

## The Petersfield

301 E 21<sup>st</sup> St.

New York, NY 10010

## Site Contact

Brad Walker

Project Engineer

Aegis Energy Services Inc.

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- CDH was on site October 19, 2016 to install a datalogger, terminate meter wiring, setup communications, and verify sensor readings. Data collection begins.

### Outstanding Issues

- Aegis to cut in gas meter above unit and wire output to CDH logger.
- Veris E50 total facility power meter (WB) does not have CT's installed.

## 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

Logger Channel	Data Point	Description	Eng Units	Instrument / Transducer	Output
MB-001	WT	Gross Generator Power Output - Existing Gen.	kWh	Veris H-8035-300	Modbus RS-485
MB-002	WB	Total Facility Power	kWh	Veris E50C2	Modbus RS-485
-	WP	Parasitic Loads	kWh	-	Calculated
-	WG	Net Power Output	kWh	-	Calculated
1	FG	Cogen Gas Consumption	cf	ConEd Meter w/ Pulse	Pulse
MB-003	FHW	Recovered Heat loop Flow	gpm	Badger Series 380	Modbus RS-485
MB-003	THW1	Recovered Heat Loop - Supply Temp.	°F	Badger Series 380	Modbus RS-485
MB-003	THW2	Recovered Heat Loop - Temp. After HX1 (DHW)	°F	Badger Series 380	Modbus RS-485
2	THW3	Recovered Heat Loop - Temp. After Dump Radiator	°F	Veris 10k Type II Thermistor (surface)	Resistance
3	IPAR	Aegis Control Panel Current	Amps	Veris H921	4-20 mA
-	QR	Rejected Heat Recovery - New Cogen	Mbtu/h		Calculated
-	QU	Total Useful Heat Recovery	Mbtu/h	-	Calculated

## IT Information

<b>External IP:</b>	24.103.69.78:4081
<b>Internal IP:</b>	10.0.4.141
<b>Gateway:</b>	10.0.4.1
<b>Netmask:</b>	255.255.255.0
<b>DNS #1:</b>	8.8.8.8
<b>DNS #2:</b>	8.8.4.4

## Procedure

- Hot water loop flow was verified by comparing the Badger 380 flow reading on the Obvius to measurements taken using a portable Portaflow ultrasonic flowmeter.

## Verification Data

### Recovered Heat Loop Flow

<b>FHW</b>	<b>Portaflow (gpm)</b>	<b>Obvius (gpm)</b>
	16.7	15.67
	16.5	16.27
	16.8	16.55

Avg:        16.7            16.2

## Site Photos



Aegen TP75-LE cogen unit located adjacent to sub-basement boiler room.



CDH panel containing data logger and CDH network switch.

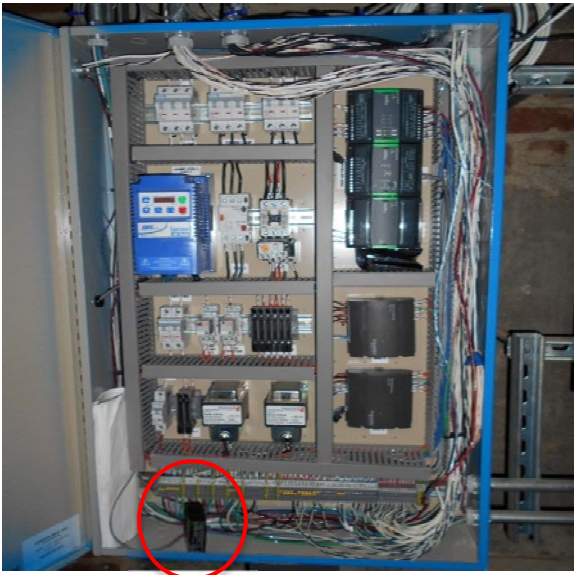
The Petersfield - Site Information



Badger 380 BTU meter (THW1, THW2, FHW).



Veris 10k Type 2 Surface Thermistor (THW3), located in boiler room above cogen unit.



Veris H921 control panel current sensor (ICCP).



Cogen contactor panel - location of gross generator power meter (WT)



Veris E50 total facility power meter (WB) located next to cogen contactor panel.

PUMP SCHEDULE						
PUMP NO.	SERVICE	FLOW	HEAD	H.P.	PHASE	MODEL
P-1	COGEN MODULE	25 GPM	70 FT	3/4	3	BELL & GOSSETT SERIES 1535 345T
P-2	DHW LOOP	30 GPM	15 FT	1/8	1	BELL & GOSSETT PL-45B
P-3	GLYCOL LOOP	30 GPM	33 FT	3/4	3	BELL & GOSSETT SERIES 60 813T

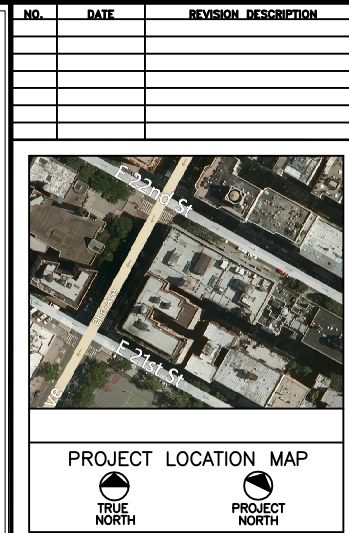
CONTROL VALVE SCHEDULE						
VALVE NO.	SERVICE	FLOW TYPE	SIZE	VOLTAGE	VALVE MODEL	ACTUATOR
V-1	COGEN DHW	MIXING	1 1/2"	24 V	TAC VS2313-528-9-54	MS40-7043M MODULATING
V-2	DHW MIXING	MIXING	2"	24 V	TAC VU-7313-680-4-11	M800A
V-3	BOILER BYPASS	MIXING	2"	24 V	TAC VA2313-526-9-63	MA40-7043M ON/OFF

HEAT EXCHANGERS HX-1		
DESIGN MANUFACTURER	API HEAT TRANSFER	
MODEL	SBM7M-40	
TYPE	BRAZED PLATE	
MATERIAL	COPPER	
SERVICE	DHW	
SIDE	HOT	COLD
FLUID TYPE	WATER	WATER
FLUID FLOW	22 GPM	30 GPM
TEMPERATURE IN	225 DEG F	172 DEG F
TEMPERATURE OUT	176 DEG F	207 DEG F
PRESSURE DROP	0.91 PSI	1.55 PSI
INLET SIZE	2" NPT	2" NPT

DUMP RADIATOR HX-3	
DESIGN MANUFACTURER	IEA OR EQUAL
SERVICE	HEAT DISSIPATION
FLOW RATE	30 GPM
GROSS HEAT LOAD	500 MBH
INLET WATER TEMP	198 DEG F
OUTLET WATER TEMP	160 DEG F
BLOWER FAN	2 HP
NUMBER OF FANS	1
MODEL	HCR-M-14-02-08-502
FAN SPEED	1180 RPM
MEDIUM	40% P.G.

TEMPERATURE SENSOR SCHEDULE			
TS NO.	SERVICE	MODEL	WELL TYPE
TS-1	COGEN SUPPLY	MAMAC TE-703-C-5A	AT-225
TS-2	DHW TO GLYCOL	MAMAC TE-703-C-5A	AT-225
TS-3	COGEN RETURN	MAMAC TE-703-C-5A	AT-225
TS-11	DHW TO HX	MAMAC TE-703-C-5A	AT-225
TS-12	HX TO DHW	MAMAC TE-703-C-5A	AT-225
TS-13	STORAGE TANK 1 TEMP	MAMAC TE-703-C-5A	AT-225
TS-14	STORAGE TANK 2 TEMP	MAMAC TE-703-C-5A	AT-225
TS-15	MIXING VALVE OUTLET	MAMAC TE-703-C-5A	AT-225
TS-21	GLYCOL LOOP FROM RADIATOR	MAMAC TE-703-D-5A	AT-225
TS-22	GLYCOL LOOP TO HX	MAMAC TE-703-C-5A	AT-225
TS-B1	COGEN SUPPLY BTU	BADGER 380	AT-225
TS-B2	COGEN USEFUL RETURN	BADGER 380	N/A
TS-B3	COGEN REJECTED BTU	VERIS TIDB100	AT-225

COGENERATION SCHEDULE	
DESIGN MANUFACTURER	AEGENCO
FUEL	NATURAL GAS
FUEL INPUT	930 SCFH
THERMAL OUTPUT	523 MBTU/H
ELECTRICAL OUTPUT	75 KW
GENERATION TYPE	INVERTER
ACOUSTIC LEVEL	70 dBA @ 20 FT
VIBRATION ISOLATION	YES
CONTROLS	MICROPROCESSOR BASED
UNIT WEIGHT	3050
MODEL	POWERVERTER
AVG INLET TEMP	170 DEG F
AVG OUTLET TEMP	220 DEG F
MA GAS BOARD APPROVAL #	G1-04-08-12
DIMENSIONS	51"W x 101"L x 51"H



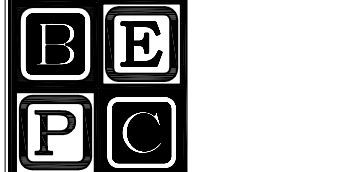
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PROJECT  
**THE PETERSFIELD COGENERATION PROJECT**  
 301 E 21ST ST  
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DRAWING TITLE:  
**HVAC SCHEDULES & FLOW DIAGRAM**

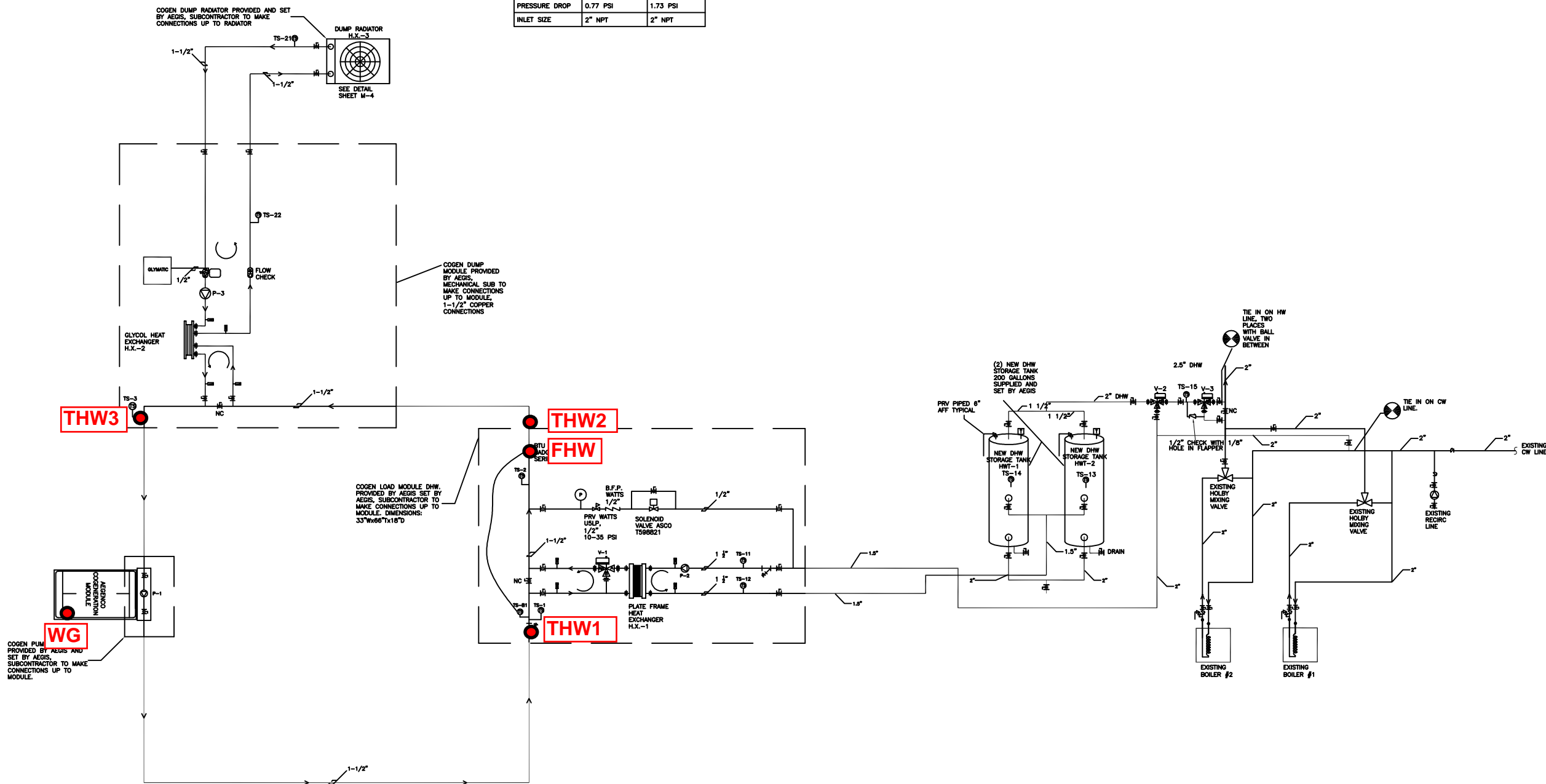
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FINAL CKD BY:	JCB	DATE:	09/23/14

SCALE: AS NOTED DATE: DWG No. PAGE 3 OF 11

M-101.00

PROJECT NO. 60-125

B-SCAN:



- NOTES:
- ALL PIPE TO BE COPPER 1/2" UNLESS OTHERWISE NOTED.
  - COGEN HEAT DISSIPATION LOOP TO BE 40% PROP. GLYCOL. ALL FILLING OF GLYCOL LOOP BY AEGIS.
  - CONTRACTOR SHALL PROTECT FROM HARM AND MAINTAIN ALL EXISTING EQUIPMENT, PLANT, FACILITY, ETC. TO REMAIN.