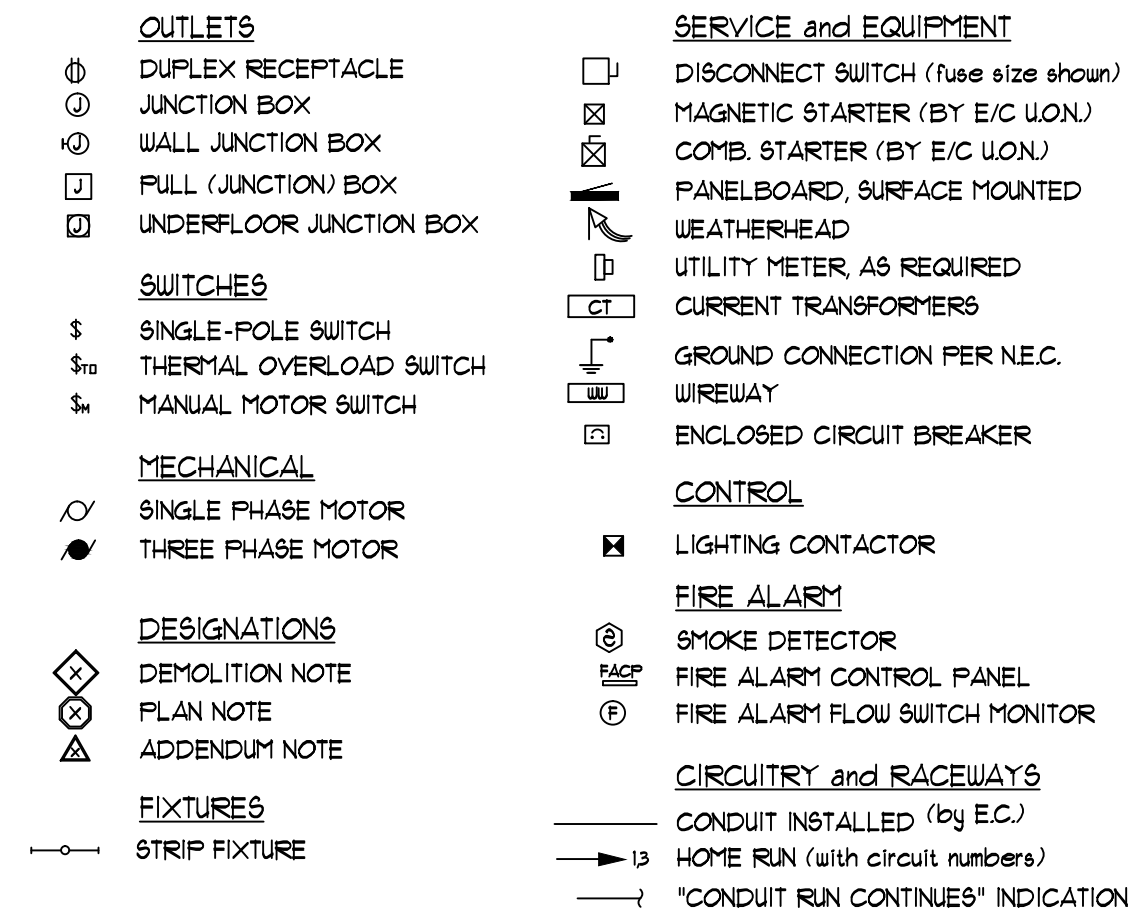


ELECTRICAL SYMBOLS LEGEND



ABBREVIATIONS LEGEND

A	AMPS	GC	GENERAL CONTRACTOR	P	POLE
AFF	ABOVE FINISHED FLOOR	GFI	GROUND FAULT INTERRUPTER	P-	PUMP
AUJ	AUTHORITY HAVING JURISDICTION	GND	GROUND	PB	PULL BOX
B-	BLDG	HOA	HAND-OFF-AUTO SELECTOR SWITCH	PNL	PANEL
B- BLDG	BOILER BUILDING	HP	HORSEPOWER	PVC	POLY VINYL CHLORIDE
CND (C)	CONDUIT	IMC	INTERMEDIATE METAL CONDUIT	PUR	POWER
CKT	CIRCUIT	JB	JUNCTION BOX	RECP	RECEPTACLE
CKT BKR	CIRCUIT BREAKER	LT	LIGHT	RGC	RIGID GALVANIZED STEEL CONDUIT
CUH-	CABINET UNIT HEATER	LTG	LIGHTING	SPEC	SPECIFICATIONS
DISC	DISCONNECT	LT FLEX	LIGHT TIGHT FLEXIBLE METAL CONDUIT	SU	SWITCH
DUH-	DOMESTIC WATER HEATER	MT	MOUNT	SUBD	SUBBOARD
EC	ELECTRICAL CONTRACTOR	MTD	MOUNTED	TYP	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	MTG	MOUNTING	UH-	UNIT HEATER
EXIST (E)	EXISTING	NC	NORMALLY CLOSED	UL	UNDERWRITERS' LABORATORIES, INC.
FLA	FULL LOAD AMPS	NO	NORMALLY OPEN	UNO	UNLESS NOTED OTHERWISE
FLEX	FLEXIBLE CONDUIT	NTS	NOT TO SCALE	V	VOLTS
FLR	FLOOR			VL	VERIFY LOCATION WITH OWNER
FLUOR	FLUORESCENT			W	WATTS
				W/	WITH
				W/O	WITHOUT
				WP	WEATHER PROOF
				XFMR	TRANSFORMER

GENERAL ELECTRICAL NOTES

- ALL WALL AND FLOOR PENETRATIONS ARE TO BE SEALED TO MAINTAIN ORIGINAL RATING.
- ALL CONDUITS TO BE FIELD ROUTED ALONG EXISTING PIPING AND STRUCTURAL STEEL.
- THE DIVISION 26 CONTRACTORS SHALL VISIT THE PROJECT AND DETERMINE THE EXACT EXTENT OF THE DEMOLITION WORK REQUIRED BEFORE BIDDING THE PROJECT.
- REMOVE ALL EXISTING OBSOLETE EXPOSED CONDUIT, WIRE AND UNUSED EQUIPMENT WHERE WORK IS BEING DONE EXCEPT ITEMS NOTED OTHERWISE.
- WHERE BUILDING SURFACES ARE DAMAGED BY THE REMOVAL OF OLD WORK, SURFACES SHALL BE PATCHED TO MATCH ADJACENT.
- EXISTING WORK WHICH IS PRESENTLY CONCEALED AND WHICH WILL REMAIN CONCEALED AND DOES NOT INTERFERE WITH ANY NEW WORK OF ANY TRADE NEED NOT BE REMOVED. HOWEVER, ALL CONDUIT SHALL BE CAPPED BELOW FINISH SURFACE AND THEN PATCHED TO MATCH, OR AS NOTED.
- EXISTING OPENINGS, WHICH ARE TO BE REUSED, SHALL BE MODIFIED OR ENLARGED TO SUIT THE NEW SYSTEMS AS REQUIRED. PROVIDE ALL REQUIRED CUTTING AND PATCHING.
- IF ASBESTOS IS PRESENT, IT WILL BE REMOVED OR RENDERED HARMLESS UNDER SEPARATE CONTRACT BY THE OWNER.
- THE DIVISION 12 CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING THE EXISTING WALLS TO MATCH THE ADJACENT SURFACES BEHIND ALL SURFACE MOUNTED EQUIPMENT.
- CONTRACTOR SHALL FIELD VERIFY ALL EQUIPMENT VOLTAGES AND LOADS PRIOR TO INSTALLING SERVICE TO EQUIPMENT.
- DRAWINGS ARE BASED ON EXISTING RECORD DOCUMENT AND CASUAL FIELD OBSERVATION. REPORT ANY DISCREPANCIES TO ENGINEER FOR CLARIFICATION.

DEMOLITION NOTES:

- COORDINATE RELOCATION OF EXISTING UNDERGROUND ELECTRICAL PRIMARY SERVICE WITH OWNER AND INSTALLATION OF NEW CHIP RECEIVING BIN.

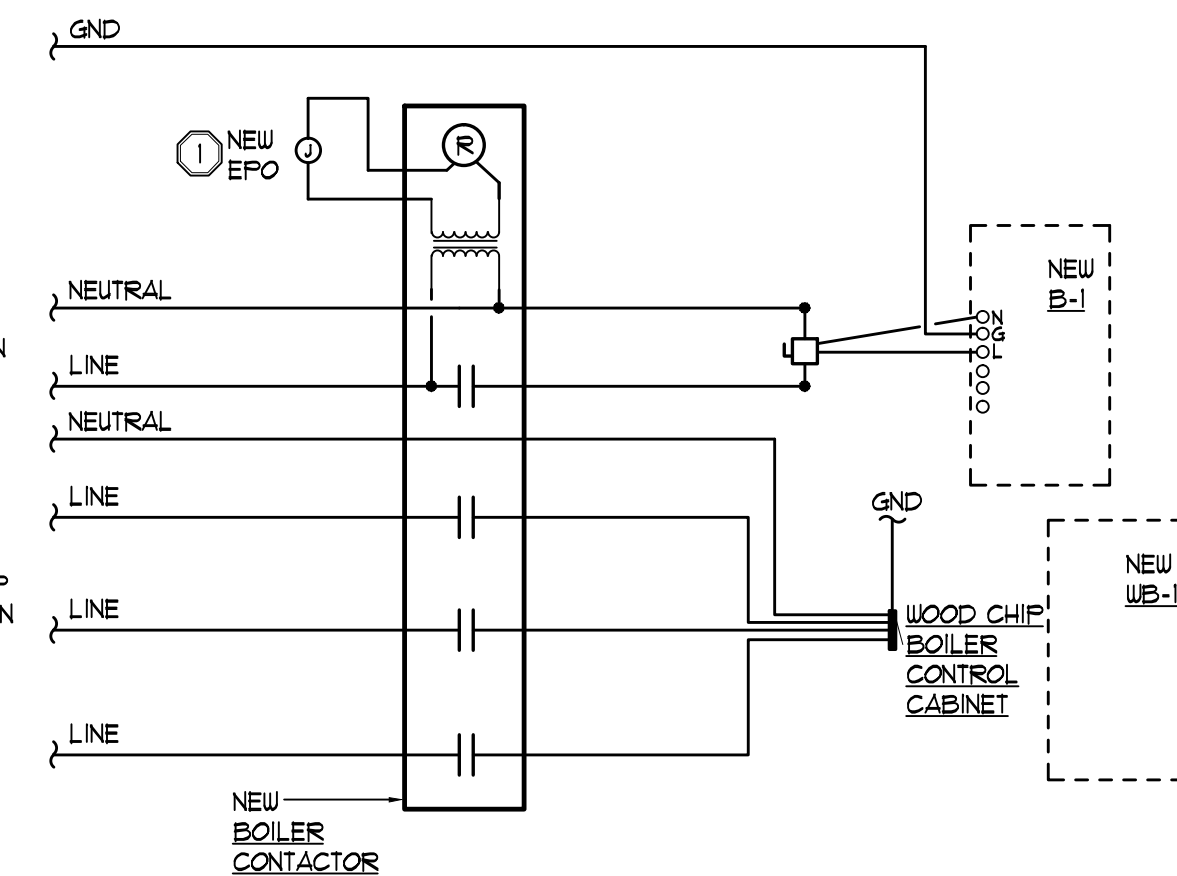
ELECTRICAL KEY NOTES:

- PROVIDE NEW RED MUSHROOM STYLE EPO BUTTON WITH BREAK GLASS AND PROTECTIVE COVER.
- PROVIDED AND INSTALLED BY OTHERS.
- EXISTING FEEDS DISCONNECTED AND RECONNECTED BY OTHERS.

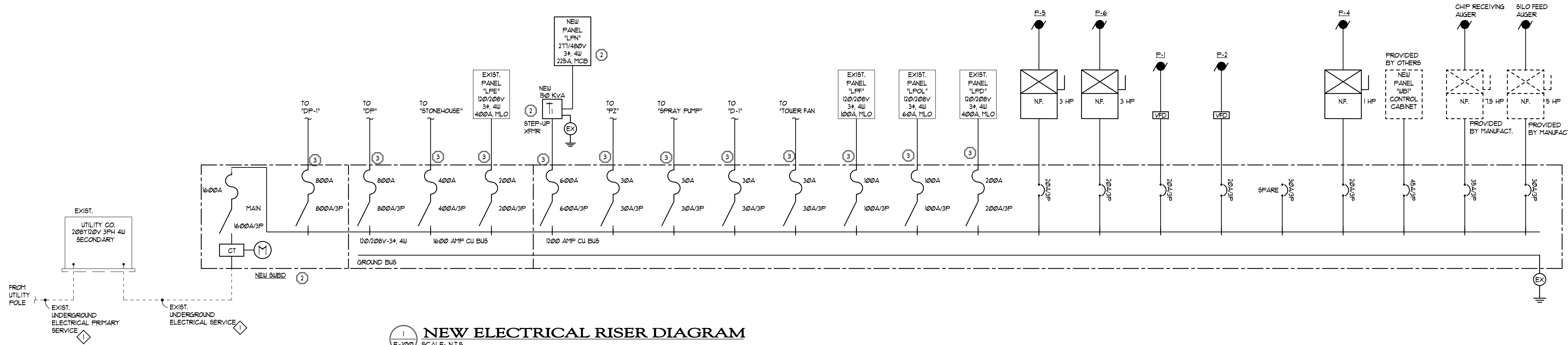
NEW "SWBD"
BY OTHERS

VOLTS: 208 /120 PHASE: 3 WIRE: 4 AMPS: 1600 MAIN: MES

BREAKER	A	P	DESCRIPTION	CIRCUIT			PHASE LOADS			CIRCUIT	DESCRIPTION	BREAKER	A	P
				VA	A	B	C	VA						
800	3		EXIST. PNL "DP-1" OFFICE AREA	1	0	0	0	0	2	EXIST. PNL "DP" ROOF TOP	800	3		
200	3		EXIST. PNL "LPE"	3	0	0	0	0	4	EXIST. XFMR "1" PNL "LPN"	600	3		
30	3		EXIST. "P2"	5	0	0	0	0	6	EXIST. SPRAY PUMP	30	3		
30	3		EXIST. "P1"	7	0	0	0	0	8	EXIST. TOWER FAN	30	3		
100	3		EXIST. PNL "LPP"	9	0	0	0	0	10	EXIST. PNL "LPOL"	100	3		
400	3		EXIST. PNL "LPD"	11	1319	1319	1319	1319	12	NEW P-5	20	3		
20	3		NEW P-6	1319	13	2638	1319	1319	14	NEW P-1	20	3		
20	3		NEW P-2	1319	15	1895	1319	1319	16	NEW P-4	20	3		
30	3		SPARE	17	4318	4318	4318	4318	18	NEW WB-1 CONTROL CABINET	45	3		
35	3		NEW CHIP RECEIVING BIN	3035	19	5134	3035	20	2099	SILO FEED AUGER	30	3		
				21	0	0	0	0	22					
				23	0	0	0	0	24					
				25	0	0	0	0	26					
				CONNECTED	15304	15304	15304	15304	45912	TOTAL ADD'L LOAD	45912	VOLT-AMPS	127.44	AMPS
				TOTAL ADDITIONAL CONNECTED	45912									



2 BOILER WIRING DIAGRAM
E-100 N.T.S.



1 NEW ELECTRICAL RISER DIAGRAM
E-100 SCALE: N.T.S.

REVISIONS

06.30.11	REVISION #1
----------	-------------

DRAWN: **AJB**
 APPROVED: **JFS**

MATRIX
 CONSULTING ENGINEERS, INC.
 1601 E GRAND RIVER AVE.
 LANSING, MI 48206
 PHONE (313) 487-2511
 FAX (313) 487-2544
 administrator@matrixinc.com
 Matrix Project No. 10136.00

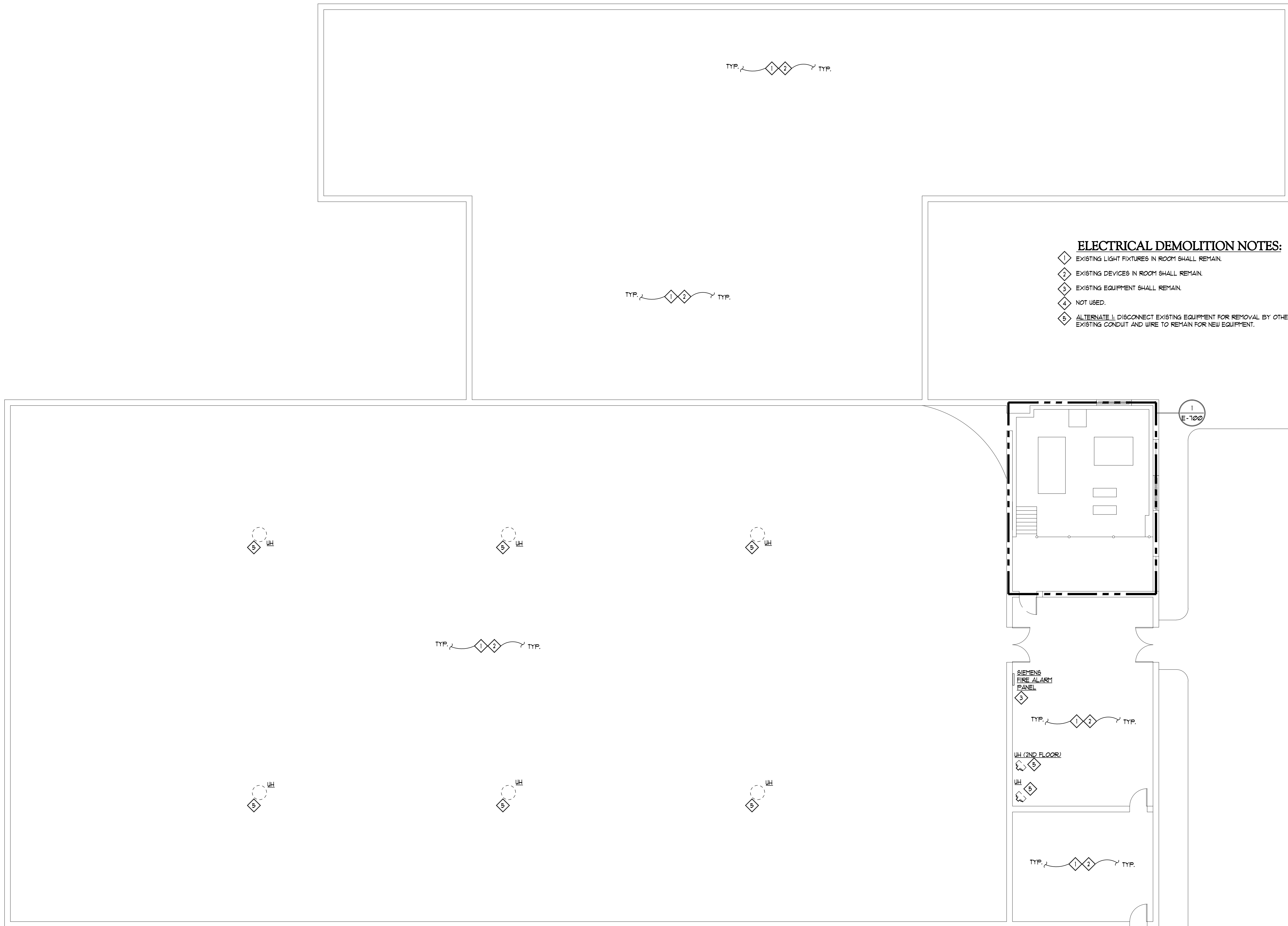
PROJECT: **OAKLAND UNIVERSITY PAVILION**
 HVAC MODIFICATIONS

SHEET DESCRIPTION: **SYMBOLS, NOTES, ABBREV + RISER**

DATE: **6/16/11**

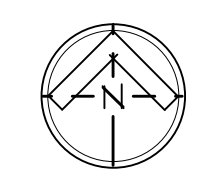
PROJECT NUMBER: **10136.01**

SHEET NUMBER: **E-100**



ELECTRICAL DEMOLITION NOTES:

- 1 EXISTING LIGHT FIXTURES IN ROOM SHALL REMAIN.
- 2 EXISTING DEVICES IN ROOM SHALL REMAIN.
- 3 EXISTING EQUIPMENT SHALL REMAIN.
- 4 NOT USED.
- 5 ALTERNATE 1: DISCONNECT EXISTING EQUIPMENT FOR REMOVAL BY OTHERS. EXISTING CONDUIT AND WIRE TO REMAIN FOR NEW EQUIPMENT.



GROUND FLOOR DEMOLITION PLAN

0 5 10 20
SCALE: 1/8" = 1'-0"

REVISIONS	
08.30.11	REVISION #1
DRAWN AJB	
APPROVED JFS	

MATRIX
CONSULTING ENGINEERS, INC.

1601 E. GRAND RIVER AVE.
LANSING, MI 48906
PHONE: (617) 482-2511
FAX: (617) 482-2544
admin@matrixce.com
Matrix Project No. 10136.01

PROJECT
OAKLAND UNIVERSITY PAVILION
HVAC MODIFICATIONS

SHEET DESCRIPTION
GROUND FLOOR DEMOLITION PLAN
DATE 6/16/11
PROJECT NUMBER 10136.01
SHEET NUMBER E-300

DATE	REVISIONS
08.30.11	REVISION #1

DRAWN
AJB

APPROVED
JFS

MATRIX
CONSULTING ENGINEERS, INC.

1601 E GRAND RIVER AVE.
LANSING, MI 48206
PHONE (313) 487-2511
FAX (313) 487-2544
administrator@matrixeng.com
Matrix Project No. 10136.00

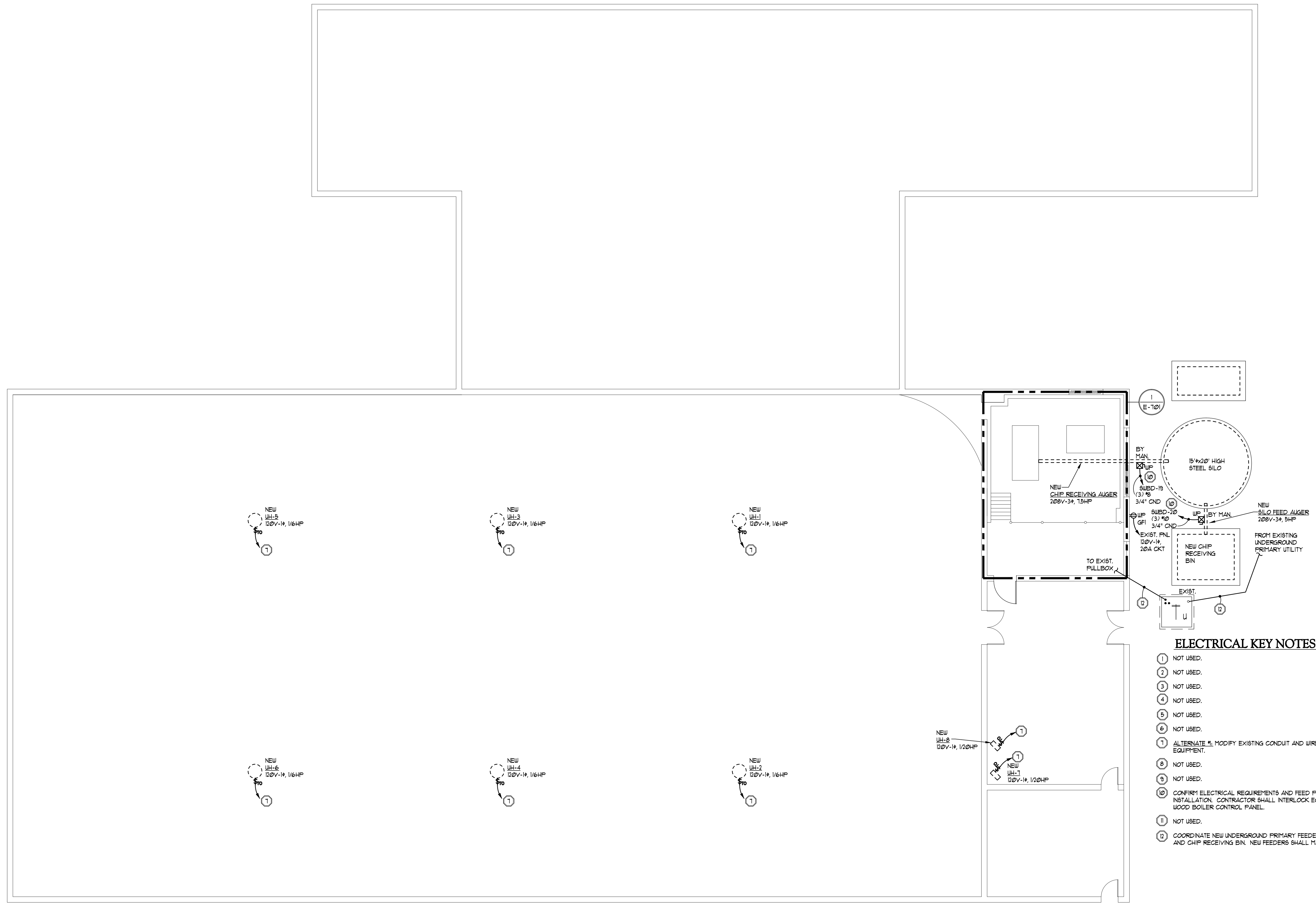
PROJECT
OAKLAND UNIVERSITY PAVILION
HVAC MODIFICATIONS

SHEET DESCRIPTION
GROUND FLOOR POWER PLAN

DATE
6/16/11

PROJECT NUMBER
10136.01

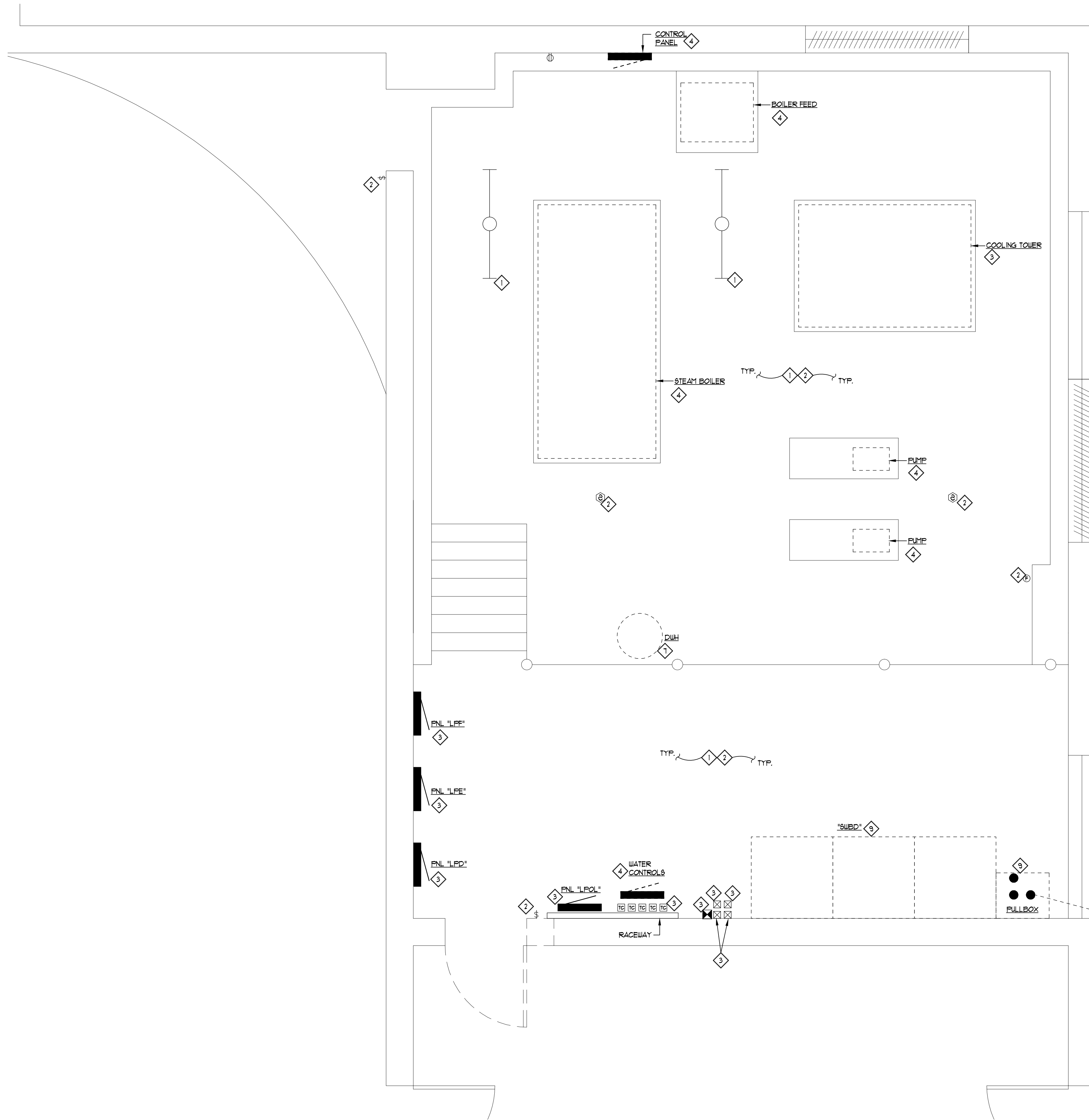
SHEET NUMBER
E-500



- ELECTRICAL KEY NOTES:**
- ① NOT USED.
 - ② NOT USED.
 - ③ NOT USED.
 - ④ NOT USED.
 - ⑤ NOT USED.
 - ⑥ NOT USED.
 - ⑦ ALTERNATE #1: MODIFY EXISTING CONDUIT AND WIRE TO FEED NEW EQUIPMENT.
 - ⑧ NOT USED.
 - ⑨ NOT USED.
 - ⑩ CONFIRM ELECTRICAL REQUIREMENTS AND FEED POINTS PRIOR TO INSTALLATION. CONTRACTOR SHALL INTERLOCK EQUIPMENT WITH WOOD BOILER CONTROL PANEL.
 - ⑪ NOT USED.
 - ⑫ COORDINATE NEW UNDERGROUND PRIMARY FEEDERS WITH OWNER AND CHIP RECEIVING BIN. NEW FEEDERS SHALL MATCH EXISTING.

GROUND FLOOR POWER PLAN

0 5 10 20
SCALE: 1/8" = 1'-0"



ELECTRICAL DEMOLITION NOTES:

- 1 EXISTING LIGHT FIXTURES IN ROOM SHALL REMAIN.
- 2 EXISTING DEVICES IN ROOM SHALL REMAIN.
- 3 EXISTING EQUIPMENT SHALL REMAIN.
- 4 BASE BID; DISCONNECT EXISTING EQUIPMENT FOR REMOVAL BY OTHERS. DISCONNECT AND REMOVE ALL EXPOSED CONDUIT AND REMOVE ALL WIRE TO SOURCE.
- 5 NOT USED.
- 6 DISCONNECT AND REMOVE EXISTING STARTERS FOR PUMPS. DISCONNECT AND REMOVE ALL EXPOSED CONDUIT AND REMOVE ALL WIRE TO SOURCE.
- 7 DISCONNECT EQUIPMENT FOR RELOCATION BY OTHERS. CONDUIT AND WIRE TO REMAIN.
- 8 COORDINATE RELOCATION OF EXISTING UNDERGROUND ELECTRICAL PRIMARY SERVICE WITH OWNER AND INSTALLATION OF NEW CHIP RECEIVING BIN.
- 9 EXISTING SWITCHBOARD DISCONNECTED, REMOVED AND REPLACED WITH NEW BY OTHERS. COORDINATE WORK IN THIS PROJECT WITH OWNER.

1 ENLARGED BOILER ROOM - DEMOLITION PLAN
 SCALE: 1/2"=1'-0"

REVISIONS
08.30.11 REVISION #1
DRAWN AJB
APPROVED JFS

1601 E GRAND RIVER AVE.
 LANSING, MI 48206
 PHONE (313) 487-2511
 FAX (313) 487-2544
 administrator@matrix.com
 Matrix Project No. 10136.00

MATRIX
 CONSULTING ENGINEERS, INC.

PROJECT
OAKLAND UNIVERSITY PAVILION
 HVAC MODIFICATIONS

SHEET DESCRIPTION
ENLARGED BOILER RM DEMOLITION PLAN

DATE
 6/16/11

PROJECT NUMBER
 10136.01

SHEET NUMBER
E-700

REVISIONS
08.30.11 REVISION #1

DRAWN
AJB

APPROVED
JFS

1601 E GRAND RIVER AVE.
LANSING, MI 48206
PHONE (313) 487-2511
FAX (313) 487-2544
administrator@matrix.com
Web: Project No. 10136.00

PROJECT
OAKLAND UNIVERSITY PAVILION
HVAC MODIFICATIONS

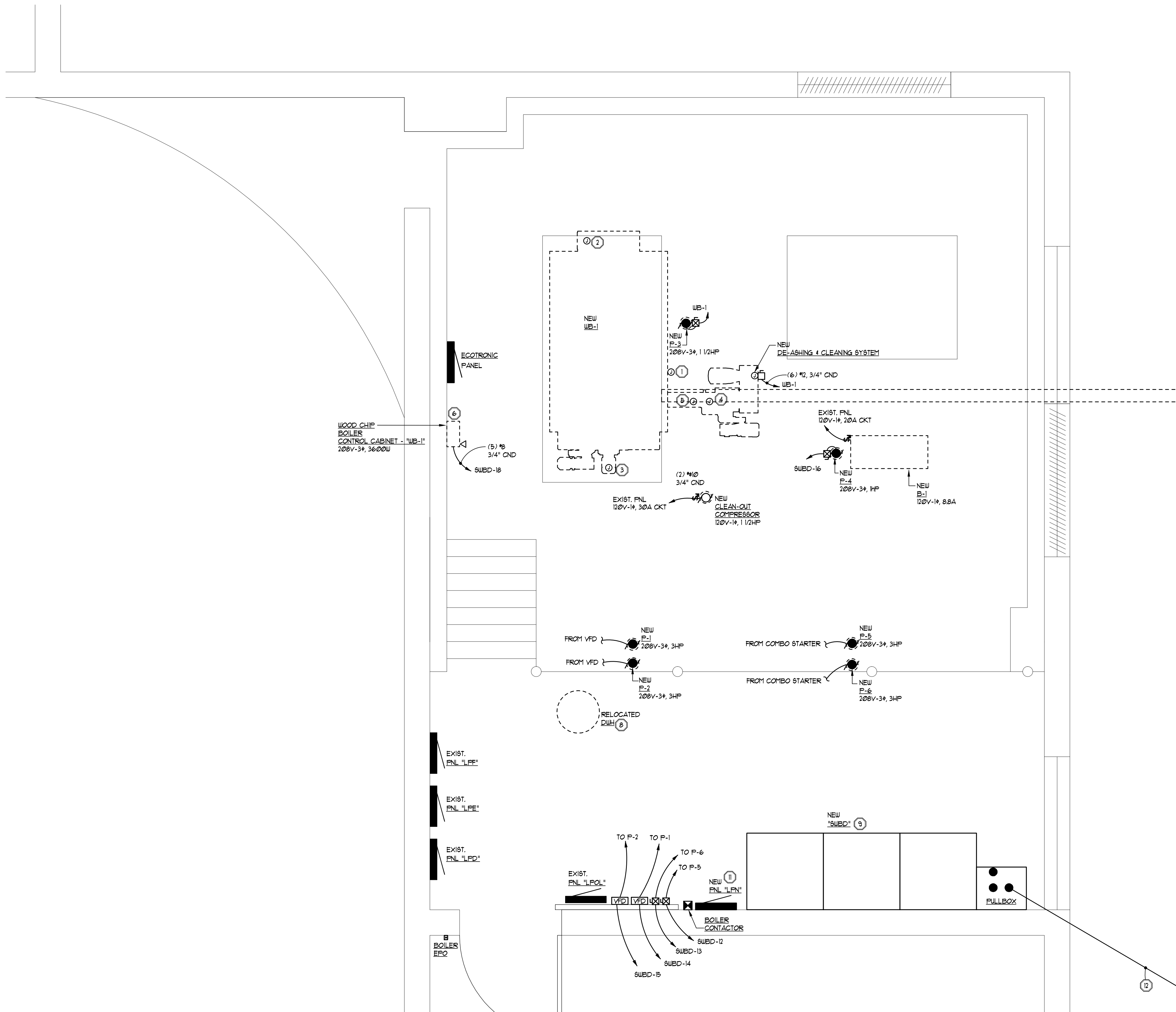
SHEET DESCRIPTION
ENLARGED BOILER ROOM NEW

DATE
6/16/11

PROJECT NUMBER
10136.01

SHEET NUMBER

E-701



ELECTRICAL KEY NOTES:

1. ALL CABLE BUSHINGS TO MOTORS AND BOILER EQUIPMENT MUST BE DUST TIGHT AND PROVIDED WITH STRAIN RELIEF.
 2. COORDINATE LOCATION OF ALL ELECTRICAL CONNECTIONS IN FIELD.
 3. PROVIDE METAL CHANNEL ON TOP OF BOILER AND ON BOILER CASING TO FEED WIRE FROM CABINET TO MISCELLANEOUS FEED POINTS ON BOILER. REFER TO GENERAL SAFETY INSTRUCTIONS.
1. AUTOMATIC IGNITION DEVICE: PROVIDE (3) #2 TO WOOD CHIP BOILER CONTROL PANEL.
 2. SPEED CONTROLLED EXHAUST FAN (FLUE GAS FAN): PROVIDE (4) #2 TO WOOD CHIP BOILER CONTROL PANEL.
 3. ARTICULATED HEAD FAN (ROTATION FAN): PROVIDE (2) #2 TO WOOD CHIP BOILER CONTROL PANEL.
 4. BILO FEED AUGER: PROVIDE (6) #2 TO WOOD CHIP BOILER CONTROL PANEL.
 5. MOVING GRATE: PROVIDE (6) #2 TO WOOD CHIP BOILER CONTROL PANEL.
 6. CONTRACTOR RESPONSIBLE FOR FOLLOWING CONNECTIONS:
 - DATA TRANSMISSION LINE (10M PROVIDED WITH PANEL) FROM CONTROL CABINET TO ECOTRONIC PANEL.
 - SENSORS AND SWITCHES TO CONTROL CABINET.
 - INFRARED LIGHT BARRIERS FOR LEVEL MONITORING.
 - ZIRCONIUM DIOXIDE SENSOR.
 - FT-100 EXHAUST GAS SENSOR.
 - TEMPERATURE LIMITING SAFETY SWITCH.
 - KTY SENSOR AND SENSOR SHELL.
 - CHIP RECEIVING AUGER.
 7. NOT USED.
 8. EXTEND EXISTING CONDUIT AND WIRE TO NEW EQUIPMENT LOCATION.
 9. NEW SWITCHBOARD PROVIDED AND INSTALLED BY OTHERS. COORDINATE CONNECTION OF NEW EQUIPMENT WITH OWNER.
 10. CONFIRM ELECTRICAL REQUIREMENTS AND FEED POINTS PRIOR TO INSTALLATION. CONTRACTOR SHALL INTERLOCK EQUIPMENT WITH WOOD BOILER CONTROL PANEL.
 11. NEW PANEL PROVIDED AND INSTALLED BY OTHERS.
 12. COORDINATE NEW UNDERGROUND PRIMARY FEEDERS WITH OWNER AND CHIP RECEIVING BIN. NEW FEEDERS SHALL MATCH EXISTING.

1 **ENLARGED BOILER ROOM - NEW**
E-701 SCALE: 1/2" = 1'-0"