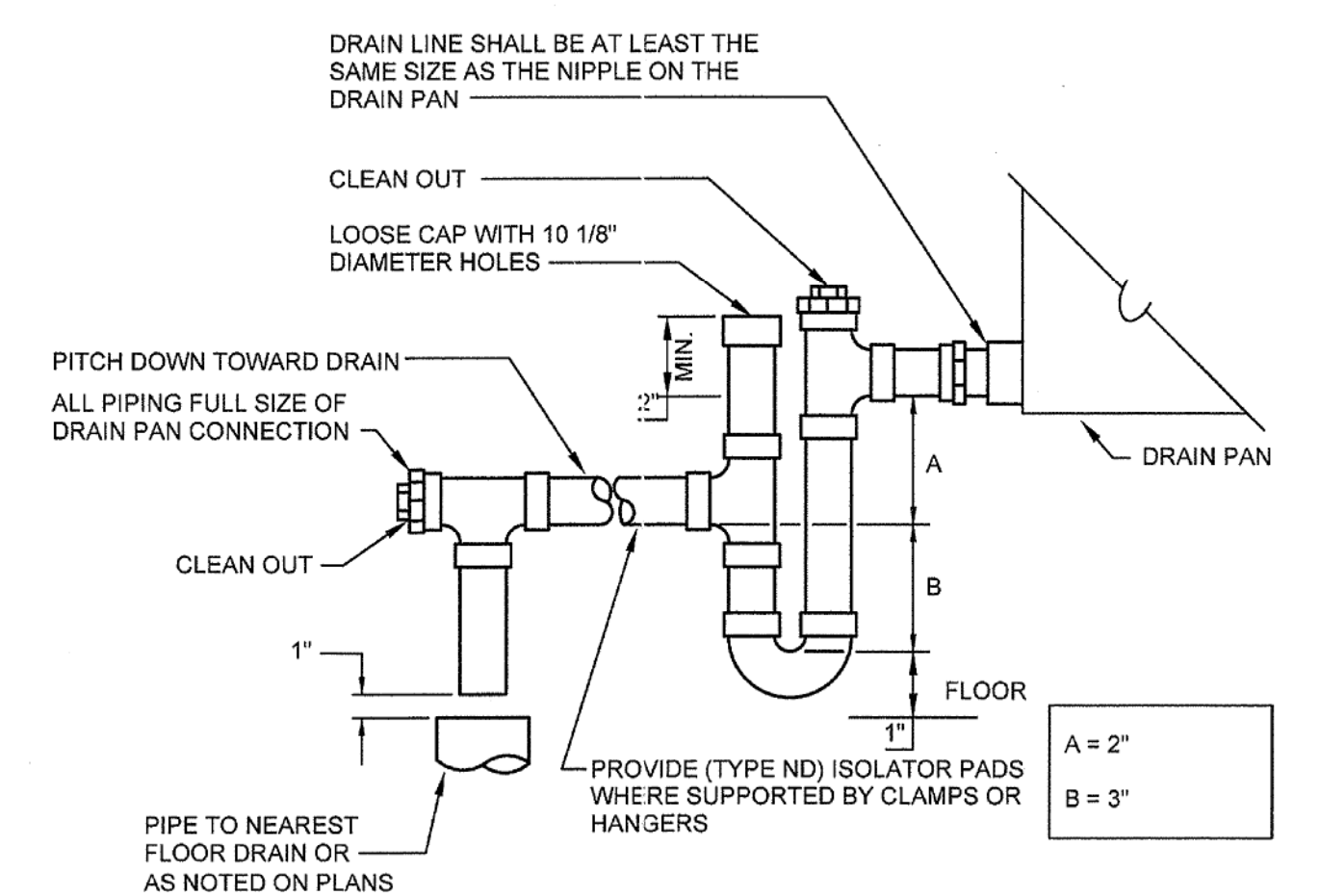
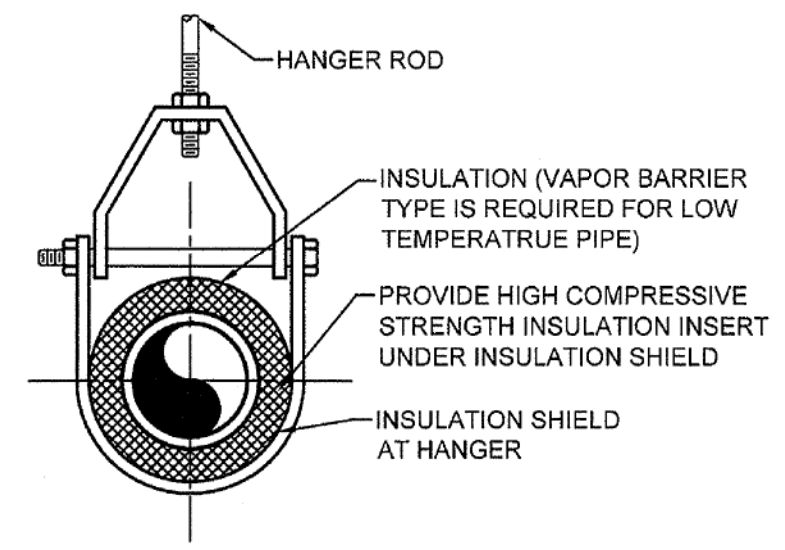


**2** TYPICAL LIGHT EQUIPMENT SUPPORT DETAILS  
NOT TO SCALE



**4** AIR HANDLING UNIT DRAIN DETAIL  
NOT TO SCALE

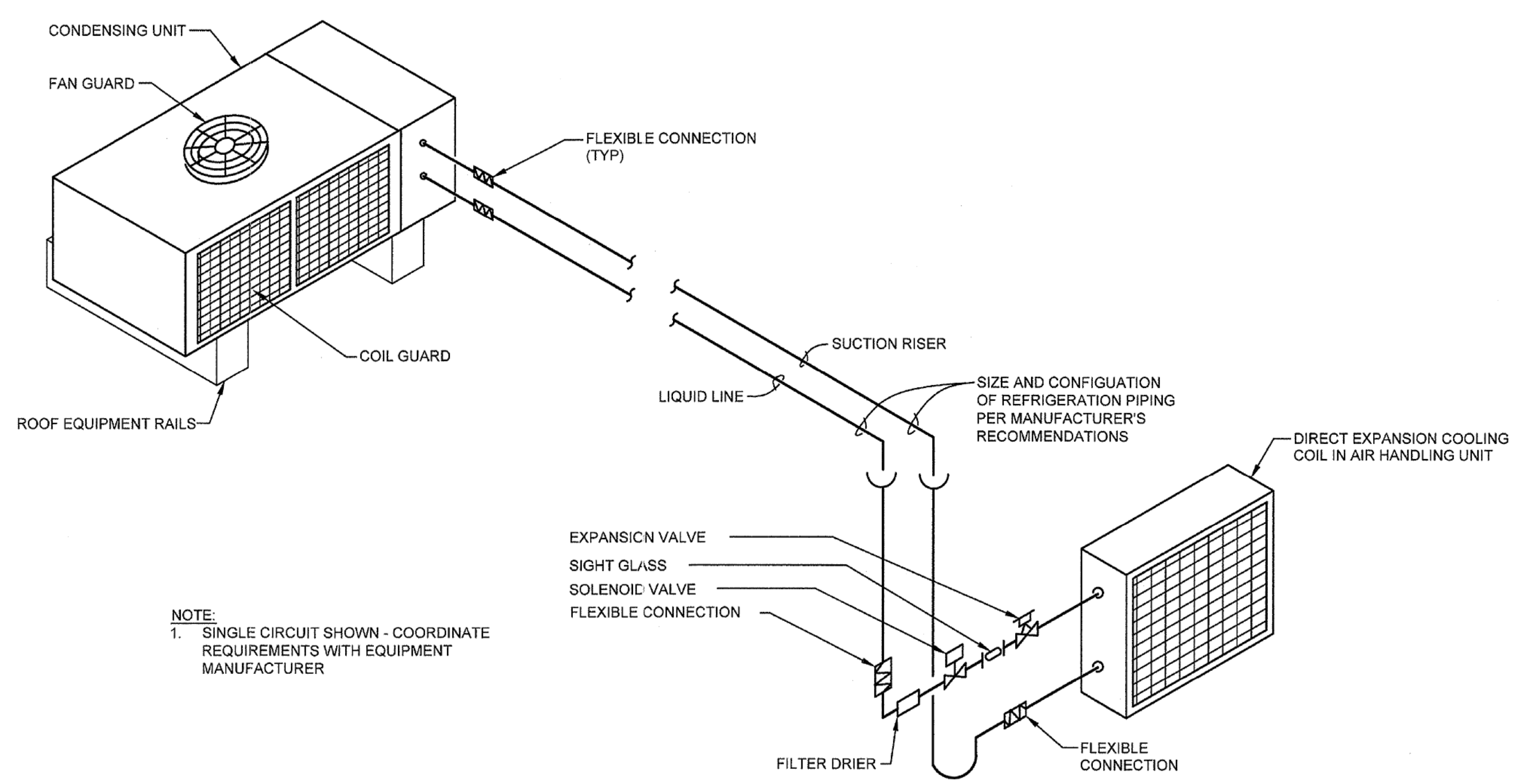


**ADJUSTABLE CLEVIS HANGER**

MAXIMUM PIPE/TUBING SUPPORT SPACING, (FT.)													
NOM. SIZE	THRU 3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"
STEEL PIPE	7	7	7	9	10	11	12	14	16	17	19	22	23
COPPERTUBING	5	6	7	8	8	9	10	12	13	14	16	-	-

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

**3** TYPICAL PIPE HANGER DETAILS  
NOT TO SCALE



**5** PIPING SCHEMATIC FOR CONDENSING UNIT DETAIL  
NOT TO SCALE

User:#### Spec:PIRINIE STANDARD File:P:0244-13-001 NKWD TMTIP IMPROVEMENTS\CAD\HVAC\H-00-002.DWG Scale:1:38 SavedDate:8/23/2013 Time:15:36 Plot Date: Yury Baskin 12/18/2013 09:26 Layout:H-00-002

**MALCOLM PIRNIE**  
The Water Division of **ARCADIS**

**Magna**  
ENGINEERS

STATE OF KENTUCKY  
JAMES M. HARRIS  
Professional Engineer  
12-26-13

NO.		BY	DATE	REVISIONS	REMARKS

DES JLM  
DWN YNR  
CKD JLM

NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
ELECTRICAL AND BASIN  
IMPROVEMENTS

HVAC  
HVAC DETAILS  
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET  
DATE: JANUARY 2014  
SHEET: H-00-002  
CAD REF. NO.: H-00-002

**SPLIT SYSTEM FAN COIL UNIT / AIR HANDLING UNIT SCHEDULE**

MARK	SERVICE	LOCATION	CFM	EXTER. STATIC	HP	FCU TYPE	OA CFM	ELECTRICAL				DX COOLING COIL						HEATING COIL			ACCESSORIES	BASIS OF DESIGN	
								VOLTS	PH	MCA Amps	MFS Amps	TOTAL MBH	SENS MBH	EAT F db	EAT F wb	LAT F db	LAT F wb	MIN EER	ELEC.	KW			CAP MBH
AHU-1	ACCU-1	3RD FLR FILTER BLDG	8,400	0.3"	5	HORIZONTAL	50	460	3	41.3	50	252	196	80	67	58.3	57.6	11	460/3	20	62.6	1 - 10	CARRIER 40RUA025

SYSTEM TYPE:  
1. SPLIT SYSTEM WITH R-410A

ACCESSORIES  
1. LOW AMBIENT KIT (-20 F)  
2. SINGLE POINT ELECT CONNECTION  
3. CLEANABLE REUSABLE FILTER (2 SPARES)

4. ANTI-SHORT CYCLE PROTETCTION  
5. PROGRAMMABLE THERMOSTAT  
6. SECONDARY CONDENSATE DRAIN PAN c/w CUTOFF SWITCH

7. INTEGRAL ELECTRIC STRIP HEAT  
8. SUPPLY AND RETURN GRILLES  
9. OVERHEAD SUSPENSION BRACKET  
10. OUTSIDE AIR KIT WITH KNOCKOUTS

**LOUVERS**

MARK	SERVICE	LOCATION	FLOW RATE CFM	VELOCITY FPM	MIN FREE AREA SF	PRESS LOSS IN WG	LVR SIZE HxWxD - IN	TYPE	MATERIAL	FINISH	NOTES
LV-1	PUMP RM	FILTER BLDG	16,908	1109	15.24	0.15	80"Hx57"Wx4"D	COMBINATION	ALUM	50% KYNAR 500	1-8
LV-2	PUMP RM	FILTER BLDG	6,102	1109	5.5	0.15	80"Hx24"Wx4"D	COMBINATION	ALUM	50% KYNAR 500	1-8

**NOTES:**

- BIRD SCREEN
- COMBINATION DRAINABLE LOUVER WITH MOTORIZED DAMPER
- INTAKE
- FIELD VERIFY DIMENSIONS OF WINDOW MULLIONS THAT WILL SERVE A LOUVER FRAME.
- PROVIDE EXTERIOR PERIMETER FLANGE.
- PROVIDE 120 VOLT DAMPER OPERATOR.
- SEE MOUNTING DETAIL ON ARCHITECTURAL DRAWINGS.
- SELECTION BASED ON GREENHECK MODEL EAC-401.

**AIR COOLED CONDENSING UNITS**

MARK	SERVICE	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	AMBIENT AIR TEMP (F)	NO. DX CIRCUITS	VOLTS	ELECTRICAL			NOTES
							PH	MCA	MFS	
ACCU-1	AHU-1	252	196	95	2	460	3	40.8	50	1-11

**NOTES:**

- SINGLE POINT ELECTRICAL CONNECTION WITH INTEGRAL CONTROLS
- SPLIT UNITS WITH R-410A
- DIGITAL SCROLL COMPRESSOR(S)
- MANUFACTURERS: CARRIER, TRANE, MCQUAY, YORK
- 2 - CIRCUITS
- PRECOATED AL/CU W/LOUVERED HAIL GUARDS.
- POWERED CONVENIENCE OUTLET.
- NON FUSED DISCONNECT.
- STANDARD ELECTRO-MECH CONTROLS.
- THERMOSTAT
- 2-SPEED FAN CONTROLLER

**BASIS OF DESIGN:**

- ACCU-1 - CARRIER MOD: 38AUD025

**GENERAL NOTES:**

- GENERAL NOTES, WHEREVER THEY ARE FOUND, APPLY TO ALL WORK IN THE PROJECT, UNLESS OTHERWISE INDICATED. SHEET NOTES, UTILIZING NOTE SYMBOLS, APPLY ONLY TO THE SHEET ON WHICH THEY ARE FOUND, UNLESS OTHERWISE STATED. THE MEANING OF NOTE SYMBOLS AND NUMBERS VARIES FROM SHEET TO SHEET.
- CONTRACTOR SHALL UTILIZE ALL INFORMATION IN THE CONTRACT DOCUMENTS FOR PROVIDING THE WORK. CONTRACTOR SHALL UTILIZE DETAILS AND FLOW DIAGRAMS FOR THE WORK WHERE APPROPRIATE, WHETHER OR NOT THEY ARE SPECIFICALLY REFERENCED ON THE PLANS OR SUPPORTING DRAWINGS.
- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND CONTRACT DOCUMENTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ANY WORK RELATING TO THOSE CONDITIONS IS PERFORMED.
- LEGENDS OR LISTS OF SYMBOLS AND ABBREVIATIONS ARE GENERAL IN NATURE AND MAY CONTAIN ITEMS NOT USED IN THE CONTRACT DOCUMENTS. IF ANY SUCH ITEMS ARE FOUND WHICH ARE NOT DEFINED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER SHALL BE CONTACTED FOR CLARIFICATION BEFORE THE BID.
- CONTRACTOR SHALL MAINTAIN A SET OF PROJECT RECORD DRAWINGS AT THE JOB SITE AND SHALL BE RESPONSIBLE FOR MAKING CLEAR, NEAT CHANGES TO THE DRAWINGS, REFLECTING CHANGES TO THE WORK AND VARIANCE IN EXISTING CONDITIONS.
- PROVIDE ALL MISCELLANEOUS STEEL, AS REQUIRED, TO SUPPORT ALL MECHANICAL DUCT AND PIPING SYSTEMS AND EQUIPMENT. HANG ALL EQUIPMENT FROM STRUCTURE WITH MINIMUM OF TWO TRAPEZE ASSEMBLIES OR FOUR INTEGRAL MOUNTING POINTS WITH VIBRATION ISOLATORS ON ALL FOUR SUPPORTS. DO NOT HANG ANYTHING FROM STEEL, COMPOSITION OR WOODEN DECK. NON-ROOF CONCRETE DECKS MAY BE USED ONLY WITH PERMISSION OF THE ENGINEER. DO NOT HANG ANYTHING FROM MECHANICAL OR ELECTRICAL ITEMS.
- NO CONCRETE RIBS OR JOISTS SHALL BE CUT WITHOUT SPECIFIC PERMISSION FROM THE ENGINEER. ALL ROOF OR FLOOR DECK PENETRATIONS IN WAFFLE STRUCTURE SHALL BE IN THE THIN-SLAB DEPRESSIONS IN THE STRUCTURE UNLESS OTHERWISE SHOWN.
- NO STEEL STRUCTURAL MEMBERS SHALL BE CUT, BURNED, WELDED OR DRILLED WITHOUT SPECIFIC PERMISSION OF THE ENGINEER.
- NO WOODEN STRUCTURAL MEMBERS SHALL BE CUT OR DRILLED EXCEPT AS INDICATED IN THE CONTRACT DOCUMENTS OR AS APPROVED BY THE ENGINEER.
- CONSULT ROOF PLAN AND STRUCTURAL DRAWINGS FOR PLACEMENT OF ROOF MOUNTED EQUIPMENT. PROVIDE ALL NECESSARY ROOF CURBS, EQUIPMENT RAILS AND BASES AND ANY ADDITIONAL REQUIRED FRAMING IN COORDINATION WITH STRUCTURAL AND ROOFING WORK.
- CONSULT ARCHITECTURAL PLANS FOR DIMENSIONING AND POSITIONS OF WALL LOUVERS.
- ALL EQUIPMENT, DUCT, PIPING AND ACCESSORIES INSTALLED OUTSIDE OR OTHERWISE EXPOSED TO THE ELEMENTS SHALL BE ADEQUATELY WEATHERPROOFED, IN KEEPING WITH THE SPECIFICATIONS. ALL FERROUS METAL FRAMING COMPONENTS SHALL BE STAINLESS STEEL OR HOT-DIP GALVANIZED.
- CONTRACTOR SHALL CERTIFY AT THE TIME OF OWNER OCCUPANCY THAT ALL BELT-DRIVEN EQUIPMENT HAS BEEN CHECKED FOR BELT TIGHTNESS AFTER WEAR-IN PERIOD.
- ALL EXISTING EQUIPMENT SHUTDOWNS OR INTERRUPTIONS OF UTILITY SERVICE REQUIRED FOR COMPLETION OF THE WORK SHALL BE SCHEDULED IN ADVANCE, AS REQUIRED BY THE OWNER.
- CONTRACTOR IS RESPONSIBLE FOR MAKING ALL REQUIRED CONNECTIONS FOR A COMPLETE SYSTEM. CONNECTIONS OF NEW WORK TO EXISTING IS USUALLY INDICATED BY SPECIAL SYMBOL (SEE LEGEND). SYMBOLS MISSING FROM THE DRAWINGS DO NOT EXCUSE THE CONTRACTOR FROM PROVIDING THE WORK.
- PROVIDE LINTELS AS REQUIRED FOR ALL NEW OPENINGS GREATER THAN 12" WIDE IN MASONRY OR LOAD-BEARING WALLS, MATERIAL TO BE APPROVED BY ENGINEER.
- ANY AND ALL DAMAGE DUE TO DEMOLITION OR CONSTRUCTION IS TO BE REPAIRED OR REPLACED AS APPROPRIATE, SUBJECT TO ENGINEER'S APPROVAL, AND AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL NOT REMOVE OR DISTURB ANY SUSPECTED HAZARDOUS MATERIALS, INCLUDING ASBESTOS-CONTAINING MATERIALS (ACM), LEAD-BASED PAINTS, ELECTRICAL GEAR CONTAINING PCB'S OR ANY OTHER, EXCEPT AS INSTRUCTED IN THIS CONTRACT. IF ANY MATERIAL NOT COVERED BY THE CONTRACT IS ENCOUNTERED, NOTIFY THE ENGINEER AT ONCE.
- ALL DEMOLISHED OR REMOVED EQUIPMENT, PIPING, DUCTWORK, SUPPORTS, CONTROLS AND THE LIKE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE NOTED.
- REINSULATE ALL DUCTWORK AND PIPING WHERE EXISTING INSULATION HAS BEEN REMOVED OR DAMAGED DURING THE PROJECT.
- PROVIDE ALL CONTROLS NECESSARY TO OPERATE EQUIPMENT AS SHOWN OR DESCRIBED, INCLUDING VALVES, ACTUATORS, THERMOSTATS, DAMPERS, ALL ACCESSORY DEVICES, POWER AND/OR PNEUMATIC SERVICE.
- PROVIDE DISCONNECTS AND MAGNETIC STARTERS (OR RELAYS WITH OVERLOAD PROTECTION FOR SINGLE PHASE) FOR ALL EQUIPMENT SUPPLIED UNDER DIVISION 15 WHICH IS SPECIFIED TO HAVE FACTORY CONTROL PANEL. POWER WIRING AND CONDUIT TO THESE DEVICES AND BETWEEN THESE DEVICES AND MECHANICAL EQUIPMENT, IF REQUIRED, SHALL BE SUPPLIED UNDER DIVISION 16. SEE SECTION 15025 OF THE SPECIFICATIONS.

**EXHAUST FAN SCHEDULE**

MARK	SERVICE	LOCATION	TYPE	CFM	S.P. IN WG	RPM	DRIVE	FAN TIP FPM	MOTOR		ACCESSORIES	BASIS OF DESIGN GREENHECK
									HP	V/PH/HZ		
EF-1	PUMP RM	FILTER BLDG MEZZANINE	1	74000	0.3	463	BELT	-	15	460/3/60	1-5	MOD: SBE-3L72-150

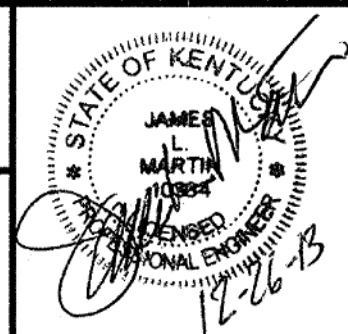
**FAN TYPE:**

- SIDEWALL PROPELLER FAN
- SEE INSTALLATION DETAIL ON ARCHITECTURAL DRAWINGS.

**FAN ACCESSORIES:**

- INLET SCREEN, LONG WALL HOUSING OSHA MOTOR GUARD
- ADJ. SHEAVES.
- GRAVITY BACKDRAFT DAMPER
- MOTOR STARTER AND DISCONNECT
- PROVIDE CLASSIC BRONZE GF108 POWDER COATING ON BACKDRAFT (SHUTTER) DAMPER.

User: \\p01\p01\Spec\PIRNE\STANDARD File:P:\024-13-001 NKWD TMT IMPROVEMENTS\CAD\HVAC\H-00-003.DWG Scale: 1:38 SavedDate: 10/7/2013 Time: 09:50 Plot Date: Yury Radkyk: 12/18/2013, 09:26 Layout: H-00-003



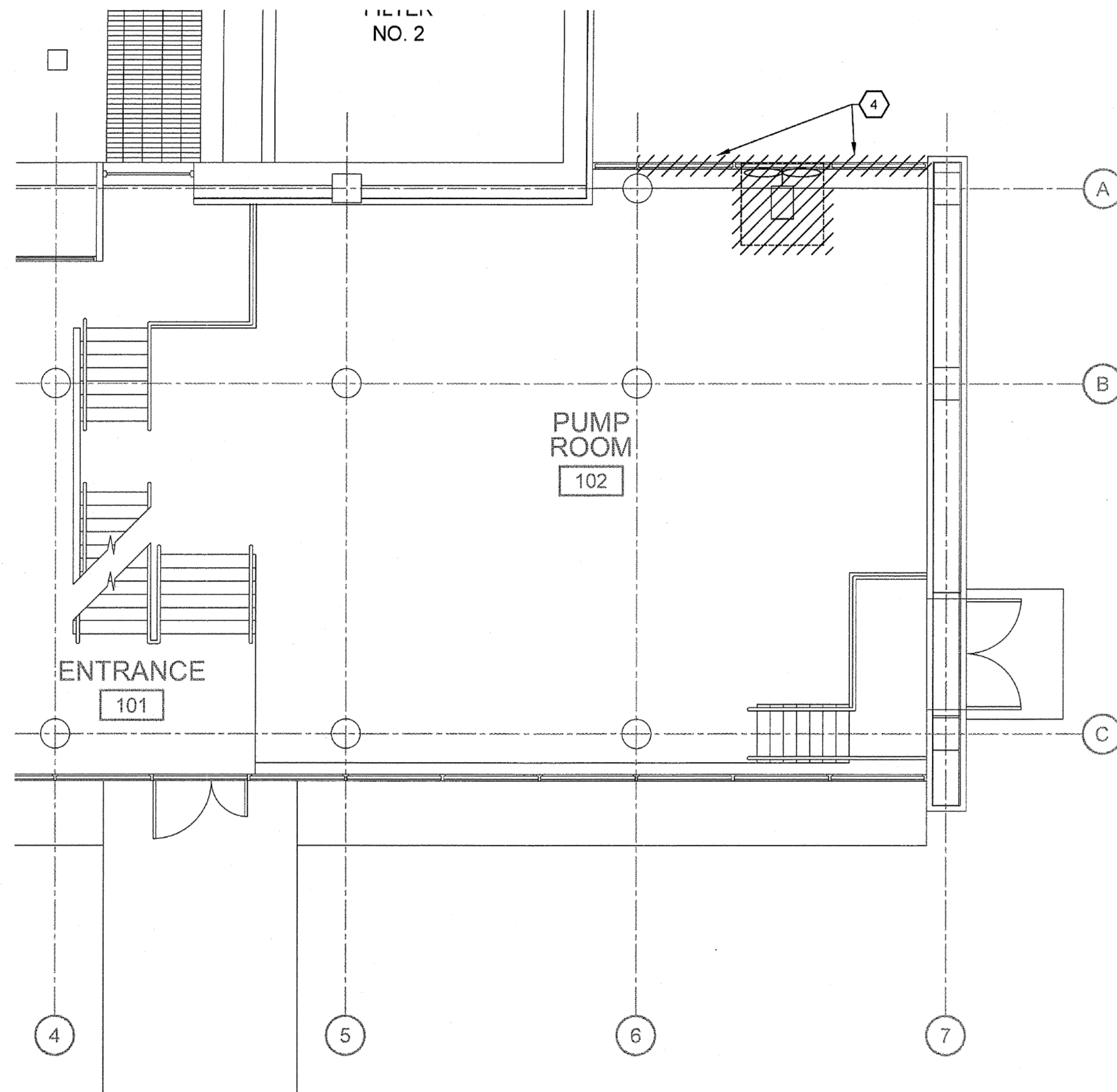
REVISIONS			
NO.	BY	DATE	REMARKS

DES	JLM
DWN	YNR
CKD	JLM

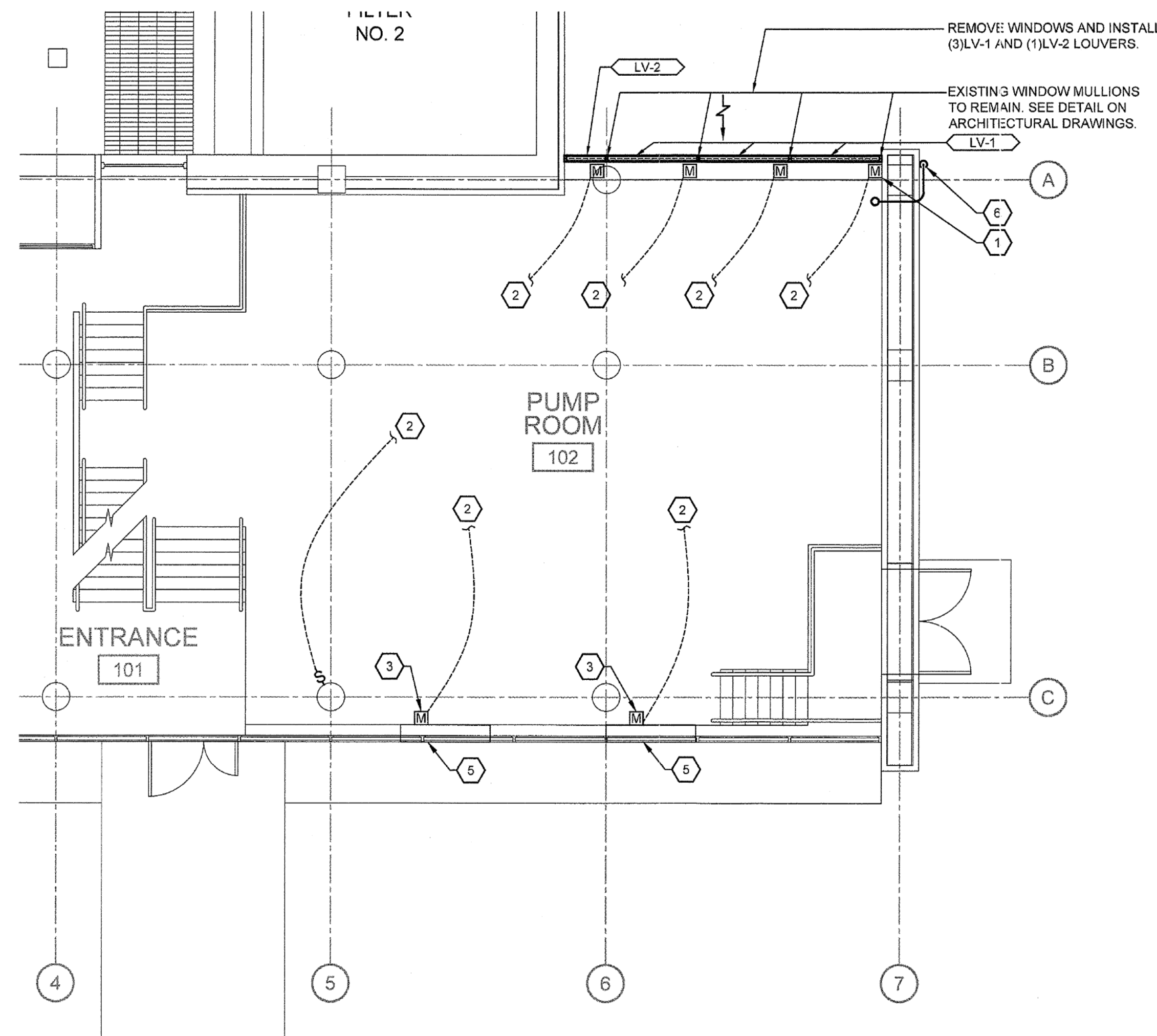
NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

HVAC  
**HVAC SCHEDULES**  
SCALE: NOT TO SCALE

ISSUED STATUS:	BID SET
DATE	JANUARY 2014
SHEET	H-00-003
CAD REF. NO.	H-00-003



**1** FILTER BUILDING PUMP ROOM  
HVAC DEMOLITION AT EL. 525.50  
SCALE: 3/16"=1'-0"



**2** FILTER BUILDING PUMP ROOM  
HVAC NEW WORK AT EL. 525.50  
SCALE: 3/16"=1'-0"

**GENERAL NOTES:**

1. DEMOLISH, REMOVE, AND DISPOSE OF PANEL AND WINDOWS AND PREPARE FOR LOUVER AND EXHAUST FAN INSTALLATION.
2. PROVIDE AND INSTALL DAMPER ACTUATOR (S) CONFIGURATION AND QUANTITY PER MANUFACTURER'S RECOMMENDATIONS.

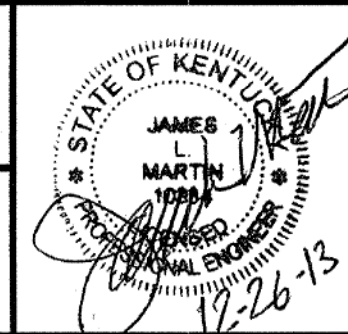
**KEYNOTE SHEET KEYNOTES:**

1. PROVIDE AND INSTALL DAMPER ACTUATORS AND TIE INTO EF-1 CONTROL.
2. TIE INTO EF-1, (H-01-003)
3. REPLACE DAMPER OPERATORS AND TIE INTO EF-1, PROVIDE 120 VOLT OPERATORS.
4. REMOVE EXHAUST FAN AND HOUSING FROM WINDOW WALL. REMOVE WINDOWS. WINDOW MULLIONS SHALL REMAIN. REFER TO ARCHITECTURAL DRAWINGS.
5. EXISTING OPERABLE LOUVER TO REMAIN.
6. 1-1/2" CONDENSATE PIPING FROM ABOVE ROUTE TO FLOOR, THROUGH WALL AND INTO EXISTING DOWNSPOUT RECEPTOR.

User:#### Spec:P:\R\H\STANDARD File:P:\024-13-001 NKWD TWP IMPROVEMENTS\CAD\HVAC\H-01-001.DWG Scale:1,24 SavedDate:1/1/2013 Time:07:36 Plot Date: Yuly Raeky, 12/18/2013, 09:27, Layout:H-01-001

**MALCOLM PIRNIE**  
The Water Division of **ARCADIS**

**Magna**  
ENGINEERS



NO.		BY	DATE	REVISIONS	REMARKS

DES: JLM  
DWN: YNR  
CKD: JLM

NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

HVAC  
**FILTER BUILDING PUMP ROOM  
HVAC PLANS AT EL. 525.50**  
SCALE: 3/16" = 1'-0"

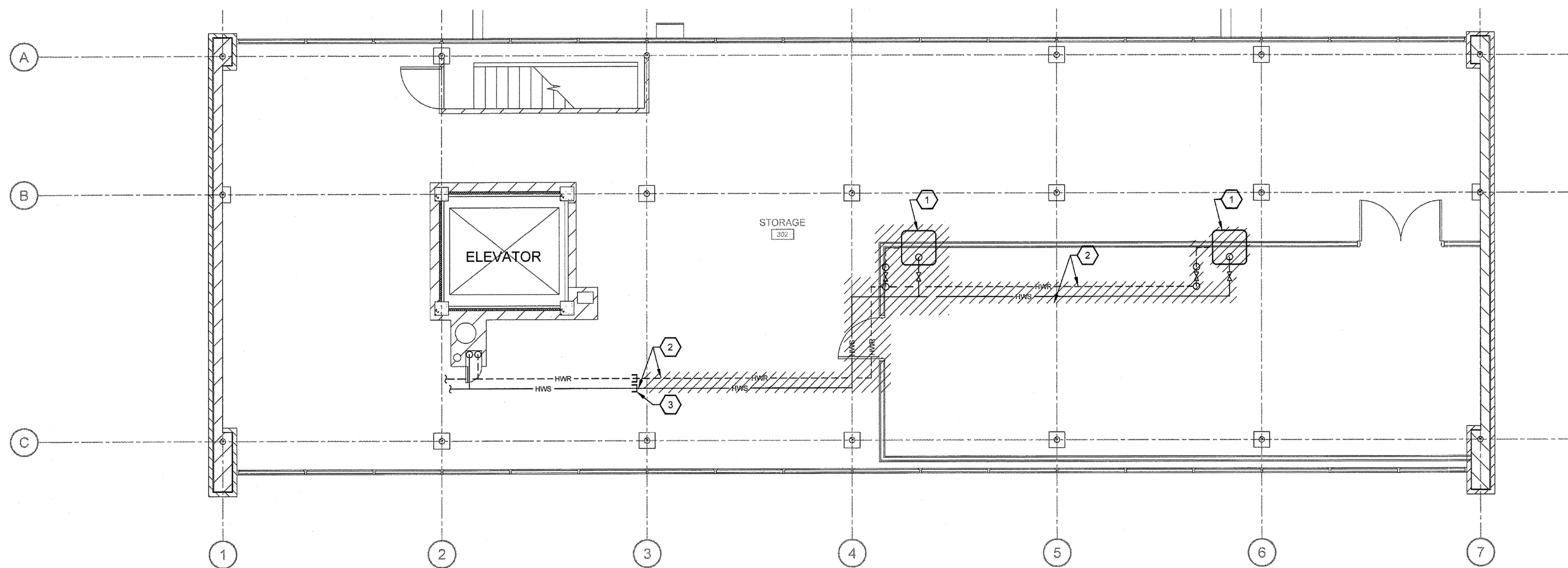
ISSUED STATUS: BID SET  
DATE: JANUARY 2014  
SHEET: H-01-001  
CAD REF. NO.: H-01-001

**SHEET KEYNOTES:**

1. REMOVE EXISTING HOT WATER UNIT HEATER AND ALL ASSOCIATED VALVES AND APPURTENANCES AND RETAIN FOR RELOCATION.
2. REMOVE EXISTING HOT WATER SUPPLY AND RETURN PIPES.
3. TEMPORARILY CAP EXISTING HOT WATER SUPPLY AND RETURN PIPES FOR REROUTING FROM THIS POINT.
4. CONNECT TO EXISTING PIPING.
5. EXISTING HOT WATER SUPPLY AND RETURN PIPES TO REMAIN.
6. TWO SETS OF REFRIGERANT LINES UP TO ACCU-1 ON ROOF.
7. ROUTE CONDENSATE PIPING THROUGH FLOOR IN CORNER.
8. MOUNT ACCU-1 ON RAILS, SECURE UNIT TO RAILS AND RAILS TO ROOF STRUCTURE AT FOUR (4) POINTS NEAR EACH CORNER. PROVIDE THYBAR MODEL TEMS-3 OR APP.EQ. EQUIPMENT RAILS WITH CANT STRIPS AND FLASHING.
9. RELOCATION OF UNIT HEATER.
10. TWO SETS OF REFRIGERANT LINES DOWN TO AHU-1 IN ELEC 303. PROVIDE THYBAR MODEL TCC-5 OR APP.EQ. PIPE CURB ON ROOF FOR FOUR REFRIGERANT LINES AND ONE ELECTRICAL CONDUIT. SEAL WATERTIGHT. PROVIDE CANT STRIP AND FLASHING.
11. MATCH SIZES OF EXISTING PIPING.
12. 1-1/2" CONDENSATE DRAIN PIPING. HANG FROM STRUCTURE.
13. HANG AIR HANDLER BY USING THE FACTORY OVERHEAD SUSPENSION ACCESSORY AND 4-THREADED RODS THROUGH EXISTING HOLLOW PRECAST ROOF DECKING. COORDINATE WITH INSTALLATION OF NEW ROOF.
14. 8"Ø EXTERNALLY INSULATED FRESH AIR DUCT. HANG HIGH.
15. 8"X8" WALL CAP.

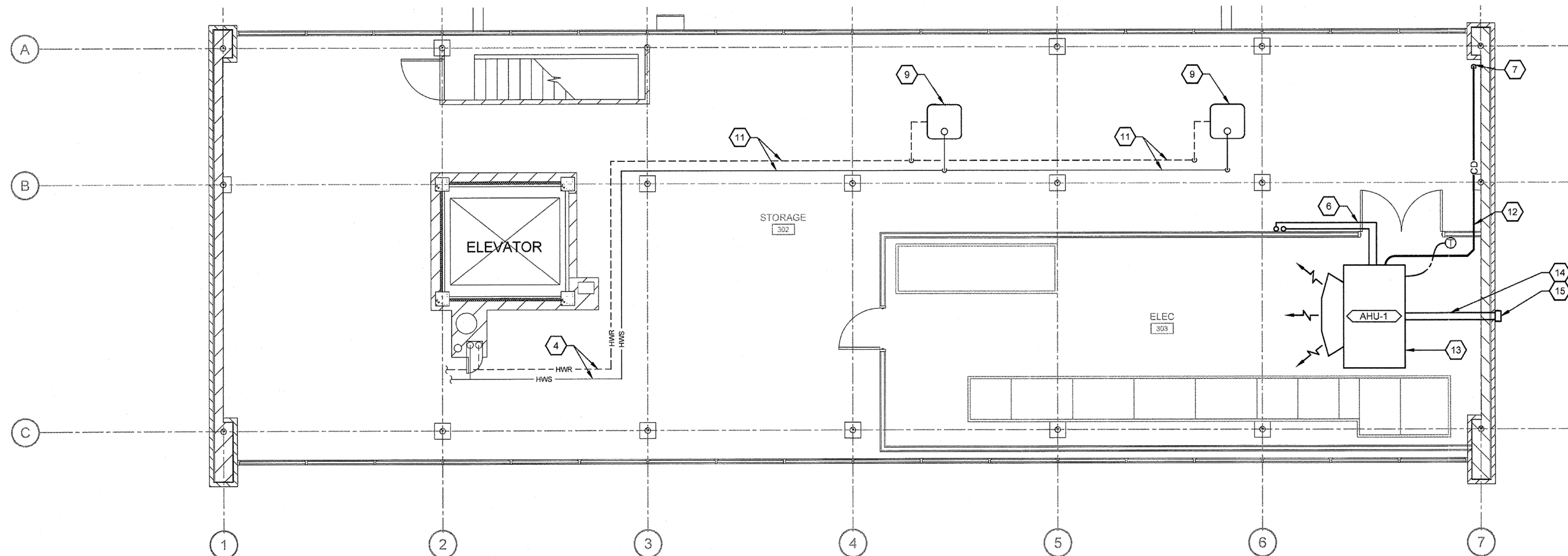
**ALTERNATE NO. 3**

THIS CONTRACTOR SHALL PROVIDE ROOF CURBS AS DESCRIBED BY NOTES 8 AND 10 ABOVE COMPLETE. WITH ROOF PENETRATIONS AND FLASHING INTO ROOFING REGARDLESS OF WHETHER THE ALTERNATE IS ACCEPTED OR NOT.



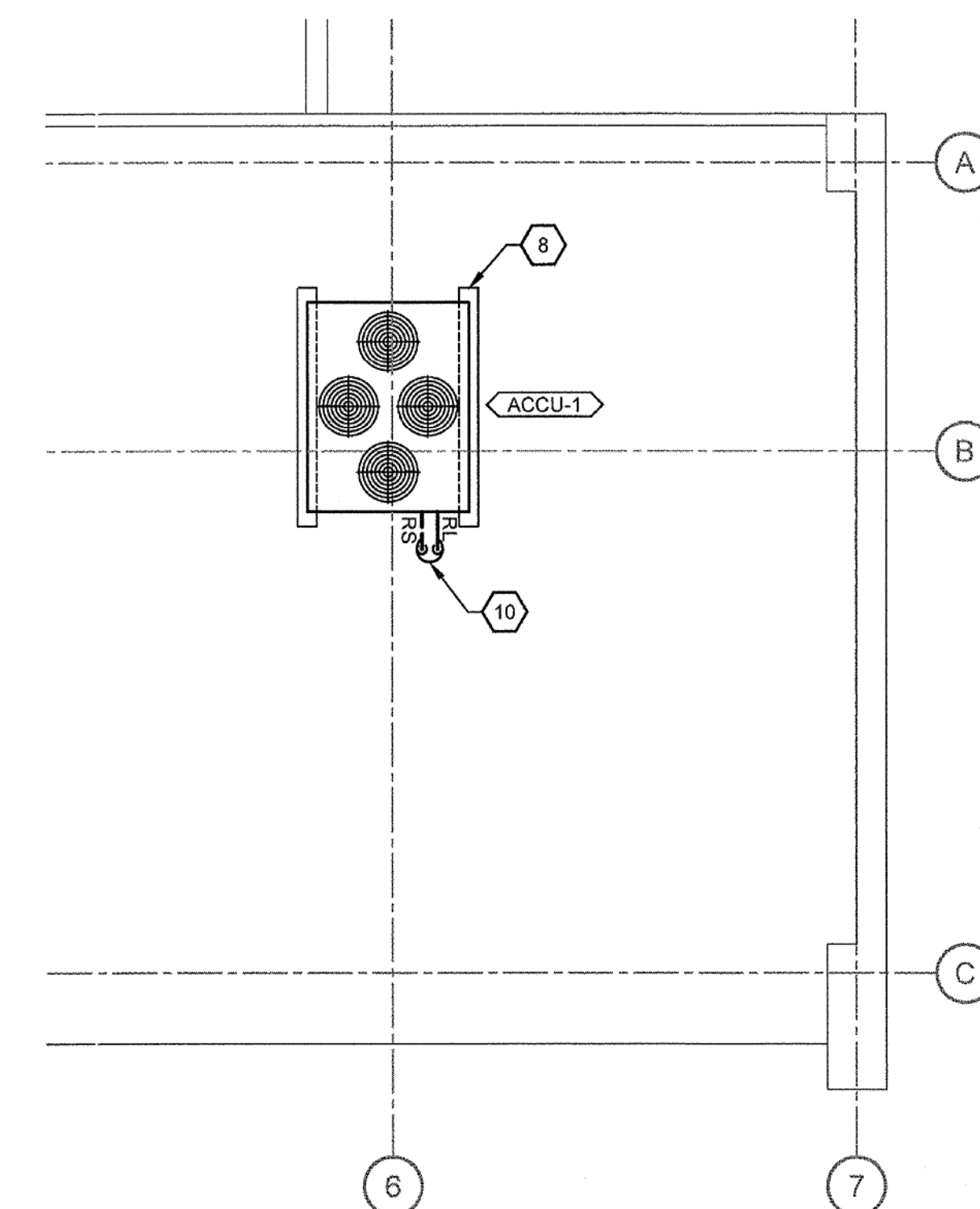
**1** FILTER BUILDING THIRD FLOOR  
HVAC DEMOLITION AT EL. 545.00

SCALE: 3/16"=1'-0"



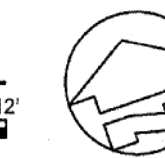
**2** FILTER BUILDING THIRD FLOOR  
HVAC NEW WORK AT EL. 545.00

SCALE: 3/16"=1'-0"



**3** FILTER BUILDING PARTIAL ROOF PLAN  
HVAC NEW WORK AT EL. 555.00

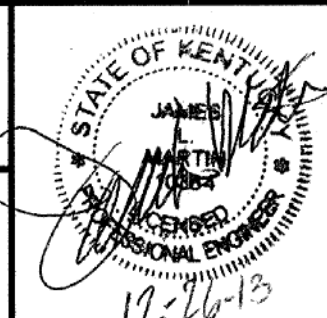
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User: \\p01\p01\Spec\PIRNE STANDARD File P\_024-13-01 NKWD TMTP IMPROVEMENTS\ACAD\H-01-002.DWG Scale: 1:24 SavedDate: 12/18/2013 Time: 16:48 Plot Date: Yury Rydyk: 12/18/2013 09:40 Layout: H-01-002

**MALCOLM PIRNIE**  
The Water Division of ARCADIS

**Magna**  
ENGINEERS



NO.		BY	DATE	REVISIONS	REMARKS

DES: JLM  
DWN: YNR  
CKD: JLM

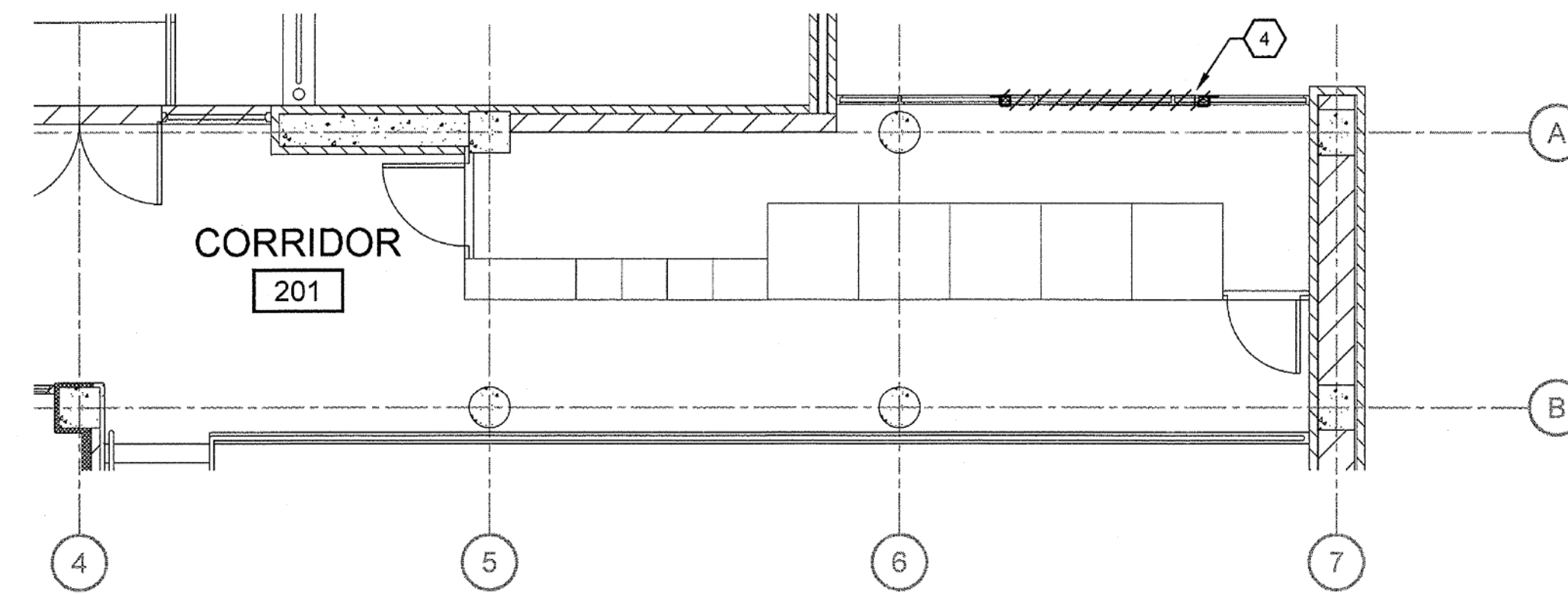
NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN  
IMPROVEMENTS**

HVAC  
**FILTER BUILDING THIRD FLOOR  
AND PARTIAL ROOF HVAC PLANS**  
SCALE: 3/16" = 1'-0"

ISSUED STATUS: BID SET  
DATE: JANUARY 2014  
SHEET: H-01-002  
CAD REF. NO.: H-01-002

**GENERAL NOTES:**

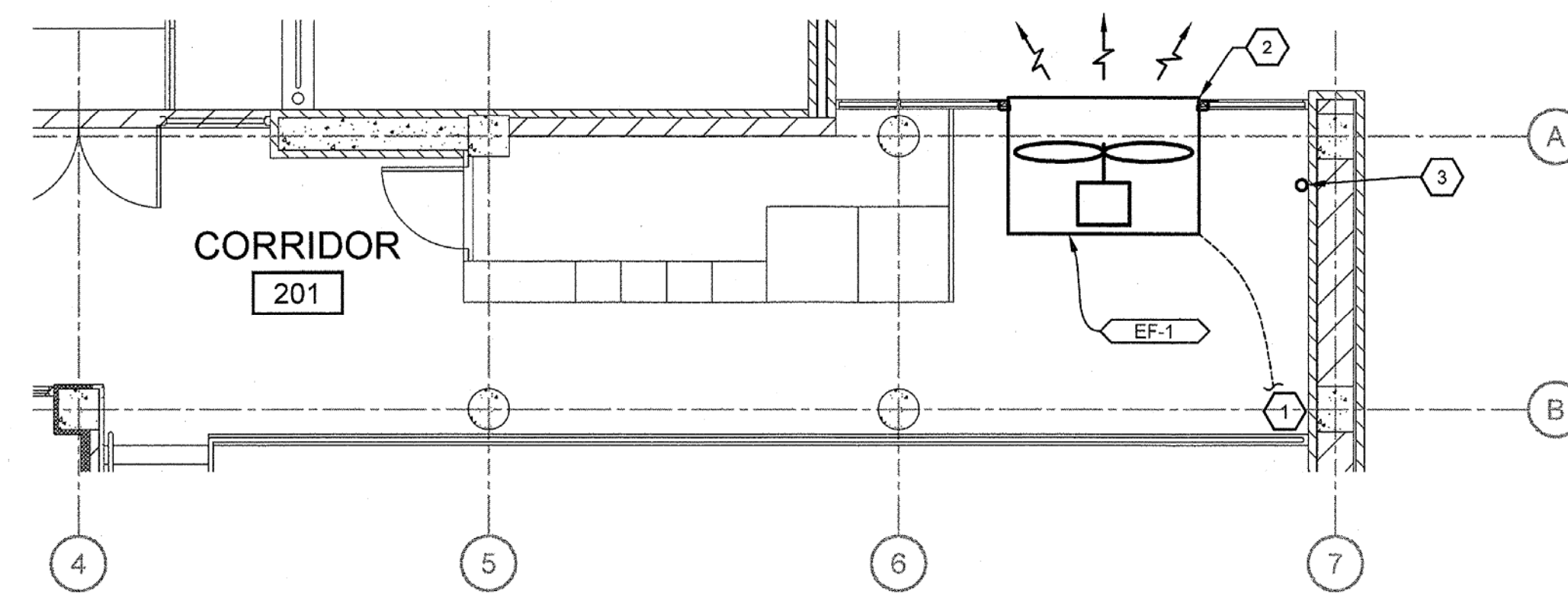
1. DEMOLISH, REMOVE, AND DISPOSE OF PANEL AND WINDOWS AND PREPARE FOR LOUVER AND EXHAUST FAN INSTALLATION.



**1** FILTER BUILDING MEZZANINE  
HVAC DEMOLITION AT EL. 545.00  
SCALE: 3/16"=1'-0"

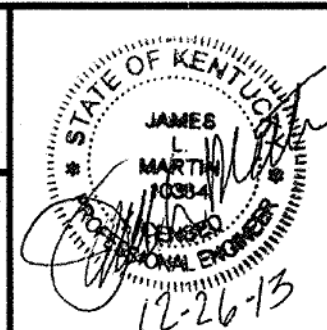
**SHEET KEYNOTES:**

1. TIE IN TO LOUVER ACTUATORS AND THERMOSTAT BELOW.
2. PROVIDE BRACING PER ARCHITECTURAL DRAWING A-01-006.
3. 1-1/2" CONDENSATE PIPING UP & DOWN.
4. SECTION OF WINDOW SHALL BE REMOVED, PER ARCHITECTURAL DRAWINGS, AND PREPARED FOR INSTALLATION OF NEW EXHAUST FAN.



**2** FILTER BUILDING MEZZANINE  
HVAC NEW WORK AT EL. 535.00  
SCALE: 3/16"=1'-0"

User:#### Spec:PIRNE STANDARD File:P:\024-13-001 NKWD TMTF IMPROVEMENTS\SACAD\HVACH01-003.DWG Scale:1:24 SavedDate:11/17/2013 Time:07:43 Plot Date:Yury Raikj, 12/18/2013, 09:41; Layout:H-01-003



NO.		BY	DATE	REVISIONS	REMARKS

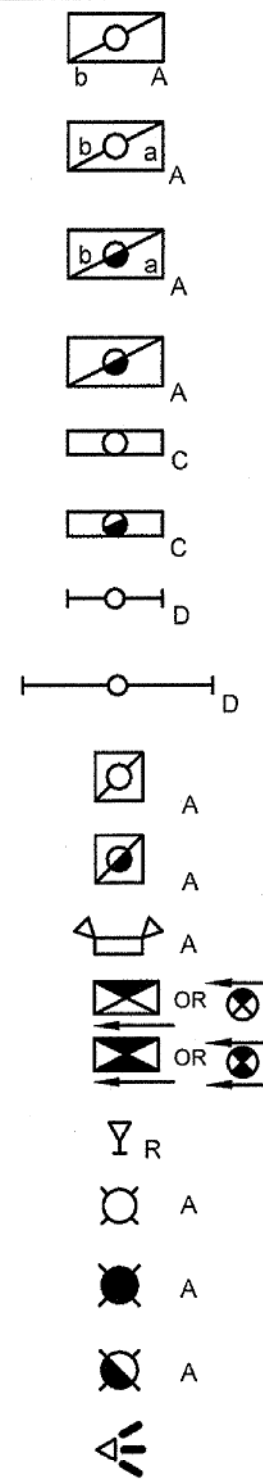
DES JLM  
DWN YNR  
CKD JLM

NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

HVAC  
**FILTER BUILDING MEZZANINE  
HVAC PLANS AT EL. 535.00**  
SCALE: 3/16" = 1'-0"

ISSUED STATUS: BID SET  
DATE: JANUARY 2014  
SHEET: H-01-003  
CAD REF. NO.: H-01-003

**CEILING MOUNTED**



**INTERIOR LIGHTING**

TWO BY FOUR FOOT FLUORESCENT LIGHTING FIXTURE. A - INDICATES TYPE b - DENOTES SWITCH DESIGNATION

TWO BY FOUR FOOT FLUORESCENT LIGHTING FIXTURE WIRED FOR INDIVIDUAL SWITCHING OF INSIDE AND OUTSIDE LAMPS, LETTER INDICATES TYPE

EMERGENCY TWO BY FOUR FOOT FLUORESCENT LIGHTING FIXTURE WIRED FOR INDIVIDUAL SWITCHING OF INSIDE AND OUTSIDE LAMPS, LETTER INDICATES TYPE

EMERGENCY TWO BY FOUR FLUORESCENT LIGHTING FIXTURE, LETTER INDICATES TYPE

FLUORESCENT ONE BY FOUR LIGHTING FIXTURE, LETTER INDICATES TYPE

EMERGENCY ONE BY FOUR FLUORESCENT LIGHTING FIXTURE, LETTER INDICATES TYPE

STRIP FLUORESCENT LIGHTING FIXTURE, LETTER INDICATES TYPE

8" STRIP FLUORESCENT LIGHTING FIXTURE, LETTER INDICATES TYPE

TWO BY TWO FOOT FLUORESCENT LIGHTING FIXTURE, LETTER INDICATES TYPE

EMERGENCY TWO BY TWO FOOT FLUORESCENT LIGHTING FIXTURE LETTER INDICATES TYPE

EMERGENCY SELF CONTAINED LIGHTING UNIT WITH TWO LIGHT FIXTURE HEADS, LETTER INDICATES TYPE

EXIT LIGHT WITH ARROW, LETTER INDICATES TYPE X1 - SINGLE FACE X2 - DOUBLE FACE

EMERGENCY REMOTE HEAD

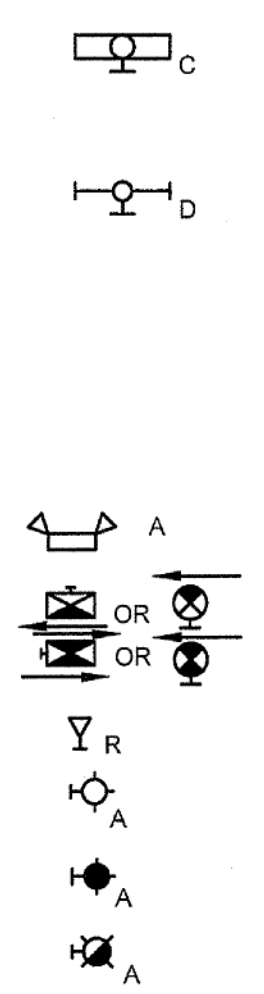
INCANDESCENT OR HID LIGHTING FIXTURE, LETTER INDICATES TYPE

EMERGENCY INCANDESCENT OR HID LIGHTING FIXTURE, LETTER INDICATES TYPE

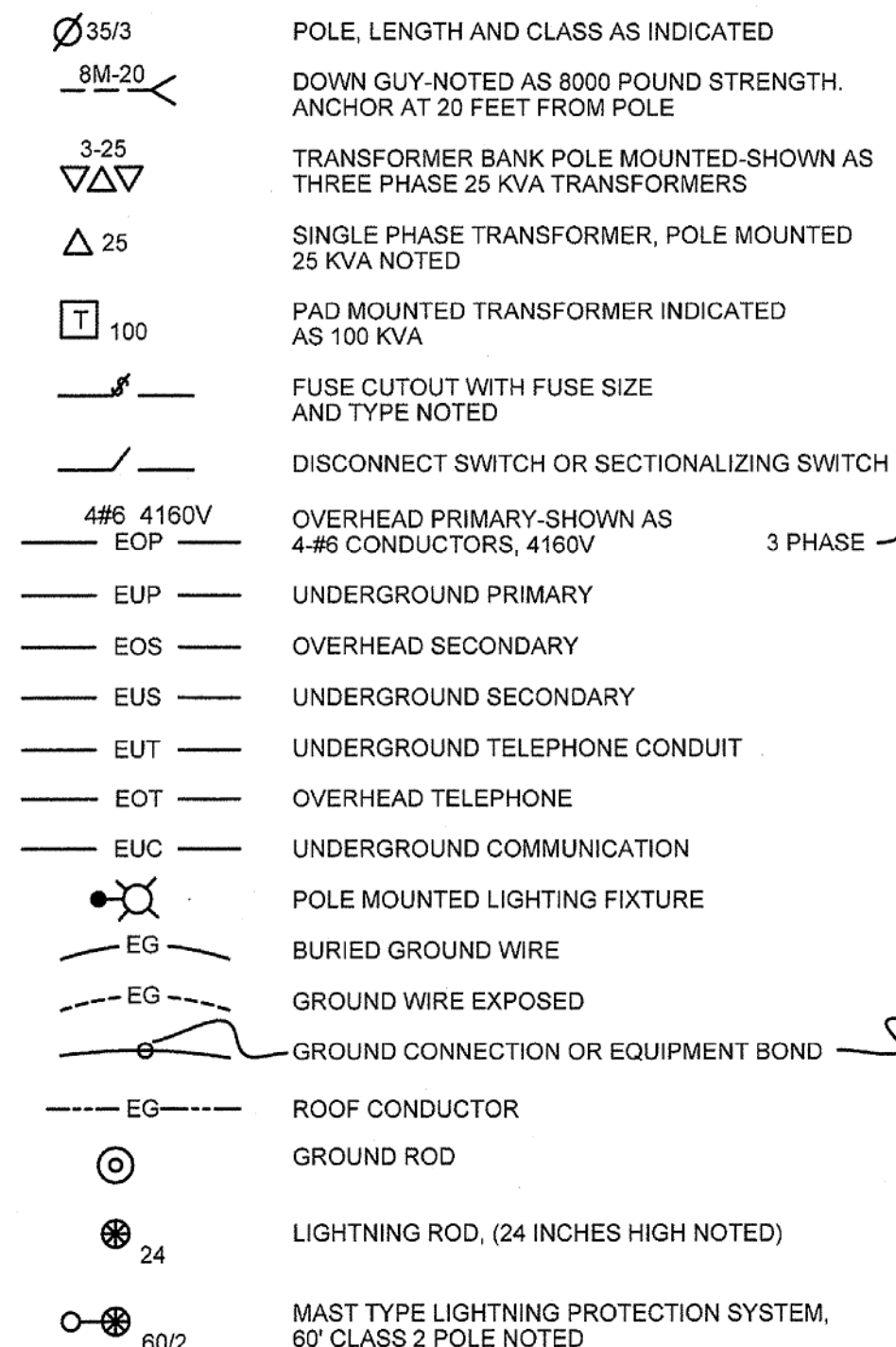
HID LIGHTING FIXTURE WITH QUARTZ RESTRIKE, LETTER INDICATES TYPE

FLOOD LIGHT

**WALL MOUNTED**

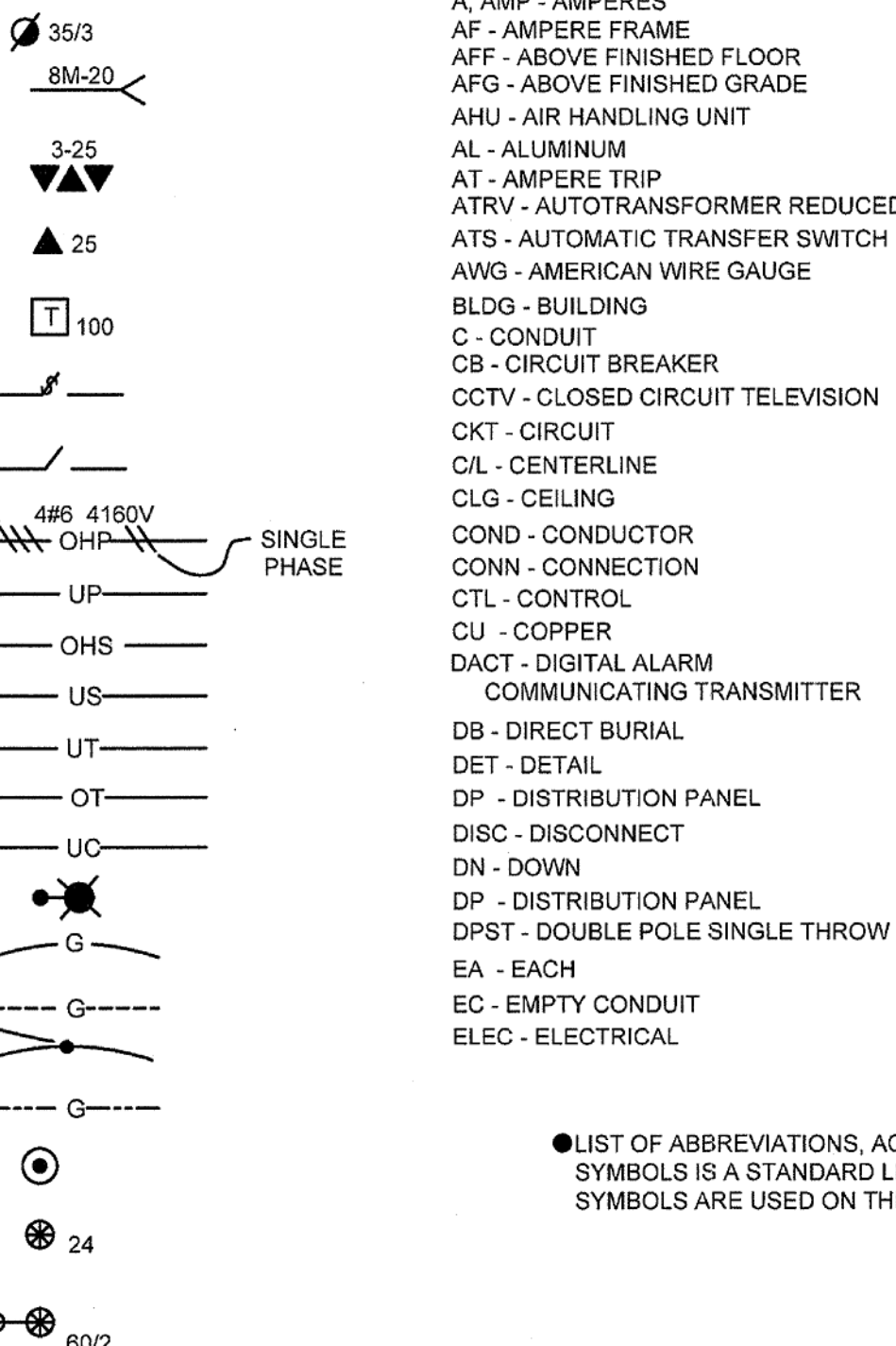


**EXISTING**



**ELECTRIC UTILITY SYMBOLS**

**NEW**



A - AMP - AMPERES  
 AF - AMPERE FRAME  
 AFF - ABOVE FINISHED FLOOR  
 AFG - ABOVE FINISHED GRADE  
 AHU - AIR HANDLING UNIT  
 AL - ALUMINUM  
 AT - AMPERE TRIP  
 ATRV - AUTOTRANSFORMER REDUCED VOLTAGE  
 ATS - AUTOMATIC TRANSFER SWITCH  
 AWG - AMERICAN WIRE GAUGE  
 BLDG - BUILDING  
 C - CONDUIT  
 CB - CIRCUIT BREAKER  
 CCTV - CLOSED CIRCUIT TELEVISION  
 CKT - CIRCUIT  
 C/L - CENTERLINE  
 CLG - CEILING  
 COND - CONDUCTOR  
 CONN - CONNECTION  
 CTL - CONTROL  
 CU - COPPER  
 DACT - DIGITAL ALARM COMMUNICATING TRANSMITTER  
 DB - DIRECT BURIAL  
 DET - DETAIL  
 DP - DISTRIBUTION PANEL  
 DISC - DISCONNECT  
 DN - DOWN  
 DP - DISTRIBUTION PANEL  
 DPST - DOUBLE POLE SINGLE THROW  
 EA - EACH  
 EC - EMPTY CONDUIT  
 ELEC - ELECTRICAL

**ABBREVIATIONS**

ELEV - ELEVATOR  
 EM, EMERG - EMERGENCY  
 EMT - ELECTRICAL METALLIC TUBING  
 EOL - END OF LINE  
 EUH - ELECTRIC UNIT HEATER  
 EWC - ELECTRIC WATER COOLER  
 EWH - ELECTRIC WATER HEATER  
 EX - EXISTING  
 F - FUSE  
 FLA - FULL LOAD AMPS  
 FLEX - FLEXIBLE  
 FLR - FLOOR  
 FLUOR - FLUORESCENT  
 FOR - FORWARD-OFF-REVERSE  
 FTG - FITTING  
 FVNR - FULL VOLTAGE NON-REVERSING  
 GALV - GALVANIZED  
 G, GND - GROUND  
 GFI - GROUND FAULT INTERRUPTING  
 HID - HIGH INTENSITY DISCHARGE  
 HP - HORSEPOWER  
 HT, H - HEIGHT  
 IGH - ISOLATED GROUND  
 IN - INCH  
 DP - DISTRIBUTION PANEL  
 DISC - DISCONNECT  
 DN - DOWN  
 DP - DISTRIBUTION PANEL  
 DPST - DOUBLE POLE SINGLE THROW  
 EA - EACH  
 EC - EMPTY CONDUIT  
 ELEC - ELECTRICAL

LA - LIGHTNING ARRESTER  
 LTG - LIGHTING  
 LV - LOW VOLTAGE  
 LVDT - LINEAR VARIABLE DIFFERENTIAL TRANSFORMER  
 MAU - MAKEUP AIR UNIT  
 MAX - MAXIMUM  
 MCB - MAIN CIRCUIT BREAKER  
 MCC - MOTOR CONTROL CENTER  
 MCP - MOTOR CIRCUIT PROTECTOR  
 MDP - MAIN DISTRIBUTION PANEL  
 MFR - MANUFACTURER  
 MG - MOTOR GENERATOR  
 MH - MANHOLE, METAL HALIDE, MOUNTING HEIGHT  
 MIC - MICROPHONE  
 MIN - MINIMUM  
 MLO - MAIN LUGS ONLY  
 MTD - MOUNTED  
 MV - MEDIUM VOLTAGE  
 N/A - NOT APPLICABLE  
 NEC - NATIONAL ELECTRICAL CODE  
 NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION  
 NESC - NATIONAL ELECTRICAL SAFETY CODE  
 NFPA - NATIONAL FIRE PROTECTION ASSOCIATION  
 NIC - NOT IN CONTRACT  
 NTS - NOT TO SCALE  
 NO - NORMALLY OPEN, NUMBER  
 OH - OVERHEAD  
 OL - OVERLOAD  
 P - POLE  
 PB - PULL BOX, PUSH BUTTON

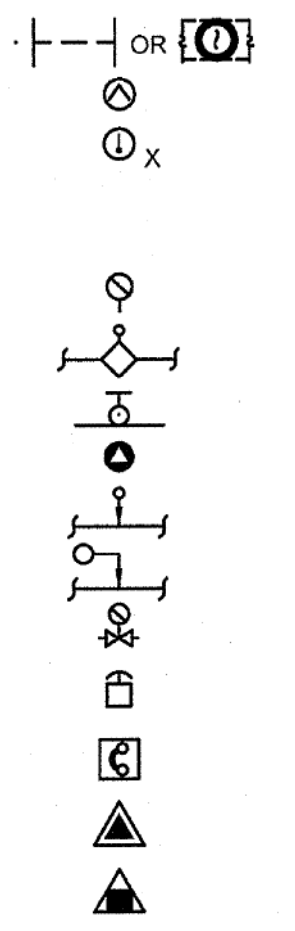
PNL - PANEL  
 POC - POINT OF CONNECTION  
 PS - PULL SWITCH OR PRESSURE SWITCH  
 PVM - PHASE-VOLT MONITOR  
 QTY - QUANTITY  
 REF - REFERENCE, REFER  
 RCPT - RECEPTACLE  
 RGS - RIGID GALVANIZED STEEL  
 SCH - SCHEDULE  
 SMR - SURFACE METAL RACEWAY  
 SN - SOLID NEUTRAL  
 SQ FT - SQUARE FOOT  
 SS - STAINLESS STEEL  
 STD - STANDARD  
 STP - SHIELDED TWISTED PAIR  
 SW - SWITCH  
 SYS - SYSTEM  
 TEL - TELEPHONE  
 TM - THERMAL MAGNETIC  
 TV - TELEVISION  
 TVSS - TRANSIENT VOLTAGE SURGE SUPPRESSOR  
 TYP - TYPICAL  
 UG - UNDERGROUND  
 UH - UNIT HEATER  
 UTP - UNSHIELDED TWISTED PAIR  
 V - VOLTAGE  
 VFD - VARIABLE FREQUENCY DRIVE  
 W - WIRE  
 W - WITH  
 WO - WITH OUT  
 WP - WEATHERPROOF  
 WT - WEIGHT  
 XF - TRANSFORMER

● LIST OF ABBREVIATIONS, ACRONYMS, AND SYMBOLS IS A STANDARD LIST. NOT ALL SYMBOLS ARE USED ON THIS PROJECT.

● SYMBOLS USED BUT NOT LISTED HERE SHALL BE DEFINED ELSEWHERE IN THE BID DOCUMENTS. IF NOT, CONTACT THE ENGINEER FOR CLARIFICATION PRIOR TO BID OPENING.

Ⓜ KEY NOTE CALL OUT

**FIRE ALARM/SUPPRESSION SYSTEM DEVICES**



DUCT MOUNTED SMOKE DETECTOR

ULTRAVIOLET DETECTOR

HEAT DETECTOR, SUBSCRIPT DENOTES THE FOLLOWING  
 X= F-FIXED TEMPERATURE  
 R-RATE OF RISE  
 R/F-COMBINATION RATE OF RISE AND FIXED

TAMPER SWITCH CONNECTION

FLOW SWITCH CONNECTION

DOOR HOLDER

GAS DETECTOR

PRESSURE SWITCH

LEVEL SWITCH

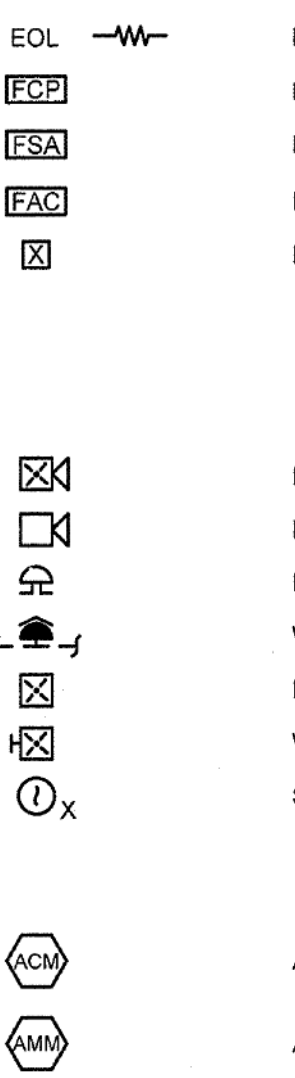
VALVE WITH TAMPER SWITCH

MUSHROOM HEAD EMERGENCY PUSHBUTTON SWITCH

FIREMANS TELEPHONE STATION

CQ FIRE EXTINGUISHER

DRY CHEMICAL FIRE EXTINGUISHER



EOL - END OF LINE RESISTOR

FACP - FIRE ALARM CONTROL PANEL

FASAP - FIRE ALARM ANNUNCIATOR PANEL

FACM - FIRE ALARM COMMUNICATOR

FAMS - FIRE ALARM MANUAL STATION  
 X= H- HALON  
 C- CARBON DIOXIDE  
 D- DRY CHEMICAL  
 F- FOAM  
 W- WET CHEMICAL  
 P- MANUAL PULL STATION

FASHS - FIRE ALARM SPEAKER-HORN-STROBE LIGHT

FASHS - FIRE ALARM HORN OR SPEAKER

FASBL - FIRE ALARM BELL/LIGHT

WMOG - WATER MOTOR GONG

FASSL - FIRE ALARM STROBE LIGHT

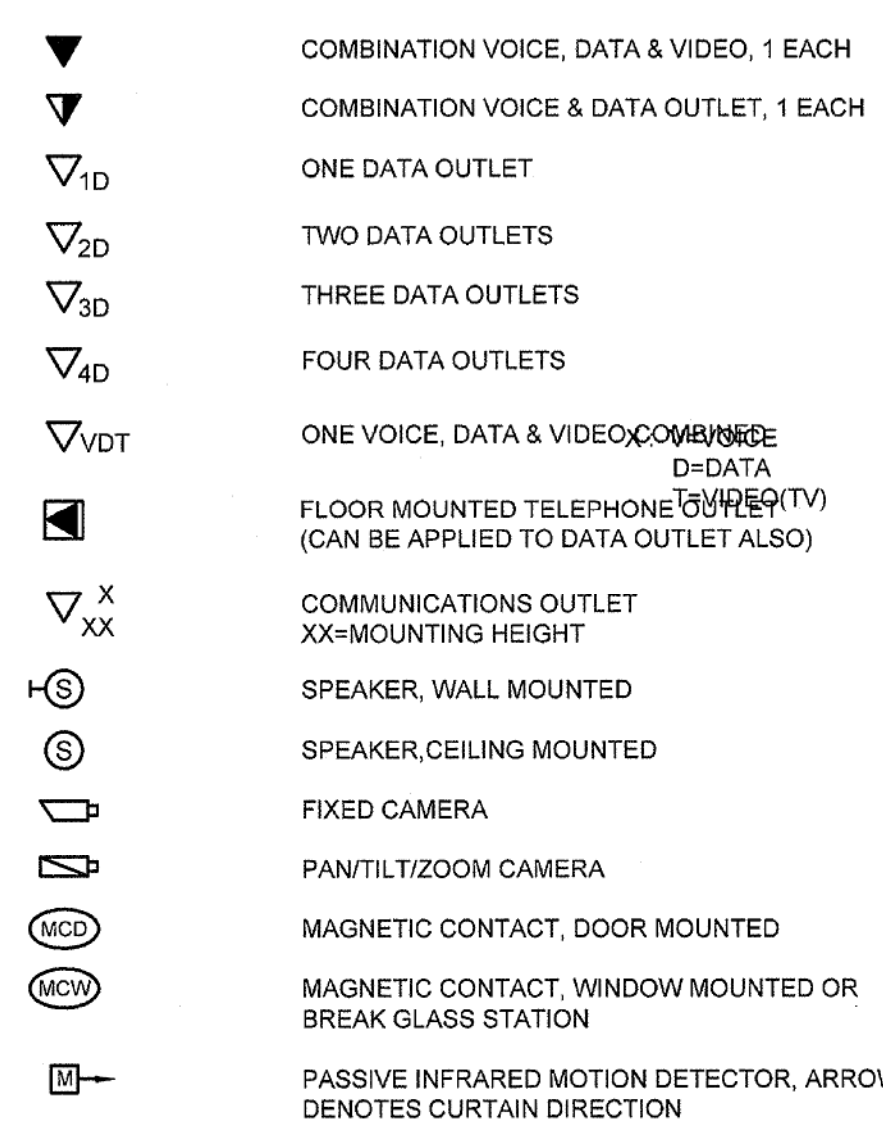
WMSL - WALL MOUNTED FIRE ALARM STROBE LIGHT

SMD - SMOKE DETECTOR  
 X= P- PHOTOELECTRIC  
 I- IONIZATION  
 BT- BEAM TRANSMITTER  
 BR- BEAM RECEIVER

ACM - ADDRESSABLE CONTROL MODULE

AMM - ADDRESSABLE MONITOR MODULE

**COMMUNICATION & SECURITY EQUIPMENT & DEVICES**



COMBINATION VOICE, DATA & VIDEO, 1 EACH

COMBINATION VOICE & DATA OUTLET, 1 EACH

ONE DATA OUTLET

TWO DATA OUTLETS

THREE DATA OUTLETS

FOUR DATA OUTLETS

ONE VOICE, DATA & VIDEO, COMBINATION

FLOOR MOUNTED TELEPHONE (TV) (CAN BE APPLIED TO DATA OUTLET ALSO)

COMMUNICATIONS OUTLET  
 XX=MOUNTING HEIGHT

SPEAKER, WALL MOUNTED

SPEAKER, CEILING MOUNTED

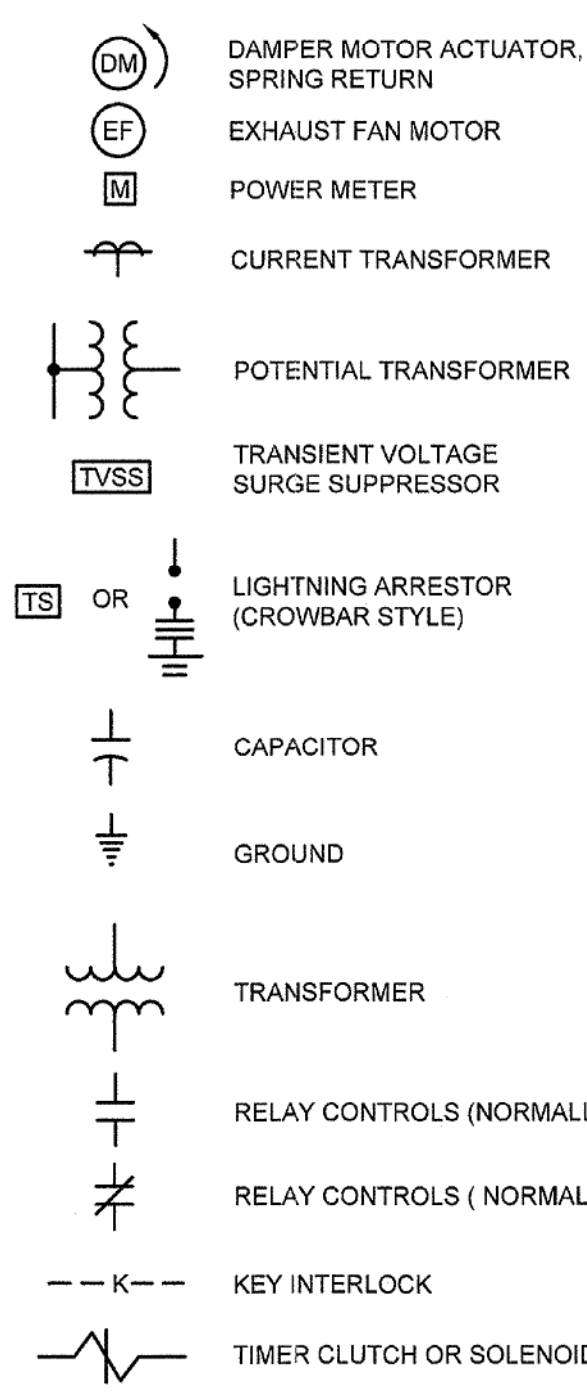
FIXED CAMERA

PAN/TILT/ZOOM CAMERA

MAGNETIC CONTACT, DOOR MOUNTED

MAGNETIC CONTACT, WINDOW MOUNTED OR BREAK GLASS STATION

PASSIVE INFRARED MOTION DETECTOR, ARROW DENOTES CURTAIN DIRECTION



DM - DAMPER MOTOR ACTUATOR, SPRING RETURN

EF - EXHAUST FAN MOTOR

PM - POWER METER

CT - CURRENT TRANSFORMER

PT - POTENTIAL TRANSFORMER

TVSS - TRANSIENT VOLTAGE SURGE SUPPRESSOR

LA - LIGHTNING ARRESTOR (CROWBAR STYLE)

CAP - CAPACITOR

GR - GROUND

TR - TRANSFORMER

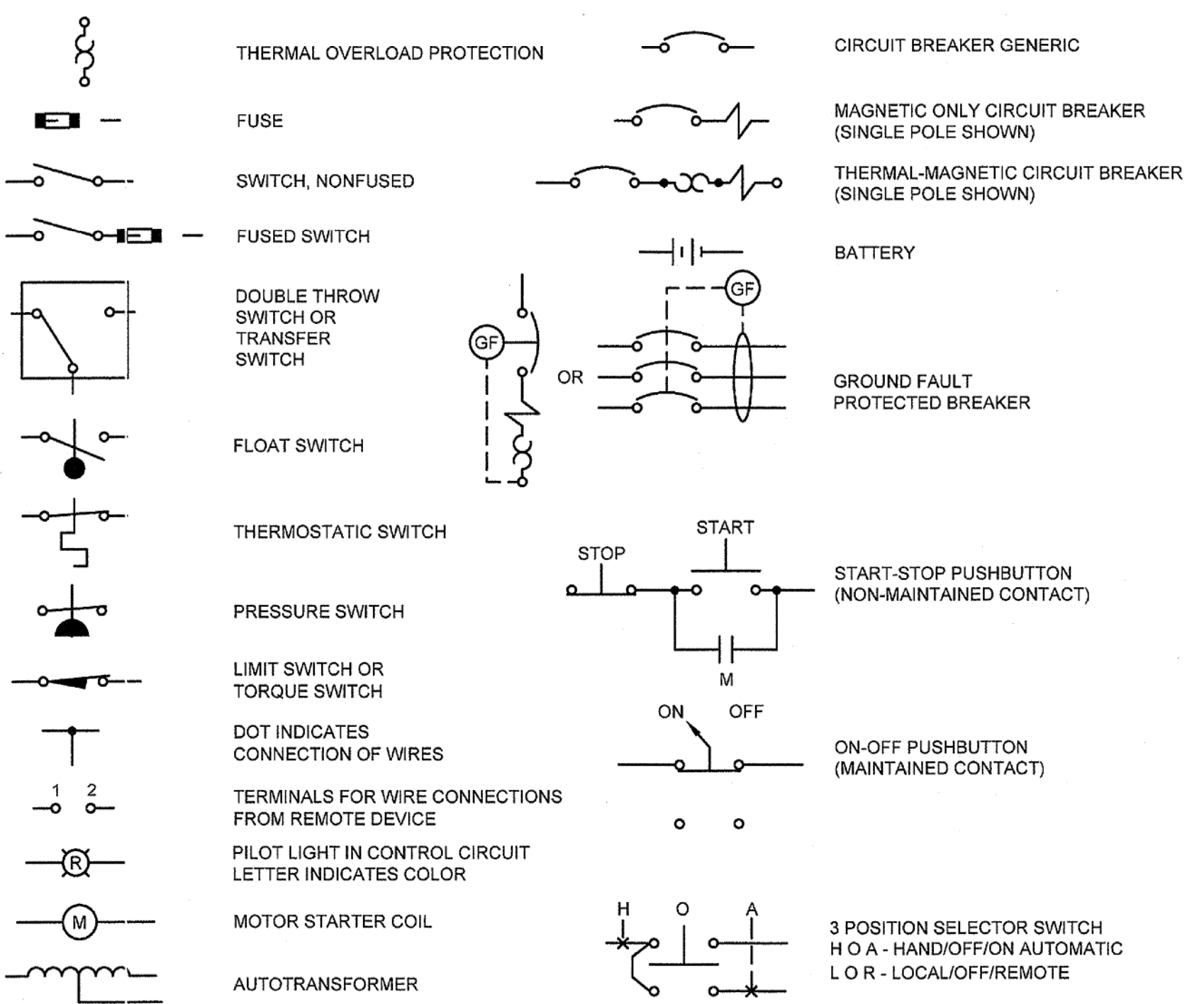
RC - RELAY CONTROLS (NORMALLY OPEN)

RC - RELAY CONTROLS (NORMALLY CLOSED)

K - KEY INTERLOCK

TC - TIMER CLUTCH OR SOLENOID

**CONTROLS**



THERMAL OVERLOAD PROTECTION

FUSE

SWITCH, NONFUSED

FUSED SWITCH

DOUBLE THROW SWITCH OR TRANSFER SWITCH

FLOAT SWITCH

THERMOSTATIC SWITCH

PRESSURE SWITCH

LIMIT SWITCH OR TORQUE SWITCH

DOT INDICATES CONNECTION OF WIRES

PILOT LIGHT IN CONTROL CIRCUIT LETTER INDICATES COLOR

MOTOR STARTER COIL

AUTOTRANSFORMER

CIRCUIT BREAKER GENERIC

MAGNETIC ONLY CIRCUIT BREAKER (SINGLE POLE SHOWN)

THERMAL-MAGNETIC CIRCUIT BREAKER (SINGLE POLE SHOWN)

BATTERY

GROUND FAULT PROTECTED BREAKER

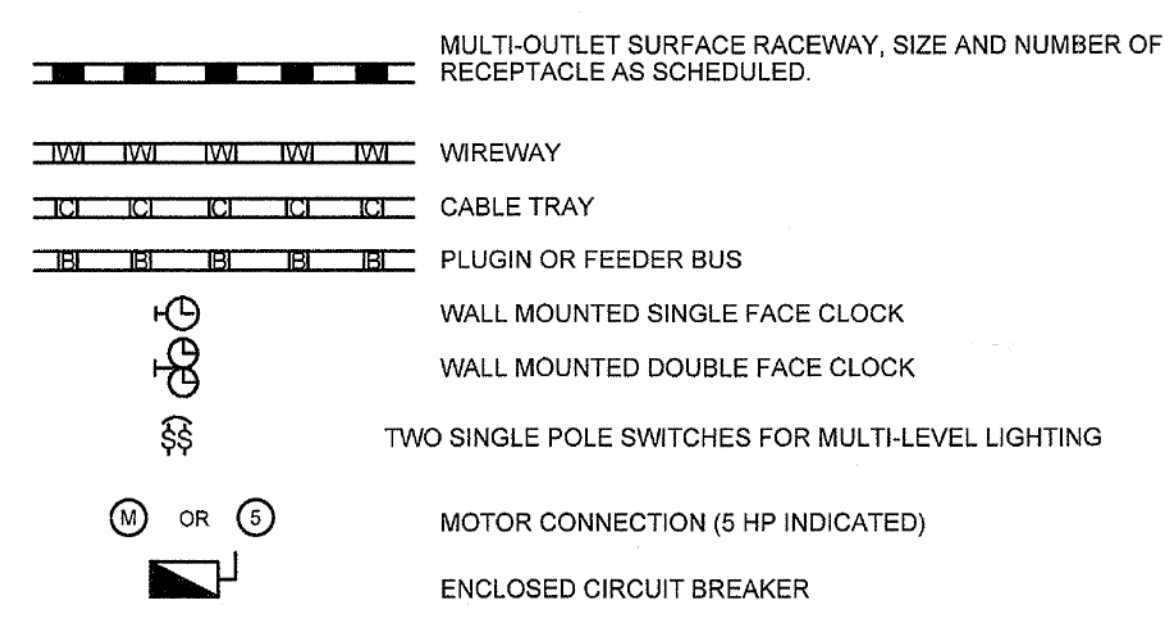
START-STOP PUSHBUTTON (NON-MAINTAINED CONTACT)

ON-OFF PUSHBUTTON (MAINTAINED CONTACT)

ON-OFF PUSHBUTTON (MAINTAINED CONTACT)

3 POSITION SELECTOR SWITCH  
 H O A - HAND/OFF/ON AUTOMATIC  
 L O R - LOCAL/OFF/REMOTE

**POWER EQUIPMENT AND DEVICES**



MULTI-OUTLET SURFACE RACEWAY, SIZE AND NUMBER OF RECEPTACLE AS SCHEDULED.

WIREWAY

CABLE TRAY

PLUG-IN OR FEEDER BUS

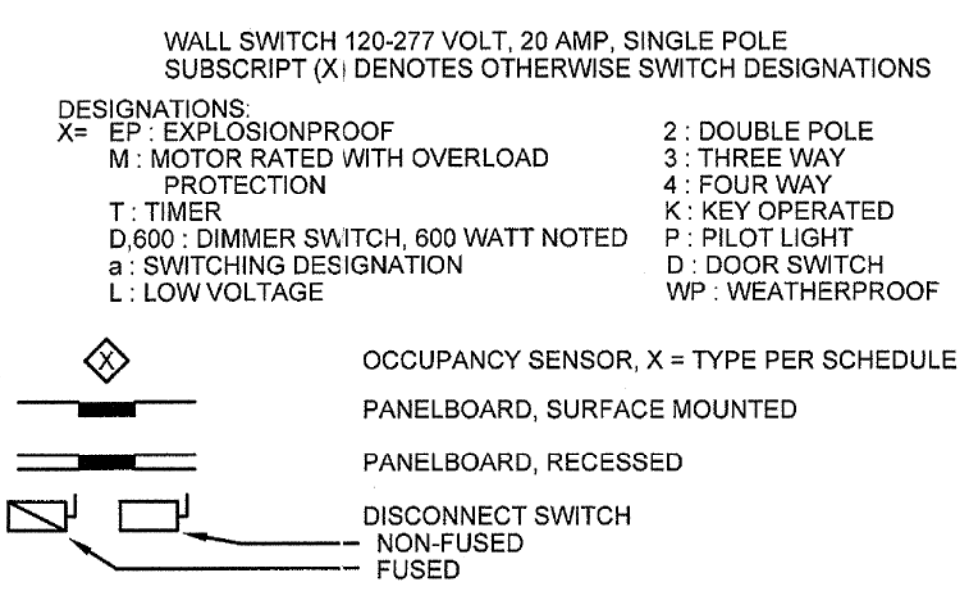
WALL MOUNTED SINGLE FACE CLOCK

WALL MOUNTED DOUBLE FACE CLOCK

TWO SINGLE POLE SWITCHES FOR MULTI-LEVEL LIGHTING

MOTOR CONNECTION (5 HP INDICATED)

ENCLOSED CIRCUIT BREAKER



WALL SWITCH 120-277 VOLT, 20 AMP, SINGLE POLE SUBSCRIPT (X) DENOTES OTHERWISE SWITCH DESIGNATIONS

DESIGNATIONS:  
 X= EP: EXPLOSIONPROOF  
 M: MOTOR RATED WITH OVERLOAD PROTECTION  
 T: TIMER  
 D: 600: DIMMER SWITCH, 600 WATT NOTED  
 a: SWITCHING DESIGNATION  
 L: LOW VOLTAGE

2: DOUBLE POLE  
 3: THREE WAY  
 4: FOUR WAY  
 K: KEY OPERATED  
 P: PILOT LIGHT  
 D: DOOR SWITCH  
 WP: WEATHERPROOF

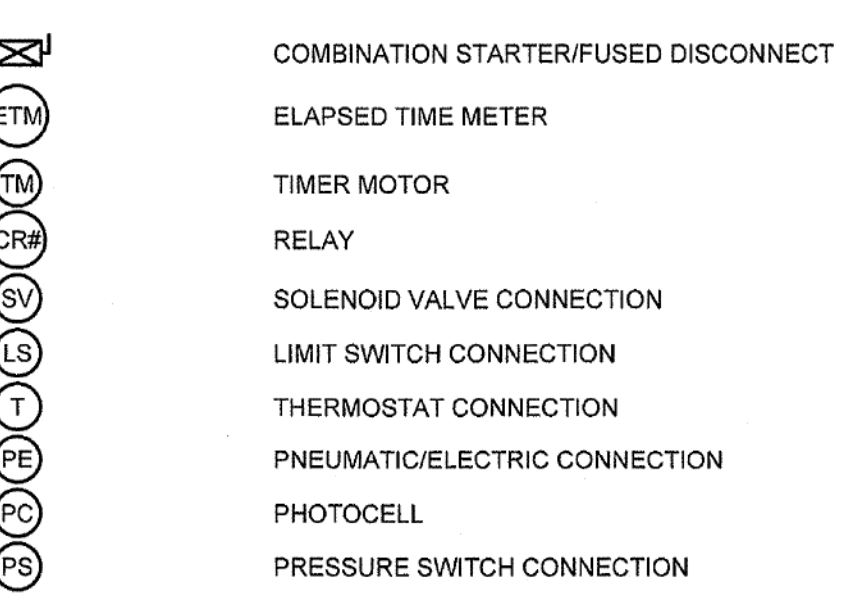
OCCUPANCY SENSOR, X = TYPE PER SCHEDULE

PANELBOARD, SURFACE MOUNTED

PANELBOARD, RECESSED

DISCONNECT SWITCH  
 - NON-FUSED  
 - FUSED

MOTOR STARTER



COMBINATION STARTER/FUSED DISCONNECT

ELAPSED TIME METER

TIMER MOTOR

RELAY

SOLENOID VALVE CONNECTION

LIMIT SWITCH CONNECTION

THERMOSTAT CONNECTION

PNEUMATIC/ELECTRIC CONNECTION

PHOTOCELL

PRESSURE SWITCH CONNECTION

User: Spec: PIRNIE STANDARD File: P:\024-13-001 NKWD TMTM IMPROVEMENTS\ACAD\ELECTRICAL\00-001.DWG Scale: 1:1 Saved: 7/10/2013 13:59 Plot Date: Yury Radik, 12/18/2013, 09:41 : Layout: E-00-001

**MALCOLM PIRNIE**  
 The Water Division of **ARCADIS**

**Magna ENGINEERS**

**T. Michelle Howlett**  
 LICENSED PROFESSIONAL ENGINEER  
 19856  
 12/26/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES: TMH  
 DWN: YNR  
 CKD: TMH

**NORTHERN KENTUCKY WATER DISTRICT**  
**TAYLOR MILL WATER TREATMENT PLANT**  
**ELECTRICAL AND BASIN IMPROVEMENTS**

**ELECTRICAL GENERAL SYMBOLS AND ABBREVIATIONS**  
 SCALE: NOT TO SCALE

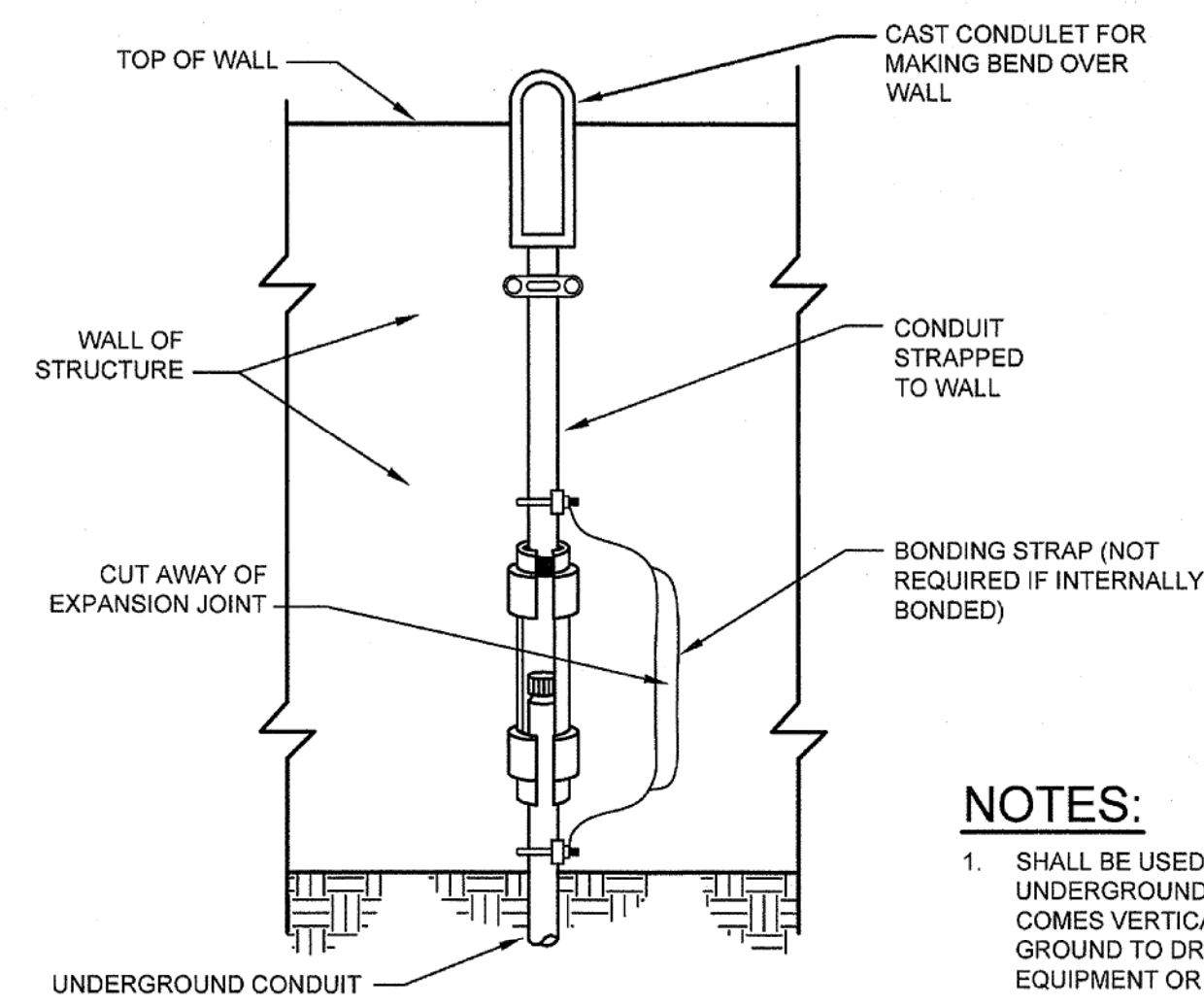
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DATE: JANUARY 2014

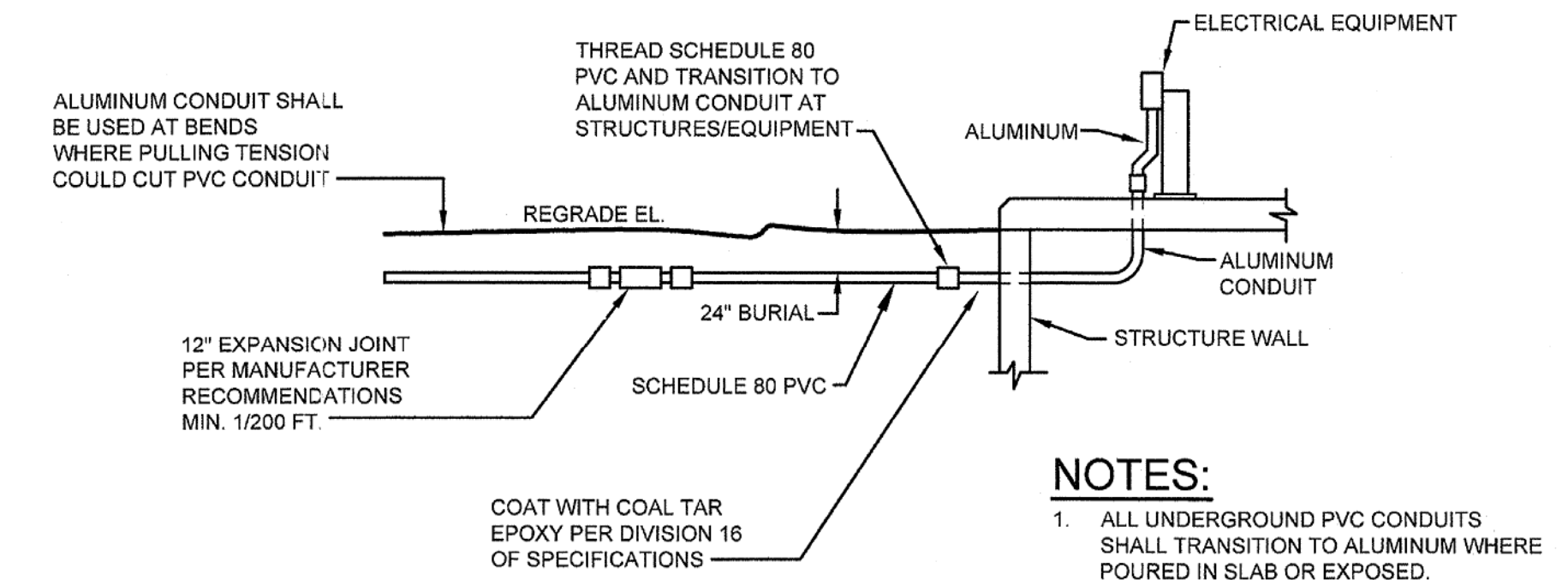
SHEET: E-00-001

CAD REF. NO.: E-00-001

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**1 CONDUIT EXPANSION JOINT DETAIL**  
NOT TO SCALE



**2 TYPICAL UNDERGROUND PVC CONDUIT TRANSITION TO ALUMINUM CONDUIT**  
NOT TO SCALE

PANEL SCHEDULE	LPHV2	VOLTAGE	480/277V, 3-PHASE, 4-WIRE
LOCATION	3RD FLOOR	MAINS AMPACITY	125A
SURFACE, FLUSH, OR MCC	SURFACE	MAIN CB SIZE	MLO
AIC RATING	25000	TOTAL SPACES	30
ENCLOSURE	NEMA 1	NEUTRAL BUS	100%

DESCRIPTION	VA	#P	BKR	FEEDER	NO	-A-VA	-B-VA	-C-VA	NO.	FEEDER	BKR	#P	VA	DESCRIPTION
AHU-1	11000	3	50A		1	20050			2		50A	3	9050	ACCU-1*
	11000				3		20050		4				9050	
	11000				5			20050	6				9050	
EF-1	5800	3	45A		7	10800			8	4#10, 3/4\"C	30A	3	5000	PUMP NO. 5 VFD
	5800				9		10800		10				5000	(PART OF
	5800				11			10800	12				5000	ALTERNATIVE NO. 3)
					13	5000			14	4#10, 3/4\"C	30A	3	5000	PUMP NO. 6 VFD
					15		5000		16				5000	(PART OF
					17			5000	18				5000	ALTERNATIVE NO. 3)
					19	0			20					
					21		0		22					
					23			0	24					
					25	0			26					
					27			0	28					
					29				30					
TOTAL VOLT-AMPERES PER PHASE						26800	26800	26800						
TOTAL AMPERES PER PHASE						96.8	96.8	96.8						

\*LOAD NOT INCLUDED IN TOTAL

TAG	DESCRIPTION	LAMPS	MANUFACTURER	MODEL NO.	MOUNTING
LF-1	INDUSTRIAL LED	LED	LITHONIA	VAP-59LED--ASY-VAPPMPK	PENDANT @ 9' A.F.F.
LF-1A	INDUSTRIAL LED WITH EMERGENCY PACK	LED	LITHONIA	VAP-59LED--ASY-BSL722-VAPPMPK	PENDANT @ 9' A.F.F.
LF-X1	EXT LIGHT THERMOPLASTIC RED LETTERS UNIVERSAL ARROWS/MOUNTING	LED	LITHONIA	LCM S W 1 R 120/277 EL N SD	UNIVERSAL

**MALCOLM PIRNIE**  
The Water Division of ARCADIS

**Magna ENGINEERS**

STATE OF KENTUCKY  
MICHELLE HOWLETT  
19856  
LICENSED PROFESSIONAL ENGINEER

NO.		BY	DATE	REVISIONS	REMARKS

DES TMH  
DWN YNR  
CKD TMH

NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

**ELECTRICAL DETAILS AND SCHEDULES**  
SCALE: NOT TO SCALE

ISSUED STATUS:    BID SET  
DATE:    JANUARY 2014  
SHEET:    E-00-002  
CAD REF. NO.:    E-00-002

PRIMARY FROM DUKE ENERGY 69 KV

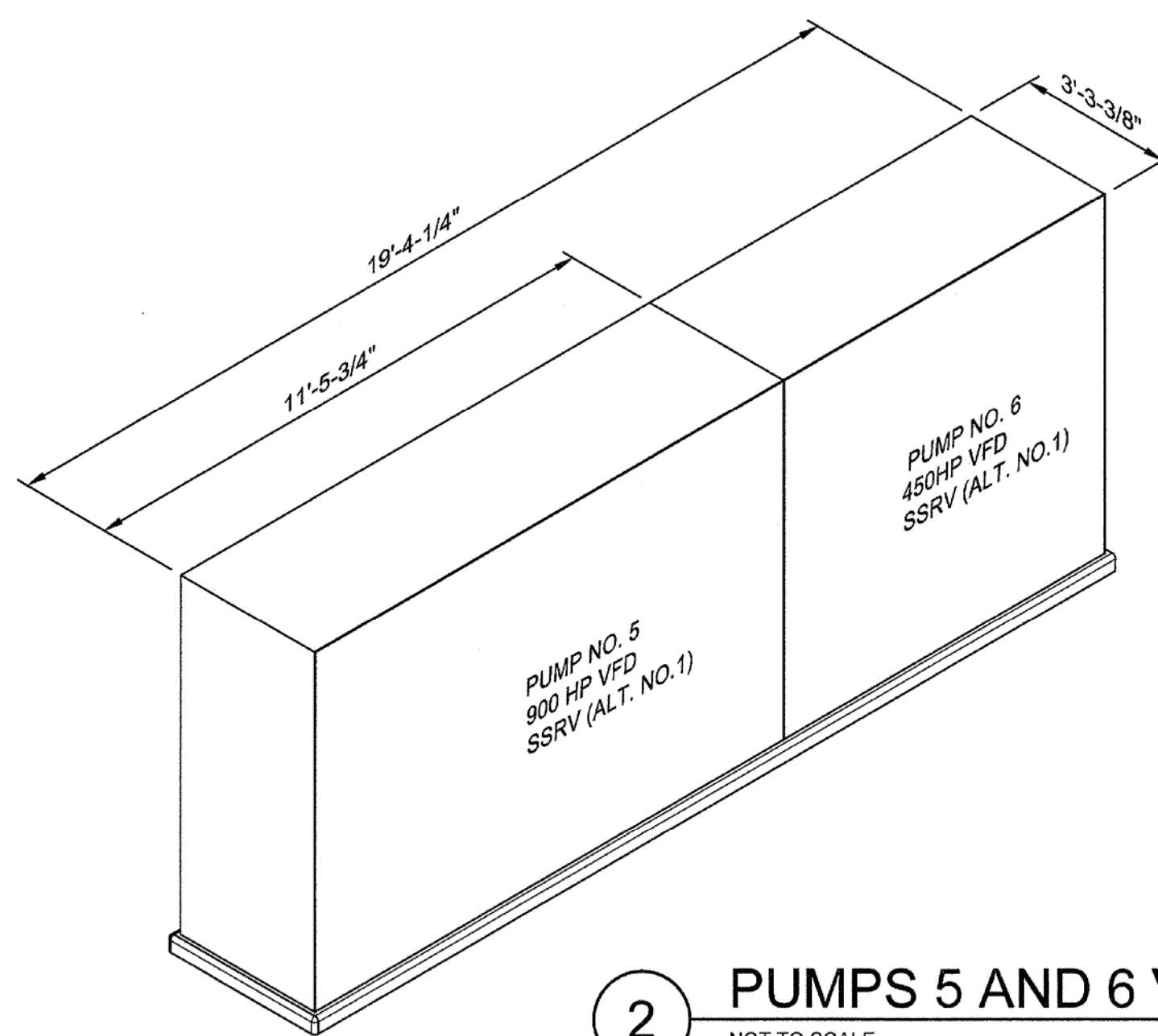
EXISTING GANG SWITCH 69 KV

EXISTING TRANSFORMER  
37.50 KVA  
69 KVX2400V

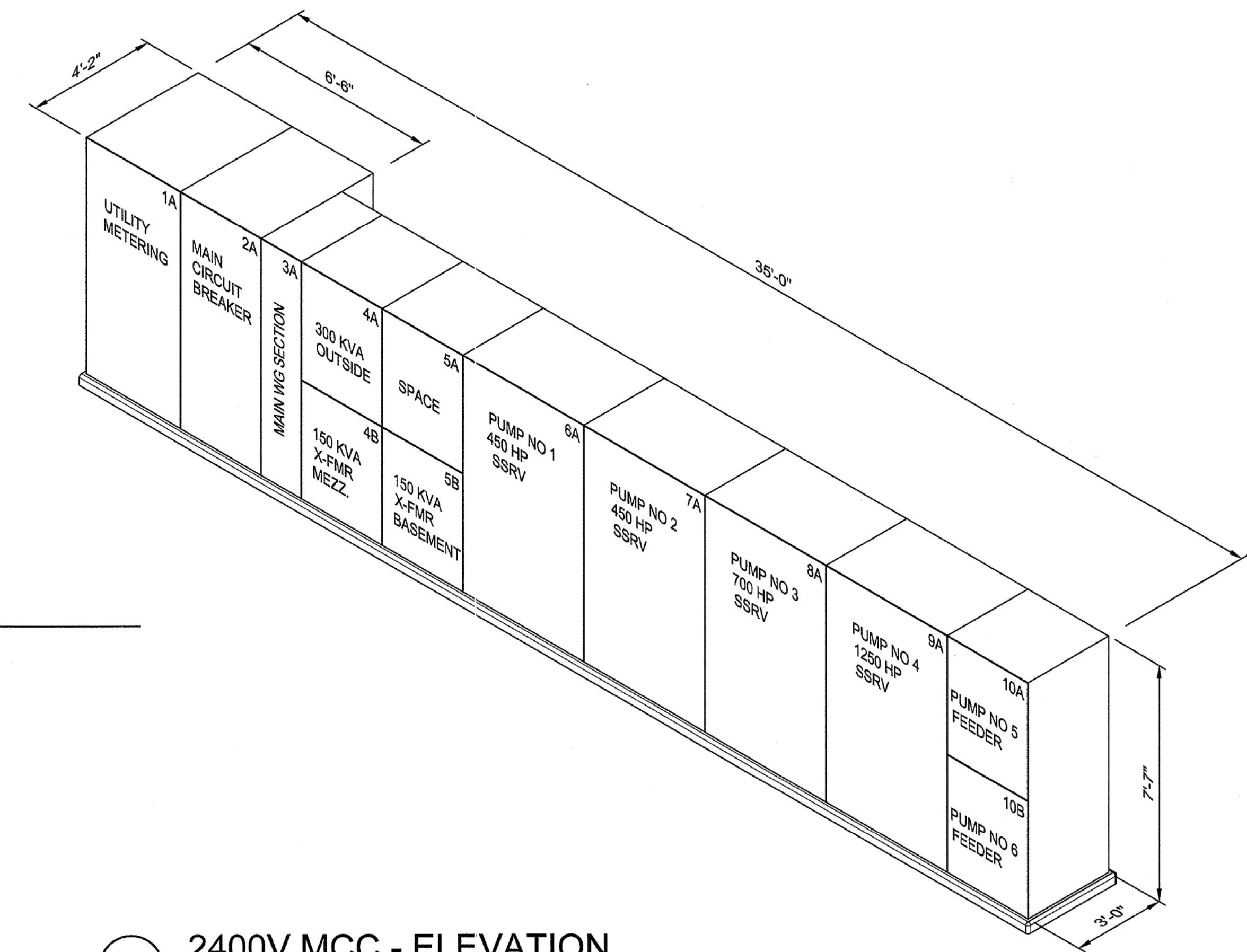


DELTA DELTA

5-5°C  
3-500 KCMIL  
5KV SHIELDED  
1-500 KCMIL  
GROUND  
IN EACH  
CONDUIT

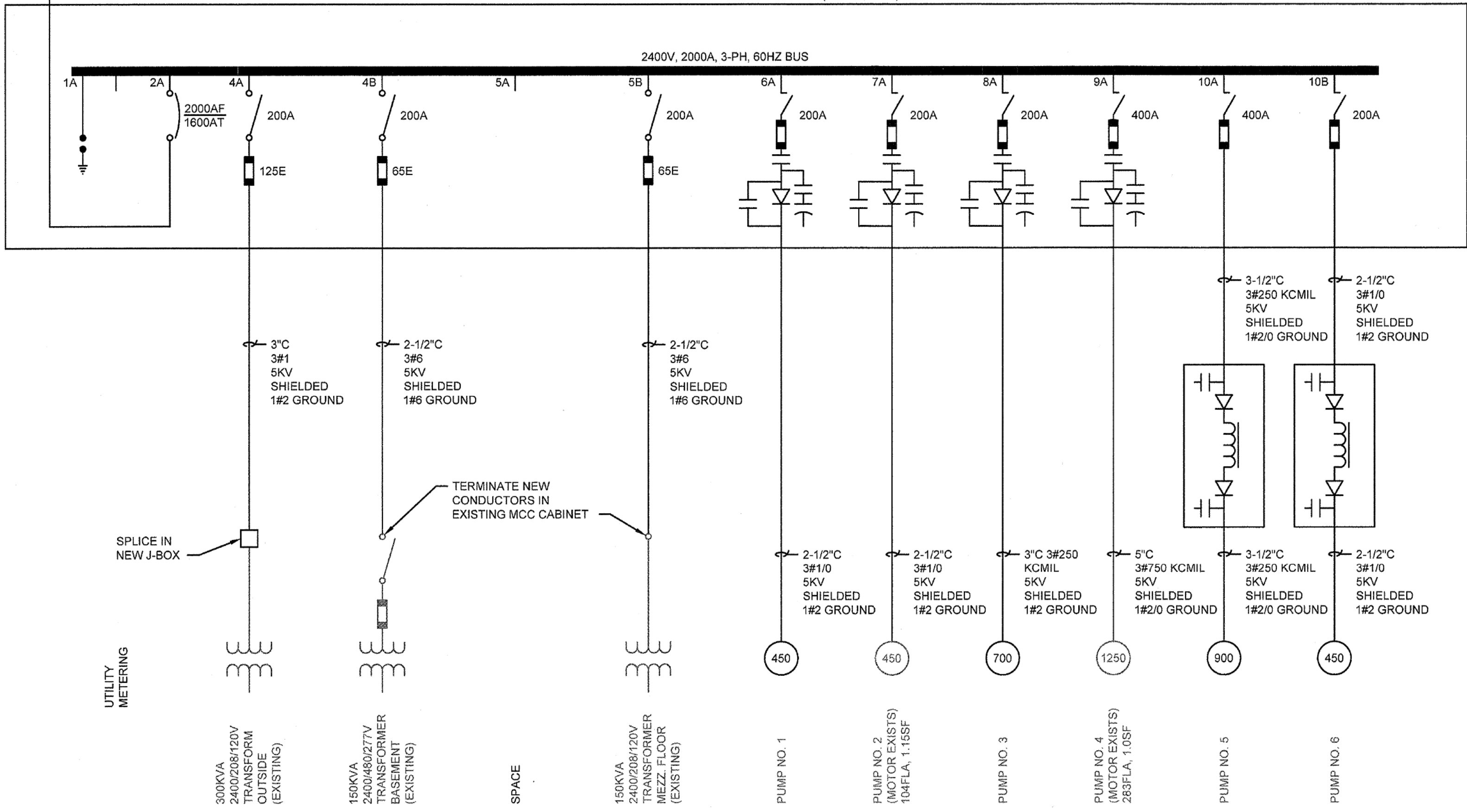


**2 PUMPS 5 AND 6 VFD ELEVATION**  
NOT TO SCALE



**1 2400V MCC - ELEVATION**  
NOT TO SCALE

2400V MCC IN FILTER BUILDING 3RD FLOOR (2400V - MCC)



- NOTES:
- EXISTING EQUIPMENT ON THIS SHEET IS SHOWN IN LIGHT PRINT. NEW WORK IS SHOWN IN HEAVY PRINT.
  - ALTERNATIVE NO. 1 SHALL INCLUDE SSRV'S FOR PUMPS 5 AND 6 IN LIEU OF VFD'S. SSRV'S IN ALTERNATIVE SHALL BE FURNISHED IN SEPARATE CABINETS, SIZED FOR VFD'S, AS SHOWN FOR BASE BID INSTALLATION.
  - SEE SECTION 012300 FOR A DESCRIPTION OF ALTERNATIVE NO.1

0 1/2 1  
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

**MALCOLM PIRNIE**  
The Water Division of ARCADIS

**Magna ENGINEERS**

**T. Michelle Howlett**  
12/26/13  
19856  
LICENSED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS

DES **TMH**  
DWN **YNR**  
CKD **TMH**

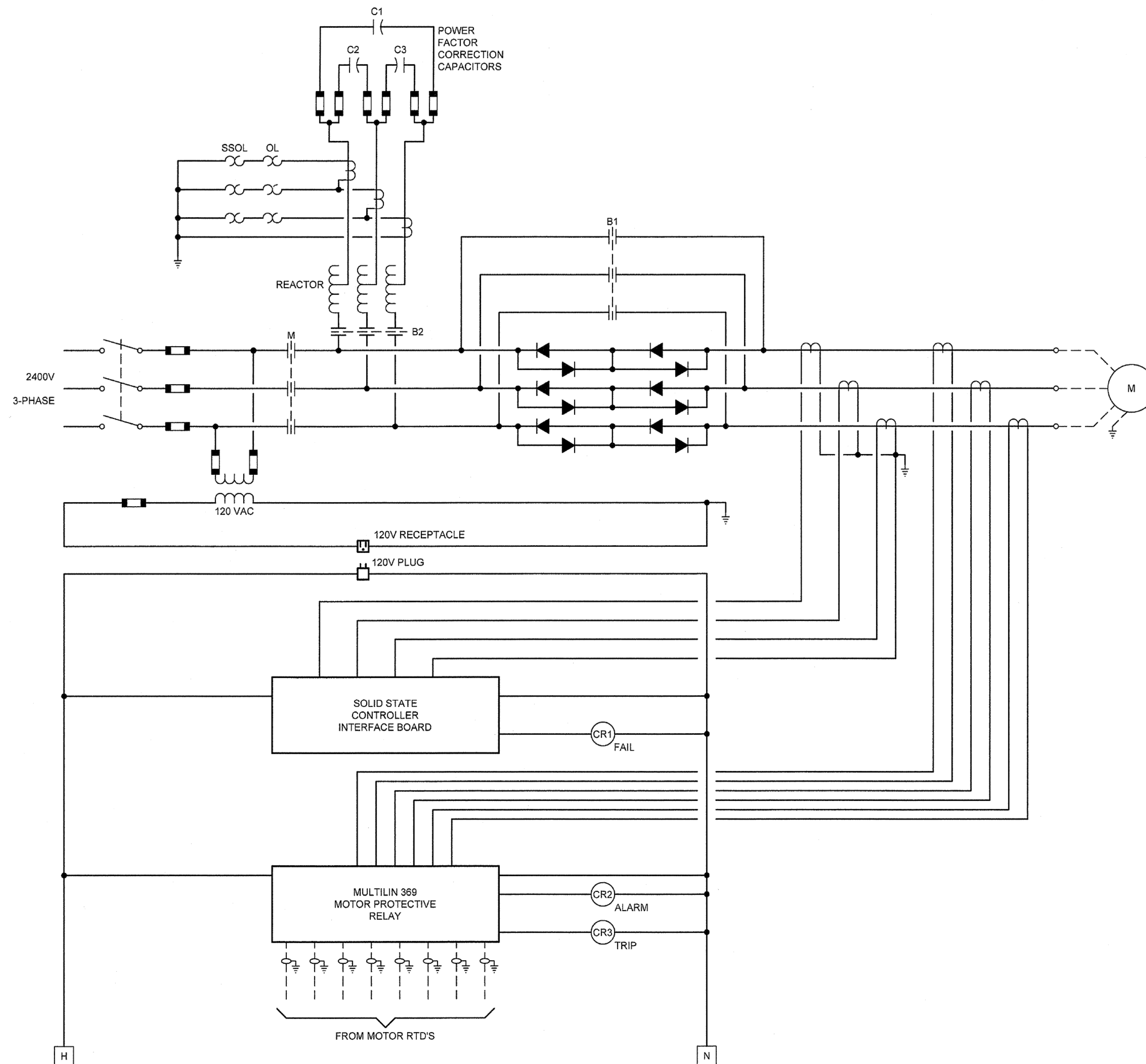
NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

**ELECTRICAL POWER SYSTEM ONE LINE DIAGRAM**  
SCALE: NOT TO SCALE

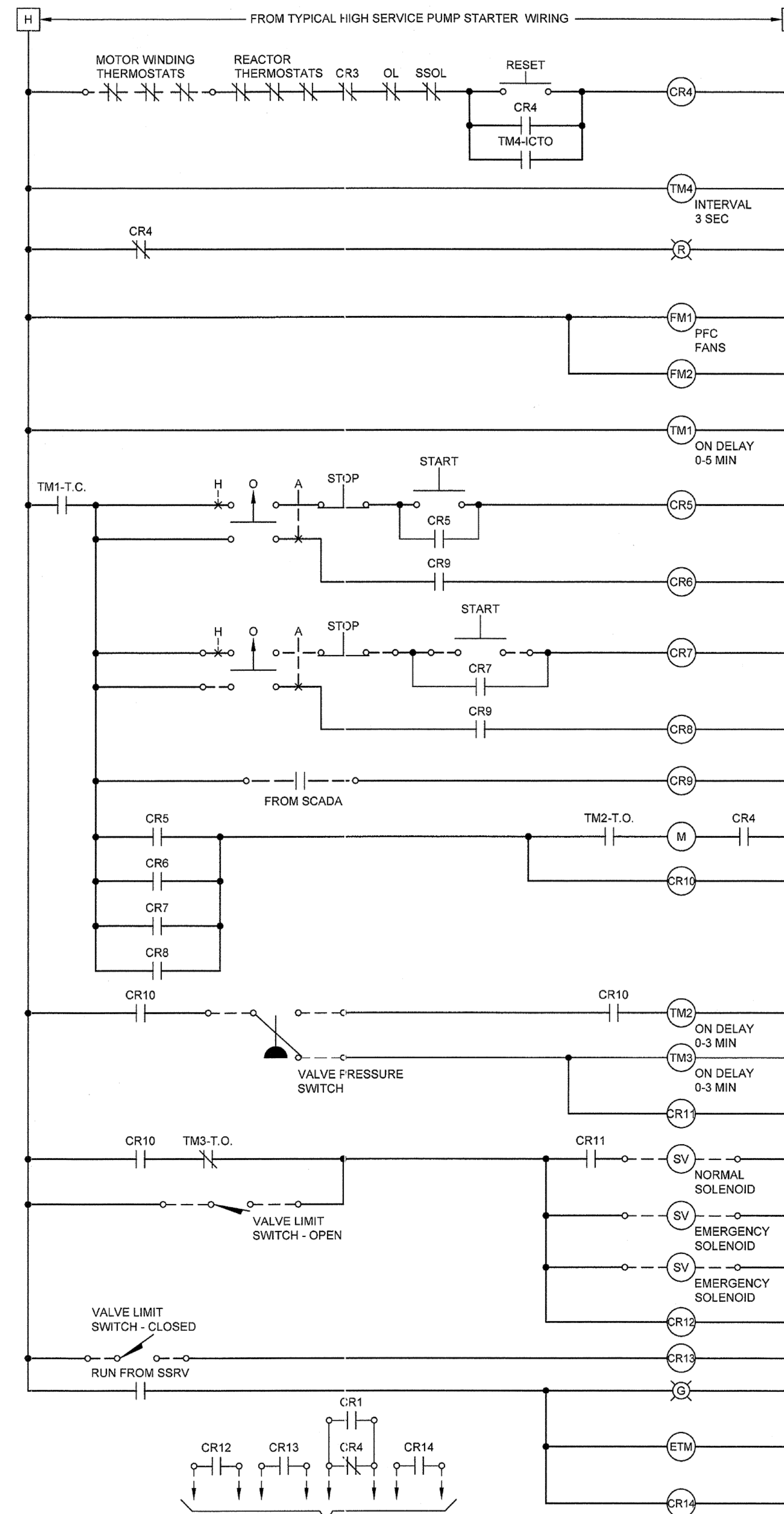
ISSUED STATUS: **BID SET**  
DATE: **JANUARY 2014**  
SHEET: **E-00-003**  
CAD REF. NO.: **E-00-003**

User:#### Spec:PIRNIE STANDARD File:P:\024-15-001 NKWD TMT IMPROVEMENTS\CAD\ELECTRICAL\E-00-003.DWG Scale:1:1 SavedDate:12/18/2013 Time:09:23 Plot Date: Yury Rasky, 12/18/2013, 09:43, LayoutE-00-003





GENERAL NOTES:  
 1. SEE SECTION 012300 FOR A DESCRIPTION OF ALTERNATIVE NO.1



**HIGH SERVICE PUMPS 1, 2, 3, 4**  
 4 SYSTEMS REQUIRED IN MCC

**HIGH SERVICE PUMPS 5 & 6 (ALT NO.1)**  
 2 SYSTEMS REQUIRED - NEMA 1 ENCLOSED

0 1/2 1  
 DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.



Professional Engineer  
 MICHELLE HOWLETT  
 19856  
 LICENSED PROFESSIONAL ENGINEER  
 12/26/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES TMH  
 DWN YNR  
 CKD TMH

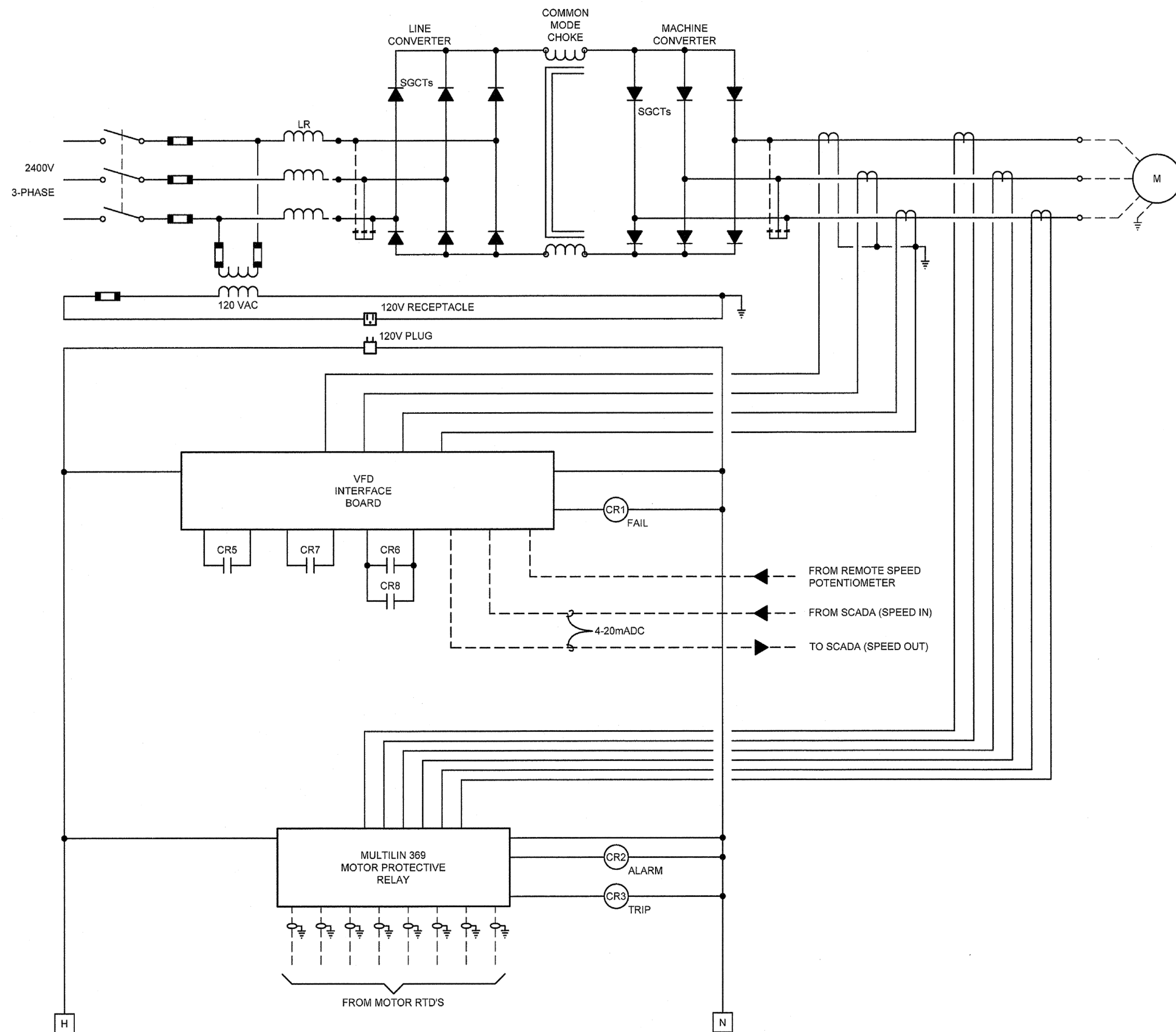
NORTHERN KENTUCKY WATER DISTRICT  
 TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

**ELECTRICAL HIGH SERVICE PUMP CONTROL CIRCUITS I**  
 SCALE: NOT TO SCALE

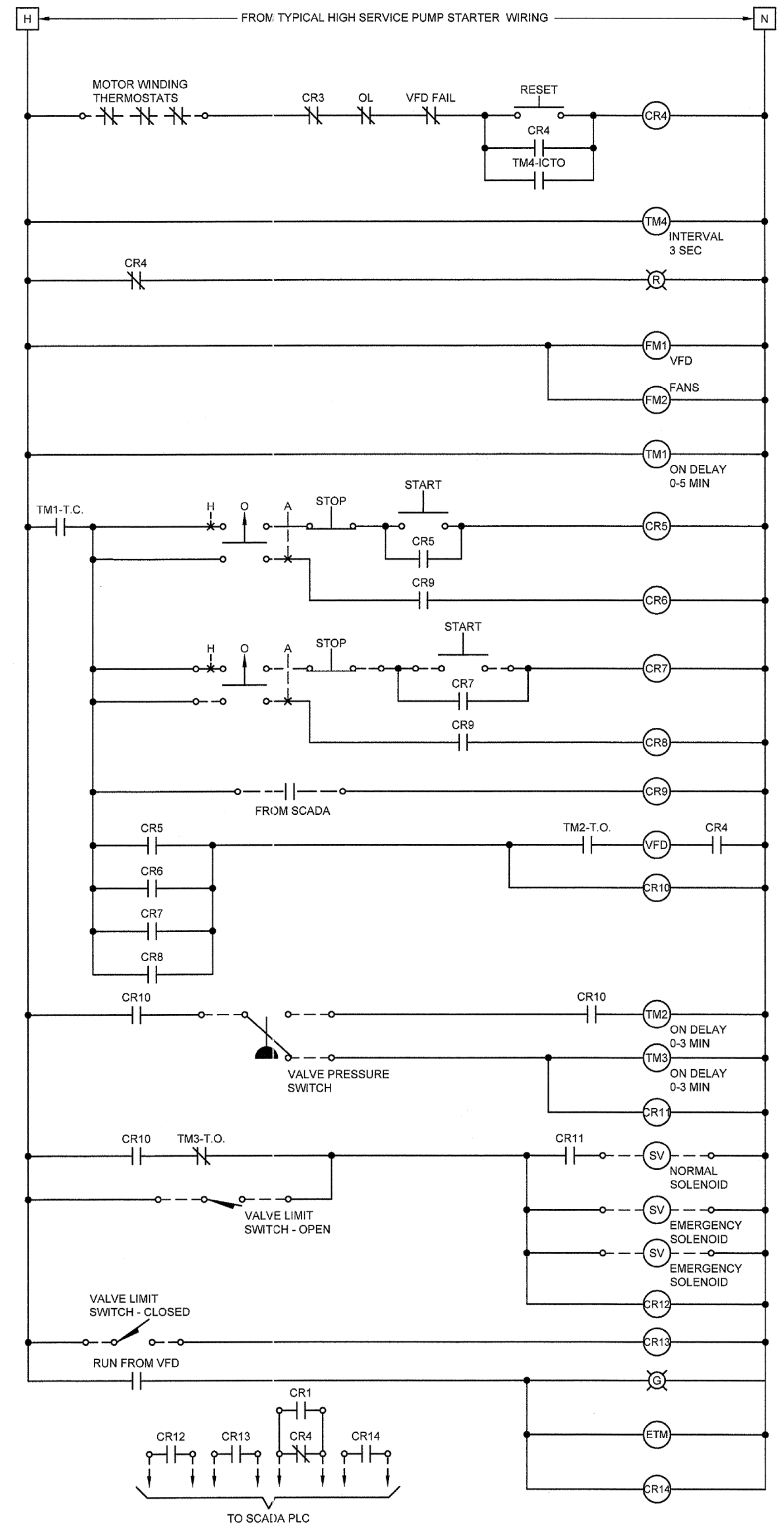
ISSUED STATUS: BID SET  
 DATE: JANUARY 2014  
 SHEET: E-00-004  
 CAD REF. NO.: E-00-004

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User: \\p1\p1\Spec\PIR\STANDARD\T1P IMPROVEMENTS\CAD\ELECTRICAL\E-00-005.DWG Scale: 1:1 SavedDate: 12/18/2013 11:06:09:24 Plot Date: Yury Raev, 12/18/2013 09:44 Layout: E-00-005



GENERAL NOTES:  
 1. WORK SHOWN ON THIS SHEET IS PART OF ALTERNATIVE NO.1  
 SEE SECTION 012300 FOR A DESCRIPTION OF ALTERNATIVE NO.1



**HIGH SERVICE PUMPS 5 AND 6**  
 2 SYSTEMS REQUIRED IN VFD'S

0 1/2 1  
 DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

**MALCOLM PIRNIE**  
 The Water Division of ARCADIS

**Magna ENGINEERS**  
 Electrical • Mechanical • Instrumentation

**ARCADIS**  
 MICHELLE HOWLETT  
 19866  
 LICENSED PROFESSIONAL ENGINEER  
 12/26/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES: TMH  
 DWN: YNR  
 CKD: TMH

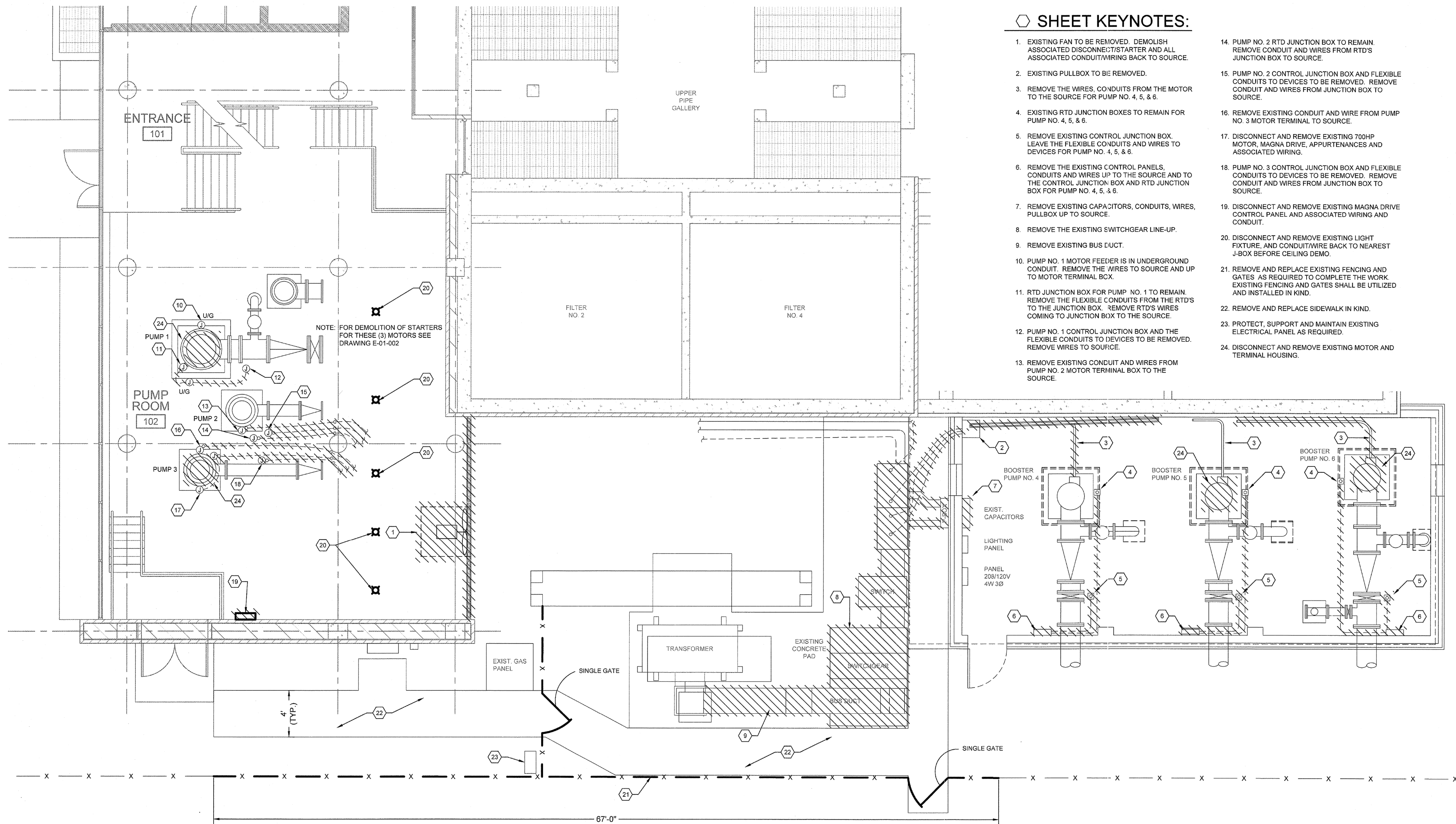
NORTHERN KENTUCKY WATER DISTRICT  
 TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

ELECTRICAL  
**HIGH SERVICE PUMP CONTROL CIRCUITS II**  
 SCALE: NOT TO SCALE

ISSUED STATUS: BID SET  
 DATE: JANUARY 2014  
 SHEET: E-00-005  
 CAD REF. NO.: E-00-005

**SHEET KEYNOTES:**

1. EXISTING FAN TO BE REMOVED. DEMOLISH ASSOCIATED DISCONNECT/STARTER AND ALL ASSOCIATED CONDUIT/WIRING BACK TO SOURCE.
2. EXISTING PULLBOX TO BE REMOVED.
3. REMOVE THE WIRES, CONDUITS FROM THE MOTOR TO THE SOURCE FOR PUMP NO. 4, 5, & 6.
4. EXISTING RTD JUNCTION BOXES TO REMAIN FOR PUMP NO. 4, 5, & 6.
5. REMOVE EXISTING CONTROL JUNCTION BOX. LEAVE THE FLEXIBLE CONDUITS AND WIRES TO DEVICES FOR PUMP NO. 4, 5, & 6.
6. REMOVE THE EXISTING CONTROL PANELS, CONDUITS AND WIRES UP TO THE SOURCE AND TO THE CONTROL JUNCTION BOX AND RTD JUNCTION BOX FOR PUMP NO. 4, 5, & 6.
7. REMOVE EXISTING CAPACITORS, CONDUITS, WIRES, PULLBOX UP TO SOURCE.
8. REMOVE THE EXISTING SWITCHGEAR LINE-UP.
9. REMOVE EXISTING BUS DUCT.
10. PUMP NO. 1 MOTOR FEEDER IS IN UNDERGROUND CONDUIT. REMOVE THE WIRES TO SOURCE AND UP TO MOTOR TERMINAL BCX.
11. RTD JUNCTION BOX FOR PUMP NO. 1 TO REMAIN. REMOVE THE FLEXIBLE CONDUITS FROM THE RTD'S TO THE JUNCTION BOX. REMOVE RTD'S WIRES COMING TO JUNCTION BOX TO THE SOURCE.
12. PUMP NO. 1 CONTROL JUNCTION BOX AND THE FLEXIBLE CONDUITS TO DEVICES TO BE REMOVED. REMOVE WIRES TO SOURCE.
13. REMOVE EXISTING CONDUIT AND WIRES FROM PUMP NO. 2 MOTOR TERMINAL BOX TO THE SOURCE.
14. PUMP NO. 2 RTD JUNCTION BOX TO REMAIN. REMOVE CONDUIT AND WIRES FROM RTD'S JUNCTION BOX TO SOURCE.
15. PUMP NO. 2 CONTROL JUNCTION BOX AND FLEXIBLE CONDUITS TO DEVICES TO BE REMOVED. REMOVE CONDUIT AND WIRES FROM JUNCTION BOX TO SOURCE.
16. REMOVE EXISTING CONDUIT AND WIRE FROM PUMP NO. 3 MOTOR TERMINAL TO SOURCE.
17. DISCONNECT AND REMOVE EXISTING 700HP MOTOR, MAGNA DRIVE, APPURTENANCES AND ASSOCIATED WIRING.
18. PUMP NO. 3 CONTROL JUNCTION BOX AND FLEXIBLE CONDUITS TO DEVICES TO BE REMOVED. REMOVE CONDUIT AND WIRES FROM JUNCTION BOX TO SOURCE.
19. DISCONNECT AND REMOVE EXISTING MAGNA DRIVE CONTROL PANEL AND ASSOCIATED WIRING AND CONDUIT.
20. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE, AND CONDUIT/WIRE BACK TO NEAREST J-BOX BEFORE CEILING DEMO.
21. REMOVE AND REPLACE EXISTING FENCING AND GATES AS REQUIRED TO COMPLETE THE WORK. EXISTING FENCING AND GATES SHALL BE UTILIZED AND INSTALLED IN KIND.
22. REMOVE AND REPLACE SIDEWALK IN KIND.
23. PROTECT, SUPPORT AND MAINTAIN EXISTING ELECTRICAL PANEL AS REQUIRED.
24. DISCONNECT AND REMOVE EXISTING MOTOR AND TERMINAL HOUSING.



**1 FILTER BUILDING ELECTRICAL PUMP ROOM DEMOLITION AT EL. 525.50**

SCALE: 1/4" = 1'-0"

0 1/2 1  
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

**MALCOLM PIRNIE**  
The Water Division of **ARCADIS**

**Magna**  
ENGINEERS

**STATE OF KENTUCKY**  
MICHELLE HOWLETT  
19856  
LICENSED PROFESSIONAL ENGINEER

NO.		BY	DATE	REVISIONS	REMARKS

DES: TMH  
DWN: YNR  
CKD: TMH

NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

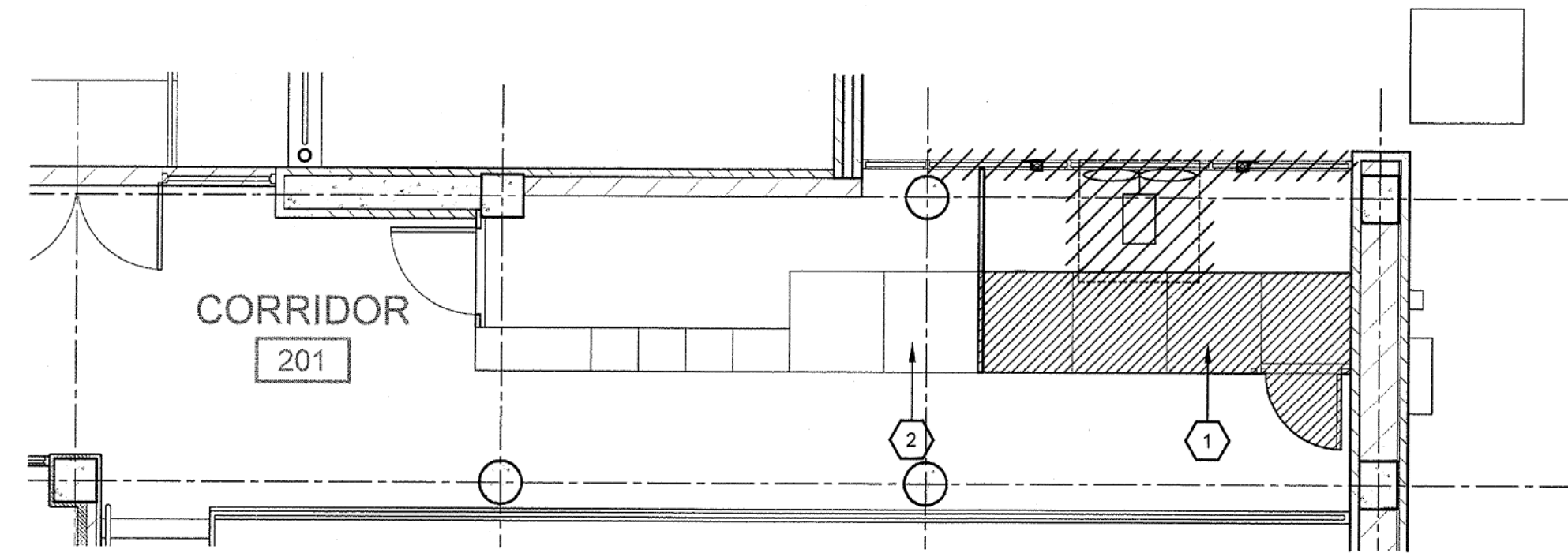
**ELECTRICAL**  
**FILTER BUILDING ELECTRICAL PUMP ROOM DEMO. PLAN AT EL. 525.50**  
SCALE: 1/4" = 1'-0"

ISSUED STATUS: **BID SET**  
DATE: **JANUARY 2014**  
SHEET: **E-01-001**  
CAD REF. NO.: **E-01-001**

User:#### Spec:PIRNIE STANDARD File:P:\024\13-001 NKWD TMT IMPROVEMENTS\CAD\ELECTRICAL\E-01-001.DWG Scale:1:1 SavedDate:11/12/2013 Time:10:04 Plot Date:Yury Raiky:12/18/2013 09:45 Layout:E-01-001

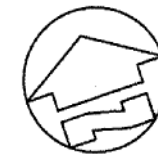
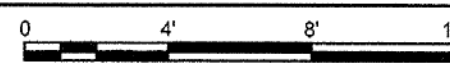
**○ SHEET KEYNOTES:**

1. REMOVE THE DOOR AND (3) THREE SECTIONS OF THE 2400V MOTOR CONTROL CENTER INCLUDING THE STARTER AND ASSOCIATED WIRING/CONDUITS FROM THE SOURCE AND TO THE MOTOR. REMOVE ANY CONDUIT AND WIRING TO SCADA FROM THESE (3) SECTIONS. THIS HAS TO BE REMOVED AFTER ALL THE MOTORS ASSOCIATED WITH THIS MOTOR CONTROL CENTER ARE SWITCHED TO THE NEW POWER SYSTEM AND RUNNING.
2. DISCONNECT AND REMOVE EXISTING 2400V STARTER AND CONTROL COMPONENTS IN THIS SECTION, AND DISCONNECT BUSSING FROM SECTIONS TO BE REMOVED. LEAVE EXISTING CABINET FOR CONNECTION OF NEW FEEDER TO EXISTING TRANSFORMER.

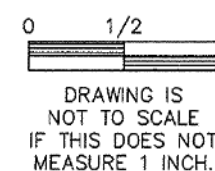


**1 FILTER BUILDING ELECTRICAL MEZZANINE DEMOLITION AT EL. 535.00**

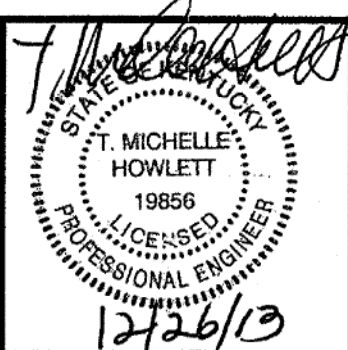
SCALE: 3/16"=1'-0"



User: \\p024-15-001\NKWD\TMTP IMPROVEMENTS\CAD\ELECTRICAL\E-01-002.DWG Scale: 1:24 SavedDate: 11/1/2013 11:09:52 Plot Date: Yury Raevskiy 12/18/2013 09:46 Layout: E-01-002



DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.



REVISIONS			
NO.	BY	DATE	REMARKS

DES: TMH  
DWN: YNR  
CKD: TMH

NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

ELECTRICAL  
**FILTER BUILDING ELECTRICAL MEZZANINE DEMO. AT EL. 535.00**  
SCALE: 3/16" = 1'-0"

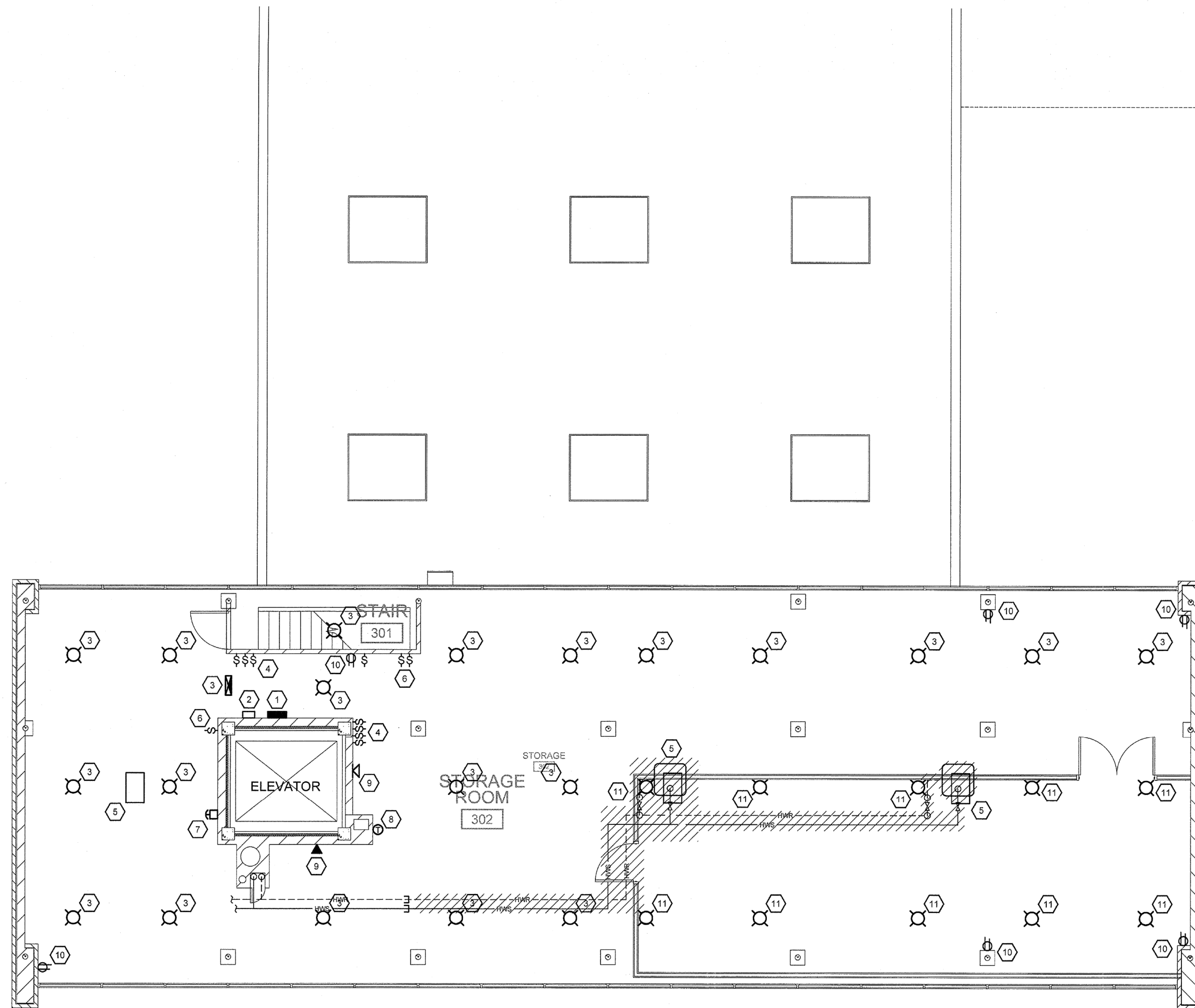
ISSUED STATUS:      BID SET       
DATE:      JANUARY 2014       
SHEET:      E-01-002       
CAD REF. NO.:      E-01-002

**GENERAL NOTES:**

1. PROPERLY DISPOSE OF ALL DEMOLISHED ELECTRICAL EQUIPMENT, LIGHT FIXTURES, LAMPS, AND CONDUIT/WIRING.
2. SEE SECTION 012300 FOR A DESCRIPTION OF ALTERNATIVE NO.3.

**SHEET KEYNOTES:**

1. EXISTING PANEL LP3-1 TO REMAIN.
2. EXISTING 45W BATTERY INVERTER TO BE REMOVED.
3. EXISTING LIGHT FIXTURE TO BE REMOVED. REMOVE ASSOCIATED CONDUIT/WIRING BACK TO SOURCE. THIS WORK SHALL BE INCLUDED AS PART OF ALTERNATIVE NO.3.
4. EXISTING LIGHT SWITCHES TO BE REMOVED. REMOVE ASSOCIATED CONDUIT/WIRING.
5. EXISTING UNIT HEATER TO BE RELOCATED. REMOVE CONDUIT AND WIRING BACK TO J-BOX AS NEEDED.
6. EXISTING UNIT HEATER CONTROL SWITCH TO REMAIN.
7. PANIC ALARM PULL STATION TO REMAIN.
8. THERMOSTAT TO REMAIN.
9. TELEPHONE OUTLET TO REMAIN.
10. EXISTING DUPLEX RECEPTACLE TO BE REMOVED. REMOVE CONDUIT/WIRING BACK TO SOURCE.
11. EXISTING LIGHT FIXTURE TO BE REMOVED. REMOVE ASSOCIATED CONDUIT/WIRING BACK TO SOURCE.



**1** FILTER BUILDING ELECTRICAL THIRD FLOOR DEMOLITION AT EL. 545.00  
 SCALE: 3/16"=1'-0"

User:#### Spec:PIRNIE STANDARD File:P:\024-13-001 NKWD TMTIP IMPROVEMENTS\CAD\ELECTRICAL\E-01-003.DWG Scale:1:24 SavedDate:12/16/2013 Time:09:15 Plot Date:Yury Raayk 12/18/2013 08:47 Layout:E-01-003

**MALCOLM PIRNIE** | **ARCADIS**  
 The Water Division of ARCADIS

**T. MICHELLE HOWLETT**  
 19850  
 LICENSED PROFESSIONAL ENGINEER  
 12/26/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES: TMH  
 DWN: YNR  
 CKD: TMH

NORTHERN KENTUCKY WATER DISTRICT  
 TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

ELECTRICAL  
**FILTER BUILDING ELECTRICAL THIRD FLOOR DEMO. PLAN AT EL. 545.00**  
 SCALE: 3/16" = 1'-0"

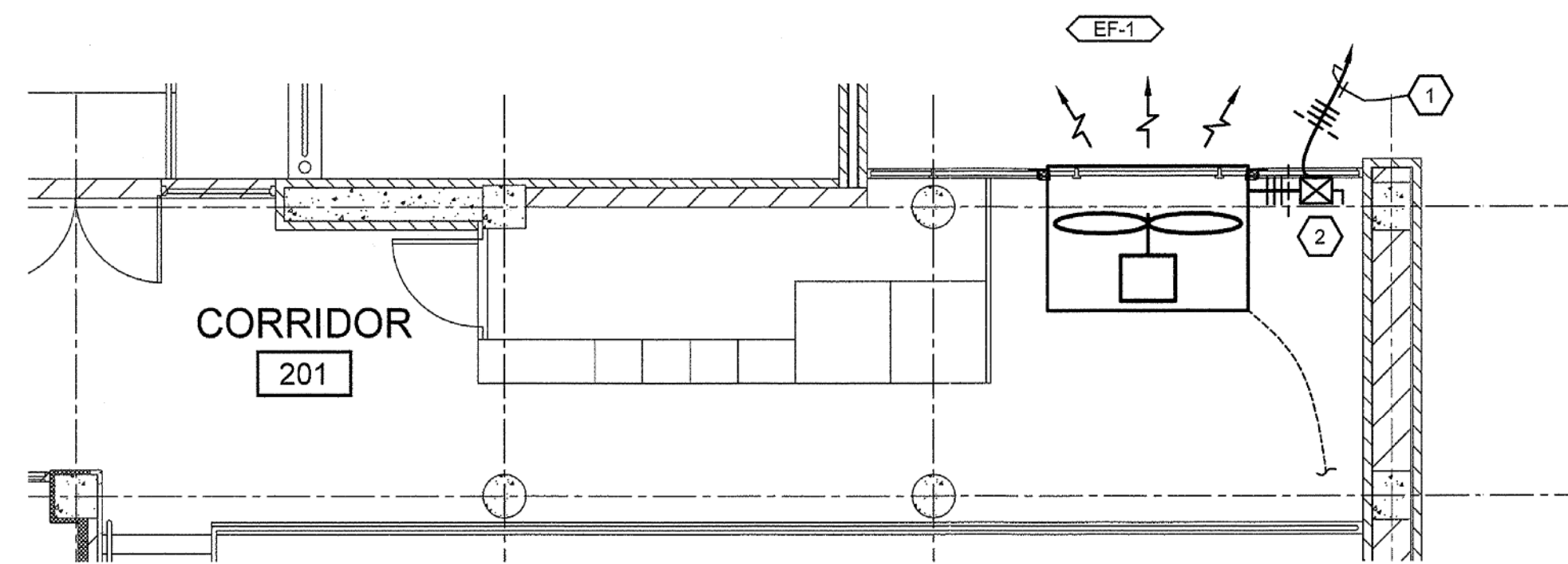
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 DATE: JANUARY 2014  
 SHEET: E-01-003  
 CAD REF. NO.: E-01-003





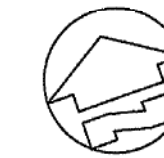
**SHEET KEYNOTES:**

1. 3#6, 1#10 GND IN 1" CONDUIT. CONNECT TO A NEW 60 AMP/ 3POLE BREAKER INSTALLED IN EXISTING PANEL LPHV IN BASEMENT.
2. COMBINATION STARTER/DISCONNECT SWITCH.



**1** FILTER BUILDING MEZZANINE  
POWER PLAN AT EL. 535.00

SCALE: 3/16"=1'-0"



User:#### Spec:PIRINIE STANDARD File:P:024-13-01 NKWD TMTIP IMPROVEMENTSACADELECTRICAL-E-01-006.DWG Scale:1:24 SheetDate:1/1/2013 Time:10:07 Plot Date: Yury Radjk, 12/18/2013, 09:51, Layout:E-01-006

**MALCOLM PIRNIE** | **ARCADIS**  
The Water Division of ARCADIS

**Magna**  
ENGINEERS

*Michelle Howlett*  
MICHELLE HOWLETT  
19856  
LICENSED PROFESSIONAL ENGINEER

12/26/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES: TMH  
DWN: YNR  
CRD: TMH

NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

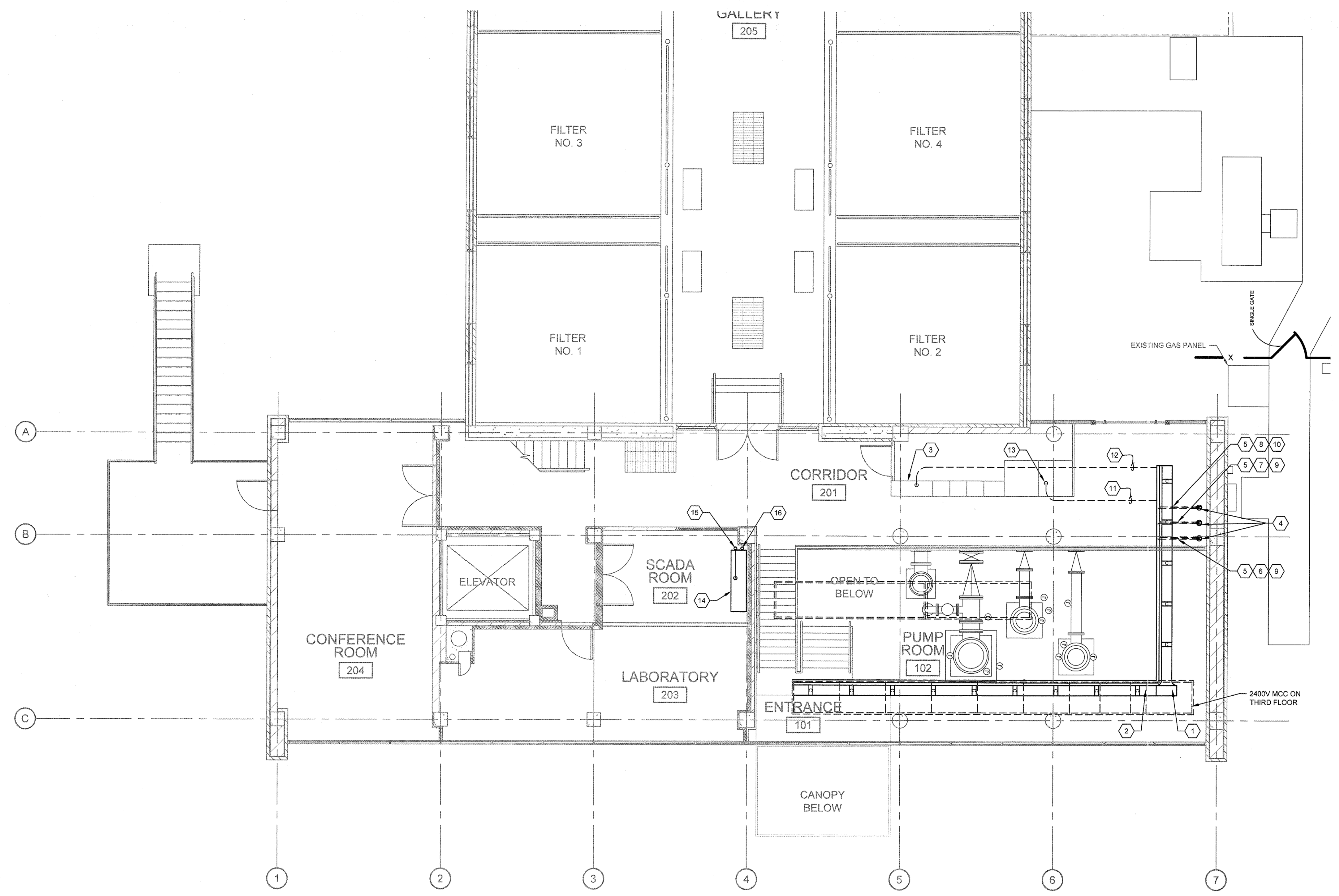
ELECTRICAL  
**FILTER BUILDING MEZZANINE  
POWER PLAN AT EL. 535.00 I**  
SCALE: 3/16" = 1'-0"

ISSUED STATUS: BID SET  
DATE: JANUARY 2014  
SHEET: E-01-006  
CAD REF. NO.: E-01-006



**SHEET KEYNOTES:**

1. NEW 12"W, 5"DEEP, 6" RUNG SPACING ALUMINUM TRAY, BELOW THE THIRD FLOOR UNDER THE MCC AND ABOVE CRANE. REMOVE AND REPLACE CEILING AS REQUIRED.
2. NEW 6" WIDE, 5" DEEP, 6" RUNG SPACING ALUMINUM TRAY WITH A BARRIER IN THE MIDDLE FOR CONTROL AND SIGNAL CABLES UNDER THIRD FLOOR.
3. EXISTING MCC/FUSED SWITCH.
4. NEW 6" SLEEVE IN THE MEZZANINE FLOOR FOR THE POWER AND CONTROL CONDUITS.
5. 1-1 1/2"C, CONTAINS 8-BELDEN 8818 OR EQUAL (3/C #16 SHIELDED CABLE) FROM PUMP NO. 1, 2, AND 3 STARTER EACH TO PUMP NO. 1, 2 AND 3 MOTOR RTD'S.
6. 1-2 1/2"C, CONTAINS 3#1/0, 5 KV SHIELDED, 1#6 GROUND FROM PUMP NO.1 STARTER TO PUMP NO. 1 MOTOR TERMINAL.
7. 1-2 1/2"C, CONTAINS 3#1, 5 KV SHIELDED, 1#6 GROUND FROM PUMP # 2 STARTER TO PUMP NO.2 MOTOR TERMINAL.
8. 1-2 1/2"C, CONTAINS 3#1/0, 5 KV SHIELDED, 1#6 GROUND FROM PUMP # 3 STARTER TO PUMP NO. 3 MOTOR TERMINAL.
9. 1-3/4"C, CONTAINS 16#14 FROM PUMP NO. 1 AND 2 STARTER EACH TO JUNCTION BOX.
10. 1-3/4"C, CONTAINS 16#14 FROM PUMP NO. 3 STARTER TO PUMP NO. 3 JUNCTION BOX.
11. 1-2 1/2"C, 3#6 AWG, 5KV SHIELDED, 1#8 GROUND FROM 2400V MCC TO 150KVA EXISTING TRANSFORMER ON MEZZ. FLOOR. REFER TO DRAWING E-01-009.
12. 1-2 1/2"C, 3#6 AWG, 5KV SHIELDED, 1#6 GROUND FROM 2400V MCC TO EXISTING FUSED SWITCH ON MEZZ. FLOOR FEEDING 150 KVA TRANSFORMER IN BASEMENT. REFER TO DRAWING E-01-009
13. CONNECT NEW FEEDER TO EXISTING BUSSING IN THIS SECTION. FURNISH AND INSTALL BLANK COVER ON EXISTING SECTION.
14. EXISTING PLC CABINET. BRING CONTROL WIRING CONDUIT/CABLE. INTO BOTTOM OF CABINET FROM WIREWAY ON FIRST FLOOR. TERMINATE CONTROL WIRING AT EXISTING I/O CARDS. REFER SHEET NOTES 9 AND 10 DRAWING E-01-009.
15. 2-CAT 6 CABLES IN 1"C TO CABLE TRAY. SEE SHEET E-01-005 FOR LOCATION.
16. 4#2, 1#6, 1 1/2"C FROM EXISTING PANEL LPHV IN BASEMENT TO NEW PANEL LPHV2 ON 3RD FLOOR.



**1 FILTER BUILDING MEZZANINE POWER PLAN AT EL. 535.00**

SCALE: 3/16"=1'-0"

0 1/2 1  
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

**MALCOLM PIRNIE**  
The Water Division of ARCADIS

**Magna ENGINEERS**  
Electrical • Mechanical • Instrumentation

**PROFESSIONAL ENGINEER**  
MICHELLE HOWLETT  
19856  
12/26/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES: TMH  
DWN: YNR  
CKD: TMH

**NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
ELECTRICAL AND BASIN IMPROVEMENTS**

**ELECTRICAL  
FILTER BUILDING MEZZANINE  
POWER PLAN AT EL. 535.00 II**  
SCALE: 3/16" = 1'-0"

ISSUED STATUS: **BID SET**  
DATE: JANUARY 2014  
SHEET: E-01-007  
CAD REF. NO.: E-01-007

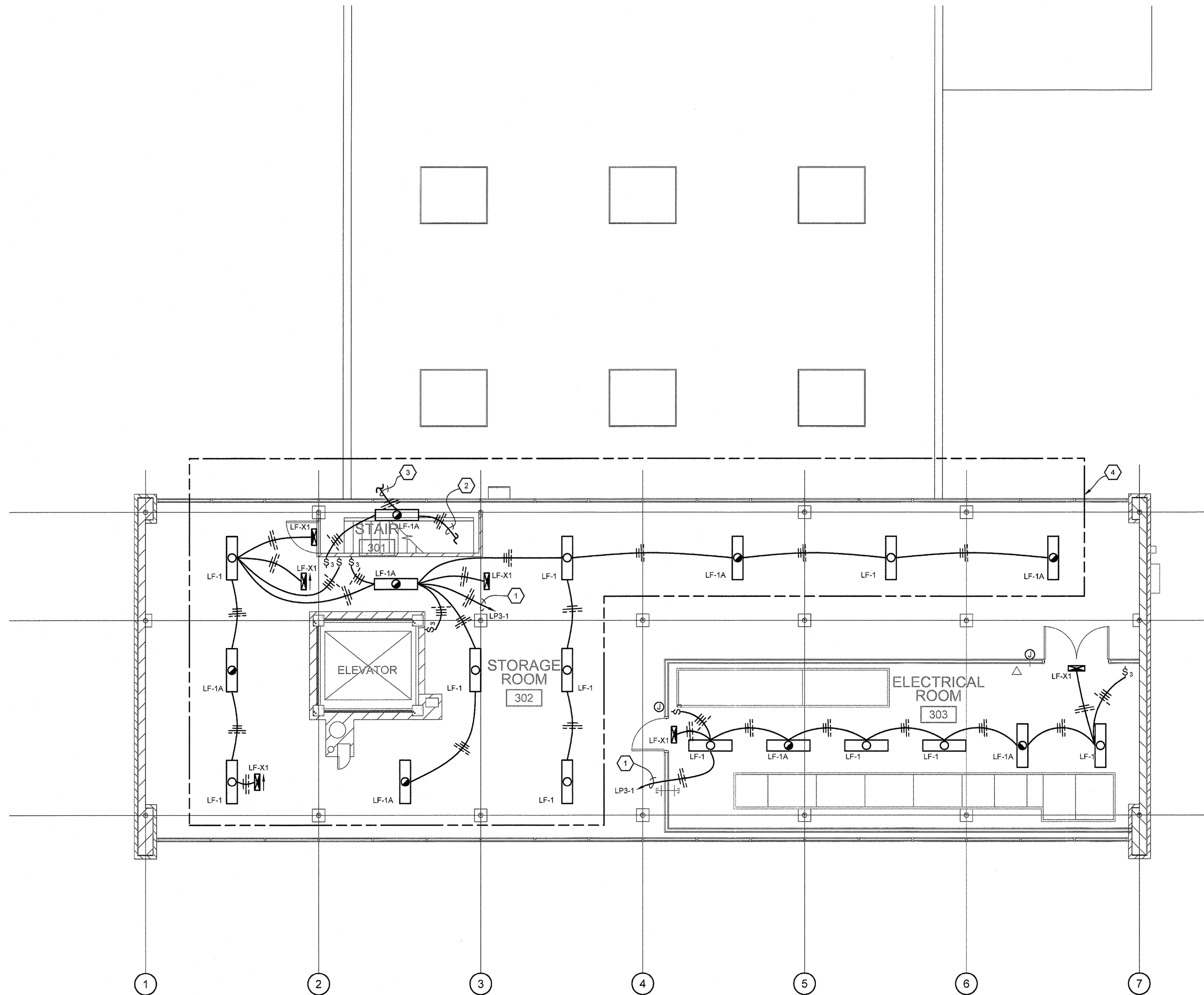
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**GENERAL NOTES:**

- COORDINATE LAYOUT OF FIXTURES WITHIN ELECTRICAL ROOM 303 WITH ENGINEER APPROVED SHOP DRAWINGS FOR THE 2400V MCC (ADJUST LOCATIONS ACCORDINGLY).

**SHEET KEYNOTES:**

- CONNECT TO AN EXISTING 20A/1P BREAKER LOCATED WITHIN PANEL LP3-1.
- EXTEND TO EXISTING LIGHT FIXTURE AND 3-WAY SWITCH ON FLOOR BELOW.
- CONNECT TO EXISTING 120V LIGHTING CIRCUIT IN STAIRWELL.
- WORK SHOWN IN THIS BOUNDARY LINE IS PART OF ALTERNATIVE NO.3. SEE SECTION 012300 FOR A DESCRIPTION OF ALTERNATIVE NO.3.



**1** FILTER BUILDING THIRD FLOOR LIGHTING PLAN AT EL. 545.00  
SCALE: 3/16"=1'-0"



User:#### Spec:PIRINIE STANDARD File:P:\024\13-001 NKWD TMTP IMPROVEMENTS\ACADE\ELECTRICAL\E-01-008.DWG Scale:1.3 SavedDate:12/16/2013 Time:10:31 Plot Date: Yury Rasky, 12/18/2013, 09:55, Layout:E-01-008

**MALCOLM PIRNIE** | **ARCADIS**  
The Water Division of ARCADIS

**T. MICHELLE HOWLETT**  
19856  
LICENSED PROFESSIONAL ENGINEER  
12/29/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES	TMH
DWN	YNR
CKD	TMH

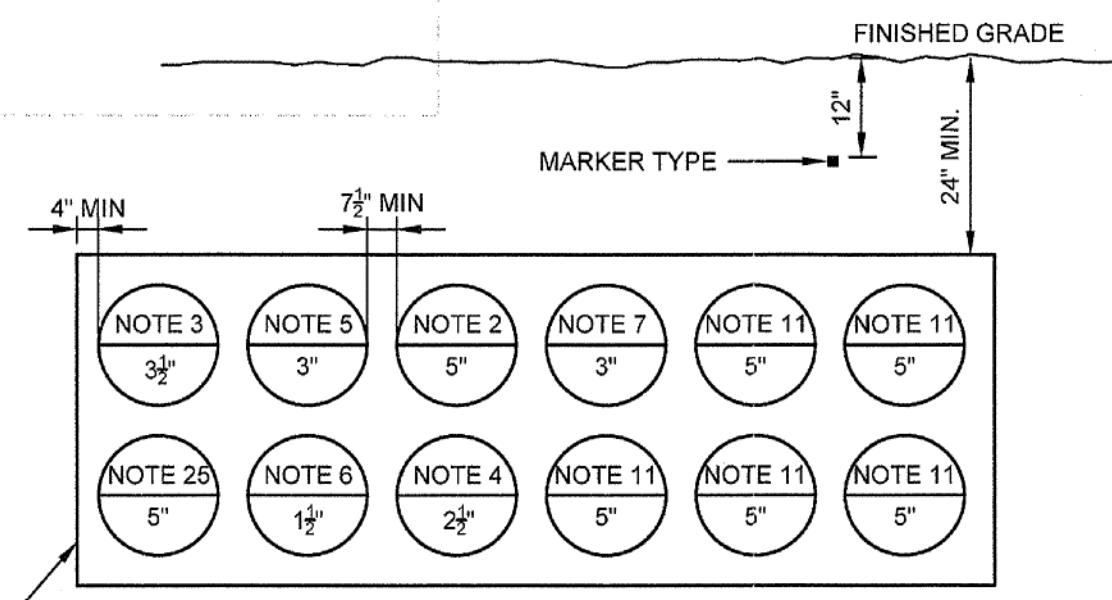
NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

**ELECTRICAL**  
**FILTER BUILDING THIRD FLOOR LIGHTING PLAN AT EL. 545.00**  
SCALE: 3/16" = 1'-0"

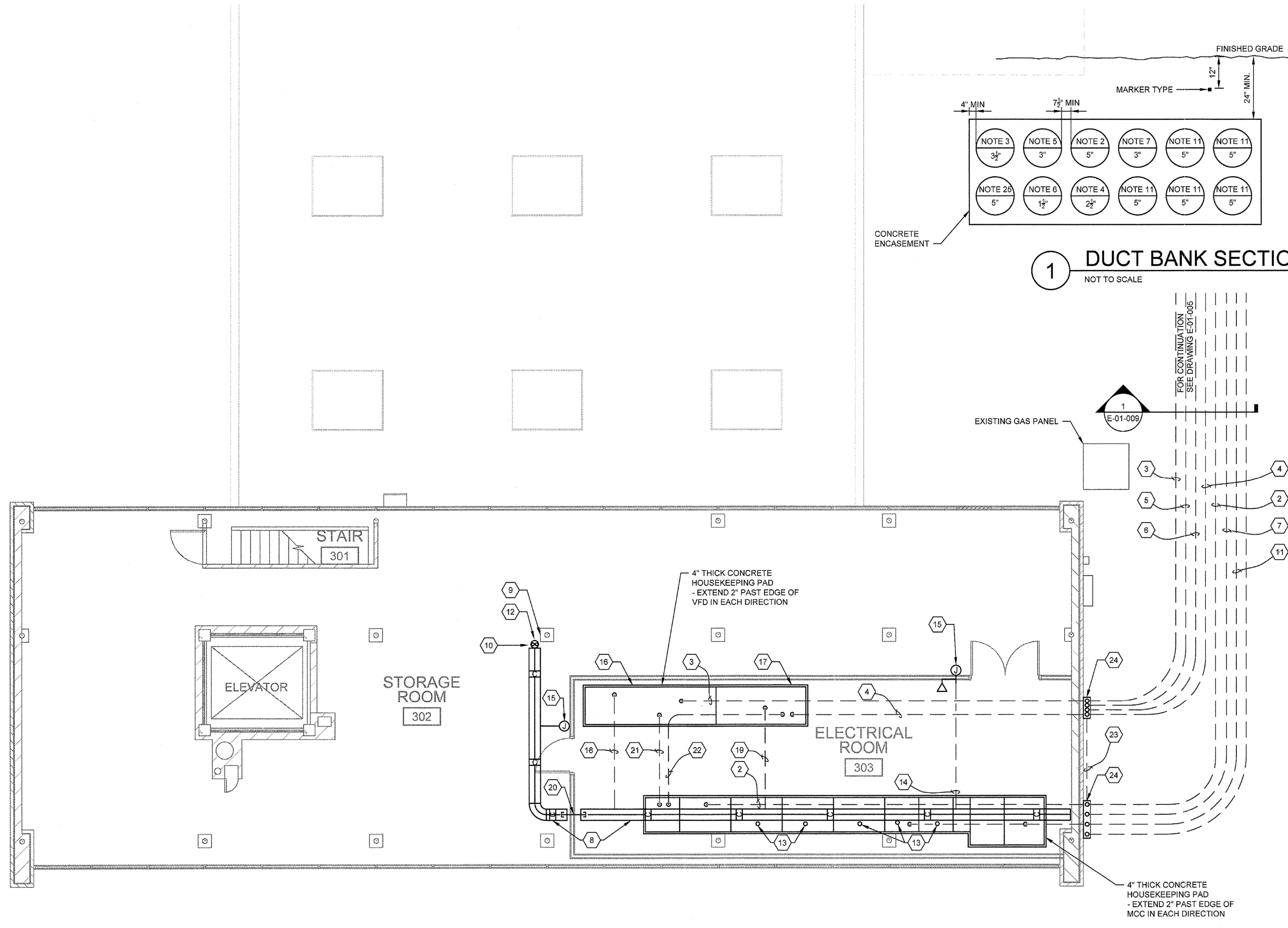
ISSUED STATUS:	BID SET
DATE	JANUARY 2014
SHEET	E-01-008
CAD REF. NO.	E-01-008

**SHEET KEYNOTES:**

- 2400V VCC. REFER TO DRAWING E-00-003 FOR MORE INFORMATION.
- 5°C, 3#750 KCMIL, 5KV SHIELDED, 1#2/0 GROUND FROM 2400V VCC TO PUMP NO. 4 MOTOR TERMINAL BOX IN BOOSTER PUMP STATION.
- 3½°C, 3#250 KCMIL, 5KV SHIELDED, 1#2/0 GROUND FROM 2400V VCC TO PUMP NO. 5 MOTOR TERMINAL BOX IN BOOSTER PUMP STATION.
- 2½°C, 3#1/0, 5KV SHIELDED, 1#2 GROUND FROM 2400V MCC TO PUMP NO. 6 MOTOR TERMINAL BOX IN BOOSTER PUMP STATION.
- 3" CONDUIT FROM TRAY AND BETWEEN THE PULLBOXES ON THIS DRAWING AND DRAWING E-01-005 AND CONTAINS 27 BELDEN 8618 OR EQUAL CABLES FOR PUMP NO. 4, 5, AND 8 RTD'S AND PUMP NO. 5 AND 6 POTENTIOMETERS FROM STARTERS.
- 1 1/2" C FROM TRAY AND BETWEEN PULLBOXES ON THIS DRAWING AND DRAWING E-01-005 AND CONTAINS 85 #14 WIRES FOR PUMP #4, 5, AND 6 CONTROL AND CONTROL STATIONS FROM STARTERS.
- 3" C, 3#1, 5KV SHIELDED, 1#2 GROUND FROM 2400V MCC TO EXISTING SWITCH FEEDING THE EXISTING 300KVA TRANSFORMER.
- 6" W, 5" DEEP, 6" RUNG SPACING LADDER TYPE WITH BARRIER IN THE MIDDLE. ALUMINUM CABLE TRAY FOR SIGNAL AND CONTROL.
- 1½" C, 7:#14 TOTAL (12 FROM EACH STARTER) FROM STARTERS TO SCADA ROOM THROUGH SLAB FOR SCADA.
- 1½" C, 4 PAIR #18 STP FROM PUMPS 5 AND 6 VFD'S TO PLC ROOM THROUGH SLAB FOR SCADA. (PART OF ALT. NO.1)
- 5-5" C, 3#500 KCMIL, 1#500 KCMIL GROUND IN EACH CONDUIT FROM EXISTING TRANSFORMER TO 2400V MCC.
- NEW 4" SLEEVE IN THE THIRD FLOOR FOR CONTROL AND SIGNAL WIRES FROM STARTERS TO SCADA ROOM BELOW.
- NEW 4" SLEEVE UNDER THE MCC FOR POWER AND CONTROL CABLES.
- 1" C CONTAINS 2-CAT 6 CABLES FROM PLC PANEL IN SCADA ROOM TO DATA OUTLET, AND 1" C W/PULLWIRE FROM WALL BOX.
- BLANKED OFF OUTLET BOX AT 48" AFF FOR FUTURE ACCESS CONTROL.
- ENCLOSED VARIABLE FREQUENCY DRIVE FOR PUMP NO. 5 (SSRV FOR ALT NO.1)
- ENCLOSED VARIABLE FREQUENCY DRIVE FOR PUMP NO. 6 (SSRV FOR ALT NO.1)
- 2 PAIR, #18 STP IN 1" C AND 30#14, 1" C FROM PUMP NO. 5 VFD TO CABLE TRAY.
- 2 PAIR, #18 STP IN 1" C AND 30#14, 1" C FROM PUMP NO. 6 VFD TO CABLE TRAY.
- 2-3" SLEEVES FOR CABLE THROUGH 3 HOUR WALL FIRESTOP AS REQUIRED.
- 3#250 KCMIL, 5KV SHIELDED CABLE AND 1#2/0 GROUND IN 3-1/2" C FROM FUSED SWITCH IN MCC TO VFD PUMP NO.5
- 3#1/0, 5KV SHIELDED CABLE AND 1#2 GROUND IN 2-1/2" C FROM FUSED SWITCH IN MCC TO PUMP NO. 6 VFD
- 18#14, 1" C AND 2" C WITH 8 BELDEN 8618 CABLES FROM PUMP NO 4. STARTER TO PULLBOX.
- NEMA 4X PULLBOX MOUNTED AT ELEVATION WHERE CONDUITS PENETRATE WALL.
- 5" SPARE W/PULLWIRE.



**1 DUCT BANK SECTION**  
NOT TO SCALE



**GENERAL NOTES:**

- EXPOSED/UNDERGROUND CONDUIT ROUTING SHOWN IS GENERAL. CHECK ROUTING DEPENDING ON FIELD CONDITIONS BEFORE ANY INSTALLATIONS.
- CONDUIT STUB-UPS SHALL BE COORDINATED WITH EQUIPMENT SHOP DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MEANS AND METHODS FOR TRANSPORTING THE NEW MOTOR CONTROL CENTER TO THE THIRD FLOOR OF THE FILTER BUILDING. THE EXISTING FREIGHT ELEVATOR MAY BE USED FOR THIS PURPOSE, HOWEVER, IT MAY REQUIRE MODIFICATION FOR THE EQUIPMENT TO FIT WITHIN THE CAR. IF THE EXISTING ELEVATOR IS USED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING SIZE AND CAPACITY, AND IF THE ELEVATOR IS MODIFIED, IT SHALL BE PLACED BACK IN TO ITS ORIGINAL CONDITION UPON COMPLETION. EXISTING EXTERIOR WINDOWS AND/OR SIDE PANELS MAY ALSO BE REMOVED FOR MCC INSTALLATION. IF THIS METHOD IS EMPLOYED, THE WINDOWS AND/OR PANELS SHALL BE RE-INSTALLED TO THEIR ORIGINAL CONDITION, AND THE OPENING SHALL BE ADEQUATELY SEALED UNTIL THE PERMANENT INSTALLATION IS COMPLETE. IT WILL NOT BE ACCEPTABLE TO CREATE ADDITIONAL OPENINGS IN THE EXISTING ROOF FOR MCC INSTALLATION.
- UNDERGROUND CONDUITS SHALL BE CONCRETE ENCASED WITH WARNING RIBBON ON TOP.
- SEE SECTION 012300 FOR A DESCRIPTION OF ALTERNATIVE NO.1.

**1 FILTER BUILDING THIRD FLOOR POWER PLAN AT EL. 545.00**  
SCALE: 3/16"=1'-0"

0 1/2 1  
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

**MALCOLM PIRNIE**  
The Water Division of ARCADIS

**Magna ENGINEERS**

**T. MICHELLE HOWLETT**  
LICENSED PROFESSIONAL ENGINEER  
12/26/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES: TMH  
DWN: YNR  
CKD: TMH

NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

**ELECTRICAL**  
**FILTER BUILDING THIRD FLOOR POWER PLAN AT EL. 545.00 I**  
SCALE: 3/16 = 1'-0"

ISSUED STATUS: BID SET

DATE: JANUARY 2014

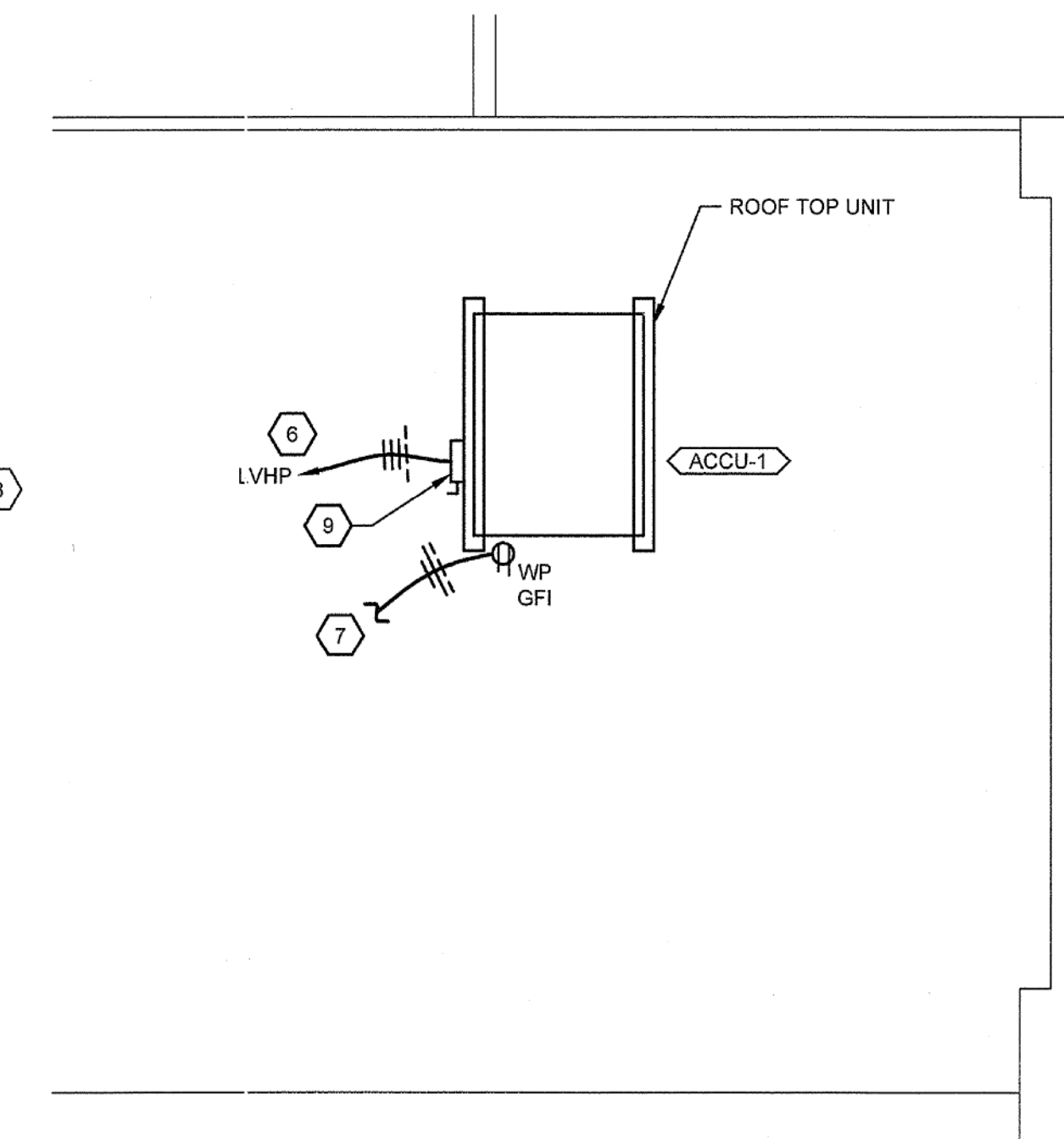
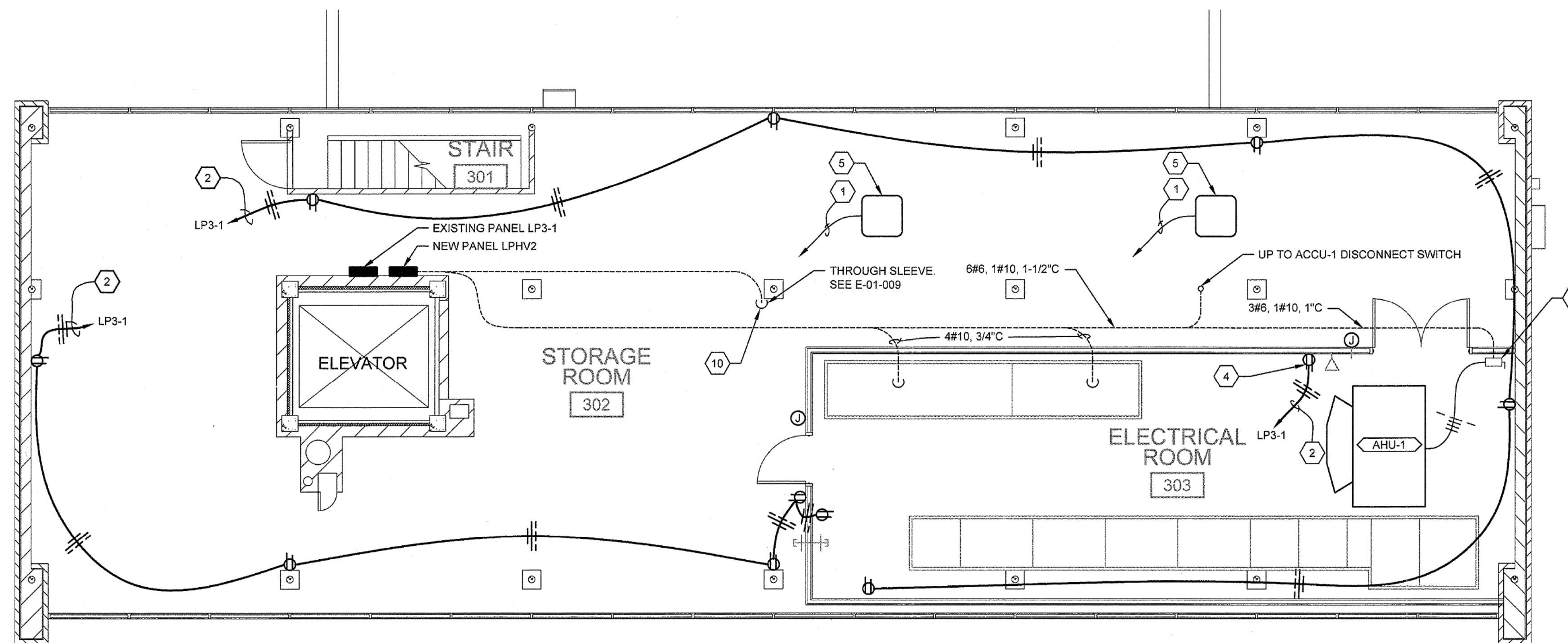
SHEET: E-01-009

CAD REF. NO.: E-01-009

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**SHEET KEYNOTES:**

1. 120V POWER AND THERMOSTAT WIRING IN 3/4" BACK TO EXISTING LOCATION.
2. CONNECT TO AN EXISTING 20A/1P BREAKER WITHIN PANEL LP3-1.
3. CONNECT TO A NEW 20A/3P BREAKER INSTALLED IN SPACE OF EXISTING PANELBOARD PPL-1.
4. COORDINATE RECEPTACLE LOCATION WITH NEW COMPUTER DESK. SEE ARCHITECTURAL DRAWINGS.
5. RELOCATED UNIT HEATER.
6. CONNECT TO A NEW 50A/3P BREAKER INSTALLED IN SPACE OF EXISTING PANELBOARD LVHP. UTILIZE 3#6, 1#10 GND IN 1" CONDUIT.
7. DOWN TO FLOOR BELOW, CONNECT TO GENERAL DUTY RECEPTACLE CIRCUIT LOCATED WITHIN ELECTRICAL ROOM 303.
8. 60A/3P NEMA 1 N/F DISCONNECT SWITCH FOR AHU-1.
9. 60A/3P NEMA 4X N/F DISCONNECT SWITCH FOR ACCU-1.
10. 4#1, 1#6, 1 1/2" FROM PANEL LPHV IN BASEMENT.



**1** FILTER BUILDING THIRD FLOOR POWER PLAN AT EL. 545.00  
SCALE: 3/16"=1'-0"

**2** FILTER BUILDING PARTIAL ROOF PLAN ELECTRICAL NEW WORK AT EL. 555.00  
SCALE: 3/16"=1'-0"

User:#### Spec:Pirnie STANDARD File:P:1024-13-001 NKWD TMRP IMPROVEMENTS\CAD\ELECTRICAL\E-01-010.DWG Scale: 1:24 SavedDate: 12/16/2013 Time: 11:44 Plot Date: Yuriy Raikv 12/18/2013 09:58 Layout: E-01-010

**MALCOLM PIRNIE**  
The Water Division of **ARCADIS**

**Magna**  
Electrical • Mechanical • Instrumentation  
ENGINEERS

*Michelle Howlett*  
MICHELLE HOWLETT  
19856  
LICENSED PROFESSIONAL ENGINEER  
12/26/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES: TMH  
DWN: YNR  
CKD: TMH

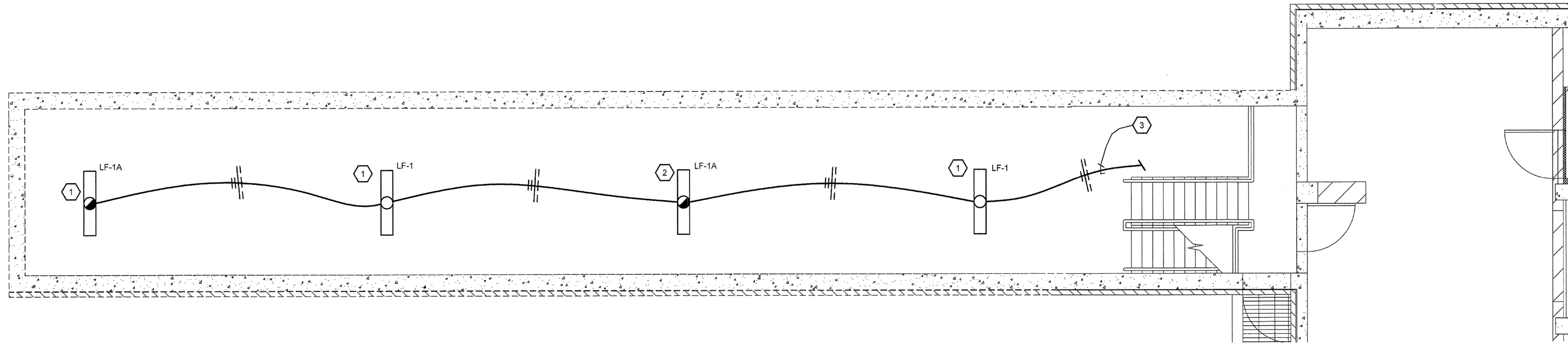
NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

**ELECTRICAL**  
**FILTER BUILDING THIRD FLOOR POWER PLAN AT EL. 545.00 II**  
SCALE: 3/16" = 1'-0"

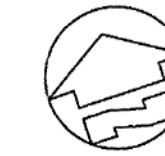
ISSUED STATUS: BID SET  
DATE: JANUARY 2014  
SHEET: E-01-010  
CAD REF. NO.: E-01-010

**SHEET KEYNOTES:**

1. REPLACE EXISTING FIXTURE WITH NEW. RECONNECT WITH NEW WIRING AS SHOWN.
2. REPLACE EXISTING FIXTURE WITH NEW. RECONNECT AS SHOWN. WITH THIS FIXTURE WIRED AHEAD OF SWITCHING.
3. RECONNECT NEW FIXTURES BACK TO EXISTING SWITCHING.



**1 PARTIAL FILTER BUILDING AND TUNNEL - ELECTRICAL PLAN**  
SCALE: 1/4"=1'-0"



User:#### Spec:PRIME STANDARD File:P:024-13-001 NKWD TMTF IMPROVEMENTS\CAD\ELECTRICAL\E-02-001.DWG Scale: 1:18 SaveDate: 11/11/2013 Time: 08:20 Plot Date: Yury Rudyk, 12/18/2013, 09:59 Layout:E-02-001

**MALCOLM PIRNIE**  
The Water Division of **ARCADIS**

**Magna**  
ENGINEERS

*Michelle Howlett*

**T. MICHELLE HOWLETT**  
19856  
LICENSED PROFESSIONAL ENGINEER

12/26/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES	PJB
DWN	DLM
CKD	PJB

NORTHERN KENTUCKY WATER DISTRICT  
TAYLOR MILL WATER TREATMENT PLANT  
**ELECTRICAL AND BASIN IMPROVEMENTS**

**ELECTRICAL TUNNEL ELECTRICAL PLANS**

SCALE: AS NOTED

ISSUED STATUS:	BID SET
DATE	JANUARY 2014
SHEET	E-02-001
CAD REF. NO.	E-02-001