

085066

CATALOG OR DRAWING REFERENCE

REQUISITION NUMBER	ITEM NO.	QUANTITY	DESCRIPTION
	1	1	Clarifier, 16'-6" I.D. x 13'-0" high, The Permutit Company D-112 vessel with D-214 vessel installed inside as flocculating tank. Both vessels modified and assembled as per PG & E Co dwg. 485341.
	2	1	Valve, gate, Crane No. 465 $\frac{1}{2}$, outside screw and yoke, flanged, F&D, 125 lb. class, bronze seats & stem 4"
	3	1	Valve, gate, Crane No. 465 $\frac{1}{2}$, outside screw and yoke, flanged, F&D, 125 lb. class, bronze seats & stem 3"

TABLE OF CHANGES

NO.	DATE	BY	APPR'D

990580

APPROVED

BY O. Chernishoff

CH.

O.K.

DATE 2-25-70

BILL OF MATERIAL
TO ACCOMPANY DWG. 485349 & 485350PIPING PLAN & SECTIONS
WASTE WATER WELL DISPOSAL SYSTEM
AREA 5 - TOPOCK COMPRESSOR STATIONPACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CAL.

SUPERSEDES

SUPERSEDED BY

SHEET NO. 1 OF 4 SHEETS

DRAWING NUMBER 085066 CHANGE

DESCRIPTION

REQUISITION NUMBER	ITEM NO.	QUANTITY	DESCRIPTION
4	1	1	Valve, gate, Chapman, outside screw type, List 960, screw ends, carbon steel, 2"
5	1	1	Flange, Welding Neck, F & D, ANSI 150 lb.
6	1	1	Welding Neck, F & D, ANSI 150 lb.
7	6	1	Elbow, weld., 90°, L.R., std., 4"
8	1	1	Nipple, seamless steel, T.O.E. 3" x 12" long
9	1	1	, T.B.E. 2" x 6"
10	24	1	Bolt, Machine, carbon steel, ASTM A-307, Grade B, with 1-American Std. heavy series, cold punched nut ASTM A-194 $\frac{5}{8}$ " x 3" long
11	2	1	Gasket, ring, asbestos, graphited, $4\frac{1}{2}$ " x $6\frac{7}{8}$ " x $\frac{1}{16}$ "
12	1	1	Ring, asbestos, graphited, $3\frac{1}{2}$ " x $5\frac{3}{8}$ " x $\frac{1}{16}$ "
13	1	1	Plug, pipe, steel, Crane No. 309, 3000 lb., or equal
14			Pipe, seamless, carbon steel, ASTM-A 106, 2", or equal, std. wall (sch. 40)



Std. B-45
↓
↓
↓

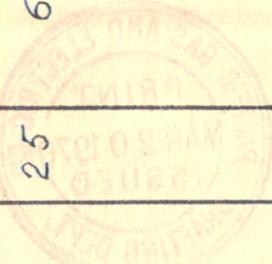
2" Pipe, steel, Crane No. 309, 3000 lb.,
or equal
Pipe, seamless, carbon steel, ASTM-A 106,
4"

Steel

REQUISITION NUMBER	ITEM NO.	QUANTITY	DESCRIPTION	REMARKS
15	15	Pipe, plastic, CPVC, sch. 80	3"	
16		Aluminum reinforced plastic pipe, consisting of ASTM B-241 alloy 6063 T-6, sch. 10 seamless Aluminum pipe with corrosion and abrasion resistant ethylene co-polymer bonded to all surfaces; pipe ends-grooved; size 3"	International Protected Metals Division (IPM)	(C)
17	1	Holding Tank, 1500 gals. capacity; ASTM A-285, grade C, flange quality, steel plate or equal, $\frac{1}{4}$ " thick, 6'-0" O.D. x 7'-0" high	DWG. EMM. 2933	
18	18	To suit Redwood planks 2" x 12", S2E		
19	9	3 $\frac{1}{4}$ cu.yd Concrete		
20	20	Reinforcing bars,		
21	1	Flange Adapter, CPVC, for 3" pipe	<u>Steel for 3" pipe threaded</u>	(C)
22	1	Steel Flange Back-up Ring, for 3" pipe	<u>Steel flange back-up ring for 3" pipe</u>	
23	4	Elbow, CPVC, 90°	<u>Steel female threaded</u>	
24	3	Elbow, malleable iron, 90°, grooved, with IPM corrosion and abrasion resistant ethylene co-polymer 35 mils thick, bonded to all surfaces, size 3"		

DESCRIPTION

REQUISITION NUMBER	ITEM NO.	QUANTITY	DESCRIPTION
25	6	1	Coupling, grooved, Victaulic or equal, malleable iron, with IPM corrosion and abrasion resistant ethylene co-polymer bonded to all surfaces (except bolts) size 3"
26	1	1	1/2" SS 316 meter valves threaded internally.
27	1	1	SS 316 1/2" NPT to 1/4" tubing connection
28	15'	1	SS 316 1/4" tubing
29	1	1	Dresser corp tap cov 3" 1 pm pipe with 1/2" NPT outlet (covered on Eng)
30	1	1	transition piece CPVC TO Steel threaded to screw into steel elbow + socket to joint to CPVC pipe. [Adapter Cutting, female thread + socket end.] 3"
31	1	1	3" male /female threaded steel elbow



DATE

PACIFIC GAS AND ELECTRIC COMPANY
ESTIMATE FOR APPROPRIATION
WORK ORDER
GAS DEPARTMENT

NOVEMBER 15, 1955

DIVISION

LOCAL EST. NO.

1132

R-568

HIGHWAY EXTENSION DATA

See - H-417

NAMES OF APPLICANTS

	SCHED	DOM. R'G'ES	DOM. TANK	DOM. W.H.	AUTO W.H.	R'FR'G	DRI'R	FURNACES, F. F. OR C. A. HEATERS		COMM'L & IND'L LOADS	TOT. LTH. EXTENSION- FT.	COMPANY ALLOWANCE--	EXCESS LINE	ADVANCE REQ'D AT \$ ____ PER FOOT)	EST. ANN'L REV. \$	EST'D 1-YR. REV. \$
								TYPE	B. T. U. CAPACITY							

TITLE AND LOCATION

INSTALL CHEMICAL HANDLING FACILITIES-TOPOCK, HINKLEY AND KETTLEMAN STATIONS

NECESSITY FOR PROPOSED WORK AND DESCRIPTION THEREOF:

Alteration of, and additions to, existing facilities for the storage, handling and application of chemicals used for the treatment of cooling water at Topock, Hinkley and Kettleman Compressor Stations will accomplish the following results:

- (1) Effect annual savings in labor, chemical and freight costs of \$9,400
- (2) Improve the chemical control of the treated water
- (3) Reduce to a minimum the hazard to personnel

The proposed improvements include proportional feed pumps at all three stations, bulk storage tanks for acid at Topock and Hinkley and bulk storage and loading equipment for soda ash and lime at Topock Station.

*Assigned to General Construction - July-18-19.
Work to be done by FLUOR CORP- at the same time
Plant Expansion is in progress on GM 1346.*

RECOMMENDATION:

LOCATION & ITEM NO.	ACCOUNT NUMBER	ESTIMATE OF COST-ITEMS (FOR INVOLVED ESTIMATES GIVE SUMMARY HERE- DETAIL ON EXTRA SHEETS)	UNIT COST	AMOUNT (DOLLARS ONLY)	TOTAL (DOLLARS ONLY)
1305	1125	INSTALL CHEMICAL HANDLING FACILITIES Topock - Acid Storage Tanks Proportional Acid Pumps Proportional Orocal Pumps 1200 cu. ft. Silo (Soda Ash and Lime)	4450. 2000. 700.	15,650.	DAFF
1310	1125	Hinkley - Acid Storage Tanks Proportional Acid Pumps	4450. 2000.	6,450.	
1140	1125	Kettleman - Proportional Acid Pump		1,000.	

FORMALLY APPROVED

JAN 31 1956

DATE

*Actual Cost
\$ 87,743.25
over 23%.*

L-15

BUDGET ITEM NO.

PLANT TO BE ABANDONED OR REPLACED: INSTALLED ON GM-113785 - 1950 Misc. small piping and fittings NO VALUE	CHECK LIST		REQ'D.	SEC'D.	TOTAL (EXCL. MAINT. & OPER.) \$	23,100.
	CITY OR CO. PERMIT				OVERHEAD CONST. COST 15 % \$	3,465.
	HIWAY PERMIT				SUB TOTAL	26,565.
	RAILROAD PERMIT				MAINTENANCE & OPERATION	
	OTHER PERMITS				APPROPRIATION	26,565.
	MACHINE TRENCH-FT.				METERS, REGULATORS, SERVICES INSTALLED	\$
					DEDUCT SALVAGE AND/OR OTHER CREDITS	\$
	PAVEMENT-SQ. FT.				NET EXPENDITURE	26,565.
	SALES	GEN. CONSTN.			TOWN OR TERRITORY AND COUNTY	
	ENGINEERING	CREDIT DEPT.			TOPOCK, HINKLEY & KETTLEMAN STATIONS	
EXTENSION BASIS AUTHORIZED:	OPERATING	EXEC. ENG.			DIVISION	W. O. NO.
	LAND					
	RECOMMENDED				RECOMMENDED	AUTHORIZED:
					Fred E. Wilson	
GEN. OFFICE	APPROVED			APPROVED	E. H. FISHER	P. AND GEN'L MGR.
						134695
						G. M.

INSTALL CHEMICAL HANDLING FACILITIES, TOPOCK, HINKLEY AND KETTLEMAN STATIONS

Water used for cooling compressor, generator and other plant engines and for cooling natural gas after compression at the Topock, Hinkley and Kettleman Stations must be treated with chemicals of various kinds. This chemical treatment is necessary to prevent delignification of cooling tower lumber, corrosion of plant piping used in the cooling system and formation of scale and algae in and on the various facilities. Existence of these conditions causes inefficient cooling operations and requires excessive maintenance to prevent breakdown of this essential cooling equipment.

Existing practices used in the chemical treatment of water at the plants involve manual handling and application of all chemicals. This results in improper and inefficient chemical control, detrimental effects to piping and equipment and presents unnecessary hazards to personnel, particularly in the use of sulphuric acid.

Certain alterations of, and additions to, the present facilities will help to eradicate the undesirable conditions involved in the required chemical treatment. The major changes which are economically justified include:

- (a) Installation of proportional acid-feed pumps at all three stations.
- (b) Installation of equipment for bulk storage of sulphuric acid at Topock and Hinkley.
- (c) Installation of a proportional Orocot (potassium dichromate) feed pump, and bulk storage and conveyor equipment for soda ash and lime at Topock.
- (d) Rearrangement of the chemical-feed piping to the cooling towers at Topock and Hinkley.

These changes will make possible more uniformly treated water and proper control of chemical application (resulting in lowered consumption). The changes will also reduce to a minimum the hazard to personnel involved in handling acid.

The proposed expenditure will effect an annual saving of approximately \$9,400 in labor, chemical and freight costs. The following tabulation details these yearly savings:

	Present	Proposed	Saving
Labor Costs	\$ 6,760	\$ 1,140	\$ 5,620
Acid Cost	3,000	1,480	1,520
Soda Ash & Lime Cost	13,960	12,980	980
Freight Charges	3,120	1,870	1,250
TOTAL ESTIMATED ANNUAL SAVING			\$ 9,370

P.G. and E.**GENERAL CONSTRUCTION DEPARTMENT**NOTICE OF: **STARTING**—RELEASED TO OPERATING DEPARTMENT—**COMPLETION**
(Circle)

Date February 11, 1958

Mr. E.H. Fisher
(Division Manager)Topock Compressor Station
Field Office—Town and StreetGM, MLXcor, 134695 (2) Est. Cost \$ 15,650 covering Revision of Acid
MR No.

Storage Installation at Topock and Hinkley Comp. Stations

was physically started Jan. 1, 1957; placed in operation 5-14-57; completed 5-14-57; 19
Reopened 9-22-57

was released to Operating Department (Partial) Feb. 9, 1958 (Topock) 19 Percent Complete

was placed in operation by Operating Department 19 per

Remarks Acid storage at Hinkley not in operation as of this date.

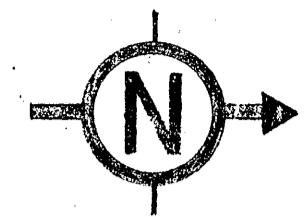
was physically completed

Have required records, drawings, etc., been turned over to the Division? Yes No

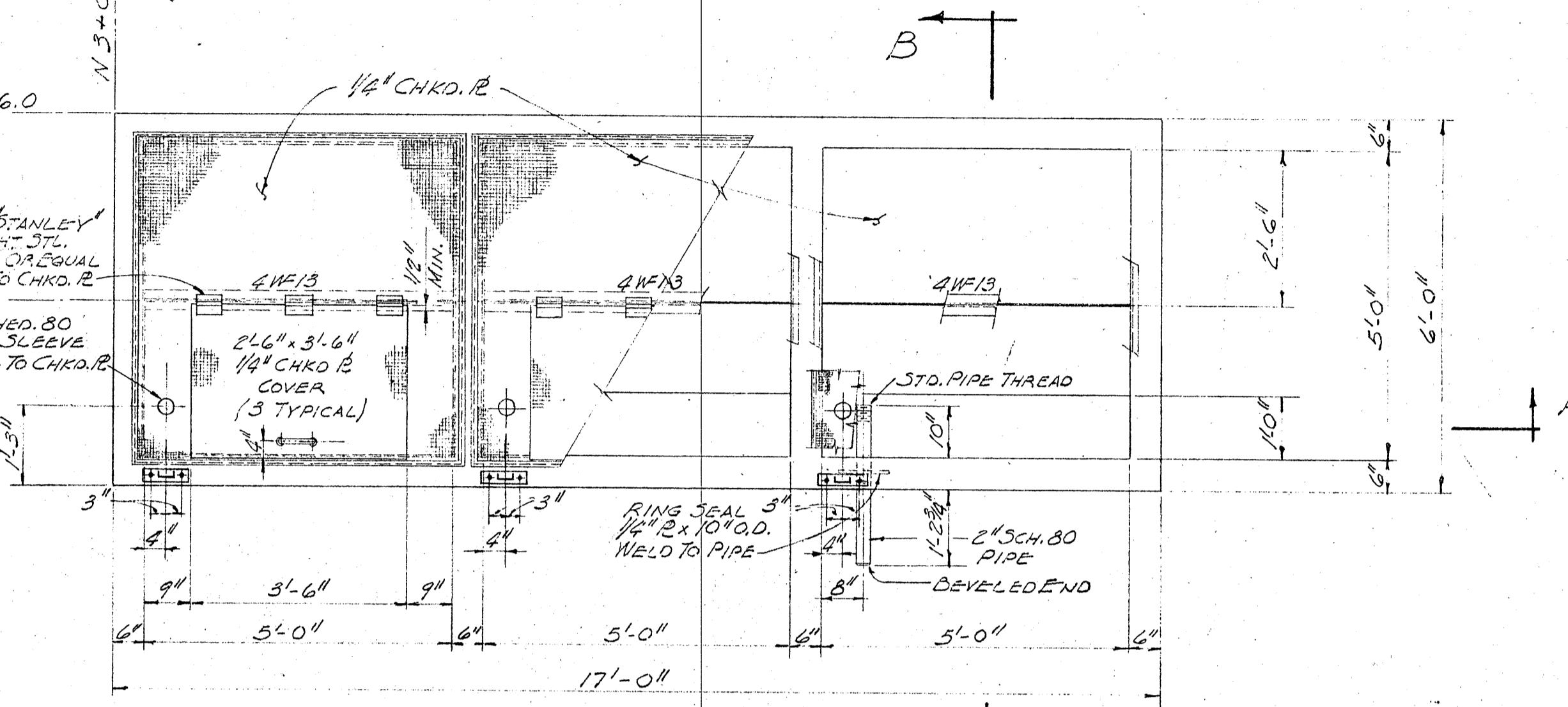
If answer is NO show date of expected conformance To be furnished by San Francisco

Coordination with Division Representative:

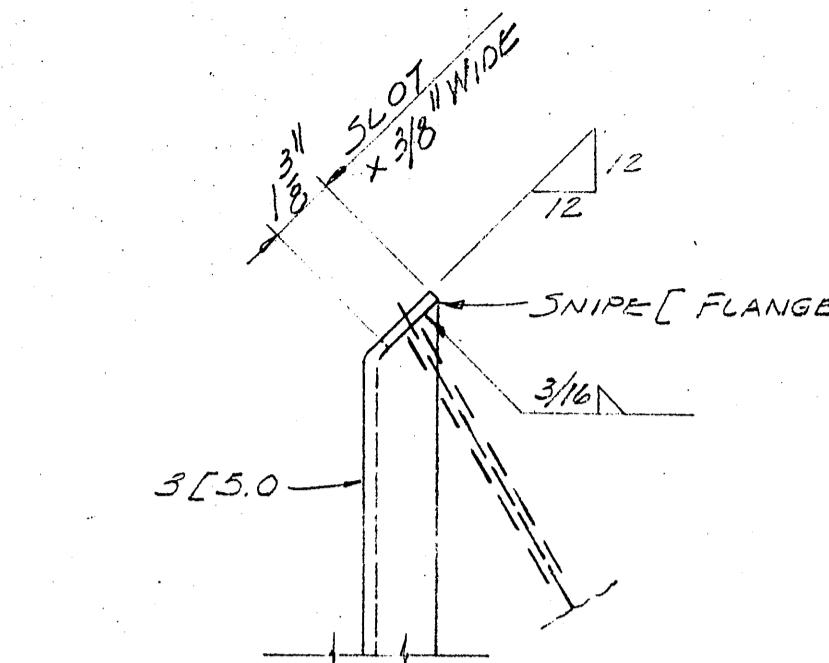
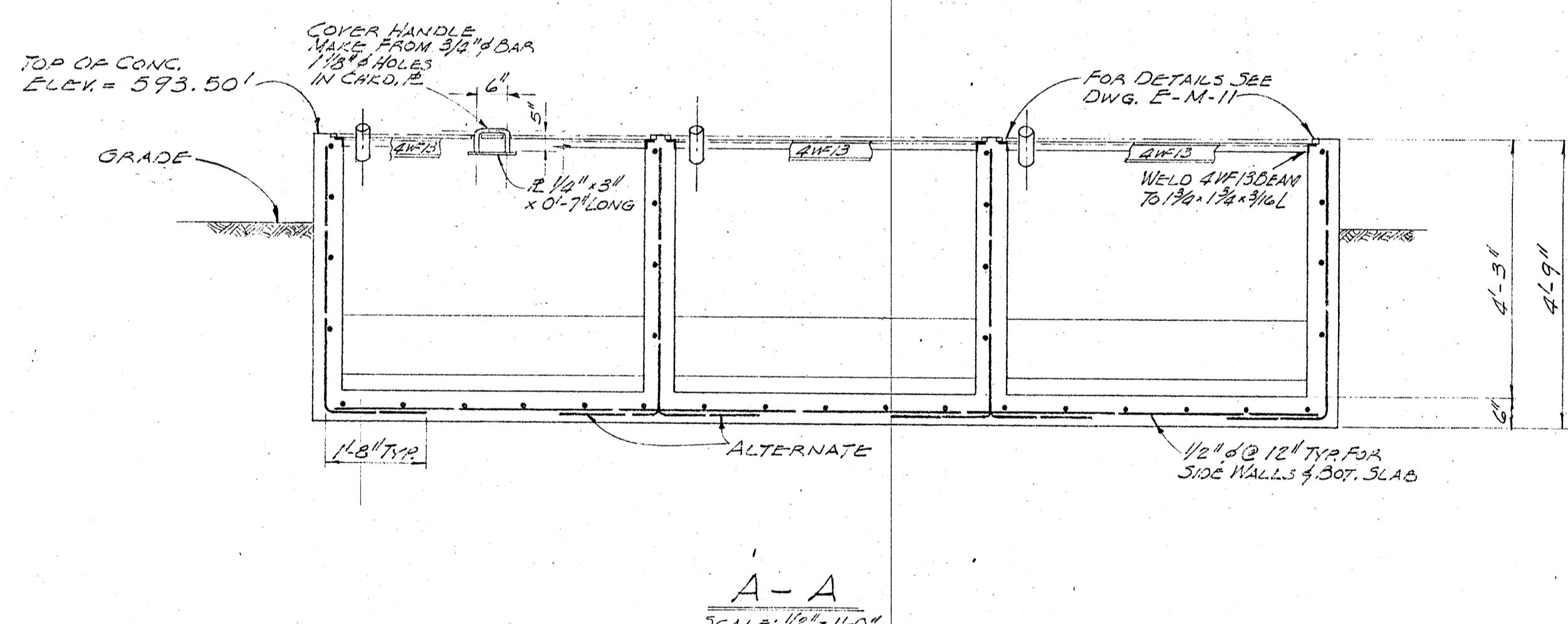
On various Mr. M.H.Chanlder, Gas Construction Engineer GC Dept., contacted
(Date) (Title)Mr. K.B.Anderson and C.J.Tateosian, at Topock
(Title) (Division) (Location)Additional information Engineering and construction was by Fluor Maintenance Inc., in
conjunction with compressor plant work authorized on GM 134617J.A. Love
Manager of Gas ConstructionBy J.P. Yaklish Foreman
(Signed)**DISTRIBUTION & CHECK LIST**ORIGINAL 1 Division Manager
COPIES: 2 Manager in Charge
1 Plant Accounting Dept.
1 Field Job File
Div. Elect. Supt. (Line
jobs only) Pres. & General Manager
 2-Vice Pres. in Charge
 Vice Pres. & Exec. Engr.
 Vice Pres. Gas Operations
 2-Manager-Claims & Safety(See Note 1a)
(See Note 1b)
(See Note 2)
(All gas jobs, except
as modified by note 1b)
(See Note 3)Cost Books to be
Handled by F.H.Kromann Field Records
by F.H.Kromann Tool Expense to
be Cleared From 9M&S 997001



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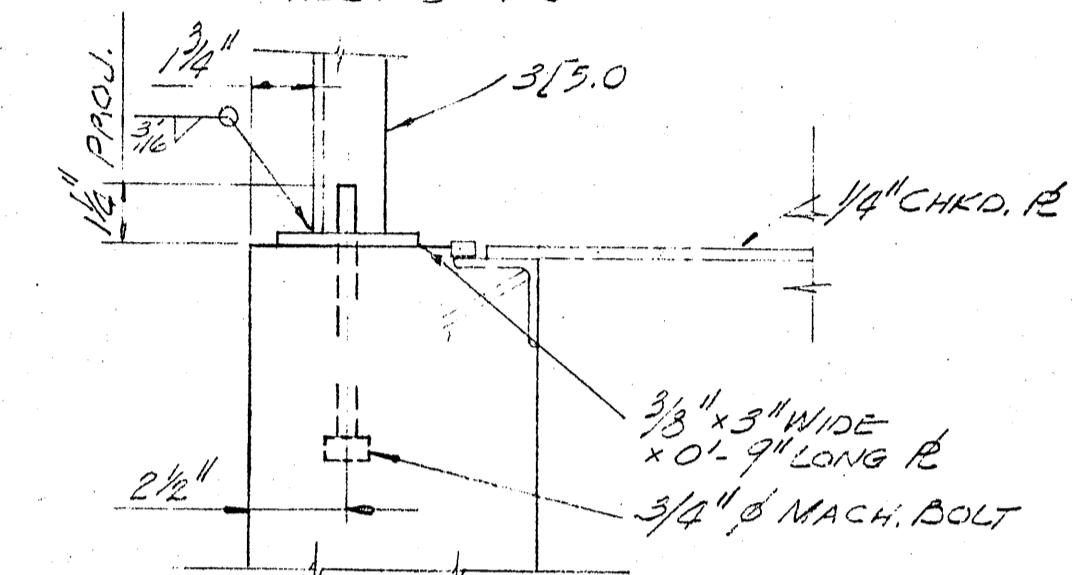


PLAN



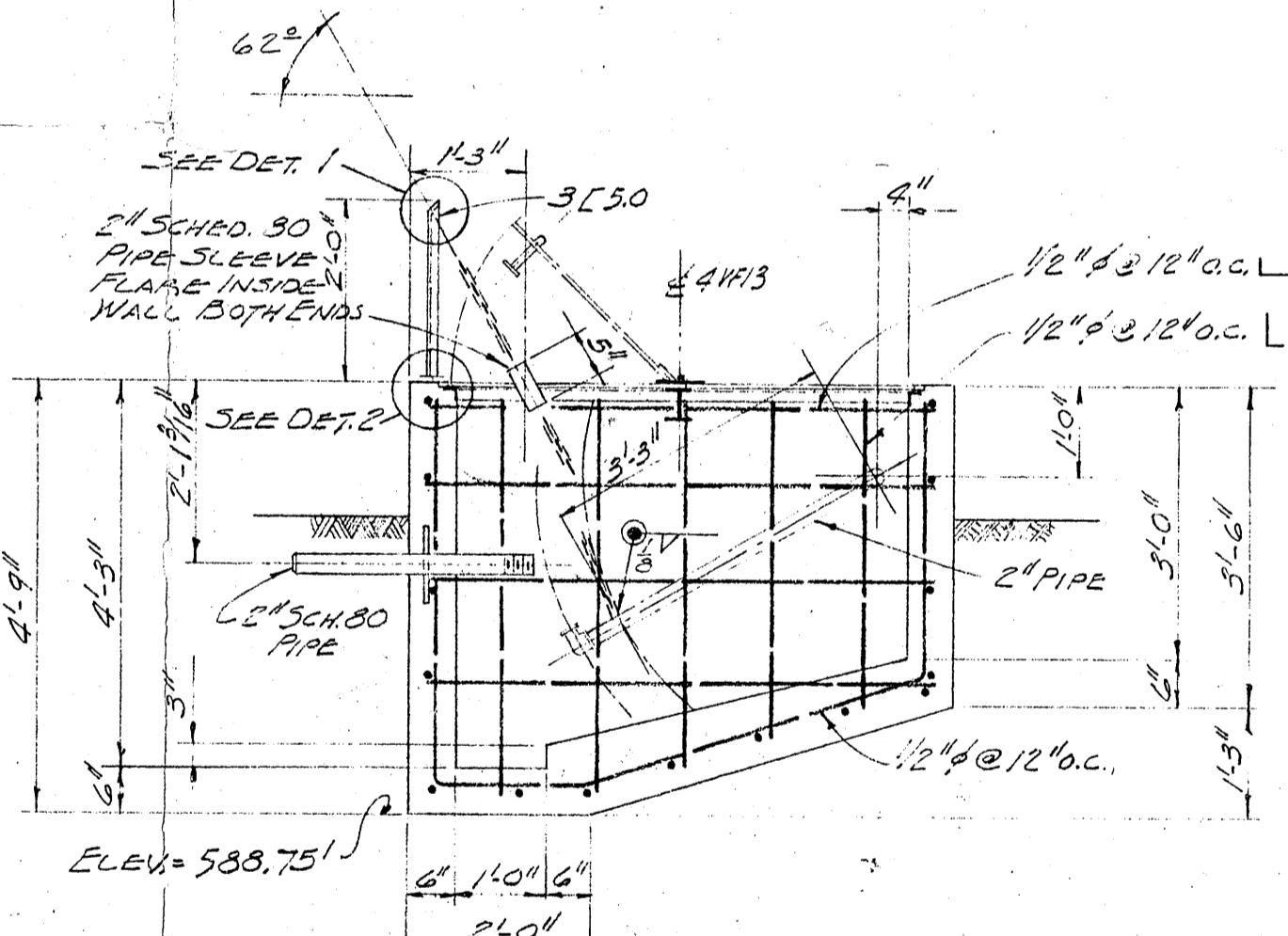
DETAIL

SCALE: 3" =



DETAIL

$\Sigma = 11.5 \pm 2''$



B - B

LIST OF MATERIAL				
ITEM	QUAN.	DESCRIPTION		ORDER NO.
1	5	CU. YDS. CONCRETE	CEMENT	150-045
			AGGREGATE	150-046
2	1LOT	REINFORCING STEEL		150-040
3	16	LIN.FT. $\frac{1}{4}$ " x 5'-2 $\frac{1}{2}$ " WIDE CHKD. P.		150-049
4	63	LIN.FT. FABRICATED $\frac{1}{3}$ $\frac{1}{2}$ " x $\frac{1}{3}$ $\frac{1}{2}$ " x $\frac{3}{16}$ COMPLETE WITH ANCHORS $\frac{5}{16}$ " x $\frac{1}{2}$ " BAR PER DWG.E-M-11.		150-049
5	9	6"-6' "STANLEY" WROUGHT STEEL HINGE, OR EQUAL		150-048
6	24	LIN.FT. $\frac{3}{16}$ " COIL CHAIN		150-048
7	6	$\frac{3}{8}$ " P X 0'-8" (L) LONG MACH. BOLT WITH 1-CPSF HEX. NUT		150-048
8	4	LIN.FT. 2" SCHED. 80 PIPE		FIELD
9	15	LIN.FT. 4W-13		150-049
10	3	LIN.FT. $\frac{3}{8}$ " x 3" WIDE STL. P.		150-049
11	7	LIN.FT. 3[5.0		150-049
12	3	$\frac{1}{4}$ " STL. SEAL RING 2 $\frac{1}{2}$ " I.D x 10" O.O.		150-049

GENERAL NOTES

1. FOR DESIGN & CONSTRUCTION NOTES
SEE DWG. # 081850.

REFERENCE DRAWINGS

PIPING PLAN AT SCRUBBER (TYPICAL) & OIL SLIP PAVEANCE	481765
TYPICAL FLOOR PLATE DETAILS	E-M-11
PLOT PLAN	481751
DESIGNS & CONSTRUCTION NOTES FOR CONC DWES	081850

					APPROVED BY	GM 113785 DRAWING LIST
NO	DATE	DESCRIPTION	APPRD	100-100	BY DR. EMS CH. O.K. RPS DATE 1-4-51 SCALES AS SHOWN	
▲	3/13/51	CHANGED COORDINATE FROM HU S.F.W. E-0+32.00 TO E-0+36.00	100-100	100-100		
▲	1/10/51	ISSUED FOR CONSTRUCTION	100-100	100-100	100-100	

SCRUBBER OIL SUMP
TOPOCK COMPRESSOR STATION

PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO CALIFORNIA

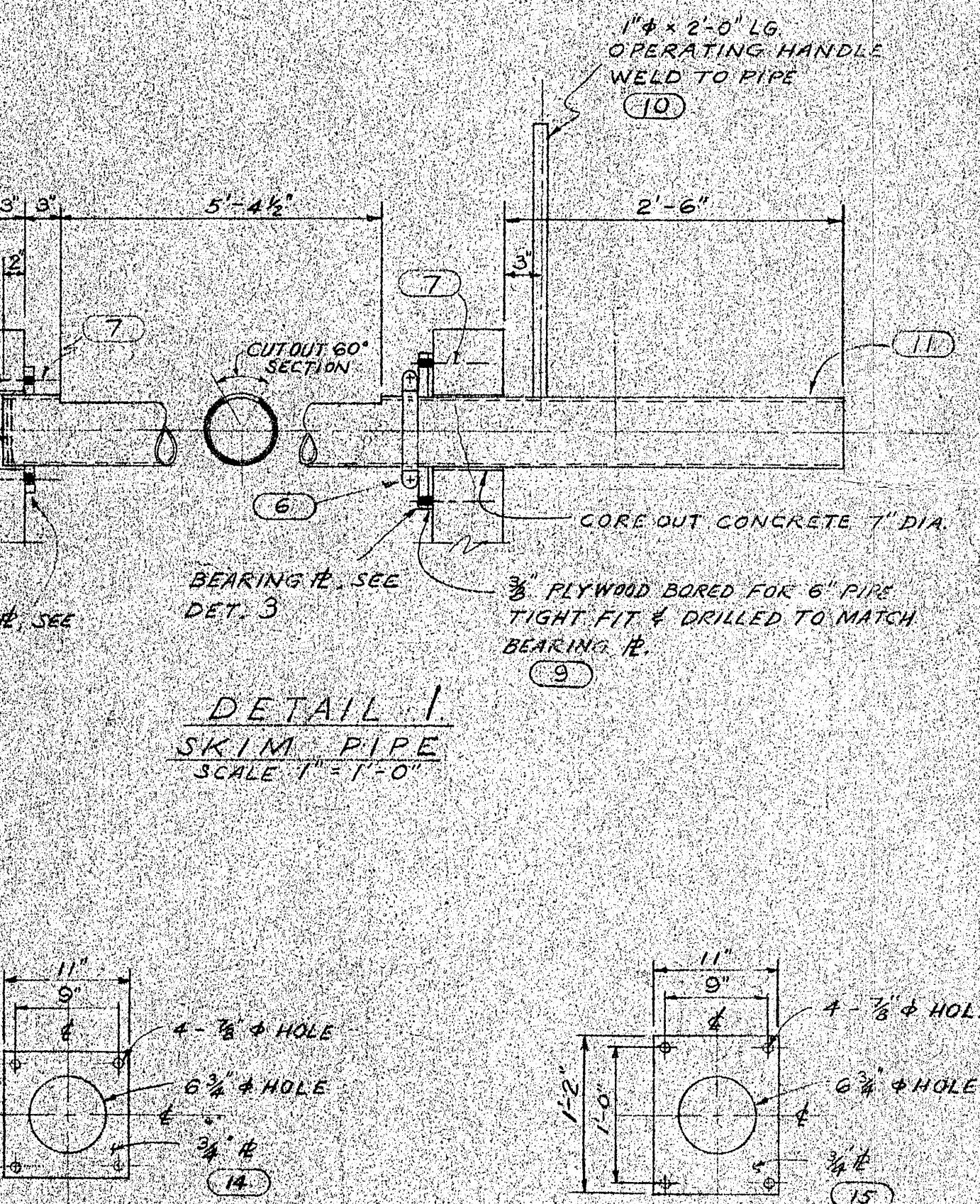
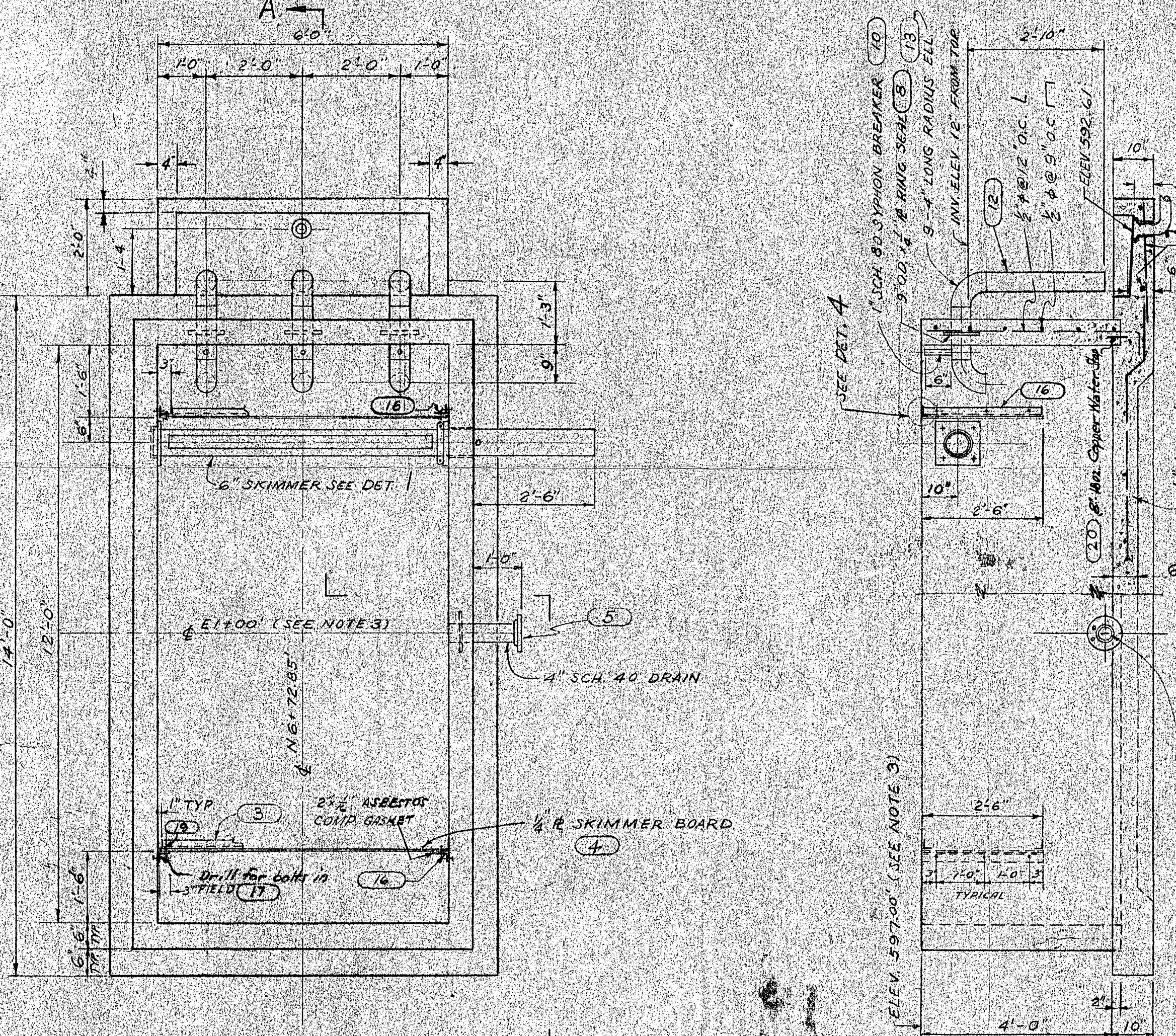
BILL OF MATERIAL		
SUPERSEDES		
SUPERSEDED BY		
SHEET NO.	SHEETS	
DRAWING NUMBER	CHANGE	
382914	1	

LIST OF MATERIAL

ITEM QUAN	DESCRIPTION	ORDER NO
1 6	CU. YD. CONCRETE	Field
2 1 LOT	REINF. STL AS SHOWN	150,040
3 24	LIN. FT. L 2'-8" X 4"	150,119
4 13	LIN. FT. R 30 X 4"	150,119
5 1	4" ISOT FS. SO. FLANGE, FF	150,119
6 1	PIPE CLAMP CRANE 212G OR ER.	150,119
7 8	3/4" X 1-1/2" LG. MACH. BOLT WITH 1 CPSF HEX NUT	150,047
8 4	5" Ø X 4" R	150,119
9 1	PC. 3/8" PLYWOOD 11" X 1-2"	F1011
10 4	LIN. FT. 1" SCH 40 STL PIPE	150,119
11 10	LIN. FT. 6" SCH 40 STL PIPE	150,119
12 11	LIN. FT. 4" SCH 40 STL PIPE	150,119
13 6	4" STD. WT. FS. WELDED L.R.	150,119
14 1	PC. PLATE 11 X 14 X 0.125" LG.	150,119
15 1	PC. PLATE 11 X 3 X 1-1/2" LG.	150,119
16 10	LIN. FT. L 3' 2"	150,119
17 12	5/8" X 6" LG. MACH. BOLT WITH 1 CPSF HEX NUT	150,047
18 4	2 1/2" ABSERTAS COMP. GASKET 2" X 4"	150,047
19 12	3/4" X 1-1/2" LG. MACH. BOLT WITH 1 CPSF HEX NUT	150,047
20 40	1m ft. 8" wide 18 gauge copper sheet	150,119

DESIGN & CONSTRUCTION NOTES

- FOR DESIGN & CONSTRUCTION NOTES SEE DWG. NO. 081B50
- REINF. STL ON E OF WALLS & SLAB
- EAST COORDINATE AND ELEVATION OF STRUCTURE SUBJECT TO CHANGE IN FIELD. DEPENDING UPON GRADE ELEVATION, BOTTOM OF STRUCTURE MUST REST ON FIRM GROUND.



REFERENCE DRAWINGS

PLOT PLAN	1	481751
DESIGN & CONSTRUCTION NOTES FOR CONCRETE DWGS.	081B50	481750
SEWERS & DRAINS		
LOCATION PLAN		485352

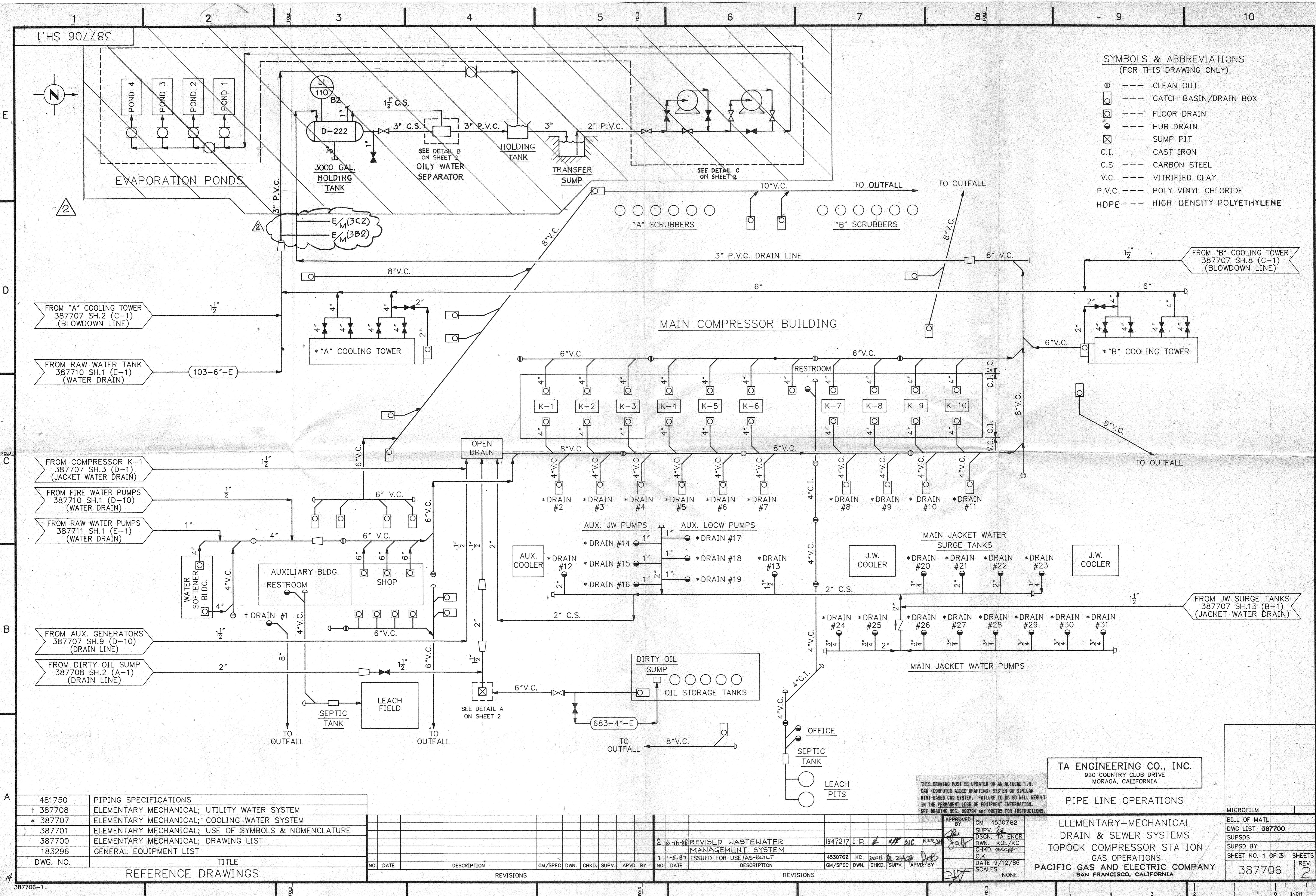
NOTE:
This dwg. was not revised to meet construction changes required for Waste Water Disposal System installation on GM 172520.

APPROVED GM 1/3/75 BY		DRAWING CHG.
DR.	K. Loope	
CH.	RPS	
QC.		
DATE	3-28-75	
NO. DATE	190130	
DESCRIPTION	APPROVED	SCALES
TABLE OF CHANGES	024	1/10" GAS NOTE

PLAN & DETAILS OF
OIL - WATER SEPARATOR
TOPOCK COMPRESSOR STATION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO CALIFORNIA

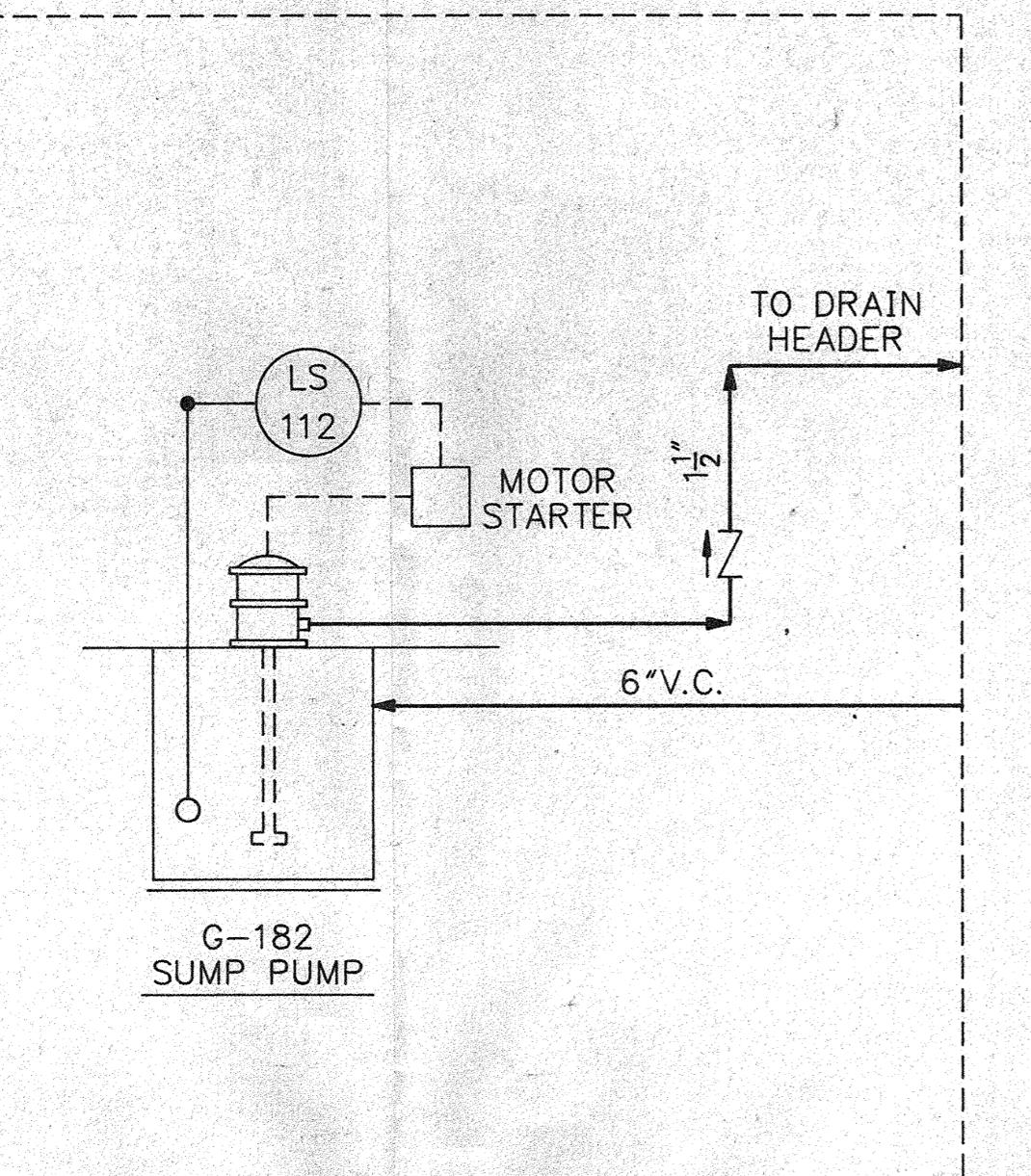
BILL OF MATERIAL
CHANGES
SUPERSEDED BY
SHEET NO.
DRAWING NUMBER
CHANGE
382956 1

RECEIVED



387706 SH.2

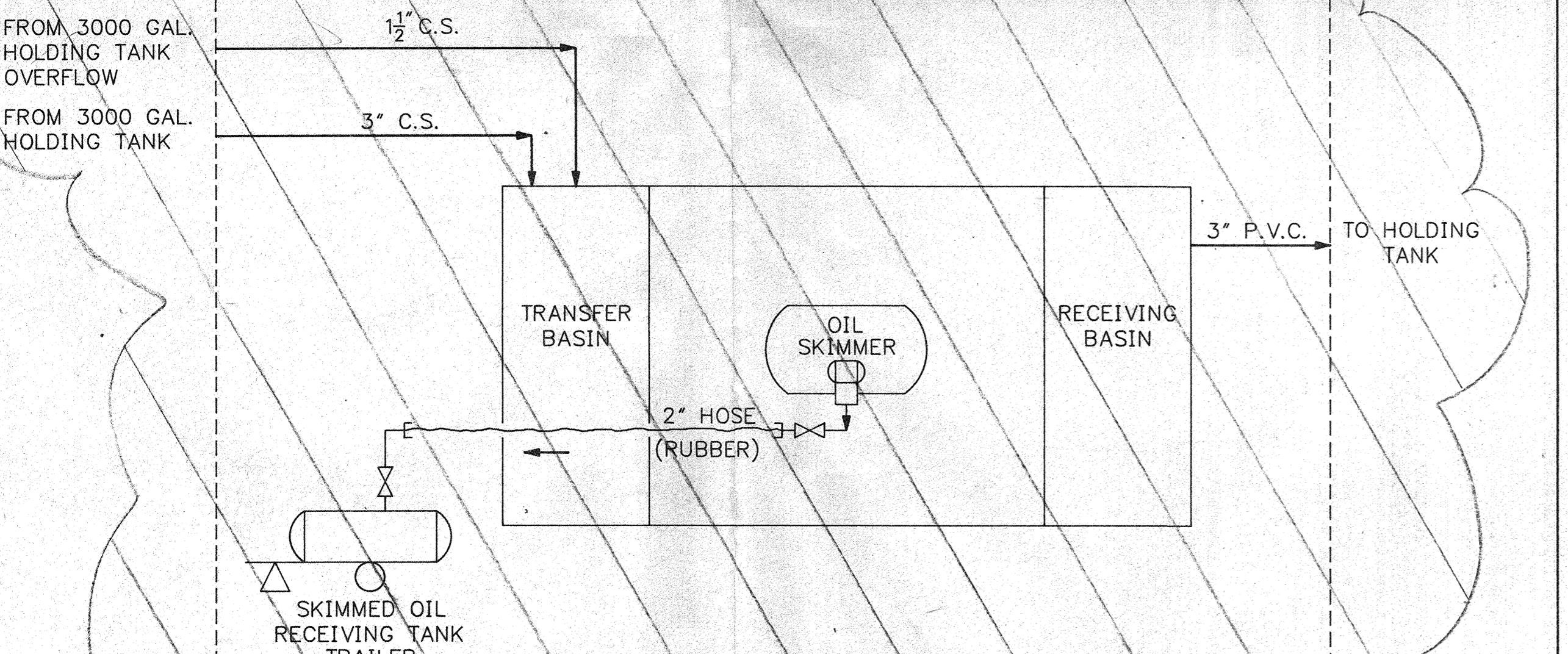
WASHING AREA SUMP PIT



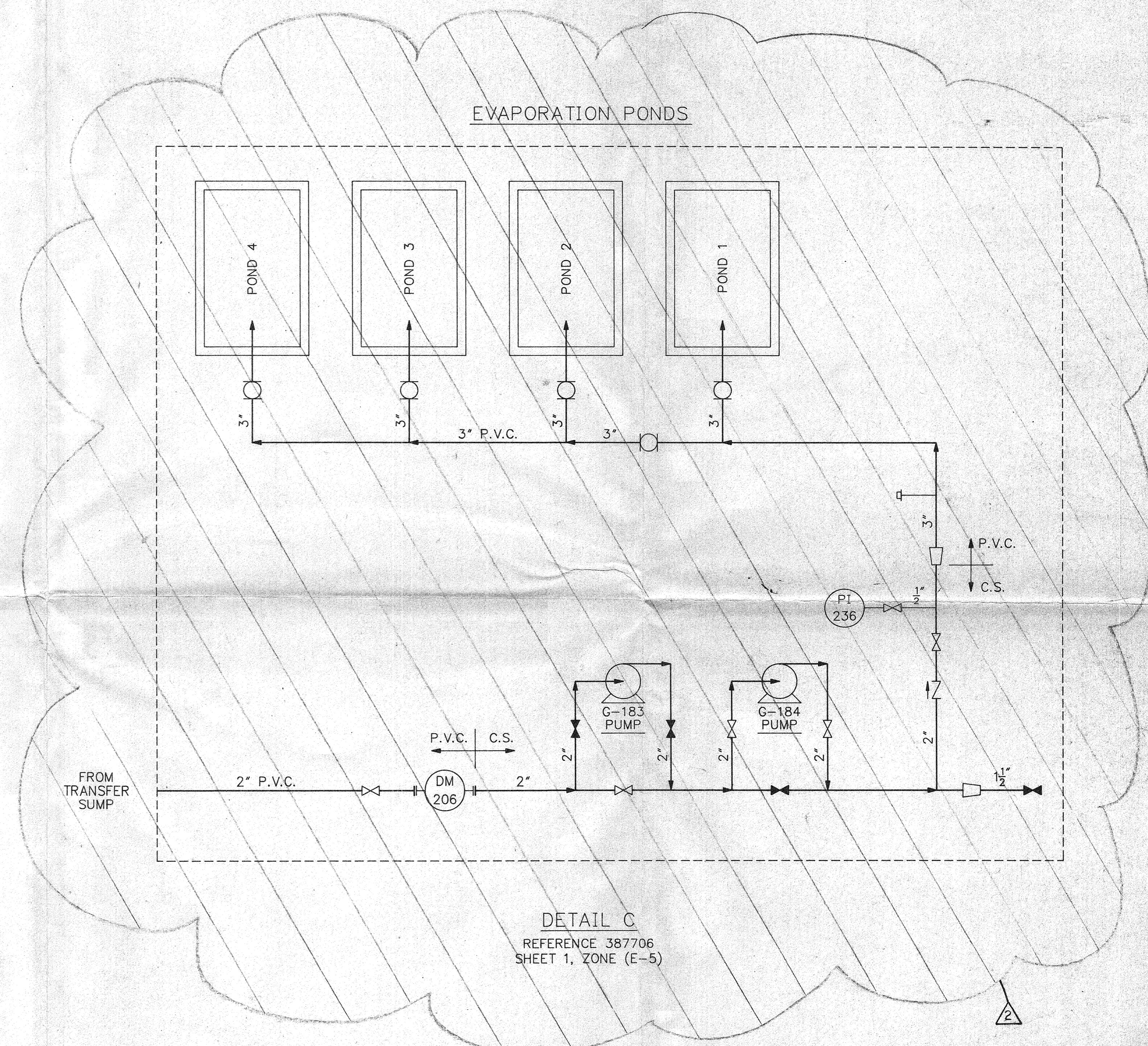
DETAIL A

REFERENCE 387706
SHEET 1, ZONE (A-4)

ONLY WATER SEPARATOR



DETAIL B

REFERENCE 387706
SHEET 1, ZONE (E-4)

DETAIL C

REFERENCE 387706
SHEET 1, ZONE (E-5)TA ENGINEERING CO., INC.
920 COUNTRY CLUB DRIVE
MORAGA, CALIFORNIA

PIPE LINE OPERATIONS

THIS DRAWING MUST BE UPDATED ON AN AUTOCAD T.M.
CAD (COMPUTER AIDED DRAFTING) SYSTEM OR SIMILAR
MINI-BASED CAD SYSTEM. FAILURE TO DO SO WILL RESULT
IN THE PERMANENT LOSS OF EQUIPMENT INFORMATION.
SEE DRAWING NOS. 088784 and 088785 FOR INSTRUCTIONS.

ELEMENTARY-MECHANICAL
DRAIN & SEWER SYSTEMS, DETAILS
TOPOCK COMPRESSOR STATION
GAS OPERATIONS
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

BILL OF MATL
DWG LIST 387700
SUPSDS
SUPSD
SHEET NO. 2 OF 3 SHEETS
387706 REV. 2

DWG. NO.	ELEMENTARY MECHANICAL; DRAWING LIST	TITLE	REVISIONS						
			NO.	DATE	DESCRIPTION	GM/SPEC	DWN.	CHKD.	SUPV.
REFERENCE DRAWINGS									

APPROVED BY	GM 4530762	1947217 I.P.	1 1/2" SJC RSR	1 1/2" SJC RSR
BSH	BSH			
DSGN. CTA ENGR				
DWN. KOL/KC				
CHKD. mca				
O.K.				
DATE 9/12/86				
SCALES NONE				

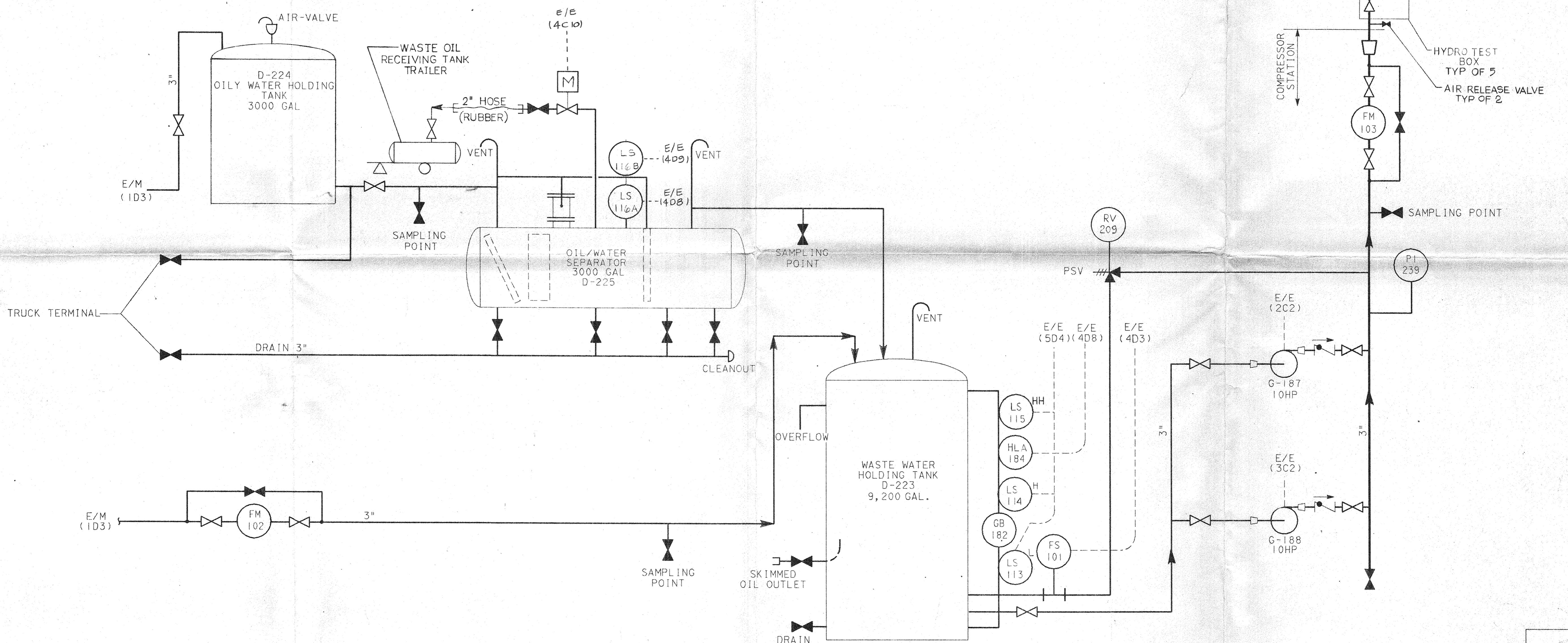
E

D

C

B

A



PIPE LINE OPERATIONS

MICROFILM

BILL OF MATL

DWG LIST

SUPSDS

SUPSD BY

SHEET NO. 3 OF 3 SHEETS

ELEMENTARY-MECHANICAL
WASTEWATER MANAGEMENT SYSTEM
TOPCOCK COMPRESSOR STATION

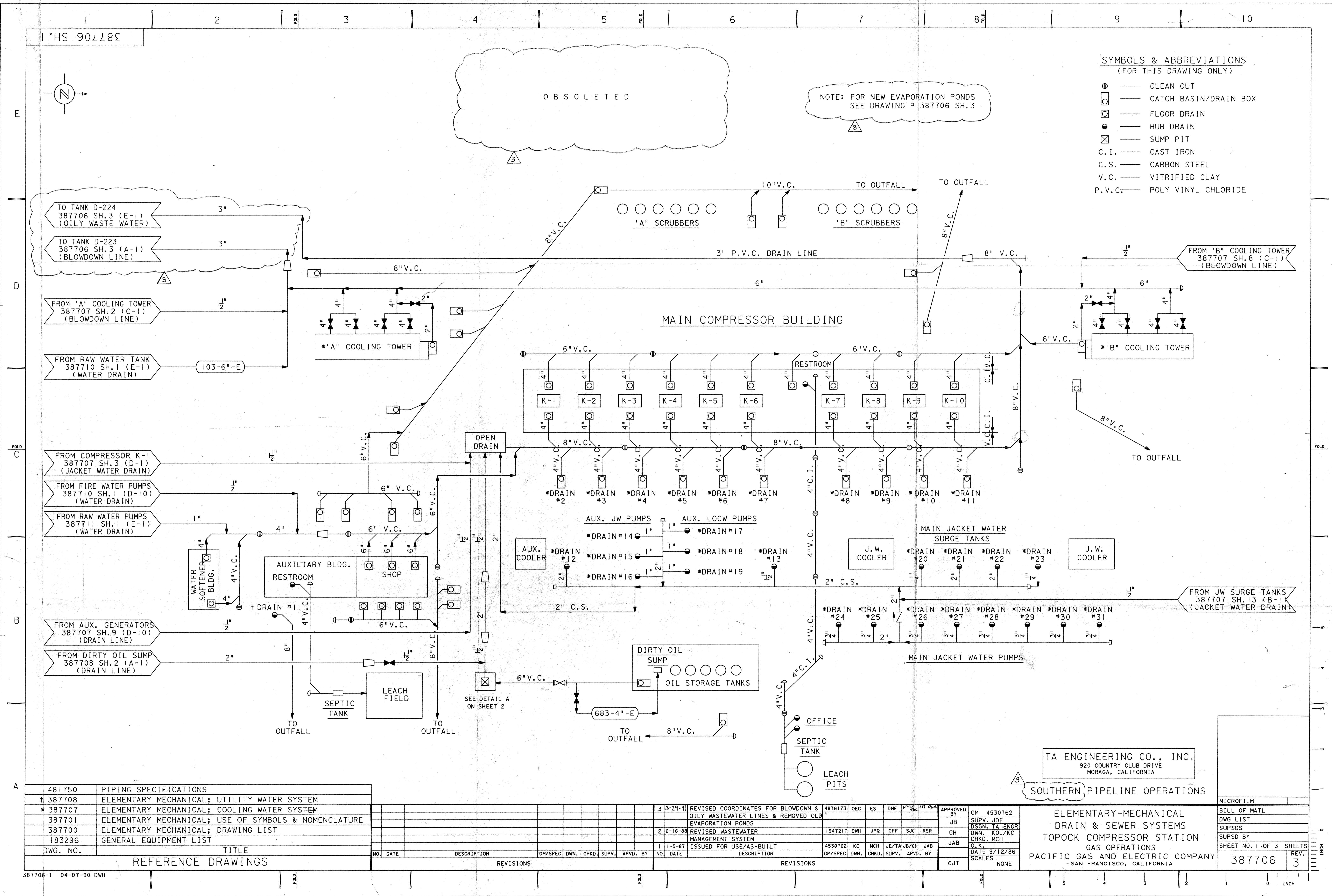
GAS OPERATIONS

PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

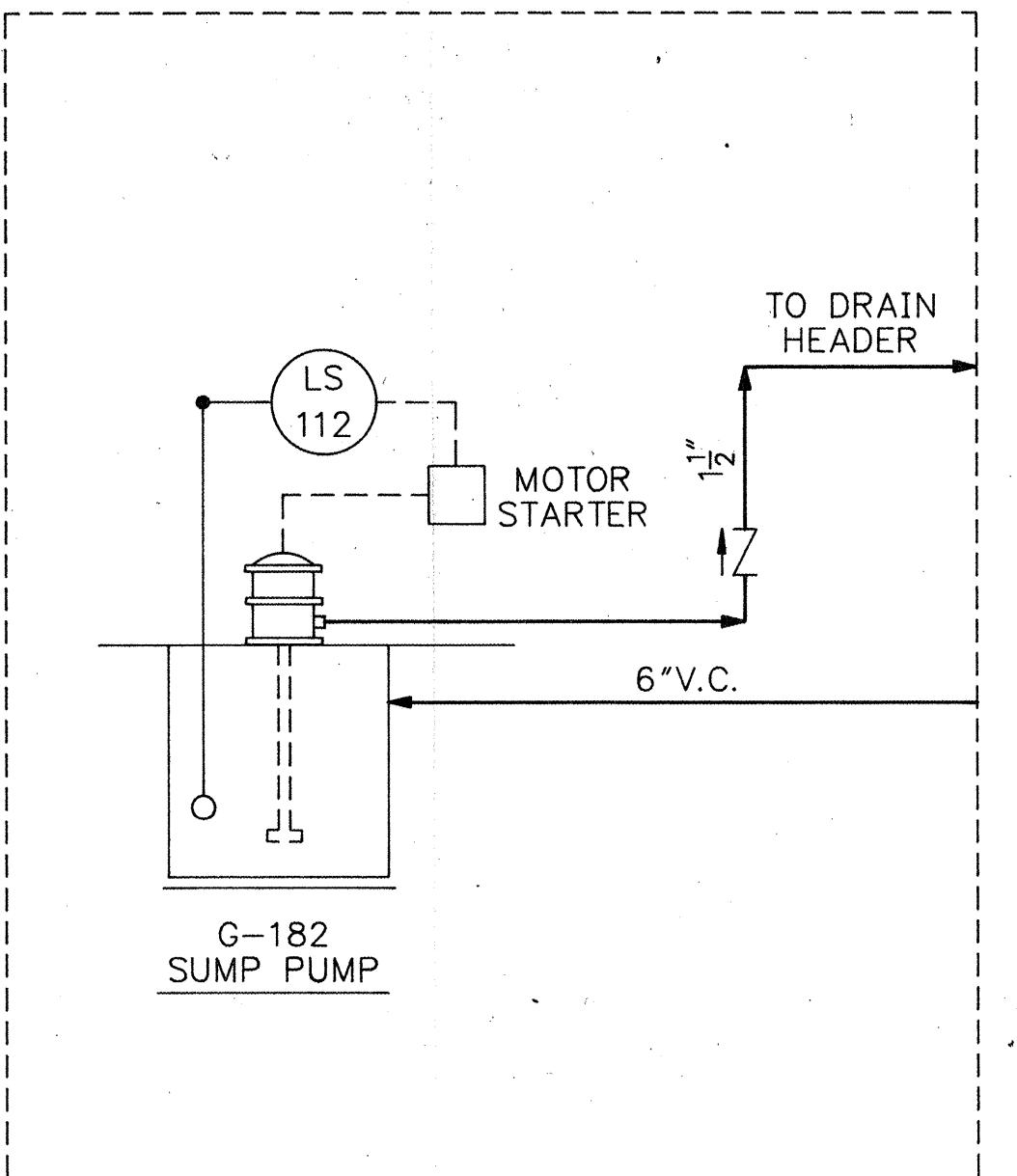
387706

REV 2

NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	ISSUED FOR USE		1947217 GLN	JRC	RSR	CHKD	OK	APVD BY
								NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
								2	6-16-88						



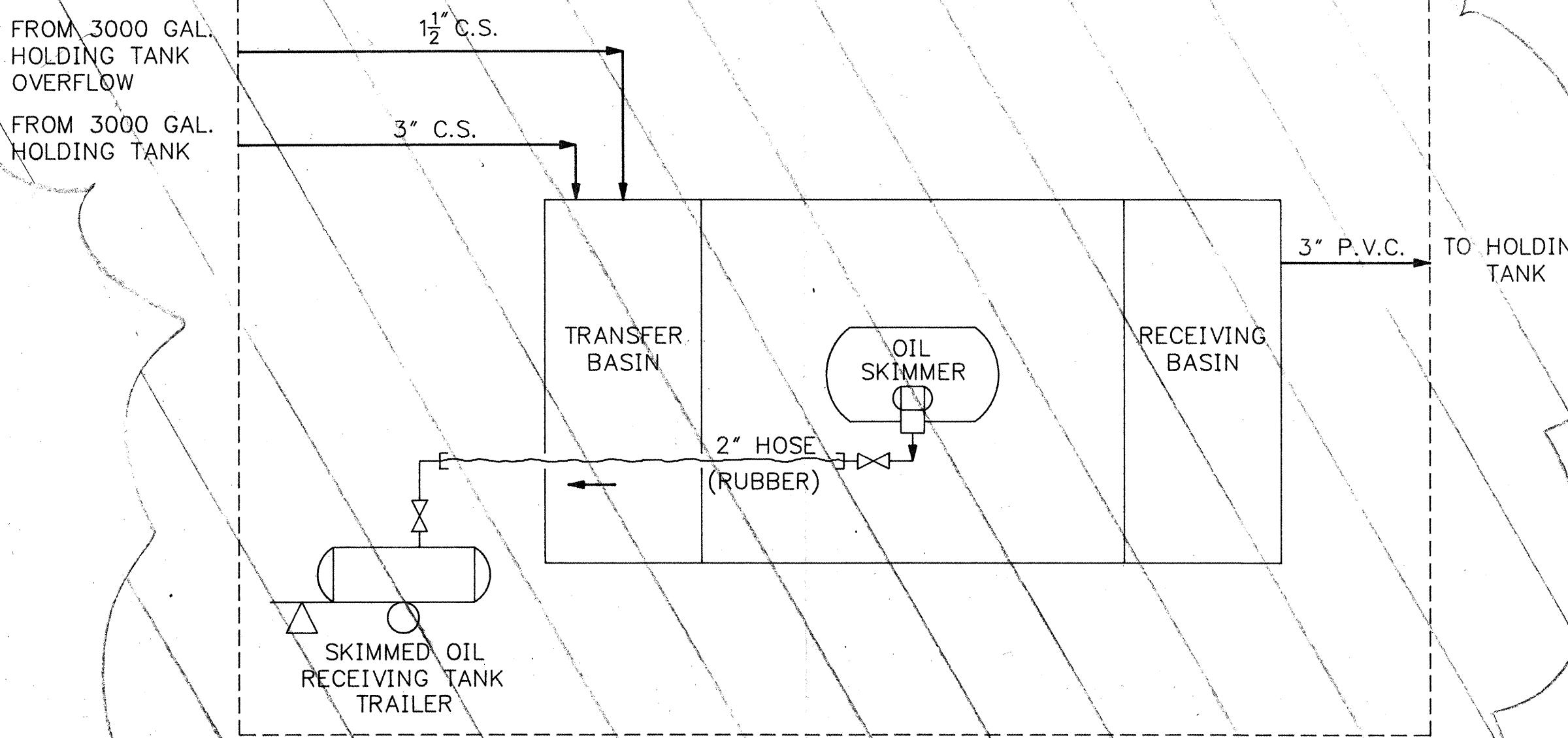
WASHING AREA SUMP PIT



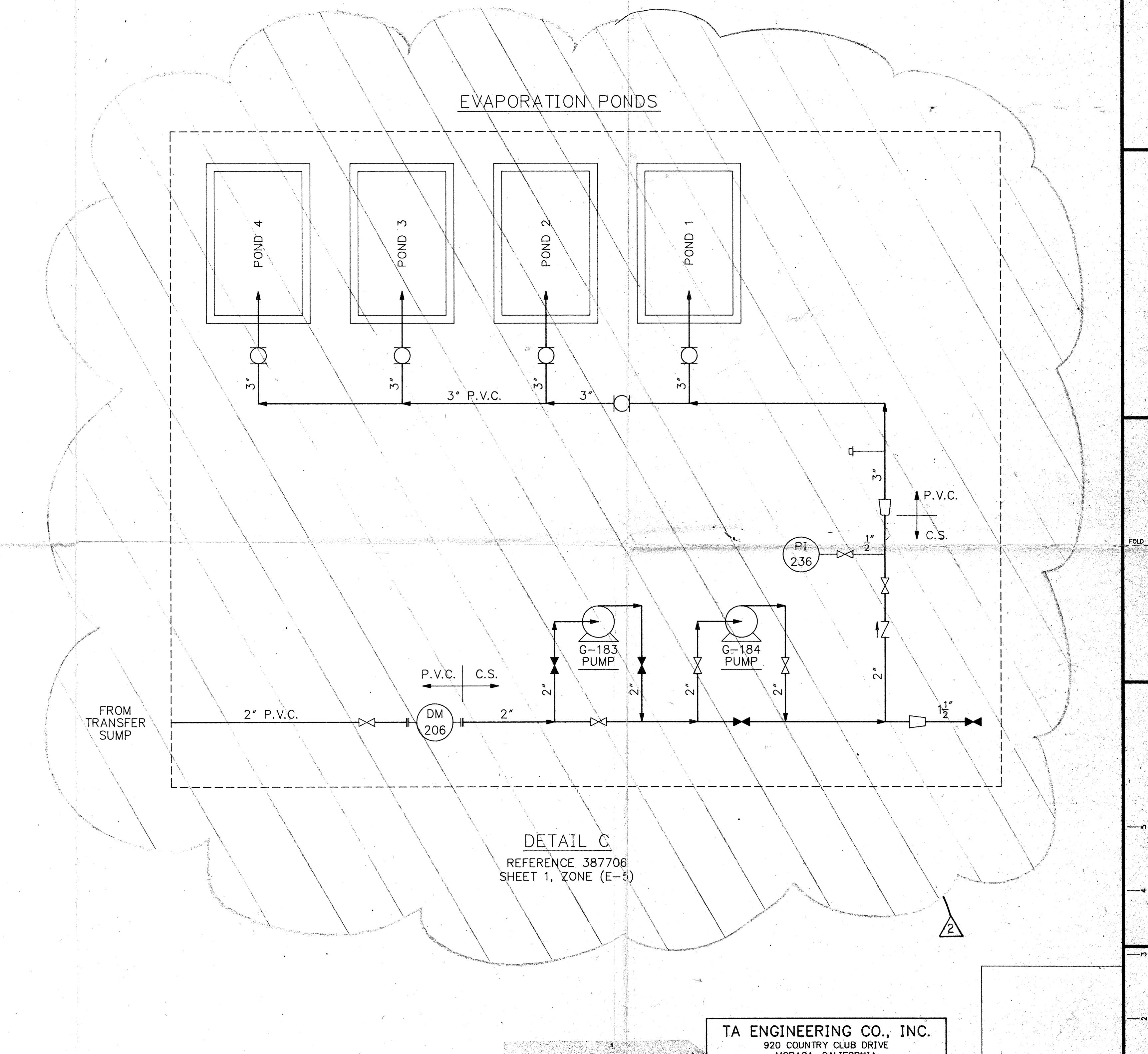
DETAIL A

REFERENCE 387706
SHEET 1, ZONE (A-4)

ONLY WATER SEPARATOR



DETAIL B

REFERENCE 387706
SHEET 1, ZONE (E-4)TA ENGINEERING CO., INC.
920 COUNTRY CLUB DRIVE
MORAGA, CALIFORNIA

PIPE LINE OPERATIONS

THIS DRAWING MUST BE UPDATED ON AN AUTOCAD T.M.
CAD (COMPUTER AIDED DRAFTING) SYSTEM OR SIMILAR
MINI-BASED CAD SYSTEM. FAILURE TO DO SO WILL RESULT
IN THE PERMANENT LOSS OF EQUIPMENT INFORMATION.
SEE DRAWING NOS. 088784 AND 088785 FOR INSTRUCTIONS.

APPROVED	GM 4530762
SUPV. 12	B. J. B.
DSGN. TA ENGR	J. B.
DWN. KOL/KC	J. B.
CHKD. mch	J. B.
RSR	J. B.
O.K.	J. B.
DATE 9/12/86	J. B.
SCALES NONE	J. B.

ELEMENTARY-MECHANICAL
DRAIN & SEWER SYSTEMS, DETAILS
TOPOCK COMPRESSOR STATION
GAS OPERATIONS
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

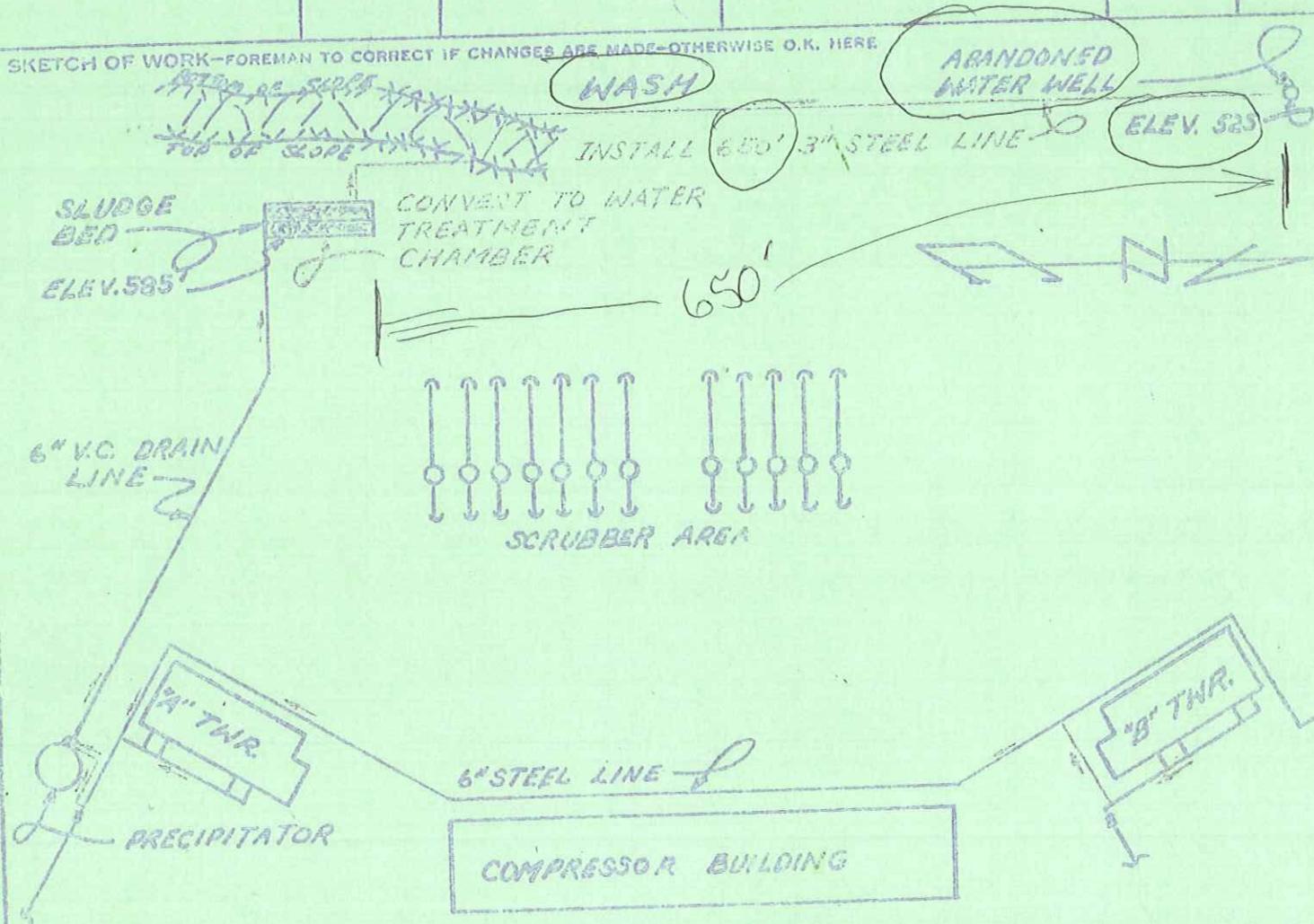
REV. 2
INCH
387706-2

DWG. NO.	TITLE	REFERENCE DRAWINGS			
		NO.	DATE	DESCRIPTION	REVISIONS
387700	ELEMENTARY MECHANICAL; DRAWING LIST				

423293

DATE WORK STARTED 3-12-69		DATE COMPLETED 11-1-69	SIGNED J. M. Pickell, P.E. FOREMAN
MATERIAL USED ON THIS WORK ORDER			MAPPING RECORD
REQUISITION NUMBERS		LOC. PUR. ORD. NOS.	POSTED TO: DATE
DEBIT	CREDIT		H SHEET
255078		729050 \$4893	PLAT SHEET
255079		729075 \$12,90	WALL MAP
255080			

SKETCH OF WORK - FOREMAN TO CORRECT IF CHANGES ARE MADE - OTHERWISE O.K. HERE



*Hinkley*ESTIMATE FOR APPROPRIATION
WILCO CODE AND/OR C.I.T. AUTHORIZATION:

GAS

DATE MARCH 31, 1967

DEPARTMENT

PIPE LINE OPERATIONS

H-2072

NAME OF APPLICANT

LOCAL EST. NO.

TYPE SERV.	SCHED.	LIGHT G.	REFUG'S	ENCL'S	W. HTR'S	HEAT C.	DRIVERS	FRZRS.	D-WASHG	DOM. WTR SYSTEM	HEAT. PUMPS	N.P.	EAR	LINE EXTENSION DATA			
														TOT. LTH. EXT. FT.	CO. ALLOW FT.	EXCESS LINE FT.	ADVANCE REQ'D. \$
STREET LIGHTS --- OTHER																	

TITLE, LOCATION AND COUNTY INSTALL FLEXMASTER JOINTS, GMW ENGINES - TOPOCK STATION

NECESSITY FOR PROPOSED WORK AND DESCRIPTION THEREOF: It is proposed to install 100 Flexmaster joints on the GMW engine cooling water headers at the Topeck Compressor Station.

Rubber hoses with clamps are presently used between the water header and the cylinder head. The water pressure on the present cooling water system at the hose location is low, but the hoses do leak and periodically break.

The cooling water system will be altered on GM 165155 and will increase the pressure in the cooling water system approximately 5 psi. The proposed Flexmaster joints are designed for 150 psi. and will eliminate the hoses which will be unable to withstand the added pressure.

L-18

L-28

J. P. APP. NO.

R.L.G.

LOCATION & ITEM NO.	ACCOUNT NUMBER	ESTIMATE OF COST -- ITEMS (FOR INVOLVED ESTIMATES GIVE SUMMARY HERE--DETAIL ON EXTRA SHEETS)	D. R.C. NOS.	ESTIMATOR	R.L.G.
305	1125	PURCHASE AND INSTALL FLEXMASTER PIPE JOINTS			4770.
9305	1125	REMOVE RUBBER HOSES			100.

*ACTUAL
COST
\$3292*
RWH 4-19-67

8305	1125	PLANT TO BE REMOVED OR ABANDONED: GM 113785, 1951-Misc. rubber hoses & fittings GM 116053, 1953 " " " " GM 121920, 1955 " " " " GM 134617, 1957 " " " "	TOTAL (EXCL. MAINT. AND OPER.)				\$ 4870.		
			GENERAL OVERHEADS	5 %			\$ 243.		
			APPROPRIATION (EXCL. MAINT. & OPER.)				\$ 5115.		
			MAINTENANCE AND OPERATION				\$		
			AMOUNT AUTHORIZED				\$ 5115.		
INSTALL AND/OR REMOVE REVOLVING STOCK (NET)									
INSTALL AND/OR REMOVE SERVICES									
DEDUCT SALVAGE AND/OR OTHER CREDITS									
NET AMOUNT									
DIVISION OR ORIGINATING OFFICE									

EXTENSION BASIS AUTHORIZED:	CHECK LIST	REQ'D.	SEC'D.	CHECK LIST	REQ'D.	SEC'D.	RECOMMENDED	APPROVED
	J. P. INTENTION			E. R. X-ING PERMIT			R. W. Horton	APR 10 '67
	CITY OR CO. PERMIT			OTHER PERMITS				K. B. ANDERSON
	TREE TRIMMING			OVER 20% YIELD			GENERAL OFFICE	W. O. NO.
	HIGHWAY PERMIT			STRENGTH TEST			RECOMMENDED	AUTHORIZED:
	RIGHT OF WAY			MACHINE TRENCH - FT.				
	TEL. PART'L. PERMIT			PAVEMENT - SQ. FT.			APPROVED	
				MAN DAYS				G.M. NO. 437490

DATE WORK STARTED	6-30-67	DATE COMPLETED	5-15-68	SIGNED	<i>W. V. Adler / R.L.G.</i>	FOREMAN
MATERIAL USED ON THIS WORK ORDER AND/OR C.O.				LOCAL PURCHASE ORDER NO. AND OTHER REFERENCE NOS.		MAPPING RECORD
REQUISITION AND CREDIT CHECK NUMBER						
DEBIT	DEBIT	CREDIT REQ.	CREDIT CHECK		POSTED TO:	DATE
1942-430		5866-890			H SHEET	
1942-433		5866-891			H SHEET	
2303-920		5866-892			R.P.	MAP
		5866-893				

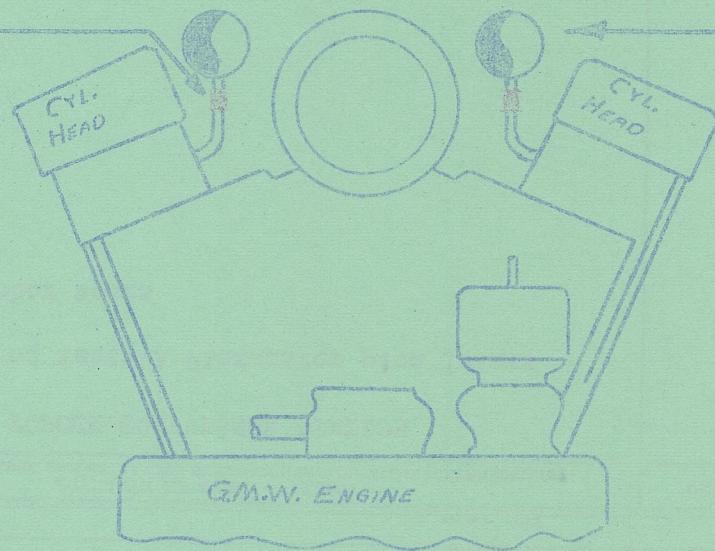
FOR ELECTRIC DEPARTMENT USE--SHOW SERIAL NO. OF TRANSFORMERS INSTALLED AND CIRCLE WHETHER (NEW OR OLD) REFER TO S. P. 445, I-2

	NEW OLD		NEW OLD		NEW OLD
	NEW OLD		NEW OLD		NEW OLD

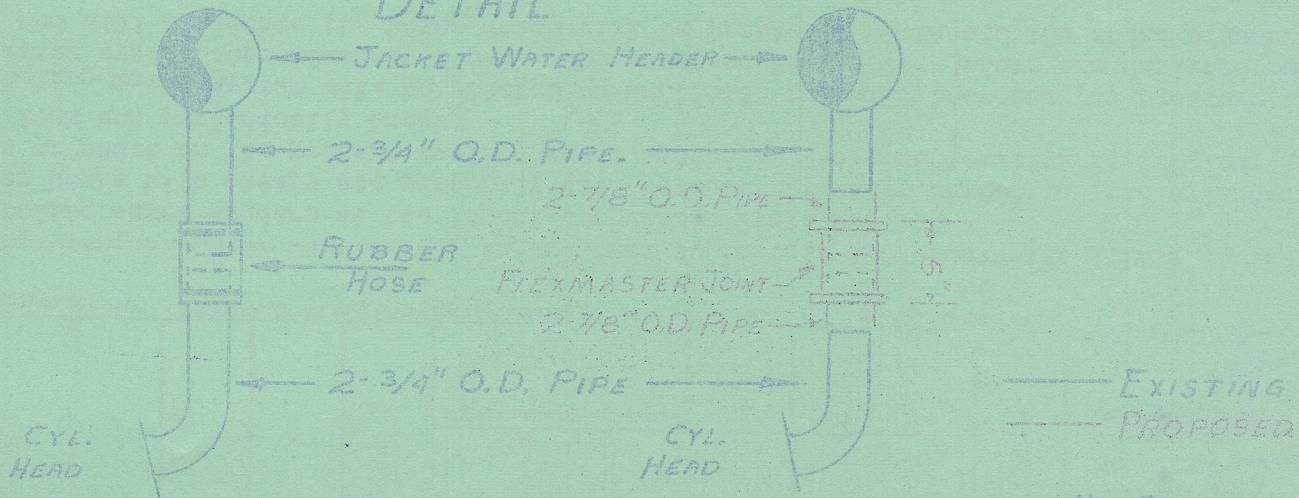
SKETCH OF WORK—FOREMAN TO CORRECT IF CHANGES ARE MADE—OTHERWISE O.K. BY INITIALLING HERE

INSTALL FLEXMASTER JOINTS - G.M.W. ENGINES H-2072
TOPOCK COMPRESSOR STATION

SEE DETAIL ————— J.W. HEADER



DETAIL



R.L.G. 4/67

Hinkley

ORIGINAL ESTIMATE

JUN 6 1967

NAME OF APPLICANT

EIS

DIVISION PIPE LINE OPERATIONS
H-1081 Rev.

LEGAL ENT. NO.

TYPE ENTR.	CODED	RIGHT OF WAY	PERMITS	REG'D.	WANTED	MENTO.	CIVIC CO. PERMIT	PRICES	D. WASHING	COM. WASH SYSTEM	MATERIAL POINTS	H.P.	CAP	LINE EXTENSION DATA		
														TOT. LTH. EST. FT.	CO. ALLOW FT.	
ESTIMATOR'S FILE																STREET LIGHTS - OTHER

VILLAGE, LOCATION AND COUNTY

CONSTRUCT JACKET WATER DRAIN SYSTEM - TOPOCK & HINKLEY STATIONS

SUMMARY FOR PROPOSED WORK AND DESCRIPTION THEREOF:

It is proposed to construct a jacket water drain line for the compressor and auxiliary engines cooling water system at the Topock and Hinkley Compressor Stations.

See attached sheet for story of necessity.

RECOMMENDATION:

SUBJECT ITEM NO.

I-28

J. P. APP. NO.

P. I. C.

D. & C. NO.

ESTIMATOR

TOTAL

FOLIARO ONLY

LOCATION & ITEM NO.	ACCOUNT NUMBER	ESTIMATE OF COST - ITEMS (FOR INVOLVED ESTIMATES GIVE SUMMARY HERE - DETAIL ON EXTRA SHEET)	D. & C. NO.	UNIT CODE	AMOUNT (DOLLARS ONLY)	P. I. C.
TOPOCK COMPRESSOR STATION						
305	1125	Construct J.W. drain lines	Pipe line crew	{ Plant Crew		3180.
9305	1125	Remove 1" water meter and steel piping				50.
HINKLEY COMPRESSOR STATION						
310	1125	Construct J.W. drain lines	Pipe line crew	{ Plant Crew		2700.
9310	1125	Remove 3/4" valves	Completed	(electrical)	6.25	10.
PLANT TO BE REMOVED OR ABANDONED						
8305	1125	1" Tropic water meter DH184, GM 113785 - 1950 40'-2" pipe, Steel, GM 423293 - 1964 200' - 1" pipe, steel, W.O. 4052-E, 1966 7 - 3/4" valves, gate, GM 113785 - 1950 2 - 3/4" " " GM 116053 - 1952				
8310	1125					
TOTAL VALUE --- \$50.						
TOTAL (INC'L. MAINT. AND GEOR.)						
GENERAL OVERHEAD						
APPROPRIATION (INITL. MAINT. & GEOR.)						
MAINTENANCE AND OPERATION						
AMOUNT AUTHORIZED						
INSTALL AND/OR REMOVE REVOLVING STOCK (NET)						
INSTALL AND/OR REMOVE CREDUCERS						
DEDUCT SALVAGE AND/OR OTHER CREDITS						
NET AMOUNT						
DIVISION OR ORIGINATING OFFICE						
RECOMMENDED						
R. W. HORTON						
APPROVED JUN 21 '67						
K. B. ANDERSON						
W. O. NO.						
AUTHORIZED						
GENERAL MANAGER						
O.M. NO.						
438606						

DIVISION BASIC AUTHORIZED.

CHECK LIST	REG'D.	SEC'D.	CHECK LIST	REG'D.	SEC'D.
J. P. INTENTION			R. R. X-ING PERMIT		
CIVIC CO. PERMIT			OTHER PERMITS		
TRIMMING			OVER SIZE WELD		
MARSH PERMIT			STRENGTH TEST		
RIGHT OF WAY			MACHINE TRENCH -- FT.		
TELE. PAINT. PERMIT			PAVEMENT -- GR. FT.		
MAN. PAINT. PERMIT			MAN. PAINT.		

RECOMMENDED

APPROVED

K. B. ANDERSON

W. O. NO.

AUTHORIZED

GENERAL MANAGER

O.M. NO.

438606

NECESSITY FOR PROPOSED WORK:

ESTIMATE NO. H-1981 - Rev. 2

After the work was started at the Topock Station, it was discovered that a drain line would be required for the drains from the surge tanks, fin fan units and the Compressor Building basement. These drains are below the elevation of the jacket water drain line installed for the GMW and PSVG engines.

This revision will consist of installing 90' of a 2" drain line from the finfan area to the Compressor Building drain system. The water draining from this line will empty into the oily water separator tank.

In order to effectively treat the water effluent and provide proper drainage, it will be necessary to relocate the oily water separator tank to the sludge drying area. Approximately 500' of a 6" plastic sewer pipe will be installed to its new location.

This revision also deletes the proposed 3" drain for the cooling tower water bleeds. The drain was to be installed when the present water treatment is changed, in the cooling towers. This change is not contemplated in the near future. If the water treatment is changed at a future date, a drain can be installed.

GM-438606 was originally issued to construct a drain system for the GMW and PSVG engines jacket water systems at the Topock and Hinkley Compressor Stations.

CONSTRUCT JACKET WATER DRAIN SYSTEM

H-1981-REV-C

SHEET - #3

DIRTY OIL
SUMP IN CANYON

TOPOCK COMPRESSOR STATION



6"-AEB TOWER BLEED OFF
WATER LINE.

PRECIPITATOR
TANK

A
COOLING TOWER

P.S.V.G. ENGINES

1½"

4 3 2 1

G.M.W. ENGINES

C PUMP

1½" - 52"

DRAIN LINE

A FIN FAN

B FIN FAN

HINKLEY COMPRESSOR STATION

SLUDGE
DRYING
BED

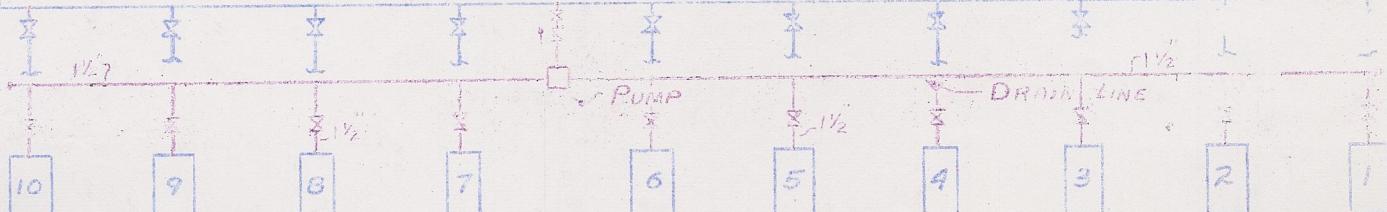
P.S.V.G. ENGINES

B FIN FAN

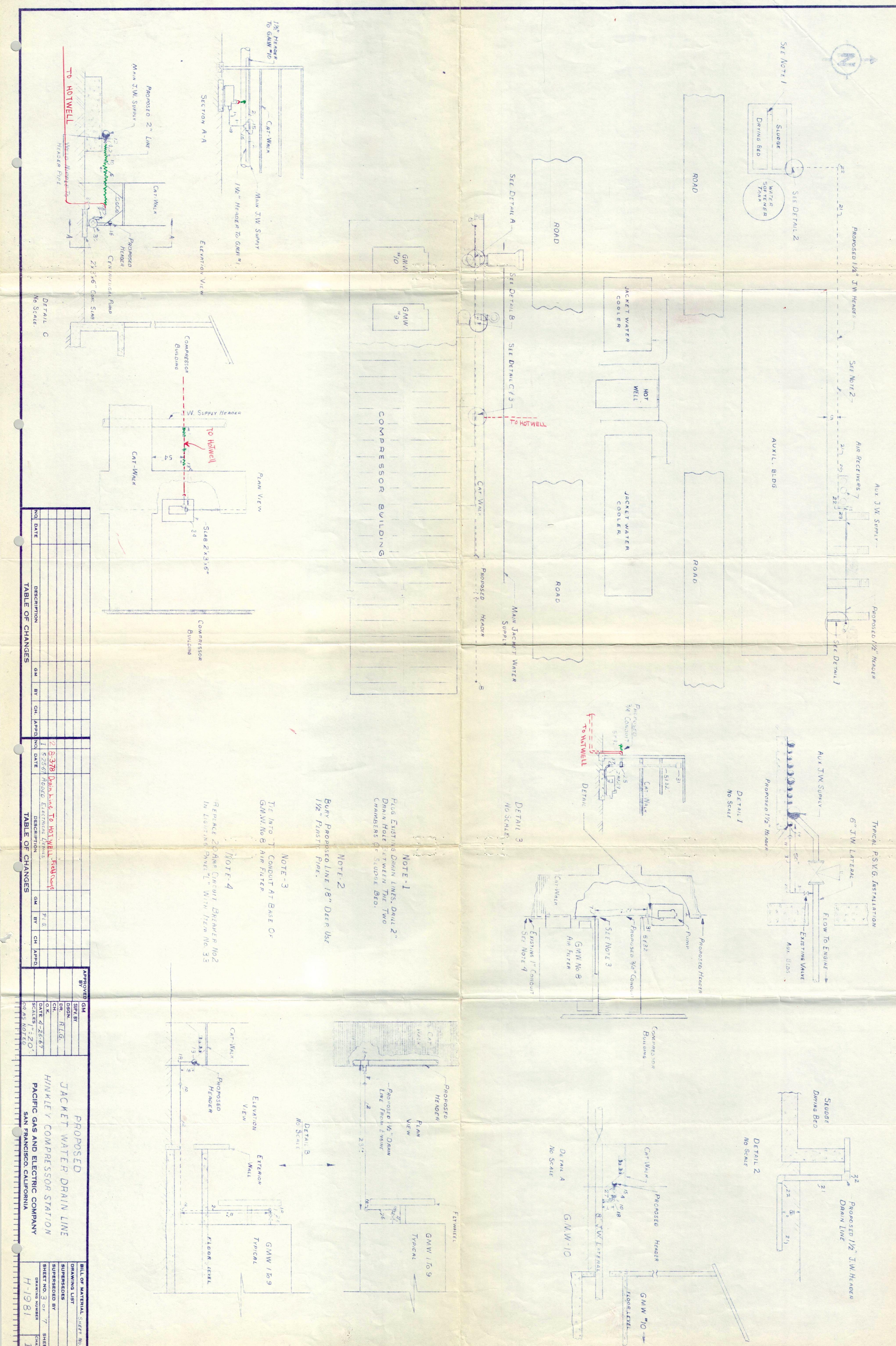
HOT
WELL

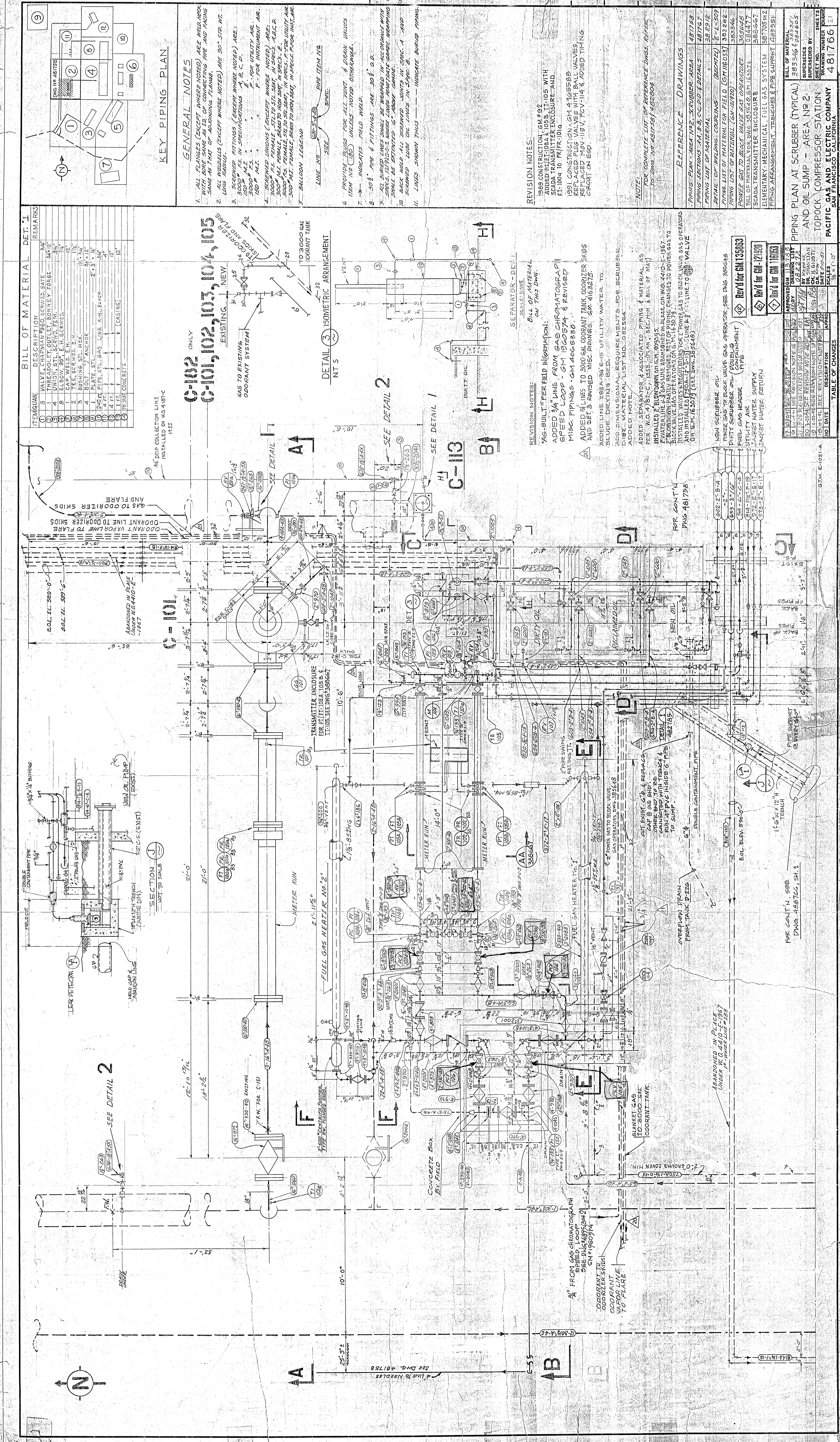
A FIN FAN

MAIN J.W. SUPPLY




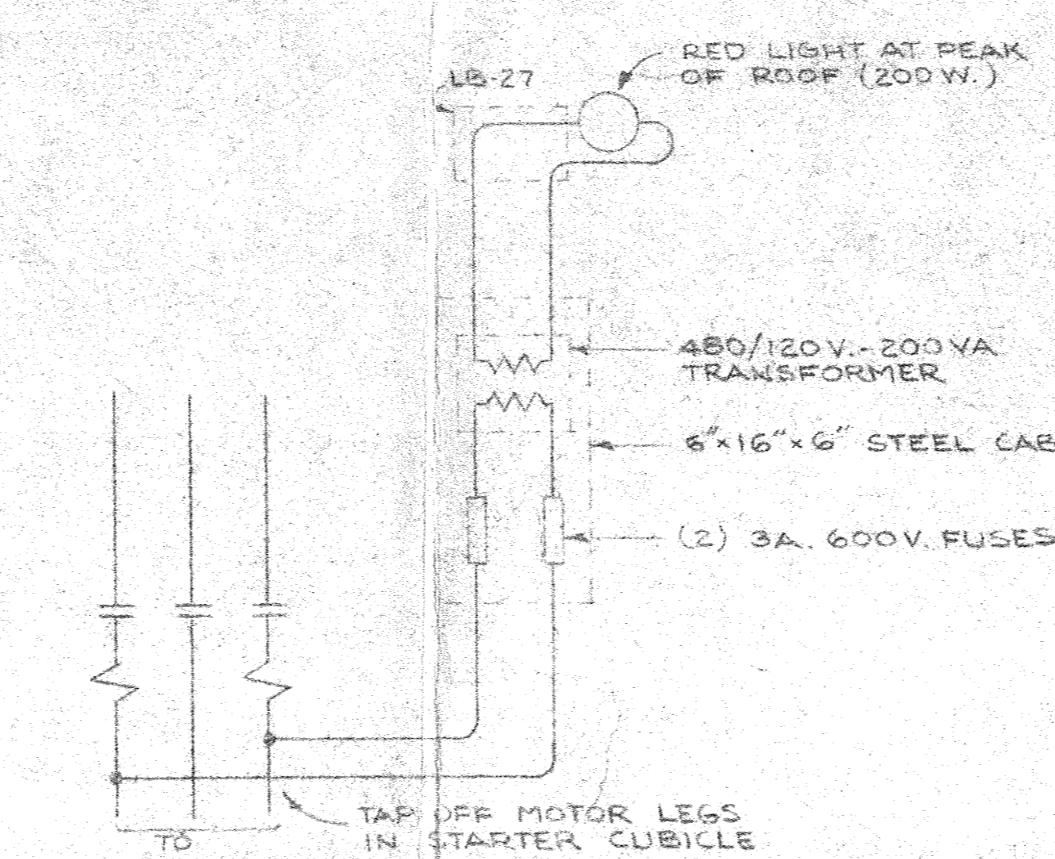
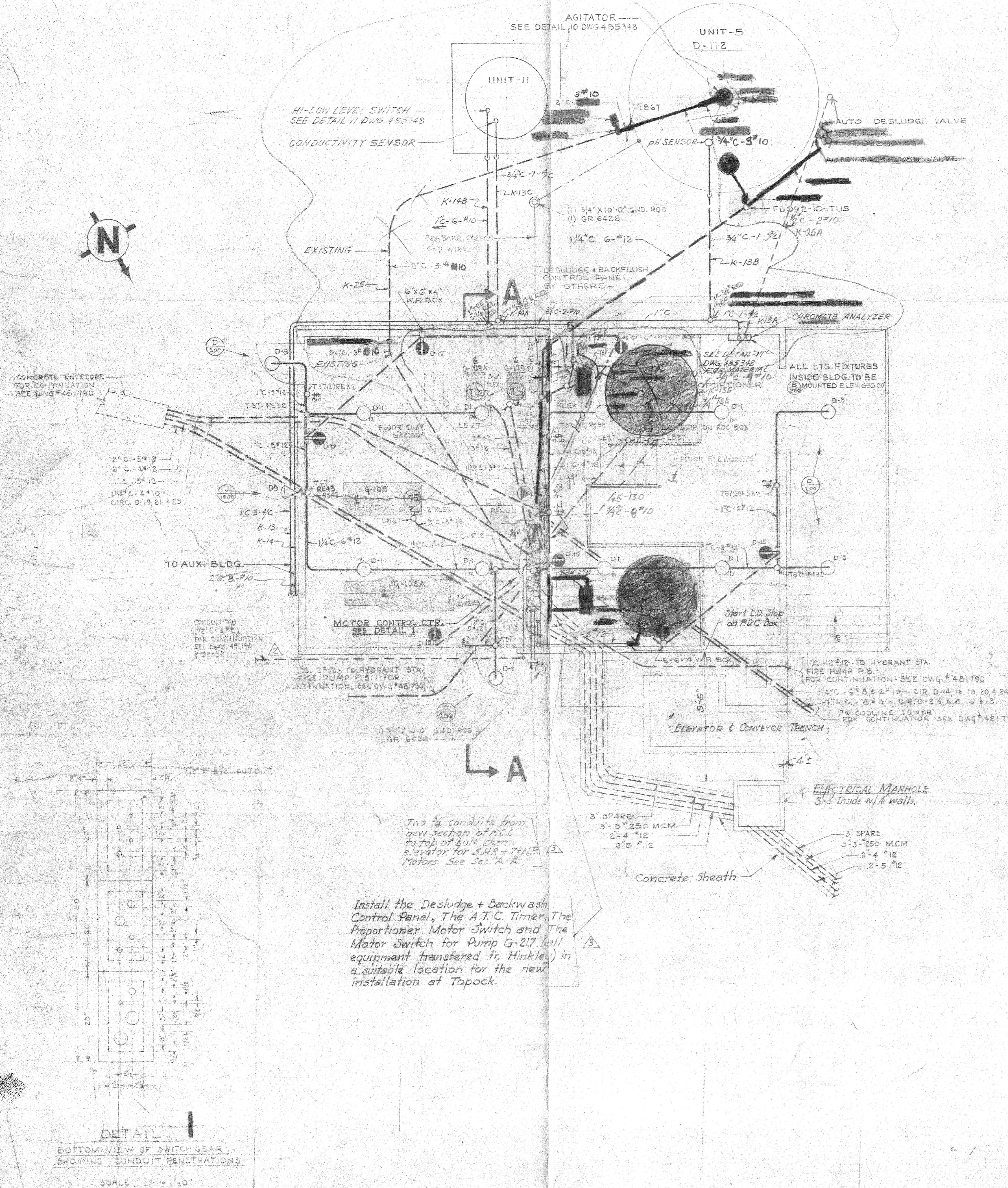
R.L.G. 5-67











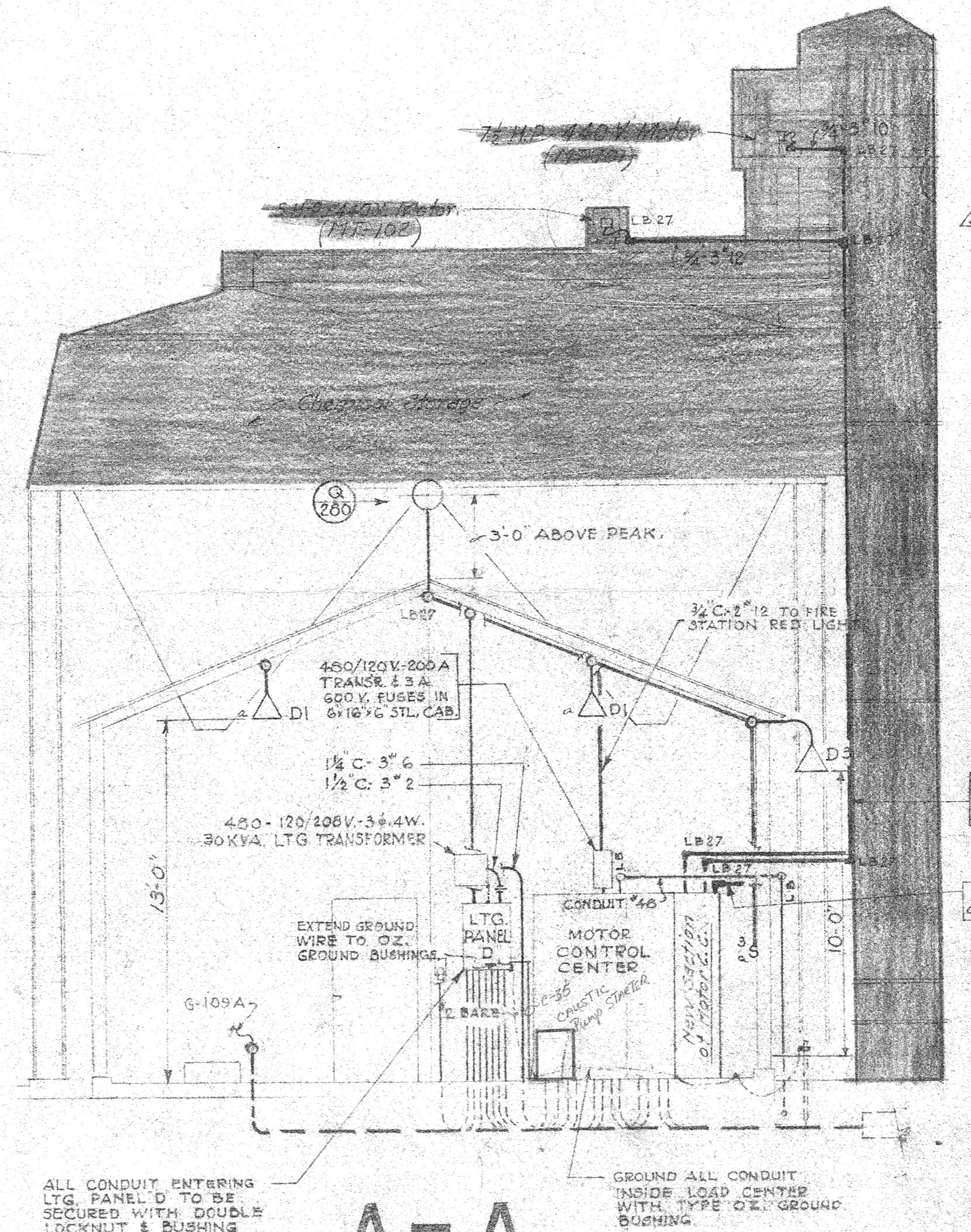
WIRING DIAGRAM

FIRE PUMP MOTOR RUNNING

INDICATOR LIGHT CIRCUIT

NOTE: **3** Added; One new section to western Switch Board M.C.C. containing 7½ H.P. comb. starter for MT-101, 5 H.P. comb. starter for MT-102 and 1 H.P. comb. Starter for MT-202; Added all 3/8" control 20 A.p.i. off and grounds in con-nection with Chem. Vol. D-214. Added Bulk Chemical storage facilities and Motors MT-421 and MT-402. Added light circuits nos 7 & 13.

The control equipment with Vol D-214 is to be tied to existing leads from control equipment of precipitators so that both automatic control units operate in parallel.




LIGHTING PANEL SCHEDULE "D"					
OUTLETS		AREA SERVED	LOAD IN WATTS		
NO.	WATTS		L.A.	L.B.	L.C.
5	200	INSIDE WATER SOFTENER BLDG.	1600		
2	150				
7	200	GROUND LEVEL - COOLING TWR. ACID SHELL	1700		
4	200	OUTSIDE WATER SOFTENER BLDG.		800	
2	500	ANGLE N CORNER COOLING TWR		1000	
1	1000	FLOLTG WATER SOFTENER BLDG.		1000	
2	500	ANGLE S CORNER COOLING TWR		1000	
1	100	CHAMBER AND AREA		100	
1	1000	FLOLTG N CORNER COOLING TWR	1000		
1	100	NEW DESLUDGE + BACKFLUSH PUMP		100	
6	200	N.W. SIDE - TOP - COOLING TWR		1200	
1	500	G-146 + PROPORTIONER		500	
1	1000	FLOLTG N CORNER COOLING TWR		1000	
1	500	G-217 + NEW PROPORTIONER		500	
2	500	ANGLE - S CORNER COOLING TWR	1000		
4	200	RECPT. - WATER SOFTENER BLDG		500	
6	200	S.E. SIDE - TOP - COOLING TOWER		1200	
3	200	RECPT. - WATER SOFTENER BLDG		500	
2	500	ANGLE - E. CORNER - COOLING TWR		1000	
1	500	FDLGT - WATER TANK AREA	500		
1	1000	FDLGT - S CORNER COOLING TOWER	1000		
1	500	FDLGT - WATER TANK AREA	500		
		SPARE			
	200	TOP - COOLING TOWER		400	
5	200	RECEPTEAL - E. CORNER - COOLING TWR ACID SHELL		1000	
		TOTAL	6800	6200	2500

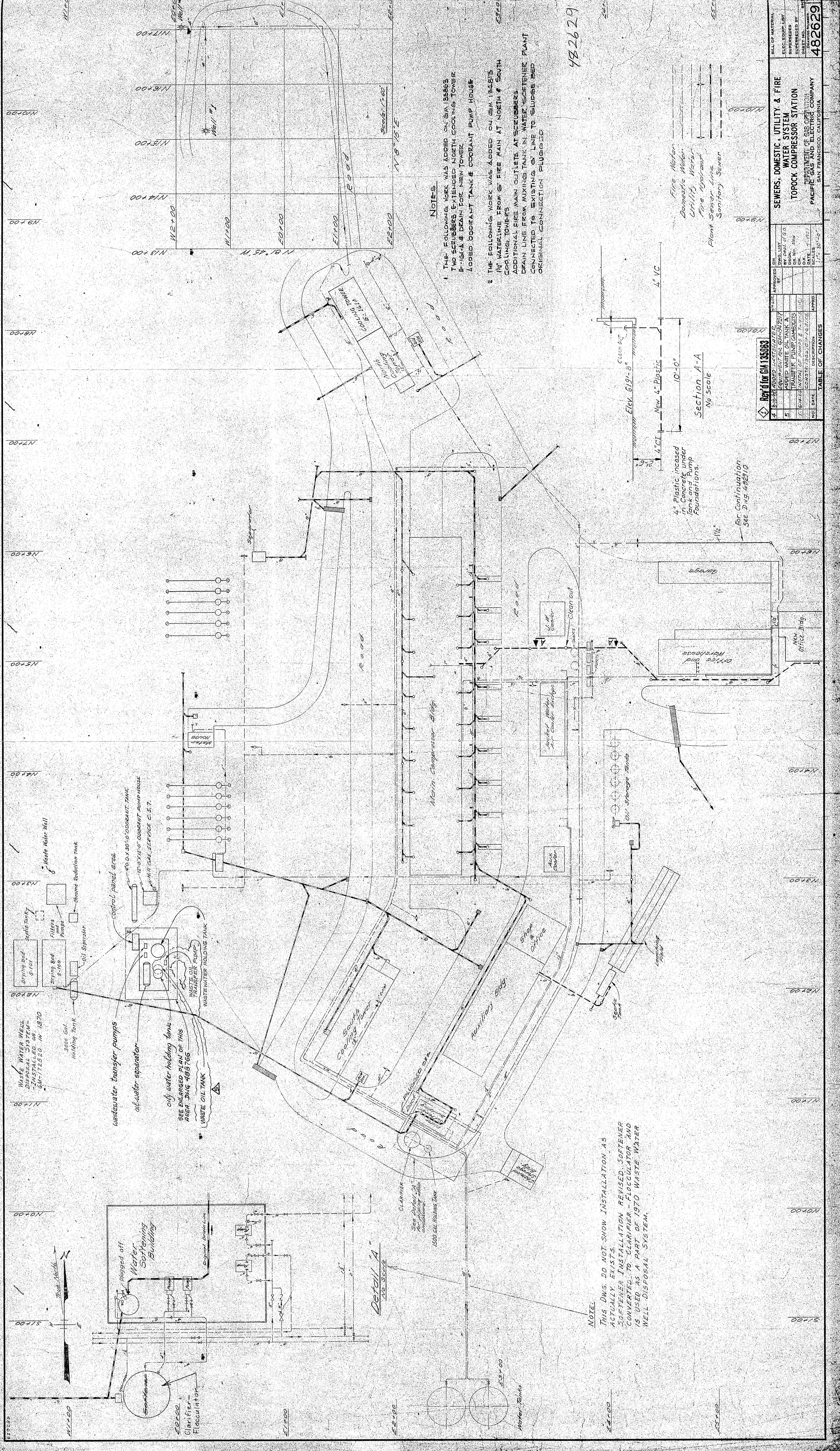
NOTE

Red = ITEMS ADDED
Green = ITEMS REMOVED

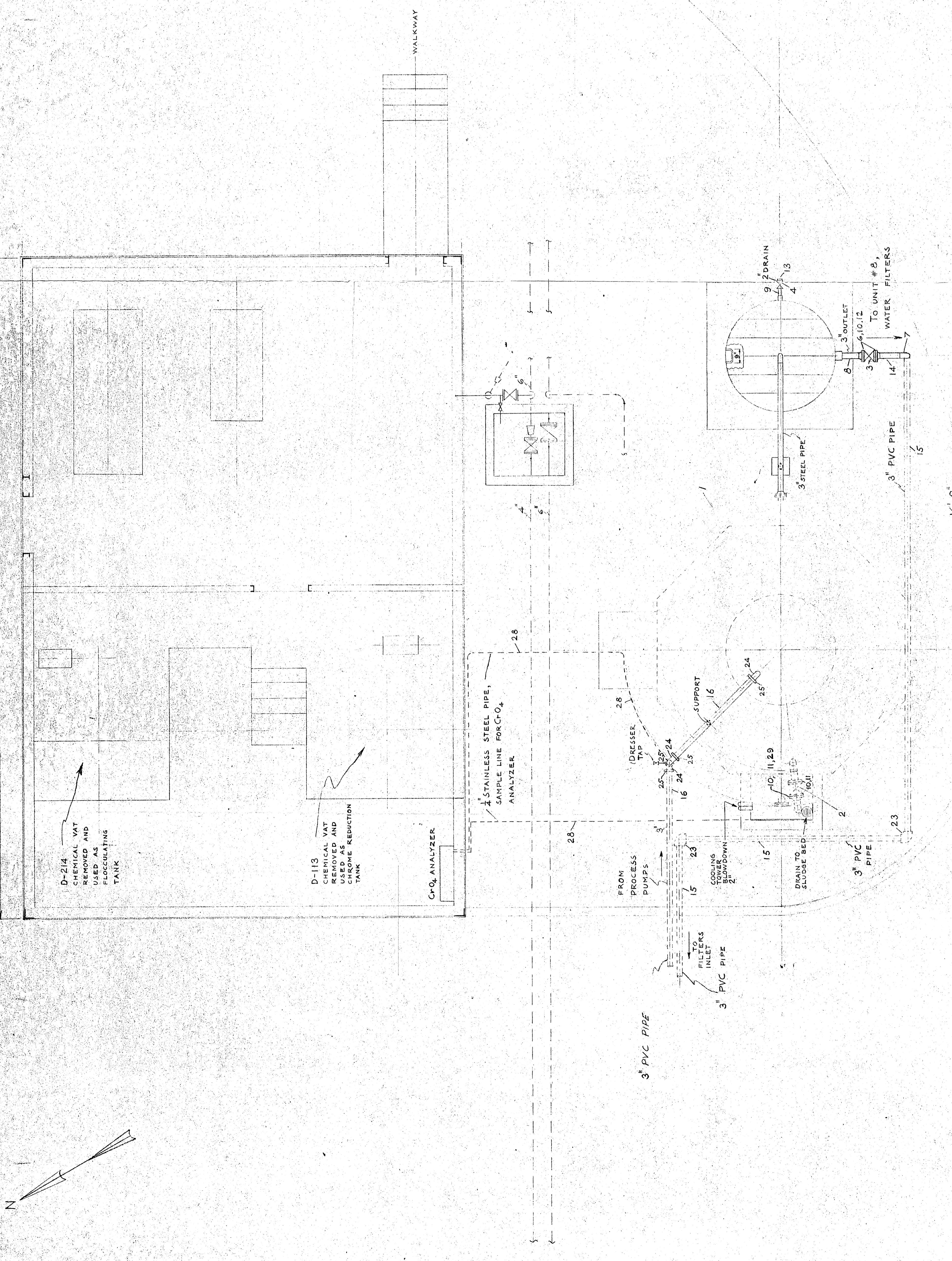
field Corrections
J. POPENEY
ATE 2 7-28-70
M 172520

		REFERENCE DRAWINGS		
3 Rev'd for GM 134695		ELECTRICAL DISTRIBUTION PLAN	481790	CONDUIT SETS - WASTE WATER TREATMENT 485348
		ELECTRICAL DETAILS & GENERAL NOTES	481789	DIAGRAM OF CONDUIT WASTE WATER TREATMENT 485382
		ELECTRICAL SINGLE LINE DIAGRAM	481788	
		ELECTRICAL LAYOUT & DEPS - CHEM. STORAGE BLDG.	383327	
2 Rev'd for GM 116053				
		APPROVED BY	GM 101688	BILL OF MATERIAL
		DRAWING LIST		
# 5-15 TO ADDED UNIT 11 & CONDUITS △ 4-18-47 FOR REVISION HGT2 △ △ 4-23-47 ADDED CONDUIT #48		J. Bell	BY R.F.P. DR. R.F.P. CO. INC. CH. M.G. Q.K. DATE 7/1/47	SUPERSEDES SUPERSEDED BY
NO DATE	DESCRIPTION	APPROD	SCALES 1/4" = 1'-0" AS NOTED	SHEET NO. SHEET 1 DRAWING NUMBER 481794
TABLE OF CHANGES				





485349



卷之三

REFERENCES:	
Piping Sections & details, Waste Water Disposal System DWG:485350.	481775.
Piping, Plan Area No. 5	481776.
↓ , Sections & details, Area No. 5	485341.
↓ Details of Modification to Steel Tank D-11k 85349	485342.
↓ Schematic Control Piping	281915.
↓ Foundation for Clarifier	386065.
↓ 1500 gals. Holding Tank	485352.
↓ Location Plan Tanks Equipment & Piping Area 13 & 14	

TABLE OF CHANGES													
NO.	DATE	DESCRIPTION	GM	BY	CH.	APPD.	NO.	DATE	DESCRIPTION	GM	BY	CH.	APPD.
PIPING PLAN FOR WASTE WATER WELL DISPOSAL SYSTEM AREA NO. 5 TOPCOCK COMPRESSOR STATION GAS OPERATIONS										PACIFIC GAS AND ELECTRIC COMPANY SAN FRANCISCO, CALIFORNIA			
APPROVED GM / 72520 SUPV BY JK DSGN. DR. O. Chernisheff CH. O.K. DATE Feb. 25, 1970 SCALE AS Noted										485349			
BILL OF MATERIAL 085066 DRAWING LIST 082272 SUPERSEDES SUPERSEDED BY SHEET NO. - DRAWING NUMBER CHANGE										485349			

PLAN.

