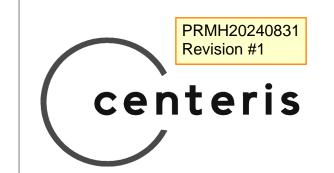


DRAWING INDEX							
M400	MECHANICAL GENERATOR FUEL LEGEND AND ABBREVIATIONS						
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M405	GENERATOR FUEL CONTROL DIAGRAM						
MD401	GENERATOR FUEL MECHANICAL ENLARGED DEMO PLAN						

	=F(AF)-		FIRE - ANTIFREEZE	2 1/2"	PIPE SIZE
	ΞF(CA)— ΞF(DEL)−		- FIRE - CLEAN AGENT - FIRE - DELUGE	AV	PIPING ROUTED BELOW SLAB OR GRADE ACID VENT
	F(D)—		FIRE - DRAIN	AW	ACID WASTE
	=F(DRY)− ==F(PA)−		- FIRE - DRY - FIRE - PRE-ACTION	BBDCA(##)	BOILER BLOWDOWN COMPRESSED AIR (NOMINAL PRESSURE)
	F		FIRE - WET	CD(P)	CONDENSATE DISCHARGE PUMPED
	AC		SPRINKLER GUARD FOR UPTICHT, PENDANT OR SIDEWALL SPRINKLER ABBREVIATION FOR ANTICORROSION	CD	CONDENSATE DRAIN DIONIZED WATER
	HT		ABBREVIATION FOR HIGH TEMPERATURE		DIONIZED WATER RECIRCULATING
			SPARE CABINET FOR 12 SPRINKLERS	DW	DISTILLED WATER
	SAN		DRAINAGE PIPING FIRE EXTINGUISHER	DCW—	DOMESTIC COLD WATER DOMESTIC COLD WATER SOFTENED
	-<		SIAMESE FIRE DEPARTMENT CONNECTION	DHW	DOMESTIC HOT WATER
	→		PRIVATE HYDRANT - ONE HOSE OUTLET	DHWR	DOMESTIC HOT WATER RECIRCULATION
	→		PUBLIC HYDRANT - TWO HOSE OUTLETS PUBLIC HYDRANT - TWO HOSE OUTLETSAND PUMPER CONNECTION	D	DRAIN GREASE WASTE
	0		UPRIGHT SPRINKLER	H	HUMIDIFICATION
	lacktriangle		PENDANT SPRINKLER SIDEWALL SPRINKLER	LV	LABORATORY VENT LABORATORY WASTE
	● ^{DP}		DRY PENDANT SPRINKLER	CVV	NATURAL GAS (LOW PRESSURE)
	∇ ∇		DRY SIDEWALL SPRINKLER	GD	GARAGE DRAINAGE
	FCP		FIRE ALARM CONTROL PANEL FIRE VALVE CABINET	GV	NATURAL GAS VENT MEDIUM PRESSURE GAS
	SPCAB		SPRINKLER CABINET	NPCW———	NON-POTABLE COLD WATER
	Ŀφ		FIRE HOSE VALVE ASSEMBLY	NPCW(S)	NON-POTABLE COLD WATER SOFTENED
	ර ල්		FIRE DAMPER SMOKE DAMPER	NPHW NPHW(S)	NON-POTABLE HOT WATER NON-POTABLE HOT WATER SOFTENED
	[®] Ø,		FIRE SMOKE DAMPER	PTS——PTS——	PNEUMATIC TRANSPORT
	Q	.	DUCT MOUNTED SMOKE SENSOR	PG	PROPANE GAS
	\$	년	SUPERVISED BUTTERFLY VALVE SUPERVISED BUTTERFLY VALVE NORMALLY CLOSED	RO	REVERSE OSMOSIS REVERSE OSMOSIS RECIRCULATION
•		8	SUPERVISED GATE VALVE	SL	SAMPLING LINE
•			SUPERVISED OUSIDE SCREW AND YORK (OS&Y) VALVE	SAN—	SANITARY DRAIN
‡	♣ T	6 8	SUPERVISED OS&Y VALVE SUPERVISED WATERFLOW SWITCH	SAN(O)————————————————————————————————————	SANITARY DRAIN (OIL) SANITARY PUMPED
 > 6*006		ð	SUPERVISED BACKFLOW PREVENTER	SAN(RAD)	SANITARY RADIOACTIVE
- <u>D</u> la			WET ALARM CHECK VALVE WITH TRIMING	ST	STORM DRAIN
			DELUGE ALARM CHECK WITH TRIMING	ST(0)————————————————————————————————————	STORM DRAIN OVERFLOW STORM DRAIN PUMPED
- -	- Description	ŧ.	AIR MENTENANCE DEVICE	VAC	VACUUM (AIR)
			FLOOR AIR COMPRESSOR TANK	VAC(EX)	VACUUM PUMP EXHAUST
		™©4	MOUNTED AIR COMPRESSOR ASSEMBLY DRY ALARM CHCEK VALVE WITH TRIMING	V	VENT (OIL)
ļģ.			PREACTION ALARM CHECK VALVE WITH TRIMING	V(O)	VENT (OIL) VENT (SEWAGE EJECTOR)
<u>@</u>		_	BOSTER PUMP (ALBANY PUMP)	<u> </u>	PIPE INSULATION
• @	₽ A	ē r	TEST AND DRAIN VALVE PRESSURE REDUCING VALVE	 СВ ○	FIXTURE TRAP CATCH BASIN
ь Б	ю	•	1-1/2 FIRE CONNECTION ANGLE VALVE	MH ()	MAN HOLE
ОН	H⊃ 9 <u>14</u>	o #	2-1/2 FIRE CONNECTION ANGLE VALVE	RD ⊘	ROOF DRAIN
□		₽ ₽	FLOOR CONTROL VALVE ASSEMBLY CHECK VALVE	FD ⊘ FFD ⊘	FLOOR DRAIN FUNNEL FLOOR DRAIN
Q.	윰	₽	TREADED BALL VALVE		TRAP PRIMER
⊜o at	a T	\$ ^	GROOVED BALL VALVE	, - 	HOSE BIBB
ં ()	Ţ	1	HYDRAULIC GONG ELECTRIC BELL		PLUMBING FIXTURES
	• © #	◁	ELBOW WITH DRAIN 1 IN.		LAB & MEDICAL GAS
7	O#	CII	GROOVE TEE	WAGD	ANESTHETIC EVACUATION
Ţ	□	₽ ○	GROOVE TEE FIRE DEPARTMENT CONNECTION AND BACKFLOW PREVENTER	CO2	CARBON DIOXIDE DENTAL COMPRESSED AIR
	œll æ	₿	SIAMESE PROJECTING CONNECTION «Y»	DV	DENTAL VACUUM
a		®	SIAMESE CONNECTION «Y» FREE STANDING	He	HELIUM
G al	B	⊕	BODY FOR FIRE DEPARTMENT CONNECTION AND BACKFLOW PREVENTER CONCENTRIC GROOVED MECHANICAL REDUCER	H2————————————————————————————————————	HYDROGEN INSTRUMENT AIR
0	6	•	GROOVED MECHANICAL TEE OR CAP	LCA———	LABORATORY COMPRESSED AIR
0	8	•	REDUCING COUPLING	LVCA———	LABORATORY VACUUM
Ų	⊕	Ф	THREADED MECHANICAL TEE OR CAP THREADED MECHANICAL CROSS	MA	MEDICAL AIR MEDICAL VACUUM
		Ģ	THREADED MECHANICAL TEE	N2	NITROGEN
			HORIZONTAL SPLIT CASE FIRE PUMP	N2O	NITROUS OXIDE
ill-r			END SUCTION FIRE PUMP	02	OXYGEN MEDICAL AIR OUTLET
			VERTICAL INLINE FIRE PUMP	⟨v⟩	MEDICAL VACUUM OUTLET
	<u> </u>	accop	FIRE PUMP ANGLE BODY 4 WAY	⟨N⟩ ⟨NO⟩ ⟨O⟩	MEDICAL NITROGEN OUTLET MEDICAL NITROUS OXIDE OUTLET
		0	JOCKEY PUMP	<u> </u>	MEDICAL OXYGEN OUTLET
				<u>A</u>	LAB AIR SINGLE BENCH OUTLET
			PREACTION CABINET	(V)→ (N)→	LAB VACUUM SINGLE BENCH OUTLET LAB NITROGEN SINGLE BENCH OUTLET
			FIRE HOSE RACK	(N)	LAB NITROUS OXIDE SINGLE BENCH OUTLE LAB OXYGEN SINGLE BENCH OUTLET
			SEISMIC EXPANSION LOOP	A	LAB DOUBLE 45 DEGREE BENCH OUTLET
	Ť	®	WALL POST INDICATOR VALVE (PIV)	A	LAB DOUBLE BENCH OUTLET LAB QUAD 45 DEGREE BECNH OUTLET
	ľ		HANGER		MEDICAL GAS MASTER ALARM PANEL
	_		HANGER HYDRANT VALVE CONTROL		MEDICAL GAS AREA ALARM PANEL MEDICAL GAS ZONE VALVE
	A	6	WALL HYDRANT		BALL VALVE
			WALL MOUNTED PORTABLE FIRE EXTINGUISHER SEMI RECESSED CABINET FOR PORTABLE EXTINGUISHER		CHECK VALVE
	<u></u>				

2 1/2"	PIPING SYSTEMS (HVAC) PIPE SIZE			WORK DEFINITION NEW WORK (N)	<u>ABB</u>	<u>REVIATIONS</u>
BBD	BOILER BLOWDOWN			EXISTING (E)	A/C AAV	AIR CONDITIONING UNIT AUTOMATIC AIR VENT
BFW	BOILER FEED WATER BRINE RETURN		 7////	REMOVE EXISTING (D) REMOVE EXISTING EQUIPMENT (D)	ADA ADJ	AMERICANS WITH DISABILITIES ADJUSTABLE
BS	BRINE SUPPLY		~ — —	FUTURE	AFC AFF	ABOVE FINISHED CEILING ABOVE FINISHED FLOOR
CHWR——	CHILLED WATER RETURN			TEMPORARY, AS NOTED	AFG AFR	ABOVE FINISHED GRADE ABOVE FINISH ROOF
CHWR(G)	CHILLED WATER RETURN - GLYCOL CHILLED WATER RETURN - PROCESS		\(\pi\pi\p)	RELOCATE (R) KEY NOTE	AHJ AP	AUTHORITY HAVING JURISDIC ACCESS PANEL
====CHWS	CHILLED WATER SUPPLY		###	EQUIPMENT IDENTIFICATION	APD AVG	AIR PRESSURE DROP AVERGAGE
CHWS(G)	CHILLED WATER SUPPLY - GLYCOL CHILLED WATER SUPPLY - PROCESS			CONNECTION TO EXISTING DISCONNECT (CUT AND CAP)	BAS	BUILDING AUTOMATION SYSTE
CWR	CONDENSER WATER RETURN				BDD BHP	BACKDRAFT DAMPER BRAKE HORSEPOWER
CWR(CT)	CONDENSER WATER RETURN - COOLING TOWER			(HVAC) *NOTE: ALL DUCT SIZES ARE INTERIOR, FREE DIMENSIONS	BMS BOD	BUILDING MANAGEMENT SYST BOTTOM OF DUCT
CSW	CONDENSER WATER SUPPLY CONDENSER WATER SUPPLY - COOLING TOWER			ALWAYS WIDTH (HORIZONTAL DIM.) x HEIGHT (VERTICAL DIM.)	BOP BTU	BOTTOM OF PIPE BRITISH THERMAL UNIT
DTR	DUAL TEMPERATURE RETURN (HOT OR CHILLED)		$-\!$	AIR FLOW ARROW	BTUH C/W	BRITISH THERMAL UNIT PER H COMPLETE WITH
DTS	DUAL TEMPERATURE SUPPLY (HOT OR CHILLED) FLUID COOLER FILTRATION SUPPY	18"x12" -		RECTANGULAR DUCT AND SIZE* ROUND DUCT AND SIZE*	CAV CBV	CONSTANT AIR VOLUME CIRCUIT BALANCING VALVE
FCFR	FLUID COOLER FILTRATION SUFFT FLUID COOLER FILTRATION RETURN	18"x12"ø		FLAT OVAL DUCT AND SIZE*	CFM DB	CUBIC FEET PER MINUTE DRY BULB TEMEPRATURE
F0F	FUEL OIL FILL	18"x12"	10"10"	EXTERIOR DUCT TREATMENT*	dB dBA	DECIBEL(S) A-WEIGHTED DECIBLES
FOR————————————————————————————————————	FUEL OIL RETURN FUEL OIL SUPPLY	18"x12"		P RECTANGULAR DUCT WITH ACOUSTIC LINING* DUCT SECTION, SUPPLY AIR. APPLIES TO RECT., ROUND AND OVAL	DDC DEG	DIRECT DIGITAL CONTROL DEGREE
FOV	FUEL OIL VENT			DUCT SECTION, OUTSIDE AIR. APPLIES TO RECT., ROUND AND OVAL	DIA./Ø DIFF	DIAMETER DIFFERENTIAL
HPWR———	HEAT RECOVERY LOOP RETURN HEAT PUMP WATER SUPPLY			DUCT SECTION, RETURN AIR. APPLIES TO RECT., ROUND AND OVAL DUCT SECTION, EXHAUST AIR. APPLIES TO RECT., ROUND AND OVAL	DIV DN	DIVISION DOWN
HRR—		1111///////////////////////////////////	(11	FLEXIBLE DUCT	DWG EA	DRAWING EXHAUST AIR
HRS-	HEAT RECOVERY LOOP SUPPLY	X		ELBOW TURN, SUPPLY DOWN. APPLIES TO RECT., ROUND AND OVAL DUCT SECTION, OUTSIDE AIR. APPLIES TO RECT., ROUND AND OVAL	EA (D) EA (G)	EXHAUST AIR, DISHWASH EXHAUST AIR, GENERAL
HWR	HEATING WATER RETURN HEATING WATER RETURN - GLYCOL			DUCT SECTION, OUTSIDE AIR. APPLIES TO RECT., ROUND AND OVAL	EA (K)	EXHAUST AIR, KITCHEN EXHAUST AIR, LABORATORY
HWS	HEATING WATER SUPPLY			DUCT SECTION, OUTSIDE AIR. APPLIES TO RECT., ROUND AND OVAL	EA (LD) EA (W)	EXHAUST AIR, LAUNDRY/DRYE EXHAUST AIR, WASHROOM
HWS(G)————————————————————————————————————	HEATING WATER SUPPLY - GLYCOL NATURAL GAS	- UP I -		CHANGE IN DUCT ELEVATION RISING IN DIRECTION INDICATED CHANGE IN DUCT ELEVATION DROPPING IN DIRECTION INDICATED	EAT EAV	ENTERING AIR TEMPERATURE EXHAUST AIR VALVE
GV	NATURAL GAS VENT		- ∃	END CAP ELBOW, RECTANGULAR, SMOOTH RADIUS WITH SPLITTER VANES	ECM	ELECTRONICALLY COMMUNICATION
RAD 	RADON GAS REFRIGERANT HOT GAS			(0.25 R/W DEFAULT)	ED	EXISTING TO BE DEMOLISHED (DEMOLITION PLANS)
REF(L)—	REFRIGERANT LIQUID	\sum		ELBOW, RECTANGULAR, SMOOTH RADIUS WITHOUT VANES (1.5 R/W DEFAULT)	EER EG	ENERGY EFFICIENCY RATIO ETHELYENE GLYCOL
REF(S)	REFRIGERANT SUCTION	B		ELBOW, ROUND, SMOOTH RADIUS	EMCS	ENERGY MANAGMENT CONTR SYSTEM
=====REF(V)====== RV======	REFRIGERANT VENT RELIEF VENT			(1.5 R/W DEFAULT)	ER	EXISTING RELOCATED (NEW CONSTRUCTION PLANS)
S(##)	STEAM (NOMINAL PRESSURE)			MITERED ELBOW, RECTANGULAR, WITHOUT VANES	ERL	EXISTING TO BE RELOCATED (DEMOLITION PLANS)
CS(##)	STEAM - CLEAN (NOMINAL PRESSURE) STEAM CONDENSATE (NOMINAL PRESSURE)	(20)		MITERED ELBOW, RECTANGULAR, WITH TURNING VANES	ESP EWT	EXTERNAL STATIC PRESSURE ENTERING WATER TEMPERAT
PC(##)	STEAM PUMPED CONDENSATE (NOMINAL PRESSURE)	<u> </u>			EXIST / E FC	EXISTING (DEMOLITION PLANS FAIL CLOSED
SV	STEAM VENT PIPE INSULATION			RECTANGULAR TO ROUND TRANSITION	FLA FO	FULL LOAD AMPERAGE FAIL OPEN
	PIPE INSULATION			DUCT ACCESS DOOR (TOP, SIDE, BOTTOM)	FP FPM	FIRE PROTECTION FEET PER MINUTE
REAL OBJECT SYMBOL	PIPING COMPONENTS			ELEVIDLE CONNECTION		FEET PER SECOND FOOT/FEET
	ISOLATION VALVE (GENERIC) GATE VALVE		>	FLEXIBLE CONNECTION	GA GAL	GAUGE GALLON (US)
	GLOBE VALVE	BDD	>	BACKDRAFT DAMPER	GC GEO	GENERAL CONTRACTOR GEODETIC
	BUTTERFLY VALVE NPS 6 AND LESS BUTTERFLY VALVE NPS 8 AND MORE		>	CABLE OPERATED DAMPER	GPM HEPA	GALLONS PER MINUTE HIGH EFFICIENCY PARTICULAT
e e 5 — □	BALL VALVE	COD			HP	(FILTER) HORSEPOWER
	PLUG VALVE	<u>} </u>	>	MANUAL DAMPER	HR HVAC	HOUR HEATING / VENTILATING / AIR
	NEEDLE VALVE CHECK VALVE (GENERIC)		>	MOTORIZED DAMPER	HZ	CONDITIONING HERTZ
	BALANCING VALVE	M		PRESSURE INDEPENDENT REGULATOR	ie Ieer	INVERT ELEVATION INTEGRATED ENERGY EFFECI
	FLOW LIMITING VALVE PRESSURE REDUCING VALVE	CAR		THEOGRE INDER ENDERN REGOLATOR	IN	RATIO INCHES
2-WAY	2-WAY CONTROL VALVE (GENERIC)		>	FIRE DAMPER	IN WG IPLV	INCHES WATER GAUGE INTEGRATED PART LOAD VALU
2-WAY	TWO-WAY ELECTRIC CONTROL VALVE, BUTTERFLY TYPE 3-WAY CONTROL VALVE (GENERIC)	}	>	SMOKE DAMPER	kW kWh	KILOWATT KILOWATT HOUR
	THREE-WAY ELECTRIC CONTROL VALVE, BUTTERFLY TYPE				LAT LBS	LEAVING AIR TEMPERATURE POUNDS
	SOLENOID 2-WAY CONTROL VALVE SOLENOID 3-WAY CONTROL VALVE		>	SMOKE AND FIRE DAMPER		LINEAR FEET LEAVING WATER TEMPERATUI
——————————————————————————————————————	FLOAT OPERATED VALVE ACTUATOR			DUCT SILENCER/TRANSFER ELBOW	M MAX	METER MAXIMUM
o1 & B	SAFETY OR RELIEF VALVE	(T)		CONTROL DEVICE (REFER TO CONTROLS LEGEND) AIR FLOW MEASURING STATION (REFER TO CONTROLS LEGEND)	MBH MCA	THOUSAND OF BTUH MINIMUM CIRCUIT AMPS
<i>₽</i> —	ANGLE VALVE BOILER STOP AND CHECK VALVE		-QUANTITY	7 2011 III.2 1001 III.0 017 (1.1.2 2.1.1.0 0011 11.020 2.2.02.1.b)	MERV	MINIMUM EFFECIENCY REPOR VALUES
	DOUBLE CHECK VALVE ASSEMBLY		TYPE SIZE (IN.)	AIR OUTLET OR INLET TAG)REFER TO SCHEDULE)	MFR MIN	MANUFACTURER MINIMUM
	MULTI-PURPOSE VALVE (SHUT-OFF, BALANCING AND CHECK) REDUCE PRESSURE BACKFLOW PREVENTER		VOLUME (CFM	,	MOP	MAXIMUM OVERCURRENT PROTECTION
	SUCTION DIFFUSER		†	RECTANGULAR DIFFUSER, SUPPLY.	MWT N/A	MEAN WATER TEMPERATURE NOT APPLICABLE
	PUMP (GENERIC) Y-STRAINER (GENERIC)		← →	OPTIONAL ARROWS SHOW THE FLOW DIRECTION.	NC NC	NOISE CRITERIA NORMALLY CLOSED
⊗ 🗓 🗎 ——⊗——	STEAM TRAP (GENERIC)			RECTANGULAR REGISTER OR GRILLE, RETURN	NIC NO	NOT IN CONTRACT NORMALLY OPEN
Δ e e <u>~~</u>	AUTOMATIC AIR VENT MANUAL AIR VENT			RECTANGULAR REGISTER OR GRILLE, EXHAUST	NPS NTS	NOMINAL PIPE SIZE NOT TO SCALE
—————————————————————————————————————	VACUUM BREAKER				OA OFCI	OUTSIDE AIR OWNER FURNISHED, CONTRA
	SHOCK ABSORBER	\bigotimes		ROUND DIFFUSER, SUPPLY LINEAR DIFFUSER	OFE	INSTALLED OWNER FURNISHED EQUIPME
	TEMPERATURE GAUGE PRESSURE GAUGE			SIDEWALL REGISTER OR GRILLE, SUPPLY	OFOI	OWNER FURNISHED / OWNER INSTALLED PROPYLENE GLYCOL
<u> </u>	TEMPERATURE AND PRESSURE TRAP	— → UC		SIDEWALL GRILLE, RETURN OR EXHAUST UNDERCUT DOOR	PG POE	POINT OF ENTRANCE
— <u>⊚</u> — □ □ □ ○ — ■ ■	SIGHT FLOW GLASS FLEXIBLE CONNECTOR	-		DOOR GRILLE OR LOUVER	POS PPM	POINT OF SERVICE PARTS PER MILLION
	EXPANSION JOINT			TRANSFER GRILLE OR LOUVER	PSI PSIA	POUNDS PER SQUARE INCH, POUNDS PER SQUARE INCH, ABSOLUTE
_ _	GUIDE ANCHOR		- QUANTITY	COIL (REFER TO CONTROLS LEGEND)		POUNDS PER SQUARE INCH, G
-	FLOW ARROW	<u> </u>	TYPE		PTS PVC	PNEUMATIC TUBE STATION POLYVINYL CHLORIDE
	PIPING SLOPE PIPE CAP		LENGTH (FT.) CAPACITY (ME	RADIATION HEATING TAG (REFER TO SCHEDULE) BH)	RA RELA	RETURN AIR RELIEF AIR
	PIPE BREAK		,		REQD RH	REQUIRED RELATIVE HUMIDITY
$= \prod_{i=1}^{n} \exists i$	PIPE CROSS				SA	REVOLUTIONS PER MINUTE SUPPLY AIR
• • • • • • • • • • • • • • • • • • • •	PIPING ELBOW UP PIPING ELBOW DOWN				SEER	SEASONAL ENERGY EFFICIENT RATION STATIC PRESSURE
	PIPING TEE UP				SP SP	STATIC PRESSURE STAIR PRESSURIZATION AIR (*
	PIPING TEE DOWN UNION CONNECTION				SRV TA	SAFETY RELIEF VALVE TRANSFER AIR
- · · · ———	FLANGED CONNECTION				TEMP TSP	TEMPERATURE TOTAL STATIC PRESSURE
	CONCENTRIC REDUCER				TSTAT TYP	THERMOSTAT TYPICAL
	FOOFNITRIO DEDUCE				UG	UNDER CUT (DOOR) UNDERGROUND
	ECCENTRIC REDUCER STANDARD CLEAN-OUT IN LINE END OF RUN					
	STANDARD CLEAN-OUT IN LINE END OF RUN STANDARD CLEAN-OUT THROUGH FLOOR END OF RUN				UP VAV	UP VARIABLE AIR VOLUME
	STANDARD CLEAN-OUT IN LINE END OF RUN STANDARD CLEAN-OUT THROUGH FLOOR END OF RUN STANDARD CLEAN-OUT THROUGH FLOOR IN LINE					
	STANDARD CLEAN-OUT IN LINE END OF RUN STANDARD CLEAN-OUT THROUGH FLOOR END OF RUN				VAV VFD VIF	VARIABLE AIR VOLUME VARIABLE FREQUENCY DRIVE
	STANDARD CLEAN-OUT IN LINE END OF RUN STANDARD CLEAN-OUT THROUGH FLOOR END OF RUN STANDARD CLEAN-OUT THROUGH FLOOR IN LINE DIFFERENTIAL PRESSURE CONTROL VALVE Y-PATTERN MANUAL BALANCING/SHUT-OFF VALVE PRESSURE INDEPENDENT CONTROL VALVE				VAV VFD VIF VTR W/ W/O	VARIABLE AIR VOLUME VARIABLE FREQUENCY DRIVE VERIFY IN FIELD VENT-THRU-ROOF
	STANDARD CLEAN-OUT IN LINE END OF RUN STANDARD CLEAN-OUT THROUGH FLOOR END OF RUN STANDARD CLEAN-OUT THROUGH FLOOR IN LINE DIFFERENTIAL PRESSURE CONTROL VALVE Y-PATTERN MANUAL BALANCING/SHUT-OFF VALVE				VAV VFD VIF VTR W/ W/O	VARIABLE AIR VOLUME VARIABLE FREQUENCY DRIVE VERIFY IN FIELD VENT-THRU-ROOF WITH WITHOUT

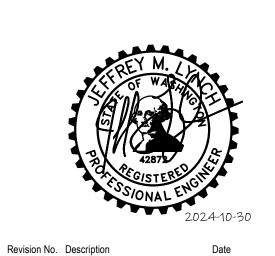
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ABBREVIATIONS
                                     EQUIPMENT IDENTIFICATION
                                     AB-# AIR BLENDER
            CONDITIONING UNIT
            DMATIC AIR VENT
                                     AC-# AIR COMPRESSOR
            RICANS WITH DISABILITIES ACT
                                     ACU-# AIR CONDITIONING UNIT
            JSTABLE
                                     ADS-# AIR AND DIRT SEPARATOR
            VE FINISHED CEILING
                                     AF-# AIR FILTER
            VE FINISHED FLOOR
                                     AHU-# AIR HANDLING UNIT
            VE FINISHED GRADE
                                     AS-# AIR SEPARATOR
                                     ATU-# AIR TERMINAL UNIT
            VE FINISH ROOF
            HORITY HAVING JURISDICTION
                                     B-# BOILER
            ESS PANEL
                                     BCU-# BLOWER COIL UNIT
            PRESSURE DROP
                                     BT-# BATH TUB
            RGAGE
                                     CB-# CHILLED BEAM
            DING AUTOMATION SYSTEM
                                     CC-# COOLING COIL
            KDRAFT DAMPER
                                     CH-# CHILLER
            KE HORSEPOWER
                                     CONV-# CONVECTOR
            DING MANAGEMENT SYSTEM
                                     CRU-# CONDENSATE RETURN UNIT
            TOM OF DUCT
                                     CT-# COOLING TOWER
            TOM OF PIPE
                                     CU-# CONDENSING UNIT
            ISH THERMAL UNIT
                                     CUH-# CABINET UNIT HEATER
            ISH THERMAL UNIT PER HOUR
                                     CV-# CONTROL VALVE
            PLETE WITH
                                     DAC-# DOOR AIR CURTAIN
            STANT AIR VOLUME
                                     DC-# DUST COLLECTOR
            UIT BALANCING VALVE
                                     DCT-# DECONTAMINATION TANK
            C FEET PER MINUTE
                                     DCVA-# DOUBLE CHECK VALVE ASSEMBLY
            BULB TEMEPRATURE
                                     DF-# DRINKING FOUNTAIN
            BEL(S)
                                     DG-# DOOR GRILLE
            EIGHTED DECIBLES
                                     DS-# DUCT SILENCER
            ECT DIGITAL CONTROL
                                     DU-# DEHUMIDIFICATION UNIT
                                     DWH-# DOMESTIC WATER HEATER
            IETER
                                     E-# EXHAUST GRILLE / REGISTER / DIFFUSER
            ERENTIAL
                                     EL-# EXPANSION LOOP
            SION
                                     ERC-# ENERGY RECOVERY COIL
                                     ERU-# ENERGY RECOVERY UNIT
                                     ES-# EMERGENCY SHOWER
            AUST AIR
                                     ETU-# EXHAUST TERMINAL UNIT
            AUST AIR, DISHWASH
                                     EWC-# ELECTRIC WATER COOLER
            AUST AIR, GENERAL
                                     EWS-# EYE WASH STATION
            AUST AIR, KITCHEN
                                     F(C)-# FAN CEILING
            AUST AIR, LABORATORY
                                     F(E)-# FAN EXHAUST
                                     F(LE)-# FAN LABORATORY EXHAUST
            AUST AIR, LAUNDRY/DRYER
                                     F(R)-# FAN RETURN
            AUST AIR, WASHROOM
                                     F(S)-# FAN SUPPLY
            ERING AIR TEMPERATURE
            AUST AIR VALVE
                                     F(T)-# FAN TRANSFER
            CTRONICALLY COMMUNICATED F-# FAN
                                     FCU-# FAN COIL UNIT
            TING TO BE DEMOLISHED
                                     FD-# FLOOR DRAIN
            MOLITION PLANS)
                                     FFU-# FAN FILTER UNIT
            RGY EFFICIENCY RATIO
                                     FPP-# FIRE PROTECTION PUMP
            ELYENE GLYCOL
                                     FPTU-# FAN POWERED TERMINAL UNIT
            RGY MANAGMENT CONTROL
                                     FTR-# FINNED TUBE RADIATOR
                                     FUR-# FURNACE
            TING RELOCATED (NEW
                                     GFS-# GLYCOL FEED SYSTEM
            STRUCTION PLANS)
                                     GSG-# GAS-FIRED STEAM GENERATOR(*)
            TING TO BE RELOCATED
                                     H(C)-# HOOD (CANOPY)
            (OLITION PLANS)
                                     H(HC)-# HOOD (HEAT AND CONDENSATE)
            ERNAL STATIC PRESSURE
                                     H(I)-# HOOD (INTAKE)
            ERING WATER TEMPERATURE
                                     H(K)-# HOOD (KITCHEN)
            TING (DEMOLITION PLANS)
                                     H(R)-# HOOD (RELIEF)
            CLOSED
                                     H(RH)-# HOOD (RANGE)
            LOAD AMPERAGE
                                     H-# HUMIDIFIER
            OPEN
                                     HC-# HEATING COIL
            PROTECTION
                                     HP-# HEAT PUMP
                                     HRU-# HEAT RECOVERY UNIT
            PER SECOND
                                     HT-# HYDROPNEUMATIC TANK
            T/FEET
                                     HX-# HEAT EXCHANGER
                                     LATU-# LAB AIR TERMINAL UNIT
            ON (US)
                                     LAV-# LAVATORY
            IERAL CONTRACTOR
                                     MAC-# MEDICAL AIR COMPRESSOR
            DETIC
                                     MAU-# MAKEUP AIR UNIT
            ONS PER MINUTE
                                     MD-# MOTORIZED DAMPER
            HEFFICIENCY PARTICULATE AIR
                                     MSK-# MOP SINK
            SEPOWER
                                     MV-# MIXING VALVE
                                     MVP-# MEDICAL VACUUM PUMP
                                     P-# PUMP
            ΓING / VENTILATING / AIR
            DITIONING
                                     PDU-# POOL DEHUMIDIFICATION UNIT
                                     PRV-# PRESSURE REDUCING VALVE
            ERT ELEVATION
                                     PTAC-# PACKAGED TERMINAL AIR CONDITIONER
            GRATED ENERGY EFFECIENCY R-# RETURN AIR GRILLE / REGISTER / DIFFUSER
                                     RD-# ROOF DRAIN
                                     RH-# RANGE HOOD
            HES WATER GAUGE
                                     RP-# RADIANT PANEL
            GRATED PART LOAD VALUE
                                     RPBP-# REDUCED PRESSURE BACKFLOW PREVENTER
            WATT
                                     RTU-# ROOFTOP UNIT
            WATT HOUR
                                     S-# SUPPLY GRILLE / REGISTER / DIFFUSER
            VING AIR TEMPERATURE
                                     SH-# SHOWER
                                     SK-# SINK
            AR FEET
                                     SPC-# SOLAR PANEL COLLECTOR
            ING WATER TEMPERATURE
                                     SSF-# SIDE STREAM FILTER
                                     T(B)-# TANK (BUFFER TANK)
            IMUM
                                     T(E)-# TANK (EXPANSION TANK)
            JSAND OF BTUH
                                     T(H)-# TANK (HYDRO PNEUMATIC TANK)
            MUM CIRCUIT AMPS
                                     T(S)-# TANK (STORAGE TANK)
            MUM EFFECIENCY REPORTING
                                     T-# TRANSFER AIR GRILLE
                                     UH-# UNIT HEATER
            UFACTURER
                                     UR-# URINAL
            MUM
                                     USG-# UNFIRED STEAM GENERATOR
            MUM OVERCURRENT
                                     UV-# UNIT VENTILATOR
            TECTION
                                     VA-# VALVE
            N WATER TEMPERATURE
                                     VFD-# VARIABLE FREQUENCY DRIVE
            APPLICABLE
                                     WC-# WATER CLOSET
            E CRITERIA
                                     WS-# WATER SOFTENER
            MALLY CLOSED
                                     L-# LOUVER
            IN CONTRACT
            MALLY OPEN
            INAL PIPE SIZE
            TO SCALE
            SIDE AIR
            NER FURNISHED, CONTRACTOR
            ALLED
            NER FURNISHED EQUIPMENT
            NER FURNISHED / OWNER
            ALLED
            PYLENE GLYCOL
            IT OF ENTRANCE
            IT OF SERVICE
            TS PER MILLION
            INDS PER SQUARE INCH
            NDS PER SQUARE INCH,
            INDS PER SQUARE INCH, GAGE
            JMATIC TUBE STATION
            /VINYL CHLORIDE
            JRN AIR
            EF AIR
            JIRED
            ATIVE HUMIDITY
            OLUTIONS PER MINUTE
            PLY AIR
            SONAL ENERGY EFFICIENCY
            TIC PRESSURE
             R PRESSURIZATION AIR (*)
            ETY RELIEF VALVE
            NSFER AIR
            PERATURE
            AL STATIC PRESSURE
            RMOSTAT
            ER CUT (DOOR)
            ERGROUND
            ABLE AIR VOLUME
            IABLE FREQUENCY DRIVE
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MECHANICAL DRAWINGS

CENTERIS VOLTAGE PARK UPS 1019 39th AVENUE SE PUYALLUP, WA 98374



City of Puyallup
Building
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FOR
COMPLIANCE
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City of Puyallup
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The approved construction plans, documents, and all engineering must be posted on the job at all inspections in a visible and readily accessible location.

Full sized legible color plans are required to be provided by

Approval of submitted plans is not an approval of omissions or oversights by this office or non compliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable

codes and regulations of the local government.

Drawn By: Checked By:

DD JL

MECHANICAL

GENERATOR FUEL

LEGEND AND

ABBREVIATIONS



GENERAL NOTES

- 1. THE MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE AND ARE BASED ON ONE MANUFACTURER'S EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL OF THE DETAILS FOR THE EQUIPMENT, THE MECHANICAL CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT AND ENSURE THAT IT WILL FIT IN THE AVAILABLE SPACE.
- 2. MECHANICAL CONTRACTOR RESPONSIBLE FOR INSTALLATION OF COMPLETED AND OPERATIONAL SYSTEMS WITH DUE RESPECT TO ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
- 3. IT IS THE CONTRACTOR RESPONSIBILITY TO FIELD VERIFY ALL CONNECTION POINTS PRIOR TO INSTALL. NOT ALL CONNECTION SIZES ARE SHOWN, BUT THOSE THAT ARE APPROXIMATE AND TAKEN FROM EXISTING AS-BUILTS AND FIELD OBSERVATIONS.
- 4. COORDINATE PIPE ROUTING WITH DUCTWORK, SPRINKLER PIPING AND ELECTRICAL POWER/LIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
- 5. CONTRACTORS TO VERIFY ALL GRADES, DIMENSIONS AND EXISTING CONDITIONS AT THE SITE BEFORE PROCEEDING WITH WORK. NOTIFY PRIME CONSULTANT OF ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL CONDITIONS BEFORE INSTALLATION.
- 6. EQUIPMENT AND SYSTEMS SHALL COMPLY WITH 2018 WASHINGTON STATE ENERGY AND MECHANICAL CODES.
- 7. COORDINATE INSTALLATION OF PIPING AND DUCTWORK WITH ELECTRICAL CONTRACTOR AND OTHER TRADES.
- 8. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS NEEDED TO CONSTRUCT WORK SHOULD IN THE CONSTRUCTION DOCUMENTS AND ACCOMPANYING SPECIFICATIONS.
- 9. IF THERE IS A CONFLICT BETWEEN THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, THE MOST STRINGENT WILL APPLY.
- 10. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURERS. CONTRACTOR TO PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
- 11. SYSTEMS ADHERE TO 2018 WSEC SECTION C403.2.3 VARIABLE FLOW CAPACITY: FOR FAN AND PUMP MOTORS 7.5 HP AND GREATER, INCLUDING MOTORS IN OR SERVING CUSTOM AND PACKAGED AIR HANDLERS SERVING VARIABLE AIR VOLUME SYSTEMS, CONSTANT VOLUME FANS, HEATING AND COOLING HYDRONIC PUMPING SYSTEMS, AND OTHER PUMP OR FAN MOTORS WHERE VARIABLE FLOWS ARE REQUIRED SHALL BE EQUIPPED WITH VARIABLE SPEED DRIVES.
- 12. SYSTEMS ADHERE TO SECTION C403.3.2 HVAC EQUIPMENT PERFORMANCE REQUIREMENTS: EQUIPMENT SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C403.3.2(1) THROUGH C403.3.2(12) WHEN TESTED AND RATED IN ACCORDANCE WITH THE APPLICABLE TEST PROCEDURE.
- 13. SYSTEMS ADHERE TO C405.8 ELECTRIC MOTOR EFFICIENCY: A:ALL ELECTRIC MOTORS, FRACTIONAL OR OTHERWISE, SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C405.8(1) THOUGH C405.8(4) WHEN TESTED IN ACCORDANCE WITH DOE 10 CFR UNLESS OTHER EXCEPTIONS ARE QUALIFIED AND MET BY THIS SECTION. B: FRACTIONAL HP FAN MOTORS THAT ARE 1/12 HP OR GREATER AND LESS THAN 1 HP (BASED ON THE OUTPUT POWER) WHICH ARE NOT COVERED IN TABLES C405.8(3) AND C405.8(4) SHALL BE ELECTRONICALLY COMMUTATED MOTORS OR SHALL HAVE A MINIMUM MOTOR EFFICIENCY OF 70 PERCENT WHEN RATED IN ACCORDANCE WITH DOE 10 CFR 431.
- 14. PENETRATIONS OF DUCTS, PIPES, CONDUITS, ETC IN WALLS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED, FIRE STOP MATERIAL, SHALL BE A UL/ULC-LISTED ASSEMBLY APPROPRIATE FOR FIRE OR SMOKE PENETRATIONS AS APPLICABLE AND AS APPROVED BY THE FIRE MARSHAL.
- 15. THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL FIRE, SMOKE, OR COMBINATION SMOKE/FIRE DAMPERS AND ACCESS PANELS COMMENSURATE WITH THE RATING OF THE WALL IN ALL DUCTWORK THAT PENETRATES FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITION IN ALL DUCTWORK THAT PENETRATES A HORIZONTAL OR VERTICAL FIRE PARTITION, OR AS OTHERWISE SHOWN ON THE DRAWINGS.
- 16. ALL BRANCH DUCTS SHALL HAVE VOLUME DAMPERS.
- 17. WHERE FLOW EXCEEDS 150 CFM, THE CONTRACTOR SHALL USE SMOOTH RADIUS ELBOWS OR TURNING VANES.
- 18. ALL DUCT JOINTS SHALL BE SEALED IN ACCORDANCE WITH SMACNA
- 19. ALL DUCT DIMENSIONS ARE NET INSIDE VALUES. DIMENSIONS MAY BE CHANGED PROVIDED THAT THE NET FREE AREA IS MAINTAINED.
- 20. ALL CONCEALED DUCTWORK SHALL BE INSULATED WITH 1" FIBERGLASS

INSULATING BLANKET WITH ALUMINUM FOIL FACING.

- 21. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE LOCAL REGULATIONS AND PROCEDURES DETAILED IN THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR
- CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. (SMACNA).
- 22. ALL DUCTWORK SHALL BE CONSTRUCTED AND SEALED PER IMC. 23. DUCTWORK SHALL MEET THE AIR LEAKAGE REQUIREMENTS OF 2018 WSEC
- 24. ALL PIPE SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER. THE USE OF WIRE OR METAL STRAPS TO SUPPORT PIPES WILL NOT BE PERMITTED. REFER TO SPECIFICATIONS FOR MINUMUM SPACING OF PIPE SUPPORTS.
- 25. ALL EQUIPMENT TO BE INSTALLED ON MIN 6" THICK CONCRETE HOUSEKEEPING PADS.

C402.5 AND VAPOR RETARDER REQUIREMENTS PER THE IBC.

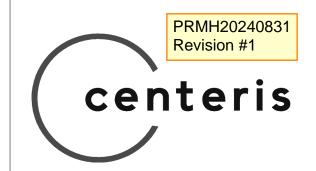
- 26. ALL EQUIPMENT, DUCTS PIPING, AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHERPROOFED.
- 27. MECHANICAL EQUIPMENT, DUCTS AND PIPING ARE TO BE COORDINATED
- WITH STRUCTURAL JOISTS AND CROSS BRACING. 28. ALL EXPOSED PIPING IN OCCUPIED SPACES SUBJECT TO ARCHITECTURAL
- APPROVAL PRIOR TO INSTALLATION. 29. ALL DUCTWORK SHALL BE CONSTRUCTED AND SEALED PER IMC.
- 30. DUCTWORK SHALL MEET THE AIR LEAKAGE REQUIREMENTS OF 2018 WSEC
- C402.5 AND VAPOR RETARDER REQUIREMENTS PER THE IBC. 31. THE HVAC SYSTEMS SHALL BE TESTED AND BALANCED BY AN INDEPENDENT AGENCY, UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER PRIOR TO COMMISSIONING. A SEALED TYPE WRITTEN REPORT
- 32. A BUILDING COMMISSIONING PROCESS AND FUNCTIONAL TESTING OF MECHANICAL SYSTEMS SHALL BE CARRIED OUT BY A CERTIFIED COMMISSIONING PROFESSIONAL IN ACCORDANCE WITH 2018 WSEC SECTION C408. THE MECHANICAL, ELECTRICAL, PLUMBING, AND CONTROL CONTRACTORS ARE REQUIRED TO PERFORM FUNCTIONAL PERFORMANCE TESTING OF ALL EQUIPMENT PRIOR TO TESTING BY THE COMMISSIONING AGENT. CONTRACTORS SHALL PROVIDE THE NECESSARY ASSISTANCE TO THE COMMISSIONING AGENT TO PERFORM COMMISSIONING DUTIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING CORRECTIVE ACTION IF ANY DEFICIENCIES ARE FOUND DURING COMMISSIONING.

SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER.

- 33. SYSTEMS ADHERE TO 2018 WSEC SECTION C408 SYSTEM COMMISSIONING: A. A CERTIFIED COMMISSIONING PROFESSIONAL (CCP) SHALL LEAD THE COMMISSIONING PROCESS. A CCP IS AN INDIVIDUAL WHO IS CERTIFIED BY AN ANSI/ISO/IEC 17024:2012 ACCREDITED ORGANIZATION TO LEAD, PLAN, COORDINATE, AND MANAGE COMMISSIONING TEAMS AND
- IMPLEMENT THE COMMISSIONING PROCESS. B. A CERTIFIED COMMISSIONING PROFESSIONAL SHALL PERFORM THE
- FOLLOWING: a. DEVELOP A COMMISSIONING PLAN.
- b. REVIEW BUILDING DOCUMENTATION AND CLOSE-OUT SUBMITTALS. c. PROVIDE A COMMISSIONING REPORT. d. LIST SPECIFIC EQUIPMENT, APPLIANCES AND SYSTEMS
- COMMISSIONED. C. FUNCTIONAL TESTING SHALL BE COMPLETED FOR THE FOLLOWING SYSTEMS AND THEIR ASSOCIATED CONTROL SYSTEMS:
- a. MECHANICAL SYSTEMS b. SERVICE WATER HEATING SYSTEMS
- c. CONTROLLED RECEPTACLE AND LIGHTING SYSTEMS
- d. EQUIPMENT APPLIANCE AND SYSTEMS e. ENERGY METERING
- D. A COMMISSIONING REPORT SHALL BE DELIVERED TO THE BUILDING OWNER AND INCLUDE:
- a. RESULTS OF THE FUNCTIONAL PERFORMANCE TESTS b. LIST OF DEFICIENCIES AND CORRECTIVE MEASURES IMPLEMENTED OR PROPOSED.
- c. FUNCTIONAL PERFORMANCE TEST PROCEDURES.

f. REFRIGERATION SYSTEMS

- d. COMMISSIONING PLAN. e. TAB REPORT.
- 34. TESTING AND BALANCING: ALL HVAC SYSTEMS SHALL BE BALANCED BY A LICENSED CONTRACTOR IN ACCORDANCE WITH ACCEPTED ENGINEERING STANDARDS AND SPECIFICATIONS PRIOR TO COMMISSIONING.
- 35. OWNER TRAINING BY CONTRACTORS FOR EACH PIECE OF EQUIPMENT OR SYSTEM SHALL INCLUDE: SYSTEM/EQUIPMENT OVERVIEW (WHAT IT IS, WHAT IT DOES, AND WHICH OTHER SYSTEMS OR EQUIPMENT DOES IT INTERFACE WITH). REVIEW OF THE AVAILABLE O&M MATERIALS. REVIEW OF THE RECORD DRAWINGS ON THE SUBJECT SYSTEM/EQUIPMENT, HANDS-ON DEMONSTRATION OF ALL NORMAL MAINTENANCE PROCEDURES, NORMAL OPERATING MODES, AND ALL EMERGENCY SHUTDOWN AND START-UP PROCEDURES.





MECHANICAL

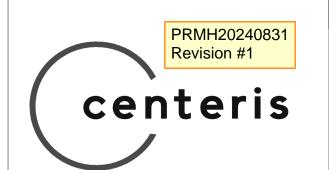


Revision No. Description

Iopment & Permitting Services ISSUED PERMIT

Engineering Public Works

MECHANICAL GENERATOR FUEL Title GENERAL NOTES

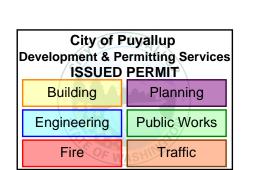




MECHANICAL DRAWINGS

VOLTAGE PARK UPS 1019 39th AVENUE SE PUYALLUP, WA 98374





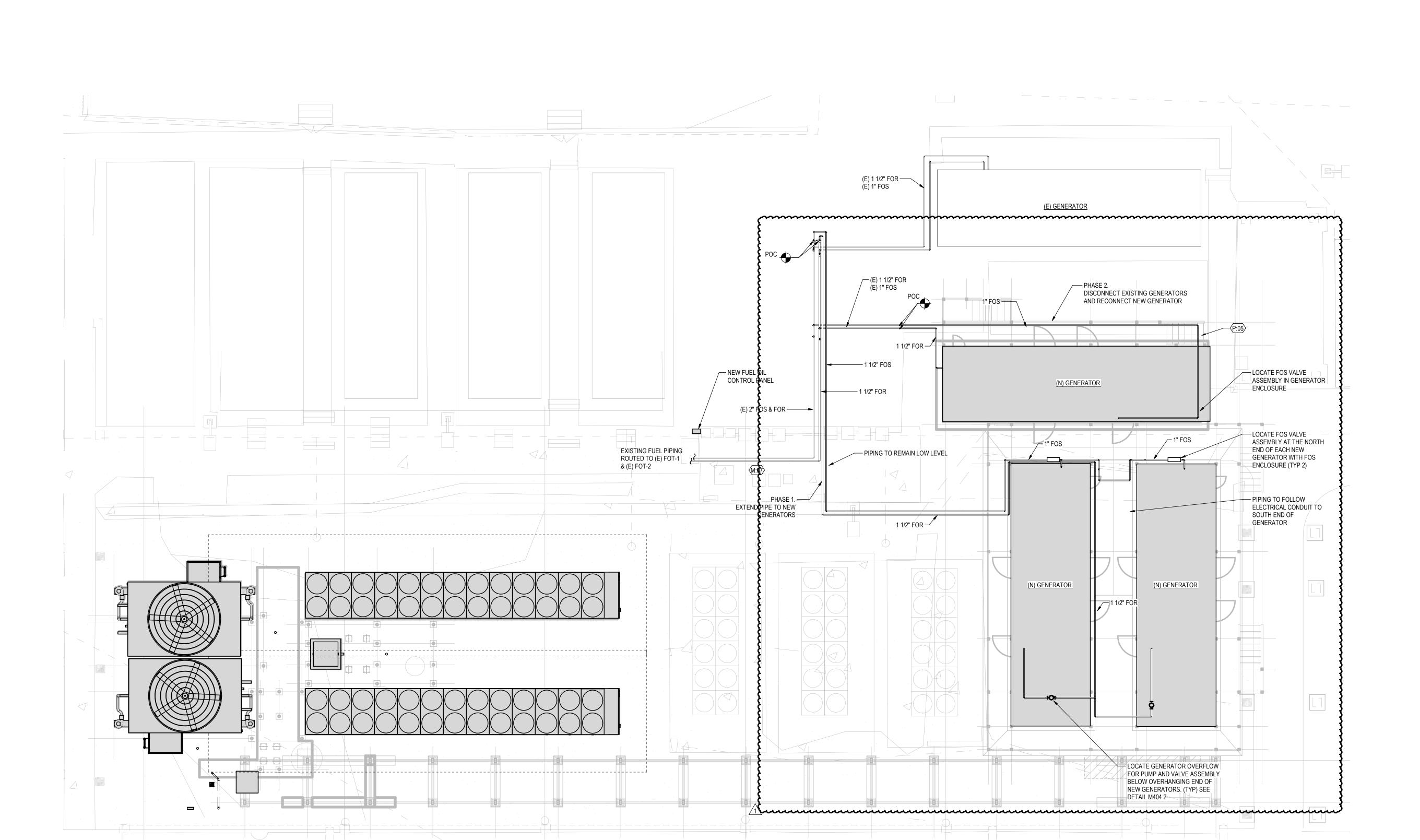
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DD JL

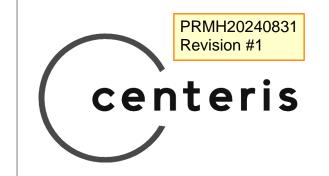
MECHANICAL GENERATOR FUEL SITE Title PLAN

M402

1 MECHANICAL GENERATOR FUEL SITE PLAN



MECHANICAL GENERATOR FUEL ENLARGED PLAN 1/8" = 1'-0"





KEY NOTES

M:07 EXISTING FUEL PUMPS AND FUEL CONTROL PANELS

ALL FUEL PIPING SHALL BE ABOVE GRADE AND BELOW LOWEST FUEL LEVEL IN TANKS OR PROTECTED WITH ANTI SIPHON VALVE.

MECHANICAL DRAWINGS

CENTERIS VOLTAGE PARK UPS 1019 39th AVENUE SE PUYALLUP, WA 98374



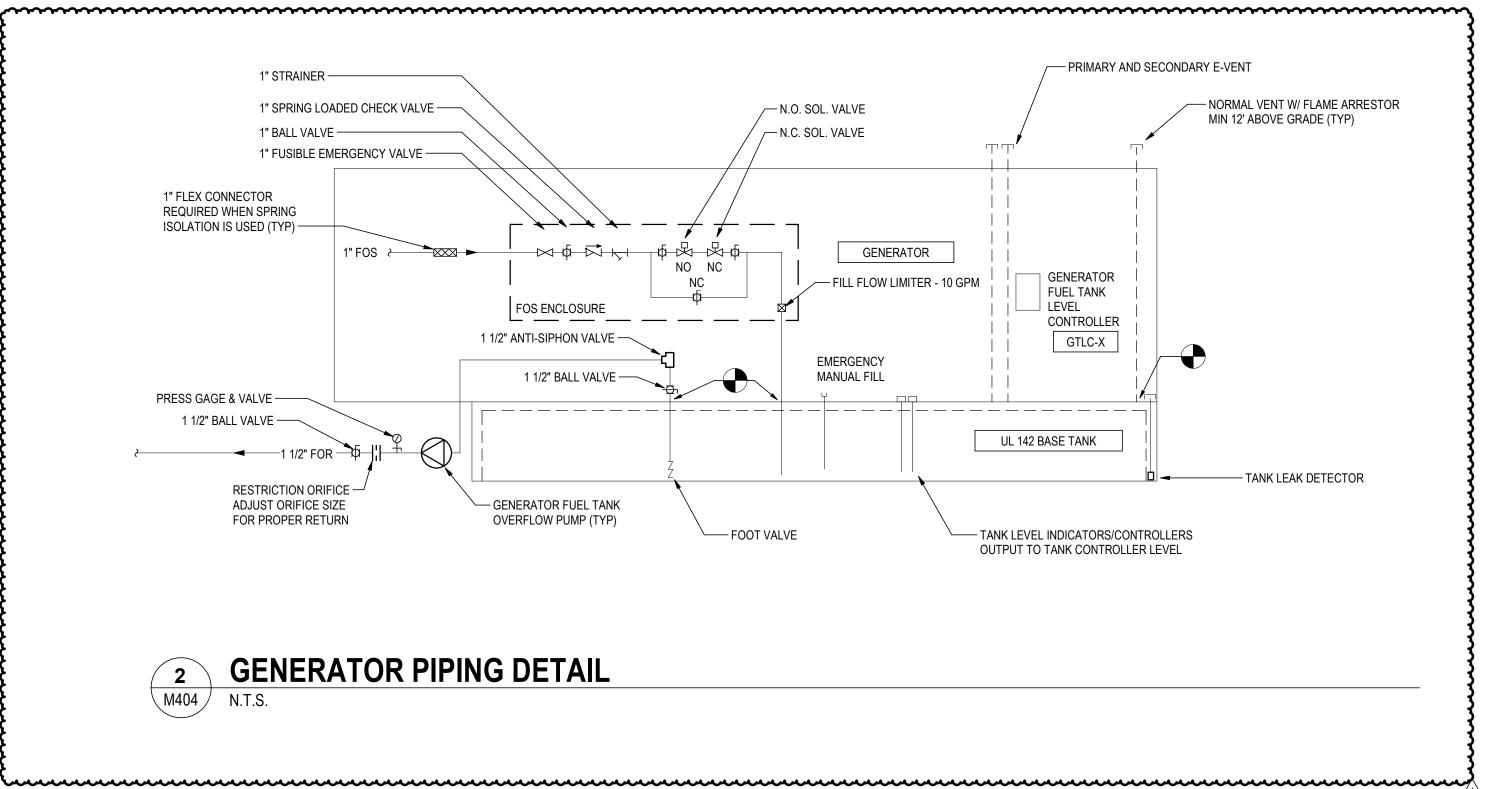
FUEL OIL PIPING REVISION 2 10/30/2024

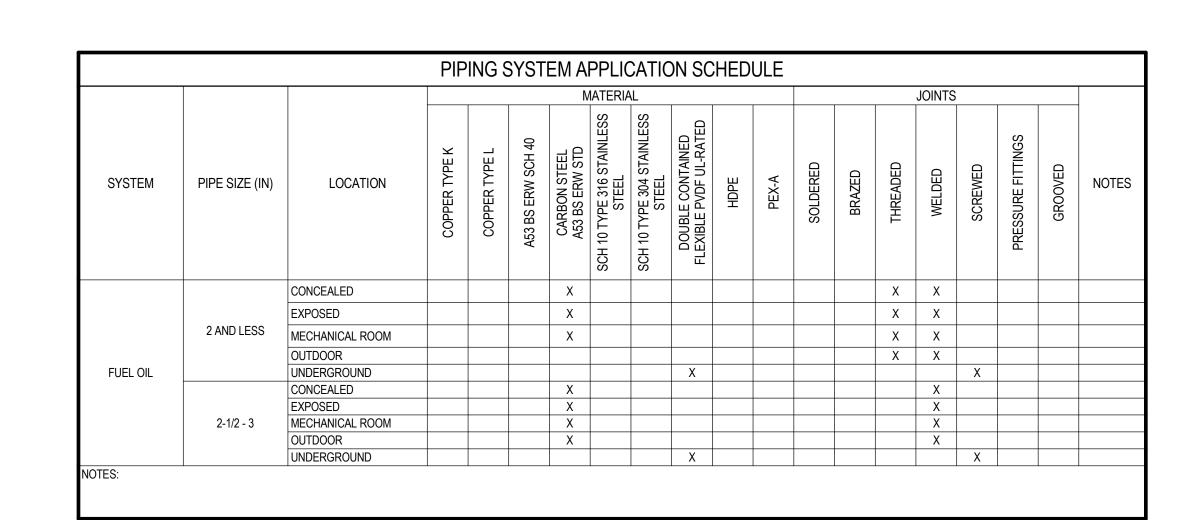
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Fire Traffic

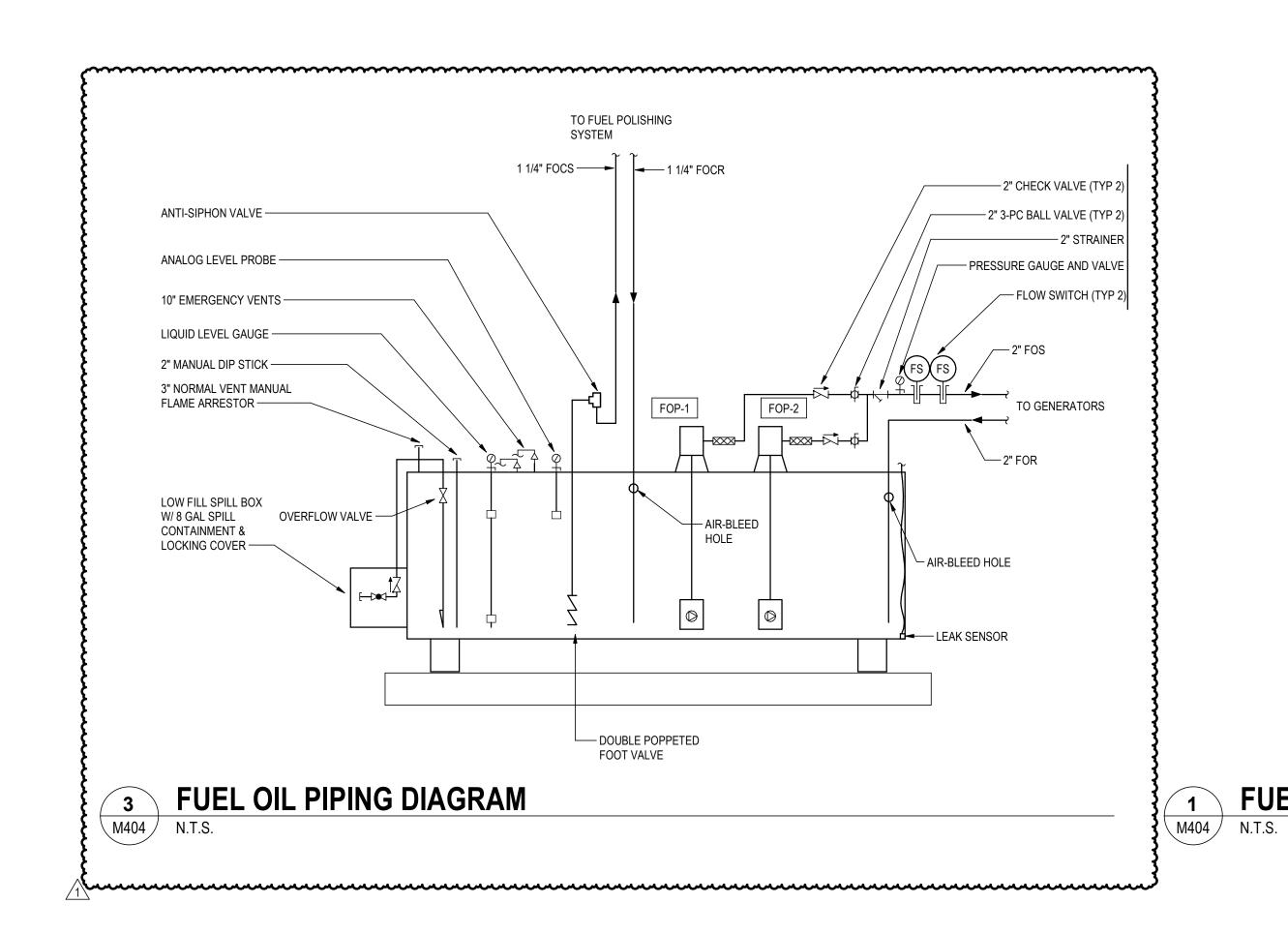
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GENERATOR FUEL
MECHANICAL
ENLARGED PLAN
NORTHWEST YARD

M403







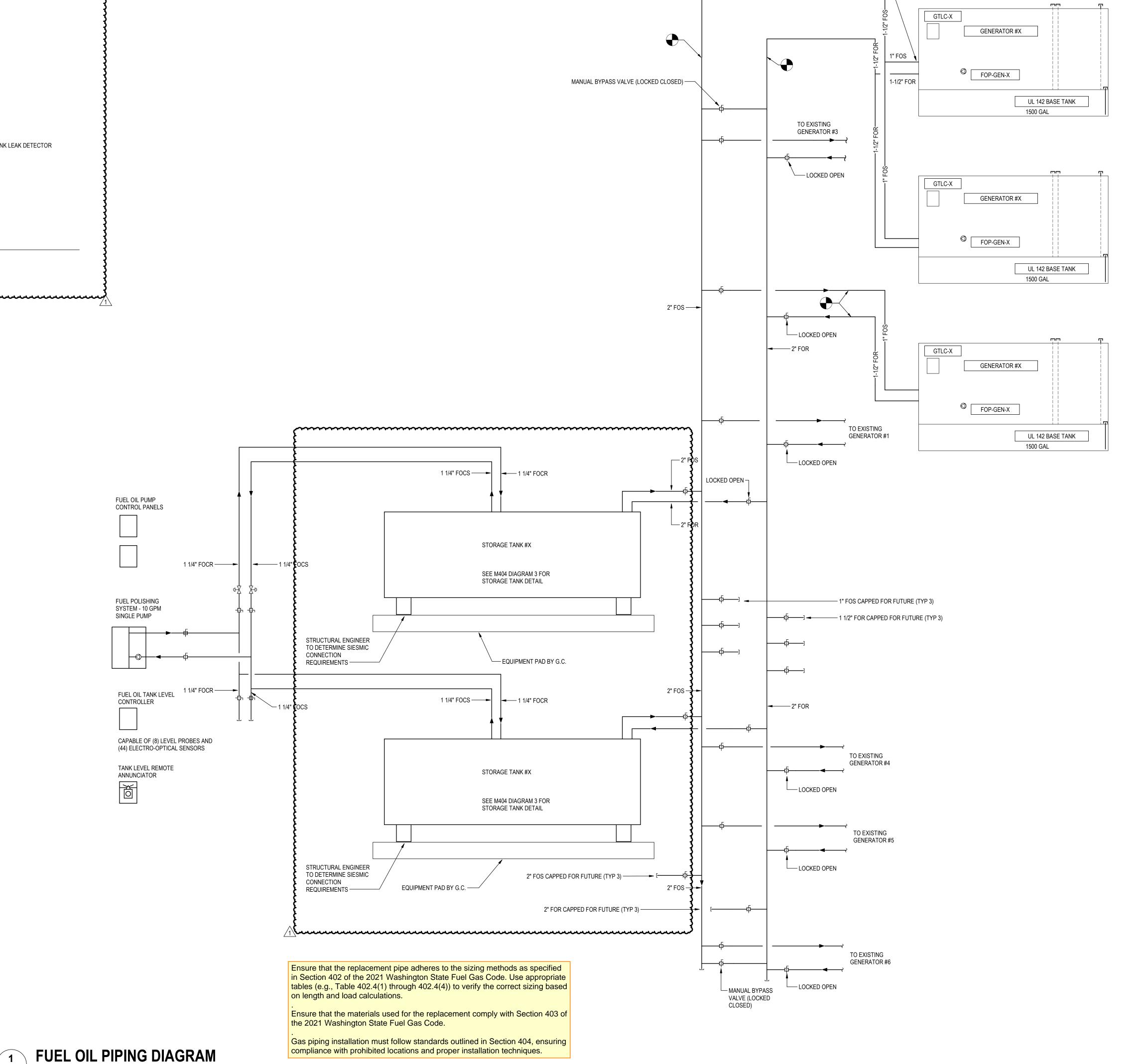
CRITERIA FOR FUEL TANK STORAGE AND FILL

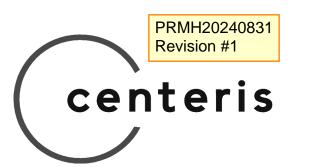
SEE DETAIL 2 FOR CONNECTION —

OVERFILL PREVENTION: PROTECTED ABOVEGROUND TANKS SHALL NOT BE FILLED IN EXCESS OF 95
PERCENT OF THEIR CAPACITY. AN OVERFILL PREVENTION SYSTEM SHALL BE PROVIDED FOR EACH TANK.
DURING TANK FILLING OPERATION, THE SYSTEM SHALL:

- A. PROVIDE AN INDEPENDENT MEANS OF NOTIFYING THE PERSON FILLING THE TANK THAT THE FLUID LEVEL HAS REACHED 90 PERCENT OF TANK CAPACITY, OR OTHER APPROVED MEANS, AND
 B. FOR RIGID HOSE FUEL-DELIVERY SYSTEMS, PROVIDE A SPILL CONTAINMENT ENCLOSURE AT POINT OF FUELING AND AN APPROVED MEANS SHALL BE PROVIDED TO EMPTY THE FILL HOSE. (ADDITIVE ALTERNATE) AUTOMATICALLY SHUT OFF THE FLOW OF FUEL TO THE TANK WITH IN THE QUANTITY OF LIQUID IN THE TANK REACHES 95 PERCENT OF TANK CAPACITY VIA OVERFILL P REVENTION DEVICE
 - INSIDE THE TANK.

 A PERMANENT SIGN SHALL BE PROVIDED AT THE FILL POINT FOR THE TANK DOCUMENTING THE FILLING PROCEDURE AND THE TANK CALIBRATION CHART. THE FILLING PROCEDURE SHALL REQUIRE THE PERSON FILLING THE TANK TO DETERMINE THE VOLUME REQUIRED TO FILL IT TO 95 PERCENT OF CAPACITY BEFORE COMMENCING THE FILL OPERATION.
- 2. FILL PIPE CONNECTIONS: THE FILL PIPE SHALL BE PROVIDED WITH A MEANS FOR MAKING A DIRECT CONNECTION TO THE TANK VEHICLE'S FUEL-DELIVERY HOSE SO THAT THE DELIVERY OF FUEL IS NOT EXPOSED TO THE OPEN AIR DURING THE FILLING OPERATION. WHEN ANY PORTION OF THE FILL PIPE EXTERIOR TO THE TANK EXTENDS BELOW THE LEVEL OF THE TOP OF THE TANK, A CHECK VALVE SHALL BE INSTALLED IN THE FILL PIPE NOT MORE THAN 12 INCHES (304.8MM) FROM THE FILL HOSE CONNECTION. FUEL OIL CONNECTION SHALL HAVE A SPILL CONTAINMENT ENCLOSURE WITH A MINIMUM OF 5 GALLONS STORAGE.







MECHANICAL DRAWINGS

CENTERIS VOLTAGE PARK UPS 1019 39th AVENUE SE PUYALLUP, WA 9837²



Revision No. Description Date

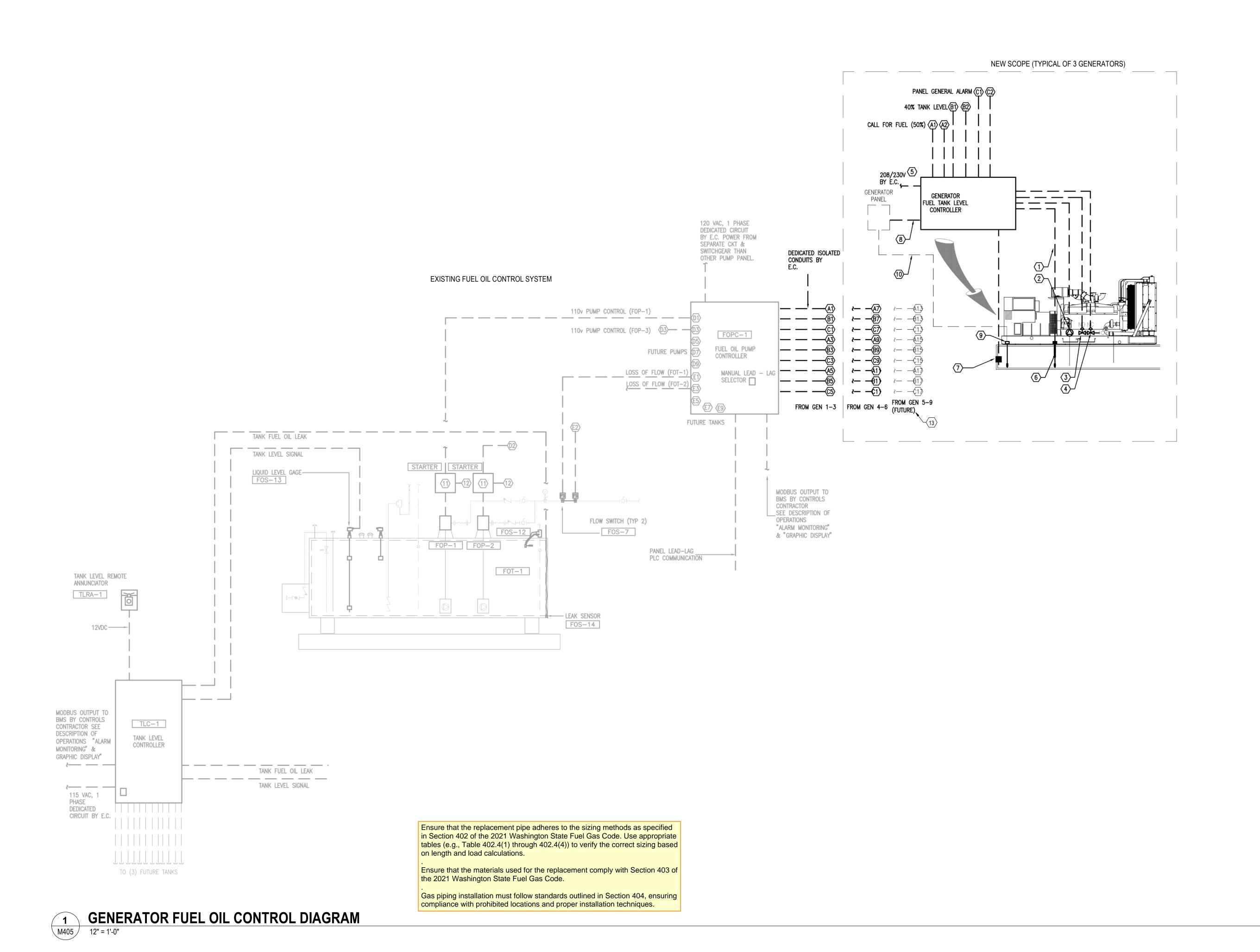
1 FUEL OIL PIPING REVISION 2 10/30/2024

City of Puyallup
Development & Permitting Services
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GENERATOR FUEL PIPING DIAGRAM NORTHWEST YARD

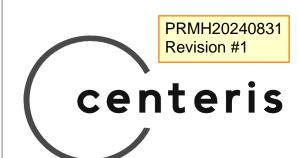
M404



KEY NOTES

- 1 LEVEL PROBE CABLE BY E.C. (MULTIPLE)
- 2 PUMP CONTROL WIRING BY E.C.
- 3 N.O. SOL. VALVE 110VAC. INSTALLED BY M.C., WIRING BY E.C.
- N.C. SOL VALVE 110VAC. INSTALLED BY M.C., WIRING BY E.C.

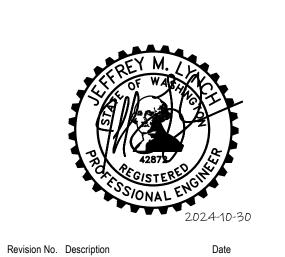
 5 GTLC HAS INTEGRAL DISCONNECT.
- (6) TANK LEVEL INDICATOR. INSTALLED BY M.C., WIRING BY E.C. (MULTIPLE)
- 7 TANK LEAK SENSOR. INSTALLED BY M.C., WIRING BY E.C.
- 8 GENERATOR GENERAL ALARM OUTPUT (DRY CONTACT) TO GENERATOR TANK LEVEL CONTROLLER.
- 9 GENERATOR LOW FUEL OIL SHUTDOWN TANK LEVEL INDICATOR BY GENERATOR MFR. / E.C.
- WIRING OF GENERATOR LOW FUEL OIL SHUTDOWN TANK LEVEL INDICATOR BY GENERATOR MFR / E.C.
- PUMP STARTERS WITH DEDICATED POWER FROM DIFFERENT PANELS / SWITCHGEAR 208/230V WITH DRY RUN PROTECTION. PROVIDED BY M.C. INSTALLED BY E.C. LOCATE STARTERS REMOTE.
- PUMP STARTER DISCONNECTS 208/230V BY E.C. POWER PUMP PAIRS FROM SEPARATE CIRCUIT/SWITCHGEAR TO CORRESPOND WITH PUMP PANELS.
- field confirm space for New Generator Points on Controller.





MECHANICAL DRAWINGS

CENTERIS VOLTAGE PARK UPS 1019 39th AVENUE SE PUYALLUP, WA 98374



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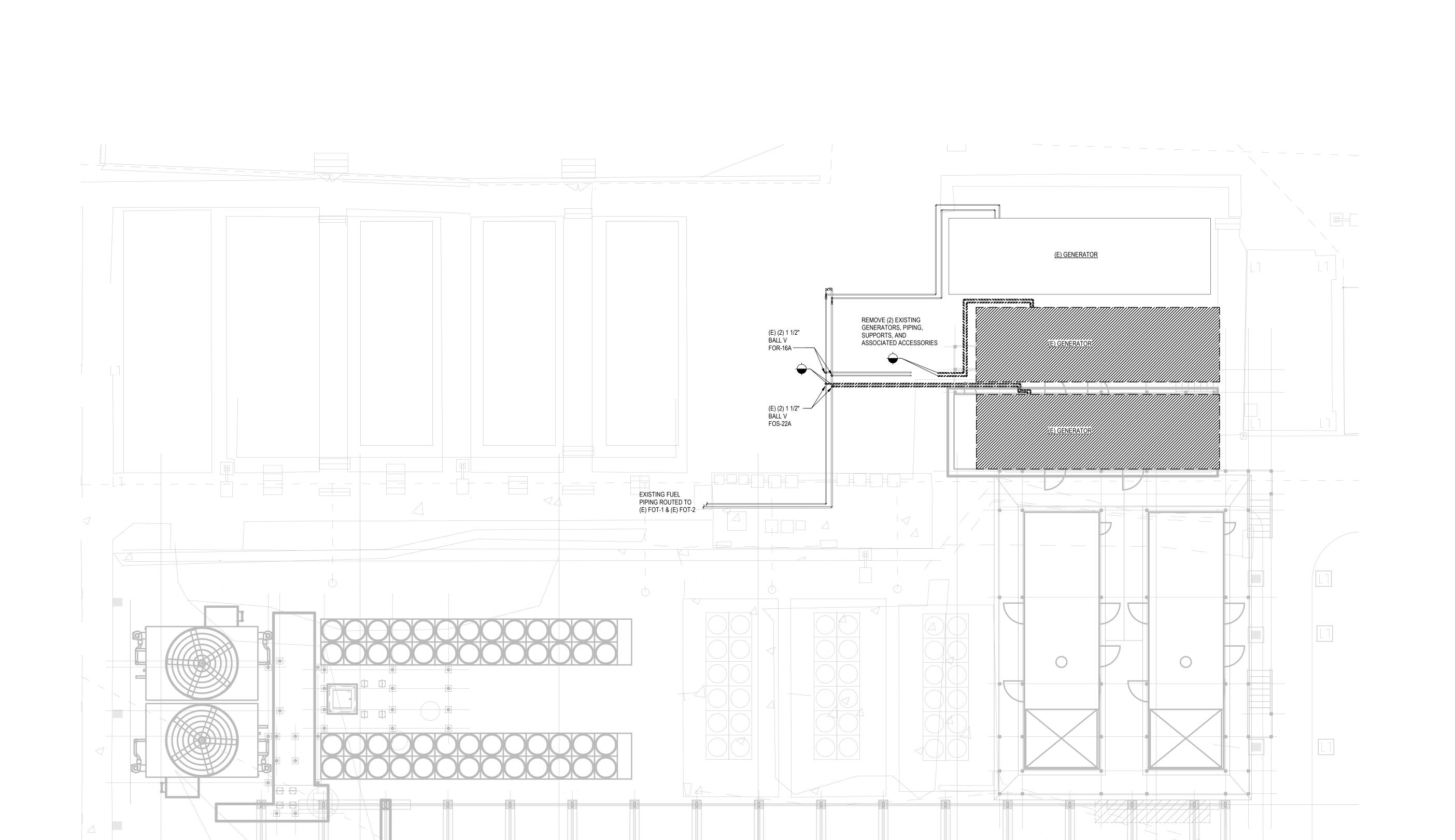
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GENERATOR FUEL

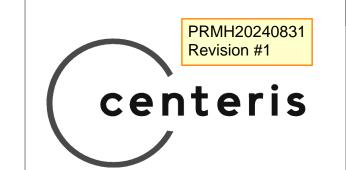
Title CONTROL DIAGRAM

M405



MECHANICAL GENERATOR FUEL DEMO ENLARGED PLAN

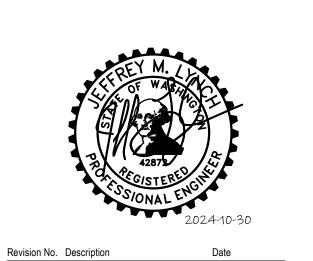
1/8" = 1'-0"





MECHANICAL DRAWINGS

VOLTAGE PARK UPS 1019 39th AVENUE SE PUYALLUP, WA 98374



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GENERATOR FUEL
MECHANICAL
ENLARGED DEMO
Title PLAN

MD401