

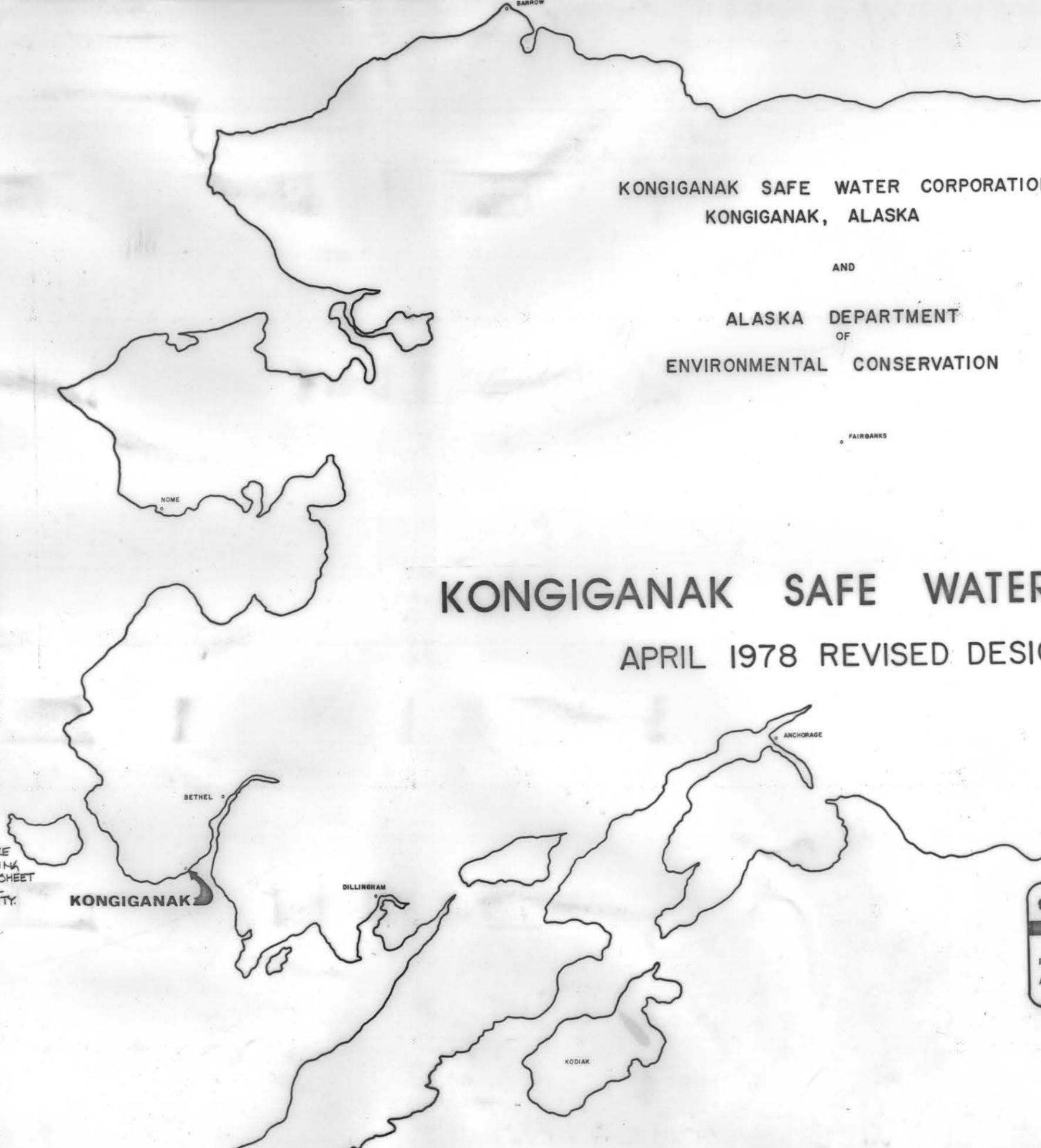
KONGIGANAK SAFE WATER CORPORATION  
KONGIGANAK, ALASKA

AND  
ALASKA DEPARTMENT  
OF  
ENVIRONMENTAL CONSERVATION

FAIRBANKS

KONGIGANAK SAFE WATER FACILITY

APRIL 1978 REVISED DESIGN



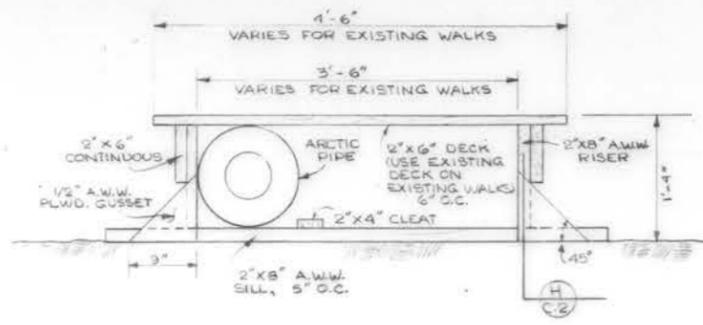
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HONEYWELL CONTROL SHEET  
HONEYWELL PARTS SHEET

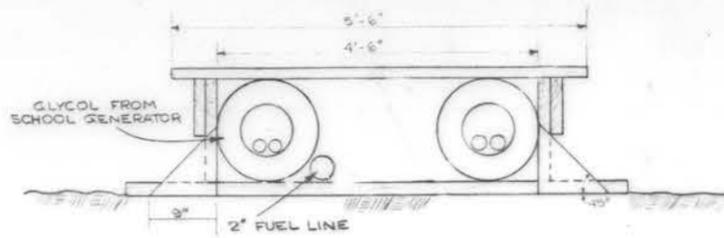
NOTE:  
CERTAIN ORIGINAL SHEETS AND DETAILS WERE EITHER OMITTED AND/OR RELOCATED DURING AS-BUILT REVISIONS. OTHER SUPPLEMENTARY SHEET WERE ADDED FOR AREAS WHERE ADDITIONAL DETAILING WAS NEEDED FOR AS-BUILT CLARITY.

**QUADRA Engineering**  
117 East 53rd  
Anchorage, Alaska (907) 276-3770

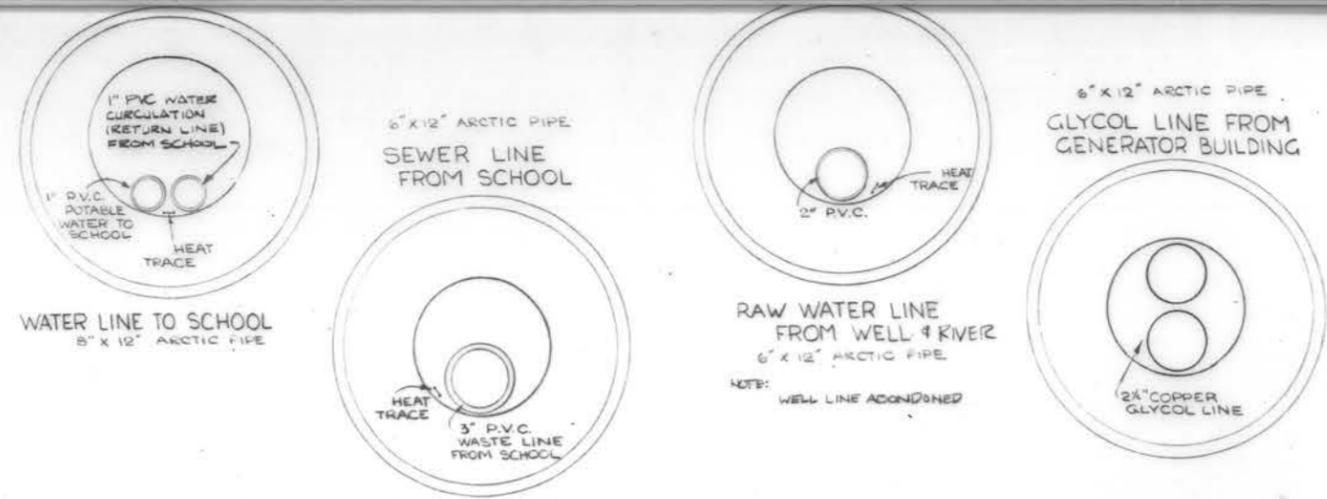




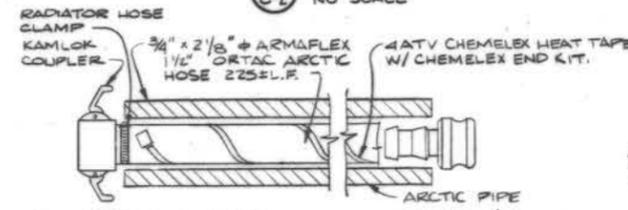
**A UTILIDOR & WALK DETAIL (TYPICAL)**  
SCALE: 1"=1'-0"



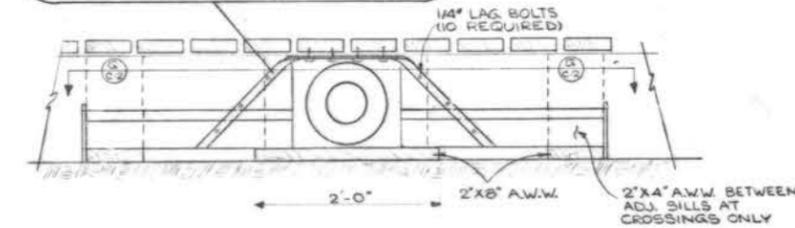
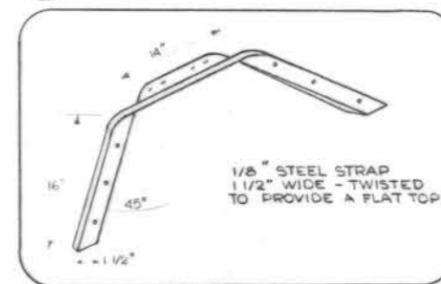
**B UTILIDOR & WALK DETAIL (FOR 3 PIPES)**  
SCALE: NO SCALE



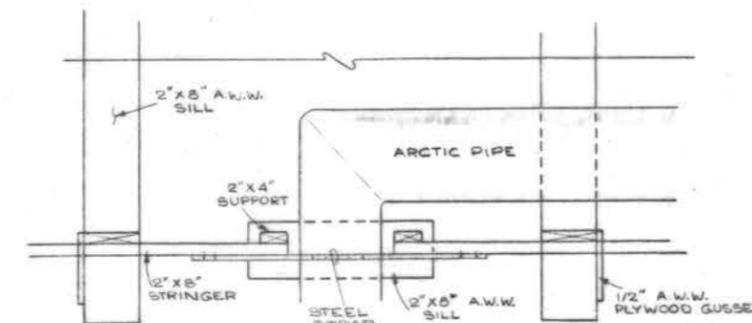
**C PIPING DETAILS IN UTILIDORS**  
SCALE: NO SCALE



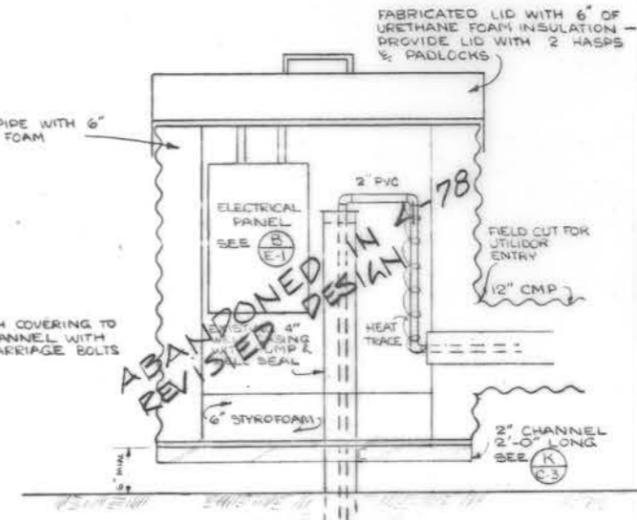
**1 RIVER HOSE**  
SCALE: NO SCALE



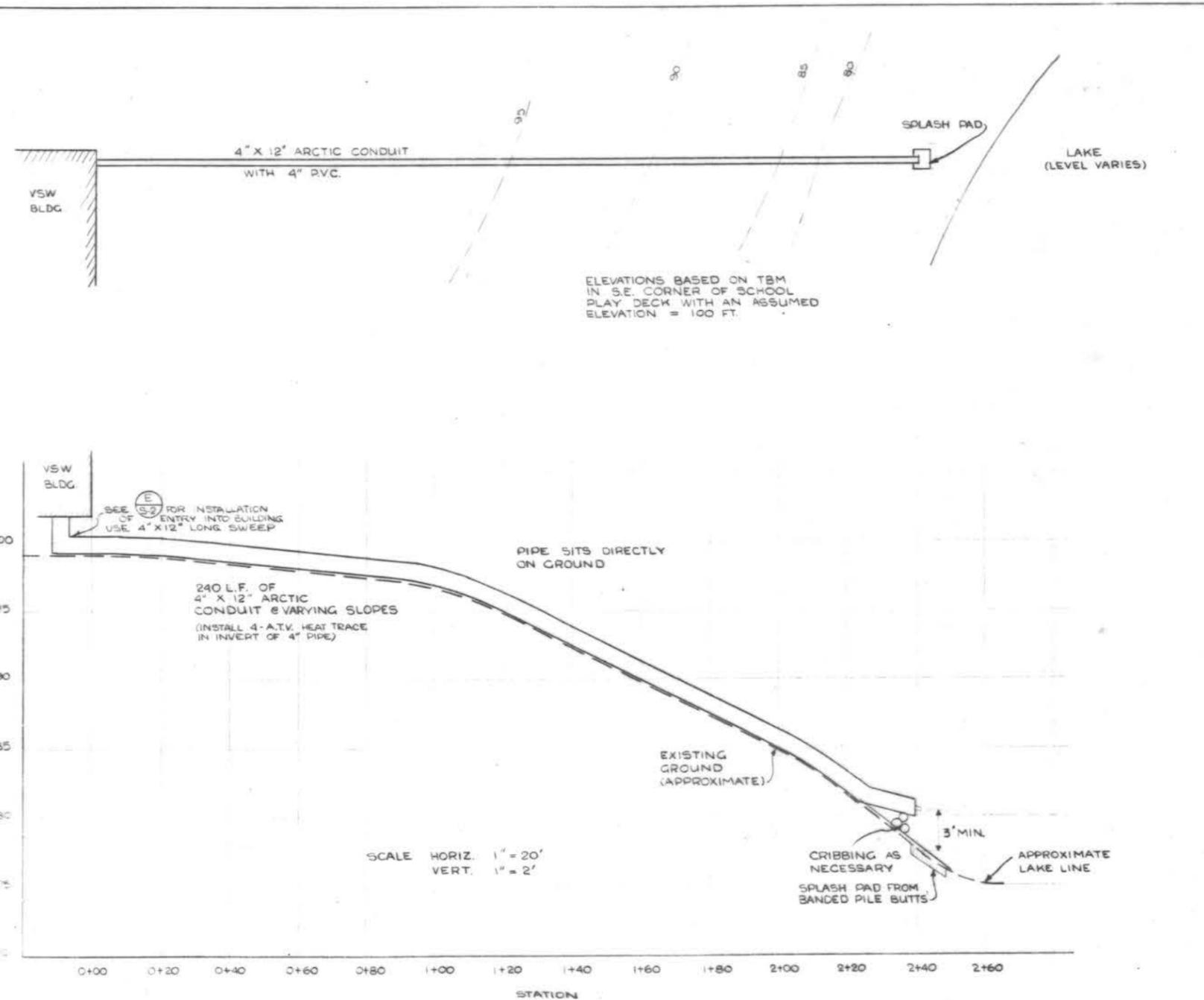
**3 UTILIDOR WALK CROSSING (SIDE VIEW)**  
SCALE: NO SCALE



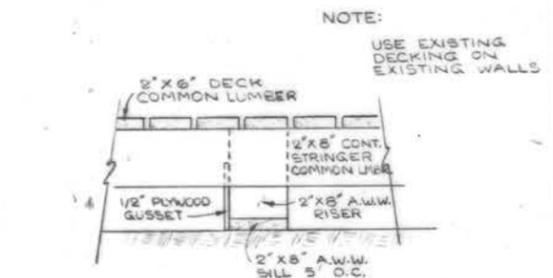
**4 UTILIDOR WALK CROSSING (TOP VIEW)**  
SCALE: NO SCALE



**5 WELL COVERING**  
SCALE: 1"=1'-0"



**F EFFLUENT OUTFALL PLAN & PROFILE**  
SCALE: HORIZ. 1"=20', VERT. 1"=2'



**H UTILIDOR & WALK DETAIL (TYPICAL)**  
SCALE: 1"=1'-0"

**AS-BUILT**

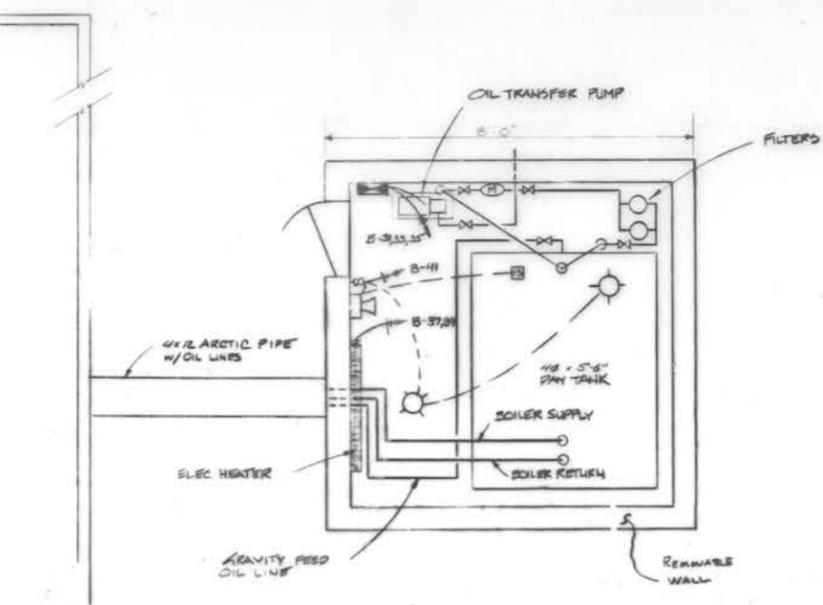


BY	DATE	REVISIONS
DESIGNED C.E.W.	12-20	AS-BUILT REVISIONS
		1. 12-20 APPROX. 1978 REVISED DESIGN

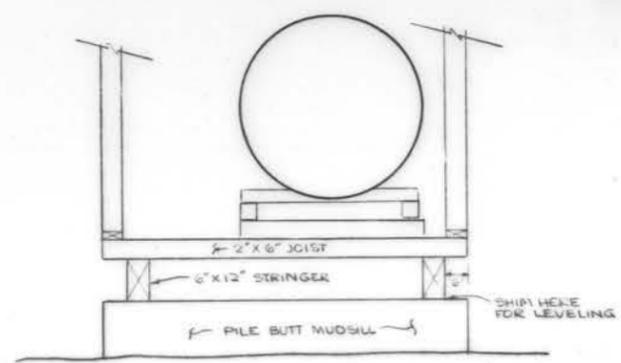
**QUADRA Engineering**

KONGIGANAK VSW  
UTILIDOR DETAILS

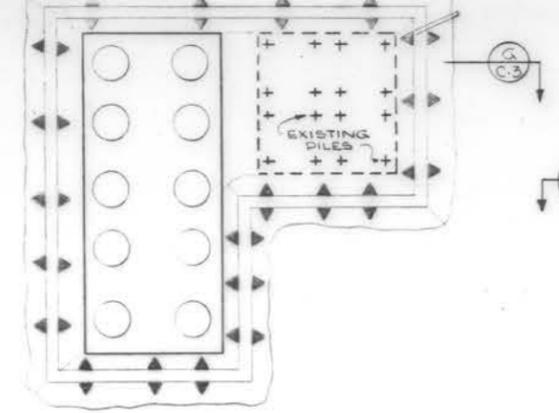
DATE: 7 MAY 1978  
C-2



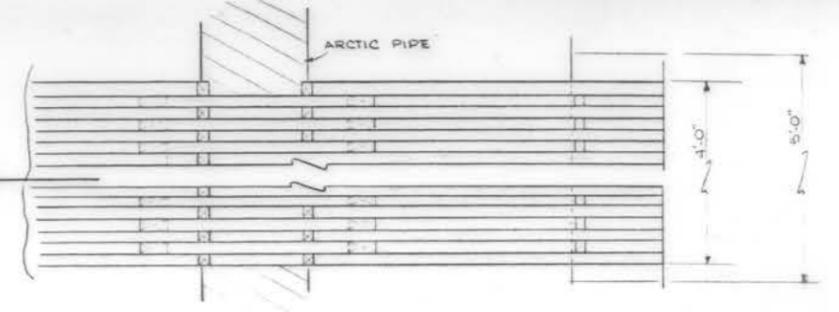
**A DAY TANK & SHED PLAN**  
C-3 NO SCALE



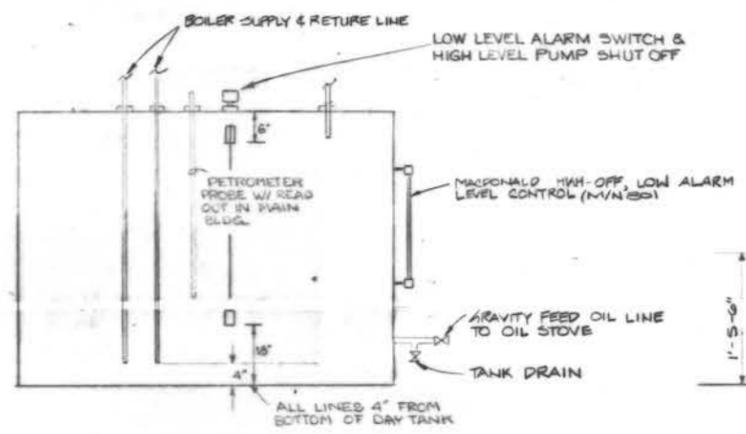
**B DAY TANK & SHED SECTION**  
C-3 NO SCALE



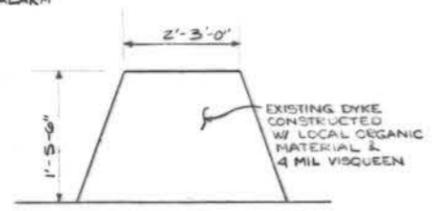
**E EXISTING SCHOOL STORAGE & DIKE**  
C-3 SCALE: 1"=20.0'



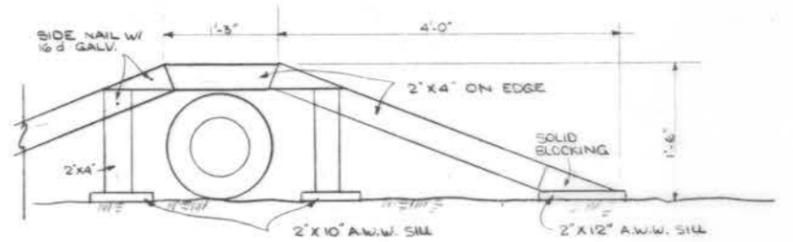
**F PLAN - SNOW MACHINE CROSSING**  
C-3 SCALE: 1"=1'-0"



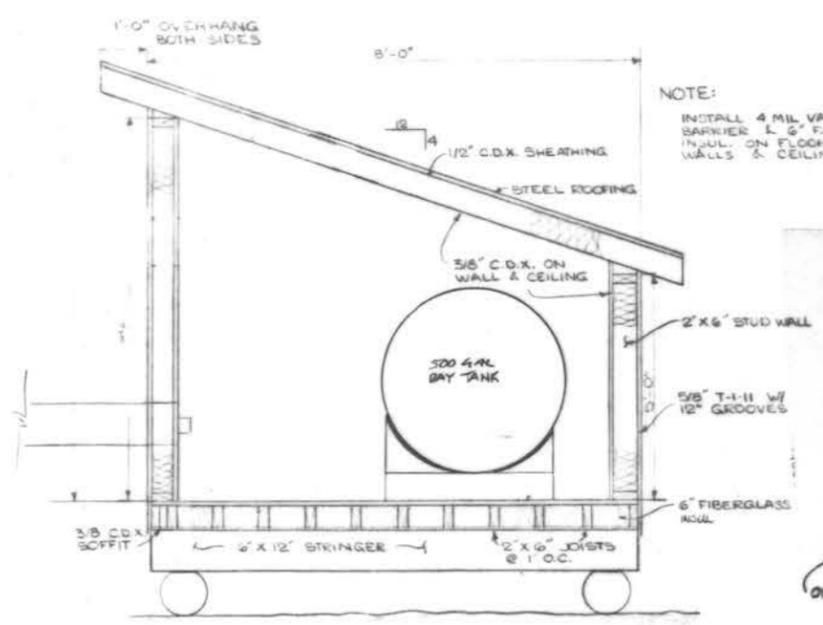
**D DAY TANK PIPING DETAIL**  
C-3



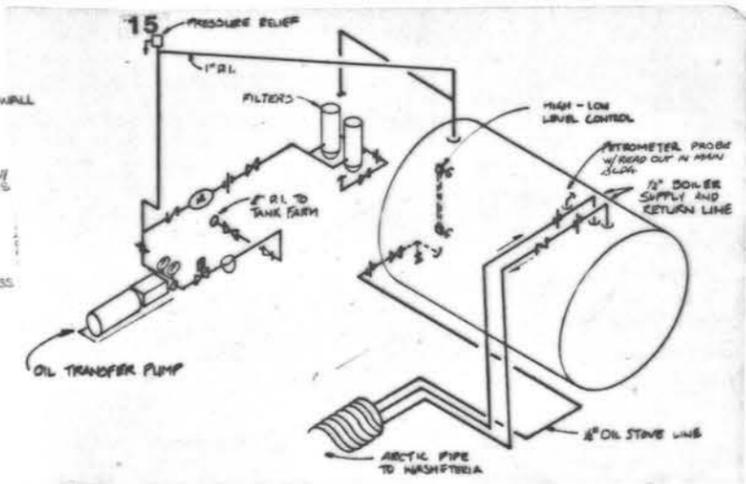
**G DIKE SECTION**  
C-3 NO SCALE



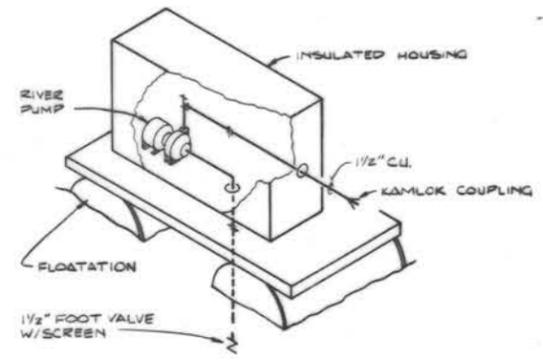
**H SNOW MACHINE CROSSING - SECTION**  
C-2 SCALE: 1"=1'-0"



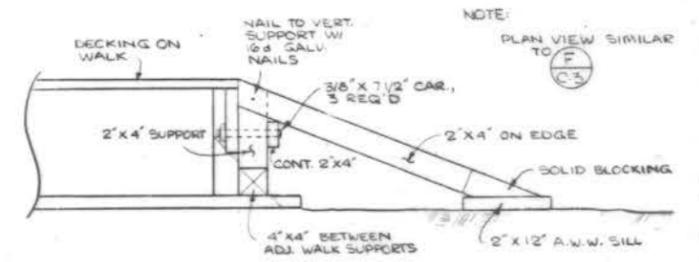
**C DAY TANK & SHED SECTION**  
C-3



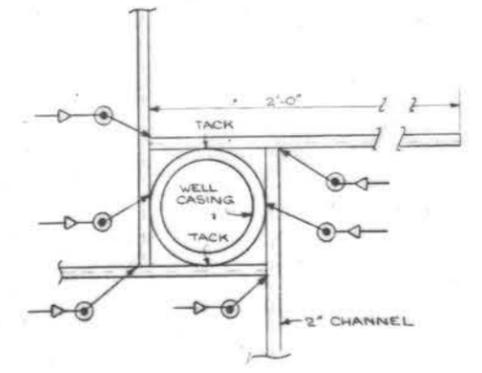
**L FUEL TRANSFER PUMP SCHEMATIC**  
C-3



**J RIVER RAFT DETAIL**  
C-3 NO SCALE



**I SNOW MACHINE RAMP AT UTILIDOR**  
C-3 SCALE: 1"=1'-0"



**K WELL COVER SUPPORT**  
C-3 SCALE: 3"=1'-0"

**As-BUILT**

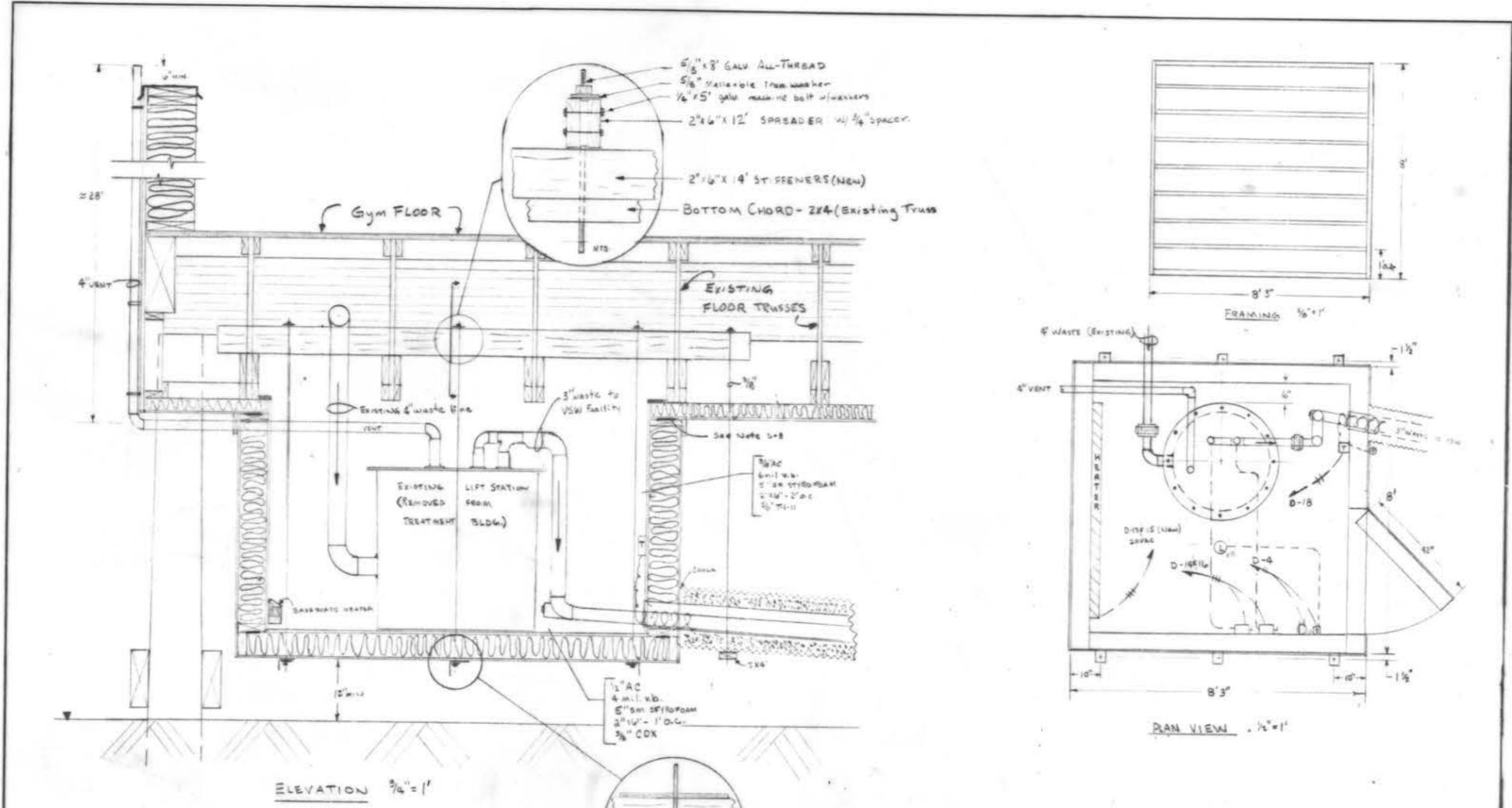


DESIGNED	BY	DATE	REVISIONS
CEW			
		3-10-20	AS-BUILT REVISIONS

**QUADRA Engineering**

KONGIGANAK VSW  
DAY TANK & MISCELLANEOUS SITE DETAILS

DATE: 7 MAY 1978  
C-3



**NOTES:**

**STRUCTURAL:**

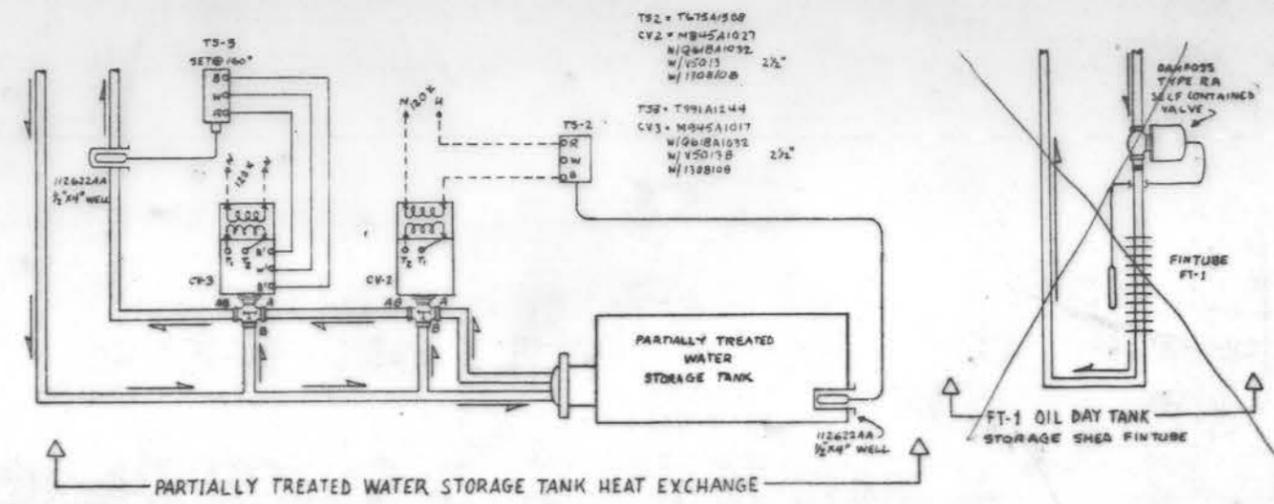
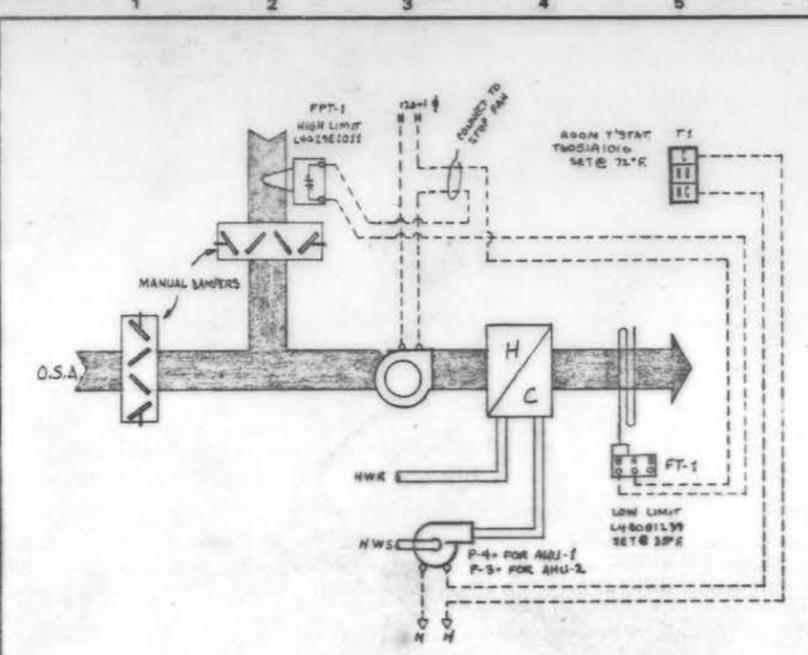
1. Use 1/2" x 5/8" x 1/2" Galv Anneal Iron - drill holes in field.
2. Truss should be 6" oc and slanted to match School.
3. Use Butyl Rubber for seam and sill caulking.
4. Paint interior with white epoxy paint.

**ELECTRICAL:**

1. Use existing conduit for runs to breaker panel in mechanical room.
2. Re-use existing Tstat and pilot light.
3. Panel D is in the mechanical room.

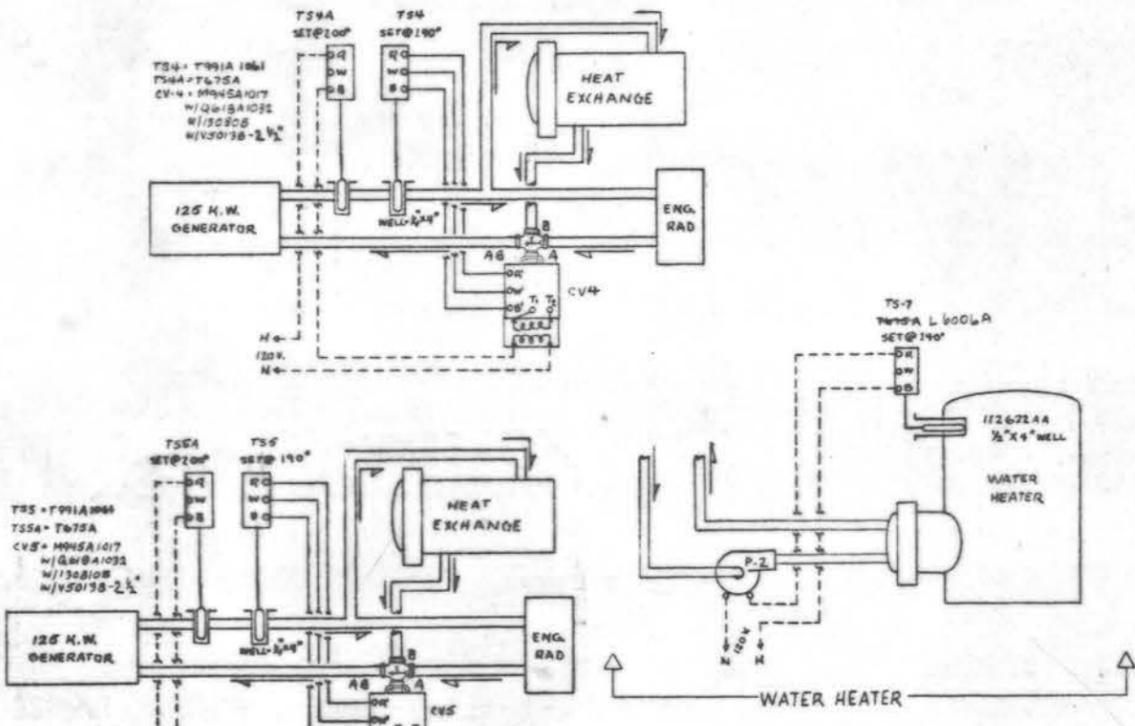
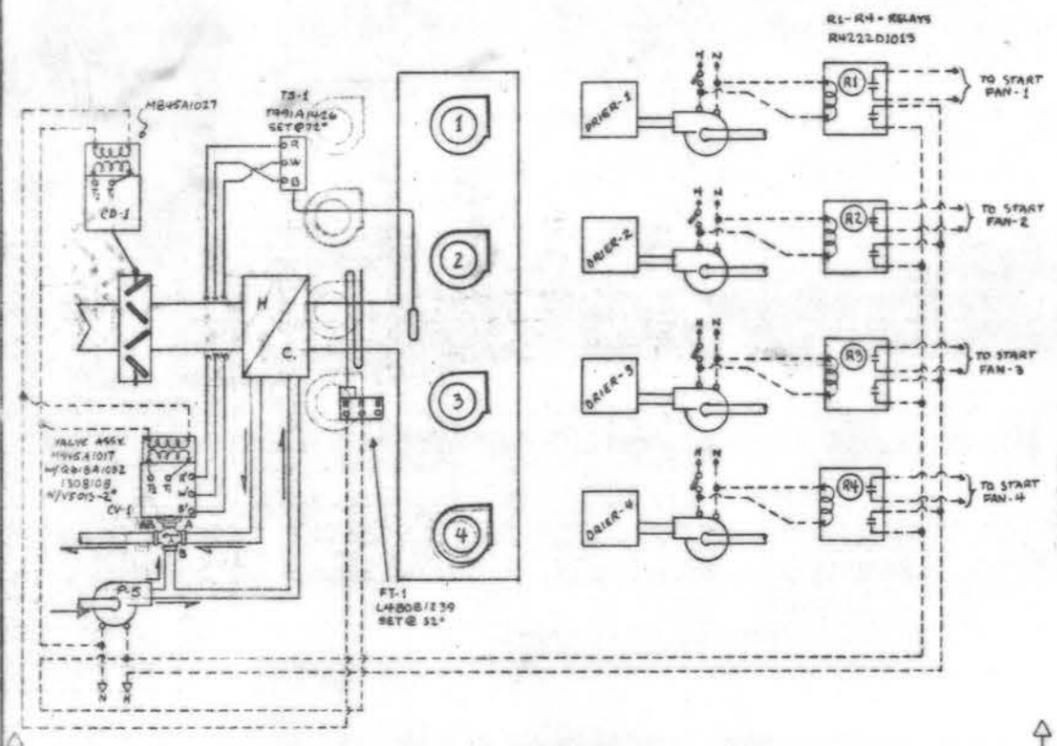
REFERENCE DRAWINGS - SEE  
 KONGIGANAK ELEMENTARY  
 SCHOOL - PROJECT DB-9-0280  
**CC74001-1/1-0**

<b>KONGIGANAK ELEMENTARY SCHOOL LIFT STATION</b>			
<b>QUADRA ENGINEERING</b>			
ENGINEERS-PLANNERS-SURVEYORS			
ANCHORAGE, ALASKA			
Ref. dwgs.	Scale Various	Date 4-11-78	WO. No 77-4-001
Drawn J.E.W.	Checked J.E.W.		File No.
Designed J.E.W.			77-108



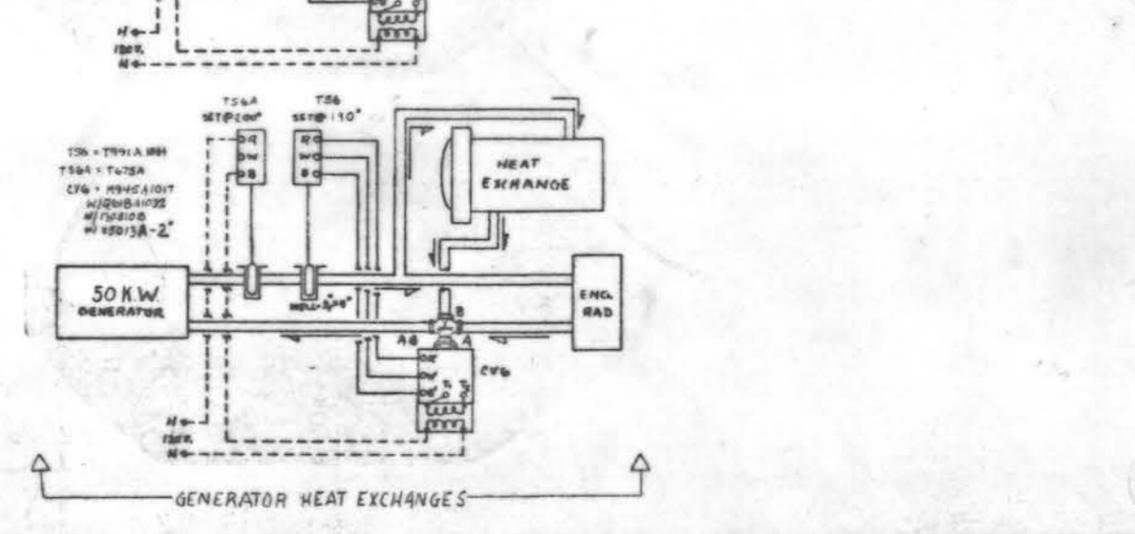
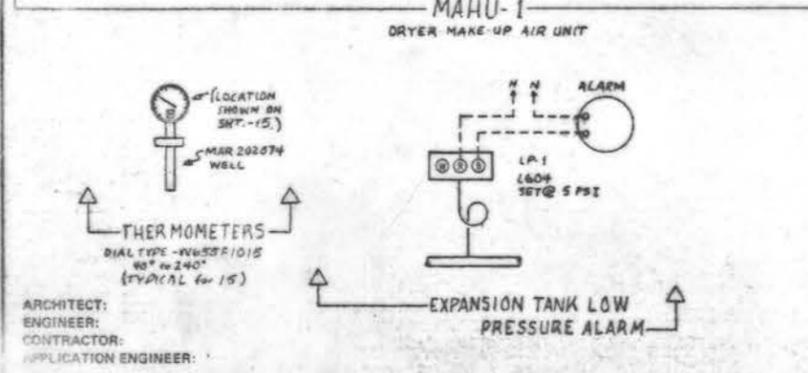
- SEQUENCE OF OPERATIONS**
- AHU-1: Public Space Air Handling Unit:**
    - Fan: Runs continuously.
    - Coil: Space thermostat T-1 cycles circulating pump P-4 to maintain space temperature at 72° F.
    - Freeze protection thermostats: Averaging type freeze-stat FT-1 in return air inlet stops fan when temperature falls to 35° F.
    - Fire protection thermostat: Firestat FPT-1 in return air inlet stops fan when temperature reaches 120° F.
    - Mixing box dampers: Manually controlled.
  - AHU-2: Utility Space Air Handling Unit:**
    - Fan: Runs continuously.
    - Coil: Space thermostat T-2 cycles circulating pump P-3 to maintain space temperature at 60° F.
    - Freeze protection thermostat: Averaging type freeze-stat FT-2 down stream of coil stops fan when temperature falls to 35° F.
    - Fire protection thermostat: Firestat FPT-2 in return air inlet stops fan when temperature reaches 120° F.
    - Mixing box dampers: Manually controlled.
  - MAHU-1: Dryer Make-up Air Unit:**
    - Fan Motors: Fan motors are individually interconnected to dryer so that when a dryer is turned on a respective fan motor is turned on.
    - Coil: Temperature sensor TS-1 senses temperature down stream of heating coil and modulates three-way control valve CV-1 to maintain discharge air temperature at 72° F.
    - Circulating pump P-4 is interconnected with dryer switches so that it turns on when any single dryer is turned on.
    - Control damper: Motorized control damper CD-1 is interconnected with dryer switches so that CD-1 opens when any dryer is turned on.
    - Freeze protection thermostat: Provide freeze-stat FT-1 to shut control damper CD-1 and control CV-1 to provide 100% flow through heating coil when temperature falls to 32° F.
  - Partially Treated Water Storage Tank Heat Exchange:**
    - Temperature sensor TS-2 senses water temperature in partially treated water storage tank and operates two position-three way valve CV-2 to maintain water temperature at 80° F.
    - Locate TS-2 near bottom of tank.
    - Temperature sensor TS-3 senses glycol return temperature and modulates three-way control valve CV-3 to maintain 160° F return glycol temperature.
  - FT-1 Oil Day Tank Storage Shed Fintube:**
    - FT-1 is controlled by non-electric modulating control valve, Danfoss Type RA.
  - Generator Heat exchangers (TYP.):**
    - Temperature sensors TS-4, TS-5, TS-6 sense discharge temperatures of generator cooling glycol and modulate three-way control valves CV-4, CV-5, CV-6 when generator discharge temperature reaches 200° F.
    - CV-4, CV-5, and CV-6 automatically return to position providing 100% flow through generator radiators when deactivated.
  - Water Heater:**
    - Temperature sensor TS-7 senses water temperature in water heater and cycles pump P-2 to maintain 140° F water temperature.
  - Oil Transfer Pump and Day Tank:**
    - It is listed, explosion proof, displacement type float switch stops fuel transfer pump when fuel oil reaches a level 12" from top of tank.
  - Expansion tank low pressure alarm:**
    - Pressure sensor LP-1 senses pressure in glycol system and activates alarm when pressure falls to 5 psi.

**AIR HANDLING UNITS**  
AHU-1 PUBLIC SPACE  
AHU-2 UTILITY SPACE



**MATERIAL LIST**

I.D. NUMBER	QTY	O.S. NUMBER	DESCRIPTION
T1	2	T605A1016	Room Stat
FT1	2	L480B1239	Low Limit
FPT1	2	L4029E1011	High Limit
TS1	1	T991A1426	Controller
FTI	1	L480B1239	Low Limit
CV1	1	M945A1017	Motor
	1	Q618A1032	Linkage
	1	1308108	Cover XFMR
	1	V5013A1062	Valve 2"
CD1	1	M945A1027	Motor
	1	Q60501051	Linkage
	1	27520L-00021	48" Rod
R1-R4	4	R4222D1013	Relay 120V
TS2	1	T675A1508	Controller
CV2	1	M945A1027	Motor
	1	Q618A1032	Linkage
	1	1308108	Cover XFMR
	1	V5013B1003	Valve - 2 1/2"
TS3	1	T991A1244	Controller
	1	M945A1017	Motor
	1	Q618A1032	Linkage
	1	1308108	Cover XFMR
	1	V5013B1003	Valve - 2 1/2"
	1	112622AA	1/2 x 4" Well
TS4,5,6	3	T991A1244	Controller
TS4A,5A,6A	3	T675A1540	Controller
CV4,5,6	3	M945A1017	Motor
	3	Q618A1032	Linkage
	3	1308108	Cover XFMR
	3	V5013B1003	Valve 2 1/2"
	6	112622AA	1/2 x 4" Well
	15	M655F1015	Thermometer
	15	Mar20274	Well
FT-1	1	DANFOSS RA	Valve
LP-1	1	L604	Pressure Switch



ARCHITECT:  
ENGINEER:  
CONTRACTOR:  
APPLICATION ENGINEER:

Control Diagrams For:  
**KONGIGNAK V.S.W.**

For information regarding this job contact:  
HONEYWELL, INC.  
3310 Arctic Blvd.  
Anchorage, Alaska 99503 (907) 274-0551  
Refer to Job # **C984-78055**  
Architect **SHADRA ENGINEERING**  
Engineer **MARK BRYER & ASSOCIATES**  
Contractor **SHADRA ENGINEERING**  
Sales Engineer **RICK BRINES**  
HONEYWELL, INC.

Revisions	Drawn By	Date	Appd.
Supervised By	Drawn By	Date 12-1-78	Sheet 1 Of 1
Supervised By	Approved By	Sheet	Of

ANCHORAGE, ALASKA  
KONGIGNAK V.S.W.  
ALASKA  
DRAWING NUMBER C984-78055 IDES

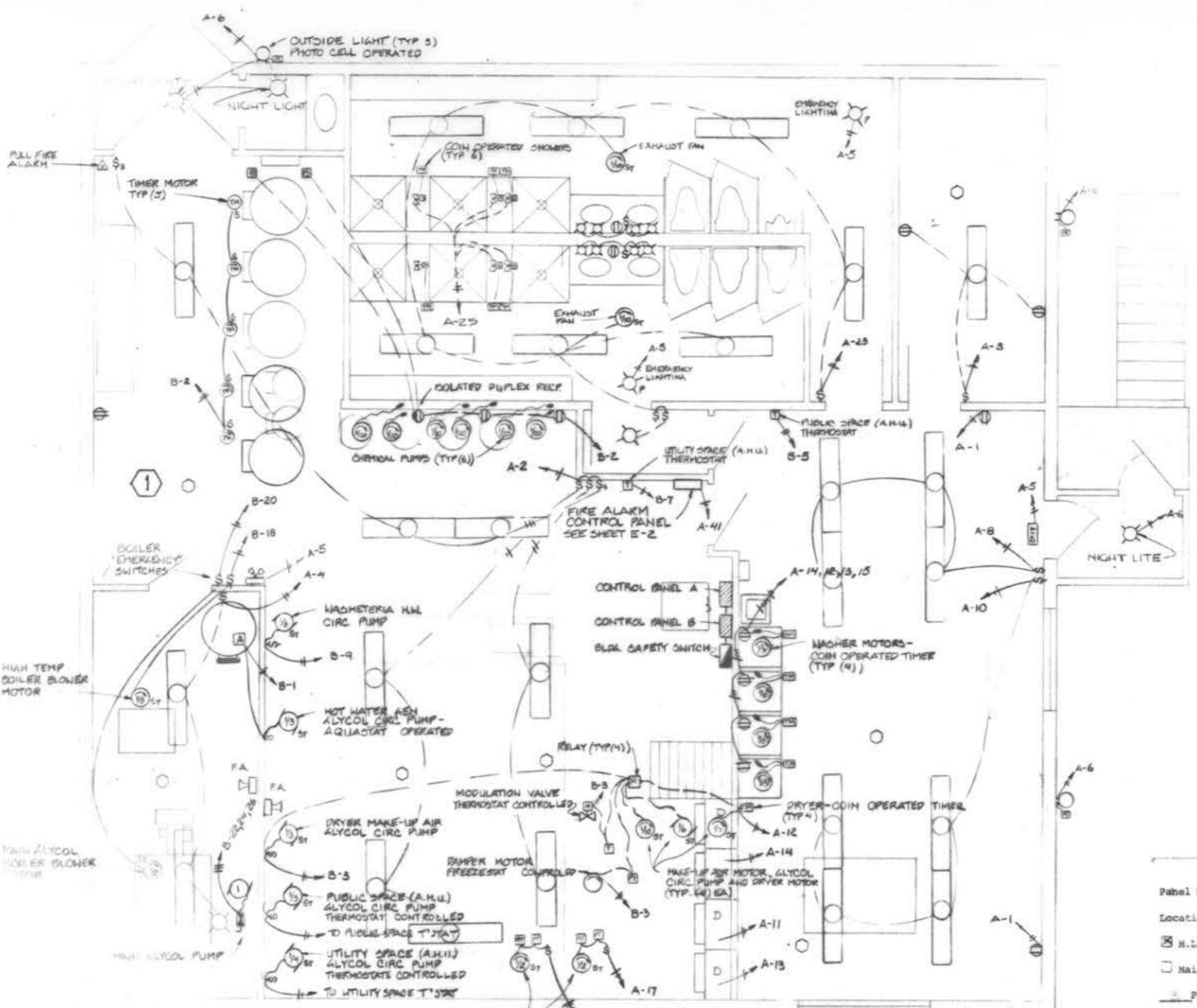
NOTES:

- 1 ALL WIRING INSULATION IN THESE ROOMS SHALL BE RATED AT 90°C

GENERAL NOTES:

- 1. WIRE SIZES ARE BASED ON COPPER AMPACITY.
- 2. WHERE WIRE IS NOT RUN IN CONDUIT, PROVIDE SEPARATE GROUNDING CONDUCTOR.
- 3. ALL WIRE RUN IN UTILIDOR OR ADJACENT TO HIGH HEAT PIPING OR EQUIPMENT SHALL HAVE INSULATION RATED FOR 90°C.
- 4. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND ORDINANCES AND THE LATEST EDITION OF THE NAT'L ELECTRICAL CODE.
- 5. EXPOSED CONDUIT MAY BE E.M.T.
- 6. ALL CIRCUITRY IN CONDUIT UNLESS SPECIFICALLY NOTED.
- 7. HEAT CABLE SHALL BE 'THERMON' TKW-1, 120V.

AS-BUILT



**A SECOND LEVEL PLAN**  
SCALE: 1/4" = 1'-0"

Panel No. A  
Location \_\_\_\_\_  
 N.L.O.  
 Main Breaker

Mains 225 AMPS  
Feeder Size 4 #4/0 2 1/2" G.  
200/208 Volts  
No. Branch Circuit Poles 42

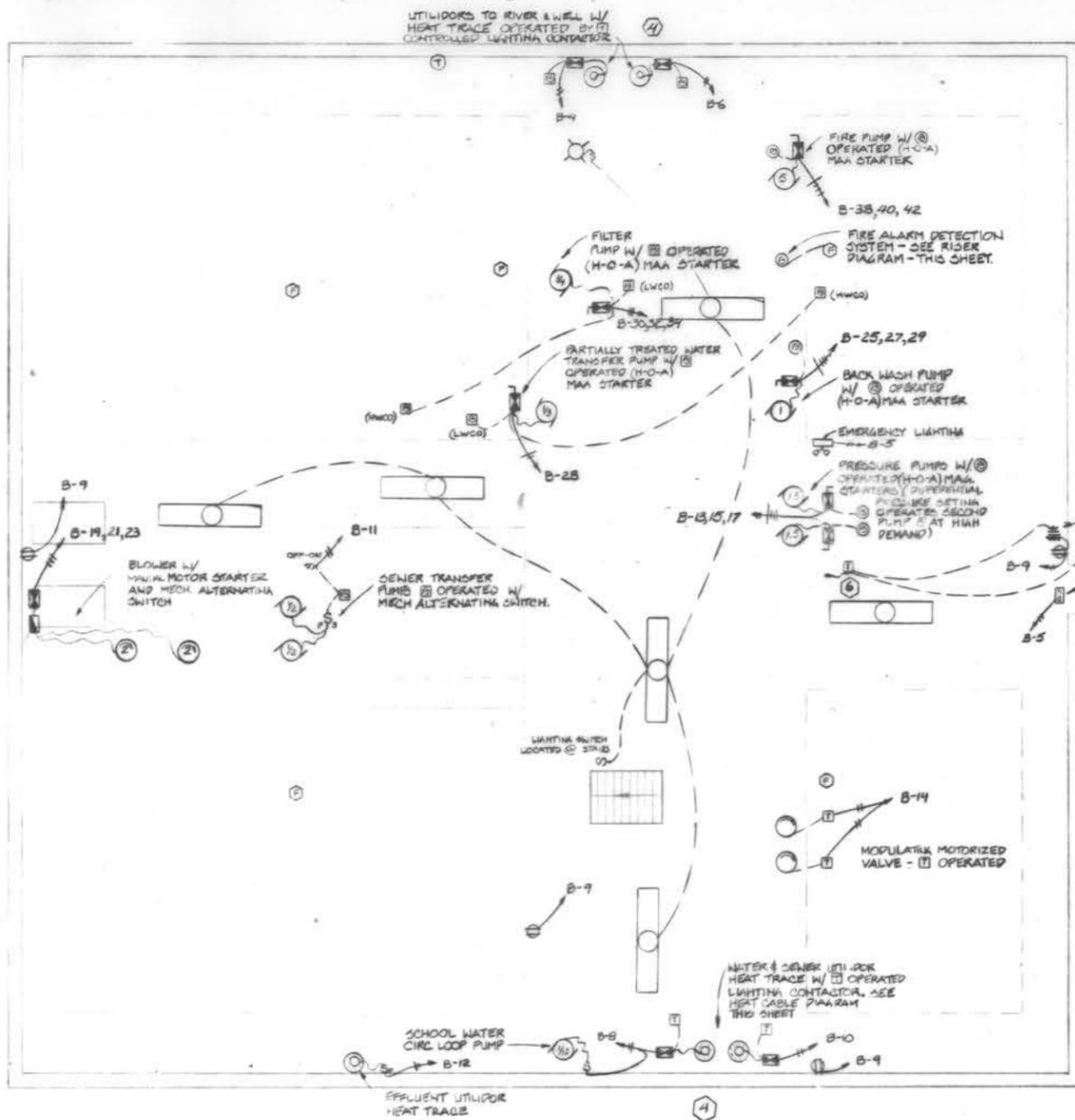
BRANCH CIRCUIT LOADS		CIRCUIT BREAKERS		CIRCUIT BREAKERS		BRANCH CIRCUIT LOADS	
SPECIAL PURPOSE	C.O. (WATTS)	LTS. (WATTS)	NO. PLS.	NO. AMP.	NO. PLS.	LTS. (WATTS)	C.O. (WATTS)
UPPER FLOOR RECP.T.	360		1	20	1	2	20
OFFICE POWER	360	100	1	20	3	4	20
GENERAL & EXIT LIGHTS	200		1	20	5	6	20
LOWER FLOOR LIGHTS	580		1	20	7	8	20
LOWER FLOOR RECEP.T.	900		1	20	9	10	20
830 WASHER 3			1	20	11	12	20
830 WASHER 4			1	20	13	14	20
1130 UTILITY SPACE (A.H.U.) FAN			1	20	15	16	20
1130 PUBLIC SPACE (A.H.U.) FAN			1	20	17	18	30
SPARE GFCI			1	20	19	20	↓
SPARE GFCI			1	20	21	22	20
BATHROOM LIGHTS	480		1	20	23	24	20
345 SHOWER TIMERS			1	20	25	26	20
SPARE			1	20	27	28	20
			1	20	29	30	20
			1	20	31	32	20
			1	20	33	34	15
			1	20	35	36	↓
			1	20	37	38	↓
			1	20	39	40	40
1000 FIRE ALARM			1	20	41	42	↓

Panel No. B  
Location \_\_\_\_\_  
 N.L.O.  
 Main Breaker

Mains 225 AMPS  
Feeder Size 4 #4/0 2 1/2" G.  
200/208 Volts  
No. Branch Circuit Poles 42

BRANCH CIRCUIT LOADS		CIRCUIT BREAKERS		CIRCUIT BREAKERS		BRANCH CIRCUIT LOADS	
SPECIAL PURPOSE	C.O. (WATTS)	LTS. (WATTS)	NO. PLS.	NO. AMP.	NO. PLS.	LTS. (WATTS)	C.O. (WATTS)
830 WATER HEATER PUMP*			1	20	1	2	20
830 DRYER MAKE-UP AIR PUMP			1	20	3	4	20
670 UTILITY (A.H.U.) PUMP			1	20	5	6	20
670 PUBLIC (A.H.U.) PUMP			1	20	7	8	20
870 HW CIRC PUMP			1	20	9	10	20
1130 SEWER PUMP			1	20	11	12	20
2160 PRESSURE PUMP			3	15	13	14	20
					15	16	20
					17	18	20
2220 BLOWER			3	15	19	20	↓
					21	22	15
					23	24	↓
1160 BACKWASH PUMP			3	15	25	26	↓
					27	28	20
					29	30	15
830 FUEL OIL PUMP			3	15	31	32	↓
					33	34	↓
					35	36	20
1500 OIL SHED HEAT			2	20	37	38	40
					39	40	↓
OIL SHED LIGHTS	200		1	2	41	42	↓





**A LOWER FLOOR PLAN**

E-2 SCALE: 1/4" = 1'-0"

LOCATE BULB AS FAR DOWN UTILIDOR FROM BUILDING AS CAPILLARY LENGTH PERMITS

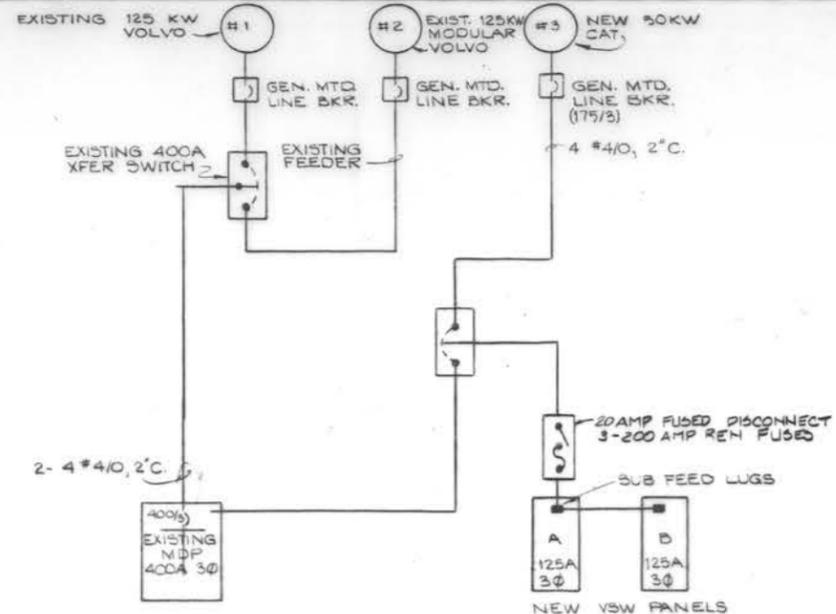
HEAT CABLE - LAY IN BOTTOM OF ARCTIC PIPE FULL EXPOSED LENGTH OF UTILIDOR. CABLE SHALL BE TWO CONDUCTOR, 25 WATTS (2) / LINEAL FOOT, 120 V. OPERATION. SEE SITE PLAN FOR LOCATIONS.

PIPES IN UTILIDOR

**E UTILIDOR HEAT CABLE INSTALLATION**

E-2 NO SCALE

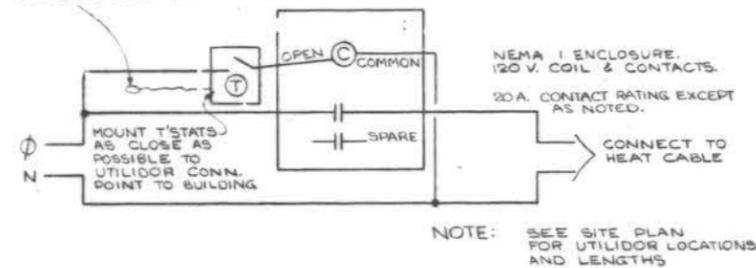
**NOTES (CONTINUED):**  
 (6) PROVIDE CONNECTION FROM LOW TEMPERATURE FREEZESTAT TO SOUND ALARMS ON LOW BUILDING TEMPERATURE



**B POWER RISER DIAGRAM**

E-2 NO SCALE

PROVIDE REMOTE SENSING BULB & 20' CAPILLARY (TYP. EA. T'STAT) SEE DETAIL FOR BULB LOCATION



**C HEAT CABLE CONTROL DIAGRAM - TYPICAL**

E-2 NO SCALE

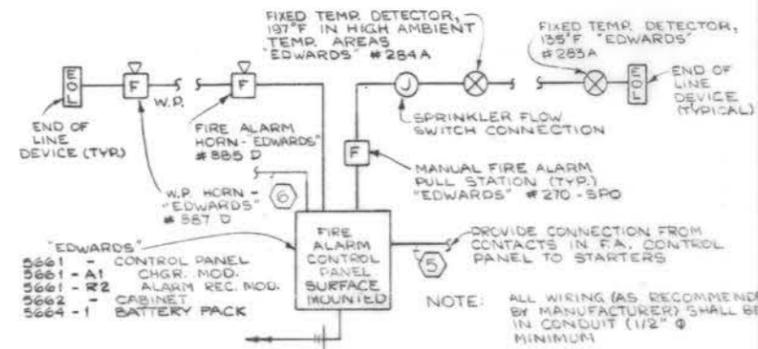
NOTE: SEE SITE PLAN FOR UTILIDOR LOCATIONS AND LENGTHS

**NOTES:**

(1) EXPOSE CONDUIT ON THIS LEVEL, RISE UP IN INTERIOR PARTITION ON UPPER LEVEL, CONCEAL CONDUIT IN PUBLIC AREAS WHERE PRACTICAL AND RUN TO PANEL. SEE SHEET E-2.

(3) PROVIDE CONNECTIONS TO WELL-X-TROL UNITS. UNITS PROVIDED BY OTHERS.

(4) HEATING CABLE IN UTILIDOR. SEE DETAILS, THIS SHEET AND SITE PLAN FOR REQUIREMENTS.



**D FIRE ALARM RISER DIAGRAM**

E-2 NO SCALE

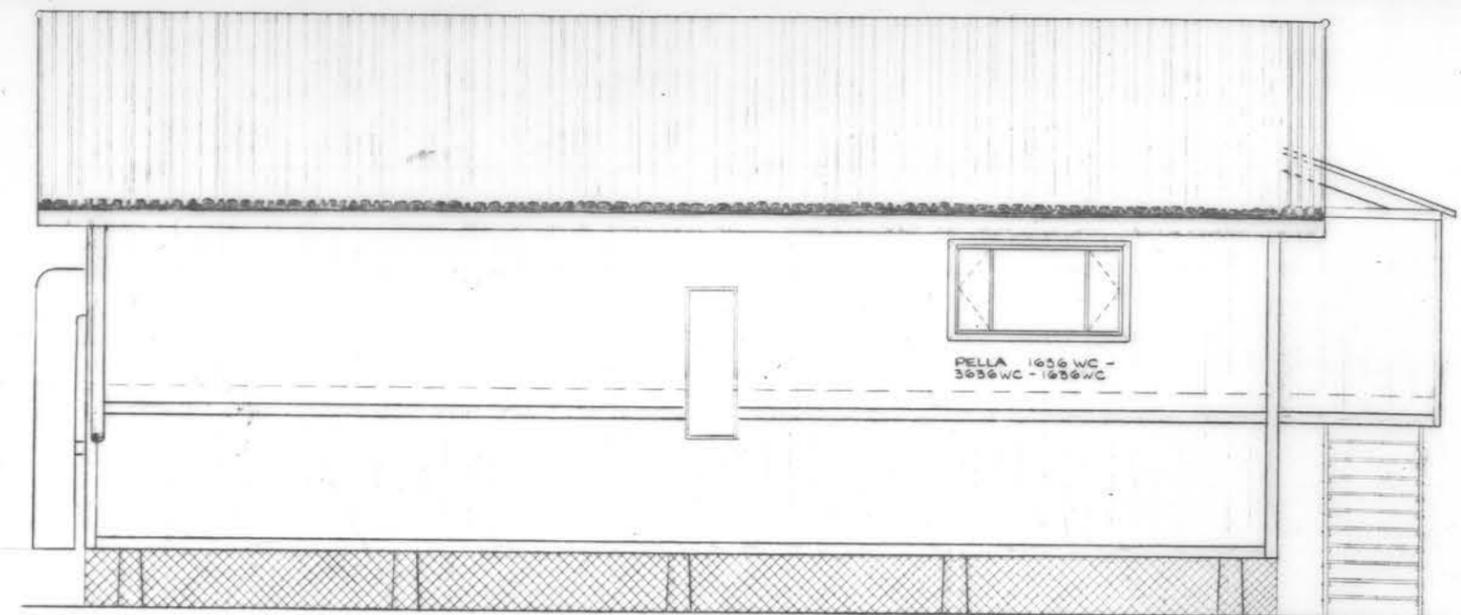
**FIXTURE SCHEDULE**

TYPE	DESCRIPTION	LAMPS		MANUFACTURER'S NO.
		NO.	TYPE	
A	3' L. TANDEM FLUORESCENT, BAKED WHITE ENAMEL REFLECTOR, 25 % UPLIGHT, 120 V., 1/2" SPACERS FOR SURFACE MOUNTING.	4	F40 CW	LITHONIA # C-240-120-HRUN 1
B	IDENTICAL TO "A" EXCEPT 4' LONG AND 2 LAMP.	2	F40 CW	LITHONIA # C-240-120-HRUN 1
C	3' L. TANDEM FLUORESCENT, WRAP AROUND, ACRYLIC LENS, 120 V., BALLASTS SOUND RATED "A" SURFACE MOUNTED ON CEILING.	4	F40 CW	LITHONIA #8TSC 240SCA-12
D	4' L. FLUORESCENT, U.L. WET LABEL, HIGH IMPACT ACRYLIC LENS, 120 V., SURFACE MOUNTED ON CEILING.	2	F40 CW	LITHONIA #DV240 AR-120
E	SURFACE MOUNTED INCANDESCENT (CEILING)	1	100 W.A-19	SOLO #9302
F	WALL MOUNTED (UP 6'-0"), U.L. WET LABEL	1	150 W.A-21	SOLO #9308
G	WALL MOUNTED (UP 6" ABV. MIRROR) INCANDESCENT	2	100 W.A-19	SOLO #9323
H	WALL MOUNTED (UP 9'-0" ABV. FIN. SECOND LEVEL FLOOR) R.I.D. AREA LIGHT (HIGH PRESS. SODIUM) W/INTEGRAL PHOTOCELL	1	LV100/BU	HI-TEK #TW100S-120
EM <sub>1</sub>	WALL MOUNTED BATTERY POWERED EMERGENCY LIGHT, TWO HEADS, MOUNT UP 7'-0" ABV. FIN. FLOOR	(FURNISHED W/UNIT)		HOLOPHANE M-6
EM <sub>2</sub>				TEK #6500

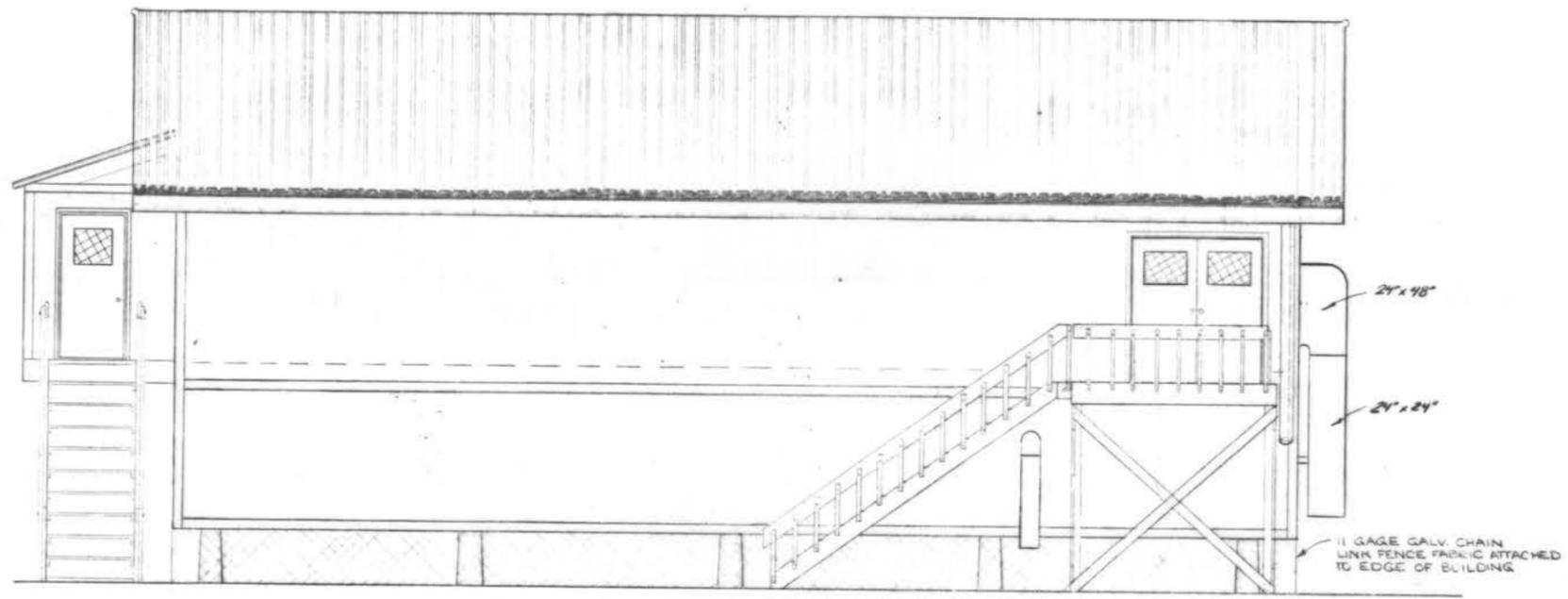
**As-BUILT**



**A**  
**B-2** KONGIGANAK VSW-NORTH ELEVATION  
 SCALE: 1/4" = 1'-0"



**B**  
**B-2** KONGIGANAK VSW-EAST ELEVATION  
 SCALE: 1/4" = 1'-0"



**C**  
**B-2** KONGIGANAK VSW - WEST ELEVATION  
 SCALE: 1/4" = 1'-0"

As-BUILT

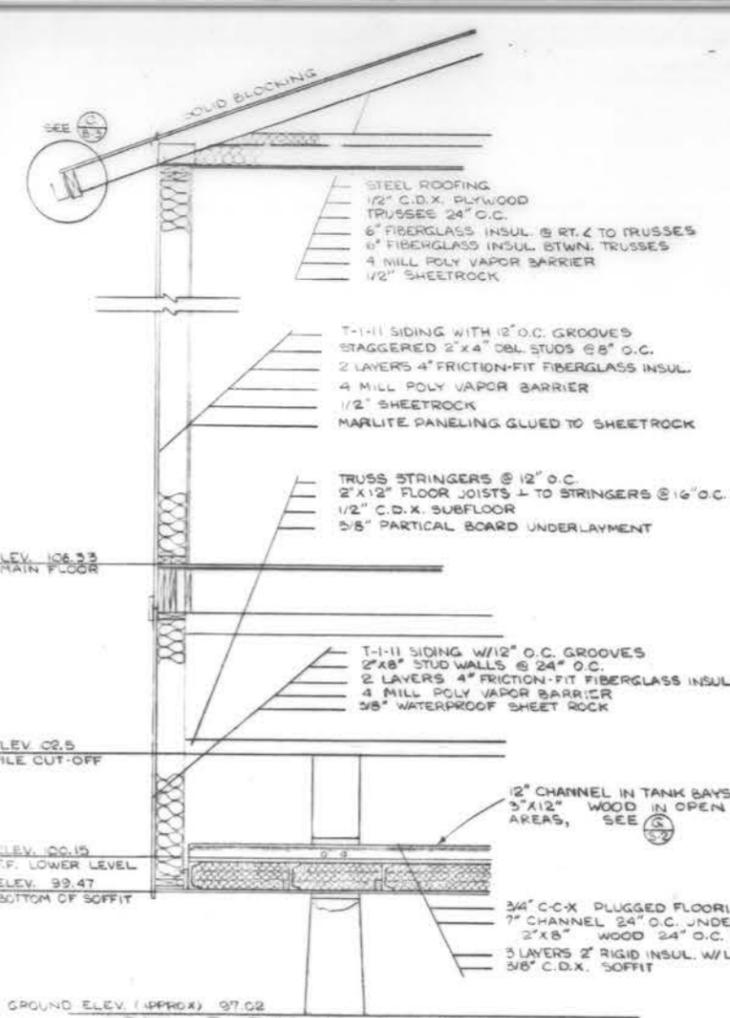


NO.	DATE	REVISION	BY
2	10-80	AS-BUILT REVISIONS	C.E.W.
1	4-78	APRIL 1978 REVISED DESIGN	C.E.W.

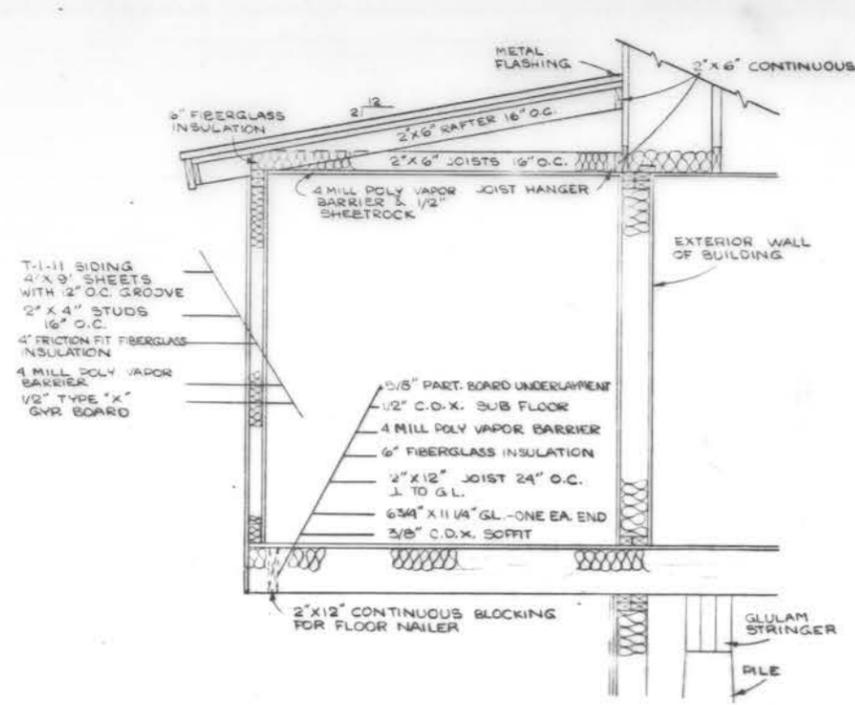
**QUADRA Engineering**  
 Anchorage, Alaska

KONGIGANAK VSW  
 ELEVATIONS  
 KONGIGANAK, ALASKA

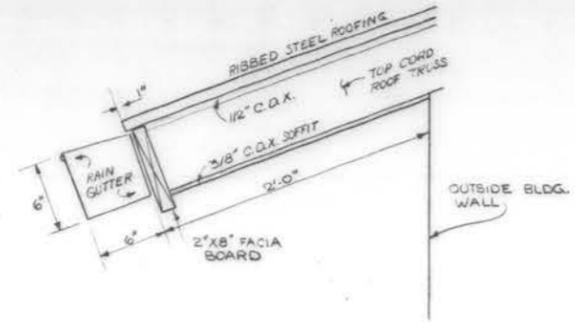
DATE: 7 MAY 1977  
**B-2**  
 SHEET 6 OF 24



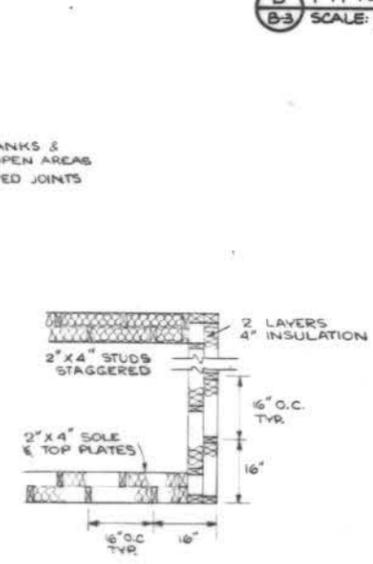
**A WALL SECTION**  
B-3 SCALE: 1/2" = 1'-0"



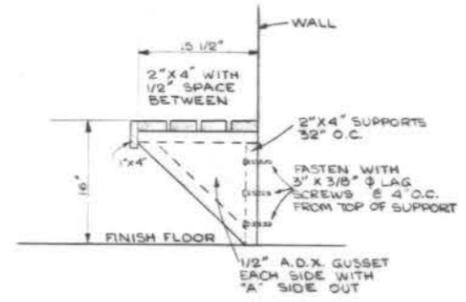
**B TYPICAL SECTION - ARCTIC ENTRY**  
B-3 SCALE: 1/2" = 1'-0"



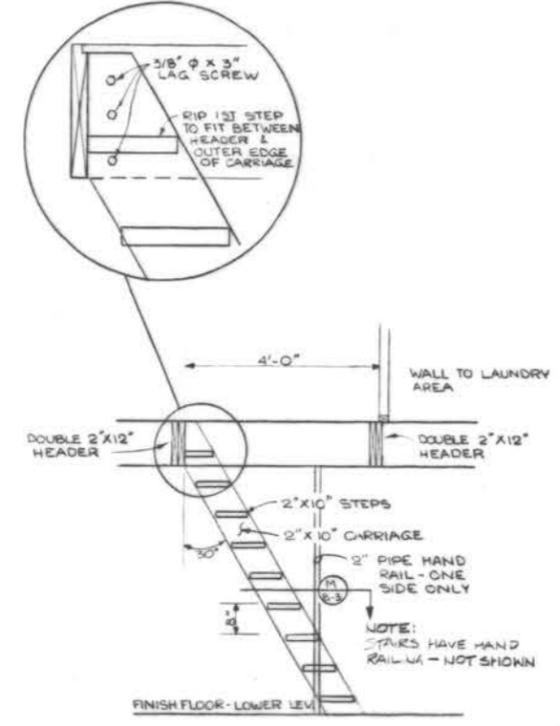
**C RAIN GUTTER EAVE DETAIL**  
B-3 SCALE: 1/2" = 1'-0"



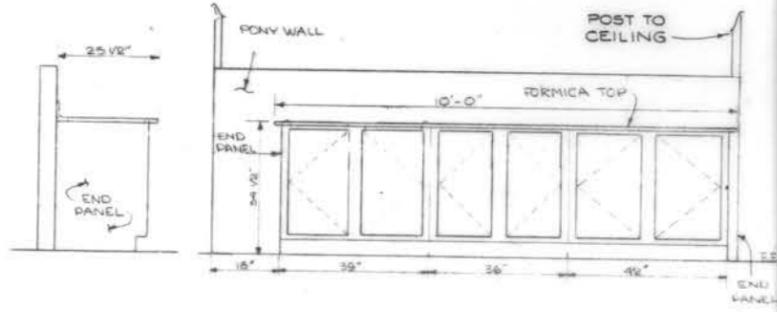
**D OUTSIDE WALL**  
B-3 NO SCALE



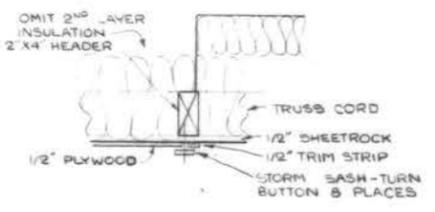
**H TYPICAL BENCH DETAIL**  
B-3 SCALE: 1" = 1'-0"



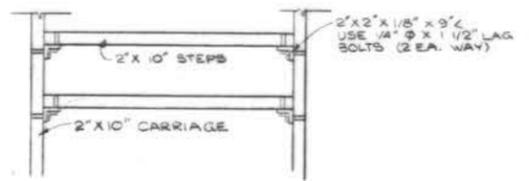
**I ACCESS STAIRS - LOWER LEVEL**  
B-3 SCALE: 1/2" = 1'-0"



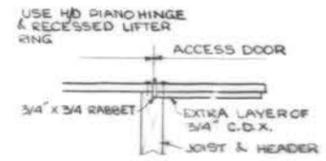
**J WORKBENCH DETAILS**  
B-3 SCALE: 1/2" = 1'-0"



**L ATTIC ACCESS HATCH**  
B-3 NO SCALE



**M SECTION OF LOWER LEVEL STAIRS**  
B-3 SCALE: 1" = 1'-0"



**N FLOOR ACCESS DOOR**  
B-3 NO SCALE

As-BUILT

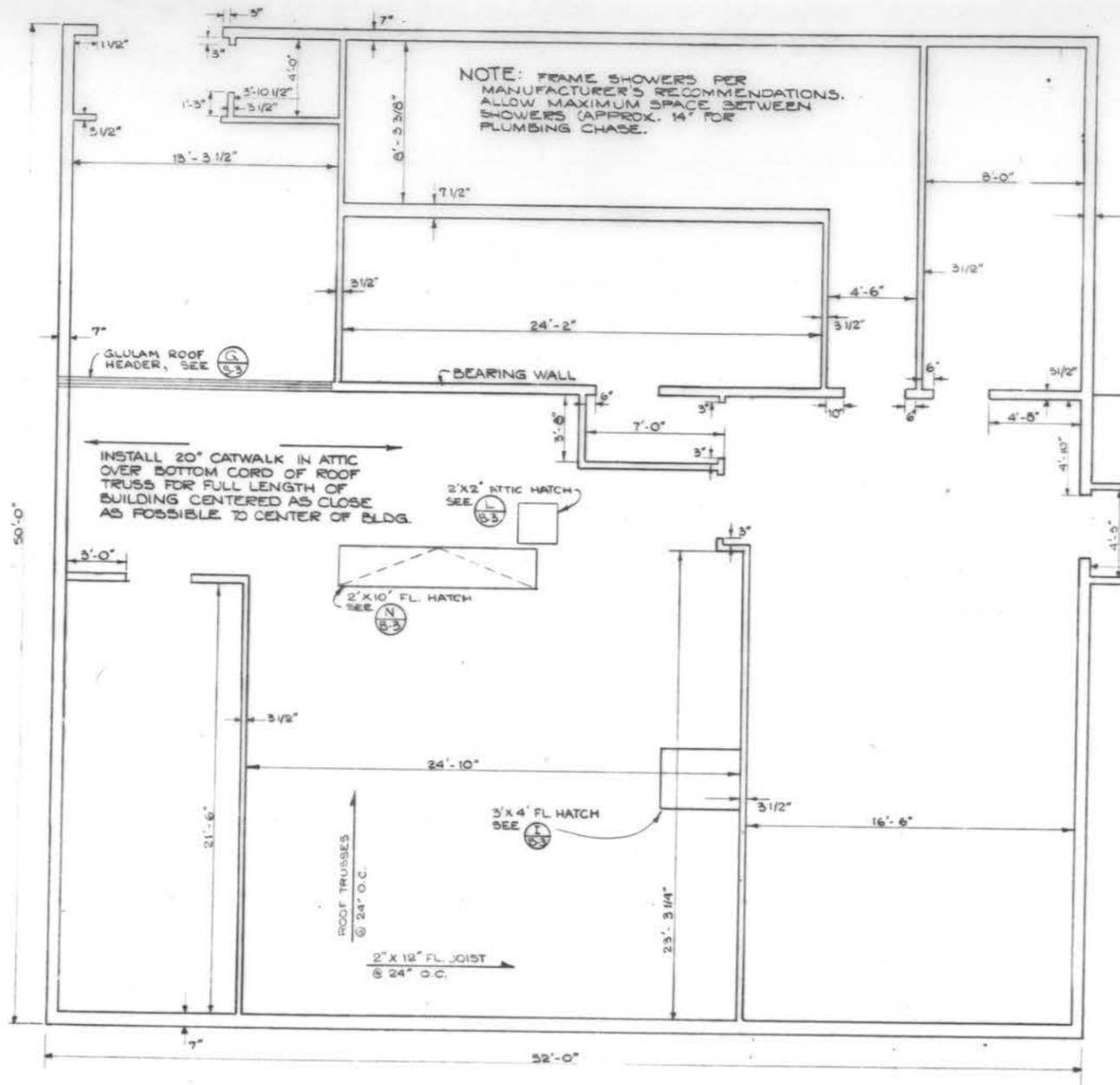


DESIGNED	BY	
C.E.W.		

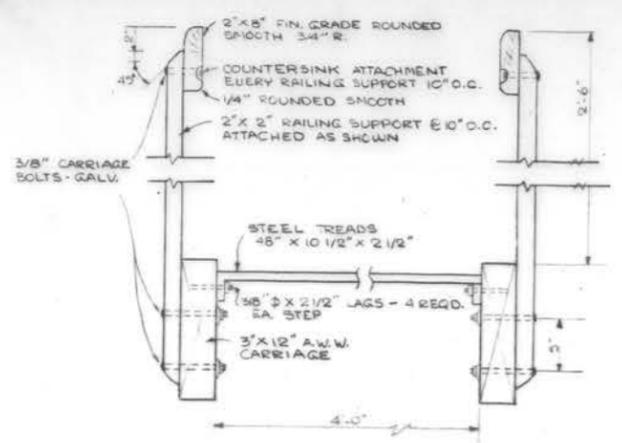
**QUADRA Engineering**

KONGIGANAK VSW

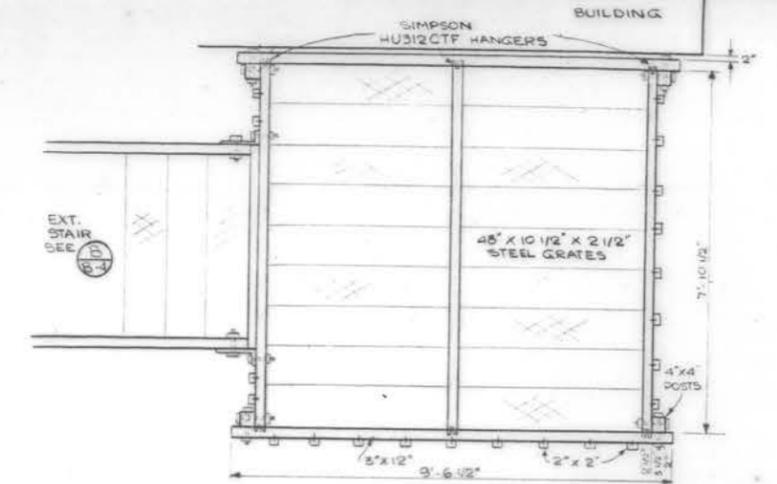
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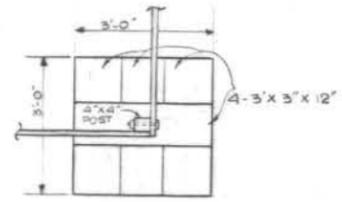
**A PLATE LAYOUT**  
SCALE: 1/4" = 1'-0"



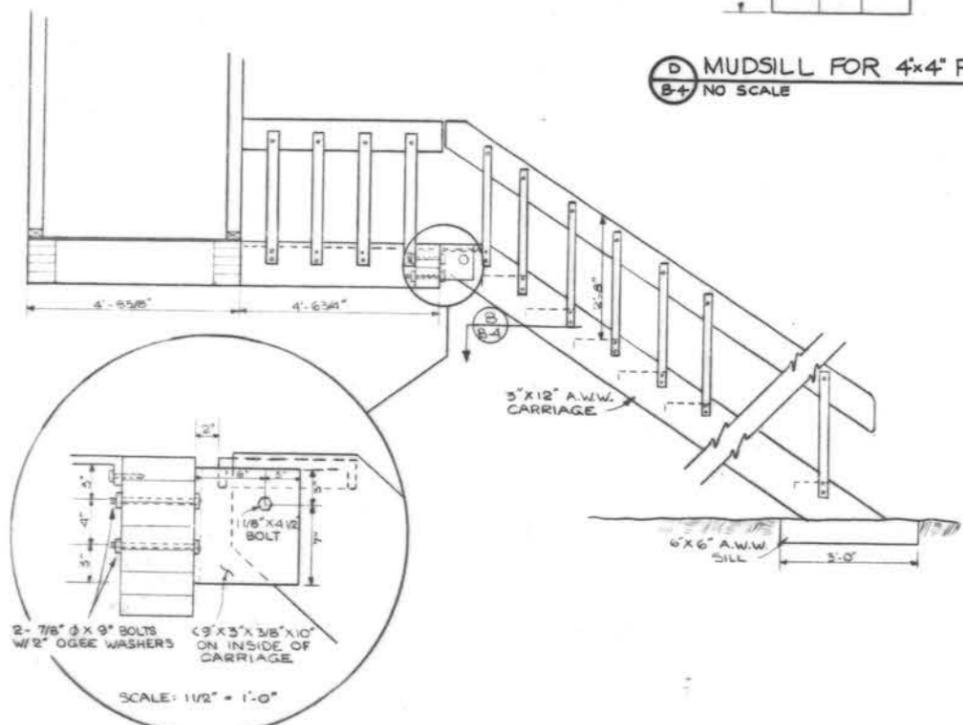
**B SECTION - EXTERIOR STAIR**  
SCALE: 1 1/2" = 7'-0"



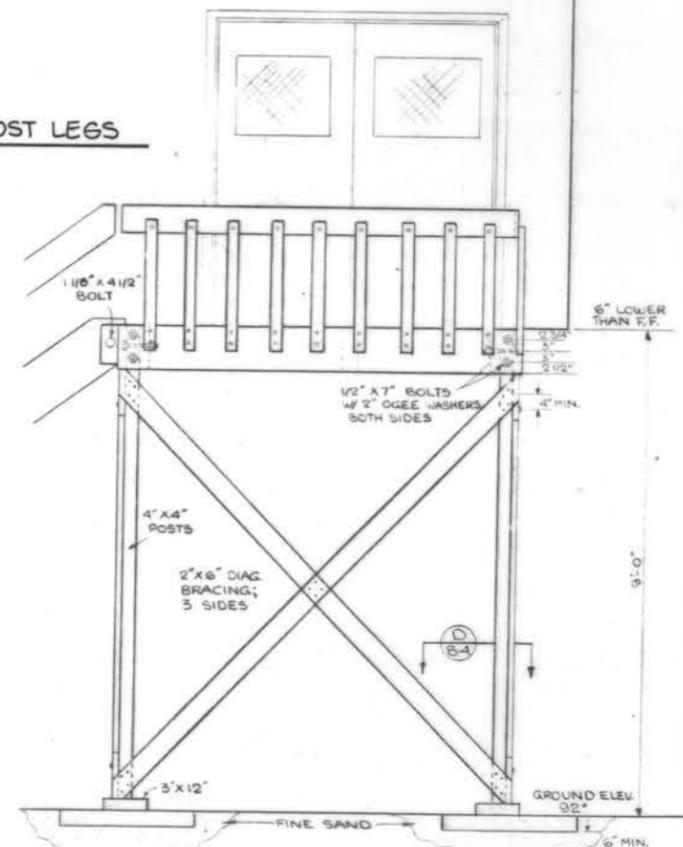
**C REAR DECK PLAN**  
SCALE: 1/2" = 7'-0"



**D MUDSILL FOR 4" X 4" POST LEGS**  
NO SCALE



**E STAIR DETAIL**  
SCALE: 1/2" = 1'-0"



**F REAR DECK SECTION**  
SCALE: 1/2" = 7'-0"

**GENERAL ARCHITECTURAL/STRUCTURAL NOTES**

- ALL EXTERIOR WALL FRAMING ON MAIN FLOOR TO BE DBL. 2" X 4" @ 8" O.C. STAGGERED INSIDE TO OUTSIDE.
- ALL EXTERIOR WALL FRAMING ON LOWER FLOOR TO BE 2" X 8" @ 24" O.C.
- ALL INTERIOR WALLS TO BE 2" X 4" @ 16" O.C. UNLESS OTHERWISE SHOWN.
- ALL WOOD FRAMING SHALL COMPLY WITH REQUIREMENTS OF UNIFORM BUILDING CODE, EXCEPT THAT DETAILED REQUIREMENTS IN EXCESS OF UNIFORM BUILDING CODE SHALL TAKE PRECEDENCE.
- INSTALL BLOCKING AS REQUIRED FOR ATTACHMENT OF ALL FIXTURES, HANGERS, EQUIPMENT, DOOR STOP ETC.
- INSTALL ROOF & FLOOR SHEATHING PERPENDICULAR TO SUPPORTS WITH END JOINTS STAGGERED. NAIL WITH RING-SHANK NAILS - 6" O.C. AT EDGES & 10" O.C. ELSEWHERE.
- INSTALL 1" FIBERGLASS BIL SEAL UNDER ALL EXTERIOR WALL PLATES & AT CORNER JOINTS BETWEEN EXTERIOR WALLS.
- POLYETHYLENE VAPOR BARRIER TO BE LAPPED 6" AT ALL JOINTS WHERE WALLS MEET CEILING, OTHER WALLS OR FLOOR.
- UNDERLAYMENT MATERIAL SHALL BE GLUED TO SUBFLOOR USING WATERPROOF GLUE. EDGE JOINTS TO FALL AT LEAST 16" FROM JOINTS IN SUBFLOORING. NAIL WITH 1 1/2" RING-SHANK NAILS - 6" O.C. AT EDGE & 10" O.C. ELSEWHERE.
- MARLITE PANELING TO BE GLUED TO SHEETROCK WALLS PER MANUFACTURER'S RECOMMENDATIONS.
- USE JOIST HANGERS FOR INSTALLATION OF ALL HEADERS IN FLOOR FRAMING.
- ALL 5/8" PARTICLE BOARD UNDERLAYMENT TO BE TEMPERED (WATERPROOF).
- ALL EXPOSED WOOD SURFACES TO BE PAINTED WITH ALKYD ENAMEL UNLESS SPECIFIED OTHERWISE.
- ALL CABINETS SHALL BE STANDARD KITCHEN CABINETS MANUFACTURED BY DIAMOND INDUSTRIES.
- INSULATION IN LOWER FLOOR SHALL BE STYROFOAM 5M.
- CONSTRUCT "BUILT-IN" SHELVING IN MECH. ROOM & LOWER FLOOR WHEREVER SPACE IS AVAILABLE.
- CAULK ALL CONSTRUCTION JOINTS ON EXTERIOR WALLS WITH BUTYL CAULKING COMPOUND PRIOR TO INSTALLING BATTEN STRIPS, TRIM, ETC.
- FRAME ALL SPECIAL LOUVERS IN EXTERIOR WALLS TO BASIC DIMENSIONS OF LOUVER.

AS-BUILT



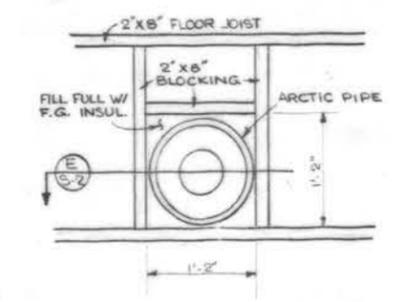
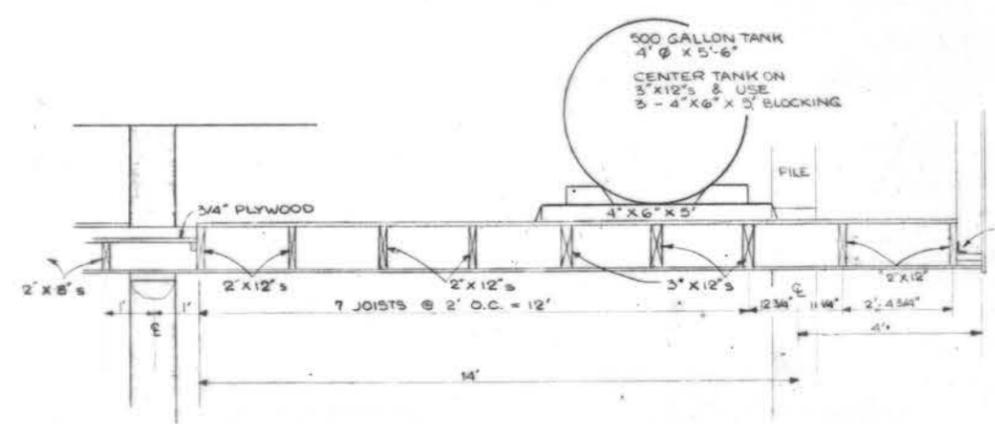
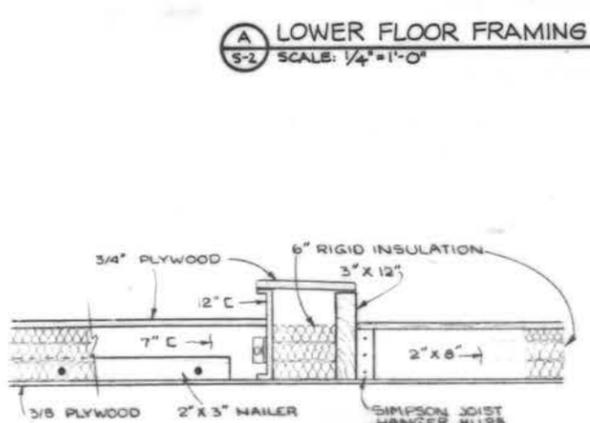
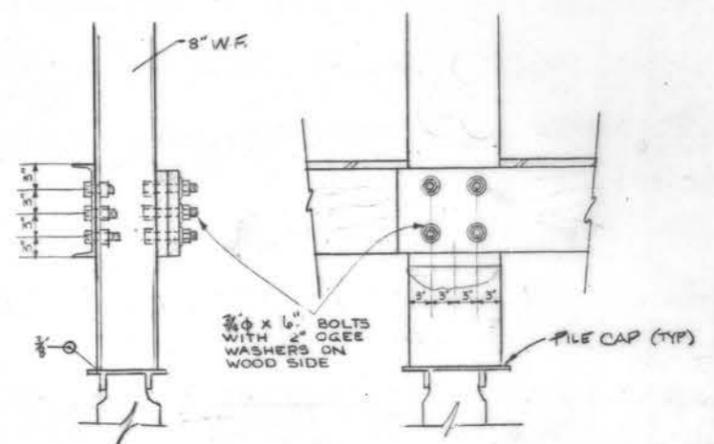
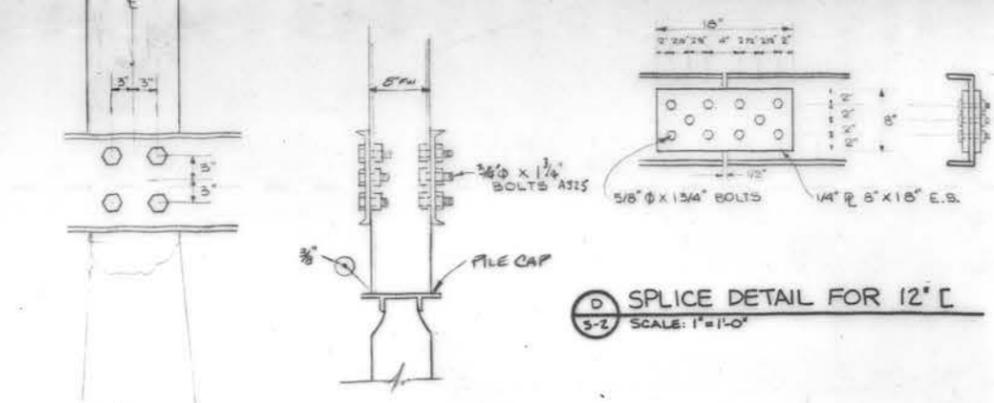
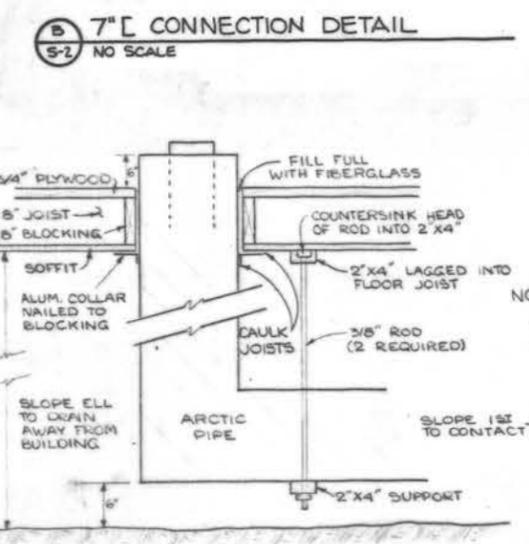
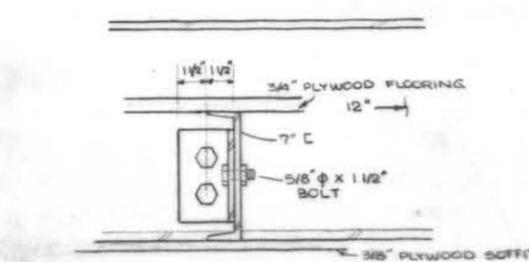
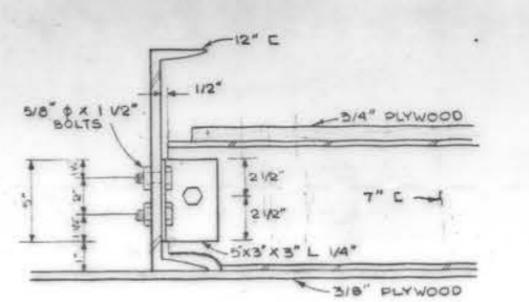
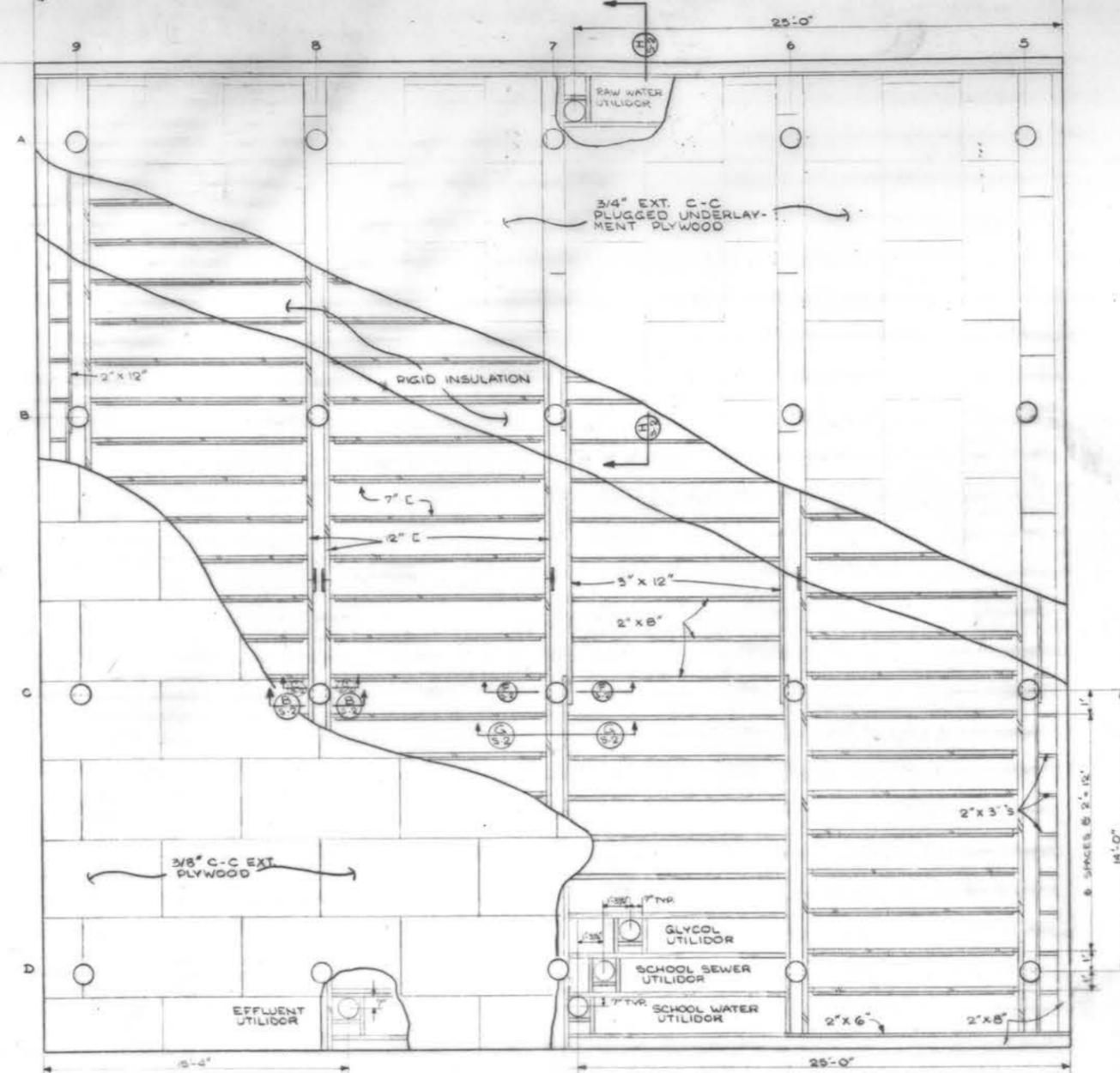
DESIGNED	BY	
C.F.W.		

**QUADRA Engineering**

KONGIGANAK VSW

DATE: 7 MAR 1977

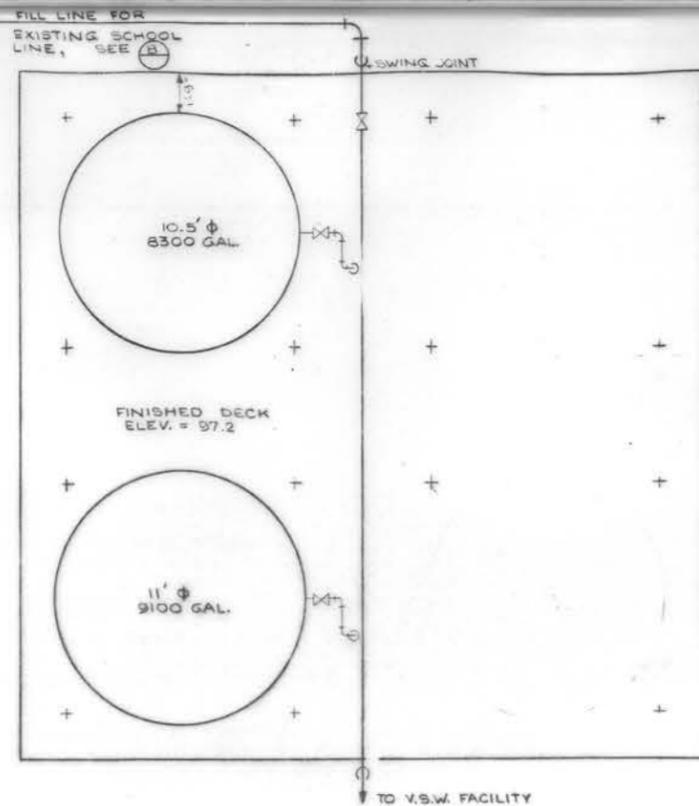




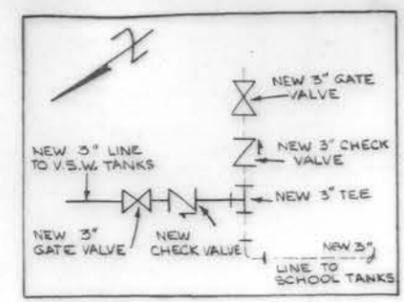
- NOTES:**
- MATERIALS**  
UPPER DECK - 3/4" C-C EXTERIOR PLUGGED UNDERLAYMENT  
JOISTS & STRINGERS & MISC WOOD - WOOD - HEM-FIR #2 OR BETTER  
STEEL - ASTM A-36 SHOP COATED WITH PRIMER  
SOFFIT - 3/8" C-C EXTERIOR
  - FASTENINGS**  
UPPER DECK - OVER STEEL USE SELF TAPPING SCREWS @ 12" O.C. OVER WOOD USE 4d RING SHANK NAILS @ 8" O.C.  
STRINGERS - 1" φ BOLTS - USE ASTM A-307 GRADE A  
JOISTS - STEEL: 5/8" φ BOLTS ASTM A-307  
WOOD: SIMPSON HU HANGERS  
NAILER: 2" SELF TAPPING SCREWS @ 18" O.C.  
SOFFIT: 4d NAILS 6" O.C. ENDS & SIDES  
8" O.C. INTERIOR OR 1" WOOD SCREWS
  - AFTER NAILING UP THE 3/8" PLYWOOD, STRING ALL THERMISTOR WIRES TO PILE C-8 BY STAPLING TO PLYWOOD SLEEVE WIRES UP TO MAIN FLOOR.
  - DRILL HOLES IN PILES @ 1 1/8" FOR 1" BOLTS. USE CARE TO AVOID ANY RE-DRILLING OR OVER-DRILLING. IN THE EVENT A HOLE MUST BE REMOVED, PLUG ORIGINAL HOLE WITH GLUED DOWEL.
  - DRILL HOLES IN STEEL @ 1/16" LARGER DIAMETER THAN BOLT. DRILL HOLES IN WOOD @ 1/8" LARGER DIAMETER THAN BOLT.
  - FLOOR AREA BETWEEN ROWS G & 7 AND BETWEEN B & D IS DESIGNED FOR A MAXIMUM LOAD OF 40 PSF. DO NOT USE FOR STORAGE.

**As-BUILT**

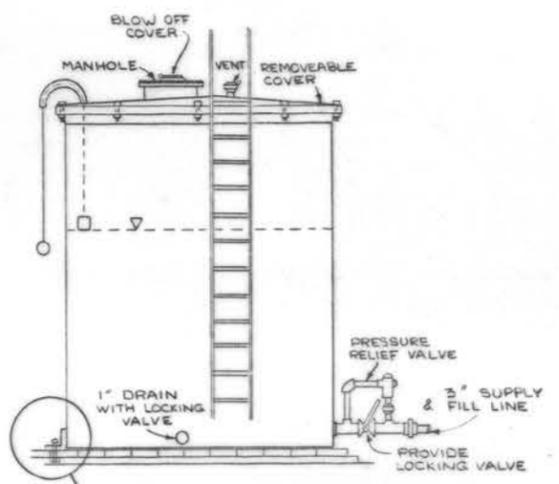




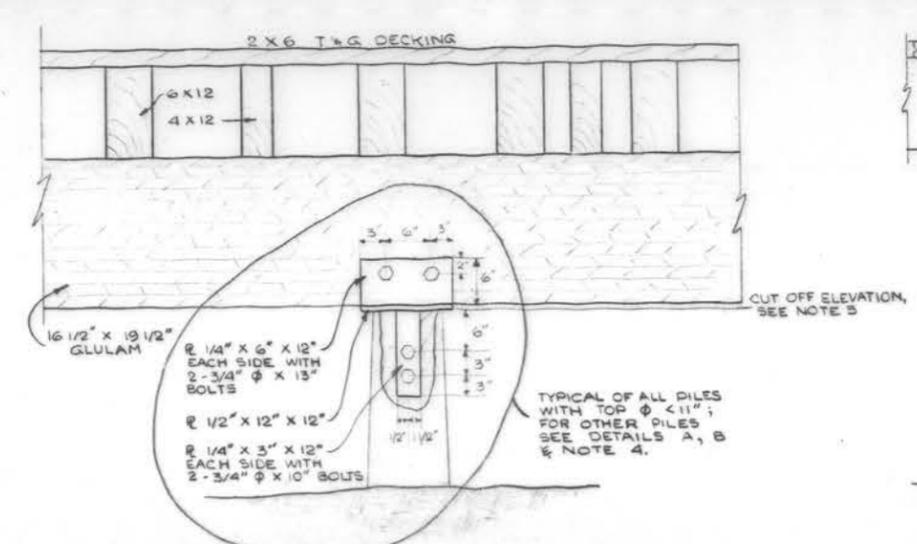
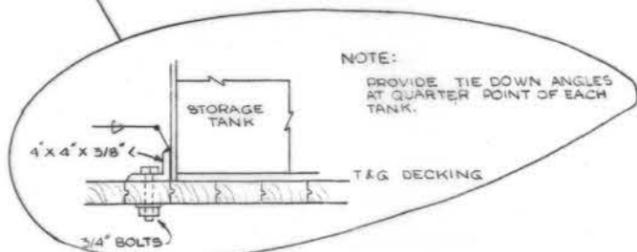
**A FUEL STORAGE LAYOUT**  
 5-4 SCALE: 1/4" = 1'-0"



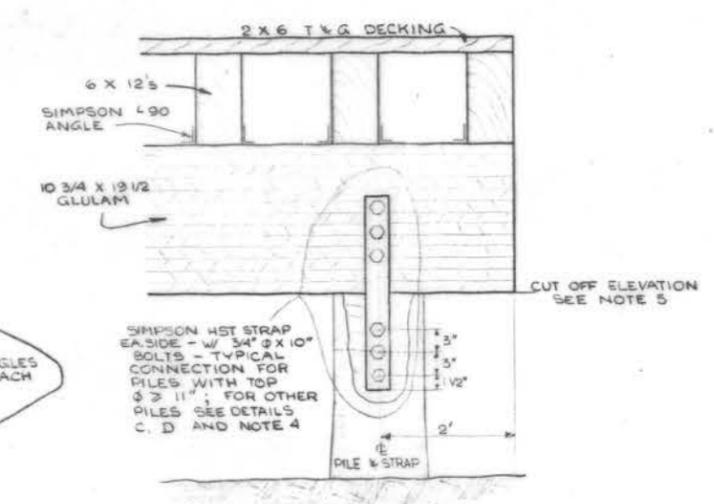
**B FILL LINE CONNECTION**  
 5-4 NO SCALE



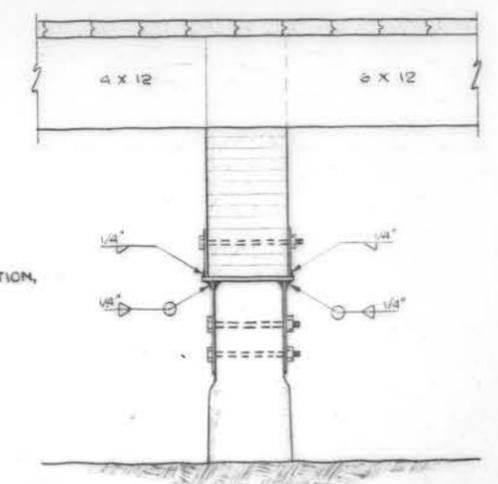
**E FUEL STORAGE TANK**  
 5-4 NO SCALE



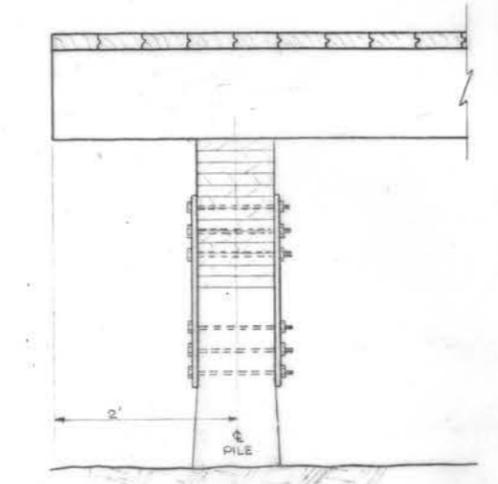
**C CONNECTION DETAIL**  
 5-4 SCALE: 1" = 1'-0"



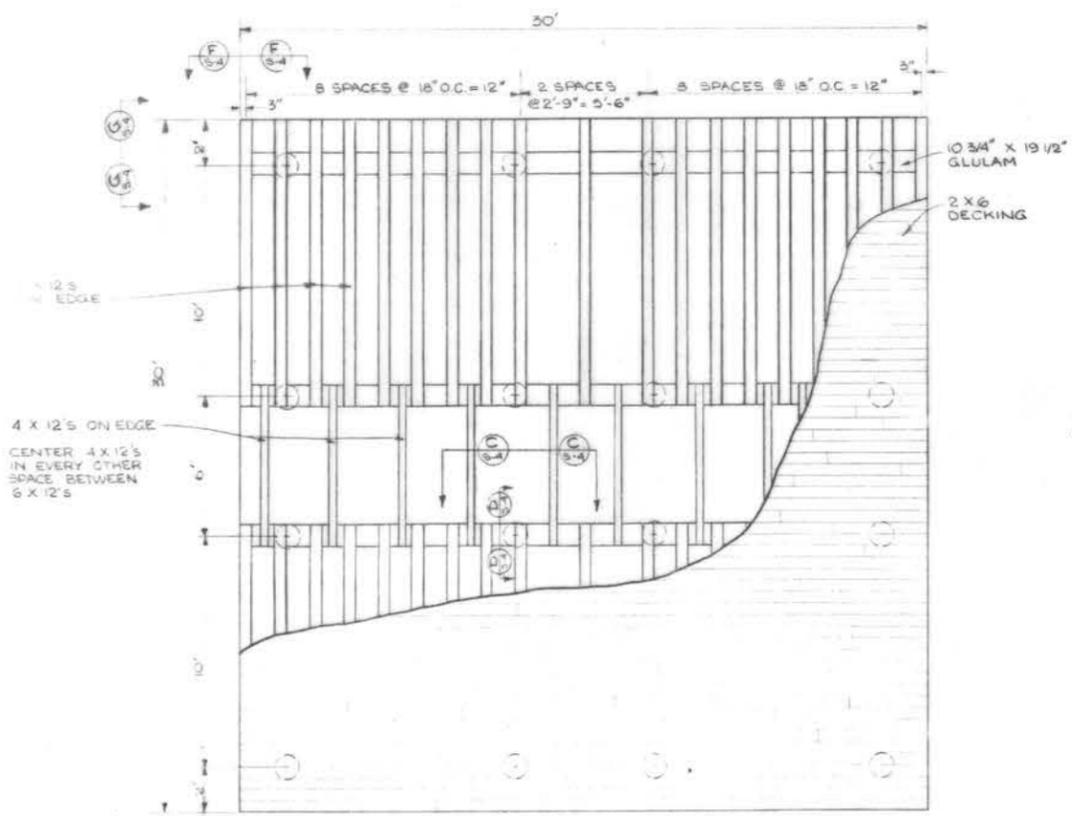
**F CONNECTION DETAIL**  
 5-4 SCALE: 1" = 1'-0"



**D CONNECTION DETAIL**  
 5-4 SCALE: 1" = 1'-0"



**G CONNECTION DETAIL**  
 5-4 SCALE: 1" = 1'-0"



**H FRAMING PLAN**  
 5-4 SCALE: 1/4" = 1'-0"

**NOTES:**

- 2 x 6 DECKING**
  - USE DOUGLAS FIR SELECT DECKING  $F_b$  (MIN) = 1450 PSI,  $F_c$  (MIN) = 330 PSI TONGUE & GROOVE, CHEMONITE TREATED.
  - TOENAIL THROUGH TONGUE & FACE - NAIL AT EACH SUPPORT WITH 16d COMMON.
  - STAGGER JOINTS - MINIMUM PIECE SIZE OF 6 FT.
- 6 x 12'S & 4 x 12'S**
  - USE DOUGLAS FIR SELECT STRUCTURAL (B&S) CHEMONITE TREATED.  $F_b$  = 1900 PSI,  $F_c$  = 115 PSI,  $F_d$  = 120 PSI.
  - NAIL TO GLULAM WITH SIMPSON L90 REINFORCING ANGLE EACH SIDE AT GLULAM - USE 6-N10 NAILS PER ANGLE.
  - MINIMUM PIECE SIZE -
    - 6x12 - 12' 5 3/8" PROVIDE FULL BEARING ON EACH GLULAM
    - 4x12 - 6' 10 3/4" PROVIDE FULL BEARING ON EACH GLULAM
- 10 3/4" x 19 1/2" GLULAM**
  - USE DOUGLAS FIR 22F EXTERIOR  $F_b$  = 2200 PSI,  $F_c$  = 410 PSI,  $F_d$  = 165 PSI
  - BOLT GLULAM TO PILES AS SHOWN ON DRAWING. PRE DRILL HOLES 7/8"  $\phi$ , USE 3/4"  $\phi$  x 13" BOLTS.
  - MINIMUM GLULAM LENGTH = 15'; BUTT JOINT AT PLATFORM & NO CONNECTION REQUIRED.

- PILES**
  - FOR PILES WITH A TOP DIAMETER  $\geq$  11"  $\phi$  AFTER CUTTING TO GRADE (2 OF 16)
    - TRIM PILE TO 10 3/4" WIDTH AND USE SIMPSON HST 3 TIE STRAP ON EACH SIDE. DRILL HOLES TO 7/8"  $\phi$  AND USE 3/4"  $\phi$  x 13" BOLTS.
  - FOR PILES WITH A TOP DIAMETER < 11" AFTER CUTTING TO GRADE (4 OF 16)
    - TRIM PILE TO 5" WIDTH AND USE PREFABRICATED CONNECTOR.
    - FIELD DRILL ONE SIDE OF CONNECTOR TO INSURE GOOD FIT. PRE DRILL PILE 7/8"  $\phi$  AND USE 3/4"  $\phi$  x 10" BOLTS.
  - TREAT ALL CUT SURFACES ON THE PILE WITH CREOSOTE.
- CUTOFF ELEVATION FOR PILES USING SIMPSON STRAP CONNECTION IS 94.90. FOR PILES USING PREFABRICATED CONNECTION CUT OFF AT 94.96.**
- ALL TANKS SHALL BE 3/16" STEEL - 14' TALL PLUS TOP WITH DIAMETERS AND CAPACITY AS SHOWN ON TANK OR EQUAL.**
- CENTER EACH TANK EVENLY WITHIN PILE BENTS.**
- TOUCH UP ALL MARKS & WELD BURNS ETC., ON FUEL TANKS W/ RUST RESISTANT PAINT TO MATCH FACTORY PAINT.**

**As-BUILT**

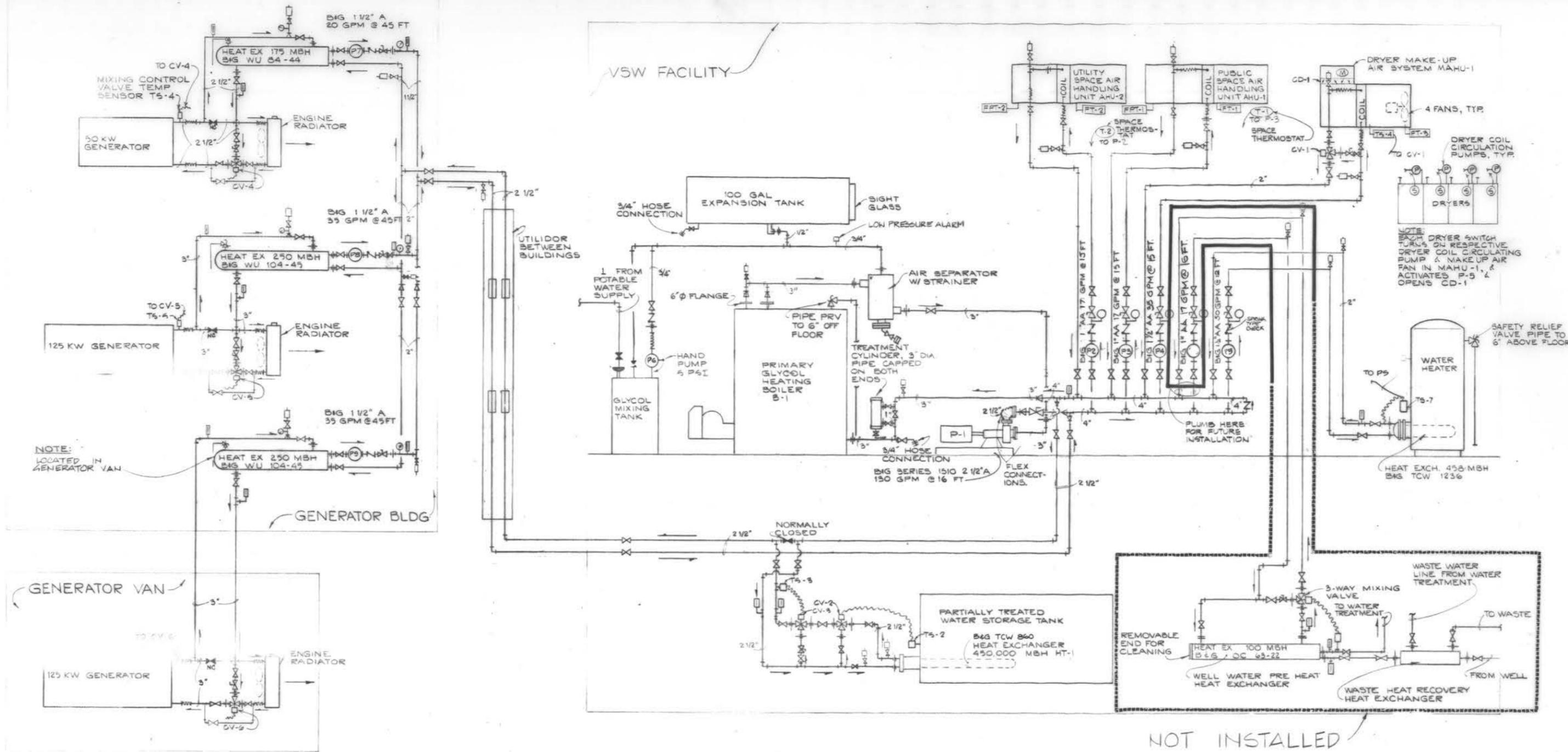


DESIGNED	J.A.B.
BY	

**QUADRA Engineering**

KONGIGANAK VSW

DATE: 7 MAY 1977  
 S-4



**A** GLYCOL HEATING SYSTEM PIPING SCHEMATIC  
6-1 NO SCALE

NOT INSTALLED

NOTE:  
1. SEE SHEET G-2 FOR PUMP LISTINGS.  
2. SEE HONEYWELL DRAWINGS FOR CONTROL EQUIPMENT.

DESIGNED	W.P.K.		
DRAWN	P.J.B.		
CHECKED	M.W.F.		
NO.	DATE	REVISION	BY
4	10-89	AS-BUILT REVISIONS	C.L.C.
3	10-78	MISC CHANGES & ADDITIONS TO CONTROL SYSTEM	W.K.
2	10-78	DELETED HEAT EXC FOR WELL WATER PREHEAT	W.K.
1	4-78	APRIL 1978 REVISED DESIGN	M.W.F.



**QUADRA Engineering**  
ENGINEERS - PLANNERS - SURVEYORS  
ANCHORAGE, ALASKA

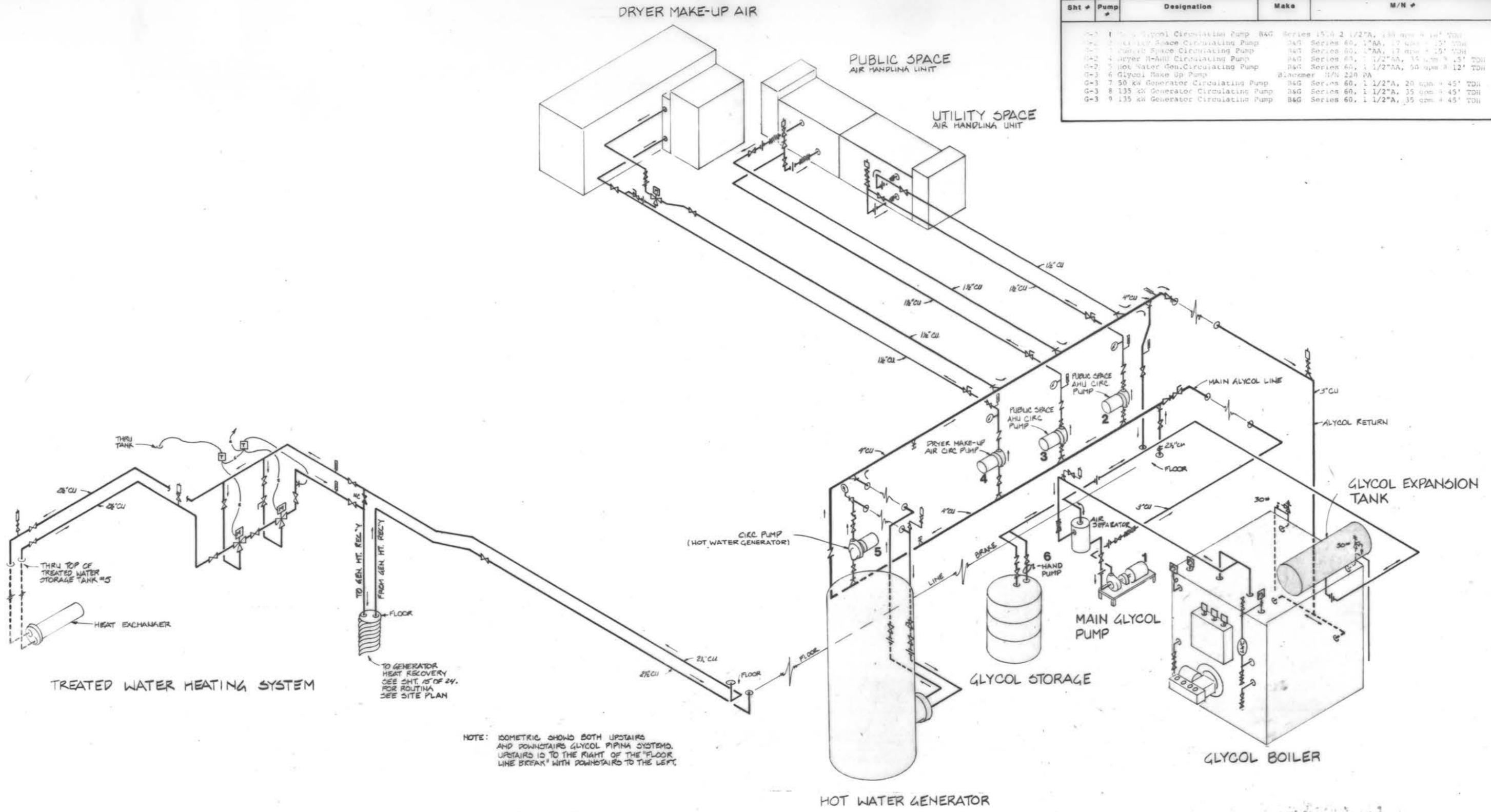


KONGIGANAK VSW  
HEATING PIPING SCHEMATIC  
KONGIGANAK, ALASKA

DATE: APRIL 78  
PROJ. NO.  
G-1  
SHEET 3 OF 24  
QUAB. NO.

**Glycol System Equipment List**

Sht #	Pump #	Designation	Make	M/N #
G-1	1	Main Glycol Circulating Pump	B&G	Series 60, 1 1/2"AA, 17 gpm @ 45' TDH
G-2	2	Public Space Circulating Pump	B&G	Series 60, 1"AA, 17 gpm @ 45' TDH
G-2	3	Dryer Make-Up Circulating Pump	B&G	Series 60, 1 1/2"AA, 15 gpm @ 45' TDH
G-2	4	Hot Water Gen. Circulating Pump	B&G	Series 60, 1 1/2"AA, 50 gpm @ 12' TDH
G-3	6	Glycol Make Up Pump	Blancher	M/N 220 PA
G-3	7	50 kW Generator Circulating Pump	B&G	Series 60, 1 1/2"AA, 20 gpm @ 45' TDH
G-3	8	135 kW Generator Circulating Pump	B&G	Series 60, 1 1/2"AA, 35 gpm @ 45' TDH
G-3	9	135 kW Generator Circulating Pump	B&G	Series 60, 1 1/2"AA, 35 gpm @ 45' TDH



NOTE: ISOMETRIC SHOWS BOTH UPSTAIRS AND DOWNSTAIRS GLYCOL PIPING SYSTEMS. UPSTAIRS IS TO THE RIGHT OF THE "FLOOR LINE BREAK" WITH DOWNSTAIRS TO THE LEFT.

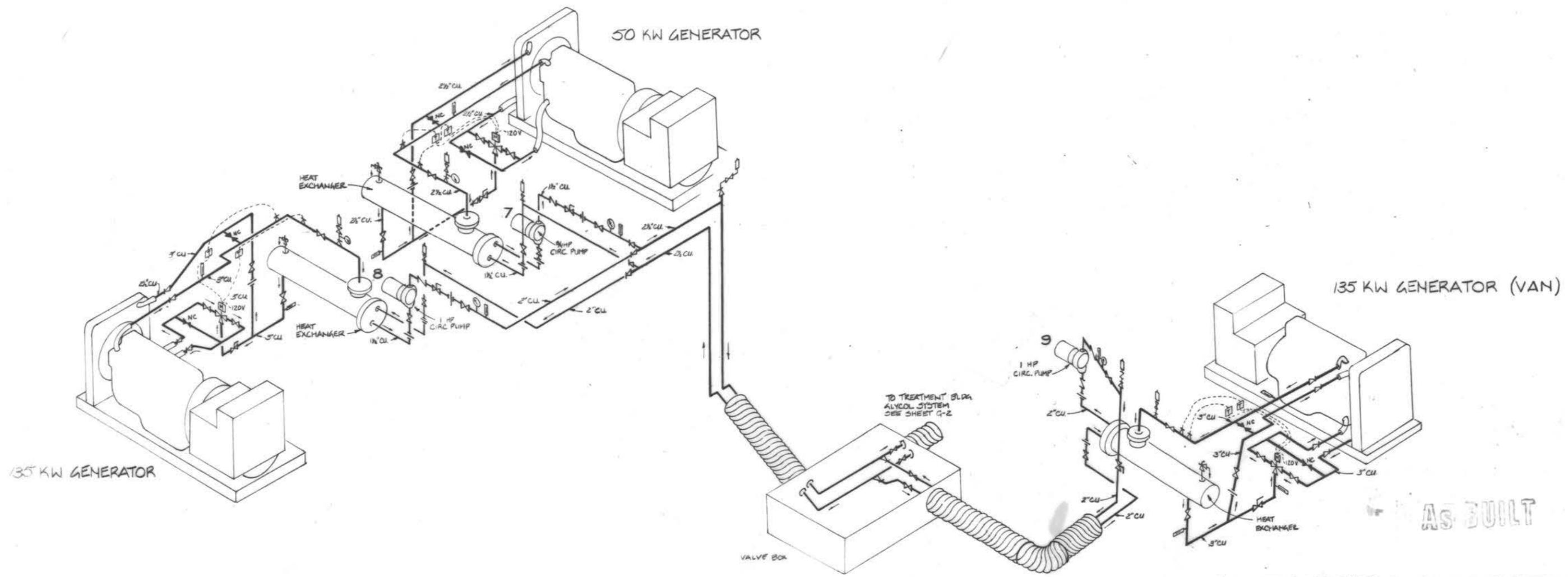
THIS SHEET IS SUPPLEMENTARY TO SHOW AS-BUILT CONDITIONS AND WAS NOT PART OF THE ORIGINAL SET OF PLANS

**A** GLYCOL PIPING ISOMETRIC

**As-BUILT**

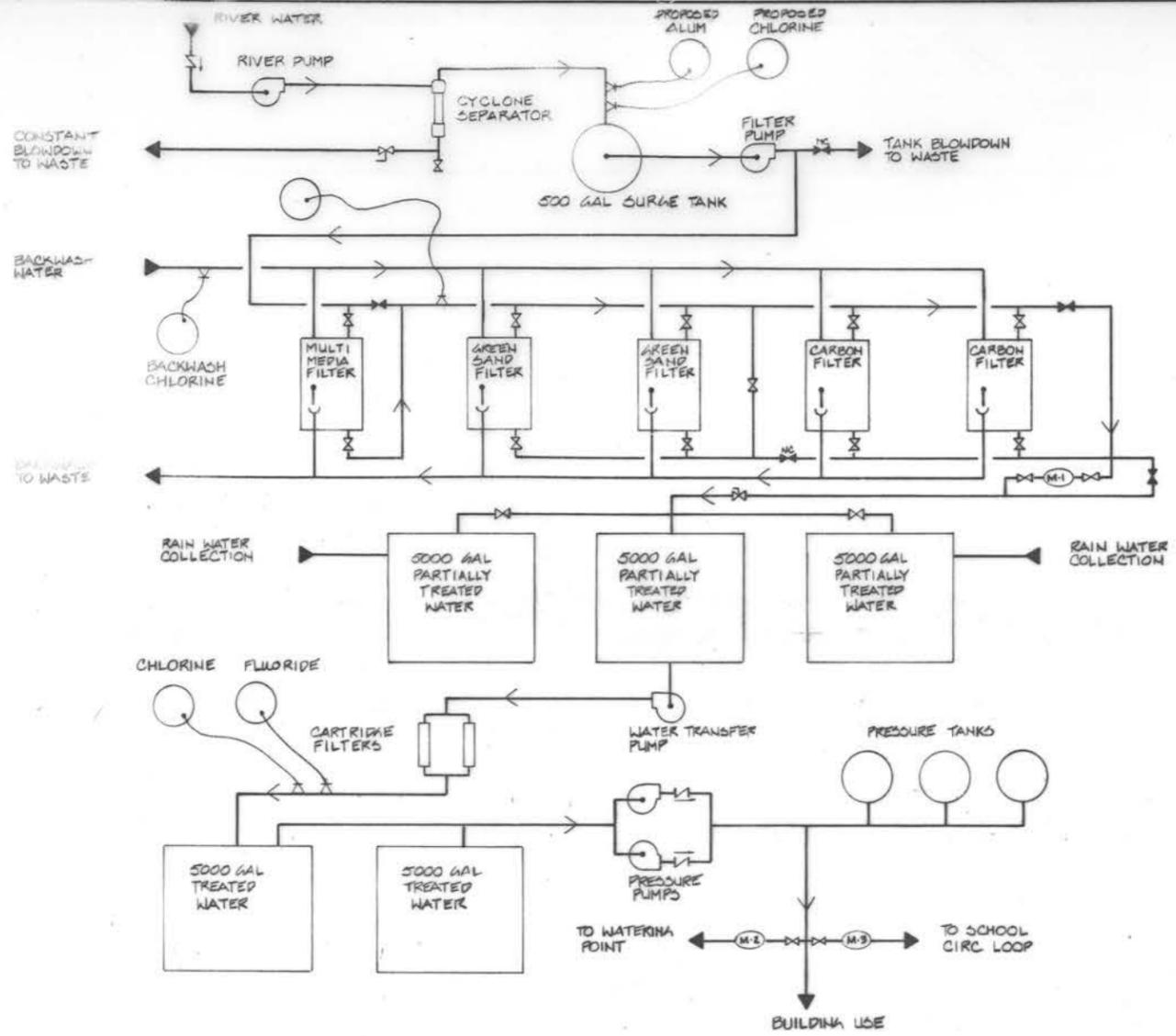
### Glycol System Equipment List

Sht #	Pump #	Designation	Make	M/N #
G-2	1	Main Glycol Circulating Pump	B&G Series 1510	2 1/2" A, 130 gpm @ 16' TDH
G-2	2	Utility Space Circulating Pump	B&G Series 60	1" AA, 17 gpm @ 15' TDH
G-2	3	Public Space Circulating Pump	B&G Series 60	1" AA, 17 gpm @ 15' TDH
G-2	4	Dryer M-AHU Circulating Pump	B&G Series 60	1 1/2" AA, 35 gpm @ 15' TDH
G-2	5	Hot Water Gen. Circulating Pump	B&G Series 60	1 1/2" AA, 50 gpm @ 12' TDH
G-3	6	Glycol Make Up Pump	Blackmer	M/N 220 PA
G-3	7	50 kW Generator Circulating Pump	B&G Series 60	1 1/2" A, 20 gpm @ 45' TDH
G-3	8	135 kW Generator Circulating Pump	B&G Series 60	1 1/2" A, 35 gpm @ 45' TDH
G-3	9	135 kW Generator Circulating Pump	B&G Series 60	1 1/2" A, 35 gpm @ 45' TDH



**GENERATOR WASTE HEAT RECOVERY ISOMETRIC**

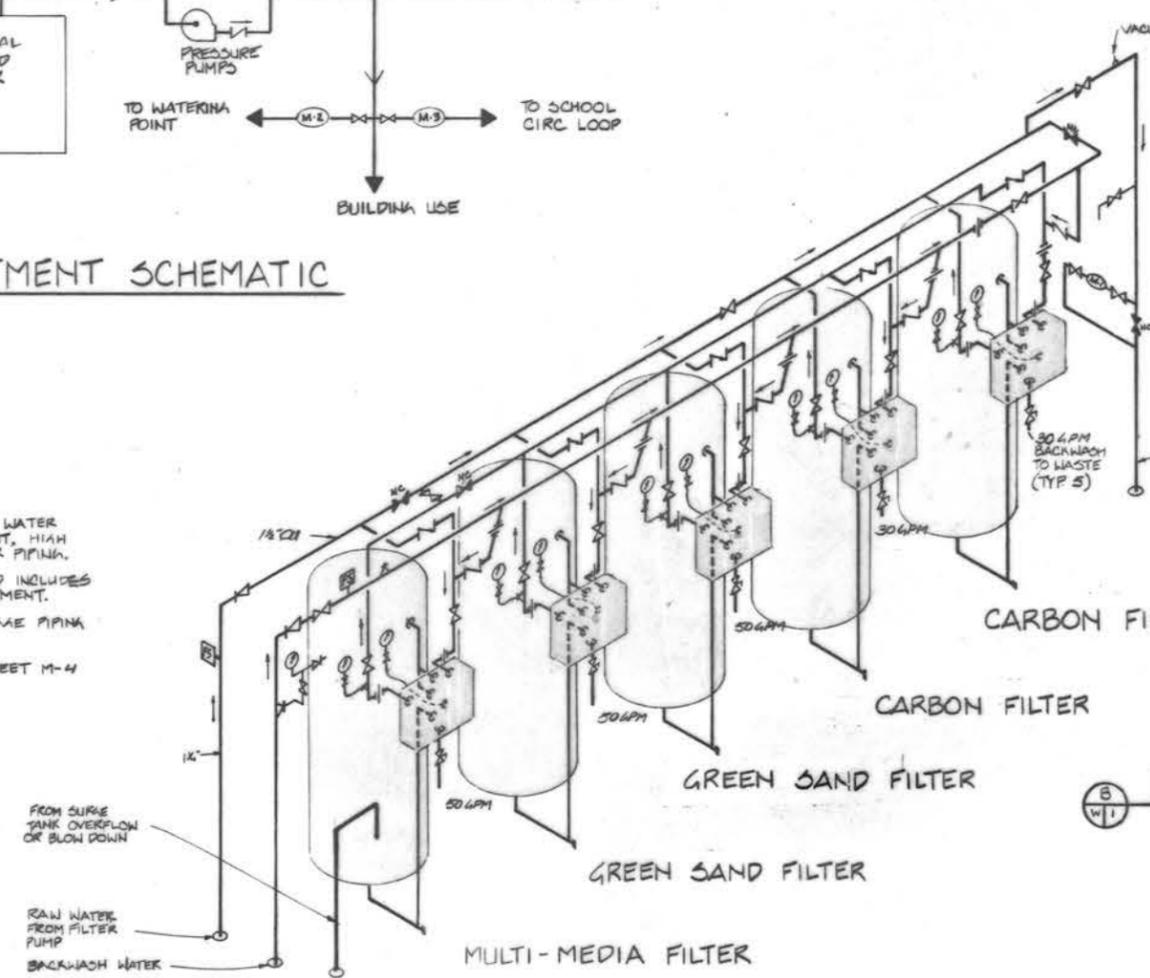
THIS SHEET IS SUPPLEMENTARY TO SHOW AS-BUILT CONDITIONS AND WAS NOT PART OF THE ORIGINAL SET OF PLANS



**WATER TREATMENT SCHEMATIC**

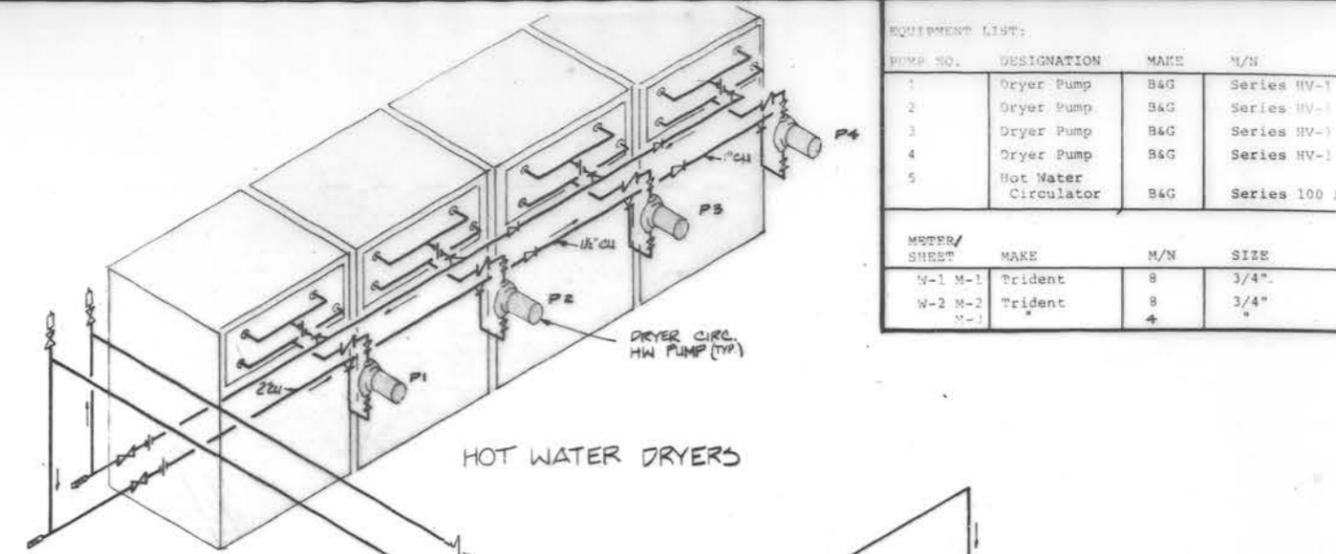
**GENERAL NOTES**

1. SHEET W-1 DETAIL "B" SHOWS MAIN FLOOR UTILITY WATER PIPING ONLY; DETAILING WATER FILTERING TREATMENT, HIGH TEMP HOT WATER DRYER AND HOT WATER GENERATOR PIPING.
2. SHEET W-2 SHOWS LOWER FLOOR UTILITY PIPING AND INCLUDES PIPING DETAILING OF WATER PROCESSING AND TREATMENT.
3. TREATMENT BUILDING DOMESTIC WATER AND DRAINAGE PIPING IS DETAILED ON SHEET M-1 & M-2.
4. EQUIPMENT LOCATION PLAN AND SCHEDULE ON SHEET M-4.



**MAIN FLOOR UTILITY WATER PIPING ISOMETRIC**

THIS SHEET IS SUPPLEMENTARY TO SHOW AS-BUILT CONDITIONS AND WAS NOT PART OF THE ORIGINAL SET OF PLANS.

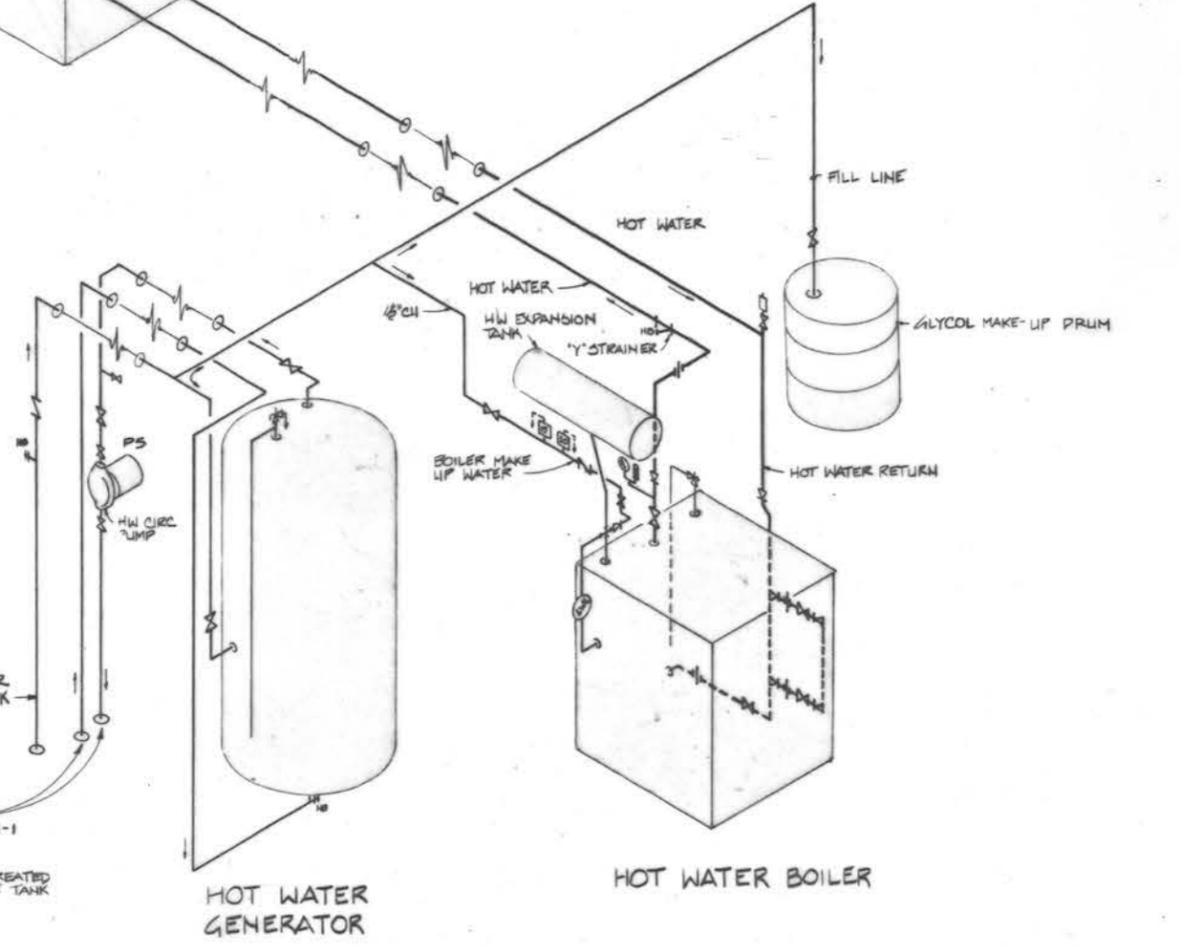


**EQUIPMENT LIST:**

PUMP NO.	DESIGNATION	MAKE	M/N
1	Dryer Pump	B&G	Series HV-1
2	Dryer Pump	B&G	Series HV-1
3	Dryer Pump	B&G	Series HV-1
4	Dryer Pump	B&G	Series HV-1
5	Hot Water Circulator	B&G	Series 100 AB

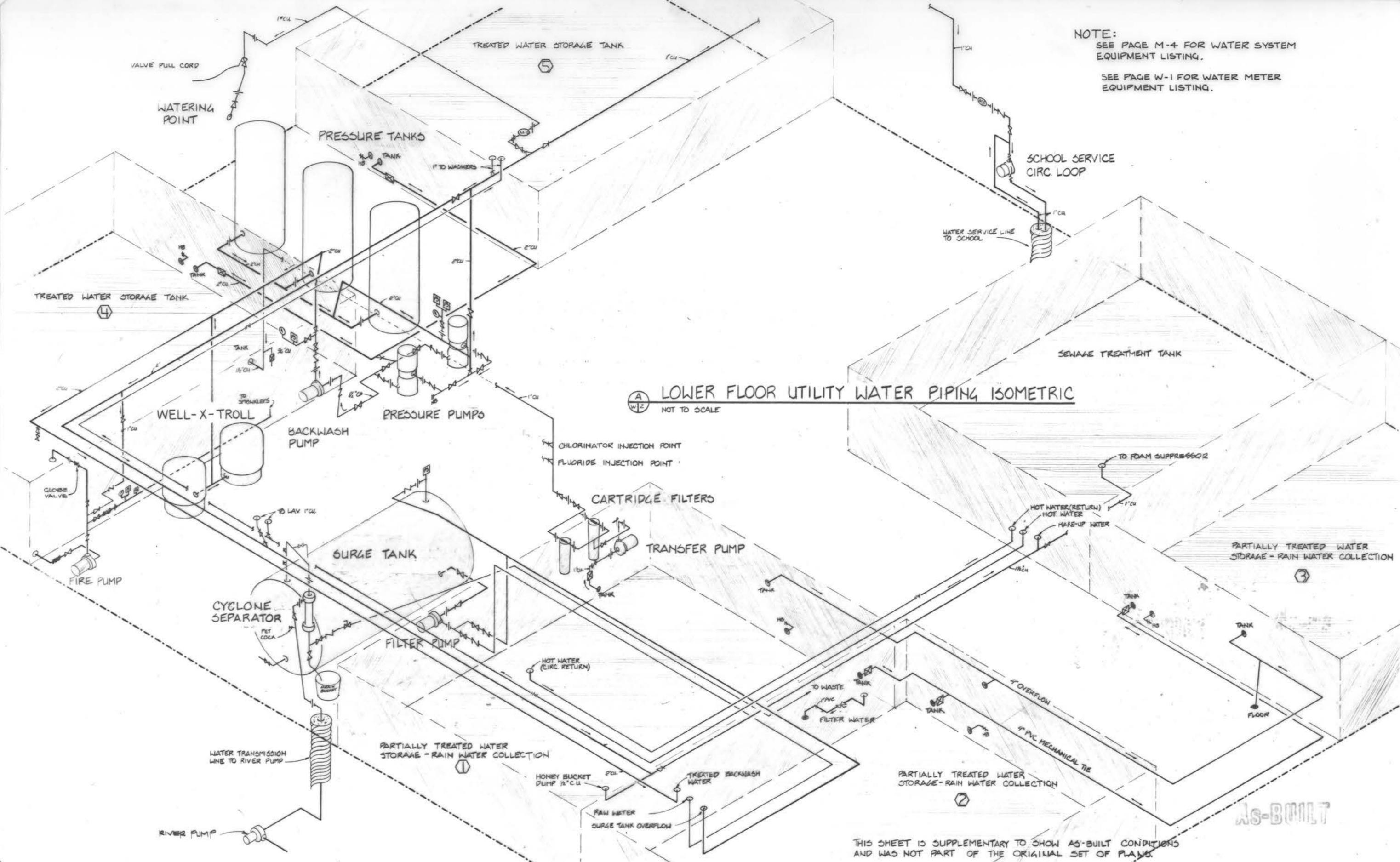
  

METER/SHEET	MAKE	M/N	SIZE
W-1 M-1	Trident	8	3/4"
W-2 M-2	Trident	8	3/4"
M-1		4	



**AS-BUILT**

NOTE:  
 SEE PAGE M-4 FOR WATER SYSTEM  
 EQUIPMENT LISTING.  
 SEE PAGE W-1 FOR WATER METER  
 EQUIPMENT LISTING.



**LOWER FLOOR UTILITY WATER PIPING ISOMETRIC**  
 NOT TO SCALE

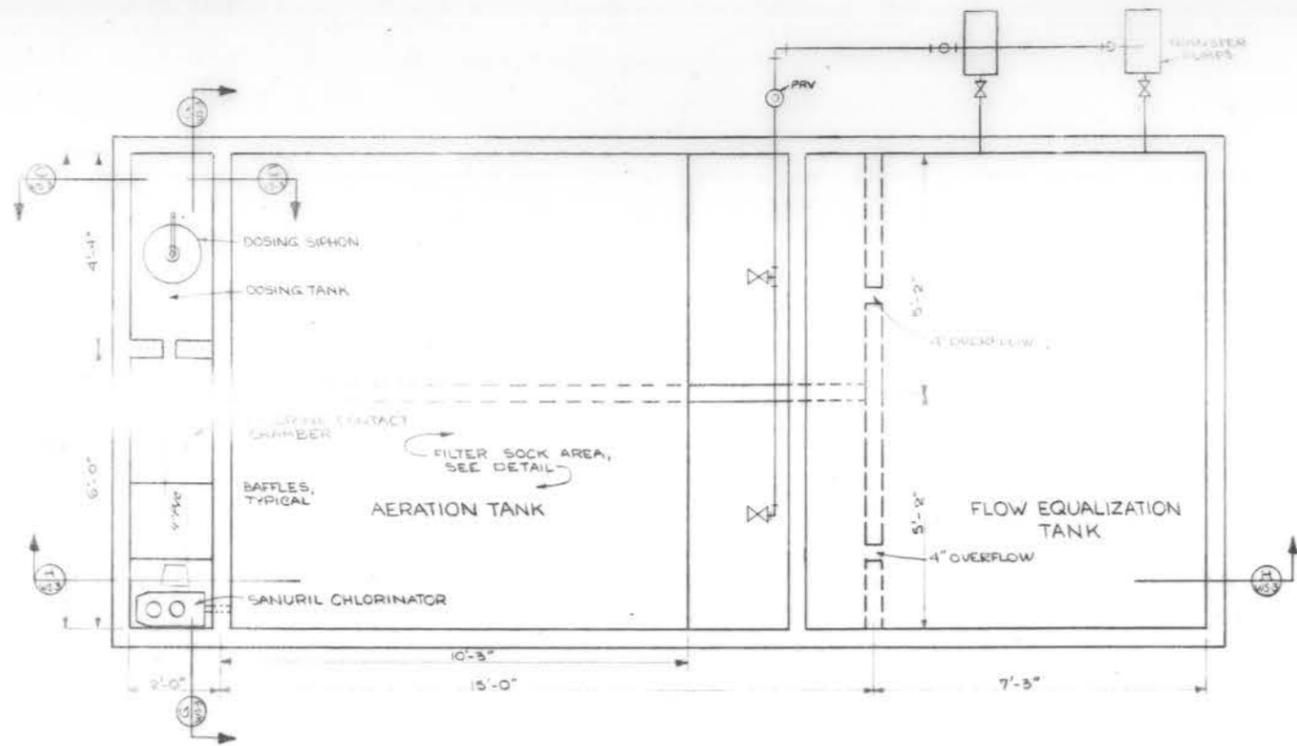
AS-BUILT

THIS SHEET IS SUPPLEMENTARY TO SHOW AS-BUILT CONDITIONS  
 AND WAS NOT PART OF THE ORIGINAL SET OF PLANS.

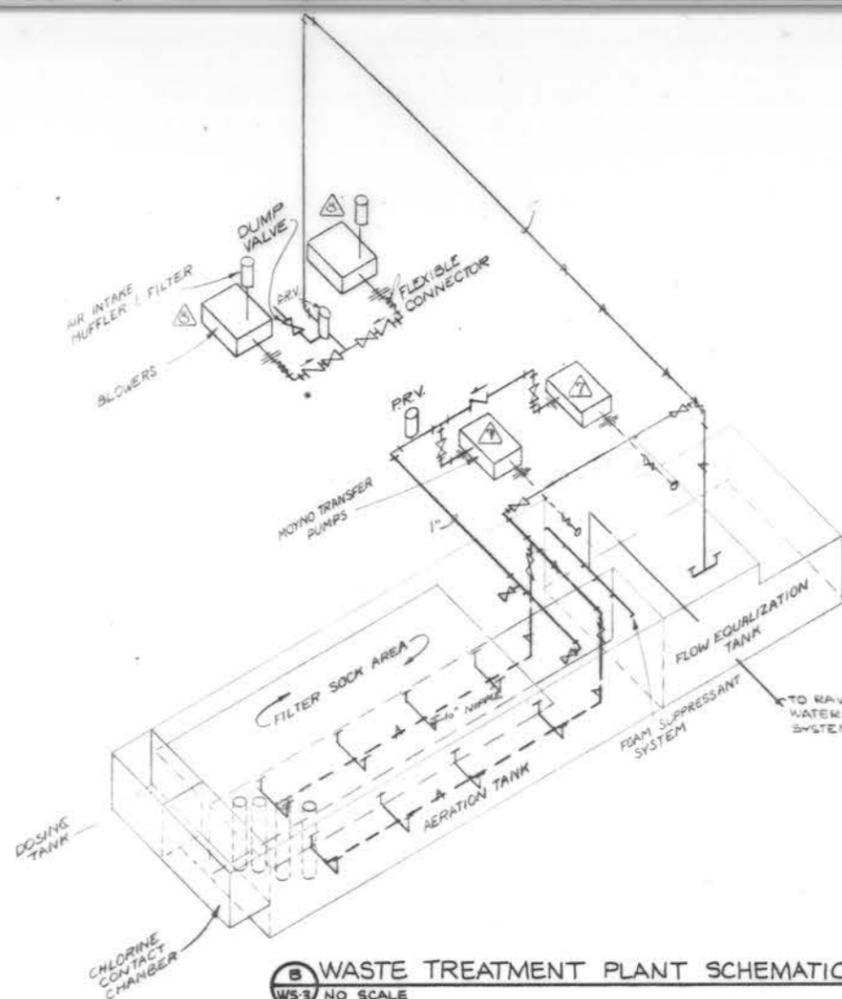
DESIGNED	
CHECKED	
DATE	
PROJ. NO.	

QUADRA Engineering

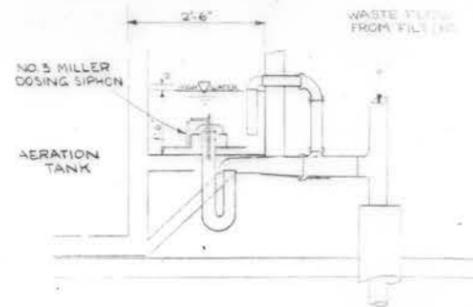
KONAIGANAK VSW  
 LOWER FLOOR UTILITY WATER PIPING ISOMETRIC  
 DATE: \_\_\_\_\_  
 PROJ. NO.: \_\_\_\_\_



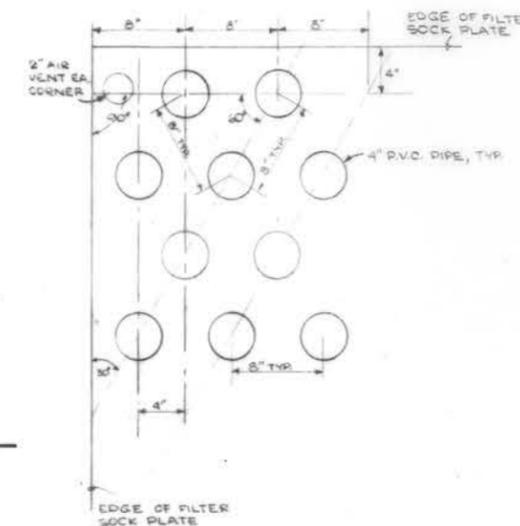
**A PLAN - SEWAGE TREATMENT PLANT**  
WS-3 NO SCALE



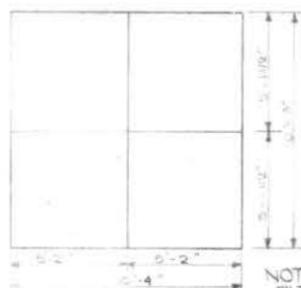
**B WASTE TREATMENT PLANT SCHEMATIC**  
WS-3 NO SCALE



**C SECTION C**  
WS-3 NO SCALE

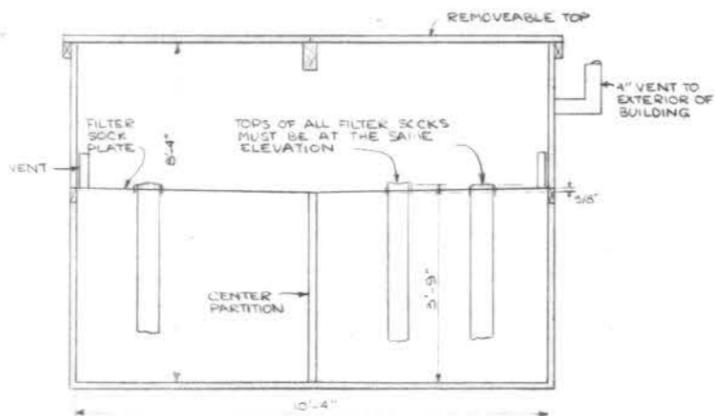


**D FILTER SOCK SPACING DETAIL**  
WS-3 NO SCALE

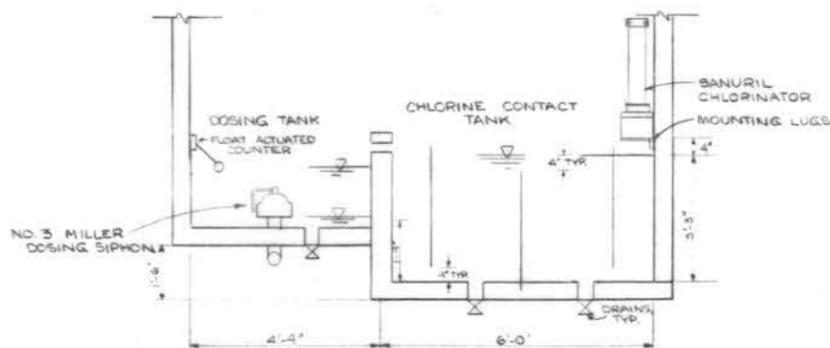


NOTE: FILTER SOCK PLATE IS DIVIDED INTO FOUR REMOVABLE SECTIONS.

**E FILTER SOCK PLATE**  
WS-3 NO SCALE

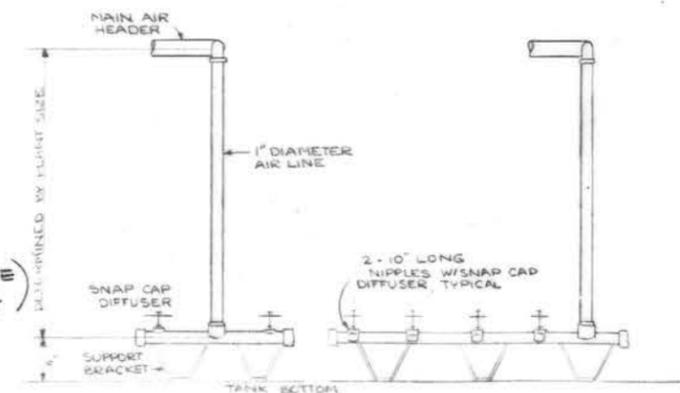


**F SECTION - FILTER SOCK PLATE**  
WS-3 NO SCALE



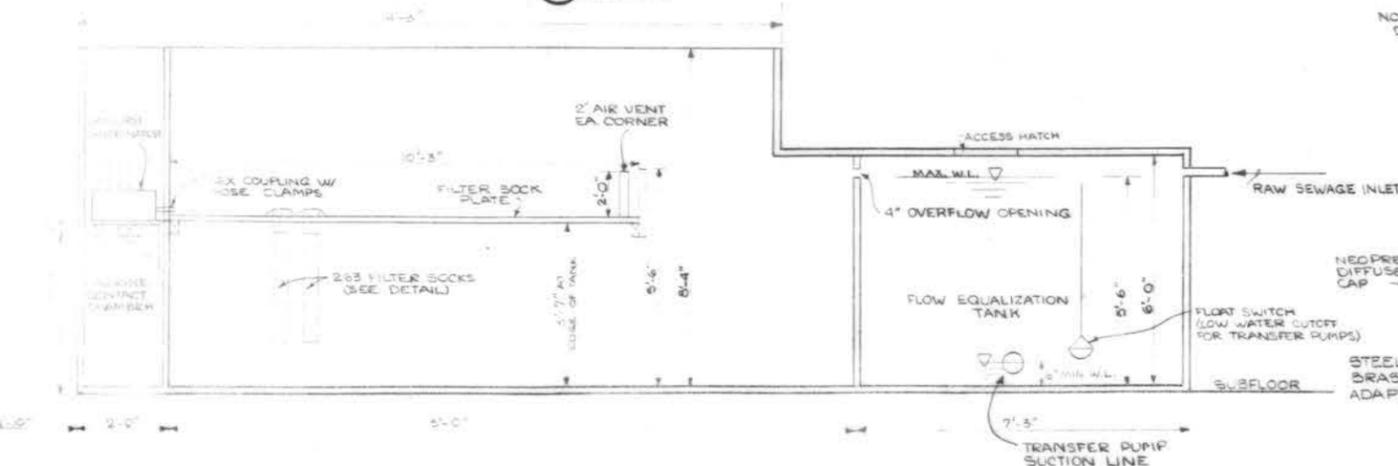
**G SECTION G**  
WS-3 NO SCALE

**As-BUILT**

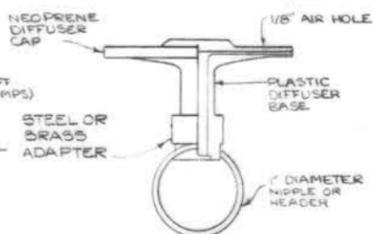


**K FLOW EQUALIZATION TANK**  
WS-3 NO SCALE

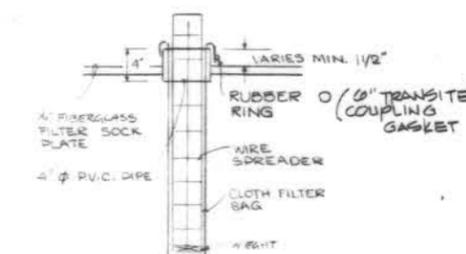
**L AERATION TANK**  
WS-3 NO SCALE



**H SECTION AA**  
WS-3 NO SCALE



**I SNAP CAP DIFFUSER**  
WS-3 NO SCALE



**J FILTER SOCK DETAIL**  
WS-3 NO SCALE

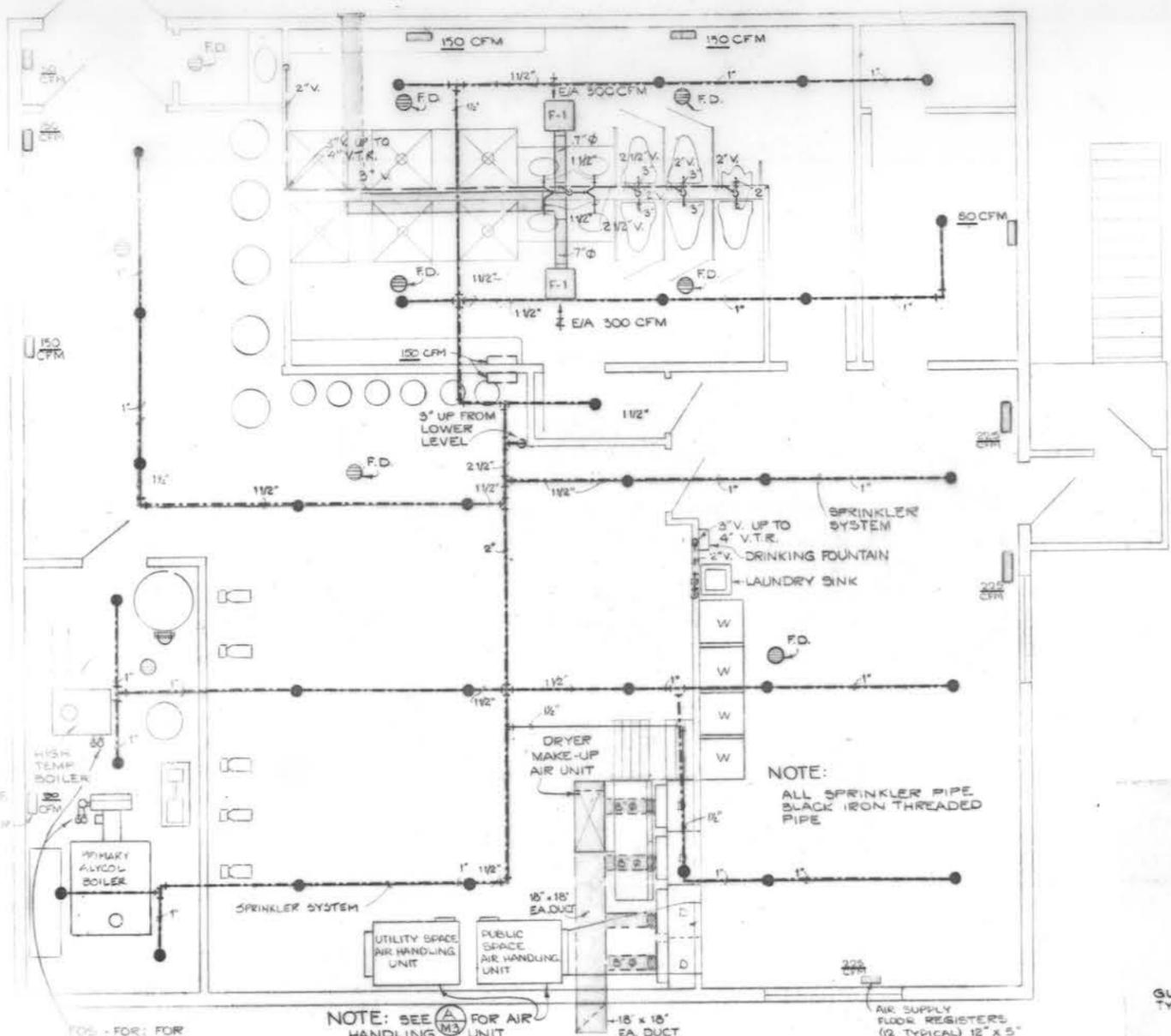


DESIGNED	BY
EFP	

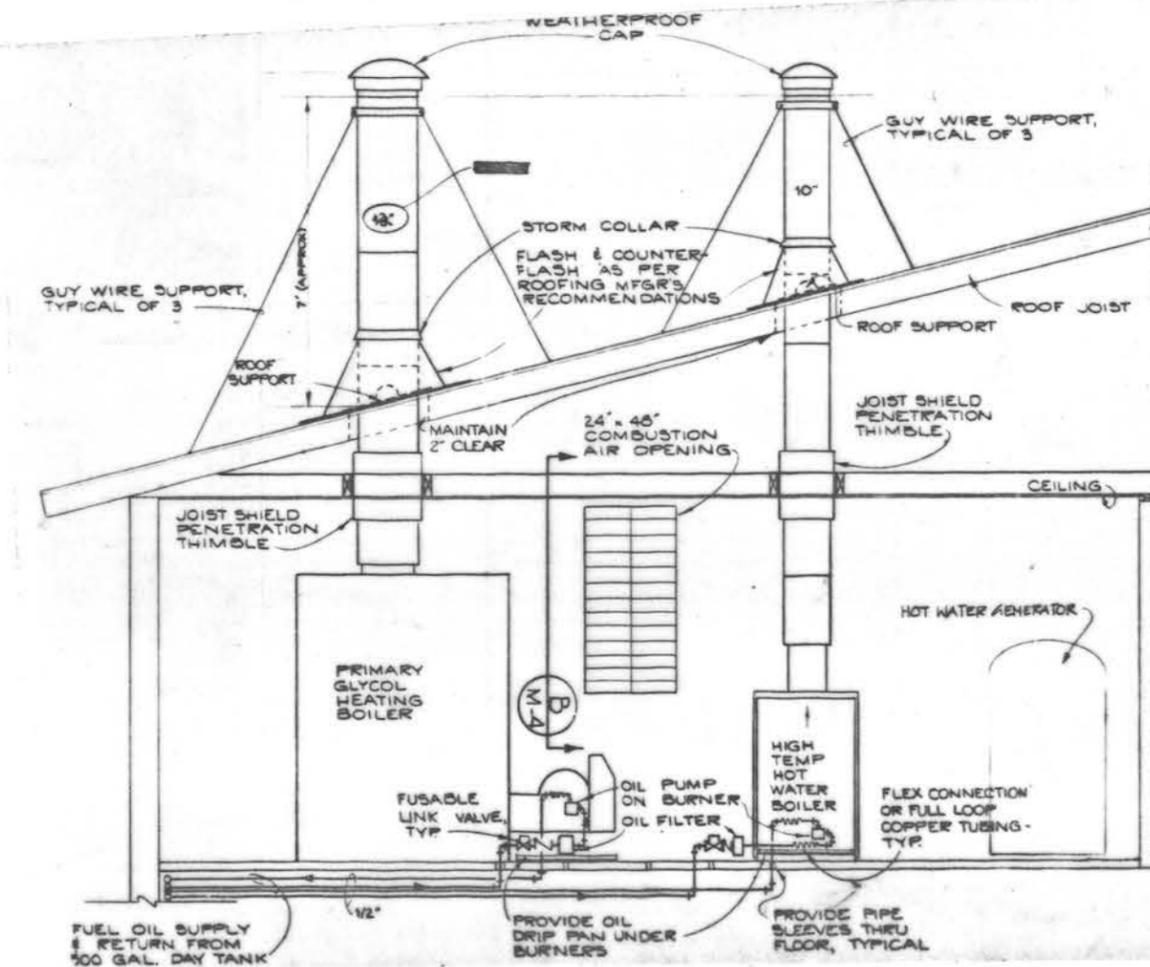
**QUADRA Engineering**

KONGIGANAK VSW

DATE: 7 MAY 1993



**A** MAIN FLOOR SPRINKLERS, DRAINAGE AND DUCT SYSTEM  
SCALE: 1/4" = 1'-0"



**B** BOILER ROOM SECTION

LEGEND	
SYMBOL	EXPLANATION
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	CONTROL VALVE
	PRESSURE RELIEF VALVE
	UNION
	STRAINER
	GLYCOL SUPPLY
	GLYCOL RETURN
	FLOW DIRECTION
	SANITARY WASTE
	VENT
	CLEANOUT
	VENT THROUGH ROOF
	COLD WATER
	HOT WATER
	FLOOR DRAIN
	BALANCE VALVE
	FLEX CONNECTION
	SPRINKLER HEAD
	FLOOR CLEANOUT

NOTE: THE SPRINKLER SYSTEM AS DESIGNED AND DETAILED ON THESE DRAWINGS IS NOT REQUIRED BY LAW, AND DOES NOT COMPLY WITH SPRINKLER SYSTEM DESIGN STANDARDS AS REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET NO. 15.

NOTE: ALL FUEL PIPING TO BE COPPER WITH FLARE FITTINGS OR THREADED BLACK IRON PIPE



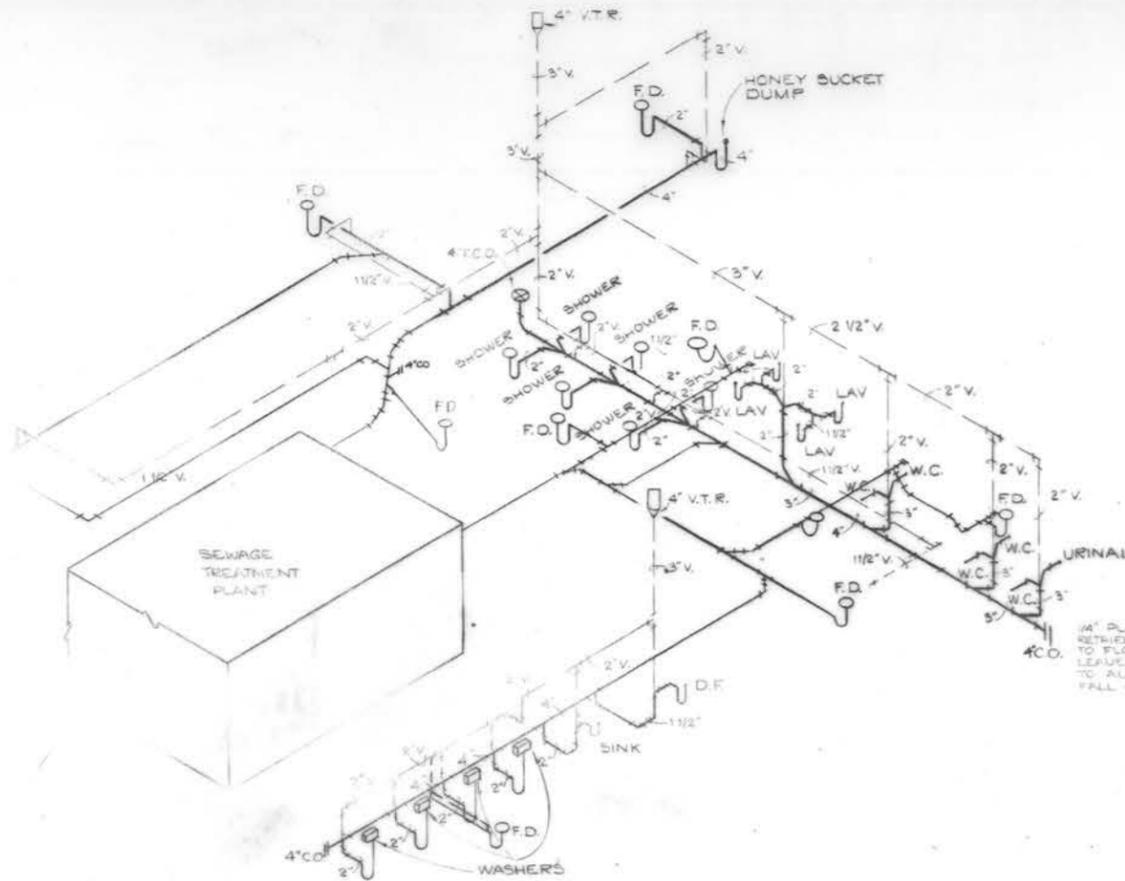
DESIGNED	BY	DATE	REVISIONS
W.P.K.		3-10-80	AS-BUILT REVISIONS

**QUADRA Engineering**

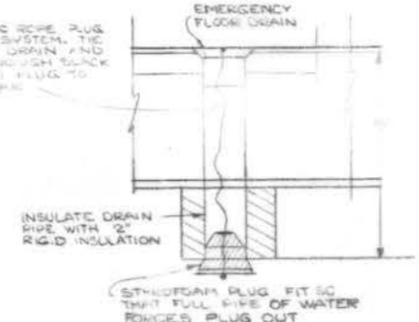
KONGIGANAK VSW  
MECHANICAL DETAILS

DATE: 7-10-80  
M-1

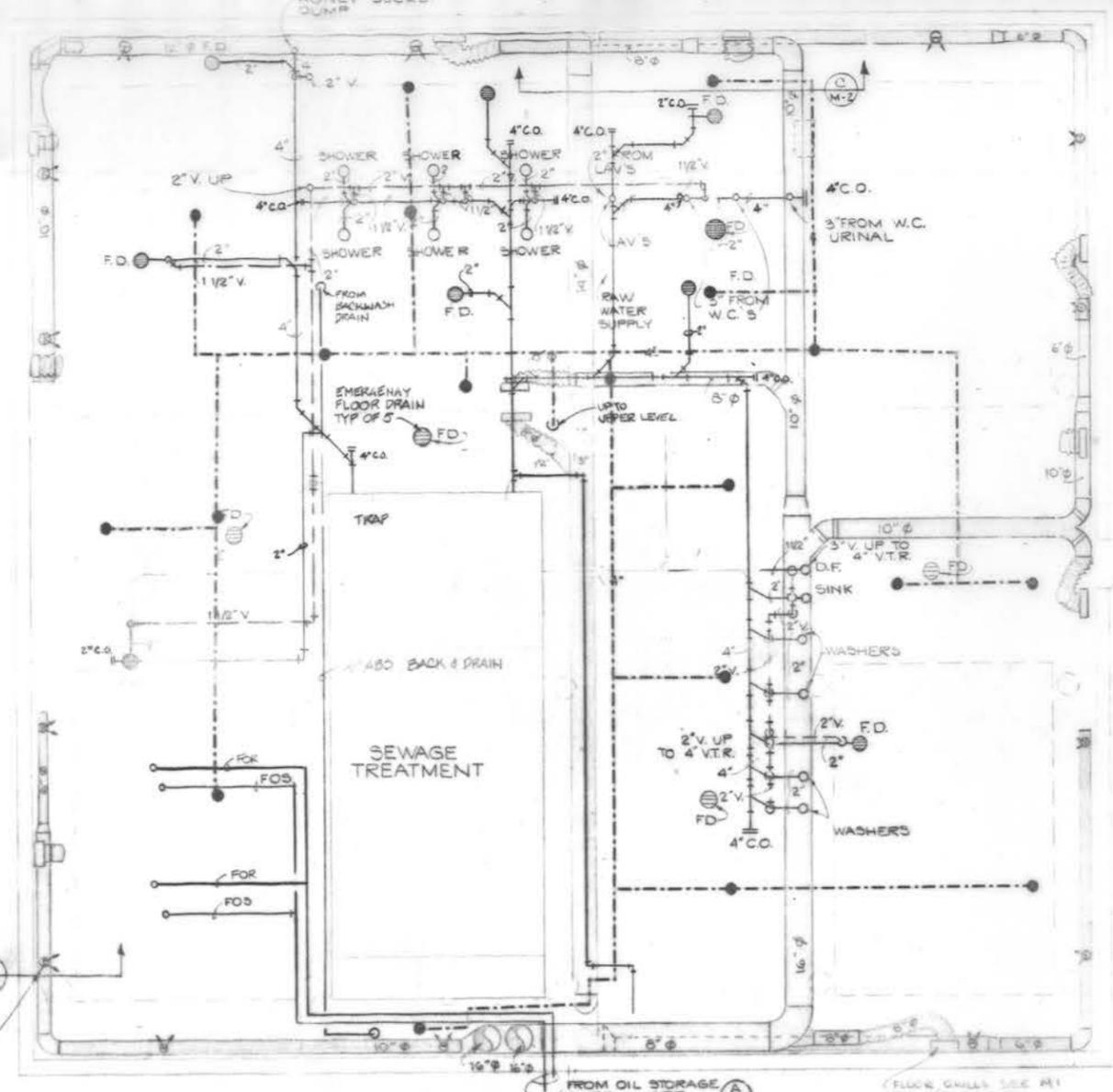
**AS-BUILT**



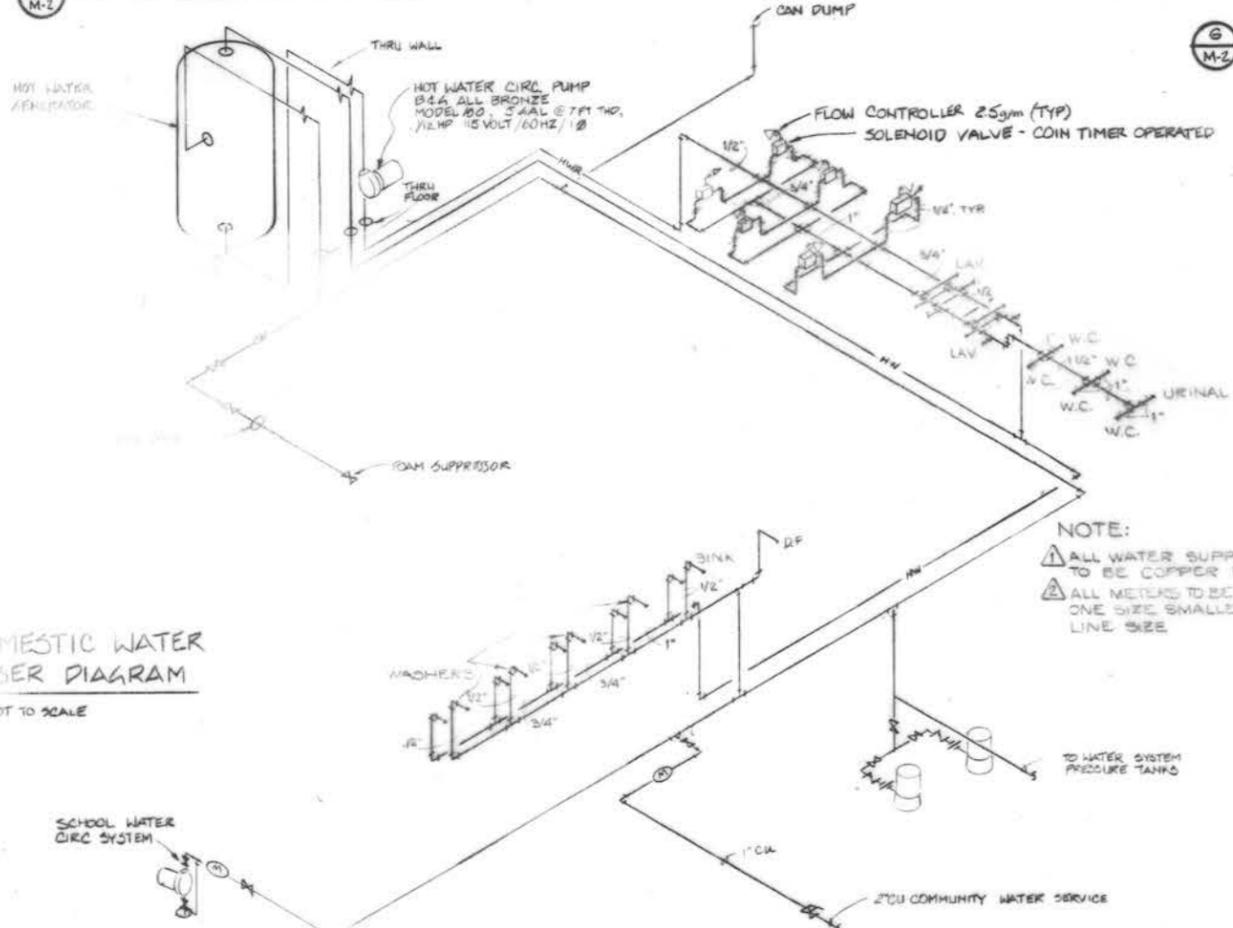
**F WASTE RISER DIAGRAM**  
M-2



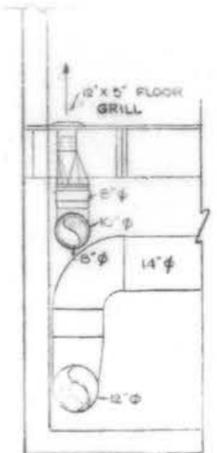
**G FLOOR DRAIN DETAIL**  
M-2



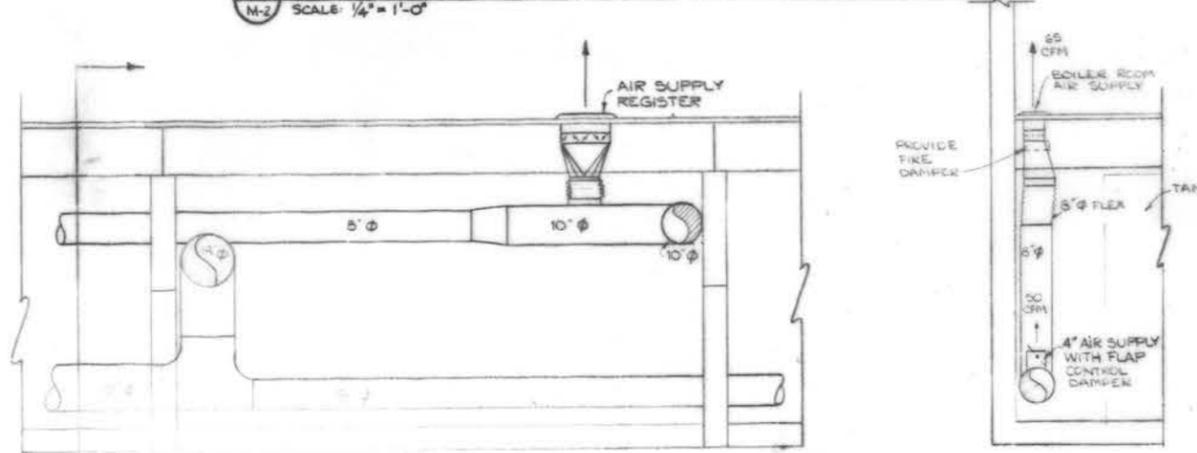
**A LOWER FLOOR SPRINKLERS, DRAINAGE, & DUCT SYSTEM**  
M-2 SCALE: 1/4" = 1'-0"



**DOMESTIC WATER RISER DIAGRAM**  
NOT TO SCALE



**D SECTION**  
M-2



**C SECTION**  
M-2

**B SECTION**  
M-2

**NOTE:**  
 ▲ ALL WATER SUPPLY TO BE COPPER PIPE  
 ▲ ALL METERS TO BE AT LEAST ONE SIZE SMALLER THAN LINE SIZE

**AS-BUILT**



DESIGNED	BY
W.P.R.	
AS-BUILT REVISIONS	
CLC	

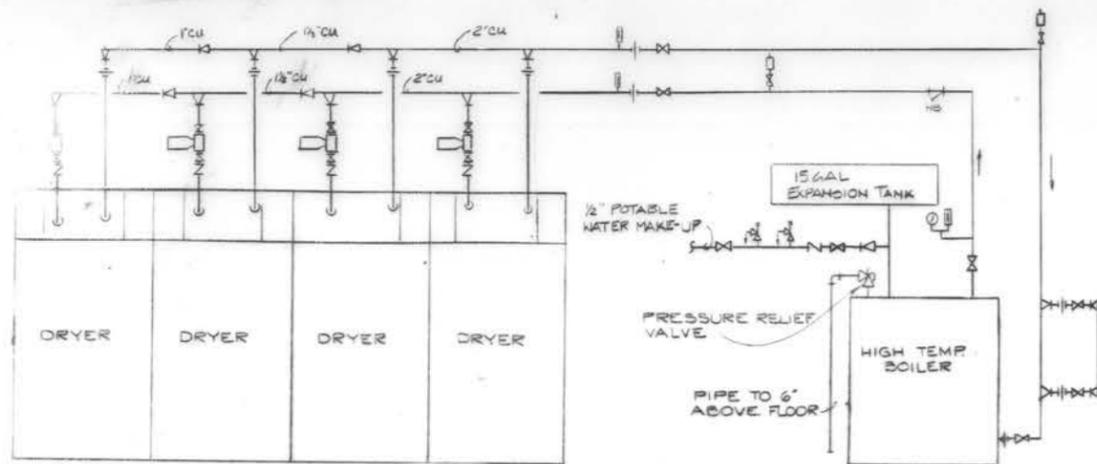
**QUADRA Engineering**

KONGIGANAK VSW  
MECHANICAL DETAILS

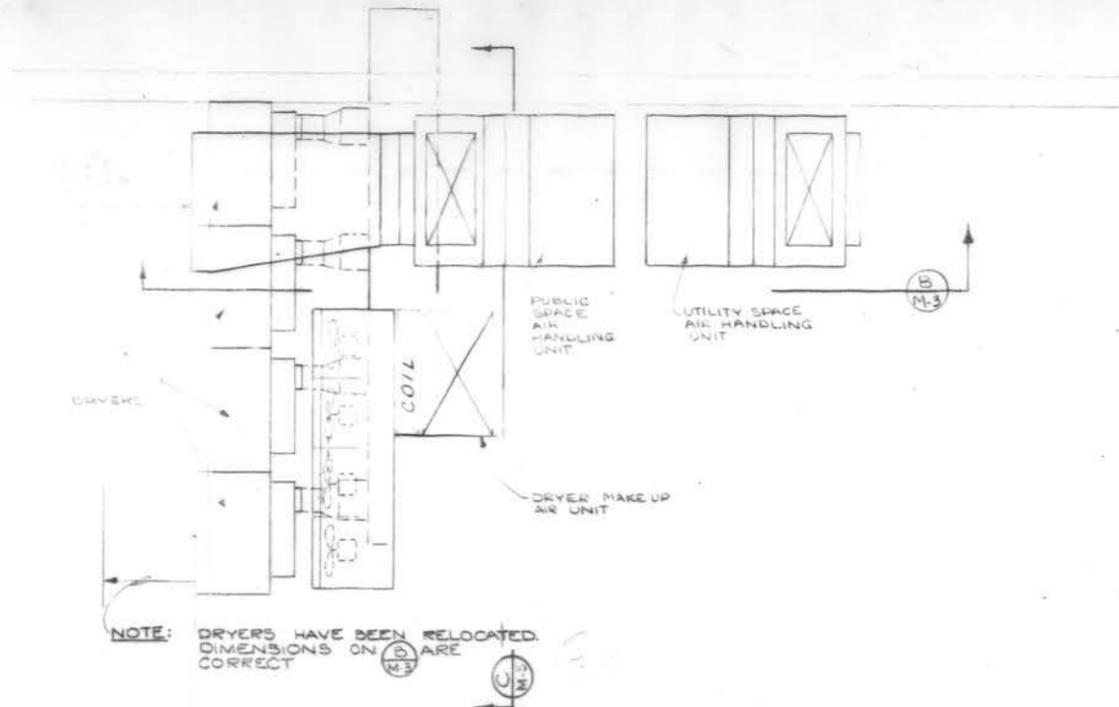
DATE: 7 MAY 19

M-2

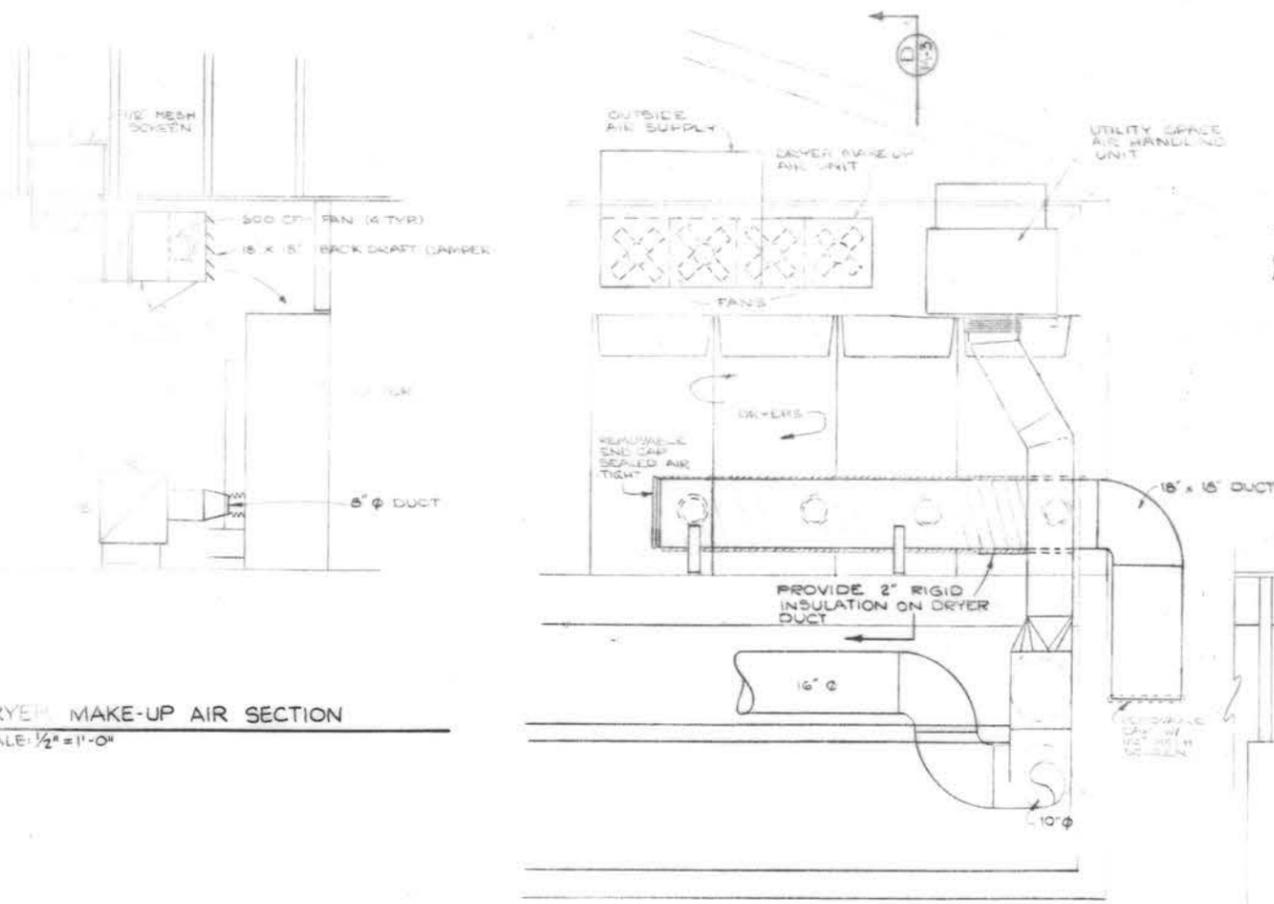
NOTE: LOCATED AIR VENTS AT ALL HIGH POINTS IN SYSTEM



**E HIGH TEMPERATURE HOT WATER PIPING SCHEMATIC**  
M-3 NO SCALE

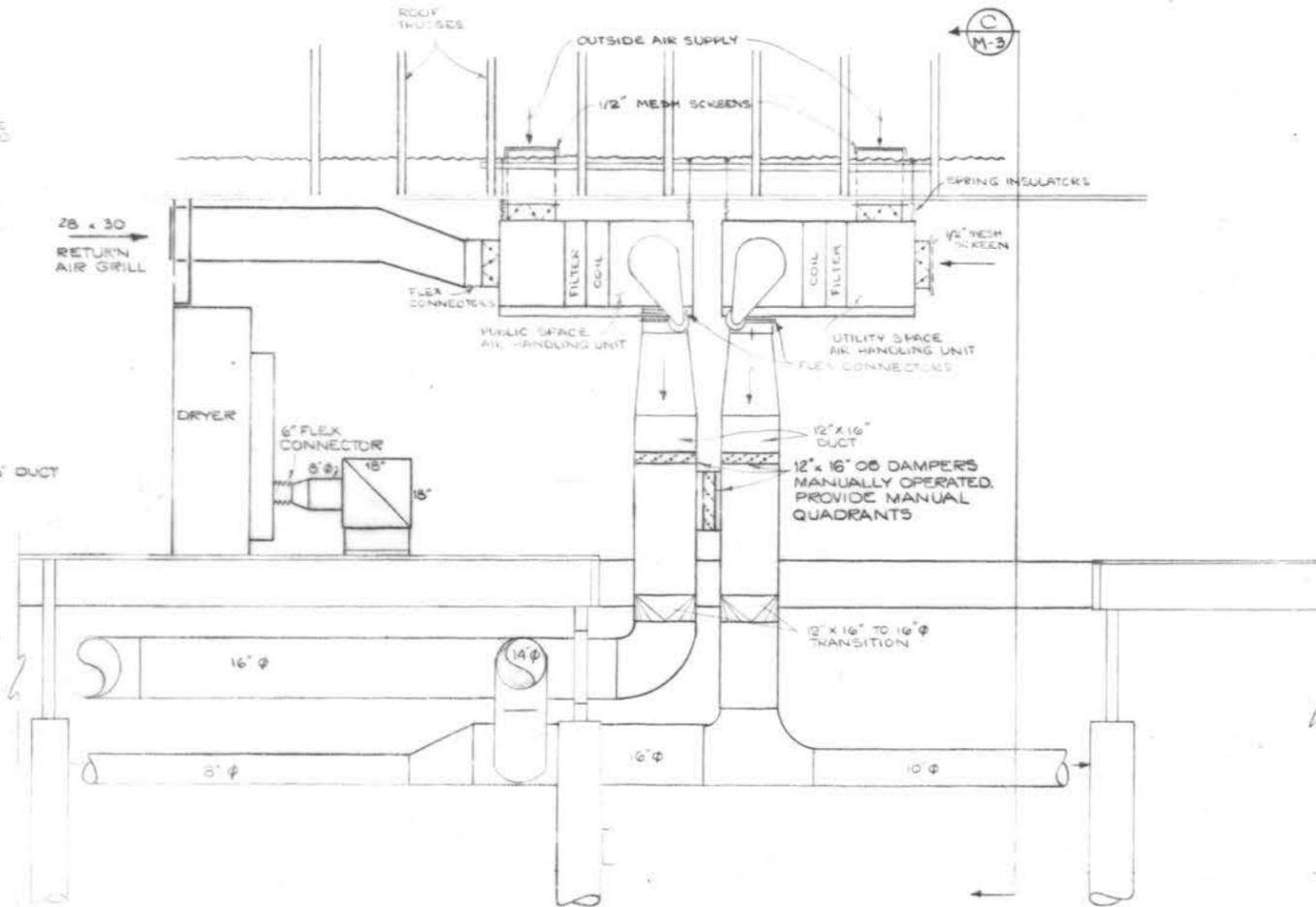


**A AIR HANDLING SYSTEM PLAN**  
M-3 NO SCALE



**D DRYER MAKE-UP AIR SECTION**  
M-3 SCALE: 1/2" = 1'-0"

**C AIR HANDLING SYSTEM SECTION**  
M-3 SCALE: 1/2" = 1'-0"



**B AIR HANDLING SYSTEM ELEVATION**  
M-3 SCALE: 1/2" = 1'-0"

AS-BUILT

BY  
DESIGNED W.D.K.

QUADRA Engineering

KONGIGANAK VSW

DATE: 7 MAY 1977