the pre-punched hole in the washer to the support; a puddle weld shall be formed, penetrating into the support and flowing back up through the hole in the washer where an overlapping bead is formed. Decking sheets shall be weighted at the point of welding with sand bags or other suitable device to hold them in firm contact with each other and the steel supports. Special care shall be taken to secure solid welds without overburning the steel sheets. Proper size and type welding machine, electrodes and other welding equipment suitable for light gauge steel shall be used.

8.5 Cutting and fitting. Openings for pumps, pipes and other projections through the floor shall be cut and fitted neatly and shall be reinforced as necessary for rigidity and load-carrying capacity.

8.6 Repair of zinc-coating. All zinc-coating that has been damaged in welding shall be repaired by the application of stick or thick paste material conforming to Specification O-G-93. Areas to be repaired shall be cleaned, slag shall be removed from welds prior to making repairs. Surfaces to which stick or paste material is applied shall be heated with a torch to a temperature to melt the metallics in the stick or paste; the molten material shall spread uniformly over all surfaces to be coated and the excess material wiped off. Adjacent zinc-coated surfaces damaged by heat shall be repaired in the same manner.

SECTION 9. MISCELLANEOUS METAL WORK

9.1 General requirements. Miscellaneous metal shall consist of standard shapes of commercial quality. Cast iron shall be soft, tough, gray iron; castings shall have sharp corners and edges, and shall be clean, smooth and true to pattern. Welding shall be done in a manner that will prevent permanent buckling and all welds exposed in the finished work shall be ground smooth.

9.2 Workmanship and finish. Workmanship and finish shall be equal to the best practice of modern shops for the respective work. Exposed surfaces shall have smooth finish and sharp well defined lines and arises. Sections shall be well formed to shape and size with sharp lines and angles; curved work shall be sprung evenly to curves. All necessary rabbets, lugs, and brackets shall be provided so that the work can be assembled in a neat and substantial manner. Holes for bolts and screws shall be provided. Fastenings shall be concealed where practicable. Thickness of metal and detail of assembly and supports shall provide ample strength and stiffness.

9.3 Shop painting. All surfaces of steel and iron work, except zinc-coated work, and work with bituminous or other priming, shall be shop painted in accordance with the fabricator's standard practice.

9.4 Anchors and fastenings. Ties, anchors and other miscellaneous fastenings shown, specified or necessary for the securing of the work in place shall be furnished and installed.

9.5 Threshold shall be extruded aluminum, four inches wide and shall be countersunk for door bolts. Threshold shall be set in mastic and fastened with expansion screws not more than three inches from ends and staggered not more than eight inches on centers between end screws.

SECTION 10. METAL WINDOWS

10.1 General requirements. The work includes the provision of metal windows in the new pump house and the renewal of insect wire in metal screens on existing windows in the water plant building.

10.2 Metal windows. Metal windows shall conform to the applicable requirements of Specification 10Yd, except as specified otherwise herein, and shall be of the types and sizes indicated or specified. Windows shall be steel.

10.2.1 Glazing provision. Windows shall be designed for either inside or outside glazing with glazing clips and metal glazing compound.

10.2.2 Shop finish. Members shall be phosphate treated and shop primed.

10.2.3 Anchors and fastenings shall be provided as indicated, or as necessary to hold the windows firmly in position. Anchors and fastenings shall be built into, bolted to, or anchored otherwise to the heads, jambs, and sills of openings, and shall be fastened securely to the windows and frames. Anchors shall be the type recommended by the window manufacturer for the specific type of construction.

10.2.4 Windows shall be projected windows conforming to the requirements specified for commercial type steel windows.

10.2.5 Hardware for windows shall be malleable iron or hot-dip zinc-coated steel.

10.2.6 Insect screens, storm sash, and weatherstripping are not required.

10.3 Renewal of insect wire. Insect wire screening shall be removed from all existing steel screen frames and new insect wire screening provided. New insect wire shall be 18 by 14 mesh, Type III (bronze), conforming to Specification RR-S-141a.

SECTION 11. METAL DOORS, FRAME AND HARDWARE

11.1 General requirements. Metal doors and frame shall conform to the applicable requirements of Specification 32Yb, except as indicated or specified otherwise.

11.2 Hollow pressed steel frame shall be the full welded type.

11.3 Hollow metal doors. Doors shall be Type III industrial type doors and shall be a complete integral package unit with doors, frame and hardware. Hardware shall conform to the applicable requirements of Specifications FF-H-106a, FF-H-116c and FF-H-121c. One key tag and holder as hereinafter specified shall be provided for each key. Hardware shall be provided as follows:

3 pair hinges, Type T2127, USP, 4-1/2 by 4-1/2 inches
one lock set, Type 161A-4
1 chain bolt, Type 1021A, 6 inches long
1 foot bolt, Type 1021B, 6 inches long.

SECTION 12. ROOFING, SIDING AND SHEET METAL WORK

12.1 General requirements. The work includes the removal of existing asphalt shingles, nails and felt underlayment, and existing built-up roofing on water plant building and the provision of new asphalt shingles and built-up roofing; provision of built-up roofing on new pump house and on new addition to water plant; and alterations and renewal of existing flashing and the provision of new flashing, hatch covers, gutters, downspouts and other incidental and associated work. The work further includes the provision of corrugated asbestos-cement siding on exterior walls of the new pump house. Materials and methods of installation shall be in accordance with Specification 7Yi, except as indicated or specified otherwise.

12.2 Materials. Manufactured roofing materials shall be delivered to the site in the original sealed containers or packages bearing the manufacturer's name and brand designation. Where materials are covered by a referenced specification, the containers or packages shall bear the specification number, type and class as applicable.

12.2.1 Mineral-surfaced asphalt shingles shall weigh not less than 235 pounds per 100 square feet, and shall conform to the requirements of Specification SS-S-300, Type 2. They shall be strip shingles, 3-tab, 12 inches wide by 36 inches long and shall be of an approved self-sealing type; they shall be nailed with zinc-coated, large-head roofing nails as hereinafter specified. Color shall be off-white as approved by the Officer in Charge.

12.2.2 Nails for applying asphalt roofing and metal drip strips shall be large-headed, sharp-pointed, hot galvanized steel nails with barbed or otherwise deformed shanks. Nails shall be made of 11 or 12 gauge wire and heads from 3/8-inch diameter to 7/16-inch diameter. Nails for applying shingles and metal drip strips over existing wood deck shall be one inch long.

12.2.3 Built-up roofing for application on existing wood surfaces and on new wood surfaces shall be Type 4AWS.

12.2.4 Built-up roofing for application on insulation shall be Type 4A1S.

12.2.5 Aggregates for surfacing built-up roofing shall be slag or gravel.

12.2.6 Sheet metal for drip strips, gravel stops, hatch covers, metal flashing, gutters and downspouts shall be zinc-coated sheet steel, flat type, conforming to Specification QQ-S-775b for class d coatings and shall be not lighter than 24 gauge before forming and coating.

12.2.7 Corrugated cement-asbestos sheets and shapes for siding shall be Type A conforming to Specification SS-B-750b and shall be installed in accordance with the manufacturer's recommendations, except as indicated otherwise.

12.3 Removal of existing roofing materials. Where indicated, all existing asphalt shingles, roofing felt, roofing nails, built-up roofing and flashing shall be removed. The existing sheathing shall be cleaned as required to provide a clean smooth surface for the new roofing materials. Materials which have been removed shall not be permitted to accumulate and shall be promptly removed from the site. Materials shall be hauled to a Government dump; haul not to exceed one mile.

12.4 Application of shingles. All roof decks to which roofing is to be applied shall be dry, clean, smooth and free from projections that might puncture the felt. All felts and shingles shall be kept dry prior to and during installation. Storage loading of shingles on roofs or platforms shall be limited to 25 psf, uniformly distributed. The application of new roofing materials will not be permitted when the temperature is below 40 degrees F.; or when there is any ice, frost, surface moisture, or dampness visible on the roof deck.

12.4.1 Strip shingles. Galvanized metal drip strips, as indicated, shall be applied along the eaves. This strip shall be applied on the existing deck forming a drip edge and shall be secured with one inch roofing nails spaced eight to ten inches apart along the inner edge. Similar drip strips shall be applied at the rakes after the felt underlayment has been applied. A single layer felt underlayment shall be provided and shall be applied with two inch wide side laps and four inch end laps, secured with 3/4-inch zinc-coated roofing nails sufficiently to hold it in place until the shingles are applied. The underlayment shall be turned-up vertical surfaces not less than four inches and an additional width of felt shall be applied continuously over ridge of roofs and at all valleys and hips. A starter strip shall be applied along the eaves, overlaying and extending 3/8-inch beyond edge of the drip strip. Nailing shall be done in a line parallel to and three to four inches above the eave edge. The nails shall be placed so that the heads will not be exposed in the cutouts of the first course of shingles. Shingles shall be applied with five inch exposure and cutouts breaking joints at halves. A minimum of six nails shall be provided, placed one inch each side of cutouts and one inch in from strip ends and all nails located on a horizontal line 5/8-inch above the top of cutouts.

12.4.2 Ridge row shingles shall be applied over the ridges and hips. They shall be bent over the ridge or hip; extending six inches on each side; four inches shall be exposed to the weather. Shingles shall be heated as required in cold weather and shall be nailed on each side 1-1/2 inches from the side and five inches from the exposed end. Nails shall be concealed by the overlapping shingle.

12.4.3 Closed or woven valley. Valley construction shall be as follows: a 36-inch width of 55-pound or heavier rolled roofing shall be centered in the valley over the two layers of 15-pound underlayment. Valley shingles shall be laid over the lining, either (1) by applying them on both roofs at the same time, weaving each course in turn over the valley or (2) by covering each roof first to a point approximately three feet from the center of the valley and weaving the valley shingles in place later.

When following the first procedure, the first course shall be laid along the eave of one roof up to and over the valley, extending it along the adjoining roof deck for a distance of at least 12 inches. The first course shall then be laid along the eave of the adjoining roof and carried over the valley on top of the previously applied shingle. Succeeding course shall then be laid alternately, first along one roof deck and then along the other, weaving the valley shingles over each other. If the second procedure is followed, the valley shingles shall be woven in the same manner. Shingles shall be pressed tightly into the valley and nailed in the normal manner, except that no nails shall be located closer than six inches to the valley center line, and that two nails shall be applied at the end of each terminal strip. If necessary to avoid placing a nail too close to the center of the valley, a strip that would otherwise end near the center shall be cut short and a full length strip placed over the valley.

12.4.4 Field applied sealant. If the "seal-down" type of shingles approved does not provide the "seal-down" feature for the tabs of first row shingles, or if the ridge and hip shingles are not "seal-down" type, the tabs shall be sealed down in the field with plastic cement. The plastic cement shall be applied not less than 1/16-inch thick with two approximately one square inch dabs applied to each tab. Extreme care shall be exercised to keep the cement off the exposed surfaces of tabs. Each tab shall be pressed firmly into the plastic cement to insure bonding of the tab.

12.5 Performance of roofing and siding. In addition to the requirements specified, roofing, siding and flashing shall be completely weathertight. The contractor shall furnish in writing, warranties providing for repairs to roofing, siding and flashing at no additional cost to the Government, as follows:

(a) Built-up roofing. The contractor shall repair all leaks or defects in roofing and flashing materials and workmanship, appearing within one year of date of acceptance, except those caused by acts of God and/or improper use of the roof by the Government.

(b) Shingles. The contractor shall repair all leaks or defects in roofing and flashing materials and workmanship, appearing within one year of date of acceptance, except those caused by acts of God and/or improper use of the roof by the Government and as specified otherwise herein. In addition, self-sealing shingles shall be warranted by the manufacturer for a period of two years from date of acceptance. The warranty shall provide, that within the warranty period, if the self-sealing shingles tear, or blow off, because of winds of any velocity less than 75 miles per hour, as determined by the nearest United States Weather Bureau office, the manufacturer shall be responsible for (1) replacement of shingles including labor and materials of any shingles torn, damaged or blown off during the warranty period; and (2) hand sealing of any shingle tabs found to be free of adhesion during the last 30 days of the warranty period.

(c) Corrugated asbestos cement siding, after installation, shall be completely weathertight, free of abrasions, loose fasteners or deformations. The contractor shall correct all leaks occurring in the siding within one year from the date of acceptance by the Government.

SECTION 13. THERMAL INSULATION

13.1 General requirements. The work includes the provision of roof insulation with vapor barrier on roof of new pump house and the provision of insulation above ceiling of new addition to water treatment plant. Materials and method of installation shall be in accordance with Specification 49Ya, except as indicated or specified otherwise.

13.2 Material.

13.2.1 Roof insulation shall have a "C" factor of 0.24 and shall be one of the following:

(a) Rigid fiberboard (vegetable fiber) conforming to the applicable requirements of Specification LLL-I-535, Class C, except that it shall be treated chemically to resist decay, insects and fungus growth. The insulation shall be either bituminous impregnated or bituminous-coated on all surfaces. Bituminous coatings may be applied either in the factory, or in the field, subject to approval. Integrally treated insulation boards may be furnished optionally, if they provide a rate of moisture absorption equal to, or less than, the bituminous-coated or impregnated boards.

(b) Fibrous glass board shall conform to the requirements of Specification HH-I-526a having a bituminous impregnated kraft paper covering on the upper exposed surface and on the ends and having a density of not less than 11 pounds per cubic foot.

13.2.2 Ceiling insulation shall be mineral wool bats, Type I, Class B, conforming to Specification HH-I-521c, having a "C" factor of 0.12. The insulation shall be placed over the entire ceiling area and shall be fitted between the ceiling joists.

SECTION 14. CARPENTRY

14.1 Materials and method of application shall conform to the applicable requirements of Specification 28Yd, except as modified by the drawings and/or specification.

14.2 Lumber grades shall be as follows:

- (a) Framing and blocking - No. 2 dimension Southern pine.
- (b) Sheathing - T&G No. 2 boards Southern pine or T&G standard Douglas fir.
- (c) Trim and millwork - B and better Southern pine, C select Ponderosa pine or C select Northern white pine.
- (d) Plywood for panelboards - Exterior Douglas fir, Grade A-D or B-D.

14.3 Door shall be Grade 1F Ponderosa pine conforming to requirements of Commercial Standard CS120-58 and shall be stock design of the panel type. Door shall have 1-1/2 pair of butts, Type 2127 USP, 4-1/2 inches by 4-1/2 inches; and one knob latch, Type 161N in accordance with Specification FF-H-106a.

14.4 Gypsum wallboard shall conform to the applicable requirements of Specification SS-W-51a, except that it shall have tapered or recessed edges to allow for joint concealment by a perforated tape and cement system. Wallboard shall be nailed to framing members with 5d nails, spaced not more than six inches on center. All joints and nails shall be concealed and shall be completely invisible in the finished work. All joints shall be concealed by use of a perforated tape and cement system; nail and other surface defects shall be filled and concealed with subsequent coatings of cement.

14.5 Eave vents. Insect wire screening shall be 18 by 14 mesh, Type VII (aluminum) conforming to Specification RR-S-141a. Existing insect wire shall be removed and new insect wire provided on all eave vents.

SECTION 15. CAULKING

15.1 General requirements. The work includes caulking around new openings and recaulking around existing openings of all joints between wood trim and brick and concrete masonry surfaces at all doors, windows, louvers and other openings in walls; and where indicated or necessary to provide weatherproof and watertight construction. Unless otherwise specified, the caulking materials shall be applied with a gun in an approved manner.

15.2 Material. Caulking material shall be plastic cement conforming to Specification SS-C-188, and shall be non-staining and gray in color.

15.3 Preparation of surfaces. Joints and spaces to be caulked or recaulked shall be thoroughly dry before the caulking compound is applied and the joints shall be free from dust by swabbing with waste moistened with turpentine or mineral spirits. Where the joints or spaces are deeper than 3/4-inch, they shall be filled solidly to within 3/4-inch of the face with oakum.

15.4 Application. Caulking compound shall not be installed when the temperature is below 40 degrees F. All joints and spaces shall be filled completely with the caulking compound, forming neat and smooth beads with the edges flush with the adjoining surfaces and with the beads not extending more than 1/4-inch out beyond the face of frames or moldings.

SECTION 16. GLAZING

16.1 General requirements. Glass shall conform to Specification DD-G-451a. A good grade of commercial glazing compound shall be used for glazing metal doors and windows.

16.2 Door. Clear sheet glass, Type II, B quality 7/32-inch shall be used for glazing door.

16.3 Windows. Clear sheet glass, Type II, B quality, double strength shall be used for glazing windows.

16.4 Workmanship. All glass shall be accurately cut to fit the openings and shall be set with equal bearing on the entire width of the pane. Glass shall be properly bedded and backputtied and set without springing or forcing. Glass in doors shall be held in place with stop beads. The corners in putty shall be carefully made and all excess putty shall be removed and surface cleaned. On completion, all dirt and stains shall be removed and the glass shall be washed.

16.5 Puttying. Prior to repainting, all existing putty and glazing compound shall be carefully examined and all loose or misplaced material shall be removed and new putty and glazing compound provided.

SECTION 17. MECHANICAL EQUIPMENT

17.1 General requirements. The work includes provision of the new water pumps, complete with electric motors, motor controls, combination drive, auxiliary gasoline engine, gasoline storage tank and accessory equipment; provision of the new water filters and appurtenances; and removal of pumps, motors, gasoline engine and related equipment in the existing building. The equipment and materials provided shall be standard products that have been in regular production for a period of at least one year by a manufacturer regularly engaged in the production of equipment of this type.

17.2 Drawings and details. The contract drawings depict the general layout and arrangement of piping and equipment. Any modification of this general layout and arrangement to facilitate purchased equipment must be approved prior to purchase of equipment. Requests for modification shall be accompanied by detail plans and drawings depicting the proposed modification.

17.3 Pumps shall be the vertical turbine type, water lubricated and provided with a nonreverse ratchet to prevent reverse rotation.

17.3.1 Discharge head shall be of close grained cast iron of uniform quality, free from blow-holes, porosity, hard spots, shrinkage, cracks and other injurious defects and shall not be welded, plugged, or otherwise repaired. It shall be of the heavy duty type and designed for vertical hollow shaft drive and shall be adapted for use with electric motors, right angle gear drives or a combination thereof. The pump shall have flanged, above slab discharge.

17.3.2 Discharge column shall be of standard weight genuine wrought iron. It shall be in sections not to exceed ten feet in length. It shall be of proper diameter to eliminate undue friction when pumping at designed capacity.

17.3.3 Line shaft. The line shafting shall be ground and polished high grade steel of proper size to transmit the full horsepower of the pumping unit without distortion or vibration. The shaft shall be furnished in interchangeable sections not over ten feet in length and shall be fastened with threaded steel couplings having a strength of not less than 100 percent of the strength of the shaft after being assembled. The ends shall be machine finished and undercut for proper butting of the shafts. All threads shall be lathe cut.

17.3.4 Bearings. The guide assembly shall have sufficient guide bearings to maintain the alignment of the shafting and to prevent vibration. The bearings shall be spaced not over ten feet apart, and they shall be water lubricated rubber cut-and-throw type.

17.3.5 Bowls. The pump bowls shall be made of close grained cast iron, free from blow-holes and all other defects which would impair their strength or durability for the service, and shall be lined with vitreous porcelain enamel. Bowls shall have smooth, curved vanes to efficiently

direct the flow of water and to prevent air locking. The bowls shall be of suitable thickness and strength to withstand the shut-off pressure of the unit. Bowls shall be fastened together in such a manner that accurate alignment is assured and maintained. Guide passages for water shall be so designed and finished as to reduce friction to a minimum.

17.3.6 Impellers shall be of the enclosed type, of heavy construction, and lined with vitreous porcelain enamel. Each impeller shall be accurately fitted and perfectly balanced both dynamically and hydraulically. Impeller shaft shall be of high grade stainless steel, carefully ground and polished and furnished with lathe cut threads. No keyways shall be cut into the shaft. Impellers shall have non-overloading characteristics and shall have head characteristics as steep as possible so that an increase or decrease in the operating head above the design point will not cause an excessive decrease or increase in pump capacity. Impellers shall be attached and locked to pump shaft in such a manner that they may easily be removed, and that they will not work loose for any reason.

17.3.7 Suction pipe. The suction end of the pump shall be terminated with a bell-shaped intake as indicated.

17.3.8 Packing box shall be grease sealed with a suitable seal ring and shall be so designed as to assure tight packing without excessive wear or friction on the shafts and to prevent the leakage of air or water. Glands shall be of the split type and shall be easily removable for repacking.

17.3.9 Operating conditions. Each pump shall provide the indicated minimum capacity for the total dynamic head (TDH) shown. The TDH shown does not include pump losses and the contractor must allow for this additional head in providing capacity at the indicated efficiency. The rotational speed of the pumps shall not exceed 1800 RPM.

PUMPING CONDITIONS

<u>Pump No.</u>	<u>TDH</u>	<u>Minimum Capacity</u>	<u>Wire to Water Efficiency</u>
1	166	1250 gpm	70 percent
1	187	1050 gpm	68 percent
2	160	1000 gpm	70 percent
2	187	800 gpm	68 percent
3	154	750 gpm	70 percent
4	153	500 gpm	70 percent

17.3.10 Motors shall be of the vertical, hollow shaft, polyphase, squirrel-cage induction type and shall be designed to operate on 240 volt, 3 phase, 60 cycle current. Motors shall be continuous duty, open drip-proof, having a low starting current, and shall conform to the applicable

requirements of Specification 9Yg. Motors shall have ample capacity to properly operate their respective pump through its entire head capacity range without exceeding the temperature limits of NEMA and shall be rated on a basis of 40 degrees centigrade temperature rise. The motor base shall be flanged to match the pump head flange and shall be bolted and doweled in position. The motors shall be equipped with a heavy duty anti-friction type ball thrust bearing capable of carrying the hydraulic thrust of the pump and the weight of the rotating element and with a safety clutch to disengage the lineshaft from the hollow motor shaft in the event of reverse rotation.

17.3.11 Motor controllers. Each motor shall be provided with an auto-transformer type reduced voltage starter having a rating equal to or in excess of the motor. Starters for motors of 50 HP or less shall have taps for 50 percent and 65 percent voltage. Starters for motors having greater than 50 HP shall have taps for 50 percent, 65 percent, and 80 percent voltage. All starters shall be provided with a manual-off-automatic selector switch. They shall be equipped with a start-stop push button arrangement for operation on the manual position and shall be equipped with means of connecting remotely located indicating lights. The starters shall conform to the requirements of Specification 9Yg for NEMA Type I enclosure, and shall have three phase thermal overload protection and under-voltage release for use with a maintained-contact pilot device.

17.3.12 Combination drive. A combination electric motor and right angle gear drive shall be provided on Pump No. 1. The drive shall have the proper gear ratio to transmit the power from the engine to the pump at their normal operating speeds and shall be of the vertical, hollow shaft, spiral bevel gear type equipped with anti-friction bearings and a base flange matching the pump head flange. It shall be conservatively rated to transmit the maximum power requirements of the pump and be equipped with a heavy duty ball thrust bearing capable of carrying the hydraulic thrust of the pump and the weight of the rotating element. An oil reservoir of ample capacity shall supply adequate lubrication to the gears and bearings. A suitable motor stand shall be furnished which provides ample room for a sliding clutch for alternating the prime movers. The sliding clutch shall be mounted on the head shaft so the gears do not operate when the pump is driven by the electric motor. A non-reverse ratchet shall be incorporated in the clutch to prevent backspin in the event of reverse rotation.

17.3.13 Gasoline engine, for dual driven Pump No. 1 shall be a complete self-contained, multi-cylinder, water cooled, heavy duty gasoline power plant with maximum horsepower of at least 30 percent in excess of the maximum brake horsepower required to operate the pump continuously at its rated speed, over the entire head capacity range of the pump. The engine shall be arranged for motor cranking and shall be equipped with a high tension ignition system, battery, and required appurtenances, shall include an adjustable governor, carburetor, gasoline pump and filter, air cleaner, 18 ampere generator, oil filter, starting crank, exhaust pipe muffler, radiator and clutch take-off assembly.

17.3.14 Gasoline storage tank shall be constructed in accordance with NBFU Pamphlet No. 30 and shall bear the Underwriters' label. Tank shall have a capacity of 1000 gallons and be provided with fittings and accessories shown, including gravity tank and hand pump for filling gravity tank.

17.3.15 Exhaust pipe from the engine shall be carried through the wall of the pump house in an asbestos cement sleeve and a suitable muffler shall be mounted on the end of the exhaust pipe, one foot from the wall. The muffler shall be properly supported in an approved manner.

17.3.16 A metal instruction plate shall be mounted on the engine unit giving the manufacturer's recommendations for lubricating oil and other pertinent information.

17.3.17 Tests. Such field tests as required shall be made to assure that the equipment has been provided in conformity with the specifications.

17.3.18 Pump characteristic curves. The contractor shall submit for each pump for approval prior to ordering, certified characteristic curves prepared by the pump manufacturer, showing the capacities, heads, efficiencies and brake horsepower through the entire range of the pump.

17.3.19 Nameplates. A corrosion resistant metal nameplate shall be attached to each pump in a conspicuous place. The following information shall be plainly marked on the nameplate:

- (a) Name and address of the pump manufacturer
- (b) Speed
- (c) Capacity and head at maximum efficiency
- (d) Required horsepower
- (e) Serial number, model number and such other information as the manufacturer may consider necessary for complete identification.

17.4 Battery charger, electric type, shall be mounted on wall of pump house where directed and shall be the rectifier type for operation with 120 volt, 60 cycle current. Charger shall be protected by an automatic circuit breaker and shall have capacity to charge two six-volt batteries or one 12-volt battery at eight to five amps. One direct current ammeter shall be included and shall be flush mounted on the front of the enclosure. All metal parts shall be corrosion resistant or shall be suitably protected against corrosion.

17.5 Filters. The new water filters shall be manually operated, vertical, pressure type units, complete with all appurtenances. They shall be used for filtering the spiractor effluent water which is lime treated raw water derived from deep wells. The filters shall be a regular commercial product of the manufacturer or his supplier.

17.5.1 Filter tanks. The shells shall be of welded steel construction and conform to ASME rules for the construction of Unfired Pressure Vessels for 75 psi working pressure and shall be equipped with screw jack supports. Each shell shall have a manhole and handholes for permitting easy access to the entire interior and shall not be lined. Class 125 ASA flanged connections shall be provided for the unfiltered water inlet and filtered water outlet. A hand operated vent shall be placed on top of the shell.

17.5.2 Water distribution and collection system shall be the header-lateral underdrain type. The piping manifold shall be either wrought iron or brass and shall have stainless steel non-clogging nozzles. The filter service flow shall be downward and the backwash flow shall be reversed. Baffles shall be provided as necessary to prevent channeling of sand and gravel bed and to cause the water to have an even distribution across the filter media. Each filter shall have a self-propelled rotary surface washer to thoroughly agitate the media during filter backwashing. The tanks shall be designed to provide for a minimum expansion of 50 percent of the sand bed during a backwashing operation with a water rise rate of 30 inches per minute.

17.5.3 Filter media. Each filter shall be provided with an aggregate depth of at least 42 inches of a filtering media consisting of suitable grades of screened silica filter sand and gravel with layers apportioned approximately as follows:

- 22 inches of sand
- 4 inches of 1/8-inch to 1/4-inch gravel
- 4 inches of 1/4-inch to 1/2-inch gravel
- 8 inches of 1/2-inch to 1-inch gravel
- 4 inches of 1-inch to 1-1/2-inch gravel

The sand shall have an effective size of 0.45 to 0.55 millimeters with a uniformly coefficient of .70 (max) to 1.20 (min).

17.5.4 Loss of head. Immediately after backwashing and rinsing, the filters shall be capable of filtering service run water having a temperature of 60 degrees F. at a rate of three gpm per square foot of filter surface with a hydraulic head loss between the shell inlet and outlet nozzles not to exceed 1.5 feet. The inlet and outlet nozzles shall be provided with altitude gauges to permit visual observation of head loss at all times.

17.6 Operation and maintenance instructions. Five copies of manual covering each item of control equipment shall be furnished the Officer in Charge. The manual shall contain, but not limited to the following: operating instructions, illustrations, drawings, detail description, installation instructions, adjustments, tests, parts list, etc.

SECTION 18. PIPING

18.1 General requirements. The work includes the provision of all new pipe, fittings, valves and accessories and the modifications to existing piping.

18.2 General arrangement. Piping shall be placed to follow the general arrangement shown and shall be entirely out of the way of lighting fixtures, doors, windows and other openings. Any deviation from the arrangement shown shall be subject to approval and made at the contractor's expense.

18.3 Pipe.

18.3.1 Pipe larger than three inches, unless otherwise detailed, shall conform to the applicable requirements of Specification WW-P-421b for Class 150 pipe, and shall be coated inside and outside. Pipe shown with flanged ends shall have ASA Class 125 flanges.

18.3.2 Pipe three inches and smaller, except instrumentation tubing, shall be wrought iron pipe in accordance with Specification WW-P-441b, Class A. All pipe in this category, except the gasoline piping, shall be zinc-coated.

18.3.3 Instrumentation tubing shall be Type K in accordance with Specification WW-T-799a.

18.4 Fittings.

18.4.1 Fittings larger than three inches shall be ASA short body fittings. Flanged fittings shall have Class 125 flanges.

18.4.2 Fittings three inches and smaller, except for instrumentation shall be 150 pound malleable iron conforming to ASA Specification B16.3. All fittings in this category, except for gasoline piping, shall be zinc-coated.

18.4.3 Instrumentation fittings shall be flared end with a union connection provided for attachment to equipment.

18.4.4 Dresser-type couplings shall be black steel, sized to fit the pipe with which they are used and shall have center ring removed. Bolts shall have hexagon nuts.

18.5 Valves.

18.5.1 Gate valves.

(a) Gate valves larger than three inches shall be double disc type, non-rising stem, and shall conform to the American Water Works Association Standard C500-61. Valves shall be of one make and shall open by a counter clockwise rotation of the valve stem.

(b) Gate valves three inches and smaller shall be bronze wedged disc type in accordance with Specification WW-V-54, Type 2, Class A.

18.5.2 Check valves.

(a) Check valves for use with pipe larger than three inches shall be cast iron body, bronze mounted, Class 150, non-slamming type and shall conform to the applicable requirements of Specification MIL-V-18436, Type 2, Style A.

(b) Check valves three inches and smaller shall be Class A, Type IV, in accordance with Specification WW-V-51a.

18.5.3 Butterfly valves shall be rubber-seated, cast iron body, Class 125-8, conforming to AWWA Standard C504-58, with chain wheel operators.

18.5.4 Safety relief valve shall be in accordance with Specification MIL-V-18634, Class 2. The valve shall be designed for use with water at a working pressure of 65 psig. The valve shall be set to discharge at 100 psig. The valve shall have a cast iron body with a four-inch flanged 250-pound inlet connection and a six-inch flanged 125 pound outlet connection.

18.5.5 Globe valve shall be Type I, Class 125A with renewable disc in accordance with Specification MIL-V-18826.

18.5.6 Air release valve. Where indicated, an approved pressure air valve shall be provided to automatically permit air to escape while the pipe line is in service and under pressure. The valve shall be iron body, bronze mounted and designed for 125 pounds working pressure. The float shall be made of hard rubber with phosphor-bronze levers. The seat shall be hard rubber and plunger of hard quality soft rubber. The construction of the valve shall be such that valve seats may easily be replaced.

18.6 Hydrant shall be a standard type conforming to the latest specification, C502 of the AWWA. Depth of bury shall be three feet. Hydrant shall be six inches in diameter with five-inch clear opening through the valve and shall be provided with a 4.5-inch pumper connection and two 2.5-inch hose connections. Hydrant shall be of the frostproof and non-flooding type which will not flood in case the barrel or valve stem is damaged, with waste orifices for draining the hydrant when the valve is closed, and shall be of the type which opens against the water pressure. Hydrant construction shall permit 360-degree orientation without disturbing sub-surface setting. The hydrant shall be designed for 150 pounds working pressure or 300 pounds hydrostatic pressure and shall open counter-clockwise. All working parts shall be bronze. Hose and pumper connection threads and operating nut shall be National Standard. Hydrant shall be installed as shown on Plate No. 26 of Specification 42Yb.

18.7 Joints.

18.7.1 Flanged joints shall be made with flanges set perpendicular to the axis of the pipe and shall be removable without forcing or springing the pipe. Flange surfaces shall be true and unwarped planes. Gaskets shall

be of composition asbestos. Bolts shall be regular hexagon machine bolts of materials conforming to ASTM Specification A307-58T, Grade B, without heat treatment other than stress relief. Hexagon nuts shall be of materials conforming to ASTM Specification A194-59T.

18.7.2 Screwed joints shall have threads cut to conform to the American Standard for Taper Pipe Threads and not more than three threads on the pipe shall remain exposed. Pipe lubricant shall be applied to the male threads only.

18.7.3 Bell and spigot joints shall be made by placing spigot end firmly into bell, caulking braided hemp or jute into the aperture to prevent molten lead from entering the pipe and filling the remainder of the opening with molten lead. The lead shall not be less than 2-1/4-inches deep. The lead shall conform to Specification QQ-L-00156a.

18.8 Installation. Pipe laid underground shall be inspected prior to lowering into the trench. Defective, damaged or unsound pipe shall be rejected. Except when necessary for making connections with other lines, pipe shall be laid with the bells faced upgrade. Pipe shall be laid on a bed of firm material and the backfill shall be hand tamped to a depth of one foot above the pipe. Where cutting of pipe is necessary, it shall be done with approved mechanical cutters in a manner that will not damage the pipe. The interior of all pipe and fittings shall be thoroughly cleaned of debris and foreign matter prior to installation, and kept clean through the installation operation. When work is not in progress, open ends of pipes and fittings shall be secured with plugs or other approved methods in such a manner as to prevent water or other foreign matter from entering the pipe.

18.9 Pipe supports and braces. All piping shall be supported in a manner to adequately carry the weight of the lines and maintain proper alignment. Exposed piping shall be adequately supported from floor, ceilings, or walls as shown or required to prevent excessive vibration and undue strains on equipment served. Hangers, unless shown otherwise, shall conform to Specification WW-H-171b, Type 11. Tie rods and collars shall be provided where indicated and shall be given a heavy coat of bituminous prior to backfilling. Underground bends shall be braced with standard thrust blocks conforming to Specification 42Yb, except as indicated otherwise.

18.10 Gauges shall be Class 2, Type A, bronze case at least 4-1/2 inches in diameter with a black dial in accordance with Specification GG-G-76a. Dial graduation shall indicate altitude (0-160 feet). Gauges will not be panelboard mounted. Each gauge shall be provided with a gauge cock.

18.11 Valve boxes. Each valve on underground piping shall be provided with an adjustable cast iron roadway box of a size suitable for the valve on which it is used. The head shall be round and shall have the word "WATER" cast upon it. The least diameter of the shafts of the boxes shall be 5.25-inches. Boxes shall be given a heavy coat of bituminous paint.

18.12 Chlorine solution facilities.

18.12.1 Chlorine solution distribution panel shall be the standard product of a manufacturer for use with chlorine solutions and shall be the "two-in and two-out" type. Valves, fittings and piping shall be hard rubber or PVC mounted on a steel or plastic panelboard.

18.12.2 Chlorine solution hose shall be the wrapped type, reinforced to withstand a pressure of 125 psi.

18.12.3 Diffuser shall be a silver solution tube. Corporation cock shall be equipped with a packing gland, providing a watertight connection.

18.12.4 Manholes shall be constructed as indicated. Materials and workmanship shall be in accordance with Specification 42Yb. Vitrified clay conduit shall be standard vitrified clay bell and spigot pipe with oakum and cement mortar joints.

18.13 Sterilization. Every precaution shall be exercised to protect the existing distribution system from contamination and the entrance of foreign material.

18.13.1 Piping and equipment. Before being placed into service, all new piping, equipment and connections to existing piping and equipment shall be thoroughly swabbed with a strong chlorine solution, or placed in contact with a strong chlorine solution, or both, as directed, in an approved manner.

18.13.2 Reservoir. Before being placed in service, the reservoir and piping shall be flushed out and scrubbed with scrub brushes and rinsed. After rinsing, the interior surface of the reservoir, outer surface of all pipes, columns, valve and appurtenances and manhole steps shall be mopped or sprayed with a strong chlorine solution and allowed to stand for four hours. The reservoir shall be given a final flushing prior to filling.

SECTION 19. INSTRUMENTATION AND CONTROLS

19.1 General. All materials and equipment shall be new and unused, unless otherwise shown or specified. The work includes provision of the following facilities complete with piping, tubing, electrical wiring and all related accessories necessary for proper facility function:

(a) Telemetering facility for determining and recording the depth of water in the elevated tank and for automatically operating the high lift pumps using the depth of water as a basis of control.

(b) Metering facility for determining and recording the rate and quantity of treated water delivery.

(c) Metering facility for determining and recording the depth of water in the reservoir.

(d) Modifications to the existing raw water metering facility.

(e) Panelboard with the pertinent instrumentation components mounted thereon to facilitate observation, analyzation and control of the various plant operations.

19.2 Telemetering and water pump controller facility. The contractor shall provide at the elevated water tank telemetering transmission equipment complete with all appurtenances, electrical connections, piping connections and shelter. The transmitter shall continually dispatch signals on Government leased telephone lines and terminal cabinets which are also used for voice transmission, to the receiving and pump controlling equipment as described in these specifications and to be provided by the contractor at the water treatment plant. The transmission equipment shall be designed to dispatch signals relating the water level in the elevated tank to the receiving and pump controlling equipment in a manner that will not interrupt or interfere with voice transmission on the remaining telephone lines or be otherwise detrimental to the use of the remaining telephone lines for voice transmission.

19.2.1 Transmitter. The transmitter shall be housed in a suitable metal wall mounted, moisture proof case and shall incorporate an adjustable pressure measuring element which shall be subjected to a total head of 142 feet which includes a suppression head of 113 feet and an operating range of 29 feet. The transmitter shall send out mechanically timed direct current electrical impulses, the duration of which shall be proportional to the measured pressure. The signal dispatched by the transmitter shall reflect the level of the water in the tank within an accuracy of 16 inches.

19.2.2 Receiver and pump controller. The receiver shall be the indicating recording type and shall have a circular recording chart approximately 12 inches in diameter for 24 hour rotation with graduations uniformly spaced from 0 to 30 feet. The receiver shall have incorporated with it, or in an auxiliary control box, a pump programming control equipped with mercury switches actuated at the receiver by the transmitted duration signals to

provide adjustable start and separate adjustable stop contacts wired, in each case, into the operating coil circuit of the respective pump motor magnetic starter. The pump programming control shall be designed to operate the four pumps automatically as determined by the water level in the tank, the limits of which shall be adjustable, and shall be in accordance with the sequence of operations indicated. The receiver and pump programming control shall be housed in a suitable panelboard mounted metal case or cases and shall have doors providing easy access to all parts with glass in front of the recording chart and in front of the indicator. The equipment shall also include warning and indicating systems to indicate a tele-metering reception outage, to indicate a high water level condition to be incorporated as outlined below.

(a) There shall be provided an alarm system with a horn mounted on the panelboard so circuited with the receiver that in the event of signal failure between the transmitter and the receiver, the horn will blow. The horn shall be provided with a manually operated cut-off switch which may be used to interrupt the horn signal; otherwise the horn will blow throughout the duration of a receiver signal outage.

(b) There shall be provided on the panelboard a bell which shall be so circuited with the receiver that the bell will ring when all pumps are shut off as caused by the water in the elevated tank reaching its upper limit. The bell shall be provided with a manually operated cut-off switch which may be used to interrupt the bell signal; otherwise the bell shall ring throughout an "all pumps off" condition as caused by the water level in the tank being at its upper limit.

19.3 Metering facility for delivery of treated water. The contractor shall provide in the new pump house a venturi tube and transmitting equipment complete with all appurtenances. The transmitter shall continually dispatch signals on electrical transmission lines to a receiver to be provided on the panelboard in the water treatment plant. The facility shall be designed to measure and record flows from a minimum rate of 500 gpm to a maximum rate of 2500 gpm with an average error not exceeding plus or minus two percent over the entire range. The average pressure at the venturi tube will be approximately 65 psi. The equipment shall be capable of operating on 120 volt, 60 cycle current.

19.3.1 The venturi tube shall be of the concentric type constructed of good gray cast iron of Class 150 thickness with flanged ends for installation in the 12-inch discharge main. The tube shall be designed for measurement of clear water and shall have a bronze lined throat. There shall be an annular pressure ring at the main diameter with a sufficient number of holes leading from the interior of the tube to the pressure ring. These holes shall be bronze bushed with the ends of the bushing at right angles to and flush with the inside diameter of the tube and free of burrs. There shall also be a pressure ring at the throat section of the venturi tube, the inner wall of which shall consist of the bronze throat liner. The liner shall contain a sufficient number of holes leading from the inside diameter of the throat section to the pressure ring, these holes being at right angles to the throat and free from burrs. On each pressure ring, there shall be at

least two properly designed handholes and at least four suitably designed cleaning valves. Immediately downstream of the throat section, there shall be a handhole by means of which inspection can be given to the throat and upstream barrel at any time.

19.3.2 Transmitter. The transmitter shall be a wall mounted, mercury, float-operated pressure differential type for use with a venturi. The instrument shall use the time impulse transmission method with time impulse signal being directly proportional to the rate of flow. The unit shall be provided with a direct reading, uniformly graduated, concentric flow scale having a radial length of approximately six inches and indicating U. S. gallons per minute with a range of 0 to 2500. The transmitter shall indicate the instantaneous flow at all times. The equipment shall be housed in a dust tight, moistureproof case and all working parts shall be corrosion resistant.

19.3.3 Receiver. The receiver shall be an indicating, recording and totalizing meter register housed in a dust tight, moistureproof case and designed for mounting on a panelboard. All working parts shall be corrosion resistant. The instrument shall indicate the instantaneous flow at all times on a uniformly graduated direct reading flow scale having a peripheral length of approximately nine inches and depicting U. S. gallons per minute with a range of 0 to 2500. The rate of flow shall be recorded on a 12-inch diameter evenly spaced circular and concentrically graduated chart designed for daily removal. The totalizer shall have at least six digits and shall record the total amount pumped in thousands of U. S. gallons. The totalizer and chart elements shall be actuated by electric clock drives. There shall be included with the receiver a year's supply of charts, pens, ink, usual tools and accessories, together with a setting device for checking the accuracy of the meter at any time.

19.4 Reservoir water depth metering facility. The contractor shall provide in the new pump house a float operated transmitter complete with float, float cage and all appurtenances. The transmitter shall continually dispatch signals on electrical transmission lines to a receiver to be provided on the panelboard. The facility shall be designed to measure and record the depth of water in the reservoir at all times and the equipment shall be capable of operating on 120 volt, 60 cycle current.

19.4.1 Transmitter. The transmitter shall be a pedestal mounted, float-operated, depth differential type. The instrument shall use the time impulse transmission method with time impulse signal being directly proportional to a depth of water. The unit shall be provided with a direct reading, uniformly graduated, concentric scale approximately 12 inches in diameter and indicating depth in feet. The transmitter shall indicate the depth at all times. The equipment shall be housed in a dust tight, moistureproof case and all working parts shall be corrosion resistant.

19.4.2 Receiver. The receiver shall be an indicating and recording meter register housed in a dust tight, moistureproof case and designed for mounting on a panelboard. All working parts shall be corrosion resistant. The instrument shall indicate the instantaneous depth at all times on a

uniformly graduated direct reading scale having a diameter of approximately 12 inches and depicting depth in feet. The depth shall be recorded on a 12-inch diameter evenly spaced circular and concentrically graduated chart designed for daily removal. The recorder and chart elements shall be actuated by electric clock drives. There shall be included with the receiver a year's supply of charts, pens, ink, usual tools and accessories, together with a setting device for checking the accuracy of the meter at any time.

19.5 Modifications to existing raw water meter. The equipment comprising the existing raw water metering facility was manufactured B-I-F Industries, 345 Harris Avenue, Providence, Rhode Island, and has that company's following identification:

- (a) 12-inch Model VTS-4 Venturi Tube Serial No. 26364
- (b) Model CTUAX Chronoflo Transmitter Serial No. CTM 4376 with 60-inch differential range tube
- (c) Model CRB-TIR Chronoflo Receiver graduated 0-1000 gpm.

19.5.1 The contractor shall effect all necessary modifications to this existing equipment to provide a raw water metering facility with a capacity of 1200 gpm. This includes providing a new range tube for the transmitter with a differential equivalent to that produced by the venturi with a 1200 gpm flow and alterations to the receiver to provide a graduated range of 0-1200 gpm.

19.5.2 The contractor shall remove and salvage the surge tanks from the leads between the venturi and the transmitter. He shall relocate the transmitter to permit installation of the panelboard and shall mount the receiver on the panelboard. He shall provide a final installation with the functional components interconnected and calibrated to produce a reading accurate to plus or minus 0.5 percent of span while operating within 20-100 percent of span standard.

19.5.3 All modifications to the existing equipment and the calibration of the converted product shall be made under the direct supervision of the manufacturer's representative.

19.5.4 The contractor shall provide one year's supply of charts for the converted receiver.

19.6 Panelboard. Instrument panelboard shall be constructed of plastic coated plywood. Spacing and arrangement of instruments shall be dependent upon size of instruments provided but general arrangement shall be as indicated. Color of panelboard shall be green. Names of instruments shall be painted on with white paint; letters shall be 3/4-inch high. Bolts and other fasteners used for mounting instruments shall be chrome plated.

19.7 Operation and maintenance instructions. Five copies of manual covering each item of control equipment shall be furnished the Officer in Charge. The manual shall contain, but not limited to the following: operating instructions, illustrations, drawings, detail description, installation instructions, adjustments, tests, parts list, etc.

19.8 Installation. Equipment provided shall be a standard manufactured product normally used for this purpose and shall be installed to conform with the general arrangement shown. Final adjustments on the installed equipment shall be made under the direction of a supervisory engineer regularly employed by the manufacturer of the equipment. The contractor shall perform operational tests with the installed equipment as required to demonstrate a satisfactory facility.

SECTION 20. ELECTRICAL

20.1 General requirements.

(a) The work includes the provision of a main service entrance to the new pump house, lighting and power circuits in conduit, panelboards, circuit breakers, disconnect switches, wiring of motor starters and automatic control devices, lighting fixtures, complete with lamps, wall switches, receptacles and other miscellaneous items as required to provide complete and operating lighting and power circuits.

(b) The work also includes alterations to lighting and power circuits in the existing water treatment plant, provision of a new main service entrance, panelboard and reconnection of certain switches and panels indicated to remain and the removal of existing main service entrance and certain power circuits, switches, starters and motors serving pumping equipment being abandoned.

(c) The work further includes the provision of a power circuit to telemetering equipment at elevated water tank site, telemetering circuit from the tank site via telephone cable circuit to the water plant building and connection to the depth recorder on the instrument panelboard; and control circuits and pilot light circuits between the instrument panelboard in the water plant and the motor control equipment within the new pump house.

(d) Service drops to buildings and telephone circuit between elevated water tank and water treatment plant will be provided as hereinbefore specified in the GENERAL PARAGRAPHS under Government work and materials.

(e) Materials and methods of installation shall be in accordance with Specifications 9Yg and 42Yb, except as indicated or specified otherwise.

20.2 Existing conditions. The pump house in which work is to be done is a new structure to be built over an existing reservoir. The existing water treatment plant in which work is to be done is a concrete masonry building with concrete slab on grade, wood frame roof construction. Interior walls are concrete masonry. Ceilings are gypsum board.

20.3 Electrical characteristics. Electrical service to the existing water treatment plant is 120/240 volt, 3 phase, 4 wire open delta, 60 cycle. The new electrical services shall have the same characteristics.

20.4 Drawings diagramatic. The electrical drawings are primarily diagramatic in nature, intended to indicate the purpose and connections of the conduit and/or circuits rather than the exact locations of the runs which may be modified by the contractor to meet conditions at the time of work.

20.5 Method of wiring. All wiring, except as indicated otherwise, shall be in rigid conduit exposed on walls and ceilings. Control wiring shall run above ceiling in existing water treatment plant.

20.6 Additional supports. Wherever required to secure the location shown on drawing for the lighting fixtures, conduit, electrical devices or control equipment, the contractor shall provide and install additional supports such as angle iron or channel construction, steel strap extension or by other approved means, effect the proper and rigid support of the electrical work.

20.7 Wires and cables shall conform to applicable requirements of Specification J-C-103b.

20.7.1 All wire installed in conduit in dry locations shall be Type RH, except that service entrance shall be Type RHW.

20.7.2 All wire installed in conduit, installed wholly or in part in damp locations, outside, in or under floor slab or underground shall be Type RHL.

20.7.3 No conductor smaller than #12 AWG shall be used except for controls which shall be not less than #14 AWG.

20.8 Rigid steel conduit shall conform to Specification WW-C-581d and shall be zinc-coated on both inner and outer surfaces. Rigid steel conduit installed underground shall be encased in concrete; the concrete encasement on risers shall extend a minimum of six inches above the finished grade. All conduit shall be cut with a hacksaw and reamed to size. No bends shall be made of greater than 90 degrees and manufactured elbows shall be used on one inch size and above. Conduit for connections to motors shall be the flexible type.

20.9 Outlet boxes. Outlet boxes wherever used to terminate conduit at equipment or lighting fixture location shall be hot dipped zinc-coated boxes, sized to suit equipment, with a cover in each case suitable for the respective purpose. Pendant fixture boxes shall have aligning covers. All surface mounted outlet boxes shall have threaded hubs.

20.10 Pull and junction boxes shall be zinc-coated, constructed of code gauge of steel standard for the respective dimensions and equipped with a turned-in flange to which the cover shall be mounted by screws into threaded holes. For exposed work, junction boxes and conduit fittings shall be cast or malleable iron with threaded hubs.

20.11 Local wall switches. Wall switches shall be single pole, toggle type, "T" rated, 20 ampere, 125 volt, in composition base. Covers shall have chrome finish.

20.12 Convenience receptacles. Convenience receptacle outlets shall be as indicated. Duplex receptacles shall be 15 ampere, 125 volts, grounding type, parallel slot, double sided contacts with four terminal screws in composition base. Covers shall have chrome finish.

20.13 Hand holes. Hand holes shall conform with applicable requirements of Specification 42Yb. Hand holes shall be Type 1, three feet square and constructed as indicated on Plate No. 6, except that ground rod and clamp, pulling-in irons, drain, drain piping and dry well shall be omitted.

20.14 Panelboards shall be complete with cabinets and shall conform to the Underwriters' Laboratories, Inc. Standard for Panelboards. Cabinets shall conform to the Underwriters' Laboratories, Inc. Standard for Cabinets and Boxes. Cabinets shall be made from steel sheets zinc-coated by the hot-dip process. Fronts shall be finished to resist corrosion with not less than one priming coat and one pearl-gray finishing coat. Exposed parts of trim and doors shall be finished after erection as directed. Three keys shall be furnished, each of which shall operate all panelboard cabinet locks included in the project. Adjacent poles of single-pole devices shall be of opposite polarity with split-phase bussing. Circuits shall be numbered serially from top to bottom with odd numbers on the left. A suitable directory with a transparent protective cover shall be provided on the inside of the panelboard cover.

20.14.1 Main and power panelboards shall be of the automatic circuit breaker type and shall conform to Specification W-P-131a.

20.14.2 Lighting panelboards may include some power circuits and shall be the automatic circuit-breaker type or the switch-and-fuse type, as indicated. The automatic circuit breaker type shall conform to Specification W-P-131a. The switch-and-fuse type shall conform to Specification W-P-146, and shall be equipped with fuses, and an extra set of fuses shall be furnished for each panelboard.

20.15 Backboards at service entrances and distribution locations. Wall mounted switches and panels shall be mounted on a backboard consisting of channel iron uprights secured to the building structure and surfaced with 3/4-inch Grade A-D, exterior type Douglas fir plywood. Previous to mounting equipment, the backboard shall be given two coats of asphaltum varnish.

20.16 Incandescent fixtures shall be of the highest quality of the types shown. Where the schedule refers to Specification 9Yg, number and modification symbols, the basic features shown and specified therein, shall be included in the design. Fixtures varying in minor design detail will be acceptable if drawings are submitted and approved.

20.17 Floodlight lampholders shall be medium base cast aluminum, factory wired, built with completely weatherproof articulated link between socket housing and mounting arm for smooth, firm universal adjustment. Holders shall have moulded gaskets to provide weatherproof seal between lamp and socket and shall have a baked enamel protective finish. Holders shall be listed by Underwriters' Laboratories, Inc. Lamp holders shall be mounted in groups of two as indicated. Each holder shall be equipped with a 300-watt reflector flood bulb.

20.18 Motors and motor controllers, unless otherwise specified, shall be provided in conjunction with driven equipment as specified in the Mechanical Equipment section of this specification, but shall be wired, together with all controls under this section. The electrical drawings show design values for horsepower, voltage, number of phases and associated wiring, and controls. If the approved equipment differs from that indicated, the contractor shall provide the correct wiring and control for same at no expense to the Government. Motors rated 1/2 horsepower and greater, unless otherwise specified, shall be rated for 240 volts, 3 phase. Motors of less than 1/2 horsepower shall be single phase 120 volts.

20.19 Control circuits. Complete and operating control circuits shall be provided for operation of the control devices specified in INSTRUMENTATION AND CONTROL section. Location of circuits, materials and workmanship shall be as indicated and herein specified. Number of individual circuits provided shall be as required by the equipment provided and connections shall be made in accordance with the manufacturer's approved wiring diagrams. Control circuits and telemetering circuits shall run in separate conduits.

20.20 Pilot lights. Red and green pilot lights, one set for each pump motor shall be provided on the panelboard in the water plant to indicate which pumps are in operation. Red light shall burn when pumps are in operation and green light when pumps are not in operation. Outlet boxes shall be mounted flush with panelboard and pilot lights shall be flush type. Covers shall be chrome finish. Pilot light circuits shall be provided as required from the panelboard to the pump house. Pilot lights shall be activated by means of contactors provided with motor controllers. All appurtenances shall be provided as necessary to provide a complete and operating system.

20.21 Grounding. Each service neutral wire shall be grounded to the underground pressure water pipe at entrance or exit from the building or pump house.

20.21.1 The continuity of grounding shall be assured by use of conduit lock nuts inside and outside of metallic enclosures, the removal of insulating coatings at points of contact, and bonding across any insulated joints. Grounding connections through continual metal raceways or conductor armor back to service ground will be considered effective.

20.21.2 All exposed metallic non-current carrying materials of electrical equipment forming a part of the interior electrical system shall be effectively grounded, including conduit, metal enclosures of switching equipment, panelboard and motor frames.

20.22 Interruptions to service. The contractor shall carefully plan the electrical work in a manner to keep interruptions to existing service to a minimum. If and when interruptions to service become unavoidable, the contractor shall so notify the Officer in Charge 48 hours in advance and shall interrupt service only at such times and for such duration as directed.

SECTION 21. FIELD PAINTING

21.1 General requirements. Surfaces to be painted shall be thoroughly cleaned and shall be dry when the paint is applied. Painting materials shall be worked into all joints, crevices and open spaces thoroughly. Finished surfaces shall be smooth, even and free from defects. Damaged painting shall be retouched before applying the succeeding coat. Existing bare surfaces and surfaces made bare by cleaning methods, shall be primed prior to painting. Storage of paints and paint materials and the mixing of paints shall be restricted to the locations directed.

21.2 Materials shall be in accordance with the standard specifications listed hereinafter; those not covered by such standards shall conform to the requirements given and shall be of approved commercial brands. Paint and paint materials shall be delivered in unbroken original packages bearing the manufacturer's name and brand designations. Thinners shall be of the type required by the individual paint specification.

Knot sealer	MIL-S-12935A
Metal pretreatment coating	MIL-C-15328B
Exterior wood primer	TT-P-25a
Exterior titanium-lead-zinc and oil paint	TT-P-102a, Class A
Cement water paint	TT-P-21, Type 1, Class A
Silicone water-repellent	SS-W-00110
Red-lead paint	TT-P-86c, Type I or Type III
Zinc-chromate primer	MIL-P-00735A
Interior enamel undercoater	TT-E-543
Interior flat oil paint	TT-P-51e
Interior semi-gloss enamel	TT-E-508
Interior gloss enamel	TT-E-506c

Specially formulated aluminum paint shall be a field mixture of vehicle conforming to Specification TT-R-266a, Type III and 1-1/2 pounds of aluminum paste conforming to Specification TT-P-320a, Type II, per gallon of vehicle. Paste shall be mixed with vehicle immediately before application. No paint shall be used more than 3-1/2 hours after mixing. Where two coats of paint are required, the first coat shall be tinted.

21.3 Preparation of surfaces. All dirt, rust, scale, loose particles, disintegrated paint, grease, oil, and other deleterious substances shall be removed from all surfaces which are to be painted or waterproofed.

21.3.1 Wood surfaces shall be free from dust and in an approved condition to receive the paint. The use of water on unpainted wood shall be avoided. Prior to application of paint, knots and resinous wood shall be treated with an application of knot sealer. Puttying of cracks and nail-holes shall be done after the priming coat has been applied and has dried properly. Sandpapering, when required, shall be done after the undercoats are dry. New wood doors, frames, and trim shall be given the priming coat immediately following delivery to the job site.

21.3.2 Exterior brick and concrete masonry. Exposed mortar joints in brick work and concrete masonry work shall be tested with hammer and chisel. Mortar proven loose by this test shall be removed to a depth of one inch; shell joints shall be removed to expose the entire opening and all joints repointed their entire depth with mortar. Cracks in concrete masonry work shall be cut out V-shaped to a minimum depth of 1/2-inch and refilled with mortar. Brick surfaces to which the water repellent is applied shall be dry, clean, and free of all loose mortar, efflorescence, glaze and loose particles.

21.3.3 Wallboard. Prior to painting, all joints, cracks, holes, and other surface defects shall be repaired with patching plaster, filled out flush and smooth and sanded.

21.3.4 Metal surfaces.

(a) Existing metal surfaces. All loose mill scale, rust and disintegrated paint shall be removed by power tool cleaning. Power tool cleaning is defined as a method of preparing surfaces for paint by use of power wire brush, power impact tools, power grinders or power sanders, or by a combination of these tools. It is not intended that all mill scale, rust and paint shall be removed by this process, but mill scale, rust and paint which is loose, or other detrimental foreign matter shall be removed. All tools shall be operated in such a manner that no burrs or sharp ridges are left on the surfaces and no sharp cuts are made into the steel. Areas unaccessible for cleaning by power tools shall be cleaned by hand tools. Surfaces made bare by cleaning shall be given a pretreatment coating as soon as possible after cleaning.

(b) New metal surfaces. Surfaces to be in permanent contact with concrete or masonry, or embedded in masonry, shall receive a coat of asphalt primer and two coats of asphalt varnish in the field, before being made inaccessible. Other surfaces to be inaccessible for painting in the finished work shall be painted two coats of the same material used for the priming coat before being made inaccessible and other finish painting of such surfaces will not be required. Shop priming coats and factory applied coatings, where damaged, shall be touched up with the same materials used for the shop or factory coatings before additional paints are applied. Any surfaces not shop or factory primed shall be prepared, given a pretreatment coating and primed with red-lead paint or zinc-chromate primer for ferrous metals and zinc-chromate for zinc-coated surfaces to a thickness of not less than 1.5 mils prior to finish painting. Surfaces fully factory finished; that is, having finish coatings in addition to the prime coating, shall be restored to their original finished condition wherever damaged and additional painting will not be required.

21.4 Scope of work.

21.4.1 Exterior painting. The work includes painting of all new and existing exterior wood and metal surfaces of the water treatment plant, reservoir and new pump house; waterproofing new and existing exterior brick masonry and concrete masonry surfaces of the water treatment plant;

and painting new and existing exposed metal surfaces of plant piping and equipment located outside of the buildings.

(a) Wood surfaces. New wood and bare wood shall receive one coat of exterior wood primer. All primed and painted wood surfaces shall be given two finish coats of exterior titanium-lead-zinc and oil paint. Putty and caulking shall receive two coats of paint as specified for wood surfaces.

(b) Metal surfaces. Bare and new metal surfaces of buildings shall receive one coat of primer. Red-lead primer shall be used for ferrous metal. Zinc-chromate primer shall be used for zinc-coated surfaces. All primed and painted metal surfaces shall be given two finish coats of exterior titanium-lead-zinc and oil paint. Metal surfaces to be painted shall include metal doors, window and screen frames, flashing, ventilators, smoke jacks, gutters and downspouts. Exterior metal surfaces of structural steel framing of pump house shall be given two finish coats of specially formulated aluminum paint.

(c) Brick work. Existing brick masonry surfaces shall be given two coats of silicone water repellent.

(d) Concrete masonry. New and existing concrete masonry surfaces shall be given two coats of cement water paint.

(e) Piping and equipment.

(1) Existing painted metal surfaces of exposed exterior piping and equipment shall be cleaned, spot primed with red-lead primer, spot painted with one coat of specially formulated aluminum paint and given one finish coat of specially formulated aluminum paint.

(2) Exposed exterior metal surfaces of new piping and equipment shall be cleaned, spot primed with red-lead primer and given two finish coats of specially formulated aluminum paint.

21.4.2 Interior painting. The work includes painting of all new and existing interior wood, gypsum board, masonry and metal surfaces of the water treatment plant and new pump house, including piping, conduit and equipment, except existing surfaces within the lime storage room. The work further includes painting of the new structural steel work exposed within the reservoir.

(a) Wood surfaces, dado (painted on wainscot) and ferrous metal surfaces, except piping and equipment.

(1) Existing surfaces shall be painted one coat of semi-gloss enamel, except in toilet room, one coat of gloss enamel shall be provided. Colors shall match existing colors.

(2) New surfaces including lightweight metal framing in pump house shall be given two finish coats of semi-gloss enamel. Colors shall match similar existing work.

(b) Masonry (above dado) and ceilings.

(1) Existing surfaces shall be given one coat of latex base paint, except that in toilet room, one coat of semi-gloss enamel shall be provided. Colors shall match existing colors.

(2) New surfaces shall be prime coated and given two finish coats of latex base paint. Colors shall match similar existing work.

(c) Piping and equipment.

(1) Existing surfaces shall be spot primed and given one finish coat of gloss enamel.

(2) New surfaces shall be given two finish coats of gloss enamel. Varnished pipe, valves and fittings shall be given one prime coat of aluminum paint.

(d) Surfaces of new structural steel work exposed in reservoir shall be given two finish coats of red-lead paint, Type III.

(e) Electrical switches and control panels shall be color painted to conform to the Government Safety Code requirements. Electric conduit, where exposed in room spaces, shall be painted to match the space in which it occurs.

21.5 Workmanship shall be first class in every respect. Paint and enamel finish shall be applied carefully with good clean brushes, or approved rollers, or approved spraying equipment, except that the initial coat to be provided on any new or previously unpainted surface shall be applied by brush. The work shall be so conducted as to avoid damage of other surfaces and public and private property in the area; any damage thereto shall be made good by the contractor at his expense. Sufficient time shall be allowed between coats to assure thorough drying, and each coat shall be in proper condition before the next coat is applied; sanding and dusting, as required to produce finishes free of visible defects when viewed from a distance of five feet shall be performed. Finish coats shall be smooth and free from runs, sags or other defects. Each coat of paint shall be of sufficient thickness to cover completely the previous coat or surface. Exterior paint shall not be applied during foggy or rainy weather; the temperature shall be above 45 degrees F. and not over 95 degrees F. Interior paint may be applied at any time provided the surfaces to be painted are dry and the temperature can be kept above 45 degrees F. during the application of ordinary paints, and between 65 degrees F. and 95 degrees F. during the application of enamels.

21.6 Waterproofing with cement water paint. Following the preparation as specified hereinbefore, surfaces shall be drenched thoroughly and uniformly with water several hours prior to painting and dampened again with a fog spray immediately before the first coat of paint is applied; free water shall not be permitted to remain on these surfaces. The paint shall be mixed in accordance with the manufacturer's instructions and in quantities not in excess of those that can be used within four hours after mixing. To prevent

settling, the paint shall be stirred with a paddle frequently during painting operations and with the brush at each dipping. The paint shall be applied in two coats with approved stiff fiber brushes using a scouring or scrubbing motion, filling the pores of the surfaces being painted. Paint shall not be applied to surfaces under the direct rays of the sun; it shall be applied preferably during cloudy weather or on the several areas while they are shaded from the direct rays of the sun. After the first coat has hardened sufficiently so as not to be damaged by spraying, it shall be sprayed lightly with clean water and kept damp until the second coat is applied. The second coat shall also be sprayed with clean water, after sufficient hardening, and shall be kept damp for two to four days, depending upon atmospheric conditions, until it has cured and hardened.

21.7 Waterproofing with silicone water repellent. Following the preparation of surfaces as hereinbefore specified, silicone water repellent shall be applied by a low pressure spray unit or by brush in strict accordance with the manufacturer's written instructions. Water repellent splashed upon glass surfaces and adjoining surfaces not being coated shall be removed immediately with a cloth dampened with mineral spirits and wiped dry with a clean cloth.

21.8 Clean-up. Paint shall be removed immediately when spilled or splattered on surfaces adjacent to the work, including fixtures, glass and fittings. The premises shall be kept free at all times from accumulation of waste material and rubbish resulting from the work, and upon completion of the work, all tools, scaffolding, surplus material and rubbish shall be removed and the premises left clean.

SECTION 22. FENCING

22.1 General requirements. The work includes the relocation of portions of the existing five foot chain link fence and gate as indicated and the provision of additional fencing, posts and accessories as required for a complete installation.

22.2 Materials. Fence posts and accessories shall conform to Specification RR-F-183. The fabric shall conform to Specification RR-F-191a, and the barbed wire to Specification RR-F-221b.

22.3 Fence posts and accessories. Line posts, corner and gate posts shall be set in concrete footings. Footings for line posts shall be 36 inches deep by 11 inches in diameter and posts set to bottom of concrete. Corner and gate post footings shall be 42 inches deep and 16 inches in diameter and post set 36 inches in the concrete. Concrete footings shall be Class D-1 in accordance with Specification 13Yf. The footings shall extend about two inches above the finished grade with the tops and exposed surfaces floated to a smooth finish. Top rail and bottom reinforcing wire shall be provided. An approved type of post top having one arm approximately 18 inches long set at approximately 45 degrees carrying three lines of barbed wire shall be provided for each post. The arm shall face outboard of the fence.

22.4 Fabric shall be Type A, two inch diamond mesh woven wire having No. 9 wire and shall be 60 inches in height with the top and bottom selvage having a twisted and barbed finish.

22.5 Barbed wire shall be Type A, four-point. Strand shall be 12 gauge and barb shall be 14 gauge. Three strands of wire shall be constructed above the woven mesh fabric. The uppermost barbed wire shall be approximately 12 inches horizontally from the fabric line.

22.6 Installation. Fencing shall be installed in a workmanlike manner with the wires stretched and fastened securely to the posts and fabric stretched so that there will be no slack edges or warped sections.

SECTION 23. BIDS

23.1 Instructions to Bidders, U. S. Standard Form No. 22, January 1961 and Invitation for Bids, U. S. Standard Form No. 20, shall be observed in the preparation of bids. Standard Form 22 is modified to change the word "may" in the third line of Article 4 to read "shall". Bidders shall affix their names and return addresses in the upper left corner of bid envelopes. Envelopes containing bids must be sealed.

23.2 Bid guarantee will be required as stipulated on the reverse side of U. S. Standard Form 20.

23.3 Items of Bids. Bids shall be submitted, in duplicate, on U. S. Standard Form No. 21, January 1961, Bid Form, and in accordance with U. S. Standard Forms Nos. 20 and 22 upon the following item:

Item 1. Price for the entire work complete in accordance with the drawings and specifications.

23.4 Telegraphic modifications of bids in accordance with U. S. Standard Form No. 22 may be made. Two signed copies of the telegram in a sealed envelope marked "Copies of telegraphic modification of bid for Water Supply Improvements, Tarawa Terrace, Specification No. 46508/62", should be forwarded immediately to the office to which the written bids were submitted.

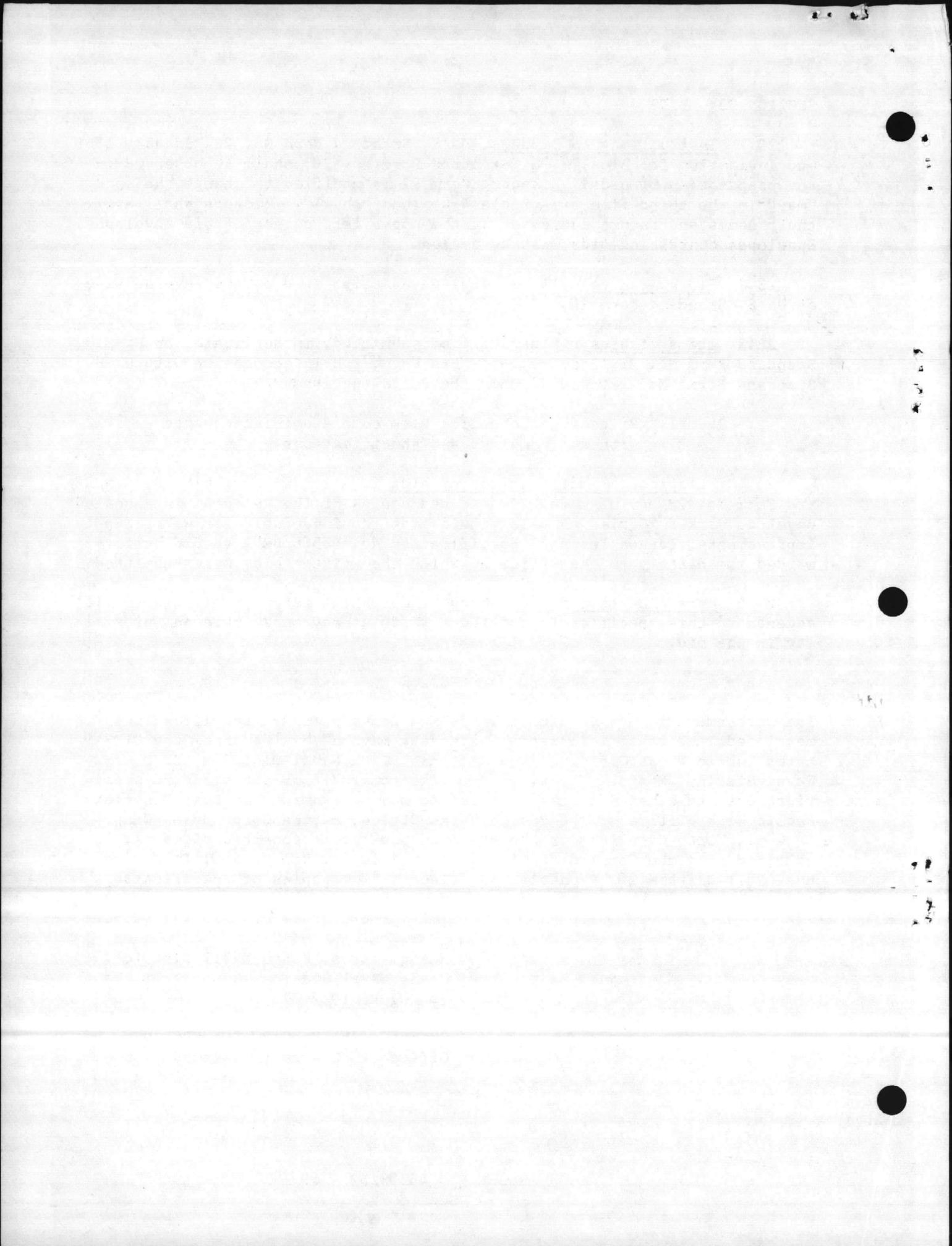
23.5 Reference to addenda. Each bidder shall refer in his bid to all addenda to this specification; failure to do so may constitute an informality in the bid.

NOTICE

The Government forms, Bureau of Yards and Docks standard specifications mentioned, and other information necessary may be obtained from the District Public Works Officer, Headquarters, Fifth Naval District, U. S. Naval Station, Norfolk 11, Virginia. The remainder of the standard specifications and other material referred to may be examined at that District Public Works Office or the Public Works Office, Marine Corps Base, Camp Lejeune, North Carolina, or the standard Government specifications may be obtained from the Commanding Officer, Naval Supply Depot, 5801 Tabor Avenue, Philadelphia 20, Pennsylvania; requests for copies of specifications should indicate the contract for which required.

Headquarters, Fifth Naval District
U. S. Naval Station, Norfolk 11, Va.
14 August 1962

HENRY C. SHRID, CAPTAIN, CEC, USN
Officer in Charge of Construction



DEPARTMENT, AGENCY, OR BUREAU Navy Yards and Docks		DECISION NO. AB-894
DESCRIPTION OF WORK Miscellaneous building construction (including incidental utilities and incidental paving), dredging and marine construction 12-N.C. 1-J, 2-J 54A		LAW CODE DB
		DATE OF DECISION 7-27-62
		EXPIRES 10-26-62
LOCATION (CITY OR OTHER DESCRIPTION) Camp Lejeune	STATE North Carolina	COUNTY Onslow

	PER HOUR		PER HOUR
Air tool operator (Jackhammermen vibrator)	\$1.15	Marble setters	\$3.00
Asbestos workers	2.75	Marble setters helpers	1.25
" " improvers:		Mason tenders	1.15
1st year	1.25	Mortar mixers	1.15
2nd year	1.64	Painters, brush	1.65
3rd year	1.85	Painters, structural steel	2.00
4th year	2.07	Painters, spray	2.00
Asphalt rakers	1.20	Pipe layers	1.50
Boilermakers - Blacksmith	3.95	Plasterers	2.50
Boiler makers helpers	3.70	Plasterers tenders	1.15
Bricklayers	2.75	Plumbers	2.50
Carpenters	1.65	Roofers	1.65
Cement masons	2.00	Sheet metal workers	1.65
Electricians	2.50	Soft floor layers	1.95
Cable splicers	2.50	Steam fitters	2.50
Groundman	1.25	Stone masons	2.50
Linemen	2.50	Sprinkler fitters	3.80
Elevator constructors	2.20	Terrazzo workers	3.00
Elevator constructors helpers	1.54	Terrazzo workers helpers	1.25
Glaziers	1.64	Tile setters	3.00
Ironworkers, structural	1.65	Tile setters helpers	1.25
Ironworkers, ornamental	2.50	Piledrivermen	1.65
Ironworkers, reinforcing	1.15	Truck drivers	1.15
Laborers	1.15	Welders - receive rate prescribed for craft performing operation to which welding is incidental	
Lathers	2.75		

APPRENTICE SCHEDULE 12-N.C.

The apprentice rate is by percentage of the journeymen's rate unless otherwise indicated.

Craft	Interval	PERIOD AND RATE									
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Ironworkers	6 Mo.	50	60								
Ironworkers	Year		66-2/3								
Carpenters	Year	1.05	1.15	1.25	1.40						
Electricians	6 Mo.	45	50	55	60	65	70	75	80		
Plumbers & steamfitters	6 Mo.	37½	40	45	50	55	60	66½	75		
Sprinkler fitters	6 Mo.	63	66	69	72	75	78	81	84	87	90
Bricklayers	6 Mo.	40	45	50	60	70	80				
Sheet metal workers	6 Mo.	40	45	50	55	60	65	70	80		
Cement masons	6 Mo.	50	55	60	65	70	75	80	85		
Soft floor layers	Year	1.05	1.15	1.25	1.40						

POWER EQUIPMENT OPERATORS:

	PER HOUR
Backhoes	\$2.125
Cranes	2.125
Cableway	2.125
Derricks	2.125
Boom hoists	2.125
Draglines	2.125
Dredges and other floating equip.	2.25
Piledrivers	2.00
Pavers	2.125
Mechanics	2.00
Scrapers, wheel type	2.00
Shovels	2.125
Truck cranes	2.125
Tractors with attachments	2.125
Tractors without attachments	1.875
Tractors farm type	1.15

POWER EQUIPMENT OPERATORS:

	PER HOUR
Distributors, asphalt	\$1.35
Front end loaders	2.00
Trench machines	2.125
Air compressors	1.25
Bulldozers	2.00
Fireman	1.55
Hoist, double drum	1.875
Hoist, one drum	1.625
Finishing machine	1.35
Mixers (larger than 10-S)	1.75
Mixers (smaller than 10-S)	1.625
Motor graders	2.00
Pumps over 2" discharge	1.75
Pumps under 2" discharge	1.625
Rollers, earth	1.75
Rollers, asphalt	1.35
Oilers	1.55

DREDGE-2-At1. 4-C

HYDRAULIC DREDGES - 20 inches & Over

Levermen	\$2.75
Engineers	2.70
Derrick operators	2.50
Mates	2.05
Firemen	1.80
Oilers	1.75

HYDRAULIC DREDGES - 14 - 18 Inches

Levermen	2.46
Welders	2.30
1st Engineer	2.24
2nd Engineer	2.14
3rd Engineer	2.02
Launchmen	1.81
Mate	1.80
Oilers	1.75
Deckhand, dredge	1.45
Shoremen	1.35

HYDRAULIC DREDGES - 12 Inches & Under

Engineer	1.90
Leverman	1.75
Assistant Engineer	1.50
Oiler	1.15
Mate	1.50
Laborer-Deckhand	1.15
Launchman	1.50
Steward	1.50
Mess Boy	1.25
Welder	1.50

DIPPER AND CLAMSHELL DREDGES

Operator - Levermen	\$2.75
Cranemen	2.65
Welders	2.30
1st Engineer	2.10
2nd Engineer	2.00
3rd Engineer	1.85

Mates	2.05
Launchmen	1.81
Firemen	1.80
Breastwire Tenders	1.70
Scowmen	1.60
Deckhands	1.55

TUG BOATS

Tug Captain	2.40
First Engineer	2.40
Engineer	2.05
Tug Mates	2.15
Cooks	1.60
Deckhands	1.50

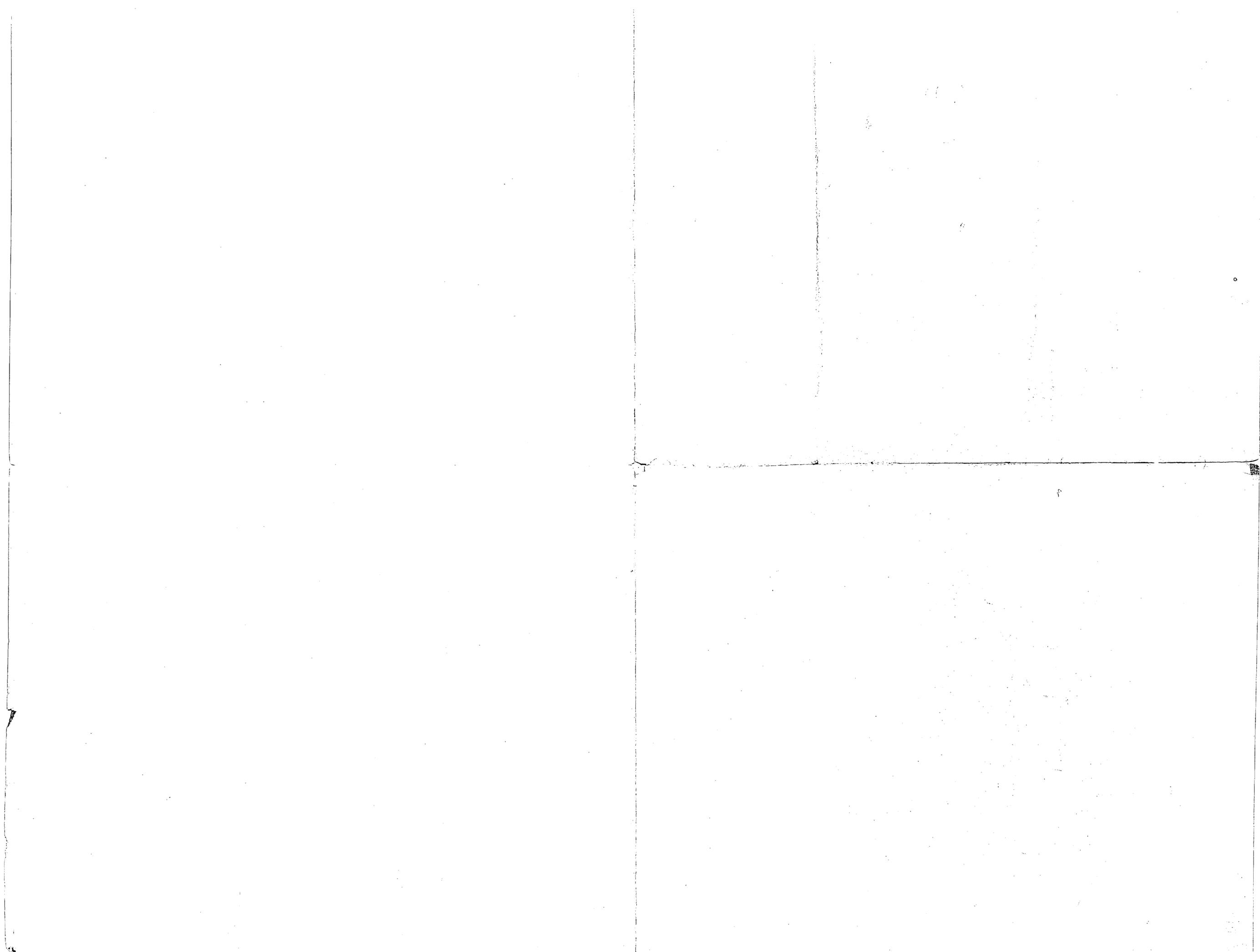
GALLEY CREWS - DREDGE 14" AND UP

Cooks	1.75
Mess Cooks	1.53
Janitors	1.45



NOTE:
 INDICATES NO. OF ROOMS PER UNIT

REVISION	DATE	APPD.	DESCRIPTION
P.W. DRAWING NO. 3994			MARINE BARRACKS CAMP LEJEUNE, N.C.



Water Treatment and Pumping PlantBldg.#38 Tarawa Terrace

A. Pump Room:

1. Unit#1 - Service Pump, Dual Drive (Electric and Gasoline).

Name: Floway Pump; Manufacturer: Fiefe and Firstenberger, Manufacture Company, 2494 So. Railroad Avenue, Fresno, California.

Type: DKH, Vertical Centrifugal; Size 12; Stage: 3; Serial No. 62-3534-1; HP: 75; GPM: 1050; RPM: 1770; HD 188ft.

(a) Motor, Electric; Name: Alternating Current Motor; Manufacturer:

A. O. Smith Corporation, Electric Division, Tipp City, Ohio.

Type: LZBV; Design B; Model No. 504-3312F; Frame: A504PY; Serial No. 3G62; HP: 75; cycles 60; RPM: 1760; Amps 172/86; Volts: 220/440; Phase: 3; C Rise: 40°; Code F;

(b) Motor, Gasoline; Name: Continental Red Seal; Manufacturer: Continental Motors Corporation, Muskegon, Michigan.

Model No. M363; Engine No. 3695; Spec. 2 380A.

(c) Clutch - Rockford Power Take-Off.

Model No. PTA31045; Serial No. 351481.

(d) Gear, Drive, Right Angle; Manufacturer: Johnson Gear and Manufacturing, Company, Berkley 10, California.

Serial No. 34431; Ratio: 1 -1; B.H.P. 75; RPM 1760.

(e) Switch, Electric Control; Square D Company; Class: 8606; Type: GAG1; Form: ACJ; Series: C; HP: 100; Volts: 240; Phase: 3; Cycles: 60;

2. Unit#2 - Service Pump, Single Drive (Electric)

Name: Floway Pump; Manufacturer: Fiefe and Firstenberger Manufacture Company, 2494 So. Railroad Avenue, Fresno, California.

Type: DKL, Vertical Centrifugal; Size: 12; Stage: 4; Serial No. 62-3534-2; HP: 50; GPM: 800; RPM: 1770; H'D: 191 ft.

(a) Motor, Electric; Name: Alternating Current Motor; Manufacturer:

A. O. Smith Corporation, Electric Division, Tipp City, Ohio.

Type: P; Design: B; Model No. PB365Z4V4; Frame: 36UP; Serial No. 1I62; HP: 50; Cycles 60; RPM: 1760; Amps: 132-126/63; Volts: 220/440; Phase: 3; C Rise: 40°; Code: F.

(b) Switch, Electric Control; Square D Company; Class: 8606; Type: FAG1; Form: ACJ; Series: C; HP: 50; Volts: 240; Phase: 3; Cycles: 60;

3. Unit#3 - Service Pump, Single Drive (Electric)

Name: Floway Pump; Manufacturer: Fiefe and Firstenberger Manufacture Company, 2494 So. Railroad Avenue, Fresno, California.

Type: DKH, Vertical Centrifugal; Size: 10; Stage: 5; Serial No. 62-3534-3; HP: 40; GPM: 750; RPM: 1760; H'D; 155 ft.

(a) Motor, Electric; Name: Alternating Current Motor; Manufacturer:

A. O. Smith Corporation, Electric Division, Tipp, City, Ohio.

Type: P; Design: B; Model No. PB364Y4V4; Frame: 364UP; Serial No. 3I62; HP: 40; Cycles: 60; RPM: 1770; Amps: 108-102/51; Volts 208-220/440; Phase: 3; C Rise: 40°; Code: F.

(b) Switch, Electric Control; Square D Company; Class: 8606; Type FAG1; Form: ACJ; Series: C; HP: 50; Volts: 240; Phase: 3; Cycles: 60.

X4. Unit#4 - Service Pump, Single Drive (Electric)

Name: Floway Pump; Manufacturer: Fiefe and Firatenberger Manufacture Company, 2494 So. Railroad Avenue, Fresno, California.

Type: DKL, Vertical Centrifugal; Size: 10; Stages: 5; Serial No. 63-3534-4; HP: 25; GPM: 500; RPM: 1760; H' D: 154 ft.

Unit 1 - Service Pump, Electric Drive (Electric)

Name: Flowery Pump; Manufacturer: Field and Firstenberg, Manufacturers
 Company: 2140 So. California Avenue, Fresno, California
 Type: Vertical Centrifugal; Size: 12; Stage: 3; Serial No. 25-33-1-1
 I.P.: 1150; RPM: 1750; D: 10.00
 (a) Motor, Electric; Name: Alternating Current Motor; Manufacturer:
 I. O. Smith Corporation, Electric Division, P.O. Box 1000,
 Type: I.M.A.; Model No. 33-1-1; Name: I.M.A.; Serial
 No. 33-1-1; I.P.: 1150; RPM: 1750; D: 10.00; Voltage: 220V
 Phase: 3; U Line: 100; W Line: 100; V Line: 100
 (b) Motor, Gasoline; Name: Continental and Seal; Manufacturer: Contin-
 ental Motor Corporation, 1800 Broadway, Chicago, Illinois
 Model No. 113; Engine No. 305; Serial No. 2304
 (c) Hitch - Coolidge Tower; Model No. 113
 (d) Gear Drive, Right Hand; Manufacturer: John Deere and Company,
 Moline, Illinois, Moline, Illinois
 Serial No. 113; Part No. 113-1-1; I.P.: 1150
 (e) Switch, Electric Control; Name: I.M.A.; Class: 113; Type: 113-1-1
 Form: 113-1-1; I.P.: 100; Voltage: 110; Phase: 3; U Line: 100

Unit 2 - Service Pump, Electric Drive (Electric)
 Name: Flowery Pump; Manufacturer: Field and Firstenberg, Manufacturers
 Company: 2140 So. California Avenue, Fresno, California
 Type: Vertical Centrifugal; Size: 12; Stage: 3; Serial No. 25-33-1-2
 I.P.: 1150; RPM: 1750; D: 10.00
 (a) Motor, Electric; Name: Alternating Current Motor; Manufacturer:
 I. O. Smith Corporation, Electric Division, P.O. Box 1000,
 Type: I.M.A.; Model No. 33-1-2; Name: I.M.A.; Serial No.
 I.P.: 1150; RPM: 1750; D: 10.00; Voltage: 220V
 Phase: 3; U Line: 100; W Line: 100; V Line: 100
 (b) Switch, Electric Control; Name: I.M.A.; Class: 113; Type: 113-1-2
 Form: 113-1-2; I.P.: 100; Voltage: 110; Phase: 3; U Line: 100

Unit 3 - Service Pump, Electric Drive (Electric)
 Name: Flowery Pump; Manufacturer: Field and Firstenberg, Manufacturers
 Company: 2140 So. California Avenue, Fresno, California
 Type: Vertical Centrifugal; Size: 12; Stage: 3; Serial No. 25-33-1-3
 I.P.: 1150; RPM: 1750; D: 10.00
 (a) Motor, Electric; Name: Alternating Current Motor; Manufacturer:
 I. O. Smith Corporation, Electric Division, P.O. Box 1000,
 Type: I.M.A.; Model No. 33-1-3; Name: I.M.A.; Serial No.
 I.P.: 1150; RPM: 1750; D: 10.00; Voltage: 220V
 Phase: 3; U Line: 100; W Line: 100; V Line: 100
 (b) Switch, Electric Control; Name: I.M.A.; Class: 113; Type: 113-1-3
 Form: 113-1-3; I.P.: 100; Voltage: 110; Phase: 3; U Line: 100

Unit 4 - Service Pump, Electric Drive (Electric)
 Name: Flowery Pump; Manufacturer: Field and Firstenberg, Manufacturers
 Company: 2140 So. California Avenue, Fresno, California
 Type: Vertical Centrifugal; Size: 12; Stage: 3; Serial No. 25-33-1-4
 I.P.: 1150; RPM: 1750; D: 10.00

Pump Room Continued:

- (a) Motor, Electric; Name: Alternating Current Motor; Manufacturer: A. O. Smith Corporation, Electric Division, Tipp, City, Ohio. Type: P; Design: B; Model No. PB324W4V4; Frame: 324UP; Serial No. 5I62; HP: 25; Cycles: 60; RPM: 1755; Amps: 63-62/31; Volts: 208-220/440; Phase: 3; C Rise: 40°; Code: F.
- (b) Switch, Electric Control; Square D Company; Class: 8606; Type: EAG1; Form: ACJ; Series: A; HP: 30; Volts: 240; Phase: 3; Cycles: 60.
5. Unit#1 - Panelboard, Electric
Manufacturer: Federal Pacific Electric Company; Type: CDP; Panelboard No. AD-791480; Amps: 800; Volts: 120/240 AC; Phase 3; Wire: 4;
6. Unit#2 - Panelboard, Electric
Manufacturer: Federal Pacific Electric Company; Type: NTIP; Panelboard No. AF814308; Amps: 100; Volts: 125/250; Phase: 1; Wire: 3.
7. Unit#3 - Panelboard, Electric
Manufacturer: Lester Equipment MFG: Co., Inc.; Type: 12T6RC; Serial No. V446; Cycles: 60; DC Amps: 6-.5; DC Volts: 12; AC Volts: 115; AC Watts: 150; Phase: 1.
8. Unit#1 - Transmitter, Electric
Name: Chronoflo Telemetric Transmitter; Manufacturer: B-I-F Industries, Providence, Rhode Island;
Size: 12 X 6.773; Model No. CTUA-4; Serial No. 14099; Signal Cycle: 15 second; Pressure Diff: H2O"; Mercury: 7lbs., 4 oz.
9. Unit#2 - Transmitter, Electric
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Model No. CTW-1; Serial No. 14101; Signal Cycle: 15 second; Maximum: 12'.

Water Treatment and Pumping Plant Block 30 Tarawa Terrace

Pump Room Continued:

(a) Motor, Electric; Name: Alternating Current Motor; Manufacturer: A. O. Smith Corporation, Electric Division, Erie, Ohio.
 Type: 4; Design: B; Model No. FB3214L7; Frame: 3214P; Serial No. 2102; HP: 25; Cycles: 60; RPM: 1725; Amps: 63-62.31; Volts: 208-220 V/10; Phase: 3; C Rating: 100; Code: T.
 (b) Switch, Electric Control; Square D Company; Class: 600; Type: FACJ; Form: ACJ; Series: A; HP: 30; Volts: 210; Phase: 3; Cycles: 60.

5. Unit 1 - Panelboard, Electric
 Manufacturer: Federal Pacific Electric Company; Type: GEP; Panelboard No. AD-79110; Amps: 600; Volts: 120/210; Phase: 3; Wire: #1

6. Unit 2 - Panelboard, Electric
 Manufacturer: Federal Pacific Electric Company; Type: WTR; Panelboard No. AD-79130; Amps: 100; Volts: 125/250; Phase: 1; Wire: #3

7. Unit 3 - Panelboard, Electric
 Manufacturer: Westinghouse Electric Equipment Co., Inc.; Type: 1250; Serial No. 1250; Amps: 60; Cycles: 60; HP: 6-5; 10 Volts: 15; 40 Volts: 15; 60 Volts: 15; Wire: #1

8. Unit 1 - Transmitter, Electric
 Name: Onofre Telephonic Transmitter; Manufacturer: B-I Industries, Providence, Rhode Island;
 Size: 18 X 4.773; Model No. CTA-1; Serial No. 11099; Signal Cycle: 15 second; Pressure Diff: H2O; Mercury: 1/2 in.

9. Unit 2 - Transmitter, Electric
 Name: Chronolo; Manufacturer: B-I Industries, Providence, Rhode Island.
 Model No. CTA-1; Serial No. 11101; Signal Cycle: 15 second; Maximum:

B. Filter Control Room

10. Unit#1 - Pump, Wash Water, Single Drive (Electric)
 Name: Fairbanks-Morse; Manufacturer: Fairbanks, Morse and Company,
 Fairbanks-Morse Building, Chicago 5, Ill.
 Number: 764037 (?); Size: 5; GPM: 750; RPM: 1750; Head: 35 Feet.
 (a) Motor, Electric; Name: Wagner Electric Motor; Manufacturer:
 Type: RPl; Desigh: B; Model No. 33E324J433; Frame: 324; Serial No.
 N/A; HP: 10; Cycles: 60; RPM: 1750; Amps: 26.4/13.2; Volts: 220/440;
 Phase: 3; C Rise: 40°.
 (b) Valve, Gate; Influent; Mueller Company, Chattanooga, Tenn.; 6 inches;
 (c) Valve, Check; Effluent; 6 inches;
 175 OWG; 6L23.
 (d) Valve, Gate; Effluent; Mueller Company, Chattanooga, Tenn.; 6 inches;
11. Unit#1 - Panel, Electric (Main for Wash Water Motor)
 Manufacturer: Square D Company; Series: A1; Catalogue No. D96353; Amps:
 100; Volts: 240.
12. Unit#2 - Reset, Electric Starter and Stop for Wash Water Motor.
 Manufacturer: Square D Company.
13. Unit#3 - Panel, Electric (Cuts off all motors in Lime Mixing Room)
 Manufacturer: Square D Company; Series: A2; Catalogue No. A47412; HP: 7½;
 Volts: 240; Phase: 3; Amps: 60.
14. Unit#4 - Panel, Electric (For Lights)
 Manufacturer: Federal Electric Products Company; Catalogue No. 116; Volts:
 120/240; Amps: 100.
15. Unit#5 - Panel, Electric (Starter for Heater)
 Manufacturer: Thumbull Electric; Catalogue No. 24111; Model No. A; Type:
 D; Volts: 125; Amps: 30.
16. Unit#6 - Panelboard, Electric (Main for lights all over building)
 Manufacturer: Federal Pacific Electric Company; Panelboard No. AF 814397;
 Type: NBLP; Volts: 120/240; Phase: 3; Amps: 125; Wire: 4.

C. Chlorinator Room

17. Unit#1 - Chlorinator
 Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville
 9, New Jersey; Serial No. W-9743; Type: A-421; Capacity: 0-100.
18. Unit#2 - Chlorinator
 Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville
 9, New Jersey; Serial No. V-7884; Type: A-418; Capacity: 0-50.
19. Unit#3 - Scales
 Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville
 9, New Jersey; Serial No W 3808; Type: N/A.

P. Filter Control Room

- 10. Unit 1 - Pump, Wash Water, Strife Drive (Electric)
Name: Fairbanks-Lorace; Manufacturer: Fairbanks, Morse and Company
Fairbanks-Lorace Building, Chicago, Ill.
Number: 71027 (7); Size: 5; GHP: 750; RPM: 1750; Head: 35 feet.
(a) Motor, Electric; Name: Warner Electric Motor; Manufacturer:
- 11. Unit 1 - Panel, Electric (Main for Wash Water Motor)
Manufacturer: Spang D Company; Series: A1; Catalogue No. 300353; Amps:
100; Volts: 210.
- 12. Unit 2 - Panel, Electric (Start and Stop for Wash Water Motor)
Manufacturer: Spang D Company.
- 13. Unit 3 - Panel, Electric (One of all motors in Machine Room)
Manufacturer: Spang D Company; Series: A2; Catalogue No. A1712; F: 7;
Volts: 210; Amps: 30.
- 14. Unit 4 - Panel, Electric (for lights)
Manufacturer: Federal Electric Products Company; Catalogue No. 115; Volts:
120/210; Amps: 100.
- 15. Unit 5 - Panel, Electric (Start for Heater)
Manufacturer: Federal Electric Products Company; Catalogue No. 111; Model No. A; Type:
D; Volts: 120; Amps: 30.
- 16. Unit 6 - Panel, Electric (Main for lights all over building)
Manufacturer: Federal Electric Products Company; Catalogue No. 115; Model No. A;
Type: D; Volts: 120/210; Amps: 30; Wire: 1.
- 17. Chlorinator Room
- 18. Unit 1 - Chlorinator
Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville
New Jersey; Catalogue No. W-113; Type: A-21; Capacity: 0-100.
- 19. Unit 2 - Chlorinator
Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville
New Jersey; Catalogue No. W-113; Type: A-18; Capacity: 0-20.
- 20. Unit 3 - Solenoid
Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville
New Jersey; Catalogue No. W-3005; Type: 1A.

Water Treatment and Pumping PlantBldg.#38 Tarawa Terrace

D. Chemical Feed Room

20. Unit#1 - Lime Tank Mixer

- (a) Tank, Lime Mixing; Manufacturer: Permutit Company, 330 West 42nd Street, New York 36, N.Y. Capacity 1200 gallons.
- (b) Motor, Electric; Name: Lighnin; Manufacturer: Mixing Equipment Company, Inc.; Rochester 11, New York.
Type: OX; Design B; Motor No. 1777691; Frame: 225B; HP: 2; Cycles: 60; RPM: 1155; Amps: 6.2/3.1; Volts: 220/440; Phase: 3; C Rise: 40°; Code: H; Form: B; Class: 120.
- (1) Switch, Electric Control; Square D Company; Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.
- (2) Reset, Electric; Square D Company; Square D Company Electrical Equipment.

21. Unit#2 - Lime Tank Mixer

- (a) Tank, Lime Mixing; Manufacturer: Permutit Company, 330 West 42nd Street, New York 36, New York; Capacity 1200 gallons.
- (b) Motor, Electric; Name: Lighnin; Manufacturer: Mixing Equipment Company, Inc.; Rochester 11, New York.
Type: OX; Design: B; Motor No. 1777693; Frame: 225B; HP: 2; Cycles: 60; RPM: 1155; Amps: 6.2/3.1; Volts: 220/440; Phase: 3; C Rise: 40°; Code: H; Form: B; Class: 120.
- (1) Switch, Electric Control; Square D Company; Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.
- (2) Reset, Electric; Square D Company; Square D Company Electrical Equipment.

22. Unit#1 - Chemical Pump (Lime)

- Name: General Electric; Manufacturer: General Electric, Schenectady, New York.
Model No. 5K63AC3437; Gear No. 7GW713EY10; HP: $\frac{1}{2}$; Cycles: 60; RPM: 1725; Amps: 1.8/.9; Volts: 220/440; Phase: 3; C Rise: 40°; Ratio: 30 to 1.
- (1) Switch, Electric Control; Square D Company; Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.

23. Unit#2 - Chemical Pump (Lime)

- Name: General Electric; Manufacturer: General Electric, Schenectady, New York.
Model No. 5K63AC3437; Gear No. 7GW713EY10; HP: $\frac{1}{2}$; Cycles: 60; RPM: 1725; Amps: 1.8/.9; Volts 220/440; Phase: 3; C Rise: 40°; Ratio: 30 to 1.
- (1) Switch, Electric Control; Square D Company; Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.

23. Unit#1

24. Unit#3 - Chemical Pump (Phosphate)

- Name: Century; Manufacturer: Century Electric Company, St. Louis, Mo.
Model No. 1RSC-6; Frame: C 56Y; HP: 3; Volts: 220; Cycles: 60; Phase: 3; Amps: 9; RPM: 73; Spec. 12861; Serial No. 5AG77779; Code: K.
- (1) Switch, Electric Control; Square D Company; Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.

D. Chemical Feed Room

20. Unit 1 - Lime Tank Mixer

(a) Tank, lime mixing; manufacturer: Permutit Company, 330 West 42nd Street, New York 36, N.Y. Capacity 1200 gallons.

(b) Motor, electric; name: General Electric; manufacturer: Mixing Equipment Company, Inc.; Rochester 11, New York.

Type: OA; Design #: Motor No. 177691; Frame: 225B; HP: 2; Class: 60; RPM: 1155; Amps: 6.2/3.1; Volts: 220/110; Phase: 3; C. class: 40; Code: H; Form: 7; Class: 120.

(1) Switch, electric control; Square D Company; Series: AS; Catalogue No. 12321; HP: 3; Volts: 210; Amps: 30.

(2) Reset, electric; Square D Company; Series: AS; Catalogue No. 12321; HP: 3; Volts: 210; Amps: 30. Equipment.

21. Unit 2 - Lime Tank Mixer

(a) Tank, lime mixing; manufacturer: Permutit Company, 330 West 42nd Street, New York 36, New York; Capacity 1200 gallons.

(b) Motor, electric; name: General Electric; manufacturer: Mixing Equipment Company, Inc.; Rochester 11, New York.

Type: OA; Design #: Motor No. 177693; Frame: 225B; HP: 2; Class: 60; RPM: 1155; Amps: 6.2/3.1; Volts: 220/110; Phase: 3; C. class: 40; Code: H; Form: 7; Class: 120.

(1) Switch, electric control; Square D Company; Series: AS; Catalogue No. 12321; HP: 3; Volts: 210; Amps: 30.

(2) Reset, electric; Square D Company; Series: AS; Catalogue No. 12321; HP: 3; Volts: 210; Amps: 30. Equipment.

22. Unit 3 - Chemical Pump (Lime)

Name: General Electric; manufacturer: General Electric, Schenectady, New York.

Model No. 563AG313; Gear No. 707135110; HP: 1; Class: 60; RPM: 1725; Amps: 1.7/0.9; Volts: 220/110; Phase: 3; C. class: 40; Ratio: 30 to 1. (1) Switch, electric control; Square D Company; Series: AS; Catalogue No. 12321; HP: 3; Volts: 210; Amps: 30.

23. Unit 4 - Chemical Pump (Lime)

Name: General Electric; manufacturer: General Electric, Schenectady, New York.

Model No. 563AG313; Gear No. 707135110; HP: 1; Class: 60; RPM: 1725; Amps: 1.7/0.9; Volts: 220/110; Phase: 3; C. class: 40; Ratio: 30 to 1. (1) Switch, electric control; Square D Company; Series: AS; Catalogue No. 12321; HP: 3; Volts: 210; Amps: 30.

24. Unit 5 - Chemical Pump (Phosphate)

Name: General Electric; manufacturer: General Electric Company, 24 Louis, No. Model No. 138C-1; Frame: 225; HP: 1; Class: 60; RPM: 1725; Amps: 1.7/0.9; Volts: 220/110; Phase: 3; C. class: 40; Ratio: 30 to 1.

(1) Switch, electric control; Square D Company; Series: AS; Catalogue No. 12321; HP: 3; Volts: 210; Amps: 30.

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Chemical Feed Room Continued:

25. Unit#1 - Switch, Electric Control; Square D Company; Manufacturer: Square D Company Electrical Equipment.
Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.

E. Lime Storage Room

26. Unit#1 - Scale; Fairbanks and Morse; Manufacturer: Fairbanks Platform Company.
Capacity: 1000 lbs.; Code: 1124.

F. Heater and Blower Room

27. Unit#1 - Heater, Fuel-oil
Name: Bonair; Manufacturer: Bonair Products, Inc., Barby, Pa.
Model No. 100 HO; Serial No. 458; Control: AASPA; BTU: 126,000.
(a) Ignition Transformer; Manufacturer: Jefferson Electric Company.
Catalogue No. 638-521; Model No. 012; Volts: 115; Cycles: 60.
(b) Motor; Electric; Name: Marathon; Manufacturer: Marathon Electric.
Model No. VPB119M87 ECW; HP: 1/8; RPM: 1725; Type: SS; Amps: 2.6;
Phase: 1; Frame: 56-2; Volts: 115; C Rise: 55.
(c) Control, Damper
Name: Mercoid Pyratherm; Type JM; Group: I; Unit: Single.
(d) Motor, Electric (Fan)
Name: Emerson; HP: 1/4; Volts: 115; Phase: 1; Model No. S60CXSF8-2765;
Amps: 4.4; Frame: A 56; RPM: 1725; Cycles: 60; Code: P; C Rise: 40°;
S.F. 1.35.
28. Unit#1 - Refrigerator, Electric
Name: Kelvinator
30. Unit#1 - Meter, Electric
Name: Simplex; Manufacturer: Simplex Valve and Meter Company, 7 East Orange Street, Lancaster, Pa.
Type: HG; Serial No. 8-669-7882; Fluid: Water; Temp: Normal; Pressure: 8-10 lb.; Chart No. 1261; Mercury: 9 lbs. 10 oz.

G. Bath Room

31. Unit#1 - Heater, Water
Name: Economaster; Manufacturer: Economaster Sales, Inc.
Model No. F-30-RD-22-P; Serial No. 54888; Volts: 236; Capacity 30 gallons.

H. Sample Room

32. Unit#1 - Meter, Electric (Rate of Raw Water Flow)
Name: Chronflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Model No. CRB-TLR; Serial No. 3235; P. L. No. 4422; Trans. No. 4376; Volts: 110; Cycles: 60; Chart No. 12-12-D; Chart Style: 112; Range Capacity: 1200 GPM. Converted from Range Capacity 1000 GPM to Range Capacity 1200 GPM (approximately June 1963)

Chemical Feed Room (Continued)

26. Unit 1 - Switch, Electric Control; Square D Company; Manufacturer: Square D Company Electrical Equipment. Series: AS; Catalog No. 45321; W: 3; Volts: 240; Amps: 30.

27. Unit 1 - Scale; Fairbanks and Morse; Manufacturer: Fairbanks Platform Company. Capacity: 1500 lbs.; Code: 1151.

F. Heater and Blow Room

28. Unit 1 - Heater, Fuel-oil. Name: Bonair; Manufacturer: Bonair Products, Inc., Barry, Pa. Model No. 100 H; Serial No. 158; Control: AASPA; W: 126; H: 60. (a) Transition Transformer; Manufacturer: Listeron Electric Company. Catalog No. 03-21; Model No. D15; Volts: 115; Cycles: 60. (b) Motor; Electric; Name: Transition; Manufacturer: Listeron Electric. Model No. VERTI-V-TOW; W: 1/8; H: 1/8; WPM: 1725; Type: SS; Amps: 2.5; Phase: 1; Frame: 56-2; Volts: 115; C Rise: 55. (c) Control, Lamp. Name: Mercury Pyralometer; Type JM; Group: 1; Unit: Single. (d) Motor, Electric (240). Name: Pearson; W: 1/8; Volts: 115; Phase: 1; Model No. SMOCKST-2752; Amps: 4.1; Frame: 56; WPM: 1725; Cycles: 60; Code: P; C Rise: 40. S. I. 1.35.

29. Unit 1 - Heater, Electric. Name: Kelvinator.

30. Unit 1 - Motor, Electric. Name: Girdler; Manufacturer: Girdler Valve and Meter Company, 7 East Orange Street, Lancaster, Pa. Type: H; Serial No. 5-009-7882; Fluid: water; Temp: Normal; Pressure: 5-10 lb.; Chart No. 1201; Frame: 5; W: 1/8; H: 1/8.

G. Bath Room

31. Unit 1 - Heater, Water. Name: Kenosaster; Manufacturer: Kenosaster Sales, Inc. Model No. F-30-0-22-R; Serial No. 51888; Volts: 230; Capacity: 30 gallons.

H. Sample Room

32. Unit 1 - Motor, Electric (rate of flow water flow). Name: General; Manufacturer: B-I-E Industries, Providence, Rhode Island. Model No. 053-T11; Serial No. 3232; P. 1. No. 4122; Frame No. 4376; Volts: 110; Cycles: 60; Chart No. 12-12-1; Chart Style: 112; Tank Capacity: 1200 GPM. (Converted from Base Capacity 1200 GPM to Name Capacity 1200 GPM approximately June 1963)

Sample Room Continued:

33. Unit#2 - Transmitter, Electric (Rate of Raw Water Flow)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Model No. GTUAX; Serial No. 4376; Volts: 110; Cycles: 60; Size: 12-X4.
34. Unit#3 - Receiver, Electric (Elevated Tank Level Receiver)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Order No. 30806-A; Transformer No. 14,100; Receiver No. 13632; Code:
0235-04; Chart Style: 100; Chart Scale: 1235-D.
35. Unit#4 - Receiver, Electric (Reservoir Water Level Receiver)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Order No. 30805-A; Transformer No. 14,101; Receiver No. 13631; Code:
0232-04; Chart Style: 100; Chart Scale: 12-12-D.
36. Unit#5 - Receiver, Electric (Service Water Flow Meter)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Order No. 30805-A; Transformer No. 14099; Receiver No. 13630; Code:
0232-01; Chart Style: 112; Chart Scale: 12-25-D.

I. Office

37. Unit#1 - Water Cooler
Name: Sunroc; Manufacturer: Sunroc Corporation, Glen Riddle, Penna.
Model No. NM2B; Serial No. H384532L; HP: 1/5; Amps: 4.2; Volts: 115;
Cycles: 60; Phase: 1; Code: AHL.
38. Unit#1 - Fan Electric
Name: Century; Manufacturer: Century Electric Company, St. Louis, Mo.
Model No. CM-41-Y; Serial No. AN39; Spec. No. 22083; Frame: B48Y; HP:
 $\frac{1}{4}$; Amps: 3.4; Volts: 115; Cycles: 60; Phase: 1; Code: C; RPM: 1100;
C Rise: 55°.

J. Filters

39. Unit#1 - Filter, Pressure
Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6
inches approximately high; 5 inches of coarse gravel (bottom), 2 $\frac{1}{2}$ inches
of medium gravel (second), 2 $\frac{1}{2}$ inches of fine gravel (third), 3 inches of
extra fine gravel (fourth), and 23 inches of sand (filter media) (top);
Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash
rate=15 gpm per square foot filter area, Filtering rate = 2 gpm persquare
foot filter area; Effective pressure at the filter must be at least 15
pounds persquare inch.
- (1) Valve, Mueller; Manufacturer: Mueller Manufacturer(?), Chattanooga,
Tenn.;;Influent, 6 inches, 200 W, 400 Test.
- (2) Valve, Mueller; Manufacturer: Mueller Manufacturer(?), Chattanooga,
Tenn.; Effluent, 4 inches, 200 W, 400 Test.

Sample Room Continued:

- 33. Unit 3 - Transmitter, Electric (Rate of Flow Water Flow)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Model No. 67MAX; Serial No. 1375; Volts: 110; Cycles: 60; Size: 12-1/2.
- 34. Unit 3 - Receiver, Electric (Fluctuated Tank Level Receiver)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Order No. 3000-A; Transformer No. M, 100; Receiver No. 13632; Code:
0232-01; Chart Style: 100; Chart Scale: 125-1.
- 35. Unit 3 - Receiver, Electric (Reservoir Water Level Receiver)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Order No. 3000-A; Transformer No. M, 101; Receiver No. 13631; Code:
0232-01; Chart Style: 100; Chart Scale: 12-12-1.
- 36. Unit 3 - Receiver, Electric (Service Water Flow Meter)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Order No. 3000-A; Transformer No. 100X; Receiver No. 13630; Code:
0232-01; Chart Style: 115; Chart Scale: 12-12-1.

1. Filters

- 37. Unit 1 - Water Cooler
Name: Dunco; Manufacturer: Dunco Corporation, Glen Ridge, Penna.
Model No. 442; Serial No. 20032; Volts: 115; Amps: 1.2; Volts: 115;
Cycles: 60; Phase: 1; Code: 411.
- 38. Unit 1 - Fan Electric
Name: Century; Manufacturer: Century Electric Company, St. Louis, Mo.
Model No. G-11-Y; Serial No. 433; Spec. No. 22033; Amps: 1.5; Volts: 115;
Amps: 3.4; Volts: 115; Cycles: 60; Phase: 1; Code: C; RT: 1100;
C Size: 250.

1. Filters

- 39. Unit 1 - Filter, Pressure
Name: Intiflo; Manufacturer: Intiflo Incorporated, Jackson, Ark. Ops.
Serial No. 1001/1; Volts: 115; Amps: 1.2; Cycles: 60; Phase: 1; Code: 411.
Inches approximated high: 2 inches of coarse gravel (bottom); 2 inches of
of medium gravel (second); 2 inches of fine gravel (third); 2 inches of
extra fine gravel (top); and 2 inches of sand (filter media) (top);
maximum working pressure 12 pounds, maximum filter rate 127 gpm, backwash
rate 15 gpm per square foot filter area, filtering rate = 2 gpm per square
foot filtering area; maximum pressure at the filter inlet is at least 12
pounds per square inch.
(1) Valve, Manufacturer: Miller Manufacturer (1), Chattanooga,
Tenn.; Filament, 2 inches, 200 W, 100 Tst.
(2) Valve, Manufacturer: Miller Manufacturer (2), Chattanooga,
Tenn.; Filament, 2 inches, 200 W, 100 Tst.

Filters continued

- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200 W, 400 Test.

40. Unit#2 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 $\frac{1}{2}$ inches of medimum gravel (second), 2 $\frac{1}{2}$ inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches of sand (filter media) (top); Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtering rate = 2 gpm per Square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 4 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200 W, 400 Test.

41. Unit#3 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 $\frac{1}{2}$ inches of medimum gravel (second), 2 $\frac{1}{2}$ inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches of sand (filter media) (top); Maximum working pressuer 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtering rate = 2 gpm per square foot filter area; Effective pressuer at the filter must be at least 15 pounds per square inch.

- (1) Valve, Butterfly; Manufacturer: mueller Valve Company(?), Chattanooga, Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 4 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200 W, 400 Test.

Filters continued

- (3) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 100 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 100 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 100 Test.

10. Unit 2 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Serial No. W/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 1/2 inches of medium gravel (second), 2 1/2 inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches of sand (filter media) (top);
 Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtration rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Infilco, 6 inches, 200 W, 100 Test.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Infilco, 6 inches, 200 W, 100 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 100 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 100 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 100 Test.

11. Unit 3 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Serial No. W/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 1/2 inches of medium gravel (second), 2 1/2 inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches of sand (filter media) (top);
 Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtration rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Infilco, 6 inches, 200 W, 100 Test.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Infilco, 6 inches, 200 W, 100 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 100 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 100 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 100 Test.

Filters continued

42. Unit#4 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 $\frac{1}{2}$ inches of medium gravel (second), 2 $\frac{1}{2}$ inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches of sand (filter media) (top); Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtering rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Butterfly; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 4 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200W, 400 Test.

43. Unit#5 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Number: 32-6997; Number: 108-RZ; Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 $\frac{1}{2}$ inches of medium gravel (second), 2 $\frac{1}{2}$ inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches sand (filter media) (top); Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtering rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Butterfly; Manufacturer: Mueller Valve Company(?) Chattanooga, Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 4 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200 W, 400 Test.
- (6) Valve, Gate; Manufacturer: Surface Wash, 2 inches.

44. Unit#6 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Number: 32-6997; Number: 108-RZ; Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 $\frac{1}{2}$ inches of medium gravel (second), 2 $\frac{1}{2}$ inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches sand

Filters continued

12. Filter - Filter, Pressure

Make: Lullco; Manufacturer: Lullco Incorporated, Tucson, Arizona.
Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 2 inches of coarse gravel (bottom), 2 inches of medium gravel (second), 2 inches of fine gravel (third), 2 inches of extra fine gravel (fourth), and 2 inches sand (filter media) (top);
Maximum working pressure 75 pounds; Maximum filtration rate 15 gpm per square foot filter area; Backwash rate = 15 gpm per square foot filter area; Filtration rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 12 pounds per square inch.

- (1) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Attachment: 6 inches, 200 W. 100 Test.
(2) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Attachment: 6 inches, 200 W. 100 Test.
(3) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash: 6 inches, 200 W. 100 Test.
(4) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Waste: 6 inches, 200 W. 100 Test.
(5) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash: 6 inches, 200 W. 100 Test.

13. Filter - Filter, Pressure

Make: Lullco; Manufacturer: Lullco Incorporated, Tucson, Arizona.
Number: 38-337; Model: 108-N; Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 2 inches of coarse gravel (bottom), 2 inches of medium gravel (second), 2 inches of fine gravel (third), 2 inches of extra fine gravel (fourth), and 2 inches sand (filter media) (top);
Maximum working pressure 75 pounds; Maximum filtration rate 15 gpm per square foot filter area; Backwash rate = 15 gpm per square foot filter area; Filtration rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 12 pounds per square inch.

- (1) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Attachment: 6 inches, 200 W. 100 Test.
(2) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Attachment: 6 inches, 200 W. 100 Test.
(3) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash: 6 inches, 200 W. 100 Test.
(4) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Waste: 6 inches, 200 W. 100 Test.
(5) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash: 6 inches, 200 W. 100 Test.
(6) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash: 6 inches, 200 W. 100 Test.

14. Filter - Filter, Pressure

Make: Lullco; Manufacturer: Lullco Incorporated, Tucson, Arizona.
Number: 38-337; Model: 108-N; Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 2 inches of coarse gravel (bottom), 2 inches of medium gravel (second), 2 inches of fine gravel (third), 2 inches of extra fine gravel (fourth), and 2 inches sand (filter media) (top);
Maximum working pressure 75 pounds; Maximum filtration rate 15 gpm per square foot filter area; Backwash rate = 15 gpm per square foot filter area; Filtration rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 12 pounds per square inch.

- (1) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Attachment: 6 inches, 200 W. 100 Test.
(2) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Attachment: 6 inches, 200 W. 100 Test.
(3) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash: 6 inches, 200 W. 100 Test.
(4) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Waste: 6 inches, 200 W. 100 Test.
(5) Valve, Gate; Manufacturer: Mueller Valve Company (?), Chattanooga, Tenn.; Wash: 6 inches, 200 W. 100 Test.

Filters continued

(filter media) (top); Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtering rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Butterfly; Manufacturer: Darling Valve and Manufacturing Company, Williamsport, Pa.; Influent, 6 inches, F-1503V, F-1200 Gear, 6-1258.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 4 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200 W, 400 Test.
- (6) Valve, Gate; Manufacturer:
Surface Wash, 2 inches.

45. Unit#1 - Filter Emergency Wash

- (1) Valve, Globe; Manufacturer: Jenkins Mark
Influent, 8 inches,
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (3) Valve, Gate, Manufacturer:
2 inches, for feeding Chlorine.

K. Spiractor

46. Unit#1 - Spiractor

Name: Permutit; Manufacturer: The Permutit Company, New York, New York.
Number BKE 144569; Installed December 1952; Constant flow of 700 gpm (maximum), Recommended 1.3 pounds of lime (93% Ca(OH)₂) per 1,000 gallons of water, (2 X Alk. B) - Alk. A = Alk. C, equation should be between - 1.0 and - 11.0, 8 gallons per minute per square foot (rate of flow), Catalyst growth 3 or 4 times original size.

- (1) Valve, Check; Manufacturer: Chapman
8 inches
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Influent, 8 inches,
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 8 inches
- (4) Valve, Plug; Manufacturer: Nordstrom
Stop and Waste, 4 inches
- (5) Valve, Gate; Manufacturer:
High Pressure, 2 inches

Filters continued

(filter media) (top); maximum working pressure 75 pounds; medium filter-
 action 127 gpm, backwash rate = 15 gpm per square foot filter area; filter-
 ing rate = 5 gpm per square foot filter area; effective pressure at the
 filter must be at least 15 pounds per square inch.

(1) Valve, butterfly; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Influent, 6 inches, F-1-100V, F-100 Gear, 6-100.
 (2) Valve, Gate; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Influent, 6 inches, 200 W, 100 Test.
 (3) Valve, Gate; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Waste, 6 inches, 200 W, 100 Test.
 (4) Valve, Gate; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Waste, 6 inches, 200 W, 100 Test.
 (5) Valve, Gate; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Rawwash, 6 inches, 200 W, 100 Test.
 (6) Valve, Gate; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Waste, 6 inches, 200 W, 100 Test.

Unit 1 - Filter Emergency Wash

(1) Valve, Globe; manufacturer: Jennings Tank
 Influent, 6 inches.
 (2) Valve, Gate; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Influent, 6 inches, 200 W, 100 Test.
 (3) Valve, Gate; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Waste, 6 inches, 200 W, 100 Test.

1. Spinetor

Unit 1 - Spinetor

Name: Ferranti; manufacturer: The Ferranti Company, New York, New York.
 Model: 1110; installed December 1922; constant flow of 700 gpm
 (maximum), recommended 1.3 pounds of lime (Ca(OH)₂) per 1,000 gallons
 of water, (2 X 111.0) - 111.0 = 111.0, equation should be between
 - 1.0 and - 11.0, 6 gallons per minute per square foot (rate of flow),
 Catalyst: 3 or 4 times original size.
 (1) Valve, Check; manufacturer: Gumpson
 Influent, 6 inches.
 (2) Valve, Gate; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Influent, 6 inches.
 (3) Valve, Gate; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Influent, 6 inches.
 (4) Valve, Ring; manufacturer: Nordstrom
 Slud and waste, 6 inches.
 (5) Valve, Gate; manufacturer: Inlet Valve Company; Chatanooga,
 Tenn.; Waste, 6 inches.

Water Treatment and Pumping PlantBldg.#S-39 Tarawa Terrace

L. Reservoir

47.

47. Unit#1 - Reservoir

Capacity: 750,000 gallons

M. Elevated Tank

48. Unit#1 - Tank, Elevated

Name: Horton Tank; Manufacturer:

Contract No. 6-2135; Capacity: 250,000 gallons;

Installed: 1952

(1) Transmitter, Electric

Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.

(2) Switch, Electric Control; Square D Company; Catalogue No. D97311; HP: $1 \frac{1}{2}$ / 3; Volts: 120/240; Amps: 30.

I. Reservoir

17. Unit - Reservoir

Capacity: 750,000 gallons

M. Elevated Tank

18. Unit - Tank, Elevated

Name: Horton Tank; Manufacturer:

Contract No. 2-2132; Capacity: 250,000 gallons;

Installed: 1952

(1) Transmitter, Electric

Name: Chronolo; Manufacturer: B-T-M Industries, Providence, Rhode

Island.

(2) Switch, Electric Control; Sprague D Company; Catalogue No. D37311; IP:

1 1/2 V 3; Volts: 120/240; Amps: 30.

Water Treatment and Pumping Plant

Bldg.#D-39

N. Booster Station

49. Unit#1 - Service Pump, Single Drive (Electric)

Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.

Type: Vertical Centrifugal; Number: K7344; Size: 2" 5313.

- (a) Motor, Electric; Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.
 Type: QZK; Design: N/A; Frame: RS324; Serial No. F213516; Spec. No. 2863-2; HP: 10; Cycles: 60; RPM: 1450; Amps: 28-26.4/13.2; Volts: 208-220/440; Phase: 3; C Rise: 40°; Code: F; SF: 1.15.
- (1) Switch, Electric (Start, Stop, and Reset); Manufacturer: Cutler-Hammer.
- (2) Switch, Electric (Automatic); Manufacturer: Wadsworth; Catalogue No. N5025F; Volts: 120/240; Amps: 30; Poles: 3.
- (3) Switch, Electric (Automatic, Start and Stop); Manufacturer: Autocon; Automatic Control Company.
- (b) Panel, Electric (Main for lights and motor); Manufacturer: Square D Company; Series: C 2; Catalogue No. A87413; Volts: 240; Amps: 100; HP: 15.
- (1) Panel, Electric (lights); Manufacturer: Electric-Center
- (c) Meter Head, Electric (for reading meter); Manufacturer: Anchor; Type: ST-8; Serial No. 1205082.
- (d) Valve, Back Pressure; Manufacturer: Gavsco; 8 inches; 150 WSP.
- (1) Switch, Solenoid (for B.P. valve); Manufacturer: Automatic Switch Company; Name: ASCO; Catalogue No. WP83009G NO; Serial No. 82104H; Volts: 230; Cycles: 60; Maximum Pressure Pounds 250.
- (2) Switch, Solenoid (for B.P. valve); Manufacturer: Automatic Switch Company; Name: ASCO; Catalogue No. LM83441; Serial No. 61990H; Volts: 230; Cycles: 60.
- (e) Valve, Gate; Manufacturer: N/A;
8 inches; 200 W
- (f) Valve, Gate; Manufacturer: N/A;
8 inches; 200 W

Booster Station

- 19. Switch - Service Pump, Single Drive (Electric)
 Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company;
 Fairbanks-Morse Building, Chicago 2, Ill.
 Type: Vertical Centrifugal; Number: 4511; Size: 2" 2313.
- (a) Motor, Electric; Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 2, Ill.
 Type: DCA; Design: V/A; Frame: 2521; Serial No. 721310; Spec. No. 203-2; HP: 10; Cycles: 60; RPM: 1150; Amps: 28.56; Volts: 208-220; Phases: 3; C Rises: 100; Order: T; ST: 1.12.
 (1) Switch, Electric (Start, Stop, and Reset); Manufacturer: OLI-
 tator.
- (2) Switch, Electric (Automatic); Manufacturer: Adair; Catalogue No. 15027; Volts: 120/110; Amps: 30; Poles: 3.
- (3) Switch, Electric (Automatic, Start and Stop); Manufacturer: Autocom; Automatic Control Company.
- (b) Panel, Electric (Main for lights and motor); Manufacturer: Square D; Company: Series: C 2; Catalogue No. 887113; Volts: 240; Amps: 100; HP: 1.
 (1) Panel, Electric (Lights); Manufacturer: Electric-Control
 (c) Meter Head, Electric (for reading meter); Manufacturer: Anchor; Type: 8T-8; Serial No. 120032.
 (d) Valve, Back Pressure; Manufacturer: Davco; 8 inches; 150 WSP.
 (1) Switch, Solenoid (for 3" valve); Manufacturer: Automatic Switch Company; Name: ASCO; Catalogue No. 750000 MD; Serial No. 121011; Volts: 220; Cycles: 60; Maximum Pressure Pounds: 250.
 (2) Switch, Solenoid (for 3" valve); Manufacturer: Automatic Switch Company; Name: ASCO; Catalogue No. 126311; Serial No. 119011; Volts: 220; Cycles: 60.
 (e) Valve, Gate; Manufacturer: V/A; 8 inches; 200 W.
 (f) Valve, Gate; Manufacturer: V/A; 8 inches; 200 W.

Water Treatment and Pumping Plant

O. Wells

50. Unit#1 - Well, Raw Water Bldg.# TT-26
 Depth: ; Diameter: inches; Cased to : feet; Yield: 135 gpm at
 51 feet

- (a) Pump, Turbine, Dual Drive (Electric and Gasoline)
 Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company,
 Fairbanks-Morse Building, Chicago 5, Ill.
 Type: Vertical Centrifugal; Serial No. AM-3355; Water cooled.
- (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Type: K; Model No. 5K284XA52A; Serial No. RHJ6875729; Frame: 284 P;
 HP: 10; Cycles: 60; RPM: 3480; Amps: 25. /12.8; Volts: 220/440;
 Phase: 3; Code: G; C Rise: 40°.
 - (aa) Switch, Electric (Starter, Stop, Reset, and Meter).
 Name: Monitor; Manufacturer: N/A; Type: 6333AB1; Number:
 328294; Volts: 220; HP: 3 Cycles: 60.
 - (2) Motor, Gasoline; Name: Wisconsin; Manufacturer: N/A; Model No.
 VE4; Serial No. 1771824; Spec. No. 49744; Size: 3 X 3 $\frac{1}{4}$;
 Cylinders: 4.
 - (3) Clutch, Mechanical: Name: Rockford; Manufacturer: Rockford Clutch
 Division, Rockford, Ill; Serial No. 162903.
 - (4) Meter, Water (not in operation); Name: Sparling; Manufacturer:
 Sparling Water Control Equipment; Number: 5267.
 - (5) Panel, Electric (Main for Motor, lights, and meter); Name: Cutler-
 Hammer; Manufacturer: N/A.
 (aa) Panel, Electric (for lights); Name: Murry; Manufacturer: N/A.
 - (6) Valve, Check; Jenkins; 4 inches; 125 WSP; 200 OWG.
 - (7) Valve, Gate; Mueller; 4 inches; 150 W; 300 Test.
 - (8) Valve, Gate; 2 inches;

51. Unit#2 - Well, Raw Water Bldg.# TT-27
 Depth: 95 feet; Diameter: 16 inches; Cased to 95 feet; Yield: 156 gpm;
 Drilled: 1951. (Not in Operation)

- (a) Pump, Turbine, Dual Drive (Electric and Gasoline)
 (Not one in this well house)
- (1) Motor, Electric (Not one in this well house)
 - (2) Motor, Gasoline; Name: Wisconsin; Manufacturer: N/A; Model No.
 VE4; Serial No. 1771825; Spec. No. 49744; Size: 3 X 3 $\frac{1}{4}$;
 Cylinders: 4.
 (aa) Drive, Right Angle (Not one in this well house)
 - (3) Clutch, Mechanical: Name: Rockford; Manufacturer: Rockford Clutch
 Division, Rockford, Ill.; Serial No. 162910.
 - (4) Meter, Water (Not in operation); Name: Sparling; Manufacturer:
 Sparling Water Control Equipment; Number: 5269.
 - (5) Panel, Electric (Main for motor and lights); Name: Westinghouse;
 Catalogue No. CF423-1; Style: 1420192; HP: 15; Amps: 100; Volts:
 230.
 (aa) Panel, Electric (for lights); Name: Square D Company.
 (bb) Switch, Electric (For motor, lights, and meter); Name:
 Westinghouse; Type: N.
 - (6) Valve, Gate; Elec Iron; 4 inches; 125 S; 200 OWG.

Water Treatment and Pumping Plant

0. Wells

Well - Well, raw water
Depth: 110 feet; Diameter: 18 inches; Yield: 135 gpm at 21 feet

(a) Pump, Turbine Drive (Electric and Gasoline)
Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company; Fairbanks-Morse Building, Chicago 2, Ill.

(1) Motor, Electric
Type: Vertical; Model No. AM-3355; Water cooled.
Name: General Electric; Manufacturer: General Electric, Schenectady, New York.
Type: K; Model No. 220-1121; Serial No. 111887722; Frame: 281 P; W: 10; Cycles: 60; RPM: 3600; Amps: 22; V: 220; Volts: 220/110; Phase: 3; Code: 0; Size: 60.
(a) Switch, Electric (Start, Stop, Reset, and Meter).
Name: Monitor; Manufacturer: W.A. Taper; 5333A1; Number: 328291; Volts: 220; Cycles: 60.

(2) Motor, Gasoline
V: Serial No. 111887722; Amps: 22; V: 220; Volts: 220/110; Size: 3 X 3; Manufacturer: J. C. Clifton.

(3) Clutch, Mechanical
Name: Rockford; Manufacturer: Rockford Clutch Division, Rockford, Ill.; Serial No. 142903.

(4) Motor, Water (not in operation)
Name: J.C. Clifton; Manufacturer: J.C. Clifton; Number: 5207.

(5) Panel, Electric (Main for Motor, Lights, and Meter)
Name: W.A. Taper; Manufacturer: W.A. Taper.

(a) Panel, Electric (for Lights)
Name: W.A. Taper; Manufacturer: W.A. Taper; Valves, Check; Lenses: 1; Amps: 12; W: 200; V: 200; V: 200; Valves, Gate; Lenses: 1; Amps: 12; W: 300; Test. Valves, Gate; Lenses: 1; Amps: 12; W: 300; Test.

(6) Valve, Gate
(7) Valve, Gate
(8) Valve, Gate

Well 2 - Well, raw water
Depth: 95 feet; Diameter: 18 inches; Yield: 150 gpm at 25 feet

(a) Pump, Turbine Drive (Electric and Gasoline)
Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company; Fairbanks-Morse Building, Chicago 2, Ill.

(1) Motor, Electric (not one in this well house)
Name: General Electric; Manufacturer: General Electric, Schenectady, New York.
(2) Motor, Gasoline
V: Serial No. 111887722; Amps: 22; V: 220; Volts: 220/110; Size: 3 X 3; Manufacturer: J. C. Clifton.

(3) Clutch, Mechanical
Name: Rockford; Manufacturer: Rockford Clutch Division, Rockford, Ill.; Serial No. 142903.

(4) Motor, Water (not in operation)
Name: J.C. Clifton; Manufacturer: J.C. Clifton; Number: 5207.

(5) Panel, Electric (Main for Motor and Lights)
Name: W.A. Taper; Manufacturer: W.A. Taper.

(a) Panel, Electric (for Lights)
Name: W.A. Taper; Manufacturer: W.A. Taper; Valves, Check; Lenses: 1; Amps: 12; W: 200; V: 200; V: 200; Valves, Gate; Lenses: 1; Amps: 12; W: 300; Test. Valves, Gate; Lenses: 1; Amps: 12; W: 300; Test.

(6) Valve, Gate
(7) Valve, Gate
(8) Valve, Gate

(a) Panel, Electric (for Motor, Lights, and Meter)
Name: W.A. Taper; Manufacturer: W.A. Taper.

(b) Valve, Gate
(c) Valve, Gate
(d) Valve, Gate

Water Treatment and Pumping Plant

Wells Continued

52. Unit#3 - Well , Raw Water Bldg.# TT-28
 Depth: 167 feet; Diameter: 16 inches; Cased: 167 feet; Yield: 257 GPM at 40 feet; Drilled: 1951.
 (a) Pump, Turbine Single Drive (Electric)
 Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.
 Type: Vertical Centrifugal; Serial No. AN6384; Water cooled.
 (1) Motor, Electric; Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.
 Number: FL63908; S.F. 115; Frame: 12845V; HP: 10; Cycles: 60; RPM: 1750; Amps: 28/14; Volts: 208/416; Phase: 3; Code: F; C Rise: 40°.
 (2) Panel, Electric(Main for lights and motor); Name: Federal; Catalogue No. 31132; HP: 15; Amps: 100; Volts: 230; Type: D; Poles: 3.
 (aa) Panel, Electric(For lights); Name: Square D Company.
 (bb) Switch, Electric (For Start, Stop, and Reset); Name: Ardleonar.
 (3) Valve, Check; Jenkins; 4 inches; 125 WSP; 200 OWG.
 (4) Valve, Gate; Mall Iron; 4 inches; 125 W; 200 OWG.
53. Unit#4 - Well, Raw Water Bldg.# TT-29
 Depth: 186; Diameter: 16 inches; Cased: 186 feet; Yield: 125 GPM at Drilled: 1951.
 (a) Pump, Turbine Single Drive (Electric)
 (Not one in this house)
 (1) Motor, Electric; (Not one in this well House)
 (2) Meter, Water (Not in operation); Name: Sparling; Manufacturer: Sparling Water Control Equipment; Number: 5268.
 (3) Panel, Electric (Main for lights and motor); Name: Westinghouse; Catalogue No. CF4231; Style: 1186236 B; HP: 15; Amps: 100; Volts: 230.
 (aa) Panel, Electric (For lights and meter); Name: Wadsworth; Catalogue No. N25; Amps: 30; Volts: 125/250; Poles: 3;
 (bb) Switch, Electric (For Start, Stop, and Reset); Name: General Electric.
 (4) Valve, Check; Jenkins; 4 inches; 125 WSP; 200 OWG.
54. Unit#5 - Well, Raw Water Bldg.# TT-45
 Depth: Diameter: Cased: Yield: gpm at
 Drilled:
 (a) Pump, Turbine Single Drive (Electric)
 Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill. (Not in operation)
 Type: Vertical Centrifugal; Serial No. N/A; Water Cooled.
 (1) Motor, Electric; Name: Fairbanks and Morse; Manufacturer; Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.
 Number: F206380; Spec. No. 10594-1; S.F. 1.15; Frame: 125 4PV; Volts: 208-220/440; HP: 7 1/2; Cycles: 60; RPM: 1755; Amps: 21.4-20.4/10.1; Phase: 3; Code: G; C Rise: 40°; Type: QZKV.
 (aa) Switch, Electric (Starter, Stop, and Reset); Name: Ardleonar.
 (2) Meter, Water (Not in operation); Name: Sparling; Manufacturer: Sparling Water Control Equipment; Number: 5266.
 (3) Panel, Electric (Main for lights and motor and meter); Name: Federal.

Wells Continued

22. Well - Well, New Water - No. 11, 11-28
Depth: 165 feet; Diameter: 10 inches; Cased: 157 feet; Yield: 25.7 gpm at
10 feet; Drilled: 1931.

- (a) Pump, Fairbanks Drive (Electric)
Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company,
Fairbanks-Morse Building, Chicago 5, Ill.
Type: Vertical Centrifugal; Serial No. A1836; Water cooled.
- (1) Motor, Electric; Name: Fairbanks and Morse; Manufacturer: Fairbanks,
Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.
Number: F103; H.P.: 2.7; V.P.: 120; V.L.: 10; V.H.: 10; V.S.: 10; V.T.: 10;
V.F.: 10; V.G.: 10; V.I.: 10; V.J.: 10; V.K.: 10; V.L.: 10; V.M.: 10;
V.N.: 10; V.O.: 10; V.P.: 10; V.Q.: 10; V.R.: 10; V.S.: 10; V.T.: 10;
V.U.: 10; V.V.: 10; V.W.: 10; V.X.: 10; V.Y.: 10; V.Z.: 10.
- (2) Panel, Electric (Main for lights and motor); Name: Federal; Catalogue
No. 31132; H.P.: 15; V.P.: 120; V.L.: 10; V.H.: 10; V.S.: 10; V.T.: 10;
V.F.: 10; V.G.: 10; V.I.: 10; V.J.: 10; V.K.: 10; V.L.: 10; V.M.: 10;
V.N.: 10; V.O.: 10; V.P.: 10; V.Q.: 10; V.R.: 10; V.S.: 10; V.T.: 10;
V.U.: 10; V.V.: 10; V.W.: 10; V.X.: 10; V.Y.: 10; V.Z.: 10.
- (a) Panel, Electric (for lights); Name: General Electric Company.
- (b) Switch, Electric (for start, stop, and reset); Name: Arcton.
- (3) Valve, Check; Jenkins; 4 inches; 157.67; 200 gpm.
- (4) Valve, Gate; 2 1/2 inch; 157.67; 200 gpm.

23. Well - Well, New Water - No. 12, 11-29
Depth: 155 feet; Diameter: 10 inches; Cased: 157 feet; Yield: 13.5 gpm at
10 feet; Drilled: 1931.

- (a) Pump, Fairbanks Drive (Electric)
(Not one in this house)
- (1) Motor, Electric; (Not one in this well house)
- (2) Motor, water (not in operation); Name: Fairbanks; Manufacturer:
Fairbanks Water Control Equipment; Number: 5200.
- (3) Panel, Electric (Main for lights and motor); Name: Westinghouse;
Catalogue No. WE1231; H.P.: 15; V.P.: 120; V.L.: 10; V.H.: 10; V.S.: 10;
V.T.: 10; V.F.: 10; V.G.: 10; V.I.: 10; V.J.: 10; V.K.: 10; V.L.: 10;
V.M.: 10; V.N.: 10; V.O.: 10; V.P.: 10; V.Q.: 10; V.R.: 10; V.S.: 10;
V.T.: 10; V.U.: 10; V.V.: 10; V.W.: 10; V.X.: 10; V.Y.: 10; V.Z.: 10.
- (a) Panel, Electric (for lights and water); Name: Westinghouse;
Catalogue No. WE1231; H.P.: 15; V.P.: 120; V.L.: 10; V.H.: 10; V.S.: 10;
V.T.: 10; V.F.: 10; V.G.: 10; V.I.: 10; V.J.: 10; V.K.: 10; V.L.: 10;
V.M.: 10; V.N.: 10; V.O.: 10; V.P.: 10; V.Q.: 10; V.R.: 10; V.S.: 10;
V.T.: 10; V.U.: 10; V.V.: 10; V.W.: 10; V.X.: 10; V.Y.: 10; V.Z.: 10.
- (b) Switch, Electric (for start, stop, and reset); Name: General
Electric.
- (4) Valve, Check; Jenkins; 4 inches; 157.67; 200 gpm.

24. Well - Well, New Water - No. 13, 11-30
Depth: 155 feet; Diameter: 10 inches; Cased: 157 feet; Yield: 13.5 gpm at
10 feet; Drilled: 1931.

- (a) Pump, Fairbanks Drive (Electric)
Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company,
Fairbanks-Morse Building, Chicago 5, Ill. (not in operation)
Type: Vertical Centrifugal; Serial No. WA; Water Cooled.
- (1) Motor, Electric; Name: Fairbanks and Morse; Manufacturer:
Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5,
Ill.
- Number: F103; H.P.: 2.7; V.P.: 120; V.L.: 10; V.H.: 10; V.S.: 10; V.T.: 10;
V.F.: 10; V.G.: 10; V.I.: 10; V.J.: 10; V.K.: 10; V.L.: 10; V.M.: 10;
V.N.: 10; V.O.: 10; V.P.: 10; V.Q.: 10; V.R.: 10; V.S.: 10; V.T.: 10;
V.U.: 10; V.V.: 10; V.W.: 10; V.X.: 10; V.Y.: 10; V.Z.: 10.
- (a) Switch, Electric (Start, stop, and reset); Name: Arcton.
- (2) Motor, water (not in operation); Name: Fairbanks; Manufacturer:
Fairbanks Water Control Equipment; Number: 5200.
- (3) Panel, Electric (Main for lights and motor); Name:
Federal.

(2) Panel, Electric (for lights and meter); name: Trumbull Electric.

- (1) Valve, Check; 1/2 inch; 150-0-0.
- (2) Valve, Gate; 1/2 inch; 150-0-0.

25. Unit 6 - Well, Raw Water
 Location: -
 Diameter: -
 Grilled: -
 Yards: -

(a) Pump, Turbine Drive (Electric)
 Name: Fairbanks and Morse; manufacturer: Fairbanks, Morse and Company.
 Fairbanks-Morse Building, Chicago 2, Ill. (not in operation)

(1) Motor, Electric; name: General Electric; manufacturer: General Electric, Schenectady, New York.
 Number: 4400000000; Model No. 2400000000; Frame: 200 F; Volts: 220/110; Hz: 60; Cycles: 60; RPM: 3400; Amps: 27.5/12.5; Phase: 3; Code: B; Type: A.

(2) Meter, Water (not in operation); name: Spurling; manufacturer: Spurling Water Control Equipment; number: 7A; serial No. 2116.

(3) Panel, Electric (main for lights and meter and motor); name: Trumbull Electric.
 Gutter-Runner.

- (4) Valve, Check; 1/2 inch; 150-0-0.
- (5) Valve, Gate; 1/2 inch; 150-0-0.
- (6) Valve, Gate; diameter: 2 inches.

26. Unit 7 - Well, Raw Water
 Location: -
 Diameter: -
 Grilled: -
 Yards: -

(a) Pump, Turbine Drive (Electric and Gasoline)
 Name: name; manufacturer: name and name; name, name.

(1) Motor, Electric (no nameplate data)
 Type: name; manufacturer: name; number: 12000; Oil-Cooled.

(2) Motor, Gasoline; name: name; manufacturer: name; name.
 Name: name; manufacturer: name; name.

(3) Gutter, name; name: name; manufacturer: name; name.
 and name; name: name; name, name.

(4) Valve, name; name: name; manufacturer: name; name.
 Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 2, Ill.
 Serial No. A-1-1; Model No. 1; Drive: 1; Hz: 60.

(5) Valve, name; name: name; manufacturer: name; name.
 (6) Valve, name; name: name; manufacturer: name; name.

- (7) Valve, Check; diameter: 1/2 inches;
- (8) Valve, Gate; 1/2 inches;
- (9) Valve, Gate; 2 inches;

Water Treatment and Pumping Plant

Wells continued

57. Unit#8 - Well, Raw Water Bldg.# TT-55
 Depth: 98 ft. Diameter: Cased: Yield: 100 gpm at 95 feet
 head; Pumping level 30 feet; Air line 50 feet; Static: 12 feet; Discharge
 head: 65 feet.
- (a) Pump, Turbine Single Drive (Electric)
 Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company,
 Pasadena, California.
 Type: ~~Vertical~~ Centrifugal; Serial No. JS6234; Oil Cooled.
- (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Number: CV; Model No. 5K215FG3313; Frame: 215P; Volts: 208-220/440;
 HP:5; Cycles: 60; RPM: 1745; Amps: 14.2/7.1; Phase: 3; Code: H;
 C Rise: 55.
- (2) Panel, Electric (Main for lights and motor); Name: Square D Company;
 Catalogue No. MLS-2-3450-2A; Volts: 120/208; Amps: 150; Phase: 3;
 Wire: 4.
 (aa) Switch, Electric (For Start, Stop, and Reset); Name: Square D
 Company; Type: DA-1; Series: A; Class: 8536; Form: A.
- (3) Valve, Back Pressure; Manufacturer: Ross Valve Mfg. Co. Inc., Troy
 New York; Model No. 50 RWR; Serial No. 61506.
- (4) Valve, Release; Name: Multiplex; Manufacturer: Multiplex Mfg. Co.,
 Berwick, Pa.;
- (5) Valve, Check; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP.
- (6) Valve, Gate; Mueller, Chattanooga, Tenn.; 6 inches; 175 W; 350 Test.
- (7) Valve, Gate; Mueller, Chattanooga, Tenn.; 4 inches; 175 W; 350 Test.
58. Unit#9 - Well, Raw Water Bldg.# TT-52
 Depth: Diameter: Cased: Yield: 300 gpm at 100 feet
 head; Pumping level 35 feet; Air line: 50 feet; Static: 18 feet; Discharge
 head: 65 feet.
- (a) Pump, Turbine Single Drive (Electric)
 Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company,
 Pasadena, California.
 Type: ~~Vertical~~ Centrifugal; Serial No. JS-6235; Oiled Cooled.
- (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Serial No. ZVJ1222273; Model No. 5K4284XS202; Frame: 284UP; Volts:
 208-220/440; HP:15; Cycles: 60; RPM: 1760; Amps: 39.8/19.9; Phase:
 3; Code: F; C Rise: 55; Design: B; Type: K.
- (2) Panel, Electric (Main for lights and motor); Name: Square D Company;
 Catalogue No. MLS-2-3450-2A; Volts: 120/208; Amps: 150; Phase: 3;
 Type: MLS.
 (aa) Panel, Electric (For start, stop, and Reset); Name: Square D
 Company; Type: DA-1; Series: A; Class: 8536; Form: A.
- (3) Valve: Back Pressure: Manufacturer: Ross Valve Mfg. Co. Inc., Troy,
 New York; Model No. 50RWR; Serial No. 61505.
- (4) Valve, Air Release; Name: Multiplex; Manufacturer: Multiplex Mfg.
 Co., Berwick, Pa.
- (5) Valve, Check; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP.
- (6) Valve, Gate; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP; 350 Test.
- (7) Valve, Gate; Mueller, Chattanooga, Tenn.; 4 inches; 175 WP; 350 Test.

Wells continued

27. Unit - Well, Raw Water
 Discharge: 100 gpm at 100 feet
 head: pumping level 30 feet; static: 15 feet; discharge
 head: 65 feet
 (a) Pump, Vertical Single Drive (Electric)
 Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company,
 Pasadena, California.
 Type: Vertical Single Drive; Serial No. 108231; Oil Cooled.
 (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Number: 01; Model No. 5K1222222; Frame: 215; Volts: 20-250 V/Ph;
 HP: 5; Code: 00; Type: A; Amps: 1.2; Phase: 3; Code: B;
 Poles: 2.
 (2) Panel, Electric (with the lights and motor); Name: Square D Company;
 Catalogue No. 100-2-310-2A; Volts: 120/20; Amps: 150; Phase: 3;
 Type: 100.
 (a) Panel, Electric (for start, stop, and reset); Name: Square D
 Company; Type: 100-1; Series: A; Class: 0330; Form: 1.
 (3) Valve, Gate; Name: Manufacturer: Ross Valve Mfg. Co., Inc., Troy,
 New York; Model No. 61202.
 (4) Valve, Release; Name: Manufacturer: Mitchell Mfg. Co.,
 Berwick, Pa.
 (5) Valve, Gate; Name: Manufacturer, Chattanooga, Tenn.; 6 inches; 175 lb.
 (6) Valve, Gate; Name: Manufacturer, Chattanooga, Tenn.; 6 inches; 175 lb; 320 Test.
 (7) Valve, Gate; Name: Manufacturer, Chattanooga, Tenn.; 6 inches; 175 lb; 320 Test.

28. Unit - Well, Raw Water
 Discharge: 300 gpm at 100 feet
 head: pumping level 35 feet; static: 15 feet; discharge
 head: 65 feet
 (a) Pump, Vertical Single Drive (Electric)
 Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company,
 Pasadena, California.
 Type: Vertical Single Drive; Serial No. 10-5232; Oil Cooled.
 (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Serial No. 5K1222222; Model No. 5K1222222; Frame: 215; Volts:
 20-250 V/Ph; HP: 5; Code: 00; Type: A; Amps: 1.2; Phase: 3; Code: B;
 Poles: 2.
 (2) Panel, Electric (with the lights and motor); Name: Square D Company;
 Catalogue No. 100-2-310-2A; Volts: 120/20; Amps: 150; Phase: 3;
 Type: 100.
 (a) Panel, Electric (for start, stop, and reset); Name: Square D
 Company; Type: 100-1; Series: A; Class: 0330; Form: 1.
 (3) Valve, Gate; Name: Manufacturer: Ross Valve Mfg. Co., Inc., Troy,
 New York; Model No. 61202.
 (4) Valve, Air Release; Name: Manufacturer: Mitchell Mfg. Co.,
 Berwick, Pa.
 (5) Valve, Gate; Name: Manufacturer, Chattanooga, Tenn.; 6 inches; 175 lb.
 (6) Valve, Gate; Name: Manufacturer, Chattanooga, Tenn.; 6 inches; 175 lb; 320 Test.
 (7) Valve, Gate; Name: Manufacturer, Chattanooga, Tenn.; 6 inches; 175 lb; 320 Test.

Water Treatment and Pumping Plant

Wells continued

59. Unit#10 - Well, Raw Water Bldg.# TT-53
 Depth: Diameter: Cased: Yield: 350 gpm at 121
 feet head; Pumping level: 60 feet; Air line: 70 feet; Static: 16 feet;
 Discharge head: 50 feet.
- (a) Pump, Turbine Dual Drive (Electric and Gasoline)
 Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company,
 Pasadena, California.
 Type: ~~Horizontal~~ Vertical Centrifugal; Serial No. JS-6138; Oil Lubricated.
- (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Serial No. ZVJL222241; Model No. 5K4284XS2C2; Frame: 284UP; Volts:
 208-220/440; HP:15; Cycles: 60; RPM:1760; Amps: 39.8/19.9; Phase:
 3; Code: F; C Rise: 55; Type: K; Class: B.
- (2) Motor, Gasoline; Name: Wisconsin; Manufacturer: Wisconsin Motor
 Corporation, Milwaukee, Wisconsin.
 Serial No. 3366110; Model No. VF4D; Spec. No. 204555; Size: 3 $\frac{1}{4}$ X 3 $\frac{1}{4}$;
 Cylinders: 4.
- (3) Drive, Right Angle; Name: Johnson; Manufacturer: Johnson Gear and
 Manufacturer Company, Berkeley, California.
 Serial No. 3 2835; H. A15; Ratio: 4-3; B.H.P. 15; RPM: 1760.
- (4) Panel, Electric (For Main lights and motor); Name: Square D Company;
 Catalogue No. MLS-2-3450-2A; Volts: 120/208; Amps: 150; Phase: 3;
 Wire: 4.
 (aa) Panel, Electric (For Start, Stop, and Reset); Name: Square D
 Company; Type: DA-1; Series: A; Class: 8536; Frame: A.
- (5) Valve, Back Pressure; Manufacturer: Ross Valve Mfg. Co. Inc., Troy,
 New York; Model No. 5ORWR; Serial No. 6150.
- (6) Valve, Air Release; Name: Multiplex; Manufacturer: Multiplex Mfg.
 Co., Berwick, Pa.
- (7) Valve, Check; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP.
- (8) Valve, Gate; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP; 350 Test.
- (9) Valve, Gate; Mueller, Chattanooga, Tenn.; 4 inches; 175 WP; 350 Test.
60. Unit#11 - Well, Raw Water Bldg.# TT-54
 Depth: Diameter: Cased: Yield: 200 gpm at 112
 feet head; Pumping level 55 feet; Air line: 65 feet; Static: 18 feet; Dis-
 charge head: 62 feet.
- (a) Pump, Turbine Dual Drive (Electric and Gasoline)
 Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company,
 Pasadena, California.
 Type: ~~Horizontal~~ Vertical Centrifugal; Serial No. JS-6139; Oil Lubricated.
- (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Serial No. ZVJL222234; Model No. 5K4256XS2C2; Frame: 256UP; Volts:
 208-220/440; HP: 10; Cycles: 60; RPM: 1760; AMps: 27/13.5; Phase:
 3; Code: C; C Rise: 55; Design: B; Type: K.
- (2) Motor, Gasoline; Name: Wisconsin; Manufacturer: Wisconsin Motor
 Corporation, Milwaukee, Wisconsin.
 Serial No. 3366111; Model No. VF4D; Spec. No. 204555; Size: 3 $\frac{1}{4}$ X 3 $\frac{1}{4}$;
 Cylinders: 4.

Wells continued

59. Unit 10 - Well, Raw Water

Length: 100 feet; Diameter: 12 inches; Cased; Yield: 350 gpm at 120 feet head; Pumping level: 60 feet; Air line: 70 feet; Casing: 16 feet; Discharge head: 50 feet.

(a) Pump, Turbine Drive (Electric and Gasoline)

Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company, Pasadena, California.

Type: Vertical Turbine; Serial No. 75-6130; Oil lubricated.

(1) Motor, Electric; Name: General Electric; Manufacturer: General Electric, Schenectady, New York.

Serial No. 208-220; Model No. 208-220; HP: 15; Cycles: 60; Amps: 39.8/1.9; Phase: 3; Code: C; C Base: 25; Type: K.

(2) Motor, Gasoline; Name: Wisconsin; Manufacturer: Wisconsin Corporation, Milwaukee, Wisconsin.

Serial No. 3366110; Model No. V410; Spec. No. 201555; Size: 3; Cylinders: 4.

(3) Drive, Right Angle; Name: Johnson; Manufacturer: Johnson Gear and Manufacturing Company, Berkeley, California.

Serial No. 3 2835; P. A.S. Ratio: 4-3; S.H.P. 15; H.P. 1700.

(4) Panel, Electric (for main lights and motor); Name: Square D Company; Catalogue No. MRS-2-3150-2A; Volts: 120/208; Amps: 150; Phase: 3; Wire: 4.

(5a) Panel, Electric (for Start, Stop, and Reset); Name: Square D Company; Type: DA-1; Series: A; Class: 5330; Frame: A.

(5) Valve, Back Pressure; Manufacturer: Lion Valve Mfg. Co., Inc., New York; Model No. 505R; Serial No. 6150.

(6) Valve, Air Release; Name: Multiplex; Manufacturer: Multiplex Mfg. Co., Newark, Pa.

(7) Valve, Check; Material: Cast Iron; Size: 6 inches; 175 W.P.

(8) Valve, Gate; Material: Cast Iron; Size: 6 inches; 175 W.P.; 350 Test.

(9) Valve, Gate; Material: Cast Iron; Size: 6 inches; 175 W.P.; 350 Test.

60. Unit 11 - Well, Raw Water

Length: 100 feet; Diameter: 12 inches; Cased; Yield: 300 gpm at 110 feet head; Pumping level: 55 feet; Air line: 65 feet; Casing: 15 feet; Discharge head: 45 feet.

(a) Pump, Turbine Drive (Electric and Gasoline)

Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company, Pasadena, California.

Type: Vertical Turbine; Serial No. 75-6130; Oil lubricated.

(1) Motor, Electric; Name: General Electric; Manufacturer: General Electric, Schenectady, New York.

Serial No. 208-220; Model No. 208-220; HP: 15; Cycles: 60; Amps: 39.8/1.9; Phase: 3; Code: C; C Base: 25; Type: K.

(2) Motor, Gasoline; Name: Wisconsin; Manufacturer: Wisconsin Corporation, Milwaukee, Wisconsin.

Serial No. 3366111; Model No. V410; Spec. No. 201555; Size: 3; Cylinders: 4.

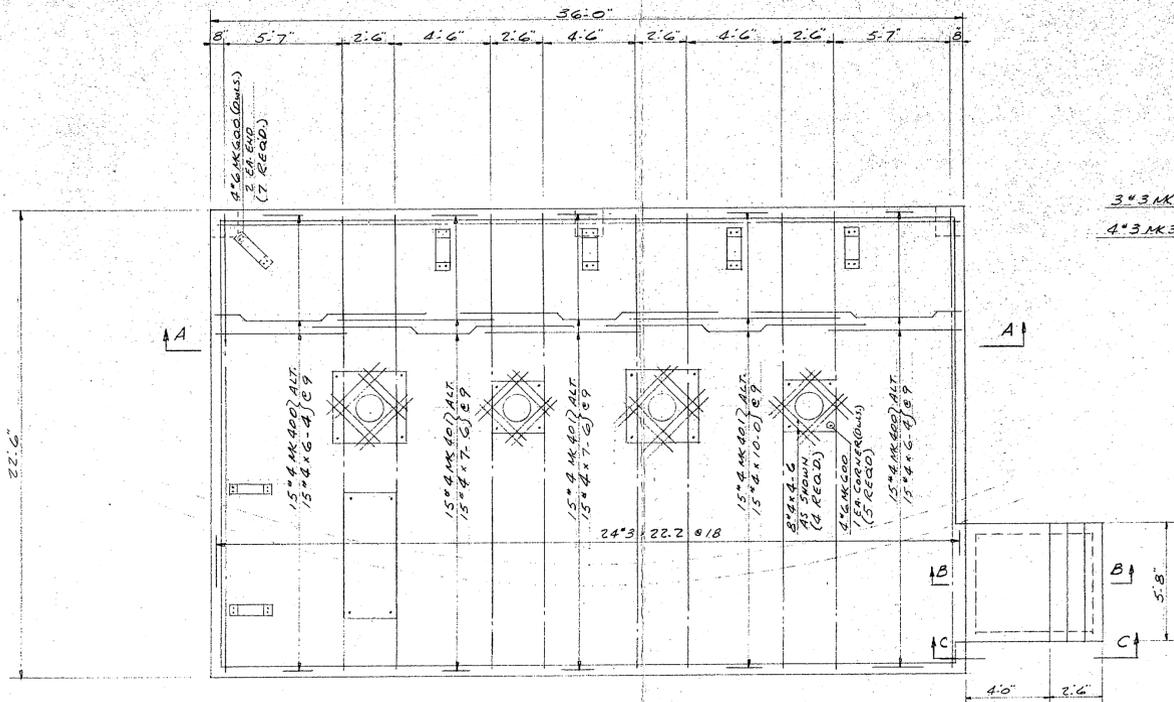
Water Treatment and Pumping Plant

Wells continued

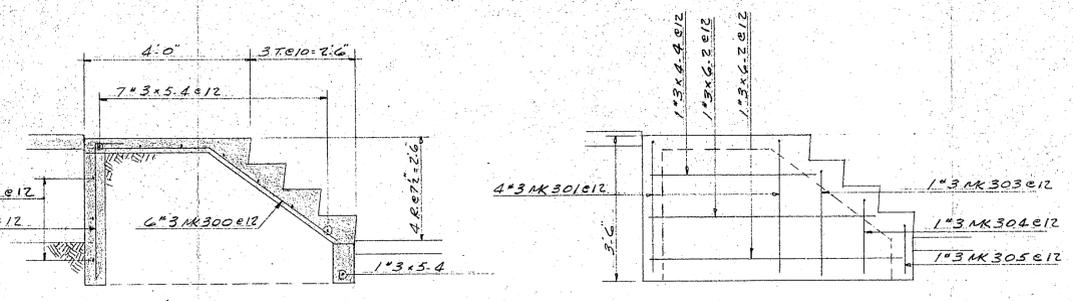
- (3) Drive, Right Angle; Name: Johnson; Manufacturer: Johnson Gear and Manufacturer Company, Berkeley, California.
Serial No. 32836; HP: 15 at RPM: 1760; H.: A15; Ratio: 4-3.
- (4) Panel, Electric (Main for lights and motor); Name: Square D Company; Catalogue No. MLS-2-3450-2A; Volts: 120/208; Amps: 150; Phase 3.
(aa) Panel, Electric (For Start, Stop, and Reset); Name: Square D Company; Type: DA-1; Series: A; Class: 8536; Form: A.
- (5) Valve, Back Pressure; Manufacturer: Ross Valve Mfg. Co. Inc., Troy, New York; Model No. 5ORWR; Serial No. 61504.
- (6) Valve, Air Release; Name: Multiplex; Manufacturer: Multiplex Mfg. Co., Berwick, Pa.
- (7) Valve, Check; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP.
- (8) Valve, Gate; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP; 350 Test.
- (9) Valve, Gate; Mueller, Chattanooga, Tenn.; 4 inches; 175 WP; 350 Test.

Wells continued

- (3) Drive, Right Angle; Name: Johnson; Manufacturer: Johnson Gear and
 Manufacturer Company, Berkeley, California.
 Serial No. 32030; H.P. 15 at 1750; R.P.M. 415; Ratio 1-2.
- (4) Panel, Electric (Main for lights and motor); Name: Square D Company;
 Catalogue No. H12-2-3150-2A; Volts: 120/200; Amps: 150; Phase 3.
 (a) Panel, Electric (for start, stop, and reset); Name: Square D
 Company; Type: DA-1; Series: A; Class: 6530; Form: A.
- (5) Valve, Check Pressure; Manufacturer: Ross Valve Mfg. Co. Inc., Troy,
 New York; Model No. 5000; Serial No. 61504.
- (6) Valve, Air Release; Name: Mulliplex; Manufacturer: Mulliplex Mfg.
 Co., Herwick, Pa.
- (7) Valve, Check; Material: Chattanooga, Tenn.; 6 inches; 1 1/2 ft.
- (8) Valve, Gate; Material: Chattanooga, Tenn.; 6 inches; 175 W.P.; 350 Test.
- (9) Valve, Gate; Material: Chattanooga, Tenn.; 6 inches; 175 W.P.; 350 Test.

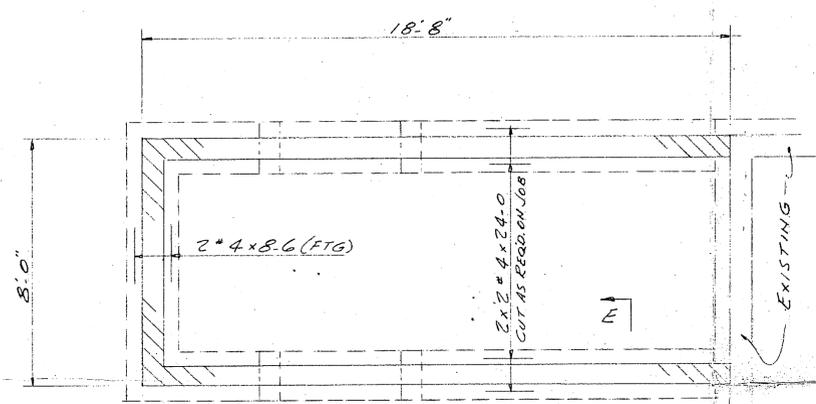


FLOOR PLAN
NEW PUMP HOUSE
4"=1'-0"

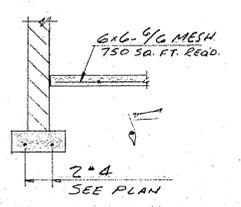


SECTION B-B
2"=1'-0"

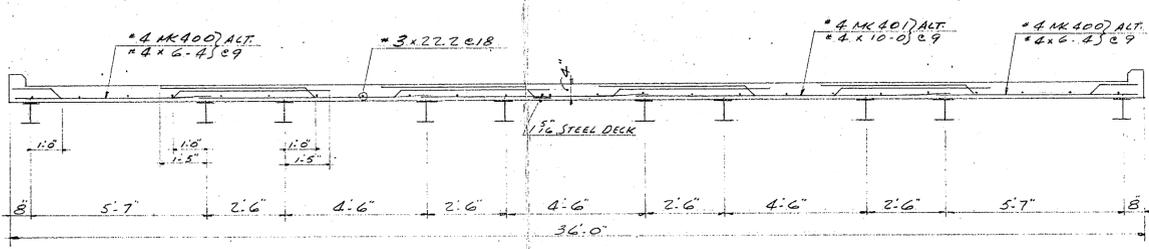
2 REQD
ELEVATION C-C
2"=1'-0"



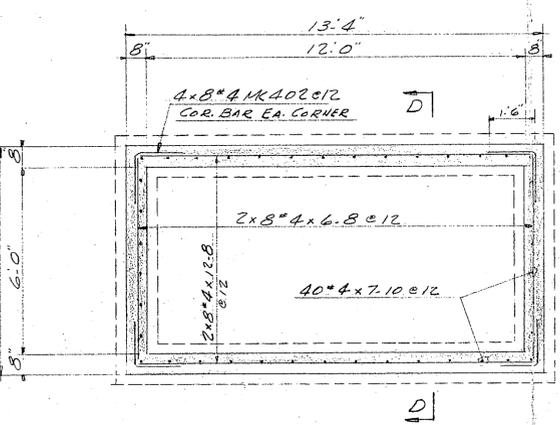
FOUNDATION PLAN
BLDG. ADDITION
3/8"=1'-0"



SECTION E-E
3/8"=1'-0"

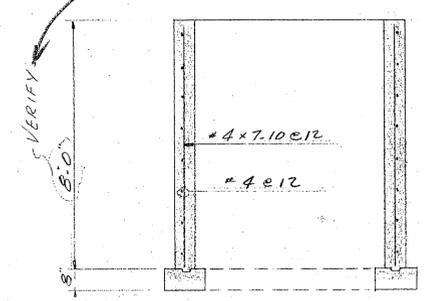


SECTION A-A
3/8"=1'-0"

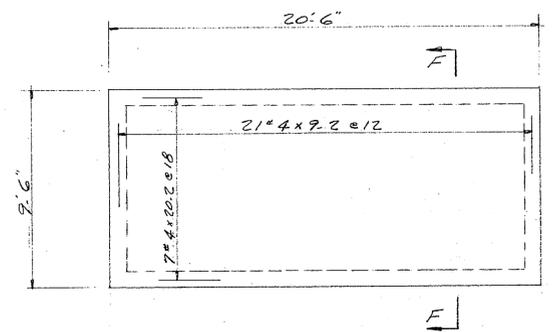


PLAN - FUEL TANK PIT
3/8"=1'-0"

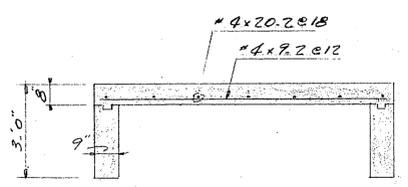
DEPENDENT ON TANK & EQUIP. ELEV,
SEE PRIME CONTRACTOR



SECTION D-D
3/8"=1'-0"



PLAN - FILTER PLATFORM
4"=1'-0"



SECTION F-F
3/8"=1'-0"

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
WATERWAY 14, VA.

APPROVED:
SUBJECT TO THE REQUIREMENTS OF
CONTRACT NO. 46508 (SHEET 46508/6)
APPROVAL OF MATERIALS AND EQUIPMENT
INDICATED HEREON IS LIMITED TO THE INFORMATION
FURNISHED TO THE CONTRACTOR
THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING
PROPER DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

W. C. G. CHURCH
BADM. CEC. USN
DIR. YARDS & DOCKS

Date JAN. 7 1963

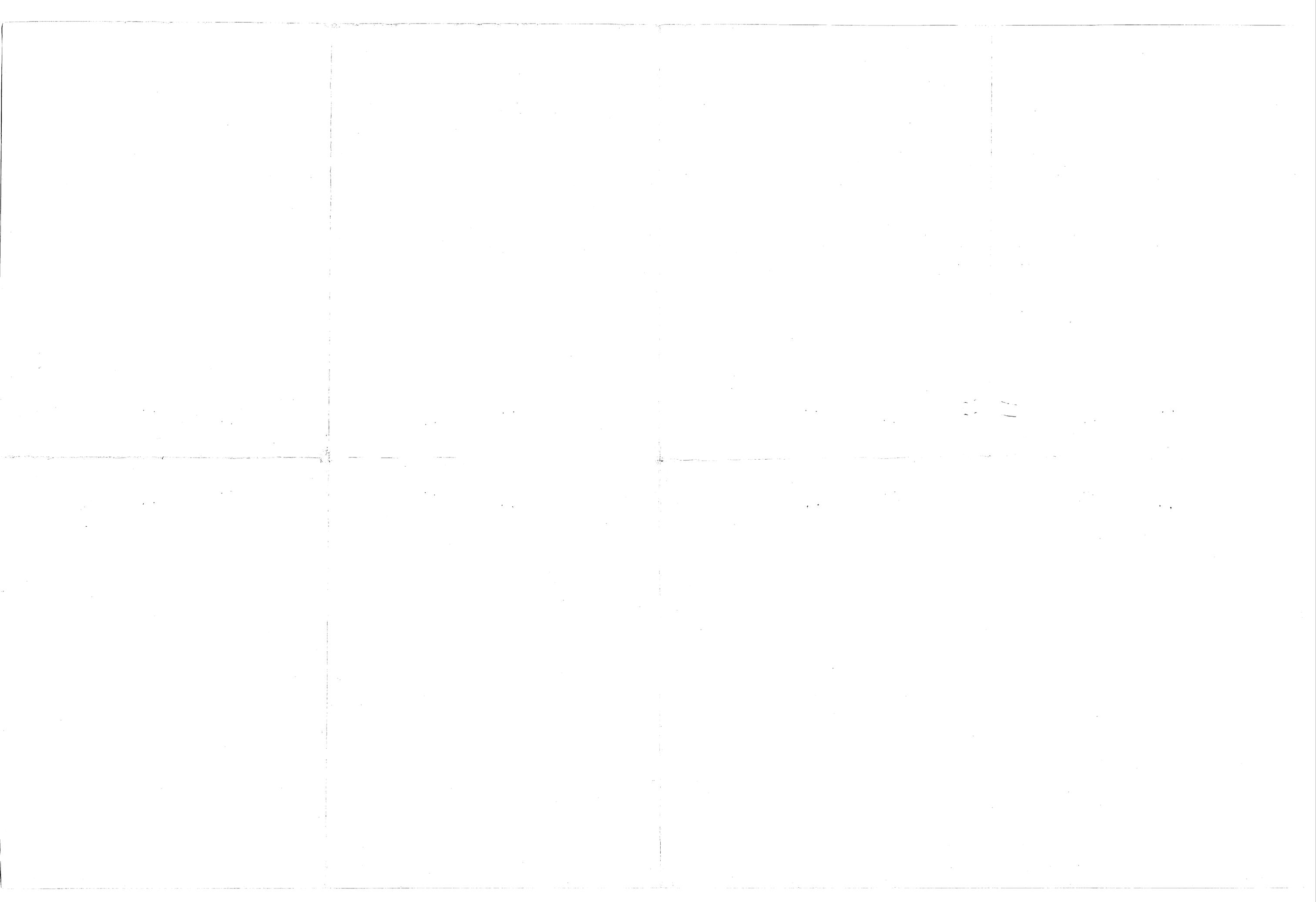
DETAILS OF REINFORCING STEEL
STRUCTURE WATER IMPROVEMENTS, TARRAWA TERRACE
LOCATION CAMP LEJEUNE, N.C.
CONTRACTOR BROWN CONST. CO.
ARCHITECT BUREAU OF YARDS & DOCKS

F. O. BOX 5100
MADE BY M.C.
CHK. BY

REINCO
INC.

CHARLOTTE, N. C.

DATE 12.28.62
CONTR. NO. B18765 DWG. NO. 1 OF



Water Treatment and Pumping PlantBldg.#38 Tarawa Terrace

A. Pump Room:

1. Unit#1 - Service Pump, Dual Drive (Electric and Gasoline).
 Name: Floway Pump; Manufacturer: Fiefe and Firstenberger Manufacture Company, 2494 So. Railroad Avenue, Fresno, California.
 Type: DKH, Vertical Centrifugal; Size 12; Stage: 3; Serial No. 62-3534-1; HP: 75; GPM: 1050; RPM: 1770; HD 188ft.
 (a) Motor, Electric; Name: Alternating Current Motor; Manufacturer: A. O. Smith Corporation, Electric Division, Tipp City, Ohio.
 Type: LZBV; Design B; Model No. 504-3312F; Frame: A504PY; Serial No. 3G62; HP: 75; cycles 60; RPM: 1760; Amps 172/86; Volts: 220/440; Phase: 3; C Rise: 40°; Code F;
 (b) Motor, Gasoline; Name: Continental Red Seal; Manufacturer: Continental Motors Corporation, Muskegon, Michigan.
 Model No. M363; Engine No. 3695; Spec. 2 380A.
 (c) Clutch - Rockford Power Take-Off.
 Model No. PTA31045; Serial No. 351481.
 (d) Gear, Drive, Right Angle; Manufacturer: Johnson Gear and Manufacturing, Company, Berkley 10, California.
 Serial No. 34431; Ratio: 1 -1; B.H.P. 75; RPM 1760.
 (e) Switch, Electric Control; Square D Company; Class: 8606; Type: GAG1; Form: ACJ; Series: C; HP: 100; Volts: 240; Phase: 3; Cycles: 60;
2. Unit#2 - Service Pump, Single Drive (Electric)
 Name: Floway Pump; Manufacturer: Fiefe and Firstenberger Manufacture Company, 2494 So. Railroad Avenue, Fresno, California.
 Type: DKL, Vertical Centrifugal; Size: 12; Stage: 4; Serial No. 62-3534-2; HP: 50; GPM: 800; RPM: 1770; H'D: 191 ft.
 (a) Motor, Electric; Name: Alternating Current Motor; Manufacturer: A. O. Smith Corporation, Electric Division, Tipp City, Ohio.
 Type: P; Design: B; Model No. PB36524V4; Frame: 36UP; Serial No. 1I62; HP: 50; Cycles 60; RPM: 1760; Amps: 132-126/63; Volts: 220/440; Phase: 3; C Rise: 40°; Code: F.
 (b) Switch, Electric Control; Square D Company; Class: 8606; Type: FAG1; Form: ACJ; Series: C; HP: 50; Volts: 240; Phase: 3; Cycles: 60;
3. Unit#3 - Service Pump, Single Drive (Electric)
 Name: Floway Pump; Manufacturer: Fiefe and Firstenberger Manufacture Company, 2494 So. Railroad Avenue, Fresno, California.
 Type: DKH, Vertical Centrifugal; Size: 10; Stage: 5; Serial No. 62-3534-3; HP: 40; GPM: 750; RPM: 1760; H'D; 155 ft.
 (a) Motor, Electric; Name: Alternating Current Motor; Manufacturer: A. O. Smith Corporation, Electric Division, Tipp City, Ohio.
 Type: P; Design: B; Model No. PB364Y4V4; Frame: 364UP; Serial No. 3L62; HP: 40; Cycles: 60; RPM: 1770; Amps: 108-102/51; Volts 208-220/440; Phase: 3; C Rise: 40°; Code: F.
 (b) Switch, Electric Control; Square D Company; Class: 8606; Type FAG1; Form: ACJ; Series: C; HP: 50; Volts: 240; Phase: 3; Cycles: 60.
4. Unit#4 - Service Pump, Single Drive (Electric)
 Name: Floway Pump; Manufacturer: Fiefe and Firstenberger Manufacture Company, 2494 So. Railroad Avenue, Fresno, California.
 Type: DKL, Vertical Centrifugal; Size: 10; Stages: 5; Serial No. 62-3534-4; HP: 25; GPM: 500; RPM: 1760; H' D: 154 ft.

Pump Room Continued:

- (a) **Motor, Electric; Name: Alternating Current Motor; Manufacturer:**
A. O. Smith Corporation, Electric Division, Tipp, City, Ohio.
Type: P; Design: B; Model No. PB324W4V4; Frame: 324UP; Serial No.
5I62; HP: 25; Cycles: 60; RPM: 1755; Amps: 63-62/31; Volts:
208-220/440; Phase: 3; C Rise: 40°; Code: F.
- (b) **Switch, Electric Control; Square D Company; Class: 8606; Type: EAG1;**
Form: ACJ; Series: A; HP: 30; Volts: 240; Phase: 3; Cycles: 60.
5. **Unit#1 - Panelboard, Electric**
Manufacturer: Federal Pacific Electric Company; Type: CDP; Panelboard
No. AD-791480; Amps: 800; Volts: 120/240 AC; Phase 3; Wire: 4;
6. **Unit#2 - Panelboard, Electric**
Manufacturer: Federal Pacific Electric Company; Type: NTIP; Panelboard
No. AF814308; Amps: 100; Volts: 125/250; Phase: 1; Wire: 3.
7. **Unit#3 - Panelboard, Electric**
Manufacturer: Lester Equipment MFG. Co., Inc.; Type: 12T6RC; Serial No.
V446; Cycles: 60; DC Amps: 6-.5; DC Volts: 12; AC Volts: 115; AC Watts:
150; Phase: 1.
8. **Unit#1 - Transmitter, Electric**
Name: Chronoflo Telemetric Transmitter; Manufacturer: B-I-F Industries,
Providence, Rhode Island;
Size: 12 X 6.773; Model No. CTUA-4; Serial No. 14099; Signal Cycle:
15 second; Pressure Diff: H2O"; Mercury: 7lbs., 4 oz.
9. **Unit#2 - Transmitter, Electric**
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode
Island.
Model No. CTW-1; Serial No. 14101; Signal Cycle: 15 second; Maximum:
12'.

The first part of the document discusses the general situation of the country and the role of the government. It mentions the need for a strong and stable government to ensure the well-being of the people.

In the second part, the author talks about the economic challenges facing the nation and the importance of implementing reforms to stimulate growth and development.

The third section focuses on the social issues and the role of the state in providing social services and ensuring the welfare of all citizens.

Finally, the document concludes with a call for national unity and cooperation among all sectors of society to achieve the common goals of the nation.

Water Treatment and Pumping PlantBldg.#38 Tarawa Terrace**B. Filter Control Room**

10. Unit#1 - Pump, Wash Water, Single Drive (Electric)
 Name: Fairbanks-Morse; Manufacturer: Fairbanks, Morse and Company,
 Fairbanks-Morse Building, Chicago 5, Ill.
 Number: 764037 (?); Size: 5; GPM: 750; RPM: 1750; Head: 35 Feet.
 (a) Motor, Electric; Name: Wagner Electric Motor; Manufacturer:
 Type: RP1; Design: B; Model No. 33E324J433; Frame: 324; Serial No.
 N/A; HP: 10; Cycles: 60; RPM: 1750; Amps: 26.4/13.2; Volts: 220/440;
 Phase: 3; C Rise: 40°.
 (b) Valve, Gate; Influent; Mueller Company, Chattanooga, Tenn.; 6 inches;
 (c) Valve, Check; Effluent; 6 inches;
 175 OWG; 6L23.
 (d) Valve, Gate; Effluent; Mueller Company, Chattanooga, Tenn.; 6 inches;
11. Unit#1 - Panel, Electric (Main for Wash Water Motor)
 Manufacturer: Square D Company; Series: A1; Catalogue No. D96353; Amps:
 100; Volts: 240.
12. Unit#2 - Reset, Electric Starter and Stop for Wash Water Motor.
 Manufacturer: Square D Company.
13. Unit#3 - Panel, Electric (Cuts off all motors in Lime Miking Room)
 Manufacturer: Square D Company; Series: A2; Catalogue No. A47412; HP: 7½;
 Volts: 240; Phase: 3; Amps: 60.
14. Unit#4 - Panel, Electric (For Lights)
 Manufacturer: Federal Electric Products Company; Catalogue No. 116; Volts:
 120/240; Amps: 100.
15. Unit#5 - Panel, Electric (Starter for Heater)
 Manufacturer: Thumbull Electric; Catalogue No. 24111; Model No. A; Type:
 D; Volts: 125; Amps: 30.
16. Unit#6 - Panelboard, Electric (Main for lights all over building)
 Manufacturer: Federal Pacific Electric Company; Panelboard No. AF 814397;
 Type: NBLP; Volts: 120/240; Phase: 3; Amps: 125; Wire: 4.

C. Chlorinator Room

17. Unit#1 - Chlorinator
 Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville
 9, New Jersey; Serial No. W-9743; Type: A-421; Capacity: 0-100.
18. Unit#2 - Chlorinator
 Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville
 9, New Jersey; Serial No. V-7884; Type: A-418; Capacity: 0-50.
19. Unit#3 - Scales
 Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville
 9, New Jersey; Serial No W 3808; Type: N/A.

Water Treatment and Pumping Plant

Bldg.#38 Tarawa Terrace

D. Chemical Feed Room

20. Unit#1 - Lime Tank Mixer

(a) Tank, Lime Mixing; Manufacturer: Permutit Company, 330 West 42nd Street, New York 36, N.Y. Capacity 1200 gallons.

(b) Motor, Electric; Name: Lighnin; Manufacturer: Mixing Equipment Company, Inc.; Rochester 11, New York.
Type: OX; Design B; Motor No. 1777591; Frame: 225B; HP: 2; Cycles: 60; RPM: 1155; Amps: 6.2/3.1; Volts: 220/440; Phase: 3; C Rise: 40°; Code: H; Form: B; Class: 120.

(1) Switch, Electric Control; Square D Company; Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.

(2) Reset, Electric; Square D Company; Square D Company Electrical Equipment.

21. Unit#2 - Lime Tank Mixer

(a) Tank, Lime Mixing; Manufacturer: Permutit Company, 330 West 42nd Street, New York 36, New York; Capacity 1200 gallons.

(b) Motor, Electric; Name: Lighnin; Manufacturer: Mixing Equipment Company, Inc.; Rochester 11, New York.
Type: OX; Design: B; Motor No. 1777693; Frame: 225B; HP: 2; Cycles: 60; RPM: 1155; Amps: 6.2/3.1; Volts: 220/440; Phase: 3; C Rise: 40°; Code: H; Form: B; Class: 120.

(1) Switch, Electric Control; Square D Company; Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.

(2) Reset, Electric; Square D Company; Square D Company Electrical Equipment.

22. Unit#1 - Chemical Pump (Lime)

Name: General Electric; Manufacturer: General Electric, Schenectady, New York.

Model No. 5K63AC3437; Gear No. 7GW713EY10; HP: 1/2; Cycles: 60; RPM: 1725; Amps: 1.8/.9; Volts: 220/440; Phase: 3; C Rise: 40°; Ratio: 30 to 1.

(1) Switch, Electric Control; Square D Company; Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.

23. Unit#2 - Chemical Pump (Lime)

Name: General Electric; Manufacturer: General Electric, Schenectady, New York.

Model No. 5K63AC3437; Gear No. 7GW713EY10; HP: 1/2; Cycles: 60; RPM: 1725; Amps: 1.8/.9; Volts 220/440; Phase: 3; C Rise: 40°; Ratio: 30 to 1.

(1) Switch, Electric Control; Square D Company; Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.

24. Unit#3 - Chemical Pump (Phosphate)

Name: Century; Manufacturer: Century Electric Company, St. Louis, Mo.

Model No. 1RSC-6; Frame: C 56Y; HP: 3; Volts: 220; Cycles: 60; Phase: 3; Amps: 9; RPM: 73; Spec. 12861; Serial No. 5AG77779; Code: K.

(1) Switch, Electric Control; Square D Company; Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.

1. The first part of the paper discusses the general theory of the subject. It is divided into two main sections: the first section deals with the theoretical aspects, and the second section deals with the practical aspects. The theoretical aspects are discussed in terms of the general theory of the subject, and the practical aspects are discussed in terms of the application of the theory to the subject.

2. The second part of the paper discusses the experimental results. It is divided into two main sections: the first section deals with the experimental results, and the second section deals with the discussion of the results. The experimental results are discussed in terms of the general theory of the subject, and the discussion of the results is discussed in terms of the application of the theory to the subject.

3. The third part of the paper discusses the conclusions. It is divided into two main sections: the first section deals with the conclusions, and the second section deals with the discussion of the conclusions. The conclusions are discussed in terms of the general theory of the subject, and the discussion of the conclusions is discussed in terms of the application of the theory to the subject.

4. The fourth part of the paper discusses the references. It is divided into two main sections: the first section deals with the references, and the second section deals with the discussion of the references. The references are discussed in terms of the general theory of the subject, and the discussion of the references is discussed in terms of the application of the theory to the subject.

Water Treatment and Pumping PlantBldg.#38 Tarawa Terrace

Chemical Feed Room Continued:

25. Unit#1 - Switch, Electric Control; Square D Company; Manufacturer: Square D Company Electrical Equipment.
Series: A2; Catalogue No. 45351; HP: 3; Volts: 240; Amps: 30.

E. Lime Storage Room

26. Unit#1 - Scale; Fairbanks and Morse; Manufacturer: Fairbanks Platform Company.
Capacity: 1000 lbs.; Code: 1124.

F. Heater and Blower Room

27. Unit#1 - Heater, Fuel-oil

Name: Bonair; Manufacturer: Bonair Products, Inc., Barby, Pa.
Model No. 100 HO; Serial No. 458; Control: AASPA; BTU:126,000.

(a) Ignition Transformer; Manufacturer: Jefferson Electric Company.
Catalogue No. 638-521; Model No. 012; Volts: 115; Cycles: 60.

(b) Motor; Electric; Name: Marathon; Manufacturer: Marathon Electric.
Model No. VPB119M87 ECW; HP: 1/8; RPM: 1725; Type: SS; Amps: 2.6;
Phase: 1; Frame: 56-2; Volts: 115; C Rise: 55.

(c) Control, Damper

Name: Mercoid Pyratherm; Type JM; Group: I; Unit: Single.

(d) Motor, Electric (Fan)

Name: Emerson; HP: $\frac{1}{4}$; Volts: 115; Phase: 1; Model No. S60CXSF8-2765;
Amps: 4.4; Frame: A 56; RPM: 1725; Cycles: 60; Code: P; C Rise: 40°;
S.F. 1.35.

28. Unit#1 - Refrigerator, Electric

Name: Kelvinator

30. Unit#1 - Meter, Electric

Name: Simplex; Manufacturer: Simplex Valve and Meter Company, 7 East Orange Street, Lancaster, Pa.

Type: HG; Serial No. 8-669-7882; Fluid: Water; Temp: Normal; Pressure: 8-10 lb.; Chart No. 1261; Mercury: 9 lbs. 10 oz.

G. Bath Room

31. Unit#1 - Heater, Water

Name: Economaster; Manufacturer: Economaster Sales, Inc.

Model No. F-30-RD-22-P; Serial No. 54888; Volts: 236; Capacity 30 gallons.

H. Sample Room

32. Unit#1 - Meter, Electric (Rate of Raw Water Flow)

Name: Chronflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Model No. CRB-T1R; Serial No. 3235; P. L. No. 4422; Trans. No. 4376; Volts: 110; Cycles: 60; Chart No. 12-12-D; Chart Style: 112; Range Capacity: 1200 GPM. Converted from Range Capacity 1000 GPM to Range Capacity 1200 GPM (approximately June 1963)

1. The purpose of this document is to provide a comprehensive overview of the current state of the project and to identify the key areas for improvement.

2. The project has made significant progress in the areas of research and development, and it is expected that the final results will be published in the next few months.

3. The following table provides a summary of the key findings from the recent experiments:

Experiment No.	Objective	Results
1	Measure the effect of temperature on reaction rate.	Reaction rate increases with temperature.
2	Determine the effect of concentration on reaction rate.	Reaction rate increases with concentration.
3	Investigate the effect of catalyst on reaction rate.	Catalyst significantly increases reaction rate.

4. The data from these experiments clearly demonstrate the influence of temperature, concentration, and catalyst on the reaction rate. Further studies are planned to explore the underlying mechanisms of these effects.

Water Treatment and Pumping PlantBldg.#38 Tarawa Terrace

Sample Room Continued:

33. Unit#2 - Transmitter, Electric (Rate of Raw Water Flow)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Model No. GTUAX; Serial No. 4376; Volts: 110; Cycles: 60; Size: 12-X4.
34. Unit#3 - Receiver, Electric (Elevated Tank Level Receiver)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Order No. 30806-A; Transformer No. 14,100; Receiver No. 13632; Code:
0235-04; Chart Style: 100; Chart Scale: 1235-D.
35. Unit#4 - Receiver, Electric (Reservoir Water Level Receiver)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Order No. 30805-A; Transformer No. 14,101; Receiver No. 13631; Code:
0232-04; Chart Style: 100; Chart Scale: 12-12-D.
36. Unit#5 - Receiver, Electric (Service Water Flow Meter)
Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.
Order No. 30805-A; Transformer No. 14099; Receiver No. 13630; Code:
0232-01; Chart Style: 112; Chart Scale: 12-25-D.

I. Office

37. Unit#1 - Water Cooler
Name: Sunroc; Manufacturer: Sunroc Corporation, Glen Riddle, Penna.
Model No. NM2B; Serial No. 1364532L; HP: 1/5; Amps: 4.2; Volts: 115;
Cycles: 60; Phase: 1; Code: AHL.
38. Unit#1 - Fan Electric
Name: Century; Manufacturer: Century Electric Company, St. Louis, Mo.
Model No. CM-41-Y; Serial No. AN39; Spec. No. 22083; Frame: B48Y; HP:
1/4; Amps: 3.4; Volts: 115; Cycles: 60; Phase: 1; Code: C; RPM: 1100;
C Rise: 55°.

J. Filters

39. Unit#1 - Filter, Pressure
Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6
inches approximately high; 5 inches of coarse gravel (bottom), 2 1/2 inches
of medium gravel (second), 2 1/2 inches of fine gravel (third), 3 inches of
extra fine gravel (fourth), and 23 inches of sand (filter media) (top);
Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash
rate=15 gpm per square foot filter area, Filtering rate = 2 gpm persquare
foot filter area; Effective pressure at the filter must be at least 15
pounds persquare inch.
- (1) Valve, Mueller; Manufacturer: Mueller Manufacturer(?), Chattanooga,
Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (2) Valve, Mueller; Manufacturer: Mueller Manufacturer(?), Chattanooga,
Tenn.; Effluent, 4 inches, 200 W, 400 Test.

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Filters continued

- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200 W, 400 Test.

40. Unit#2 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 $\frac{1}{2}$ inches of medium gravel (second), 2 $\frac{1}{2}$ inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches of sand (filter media) (top); Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtering rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 4 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200 W, 400 Test.

41. Unit#3 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 $\frac{1}{2}$ inches of medium gravel (second), 2 $\frac{1}{2}$ inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches of sand (filter media) (top); Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtering rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Butterfly; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 4 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200 W, 400 Test.

Exhibit A

- (1) [Illegible text]
- (2) [Illegible text]
- (3) [Illegible text]

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- (4) [Illegible text]
- (5) [Illegible text]
- (6) [Illegible text]
- (7) [Illegible text]

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- (8) [Illegible text]
- (9) [Illegible text]
- (10) [Illegible text]

Filters continued

42. Unit#4 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 ½ inches of medium gravel (second), 2 ½ inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches of sand (filter media) (top); Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtering rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Butterfly; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 4 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200W, 400 Test.

43. Unit#5 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Number: 32-6997; Number: 108-RZ; Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 ½ inches of medium gravel (second), 2 ½ inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches sand (filter media) (top); Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtering rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Butterfly; Manufacturer: Mueller Valve Company(?) Chattanooga, Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 4 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200 W, 400 Test.
- (6) Valve, Gate; Manufacturer: Surface Wash, 2 inches.

44. Unit#6 - Filter, Pressure

Name: Infilco; Manufacturer: Infilco Incorporated, Tucson, Arizona.
 Number: 32-6997; Number: 108-RZ; Serial No. N/A; Model No. N/A; Size: 108 inches diameter and 7 feet 6 inches approximately high; 5 inches of coarse gravel (bottom), 2 ½ inches of medium gravel (second), 2 ½ inches of fine gravel (third), 3 inches of extra fine gravel (fourth), and 23 inches sand

100

The first part of the document is a list of names and titles, including:

- 1. Mr. J. H. [Name]
- 2. Mr. J. H. [Name]
- 3. Mr. J. H. [Name]
- 4. Mr. J. H. [Name]
- 5. Mr. J. H. [Name]
- 6. Mr. J. H. [Name]
- 7. Mr. J. H. [Name]
- 8. Mr. J. H. [Name]
- 9. Mr. J. H. [Name]
- 10. Mr. J. H. [Name]
- 11. Mr. J. H. [Name]
- 12. Mr. J. H. [Name]
- 13. Mr. J. H. [Name]
- 14. Mr. J. H. [Name]
- 15. Mr. J. H. [Name]
- 16. Mr. J. H. [Name]
- 17. Mr. J. H. [Name]
- 18. Mr. J. H. [Name]
- 19. Mr. J. H. [Name]
- 20. Mr. J. H. [Name]

The second part of the document is a list of names and titles, including:

- 21. Mr. J. H. [Name]
- 22. Mr. J. H. [Name]
- 23. Mr. J. H. [Name]
- 24. Mr. J. H. [Name]
- 25. Mr. J. H. [Name]
- 26. Mr. J. H. [Name]
- 27. Mr. J. H. [Name]
- 28. Mr. J. H. [Name]
- 29. Mr. J. H. [Name]
- 30. Mr. J. H. [Name]
- 31. Mr. J. H. [Name]
- 32. Mr. J. H. [Name]
- 33. Mr. J. H. [Name]
- 34. Mr. J. H. [Name]
- 35. Mr. J. H. [Name]
- 36. Mr. J. H. [Name]
- 37. Mr. J. H. [Name]
- 38. Mr. J. H. [Name]
- 39. Mr. J. H. [Name]
- 40. Mr. J. H. [Name]

The third part of the document is a list of names and titles, including:

- 41. Mr. J. H. [Name]
- 42. Mr. J. H. [Name]
- 43. Mr. J. H. [Name]
- 44. Mr. J. H. [Name]
- 45. Mr. J. H. [Name]
- 46. Mr. J. H. [Name]
- 47. Mr. J. H. [Name]
- 48. Mr. J. H. [Name]
- 49. Mr. J. H. [Name]
- 50. Mr. J. H. [Name]

Filters continued

(filter media) (top); Maximum working pressure 75 pounds, Maximum filtration 127 gpm, Backwash rate = 15 gpm per square foot filter area, Filtering rate = 2 gpm per square foot filter area; Effective pressure at the filter must be at least 15 pounds per square inch.

- (1) Valve, Butterfly; Manufacturer: Darling Valve and Manufacturing Company, Williamsport, Pa.; Influent, 6 inches, F-1503V, F-1200 Gear, 6-1258.
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent, 4 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Wash, 6 inches, 200 W, 400 Test.
- (4) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Waste, 6 inches, 200 W, 400 Test.
- (5) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Rewash, 4 inches, 200 W, 400 Test.
- (6) Valve, Gate; Manufacturer: Surface Wash, 2 inches.

45. Unit#1 - Filter Emergency Wash

- (1) Valve, Globe; Manufacturer: Jenkins Mark Influent, 8 inches,
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Influent, 6 inches, 200 W, 400 Test.
- (3) Valve, Gate; Manufacturer: 2 inches, for feeding Chlorine.

K. Spiractor

46. Unit#1 - Spiractor

Name: Permutit; Manufacturer: The Permutit Company, New York, New York. Number BKE 114569; Installed December 1952; Constant flow of 700 gpm (maximum), Recommended 1.3 pounds of lime (93% Ca(OH)₂) per 1,000 gallons of water, (2 X Alk. B) - Alk. A = Alk. C, equation should be between - 1.0 and - 11.0, 8 gallons per minute per square foot (rate of flow), Catalyst growth 3 or 4 times original size.

- (1) Valve, Check; Manufacturer: Chapman 8 inches
- (2) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Influent, 8 inches,
- (3) Valve, Gate; Manufacturer: Mueller Valve Company(?), Chattanooga, Tenn.; Effluent waste, 8 inches
- (4) Valve, Plug; Manufacturer: Nordstrom Stop and Waste, 4 inches
- (5) Valve, Gate; Manufacturer: High Pressure, 2 inches

Water Treatment and Pumping PlantBldg.#S-39 Tarawa Terrace

L. Reservoir

47. Unit#1 - Reservoir

Capacity: 750,000 gallons

M. Elevated Tank

48. Unit#1 - Tank, Elevated

Name: Horton Tank; Manufacturer:

Contract No. 6-2135; Capacity: 250,000 gallons;

Installed: 1952

(1) Transmitter, Electric

Name: Chronoflo; Manufacturer: B-I-F Industries, Providence, Rhode Island.

(2) Switch, Electric Control; Square D Company; Catalogue No. D97311; HP: $1 \frac{1}{2}$ / 3; Volts: 120/240; Amps: 30.

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100-100000-100000

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N. Booster Station

49. Unit#1 - Service Pump, Single Drive (Electric)

Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.

Type: Vertical Centrifugal; Number: K7344; Size: 2" 5313.

(a) Motor, Electric; Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.

Type: QZK; Design: N/A; Frame: RS324; Serial No. F213516; Spec. No. 2863-2; HP: 10; Cycles: 60; RPM: 1450; Amps: 28-26.4/13.2; Volts: 208-220/440; Phase: 3; C Rise: 40°; Code: F; SF: 1.15.

(1) Switch, Electric (Start, Stop, and Reset); Manufacturer: Cutler-Hammer.

(2) Switch, Electric (Automatic); Manufacturer: Wadsworth; Catalogue No. N5025F; Volts: 120/240; Amps: 30; Poles: 3.

(3) Switch, Electric (Automatic, Start and Stop); Manufacturer: Autocon; Automatic Control Company.

(b) Panel, Electric (Main for lights and motor); Manufacturer: Square D Company; Series: C 2; Catalogue No. A87413; Volts: 240; Amps: 100; HP: 15.

(1) Panel, Electric (lights); Manufacturer: Electric-Center

(c) Meter Head, Electric (for reading meter); Manufacturer: Anchor; Type: ST-8; Serial No. 1205082.

(d) Valve, Back Pressure; Manufacturer: Gavsco; 8 inches; 150 WSP.

(1) Switch, Sironoid (for B.P. valve); Manufacturer: Automatic Switch Company; Name: ASCO; Catalogue No. WP83009G MO; Serial No. 82104H; Volts: 230; Cycles: 60; Maximum Pressure Pounds 250.

(2) Switch, Sironoid (for B.P. valve); Manufacturer: Automatic Switch Company; Name: ASCO; Catalogue No. LM83441; Serial No. 61990H; Volts: 230; Cycles: 60.

(e) Valve, Gate; Manufacturer: N/A; 8 inches; 200 W

(f) Valve, Gate; Manufacturer: N/A; 8 inches; 200 W

Main body of text, consisting of several paragraphs and a list of items. The text is extremely faint and largely illegible. Some faint words like "The", "and", "of", "is", "are" are visible. There is a list of items, possibly numbered, but the details are lost to noise.

Bottom section of the page, containing additional text or a footer. Like the rest of the page, it is very faint and mostly illegible.

Water Treatment and Pumping Plant

O. Wells

50. Unit#1 - Well, Raw Water Bldg.# TT-26
 Depth: ; Diameter: inches; Cased to : feet; Yield: 135 gpm at
 51 feet

(a) Pump, Turbine, Dual Drive (Electric and Gasoline)

Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company,
 Fairbanks-Morse Building, Chicago 5, Ill.

Type: Vertical Centrifugal; Serial No. AM-3355; Water cooled.

- (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Type: K; Model No. 5K284XA52A; Serial No. RHJ6875729; Frame: 284 P;
 HP: 10; Cycles: 60; RPM: 3480; Amps: 25. /12.8; Volts: 220/440;
 Phase: 3; Code: G; C Rise: 40°.
- (aa) Switch, Electric (Starter, Stop, Reset, and Meter).
 Name: Monitor; Manufacturer: N/A; Type: 6333AB1; Number:
 328294; Volts: 220; HP: 3 Cycles: 60.
- (2) Motor, Gasoline; Name: Wisconsin; Manufacturer: N/A; Model No.
 VE4; Serial No. 1771824; Spec. No. 49744; Size: 3 X 3 1/4;
 Cylinders: 4.
- (3) Clutch, Mechanical: Name: Rockford; Manufacturer: Rockford Clutch
 Division, Rockford, Ill; Serial No. 162903.
- (4) Meter, Water (not in operation); Name: Sparling; Manufacturer:
 Sparling Water Control Equipment; Number: 5267.
- (5) Panel, Electric (Main for Motor, lights, and meter); Name: Cutler-
 Hammer; Manufacturer: N/A.
 (aa) Panel, Electric (for lights); Name: Murry; Manufacturer: N/A.
- (6) Valve, Check; Jenkins; 4 inches; 125 WSP; 200 OWG.
- (7) Valve, Gate; Mueller; 4 inches; 150 W; 300 Test.
- (8) Valve, Gate; 2 inches;

51. Unit#2 - Well, Raw Water Bldg.# TT-27
 Depth: 95 feet; Diameter: 16 inches; Cased to 95 feet; Yield: 156 gpm;
 Drilled: 1951. (Not in Operation)

(a) Pump, Turbine, Dual Drive (Electric and Gasoline)

(Not one in this well house)

(1) Motor, Electric (Not one in this well house)

(2) Motor, Gasoline; Name: Wisconsin; Manufacturer: N/A; Model No.
 VE4; Serial No. 1771825; Spec. No. 49744; Size: 3 X 3 1/4;
 Cylinders: 4.

(aa) Drive, Right Angle (Not one in this well house)

- (3) Clutch, Mechanical: Name: Rockford; Manufacturer: Rockford Clutch
 Division, Rockford, Ill.; Serial No. 162910.
- (4) Meter, Water (Not in operation); Name: Sparling; Manufacturer:
 Sparling Water Control Equipment; Number: 5269.
- (5) Panel, Electric (Main for motor and lights); Name: Westinghouse;
 Catalogue No. CF423-1; Style: 1420192; HP: 15; Amps: 100; Volts:
 230.
 (aa) Panel, Electric (for lights); Name: Square D Company.
 (bb) Switch, Electric (For motor, lights, and meter); Name:
 Westinghouse; Type: N.
- (6) Valve, Gate; Elec Iron; 4 inches; 125 S; 200 OWG.

Section 101 of the Act provides that the Secretary shall, in carrying out his duties under this Act, have regard to the following principles:

- (a) the need to ensure that the public interest is protected;
- (b) the need to ensure that the interests of the community are protected;
- (c) the need to ensure that the interests of the environment are protected;
- (d) the need to ensure that the interests of the economy are protected;
- (e) the need to ensure that the interests of the social justice are protected;
- (f) the need to ensure that the interests of the cultural heritage are protected;
- (g) the need to ensure that the interests of the scientific and technological progress are protected;
- (h) the need to ensure that the interests of the health and safety are protected;
- (i) the need to ensure that the interests of the education and training are protected;
- (j) the need to ensure that the interests of the research and development are protected;
- (k) the need to ensure that the interests of the innovation and entrepreneurship are protected;
- (l) the need to ensure that the interests of the intellectual property are protected;
- (m) the need to ensure that the interests of the information and communication are protected;
- (n) the need to ensure that the interests of the media and journalism are protected;
- (o) the need to ensure that the interests of the arts and culture are protected;
- (p) the need to ensure that the interests of the sports and recreation are protected;
- (q) the need to ensure that the interests of the tourism and hospitality are protected;
- (r) the need to ensure that the interests of the agriculture and fisheries are protected;
- (s) the need to ensure that the interests of the industry and commerce are protected;
- (t) the need to ensure that the interests of the services and professions are protected;
- (u) the need to ensure that the interests of the transport and infrastructure are protected;
- (v) the need to ensure that the interests of the energy and utilities are protected;
- (w) the need to ensure that the interests of the environment and natural resources are protected;
- (x) the need to ensure that the interests of the climate change and sustainable development are protected;
- (y) the need to ensure that the interests of the human rights and fundamental freedoms are protected;
- (z) the need to ensure that the interests of the peace and stability are protected;

The Secretary shall, in carrying out his duties under this Act, have regard to the following principles:

- (1) the need to ensure that the public interest is protected;
- (2) the need to ensure that the interests of the community are protected;
- (3) the need to ensure that the interests of the environment are protected;
- (4) the need to ensure that the interests of the economy are protected;
- (5) the need to ensure that the interests of the social justice are protected;
- (6) the need to ensure that the interests of the cultural heritage are protected;
- (7) the need to ensure that the interests of the scientific and technological progress are protected;
- (8) the need to ensure that the interests of the health and safety are protected;
- (9) the need to ensure that the interests of the education and training are protected;
- (10) the need to ensure that the interests of the research and development are protected;
- (11) the need to ensure that the interests of the innovation and entrepreneurship are protected;
- (12) the need to ensure that the interests of the intellectual property are protected;
- (13) the need to ensure that the interests of the information and communication are protected;
- (14) the need to ensure that the interests of the media and journalism are protected;
- (15) the need to ensure that the interests of the arts and culture are protected;
- (16) the need to ensure that the interests of the sports and recreation are protected;
- (17) the need to ensure that the interests of the tourism and hospitality are protected;
- (18) the need to ensure that the interests of the agriculture and fisheries are protected;
- (19) the need to ensure that the interests of the industry and commerce are protected;
- (20) the need to ensure that the interests of the services and professions are protected;
- (21) the need to ensure that the interests of the transport and infrastructure are protected;
- (22) the need to ensure that the interests of the energy and utilities are protected;
- (23) the need to ensure that the interests of the environment and natural resources are protected;
- (24) the need to ensure that the interests of the climate change and sustainable development are protected;
- (25) the need to ensure that the interests of the human rights and fundamental freedoms are protected;
- (26) the need to ensure that the interests of the peace and stability are protected;

Water Treatment and Pumping Plant

Wells Continued

52. Unit#3 - Well, Raw Water Bldg.# TT-28
 Depth: 167 feet; Diameter: 16 inches; Cased: 167 feet; Yield: 257 GPM at 40 feet; Drilled: 1951.
- (a) Pump, Turbine Single Drive (Electric)
 Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.
 Type: Vertical Centrifugal; Serial No. AN6384; Water cooled.
- (1) Motor, Electric; Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.
 Number: F163908; S.F. 115; Frame: 12845V; HP: 10; Cycles: 60; RPM: 1750; Amps: 28/14; Volts: 208/416; Phase: 3; Code: F; C Rise: 40°.
- (2) Panel, Electric (Main for lights and motor); Name: Federal; Catalogue No. 31132; HP: 15; Amps: 100; Volts: 230; Type: D; Poles: 3.
 (aa) Panel, Electric (For lights); Name: Square D Company.
 (bb) Switch, Electric (For Start, Stop, and Reset); Name: Ardleonar.
- (3) Valve, Check; Jenkins; 4 inches; 125 WSP; 200 OWG.
- (4) Valve, Gate; Mall Iron; 4 inches; 125 W; 200 OWG.
53. Unit#4 - Well, Raw Water Bldg.# TT-29
 Depth: 186; Diameter: 16 inches; Cased: 186 feet; Yield: 125 GPM at Drilled: 1951.
- (a) Pump, Turbine Single Drive (Electric)
 (Not one in this house)
- (1) Motor, Electric; (Not one in this well House)
- (2) Meter, Water (Not in operation); Name: Sparling; Manufacturer: Sparling Water Control Equipment; Number: 5268.
- (3) Panel, Electric (Main for lights and motor); Name: Westinghouse; Catalogue No. CF4231; Style: 1186236 B; HP: 15; Amps: 100; Volts: 230.
 (aa) Panel, Electric (For lights and meter); Name: Wadsworth; Catalogue No. N25; Amps: 30; Volts: 125/250; Poles: 3;
 (bb) Switch, Electric (For Start, Stop, and Reset); Name: General Electric.
- (4) Valve, Check; Jenkins; 4 inches; 125 WSP; 200 OWG.
54. Unit#5 - Well, Raw Water Bldg.# TT-45
 Depth: Diameter: Cased: Yield: gpm at
 Drilled:
- (a) Pump, Turbine Single Drive (Electric)
 Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill. (Not in operation)
 Type: Vertical Centrifugal; Serial No. N/A; Water Cooled.
- (1) Motor, Electric; Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.
 Number: F206380; Spec. No. 10594-1; S.F. 1.15; Frame: 125 4PV; Volts: 208-220/440; HP: 7 1/2; Cycles: 60; RPM: 1755; Amps: 21.4-20.4/10.1; Phase: 3; Code: G; C Rise: 40°; Type: QZKV.
 (aa) Switch, Electric (Starter, Stop, and Reset); Name: Ardleonar.
- (2) Meter, Water (Not in operation); Name: Sparling; Manufacturer: Sparling Water Control Equipment; Number: 5266.
- (3) Panel, Electric (Main for lights and motor and meter); Name: Federal.

Water Treatment and Pumping Plant

Wells continued

(aa) Panel, Electric (For lights and meter); Name: Square D Company.

- (4) Valve, Check; Elco Iron; 4 inches; 125; 200 OWG.
 (5) Valve, Gate; Elco Iron; 4 inches; 125; 200 OWG.

55. Unit#6 - Well, Raw Water Bldg.# TT-30
 Depth: Diameter: Cased: Yield: gpm at
 Drilled:

(a) Pump, Turbine Single Drive (Electric)

Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill. (Not in operation)

Type: Vertical Centrifugal; Serial No. AM 3354; Water Cooled.

- (1) Motor, Electric; Name: General Electric; Manufacturer: General Electric, Schenectady, New York.
 Number: NGJ6802822; Model No. 5K284XA1A; Frame: 284 P; Volts: 220/440; HP: 10; Cycles: 60; RPM: 3480; Amps: 25.6/12.8; Phase: 3; Code: G; Type: K.
 (2) Meter, Water (Not in operation); Name: Sparling; Manufacturer: Sparling Water Control Equipment; Number: N/A; Serial No. 5448.
 (3) Panel, Electric (Main for lights and motor and meter); Name: Cutler-Hammer.
 (aa) Panel, Electric (For lights and meter); Name: Trumbull Electric.
 (4) Valve, Check; Elco Iron; 4 inches; 125 G; 175 OWG.
 (5) Valve, Gate; Elco Iron; 4 inches; 200 OWG.
 (6) Valve, Gate; Walworth; 2 inches.

56. Unit#7 - Well, Raw Water Bldg.# TT-31
 Depth: Diameter: Cased: Yield: gpm at
 Drilled:

(a) Pump, Turbine Dual Drive (Electric and Gasoline)

Name: Layne; Manufacturer: Layne and Bowler Inc., Memphis, Tenn. (Not in operation)

Type: Vertical Centrifugal; Number 12022; Oiled Cooled.

- (1) Motor, Electric; (No nomenclature plate)
 (2) Motor, Gasoline; Name: Red Seal; Manufacturer: Continental Motors Corp., Detroit and Muskegon, Mich.
 Number: Y9139611; Cylinder: 4.
 (3) Clutch, Mechanical; Name: Twin Disc; Manufacturer: Twin Disc Clutch and Hydraulic Drive, Racine, Wis.
 Model No. C-106-SP5; Spec. No. 15604.
 (4) Drive, Right Angle; Name: Fairbanks and Morse; Manufacturer: Fairbanks, Morse and Company, Fairbanks-Morse Building, Chicago 5, Ill.
 Serial No. AN-6385; BM No. 59-BO-1; Rotating No. 1; Drive: 1; HP: 30; HP: 4-5; Style: FM-1/2.
 (5) Meter, Water (Not in operation); Name: Sparling; Manufacturer: Sparling Water Control Equipment; Number: 5449.
 (6) Panel, Electric (Main for lights and motor and meter); Name: Cutler-Hammer.
 (aa) Panel, Electric (For lights and meter); Name: Trumbull Electric.
 (7) Valve, Check; Chapman; 4 inches;
 (8) Valve, Gate; Elco Iron; 4 inches;
 (9) Valve, Gate; 2 inches;

Water Treatment and Pumping Plant

Wells continued

57. Unit#8 - Well, Raw Water Bldg.# TT-55
 Depth: 98 ft. Diameter: Cased: Yield: 100 gpm at 95 feet
 head; Pumping level 30 feet; Air line 50 feet; Static: 12 feet; Discharge
 head: 65 feet.
- (a) Pump, Turbine Single Drive (Electric)
 Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company,
 Pasadena, California.
 Type: Vertical Centrifugal; Serial No. JS6234; Oil Cooled.
- (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Number: CV; Model No. 5K215FG3313; Frame: 215P; Volts: 208-220/440;
 HP:5; Cycles: 60; RPM: 1745; Amps: 11.2/7.1; Phase: 3; Code: H;
 C Rise: 55.
- (2) Panel, Electric (Main for lights and motor); Name: Square D Company;
 Catalogue No. MLS-2-3450-2A; Volts: 120/208; Amps: 150; Phase: 3;
 Wire: 4.
- (aa) Switch, Electric (For Start, Stop, and Reset); Name: Square D
 Company; Type: DA-1; Series: A; Class: 8536; Form: A.
- (3) Valve, Back Pressure; Manufacturer: Ross Valve Mfg. Co. Inc., Troy
 New York; Model No. 50 RWR; Serial No. 61506.
- (4) Valve, Release; Name: Multiplex; Manufacturer: Multiplex Mfg. Co.,
 Berwick, Pa.;
- (5) Valve, Check; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP.
- (6) Valve, Gate; Mueller, Chattanooga, Tenn.; 6 inches; 175 W; 350 Test.
- (7) Valve, Gate; Mueller, Chattanooga, Tenn.; 4 inches; 175 W; 350 Test.
58. Unit#9 - Well, Raw Water Bldg.# TT-52
 Depth: Diameter: Cased: Yield: 300 gpm at 100 feet
 head; Pumping level 35 feet; Air line: 50 feet; Static: 18 feet; Discharge
 head: 65 feet.
- (a) Pump, Turbine Single Drive (Electric)
 Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company,
 Pasadena, California.
 Type: Vertical Centrifugal; Serial No. JS-6235; Oiled Cooled.
- (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Serial No. ZVJ1222273; Model No. 5K4284XS202; Frame: 284UP; Volts:
 208-220/440; HP:15; Cycles: 60; RPM: 1760; Amps: 39.8/19.9; Phase:
 3; Code: F; C Rise: 55; Design: B; Type: K.
- (2) Panel, Electric (Main for lights and motor); Name: Square D Company;
 Catalogue No. MLS-2-3450-2A; Volts: 120/208; Amps: 150; Phase: 3;
 Type: MLS.
- (aa) Panel, Electric (For start, stop, and Reset); Name: Square D
 Company; Type: DA-1; Series: A; Class: 8536; Form: A.
- (3) Valve; Back Pressure; Manufacturer: Ross Valve Mfg. Co. Inc., Troy,
 New York; Model No. 50RWR; Serial No. 61505.
- (4) Valve, Air Release; Name: Multiplex; Manufacturer: Multiplex Mfg.
 Co., Berwick, Pa.
- (5) Valve, Check; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP.
- (6) Valve, Gate; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP; 350 Test.
- (7) Valve, Gate; Mueller, Chattanooga, Tenn.; 4 inches; 175 WP; 350 Test.

Water Treatment and Pumping Plant

Wells continued

59. Unit#10 - Well, Raw Water Bldg.# TT-53
 Depth: Diameter: Cased: Yield: 350 gpm at 121
 feet head; Pumping level: 60 feet; Air line: 70 feet; Static: 16 feet;
 Discharge head: 50 feet.
- (a) Pump, Turbine Dual Drive (Electric and Gasoline)
 Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company,
 Pasadena, California.
 Type: Horizontal Centrifugal; Serial No. JS-6138; Oil Lubricated.
- (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Serial No. ZVJ1222241; Model No. 5K4284XS2C2; Frame: 284UP; Volts:
 208-220/440; HP:15; Cycles: 60; RPM:1760; Amps: 39.8/19.9; Phase:
 3; Code: F; C Rise: 55; Type: K; Class: B.
 - (2) Motor, Gasoline; Name: Wisconsin; Manufacturer: Wisconsin Motor
 Corporation, Milwaukee, Wisconsin.
 Serial No. 3366110; Model No. VF4D; Spec. No. 204555; Size: 3 $\frac{1}{4}$ X 3 $\frac{1}{4}$;
 Cylinders: 4.
 - (3) Drive, Right Angle; Name: Johnson; Manufacturer: Johnson Gear and
 Manufacturer Company, Berkeley, California.
 Serial No. 3 2835; H. A15; Ratio: 4-3; B.H.P. 15; RPM: 1760.
 - (4) Panel, Electric (For Main lights and motor); Name: Square D Company;
 Catalogue No. MIS-2-3450-2A; Volts: 120/208; Amps: 150; Phase: 3;
 Wire: 4.
 (sa) Panel, Electric (For Start, Stop, and Reset); Name: Square D
 Company; Type: DA-1; Series: A; Class: 8536; Frame: A.
 - (5) Valve, Back Pressure; Manufacturer: Ross Valve Mfg. Co. Inc., Troy,
 New York; Model No. 5ORWR; Serial No. 6150.
 - (6) Valve, Air Release; Name: Multiplex; Manufacturer: Multiplex Mfg.
 Co., Berwick, Pa.
 - (7) Valve, Check; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP.
 - (8) Valve, Gate; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP; 350 Test.
 - (9) Valve, Gate; Mueller, Chattanooga, Tenn.; 4 inches; 175 WP; 350 Test.
60. Unit#11 - Well, Raw Water Bldg.# TT-54
 Depth: Diameter: Cased: Yield: 200 gpm at 112
 feet head; Pumping level 55 feet; Air line: 65 feet; Static: 18 feet; Dis-
 charge head: 62 feet.
- (a) Pump, Turbine Dual Drive (Electric and Gasoline)
 Name: Johnston Vertical Pump; Manufacturer: Johnston Pump Company,
 Pasadena, California.
 Type: Horizontal Centrifugal; Serial No. JS-6139; Oil Lubricated.
- (1) Motor, Electric; Name: General Electric; Manufacturer: General
 Electric, Schenectady, New York.
 Serial No. ZVJ1222234; Model No. 5K4256XS2C2; Frame: 256UP; Volts:
 208-220/440; HP: 10; Cycles: 60; RPM: 1760; AMps: 27/13.5; Phase:
 3; Code: C; C Rise: 55; Design: B; Type: K.
 - (2) Motor, Gasoline; Name: Wisconsin; Manufacturer: Wisconsin Motor
 Corporation, Milwaukee, Wisconsin.
 Serial No. 3366111; Model No. VF4D; Spec. No. 204555; Size: 3 $\frac{1}{4}$ X 3 $\frac{1}{4}$;
 Cylinders: 4.

THE HISTORY OF THE UNITED STATES

The history of the United States is a story of growth and change. From the first settlers to the present day, the nation has evolved through various stages of development. The early years were marked by exploration and the establishment of colonies. The American Revolution led to the birth of a new nation, and the subsequent years saw the expansion of territory and the growth of industry.

The Civil War was a pivotal moment in the nation's history, as it resolved the issue of slavery and preserved the Union. Following the war, the country experienced a period of reconstruction and the beginning of industrialization. The late 19th and early 20th centuries were characterized by westward expansion and the rise of a powerful industrial economy.

The 20th century brought significant challenges, including two world wars and the Cold War. The United States emerged as a global superpower, and its influence was felt around the world. The latter part of the century saw a period of social and cultural change, as well as a renewed focus on domestic issues.

Today, the United States continues to evolve, facing new challenges and opportunities. The nation's history is a testament to the resilience and adaptability of its people, and it serves as a guide for the future.

Water Treatment and Pumping Plant

Wells continued

- (3) Drive, Right Angle; Name: Johnson; Manufacturer: Johnson Gear and Manufacturer Company, Berkeley, California.
Serial No. 32836; HP: 15 at RPM: 1760; H.: A15; Ratio: 4-3.
- (4) Panel, Electric (Main for lights and motor); Name: Square D Company; Catalogue No. MLS-2-3450-2A; Volts: 120/208; Amps: 150; Phase 3.
(aa) Panel, Electric (For Start, Stop, and Reset); Name: Square D Company; Type: DA-1; Series: A; Class: 8536; Form: A.
- (5) Valve, Back Pressure; Manufacturer: Ross Valve Mfg. Co. Inc., Troy, New York; Model No. 50RWR; Serial No. 61504.
- (6) Valve, Air Release; Name: Multiplex; Manufacturer: Multiplex Mfg. Co., Berwick, Pa.
- (7) Valve, Check; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP.
- (8) Valve, Gate; Mueller, Chattanooga, Tenn.; 6 inches; 175 WP; 350 Test.
- (9) Valve, Gate; Mueller, Chattanooga, Tenn.; 4 inches; 175 WP; 350 Test.

Purchase Requisition Number: 03-5725	Requisition Date: 28-MAY-2003
Requested by: 83/BROWN/7190/235	Date Required: 30-MAY-2003

Suggested Vendor:
 SAM'S MOTOR REWIND - VENDOR
 111 RAMSEY RD
 JACKSONVILLE, NC 28546

Ship to:
 PUBLIC WORKS

Contact: JENNY
 Tel: 910-347-2775 FAX: 910-347-5012

Attn: WISE, LORRAINE A

Qty	Unit	Work Order / LSN / Requester	Description	Unit Cost	Line Cost
1	EA	03-69794 83/BROWN/7190/235	COMPLETE REBUILD OF 7.5 HP, A-OSMITH, MOTOR (QUOTE #2)	2500.00	2500.00

Purpose
 03-69794,STT-39,REBUILD A-O SMITH MOTOR/83-433

Shop Copy

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Purchase Requisition Number: 03-5734	Requisition Date: 28-MAY-2003
Requested by: 83/DANNY HILL/7190	Date Required: 30-MAY-2003

Suggested Vendor:
 PEARSON PUMP SALES AND SERVICE, INC.
 P.O. BOX 1254, 2400 N. WILLIAM ST
 GOLDSBORO, NC 27533

Ship to:
 PUBLIC WORKS

Contact: PEARSON, JERRY W.
 Tel: 800-672-4808

Attn: WISE, LORRAINE A
 FAX: 919-734-1002

Qty	Unit	Work Order / LSN / Requester	Description	Unit Cost	Line Cost
1	EA	03-69794 83/DANNY HILL/7190	12 EHM 3 STAGE- 1250 GPM@168'-8" (SEE LONG DISCRPTION)	4745.00	4745.00
2	EA	03-69794 83/DANNY HILL/7190	8" X 5' COLUMN PIPE	0.00	0.00
1	EA	03-69794 83/DANNY HILL/7190	8" X 5' X 1-1/4" S/S SHAFT	0.00	0.00
3	EA	03-69794 83/DANNY HILL/7190	1-1/4" S/S/ COUPLINGS	0.00	0.00
1	EA	03-69794 83/DANNY HILL/7190	1-1/4" S/S HEAD SHAFT	0.00	0.00
1	EA	03-69794 83/DANNY HILL/7190	STUFFING BOX BUSHING	0.00	0.00
1	EA	03-69794 83/DANNY HILL/7190	SET PACKING	0.00	0.00

*Shop
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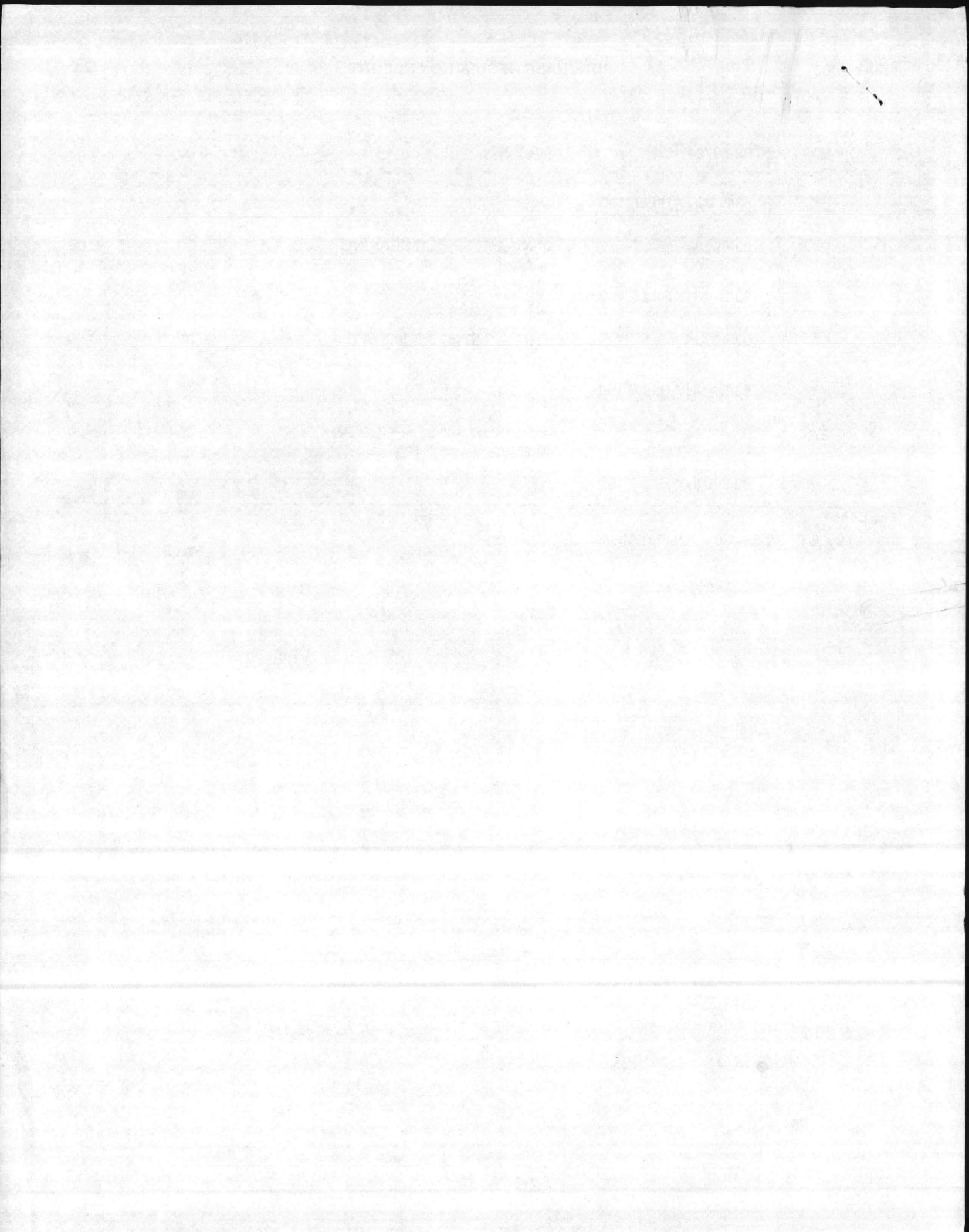
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2	EA	03-69794	GASKET	0.00	0.00
		83/DANNY HILL/7190			
1	EA	03-69794	8" X 1-1/4" SPIDER BEARING	0.00	0.00
		83/DANNY HILL/7190			
1	EA	03-69794	1-1/4" X 1-7/16" S/S SLEEVE	0.00	0.00
		83/DANNY HILL/7190			
1	EA	03-69794	1-1/4" X 1-7/16" STUFFING BOX SLEEVE	0.00	0.00
		83/DANNY HILL/7190			

Purpose

03-69794, STT-39,83-436, PUMP (EMG/SOLE SOURCE)



Sam's Motor Rewinding Inc. *(Jenny)*
 111 Ramsey Road
 Jacksonville, NC 28546

Quote

DATE	ESTIMATE #
5/23/2003	1

51139

NAME / ADDRESS
Base Maintenance ATTN: ROBIN

PROJECT

75 IIP-05-23-03

DESCRIPTION	QTY	COST	TOTAL
75 HP Fairbanks Morse; 1800 RPM; 3 PH; 60 hz; 230/460 V w/ 1 1/4" Coupling	1	4,336.50	4,336.50
Sales Tax		0.00	0.00
<i>equiv. to AO Smith</i>			

We appreciate your business

TOTAL

\$4,336.50

9-10

1872

1872

Gas motor

TT-39 A

P.1

Name of man: Continental motor corp. → Red Seal

Model: M 363

Spec: 2 380 A

Engine No: 3695

UNIT #1
Service Pump
Dual Drive (ELT + 2)

Rockford Power take-off } Clutch (already have)

Model: PTA-31045

Serial No.: 351481

#1 motor, Electric

Name of manuf: A. O. Smith Corp. → Alternating Current Motor

H.P.: 75 ✓

Cycle: 60 ✓

RPM: 1760 ✓

C Rise: 40 ✓

Code: F ✓

Duty: Cont ✓

Amps: 172/86 ✓

Type: 1ZBV ✓

Design: B ✓

Fr: A504PY ✓

Model: 504-3312F ✓

Phase: 3 ✓

Volts: 220/440 ✓

Cycle: 50

RPM: 1460

C Rise: 50

Duty: Cont

Amps: 178/89

Ser. No.: 3662

Protector: TUB3

Floway Pump
Size: 12" ✓
Type: DKH ✓
Stage: 3
Serial No.: 62-3534-1
HP: 75

Floway Pump Manufacture
Fiese & Firstenberg
Mfg. Co., Box 169
Fresno, California

G.P.M.: 1050
RPM: 1770
H²O: 188 ft.

No. 1
Overhead motor
(New building)

(Gear box)
Johnson Gear & Mfg. Co.
Serial: 34431
Ratio: 1-1
B.H.P.: 75
RPM: 1760

→ Right Angle drive

TT Plant

Name of Manf.: A. Q. Smith Corp. → Alternating Current Motor

HP: 40
S.F.: 1.15
Code: F
Cycles: 60

PH: 3
FR: 364UP
Type: P
Design: B
Cycles: 50
Volts: 220/440
RPM: 1475
Amps: 108/54
Date: cont
Serial: 3L62

#3 Motor
←

Volts: 208-220/440
RPM: 1770
Amps: 108-102/51
Rise: 40/50 °C
Model: PB364Y4V4

Floway Pump

Size: 10
Type: DKH
Stage: 5
Serial No.: 62-3534-3
HP: 40
GPM: 750
RPM: 1760
H.D: 155 ft.

No. #3
Over Head Pump
(New building)

(already have)

TT-39A

Electric Control Panel for #2 pump

NAME: SQUARE D Company

CLASS: 8606

Type: FAG1

Form: ACJ

Series: C

HP: 50

Volts: 240

Phase: 3

Cycles: 60

240 volts control circuit 60 cycles

(already have)

Electric Control Panel for #4 pump

NAME: SQUARE D Company

CLASS: 8606

Type: EAG1

Form: ACS

Series: A

HP: 30

Volts: 240

Phase: 3

Cycles: 60

240 volts control circuit 60 cycles

(already have)

TT-39A

Electric Panel for No#1 Pump

Name: Square D Company

Class: 8606

Type: GAG1

Form: ACJ

Series: C

HP: 100

Volts: 240

Phase: 3

Cycles: 60

240 Volts Control circuit 60 cycles

(already have)

(New building
TT PLANT)

Electric Control Panel for No# 3 Pump

Name: Square D Company

Class: 8606

Type: FAG1

Form: ACJ

Series: C

HP: 50

Volts: 240

Phase: 3

Cycles: 60

240 volts control circuit 60 cycles

(already have)

TT-39A

Name of Manf. A.O. Smith Corp - Alternating Current Motor P. 3

HP: 50
SF: 1.15
Code: ~~0~~ F
Cycles: 60
Volts: 208-220/440
RPM: 1760
Amps: 132-126/63
Rise: 40/50 °C
Model: PB 36SZ4V4

Phase: 3
Frame: 36U P
Type: P
Design: B
Cycles: 50
Volts: 220/440
RPM: 1460
Amps: 130/65
Duty: Cont
Serial: 1F62

Floway Pump

Size: 12
Type: OKL
Stage: 4
Serial No: 62-3534-2
HP: 50
GPM: 800
RPM: 1770
H'D: 191 ft.

(already have)

No. # 2
Over Head Pump
(New building)
T.T. PLANT

TT-39A

12
84

Name of Manuf. A.O. Smith Corp. → Alternating Current Motor

HP: 25
S.F.: 1.15
Code: F
Cycles: 60
Volts: 208-220/440
RPM: 1755
Amps: 63-62/31
Rise: 40/50 °C
Model: PB324W4V4

PHASE: 3
FRAME: 324UP
Type: P
Design: B
Cycles: 50
Volts: 220/440
RPM: 1460
Amps: 64/32
Duty: Cont
Serial: 5F62

Floway Pump

Size: 10
Type: OKL
Stage: 5
Serial No: 63-3534-4
HP: 25
GPM: 500
RPM: 1760
H'D: 154 ft.

(already have)

No #4
Over Head Pump
(New building)

TT-39A

Outlets at TT Water Plant

#6 Filter ^{Pressure} (Treated Water)

Surface Wash 2" Valve
gate.

Name: Infilco Incorporated
Tucson, ARIZONA

done

No. #: 32-6997

No. #: 108-RZ

maximum filter flow 127 g.p.m.

#5 Filter ^{Pressure} (Treated Water)

Name: Infilco Incorporated
Tucson, ARIZONA

done

No. #: 32-6997

No. #: 108-RZ

#4, 3, 2, 1 Filters ^{Pressure} (Treated Water) do not have any numbers.

get all the valves
cap. Rate of flow
Pressure etc.

done

Reservoir S-TT-39 (Clear Water)

750,000 gal. Cap.

done

Spiractor ^{Water} Softener Unit

Installed Dec. 1952

Name: Permutit (The Permutit Company)
New York, N.Y.

No. #: BKE 144569

TT-54 Well house

Well #: 11

Name: General Electric (TRI CLAD)

Model: 5K42-56XS2C2

HP: 10

RPM: 1760

Volts: 208-220/440

Amps: 27/13.5

Type: K

Frame: 256 U P

Design: B

Code: C

C Rise: 55

Time Rating: Cont.

Drive end: 40BA03

Opp. Drive end: 40BL02KAA

Ser. No.: ~~2151~~
2V51222234

Phase: 3

Cycle: 60

- ① Constant flow of 780 gpm (maximum)
- ② Recommended 1.3 lb of lime (93% Ca(OH)₂) per 1,000 gal. of water
- ③ (2X alk. B) - alk. A = alk. C
equation should be between -1.0 and -11.0
- ④ 8 gal. per min. per sq. ft. (rate of flow)
- ⑤ catalyst growth 3 or 4 times original

NORTH CAROLINA STATE BOARD OF HEALTH
Division of Sanitary Engineering

APPLICATION FOR APPROVAL OF PLANS
FOR WATER SUPPLY AND
SEWERAGE SYSTEMS

DATE 5-12-52

SERIAL NO.

North Carolina State Board of Health:

C. D. SPANGLER CONSTRUCTION CO.

(Insert the title of body or official making application)

of CHARLOTTE, N. C.
(Insert name of city, town, corporation, or sanitary district)

in the county of MECKLENBURG State of North Carolina

authorized by law to act for ~~the said~~ themselves
(Insert city, town, corporation, or sanitary district)

and to expend its funds for water works or sewerage systems, herewith submit for the counsel and
advice of the State Board of Health plans and specifications prepared by
(Engineer or firm)

PEIRSON & WHITMAN of RALEIGH, N. C.

for the installation of ADDITIONAL WATER SUPPLY; A NEW WATER TREATMENT PLANT, RESERVOIR
AND ELEVATED TANK.
(New system, alteration or extension)

~~in said city, town, corporation, or sanitary district~~ of FOR TARA WA TERRACE, CAMP LEJUENE, N. C.
and herewith make application to the State Board of Health for the approval of such features of said
plans and specifications as relate to public health and the protection of public water supplies.

These plans have been approved and accepted by THE OWNER
(Board, Council, or Directors)

and a certification of acceptance is made herewith.

This application is made under and in full accord with the provisions of Section 7116, 7117, and 7118,
North Carolina Consolidated Statutes 1919, and such other statutes as relate to water works and
sewerage systems. The applicants agree that in so far as the aforesaid public health features of the
proposed improvements provided for in the said plans and specifications are concerned, no changes in or
alteration from the plans and specifications approved by the State Board of Health will be made except
with the consent and approval of the State Board of Health.

Witness my hand and seal:

Signatures

C. D. SPANGLER CONSTRUCTION CO. (Owner)
Mayor or Chairman

C. D. Spangler
PRESIDENT

These plans for the proposed municipal or sanitary district improvements cited in the above applications are hereby approved insofar as the protection of public water supplies is concerned under the authority of Sections 7116 to 7118, Consolidated Statutes of 1919, with the following provisions:

This approval is given with the understanding that upon the installation of such work its operation shall be placed under the care of a competent person, and the operation shall be carried out according to best accepted practice and in accordance with the recommendations of the State Board of Health.

The official copies of plans and specifications accompanying this application have been sealed and stamped with the serial number of this application, 1901..... Only such plans and specifications are included in this approval and any erasures, additions or alterations affecting the efficiency of operation or public health protective value of the proposed improvements will make such approval null and void.

Signed:



DIRECTOR, DIVISION OF SANITATION

ENGINEERING

1921

8/18/58

T. TERRACE PLANT -

ACID CLEANED,

1 Filter

old Sand Bed = 19 inches of Sand

3 inches of Sand short

added 13 Bags of Sand (soaked ok)

8/14/58 # 2 Filter

old Sand Bed = 17 inches of Sand

5 inches Sand short

added 25 Bags of Sand Sand + Gravel mixed

8/15/58 # 3 Filter

old Sand Bed 15 inches of Sand

7 inches of Sand short

added 36 Bags of Sand Sand + Gravel mixed

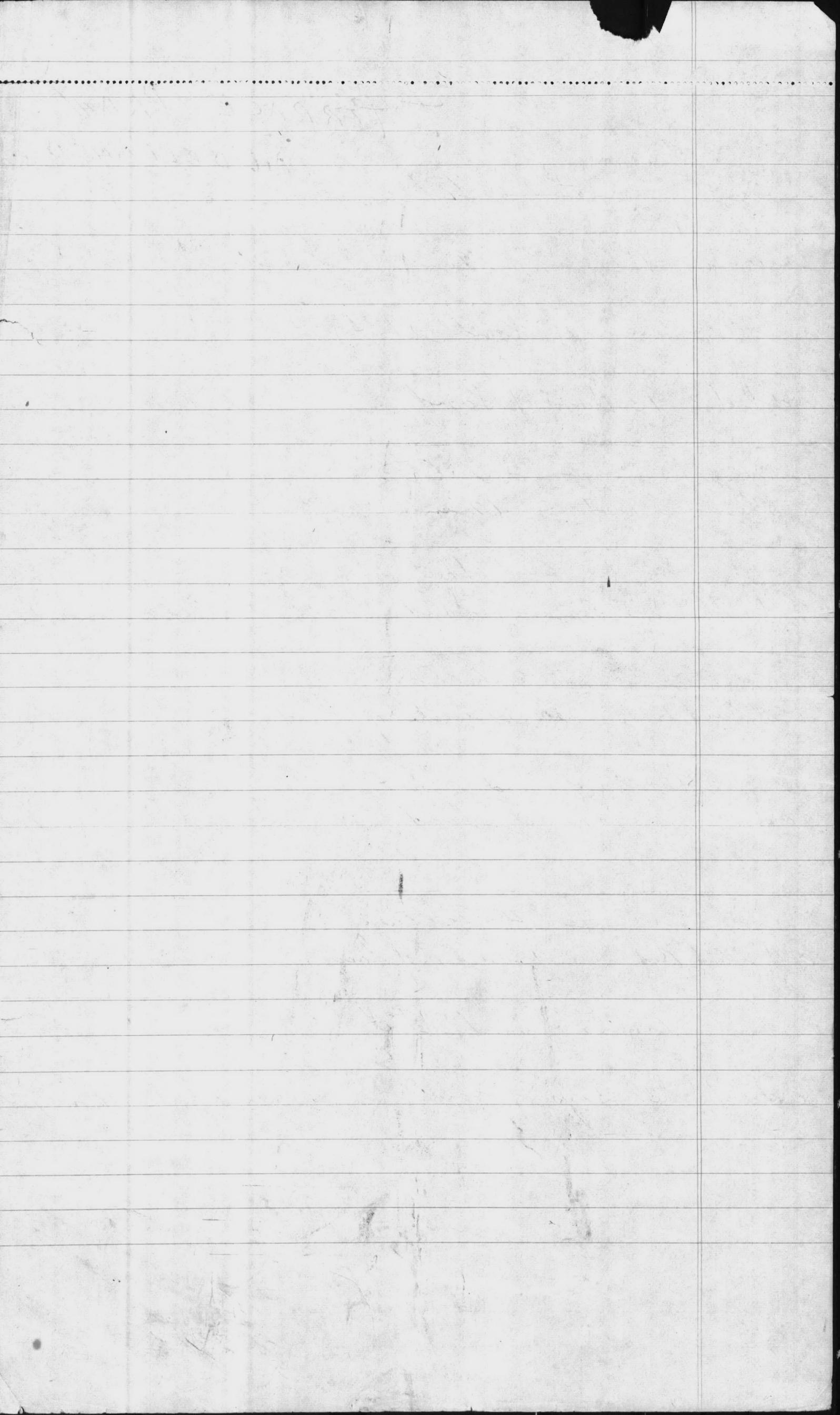
8/15/58 # 4 Filter

old Sand Bed 15 inches of Sand

7 inches of Sand short

added 37 Bags of Sand Sand + Gravel mixed

T



MONIFORD POINT PLANT

XXXXXXXXXXXX

PROPOSAL FOR

NEW WATER TREATMENT PLANT

CAMP LEJEUNE, NORTH CAROLINA

N62470-70-C-0939

LIGHTING FIXTURE CUTS

Southerland Electric Co.

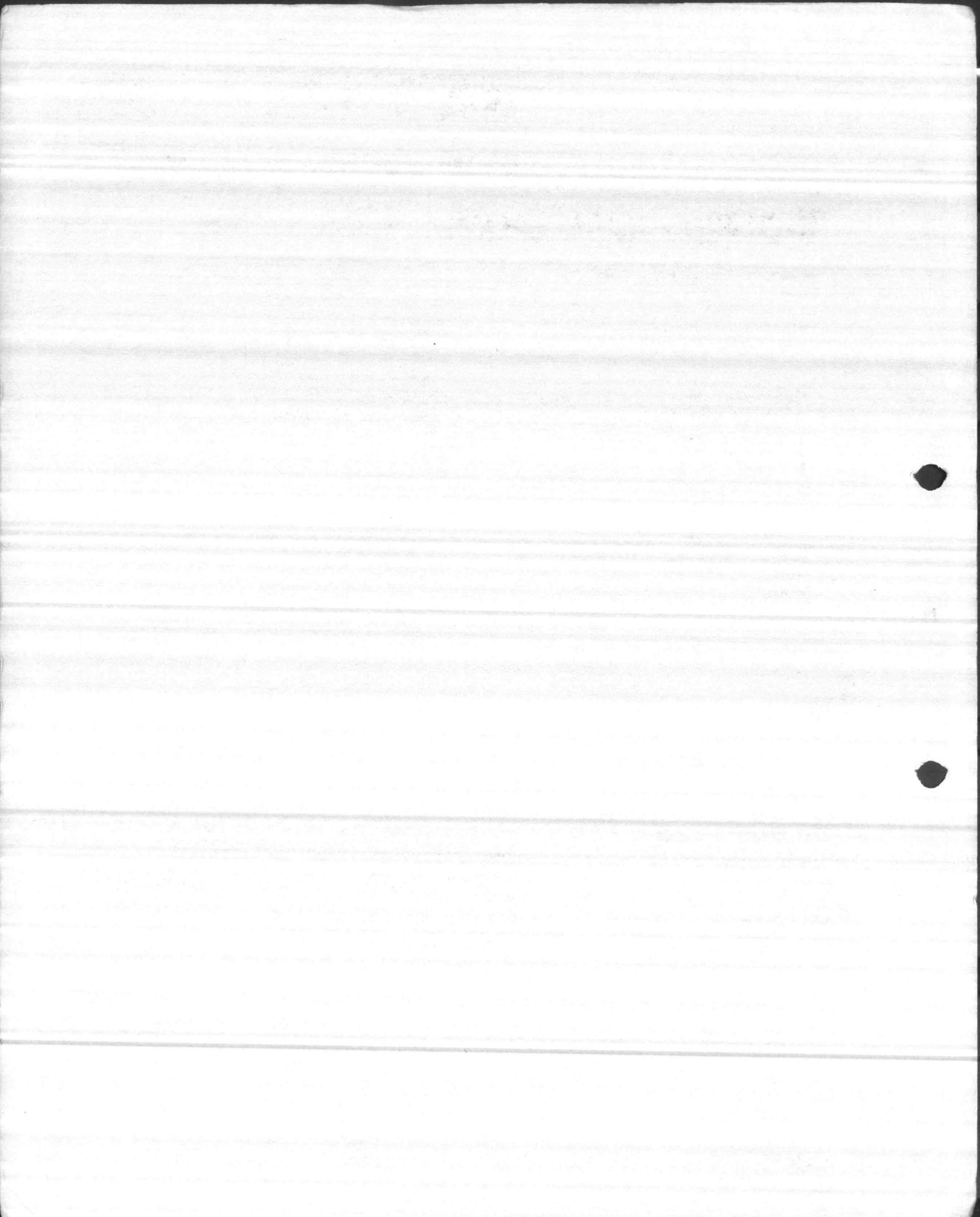
Date: 25 Feb 71
APPROVED
Subject To Meet Of
Job Plans & Specifications
By: *DM*
Quality Control Representative

SUBMITTED BY

GENERAL  ELECTRIC
SUPPLY COMPANY

A DIVISION OF GENERAL ELECTRIC COMPANY

GREENVILLE, N. C.



framed grid troffer L2G

FRAMED RECESSED TROFFER — MAXIMUM ECONOMY WITH HIGH EFFICIENCY

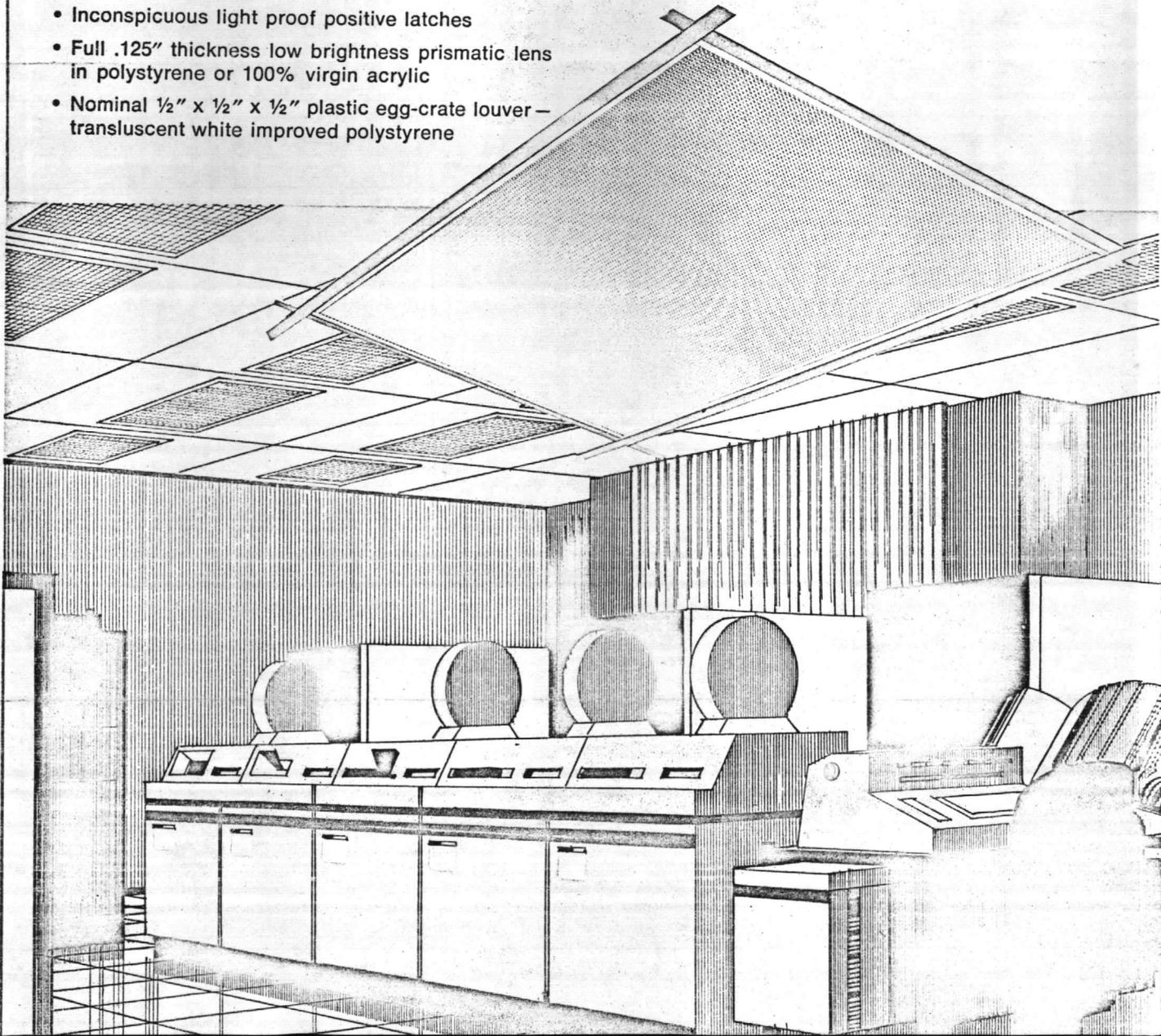
- 24 inch width — 2 and 4 lamp models
- Designed for lay-in grid installation
- Shallow 4 $\frac{3}{8}$ inch O.A. depth
- Rugged die-formed construction — ribbed housing for strength and rigidity
- Self hinging steel door — removable and reversible with invisible hook hinges. Optional regressed extruded aluminum door available
- Gasketed for positive light seal around door frame
- Inconspicuous light proof positive latches
- Full .125" thickness low brightness prismatic lens in polystyrene or 100% virgin acrylic
- Nominal $\frac{1}{2}$ " x $\frac{1}{2}$ " x $\frac{1}{2}$ " plastic egg-crate louver — translucent white improved polystyrene

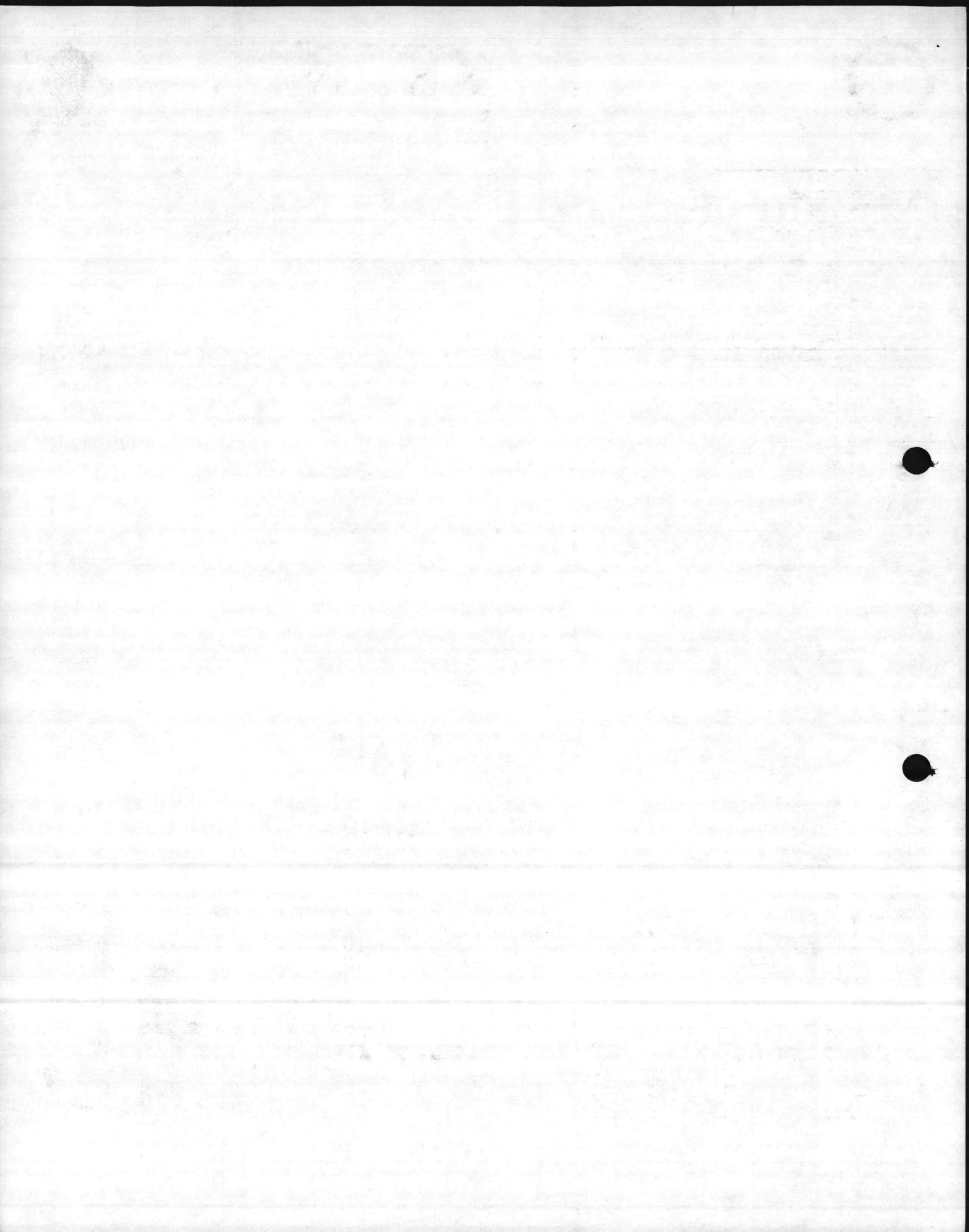
GENERAL SPECIFICATIONS

CONSTRUCTION Heavy gauge C.R. steel.

FINISH All fabricated parts phosphate coated for rust prevention and better adhesion of baked white enamel finish. Automatic electrostatic painting equipment assures quality and high reflectivity.

ELECTRICAL Ballasts UL, ETL-CBM Certified. Components UL approved. All units Underwriters' Laboratories, Inc. listed and carry union labels.







FRAMED PRISMATIC LENS

	CATALOG NUMBER	LGTH.	LAMPS	LENS	LIST PRICE
2'x2'	L2GT-420	24"	4/F20	Polystyrene	78.76
Trigger Start (HPF)	L2GT-420-ACR	24"	4/F20	Acrylic	85.76
	L2GT-240	48"	2/F40	Polystyrene	74.26
2'x4'	L2GT-240-ACR	48"	2/F40	Acrylic	86.26
Rapid Start	L2GT-440	48"	4/F40	Polystyrene	84.00
	L2GT-440-ACR	48"	4/F40	Acrylic	96.76

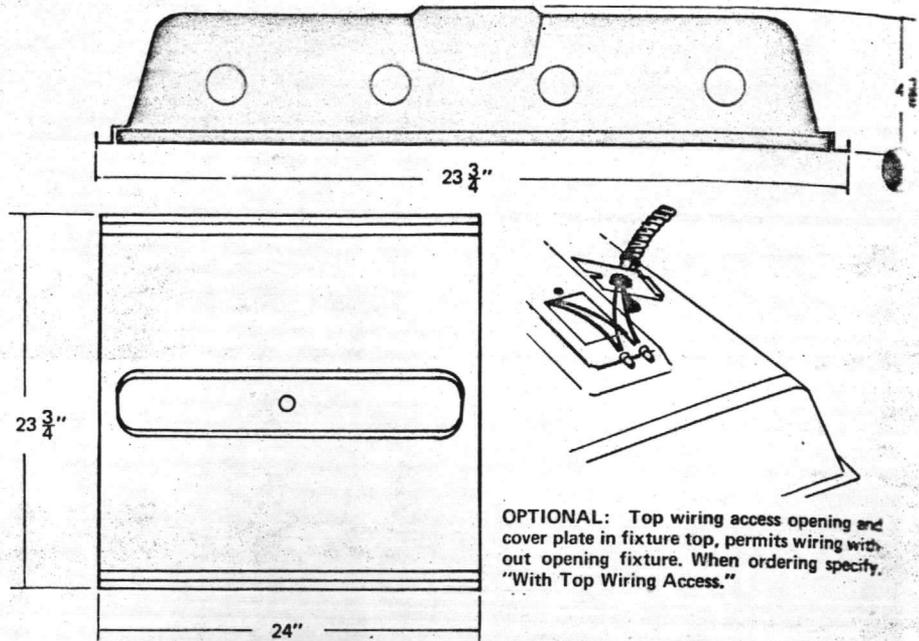
For optional regressed extruded aluminum door — suffix catalog number "-RD"

FRAMED PLASTIC EGG-CRATE LOUVER

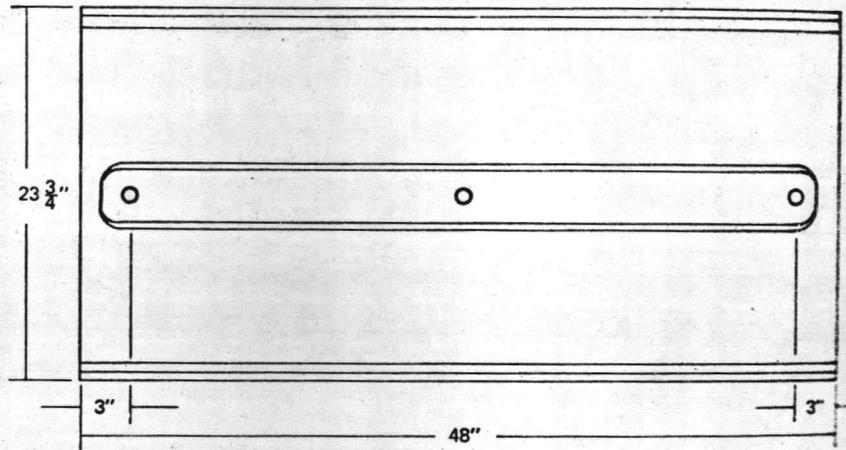
	CATALOG NUMBER	LGTH.	LAMPS	LOUVER	LIST PRICE
2'x2'	L2GP-420	24"	4/F20	Polystyrene	78.76
Trigger Start (HPF)					
2'x4'	L2GP-240	48"	2/F40	Polystyrene	74.26
Rapid Start	L2GP-440	48"	4/F40	Polystyrene	84.00

Note: Plastic egg-crate louver not available for regressed extruded aluminum door.

*Types A & B
277V.*



OPTIONAL: Top wiring access opening and cover plate in fixture top, permits wiring without opening fixture. When ordering specify, "With Top Wiring Access."



KEENE

CORPORATION

LIGHTING DIVISION

P. O. BOX 157 • (601) 895-5521
OLIVE BRANCH, MISSISSIPPI 38654

L2GT-440

INDEPENDENT TESTING LABORATORIES, INC.
1410 Pearl Street, Boulder, Colorado

Report No.: 11932
Date: 8-5-69

Kr: .85
Lamps: Four F40T12/CW/RS
Each rated 3110 Lumens, 2360 fl. Shielding: 90° Parallel 90° Normal
Test of candlepower distribution in 3 planes. Mounting: Recess-
S/MH: 1.3 IES Class: Spread CIE Type: Direct

CU-ZONAL INTERFLECTANCE METHOD					0%	EFFICIENCY	
Floor	30%		10%	90°			
Ceiling	80%		80%		100%	0°-40° 35.7%	
Room Wall	50%	30%	50%	0°-60° 56.3%			
					0°-90° 64.3%		
					0°-180° 64.3%		
J	0.6	.31	.26	.30	.26	Part	Norm
I	0.8	.40	.34	.38	.34	0	1450
H	1.0	.45	.40	.43	.39	45	1135
G	1.25	.51	.45	.48	.44	55	821
F	1.5	.55	.50	.51	.47	65	541
E	2.0	.61	.56	.55	.52	75	438
D	2.5	.65	.60	.58	.55	85	429
C	3.0	.67	.63	.60	.57		
B	4.0	.71	.67	.62	.60		
A	5.0	.73	.70	.64	.62		

CU-ZONAL CAVITY METHOD																		
P _w	80%				70%				50%				30%				10%	0%
	Percent																	
1	71	69	66	64	70	67	65	63	65	63	61	62	61	60	60	59	58	
2	66	62	58	55	64	60	57	54	58	55	53	56	54	52	54	52	51	
3	61	55	51	48	60	54	50	47	53	49	46	51	48	46	49	47	45	
4	57	50	45	41	55	49	45	41	48	44	41	46	43	40	45	42	40	
5	52	45	40	36	51	44	39	36	43	39	35	42	38	35	41	37	35	
6	48	41	35	32	47	40	35	32	39	35	31	38	34	31	37	34	31	
7	45	37	32	28	44	36	31	28	35	31	28	34	30	27	34	30	27	
8	41	33	28	24	40	33	28	24	32	27	24	31	27	24	30	27	24	
9	38	30	25	21	37	29	24	21	29	24	21	28	24	21	27	24	21	
10	35	27	22	19	34	27	22	19	26	22	19	25	21	19	25	21	18	

100

100

industrial LP

PREMIUM INDUSTRIAL LIGHTING — RAPID START AND SLIMLINE 430 MA

- 2, 3, and 4 lamp models
- Reinforced channel for strength and rigidity
- Removable channel end cap forms continuous row connector
- Die-formed embossed reflector with apertures for 10-15% upward component
- Reflector finished in highest quality baked white enamel or porcelain enamel
- Surface, pendant or chain mounted
- Steel enclosed lampholder assembly
- Positive lock twist-type reflector fastener

GENERAL SPECIFICATIONS

CONSTRUCTION Heavy gauge C.R. steel.

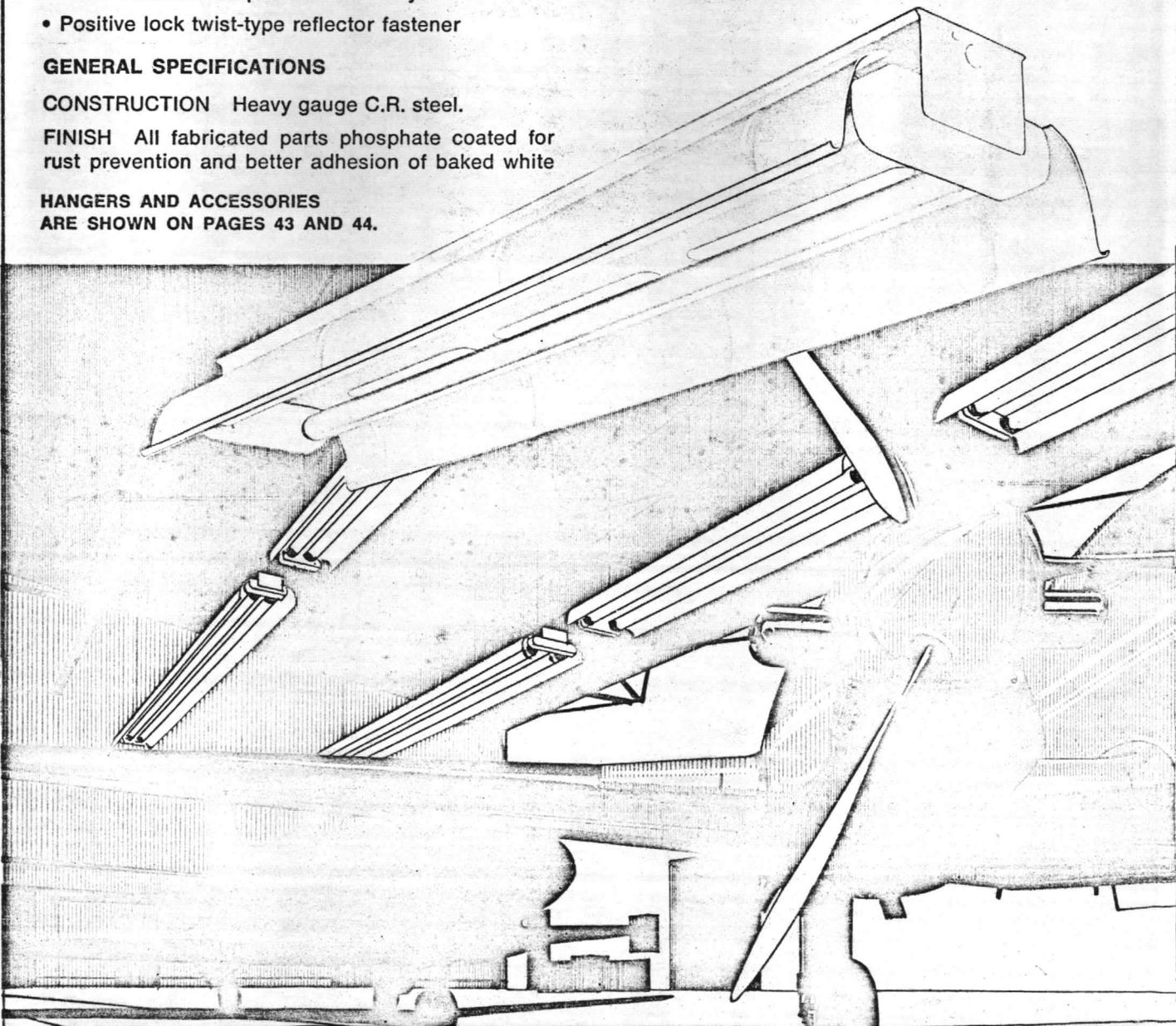
FINISH All fabricated parts phosphate coated for rust prevention and better adhesion of baked white

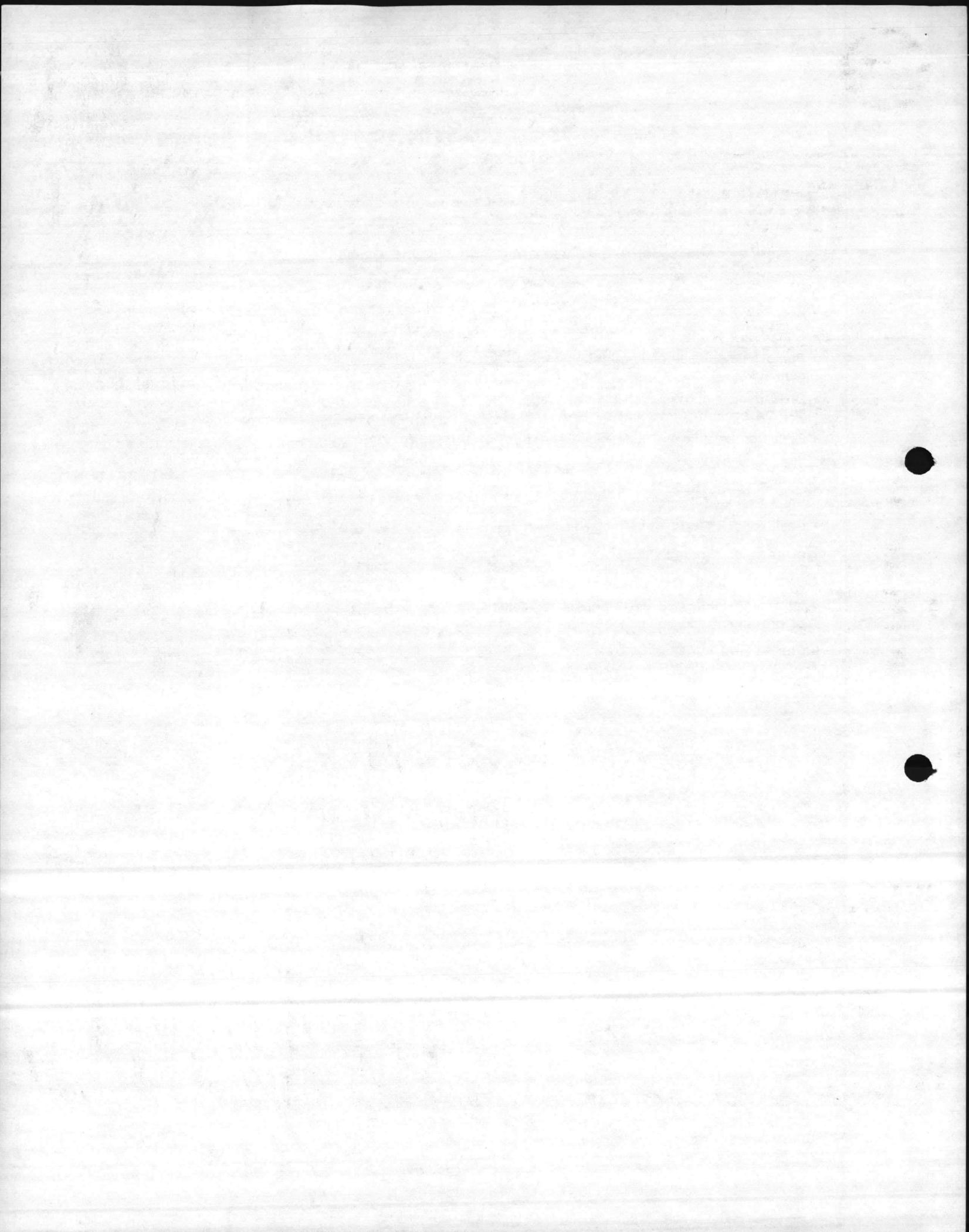
HANGERS AND ACCESSORIES
ARE SHOWN ON PAGES 43 AND 44.

enamel finish. Automatic electrostatic painting equipment assures quality and high reflectivity. Reflector also available finished inside and out in white porcelain enamel.

ELECTRICAL Ballasts UL, ETL-CBM Certified. Components UL approved. All units Underwriters' Laboratories, Inc. listed and carry union labels.

SEE PAGE 28 for optional "V" reflector, wire guard, framed steel louver, framed prismatic lens and reflector end covers.

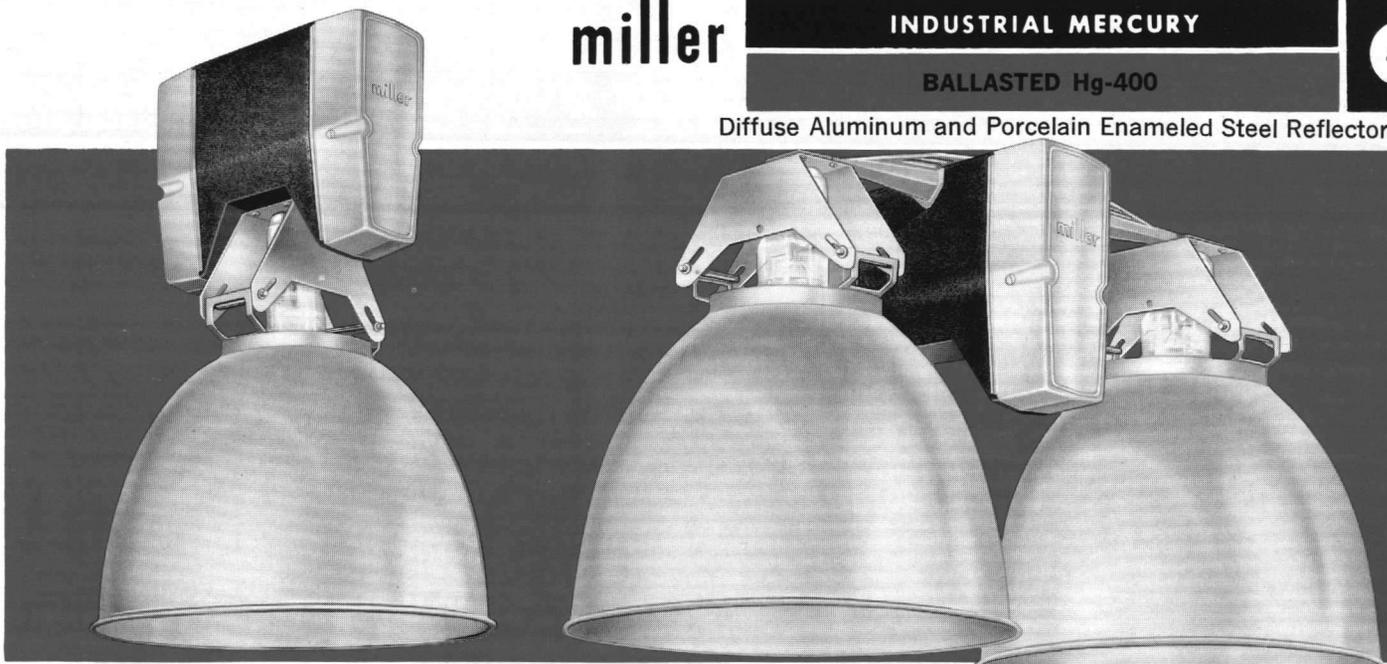






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Diffuse Aluminum and Porcelain Enameled Steel Reflectors



Wattage	Distribution	CATALOG NUMBERS Units Listed are for 120V, 60 cycle operation—also available for other voltages—see below*	Approx. Net Wt. (lbs.)
UNITS with DIFFUSE ALUMINUM REFLECTORS			
SINGLE LAMP			
400	Wide	HG-412-1	22¼
400	Narrow	HG-422-1	23
TWIN LAMP			
400	Wide	HG-412-2	40
400	Narrow	HG-422-2	41½
TWIN LAMP—Mercury/Incandescent Combination**			
400 Mercury } 500 Incand. }	Wide	HG-412-9	29
	Narrow	HG-422-9	30½
UNITS with PORCELAIN ENAMELED STEEL REFLECTORS			
SINGLE LAMP			
400	Medium	HG-423-1	25½
TWIN LAMP			
400	Medium	HG-423-2	46½
TWIN LAMP—Mercury/Incandescent Combination**			
400 Mercury } 500 Incand. }	Medium	HG-423-9	35½
ACCESSORIES		Catalog Number	
Wire Guard for Narrow Distribution (20¾") reflectors		AE-2120	
Wire Guard for Wide Distribution (15¾") reflectors		AE-2117	
‡3 ft., 3-conductor cord only		99031	
‡3 ft., 3-conductor cord with Twist-Lok plug		99034	
‡3 ft., 3-conductor cord with Twist-Lok plug and connector		99038	
Hooks and Loops (Cast Aluminum Alloy with ¾" Male Pipe Thread)			
hook		80130	
hook with safety screw		80131	
thru-wire hook		80132	
thru-wire hook with safety screw		80133	
loop		80128	
thru-wire loop		80129	

Type D 277V.
GENERAL APPLICATION

Units are applicable for a wide variety of both heavy and light industrial areas at all commonly encountered mounting heights. Also suitable for gymnasiums and sports arenas, indoor swimming pools, hangars, terminals, warehouses, etc. . . . wherever open reflectors are applicable.

WIDE DISTRIBUTION UNITS — Low and Medium Bay (mounting heights up to 30 ft.)

Particularly applicable where good vertical illumination and minimum shadows are desired. Widespread distribution pattern of aluminum reflector provides uniform illumination with relatively wide luminaire spacing.

MEDIUM AND NARROW DISTRIBUTION UNITS — Medium and High Bay (mounting heights 20 ft. and above.)

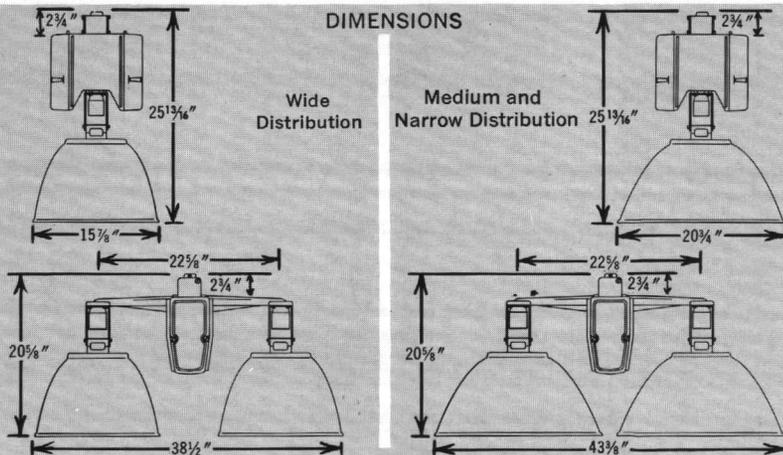
Excellent for high mounting applications. Also for any area with high standing machinery or other such obstructions.

*To specify 240, 277, or 480 V add required voltage as suffix to catalog number ex. Hg-412-1-277
**Units wired with single lamp ballast for one 400w Mercury lamp; second Mogul socket for 500w incandescent lamp.
†For 120V and 240V operation only. Cord sets also available for 277 and 480V operation, on special request.

BALLASTING

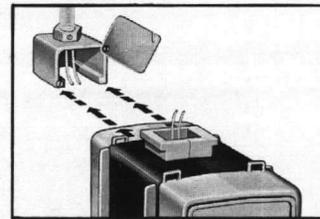
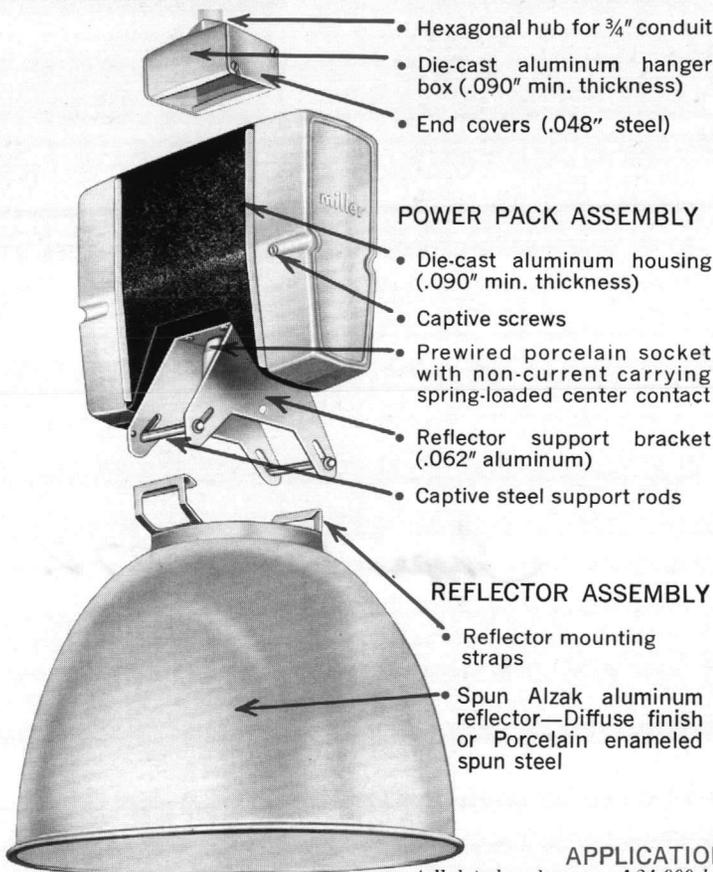
Standard single lp. units are completely prewired with HPF constant wattage autotransformer. Twin lp. units have constant wattage isolation type as standard. A reactor type ballast is available for both single and twin lamp units on special request. A constant wattage isolation type ballast is also available, on special request, for single lp. units.

ELECTRICAL CHARACTERISTICS Hg-400 Ballasts							
	SINGLE LAMP				TWIN LAMP		
	Constant Wattage Autotransformer				Constant Wattage Isolation Type		
NOMINAL PRIMARY VOLTAGE (Input)	120	240	277	480	120	240	277 480
Starting Line Current (amperes)	4.0	2.0	1.75	1.0	6.0	3.0	2.6 1.5
Operating Line Current (amperes)	4.0	2.0	1.75	1.0	7.5	3.75	3.3 1.9
Lamp Wattage	400				800		
Input Wattage	445				880		
Lamp Wattage Regulation at ±10% Input Voltage	±4½%				±4½%		
Minimum Ambient Starting Temperature	-20°F				0°F		
Maximum Ambient Operating Temperature	50°C				50°C		
Power Factor	95%				95%		

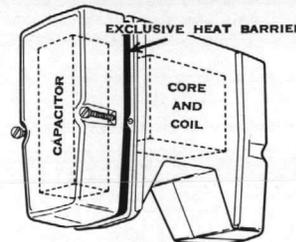


BALLASTED Hg-400

Diffuse Aluminum and Porcelain Enameled Steel Reflectors SPECIFICATIONS HANGER BOX ASSEMBLY



EASY INSTALLATION
Hanger box (a standard component) serves as an easy access splice compartment, as well as a simplified mounting device. After hanger box is attached to conduit (or other threaded device) — ballast assembly is slid onto hanger box where it is fully supported while unit is wired to service leads. No need to hand-support or balance cumbersome ballast weight while making line connections. Ballast installation is completed by tucking spliced leads into compartment and closing end cover. No loose hardware to handle; only a screw driver is required.



COOL OPERATION
Units have completely prewired ballast mounted in light weight die-cast aluminum housing. Housing design permits maximum heat dissipation; has internal fins with center portion painted black inside and out. Exclusive Heat Barrier between capacitor in end casting and core and coil in center casting has air space separation with chimney cooling action. Units can operate in ambients up to 50°C.

EASY ACCESS FOR SERVICING

Autotransformer components may be removed without detaching unit or reflector. Capacitor or core and coil assembly are easily reached by removing one end casting.

SAFE, EASY REFLECTOR ATTACHMENT

Simple, vertical attachment automatically secures reflector to support rods. Safety design prevents accidental detachment.

REFLECTOR PERFORMANCE FEATURES

Open top provides 11% upright Shielding: 30° narrow and medium distribution, 35° wide distribution. Diffuse finish Alzak aluminum reflector provides excellent efficiency, distribution, and brightness control.

FINISH: Cast aluminum parts natural except for matte black paint inside and out, center portion of ballast housing, and light gray paint outside of end casting, only. All steel parts zinc plated. Reflector diffuse Alzak or white porcelain enameled.

Labels: UL; AFL-IBEW

APPLICATION DATA

(all data based on use of 21,000 lumen color-improved lamps)

ILLUMINATION CALCULATIONS For desired Illumination Level, determine Area per Luminaire by Method A or B and make layout to obtain this area being sure maximum spacing is not exceeded. Total number of units required may be obtained from layout or by dividing Room Area by Area per Luminaire.

Method A (Recommended)

$$\text{Area} = \frac{(\text{Lamp Lumens per Luminaire}) \times (\text{C.U.}) \times (\text{M.F.})}{\text{Footcandles Desired}}$$

C.U. — Obtain from table below

M.F. — Good .75; Medium .70; Poor .60

Narrow Distribution Diffuse Aluminum Reflector

ρ_{cc}	80			50			10		
ρ_w	50	30	10	50	30	10	50	30	10

COEFFICIENTS OF UTILIZATION FOR 20% EFFECTIVE FLOOR CAVITY REFLECTANCE

RCR	1	.81	.79	.77	.74	.73	.71	.66	.65	.64
2	.75	.72	.70	.69	.67	.65	.63	.61	.60	.59
3	.70	.66	.63	.65	.63	.60	.60	.58	.56	
4	.65	.61	.58	.61	.58	.56	.57	.55	.53	
5	.61	.57	.54	.58	.54	.52	.54	.51	.49	
6	.57	.53	.50	.54	.51	.48	.51	.48	.46	
7	.53	.49	.46	.51	.47	.44	.48	.45	.43	
8	.50	.46	.42	.48	.44	.41	.45	.42	.40	
9	.47	.42	.39	.47	.41	.38	.42	.39	.37	
10	.44	.40	.37	.42	.38	.36	.40	.37	.35	

Nadir Candlepower 14890

Shielded zones below horizontal 30°. Spacing between centers not to exceed .8 x Mtg. height above work plane.

Wide Distribution Diffuse Aluminum Reflector

ρ_{cc}	80			50			10		
ρ_w	50	30	10	50	30	10	50	30	10

COEFFICIENTS OF UTILIZATION FOR 20% EFFECTIVE FLOOR CAVITY REFLECTANCE

RCR	1	.84	.82	.79	.76	.75	.73	.68	.67	.66
2	.77	.74	.71	.71	.69	.66	.64	.62	.61	
3	.71	.67	.64	.66	.63	.61	.60	.58	.57	
4	.66	.61	.57	.61	.58	.55	.56	.54	.52	
5	.60	.56	.52	.57	.53	.50	.52	.50	.47	
6	.56	.51	.47	.53	.49	.45	.49	.46	.43	
7	.52	.46	.43	.49	.44	.41	.45	.42	.40	
8	.47	.42	.39	.45	.41	.37	.42	.39	.36	
9	.44	.38	.35	.41	.37	.34	.39	.35	.33	
10	.38	.33	.29	.36	.32	.29	.34	.30	.28	

Nadir Candlepower 7370

Shielded zones below horizontal 35°. Spacing between centers not to exceed 1.4 x Mtg. height above work plane.

Medium Distribution Porcelain-Enameled Steel Reflector

ρ_{cc}	80			50			10		
ρ_w	50	30	10	50	30	10	50	30	10

COEFFICIENTS OF UTILIZATION FOR 20% EFFECTIVE FLOOR CAVITY REFLECTANCE

RCR	1	.89	.87	.84	.81	.79	.77	.71	.70	.69
2	.81	.77	.73	.74	.71	.68	.66	.64	.62	.62
3	.74	.69	.65	.68	.64	.61	.61	.59	.57	
4	.67	.61	.57	.62	.58	.54	.56	.53	.51	
5	.61	.55	.51	.57	.52	.49	.52	.49	.46	
6	.56	.50	.46	.52	.48	.44	.49	.44	.42	
7	.51	.45	.41	.48	.43	.39	.44	.40	.38	
8	.47	.41	.37	.44	.39	.36	.41	.37	.34	
9	.43	.37	.33	.41	.36	.32	.37	.34	.31	
10	.38	.32	.28	.36	.31	.27	.33	.29	.26	

Nadir Candlepower 8260

Shielded zones below horizontal 30°. Spacing between centers not to exceed 1.1 x Mtg. height above work plane.

ρ_{cc} = Effective Ceiling Cavity reflectance ρ_w = wall reflectance RCR = Room Cavity Ratio

$$RCR = \frac{5 (\text{Height Above Work Plane}) \times (\text{Room Width} + \text{Room Length})}{(\text{Room Width}) \times (\text{Room Length})}$$

See lighting design data for method of determining Effective Cavity Reflectance and for multipliers for 10% and 30% floor cavity reflectances.

Method B (For quick approximate calculations)

Assuming use of 21,000 Lumen Color-Improved lamps, Good Maintenance, and reflectances of 50% effective for the ceiling cavity, 30% for the walls, and 20% effective for the floor cavity, obtain Area per Luminaire from table below:

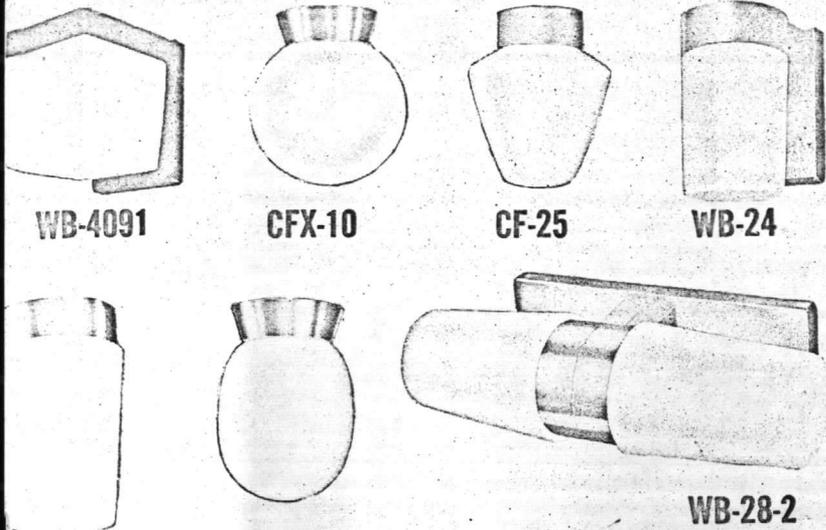
Luminaire Description	Room Width	Mtg. Ht.*	Approximate Area per Luminaire (Sq. Ft.)**				
			20 ftc	30 ftc	50 ftc	70 ftc	100 ftc
Narrow Distribution Diffuse Aluminum	4		555	370	220	160	110
	2		495	330	200	145	100
Wide Distribution Diffuse Aluminum	4		570	380	230	165	115
	2		495	330	200	145	100
Medium Distribution Porcelain Enamel	4		590	395	240	170	120
	2		505	340	205	145	100
	1		380	255	155	110	75

*Above Floor. **Areas may be doubled if twin units are used.

AVERAGE BRIGHTNESS (FOOTLAMBERTS)

ANGLE ABOVE NADIR	DIFFUSE ALUMINUM		PORCELAIN ENAMELED STEEL
	NARROW DISTRIBUTION	WIDE DISTRIBUTION	MEDIUM DISTRIBUTION
45°	5,100	13,000	8,570
55°	1,990	5,400	5,240
65°	505	1,880	2,960
75°	276	980	2,120
85°	0	530	600

SURFACE SERIES for Interior or Exterior use — 3¼" or 4" O.B. mounting. Hand-made, blown, polished Thermopal glass. DieLux® diecast aluminum canopies.



WB-4091

CFX-10

CF-25

WB-24

CF-28

CFX-26

WB-28-2

		Master Pkg.	Ship Lbs.
100W	CF-2 Ceiling mount—3½" dia. x 6¾" high (4¾" dia. with 4" O.B. adaptor)		
	Brushed aluminum (std.) or matte white	8	17½
	Bronzotic™	8	17½
100W	CFX-2 Ceiling mount—4¾" dia. x 7" high		
	Brushed aluminum (std.) or matte white	8	17½
	Bronzotic™	8	17½
150-200W	CF-28 Ceiling mount—5½" dia. x 8¾" high.		
	Brushed aluminum (std.) or matte white	1	2½
	Bronzotic™	1	2½
100W	WB-2 Wall bracket—3½" wide x 6¾" high, extends 4½" for 3¼" O.B. only		
	Brushed aluminum (std.) or matte white	8	20
	Bronzotic™	8	20
100W	WB-24 Wall bracket—4½" wide x 6¾" high, extends 4¾"		
	Brushed aluminum (std.) or matte white	8	21
	Bronzotic™	8	21
2-100W	WB-2-2 Dual unit wall bracket—4½" high x 14" long, extends 4¾"		
	Brushed aluminum (std.) or matte white	1	4½
	Bronzotic™	1	4½
150-200W 2-150-200W	WB-28 Wall bracket—5½" dia. x 9" high, extends 7½"		
	Brushed aluminum (std.) or matte white	1	3½
	Bronzotic™	1	3½
150-200W 2-150-200W	WB-28-2 Dual unit wall bracket—5½" high x 17¾" long, extends 7½"		
	Brushed aluminum (std.) or matte white	1	5
	Bronzotic™	1	5
	WG-6 Accessory guard of cast aluminum, hinged for relamping without removal. U.S. Pat. No. 3087054 For CF-2, WB-2, WB-24, WB-2-2 (2 guards).		
	Aluminum finish only (each)	1	1
	WG-8 As above for CF-28, WB-28, WB-28-2 (2 guards)		
	Aluminum finish only (each)	1	1

Type E

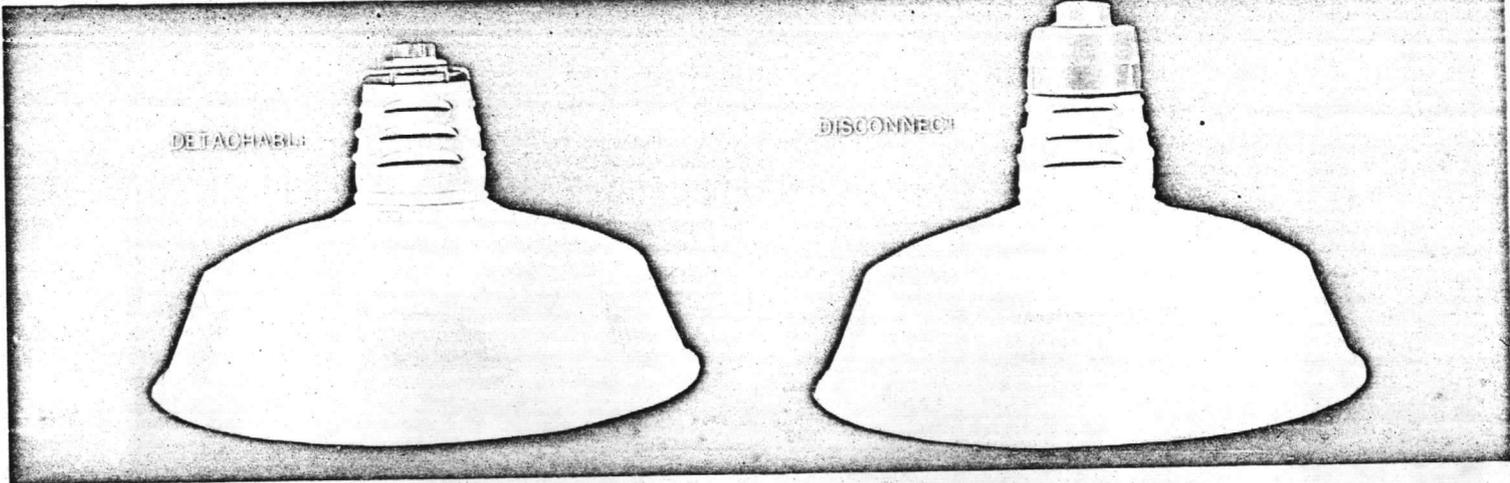
150W	CF-10 Ceiling mount—6½" dia. x 7¾" high.	Master Pkg.	Ship Lbs.
	Brushed aluminum (std.) or matte white	1	3
	Bronzotic™	1	3
150W	CFX-10 Ceiling mount—6½" dia. x 8" high.		
	Brushed aluminum (std.) or matte white	1	3
	Bronzotic™	1	3
150W	WB-10 Wall bracket—7¾" high x 8¾" deep, extends 8¾"		
	Brushed aluminum (std.) or matte white	1	3½
	Bronzotic™	1	3½
150W	WB-210 Wall bracket—6½" wide x 7¾" high, extends 7½"		
	Brushed aluminum (std.) or matte white	1	3½
	Bronzotic™	1	3½
150W	CF-25 Ceiling mount—6" dia. x 7½" high. Polished opal glass.		
	Brushed aluminum (std.) or matte white	1	2½
	Bronzotic™	1	2½
150W	CFX-25 Ceiling mount—6" dia. x 7¾" high. Polished opal glass.		
	Brushed aluminum (std.) or matte white	1	2½
	Bronzotic™	1	2½
150W	WB-25 Wall bracket—6" dia. x 7¾" high, extends 7½". Polished opal glass.		
	Brushed aluminum (std.) or matte white	1	3
	Bronzotic™	1	3
150W	WB-125 Wall bracket—6" dia. x 10" high, extends 7¾". Polished opal glass.		
	Brushed aluminum (std.) or matte white	1	3½
	Bronzotic™	1	3½
150W	B-125 Ceiling unit—6" dia. x 11" high. Polished opal glass.		
	Brushed aluminum (std.) or matte white	1	4
	Bronzotic™	1	4
150W	AX-125 For interior use, pendant with hang-straight assembly. 6" dia. O.A. suspension = 37½". Polished opal glass.		
	Brushed aluminum (std.) or matte white	1	4
	Bronzotic™	1	4
150W	CF-26 Ceiling or wall mount—5¾" dia. x 8½" high. Polished opal glass.		
	Brushed aluminum (std.) or matte white	1	2½
	Bronzotic™	1	2½
150W	CFX-26 Ceiling or wall mount—5¾" dia. x 8¾" high. Polished opal glass.		
	Brushed aluminum (std.) or matte white	1	2½
	Bronzotic™	1	2½
150W	WB-26 Wall bracket—5¾" wide x 8¾" high, extends 6¾". Polished opal glass.		
	Brushed aluminum (std.) or matte white	1	3
	Bronzotic™	1	3
150W 40W	4091 Wall mount—4¾" sq. x 5½" high. Satin opal glass.		
	Matte black (std.), brushed aluminum or matte white	1	2½
	Bronzotic™	1	2½
40W	WB-4091 Wall bracket—4¾" sq. x 6" high, extends 6½". Satin opal glass.		
	Matte black (std.), brushed aluminum or matte white	1	3½
	Bronzotic™	1	3½

Special colors available on request.

10

10





Lamp Watts	Refl. Diam. (In.)	Complete Units				Component Parts		
		Catalog Number**	Overall Height (In.)	Outlet Box Mtg. (3 3/4" or 4") Detachable (4") Disconnect		Catalog Number		
				Reflector	Socket Fittings			
DETACHABLE TYPE COMPLETE UNITS								
100	12	AE-3040	7 1/2	AE-3010	8 1/2	AE-3000	AE-1021	AE-1011
150	14	AE-3041	8 1/2	AE-3011	9 1/2	AE-3001	AE-1021	AE-1011
200	16 1/4	AE-3042	9 1/2	AE-3012	10 1/2	AE-3002	AE-1021	AE-1011
300-500	18	AE-3043	12	AE-3013	12 1/2	AE-3003	AE-1024	AE-1014
750-1500	20 1/2	AE-3044	14 1/2	AE-3014	15 1/2	AE-3004	AE-1024	AE-1014
DISCONNECT TYPE COMPLETE UNITS								
100	12	AE-4040	8 1/2	AE-4010	8 1/2	AE-4000	AE-1060	AE-1050
150	14	AE-4041	9 1/2	AE-4011	9 1/2	AE-4001	AE-1060	AE-1050
200	16 1/4	AE-4042	10 1/2	AE-4012	10 1/2	AE-4002	AE-1060	AE-1050
300-500	18	AE-4043	13	AE-4013	12 1/2	AE-4003	AE-1060	AE-1050
750-1500	20 1/2	AE-4044	15 1/2	AE-4014	15 1/2	AE-4004	AE-1060	AE-1050

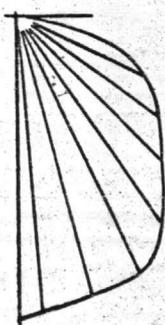
*** available on request.
 **For units with shock-absorbing sockets, add "SA" as suffix to catalog numbers.
 ***See page 10 for descriptions of construction.

ILLUMINATION CALCULATIONS For desired Illumination Level, determine Area per Luminaire by Method A or B and make layout to obtain this area being sure maximum spacing is not exceeded. Total number of units required may be obtained from layout or by dividing Room Area by Area per Luminaire.

Method A (Recommended)

$$\text{Area} = \frac{(\text{Lamp Lumens per Luminaire}) \times (\text{C.U.}) \times (\text{M.F.})}{\text{Footcandles Desired}}$$

C.U. — Obtain from table below
 M.F. — Good .80; Medium .75; Poor .70.



RCR	COEFFICIENTS OF UTILIZATION FOR 20% EFFECTIVE FLOOR CAVITY REFLECTANCE								
	80			50			10		
ρ _w	50	30	10	50	30	10	50	30	10
	1	.91	.87	.84	.85	.83	.80	.79	.77
2	.80	.75	.70	.76	.72	.68	.70	.67	.65
3	.71	.65	.59	.67	.62	.58	.63	.59	.56
4	.63	.56	.50	.60	.54	.49	.56	.51	.47
5	.56	.48	.43	.53	.47	.42	.50	.45	.41
6	.50	.43	.37	.48	.42	.37	.45	.40	.36
7	.45	.38	.33	.43	.37	.32	.41	.36	.32
8	.41	.34	.28	.39	.32	.28	.37	.32	.28
9	.37	.30	.25	.36	.29	.25	.34	.29	.25
10	.32	.26	.21	.31	.25	.21	.30	.24	.21

Maximum Spacing — 1.3 X Mtg. Height Above Work plane

ρ_{cc} = Effective Ceiling Cavity reflectance ρ_w = wall reflectance RCR = Room Cavity Ratio

$$\text{RCR} = \frac{5 (\text{Height Above Work Plane}) \times (\text{Room Width} + \text{Room Length})}{(\text{Room Width}) \times (\text{Room Length})}$$

See lighting design data for method of determining Effective Cavity Reflectance and for multipliers for 10% and 30% floor cavity reflectances.

General lighting units designed to provide good illumination uniformity when installed on spacings not exceeding the mounting heights. Also provides good vertical illumination. Used primarily for storage areas, boiler rooms, utility rooms and similar areas.

Reflectors are white porcelain enameled steel; have reflectances of 85% or more, and provide 17 1/2° shielding below horizontal. Vented necks minimize dust collection on reflecting surfaces and assure cool operation. Louvers (on neck vents) protect lamps from falling or wind-driven moisture.

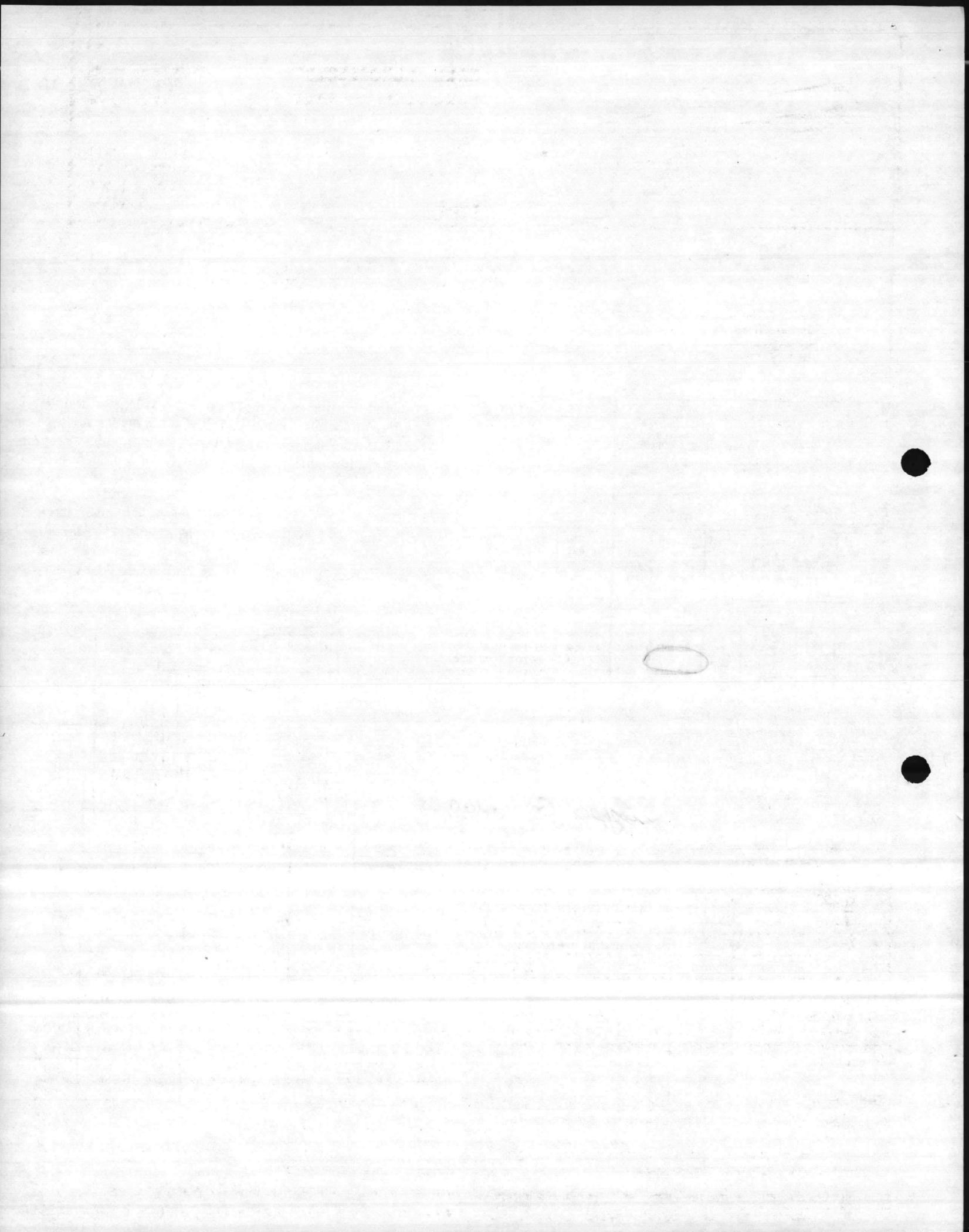
Labels: UL; AFL-IBEW

Method B (For quick approximate calculations)

Assuming use of Good Maintenance and Reflectances of 10, 50, 30 for floor, ceiling, and walls, obtain area per luminaire from table below —

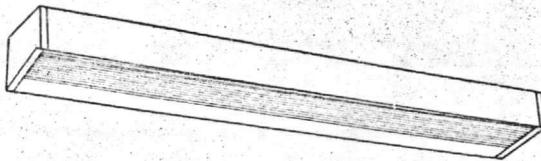
Luminaire Description	Room Width Mtg. Height†	Approximate Area Per Luminaire (Sq. Ft.)				
		10 ft-c	20 ft-c	30 ft-c	50 ft-c	75 ft-c
100 watt	4 or more	90	45	—	—	—
	2	70	35	—	—	—
	1	50	25	—	—	—
150 watt	4 or more	150	75	50	—	—
	2	120	60	40	—	—
	1	80	40	25	—	—
200 watt	4 or more	210	110	70	—	—
	2	165	85	55	—	—
	1	110	55	40	—	—
300 watt	4 or more	320	160	110	65	—
	2	250	130	85	50	—
	1	170	85	55	35	—
500 watt	4 or more	550	280	180	110	75
	2	440	220	140	85	60
	1	290	150	95	60	40
750 watt	4 or more	930	470	300	190	130
	2	740	370	240	140	100
	1	490	250	160	100	65
1000 watt	4 or more	1300	650	410	260	180
	2	1000	510	330	190	140
	1	670	340	220	140	90
1500 watt	4 or more	1900	930	590	370	260
	2	1400	730	470	270	200
	1	960	490	320	200	130

†Above floor.



**WALL FLUORESCENT
PRISMALUX BRACKET**

10232

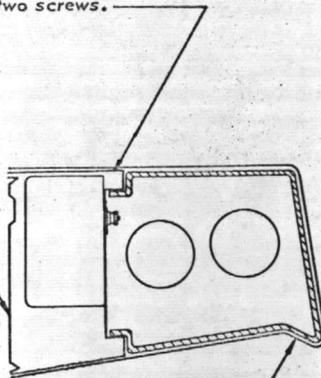


10232 10237
10233 10238
10234 10239
10930

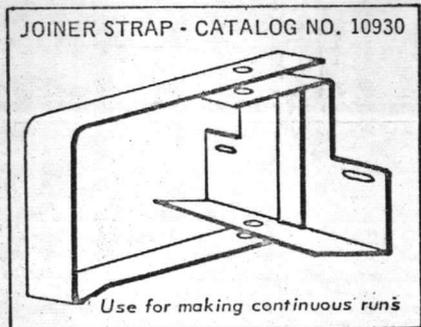
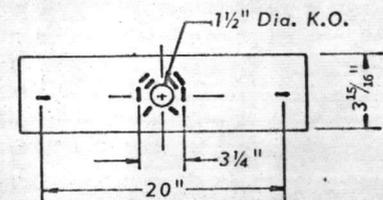
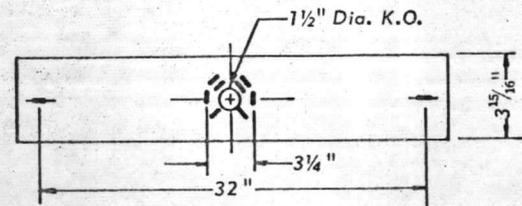
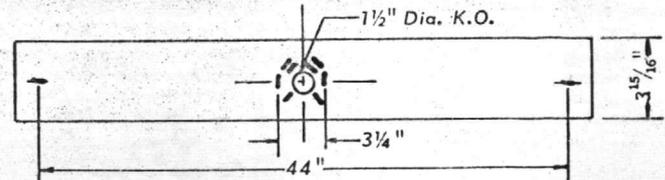
TYPE H

Chassis: Die formed steel. Completely encloses ballast and wiring; secured to back plate by two screws.

Backplate: Die-formed steel.



End Caps: Die formed steel; triple chrome plated (chrome over nickel and copper); slide out for easy diffuser removal; no visible screws, nuts or ornamentation; removed without tools and replaced by joiner strap for end-to-end installation.



Type H 277V.

CATALOG NO.		LAMPS	LENGTH	EXTENSION	HEIGHT
STYRENE	ACRYLIC				
10232	10237	2 - 20W T-12	24 ³ / ₈ "	6 ⁵ / ₈ "	3 ¹⁵ / ₁₆ "
10233	10238	2 - 30W T-12 RS	36 ³ / ₈ "		
10234	10239	2 - 40W T-12 RS	48 ³ / ₈ "		
10930		Joiner Strap Accessory for End-to-End Mounting			

GENERAL DESCRIPTION: Wall mounted fluorescent luminaire with fully-enclosing, one-piece shielding. Provides upright, lens controlled downlight and diffuse horizontal light. Seamless satin chrome end caps remove easily for continuous mounting, without special tools.

SHIELDING: Extruded, one-piece 100% virgin acrylic .100" thick. Clear, ribbed top; translucent white front; linear prismatic bottom. Destaticized.

Alternate: Same as above, except polystyrene .100" thick; light-stabilized to exceed IES-SPI-NEMA standards.

ELECTRICAL: No. 18 AWG 105°C thermoplastic leads. White plastic butt-on sockets, bi-pin, Rapid Start HPF ballasts, thermally protected "Class P" ballasts, ETL certified for 48" unit (Rapid Start LPF ballasts for 36" unit; Trigger Start LPF ballast for 24" unit); mounted in direct contact with chassis for maximum heat dissipation. Knock outs on left and right side for 3-prong grounded convenience outlet and switch.

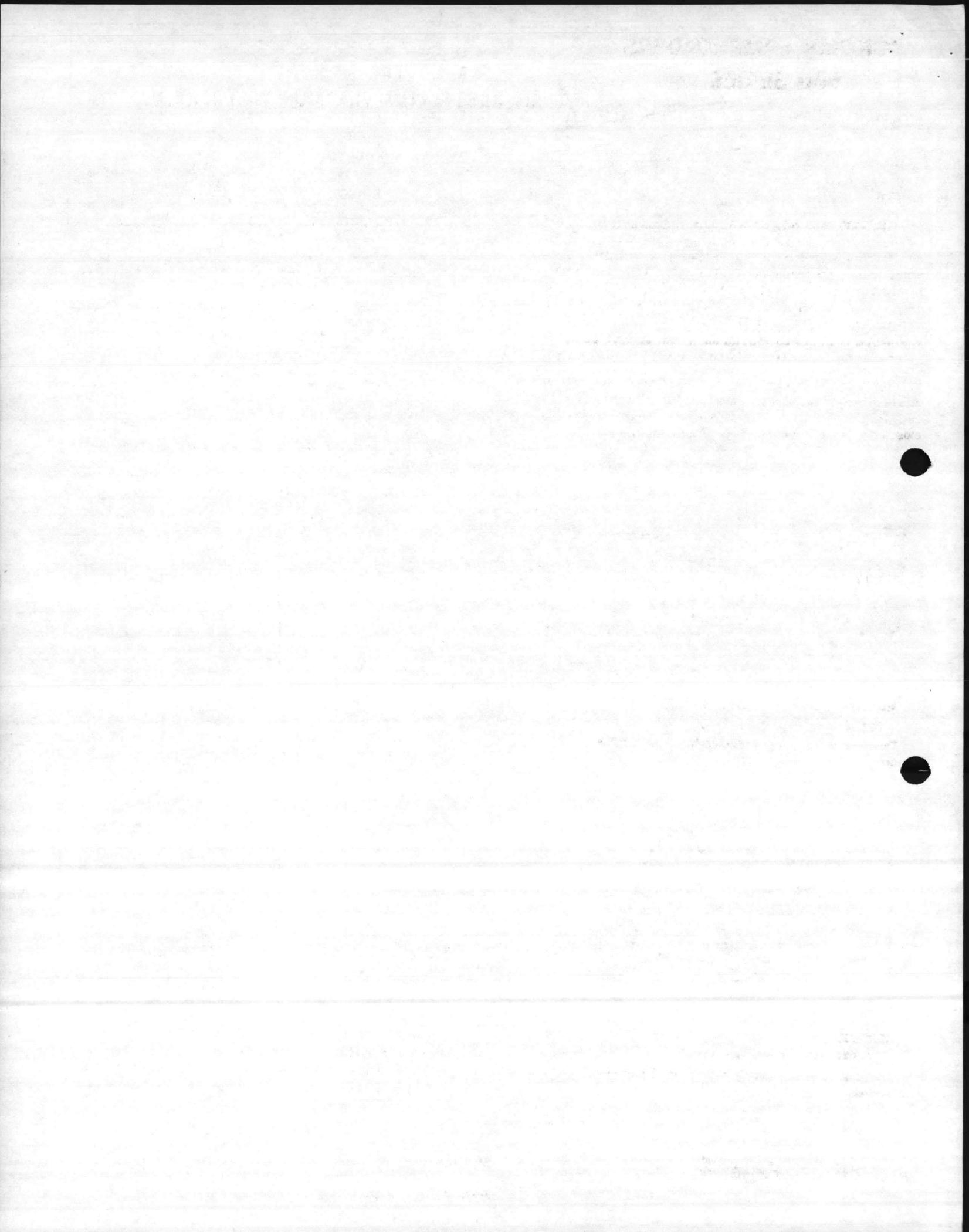
LABELS: U.L.; C.S.A.; I.B.E.W.

FINISH: Baked white semi-gloss enamel over phosphate under-coating, 85% minimum reflectance.

JERSEY CITY, NEW JERSEY 07305
ST-LAURENT, (MONTREAL), P.Q., CANADA

LIGHTOLIER

SPECIFICATION SHEET 10232



**ECONOMY LAMPHOLDERS
500 SERIES**

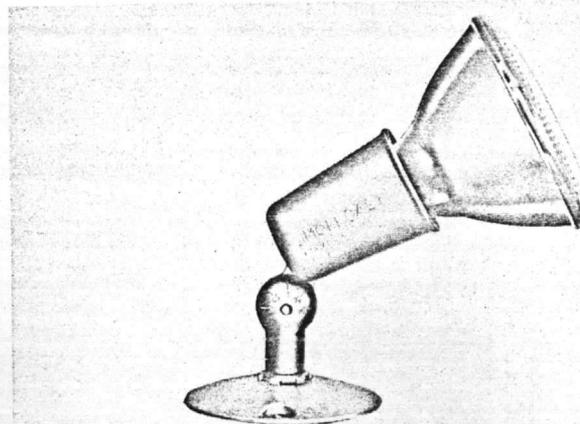
MOLDCAST
DIECAST ALUMINUM • WEATHERPROOF

FINISH:

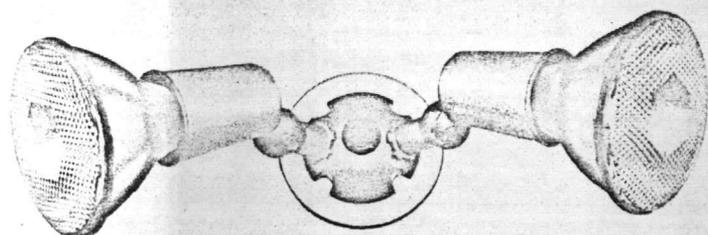
The MLA-500 is furnished with our exclusive Luster Light exterior finish. The cast aluminum unit is highly polished and then protected by a clear epoxy coating baked at an exceedingly high temperature. The result is a hard transparent coating that prevents the aluminum from oxidizing and discoloring regardless of the elements. All exposed hardware is non-corrosive aluminum.

The M-500 is furnished with an aluminum sprayed paint exterior coating. Exposed hardware is steel, cadmium plated.

The following are typical one, two and three light assemblies utilizing gasketed cast aluminum mounting plates to fit various wiring boxes. All threads are 1/2" NPS and bakelite close-up plugs are furnished for unused tapped holes.

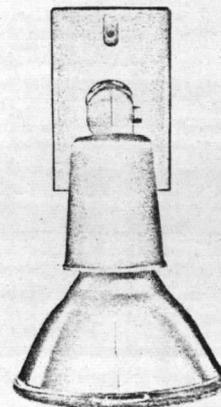


MLA-501 Aluminum Luster Light finish
M-501 Aluminum Spray finish
Lampholder with gasketed No. 4 plate for 3"- 4" boxes.

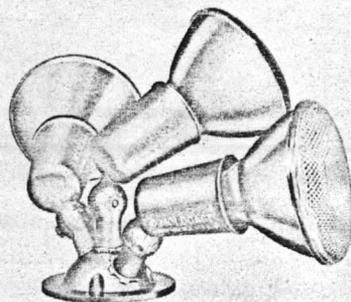


Type 2

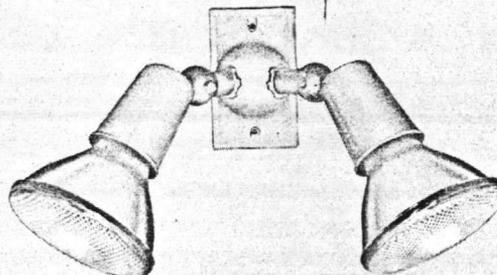
MLA-502 Aluminum Luster Light finish
M-502 Aluminum Spray Finish
Two lampholders with gasketed No. 3 plate for 3"- 4" boxes.



MLA-505 Aluminum Luster Light finish
M-505 Aluminum Spray finish
One lampholder with gasketed No. 5 cover plate for F.S. or Gem boxes.



MLA-503 Aluminum Luster Light finish
M-503 Aluminum Spray finish
Three lampholders with gasketed No. 3 plate for 3"- 4" boxes.



MLA-506 Aluminum Luster Light finish
M-506 Aluminum Spray finish
Two lampholders with gasketed No. 6 cover plate for F.S. or Gem boxes.



Handwritten scribble or signature.







CUSTOMER **BROWN CONSTRUCTION CO., INC.**
 P. O. NO. **9-1**
 JOB **CAM LEJEUNE, NORTH CAROLINA**
 INSTRUCTION MANUALS: **5 WITH SHIPMENT**
 DRAWINGS: **8 SETS TO PURCHASER FOR APPROVAL**

B-I-F ORDER NO. 30804-A-0407	
	SCHEDULE
	DATE
	R DRAWINGS TO CUSTOMER 12/21
X	NR CUSTOMER APP. DUE 1/11
X	Y ENG. DATA TO P.C.
	P SHIPMENT 12 Wks. AA-00
	G CALCS REQ'D? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
PLANS OR SPECS. NO. 1863	

QUAN.	DESCRIPTION	CODE NO.
-------	-------------	----------

1	<p>TAG: ITEM 19.4-1</p> <p>0231-08-CTW-I-L Chronoflo Transmitter, Serial No. 14101 OPERATES 0232-04 on order 30805-A FLUID: Water RANGE: 0 to 12 ft. CASE: Weatherproof MOUNTING: Panel stand type housing for out door installation over float well INDICATOR: Grads WLF CAM CYCLE: 15 sec. POWER SUPPLY: 110 volt, 60 cycle CAM TYPE: Linear FLOAT: 9-5/8 in. dia. with cable</p> <p style="text-align: right;"><i>859314</i></p>	
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ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF
 CONTRACT NO. 46508 SPEC 46508/62
 APPROVAL OF MATERIALS AND/OR EQUIPMENT
 INDICATES COMPLIANCE WITH SPECIFICATION
 REQUIREMENTS ONLY — THE CONTRACTOR
 SHALL BE RESPONSIBLE FOR PROVIDING
 PROPER PHYSICAL DIMENSIONS & WEIGHTS,
 COORDINATION OF TRADES, ETC., AS REQUIRED.

W. C. G. CHURCH
 RADM. CEC, USN
 DIR LANTDOCKS

Date **JAN 7 1963**

SJM

30804-A-0407

DATE TYPED

30804-A-0407

ORDER DATA SHEET

B-1 & ORDER NO.

BROOK CONSTRUCTION CO., INC.

CUSTOMER

SCHEDULE

3-1
CAN LEJUNE, NORTH CAROLINA

P.O. NO.

DRAWINGS TO CUSTOMER

INSTRUCTION MANUALS 2 WITH SHIPMENT

CD

DATE

DRAWINGS 8 SETS TO PURCHASER FOR APPROVAL

DATE

8 SETS TO PURCHASER FOR APPROVAL

DATE

8 SETS TO PURCHASER FOR APPROVAL

DATE

DESCRIPTION

QUAN

CODE NO.

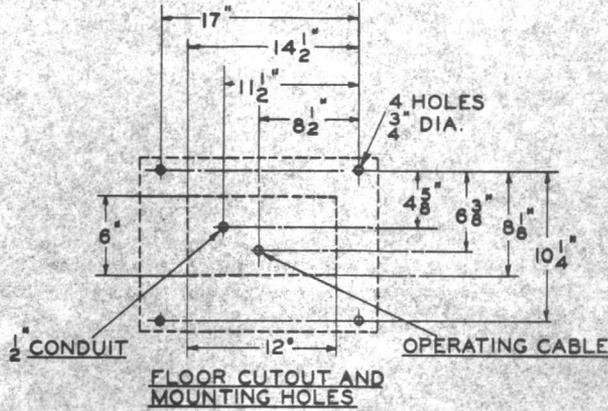
1
 TAG: ITEM 19.4-1
 OPERATES 032-04 on order 30804-A
 CHRONOLOGIC TRANSMITTER, SERIAL NO. 14101
 FLUID: Water
 RANGE: 0 to 12 ft.
 CASE: Weatherproof
 MOUNTING: Panel stand type housing for out door
 installation over float well
 INDICATOR: Grade W/P
 CAM CYCLE: 15 sec.
 POWER SUPPLY: 110 volt, 60 cycle
 CAM TYPE: Linear
 P/CAT: 2-2/8 in. dia. with cable

APPROVED
 [Signature]

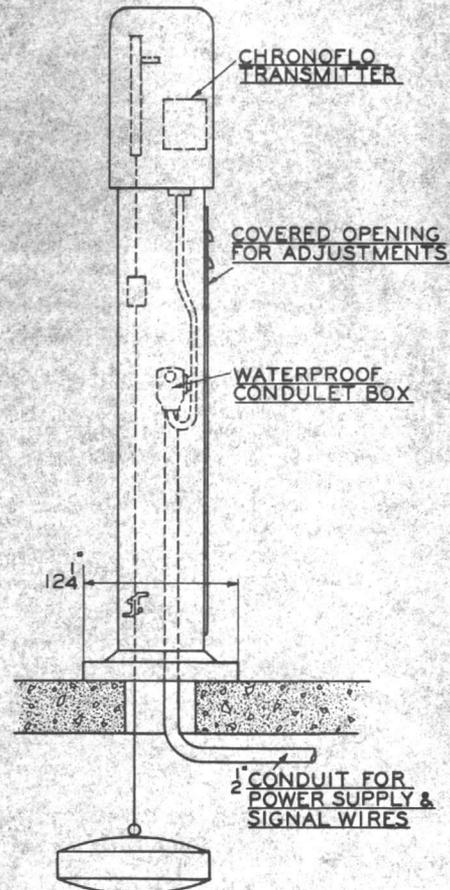
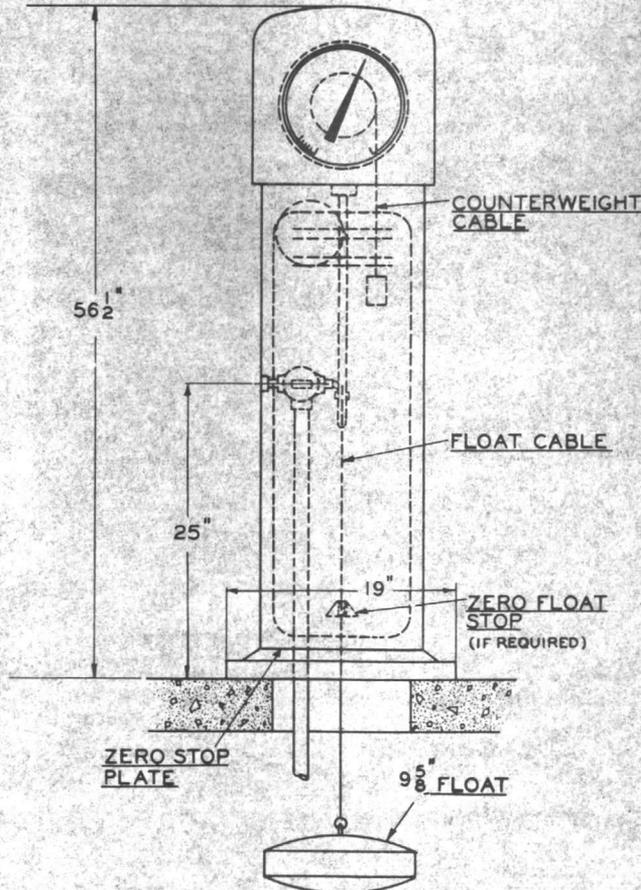
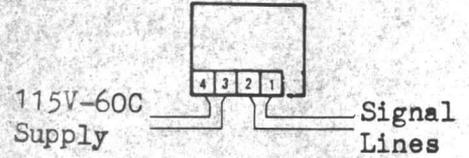


**CHRONOFLO TRANSMITTER-INDICATOR
IN WEATHERPROOF STAND
For Level - Model 231-08**

This print is reproducible



TERMINAL WIRING DIAGRAM



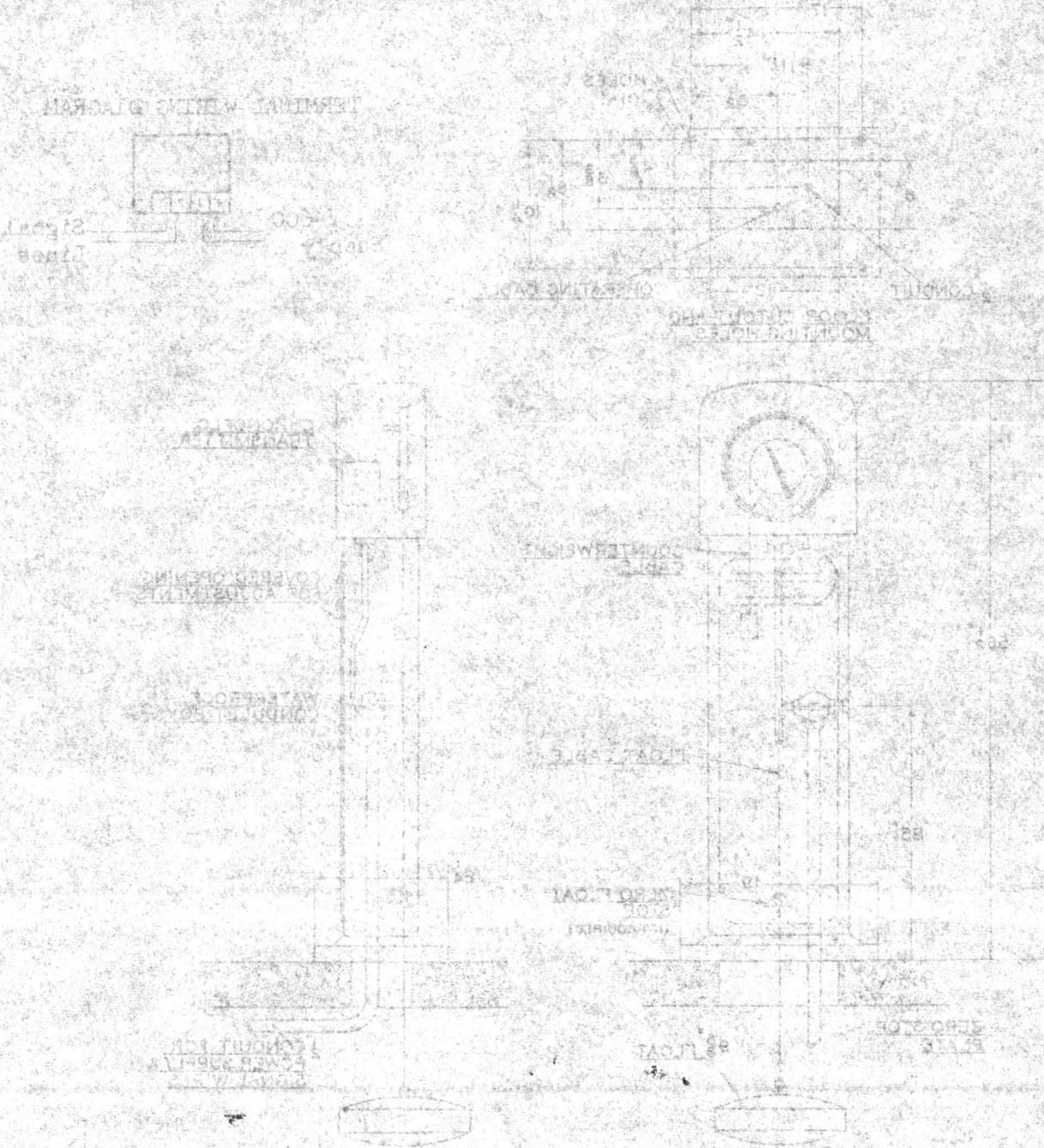
DIMENSIONS

THE OPENING TRANSMITTER INDICATOR
IN WATERPROOF STAIN
NOT Level - Model 231-08

Industrial



PROCESSES PRODUCED BY PROPORTIONERS
INDUSTRIAL



INDUSTRIAL

231-08

CUSTOMER **BROWN CONSTRUCTION CO., INC.**
 P. O. NO. **9-1**
 JOB **CAM LEJEUNE, NORTH CAROLINA**
 INSTRUCTION MANUALS: **5 WITH SHIPMENT**
 DRAWINGS: **8 SETS TO PURCHASER FOR APPROVAL**

B-I-F ORDER NO.		30804-A-0407	
		SCHEDULE	DATE
	R	DRAWINGS TO CUSTOMER	12/21
X	NR	CUSTOMER APP. DUE	1/11
X	Y	ENG. DATA TO P.C.	
	P	SHIPMENT 12 Wks.	AA-00
	G	CALCS REQ'D? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
PLANS OR SPECS. NO.		1863	

QUAN.	DESCRIPTION	CODE NO.
-------	-------------	----------

1	<p>TAG: ITEM 19.4-1</p> <p>0231-08-CTW-I-L Chronoflo Transmitter, Serial No. 14101 OPERATES 0232-04 on order 30805-A FLUID: Water RANGE: 0 to 12 ft. CASE: Weatherproof MOUNTING: Panel stand type housing for out door installation over float well INDICATOR: Grads WLF CAM CYCLE: 15 sec. POWER SUPPLY: 110 volt, 60 cycle CAM TYPE: Linear FLOAT: 9-5/8 in. dia. with cable</p>	
---	---	--

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
 NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NEv 46508 SPEC 46508/62

APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATES COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY — THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICAL DIMENSIONS & WEIGHTS COORDINATION OF TRADES, ETC., AS REQUIRED

Date **JAN 7 1963**

W. C. G. CHURCH
 PADM CEC, USN
 DURLANTDOCKS
S. J. M.

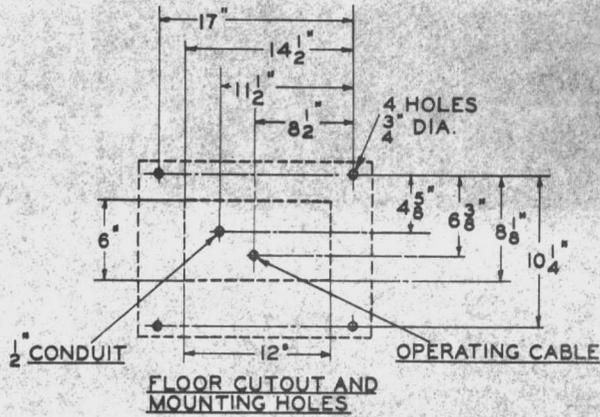
DATE TYPED 12/15/51		B-I-F ORDER NO. 30804-A-0407		CUSTOMER BROWN CONSTRUCTION CO., INC.		P. O. NO. 3-1		ADDRESS CAM LEVINE, NORTH CAROLINA	
DATE 12/15/51		SCHEDULE DRAWINGS TO CUSTOMER		X		MR. CUSTOMER APP. DUE		X	
DATE 12/15/51		V. ENG. DATA TO P.C.		X		P. SHIPMENT IS MADE		X	
DATE 12/15/51		G. CALC. REQS.		X		E. CHECK REQS.		X	
DATE 12/15/51		PLANS OF SPEC. NO.		1103		INSTRUCTION MANUALS		2 WITH SHIPMENT	
DATE 12/15/51		PLANS OF SPEC. NO.		1103		DRAWINGS		8 SETS TO PURCHASER FOR APPROVAL	

QUAN	DESCRIPTION	CODE NO.
1	<p>PICT: 2-5/8 in. dia. with cable CAN TYPE: Linear POWER SUPPLY: 110 volt, 60 cycle CAM CYCLE: 15 sec. INDICATOR: Grade W/F MOUNTING: Panel stand type housing for out door installation over float well CASE: Weatherproof RANGE: 0 to 12 ft. FLUID: Water OPERATES 0325-04 on order 30802-A TAG: ITEM 12.4-1</p>	
	<p>ATLANTIC DIVISION APPROVED JAN 1 1952</p>	

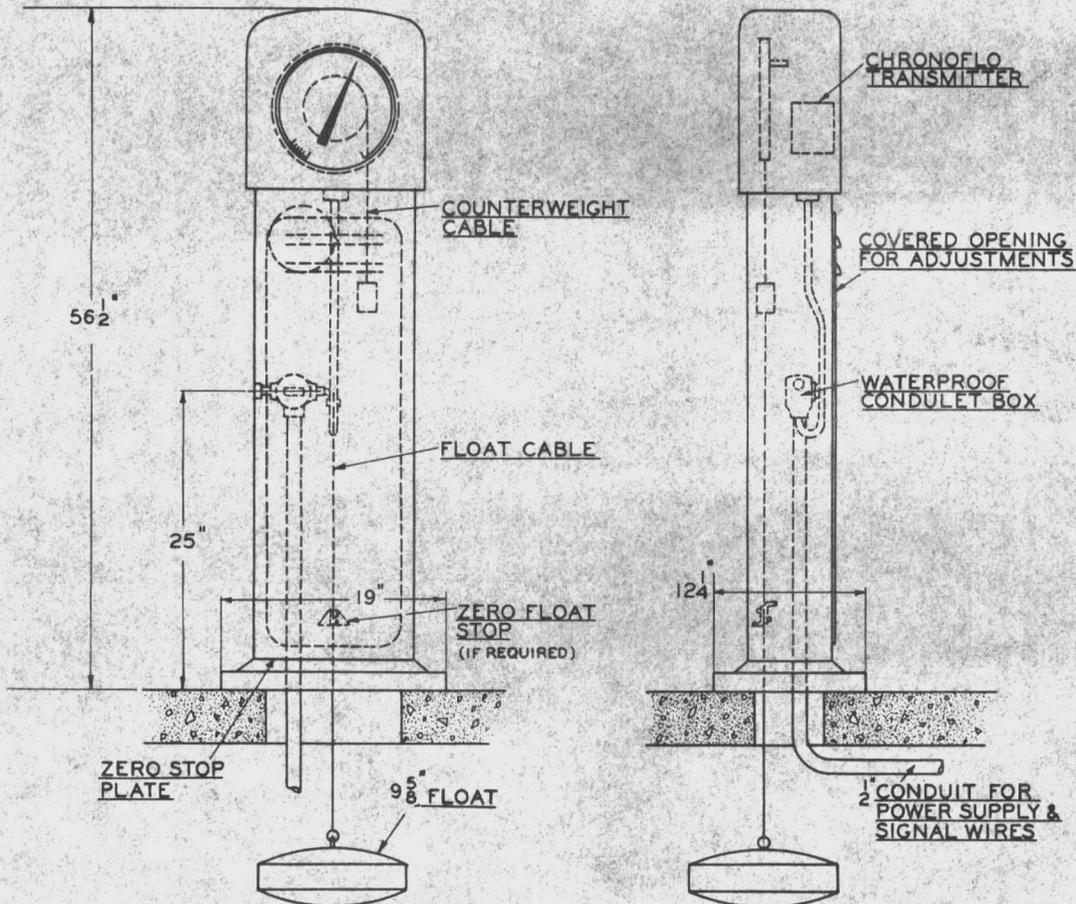
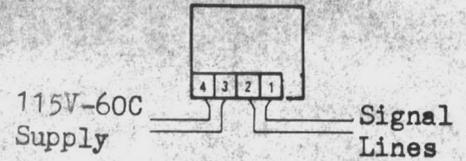


**CHRONOFLO TRANSMITTER-INDICATOR
IN WEATHERPROOF STAND
For Level - Model 231-08**

This print is reproducible



TERMINAL WIRING DIAGRAM



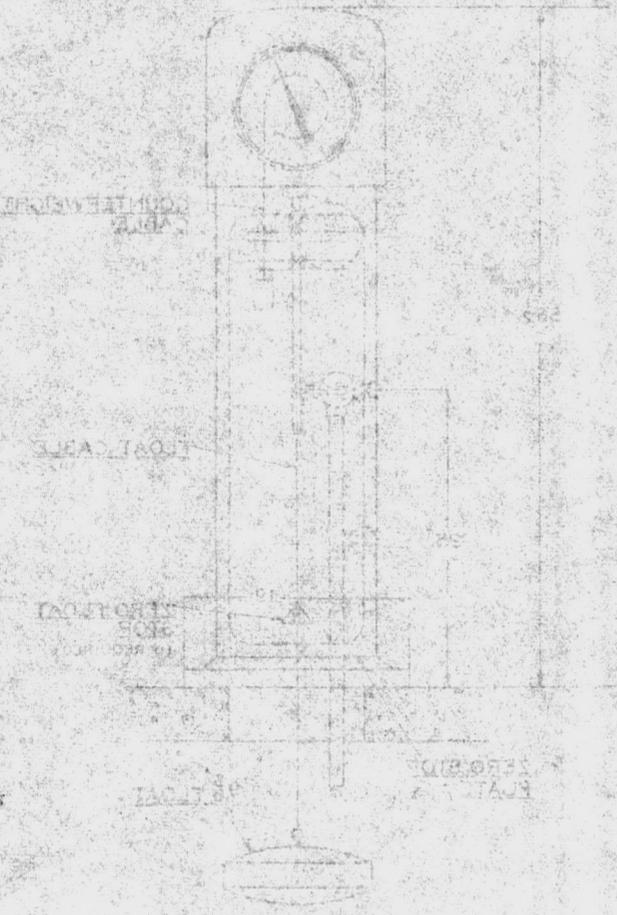
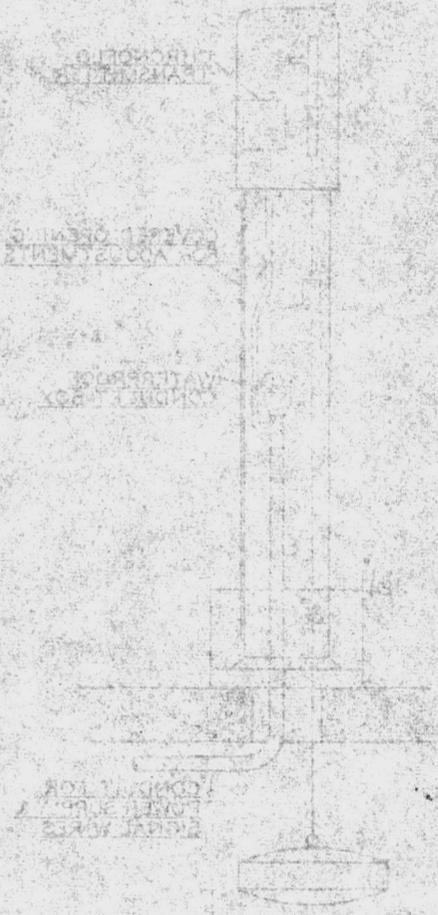
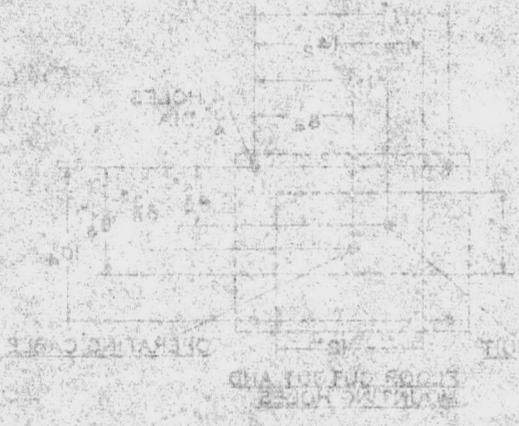
INDUSTRIAL

INDUSTRIAL

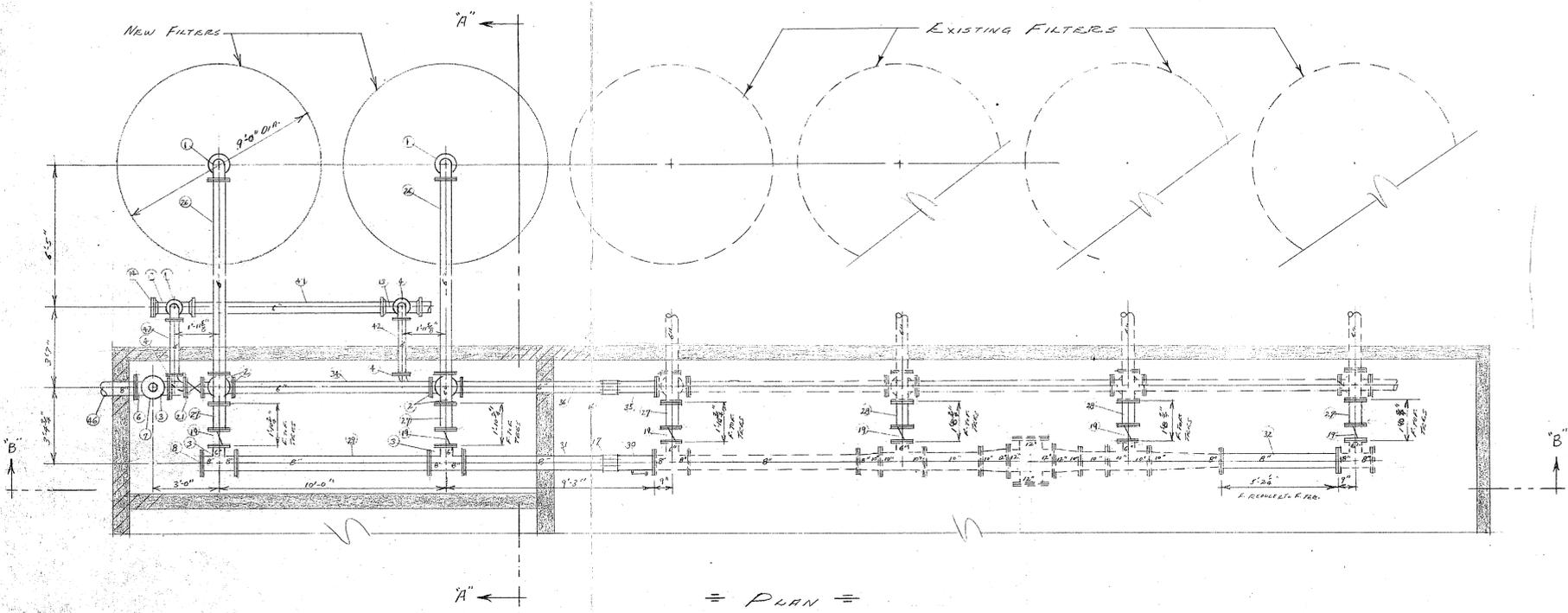


CHRONOMETER TRANSMITTER INDICATOR
IN WEATHERSTATION STAND
Model 131-08

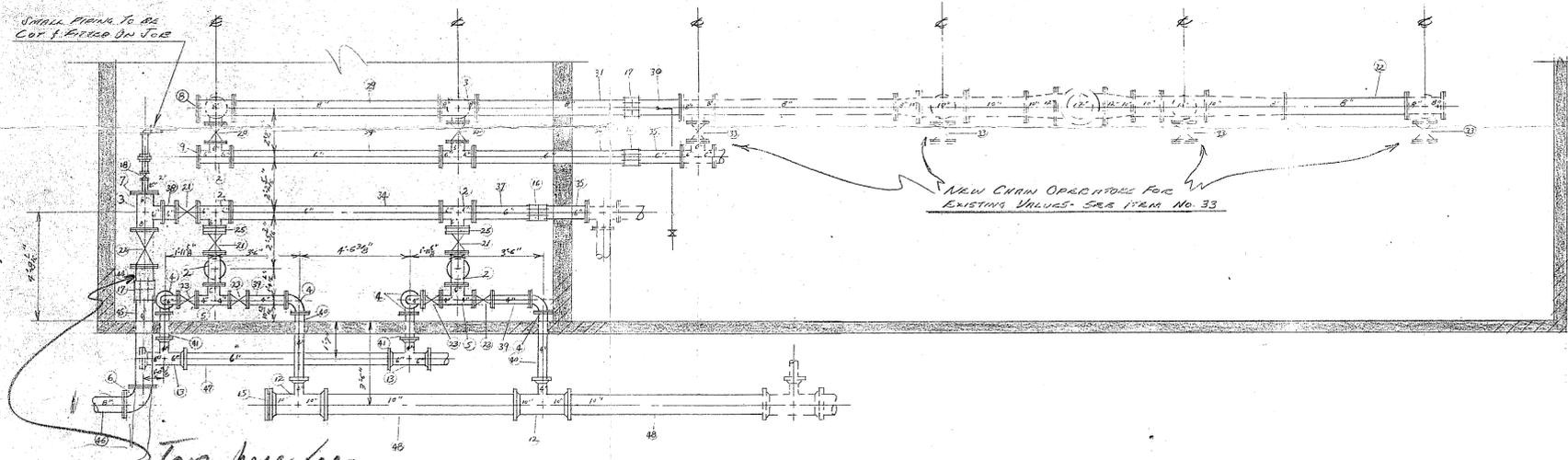
TERMINAL VIEW DIAGRAM



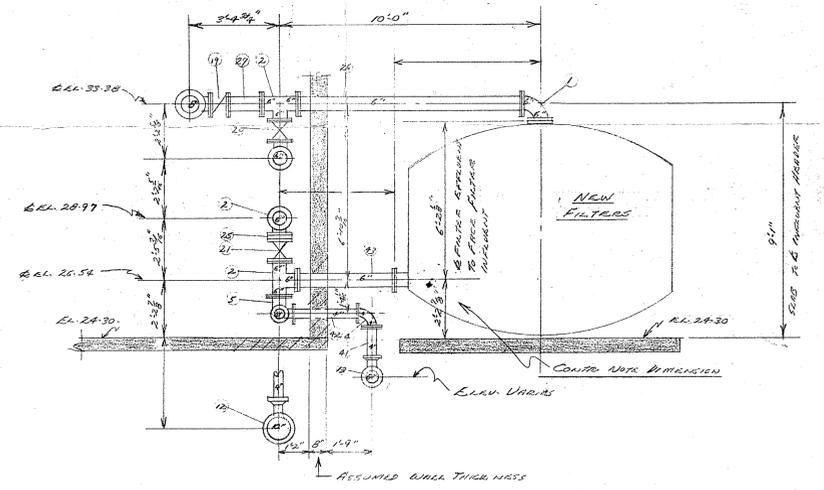
818-5784



PLAN

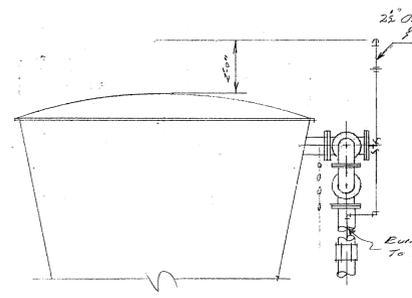


SECTION B-B

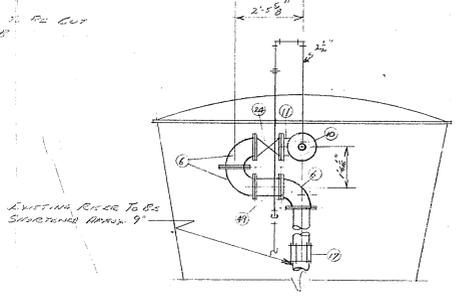


SECTION A-A

Taps here for rotary surface wash



OVERFLOW CONNECTIONS 2 1/2\"/>



EXISTING RISE TO BE MAINTAINED APPROX 9\"/>

ITEM	DESCRIPTION	QTY	UNIT	ITEM	DESCRIPTION	QTY	UNIT
1	6" FLOOR BOLT C.I. 90° ALL	2	EA	28	6" x 1 1/2" F.F.P. DITTO	2	EA
2	6" x 6" DITTO TEE	4	EA	29	4" x 3" x 1/2" F.F.P. DITTO	1	EA
3	6" x 8" DITTO TEE	3	EA	30	3" x 2" x 1/2" F.F.P. DITTO	1	EA
4	4" DITTO 90° ALL	6	EA	31	3" x 2" x 1/2" F.F.P. DITTO	1	EA
5	4" x 6" DITTO TEE	2	EA	32	3" x 2" x 1/2" F.F.P. DITTO	1	EA
6	8" DITTO 90° ALL	4	EA	33	3" x 2" x 1/2" F.F.P. DITTO	1	EA
7	2" x 1 1/2" BOLT C.I. BRASS W/IN CORR. FLANGE	1	EA	34	3" x 2" x 1/2" F.F.P. DITTO	1	EA
8	2" x 1 1/2" DITTO BLIND FLANGE	1	EA	35	3" x 2" x 1/2" F.F.P. DITTO	1	EA
9	2" x 1 1/2" DITTO BLIND FLANGE	1	EA	36	3" x 2" x 1/2" F.F.P. DITTO	1	EA
10	2" x 1 1/2" DITTO BRASS W/IN CORR. FLANGE	1	EA	37	3" x 2" x 1/2" F.F.P. DITTO	1	EA
11	8" x 8" DITTO TEE	1	EA	38	3" x 2" x 1/2" F.F.P. DITTO	1	EA
12	10" x 10" M.T. TEE	2	EA	39	3" x 2" x 1/2" F.F.P. DITTO	1	EA
13	6" x 6" M.T. TEE	2	EA	40	3" x 2" x 1/2" F.F.P. DITTO	1	EA
14	6" M.T. FLG.	1	EA	41	3" x 2" x 1/2" F.F.P. DITTO	1	EA
15	10" M.T. FLG.	1	EA	42	3" x 2" x 1/2" F.F.P. DITTO	1	EA
16	6" STD. 38 CORNER COPPER - COPPER BUNG REMOVED	2	EA	43	3" x 2" x 1/2" F.F.P. DITTO	1	EA
17	8" DITTO	3	EA	44	3" x 2" x 1/2" F.F.P. DITTO	1	EA
18	2" STD. END WOOD DISC. GATE VALVE	1	EA	45	3" x 2" x 1/2" F.F.P. DITTO	1	EA
19	6" F.F.P. BUTTERFLY VALVE - BT. OTHERS	4	EA	46	3" x 2" x 1/2" F.F.P. DITTO	1	EA
20	6" F.F.P. GATE VALVE 45° CHAIN & WHEEL OPERATED 35° DROP	2	EA	47	3" x 2" x 1/2" F.F.P. DITTO	1	EA
21	6" F.F.P. GATE VALVE 45° CHAIN & WHEEL OPERATED 35° DROP	3	EA	48	3" x 2" x 1/2" F.F.P. DITTO	1	EA
22	8" F.F.P. TAPPING FIT. 1/2" O.S.P. GATE VALVE	1	EA	49	3" x 2" x 1/2" F.F.P. DITTO	1	EA
23	4" F.F.P. W.R.S. GATE VALVE - W/IN OPERATING WHEEL	4	EA	50	3" x 2" x 1/2" F.F.P. DITTO	1	EA
24	3" F.F.P. W.R.S. GATE VALVE - W/IN OPERATING WHEEL	1	EA	51	3" x 2" x 1/2" F.F.P. DITTO	1	EA
25	6" x 10" x 1/2" O.S.P. C.I. BUTTERFLY	2	EA	52	3" x 2" x 1/2" F.F.P. DITTO	1	EA
26	6" x 8" x 1/2" F.F.P. C.I. PIPE	2	EA	53	3" x 2" x 1/2" F.F.P. DITTO	1	EA
27	6" x 12" x 1/2" F.F.P. CAP PIPE	3	EA	54	3" x 2" x 1/2" F.F.P. DITTO	1	EA

ATLANTIC DIVISION, OFFICE OF YARDS & DOCK
 ROSELLE, VA.
APPROVED *As noted*
 SUBJECT TO THE REQUIREMENTS OF
 CONTRACT NO. 46508 SPEC. 46508/62
 W. C. G. CHESTNUT
 HADM. ENG. USN
 DURLAND DOCKS

Date FEB 18 1963
 PIPING DETAILS FOR
 FILTER PLANT
 THROUGH TERRANCE
 MARINE BARRACKS
 CAMP LEONARD, N.C.
 PREPARED BY W. C. G. CHESTNUT
 BROWN CONSTRUCTION CO. - CONSULTING ENGINEER
 GRINNELL COMPANY, INC.
 CHARLOTTE, N.C.
 SCALE 3/4" = 1'-0" DIM.
 SHEET 2

T.T.

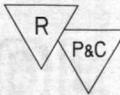
"Title to and ownership of this ~~specification~~ data
remains in Mueller Co. No use is to be made
thereof except as specifically authorized by Mueller
Co., which assumes no responsibility for any un-
authorized use. Assent to these conditions is
presumed by Mueller Co. if this engineering data
is accepted."

MAR 4 1963

"Title to and ownership of this engineering data remains in Mueller Co. No use is to be made thereof except as specifically authorized by Mueller Co., which assumes no responsibility for any unauthorized use. Assent to these conditions is presumed by Mueller Co. if this engineering data is accepted."

MAR 4 1963





R-P & C VALVE DIVISION

AMERICAN CHAIN & CABLE COMPANY, INC.

1055 WEST MARIETTA ST., N.W.
ATLANTA, GA.

EXECUTIVE OFFICE
BRIDGEPORT, CONN.

SALES OFFICES
ATLANTA
BOSTON
NEW YORK
PHILADELPHIA
PITTSBURGH

PLANT
READING, PENNA.
SALES OFFICES
CHICAGO
DENVER
DETROIT
HOUSTON
LOS ANGELES
SAN FRANCISCO

IN REPLY REFER TO

This is to certify that R-P&C Fig. 86-7 meets
Fed. Spec. 46-508, Type 2 Class A.

on

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NOFEBK 11, VA.

W. S. McCRAVY

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

Notary Public, Georgia State at Large
My Commission Expires Aug. 6, 1966

CONTRACT NO. 46508 SPEC 46508/62

APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

859314

ACCO



Date MAR 7 1963

W. C. G. CHURCH
RADM. CEC, USN
DIRLANTDOCKS

HIGHWAYS

STATE BOARD

ALABAMA



ALABAMA

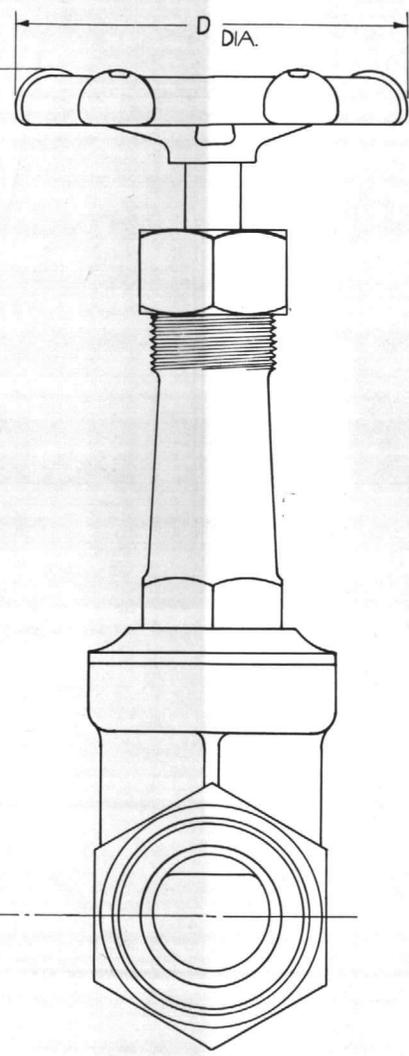
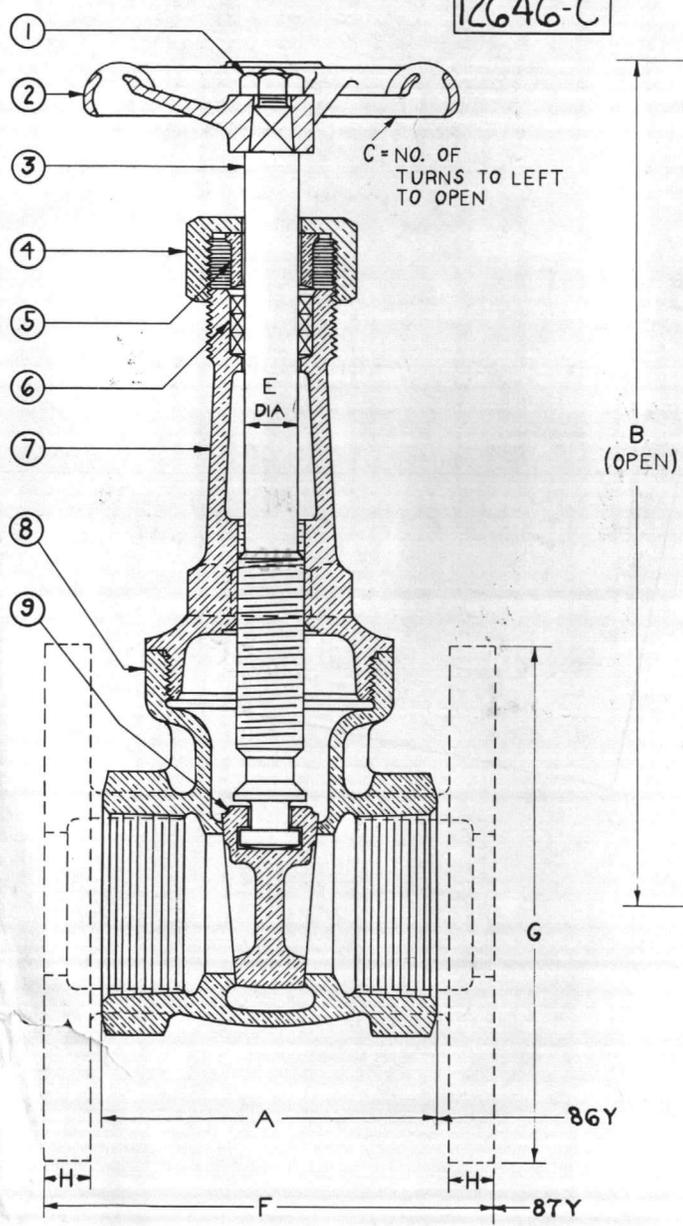
APPROVED

DATE

BY

SIGNATURE

12646-C



MATERIALS

PART NO.	PART NAME	MATERIAL	R-P-C SPEC.	REMARKS
1	HANDWHEEL NUT	STEEL	—	PLATED
2	HANDWHEEL KOOL GRIP	M.I.	152	SIZES 1/4 TO 2 1/2
2	HANDWHEEL FINGER GRIP	M.I.	152	3 SIZE ONLY
3	STEM	ALUM.-SIL. ROLL. BRZ.	148	
4	PACKING NUT	ROLL. BRZ.	124	SIZES 1/4 TO 2 1/2
4	PACKING NUT	CAST BRZ.	121	3 SIZE ONLY
5	GLAND	ROLL. BRZ.	124	
6	PACKING	ASBESTOS	—	LUBRICATED & GRAPHITED
7	HUB	ROLL. BRZ.	124	SIZES 1/4 - 3/8 - 1/2
7	HUB	CAST BRZ.	121	SIZES 3/4 TO 3
8	BODY	CAST BRZ.	121	
9	WEDGE	CAST BRZ.	121	

DIMENSIONS

SIZE	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
A	1 11/16	1 13/16	2 1/16	2 5/16	2 19/32	3	3 1/4	3 13/16	4 5/16	4 7/8
B	4 7/16	4 1/16	5	6 5/16	7 7/16	8 3/4	9 15/16	12 1/4	14 3/4	16 7/8
C	3 1/2	3 1/2	4	5 1/4	4 1/2	5 3/4	7	11 1/4	13 3/4	16 3/4
D	2	2	2	2 1/2	3	3	3 1/2	4	5	6
E	5/16	5/16	11/32	3/8	13/32	7/16	1/2	9/16	5/8	3/4
F					3 1/2	4	4 1/4	5 1/4	6	7
G					4 1/4	4 5/8	5	6	7	7 1/2
H					3/8	13/32	7/16	1/2	9/16	5/8

125 POUNDS STEAM
 200 POUNDS (NONSHOCK) COLD OIL, WATER AND GAS
 CLASS A-TYPE 2
 FEDERAL SPECIFICATION
 WW-V-54

REVISED 2-24-60 CHANGE NOTICE # 1398
 REVISED 1-26-54 CHANGE NOTICE # 1294
 REVISED 1-28-53 CHANGE NOTICE # 1290
 REVISED 8-13-52 CHANGE NOTICE # 1244B
 REVISED 5-3-51 CHANGE NOTICE # 1247

FIG. 86Y & 87Y

R-P & C VALVE DIVISION OF AMERICAN CHAIN & CABLE CO., INC. READING, PENNA., U.S.A.

FIG. 86Y & 87Y BRONZE RISING STEM INSIDE SCREW-SOLID WEDGE GATE VALVES

DRAWN BY C.B.W.	TRACED BY C.S.H.	CHECKED BY CABU.	APPROVED	DATE 1-6-50
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12646-C

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

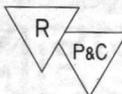
APPROVED:

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NRY 46508 SPEC 46508/62
APPROVAL OF PLANS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

W. C. G. CHURCH
B'DN CEC, USN
DIR. ANTDOCKS

Date MAR 7 1963

W.C.G.



R-P & C VALVE DIVISION

AMERICAN CHAIN & CABLE COMPANY, INC.

1055 WEST MARIETTA ST., N.W.
ATLANTA, GA.

EXECUTIVE OFFICE
BRIDGEPORT, CONN.

SALES OFFICES
ATLANTA
BOSTON
NEW YORK
PHILADELPHIA
PITTSBURGH

PLANT
READING, PENNA.

SALES OFFICES
CHICAGO
DENVER
DETROIT
HOUSTON
LOS ANGELES
SAN FRANCISCO

IN REPLY REFER TO

This is to certify that R-P&C Fig. 86-Y meets
Fed. Spec. W-4-5, Type 2 Class A.

859314 on

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.
W. S. McCarty

APPROVED:
Notary Public, Georgia State at Large
My Commission Expires Aug. 8, 1966

SUBJECT TO THE PROVISIONS OF
CONTRACT NBY 46508 SPEC 46508/62
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

Date **MAR 7 1963**

W. C. G. CHURCH
RADM. CEC, USN
DUBLANE



HOLMES & DALE

1000 BROADWAY

ATLANTA, GA.

TELEPHONE 525-1111

1954

ATLANTA, GA.

APPROVED

DATE

APPROVED

DATE

APPROVED

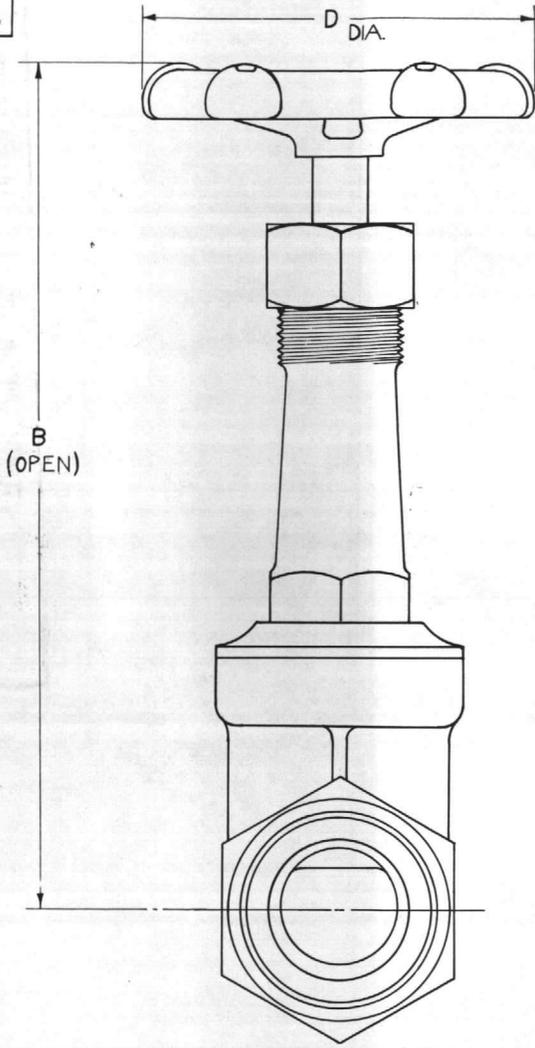
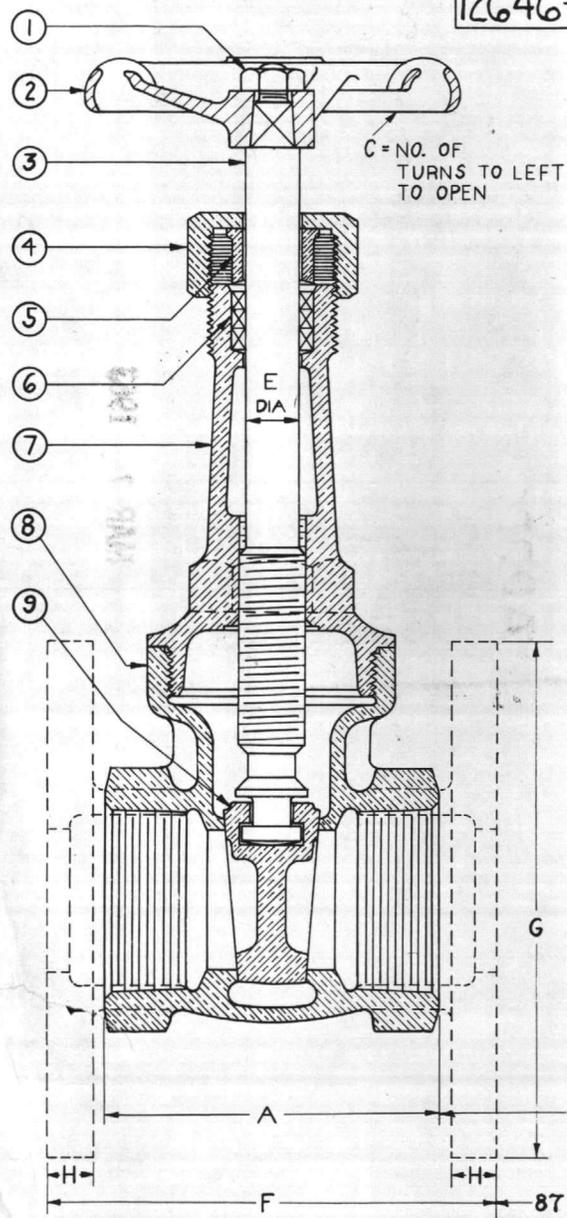
DATE

APPROVED

DATE

MAR 1 1954

12646-C



MATERIALS

PART NO.	PART NAME	MATERIAL	R.P.C. SPEC.	REMARKS
1	HANDWHEEL NUT	STEEL	—	PLATED
2	HANDWHEEL KOOL GRIP	M.I.	152	SIZES 1/4 TO 2 1/2
2	HANDWHEEL FINGER GRIP	M.I.	152	3 SIZE ONLY
3	STEM	ALUM.-SIL. ROLL. BRZ.	148	
4	PACKING NUT	ROLL. BRZ.	124	SIZES 1/4 TO 2 1/2
4	PACKING NUT	CAST BRZ.	121	3 SIZE ONLY
5	GLAND	ROLL. BRZ.	124	
6	PACKING	ASBESTOS	—	LUBRICATED & GRAPHITED
7	HUB	ROLL. BRZ.	124	SIZES 1/4-3/8-1/2
7	HUB	CAST BRZ.	121	SIZES 3/4 TO 3
8	BODY	CAST BRZ.	121	
9	WEDGE	CAST BRZ.	121	

DIMENSIONS

SIZE	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
A	1 11/16	1 13/16	2 1/16	2 5/16	2 19/32	3	3 1/4	3 13/16	4 5/16	4 7/8
B	4 7/16	4 7/16	5	6 5/16	7 7/16	8 3/4	9 15/16	12 1/4	14 3/4	16 7/8
C	3 1/2	3 1/2	4	5 1/4	4 1/2	5 3/4	7	11 1/4	13 3/4	16 3/4
D	2	2	2	2 1/2	3	3	3 1/2	4	5	6
E	5/16	5/16	11/32	3/8	13/32	7/16	1/2	9/16	5/8	3/4
F					3 1/2	4	4 1/4	5 1/4	6	7
G					4 1/4	4 5/8	5	6	7	7 1/2
H					3/8	13/32	7/16	1/2	9/16	5/8

125 POUNDS STEAM
 200 POUNDS (NONSHOCK) COLD OIL, WATER AND GAS
 CLASS A-TYPE 2
 FEDERAL SPECIFICATION
 WW-V-54

REVISED 2-24-60 CHANGE NOTICE #1398
 REVISED 1-26-54 CHANGE NOTICE #1294
 REVISED 1-28-53 CHANGE NOTICE #1290
 REVISED 8-13-52 CHANGE NOTICE #1244B
 REVISED 5-3-51 CHANGE NOTICE #1247

FIG.
 86Y & 87Y

R-P & C VALVE DIVISION		READING, PENNA., U.S.A.	
OF AMERICAN CHAIN & CABLE CO., INC.			
FIG. 86Y & 87Y BRONZE RISING STEM INSIDE SCREW-SOLID WEDGE GATE VALVES			
DRAWN BY C.B.W.	TRACED BY C.S.H.	CHECKED BY C.B.W.	APPROVED DATE 1-6-50
			12646-C

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
Norfolk, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NO. 46508 SPEC 46508/62
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

Date **MAR 7 1963**

W. C. G. CHURCH
P. DM. CEC, USN
DIRLANTDOCKS

WCG

PANELBOARD SCHEDULE

JOB NO. C3-1-44

PAGE 1 OF 1

REV. NO. _____

DRAWN BY WJF C3-2-12

APP. BY _____

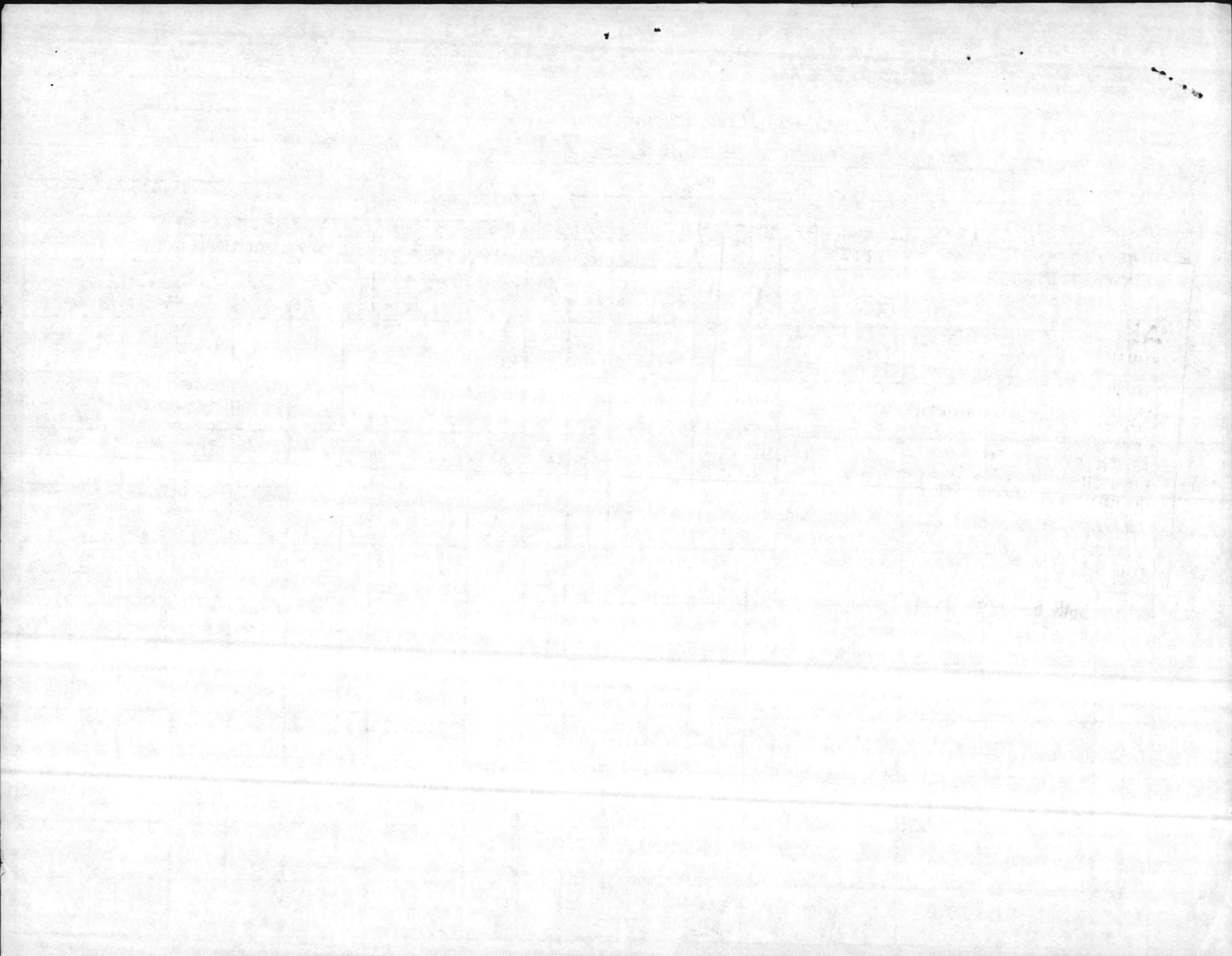
FPE

FEDERAL PACIFIC ELECTRIC COMPANY

CUSTOMER WOMACK ELECTRIC SUPPLY CO

FOR SOUTHERLAND ELECT. CO.

PANEL MARK	P	R	DRAWING NUMBERS	PANEL TYPE OF	SERVICE VARS VOLTS	M G	BOX			GUTTERS		BUS SIZE	LUG RANGE	BRANCHES			SPACE	REMARKS
							H	W	D	T	B			SIDE	LOOK	POLE		
D	1	1	D228000 ATLANTIC DIVISION AG3-144WD-1	NBLP VA.	3Ø 4W 120/240 Δ	S	68 1/8	38	8 3/4	12	9	800 2-#4/600 MCM PER Ø & #	T	1-70A NEF	1-500A NM	1-70A NEF SPACE 2P	EQUIP. GRD. BAR. REQUIRED	
<p>APPROVED</p> <p>SUBJECT TO THE REQUIREMENTS OF SPEC 46508/62</p> <p>CONTINUED FROM SHEET 1</p> <p>APPROVAL OF THIS DRAWING INDICATES COMPLIANCE WITH ALL REQUIREMENTS ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PHYSICAL COORDINATION OF TRADES, ETC., AS REQUIRED.</p>																		
LTC #	Date		D228000 AG3-144WD-1	NBLP DIST.	3Ø 4W Δ 120/240	S	46 5/8	20	6 3/4	6	6	225 #6-300 MCM PER Ø & #	T	3-15A NB	1-70A NB	1-70A NB 3P	EQUIP. GRD. BAR REQUIRED	
POWER	MAR 6	1963												1-50A NB	1-50A NB 2P		DELTA SYSTEM	
															1-15A NP 1P	125A NFJ M/B		
LIGHT	3	1		NTIP 08-3L	1Ø 3W 125/250V Δ	S	24	16	4 3/4	5	4 1/2	100A #14-210 PER Ø & #	T	8-30A SW & PLUG FUSE UNITS			EQUIP. GRD. BAR REQUIRED	
859814																		



ENGINEERING DEPT. SKETCH

SK AC3-1-44 WD-1

DATE 6-3-2-

DRAWN BY WJF
OFFICE ATG. ENG.

JOB ASAP

63-1-44

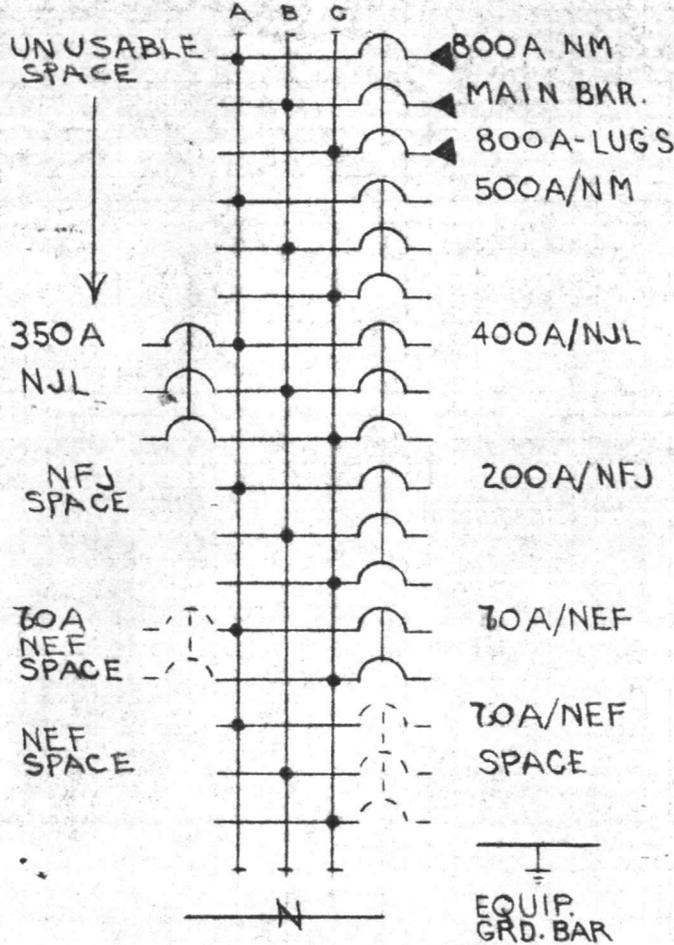
CUSTOMER WOMACK ELECT. CO.
FOR SOUTHERLAND ELECT. CO.

FEP FORM N148 (40M-10-59)-84310



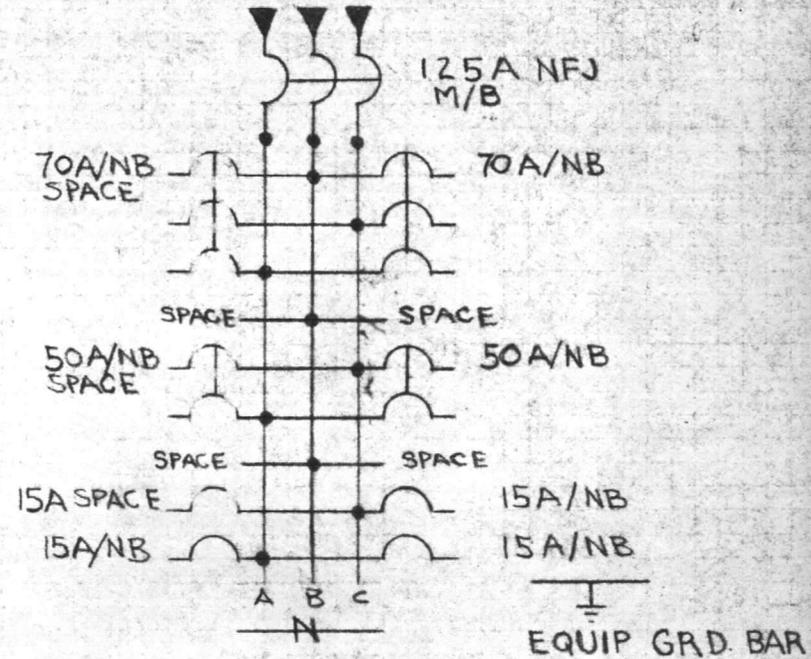
FEDERAL PACIFIC ELECTRIC COMPANY

PANEL "D" CDP
3Ø4W 120/240V DELTA

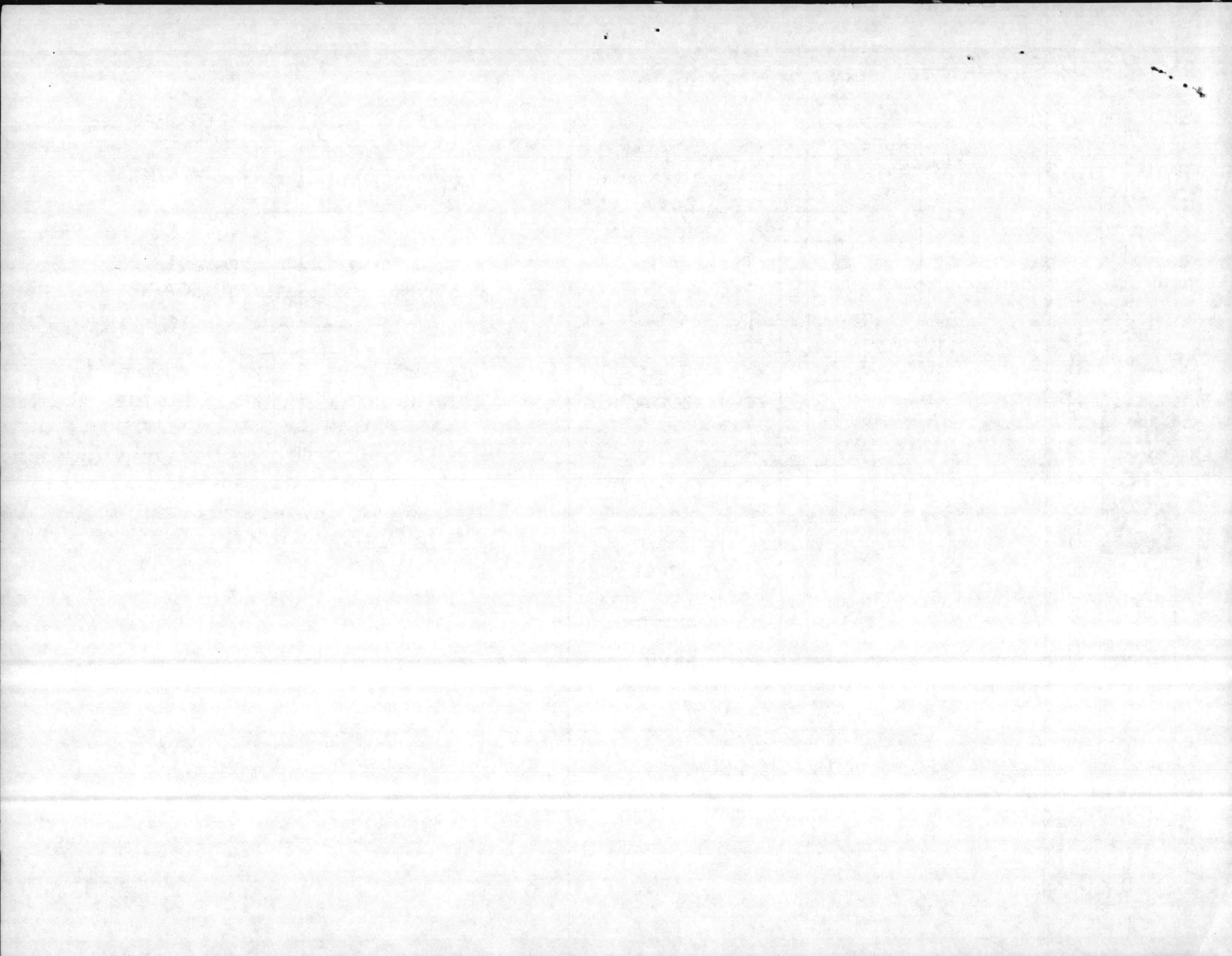


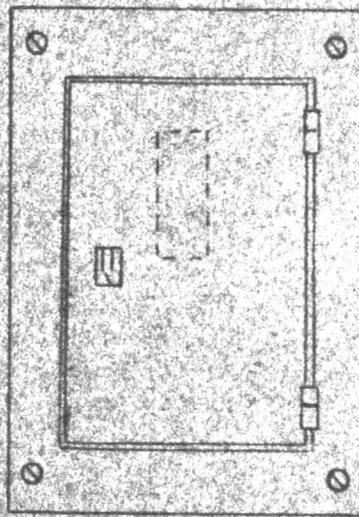
'B' IS HIGH LEG
ITEM # 1
3Ø4W 120/240V DELTA

225A LUGS



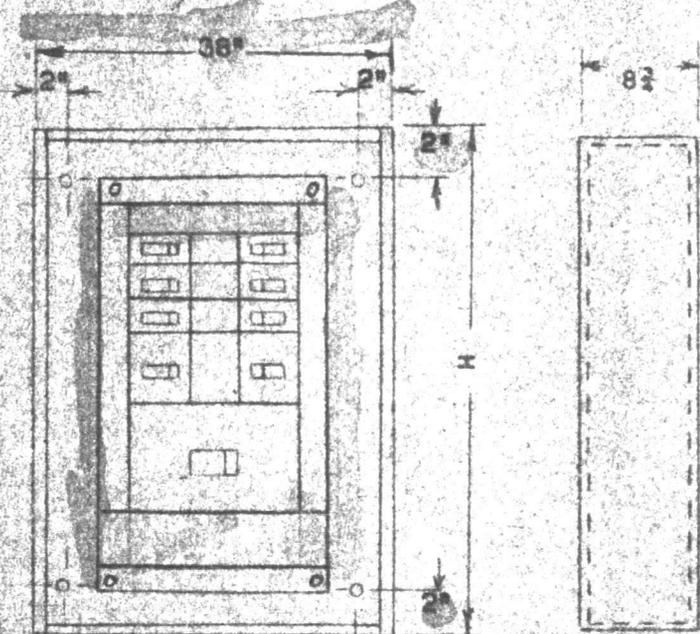
LTG. & POWER NBLP DIST.
3Ø4W 120/240V DELTA
'B' LEG IS HIGH
ITEM # 2



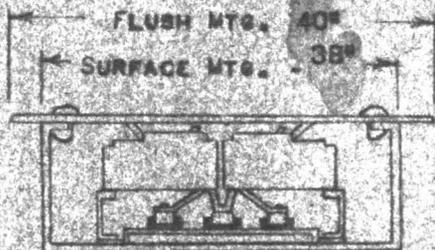


TRIM

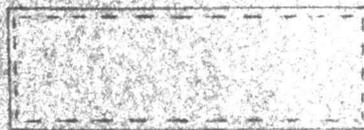
SURFACE MTS. - H
 FLUSH MTS. - H + 2



BOX WITH INTERIOR



SECTION & FRONT



TOP & BOTTOM ENDWALLS

CDP SPEC.

MEETS FEDERAL SPECIFICATION W P 131 C, D, E.

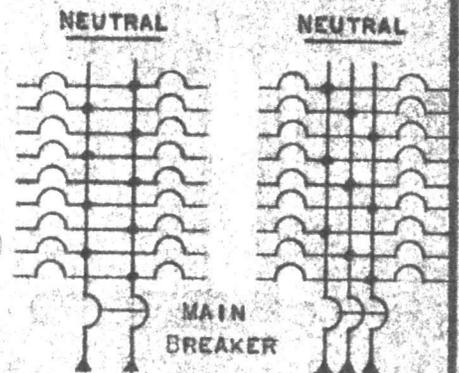
BOX - CODE GA. GALV. STEEL

TRIM - CODE GA. STEEL HOT SPRAY GRAY ENAMEL FINISH.
 CADMIUM PLATED INDICATING TRIM CLAMP

DOOR - CONCEALED HINGE, DIRECTORY WITH PLASTIC SHIELD,
 PARACENTRIC LOCK MASTER KEY

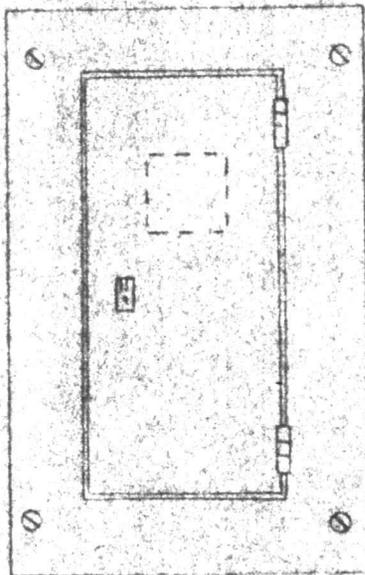
LUBS - SOLDERLESS COPPER ALUMINUM TYPE

BUS - 98% CONDUCTIVITY COPPER



WIRING DIAGRAM

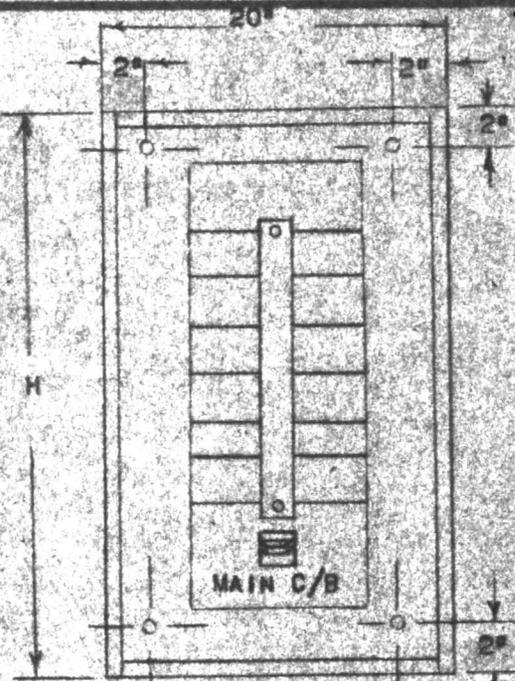
CUSTOMER		ORDER #		ARCHITECT ENGINEER		S.O. #	
ITEMS							
ULTIMATE USER							
LOCATION				TITLE CDP DISTRIBUTION PANELBOARD- MAIN BREAKER			
DRAWN BY	DATE	APP'D	DATE	ISSUED BY	DWG NO.	REV	
TRID	8-5-61			CSC ATLANTA	062800T00	1-12	



FLUSH MTG. H+2
SURFACE MTG. H

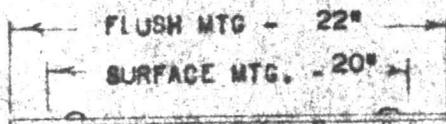


5 1/2"



BOX WITH INTERIOR

TRIM



FLUSH MTG - 22"
SURFACE MTG. - 20"



SECTION & FRONT

NBLP

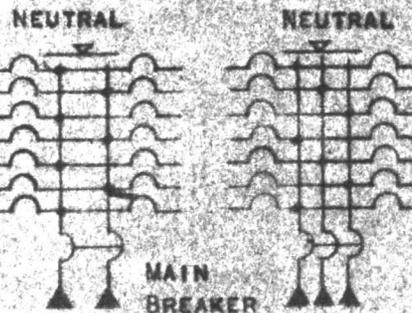
NBLP SPECIFICATION

- BOX - CODE GA. GALV. STEEL
- TRIM - CODE GA. STEEL HOT SPRAY
GRAY ENAMEL FINISH CADMIUM PLATED
INDICATING TRIM CLAMP
- DOOR - CONCEALED HINGE, DIRECTORY WITH PLASTIC SHIELD,
PARACENTRIC LOCK MASTER KEY
- LUSS - SOLDERLESS COPPER ALUMINUM TYPE
- BUS - 99% CONDUCTIVITY COPPER
- BREAKER - THERMAL MAGNETIC BOLTED CONNECTION TYPE NB
MEETS FEDERAL SPECIFICATION W P 131 - A-1,2,5



KNOCKOUTS - TOP & BOTTOM

- A = 2"
- B = 1"
- C = 1"
- G = 1 1/2" - 1 1/2" - 2" - 2 1/2"



WIRING DIAGRAM

CUSTOMER	ORDER #	ARCHITECT ENGINEER	S.O. #
ITEMS	FEDERAL PACIFIC ELECTRIC COMPANY		
ULTIMATE USER	TITLE NBLP DISTRIBUTION PANELBOARD - MAIN BREAKER		
LOCATION	ISSUED BY CSC ATLANTA	DWG NO. D22800T00	REV DATE
DRAWN BY TRO 10-5-61	DATE 10-5-61	APP'D	DATE

PANELBOARD SCHEDULE

JOB NO. C3-1-44

PAGE 1 OF 1

REV. NO. _____

DRAWN BY WJF C3-2-12

APP. BY _____

FPE

FEDERAL PACIFIC ELECTRIC COMPANY

CUSTOMER WOMACK ELECTRIC SUPPLY CO

FOR SOUTHERLAND ELECT. CO.

PANEL MARK	I	M	REQ	DRAWING NUMBERS	PANEL TYPE	SERVICE VOLTAGE	M	BOX			GUTTERS		BUS SIZE	LUG RANGE	BRANCHES			SPACE	REMARKS
								H	W	D	T	W			LOC	POLE 1	POLE 2		
D	1	1		DC2800T00 ATLANTA DIVISION	BUREAU OF YARDS & DOCKS NORFOLK 11, VA.	120/240 Δ	S	68	38	8 3/4	12	9	800 2-#4/600 MCM PER Ø 8#	T	1-70A NEF	1-500A NM	1-70A NEF SPACE 2P	EQUIP. GRD. BAR. REQUIRED	
				<p>APPROVED: SUBJECT TO THE REQUIREMENTS OF CONTRACT NO. <u>46508</u> SPEC <u>46508/62</u> APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATES COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY - CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICAL DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC. AS REQUIRED.</p>															
LTC & POWER	2	1		D22800T00 AG3-1-44WD-1	NBLT DISK	120/240 Δ	S	46 5/8	20	6 3/4	6	6	225 #6-300 MCM PER Ø 8#	T	3-15A NB	1-70A NB	1-70A NB 3P	EQUIP. GRD. BAR. REQUIRED	
																1-50A NB	1-50A NB 2P	DELTA SYSTEM	
																	1-15A NP 1P	125A NFJ M/B	
LIGHT	3	1			NTIP 08-3L	1Ø 3W 125/250V	S	24	16	4 3/4	5	4 1/2	100A #14-210 PER Ø 8#	T	8-30A SW & PLUG FOUSE UNITS			EQUIP. GRD. BAR. REQUIRED	

Date MAR 6 1962

YUBUA

ENGINEERING DEPT. SKETCH

SK. A 63-1-44 WP-1

DATE 63-2-

DRAWN BY WJF

OFFICE ATL. ENG.

JOB ASAP

63-1-44

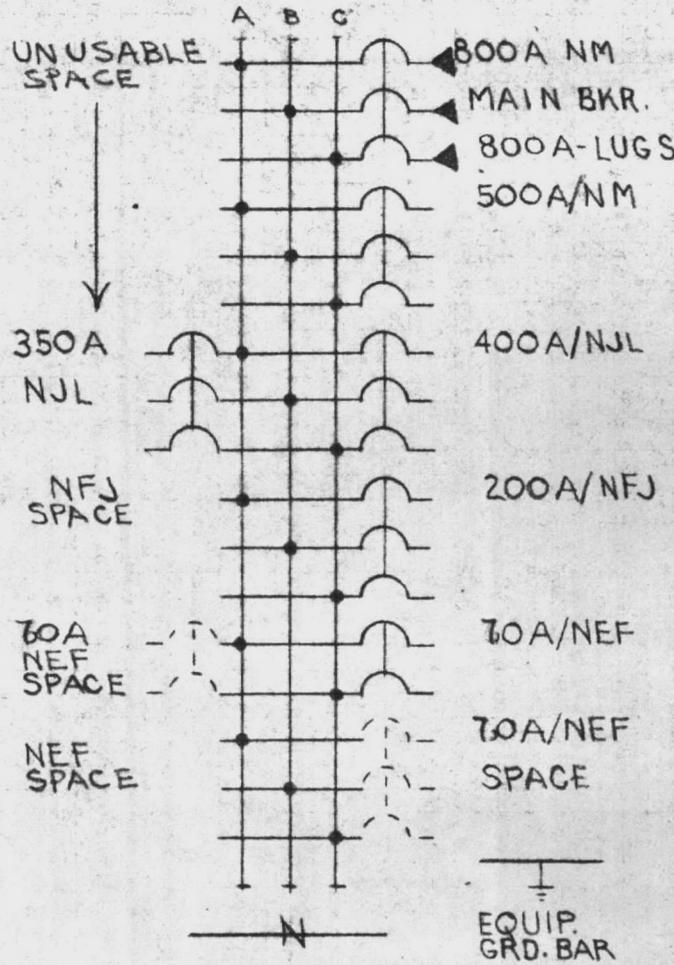
CUSTOMER WOMACK ELECT. CO.
FOR SOUTHERLAND ELECT. CO.



FEDERAL PACIFIC ELECTRIC COMPANY

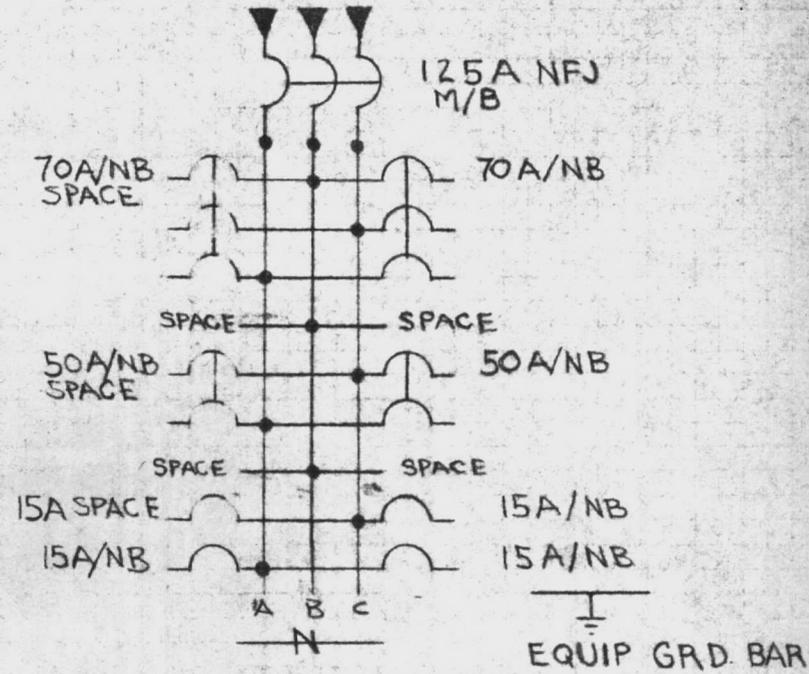
FEP FORM N148 (40M-10-59)-64310

PANEL "D" CDP
3Ø4W 120/240V DELTA

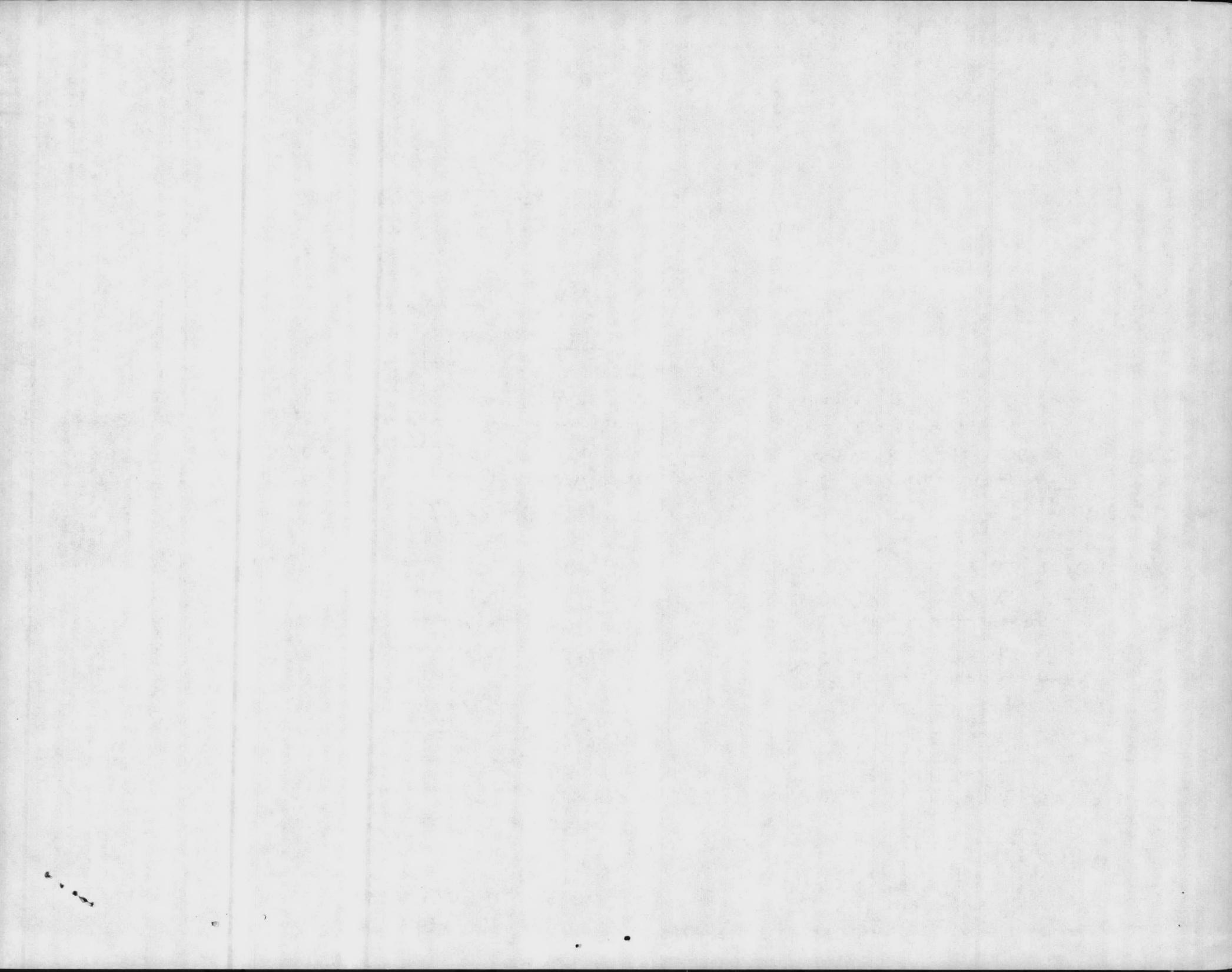


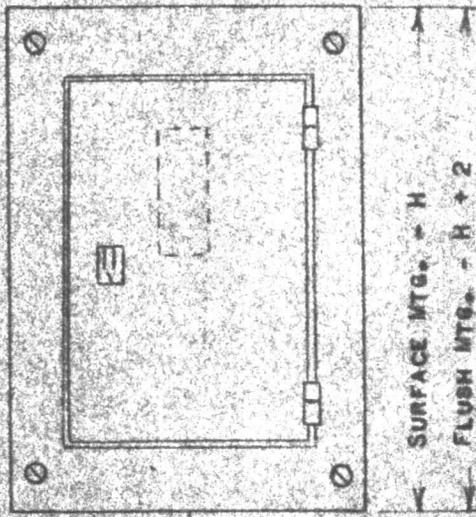
'B' IS HIGH LEG
ITEM # 1
3Ø4W 120/240V DELTA

225A LUGS

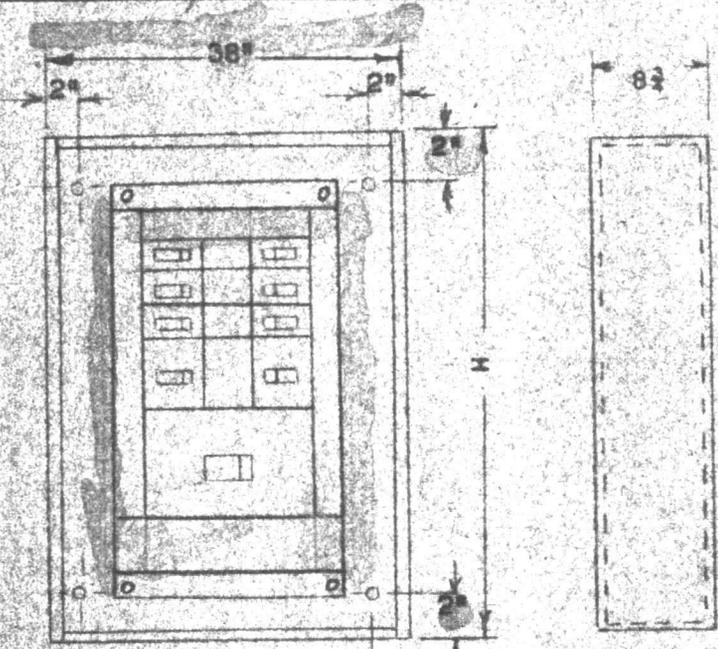


LTG. & POWER NBLP DIST.
3Ø4W 120/240V DELTA
'B' LEG IS HIGH
ITEM # 2

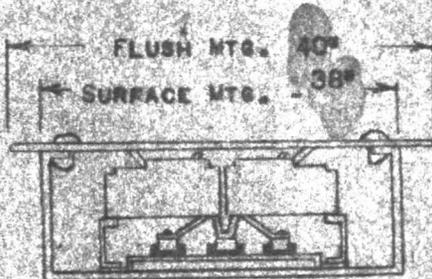




TRIM



BOX WITH INTERIOR



SECTION & FRONT



TOP & BOTTOM ENDWALLS

CDP SPEC.

MEETS FEDERAL SPECIFICATION W P 131 C, D, E.

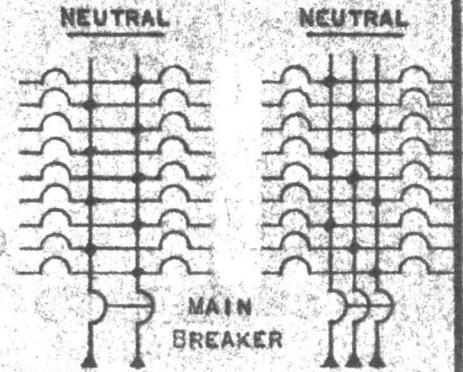
BOX - CODE GA. GALV. STEEL

TRIM - CODE GA. STEEL HOT SPRAY GRAY ENAMEL FINISH.
CADMIUM PLATED INDICATING TRIM CLAMP

DOOR - CONCEALED HINGE, DIRECTORY WITH PLASTIC SHIELD.
PARACENTRIC LOCK MASTER KEY

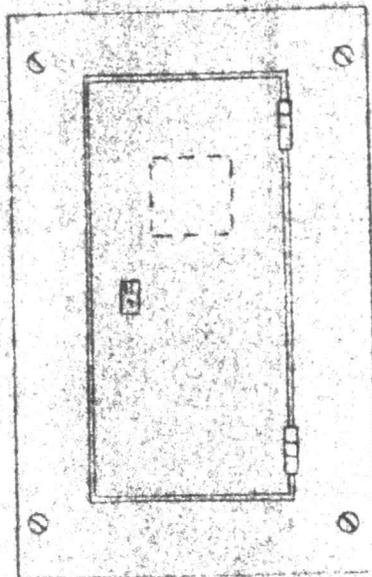
LUBS - SOLDERLESS COPPER ALUMINUM TYPE

BUS - 98% CONDUCTIVITY COPPER

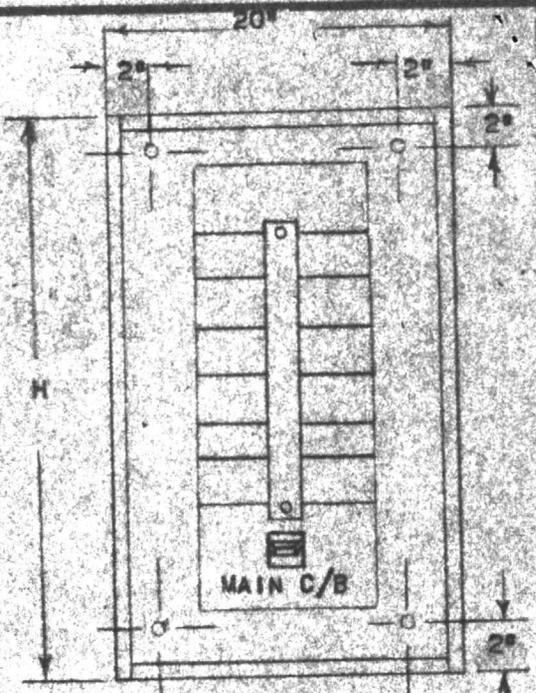
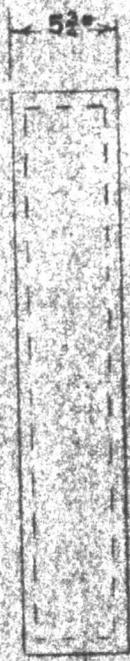


WIRING DIAGRAM

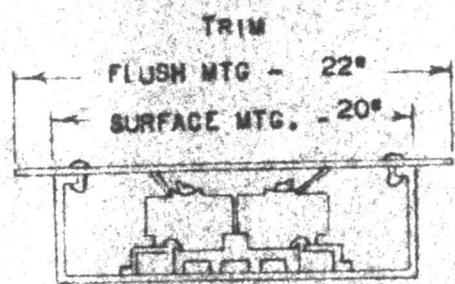
CUSTOMER		ORDER #		ARCHITECT ENGINEER		S.O. #	
ITEMS							
ULTIMATE USER							
LOCATION				TITLE CDP DISTRIBUTION PANELBOARD MAIN BREAKER			
DRAWN BY	DATE	APP'D	DATE	ISSUED BY	DWG NO.	REV	
TRID	8-5-61			CSC ATLANTA	002B00T00	1	12



FLUSH MTG. H+2
SURFACE MTG. H



BOX WITH INTERIOR

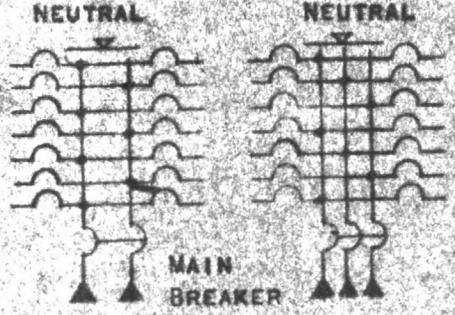


SECTION & FRONT



KNOCKOUTS - TOP & BOTTOM

A = 1/4" - 2"
B = 1/4" - 1"
C = 1/4" - 1"
D = 1/4" - 1 1/4" - 2" - 2 1/4"



WIRING DIAGRAM

- NBLP**
NBLP SPECIFICATION
- BOX - CODE GA. GALV. STEEL
 - TRIM - CODE GA. STEEL HOT SPRAY
GRAY ENAMEL FINISH CADMIUM PLATED
INDICATING TRIM CLAMP
 - DOOR - CONCEALED HINGE, DIRECTORY WITH PLASTIC SHIELD,
PARACENTRIC LOCK MASTER KEY
 - LUGS - SOLDERLESS COPPER ALUMINUM TYPE
 - BUS - 98% CONDUCTIVITY COPPER
 - BREAKER - THERMAL MAGNETIC BOLTED CONNECTION TYPE NB
MEETS FEDERAL SPECIFICATION W P 131 - A-1, 2, 5

CUSTOMER		ORDER #		ARCHITECT ENGINEER		S.O. #	
ITEMS							
ULTIMATE USER							
LOCATION				TITLE NBLP DISTRIBUTION PANELBOARD - MAIN BREAKER			
DRAWN BY	DATE	APP'D	DATE	ISSUED BY	DATE	DWG. NO.	REV.
TRO	10-5-61			CSC ATLANTA		D22800T00	

85-9314

This is and ownership of this data
remains in Mueller. No use is to be made
thereof except as specifically authorized by Mueller
Co., which assumes no responsibility for any un-
authorized use. Assent to these conditions is
presumed by Mueller Co. if this engineering data
is accepted.

MAR 4 1968



J E N K I N S B R O S .

A CORPORATION

Quality Valves since 1864

1603 FULTON NATIONAL BANK BLDG., ATLANTA 3, GA.

March 4, 1963

Grinnell Corporation
Post Office Box 8248
Charlotte, North Carolina

Attention: Mr. Neal M. Forney

Gentlemen:

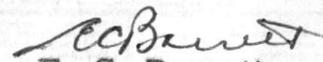
We thank you for your telegram of March 4th which is in connection with your purchase order CHA-7366.

We are attaching eight (8) drawings showing our Figure 142 which give the dimensions and list of parts for this valve. Shipment is scheduled from our warehouse March 5th.

You requested that we forward notarized certificate that the 1 - 8" Figure p42 conforms to MIL Spec V-18826. We regret this valve does not meet these requirements. To the best of our knowledge, there are no Federal Specifications to cover Jenkins iron body globe valves, screwed and flanged; however, our Figure 142 is made of the same material and workmanship, and to the same specifications, as are the iron valves which do conform to Federal Specifications.

Yours very truly,

JENKINS BROS.


E. C. Barrett
Branch Manager

Subscribed and Sworn to before me this Day, 4th of March, 1963


Harold F. Smith, Notary Public

Notary Public, Georgia State at Large
My Commission Expires Jan. 25, 1966

859314

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NB 46508 SPEC 46508/62
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

Date **MAR 7 1963**

W. G. G. CHURCH
CAPT. CEC, USN
BUREAU OF YARDS & DOCKS

WPG



JENKINS BROS.

**RENEWABLE COMPOSITION DISC and BRONZE SEAT RING
OUTSIDE SCREW & YOKE**

125 lbs. Saturated Steam, 200 lbs. Non-Shock Cold Oil, Water, Gas

125 lb.

IRON BODY

BRONZE MOUNTED

GLOBE & ANGLE

FIG. 141, Globe, Screwed, 2"-4"

FIG. 142, Globe, Flanged, 2"-10"

FIG. 143, Angle, Screwed, 2"-4"

FIG. 144, Angle, Flanged, 2½"-10"

MATERIALS LIST

PART	SPECIFICATION
1 HANDWHEEL NUT	Steel
2 IDENTIFICATION PLATE	Aluminum
3 HANDWHEEL	ASTM A126, CL. A, Iron
4 SPINDLE	ASTM B198, GR. 13B, Silicon Brass
5 YOKE BUSHING NUT	ASTM B62, Bronze
6 YOKE BUSHING	ASTM B61, Bronze
7 GLAND STUD NUT	ASTM B21, GR. A, Naval Brass
8 GLAND	ASTM A126, CL. A, Iron
9 GLAND STUD	Steel
10 PACKING	Molded Asbestos Rings
11 BONNET STUD	Steel
12 BONNET STUD NUT	Steel
13 YOKE BONNET	ASTM A126, CL. B, Iron
14 GASKET	Asbestos
15 LOCK NUT	2", ASTM B16, Brass Rod 2½"-10", ASTM B62, Bronze (3½"-10" have Brass Cotter Pin)
16 DISC HOLDER	2"-3½", ASTM B62, Bronze 4"-10", ASTM A126, CL. B, Iron
17 GUIDE RIVET	4"-10" only, Steel
18 DISC	JENKINS No. 119-A, Composition†
19 SEAT RING	ASTM B61, Bronze
20 DISC PLATE	ASTM B62, Bronze
21 DISC NUT	ASTM B62, Bronze
22 LOWER GUIDE	4"-10" only, ASTM B62, Bronze
23 BODY	ASTM A126, CL. B, Iron

TEST SCHEDULE

300 psi Hydrostatic Shell Test

200 psi Hydrostatic Seat Test

† For Service Recommendations of This and Other Jenkins Discs, Consult Jenkins Disc Guide or Drawing No. A-400.

DIMENSIONS - INCHES

SIZE	A	AA	AAA	AAAA	B	C	D	E	F
2	6½	3½	8		6	⅝	10	10⅝	6
2½	7¾	3⅞	8½	4½	7	⅞	11½	12¼	7
3	9⅜	4⅞	9½	4⅝	7½	¾	13	13¾	8
3½			11	5⅝	8½	⅞	13¼	14½	8
4	12	6	11½	5⅞	9	⅞	15½	15¼	10
5			13	6½	10	⅞	17½	18	10
6			14	8	11	1	21	19¾	12
8			19½	9¼	13½	1⅞	22¾	23½	14
10			24½	10⅝	16	1⅞	25	25¾	16

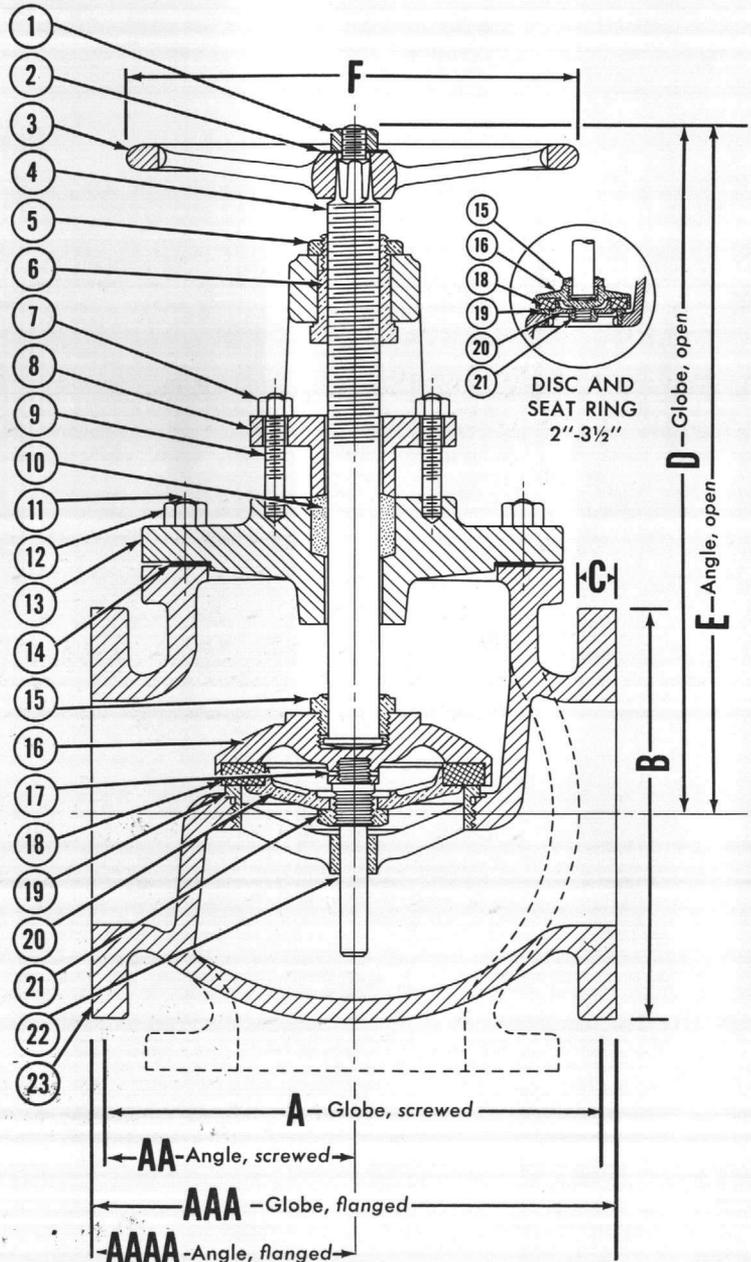


FIG. 142, 4" AND LARGER HAVE 4 BOSSES.
FIG. 144, 4" AND LARGER HAVE 2 BOSSES.

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NBY 46508 SPEC 46508/62
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

Date MAR 7 1963

W. C. G. CHURCH
RADM CEC, USN
OURLANTDOCKS *WCC*



J E N K I N S B R O S .

A CORPORATION

Quality Valves since 1864

1603 FULTON NATIONAL BANK BLDG., ATLANTA 3, GA.

March 4, 1963

Grinnell Corporation
Post Office Box 8248
Charlotte, North Carolina

Attention: Mr. Neal M. Forney

Gentlemen:

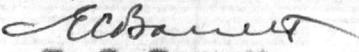
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Yours very truly,

JENKINS BROS.


E. C. Barrett
Branch Manager

Subscribed and Sworn to before me this Day, 4th of March, 1963


Harold F. Smith, Notary Public

Notary Public, Georgia State at Large
My Commission Expires Jan. 25, 1966

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF _____

CONTRACT NO. 46508 SPEC 46508/62
APPROVAL OF MATERIALS AND/OR EQUIPMENT
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REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

Date MAR 7 1963

W. C. G. CHURCH
RADM, SEC, USN
DIRLANTDOCKS

W.C.G.





JENKINS BROS.

**RENEWABLE COMPOSITION DISC and BRONZE SEAT RING
OUTSIDE SCREW & YOKE**

125 lbs. Saturated Steam, 200 lbs. Non-Shock Cold Oil, Water, Gas

125 lb.

IRON BODY

BRONZE MOUNTED

GLOBE & ANGLE

FIG. 141, Globe, Screwed, 2"-4"

FIG. 142, Globe, Flanged, 2"-10"

FIG. 143, Angle, Screwed, 2"-4"

FIG. 144, Angle, Flanged, 2½"-10"

MATERIALS LIST

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1 HANDWHEEL NUT	Steel
2 IDENTIFICATION PLATE	Aluminum
3 HANDWHEEL	ASTM A126, CL. A, Iron
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7 GLAND STUD NUT	ASTM B21, GR. A, Naval Brass
8 GLAND	ASTM A126, CL. A, Iron
9 GLAND STUD	Steel
10 PACKING	Molded Asbestos Rings
11 BONNET STUD	Steel
12 BONNET STUD NUT	Steel
13 YOKE BONNET	ASTM A126, CL. B, Iron
14 GASKET	Asbestos
15 LOCK NUT	2", ASTM B16, Brass Rod 2½"-10", ASTM B62, Bronze (3½"-10" have Brass Cotter Pin)
16 DISC HOLDER	2"-3½", ASTM B62, Bronze 4"-10", ASTM A126, CL. B, Iron
17 GUIDE RIVET	4"-10" only, Steel
18 DISC	JENKINS No. 119-A, Composition†
19 SEAT RING	ASTM B61, Bronze
20 DISC PLATE	ASTM B62, Bronze
21 DISC NUT	ASTM B62, Bronze
22 LOWER GUIDE	4"-10" only, ASTM B62, Bronze
23 BODY	ASTM A126, CL. B, Iron

TEST SCHEDULE

300 psi Hydrostatic Shell Test

200 psi Hydrostatic Seat Test

† For Service Recommendations of This and Other Jenkins Discs, Consult Jenkins Disc Guide or Drawing No. A-400.

DIMENSIONS - INCHES

SIZE	A	AA	AAA	AAAA	B	C	D	E	F
2	6½	3½	8		6	⅝	10	10⅝	6
2½	7¾	3⅞	8½	4½	7	⅞	11½	12¼	7
3	9⅝	4⅞	9½	4⅝	7½	¾	13	13¾	8
3½			11	5⅝	8½	⅞	13¾	14½	8
4	12	6	11½	5⅞	9	⅞	15½	15¼	10
5			13	6½	10	⅞	17½	18	10
6			14	8	11	1	21	19¾	12
8			19½	9¼	13½	1⅛	22¾	23½	14
10			24½	10⅝	16	1⅜	25	25¾	16

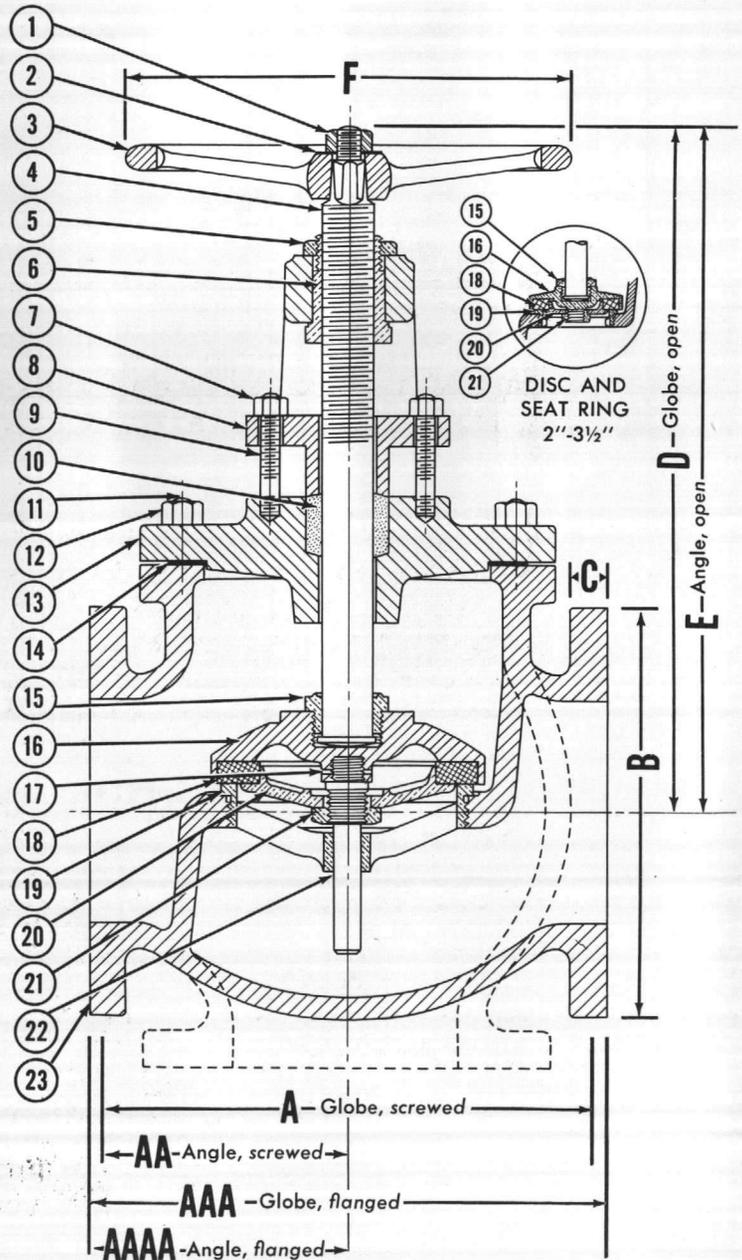


FIG. 142, 4" AND LARGER HAVE 4 BOSSES.
FIG. 144, 4" AND LARGER HAVE 2 BOSSES.

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED

SUBJECT TO THE REQUIREMENTS OF

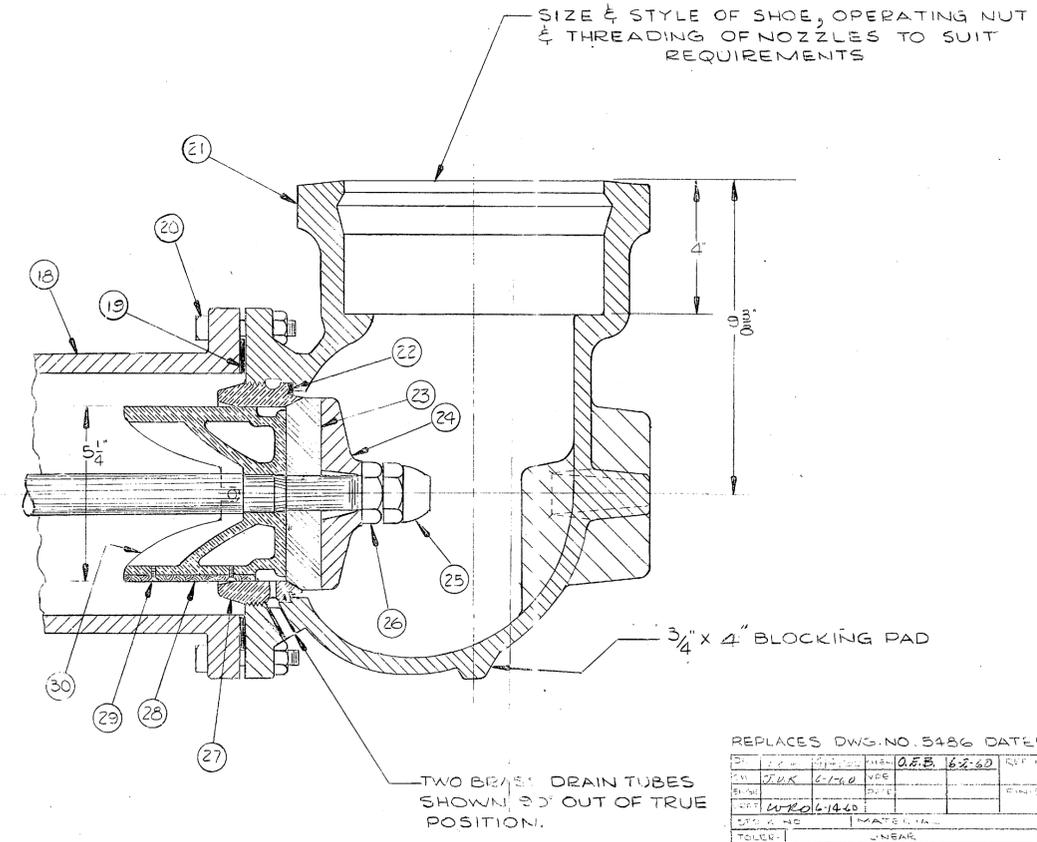
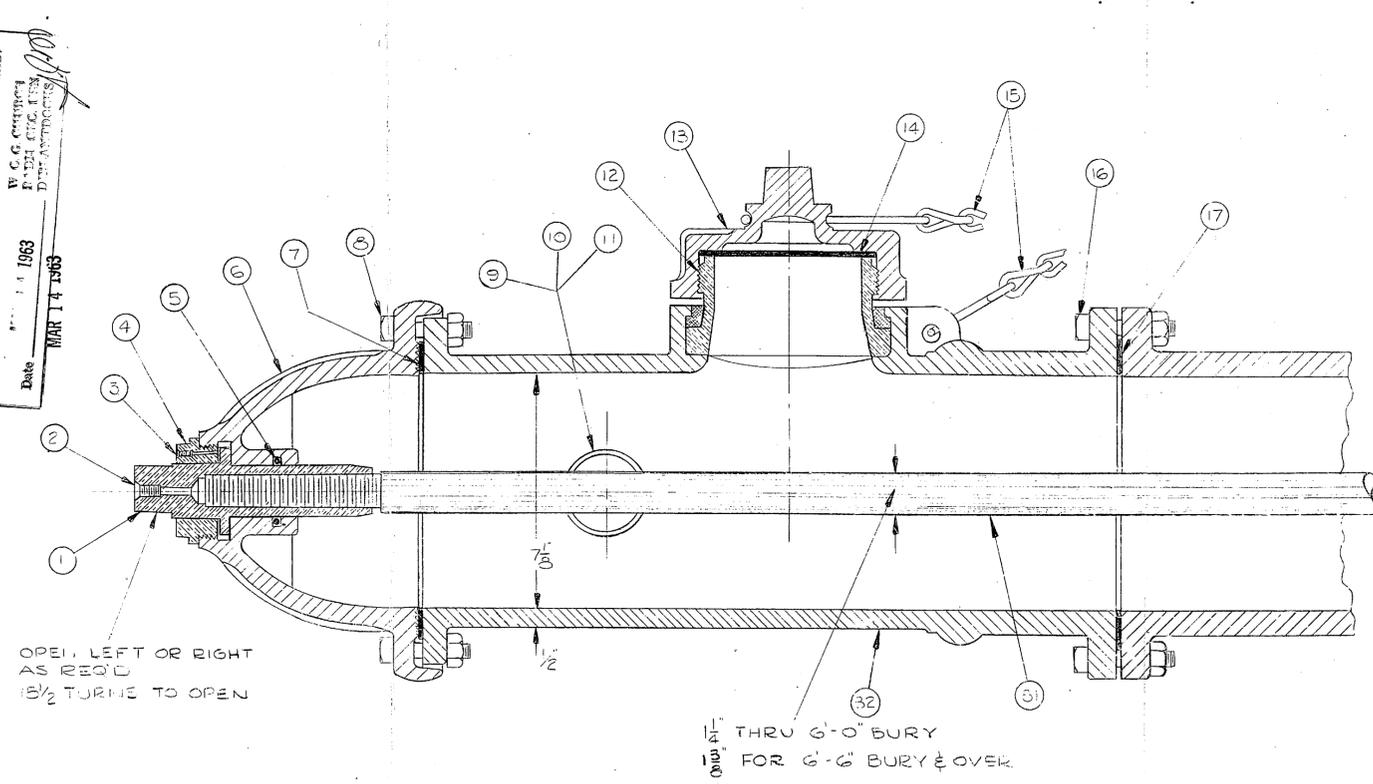
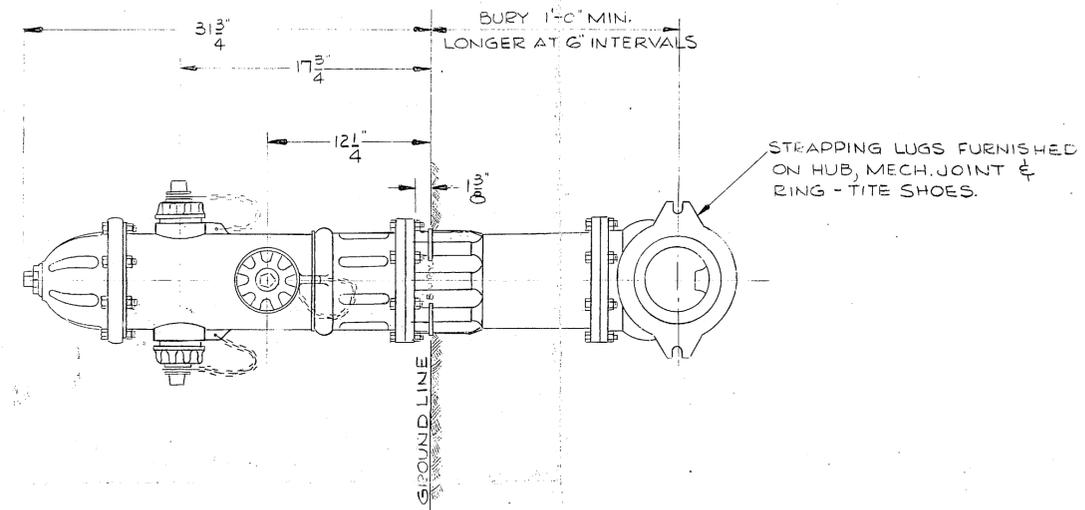
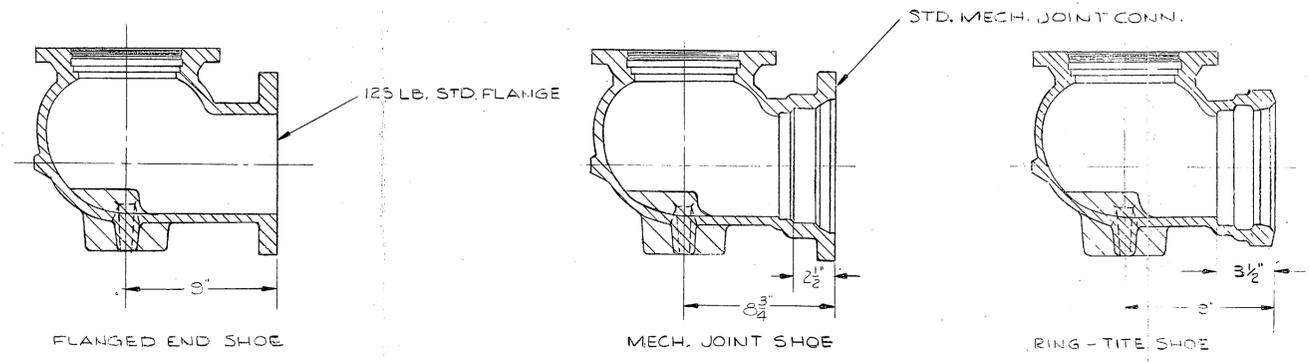
CONTRACT NO. 46508 SPEC 46508/62
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS
COORDINATION OF TRADES, ETC., AS REQUIRED.

Date MAR 7 1963

W. C. G. CHURCH
ADM. SEC. IEN
DIR. YARDS & DOCKS *WJH*

DWG NO. 5486 5/4 A-24007 STANDARD FIRE HYDRANT WITH TWO HOSE OUTLETS & ONE PUMPER OUTLET

APPROVED:
 ATLANTA DIVISION, BUREAU OF WATERS & SEWERAGE, NICHOLS 11, W.
 SUBJECT TO THE REQUIREMENTS OF CONTRACT NO. 46571 SPEC 46571/62
 APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATED BY INITIALS AND/OR SIGNATURE REQUIREMENTS FOR PERFORMANCE SHALL BE RESPONSIBILITY OF CONTRACTOR. PROPER PHYSICAL PROPERTIES & WEIGHTS COORDINATION OF TRADES, ETC., AS REQUIRED.
 W. G. GIBSON, DISTRICT ENGINEER
 Date: MAR 14 1963
 DRAWN BY: [Signature]



PARTS LIST					
ITEM	DESCRIPTION	REQD	MATERIAL	ASTM	
1	OPERATING NUT	1	BRONZE	B62	
2	OIL SCREW	1	BRASS		
3	OIL SCREW	1	BRASS		
4	HOLD DOWN NUT	1	BRONZE	B62	
5	O-RING PACKING	1	RUBBER		BUNA N
6	BONNET	1	CAST IRON	A126	CLASS B
7	BONNET GASKET	1	RUBBER		CLOTH INSERTED
8	BONNET BOLT	6	STEEL	A307	GR B PLATED
9	HOSE NOZZLE	2	BRONZE	B62	
10	HOSE NOZ GASK.	2	RUBBER	D735	TYPE SC-715
11	HOSE NOZ CAP	2	CAST IRON	A126	CLASS B
12	PUMPER NOZZLE	1	BRONZE	B62	
13	PUMPER NOZ. CAP	1	CAST IRON	A126	CLASS B
14	PUMPER NOZ GASK.	1	RUBBER	D735	TYPE SC-715
15	CAP CHAIN	3	STEEL		
16	FLANGE BOLT	8	STEEL	A307	GR B PLATED
17	FLANGE GASKET	1	RUBBER		CLOTH INSERTED
18	LOWER BARREL	1	CAST IRON	A126	CLASS B
19	SHOE GASKET	1	RUBBER		CLOTH INSERT.
20	SHOE BOLT	8	STEEL	A307	GR B PLATED
21	SHOE	1	CAST IRON	A126	CLASS B
22	METALLIC GASK.	1	CU ASBESTOS		
23	VALVE	1	RUBBER	D735	
24	LOWER VALVE PL.	1	CAST IRON	A126	CLASS B
25	CAP NUT	1	BRONZE	B62	
26	VALVE NUT	1	BRONZE	B62	
27	SEAT RING	1	BRONZE	B62	
28	DRAIN VALVE	1	LEATHER		
29	DRAIN VALVE SCREW	2	BRONZE	B21	
30	UPPER VALVE PL.	1	BRONZE	B62	
31	VALVE STEM	1	STEEL	A107	GR 1115
32	UPPER BARREL	1	CAST IRON	A126	CLASS B

REPLACES DWG. NO. 5486 DATED 8-16-56 BY R.C.J.
 DWG. NO. 5486
 DATE: 10-28-60
 SCALE: AS SHOWN
 MUZZER: [Signature]
 CHECKED: [Signature]
 APPROVED: [Signature]
 MUZZER CO. 5/4 A-24007 STD. FIRE HYDRANT W/TWO HOSE OUTLETS & ONE PUMPER
 NUMBER: 5486

Title and ownership of the engineering data
remains in the hands of the user. It is to be made
thereof except as to the liability of the user.
The user assumes no responsibility for any un-
authorized use. Assent to these conditions is
presumed by the user. If this engineering data
is accepted.

MAR 7 1958

Lime Room

TT-38

P. 19

Scales for Chlorine

Name: FAIRBANKS & MORSE

Code: 1124

Capacity: 1000 lb

done

Ignition Transformer

Name: Jefferson Electric Company

Cat. No.: 638-521

Model: 012

Volts: 115

Cycle: 60

done

Burner Motor

Name: MARATHON Electric

Model: VPB 119M87 ECW

HP: $\frac{1}{8}$

RPM: 1725

Type: SS

Amps: 2.6

Phase: 1

Frame: 56-2

Volts: 115

CRise: 55

Cycle: 60

done

Heater Room + Bath

Heater

Name: BOWAIR

Model: 100 HO

Control: AASPA

Serial: 458

BTU: 126,000

Products, Inc.
Barby
Penn.

done

Damper Control

Name: MERCOLD

PyRATHERM

Type: JM

Group: I

Unit: Single

done

FAW Motor

Name: Emerson

HP: $\frac{1}{4}$

Volts: 115

Phase: 1

Model: 560CX5FB-2765

Amp: 4.4

Frame: A 56

RPM: 1725

Cycle: 60

CRise: 40 cont.

S.F.: 1.35

Code: P

done

Refrigerator

Name: Kelvinator

done

Water Meter

Beside the refrigerator

Name: Simplex Valve + Meter Co.

Type: HG

Serial: 8-669-7882

Fluid: Water

Temp: Normal

Pressure: 8-10 lb

Chart No.: 1261

Mercury: 9lb 10 oz.

done

Hot Water

Name: EconoMaster Sales, Inc.

Model: F-30-RD-22-P

Serial: 54888

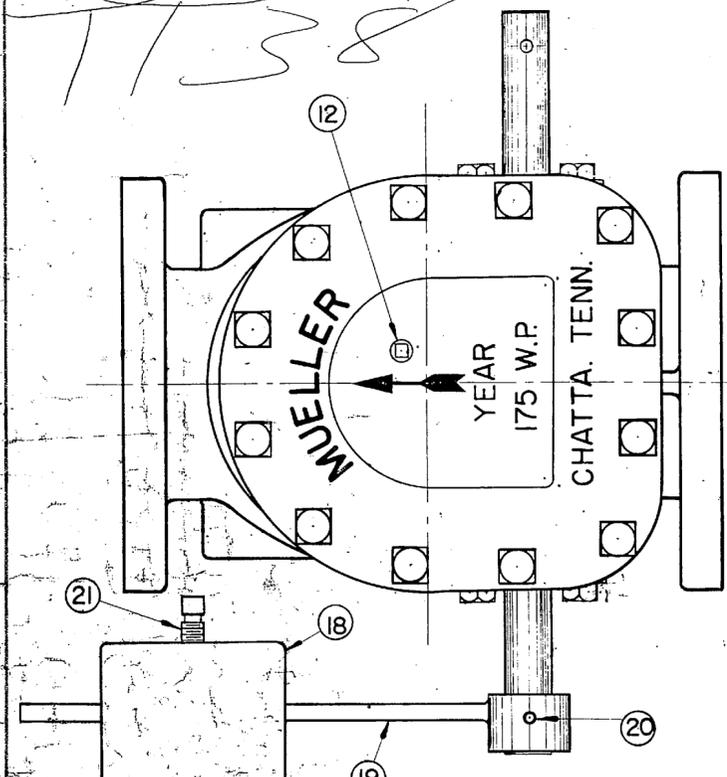
Volts: 236

Cap: 30

done

DWG. NO 5932 4"-12" A-2600-6-01 CHECK VALVE - FLG. END - METAL SEAT - WEIGHT OPERATED
 4"-12" A-2600-5-01 " " - HUB END - " " " " " "

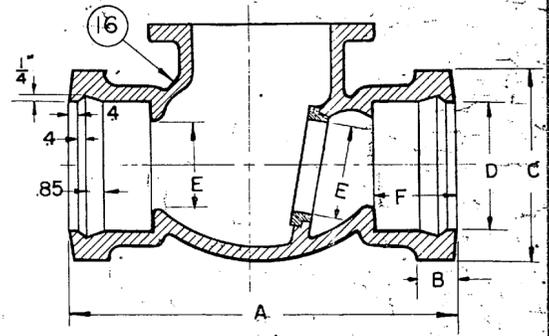
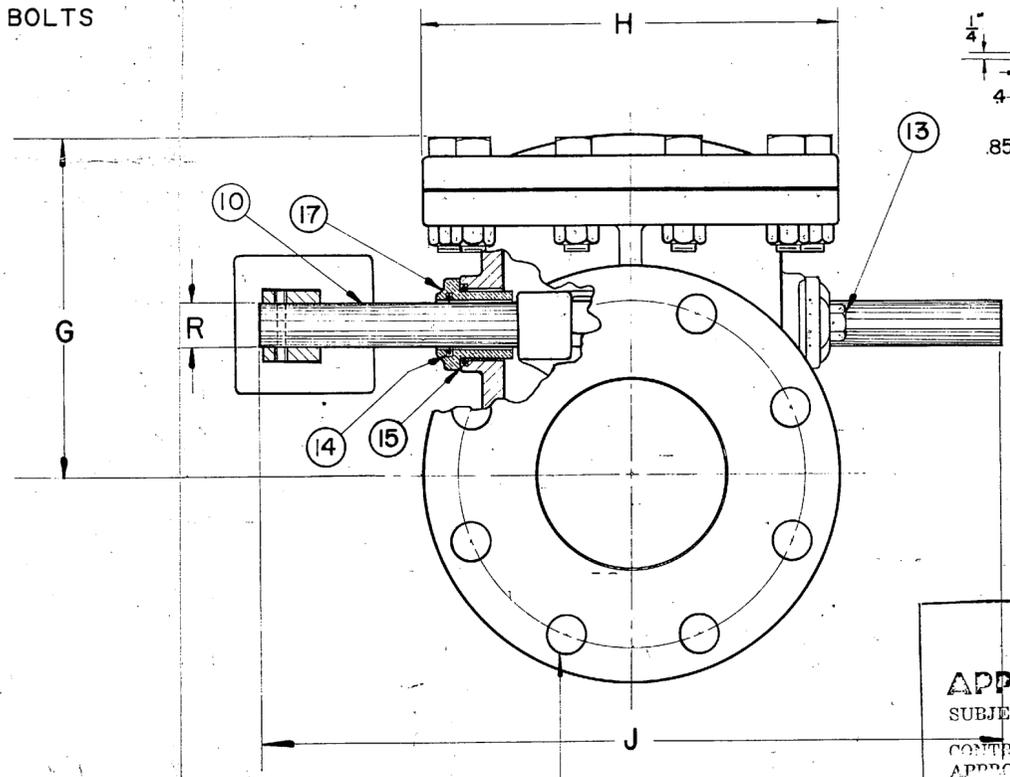
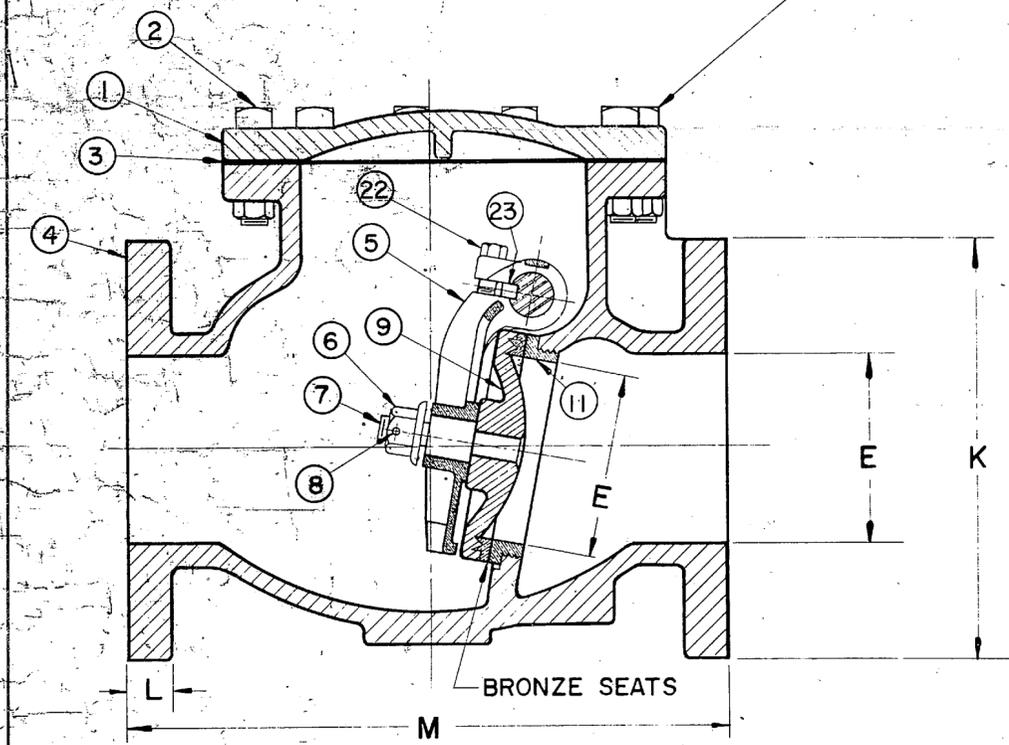
859314



NOTES - WEIGHT LEVER IS INSTALLED
 90° FROM POSITION SHOWN
 FOR VALVES IN VERTICAL
 LINE

LEVER CAN BE MOVED TO
 EITHER SIDE IN FIELD

P - NO & SIZE OF COVER BOLTS



HUB END BODY
 OTHERWISE SAME AS 2600-6-01.

VALVE SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
4	16 5/8	1 1/2	8.3	5.7	4	3 1/2	7 1/4	9	15	9	15/16	12 7/8	8 - 3/4	7 1/2	12 - 1/2	1
5	18 1/4	1 1/2	9.46	6.76	5	4	8 1/4	10 1/4	16 1/4	10	15/16	14 1/8	8 - 7/8	8 1/2	10 - 5/8	1 1/8
6	19 3/4	1 1/2	10.6	7.8	6	3 3/4	9	11 3/4	17 3/4	11	1	16 1/2	8 - 7/8	9 1/2	12 - 5/8	1 1/8
8	22 1/2	1 1/2	13	10	8	4	10 1/2	14	2 1/2	13 1/2	1 1/8	19 1/2	8 - 7/8	11 3/4	14 - 5/8	1 1/8
10	22 5/8	1 1/2	15.3	12.1	10	4	12 3/4	17	24 3/4	16	3/16	21 1/2	12 -	14 1/4	14 - 3/4	1 1/4
12	27 1/2	1 1/2	17.6	14.2	12	4	14 3/4	19 1/8	27 1/2	19	1 1/4	24 1/8	12 -	17	16 - 3/4	1 1/4

N - NO & SIZE OF BOLT HOLES
 O - DIA. OF BOLT CIRCLE
 STRADDLE C

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
 NORFOLK 11, VA.

APPROVED:
 SUBJECT TO THE REQUIREMENTS OF
 CONTRACT NO. 46508 SPEC 46508/62
 APPROVAL OF MATERIALS AND/OR EQUIPMENT
 INDICATES COMPLIANCE WITH SPECIFICATION
 REQUIREMENTS ONLY - THE CONTRACTOR
 SHALL BE RESPONSIBLE FOR PROVIDING
 PROPER PHYSICAL DIMENSIONS & WEIGHTS.
 COORDINATION OF TRADES, ETC., AS REQUIRED.

W. C. G. CHURCH
 P. M. C. C. USN
 MAR 14 1963

MUELLER CO.
 CHATTANOOGA, TENN.

DRAWN BY	L.E.P.	9-16-58	APPROVED
TRACED	L.E.P.	9-16-58	
CHECKED	W.R.D.	9-25-58	
PASSED			

TOLERANCES - UNLESS OTHERWISE SPECIFIED
 F-MACHINE FINISH - HOLD TO ±
 F-MACHINE FINISH - HOLD TO ±
 DO NOT SCALE DRAWING

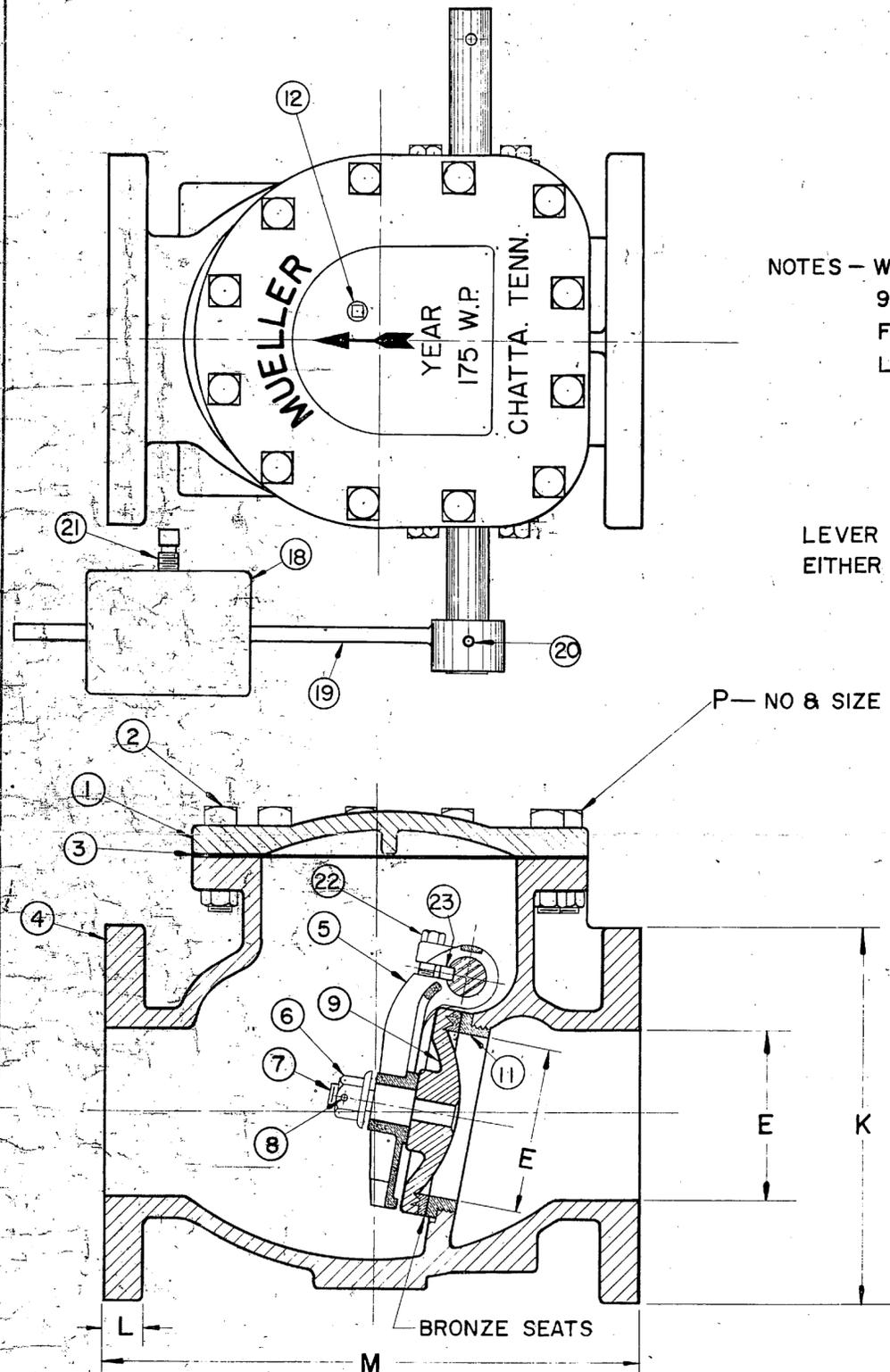
"Title to and ownership of this engineering data remains in Mueller Co. No use is to be made thereof except as specifically authorized by Mueller Co., which assumes no responsibility for any unauthorized use. Assent to these conditions is presumed by Mueller Co. if this engineering data is accepted."

MAR 4 1963

DWG. NO 5932

4"-12" A-2600-6-01 CHECK VALVE - FLG. END - METAL SEAT - WEIGHT OPERATED

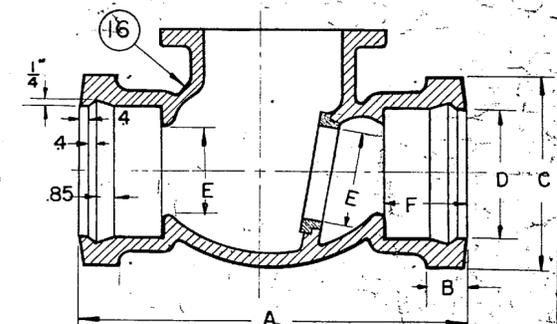
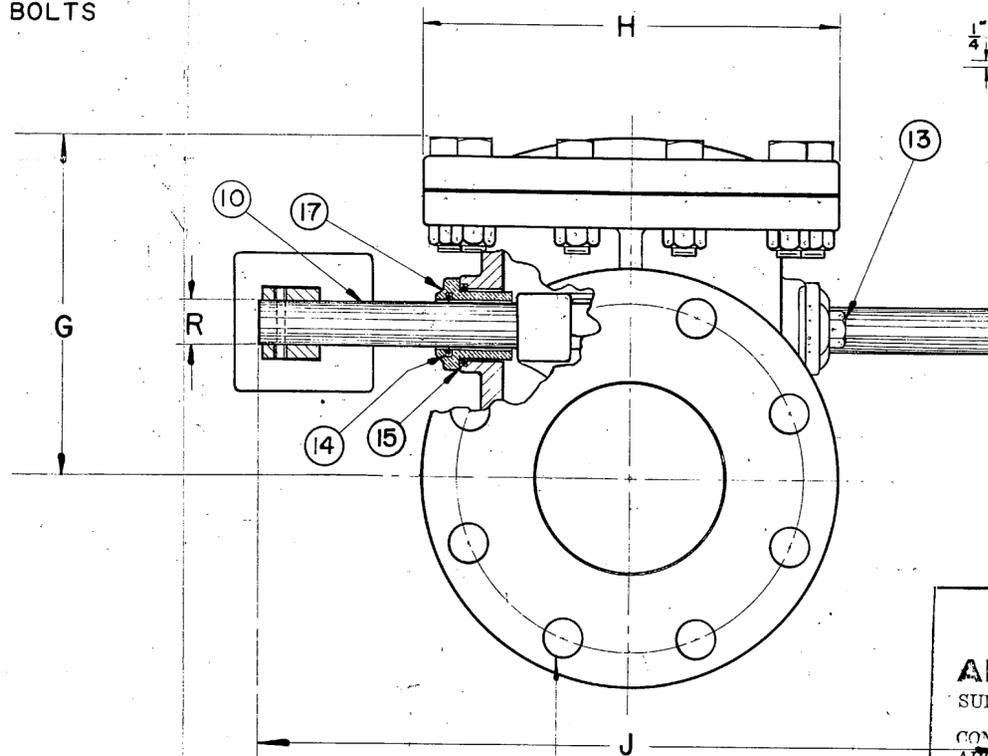
4"-12" A-2600-5-01 " " - HUB END - " " " "



NOTES - WEIGHT LEVER IS INSTALLED 90° FROM POSITION SHOWN FOR VALVES IN VERTICAL LINE

LEVER CAN BE MOVED TO EITHER SIDE IN FIELD

P - NO & SIZE OF COVER BOLTS



HUB END BODY OTHERWISE SAME AS 2600-6-01

PARTS LIST

ITEM	DESCRIPTION	NO. REQD	MATERIAL	A.S.T.M.	
1	COVER	1	CAST IRON	A126	CLASS B
2	COVER BOLT	"P"	STEEL	A307	GR. B PLATED
3	GASKET	1	RUBBER		CLOTH INSERTED
4	BODY - FLANGED END	1	CAST IRON	A126	CLASS B
5	CLAPPER ARM	1	BRONZE	B62	
6	STUD NUT	1	BRONZE	B62	
7	DISC STUD	1	BRONZE	B21	ALLOY A 1/2 HARD
8	COTTER PIN	1	BRASS	B16	
9	DISC	1	CAST IRON	A126	CLASS B
10	HINGE PIN	1	STEEL	A276	STAINLESS TYPE 303
11	SEAT RING	1	BRONZE	B62	
12	PIPE PLUG	1	IRON		MALLEABLE
13	CAP SCREW	4	STEEL	A307	GR. B PLATED
14	"O" RING PACKING	2	RUBBER		BUNA N
15	"O" RING PACKING	2	RUBBER		BUNA N
16	BODY - HUB END	1	CAST IRON	A126	CL. B
17	STUFFING BOX	2	BRONZE	B62	
18	WEIGHT	1	CAST IRON	A126	CL. B
19	WEIGHT LEVER	1	STEEL	A107	GR. 1018
20	PIN	1	STEEL		HIGH CARBON - ZINC PLATED
21	SET SCREW	1	STEEL	A307	GR. B PLATED
22	CAP SCREW	2	STEEL	A276	STAINLESS
23	KEY	2	STEEL	A276	STAINLESS TYPE 303

VALVE SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
4	16 5/8	1 1/2	8.3	5.7	4	3 1/2	7 1/4	9	15	9	15/16	12 7/8	8 - 3/4	7 1/2	12 - 1/2	1
5	18 1/4	1 1/2	9.46	6.76	5	4	8 1/4	10 1/4	16 1/4	10	15/16	14 1/8	8 - 7/8	8 1/2	10 - 5/8	1 1/8
6	19 3/4	1 1/2	10.6	7.8	6	3 3/4	9	11 3/4	17 3/4	11	1	16 1/2	8 - 7/8	9 1/2	12 - 5/8	1 1/8
8	22 1/2	1 1/2	13	10	8	4	10 1/2	14	21 1/2	13 1/2	1 1/8	19 1/2	8 - 7/8	11 3/4	14 - 5/8	1 1/8
10	22 5/8	1 1/2	15.3	12.1	10	4	12 3/4	17	24 3/4	16	1 3/16	21 1/2	12 - 1	14 1/4	14 - 3/4	1 1/4
12	27 1/2	1 1/2	17.6	14.2	12	4	14 3/4	19 1/8	27 1/2	19	1 1/4	24 1/8	12 - 1	17	16 - 3/4	1 1/4

N - NO & SIZE OF BOLT HOLES
 O - DIA. OF BOLT CIRCLE
 STRADDLE C

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
 NORFOLK 11, VA.
APPROVED:
 SUBJECT TO THE REQUIREMENTS OF
 CONTRACT NO. 46508 SPEC 46508/62
 APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATES COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICAL DIMENSIONS & WEIGHTS. COORDINATION OF TRADES, ETC., AS REQUIRED.

MAR 14 1963

W. C. G. CHURCH
 PADM. SEC. USN
 DANLANDOCKS

MUELLER CO.
 CHATTANOOGA, TENN.

DRAWN BY	L.E.P.	9-16-58	APPROVED
TRACED	L.E.P.	9-16-58	
CHECKED	L.W.D.	9-25-58	
PASSED			

CORNERS HAVE ROUNDS FILLETS UNLESS NOTED CHATTANOOGA, TENN.
 TOLERANCES-UNLESS OTHERWISE SPECIFIED
 F-MACHINE FINISH-HOLD TO ±
 F-MACHINE FINISH-HOLD TO ±
 DO NOT SCALE DRAWING

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thereof except as specifically authorized by Mueller
Co., which assumes no responsibility for any un-
authorized use. Assent to these conditions is
presumed by Mueller Co. if this engineering data
is accepted."

MAR 4 1963

859314

Crispin Pressure Air Valves



The Crispin Pressure Air Valve is intended to be placed on pipe lines at high points where air accumulates and obstructs the flow of water. It automatically permits air to escape while the pipe line is in service and under pressure.

Operation . .

Under normal conditions, the valve parts are in the position shown in the cut-away view. As the air accumulates in the pipe line it rises into the valve and gradually displaces the water. This causes the ball float to drop, carrying with it the levers and plunger and permitting the air to escape into the outer atmosphere. As the air escapes the water rises, carries the float upward, and closes the valve. This operation is repeated as often as air collects.

Durability and Efficiency . . .

The materials that enter into the construction of this valve are carefully chosen with reference to strength and durability. In order to open a one inch valve, when the pipe line pressure is one hundred and fifty pounds per square inch, the ball and levers must exert a pull of one hundred and eighteen pounds on the plunger in order to

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK Va., U.S.A.

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Date **MAR 21 1963**

W. C. G. STURCH
RADM USN
ATLANTIC DIVISION

pull it away from the valve seat. This opening and closing may go on at short intervals. In order to produce a valve of long life a copper float is used, which is impervious to the action of water. The valve is so constructed that the float lever strikes the valve body when the valve is completely open thus preventing damage to the float. Phosphor bronze levers are chosen on account of their strength and wearing qualities. The seat is of hard rubber and the plunger valve of a high quality soft rubber, slightly resilient, which insures a tight closing against the seat. Experience has demonstrated that these materials produce a valve of unequalled durability and efficiency.

Accessibility . . .

By removing the bolts, the flange may be taken off carrying with it the working parts. Should a valve seat become damaged, it can be replaced by unscrewing the top piece and inserting a new seat. This may be done without removing the flange.

The shape of the valve is cylindrical, the ideal shape for use under pressure. For a given size and pressure it is not over half the bulk of those of other manufacture.

For pressure valves to be used in conjunction with gasoline and other oil base fuels, see Model "P" Air Valves on another page of this catalog.

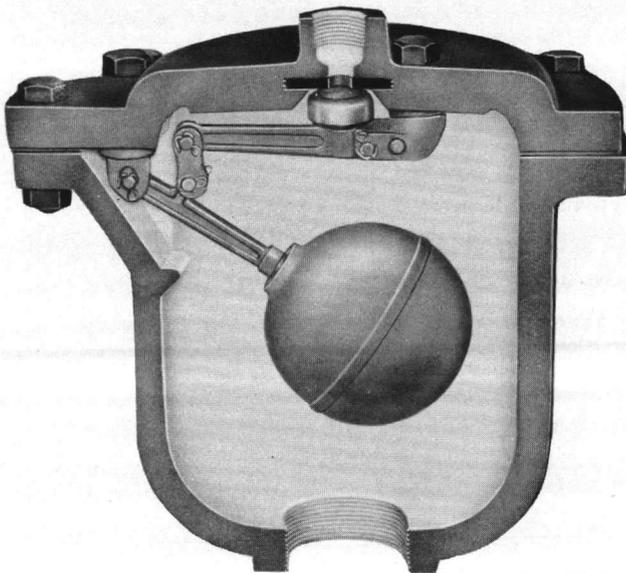
NOTICE!

Various Crispin Air Valves have packing inserted for shipping purposes. This packing protects the float from damage during shipment. Each valve that requires this packing for shipment is properly tagged with a warning, stressing the necessity of removal before installation. In most cases it is necessary to remove the flange for this to be accomplished. We suggest upon receipt of valves that they immediately be checked for internal packing as in many cases the caution tags are disregarded or lost in shipment. Valves will not operate unless all packing has been removed and they are properly reassembled.

Thank You!

Crispin

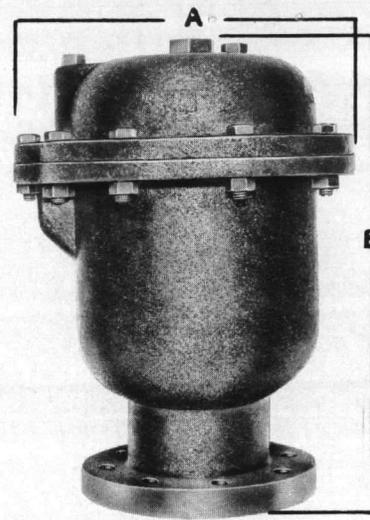
LEADER IN THE AIR VALVE LINE



Pressure Air Valve, Cut-away view

AIR CONTROL VALVES
FOR OVER 45 YEARS

multplex
MANUFACTURING COMPANY
BERWICK, PENNSYLVANIA



Pressure Air Valve

OVERALL DIMENSIONS IN INCHES CRISPIN PRESSURE AIR VALVES

Diameter Inlet Connection	1"	2"	2 1/2"	3"	4"
A	9 3/4"	10 1/4"	11 1/4"	12 1/2"	14 1/4"
B Screwed Connection	10 1/4"	12 1/4"	13 1/4"	15 3/4"	19 3/4"
B Flanged Connection			13 1/4"	15 3/4"	19"

SPECIFICATIONS FOR THE CRISPIN PRESSURE AIR VALVE

Diam. Air Valve Opening	Diam. Inlet Connection	Working Pressure	Shipping Weights
1/4"	1" Scr.	125 Lbs.	25 Lbs.
5/16"	2" Scr.	165 Lbs.	46 Lbs.
1/4"	2 1/2" Scr.	280 Lbs.	60 Lbs.
1/4"	2 1/2" Flg.	280 Lbs.	63 Lbs.
5/16"	3" Scr.	300 Lbs.	96 Lbs.
5/16"	3" Flg.	300 Lbs.	103 Lbs.
1/2"	2 1/2" Scr.	130 Lbs.	60 Lbs.
1/2"	2 1/2" Flg.	130 Lbs.	63 Lbs.
1/2"	3" Scr.	155 Lbs.	96 Lbs.
1/2"	3" Flg.	155 Lbs.	103 Lbs.
1/2"	4" Scr.	225 Lbs.	140 Lbs.
1/2"	4" Flg.	225 Lbs.	147 Lbs.
5/8"	3" Scr.	105 Lbs.	96 Lbs.
5/8"	3" Flg.	105 Lbs.	103 Lbs.
5/8"	4" Scr.	140 Lbs.	140 Lbs.
5/8"	4" Flg.	140 Lbs.	147 Lbs.
3/4"	3" Scr.	65 Lbs.	96 Lbs.
3/4"	3" Flg.	65 Lbs.	103 Lbs.
3/4"	4" Scr.	90 Lbs.	140 Lbs.
3/4"	4" Flg.	90 Lbs.	147 Lbs.
1"	4" Scr.	50 Lbs.	140 Lbs.
1"	4" Flg.	50 Lbs.	147 Lbs.

Higher working pressures may be obtained by reducing the diameter of the air valve opening. When ordering state "Pressure Air Valve", the diameter inlet connection and working pressure desired. Screwed inlet and outlet may be reduced as desired.

WE WILL BE PLEASED TO SEND PRICE LISTS.

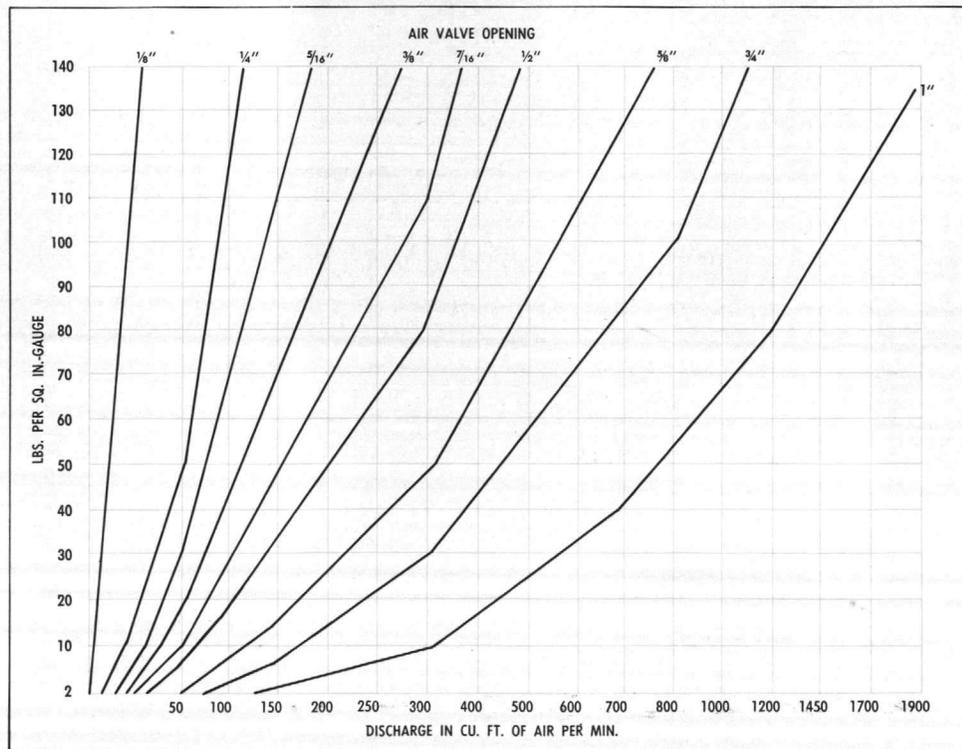
CRISPIN PRESSURE AIR VALVES

REPAIR PARTS LIST

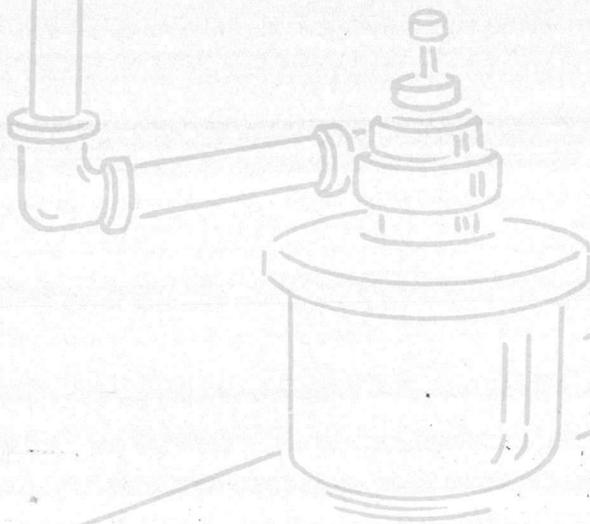
NAME	Part No.	NAME	Part No.
Seat	1	Bearing Pin Used with 6, 7, 8, 10	12
Valve	2	Screw Used with 4 & 6	13
Plunger Nut	3	Nut Used with 5 & 8	14
Plunger	4	Cotter	15
Valve Fulcrum	5	Screw	16
Valve Lever	6	Bolt	17
Link	7	Nut	18
Ball Fulcrum	8	Top	19
Ball Float	9	Flange	20
Ball Lever	10	Body Flanged or Screwed	21
Bearing Pin Used with 5 & 6	11	Nipple	22
		Fulcrum Washer	23
		Seat Gasket	24
		Flange Gasket	25

When ordering repair parts, state for use with "Pressure Air Valve." State size of valve and number of part desired. The size of the valve is designated by the diameter of the air valve opening and the diameter of the inlet connection. When ordering give both dimensions.

**CAPACITY CHART
CRISPIN
PRESSURE
AIR VALVES**



Crispin Model "P" Air Valves



A further modification of the Pressure Air Valve is our Model "P" Air Valve. This differs only in the fact that it is constructed with a stainless steel seat and a synthetic plunger valve. This feature permits the use of these valves for eliminating air from pipe lines, pumps, tanks, and other vessels handling various liquids which would attack rubber compositions.

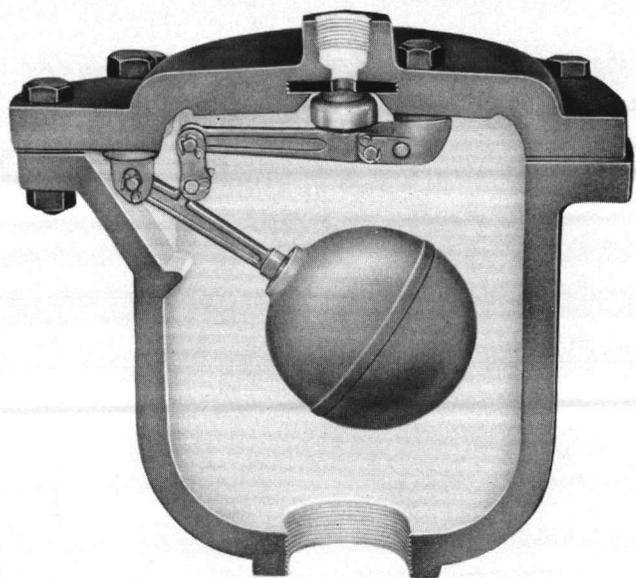
Model "P" Air Valves are in use on pump priming and other installations in factories, mines, laboratories, and petroleum systems throughout the country, as well as on hundreds of ships, where they are used in connection with bilge and fire lines.

Other characteristics and specifications are as described in the Pressure Air Valve section of this catalog.

SPECIFY

Crispin

FOR THE BEST IN AIR VALVES



Model "P" Air Valve, Cut-away view

Crispin Pressure Air Valves



ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

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W. C. GIBSON
FABRICATION
DEPARTMENT

MAR 21 1963

Date

~~pull it away from the valve seat.~~ This opening and closing may go on at short intervals. In order to produce a valve of long life a copper float is used, which is impervious to the action of water. The valve is so constructed that the float lever strikes the valve body when the valve is completely open thus preventing damage to the float. Phosphor bronze levers are chosen on account of their strength and wearing qualities. The seat is of hard rubber and the plunger valve of a high quality soft rubber, slightly resilient, which insures a tight closing against the seat. Experience has demonstrated that these materials produce a valve of unequalled durability and efficiency.

The Crispin Pressure Air Valve is intended to be placed on pipe lines at high points where air accumulates and obstructs the flow of water. It automatically permits air to escape while the pipe line is in service and under pressure.

Operation . .

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Accessibility . . .

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For pressure valves to be used in conjunction with gasoline and other oil base fuels, see Model "P" Air Valves on another page of this catalog.

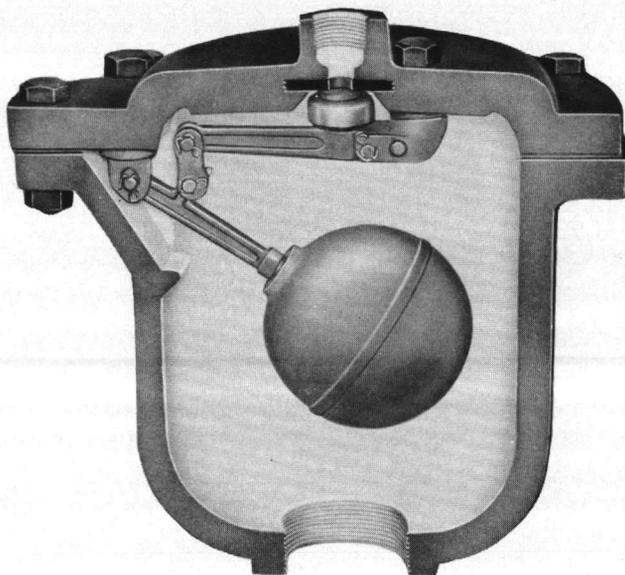
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Thank You!

Crispin

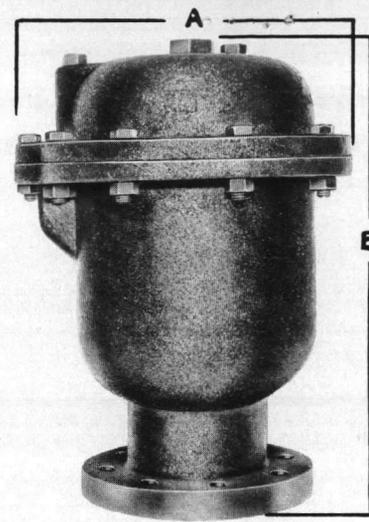
LEADER IN THE AIR VALVE LINE



Pressure Air Valve, Cut-away view

AIR CONTROL VALVES
FOR OVER 45 YEARS

multiplex
MANUFACTURING COMPANY
BERWICK, PENNSYLVANIA



Pressure Air Valve

OVERALL DIMENSIONS IN INCHES CRISPIN PRESSURE AIR VALVES

Diameter Inlet Connection	1"	2"	2 1/2"	3"	4"
A	9 3/4"	10 1/4"	11 1/4"	12 1/2"	14 1/4"
B Screwed Connection	10 1/4"	12 1/4"	13 1/4"	15 3/4"	19 3/4"
B Flanged Connection			13 1/4"	15 3/4"	19"

SPECIFICATIONS FOR THE CRISPIN PRESSURE AIR VALVE

Diam. Air Valve Opening	Diam. Inlet Connection	Working Pressure	Shipping Weights
1/4"	1" Scr.	125 Lbs.	25 Lbs.
5/16"	2" Scr.	165 Lbs.	46 Lbs.
1/4"	2 1/2" Scr.	280 Lbs.	60 Lbs.
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5/16"	3" Scr.	300 Lbs.	96 Lbs.
5/16"	3" Flg.	300 Lbs.	103 Lbs.
1/2"	2 1/2" Scr.	130 Lbs.	60 Lbs.
1/2"	2 1/2" Flg.	130 Lbs.	63 Lbs.
1/2"	3" Scr.	155 Lbs.	96 Lbs.
1/2"	3" Flg.	155 Lbs.	103 Lbs.
1/2"	4" Scr.	225 Lbs.	140 Lbs.
1/2"	4" Flg.	225 Lbs.	147 Lbs.
5/8"	3" Scr.	105 Lbs.	96 Lbs.
5/8"	3" Flg.	105 Lbs.	103 Lbs.
5/8"	4" Scr.	140 Lbs.	140 Lbs.
5/8"	4" Flg.	140 Lbs.	147 Lbs.
3/4"	3" Scr.	65 Lbs.	96 Lbs.
3/4"	3" Flg.	65 Lbs.	103 Lbs.
3/4"	4" Scr.	90 Lbs.	140 Lbs.
3/4"	4" Flg.	90 Lbs.	147 Lbs.
1"	4" Scr.	50 Lbs.	140 Lbs.
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Higher working pressures may be obtained by reducing the diameter of the air valve opening. When ordering state "Pressure Air Valve", the diameter inlet connection and working pressure desired. Screwed inlet and outlet may be reduced as desired.

WE WILL BE PLEASED TO SEND PRICE LISTS.

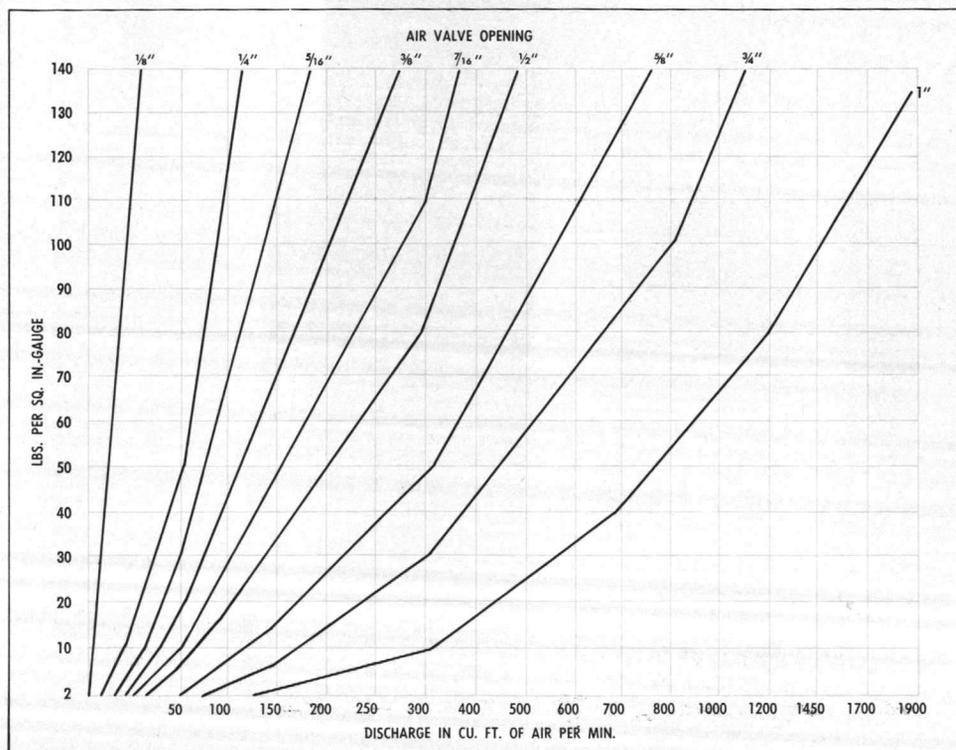
CRISPIN PRESSURE AIR VALVES

REPAIR PARTS LIST

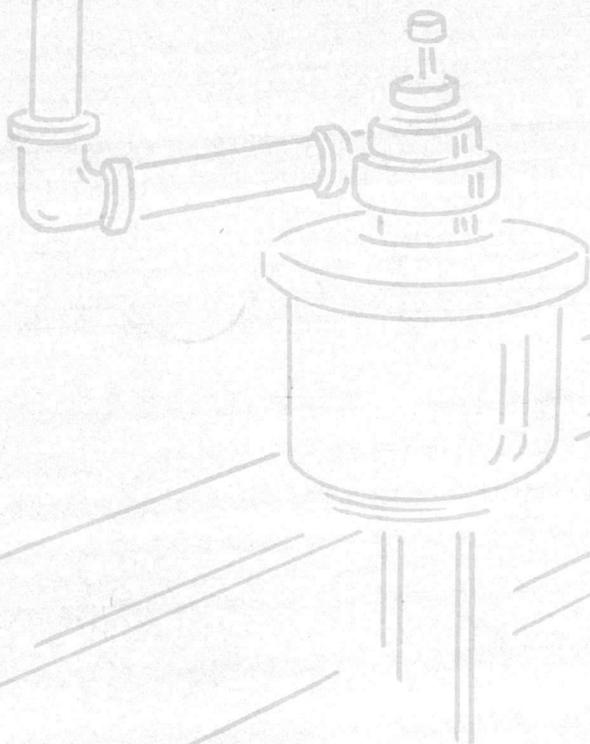
NAME	Part No.	NAME	Part No.
Seat	1	Bearing Pin Used with 6, 7, 8, 10	12
Valve	2	Screw Used with 4 & 6	13
Plunger Nut	3	Nut Used with 5 & 8	14
Plunger	4	Cotter	15
Valve Fulcrum	5	Screw	16
Valve Lever	6	Bolt	17
Link	7	Nut	18
Ball Fulcrum	8	Top	19
Ball Float	9	Flange	20
Ball Lever	10	Body Flanged or Screwed	21
Bearing Pin Used with 5 & 6	11	Nipple	22
		Fulcrum Washer	23
		Seat Gasket	24
		Flange Gasket	25

When ordering repair parts, state for use with "Pressure Air Valve." State size of valve and number of part desired. The size of the valve is designated by the diameter of the air valve opening and the diameter of the inlet connection. When ordering give both dimensions.

**CAPACITY CHART
CRISPIN
PRESSURE
AIR VALVES**



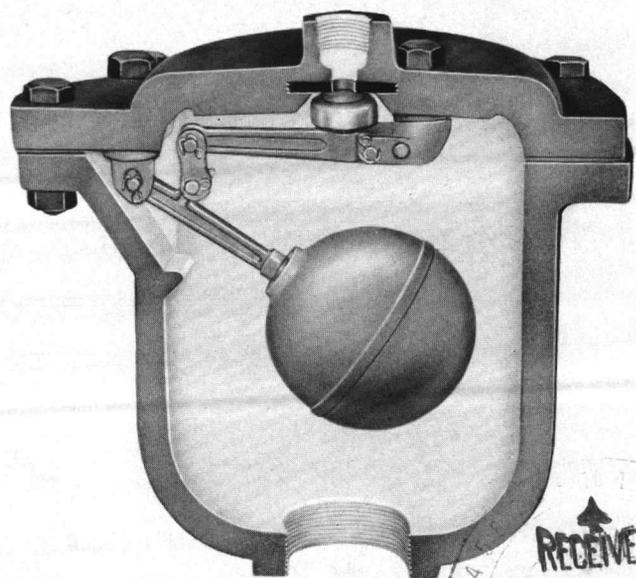
Crispin Model "P" Air Valves



A further modification of the Pressure Air Valve is our Model "P" Air Valve. This differs only in the fact that it is constructed with a stainless steel seat and a synthetic plunger valve. This feature permits the use of these valves for eliminating air from pipe lines, pumps, tanks, and other vessels handling various liquids which would attack rubber compositions.

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Other characteristics and specifications are as described in the Pressure Air Valve section of this catalog.

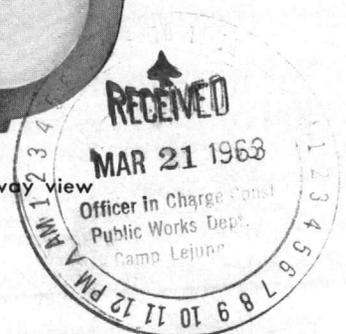


SPECIFY

Crispin

FOR THE BEST IN AIR VALVES

Model "P" Air Valve, Cut-away view



859314

UNITED STATES OF AMERICA

STATE OF TENNESSEE }
HAMILTON COUNTY } ss

BE IT KNOWN, That on the day hereof, before me, the undersigned, a Notary Public in and for said county, personally appeared O. E. Brown, Senior Specifications Engineer, Mueller Co., Chattanooga, Tennessee

Who being duly sworn, according to law, did depose and say, that the following Mueller Co. products sold to Grinnell Corp., Charlotte, N. C., their order No. CHA 7376, for Brown Constr. Co. and Water Supply Improvement, NBY-46508, Camp LeJeune, N. C., comply to specifications noted.

- A-2380-6 Gate Valves) - A. W. W. A. C500-61
- 4" thru 14" - Dwg. 5886)
- A-2380-20 Gate Valves)
- 4" thru 14" - Dwg. 5887)
- A-2600-6-01 Check Valves) - MIL-V-18436 - Type II - Style A
- 4" thru 12" - Dwg. 5932) for cold water
- 5-1/4" A-24007 Fire Hydrant) - A. W. W. A. C502-54
- Drawing 5486)

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NBY 46508 SPEC 46508/02
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY - THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

O. E. Brown

O. E. Brown
Senior Specifications Engineer

W. C. G. CHURCH
RADM. CEC, USN
DIRLANTDOCKS

Date MAR 14 1963

W. C. G. Church
Sworn to and subscribed before me this
5th day of March A.D. 19 63.

Clarence J. Hill
Notary Public

RECEIVED
MAR 13 1963
Office in Charge Const.
Public Works Dept.
Chicago, Ill.

UNITED STATES OF AMERICA

STATE OF TENNESSEE }
HAMILTON COUNTY } ss

BE IT KNOWN, That on the day hereof, before me, the undersigned, a Notary Public in and for said county, personally appeared O. E. Brown, Senior Specifications Engineer, Mueller Co., Chattanooga, Tennessee

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- Drawing 5486)

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF _____

CONTRACT NBy 46508 SPEC 46508/62
APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATES COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY — THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICAL DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

O. E. Brown

O. E. Brown
Senior Specifications Engineer

Date MAR 14 1963

W. C. G. CHURCH
RADM. CEC, USN
DIRLANTDOCKS

Sworn to and subscribed before me this
5th day of March A.D. 19 63.

Clarence J. Hill
Notary Public

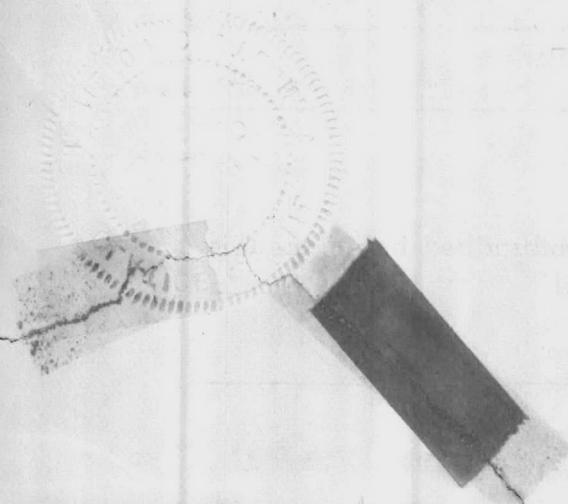
UNITED STATES OF AMERICA

DEPARTMENT OF THE TREASURY

On this day of the month of 1900, I have received of the Treasurer of the United States the sum of \$100.00 in full payment of the amount due to me on account of my claim for the sum of \$100.00.

WILLIAM W. WALKER
JAMES W. WALKER
JOHN W. WALKER

WILLIAM W. WALKER
JAMES W. WALKER
JOHN W. WALKER



Certificate of Test

DARLING VALVE & MANUFACTURING CO.

WILLIAMSPORT, PA., U. S. A.

CUSTOMER **Brown Construction Company**

DATE **12-20-62**

CUSTOMER ORDER **3-4**

DARLING ORDER **66555**

The valves on the above mentioned order meet the requirements of ANNA Specifications C-504-52. (Class 125-8)

The above order consists of six (6) 6" butterfly valves.

J. T. Brown, Jr.
J. T. Brown, Jr.

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
 NORFOLK 11, VA.

APPROVED: *as noted*

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NO. 46508 SPEC 46508/62

APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATING COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

Date JAN 7 1963

W. C. G. CHURCH
 RADML CEC, USN
 DIR/LANTDOCKS
SPM

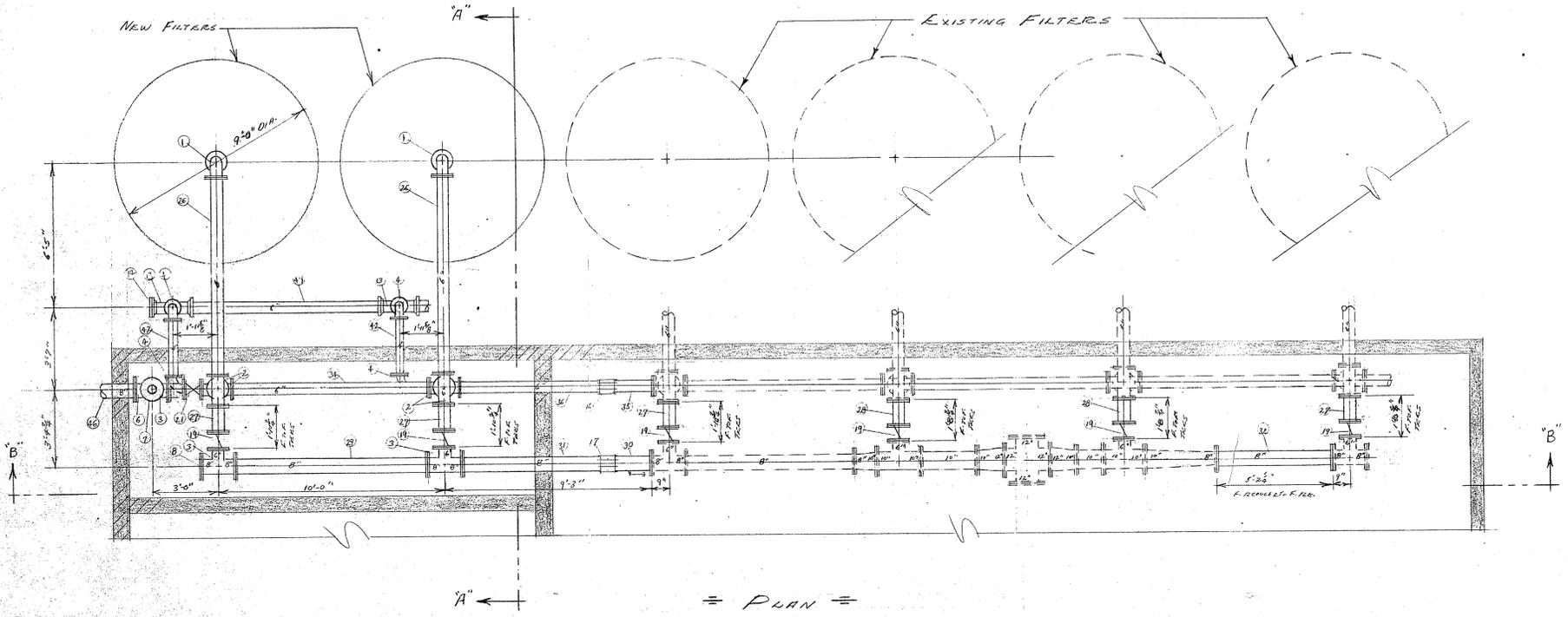
WE CERTIFY THE ABOVE INFORMATION TO BE CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

SUBSCRIBED AND SWORN BEFORE ME THIS

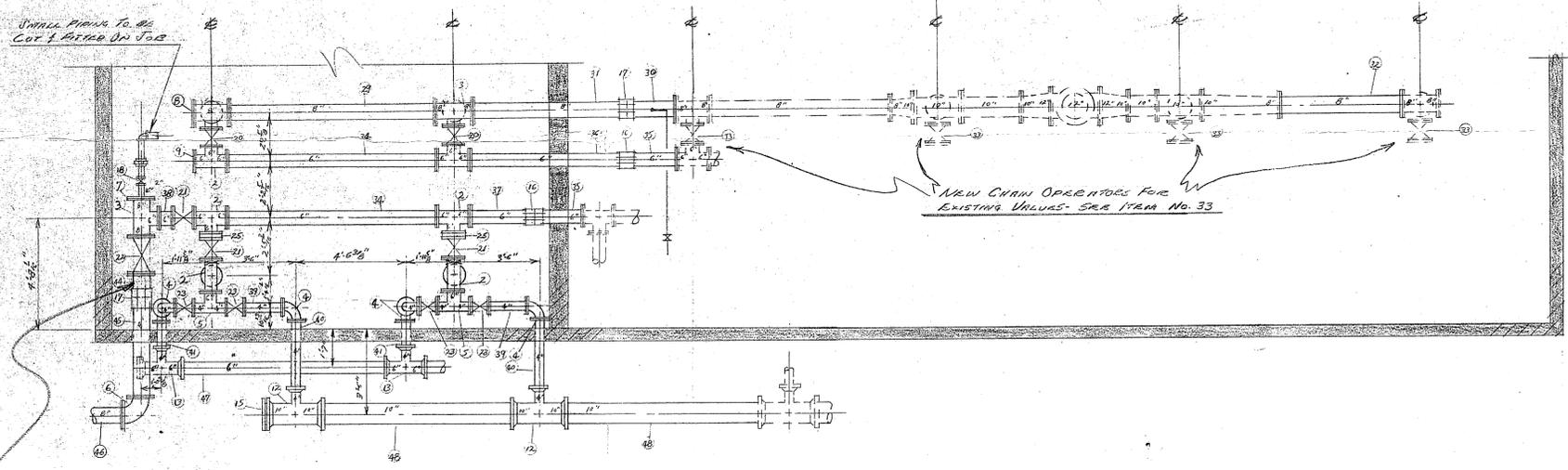
20th DAY OF December 1962

Hugh B. Foster
.....
NOTARY PUBLIC
HUGH B. FOSTER, Notary Public
WILLIAMSPORT, LYCOMING CO., PA.
My Commission Expires Feb. 28, 1963

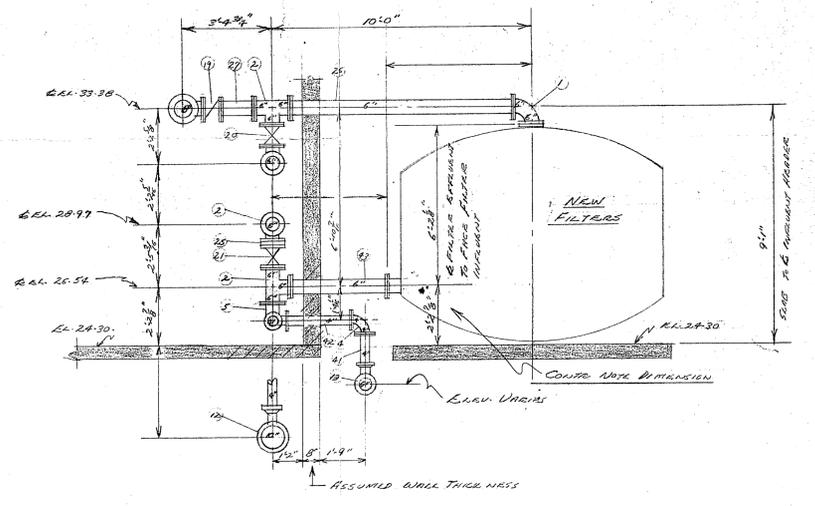
W. C. G. Church
.....
DARLING VALVE & MANUFACTURING CO.
Quality Control Engr.



PLAN

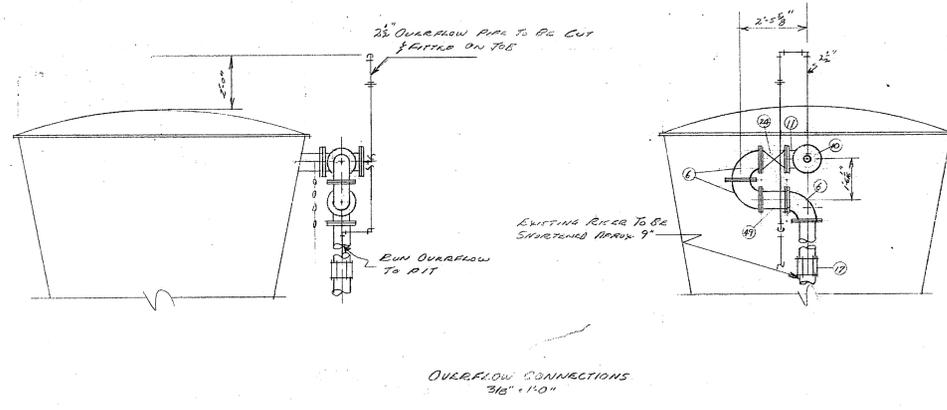


SECTION B-B



SECTION A-A

Tap here for rotary surface wash



OVERFLOW CONNECTIONS 3/8\"/>

ITEM	DESCRIPTION	QTY	UNIT	ITEM	DESCRIPTION	QTY	UNIT
1	6\"/>	2	FLG	28	6\"/>	2	FLG
2	6\"/>	2	FLG	29	8\"/>	1	FLG
3	4\"/>	3	FLG	30	8\"/>	1	FLG
4	4\"/>	6	FLG	31	8\"/>	1	FLG
5	4\"/>	2	FLG	32	8\"/>	1	FLG
6	8\"/>	4	FLG	33	2\"/>	4	FLG
7	2\"/>	1	FLG	34	6\"/>	2	FLG
8	0\"/>	1	FLG	35	6\"/>	1	FLG
9	0\"/>	1	FLG	36	6\"/>	1	FLG
10	2\"/>	1	FLG	37	6\"/>	1	FLG
11	8\"/>	1	FLG	38	6\"/>	1	FLG
12	10\"/>	2	FLG	39	4\"/>	2	FLG
13	6\"/>	2	FLG	40	4\"/>	2	FLG
14	6\"/>	1	FLG	41	4\"/>	2	FLG
15	10\"/>	1	FLG	42	4\"/>	2	FLG
16	8\"/>	2	FLG	43	6\"/>	2	FLG
17	8\"/>	3	FLG	44	8\"/>	1	FLG
18	2\"/>	1	FLG	45	8\"/>	1	FLG
19	6\"/>	6	FLG	46	8\"/>	1	FLG
20	6\"/>	2	FLG	47	6\"/>	1	FLG
21	6\"/>	3	FLG	48	10\"/>	2	FLG
22	8\"/>	1	FLG	49	8\"/>	1	FLG
23	4\"/>	1	FLG				
24	8\"/>	4	FLG				
25	8\"/>	1	FLG				
26	8\"/>	2	FLG				
27	6\"/>	2	FLG				
28	6\"/>	4	FLG				

APPROVED: As noted
 SUBMIT TO THE REQUIREMENTS OF
 CONTRACT NO. 26508 SPEC 46508/62
 APPROVED BY SPECIALS AND/OR ENGINEER
 INDICATING COMPLIANCE WITH ALL PROVISIONS
 CONTRACT NO. 26508 - SEE CONTRACT FOR
 DETAILED REQUIREMENTS AND SPECIFICATIONS
 COORDINATION OF TRADES, ETC. AS WARRANTED.

W. C. CHURCH
 PAUL, VA.
 FEB 18 1963

PIPING DETAILS FOR
 TARAHA TERRACE PLANT
 MARINE BARRENCS
 CAMP LEBRON, NC.
 PERINSON & WHITMAN, ENGRS.
 BROWN CONSTRUCTION CO. - CONST.
 GRINNELL COMPANY, INC.
 CHARLOTTE, N.C.
 SCALE: 3/8\"/>

SHEET 2



CUSTOMER **BROWN CONSTRUCTION CO., INC.**
 P. O. NO. **9-1**
 JOB **CAM LEJEUNE, NORTH CAROLINA**

B-I-F ORDER NO. **30806-A-0607**

INSTRUCTION MANUALS: **5 WITH SHIPMENT**

DRAWINGS: **8 SETS TO PURCHASER FOR APPROVAL**

		SCHEDULE	DATE
	R	DRAWINGS TO CUSTOMER	12/21
X	NR	CUSTOMER APP. DUE	1/11
	Y	ENG. DATA TO P.C.	
X	P	SHIPMENT 14 WKS.	AA-00
	G	CALCS REQ'D? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
		PLANS OR SPECS. NO.	1863

QUAN.	DESCRIPTION	CODE NO.
-------	-------------	----------

1	<p>TAG: ITEM 19.2-2</p> <p>0235-04, Series B-Chronoflo Receiver, Serial No. 13632 OPERATES FROM TRANSMITTER, Serial No. 14100 on order 30803-A</p> <p>RANGE: 0 to 35 ft. MOUNTING: In panel on order 30807-A POWER: 110 volt, 60 cycle POWER POSITIONER: DC-4Rs for 15 sec. cam cycle INDICATOR: Grads 0 to 35 Legend WLF RECORDER: Grads 0 to 35 Legend WLF Charts, Daily FINISH: Plextone Gray 11-Unit switch assy. for control of 4 pumps and Hi-Water level alarm and line failure</p>	<p>0235-04</p> <p>0213</p> <p>0301</p> <p>0503</p> <p>0638</p>
---	--	--

400

859314

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
 NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NO. 46508 SPEC 46508/62

APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATED COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

W. C. G. CHURCH
 RADM. CEC, USN
 DIRLANTDOCKS

Date JAN 7 1963

S.F.M.

12121212

DATE TYPED

E. STANLEY BROWN

DATA SHEET

B-I-R ORDER NO. 30806-A-0607		CUSTOMER BROWN CONSTRUCTION CO., INC.	
DATE 12/51		P. O. NO. 9-1	
SCHEDULE		CAM LEJUNE, NORTH CAROLINA	
R	DRAWINGS TO CUSTOMER	INSTRUCTION MANUALS 2 WITH SHIPMENT	
MR	CUSTOMER APR. ONE	DRAWINGS 8 SETS TO PURCHASER FOR APPROVAL	
X			
Y	ENG. DATA TO P.C.		
P	SHIPMENT TO WKS.		
AA-00			
G	CALLS MADE		
X			
PLANS OR SPECS. NO. 1823			

CODE NO.	DESCRIPTION	QTY.
0638	11-Unit switch easy for control of 4 pumps and Hi-Water level alarm and line failure	1
0503	FINISH: Plexiglas Gray	1
0301	Charts, Daily	1
0213	RECORDER: Grade 0 to 35 INDICATOR: Grade 0 to 35 POWER POSITIONER: DC-ARA for 15 sec. saw cycle POWER: 110 volt, 60 cycle MOUNTING: In panel on order 30807-A RANGE: 0 to 35 ft. OPERATES FROM TRANSMITTER, Serial No. 14100 on order 30803-A 0235-04, Series B-Chronologic Receiver, Serial No. 13632	1
	TAG: ITEM 19.2-S	

CUSTOMER: **BROWN CONSTRUCTION CO., INC.**
 P. O. NO. **9-1**
 JOB: **CAM LEJEUNE, NORTH CAROLINA**

INSTRUCTION MANUALS: **5 WITH SHIPMENT**

DRAWINGS: **8 SETS TO PURCHASER FOR APPROVAL**

B-I-F ORDER NO.		30806-A-0607	
	SCHEDULE	DATE	
	R	DRAWINGS TO CUSTOMER	12/21
X	NR	CUSTOMER APP. DUE	1/11
	Y	ENG. DATA TO P.C.	
X	P	SHIPMENT 14 WKS.	AA-00
	G	CALCS REQ'D? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
PLANS OR SPECS. NO.		1863	

QUAN.	DESCRIPTION	CODE NO.
-------	-------------	----------

1	<p>TAG: ITEM 19.2-2</p> <p>0235-04, Series B-Chronoflo Receiver, Serial No. 13632 OPERATES FROM TRANSMITTER, Serial No. 14100 on order 30803-A RANGE: 0 to 35 ft. MOUNTING: In panel on order 30807-A POWER: 110 volt, 60 cycle POWER POSITIONER: DC-4Rs for 15 sec. cam cycle INDICATOR: Grads 0 to 35 Legend WLF RECORDER: Grads 0 to 35 Legend WLF Charts, Daily FINISH: Plextone Gray 11-Unit switch assy. for control of 4 pumps and Hi-Water level alarm and line failure</p>	<p>0235-04</p> <p>0213</p> <p>0301</p> <p>0503</p> <p>0638</p>
---	--	--

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
 NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NO. 46508 SPEC 46508/62

APPROVAL OF THIS PLAN AND/OR EQUIPMENT
 INDICATES COMPLIANCE WITH SPECIFICATION
 REQUIREMENTS ONLY. THE CONTRACTOR
 SHALL BE RESPONSIBLE FOR PROVIDING
 PROPER DIMENSIONS & WEIGHTS,
 COORDINATION OF STAKES, ETC., AS REQUIRED.

Date JAN 7 1963

W. C. G. CHURCH
 ADM. GEC, USN
 BIRLAND DOCKS
W.C.G.

CUSTOMER: BROWN CONSTRUCTION CO., INC.
 P.O. NO.: 9-1
 CAM LEBLANC, NORTH CAROLINA

INSTRUCTION MANUALS: 2 WITH SHIPMENT

DRAWINGS: 8 SETS TO PURCHASER FOR APPROVAL

DATE TYPED		8-17 ORDER NO.	
12/11/51		30806-A-0607	
SCHEDULE		R	DRAWINGS TO CUSTOMER
		MR	CUSTOMER APP. DUE
		Y	ENG. DATA TO P.C.
		X	SHIPMENT IN WEEKS
		G	CALC. REC'D
PLANS OR SPECS. NO.		1363	
CODE NO.		AA-00	

DESCRIPTION

100

Hi-Water level alarm and line failure
 11-Unit switch easy for control of 4 pumps and
 FINISH: Plexone Gray
 Charts, Daily
 RECORDER: Grade 0 to 35 Legend WLF
 INDICATOR: Grade 0 to 35 Legend WLF
 POWER POSITIONER: DC-4rs for 15 sec. cam cycle
 POWER: 110 volt, 60 cycle
 MOUNTING: In panel on order 30807-A
 RANGE: 0 to 35 ft.
 OPERATES FROM TRANSMITTER, Serial No. 14100 on order 30807-A
 0237-04, Series B-Chronoflo Receiver, Serial No. 13632
 TAG: ITEM 12-S-2

0238
 0203
 0301
 0213



Industries

A DIVISION OF THE NEW YORK AIR BRAKE COMPANY
PROVIDENCE, RHODE ISLAND, U. S. A.



DIMENSIONS

CHRONOFLO TELEMETERS Standard 12" Receivers Model Series 232 PANEL AND/OR WALL MOUNTED (formerly series B)

THIS PRINT IS REPRODUCIBLE.

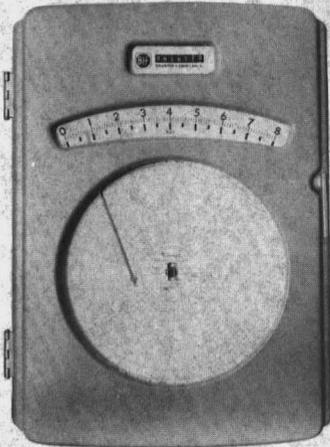


Fig. 1

- Single-Pen Recorder ✓
- Two-Pen Recorder
- Three-Pen Recorder
- With Totalizer
- With Indicator ✓
- With Illumination

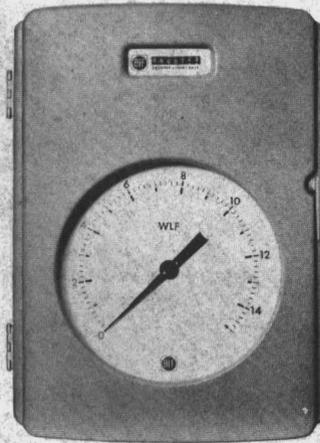


Fig. 2

Circular Dial Indicator
With Totalizer

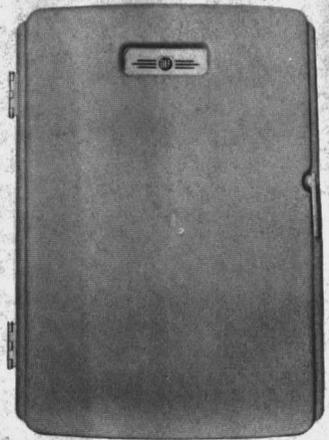
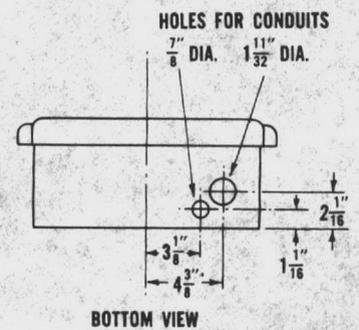
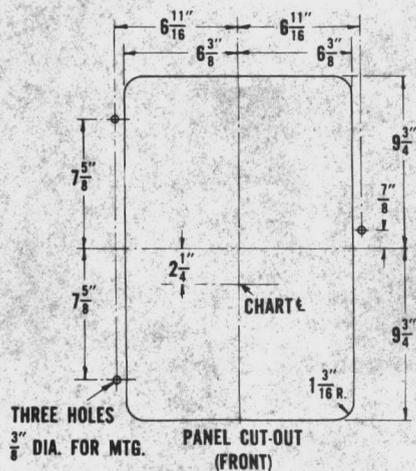
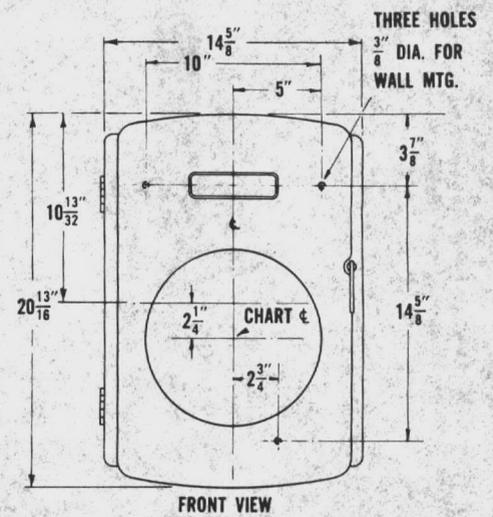
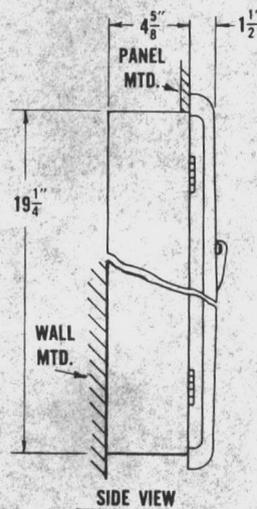


Fig. 3

Auxiliary Receiver.
Other Receiver.

NOTE: Refer to Order Data Sheet
for Mounting, Finish, Etc.



DIMENSIONS

CHRONOLOGICALLY
Standard 12" Receivers
Model Series 237
PANEL AND/OR WALL MOUNTED
Receiver Series B



Industries



A DIVISION OF THE NEW YORK AIR BRASS COMPANY
PROVIDENCE, RHODE ISLAND, U.S.A.

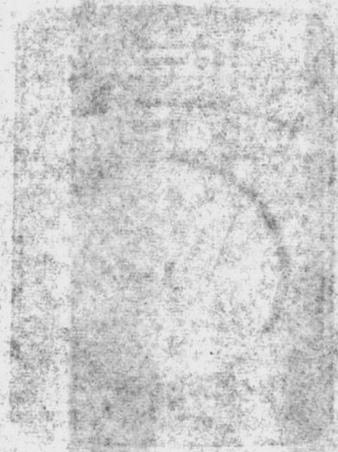
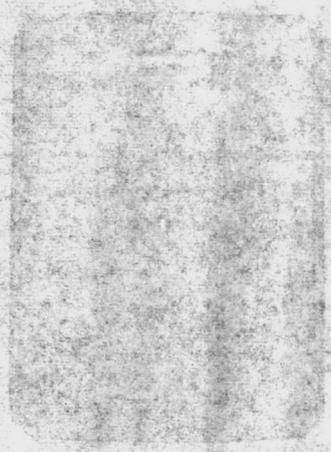


Fig. 2
Single-Pan Receiver
With Indicator

Fig. 3
Two-Pan Receiver
With Indicator

Fig. 4
Three-Pan Receiver
With Indicator
With Illumination

THREE HOLES
3 DIA FOR
1 WALL MTS



FRONT VIEW



SIDE VIEW

NOTE: See 237 Series Data Sheet
for Receiver Model 237

NOTES FOR BONDING
3 DIA 1/4 DIA



BOTTOM VIEW



THREE HOLES
3 DIA FOR MTS
WALL

THE NEW YORK AIR BRASS COMPANY



CHRONOFLO TELEMETERS Standard 12" Receivers Model Series 232 PANEL AND/OR WALL MOUNTED (formerly series B)

THIS PRINT IS REPRODUCIBLE.

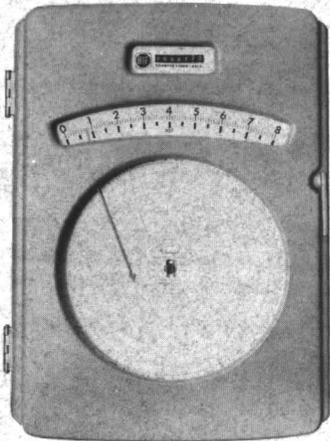


Fig. 1

- Single-Pen Recorder ✓
- Two-Pen Recorder
- Three-Pen Recorder
- With Totalizer
- With Indicator ✓
- With Illumination

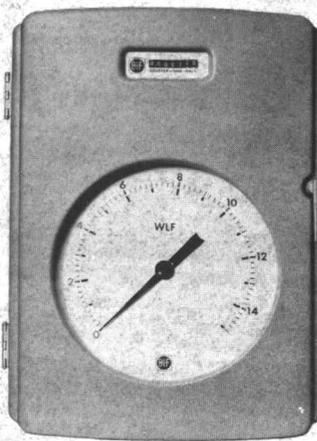


Fig. 2

Circular Dial Indicator
With Totalizer ✓

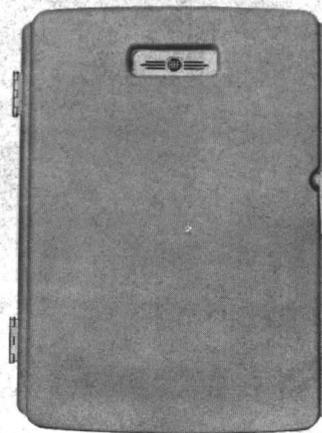
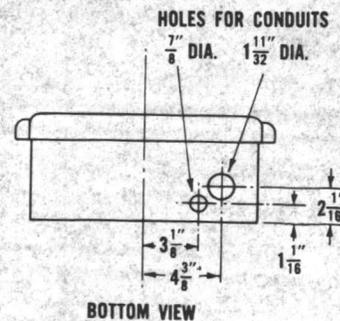
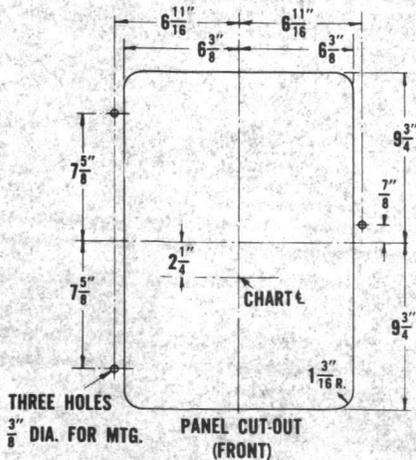
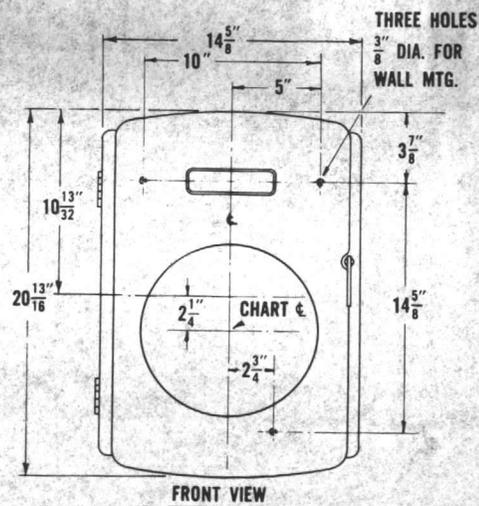
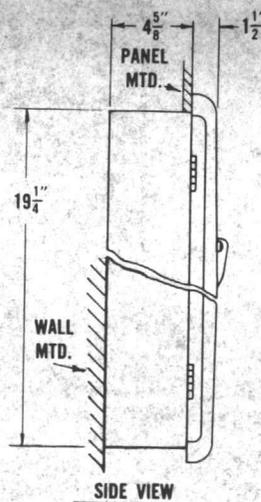


Fig. 3

Auxiliary Receiver.
Other Receiver.

NOTE: Refer to Order Data Sheet for Mounting, Finish, Etc.



DIMENSIONS

CHRONOLOGIC RECEPTORS
Standard 12" Receptors
Model Series 282
PANEL AND OR WALL MOUNTED
(formerly series B)



A DIVISION OF THE NEW YORK AIR BRACKET COMPANY
PROVIDENCE, RHODE ISLAND, U.S.A.



Industries

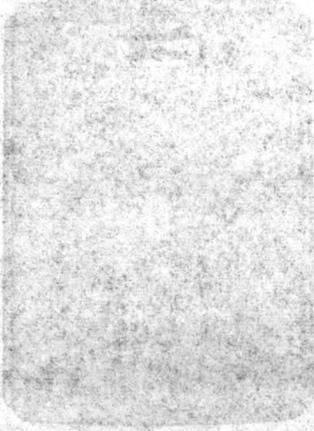


Fig. 2

Auxiliary Receptor
Other Receptor



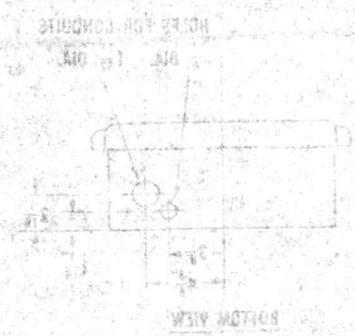
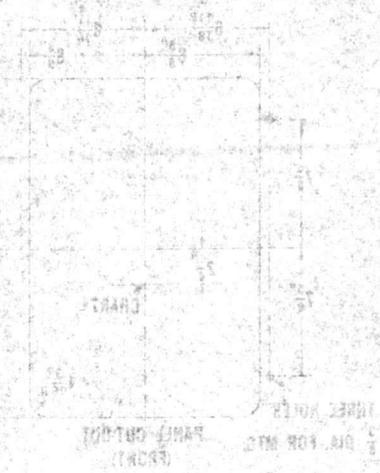
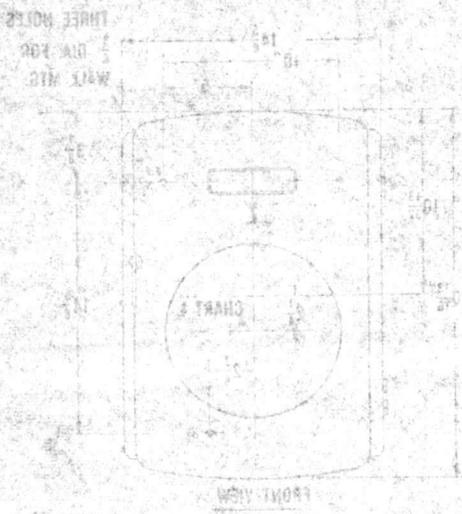
Fig. 3

Circular Dial Indicator
With Indicator



Fig. 1

Single Pen Receptor
Two Pen Receptor
Three Pen Receptor
With Indicator
With Illumination

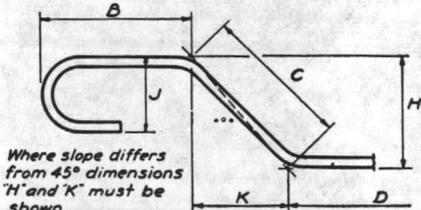
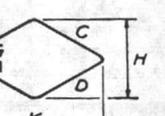
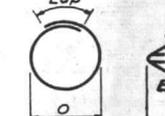
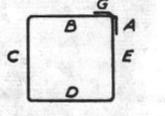
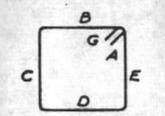
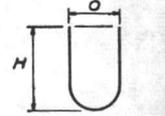
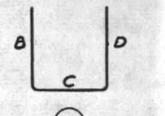
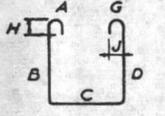
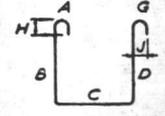
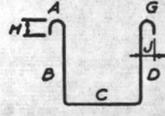
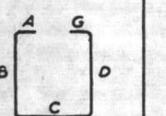
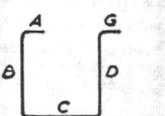
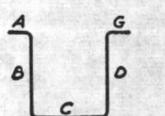
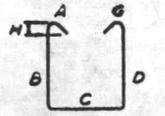
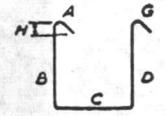
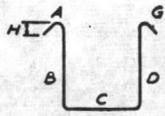
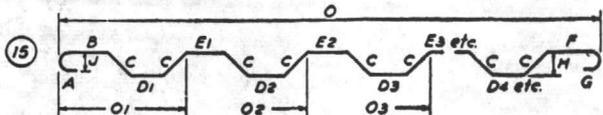
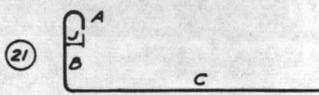
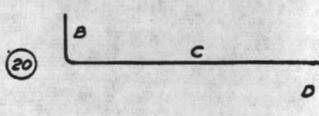
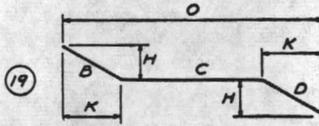
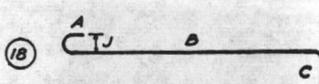
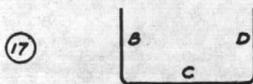
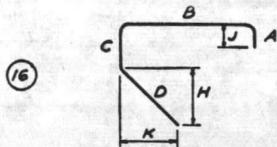
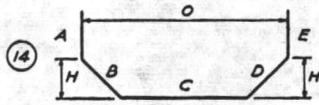
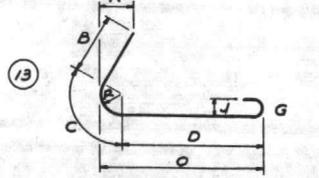
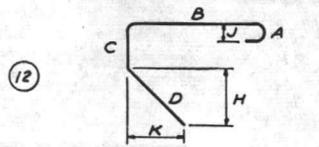
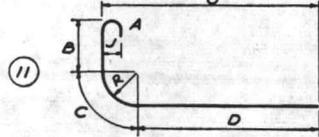
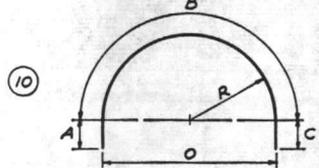
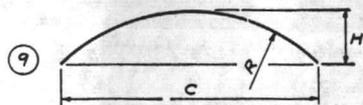
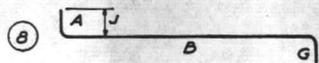
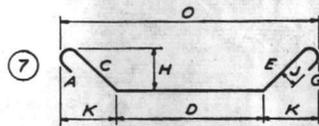
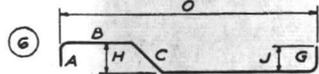
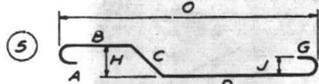
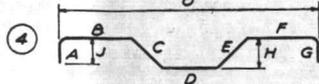
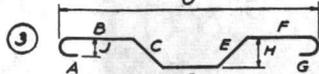
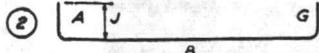
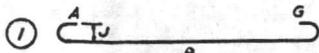


NOTE: Refer to Order Form for
the complete list of
accessories.

REPRODUCTION OF THIS DRAWING IS PROHIBITED

REFABCO, INC.

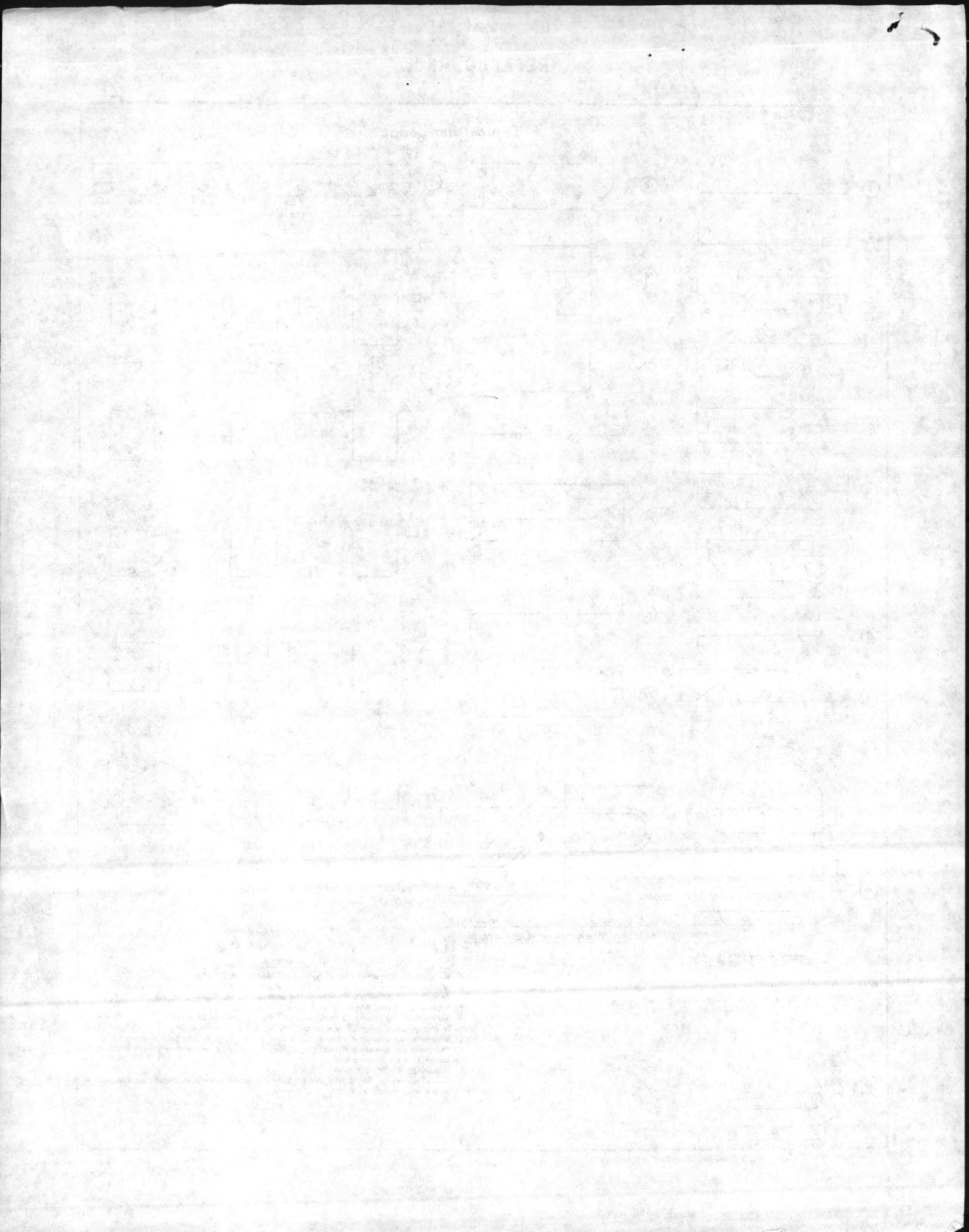
Typical bar bends



ENLARGED VIEW SHOWING BAR BENDING DETAILS

NOTES

1. All dimensions are out to out of bar.
2. "J" Dimension on 180° hooks to be shown only where necessary to restrict hook size, otherwise standard hooks are to be used.
3. Where "J" is not shown, "J" will be kept equal to or less than "H". Where "J" can exceed "H", it should be shown.
4. "H" Dimension on stirrups to be shown where necessary to restrict hooks.
5. Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer working should have limits indicated.
6. Figures in circles show types.
7. No allowance for bend curvature is to be made except for standard hook and radii in excess of same.



REFABCO, INC.
CHARLOTTE, N. C.

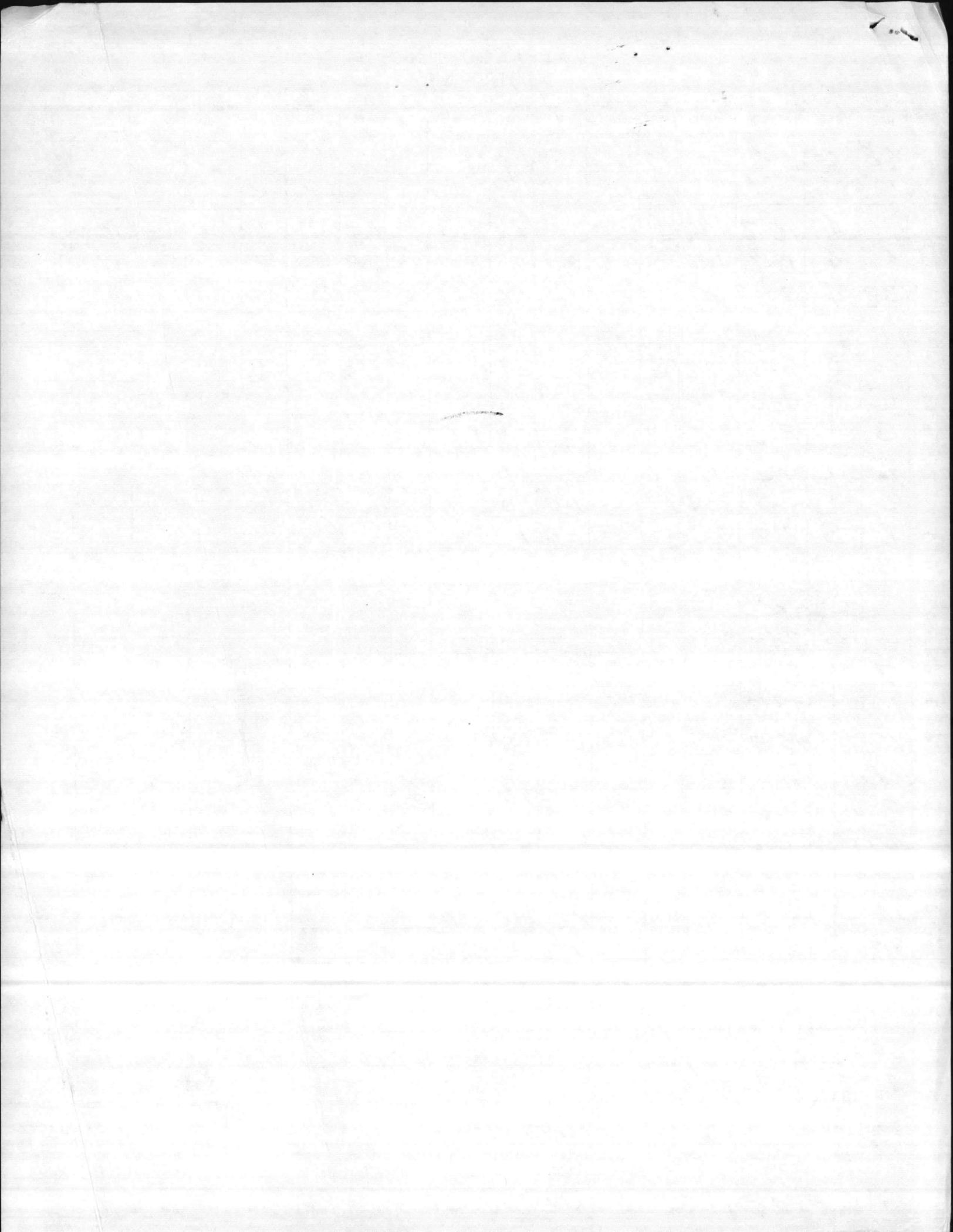
OFFICE

ITEM	NO. PCS.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	O	WEIGHTS
1	48	6	1-6	600	17		6	1-0									
2																	
3	30	4	10-2	400	3		1-4	2½	3.8	2½	4-9		2				10.0
4	45	4	12-6	401	3		4-9	2½	2-7	2½	4-9		2				12.4
5	32	4	3-0	402	17		1-6	1-6									
6																	
7	6	3	6-10	300	3		3-11	2-11					1-9				
8	12	↑	4-2	301	17		1-0	3-2									
9	3	↑	8-3	302	17		1-6	5-3	1-6								
10	2	↓	3-5	303	17		1-0	2-5									
11	2	↓	2-9	304	17		1-0	1-9									
12	2	3	2-2	305	17		1-0	1-2									
13																	
14		STR															
15	4	4	24-0														
16	7	↑	20-2														
17	16	↑	12-8														
18	15	↑	10-0														
19	21	↑	9-2														
20	2	↑	8-6														
21	40	↑	7-10														
22	30	↑	7-6														
23	16	↓	6-8														
24	30	↓	6-4														
25	32	4	4-6														
26																	
27	24	3	22-2														
28	4	3	6-2														

NO. PCS. SIZE LGTH
8 3 5-4
2 3 4-4

750 SQ. FT. 6x6-6/6 MESH (1 ROLL)

STRUCTURE WATER SUPPLY IMPROVEMENTS SHIP DATE 12-28-62
 SHIP TO BROWN CONST. CO. ROUTE CONT. NO. B1-8765
 ADDRESS CAMP LEJEUNE, N.C. MADE BY M.C. SHEET NO. 1 OF



TARAWA TERRACE BLDG TT-38

CAPACITY 1 MGD

WITH 7 DEEP WELLS

LIME SOFTENING PLANT

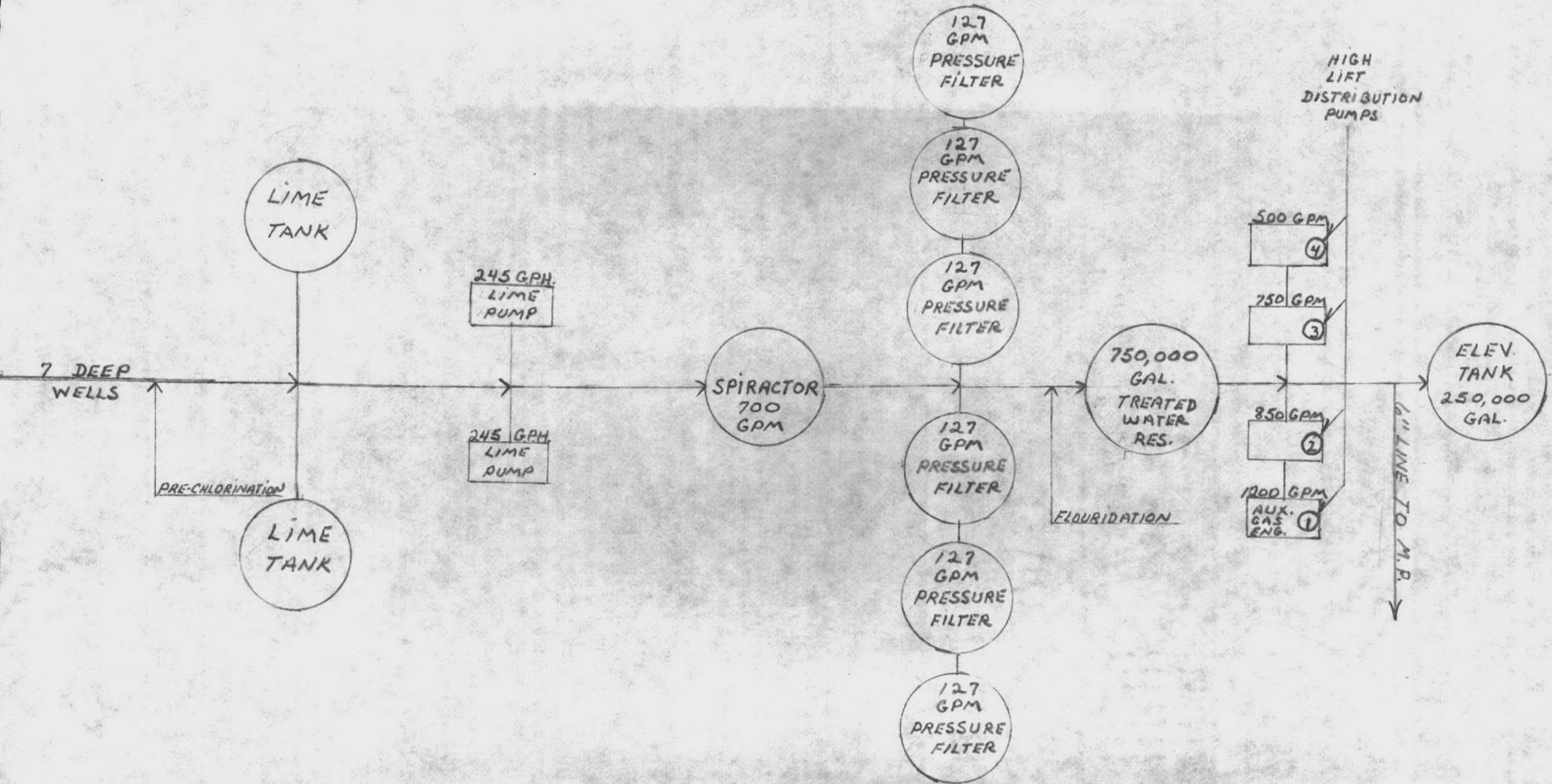




Table III C 3

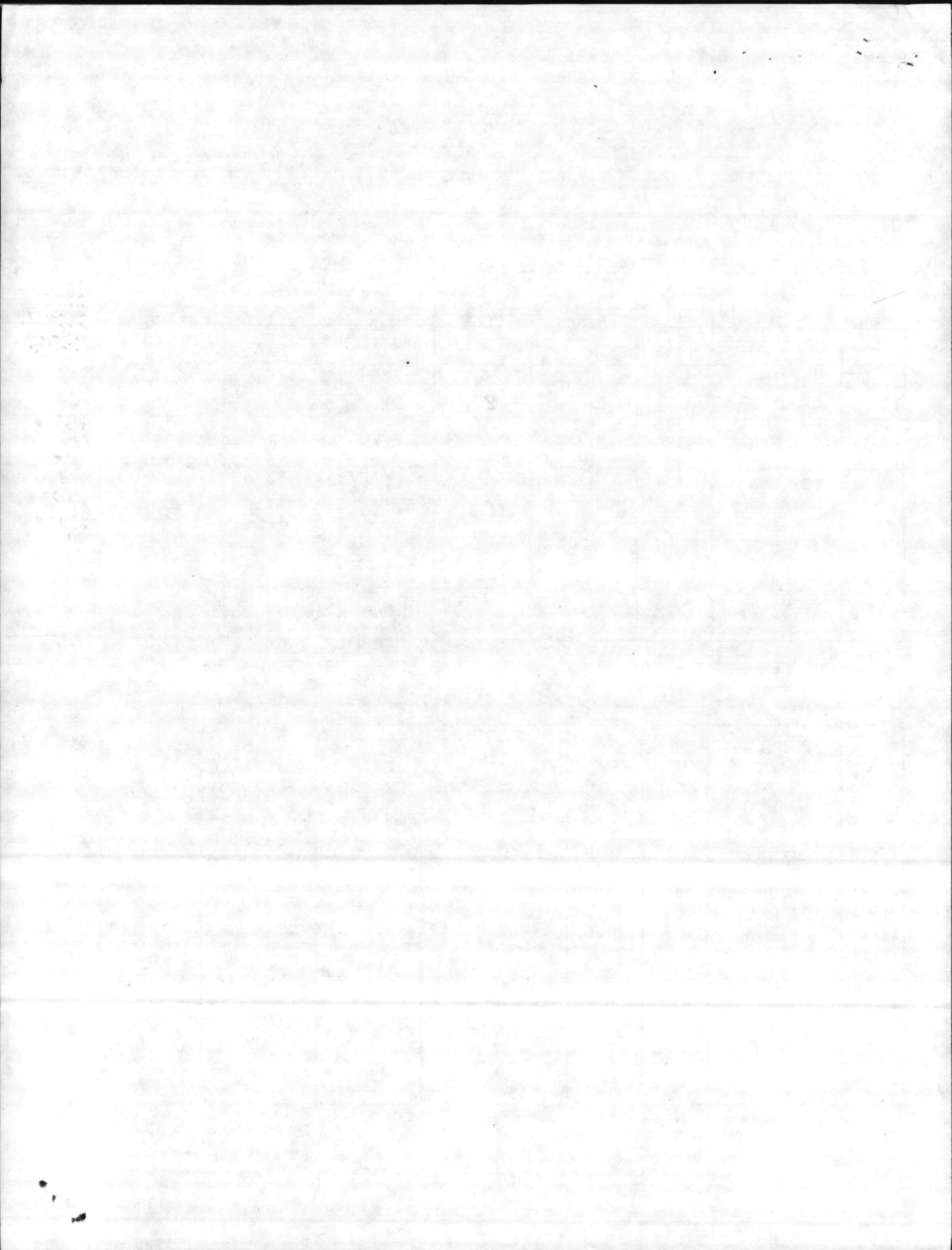
WELL SURVEY SHEET*

Sheet No. 5

DATE: 3-3-77

WELL NO.	WELL TYPE	DRILLED DEPTH ft.	STATIC LEVEL (ft)	CASING SIZE (in.)	STAGES	DRAWDOWN AT RATED CAPACITY (feet)	RATED CAPACITY (gpm)	PRESENT CAPACITY (GPM)
TT-26	DRILLED	95'	16'	8"	4	51'	110 ¹⁵⁰	150
TT-30	DRILLED	98'	28'	8"	10	32'	100	50
TT-31	DRILLED	94'	26'	8"	4	10'	145	150
TT-52	DRILLED	98'	31'	8"	5	14'	300	200
TT-53	DRILLED	89'	30'	8"	5	38'	350	50
TT-54	DRILLED	104'	31'	8"	5	31'	200	150
TT-67	DRILLED	110'	29'	8"	8	36'	168	100

WELL NO.	SPECIFIC CAPACITY (gpm/ft of drawdown)	PUMP HEAD (ft)	MOTOR H. P.	CHLORINATION (AMOUNT)	RESIDUAL CHLORINE (ppm)	AUXILIARY POWER (type)	DD FORM	
							710	686
TT-26	2.2	105'	10.0					
TT-30	3.1	110'	5.0					
TT-31	1.5	95'	7.5					
TT-52	21.4	100'	15.0					
TT-53	9.2	121'	15.0			GASOLINE		
TT-54	6.5	112'	10.0			GASOLINE		
TT-67	4.7	105'	7.5					

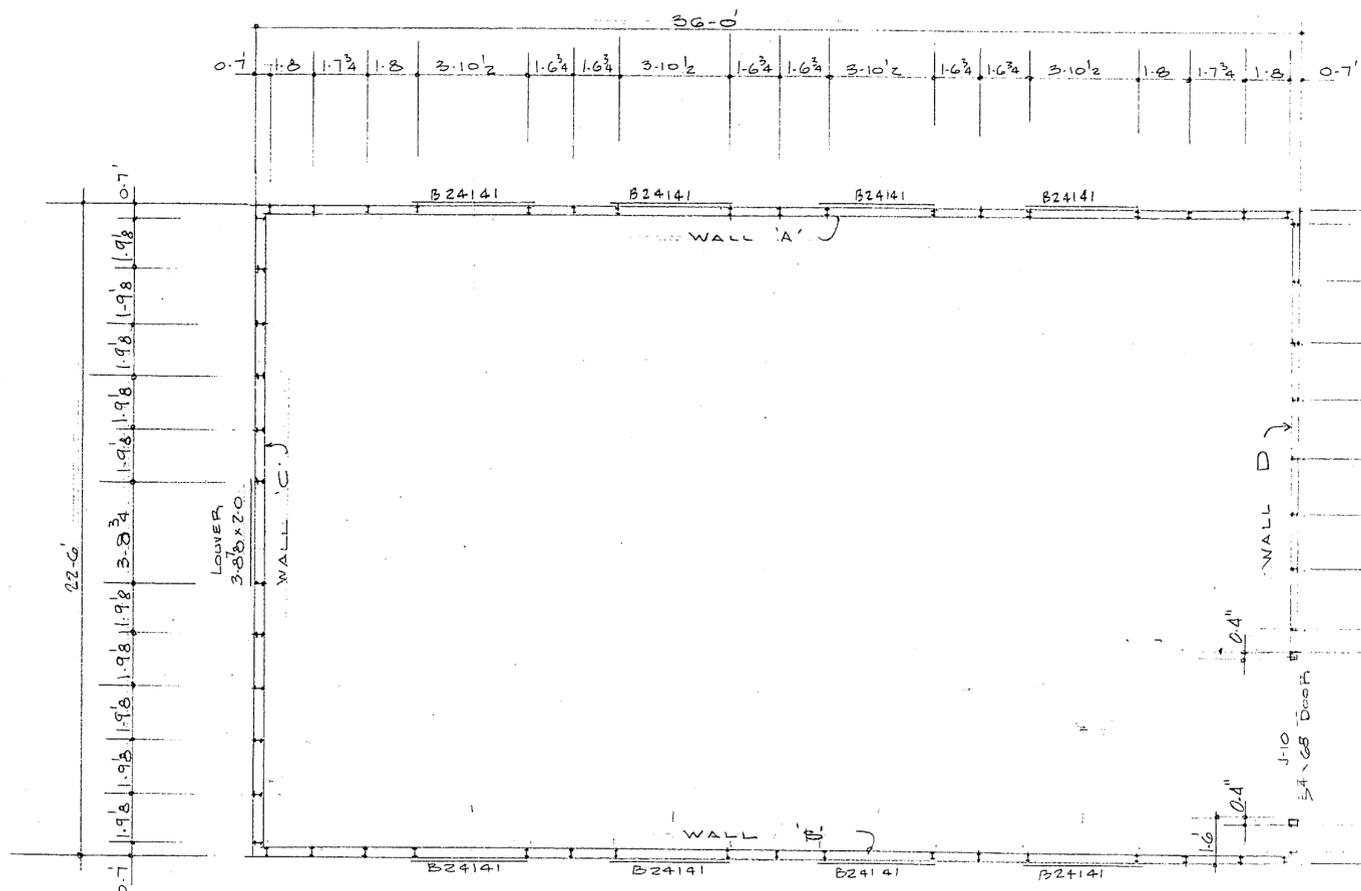


S U M M A R Y

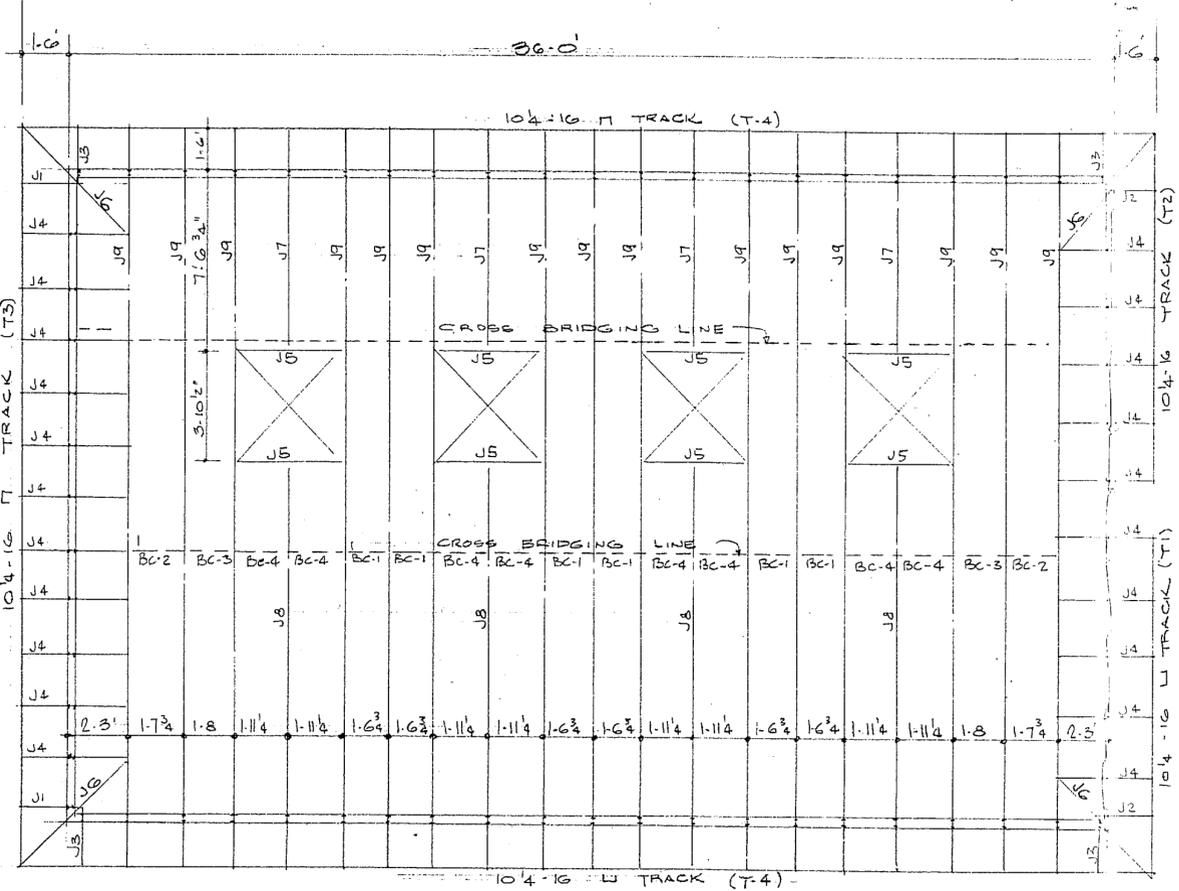
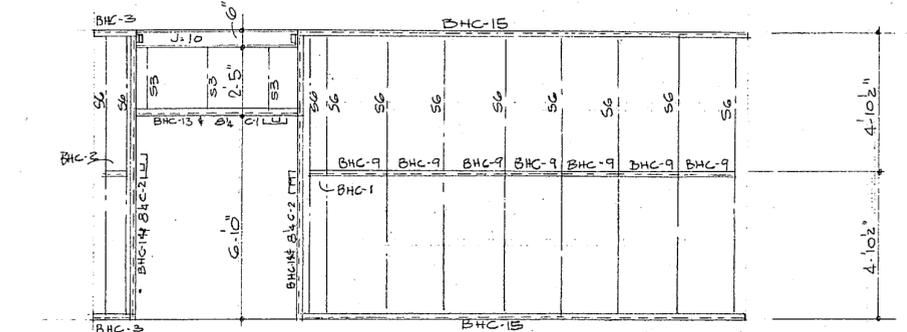
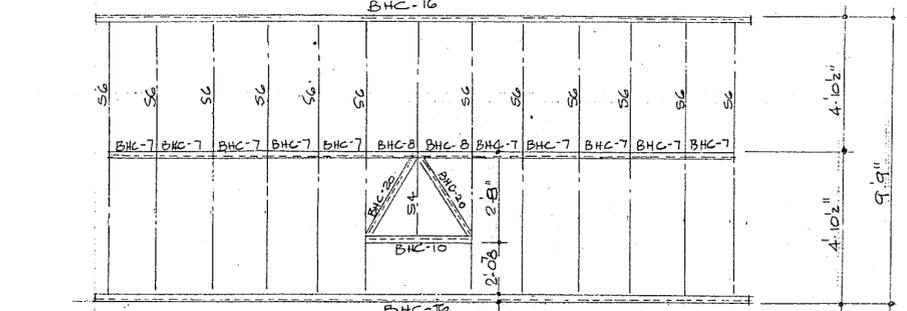
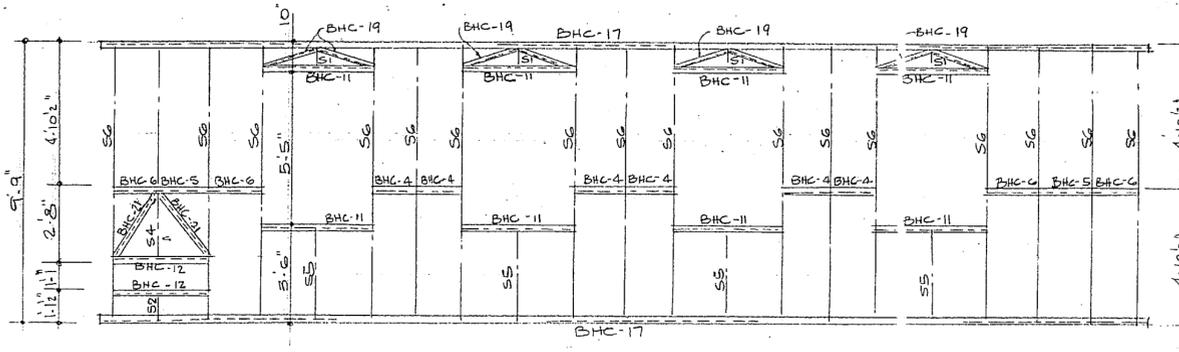
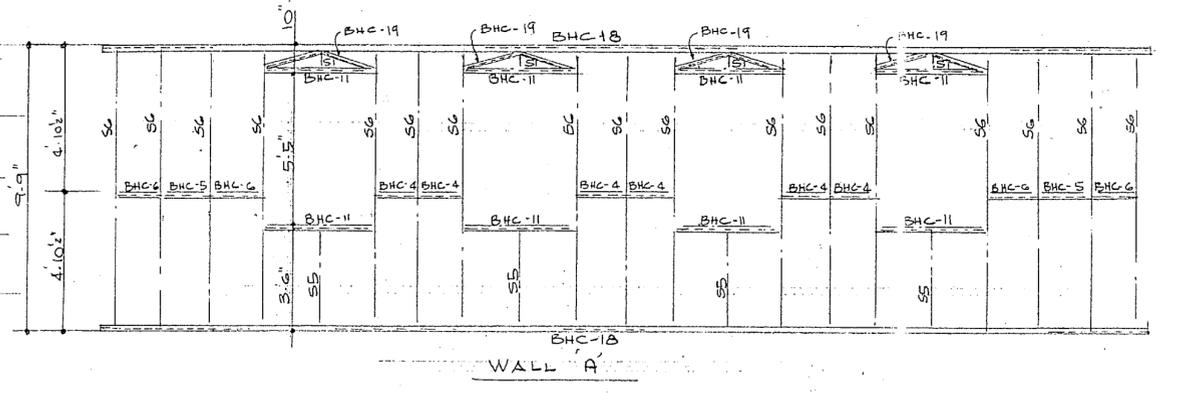
ISSUE	TOTAL REQ'D	MARK	TYPE	SIZE	REMARKS	SHOP DWG REQ'D PER DET	SEC SHT
	1	BHC-1	3 ³ / ₁₆ "-16	0-4 ⁷ / ₈ "	SQUARE CUT CHANNELS		
	1	BHC-2		0-6 ⁷ / ₈ "			
	2	BHC-3		1-0			
	12	BHC-4		1-6 ⁵ / ₈			
	4	BHC-5		1-7 ⁵ / ₈			
	8	BHC-6		1-7 ⁷ / ₈			
	10	BHC-7		1-9			
	2	BHC-8		1-10 ⁴ / ₈			
	7	BHC-9		1-11 ⁷ / ₈			
	1	BHC-10		3-8 ⁵ / ₈			
	16	BHC-11		3-10 ³ / ₈			
	2	BHC-12		3-3 ⁵ / ₈			
	1	BHC-13		5-8			
	2	BHC-14		9-9			
	2	BHC-15		13-4			
	2	BHC-16		22-6			
	2	BHC-17		36-0			
	2	BHC-18	↓	36-0			
	16	BHC-19	2 ¹ / ₂ "-16	2-1		FIELD MITRE	
	2	BHC-20	↓	3-1		↓	
	2	BHC-21	↓	2-11		↓	
	1	C-1	8 ¹ / ₄ C-16	5-8	SP CUT FRAME L		
	2	C-2	↓	9-9	↓		
	2	J-1	10J 14	2-0 ⁷ / ₈	JOISTS		
	2	J-2		2-0 ⁷ / ₈			
	4	J-3		2-4			
	21	J-4		3-8 ⁷ / ₈			
	8	J-5		3-10 ³ / ₈			
	4	J-6		5-0			
	4	J-7		9-0 ⁵ / ₈			
	4	J-8		12-6 ⁵ / ₈			
	15	J-9	↓	25-5 ⁷ / ₈			
	1	J-10	6J 16	5-8			
	8	S-1	3 ⁵ / ₈ " S 14	0-9 ⁷ / ₈	STUDS		
	1	S-2	↓	1-1 ³ / ₈			
	3	S-3	↓	2-4 ⁷ / ₈			
	2	S-4	↓	7-4 ³ / ₄			
	8	S-5	↓	3-5 ⁷ / ₈			
	56	S-6	↓	9-8 ⁷ / ₈ "			
	1	T-1	10 ¹ / ₄ -16	12-2	TRACK		
	1	T-2	↓	12-0			
	1	T-3	↓	25-6			
	2	T-4	↓	39-0			
	24	BC-1	16 16	1-6 ³ / ₄ SPACE	BRIDGING		
	8	BC-2	1 ¹ / ₁₆ "	1-7 ³ / ₄			
	8	BC-3	↓	1-8			
	32	BC-4	↓	1-11 ¹ / ₄			

17

2



FLOOR PLAN 1/4" = 1'-0"



ROOF FRAMING - 1/4" = 1'-0"

NEW PUMP HOUSE & FUEL TANK PIT		
TARAWA TERRACE, CAMP LEJEUNE, N.C.		
FRAMING - ROOF & STUD	SCALE 1/4"	DRAWN BY Brown
INDUSTRIAL CONSTRUCTION Co.		
DATE 12/17/62	APPROVED BY	DRAWING NUMBER F1 06 1

859314

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED:
SUBJECT TO THE REQUIREMENTS OF _____
CONTRACT NO. 46508 SPEC 46508/62
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATED COMPLIANCE WITH SPECIFICATION
REQUIRED. ONLY THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

Date DEC 20 1962 *Wms*
W. C. STURCH
PABT CIG, USN
PABT CIG, USN

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NBV 46508 SPEC 46508/62
APPROVAL OF MATERIALS AND/OR FABRICANT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

Date **FEB 5 1963**

W. C. G. CHURCH
PACM, CEC, USN
[Signature]
BUREAU OF YARDS & DOCKS

DATE TYPED		DATE TYPED	
3080Y-A-0707		3080Y-A-0707	
B-P ORDER NO.		B-P ORDER NO.	
SCHEDULE		SCHEDULE	
DRAWINGS TO CUSTOMER		DRAWINGS TO CUSTOMER	
CUSTOMER APP. DUE		CUSTOMER APP. DUE	
ENG. DATA TO P.C.		ENG. DATA TO P.C.	
SHIPMENT		SHIPMENT	
CHECKS TESTED		CHECKS TESTED	
PLANS OF SPEC. NO.		PLANS OF SPEC. NO.	

8 SETS TO PURCHASER FOR APPROVAL

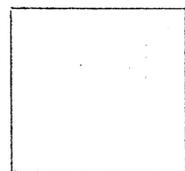
BROWN CONSTRUCTION CO., INC.
 CAN LEJUNE, NORTH CAROLINA

CODE NO.	DESCRIPTION	QUANTITY
----------	-------------	----------

1	Panel 36 in. wide x 84 in. high with 4 1/2 in. turnback complete with wall braces. Constructed of 10 gauge steel FINISH: Dark Plaxtone Gray	1
1	FURNISH, MOUNT AND WIRE THE FOLLOWING: Necessary nameplates w/3/4 in. letters Contactor relays for pump control Two Circuit Alermostor Lights to indicate pump on or off. Alarm horn with manual cut-off switch for indicating a signal failure between the transmitter and receiver used on elevated tank level. Alarm Bell with manual cut-off switch for indicating that all pumps are off.	1
1	MOUNT AND WIRE THE FOLLOWING INSTRUMENTS:- 0232-01 Receiver from order 30805-A 0232-04 Receiver from order 30805-A 0232-04 Receiver from order 30805-A ALSO PROVIDE A CUT OUT FOR THE FIELD MOUNTING OF RECEIVER SERIAL NO. CWR-3232	1
1	TAG: ITEM 19-1 FURNISH THE FOLLOWING CHANGE PARTS FOR TRANS. SERIAL NO. CWR-376 AND RECEIVER SERIAL NO. CWR-3232 120 in. Range Tube Charts reading 0 to 12 with 100 multiplier scale dept. 20 Issue necessary change parts. Bkgr. Ref. Dwg. D-348-22187-2 in file.	1

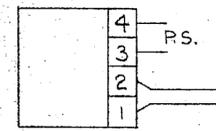
Est. 6252

THIS TERMINAL BLOCK IS LOCATED IN CONTROL PANEL OR ENCLOSURE

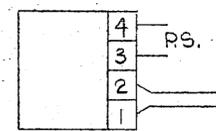


CONTROL PANEL FOR LAYOUT SEE DWG. NO. B-154600

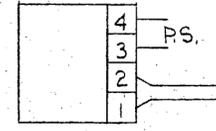
SERVICE WATER FLOW
CTUA-4
SER. NO. 14099
ORD. NO. 30802-A



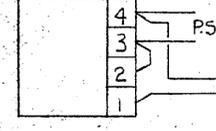
ELEVATED TANK LEVEL
CTT
SER. NO. 14100
ORD. NO. 30803-A



RESERVOIR WATER LEVEL
CTW-1-L
SER. NO. 14101
ORD. NO. 30804-A



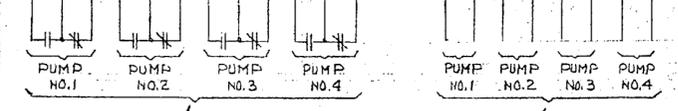
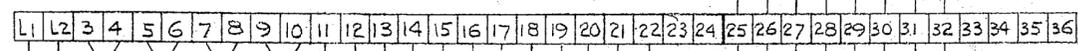
CTUAX (EXISTING)
SER. NO. 4376
ORD. NO. 51176



TRANSMISSION LINE
MAXIMUM ALLOWABLE
LOOP RESISTANCE
IS 2500 OHMS

TRANSMISSION LINE
MAXIMUM ALLOWABLE
LOOP RESISTANCE
IS 2500 OHMS

TRANSMISSION LINE
MAXIMUM ALLOWABLE
LOOP RESISTANCE
IS 1400 OHMS



REPORT BACK CONTACTS FOR PUMPS AS SHOWN ~ NOT BY B.I.F. N.C. CONTACT- PUMP OFF N.O. CONTACT- PUMP ON

CONNECT TO PUMP MOTOR STARTER CIRCUITS FOR PUMPS AS SHOWN ~ CONTACT RATED 10A, 600V. PURCHASER SHOULD CONSULT MOTOR STARTER MANUFACTURER OR AUTHORIZED REPRESENTATIVE FOR DETAILS ON CONNECTING MOTOR STARTERS TO THIS CIRCUIT.

P.S. - POWER SUPPLY, 110-120 VOLTS, 50 CYCLES. THIS SHOULD BE SUPPLIED THROUGH A LIGHTING PANEL OR OTHER DISCONNECTING MEANS. MAXIMUM WATTAGE REQUIRED IS UNDER 100 WATTS. TERMINAL L2 SHOULD BE CONNECTED TO NEUTRAL.

DO NOT SCALE DRAWINGS

MODERN BLUE PRINT CO

F	D	B
E	C	A

BM-B-

UNLESS OTHERWISE SPECIFIED, SHARP EDGES TO BE BROKEN.

FRACTIONAL DIMENSIONS ± .015"

SINGLE DECIMAL ± .005"

REAMED HOLES 1/16" TO 1/4" ± .00025"

REAMED HOLES 1/4" TO 3" ± .00050"

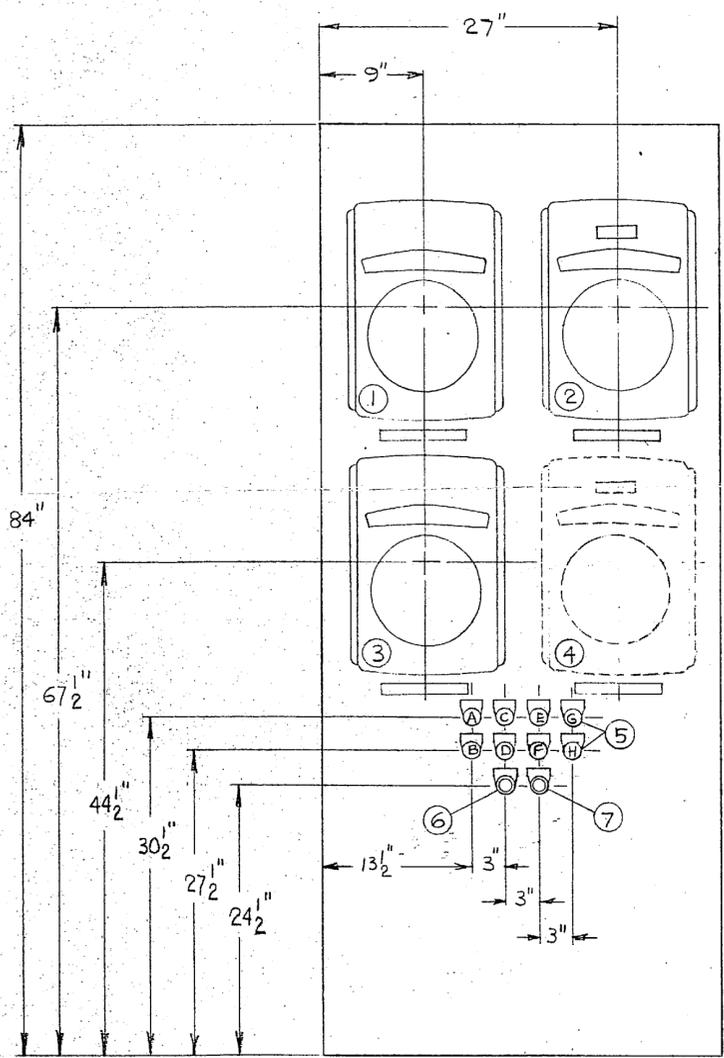
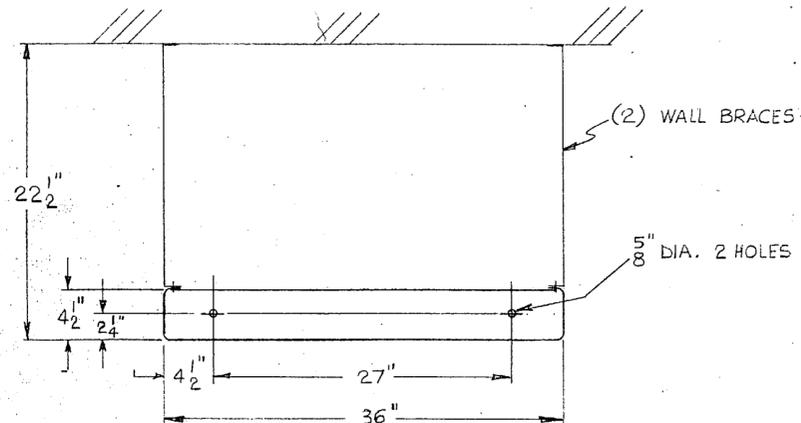
EXTERNAL WIRING DIAGRAM

FOR

CAMP LEJEUNE, NORTH CAROLINA

MAT'L:	DATE 12-19-62	DR. J. DEKKERS
FINISH:	SCALE NONE	CK
NAME:	SUPERSEDES NO.	
MODEL: CHRONOFLO	SUPERSEDED BY NO.	
	NO: B-154603	

L.O. B.M. OR P.L. NO. 30807-A



ITEM	DESCRIPTION AND NAMEPLATE LEGEND	SERIAL NO.	ORDER NO.	CUTOUT	REQUIRED
1	SERIES "B" - IR ELEVATED TANK LEVEL	13632	30806-A	X1	1
2	SERIES "B" - TIR SERVICE WATER FLOW	13630	30805-A	X1	1
3	SERIES "B" - IR RESERVOIR WATER LEVEL	13631	30805-A	X1	1
* 4	CRB- TIR (EXISTING, PROVIDE CUTOUT)	CMR-3235	51-1176	X1	1
5	INDICATING LIGHTS - A, RED LENS PUMP NO.1 ON B, GREEN LENS PUMP NO.1 OFF C, RED LENS PUMP NO.2 ON D, GREEN LENS PUMP NO.2 OFF E, RED LENS PUMP NO.3 ON F, GREEN LENS PUMP NO.3 OFF G, RED LENS PUMP NO.4 ON H, GREEN LENS PUMP NO.5 OFF			X31	1
6	PUSH BUTTON - HORN SILENCER			X31	1
7	PUSH BUTTON - BELL SILENCER			X31	1

* CUSTOMER PLEASE PROVIDE NAMEPLATE LEGEND

DO NOT SCALE DRAWINGS

MODERN BLUE PRINT CO

F	D	B
E	C	A

BM-B
UNLESS OTHERWISE SPECIFIED, SHARP EDGES TO BE BROKEN.
FRACTIONAL DIMENSIONS ± .018"
SINGLE DECIMAL ± .008"
REAMED HOLES 1/16" TO 1/4" ± .00025"
REAMED HOLES 1/4" TO 3" ± .00050"

CONTROL PANEL LAYOUT
FOR
CAMP LEJEUNE, NORTH CAROLINA

MAT'L: #10 GA. (1345) STEEL 401-1302-002	DATE 12-19-62 SCALE 3/32" = 1" CK	L.O. B.M. OR P.L. NO. 30807-A
FINISH: DARK PLEXTONE GREY 123-110	SUPERSEDES NO.	
NAME:	SUPERSEDED BY NO.	
MODEL: CHRONOFLO	NO: B-154600	



CUSTOMER **BROWN CONSTRUCTION CO., INC.**
 P. O. NO. **9-1**
 JOB **CAM LEJEUNE, NORTH CAROLINA**

INSTRUCTION MANUALS: **5 WITH SHIPMENT**

DRAWINGS: **8 SETS TO PURCHASER FOR APPROVAL**

B-I-F ORDER NO. 30807-A-0707	
	SCHEDULE
R	DRAWINGS TO CUSTOMER 12/21
X	NR CUSTOMER APP. DUE 1/11
X	Y ENG. DATA TO P.C.
P	SHIPMENT 14 wks. AA-00
G	CALCS REQ'D? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
PLANS OR SPECS. NO. 1863	

QUAN.	DESCRIPTION	CODE NO.
-------	-------------	----------

QUAN.	DESCRIPTION	CODE NO.
	TAG: ITEM 19.6	
1	Panel 36 in. wide x 84 in. high with 4 1/2 in. turnback complete with wall braces. Constructed of 10 gauge steel FINISH: Dark Plextone Gray	EST. 62529
	FURNISH, MOUNT AND WIRE THE FOLLOWING:	
1	Necessary nameplates w/3/4 in. litters	
4	Contactor relays for pump control	
1	Two-Circuit Alternator	
8	Lights to indicate pump on or off.	
1	Alarm horn with manual cut-off switch for indicating a signal failure between the transmitter and receiver used on elevated tank level.	
1	Alarm Bell with manual cut-off switch for indicating that all pumps are off.	
	MOUNT, AND WIRE THE FOLLOWING INSTRUMENTS:-	
1	0232-01 Receiver from order 30805-A	
1	0232-04, Receiver from order 20805-A	
1	0235-04, Receiver from order 30806-A	
	ALSO PROVIDE A CUT OUT FOR THE FIELD MOUNTING OF RECEIVER SERIAL NO. CMR-3235	
	TAG: ITEM 19.5-1	
	FURNISH THE FOLLOWING CHANGE PARTS FOR TRANS. SERIAL NO. CTM-4376 AND RECEIVER SERIAL NO. CMR-3235	
1	120 in. Range Tube	
300	Charts reading 0 to 12 with 100 multiplier calc dept. to issue necessary change parts.	
	Engr. Ref. Dwg. D-342-22187-2 in file.	

859314

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
 NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NBv 46508 SPEC 46508/62

APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATES COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY — THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICAL DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

W. C. G. CHURCH
 RADM CEC, USN
 PLANTDOCKS

Date **JAN 7 1963** *SPM*

CUSTOMER
BROWN CONSTRUCTION CO., INC.
P.O. NO. 9-1
CAM LALEUNE, NORTH CAROLINA

30807-A-0707
B-I-R ORDER NO.

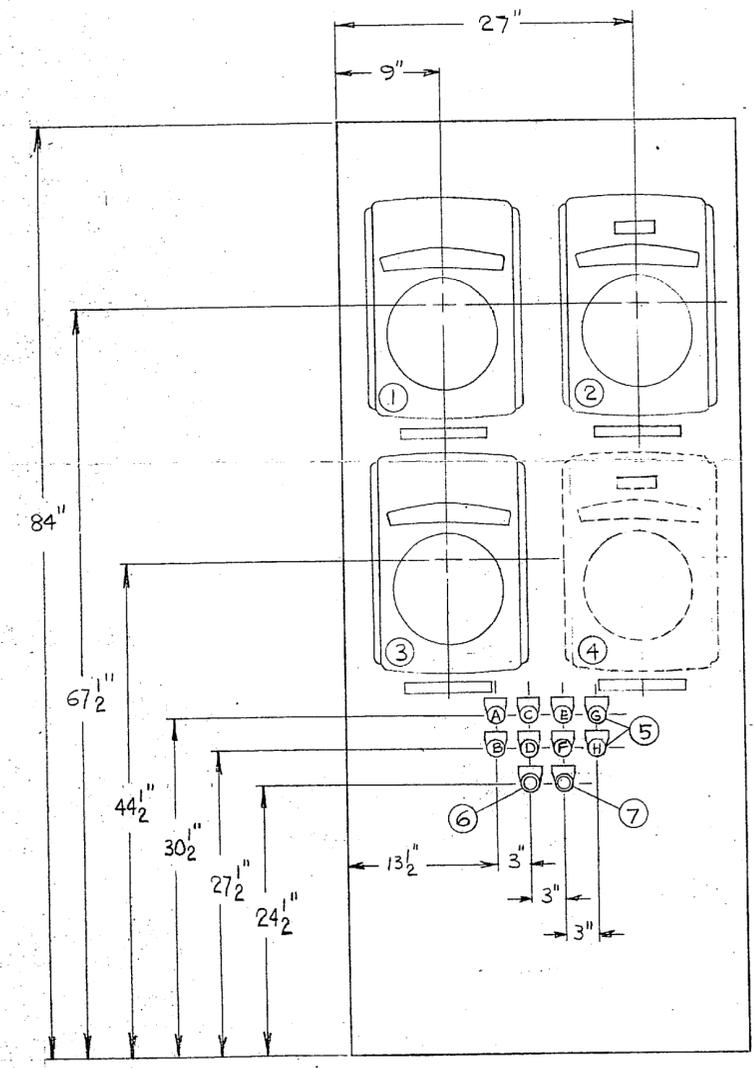
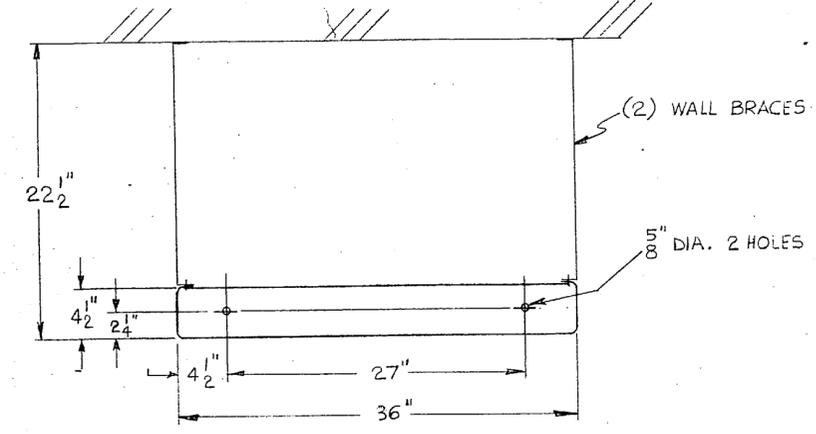
INSTRUCTION MANUALS
DRAWINGS
8 SETS TO PURCHASER FOR APPROVAL
5 WITH SHIPMENT

1863
PLANS OR SPEC. NO.

DATE	12/11
SCHEDULE	12/11
R DRAWINGS TO CUSTOMER	X
MR CUSTOMER REV. DUE	X
Y ENCL. DATA TO P.C.	X
P SHIPMENT	X
G CALLS MADE	X
AA-00	

QUANTITY	DESCRIPTION	CODE NO.
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1	<p>Panel 36 in. wide x 84 in. high with 1/2 in. turnback complete with wall braces. Constructed of 10 gauge steel</p> <p>FINISH: Dark Plexstone Gray</p> <p>TAG: ITEM 19-6</p>	EST. 6550
1	<p>ALARM BELL WITH MANUAL OUT-OFF SWITCH FOR INDICATING THAT ALL PUMPS ARE OFF.</p> <p>ALARM BELL WITH MANUAL OUT-OFF SWITCH FOR INDICATING A SIGNAL FAILURE BETWEEN THE TRANSMITTER AND RECEIVER USED ON ELEVATED TANK LEVEL.</p> <p>ALARM HORN WITH MANUAL OUT-OFF SWITCH FOR INDICATING LIGHTS TO INDICATE PUMP ON OR OFF.</p> <p>TWO-CIRCUIT ALTERNATOR</p> <p>CONDENSER RELAYS FOR PUMP CONTROL</p> <p>NECESSARY REMEDIATES W/3/4 in. letters</p> <p>FURNISH, MOUNT AND WIRE THE FOLLOWING:</p>	
1	<p>0232-01 Receiver from order 30807-A</p> <p>0232-02 Receiver from order 30807-A</p> <p>0232-04 Receiver from order 30807-A</p> <p>ALSO PROVIDE A CUT OUT FOR THE FIELD MOUNTING OF RECEIVER SERIAL NO. GMR-3232</p> <p>MOUNT AND WIRE THE FOLLOWING INSTRUMENTS:-</p>	
1	<p>Backr. Ref. Dwg. D-342-22187-2 in file.</p> <p>Issue necessary change parts.</p> <p>Charge reading 0 to 12 with 100 multiplier scale dept. to 150 in. range tube</p> <p>OTM-4376 AND RECEIVER SERIAL NO. GMR-3232</p> <p>FURNISH THE FOLLOWING CHARGE PARTS FOR TRANS. SERIAL NO. TAG: ITEM 19-5-1</p>	



ITEM	DESCRIPTION AND NAMEPLATE LEGEND	SERIAL NO.	ORDER NO.	CUTOUT	REQUIRED
1	SERIES "B" - IR ELEVATED TANK LEVEL	13632	30806-A	X1	1
2	SERIES "B" - TIR SERVICE WATER FLOW	13630	30805-A	X1	1
3	SERIES "B" - IR RESERVOIR WATER LEVEL	13631	30805-A	X1	1
* 4	CRB- TIR (EXISTING, PROVIDE CUTOUT)	CMR-3235	51-1176	X1	1
5	INDICATING LIGHTS - A, RED LENS PUMP NO.1 ON			X31	1
	B, GREEN LENS PUMP NO.1 OFF			X31	1
	C, RED LENS PUMP NO.2 ON			X31	1
	D, GREEN LENS PUMP NO.2 OFF			X31	1
	E, RED LENS PUMP NO.3 ON			X31	1
	F, GREEN LENS PUMP NO.3 OFF			X31	1
	G, RED LENS PUMP NO.4 ON			X31	1
	H, GREEN LENS PUMP NO.5 OFF			X31	1
6	PUSH BUTTON - HORN SILENCER			X31	1
7	PUSH BUTTON - BELL SILENCER			X31	1

* CUSTOMER PLEASE PROVIDE NAME PLATE LEGEND

ATLANTIC DIVISION, BUREAU OF VEES & DUCKS
 NORFOLK, VA.

APPROVED:
 SUBJECT TO THE REQUIREMENTS OF
 CONTRACT NO. 465 of SPPG 46508/62
 APPROVAL OF THE BUREAU OF VEES & DUCKS EQUIPMENT
 DEPARTMENT OF THE ARMY - WITH CONTRACTOR
 REPRESENTATIVE ON SITE FOR PROVIDING
 PROPER PARTS, DIMENSIONS & WEIGHTS
 COORDINATION OF TRADES, ETC., AS REQUIRED
 W. C. G. COMPANY
 P. O. BOX 100
 RALEIGH, N. C.

JAN 7 1963

DO NOT SCALE DRAWINGS

MODERN BLUE PRINT CO

BM-B-

UNLESS OTHERWISE SPECIFIED, SHARP EDGES TO BE BROKEN.

FRACTIONAL DIMENSIONS ± .015"

SINGLE DECIMAL ± .008"

REAMED HOLES 1/16" TO 1/4" ± .0008"

REAMED HOLES 1/4" TO 3" ± .00050"

CONTROL PANEL LAYOUT
 FOR
 CAMP LEJEUNE, NORTH CAROLINA

MATL: #10 GA. (1345) STEEL 401-1302-002	DATE 12-19-62	DR. DEKKERS
FINISH: DARK PLEXTONE GREY 123-110	SCALE 3/32" = 1"	CK
NAME:	SUPERSEDES NO.	
MODEL: CHRONOFLO	SUPERSEDED BY NO.	
	NO: B-154600	

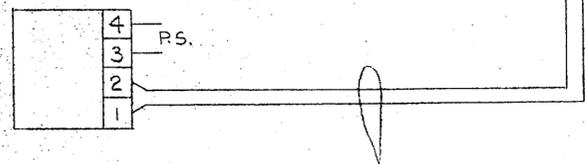
L.O., B.M. OR P.L. NO. 30807-A



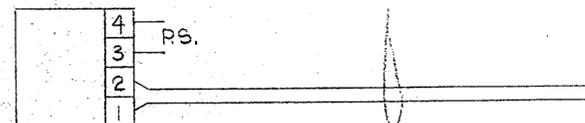
THIS TERMINAL BLOCK IS LOCATED IN CONTROL PANEL OR ENCLOSURE

CONTROL PANEL FOR LAYOUT SEE DWG. NO. B-154600

SERVICE WATER FLOW
CTUA-4
SER. NO. 14099
ORD. NO. 30802-A

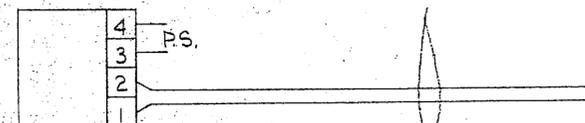


ELEVATED TANK LEVEL
CIT
SER. NO. 14100
ORD. NO. 30803-A



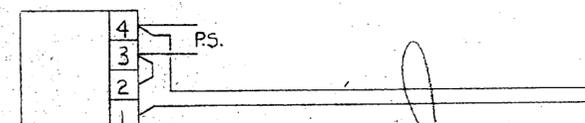
TRANSMISSION LINE
MAXIMUM ALLOWABLE
LOOP RESISTANCE
IS 2500 OHMS

RESERVOIR WATER LEVEL
CTW-1-L
SER. NO. 14101
ORD. NO. 30804-A

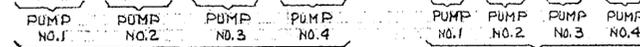
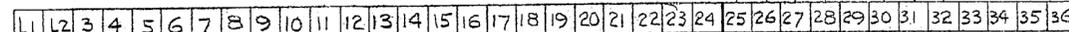


TRANSMISSION LINE
MAXIMUM ALLOWABLE
LOOP RESISTANCE
IS 2500 OHMS

CTUAX (EXISTING)
SER. NO. 4376
ORD. NO. 51-1176



TRANSMISSION LINE
MAXIMUM ALLOWABLE
LOOP RESISTANCE
IS 1400 OHMS



CONNECT TO PUMP MOTOR STARTER CIRCUITS FOR PUMPS AS SHOWN ~ CONTACT RATED 10A, 600V.

PURCHASER SHOULD CONSULT MOTOR STARTER MANUFACTURER OR AUTHORIZED REPRESENTATIVE FOR DETAILS ON CONNECTING MOTOR STARTERS TO THIS CIRCUIT.

REPORT BACK CONTACTS FOR PUMPS AS SHOWN ~ NOT BY B.I.F. N.C. CONTACT - PUMP OFF N.O. CONTACT - PUMP ON

P.S. = POWER SUPPLY, 110-120 VOLTS, 50 CYCLES. THIS SHOULD BE SUPPLIED THROUGH A SWITCHING PANEL OR OTHER DISCONNECTING MEANS. MAXIMUM WATTAGE REQUIRED IS UNDER 100 WATTS. TERMINAL L2 SHOULD BE CONNECTED TO NEUTRAL.

DO NOT SCALE DRAWINGS

MODERN BLUE PRINT CO

L.O., B.M. OR P.L. NO. 30807-A

BM-B-

UNLESS OTHERWISE SPECIFIED, SHARP EDGES TO BE BROKEN.
FRACTIONAL DIMENSIONS ± .015"
SINGLE DECIMAL ± .008"
REAMED HOLES 1/16" TO 1/4" ± .0008"
REAMED HOLES 1/4" TO 3" ± .0008"

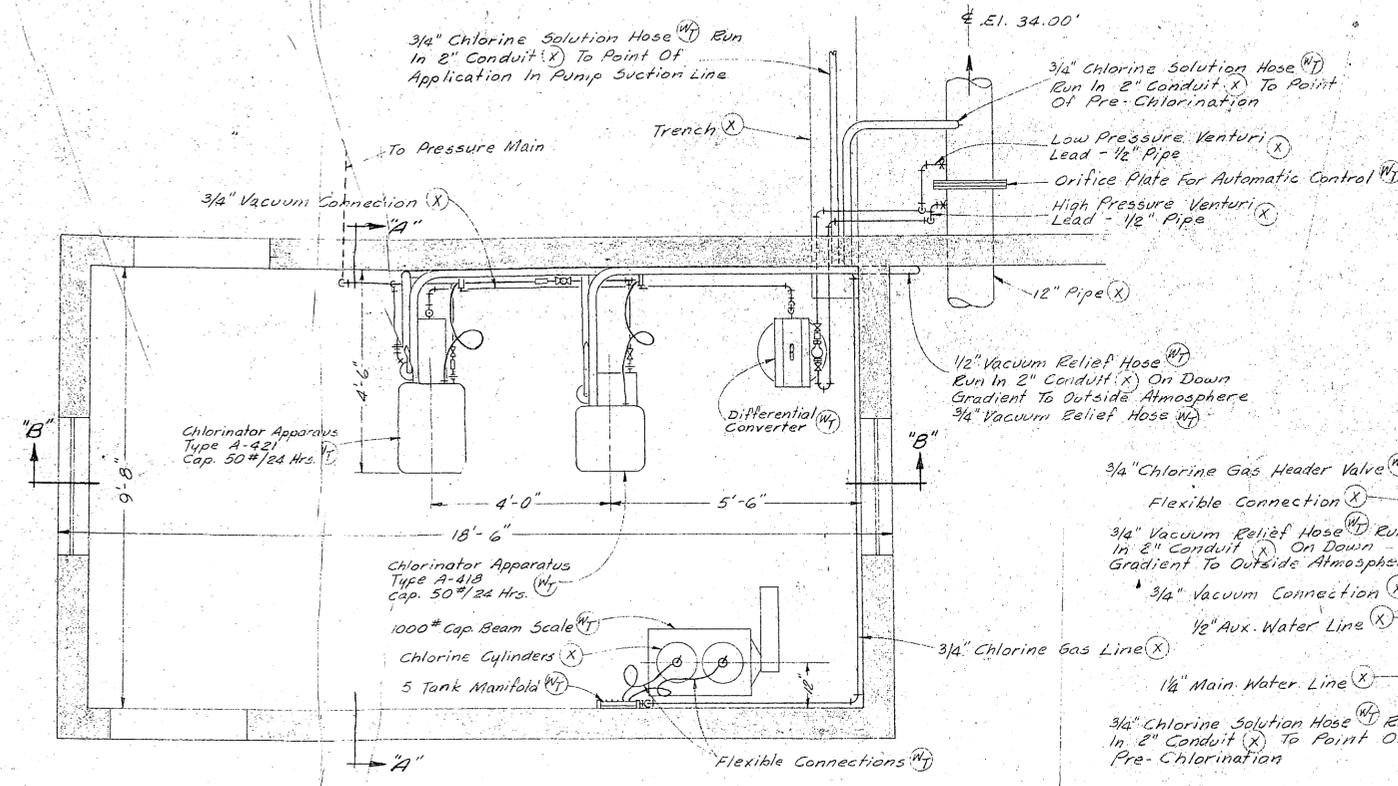
EXTERNAL WIRING DIAGRAM
FOR
CAMP LEJEUNE, NORTH CAROLINA

MAT'L:	DATE 12-19-62 DRJ:DEKKERS
FINISH:	SCALE NONE CK
NAME:	SUPERSEDES NO.
MODEL: CHRONOFLO	SUPERSEDED BY NO.
	NO: B-154603
	BIF Industries

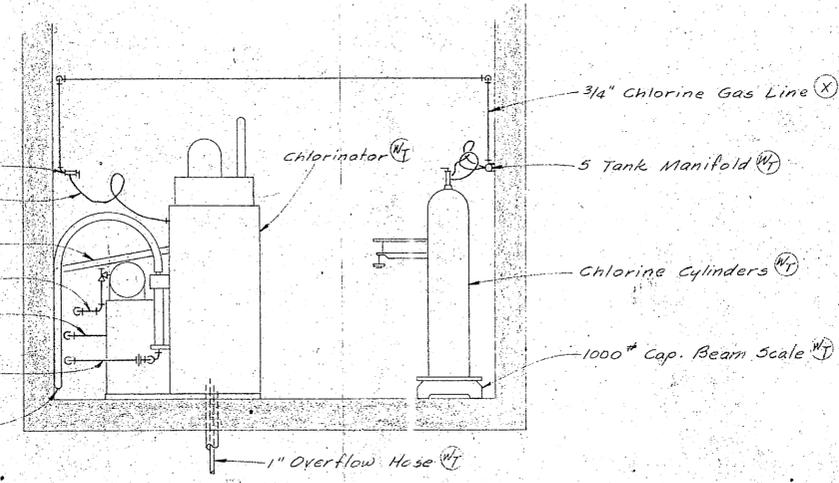
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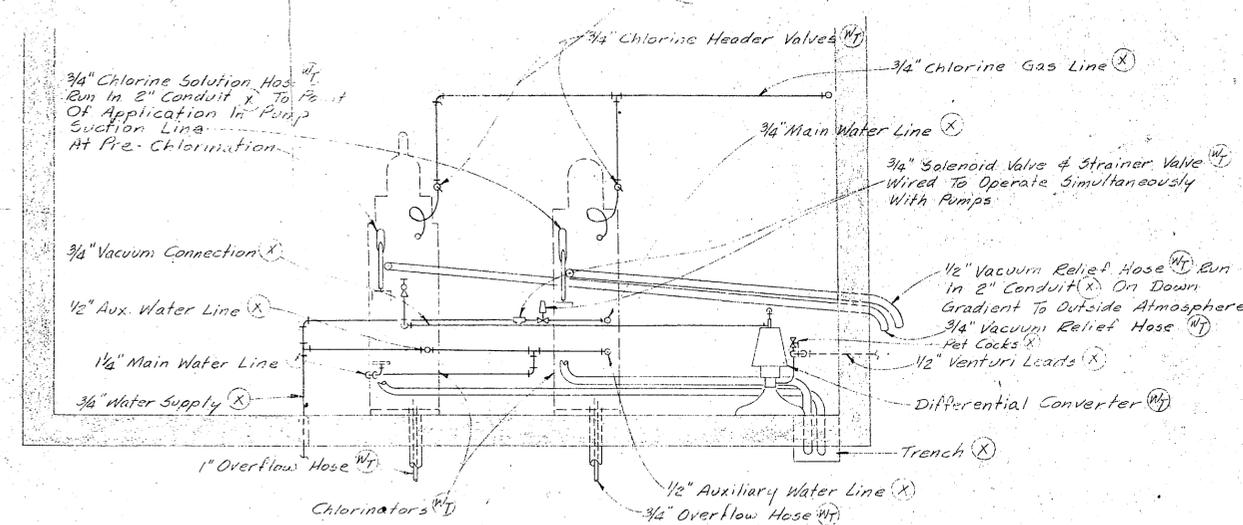
REFERENCE DRAWINGS	
Chlorinator A-418	9082
Chlorinator A-421	9087
Differential Converter	W302-28-6-1
Beam Scale	9040



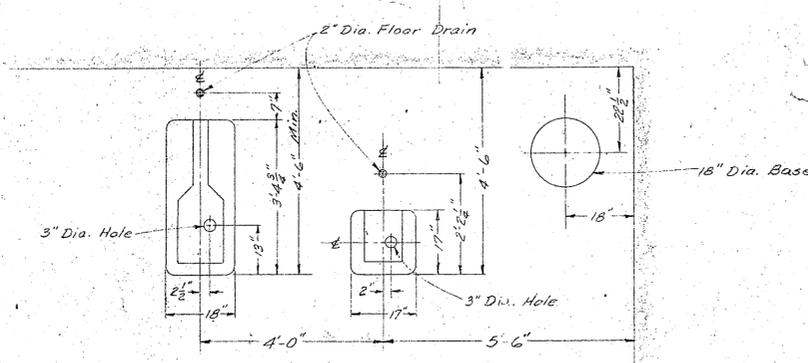
PLAN VIEW



SECTION "A-A"



SECTION "B-B"



FLOOR PLAN

(WT) INDICATES MATERIALS FURNISHED BY W. & T. CO., INC.
 (X) INDICATES MATERIALS FURNISHED BY OTHERS

INSTALLATION LAYOUT
 WATER TREATMENT PLANT
 TARAWA TERRACE HOUSING PROJECT
 U. S. NAVY
 CAMP LEJEUNE, N. C.

WALLACE & TIERNAN CO. INC.
 NEWARK, N. J.

DRN 100 500 HOS	CHECKED	SHEET 1
DATE 10-16-52		OF
SCALE 1/2" = 1'-0"		

APP'D *[Signature]* Chief Engineer

DWG. No: 2540913

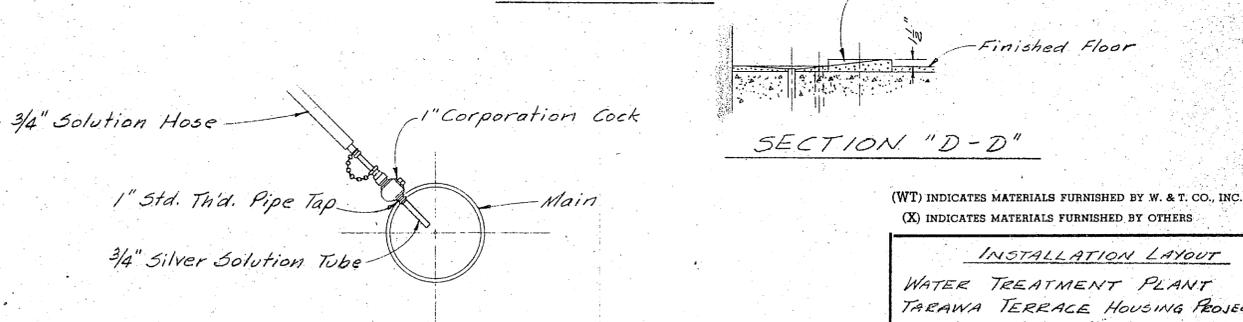
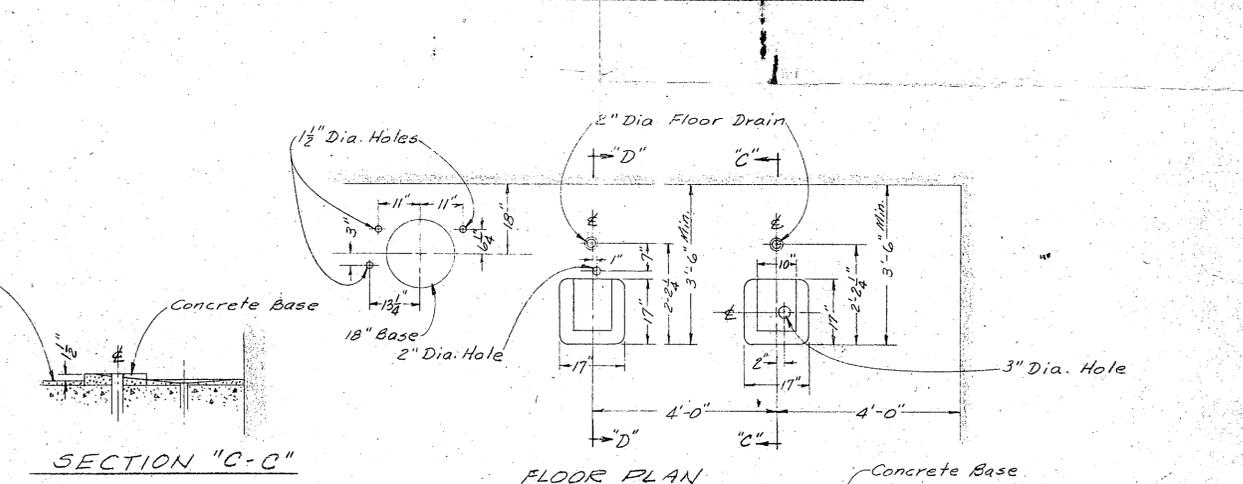
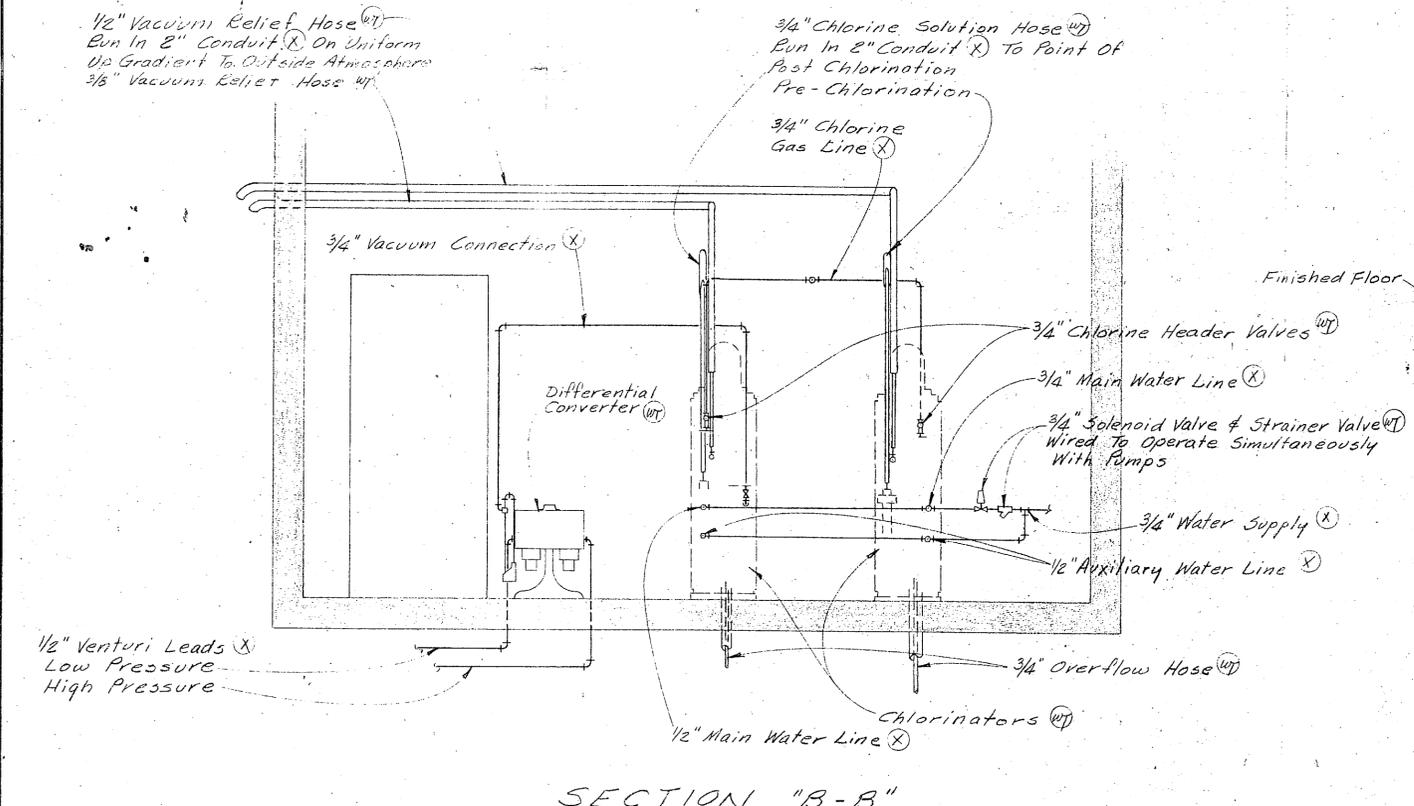
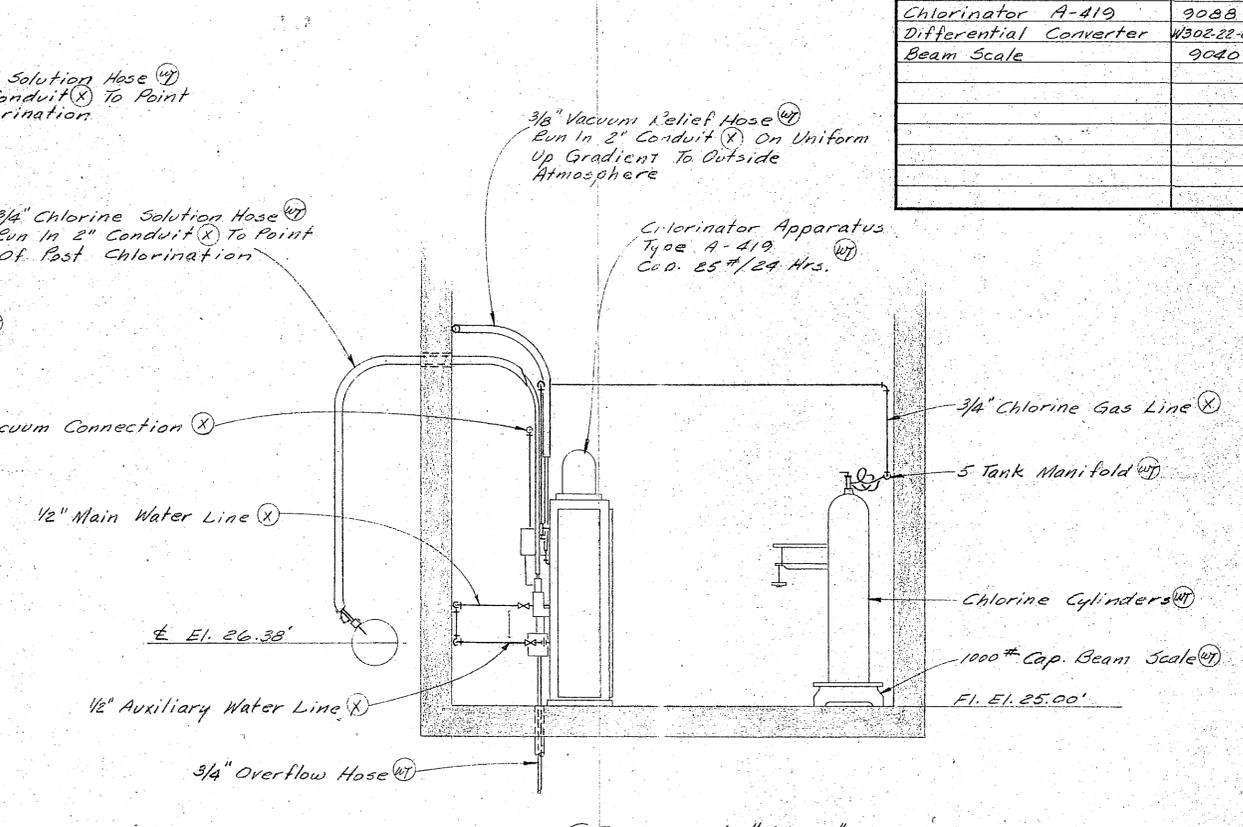
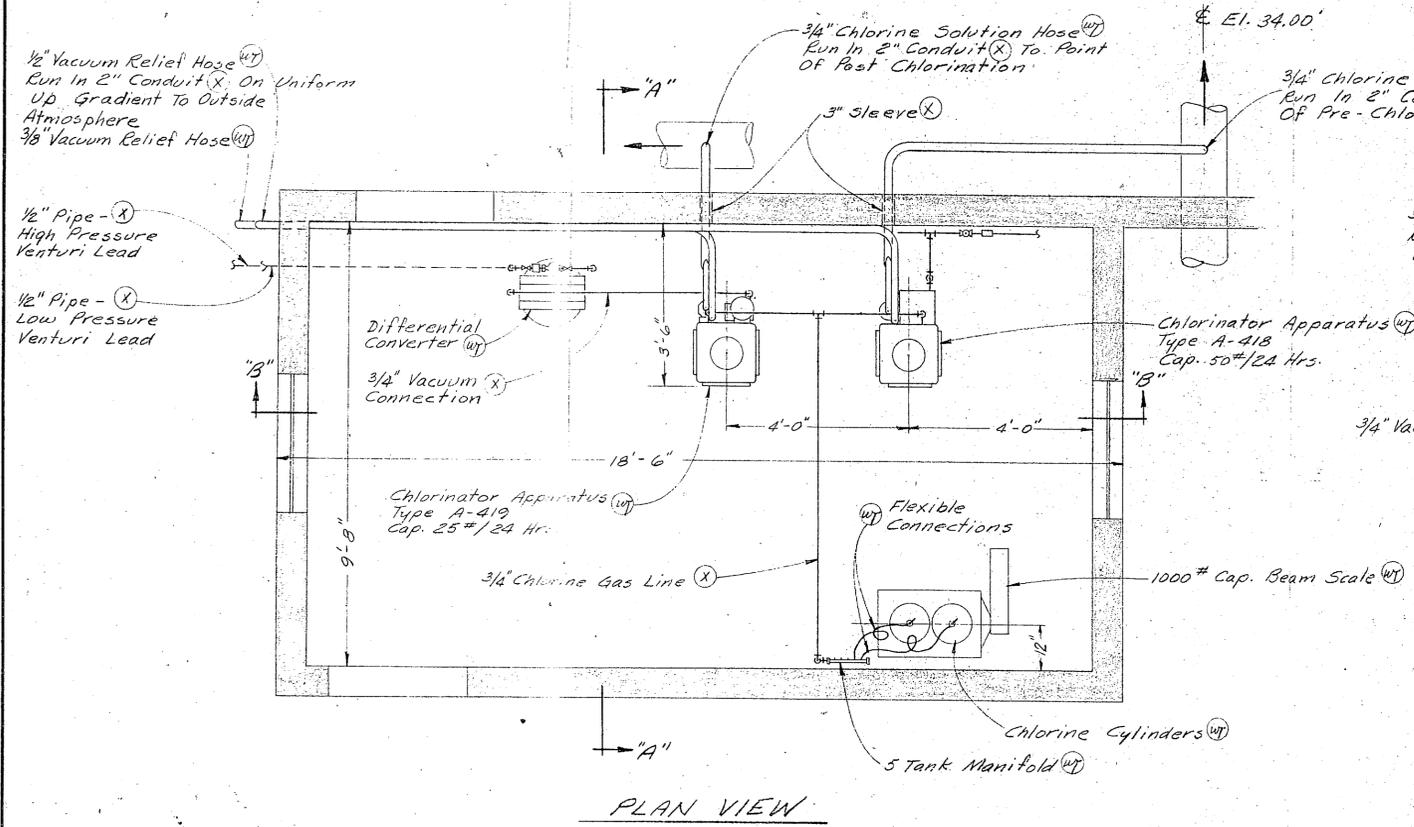
DATE	REVISION	BY	CHKD
A 10-16-52	REDRAWN	154	
B 1-22-53	Changed Water Lines	154	

TT-38

CHLORINATOR

REFERENCE DRAWINGS	
Chlorinator A-418	9082
Chlorinator A-419	9088
Differential Converter W302-22-41	
Beam Scale	9040

8



(WT) INDICATES MATERIALS FURNISHED BY W. & T. CO., INC.
(X) INDICATES MATERIALS FURNISHED BY OTHERS

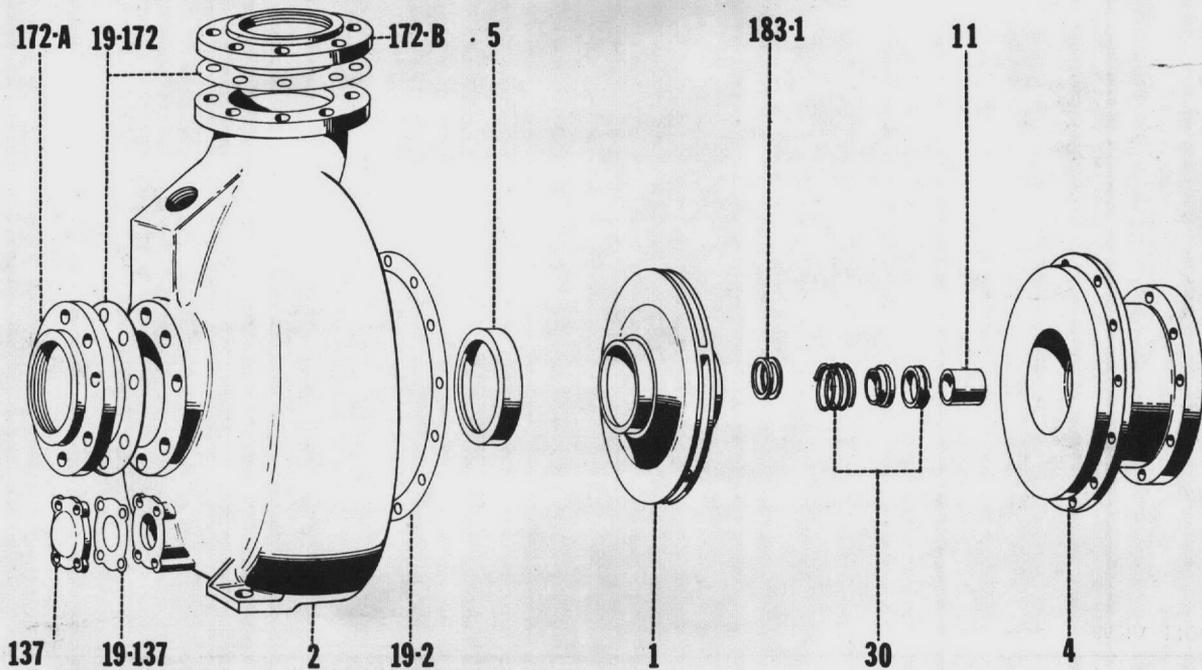
INSTALLATION LAYOUT
WATER TREATMENT PLANT
TARAWA TERRACE HOUSING PROJECT
 U. S. NAVY
 CAMP LEJUNE, N. C.
WALLACE & TIERNAN CO. INC.
 NEWARK, N. J.

DRN/da/Soo/Hoo
 DATE 4-7-52
 SCALE 1/2" = 1'-0"

APP'D: _____
 Chief Engineer
 DWG. No. 2540913

DATE	REVISION	BY	CHKD
A 4-7-52	REDEAW	1/31/52	SN

APR 14 8 42 AM '52
INFILCO-TUCSON



EXPLODED VIEW

IDENT. NO.	PART NAME	COMMON PART NUMBER	INDIVIDUAL PART NUMBER FOR THESE MODELS
			04A3-VG4D-X
1	IMPELLER		3762-E
2	VOLUTE		4634-E
4	INTERMEDIATE		3768
5	WEAR RING		3765-A
11	SLEEVE		3428-D
19-2	GASKET		3768GB
19-137	GASKET		4635GA
19-172	GASKET		5372-G
30	SEAL ASSY.		S-1150
91	BASE		8027-A
137	COVER PLATE		4635
172 A&B	FLANGE		9586
183-1	ADJUSTING SHIMS		37J

FUEL TANK ASSEMBLY
 S-992 . . . FUEL TANK
 6353 . . . STRAP
 9490 . . . FELT STRIP
 9490D . . . FELT STRIP

MUFFLER ASSEMBLY
 S-1243-A . . . MUFFLER
 S-933 . . . CLAMP
 S-1246 . . . WEATHER CAP

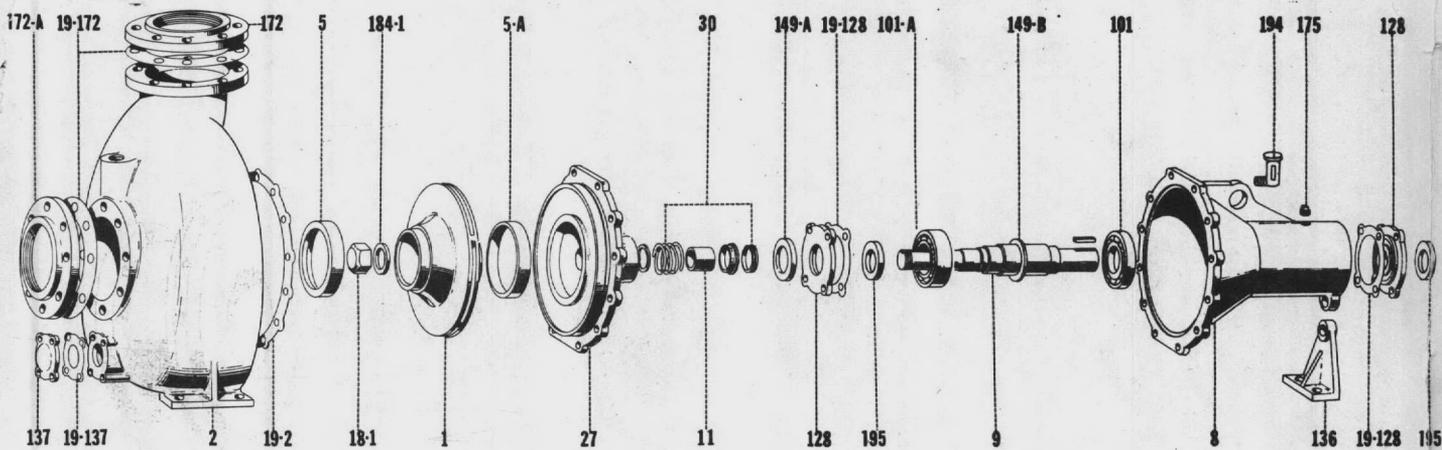
OPTIONAL EQUIPMENT
 *30-8A . . . HI-SPEED TRUCK

*SEE ACCESSORY LIST.

*500 g.p.m.
 supposed to be 700 g.p.m.*

*Per W.R. Price
 4-15-85
 M*

SM-290-0



EXPLODED VIEW

77-38

SEE DIVIDUAL PART NUMBER FOR THESE MODELS

IDENT. NO.	PART NAME	COMMON PART NUMBER	04B1-B 04B3-B	06B1-B 06B3-B
	<i>Serial#</i>	<i>616890</i>		
1	IMPELLER		4803-D	5401-C
2	VOLUTE		4820-C	5400-A
5	WEAR RING		3765-A	5404
5-A	WEAR RING		6902	5404-A
8	PEDESTAL	5402	5402	5402
9	SHAFT-IMPELLER		5789	5791
11	SHAFT SLEEVE	5827	5827	5827
18-1	NUT		B-1005-S	5667
19-2	GASKET	4820-G	4820-G	4820-G
19-128	GASKET	5413-G	5413-G	5413-G
19-137	GASKET	4822-G	4822-G	4822-G
19-172	GASKET		1676-G	1679-G
27	SEAL PLATE	5792	5792	5792
30	SEAL COMPLETE	S-1150	S-1150	S-1150
101	BALL BEARING	S-616	S-616	S-616
101-A	BALL BEARING	S-1032	S-1032	S-1032
128	BEARING CAP		5413	5413-A
136	PEDESTAL FOOT	5801	5801	5801
137	COVER PLATE	4822	4822	4822
149-A	THROW-OFF RING	2352	2352	2352
149-B	SLINGER RING	5325	5325	5325
172	SUCTION FLANGE		1756	1758
172	DISCHARGE FLANGE		1756	1758
175	PIPE PLUG-VENTED	4823	4823	4823
184-1	WASHER-IMPELLER		5718	S-302
194	OIL LEVEL GAUGE	S-618	S-618	S-618
	IMPELLER ADJUST- ING SHIMS		37-J	

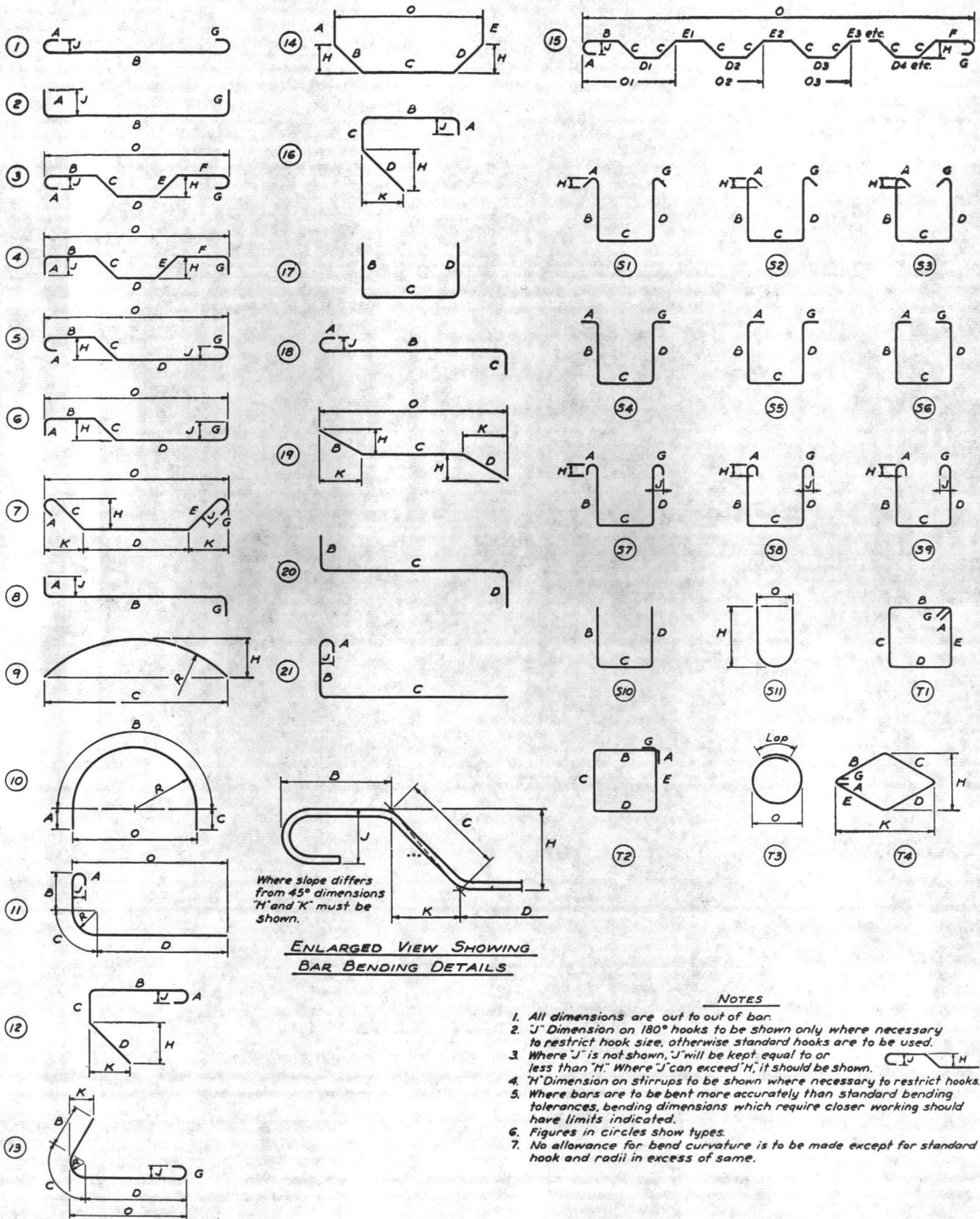
IMPORTANT: When ordering Pump Parts, be sure to provide PUMP SERIAL NUMBER taken from the name plate on the pump. We cannot be held responsible for proper filling of Repair Orders without this serial number.

SM-300-0

GORMAN-RUPP • Mansfield, Ohio • St. Thomas, Ontario

Printed in U. S. A.

Typical bar bends

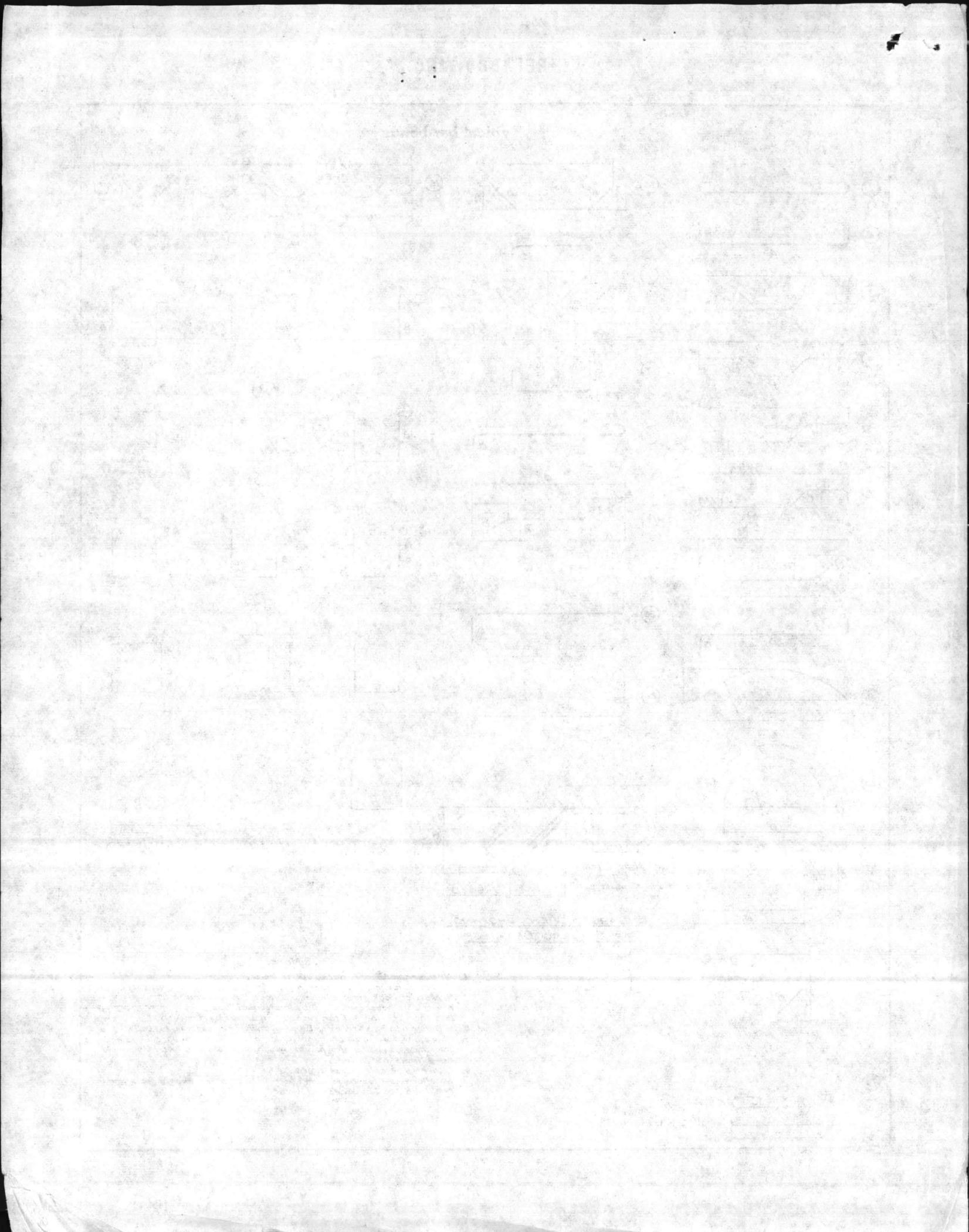


Where slope differs from 45° dimensions "H" and "K" must be shown.

ENLARGED VIEW SHOWING BAR BENDING DETAILS

NOTES

1. All dimensions are out to out of bar.
2. "J" Dimension on 180° hooks to be shown only where necessary to restrict hook size, otherwise standard hooks are to be used.
3. Where "J" is not shown, "J" will be kept equal to or less than "H." Where "J" can exceed "H," it should be shown.
4. "H" Dimension on stirrups to be shown where necessary to restrict hooks.
5. Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer working should have limits indicated.
6. Figures in circles show types.
7. No allowance for bend curvature is to be made except for standard hook and radii in excess of same.



REFABCO, INC.
CHARLOTTE, N. C.

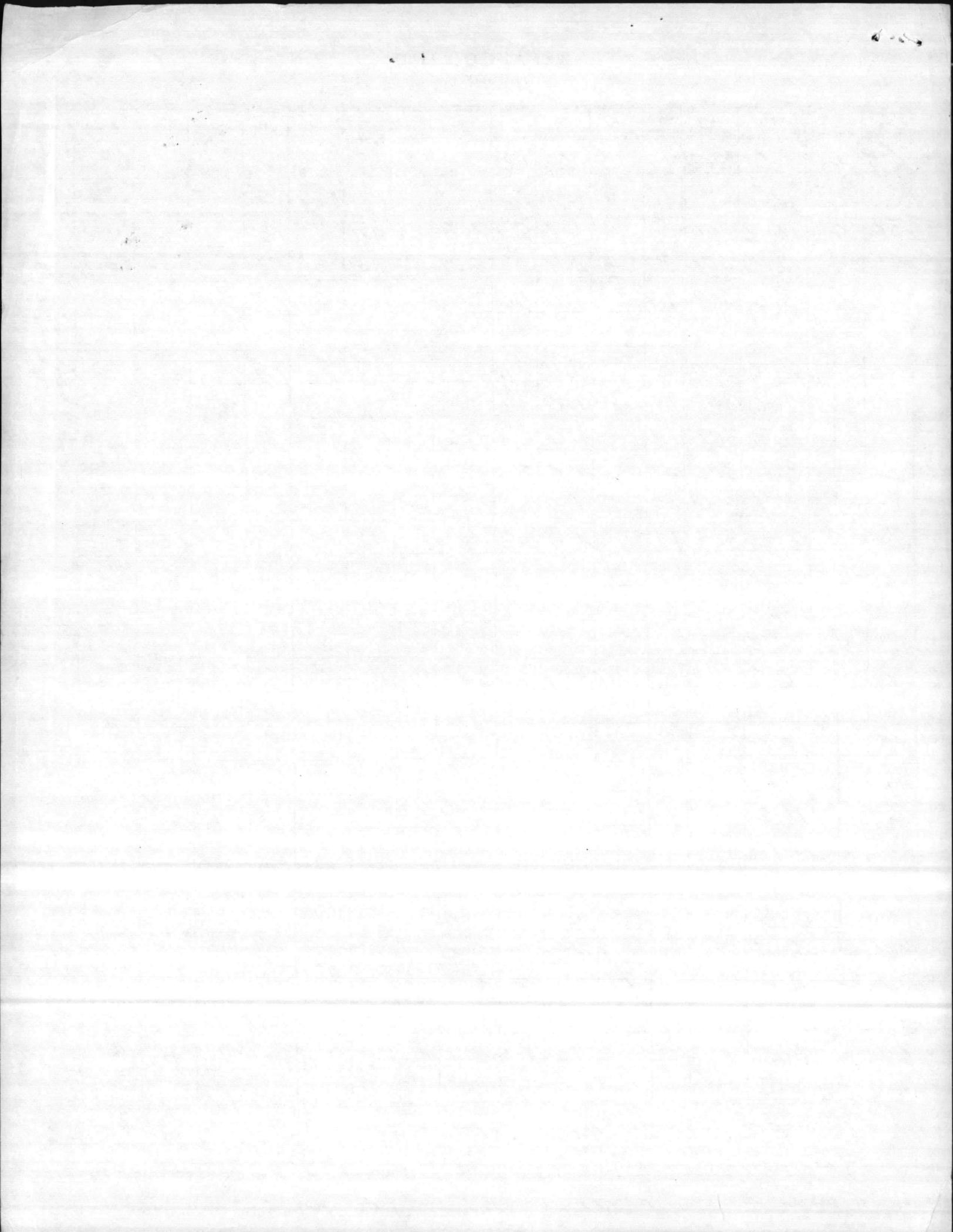
REF 107

ITEM	NO. PCS.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	O	WEIGHTS
1	48	6	1-6	600	17		6	1-0									
2																	
3	30	4	10-2	400	3		1-4	2 1/2	3.8	2 1/2	4-9		2				10-0
4	45	4	12-6	401	3		4-9	2 1/2	2-7	2 1/2	4-9		2				12-4
5	32	4	3-0	402	17		1-6	1-6									
6																	
7	6	3	6-10	300	3		3-11	2-11					1-9				
8	12	↑	4-2	301	17		1-0	3-2									
9	3	↑	8-3	302	17		1-6	5-3	1-6								
10	2	↓	3-5	303	17		1-0	2-5									
11	2	↓	2-9	304	17		1-0	1-9									
12	2	3	2-2	305	17		1-0	1-2									
13																	
14		STR															
15	4	4	24-0														
16	7	↑	20-2														
17	16	↑	12-8														
18	15	↑	10-0														
19	21	↑	9-2														
20	2	↑	8-6														
21	40	↑	7-10														
22	30	↑	7-6														
23	16	↑	6-8														
24	30	↓	6-4				8	3	5-4								
25	32	4	4-6				2	3	4-4								
26																	
27	24	3	22-2				750 SQ. FT. 6x6-6/6 MESH (1 ROLL)										
28	4	3	6-2														

STRUCTURE WATER SUPPLY IMPROVEMENTS SHIP DATE 12-28-62

SHIP TO BROWN CONST. CO. ROUTE _____ CONT. NO. BJ-8765

ADDRESS CAMP LEJEUNE, N.C. MADE BY M.C. SHEET NO. 1 OF _____



ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
MORFOLA 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NBY 46508 SPEC 46508/62

APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY. THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

Date FFR 5 1963

W. C. G. CHURCH
P. M. CEC, USN
BUREAU OF YARDS & DOCKS

NO. NO. 5486 5/4" A-24007 STANDARD FIRE HYDRANT WITH TWO HOSE OUTLETS & ONE PUMPER OUTLET

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS, NORFOLK 11, VA.

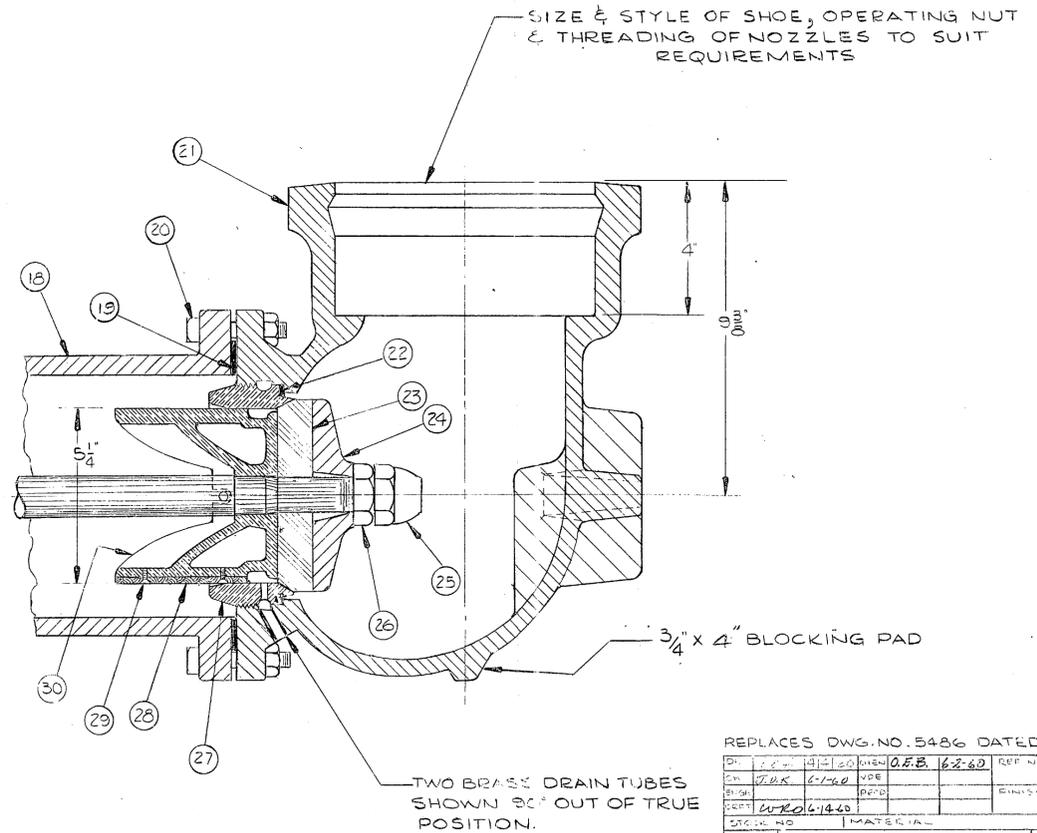
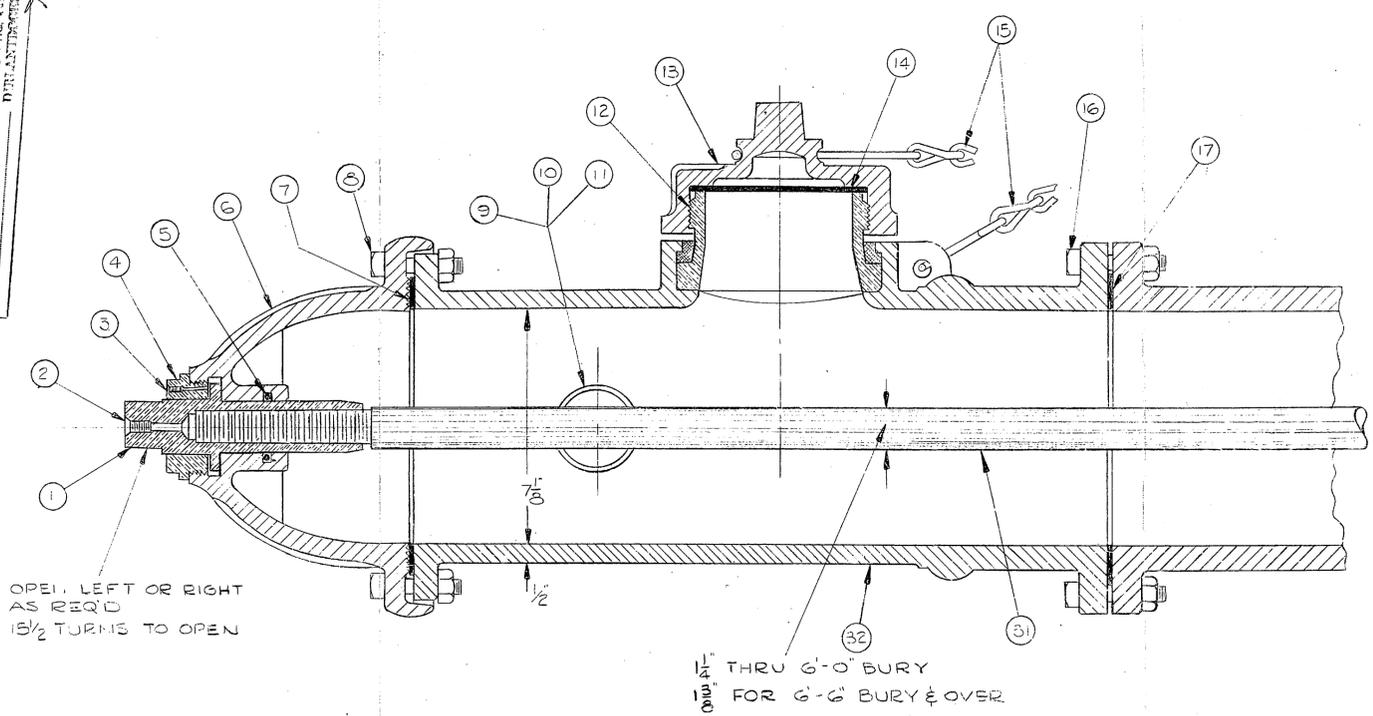
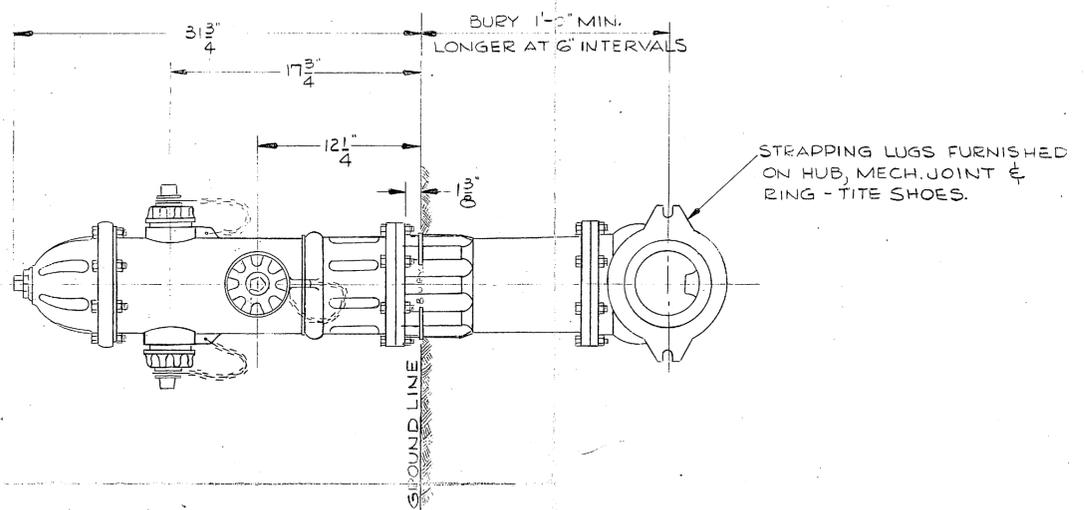
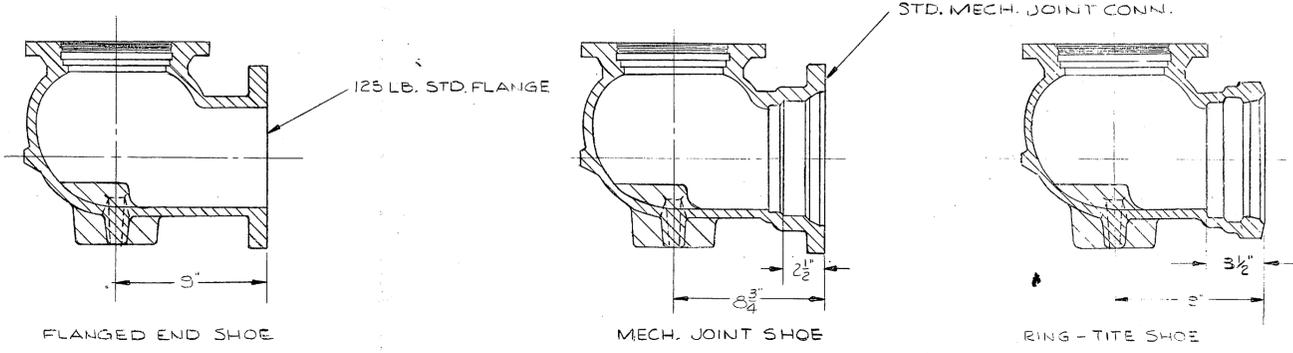
APPROVED:

SUBJECT TO THE REQUIREMENTS OF CONTRACT NO. 4650 SPEC 465062 APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATES COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICAL DIMENSIONS & WEIGHTS. COORDINATION OF TRADES, ETC., AS REQUIRED.

W. C. CUNY
FADA CH. ENGR
DURHAM, N.C.

MAR 14 1963

Date



PARTS LIST				
ITEM	DESCRIPTION	QTY	MATERIAL	ASTM
1	OPERATING NUT	1	BRONZE	B62
2	OIL SCREW	1	BRASS	
3	OIL SCREW	1	BRASS	
4	HOLD DOWN NUT	1	BRONZE	B62
5	O-RING PACKING	1	RUBBER	BUNA N
6	BONNET	1	CAST IRON	A126 CLASS B
7	BONNET GASKET	1	RUBBER	CLOTH INSERTED
8	BONNET BOLT	6	STEEL	A307 GR B PLATED
9	HOSE NOZZLE	2	BRONZE	B62
10	HOSE NOZ GASK.	2	RUBBER	D735 TYPE SC-715
11	HOSE NOZ CAP	2	CAST IRON	A126 CLASS B
12	PUMPER NOZZLE	1	BRONZE	B62
13	PUMPER NOZ. CAP	1	CAST IRON	A126 CLASS B
14	PUMPER NOZ GASK.	1	RUBBER	D735 TYPE SC-715
15	CAP CHAIN	3	STEEL	
16	FLANGE BOLT	6	STEEL	A307 GR B PLATED
17	FLANGE GASKET	1	RUBBER	CLOTH INSERTED
18	LOWER BARREL	1	CAST IRON	A126 CLASS B
19	SHOE GASKET	1	RUBBER	CLOTH INSERT.
20	SHOE BOLT	8	STEEL	A307 GR B PLATED
21	SHOE	1	CAST IRON	A126 CLASS B
22	METALLIC GASK.	1	CU. ASBESTOS	
23	VALVE	1	STEEL	D735
24	LOWER VALVE PL.	1	CAST IRON	A126 CLASS B
25	CAP NUT	1	BRONZE	B62
26	VALVE NUT	1	BRONZE	B62
27	SEAT RING	1	BRONZE	B62
28	DRAIN VALVE	1	LEATHER	
29	DRAIN VALVE SCREW	2	BRONZE	B21
30	UPPER VALVE PL.	1	BRONZE	B62
31	VALVE STEM	1	STEEL	A107 GR 1113
32	UPPER BARREL	1	CAST IRON	A126 CLASS B

REPLACES DWG. NO. 5486 DATED 8-16-50 BY R.C.J.

DR.	J.M.S.	10-1-50	REV.	0.E.B.	6-2-60	REF. NO.	10-1-50	CB. NO.
ENGR.	J.M.S.	6-1-50	APP.			SCALE		
DEPT.	60206-1440							

TITLE: LINEAR ANGLE

MUELLER CO. 5/4" A-24007 STD. FIRE HYDRANT WITH TWO HOSE OUTLETS & ONE PUMPER

NUMBER 5486

"Title to and ownership of this engineering data
remains in Bluff Co. It shall be made
thereof except as specifically authorized by Bluff
Co. which retains no responsibility for any un-
authorized use. Assent to these conditions is
assumed by Bluff Co. if the engineering data
is accepted."

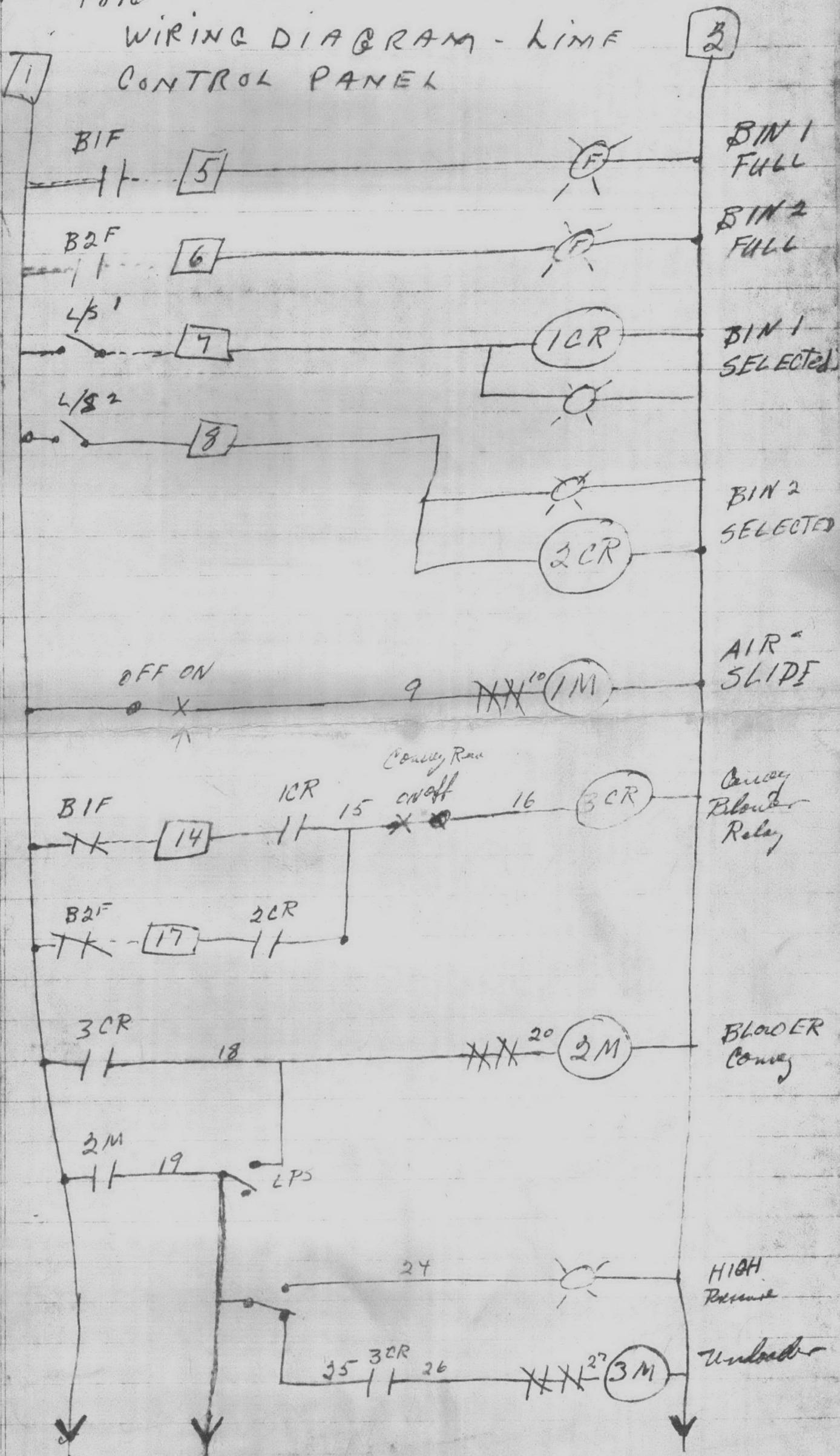
MAR 4 1983

for

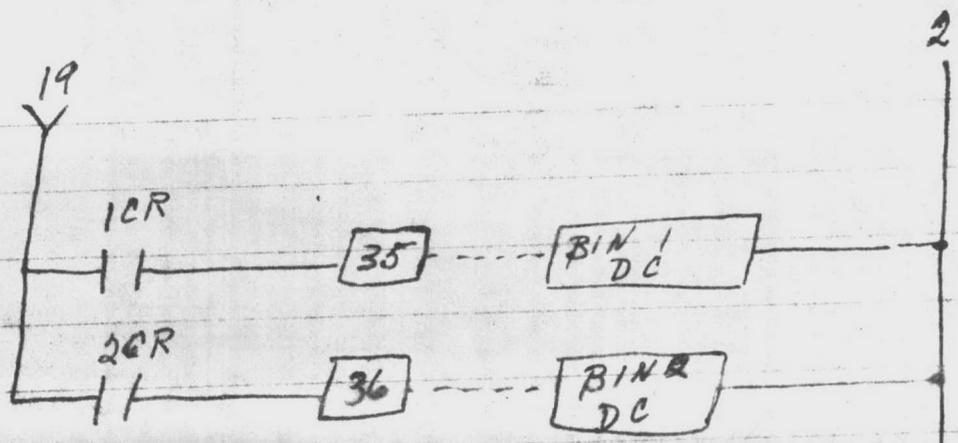
Moore's Fabricators - Wilmington, N.C.

Dec. 7th 1916

WIRING DIAGRAM - LINE CONTROL PANEL







P.O.# 57 - Print
P.O.# 58 - Call



RECEIVED
DEC 4 1970
ROBERTS FILTER

TT ~~Overhead~~ TANK

Name of TANK: Horton TANK

Elevated

Contract No.: 6-2135¹¹

Year: 1952

Capacity: 250,000 gallons.

Height - 155 ft. more or less

CHRONOFLO TRANSMITTER

Name: Builders - Providence
B-I-F Industries, Inc.

(Water Level Elevated Tank)

Switch Box, Small

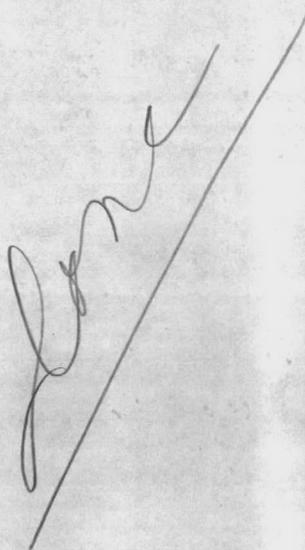
Name: SQUARE D COMPANY

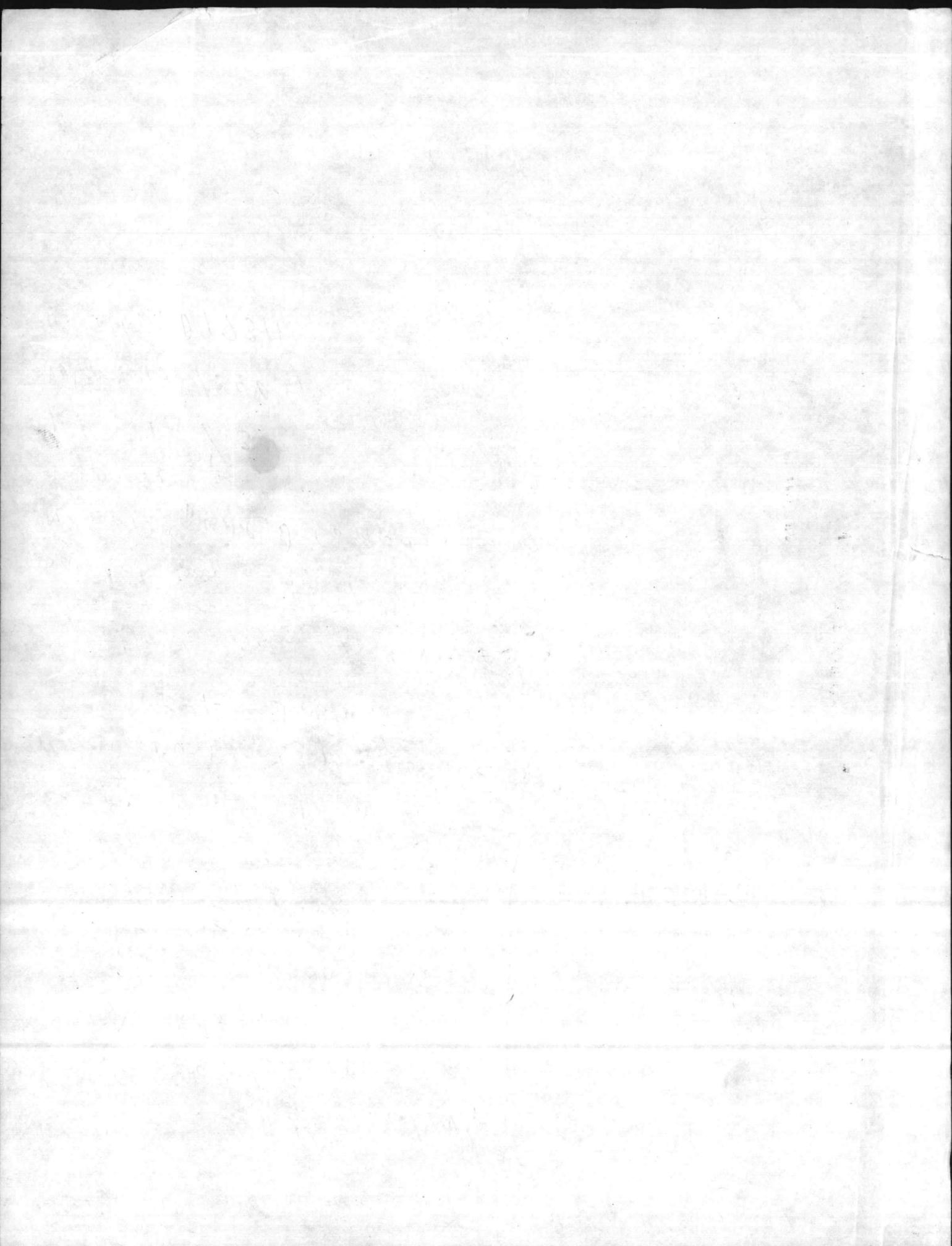
AMP: 30

HP: 1 1/2 / 3

VOLTS: 120 / 240

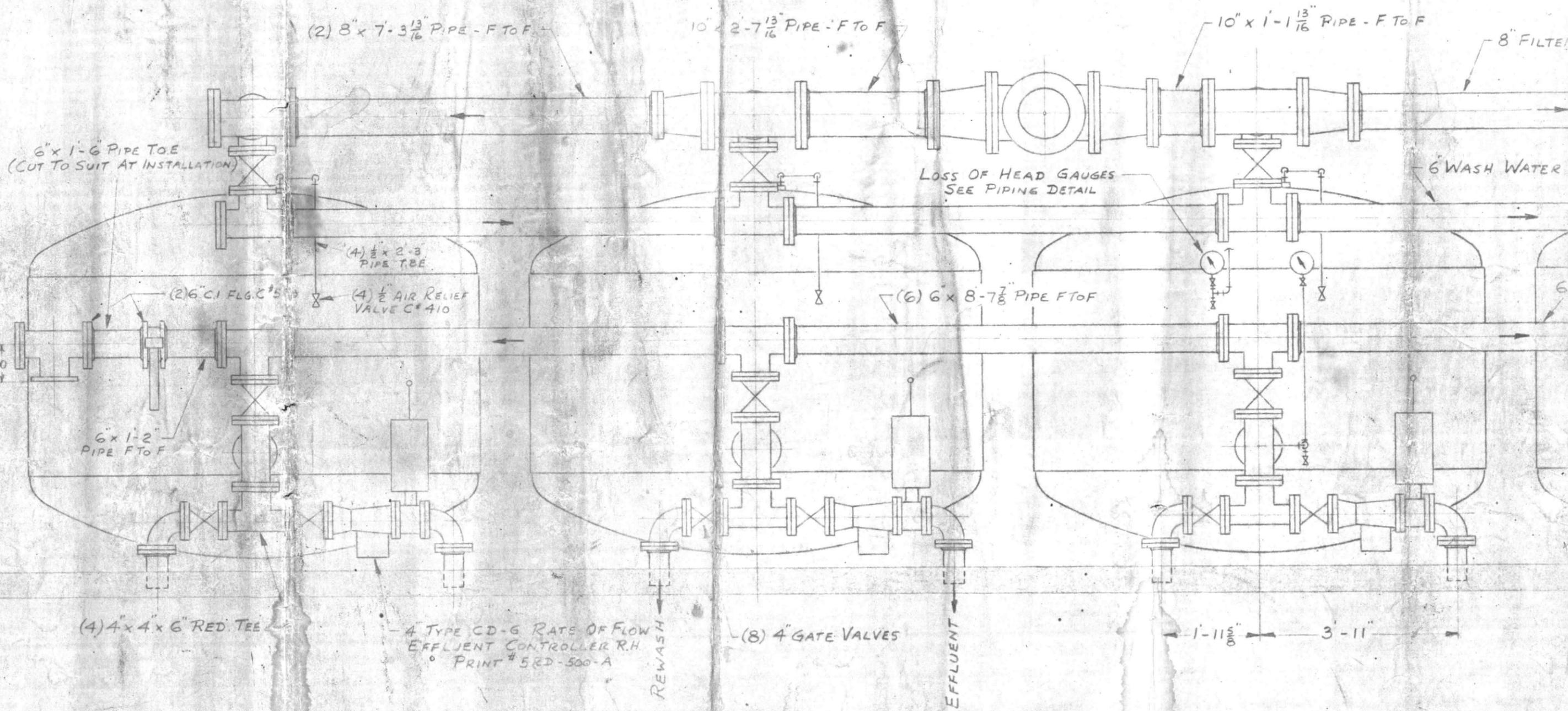
CAT. No.: 097311





PLAN

INFLUENT ↑



FRONT ELEVATION

1'-11 1/8" 3'-11"

4 TYPE CD-G RATE OF FLOW EFFLUENT CONTROLLER R.H. PRINT # 5ED-500-A

(8) 4" GATE VALVES

(4) 4" x 4" x 6" RED TEE

(4) 1/2" x 2-3 PIPE TEE
(4) 1/2" AIR RELIEF VALVE C# 410

(2) 6" C.I. FLG. C# 5

6" x 1-2" PIPE F TO F

6" x 1-6" PIPE TO E (CUT TO SUIT AT INSTALLATION)

(2) 8" x 7-3 13/16" PIPE - F TO F

10" x 2-7 13/16" PIPE - F TO F

10" x 1-1 13/16" PIPE - F TO F

8" FILTER

6" WASH WATER

LOSS OF HEAD GAUGES SEE PIPING DETAIL

(6) 6" x 8-7 7/8" PIPE F TO F

EFFLUENT ↓

REWASH ↓

MAR 28 1952

Water Treatment and Pumping PlantBldg.#38 Tarawa Terrace**B. Filter Control Room**

10. Unit#1 - Motor, Electric; Name: Wagner Electric Motor; Manufacturer:

Type: RPl; Design: B; Model No. 33E324J433; Frame: 324; Serial No. N/A; HP: 10; Cycles: 60; RPM: 1750; Amps: 26.4/13.2; Volts: 220/440; Phase: 3; C Rise: 40°.

11. Unit#1 - Panel, Electric

Manufacturer: Square D Company; Series: A1; Catalogue No. D96353; Amps: 100; Volts: 240.

12. Unit#2 - Reset, Electric

Manufacturer: Square D Company.

13. Unit#3 - Panel, Electric

Manufacturer: Square D Company; Series: A2; Catalogue No. A47412; HP: 7½; Volts: 240; Phase: 3; Amps: 60.

14. Unit#4 - Panel, Electric

Manufacturer: Federal Electric Products Company; Catalogue No. 116; Volts: 120/240; Amps: 100.

15. Unit#5 - Panel, Electric

Manufacturer: Thumball Electric; Catalogue No. 24111; Model No. A; Type: D; Volts: 125; Amps: 30.

16. Unit#6 - Panelboard, Electric

Manufacturer: Federal Pacific Electric Company; Panelboard No. AF 814397; Type: NBLP; Volts: 120/240; Phase: 3; Amps: 125; Wire: 4.

C. Chlorinator Room

17. Unit#1 - Chlorinator

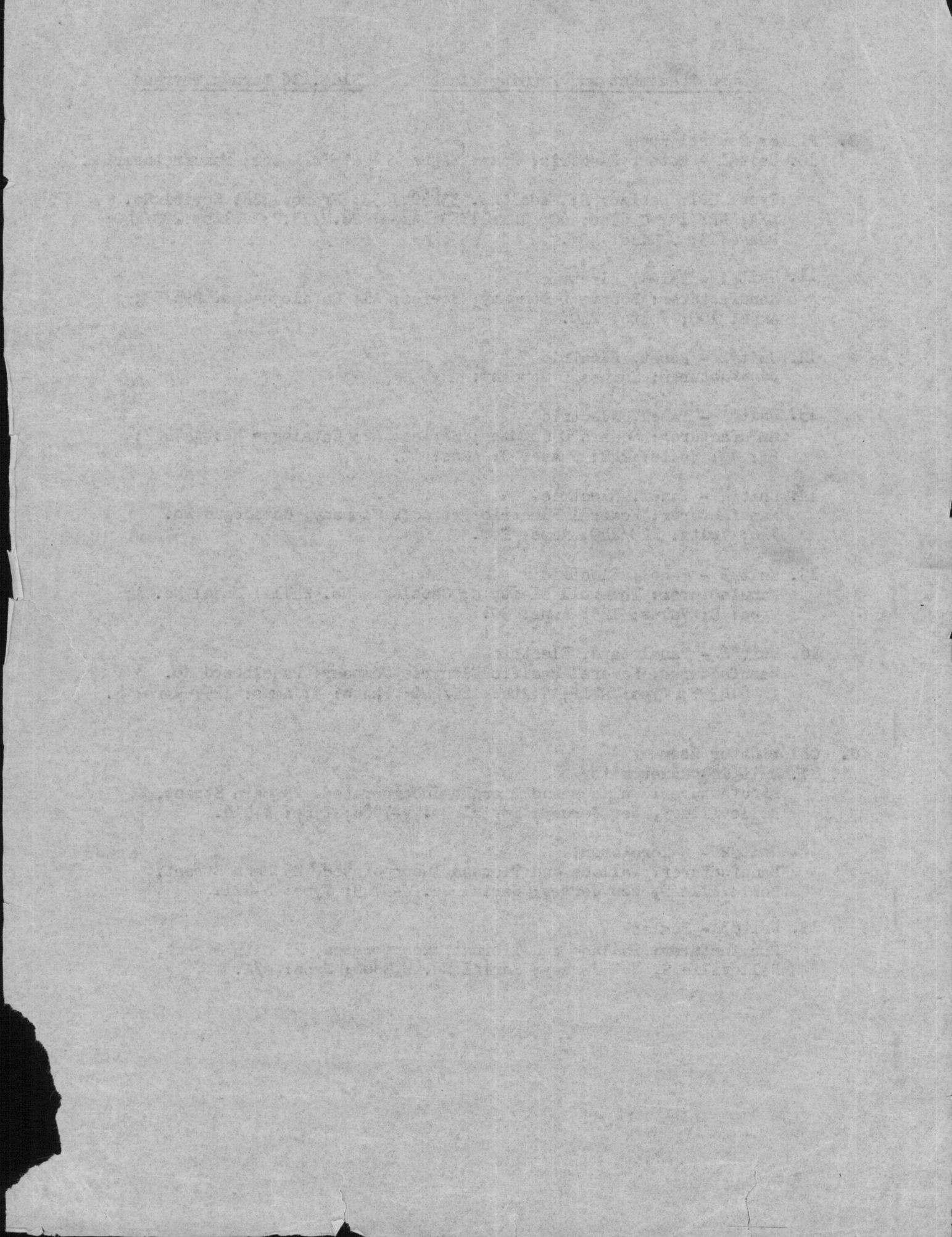
Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville 9, New Jersey; Serial No. V-7884; Type: A-418.

18. Unit#2 - Chlorinator

Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville 9, New Jersey; Serial No. W-9743; Type: A-421.

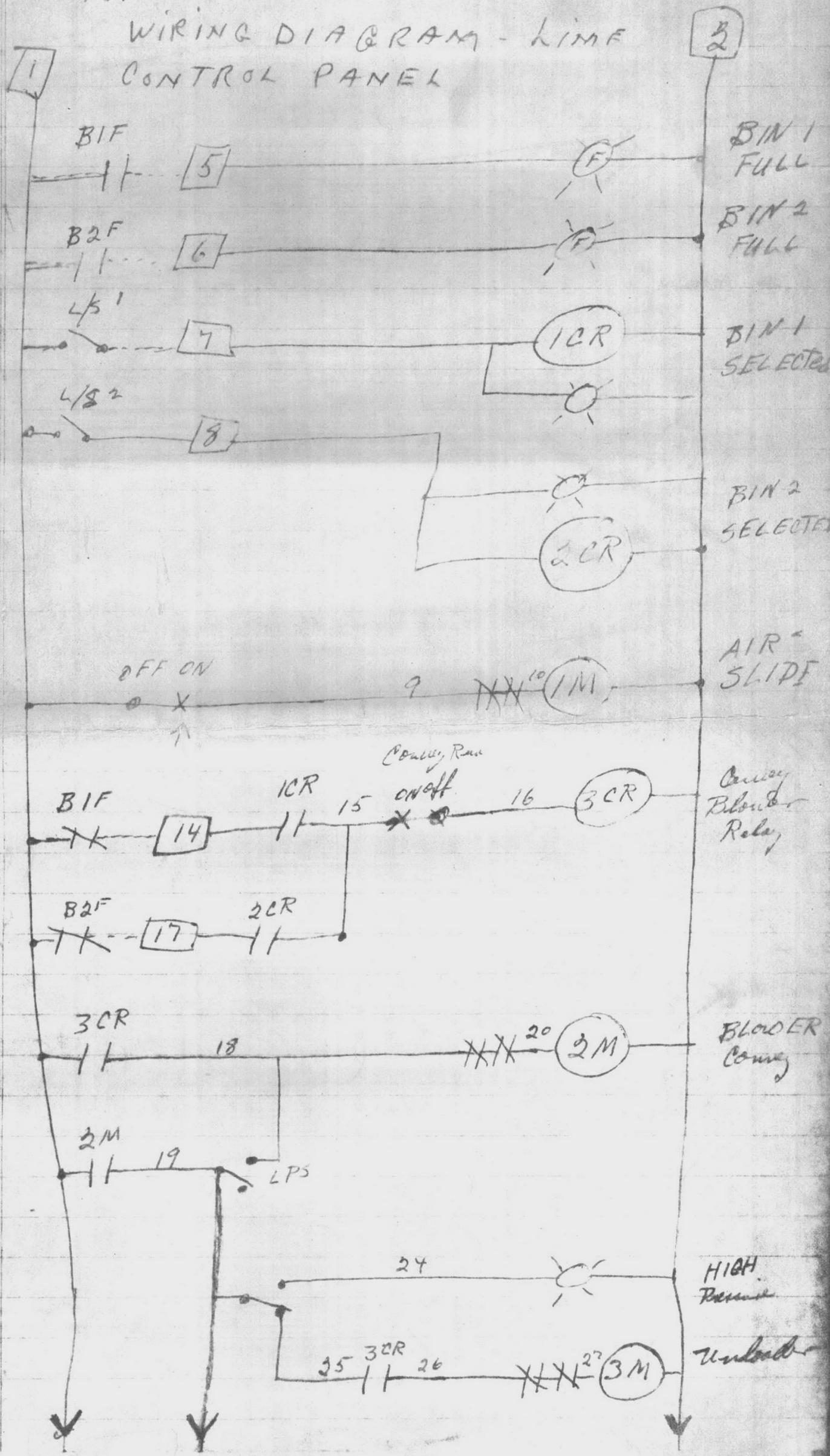
19. Unit#3 - Scales

Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville 9, New Jersey; Serial No. W 3808; Type: N/A.

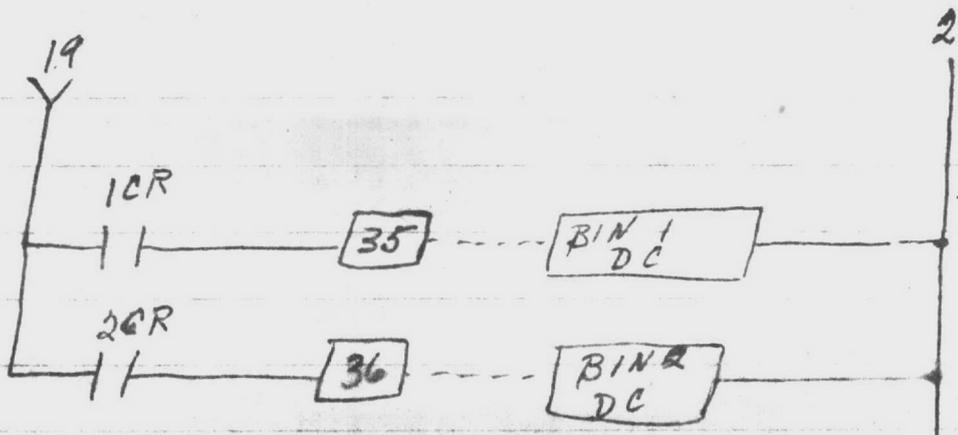


For Moore's Fabricators - Wilmington, N.C.
 Ord. # 1816

WIRING DIAGRAM - LINE CONTROL PANEL







P.O. # 57 - Print
P.O. # 58 - Call



Receiver
Model CRB-TIR
Serial 3235

P.L.# 4422

Full Scale Period 53.33
interval 60 Sec

Serial # 4374
Model CTUAX
serial 26364
Test pipe size 20.3 Sec of 8.7 in. Water
interval 60 sec
Full Scale period 53.33

GASOLINE & COMPRESSOR ENGINE LOG

MCBCL 11330/10

BLDG. NUMBER

MONTH

ACTION	DATE									
COMPRESSOR										
AUX. ENGINE										
MINUTES RUN										
TEMPERATURE										
OIL LEVEL										
GREASED										
OIL CHANGED										
FILTER CHANGED										
DATE OF LAST CHANGE										
DATE NEXT CHANGE DUE										
CLEANED										
OPERATOR'S INITIAL										

REMARKS:

CUSTOMER **BROWN CONSTRUCTION CO., INC.**
 P. O. NO. **9-1**
 JOB **CAN LEJEUNE, NORTH CAROLINA**
 INSTRUCTION MANUALS: **5 WITH WSHIPMENT**
 DRAWINGS: **8 SETS TO PURCHASER FOR APPROVAL**

B-I-F ORDER NO.		30805-A-0507	
	SCHEDULE	DATE	
	R	DRAWINGS TO CUSTOMER	12/21
X	NR	CUSTOMER APP. DUE	1/11
	Y	ENG. DATA TO P.C.	
X	P	SHIPMENT 14 wks.	AA-00
	G	CALCS REQ'D? SS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
PLANS OR SPECS. NO.		1863	

QUAN.	DESCRIPTION	CODE NO.
-------	-------------	----------

1	<p>TAG: ITEM 19.3-3</p> <p>0232-01, Series B Chronoflo Receiver, Serial No. 13630 OPERATES FROM TRANSMITTER, Serial No. 14099 on order 30802-A</p> <p>MOUNTING: In panel on order 30807-A</p> <p>POWER: 110 volt, 60 cycle</p> <p>POWER POSITIONER: DC-4R for 15 sec. cam cycle</p> <p>RANGE: 500 to 2500 GPM</p> <p>INDICATOR: Grads 0-25 Legend X100-GPM Symbol, STD-CS-x100-GPM-25-T</p> <p>RECORDER: Grads 0 to 25 Legend X100= GPM</p>	<p>0232-01</p> <p>0203</p>
400	<p>Charts, Daily, Style 112, Scale 12-25-D</p> <p>TOTALIZER: Reading X100-Gallons Gears, A-50, B-50, C-25, D-30 Units/60 sec. 2.8125</p> <p>FINISH: Plextone Gray</p>	<p>0301</p> <p>0401</p> <p>0503</p>
1	<p>TAG: ITEM 19.4 - 2</p> <p>0232-04, Series B Chronoflo Receiver, Serial No. 13631 OPERATES FROM TRANSMITTER, Serial No. 14101 on order 30804-A</p> <p>MOUNTING: In panel on order 30807-A</p> <p>POWER: 110 volt, 60 cycle</p> <p>POWER POSITIONER: DC-4R for 15 sec. cam cycle</p> <p>RANGE: 0 to 12 ft.</p> <p>INDICATOR: Grads 0 to 12 Legend WLF Symbol, STD-CS-WLF-12</p> <p>RECORDER: Grads 0 to 12 Legend WLF</p>	<p>0232-04</p> <p>0203</p>
400	<p>Charts, Daily, Style 100, Scale 12-12-D</p> <p>FINISH: Plextone Gray</p>	<p>0301</p> <p>0503</p>
1	<p>2-Unit switch assy. to cut off all pumps at low reservoir level.</p> <p>Contactor open type</p>	<p>0601</p> <p>0907</p>

859314

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
 NORFOLK, VA

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NO. 46508 SPEC 46508/62

APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATES COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER DIMENSIONAL DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

W. C. G. CHURCH
 PAUL CEC, USN
 BUREAU OF YARDS & DOCKS

Sgm

JAN 7 1963

3 SETS TO PURCHASER FOR APPROVAL

2 WITH SHIPMENT

CAN LELENE, NORTH CAROLINA
BROWN CONSTRUCTION CO., INC.

DATE	SCHEDULE	B-I-R ORDER NO.
12/21	DRAWINGS TO CUSTOMER	30807-A-0207
1/1	MR. CUSTOMER APP. DUE	
	Y. ENG. DATA TO P.C.	
	P. SHIPMENT	
	G. CALCS RECD.	
	PLANS OF SPEC. NO.	

CODE NO	DESCRIPTION	QUAN
0335-01	<p>0235-01 Series B-C Chrono Receiver, Serial No. 13630 OPERATES FROM TRANSMITTER, Serial No. 14099 on order 30807-A</p> <p>MOUNTING: In panel on order 30807-A POWER: 110 volt, 60 cycle POWER POSITIONER: DC-AR for 15 sec. cam cycle RANGE: 500 to 2500 RPM INDICATOR: Grade 0-25 Legend K100-6PM Symbol, STD-CS-X100-6PM-25-T REORDER: Grade 0 to 25 Legend K100-6PM</p>	1
0301	<p>Charts, Daily, Style 11S, Scale 12-25-D TOTALIZER: Reading X100-Galions Gears, A-20, B-20, C-25, D-30 Units 60 sec. 2.8125</p>	100
0203	<p>FINISH: Plexone Gray</p>	
0335-04	<p>0235-04 Series B Chrono Receiver, Serial No. 13631 OPERATES FROM TRANSMITTER, Serial No. 14101 on order 30807-A</p> <p>MOUNTING: In panel on order 30807-A POWER: 110 volt, 60 cycle POWER POSITIONER: DC-AR for 15 sec. cam cycle RANGE: 0 to 12 ft. INDICATOR: Grade 0 to 12 Legend W1P Symbol, STD-CS-W1P-12 REORDER: Grade 0 to 12 Legend W1P</p>	1
0301	<p>Charts, Daily, Style 100, Scale 12-12-D</p>	100
0203	<p>FINISH: Plexone Gray</p>	
0201	<p>2-Unit switch box, to cut off all pumps at low reservoir level.</p>	1
0207	<p>Contactor open type</p>	



CHRONOFLO TELEMETERS Standard 12" Receivers Model Series 232 PANEL AND/OR WALL MOUNTED (formerly series B)

THIS PRINT IS REPRODUCIBLE.

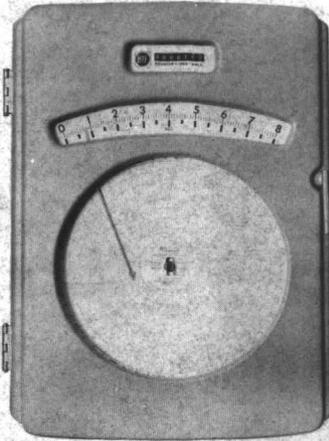


Fig. 1

- ✓ Single-Pen Recorder ✓
- Two-Pen Recorder
- Three-Pen Recorder
- With Totalizer ✓
- ✓ With Indicator ✓
- With Illumination

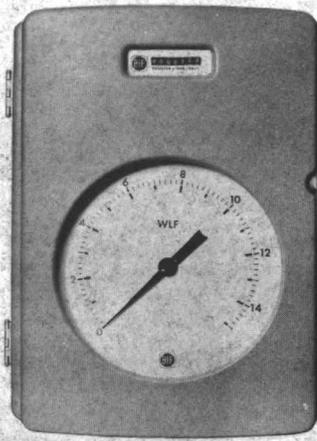


Fig. 2

Circular Dial Indicator
With Totalizer

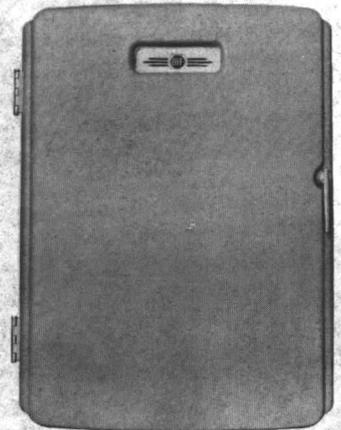
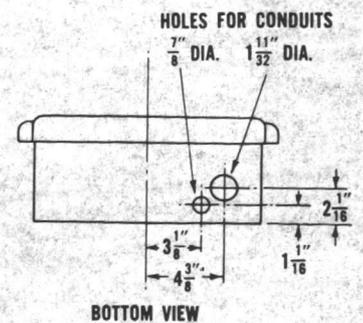
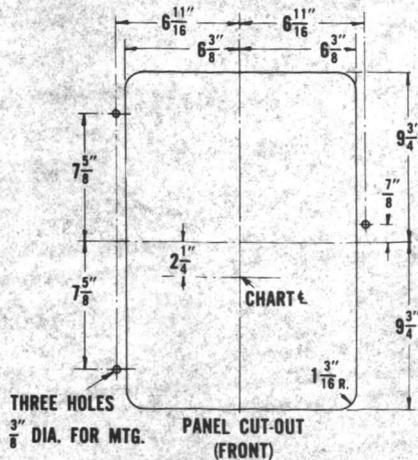
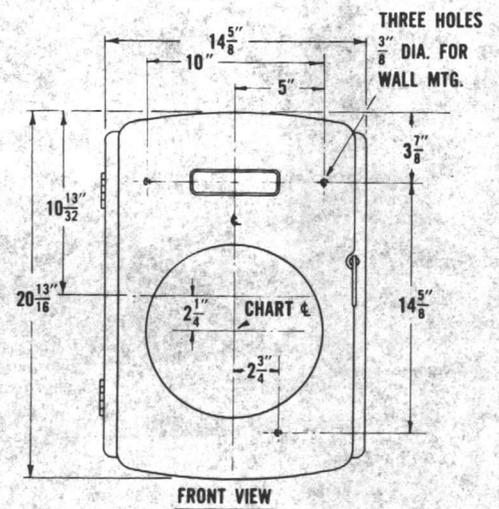
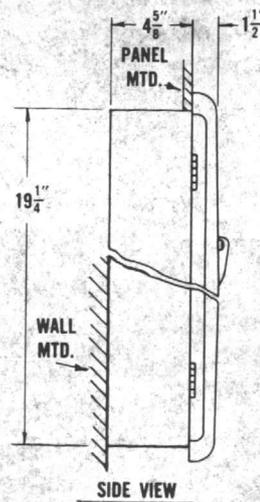


Fig. 3

Auxiliary Receiver.
Other Receiver.

NOTE: Refer to Order Data Sheet
for Mounting, Finish, Etc.



CUSTOMER **BROWN CONSTRUCTION CO., INC.**
 P. O. NO. **9-1**
 JOB **CAN LEJEUNE, NORTH CAROLINA**

B-I-F ORDER NO. **30805-A-0507**

INSTRUCTION MANUALS: **5 WITH WSHIPMENT**

DRAWINGS: **8 SETS TO PURCHASER FOR APPROVAL**

SCHEDULE		DATE
<input type="checkbox"/>	R DRAWINGS TO CUSTOMER	12/21
<input checked="" type="checkbox"/>	NR CUSTOMER APP. DUE	1/11
<input type="checkbox"/>	Y ENG. DATA TO P.C.	
<input checked="" type="checkbox"/>	P SHIPMENT	14 mths AA-00
<input type="checkbox"/>	G CALCS REQ'D?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
PLANS OR SPECS. NO.		1863

QUAN.	DESCRIPTION	CODE NO.
1	<p>TAG: ITEM 19.3-3</p> <p>0232-01, Series B-C Chronoflo Receiver, Serial No. 13630 OPERATES FROM TRANSMITTER, Serial No. 14099 on order 30802-A</p> <p>MOUNTING: In panel on order 30807-A</p> <p>POWER: 110 volt, 60 cycle</p> <p>POWER POSITIONER: DC-4R for 15 sec. cam cycle</p> <p>RANGE: 500 to 2500 GPM</p> <p>INDICATOR: Grads 0-25 Legend X100-GPM Symbol, STD-CS-X100-GPM-25-T</p> <p>RECORDER: Grads 0 to 25 Legend X100= GPM</p>	0232-01
400	<p>Charts, Daily, Style 112, Scale 12-25-D</p> <p>TOTALIZER: Reading X100-Gallons</p> <p>Gears, A-50, B-50, C-25, D-30</p> <p>Units/60 sec. 2.8125</p> <p>FINISH: Plextone Gray</p>	0203 0301 0401 0503
1	<p>TAG: ITEM 19.4 - 2</p> <p>0232-04, Series B Chronoflo Receiver, Serial No. 13631 OPERATES FROM TRANSMITTER, Serial No. 14101 on order 30804-A</p> <p>MOUNTING: In panel on order 30807-A</p> <p>POWER: 110 volt, 60 cycle</p> <p>POWER POSITIONER: DC-4R for 15 sec. cam cycle</p> <p>RANGE: 0 to 12 ft.</p> <p>INDICATOR: Grads 0 to 12 Legend WLF Symbol, STD-CS-WLF-12</p> <p>RECORDER: Grads 0 to 12 Legend WLF</p>	0232-04
400	<p>Charts, Daily, Style 100, Scale 12-12-D</p> <p>FINISH: Plextone Gray</p>	0301 0503
1	<p>2-Unit switch assy. to revel.</p> <p>Contactor open type</p>	0601 0907

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
 NORFOLK II, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NO. 46508 SPEC 46508/62

APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATES COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICAL DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

JAN 7 1963

W. G. G. CHURCH
 USN
 BUREAU OF YARDS & DOCKS

S.M.

DRAWING: 8 SETS TO PURCHASER FOR APPROVAL
 INSTRUCTION MANUALS 2 WITH SHIPMENT
 CAN LEJUNE, NORTH CAROLINA
 9-1
 BROWN CONSTRUCTION CO., INC.
 DATE SHEET
 F. STABLEY, JR.

DATE TYPED		DATE	
30807-A-0207		12/21	
D-1-F ORDER NO.		SCHEDULE	
30807-A-0207		DRAWINGS TO CUSTOMER	
Y ENG. DATA TO P.C.		MR CUSTOMER APP. CUE	
X SHIPMENT		Y	
G CALCS RECD		X	
PLANS OF SECT. NO.		1A	
1888		AA-00	

QUANTITY	DESCRIPTION	CODE NO.
----------	-------------	----------

1	<p> TAG: ITEM 19-3-3 0232-01, Series B-C, Portable Receiver, Serial No. 13630 OPERATES FROM TRANSMITTER, Serial No. 14099 on order 30807-A MOUNTING: In panel on order 30807-A POWER: 110 volt, 60 cycle POWER POSITIONER: DC-PR for 15 sec. cam cycle RANGE: 500 to 2500 GPM INDICATOR: Grads 0-25 Legend X100-GPM Symbol, STD-GS-X100-GPM-25-T RECORDER: Grads 0 to 25 Legend X100-GPM </p>	0232-01
400	<p> FINISH: Plexiglas Gray Units/60 sec. 2.8125 Gears, A-50, B-50, C-25, D-30 TOTALIZER: Reading X100-Gallons Charts, Daily, Style 112, Scale 12-25-D RECORDER: Grads 0 to 12 Legend W12 Symbol, STD-GS-W12-12 INDICATOR: Grads 0 to 12 Legend W12 RANGE: 0 to 12 ft. POWER POSITIONER: DC-PR for 15 sec. cam cycle POWER: 110 volt, 60 cycle MOUNTING: In panel on order 30807-A 30804-A OPERATES FROM TRANSMITTER, Serial No. 14101 on order 0232-04, Series B Chronologic Receiver, Serial No. 13631 </p>	0203
1	<p> TAG: ITEM 19-4 - 2 0232-04, Series B Chronologic Receiver, Serial No. 13631 OPERATES FROM TRANSMITTER, Serial No. 14101 on order 30804-A MOUNTING: In panel on order 30807-A POWER: 110 volt, 60 cycle POWER POSITIONER: DC-PR for 15 sec. cam cycle RANGE: 0 to 12 ft. INDICATOR: Grads 0 to 12 Legend W12 Symbol, STD-GS-W12-12 RECORDER: Grads 0 to 12 Legend W12 Charts, Daily, Style 100, Scale 12-12-D FINISH: Plexiglas Gray 2-Unit switch easy to cut off all pumps at low reservoir lever. Contactor open type </p>	0201



Industries

A DIVISION OF THE NEW YORK AIR BRAKE COMPANY
PROVIDENCE, RHODE ISLAND, U. S. A.



DIMENSIONS

CHRONOFLO TELEMETERS
Standard 12" Receivers
Model Series 232
PANEL AND/OR WALL MOUNTED
(formerly series B)

THIS PRINT IS REPRODUCIBLE.

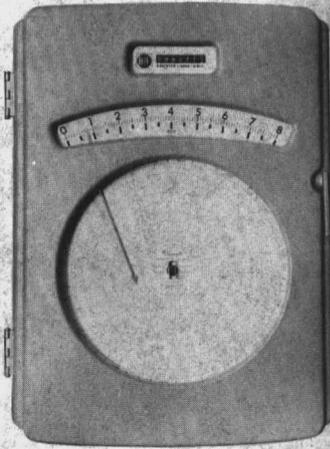


Fig. 1

- ✓ Single-Pen Recorder ✓
- Two-Pen Recorder
- Three-Pen Recorder
- With Totalizer ✓
- ✓ With Indicator ✓
- With Illumination

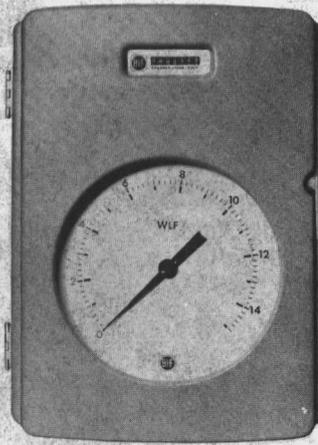


Fig. 2

Circular Dial Indicator
With Totalizer

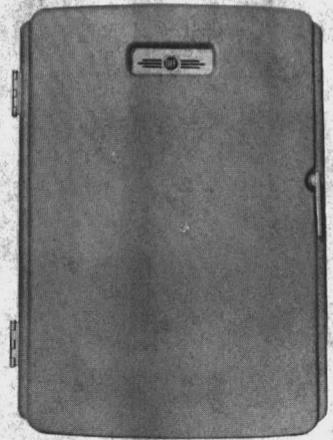
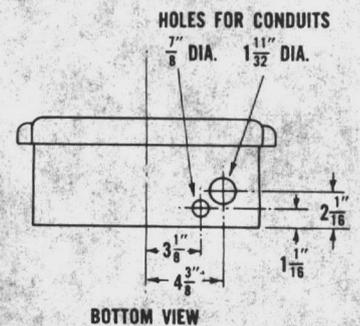
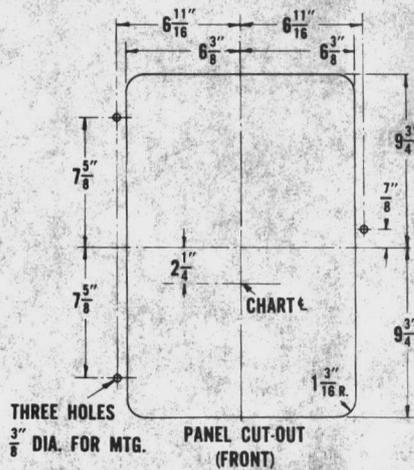
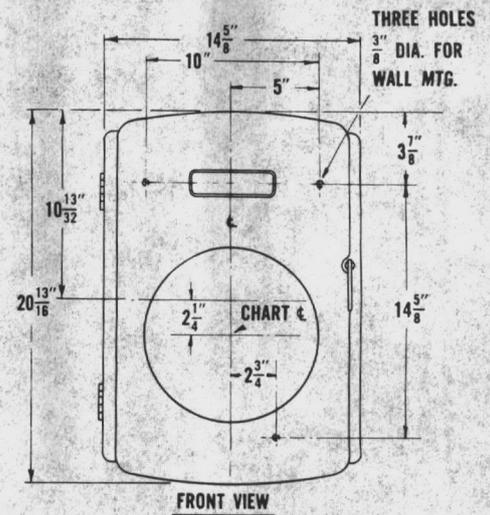
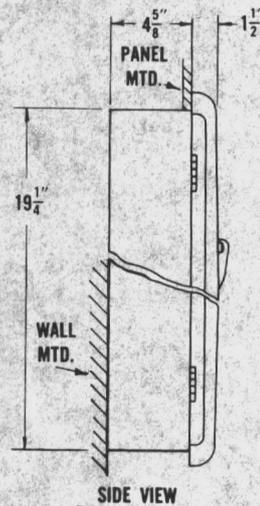


Fig. 3

Auxiliary Receiver.
Other Receiver.

NOTE: Refer to Order Data Sheet
for Mounting, Finish, Etc.



DIMENSIONS

CHRONOLOGIC TELETYPE
STANDARD 12" RECEIVERS
Model Series 232
PANEL AND OR WALL MOUNTED
(formerly series 23)



Industries



A DIVISION OF THE NEW YORK AIR BRAKE COMPANY
PROVIDENCE, RHODE ISLAND, U.S.A.

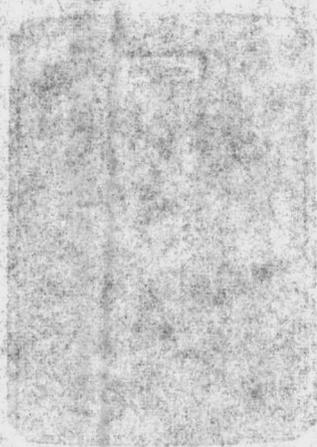


Fig. 3

Any Other Receiver
Other Receiver



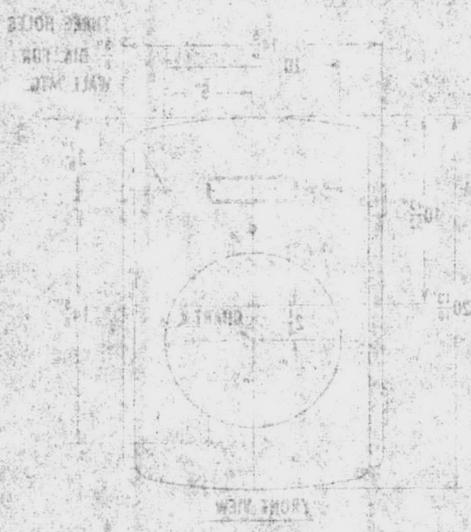
Fig. 4

Direct-Read Indicator
With Indicator

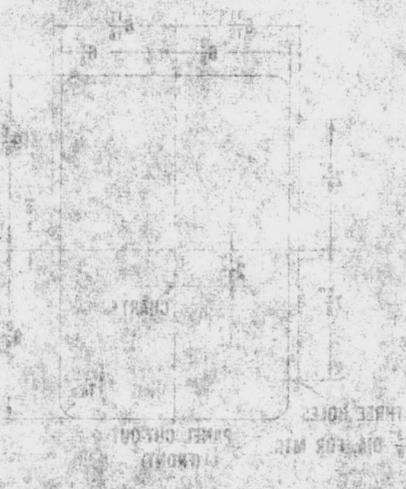
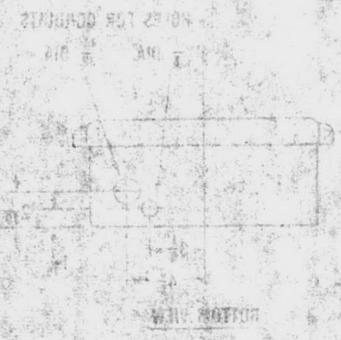


Fig. 5

Single-Pen Receiver
Two-Pen Receiver
Three-Pen Receiver
With Totalizer
With Indicator
With Illumination



NOTE: Refer to Other Series for
for mounting, etc.



THE NEW YORK AIR BRAKE COMPANY

Sample Room + Office

W-38

Water Cooler

Name: SUNROC Corporation

Model: NM2B

SERIAL: H384532L

Code: AH1

HP: 1/5

Phase: 1

Cycle: 60

Volts: 115

Amp: 4.2

Glew Riddle
Penna.

Jone

Electric FAN

Name: Century

Model: CM41-Y ✓

FRAME: B48Y ✓

HP: 1/4 ✓

Code: C ✓

RPM: 1100

Volts: 115 ✓

Cycle: 60 ✓

Amp: 3.4 ✓

SERIAL: ~~AN39~~ AN39 ✓

Spec: # 22083 ✓

Crise: 55

Phase: 1

Electric
Century
St. Louis, Mo.

Jone

Elevated Tank ~~meter~~ Level Receiver

Name: ChronoFlo ✓

Code: 0235-04 ✓

order #: 30806-~~8~~ ✓

Receiver #: 13632 ✓

TRANSformer: 14100

~~max~~ Max signal - 13.33 sec

CHART style: 100

" SCALE: 1235-0 ✓

Zero signal: 6.666 sec

Interval: 15 sec

Jone

Service Water Flow Meter

Name: ChronoFlo

code: 0232-01

order #: 30805-~~8~~

Receiver: 13630

TRANS #: 14099

chart style: 112

" SCALE: 12-25-D

Same as below

Jone

Reservoir Water Level ~~meter~~ Receiver

Name: ChronoFlo

code: 0232-04

order #: 30805-A

Receiver: 13631

TRANS #: 14101

CHART style: 100

" SCALE: 12-12-0

Interval - 15 sec

Max signal - 13.73 sec

Zero signal - 0 sec

Jone

Rate of RAW water Flow meter

Name: Chronoflo ✓

Full Scale: 53.33 sec.

SERIAL: 3235 ✓

Max. Signal Period: 11 sec.

P.L. #: 4422 ✓

Model: CRB-TIR ✓

TRANS: # ~~4376~~ 4376 ✓

old book

done

Volts: 110 ✓

Cycle: 60 ✓

chart #: 12-12-0 ✓

chart style: 112 ✓

Converted from Range Capacity 1000 GPM to
Range Capacity: 1200 GPM (approximate date change)

Signal Control for RAW WATER FLOW TRANSMITTER

Name: Chronoflo

SERIAL: 4376

Model: GTUAX

Stock: 1963

old book

Volts: 110

Cycle: 60

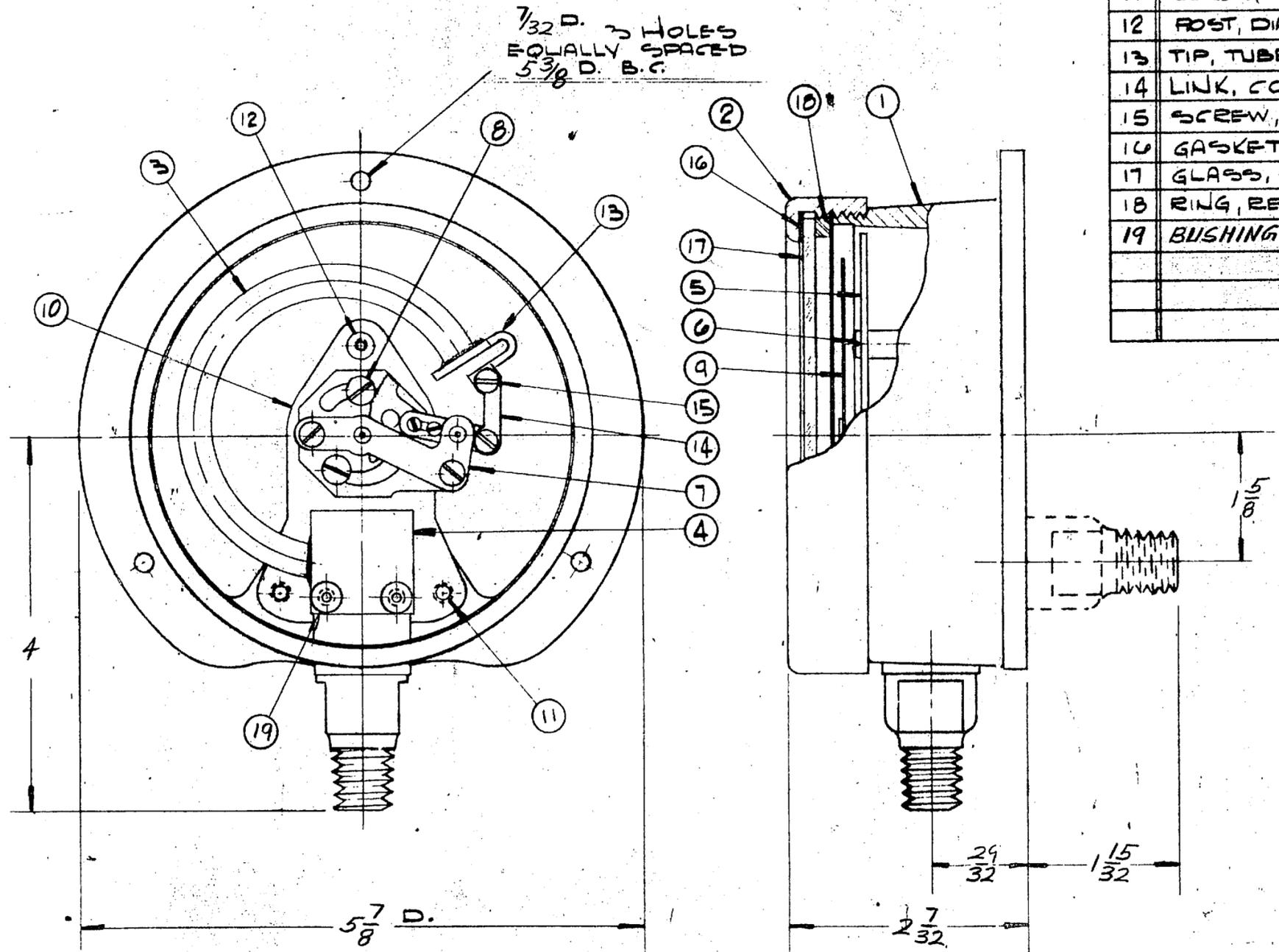
Size: 12-X4

done

DWG. SK-1020

ITEM NO.	NAME	MATERIAL
1	CASE	IRON BLACK LACQUER
2	RING	ALUM. BLACK LACQUER
3	TUBE (SPECIFY PRESS.)	PHO. BRONZE
4	SOCKET	BRASS
5	DIAL ASSY. W/ PIN	TIN
6	SCREW, DIAL	BRASS U.I. P.
7	MOVEMENT	PHO. BRONZE
8	SCREW, MOVEMENT	BRASS
9	POINTER	ALUM. BLACK ANODIZE
10	PLATE, SOCKET	C. E. ST. COPPER FLASH
11	SCREW, CASE	ST. CAD. P.
12	POST, DIAL	BRASS
13	TIP, TUBE	BRASS
14	LINK, CONN.	ST.
15	SCREW, SHLD.	ST.
16	GASKET	COMPRENE
17	GLASS, GAUGE	WINDOW GLASS
18	RING, RETAINING	ALUM.
19	BUSHING, DIAL	BRASS

REVISION RECORD			
ITEM NO.	REV. NO.	DATE	BY
859314			



ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
 NORFOLK, VA.

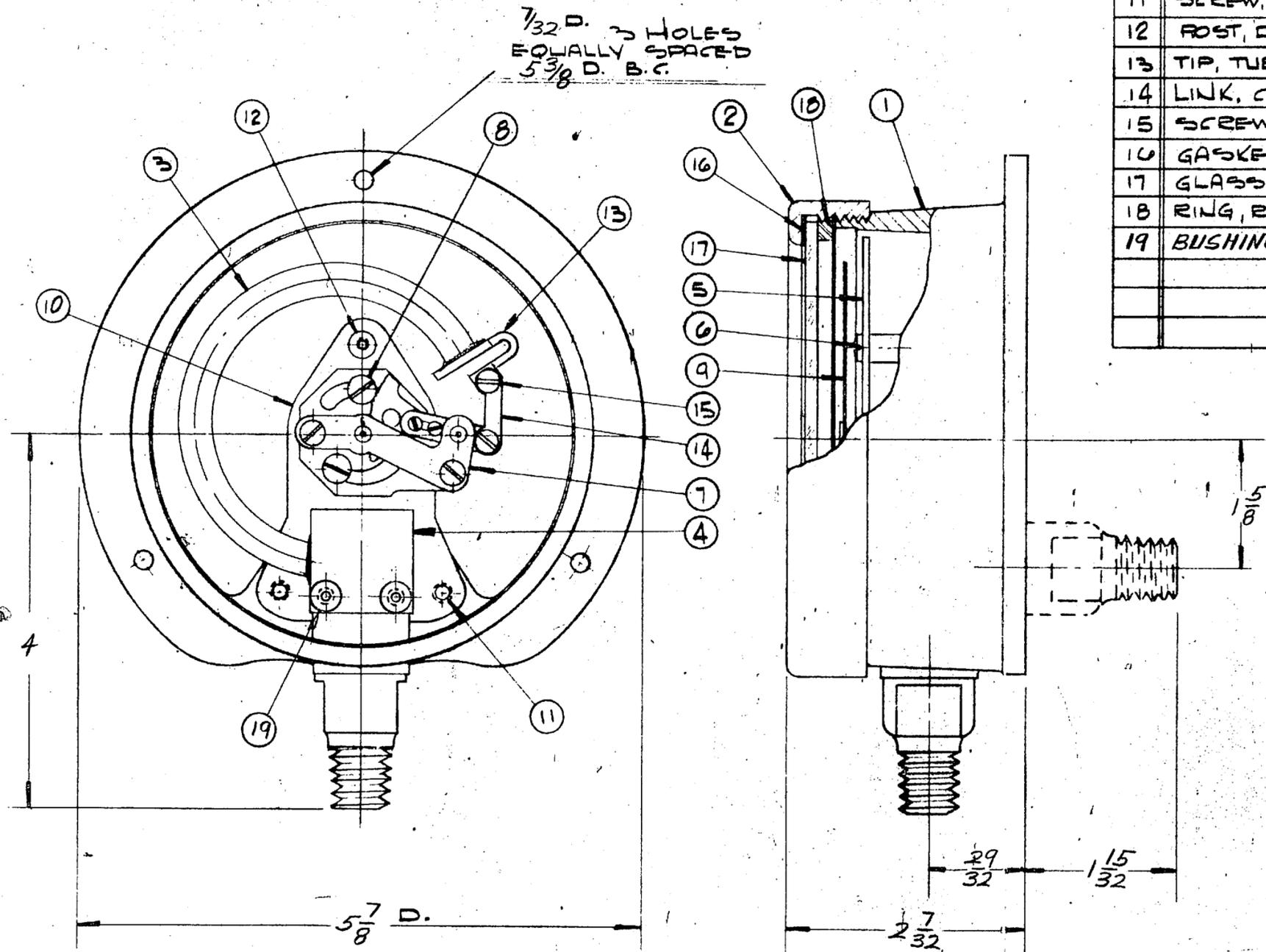
APPROVED:
 SUBJECT TO THE REQUIREMENTS OF
 CONTRACT NO. 46508, SPEC 46508/66
 APPROVAL OF MATERIALS AND/OR EQUIPMENT
 INDICATES COMPLIANCE WITH SPECIFICATION
 REQUIREMENTS ONLY - THE CONTRACTOR
 SHALL BE RESPONSIBLE FOR PROVIDING
 PROPER DIMENSIONS & WEIGHTS,
 COORDINATION OF TRADES, ETC., AS REQUIRED.
 MAR 21 1963
 W. C. G. CHURCH
 RADM. CEC, USN
 DIR. LANTDOCKS

TOLERANCES		
FRACTIONS	DECIMALS	ANGLES
± 1/16	±	±
J. E. LONERGAN COMPANY INSTRUMENT DIVISION 211-217 RACE STREET PHILADELPHIA, PA.		
TITLE GAUGE ASSEMBLY C-10 CASE STYLE 1/4 & 1/2 CONN. COMPOSITE DWG.		
REF. 4 1/2 GM GAUGE		
DRAWN RD	DATE 3-8-63	DWG. NO.
CHECKED	APPR. SDD 3/8/63	SK-1020

Date	Description	Debit	Credit	Balance
1890				
Jan 1	Balance forward			100.00
Jan 15	Wages	50.00		50.00
Jan 30	Expenses	25.00		25.00
Feb 15	Income		75.00	100.00
Feb 28	Expenses	30.00		70.00
Mar 15	Income		60.00	130.00
Mar 31	Expenses	40.00		90.00
Apr 15	Income		50.00	140.00
Apr 30	Expenses	35.00		105.00
May 15	Income		45.00	150.00
May 31	Expenses	30.00		120.00
Jun 15	Income		40.00	160.00
Jun 30	Expenses	25.00		135.00
Jul 15	Income		35.00	170.00
Jul 31	Expenses	20.00		150.00
Aug 15	Income		30.00	180.00
Aug 31	Expenses	15.00		165.00
Sep 15	Income		25.00	190.00
Sep 30	Expenses	10.00		180.00
Oct 15	Income		20.00	200.00
Oct 31	Expenses	5.00		195.00
Nov 15	Income		15.00	210.00
Nov 30	Expenses	5.00		205.00
Dec 15	Income		10.00	215.00
Dec 31	Expenses	5.00		210.00
Total		400.00	400.00	210.00

ITEM NO.	NAME	MATERIAL
1	CASE	IRON BLACK LACQUER
2	RING	ALUM. BLACK LACQUER
3	TUBE (SPECIFY PRESS.)	PHO. BRONZE
4	SOCKET	BRASS
5	DIAL ASSY. W/ PIN	TIN
6	SCREW, DIAL	BRASS U. R.
7	MOVEMENT	PHO. BRONZE
8	SCREW, MOVEMENT	BRASS
9	POINTER	ALUM. BLACK ANODIZE
10	PLATE, SOCKET	C. R. ST. COPPER FLASH
11	SCREW, CASE	ST. CAD. R.
12	POST, DIAL	BRASS
13	TIP, TUBE	BRASS
14	LINK, CONN.	SST.
15	SCREW, SHLD.	SST.
16	GASKET	CORPRENE
17	GLASS, GAUGE	WINDOW GLASS
18	RING, RETAINING	ALUM.
19	BUSHING, DIAL	BRASS

REVISION RECORD			
ITEM NO.	REV. NO.	DATE	BY



ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED:

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NBY 46508 SPEC 46508/60
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY - THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.

MAR 21 1963
W. C. G. CHURCH
RADM. CEC, USN
DIRLANTDOCKS

SCALE: NTS

TOLERANCES		
FRACTIONS	DECIMALS	ANGLES
± 1/16	±	±
J. E. LONERGAN COMPANY		
INSTRUMENT DIVISION		
211-217 RACE STREET		PHILADELPHIA, PA.
TITLE GAUGE ASSEMBLY		
C-10 CASE STYLE 1/4 & 1/2 CONN.		
COMPOSITE DWG.		
REF. 4 1/2 GM GAUGE		
DRAWN RD	DATE 3-8-63	DWG. NO.
CHECKED	APPR. SDD 3/8/63	SK-1020



TARAWA Terrace
Bld. TT-38 (TAWARAKE Terrace)

Water Treatment and Pumping Plant

A. Pump Room -

1. Unit #1; Service Pump, Dual Drive (Elect + Gas)
MANUFACTURE: ^{by Fiete and Firstenberger} Floway Pump; Manuf. Company? 2494 So. Palm
_{address} ^{FRESNO, CAL.}
Type: D K H; Vertical Centrifugal; Size 12"
Stages 3; Serial # 62-3534-1; HP 75; GPM 1050;
RPM 1770; HD 188 ft.

(a) Motor Electric - Alternating Current Motor
MANUFACTURE: A. O. Smith Corporation

address: Electric Division, Tipp City, Ohio

Type: 1ZBV; Design B; Model 504-3312F;
Frame: A504Py; SERIAL 3G62; HP 75;
Cycle 60; RPM 1760; Amps 172/86; Volts
220/440; Phase 3; C Rise - 40°; Code F.

(b) Gasoline Motor

MAN. : Continental Motor Corporation (Red Seal)

address: Muskegon, Michigan

Model: M363; Engine # 3695; Spec 2 380A

(c) Clutch - Rockford Power take-off

Model PTA31045; Serial 351481

(d) Gear, Drive, Right Angle

MAN. : Johnson Gear and Manufacturing, Co.
address: Berkeley 10, Cal.

SERIAL 34431; Ratio 1-1; B.H.P. 75; RPM
1760.

Johnston Pump -
3272 East Foothill
Boulevard PASADENA, CALIFORNIA

5 sp. A. 2 sp. Pump Room

9 sp. 1. Unit

12 sp. (A) Motor

The plant is operated for the purpose of reducing the hardness of the raw water. The softening is accomplished by the addition of lime.

~~17-18~~ 38

Lime Pump Room

#1
Aggator motor

Name: Lightnin
Design: B
FRAME: 225 B
Type: OX
Model:
HP: 2
Volts: 220/440
Phase: 3
cycle: 60 *done*
RPM: 1155
Amps: 6.2/3.1
C Rating: 40 cont.
Class: 120
Form: B
Code: H
Motor No.: 1777691

#2
Aggator Motor

Name: Lightnin
Design: B
FRAME: 225 B
Type: OX
Model:
HP: 2
Volts: 220/440
Phase: 3
cycle: 60
RPM: 1155
Amps: 6.2/3.1
C Rating: 40 cont.
Class: 120
Form: B
Code: H
Motor No.: 1777693

done

Manufacturers: *Mining Equipment Co., Inc.*
Lightnin Motors
Rochester 11, New York.

Lime tanks

Size - ~~5' X 8'~~ both
4 1/2' X 7' both
Height Diameter

TT 938

Chlorinator Room

NAME: WALLACE + TIERNAN

C. Inc.

Type: A-418

Newark, New Jersey

serial No.: V-7884 done

NAME: WALLACE + TIERNAN

Type: A-421

serial No.: W-9743 done

Scales

NAME: WALLACE + TIERNAN

Type No.: done

serial No.: W 3808

Water Treatment and Pumping PlantBldg.#38 Tarawa Terrace

B. Filter Control Room

10. Unit#1 - Motor, Electric; Name: Wagner Electric Motor; Manufacturer:

Type: RPL; Design: B; Model No. 33E324J433; Frame: 324; Serial No. N/A; HP: 10; Cycles: 60; RPM: 1750; Amps: 26.4/13.2; Volts: 220/440; Phase: 3; C Rise: 40°.

11. Unit#1 - Panel, Electric (*Keen for Wash Water Motor*)
 Manufacturer: Square D Company; Series: A1; Catalogue No. D96353;
 Amps: 100; Volts: 240.

12. Unit#2 - Reset, Electric (*Start & Stop for Wash Water Motor*)
 Manufacturer: Square D Company.

13. Unit#3 - Panel, Electric (*Cuts off all motor in line mixing comm.*)
 Manufacturer: Square D Company; Series: A2; Catalogue No. A47412;
 HP: 7½; Volts: 240; Phase: 3; Amps: 60.

14. Unit#4 - Panel, Electric (*for lights*)
 Manufacturer: Federal Electric Products Company; Catalogue No. 116; Volts: 120/240; Amps: 100.

15. Unit#5 - Panel, Electric (*Start for Fan on Heater*)
 Manufacturer: Thumball Electric; Catalogue No. 24111; Model No. A;
 Type: D; Volts: 125; Amps: 30.

16. Unit#6 - Panelboard, Electric (*Main for lights all over building*)
 Manufacturer: Federal Pacific Electric Company; Panelboard No. AF 814397; Type: NBLP; Volts: 120/240; Phase: 3; Amps: 125; Wire: 4.

C. Chlorinator Room

17. Unit#1 - Chlorinator

Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville 9, New Jersey; Serial No. V-7884; Type: A-418.

18. Unit#2 - Chlorinator

Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville 9, New Jersey; Serial No. W-9743; Type: A-421.

19. Unit#3 - Scales

Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville 9, New Jersey; Serial No. W 3808; Type: N/A.

Capacity: 50

Capacity: 100

8. Filter Control Room
10. Unit 1 - Motor, Electric; Name: Hamner Electric Motor; Manufacturer:

Type: RFI; Footing: B; Model No. 333333; Name: 325; Serial No. 111; HP: 10; Color: 60; RPM: 1750; Amps: 2.4; Volts: 220V/440V; Phase: 3; C Rise: 100.

11. Unit 1 - Panel, Electric; Manufacturer: Square D Company; Series: A1; Catalogue No. 19003; Amps: 100; Volts: 220.

12. Unit 2 - Panel, Electric; Manufacturer: Square D Company.

13. Unit 3 - Panel, Electric; Manufacturer: Square D Company; Series: AS; Catalogue No. 19018; HP: 15; Volts: 220; Phase: 3; Amps: 60.

14. Unit 4 - Panel, Electric; Manufacturer: Federal Electric Products Company; Catalogue No. 110; Volts: 220V/240; Amps: 100.

15. Unit 5 - Panel, Electric; Manufacturer: Federal Electric; Catalogue No. 2111; Model No. A; Type: D; Volts: 125; Amps: 30.

16. Unit 6 - Panel, Electric; Manufacturer: Federal Electric; Catalogue No. 2111; Model No. A; Type: D; Volts: 125; Amps: 30.

9. Generator Room

17. Unit 1 - Generator; Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville 9, New Jersey; Serial No. 4-7413; Type: A-11.

18. Unit 2 - Generator; Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville 9, New Jersey; Serial No. 4-7413; Type: A-11.

19. Unit 3 - Generator; Manufacturer: Wallace and Tiernan Incorporated, 25 Main Street, Belleville 9, New Jersey; Serial No. 4-7413; Type: A.

TT-38

PA-70 and PA-95

DIRECTIONS

- Assembly
- Installation
- Regeneration
- Maintenance

Time Clock Controlled

MODEL PA-70

MODEL PA-95

AQUA-CON WATER SOFTENERS

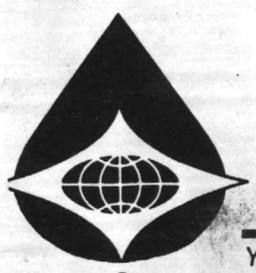
WARRANTY REGISTRATION

In order to be fully registered and to preserve the terms of your guarantee, the warranty registration Card packed with the equipment should be carefully filled out and mailed. (The authorized AQUA-CON dealer usually does this for you.)

The handling of any service matter which may arise in the future, will be expedited by having this record on file.

AQUA-CON WATER CONDITIONING

products of THE PERMUTIT COMPANY
 E 49 MIDLAND AVENUE, PARAMUS, N. J. 07652



Your AQUA-CON Softener will serve you best if it is well cared for. You should have the AQUA-CON dealer thoroughly inspect your Softener periodically.

This Softener is Model _____

DIRECTIONS

Assembly

Installation

Operation

Maintenance

Parts List

MODEL NO. 1000

AQUA-COM WATER SOFTENERS

WARRANTY INFORMATION

AQUA-COM WATER CONDITIONING

Member of THE SPECTRUM COMPANY

1000 BROAD AVENUE, CANTON, N. J. 08901



GENERAL

THE AQUA-CON PA SOFTENER IS DESIGNED FOR THE PURPOSE OF SOFTENING CLEAR HARD WATER AND REDUCING DISSOLVED IRON WITHIN THE LIMITS ESTABLISHED IN THE ENGINEERING SPECIFICATIONS FOR THIS PRODUCT. THIS SOFTENER REQUIRES PERIODIC SCHEDULED REGENERATION WITH SALT, BASED ON WATER HARDNESS AND THE AMOUNT OF WATER USED IN THE HOME. THE PA SOFTENER IS SELF REGENERATED BY A PROGRAM TIMER CONTROL AND REQUIRES NO PERSONAL ATTENTION FOR THIS OPERATION.

FOR THE UNIT TO OPERATE SATISFACTORILY, THE PROGRAM TIMER CONTROL MUST BE PROPERLY ADJUSTED AS PER THE INSTRUCTIONS IN THIS BOOKLET. THE AQUA-CON DEALER WILL SET THE CONTROL CORRECTLY AND, IF NECESSARY, CAN ADJUST IT LATER IF CHANGES IN WATER HARDNESS OR CONSUMPTION REQUIRE IT.

GENERAL

The amount of water used for the purpose of softening clear hard water and reducing dissolved iron within the limits established in the manual. The amount of water used in the home. The PA softener is also regenerated by a program timer control and requires no personal attention for the operation.

For the unit to operate satisfactorily, the manual timer control must be properly adjusted as per the instructions in this booklet. The manual timer will set the control correctly and, if necessary, can be reset at any time. The water hardness or consumption requirements.

PRELIMINARY INSTRUCTIONS

I. WATER PRESSURE

This water softener is engineered to function satisfactorily on residential water supplies with pressure ranging from a minimum of 20 lbs. to a maximum of 100 lbs. psi. On city water systems, the local water department can tell you the pressure in any given location. However, if there is a doubt, the pressure should be checked at the installation site with a pressure gauge. Should the pressure exceed 100 lbs., or may exceed it at times, (fire pressure for example) pressure reducing and pressure relief valves must be installed on the water line supplying the softener.

On private well systems, the pump pressure switch should be adjusted to obtain a minimum pressure of 20 lbs. to assure efficient performance of the softener. In doing so, the pump manufacturer's instructions should be checked and followed. Use a pressure test gauge after resetting to be sure of inlet pressure. Then check pump recovery rate with one faucet open.

CAUTION: This equipment cannot be installed where Flushometer valves are in use unless special plumbing or optional supply tanks are provided.

II. LOCATION

Two main points should be considered in determining the location of the softener. First, the Softener should be located as near as convenient to the water meter or well pump, and also to a sewer or suitable drain to receive discharge waste water during the regeneration cycle.

Second, there should be a long run of piping (20 ft. or more) between the softener and hot water heater so that in case of water heater malfunction, hot water cannot back up into the softener. (Water temperature exceeding 110°F. can damage the control valve and internal plastic components.) Otherwise a check valve and relief valve should be installed on the soft water line between the softener and hot water heater.

If the waste discharge line is to be elevated, it should not exceed the allowable height of 12 ft. (Measurement taken from floor.)

A few extra minutes spent in studying these instructions and in determining the most advantageous location will save time, labor, material, and eliminate possible future service problems.

III. ASSEMBLY AND LOADING

1. With tank screw cap removed place fill of coarse sand into tank and level off. Then place the Permutit Q in tank. Use a funnel to load fill of sand and Permutit Q.
2. Place screw cap on tank opening and tighten adequately. Make sure tank is plumb.

IV. PIPING INSTRUCTIONS

1. Complete connections to softener tank first in following manner.
 - a. SHUT: off water supply and relieve pressure by opening and closing hot and cold water faucets.
 - b. Cut into supply line and pipe up unit providing bypass and inlet and outlet stop valves as called for. (Fig. 1.)
 - c. Keep inlet and outlet stop valves closed. Open bypass valve to provide water in the home until installation is completed.
 - d. Install unions on inlet and outlet lines as illustrated. (Fig. 1.)
 - e. When soldered fittings are used, unions should be disconnected to prevent heat transmission to unit, which will distort plastic parts.
 - f. Minimum waste pipe should not be smaller than nominal 3/8" copper water tube. Where local codes permit 1/2" inside diameter non-rigid plastic pipe may be used over a 3/8" ips nipple with hose clamps. If plastic pipe is used, install it in a permanent manner, properly supported without sagging. Cut off any excess pipe rather than looping or coiling on floor or overhead. No restrictive fittings should be used, such as street elbows, check valves or plastic pipe fittings.
 - g. Waste line must not be connected directly to sewer. Back pressure will develop in water line if solid connections are made, which will impair ability of unit to regenerate efficiently. Also, access to end of waste pipe will permit sampling of discharge water during regeneration--servicing.
 - h. ALL SEWER AND WASTE LINES SHALL COMPLY WITH ALL LOCAL AND STATE SANITARY REGULATIONS.
 - i. Waste water discharge is automatically controlled.

1. With tank cover removed, place tank on level and level off. Then place the tank on level and level off. Then place the tank on level and level off.
2. Place cover on tank cover and tighten cover.

1. Complete connections to clean tank with the following manner:
 - a. Cut off all water supply and relieve pressure and closing the and cold water supply.
 - b. Cut into supply line and pipe with appropriate pipe and install end of pipe valves as follows: (Fig. 1)
 - c. Keep inlet and outlet clean valves closed. Open the gas valve to permit flow in the line while the line is connected.
 - d. Install piping on inlet and outlet lines as indicated. (Fig. 2)
 - e. When soldered fittings are used, connect the line to the connected to prevent heat transmission to tank which will deteriorate the tank.
 - f. Minimum water level should be maintained in the tank. Use copper water level. Water level should be maintained in the tank. Use copper water level. Water level should be maintained in the tank. Use copper water level.
 - g. Waste line must be on separate branch of sewer. Do not connect to main sewer line. Do not connect to main sewer line. Do not connect to main sewer line.
 - h. Waste pipe will be made separate branch of sewer. Do not connect to main sewer line. Do not connect to main sewer line.
 - i. All piping and other lines shall comply with local and state sanitary regulations.
 - j. Waste water shall be disposed of in a sanitary manner.

V. SALT STORAGE TANK CONNECTIONS

- a. Set salt tank on right side of softener and make sure it is plumb and on a solid surface.
- b. Screw the male end of needle valve into brine port of valve manifold angular 3/8" pipe connection (closest to service outlet port). USE GOOD GRADE PIPE DOPE. DO NOT ALLOW PIPE DOPE TO ENTER BRINE PORT.
- c. Attach plastic brine suction tube to needle valve with tube connector as provided. Make sure tube is firmly seated in needle valve. Tighten tube nut securely. Make sure tube nut is tight at other end of plastic brine suction tube. also.
- d. Keep tanks as close together as possible to permit maximum slack in brine suction tube. This will be helpful in the future should it be necessary to service the brine float valve. Brine tank may be installed up to 12 ft. from softener if extra brine tubing is used.

VI. ELECTRICAL CONNECTIONS

The PA softeners are prewired at the factory. An approved three-prong, 115 volt, 60 cycle grounded receptacle is required within 4 feet of the unit.

Where local codes permit, an approved adaptor may be used. Under no conditions should the grounded prong be cut off as this violates Underwriters Laboratory regulations and voids unit guarantee.

VII. SOFTENER STARTUP

The PA-Units are preset at the factory to regenerate at 3 A.M.

See Figure 3, Step No. 1, Item 3 for instructions on setting actual time of day.

The brine valve has been preset at factory for economy salting and should not be changed. It is more advisable to schedule regeneration more frequently than to change the amount of brine draw.

U.S. DEPARTMENT OF JUSTICE

INVESTIGATION OF THE ACTS OF VIOLENCE
COMMITTED BY THE ORGANIZATION OF
BLACK PANTHER PARTY

On this day, the undersigned, Special Agent in Charge,
of the Federal Bureau of Investigation, at the
City of New York, New York, advised that
the following information was received from
[Name] on [Date] at [Location].

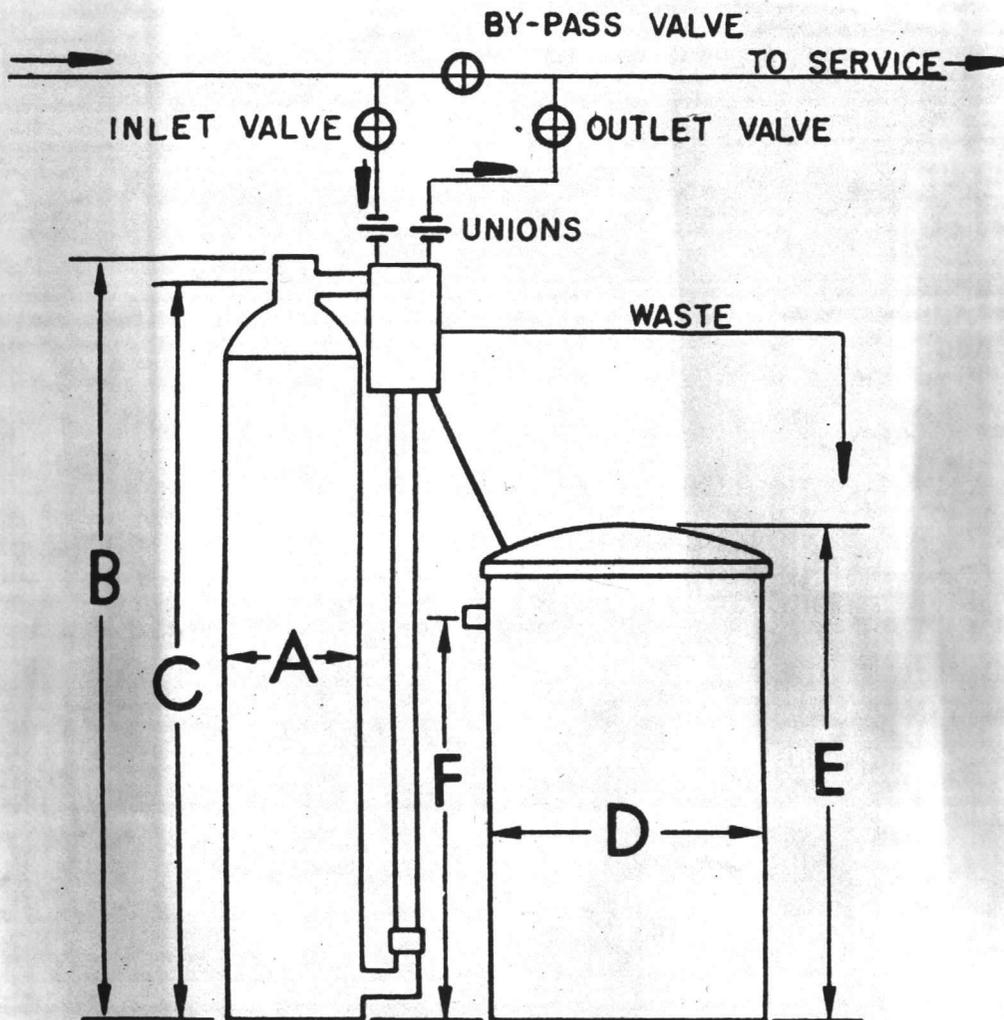
IDENTIFICATION OF SUBJECTS

The following names were furnished by [Name] as
being persons who were active in the
Organization of Black Panther Party at the
time of the above mentioned activities.

IDENTIFICATION OF SOURCES

The following information was furnished by [Name] as
being reliable and accurate information
concerning the activities of the
Organization of Black Panther Party.

Very truly yours,
Special Agent in Charge



	A	B	C	D	E	F
PA-70	7"	47"	45"	18"	29"	22"
PA-95	9½"	53"	51"	18"	29"	22"

Figure 1.

TO SERVICE
LEFT VALVE
RIGHT VALVE

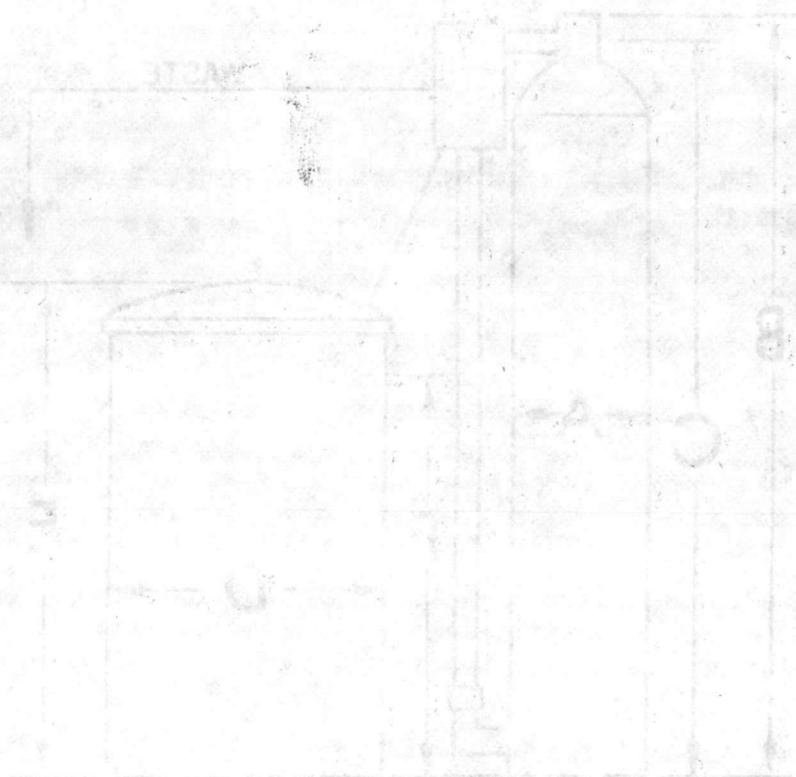


FIG. 1
FIG. 2

FIG. 3

A. Close Inlet, Outlet, Bypass and Needle Valve

1. Open inlet and outlet stop valves slightly which will admit raw water to top of softener tank. Permit unit to fill gradually. Open nearby cold water faucet to vent unit.
2. When water has discharged from cold water faucet for several minutes, open wide inlet and outlet stop valves and allow unit to run at full rate.
3. After all evidence of air has been eliminated, turn cold water faucet off.
4. Open needle valve fully. Allow water to flow into salt storage tank until it is cut off by float valve. Water should stand 1/2" to 3/4" above the salt grid level. To adjust for that correct level, float may be raised or lowered. Do not adjust more than 1/8" in either direction before testing "suction & refill" as explained in the following paragraph.

B. Regeneration Setting:

1. Actuate manual regeneration lever inside clock case, (Fig. 3).
2. Observe water level in salt storage tank to see that it is lowering. When level drops below grid plate, advance timer Knob I (Fig. 3) to the Fast Rinse position. Turn Flow Controller adjustment until the desired fast rinse flow is obtained. Suggested rates are:

PA-70 0.8 - 1.0 gpm

PA-95 1.2 - 1.5 gpm

NOTE: Flow Control adjuster is normally closed and must be opened during installation.

After proper fast rinse adjustment is made, advance timer Knob to OFF position (See Fig. 4)

3. Allow unit to refill to cut-off level. If level is not within the 1/2" to 3/4" range (Paragraphs #A-4), make adjustment in float and repeat steps #1 and 2 above.

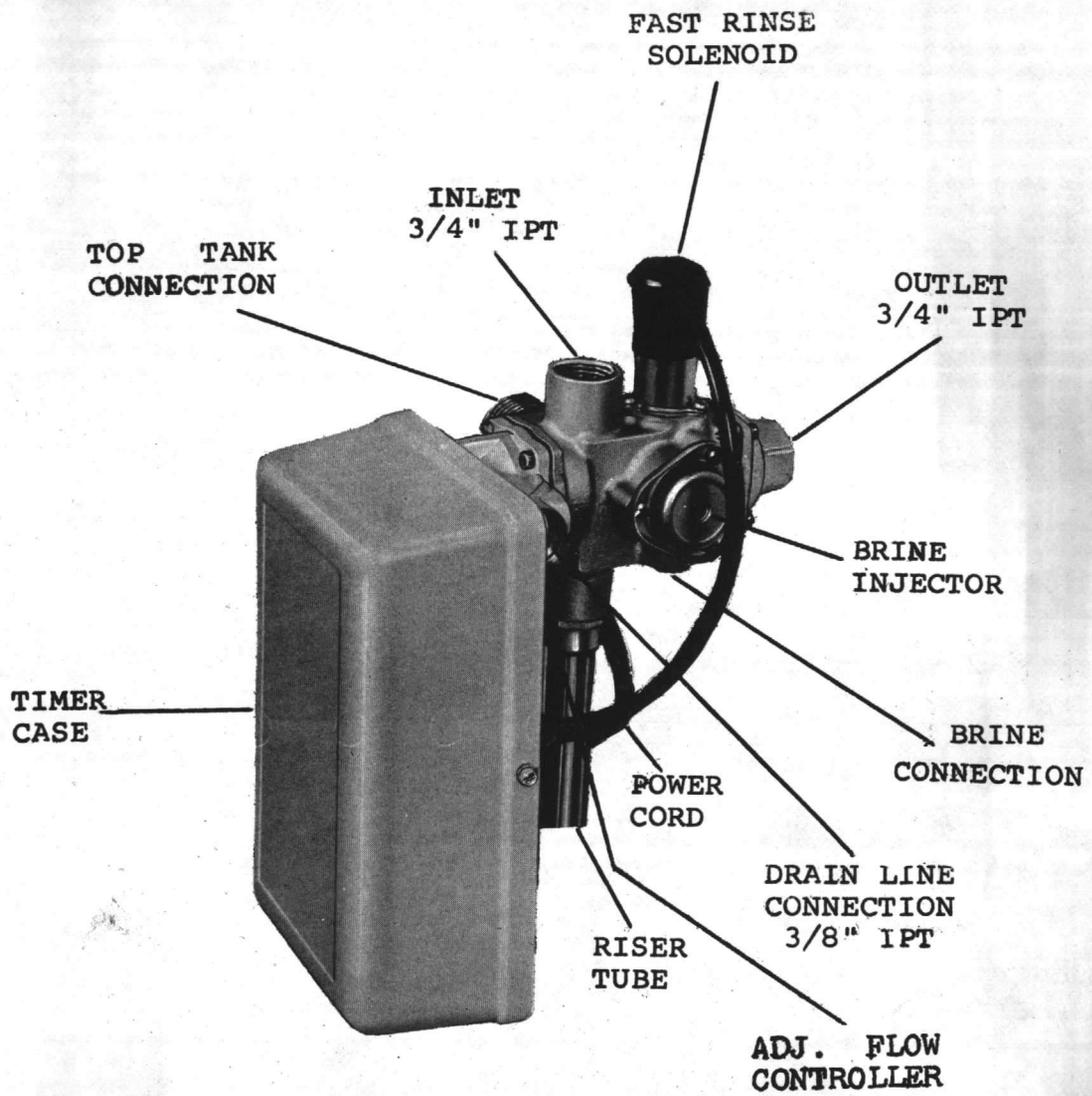


FIGURE 2. VALVE & TIMER ASSEMBLY

4. Place approximately 200 lbs. of salt of specified grade in salt tank making sure no salt gets down the 4" diameter brine well.
5. Needle valve must remain fully open during normal service.
6. See (Fig. 3) for Program Clock Setting instructions.

VIII. MAINTENANCE

- A. Be sure to keep an adequate supply of salt in the brine tank to assure continued soft water service. Check salt level periodically. Use only recommended grade and type salt.
- B. Keep waste line free of restriction and foreign matter at all times.
- C. Be sure electrical connection is on "live" circuit at all times.
- D. Needle valve may be closed for emergency service to brine system without interfering with normal service flow. Always reopen this valve after servicing.
- E. Should softener continue to run to waste after completing its cycle, manually activate regeneration on and off several times. Allow time for motorized valve to open waste port.
- F. Keep manual bypass valve closed tightly to prevent mixing hard water with soft water.
- G. Minimum water pressure of 25 lbs. should be maintained at all times.
- H. Draining Tank: To drain tank to avoid freezing or for any other purposes:
 1. Close inlet and outlet stop valves.
 2. Remove electric cord from receptacle.
 3. Remove screw cap slowly to vent pressure.
 4. Remove drain screw from drain elbow at bottom of riser tube and allow water to run out.
- I. To refill unit after draining, replace screw. Replace cap. Then follow instructions in paragraphs 1 and 2 under "Putting the Softener in Service."

VIII. WITNESS

A. The witness is a member of the...
B. The witness is a member of the...
C. The witness is a member of the...

D. The witness is a member of the...
E. The witness is a member of the...
F. The witness is a member of the...

G. The witness is a member of the...
H. The witness is a member of the...
I. The witness is a member of the...

J. The witness is a member of the...
K. The witness is a member of the...
L. The witness is a member of the...

- J. During regeneration, a limited supply of bypass water is available. The best time to regenerate is usually late in the evening when very little water may be needed in the home.

IX. SALT

Do not allow undissolved salt level to fall below refill water level.

Salt:

Use only Louisiana Rock Salt #2.

Compressed or Salt Briquets sold under the trade names of Brine Buttons, Brine Chips, Salt Nuggets or Salt Pellets.

Both types are suitable for the PA series.

In areas where available a good clean grade of block salt may also be used. Caution must be exercised not to drop block salt in brine tank. Doing so will result in damage to grid plate and supports.

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TO SET PROGRAM CLOCK

Models PA-70 and PA-95

The changing or resetting of the program clock is a simple matter and can be accomplished by following instructions below without professional assistance. You cannot injure the program clock by manually turning the TIME DIAL or the SKIPPER WHEEL in either direction.

Proper frequency and length of regeneration time are specified by the manufacturer or its representative. If in doubt as to the proper setting call your water softener dealer.

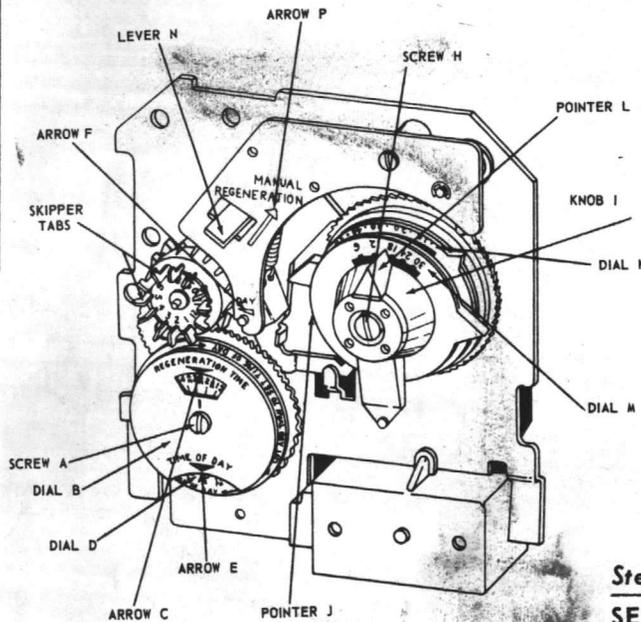
Step No. 2:

REGENERATION FREQUENCY

1. Turn SKIPPER WHEEL until #1 Tab is opposite Arrow "F".
2. Lift SKIPPER TABS for days regeneration is to occur.

MANUAL REGENERATION

Push Lever "N" in direction of Arrow "P" as far as it will go.



Step No. 3:

SET LENGTH OF REGENERATION CYCLE

1. Loosen Screw "H".
 2. Lift Dial "M" and set Pointer "J" to total regeneration time as indicated by white numbers on Dial "K".
 3. Tighten Screw "H" being sure gears engage.
- Set to 60 minutes for PA-70
Set to 75 minutes for PA-95

Step No. 4:

SET FAST RINSE TIME

1. Lift Knob "I" and set Pointer "L" to fast rinse time as indicated by yellow numbers on Dial "M".
2. Release Knob being sure gears engage.

NOTE: Fast rinse occurs within total regeneration time setting.
Set to 10 minutes for PA-70-95

Step No. 1:

SET REGENERATION TIME

1. Loosen Screw "A" and Rotate Black Dial "B" until Yellow Arrow "C" points to time regeneration is to begin.
2. Tighten Screw "A".
3. Lift Yellow Dial "D" and turn in either direction until Arrow "E" points to actual time of day. Release dial.

Figure 3.

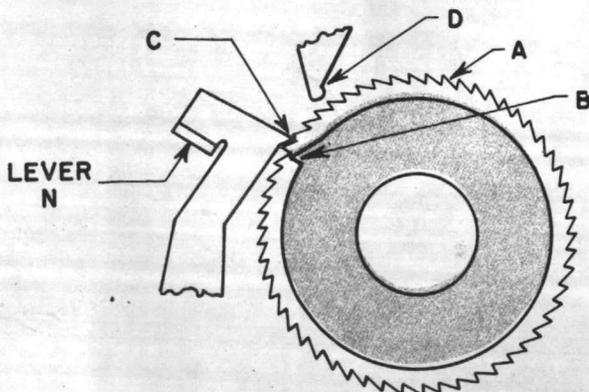


Figure 4

Turn saw-tooth gear "A" clockwise until notched section of gear allows ratchet "C" to fall into place. By close inspection you will note notched section immediately under cam-rise at point "B". This cam is attached directly to the saw-tooth gear. If another water level check is required advance cam-rise "B" so it separates tripper "D". To shut off, repeat above instructions.

TO SET PROGRAM CLOCK

PREPARATION PA 92

The following information is for the use of the program clock. It is intended to provide the user with the necessary information to set the program clock correctly.

GENERAL INFORMATION

1. The program clock is set by the user.

2. The program clock is set by the user. The user should refer to the manual for more information. The program clock is set by the user. The user should refer to the manual for more information.



3. The program clock is set by the user. The user should refer to the manual for more information.

4. The program clock is set by the user. The user should refer to the manual for more information.

5. The program clock is set by the user. The user should refer to the manual for more information.

6. The program clock is set by the user. The user should refer to the manual for more information.

7. The program clock is set by the user. The user should refer to the manual for more information. The program clock is set by the user. The user should refer to the manual for more information.

TT-38

Filters —

2 ea gate valves	6"	Waste + Wash Water
* 1 ea Butterfly	6"	influent
2 ea gate valve	4"	REWASH + effluent

{ Mueller, 200 W, 400 Test
{ Mueller, CHATTA, TENN.

5+6 have a 2" surface wash gate valve

When pump is out of order use high pressure line (see 1+2)

1. Gate, valve 6" + a Mueller (same as above)
2. Globe valve 8" JENKINS MARK

Have a 2" line going in top of the Globe Valve for Chlorine.

* Dreling-Pelton 6" influent

all same
1. E-1503 V
2. E-1500 GENR 4.
2. L6-1258

3. 5.
6. 6.

TT-38

Wash Water Pump Valves

2 ea Influent Gate valve 6" Mueller
effluent

TT-39 A (Pump, Service Room)

4 ea Gate valves 8" Mueller, Chatta, Tenn.
8AWWA, 200 W, 400 Test.

4 ea Check Valves 8" Mueller, Chatta, Tenn.
175 WP

1 ea Air Release Valve
Multiplex Mfg. Co. Berwick, Pa.

Outside TT-39A

1 ea Gate Valve 12" Mueller
200 W, 400 Test,

1 ea Gasoline tank size: cap. 280 gallons

B-7738 SERVICE PUMP

CHECKED BOX APPLIES		<input checked="" type="checkbox"/> ORDER FOR SUPPLIES OR SERVICES		<input type="checkbox"/> REQUEST FOR QUOTATIONS NO.		PAGE 1 OF 2							
1. CONTRACT/PURCH ORDER NO. M67001-78-M-5806		2. DELIVERY ORDER NO.		3. DATE OF ORDER 78 AUG 14		4. REQUISITION/PURCH REQUEST NO. M93058-8193-W007							
6. ISSUED BY: J.A. HARRIS/919-451-2186/mr Purchasing & Contracting Office Bldg 1211, Marine Corps Base Camp Lejeune, N. Carolina 28542		CODE M67001		7. ADMINISTERED BY: (If other than 6)		8. DELIVERY FOB <input type="checkbox"/> DESTINATION <input checked="" type="checkbox"/> OTHER (See Schedule if other)							
9. CONTRACTOR/QUOTER NAME AND ADDRESS Peabody Floway Pump Inc. P. O. Box 164 Fresno, CA 93707		CODE		FACILITY CODE		10. DELIVER TO FOB POINT BY: 78 OCT 30							
14. SHIP TO: Freight Traffic Branch Bldg 1011, Camp Lejeune, N. Carolina 78-M-5806		CODE		15. PAYMENT WILL BE MADE BY: Base Disbursing Officer MCB, Camp Lejeune, North Carolina 28542		11. CHECK IF SMALL BUSINESS <input type="checkbox"/> MBE							
12. DISCOUNT TERMS NET - 30 DAYS		13. MAIL INVOICES TO: (In sextuplicate) SAME AS BLOCK #14		16. MARK ALL PACKAGES AND PAPERS WITH CONTRACT OR ORDER NUMBER									
17. ACCOUNTING AND APPROPRIATION DATA - ACCOUNTING CLASSIFICATION (REV. 7-65)													
ITEM NO.	APPROPRIATION SYMBOL AND SUBHEAD	OBJECT CLASS	BUREAU CONT. NO.	SUB-ALLOT.	AUTH'N ACCT'G ACTY	TRANS. TYPE	PROPERTY ACCT'G ACTY	COUNTRY	COST CODE	AMOUNT			
1	1781106.2720	000	67001	0	067001	2D	000000		82351742383T	\$3,608.00			
18. ITEM NO.		19. PRIORITY 07 SCHEDULE OF SUPPLIES/SERVICES				20. QUANTITY ORDERED/ACCEPTED*		21. UNIT		22. UNIT PRICE		23. AMOUNT	
THIS IS A CONFIRMING ORDER...Confirms telephonic order of Mr. Menashian by our Mr. Harris						same number and date given your NOT DUPLICATE.							
1	MML999 4320-00-C99-1493, #62-354-2, Pump, Floway Vertical Turbine Complete (Replacement). Less Electric Motor. Size 8" Type 12DKL, 4 stage, cast iron, bowl assembly with cast iron impellers, 11 feet approx. of 1 x 8 column assembly with cast iron bearing retainers. 8 x 16-1/2 type "C" discharge head assembly with split packing gland, standard steel pipe.					1	EA	3,388.00	3,388.00				
* If quantity accepted by the Government is same as quantity ordered, indicate by ✓ mark. If different, enter actual quantity accepted below quantity ordered and encircle.		24. UNITED STATES OF AMERICA		BY: <i>Gene O. Holsonback</i> IONE O. HOLSONBACK		PURCHASING CONTRACTING/ORDERING OFFICER		25. TOTAL \$3,608.00		29. DIFFERENCES			
26. QUANTITY IN COLUMN 20 HAS BEEN: <input type="checkbox"/> RECEIVED <input type="checkbox"/> INSPECTED <input type="checkbox"/> ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED		27. SHIP. NO.		28. D. O. VOUCHER NO.		30. INITIALS		33. AMOUNT VERIFIED CORRECT FOR		34. CHECK NUMBER			
31. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		32. PAID BY 67001-SYM #.5190 MCB CLNC		35. BILL OF LADING NO.		42. S/R VOUCHER NO.							
37. RECEIVED AT		38. RECEIVED BY T. R. DEDMOND, Fiscal Acctg. Supv. (Signature and title of Certifying Officer)		39. DATE RECEIVED		40. TOTAL CONTAINERS		41. S/R ACCOUNT NUMBER		42. S/R VOUCHER NO.			

THIS PARAGRAPH APPLIES ONLY TO QUOTATIONS SUBMITTED:

Supplies are of domestic origin unless otherwise indicated by quote. The Government reserves the right to consider quotations or modifications thereof received after the date indicated should such action be in the interest of the Government. This is a request for information and quotations furnished are not offers. When quoting, complete blocks 11, 12, 22, 23, 25. If you are unable to quote, please advise. This request does not commit the Government to pay any cost incurred in preparation or the submission of this quotation or to procure or contract for supplies or services.

GENERAL PROVISIONS

1. INSPECTION AND ACCEPTANCE—Inspection and acceptance will be at destination, unless otherwise provided. Until delivery and acceptance, and after any rejections, risk of loss will be on the Contractor unless loss results from negligence of the United States Government. Notwithstanding the requirements for any Government inspection and test contained in specifications applicable to this contract, except where specialized inspections or tests are specified for performance solely by the Government, the Contractor shall perform or have performed the inspections and tests required to substantiate that the supplies and services provided under the contract conform to the drawings, specifications and contract requirements listed herein, including if applicable the technical requirements for the manufacturers' part numbers specified herein.

2. VARIATION IN QUANTITY—No variation in the quantity of any item called for by this contract will be accepted unless such variation has been caused by conditions of loading, shipping, or packing, or allowances in manufacturing processes, and then only to the extent, if any, specified elsewhere in this contract.

3. PAYMENTS—Invoices shall be submitted in quadruplicate (one copy shall be marked "Original") unless otherwise specified, and shall contain the following information: Contract or Order number, Item number, contract description of supplies or services, sizes, quantities, unit prices and extended totals. Bill of lading number and weight of shipment will be shown for shipments on Government Bills of Lading. Unless otherwise specified, payment will be made on partial deliveries accepted by the Government when the amount due on such deliveries so warrants.

4. DISCOUNTS—In connection with any discount offered, time will be computed from date of delivery of the supplies to carrier when acceptance is at the point of origin, or from date of delivery at destination or port of embarkation when delivery and acceptance are at either of these points, or from the date the correct invoice or voucher is received in the office specified by the Government, if the latter is later than date of delivery. Payment is deemed to be made for the purpose of earning the discount on the date of mailing of the Government check.

5. DISPUTES—(a) Except as otherwise provided in this contract, any dispute concerning a question of fact arising under this contract which is not disposed of by agreement shall be decided by the Contracting Officer, who shall mail or otherwise furnish a copy thereof to the Contractor. This decision shall be final and conclusive unless, within 30 days from the date of receipt of such copy, the Contractor mails or otherwise furnishes to the Contracting Officer a written appeal addressed to the Secretary. The decision of the Secretary or his duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. The Contractor shall be afforded an opportunity to be heard and to offer evidence in support of his appeal. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the contract and in accordance with the Contracting Officer's decision. (b) This "Disputes" clause does not preclude consideration of law questions in connection with decisions provided for in (a) above, provided, that nothing in this contract shall be construed as making final the decision of any administrative official, representative, or board on a question of law.

6. FOREIGN SUPPLIES—This contract is subject to the Buy American Act (41 U.S.C. 101a-d) as implemented by Executive Order 10582 of December 17, 1954, and any restrictions in appropriation acts on the procurement of foreign supplies.

7. CONVICT LABOR—The Contractor agrees not to employ for work under this contract any person undergoing sentence of imprisonment at hard labor.

8. OFFICIALS NOT TO BENEFIT—No member of or Delegate to Congress or resident commissioner, shall be admitted to any share or part of this contract, or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

9. COVENANT AGAINST CONTINGENT FEES—The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

10. GRATUITIES—(a) The Government may, by written notice to the Contractor, terminate the right of the Contractor to proceed under this contract if it is found after notice and hearing, by the Secretary or his duly authorized representative, that gratuities (in the form of entertainment, gifts or otherwise) were offered or given by the Contractor, or any agent or representative of the Contractor, to any officer or employee of the Government with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performing of such contract, provided, that the existence of the facts upon which the Secretary or his duly authorized representative make such findings shall be in issue and may be reviewed in any competent court. (b) In the event this contract is terminated as provided in paragraph (a) hereof the Government shall be entitled (i) to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the contract by the Contractor and (ii) as a penalty in addition to any other damages to which it may be entitled by law to exemplary damages in an amount (as determined by the Secretary or his duly authorized representative) which shall be not less than three nor more than ten times the costs incurred by the Contractor in providing any such gratuities to any such officer or employee. (c) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

11. RENEGOTIATION—This contract, and any subcontract hereunder, is subject to the Renegotiation Act of 1951, as amended (50 U.S.C. App. 1211 et seq.) and shall be deemed to contain all the provisions required by Section 104 thereof, and is subject to any subsequent act of Congress providing for the renegotiation of contracts.

12. CONDITION FOR ASSIGNMENT—This Purchase Order may not be assigned pursuant to the Assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), unless or until the supplier has been requested and has accepted this order by executing the Acceptance hereon.

13. COMMERCIAL WARRANTY—The Contractor agrees that the supplies or services furnished under this contract shall be covered by the most favorable commercial warranties the Contractor gives to any customer for such supplies or services and that the rights and remedies provided herein are in addition to and do not limit any rights afforded to the Government by any other clause of this contract.

14. PRIORITIES, ALLOCATIONS AND LOTMENTS DEFENSE MATERIALS SYSTEM

When the amount of the order is \$500 or more the Contractor shall follow the provisions of DMS Reg. 1 and all other applicable regulations and orders of the Business and Defense Services Administration in obtaining controlled materials and other products and materials needed to fill this order.

15. FAST PAYMENT PROCEDURE

(a) *General.* This is a fast payment order. Invoices will be paid on the basis of the Contractor's delivery to a post office, common carrier, or, in shipment by other means, to the point of first receipt by the Government.

(b) *Responsibility for Supplies.* Title to the supplies shall vest in the Government upon delivery to a post office or common carrier for shipment to the specified destination. If shipment is by means other than post office or common carrier, title to the supplies shall vest in the Government upon delivery to the point of first receipt by the Government. Notwithstanding any other provision of the purchase order, the Contractor shall assume all responsibility and risk of loss for supplies (i) not received at destination, (ii) damaged in transit, or (iii) not conforming to purchase requirements. The Contractor shall either replace, repair, or correct such supplies promptly at his expense, provided instructions to do so are furnished by the Contracting Officer within ninety (90) days from the date title to the supplies vests in the Government.

(c) *Preparation of Invoice.*

(1) Upon delivery of supplies to a post office, common carrier, or in shipments by other means, the point of first receipt by the Government, the Contractor shall prepare an invoice in accordance with Clause 3 of the General Provisions of Purchase Order, except that invoices under a blanket purchase agreement shall be prepared in accordance with the provisions of the agreement. In shipments by either post office or common carrier, the Contractor shall either (A) cite on this invoice the date of shipment, name and address of carrier, bill of lading number or other shipment document number, or (B) attach copies of such documents to his invoice as evidence of shipment. In addition the invoice shall be prominently marked "Fast Pay." In case of delivery by other than post office or common carrier, a receipted copy of the Contractor's delivery document shall be attached to the invoice as evidence of delivery.

(2) If the purchase price excludes the cost of transportation, the Contractor shall enter the prepaid shipping cost on the invoice as a separate item. The cost of parcel post insurance will not be paid by the Government. If transportation charges are separately stated on the invoice, the Contractor agrees to retain related paid freight bills or other transportation billings paid separately for a period of three years and to furnish such bills to the Government when requested for audit purposes.

(3) In the event this order requires the preparation of a Material Inspection and Receiving Report (DD Form 250), the contractor has the option of either preparing the DD Form 250 or including the following information on the invoice, in addition to that required in (c)(1) above: (A) a statement in prominent letters "NO DD 250 PREPARED"; (B) shipment number; (C) mode of shipment; and (D) at line item level, (i) National Stock Number and/or Manufacturer's part number, (ii) unit of measure, (iii) Ship-To-Point, (iv) Mark-For-Point if in contract, and (v) MILSTRIP document number if in contract.

(d) *Certification of Invoice.* The Contractor agrees that the submission of an invoice to the Government for payment is a certification that the supplies for which the Government is being billed have been shipped or delivered in accordance with shipping instructions issued by the ordering officer, in the quantities shown on the invoice, and that such supplies are in the quantity and of the quality designated by the cited purchase order.

OUTER SHIPPING CONTAINERS SHALL BE MARKED "FAST PAY"

16. (This clause applies if this contract is for services and is not exempted by applicable regulations of the Department of Labor.)

SERVICE CONTRACT ACT OF 1965—Except to the extent that an exemption, variation, or tolerance would apply pursuant to 29 CFR 4.6 if this were a contract in excess of \$2,500, the Contractor and any subcontractor hereunder shall pay all of his employees engaged in performing work on the contract not less than the minimum wage specified under section 6(a)(1) of the Fair Labor Standards Act of 1938, as amended (\$1.60 per hour). However, in cases where section 6(e) (2) of the Fair Labor Standards Act of 1938 is applicable, the rates specified therein will apply. All regulations and interpretations of the Service Contract Act of 1965 expressed in 29 CFR Part 4 are hereby incorporated by reference in this contract.

ADDITIONAL GENERAL PROVISIONS

17. CHANGES—The Contracting Officer may at any time, by a written order, and without notice to the sureties, make changes, within the general scope of this contract, in (i) drawings, designs, or specifications, where the supplies to be furnished are to be specially manufactured for the Government in accordance therewith; (ii) method of shipment or packing; and (iii) place of delivery. If any such change causes an increase or decrease in the cost of, or the time required for performance of this contract, whether changed or not changed by any such order, an equitable adjustment shall be made by written modification of this contract. Any claim by the Contractor for adjustment under this clause must be asserted within 30 days from the date of receipt by the Contractor of the notification of change provided that the Contracting Officer, if he decides that the facts justify such action, may receive and act upon any such claim if asserted prior to final payment, under this contract. Failure to agree to any adjustment shall be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes." However, nothing in this clause shall excuse the Contractor from proceeding with the contract as changed.

18. TERMINATION FOR DEFAULT—The Contracting Officer, by written notice, may terminate this contract, in whole or in part, for failure of the Contractor to perform any of the provisions hereof. In such event, the Contractor shall be liable for damages, including the excess cost of reprocurring similar supplies or services; provided that, if (i) it is determined for any reason that the Contractor was not in default or (ii) the Contractor's failure to perform is without his and his subcontractor's control, fault or negligence, the termination shall be deemed to be a termination for convenience under paragraph 19. As used in this provision the term "subcontractor" and "subcontractors" means subcontractors at any tier.

19. TERMINATION FOR CONVENIENCE—The Contracting Officer, by written notice, may terminate this contract, in whole or in part, when it is in the best interest of the Government. If this contract is for supplies and is so terminated, the Contractor shall be compensated in accordance with Section VIII of the Armed Services Procurement Regulation, in effect on this contract's date. To the extent that this contract is for services and is so terminated, the Government shall be liable only for payment in accordance with the payment provisions of this contract for services rendered prior to the effective date of termination.

20. ASSIGNMENT OF CLAIMS—Claims for monies due or to become due under this contract shall be assigned only pursuant to the Assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15). However, payments to an assignee of monies under this contract shall not, to the extent provided in said Act, as amended, be subject to reduction or set-off. (See Clause 12.)

ACCEPTANCE

The Contractor hereby accepts the offer represented by the numbered purchase order as it may previously have been or is now modified, subject to all of the terms and conditions set forth, and agrees to perform the same.

NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED
--------------------	-----------	----------------------	-------------

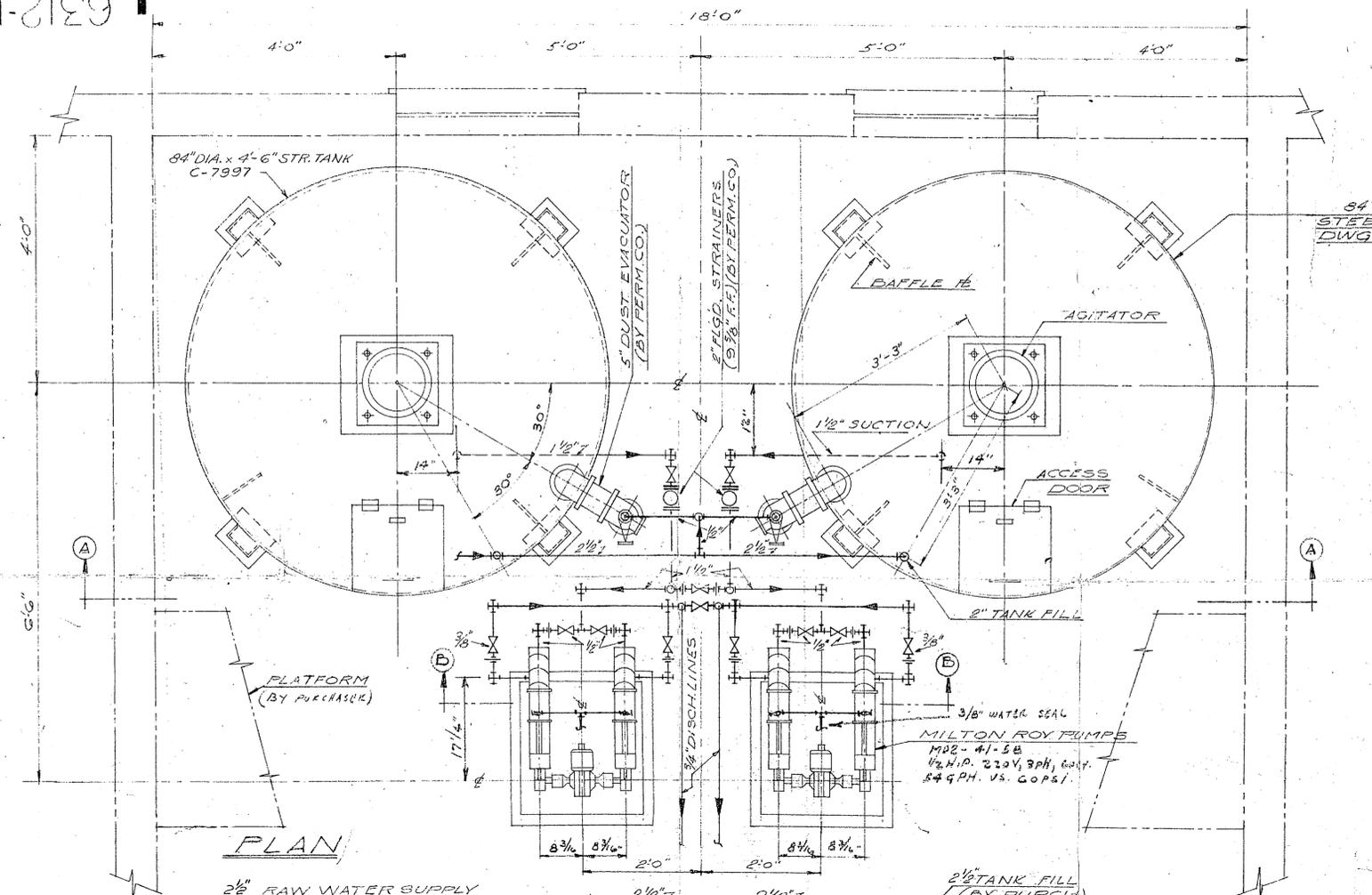
CONTINUATION SHEET

NAME OF OFFEROR OR CONTRACTOR

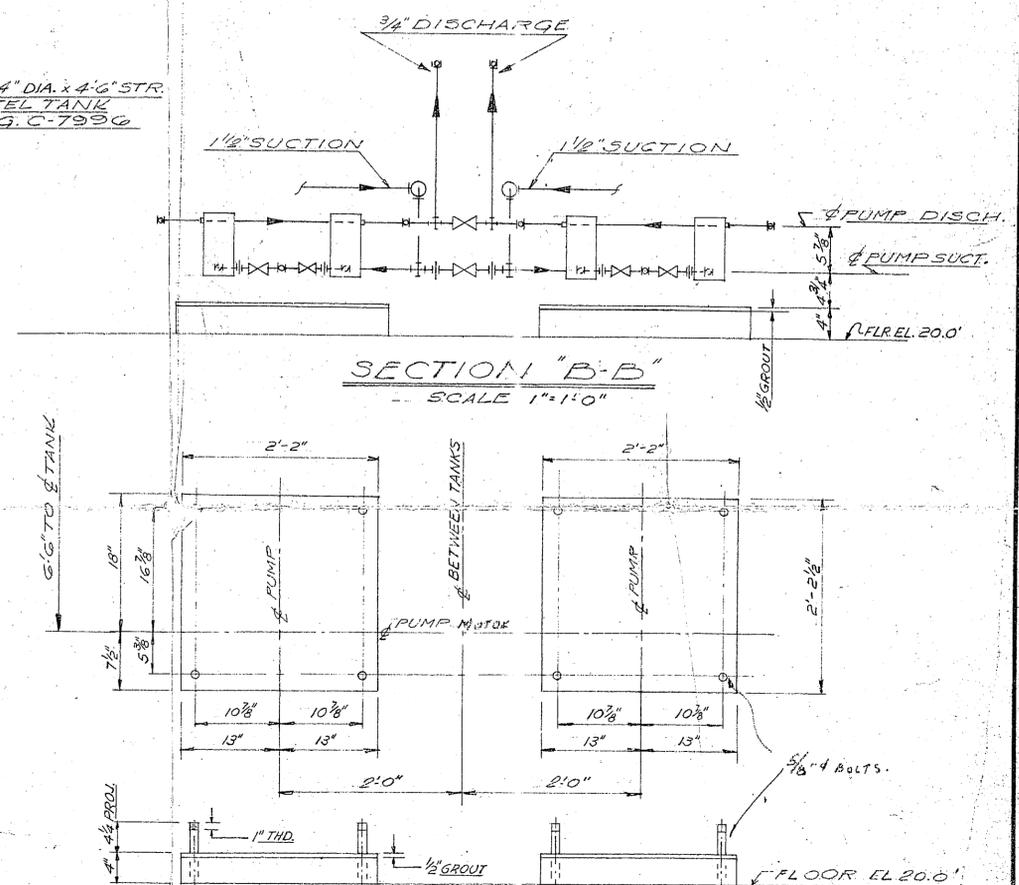
PEABODY FLOWAY PUMP INC.

ITEM NO.	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1(a)	Coating I.D. & O.D. of the column pipe F.O.B. <u>Fresno, CA</u> ; with full freight allowed to destination.		EA	220.00	220.00

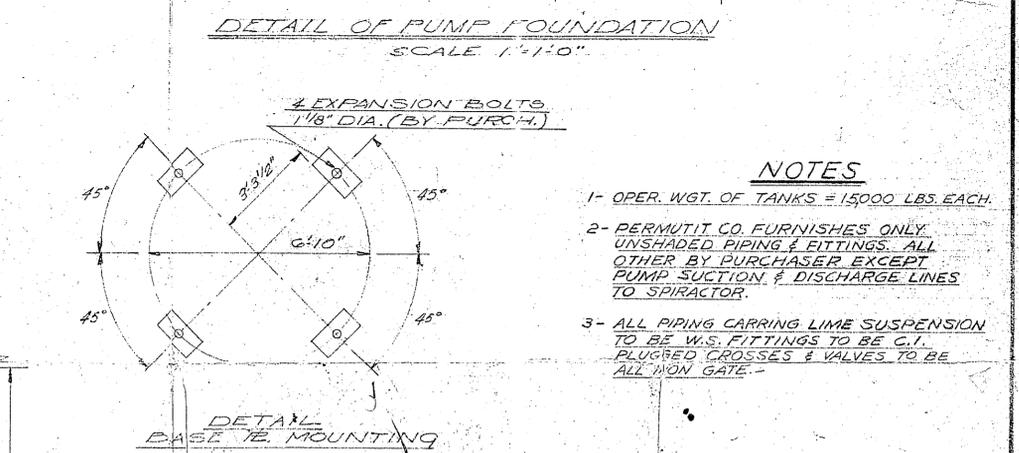
J-6312-1



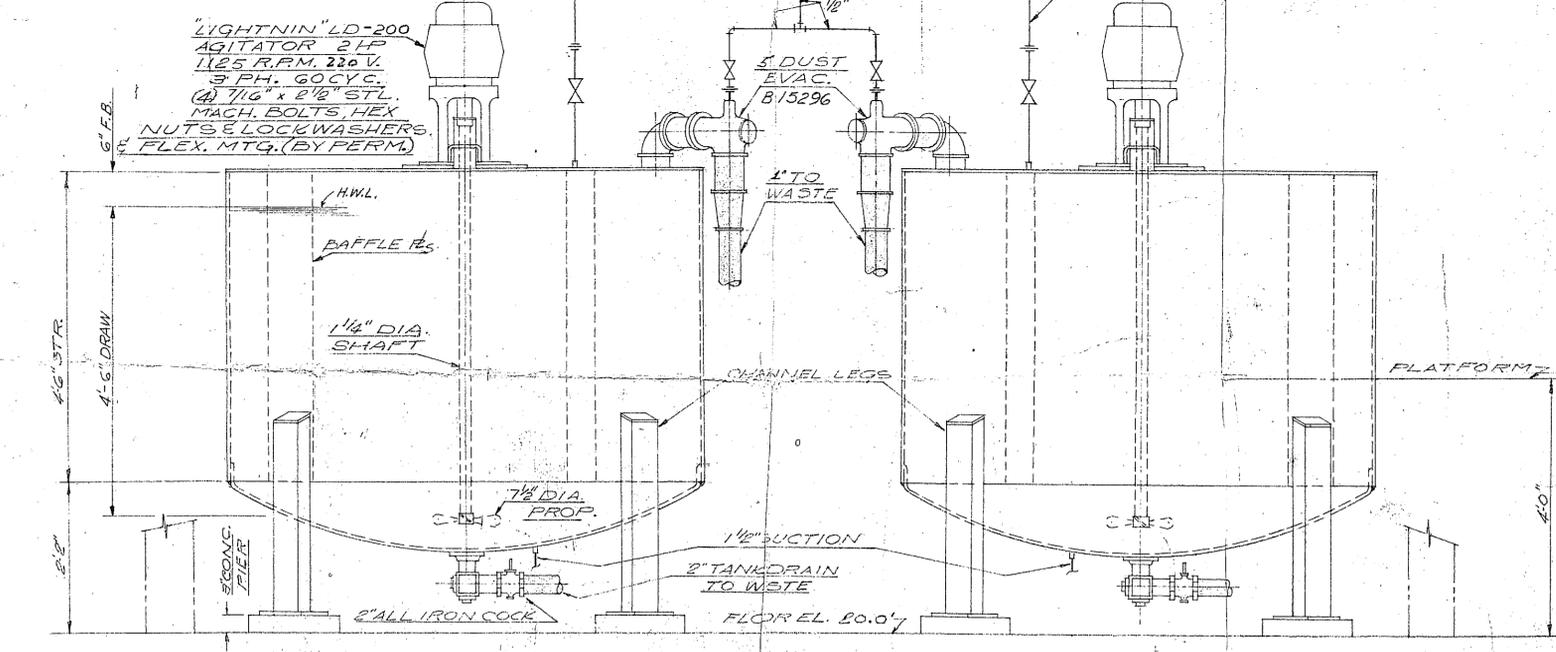
PLAN



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



DETAIL OF PUMP FOUNDATION
SCALE 1"=1'-0"



ELEVATION "A-A"

- NOTES**
- 1- OPER. WGT. OF TANKS = 15000 LBS. EACH
 - 2- PERMUTIT CO. FURNISHES ONLY UNSHADED PIPING & FITTINGS. ALL OTHER BY PURCHASER EXCEPT PUMP SUCTION & DISCHARGE LINES TO SPIRATOR.
 - 3- ALL PIPING CARRYING LIME SUSPENSION TO BE W.S. FITTINGS TO BE C.I. PLUGGED CROSSES & VALVES TO BE ALL NON GATE.

LAYOUT
CHEMICAL FEED TANKS

Permutit
Water Conditioning
MARINE BARRACKS
CAMP LEJEUNE, N.C.

THE PERMUTIT COMPANY
NEW YORK, N. Y.

DRAWN BY	SP
TRACED BY	
CHECKED BY	

NOTE: DO NOT SCALE THIS DRAWING
USE DIMENSIONS ONLY.

UNLESS OTHERWISE SPECIFIED THE PERMUTIT COMPANY SUPPLIES only the water purification units proper, and does not furnish any labor or material for erection, masonry, steel or wood construction, or alterations, to existing structures.

UNLESS OTHERWISE SPECIFIED THE PURCHASER SUPPLIES labor and materials for all foundations, supports, platforms, ladders, etc., storage tanks, water pumps, motors, electrical connections piping up to the inlet and from the outlet of the water purification plant proper, by-pass connections, sumps and drains, and all piping shown shaded on this drawing.

UNLESS OTHERWISE SPECIFIED all pressure vessels in this plant are designed for maximum working pressure of 50 lbs. per square inch.

OPERATING WEIGHTS:
Softener Lbs.
Filter Lbs.
Salt Storage Tank Lbs.
Brine Measuring Tank Lbs.

DRE-144569

REVISIONS	
A	
B	
C	
D	

DATE: 8-52

J-6312-1



old High lift
pump room

77 - ~~78~~ 38

p. 13

Wash Water Pump

Name: Wagner Electric Corporation
Design: B
Frame: 324
Type: RPI
Model: 33E324J433
HP: 10
Volts: 220/440
Phase: 3
cycle: 60
RPM: 1750
Amps: 26.4/13.2
Rating: 40 cont.

done

Pump -

FAIRBANKS - MORSE
GPM: 750
Size: 5
Head: 35 ft.
RPM: 1750
No. # 764037(?)

check valve
1/2" 1750 OWG;
6L23

Electric Panel

Name: SQUARE D COMPANY
Series: A1 this is the main
Amp: 100 for the wash
Volts: 240 water motor
Catalog: D96353

done

Electric Reset Box

Name: SQUARE D COMPANY
and probably the starter for
wash motor

done

Old High left

TT - ~~118~~ 38

P. 14

Pump room

Name: Square D Company

Amps: 60

Volts: 240

Series: A2

Catalog: A 47412

Phase: 3

H.P. 7 1/2

cut off all motors in line wiring room. done one just like it in this line wiring room.

Name: Thamball Electric

Type: D

Amp: 30

Volts: 125

Model: A

Cat. No.: 24111

this is for the starter of the heater you need motor in this room

Name: Federal Electric Products Company

Amps: 100

Volts: 120/240

Catalog No.: 116

done

light panel for this room

MAIN Control Box

Name: Federal Pacific Electric Company

Amps: 125

Volts: 120/240

Type: NBLP

Phase: 3

Wire: 4

Panelboard No.: AF 814397

done

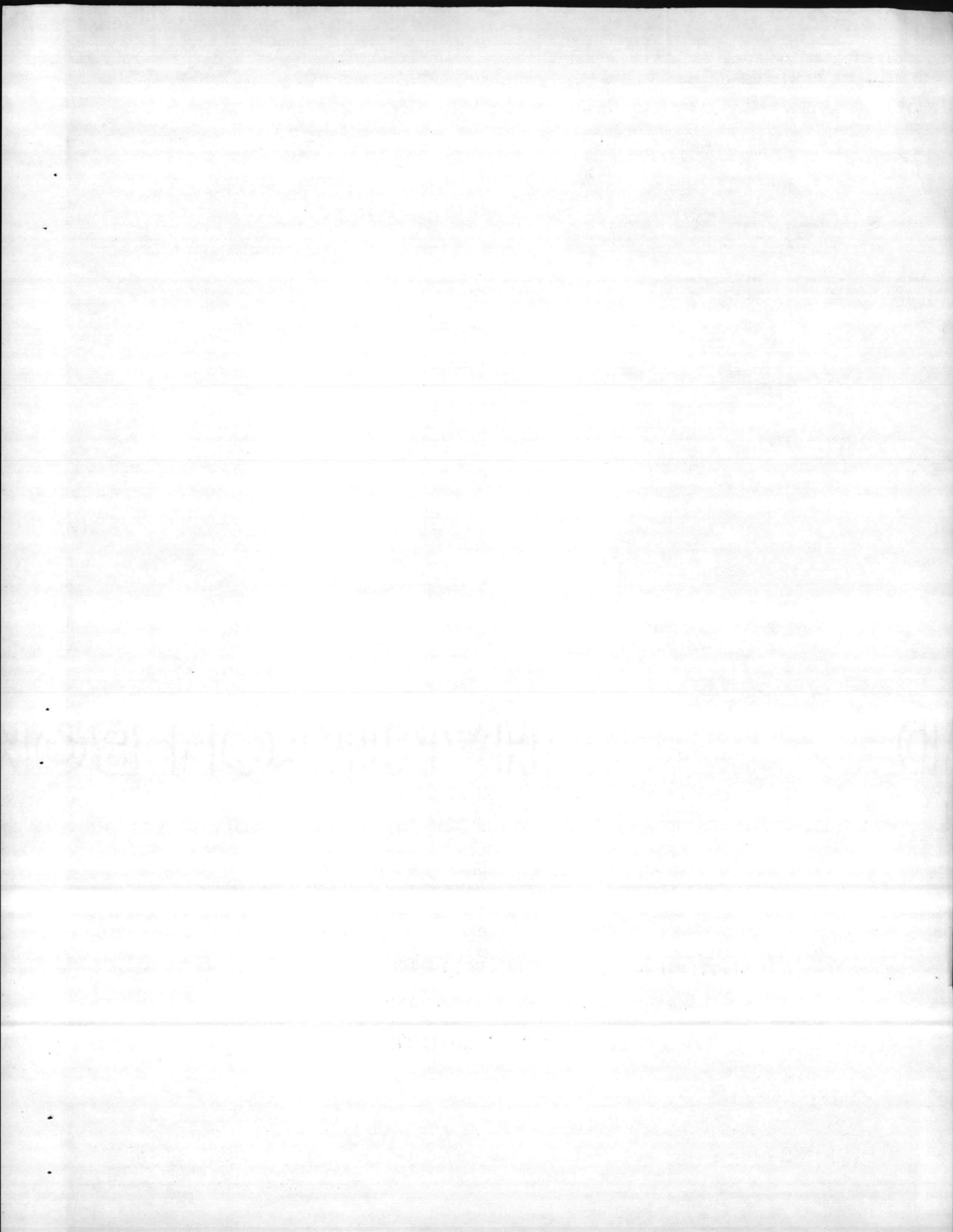
main for lights all over building

Could not get noroncelature off Fan motor (covered up by frame)

6403A2916, P.O. #15-11

Reservoir Level Transmitter

Detention Tank Level Transmitter





CHRONOFLO® FLOW &
LEVEL TRANSMITTER
Float Operated
Models 231-03, 231-04, 231-05



Fig. 1

C O N T E N T S

Principle of Operation	2
Specifications for Signal Line Facilities	3
Installation	4
External Wiring Diagrams	5-7
Pre-Starting Procedure	8
Internal Wiring Diagrams	
Initial Starting Procedure	9
Lubrication	9
Indexing	9
Servicing	10

PRINCIPLE OF OPERATION

A telemetering system is required when a variable is to be measured at one location and read out at a second location.

Any telemetering system consists of three components:

- 1) The Transmitter converts momentary measurements of the variable to electrical signals.
- 2) The Transmission Link carries the electrical signal from Transmitter to point of read out.
- 3) The Receiver converts electrical signal to chart, indicator, and/or totalizer readings. The signal may also control valves, pumps or feeders.

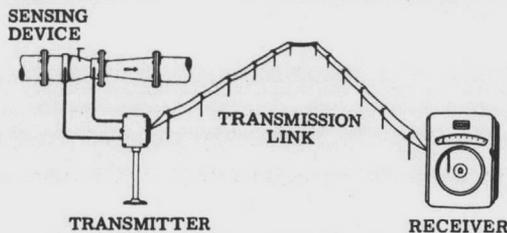


Fig. 2 - Schematic Diagram of Telemetering System

Chronoflo[®] is the registered trade name for B-I-F Industries electrical telemetering Transmitters and Receivers.

The Chronoflo Transmitter transmits measurements of a variable as successive impulses of electrical current. The signal is either "ON" or "OFF" and is repeated in cycles of 4, 8, 15, or 60 seconds. The value of the measurement determines length of time in each cycle that signal remains "ON". The "ON" signal is linearly proportional to the measurement. For example, when measuring flow, the signal would be "ON" twice as long at 50% rate as it would be "ON" at 25% flow rate.

All Chronoflo Transmitters (except electrical quantity Transmitters) have a common mechanism for producing a signal. Only the means of actuating this mechanism differ from one model to another.

This common mechanism is the cam operated switching device schematically diagrammed in Fig. 3.

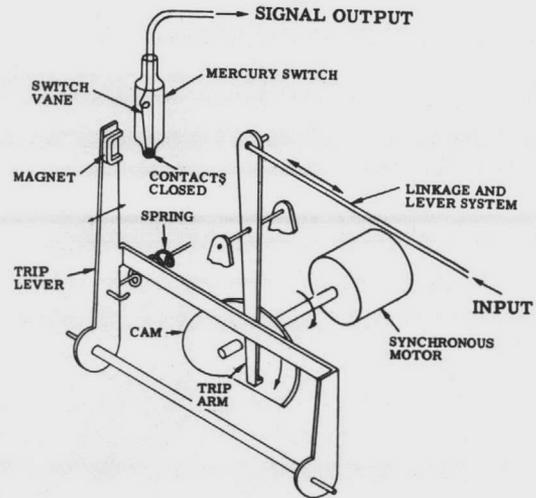


Fig. 3 - Schematic Diagram of Transmitter Mechanism

The Trip Arm is positioned on Cam by movement of Linkage and Lever System. Cam is driven at a constant speed by a Synchronous Motor. For the 8-second Chronoflo cycle, Cam makes one revolution every 8 seconds.

When Trip Arm rides on face of Cam, it forces Trip Lever to move Magnet away from magnet operated Mercury Switch. This releases Switch Vane, closing electrical contacts. Thus, "ON" signal begins.

When Trip Arm falls off Cam, Trip Lever is released and pulled back toward Mercury Switch by a Spring. The Magnet then pulls Switch Vane out of pool of mercury. This breaks electrical contact, ending "ON" signal.

Each Cam is individually shaped to produce a linear signal for any kind of input.

When Trip Arm is in maximum position, it will ride on Cam through 320° of 360° rotation for one cycle. Therefore, maximum length of signal is $\frac{8}{9}$ ths ($320^\circ \div 360^\circ$) of Cam cycle. For example, maximum time signal for a 15-second cycle is 13.333 seconds. For an 8-second cycle, maximum signal is 7.111 seconds.

SPECIFICATIONS FOR SIGNAL LINE FACILITIES

CUSTOMER RESPONSIBILITY: Since B-I-F Industries does not supply or have any control over the telephone lines or other media for transmission of Telemetering and Supervisory Control signals and, since these lines are vital to the successful operation of metering, controlling and monitoring equipment, it is the responsibility of the user of this equipment to make certain that the transmission facilities meet the outlined specifications and include signal line accessories that will insure satisfactory protection from abnormal variations in temperature and weather.

The user, when soliciting a signal line from the telephone company, must inform the telephone company of the intended use of the circuit; i. e. - telemetering, supervisory control, etc. The telephone company will then take steps to protect all terminating points of the circuit with plastic covers and to tag all terminations to prevent unauthorized interruption of the circuit by maintenance personnel.

Telephone Company personnel will not (according to Bell System Practice) interrupt a signal pair marked with plastic covers and/or tags for test purposes or otherwise, without first notifying the user. After notification the telephone company will isolate the signal line from the user's station equipment before applying test voltages.

If a difficulty with the signal circuit is suspected by the user, he must disconnect the telephone line from his equipment at both ends before the telephone company applies test voltages or other line checks. Failure to do so may result in damage to user-owned station equipment.

To assist the user, B-I-F Industries has compiled detailed specifications for approved standard circuit classification which vary with the particular application. It is important that the user consult with his local telephone company transmission engineer during the preliminary planning of a Supervisory Control installation to make sure that proper facilities will be available at the time of installation of the equipment. Assurance must be received from the user in writing that facilities in accordance with the specifications set forth by us are available before we can make adjustments and start up the equipment.

TELEPHONE COMPANY INFORMATION
Telemetering and Supervisory Control equipment manufactured by B-I-F Industries conforms in all respects to the limitations set forth in Bell Telephone Systems memorandum dated February 5, 1954. DC power supply units operating from 115 volt AC are equipped with isolation transformers to prevent damage to the telephone circuit. Automatic current limitation is provided by high resistance secondary windings on the transformer or by external resistance. This prevents the current from rising above the .350 amperes specified by the telephone company even on short circuit. Additional protection of the telephone line is provided by a built-in Slo-Blo fuse rated at 1/8 ampere.

When DC or 60 cycle AC is used for the source of power, the voltage applied to the lines will not exceed 125 volts.

When audio-tone signals are used, the frequency range will be from 300-3000 c.p.s. and the voltage applied to the signal lines will not exceed +8VU.

TYPICAL EXTERNAL CHRONOFLO TELEMETERING CIRCUITS

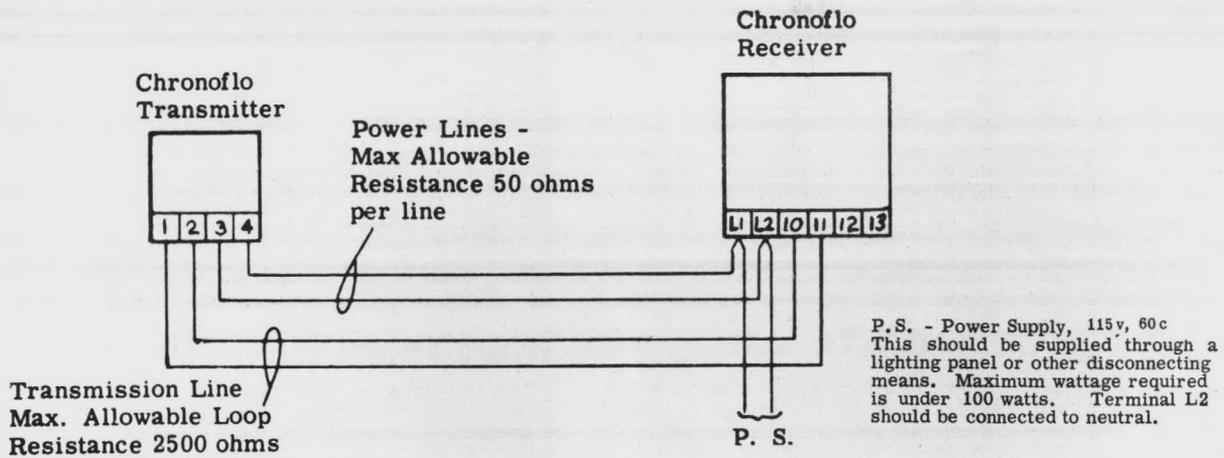


Fig. 6 - Transmitter Switch-Keying One Receiver With Power Source at Receiver Only. 2 Pair Lines Available.

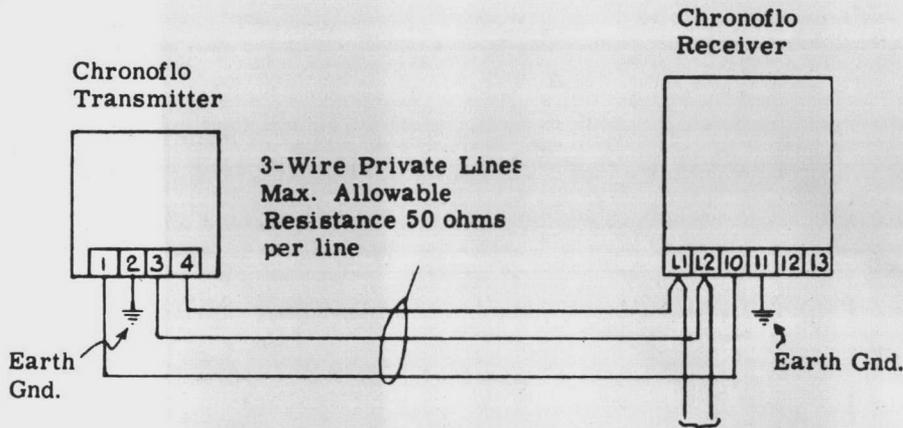


Fig. 7 - Transmitter Switch-Keying One Receiver With Power Source at Receiver Only, Using Ground Return Circuit.

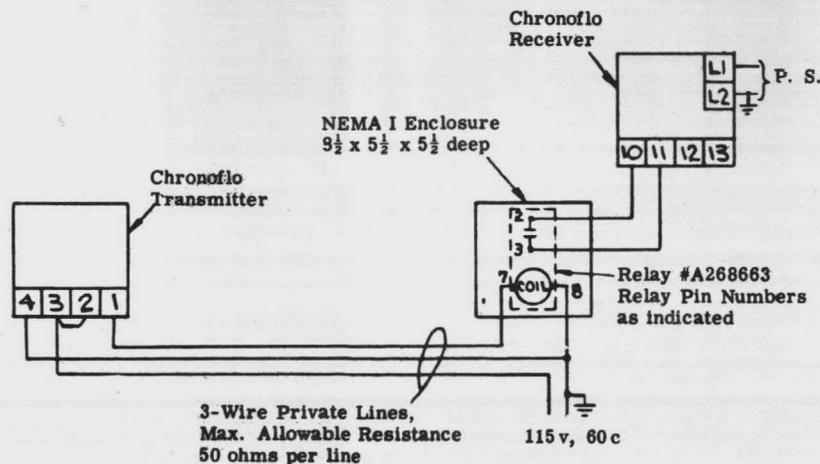


Fig. 8 - Transmitter Switch-Keying One Receiver When Ground Return Circuit Not Permissible.

TYPICAL EXTERNAL CHRONOFLO TELEMETERING CIRCUITS

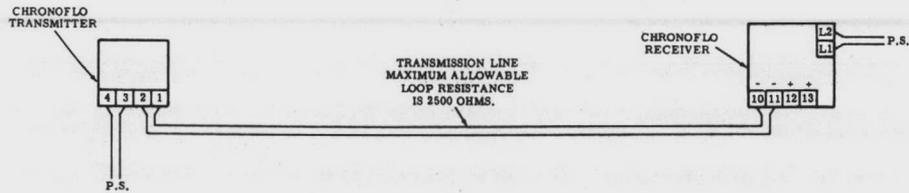


Fig. 9 - Transmitter Switch-Keying Receiver.

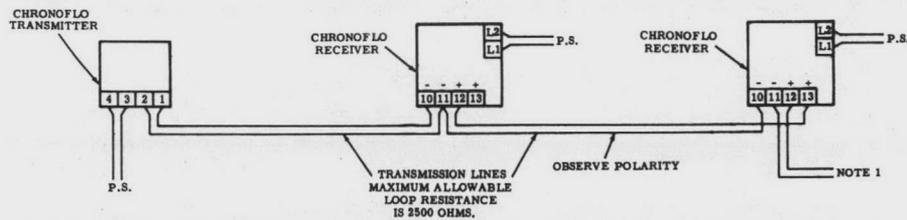


Fig. 10 - Transmitter Switch-Keying One Receiver;
Receiver Voltage-Keying an Additional Receiver.

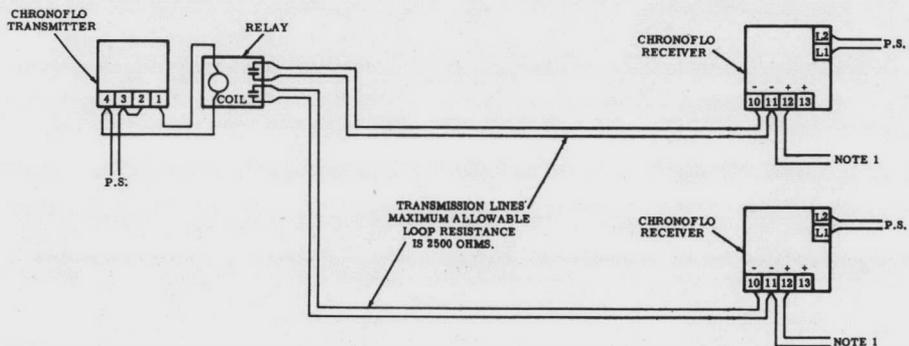


Fig. 11 - Transmitter Switch-Keying Two Receivers.

NOTE 1 - These connections will operate another Chronoflo Receiver. Polarity must be observed (- TO -) (+ TO +). Terminal 11 (-) connects to terminal 10 (-) and terminal 12 (+) connects to terminal 13 (+).

P.S. - Power Supply, 110 v, 60 c, Should be supplied through a lighting panel or other disconnecting means. Maximum wattage required is under 100 watts.

When power supply (P.S.) is not available at both transmitter and receiver stations, additional wires between stations are required.

TYPICAL EXTERNAL CHRONOFLO TELEMETERING CIRCUITS

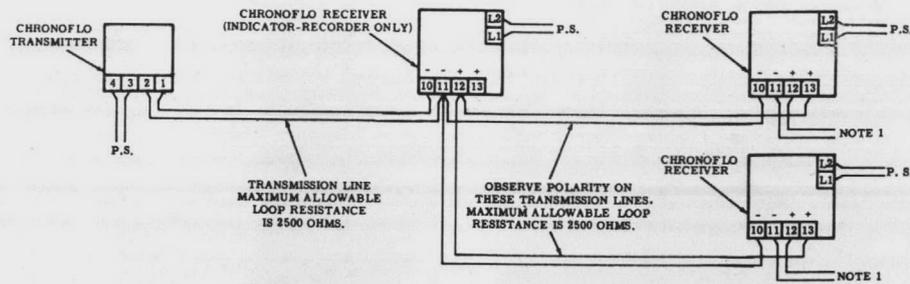


Fig. 12 - Transmitter Switch-Keying One Receiver; Receiver Voltage-Keying Two Additional Receivers.

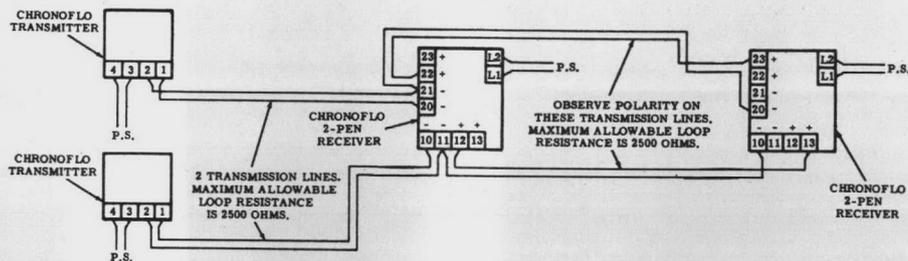


Fig. 13 - Two Transmitters Switch-Keying a 2-Pen Receiver; Receiver Voltage-Keying an Additional 2-Pen Receiver.

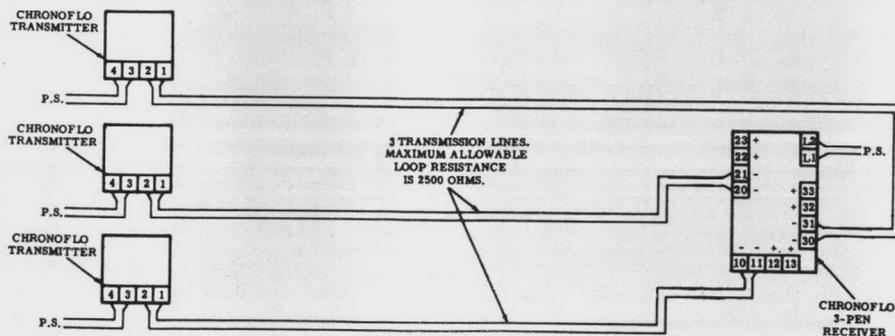


Fig. 14 - Three Transmitters Switch-Keying a 3-Pen Receiver.

NOTE - These connections will operate another Chronoflo Receiver. Polarity must be observed (- TO -) (+ TO +). Terminal 11 (-) connects to terminal 10 (-) and terminal 12 (+) connects to terminal 13 (+).

P.S. - Power Supply, 110 v, 60 c. Should be supplied through a lighting panel or other disconnecting means. Maximum wattage required is under 100 watts.

All telephone lines should be terminated with station protectors furnished by the telephone company providing the lines.

When power supply (P.S.) is not available at both transmitter and receiver stations, additional wires between stations are required.

PRE-STARTING PROCEDURE

1. Remove Shipping Ties: Remove transmitter front cover and carefully remove ties used to hold mechanism during shipment. Be sure Trip Arm is between Trip Lever and Cam.

2. Install Float and Counterweight: Have liquid in float well at level corresponding to zero rate (flow) or minimum level.

Disengage gear train so drum may be turned freely without moving Trip Arm.

Attach cable to float as in Fig. 15. Lower float into well until it floats on liquid surface.

Lead cable up to cable drum. Cut cable, allowing enough length to make about one turn around drum. Thread end through hole in pulley flange and knot cable end.

Turn pulley counter-clockwise (as seen from front of Transmitter) to wind up cable until it is taut. Block pulley from turning with a wedge of folded paper or cardboard.

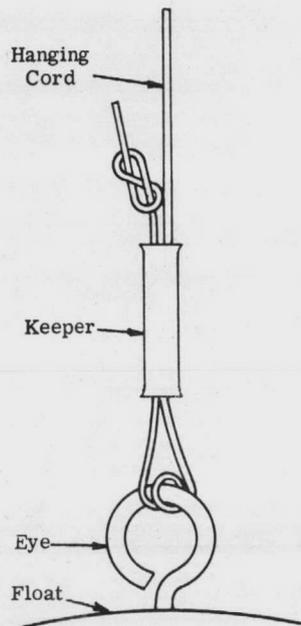


Fig. 15 - Attaching Cable to Float

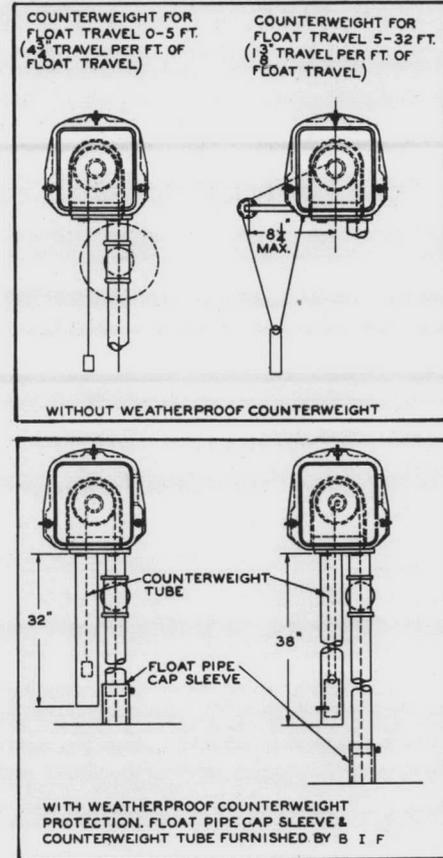


Fig. 16 - Installing Counterweight

Attach counterweight cable to counterweight drum. Since circumference of float drum is 12 in., drum will turn one revolution for each foot float rises. Wind counterweight cable counter-clockwise (as viewed from front) around drum one turn more than number of turns drum will make as float rises to its maximum level.

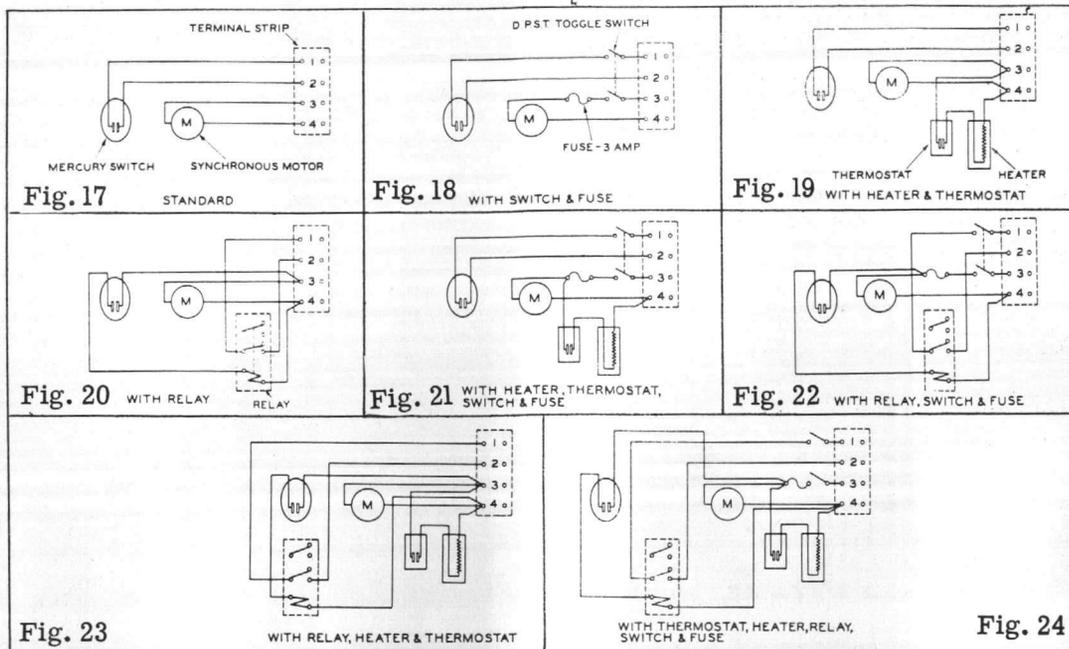
For example, if float will rise 10 ft, wrap 11 turns of cable around counterweight drum.

Attach counterweight to cable as in Fig. 16. Cut off excess cable.

Re-engage gear train with Trip Arm at outside edge of Cam.

3. Lubrication: See "Lubrication" section.

INTERNAL WIRING DIAGRAMS



INITIAL STARTING PROCEDURE

1. Complete "Pre-Starting Procedure".
2. Index Transmitter: See "Indexing" section following.
3. Put Transmitter in Service: Open water valve (sewage and sludge installation) to back-flush float well. Open valve in line connecting float well to reservoir or stream being metered.

Turn on power supply to both Transmitter and Receiver.

Transmitter is now in service.

LUBRICATION

Fill oil reservoir to within 1/16 in. of top with Chronoflo transmitter oil (See Fig. 25). Keep level high enough for Cam to dip into oil. Change oil and clean reservoir annually. Initial supply of oil is furnished with instrument.

Lubricate shaft bearings with one drop of fine machine or clock oil three or four times per year. B-I-F Superfine Instrument Oil is recommended.

INDEXING

Although instrument was factory calibrated, check and adjust indexing of Trip Arm before putting Transmitter in service (Fig. 25).

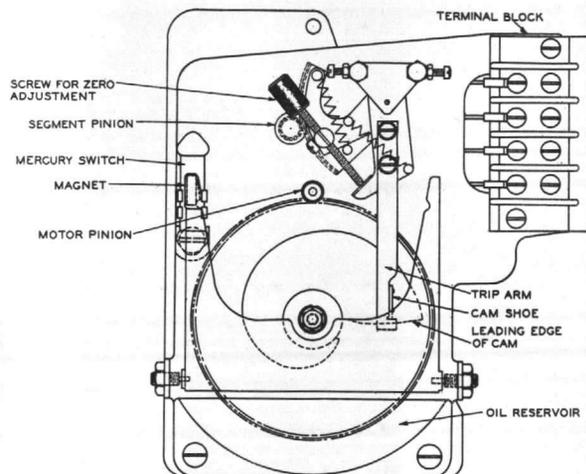


Fig. 25 - Indexing Chronoflo Transmitter

To check indexing, apply test condition to Transmitter and check Receiver reading. If reading matches test condition, Trip Arm is correctly indexed. Test condition and matching reading are recorded on nameplate.

If test reading is incorrect, adjust position of Trip Arm by re-positioning Micrometer Screw. To increase reading, turn screw so Trip Arm moves toward center of Cam. To decrease reading, move Trip Arm away from center.

To establish test condition and check indexing, proceed as follows:

Adjust level in float well to test level specified on nameplate.

Turn on power supply to both Transmitter and Receiver. After several Transmitter cycles, note Receiver reading. If reading is in error by more than 5% of maximum, loosen setscrews of float pulley and turn pulley until reading is in error less than 5%. Tighten pulley setscrews when completed.

To make Receiver reading agree exactly with that specified on nameplate, adjust Micrometer Screw as previously described.

SERVICING

Chronoflo Motor: To replace Coil and/or Rotor, proceed as follows:

1. Remove Transmitter Mechanism: Turn off power supply to both Transmitter and Receiver. Disconnect power supply and signal wires from Terminal Strip.

Remove Segment Pinion.

Remove Oil Reservoir.

Remove third and final screw or nut holding transmitter mechanism in place.

Remove transmitter mechanism.

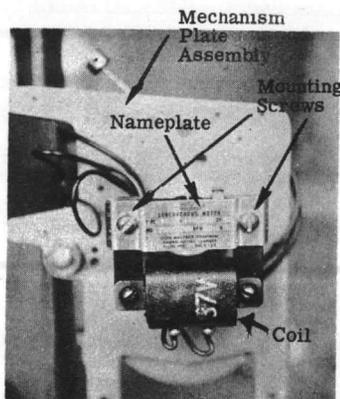


Fig. 26 - Rear View of Chronoflo Transmitter Showing Motor in Place

2. Remove Motor Coil from Transmitter Mechanism: Disconnect motor leads from Terminal Strip.

Remove mounting screws and nameplate.

Remove Coil and Field Assembly.

3. Remove Gear Casing: Loosen setscrew and remove drive pinion from motor output shaft. Remove Rotor.

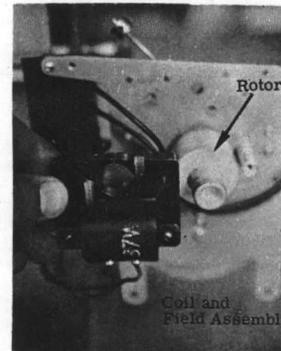


Fig. 27 - Rear View of Chronoflo Transmitter With Motor Coil and Field Removed

4. Reassembling: In general, reassemble in reverse order from disassembly procedure. Be sure to position Rotor so word "top" (stamped on casing) will be at top when motor is in operating position.

Note: Direction of rotation can be reversed if Coil and Field are turned so opposite side faces Rotor. See Figs. 28 and 29.

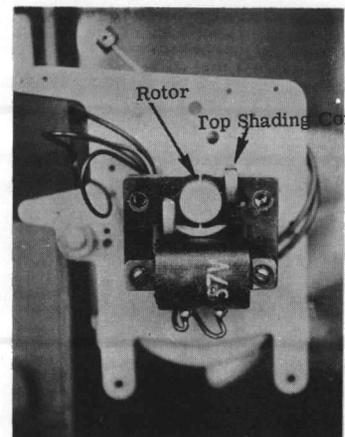


Fig. 28 - Cam Rotation (Viewed from the Front) Will Be Clockwise When Top Shading Coil of Motor is to Right of Rotor.

Mercoïd Switch

1. Replacement of Mercoïd Switch: Turn off power supply to Transmitter and Receiver.

Disconnect Mercoïd Switch leads from Terminal Strip.

Note position of old switch in clips. Remove switch and install new one. Position switch so that when magnet is brought close to switch, movable electrode will be attracted to magnet and pulled out of mercury.

We recommend switch be sealed in proper position with touch of enamel.

Connect switch leads to Terminal Strip.

Transmitter and Receiver may be put back into service.

2. Adjustment of Magnet: Position magnet to pull movable electrode out of mercury when Trip Arm is off Cam, and to release electrode when Trip Arm is on Cam.

When Trip Arm is on Cam, gap between magnet and glass surface of mercoïd switch should be $\frac{3}{32}$ in. to $\frac{1}{8}$ in.

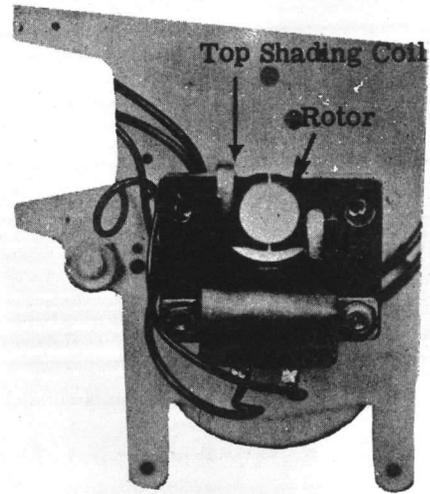


Fig. 29 - Cam Rotation Will Be Counter-Clockwise When Top Shading Coil of Motor is to Left of Rotor

B I F has long been recognized as a supplier of the most modern comprehensive line of metering, feeding, controlling and filtering equipment for municipal and industrial uses. Know-how, gained in nearly a century and a half of service, constant research and development, plus thousands of performance-proved installations back the dependability of each B I F product.

BIF PRODUCTS

FEEDERS

Gravimetric or volumetric; for liquid or dry materials. Chlorine gas feeders.

WEIGHERS

Belt gravimetric; for bulk granular solid materials.

PRIMARY METERING ELEMENTS

Differential Producers; Dall Flow Tubes, Venturi Tubes and Nozzles. Kennison Open Flow Nozzles and Parshall Flumes.

MECHANICAL FLOW METERS

Totalizing, indicating, recording instruments; for liquid, steam, air or gas.

TELEMETERS

Electric and pneumatic units for data transmission and recording.

SUPERVISORY CONTROL

For centralized control of widespread operations.

VALVES

Butterfly; tight-closing, rubber seated, to meet AWWA or industrial specifications.

PUMPS

Diaphragm and plunger; for chemical feeding, proportioning or sampling.

FILTERS

Vacuum diatomite; for swimming pool and potable water filtration.

MUNICIPAL FILTER PLANT EQUIPMENT

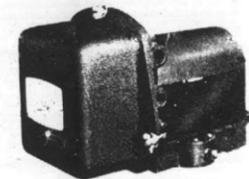
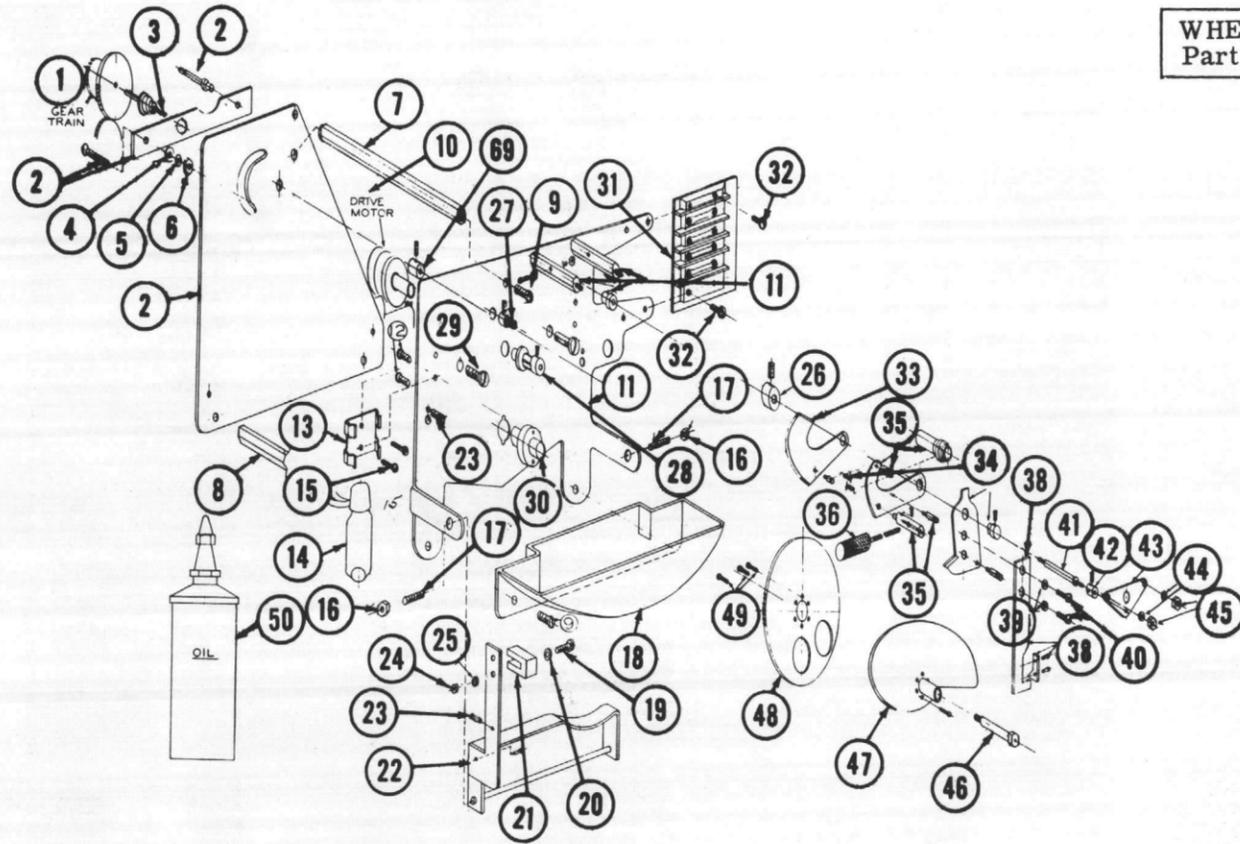
Mechanical, pneumatic, hydro-pneumatic, electro-hydraulic, and electric control systems. Gauges, filter bottoms, chemical feeders, flow meters and valves.

WASTE WATER TREATMENT PLANT EQUIPMENT

Instrumentation, pH equipment, flow meters, controls, chemical feeders and belt weighers.

**CHRONOFLO FLOAT-OPERATED
LEVEL TRANSMITTER 231-03 (CTF)
CHRONOFLO FLOAT-OPERATED
FLOW TRANSMITTER 231-05 (CTF)
MECHANISM
(See Page 2 for Float Assembly)**

WHEN ORDERING state Quantity, Part Name,
Part No. and Serial No. of Unit.



CASE PARTS

Mechanism Housing	VM-8460	1
Housing Base	VM-8461	1
Pipe Stand Cover	V-6973-B	1
Washer	D-143696	3
Latch Screw Pin	V-9709-B	3
Latch Screw	V-6966-B	3
Drum Cover	V-6980-B	1
*Housing Gasket 1/4" dia. x 30" Lg. Gum Rubber		

*Recommended Spare Parts.

ITEM	DESCRIPTION	PART No. OR MATERIAL	QTY.
*21	Magnet	139360	1
*22	Magnet Arm Bracket Assy.	VA-7286-B	1
*23	Magnet Arm Spring	V-7054-A	1
24	#6-32 Hex. Nut	Brass NP	1
25	#6 Lock Washer	Steel NP	1
26	Segment Collar	V-6467-B	1
27	Segment Pinion Assy. (12T)	VA-6456-B	1
*28	Motor Pinion Assy.	See variables	1
29	#10-32 x 1/4" Bind. Hd. Mach. Screw	Brass NP	2
30	Cam Stud Mtg. Bushing	V-6378-B	1
31	Terminal Strip	#4-141	1
32	#6-32 x 1/4" Bind. Hd. Mach. Screw	Brass NP	2
*33	Segment & Spring Post	137849	1
34	Vernier Spring-Segment Spring	V-6454-B	2
35	Interm. Lever Assy.	137848	1
36	Vernier Screw	V-6463-B	1
37	Rate Arm Lever Assy.	135558	1
*38	Rate Arm Assy.	VA-7287-B	1
39	#4 Plain Washer	Brass NP	2
40	#4-40 x 1/8" Bind. Hd. Screw	Brass NP	2
41	Rate Lever Shaft	V-6497-B	1
42	Operating Shaft Bearing	V-6458-B	1
43	Bearing Plate	V-6470-B	1
44	#4 Lock Washer	Steel NP	2
45	#4-40 Hex. Nut	Brass NP	2
*46	Cam Stud	V-6377-B	1
47	Cam Assy.	Per cust. specs	1
48	Cam Gear	See variables	1
49	#4-40 x 3/8" Bind. Hd. Mach. Screw	Brass NP	3
*50	Cam Oil	DOA-1	1
69	Shaft Collar	DC129-1	1

VARIABLES

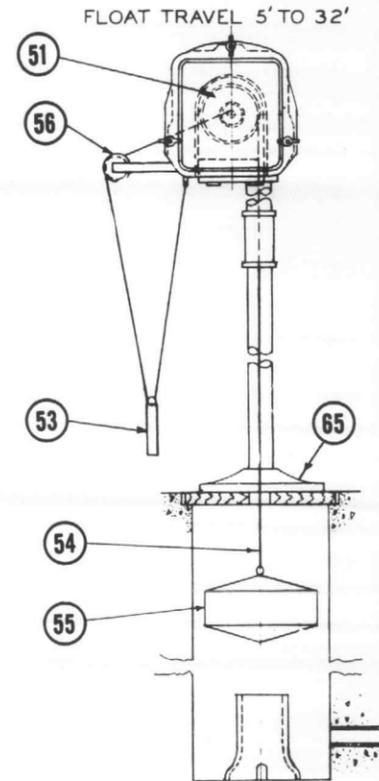
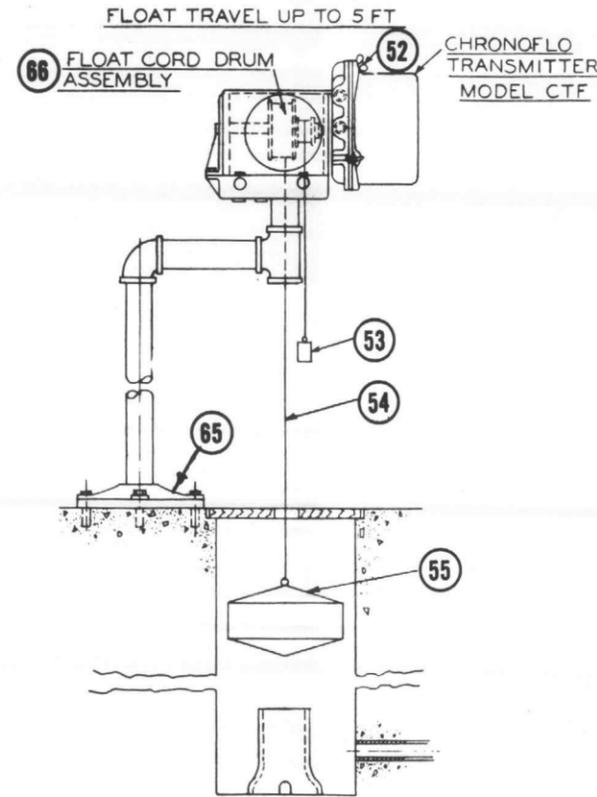
CAM CYCLE	ITEM 10 DRIVE MOTOR	ITEM 28 MOTOR PINION	ITEM 48 CAM GEAR
2 Second	BC, 110V, 60RPM	142204-1	142210
4 Second	BC, 110V, 60RPM	VA-6034-B	V-6053-B
8 Second	BC, 110V, 60RPM	142204	142207
15 Second	BC, 110V, 60RPM	VA-6071-B	V-6052-B
60 Second	B3, 110V, 4RPM	VA-6034-B	V-6053-B

ITEM	DESCRIPTION	PART NO. OR MATERIAL	QTY.
1	Change Gears	Per cust. specs	1
2	Rear Plate Assy.	137847	1
3	Operating Shaft	V-6498-B	1
4	#6 Plain Washer	Brass NP	1
5	#6 Lock Washer	Steel NP	1
6	#6-32 Hex. Nut	Brass NP	1
7	Stanchion	DS-24-1	1
8	Stanchion	DS-33-1	2
9	Stanchion Screw #8-32 x 3/8" Bind. Hd.	Brass NP	6
*10	Drive Motor	See variables	1
11	Mechanism Plate Assy.	137846	1
12	#6-32 x 3/16" Bind. Hd. Screw	Brass NP	2
*13	Mercoid Clip	DM-14	1
*14	Mercoid Switch	DM-2-3	1
15	#8-32 x 3/16" Bind. Hd. Screw	Brass NP	2
16	Bearing Screw Nut #8-32	Brass NP	2
17	Bearing Screw	V-9029-B	2
*18	Oil Trough	V-8557-B	1
19	#6-32 x 1/2" Fil. Hd. Mach. Screw	Brass NP	1
20	#6 Plain Washer	Brass NP	1

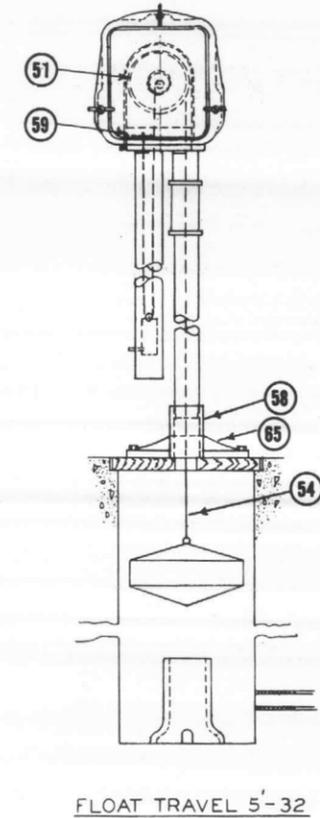
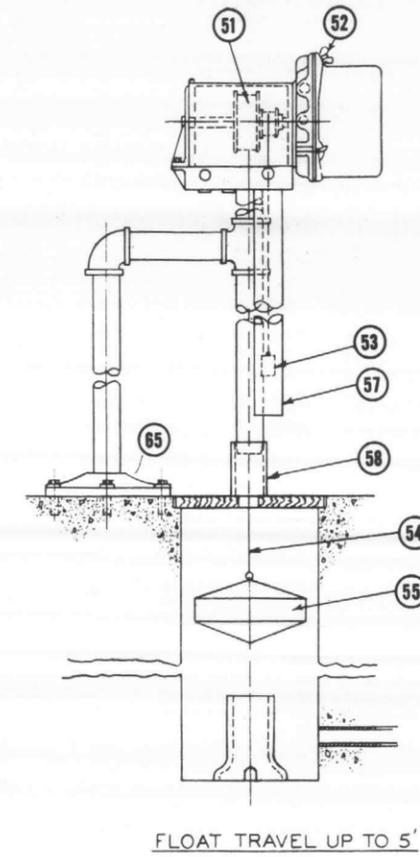


WHEN ORDERING state Quantity, Part Name,
Part No. and Serial No. of Unit.

DUSTPROOF



WEATHERPROOF



FLOAT TRAVEL UP TO 5'

FLOAT TRAVEL 5'-32'

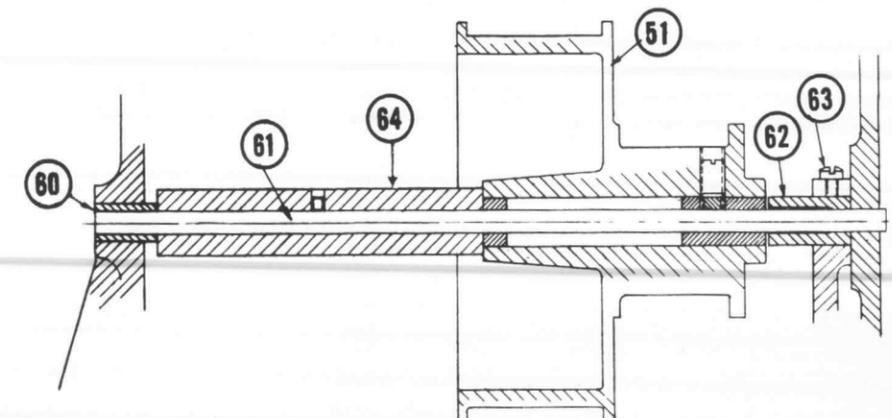
DUSTPROOF

WEATHERPROOF

ITEM	PART NAME	DUSTPROOF		WEATHERPROOF		
		0' - 5'	5' - 32'	0' - 5'	5' - 32'	
51	Float Cord Drum	137065	137065-1	137065	137065-1	1
52	Wing Nut	5/16-18 Br. N. P.	3			
53	Counterweight	Per Cust. Specs		Per Cust. Specs		1
*54	Float Cable	.035 Nylon	.035 Nylon	.035 Nylon	.035 Nylon	50 ft.
55	Float (CD36)	Per Cust. Specs		Per Cust. Specs		1
56	Ext. Guide Pulley Assy.	-	VA-3792-B	-	-	1
57	Counterweight Tube	-	-	126577	VA-9336-B	1
58	Float Cable Sleeve	-	-	V-9308-B	V-9308-B	1
59	Anchor Plate	-	-	-	V-8086-B	1
60	Rear Bearing	Oilite A304-1	Oilite A304-1	Oilite A304-1	Oilite A304-1	1
61	Drum Shaft	126849	126849	126849	126849	1
62	Front Bearing	V-6592-B	V-6592-B	V-6592-B	V-6592-B	1
63	6-32 x 3/8 Fil. Hd. Scr.	Brass N. P.	Brass N. P.	Brass N. P.	Brass N. P.	2
64	Spacer	V-7083-A	V-7083-A	V-7083-A	V-7083-A	1
65	Flange	VM-5550-A	VM-5550-A	VM-5550-A	VM-5550-A	1
66	Float Cord Drum Assembly					

*Recommended Spare Parts.

ITEM 66 FLOAT CORD DRUM ASSEMBLY





B-I-F INDUSTRIES



77-38

FLUORIDE SATURATOR

Series 60-510

***installation,
operation and
maintenance***

PENWALT
WALLACE & TIERNAN
DIVISION
25 MAIN STREET, BELLEVILLE, NEW JERSEY 07109

WAA 60-510
3-70

SERIES 60-510 FLUORIDE SATURATOR

GENERAL

The fluoride saturator is designed to automatically prepare a continuous supply of saturated sodium fluoride for treating water supplies by use of a diaphragm pump.

INSTALLATION

The saturator should be installed in an accessible location reasonably near the point of application. A suitable drain to accommodate the overflow, a 115 volt power supply, and a metered soft water supply should be available. If the water supply contains more than 75 ppm of hardness, a water softener must be installed to insure satisfactory operation.

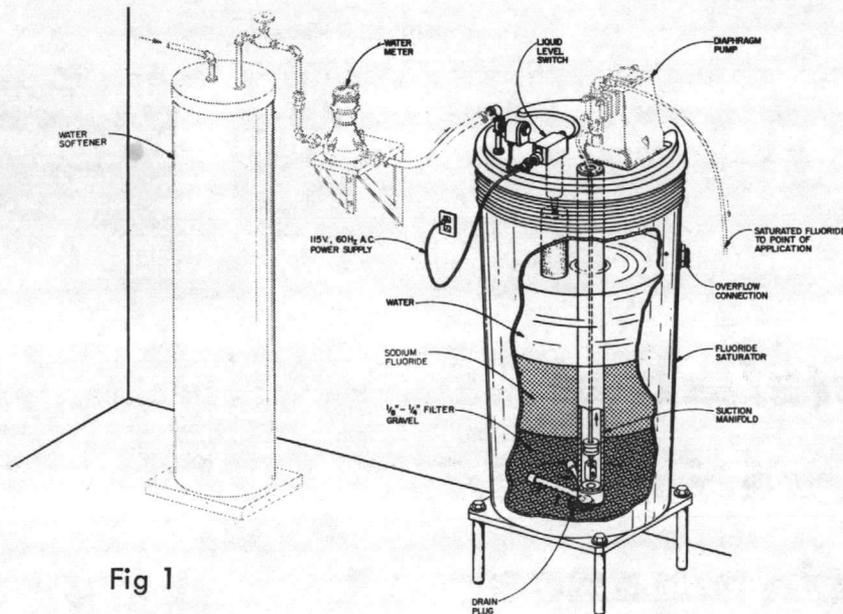


Fig 1

155.201

A typical installation is shown in Fig. 1. Mount the saturator on the stand furnished. Orient the tank so that the overflow connection is in the desired location, then rotate the cover (and attached parts) as desired. Mount the diaphragm pump either on the cover of the saturator or on a nearby stand or shelf, and install it as directed in the pump instructions. Insert the pump suction line in the suction manifold of the saturator.

PREPARATION FOR OPERATION

Put 200 lbs of clean filter gravel, 1/8" to 1/4" mesh per AWWA Filter Gravel Specification B100 in the bottom of the saturator. This filter bed will then be 12" deep. Add 200 pounds of sodium fluoride, crystalline grade, 20 to 40 mesh and then fill the saturator with water. Start the diaphragm pump.

SERIES 60-510 FLUORIDE SATURATOR (CONT'D)

OPERATION

It is necessary only to maintain a supply of undissolved fluoride on the gravel bed at all times. Sodium fluoride may be added in batches at any time. The quantity which may be added is limited only by the float on the liquid level switch which must not be obstructed.

The quantity of sodium fluoride solution fed by the diaphragm pump may be determined from reading the water meter. Proper operation of the saturator may be determined by comparing meter readings with usage of sodium fluoride.

MAINTENANCE

After an extended period of time the saturator should be emptied to remove insoluble materials contained in the chemical as purchased and fresh gravel should be installed.

GUARANTEE AND WARRANTY

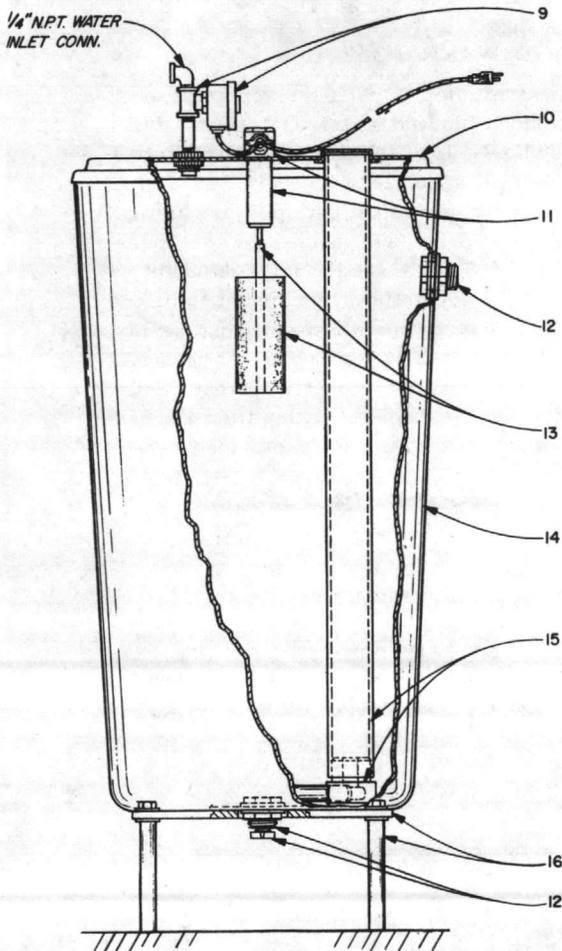
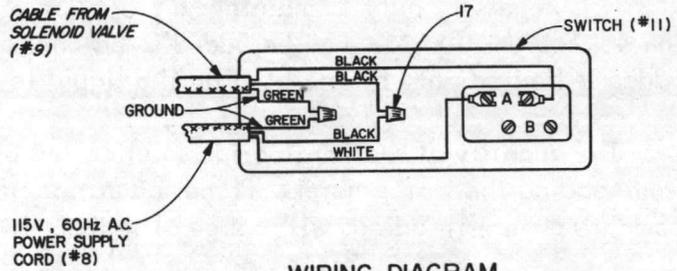
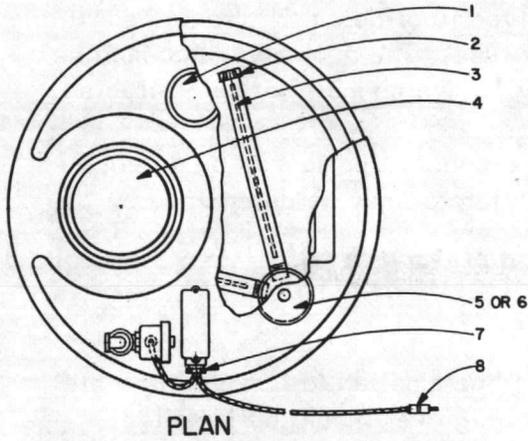
Seller warrants for a period of one year after shipment that the apparatus of its manufacture is free from defects in workmanship and materials but its liability is limited to the replacement f.o.b. Belleville, N. J., of the defective parts thereof. Corrosion or other decomposition by chemical action is specifically excluded as a defect covered hereunder, except that this exclusion shall not apply to chlorination equipment. Where circumstances permit, Seller will invoke, for the benefit of Purchaser, the guarantee or warranty of Seller's vendor for equipment or material furnished hereunder. In the event the apparatus or equipment furnished hereunder shall be used in any capacity in connection with any nuclear facility, Buyer agrees to hold Seller harmless from all claims for damages arising out of injury to or destruction of the nuclear facility, or property thereat. Seller shall not be liable for any direct or consequential damages arising from the sale or use of the apparatus or equipment other than as expressly provided herein.

ordering information

In order for us to fill your order immediately and correctly, please order material by description and part number, as shown in this book. Also, please specify the serial number of the equipment on which the parts will be installed.

Statements and instructions set forth herein are based upon the best information and practices known to Wallace & Tiernan Division, PENN-WALT Corporation but it should not be assumed that every acceptable safety procedure is contained herein. Of necessity this company cannot guarantee that actions in accordance with such statements and instructions will result in the complete elimination of hazards and it assumes no liability for accidents that may occur.

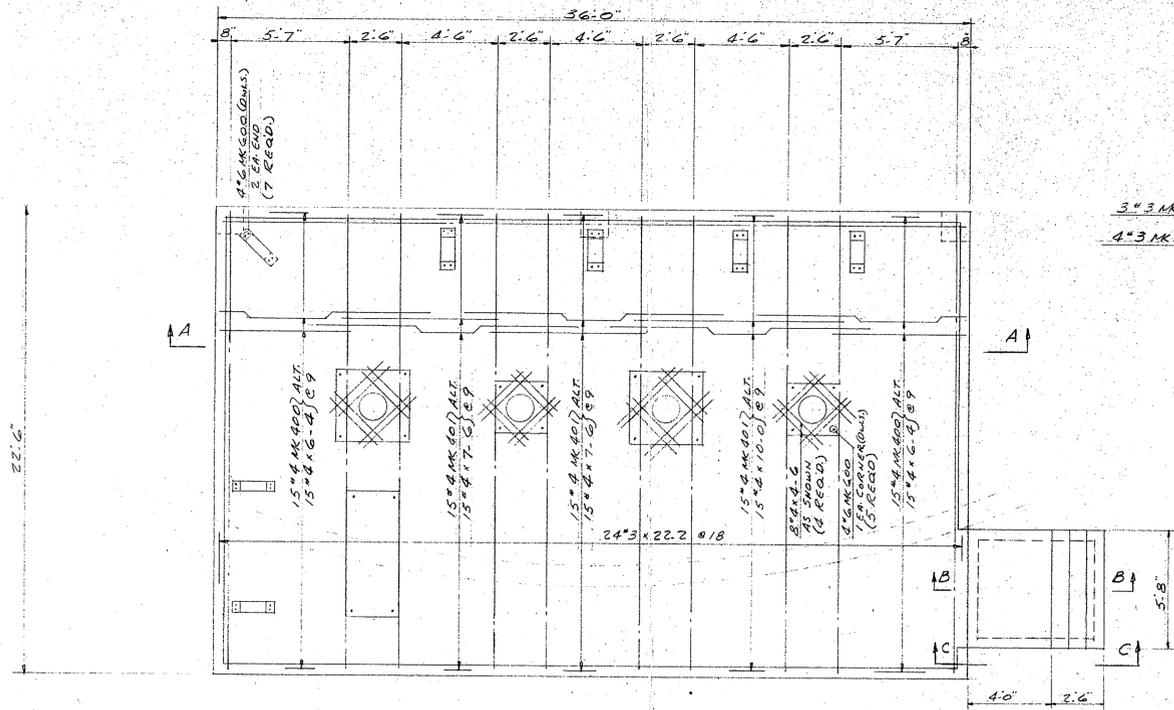
U-21832



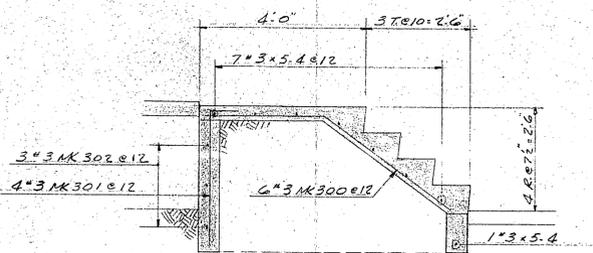
KEY NO.	PART NO.	QUAN.	DESCRIPTION
1	P-46359	1	PLUG
2	P-42449	2	CAP
3	P-46173	2	TUBE
4	P-46360	1	PLUG
5	P-46170	1	PLUG WITH 3/8" HOLE
6	P-46171	1	PLUG WITH 7/8" HOLE
7	U 22417	1	BOX CONNECTOR
8	U-20619	1	CORD & PLUG
9	U-21833	1	SOLENOID VALVE UNIT (U-21834 SOL. VALVE ONLY)
10	P-46059	1	COVER
11	U-21780	1	SWITCH
12	U-21838	2	DRAIN
13	U-21987	1	FLOAT
14	P-46277	1	50 GAL. TANK
15	U-21836	1	STANDPIPE
16	U-21835	1	STAND
17	P-29670	2	WIRE NUT

"Title to and ownership of this engineering data
remains in Mueller Co. No use is to be made
thereof except as specifically authorized by Mueller
Co., which assumes no responsibility for any un-
authorized use. Assent to these conditions is
presumed by Mueller Co. if this engineering data
is accepted."

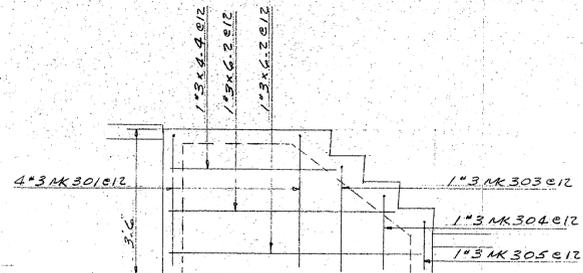
MAR 4 1963



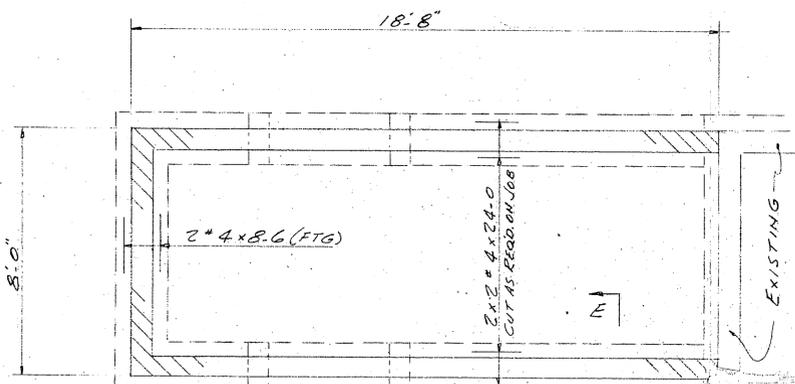
FLOOR PLAN
NEW PUMP HOUSE
1/2" = 1'-0"



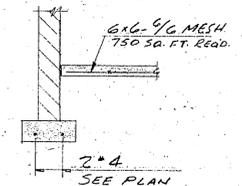
SECTION B-B
1/2" = 1'-0"



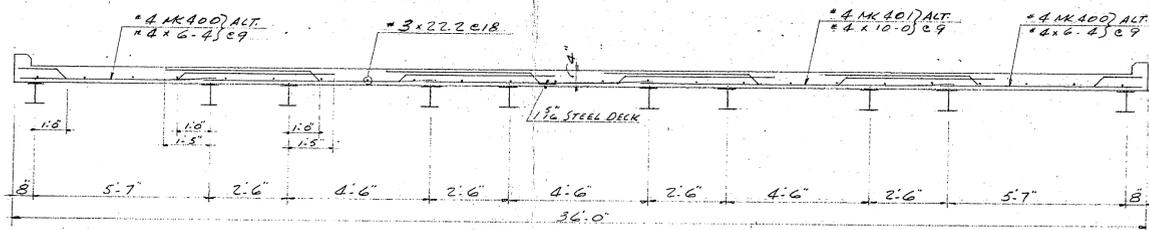
2 REQD
ELEVATION C-C
1/2" = 1'-0"



FOUNDATION PLAN
BLDG. ADDITION
3/8" = 1'-0"

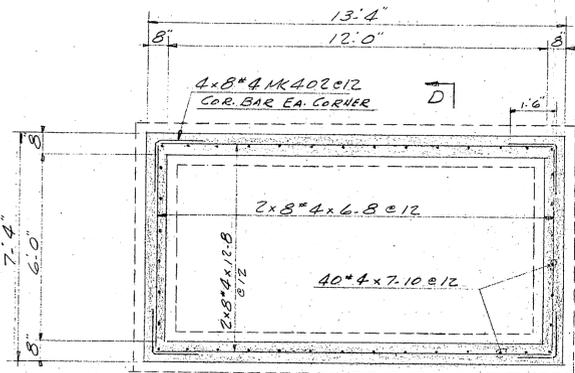


SECTION E-E
3/8" = 1'-0"

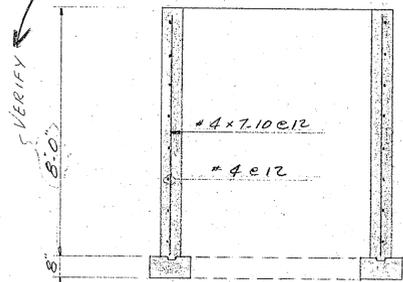


SECTION A-A
3/8" = 1'-0"

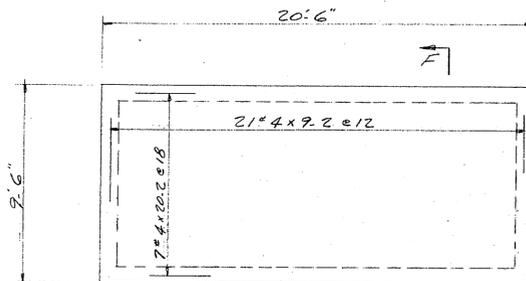
DEPENDENT ON TANK & EQUIP. ELEV.
SEE PRIME CONTRACTOR



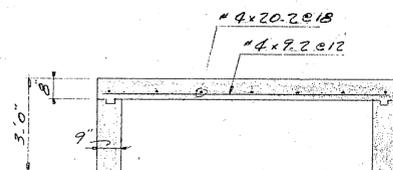
PLAN - FUEL TANK PIT
3/8" = 1'-0"



SECTION D-D
3/8" = 1'-0"



PLAN - FILTER PLATFORM
1/2" = 1'-0"



SECTION F-F
3/8" = 1'-0"

ATLANTIC DIVISION, BUREAU OF YARDS & DOCKS
NORFOLK 11, VA.

APPROVED:
SUBJECT TO THE REQUIREMENTS OF
CONTRACT NEW 46508 SPEC 46508/62
APPROVAL OF MAINTENANCE EQUIPMENT
INDICATED ON THIS DRAWING WITH SPECIFICATION
STATE BY REPAIRABLE AND PROVIDING
PROPER PROVISIONS & WEIGHTS.
COORDINATION OF TRADES, ETC., AS REQUIRED.

Date JAN 7 1963
W. C. G. CHURCH
R. D. H. COX, III
D. W. STRICKLAND

DETAILS OF REINFORCING STEEL
STRUCTURE WATER IMPROVEMENTS, TARRAWA TERRACE
LOCATION CAMP LEJEUNE, N.C.
CONTRACTOR BROWN CONST. CO.
ARCHITECT BUREAU OF YARDS & DOCKS

F. O. BOX 5100 CHARLOTTE, N. C.

MADE BY M.C. DATE 12-28-62

CHK. BY CONTR. NO. 818765 DWG. NO. / GF

859314

