




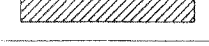


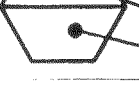












FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(232)	2000	73	84

LEGEND				ABBREVIATIONS			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
	BUTTERFLY VALVE		FLOOR DRAIN	ABV	ABOVE	GPM	GALLONS PER MINUTE
	MOTORIZED BUTTERFLY VALVE		FLOOR SINK	ARCH	ARCHITECTURAL	HB	HOSE BIBB
	CHECK VALVE		EQUIPMENT/MATERIAL TO BE REMOVED	BLDG	BUILDING	HP	HORSEPOWER
	FLEXIBLE CONNECTION			BTUH	BRITISH THERMAL UNITS PER HOUR	HZ	HERTZ
	STRAINER			CONN.	CONNECTION	IN.	INCHES
	EQUIPMENT INDICATOR			CONT	CONTINUATION	LBS	POUNDS
	EQUIPMENT ABBREVIATION			CT	COOLING TOWER	LRA	LOCK ROTOR AMPS
	MARK NUMBER			CWP	CONDENSER WATER PUMP	LWT	LEAVING WATER TEMPERATURE
	DIAMETER, PHASE			CW	COLD WATER	MECH	MECHANICAL
	AT			CWR	CONDENSER WATER RETURN	MIN	MINIMUM
	WASTE PIPING			CWS	CONDENSER WATER SUPPLY	NO.	NUMBER
	VENT PIPING			CFM	CUBIC FEET PER MINUTE	NTS	NOT TO SCALE
	UNION			DIAM	DIAMETER	NPSH	NET POSITIVE SUCTION HEAD
	COLD WATER PIPING			DET	DETAIL	POC	POINT OF CONNECTION
	PIPE UP			DN	DOWN	QTY	QUANTITY
	PIPE DOWN			DWGS.	DRAWINGS	RLA	RATED LOAD AMPERES
				EA	EACH	RM	ROOM
				EAT	ENTERING AIR TEMPERATURE	RPM	REVOLUTIONS PER MINUTE
				EWT	ENTERING WATER TEMPERATURE	SHT	SHEET
				EXH	EXHAUST	TEMP	TEMPERATURE
				EXIST	EXISTING	THK	THICK
				FD	FLOOR DRAIN	TYP	TYPICAL
				FLEX	FLEXIBLE	V	VOLTS
				FIN	FINISH	WB	WET BULB
				FU	FIXTURE UNITS	W/	WITH
						W	WASTE

NOTES

1. VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
2. COORDINATE WORK WITH ALL TRADES. VERIFY FIELD CONDITIONS AFFECTING OR AFFECTED BY THIS INSTALLATION. SHOULD CONFLICTS OCCUR, NOTIFY THE ENGINEER IMMEDIATELY.
3. ESTABLISH EXACT HEIGHT OF PIPE SUPPORT (DET. 1/M-4) BASED ON MEETING POINT OF CONNECTION (POC) TO EXISTING CONDENSER WATER PIPING. SLOPE NEW PIPING DOWN TOWARDS POC.
4. PROVIDE CONTINUOUS STEEL SUPPORT FOR NEW COOLING TOWERS TO REST UPON SUPPORTS PROVIDED BY THE GENERAL CONTRACTOR. IF REQUIRED, INCREASE HEIGHT OF STEEL SUPPORT TO MAINTAIN REQUIRED NPSH FOR EXISTING CONDENSER WATER PUMPS. (SECT B/M-4)
5. PRIOR TO COMMENCEMENT OF ANY WORK, TEST EXISTING CONTROLS TO INSURE THAT ALL EQUIPMENT ARE OPERATING PROPERLY; INTERFACE NEW CONTROLS WITH EXISTING.
6. PROVIDE TEMPORARY STRAINER UPSTREAM OF NEW CIRCUIT SETTERS. AFTER 24 HOUR OPERATION OF EACH CHILLER, REMOVE STRAINER.
7. PROVIDE FIVE (5) DAYS ADVANCE NOTICE TO THE BUILDING ENGINEER FOR ANY WORK REQUIRING SHUTDOWN OF THE AIR CONDITIONING OR WATER SYSTEMS.

BOARD OF WATER SUPPLY NOTES

1. NO CHANGE IN WATER CONSUMPTION. REPLACEMENT OF COOLING TOWERS AND HOSE BIBB IN KIND.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	CHECKED BY	



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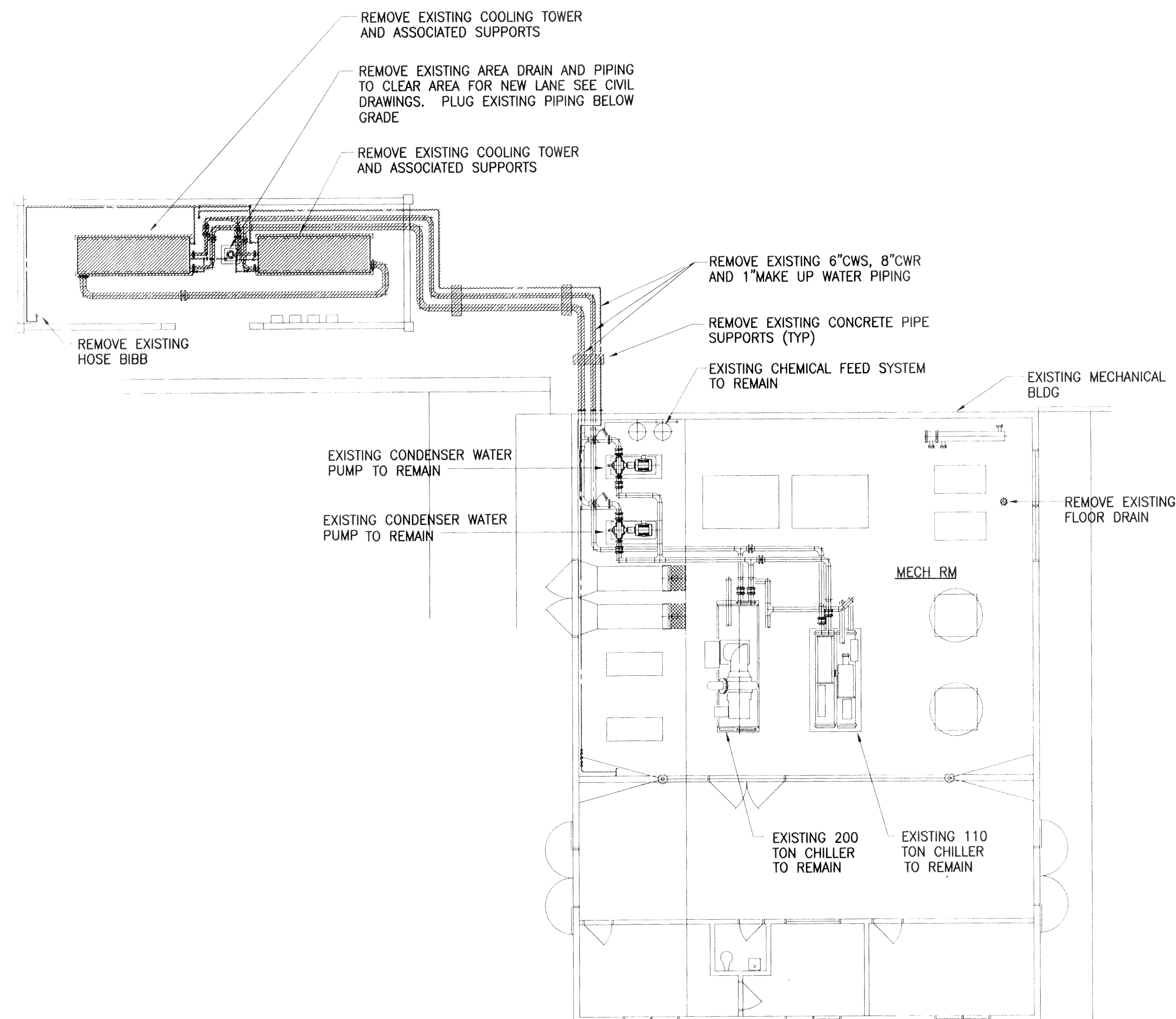
Malcolm Y. Miyashiro
SIGNATURE

DATE

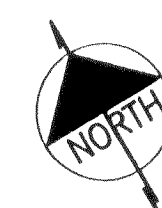
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<u>LEGEND AND ABBREVIATION</u>	
<u>INTERSTATE ROUTE H-1</u> <u>PUNAHOU ST. OFF-RAMP IMPROVEMENTS</u> <u>F.A.I. Proj. No. IM-H1-1(232)</u>	
Scale: None	Date: 4/28/00

SHEET No. M-1 OF 5 SHEETS

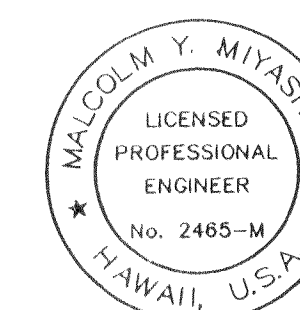
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HAWAII	HAW.	IM-H1-1(232)	2000	74	84



1 MECHANICAL DEMOLITION PLAN
M-2 SCALE: 1/8"=1'-0"



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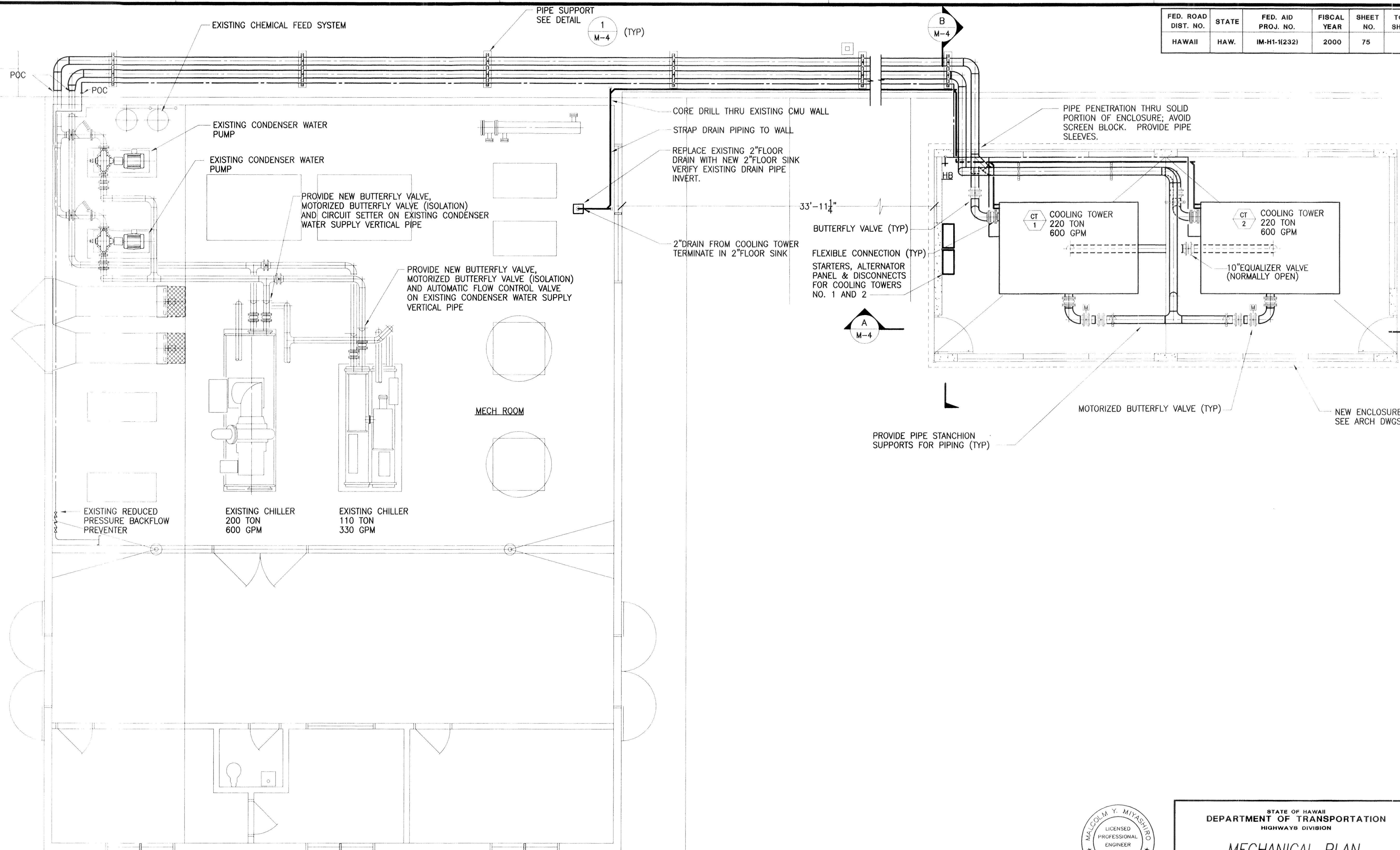
MECHANICAL DEMOLITION PLAN

INTERSTATE ROUTE H-1
PUNAHOU ST. OFF-RAMP IMPROVEMENTS
F.A.I. Proj. No. IM-H1-1(232)

Scale: None Date: 4/28/00

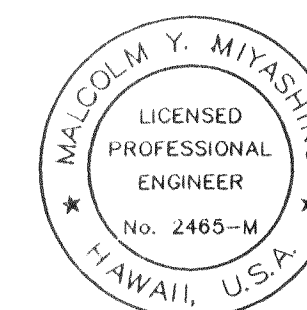
SHEET No. M-2 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(232)	2000	75	84



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	CHECKED BY	
NOTE BOOK	QUANTITIES BY	
	NO.	

1 MECHANICAL PLAN
M-3 SCALE: 1/4"=1'-0"



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Signature: *M. Y. Miyashiro*
DATE

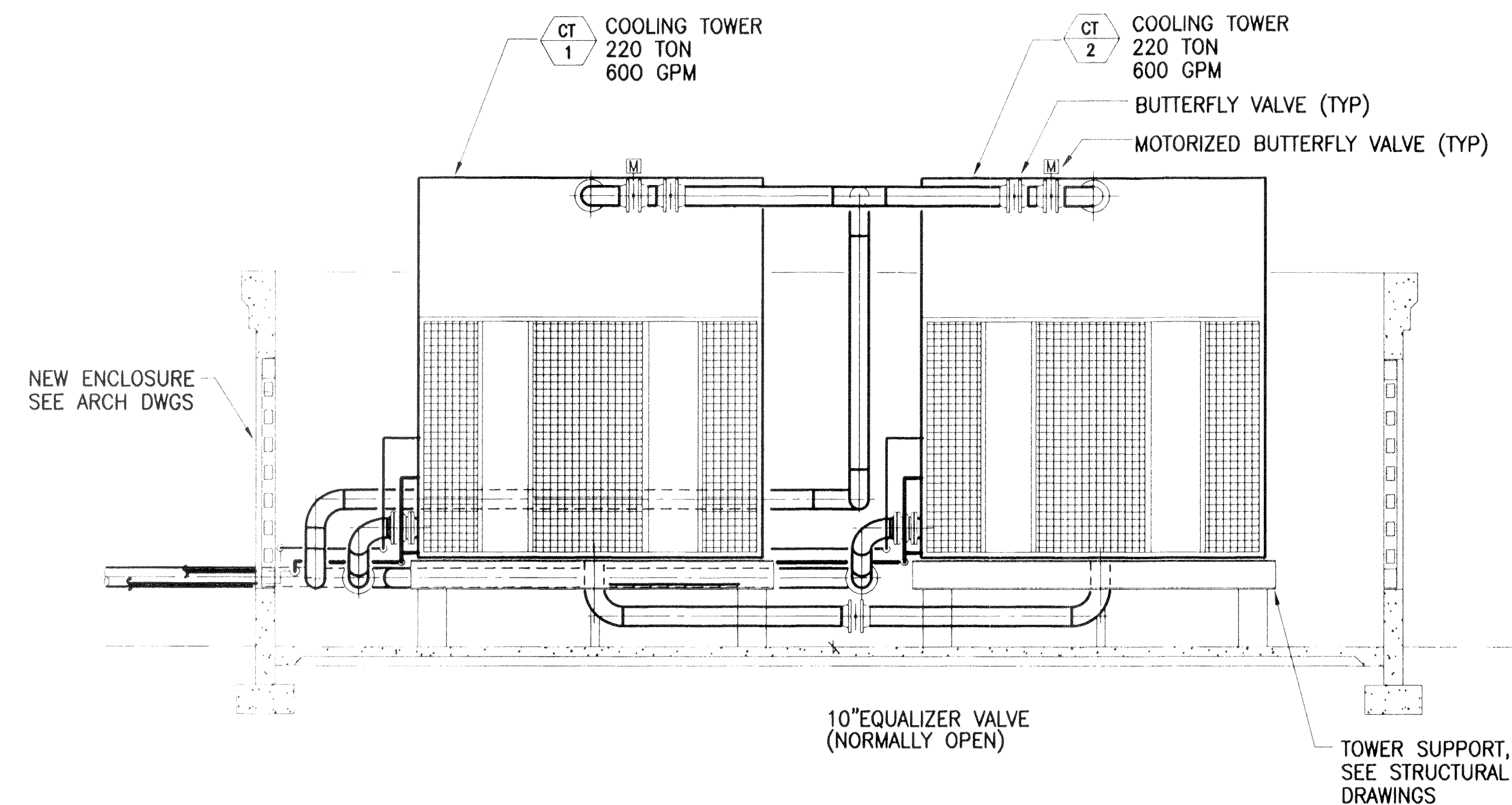
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MECHANICAL PLAN
INTERSTATE ROUTE H-1
PUNAHOU ST. OFF-RAMP IMPROVEMENTS
F.A.I. Proj. No. IM-H1-1(232)

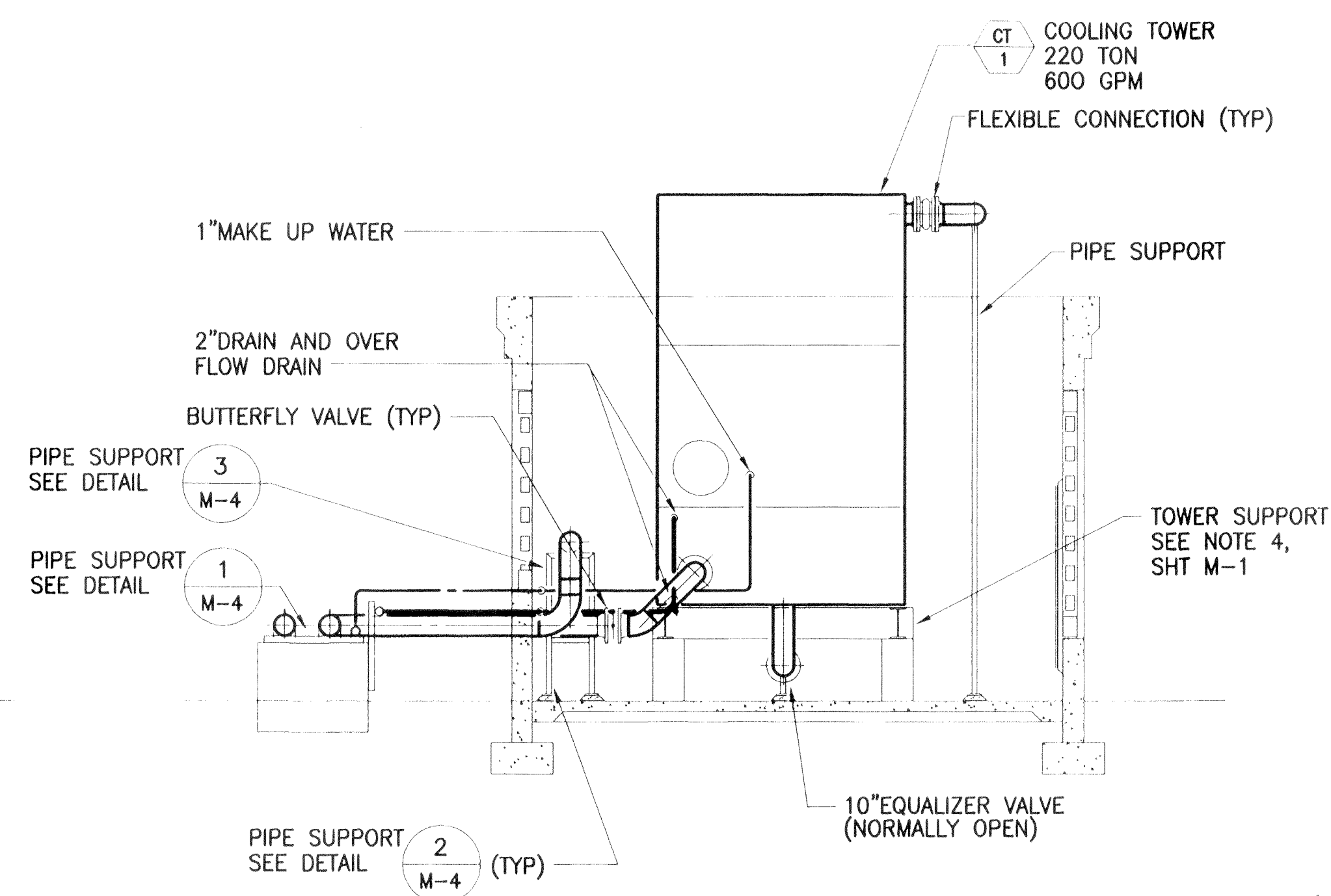
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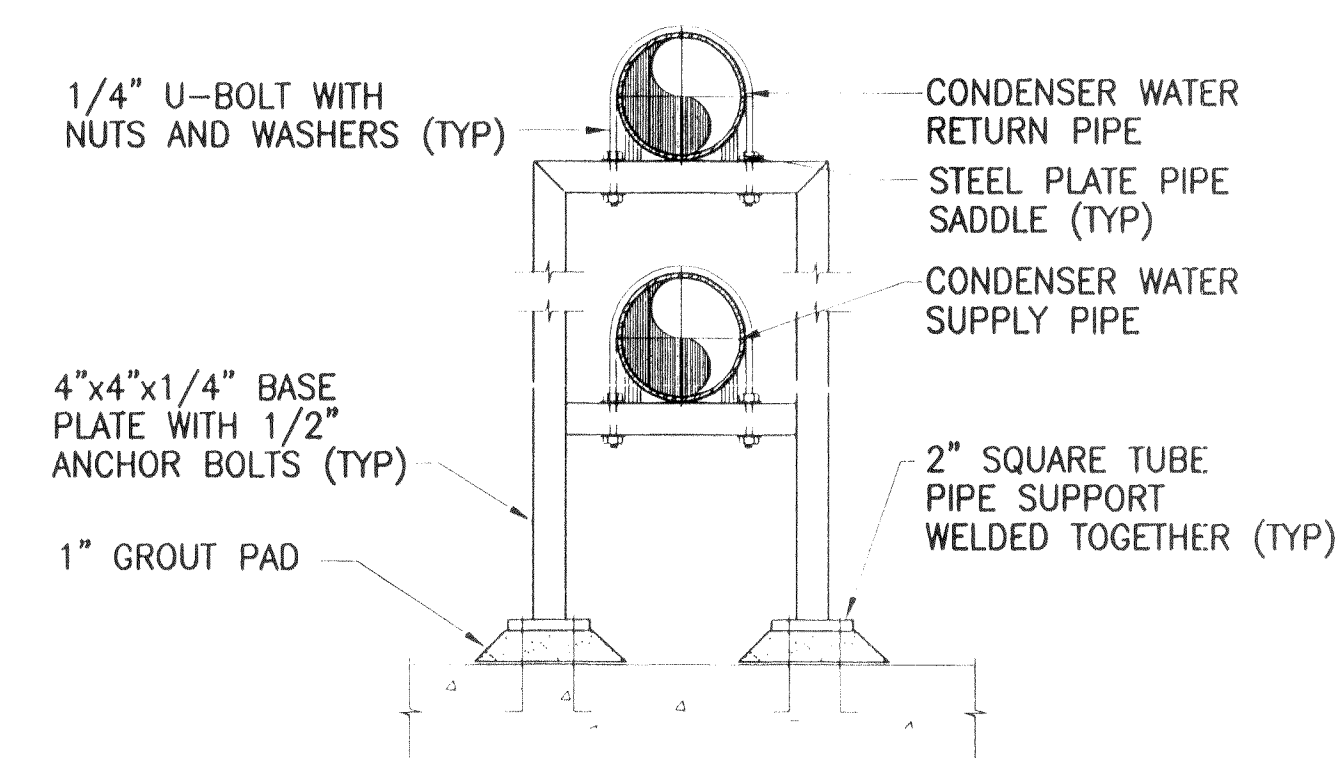
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HAWAII	HAW.	IM-H1-1(232)	2000	76	84



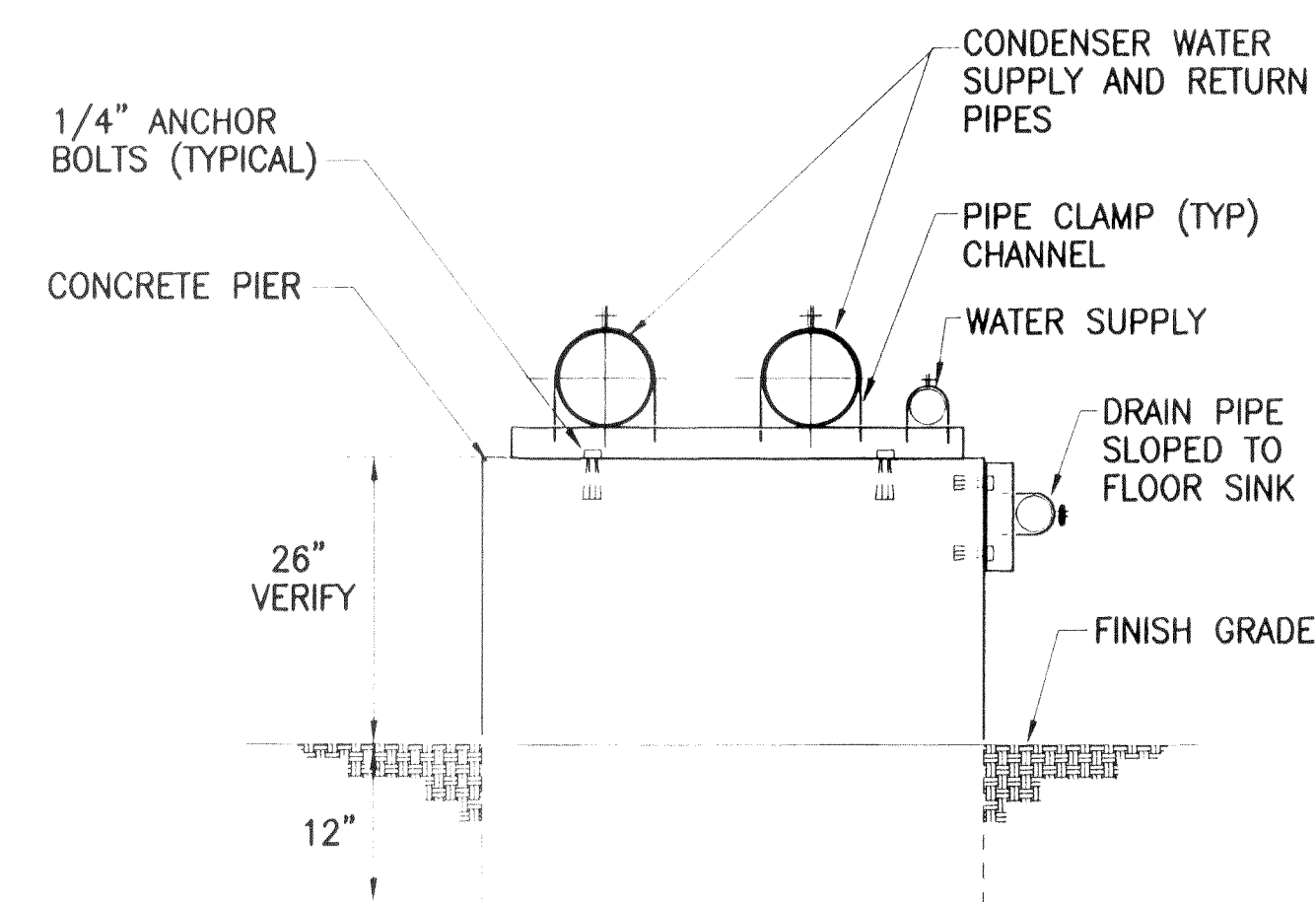
A SECTION
M-4 SCALE: 1/4"=1'-0"



B SECTION
M-4 SCALE: 1/4"=1'-0"

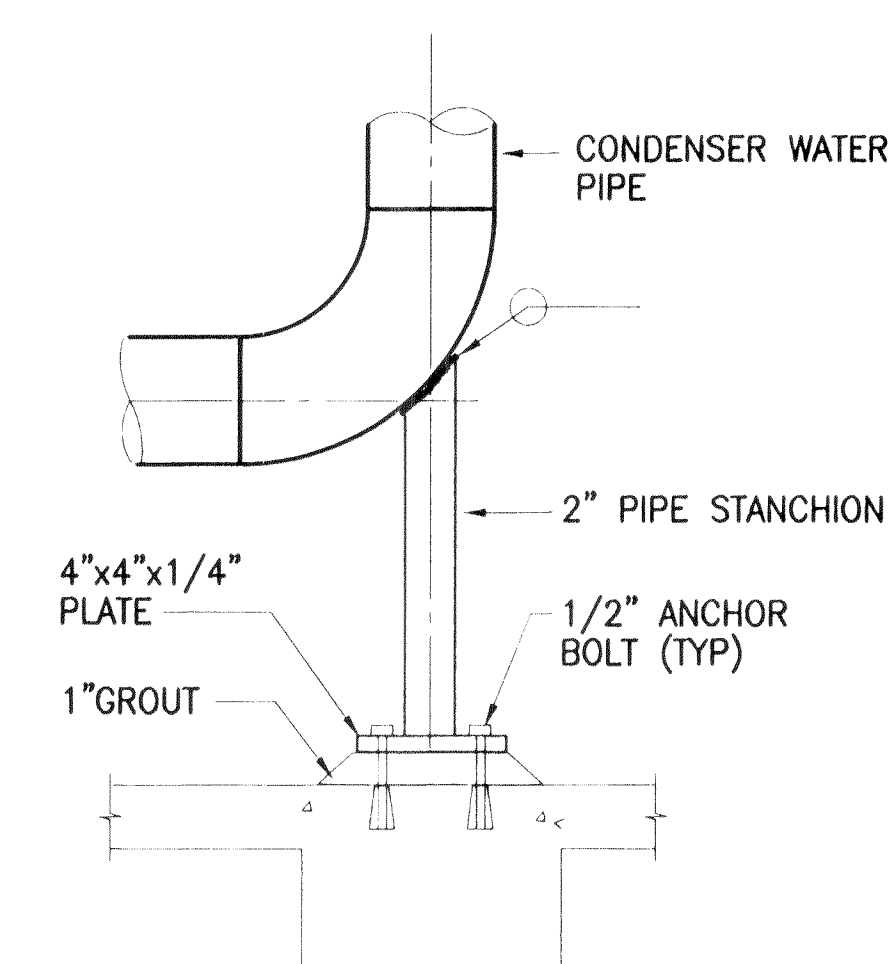


3 PIPE SUPPORT DETAIL
M-4 SCALE: NONE

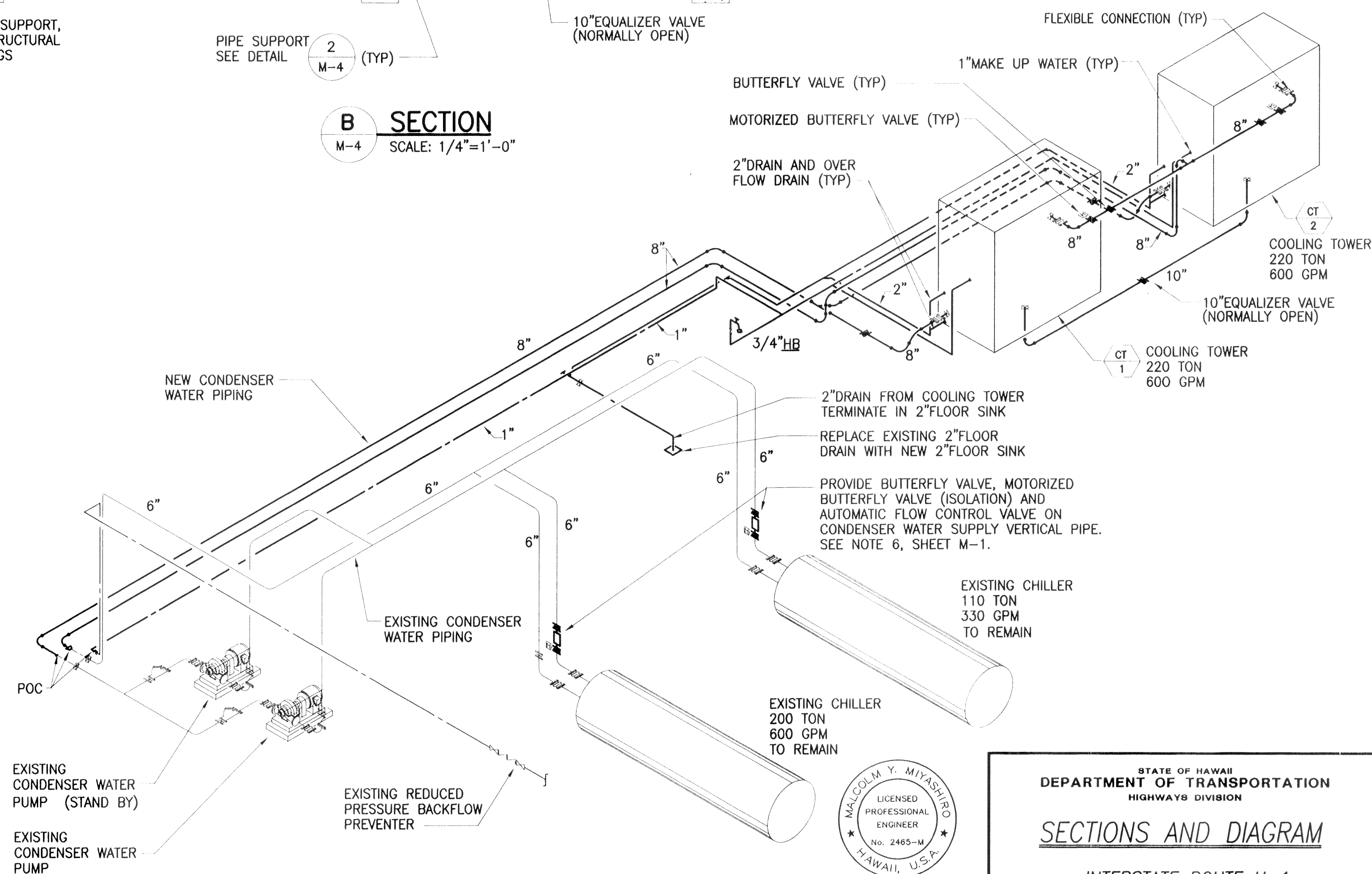


SEE NOTE 3,
SHT M-1

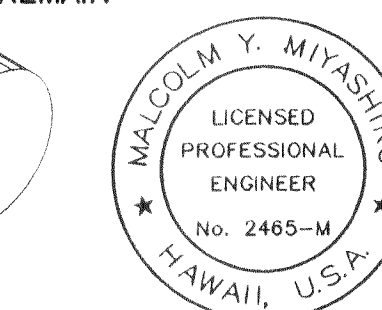
1 PIPE SUPPORT DETAIL
M-4 SCALE: NONE



2 PIPE SUPPORT DETAIL
M-4 SCALE: NONE



4 CHILLED WATER DIAGRAM
M-4 SCALE: NONE



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SECTIONS AND DIAGRAM
INTERSTATE ROUTE H-1
PUNAHOU ST. OFF-RAMP IMPROVEMENTS
F.A.I. Proj. No. IM-H1-1(232)

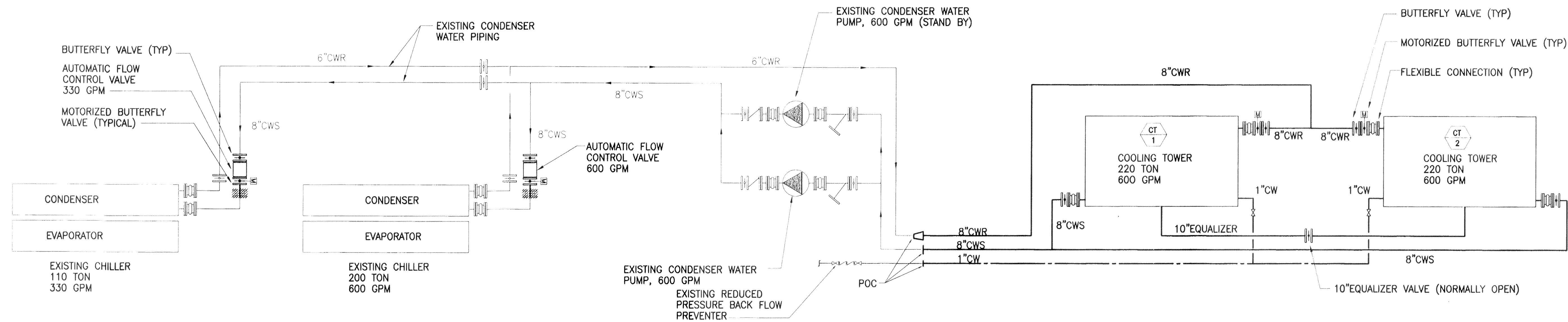
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Date: 4/28/00

SHEET No. M-4 OF 5 SHEETS

EQUIPMENT SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(232)	2000	77	84

COOLING TOWER												
MARK NO.	LOCATION	SERVES	ENTERING AIR TEMP. WB (°F)	EWT (°F)	LWT (°F)	FLOW RATE (GPM)	FAN		MOTOR		UNIT WEIGHT (LBS.)	REMARKS
							NO.	TYPE	AIR FLOW (CFM)	H.P.	V/ø/HZ	
CT 1	OUTDOOR ENCLOSURE	EXISTING CHILLERS	78	95	85	600	1	CENTRIFUGAL	53100	25	480/3/60	FLOW RATE BASED ON EXISTING CONDENSER WATER PUMPS PROVIDE 10 H.P. JOCKEY MOTOR
CT 2	OUTDOOR ENCLOSURE	EXISTING CHILLERS	78	95	85	600	1	CENTRIFUGAL	53100	25	480/3/60	FLOW RATE BASED ON EXISTING CONDENSER WATER PUMPS PROVIDE 10 H.P. JOCKEY MOTOR

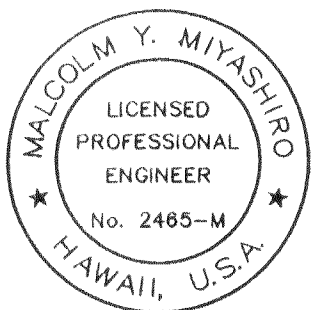


1 CONDENSER WATER FLOW DIAGRAM
M-5 SCALE: NONE

SEQUENCE OF OPERATION

1. COOLING TOWERS SYSTEM DESIGN IS BASED ON NON-SIMULTANEOUS OPERATION OF THE TWO TOWERS.
2. ALL NEW CONTROLS SHALL BE COMPATIBLE WITH AND INTERCONNECTED TO EXISTING SYSTEM CONTROLS. EXISTING CONTROLS SHALL BE MAINTAINED EXCEPT AS MODIFIED UNDER THIS PROJECT.
3. OPERATION OF NEW MOTORIZED BUTTERFLY VALVE INSTALLED AT EACH EXISTING CHILLER SHALL BE INTERLOCKED WITH OPERATION OF EACH RESPECTIVE CHILLER. VALVE SHALL OPEN UPON START-UP OF CHILLER AND CLOSE UPON SHUTDOWN OF CHILLER.
4. OPERATION OF NEW COOLING TOWERS SHALL BE CONTROLLED IN THE SAME WAY AS EXISTING TOWERS EXCEPT THAT NEW TOWERS SHALL BE PROVIDED WITH ALTERNATOR PANEL TO AUTOMATICALLY SEQUENCE SINGULAR OPERATION OF TOWERS AND CORRESPONDING MOTORIZED BUTTERFLY VALVES. VALVE SHALL OPEN UPON START-UP OF TOWER AND CLOSE UPON SHUTDOWN OF TOWER.

SURVEY PLOTTED BY	DATE
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CONDENSER WATER FLOW DIAGRAM

INTERSTATE ROUTE H-1
PUNAHOU ST. OFF-RAMP IMPROVEMENTS
F.A.I. Proj. No. IM-H1-1(232)

Scale: None Date: 4/28/00

SHEET No. M-5 OF 5 SHEETS