CHABOT-LAS POSITAS COMMUNITY COLLEGE DISTRICT
PURCHASING DEPARTMENT

April 20, 2022

Addendum No. 03
INVITATION TO BID.: B21/22-10
Boiler Removal & Replacement Chabot College

To: All Prospective Bidders

This **Addendum Three (3)** is issued to incorporate the following changes, additions or deletions to the **IFB (B21/22-10).** Any modifications/changes made by this addendum affect only the portions or paragraphs specifically identified herein; all remaining portions of the **IFB (B21/22-10)** to remain in force. It is the responsibility of all responders to conform to this addendum.

A. ADDITIONS, CHANGES AND/OR CLARIFICATIONS:

CLARIFICATIONS: Please see attached As Built documents for the Central Utility Plant at Chabot College.

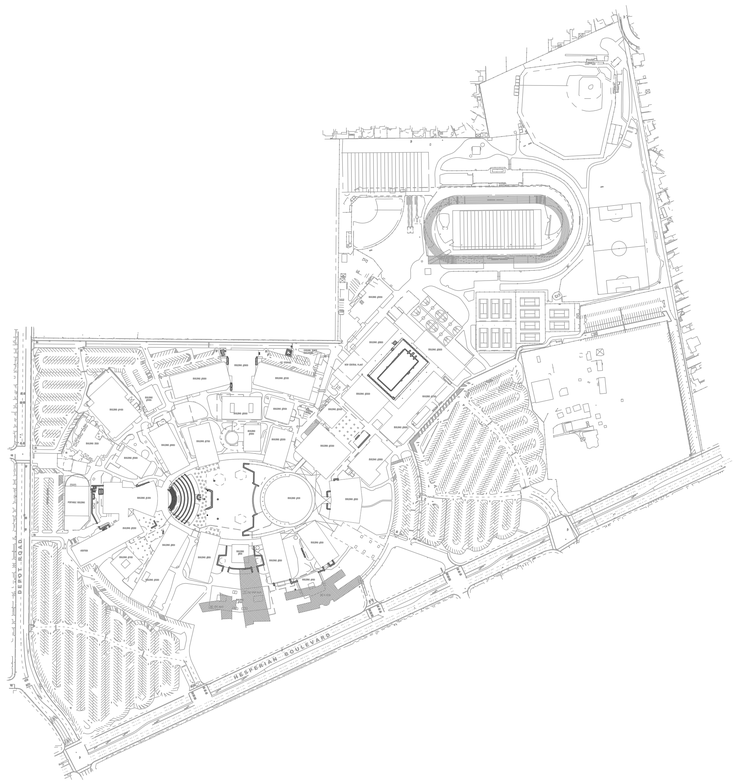
All other terms and conditions remain unchanged.

Michael McClung - Buyer, Purchasing and Warehouse Services
Chabot-Las Positas Community College District

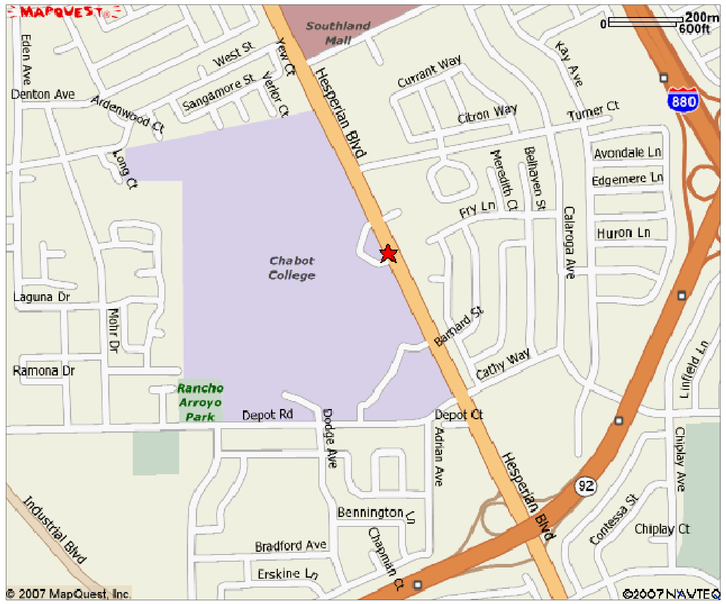
SITE UNDERGROUND UTILITY PIPING PROJECT
CHABOT COMMUNITY COLLEGE
CHABOT - LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BOULEVARD
HAYWARD, CA 94545

SITE PLAN



LOCAL MAP



DRAWING SHEET INDEX

DWG ##	DRAWING DESCRIPTION	DRAWING SET ISSUE # 50%CD	90%CD	IFC	as-built
M0.00	PROJECT COVER SHEET AND DRAWING SHEET INDEX	N	N	N	R
M0.01	LEGENDS, ABBREVIATIONS AND PROJECT NOTES	N	N	R	R
M0.02	MECHANICAL SPECIFICATIONS	N	N	R	R
M0.03	MECHANICAL DETAILS	N	R	R	R
MH.03	MECHANICAL SCHEDULES				R
MH.04	MECHANICAL SCHEDULES				R
C1U.0	CIVIL – OVERALL SITE PLAN	–	N	R	R
C1U.1	CIVIL – PARTIAL SITE PLAN	–	N	R	R
C1U.2	CIVIL – PARTIAL SITE PLAN	–	N	R	R
C1U.3	CIVIL – PARTIAL SITE PLAN	–	N	R	R
C1U.4	CIVIL – PARTIAL SITE PLAN	–	N	R	R
C1U.5	CIVIL – PARTIAL SITE PLAN	–	N	R	R
C2U.0	CIVIL CONSTRUCTION DETAILS	N	R	R	R
MP1U.0	HYDRONIC PIPING – OVERALL SITE PLAN	N	R	R	R
MP1U.1	HYDRONIC PIPING –PARTIAL SITE PLAN	N	R	R	R
MP1U.2	HYDRONIC PIPING –PARTIAL SITE PLAN	N	R	R	R
MP1U.3	HYDRONIC PIPING –PARTIAL SITE PLAN	N	R	R	R
MP1U.4	HYDRONIC PIPING –PARTIAL SITE PLAN	N	R	R	R
MP1U.5	HYDRONIC PIPING –PARTIAL SITE PLAN	N	R	R	R
MP4.1	BUILDING 2800 ENLARGED PARTIAL MECHANICAL PIPING FLOOR PLAN				R
MP4.3	ENLARGED PARTIAL MECHANICAL YARD PLAN				R
MP5.1	HOT WATER PIPING DIAGRAM				R
MP5.2	CONDENSER WATER PIPING DIAGRAM				R
MP5.3	CHILLED WATER PIPING DIAGRAM–PRIMARY				R
MP5.4	CHILLED WATER PIPING DIAGRAM–SECONDARY				R
P1U.0	UNDERGROUND PLUMBING PIPING – OVERALL SITE PLAN	N	R	R	R
P1U.1	UNDERGROUND PLUMBING PIPING – PARTIAL SITE PLAN	N	R	R	R
P1U.2	UNDERGROUND PLUMBING PIPING – PARTIAL SITE PLAN	N	R	R	R
P1U.3	UNDERGROUND PLUMBING PIPING – PARTIAL SITE PLAN	N	R	R	R
P1U.4	UNDERGROUND PLUMBING PIPING – PARTIAL SITE PLAN	N	R	R	R
P1U.5	UNDERGROUND PLUMBING PIPING – PARTIAL SITE PLAN	N	R	R	R
P1U.6	UNDERGROUND PLUMBING PIPING – PARTIAL SITE PLAN	N	R	R	R
P1.4.1	BUILDING 2800 ENLARGED PARTIAL PLUMBING UNDERGROUND PLAN				R
P1.4.2	ENLARGED PARTIAL PLUMBING UNDERGROUND YARD PLAN				R
P1.4.3	BUILDING 2800 ENLARGED PARTIAL PLUMBING FLOOR PLAN				
P1.4.4	BUILDING 2800 ENLARGED PARTIAL PLUMBING ROOF PLAN				
EU0.1	SYMBOLS AND ABBREVIATIONS	N	–	R	R
EU1.0	OVERALL SITE PLAN – ELECTRICAL	N	–	R	R
EU1.1	PART SITE PLAN – ELECTRICAL UNDERGROUND	N	–	R	R
EU1.2	PART SITE PLAN – ELECTRICAL UNDERGROUND	N	–	R	R
EU1.3	PART SITE PLAN – ELECTRICAL UNDERGROUND	N	–	R	R
EU1.4	PART SITE PLAN – ELECTRICAL UNDERGROUND	N	–	R	R
EU1.5	PART SITE PLAN – ELECTRICAL UNDERGROUND	N	–	R	R
EU2.0	ELECTRICAL DETAILS	N	–	R	R

LEGEND:
– DRAWING IS NOT INCLUDED IN THIS SET
R DRAWING INCLUDED IN THIS SET, DRAWING HAS BEEN CHANGED FOR THIS ISSUE
N DRAWING INCLUDED IN THIS SET, DRAWING HAS NOT BEEN CHANGED FOR THIS ISSUE

PROJECT TEAM

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REGISTERED PROFESSIONAL ENGINEER LINCOLN M. SAKAI NO. 33025 Exp. 06-30-09 MECHANICAL STATE OF CALIFORNIA

REVISIONS

NO.	DESCRIPTION	DATE
–	50% CONSTRUCTION DOCUMENTS	08/31/07
–	90% CONSTRUCTION DOCUMENTS	09/21/07
–	ISSUED FOR CONSTRUCTION	11/05/07
–	AS-BUILT	03/06/09

KEY PLAN

PROJECT TITLE
CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE
PROJECT COVER SHEET AND DRAWING SHEET INDEX

DRAWN BY | CHECKED BY

PROJECT NO. 5617065
UNIT
SHEET NO. M0.00
SCALE: NONE
DATE 04-16-2007

HVAC LEGEND

SYMBOL	ABBREV	DESCRIPTION	SYMBOL	ABBREV	DESCRIPTION
CWS	CWS	CONDENSER WATER SUPPLY		_"x_"(X'-L")	LINED DUCT (INSIDE CLEAR SIZE SHOWN)
CWR	CWR	CONDENSER WATER RETURN		——	DUCT UP
CHWS	CHWS	CHILLED WATER SUPPLY		——	DUCT DOWN
CHWR	CHWR	CHILLED WATER RETURN		——	DUCT SECTION (SUPPLY)
MCHWS	MCHWS	MEDIUM TEMP CHILLED WATER SUPPLY		——	DUCT SECTION (RETURN OR OSA)
MCHWR	MCHWR	MEDIUM TEMP CHILLED WATER RETURN		——	DUCT SECTION (EXHAUST)
HWS	HWS	HEATING HOT WATER SUPPLY		——	POINT OF STATIC PRESSURE CHANGE
HWR	HWR	HEATING HOT WATER RETURN		CD	CEILING DIFFUSER
RL	RL	REFRIGERANT LIQUID		RR	RETURN REGISTER (CEILING MOUNTED)
RS	RS	REFRIGERANT SUCTION		RG	RETURN GRILLE (CEILING MOUNTED)
HG	HG	REFRIGERANT HOT GAS		ER	EXHAUST REGISTER (CEILING MOUNTED)
LPS	LPS	LOW-PRESSURE STEAM		EG	EXHAUST GRILLE (CEILING MOUNTED)
HPS	HPS	HIGH-PRESSURE STEAM		SR	SIDEWALL SUPPLY REGISTER
PCR	PCR	PUMPED CONDENSATE RETURN		SG	SIDEWALL SUPPLY GRILLE
GCR	GCR	GRAVITY CONDENSATE RETURN		RR	SIDEWALL RETURN REGISTER
BFW	BFW	BOILER FEED WATER		RG	SIDEWALL RETURN GRILLE
BLDN	BLDN	BOILER BLOWDOWN		ER	SIDEWALL EXHAUST REGISTER
CD	CD	CONDENSATE DRAIN		EG	SIDEWALL EXHAUST GRILLE
D	D	DRAIN		TG	TRANSFER GRILLE
SCW	SCW	SOFT COLD WATER		VD	MANUAL VOLUME DAMPER
ICW	ICW	INDUSTRIAL COLD WATER		MD	MOTORIZED VOLUME DAMPER
IHW	IHW	INDUSTRIAL HOT WATER		FD	FIRE DAMPER
PCW	PCW	PROCESS COOLING WATER		F/SD	FIRE/SMOKE DAMPER
RO	RO	REVERSE OSMOSIS WATER		SD	SMOKE DETECTOR
DI	DI	DEIONIZED WATER		FLEX CONN	FLEXIBLE CONNECTION
GS	GS	GLYCOL SUPPLY		AD	ACCESS DOOR
GR	GR	GLYCOL RETURN		AP	ACCESS PANEL
CFS	CFS	CHEMICAL FEED SYSTEM		T'STAT	THERMOSTAT
AV	AV	ATMOSPHERIC VENT		H'STAT	HUMIDISTAT
RV	RV	RELIEF VENT		——	SWITCH
FOS	FOS	FUEL OIL SUPPLY		D/L	DOOR LOUVER
FOR	FOR	FUEL OIL RETURN		U/C	DOOR UNDERCUT
NG	NG	NATURAL GAS		——	MOTOR LOCATION
				——	HEPA OR ULPA FILTER (NON-DUCTED)
				——	HEPA OR ULPA FILTER (DUCTED)
——	——	BUTTERFLY VALVE		——	HEPA OR ULPA FILTER W/LIGHT (DUCTED)
——	——	BALL VALVE	EQUIP TAG	FFU	FAN FILTER UNIT
——	——	GATE VALVE			
——	——	GLOBE VALVE			
——	——	PLUG VALVE			
——	——	CHECK VALVE			
——	——	CONTROL VALVE, ELECTRIC			
——	——	CONTROL VALVE, PNEUMATIC			
——	——	BUTTERFLY VALVE, MOTOR OPERATED			
——	——	SOLENOID VALVE			
——	PSV	PRESSURE RELIEF VALVE			
——	PRV	PRESSURE REGULATING VALVE			
——	PRV	PRV (SELF CONTAINED)			
——	——	STRAINER			
——	——	UNION			
——	——	CONCENTRIC REDUCER (OR INCREASER)			
——	——	ECCENTRIC REDUCER (OR INCREASER)			
——	——	PIPE ELBOW TURNED UP			
——	——	PIPE ELBOW TURNED DOWN			
——	——	PIPE TEE, BRANCH OUTLET UP			
——	——	PIPE TEE, BRANCH OUTLET DOWN			
——	——	CAP			
——	——	BLIND FLANGE			
——	——	FLANGED JOINT			
——	——	GROOVED JOINT			
——	——	ANCHOR			
——	——	ALIGNMENT GUIDE			
——	FLEX CONN	FLEXIBLE CONNECTION (METALLIC)			
——	FLEX CONN	FLEXIBLE CONNECTION (NEOPRENE)			
——	PG	PRESSURE GAUGE			
——	THERM	THERMOMETER			
——	AV	AUTOMATIC AIR VENT			
——	MV	MANUAL AIR VENT			
——	——	PRESS/TEMP PORT (PETE'S PLUG)			
——	FS	FLOW SWITCH (DIFFERENTIAL PRESSURE)			

ABBREVIATIONS

ABBREV	DESCRIPTION	ABBREV	DESCRIPTION
ABV	ABOVE	OC	ON CENTER
AFF	ABOVE FINISHED FLOOR	ODP	OPEN DRIP PROOF
AD	ACCESS DOOR	OBD	OPPOSED BLADE DAMPER
AP	ACCESS PANEL	OSA	OUTSIDE AIR
ACH	AIR CHANGES PER HOUR	OD	OUTSIDE DIAMETER OR DIMENSION
AC OR A/C	AIR CONDITIONING	OPD	OVERCURRENT PROTECTIVE DEVICE
AFS	AIR FLOW MEASUREMENT STATION	O2	OXYGEN GAS
AHU	AIR HANDLING UNIT		
AS	AIR SEPARATOR	PPM	PARTS PER MILLION
AMB	AMBIENT	PH	PHASE
AMPS	AMPERES	PC	PLUMBING CONTRACTOR
Ar	ARGON	PC	PUMPED CONDENSATE
ATM	ATMOSPHERE, ATMOSPHERIC	POC	POINT OF CONNECTION
AV	AUTOMATIC AIR VENT	PPP	POLYPROPYLENE PIPE
AUX	AUXILIARY	PVC	POLYVINYL CHLORIDE
		PVDF	POLYVINYLIDENE FLUORIDE
BDD	BACKDRAFT DAMPER	POS	POSITION
BG	BLAST GATE	PSI	POUNDS PER SQUARE INCH
BF	BOTTOM FLAT, BLIND FLANGE	PRESS	PRESSURE
BOD	BOTTOM OF DUCT	ΔP	PRESSURE CHANGE
BOP	BOTTOM OF PIPE	PCV	PRESSURE CONTROL VALVE
BHP	BRAKE HORSEPOWER	PG	PRESSURE GAGE
BTU	BRITISH THERMAL UNIT	PRS	PRESSURE REDUCING STATION
BTUH	BRITISH THERMAL UNIT PER HOUR	PRV	PRESSURE REGULATING VALVE
BLDG	BUILDING	PCHW	PRIMARY CHILLED WATER
CAP	CAPACITY	RAU	RECIRCULATION AIR UNIT
CLG	CEILING	RDE	RECOMMENDED DUAL ELEMENT FUSE
CD	CEILING DIFFUSER	RL	REFRIGERANT LIQUID
CHW	CHILLED WATER	RS	REFRIGERANT SUCTION
CIRC	CIRCUIT	RHC	REHEAT COIL
CB	CIRCUIT BREAKER	RH	RELATIVE HUMIDITY
CDA	CLEAN DRY AIR	(R)	RELOCATED
COP	COEFFICIENT OF PERFORMANCE	REQ'D	REQUIRED
CONC	CONCRETE	RA	RETURN AIR
COND	CONDENSATE (STEAM)	RG	RETURN GRILLE
CD	CONDENSATE DRAIN (A/C)	RR	RETURN REGISTER
CW	CONDENSER WATER	RO	REVERSE OSMOSIS
CV	CONSTANT VOLUME	RPM	REVOLUTIONS PER MINUTE
CP	CONTROL PANEL	RM	ROOM
CFM OR €	CUBIC FEET PER MINUTE	RLA	RUNNING LOAD AMPS
°C	DEGREE CELSIUS	SI	INTERNATIONAL SYSTEM OF UNITS
°F	DEGREE FAHRENHEIT	SCHED	SCHEDULE
DI	DEIONIZED	SCE	SCRUBBED EXHAUST
DP	DIFFERENTIAL PRESSURE	SC	SCRUBBER
DDC	DIRECT DIGITAL CONTROL	SCHW	SECONDARY CHILLED WATER
DISCH	DISCHARGE	SHT	SHEET
DS	DISCONNECT SWITCH	SD	SMOKE DETECTOR, SMOKE DAMPER
DCW	DOMESTIC (POTABLE) COLD WATER	SE	SOLVENT EXHAUST
D/L	DOOR LOUVER	SA	SOUND ATTENUATOR
DN	DOWN	S/S	STAINLESS STEEL
DR	DRAIN	SP	STATIC PRESSURE
DWG	DRAWING	STM	STEAM
DB	DRY BULB TEMPERATURE	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
EFF	EFFICIENCY	SA	SUPPLY AIR
EGC	EGGCRATE GRILLE	SG	SUPPLY GRILLE
EDH	ELECTRIC DUCT HEATER	SR	SUPPLY REGISTER
EC	ELECTRICAL CONTRACTOR		
ELEV	ELEVATION	TU	TERMINAL UNIT
EER	ENERGY EFFICIENCY RATIO	THERM	THERMOMETER
EAT	ENTERING AIR TEMPERTURE	T'STAT	THERMOSTAT
EWT	ENTERING WATER TEMPERATUE	TF	TOP FLAT
EQUIP	EQUIPMENT	TDH	TOTAL DYNAMIC HEAD
ECW	EQUIPMENT COOLING WATER	TP	TOTAL PRESSURE
EVAP	EVAPORATIVE	TSP	TOTAL STATIC PRESSURE
EA	EXHAUST AIR	TG	TRANSFER GRILLE
EG	EXHAUST GRILLE	TYP	TYPICAL
ER	EXHAUST REGISTER		
(E) or E	EXISTING	U/C	UNDERCUT
ESP	EXTERNAL STATIC PRESSURE	UNO	UNLESS NOTED OTHERWISE
		UTR	UP THRU ROOF
FCU	FAN COIL UNIT		
FT	FEET	VD	MANUAL VOLUME DAMPER
FPM	FEET PER MINUTE	VAV	VARIABLE AIR VOLUME
FRP	FIBERGLASS REINFORCED PLASTIC	VTR	VENT THROUGH ROOF
FD	FIRE DAMPER	VERT	VERTICAL
F/LS	FIRE/LIFE SAFETY	V	VOLTS
F/SD	FIRE/SMOKE DAMPER	VAC	VOLTS ALTERNATING CURRENT
FLR	FLOOR	VDC	VOLTS DIRECT CURRENT
FD	FLOOR DRAIN		
FS	FLOOR SINK	WC	WATER CLOSET
FLA	FULL LOAD AMPS	W	WATTS
FE	FUME EXHAUST	WPDS	WEATHERPROOF DISCONNECT SWITCH
(F) or F	FUTURE	WGT	WEIGHT
		WB	WET BULB TEMPERATURE
GPH	GALLONS PER HOUR	WSA	WIRE SIZING AMPS
GPM	GALLONS PER MINUTE	W/	WITH
GC	GENERAL CONTRACTOR	W/O	WITHOUT
HX	HEAT EXCHANGER	X'MER	TRANSFORMER
HE	HEAT EXHAUST		
HTG	HEATING		
HW	HEATING HOT WATER		
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING		
HZ	HERTZ		
HPC	HIGH-PRESSURE CONDENSATE		
HPS	HIGH-PRESSURE STEAM		
HORIZ	HORIZONTAL		
HP	HORSEPOWER		
HV	HOUSEKEEPING VACUUM		
H'STAT	HUMIDISTAT		
H_2	HYDROGEN GAS		
HG	REFRIGERANT HOT GAS		
IN	INCHES		
ICW	INDUSTRIAL COLD WATER		
IHW	INDUSTRIAL HOT WATER		
ID	INSIDE DIAMETER OR DIMENSION		
KV	KILOVOLTS		
KVA	KILOVOLT AMPERES		
KW	KILOWATTS		
LAT	LEAVING AIR TEMPERATURE		
LWT	LEAVING WATER TEMPERATURE		
(L)	LINED		
LN_2	LIQUID NITROGEN		
LRA	LOCKED ROTOR AMPS		
LPC	LOW-PRESSURE CONDENSATE		
LPS	LOW-PRESSURE STEAM		
LBS	POUNDS		
MUA	MAKE UP AIR		
MAU	MAKE UP AIR UNIT		
MB	MAN-BARS		
MV	MANUAL AIR VENT		
MAX	MAXIMUM		
MCB	MAXIMUM CIRCUIT BREAKER		
MFS	MAXIMUM FUSE SIZE		
MOP	MAXIMUM OVERCURRENT PROTECTION		
MECH	MECHANICAL		
MC	MECHANICAL CONTRACTOR		
MER	MECHANICAL EQUIPMENT ROOM		
MS	MEMORY STOP (ON A VALVE)		
MEZZ	MEZZANINE		
MIN	MINIMUM OR MINUTE		
MCA	MINIMUM CIRCUIT AMPACITY		
MA	MIXED AIR		
MOD	MODULATING		
MCC	MOTOR CONTROL CENTER		
MTD	MOUNTED		
MBH	THOUSAND BTUH		
NPSH	NET POSITIVE SUCTION HEAD		
(N) or N	NEW		
N_2	NITROGEN GAS		
NPW	NON-POTABLE WATER		
N.C.	NORMALLY CLOSED		
N.O.	NORMALLY OPEN		
NIC	NOT IN CONTRACT		
NTS	NOT TO SCALE		
NO.	NUMBER		

ENERGY NOTES

1. DUCT INSULATION

   A. ALL DISTRIBUTION SYSTEM DUCTS AND PLENUMS, INCLUDING, BUT NOT LIMITED TO, BUILDING CAVITIES, MECHANICAL CLOSETS, AIR HANDLER BOXES AND SUPPORT PLATFORMS USED AS DUCTS OR PLENUMS, SHALL BE INSTALLED, SEALED AND INSULATED TO MEET REQUIREMENT OD 20001 CMC SECTION 601, 603, 604, 605 AND STANDARD 6-5 INCORPORATED HEREIN BY REFERENCE AND ALSO MEET THE REQUIREMENTS OF THE SPECIFICATIONS.

   B CONNECTIONS OF METAL DUCT AND THE INNER CORE OF FLEXIBLE DUCTS SHALL BE MECHANICALLY FASTENED.

   C OPENINGS SHALL BE SEALED WITH MASTIC, TAPE, AEROSOL SEALANT, OR OTHER DUCT-CLOSURE SYSTEM THAT MEETS THE APPLICABLE REQUIREMENT OF UL 181, UL 181A, OR UL 181B.

   G. PORTIONS OF SUPPLY-AIR AND RETURN-AIR DUCTS CONVEYING HEATING OR COOLED AIR LOCATED IN ONE OR MORE OF FOLLOWING SPACES SHALL BE INSULATED TO A MINIMUM INSTALLED LEVEL OF R-8:
   - OUTDOORS, OR
   - IN SPACE BETWEEN THE ROOF AND AN INSULATED CEILING, OR
   - IN SPACE DIRECTLY UNDER ROOF WITH FIXED VENT OR OPENINGS TO THE OUTSIDE OR UNCONDITIONED SPACES, OR
   - IN AN UNCONDITIONED CRAWLSPACE; OR
   - IN THE OTHER UNCONDITIONED SPACES,

   PORTIONS OF SUPPLY-AIR DUCTS THAT ARE NOT IN ONE OF THESE SPACES SHALL BE INSULATED TO A MINIMUM INSTALLED LEVEL OF R-4.2 (OR ANY HIGHER LEVEL REQUIRED BY CMC SECTION 605) OR BE ENCLOSED IN DIRECTLY CONDITIONED SPACE.

2. PIPE INSULATION

   A. PIPE INSULATION MUST BE INSTALLED IN COMPLIANCE WITH THE CALIFORNIA NON-RESIDENTIAL ENERGY CODE" AND ALSO MEET THE REQUIREMENTS OF THE SPECIFICATIONS.

   B. PIPING INSULATION, EXCEPT WHEN NEEDED TO PREVENT CONDENSATION, IS NOT REQUIRED IN ANY OF THE FOLLOWING:

      1.) FACTORY-INSTALLED PIPING WITHIN HVAC EQUIPMENT.

      2.) PIPING THAT CONVEYS FLUIDS WITH A DESIGN OPERATING TEMPERATURE RANGE BETWEEN 60 AND 105 DEGREES F.

      3.) PIPING THAT PENETRATES FRAMING MEMBERS SHALL NOT BE REQUIRED TO HAVE ISOLATION FOR THE DISTANCE OF FRAMING PENETRATION. METAL PIPING THAT PENETRATES METAL FRAMING SHALL USE GROMMETS, PLUGS, WRAPPING OR OTHER INSULATING MATERIAL TO ASSURE THAT NO CONTACT MADE WITH THE METAL FRAMING.

   C. MINIMUM PIPE INSULATION REQUIREMENTS FOR HEATING SYSTEMS AND COOLING SYSTEMS:

MINIMUM PIPE INSULATION (INCHES) [1]
HEATING SYSTEMS (HOT WATER)

FLUID DESIGN OPERATING TEMPERATURE RANGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE DIAMETER (IN)					
	CONDUCTIVITY RANGE (BTU/IN)/(HR-SQ FT-°F)	MEAN RATING TEMPERATURE (°F)	RUNOUTS [2] UP TO 2	1 AND LESS	1¼ TO 2	2½ TO 4	5 AND 6	8 AND UP
ABOVE 350	0.32-0.34	250	1.5	2.5	2.5	3.0	3.5	3.5
251-350	0.29-0.31	200	1.5	2.0	2.5	2.5	3.5	3.5
201-250	0.27-0.30	150	1.0	1.5	1.5	2.0	2.0	3.5
141-200	0.25-0.29	125	0.5	1.5	1.5	1.5	1.5	1.5
105-140	0.24-0.28	100	0.5	1.0	1.0	1.0	1.5	1.5

MINIMUM PIPE INSULATION (INCHES) [1]
COOLING SYSTEMS (CHILLED WATER, BRINE AND REFRIGERANT)

FLUID DESIGN OPERATING TEMPERATURE RANGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE DIAMETER (IN)					
	CONDUCTIVITY RANGE (BTU/IN)/(HR-SQ FT-°F)	MEAN RATING TEMPERATURE (°F)	RUNOUTS [2] UP TO 2	1 AND LESS	1¼ TO 2	2½ TO 4	5 AND 6	8 AND UP
40-60	0.23-0.27	75	0.5	0.5	0.50	1.0	1.0	1.0
BELOW 40	0.23-0.27	75	1.0	1.0	1.5	1.5	1.5	1.5

NOTES

(1) INSULATION THICKNESS LEVELS ARE MINIMUMS AND DO NOT ADDRESS SPECIFIC NEEDS OF INSULATION FOR FREEZE PROTECTION OR FOR LIMITING VAPOR TRANSMISSION OR CONDENSATION.

(2) RUNOUTS TO INDIVIDUAL TERMINAL UNITS NOT EXCEEDING 12 FEET IN LENGTH

GENERAL PROJECT NOTES

CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

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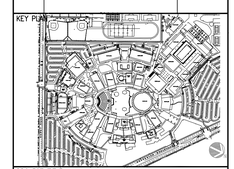
-	AS-BUILT	03/06/09

KEY PLAN



PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

LEGENDS, ABBREVIATIONS AND PROJECT NOTES

DRAWN BY		CHECKED BY	
PROJECT NO. 5617065	UNIT	SHEET NO.	M0.01
SCALE: NONE			
DATE 04-16-2007			

HVAC LEGEND

SYMBOL	ABBREV	DESCRIPTION	SYMBOL	ABBREV	DESCRIPTION
CWS	CWS	CONDENSER WATER SUPPLY	__"x__"(X"-L)	_"x_"(X"-L)	LINED DUCT (INSIDE CLEAR SIZE SHOWN)
CWR	CWR	CONDENSER WATER RETURN		—	DUCT UP
CHWS	CHWS	CHILLED WATER SUPPLY		—	DUCT DOWN
CHWR	CHWR	CHILLED WATER RETURN		—	DUCT SECTION (SUPPLY)
MCHWS	MCHWS	MEDIUM TEMP CHILLED WATER SUPPLY		—	DUCT SECTION (RETURN OR OSA)
MCHWR	MCHWR	MEDIUM TEMP CHILLED WATER RETURN		—	DUCT SECTION (EXHAUST)
HWS	HWS	HEATING HOT WATER SUPPLY		—	POINT OF STATIC PRESSURE CHANGE
HWR	HWR	HEATING HOT WATER RETURN		CD	CEILING DIFFUSER
RL	RL	REFRIGERANT LIQUID		RR	RETURN REGISTER (CEILING MOUNTED)
RS	RS	REFRIGERANT SUCTION		RG	RETURN GRILLE (CEILING MOUNTED)
HG	HG	REFRIGERANT HOT GAS		ER	EXHAUST REGISTER (CEILING MOUNTED)
LPS	LPS	LOW-PRESSURE STEAM		EG	EXHAUST GRILLE (CEILING MOUNTED)
HPS	HPS	HIGH-PRESSURE STEAM		SR	SIDEWALL SUPPLY REGISTER
PCR	PCR	PUMPED CONDENSATE RETURN		SG	SIDEWALL SUPPLY GRILLE
GCR	GCR	GRAVITY CONDENSATE RETURN		RR	SIDEWALL RETURN REGISTER
BFW	BFW	BOILER FEED WATER		RG	SIDEWALL RETURN GRILLE
BLDN	BLDN	BOILER BLOWDOWN		ER	SIDEWALL EXHAUST REGISTER
CD	CD	CONDENSATE DRAIN		EG	SIDEWALL EXHAUST GRILLE
D	D	DRAIN		TG	TRANSFER GRILLE
SCW	SCW	SOFT COLD WATER		VD	MANUAL VOLUME DAMPER
ICW	ICW	INDUSTRIAL COLD WATER	M	MD	MOTORIZED VOLUME DAMPER
IHW	IHW	INDUSTRIAL HOT WATER	F	FD	FIRE DAMPER
PCW	PCW	PROCESS COOLING WATER	F/S	F/SD	FIRE/SMOKE DAMPER
RO	RO	REVERSE OSMOSIS WATER	SD	SD	SMOKE DETECTOR
DI	DI	DEIONIZED WATER		FLEX CONN	FLEXIBLE CONNECTION
GS	GS	GLYCOL SUPPLY		AD	ACCESS DOOR
GR	GR	GLYCOL RETURN		AP	ACCESS PANEL
CFS	CFS	CHEMICAL FEED SYSTEM	T	T'STAT	THERMOSTAT
AV	AV	ATMOSPHERIC VENT	H	H'STAT	HUMIDISTAT
RV	RV	RELIEF VENT	S	—	SWITCH
FOS	FOS	FUEL OIL SUPPLY	D/L	D/L	DOOR LOUVER
FOR	FOR	FUEL OIL RETURN	U/C	U/C	DOOR UNDERCUT
NG	NG	NATURAL GAS	M	—	MOTOR LOCATION
				—	HEPA OR ULPA FILTER (NON-DUCTED)
				—	HEPA OR ULPA FILTER (DUCTED)
	—	BUTTERFLY VALVE		—	HEPA OR ULPA FILTER W/LIGHT (DUCTED)
	—	BALL VALVE	EQUIP TAG	FFU	FAN FILTER UNIT
	—	GATE VALVE			
	—	GLOBE VALVE			
	—	PLUG VALVE			
	—	CHECK VALVE			
	—	CONTROL VALVE, ELECTRIC			
	—	CONTROL VALVE, PNEUMATIC			
M	—	BUTTERFLY VALVE, MOTOR OPERATED			
S	—	SOLENOID VALVE			
	PSV	PRESSURE RELIEF VALVE			
	PRV	PRESSURE REGULATING VALVE			
	PRV	PRV (SELF CONTAINED)			
	—	STRAINER			
	—	UNION			
	—	CONCENTRIC REDUCER (OR INCREASER)			
	—	ECCENTRIC REDUCER (OR INCREASER)			
	—	PIPE ELBOW TURNED UP			
	—	PIPE ELBOW TURNED DOWN			
	—	PIPE TEE, BRANCH OUTLET UP			
	—	PIPE TEE, BRANCH OUTLET DOWN			
	—	CAP			
	—	BLIND FLANGE			
	—	FLANGED JOINT			
	—	GROOVED JOINT			
	—	ANCHOR			
	—	ALIGNMENT GUIDE			
	FLEX CONN	FLEXIBLE CONNECTION (METALLIC)			
	FLEX CONN	FLEXIBLE CONNECTION (NEOPRENE)			
PG	PG	PRESSURE GAUGE			
THERM	THERM	THERMOMETER			
AV	AV	AUTOMATIC AIR VENT			
MV	MV	MANUAL AIR VENT			
P/T	—	PRESS/TEMP PORT (PETE'S PLUG)			
FS	FS	FLOW SWITCH (DIFFERENTIAL PRESSURE)			

ABBREVIATIONS

ABBREV	DESCRIPTION
ABV	ABOVE
AFF	ABOVE FINISHED FLOOR
AD	ACCESS DOOR
AP	ACCESS PANEL
ACH	AIR CHANGES PER HOUR
AC OR A/C	AIR CONDITIONING
AFS	AIR FLOW MEASUREMENT STATION
AHU	AIR HANDLING UNIT
AS	AIR SEPARATOR
AMB	AMBIENT
AMPS	AMPERES
Ar	ARGON
ATM	ATMOSPHERE, ATMOSPHERIC
AV	AUTOMATIC AIR VENT
AUX	AUXILIARY
BDD	BACKDRAFT DAMPER
BG	BLAST GATE
BF	BOTTOM FLAT, BLIND FLANGE
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BLDG	BUILDING
CAP	CAPACITY
CLG	CEILING
CD	CEILING DIFFUSER
CHW	CHILLED WATER
CIRC	CIRCUIT
CB	CIRCUIT BREAKER
CDA	CLEAN DRY AIR
COP	COEFFICIENT OF PERFORMANCE
CONC	CONCRETE
COND	CONDENSATE (STEAM)
CD	CONDENSATE DRAIN (A/C)
CW	CONDENSER WATER
CV	CONSTANT VOLUME
CP	CONTROL PANEL
CFM OR ₵	CUBIC FEET PER MINUTE
°C	DEGREE CELSIUS
°F	DEGREE FAHRENHEIT
DI	DEIONIZED
DP	DIFFERENTIAL PRESSURE
DDC	DIRECT DIGITAL CONTROL
DISCH	DISCHARGE
DS	DISCONNECT SWITCH
DCW	DOMESTIC (POTABLE) COLD WATER
D/L	DOOR LOUVER
DN	DOWN
DR	DRAIN
DWG	DRAWING
DB	DRY BULB TEMPERATURE
EFF	EFFICIENCY
EGC	EGGCRATE GRILLE
EDH	ELECTRIC DUCT HEATER
EC	ELECTRICAL CONTRACTOR
ELEV	ELEVATION
EER	ENERGY EFFICIENCY RATIO
EAT	ENTERING AIR TEMPERTURE
EWT	ENTERING WATER TEMPERATUE
EQUIP	EQUIPMENT
ECW	EQUIPMENT COOLING WATER
EVAP	EVAPORATIVE
EA	EXHAUST AIR
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
(E) or E	EXISTING
ESP	EXTERNAL STATIC PRESSURE
FCU	FAN COIL UNIT
FT	FEET
FPM	FEET PER MINUTE
FRP	FIBERGLASS REINFORCED PLASTIC
FD	FIRE DAMPER
F/LS	FIRE/LIFE SAFETY
F/SD	FIRE/SMOKE DAMPER
FLR	FLOOR
FD	FLOOR DRAIN
FS	FLOOR SINK
FLA	FULL LOAD AMPS
FE	FUME EXHAUST
(F) or F	FUTURE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GC	GENERAL CONTRACTOR
HX	HEAT EXCHANGER
HE	HEAT EXHAUST
HTG	HEATING
HW	HEATING HOT WATER
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HZ	HERTZ
HPC	HIGH-PRESSURE CONDENSATE
HPS	HIGH-PRESSURE STEAM
HORIZ	HORIZONTAL
HP	HORSEPOWER
HV	HOUSEKEEPING VACUUM
H'STAT	HUMIDISTAT
H_2	HYDROGEN GAS
HG	REFRIGERANT HOT GAS
IN	INCHES
ICW	INDUSTRIAL COLD WATER
IHW	INDUSTRIAL HOT WATER
ID	INSIDE DIAMETER OR DIMENSION
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
(L)	LINED
LN_2	LIQUID NITROGEN
LRA	LOCKED ROTOR AMPS
LPC	LOW-PRESSURE CONDENSATE
LPS	LOW-PRESSURE STEAM
LBS	POUNDS
MUA	MAKE UP AIR
MAU	MAKE UP AIR UNIT
MB	MAN-BARS
MV	MANUAL AIR VENT
MAX	MAXIMUM
MCB	MAXIMUM CIRCUIT BREAKER
MFS	MAXIMUM FUSE SIZE
MOP	MAXIMUM OVERCURRENT PROTECTION
MECH	MECHANICAL
MC	MECHANICAL CONTRACTOR
MER	MECHANICAL EQUIPMENT ROOM
MS	MEMORY STOP (ON A VALVE)
MEZZ	MEZZANINE
MIN	MINIMUM OR MINUTE
MCA	MINIMUM CIRCUIT AMPACITY
MA	MIXED AIR
MOD	MODULATING
MCC	MOTOR CONTROL CENTER
MTD	MOUNTED
MBH	THOUSAND BTUH
NPSH	NET POSITIVE SUCTION HEAD
(N) or N	NEW
N_2	NITROGEN GAS
NPW	NON-POTABLE WATER
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO.	NUMBER
OC	ON CENTER
ODP	OPEN DRIP PROOF
OBD	OPPOSED BLADE DAMPER
OSA	OUTSIDE AIR
OD	OUTSIDE DIAMETER OR DIMENSION
OPD	OVERCURRENT PROTECTIVE DEVICE
O_2	OXYGEN GAS
PPM	PARTS PER MILLION
PH	PHASE
PC	PLUMBING CONTRACTOR
PC	PUMPED CONDENSATE
POC	POINT OF CONNECTION
PPP	POLYPROPYLENE PIPE
PVC	POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENE FLUORIDE
POS	POSITION
PSI	POUNDS PER SQUARE INCH
PRESS	PRESSURE
ΔP	PRESSURE CHANGE
PCV	PRESSURE CONTROL VALVE
PG	PRESSURE GAGE
PRS	PRESSURE REDUCING STATION
PRV	PRESSURE REGULATING VALVE
PCHW	PRIMARY CHILLED WATER
RAU	RECIRCULATION AIR UNIT
RDE	RECOMMENDED DUAL ELEMENT FUSE
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RHC	REHEAT COIL
RH	RELATIVE HUMIDITY
(R)	RELOCATED
REQ'D	REQUIRED
RA	RETURN AIR
RG	RETURN GRILLE
RR	RETURN REGISTER
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RM	ROOM
RLA	RUNNING LOAD AMPS
SI	INTERNATIONAL SYSTEM OF UNITS
SCHED	SCHEDULE
SCE	SCRUBBED EXHAUST
SC	SCRUBBER
SCHW	SECONDARY CHILLED WATER
SHT	SHEET
SD	SMOKE DETECTOR, SMOKE DAMPER
SE	SOLVENT EXHAUST
SA	SOUND ATTENUATOR
S/S	STAINLESS STEEL
SP	STATIC PRESSURE
STM	STEAM
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SA	SUPPLY AIR
SG	SUPPLY GRILLE
SR	SUPPLY REGISTER
TU	TERMINAL UNIT
THERM	THERMOMETER
T'STAT	THERMOSTAT
TF	TOP FLAT
TDH	TOTAL DYNAMIC HEAD
TP	TOTAL PRESSURE
TSP	TOTAL STATIC PRESSURE
TG	TRANSFER GRILLE
TYP	TYPICAL
U/C	UNDERCUT
UNO	UNLESS NOTED OTHERWISE
UTR	UP THRU ROOF
VD	MANUAL VOLUME DAMPER
VAV	VARIABLE AIR VOLUME
VTR	VENT THROUGH ROOF
VERT	VERTICAL
V	VOLTS
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
WC	WATER CLOSET
W	WATTS
WPDS	WEATHERPROOF DISCONNECT SWITCH
WGT	WEIGHT
WB	WET BULB TEMPERATURE
WSA	WIRE SIZING AMPS
W/	WITH
W/O	WITHOUT
X'MER	TRANSFORMER

ENERGY NOTES

1. DUCT INSULATION

   A. ALL DISTRIBUTION SYSTEM DUCTS AND PLENUMS, INCLUDING, BUT NOT LIMITED TO, BUILDING CAVITIES, MECHANICAL CLOSETS, AIR HANDLER BOXES AND SUPPORT PLATFORMS USED AS DUCTS OR PLENUMS, SHALL BE INSTALLED, SEALED AND INSULATED TO MEET REQUIREMENT OD 20001 CMC SECTION 601, 603, 604, 605 AND STANDARD 6-5 INCORPORATED HEREIN BY REFERENCE AND ALSO MEET THE REQUIREMENTS OF THE SPECIFICATIONS.

   B CONNECTIONS OF METAL DUCT AND THE INNER CORE OF FLEXIBLE DUCTS SHALL BE MECHANICALLY FASTENED.

   C OPENINGS SHALL BE SEALED WITH MASTIC, TAPE, AEROSOL SEALANT, OR OTHER DUCT-CLOSURE SYSTEM THAT MEETS THE APPLICABLE REQUIREMENT OF UL 181, UL 181A, OR UL 181B.

   G. PORTIONS OF SUPPLY-AIR AND RETURN-AIR DUCTS CONVEYING HEATING OR COOLED AIR LOCATED IN ONE OR MORE OF FOLLOWING SPACES SHALL BE INSULATED TO A MINIMUM INSTALLED LEVEL OF R-8:
   - OUTDOORS, OR
   - IN SPACE BETWEEN THE ROOF AND AN INSULATED CEILING, OR
   - IN SPACE DIRECTLY UNDER ROOF WITH FIXED VENT OR OPENINGS TO THE OUTSIDE OR UNCONDITIONED SPACES, OR
   - IN AN UNCONDITIONED CRAWLSPACE; OR
   - IN THE OTHER UNCONDITIONED SPACES,

   PORTIONS OF SUPPLY-AIR DUCTS THAT ARE NOT IN ONE OF THESE SPACES SHALL BE INSULATED TO A MINIMUM INSTALLED LEVEL OF R-4.2 (OR ANY HIGHER LEVEL REQUIRED BY CMC SECTION 605) OR BE ENCLOSED IN DIRECTLY CONDITIONED SPACE.

2. PIPE INSULATION

   A. PIPE INSULATION MUST BE INSTALLED IN COMPLIANCE WITH THE CALIFORNIA NON-RESIDENTIAL ENERGY CODE" AND ALSO MEET THE REQUIREMENTS OF THE SPECIFICATIONS.

   B. PIPING INSULATION, EXCEPT WHEN NEEDED TO PREVENT CONDENSATION, IS NOT REQUIRED IN ANY OF THE FOLLOWING:

   1.) FACTORY-INSTALLED PIPING WITHIN HVAC EQUIPMENT.

   2.) PIPING THAT CONVEYS FLUIDS WITH A DESIGN OPERATING TEMPERATURE RANGE BETWEEN 60 AND 105 DEGREES F.

   3.) PIPING THAT PENETRATES FRAMING MEMBERS SHALL NOT BE REQUIRED TO HAVE ISOLATION FOR THE DISTANCE OF FRAMING PENETRATION. METAL PIPING THAT PENETRATES METAL FRAMING SHALL USE GROMMETS, PLUGS, WRAPPING OR OTHER INSULATING MATERIAL TO ASSURE THAT NO CONTACT MADE WITH THE METAL FRAMING.

   C. MINIMUM PIPE INSULATION REQUIREMENTS FOR HEATING SYSTEMS AND COOLING SYSTEMS:

MINIMUM PIPE INSULATION (INCHES)[1]
HEATING SYSTEMS (HOT WATER)

FLUID DESIGN OPERATING TEMPERATURE RANGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE DIAMETER (IN)					
	CONDUCTIVITY RANGE (BTU/IN)/(HR-SQ FT-°F)	MEAN RATING TEMPERATURE (°F)	RUNOUTS[2] UP TO 2	1 AND LESS	1¼ TO 2	2½ TO 4	5 AND 6	8 AND UP
ABOVE 350	0.32-0.34	250	1.5	2.5	2.5	3.0	3.5	3.5
251-350	0.29-0.31	200	1.5	2.0	2.5	2.5	3.5	3.5
201-250	0.27-0.30	150	1.0	1.5	1.5	2.0	2.0	3.5
141-200	0.25-0.29	125	0.5	1.5	1.5	1.5	1.5	1.5
105-140	0.24-0.28	100	0.5	1.0	1.0	1.0	1.5	1.5

MINIMUM PIPE INSULATION (INCHES)[1]
COOLING SYSTEMS (CHILLED WATER, BRINE AND REFRIGERANT)

FLUID DESIGN OPERATING TEMPERATURE RANGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE DIAMETER (IN)					
	CONDUCTIVITY RANGE (BTU/IN)/(HR-SQ FT-°F)	MEAN RATING TEMPERATURE (°F)	RUNOUTS[2] UP TO 2	1 AND LESS	1¼ TO 2	2½ TO 4	5 AND 6	8 AND UP
40-60	0.23-0.27	75	0.5	0.5	0.50	1.0	1.0	1.0
BELOW 40	0.23-0.27	75	1.0	1.0	1.5	1.5	1.5	1.5

NOTES

(1) INSULATION THICKNESS LEVELS ARE MINIMUMS AND DO NOT ADDRESS SPECIFIC NEEDS OF INSULATION FOR FREEZE PROTECTION OR FOR LIMITING VAPOR TRANSMISSION OR CONDENSATION.

(2) RUNOUTS TO INDIVIDUAL TERMINAL UNITS NOT EXCEEDING 12 FEET IN LENGTH

GENERAL PROJECT NOTES

CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

THE INCORPORATED STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEERS STAMP SERVES AS THE SELF CERTIFICATION FOR THESE DOCUMENTS.

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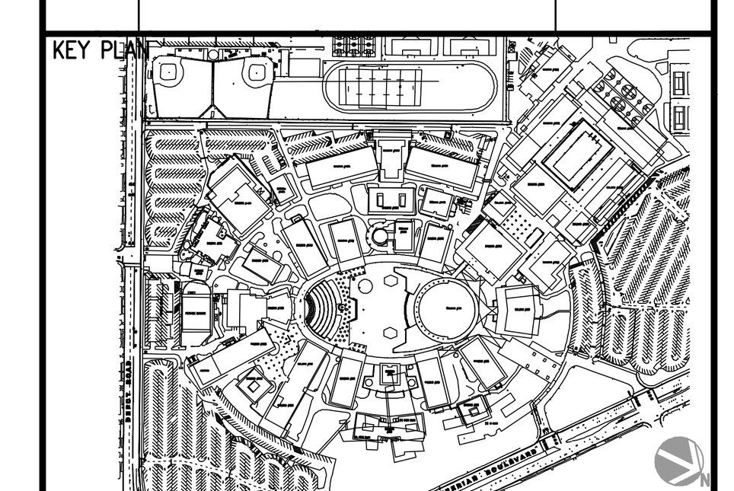
REGISTERED PROFESSIONAL ENGINEER
LINCON M. SAKI
NO. 33025
Exp. 06-30-09
MECHANICAL
STATE OF CALIFORNIA

REVISIONS

NO.	DESCRIPTION	DATE
-	50% CONSTRUCTION DOCUMENTS	08/31/07
-	90% CONSTRUCTION DOCUMENTS	09/21/07
-	ISSUED FOR CONSTRUCTION	11/05/07
-	AS-BUILT	03/06/09

KEY PLAN



PROJECT TITLE
CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE
LEGENDS, ABBREVIATIONS AND PROJECT NOTES

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO.
SCALE: NONE		M0.01
DATE 04-16-2007		

UNDERGROUND CHILLED AND HEATING HOT WATER PIPING
XTRU–THERM (PERMA–PIPE) – GENERAL NOTES

1.0 GENERAL

1.1 THE SCALE SHOWN ON THE DRAWINGS IS FOR REFERENCE PURPOSES ONLY. DO NOT SCALE THE DRAWINGS, USE THE DIMENSIONS SHOWN.

1.2 THE LAYOUT DRAWING IS FOR REFERENCE PURPOSES ONLY. THE MATERIALS SUPPLIED BY PERMA–PIPE WILL BE IN ACCORDANCE WITH SECTION 5.0 – SCOPE OF SUPPLY.

2.0 PRODUCT DESCRIPTION

2.1 XTRU–THERM ECONOMY IS A FACTORY POLYURETHANE INSULATED AND HDPE JACKETED PIPING SYSTEM.

2.2 XTRU–THERM ECONOMY CONSISTS OF PREFABRICATED STRAIGHT LENGTHS AND FIELD ASSEMBLED AND INSULATED FITTINGS.

3.0 DESIGN CONDITIONS/CRITERIA

3.1 SERVICE PRESSURE AND TEMPERATURE:

SERVICE	PRESSURE (PSIG)	TEMPERATURE(DEG. F)
HOT WATER S&R	100 PSIG	190° F.
CHILLED WATER S&R	100 PSIG	60° F.

3.2 THE SERVICE PIPING IS DESIGNED AND MANUFACTURED IN ACCORDANCE WITH ASME B31.1.

3.3 A STRESS ANALYSIS OF THIS PIPING SYSTEM HAS BEEN MADE ASSUMING THE DIMENSIONS AND DESIGN CONDITIONS SHOWN ON THESE DRAWINGS ARE CORRECT. THE SYSTEM IS WITHIN THE LIMITS SET FORTH FOR ALLOWABLE STRESSES IN THE CODE, BASED UPON THE ASSUMPTIONS HEREIN.

3.4 THE SYSTEM IS DESIGNED TO ACCOMMODATE THE SERVICE PIPE THERMAL EXPANSION USING FIELD INSTALLED EXTERNAL EXPANSION PADS.

3.5 THE PIPING SYSTEM IS DESIGNED FOR THE ABOVE DESIGN CONDITIONS. IT IS THE PURCHASER'S RESPONSIBILITY TO VERIFY THIS INFORMATION IS CORRECT AND OPERATE THE SYSTEM WITHIN THE CONDITIONS DESIGNED FOR.

4.0 MATERIALS

ITEM	SIZE	MATERIAL
SERVICE PIPE CHWS/R HWS/R	1"–1 1/2" SCHED 40 2"–10" SCHED 40 12" STD WT	ASTM A106, SEAMLESS, GRADE B, CARBON STEEL PIPE ASTM A53, ERW, GRADE B, CARBON STEEL PIPE ASTM A53, ERW, GRADE B, CARBON STEEL PIPE
PIPE INSULATION	ALL	POLYURETHANE FOAM NOMINAL 2.0 LB./CU. FT. DENSITY ≥ 90% CLOSED CELL
INSULATION JACKET	ALL	HIGH DENSITY POLYETHYLENE (HDPE) ASTM D3350, GRADE PE3408
FITTING COVERS	ALL	PVC WITH SEALING TAPE
ANCHOR PLATES	ALL	A36 CARBON STEEL

5.0 SCOPE OF SUPPLY

PIPE SIZE	SERVICE PIPE NOMINAL SIZE (IN.) SCH.	HDPE JACKET OD (IN.)	HDPE JACKET THICKNESS (IN.)	INSULATION THICKNESS (IN.)
8" HWSR	8" SCHED 40, A53, ERW, CS	11.8"	80 MILS	1.5"
6" HWSR	6" SCHED 40, A53, ERW, CS	9.8"	80 MILS	1.5"
5" HWSR	5" SCHED 40, A53, ERW, CS	8.8"	80 MILS	1.5"
4" HWSR	4" SCHED 40, A53, ERW, CS	7.8"	80 MILS	1.5"
3" HWSR	3" SCHED 40, A53, ERW, CS	6.7"	80 MILS	1.5"
2.5"HWSR	2.5" SCHED 40, A53, ERW, CS	6.0"	80 MILS	1.5"
2" HWSR	2" SCHED 40, A53, ERW, CS	5.6"	80 MILS	1.5"
12"CHWSR	12" STD WT, A53, ERW, CS	15.0"	120 MILS	1"
8"CHWSR	8" SCHED 40, A53, ERW, CS	10.8"	80 MILS	1"
6"CHWSR	6" SCHED 40, A53, ERW, CS	8.8"	80 MILS	1"
4"CHWSR	4" SCHED 40, A53, ERW, CS	6.7"	80 MILS	1"
3"CHWSR	3" SCHED 40, A53, ERW, CS	5.7"	80 MILS	1"
2.5"CHWSR	2.5" SCHED 40, A53, ERW, CS	5"	80 MILS	1"
2"CHWSR	2" SCHED 40, A53, ERW, CS	4.6"	80 MILS	1"

6.0 INSTALLATION

6.1 ALL PIPING SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH PERMA–PIPE'S INSTALLATION INSTRUCTION MANUAL FOR THIS PRODUCT.

6.2 PERMA–PIPE STRONGLY RECOMMENDS ALL FIELD JOINTS REMAIN UNCOVERED AND EXPOSED FOR FIELD TESTING PURPOSES.

PERMA–PIPE DOES NOT RECOMMEND BACKFILLING PRIOR TO FIELD JOINT TESTING. VIOLATION OF THIS RECOMMENDATION MAY RESULT IN RE–EXCAVATION, REPAIRS AND RE–BACKFILLING AND WILL BE DONE AT THE INSTALLER'S COST AND RISK.

6.3 ANCHOR BLOCKS ARE REQUIRED AT ALL SERVICE PIPE ANCHOR LOCATIONS. ANCHOR BLOCKS SHALL BE FIELD POURED AND KEYED INTO UNDISTURBED SOIL BY THE INSTALLER. ALL ANCHOR BLOCKS SHALL BE COMPLETELY CURED BEFORE OPERATING OR TESTING THE SYSTEM.

6.4 SERVICE PIPE COUPLINGS, IF REQUIRED, ARE NOT SUPPLIED BY PERMA–PIPE.

7.0 FACTORY TESTING AND INSPECTION

7.1 THE SERVICE PIPE SHALL BE HYDROSTATICALLY TESTED BY THE PIPE MANUFACTURER ACCORDANCE WITH ITS RESPECTIVE ASTM DESIGNATION.

7.2 VISUALLY INSPECT ALL SPRAY APPLIED POLYURETHANE INSULATION PRIOR TO APPLYING THE HDPE JACKET.

8.0 FIELD JOINTS

8.1 THE SERVICE PIPE SHALL BE PNEUMATICALLY TESTED TO 125 PSIG PER ASME B31.9 1996 EDITION 937.4. INSULATION SHALL THEN BE POURED IN PLACE INTO THE FIELD JOINT AREA. THE INSTALLER SHALL SEAL THE FIELD JOINT AREA WITH A HEAT SHRINKABLE ADHESIVE BACKED SLEEVE. BACKFILLING SHALL NOT BEGIN UNTIL THE HEAT SHRINK SLEEVE HAS COOLED. ALL INSULATION AND JACKETING MATERIALS FOR THE FIELD JOINT SHALL BE BY PERMA–PIPE.

UNDERGROUND CITY WATER PIPE MATERIAL SCHEDULE

SYMBOL	SYSTEM	SIZE	PIPE MATERIAL
DCW	DOMESTIC COLD WATER	<4"	TYPE L COPPER, BRAZED POLYSLEEVE AT CONCRETE ANCHOR
DCW	UNDERGROUND DOMESTIC COLD WATER	>4"	PVC, C–900, CLASS 150, MJ FITTINGS, WITH STARGRIP RESTRAINTS (NO THRUST BLOCKS)

CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

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REGISTERED PROFESSIONAL ENGINEER
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Exp. 06-30-09
MECHANICAL
STATE OF CALIFORNIA

REVISIONS

NO.	DESCRIPTION	DATE
–	50% CONSTRUCTION DOCUMENTS	08/31/07
–	90% CONSTRUCTION DOCUMENTS	09/21/07
–	ISSUED FOR CONSTRUCTION	11/05/07
–	AS–BUILT	03/06/09

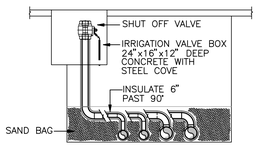
KEY PLAN

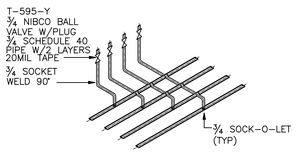
PROJECT TITLE
CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE
MECHANICAL SPECIFICATIONS

DRAWN BY | CHECKED BY

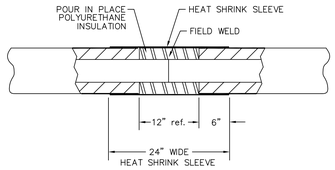
PROJECT NO. 5617065
UNIT
SHEET NO. M0.02
SCALE:
DATE 04–16–2007





HIGH POINT VENT

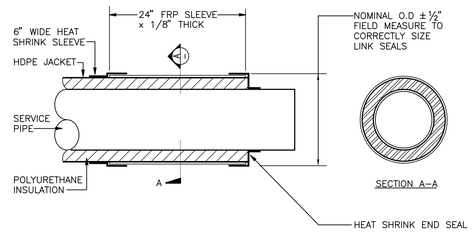
SCALE: NONE — 10



NOTES:
1. SOCKET WELD COUPLINGS, IF REQUIRED SUPPLIED BY INSTALLER
2. THE FOLLOWING FIELD JOINT MATERIAL SUPPLIED BY PERMA-PIPE
   - POUR IN PLACE POLYURETHANE INSULATION
   - MOLD FOR POUR IN PLACE HEAT SHRINK SLEEVE
   - STORE ALL CHEMICALS AT 60°F TO 85°F
3. DIFFERENCES IN HDPE JACKET OD'S BETWEEN PIECES ARE ACCOMODATED BY A TAPER ACROSS THE FIELD JOINT

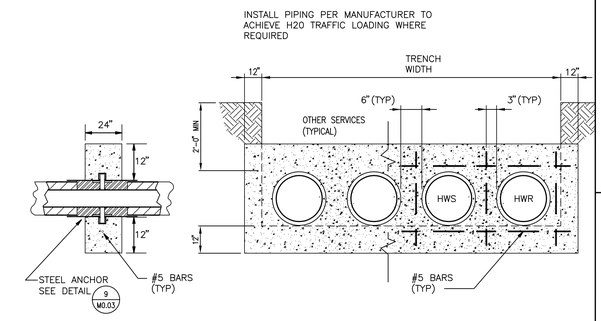
FIELD JOINT, HEAT SHRINK SLEEVE

SCALE: NONE — 7



END SEAL ASSEMBLY DETAIL

SCALE: NONE — 4



GENERAL NOTES:
1. MINIMUM 3" COVER FOR ALL REINFORCING
2. CONCRETE f'c=3000 PSI (MINIMUM).
3. POUR CONCRETE AGAINST UNDISTURBED EARTH, EXCEPT WHERE FORMED; IF FORMS CREATE VOID, BACKFILL TO 90% MAX. DENSITY

ANCHOR TAG:

AHCHOR, X.XX (REPORT #, POINT NAME)

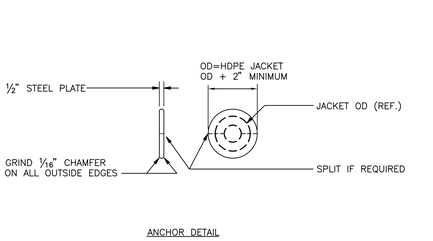
CONCRETE PIPE ANCHOR DETAIL

SCALE: NONE — 1

CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT
25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

—

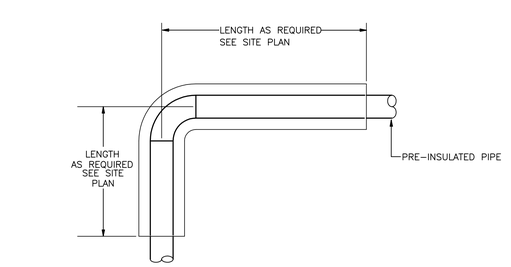
SCALE: NONE — —



NOTES:
1. THE FOLLOWING MATERIALS SUPPLIED BY PERMA-PIPE
   - FRP SLEEVE
   - ADHESIVE
   - HEAT SHRINK SLEEVE
   - HEAT SHRINK END SEAL

WALL / FLOOR ENTRY END SEAL FIELD KIT

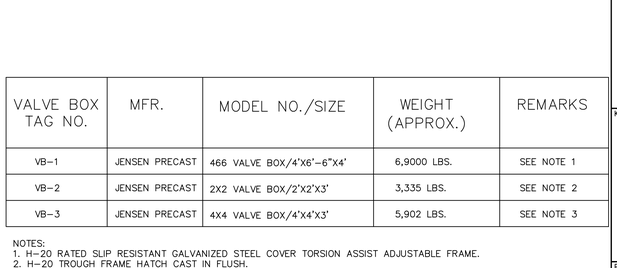
SCALE: NONE — 8



NOTES:
1. SERVICE PIPE TEES SUPPLIED BY INSTALLER
2. THE FOLLOWING MATERIALS SUPPLIED BY PERMA-PIPE
   - POUR IN PLACE POLYURETHANE INSULATION
   - PVC SLEEVES
   - PVC FITTING COVER
   - SEALING TAPE
   - STORE ALL CHEMICALS AT 60°F TO 85°F

STEEL PIPE TEE INSULATION FIELD KIT DETAIL

SCALE: NONE — 5



NOTES:
1. SEE CIVIL DRAWING C2.UO FOR TYPICAL VALVE BOX INSTALLATION.

VALVE BOX AT BUILDING

SCALE: NONE — 2

SOUTHLAND INDUSTRIES
775 Commercial Street
San Jose, CA 95112
Tel: 408.970.3777
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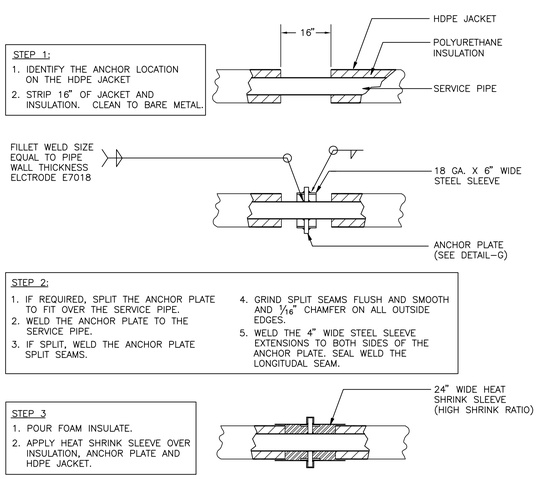


ANCHOR DETAIL

NOTES:
1. THE FOLLOWING MATERIALS SUPPLIED BY PERMA-PIPE
   - STEEL ANCHOR PLATE
   - (2) STEEL SLEEVES.
   - POUR IN PLACE POLYURETHANE INSULATION
   - MOLD FOR POUR IN PLACE
   - HEAT SHRINK SLEEVE (HIGH SHRINK RATIO)
   - STORE ALL CHEMICALS AT 60° F TO 85° F

STEEL PIPE STRAIGHT PIPE, ANCHOR FIELD KIT DETAIL

SCALE: NONE — 9

EXTERNAL EXPANSION PADS DETAIL

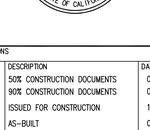
SCALE: NONE — 6

VALVE BOX TAG NO.	MFR.	MODEL NO./SIZE	WEIGHT (APPROX.)	REMARKS
VB-1	JENSEN PRECAST	466 VALVE BOX/4'X6'-6"X4'	6,9000 LBS.	SEE NOTE 1
VB-2	JENSEN PRECAST	2X2 VALVE BOX/2'X2'X3'	3,335 LBS.	SEE NOTE 2
VB-3	JENSEN PRECAST	4X4 VALVE BOX/4'X4'X3'	5,902 LBS.	SEE NOTE 3

NOTES:
1. H-20 RATED SLIP RESISTANT GALVANIZED STEEL COVER TORSION ASSIST ADJUSTABLE FRAME.
2. H-20 TROUGH FRAME HATCH CAST IN FLUSH.
3. H-20 TROUGH FRAME ALUMINUM HATCH CAST IN FLUSH.

VALVE BOX SCHEDULE

SCALE: NONE — 3



REVISIONS

NO.	DESCRIPTION	DATE
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–	90% CONSTRUCTION DOCUMENTS	09/21/07
–	ISSUED FOR CONSTRUCTION	11/05/07
–	AS-BUILT	03/06/09

KEY PLAN

PROJECT TITLE

CHABOT COMMUNITY COLLEGE CENTRAL PLANT PROJECT

SHEET TITLE

MECHANICAL DETAILS

DRAWN BY	CHECKED BY

PROJECT NO.	UNIT	SHEET NO.
5617065		M0.03
SCALE: NONE		
DATE 04-16-2007		

CENTRIFUGAL CHILLER SCHEDULE

MARK	MFR	MODEL	CAPACITY (TONS) (CHW/ICE MAKING)	REFRIG. TYPE	NPLV (CHW/ICE)	(KW/TON) (CHW/ICE MAKING)	EVAPORATOR (CHW/ICE MAKING)					CONDENSER (CHW/ICE MAKING)					ELECTRICAL (CHW/ICE MAKING)				OPER WT (LBS.)	REMARKS
							EWT °F	LWT °F	GPM	WPD FT H 2O	FOULING FACTOR	EWT °F	LWT	GPM	WPD FT H 2O	FOULING FACTOR	KW	MCA	MOCP	VOLTS-ø		
CH-1	TRANE	CVHF0650	620/414	R-134A	0.385/0.712	0.570/0.595	52.7/28.3	47.0/21.0	1,480	25.5/25.5	.00010	75/65	87.2/73.3	1,400	17.1/17.8	.00025	330/246	580/450	1000	460V-3ø	32,000	〈1〉 THROUGH 〈6〉
CH-2	TRANE	CVHF0650	620/414	R-134A	0.385/0.712	0.570/0.595	52.7/28.3	47.0/21.0	1,480	25.5/25.5	.00010	75/65	87.2/73.3	1,400	17.1/17.8	.00025	330/246	580/450	1000	460V-3ø	32,000	〈1〉 THROUGH 〈6〉

NOTES:
〈1〉 DISCONNECT BY OTHERS.
〈2〉 PROVIDE VFD
〈3〉 PROVIDE DIFFERENTIAL PRESSURE FLOW SWITCH. OR FLOW SENSOR (FACTORY MOUNTED AND WIRED)
〈4〉 PROVIDE THIRD PARTY INTERFACE TO ALERTON BUILDING MANAGEMENT SYSTEM.
〈5〉 UL LISTED.
〈6〉 EVAPORATOR FLUID: 25% ETHELENE GLYCOL. (BY WEIGHT) CONDENSER FLUID: WATER.
〈7〉 –
〈8〉 –
〈9〉 –

COOLING TOWER SCHEDULE

MARK	MFR	MODEL	AIR CFM	AIR	WATER				FAN MOTOR				OPERATING WEIGHT LBS	REMARKS
				WB °F	EWT °F	LWT °F	GPM	WTR △P FT H2O	QTY	RPM	HP	VOLTS-ø		
CT-1	EVAPCO	REP 224-718	158,445	68	88	75	1,400	5	1	–	50	460V-3ø	42,500	〈1〉 THROUGH 〈7〉
CT-2	EVAPCO	REP 224-718	158,445											〈1〉 THROUGH 〈7〉

NOTES:
〈1〉 STAINLESS STEEL SUMP.
〈2〉 EXTERNAL LADDER
〈3〉 10" EQUALIZER WITH ISOLATION VALVE.
〈4〉 VFD WITH BYPASS (INVERTER DUTY MOTOR) IN MECHANICAL YARD.
〈5〉 PROVIDE CLEARANCES IN WELL PER MANUFACTURERS RECOMMENDATIONS.
〈6〉 EXTERNAL LUBRICATION LINES.
〈7〉 PROVIDE VIBRATION CUT-OFF SWITCH.
〈8〉 –
〈9〉 –
〈10〉 –
〈11〉 –

COOLING TOWER SEPARATOR

MARK	MFR	MODEL	SERVICE	PUMP					SKID DIMENSIONS (L"xW"xH")	INLET CONN. (IN.)	OUTLET CONN. (IN.)	DRAIN CONN. (IN.)	REMARKS
				FLOW (GPM)	HEAD (FT)	RPM	POWER (HP)	VOLT-ø					
WT-1	GRISWOLD	CSS-401-HH	CONDENSER WATER	420	80	3500	15	460V-3ø	36x36x62	4"	4"	1-1/2"	〈1〉 THROUGH 〈5〉

NOTES:
〈1〉 PROVIDE ISOLATION VALVES AT INLET, OUTLET AND DRAIN.
〈2〉 TEFC MOTOR.
〈3〉 PROVIDE 0-160 PSI PRESSURE GAGES AT INLET/OUTLET.
〈4〉 NEMA 4 CONTROL PANEL, 460V DSCONNECT, STARTER WITH THERMAL OVERLOAD, HOA SWITCH, AND TIMER FOR PURGE ISOLATION VALVE.
〈5〉 PIPING BETWEEN PUMP AND SEPARATOR SHALL BE STEEL.
〈6〉
〈7〉
〈8〉
〈9〉

BOILER SCHEDULE

MARK	MFR	MODEL	TYPE	FLUID	MEDIUM	GPM	INPUT (MBH)	OUTPUT (MBH)	COMB. EFF.	WATER TEMP.		△ P (FT. W.G.)	GAS PRES. (PSI)	ELECTRICAL		WATER CAPACITY (GAL.)	OPERATING WEIGHT LBS.	REMARKS
										ENT. °F	LVG. °F			FAN MTR. HP	VOLTS-ø			
HWB-1	AJAX	WRFG-10500	WATER TUBE FORCED DRAFT	WATER	NATURAL GAS	620	10,500	8,768	85%	150	180	--	1	10	460V-3ø	545	27,500	〈1〉 THRU 〈5〉
HWB-2	AJAX	WRFG-10500	WATER TUBE FORCED DRAFT	WATER	NATURAL GAS	620	10,500	8,768	85%	150	180	--	1	10	460V-3ø	545	27,500	〈1〉 THRU 〈5〉
HWB-3	AJAX	WRFG-10500	WATER TUBE FORCED DRAFT	WATER	NATURAL GAS	620	10,500	8,768	85%	150	180	--	1	10	460V-3ø	545	27,500	〈1〉 THRU 〈5〉

NOTES:
〈1〉 BOILERS SHALL BE COMPLETED WITH:
- CALIFORNIA APPROVED CONTROLS (CSD-1)
- FULL MODULATION BURNER AND COMBUSTION SYSTEM
- START/STOP CONTACTS AND FLOW SWITCH
- HIGH LIMIT AND LOW WATER CUTOFF W/ RESET AND TEST BUTTON
- COMMON ALARM RELAY
- FM APPROVED
- ASME SAFETY VALVE, COMBINATION PRESS./TEMP. GAUGE

〈2〉 DIVISION 16 SHALL PROVIDE SEPARATE 120V CKT. FOR BOILER CONTROL PANEL.
〈3〉 PROVIDE LOW NOx BOILER TO MEET MOST CURRENT BAAQMD REQUIREMENTS.
〈4〉 PROVIDE PRE-WIRED AND ASSEMBLED ELECTRONIC BOILER CONTROL PACKAGE INCLUDING STAGING AND LEAD/LAG CONTROLS WITH INTERFACE TO ALERTON BUILDING MANAGEMANT SYSTEM.
〈5〉 ON-OFF FIRING.
〈6〉 –

WATER TREATMENT SYSTEM (NON-CHEMICAL)

MARK	MFR	MODEL	SERVICE	FLOW (GPM)	INLET CONN. (IN.) (PVC)	OUTLET CONN. (IN.) (PVC)	WT. (LB.)	REMARKS
WT-2	CLEARWATER SYSTEMS	DOLPHIN G3120-PVC	CONDENSER WATER	2,800	12	12	250	〈1〉

NOTES:
〈1〉 230/1/60 POWER TOOOO 1.8 TRANSFORMER WITHIN CONTROL PANEL.

PUMP SCHEDULE

MARK	MFR	MODEL	TYPE	PERFORMANCE			(PREM. EFF.) MOTOR				OPERATING WEIGHT (LBS)	PUMP EFF. (%) (@) DUTY POINT	REMARKS
				HEAD FT	GPM	IMPELLER IN.	RPM	VOLT-ø	NON-OVERLOADING	DUTY PT			
CHWP-1	ARMSTRONG	4030-8X6X15	BASE MOUNT END SUCTION	165	1480	13.15	1800	460V-3ø	100	75.38	1750	81.81	〈2〉〈4〉〈6〉
CHWP-2	ARMSTRONG	4030-8X6X15	BASE MOUNT END SUCTION	165	1480	13.15	1800	460V-3ø	100	75.38	1750	81.81	〈2〉〈4〉〈6〉
CWP-1	ARMSTRONG	4030-8X6X10	BASE MOUNT END SUCTION	68	1400	9.41	1800	460V-3ø	40	27.97	750	85.95	〈1〉〈3〉
CWP-2	ARMSTRONG	4030-8X6X10	BASE MOUNT END SUCTION	68	1400	9.41	1800	460V-3ø	40	27.97	750	85.95	〈1〉〈3〉
SCHWP-1	ARMSTRONG	4060-8X6X15H	HORIZONTAL SPLIT CASE	250	1670	14.7	1800	460V-3ø	200	130.59	2600	80.73	〈2〉〈3〉〈5〉
SCHWP-2	ARMSTRONG	4060-8X6X15H	HORIZONTAL SPLIT CASE	250	1670	14.7	1800	460V-3ø	200	130.59	2600	80.73	〈2〉〈3〉〈5〉
–	–	–	–	–	–		–	–	–	–	–	–	
HWP-1	ARMSTRONG	4380-6X6X8	CLOSE COUPLED INLINE	50	620	7.72	1800	460V-3ø	15	10.86	650	72.06	〈1〉
HWP-2	ARMSTRONG	4380-6X6X8	CLOSE COUPLED INLINE	50	620	7.72	1800	460V-3ø	15	10.86	650	72.06	〈1〉
HWP-3	ARMSTRONG	4380-6X6X8	CLOSE COUPLED INLINE	50	620	7.72	1800	460V-3ø	15	10.86	650	72.06	〈1〉
SHWP-1	ARMSTRONG	4600-5X4X10L	HORIZONTAL SPLIT CASE	250	930	8.76	3600	460V-3ø	100	72.46	1400	81.03	〈1〉〈5〉〈6〉
SHWP-2	ARMSTRONG	4600-5X4X10L	HORIZONTAL SPLIT CASE	250	930	8.76	3600	460V-3ø	100	72.46	1400	81.03	〈1〉〈5〉〈6〉
–	–	–	–	–	–		–	–	–	–	–	–	
HWP-4	ARMSTRONG	4380-1.5X1.5X8	CLOSE COUPLED INLINE	50	50	7.81	1800	460V-3ø	2	1.19	170	53.23	〈1〉

NOTES:
〈1〉 TEFC, PREMIUM EFFICIENCY MOTOR
〈2〉 ODP, PREMIUM EFFICIENCY MOTOR
〈3〉 VFD OPERATION. VFD PROVIDED BY SI. INSTALLED BY OTHERS.
〈4〉 CONTROLS, STARTER & DISCONNECT BY OTHERS.
〈5〉 DISCONNECT BY OTHERS.
〈6〉 25% PROP. GLYCOL SOLUTION (MIN. OPERATING TEMPERATURE UP TO 21° F.)

FAN SCHEDULE

MARK	MFR	MODEL	CFM CONTINUOUS/ EMERGENCY	RPM	TSP	TYPE	BRAKE HP	ELECTRICAL			SERVICE	OPERATING WEIGHT LBS	SOUND DATA dBA	REMARKS
								HP	VOLT-ø	EMERG. POWER (Y/N)				
EF-1	GREENHECK	CUBE-300-50	7500/7500	799	1.0	CENTRIFUGAL UPBLAST	2.2	3.0	460V-3ø	N	BLDG 2800-CHILLER RM	375	68	〈1〉

NOTE: 〈1〉 PROVIDE ROOF CURB, TIE-DOWNS, ALUMINUM BIRD SCREEN, COUNTER BALANCING BDD. 〈2〉 〈3〉 〈4〉

PLATE HEAT EXCHANGER SCHEDULE

MARK	MFR.	MODEL	HOT SIDE					COLD SIDE					PLATE MAT'L.	PLATE QTY	# OF PASSES	PLATE THICK. (MM)	CONN. SIZE ("HOT / "COLD)	WT. (LBS.)	DIMENSIONS ("Lx"Wx"H)	REMARKS
			FLUID	GPM	EWT °F	LWT °F	WTR △P FT H2O	FLUID	GPM	EWT °F	LWT °F	WTR △P FT H2O								
HX-1	ARMSTRONG	S-106-2000-197	WATER	1,670	58	44	18.2	25% ETHYL GLYCOL	1,460	38.0	54.8	18.3	304 SS	197	1	0.5	8"ø/8"ø	9000	87"X34"X90"	
HX-2	ARMSTRONG	S-106-2000-197	WATER	1,670	58	44	18.2	25% ETHYL GLYCOL	1,460	38.0	54.8	18.3	304 SS	197	1	0.5	8"ø/8"ø	9000	87"X34"X90"	
HX-3	ARMSTRONG	S-X13-350-19	WATER	50	215	175	3.2	WATER	120	140	156.5	17.7	304 SS	19	1	0.5	2"ø/2"ø	300	20"X14"X31"	〈1〉

NOTES: 〈1〉 CONTRACTOR SHALL DETERMINE THE SIZE OF HX-3 BASED ON DATA COLLECTED FROM EXISTING CO-GENERATION SYSTEM.

EXPANSION TANK SCHEDULE

MARK	MFR	MODEL	REQUIRED CAPACITY		SERVICE	OPERATING WEIGHT LBS.	FILL PRESSURE PSIG	MAXIMUM PRESSURE PSIG	MINIMUM TEMP. (°F)	MAXIMUM TEMP. (°F)	REMARKS
			ACCEPT VOL	TANK VOL							
ET-1	ARMSTRONG	A-300-L	80	80	GLYCOL SYSTEM	1100	12	75	21	60	〈1〉
ET-2	ARMSTRONG	A-1200-L	317	317	CHILLED WATER SYSTEM	3,400	30	100	42	60	〈1〉
ET-3	ARMSTRONG	4000-L	1056	1056	HEATING WATER SYSTEM	11,500	30	100	60	180	〈1〉

NOTES:
〈1〉 NPT SYSTEM CONNECTIONS, .302"-.32" CHARGING VALVE, CONSTRUCTED PER ASME BOILER/PRESSURE VESSEL CODE.
〈2〉
〈3〉

AIR SEPARATOR SCHEDULE

MARK	SERVICE	MANUFACTURER MODEL	MIN. GPM	INLET SIZE (IN)	MAX. P.D. (FT. H O) 2	MAX. OPER. WEIGHT (LBS)	REMARKS
AS-1	GLYCOL SYSTEM	ARMSTRONG VA-12	2800	12	1.8 FT	650	〈1〉
AS-2	CHILLED WATER SYSTEM	ARMSTRONG VA-12	3340	12	2.0 FT	650	〈1〉
AS-3	HEATING WATER SYSTEM	ARMSTRONG VA-10	1860	10	2.2 FT	400	〈1〉

NOTES: 〈1〉 WITHOUT STRAINER

(E) = EMERGENCY POWER
(F) = FUTURE
(R) = REDUNDANT

GRAVITY INTAKE/RELIEF HOOD SCHEDULE

SYMBOL	MANUFACTURER MODEL	TYPE	LOCATION	SERVICE	AIRFLOW (CFM)	△Pa (IN WC)	THROAT AREA (SQ FT)	THROAT VELOCITY (FPM)	THROAT SIZE (IN)	HOOD SIZE (IN)	OPER WGT (LBS)	REMARKS
GIH-01	GREENHECK GR-42	GRAVITY INTAKE	ROOF	BLDG 2800-CHILLER ROOM	5,000	0.044	12.25	408	42x42	74X72	200	1,2,3

LEGEND:
1. ALUMINUM HOOD
2. BIRDSCREEN
3. ROOF CURB AND DAMPER
4. –
5. –
6. –

CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD, HAYWARD, CALIFORNIA

THE INCORPORATED STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEERS STAMP SERVES AS THE SELF CERTIFICATION FOR THESE DOCUMENTS.

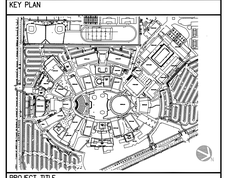
SOUTHLAND INDUSTRIES
775 Commercial Street
San Jose, CA 95112
Tel: 408.970.3777
Fax: 408.970.3776

REGISTERED PROFESSIONAL ENGINEER
LINCOLN M. SPAT
NO. 33025
Exp. 06-30-09
MECHANICAL
STATE OF CALIFORNIA

REVISIONS

NO.	DESCRIPTION	DATE
0	DSA PERMIT SET	02/21/08
1	DSA BACK CHECK	06/26/08
2	AS BUILT	03/06/09

KEY PLAN



PROJECT TITLE
CHABOT COMMUNITY COLLEGE CENTRAL PLANT
25555 HESPERIAN BLVD, HAYWARD, CALIFORNIA

SHEET TITLE
MECHANICAL SCHEDULES

DRAWN BY | CHECKED BY

PROJECT NO. 5617065 | UNIT | SHEET NO. MH0.3

SCALE:

DATE 06-26-2008

VARIABLE FREQUENCY DRIVE SCHEDULE

EQUIPMENT TAG	MFR MODEL	LOCATION	SERVICE	MOTOR SERVICE	ELECTRICAL			ENCLOSURE	BYPASS STARTER	REMARKS
					MOTOR HP	VFD HP	VOLTAGE			
VFD-1	ABB ACH550-BC-245A-4	MECHANICAL YARD	SCHWP-1	PUMP MOTOR	200	200	460-3-60	NEMA 3R	YES	1,2
VFD-2	ABB ACH550-BC-245A-4	MECHANICAL YARD	SCHWP-2	PUMP MOTOR	200	200	460-3-60	NEMA 3R	YES	1,2
VFD-3	ABB ACH550-BC-157A-4	CHILLER ROOM	SHWP-1	PUMP MOTOR	125	125	460-3-60	NEMA 1	YES	1,2
VFD-4	ABB ACH550-BC-157A-4	CHILLER ROOM	SHWP-2	PUMP MOTOR	125	125	460-3-60	NEMA 1	YES	1,2
VFD-5	ABB ACH550-CC-072A-4+B058	BOILER ROOM	CT-1	COOLING TOWER FAN MOTOR	50	50	460-3-60	NEMA 1	YES	1,2
VFD-6	ABB ACH550-CC-072A-4+B058	BOILER ROOM	CT-2	COOLING TOWER FAN MOTOR	50	50	460-3-60	NEMA 1	YES	1,2

LEGEND: 1. DISCONNECT PROVIDED AND INSTALLED BY OTHERS 2. PROVIDE BACNET INTERFACE FOR ALLERTON BMS 3. –

CHEMICAL POT FEEDER SCHEUDLE

EQUIPMENT TAG	MANUFACTURER MODEL	SERVICE	LOCATION	INLET CONNECTION SIZE (IN)	OUTLET CONNECTION SIZE (IN)	DRAIN CONNECTION SIZE (IN)	TANK VOLUME (GAL)	OPERATING WEIGHT (LBS)	REMARKS
PF-1	WINGART DB-12HD	CHILLED WATER	CHILLER ROOM	¾"	¾"	¾"	13.28	200	
PF-2	WINGART DB-12HD	HEATING HOT WATER	BOILER ROOM	¾"	¾"	¾"	13.28	200	

ICE THERMAL STORAGE SYSTEM

MARK	MANUFACTURER MODEL	DISCHARGE FLOW (GPM)	CHARGE FLOW (GPM)	PICK DISCHARGE RATE (TON/HR.)	TANK QTY.	SYSTEM SUPPLY TEMP.	SYSTEM RETURN TEMP.	ICE MAKING CAPACITY (TON)	PRESSURE DROP DISCHARGE (PSI)	GLYCOL CHARGE	ICE MAKING HOURS.	REMARKS
ITS-1	CALMAC – 1500	2965	2965		12	38°F	55°F	70	1.7	25%	8	

GLYCOL FEED SYSTEM

MARK	MFR	MODEL	SERVICE	TANK CAPACITY (GAL)	COLD FILL PRESSURE (PSI)	MAX. PRESSURE (PSI)	ELECT. SUPPLY	CONN. (IN.)	WT. (LB.)	REMARKS
GFS-1	ARMSTRING	GLA-U-HP-1	GLYCOL	53	45-90	150	120/1/60	1/2	160	

NOTES:
(1) –

ANCHORING / VIBRATION ISOLATION SCHEDULE

DESIGNATION		BASE AND INSOLATION		ANCHOR DETAIL	REMARKS
EQUIPMENT	EQUIPMENT TAG	MNFR.	MODEL		
CHILLER	CH-1, CH-2	–	NEOPRENE PADS	SEE STRUCTURAL DWGS	1, 2
COOLING TOWER	CT-1, CT-2	–	NEOPRENE PADS	SEE STRUCTURAL DWGS	1, 2
BOILER	HWB-1, HWB-2, HWB-3	–	NEOPRENE PADS	SEE STRUCTURAL DWGS	1, 2
SEPARATOR	WT-1	–	NEOPRENE PADS	SEE STRUCTURAL DWGS	1, 2
PUMPS	CHWP-1 & 2, CWP-1 & 2, SCHWP-1 & 2, HWP-1, 2 & 3. SHWP-1 & 2, HWP-4	–	N/A	SEE STRUCTURAL DWGS	
EXPANSION TANK	ET-1, 2 & 3	–	NONE		
HEAT EXCHANGER	HX-1, 2 & 3	–	NONE		
EXHAUST FAN	EF-1	–	N/A	SEE MECHANICAL DETAIL SHEET	
POT FEEDER	PF-1 & 2	–	NONE		

LEGEND:
1. SEISMIC BRACE UNIT PER SMACNA GUIDELINES.
2. PADS FOR EQUIPMENT MUST HAVE GROMMENTS SIMILAR TO MASON HG.
3.
4.
5.

CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

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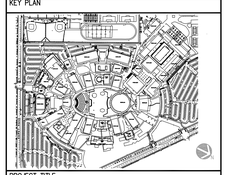
LINCOLN M. SAKAI
NO. 33025
Exp. 06-30-09
MECHANICAL
STATE OF CALIFORNIA

REVISIONS

NO.	DESCRIPTION	DATE
0	DSA PERMIT SET	02/21/08
1	DSA BACK CHECK	06/26/08
2	AS BUILT	03/06/09

KEY PLAN

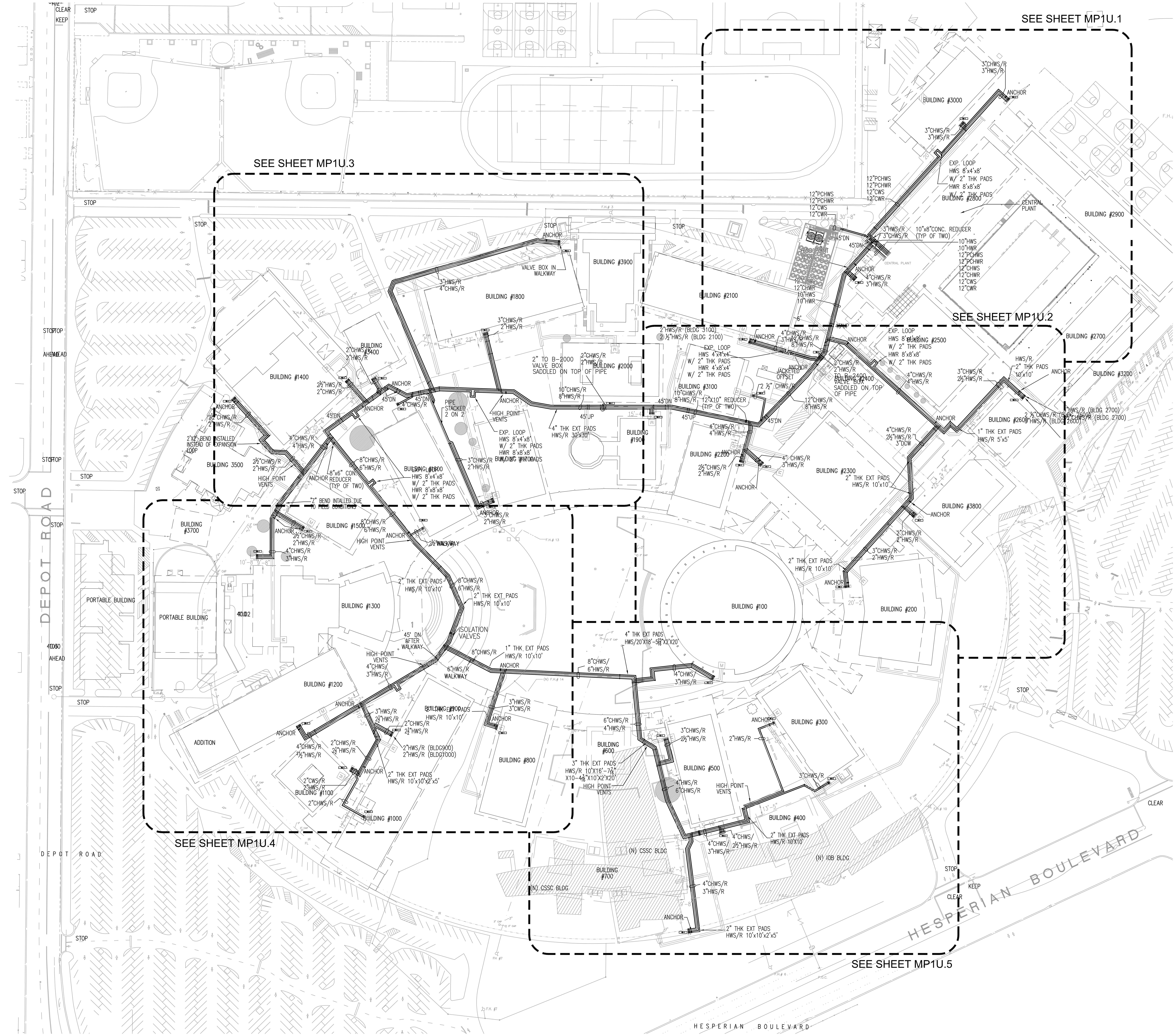


PROJECT TITLE
CHABOT COMMUNITY COLLEGE
CENTRAL PLANT
25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

SHEET TITLE
MECHANICAL SCHEDULES

DRAWN BY | CHECKED BY

PROJECT NO. 5617065 | UNIT | SHEET NO. MH0.4
SCALE:
DATE 06-26-2008



SHEET KEYNOTES

GENERAL NOTES

A. VB-1 6'-6"X4' VALVE BOX

B. VB-3 4'X4' VALVE BOX

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–	90% CONSTRUCTION DOCUMENTS	09/21/07
–	ISSUED FOR CONSTRUCTION	11/05/07
–	AS-BUILT	03/06/09

KEY PLAN

PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

HYDRONIC PIPING OVERALL SITE PLAN

DRAWN BY

CHECKED BY

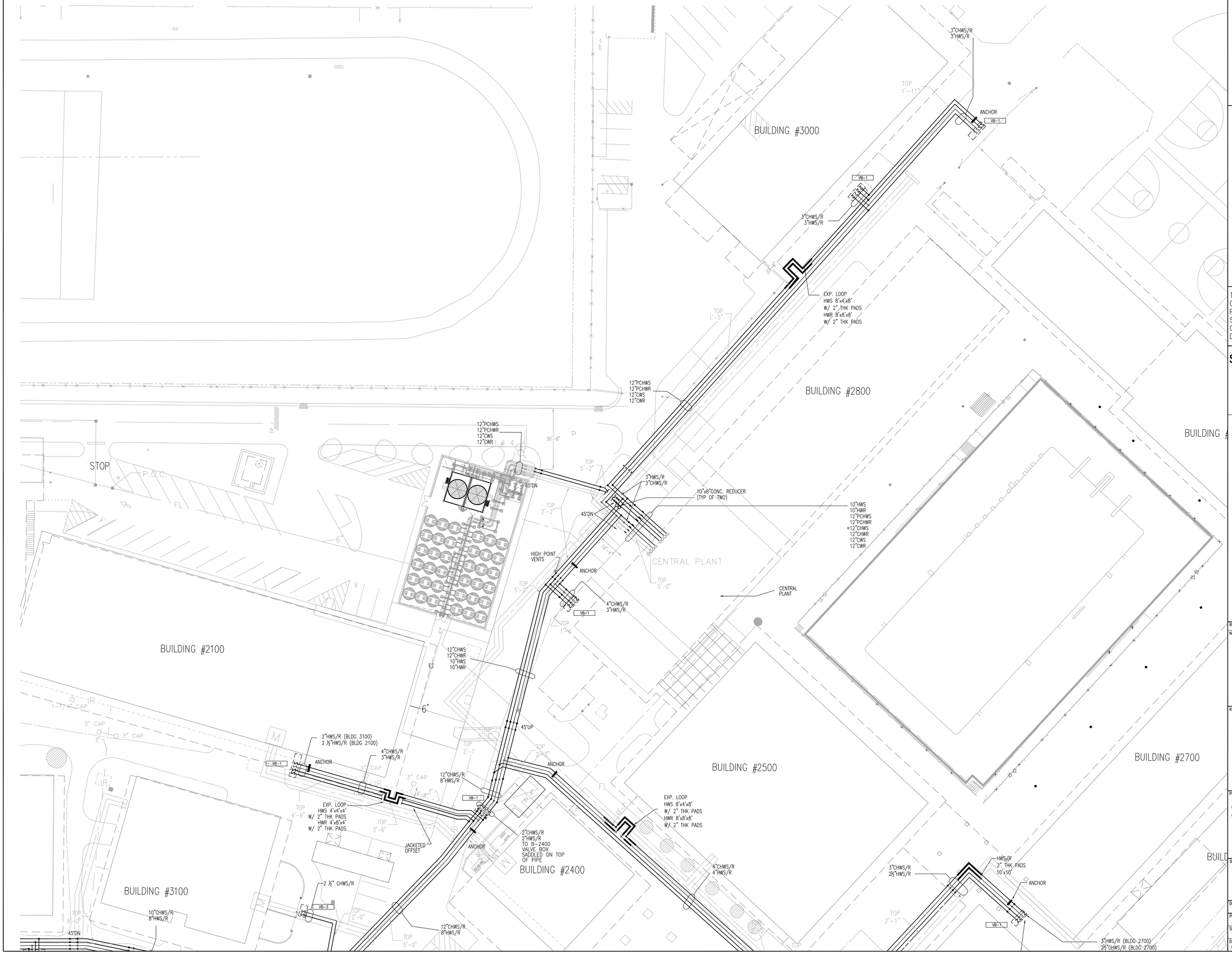
PROJECT NO.
5617065

UNIT

SCALE:
1"=60'

DATE
04-16-2007

SHEET NO.
MP1U.0



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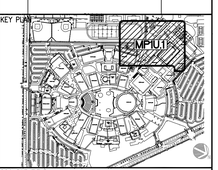


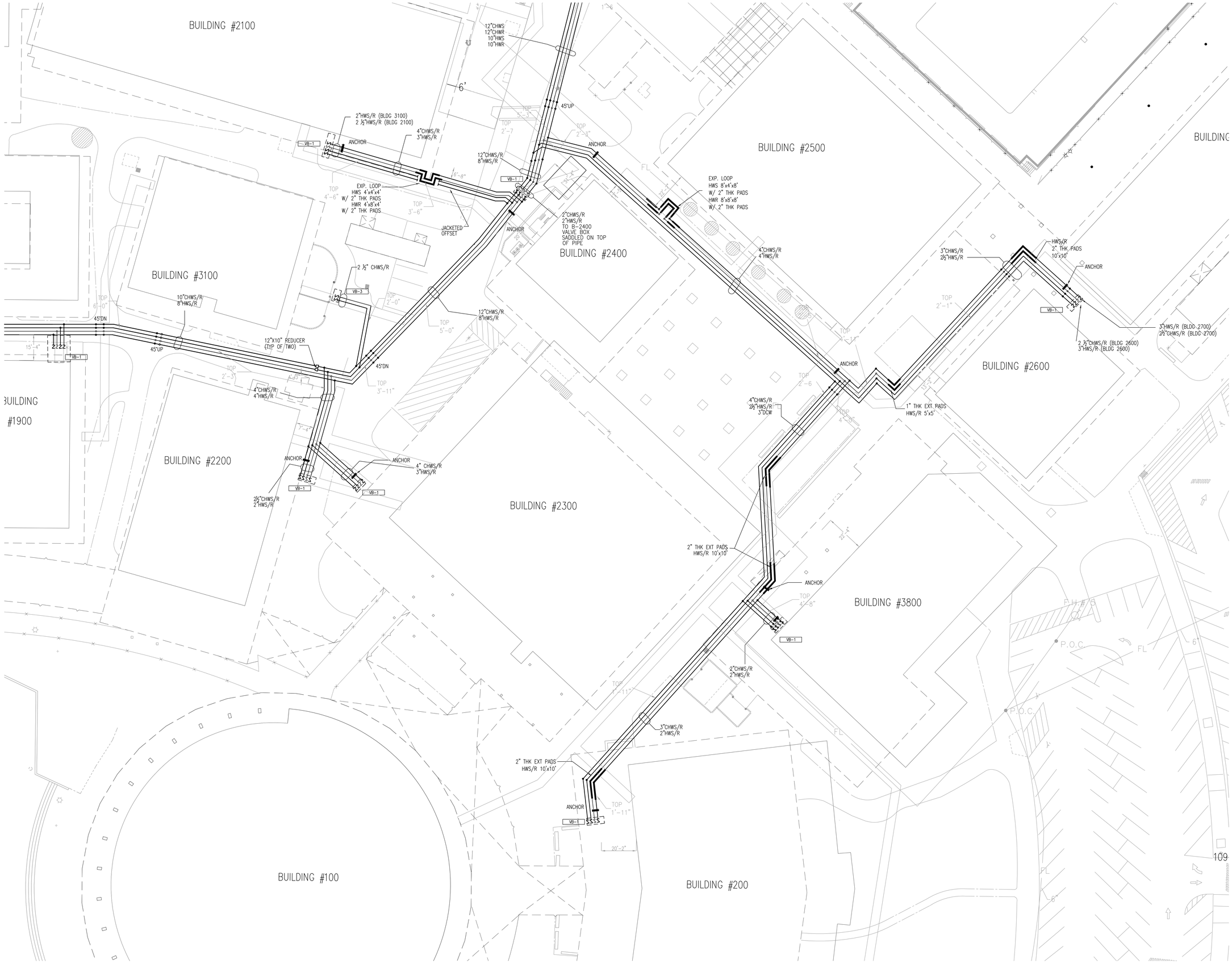
PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL HYDRONIC PIPING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. MP1U.1
SCALE: 1"=20'		
DATE 04-16-2007		



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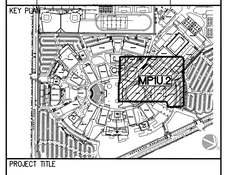


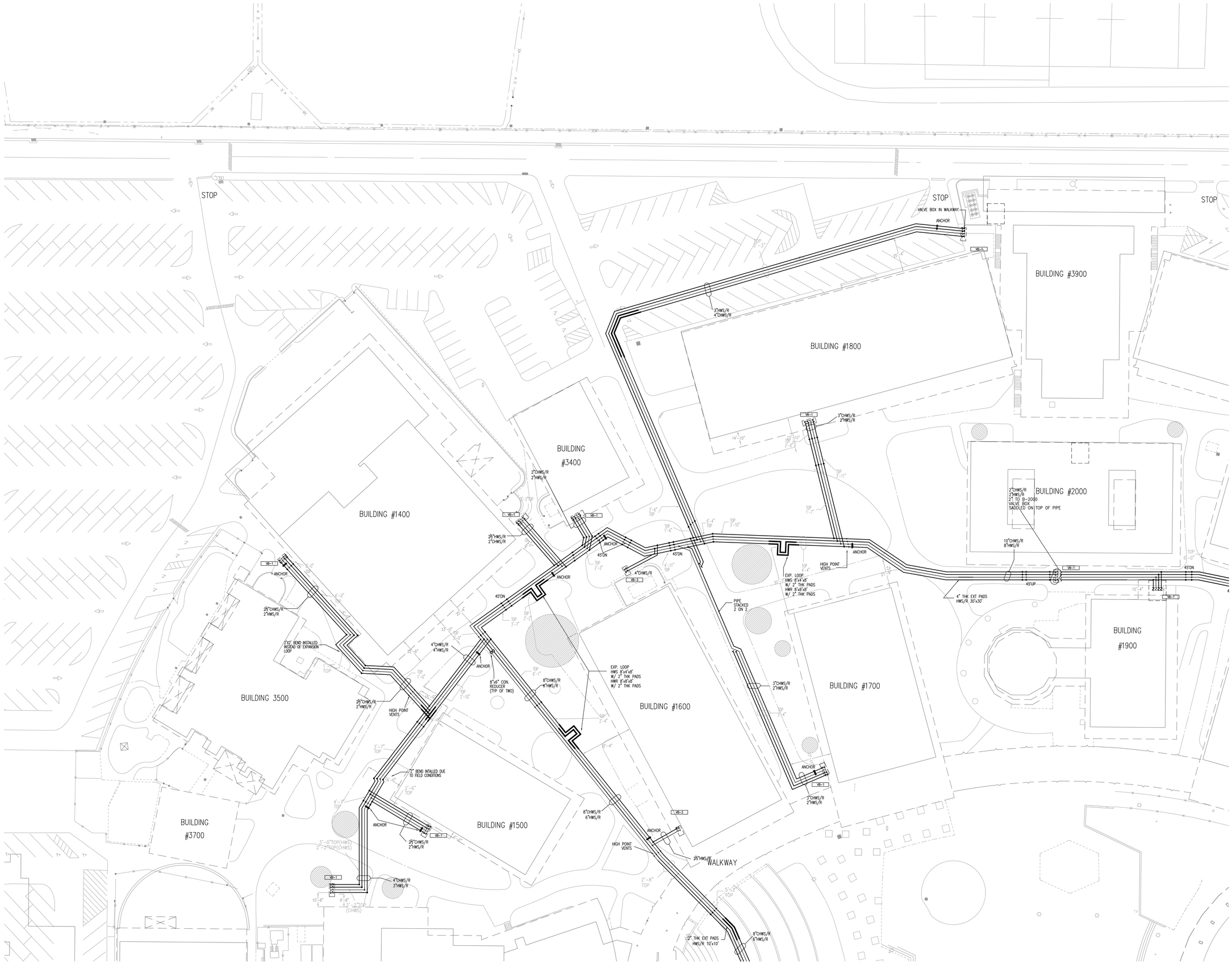
PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL HYDRONIC PIPING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. MP1U.2
SCALE: 1"=20'		
DATE 04-16-2007		



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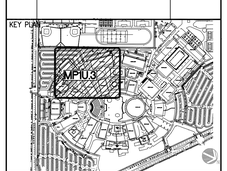

PROJECT TITLE

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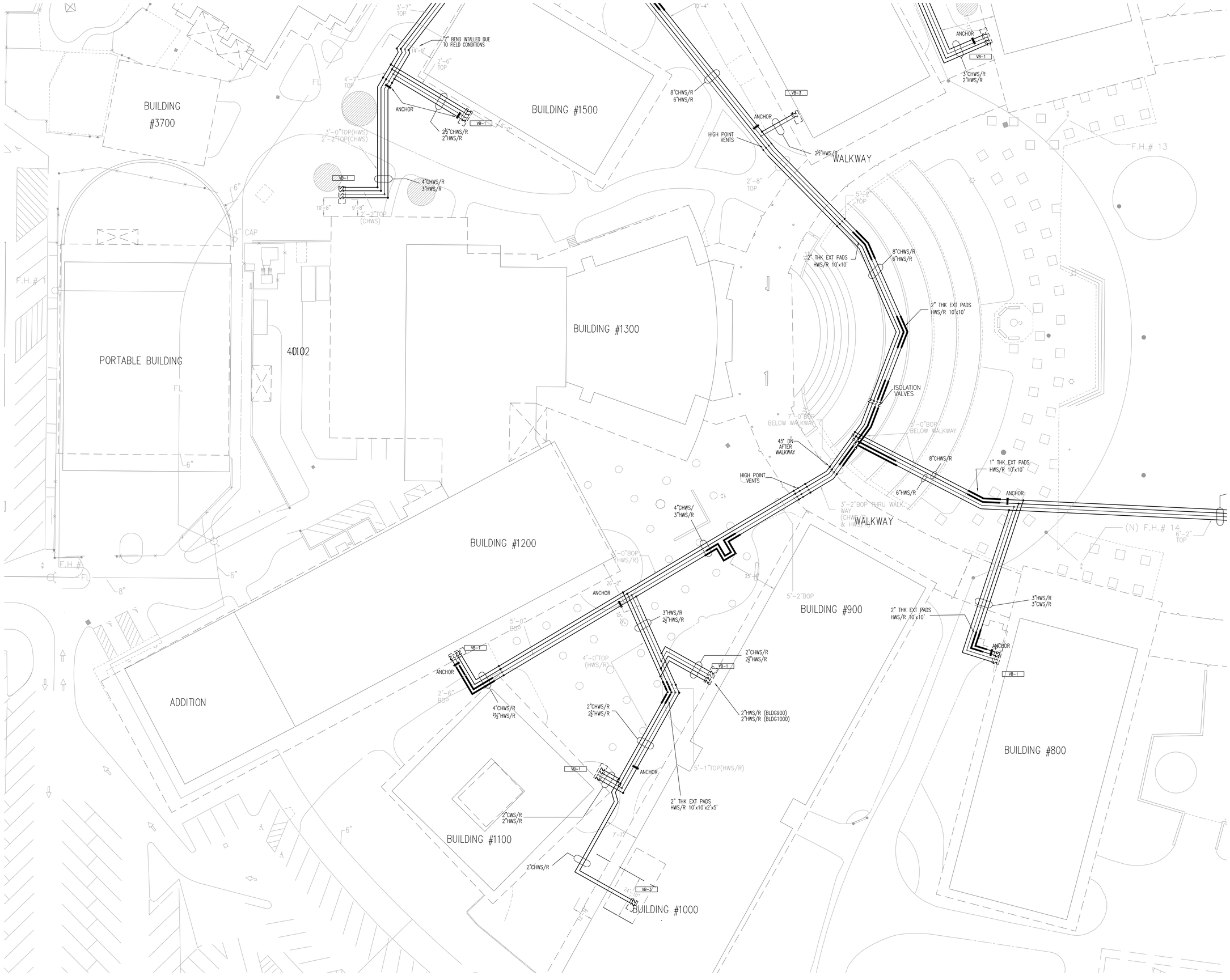
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL HYDRONIC PIPING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. MP1U.3
SCALE 1"=20'		
DATE 04-16-2007		



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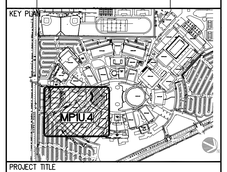

PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL HYDRONIC PIPING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. MP1U.4
SCALE: 1"=20'		
DATE 04-16-2007		

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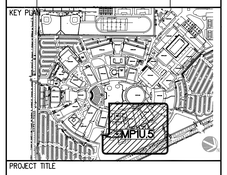


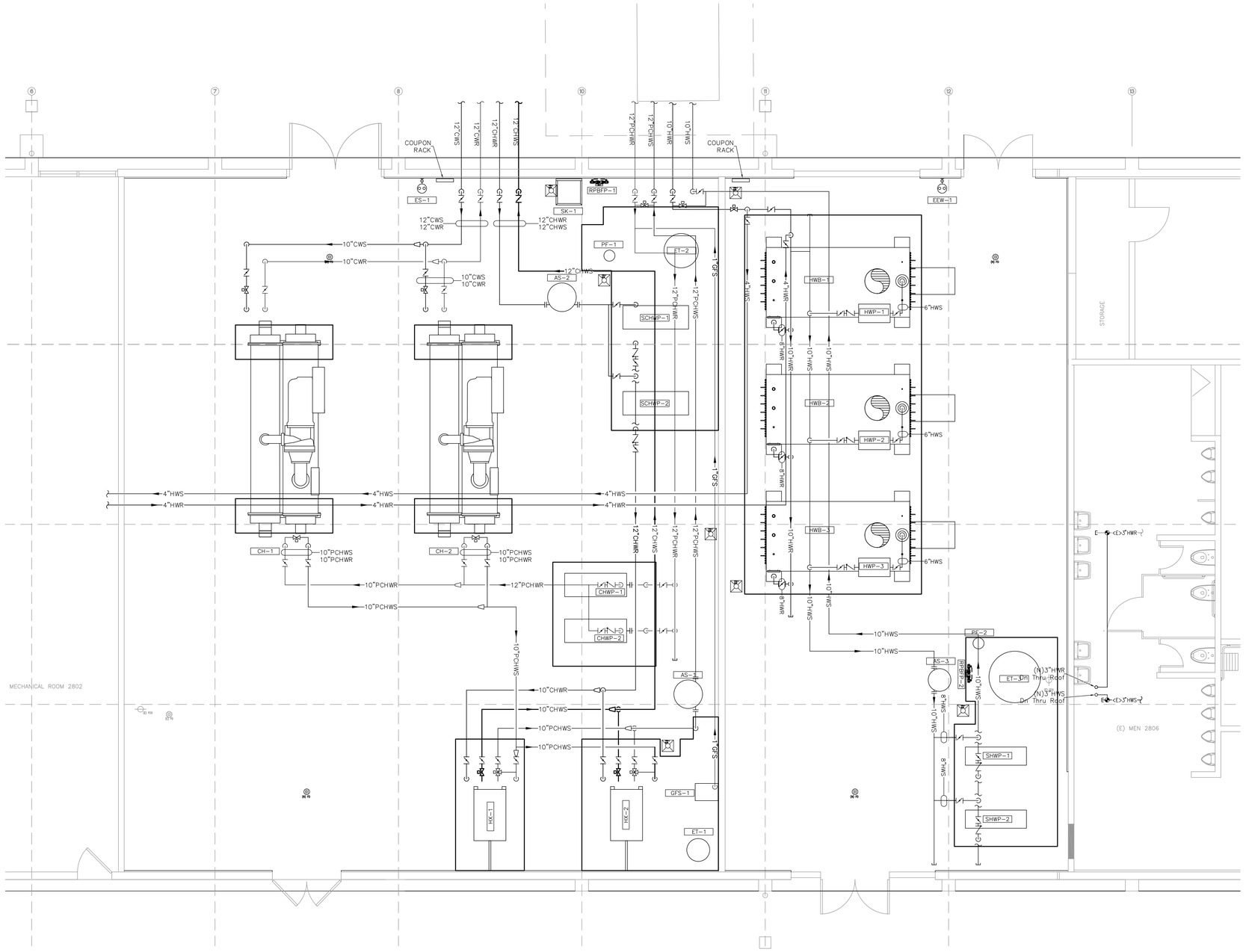
PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL HYDRONIC PIPING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. MP1U.5
SCALE: 1"=20'		
DATE 04-16-2007		



BUILDING 2800 – CHILLER/BOILER CENTRAL PLANT – MECHANICAL PIPING

CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
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0	DSA PERMIT SET	02/21/08
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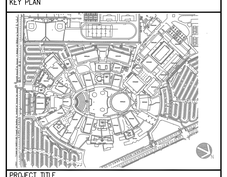
2	FIRE DEPT PERMIT SET	09/03/08
3	AS-BUILT	02/18/09

KEY PLAN



PROJECT TITLE

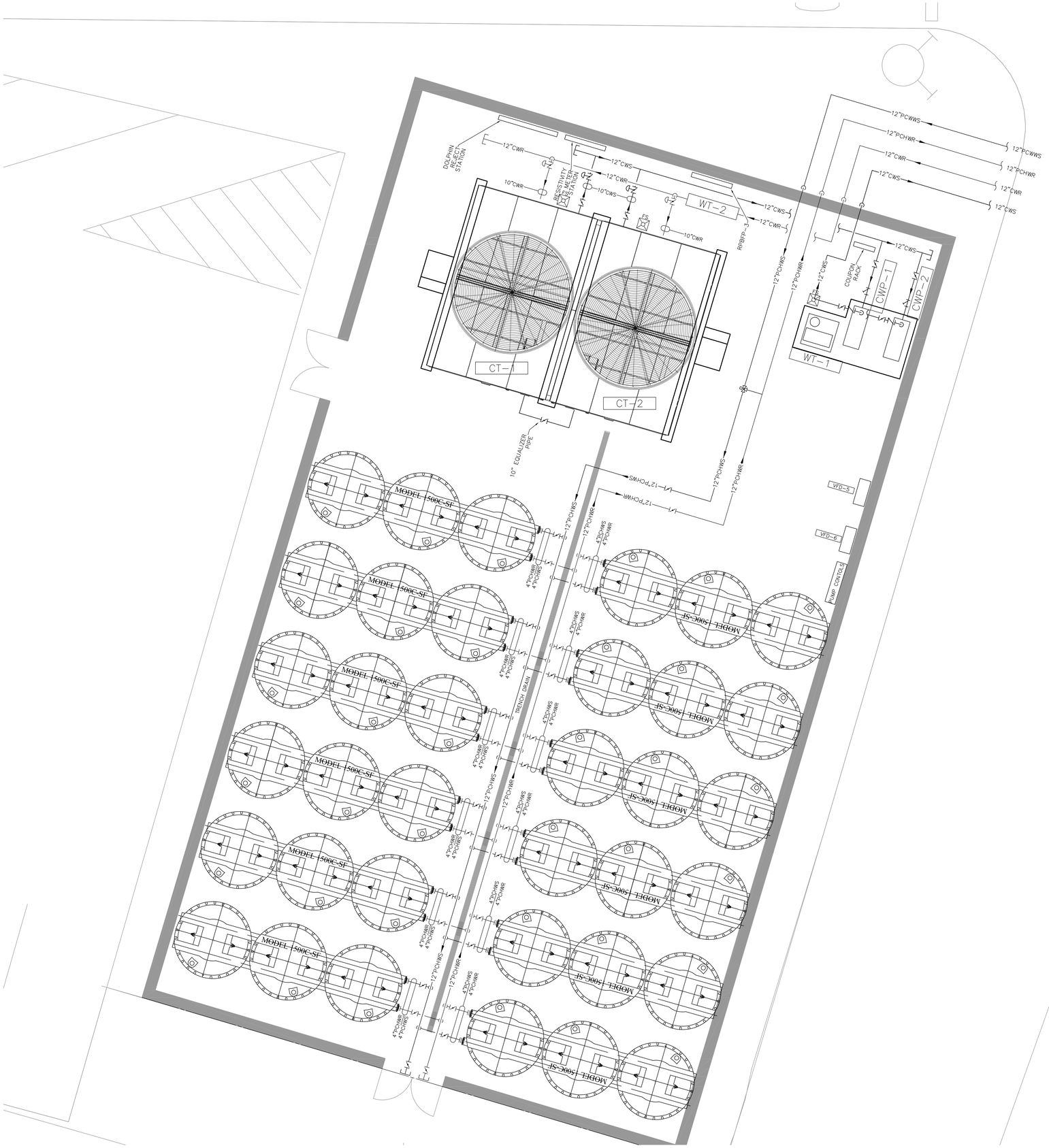
CHABOT COMMUNITY COLLEGE
CENTRAL PLANT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

SHEET TITLE

BUILDING 2800 ENLARGED PARTICAL MECHANICAL PIPING FLOOR PLAN

DRAWN BY: C_Garcia		CHECKED BY:
PROJECT NO.: 5617065	UNIT:	SHEET NO.: MP4.1
SCALE: 1/4"=1'-0"		
DATE: 06-26-2008		



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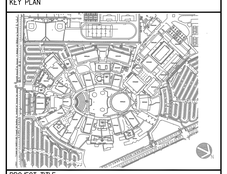
KEY PLAN



PROJECT TITLE

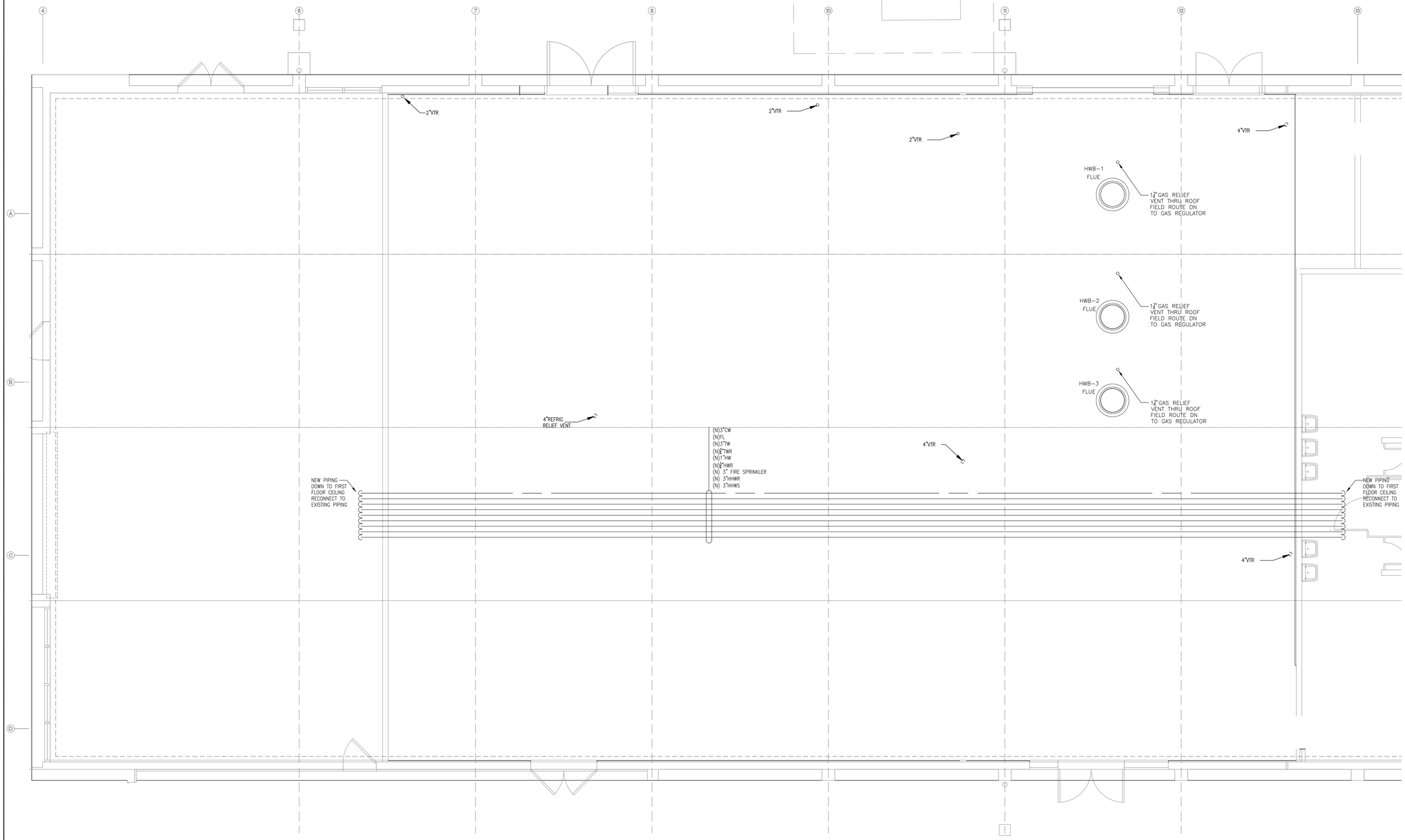
CHABOT COMMUNITY COLLEGE CENTRAL PLANT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

SHEET TITLE

ENLARGED PARTIAL MECHANICAL YARD PLAN

DRAWN BY: C_Garcia		CHECKED BY:
PROJECT NO.: 5617065	UNIT:	SHEET NO.: MP4.3
SCALE: 1/4"=1'-0"		
DATE: 06-26-2008		



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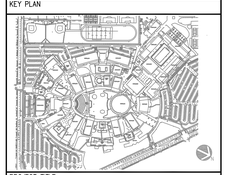


PROJECT TITLE

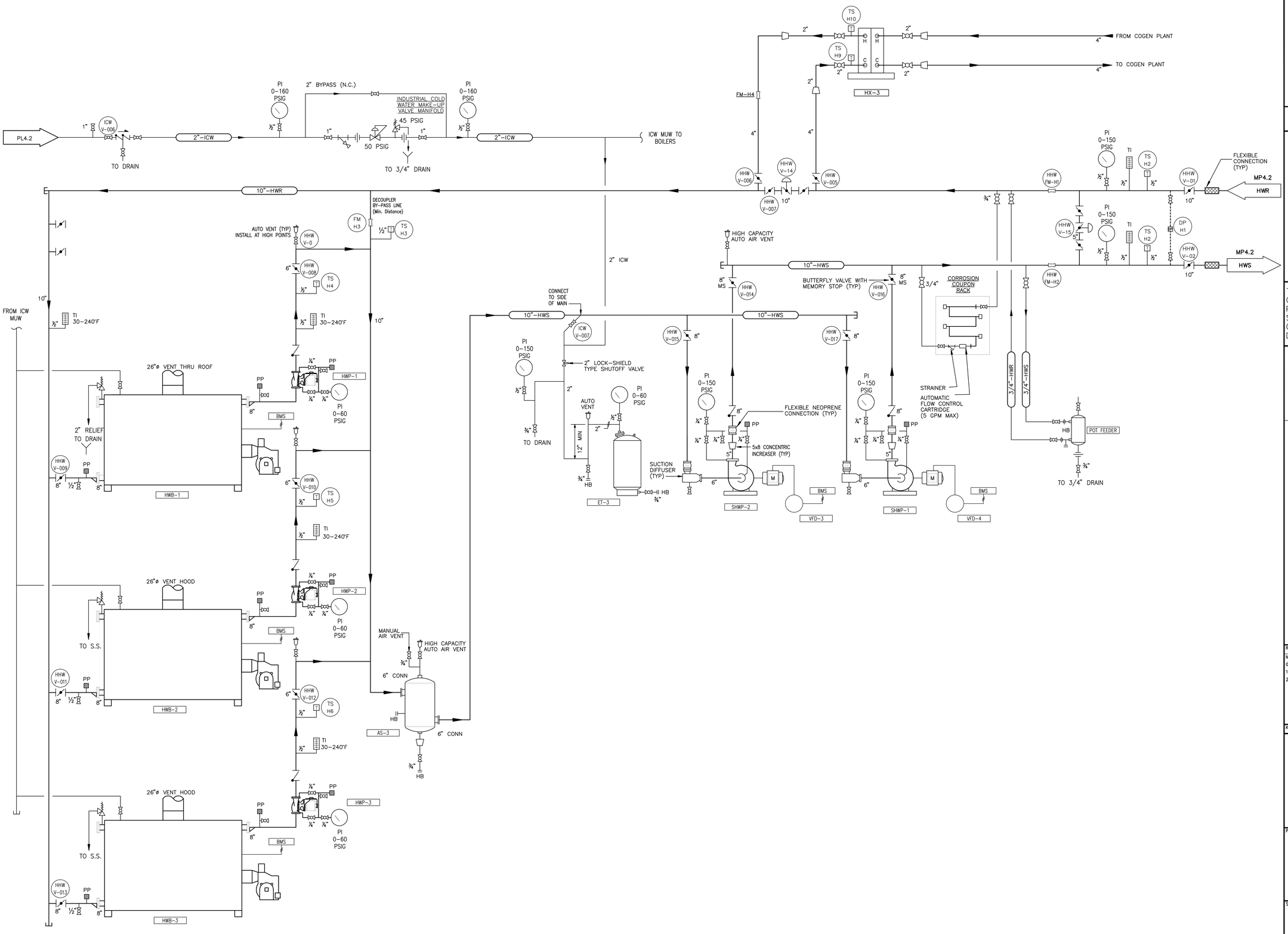
CHABOT COMMUNITY COLLEGE CENTRAL PLANT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

SHEET TITLE

BUILDING 2800
ENLARGED PARTIAL
PLUMBING – ROOF PLAN

DRAWN BY		CHECKED BY
C_Garcia		
PROJECT NO. 5617065	UNIT	SHEET NO. PL4.4
SCALE:		
DATE 06-26-2008		



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REVISIONS

NO.	DESCRIPTION	DATE
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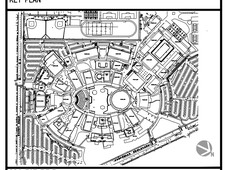
2	AS BUILT	03/06/09

KEY PLAN



PROJECT TITLE

CHABOT COMMUNITY COLLEGE CENTRAL PLANT

25555 HESPERIAN BLVD, HAYWARD, CALIFORNIA

SHEET TITLE

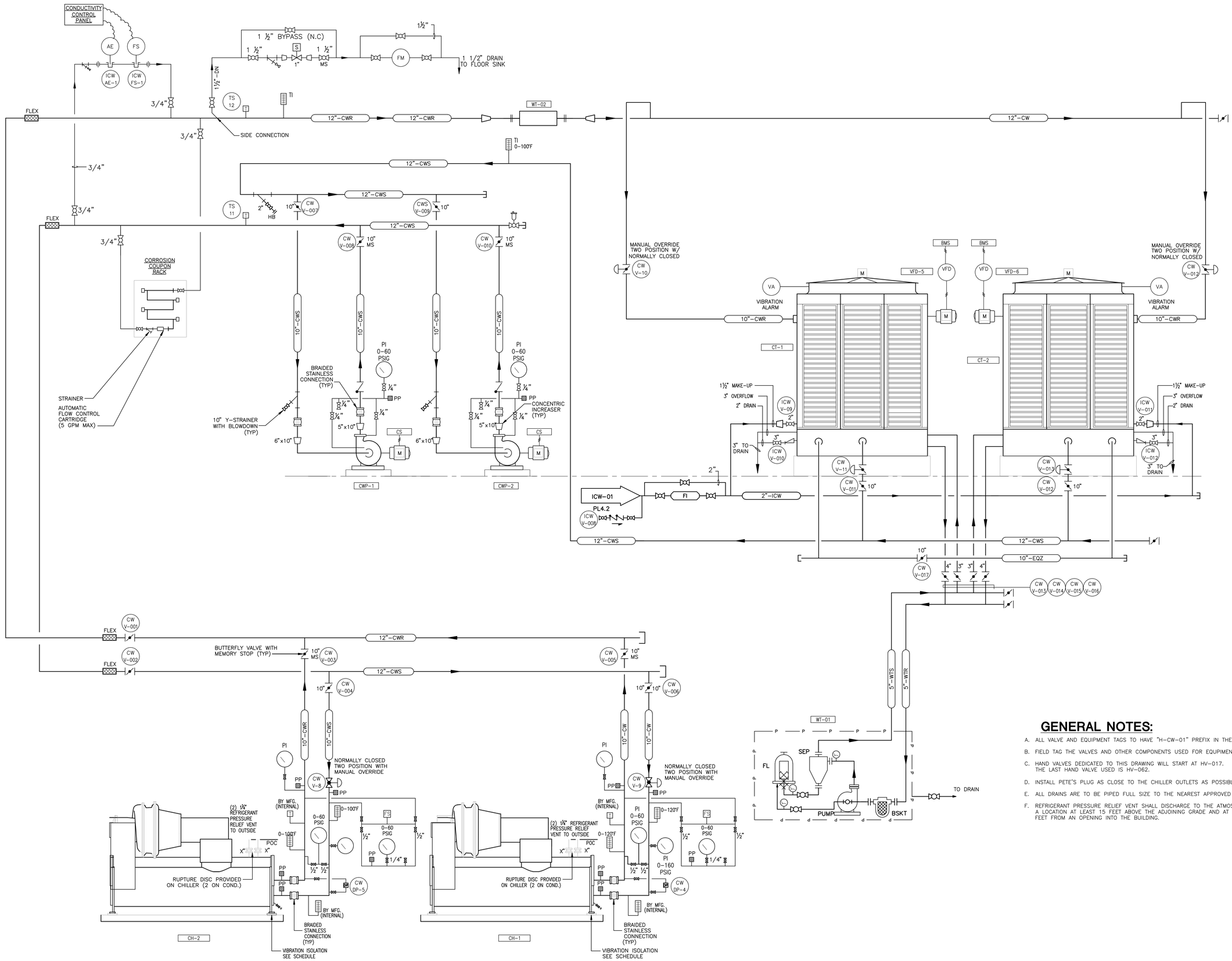
HOT WATER PIPING DIAGRAM

DRAWN BY | CHECKED BY

PROJECT NO. 5617065 | UNIT | SHEET NO. MP5.1

SCALE:

DATE 06-26-2008



GENERAL NOTES:

A. ALL VALVE AND EQUIPMENT TAGS TO HAVE "H-CW-01" PREFIX IN THE FIELD.

B. FIELD TAG THE VALVES AND OTHER COMPONENTS USED FOR EQUPIMENT HOOKUP.

C. HAND VALVES DEDICATED TO THIS DRAWING WILL START AT HV-017. THE LAST HAND VALVE USED IS HV-062.

D. INSTALL PETE'S PLUG AS CLOSE TO THE CHILLER OUTLETS AS POSSIBLE.

E. ALL DRAINS ARE TO BE PIPED FULL SIZE TO THE NEAREST APPROVED RECEPTOR.

F. REFRIGERANT PRESSURE RELIEF VENT SHALL DISCHARGE TO THE ATMOSPHERE AT A LOCATION AT LEAST 15 FEET ABOVE THE ADJOINING GRADE AND AT LEAST 20 FEET FROM AN OPENING INTO THE BUILDING.

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REVISIONS

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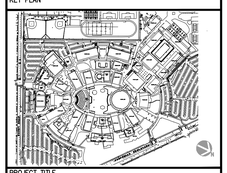
0	DSA PERMIT SET	02/21/08
1	DSA BACK CHECK	06/26/08
2	AS BUILT	03/06/09

KEY PLAN



PROJECT TITLE

CHABOT COMMUNITY COLLEGE CENTRAL PLANT

25555 HESPERIAN BLVD, HAYWARD, CALIFORNIA

SHEET TITLE

CONDENSER WATER PIPING DIAGRAM

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. MP5.2
SCALE:		
DATE 06-26-2008		

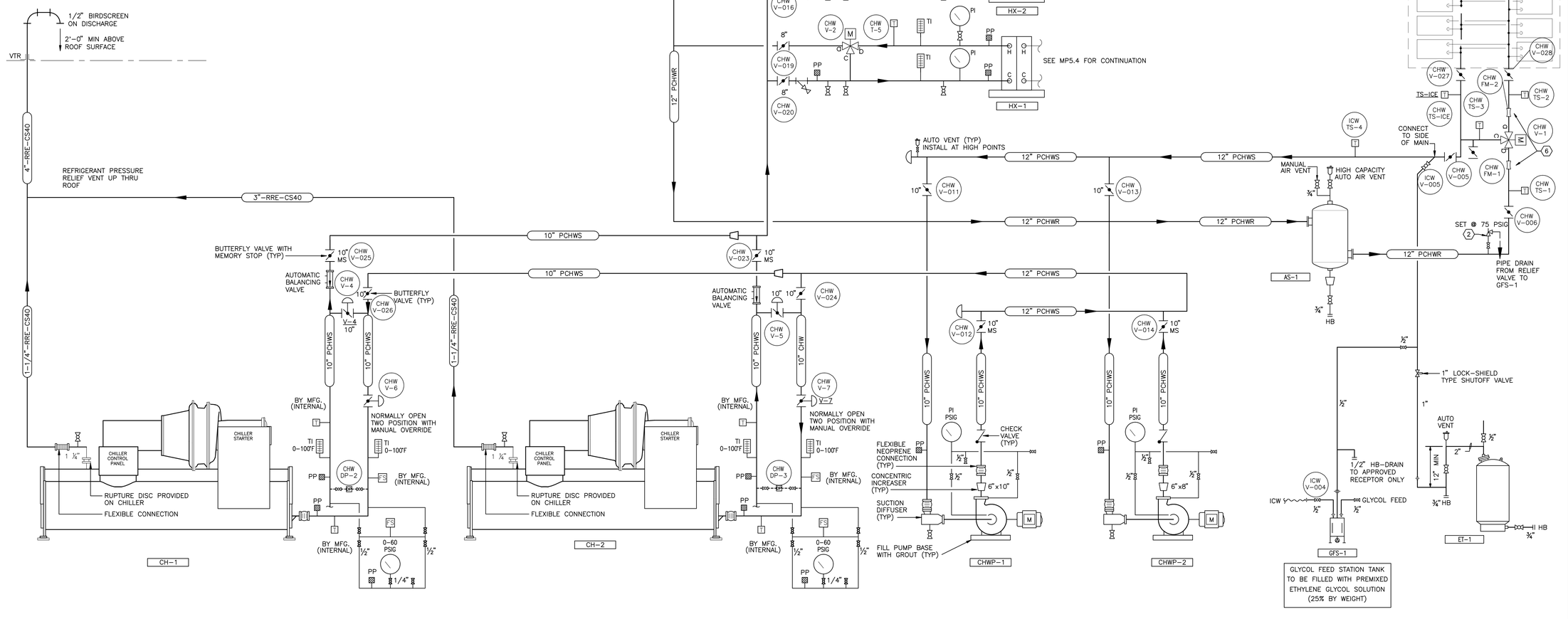
SHEET KEYNOTES

1. NOT USED
2. RELIEF VALVE, SET AT PRESSURE AS REQUIRED BY ICE TANK HEAT EXCHANGER MANUFACTURER.
3. NORMALLY CLOSED, START UP BY-PASS FLUSH VALVE
4. TAP OFF SIDE OF PIPE. DO NOT ALLOW AIR OR DIRT IN THIS LINE.
5. PROVIDE 6 PIPE DIAMETERS OF STRAIGHT PIPE UP STREAM OR PUMP SUCTION.
6. PROVIDE A MINIMUM OF 10X PIPE DIAM. STRAIGHT PIPE UPSTREAM & 5x PIPE DIAM. DOWNSTREAM OF ALL FLOW METERS UON.

GENERAL NOTES

1. PROVIDE REFRIGERANT RELIEF PIPING AND EXTEND TO EXTERIOR OF THE BUILDING TO A MINIMUM DISTANCE OF 20 FEET FROM ANY AIR INTAKE OPENING.
2. INSTALLATION OF COOLING TOWERS, CHILLERS AND PIPING CONNECTIONS TO THEM SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3. PROVIDE AUTOMATIC VENTING AT HIGH POINTS IN THE CHILLER WATER SYSTEM TO ELIMINATE ANY TRAPPED AIR. ROUTE DISCHARGE TO DRAIN.
4. DRAIN ALL LOW POINTS OF SYSTEMS AND RISERS TO NEAREST FLOOR DRAIN. ALL DRAINS ON PIPING 6" AND ABOVE SHALL BE 2" MIN.
5. PROVIDE ADDITIONAL MECHANICAL COUPLINGS OR FLANGED CONNECTIONS FOR CHILLERS AS REQUIRED TO REMOVE A MINIMUM AMOUNT OF PIPING FOR TUBE CLEANING AND REMOVAL. (TYPICAL FOR CONDENSER AND EVAPORATOR INLET AND OUTLET PIPING).
6. WATER FLOW MEASURING DEVICES SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
7. SUPPORT PIPING INDEPENDENT OF EQUIPMENT.
8. ALL DRAIN CONNECTIONS FROM MECHANICAL EQUIPMENT SHALL BE PIPED TO SPILL INDIRECTLY INTO NEAREST FLOOR DRAIN.
9. INSTALL THERMOMETERS AND PRESSURE GAGES AT EYE LEVEL.
10. PROVIDE ELBOW SUPPORT AT ALL PIPE CONNECTIONS TO EQUIPMENT.
11. COORDINATE INSTALLATION OF DIFFERENTIAL PRESSURE SENSORS WITH CONTROL CONTRACTOR.
12. ALL MOTORIZED VALVES SHALL BE PROVIDED WITH LIMIT END SWITCHES FOR REMOTE SENSING OF POSITION INDICATION (FULL OPEN, FULL CLOSED, OR % OPEN). PROVIDE ALL APPURTENANCES NECESSARY FOR REMOTE MONITORING,
13. ALL VALVES AND HYDRONIC SPECIALITES WITHIN GLYCOL LOOP SHALL BE PROVIDED FOR SYSTEM OPERATING TEMPERATURES.

REFRIGERANT PRESSURE RELIEF DEVICES SHALL DISCHARGE TO THE ATMOSPHERE AT A LOCATION AT LEAST 15 FEET ABOVE THE ADJOINING GRADE LEVEL AND AT LEAST 20 FEET FROM AN OPENING INTO THE BUILDING.



CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

THE INCORPORATED STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEERS STAMP SERVES AS THE SELF CERTIFICATION FOR THESE DOCUMENTS.

SOUTHLAND INDUSTRIES

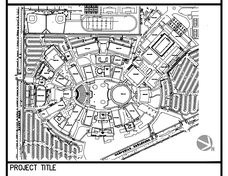
775 Commercial Street
San Jose, CA 95112
Tel: 408.970.3777
Fax: 408.970.3776

REGISTERED PROFESSIONAL ENGINEER
LINCOLN M. SAKAI
NO. 33025
Exp. 06-30-09
MECHANICAL
STATE OF CALIFORNIA

REVISIONS

NO.	DESCRIPTION	DATE
0	DSA PERMIT SET	02/21/08
1	DSA BACK CHECK	06/26/08
2	AS BUILT	03/06/09

KEY PLAN



PROJECT TITLE

CHABOT COMMUNITY COLLEGE CENTRAL PLANT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

SHEET TITLE

CHILLED WATER PIPING DIAGRAM-PRIMARY

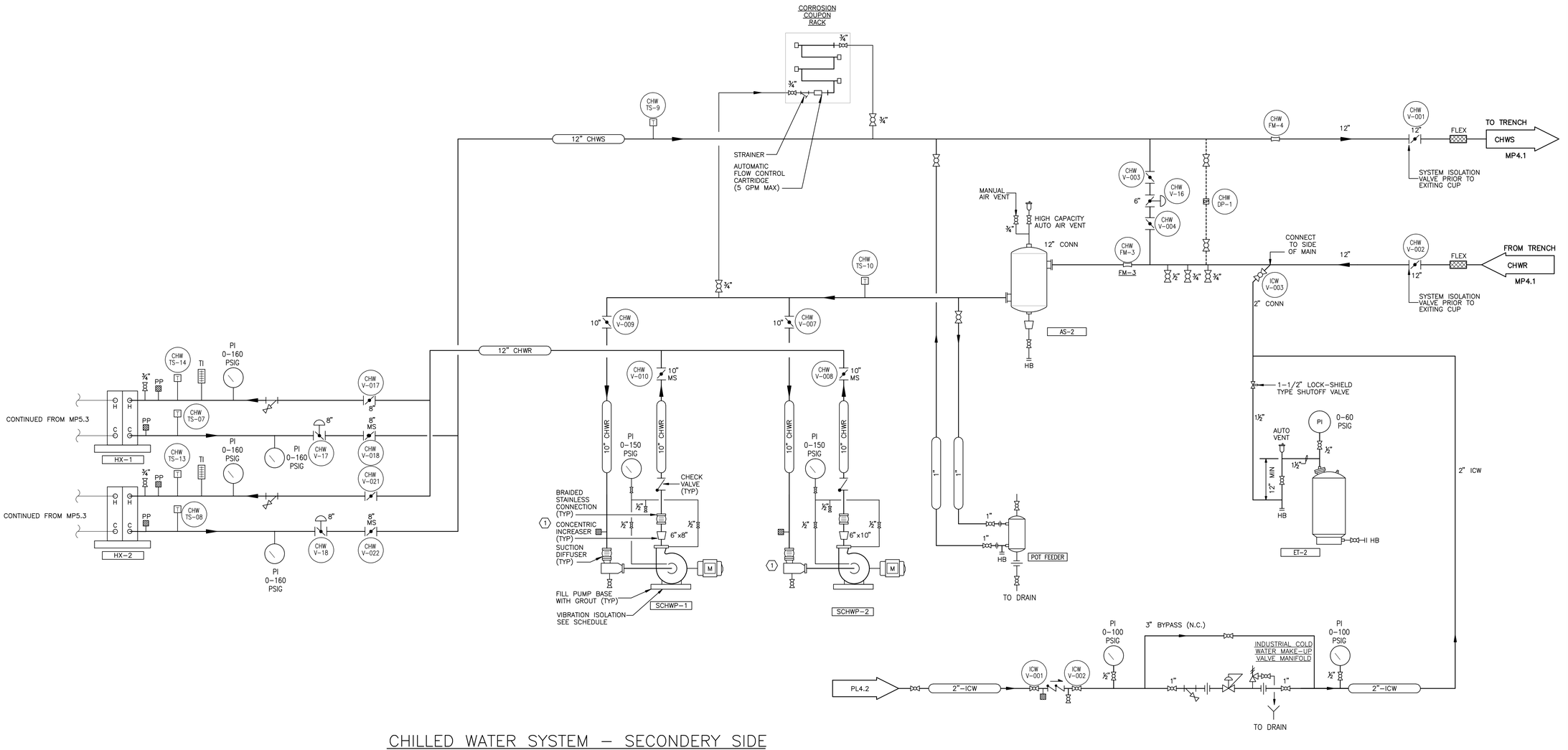
DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. MP5.3
SCALE:		
DATE 06-26-2008		

GENERAL NOTES

1. PROVIDE AUTOMATIC VENTING AT HIGH POINTS IN THE CHILLER WATER SYSTEM TO ELIMINATE ANY TRAPPED AIR. ROUTE DISCHARGE TO DRAIN.
2. DRAIN ALL LOW POINTS OF SYSTEMS AND RISERS TO NEAREST FLOOR DRAIN. ALL DRAINS ON PIPING 6" AND ABOVE SHALL BE 2" MIN.
3. WATER FLOW MEASURING DEVICES SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
4. SUPPORT PIPING INDEPENDENT OF EQUIPMENT.
5. ALL DRAIN CONNECTIONS FROM MECHANICAL EQUIPMENT SHALL BE PIPED TO SPILL INDIRECTLY INTO NEAREST FLOOR DRAIN.
6. INSTALL THERMOMETERS AND PRESSURE GAGES AT EYE LEVEL.
7. PROVIDE ELBOW SUPPORT AT ALL PIPE CONNECTIONS TO EQUIPMENT.
8. ALL MOTORIZED VALVES SHALL BE PROVIDED WITH LIMIT END SWITCHES FOR REMOTE SENSING OF POSITION INDICATION (FULL OPEN, FULL CLOSED, OR % OPEN). PROVIDE ALL APPURTENANCES NECESSARY FOR REMOTE MONITORING,

SHEET KEYNOTES

(1) PROVIDE 6 PIPE DIAMETERS OF STRAIGHT PIPE UP STREAM OR PUMP SUCTION.



CHILLED WATER SYSTEM – SECONDERY SIDE

CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

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REGISTERED PROFESSIONAL ENGINEER LINCOLN M. SHAW NO. 33025 Exp. 06-30-09 MECHANICAL STATE OF CALIFORNIA

REVISIONS

NO.	DESCRIPTION	DATE
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1	DSA BACK CHECK	06/26/08
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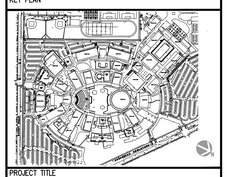
KEY PLAN



PROJECT TITLE

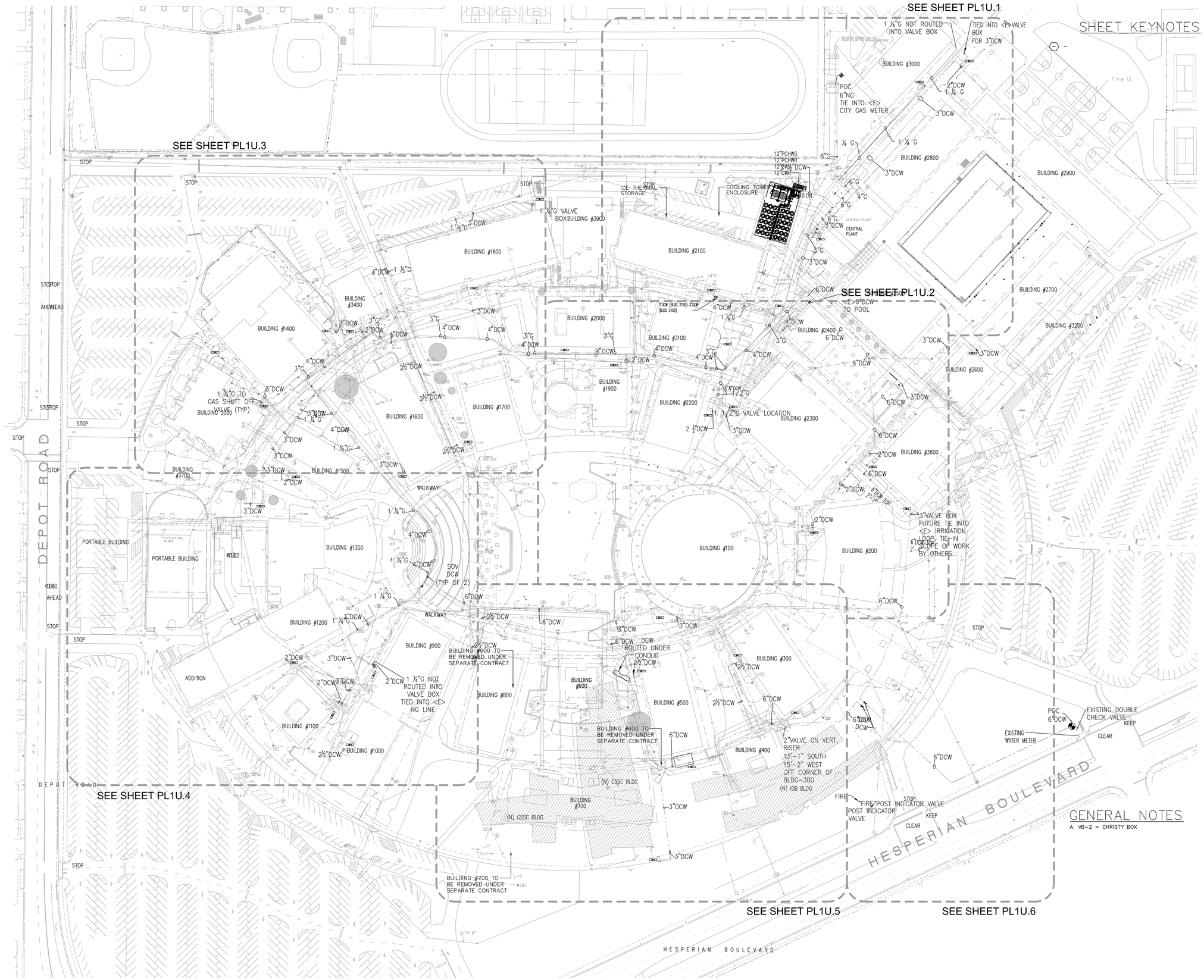
CHABOT COMMUNITY COLLEGE CENTRAL PLANT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

SHEET TITLE

CHILLED WATER PIPING DIAGRAM–SECONDERY

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. MP5.4
SCALE:		
DATE 06-26-2008		



CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT
25555 HESPERIAN BLVD,
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REGISTERED PROFESSIONAL ENGINEER
LINCOLN H. SAILE
NO. 33025
Exp. 06-30-09
MECHANICAL
STATE OF CALIFORNIA

REVISIONS

NO.	DESCRIPTION	DATE
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-	90% CONSTRUCTION DOCUMENTS	09/21/07
-	ISSUED FOR CONSTRUCTION	11/05/07
-	AS-BUILT	03/06/09

KEY PLAN

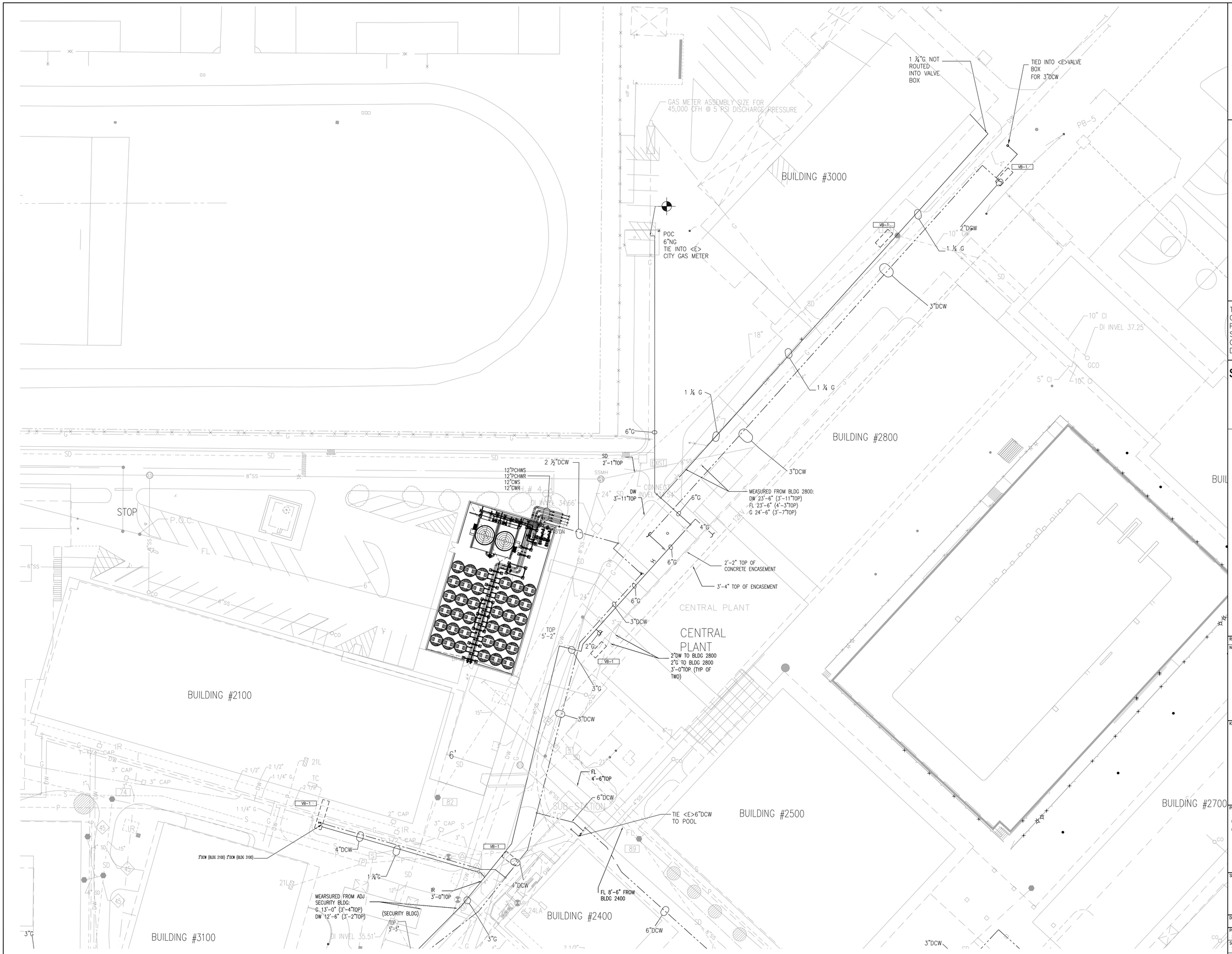
PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PLUMBING OVERALL SITE PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. PL1U.0
SCALE: 1"=60'		
DATE: 04-16-2007		



CHABOT
LAS POSITAS
COMMUNITY
COLLEGE
DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

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Exp. 06-30-09
MECHANICAL
STATE OF CALIFORNIA

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–	AS-BUILT	03/06/09

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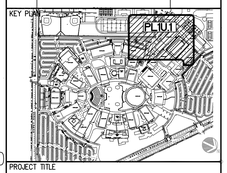

PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL PLUMBING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. PL1U.1
SCALE: 1"=20'		
DATE 04-16-2007		

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25555 HESPERIAN BLVD,
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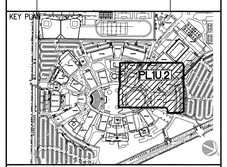


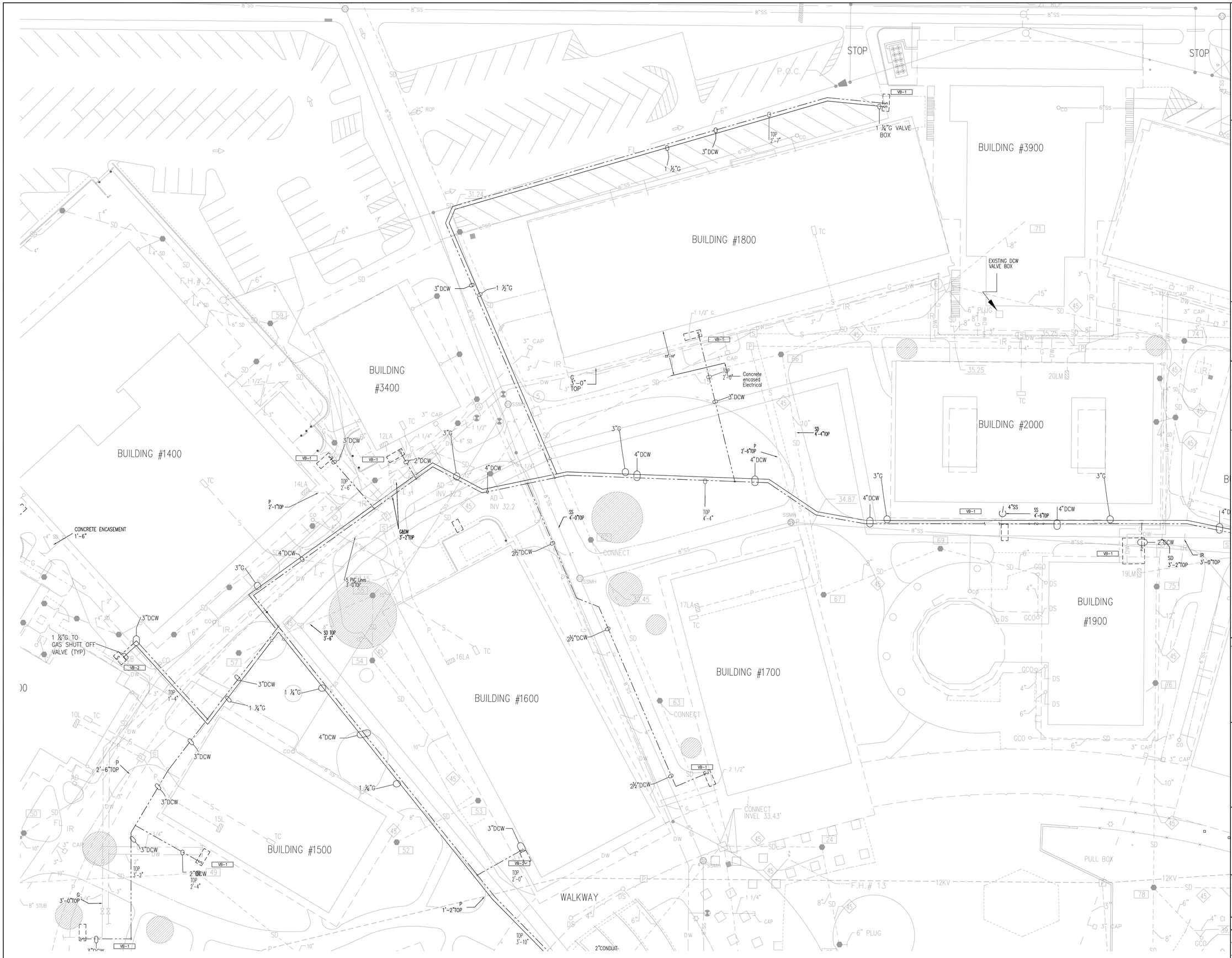
PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL PLUMBING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. PL1U.2
SCALE: 1"=20'		
DATE 04-16-2007		



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25555 HESPERIAN BLVD,
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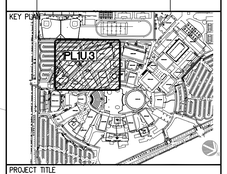


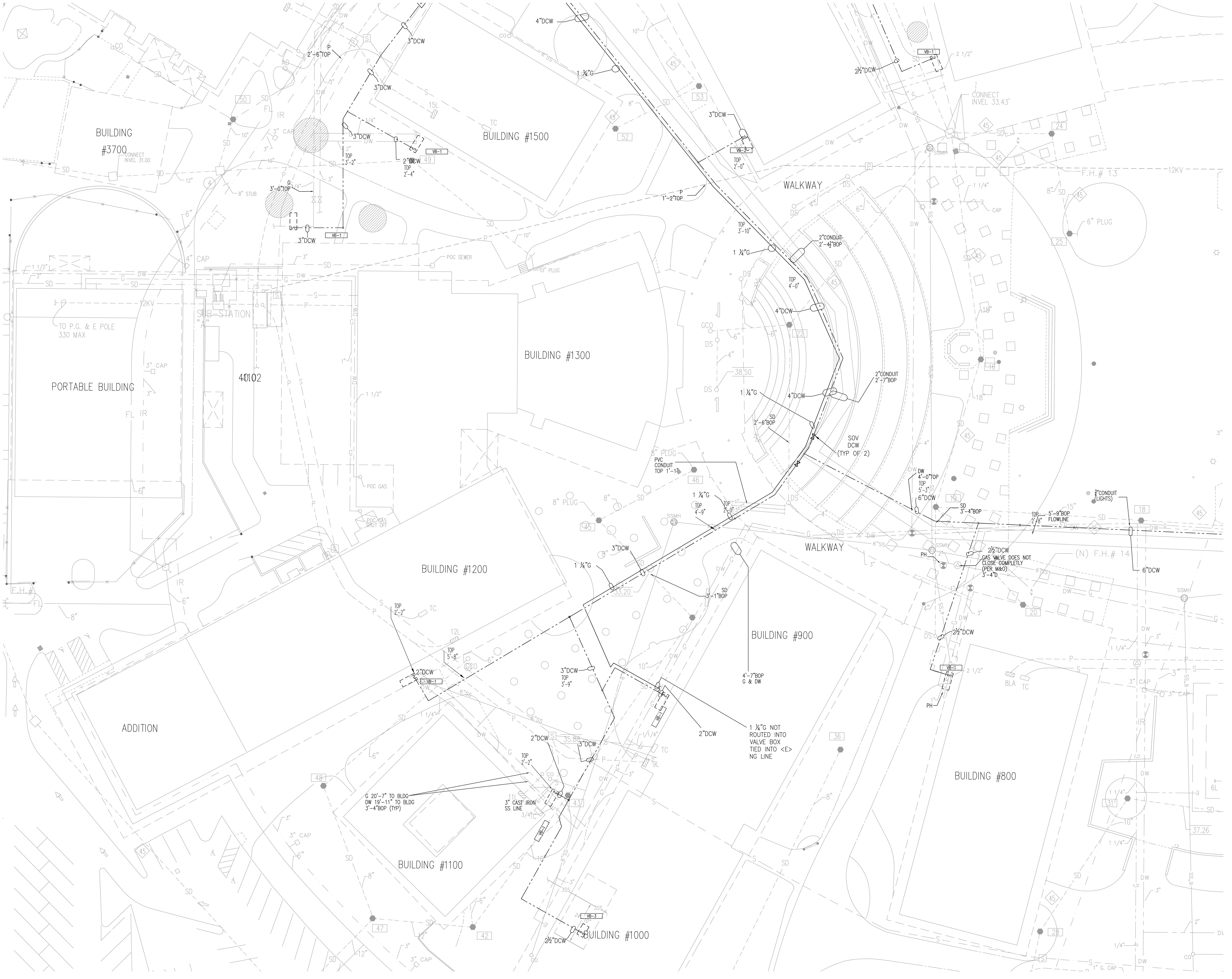
PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL PLUMBING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. PL1U.3
SCALE: 1"=20'		
DATE 04-16-2007		



CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

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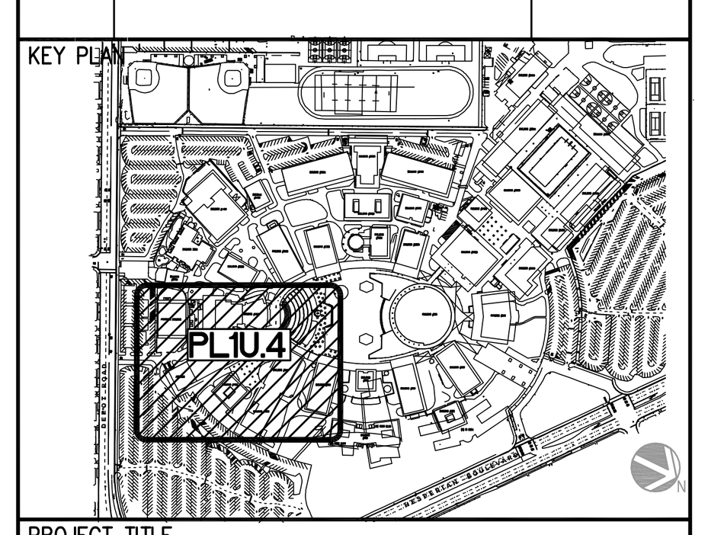

PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL PLUMBING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO.
SCALE: 1"=20'		PL1U.4
DATE 04-16-2007		

CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

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REGISTERED PROFESSIONAL ENGINEER
LINCOLN M. SAKAI
NO. 33025
Exp. 06-30-09
MECHANICAL
STATE OF CALIFORNIA

REVISIONS

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–	90% CONSTRUCTION DOCUMENTS	09/21/07
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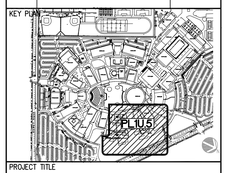
KEY PLAN



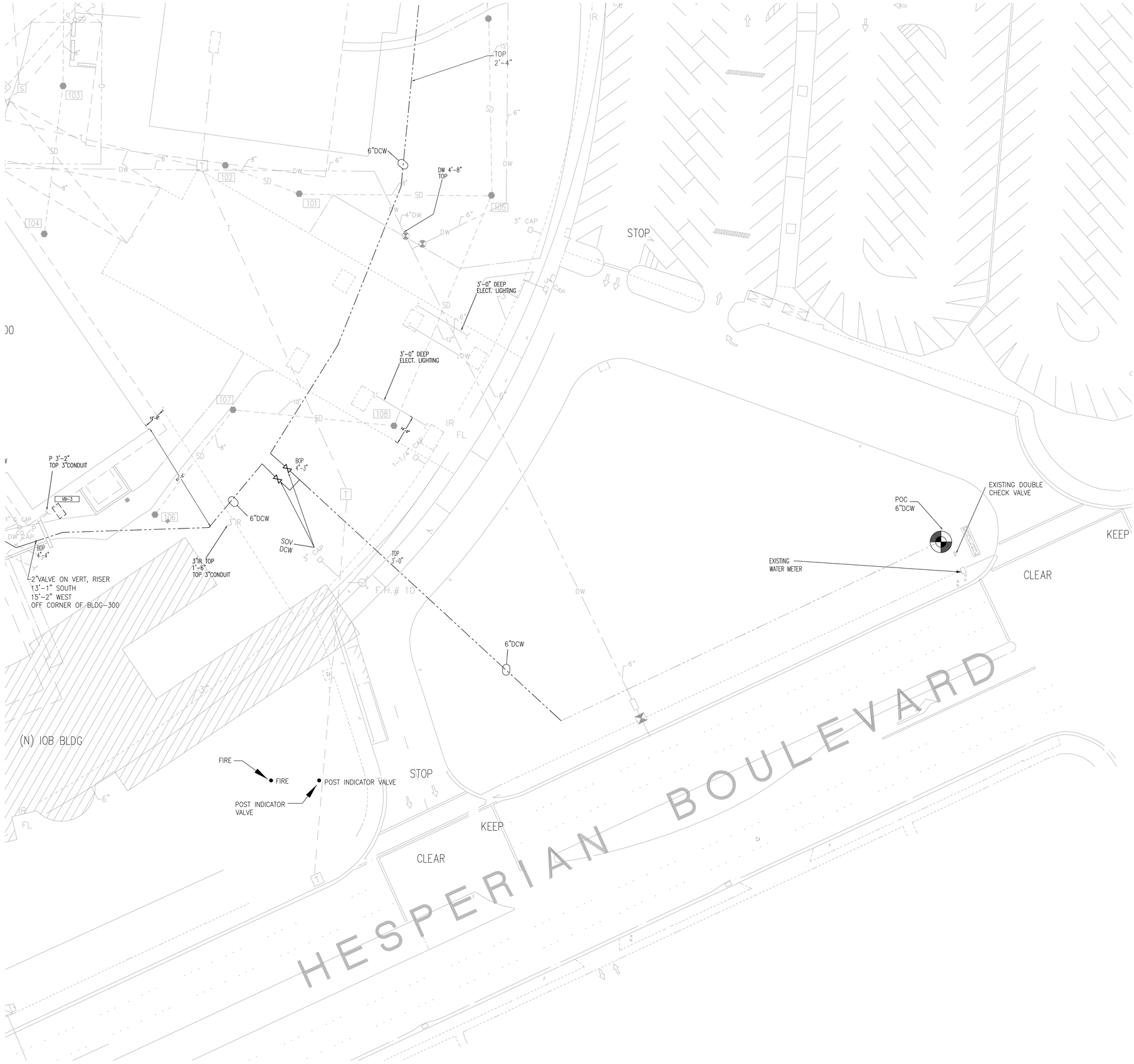
PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL PLUMBING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. PL1U.5
SCALE: 1"=20'		
DATE 04-16-2007		



CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

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–	AS-BUILT	03/06/09

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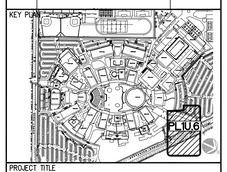


PROJECT TITLE

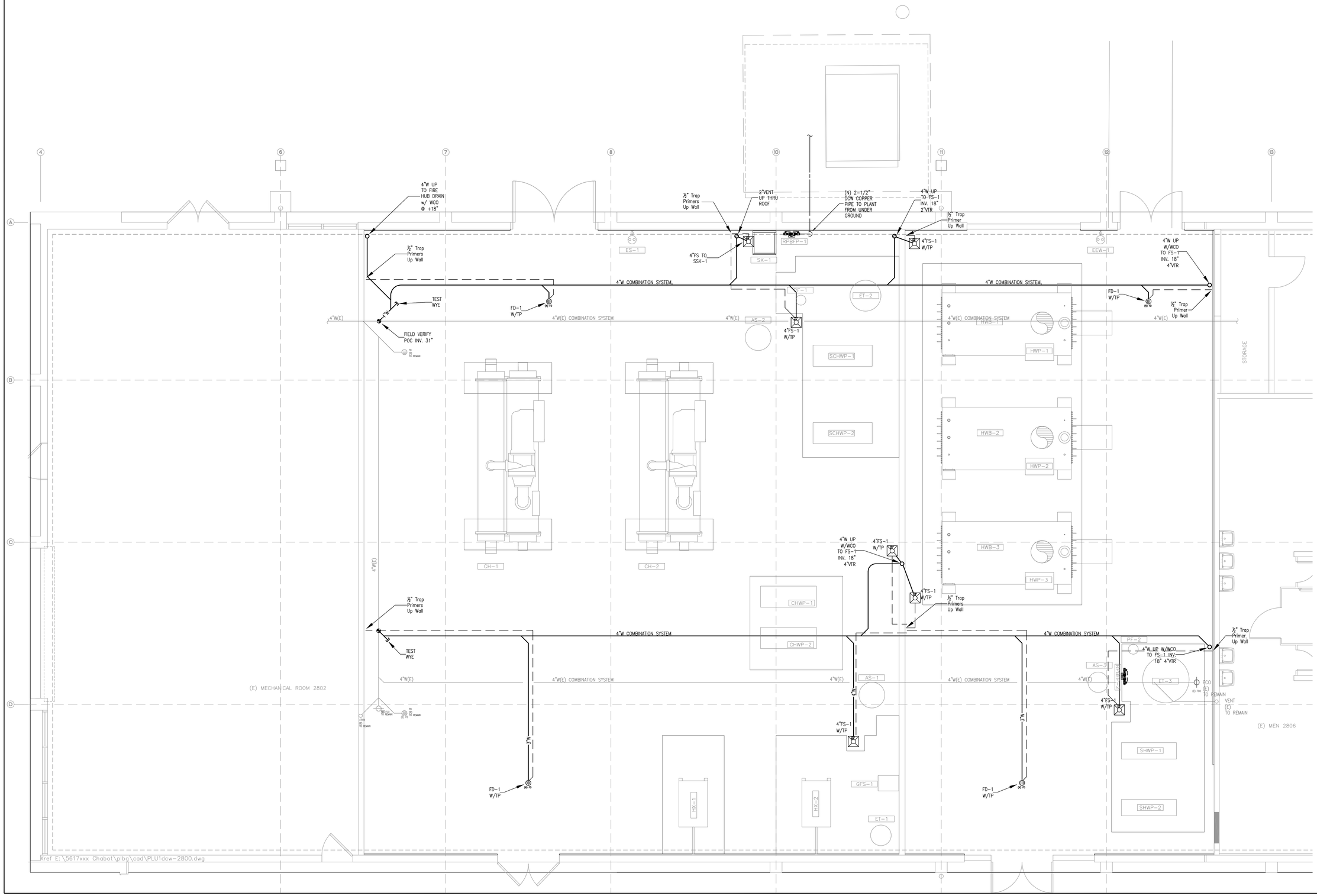
CHABOT COMMUNITY COLLEGE
CENTRAL PLANT PROJECT

SHEET TITLE

PARTIAL PLUMBING PLAN

DRAWN BY		CHECKED BY
PROJECT NO. 5617065	UNIT	SHEET NO. PL1U.6
SCALE: 1"=20'		
DATE 04-16-2007		

SHEET KEYNOTES



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CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

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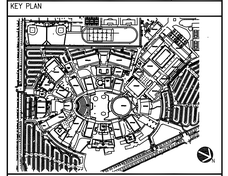
REVISIONS

NO.	DESCRIPTION	DATE
0	DSA PERMIT SET	02/21/08
1	DSA BACK CHECK	06/26/08
2	FIRE DEPT PERMIT SET	09/03/08
3	AS-BUILT	02/18/09

KEY PLAN



PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

SHEET TITLE

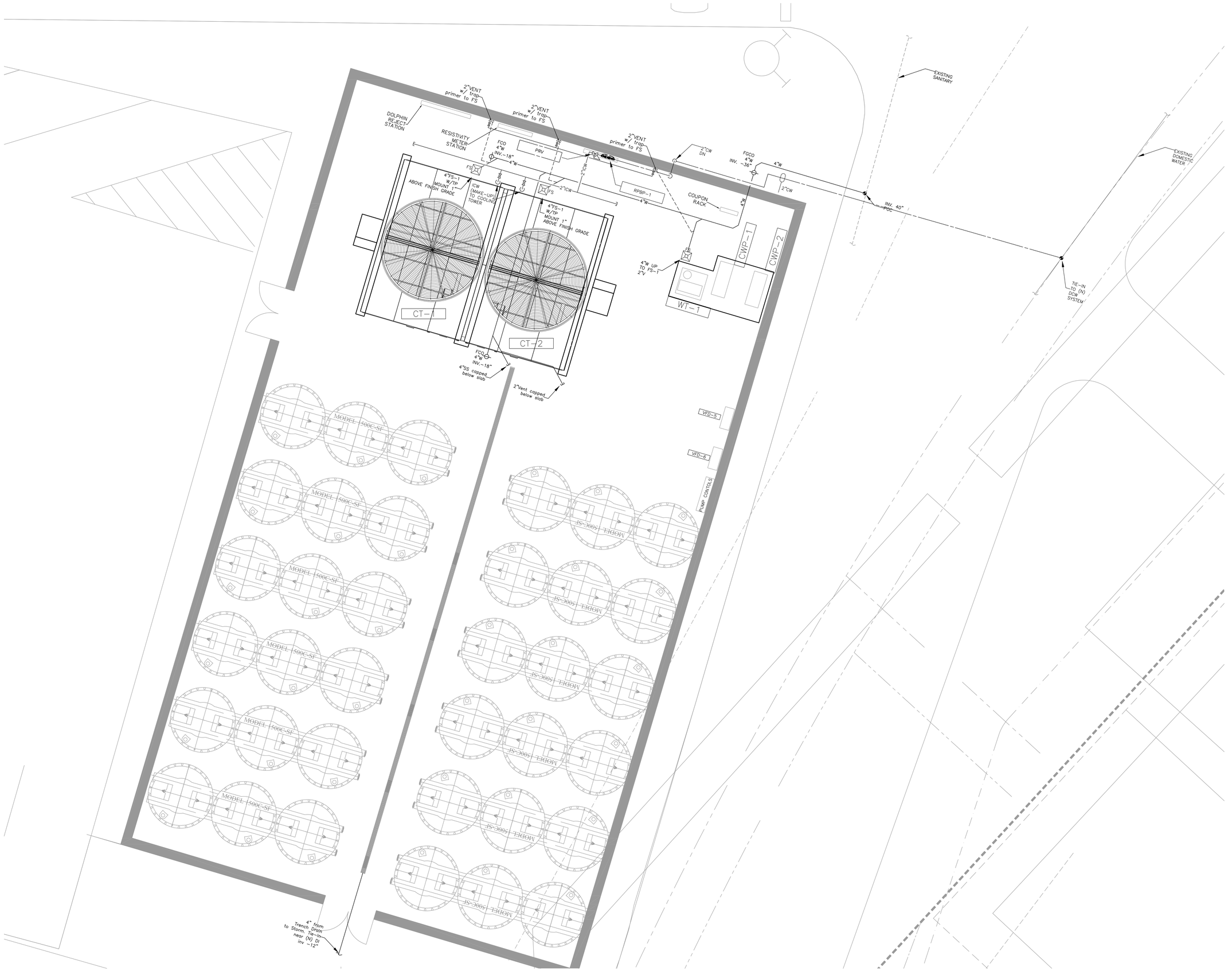
BUILDING 2800
ENLARGED PARTIAL PLUMBING
UNDERGROUND PLAN

DRAWN BY	CHECKED BY
C_Garcia	

PROJECT NO.	UNIT	SHEET NO.
5617065		PL4.1

SCALE:

DATE 06-26-2008



CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
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REVISIONS

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2	FIRE DEPT PERMIT SET	09/03/08
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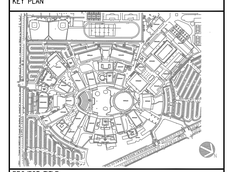
KEY PLAN



PROJECT TITLE

CHABOT COMMUNITY COLLEGE
CENTRAL PLANT

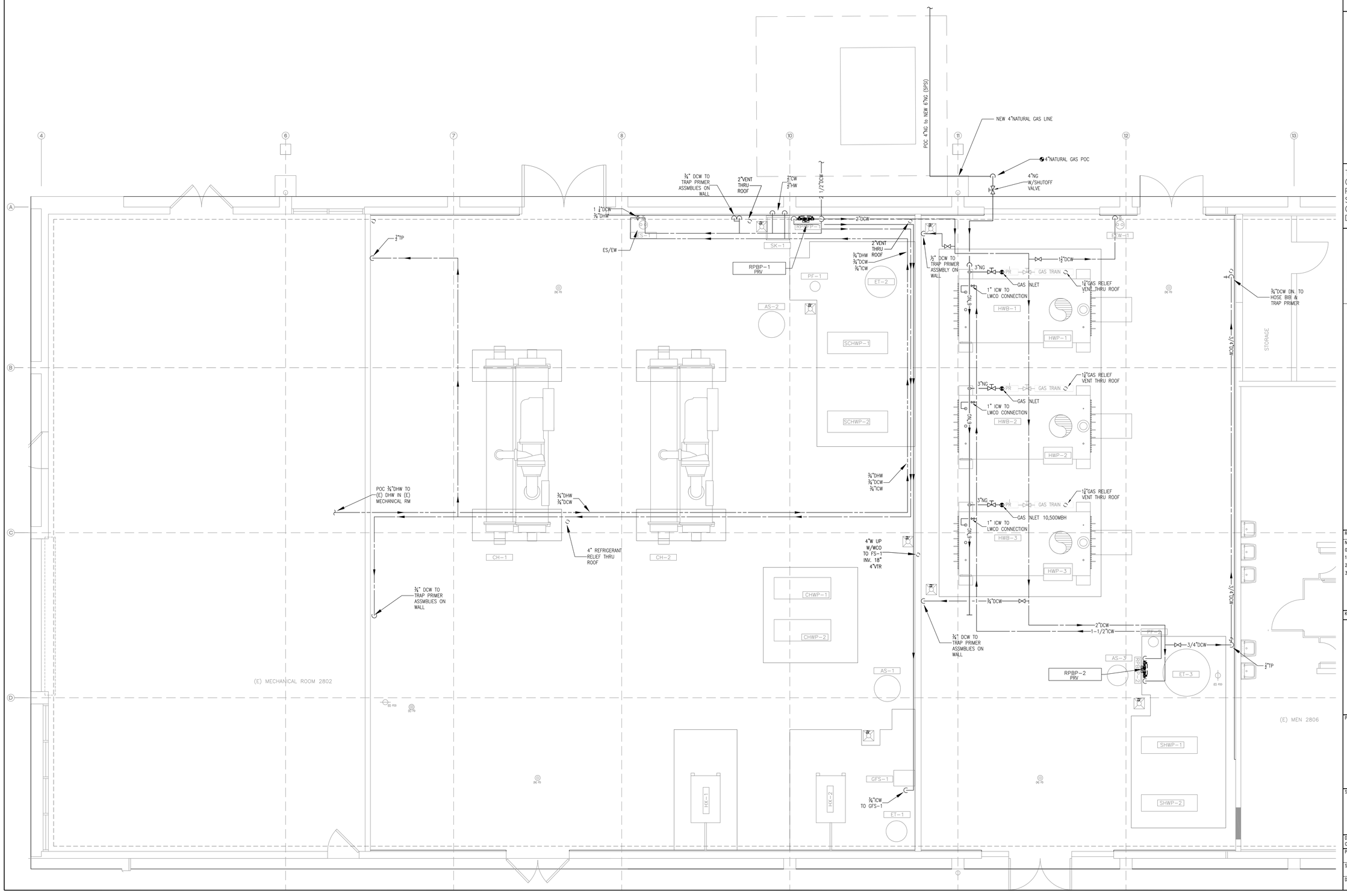
25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

SHEET TITLE

ENLARGED PARTIAL PLUMBING UNDERGROUND YARD PLAN

DRAWN BY	CHECKED BY
C_Garcia	

PROJECT NO.	UNIT	SHEET NO.
5617065		PL4.2
SCALE: 1/4"=1'-0"		
DATE 06-26-2008		



CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
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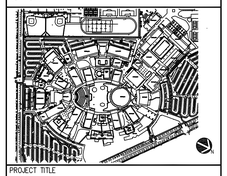
3	AS-BUILT	02/18/09

KEY PLAN



PROJECT TITLE

CHABOT COMMUNITY COLLEGE CENTRAL PLANT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

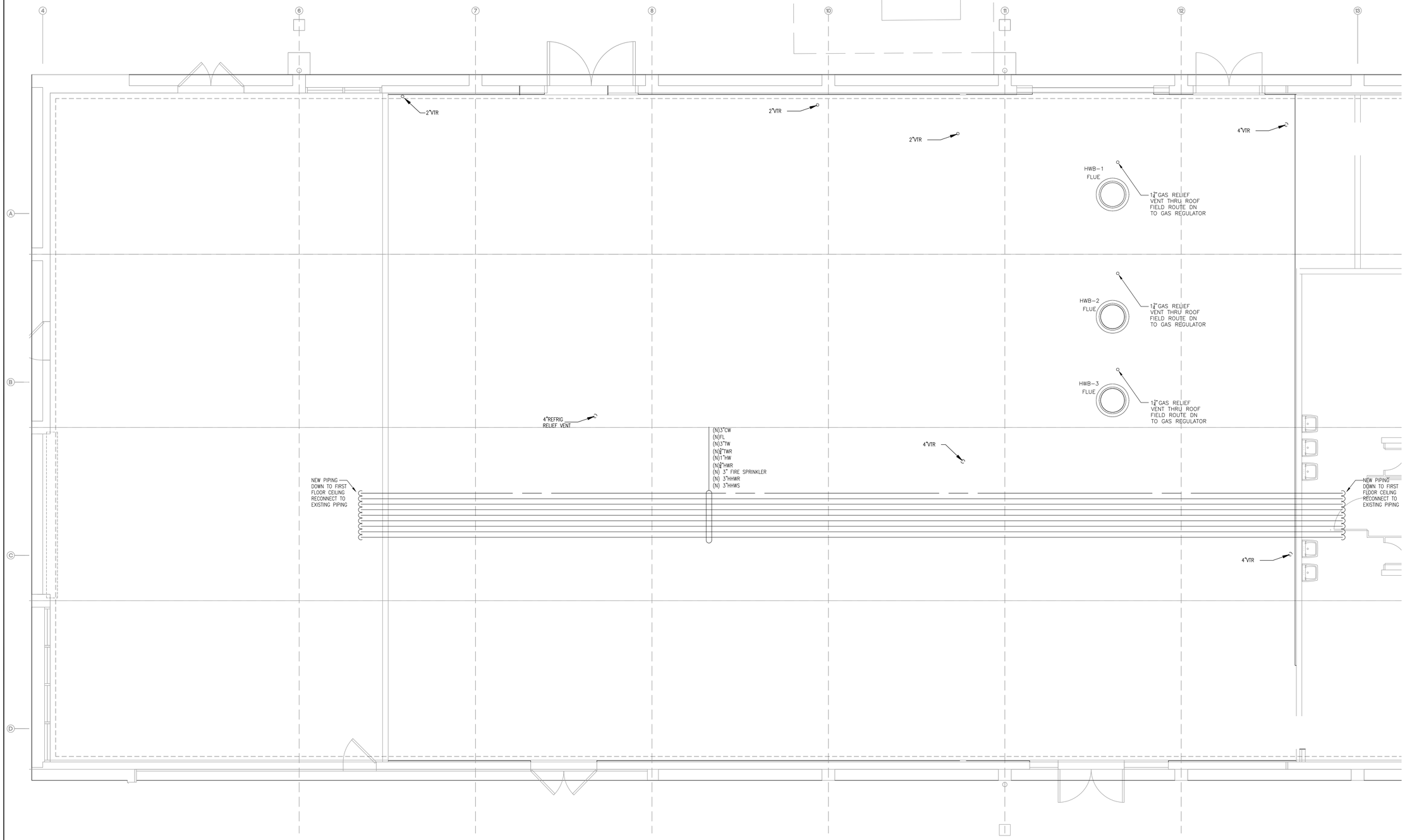
SHEET TITLE

BUILDING 2800
ENLARGED PARTIAL
PLUMBING FLOOR PLAN

DRAWN BY	CHECKED BY
C_Garcia	

PROJECT NO.	UNIT	SHEET NO.
5617065		PL4.3
SCALE:		
DATE 06-26-2008		

FILE: PL43AB.DWG – PL43 | EDIT: 2/27/2009 7:52 AM BY CGARCIA | PLOT: 2/27/2009 8:39 AM BY CESAR GARCIA



CHABOT LAS POSITAS COMMUNITY COLLEGE DISTRICT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

THE INCORPORATED STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEERS STAMP SERVES AS THE SELF CERTIFICATION FOR THESE DOCUMENTS.

SOUTHLAND INDUSTRIES

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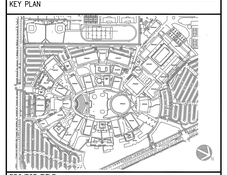
REVISIONS

NO.	DESCRIPTION	DATE
0	DSA PERMIT SET	02/21/08
1	DSA BACK CHECK	06/26/08
2	FIRE DEPT PERMIT SET	09/03/08
3	AS-BUILT	02/18/09

KEY PLAN



PROJECT TITLE

CHABOT COMMUNITY COLLEGE CENTRAL PLANT

25555 HESPERIAN BLVD,
HAYWARD, CALIFORNIA

SHEET TITLE

BUILDING 2800
ENLARGED PARTIAL
PLUMBING – ROOF PLAN

DRAWN BY		CHECKED BY
C_Garcia		
PROJECT NO. 5617065	UNIT	SHEET NO. PL4.4
SCALE:		
DATE 06-26-2008		