

THE Q

41-42 24th Street

Long Island City, NY 11101

Site Contact

Sean Pringle

Project Engineer

Aegis Energy Services Inc.

55 Jackson St Holyoke MA, 10603

413-536-1156

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- CDH was on site December 7, 2015 to install a datalogger, terminate meter wiring, and setup communications. Unit not running.
- Aegis on site May 10, 2016 to wire recently installed gas meters.

Outstanding Items

- Aegis to replace parasitic power meter - issue with modbus output from meter.

Summary

CDH provided the data logger and enclosure. Aegis provided and installed the gas, power, and BTU meters. Aegis installed the CDH enclosure and performed all of the necessary wire pulls while CDH terminated wiring to the data logger and sensors.

Monitored Data Points

No.	Input	Data Point	Description	Units	Sensor	Signal
1	MB-001	WT1	Gross Generator #1 Power	kW/kWh	Veris H8035-0300	Modbus 485
2	MB-002	WT2	Gross Generator #2 Power	kW/kWh	Veris H8035-0300	Modbus 485
3	MB-010	WB1	Total Building Power - Meter #1	kW/kWh	Veris E50C2	Modbus 485
4	MB-011	WB2	Total Building Power - Meter #2	kW/kWh	Veris E50C2	Modbus 485
5	MB-016	WPAR	Parasitic Power	kW/kWh	Veris H8035-0100-2	Modbus 485
6	IN1	FG1	Generator #1 Gas Use	cf	Romet RM2000	Pulse
7	IN2	THW1	Recovered Heat Loop - Supply Temp.	deg F	Mamac 10k Type 2 Thermistor	Resistance
8	IN3	FG2	Generator #2 Gas Use	cf	Romet RM2000	Pulse
9	MB-004	FHW	Flowrate CHP Loop	GPM	Badger 380 BTU meter	Modbus 485
10	MB-004	THW2	Recovered Heat Loop - Temp. After Useful HX	deg F		
11	MB-004	THW3	Recovered Heat Loop - Return Temp.	deg F		
13	MB-004	QU_ACC	Useful Heat Recovery - BTU Meter Calculated	Mbtu/h	Badger 380 BTU meter	Modbus 485
14	-	QU	Useful Heat Recovery	Mbtu/h	Calculated	-
15	-	QR	Rejected Heat Recovery	Mbtu/h	Calculated	-

IT Information

External IP:	24.39.113.150:4081
Internal IP:	10.0.7.141
Netmask:	255.255.255.0
Gateway:	10.0.7.1
DNS #1:	8.8.8.8
DNS #2:	8.8.4.4

Site Photos



Aegen TP75-LE cogen units located in basement mechanical room.



Basement mechanical room HX skids, with Badger 380 BTU meter (left) and Veris 10k Type 2 Thermistor (right).

THE Q - Site Information



Utility gas meter located in gas meter room.



Cogen power meters located in cogen disconnects (grey). Parasitic power meter located in Aegis panel (blue).



Total facility power meters located in main electric room.



Parasitic power meter.

NO.	DATE	REVISION DESCRIPTION



CLIENT:
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PREPARED BY:
 PROJECT
THE Q COGENERATION PROJECT
 41-28 24TH ST
 QUEENS NY

DRAWING TITLE:
ELECTRICAL LAYOUT CELLAR

DESIGN BY:	SP	DATE:	
DRN BY:	SP	DATE:	
CKD BY:		DATE:	
FINAL CKD BY:		DATE:	
SCALE:	AS NOTED	DATE:	
DWG No.		PAGE 10 OF 15	

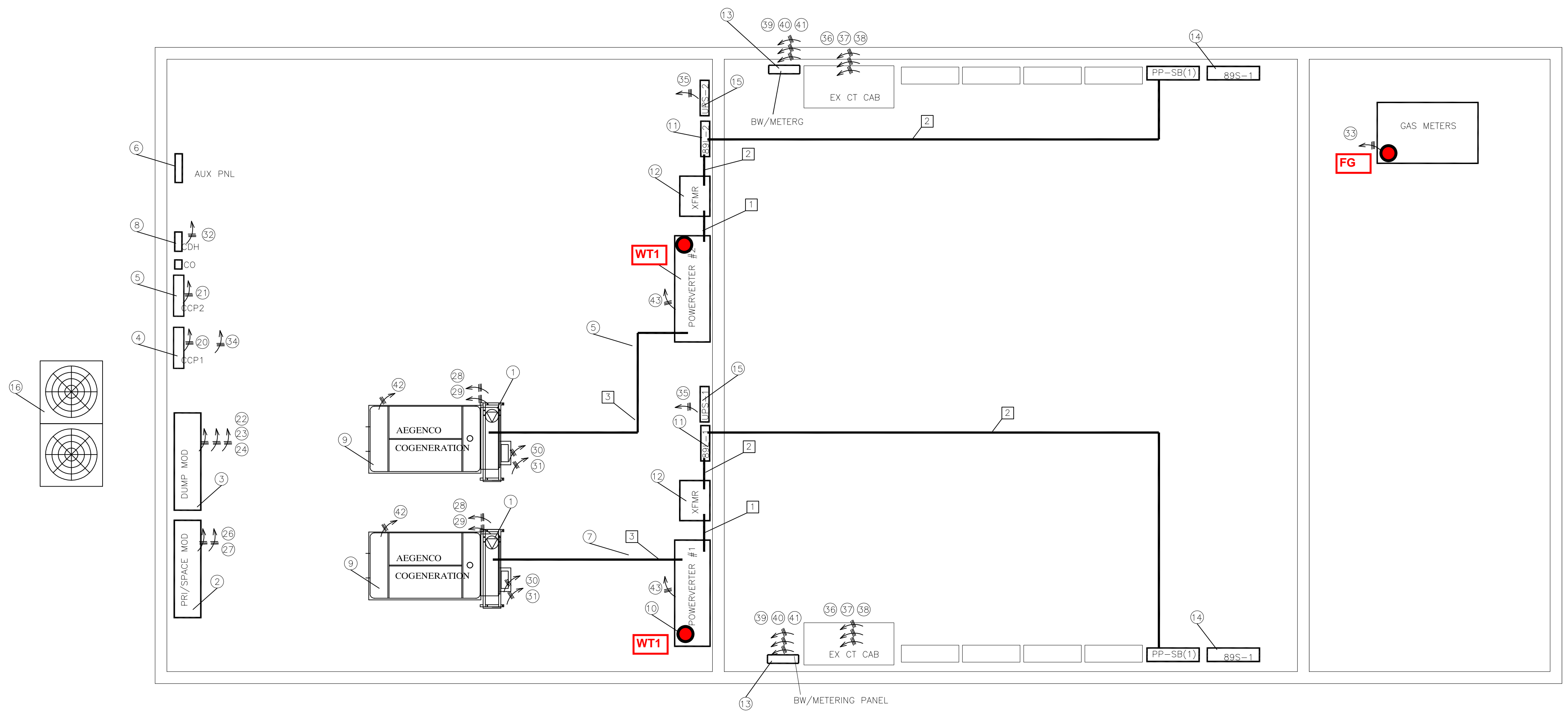
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 PROJECT NO.
N/A
 B-SCAN:

NOTES:

- (TYP 2) PUMP MODULE PROVIDED BY AGIS, ELECTRICAL CONTRACTOR TO MAKE UP CONNECTIONS TO MODULE. 52Lx12Dx79H"
- SPACE HEATING AND DHW MODULE PROVIDED BY AGIS, ELECTRICAL CONTRACTOR TO MAKE UP CONNECTIONS TO MODULE. 66Lx18Dx66H"
- DUMP MODULE PROVIDED BY AGIS, ELECTRICAL CONTRACTOR TO MAKE UP CONNECTIONS TO MODULE. 66Lx18Dx66H"
- COGEN CONTROL PANEL (CCP1), 24x36x8" ALL 3P LOADS, SUPPLIED BY AGIS.
- COGEN CONTROL PANEL (CCP2), 24x36x8" AND CO MONITOR SHIPPED LOOSE, 24x36x8" ALL 1P LOADS AND CONTROLS, SUPPLIED BY AGIS. DDC & CO POWERED FROM CCP2, ELECTRICIAN TO PROVIDE FIELD INSTALLED JUMPERS BETWEEN CCP1 & CCP2.
- NEW 100 AMP AUX SB PANEL (PROVIDED BY SITE) FOR CCP AND MISC LOAD POWER, FED FROM PP-SB(2)
- (TYP 2) COGEN MAIN FEED TO INVERTER, USE 2 SETS OF #1/0 VFD CABLE.
- CDH PANEL PROVIDED BY AGIS, 18x18x8" CONTRACTOR TO MAKE CONNECTIONS UP TO PANEL.
- (TYP 2) COGEN MODULE PROVIDED BY AGIS 63X24X79", ELECTRICAL CONTRACTOR TO MAKE UP CONNECTIONS TO MODULE.
- (TYP 2) INVERTER MODULE PROVIDED BY AGIS 63X24X79", ELECTRICAL CONTRACTOR TO MAKE UP CONNECTIONS TO MODULE.
- (TYP 2) S&I 89L 480 VOLT, 400 AMP RATED FUSED DISCONNECT WITH 350 AMP FUSES
- (TYP 2) 480 DELTA/208 WYE TRANSFORMER PROVIDED BY AGIS, 30X24X27", ELECTRICAL CONTRACTOR TO MAKE UP CONNECTIONS TO MODULE. LEAVE NEUTRAL FLOATING ON 208 SIDE. DO NOT BOND TO GROUND. NEUTRAL IS BONDED AT SERVICE ENTRANCE ONLY.
- (TYP 2) BECKWITH RELAY/METERING PANEL PROVIDED BY AGIS, 24x36x8", ELECTRICAL CONTRACTOR TO MAKE UP CONNECTIONS TO PANEL.
- (TYP 2) S&I 89S, 208 VOLT, XXXA RATED FUSED DISCONNECT WITH XXX AMP FUSES. INSTALL KIRK KEY INTERLOCK, TYPE DM ON HANDLE, WITH KEYED IDENTICALLY TO INVERTER.
- (TYP 2) UPS PROVIDED BY AGIS, INSTALL NEAR INVERTERS. 36x36x10" CONTRACTOR TO PROVIDE 120 VOLT, 30 AMP SOURCE.
- WASTE HEAT RADIATOR, PROVIDED BY AGIS. 120X45X63H.

- TO COGEN AUX PANEL FROM CCP1 (HV)
 120 FEED
 2) #12 W/ GND (20A)
 208 FEED
 3) #12 W/ GND (20A)
- TO COGEN AUX PANEL FROM CCP2 (HV)
 120 FEED
 2) #12 W/ GND (20A)
- TO CCP1 FROM DUMP MODULE (HV)
 PUMP P-5
 3) #12 W/ GND & 3P SERVICE SW
- TO AUX PANEL FROM DUMP MODULE (HV)
 GFCI DUPLEX OUTLET
 2) #12 W/ GND
- TO CCP FROM DUMP MODULE (LV)
 TS-4,5,21,22
 4) #18/2 SHIELDED
- TO CCP1 FROM SPACE & PRIM MODULE (HV)
 PUMP P-30
 2) #12 W/ GND & SERVICE SW
 PUMP P-36
 3) #12 W/ GND & 3P SERVICE SW
 PUMP P-4
 2) #12 W/ GND & SERVICE SW
- TO CCP2 FROM SPACE & DHW MODULE (LV)
 VALVE V-1
 2) #18 THHN W/ SERVICE SW
 1) #18/2 SHIELDED
 TS-3,11,12
 3) #18/2 SHIELDED
 FILL SOLENOID
 2) #18 THHN W. SERV SW
- TO CDH PANEL FROM SPACE & PRIM MOD (LV)
 TS-4N
 1) #18/2 SHIELDED
 BTU METER POWER
 2) #18 THHN W/ SERVICE SW
 BTU METER MODBUS
 1) #18/2 TWISTED SHIELDED
- (TYP 2) TO CCP1 FROM PUMP MODULE (HV)
 FAN F-1
 2) #12 WITH GROUND & SS
 PUMP P-1
 3) #12 W/ GND & 3P SERVICE SW
- (TYP 2) TO CCP2 FROM COGEN (LV)
 COGEN START/STOP
 2) #18
 24DC+ - 3120 IN COGEN
 COGEN ALARM
 2) #18
 7210-7250 IN COGEN
 COGEN RUN STATUS
 2) #18
 3170-3711 IN COGEN
 CO ALARM
 2) #18
 204DC+ - 3160 IN COGEN
 REMOTE SETPOINT
 1) #18/2 SHIELDED
 4160-4180 IN COGEN
 COGEN KW OUT
 1) #18/2 SHIELDED
 6110-6090 IN COGEN
 TS-1
 1) #18/2 SHLD
- (TYP 2) TO INVERTER FROM COGEN (LV1)
 PROFINET SEIMENS CABLE
 1) SEIMENS PROFINET
 INTERNET
 1) CAT5E
- (TYP 2) TO INVERTER FROM COGEN (LV2)
 E-STOP 1
 2) #18
 E-STOP 2
 2) #18
 COGEN KW OUT
 1) #18/2 SHIELDED
- TO AUX PANEL FROM CDH (HV)
 120 POWER
 2) #12 W/ GND (15A)
- TO CDH PANEL FROM GAS METERS (LV)
 PULSE OUTPUT
 1) #18/2 SHIELDED
- TO CDH PANEL FROM CCP1
 POWER METER (MODBUS)
 1) #18/2 SHIELDED
- TO COGEN AUX PANEL FROM UPS
 UPS SOURCE POWER
 2) #10 W/ GND & SERVICE SW (30A)
- (TYP 2) TO BECKWITH PANEL FROM MAINS (CT'S)
 3 PHASE CT'S
 6) #12 W/GND
- (TYP 2) TO BECKWITH PANEL FROM MAINS (HV)
 3 PHASE CT'S
 6) #12 W/GND
 VOLTAGE TAPS
 3) #12 W/GND, WITH INLINE FUSES
- (TYP 2) TO METERING PANEL FROM MAINS (LV)
 3 PHASE FLEXIBLE (SAFETY) CT'S
 3) #18/2 SHLD
- (TYP 2) TO UPS FROM BECKWITH (HV)
 120V UPS POWER
 2) #12 W/ GND
- (TYP 2) TO INVERTER FROM BECKWITH (LV)
 24V INVERTER TRIP
 2) #18 THHN
 SPARE
 2) #18 THHN
- (TYP 2) TO CDH FROM METERING PNL (LV)
 MODBUS
 #18/2 TWISTED SHIELDED
- (TYP 2) TO UPS FROM COGEN (HV)
 2) #12 W/ GND & SERVICE SW
- (TYP 2) TO UPS FROM INVERTER (HV)
 2) #12 W/ GND & SERVICE SW
- (TYP 2) TO COGEN FROM UPS (LV)
 LOW UPS POWER
 1) #18/2 SHLD

FEEDER SCHEDULE								
KEY	DESCRIPTION	VOLTAGE	AMPS	# SETS	CONDUCTOR SIZE	NEUTRAL SIZE	GROUND SIZE	EMT SIZE
1	COGEN FEEDER	480	150	1	#1/0	NA	#6	2"
2	COGEN FEEDER	208	350	1	350 MCM	350 MCM	#3	3"
3	COGEN-INV VFD CABLE	480	150	2	#1/0	NA	#1/0	2"



PUMP SCHEDULE						
PUMP NO.	SERVICE	FLOW	HEAD	PUMP H.P.	PHASE	PUMP MODEL
P-1	COGEN #1	25 GPM	70 FT	3/4 HP	3 PH	BELL & GOSSETT SERIES 1535 353T
P-2	COGEN #2	25 GPM	70 FT	3/4 HP	3 PH	BELL & GOSSETT SERIES 1535 353T
P-3a & 3b	COGEN PRIMARY LOOP (REDUNDANT)	55 GPM	70 FT	1 1/2 HP	3 PH	BELL & GOSSETT SERIES 1535 353T
P-4	SPACE HEATING LOOP	50 GPM	28 FT	3/4 HP	3 PH	BELL & GOSSETT SERIES 60-615T
P-5	DUMP LOOP	50 GPM	28 FT	3/4 HP	3 PH	BELL & GOSSETT SERIES 60-615T

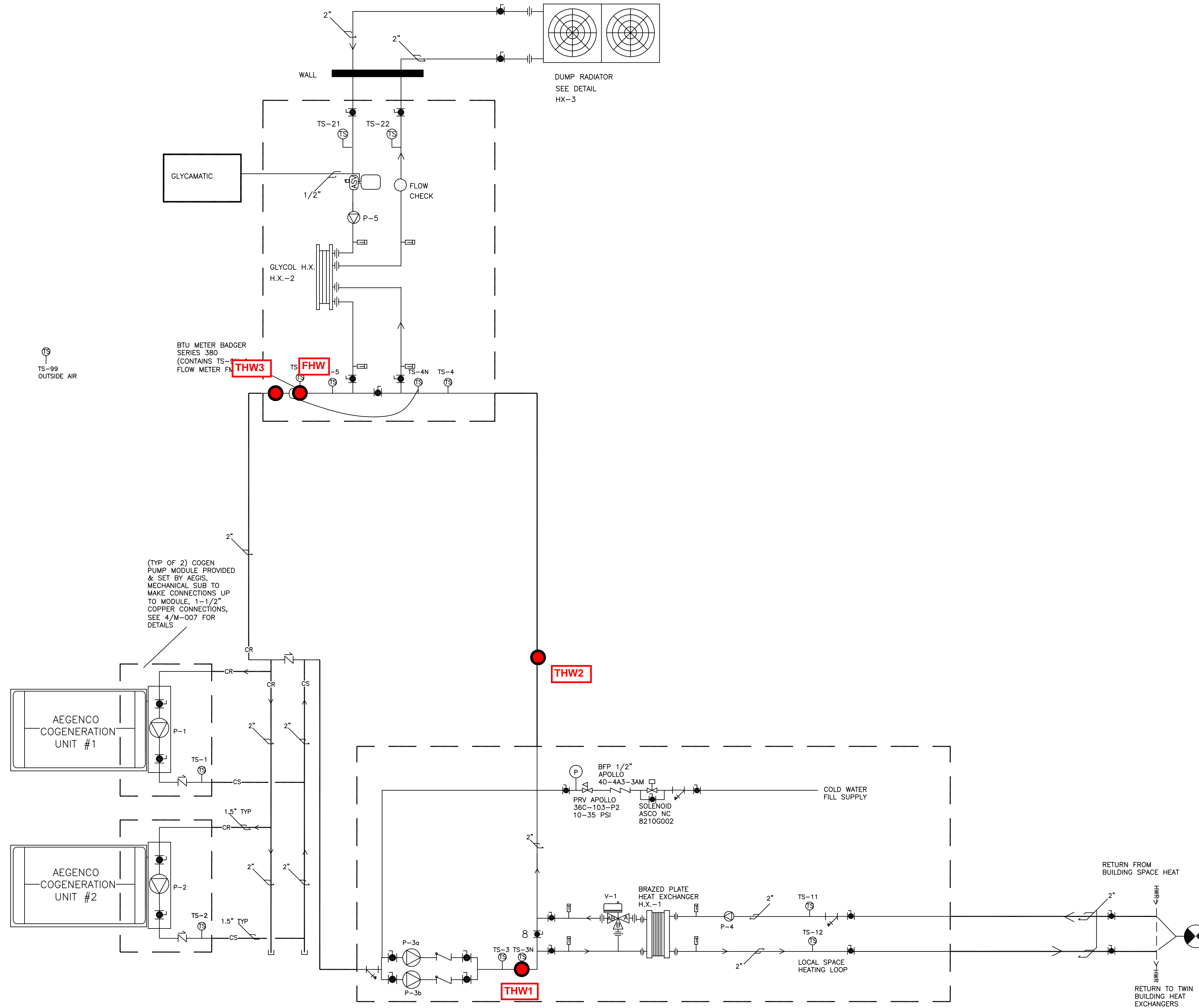
GAS PRESSURE	10-14" WC
THERMAL OUTPUT	520 MBTU/H
ELECTRICAL OUTPUT	75 KW
GENERATION TYPE	SYNCHRONOUS/INVERTER
ACOUSTIC LEVEL	70 dBa @ 20 FT
VIBRATION ISOLATION	YES
CONTROLS	MICROPROCESSOR BASED
UNIT WEIGHT	3050
MODEL	POWERVERTER 75
AVG INLET TEMP	170 DEG F
AVG OUTLET TEMP	220 DEG F
DIMENSIONS	46"W X 89"L X 49"H

TS-3	COGEN LOOP - SUPPLY TO SPACE	MAMAC TE-703-C-5A	AT-225
TS-4	COGEN LOOP - SPACE TO DUMP	MAMAC TE-703-C-5A	AT-225
TS-5	COGEN LOOP - RETURN	MAMAC TE-703-C-5A	AT-225
TS-11	COGEN SPACE LOOP - RETURN INTO HX	MAMAC TE-703-C-5A	AT-225
TS-12	COGEN SPACE LOOP - SUPPLY LEAVING HX	MAMAC TE-703-C-5A	AT-225
TS-21	COGEN DUMP LOOP - RETURN INTO HX	MAMAC TE-703-C-5A	AT-225
TS-22	COGEN DUMP LOOP - SUPPLY LEAVING HX	MAMAC TE-703-C-5A	AT-225
TS-99	OUTSIDE AIR TEMP	MAMAC TE-703-F-5	

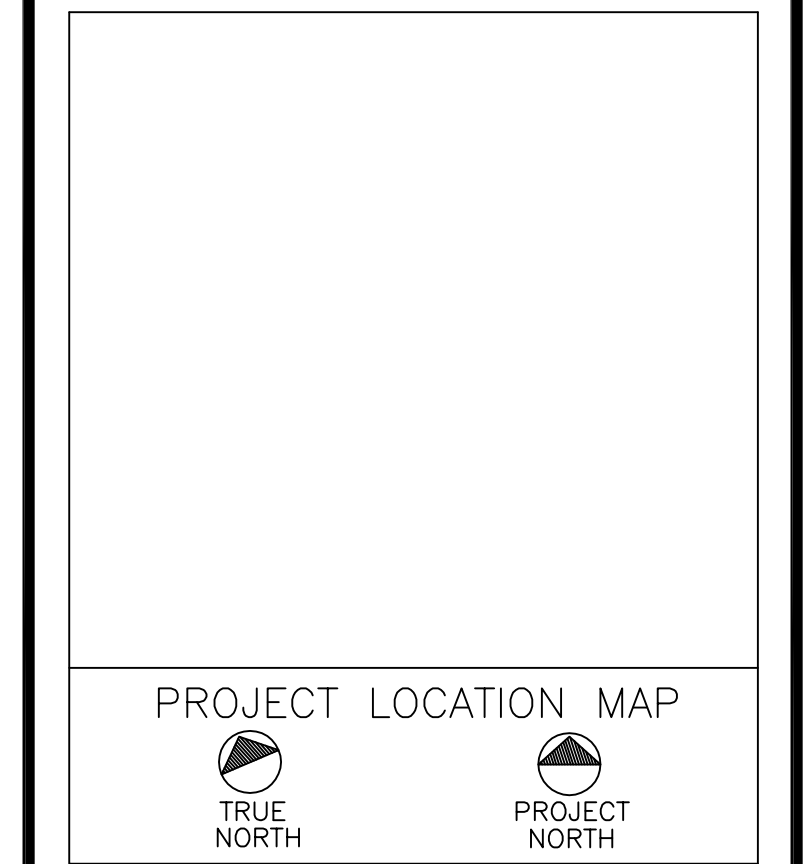
PLATE HEAT EXCHANGER H.X.-1		
DESIGN MANUFACTURER	API HEAT TRANSFER	
MODEL	SBM7M-60	
TYPE	BRAZED PLATE	
MATERIAL	COPPER/316 STAINLESS	
SERVICE	SPACE HEATING	
SIDE	HOT	COLD
FLUID TYPE	WATER	WATER
FLUID FLOW	50 GPM	50 GPM
TEMP IN	220	165
TEMP OUT	176	208
PRESSURE DROP	2.09 PSI	2.06 PSI
INLET SIZE	2" NPT	2" NPT

PLATE HEAT EXCHANGER H.X.-2		
DESIGN MANUFACTURER	API HEAT TRANSFER	
MODEL	SBM7M-60	
TYPE	BRAZED PLATE	
MATERIAL	COPPER	
SERVICE	GLYCOL DUMP LOOP	
SIDE	HOT	COLD
FLUID TYPE	WATER	40% PROP. GLYCOL
FLUID FLOW	50 GPM	50 GPM
TEMP IN	220	160
TEMP OUT	180	193.6
PRESSURE DROP	0.77 PSI	1.73 PSI
INLET SIZE	2" NPT	2" NPT

AIR COOLED RADIATOR H.X.-3	
DESIGN MANUFACTURER	IEA OR EQUAL
FLOW RATE	50 GPM
GROSS HEAT LOAD	1,000 MBH
INLET WATER TEMP	202 DEG F
OUTLET WATER TEMP	162 DEG F
BLOWER FAN	2 HP
NUMBER OF FANS	2
DESIGN BASE MODEL	HCR-M35-S-6
FAN SPEED	1160 RPM
MEDIUM	60% WATER / 40% P.G.



NO.	DATE	REVISION DESCRIPTION



CLIENT:
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PREPARED BY:

PROJECT

THE Q COGENERATION PROJECT
 41-28 24TH ST
 QUEENS NY

DRAWING TITLE:

HVAC SCHEDULES/ MECHANICAL FLOW DIAGRAM

DESIGN BY:	SP	DATE:	
DRN BY:	SP	DATE:	
CKD BY:		DATE:	
FINAL CKD BY:		DATE:	
SCALE:	AS NOTED	DATE:	
DWG No.		PAGE 3 OF 15	

M-001.00

PROJECT NO. **N/A**

B-SCAN: