

Gramercy House

235 E. 22nd Street
New York, NY 10010

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.
- Pulse output for gas installed on May 19, 2016. Data before that calculated by observed gas power relation.
- Existing induction unit power meter installed on May 10, 2016

Outstanding Items

- All monitoring items are caught up

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-005	WTE	Gross Generator Power Output - Existing Gen.	kWh	Veris H-8035-300	Modbus RS-485
MB-001	WTN	Gross Generator Power Output - New Gen.	kWh	Veris H-8035-300	Modbus RS-485
MB-007	WB	Total Facility Power	kWh	Veris E50C2	Modbus RS-485
MB-004	WP	Parasitic Loads	kWh	Veris H-8035-100	Modbus RS-485
-	WG	Net Power Output	kWh	-	Calculated
1	FG	Cogen Gas Consumption	cf	ConEd Meter w/ Pulse	Pulse
MB-003	FHWE	Recovered Heat loop Flow - Existing	gpm	Badger Series 380	Modbus RS-485
MB-003	THWE1	Recovered Heat Loop - Supply Temp. - Existing	°F	Badger Series 380	Modbus RS-485
MB-003	THWE2	Recovered Heat Loop - Temp. After HX1 - Existing	°F	Badger Series 380	Modbus RS-485
MB-002	FHWN	Recovered Heat Loop Flow - New	gpm	Badger Series 380	Modbus RS-485
MB-002	THWN1	Recovered Heat Loop - Supply Temp. - New	°F	Badger Series 380	Modbus RS-485
MB-002	THWN3	Recovered Heat Loop - Temp. After Dump Radiator - New	°F	Badger Series 380	Modbus RS-485
2	THWN2	Recovered Heat Loop - Temp. After HX1 - New	°F	Veris 10k Type 2 Thermistor	Resistance
3	IVFD	Dump Radiator Current	Amps	Veris H921	4-20 mA
-	QUE	Useful Heat Recovery - DHW - Existing Cogen	Mbtu/h	-	Calculated
-	QUN	Useful Heat Recovery - DHW - New Cogen	Mbtu/h		Calculated
-	QRN	Rejected Heat Recovery - New Cogen	Mbtu/h		Calculated

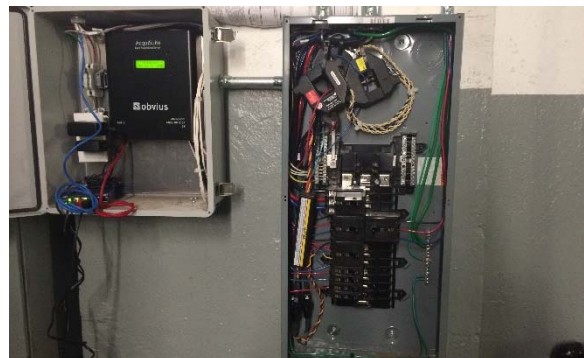
IT Information

Logger IP:	50.74.195.229
Netmask:	255.255.255.248
Gateway:	50.74.195.225
DNS #1:	24.29.99.36
DNS #2:	24.29.99.36

Site Photos

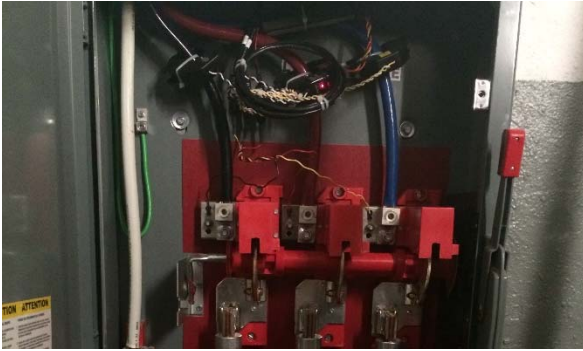


Aegen TP75-LE cogen units located in basement mechanical room; existing (left) and new (right).



CDH panel containing data logger and CDH network switch (left) and parasitic power meter (right).

Gramercy House - Site Information



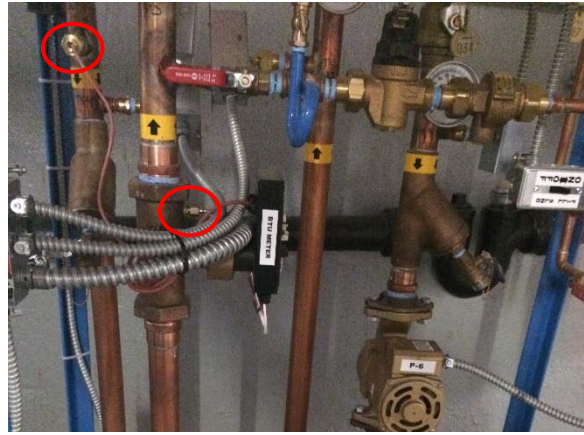
New cogen power meter, located in disconnect.



New cogen Badger 380 BTU meter, measuring total heat recovery (temp sensors circled).



Location of Veris Thermistor between HX1 and dump radiator HX on new cogen loop.



Existing cogen Badger 380 BTU meter, measuring useful heat recovery (temp sensors circled).



New cogen unit HX skid (left) and existing cogen unit HX skid (right).



Dump radiator fan current sensor.

PUMP SCHEDULE						
PUMP NO.	SERVICE	FLOW	HEAD	PUMP H.P.	PHASE	PUMP MODEL
P-1	COGEN LOOP (NEW)	25 GPM	70 FT	3/4 HP	3 PH	BELL & GOSSETT SERIES 1535 353T
P-2	DOMESTIC HOT WATER (EXTG)	30 GPM	15 FT	1/6 HP	1 PH	BELL & GOSSETT SERIES PL-45B
P-3	DUMP RADIATOR LOOP (EXTG)	30 GPM	33 FT	3/4 HP	3 PH	BELL & GOSSETT SERIES 60-613T
P-4	DHW CIRCULATOR (EXTG)	60 GPM	30 FT	3/4 HP	3 PH	BELL & GOSSETT SERIES 60-B609T (OR EQUAL)
P-5	COGEN LOOP (EXTG)	25 GPM	70 FT	3/4 HP	3 PH	BELL & GOSSETT SERIES 1535 353T
P-6	DOMESTIC HOT WATER (NEW)	30 GPM	15 FT	1/6 HP	1 PH	BELL & GOSSETT SERIES PL-45B

CONTROL VALVE SCHEDULE						
VALVE NO.	SERVICE	FLOW TYPE	SIZE	VOLTAGE	VALVE MODEL	ACTUATOR
V-1	DHW LOOP (EXTG)	MIXING	1-1/2"	24 V	BARBER COLMAN VS2313-526-9-54	MS40-7043M MODULATING
V-2	BUILDING DHW LOOP (EXTG)	NC	2"	24 V	BARBER COLMAN VA2213-528-9-67	MA40-7043 ON/OFF
V-3	DHW LOOP (NEW)	MIXING	1-1/2"	24 V	BARBER COLMAN VS2313-526-9-54	MS40-7043M MODULATING

EXISTING PLATE HEAT EXCHANGER H.X.-1		
DESIGN MANUFACTURER	API HEAT TRANSFER	
MODEL	SBM7L-40	
TYPE	BRAZED PLATE	
MATERIAL	COPPER	
SERVICE	DOMESTIC HOT WATER	
SIDE	HOT	COLD
FLUID TYPE	WATER	WATER
FLUID FLOW	22 GPM	30
TEMP IN	220	140
TEMP OUT	173	174
PRESSURE DROP	1.28 PSI	2.94 PSI
INLET SIZE	2" NPT	2" NPT

EXISTING AIR COOLED RADIATOR H.X.-3		
DESIGN MANUFACTURER	IEA OR EQUAL	
FLOW RATE	30 GPM	
GROSS HEAT LOAD	500 MBH	
INLET WATER TEMP	196 DEG F	
OUTLET WATER TEMP	160 DEG F	
BLOWER FAN	2 HP	
NUMBER OF FANS	1	
DESIGN BASE MODEL	HCR-M-14-02-08-502	
FAN SPEED	1160 RPM	
MEDIUM	60% WATER / 40% P.G.	

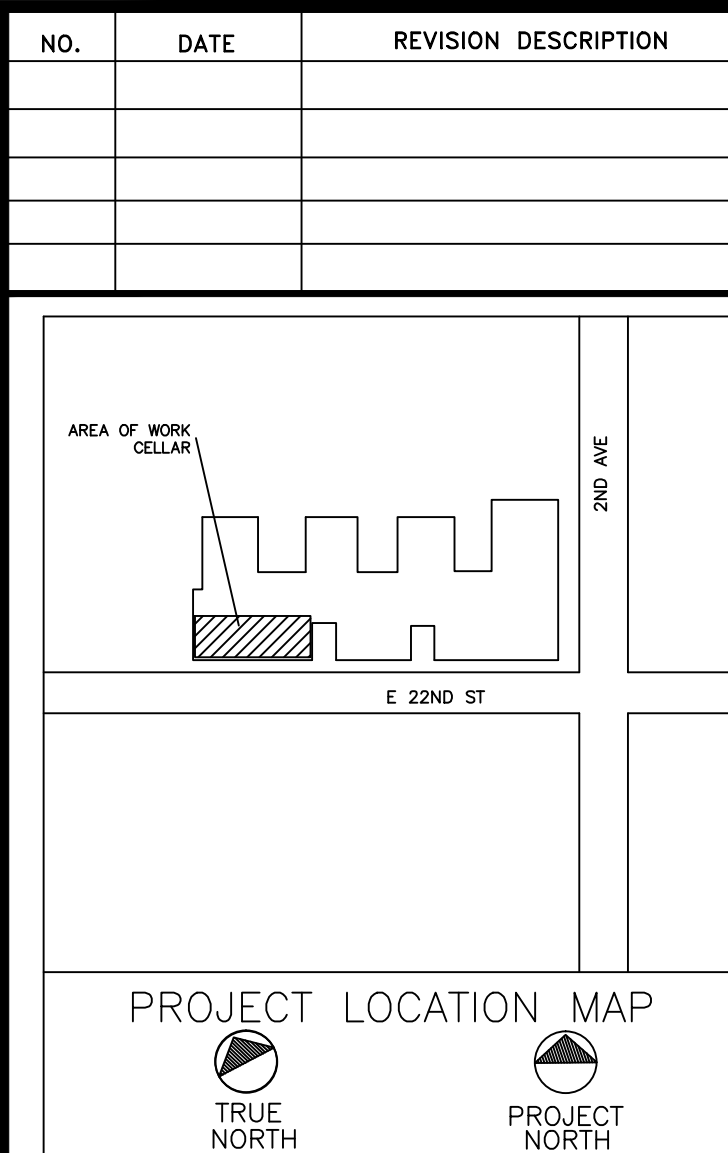
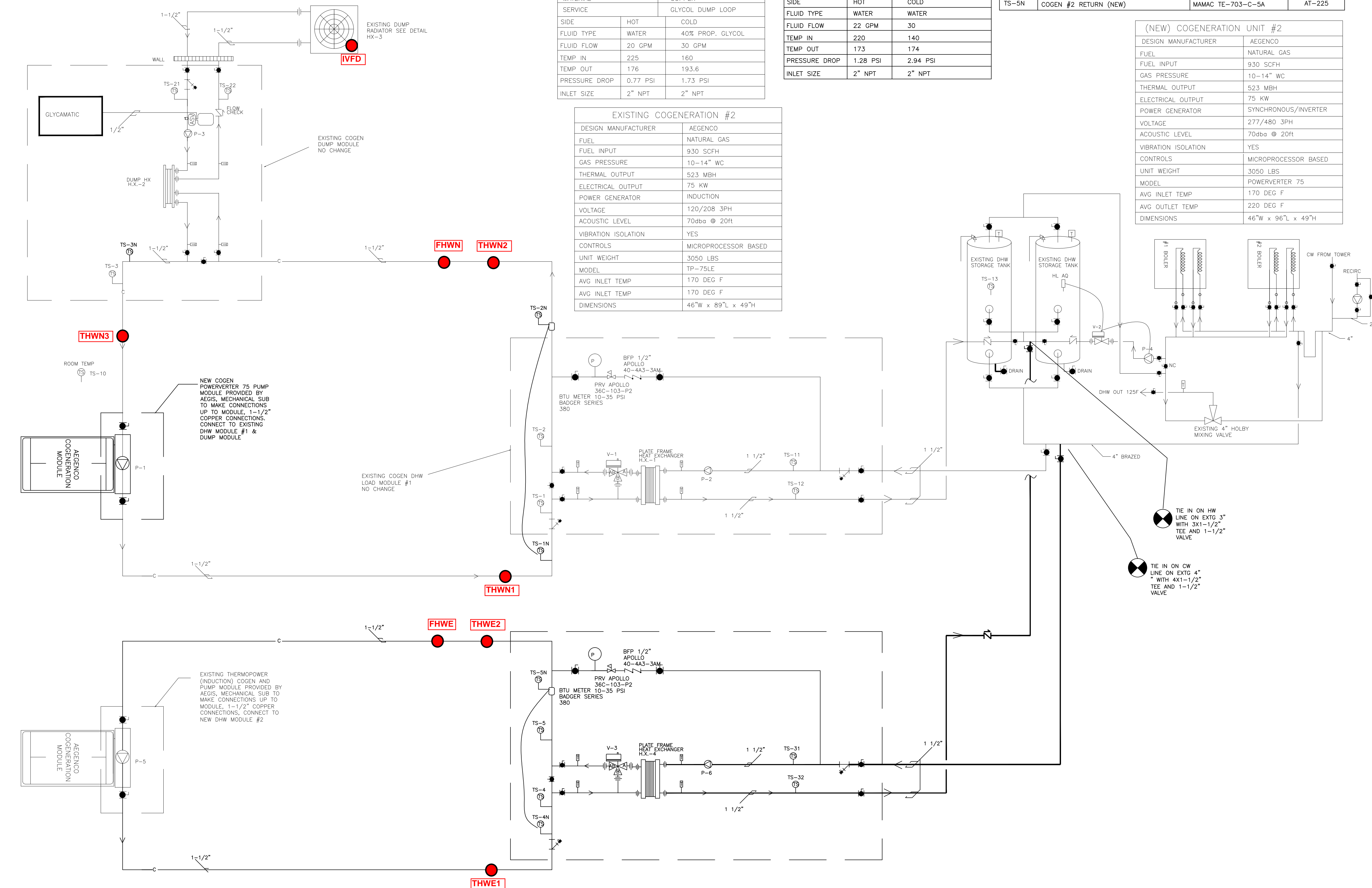
TEMPERATURE SENSOR SCHEDULE			
TS NO.	SERVICE	SENSOR MODEL NO.	WELL TYPE
TS-1	COGEN #1 SUPPLY TO DHW H.X. #1 (EXTG)	MAMAC TE-703-C-5A	AT-225
TS-2	DHW HX #1 TO DUMP RAD HX. (EXTG)	MAMAC TE-703-C-5A	AT-225
TS-3	COGEN #1 RETURN (EXTG)	MAMAC TE-703-C-5A	AT-225
TS-11	DHW #1 TO HX (EXTG)	MAMAC TE-703-C-5A	AT-225
TS-12	HX TO DHW #1 (EXTG)	MAMAC TE-703-C-5A	AT-225
TS-13	DHW TANK TEMP (EXTG)	MAMAC TE-703-C-5A	AT-225
TS-21	DUMP RAD TO HX (EXTG)	MAMAC TE-703-C-5A	AT-225
TS-22	HX TO DUMP RAD (EXTG)	MAMAC TE-703-C-5A	AT-225
TS-10	COGEN ROOM TEMP (EXTG)	MAMAC	
TS-4	COGEN #2 SUPPLY TO DHW HX #2 (NEW)	MAMAC TE-703-C-5A	AT-225
TS-5	COGEN #2 RETURN (NEW)	MAMAC TE-703-C-5A	AT-225
TS-31	DHW #2 TO HX (NEW)	MAMAC TE-703-C-5A	AT-225
TS-32	HX TO DHW #2 (NEW)	MAMAC TE-703-C-5A	AT-225
TS-1N	COGEN #1 SUPPLY (NEW)	MAMAC TE-703-C-5A	AT-225
TS-2N	COGEN #1 LOAD-DUMP (NEW)	MAMAC TE-703-C-5A	AT-225
TS-3N	COGEN #1 RETURN (NEW)	MAMAC TE-703-C-5A	AT-225
TS-4N	COGEN #2 SUPPLY	MAMAC TE-703-C-5A	AT-225
TS-5N	COGEN #2 RETURN (NEW)	MAMAC TE-703-C-5A	AT-225

EXISTING PLATE HEAT EXCHANGER H.X.-2		
DESIGN MANUFACTURER	API HEAT TRANSFER	
MODEL	SBM7M-40	
TYPE	BRAZED PLATE	
MATERIAL	COPPER	
SERVICE	GLYCOL DUMP LOOP	
SIDE	HOT	COLD
FLUID TYPE	WATER	40% PROP. GLYCOL
FLUID FLOW	20 GPM	30 GPM
TEMP IN	225	160
TEMP OUT	176	193.6
PRESSURE DROP	0.77 PSI	1.73 PSI
INLET SIZE	2" NPT	2" NPT

NEW PLATE HEAT EXCHANGER H.X.-4		
DESIGN MANUFACTURER	API HEAT TRANSFER	
MODEL	SBM7L-40	
TYPE	BRAZED PLATE	
MATERIAL	COPPER	
SERVICE	DOMESTIC HOT WATER	
SIDE	HOT	COLD
FLUID TYPE	WATER	WATER
FLUID FLOW	22 GPM	30
TEMP IN	220	140
TEMP OUT	173	174
PRESSURE DROP	1.28 PSI	2.94 PSI
INLET SIZE	2" NPT	2" NPT

(NEW) COGENERATION UNIT #2	
DESIGN MANUFACTURER	AEGENCO
FUEL	NATURAL GAS
FUEL INPUT	930 SCFH
GAS PRESSURE	10-14" WC
THERMAL OUTPUT	523 MBH
ELECTRICAL OUTPUT	75 KW
POWER GENERATOR	SYNCHRONOUS/INVERTER
VOLTAGE	277/480 3PH
ACOUSTIC LEVEL	70dba @ 20ft
VIBRATION ISOLATION	YES
CONTROLS	MICROPROCESSOR BASED
UNIT WEIGHT	3050 LBS
MODEL	POWERVERTER 75
AVG INLET TEMP	170 DEG F
AVG OUTLET TEMP	220 DEG F
DIMENSIONS	46"W x 96"L x 49"H

EXISTING COGENERATION #2	
DESIGN MANUFACTURER	AEGENCO
FUEL	NATURAL GAS
FUEL INPUT	930 SCFH
GAS PRESSURE	10-14" WC
THERMAL OUTPUT	523 MBH
ELECTRICAL OUTPUT	75 KW
POWER GENERATOR	INDUCTION
VOLTAGE	120/208 3PH
ACOUSTIC LEVEL	70dba @ 20ft
VIBRATION ISOLATION	YES
CONTROLS	MICROPROCESSOR BASED
UNIT WEIGHT	3050 LBS
MODEL	TP-75LE
AVG INLET TEMP	170 DEG F
AVG INLET TEMP	170 DEG F
DIMENSIONS	46"W x 89"L x 49"H



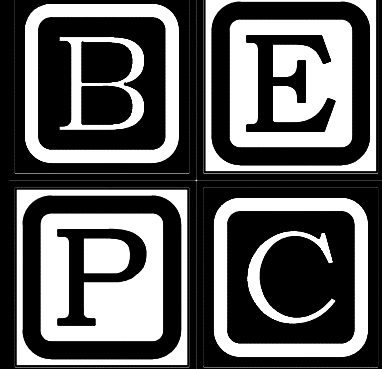
CLIENT:
AEGIS ENERGY SERVICES, INC.
 55 JACKSON STREET
 HOLYOKE, MA 01040
 TEL.: 413-536-1156
 FAX: 413-536-1104
 ATTN: SEAN PRINGLE

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 WEB: WWW.BEPC.US



PROJECT
**GRAMERCY HOUSE
 COGENERATION PROJECT**
 235 E. 22ND STREET
 NEW YORK, NY 10010

DRAWING TITLE:
**HVAC SCHEDULES/
 FLOW DIAGRAM**

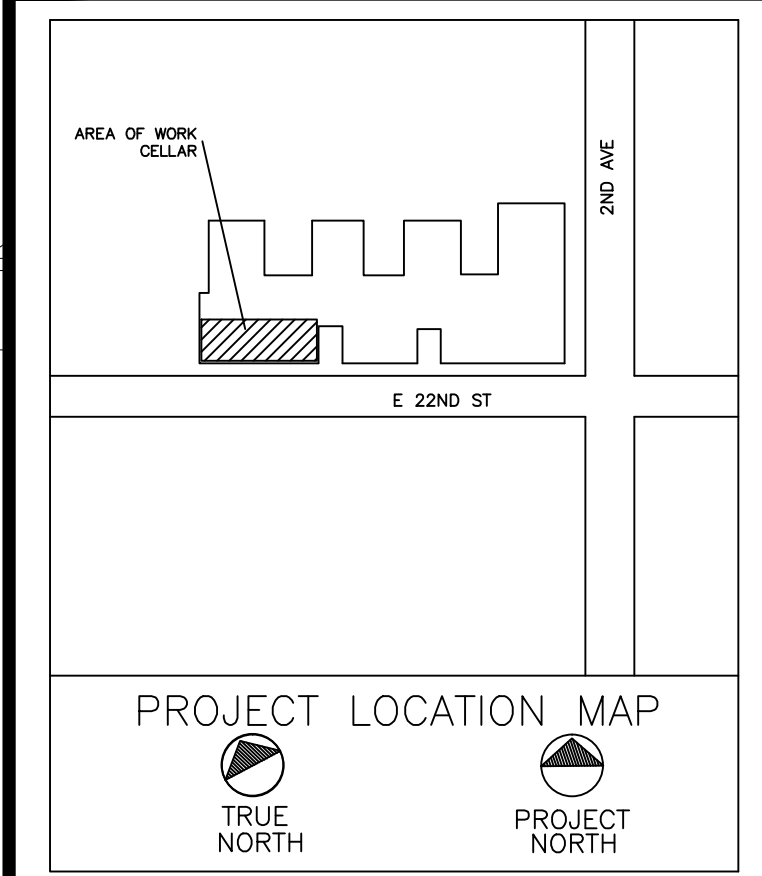
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DRN BY:	SJP	DATE:	11-7-14
CKD BY:		DATE:	
FINAL CKD BY:		DATE:	
SCALE:	AS NOTED	DATE:	
DWG No.	PAGE 2 OF 9		

M-001.00

PROJECT NO.
TBD

B-SCAN:

NO.	DATE	REVISION DESCRIPTION



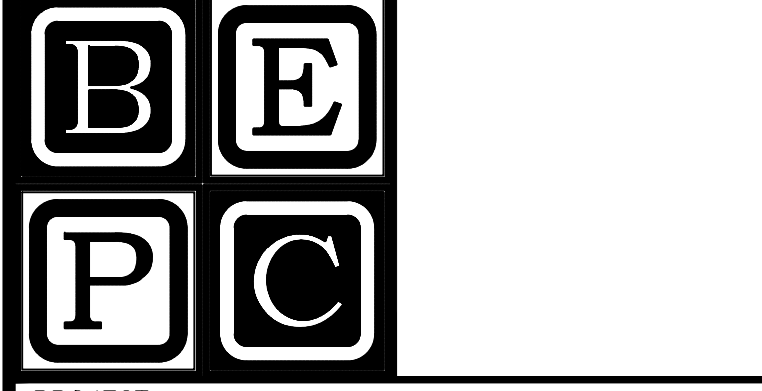
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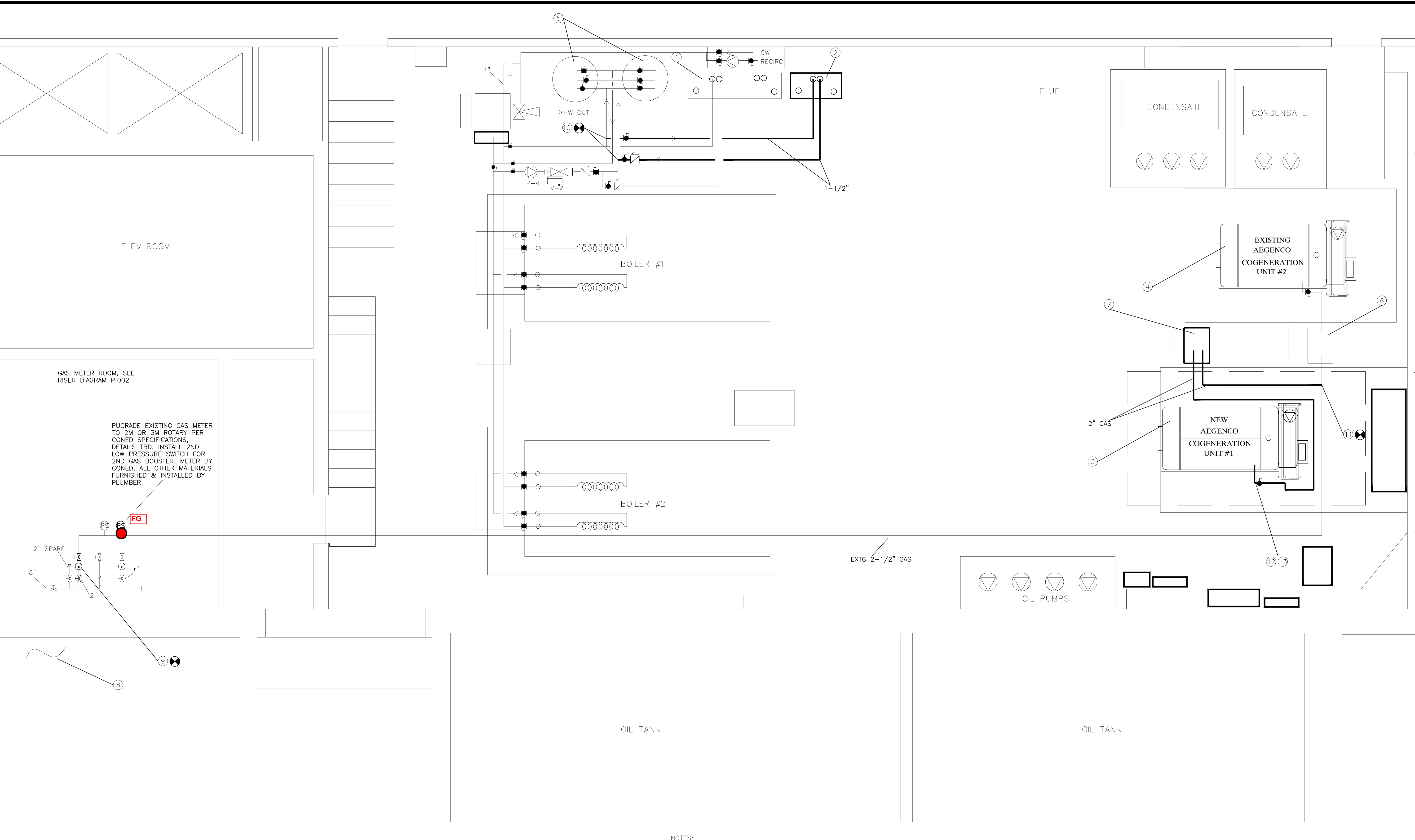
PROJECT
**GRAMERCY HOUSE
 COGENERATION PROJECT
 235 E. 22ND STREET
 NEW YORK, NY 10010**

DRAWING TITLE:
**PLUMBING PLAN
 - CELLAR**

DESIGN BY:	SJP	DATE:	11-3-14
DRN BY:	SJP	DATE:	11-7-14
CKD BY:		DATE:	
FINAL CKD BY:		DATE:	
SCALE:	AS NOTED	DATE:	
DWG No.	PAGE 5 OF 9		

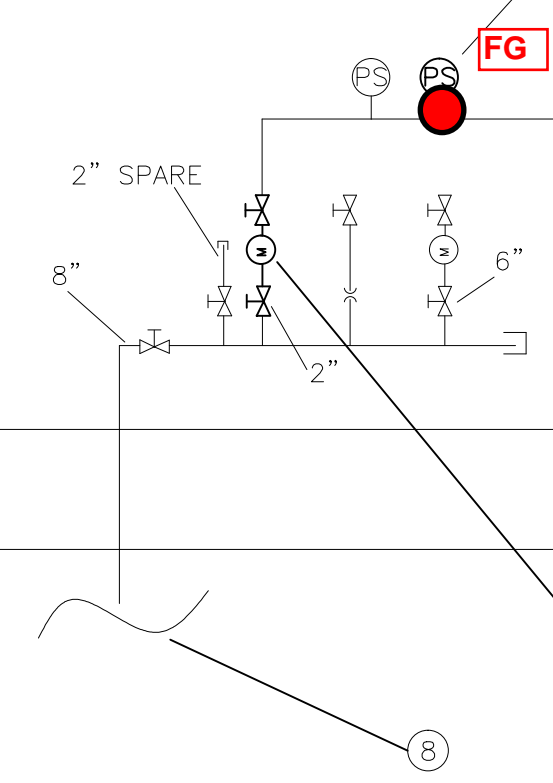
P-001.00
 PROJECT NO.
TBD

B-SCAN:



GAS METER ROOM, SEE RISER DIAGRAM P.002

UPGRADE EXISTING GAS METER TO 2M OR 3M ROTARY PER CONED SPECIFICATIONS, DETAILS TBD. INSTALL 2ND LOW PRESSURE SWITCH FOR 2ND GAS BOOSTER. METER BY CONED, ALL OTHER MATERIALS FURNISHED & INSTALLED BY PLUMBER.



NOTES:

- ① EXISTING DHW #1 & DUMP LOAD MODULE, SEE M-001 FOR DETAILS. TO BE FED BY NEW COGEN #1
 - ② NEW DHW #2 MODULE PROVIDED AND SET BY AEGIS (COGEN VENDOR), PLUMBING SUBCONTRACTOR TO MAKE CONNECTIONS UP TO MODULE, SEE 1/M-001 FOR DETAILS. TO BE FED BY EXISTING COGEN #2.
 - ③ NEW COGEN #1 POWERVERTER 75 COGEN AND PUMP MODULE, PROVIDED AND SET BY AEGIS (COGEN VENDOR), MECHANICAL SUBCONTRACTOR TO MAKE CONNECTIONS UP TO MODULE, SEE M-001 FOR DETAILS
 - ④ EXISTING COGEN #2 THERMPOWER 75 COGEN AND PUMP MODULE. SEE M-001 FOR DETAILS
 - ⑤ EXISTING HWT-1&2, SEE 1/M-001 FOR TANK SCHEDULE AND DETAILS.
 - ⑥ EXISTING COGEN #1 GAS BOOSTER
 - ⑦ NEW COGEN #2 GAS BOOSTER, MODEL MD101 PARTIAL KNOCK DOWN. ISOLATION VALVES, CHECK VALVE, AND BYPASS SHIPPED LOOSE.
 - ⑧ EXISTING GAS SERVICE ENTRANCE FOR BOILERS, COOKING, AND EXISTING COGENERATION.
 - ⑨ UPGRADE EXISTING GAS METER TO 2M OR 3M ROTARY PER CONED SPECIFICATIONS, DETAILS TBD. INSTALL 2ND LOW PRESSURE SWITCH FOR 2ND GAS BOOSTER. METER BY CONED, ALL OTHER MATERIALS FURNISHED & INSTALLED BY PLUMBER.
 - ⑩ TIE IN TO EXISTING DHW SYSTEM, (2) TAPS. 1-1/2" TAP ON HW AND CW LINES, EXISTING HW IS 3". COORDINATE EXACT LOCATION WITH PROJECT MANAGER, SEE 1/M-001 FOR DETAILS.
 - ⑪ TIE- INTO EXISTING GAS LINE FEEDING COGEN UNIT #2.
 - ⑫ PROVIDE 2" GAS BALL VALVE AND UNION AT COGEN, GAS TAP IS 1" FM THREAD, INSTALL ELECTRONIC GAS VALVE SUPPLIED LOOSE WITH UNIT.
 - ⑬ RUN GAS LINE DOWN ON LEFT SIDE OF MODULE FRAME EDGE (RIGHT SIDE FOR ELECTRIC).
- * PLUMBING SUBCONTRACTOR RESPONSIBLE FOR FIRESTOPPING ALL PENETRATIONS. ALL FIRE STOPPING MUST USE APPROVED SYSTEMS AND METHODS AND MUST MEET OR EXCEED 2 HR RATING
 - * ALL EXISTING HYDRONIC SYSTEM & PIPING TO REMAIN.
 - * EXISTING STEAM SYSTEM TO REMAIN UNCHANGED.

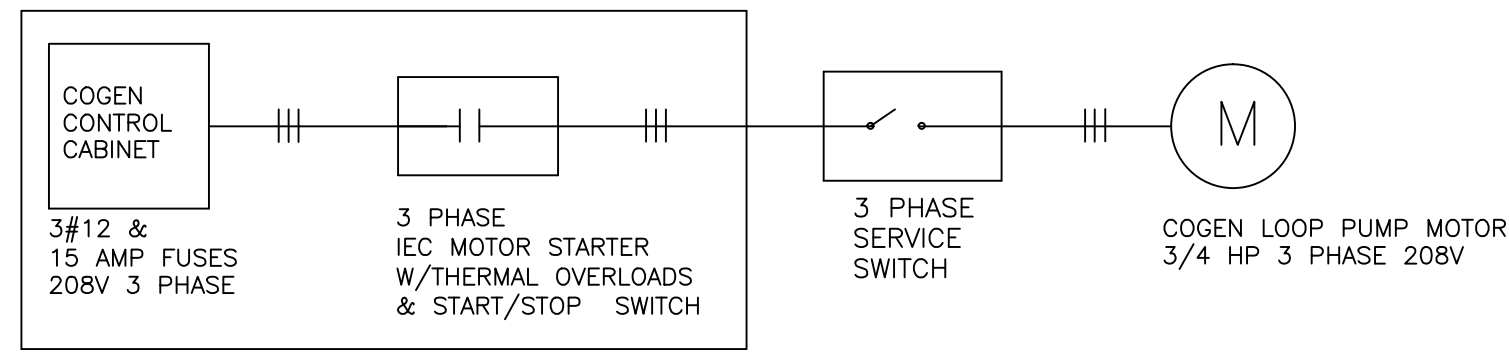
7
P.001

COGENERATION PLUMBING PLAN - CELLAR

SCALE: 3/8" = 1' 0"

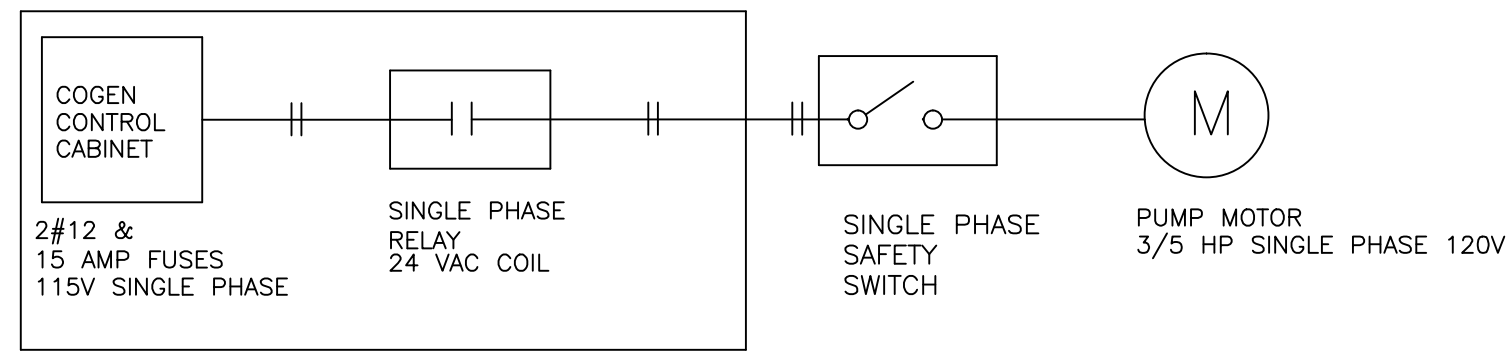
PARTIAL PLAN





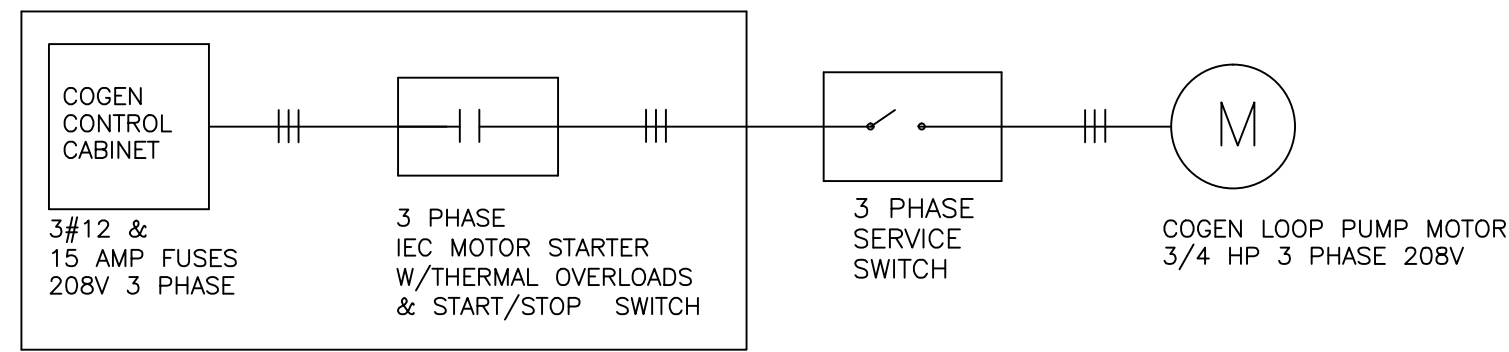
PRE WIRED IN CONTROL CAB
COGEN LOOP PUMP WIRING DIAGRAM
 FOR PUMP P-1

10
E.003



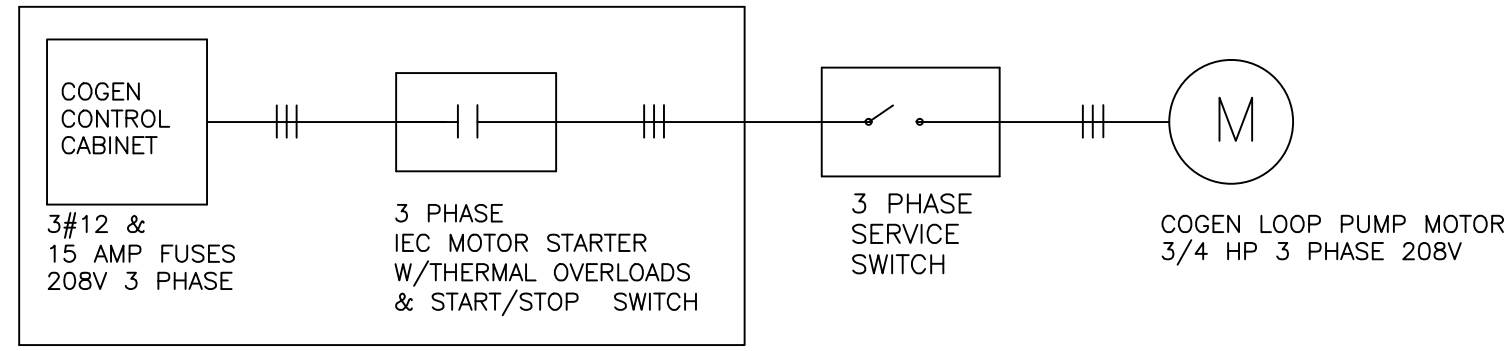
PRE WIRED IN CONTROL CAB
DHW LOOP PUMP WIRING DIAGRAM
 FOR PUMP P-2

11
E.003



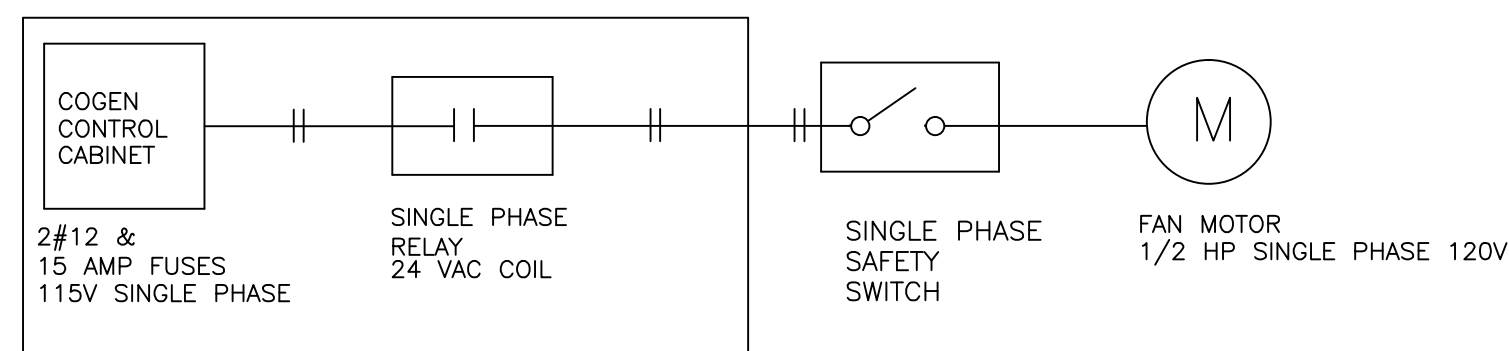
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DUMP PUMP WIRING DIAGRAM
 FOR PUMP P-3

12
E.003



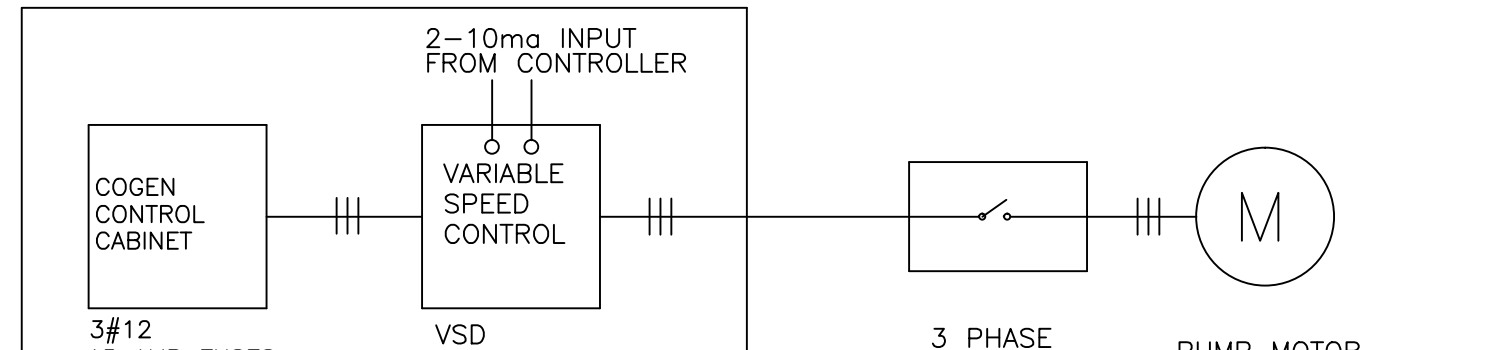
PRE WIRED IN CONTROL CAB
DHW CIRCULATOR PUMP WIRING DIAGRAM
 FOR PUMP P-4

13
E.003



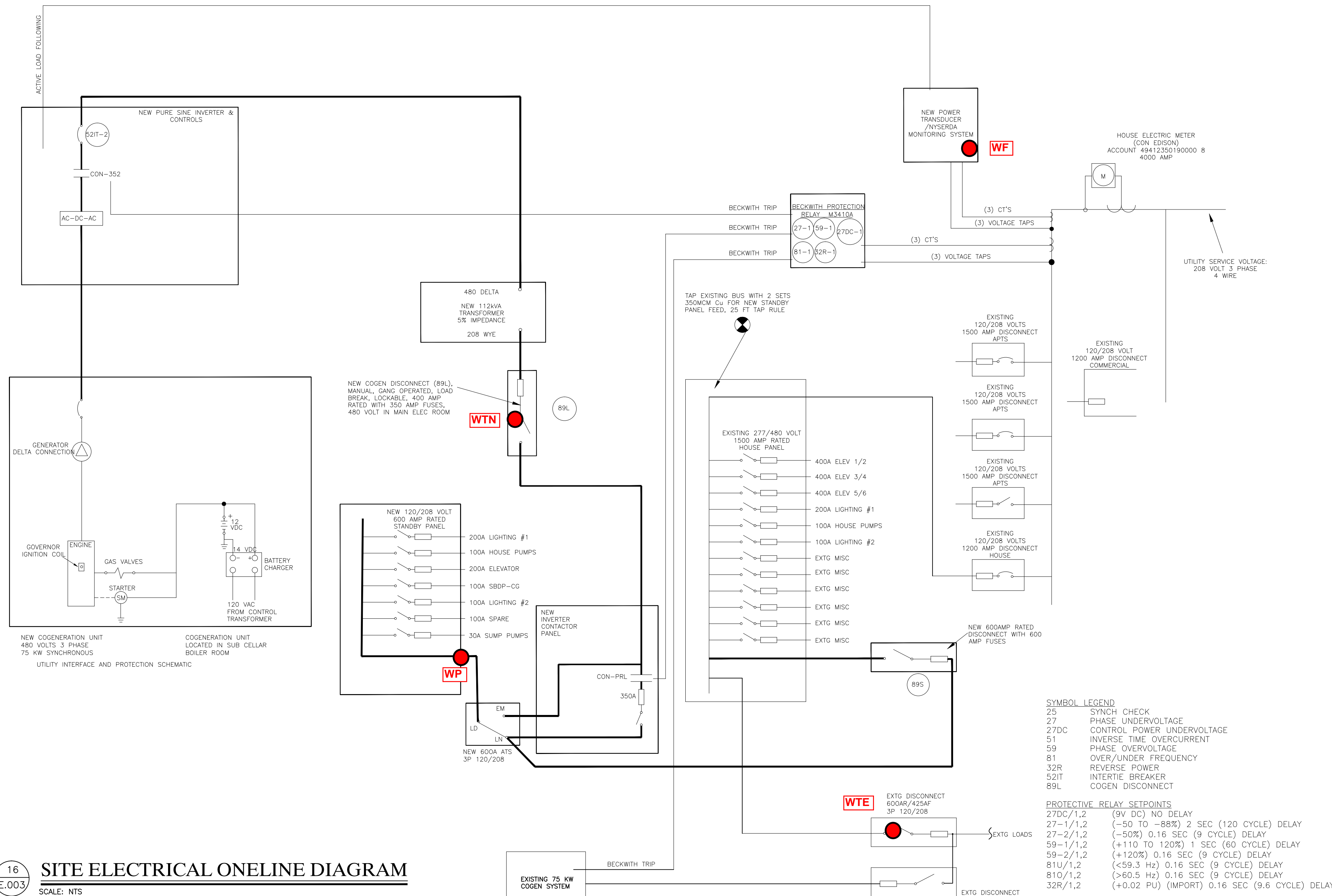
PRE WIRED IN CONTROL CAB
COGEN EXHAUST WIRING DIAGRAM
 FOR FAN F-1

14
E.003



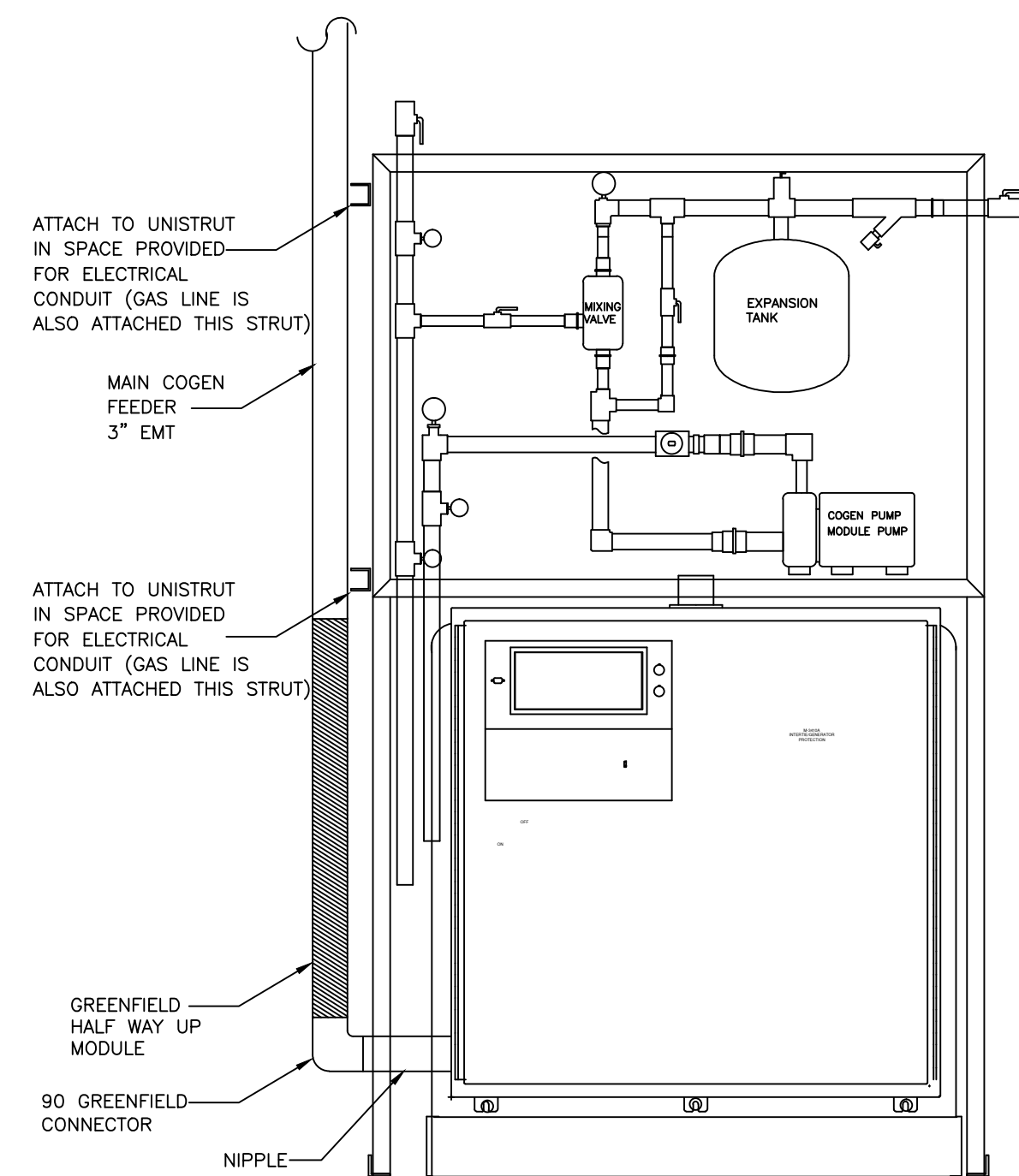
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DUMP FAN WIRING DIAGRAM
 FOR FAN F-2

15
E.003



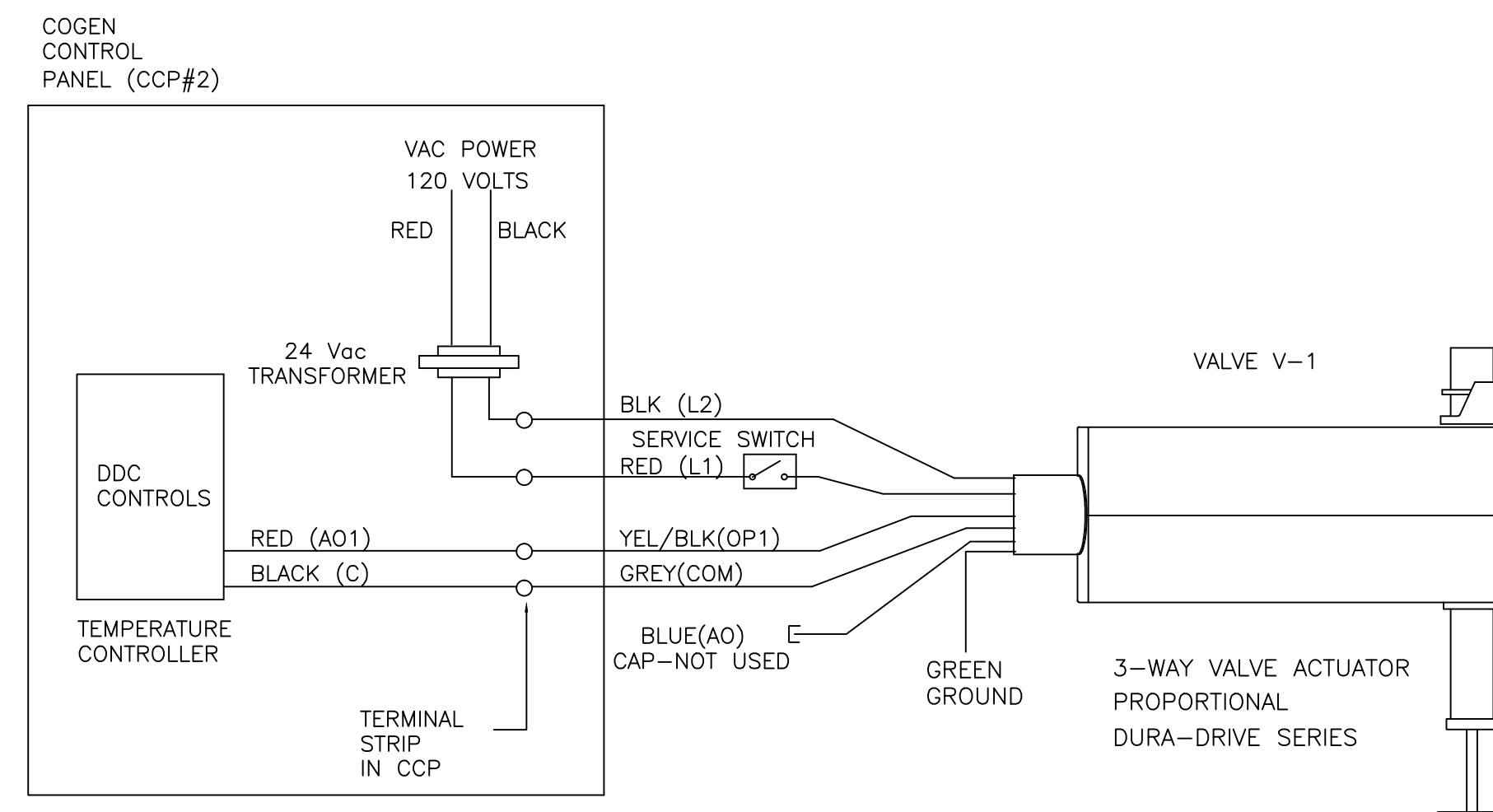
16
E.003 **SITE ELECTRICAL ONELINE DIAGRAM**

SCALE: NTS



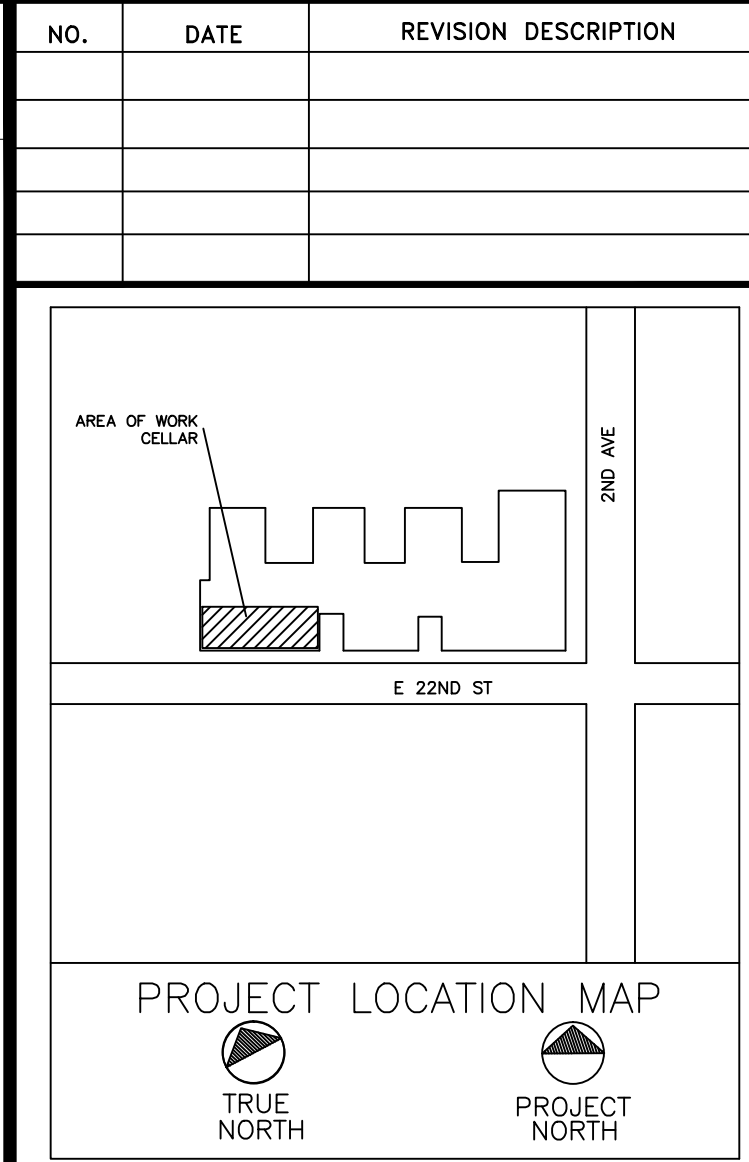
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E.003 **COGENERATION PUMP MODULE DETAIL**

SCALE: NTS



18
E.003 **THREE WAY MODULATING VALVE WIRING DETAIL**

SCALE: NTS



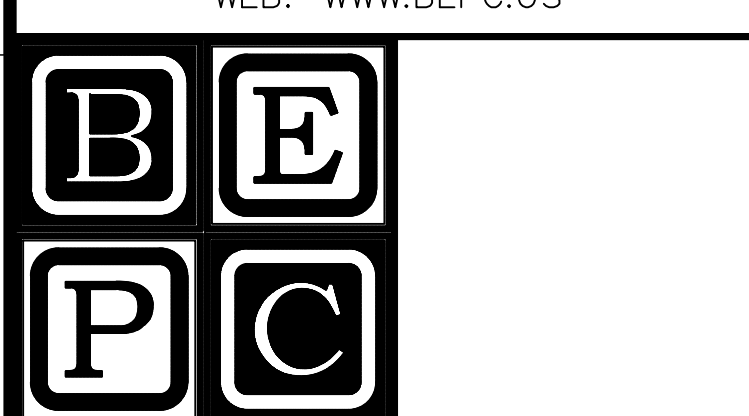
CLIENT:
AEGIS ENERGY SERVICES, INC
 55 JACKSON STREET
 HOLYOKE, MA 01040
 TEL.: 413-536-1156
 FAX: 413-536-1104
 ATTN: SEAN PRINGLE

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PROJECT
**GRAMERCY HOUSE
 COGENERATION PROJECT**
 235 E. 22ND STREET
 NEW YORK, NY 10010

DRAWING TITLE:
**ELECTRICAL
 ONE-LINE DIAGRAM
 AND DETAILS**

DESIGN BY: SJP	DATE: 11-3-14
DRN BY: SJP	DATE: 11-7-14
CKD BY:	DATE:
FINAL CKD BY:	DATE:
SCALE: AS NOTED	DATE:
DWG No.	PAGE 9 OF 9

E-003.00

PROJECT NO. **TBD**

B-SCAN: