

ABBREVIATIONS

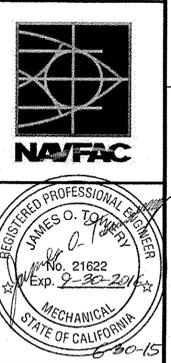
EQUIPMENT DESIGNATION	DESCRIPTION	EQUIPMENT DESIGNATION	DESCRIPTION
AD	AREA DRAIN	HWR	HOT WATER RECIRCULATION
AFFF	AQUEOUS FILM FORMING FOAM	HWRP	HOT WATER RECIRCULATION PUMP
ALT	ALTERNATE	ID	INDIRECT DRAIN
AP	ACCESS PANEL	IE	INVERT ELEVATION
AV	ACID VENT	MB	MOP BASIN
AW	ACID WASTE	NC	NORMALLY CLOSED
BV	BALL VALVE	NO	NORMALLY OPEN
BOP	BOTTOM OF PIPE	PL	PROPANE LIQUID PIPING
CA	COMPRESSED AIR	PV	PROPANE VAPOR PIPING
CD	CONDENSATE DRAIN	PRV	PRESSURE REDUCING VALVE
CKV	CHECK VALVE	RHB	RECESSED HOSE BIBB
CO	CLEANOUT	SA	SHOCK ABSORBER
CP	CIRCULATING PUMP	SS	SANITARY SEWER
CW	DOMESTIC COLD WATER	TW	TEPID WATER
D	DRAIN	SSD	SUB-SOIL DRAIN TILE
DN	DOWN	SSK	SERVICE SINK
DFU	DRAINAGE FIXTURE UNIT	ST	STORM SEWER
DT	DRAIN TILE	SWST	SOLAR WATER STORAGE TANK
DWH	DOMESTIC WATER HEATER	TP	TRAP PRIMER
ES	EMERGENCY SHOWER	TPRV	TEMPERATURE & PRESSURE RELIEF VALVE
FCO	FLOOR CLEANOUT	UR	URINAL
FLR	FLOOR	V	VENT
FS	FLOOR SINK	VTR	VENT THRU ROOF
FD	FLOOR DRAIN	VLV	VALVE
FV	FLUSH VALVE	VS	VENT STACK
GLV	GLOBE VALVE	W	DOMESTIC WATER SERVICE
GV	GATE VALVE	WCO	WALL CLEANOUTS
HB	HOSE BIBB	WHA	WATER HAMMER ARRESTOR
HD	HUB DRAIN	WH	WALL HYDRANT
TW	TEPID WATER	WS	WASTE STACK
TWR	TEPID WATER RETURN	YCO	YARD CLEANOUT
HW	DOMESTIC HOT WATER		

NOTE: NOT ALL SYMBOLS INDICATED ARE USED ON THIS PROJECT

LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DOMESTIC COLD WATER		ANCHOR
	DRAIN LINE		REDUCED PRESSURE BACKFLOW PREVENTER
	LOW PRESSURE GAS		FLUID FLOW DIRECTION
	DOMESTIC HOT WATER SUPPLY		PIPE RISER UP
	PROPANE LIQUID		PIPE TURNING DOWN
	PROPANE VAPOR		CAPPED PIPE/OUTLET
	LIQUID PROPANE		PLUGGED PIPE/OUTLET
	SUB-SOIL DRAIN		EMERGENCY SHOWER / EYEWASH
	SANITARY SEWER / WASTE		UNION
	VENT LINE		HOSE BIBB
	PIPING BELOW FLOOR		RECESSED HOSE BIBB
	WATER HAMMER ARRESTOR		FLOOR SINK
	SOLAR WATER RETURN		FLOOR DRAIN
	SOLAR WATER SUPPLY		WALL CLEANOUT
	ANGLE VALVE		FLOOR CLEANOUT
	PRESSURE REDUCING VALVE		WALL HYDRANT
	PRESSURE RELIEF OR SAFETY VALVE		GAS SHUT-OFF COCK
	OUTSIDE SCREW AND YOKE		BALANCING VALVE
	CIRCULATING PUMP		FLOW CONTROL VALVE (GPM)
	THERMOMETER		BALL VALVE
	MIXING VALVE (THERMOSTATIC)		BUTTERFLY VALVE
	COMPRESSED AIR HOSE REEL		GATE VALVE
	TEPID WATER		SEDIMENT STRAINER
	TEPID WATER RETURN		CHECK VALVE
	PIPING OR EQUIPMENT TO BE REMOVED		GLOBE VALVE
	CENTERLINE		VACUUM HOSE REEL
	METER		P-TRAP
	PRESSURE REGULATING VALVE		EMERGENCY PROPANE STOP
	PRESSURE SWITCH		PROPANE SENSOR
	PROPANE ISOLATION VALVE		PRESSURE GAUGE WITH ISOLATION VALVE/SWITCH
	BLOCK VALVE		

GENERAL NOTES
 1. INSTALL PROPANE WORK IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS, AND ALL APPLICABLE CODES AND STANDARDS. COORDINATE WORK WITH ARCHITECTURAL FEATURES AND COORDINATE WORK SUCH THAT INTERFERENCES BETWEEN SITE UTILITIES, BUILDING PIPING, DUCTWORK, EQUIPMENT, ELECTRICAL AND BUILDING STRUCTURES WILL BE AVOIDED.



JACOBS
 501 NORTH BRADWAY
 ST. LOUIS, MISSOURI 63102
 TEL 314-335-4000 FAX 314-335-3012

APPROVED
FOR COMMANDER NAVFAC DWG
ACTIVITY
D. COREY MELTEN, TRAINING DIRECTOR SWUS
SATISFACTORY TO: 6/18/15
DES JMW DRW JMW CHK JOT
PM/DM RS / JMS
BRANCH MANAGER
CHIEF ENG/ARCH DWG
FIRE PROTECTION

DEPARTMENT OF THE NAVY
 NAVFAC MID-ATLANTIC
 GREAT LAKES NAVAL STATION
 GREAT LAKES, ILLINOIS
 RENOVATE SWOSU FIREFIGHTING TRAINER
 (BUILDING 510)
 GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS

SCALE: NOT TO SCALE
PROJECT NO: 1310337
CONSTR CONTR NO: N40085-15-R-8720
NAVFAC DRAWING NO: 12700895
SHEET 75 OF 86
PP001

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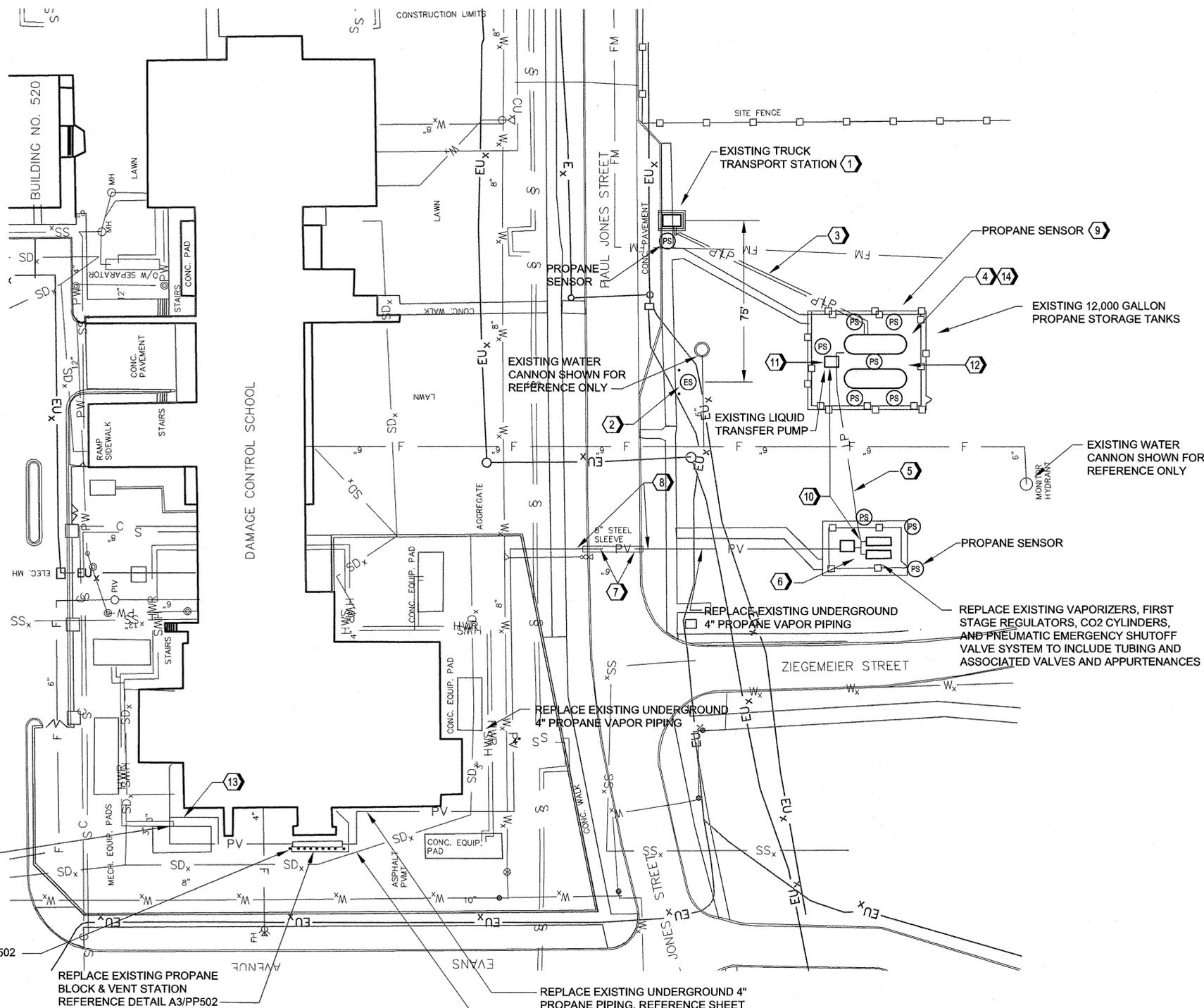
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GENERAL NOTES

1. LOCATION OF EXISTING PROPANE UTILITY LINES ARE APPROXIMATE.
2. UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE RECORDS AND INFORMATION ONLY AND THEREFORE DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE OR NONEXISTENCE, SIZE, TYPE NUMBER OF AND OR LOCATION OF THESE FACILITIES, STRUCTURES, AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION, SIZE, ELEVATION EITHER SHOWN OR NOT SHOWN ON THESE DRAWINGS AND SHALL BE LOCATED IN THE FIELD PRIOR TO ANY CONSTRUCTION AND OR IMPROVEMENTS.
3. FOR EXISTING EQUIPMENT INFORMATION REFERENCE SHEET PP501 AND PP503
4. ALL EXISTING WIRING ASSOCIATED WITH PROPANE EQUIPMENT SHALL REMAIN. DISCONNECT, RECONNECT, AND TEST. WORK MUST BE IN COMPLIANCE WITH THE NEC.
5. ALTHOUGH NOT SHOWN ON THE DRAWINGS THE ENTIRE CO2 SYSTEM INCLUDING UNDERGROUND TUBING, ABOVEGROUND TUBING AT THE TANKS, VAPORIZERS, AND TRUCK TRANSPORT STATION SHALL BE REPLACED
6. PROVIDE CATHODIC PROTECTION ON ALL UNDERGROUND PIPING BEING REPLACED.

KEYED NOTES

1. REPLACE ALL ABOVEGROUND PIPING AND APPURTENANCES WITHIN THE TRUCK TRANSPORT STATION.
2. PROVIDE NEW REMOTE EMERGENCY SHUTOFF VALVE AND BOLLARDS FOR THE TRUCK TRANSPORT STATION. REFERENCE DRAWING CU101 FOR ADDITIONAL INSTALLATION DETAILS.
3. REPLACE EXISTING UNDERGROUND 3" PROPANE LIQUID AND 1 1/4" PROPANE EQUALIZATION VAPOR PIPING.
4. REPLACE ALL ABOVEGROUND PROPANE LIQUID AND PROPANE VAPOR PIPING AND APPURTENANCES ASSOCIATED WITH THE PROPANE TANKS AND THE LIQUID TRANSFER PUMP. PROVIDE NEW FLEXIBLE CONNECTIONS BETWEEN TANKS.
5. REPLACE EXISTING UNDERGROUND 2" LIQUID PIPING.
6. REPLACE GAS-FIRED WATER BATH VAPORIZERS AND ALL ABOVEGROUND PIPING AND APPURTENANCES ASSOCIATED WITH THE VAPORIZERS AND FIRST STAGE REGULATORS.
7. REPLACE EXISTING UNDERGROUND 4" PROPANE VAPOR PIPING. REUSE EXISTING ROAD CROSSING.
8. EXISTING VENTED CONDUIT PIPING SHALL REMAIN.
9. REPLACE EXISTING PROPANE SENSORS.
10. DISCONNECT POWER AND ASSOCIATED CONTROL WIRING TO DEMOLISHED VAPORIZERS, PROPANE SENSORS, AND TRANSFER PUMP, SAVE CIRCUITS FOR REUSE AND RECONNECT TO NEW REPLACED UNITS. INSTALLATION AND CONNECTION (CONDUIT, FITTING, SEALS, ETC.) TO EQUIPMENT SHALL BE PER CLASS 1, DIVISION 1 REQUIREMENT. PROVIDE NEW FUSES AND THERMAL HEATERS (SIZED FOR 5HP MOTOR PER NEC REQUIREMENT) FOR EXISTING TRANSFER PUMP COMBINATION STARTER.
11. EXISTING LIQUID PUMP WITH 3 HP EXPLOSION PROOF MOTOR WITH PUMP SPEED OF 520 RPM IS TO BE REPLACED.
12. EACH STORAGE TANK HAS ABOUT 40% LIQUID LEVEL. CONTRACTOR SHALL MOVE PRODUCT FROM TANK TO TANK TO ACCOMMODATE REPLACEMENT OF TANK VALVING. TANK LIQUID LEVELS ARE TO BE VERIFIED. NOTIFY THE CONTRACTING OFFICER IF OFFLOADING AND OR FLARING IS REQUIRED.
13. NEW ROUTING OF 3" PV PIPING
14. THE TANK FELT PADS BETWEEN TANK AND CONCRETE PIERS WILL BE REPLACED. DURING THIS REPLACEMENT, THE LIFTED TANK SURFACE IN THIS CONTACT AREA SHALL BE OBSERVED FOR EXTERIOR CORROSION. EXTERIOR CORROSION SHALL BE REPORTED TO THE CONTRACTING OFFICER IMMEDIATELY AND SHALL BE CORRECTED AND REPAINTED.



REPLACE EXISTING UNDERGROUND 4" PROPANE PIPING. REFERENCE SHEET PP103 FOR CONTINUATION

PROVIDE PROTECTIVE BOLLARDS (TYPICAL OF 9) REFERENCE DETAIL A1/PP502

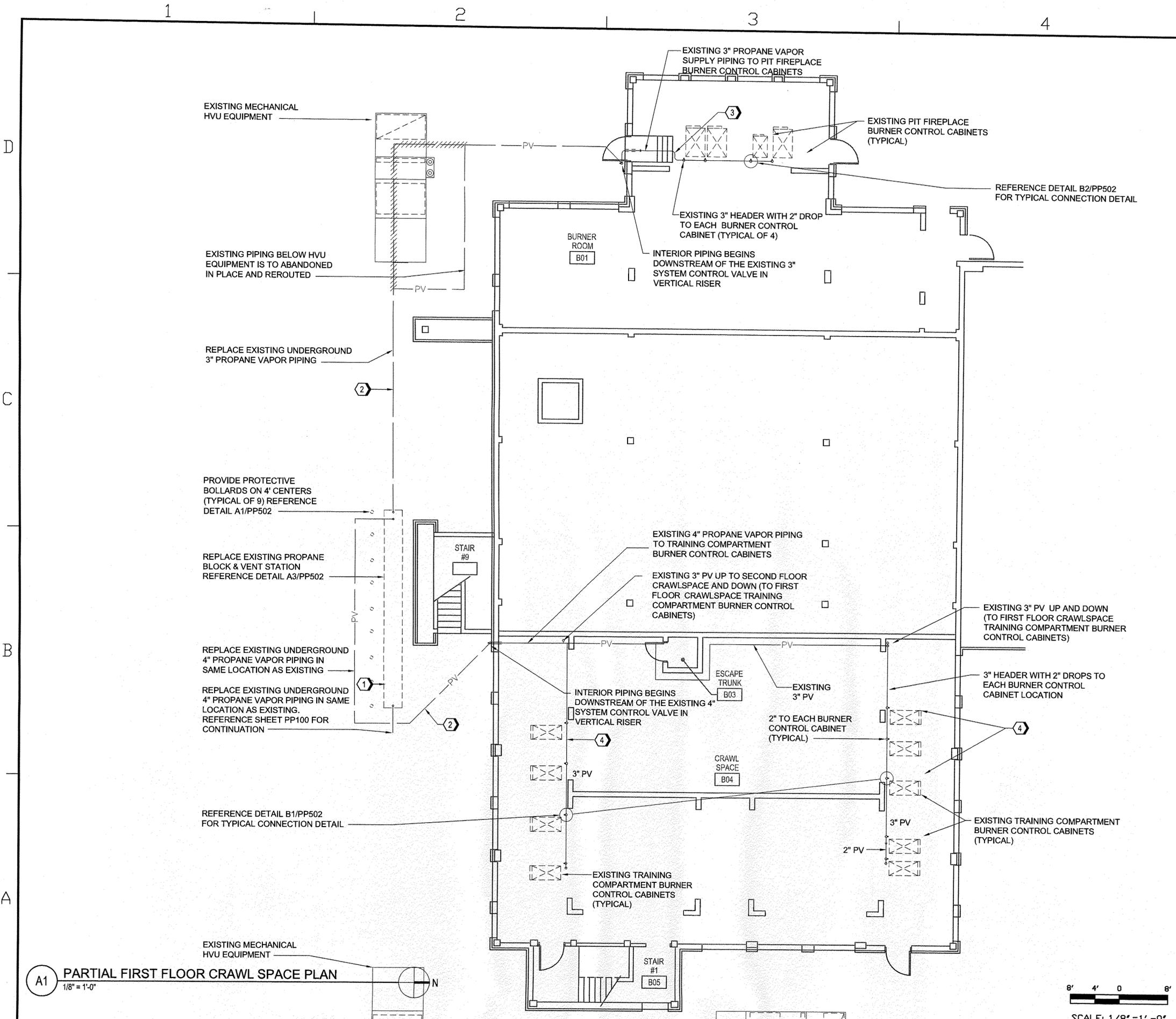
REPLACE EXISTING PROPANE BLOCK & VENT STATION REFERENCE DETAIL A3/PP502

REPLACE EXISTING UNDERGROUND 4" PROPANE PIPING. REFERENCE SHEET PP103 FOR CONTINUATION

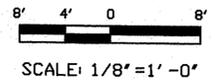
REPLACE EXISTING UNDERGROUND 4" PROPANE VAPOR PIPING. REFERENCE SHEET PP103 FOR CONTINUATION

A1 SITE PLAN
1" = 30' 0"

DATE	
SYN	DESCRIPTION
501 NORTH BROADWAY ST. LOUIS, MISSOURI 63102 TEL. 314-335-4000 FAX 314-335-5012	
APPROVED	
FOR COMMANDER NAVFAC DWG	
ACTIVITY	
B. COREY MELTON, TRAINING DIRECTOR SWDS	
SATISFACTORY TO	6/18/15
DES	JMW
DRW	JMW
CHK	JOT
PH/DM	RS / JMS
BRANCH MANAGER	
CHIEF ENG/ARCH	DWG
FIRE PROTECTION	
DEPARTMENT OF THE NAVY	NAVFAC MID-ATLANTIC
GREAT LAKES NAVAL STATION	GREAT LAKES, ILLINOIS
RENOVATE SWOSU FIREFIGHTING TRAINER (BUILDING 510)	PROPANE SITE PLAN
SCALE: NOT TO SCALE	
PROJECT NO.	1310337
CONSTR. CONTR. NO.	N40085-15-R-8720
NAVFAC DRAWING NO.	12700896
SHEET	76 OF 86
PP100	



A1 PARTIAL FIRST FLOOR CRAWL SPACE PLAN
1/8" = 1'-0"



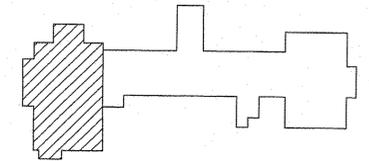
GENERAL NOTES

- FOR SYMBOLS, ABBREVIATION AND GENERAL NOTES, REFER TO DRAWING PP001.
- THE LOCATION OF THE EXISTING PROPANE VAPOR LINES ARE APPROXIMATE.
- UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE RECORDS AND INFORMATION ONLY AND THEREFORE DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE OR NONEXISTENCE, SIZE, TYPE NUMBER OF AND OR LOCATION OF THESE FACILITIES, STRUCTURES, AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION, SIZE, ELEVATION EITHER SHOWN OR NOT SHOWN ON THESE DRAWINGS AND SHALL BE LOCATED IN THE FIELD PRIOR TO ANY CONSTRUCTION AND OR IMPROVEMENTS.

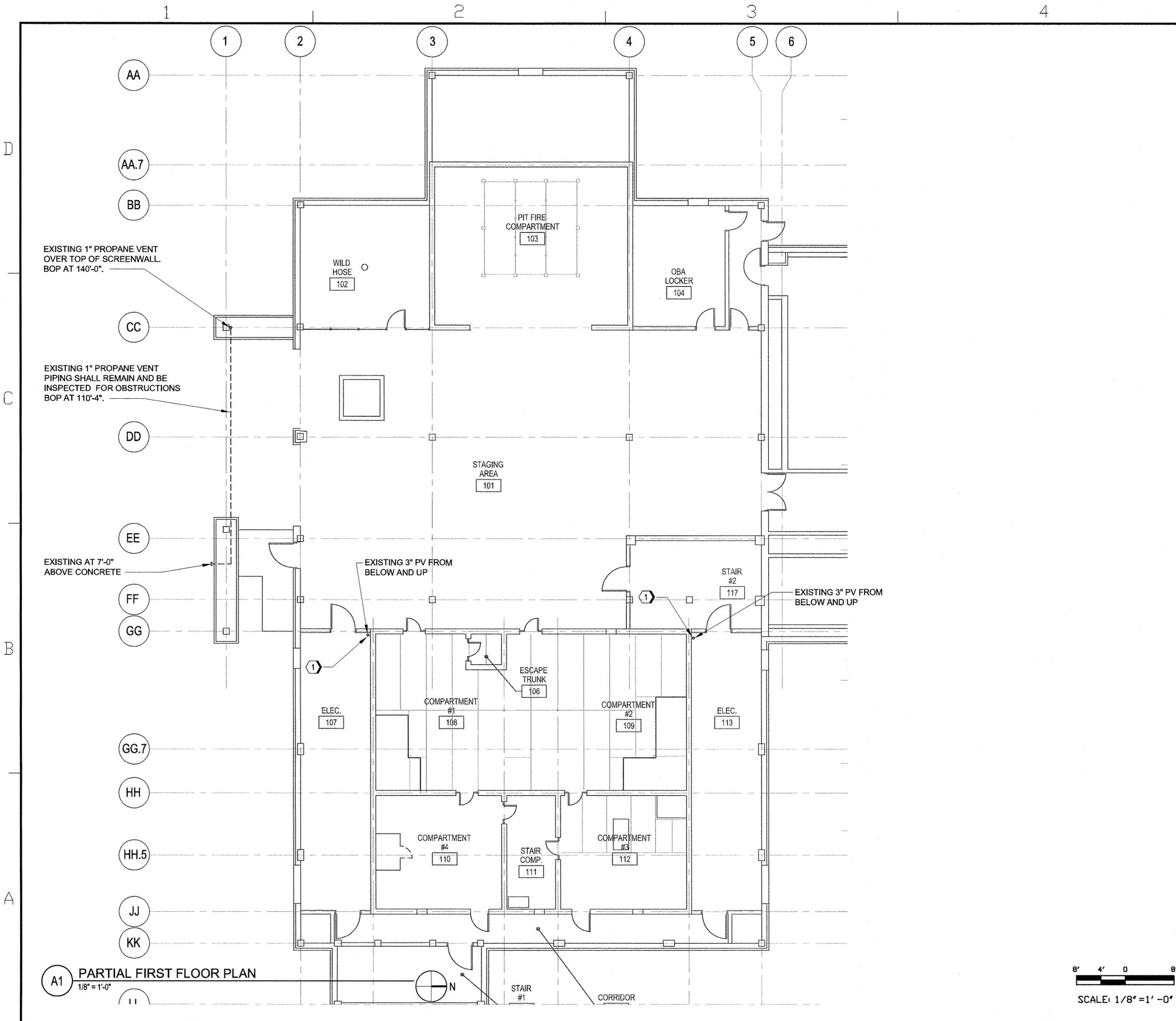
KEYED NOTES

- REPLACE ALL ABOVEGROUND PIPING AND APPURTENANCES WITHIN THE BLOCK & VENT STATION IN SAME LOCATION AS EXISTING. SEE DETAIL A3/PP502.
- REPLACE ALL UNDERGROUND SYSTEM VAPOR PIPING DOWNSTREAM OF THE BLOCK & VENT STATION UP TO AND INCLUDING THE EXTERNAL SYSTEM CONTROL VALVE IN SAME LOCATION AS EXISTING.
- REPLACE ALL INTERIOR VAPOR HEADER AND BRANCH PIPING DOWNSTREAM OF THE EXTERIOR SYSTEM CONTROL VALVE UP TO AND INCLUDING THE SHUTOFF VALVE IMMEDIATELY UPSTREAM OF EACH PIT FIREPLACE BURNER CONTROL CABINET IN SAME LOCATION AS EXISTING.
- REPLACE ALL INTERIOR VAPOR HEADER AND BRANCH PIPING DOWNSTREAM OF THE SYSTEM CONTROL VALVE UP TO AND INCLUDING THE SHUTOFF VALVE IMMEDIATELY UPSTREAM OF EACH TRAINER COMPARTMENT BURNER CONTROL CABINET IN SAME LOCATION AS EXISTING. REFERENCE SHEET PP502 FOR DETAILS.

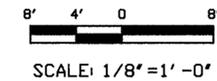
KEY PLAN



DATE	
SYN	DESCRIPTION
JACOBS	
<small>501 NORTH BROADWAY ST. LOUIS, MISSOURI 63102 TEL. 314-335-4000 FAX 314-335-5012</small>	
APPROVED	
FOR COMMANDER NAVFAC DWG	
ACTIVITY	
D. COREY MELTON, TRAINING DIRECTOR SWDS	
SATISFACTORY TO 6/18/15	
DES	MW [DRW] MW [CHK] JOT
PK/BN	RS / JMS
BRANCH MANAGER	
CHIEF ENG/ARCH DWG	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND
GREAT LAKES NAVAL STATION	NAVFAC MID-ATLANTIC
GREAT LAKES, ILLINOIS	GREAT LAKES, ILLINOIS
RENOVATE SWOSU FIREFIGHTING TRAINER (BUILDING 510)	RENOVATE SWOSU FIREFIGHTING TRAINER (BUILDING 510)
PARTIAL FIRST FLOOR CRAWL SPACE PLAN	PARTIAL FIRST FLOOR CRAWL SPACE PLAN
SCALE: AS NOTED	SCALE: AS NOTED
PROJECT NO.: 1310337	PROJECT NO.: 1310337
CONSTR. CONTR. NO. N40085-15-R-8720	CONSTR. CONTR. NO. N40085-15-R-8720
NAVFAC DRAWING NO. 12700897	NAVFAC DRAWING NO. 12700897
SHEET 77 OF 86	SHEET 77 OF 86
PP103	



A1 PARTIAL FIRST FLOOR PLAN
1/8" = 1'-0"



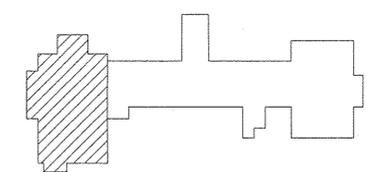
GENERAL NOTES

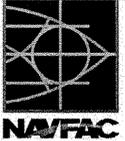
1. FOR SYMBOLS, ABBREVIATION AND GENERAL NOTES, REFER TO DRAWING PP001.
2. THE LOCATION OF THE EXISTING PROPANE VENT LINES ARE APPROXIMATE.

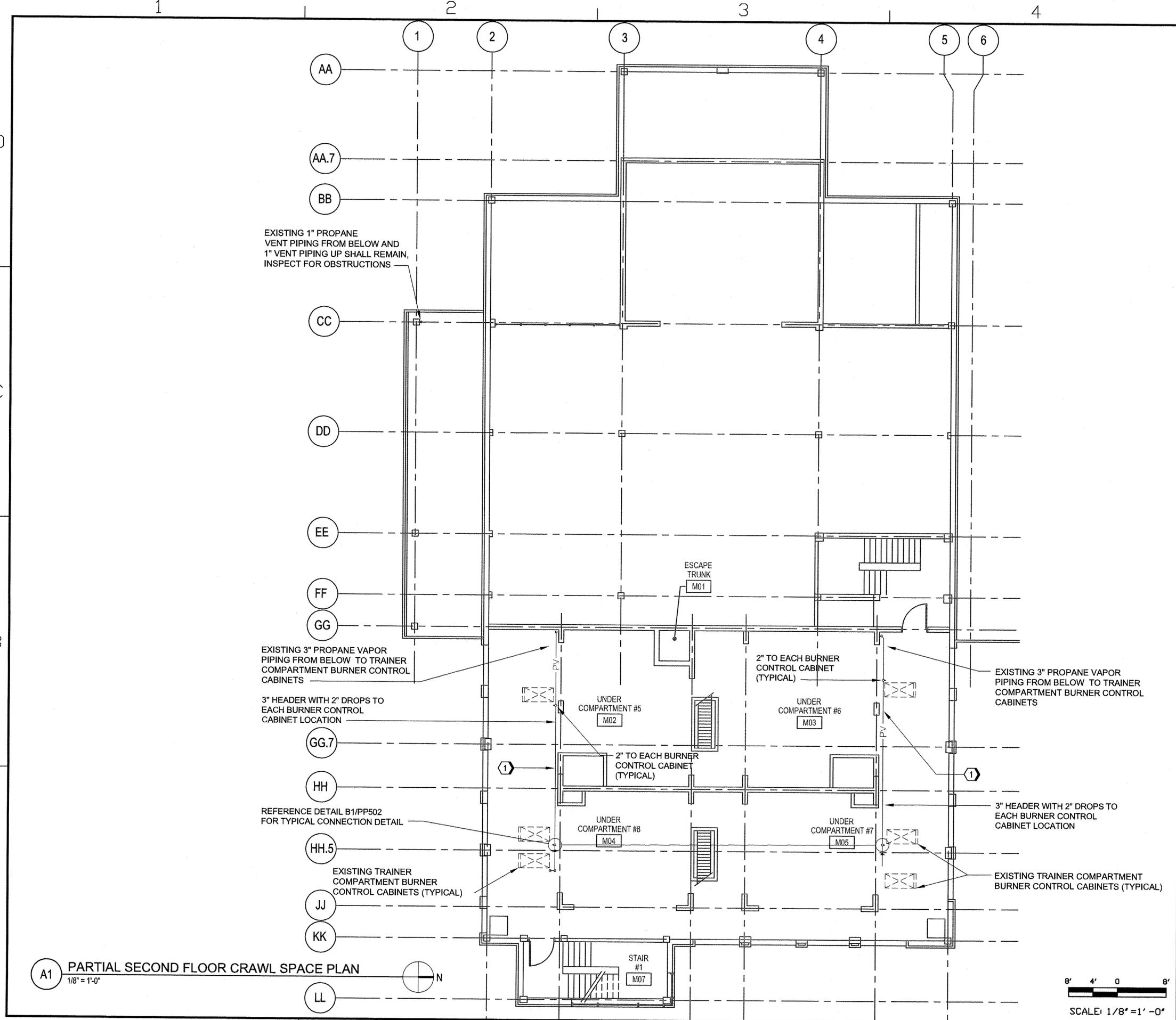
KEYED NOTES

1. REPLACE EXISTING 3" PROPANE VAPOR PIPING FROM BELOW AND UP TO SECOND FLOOR CRAWLSPACE IN SAME LOCATION AS EXISTING.

KEY PLAN



DATE SYM DESCRIPTION	
 NAVFAC	
	
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APPROVED	
FOR COMMANDER NAVFAC DWG	
ACTIVITY	
D. COREY MELTON, TRAINING DIRECTOR SWIS	
SATISFACTORY TO: 6/18/15	
DES: JMW DRW: JMW CHK: JOT	
PM/DH: RS / JMS	
BRANCH MANAGER	
CHIEF ENGR/ARCH: DWG	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVFAC MID-ATLANTIC GREAT LAKES NAVAL STATION GREAT LAKES, ILLINOIS RENOVATE SWOSU FIREFIGHTING TRAINER (BUILDING 510) PROPANE FIRST FLOOR PLAN	AS NOTED PROJECT NO: 1310337 CONSTR. CONTR. NO: N40085-15-R-8720 NAVFAC DRAWING NO: 12700898 SHEET 78 OF 86 PP104



GENERAL NOTES

- FOR SYMBOLS, ABBREVIATION AND GENERAL NOTES, REFER TO DRAWING PP001.
- THE LOCATION OF EXISTING PROPANE VAPOR LINES AND BURNER CONTROL CABINETS ARE APPROXIMATE.

KEYED NOTES

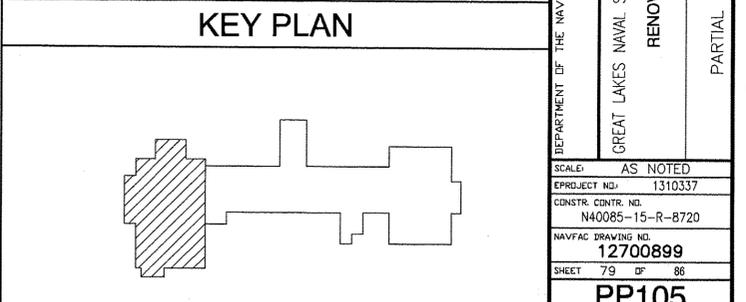
① REPLACE ALL VAPOR HEADER PIPING AND BRANCH PIPING UP TO AND INCLUDING THE SHUTOFF VALVE IMMEDIATELY UPSTREAM OF EACH TRAINER COMPARTMENT BURNER CONTROL CABINET IN SAME LOCATIONS AS EXISTING



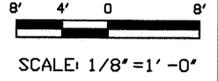
JACOBS
 501 NORTH BROADWAY
 ST. LOUIS, MISSOURI 63102
 TEL 314-335-4000 FAX 314-335-5012

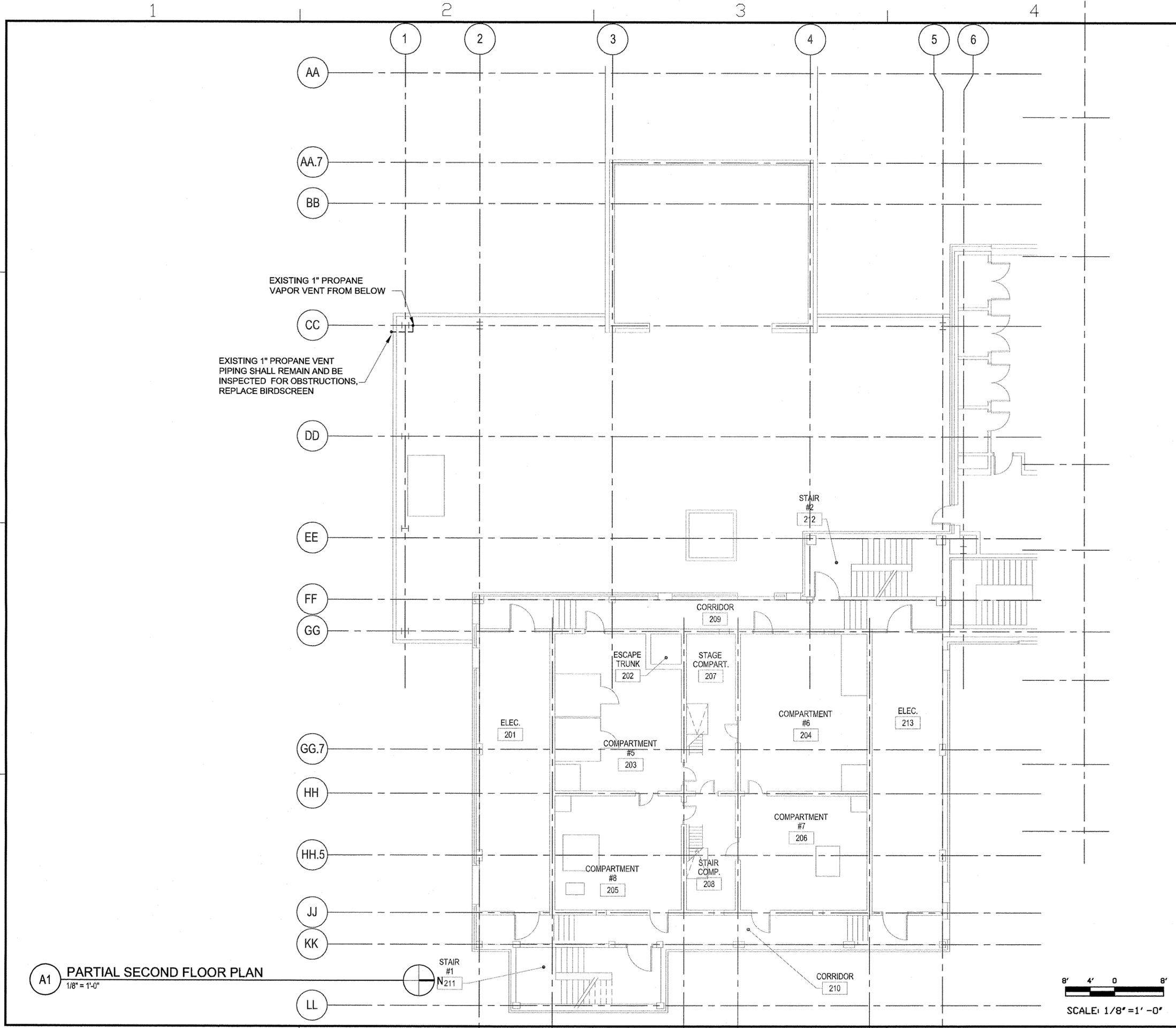
APPROVED
 FOR COMMANDER NAVFAC DWG
 ACTIVITY
 D. COREY MELTON,
 TRAINING DIRECTOR SWDS
 SATISFACTORY TO: 6/18/15
 DES MW DRW MW CHK JOT
 PH/DM RS / JMS
 BRANCH MANAGER
 CHIEF ENGR/ARCH DWG
 FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND
 NAVFAC MID-ATLANTIC
 GREAT LAKES, ILLINOIS
 RENOVATE SWOSU FIREFIGHTING TRAINER
 (BUILDING 510)
 PARTIAL SECOND FLOOR CRAWL SPACE PLAN



A1 PARTIAL SECOND FLOOR CRAWL SPACE PLAN
 1/8" = 1'-0"





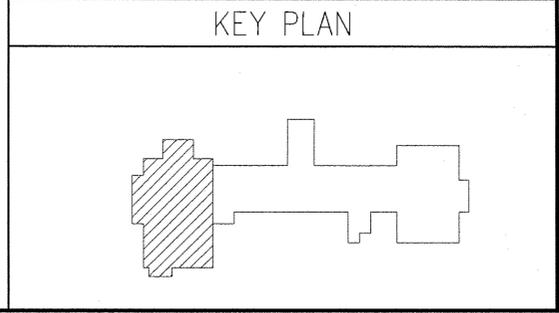
GENERAL NOTES

- FOR SYMBOLS, ABBREVIATION AND GENERAL NOTES, REFER TO DRAWING PP001.
- THE LOCATION OF EXISTING PROPANE VAPOR LINES, PROPANE VENT PIPING, AND BURNER CONTROL CABINETS ARE APPROXIMATE.

KEYED NOTES

EXISTING 1" PROPANE VAPOR VENT FROM BELOW

EXISTING 1" PROPANE VENT PIPING SHALL REMAIN AND BE INSPECTED FOR OBSTRUCTIONS, REPLACE BIRDSCREEN



DATE	
SYMBOL DESCRIPTION	
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APPROVED	
FOR COMMANDER NAVFAC DWG	
ACTIVITY	
D. COREY MELTON, TRAINING DIRECTOR SWOS	
SATISFACTORY TO 6/18/15	
DES MW DRW MW CHK JOT	
PH/SM RS / JMS	
BRANCH MANAGER	
CHIEF ENG/ARCH DWG	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY	NAVFAC MID-ATLANTIC
GREAT LAKES NAVAL STATION	GREAT LAKES, ILLINOIS
RENOVATE SWOSU FIREFIGHTING TRAINER (BUILDING 510)	PROPRANE SECOND FLOOR PLAN
SCALE: AS NOTED	
PROJECT NO: 1310337	
CONSTR. CONTR. NO: N40085-15-R-8720	
NAVFAC DRAWING NO: 12700900	
SHEET 80 OF 86	
PP106	

PROPANE EMERGENCY STOP
PUSH BUTTON WITH BOX
ENCLOSURE

PROPANE
SENSOR

VR-1
FILL STATION

1 1/4" UNDERGROUND VAPOR
EQUALIZATION LINE

3" UNDERGROUND
LIQUID LINE

EXISTING WATER
CANNON

3" WYE SEDIMENT STRAINER

3" FLEXIBLE CONNECTOR WITH
STAINLESS STEEL BRAID

PUMP, LR-1

MOTOR

1 1/2" BY-PASS VALVE

2" PRESSURE RELIEF VALVE

LS-4

LS-5

EMERGENCY PROPANE TRIP

PRESSURE GAUGE
WITH ISOLATION VALVE

3/4" ISOLATION VALVE
WYE DRAIN

LS-3

3" LIQUID LINE
TO PUMP

LS-2

LF-3

VR-3

1 1/2" ISOLATION
VALVE

TANK No. 1
12,000 GALLONS

2" VAPOR
EQUALIZATION LINE

3" LIQUID
FILL LINE

TANK No. 2
12,000 GALLONS

- LEGEND**
- ES-1 2" EMERGENCY SHUT-OFF VALVE
 - ES-2 2" EMERGENCY SHUT-OFF VALVE
 - ES-3 2" EMERGENCY SHUT-OFF VALVE
 - ES-4 2" EMERGENCY SHUT-OFF VALVE
 - LD-1 3/4" DRAIN VALVE ON SEDIMENT STRAINER
 - LF-1 3" ISOLATION VALVE WITH PRESSURE RELIEF VALVE
 - LF-2 3" ISOLATION VALVE WITH PRESSURE RELIEF, ABOVE 3" EMERGENCY SHUT-OFF VALVE
 - LF-3 3" ISOLATION VALVE WITH PRESSURE RELIEF, ABOVE 3" EMERGENCY SHUT-OFF VALVE
 - LR-1 2" ISOLATION VALVE
 - LS-1 3" ISOLATION VALVE WITH PRESSURE RELIEF, ABOVE 3" EMERGENCY SHUT-OFF VALVE
 - LS-2 3" ISOLATION VALVE WITH PRESSURE RELIEF, ABOVE 3" EMERGENCY SHUT-OFF VALVE
 - LS-3 2" ISOLATION VALVE
 - LS-4 2" ISOLATION VALVE
 - LS-5 2" SITE GAUGE CHECK VALVE
 - LS-6 1" ISOLATION VALVE
 - LS-7 1" ISOLATION VALVE
 - LV-1 3/4" BLEED-OFF VALVE WITH 3/4" VENT
 - VR-1 2" ISOLATION VALVE
 - VR-2 2" ISOLATION VALVE WITH PRESSURE RELIEF, ABOVE 2" EMERGENCY SHUT-OFF VALVE
 - VR-3 2" ISOLATION VALVE WITH PRESSURE RELIEF, ABOVE 2" EMERGENCY SHUT-OFF VALVE
 - VS-1 2" ISOLATION VALVE
 - VS-2 2" ISOLATION VALVE
 - VS-3 2" ISOLATION VALVE
 - VS-4 2" ISOLATION VALVE
 - VS-5 2" ISOLATION VALVE
 - VS-6 2" ISOLATION VALVE
 - VV-1 3/4" BLEED-OFF VALVE WITH 3/4" VENT

KEYED NOTES

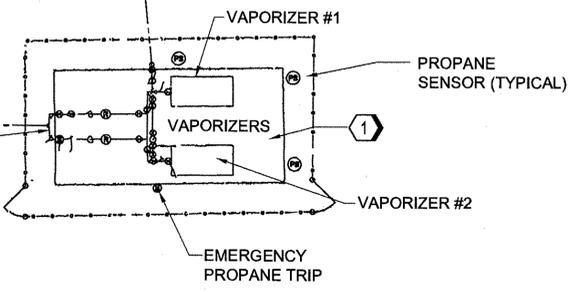
① THE EXISTING CO2 CYLINDER MANIFOLD SYSTEM IS CAPABLE OF CONNECTING (8) CYLINDERS.

EXISTING WATER
CANNON

EXISTING UNDERGROUND
4" PROPANE VAPOR PIPING

EXISTING UNDERGROUND
2" LIQUID PROPANE PIPING

4" VAPOR LINE



THIS DRAWING IS INTENDED TO BE USED FOR INFORMATION PURPOSES ONLY AND IS A REPRESENTATION OF EXISTING CONDITIONS AT LOCATIONS WHERE WORK IS TO BE PERFORMED. REPLACEMENT WORK SHALL CONFORM TO LATEST CODES AND STANDARDS. INFORMATION HAS BEEN TAKEN FROM THOMAS ASSOCIATES, INC DAMAGE CONTROL SCHOOL RECORD DRAWINGS DATED 06/08/98. NOTIFY CONTRACTING OFFICER OF ANY DISCREPANCIES.

A1 EXISTING PROPANE OUTDOOR SYSTEM
NOT TO SCALE

DATE	
SYN	DESCRIPTION
JACOBS 501 NORTH BROADWAY ST. LOUIS, MISSOURI 63102 TEL 314-395-4000 FAX 314-395-5012	
APPROVED	
FOR COMMANDER NAVFAC DWG	
ACTIVITY	
D. COREY MELTON, TRAINING DIRECTOR SWDS	
SATISFACTORY TO 6/18/15	
DES JMW	DRW JMW
CHK JOT	
PM/JM	RS / JMS
BRANCH MANAGER	
CHIEF ENG/ARCH DWG	
FIRE PROTECTION	
NAVAL FACILITIES ENGINEERING COMMAND	GREAT LAKES, ILLINOIS
NAVFAC MID-ATLANTIC	GREAT LAKES NAVAL STATION
	RENOVATE SWOSU FIREFIGHTING TRAINER (BUILDING 510)
	PROPANE DETAILS
SCALE:	AS NOTED
EPROJCT NO.:	1310337
CONSTR. CONTR. NO.:	N40085-15-R-8720
NAVFAC DRAWING NO.:	12700901
SHEET	81 OF 86
PP501	

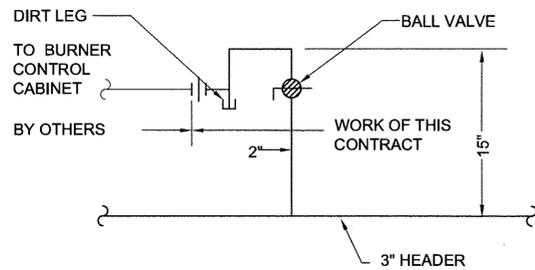
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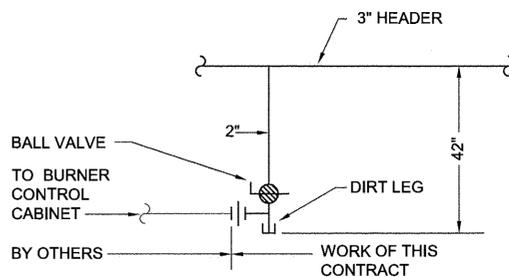
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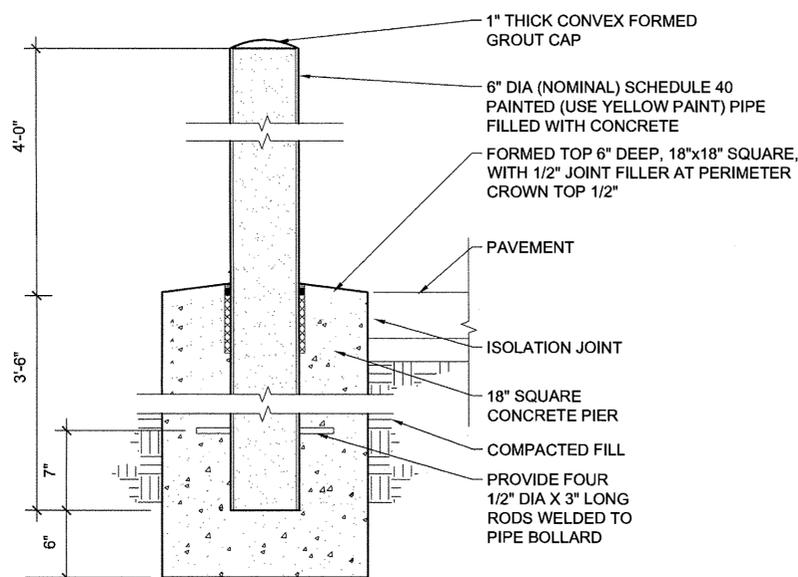
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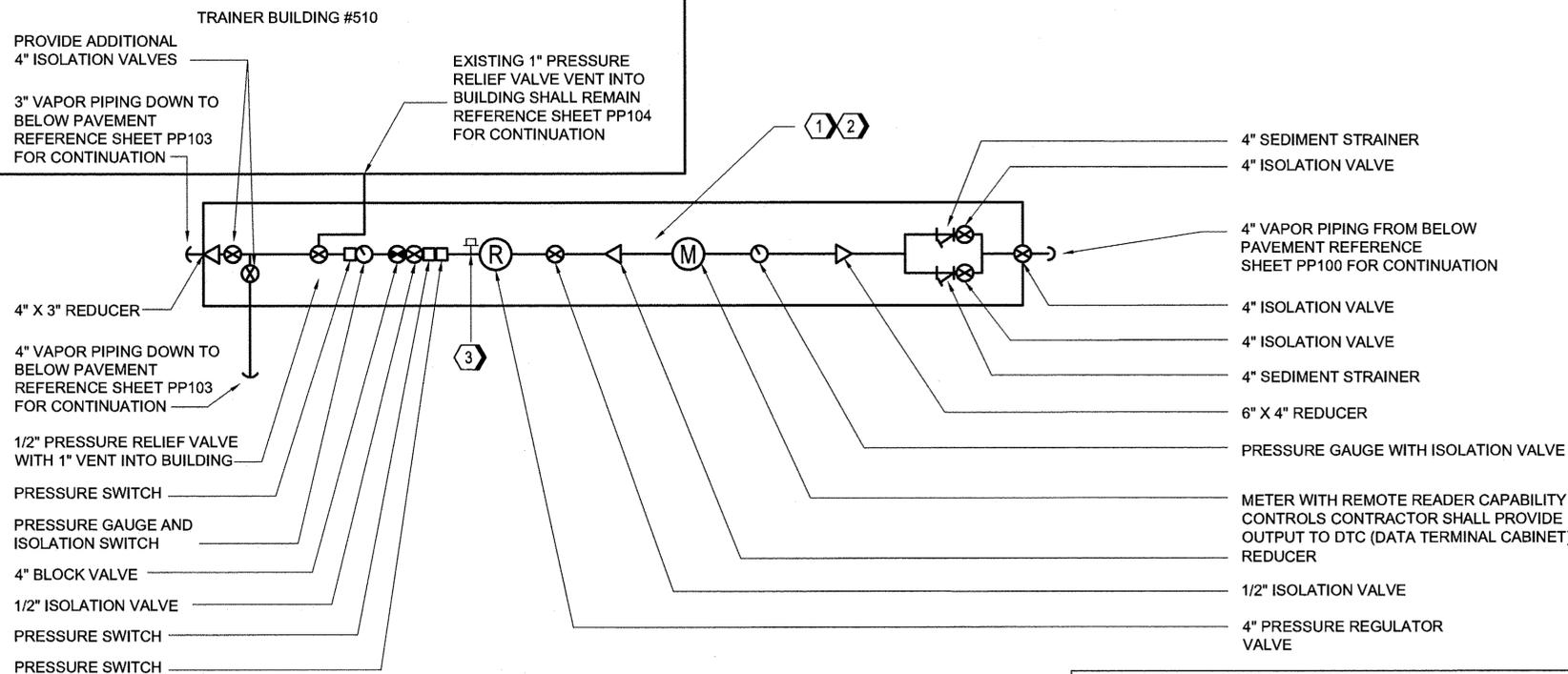
B1 TYPICAL ELEVATION AT TRAINING COMPARTMENT
BURNER CONTROL CABINETS
NOT TO SCALE



B2 TYPICAL ELEVATION AT PIT FIREPLACE
BURNER CONTROL CABINETS
NOT TO SCALE



A1 6" BOLLARD DETAIL
NOT TO SCALE



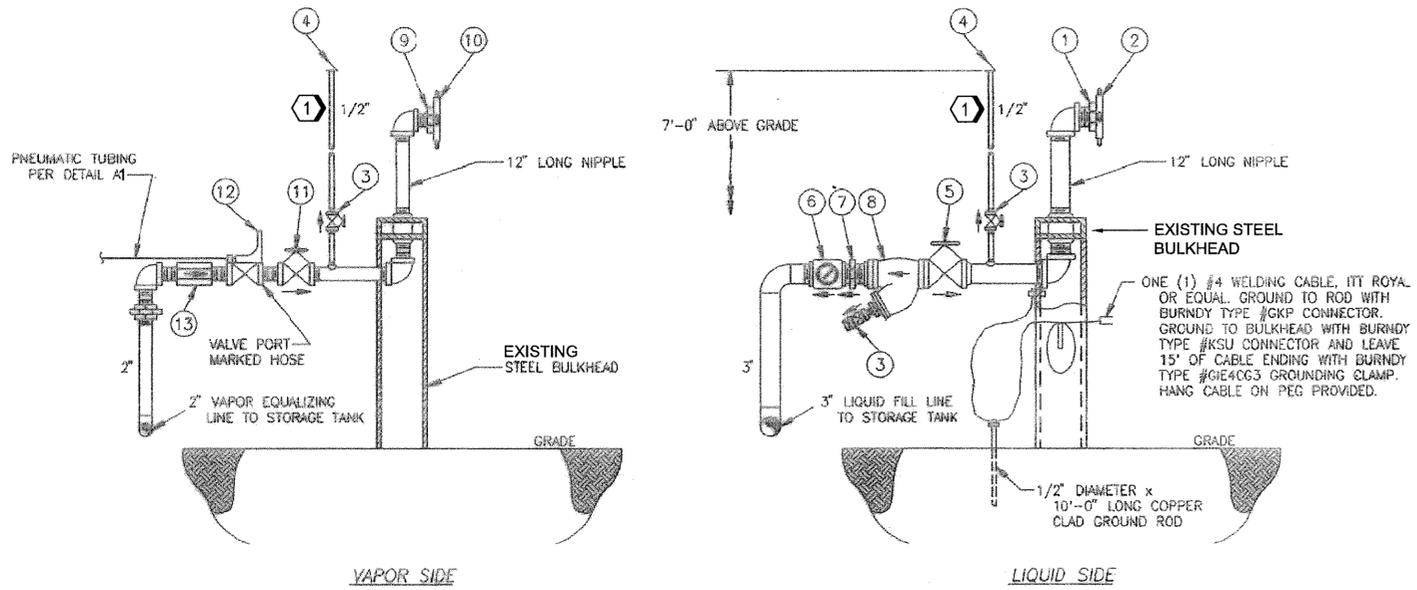
A3 BLOCK AND VENT SCHEMATIC DETAIL
NOT TO SCALE

KEYED NOTES

- ① BLOCK AND VENT STATION TO BE PAINTED YELLOW.
- ② WIRING OF THE CONTROL VALVE WILL BE BY OTHERS.
- ③ A 1/4" GAGE TAP WITH PLUG SHALL BE INSTALLED AS CLOSE AS PRACTICAL, NOT TO EXCEED 12 INCHES TO THE REGULATOR OUTLET IN THE DOWNSTREAM PIPING.

THE BLOCK AND VENT SCHEMATIC DETAIL IS INTENDED TO BE USED FOR INFORMATION PURPOSES ONLY AND IS A REPRESENTATION OF EXISTING CONDITIONS AT LOCATIONS WHERE WORK IS TO BE PERFORMED. REPLACEMENT WORK SHALL CONFORM TO LATEST CODES AND STANDARDS. INFORMATION HAS BEEN TAKEN FROM THOMAS ASSOCIATES, INC DAMAGE CONTROL SCHOOL RECORD DRAWINGS DATED 06/08/98. NOTIFY CONTRACTING OFFICER OF ANY DISCREPANCIES.

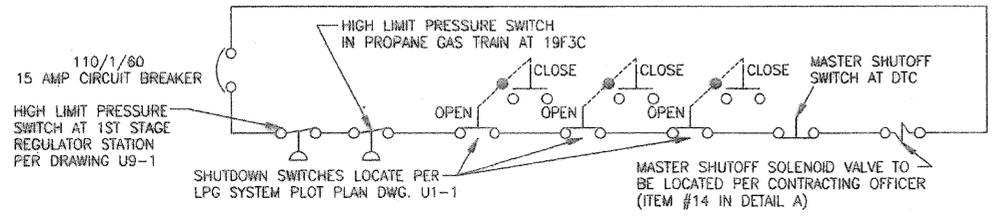
DATE	
DESCRIPTION	
SYM.	
JACOBS 501 NORTH BROADWAY ST. LOUIS, MISSOURI 63102 TEL. 314-335-4000 FAX 314-335-3012	
APPROVED	
FOR COMMANDER NAVFAC DWG	
ACTIVITY	
D. COREY MELTON, TRAINING DIRECTOR SVDS	
SATISFACTORY TO: 6/18/15	
DES: JMW DRW: JMW CHK: JOT	
PH/DM: RS / JMS	
BRANCH MANAGER	
CHIEF ENG/ARCH: DWG	
FIRE PROTECTION	
NAVAL FACILITIES ENGINEERING COMMAND	
NAVFAC MID-ATLANTIC	
GREAT LAKES, ILLINOIS	
RENOVATE SWOSU FIREFIGHTING TRAINER (BUILDING 510)	
PROPRANE DETAILS	
DEPARTMENT OF THE NAVY	
SCALE: AS NOTED	
PROJECT NO: 1310337	
CONSTR. CONTR. NO: N40085-15-R-8720	
NAVFAC DRAWING NO: 12700902	
SHEET 82 OF 86	
PP502	



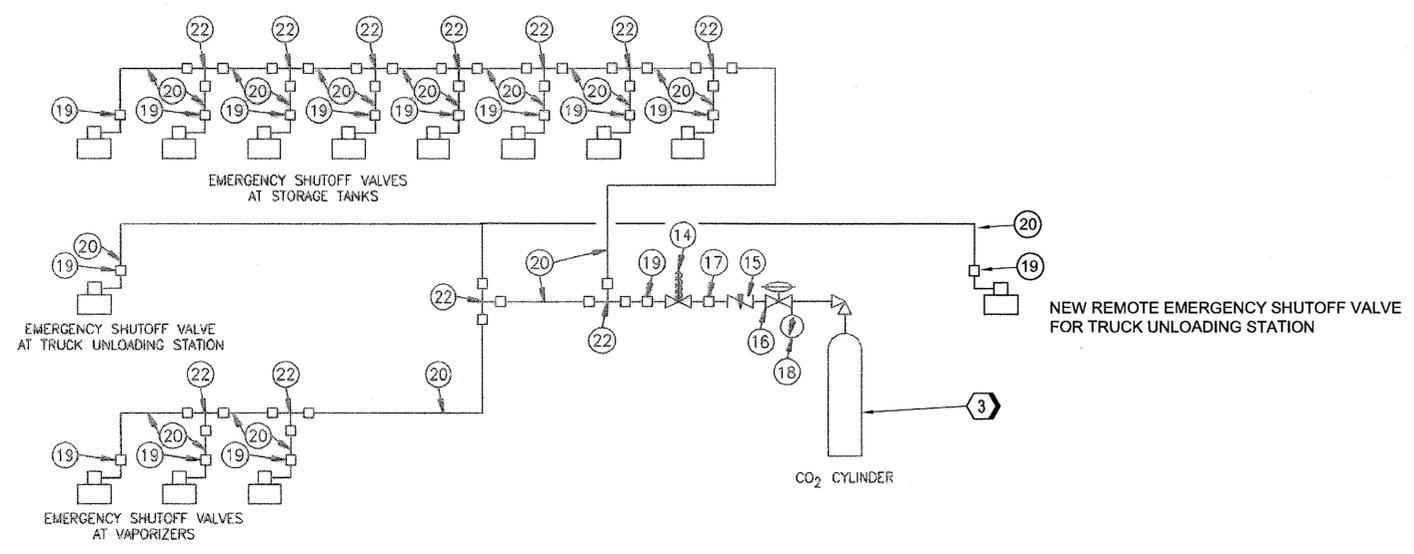
BILL OF MATERIAL		
ITEM	DESCRIPTION	QTY
1	3 1/4" ACME x 3" NPT ADAPTOR	1
2	3 1/4" ACME SEAL CAP	1
3	1/2" GLOBE VALVE	3
4	RAIN CAP FOR 1/2" PIPE	2
5	3" FLANGED GLOBE VALVE	1
6	3" SIGHT FLOW INDICATOR	1
7	3" BACK PRESSURE CHECK VALVE	1
8	3" FLANGED STRAINER	1
9	2 1/4" ACME x 2" NPT ADAPTOR	1
10	2 1/4" ACME SEAL CAP	1
11	2" GLOBE VALVE	1
12	2" EMERGENCY SHUTOFF VALVE	1
13	2"x2" EXCESS FLOW VALVE	1
14	1/4" 3-WAY QUICK EXHAUST SOLENOID VALVE (NORMALLY CLOSED)	1
15	1/4" NEEDLE VALVE	1
16	1/4" PRESSURE REGULATOR @50 PSIG	1
17	1/4" RESTRICTION ORIFICE	1
18	2 1/2" 0-100# PRESSURE GAUGE	1
19	1/4" NPT x 1/4" TUBING CONNECTOR	13
20	1/4" TUBING	A/R
21	EMERGENCY SHUTOFF VALVE SIGN (LOCATE PER ELECTRICAL LAYOUT)	3
22	1/4" TUBING UNION TEE	11

C1 TRUCK TRANSPORT STATION DETAILS
NOT TO SCALE

- KEYED NOTES**
- ① SECURE VENT STACKS EXCEEDING 5'-0" IN HEIGHT TO A POST OR TO THE FENCE TOP RAIL.
 - ② PROVIDE GLOBE VALVES WITH PLUG AND CAP.
 - ③ PROVIDE (8) 200# ASME CO2 CYLINDERS AND CONNECT TO EXISTING MANIFOLD DESIGNED TO USE (4) CYLINDERS AT A TIME FOR THE PRIMARY SUPPLY. INCLUDE A MANUAL CHANGE OVER VALVE.



B1 EMERGENCY SHUTOFF VALVE SYSTEM WIRING DIAGRAM
NOT TO SCALE



A1 PNEUMATIC EMERGENCY SHUTOFF VALVE SYSTEM DETAIL
NOT TO SCALE

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DATE

SYN DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER
JAMES O. TOWERS
No. 21622
Exp. 7-30-2014
MECHANICAL
STATE OF CALIFORNIA

JACOBS
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102
TEL 314-335-4000 FAX 314-335-5012

APPROVED

FOR COMMANDER NAVFAC DWG

ACTIVITY

D. COREY MELTON,
TRAINING DIRECTOR SVDS

SATISFACTORY TO: 6/18/15

DES JMW DRW JMW CHK JOT

PH/DM RS / JMS

BRANCH MANAGER

CHIEF ENG/ARCH DWG

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVFAC MID-ATLANTIC
GREAT LAKES NAVAL STATION
RENOVATE SWOSU FIREFIGHTING TRAINER (BUILDING 510)
DETAILS

SCALE: AS NOTED

EPROJECT NO: 1310337

CONSTR. CONTR. NO. N40085-15-R-8720

NAVFAC DRAWING NO. 12700903

SHEET 83 OF 86

PP503

1

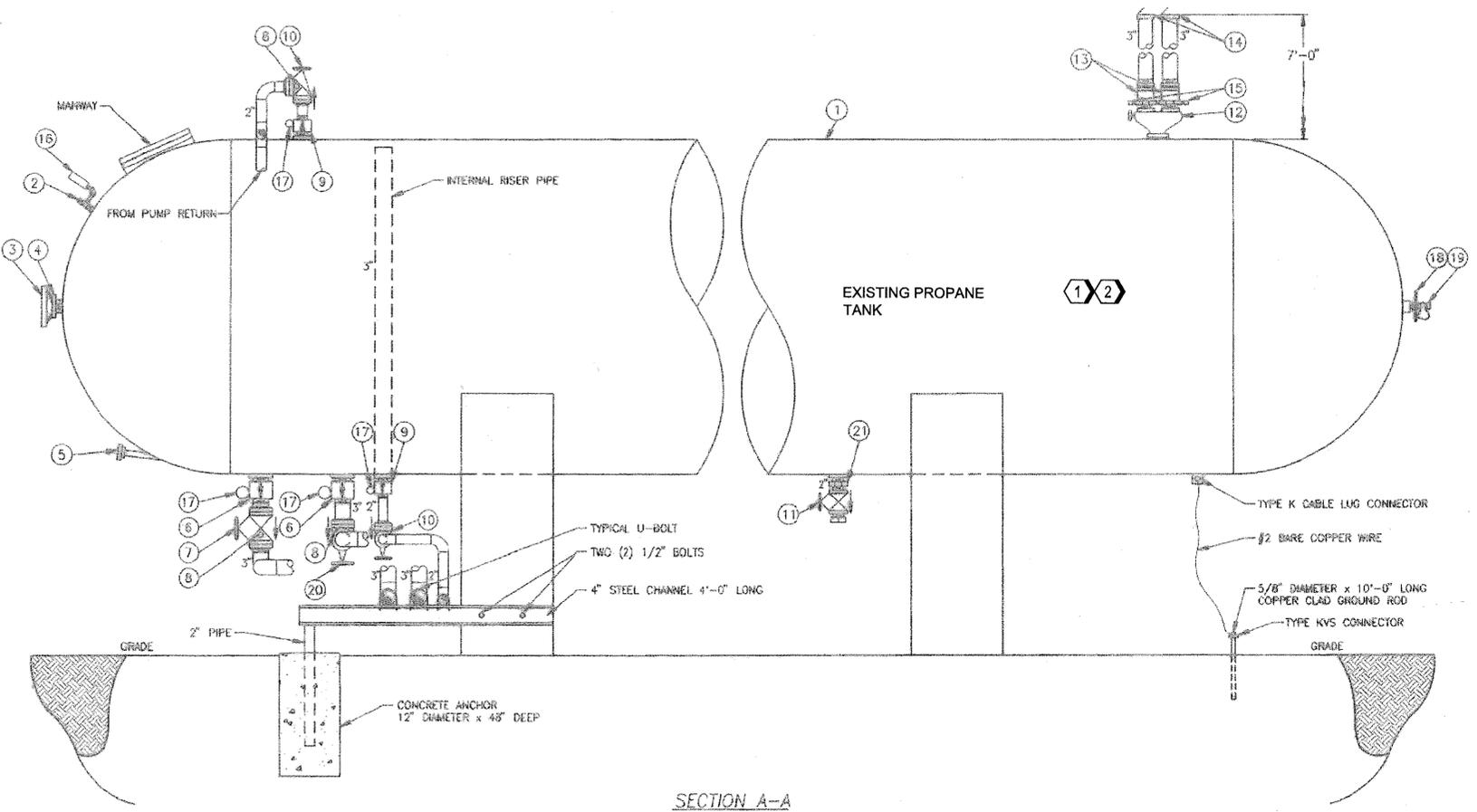
2

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BILL OF MATERIAL		
ITEM	DESCRIPTION	QTY
1	12,000 GALLON (W.C.) ASME CODE 250 PSIG PROPANE STORAGE TANKS WITH NATIONAL BOARD STAMP (9' DIA. x 28' LONG)	2
2	3/4" COMBINATION VALVE	2
3	8" DIAL LIQUID LEVEL GAUGE FOR 108" TANK DIAMETER	2
4	MOUNTING FLANGE FOR LIQUID LEVEL GAUGE	2
5	3" DIAL -40 TO 120° F THERMOMETER	2
6	3" INTERNAL VALVE	4
7	3" FLANGED GLOBE VALVE	2
8	1/4" HYDROSTATIC RELIEF VALVE SET @430 PSIG	3
9	2" INTERNAL VALVE	4
10	2" FLANGED ANGLE VALVE	4
11	2" GLOBE VALVE	2
12	RELIEF VALVE MANIFOLD	2
13	2 1/2" RELIEF VALVE @250 PSIG	6
14	RAIN CAP FOR 3" PIPE	6
15	1/4" WEEP HOLE DEFLECTOR	6
16	4 1/2" 0-300# PRESSURE GAUGE	2
17	CYLINDER ACTUATOR FOR PNEUMATIC OPERATION OF INTERNAL VALVE	8
18	ROTOGAGE DIAL	2
19	ROTOGAGE ASSEMBLY WITH TUBING	2
20	3" FLANGED ANGLE VALVE	2
21	2" EXCESS FLOW VALVE	2



TANK SAFETY RELIEF VALVE DATA

STORAGE TANK SURFACE AREA	800 FT. ²
REQUIRED RELIEF VALVE FLOW CAPACITY	12,880 CFM/AIR
ACTUAL RELIEF VALVE FLOW CAPACITY	16,292 CFM/AIR

NOTES:

1. AN ARROW HAS BEEN PLACED ON OR ADJACENT TO EACH VALVE. ALL VALVES MUST BE INSTALLED WITH THEIR DIRECTION OF FLOW ARROWS MATCHING THOSE INDICATED ON THIS DRAWING.
2. ANY AND ALL UNUSED TANK CONNECTIONS ARE TO BE PLUGGED.

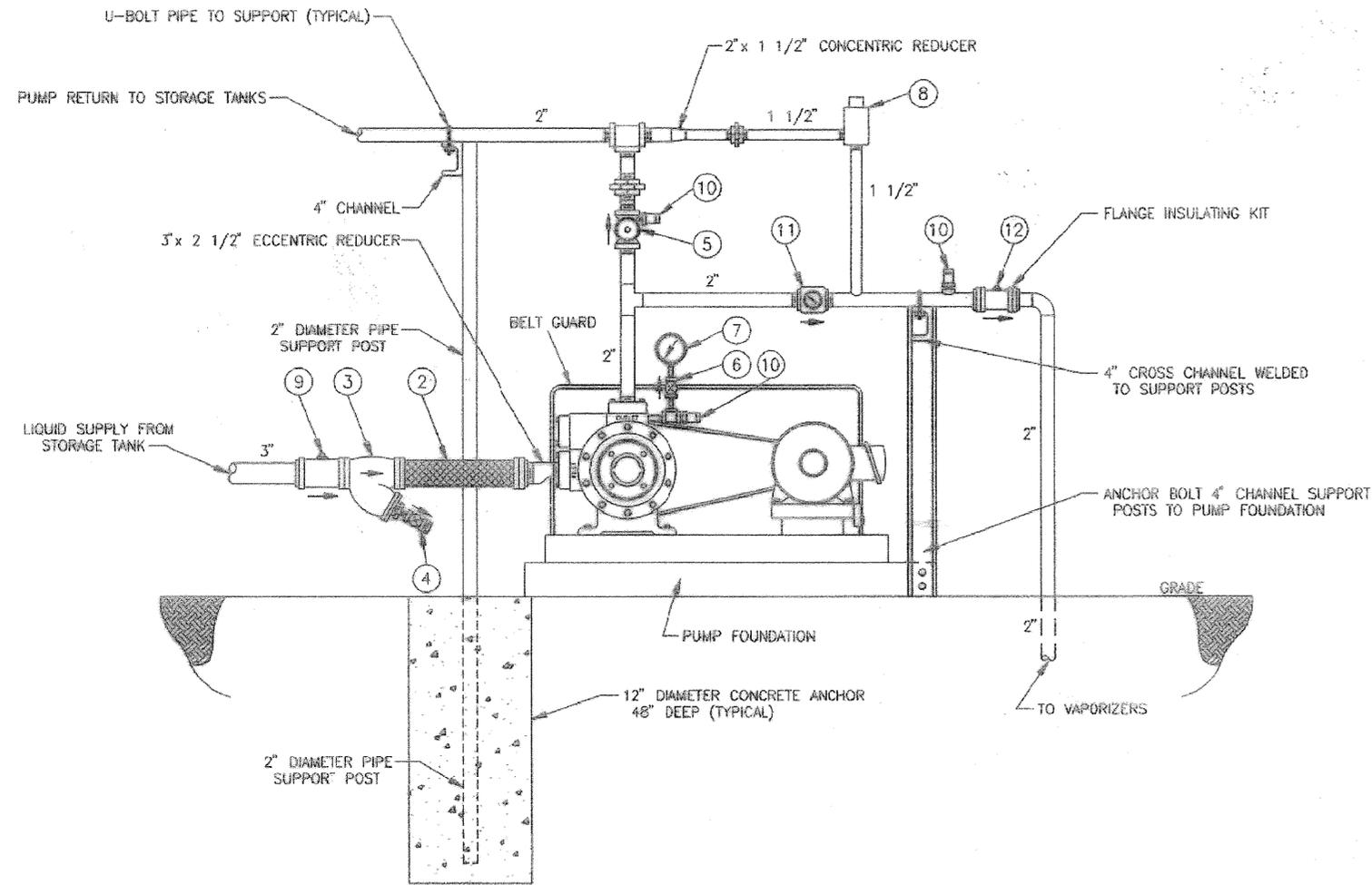
KEYED NOTES

- 1 REMOVE THE "1075" PLACARDS FROM THE TANKS AND INSTALL "2-4-0" PLACARDS VISIBLE FROM EACH SIDE AND END OF THE PERIMETER OF THE TANK INSTALLATION.
- 2 INSTALL NEW "FLAMMABLE GAS AND PROPANE" SIGNS VISIBLE FROM EACH SIDE AND END OF THE PERIMETER OF THE TANK INSTALLATION.

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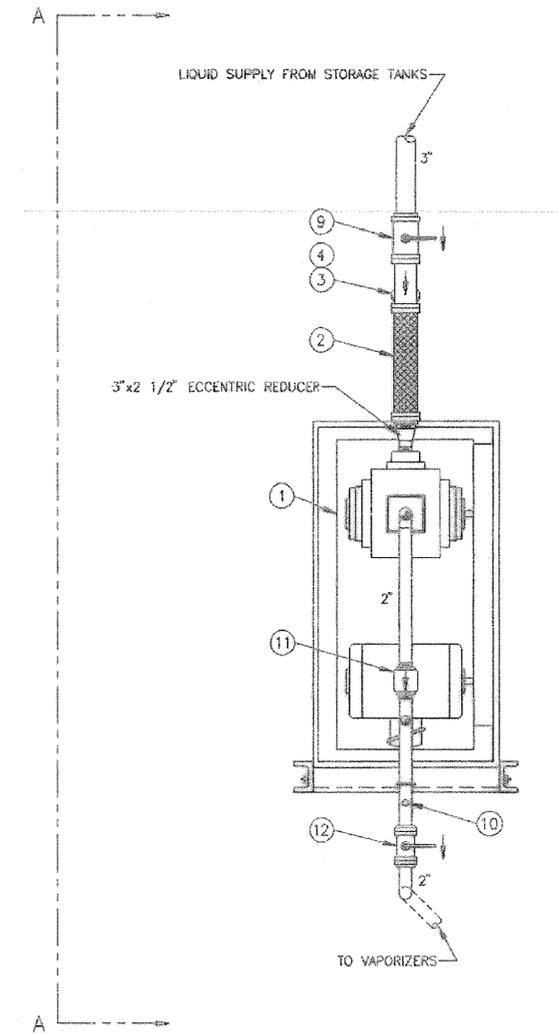
A1 PROPANE TANK DETAIL
NOT TO SCALE

DATE	
SYN	DESCRIPTION
501 NORTH BRADWAY ST. LOUIS, MISSOURI 63102 TEL. 314-335-4000 FAX 314-335-3012	
APPROVED	
FOR COMMANDER NAVFAC DWG	
ACTIVITY	
D. COREY MELTON, TRAINING DIRECTOR SWDS	
SATISFACTORY TO 6/18/15	
DES JMW DRV JMW CHK JOT	
PK/BM RS / JMS	
BRANCH MANAGER	
CHIEF ENG/ARCH DWG	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY	NAVFAC MID-ATLANTIC
GREAT LAKES NAVAL STATION	GREAT LAKES, ILLINOIS
RENOVATE SWOSU FIREFIGHTING TRAINER (BUILDING 510)	DETAILS
SCALE: AS NOTED	
PROJECT NO: 1310337	
CONSTR. CONTR. NO: N40085-15-R-8720	
NAVFAC DRAWING NO: 12700904	
SHEET 84 OF 88	
PP504	



VIEW A-A

B1 EXISTING PUMP PIPING SIDE ELEVATION VIEW DETAIL
NOT TO SCALE



B4 EXISTING PUMP PIPING PLAN VIEW DETAIL
NOT TO SCALE

BILL OF MATERIAL		
ITEM	DESCRIPTION	QTY
1	LIQUID PUMP WITH 3 H.P. EXPLOSION PROOF MOTOR WITH PUMP SPEED 520 R.P.M.	1
2	3" I.D. x 24" LONG FLEXIBLE METAL HOSE	1
3	3" FLANGED STRAINER	1
4	1 1/2" GLOBE VALVE	1
5	2" GLOBE VALVE	1
6	1/4" NEEDLE VALVE	1
7	2 1/2" 0-400# LIQUID FILLED PRESSURE GAUGE	1
8	1 1/2" x 1 1/2" DIFFERENTIAL BY-PASS VALVE SET AT 50# DIFFERENTIAL	1
9	3" FLANGED BALL VALVE	1
10	1/4" HYDROSTATIC RELIEF VALVE SET @450 PSIG	3
11	2" SIGHT FLOW INDICATOR AND CHECK VALVE	1
12	2" FLANGED BALL VALVE	1

NOTES:

1. AN ARROW HAS BEEN PLACED ON OR ADJACENT TO ALL VALVES. ALL VALVES MUST BE INSTALLED WITH THEIR DIRECTION OF FLOW ARROWS MATCHING THOSE INDICATED ON THIS DRAWING.

KEYED NOTES
 ① PROVIDE GLOBE VALVES WITH CAP AND PLUG.

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DATE	
SYN	
DESCRIPTION	
JACOBS 501 NORTH BROADWAY ST. LOUIS, MISSOURI 63102 TEL 314-335-4000 FAX 314-335-5012	
APPROVED	
FDR COMMANDER NAVFAC DWG	
ACTIVITY	
D. COREY MELTON, TRAINING DIRECTOR SWDS	
SATISFACTORY TO: 6/18/15	
DES JMW DRW JMW CHK JOT	
PH/DH RS / JMS	
BRANCH MANAGER	
CHIEF ENG/ARCH DWG	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND
GREAT LAKES NAVAL STATION	NAVFAC MID-ATLANTIC
GREAT LAKES, ILLINOIS	GREAT LAKES, ILLINOIS
RENOVATE SWOSU FIREFIGHTING TRAINER (BUILDING 510)	DETAILS
SCALE: AS NOTED	
PROJECT NO: 1310337	
CONSTR. CONTR. NO. N40085-15-R-8720	
NAVFAC DRAWING NO. 12700905	
SHEET 85 OF 86	
PP505	

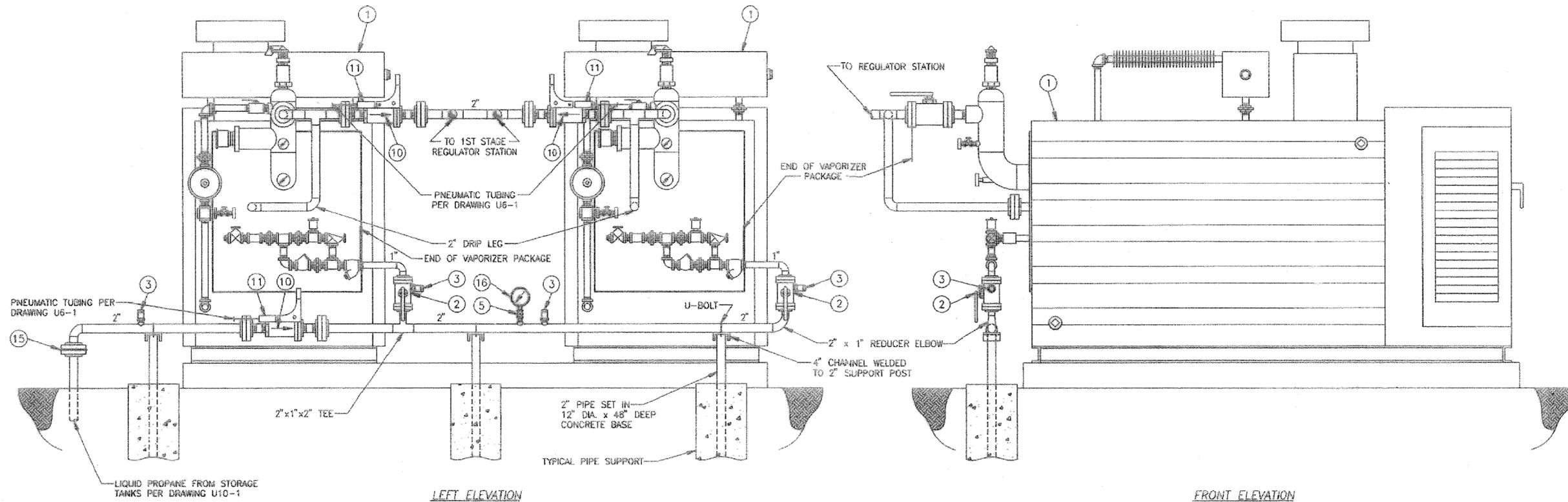
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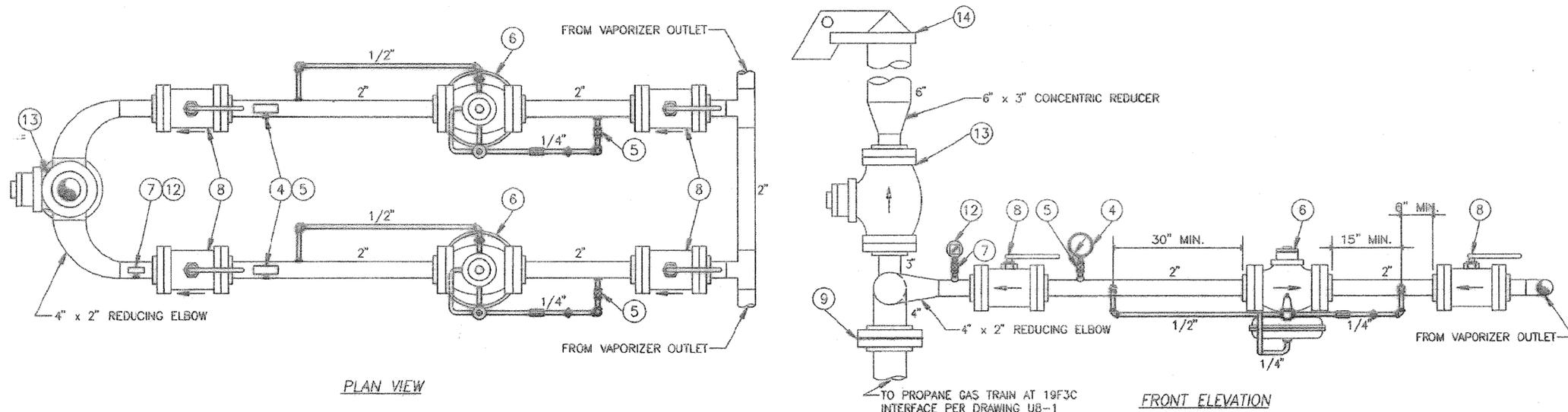
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LEFT ELEVATION

FRONT ELEVATION

C1 VAPORIZER PIPING DETAILS
NOT TO SCALE



PLAN VIEW

FRONT ELEVATION

**A1 VAPORIZER PIPING
1ST STAGE REGULATOR STATION DETAIL**
NOT TO SCALE

BILL OF MATERIAL		
ITEM	DESCRIPTION	QTY
1	750 GPH WATERBATH VAPORIZER	2
2	1" FLANGED BALL VALVE	2
3	1/4" HYDROSTATIC RELIEF VALVE SET @450 PSIG	4
4	4 1/2" 0-60# PRESSURE GAUGE	2
5	1/4" NEEDLE VALVE	7
6	2" PRESSURE REGULATOR SET @35 PSIG	2
7	1/2" GLOBE VALVE	1
8	2" FLANGED BALL VALVE	4
9	4" FLANGE INSULATING KIT	1
10	2" EMERGENCY SHUTOFF VALVE	3
11	AIR CYLINDER FOR PNEUMATIC OPERATION OF E.S.V.	3
12	HIGH LIMIT PRESSURE SWITCH SET @40 PSIG	1
13	3" RELIEF VALVE SET @40 PSIG	1
14	RAIN CAP FOR 6" PIPE	1
15	2" FLANGE INSULATING KIT	1
16	4 1/2" 0-300# PRESSURE GAUGE	1

NOTES:

1. AN ARROW HAS BEEN PLACED ON OR ADJACENT TO ALL VALVES. ALL VALVES MUST BE INSTALLED WITH THEIR DIRECTION OF FLOW ARROWS MATCHING THOSE INDICATED ON THIS DRAWING.

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DATE

SYN DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER
JAMES O. TOWERY
No. 21622
Exp. 7-30-2016
MECHANICAL
STATE OF CALIFORNIA

JACOBS
501 NORTH BROADWAY ST. LOUIS, MISSOURI 63102
TEL 314-335-4000 FAX 314-335-5012

APPROVED

FOR COMMANDER NAVFAC DWG

ACTIVITY

D. COREY MELTON,
TRAINING DIRECTOR SWDS

SATISFACTORY TO: 6/18/15

DES JMW DRW JMW CHK JOT
PM/DM RS / JMS
BRANCH MANAGER
CHIEF ENG/ARCH DWG
FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND
NAVFAC MID-ATLANTIC
GREAT LAKES, ILLINOIS
RENOVATE SWOSU FIREFIGHTING TRAINER
(BUILDING 510)
DETAILS

DEPARTMENT OF THE NAVY
GREAT LAKES NAVAL STATION

SCALE: AS NOTED
PROJECT NO: 1310337
CONSTR. CONTR. NO: N40085-15-R-8720
NAVFAC DRAWING NO: 12700906
SHEET 86 OF 86

PP506

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