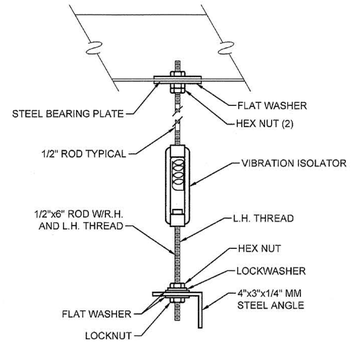
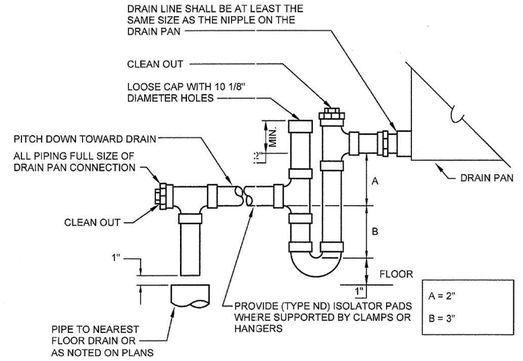


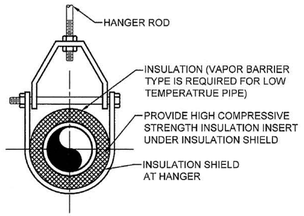
2 TYPICAL LIGHT EQUIPMENT SUPPORT DETAILS

NOT TO SCALE



4 AIR HANDLING UNIT DRAIN DETAIL

NOT TO SCALE

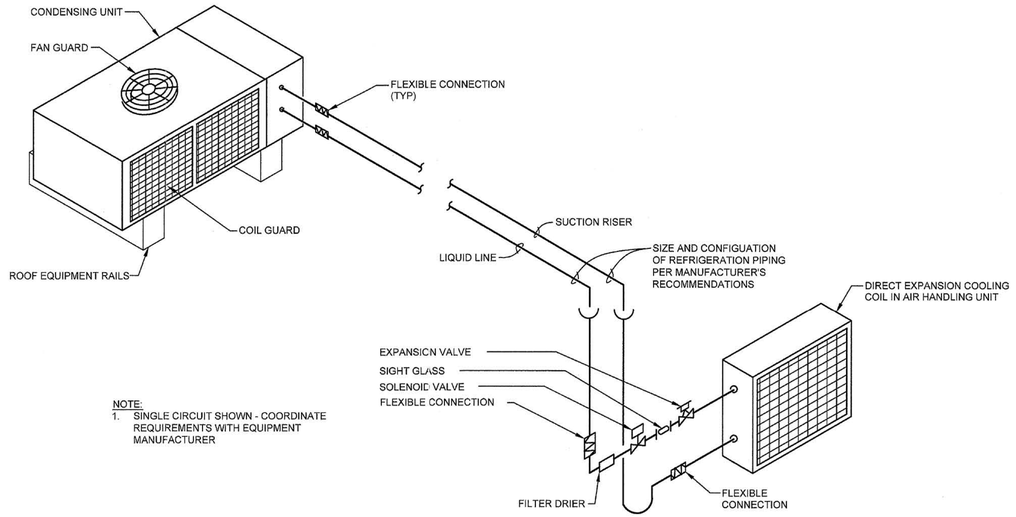


ADJUSTABLE CLEVIS HANGER

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



NOTE:
1. SINGLE CIRCUIT SHOWN - COORDINATE REQUIREMENTS WITH EQUIPMENT MANUFACTURER

5 PIPING SCHEMATIC FOR CONDENSING UNIT DETAIL

NOT TO SCALE

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STATE OF KENTUCKY
JAMES L. MARTIN
19364
LICENSED PROFESSIONAL ENGINEER
12-26-13

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 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 SWTCH
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:
1. BIRD SCREEN
2. COMBINATION DRAINABLE LOUVER WITH MOTORIZED DAMPER
3. INTAKE
4. FIELD VERIFY DIMENSIONS OF WINDOW MULLIONS THAT WILL SERVE A LOUVER FRAME.
5. PROVIDE EXTERIOR PERIMETER FLANGE.
6. PROVIDE 120 VOLT DAMPER OPERATOR.
7. SEE MOUNTING DETAIL ON ARCHITECTURAL DRAWINGS.
8. 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 PH	ELECTRICAL MCA	ELECTRICAL MFS	NOTES
ACCU-1	AHU-1	252	196	95	2	460	3	40.8	50	1-11

NOTES:
1. SINGLE POINT ELECTRICAL CONNECTION WITH INTEGRAL CONTROLS
2. SPLIT UNITS WITH R-410A
3. DIGITAL SCROLL COMPRESSOR(S)
4. MANUFACTURERS: CARRIER, TRANE, MCQUAY, YORK
5. 2 - CIRCUITS
6. PRECOATED AL/CU W/LOUVERED HAIL GUARDS.
7. POWERED CONVENIENCE OUTLET.
8. NON FUSED DISCONNECT.
9. STANDARD ELECTRO-MECH CONTROLS.
10. THERMOSTAT
11. 2-SPEED FAN CONTROLLER

BASIS OF DESIGN:
1. ACCU-1 - CARRIER MOD: 38AUD025

GENERAL NOTES:

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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 DECKS. NON-ROOF CONCRETE DECKS MAY BE USED ONLY WITH PERMISSION OF THE ENGINEER. DO NOT HANG ANYTHING FROM MECHANICAL OR ELECTRICAL ITEMS.
7. 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.
8. NO STEEL STRUCTURAL MEMBERS SHALL BE CUT, BURNED, WELDED OR DRILLED WITHOUT SPECIFIC PERMISSION OF THE ENGINEER.
9. NO WOODEN STRUCTURAL MEMBERS SHALL BE CUT OR DRILLED EXCEPT AS INDICATED IN THE CONTRACT DOCUMENTS OR AS APPROVED BY THE ENGINEER.
10. 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.
11. CONSULT ARCHITECTURAL PLANS FOR DIMENSIONING AND POSITIONS OF WALL LOUVERS.
12. 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.
13. CONTRACTOR SHALL CERTIFY AT THE TIME OF OWNER OCCUPANCY THAT ALL BELT-DRIVEN EQUIPMENT HAS BEEN CHECKED FOR BELT TIGHTNESS AFTER WEAR-IN PERIOD.
14. 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.
15. 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.
16. PROVIDE LINTELS AS REQUIRED FOR ALL NEW OPENINGS GREATER THAN 12" WIDE IN MASONRY OR LOAD-BEARING WALLS, MATERIAL TO BE APPROVED BY ENGINEER.
17. 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.
18. 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.
19. 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.
20. REINSULATE ALL DUCTWORK AND PIPING WHERE EXISTING INSULATION HAS BEEN REMOVED OR DAMAGED DURING THE PROJECT.
21. PROVIDE ALL CONTROLS NECESSARY TO OPERATE EQUIPMENT AS SHOWN OR DESCRIBED, INCLUDING VALVES, ACTUATORS, THERMOSTATS, DAMPERS, ALL ACCESSORY DEVICES, POWER AND/OR PNEUMATIC SERVICE.
22. 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 HP	MOTOR V/PH/HZ	ACCESSORIES	BASIS OF DESIGN GREENHECK
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:
1. SIDEWALL PROPELLER FAN
2. SEE INSTALLATION DETAIL ON ARCHITECTURAL DRAWINGS.

FAN ACCESSORIES:
1. INLET SCREEN, LONG WALL HOUSING OSHA MOTOR GUARD
2. ADJ. SHEAVES.
3. GRAVITY BACKDRAFT DAMPER
4. MOTOR STARTER AND DISCONNECT
5. PROVIDE CLASSIC BRONZE GF108 POWDER COATING ON BACKDRAFT (SHUTTER) DAMPER.

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JAMES L. MARTIN 19994 LICENSED PROFESSIONAL ENGINEER 12-23-13

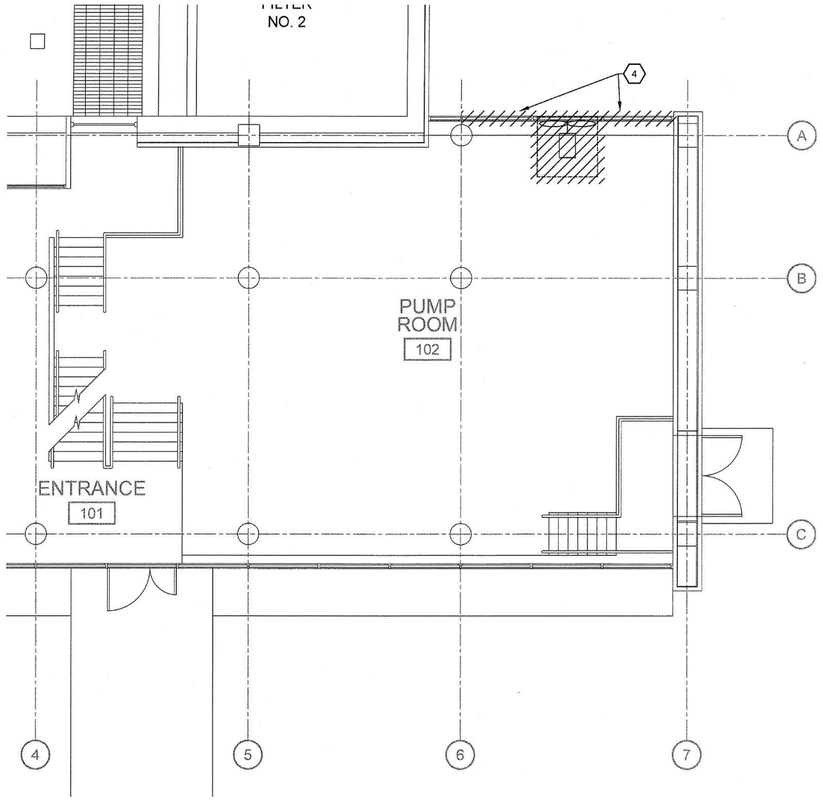
REVISIONS			
NO.	BY	DATE	REMARKS

DES JLM
DWN YNR
CKD JLM

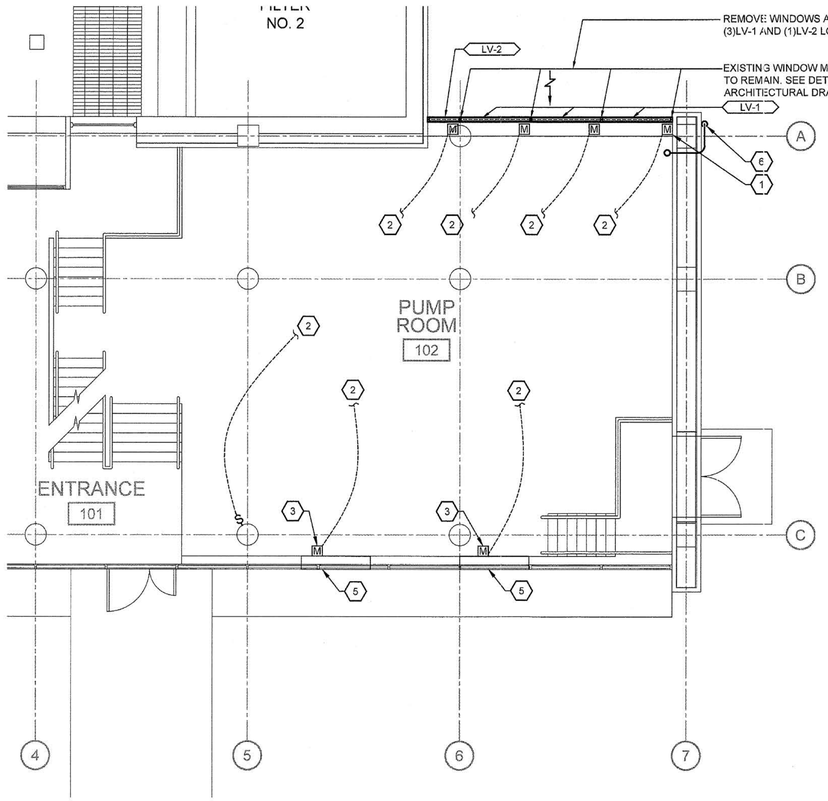
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ELECTRICAL AND BASIN IMPROVEMENTS

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.

⬡ 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.

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STATE OF KENTUCKY
JAMES L. MARTIN
LICENSED PROFESSIONAL ENGINEER
12-26-13

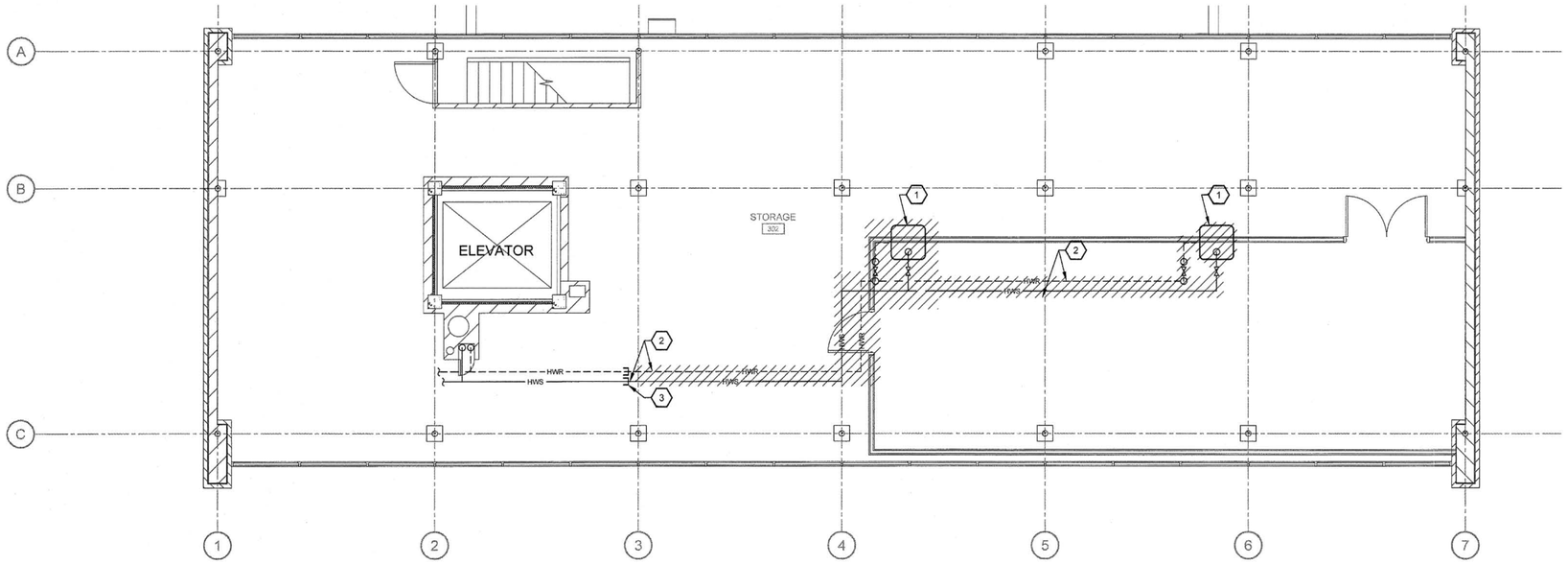
REVISIONS			
NO.	BY	DATE	REMARKS

DES JLM
DWN YNR
CKD JLM

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

HVAC
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



FILTER BUILDING THIRD FLOOR HVAC DEMOLITION AT EL. 545.00

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

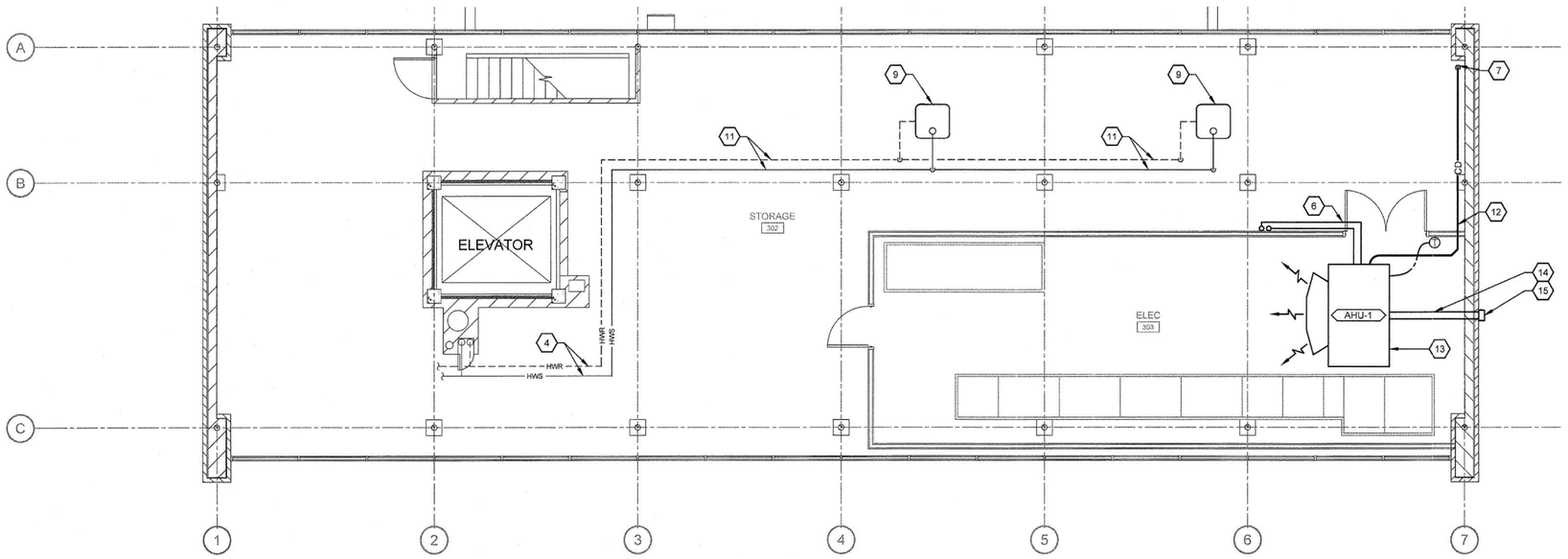
0 4' 8' 12'

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

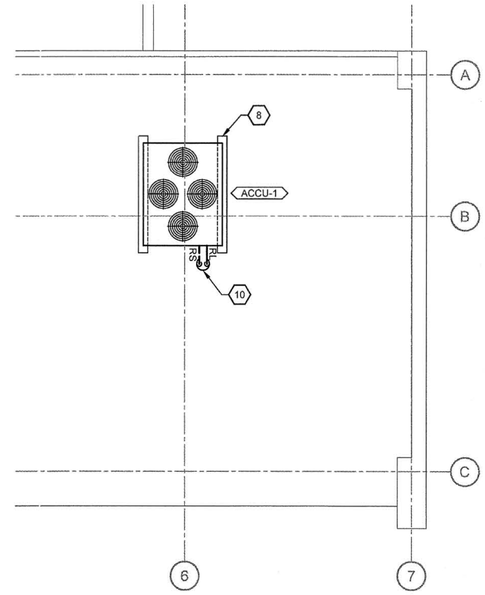
THIS CONTRACTOR SHALL PROVIDE ROOF CURBS AS DESCRIBED BY NOTES 8 AND 10 ABOVE COMPLETE. WITH ROOF PENETRATIONS AND FLASHING INTO ROOFING REGARDLESS OF WHETHER THE ALTERNATE IS ACCEPTED OR NOT.



FILTER BUILDING THIRD FLOOR HVAC NEW WORK AT EL. 545.00

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

0 4' 8' 12'



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

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

0 4' 8' 12'

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STATE OF KENTUCKY
JAMES L. MARTIN
LICENSED PROFESSIONAL ENGINEER
12-16-13

REVISIONS			
NO.	BY	DATE	REMARKS

DES JLM
DWN YNR
CKD JLM

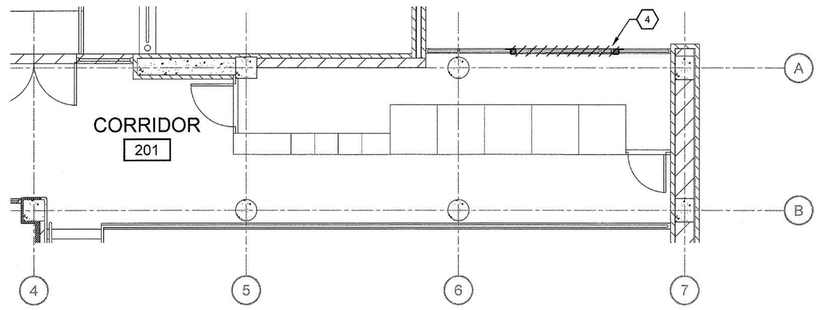
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ELECTRICAL AND BASIN IMPROVEMENTS

HVAC
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.



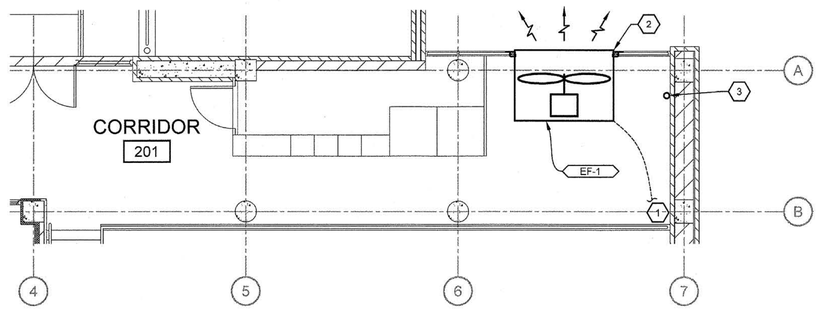
1 FILTER BUILDING MEZZANINE
HVAC DEMOLITION AT EL. 545.00

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

0 4' 8' 12'

⬡ 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"

0 4' 8' 12'

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12-26-13

REVISIONS			
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DES JLM
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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

INTERIOR LIGHTING

CEILING MOUNTED		WALL MOUNTED
b A	TWO BY FOUR FOOT FLUORESCENT LIGHTING FIXTURE, A - INDICATES TYPE b - DENOTES SWITCH DESIGNATION	
b a A	TWO BY FOUR FOOT FLUORESCENT LIGHTING FIXTURE WIRED FOR INDIVIDUAL SWITCHING OF INSIDE AND OUTSIDE LAMPS, LETTER INDICATES TYPE	
b a A	EMERGENCY TWO BY FOUR FOOT FLUORESCENT LIGHTING FIXTURE WIRED FOR INDIVIDUAL SWITCHING OF INSIDE AND OUTSIDE LAMPS, LETTER INDICATES TYPE	
A	EMERGENCY TWO BY FOUR FLUORESCENT LIGHTING FIXTURE, LETTER INDICATES TYPE	
C	FLUORESCENT ONE BY FOUR LIGHTING FIXTURE, LETTER INDICATES TYPE	C
C	EMERGENCY ONE BY FOUR FLUORESCENT LIGHTING FIXTURE, LETTER INDICATES TYPE	
D	STRIP FLUORESCENT LIGHTING FIXTURE, LETTER INDICATES TYPE	D
D	8' STRIP FLUORESCENT LIGHTING FIXTURE, LETTER INDICATES TYPE	
A	TWO BY TWO FOOT FLUORESCENT LIGHTING FIXTURE, LETTER INDICATES TYPE	
A	EMERGENCY TWO BY TWO FOOT FLUORESCENT LIGHTING FIXTURE LETTER INDICATES TYPE	
A	EMERGENCY SELF CONTAINED LIGHTING UNIT WITH TWO LIGHT FIXTURE HEADS, LETTER INDICATES TYPE	A
OR OR	EXIT LIGHT WITH ARROW, LETTER INDICATES TYPE X1 - SINGLE FACE X2 - DOUBLE FACE	OR OR
R	EMERGENCY REMOTE HEAD	R
A	INCANDESCENT OR HID LIGHTING FIXTURE, LETTER INDICATES TYPE	A
A	EMERGENCY INCANDESCENT OR HID LIGHTING FIXTURE, LETTER INDICATES TYPE	A
A	HID LIGHTING FIXTURE WITH QUARTZ RESTRIKE, LETTER INDICATES TYPE	A
	FLOOD LIGHT	

ELECTRIC UTILITY SYMBOLS

EXISTING		NEW
35/3	POLE, LENGTH AND CLASS AS INDICATED	35/3
8M-20	DOWN GUY-NOTED AS 8000 POUND STRENGTH. ANCHOR AT 20 FEET FROM POLE	8M-20
3-25	TRANSFORMER BANK POLE MOUNTED-SHOWN AS THREE PHASE 25 KVA TRANSFORMERS	3-25
25	SINGLE PHASE TRANSFORMER, POLE MOUNTED 25 KVA NOTED	25
T 100	PAD MOUNTED TRANSFORMER INDICATED AS 100 KVA	T 100
	FUSE CUTOUT WITH FUSE SIZE AND TYPE NOTED	
	DISCONNECT SWITCH OR SECTIONALIZING SWITCH	
4#6 4160V EOP	OVERHEAD PRIMARY-SHOWN AS 4-#6 CONDUCTORS, 4160V	3 PHASE 4#6 4160V OHP SINGLE PHASE
EUP	UNDERGROUND PRIMARY	UP
EOS	OVERHEAD SECONDARY	OHS
EUS	UNDERGROUND SECONDARY	US
EUT	UNDERGROUND TELEPHONE CONDUIT	UT
EOT	OVERHEAD TELEPHONE	OT
EUC	UNDERGROUND COMMUNICATION	UC
	POLE MOUNTED LIGHTING FIXTURE	
EG	BURIED GROUND WIRE	G
EG	GROUND WIRE EXPOSED	G
	GROUND CONNECTION OR EQUIPMENT BOND	
EG	ROOF CONDUCTOR	G
	GROUND ROD	
24	LIGHTNING ROD, (24 INCHES HIGH NOTED)	24
60/2	MAST TYPE LIGHTNING PROTECTION SYSTEM, 60' CLASS 2 POLE NOTED	60/2

ABBREVIATIONS

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
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 - FOWARD-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
IG - ISOLATED GROUND
IN - INCH
INC - INCANDESCENT
J-BOX, JB - JUNCTION BOX
KCMIL - 1000 CIRCULAR MILS
KVA - KILOVOLT AMPS
KVAR - KILOVOLT AMPS REACTIVE
KW - KILOWATT
KWH - KILOWATT HOUR
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
S/N - 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
W/O - WITH OUT
WP - WEATHERPROOF
WT - WEIGHT
X/F - 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.

A 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
- CO_2 FIRE EXTINGUISHER
- DRY CHEMICAL FIRE EXTINGUISHER

- EOL - END OF LINE RESISTOR
- FCP - FIRE ALARM CONTROL PANEL
- FSA - FIRE ALARM ANNUNICATOR PANEL
- FAC - FIRE ALARM COMMUNICATOR
- X - FIRE ALARM MANUAL STATION
  - X= H- HALON
    C- CARBON DIOXIDE
    D- DRY CHEMICAL
    F- FOAM
    W- WET CHEMICAL
    P- MANUAL PULL STATION
- FIRE ALARM SPEAKER-HORN/STROBE LIGHT
- FIRE ALARM HORN OR SPEAKER
- FIRE ALARM BELL/LIGHT
- WATER MOTOR GONG
- FIRE ALARM STROBE LIGHT
- WALL MOUNTED FIRE ALARM STROBE LIGHT
- 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
- 1D - ONE DATA OUTLET
- 2D - TWO DATA OUTLETS
- 3D - THREE DATA OUTLETS
- 4D - FOUR DATA OUTLETS
- VDT - ONE VOICE, DATA & VIDEO OUTLET
- FLOOR MOUNTED TELEPHONE OUTLET (CAN BE APPLIED TO DATA OUTLET ALSO)
  - V=VOICE
  - D=DATA
  - TV=VIDEO (TV)
- XX - COMMUNICATIONS OUTLET XX=MOUNTING HEIGHT
- SPEAKER, WALL MOUNTED
- S - SPEAKER,CEILING MOUNTED
- FIXED CAMERA
- PAN/TILT/ZOOM CAMERA
- MCD - MAGNETIC CONTACT, DOOR MOUNTED
- MCW - MAGNETIC CONTACT, WINDOW MOUNTED OR BREAK GLASS STATION
- M - PASSIVE INFRARED MOTION DETECTOR, ARROW DENOTES CURTAIN DIRECTION

- SINGLE RECEPTACLE
- PUSHBUTTON STATION
- DUPLEX RECEPTACLE, 125 VOLT, 2-POLE, 3 WIRE, NEMA 5-20R GROUNDING TYPE, SUBSCRIPT DENOTES THE FOLLOWING:
  - WP : WEATHERPROOF
  - GFI : INTEGRAL GROUND FAULT INTERRUPT
  - IG : ISOLATED GROUND
  - EXP : EXPLOSION PROOF
  - E : EMERGENCY CIRCUIT
- QUADRAPLEX RECEPTACLE, 125 VOLT, 2-POLE, 3 WIRE, NEMA 5-20R GROUNDING TYPE, SUBSCRIPT DENOTES THE FOLLOWING:
  - WP : WEATHERPROOF
  - GFI : INTEGRAL GROUND FAULT INTERRUPT
- SINGLE SPECIAL PURPOSE RECEPTACLE
- FLOOR MOUNTED RECEPTACLE
- J - JUNCTION BOX WALL OR CEILING MOUNTED FLUSH, 4"X4" SQUARE UNLESS OTHERWISE NOTED

CONTROLS

- DM - DAMPER MOTOR ACTUATOR, SPRING RETURN
- EF - EXHAUST FAN MOTOR
- M - POWER METER
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- TVSS - TRANSIENT VOLTAGE SURGE SUPPRESSOR
- TS OR - LIGHTNING ARRESTOR (CROWBAR STYLE)
- CAPACITOR
- GROUND
- TRANSFORMER
- RELAY CONTROLS (NORMALLY OPEN)
- RELAY CONTROLS (NORMALLY CLOSED)
- K - KEY INTERLOCK
- TIMER CLUTCH OR SOLENOID
- 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
- 1 2 - TERMINALS FOR WIRE CONNECTIONS FROM REMOTE DEVICE
- R - PILOT LIGHT IN CONTROL CIRCUIT LETTER INDICATES COLOR
- M - MOTOR STARTER COIL
- AUTOTRANSFORMER
- CIRCUIT BREAKER GENERIC
- MAGNETIC ONLY CIRCUIT BREAKER (SINGLE POLE SHOWN)
- THERMAL-MAGNETIC CIRCUIT BREAKER (SINGLE POLE SHOWN)
- BATTERY
- GF OR GF - GROUND FAULT PROTECTED BREAKER
- START / STOP / M - START-STOP PUSHBUTTON (NON-MAINTAINED CONTACT)
- ON / OFF - ON-OFF PUSHBUTTON (MAINTAINED CONTACT)
- H O A - 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
- PLUGIN OR FEEDER BUS
- WALL MOUNTED SINGLE FACE CLOCK
- WALL MOUNTED DOUBLE FACE CLOCK
- TWO SINGLE POLE SWITCHES FOR MULTI-LEVEL LIGHTING
- M OR 5 - MOTOR CONNECTION (5 HP INDICATED)
- ENCLOSED CIRCUIT BREAKER
- S_X - 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
- COMBINATION STARTER/FUSED DISCONNECT
- ETM - ELAPSED TIME METER
- TM - TIMER MOTOR
- CR# - RELAY
- SV - SOLENOID VALVE CONNECTION
- LS - LIMIT SWITCH CONNECTION
- T - THERMOSTAT CONNECTION
- PE - PNEUMATIC/ELECTRIC CONNECTION
- PC - PHOTOCELL
- PS - PRESSURE SWITCH CONNECTION

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STATE OF KENTUCKY
T. MICHELLE HOWLETT
19856
LICENSED PROFESSIONAL ENGINEER
12/26/13

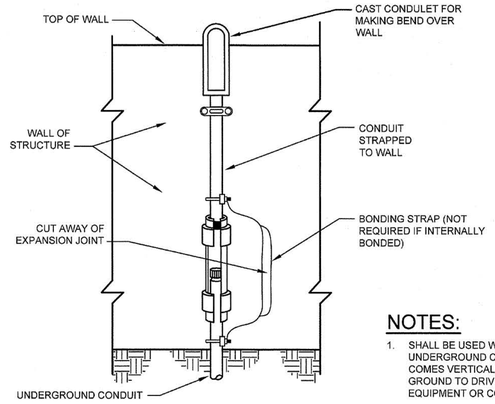
REVISIONS			
NO.	BY	DATE	REMARKS

DES TMH
DWN YNR
CKD TMH

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

ELECTRICAL
GENERAL SYMBOLS AND ABBREVIATIONS
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE JANUARY 2014
SHEET E-00-001
CAD REF. NO. E-00-001

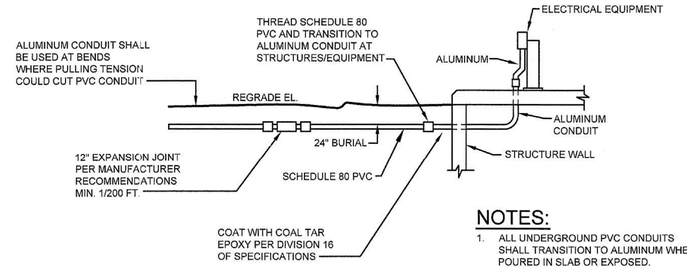


NOTES:

1. SHALL BE USED WHENEVER UNDERGROUND CONDUIT COMES VERTICALLY OUT OF GROUND TO DRIVEN EQUIPMENT OR CONTROLS.

1 CONDUIT EXPANSION JOINT DETAIL

NOT TO SCALE



NOTES:

1. ALL UNDERGROUND PVC CONDUITS SHALL TRANSITION TO ALUMINUM WHERE POURED IN SLAB OR EXPOSED.

2 TYPICAL UNDERGROUND PVC CONDUIT TRANSITION TO ALUMINUM CONDUIT

NOT TO SCALE

PANEL SCHEDULE	LPHV2
LOCATION	3RD FLOOR
SURFACE, FLUSH, OR MCC	SURFACE
AIC RATING	25000
ENCLOSURE	NEMA 1

VOLTAGE	480/277V, 3-PHASE, 4-WIRE
MAINS AMPACITY	125A
MAIN CB SIZE	MLO
TOTAL SPACES	30
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			0	30					
TOTAL VOLT-AMPERES PER PHASE						26800	26800	26800						
TOTAL AMPERES PER PHASE						96.8	96.8	96.8						

*LOAD NOT INCLUDED IN TOTAL

LIGHT FIXTURE SCHEDULE					
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	EXIT LIGHT THERMOPLASTIC RED LETTERS UNIVERSAL ARROWS/MOUNTING	LED	LITHONIA	LQM S W 1 R 120/277 EL N SD	UNIVERSAL

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T. MICHELLE HOWLETT 19856 LICENSED PROFESSIONAL ENGINEER
STATE OF KENTUCKY
12/24/13

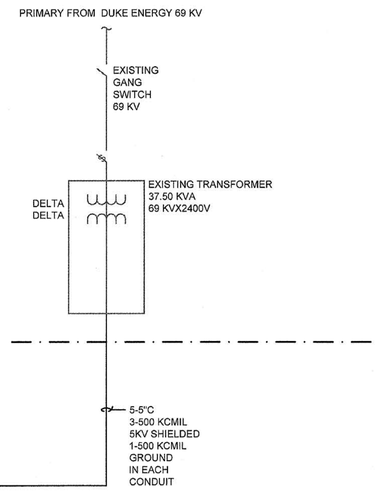
REVISIONS			
NO.	BY	DATE	REMARKS

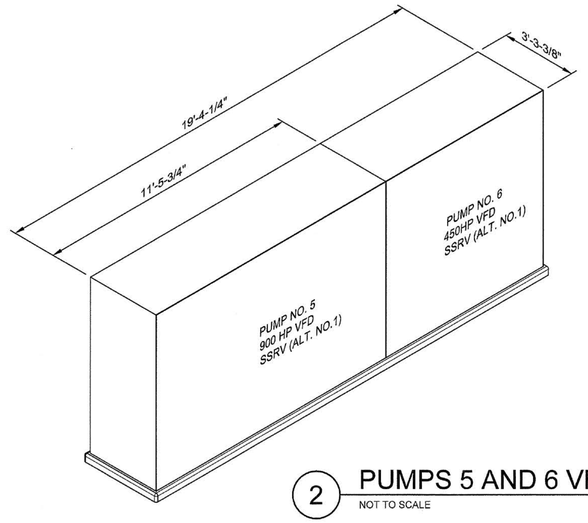
DES TMH
DWN YNR
CKD TMH

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

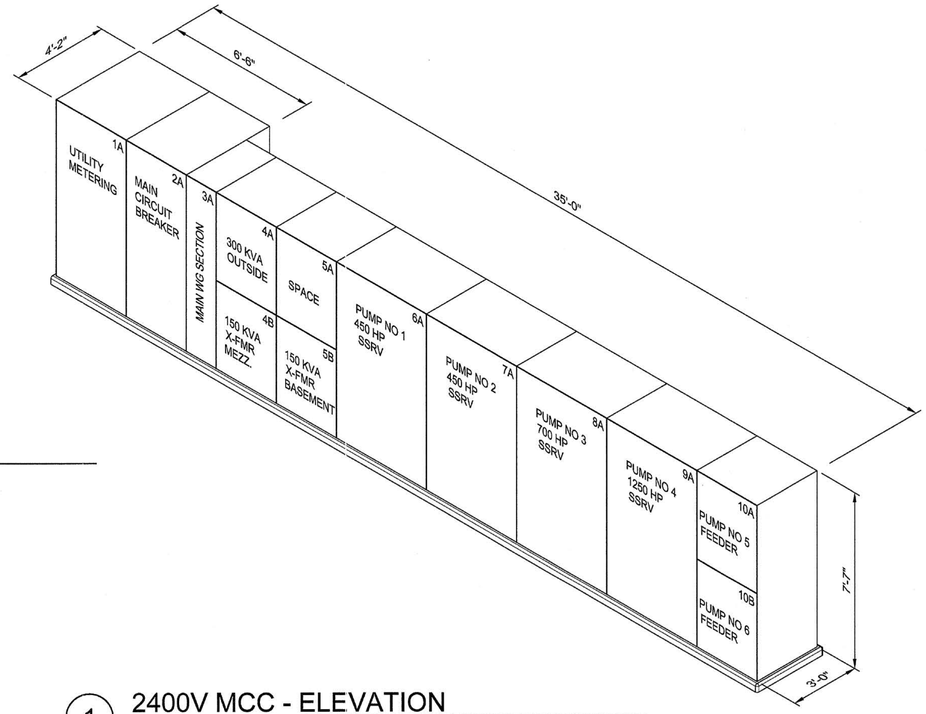
ELECTRICAL
DETAILS AND SCHEDULES
SCALE: NOT TO SCALE

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

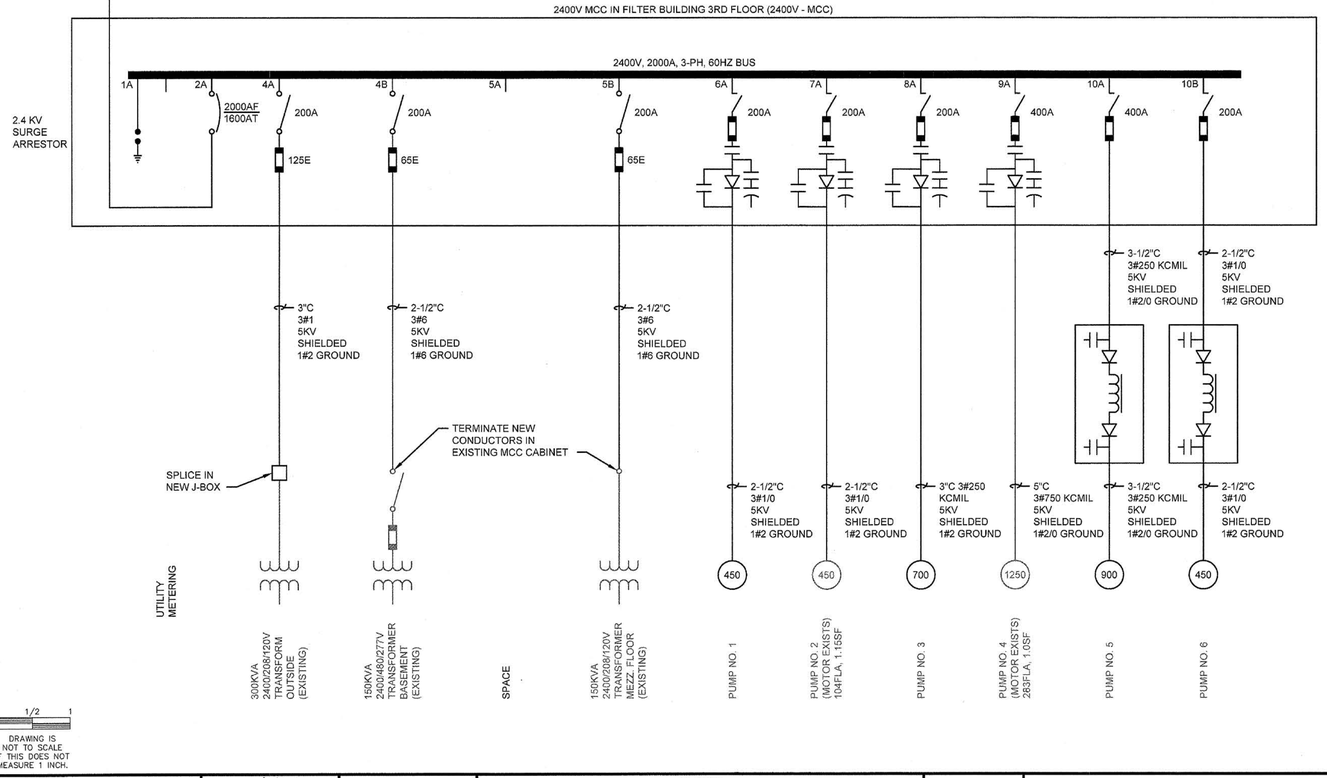




2 PUMPS 5 AND 6 VFD ELEVATION
NOT TO SCALE



1 2400V MCC - ELEVATION
NOT TO SCALE



NOTES:

1. EXISTING EQUIPMENT ON THIS SHEET IS SHOWN IN LIGHT PRINT. NEW WORK IS SHOWN IN HEAVY PRINT.
2. 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.
3. 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.

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T. MICHELLE HOWLETT 19856 LICENSED PROFESSIONAL ENGINEER STATE OF KENTUCKY
12/26/13

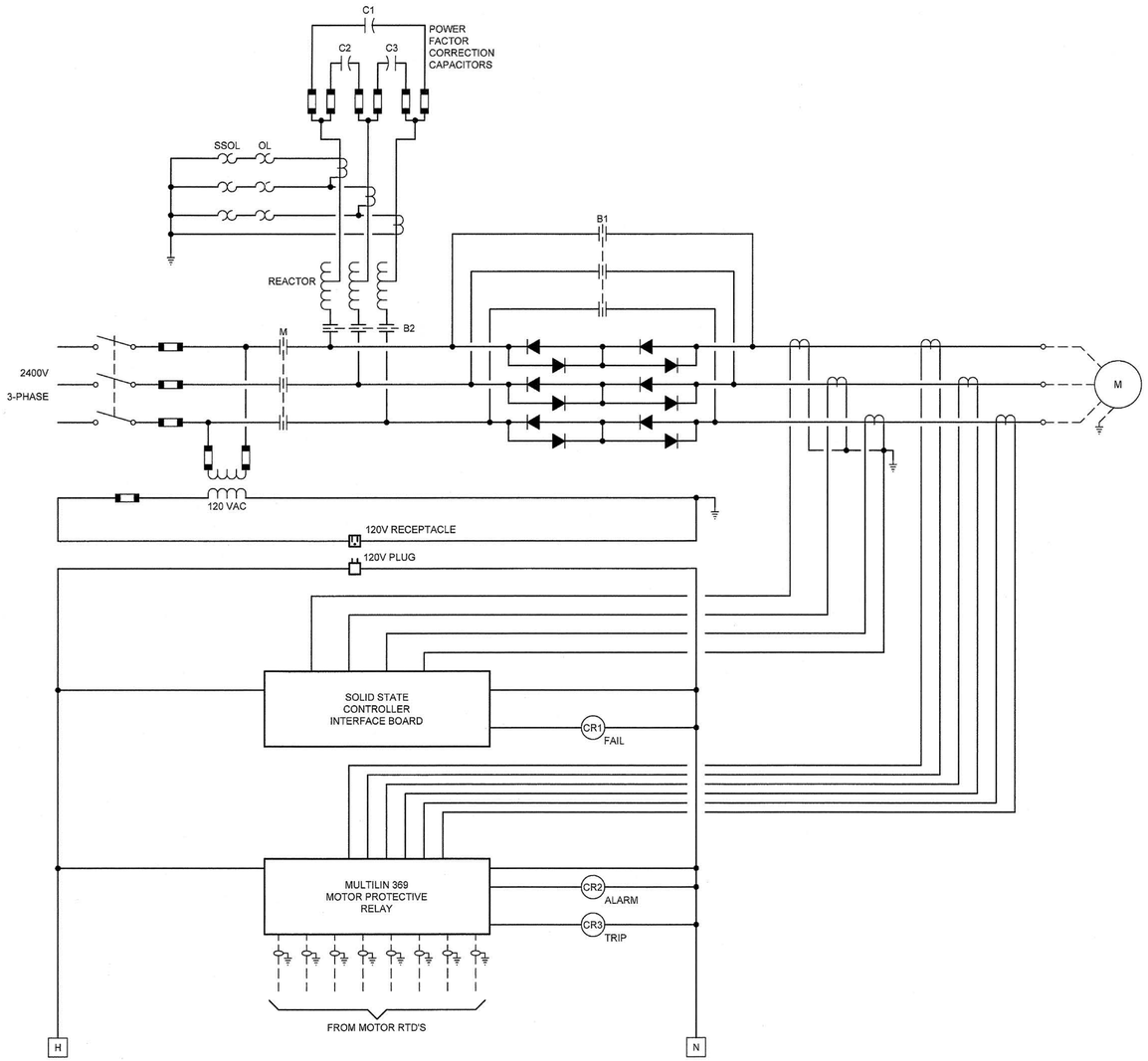
REVISIONS			
NO.	BY	DATE	REMARKS

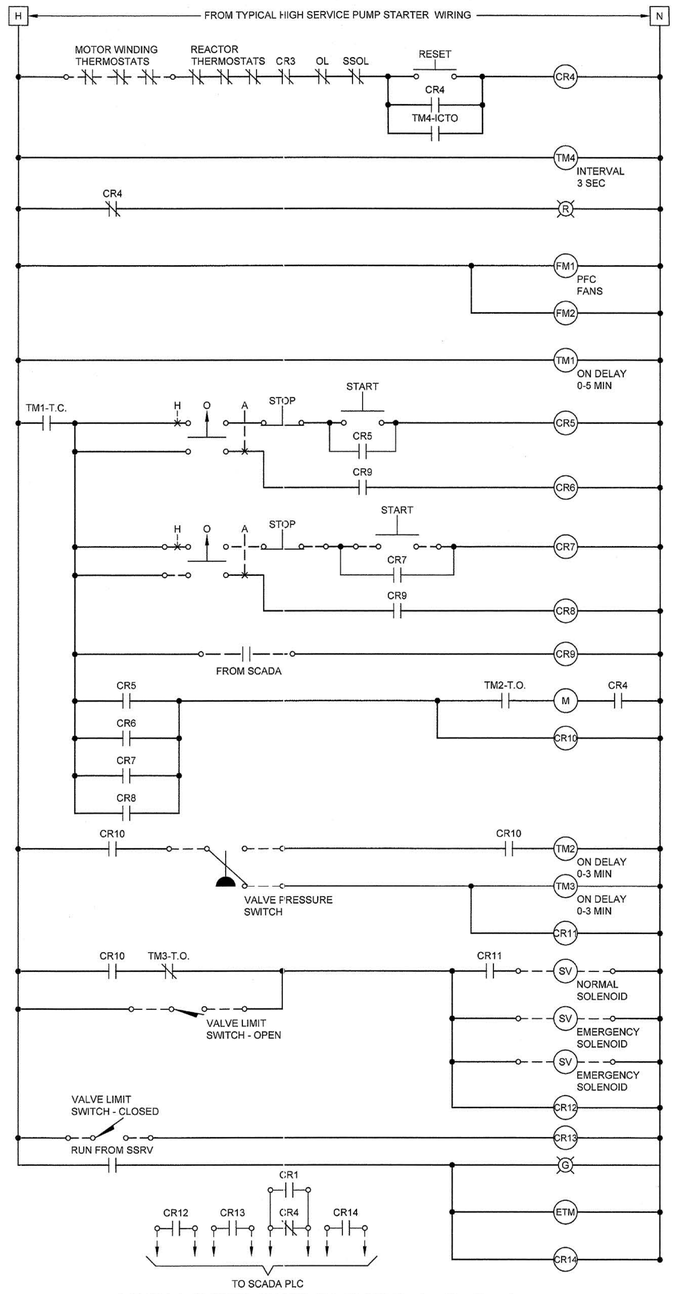
DES TMH
DWN YNR
CKD TMH

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

ELECTRICAL
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





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.

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12/26/13

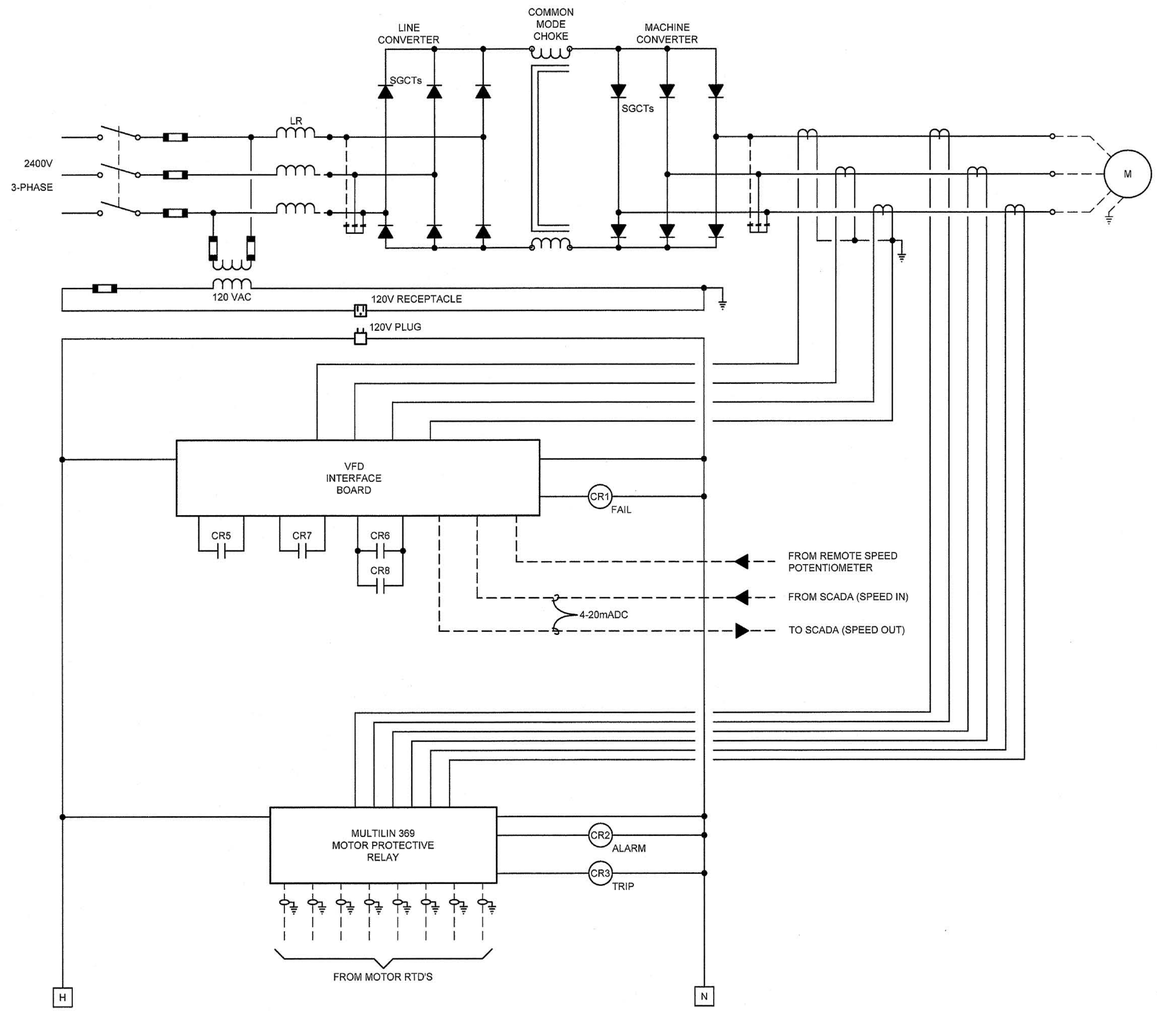
REVISIONS			
NO.	BY	DATE	REMARKS

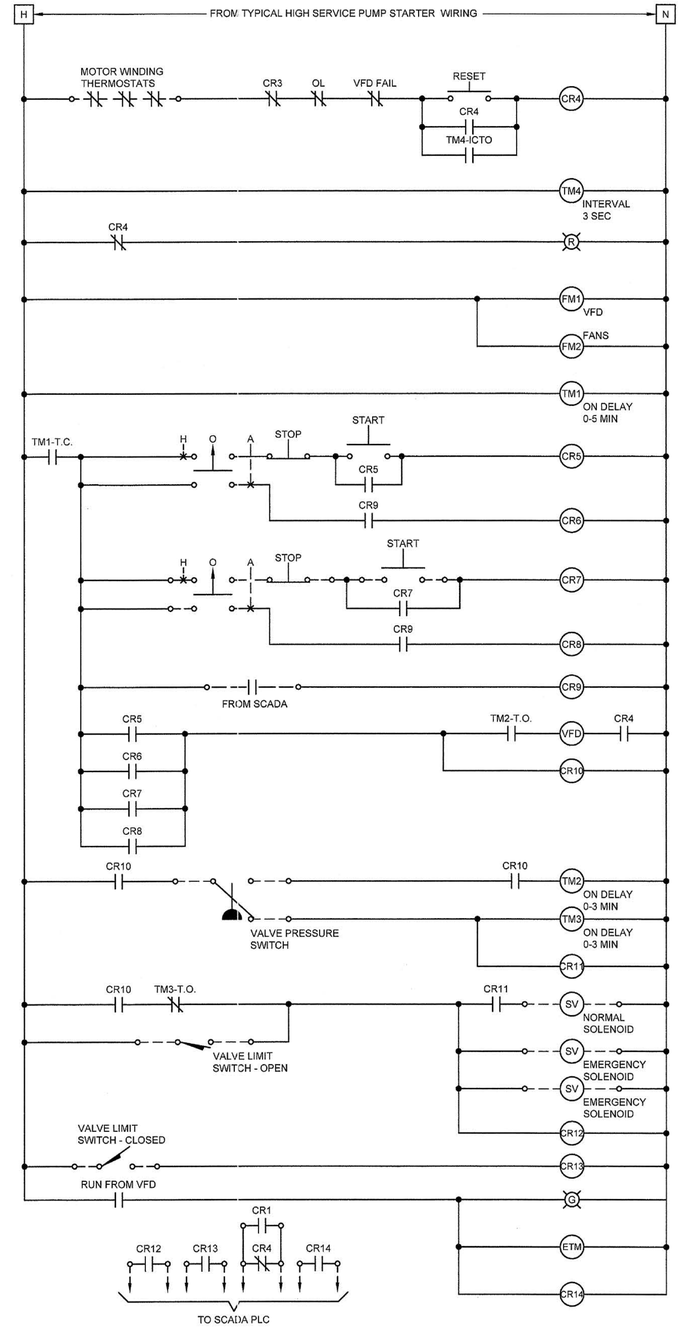
DES TMH
DWN YNR
CKD TMH

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





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.

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COMMONWEALTH OF KENTUCKY
T. MICHELLE HOWLETT
19856
LICENSED PROFESSIONAL ENGINEER
12/26/13

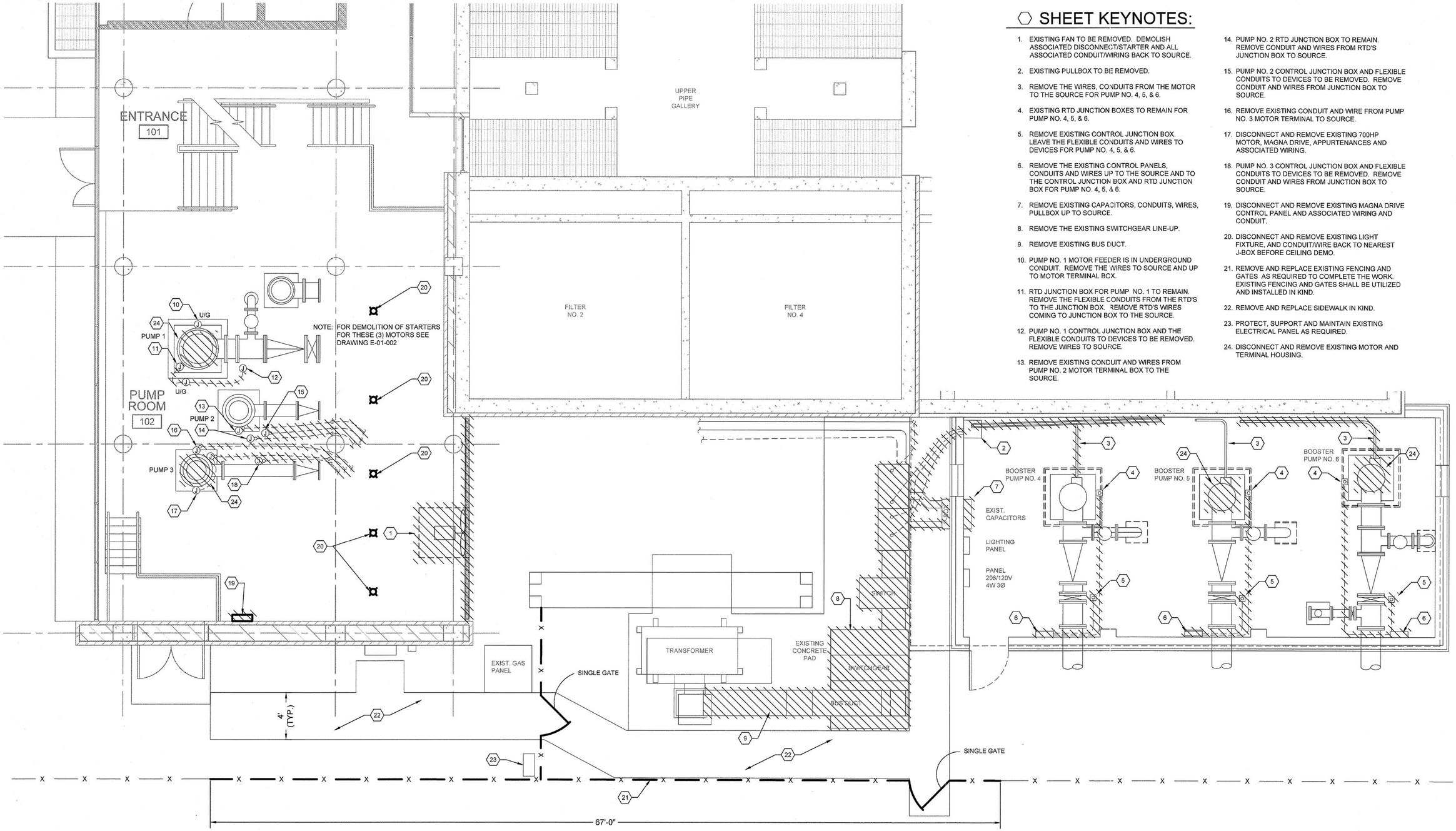
REVISIONS			
NO.	BY	DATE	REMARKS

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 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 BOX.
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.

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

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

0 2' 4' 8'

MALCOLM PIRNIE | ARCADIS
The Water Division of ARCADIS
Magna ENGINEERS
Electrical • Mechanical • Instrumentation

T. MICHELLE HOWLETT 19856 LICENSED PROFESSIONAL ENGINEER STATE OF KENTUCKY
12/26/13

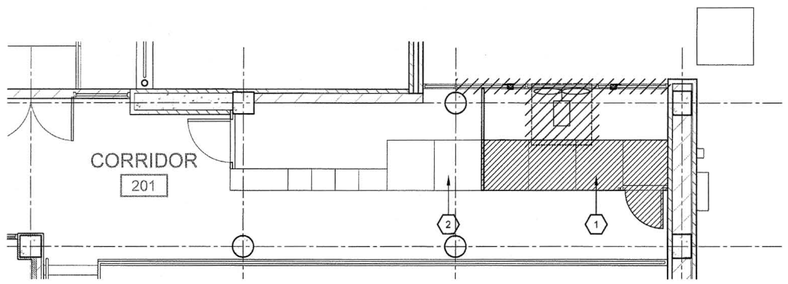
REVISIONS			
NO.	BY	DATE	REMARKS

DES TMH
DWN YNR
CKD TMH

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

ELECTRICAL
FILTER BUILDING ELECTRICAL 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



FILTER BUILDING ELECTRICAL MEZZANINE DEMOLITION AT EL. 535.00

1

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

0 4' 8' 12'

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.

0 1/2 1

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

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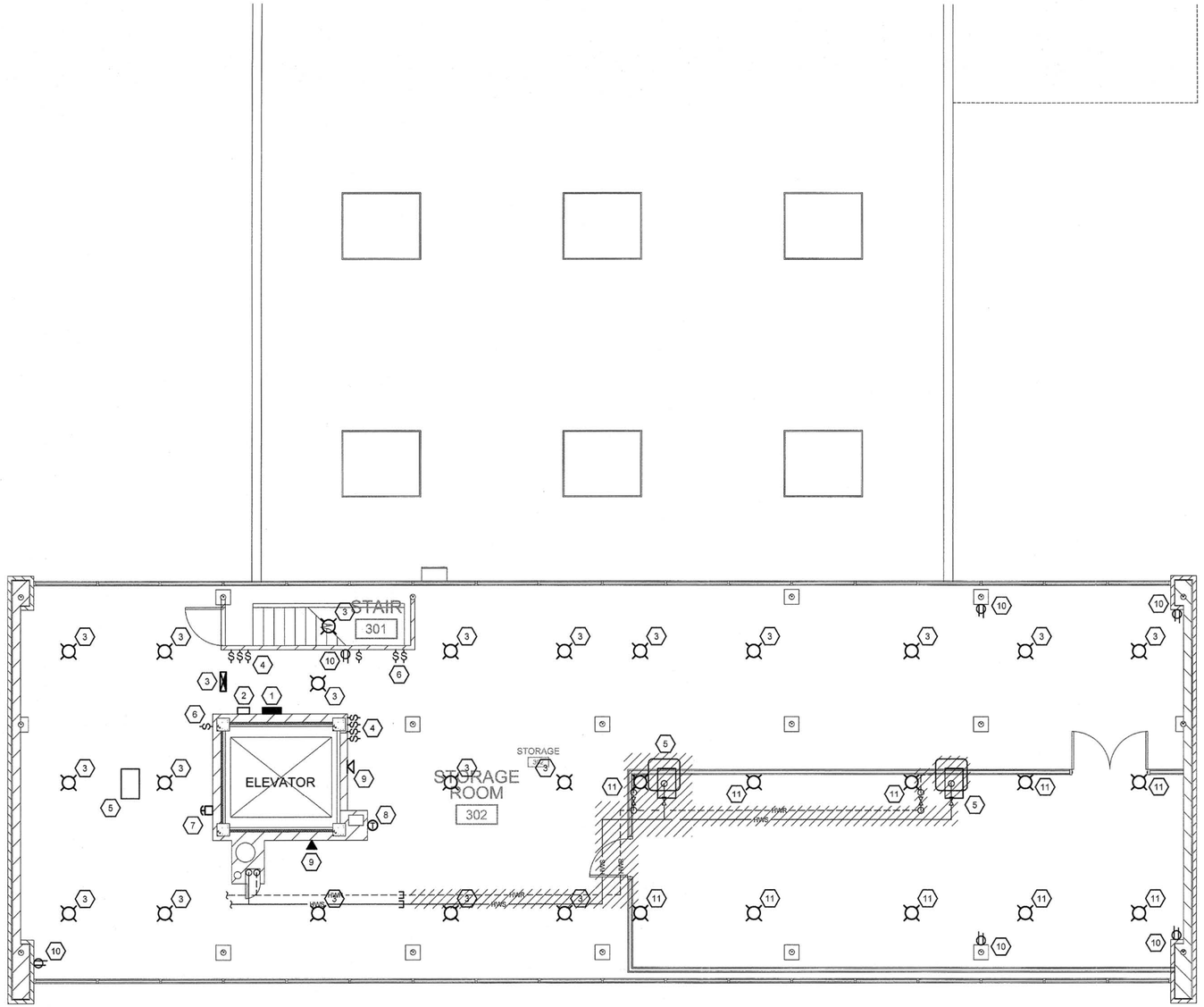
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ELECTRICAL AND BASIN IMPROVEMENTS

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

User: ##### Spec: PIRNIE STANDARD File: P:\024-13-001 NKWD TMTP IMPROVEMENTS\ACAD\ELECTRICAL\E-01-002.DWG Scale:1:24 Saved/Date:1117/2013 Time:09:52 Plot Date: Yuriy Radyk, 12/18/2013, 09:46 , Layout: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"

0 4' 8' 12'

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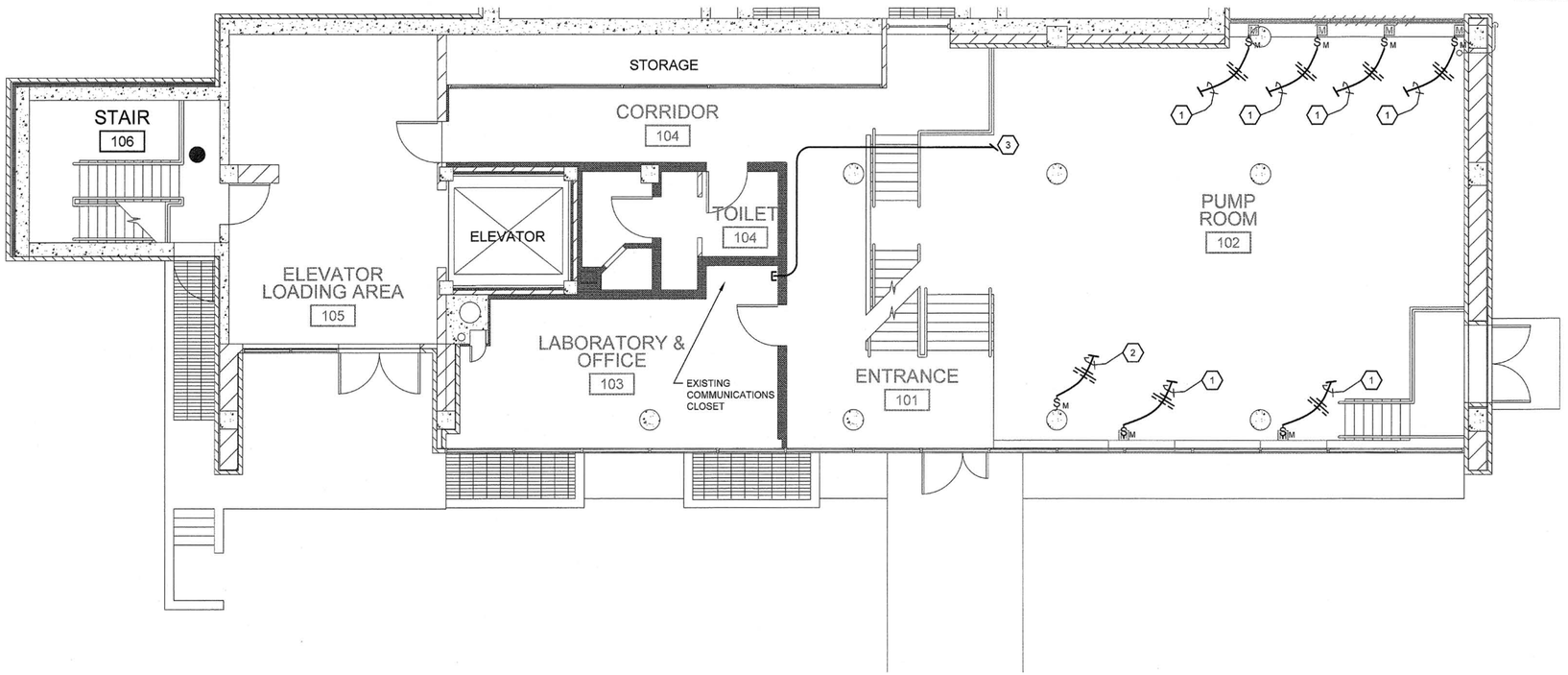
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ELECTRICAL AND BASIN IMPROVEMENTS

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

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

REMOVE WINDOWS AND INSTAL (3)LV-1 AND (1)LV-2 LOUVERS.

EXISTING WINDOW MULLIONS TO REMAIN. SEE DETAIL ON ARCHITECTURAL DRAWINGS.



FILTER BUILDING PUMP ROOM POWER PLAN AT EL. 525.50

1

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

0 4' 8' 12'

SHEET KEYNOTES:

1. NEMA 4 MANUAL MOTOR STARTER FOR DAMPER ACTUATOR. PROVIDE CONDUIT/WIRING BACK TO STARTER ASSOCIATED WITH EXHAUST FAN (EF-1). SEE SHEET E-01-006 FOR LOCATION OF FAN.
2. NEMA 4 MANUAL MOTOR STARTER TO CONTROL EXHAUST FAN (EF-1) AND ASSOCIATED DAMPERS. PROVIDE CONDUIT/WIRING BACK TO STARTER ASSOCIATED WITH EXHAUST FAN (EF-1). SEE SHEET E-01-006 FOR LOCATION OF FAN.
3. 1"C WITH PULLWIRE TO CABLE TRAY. SEE SHEET E-01-005 FOR LOCATION.

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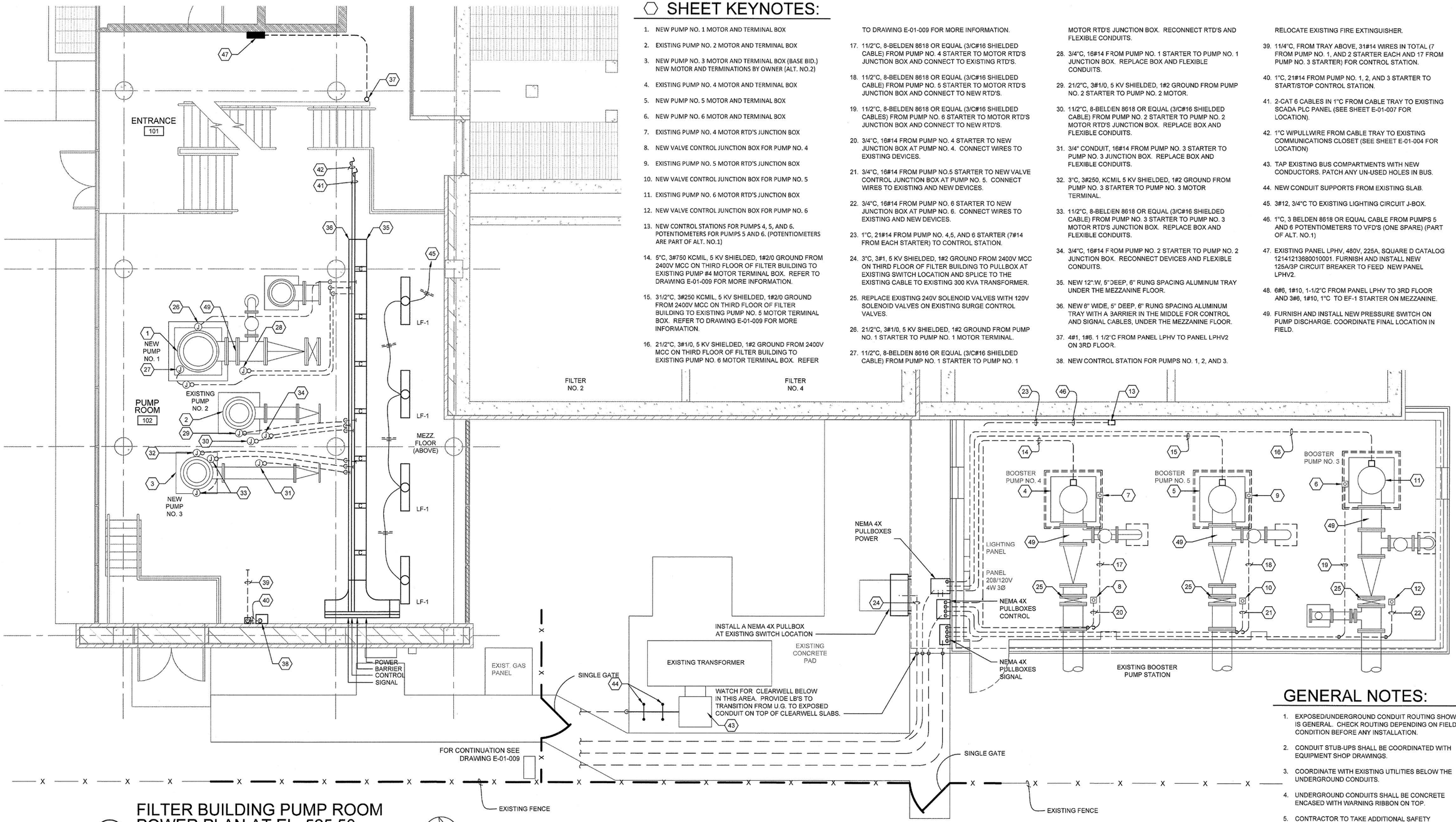
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ELECTRICAL AND BASIN IMPROVEMENTS

ELECTRICAL
FILTER BUILDING POWER PLAN AT EL. 525.50
SCALE: 3/16" = 1'-0"

ISSUED STATUS: BID SET
DATE JANUARY 2014
SHEET E-01-004
CAD REF. NO. E-01-004



SHEET KEYNOTES:

1. NEW PUMP NO. 1 MOTOR AND TERMINAL BOX
2. EXISTING PUMP NO. 2 MOTOR AND TERMINAL BOX
3. NEW PUMP NO. 3 MOTOR AND TERMINAL BOX (BASE BID.) NEW MOTOR AND TERMINATIONS BY OWNER (ALT. NO.2)
4. EXISTING PUMP NO. 4 MOTOR AND TERMINAL BOX
5. NEW PUMP NO. 5 MOTOR AND TERMINAL BOX
6. NEW PUMP NO. 6 MOTOR AND TERMINAL BOX
7. EXISTING PUMP NO. 4 MOTOR RTD'S JUNCTION BOX
8. NEW VALVE CONTROL JUNCTION BOX FOR PUMP NO. 4
9. EXISTING PUMP NO. 5 MOTOR RTD'S JUNCTION BOX
10. NEW VALVE CONTROL JUNCTION BOX FOR PUMP NO. 5
11. EXISTING PUMP NO. 6 MOTOR RTD'S JUNCTION BOX
12. NEW VALVE CONTROL JUNCTION BOX FOR PUMP NO. 6
13. NEW CONTROL STATIONS FOR PUMPS 4, 5, AND 6. POTENTIOMETERS FOR PUMPS 5 AND 6. (POTENTIOMETERS ARE PART OF ALT. NO.1)
14. 5"C, 3#750 KCMIL, 5 KV SHIELDED, 1#2/0 GROUND FROM 2400V MCC ON THIRD FLOOR OF FILTER BUILDING TO EXISTING PUMP #4 MOTOR TERMINAL BOX. REFER TO DRAWING E-01-009 FOR MORE INFORMATION.
15. 3 1/2"C, 3#250 KCMIL, 5 KV SHIELDED, 1#2/0 GROUND FROM 2400V MCC ON THIRD FLOOR OF FILTER BUILDING TO EXISTING PUMP NO. 5 MOTOR TERMINAL BOX. REFER TO DRAWING E-01-009 FOR MORE INFORMATION.
16. 21/2"C, 3#1/0, 5 KV SHIELDED, 1#2 GROUND FROM 2400V MCC ON THIRD FLOOR OF FILTER BUILDING TO EXISTING PUMP NO. 6 MOTOR TERMINAL BOX. REFER TO DRAWING E-01-009 FOR MORE INFORMATION.
17. 11/2"C, 8-BELDEN 8618 OR EQUAL (3/C#16 SHIELDED CABLE) FROM PUMP NO. 4 STARTER TO MOTOR RTD'S JUNCTION BOX AND CONNECT TO EXISTING RTD'S.
18. 11/2"C, 8-BELDEN 8618 OR EQUAL (3/C#16 SHIELDED CABLE) FROM PUMP NO. 5 STARTER TO MOTOR RTD'S JUNCTION BOX AND CONNECT TO NEW RTD'S.
19. 11/2"C, 8-BELDEN 8618 OR EQUAL (3/C#16 SHIELDED CABLES) FROM PUMP NO. 6 STARTER TO MOTOR RTD'S JUNCTION BOX AND CONNECT TO NEW RTD'S.
20. 3/4"C, 16#14 FROM PUMP NO. 4 STARTER TO NEW JUNCTION BOX AT PUMP NO. 4. CONNECT WIRES TO EXISTING DEVICES.
21. 3/4"C, 16#14 FROM PUMP NO.5 STARTER TO NEW VALVE CONTROL JUNCTION BOX AT PUMP NO. 5. CONNECT WIRES TO EXISTING AND NEW DEVICES.
22. 3/4"C, 16#14 FROM PUMP NO. 6 STARTER TO NEW JUNCTION BOX AT PUMP NO. 6. CONNECT WIRES TO EXISTING AND NEW DEVICES.
23. 1"C, 21#14 FROM PUMP NO. 4,5, AND 6 STARTER (7#14 FROM EACH STARTER) TO CONTROL STATION.
24. 3"C, 3#1, 5 KV SHIELDED, 1#2 GROUND FROM 2400V MCC ON THIRD FLOOR OF FILTER BUILDING TO PULLBOX AT EXISTING SWITCH LOCATION AND SPLICE TO THE EXISTING CABLE TO EXISTING 300 KVA TRANSFORMER.
25. REPLACE EXISTING 240V SOLENOID VALVES WITH 120V SOLENOID VALVES ON EXISTING SURGE CONTROL VALVES.
26. 21/2"C, 3#1/0, 5 KV SHIELDED, 1#2 GROUND FROM PUMP NO. 1 STARTER TO PUMP NO. 1 MOTOR TERMINAL.
27. 11/2"C, 8-BELDEN 8616 OR EQUAL (3/C#16 SHIELDED CABLE) FROM PUMP NO. 1 STARTER TO PUMP NO. 1 MOTOR RTD'S JUNCTION BOX. RECONNECT RTD'S AND FLEXIBLE CONDUITS.
28. 3/4"C, 16#14 FROM PUMP NO. 1 STARTER TO PUMP NO. 1 JUNCTION BOX. REPLACE BOX AND FLEXIBLE CONDUITS.
29. 21/2"C, 3#1/0, 5 KV SHIELDED, 1#2 GROUND FROM PUMP NO. 2 STARTER TO PUMP NO. 2 MOTOR.
30. 11/2"C, 8-BELDEN 8618 OR EQUAL (3/C#16 SHIELDED CABLE) FROM PUMP NO. 2 STARTER TO PUMP NO. 2 MOTOR RTD'S JUNCTION BOX. REPLACE BOX AND FLEXIBLE CONDUITS.
31. 3/4" CONDUIT, 16#14 FROM PUMP NO. 3 STARTER TO PUMP NO. 3 JUNCTION BOX. REPLACE BOX AND FLEXIBLE CONDUITS.
32. 3"C, 3#250, KCMIL 5 KV SHIELDED, 1#2 GROUND FROM PUMP NO. 3 STARTER TO PUMP NO. 3 MOTOR TERMINAL.
33. 11/2"C, 8-BELDEN 8618 OR EQUAL (3/C#16 SHIELDED CABLE) FROM PUMP NO. 3 STARTER TO PUMP NO. 3 MOTOR RTD'S JUNCTION BOX. REPLACE BOX AND FLEXIBLE CONDUITS.
34. 3/4"C, 16#14 FROM PUMP NO. 2 STARTER TO PUMP NO. 2 JUNCTION BOX. RECONNECT DEVICES AND FLEXIBLE CONDUITS.
35. NEW 12"W, 5"DEEP, 6" RUNG SPACING ALUMINUM TRAY UNDER THE MEZZANINE FLOOR.
36. NEW 6" WIDE, 5" DEEP, 6" RUNG SPACING ALUMINUM TRAY WITH A BARRIER IN THE MIDDLE FOR CONTROL AND SIGNAL CABLES, UNDER THE MEZZANINE FLOOR.
37. 4#1, 1#6. 1 1/2"C FROM PANEL LPHV TO PANEL LPHV2 ON 3RD FLOOR.
38. NEW CONTROL STATION FOR PUMPS NO. 1, 2, AND 3. RELOCATE EXISTING FIRE EXTINGUISHER.
39. 11/4"C, FROM TRAY ABOVE, 31#14 WIRES IN TOTAL (7 FROM PUMP NO. 1, AND 2 STARTER EACH AND 17 FROM PUMP NO. 3 STARTER) FOR CONTROL STATION.
40. 1"C, 21#14 FROM PUMP NO. 1, 2, AND 3 STARTER TO START/STOP CONTROL STATION.
41. 2-CAT 6 CABLES IN 1"C FROM CABLE TRAY TO EXISTING SCADA PLC PANEL (SEE SHEET E-01-007 FOR LOCATION).
42. 1"C W/PULLWIRE FROM CABLE TRAY TO EXISTING COMMUNICATIONS CLOSET (SEE SHEET E-01-004 FOR LOCATION)
43. TAP EXISTING BUS COMPARTMENTS WITH NEW CONDUCTORS. PATCH ANY UN-USED HOLES IN BUS.
44. NEW CONDUIT SUPPORTS FROM EXISTING SLAB.
45. 3#12, 3/4"C TO EXISTING LIGHTING CIRCUIT J-BOX.
46. 1"C, 3 BELDEN 8618 OR EQUAL CABLE FROM PUMPS 5 AND 6 POTENTIOMETERS TO VFD'S (ONE SPARE) (PART OF ALT. NO.1)
47. EXISTING PANEL LPHV, 480V, 225A, SQUARE D CATALOG 12141213680010001. FURNISH AND INSTALL NEW 125A/3P CIRCUIT BREAKER TO FEED NEW PANEL LPHV2.
48. 6#6, 1#10, 1-1/2"C FROM PANEL LPHV TO 3RD FLOOR AND 3#6, 1#10, 1"C TO EF-1 STARTER ON MEZZANINE.
49. FURNISH AND INSTALL NEW PRESSURE SWITCH ON PUMP DISCHARGE. COORDINATE FINAL LOCATION IN FIELD.

GENERAL NOTES:

1. EXPOSED/UNDERGROUND CONDUIT ROUTING SHOWN IS GENERAL. CHECK ROUTING DEPENDING ON FIELD CONDITION BEFORE ANY INSTALLATION.
2. CONDUIT STUB-UPS SHALL BE COORDINATED WITH EQUIPMENT SHOP DRAWINGS.
3. COORDINATE WITH EXISTING UTILITIES BELOW THE UNDERGROUND CONDUITS.
4. UNDERGROUND CONDUITS SHALL BE CONCRETE ENCASED WITH WARNING RIBBON ON TOP.
5. CONTRACTOR TO TAKE ADDITIONAL SAFETY MEASURES WORKING IN EXISTING SUBSTATION AREA AND COORDINATE WITH DUKE ENERGY TO SHIELD OVERHEAD LINES.
6. SEE SECTION 012300 FOR A DESCRIPTION OF ALTERNATIVE NO.1

1 FILTER BUILDING PUMP ROOM POWER PLAN AT EL. 525.50

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

0 2' 4' 8'

0 1/2 1

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

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12/26/13

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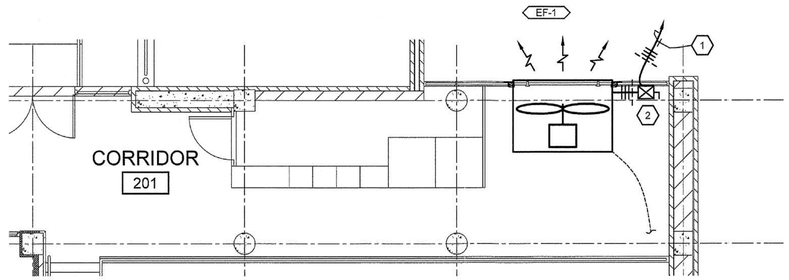
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ELECTRICAL AND BASIN IMPROVEMENTS

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

ISSUED STATUS: BID SET
DATE JANUARY 2014
SHEET E-01-005
CAD REF. NO. E-01-005



1 FILTER BUILDING MEZZANINE POWER PLAN AT EL. 535.00

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

0 4' 8' 12'

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.

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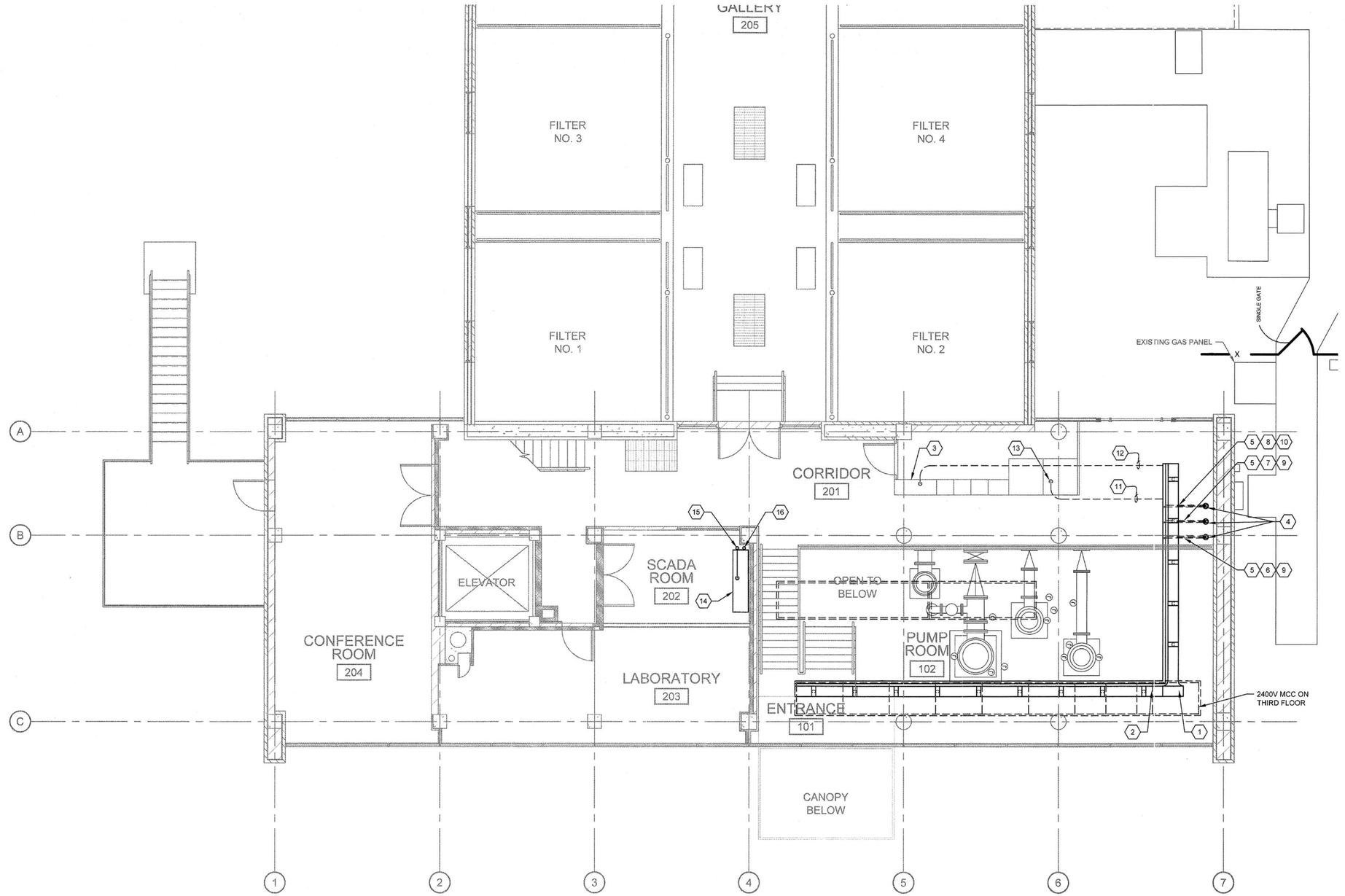
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ELECTRICAL AND BASIN IMPROVEMENTS

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 8618 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 4' 8' 12'

0 1/2 1

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

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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"

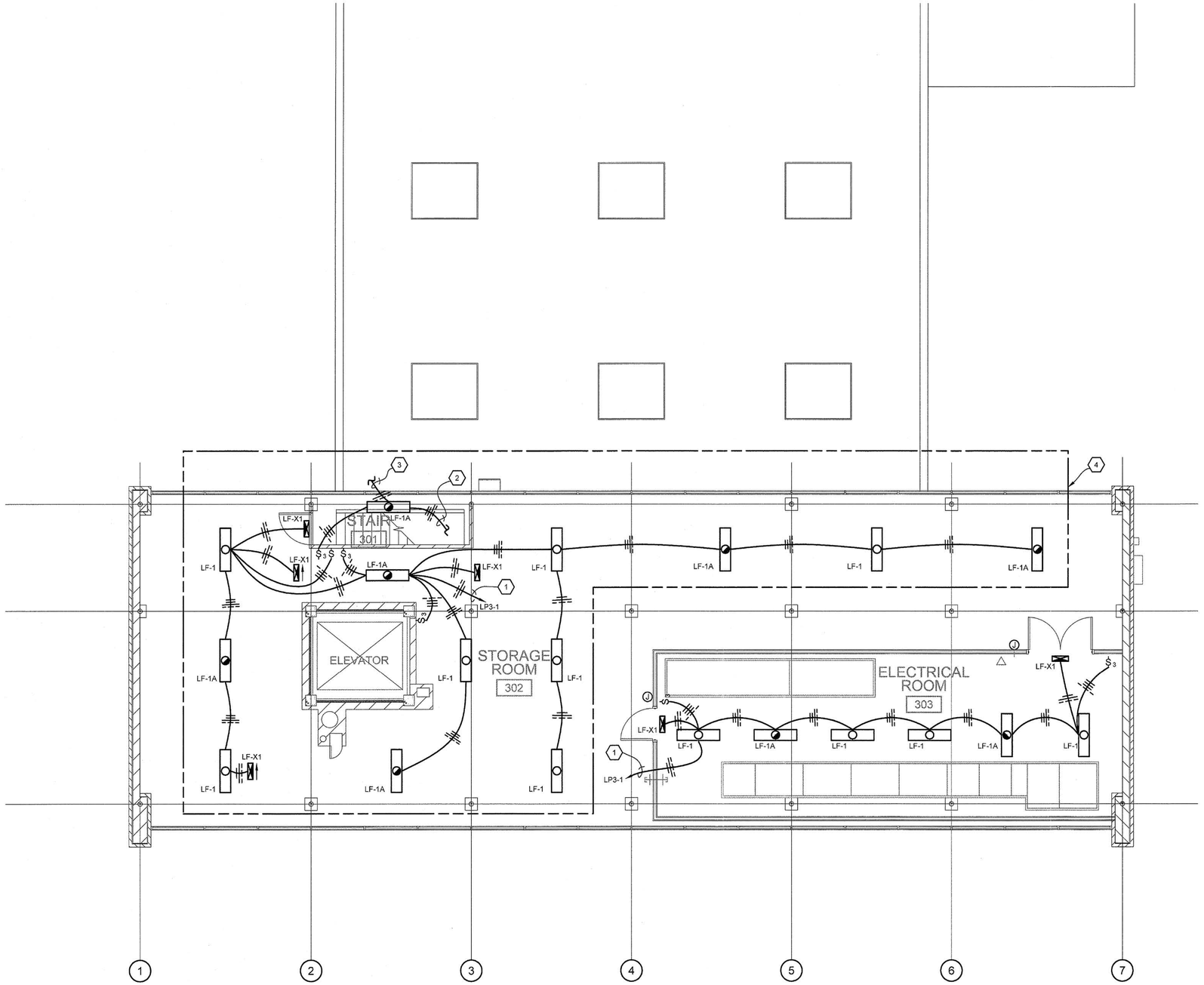
ISSUED STATUS: BID SET
DATE JANUARY 2014
SHEET E-01-007
CAD REF. NO. E-01-007

GENERAL NOTES:

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

⬡ SHEET KEYNOTES:

1. CONNECT TO AN EXISTING 20A/1P BREAKER LOCATED WITHIN PANEL LP3-1.
2. EXTEND TO EXISTING LIGHT FIXTURE AND 3-WAY SWITCH ON FLOOR BELOW.
3. CONNECT TO EXISTING 120V LIGHTING CIRCUIT IN STAIRWELL.
4. 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"

0 4' 8' 12'

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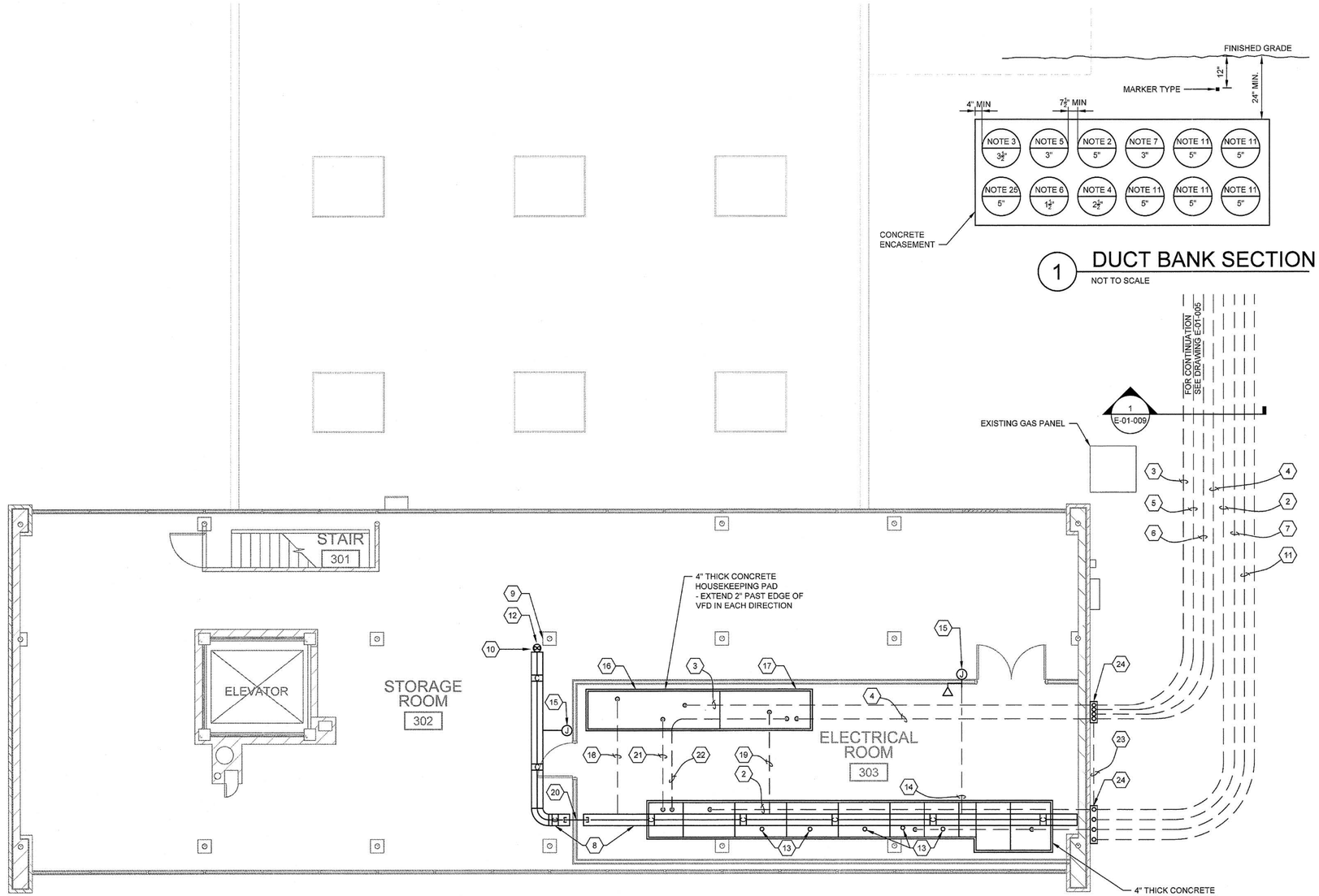
ELECTRICAL
FILTER BUILDING THIRD FLOOR LIGHTING PLAN AT EL. 545.00
SCALE: 3/16" = 1'-0"

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



1 FILTER BUILDING THIRD FLOOR POWER PLAN AT EL. 545.00

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

0 4' 8' 12'

1 DUCT BANK SECTION

NOT TO SCALE

SHEET KEYNOTES:

1. 2400V MCC. REFER TO DRAWING E-00-003 FOR MORE INFORMATION.
2. 5"C, 3#750 KCMIL, 5KV SHIELDED, 1#2/0 GROUND FROM 2400V MCC TO PUMP NO. 4 MOTOR TERMINAL BOX IN BOOSTER PUMP STATION.
3. 3½"C, 3#250 KCMIL, 5KV SHIELDED, 1#2/0 GROUND FROM 2400V MCC TO PUMP NO. 5 MOTOR TERMINAL BOX IN BOOSTER PUMP STATION.
4. 2½"C, 3#1/0, 5KV SHIELDED, 1#2 GROUND FROM 2400V MCC TO PUMP NO. 6 MOTOR TERMINAL BOX IN BOOSTER PUMP STATION.
5. 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 6 RTD'S AND PUMP NO. 5 AND 6 POTENTIOMETERS FROM STARTERS.
6. 1 1/2"C FROM TRAY AND BETWEEN PULLBOXES ON THIS DRAWING AND DRAWING E-01-005 AND CONTAINS 65 #14 WIRES FOR PUMP #4, 5, AND 6 CONTROL AND CONTROL STATIONS FROM STARTERS.
7. 3"C, 3#1, 5KV SHIELDED, 1#2 GROUND FROM 2400V MCC TO EXISTING SWITCH FEEDING THE EXISTING 300KVA TRANSFORMER.
8. 6" W, 5' DEEP, 6" RUNG SPACING LADDER TYPE WITH BARRIER IN THE MIDDLE. ALUMINUM CABLE TRAY FOR SIGNAL AND CONTROL.
9. 1½"C, 7#14 TOTAL (12 FROM EACH STARTER) FROM STARTERS TO SCADA ROOM THROUGH SLAB FOR SCADA.
10. 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)
11. 5-5"C, 3#500 KCMIL, 1#500 KCMIL GROUND IN EACH CONDUIT FROM EXISTING TRANSFORMER TO 2400V MCC.
12. NEW 4" SLEEVE IN THE THIRD FLOOR FOR CONTROL AND SIGNAL WIRES FROM STARTERS TO SCADA ROOM BELOW.
13. NEW 4" SLEEVE IN THIRD FLOOR UNDER THE MCC FOR POWER AND CONTROL CABLES.
14. 1"C CONTAINS 2-CAT 6 CABLES FROM PLC PANEL IN SCADA ROOM TO DATA OUTLET, AND 1"C W/PULLWIRE FROM WALL BOX.
15. BLANKED OFF OUTLET BOX AT 48" AFF FOR FUTURE ACCESS CONTROL.
16. ENCLOSED VARIABLE FREQUENCY DRIVE FOR PUMP NO.5 (SSRV FOR ALT NO.1)
17. ENCLOSED VARIABLE FREQUENCY DRIVE FOR PUMP NO. 6 (SSRV FOR ALT NO.1)
18. 2 PAIR, #18 STP IN 1"C AND 30#14, 1"C FROM PUMP NO. 5 VFD TO CABLE TRAY.
19. 2 PAIR, #18 STP IN 1"C AND 30#14, 1"C FROM PUMP NO. 6 VFD TO CABLE TRAY.
20. 2-3" SLEEVES FOR CABLE THROUGH 3 HOUR WALL FIRESTOP AS REQUIRED.
21. 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
22. 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
23. 18#14, 1"C AND 2"C WITH 8 BELDEN 8618 CABLES FROM PUMP NO 4. STARTER TO PULLBOX.
24. NEMA 4X PULLBOX MOUNTED AT ELEVATION WHERE CONDUITS PENETRATE WALL.
25. 5" SPARE W/PULLWIRE.

GENERAL NOTES:

1. EXPOSED/UNDERGROUND CONDUIT ROUTING SHOWN IS GENERAL. CHECK ROUTING DEPENDING ON FIELD CONDITIONS BEFORE ANY INSTALLATIONS.
2. CONDUIT STUB-UPS SHALL BE COORDINATED WITH EQUIPMENT SHOP DRAWINGS.
3. 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.
4. UNDERGROUND CONDUITS SHALL BE CONCRETE ENCASED WITH WARNING RIBBON ON TOP.
5. 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 | ARCADIS
The Water Division of ARCADIS
Magna ENGINEERS
Electrical · Mechanical · Instrumentation

STATE OF KENTUCKY
T. MICHELLE HOWLETT
19856
LICENSED PROFESSIONAL ENGINEER
12/26/13

REVISIONS			
NO.	BY	DATE	REMARKS

DES TMH
DWN YNR
CKD TMH

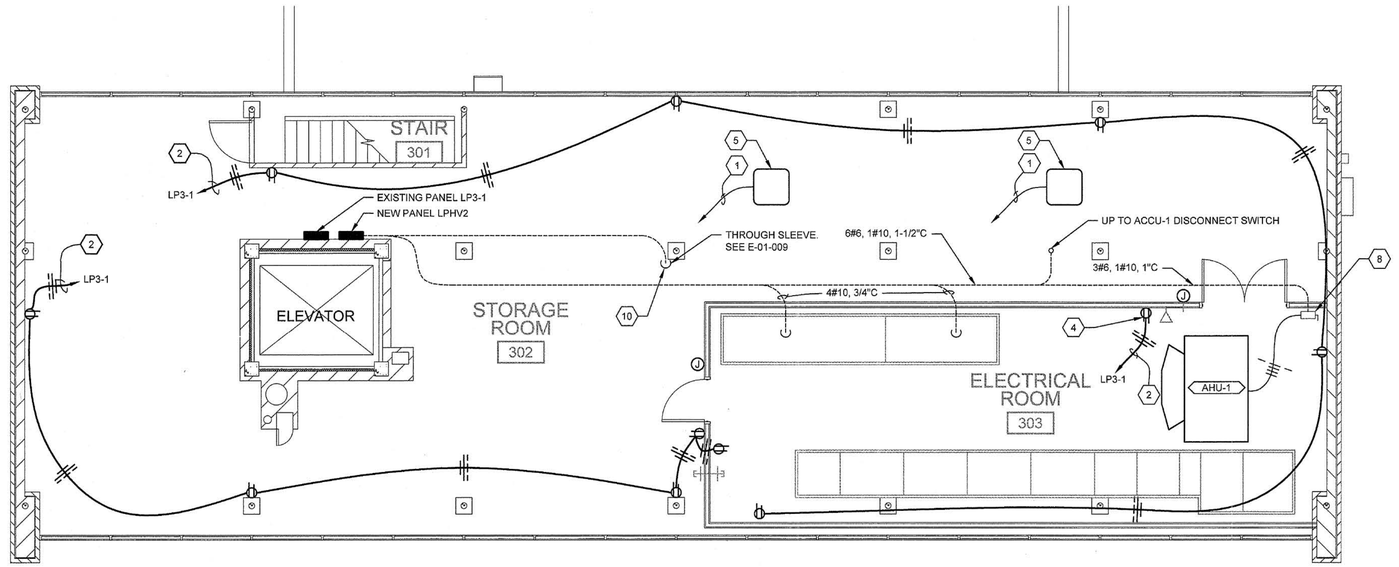
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ELECTRICAL AND BASIN IMPROVEMENTS

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

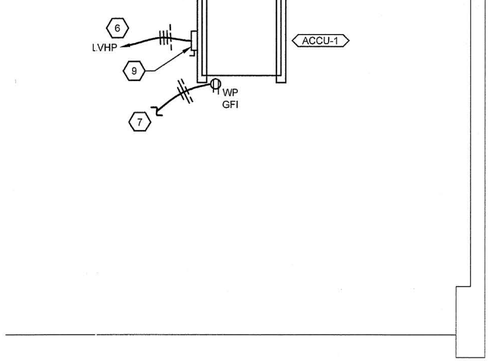
ISSUED STATUS: BID SET
DATE JANUARY 2014
SHEET E-01-009
CAD REF. NO. E-01-009

⬡ SHEET KEYNOTES:

1. 120V POWER AND THERMOSTAT WIRING IN 3/4"C 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"C 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"

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REVISIONS			
NO.	BY	DATE	REMARKS

DES TMH
DWN YNR
CKD TMH

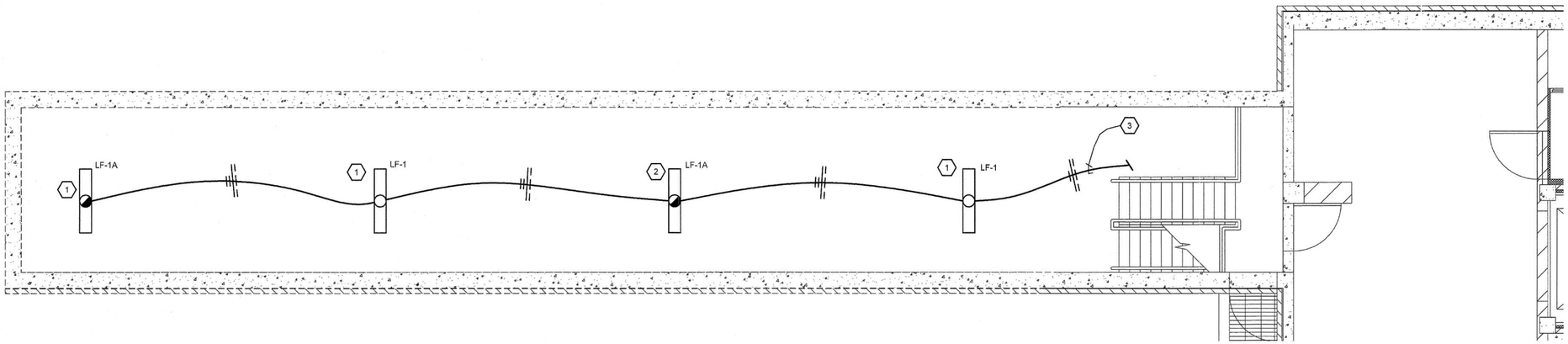
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ELECTRICAL AND BASIN IMPROVEMENTS

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"

0 2' 4' 8'

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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