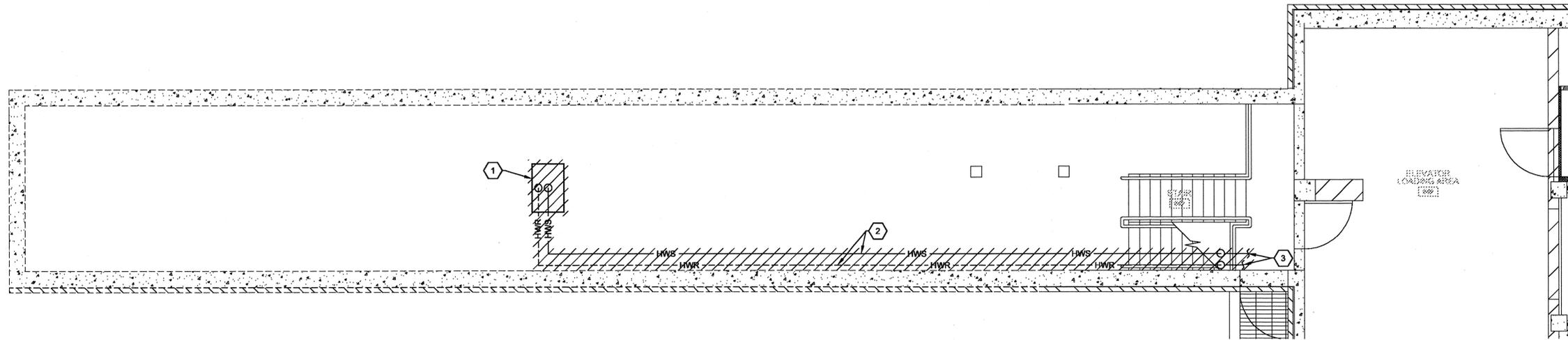


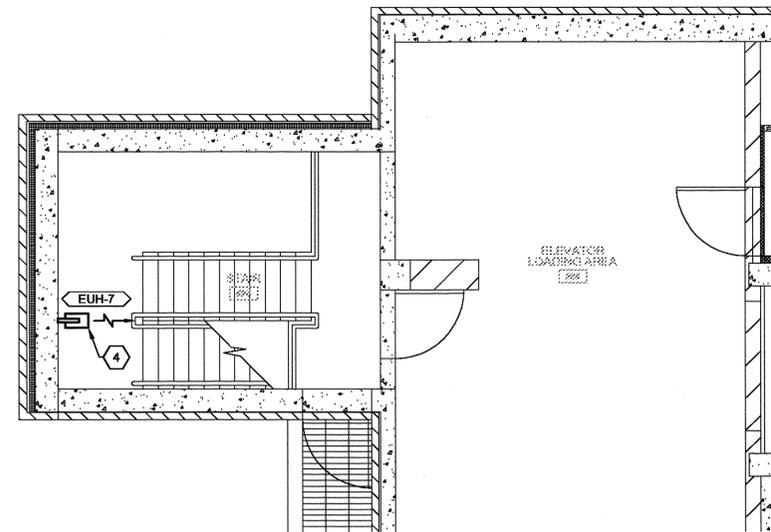
SHEET KEYNOTES:

1. REMOVE EXISTING HOT WATER UNIT HEATER AND ALL ASSOCIATED VALVES AND APPURTENANCES.
2. REMOVE EXISTING HOT WATER SUPPLY AND RETURN PIPES.
3. REMOVE EXISTING HOT WATER SUPPLY AND RETURN PIPES TO CONNECTION POINTS AT MAINS AND CAP.
4. 7'-0" AFF TO BOTTOM OF EUH.



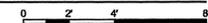
PARTIAL FILTER BUILDING AND TUNNEL - HVAC DEMOLITION PLAN

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

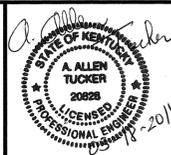


PARTIAL FILTER BUILDING- HVAC NEW WORK PLAN

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



User: BOND Spec: PIRNIE STANDARD File: J:\3789-HKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\HVAC\3789-H-08-101.DWG Scale: 1/8"=1'-0" Date: 10/20/2010 Time: 14:45 Pld Date: Bond, Jeff, 3/10/2011, 06:35 Layout: H-08-101



REVISIONS			
NO.	BY	DATE	REMARKS

DES MAS
DWN MAS
CKD AAT

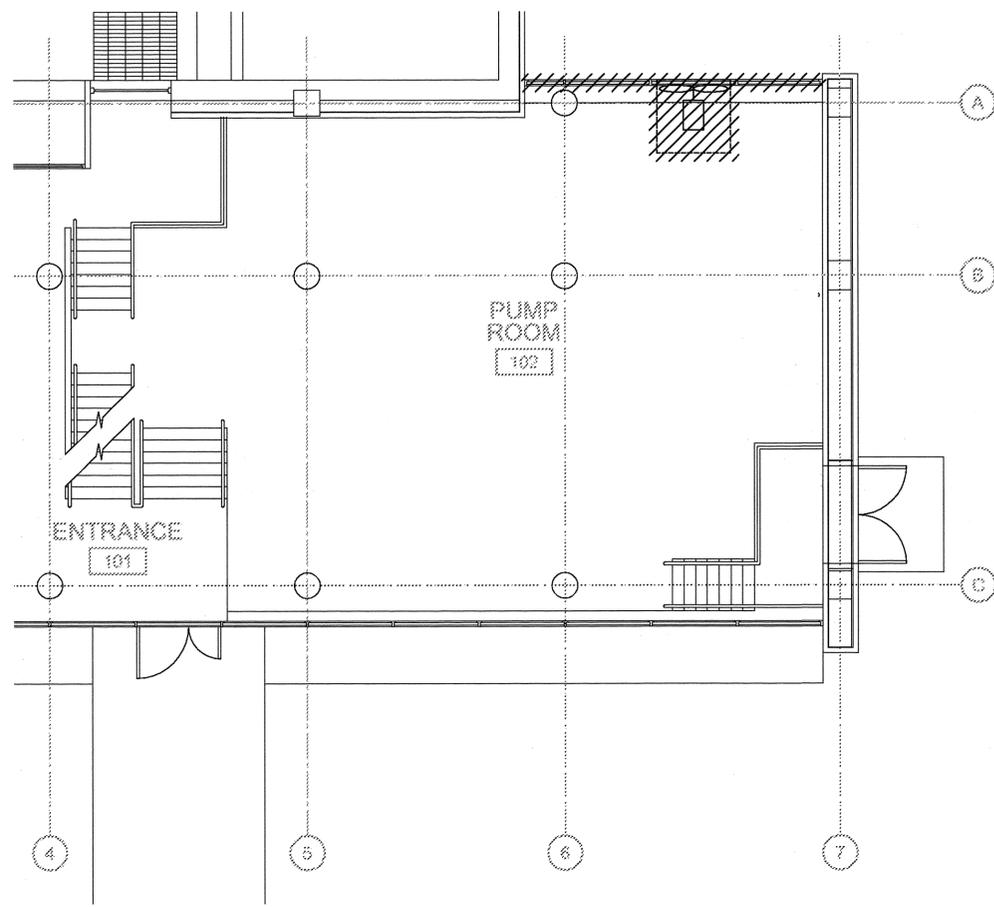
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

HVAC
PARTIAL FILTER BLDG AND TUNNEL
HVAC PLANS AT EL. 510.46
SCALE: 1/4" = 1'-0"

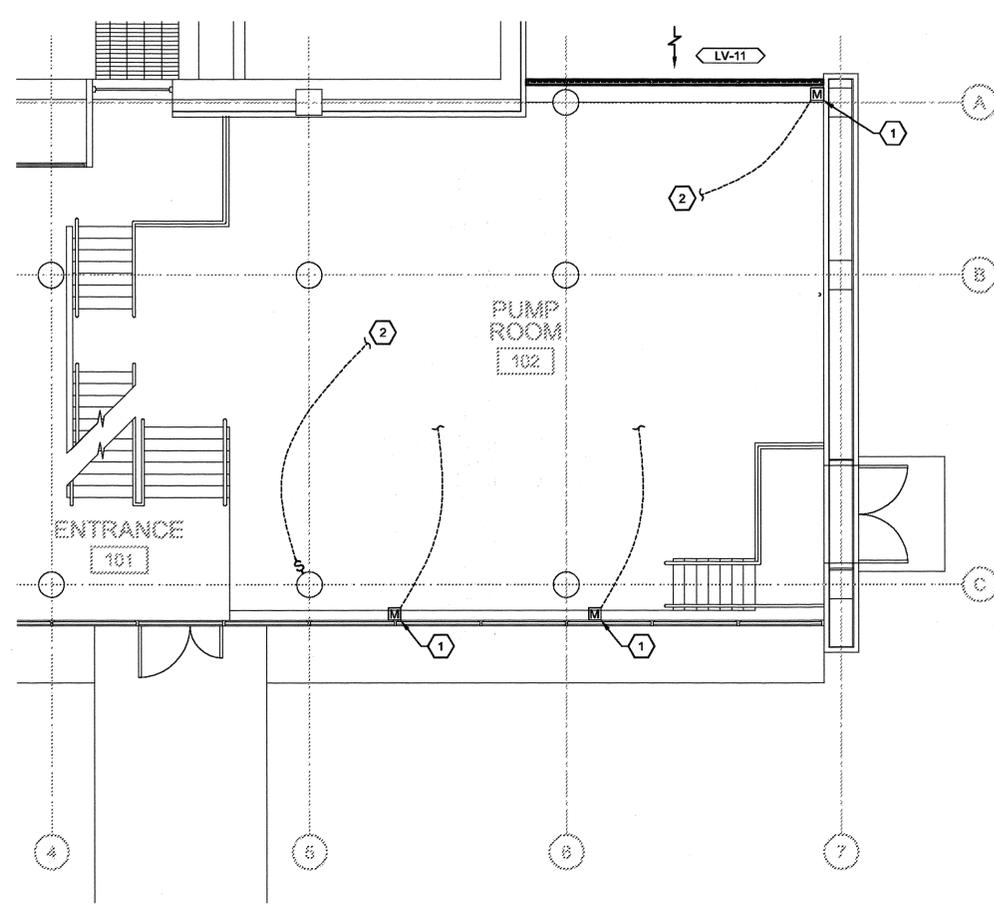
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: H-08-101
CAD REF. NO. 3789-H-08-101

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.



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

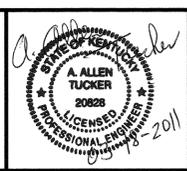


**FILTER BUILDING PUMP ROOM
HVAC NEW WORK AT EL. 525.50**
SCALE: 3/16"=1'-0"
PLAN NORTH

SHEET KEYNOTES:

1. PROVIDE AND INSTALL DAMPER ACTUATORS AND TIE INTO EF-6 CONTROL.
2. TIE INTO EF-6.

User: BOND Spec: PIRNIE STANDARD File: U:\3786-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\HVAC\789-H-08-102.DWG Scale: 1:24 Saved Date: 9/21/2010 Time: 14:36 Plot Date: Bond, Jeff, 3/10/2011, 09:35 Layout: H-08-102



REVISIONS			
NO.	BY	DATE	REMARKS

DES AAT
DWN EGR
CKD AAT

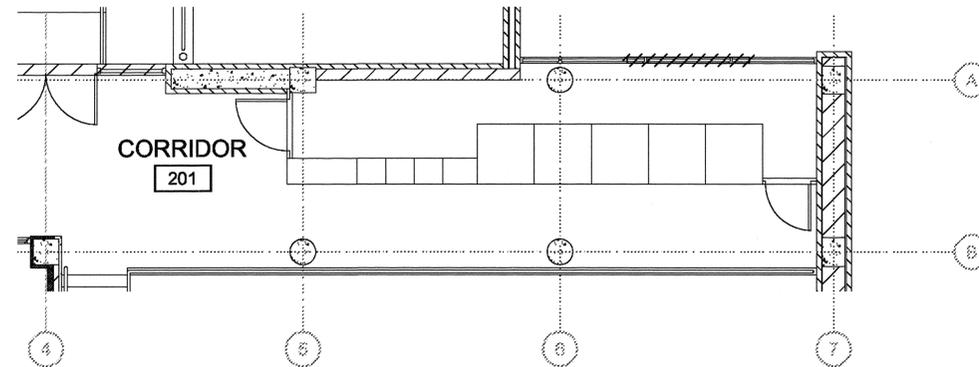
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

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

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: H-08-102
CAD REF. NO.: 3789-H-08-102

GENERAL NOTES:

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



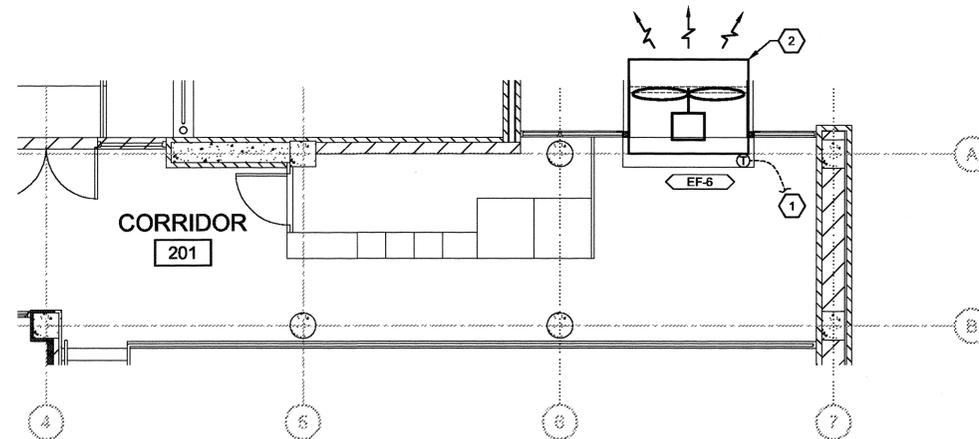
**FILTER BUILDING MEZZANINE
HVAC DEMOLITION AT EL. 535.00**

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



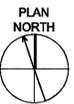
SHEET KEYNOTES:

1. TIE TO THE LOUVER ACTUATORS AND SWITCH BELOW.
2. PROVIDE BRACING PER STRUCTURAL DRAWING (S-08-302).

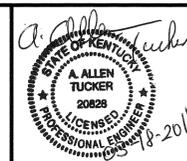


**FILTER BUILDING MEZZANINE
HVAC NEW WORK AT EL. 535.00**

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



User: J:\BOND Spec-PIRNE STANDARD File: L:\3789-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\HVAC\3789-H-08-103.DWG Scale: 1/2"=1'-0" Plot Date: 03/17/2011 Time: 09:45 Plot Date: 03/17/2011 Time: 09:45 Layer: H-08-103



NO.		BY	DATE	REVISIONS	REMARKS

DES AAT
DWN EGR
CKD AAT

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

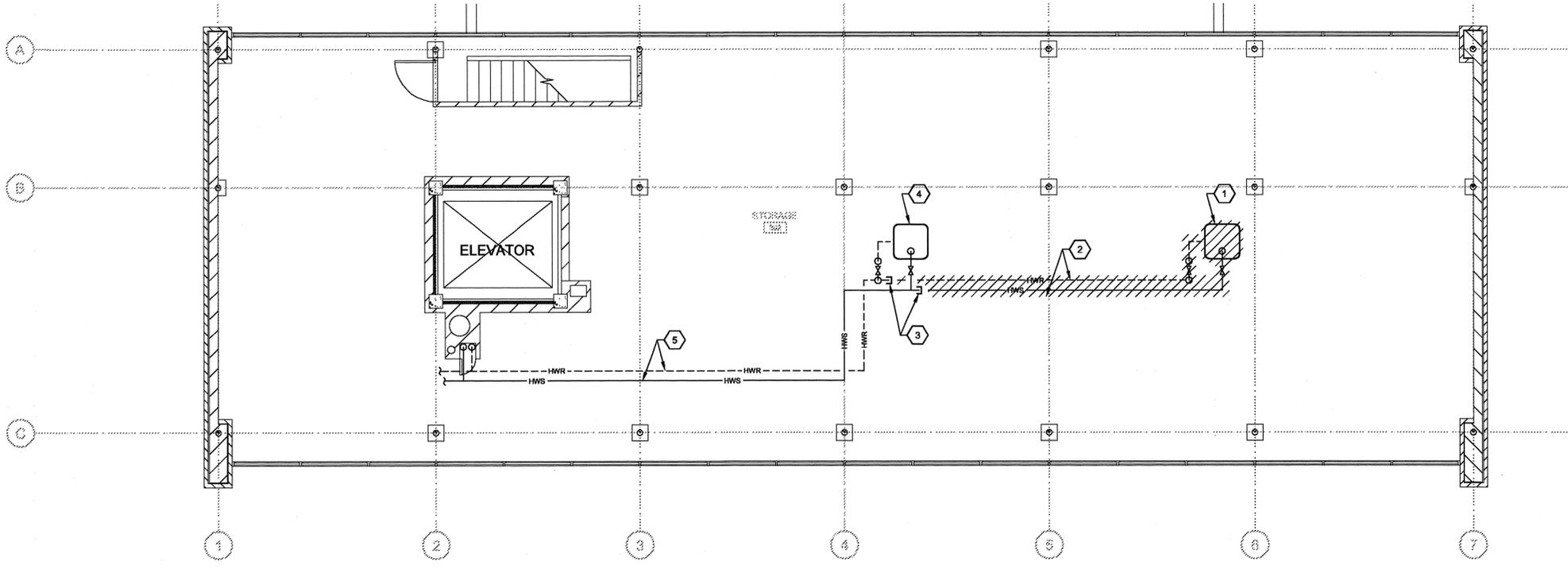
HVAC
**FILTER BUILDING MEZZANINE
HVAC PLANS AT EL. 535.00**

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

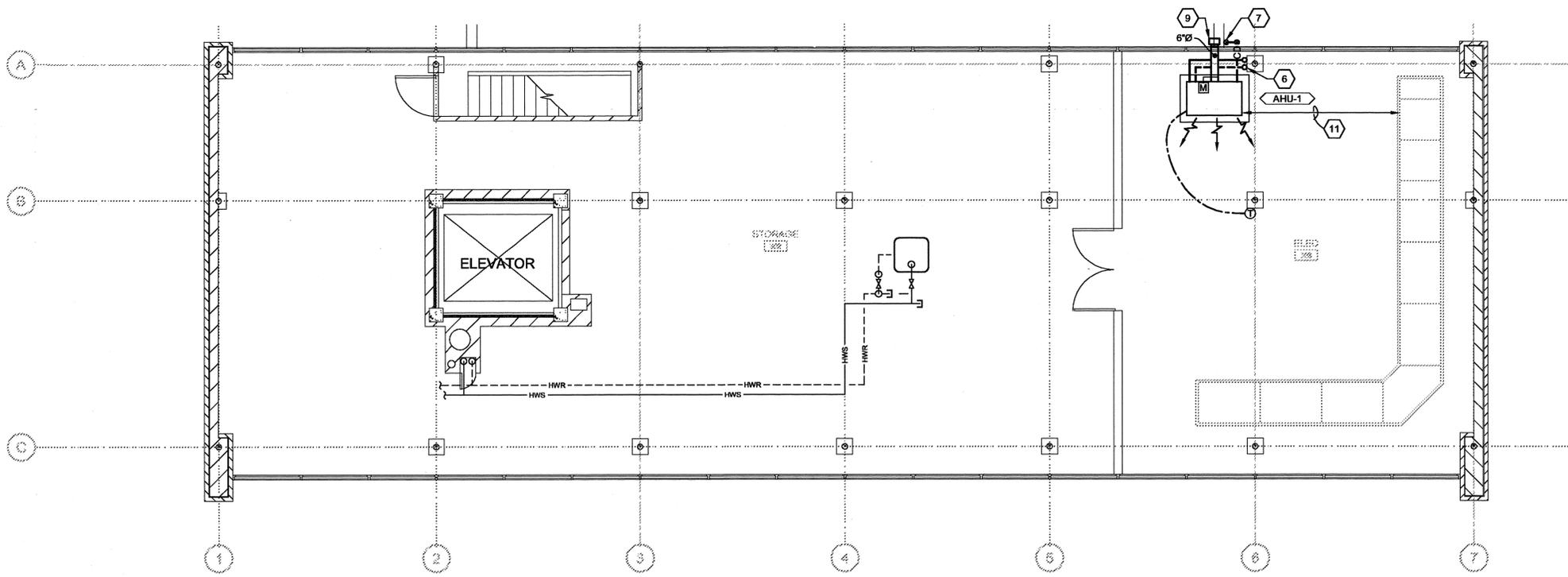
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: H-08-103
CAD REF. NO.: 3789-H-08-103

SHEET KEYNOTES:

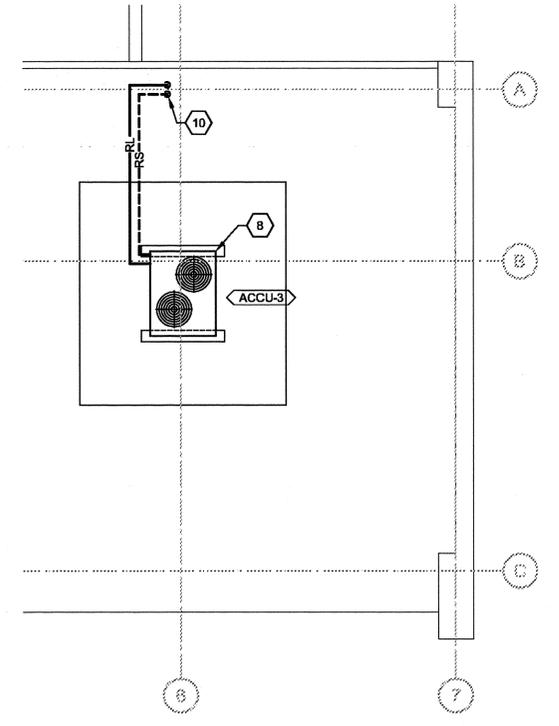
1. REMOVE EXISTING HOT WATER UNIT HEATER AND ALL ASSOCIATED VALVES AND APPURTENANCES.
2. REMOVE EXISTING HOT WATER SUPPLY AND RETURN PIPES.
3. CAP EXISTING HOT WATER SUPPLY AND RETURN PIPES AT THIS POINT.
4. EXISTING HOT WATER UNIT HEATER TO REMAIN.
5. EXISTING HOT WATER SUPPLY AND RETURN PIPES TO REMAIN.
6. REFRIGERANT LINES UP TO ACCU-3 ON ROOF.
7. ROUTE CONDENSATE PIPING TO GRADE DISCHARGING ONTO SPLASH BLOCK.
8. MOUNT ACCU-3 ON RAILS, SECURE UNIT TO RAILS AND RAILS TO ROOF STRUCTURE AT FOUR (4) POINTS NEAR EACH CORNER. SEE SHEET S-08-302 SECTION 4 FOR DETAILS.
9. 8"x8" OUTSIDE AIR WALL CAP.
10. REFRIGERANT LINES DOWN TO AHU-1 IN ELEC 303. SEAL ROOF PENETRATIONS WATER TIGHT.
11. MAINTAIN A MINIMUM 10'-0" OF SEPARATION FROM AHU-1 TO ELECTRICAL EQUIPMENT.



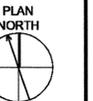
**FILTER BUILDING THIRD FLOOR
HVAC DEMOLITION AT EL. 545.00**
SCALE: 3/16"=1'-0"



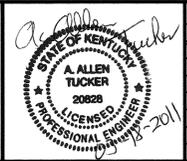
**FILTER BUILDING THIRD FLOOR
HVAC NEW WORK AT EL. 545.00**
SCALE: 3/16"=1'-0"



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



User: BOND Spec: FIRMIE STANDARD File: J:\3788-NKWD TAYLOR MILLWORKING DRAWINGS\DESIGN DRAWINGS\HVAC\3788-H-08-104.DWG Scale: 1:24 Saved Date: 2/27/2011 Time: 10:49 Plot Date: Bond_Jeff_3/10/2011_09:35 Layout: H-08-104



REVISIONS			
NO.	BY	DATE	REMARKS

DES: AAT
OWN: EGR
CKD: AAT

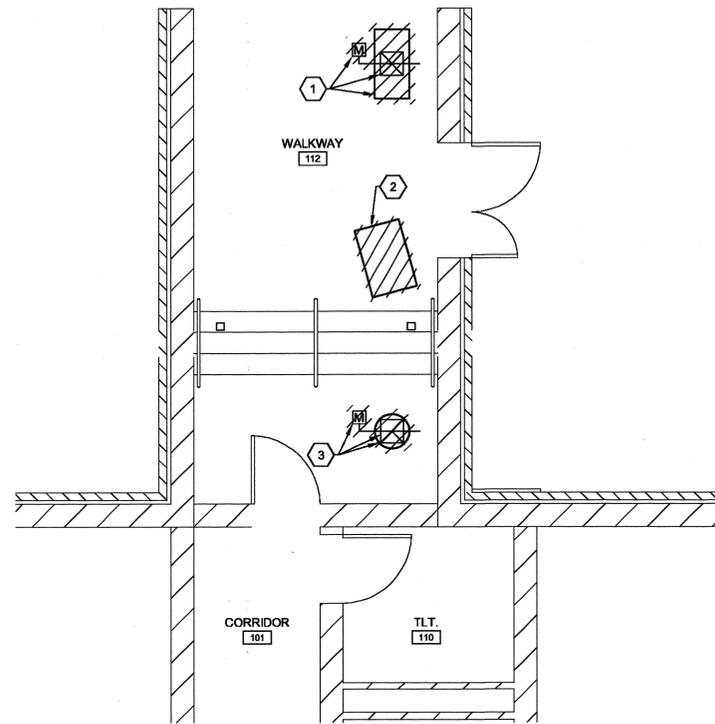
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

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

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: H-08-104
CAD REF. NO.: 3789-H-08-104

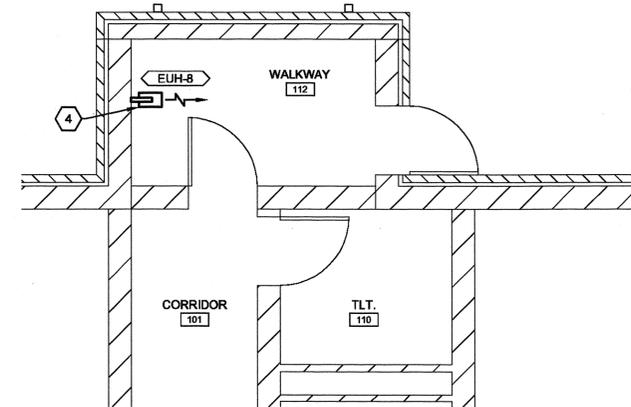
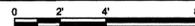
◇ SHEET KEYNOTES:

1. REMOVE EXISTING INTAKE VENTILATOR (ON ROOF), ASSOCIATED DUCTWORK, MOTORIZED DAMPER AND ALL APPURTENANCES.
2. REMOVE EXISTING GAS UNIT HEATER. SEE PLUMBING PLAN FOR GAS DEMOLITION.
3. REMOVE EXISTING EXHAUST FAN (ON ROOF), ASSOCIATED DUCTWORK, MOTORIZED DAMPER AND ALL APPURTENANCES.
4. 7'-0" AFF TO BOTTOM OF UNIT HEATER MINIMUM OF 8" FROM ANY WALL.



CHEMICAL BUILDING WALKWAY -
HVAC DEMOLITION PLAN

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

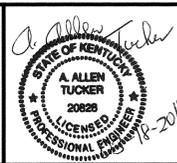


CHEMICAL BUILDING WALKWAY -
HVAC NEW WORK PLAN

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



User: BOND Spec: PIRNIE STANDARD File: J:\3788-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\HVAC\3788-H-09-101.DWG Scale: 1:18 SavedDate: 9/27/2010 Time: 08:53 Pld: Date: Bond, Jeff, 9/10/2011, 08:56 Layout: H-09-101



NO.		BY	DATE	REVISIONS	REMARKS

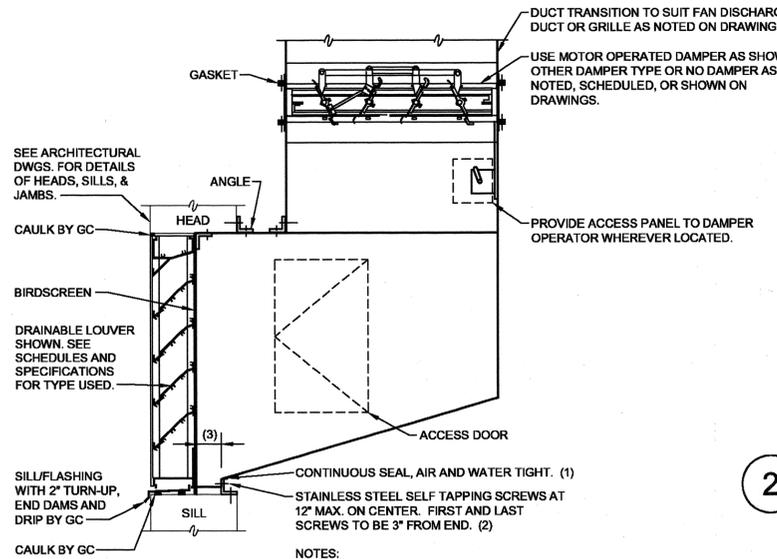
DES MAS
DWN MAS
CKD AAT

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

HVAC
CHEMICAL BUILDING WALKWAY
HVAC PLANS
SCALE: 1/4" = 1'-0"

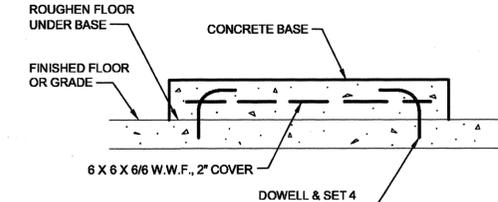
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: H-09-101
CAD REF. NO.: 3789-H-09-101

User: BOND Spec: PIRNIE STANDARD File: J:\3789-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\HVAC\3789-H-10-501.DWG Scale: 1:38 Saved Date: 9/28/2010 Time: 14:04 Pld Date: Bond, Jeff, 3/10/2011, 08:35 Layout: H-10-501



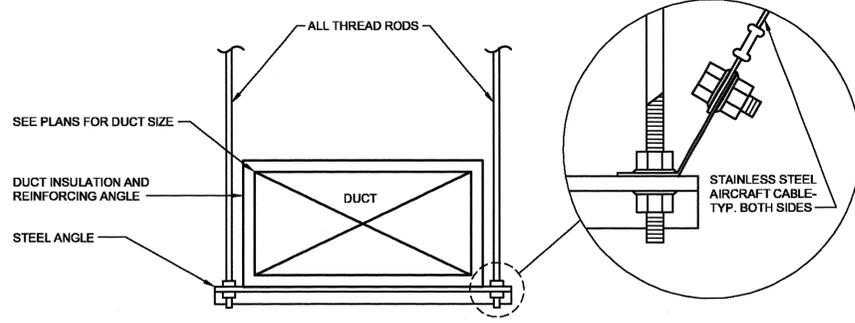
1 LOUVER AND DAMPER DETAIL
NOT TO SCALE

- NOTES:**
- (1) PLENUM CONNECTION TO LOUVER IS SIMILAR.
 - (2) BOTTOM OF DUCT TO BE COMPLETELY OVERLAPPED WITH TURN-UP. DRILL TURN-UP PRIOR TO INSTALLING SELF TAPPING SCREW TO ENSURE DUCT IS DRAWN TIGHT TO TURN-UP.
 - (3) MINIMUM 1" SCREW CONNECTION CLEARANCE.



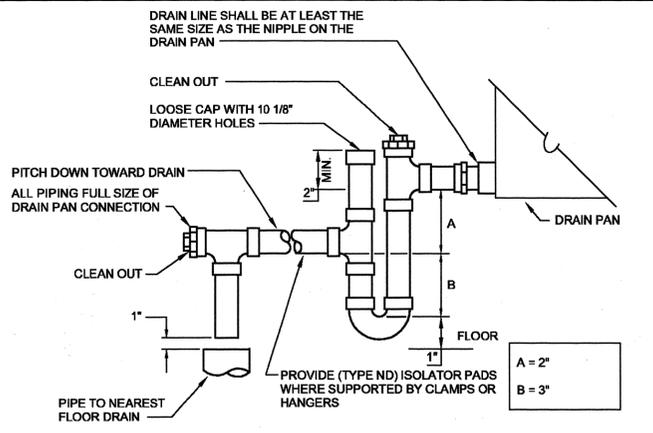
2 TYPICAL CONCRETE PAD DETAIL
NOT TO SCALE

- NOTE:**
- CONCRETE BASE SHALL BE 4" LARGER ALL AROUND THAN THE BASE OF EQUIPMENT BEING SUPPORTED.



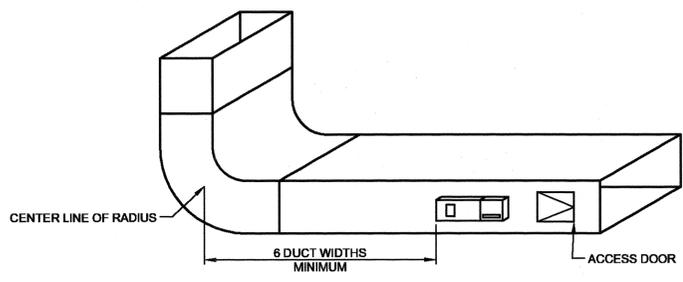
3 DUCT HANGING DETAIL
NOT TO SCALE

- NOTES:**
- DO NOT SUPPORT DUCTS FROM METAL DECK.
 - SIZE SUPPORT STEEL MEMBERS AS REQ'D.



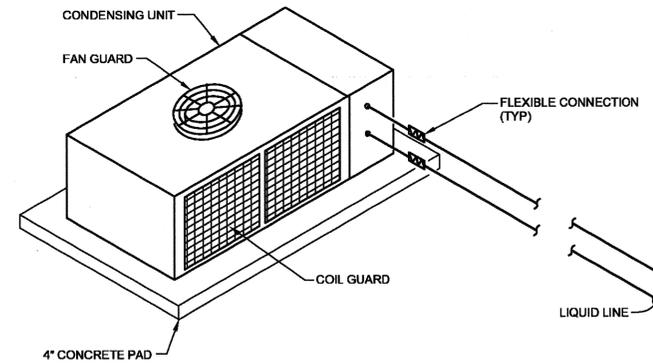
4 AIR HANDLING UNIT DRAIN DETAIL
NOT TO SCALE

- NOTE:**
- PROVIDE (TYPE ND) ISOLATOR PADS WHERE SUPPORTED BY CLAMPS OR HANGERS
- A = 2"
B = 3"



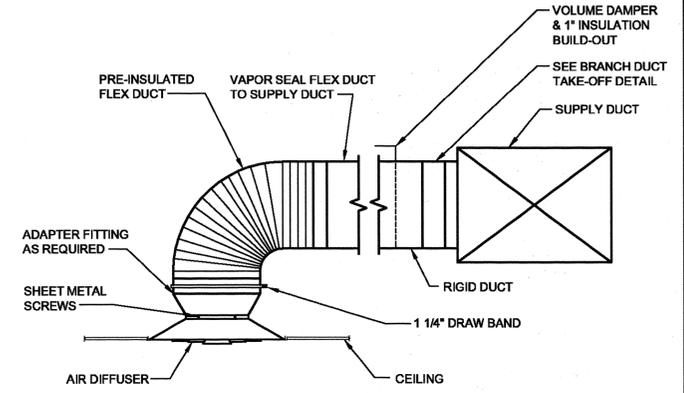
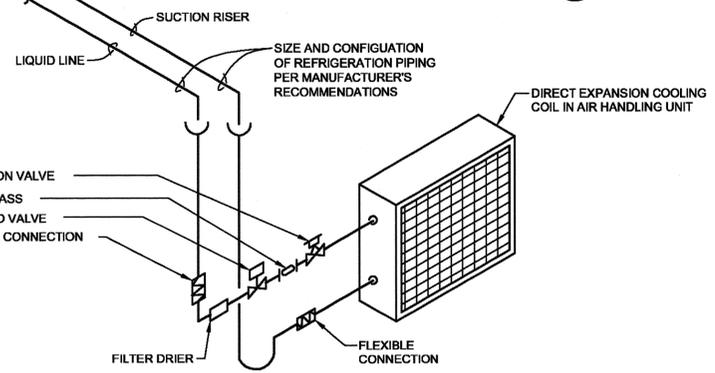
5 DUCT SMOKE DETECTOR DETAIL
NOT TO SCALE

- DUCT SMOKE LOCATION PREQUISITES:**
- A UNIFORM NON TURBULENT AIRFLOW BETWEEN 300 FT/MIN TO 4,000 FT/MIN MUST BE PRESENT IN THE HVAC DUCT. TO DETERMINE THE DUCT VELOCITIES EXAMINE THE ENGINEERING SPECIFICATIONS THAT DEFINE THE EXPECTED VELOCITIES OR USE AN ALNOR MODEL 6000P VELOCITY/METER (OR EQUIVALENT).
 - IN ORDER TO PREVENT STRATIFICATION, DUCT SMOKE UNITS, WHERE POSSIBLE, MUST BE LOCATED AT A MINIMUM OF 6 DUCT WIDTHS DOWN STREAM FROM A SOURCE OF TURBULENCE I.E. ELBOWS, DEFLECTOR PLATES, DAMPERS, AND INLETS.
- IN INSTALLATIONS WHERE IT IS IMPOSSIBLE TO ADHERE TO THE SIX DUCT WIDTH REQUIREMENT, UNITS CAN BE INSTALLED CLOSER BUT AS FAR FROM INLETS, BENDS OR DEFLECTOR PLATES AS POSSIBLE. SHOULD THIS SITUATION ARISE, CHECK VELOCITY READINGS IN THE DUCT PRIOR TO THE DUCT SMOKE UNIT INSTALLATION. ENSURE THE DUCT SMOKE UNIT PRESSURE DIFFERENTIAL BETWEEN COMPLIES WITH THE UNIT SPECIFICATIONS. THE PRESSURE DIFFERENTIAL BETWEEN THE INLET SAMPLING TUBE AND EXHAUST TUBE FOR THE FIREX SERIES SMOKE UNIT SHOULD BE GREATER THAN 0.01 INCHES OF WATER AND LESS THAN 1.2 INCHES OF WATER.
- IDENTIFY A LOCATION FOR THE INSTALLATION OF THE DUCT UNIT THAT WILL PERMIT EASY ACCESS FOR VIEWING AND SERVICEABILITY.
 - INSTALL DUCT UNITS IN THE RETURN AIR SIDE OF AN HVAC UNIT PRIOR TO THE AIR BEING EXHAUSTED FROM THE BUILDING OR DILUTED WITH OUTSIDE AIR.
 - LOCATE DETECTOR ON THE SIDE OR TOP OF DUCT.
 - TO PREVENT FALSE ALARMS, THE DUCT DETECTOR SHOULD NOT BE MOUNTED IN AREAS OF EXTREME HIGH OR LOW TEMPERATURES, IN AREAS WHERE HIGH HUMIDITY EXISTS OR IN AREAS WHERE THE DUCT MAY CONTAIN GASSES OR EXCESS DUST.
 - PROVIDE DUCT ACCESS DOOR FOR SERVICEABILITY.



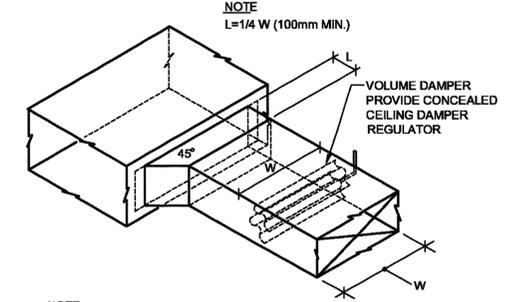
7 PIPING SCHEMATIC FOR CONDENSING UNIT DETAIL
NOT TO SCALE

- NOTE:**
- SINGLE CIRCUIT SHOWN - COORDINATE REQUIREMENTS WITH EQUIPMENT MANUFACTURER



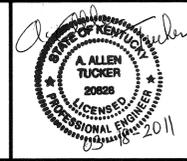
6 DIFFUSER INSTALLATION DETAIL
NOT TO SCALE

- NOTE:**
- NO FLEXIBLE DUCT ALLOWED OVER SECURE OR GYPBOARD CEILINGS.



8 BRANCH DUCT TAKE-OFF DETAIL
NOT TO SCALE

- NOTE:**
- DAMPERS SHOULD NOT BE INSTALLED CLOSER THAN TWO DUCT WIDTHS TO ELBOWS OR INTERSECTIONS.



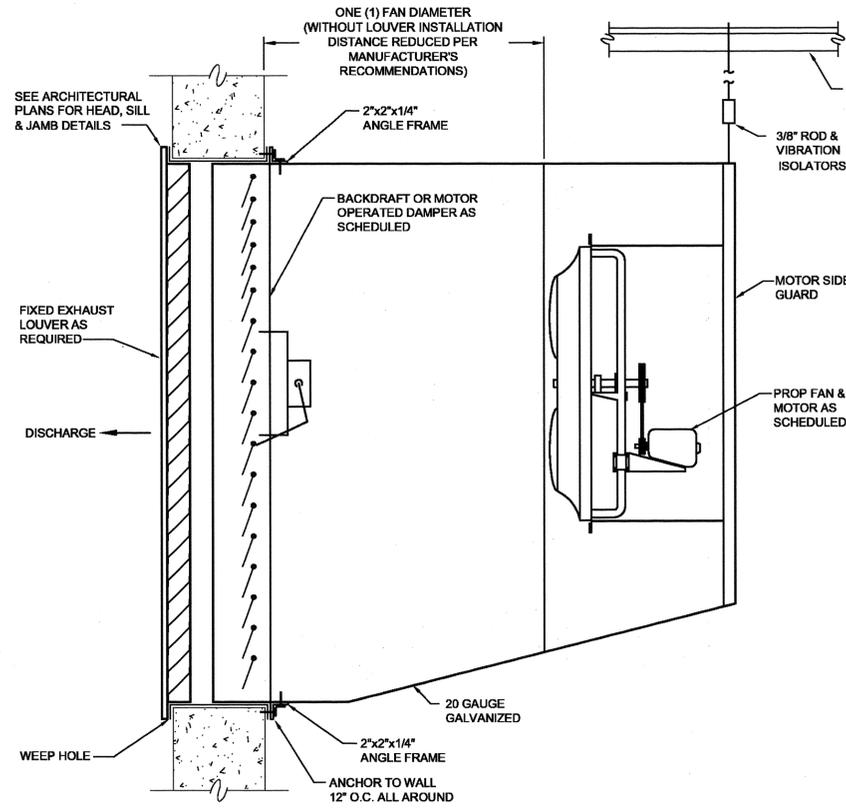
REVISIONS		REMARKS
NO.	BY	DATE

DES AAT
DWN EGR
CKD AAT

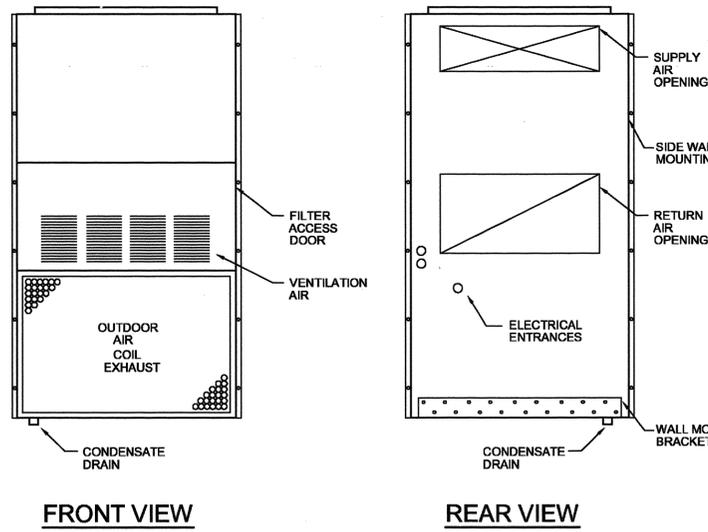
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

HVAC
HVAC DETAILS I
SCALE: NOT TO SCALE

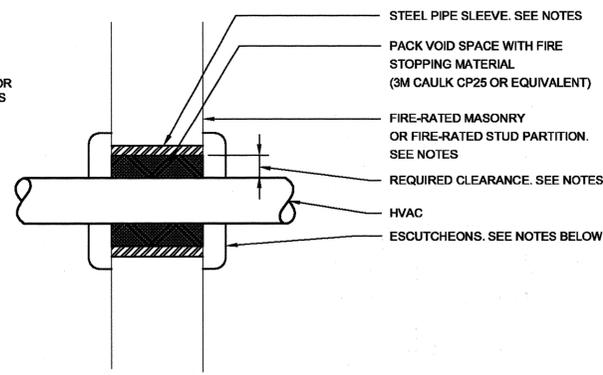
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: H-10-501
CAD REF. NO. 3789-H-10-501



1 TYPICAL WALL MOUNTED EXHAUST DETAIL
NOT TO SCALE



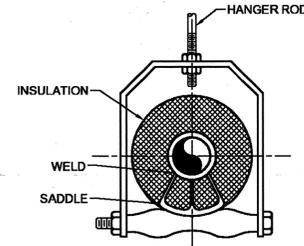
5 TYPICAL WALL-MOUNTED PACKAGED HEAT PUMP UNIT DETAIL
NOT TO SCALE



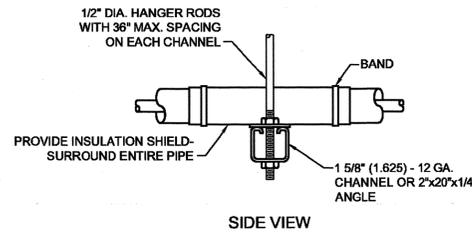
- NOTES:**
- PIPE SLEEVES THROUGH RATED WALLS**
 - PIPE SLEEVES THROUGH FIRE-RATED MASONRY PARTITIONS OR FOUNDATION WALLS SHALL BE SCHEDULE 80 BLACK STEEL WITH MAXIMUM OF 1/2" CLEARANCE BETWEEN SLEEVE AND PIPE. SLEEVE SHALL BE EQUAL IN LENGTH TO DEPTH OF PARTITION OR WALL.
 - PIPE SLEEVES THROUGH FIRE-RATED STUD PARTITIONS SHALL BE #18 GAGE GALVANIZED STEEL WITH MAXIMUM OF 1" CLEARANCE BETWEEN SLEEVE AND PIPE. SLEEVE SHALL BE EQUAL IN LENGTH TO DEPTH OF PARTITION.
 - ESCUTCHEONS**
 - ESCUTCHEONS IN FINISHED SPACES SHALL BE ANODIZED ALUMINUM OR CHROME-PLATED BRASS.
 - ESCUTCHEONS IN UNFINISHED SPACES SHALL BE PLAIN BRASS, ALUMINUM, GALVANIZED STEEL OR CAST IRON.
 - ESCUTCHEONS SHALL BE HELD IN PLACE BY INTERNAL SPRING TENSION OR SET SCREW.

3 TYPICAL PIPE PENETRATION THROUGH WALLS AND FLOORS DETAILS
NOT TO SCALE (NON-FIRE RATED CONSTRUCTION)

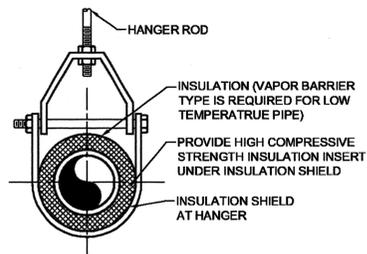
2 WALL PENETRATION DETAIL
NOT TO SCALE (FIRE RATED CONSTRUCTION)



ADJUSTABLE ROLLER HANGER



TRAPEZE HANGER FOR UP TO 1000 LBS. UNIFORM LOAD

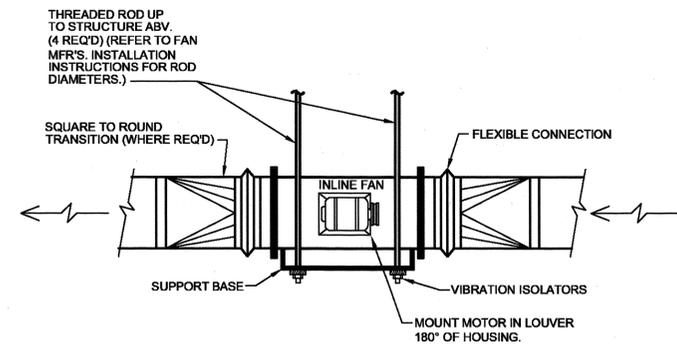


ADJUSTABLE CLEVIS HANGER

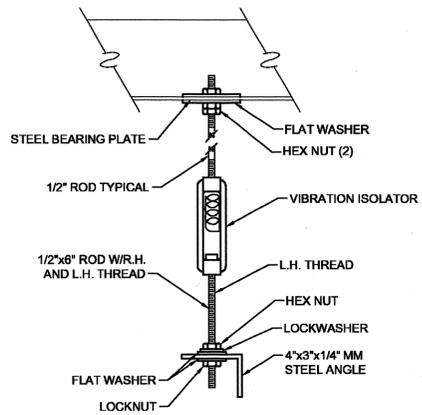
MAXIMUM PIPE/TUBING SUPPORT SPACING, (FT.)													
NOM. SIZE	THRU 3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"
STEEL PIPE	7	7	7	9	10	11	12	14	16	17	19	22	23
COPPERTUBING	5	6	7	8	8	9	10	12	13	14	16	-	-

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

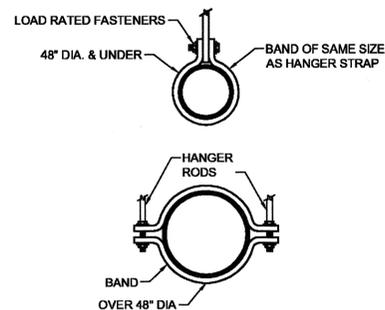
6 TYPICAL PIPE HANGER DETAILS
NOT TO SCALE



4 INLINE RETURN OR EXHAUST DETAIL
NOT TO SCALE



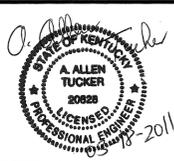
7 TYPICAL LIGHT EQUIPMENT SUPPORT DETAILS
NOT TO SCALE



8 ROUND DUCT HANGER DETAILS
NOT TO SCALE

HANGER STRAPS OR RODS			
MAX. DUCT DIA. IN.	HANGER	MAX. LOAD LBS.	MAX. SPACING FT.
28	ONE 1" x 22 GA STRAP	280	12
36	ONE 1" x 18 GA STRAP	480	12
50	ONE 1" x 16 GA STRAP	700	12
60	TWO 3/8" DIA. RODS	1320	12
84	TWO 1/2" DIA. RODS	2500	12

- NOTE:**
- TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.
 - DATA IS FOR SINGLE WALL DUCT ONLY.



REVISIONS		REMARKS
NO.	BY	DATE

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DWN: EGR
CKD: AAT

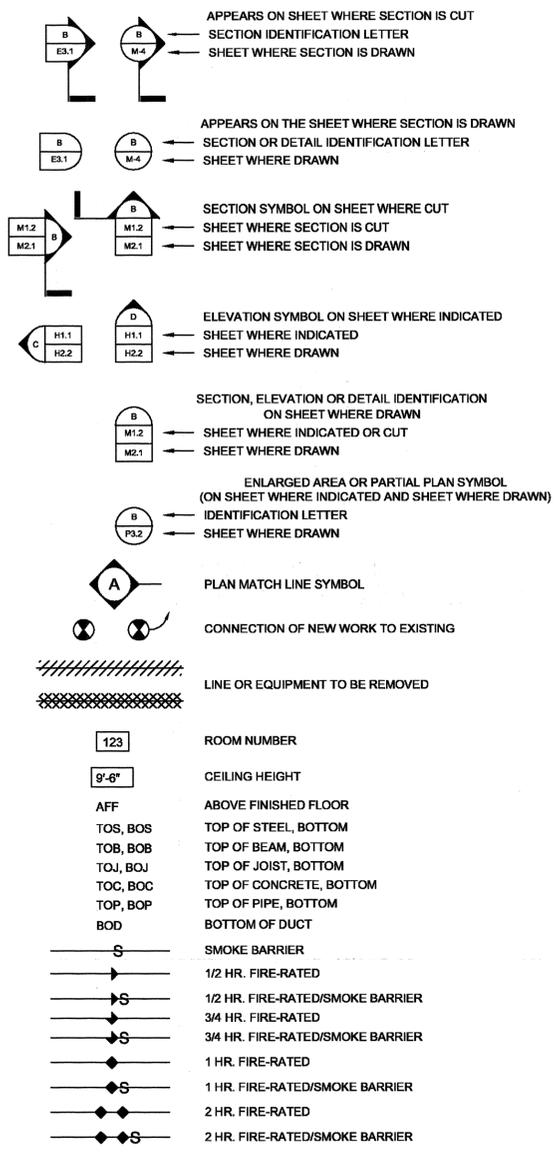
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

HVAC
HVAC DETAILS II
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: H-10-502
CAD REF. NO.: 3789-H-10-502

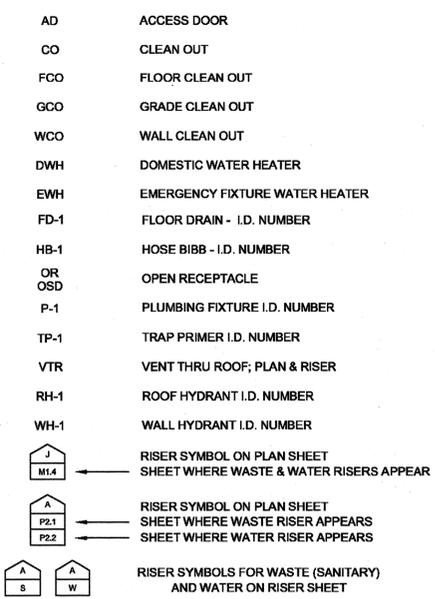
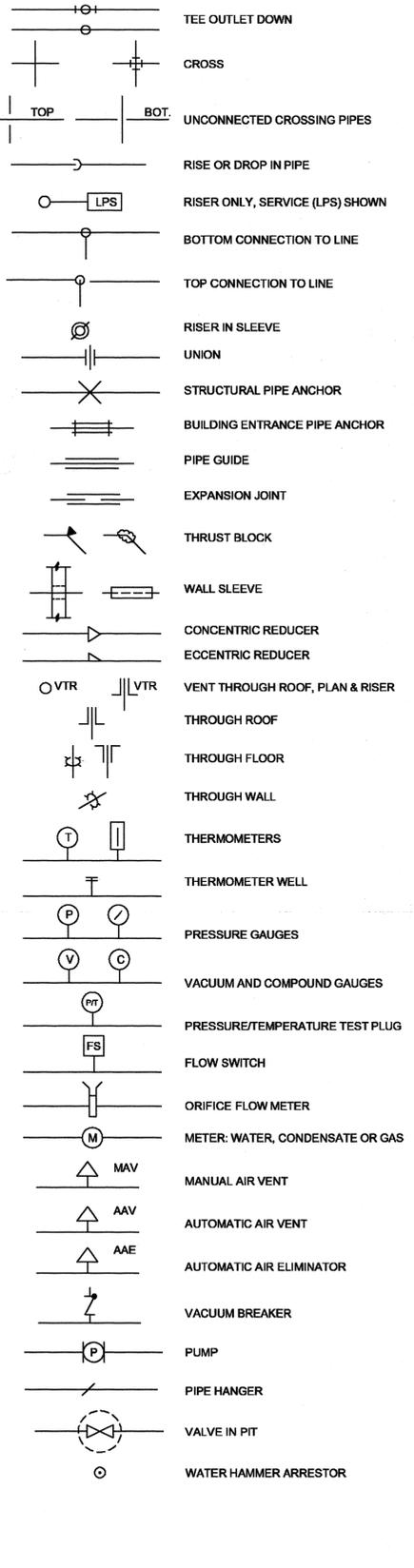
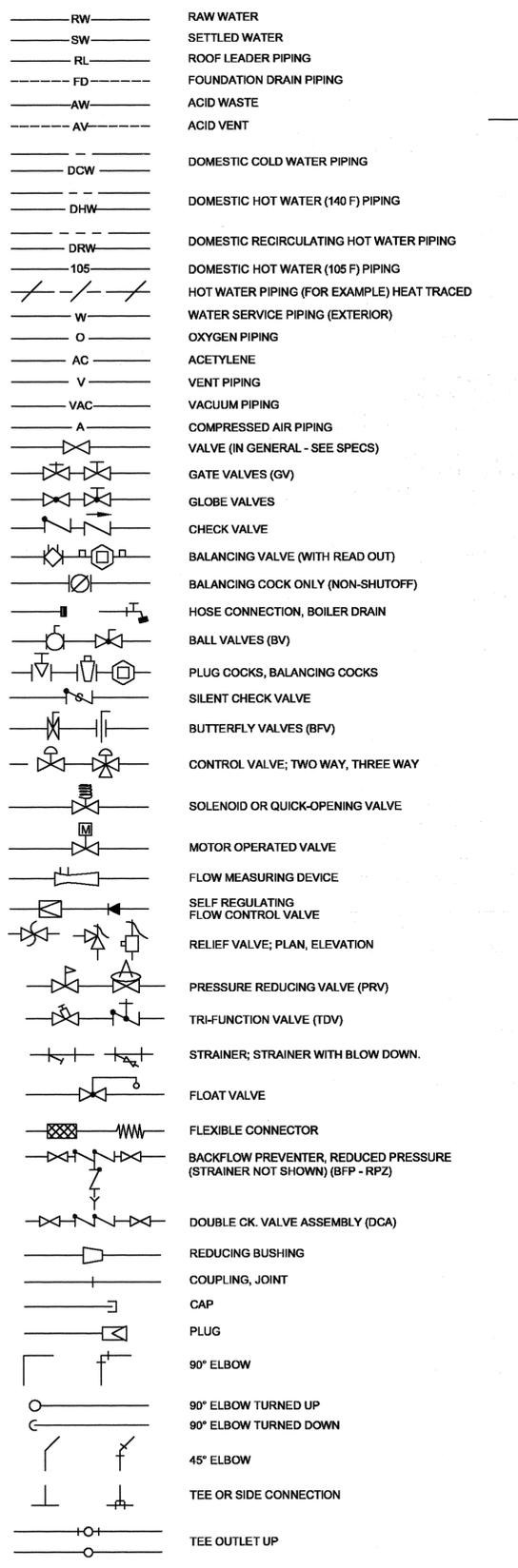
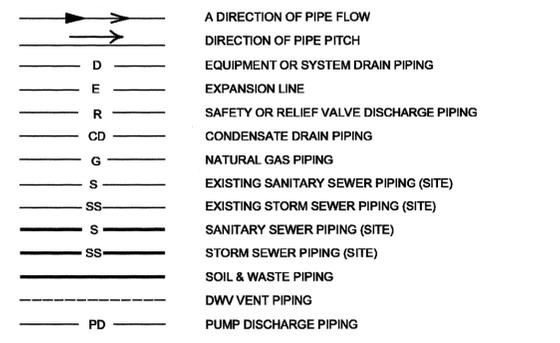
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GENERAL LEGEND



NOTE: LEGENDS ALSO APPEAR ON INDIVIDUAL PLANS, SCHEDULES AND DETAILS.

PLUMBING LEGEND



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 DECKS. 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.
- PROVIDE ALL ACCESS DOORS AS SHOWN, EXCEPT THOSE SPECIFIED UNDER OTHER DIVISIONS. IN ADDITION, PROVIDE ANY OTHER ACCESS DOORS WHETHER OR NOT SHOWN ON PLANS, NECESSARY FOR ACCESS TO CONCEALED EQUIPMENT, VALVES, ACTUATORS, JUNCTION BOXES, CONTROLS OR OTHER OPERATIONAL OR SERVICEABLE ITEMS, UNLESS ITEM IS REASONABLY ACCESSIBLE THROUGH LAY-IN CEILING PANELS.
- DO NOT CHANGE PATH OF PIPING, ADD TURNS OR OFFSETS OR CHANGE PIPE SIZE WITHOUT FIRST CONSULTING THE ENGINEER. PIPE SIZES SHOWN ON DRAWINGS ARE NOMINAL UNLESS OTHERWISE INDICATED.
- SEE ALSO RISER DIAGRAMS OR FLOW/CONTROL DIAGRAMS FOR SIZES NOT SHOWN ON PLANS.
- ALL COPPER PIPING SHALL BE ASSEMBLED WITH WROUGHT COPPER OR CAST COPPER ALLOY FITTINGS AND 95/5 TIN ANTIMONY SOLDER OR SILVER BRAZING. NO SOLDER CONTAINING LEAD SHALL BE USED.
- ALL CHECK VALVES IN PUMP DISCHARGES SHALL BE SPRING-LOADED OR SILENT TYPE OR FOR LARGE WASTE: LEVER-WEIGHTED TYPE.
- 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.
- COORDINATE ALL PIPING AND DUCTWORK WITH BOTH NEW AND EXISTING MECHANICAL AND ELECTRICAL WORK, INCLUDING HVAC, PLUMBING, ELECTRICAL, FIRE ALARM, SPRINKLER AND COMMUNICATIONS.
- 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.
- 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 PIPING WHERE EXISTING INSULATION HAS BEEN REMOVED OR DAMAGED DURING THE PROJECT.
- PROVIDE ALL PLUMBING CONNECTIONS, PIPING, FIXTURES AND EQUIPMENT AS INDICATED, NOTED AND SCHEDULED, FOR A COMPLETE WORKING SYSTEM. WORK SHALL BE PROVIDED BY A LICENSED PLUMBING CONTRACTOR, IN ACCORDANCE WITH THE KY. STATE PLUMBING CODE AND THE KY BUILDING CODE, AND SHALL BE ACCOMPANIED BY A CERTIFICATE OF INSPECTION AND APPROVAL. ALL WATER PIPING SHALL BE TYPE L COPPER. ALL DWV PIPING SHALL BE DWV COPPER OR NO-HUB SOIL PIPE ABOVE AND HUB AND SPIGOT SOIL PIPE BELOW GROUND.
- PLUMBING FIXTURES, SPECIALTIES AND WATER HEATERS SHALL BE TYPES LISTED ON THE PLUMBING FIXTURE SCHEDULE, PLUMBING SPECIALTY SCHEDULE AND WATER HEATER SCHEDULE OR APPROVED EQUALS AS LISTED IN THE SPECIFICATION BOOK.
- ALL FUEL GAS OR OIL PIPING OR SPECIALTIES SHALL BE PROVIDED IN ACCORDANCE WITH THE APPROPRIATE SECTIONS OF THE NFPA NATIONAL FIRE CODE, THE KY BUILDING CODE, THE ICC MECHANICAL CODE AND ANY REQUIREMENTS OR REGULATIONS OF THE FUEL SUPPLIER, INCLUDING ALL PROVISIONS FOR COMBUSTION AIR AND VENTING.



REVISIONS		NO.	BY	DATE	REMARKS

DES STAFF
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NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

PLUMBING LEGEND AND GENERAL NOTES
SCALE: NOT TO SCALE

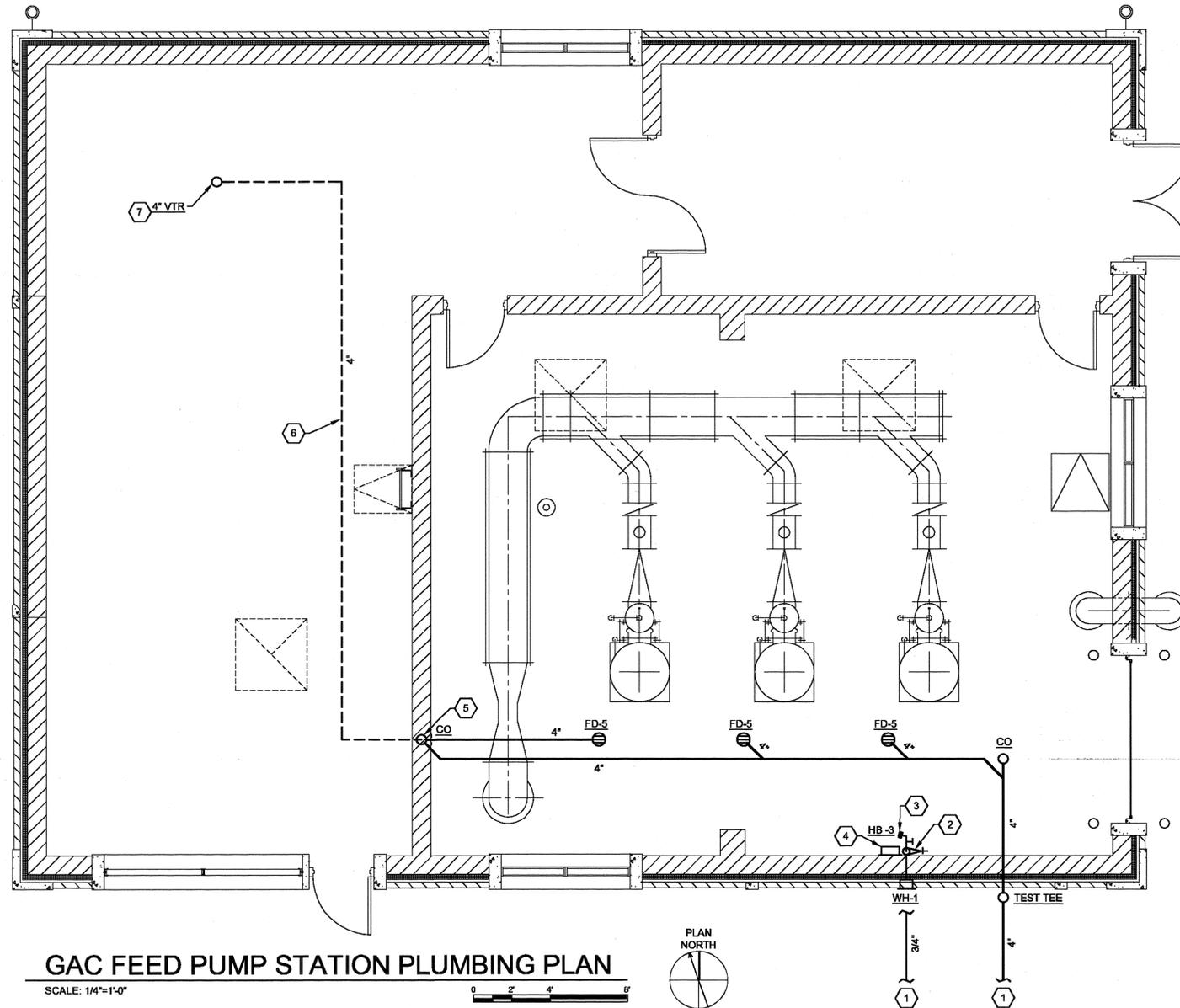
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: P-00-001
CAD REF. NO.: 3789-P-00-001

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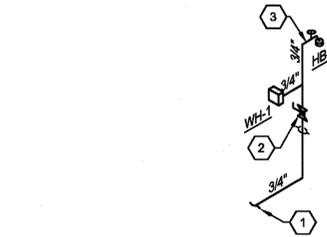
KEYNOTE:

1. SEE SHEET C-02-101 FOR CONTINUATION.
2. PROVIDE 3/4" POTABLE WATER ENTRY WITH SHUT-OFF VALVE ABOVE FINISHED FLOOR.
3. PROVIDE HOSE BIB WITH INTEGRAL BACKFLOW PREVENTER AT 3 FEET A.F.F.
4. PROVIDE HOSE RACK 3.5 FEET ABOVE FINISHED FLOOR. SEE DETAIL, SHEET P-10-501.
5. BRACKET PIPE TO WALL UNDER ALT. BID NO. 1 - SKYLIGHT ACCESS. INSTALL PIPE IN WALL UNDER BASE BID.
6. DO NOT INSTALL VENT OVER ANY ELECTRICAL EQUIPMENT OR CONTROL PANELS.
7. INSTALL VTR A MINIMUM OF 12'-0" FROM ANY INTAKE OR EXHAUST FANS.



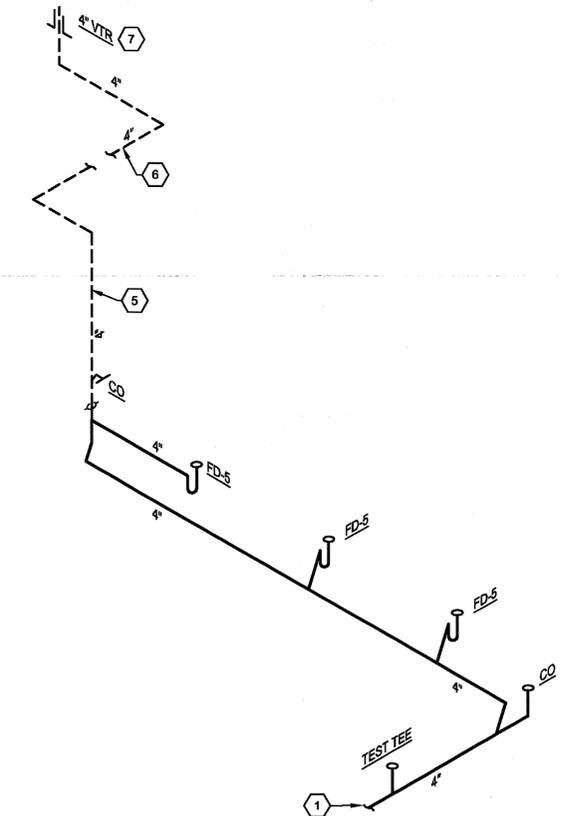
GAC FEED PUMP STATION PLUMBING PLAN

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



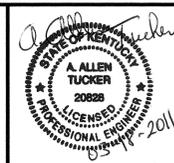
GAC FEED PUMP STATION POTABLE WATER RISER DIAGRAM

NOT TO SCALE



GAC FEED PUMP STATION WASTE AND VENT RISER DIAGRAM

NOT TO SCALE



REVISIONS			
NO.	BY	DATE	REMARKS

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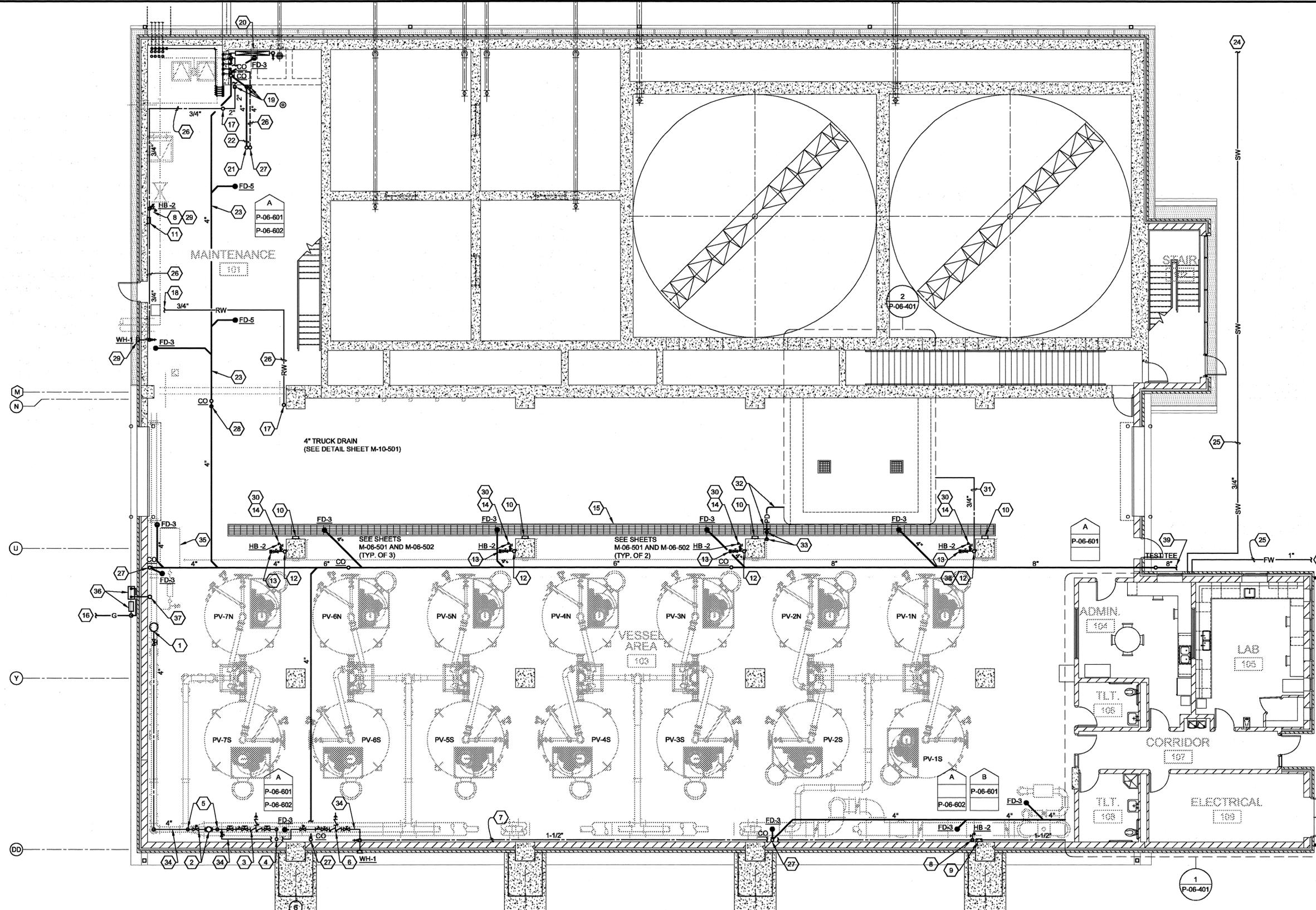
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

PLUMBING
GAC FEED PUMP STATION
PLUMBING PLAN AND SCHEMATICS
SCALE: AS NOTED

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: P-05-101
CAD REF. NO.: 3789-P-05-101

KEYNOTES:

1. CONNECT 4" POTABLE WATER TO 12" SECONDARY BACK WASH SUPPLY (SBWS). INSTALL CENTERLINE OF PIPE AT 525.50'. SEE SHEET M-06-306.
2. PROVIDE PRESSURE REDUCING VALVE AND WATER METER. SEE SHEET P-06-602 FOR DETAIL.
3. PROVIDE 4" REDUCED PRESSURE BACKFLOW PREVENTER WITH STRAINER AND AIR GAP FITTING. EXTEND DRAIN PIPE TO FLOOR DRAIN. SEE DETAIL, SHEET P-06-P602.
4. 4" WATER UP TO BOTTOM OF ROOF STRUCTURE. SEE SHEET P-06-102 FOR CONTINUATION.
5. 4" REDUCED PRESSURE VALVE AND METER BYPASS. SEE DETAIL, SHEET P-06-602.
6. PROVIDE 1-1/2" REDUCED PRESSURE BACKFLOW PREVENTER WITH STRAINER AND AIR GAP FITTING. EXTEND DRAIN PIPE TO FLOOR DRAIN. SEE DETAIL, SHEET P-06-602.
7. 1-1/2" POTABLE WATER BRACKETED TO WALL AT ELEV. 529.00'.
8. PROVIDE HOSE BIB BRACKETED TO WALL AT ELEV. 527.00'.
9. PROVIDE HOSE RACK AT ELEV. 526.00'. SEE HOSE RACK DETAIL, SHEET P-10-501. INSTALL PER HOSE BIB CONNECTION DETAIL, SHEET M-10-501.
10. PROVIDE HOSE RACK BRACKETED TO COLUMN AT ELEV. 528.00'. SEE HOSE RACK DETAIL, SHEET P-10-501.
11. PROVIDE HOSE RACK BRACKETED TO WALL AT ELEV. 528.00'. SEE HOSE RACK DETAIL, SHEET P-10-501.
12. PROVIDE 4" WATER, BRACKETED TO COLUMN, UP TO STRUCTURE AND DOWN TO ELEV. 525.5' (18" A.F.F.). SEE SHEET M-06-102 FOR CONTINUATION.
13. PROVIDE 4" WATER WITH 4" BALL VALVE AND FULL SIZE QUICK-CONNECT.
14. PROVIDE 3/4" TAP INTO SIDE OF 4" PIPE AND INSTALL 3/4" BALL VALVE AND HOSE BIB.
15. TRENCH DRAIN WITH FOUR FD-3s IN BOTTOM OF TRENCH. SEE STRUCTURAL DRAWINGS FOR TRENCH CONSTRUCTION AND GRATING.
16. 4" NATURAL GAS CONTAINMENT CONDUIT. SEE SHEET C-02-101 FOR CONTINUATION.
17. SEE SHEET P-06-102 FOR CONTINUATION.
18. EXTEND AND CONNECT TO RAW WATER (RW) SAMPLE PUMP DISCHARGE. PROVIDE SHUT-OFF VALVE AT SAMPLE PUMP.
19. PIPE DOWN TO BELOW STRUCTURAL BEAM.
20. PROVIDE NEW 2" PUSH STATION FOR CHEMICAL FEED. INSTALL 2" HEADER 4'-0" A.F.F. PROVIDE 1" CHEMICAL FEED CONNECTIONS WITH SHUT-OFF VALVES. SEE SHEET M-09-202 FOR CONNECTIONS. PROVIDE 2" REDUCED PRESSURE BACKFLOW PREVENTER WITH STRAINER BRACKETED TO WALL BELOW PUSH STATION. INSTALL RP8FF 30" A.F.F. PROVIDE WITH STRAINER AND AIR GAP FITTING. EXTEND DRAIN TO FLOOR DRAIN.
21. 4" WASTE UP TO UPPER LEVEL FLOOR. SEE SHEET P-06-102 FOR CONTINUATION.
22. PROVIDE WASTE PIPE AS TIGHT TO BOTTOM OF STRUCTURE ABOVE AS POSSIBLE.
23. PROVIDE SCHEDULE 40 PVC WASTE PIPE ABOVE EQUALIZATION BASIN. HOLD PIPE AS TIGHT TO BOTTOM OF FLOOR SLAB AS POSSIBLE (ABOVE EQUALIZATION BASIN).
24. EXTEND AND CONNECT TO SETTLED WATER (SW) SAMPLE PUMP DISCHARGE. PROVIDE SHUT-OFF VALVE AT SAMPLE PUMP. PIPE DENOTED AS "SL" (SAMPLE LINE) ON SITE PIPING PLAN.
25. PROVIDE PIPE BELOW GRADE.
26. HOLD PIPE TIGHT TO BOTTOM OF ABOVE STRUCTURE.
27. 4" VENT UP. SEE SHEET P-06-102 FOR CONTINUATION.
28. 4" WASTE DOWN FROM TOP OF EQUALIZATION BASIN TO TRENCH DRAIN WASTE PIPE ELEVATION.
29. PROVIDE "NON-POTABLE WATER" SIGN MOUNTED TO WALL ABOVE FIXTURE.
30. PROVIDE "NON-POTABLE WATER" SIGN MOUNTED TO COLUMN ABOVE HOSE BIB.
31. PROVIDE 3/4" WATER BELOW SLAB.
32. PROVIDE 1" SUMP PUMP DISCHARGE PIPE BELOW SLAB AND BELOW TRENCH DRAIN. SEE SUBMERSIBLE SUMP PUMP INSTALLATION DETAIL, SHEET P-10-501.
33. PUMP DISCHARGE UP TO ABOVE SLAB TO TRENCH DRAIN. DISCHARGE THRU AIR GAP INTO TRENCH DRAIN. SEE SUBMERSIBLE SUMP PUMP INSTALLATION DETAIL, SHEET P-10-501.
34. POTABLE WATER PIPE BRACKETED TO WALL AT ELEV. 527.00'.
35. AIR COMPRESSOR SYSTEM. EXTEND EQUIPMENT DRAINS TO ADJACENT FLOOR DRAINS. DRAIN SIZES TO MATCH EQUIPMENT CONNECTION SIZE.
36. NEW GAS METER AND REGULATOR BY DUKE ENERGY. SET OUTGOING GAS PRESSURE AT 0.5 PSI (14" WC).
37. PROVIDE 2-1/2" GAS PIPE UP. SEE SHEET P-06-102 FOR CONTINUATION.
38. PROVIDE 3/4" WATER DOWN TO BELOW SLAB. PROVIDE SHUT-OFF VALVE AT FLOOR.
39. SEE SITE PIPING PLAN, SHEET C-02-101, FOR CONTINUATION.
40. SEE SITE PIPING PLAN, SHEET C-02-101, FOR PIPE ROUTING TO FILTER BUILDING. PIPE DENOTED AS "SL" (SAMPLE LINE) ON SITE PIPING PLAN.

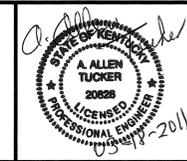


**PT/GAC BUILDING
PLUMBING PLAN AT EL. 524.00**

SCALE: 1/8" = 1'-0"



User: I:\BOND Spec\PIRNE STANDARD File\13788-NKWD TAYLOR MILL WORKING DRAWINGS\PLUMBING\p-06-101.DWG Scale: 1/8" = 1'-0" Date: 3/10/2011 11:46:38 AM PLOT: P-06-101



REVISIONS		REMARKS
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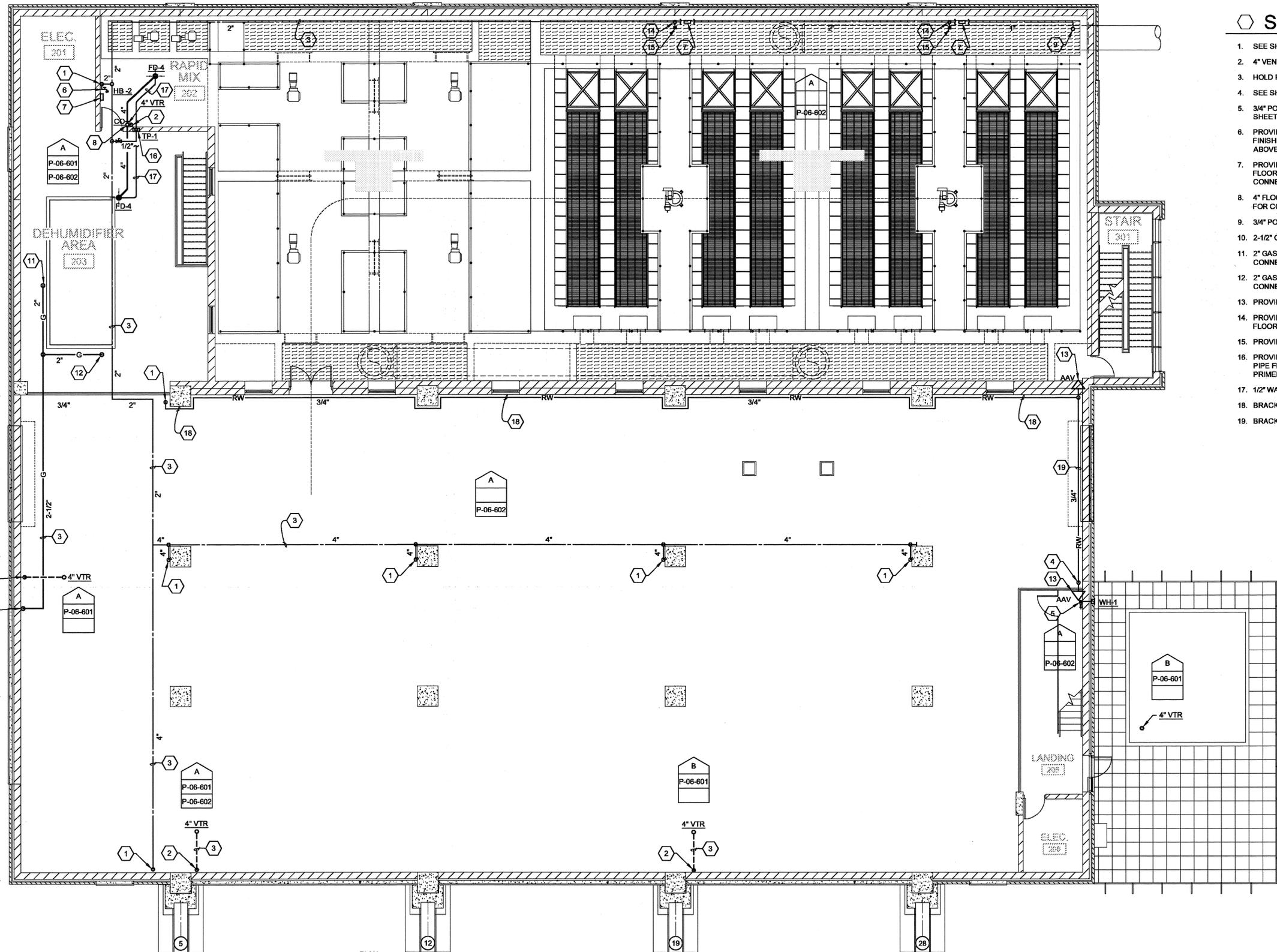
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NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

PLUMBING
**PT/GAC BUILDING
PLUMBING PLAN AT EL. 524.00**
SCALE: 1/8" = 1'-0"

ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	P-06-101
CAD REF. NO.:	3789-P-06-101

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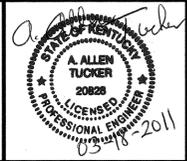


KEYNOTE:

1. SEE SHEET P-06-101 FOR CONTINUATION.
2. 4" VENT DOWN. SEE SHEET P-06-101 FOR CONTINUATION.
3. HOLD PIPE TIGHT TO BOTTOM OF ROOF STRUCTURE.
4. SEE SHEET P-06-401 FOR CONTINUATION.
5. 3/4" POTABLE WATER DOWN. INSTALL SHUT-OFF VALVE ABOVE GRATING. SEE SHEET P-06-401 FOR CONTINUATION.
6. PROVIDE HOSE BIB WITH SHUT-OFF VALVE BRACKETED TO WALL AT 3 FEET ABOVE FINISHED FLOOR/GRATE. PROVIDE "NON-POTABLE WATER" SIGN MOUNTED TO WALL ABOVE HOSE BIB.
7. PROVIDE HOSE RACK BRACKETED TO WALL AT 3.5 FEET ABOVE FINISHED FLOOR/GRATE. SEE HOSE RACK DETAIL, SHEET P-10-501. INSTALL PER HOSE BIB CONNECTION DETAIL, SHEET M-10-501.
8. 4" FLOOR DRAIN DISCHARGE DOWN AND 4" VENT UP TO 4" VTR. SEE SHEET P-06-101 FOR CONTINUATION.
9. 3/4" POTABLE WATER WITH SHUT-OFF VALVE UP TO RH-1 ON ROOF.
10. 2-1/2" GAS PIPE DOWN. SEE SHEET P-06-101 FOR CONTINUATION.
11. 2" GAS PIPE DOWN TO DEHUMIDIFIER'S REACTIVATION AIR FURNACE. SEE GAS CONNECTION DETAIL, SHEET P-10-501.
12. 2" GAS PIPE DOWN TO DEHUMIDIFIER'S PROCESS AIR FURNACE. SEE GAS CONNECTION DETAIL, SHEET P-10-501.
13. PROVIDE AAV AT HIGHEST POINT OF SAMPLE PIPE.
14. PROVIDE 2" WATER BRACKETED TO WALL AND DOWN TO 3 FEET ABOVE FINISHED FLOOR/GRATE. PROVIDE 1-1/2" BALL VALVE IN DROP AT QUICK-CONNECT.
15. PROVIDE 1-1/2" WATER FULL SIZE QUICK-CONNECT.
16. PROVIDE TRAP PRIMER IN RECESSED WALL BOX AT 4'-6" A.F.F. EXTEND 1/2" WATER PIPE FROM TRAP PRIMER TO BELOW SLAB AND EXTEND TO FLOOR DRAIN(S) TRAP PRIMER CONNECTION(S).
17. 1/2" WATER PIPE BELOW SLAB.
18. BRACKET PIPE TO WALL 14'-0" A.F.F.
19. BRACKET PIPE TO WALL 18'-0" A.F.F.

**PT/GAC BUILDING
PLUMBING PLAN AT EL. 537.00**

SCALE: 1/8" = 1'-0"



REVISIONS			
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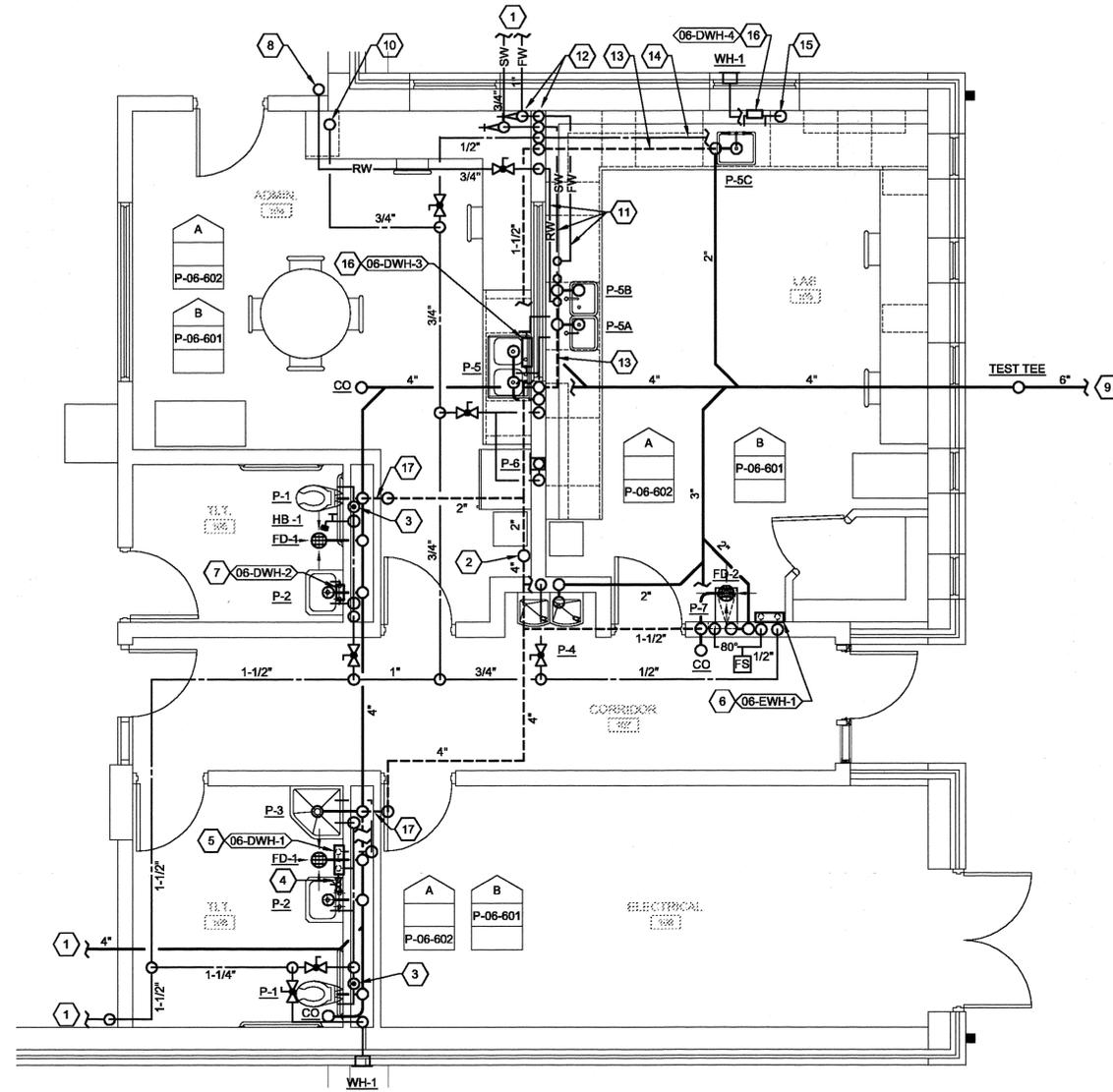
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

PLUMBING
**PT/GAC BUILDING
PLUMBING PLAN AT EL. 537.00**
SCALE: 1/8" = 1'-0"

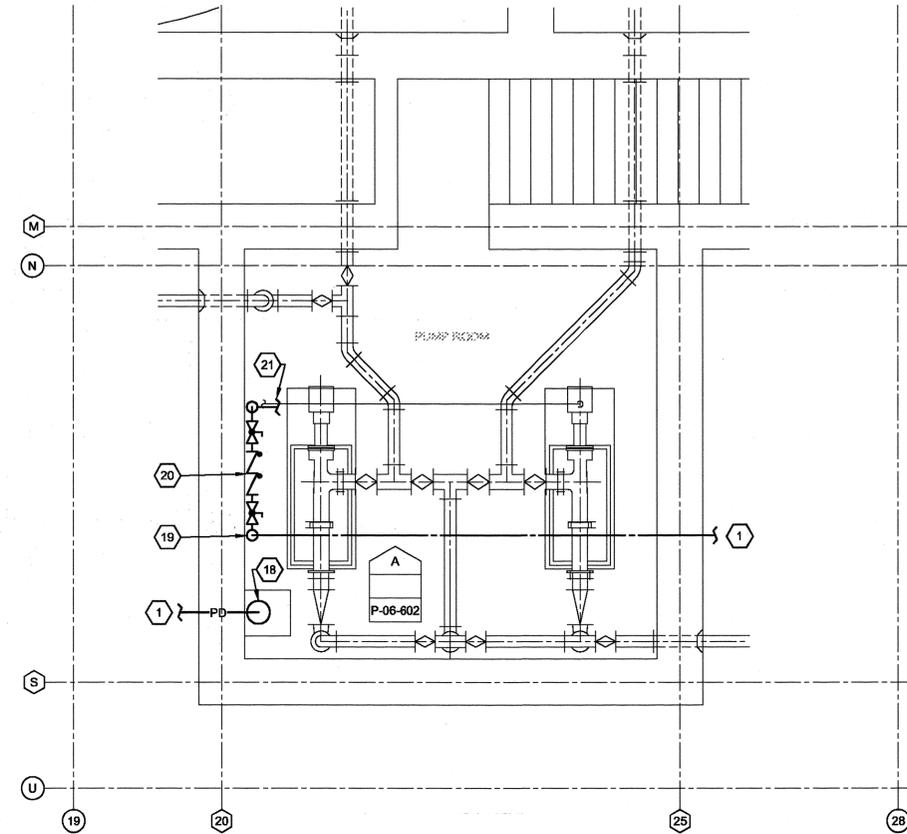
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET P-06-102
CAD REF. NO. 3789-P-06-102

SHEET KEYNOTES:

1. SEE SHEET P-06-101 FOR CONTINUATION.
2. PROVIDE 4" VENT UP TO VTR. SEE SHEET P-06-102 FOR CONTINUATION.
3. PROVIDE ZURN Z1700, SIZE 200 WATER HAMMER ARRESTOR OR APPROVED EQUAL.
4. PROVIDE SYMMONS MAXLINE, 525 SERIES THERMOSTATIC MIXING VALVE OR APPROVED EQUAL. MINIMUM FLOW FOR THE VALVE SHALL BE .5 GPM WITH A 12 GPM FLOW AT 30 PSI PRESSURE DIFFERENTIAL. SET OUTGOING TEMPERATURE AT 105°F. PROVIDE WITH STAINLESS STEEL WALL CABINET BRACKETED TO WALL BELOW LAVATORY PER MANUFACTURER'S RECOMMENDATIONS.
5. PROVIDE ELECTRIC INSTANTANEOUS WATER HEATER BRACKETED TO WALL 4'-0" A.F.F.
6. PROVIDE EMERGENCY EYE/FACE WASH WATER HEATER MOUNTED TO WALL PER MANUFACTURER'S RECOMMENDATIONS. MOUNT TOP OF WATER HEATER AS TIGHT TO CEILING AS MANUFACTURER'S RECOMMENDATIONS ALLOW.
7. PROVIDE ELECTRIC INSTANTANEOUS WATER HEATER BRACKETED TO WALL BELOW LAVATORY.
8. PROVIDE 3/4" RW (RAW WATER) SAMPLING PIPE UP. SEE SHEET P-06-102 FOR CONTINUATION.
9. SEE SHEET C-02-101 FOR CONTINUATION.
10. PROVIDE 3/4" POTABLE WATER PIPE UP. SEE SHEET P-06-102 FOR CONTINUATION.
11. PROVIDE 3/4" RW (RAW WATER), 3/4" SW (SETTLED WATER) AND 1" FW (FINISHED WATER) SAMPLING PIPES BRACKETED TO WALL BELOW CABINETS IN TOE-KICK SPACE.
12. PROVIDE 3/4" SW (SETTLED WATER) AND 1" FW (FINISHED WATER) UP INTO SPACE BELOW DESK TOP. HOLD PIPE AS CLOSE TO EXTERIOR WALL AS POSSIBLE AND INSTALL SHUT-OFF VALVE ABOVE FLOOR. DROP PIPE IN WALL AND EXTEND INTO TOE-KICK SPACE.
13. PROVIDE 1-1/2" VENT PIPE BELOW SLAB.
14. PROVIDE 3/4" POTABLE WATER BRACKETED TO WALL BELOW CABINETS IN TOE-KICK SPACE.
15. PROVIDE 3/4" POTABLE WATER DOWN THRU CABINET BASE AND INTO TOE-KICK SPACE.
16. PROVIDE ELECTRIC INSTANTANEOUS WATER HEATER BRACKETED TO WALL IN CABINET SPACE BELOW SINK.
17. OFFSET VENT TO BELOW STRUCTURAL BEAM.
18. PROVIDE PUMP IN PUMP ROOM SUMP. SEE SUBMERSIBLE SUMP PUMP INSTALLATION DETAIL, SHEET P-10-501.
19. 3/4" WATER PIPE DOWN TO 3'-0" A.F.F. PROVIDE SHUT-OFF VALVE IN RISER.
20. PROVIDE 3/4" REDUCED PRESSURE BACKFLOW PREVENTER WITH AIR GAP FITTING BRACKETED TO WALL AT 3'-0" A.F.F. ROUTE DRAIN PIPE TO SUMP.
21. 3/4" WATER TO PUMPS. SEE SHEET M-06-101 FOR CONTINUATION.



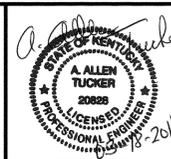
1 PT/GAC BUILDING - ENLARGED PLUMBING PLAN AT EL. 524.00
SCALE: 1/4"=1'-0"



2 PT/GAC BUILDING - ENLARGED PLUMBING PLAN AT EL. 504.00
SCALE: 1/4"=1'-0"



User: JBOND Spec: PIRNIE STANDARD File: U:\3786-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\PLUMBING\06-401.DWG Scale: 1:18 Saved Date: 1/5/2011 Time: 16:50 Plot Date: None, Job: 3/10/2011: 09:39: Layout: P-06-401



NO.	BY	DATE	REVISIONS	REMARKS

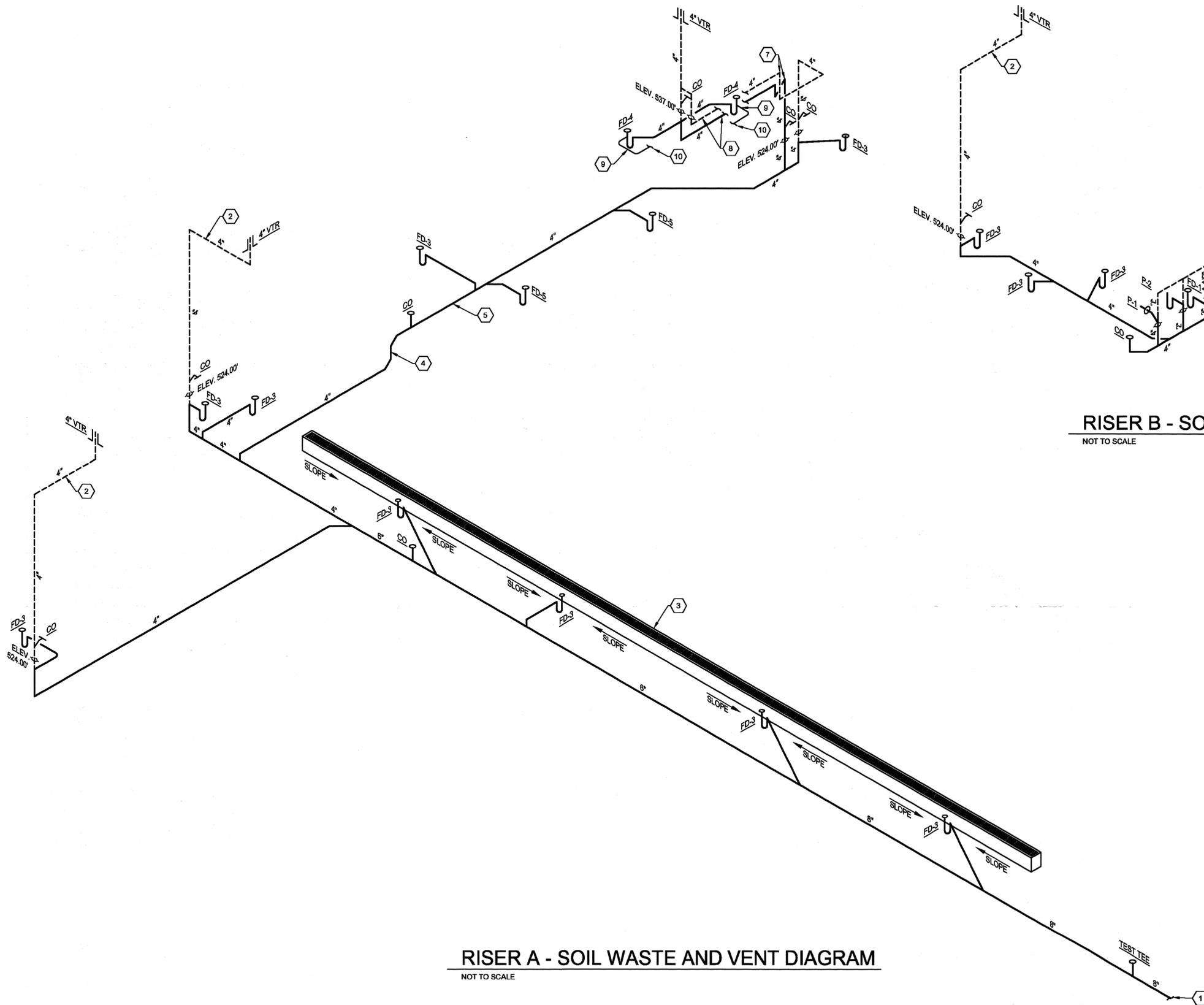
DES MAS
DWN MAS
CKD AAT

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

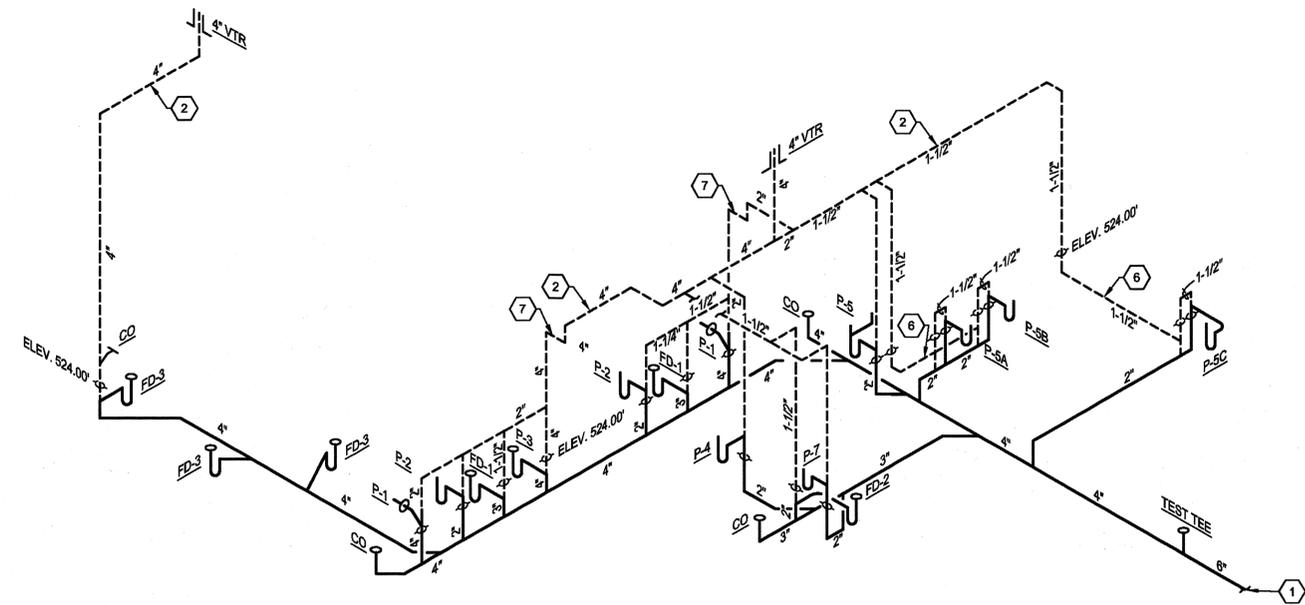
PLUMBING
PT/GAC BUILDING
ENLARGED PLUMBING PLANS
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: P-06-401
CAD REF. NO.: 3789-P-06-401

User: \\BOND Spec: PIRNIE STANDARD File: J:\3786-NKWD TAYLOR MILLWORKING DRAWINGS\DESIGN DRAWINGS\PLUMBING\PT-GAC BUILDING\PLUMBING SCHEMATICS I\Layout_P-06-601.DWG Scale: 1:38 Saved Date: 11/09/2010 Time: 10:12 Plot Date: March, 2011 09:39 Layout: P-06-601



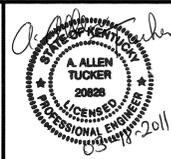
RISER A - SOIL WASTE AND VENT DIAGRAM
NOT TO SCALE



RISER B - SOIL WASTE AND VENT DIAGRAM
NOT TO SCALE

SHEET KEYNOTES:

1. SEE SITE PIPING PLAN, C-02-101, FOR CONTINUATION.
2. PROVIDE VENT PIPE AS TIGHT TO BOTTOM OF ROOF STRUCTURE AS POSSIBLE.
3. TRENCH DRAIN WITH FOUR FD-3s IN BOTTOM OF TRENCH. SEE STRUCTURAL DRAWINGS FOR TRENCH CONSTRUCTION AND GRATING.
4. 4" WASTE DOWN FROM TOP OF EQUALIZATION BASIN TO TRENCH DRAIN WASTE PIPE ELEVATION.
5. PROVIDE WASTE PIPE AS TIGHT TO BOTTOM OF FLOOR SLAB AS POSSIBLE (ABOVE EQUALIZATION BASIN).
6. PROVIDE VENT PIPE BELOW FLOOR SLAB.
7. OFFSET PIPE TO BELOW STRUCTURAL BEAM.
8. PROVIDE PIPE AS TIGHT TO UNDERSIDE OF DEHUMIDIFIER AREA FLOOR SLAB AS POSSIBLE.
9. PROVIDE 1/2" WATER PIPE BELOW FLOOR.
10. EXTEND TO TRAP PRIMER.



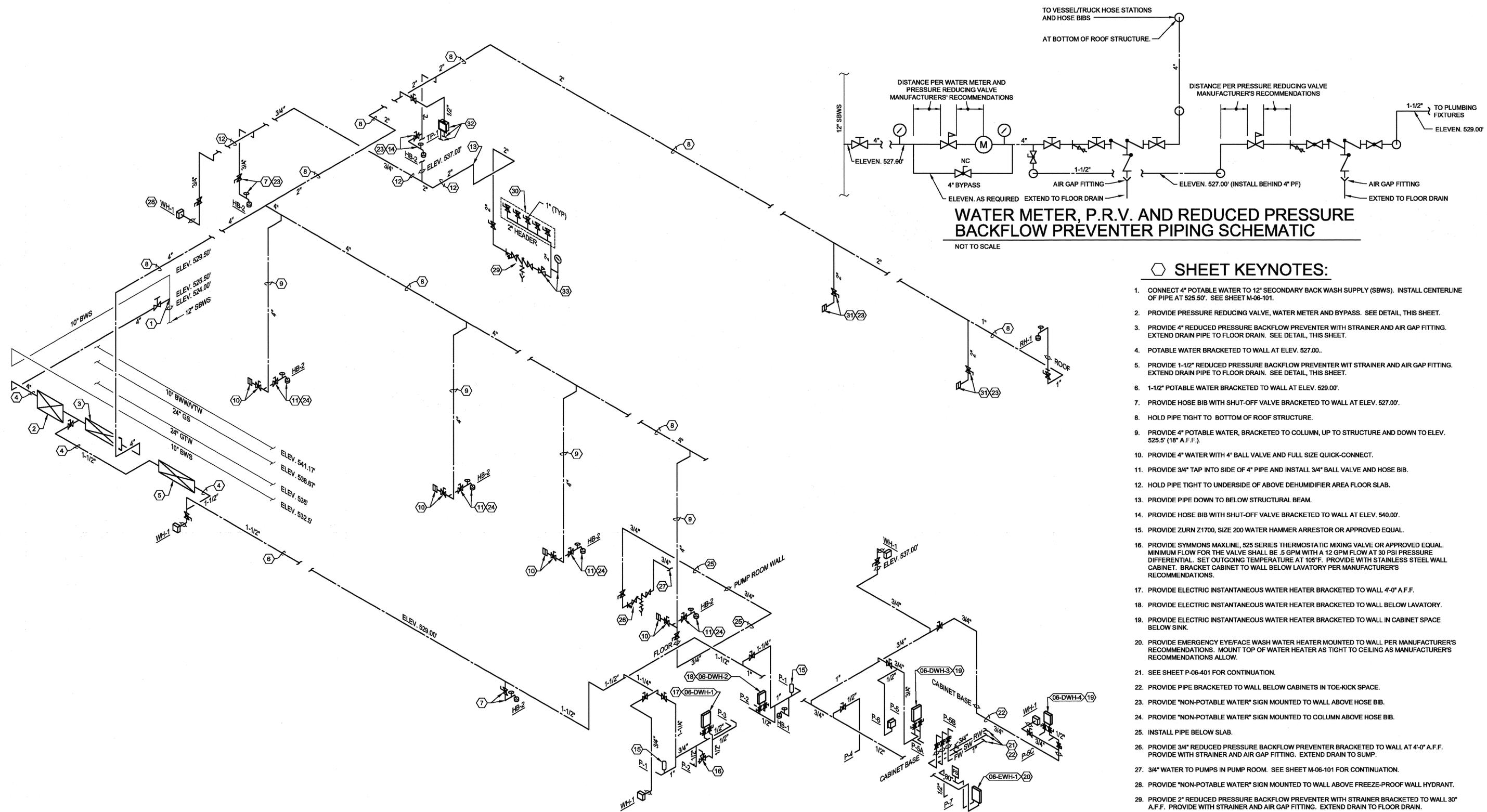
REVISIONS			
NO.	BY	DATE	REMARKS

DES MAS
DWN MAS
CKD AAT

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

PLUMBING
PT/GAC BUILDING
PLUMBING SCHEMATICS I
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET P-06-601
CAD REF. NO. 3789-P-06-601



WATER METER, P.R.V. AND REDUCED PRESSURE BACKFLOW PREVENTER PIPING SCHEMATIC

NOT TO SCALE

SHEET KEYNOTES:

- CONNECT 4" POTABLE WATER TO 12" SECONDARY BACK WASH SUPPLY (SBWS). INSTALL CENTERLINE OF PIPE AT 525.50'. SEE SHEET M-06-101.
- PROVIDE PRESSURE REDUCING VALVE, WATER METER AND BYPASS. SEE DETAIL, THIS SHEET.
- PROVIDE 4" REDUCED PRESSURE BACKFLOW PREVENTER WITH STRAINER AND AIR GAP FITTING. EXTEND DRAIN PIPE TO FLOOR DRAIN. SEE DETAIL, THIS SHEET.
- POTABLE WATER BRACKETED TO WALL AT ELEV. 527.00'.
- PROVIDE 1-1/2" REDUCED PRESSURE BACKFLOW PREVENTER WITH STRAINER AND AIR GAP FITTING. EXTEND DRAIN PIPE TO FLOOR DRAIN. SEE DETAIL, THIS SHEET.
- 1-1/2" POTABLE WATER BRACKETED TO WALL AT ELEV. 529.00'.
- PROVIDE HOSE BIB WITH SHUT-OFF VALVE BRACKETED TO WALL AT ELEV. 527.00'.
- HOLD PIPE TIGHT TO BOTTOM OF ROOF STRUCTURE.
- PROVIDE 4" POTABLE WATER, BRACKETED TO COLUMN, UP TO STRUCTURE AND DOWN TO ELEV. 525.5' (18" A.F.F.).
- PROVIDE 4" WATER WITH 4" BALL VALVE AND FULL SIZE QUICK-CONNECT.
- PROVIDE 3/4" TAP INTO SIDE OF 4" PIPE AND INSTALL 3/4" BALL VALVE AND HOSE BIB.
- HOLD PIPE TIGHT TO UNDERSIDE OF ABOVE DEHUMIDIFIER AREA FLOOR SLAB.
- PROVIDE PIPE DOWN TO BELOW STRUCTURAL BEAM.
- PROVIDE HOSE BIB WITH SHUT-OFF VALVE BRACKETED TO WALL AT ELEV. 540.00'.
- PROVIDE ZURN Z1700, SIZE 200 WATER HAMMER ARRESTOR OR APPROVED EQUAL.
- PROVIDE SYMMONS MAXLINE, 525 SERIES THERMOSTATIC MIXING VALVE OR APPROVED EQUAL. MINIMUM FLOW FOR THE VALVE SHALL BE .5 GPM WITH A 12 GPM FLOW AT 30 PSI PRESSURE DIFFERENTIAL. SET OUTGOING TEMPERATURE AT 105°F. PROVIDE WITH STAINLESS STEEL WALL CABINET. BRACKET CABINET TO WALL BELOW LAVATORY PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE ELECTRIC INSTANTANEOUS WATER HEATER BRACKETED TO WALL 4'-0" A.F.F.
- PROVIDE ELECTRIC INSTANTANEOUS WATER HEATER BRACKETED TO WALL BELOW LAVATORY.
- PROVIDE ELECTRIC INSTANTANEOUS WATER HEATER BRACKETED TO WALL IN CABINET SPACE BELOW SINK.
- PROVIDE EMERGENCY EYE/FACE WASH WATER HEATER MOUNTED TO WALL PER MANUFACTURER'S RECOMMENDATIONS. MOUNT TOP OF WATER HEATER AS TIGHT TO CEILING AS MANUFACTURER'S RECOMMENDATIONS ALLOW.
- SEE SHEET P-06-401 FOR CONTINUATION.
- PROVIDE PIPE BRACKETED TO WALL BELOW CABINETS IN TOE-KICK SPACE.
- PROVIDE "NON-POTABLE WATER" SIGN MOUNTED TO WALL ABOVE HOSE BIB.
- PROVIDE "NON-POTABLE WATER" SIGN MOUNTED TO COLUMN ABOVE HOSE BIB.
- INSTALL PIPE BELOW SLAB.
- PROVIDE 3/4" REDUCED PRESSURE BACKFLOW PREVENTER BRACKETED TO WALL AT 4'-0" A.F.F. PROVIDE WITH STRAINER AND AIR GAP FITTING. EXTEND DRAIN TO SUMP.
- 3/4" WATER TO PUMPS IN PUMP ROOM. SEE SHEET M-06-101 FOR CONTINUATION.
- PROVIDE "NON-POTABLE WATER" SIGN MOUNTED TO WALL ABOVE FREEZE-PROOF WALL HYDRANT.
- PROVIDE 2" REDUCED PRESSURE BACKFLOW PREVENTER WITH STRAINER BRACKETED TO WALL 30" A.F.F. PROVIDE WITH STRAINER AND AIR GAP FITTING. EXTEND DRAIN TO FLOOR DRAIN.
- PROVIDE NEW 2" PUSH STATION FOR CHEMICAL FEED. INSTALL 2" HEADER 4'-0" A.F.F. PROVIDE 1" CHEMICAL FEED CONNECTIONS WITH SHUT-OFF VALVES. SEE SHEET M-06-304 FOR CONNECTIONS.
- PROVIDE 2" WATER WITH 1-1/2" BALL VALVE AND 1-1/2" SIZE QUICK-CONNECT BRACKETED TO WALL AT ELEV. 540.00'.
- PROVIDE TRAP PRIMER IN WALL BOX AT 4'-6" A.F.F. EXTEND 1/2" WATER PIPES TO FLOOR DRAIN(S) TRAP PRIMER CONNECTION(S).
- PROVIDE 2" PRESSURE REDUCING VALVE AND PRESSURE GAUGE.

RISER A - WATER DIAGRAM

NOT TO SCALE

User: BOND Spec: PIRNIE STANDARD File: J:\3785-NKWD TAYLOR MILL WORKING DRAWINGS\PLUM\3785-P-06-602.DWG Scale: 1:38 Sheet Date: 2/24/2011 Time: 13:43 Plot Date: Blank, Jelf: 3/10/2011, 09:38 Layout: P-06-602



REVISIONS		REMARKS
NO.	BY	DATE

DES MAS
DWN MAS
CKD AAT

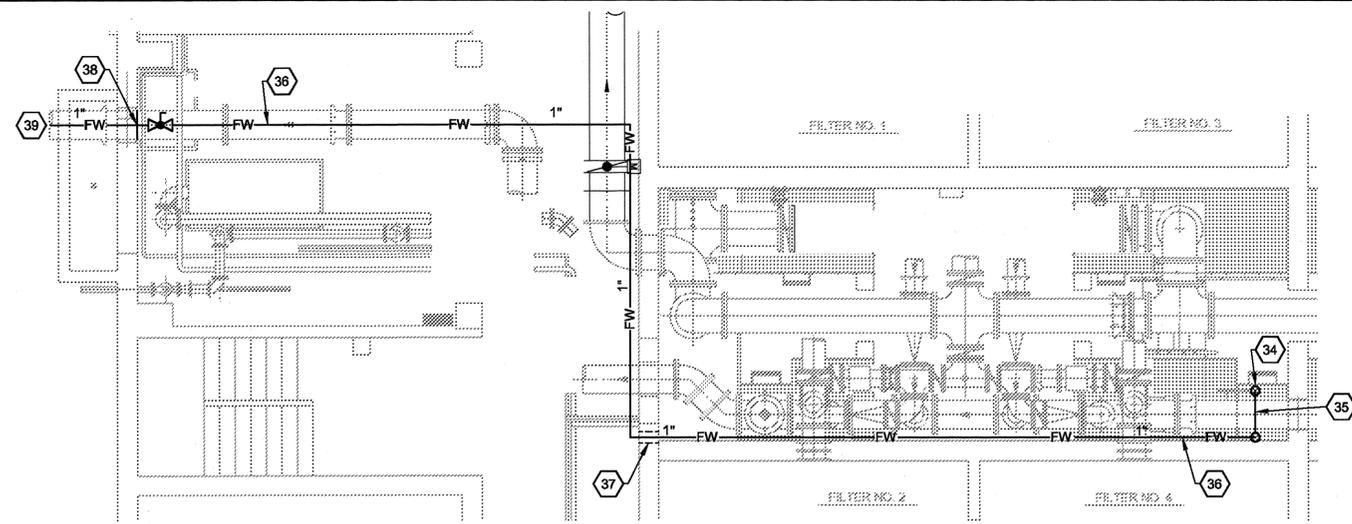
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

PLUMBING
PT/GAC BUILDING
PLUMBING SCHEMATICS II
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: P-06-602
CAD REF. NO.: 3789-P-06-602

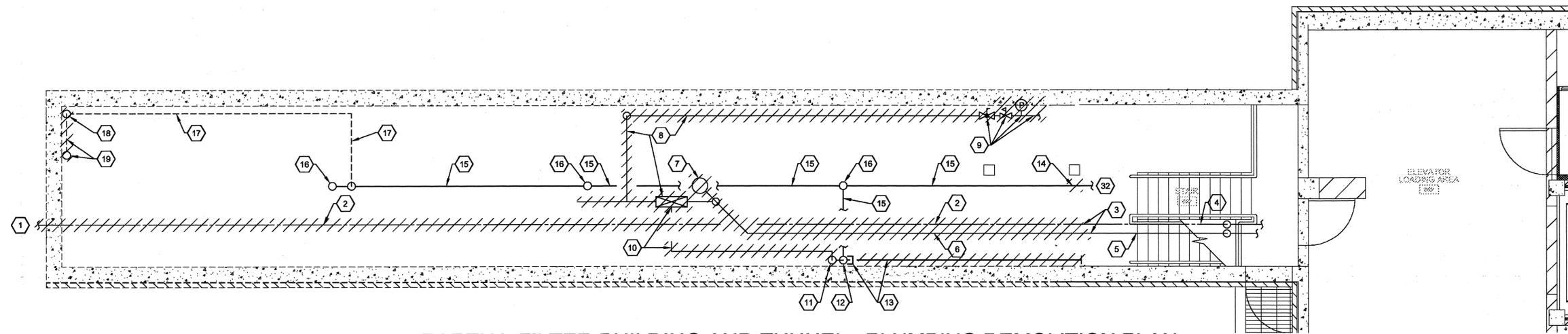
SHEET KEYNOTES:

1. SEE SHEET P-08-101 FOR CONTINUATION.
2. REMOVE EXISTING 2" POTABLE WATER SUPPLY PIPE UNLESS OTHERWISE NOTED.
3. SEE NEW WORK PLAN, THIS SHEET, FOR CONTINUATION.
4. EXISTING 2" POTABLE WATER PIPE TO REMAIN.
5. EXISTING PLANT WATER PIPE TO REMAIN.
6. REMOVE EXISTING PLANT WATER PIPE.
7. REMOVE EXISTING PLANT WATER PIPE UP TO TUNNEL ROOF. REMOVE EXISTING HYDRANT ON TUNNEL ROOF.
8. REMOVE EXISTING BACKFLOW PREVENTER, ASSOCIATED PIPE AND ALL APPURTENANCES.
9. REMOVE EXISTING SHUT-OFF VALVE, PRESSURE REDUCING VALVE, PRESSURE GAUGE AND CHEMICAL FEED PUSH CONNECTIONS. SEE NEW WORK THIS SHEET, FOR NEW LOCATION OF PRESSURE REDUCING VALVE.
10. REMOVE EXISTING AIR GAP AND DRAIN PIPE FROM REMOVED BACKFLOW PREVENTER.
11. REMOVE EXISTING DRAIN PIPE FROM REMOVED BACKFLOW PREVENTER TO OPEN RECEPTACLE.
12. PLUG OPEN RECEPTACLE WITH CONCRETE AND ABANDON IN PLACE.
13. REMOVE INDIRECT DRAIN PIPE AND CAP AT OPEN RECEPTACLE.
14. REMOVE EXISTING WASTE PIPE AS REQUIRED TO INSTALL NEW FLOOR DRAIN. SEE NEW WORK PLAN, THIS SHEET, FOR NEW CONNECTION.
15. ABANDON EXISTING 4" WASTE PIPE BELOW SLAB.
16. REMOVE EXISTING STRAINER, PLUG EXISTING FLOOR DRAIN WITH CONCRETE AND ABANDON IN PLACE.
17. ABANDON EXISTING VENT PIPE BELOW SLAB.
18. REMOVE EXISTING VENT PIPE DOWN TO FLOOR AND CAP.
19. REMOVE EXISTING VENT PIPE, VENT STACK AND VTR.
20. PROVIDE NEW 2" POTABLE WATER PIPE AND CONNECT TO EXISTING 2" POTABLE WATER PIPE. EXTEND DOWN AND THRU WALL AT FLOOR ELEVATION. PROVIDE SHUT-OFF VALVE IN RISER.
21. PROVIDE NEW 2" POTABLE WATER PIPE AT TUNNEL FLOOR.
22. SEE SHEET C-02-101 FOR CONTINUATION.
23. EXISTING 2" POTABLE WATER PIPE TO REMAIN.
24. PROVIDE NEW 2" PUSH WATER PIPE CONNECTION TO EXISTING PLANT WATER PIPE. CAP EXISTING MAIN.
25. PROVIDE NEW 2" PUSH WATER PIPE AS TIGHT AS POSSIBLE TO ABOVE STRUCTURE.
26. PROVIDE NEW 2" PUSH WATER PIPE DOWN TO 3'-0" A.F.F. PROVIDE SHUT-OFF VALVE IN RISER.
27. PROVIDE 2" REDUCED PRESSURE BACKFLOW PREVENTER WITH STRAINER AND AIR GAP FITTING. EXTEND DRAIN ALONG WALL TO FLOOR DRAIN.
28. INSTALL EXISTING 2" PRESSURE REDUCING VALVE AND PROVIDE NEW PRESSURE GAUGE. INSTALL PER MANUFACTURER'S RECOMMENDATIONS (i.e. DISTANCE BETWEEN FITTINGS).
29. PROVIDE NEW 2" PUSH STATION FOR CHEMICAL FEED. PROVIDE 1" CHEMICAL FEED CONNECTIONS WITH SHUT-OFF VALVES. SEE SHEET M-09-102.
30. EXISTING PLANT WATER PIPE TO REMAIN.
31. PROVIDE NEW 4" WASTE PIPE AND CONNECT TO EXISTING 4" WASTE BELOW SLAB. PROVIDE 4" VENT UP THRU ROOF TO NEW 4" VTR. PROVIDE OFFSETS AS REQUIRED. PROVIDE FULL SIZE STACK CLEANOUT.
32. EXISTING WASTE PIPE TO REMAIN IN SERVICE.
33. PROVIDE "NON-POTABLE" WATER SIGN ABOVE FREEZE-PROOF WALL HYDRANT.
34. FINISHED WATER SAMPLE PUMP. PROVIDE SHUT-OFF VALVE AT PUMP CONNECTION.
35. PROVIDE 1" FINISHED WATER (FW) SAMPLE PIPE ABOVE 20" PIPE.
36. PROVIDE 1" FW SAMPLE PIPE AT CENTERLINE ELEV. OF 517.65±.
37. CORE DRILL EXISTING WALL AS REQUIRED.
38. UTILIZE EXISTING (ABANDONED) 12" FILTER TO WASTE RETURN PIPE AS CONDUIT FOR EXITING. GROUT FILL AROUND 1" SAMPLE PIPE.
39. SEE SITE PIPING PLAN, SHEET C-02-101, FOR PIPE ROUTE TO NEW PT/GAC BUILDING. PIPE DENOTED AS "SL" (SAMPLE LINE) ON SITE PIPING PLAN.



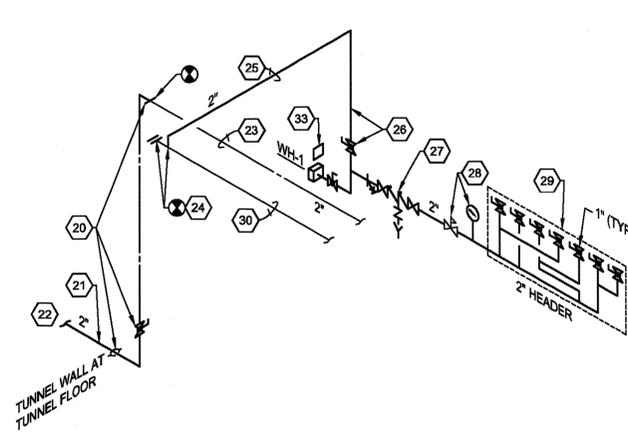
PARTIAL FILTER BUILDING PIPE GALLERY AT EL. 510.46 - PLUMBING PLAN

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



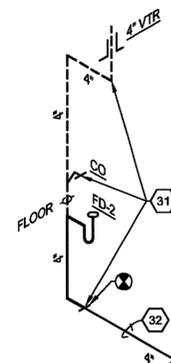
PARTIAL FILTER BUILDING AND TUNNEL - PLUMBING DEMOLITION PLAN

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



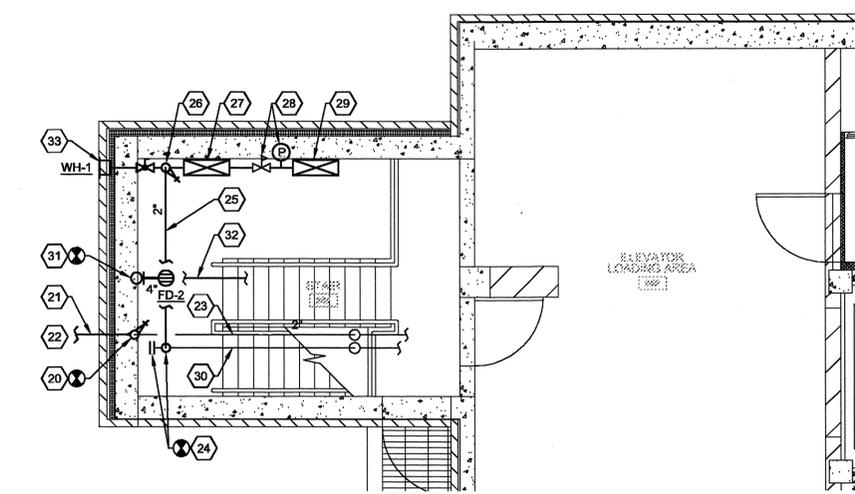
PARTIAL FILTER BUILDING - POTABLE AND PLANT WATER RISER DIAGRAM

NOT TO SCALE



PARTIAL FILTER BUILDING - WASTE AND VENT RISER DIAGRAM

NOT TO SCALE

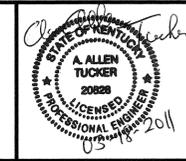


PARTIAL FILTER BUILDING- PLUMBING NEW WORK PLAN

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



User: \\BOND-SPEC-PIRNE\STANDARD\FILE\13768-NKWD\TAYLOR MILLWORKING DRAWINGS\DESIGN DRAWINGS\PLUMBING\08-101.DWG Scale: 1:16 SavedDate: 2/24/2011 Time: 13:44 Plot Date: Bond, Jeff, 3/10/2011, 09:40 Layout: P-08-101



REVISIONS		REMARKS
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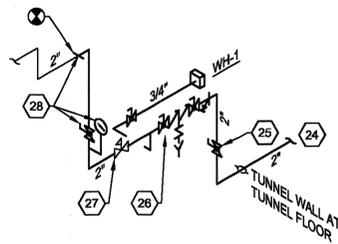
DES: MAS
DWN: MAS
CKD: AAT

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

PLUMBING
PARTIAL FILTER BLDG AND TUNNEL PLUMBING PLANS AND SCHEMATICS
SCALE: AS NOTED

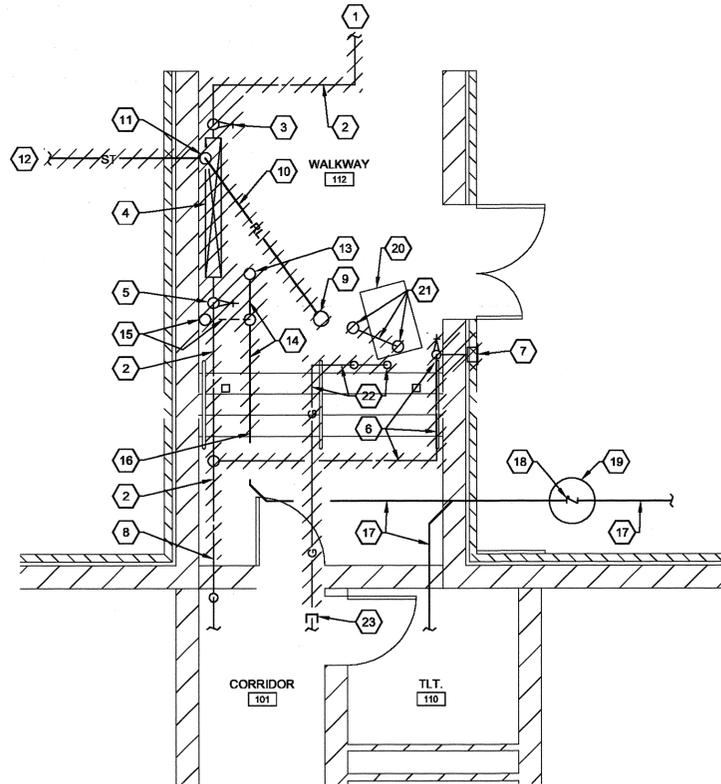
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SHEET: P-08-101
CAD REF. NO.: 3789-P-08-101

User: BOND Spec: FIRMIE STANDARD File: U3788-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\PLUMBING\P-09-101.DWG Scale: 1:8 Saved Date: 11/19/2010 Time: 14:49 Plot Date: Bond, Jeff, 3/10/2011, 09:40 Layout: P-09-101



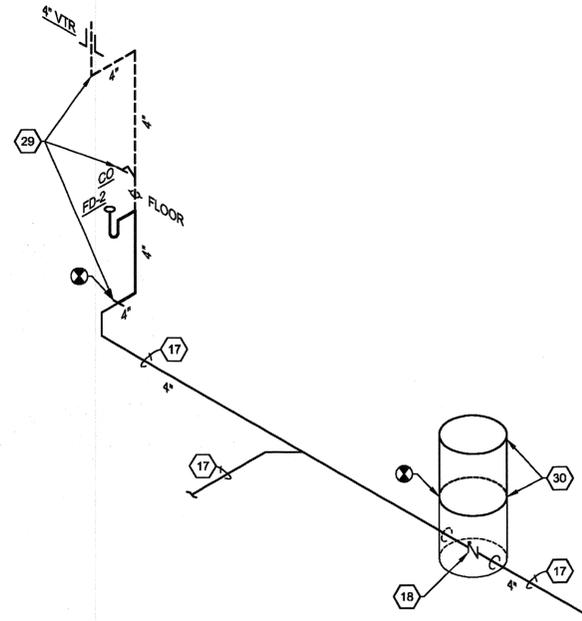
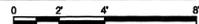
CHEMICAL BUILDING WALKWAY - POTABLE WATER RISER DIAGRAM

NOT TO SCALE



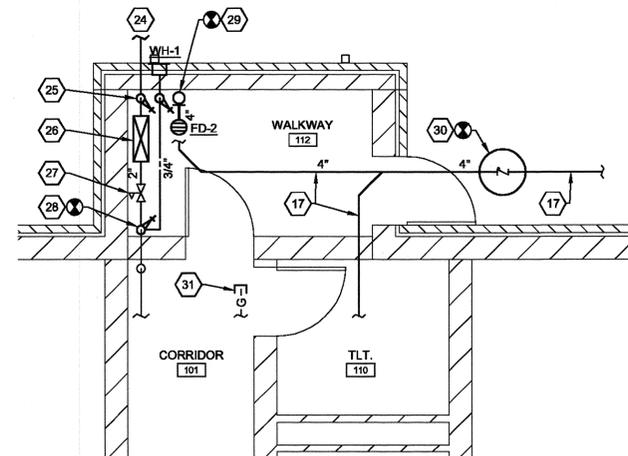
CHEMICAL BUILDING WALKWAY - PLUMBING DEMOLITION PLAN

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



CHEMICAL BUILDING WALKWAY - WASTE AND VENT RISER DIAGRAM

NOT TO SCALE



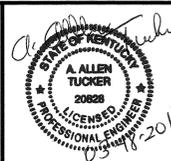
CHEMICAL BUILDING WALKWAY - PLUMBING NEW WORK PLAN

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



SHEET KEYNOTES:

1. SEE SHEET P-08-101 FOR CONTINUATION.
2. REMOVE EXISTING 2" POTABLE WATER SUPPLY PIPE FROM FILTER BUILDING.
3. REMOVE EXISTING SHUT-OFF VALVE AND PIPE DROP.
4. REMOVE EXISTING STRAINER, BACKFLOW PREVENTER, PRESSURE REDUCING VALVE AND ALL APPURTENANCES. SEE NEW WORK PLAN, THIS SHEET, FOR NEW LOCATION OF PRESSURE REDUCING VALVE.
5. REMOVE EXISTING SHUT-OFF VALVE, PRESSURE GAUGE AND PIPE DROP.
6. REMOVE EXISTING 3/4" POTABLE WATER AND SHUT-OFF VALVE.
7. REMOVE EXISTING WALL HYDRANT.
8. SEE NEW WORK PLAN, THIS SHEET, FOR NEW CONNECTION.
9. REMOVE EXISTING 3" ROOF DRAIN.
10. REMOVE EXISTING 3" ROOF LEADER.
11. REMOVE EXISTING 3" ROOF LEADER DOWN TO BELOW GRADE.
12. REMOVE EXISTING STORM SEWER AS REQUIRED.
13. REMOVE EXISTING FLOOR DRAIN.
14. REMOVE EXISTING WASTE PIPE.
15. REMOVE EXISTING VENT PIPE BELOW SLAB, VENT STACK AND VTR.
16. EXISTING WASTE PIPE BEYOND THIS POINT TO REMAIN. SEE NEW WORK PLAN, THIS SHEET, FOR CONTINUATION.
17. EXISTING WASTE PIPE TO REMAIN.
18. EXISTING BACKWATER VALVE TO REMAIN.
19. EXISTING MANHOLE TO REMAIN WITH MODIFICATIONS. SEE NEW WORK PLAN, THIS SHEET FOR MODIFICATIONS.
20. EXISTING GAS UNIT HEATER TO BE REMOVED. SEE HVAC PLANS.
21. REMOVE EXISTING FLUE.
22. REMOVE EXISTING GAS PIPE, DIRT LEG AND ALL APPURTENANCES.
23. CAP EXISTING GAS PIPE.
24. PIPE INSTALLED AT ABANDONED TUNNEL FLOOR. SEE SHEET C-02-101 FOR CONTINUATION.
25. PROVIDE SHUT-OFF VALVE AT WATER ENTRY.
26. PROVIDE 2" REDUCED PRESSURE BACKFLOW PREVENTER WITH STRAINER AND AIR GAP FITTING.
27. INSTALL EXISTING PRESSURE REDUCING VALVE. INSTALL PER MANUFACTURER'S RECOMMENDATIONS (I.E. DISTANCE BETWEEN FITTINGS).
28. PROVIDE SHUT-OFF VALVE AND CONNECT NEW 2" POTABLE WATER PIPE TO EXISTING 2" POTABLE WATER. PROVIDE NEW PRESSURE GAUGE IN RISER PRIOR TO SHUT-OFF VALVE.
29. PROVIDE NEW 4" WASTE PIPE AND CONNECT TO EXISTING 4" WASTE BELOW SLAB. PROVIDE 4" VENT UP THRU ROOF TO NEW 4" VTR. PROVIDE OFFSETS AS REQUIRED. PROVIDE FULL SIZE STACK CLEANOUT.
30. PROVIDE NEW MANHOLE EXTENSION AND MANHOLE COVER TO RAISE VALVE ACCESS TO NEW GRADE/SLAB ELEVATION.
31. CAPPED AND ABANDONED GAS PIPE.



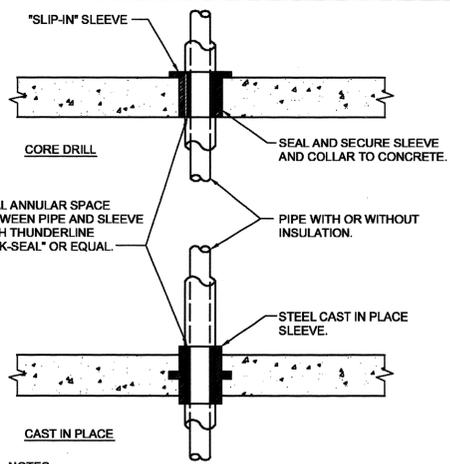
REVISIONS			
NO.	BY	DATE	REMARKS

DES MAS
DWN MAS
CKD AAT

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

PLUMBING
CHEMICAL BUILDING WALKWAY
PLUMBING PLANS AND SCHEMATICS
SCALE: AS NOTED

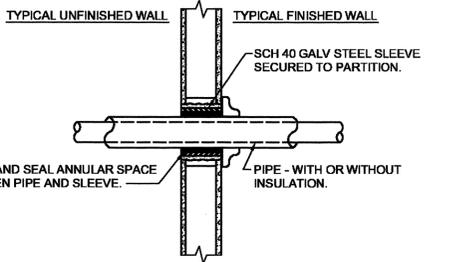
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: P-09-101
CAD REF. NO.: 3789-P-09-101



- NOTES:**
1. TYPICAL FOR NON-INSULATED PIPE AND CONDUIT.
 2. FOR FLOOR PENETRATIONS WITH FIRE RATING GREATER THAN ONE HOUR, USE THUNDERLINE "PYRO-PAC" SEALS OR EQUAL.
 3. WHERE PIPING IS EXPOSED AT FINISHED FLOOR, FLUSH MOUNT SLEEVE AND PROVIDE ESCUTCHEON PLATE.

PIPE PENETRATION THRU CONCRETE SLAB DETAIL

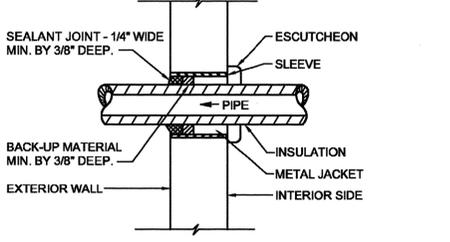
NOT TO SCALE



- NOTES:**
1. TYPICAL FOR NON-INSULATED PIPE AND CONDUIT.
 2. ALL CAULKING AND SEALANT SHALL BE FIRE RATED (SEE SPECIFICATIONS).
 3. WHERE PIPING IS EXPOSED AT FINISHED FLOOR, FLUSH MOUNT SLEEVE AND PROVIDE ESCUTCHEON PLATE.

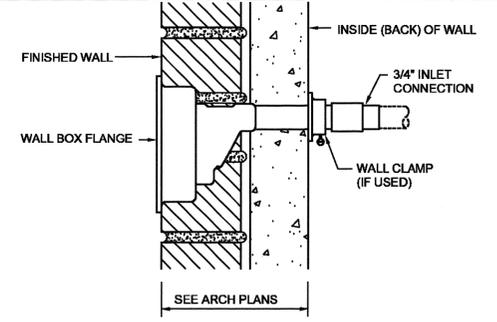
PIPE PENETRATION THRU INTERIOR WALL DETAIL

NOT TO SCALE



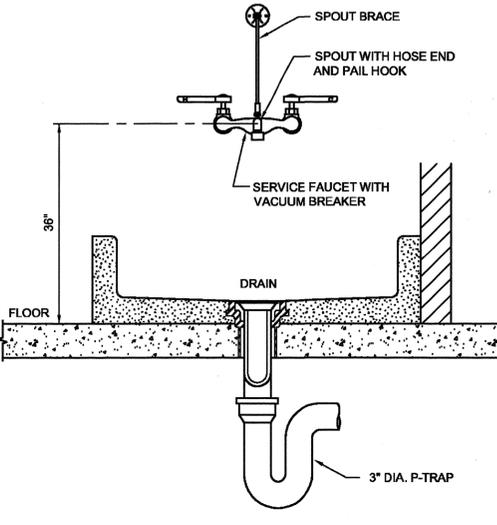
INSULATED PIPE PENETRATION THRU EXTERIOR WALL (ABOVE GRADE) DETAIL

NOT TO SCALE



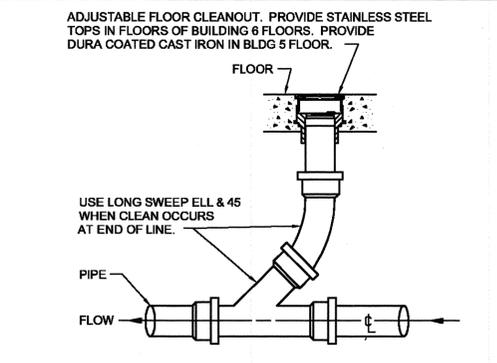
FREEZEPROOF WALL HYDRANT INSTALLATION DETAIL

NOT TO SCALE



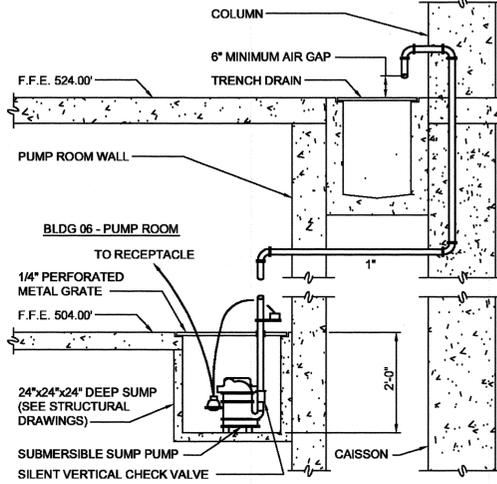
MOP SINK INSTALLATION DETAIL

NOT TO SCALE



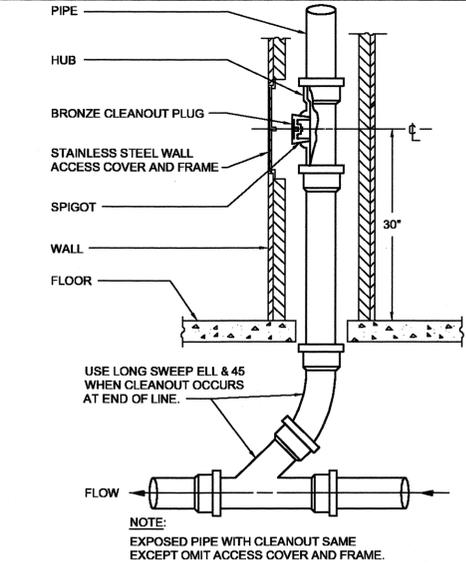
TYPICAL FLOOR CLEANOUT DETAIL

NOT TO SCALE



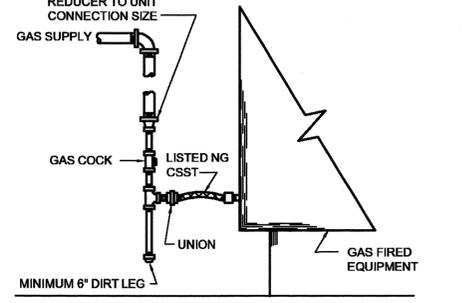
SUBMERSIBLE SUMP PUMP INSTALLATION DETAIL

NOT TO SCALE



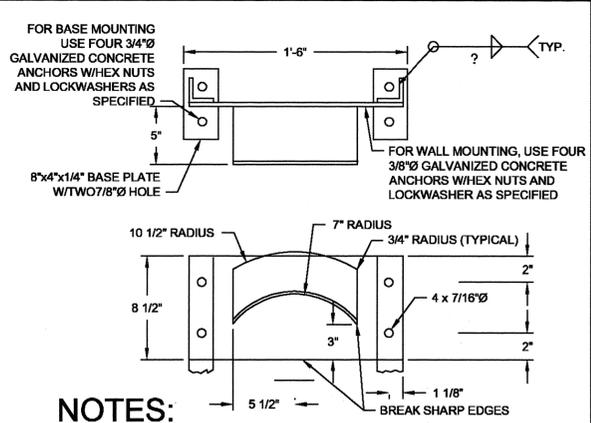
TYPICAL WALL CLEANOUT DETAIL

NOT TO SCALE



GAS PIPE EQUIPMENT INSTALLATION DETAIL

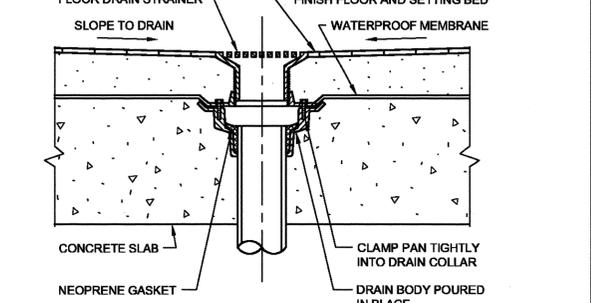
NOT TO SCALE



- NOTES:**
1. WHERE HOSE RACK IS FREE-STANDING, PROVIDE TWO STEEL ANGLES 2"x2"x1/4" W/BASE PLATES (OMIT BASE PLATES WHERE ANGLES CAN BE SET IN CONCRETE).
 2. ALL WELDED CONSTRUCTION. 8 GAUGE STEEL SHEET GALVANIZED AFTER FABRICATION.

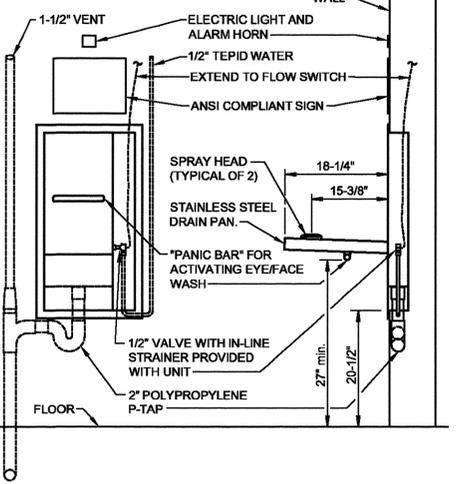
HOSE RACK

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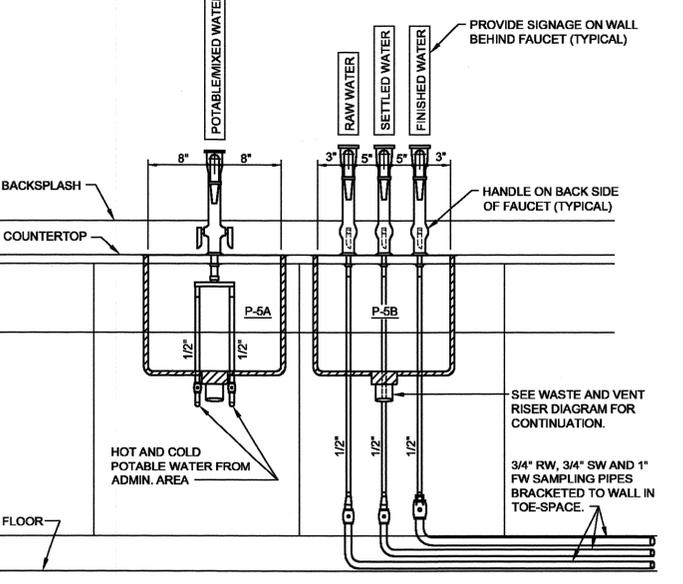
FLOOR DRAIN INSTALLATION DETAIL

NOT TO SCALE



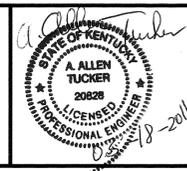
RECESSED WALL EYE/FACE WASH INSTALLATION DETAIL

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SAMPLE SINK INSTALLATION DETAIL

NOT TO SCALE



REVISIONS		REMARKS
NO.	BY	DATE

DES	STAFF
DWN	STAFF
CKD	AAT

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

PLUMBING
PLUMBING DETAILS
SCALE: NOT TO SCALE

ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	P-10-501
CAD REF. NO.:	3789-P-10-501

User: J:\BOND Spec-PRIME STANDARD File: U:\3789-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\PLUMBING\3789-P-10-501.DWG Scale: 1:30 Saved Date: 9/16/2011 Time: 10:12 Pld Date: Bared, Jeff: 9/17/2011: 09:21 Layout: P-10-501

PLUMBING FIXTURE SCHEDULE

MARK	MANUFACTURER & MODEL NO.	TYPE	TRIM	SUPPLY	DRAIN & VENT	COLOR	MOUNTING	ACCESSORIES/COMMENTS
P-1 (ADA COMPLIANT)	AMERICAN STANDARD AFWALL FLOWISE ELONGATED TOILET MODEL 3351.128	WALL-MOUNTED, VITREOUS CHINA, HIGH EFFICIENCY (1.28 GPF), DIRECT-FED SIPHON JET ACTION FLUSHOMETER TOILET WITH BACTERIA/MOLD/MILDEW INHIBITING SURFACE.	ZURN Z8000AV-HET 1.28 GPF FLUSH VALVE WITH ZURN P8000-M-ADA-DF DUAL FLUSH HANDLE.	1" CW	3" INTEGRAL TRAP 3" BRANCH WASTE 4" MAIN WASTE 4" VENT	TOILET: WHITE VITREOUS CHINA VALVE: CHROME TOILET SEAT: WHITE	WALL	AMERICAN STANDARD #5001.110 HEAVY DUTY OPEN FRONT (LESS COVER) TOILET SEAT WITH EVERCLEAN SURFACE. PROVIDE ZURN 1204 CARRIER. MOUNTING HEIGHT PER ADA REQUIREMENTS - SEE ARCHITECTURAL ELEVATION DRAWINGS.
P-2 (ADA COMPLIANT)	AMERICAN STANDARD LUCERNE WALL-HUNG LAVATORY MODEL 0355.012	20.5"x18.25" VITREOUS CHINA, WALL HUNG LAVATORY WITH 4" O.C. HOLES, FRONT OVERFLOW, SELF-DRAINING DECK AREA, BACK AND SIDE SPLASH SHIELDS AND FAUCET LEDGE.	DELTA 520-HDF-DST, CAST BRASS SINGLE CONTROL, 4" O.C. HOLES, LAVATORY FAUCET WITH CERAMIC CARTRIDGE WITH ROTATIONAL LIMIT STOP, METAL HOLD-DOWN PACKAGE, METAL POP-UP, .5 GPM FLOW CONTROL AERATOR AND LEVER HANDLE.	3/8" HW & CW SUPPLIES & LOOSE KEY STOPS	POP-UP DRAIN OUTLET FITTING SUPPLIED WITH FAUCET, 1-1/2" CHROME PLATED BRASS TAILPIECE AND 1-1/2" CHROME PLATED TRAP. 1-1/2" WASTE ABOVE SLAB, 2" WASTE BELOW SLAB & 1-1/4" VENT (U.O.N.)	SINK: VITREOUS CHINA FAUCET: CHROME	WALL	UNIT TO BE COMPLETE WITH WALL HANGER. MOUNTING HEIGHT PER ADA REQUIREMENTS - SEE ARCHITECTURAL ELEVATION DRAWINGS. PROVIDE TRUEBRO LAV SHIELD MODEL #2018-ASL.
P-3	STERN WILLIAMS MODEL HL-1910 MOP SERVICE BASIN	32"x32"x12" DEEP, STAIN RESISTANT, MOLDED STONE MOP BASIN WITH 6" FRONT DROP WITH STAINLESS STEEL CAP, CAST BRASS DRAIN WITH STAINLESS STEEL STRAINER CAST INTEGRAL TO BASIN.	STERN WILLIAMS T-15-VB WALL MOUNT MOP SINK FAUCET, HEAVY DUTY CAST BRASS WITH INTEGRAL STOPS, INLINE VACUUM BREAKER, HOSE END SPOUT, WALL BRACE, PAIL HOOK AND METAL INDEXED HANDLES	1/2" HW & CW	3" TRAP, INTEGRAL DRAIN BODY AND STERN WILLIAMS FLAT STAINLESS STEEL STRAINER CAST INTEGRAL TO BASIN. 3" WASTE & 1-1/2" VENT (U.O.N.)	MOP BASIN: GRAY FAUCET: POLISHED CHROME	MOP BASIN: FLOOR FAUCET: WALL	PROVIDE STERN WILLIAMS BP, 20 GA. TYPE 304 STAINLESS STEEL BACKSPLASH WALL PANELS, T-35 36" LONG HOSE AND STAINLESS STEEL WALL HOOK, T-40 24" LONG STAINLESS STEEL MOP HANGER AND 3 RUBBER SPRING LOADED GRIPS.
P-4 (ADA COMPLIANT)	HALSEY TAYLOR HVR8HD-BL ADA SPLIT LEVEL WATER COOLER WITH FILTER SYSTEM	8 GPH (50 DEGREE F), HEAVY-DUTY 14 GA STAINLESS STEEL, CORROSION RESISTANT WATER COOLER WITH R-134a REFRIGERANT COOLING SYSTEM, BUILT-IN 140 MICRON STRAINER, LEAD-FREE WATERWAYS, STAINLESS STEEL BASIN INTEGRAL TO CABINET, FRONT PUSH PAD, EXTERNAL STREAM HEIGHT ADJUSTMENT AND STAINLESS STEEL BUBBLER.	PROVIDE STAINLESS STEEL BUBBLER	3/8" CW WITH BALL VALVE	1-1/4" CHROME PLATED TRAP. 1-1/2" WASTE (ABOVE SLAB), 2" WASTE BELOW SLAB & 1-1/4" VENT (U.O.N.)	STAINLESS STEEL	WALL	PROVIDE WITH WALL HANGER. MOUNTING HEIGHT PER ADA REQUIREMENTS - SEE ARCHITECTURAL ELEVATION DRAWINGS.
P-5	ELKAY ELUMINA EG3322 DOUBLE BOWL SINK	33"x22"x8.25" DEEP (INSIDE TWO 14"x15.75"), 18 GAUGE, TYPE 304 NICKEL BEARING STAINLESS STEEL, 4" O.C. - 4 HOLE, SELF-RIMMING DOUBLE BOWL SINK WITH UNDERSIDE SOUND ABSORBING PADS.	DELTA MODEL 400-HDF-DST DECK-MOUNT SINK FAUCET, 180° SWIVEL x 4.75" TEMP LAB FAUCET WITH REMOVABLE SERRATED TIP AND VACUUM BREAKER. SEE ACCESSORIES/COMMENTS (THIS SCHEDULE) FOR HANDLES.	3/8" HW & CW SUPPLIES & LOOSE KEY STOPS	ELKAY LK35 STAINLESS STEEL DRAIN OUTLET FITTINGS WITH REMOVABLE STAINLESS STEEL BASKET STRAINERS AND 1-1/2" CHROME PLATED BRASS TAILPIECES. PROVIDE 1-1/2" CHROME PLATED TRAP. 1-1/2" WASTE ABOVE SLAB, 2" WASTE BELOW SLAB & 1-1/2" VENT	SINK: STAINLESS STEEL FAUCET: CHROME	COUNTERTOP: SELF-RIMMING	FAUCET ASSEMBLY COMPLETE WITH SIDE SPRAYER
P-5A	DURCON MODEL D15C SINGLE BOWL LAB SINK	16"x12"x8" DEEP, EPOXY RESIN, DROP-IN, SINGLE BOWL LAB SINK.	(1) T&S BRASS MODEL BL-5700-08 (EXCEPT AS NOTED), DECK MOUNT, MIXING LAB FAUCET WITH REMOVABLE SERRATED TIP AND VACUUM BREAKER. SEE ACCESSORIES/COMMENTS (THIS SCHEDULE) FOR HANDLES.	1/2" HW & CW SUPPLIES & LOOSE KEY STOPS	DURCON 503-R POLYPROPYLENE SINK OUTLET AND USSZ STOPPER. PROVIDE 1-1/2"x2" BUSHING, 2" POLYPROPYLENE TAILPIECE AND TRAP WITH BOTTOM CLEANOUT. 2" WASTE & 1-1/2" VENT	SINK: EPOXY RESIN FAUCET: CHROME	COUNTERTOP: SELF-RIMMING	POTABLE SINK H&CW FAUCET - REPLACE FOUR ARM HANDLES WITH ONE 001636-45 AND ONE 001637-45 LEVER HANDLE.
P-5B	DURCON MODEL D15C SINGLE BOWL SAMPLE SINK	16"x12"x8" DEEP, EPOXY RESIN, DROP-IN, SINGLE BOWL LAB SINK.	(3) T&S BRASS MODEL BL-5705-08 (EXCEPT AS NOTED), DECK MOUNT, SINGLE FAUCET WITH REMOVABLE SERRATED TIP AND VACUUM BREAKER. SEE ACCESSORIES/COMMENTS (THIS SCHEDULE) FOR HANDLES.	THREE SETS OF 1/2" SUPPLIES & LOOSE KEY STOPS	DURCON 503-R POLYPROPYLENE SINK OUTLET. PROVIDE 1-1/2"x2" BUSHING, 2" POLYPROPYLENE TAILPIECE AND TRAP WITH BOTTOM CLEANOUT. 2" WASTE & 1-1/2" VENT	SINK: EPOXY RESIN FAUCET: CHROME	COUNTERTOP: SELF-RIMMING	SAMPLE SINK 3 FAUCETS - REPLACE FOUR ARM HANDLES WITH ONE (EACH) 10037-40 CHROME PLATED, SOLID BRASS HANDLE.
P-5C	DURCON MODEL D25 SINGLE BOWL LAB SINK	18"x15"x7.8" DEEP, EPOXY RESIN, DROP-IN, SINGLE BOWL LAB SINK.	T&S BRASS MODEL BL-5700-08 (EXCEPT AS NOTED), DECK MOUNT, MIXING LAB FAUCET WITH REMOVABLE SERRATED TIP AND VACUUM BREAKER. SEE ACCESSORIES/COMMENTS (THIS SCHEDULE) FOR HANDLES.	1/2" HW & CW SUPPLIES & LOOSE KEY STOPS	DURCON 503-R POLYPROPYLENE SINK OUTLET. PROVIDE 1-1/2" POLYPROPYLENE TAILPIECE AND TRAP. 1-1/2" WASTE ABOVE SLAB, 2" WASTE BELOW SLAB & 1-1/2" VENT	SINK: EPOXY RESIN FAUCET: CHROME	COUNTERTOP: SELF-RIMMING	LABORATORY SINK REPLACE FOUR ARM HANDLES WITH ONE 001636-45 AND ONE 001637-45 LEVER HANDLE.
P-6	IPS - WATER-TITE MINI ROUND ICEMAKER OUTLET BOX MODEL W9201HA	ROUND, PLASTIC, RECESSED MINI ICEMAKER OUTLET BOX WITH PLASTIC FACEPLATE AND MOUNTING STRAPS.	COMPLETE WITH 1/4 TURN CPVC SHUT-OFF VALVE AND WATER HAMMER ARRESTOR.	3/8" CW		BOX: WHITE	WALL	REFRIGERATOR ICEMAKER
P-7	GUARDIAN MODEL GBF1735DP RECESS MOUNTED EYE/FACE WASH	BARRIER FREE, RECESSED WALL MOUNTED, EYE/FACE WASH WITH SWING-DOWN STAINLESS STEEL DRAIN PAN. THE UNIT SHALL BE 16 GAUGE, TYPE 304 STAINLESS STEEL. UNIT SHALL BE SUPPLIED WITH BRASS VALVE, IN-LINE STRAINER, TWO POLYPROPYLENE SPRAY HEADS (3.2 GPM CONTROL ORIFICE AND IN-LINE FILTERS), ANSI COMPLIANT SIGN AND AP280-235 ELECTRIC LIGHT AND ALARM HORN. PROVIDE "PANIC BAR" HANDLE WHICH OPENS THE COVER AND ACTIVATES THE UNIT.		1/2" TEPID SUPPLY	2" POLYPROPYLENE TAILPIECE AND TRAP 2" WASTE & 1-1/2" VENT	N/A	RECESSED WALL	COMPLETE WITH AP280-235 ELECTRIC LIGHT, ALARM HORN AND ASSOCIATED FLOW SWITCH. UNIT SHALL COMPLY WITH ANSI Z358.1-2004. UNIT SHALL COME WITH A FULL 2-YEAR WARRANTY

REMARKS:
1. SEE SPECIFICATIONS FOR FIXTURE STANDARDS AND EQUIVALENT MANUFACTURERS.
2. SEE ARCHITECTURAL ROOM ELEVATION DRAWINGS FOR MOUNTING HEIGHTS OF ALL PLUMBING FIXTURES.

PLUMBING SPECIALTIES SCHEDULE

MARK	MANUFACTURER & MODEL NO.	TYPE	SIZE	MATERIAL	MOUNTING	ACCESSORIES/COMMENTS
CO	ZURN - LEVEL-TROL ZS-1400-AR CLEANOUT	ADJUSTABLE FLOOR CLEANOUT	LINE SIZE OR 4" MAXIMUM	CAST IRON WITH ACID RESISTANT EPOXY COATING AND STAINLESS STEEL TOP U.O.N.	FLOOR	
FD-1	ZURN ZS-415-5BS-Y FLOOR DRAIN	FLOOR DRAIN WITH 5" TYPE "B" STAINLESS STEEL HEEL-PROOF STRAINER, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR, SEEPAGE SLOTS, DURA-COATED CAST IRON BODY AND SEDIMENT BUCKET.	3"	DURA-COATED CAST IRON BODY AND TYPE 304 STAINLESS STEEL HEEL-PROOF STRAINER.	FLOOR	PROVIDE WITH DEEP SEAL TRAP IN LIEU OF TRAP PRIMER.
FD-2	ZURN ZS-415-6BS-AR-Y FLOOR DRAIN	FLOOR DRAIN WITH 6" TYPE "B" STAINLESS STEEL HEEL-PROOF STRAINER, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR, SEEPAGE SLOTS, ACID RESISTING COATING AND SEDIMENT BUCKET.	3"	CAST IRON WITH ACID RESISTANT EPOXY COATING AND TYPE 304 STAINLESS STEEL HEEL-PROOF STRAINER.	FLOOR	PROVIDE WITH DEEP SEAL TRAP IN LIEU OF TRAP PRIMER.
FD-3	ZURN Z-550-DG-Y FLOOR DRAIN	MEDIUM DUTY DURA-COATED CAST IRON FLOOR DRAIN WITH 9" DURESIST CAST IRON SLOTTED GRATE, COMBINATION INVERTIBLE MEMBRANE CLAMP AND GRATE FRAME, SEEPAGE PAN AND SEDIMENT BUCKET.	4"	DURA-COATED CAST IRON BODY AND MEDIUM DUTY SLOTTED DURESIST COATED CAST IRON GRATE	FLOOR/TRENCH	PROVIDE WITH DEEP SEAL TRAP IN LIEU OF TRAP PRIMER.
FD-4	ZURN ZS-415-8BS-AR-P-Y FLOOR DRAIN	FLOOR DRAIN WITH 8" TYPE "B" STAINLESS STEEL HEEL-PROOF STRAINER, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR, SEEPAGE SLOTS, 1/2" TRAP PRIMER CONNECTION, ACID RESISTING COATING AND SEDIMENT BUCKET.	4"	CAST IRON WITH ACID RESISTANT EPOXY COATING AND TYPE 304 STAINLESS STEEL HEEL-PROOF STRAINER.	FLOOR	PROVIDE WITH TRAP PRIMER.
FD-5	ZURN Z-520-DG-Y FLOOR DRAIN	HEAVY DUTY DURA-COATED CAST IRON FLOOR DRAIN WITH ADJUSTABLE 9" DURESIST CAST IRON SLOTTED GRATE, COMBINATION INVERTIBLE MEMBRANE CLAMP AND EXTENSION FRAME, SEEPAGE PAN AND SEDIMENT BUCKET.	4"	DURA-COATED CAST IRON BODY AND HEAVY DUTY SLOTTED DURESIST COATED CAST IRON GRATE	FLOOR	PROVIDE WITH DEEP SEAL TRAP IN LIEU OF TRAP PRIMER.
HB-1	WOODFORD Y24P HOSE BIBB	3/4" ANTI-SIPHON HOSE BIBB WITH INTEGRAL VACUUM BREAKER, REMOVABLE HANDLE AND INTEGRAL WALL FLANGE.	1/2" CW INLET, 3/4" OUTLET	CHROME-PLATED BRASS	WALL	
HB-2	WOODFORD Y24 HOSE BIBB	3/4" ANTI-SIPHON HOSE BIBB WITH INTEGRAL VACUUM BREAKER AND REMOVABLE HANDLE.	3/4" CW INLET, 3/4" HOSE OUTLET	CHROME-PLATED BRASS	PIPE	
HB-3	WOODFORD Y24 HOSE BIBB	3/4" ANTI-SIPHON HOSE BIBB WITH INTEGRAL VACUUM BREAKER AND WOODFORD MODEL 37HD BACKFLOW PREVENTER ASSEMBLY. PROVIDE WITH REMOVABLE HANDLE.	3/4" CW INLET, 3/4" HOSE OUTLET	CHROME-PLATED BRASS	PIPE	PROVIDE WITH BACKFLOW PREVENTER.
RH-1	WOODFORD RH2 ROOF HYDRANT	NON-FREEZE, ANTI-SIPHON, AUTOMATIC DRAINING ROOF HYDRANT WITH INTEGRAL BACKFLOW PREVENTER, WELL SEAL BOOT, HYDRANT SUPPORT AND UNDER DECK FLANGE.	1" CW INLET 3/4" HOSE OUTLET	BRONZE	ROOF DECK	
TP-1	PPP - PRECISION PLUMBING PRODUCTS MPB-500-115V TRAP PRIMER	1/2" MINI-PRIME ELECTRONIC TRAP PRIMER WITH WALL BOX, ACCESS DOOR, TIMER SOLENOID VALVE (PRE-SET TIMER THAT OPENS FOR 10 SECONDS ONCE EVERY 24 HOURS), CIRCUIT BREAKER, TEST SWITCH, AIR GAP FITTING AND 1/2" DU DISTRIBUTION UNIT FOR 2 FLOOR DRAINS	1/2" CW INLET (2) 1/2" OUTLETS		RECESSED IN WALL	PROVIDE WITH DU DISTRIBUTION UNIT (2 OUTLETS) WITH SHUT-OFF VALVES. PROVIDE WITH STAINLESS STEEL FIRE RATED ACCESS DOOR TO WALL BOX.
WH-1	ZURN Z1300 WALL HYDRANT	ENCASED, NON-FREEZE, ANTI-SIPHON, AUTOMATIC DRAINING WALL HYDRANT WITH INTEGRAL BACKFLOW PREVENTER.	3/4" CW INLET 3/4" HOSE OUTLET	BRONZE	FLUSH WITH WALL, RECESSED BOX.	PROVIDE WITH 4 KEYS.

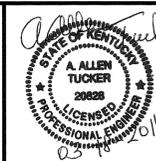
REMARKS:
1. SEE SPECIFICATIONS FOR FIXTURE STANDARDS AND EQUIVALENT MANUFACTURERS AS APPLICABLE.

DOMESTIC AND EMERGENCY WATER HEATER SCHEDULE

MARK	MANUFACTURER & MODEL NO.	LOCATION	SERVICE	CAPACITY GPM MIN / MAX	TEMPERATURE RISE DEG. F.	ELECTRICAL CHARACTERISTICS			REMARKS	ACCESSORIES
						KW	VOLTS/PHASE	AMPS PER PHASE		
06-DWH-1	EEMAX EX240 T2T	TOILET 108	MOP SINK AND LAV	.5 / 4	41°F	24	480/277/3	29	1,2	
06-DWH-2	EEMAX SP-8208	TOILET 106	LAV	.5 / 1	57°F	8.3	208/1	40	1,3	
06-DWH-3	EEMAX EX240 T2T	ADMIN 104 (BELOW SINK)	ADMIN SINK & LAB SAMPLING SINK	.5 / 4	41°F	24	480/277/3	29	1,2	
06-DWH-4	EEMAX SP-8208	LAB 105 (BELOW SINK)	LAB SINK	.5 / 1	57°F	8.3	208/1	40	1,4	
06-EWH-1	EEMAX EX240T3-EE	LAB 105	EYEFACE WASH	1.8 / 5	34°F	24	480/277/3	29	1,5	1

REMARKS:
1. SEE SPECIFICATIONS FOR FIXTURE STANDARDS AND EQUIVALENT MANUFACTURERS AS APPLICABLE.
2. PROVIDE 3-PHASE, STAGED TURN-ON MODEL WITH ML-MULTI LAV TEMP SETTING 110°F AND .5 GPM TURN ON.
3. SET OUTGOING TEMPERATURE AT 105°F.
4. SET OUTGOING TEMPERATURE AT 110°F.
5. PROVIDE T3 THERMOSTATIC, PARALLEL TURN ON, FOR EMERGENCY FIXTURE. SET OUTGOING TEMPERATURE AT 80°F.

ACCESSORIES:
1. PROVIDE NEMA 4 ENCLOSURE



REVISIONS			
NO.	BY	DATE	REMARKS

DES: MAS
DWN: MAS
CKD: AAT

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

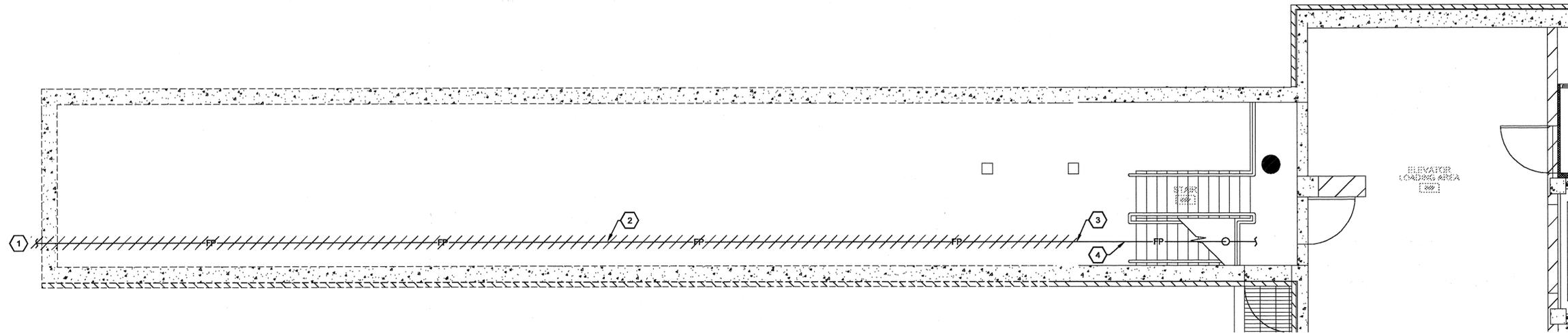
PLUMBING
PLUMBING SCHEDULES

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ISSUED STATUS: BID SET
DATE: MARCH, 2011
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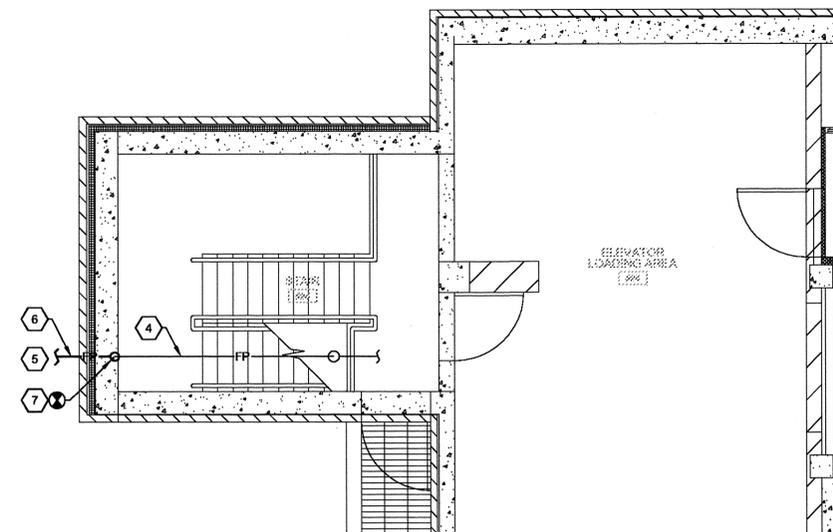
◇ SHEET KEYNOTES:

1. SEE SHEET FP-09-101 FOR CONTINUATION.
2. REMOVE EXISTING FIRE PROTECTION PIPE UNLESS OTHERWISE NOTED.
NOTE - PIPE TRANSITIONS FROM 6" (FILTER BLDG SIDE) TO 4" (CHEMICAL BLDG SIDE) IN THE TUNNEL.
3. SEE NEW WORK PLAN, THIS SHEET, FOR CONNECTION TO NEW PIPE.
4. EXISTING 6" FIRE PROTECTION PIPE TO REMAIN.
5. SEE SHEET C-02-101 FOR CONTINUATION.
6. PROVIDE 4" FIRE PROTECTION PIPE ON TUNNEL FLOOR.
7. PROVIDE NEW 4" FIRE PROTECTION PIPE AND CONNECT TO EXISTING PIPE. EXTEND DOWN AND THRU WALL AT FLOOR ELEVATION.



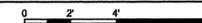
PARTIAL FILTER BUILDING AND TUNNEL - FIRE PROTECTION DEMOLITION PLAN

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



PARTIAL FILTER BUILDING- FIRE PROTECTION NEW WORK PLAN

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



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NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

FIRE PROTECTION
PARTIAL FILTER BLDG AND TUNNEL
FIRE PROTECTION PLANS

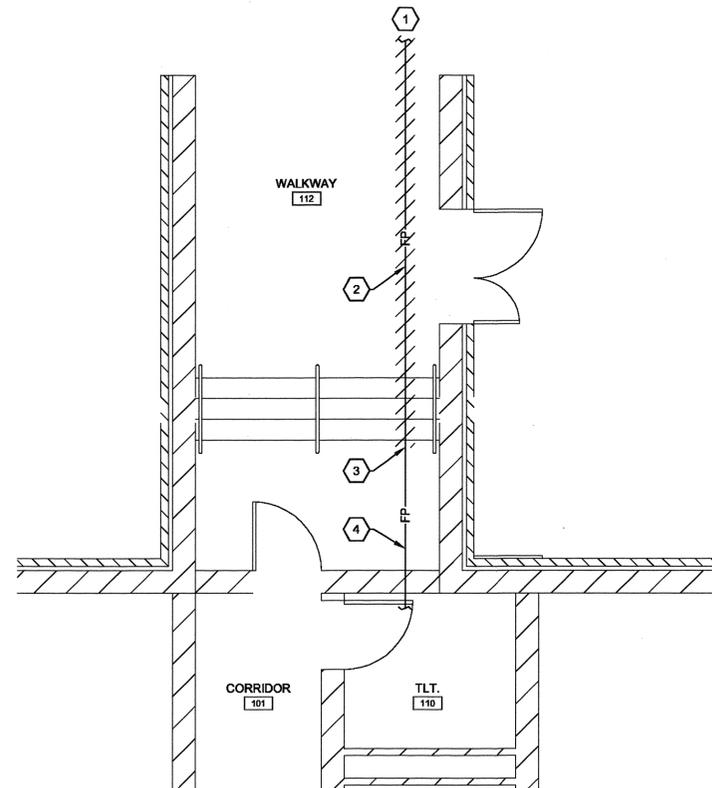
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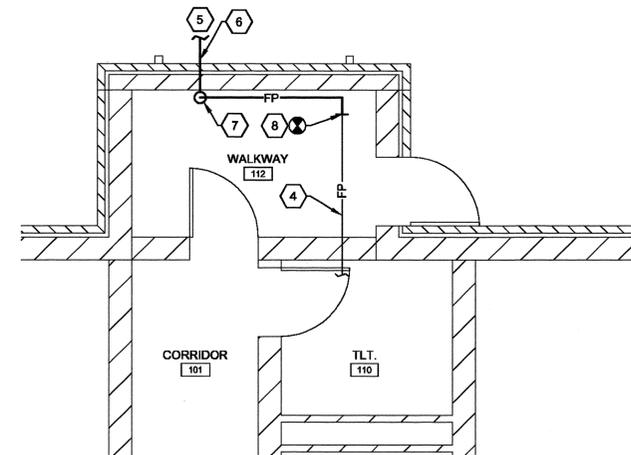
KEYNOTE SHEET KEYNOTES:

1. SEE SHEET FP-08-101 FOR CONTINUATION.
2. REMOVE EXISTING 4" FIRE PROTECTION PIPE UNLESS OTHERWISE NOTED.
3. SEE NEW WORK PLAN, THIS SHEET, FOR CONNECTION TO NEW PIPE.
4. EXISTING 4" FIRE PROTECTION PIPE TO REMAIN.
5. SEE SHEET C-02-101 FOR CONTINUATION.
6. PROVIDE 4" FIRE PROTECTION PIPE ON TUNNEL FLOOR.
7. PROVIDE NEW 4" FIRE PROTECTION PIPE. EXTEND DOWN AND THRU WALL AT FLOOR ELEVATION.
8. CONNECT NEW 4" FIRE PROTECTION PIPE TO EXISTING PIPE.



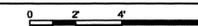
**CHEMICAL BUILDING WALKWAY -
FIRE PROTECTION DEMOLITION PLAN**

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



**CHEMICAL BUILDING WALKWAY -
FIRE PROTECTION NEW WORK PLAN**

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



NO.		BY	DATE	REVISIONS	REMARKS

DES MAS
DWN MAS
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NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

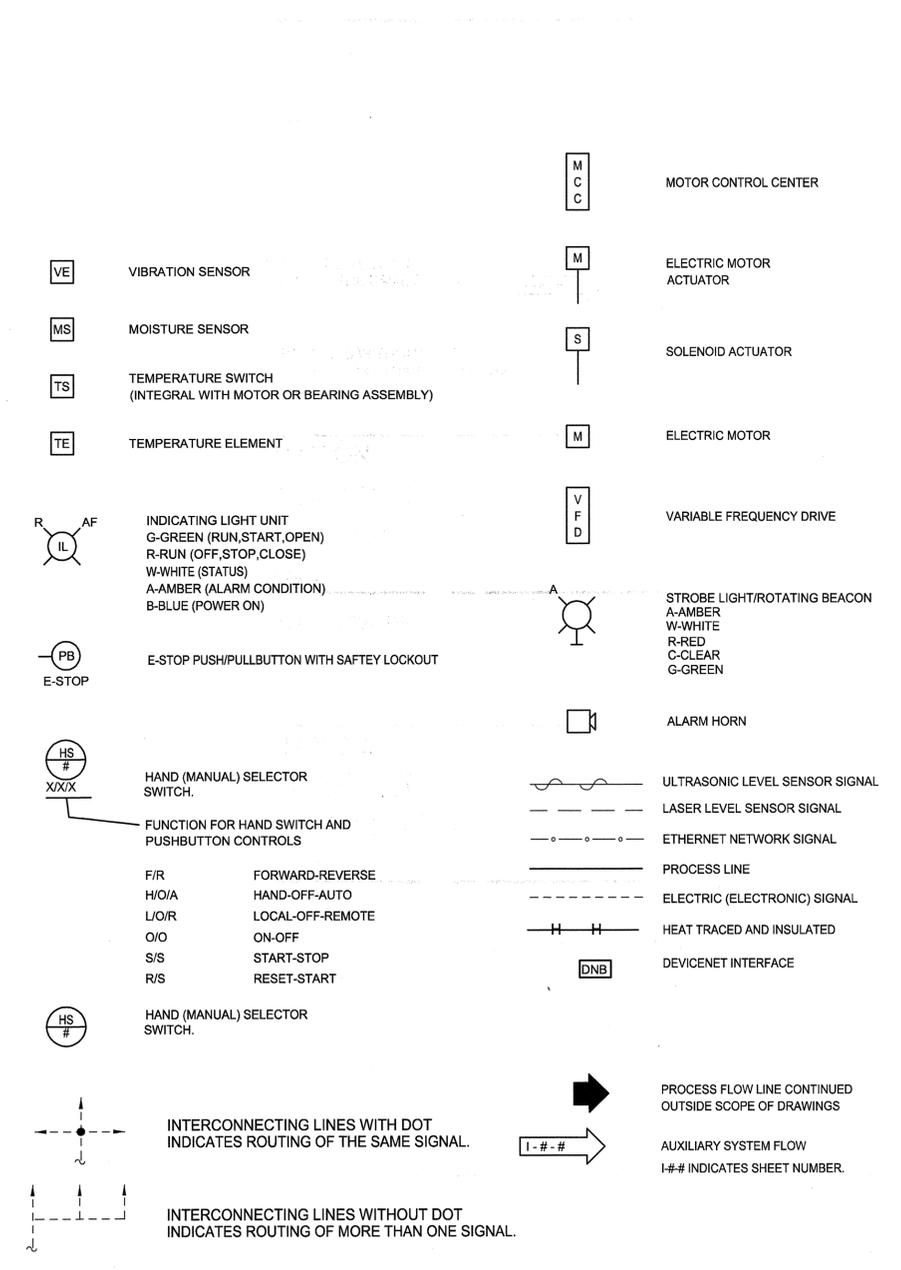
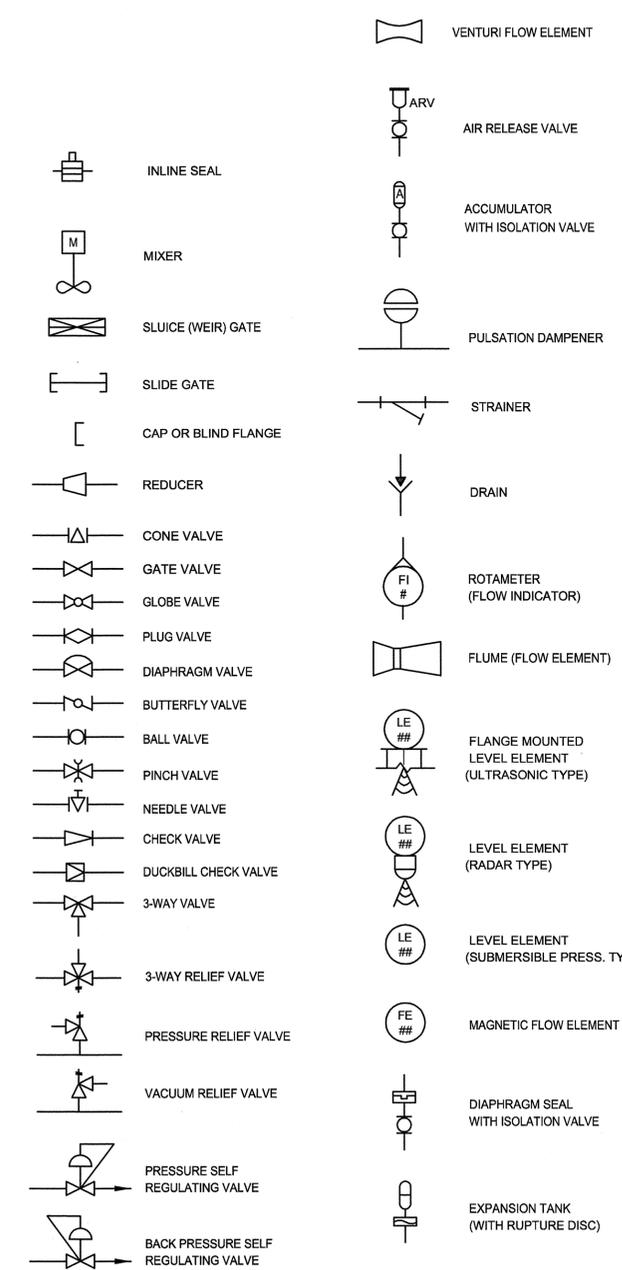
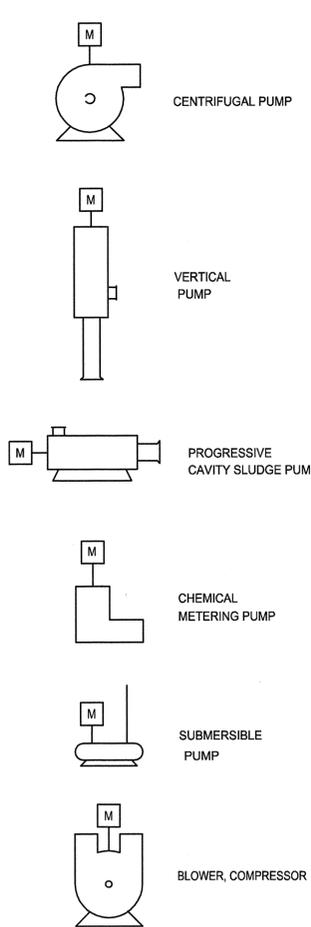
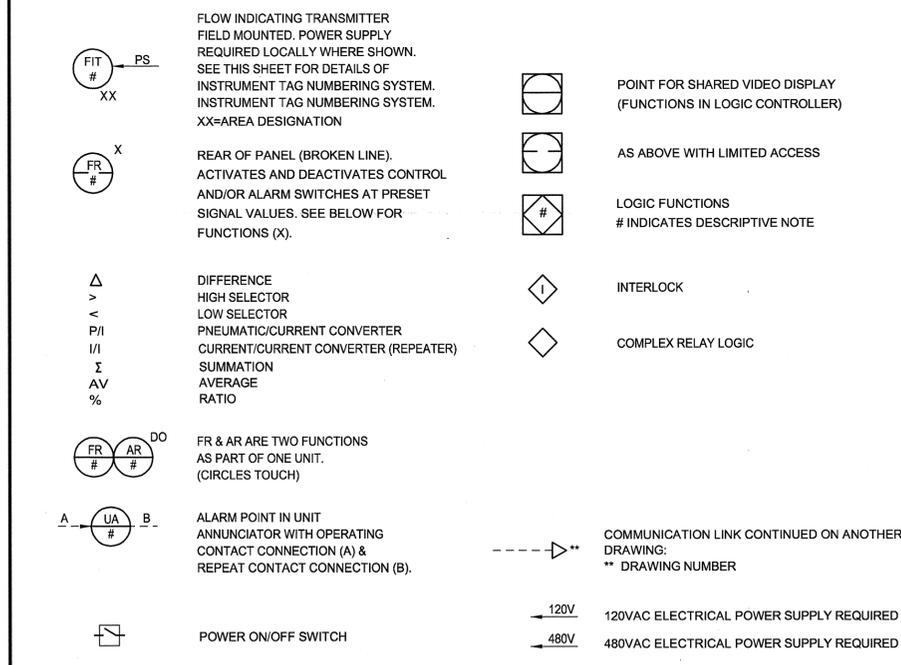
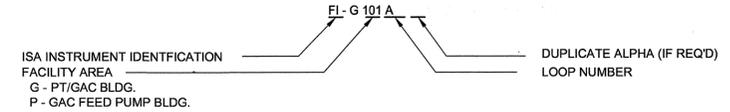
FIRE PROTECTION
**CHEMICAL BUILDING WALKWAY
FIRE PROTECTION PLANS**
SCALE: AS NOTED

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET FP-09-101
CAD REF. NO. 3789-FP-09-101

ISA INSTRUMENT IDENTIFICATION LEGEND

FIRST LETTER	SUCCEEDING LETTERS			
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION
A	ANALYSIS		ALARM	
B	BURNER FLAME		NOT USED	NOT USED
C	CONDUCTIVITY (ELECTRICAL)		NOT USED	CLOSED
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL		
E	VOLTAGE (EMF)		PRIMARY ELEMENT	
F	FLOW RATE	RATIO (FRACTION)		
G	GAGING (DIMENSIONAL)		GLASS GAGE (UNCALIBRATED)	
H	HAND (MANUALLY INITIATED)			HIGH
I	CURRENT (ELECTRICAL)		INDICATE	
J	POWER	SCAN		
K	TIME OR TIME SCHEDULE			CONTROL STATION
L	LEVEL		LIGHT (PILOT)	LOW
M	MOISTURE OR HUMIDITY			MIDDLE OR INTER-MEDIATE
N	SEQUENCE, STRATEGY		NOT USED	NOT USED
O	NOT USED		ORIFICE (RESTRICTION)	OPEN
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)	
Q	QUANTITY	INTEGRATE OR TOTALIZE		
R	RADIOACTIVITY		RECORD OR PRINT	
S	SPEED, FREQUENCY	SAFETY		SWITCH
T	TEMPERATURE			TRANSMIT
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, DAMPER OR LOUVER
W	WEIGHT OR FORCE		WELL	
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT STATUS	Y AXIS	RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT

INSTRUMENT & I/O TAG NUMBERING SYSTEM

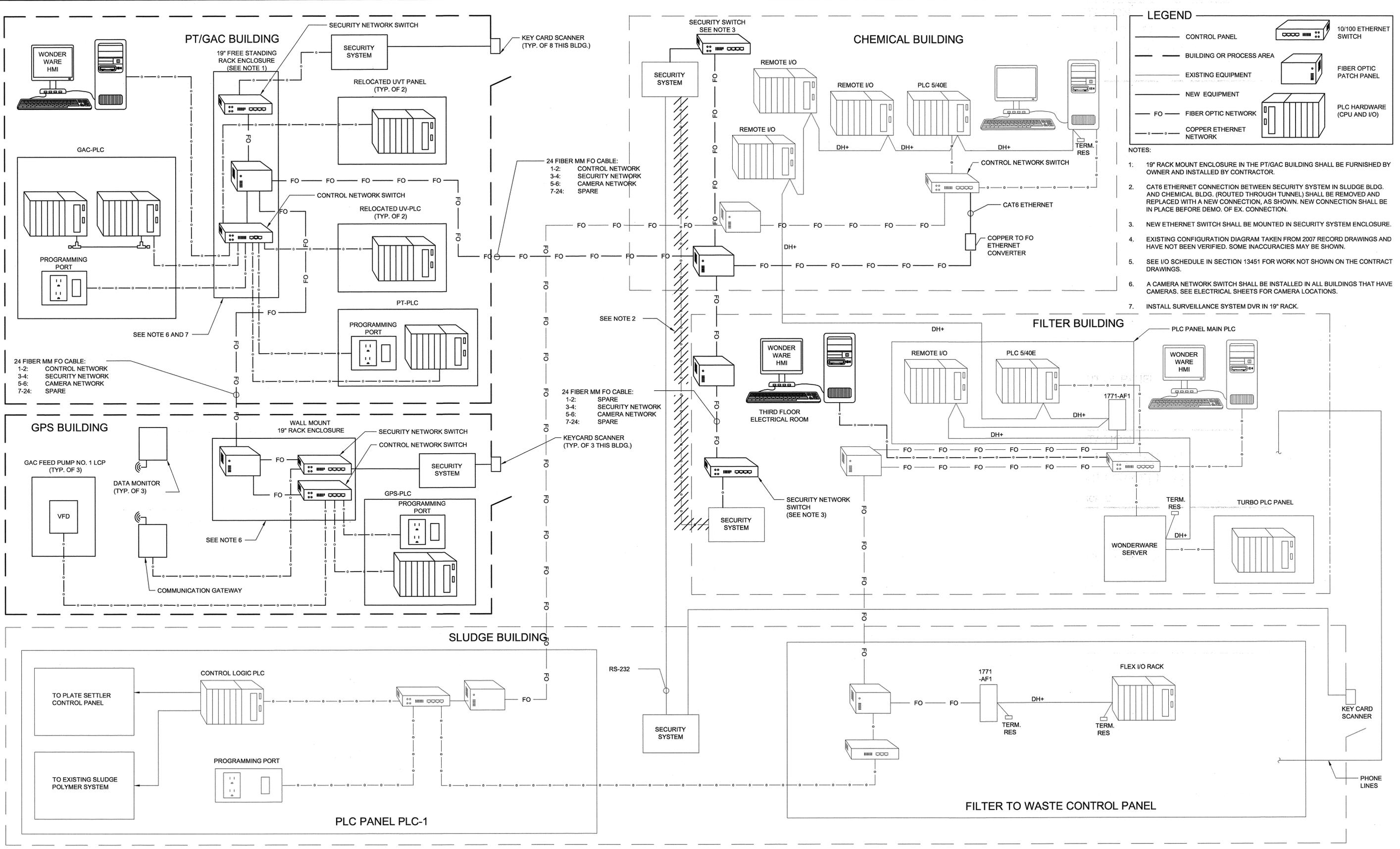


NOTES:
 1. THE SYMBOLS SHOWN ON THIS SHEET ARE STANDARD DESIGNATION. NOT ALL ARE APPLICABLE TO THE INCLUDED DRAWINGS.

User:WELLS Spec:PIRNE STANDARD File:G:\7507228-CADD\INST\I-00-001.DWG Scale:1:1 Saved:Date:03/11/2011 Time:12:13 Plot Date:Wells, Paul, 3/15/2011, 10:10, Layout:100-001

		REVISIONS NO. BY DATE REMARKS		DES PSS/JVA DWN PSS CKD WAV	NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT IMPROVEMENTS	INSTRUMENTATION LEGEND, SYMBOLS, AND ABBREVIATIONS SCALE: NO SCALE		ISSUED STATUS: <u>BID SET</u>
		DATE <u>MARCH, 2011</u>				SHEET <u>I-00-001</u>		
		SHEET <u>I-00-001</u>				CAD REF. NO. <u>I-00-001</u>		
		DATE <u>MARCH, 2011</u>				SHEET <u>I-00-001</u>		

User: WELLS Spec: PIRNIE STANDARD File: G:\7791228-CADD\INSTR\I-00-002.DWG Scale: 1:1 Saved Date: 3/15/2011 Time: 12:12 Plot Date: Wells, Paul: 3/15/2011 16:09 Layout: I-00-002



MALCOLM PIRNIE



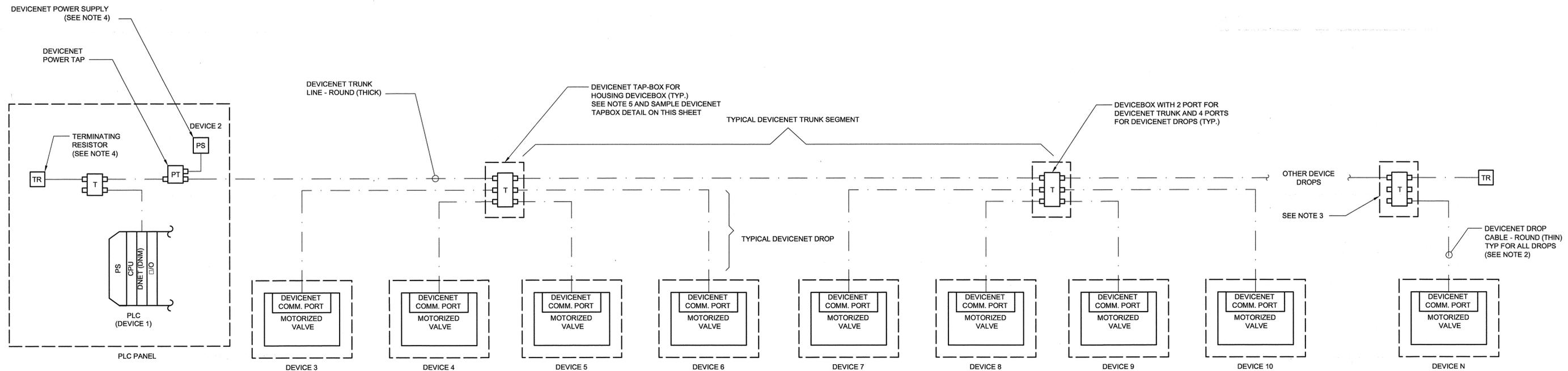
REVISIONS			
NO.	BY	DATE	REMARKS

DES PSS/JVA
 DWN PSS/JVA
 CKD WAV

**NORTHERN KENTUCKY WATER DISTRICT
 TAYLOR MILL WATER TREATMENT PLANT
 ADVANCED TREATMENT IMPROVEMENTS**

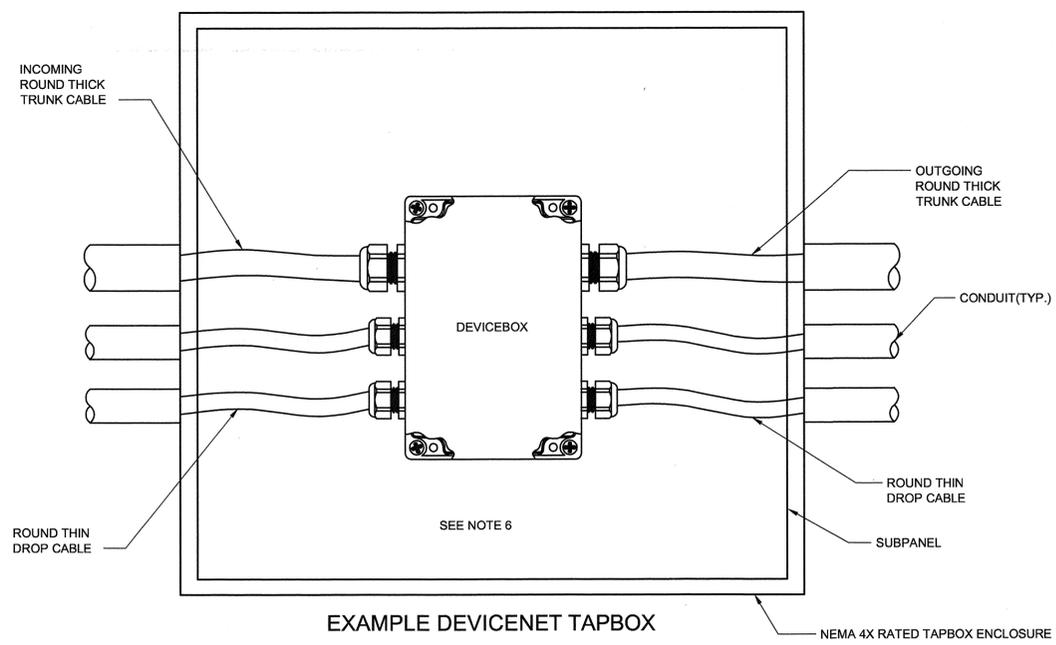
**INSTRUMENTATION
 CONTROL AND SECURITY
 SYSTEM ARCHITECTURE**
 SCALE: NO SCALE

ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	I-00-002
CAD REF. NO.:	I-00-002



EXAMPLE DEVICENET CIRCUIT ARCHITECTURE

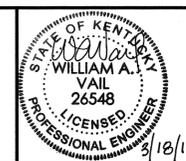
SEE NOTE 7



EXAMPLE DEVICENET TAPBOX

- NOTES:
- BEGIN AND END EACH DEVICENET CIRCUIT WITH A TERMINATING RESISTOR.
 - RESTRICT THE LENGTH OF EACH DEVICENET DROP TO LESS THAN 20 FEET.
 - UNUSED TAPS ARE PERMITTED WHERE NECESSARY.
 - INSTALL THE POWER SUPPLY, POWER TAP, AND PLC-END TERMINATING RESISTOR IN THE PLC PANEL.
 - PROVIDE SUITABLE SIZED STRUT OR WALL MOUNTED NEMA4X RATED TAP-BOX (ENCLOSURE) TO INCLUDE A SUFFICIENT NUMBER OF DEVICEBOXES (TAPS) TO CONNECT ALL DEVICES IN A GIVEN AREA.
 - PROVIDE SUITABLE AMOUNT OF SLACK WITHIN TAP BOX FOR ROUND THICK AND THIN CABLE TO FACILITATE FUTURE RE-TERMINATION OR MODIFICATION (NOT SHOWN FOR CLARIFY).
 - REFER TO SECTION 13453, DEVICENET NETWORK FOR PROPER ROUTING OF DEVICENET NETWORK.

User:WELLS Spec:PIRNE STANDARD File:G:\V7\9012\25-CADD\INSTR\I-003.DWG Scale:1:1 SavedDate:3/17/2011 Time:12:12 Plot Date: Wells, Paul: 3/15/2011: 16:08: Layout I-00-003



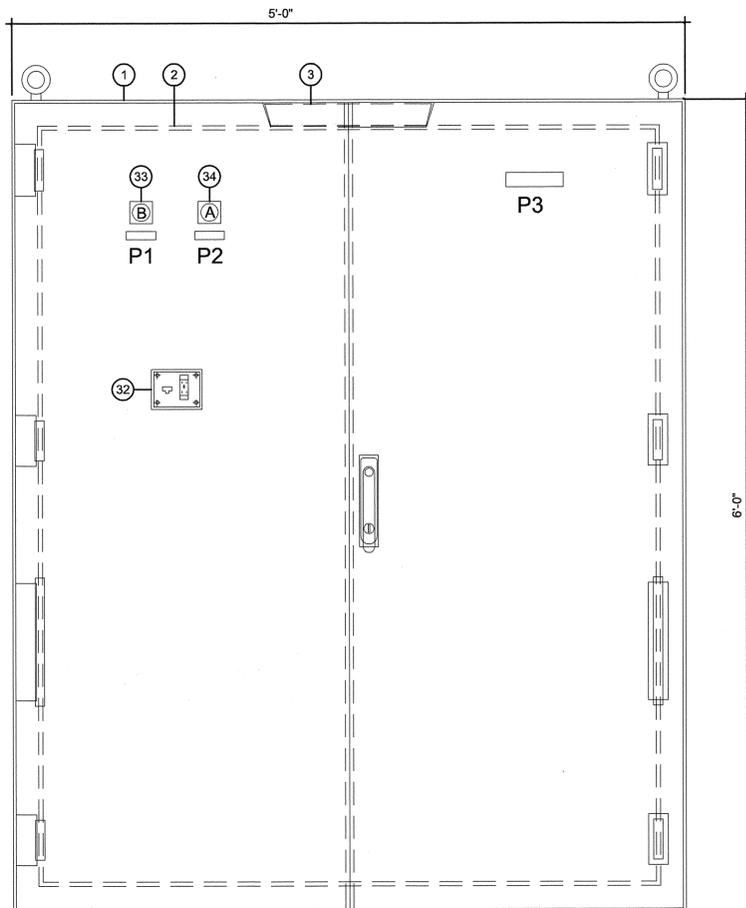
REVISIONS			
NO.	BY	DATE	REMARKS

DES PSS/JVA
DWN PSS
CKD WAV

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

INSTRUMENTATION
DEVICENET NETWORK
DETAILS
SCALE: NO SCALE

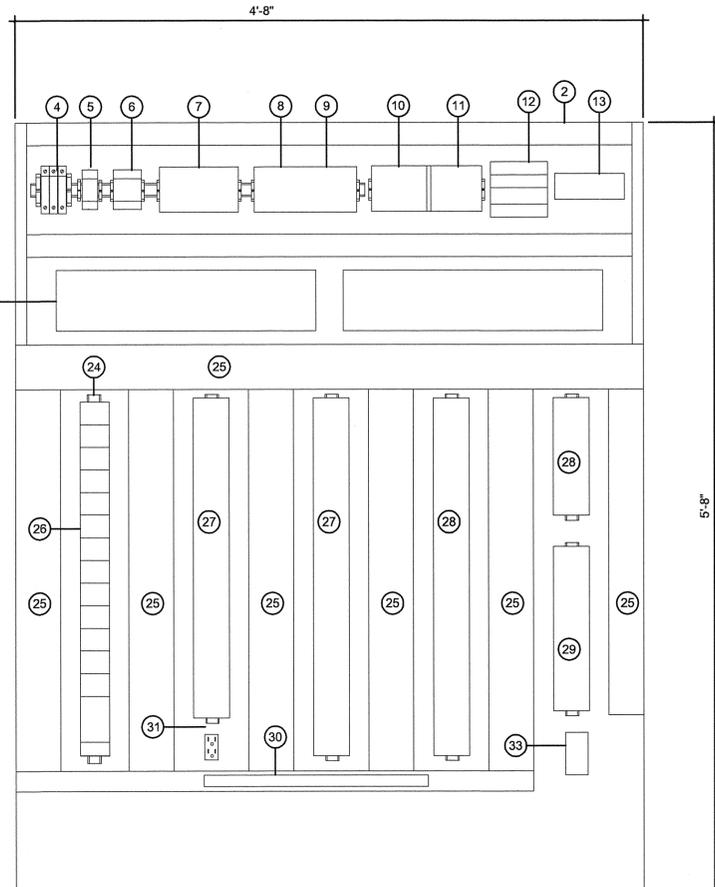
ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	I-00-003
CAD REF. NO.:	I-00-003



FRONT PANEL VIEW

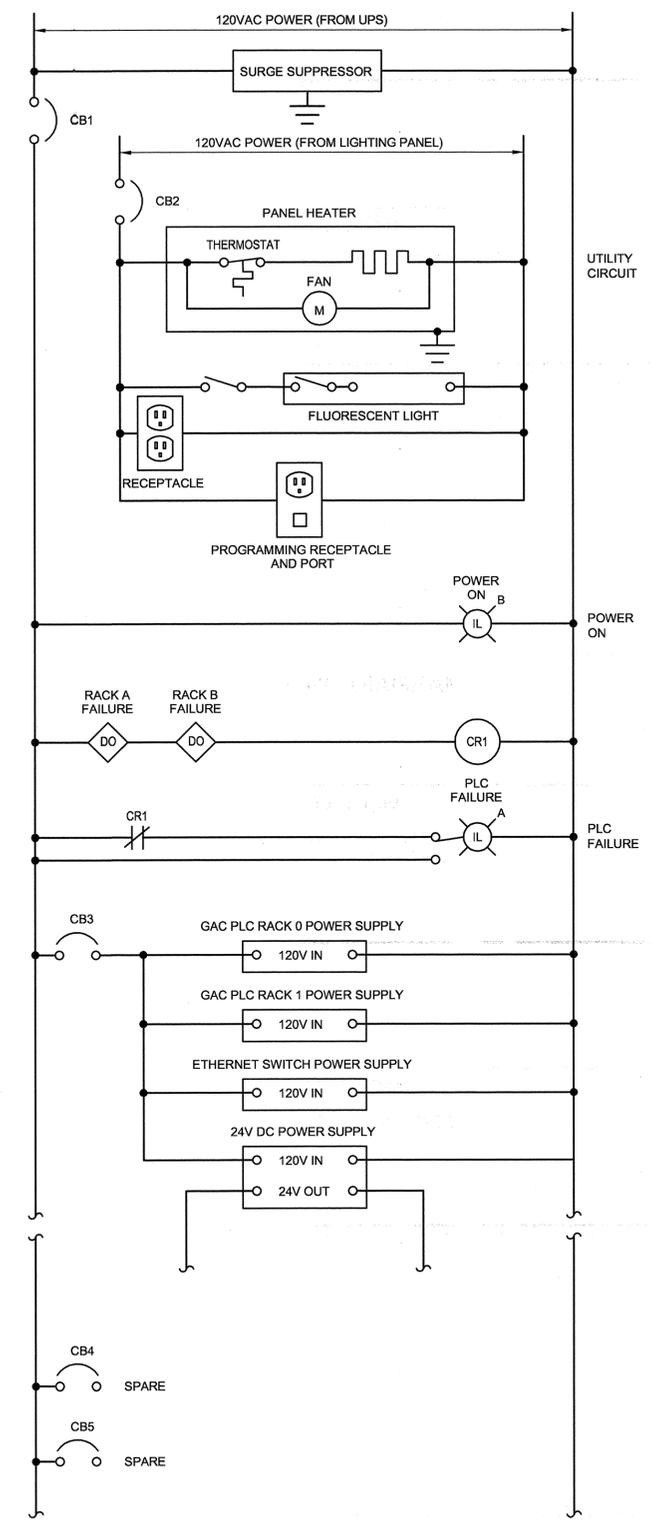
GAC-PLC CONTROL PANEL NAMEPLATES	
ITEM NUMBER	DESCRIPTION
P1	PANEL POWER
P2	PLC FAIL
P3	GRANULAR ACTIVATED CARBON PLC PANEL (GAC-PLC)

- NOTES:
- PANEL COMPONENT DIMENSIONS AND COMPONENT LOCATION ARE APPROXIMATE AND ARE ONLY SHOWN TO PROVIDE A GENERAL INTENT OF THE DESIRED LAYOUT.
 - PANEL AND SUBPANEL DIMENSIONS ARE MINIMUM SIZE. PROVIDE LARGER SIZE IF NECESSARY TO ACCOMMODATE ALL EQUIPMENT.



SUB PANEL VIEW
SEE NOTE 1

GAC-PLC LEGEND	
ITEM No.	DESCRIPTION
1	NEMA 12 ENCLOSURE 72" (H) x 60" (W) x 20" (D)
2	SUB PANEL
3	PANEL LAMP, 120VAC (WITH AUTO ON/OFF)
4	MAIN INCOMING SUPPLY TERMINALS
5	SURGE PROTECTION FOR AC POWER
6	MAIN DISCONNECT SWITCH
7	MINIATURE CIRCUIT BREAKERS, 120V
8	TERMINAL BLOCK
9	GROUND TERMINALS
10	TERMINAL +24V
11	TERMINAL -24V
12	24VDC POWER SUPPLY
13	ETHERNET SWITCH
14	PLC CHASSIS
15	PLC POWER SUPPLY
16	PLC CONTROLNET MODULE
17	PLC PROCESSOR
18	PLC DEVICENET MODULE
19	PLC ETHERNET BRIDGE MODULE
20	PLC 16 PT AC INPUT
21	PLC 16 PT AC OUTPUT
22	PLC 6 PT ANALOG INPUT
23	PLC 6 PT ANALOG OUTPUT
24	DIN RAIL
25	WIRE TRAY
26	INTERPOSING RELAY OUTPUT
27	DISCRETE IO TERMINAL BLOCKS
28	ANALOG INPUT IO TERMINAL BLOCKS
29	ANALOG OUTPUT IO TERMINAL BLOCKS
30	GROUND BAR
31	DUPLEX RECEPTACLE
32	PROGRAMMING RECEPTACLE AND ETHERNET PORT
33	HEATER
33	BLUE PUSH-TO-TEST INDICATING LIGHT
34	AMBER PUSH-TO-TEST INDICATING LIGHT



PARTIAL WIRING DIAGRAM

User:WELLS_Spec:Pirnie STANDARD File:G:\7750129-CADD\INSTRUC-004.DWG Scale:1:1 SavedDate:3/1/2011 Time:12:11 Plot Date: Wed, 3/15/2011 16:09 Layout:1-00-004



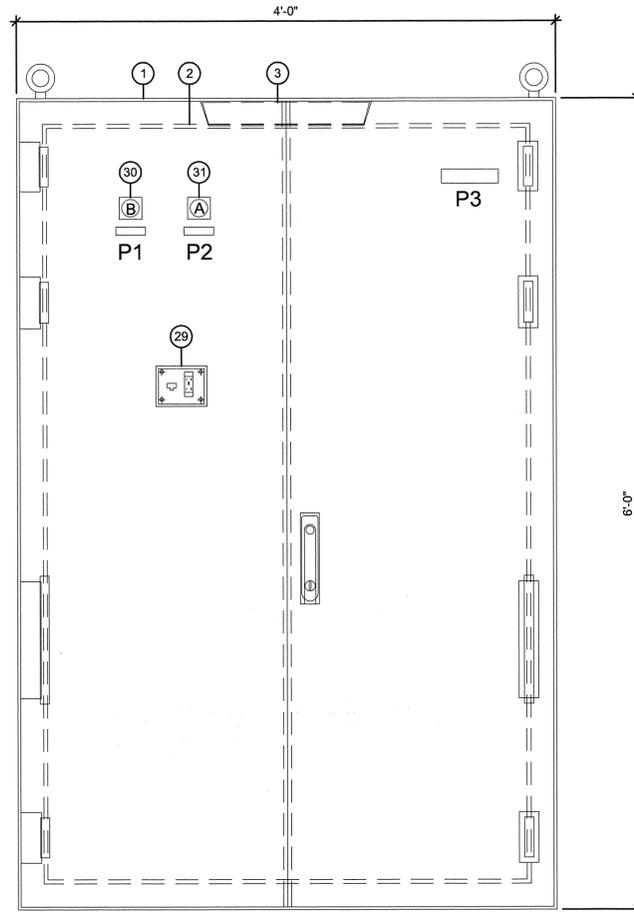
REVISIONS		NO.	BY	DATE	REMARKS

DES	PSS/JVA
DWN	PSS
CKD	WAV

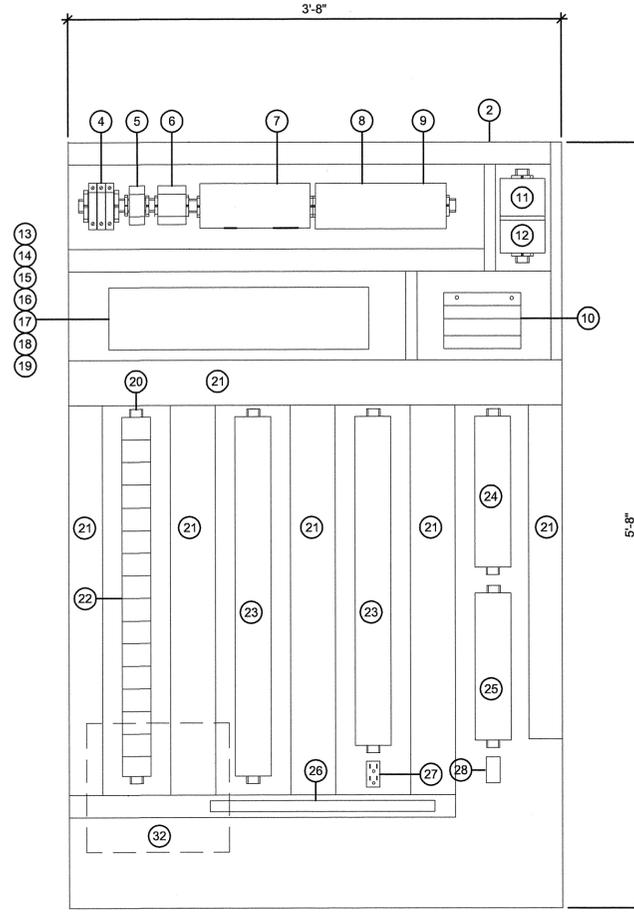
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

INSTRUMENTATION
GAC CONTROL PANEL
DETAIL
SCALE: 1-1/2" = 1'

ISSUED STATUS:	BID SET
DATE	MARCH, 2011
SHEET	I-00-004
CAD REF. NO.	I-00-004



FRONT PANEL VIEW



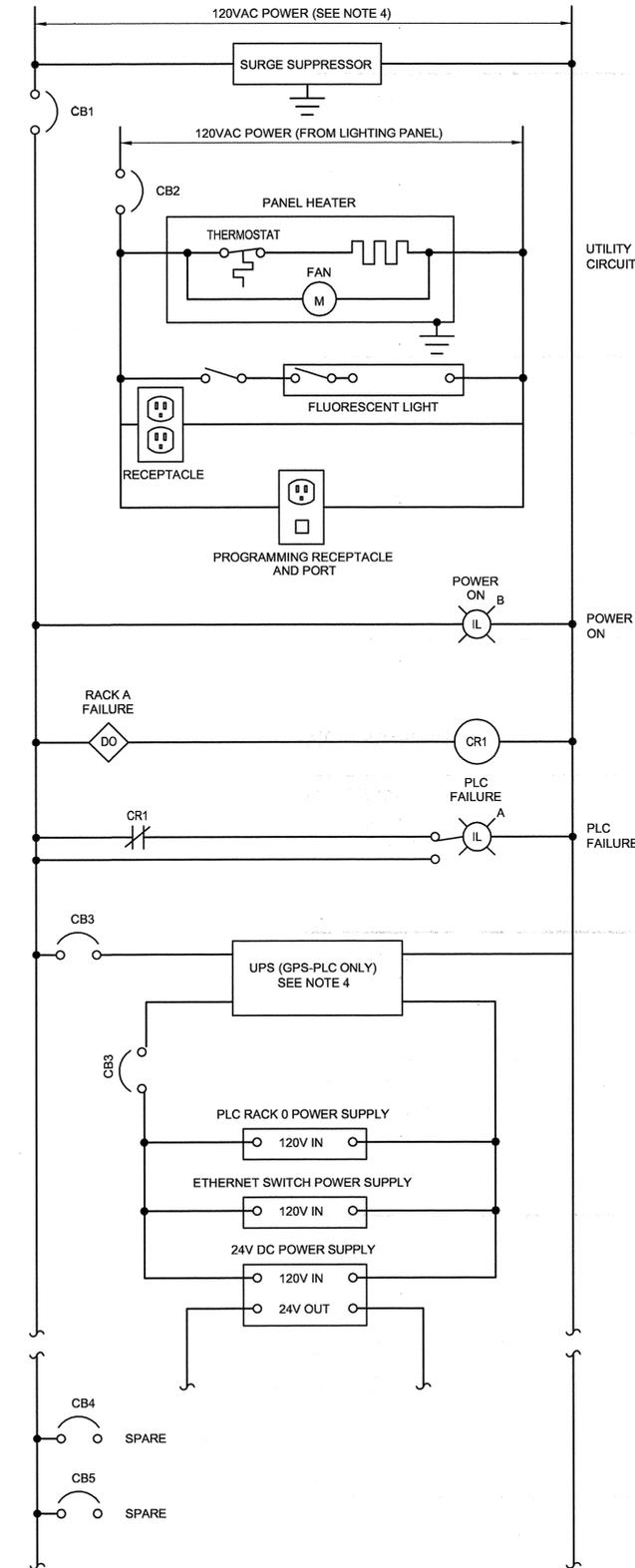
SUB PANEL VIEW

SEE NOTE 1,2

PT-RIO CONTROL PANEL NAMEPLATES	
ITEM NUMBER	DESCRIPTION
P1	PANEL POWER
P2	PLC FAIL
P3	PRELIMINARY TREATMENT PLC PANEL (PT-PLC)

GPS-RIO CONTROL PANEL NAMEPLATES	
ITEM NUMBER	DESCRIPTION
P1	PANEL POWER
P2	PLC FAIL
P3	GAC FEED PUMP STATION PLC PANEL (GPS-PLC)

PT-PLC AND GPS-PLC LEGEND	
ITEM No.	DESCRIPTION
1	NEMA 12 ENCLOSURE 72" (H) x 48" (W) x 16" (D), MINIMUM
2	SUB PANEL
3	PANEL LAMP, 120VAC (WITH AUTO ON/OFF)
4	MAIN INCOMING SUPPLY TERMINALS
5	SURGE PROTECTION FOR AC POWER
6	MAIN DISCONNECT SWITCH
7	MINIATURE CIRCUIT BREAKERS , 120V
8	TERMINAL BLOCK
9	GROUND TERMINALS
10	24VDC POWER SUPPLY
11	TERMINAL+24V
12	TERMINAL-24V
13	PLC CHASSIS
14	PLC POWER SUPPLY
15	PLC CONTROLNET MODULE
16	PLC 16 PT AC INPUT
17	PLC 16 PT AC OUTPUT
18	PLC 6 PT ANALOG INPUT
19	PLC 6 PT ANALOG OUTPUT
20	DIN RAIL
21	WIRE TRAY
22	INTERPOSING RELAY OUTPUT
23	DISCRETE IO TERMINAL BLOCKS
24	ANALOG INPUT IO TERMINAL BLOCKS
25	ANALOG OUTPUT IO TERMINAL BLOCKS
26	GROUND BAR
27	DUPLEX RECEPTACLE
28	HEATER
29	PROGRAMMING RECEPTACLE AND ETHERNET PORT
30	BLUE PUSH-TO-TEST INDICATING LIGHT
31	AMBER PUSH-TO-TEST INDICATING LIGHT
32	UPS (SEE NOTE 4)



PARTIAL WIRING DIAGRAM

- NOTES:
- PT-RIO AND GPS-RIO CONTROL PANELS SHALL BE IDENTICAL IN SIZE AND SIMILAR IN CONSTRUCTION.
 - PANEL COMPONENT DIMENSIONS AND COMPONENT LOCATION ARE APPROXIMATE AND ARE ONLY SHOWN TO PROVIDE A GENERAL INTENT OF THE DESIRED LAYOUT.
 - PANEL AND SUBPANEL DIMENSIONS ARE MINIMUM SIZE. PROVIDE LARGER SIZE IF NECESSARY TO ACCOMMODATE ALL EQUIPMENT.
 - POWER FEED TO PANEL PT-PLC SHALL BE FROM A PANEL FED FROM A UPS AND THUS NO UPS IS REQUIRED INSIDE OF PANEL. POWER FEED TO PANEL GPS-PLC SHALL FROM A LIGHTING PANEL AND UPS IS REQUIRED INSIDE OF PANEL (AS SHOWN). PROVIDE SHELF FOR UPS.

**MALCOLM
PIRNIE**



REVISIONS			
NO.	BY	DATE	REMARKS

DES PSS/JVA
DWN PSS
CKD WAV

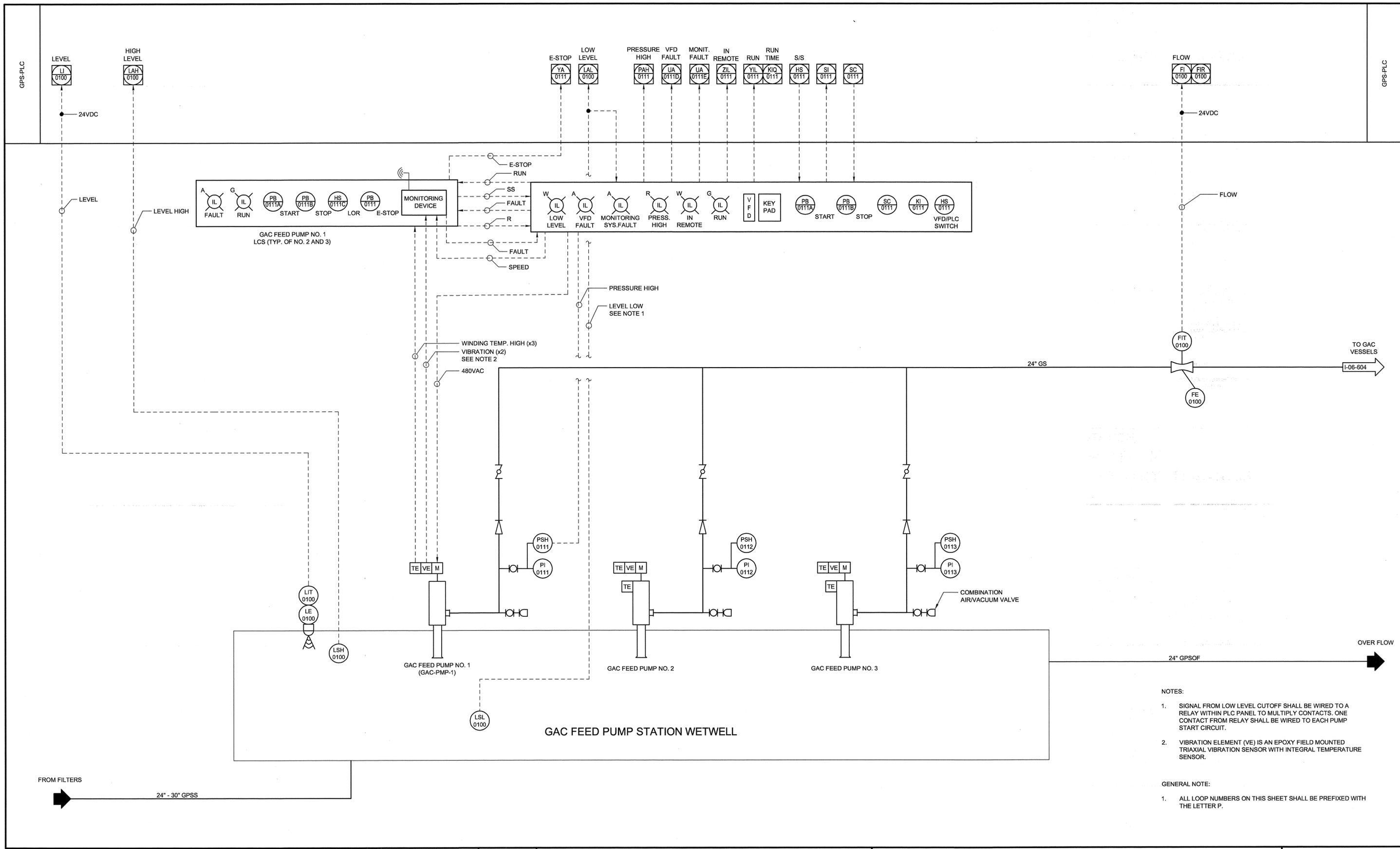
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

INSTRUMENTATION
GPS/PT CONTROL PANEL
DETAIL

SCALE: 1-1/2"=1'

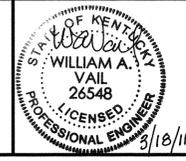
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: I-00-005
CAD REF. NO.: I-00-005

User:WELLS Spec:Pirnie STANDARD File:G:\77501\228-CADD\INSTR\I-05-601.DWG Scale:1:1 Saved:Date:3/1/2011 Time:12:09 Pkg:Date: Walls, Plant:3/15/2011: 16:07: Layout:I-05-601



- NOTES:
- SIGNAL FROM LOW LEVEL CUTOFF SHALL BE WIRED TO A RELAY WITHIN PLC PANEL TO MULTIPLY CONTACTS. ONE CONTACT FROM RELAY SHALL BE WIRED TO EACH PUMP START CIRCUIT.
 - VIBRATION ELEMENT (VE) IS AN EPOXY FIELD MOUNTED TRIAXIAL VIBRATION SENSOR WITH INTEGRAL TEMPERATURE SENSOR.
- GENERAL NOTE:
- ALL LOOP NUMBERS ON THIS SHEET SHALL BE PREFIXED WITH THE LETTER P.

**MALCOLM
PIRNIE**



NO.		BY	DATE	REVISIONS	REMARKS

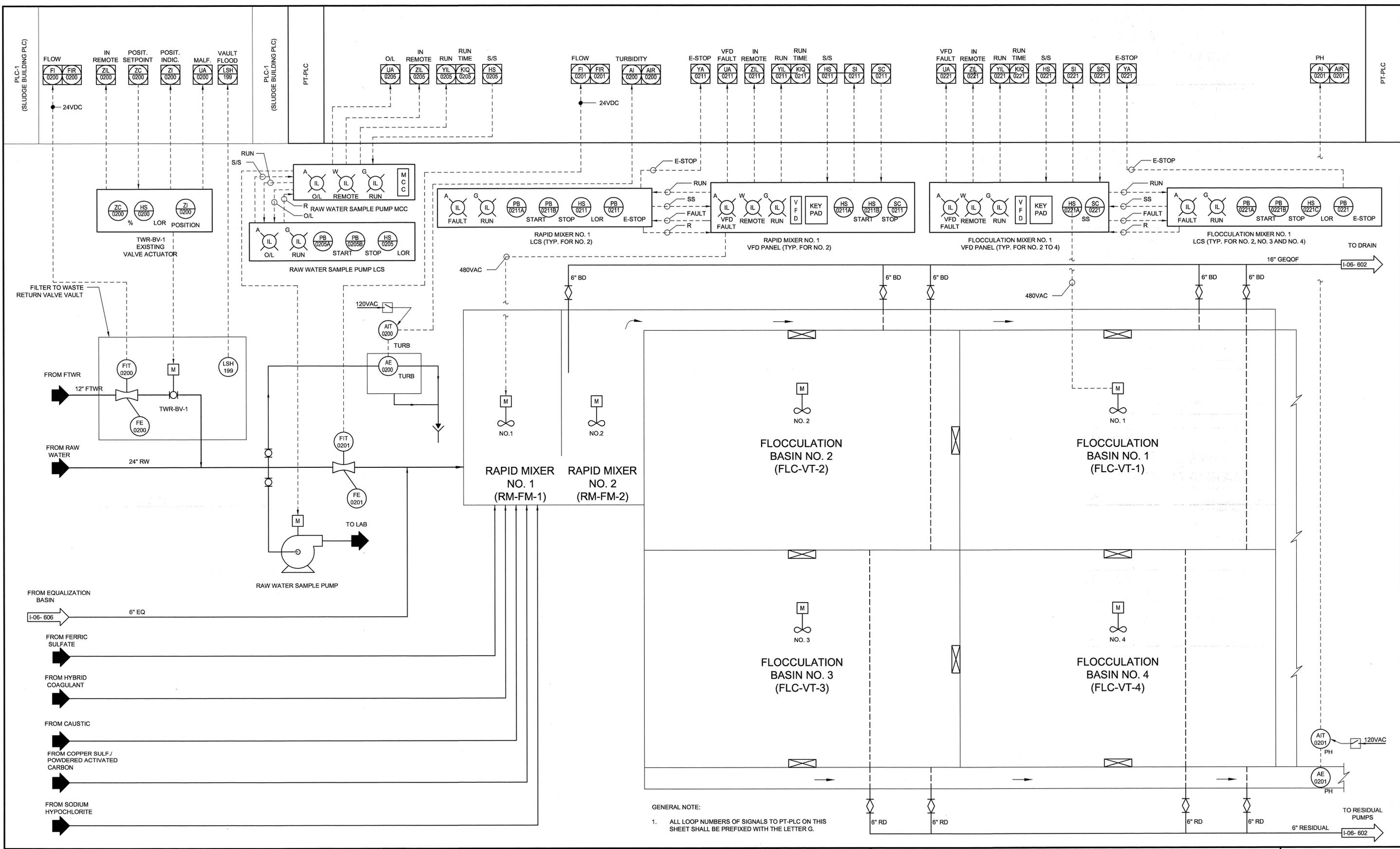
DES PSS/JVA
DWN PSS
CKD WAV

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

INSTRUMENTATION
**GAC FEED PUMP STATION
PROCESS AND INSTRUMENTATION DIAGRAM**
SCALE: NO SCALE

ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	I-05-601
CAD REF. NO.:	I-05-601

User:WELLS Spec:PIRNIE STANDARD File:G:\750726-CADD\INSTR\I-06-601.DWG Scale:1:1 SavedDate: 3/15/2011 Time: 12:08 Plot Date: Wed, 3/15/2011 16:06 Layout: I-06-601



REVISIONS		REMARKS
NO.	BY	DATE

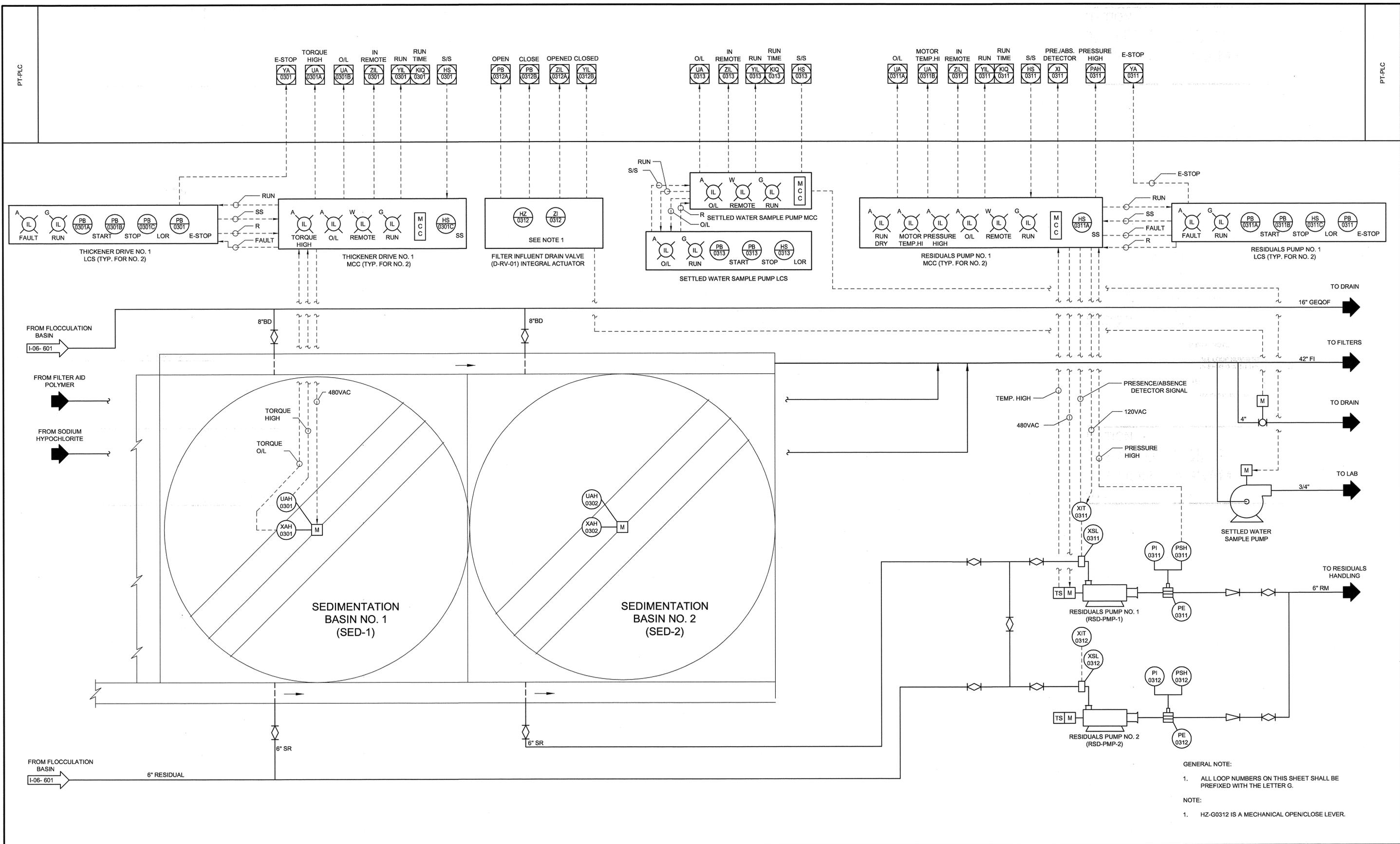
DES PSS/JVA
DWN PSS
CKD WAV

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

INSTRUMENTATION
**PRELIMINARY TREATMENT BUILDING
PROCESS AND INSTRUMENTATION DIAGRAM I**
SCALE: NO SCALE

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: I-06-601
CAD REF. NO.: I-06-601

User:WELLS_Spec:Pirnie STANDARD File:G:\7750125-CADD\INSTR\I-06-602.DWG Scale:1:1 SavedDate:3/17/2011 Time:12:08 Plot Date:Wells_Paul_3/15/2011 16:05 - Layout I-06-602



GENERAL NOTE:
 1. ALL LOOP NUMBERS ON THIS SHEET SHALL BE PREFIXED WITH THE LETTER G.
 NOTE:
 1. HZ-G0312 IS A MECHANICAL OPEN/CLOSE LEVER.



REVISIONS		REMARKS
NO.	BY	DATE

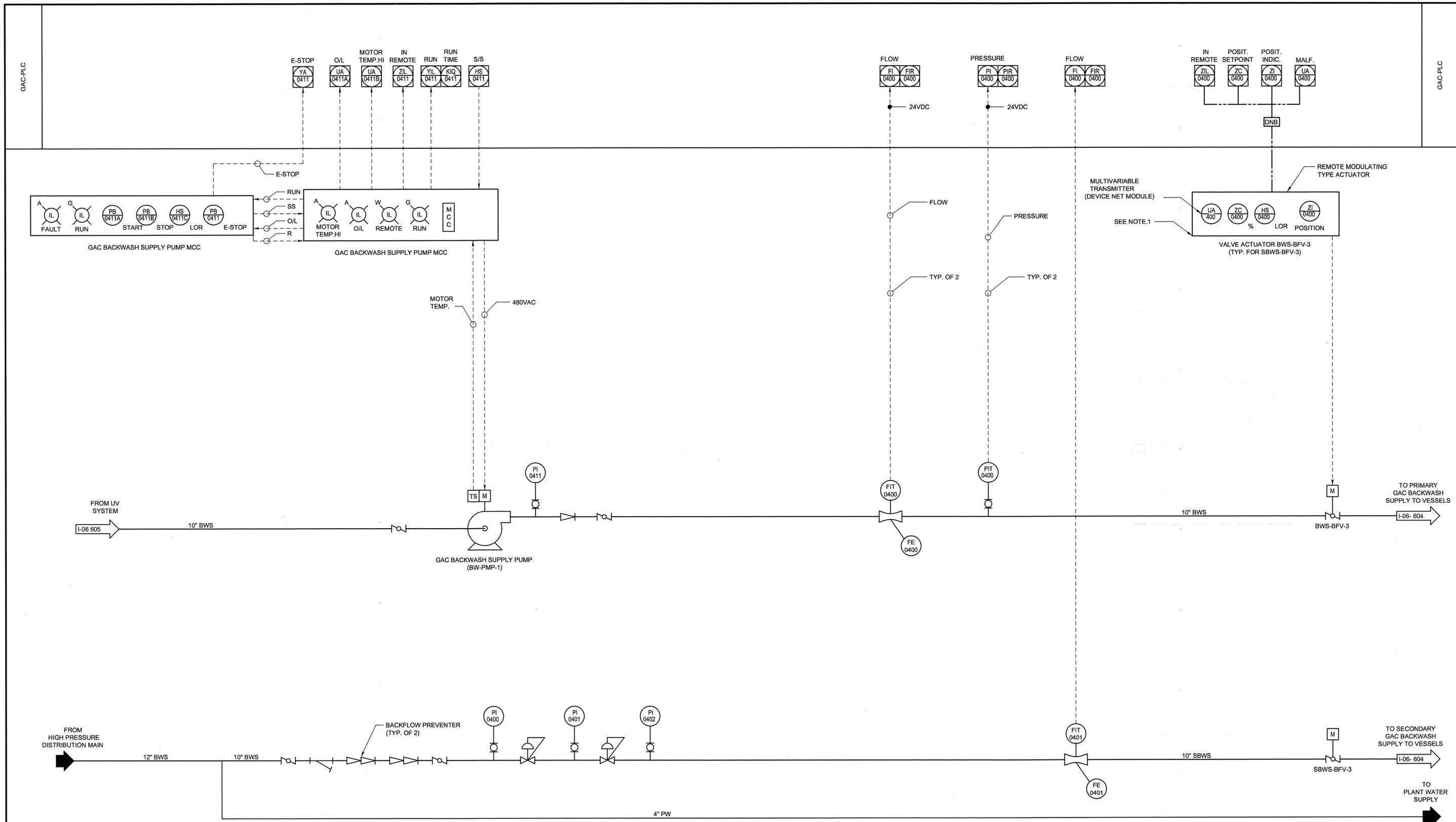
DES PSS/JVA
 DWN PSS
 CKD WAV

NORTHERN KENTUCKY WATER DISTRICT
 TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

INSTRUMENTATION
**PRELIMINARY TREATMENT BUILDING
 PROCESS AND INSTRUMENTATION DIAGRAM II**
 SCALE: NO SCALE

ISSUED STATUS: BID SET
 DATE MARCH, 2011
 SHEET I-06-602
 CAD REF. NO. I-06-602

User: WELLS Spec: PIRNIE STANDARD File: G:\7501225-CADD\INSTR\I-06-603.DWG Scale: 1:1 Saved Date: 3/1/2011 Time: 12:07 Plot Date: Walls, Pump, 3/15/2011, 16:04 Layout: I-06-603



GENERAL NOTE:

1. ALL LOOP NUMBERS ON THIS SHEET SHALL BE PREFIXED WITH THE LETTER G.

NOTE:

1. SEE DEVENET SCHEDULE FOR COMPLETE LIST OF ALL VALVE ACTUATORS AND BUSES.

**MALCOLM
PIRNIE**



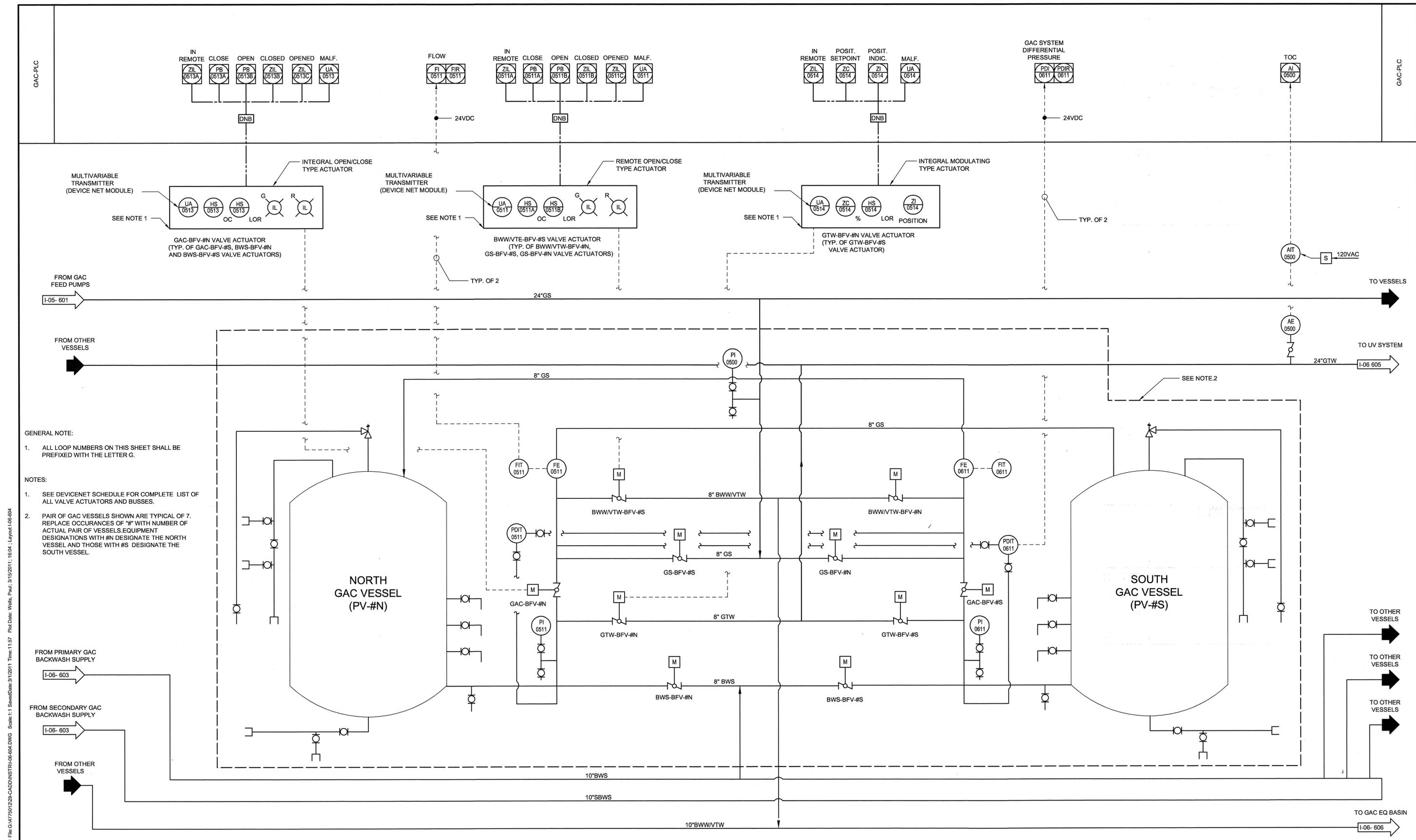
NO.		BY	DATE	REVISIONS	REMARKS

DES PSS/JVA
DWN PSS
CKD WAV

**NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS**

**INSTRUMENTATION
GAC BACKWASH SYSTEM
PROCESS AND INSTRUMENTATION DIAGRAM**
SCALE: NO SCALE

ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	I-06-603
CAD REF. NO.:	I-06-603



- GENERAL NOTE:
- ALL LOOP NUMBERS ON THIS SHEET SHALL BE PREFIXED WITH THE LETTER G.
- NOTES:
- SEE DEVICENET SCHEDULE FOR COMPLETE LIST OF ALL VALVE ACTUATORS AND BUSES.
 - PAIR OF GAC VESSELS SHOWN ARE TYPICAL OF 7. REPLACE OCCURRENCES OF "N" WITH NUMBER OF ACTUAL PAIR OF VESSELS. EQUIPMENT DESIGNATIONS WITH #N DESIGNATE THE NORTH VESSEL AND THOSE WITH #S DESIGNATE THE SOUTH VESSEL.



REVISIONS		REMARKS
NO.	BY	DATE

DES PSS/JVA
 DWN PSS
 CKD WAV

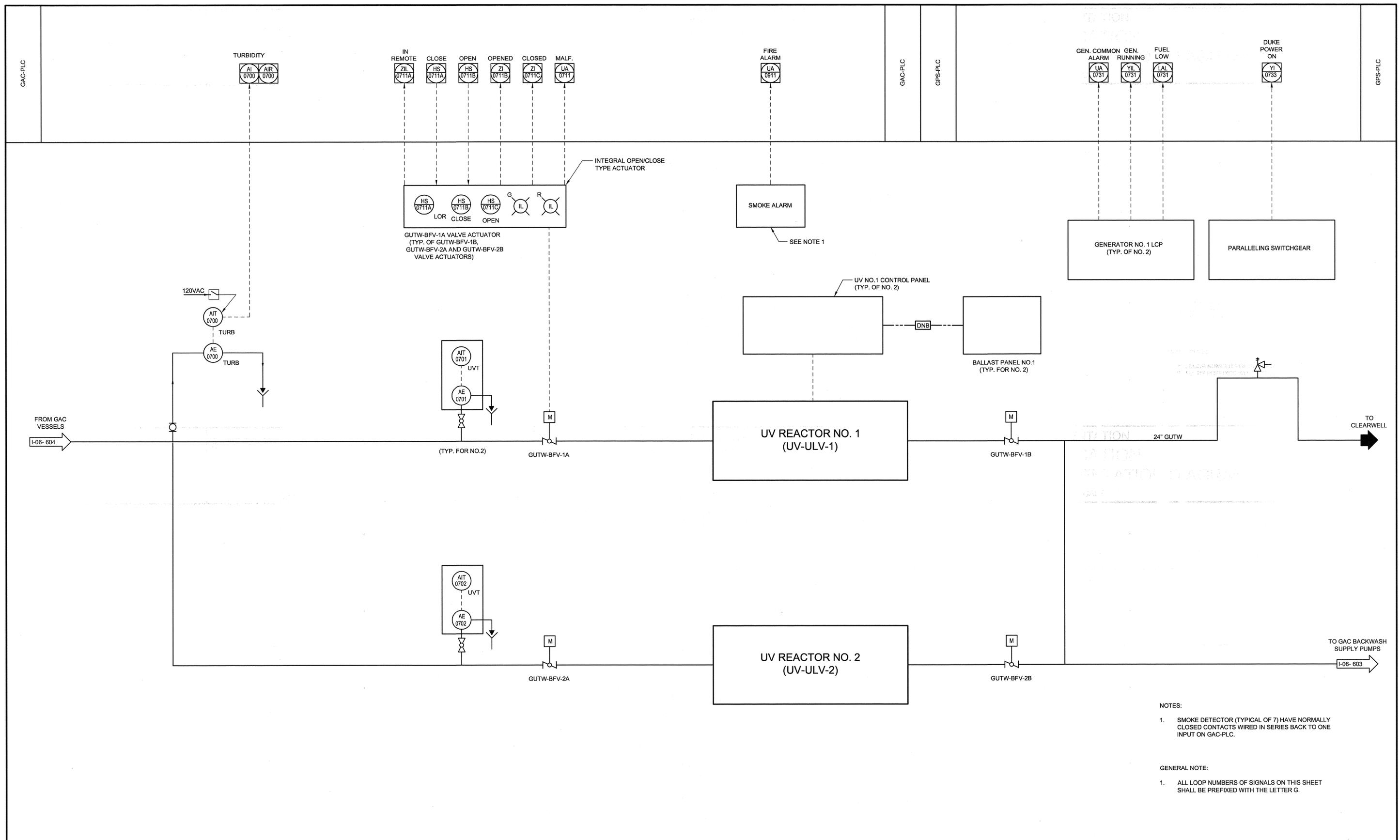
NORTHERN KENTUCKY WATER DISTRICT
 TAYLOR MILL WATER TREATMENT PLANT
 ADVANCED TREATMENT IMPROVEMENTS

INSTRUMENTATION
 GAC VESSELS
 PROCESS AND INSTRUMENTATION DIAGRAM
 SCALE: NO SCALE

ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	I-06-604
CAD REF. NO.:	I-06-604

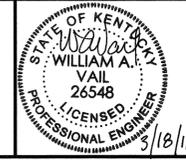
User:WELLS_Spec:PIRNIE_STANDARD File:G:\750126-CADD\INSTRUC-06-04.DWG Scale:1:1 SavedDate:3/1/2011 Time:11:57 PlotDate:Wells_Plot_3/15/2011 16:04 Layout:06-604

User: WELLS Spec: PIRNIE STANDARD File: G:\71701\228-CADD\INSTR\I-06-605.DWG Scale: 1:1 Saved: Tue 3/1/2011 Time: 11:56 Plot Date: Wells, Paul, 3/15/2011, 16:03; Layout: I-06-605



- NOTES:
- SMOKE DETECTOR (TYPICAL OF 7) HAVE NORMALLY CLOSED CONTACTS WIRED IN SERIES BACK TO ONE INPUT ON GAC-PLC.
- GENERAL NOTE:
- ALL LOOP NUMBERS OF SIGNALS ON THIS SHEET SHALL BE PREFIXED WITH THE LETTER G.

MALCOLM PIRNIE



REVISIONS			
NO.	BY	DATE	REMARKS

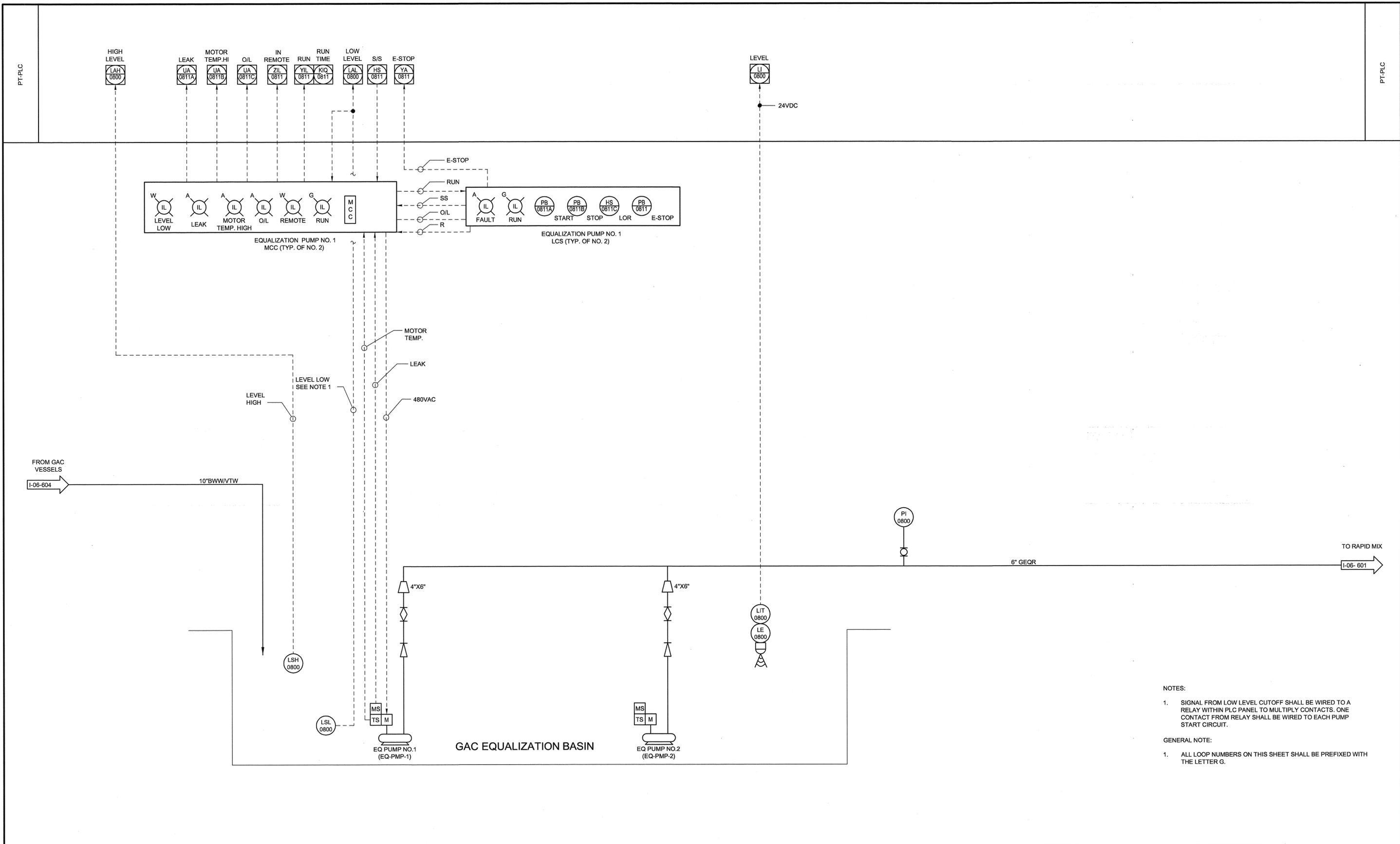
DES PSS/JVA
DWN PSS
CKD WAV

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

INSTRUMENTATION
UV RELOCATION
PROCESS AND INSTRUMENTATION DIAGRAM
SCALE: NO SCALE

ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	I-06-605
CAD REF. NO.:	I-06-605

User: WELLS Spac:Pirnie STANDARD File: G:\7781225-CADD\INSTR\I-06-606.DWG Scale: 1:1 SavedDate: 3/1/2011 Time: 11:55 Plo Date: Wells, Paul, 3/1/2011, 16:02, Layout: I-06-606

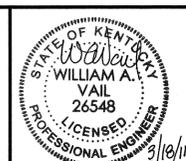


NOTES:

- SIGNAL FROM LOW LEVEL CUTOFF SHALL BE WIRED TO A RELAY WITHIN PLC PANEL TO MULTIPLY CONTACTS. ONE CONTACT FROM RELAY SHALL BE WIRED TO EACH PUMP START CIRCUIT.

GENERAL NOTE:

- ALL LOOP NUMBERS ON THIS SHEET SHALL BE PREFIXED WITH THE LETTER G.



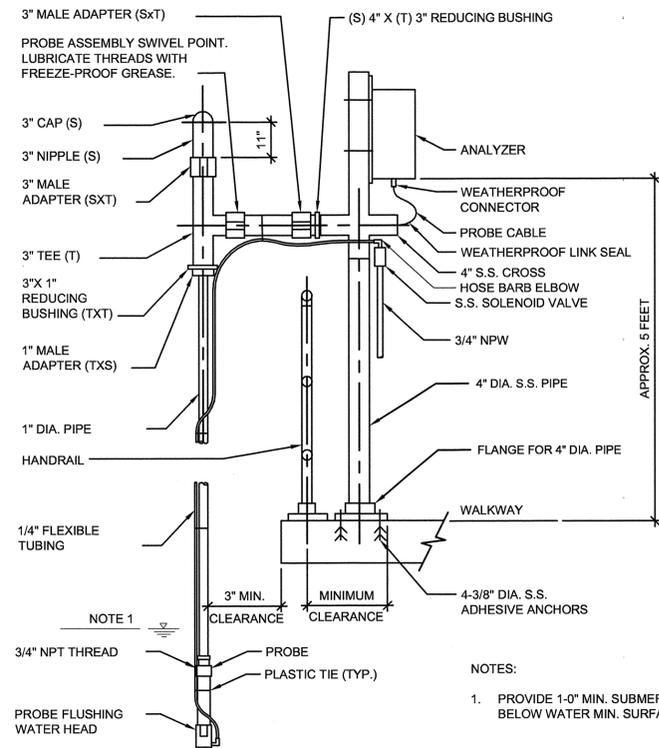
NO.		BY	DATE	REVISIONS	REMARKS

DES PSS/JVA
DWN PSS
CKD WAV

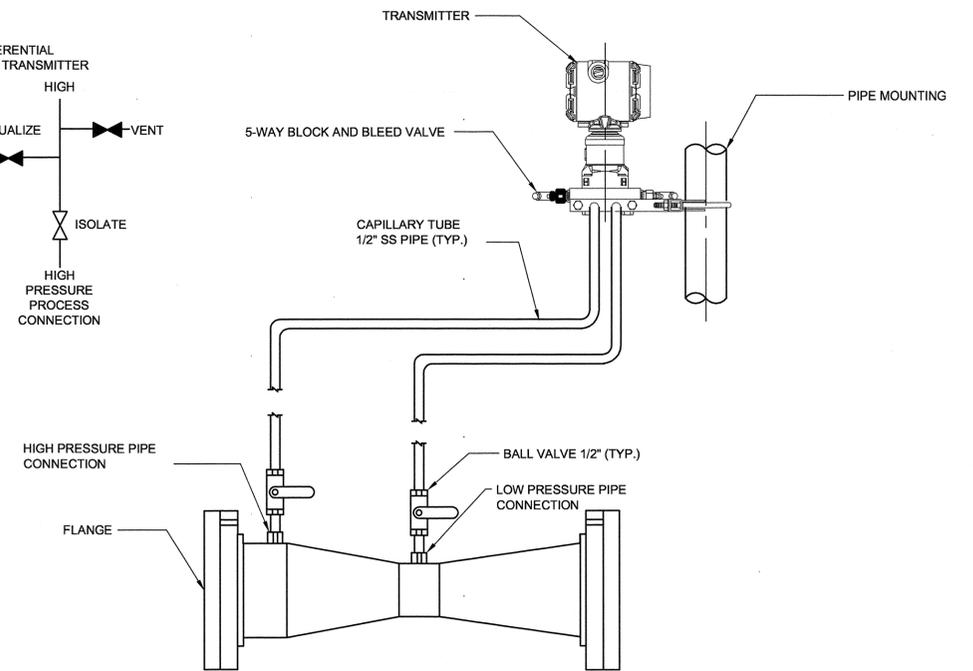
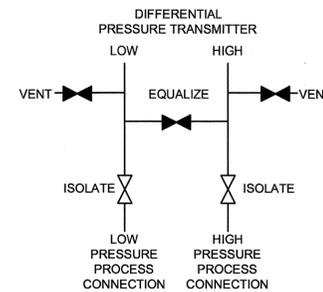
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

INSTRUMENTATION
GAC EQUALIZATION BASIN
PROCESS AND INSTRUMENTATION DIAGRAM
SCALE: NO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET I-06-606
CAD REF. NO. I-06-606

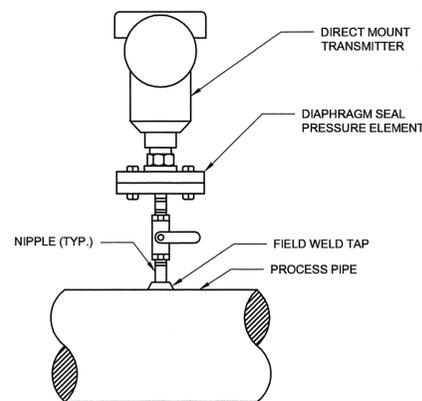


**PH SENSOR AND TRANSMITTER
INSTALLATION DETAIL**
NOT TO SCALE

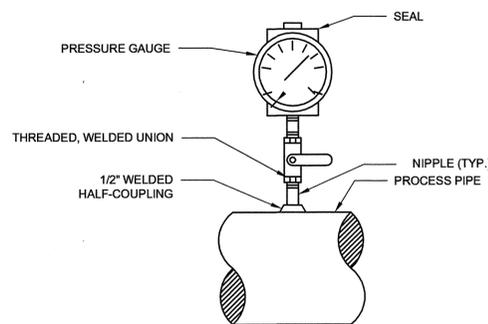


**VENTURI FLOW ELEMENT AND TRANSMITTER
MOUNTING DETAIL AND PIPING SCHEMATIC**
NOT TO SCALE

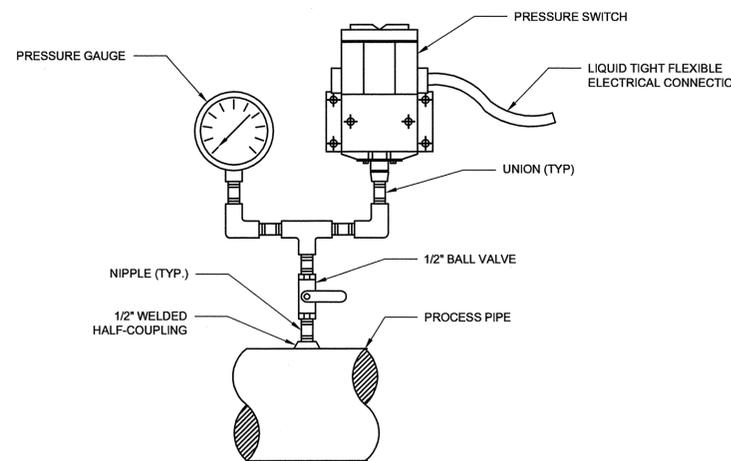
- NOTES:
1. VENTURI FLOW TUBE SHALL BE MOUNTED SUCH THAT THE TAPS ARE TO THE SIDE (3 OR 9 O'CLOCK POSITION) OF THE PIPE.



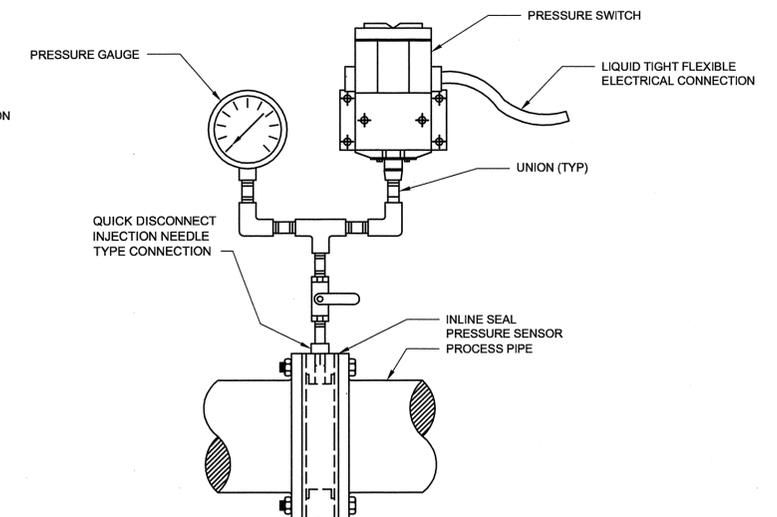
**PRESSURE INDICATING TRANSMITTER WITH
DIAPHRAGM SEAL INSTALLATION DETAIL**
NOT TO SCALE



**TAPPED PROCESS PORT GAUGE
ASSEMBLY DETAIL**
NOT TO SCALE

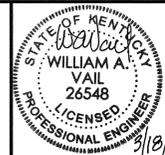


**PRESSURE GAUGE AND SWITCH ASSEMBLY
INSTALLATION DETAIL**
NOT TO SCALE



**PROCESS LINE GAUGE AND SWITCH
ASSEMBLY DETAIL**
NOT TO SCALE

**MALCOLM
PIRNIE**



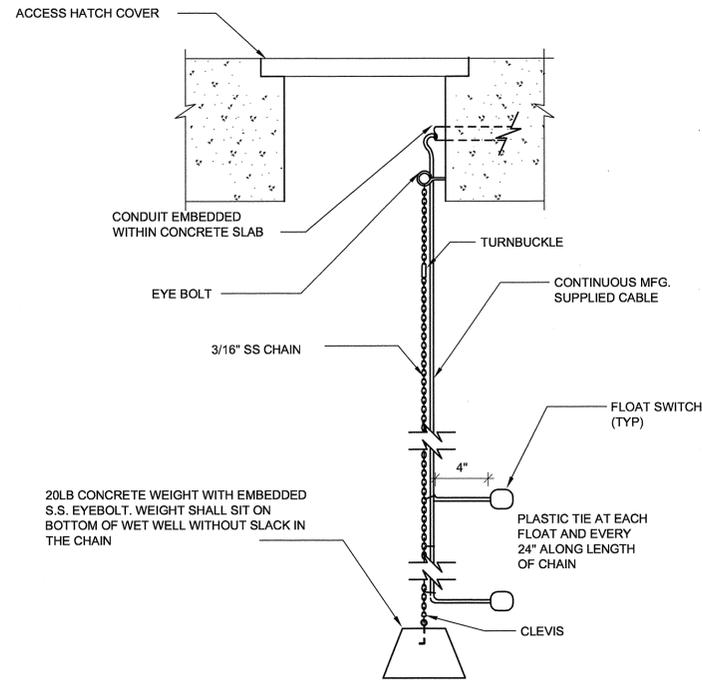
REVISIONS			
NO.	BY	DATE	REMARKS

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DWN PSS
CKD WAV

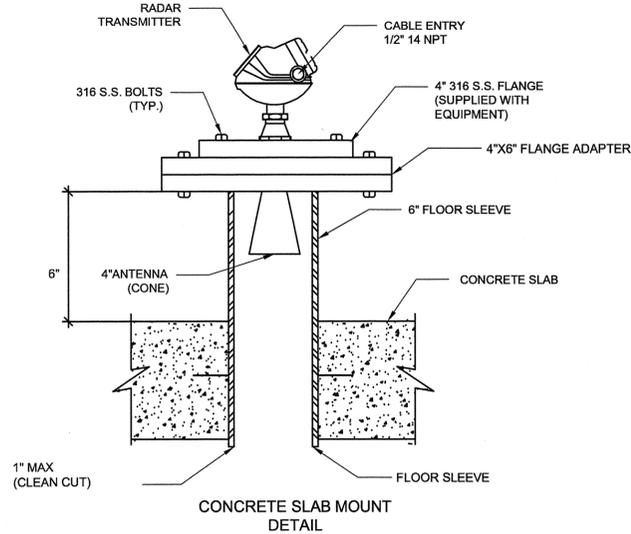
**NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS**

**INSTRUMENTATION
INSTRUMENTATION
DETAILS I**
SCALE: NO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET I-10-501
CAD REF. NO. I-10-501



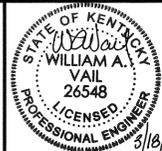
IPS WET WELL FLOAT
INSTALLATION DETAIL
NOT TO SCALE



RADAR LEVEL ELEMENT AND TRANSMITTER
MOUNTING DETAIL
NOT TO SCALE

User:WELLS Spec:PIRNE STANDARD File:G:\4750129-CADD\INSTRI-10-502.DWG Scale:1:1 SavedDate:3/1/2011 Time:12:14 PlotDate: Walls, Pour:3/15/2011, 16:11 Layout:10-502

**MALCOLM
PIRNE**



NO.		BY	DATE	REVISIONS	REMARKS

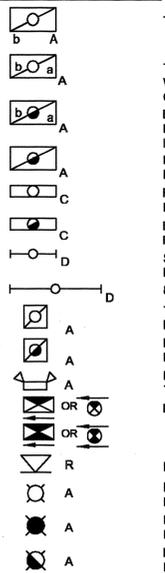
DES PSS
DWN PSS
CRD WAV

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

INSTRUMENTATION
**INSTRUMENTATION
DETAILS II**
SCALE: NO SCALE

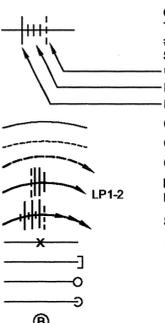
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET I-10-502
CAD REF. NO. I-10-502

CEILING MOUNTED



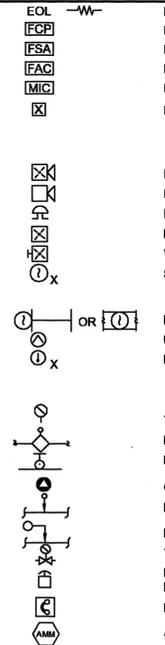
INTERIOR LIGHTING
TWO BY FOUR FOOT FLUORESCENT LIGHTING FIXTURE, A - INDICATES TYPE b - DENOTES SWITCH DESIGNATION
TWO BY FOUR FOOT FLUORESCENT LIGHTING FIXTURE WIRED FOR INDIVIDUAL SWITCHING OF INSIDE AND OUTSIDE LAMPS, LETTER INDICATES TYPE
EMERGENCY TWO BY FOUR FOOT FLUORESCENT LIGHTING FIXTURE WIRED 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

INTERIOR CONDUIT AND WIRE



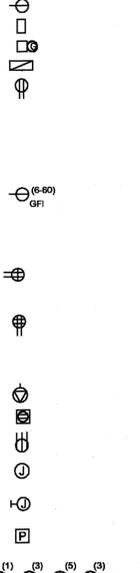
CONDUIT CONCEALED IN WALL OR CEILING TIC MARKS INDICATE NUMBER OF WIRES. #12 IF NOT OTHERWISE SHOWN. CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED.
GROUND
PHASE(S)
NEUTRAL
CONDUIT CONCEALED BEHIND CEILING OR WALL FINISH
CONDUIT EXPOSED ON WALL OR STRUCTURE
CONDUIT IN OR UNDER FLOOR SLAB
HOMERUN TO PANEL (PANEL LP1 CIRCUIT 2 INDICATED)
SIGNIFIES MULTIPLE CIRCUITS IN ONE CONDUIT
EXPLOSION PROOF CONDUIT SEAL
CONDUIT WITH END CAPPED
CONDUIT TURNED UP
CONDUIT TURNED DOWN
BLANKED OFF OUTLET BOX

FIRE ALARM/SUPPRESSION SYSTEM DEVICES



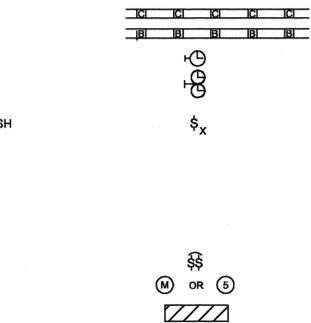
END OF LINE RESISTOR
FIRE ALARM CONTROL PANEL
FIRE ALARM ANNUNCIATOR PANEL
FIRE ALARM COMMUNICATOR
REMOTE MIC
FIRE ALARM MANUAL STATION
X=H-HALON F-FOAM
C-CARBON DIOXIDE W-WET CHEMICAL
D-DRY CHEMICAL P-MANUAL PULL STATION
FIRE ALARM SPEAKER/HORN/STROBE LIGHT
FIRE ALARM HORN OR SPEAKER
FIRE ALARM BELL/LIGHT
FIRE ALARM STROBE LIGHT
WALL MOUNTED FIRE ALARM STROBE LIGHT
SMOKE DETECTOR
X=P-PHOTOELECTRIC BT-BEAM TRANSMITTER
I-IONIZATION BR-BEAM RECEIVER
DUCT MOUNTED SMOKE DETECTOR
ULTRAVIOLET DETECTOR
HEAT DETECTOR, SUBSCRIPT DENOTES THE FOLLOWING
X=F-FIXED TEMPERATURE
R-RATE OF RISE
RIF-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
ADDRESSABLE MONITOR MODULE

WALL MOUNTED



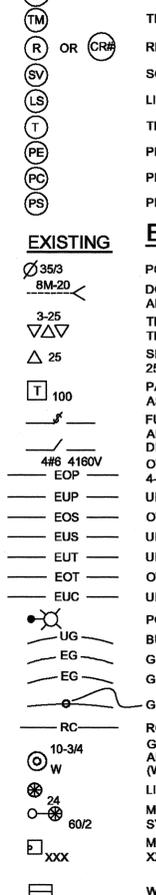
SINGLE RECEPTACLE
PUSHBUTTON STATION
GENERATOR SET
AUTOMATIC TRANSFER SWITCH
DUPLEX RECEPTACLE, 125 VOLT, 2-POLE, 3 WIRE, NEMA 5-20R GROUNDING TYPE, SUBSCRIPT DENOTES THE FOLLOWING:
WP - WEATHERPROOF
GF: INTEGRAL GROUND FAULT INTERRUPT
IG: ISOLATED GROUND
EXP: EXPLOSION PROOF
SPECIAL PURPOSE RECEPTACLE, NUMBER DENOTES NEMA CONFIGURATION, SUBSCRIPTS DENOTE THE FOLLOWING:
WP - WEATHERPROOF
GF: INTEGRAL GROUND FAULT INTERRUPT
EXP: EXPLOSION PROOF, PROVIDE TYPE 7 ENCLOSURE
TRIPLEX RECEPTACLE, SUBSCRIPT DENOTES THE FOLLOWING:
WP - WEATHERPROOF
GF: INTEGRAL GROUND FAULT INTERRUPT
QUADRAPLEX RECEPTACLE, 125 VOLT, 2-POLE, 3 WIRE, NEMA 5-20R GROUNDING TYPE, SUBSCRIPT DENOTES THE FOLLOWING:
WP - WEATHERPROOF
GF: INTEGRAL GROUND FAULT INTERRUPT
SINGLE SPECIAL PURPOSE RECEPTACLE
FLOOR MOUNTED RECEPTACLE
RANGE OUTLET
JUNCTION BOX WALL OR CEILING MOUNTED FLUSH, 4"x4" SQUARE UNLESS OTHERWISE NOTED
JUNCTION BOX SURFACE MOUNTED ON WALL OR STRUCTURE 4"x4" SQUARE UNLESS OTHERWISE NOTED
PULL BOX-SIZE AS INDICATED ON DRAWINGS
MULTI-OUTLET SURFACE RACEWAY, SIZE AND NUMBER OF RECEPTACLE AS SCHEDULED. NUMBER INDICATES CIRCUIT NUMBER
WIREWAY
CABLE TRAY
PLUGIN OR FEEDER BUS
WALL MOUNTED SINGLE FACE CLOCK
WALL MOUNTED DOUBLE FACE CLOCK
SWITCHBOARD
PANELBOARD, SURFACE MOUNTED
PANELBOARD, RECESSED
DISCONNECT SWITCH
NON-FUSED
FUSED
NEMA DESIGNATION
FUSE SIZE, UL CLASS (FUSED SWITCH ONLY)
FUSE AMP RATING
NUMBER OF POLES
ENCLOSED CIRCUIT BREAKER
NOTATION WHEN OTHER THAN ACROSS THE LINE
RVA - REDUCED VOLTAGE AUTO TRANSFORMER
RVR - REDUCED VOLTAGE PRIMARY RESISTOR
RWV - REDUCED VOLTAGE WYE/Delta
RVP - REDUCED VOLTAGE PART WINDING
R - REVERSIBLE
STARTER NEMA SIZE
NUMBER OF POLES
COMBINATION STARTER/FUSED DISCONNECT
NEMA DESIGNATION
FUSE RATING AND UL CLASS
SWITCH AMP RATING
STARTER NEMA SIZE
NUMBER OF POLES
COMBINATION STARTER/CIRCUIT BREAKER
NEMA DESIGNATION
AIC RATING
TRIP AMP RATING
STARTER NEMA SIZE
NUMBER OF POLES
VARIABLE FREQUENCY CONTROLLER
NEMA DESIGNATION
CONTROLLER TYPE:
H - CONSTANT HP
C - CONSTANT TORQUE
V - VARIABLE TORQUE
HP RATING
NUMBER OF POLES
MAGNETIC CONTACT, DOOR MOUNTED
MAGNETIC CONTACT, WINDOW MOUNTED
PASSIVE INFRARED MOTION DETECTOR, ARROW DENOTES CURTAIN DIRECTION

INTERIOR POWER EQUIPMENT AND DEVICES



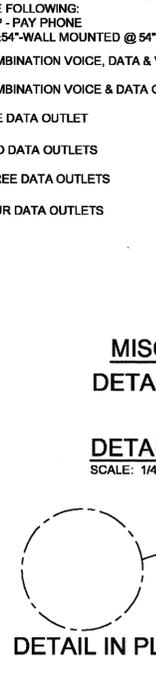
TELEPHONE OUTLET. SUBSCRIPT DENOTES THE FOLLOWING:
P - PAY PHONE
154"-WALL MOUNTED @ 54" A.F.F.
COMBINATION VOICE, DATA & VIDEO, 1 EACH
COMBINATION VOICE & DATA OUTLET, 1 EACH
ONE DATA OUTLET
TWO DATA OUTLETS
THREE DATA OUTLETS
FOUR DATA OUTLETS
FLOOR MOUNTED TELEPHONE OUTLET (CAN BE APPLIED TO DATA OUTLET ALSO)
SPEAKER, WALL MOUNTED
SPEAKER, CEILING MOUNTED
FIXED CAMERA
PAN/TILT/ZOOM CAMERA
TV OUTLET- SUBSCRIPT DENOTES MOUNTING HEIGHT XX=72" OR 24" AFF
X: V=VOICE
D=DATA
T=VIDEO (TV)
CLASSROOM BELL
INTERCOM CALL STATION

EXISTING



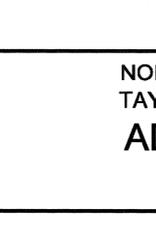
POLE, LENGTH AND CLASS AS INDICATED
DOWN GUY-NOTED AS 8000 POUND STRENGTH. ANCHOR AT 20 FEET FROM POLE
TRANSFORMER BANK POLE MOUNTED-SHOWN AS THREE PHASE 25 KVA TRANSFORMERS
SINGLE PHASE TRANSFORMER, POLE MOUNTED 25 KVA NOTED
PAD MOUNTED TRANSFORMER INDICATED AS 100 KVA
FUZE CUTOFF WITH FUZE SIZE AND TYPE NOTED
DISCONNECT SWITCH OR SECTIONALIZING SWITCH
OVERHEAD PRIMARY-SHOWN AS 4-#6 CONDUCTORS, 4160V
UNDERGROUND PRIMARY
OVERHEAD SECONDARY
UNDERGROUND SECONDARY
UNDERGROUND TELEPHONE CONDUIT
OVERHEAD TELEPHONE
UNDERGROUND COMMUNICATION
POLE MOUNTED LIGHTING FIXTURE
BURIED GROUND WIRE
GROUND WIRE IN OR UNDER FLOOR SLAB
GROUND WIRE EXPOSED
GROUND CONNECTION OR EQUIPMENT BOND
ROOF CONDUCTOR
GROUND ROD. SIZE AS NOTED 10 FT. LENGTH AND 3/4" INCHES DIAMETER NOTED (W DENOTES INSTALLATION IN WELL)
LIGHTNING ROD, (24 INCHES HIGH NOTED)
MAST TYPE LIGHTNING PROTECTION SYSTEM. 60' CLASS 2 POLE NOTED
MANHOLE, SUBSCRIPT DENOTES THE FOLLOWING:
EMH-ELECTRICAL
CMH-COMMUNICATIONS
TMH-TELEPHONE
WALLPACK EXTERIOR LIGHT FIXTURE

NEW



POLE, LENGTH AND CLASS AS INDICATED
DOWN GUY-NOTED AS 8000 POUND STRENGTH. ANCHOR AT 20 FEET FROM POLE
TRANSFORMER BANK POLE MOUNTED-SHOWN AS THREE PHASE 25 KVA TRANSFORMERS
SINGLE PHASE TRANSFORMER, POLE MOUNTED 25 KVA NOTED
PAD MOUNTED TRANSFORMER INDICATED AS 100 KVA
FUZE CUTOFF WITH FUZE SIZE AND TYPE NOTED
DISCONNECT SWITCH OR SECTIONALIZING SWITCH
OVERHEAD PRIMARY-SHOWN AS 4-#6 CONDUCTORS, 4160V
UNDERGROUND PRIMARY
OVERHEAD SECONDARY
UNDERGROUND SECONDARY
UNDERGROUND TELEPHONE CONDUIT
OVERHEAD TELEPHONE
UNDERGROUND COMMUNICATION
POLE MOUNTED LIGHTING FIXTURE
BURIED GROUND WIRE
GROUND WIRE IN OR UNDER FLOOR SLAB
GROUND WIRE EXPOSED
GROUND CONNECTION OR EQUIPMENT BOND
ROOF CONDUCTOR
GROUND ROD. SIZE AS NOTED 10 FT. LENGTH AND 3/4" INCHES DIAMETER NOTED (W DENOTES INSTALLATION IN WELL)
LIGHTNING ROD, (24 INCHES HIGH NOTED)
MAST TYPE LIGHTNING PROTECTION SYSTEM. 60' CLASS 2 POLE NOTED
MANHOLE, SUBSCRIPT DENOTES THE FOLLOWING:
EMH-ELECTRICAL
CMH-COMMUNICATIONS
TMH-TELEPHONE
WALLPACK EXTERIOR LIGHT FIXTURE

COMMUNICATION



TELEPHONE OUTLET. SUBSCRIPT DENOTES THE FOLLOWING:
P - PAY PHONE
154"-WALL MOUNTED @ 54" A.F.F.
COMBINATION VOICE, DATA & VIDEO, 1 EACH
COMBINATION VOICE & DATA OUTLET, 1 EACH
ONE DATA OUTLET
TWO DATA OUTLETS
THREE DATA OUTLETS
FOUR DATA OUTLETS
FLOOR MOUNTED TELEPHONE OUTLET (CAN BE APPLIED TO DATA OUTLET ALSO)
SPEAKER, WALL MOUNTED
SPEAKER, CEILING MOUNTED
FIXED CAMERA
PAN/TILT/ZOOM CAMERA
TV OUTLET- SUBSCRIPT DENOTES MOUNTING HEIGHT XX=72" OR 24" AFF
X: V=VOICE
D=DATA
T=VIDEO (TV)
CLASSROOM BELL
INTERCOM CALL STATION

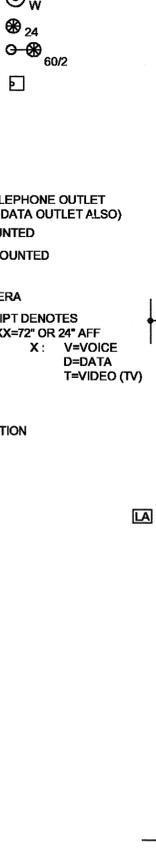
MISCELLANEOUS

SHEET WHERE DETAIL IS DRAWN
DETAIL NUMBER
SHEET WHERE DETAIL OCCURS
C-CIVIL/SANITARY
A-ARCHITECTURAL
S-STRUCTURAL
M-MECHANICAL
P-PLUMBING
E-ELECTRICAL
KEY INTERLOCK

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
CAL - CENTERLINE
CLG - CEILING
CM - CIRCUIT MONITOR
COND - CONDUCTOR
CONN - CONNECTION
CTL - CONTROL
CU - COPPER
DACT - DIGITAL ALARM COMMUNICATING TRANSMITTER
DB - DIRECT BURIAL
DDT - DETAIL
DP - DISTRIBUTION PANEL
DISC - DISCONNECT
DN - DOWN
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 - FUZE
FLA - FULL LOAD AMPS
FLEX - FLEXIBLE
FLR - FLOOR

CONTROLS



AMMETER
DAMPER MOTOR ACTUATOR, SPRING RETURN
EXHAUST FAN MOTOR
VOLTMETER
WATTMETER
WATTHOUR METER
CURRENT TRANSFORMER
POTENTIAL TRANSFORMER
SILICON CONTROLLED RECTIFIER
CIRCUIT MONITOR
SURGE PROTECTION DEVICE
LIGHTNING ARRESTOR (CROWBAR STYLE)
CAPACITOR
GROUND
TRANSFORMER
RELAY CONTROLS (NORMALLY OPEN)
RELAY CONTROLS (NORMALLY CLOSED)
KEY INTERLOCK
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
TERMINALS FOR WIRE CONNECTIONS FROM REMOTE DEVICE
PILOT LIGHT IN CONTROL CIRCUIT
MOTOR STARTER COIL
AUTOTRANSFORMER
TIMER GLUTCH OR SOLENOID
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)
3 POSITION SELECTOR SWITCH
H O A - HAND/OFF/ON AUTOMATIC
L O R - LOCAL/OFF/REMOTE

GENERAL NOTES:

1. ALL CONDUIT AND WIRING SHALL GENERALLY BE CONCEALED. IN PLACES WHERE THIS IS NOT PRACTICAL, SURFACE METAL RACEWAY SHALL BE USED. WHERE ALLOWED, THE COLOR SHALL CLOSELY MATCH EXISTING BACKGROUND COLOR OF SURFACES IN THE AREA. EXPOSED RUNS OF CONDUIT SHALL BE UTILIZED IN ALL UNFINISHED MECHANICAL SPACES.
2. FIRESTOP ALL CONDUITS PENETRATING FIRE RATED WALLS.
3. CONTRACTOR IS STRONGLY ENCOURAGED TO VISIT SITES PRIOR TO BIDDING.

ABBREVIATIONS

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
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
PH - PHASE
PNL - PANEL
POC - POINT OF CONNECTION
PS - PULL SWITCH OR PRESSURE SWITCH
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
UH - UNDERGROUND
UH - UNIT HEATER
V - VOLTAGE
VFD - VARIABLE FREQUENCY DRIVE
W - WIRE
W/ - WITH
W/O - WITH OUT
WP - WEATHERPROOF
WT - WEIGHT
X'FMR, XFMR - TRANSFORMER

GENERAL NOTES:

1. ALL CONDUIT AND WIRING SHALL GENERALLY BE CONCEALED. IN PLACES WHERE THIS IS NOT PRACTICAL, SURFACE METAL RACEWAY SHALL BE USED. WHERE ALLOWED, THE COLOR SHALL CLOSELY MATCH EXISTING BACKGROUND COLOR OF SURFACES IN THE AREA. EXPOSED RUNS OF CONDUIT SHALL BE UTILIZED IN ALL UNFINISHED MECHANICAL SPACES.
2. FIRESTOP ALL CONDUITS PENETRATING FIRE RATED WALLS.
3. CONTRACTOR IS STRONGLY ENCOURAGED TO VISIT SITES PRIOR TO BIDDING.

Linear: BOND SPEC: PIRNIE STANDARD File: U:\3786-NKWD TAYLOR MILLWORKING DRAWINGS\DESIGN DRAWINGS\ELECTRICAL\E-00-001.DWG Scale: 1:38 Saved Date: 11/22/2010 Time: 09:17 Plot Date: Bond, Jeff, 3/10/2011, 09:24, Layout: E-00-001

MALCOLM PIRNIE ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY PATRIK J. BAISDEN 22612 LICENSED PROFESSIONAL ENGINEER 3/10/11

Table with columns: NO., BY, DATE, REMARKS, REVISIONS

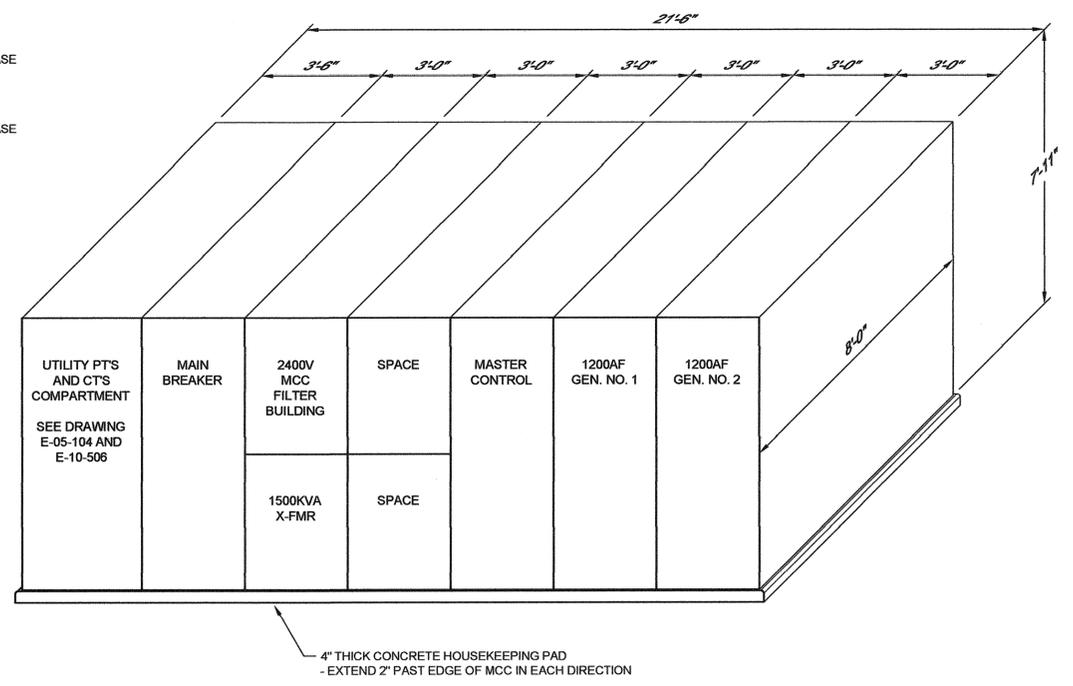
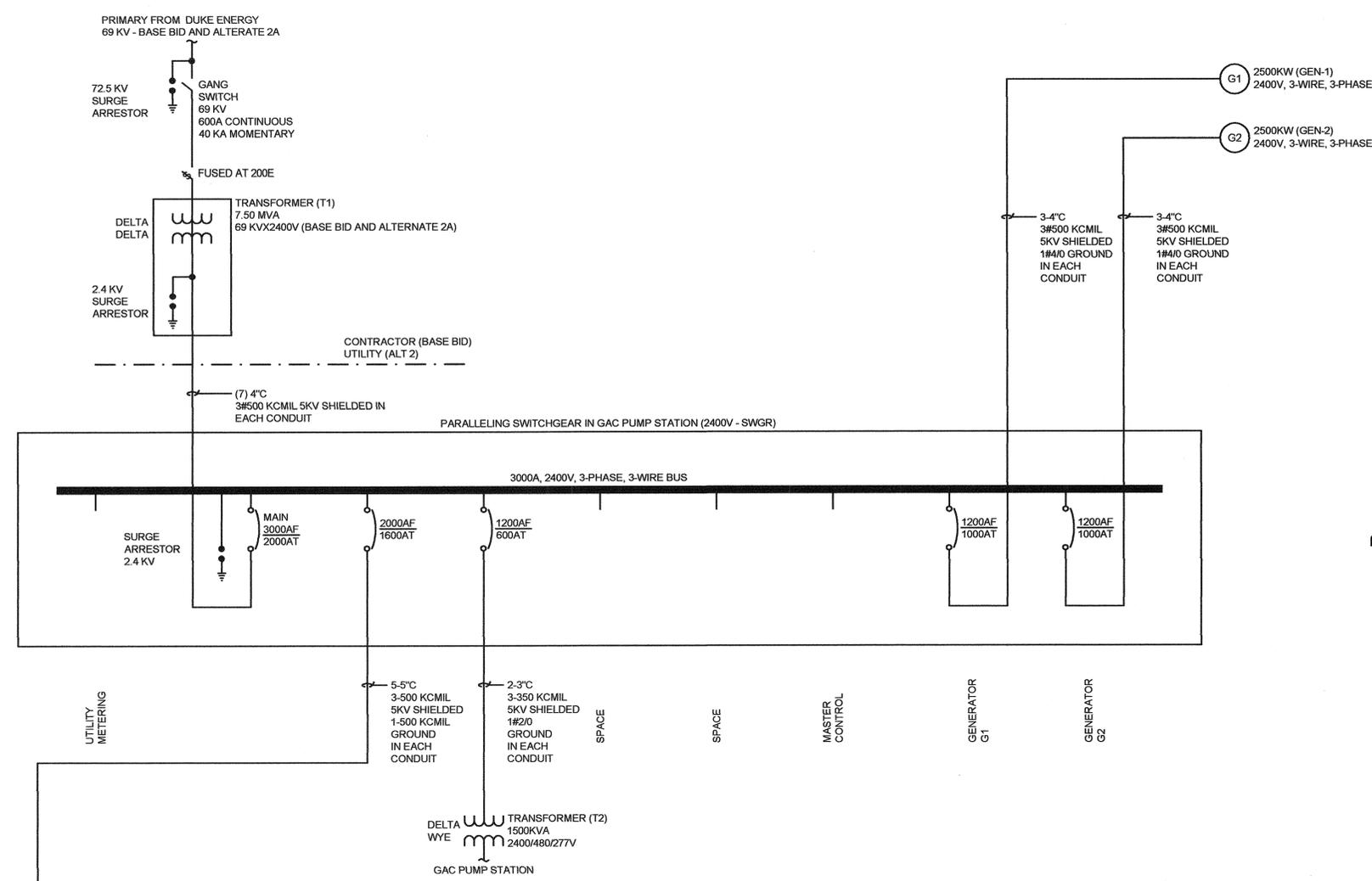
DES PJB
DWN DLM
CKD PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

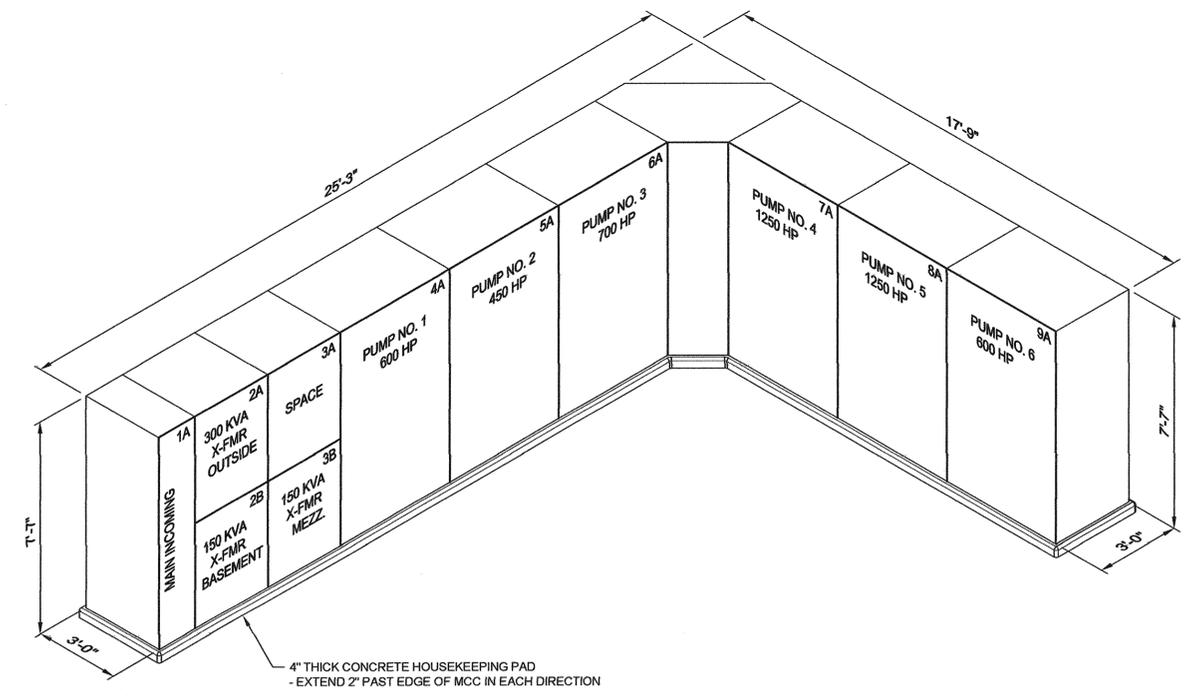
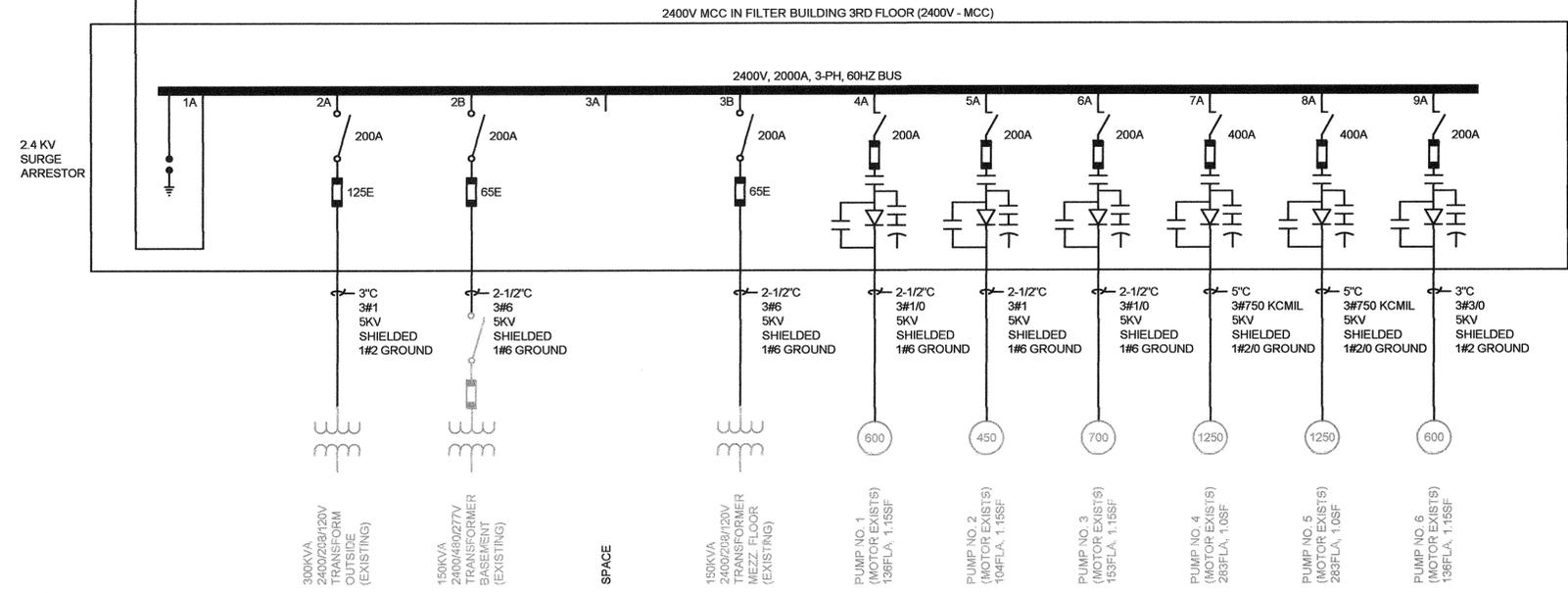
ELECTRICAL
SYMBOLS AND ABBREVIATIONS
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET E-00-001
CAD REF. NO. 3789-E-00-001

User: T:\MSP\Spec\PIRINIE STANDARD File: P:\PROJECTS\10010 - NWMD Taylor Mill WTP\ACAD\INFO_EXCHANGE_PUBLIC\FOLDER\ELEC\CDP\E-00-601.DWG Scale: 1:1 Saved Date: 3/15/2011 Time: 17:37 Plot Date: Tom Weber: 3/15/2011 12:56 Layout: E-00-601



1 PARALLELING SWITCHGEAR - ELEVATION
NOT TO SCALE



2 2400V MCC - ELEVATION
NOT TO SCALE

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

MALCOLM PIRNIE
cdpengineers

Michelle Howlett
T. MICHELLE HOWLETT
19856
LICENSED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS

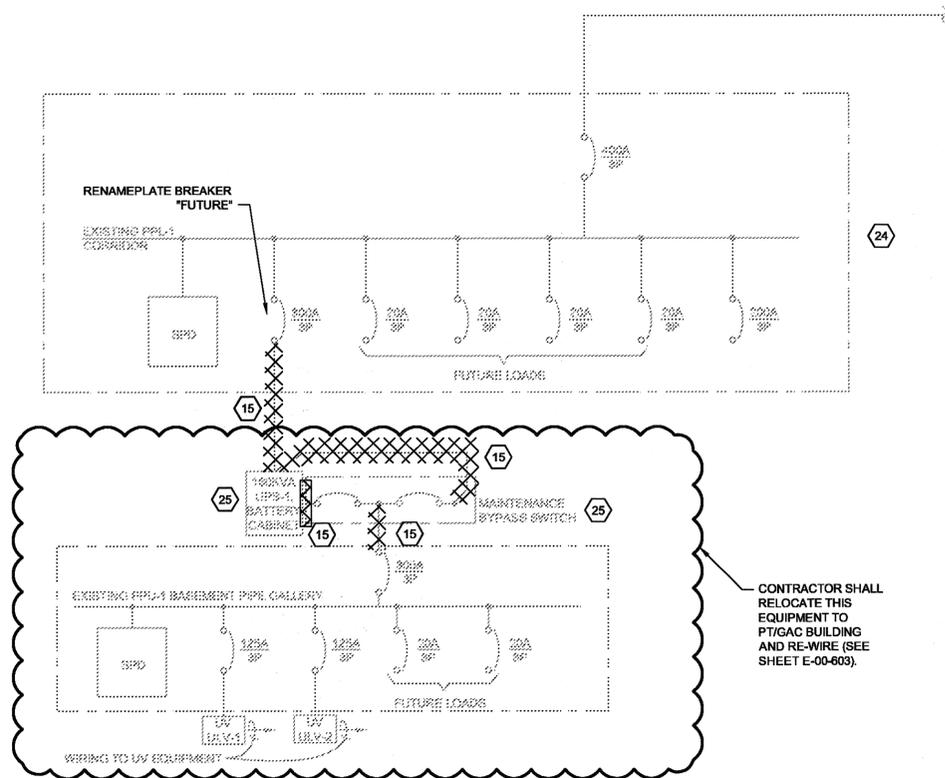
DES SKD
DWN TEW
CKD TMH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

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

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-00-601
CAD REF. NO.: CDP-E-00-601

User: JBOND Spec: PIRNIE STANDARD File: L:\3789-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\E-00-602.DWG Scale: 1:38 Served: 1/19/2011 Time: 09:03 Plot Date: 03/01/2011 09:24 Layout: E-00-602



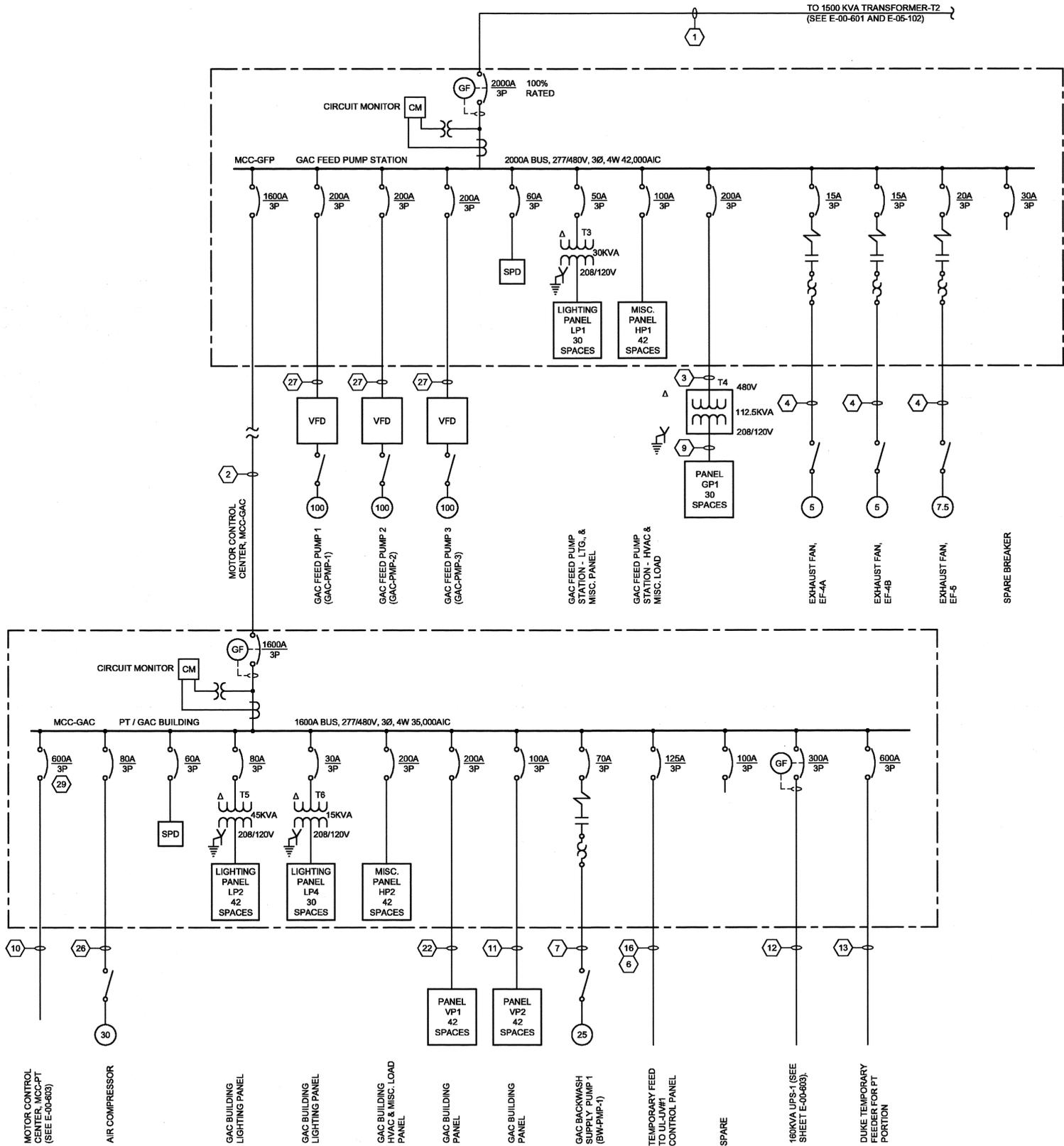
CONTRACTOR SHALL RELOCATE THIS EQUIPMENT TO PT/GAC BUILDING AND RE-WIRE (SEE SHEET E-00-603).

GENERAL NOTES:

- REFER TO SHEET E-00-603 FOR KEYED NOTES.

ONE LINE DIAGRAM - II

NOT TO SCALE



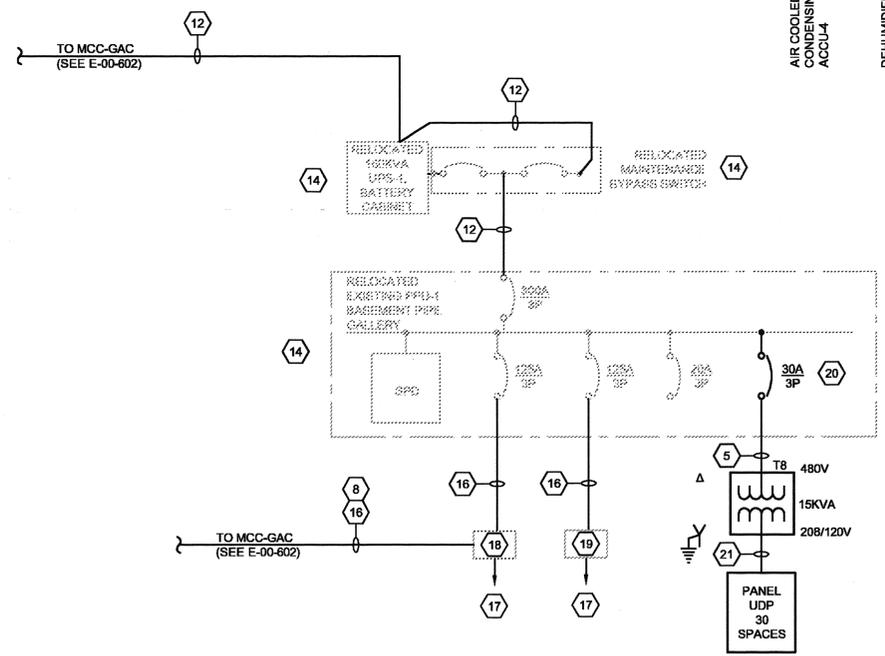
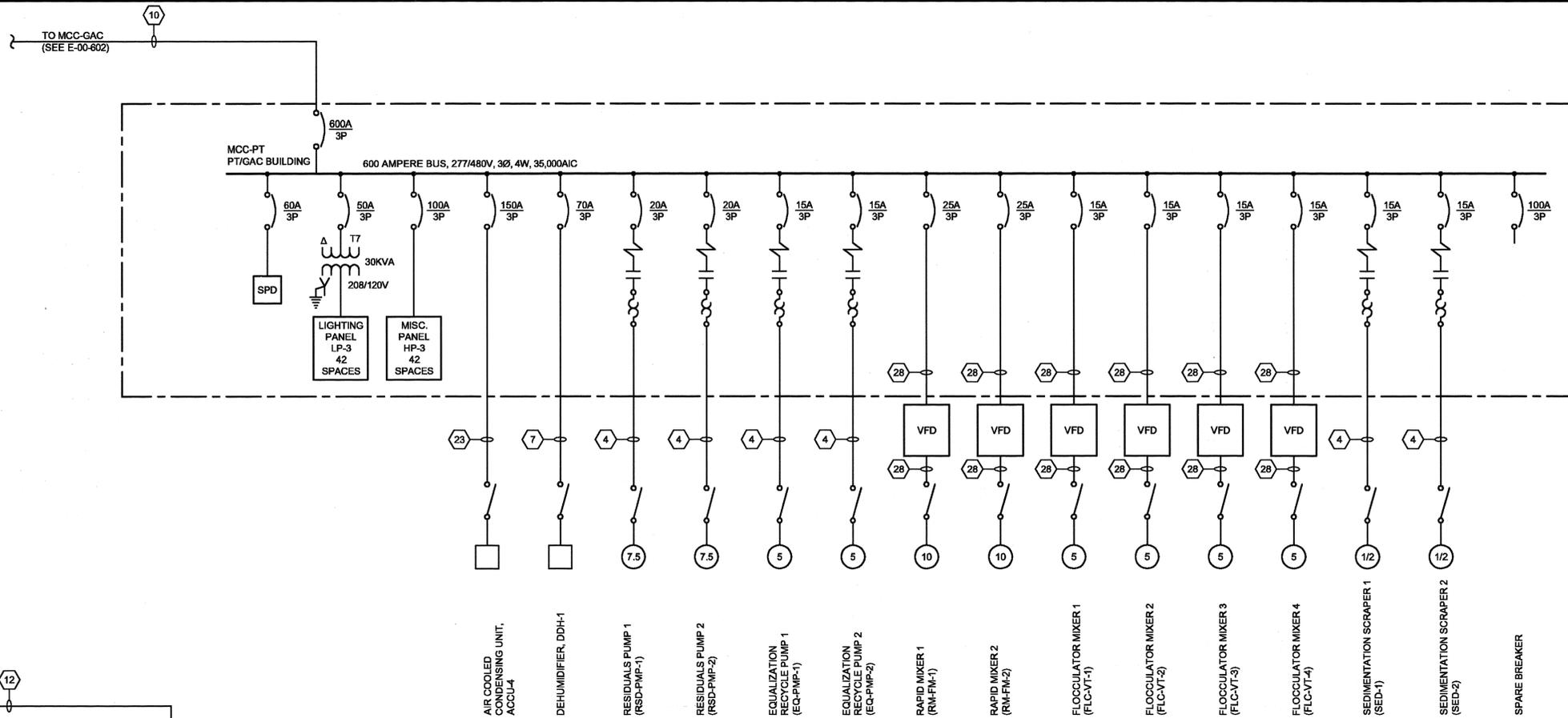
REVISIONS			
NO.	BY	DATE	REMARKS

DES: PJB
DWN: DLM
CKD: PJB

**NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS**

**ELECTRICAL
PT/GAC BUILDING
ONE LINE DIAGRAM - II
SCALE: NOT TO SCALE**

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-00-602
CAD REF. NO.: 3789-E-00-602



GENERAL NOTES:

1. THE DUKE TEMPORARY FEEDER SHOWN BROUGHT TO MCC-GAC IS TO BE UTILIZED FOR LIGHTING, PROCESS AND HVAC EQUIPMENT ASSOCIATED WITH THE PT PORTION OF THE PT/GAC BUILDING. CONTRACTOR SHALL PROVIDE A SEPARATE TEMPORARY SERVICE REQUIRED FOR BUILDING CONSTRUCTION (INCLUDING TEMPORARY LIGHTING).

SHEET KEYNOTES:

1. FIVE PARALLEL RUNS OF 5" CONDUIT W/ FOUR (4) #600 KCMIL AND ONE (1) #250 KCMIL GROUND IN EACH CONDUIT. 36" MINIMUM BURY DEPTH.
2. FIVE PARALLEL RUNS OF 5" CONDUIT W/ FOUR (4) #600 KCMIL AND ONE (1) #40 GROUND IN EACH CONDUIT. PROVIDE AN ADDITIONAL 5" SPARE CONDUIT W/ FULL STRING. 36" MINIMUM BURY DEPTH.
3. 3#3/0, 1#6 GND. IN 2" CONDUIT.
4. 3#12, 1#12 GND. IN 3/4" CONDUIT.
5. 3#10, 1#10 GND. IN 3/4" CONDUIT.
6. UTILIZE THIS SPARE BREAKER TO TEMPORARILY FEED THE UV#1 CONTROL PANEL PRIOR TO UPS-1, PPU-1, AND MAINTENANCE BYPASS SWITCH BEING RELOCATED TO THE PT/GAC BUILDING FROM THE EXISTING FILTER BUILDING. UTILIZE 3#4, 1#6 GND IN 1-1/2" CONDUIT FOR THIS TEMPORARY FEEDER. REFER TO PROJECT SCHEDULE FOR ADDITIONAL INFORMATION. ONCE PERMANENT FEED FROM PPU-1 HAS BEEN INSTALLED, DEMOLISH AND PROPERLY DISPOSE OF THIS TEMPORARY FEED.
7. 3#4, 1#6 GND. IN 1-1/4" CONDUIT.
8. UV-UV#1 CONTROL PANEL TO BE TEMPORARILY FED FROM MCC-GAC PRIOR TO RELOCATION OF UPS-1, PPU-1, AND MAINTENANCE BYPASS SWITCH (REFER TO SHEET NOTE #6, THIS SHEET).
9. 4#500 KCMIL, 1#3 GND. IN 3-1/2" CONDUIT.
10. TWO PARALLEL RUNS OF 3" CONDUIT W/ FOUR (4) #400 KCMIL AND ONE (1) #1 GROUND IN EACH CONDUIT.
11. 4#1, 1#8 GND. IN 1-1/2" CONDUIT.
12. 3#350, 1#4 GND. IN 3" CONDUIT.
13. TWO PARALLEL RUNS OF 3" CONDUIT WITH FOUR (4) #400 KCMIL IN EACH CONDUIT. CONTRACTOR SHALL ROUTE TO THE TEMPORARY PADMOUNTED TRANSFORMER PROVIDED BY DUKE ENERGY (SEE SHEET E-02-102). THIS FEEDER TO BE REMOVED ONCE NEW SERVICE FROM MCC-GFP HAS BEEN ENERGIZED.
14. EXISTING EQUIPMENT RELOCATED FROM TUNNEL AND PIPE GALLERY OF FILTER BUILDING.
15. REMOVE AND PROPERLY DISPOSE OF EXISTING ELECTRICAL FEEDER (SEE ADDITIONAL INFORMATION ON SHEETS E-04-101 AND E-08-101).
16. 3#1, 1#6 GND. IN 1-1/2" CONDUIT.
17. WIRING TO UV EQUIPMENT FROM EACH UV-UVL CONTROL PANEL IS SHOWN ON SHEET E-06-301.
18. UV-UVL-1 CONTROL PANEL SHALL BE RELOCATED FROM THE EXISTING PIPE GALLERY OF THE FILTER BUILDING TO THE NEW PT/GAC BUILDING (SEE NEW LOCATION ON SHEET E-06-401).
19. UV-UVL-2 CONTROL PANEL SHALL BE RELOCATED FROM THE EXISTING PIPE GALLERY OF THE FILTER BUILDING TO THE NEW PT/GAC BUILDING (SEE NEW LOCATION ON SHEET E-06-401).
20. INSTALL NEW CIRCUIT BREAKER IN EXISTING PPU-1 TO FEED PANELBOARD UDP TRANSFORMER.
21. 4#6, 1#10 GND. IN 1" CONDUIT.
22. 4#3/0, 1#6 GND. IN 2-1/2" CONDUIT.
23. 3#1/0, 1#6 GND. IN 1-1/2" CONDUIT.
24. EXISTING DISTRIBUTION BOARD, PPU-1 IS TO BE RELOCATED FROM THE TUNNEL (SHOWN E-04-101) TO A FINAL LOCATION WITHIN THE PIPE GALLERY OF THE FILTER BUILDING (SHOWN SHEET E-08-101).
25. EXISTING 160KVA UNINTERRUPTIBLE POWER SUPPLY (UPS-1) AND ASSOCIATED MAINTENANCE BYPASS SWITCH ARE TO BE RELOCATED FROM THE TUNNEL (SHOWN E-04-101) TO A TEMPORARY LOCATION WITHIN THE PIPE GALLERY OF THE FILTER BUILDING (SHOWN SHEET E-08-101) PRIOR TO BEING RELOCATED TO THEIR FINAL LOCATION WITHIN THE PT/GAC BUILDING (SHOWN SHEET E-06-105).
26. 3#3, 1#8 GND. IN 1-1/4" CONDUIT.
27. 3#3/0, 1#6 GND. IN 3" CONDUIT. UTILIZE VFD RATED CABLE.
28. 3#10, 1#10 GND. IN 1" CONDUIT. UTILIZE VFD RATED CABLE.
29. BREAKER SHALL BE SUITABLE FOR REVERSE CONNECTION.

User: BOND Spec: PIRNIE STANDARD File: L:\3789-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\E-00-603.DWG Scale: 1/32 Saved Date: 11/19/2011 Time: 09:03 Plot Date: 03/11/2011 08:24 Layout: E-00-603



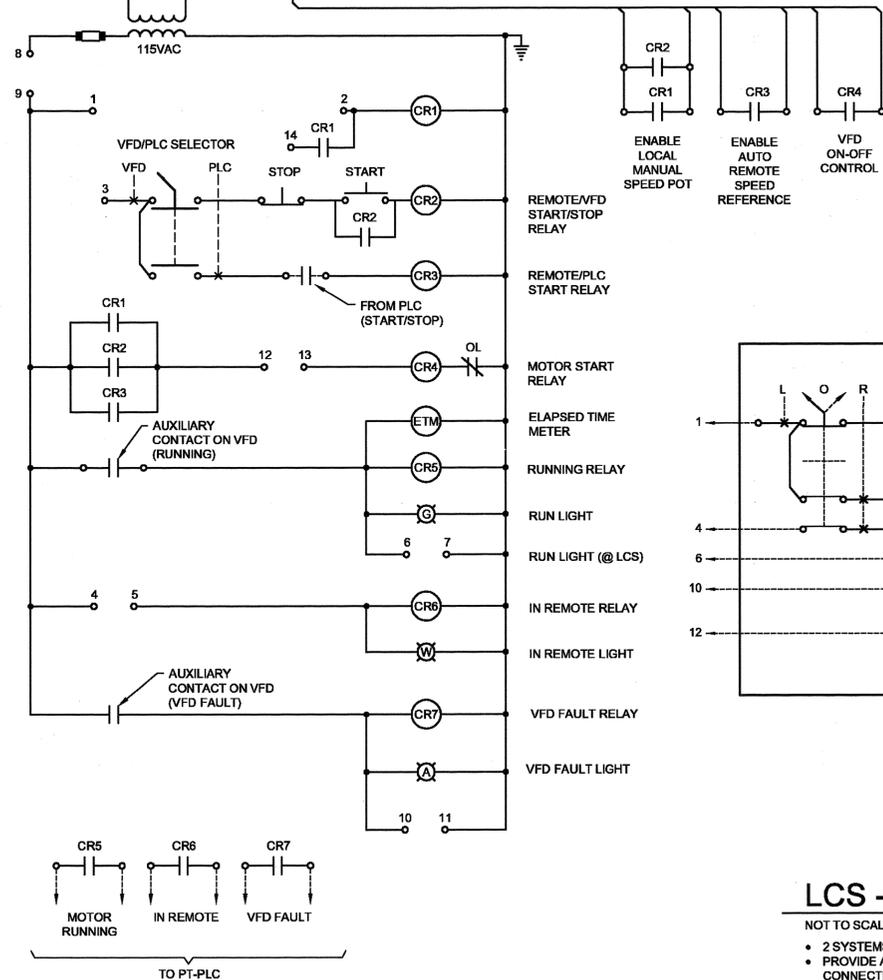
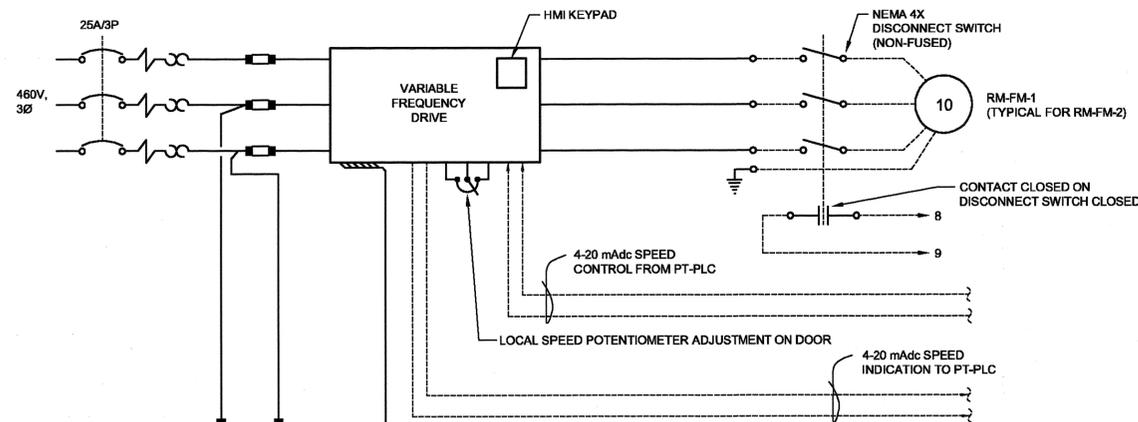
REVISIONS			
NO.	BY	DATE	REMARKS

DES: PJB
DWN: DLM
CKD: PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

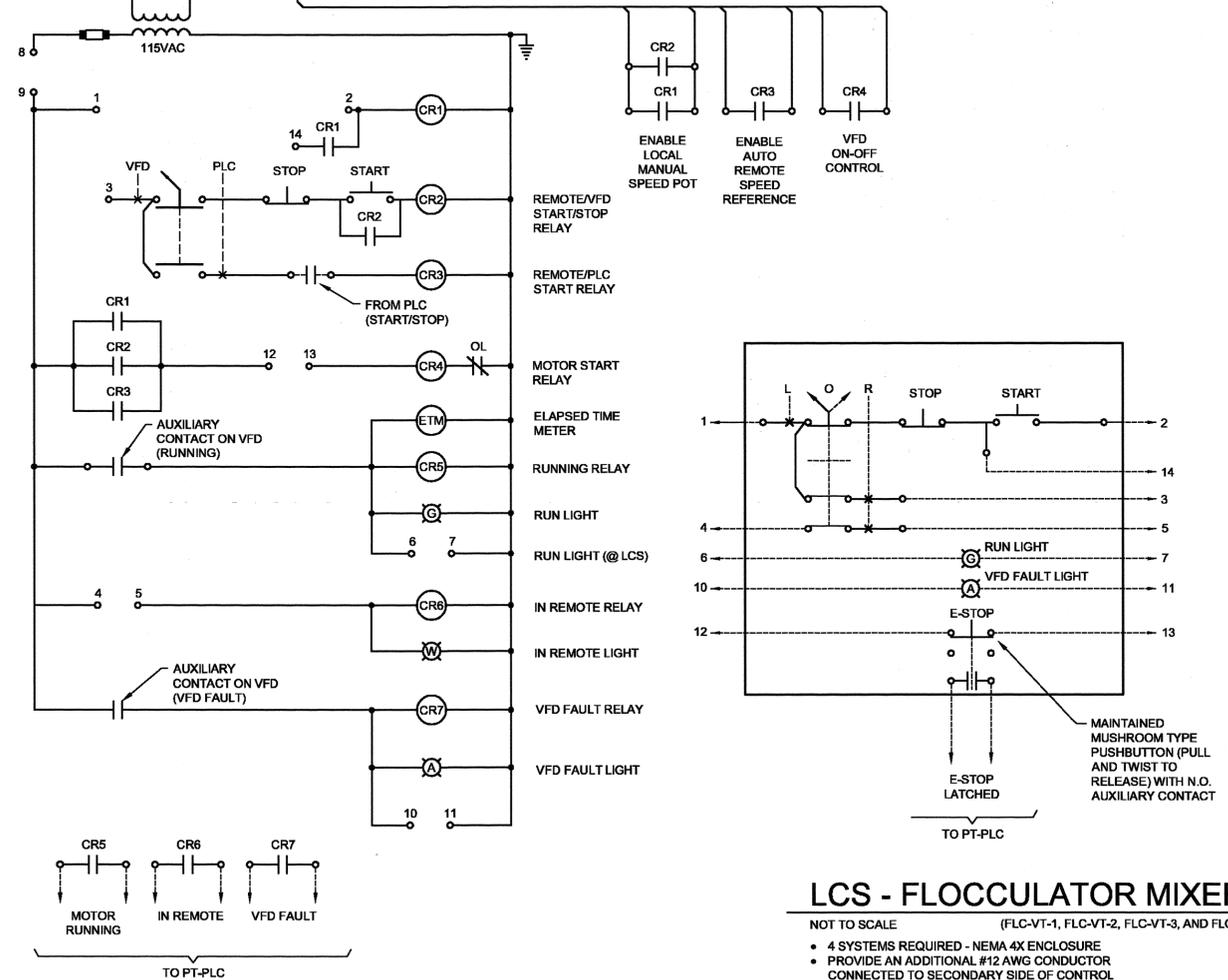
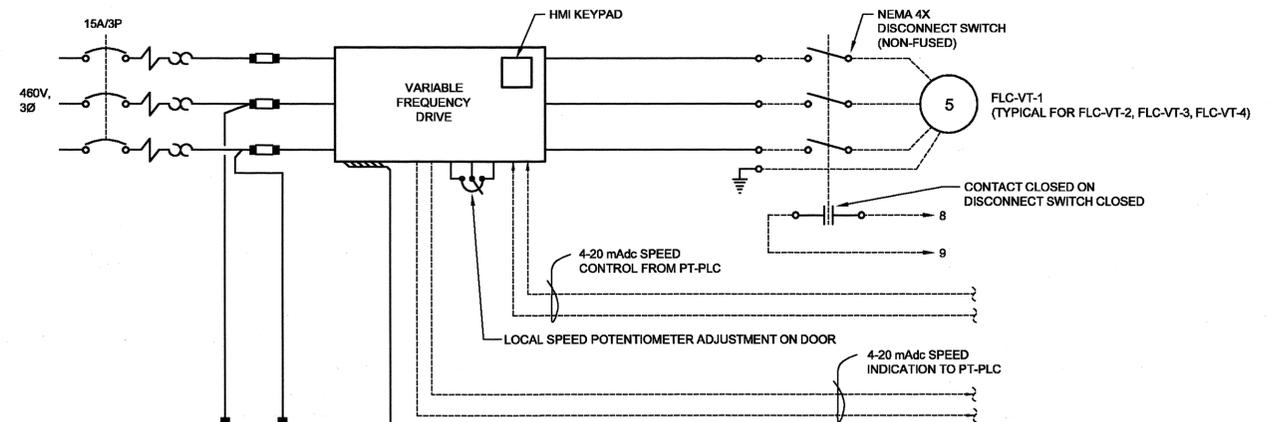
ELECTRICAL
PT/GAC BUILDING
ONE LINE DIAGRAM - III
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-00-603
CAD REF. NO.: 3789-E-00-603



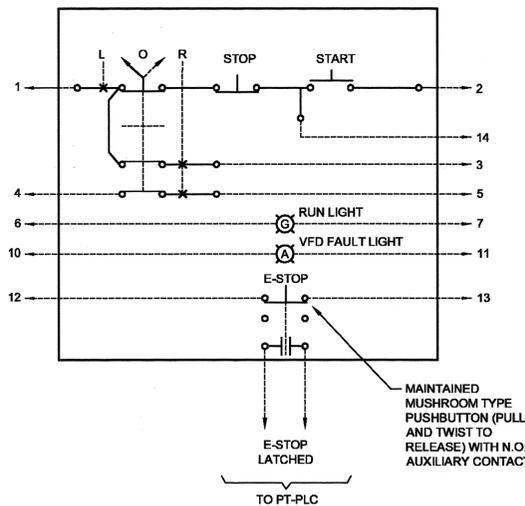
CONTROL CIRCUIT - RAPID MIXER

NOT TO SCALE (RM-FM-1 AND RM-FM-2)
 • 2 SYSTEMS REQUIRED - NEMA 12 ENCLOSURE.



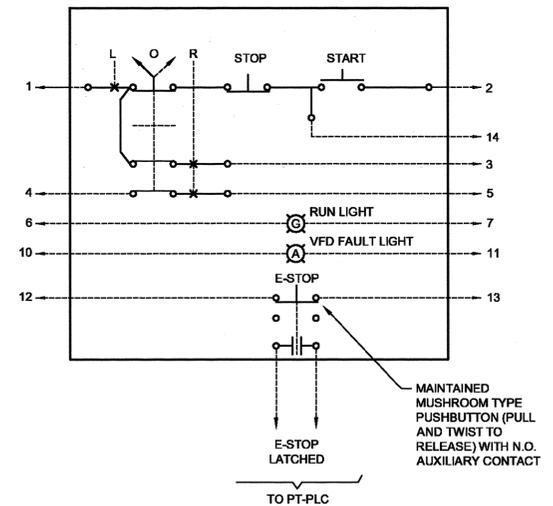
CONTROL CIRCUIT - FLOCCULATOR MIXER

NOT TO SCALE (FLC-VT-1, FLC-VT-2, FLC-VT-3, AND FLC-VT-4)
 • 4 SYSTEMS REQUIRED - NEMA 12 ENCLOSURE



LCS - RAPID MIXER

NOT TO SCALE (RM-FM-1 AND RM-FM-2)
 • 2 SYSTEMS REQUIRED - NEMA 4X ENCLOSURE
 • PROVIDE AN ADDITIONAL #12 AWG CONDUCTOR CONNECTED TO SECONDARY SIDE OF CONTROL TRANSFORMER (UNSWITCHED/UNCONTROLLED) FOR PUSH-TO-TEST FUNCTION OF INDICATING LIGHTS (TYPICAL FOR EACH LCS).



LCS - FLOCCULATOR MIXER

NOT TO SCALE (FLC-VT-1, FLC-VT-2, FLC-VT-3, AND FLC-VT-4)
 • 4 SYSTEMS REQUIRED - NEMA 4X ENCLOSURE
 • PROVIDE AN ADDITIONAL #12 AWG CONDUCTOR CONNECTED TO SECONDARY SIDE OF CONTROL TRANSFORMER (UNSWITCHED/UNCONTROLLED) FOR PUSH-TO-TEST FUNCTION OF INDICATING LIGHTS (TYPICAL FOR EACH LCS).

User: JBOVD Spec: PIRNIE STANDARD File: I:\3789-NKWD\TAYLOR MILL\WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3789-E-00-604.DWG Scale: 1:38 Saved Date: 11/22/2010 Time: 10:00 Pld: Data: Bnd: Juff: 3/10/2011 08:25 Layout: E-00-604



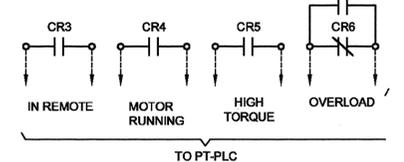
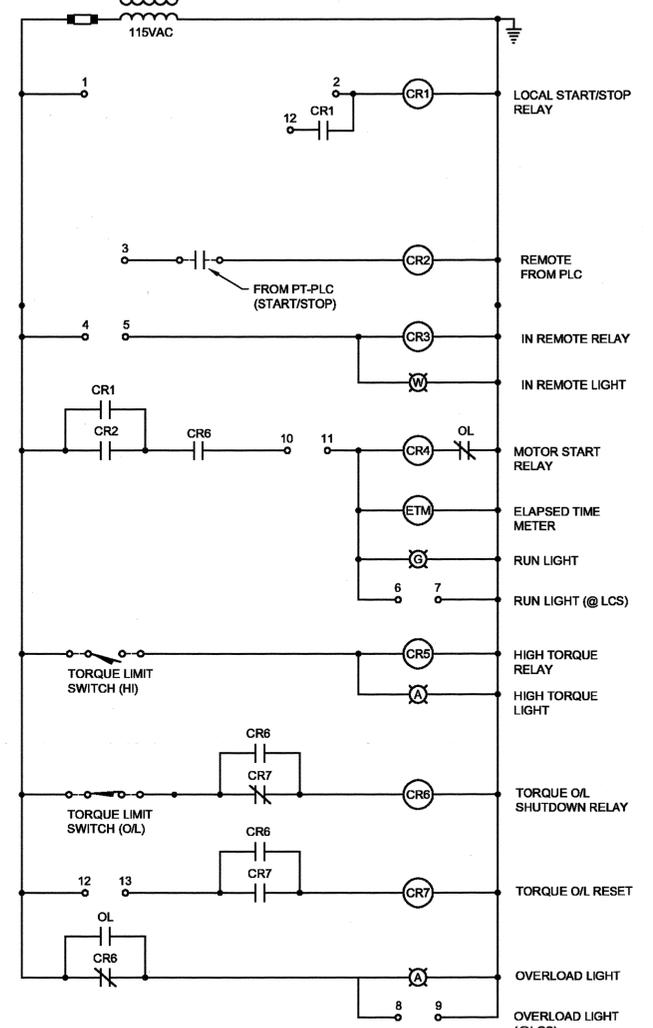
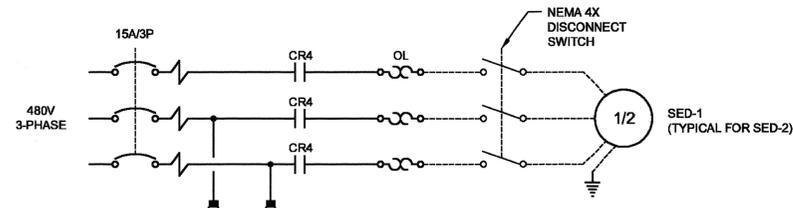
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NO.	BY	DATE	REMARKS

DES PJB
 DWN DLM
 CKD PJB

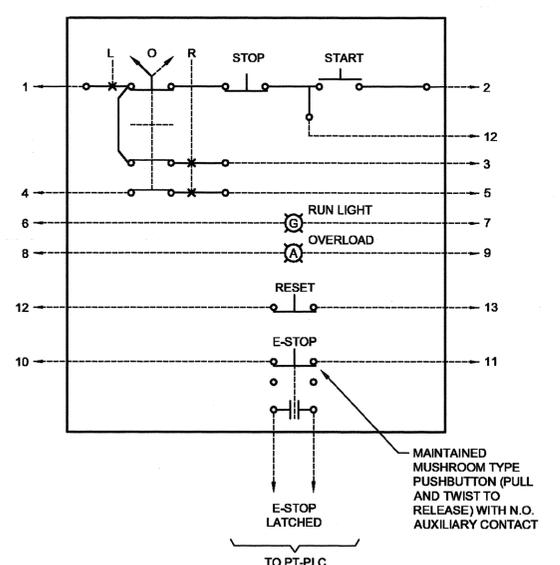
NORTHERN KENTUCKY WATER DISTRICT
 TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
PT/GAC BUILDING CONTROL CIRCUITS I
 SCALE: NOT TO SCALE

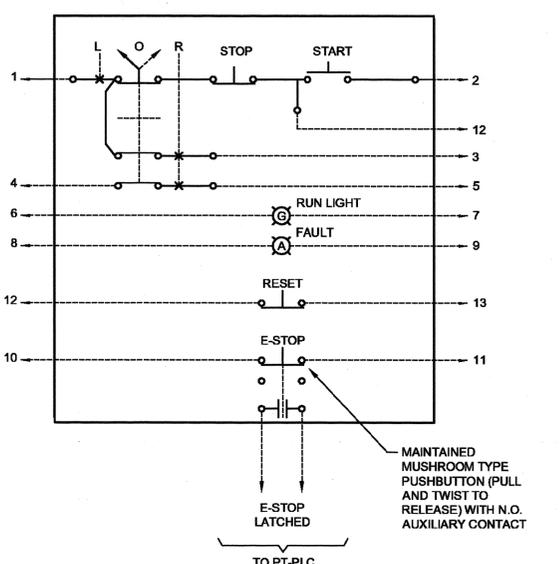
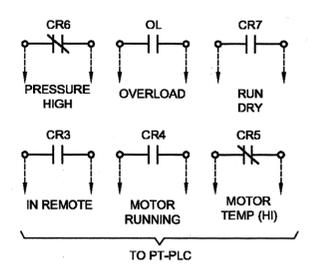
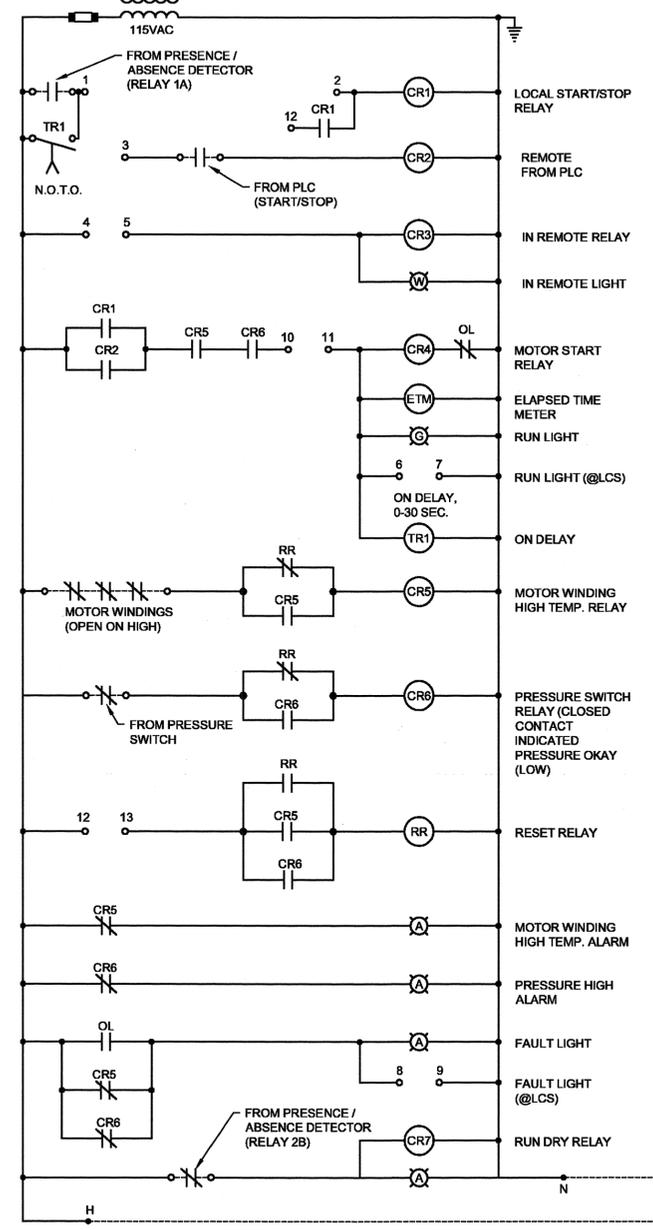
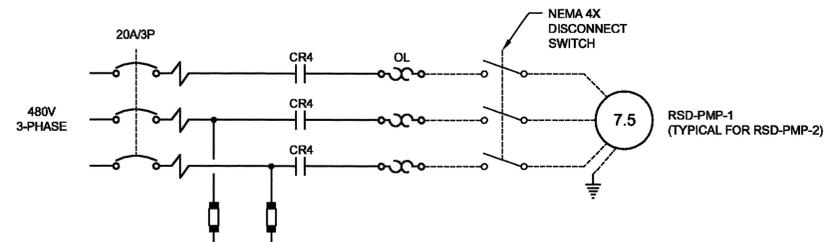
ISSUED STATUS: BID SET
 DATE MARCH, 2011
 SHEET E-00-604
 CAD REF. NO. 3789-E-00-604



CONTROL CIRCUIT - SEDIMENTATION SCRAPER
 NOT TO SCALE (SED-1 AND SED-2)
 • 2 SYSTEMS REQUIRED IN MCC-PT



LCS - SEDIMENTATION SCRAPER
 NOT TO SCALE (SED-1 AND SED-2)
 • 2 SYSTEMS REQUIRED - NEMA 4X ENCLOSURE
 • PROVIDE AN ADDITIONAL #12 AWG CONDUCTOR CONNECTED TO SECONDARY SIDE OF CONTROL TRANSFORMER (UNSWITCHED/UNCONTROLLED) FOR PUSH-TO-TEST FUNCTION OF INDICATING LIGHTS (TYPICAL FOR EACH LCS).



CONTROL CIRCUIT - RESIDUALS PUMP
 NOT TO SCALE (RSD-PMP-1 AND RSD-PMP-2)
 • 2 SYSTEMS REQUIRED IN MCC-PT

LCS - RESIDUALS PUMP
 NOT TO SCALE (RSD-PMP-1 AND RSD-PMP-2)
 • 2 SYSTEMS REQUIRED - NEMA 4X ENCLOSURE
 • PROVIDE AN ADDITIONAL #12 AWG CONDUCTOR CONNECTED TO SECONDARY SIDE OF CONTROL TRANSFORMER (UNSWITCHED/UNCONTROLLED) FOR PUSH-TO-TEST FUNCTION OF INDICATING LIGHTS (TYPICAL FOR EACH LCS).

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REVISIONS		DES	DATE	REMARKS
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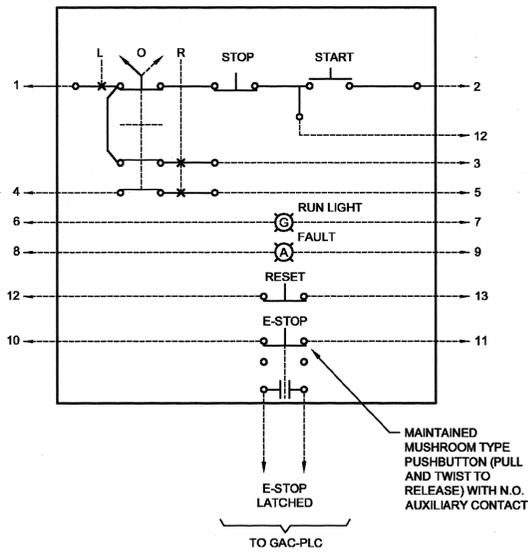
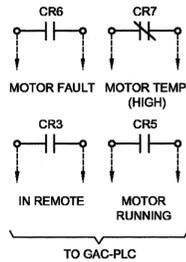
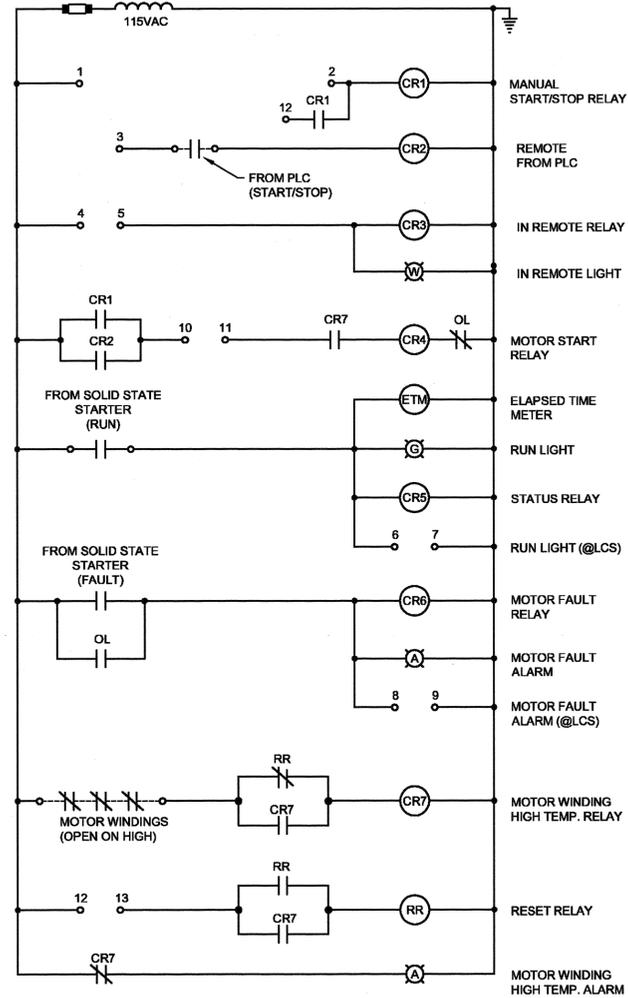
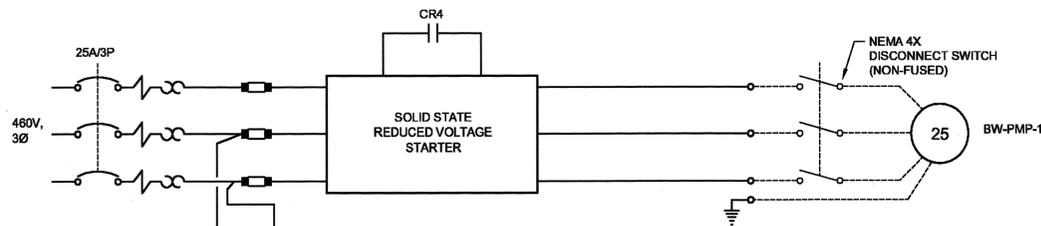
DES: PJB
 DWN: DLM
 CKD: PJB

NORTHERN KENTUCKY WATER DISTRICT
 TAYLOR MILL WATER TREATMENT PLANT
 ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
 PT/GAC BUILDING
 CONTROL CIRCUITS II
 SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
 DATE: MARCH, 2011
 SHEET: E-00-605
 CAD REF. NO.: 3789-E-00-605

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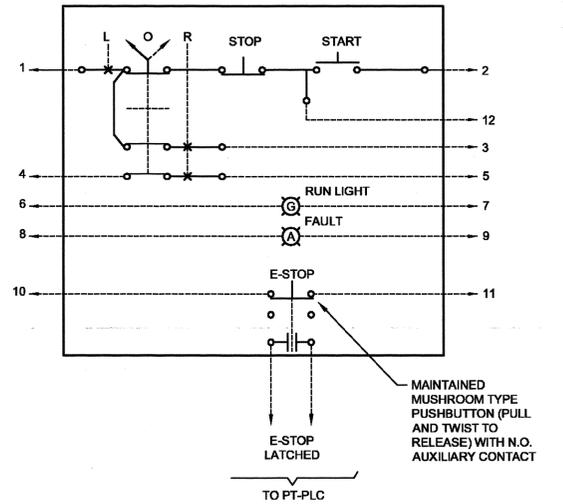
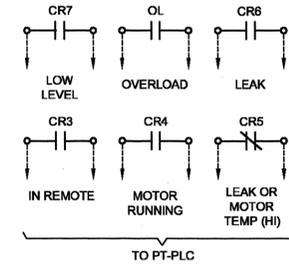
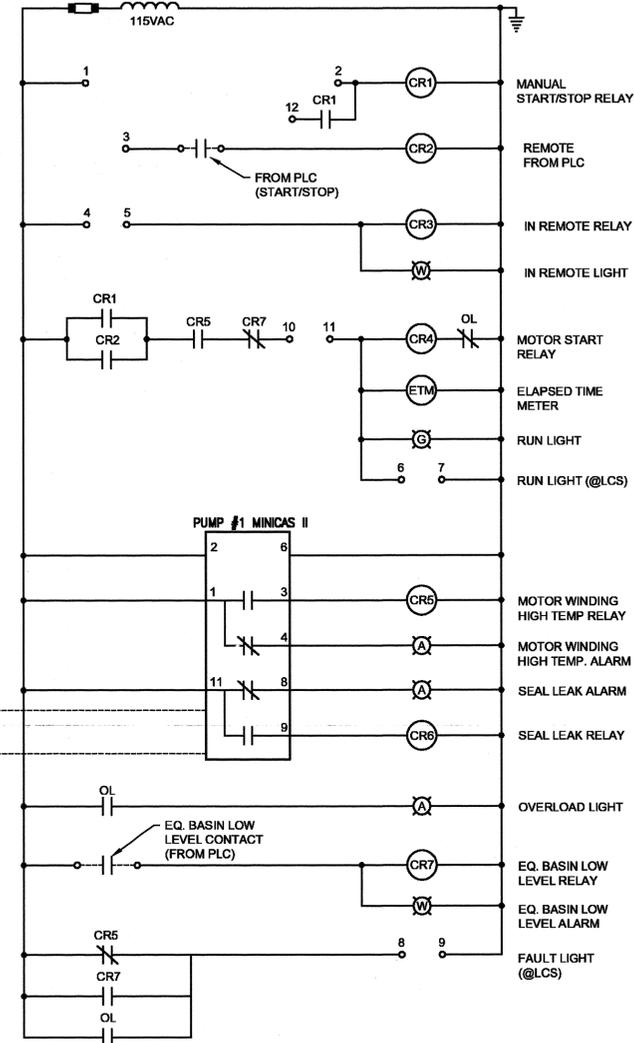
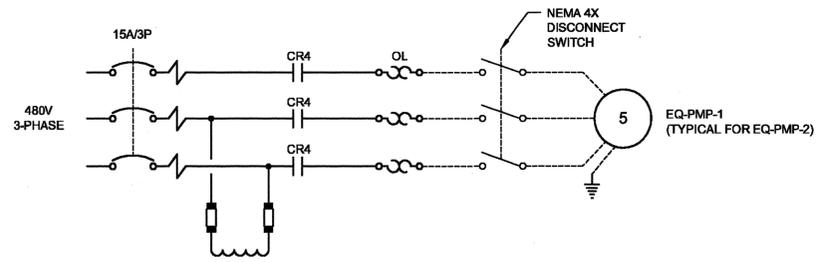


LCS - GAC BACKWASH SUPPLY PUMP

- NOT TO SCALE (BW-PMP-1)
- 1 SYSTEM REQUIRED - NEMA 4X ENCLOSURE
 - PROVIDE AN ADDITIONAL #12 AWG CONDUCTOR CONNECTED TO SECONDARY SIDE OF CONTROL TRANSFORMER (UNSWITCHED/UNCONTROLLED) FOR PUSH-TO-TEST FUNCTION OF INDICATING LIGHTS.

CONTROL CIRCUIT - GAC BACKWASH SUPPLY PUMP

- NOT TO SCALE (BW-PMP-1)
- 1 SYSTEM REQUIRED IN MCC-GAC



LCS - GAC EQ RECYCLE PUMP

- NOT TO SCALE (EQ-PMP-1 AND EQ-PMP-2)
- 2 SYSTEMS REQUIRED - NEMA 4X ENCLOSURE
 - PROVIDE AN ADDITIONAL #12 AWG CONDUCTOR CONNECTED TO SECONDARY SIDE OF CONTROL TRANSFORMER (UNSWITCHED/UNCONTROLLED) FOR PUSH-TO-TEST FUNCTION OF INDICATING LIGHTS (TYPICAL FOR EACH LCS).

CONTROL CIRCUIT - GAC EQUALIZATION RECYCLE PUMP

- NOT TO SCALE (EQ-PMP-1 AND EQ-PMP-2)
- 2 SYSTEMS REQUIRED IN MCC-PT



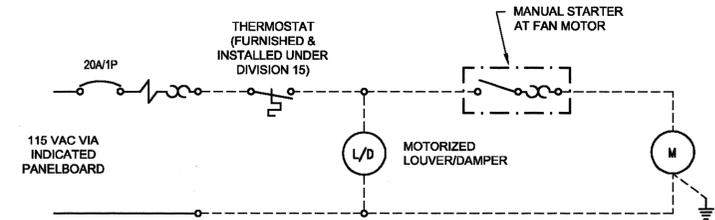
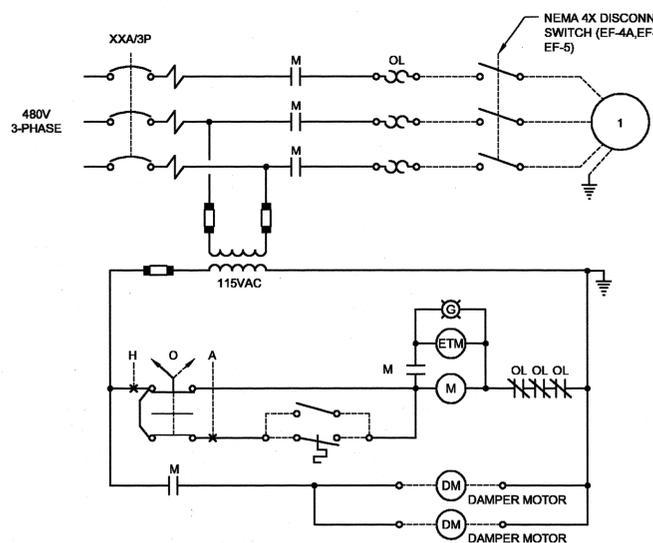
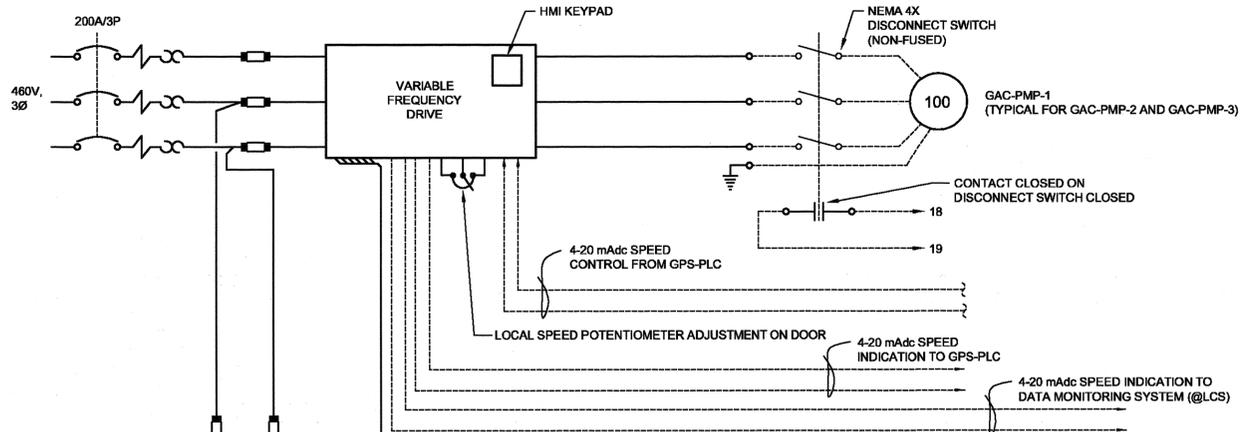
REVISIONS			
NO.	BY	DATE	REMARKS

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DWN: DLM
CKD: PJB

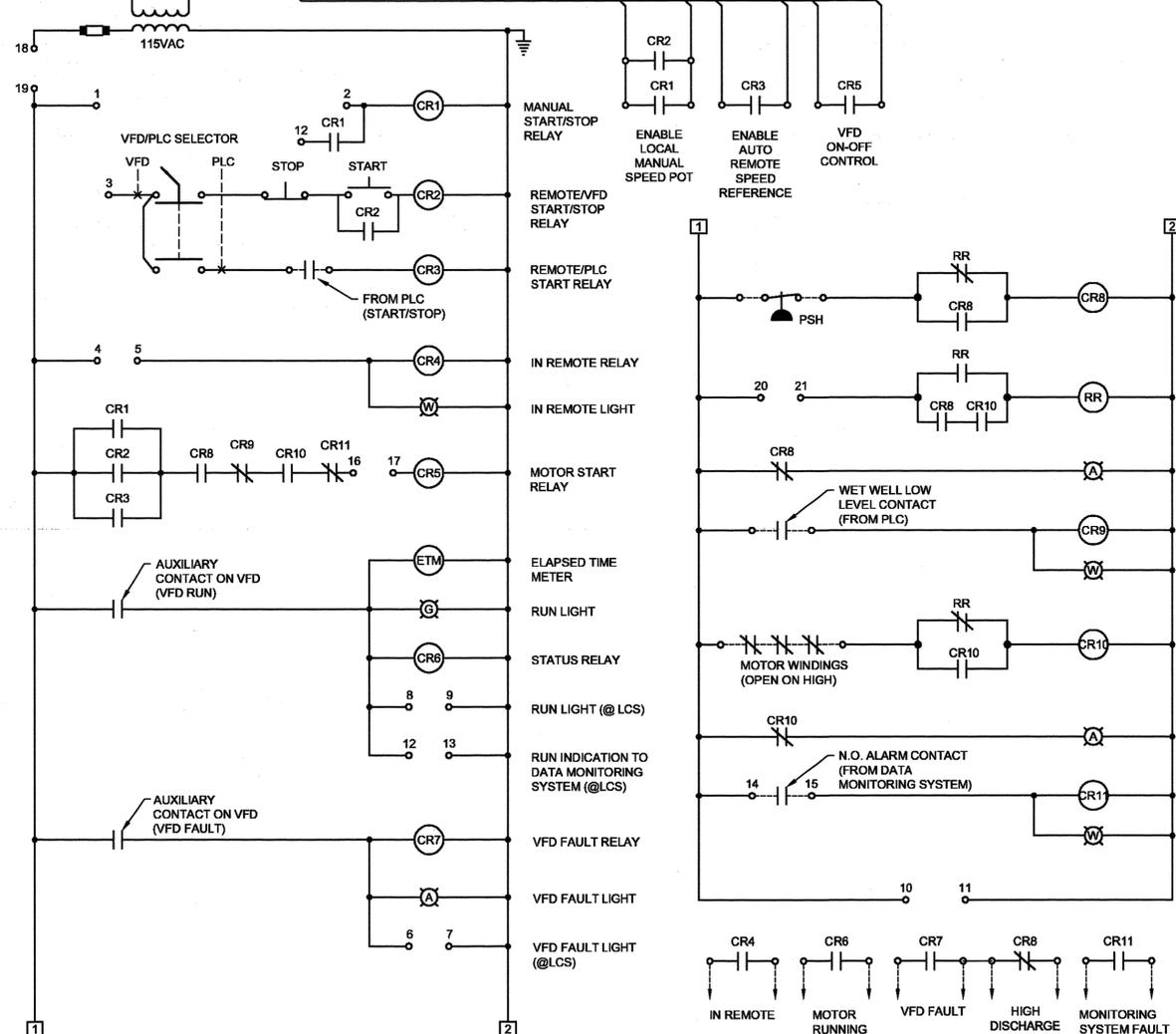
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
PT/GAC BUILDING
CONTROL CIRCUITS III
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-00-606
CAD REF. NO.: 3789-E-00-606



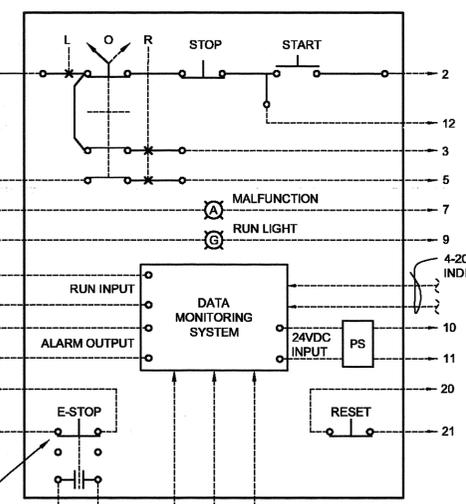
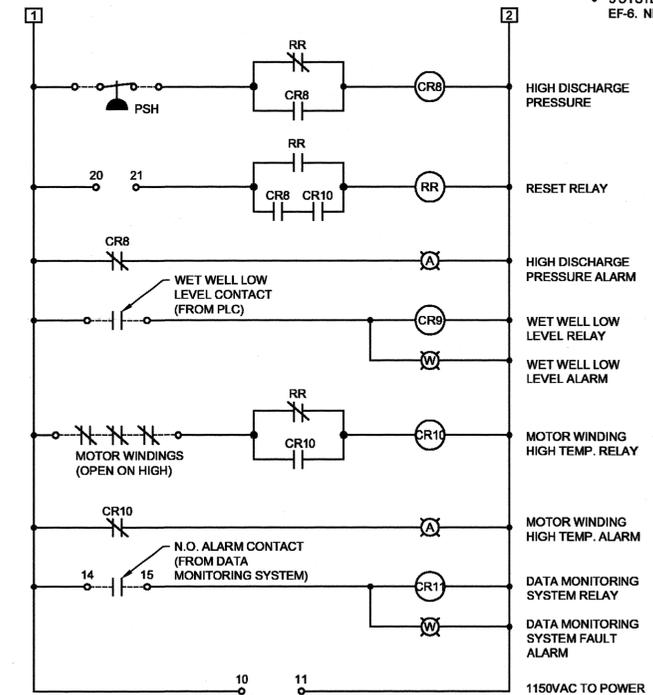
CONTROL CIRCUIT - EXHAUST FANS
 NOT TO SCALE
 • 2 SYSTEMS REQUIRED - NEMA 1 (EF-1/LV-4 & EF-8/LV-3)



CONTROL CIRCUIT - GAC FEED PUMP
 NOT TO SCALE (GAC-PMP-1, GAC-PMP-2, AND GAC-PMP-3)
 • 3 SYSTEM REQUIRED - NEMA 12 ENCLOSURE

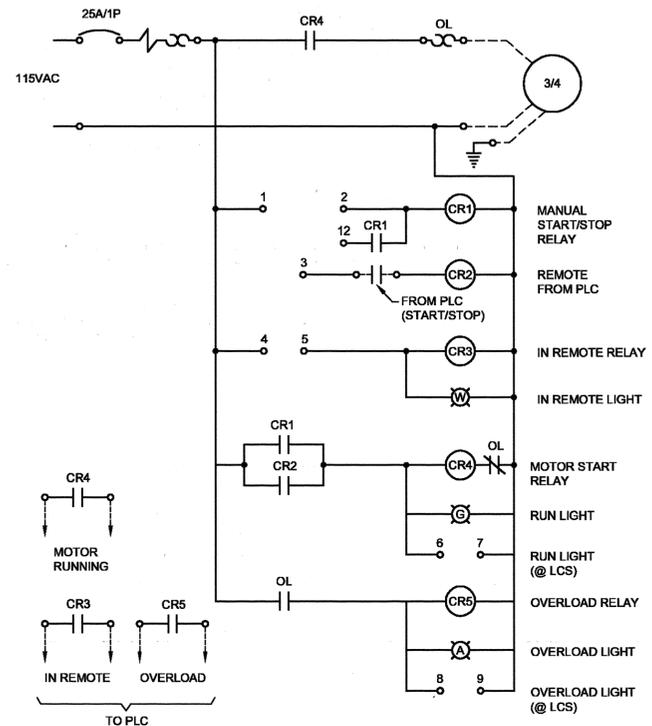
CONTROL CIRCUIT - 3 PHASE EXHAUST FAN
 NOT TO SCALE

- 3 SYSTEMS REQUIRED IN MCC-GFP FOR EF-4A, EF-4B, AND EF-6.
- 3 SYSTEMS REQUIRED - COMBINATION STARTER FOR EF-2, EF-3, AND EF-6. NEMA 4X ENCLOSURE.



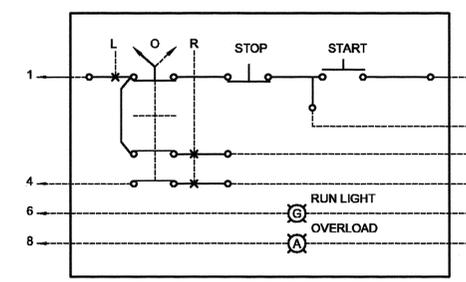
LCS - GAC FEED PUMP
 NOT TO SCALE (GAC-PMP-1, GAC-PMP-2, AND GAC-PMP-3)

- 2 SYSTEMS REQUIRED - NEMA 4X ENCLOSURE
- PROVIDE AN ADDITIONAL #12 AWG CONDUCTOR CONNECTED TO SECONDARY SIDE OF CONTROL TRANSFORMER (UNSWITCHED/UNCONTROLLED) FOR PUSH-TO-TEST FUNCTION OF INDICATING LIGHTS (TYPICAL FOR EACH LCS).



SAMPLE PUMP CONTROL CIRCUIT

- 3 SYSTEMS REQUIRED (NEMA 4X ENCLOSURE) - (1) SETTLED WATER SAMPLE PUMP (1) RAW WATER SAMPLE PUMP (1) FINISHED WATER SAMPLE PUMP
- SETTLED AND RAW WATER PUMPS TO BE CONTROLLED BY THE PT-PLC.
- FINISHED WATER PUMP TO BE CONTROLLED BY THE EXISTING FILTER BUILDING PLC.
- PROVIDE MOTOR RATED DISCONNECT SWITCH ADJACENT TO EACH PUMP (NOT SHOWN).



LCS - SAMPLE PUMPS
 NOT TO SCALE

- 3 SYSTEMS REQUIRED - NEMA 4X ENCLOSURE
- PROVIDE AN ADDITIONAL #12 AWG CONDUCTOR CONNECTED TO SECONDARY SIDE OF CONTROL TRANSFORMER (UNSWITCHED/UNCONTROLLED) FOR PUSH-TO-TEST FUNCTION OF INDICATING LIGHTS (TYPICAL FOR EACH LCS).

User: JBOND Spec: PIRNIE STANDARD File: U:\3786-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3786-E-00-607.DWG Scale: 1:38 Served Date: 1/26/2011 Time: 14:27 Plot Date: Blank, Jeff, 3/10/2011, 08:25 Layout: E-00-607



REVISIONS			
NO.	BY	DATE	REMARKS

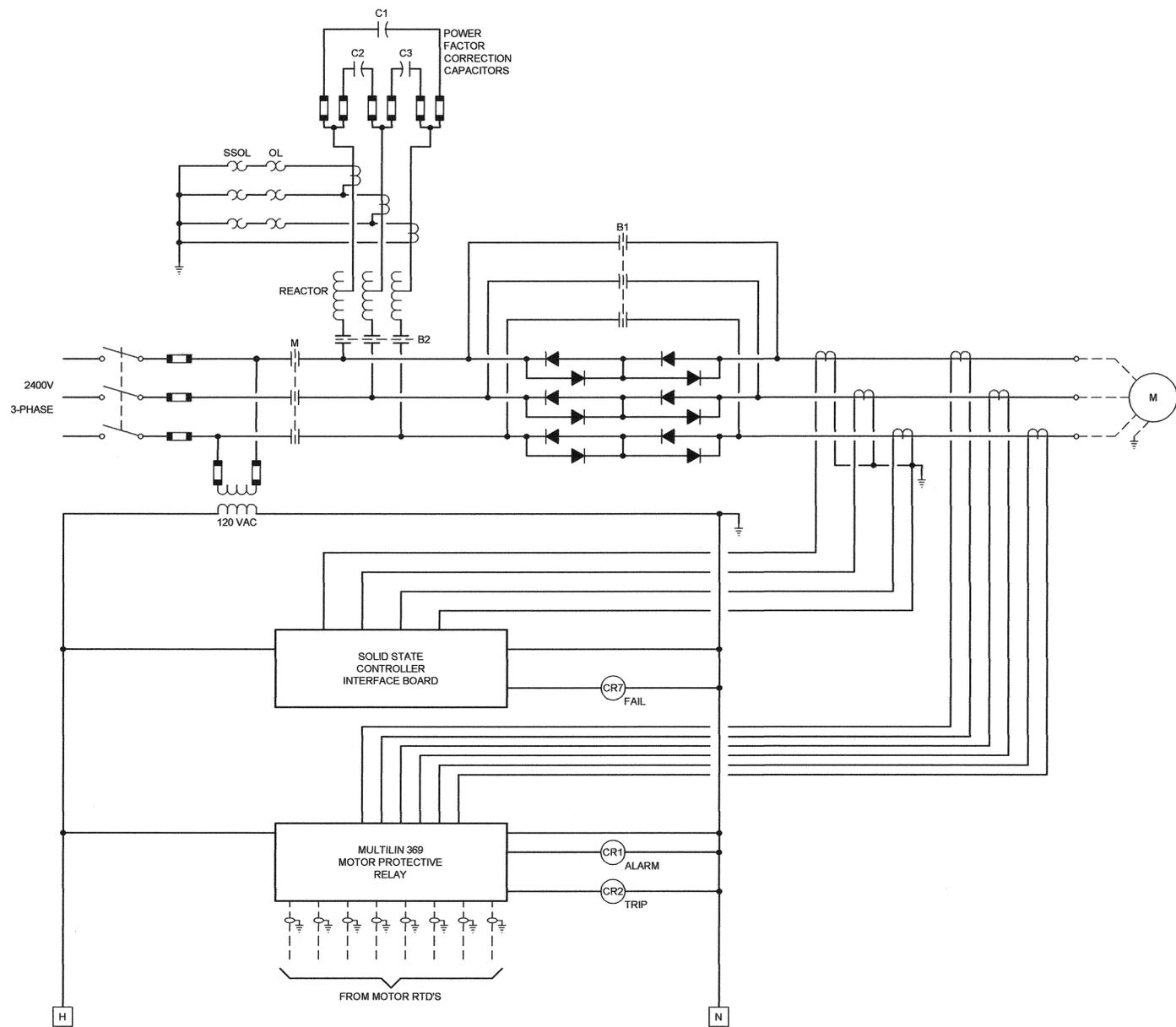
DES PJB
 DWN DLM
 CKD PJB

NORTHERN KENTUCKY WATER DISTRICT
 TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
PT/GAC BUILDING CONTROL CIRCUITS IV
 SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
 DATE: MARCH, 2011
 SHEET: E-00-607
 CAD REF. NO. 3789-E-00-607

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TYPICAL HIGH SERVICE PUMP STARTER WIRING

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

MALCOLM PIRNIE
 cdengineers
 3200 Macor play building by 4050 T 859.264.7300 F 859.264.7301

T. MICHELLE HOWLETT
 19856
 LICENSED PROFESSIONAL ENGINEER
 3/16/11

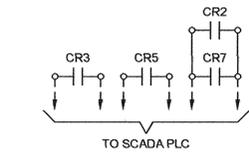
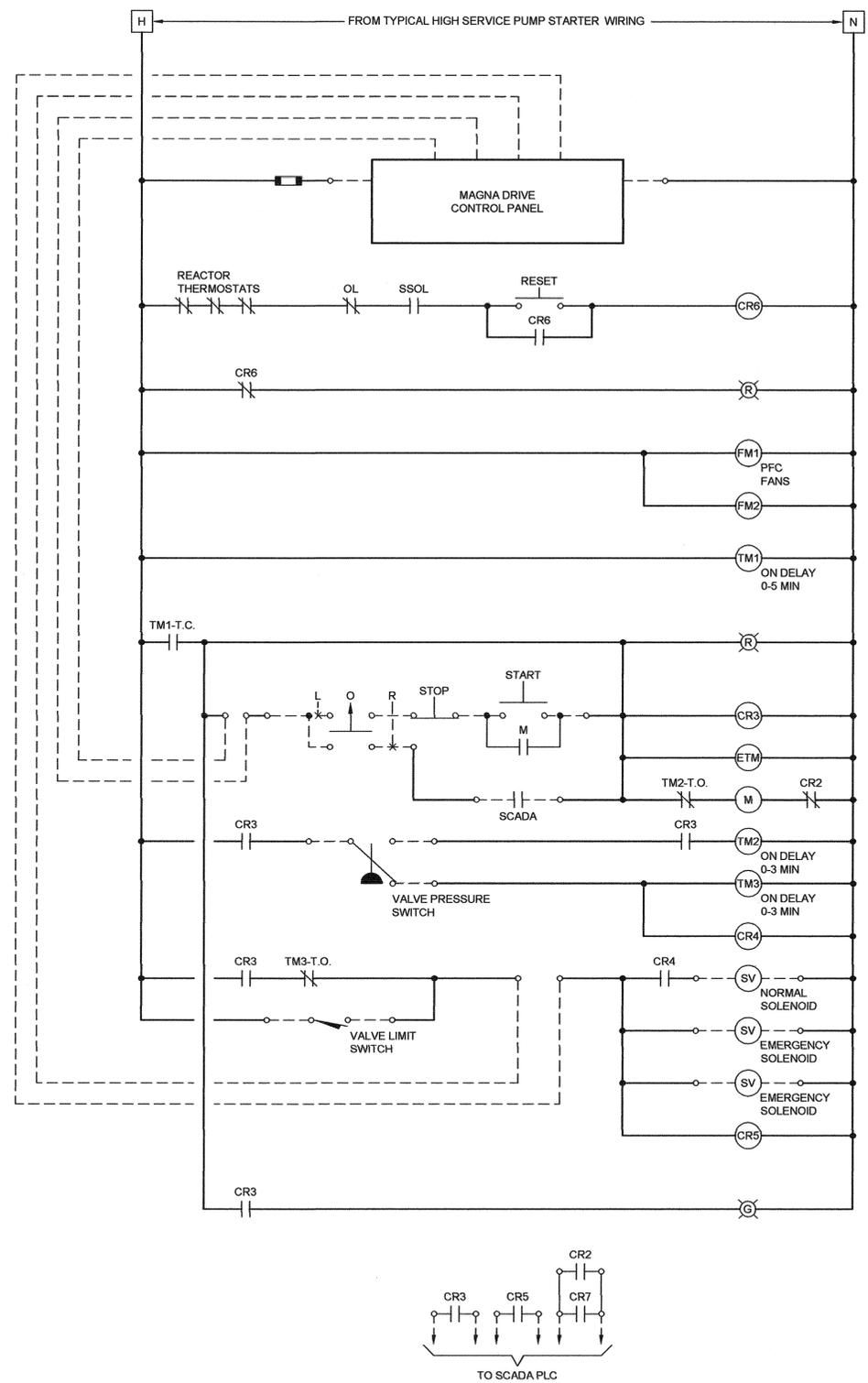
REVISIONS			
NO.	BY	DATE	REMARKS

DES TMH
 DWN TEW
 CRD TMH

NORTHERN KENTUCKY WATER DISTRICT
 TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

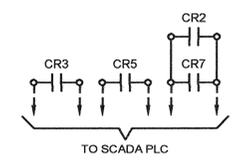
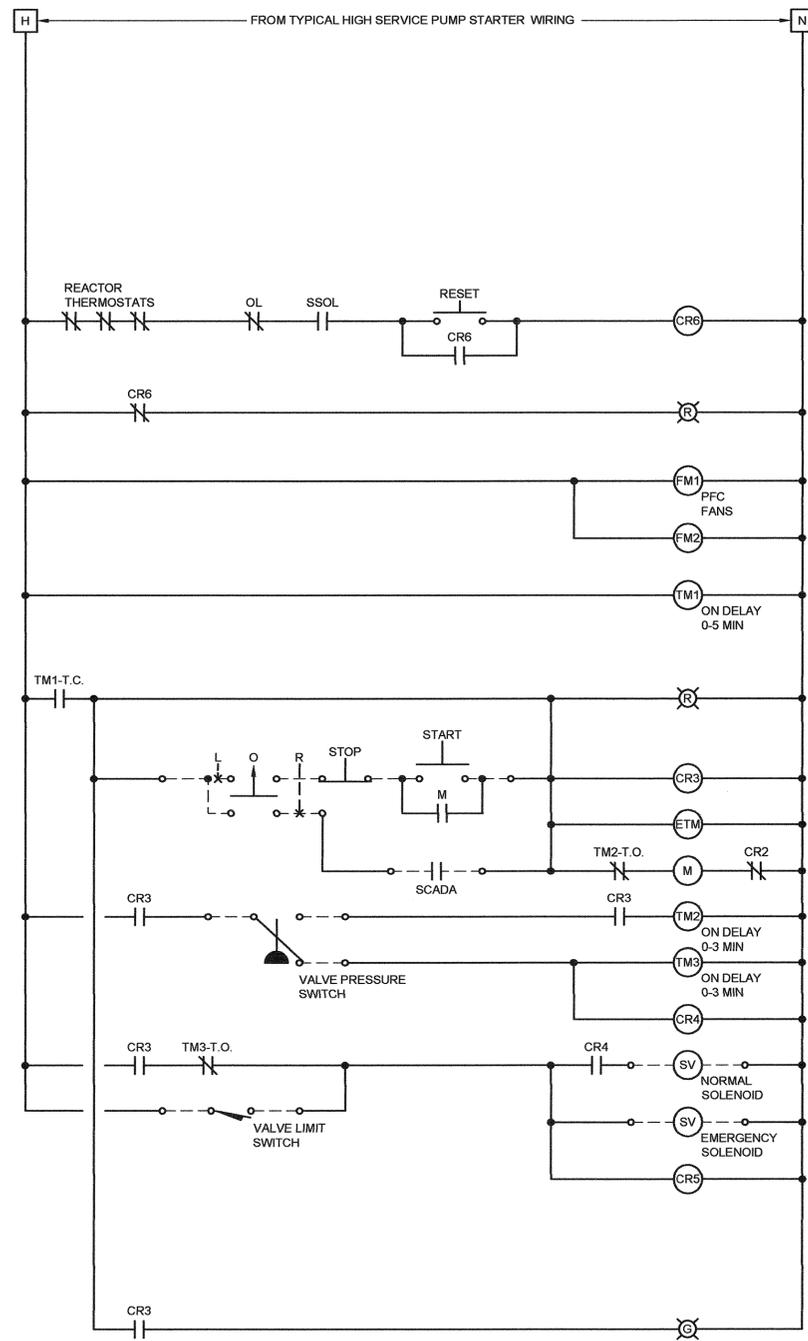
HIGH SERVICE PUMP NO. 3

NOT TO SCALE

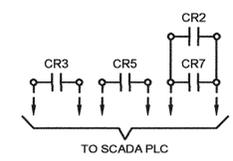
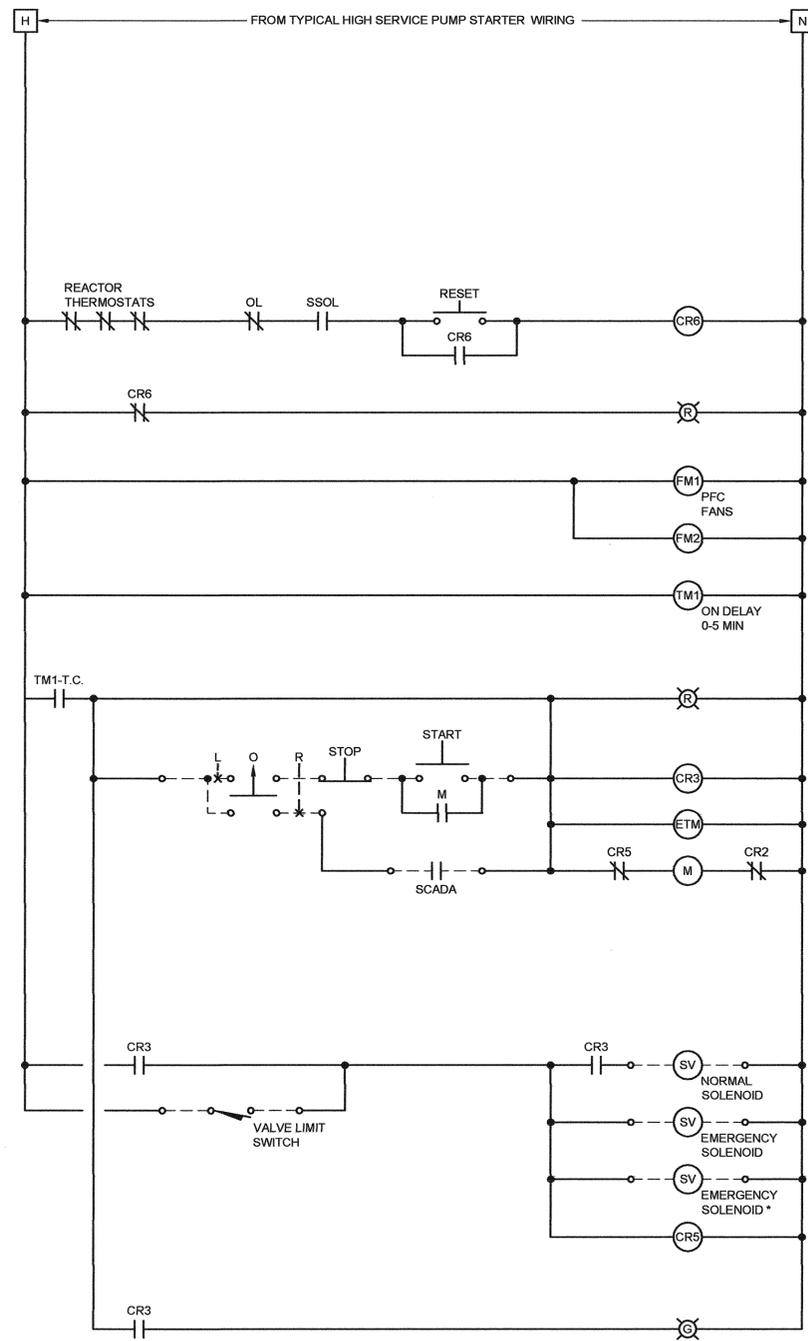


ELECTRICAL
HIGH SERVICE PUMP CONTROL CIRCUITS I
 SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
 DATE: MARCH, 2011
 SHEET: E-00-608
 CAD REF. NO.: CDP-E-00-608



HIGH SERVICE PUMP NO. 2
NOT TO SCALE



* DOES NOT APPLY TO PUMP NO. 1

HIGH SERVICE PUMP NO. 1, 4, 5, AND 6
NOT TO SCALE

User: T:\MSP\SPRINIE\STANDARD\FIN\F\PROJECTS\0010 - NKWD TAYLOR MILL WTP\ACAD\INFO_EXCHANGE_PUBLIC_FOLDER\ELEC_CDP-E-00-609.DWG Scale: 1:1 Saved Date: 3/15/2011 Time: 17:33 Plot Date: Tom Weber: 3/15/2011 12:56 Layout: E-00-609

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



REVISIONS			
NO.	BY	DATE	REMARKS

DES: TMH
DWN: TEW
CKD: TMH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

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

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-00-609
CAD REF. NO. CDP-E-00-609

GAC FEED PUMP STATION	
PANEL SCHEDULE	LP1
LOCATION	MCC-GFP
ENCLOSURE	NEMA 1
SURFACE, FLUSH, OR MCC	MCC
AIC RATING	10,000AIC

VOLTAGE	120/208V, 3-PHASE, 4-WIRE
MAINS AMPACITY	100 AMP
MAIN C.B. SIZE	100 AMP
TOTAL SPACES	30 POSITION
NEUTRAL BUS	YES
ADDITIONAL BUS FOR ISOLATED GND?	NO

DESCRIPTION	VA	#P	BKR	FEEDER	NO	-A-VA	-B-VA	-C-VA	NO.	FEEDER	BKR	#P	VA	DESCRIPTION
GENERAL DUTY RECEPTACLES	1260	1	20	2#12, 1#12 GND IN 3/4" C	1	1958			2	2#12, 1#12 GND IN 3/4" C	20	1	698	LIGHTING - GFPS
GENERAL DUTY RECEPTACLES	1000	1	20	2#12, 1#12 GND IN 3/4" C	3		2838		4	2#12, 1#12 GND IN 3/4" C	20	1	1838	LIGHTING - GFPS
GENERAL DUTY RECEPTACLES	1440	1	20	2#12, 1#12 GND IN 3/4" C	5			1815	6	2#12, 1#12 GND IN 3/4" C	20	1	375	EXTERIOR EGRESS FIXTURES
GPS - PLC CONTROL	1000	1	20	2#12, 1#12 GND IN 3/4" C	7	1000			8		20	1		SPARE
EQUIPMENT RACK	1000	1	20	2#12, 1#12 GND IN 3/4" C	9		1000		10		20	1		SPARE
SECURITY SYSTEM PANEL	1000	1	20	2#12, 1#12 GND IN 3/4" C	11			2176	12	2#12, 1#12 GND IN 3/4" C	20	1	1176	OVERHEAD DOOR (1/2HP)
GPS-PLC UTILITY	1000	1	20	2#12, 1#12 GND IN 3/4" C	13	1000			14		20	1		SPARE
EXTERIOR LIGHTING	750	1	20	2#12, 1#12 GND IN 3/4" C	15		2028		16	2#12, 1#12 GND IN 3/4" C	20	1	1278	LIGHTING - GFPS
PARALLING UNIT BATTERY CHARGER	2496	2	30	2#10, 1#10 GND IN 3/4" C	17			2496	18					BUSSED SPACE
	2496	-	-		19	2496			20					BUSSED SPACE
BUSSED SPACE					21		0		22					BUSSED SPACE
SPARE		1	20		23			0	24					BUSSED SPACE
SPARE		1	20		25		0		26					BUSSED SPACE
SPARE		1	20		27		0		28					BUSSED SPACE
SPARE		1	20		29			0	30		20	1		SPARE
TOTAL VOLT-AMPERES PER PHASE						6454	5866	6487						
TOTAL AMPERES PER PHASE						53.8	48.9	54.1						

PT/GAC BUILDING	
PANEL SCHEDULE	LP2
LOCATION	MCC-GAC
ENCLOSURE	NEMA 1
SURFACE, FLUSH, OR MCC	MCC
AIC RATING	10,000AIC

VOLTAGE	120/208V, 3-PHASE, 4-WIRE
MAINS AMPACITY	225 AMP
MAIN C.B. SIZE	150 AMP
TOTAL SPACES	42
NEUTRAL BUS	YES
ADDITIONAL BUS FOR ISOLATED GND?	NO

DESCRIPTION	VA	#P	BKR	FEEDER	NO	-A-VA	-B-VA	-C-VA	NO.	FEEDER	BKR	#P	VA	DESCRIPTION
HIGH BAY LIGHTING VESSEL AREA	1200	2	20	2#12, 1#12G, 3/4" C	1	2600			2	2#12, 1#12G, 3/4" C	20	2	1400	HIGH BAY LIGHTING VESSEL AREA
	1200	-	-		3		2600		4					1400
HIGH BAY LIGHTING VESSEL AREA	1600	2	20	2#12, 1#12G, 3/4" C	5			2362	6	2#12, 1#12G, 3/4" C	20	2	782	HIGH BAY LIGHTING TRUCK AISLE
	1600	-	-		7	2382			8					782
LIGHTING OFFICE AREA	1153	1	20	2#12, 1#12G, 3/4" C	9		1513		10	2#12, 1#12G, 3/4" C	20	1	360	HORN/LIGHT FOR EYEWASH STATION
EXHAUST FAN, EF-1	264	1	20	2#12, 1#12G, 3/4" C	11			1344	12	2#12, 1#12G, 3/4" C	20	1	1080	RECEPTACLES - TRUCK AISLE
RECEPTACLES - ROOM 104	1000	1	20	2#12, 1#12G, 3/4" C	13	1900			14	2#12, 1#12G, 3/4" C	20	1	900	RECEPTACLES - VESSEL AREA
LIGHTING - STAIR 102	1000	1	20	2#12, 1#12G, 3/4" C	15		1540		16	2#12, 1#12G, 3/4" C	20	1	540	RECEPTACLES - VESSEL AREA
LIGHTING - LANDING/ROOF AREAS	770	1	20	2#12, 1#12G, 3/4" C	17			2270	18	2#12, 1#12G, 3/4" C	20	1	1500	RECEPTACLE - VENDING MACHINE
06-DWH-2	4150	2	50	2#8, 1#10G, 3/4" C	19	5150			20	2#12, 1#12G, 3/4" C	20	1	1000	RECEPTACLES - COPIER
	4150	-	-		21		8300		22	2#8, 1#10G, 3/4" C	50	2	4150	06-DWH-4
RECEPTACLES - ROOM 104	1000	1	20	2#12, 1#12G, 3/4" C	23			5150	24					4150
RECEPTACLES - ROOM 104	1000	1	20	2#12, 1#12G, 3/4" C	25	1800			26	2#12, 1#12G, 3/4" C	20	1	800	RECEPTACLES - ROOM 105
RECEPTACLES - ROOM 104	1000	1	20	2#12, 1#12G, 3/4" C	27		1696		28	2#12, 1#12G, 3/4" C	20	1	696	ELECTRIC WATER COOLER
GAC-PLC	1000	1	20	2#12, 1#12G, 3/4" C	29			2000	30	2#12, 1#12G, 3/4" C	20	1	1000	TELEPHONE BACKBOARD
RECEPTACLES - ROOM 107	1000	1	20	2#12, 1#12G, 3/4" C	31	1800			32	2#12, 1#12G, 3/4" C	20	1	800	RECEPTACLES - ROOM 105
SPARE		1	20		33		800		34	2#12, 1#12G, 3/4" C	20	1	800	RECEPTACLES - ROOM 105
RECEPTACLES - ROOM 109	400	1	20	2#12, 1#12G, 3/4" C	35			1000	36	2#12, 1#12G, 3/4" C	20	1	600	RECEPTACLES - ROOM 206, 207
SPARE		1	20		37	0			38					SPARE
SPARE		1	20		39		0		40					SPARE
SPARE		1	20		41			0	42					SPARE
TOTAL VOLT-AMPERES PER PHASE						15632	16449	14146						
TOTAL AMPERES PER PHASE						130.3	137.1	117.9						

PT/GAC BUILDING	
PANEL SCHEDULE	LP3
LOCATION	MCC-PT
ENCLOSURE	NEMA1
SURFACE, FLUSH, OR MCC	MCC
AIC RATING	10,000AIC

VOLTAGE	120/208V, 3-PHASE, 4-WIRE
MAINS AMPACITY	100 AMP
MAIN C.B. SIZE	100 AMP
TOTAL SPACES	42 POSITION
NEUTRAL BUS	YES
ADDITIONAL BUS FOR ISOLATED GND?	NO

DESCRIPTION	VA	#P	BKR	FEEDER	NO	-A-VA	-B-VA	-C-VA	NO.	FEEDER	BKR	#P	VA	DESCRIPTION
LIGHTING FLOCCULATION AREA	1820	1	20	2#12+1#12G, 3/4" C	1	3060			2	2#12+1#12G, 3/4" C	20	1	1240	LIGHTING DEHUMIDIFIER AREA
LIGHTING SEDIMENTATION AREA	1313	1	20	2#12+1#12G, 3/4" C	3		2872		4	2#12+1#12G, 3/4" C	20	1	1559	LIGHTING MAINTENANCE AREA
LIGHTING SEDIMENTATION AREA	1225	1	20	2#12+1#12G, 3/4" C	5			2375	6	2#10+1#10G, 3/4" C	20	1	1150	LIGHTING RESIDUALS PUMP AREA
RECEPTACLES RESDUALS PUMP AREA	400	1	20	2#10+1#10G, 3/4" C	7	410			8	2#12+1#12G, 3/4" C	20	1	10	PH ANALYZER
DEHUMIDIFIER, DH-1	504	1	20	2#10+1#10G, 3/4" C	9		1504		10	2#10+1#10G, 3/4" C	20	1	1000	RECEPTACLES FLOC/SED. AREAS
SUMP PUMP - RESIDUALS PUMP AREA	864	1	15	2#8+1#12G, 3/4" C	11			1864	12	2#12+1#12G, 3/4" C	20	1	1000	RECEPTACLES DEHUM/ELEC. ROOMS
RECEPTACLES STAIR	1000	1	20	2#10+1#10G, 3/4" C	13	1068			14	2#12+1#12G, 3/4" C	20	1	68	TURBIDIMETER (AIT 0200)
RECEPTACLES FLOC/SED. AREAS	800	1	20	2#10+1#10G, 3/4" C	15		1264		16	2#10+1#10G, 3/4" C	20	1	464	EF-3LV-9
PT-PLC	1000	1	20	2#12+1#12G, 3/4" C	17			3640	18	2#10+1#10G, 3/4" C	30*	1	2640	HEAT TRACE
AIR DRYER RECEPTACLE	1000	1	20	2#10+1#10G, 3/4" C	19	2200			20	2#12+1#12G, 3/4" C	20	1	1200	RECEPTACLES - MAINTENANCE AREA
EQ. BASIN HOIST/WINCH	2400	1	40	2#8+1#10G, 3/4" C	21		4056		22	2#6+1#10G, 1" C	25	1	1656	SETTLED WATER SAMPLE PUMP
EXTERIOR LIGHTING	460	2	20	2#10+1#10G, 1" C	23		2116		24	2#10+1#10G, 3/4" C	25	1	1656	RAW WATER SAMPLE PUMP
	460	-	-		25	3460			26	2#8 + #10 G, 3/4" C	35	1	3000	INTERRUPTIBLE POWER SUPPLY, IPS1
BUSSED SPACE					27		0		28					BUSSED SPACE
BUSSED SPACE					29			0	30					BUSSED SPACE
BUSSED SPACE					31	0			32					BUSSED SPACE
BUSSED SPACE					33		0		34					BUSSED SPACE
SPARE		1	20		35			0	36		20	1		SPARE
SPARE		1	20		37	0			38		20	1		SPARE
SPARE		1	20		39		0		40		20	1		SPARE
SPARE		1	20		41			0	42		20	1		SPARE
TOTAL VOLT-AMPERES PER PHASE						10198	9696	9995						
TOTAL AMPERES PER PHASE						85	80.8	83.3						

*GFI CIRCUIT BREAKER

PT/GAC BUILDING	
PANEL SCHEDULE	LP4
LOCATION	MCC-GAC
ENCLOSURE	NEMA1
SURFACE, FLUSH, OR MCC	MCC
AIC RATING	10,000AIC

VOLTAGE	120/208V, 3-PHASE, 4-WIRE
MAINS AMPACITY	100 AMP
MAIN C.B. SIZE	60 AMP
TOTAL SPACES	30 SPACE
NEUTRAL BUS	YES
ADDITIONAL BUS FOR ISOLATED GND?	NO

DESCRIPTION	VA	#P	BKR	FEEDER	NO	-A-VA	-B-VA	-C-VA	NO.	FEEDER	BKR	#P	VA	DESCRIPTION
TURBIDIMETER (AIT-700)	40	1	20	2#12+1#12G, 3/4" C	1	362			2	2#12+1#12G, 3/4" C	20	2	312	FCU-1A THRU FCU-1D
TOC ANALYZER (AIT-0500)	300	1	20	2#12 + #12G, 3/4" C	3		612		4					312
UV TRANSMITTANCE PANEL (UV#1)	100	1	20*	2#12+1#12G, 3/4" C	5			204	6	2#12+1#12G, 3/4" C	20	2	104	FCU-2
UV TRANSMITTANCE PANEL (UV#2)	100	1	20*	2#12+1#12G, 3/4" C	7	204			8					104
ACCU-1	3483	3	40	3#8+1#10G, 3/4" C	9		4856		10	2#12+1#12G, 3/4" C	20	2	1373	ACCU-2
	3483	-	-		11			4856	12					1373
	3483	-	-		13	3943			14	2#10+1#10G, 1" C	20	1	460	EXTERIOR LIGHTING
SPARE		1	20		15			460	16					460
SPARE		1	20		17			1320	18	2#12+1#12G, 3/4" C	15	1	1320	HRU-1
BALL VALVE D-PV-01 (ACTUATOR)	600	1	20	2#10+1#10G, 3/4" C	19	1920			20	2#12+1#12G, 3/4" C	15	1	1320	HRU-2
SPARE		1	20		21		0		22		20	1		SPARE
BUSSED SPACE					23			0	24		20	1		SPARE
BUSSED SPACE					25	0			26		20	1		SPARE
BUSSED SPACE					27		0		28					BUSSED SPACE
BUSSED SPACE					29		0		30					BUSSED SPACE
TOTAL VOLT-AMPERES PER PHASE						6419	5928	6380						
TOTAL AMPERES PER PHASE						53.5	49.4	53.2						

*GFI CIRCUIT BREAKER



REVISIONS	
NO.	BY DATE

DES PJB
OWN DLM
CKD PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
PANELBOARD
SCHEDULES I
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-00-610
CAD REF. NO.: 3789-E-00-610

User: BOND Spec: PRIME STANDARD File: U:\3789-KWTD TAYLOR MILL\WORKING DRAWINGS\ELC\3789-E-00-610.DWG Scale: 1/8" = 1'-0" Date: 1/27/2011 Time: 09:39 Pct. Date: Barch, Jeff: 3/10/2011: 08:25: Layout: E-00-610

GAC BUILDING

PANEL SCHEDULE	VP1
LOCATION	VESSEL AREA 104
ENCLOSURE	NEMA 4X
SURFACE, FLUSH, OR MCC	SURFACE
AIC RATING	18,000AIC

VOLTAGE	277/480V, 3-PHASE, 4-WIRE
MAINS AMPACITY	200 AMP
MAIN C.B. SIZE	200 AMP
TOTAL SPACES	42 POSITION
NEUTRAL BUS	YES
ADDITIONAL BUS FOR ISOLATED GND?	NO

DESCRIPTION	VA	#P	BKR	FEEDER	NO	-A-VA	-B-VA	-C-VA	NO.	FEEDER	BKR	#P	VA	DESCRIPTION
BFV FOR PV-#4S	903	3	15	3#12, 1#12 GND IN 3/4" C.	1	5418			2	3#10, 1#10 GND IN 3/4" C.	30	3	4515	BFV FOR PV-#4N
-	903	-	-	-	3		5418		4	-	-	-	4515	-
-	903	-	-	-	5			5418	6	-	-	-	4515	-
BFV FOR PV-#3S	4515	3	30	3#10, 1#10 GND IN 3/4" C.	7	9030			8	3#10, 1#10 GND IN 3/4" C.	30	3	4515	BFV FOR PV-#3N
-	4515	-	-	-	9		9030		10	-	-	-	4515	-
-	4515	-	-	-	11			9030	12	-	-	-	4515	-
BFV FOR PV-#2S	4515	3	30	3#10, 1#10 GND IN 3/4" C.	13	9030			14	3#10, 1#10 GND IN 3/4" C.	30	3	4515	BFV FOR PV-#2N
-	4515	-	-	-	15		9030		16	-	-	-	4515	-
-	4515	-	-	-	17			9030	18	-	-	-	4515	-
BFV FOR PV-#1S	4515	3	30	3#10, 1#10 GND IN 3/4" C.	19	9030			20	3#10, 1#10 GND IN 3/4" C.	30	3	4515	BFV FOR PV-#1N
-	4515	-	-	-	21		9030		22	-	-	-	4515	-
-	4515	-	-	-	23			9030	24	-	-	-	4515	-
BUSSED SPACE					25	0			26					BUSSED SPACE
BUSSED SPACE					27		0		28					BUSSED SPACE
BUSSED SPACE					29			0	30					BUSSED SPACE
BUSSED SPACE					31	0			32					BUSSED SPACE
BUSSED SPACE					33		0		34					BUSSED SPACE
BUSSED SPACE					35			0	36					BUSSED SPACE
SPARE		3	20		37	0			38		20	3		SPARE
-		-	-	-	39		0		40		-	-	-	-
-		-	-	-	41				42		-	-	-	-
TOTAL VOLT-AMPERES PER PHASE						32508	32508	32508						
TOTAL AMPERES PER PHASE						117.4	117.4	117.4						

GAC BUILDING

PANEL SCHEDULE	VP2
LOCATION	VESSEL AREA 104
ENCLOSURE	NEMA 4X
SURFACE, FLUSH, OR MCC	SURFACE
AIC RATING	18,000AIC

VOLTAGE	277/480V, 3-PHASE, 4-WIRE
MAINS AMPACITY	100 AMP
MAIN C.B. SIZE	100 AMP
TOTAL SPACES	30 POSITION
NEUTRAL BUS	YES
ADDITIONAL BUS FOR ISOLATED GND?	NO

DESCRIPTION	VA	#P	BKR	FEEDER	NO	-A-VA	-B-VA	-C-VA	NO.	FEEDER	BKR	#P	VA	DESCRIPTION
SBWS-BFV-3	903	3	15	3#12, 1#12 GND IN 3/4" C.	1	5418			2	3#10, 1#10 GND IN 3/4" C.	30	3	4515	BFV FOR PV-#7N
-	903	-	-	-	3		5418		4	-	-	-	4515	-
-	903	-	-	-	5			5418	6	-	-	-	4515	-
BFV FOR PV-#7S	4515	3	30	3#10, 1#10 GND IN 3/4" C.	7	9030			8	3#10, 1#10 GND IN 3/4" C.	30	3	4515	BFV FOR PV-#6N
-	4515	-	-	-	9		9030		10	-	-	-	4515	-
-	4515	-	-	-	11			9030	12	-	-	-	4515	-
BFV FOR PV-#6S	4515	3	30	3#10, 1#10 GND IN 3/4" C.	13	9030			14	3#10, 1#10 GND IN 3/4" C.	30	3	4515	BFV FOR PV-#5N
-	4515	-	-	-	15		9030		16	-	-	-	4515	-
-	4515	-	-	-	17			9030	18	-	-	-	4515	-
BFV FOR PV-#5S	4515	3	30	3#10, 1#10 GND IN 3/4" C.	19	4515			20					BUSSED SPACE
-	4515	-	-	-	21		4515		22					BUSSED SPACE
-	4515	-	-	-	23			4515	24					BUSSED SPACE
SPARE		3	20		25	0			26		20	3		SPARE
-		-	-	-	27		0		28		-	-	-	-
-		-	-	-	29			0	30		-	-	-	-
TOTAL VOLT-AMPERES PER PHASE						27993	27993	27993						
TOTAL AMPERES PER PHASE						101.1	101.1	101.1						

PT/GAC BUILDING

PANEL SCHEDULE	UDP
LOCATION	ELEC. 208
ENCLOSURE	NEMA 1
SURFACE, FLUSH, OR MCC	SURFACE
AIC RATING	10,000AIC

VOLTAGE	120/208V, 3-PHASE, 4-WIRE
MAINS AMPACITY	100 AMP
MAIN C.B. SIZE	80 AMP
TOTAL SPACES	30 POSITION
NEUTRAL BUS	YES
ADDITIONAL BUS FOR ISOLATED GND?	NO

DESCRIPTION	VA	#P	BKR	FEEDER	NO	-A-VA	-B-VA	-C-VA	NO.	FEEDER	BKR	#P	VA	DESCRIPTION
GAC PLC CABINET	1500	1	20	2#12, 1#12 GND IN 3/4" C.	1	2500			2	2#12, 1#12 GND IN 3/4" C.	20	1	1000	RECEPTACLES (LAB 105)
PT-PLC CABINET	1500	1	20	2#12, 1#12 GND IN 3/4" C.	3		2500		4	2#12, 1#12 GND IN 3/4" C.	20	1	1000	RECEPTACLES (LAB 105)
SECURITY PANEL	1000	1	20	2#12, 1#12 GND IN 3/4" C.	5			1800	6	2#12, 1#12 GND IN 3/4" C.	20	1	800	RECEPTACLES (LAB 105)
RECEPTACLES (LAB 105)	800	1	20	2#12, 1#12 GND IN 3/4" C.	7	1800			8	2#12, 1#12 GND IN 3/4" C.	20	1	1000	EQUIPMENT RACK
RECEPTACLES (LAB 105)	800	1	20	2#12, 1#12 GND IN 3/4" C.	9		800		10					SPARE
BUSSED SPACE					11			1000	12	2#12, 1#12 GND IN 3/4" C.	20	1	1000	EQUIPMENT RACK
BUSSED SPACE					13	0			14					BUSSED SPACE
BUSSED SPACE					15		0		16					BUSSED SPACE
BUSSED SPACE					17			0	18					BUSSED SPACE
BUSSED SPACE					19	0			20					BUSSED SPACE
BUSSED SPACE					21		0		22					BUSSED SPACE
BUSSED SPACE					23			0	24					BUSSED SPACE
SPARE		1	20		25	0			26		20	1		SPARE
SPARE		1	20		27		0		28		20	1		SPARE
SPARE		1	20		29			0	30		20	1		SPARE
TOTAL VOLT-AMPERES PER PHASE						4300	3300	2800						
TOTAL AMPERES PER PHASE						35.8	27.5	23.3						

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REVISIONS			
NO.	BY	DATE	REMARKS

DES PJB
OWN DLM
CKD PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
PANELBOARD SCHEDULES III
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-00-612
CAD REF. NO.: 3788-E-00-612

User: BOND Spec: PIRNIE STANDARD File: J:\3788-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\FILE C3788-E-00-613.DWG Scale: 1:388 Saved Date: 11/23/2010 Time: 16:13 Plot Date: Bond, Jeff, 3/10/2011, 08:26 : Layout: E-00-613

LIGHT FIXTURE SCHEDULE - TAYLORMILL WTP											
DESIGNATION	DESCRIPTION	LAMPS	LUMENS/LAMP	BALLAST	VOLTAGE/PHASE	TOTAL WATTS / FIXTURE	MANUFACTURER#	MODEL NUMBER	MOUNTING	MOUNTING HEIGHT	DESIGNATION
LF-A	2X4 RECESSED VOLUMETRIC FLUORESCENT	(2) F28 T5	2,900	ELECTRONIC 1.15 B.F.	120 / 1	73	LITHONIA	2RT5 2 28T5 GEB115PS 120 GLR	RECESSED	IN CEILING	LF-A
LF-AE	SAME AS LF-A EXCEPT WITH 1400 LUMEN EMERG. BATTERY BALLAST	(2) F28 T5	2,900	ELECTRONIC 1.15 B.F.	120 / 1	73	LITHONIA	2RT5 2 28T5 GEB115PS 120 GLR EL14	RECESSED	IN CEILING	LF-AE
LF-B	2X2 RECESSED VOLUMETRIC FLUORESCENT	(2) F14 T5	1,350	ELECTRONIC 1.15 B.F.	120 / 1	36	LITHONIA	2RT5 2 14T5 GEB115PS 120 GLR	RECESSED	IN CEILING	LF-B
LF-BE	SAME AS LF-B EXCEPT WITH 1400 LUMEN EMERG. BATTERY BALLAST	(2) F14 T5	1,350	ELECTRONIC 1.15 B.F.	120 / 1	36	LITHONIA	2RT5 2 14T5 GEB115PS 120 GLR EL14	RECESSED	IN CEILING	LF-BE
LF-CE	4' 2 LAMP WALL MOUNT FLUOR FIXTURE w/ UP-DOWN LIGHT	(2) F28 T5	2,900	ELECTRONIC 1.00 B.F.	120 / 1	60	LITHONIA	W 2 28T5 GEB10PS GLR MW AE EL	SURFACE WALL	7' OR ABOVE MIRROR	LF-C
LF-D	PENDANT INDUSTRIAL PRISMATIC GLASS GLOBE METAL HALIDE	320W MH PULSE START	37,500	HID ELECTRONIC .88 BF	208 / 1	340	HOLOPHANE	ED 32PPE V W G E X F2	PENDANT	30' AFF	LF-D
LF-DE	SAME AS LF-D EXCEPT WITH QUARTZ RESTRIKE LAMP	320W MH (W/ QRS)	37,500	HID ELECTRONIC .88 BF	208 / 1	340	HOLOPHANE	ED 32PPE V W G E X EM F2	PENDANT	30' AFF	LF-DE
LF-G	PENDANT INDUSTRIAL PRISMATIC GLASS GLOBE METAL HALIDE	250W MH PULSE START	24,000	HID ELECTRONIC .88 BF	208 / 1	297	HOLOPHANE	ED 32PPE V W G E X F2	PENDANT	24'AFF	LF-G
LF-GE	SAME AS LF-G EXCEPT WITH QUARTZ RESTRIKE LAMP	250W MH (W/ QRS)	24,000	HID ELECTRONIC .88 BF	208 / 1	297	HOLOPHANE	ED 32PPE V W G E X EM F2	PENDANT	24'AFF	LF-GE
LF-H	PENDANT INDUSTRIAL PRISMATIC GLASS GLOBE METAL HALIDE	175W MH PULSE START	17,500	SCWA	120 / 1	198	HOLOPHANE	PTA 175PMH 120 P 525 F1	PENDANT	10' ABOVE BASIN	LF-H
LF-J	4' ENCLOSED STEEL INDUSTRIAL WET LOCATION FLUOR FIXTURE	(2) F54 T5 HO	5,000	ELECTRONIC 1.00 B.F.	120 / 1	123	LITHONIA	FPG4 2 54T5HO PCL 120V GEB10PS GLR	SURFACE WALL	12' AFF	LF-J
LF-JE	SAME AS LF-J EXCEPT WITH 1400 LUMEN EMERG. BATTERY BALLAST	(2) F54 T5 HO	5,000	ELECTRONIC 1.00 B.F.	120 / 1	123	LITHONIA	FPG4 2 54T5HO PCL 120V GEB10PS GLR EL14DW	SURFACE WALL	12' AFF	LF-JE
LF-K	ROUGH SERVICE WALL MOUNTED FIXTURE	(2) 42TRT	3,200	ELECTRONIC	120 / 1	93	LITHONIA	VGR2C 2/42TRT 120 2/1 ADCF GLR	SURFACE WALL	AS NOTED	LF-K
LF-KE	SAME AS LF-K EXCEPT WITH 750 LUMEN EMERG. BATTERY BALLAST	(2) 42TRT	3,200	ELECTRONIC	120 / 1	93	LITHONIA	VGR2C 2/42TRT 120 2/1 ADCF GLR ELDW	SURFACE WALL	AS NOTED	LF-KE
LF-M	4' FLUOR INDUSTRIAL 10% APERTURED REFLECTOR & WIRE GUARD	(2) F28 T5	2,900	ELECTRONIC 1.00 B.F.	120 / 1	60	LITHONIA	EJDA 2 28T5 MVOLT GEB115 GLR WGWG	CHAIN MOUNT	10' AFF	LF-M
LF-ME	SAME AS LF-M EXCEPT WITH 1400 LUMEN EMERG. BATTERY	(2) F28 T5	2,900	ELECTRONIC 1.00 B.F.	120 / 1	60	LITHONIA	EJDA 2 28T5 MVOLT GEB115 GLR WGWG EL14	CHAIN MOUNT	10' AFF	LF-ME
LF-N	4' ENCLOSED STEEL INDUSTRIAL WET LOCATION FLUOR FIXTURE	(2) F54 T5 HO	5,000	ELECTRONIC 1.00 B.F.	120 / 1	123	LITHONIA	EIS 2 54T5HO PCL 120V GEB10PS GLR	SURFACE WALL	12' AFF	LF-N
LF-NE	SAME AS LF-N EXCEPT WITH 1400 LUMEN EMERG. BATTERY BALLAST	(2) F54 T5 HO	5,000	ELECTRONIC 1.00 B.F.	120 / 1	123	LITHONIA	EIS 2 54T5HO PCL 120V GEB10PS GLR EL14DW	SURFACE WALL	12' AFF	LF-NE
LF-R	4' FLUORESCENT WALL MOUNTED DIRECT/INDIRECT	(2) F28 T5	2,900	ELECTRONIC	120 / 1	60	FOCAL POINT	FV3W PL 2T5 1C 120 S WM FU 4' (FINISH TO BE DETERMINED)	WALL	9'-6" AFF	LF-R
LF-RE	SAME AS LF-R EXCEPT WITH 1400 LUMEN EMERG. BATTERY BALLAST	(2) F28 T5	2,900	ELECTRONIC	120 / 1	60	FOCAL POINT	FV3W PL 2T5 1C 120 S WM EM FU 4' (FINISH TO BE DETERMINED)	WALL	9'-6" AFF	LF-RE
LF-S	LED HIGH BAY	LED	11,067		120 / 1	150	DIALIGHT	HB1CAJ HBX	PENDANT	AS NOTED	LF-S
LF-TE	8' DOWNLIGHT W/ EMERGENCY BATTERY BALLAST	(2) 32TRT	2,400	ELECTRONIC	120 / 1	69	GOTHAM	AF 2 32TRT 8 AR 120 EL	RECESSED	CEILING	LF-TE
OLF-1	HID DIE CAST ALUM WALL PACK w/ GLASS REFRACTOR & PHOTOCCELL	100W MH	9,000	HPF	120 / 1	130	LITHONIA	TWH 100MH 120 SF EC PE (FINISH TO BE DETERMINED)	WALL	12' AFG	OLF-1
OLF-1A	SAME AS OLF-1 EXCEPT WITH QUARTZ RESTRIKE LAMP	100W MH (W/ QRS)	9,000	HPF	120 / 1	130	LITHONIA	TWH 100MH 120 SF EC PE (100W QUARTZ ON EMERGENCY CIRCUIT)	WALL	12' AFG	OLF-1A
OLF-2	ARM-MOUNTED CUTOFF SITE LUMINAIRE WITH TYPE II OPTICS	175W MH PULSE START	17,500	SCWA	208 / 1	198	LITHONIA	KSE1 175M R2 208 SP04 DF HS PE1 (FINISH TO BE DETERMINED)	POLE MTD	20' AFG	OLF-2
OLF-3A	20' SQUARE STRAIGHT ALUMINUM, HINGED POLE						LITHONIA	SSAH 20 4G DM19 DBL (FINISH TO BE DETERMINED)	BASE MOUNTED		
OLF-3A	8' DOWNLIGHT W/ TEMPERED PRISMATIC LENS AND BATTERY PACK	(2) 42TRT	3,200	ELECTRONIC	120	84	GOTHAM	LGF 2 42TRT 8 RW T73 120 GLR EL2P	RECESSED	SOFFIT	OLF-3A
LF-X1	EXIT LIGHT THERMOPLASTIC, RED LETTERS, UNIVERSAL ARROWS/MTG	LED			120	0.92	LITHONIA	LQM S W 1 R 120/277 EL N SD	WALL	ABOVE DOOR	LF-X1
LF-X2	EXIT LIGHT CAST ALUMINUM, RED LETTERS, UNIVERSAL ARROWS/MTG	LED			120	0.92	LITHONIA	LV S AB 1 R 120/277 EL N SD WL	WALL	ABOVE DOOR	LF-X2
EM1	300W EMERGENCY BATTERY PACK w/ LAMP HEADS	(2) 35WATT HALOGEN	600		120	35	LITHONIA	IND12300H3512S	WALL	8' AFF	EM1
EMR	REMOTE LAMP HEADS FOR EM1 FIXTURE	(2) 35WATT HALOGEN	600		12 DC		LITHONIA	ELA _T IND H3512	WALL	8' AFF	EMR
#	FLUORESCENT BATTERY PACK	N/A	1400		120 / 1	3.5	LITHONIA	PS1400QD-SD	INSIDE FIXTURE		#



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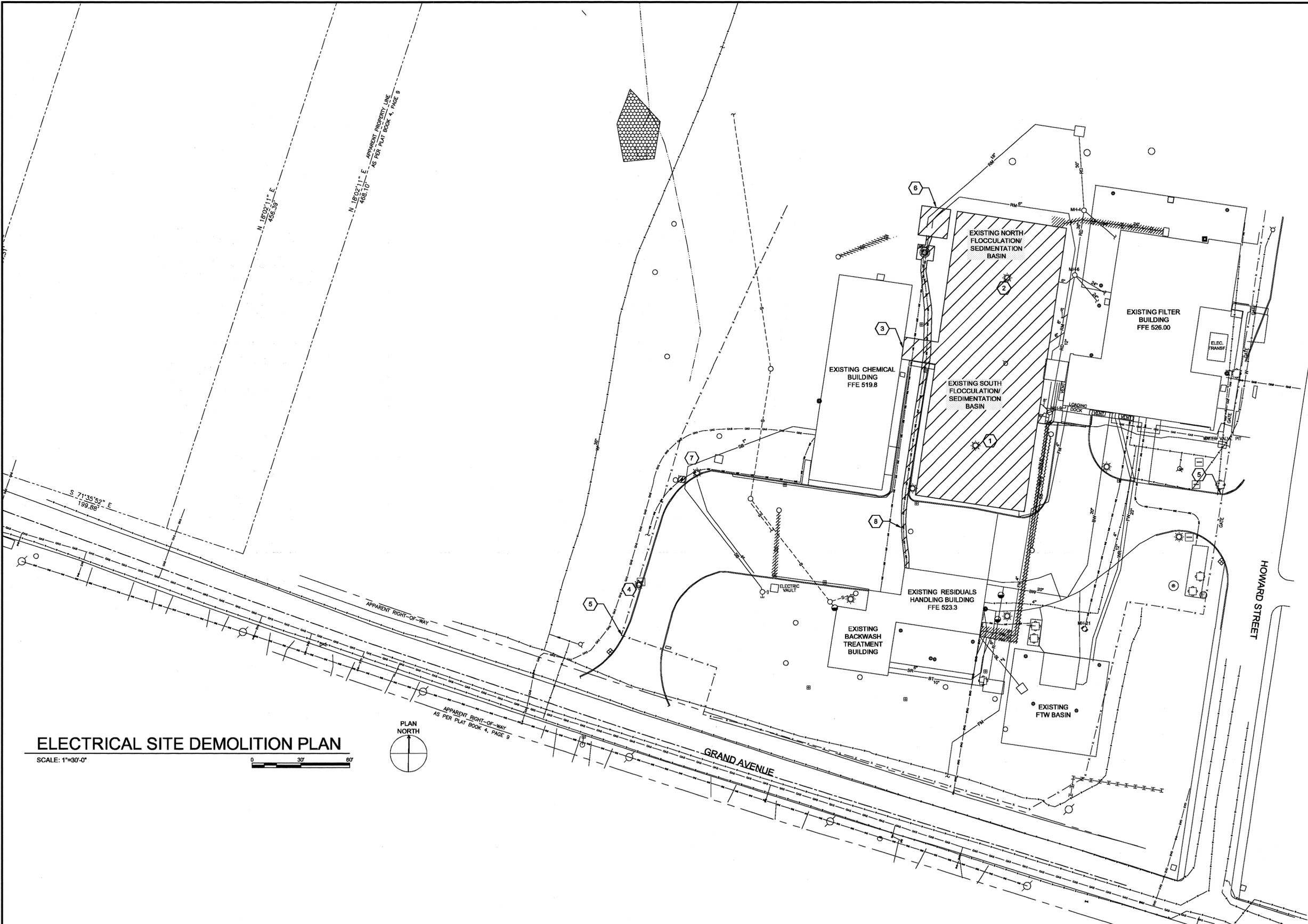
DES: PJB
DWN: DLM
CKD: PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL LIGHT FIXTURE SCHEDULE
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-00-613
CAD REF. NO. 3789-E-00-613

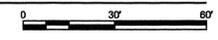
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- GENERAL NOTES:**
- CONTRACTOR SHALL COORDINATE PHASING OF DEMOLITION WORK WITH PROJECT SCHEDULE. REFER TO SPECIFICATION SECTION 01120 FOR SUGGESTED SEQUENCE OF CONSTRUCTION.

- KEYNOTE SHEET NOTES:**
- DEMOLISH AND PROPERLY DISPOSE ALL ELECTRICAL EQUIPMENT ASSOCIATED WITH THE EXISTING SOUTH FLOCCULATION/SEDIMENTATION BASIN. REMOVE ALL CONDUIT/WIRING BACK TO SOURCE. REMOVE ALL INSTRUMENTATION WIRING BACK TO EXISTING PLC CABINET.
 - DEMOLISH AND PROPERLY DISPOSE ALL ELECTRICAL EQUIPMENT ASSOCIATED WITH THE EXISTING NORTH FLOCCULATION/SEDIMENTATION BASIN. REMOVE ALL CONDUIT/WIRING BACK TO SOURCE. REMOVE ALL INSTRUMENTATION WIRING BACK TO EXISTING PLC CABINET.
 - REFER TO SHEET E-04-101 FOR ELECTRICAL DEMOLITION REQUIRED FOR THE REMOVAL OF THE EXISTING TUNNEL.
 - DEMOLISH AND PROPERLY DISPOSE OF EXISTING LIGHT POLE AND ASSOCIATED POLE BASE. REMOVE WIRING BACK TO LAST LIGHT FIXTURE OR SAME CIRCUIT. CONDUIT MAY BE ABANDONED.
 - DEMOLISH AND PROPERLY DISPOSE OF ALL ELECTRICAL CONNECTIONS TO GATE CONTROLLER AND ASSOCIATED INTERCOM/ACCESS PEDESTAL. REMOVE WIRING BACK TO SOURCE. CONDUIT MAY BE ABANDONED.
 - DEMOLISH AND PROPERLY DISPOSE OF ALL ELECTRICAL EQUIPMENT ASSOCIATED WITH THE EXISTING RESIDUALS PUMPING STATION. REMOVE ALL CONDUIT/WIRING BACK TO SOURCE. REMOVE ALL INSTRUMENTATION WIRING BACK TO EXISTING PLC CABINET.
 - EXISTING LIGHT FIXTURE TO REMAIN.
 - REMOVE AND PROPERLY DISPOSE OF THE EXISTING FEEDER AND SIGNAL CABLING BETWEEN THE EXISTING RESIDUALS HANDLING BUILDING AND THE EXISTING RESIDUALS PUMP STATION. COORDINATE WITH PROJECT SCHEDULE AND GENERAL CONTRACTOR PRIOR TO REMOVAL.

ELECTRICAL SITE DEMOLITION PLAN
SCALE: 1"=30'-0"



REVISIONS			
NO.	BY	DATE	REMARKS

DES PJB
DWN DLM
CKD PJB

**NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS**

**ELECTRICAL
SITE DEMOLITION PLAN**

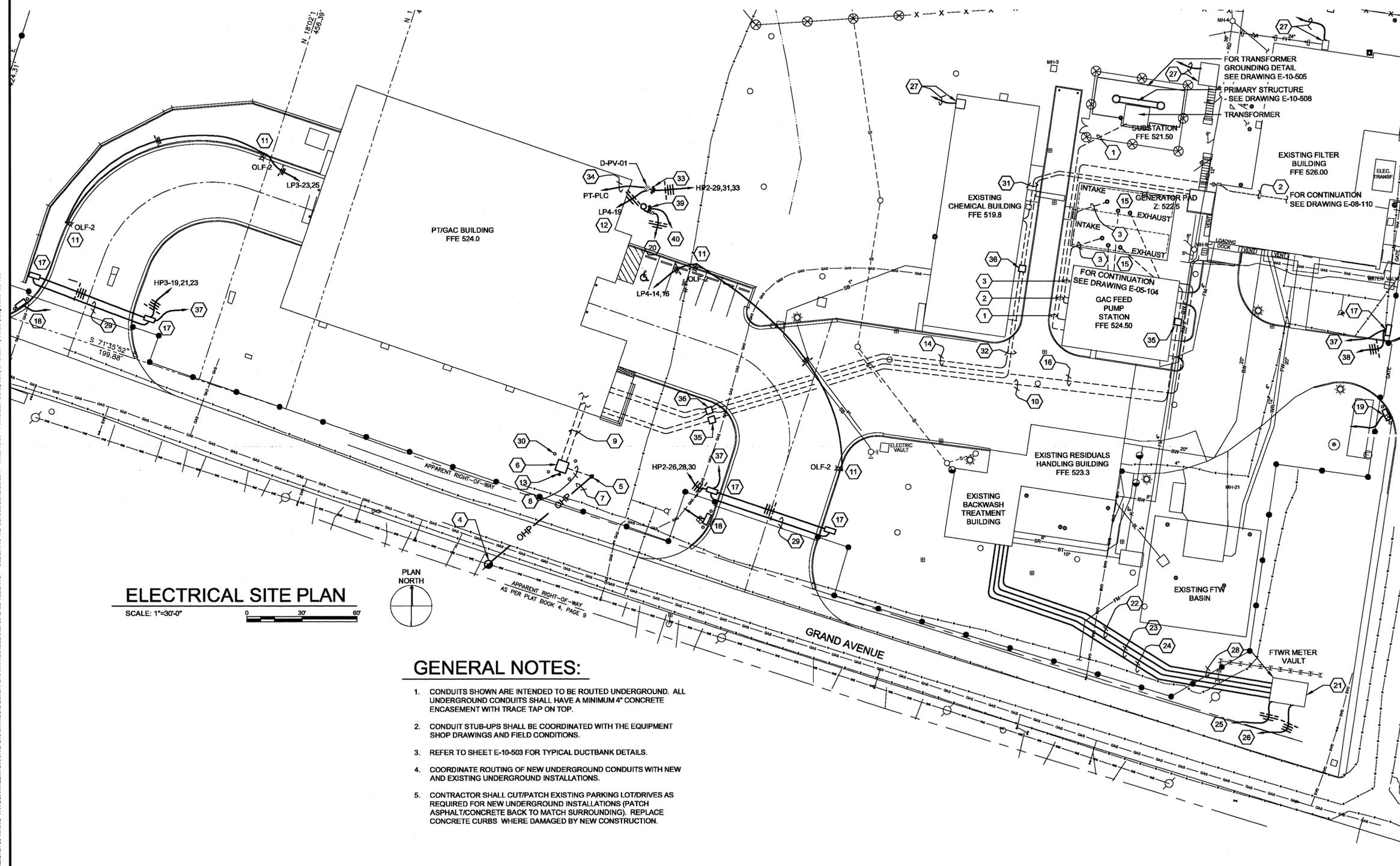
SCALE: 1" = 30'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-02-101
CAD REF. NO.: 3789-E-02-101

SHEET KEYNOTES:

- 7-4" C, 3#500 KCMIL 5 KV SHIELDED, IN EACH CONDUIT, 1-4" SPARE WITH PULLWIRE FROM 7.5 MVA TRANSFORMER TO MAIN IN PARALLELING SWITCHGEAR. DRAWING E-05-104.
- 5-5" C, 3#500 KCMIL 5 KV SHIELDED, 1# 500 KCMIL GROUND IN EACH CONDUIT FROM PARALLELING SWITCHGEAR TO 2400V MCC IN FILTER BUILDING ON THIRD FLOOR. SEE DRAWING E-08-110, SHEET NOTE #11.
- 3-4" C, 3# 500 KCMIL 5KV SHIELDED, 1#4/0 KCMIL GROUND IN EACH CONDUIT, 1-1" C, WITH BELDEN 3105A RS485 CABLE, 1-2" C SPARE WITH PULLWIRE FROM PARALLELING SWITCHGEAR TO GENERATOR-1.2. REFER TO DRAWING E-05-102 FOR ADDITIONAL CONDUITS.
- EXISTING UTILITY POLE TO BE REPLACED BY DUKE ENERGY FOR THE TEMPORARY ELECTRICAL SERVICE TO THE PT/GAC BUILDING.
- NEW UTILITY POLE TO BE INSTALLED BY DUKE ENERGY TO BE UTILIZED FOR TEMPORARY ELECTRICAL SERVICE TO THE PT/GAC BUILDING. POLE TO BE REMOVED ONCE PERMANENT SERVICE FROM THE GAC FEED PUMP STATION IS ENERGIZED.
- NEW 500 KVA PADMOUNT TRANSFORMER BY DUKE ENERGY TO BE UTILIZED FOR TEMPORARY ELECTRICAL SERVICE TO THE PT/GAC BUILDING. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL AN 8' X 8' CONCRETE PAD (PER DUKE ENERGY REQUIREMENTS), TRANSFORMER AND TRANSFORMER PAD TO BE REMOVED ONCE PERMANENT SERVICE FROM GAC FEED PUMP STATION IS ENERGIZED.
- NEW 3-PHASE OVERHEAD ELECTRICAL SERVICE BY DUKE ENERGY FOR TEMPORARY ELECTRICAL SERVICE. THIS SERVICE SHALL BE REMOVED ENTIRELY (COORDINATE WITH DUKE ENERGY) ONCE PERMANENT SERVICE FROM THE GAC FEED PUMP STATION IS ENERGIZED.
- UNDERGROUND TEMPORARY PRIMARY ELECTRICAL SERVICE. PROVIDE TWO (2) 5" CONDUITS FROM NEW UTILITY POLE TO NEW PADMOUNT TRANSFORMER. USE LONG SWEEP ELBOWS FOR CONDUIT BENDS. MINIMUM BURY DEPTH SHALL BE 42".
- UNDERGROUND TEMPORARY SECONDARY ELECTRICAL SERVICE FOR THE PT/GAC BUILDING. CONDUIT SHALL BE BURIED AT A DEPTH THAT WILL BE BELOW THE 24" LINES (GS, GUTW, AND RW) IN THIS AREA. REFER TO KEYNOTE #6 ON SHEET E-06-401 FOR REQUIREMENTS.
- UNDERGROUND PERMANENT ELECTRICAL SERVICE FOR THE PT/GAC BUILDING. SERVICE SHALL ORIGINATE FROM MOTOR CONTROL CENTER, MCC-GFP. REFER TO SHEET E-05-102/102A AND E-06-401 FOR CONTINUATIONS. REFER TO SHEET E-00-602 FOR FEEDER CONDUIT/CONDUCTOR REQUIREMENTS.
- REFER TO SHEET E-10-501 FOR POLE BASE DETAIL.

- PROVIDE 120V CONNECTION TO BALL VALVE (D-PV-01) ACTUATOR FOR ENCLOSURE HEATER AND CONTROLS.
- METER BASE AND PEDESTAL BY CONTRACTOR PER UTILITY COMPANY REQUIREMENTS. EXTEND 1-1/2" C FROM METER BASE TO TRANSFORMER PER USE BY THE UTILITY COMPANY.
- PROVIDE A 3" CONDUIT W/ A 24 STRAND 62.5/125 MICRON LOOSE TUBE MULTI-MODE FIBER OPTIC CABLE FROM THE FO PATCH PANEL IN THE EXISTING CHEMICAL BUILDING (SHOWN ON SHEET E-09-101) TO THE FO PATCH PANEL IN THE PT/GAC BUILDING (SHOWN ON SHEET E-06-401). PROVIDE AN ADDITIONAL 3" SPARE CONDUIT W/ PULL STRING.
- 100 AMP FEEDER AND CONTROL CONDUCTORS (FROM GPS-PLC) TO EACH GENERATOR. REFER TO SHEET E-5-102/102A FOR ADDITIONAL INFORMATION. COORDINATE STUB UP LOCATION WITHIN GENERATOR ENCLOSURE WITH ENGINEER APPROVED SHOP DRAWINGS.
- PROVIDE A 3" CONDUIT W/24 STRAND 62.5/125 MICRON LOOSE TUBE MULTI-MODE FIBER OPTIC CABLE FROM THE FO PATCH PANEL IN THE PT/GAC BUILDING (SHOWN ON SHEET E-06-401) TO THE FO PATCH PANEL IN THE GAC FEED PUMP STATION (SHOWN ON SHEET E-05-102/102A). PROVIDE AN ADDITIONAL 3" SPARE CONDUIT W/ PULL STRING.
- MOTORIZED SLIDE GATE OPERATOR. PROVIDE ALL REQUIRED CONNECTIONS (DETECTION LOOPS, INTERCOM/ACCESS PEDESTAL, ETC.). COORDINATE REQUIREMENTS WITH GATE MANUFACTURER AND PROVIDE COMPLETE. SEE SHEET E-10-502 FOR TYPICAL WIRING DIAGRAM.
- INTERCOM/ACCESS PEDESTAL MOUNTED. PROVIDE CONDUIT/WIRING BACK TO THE NEW SECURITY SYSTEM CONTROL PANEL (LOCATED ON SHEET E-06-401) AND GATE CONTROLLER (AT TELEPHONE BOARD). SEE SHEET E-10-502 FOR DETAIL AND TYPICAL WIRING DIAGRAM.
- INTERCOM/ACCESS PEDESTAL MOUNTED. PROVIDE CONDUIT/WIRING BACK TO THE EXISTING SECURITY SYSTEM CONTROL PANEL LOCATED WITHIN THE EXISTING FILTER BUILDING (SEE SHEET E-08-105 FOR LOCATION) AND GATE CONTROLLER (AT TELEPHONE BOARD). SEE SHEET E-10-502 FOR DETAIL AND TYPICAL WIRING DIAGRAM.
- SETTLED WATER MANHOLE. PROVIDE A MOTOR RATED SWITCH (NEMA 4X) FOR SAMPLE PUMP AND 2#6, 1#10 GND, 1" C TO SETTLED WATER SAMPLE PUMP CONTROL PANEL LOCATED IN ELECTRICAL ROOM 202 (REFER TO SHEET E-06-105). PROVIDE ELECTRICAL CONNECTION TO SAMPLE PUMP FROM SWITCH.
- NEW FTWR METER VAULT. VAULT CONTAINS VENTURI FLOW TRANSMITTER (FIT-0200), MOTORIZED VALVE (TWR-BV-1), HIGH LEVEL FLOAT SWITCH (LSH-199), AND SUMP PUMP.
- PROVIDE 2#16 STP IN 3/4" CONDUIT FROM VENTURI FLOW TRANSMITTER (FIT-0200) TO AN EXISTING PLC CABINET LOCATED WITHIN THE EXISTING RESIDUALS HANDLING BUILDING (FIELD VERIFY LOCATION).
- 4#12, 1#12 GND (IN-REMOTE AND MALFUNCTION) AND 2#16 STP (POSITION SETPOINT AND POSITION INDICATIONS), 1" C FROM ACTUATOR FOR MOTORIZED VALVE (TWR-BV-1) TO AN EXISTING PLC CABINET LOCATED WITHIN THE EXISTING RESIDUALS HANDLING BUILDING (FIELD VERIFY LOCATION). PROVIDE CONTROL CABLE FROM ACTUATOR TO MOTORIZED VALVE IN 1" CONDUIT.
- 2#12, 1#12 GND, 3/4" C FROM FLOAT SWITCH (LSH-199) TO AN EXISTING PLC CABINET LOCATED WITHIN THE EXISTING RESIDUALS HANDLING BUILDING (FIELD VERIFY LOCATION).
- PROVIDE WEATHERPROOF SINGLE RECEPTACLE IN VAULT FOR SUMP PUMP. CONNECT TO A NEW 20A/1P BREAKER INSTALLED IN SPACE OF AN EXISTING 120/208V, 3-PHASE, 4 WIRE PANELBOARD WITHIN THE EXISTING RESIDUALS HANDLING BUILDING (FIELD VERIFY LOCATION).
- PROVIDE ELECTRICAL CONNECTION TO THE MOTORIZED VALVE (TWR-BV-1) LOCATED WITHIN THE VAULT. CONNECT TO NEW 15A/3P BREAKER INSTALLED IN SPACE OF AN EXISTING 208V/3-PHASE PANELBOARD WITHIN THE EXISTING RESIDUALS HANDLING BUILDING (FIELD VERIFY LOCATION). PROVIDE 30A/240V/3-PHASE NON-FUSED DISCONNECT SWITCH (NEMA 4X ENCLOSURE).
- PROVIDE 120V CONNECTION TO HEAT TRACE FOR CHEMICAL FEED LINES (OVERFLOW BOX, ENTERING CHEMICAL BLDG, AND 42" FILTER INFLUENT). COORDINATE WITH DIVISION 15. PROVIDE 30A/1P GFI BREAKER WITHIN NEAREST 120/208V PANELBOARD W/ CAPACITY, FIELD VERIFY. UTILIZE 2#10, 1#10 GND IN 1" C.
- PROVIDE A SECURITY SYSTEM LATCH CONTACTS FOR THE VAULT HATCH/COVER. PROVIDE 1" CONDUIT AND SECURITY CABLING (AS REQUIRED) TO THE EXISTING SECURITY SYSTEM PANEL LOCATED WITH THE EXISTING RESIDUALS HANDLING BUILDING.
- #18WG-3CONDUCTOR STP CABLE IN 1" CONDUIT BETWEEN GATE OPERATORS FOR MASTER/SLAVE COMMUNICATIONS.
- PROVIDE SAFETY BOLLARD FOR PROTECTION OF INTERCOM/SECURITY PEDESTALS AND TEMPORARY PAD MOUNT TRANSFORMER (TYPICAL).
- PROVIDE A 3" CONDUIT WITH 24-STRAND 62.5/125 MICRON MM FIBER IN 3" CONDUIT FROM FO PATCH PANEL IN THE CHEMICAL BUILDING (SHOWN ON SHEET E-09-101) TO THE FO PATCH PANEL IN THE FILTER BUILDING (SHOWN ON SHEET E-08-105). PROVIDE AN ADDITIONAL 3" SPARE CONDUIT WITH PULL STRING.
- PROVIDE A 3" CONDUIT WITH SIX (6) 4PR CAT 6E #24 AWG VOICE CABLES FROM TELEPHONE BACKBOARD IN PT/GAC BUILDING (SHOWN ON SHEET E-06-401) TO THE TELEPHONE BACKBOARD/DEMARCO LOCATION IN THE FILTER BUILDING (SHOWN E-08-105).
- PROVIDE EQUIPMENT STAND FOR 30A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE). PROVIDE 3#10, 1#10 GND IN 3/4" CONDUIT FROM DISCONNECT TO THE MOTORIZED VALVE (D-PV-01).
- 8#12, 1#12 GND (OPEN/CLOSE COMMANDS AND OPEN/CLOSE STATUS) IN 1" C FROM ACTUATOR FOR MOTORIZED VALVE (D-PV-01) TO PT-PLC (SHOWN ON SHEET E-06-105).
- 6" X 8" PRECAST CONCRETE PULL BOX W/ MANHOLE COVER FRAME AND LID. REFER TO DETAIL SHEET E-10-503. LID TO BE MARKED "ELECTRIC".
- 4" X 4" PRECAST CONCRETE PULL BOX W/ MANHOLE COVER FRAME AND LID. REFER TO DETAIL SHEET E-10-503. LID TO BE MARKED "COMMUNICATION".
- PROVIDE 1" CONDUIT WITH CONTROL CONDUCTORS FROM GATE OPERATOR TO GATE CONTROLLER AT TELEPHONE BACKBOARD IN PT/GAC BUILDING (REFER TO DETAIL ON SHEET E-10-502). GATE CONTROLLER LOCATED OFF HOWARD STREET, ROUTE TO TELEPHONE BACKBOARD IN EXISTING FILTER BUILDING.
- CONNECT TO A NEW 20A/3P BREAKER INSTALLED IN SPACE OF EXISTING DISTRIBUTION BOARD, PPU-1 (SHOWN ON SHEET E-08-101).
- LOCAL CONTROL STATION FOR SETTLED WATER SAMPLE PUMP. MOUNT ON EQUIPMENT STAND, SIZED ACCORDINGLY.
- 10#12, 1#12 GND. IN 3/4" CONDUIT (LOR, S/S, AND INDICATING LIGHTS) TO SETTLED WATER SAMPLE PUMP CONTROL PANEL (ELECTRICAL ROOM 202 - SHOWN ON SHEET E-06-105).



GENERAL NOTES:

- CONDUITS SHOWN ARE INTENDED TO BE ROUTED UNDERGROUND. ALL UNDERGROUND CONDUITS SHALL HAVE A MINIMUM 4" CONCRETE ENCASUREMENT WITH TRACE TAP ON TOP.
- CONDUIT STUB-UPS SHALL BE COORDINATED WITH THE EQUIPMENT SHOP DRAWINGS AND FIELD CONDITIONS.
- REFER TO SHEET E-10-503 FOR TYPICAL DUCTBANK DETAILS.
- COORDINATE ROUTING OF NEW UNDERGROUND CONDUITS WITH NEW AND EXISTING UNDERGROUND INSTALLATIONS.
- CONTRACTOR SHALL CUT/PATCH EXISTING PARKING LOT/DRIVES AS REQUIRED FOR NEW UNDERGROUND INSTALLATIONS (PATCH ASPHALT/CONCRETE BACK TO MATCH SURROUNDING). REPLACE CONCRETE CURBS WHERE DAMAGED BY NEW CONSTRUCTION.

User: J:\BOND Spec\FIRME STANDARD File: J:\3788-NKWD TAYLOR MILL\WORKING DRAWINGS\DESIGN DRAWINGS\ELE\3788-E-02-102.DWG Scale: 1:15 1/2 Saved Date: 2/28/2011 Time: 1:53:33 Plot Date: Bond_Jeff: 3/10/2011: 09:26 Layout: E-02-102



REVISIONS			
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CKD: PJB

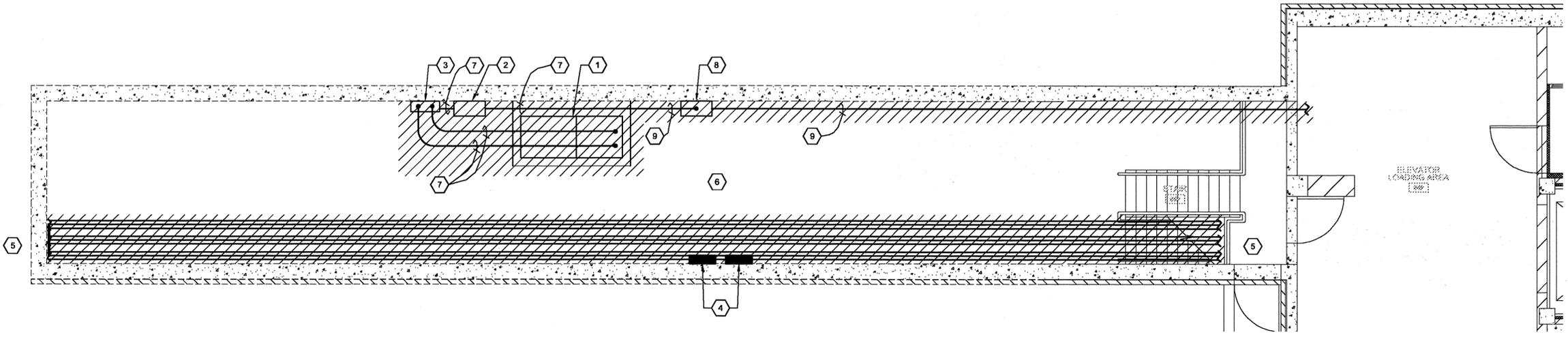
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL SITE PLAN
SCALE: 1" = 30'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-02-102
CAD REF. NO.: 3788-E-02-102

GENERAL NOTES:

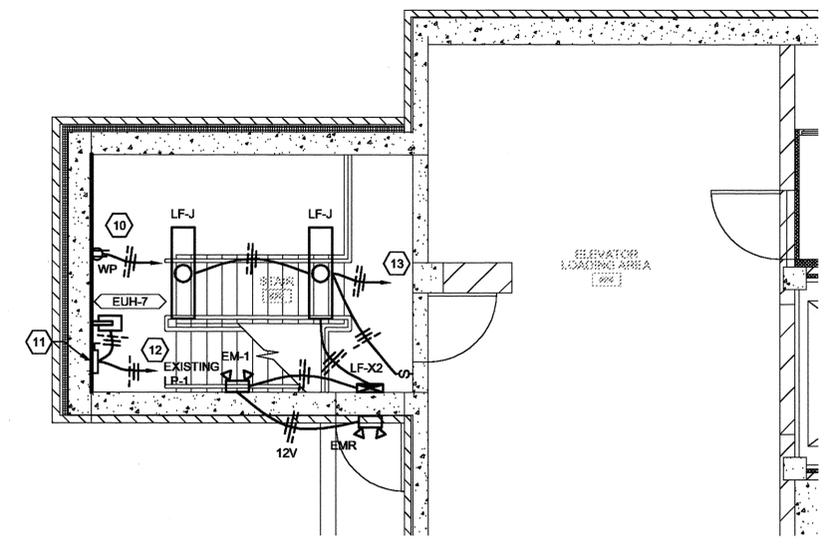
1. ELECTRICAL DEMOLITION WORK IN THE EXISTING TUNNEL SHALL BE COORDINATED WITH THE PROJECT SCHEDULE, OWNER, ENGINEER, AND GENERAL CONTRACTOR.
2. PLEASE NOTE: THE MAINTENANCE BYPASS SWITCH/PANELBOARD AND UPS WILL BE TEMPORARILY RELOCATED TO ALLOW OPERATION OF THE UV REACTOR #1 AND #2, WHILE ALLOWING DEMOLITION OF THE EXISTING TUNNEL. THE MAINTENANCE BYPASS SWITCH/PANELBOARD, UPS, AND PANELBOARD PPL-1 WILL BE RELOCATED TO THEIR PERMANENT LOCATION WITHIN THE NEW PT/GAC BUILDING. REFER TO PROJECT SPECIFICATIONS FOR WORK SEQUENCE/SCHEDULE.
3. THERE IS AN EXTENSIVE AMOUNT OF POWER AND INSTRUMENTATION WIRING ASSOCIATED THAT ARE ROUTED THROUGH THE EXISTING TUNNEL. RELOCATE WIRING AS STATED IN KEYNOTE #5 BELOW, TO MAINTAIN OPERATION OF EXISTING EQUIPMENT.



PARTIAL FILTER BUILDING AND TUNNEL - ELECTRICAL DEMOLITION PLAN
SCALE: 1/4"=1'-0" 0 2 4 8

SHEET KEYNOTES:

1. EXISTING 180KVA UPS TO BE TEMPORARILY RELOCATED TO WITHIN THE EXISTING FILTER BUILDING.
2. EXISTING DISTRIBUTION PANELBOARD, PPL-1, TO BE TEMPORARILY RELOCATED TO WITHIN THE EXISTING FILTER BUILDING.
3. EXISTING MAINTENANCE BYPASS SWITCH/PANELBOARD TO BE TEMPORARILY RELOCATED TO WITHIN THE EXISTING FILTER BUILDING.
4. EXISTING PANELBOARD LPB-3 (2 PANELS) TO BE REMOVED DURING DEMOLITION PHASE OF EXISTING TUNNEL (REFER TO PROJECT SPECIFICATIONS FOR SEQUENCE/SCHEDULE). REMOVE AND PROPERLY DISPOSE OF FEEDER TO THE EXISTING MCC LOCATED ON MEZZANINE OF FILTER BUILDING (LOCATION SHOWN ON SHEET E-08-107). REMOVE AND PROPERLY DISPOSE OF ALL ASSOCIATED BRANCH CIRCUITS FROM PANELBOARD LPB-3.
5. EXISTING CONDUIT ROUTED THROUGH THE TUNNEL BETWEEN THE EXISTING FILTER BUILDING AND EXISTING CHEMICAL BUILDING SHALL BE RE-ROUTED UNDERGROUND OUTSIDE FOOTPRINT OF EXISTING TUNNEL.
6. REMOVE AND PROPERLY DISPOSE OF ALL RECEPTACLES, LIGHT FIXTURES, ETC. AND ASSOCIATED CONDUIT/WIRING LOCATED WITHIN THE TUNNEL.
7. REMOVE AND PROPERLY DISPOSE OF FEEDERS BETWEEN PANELBOARD PPL-1, MAINTENANCE BYPASS SWITCH/PANELBOARD, AND UPS.
8. REMOVE AND PROPERLY DISPOSE OF THE EXISTING PULL BOX (USED FOR FEEDER TO PPL-1 AND FEEDER FROM BYPASS SWITCH/PANEL TO EXISTING PANELBOARD PPL-1).
9. THE 400AMP PANELBOARD PPL-1 FEEDER AND 300AMP PANELBOARD PPL-1 FEEDER TO BE REMOVED BACK TO THE EXISTING FILTER PIPE GALLERY FOR REROUTING. SEE SHEET E-08-101 FOR ADDITIONAL INFORMATION.
10. NEW DUPLEX RECEPTACLE. CONNECT TO NEAREST GENERAL DUTY RECEPTACLE CIRCUIT.
11. 30A / 240V / 1-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
12. CONNECT TO A NEW 20A/2P BREAKER INSTALLED IN SPACE OF EXISTING PANEL LP-1 (LOCATION SHOWN ON SHEET E-08-101).
13. CONNECT TO A SPARE 20A/1P BREAKER IN EXISTING PANEL LP-1 (LOCATION SHOWN ON SHEET E-08-101).



PARTIAL FILTER BUILDING- ELECTRICAL NEW WORK PLAN
SCALE: 1/4"=1'-0" 0 2 4 8



User: JBOND Spec: PIRNIE STANDARD File: U:\3789-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3789-E-04-101.DWG Scale: 1:18 Saved Date: 12/20/2010 Time: 10:29 Plot Date: Bond, Jeff, 3/10/2011, 09:28 Layout: E-04-101



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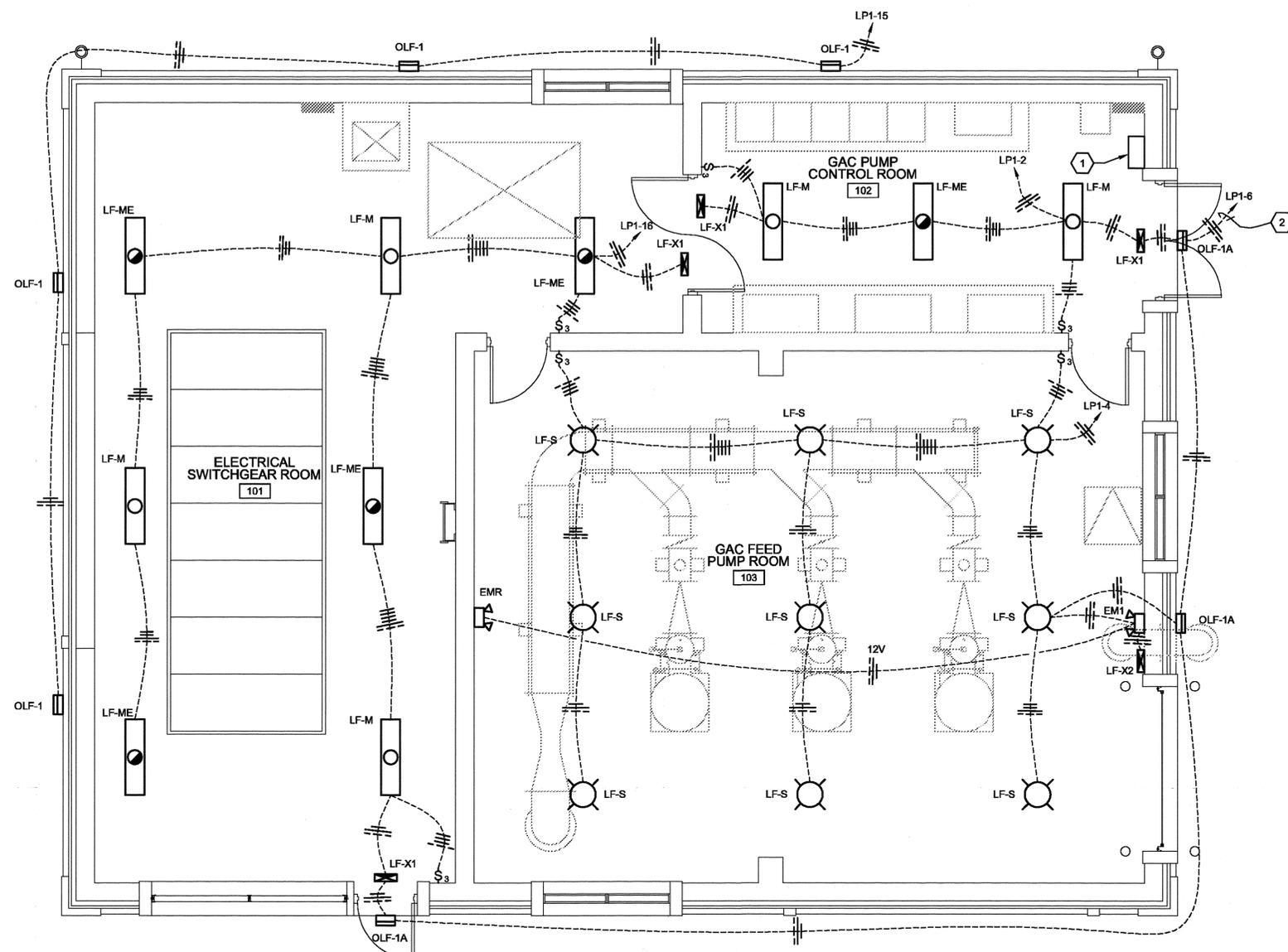
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DWN: DLM
CKD: PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
PARTIAL FILTER BLDG AND TUNNEL
ELECTRICAL PLANS AND SCHEMATICS
SCALE: AS NOTED

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-04-101
CAD REF. NO.: 3789-E-04-101

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GAC FEED PUMP STATION LIGHTING PLAN
SCALE: 1/4"=1'-0"

GENERAL NOTES:

1. PENDANT MOUNT LF-S FIXTURES AT 20'-6" AFF. MAINTAIN REQUIRED CLEARANCES FOR THE BRIDGE CRANE. COORDINATE WITH ENGINEER APPROVED BRIDGE CRANE SHOP DRAWINGS.
2. PENDANT MOUNT LF-M AND LF-ME FIXTURES AT 10'-0" AFF.
3. MOUNT OLF-1 AND OLF-1A FIXTURES AT 14'-0" AFG.

KEYNOTE:

1. EMERGENCY LIGHTING BATTERY INVERTER, EQUIVALENT TO HIGHLIGHTS PCF-FT-500. PROVIDE WITH WALL MOUNTING BRACKET. INVERTER SHALL BE USED TO POWER 100W QUARTZ LAMP WITHIN FIXTURE OLF-1 DURING POWER OUTAGES. MOUNT AT 7'-0" AFF.
2. ROUTE INDICATED CIRCUIT (EMERGENCY) THROUGH THE BATTERY INVERTER REFERENCED BY KEYNOTE #1, THIS SHEET.



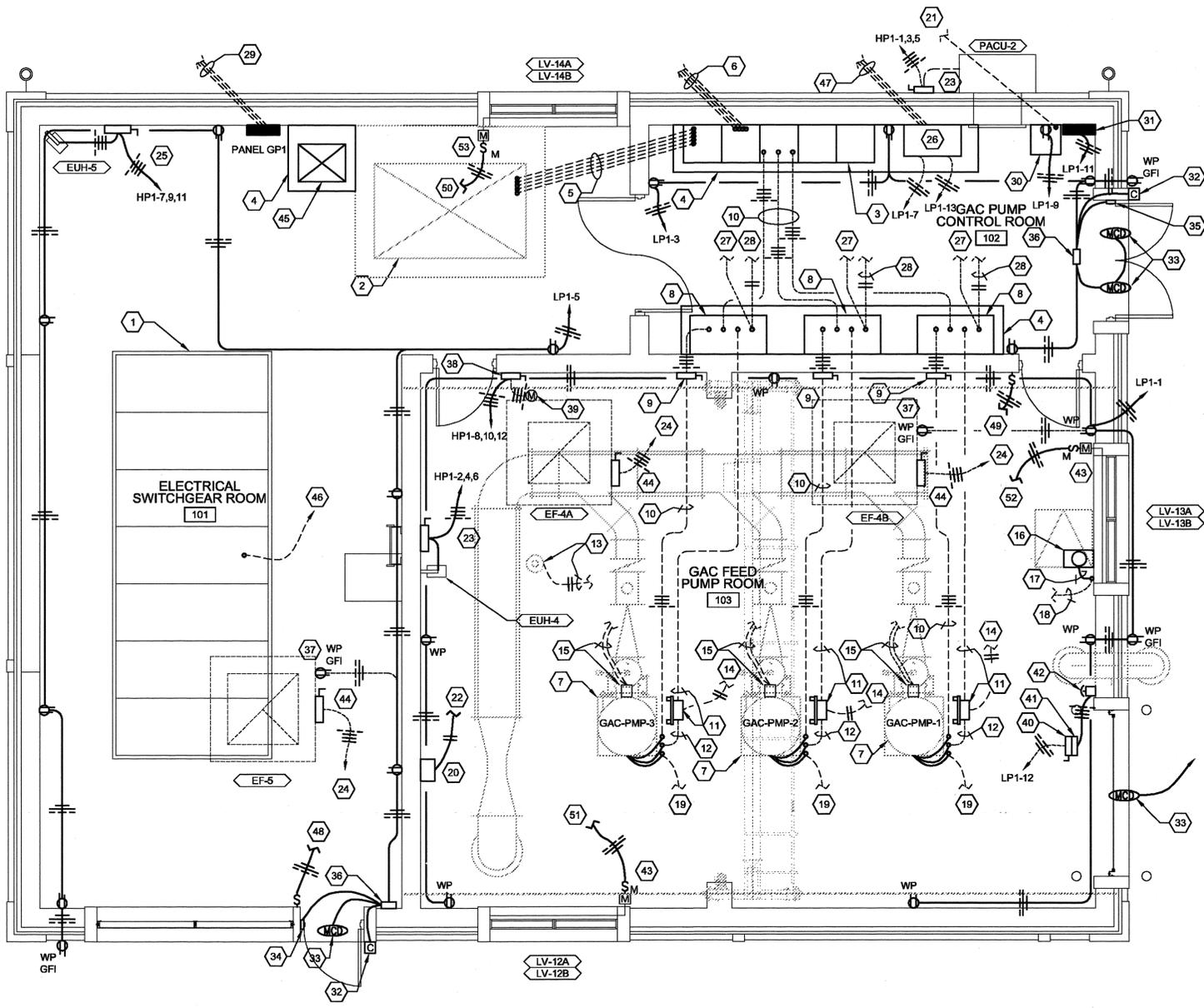
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DES PJB
DWN DLM
CKD PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

ELECTRICAL
GAC FEED PUMP STATION
LIGHTING PLAN
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-05-101
CAD REF. NO.: 3789-E-05-101



GAC FEED PUMP STATION POWER PLAN

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



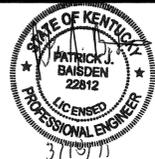
GENERAL NOTES:

- CONDUIT SHALL ENTER EITHER THE BOTTOM OR SIDE OF ALL CONTROL PANELS/DISCONNECTS/ETC. WITHIN PROCESS AREAS.
- ITT PROCOM COMMUNICATION MODULE (IS NOT SHOWN, HOWEVER IS TO BE LOCATED ABOVE THE 19" EQUIPMENT RACK (REFERENCED BY KEYNOTE #30). PROVIDE A #24 AWG 4 PR CAT 6 CABLE IN 3/4" CONDUIT TO EQUIPMENT RACK. REFER TO SPECIFICATION SECTION 11110 FOR ADDITIONAL INFORMATION.
- PROVIDE SWITCHBOARD MATTING AS DEFINED IN SPECIFICATION SECTION 16495.
- REFER TO ONE-LINE DIAGRAMS ON SHEETS E-00-602 AND E-00-603 FOR FEEDER REQUIREMENTS.
- IN GAC FEED PUMP ROOM 103, ALL CONDUIT SHALL BE ROUTED TO ALLOW FULL OPERATION OF BRIDGE CRANE. CONDUIT TO GAC FEED PUMPS, LOCAL CONTROL STATIONS, LEVEL TRANSMITTER, ETC. SHALL BE CONCEALED IN SLAB.

SHEET KEYNOTES:

- 2400V PARALLELING SWITCHGEAR. REFER TO SHEET E-00-601 AND E-05-104 FOR ADDITIONAL INFORMATION.
- 1500KVA TRANSFORMER, 2400V PRIMARY, 480/277V SECONDARY. REFER TO SHEET E-00-601 AND E-05-104 FOR ADDITIONAL INFORMATION.
- MOTOR CONTROL CENTER "MCC-GFP". REFER TO ONE-LINE DIAGRAM ON SHEET E-00-602.
- HOUSEKEEPING EQUIPMENT PAD.
- ELECTRICAL FEEDER FOR MOTOR CONTROL CENTER, MCC-GFP, FROM THE 1500KVA TRANSFORMER. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-602 FOR FEEDER REQUIREMENTS.
- ELECTRICAL FEEDER FOR MOTOR CONTROL CENTER "MCC-GAC" (LOCATED IN THE PT/GAC BUILDING) FROM "MCC-GFP". REFER TO ONE-LINE DIAGRAM ON SHEET E-00-602 FOR FEEDER REQUIREMENTS.
- GAC FEED PUMP (100HP, 480V, 3-PHASE).
- 100HP VARIABLE FREQUENCY DRIVE FOR GAC FEED PUMP (NEMA 12 ENCLOSURE). REFER TO CONTROL CIRCUIT ON SHEET E-00-606.
- 200A / 600V / 3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE). DISCONNECT TO BE FURNISHED WITH A N.O. AUXILIARY CONTACT FOR CONNECTION TO ASSOCIATED VFD.
- GAC FEED PUMP ELECTRICAL FEEDER. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-602 FOR ADDITIONAL INFORMATION. PROVIDE AN ADDITIONAL 2#12 (AUXILIARY CONTACT ON DISCONNECT) FROM DISCONNECT TO ASSOCIATED GAC FEED PUMP VFD.
- LOCAL CONTROL STATION FOR GAC FEED PUMP (NEMA 4X ENCLOSURE) 2#12, 1#12 GND. (LOR, START/STOP, E-STOP, INDICATING LIGHTS, AND DATA MONITOR CONDUCTORS) IN 1" CONDUIT TO ASSOCIATED GAC FEED PUMP VFD. ALSO, PROVIDE 1#16 STP (SPEED INDICATION) TO ASSOCIATED GAC FEED PUMP VFD.
- ROUTE FROM THE MONITORING DEVICE (WITHIN THE LOCAL CONTROL STATION) A THREE (3) CABLES (VENDOR SUPPLIED) IN CONDUIT TO BEARING TEMPERATURE/VIBRATION SENSORS INTEGRALLY MOUNTED TO PUMP MOTOR. SIZE CONDUIT ACCORDINGLY. REFER TO SPECIFICATION SECTION 11113.
- APPROXIMATE LOCATION OF LEVEL TRANSMITTER - RADAR (LITLLE-0100). SEE DETAIL ON SHEET I-10-502. PROVIDE 2#16 STP IN 3/4" CONDUIT FROM LEVEL TRANSMITTER TO GPS-PLC CABINET.
- 2#12, 1#12 GND. (E-STOP CONDUCTORS) IN 3/4" CONDUIT FROM LOCAL CONTROL STATION TO THE GPS-PLC CABINET.
- APPROXIMATE LOCATION OF PRESSURE SWITCH - HIGH (PSH-11X). PROVIDE 2#12, 1#12 GND. IN 3/4" CONDUIT TO ASSOCIATED GAC FEED PUMP VFD.
- HIGH LEVEL (LSH-0100) AND LOW LEVEL (LSL-0100) FLOAT SWITCHES. REFER TO SHEET I-10-502 FOR MOUNTING DETAILS.
- FINAL SECTION OF CONDUIT SHALL BE LIQUIDTIGHT FLEXIBLE TYPE.
- 4#12, 1#12 GND. IN 3/4" CONDUIT FROM FLOAT SWITCHES TO GPS-PLC CABINET.
- 2#12, 1#12 GND. (WINDING THERMOSTAT CONDUCTORS) IN 3/4" CONDUIT TO THE ASSOCIATED GAC FEED PUMP VFD.
- VENTURI FLOWMETER TRANSMITTER (FIT/FE-0100). MOUNT AT 36" AFF. REFER TO MOUNTING DETAIL ON SHEET I-10-502.
- 24-STRAND 63.5/125 MICRON MM FIBER IN 3" CONDUIT FROM FIBER OPTIC PATCH PANEL (KEYNOTE #30) TO THE FIBER OPTIC PATCH PANEL LOCATED WITHIN THE PT/GAC BUILDING (SHOWN ON SHEET E-06-401). PROVIDE AN ADDITIONAL SPARE 3" CONDUIT WITH PULL STRING. REFER TO SHEET E-02-102 FOR CONTINUATION.
- 2#16 STP IN 3/4" CONDUIT FROM FLOW TRANSMITTER TO GPS-PLC.
- 30A / 600V / 3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
- ELECTRICAL FEEDER FOR INDICATED EXHAUST FAN. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-602 FOR ADDITIONAL INFORMATION.
- 30A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 1 ENCLOSURE).
- GPS-PLC CABINET. PROVIDE TWO (2) #24 AWG 4 PR CAT 6 CABLE IN 3/4" CONDUIT TO THE 19" EQUIPMENT RACK (KEYNOTE #30).
- 14 #12, 1#12 GND IN 1" CONDUIT (CONTROL CONDUCTORS) FROM GAC FEED PUMP VFD TO GPS - PLC.
- 2 #16 STP IN 3/4" CONDUIT FROM GAC FEED PUMP VFD TO GPS - PLC CABINET. ALSO, PROVIDE A #24 AWG 4 PR CAT 6 CABLE IN 3/4" CONDUIT FROM GAC FEED PUMP VFD TO THE 19" EQUIPMENT RACK (KEYNOTE #30).
- FEEDER FOR GENERATOR'S BATTERY CHARGER, HEATERS, ETC. EXTEND TO PANELBOARD INSTALLED WITHIN GENERATOR ENCLOSURE. REFER TO SHEET E-02-102 FOR APPROXIMATE LOCATION. TYPICAL FOR TWO (2) GENERATORS. UTILIZE CIRCUITS GP1-1,3,5 AND GP1-2,4,6. STUB AN EMPTY 2" CONDUIT 15' BEYOND BUILDING FOOTPRINT FOR A FUTURE THIRD GENERATOR.
- 19" EQUIPMENT RACK. REFER TO SHEET I-00-002 FOR EQUIPMENT AND REQUIRED CONNECTIONS BETWEEN SWITCHES AND FIBER OPTIC PATCH PANEL. CONTRACTOR SHALL PROVIDE A 1/4" X 4" X 12" INSULATED COPPER GROUND BAR, WHICH IS TO BE BONDED TO BUILDING WITH #6 AWG COPPER WIRE IN 3/4" PVC CONDUIT. THE EQUIPMENT RACK AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE GROUND BAR.
- SECURITY SYSTEM PANEL. PROVIDE A #24 AWG 4 PR CAT 6 CABLE IN 3/4" CONDUIT TO THE 19" EQUIPMENT RACK (KEYNOTE #30). REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SECURITY SYSTEM CARD READER (MOUNT AT 42" AFF). PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SECURITY SYSTEM DOOR CONTACTS. COORDINATE MOUNTING WITH GENERAL CONTRACTOR. PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- ELECTRONIC DOOR STRIKE (COORDINATE INSTALLATION WITH DOOR HARDWARE PROVIDER/INSTALLER). PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SECURITY SYSTEM HINGE TRANSFER DEVICE. PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR. PROVIDE WIRING THROUGH DOOR TO THE DOOR STRIKE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- POWER SUPPLY/DOOR CONTROLLER MOUNTED ABOVE DOOR. PROVIDE CONDUIT/WIRING BACK TO SECURITY SYSTEM PANEL (KEYNOTE#31).
- MOUNT RECEPTACLE ADJACENT TO ROOF MOUNTED EXHAUST FAN.
- 30A/ 600V/ 3-PHASE FUSED DISCONNECT (NEMA 4X ENCLOSURE). FUSE DISCONNECT PER BRIDGE CRANE MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE CONNECTION TO BRIDGE CRANE, AS REQUIRED. COORDINATE WITH BRIDGE CRANE MANUFACTURER/INSTALLER AND PROVIDE COMPLETE.
- 30A / 240V / 1-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
- PROVIDE CONNECTION TO OVERHEAD DOOR CONTROLLER, AS REQUIRED. COORDINATE WITH OVERHEAD DOOR INSTALLER.
- UP/DOWNSTOP PUSHBUTTON FOR OVERHEAD DOOR. PROVIDE WIRING TO OVERHEAD DOOR CONTROLLER.
- NEMA 4 MANUAL MOTOR STARTER FOR EACH LOUVER ACTUATOR. TYPICAL FOR 4 ACTUATORS AT THIS LOCATION, SEE SHEET M-05-101.
- 30A / 600V / 3-PHASE NON-FUSED DISCONNECT ADJACENT TO ROOF MOUNTED EXHAUST FAN (NEMA 4X ENCLOSURE).
- PANELBOARD GP1 TRANSFORMER. REFER TO SHEET E-00-602 FOR ADDITIONAL INFORMATION.
- 12#12, 1#12 GND. IN 1" CONDUIT FROM GENERATOR MASTER CONTROL PANEL TO GPS-PLC CABINET.
- 10#12, 1#12 GND. IN 1" CONDUIT FROM GPS-PLC CABINET TO EACH OF TWO (2) STANDBY GENERATORS (SEE E-02-102 FOR LOCATION). PROVIDE AN ADDITIONAL 1" EMPTY CONDUIT STUBBED 15' OUTSIDE BUILDING FOOTPRINT FOR A FUTURE THIRD GENERATOR.
- TOGGLE SWITCH FOR CONTROL OF EXHAUST FAN, EF-5. PROVIDE CONDUIT/WIRING TO STARTER IN MCC-GFP.
- NEMA 4X TOGGLE DPST SWITCH FOR CONTROL OF EXHAUST FANS, EF-4A AND EF-4B. PROVIDE CONDUIT/WIRING TO STARTERS IN MCC-GFP.
- PROVIDE CONDUIT/WIRING TO EXHAUST FAN, EF-5. STARTER IN MCC-GFP FOR CONTROL OF ACTUATORS ASSOCIATED WITH THE INDICATED MOTORIZED LOUVERS.
- PROVIDE CONDUIT/WIRING TO EXHAUST FAN, EF-4A, STARTER IN MCC-GFP FOR CONTROL OF ACTUATORS ASSOCIATED WITH THE INDICATED MOTORIZED LOUVERS.
- PROVIDE CONDUIT/WIRING TO EXHAUST FAN, EF-4B, STARTER IN MCC-GFP FOR CONTROL OF ACTUATORS ASSOCIATED WITH THE INDICATED MOTORIZED LOUVERS.
- NEMA 4 MANUAL MOTOR STARTER FOR EACH LOUVER ACTUATOR. TYPICAL FOR 3 ACTUATORS AT THIS LOCATION, SEE SHEET M-05-101.

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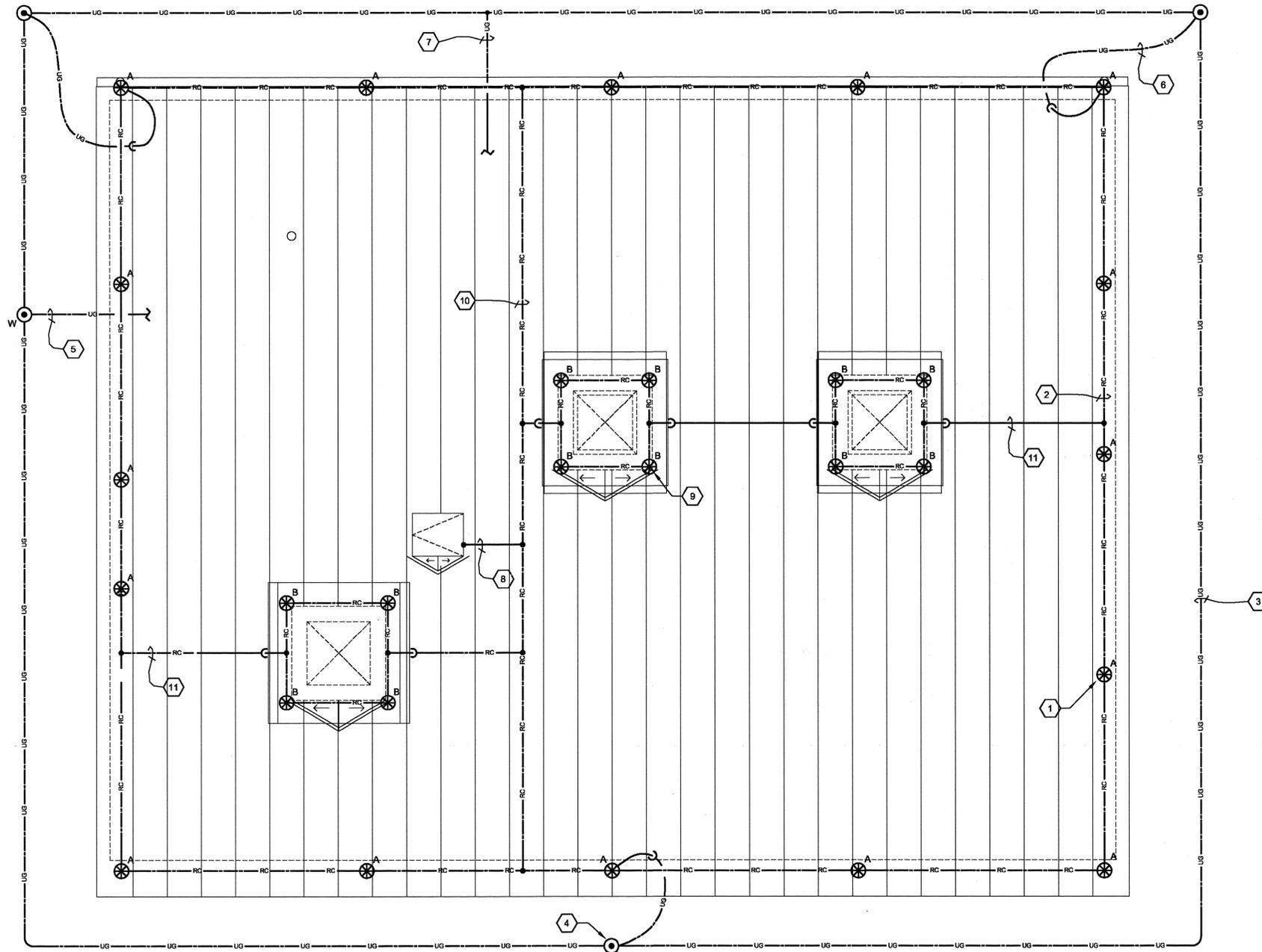
DES PJB
DWN DLM
CKD PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
GAC FEED PUMP STATION
LOW VOLTAGE POWER PLAN
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-05-102
CAD REF. NO. 3789-E-05-102

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GAC FEED PUMP STATION - LIGHTNING PROTECTION PLAN

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



GENERAL NOTES:

1. THIS INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF UL MASTER LABEL.
2. REFER TO ARCHITECTURAL PLANS AND SECTIONS FOR ACTUAL BUILDING CONSTRUCTION METHODS.
3. THE LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED TO COMPLY WITH THE REQUIREMENTS OF UL498A "MASTER LABEL" AND PROVIDE OWNER WITH A PLAQUE STATING THE SAME. AFFIX PLAQUE TO BUILDING NEAR MAIN ENTRY POINT.
4. ALL METAL PROTRUSIONS THRU ROOF AND ON ROOF THAT ARE REQUIRED TO BE BONDED PER NFPA 780 SHALL BE GROUNDED WITH #4 MINIMUM SIZE CONDUCTOR.
5. ALL GROUND CONNECTIONS SHALL BE EXOTHERMICALLY WELDED.
6. MECHANICAL EQUIPMENT, STACKS, ANTENNAS, RAILINGS, LIGHT FIXTURES, ETC. ON ROOF THAT ARE METAL SHALL BE FURNISHED WITH AIR TERMINALS (MIN. 10" ABOVE THE ITEM AND BONDED TO THE LIGHTNING PROTECTION SYSTEM.
7. THIS SYSTEM IS DESIGNED AROUND COPPER GROUND COMPONENTS AND ALUMINUM LIGHTNING PROTECTION COMPONENTS.
8. INCOMING METAL UTILITY LINES (WATER, ELECTRICAL CONDUITS, ETC.) SHALL BE CONNECTED TO GROUND SYSTEM.
9. ELECTRICAL CONTRACTOR TO COORDINATE WITH STRUCTURAL FABRICATOR AND GENERAL CONTRACTOR TO PROVIDE CONCEALED CONDUITS IN STRUCTURAL CONCRETE COLUMNS FOR LIGHTNING PROTECTION DOWN CONDUCTOR ROUTING.
10. COORDINATE WITH ROOFING CONTRACTOR FOR PITCH POCKETS AND LOCATIONS OF ANY ROOF PENETRATIONS REQUIRED BY THE LIGHTNING PROTECTION SYSTEM.
11. SEE SHEET E-10-504 FOR LIGHTNING PROTECTION DETAIL DRAWINGS.

SHEET KEYNOTES:

1. 1/2" x 12" TYPE 'A' ALUMINUM AIR TERMINAL ON FLAT ROOF. NOMINALLY SPACED AT 20' (TYPICAL). SEE DETAIL SHEET E-10-504.
2. #1/0 ALUMINUM MAIN CONDUCTOR (TYPICAL).
3. #2 COPPER GROUND COUNTERPOISE LOCATED 5 FEET FROM BUILDING FOUNDATION AND 30 INCHES BELOW GRADE.
4. 3/4"x10' COPPER CLAD GROUND ROD (TYPICAL). SEE DETAIL ON SHEET E-10-504.
5. #3/0 MINIMUM BARE COPPER SERVICE GROUNDING CONDUCTOR TO PARALLELING SWITCHGEAR (REFER TO SHEET E-05-104 FOR LOCATION). ROUTE IN 1" SCH 40 PVC CONDUIT.
6. PROVIDE DOWN CONDUCTOR TO GROUND ROD/COUNTERPOISE. TRANSITION FROM ALUMINUM MAIN ROOF CONDUCTOR TO COPPER DOWN CONDUCTOR, UNDER ROOF AT TOP OF WALL. ROUTE DOWN THROUGH STRUCTURE TO UNDERGROUND (MINIMUM 30" COVER).
7. #3/0 MINIMUM BARE COPPER GROUNDING CONDUCTOR TO 1500KVA TRANSFORMER (REFER TO SHEET E-05-104 FOR LOCATION). BOND TO TRANSFORMER X₆. ROUTE IN 1" SCH 40 PVC CONDUIT.
8. #1/0 ALUMINUM BONDING CONNECTION. EXTEND FROM CROSS RUN CONDUCTOR TO ACCESS HATCH FRAME AND BOND.
9. 1/2" x 12" TYPE 'B' ALUMINUM AIR TERMINAL ON ROOF MOUNTED EXHAUST FAN. SEE DETAIL SHEET E-10-504.
10. #1/0 ALUMINUM CROSS RUN CONDUCTOR (MAIN CONDUCTOR), SPACED AT 50' MAX. (TYPICAL).
11. #1/0 ALUMINUM CONNECTION FROM MAIN CONDUCTOR TO ROOF MOUNTED EXHAUST FAN AIR TERMINALS.



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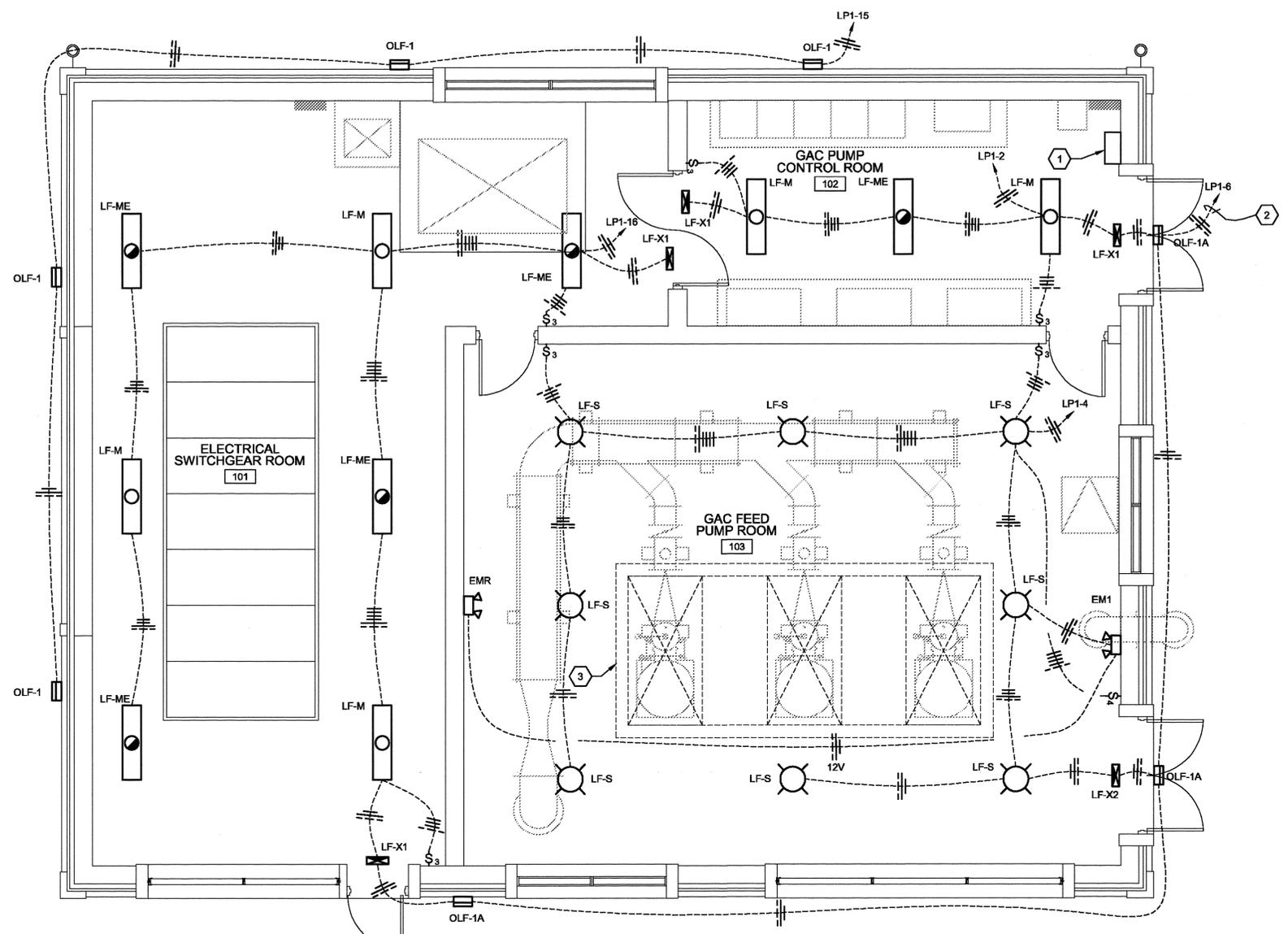
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DWN DLM
CKD PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
**GAC FEED PUMP STATION
LIGHTNING PROTECTION PLAN**
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-05-103
CAD REF. NO.: 3789-E-05-103

User: BOND Spec: PIRNIE STANDARD File: U:\3789-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELECTRICAL\E-05-101A.DWG Scale: 1/4"=1'-0" Date: 3/1/2011 Time: 08:52 Pld Date: Bond, Jeff: 3/1/2011: 08:48 Layout: E-05-101A



GAC FEED PUMP STATION LIGHTING PLAN
SCALE: 1/4"=1'-0"

GENERAL NOTES:

1. PENDANT MOUNT LF-S FIXTURES AT 11'-6" AFF.
2. PENDANT MOUNT LF-M AND LF-ME FIXTURES AT 10'-0" AFF.
3. MOUNT OLF-1 AND OLF-1A FIXTURES AT 9'-0" AFG (FROM CENTERLINE OF FIXTURE).

KEYNOTE SHEET:

1. EMERGENCY LIGHTING BATTERY INVERTER, EQUIVALENT TO HIGHLIGHTS PCF-FT-500. PROVIDE WITH WALL MOUNTING BRACKET. INVERTER SHALL BE USED TO POWER 100W QUARTZ LAMP WITHIN FIXTURE OLF-1 DURING POWER OUTAGES. MOUNT AT 7'-0" AFF.
2. ROUTE INDICATED CIRCUIT (EMERGENCY) THROUGH THE BATTERY INVERTER REFERENCED BY KEYNOTE #1, THIS SHEET.
3. SKYLIGHT ACCESS. CONDUIT ROUTING SHALL BE OUTSIDE FOOTPRINT (FROM ROOF TO FINISHED FLOOR) OF SKYLIGHT TO ALLOW FEED PUMP REMOVAL.



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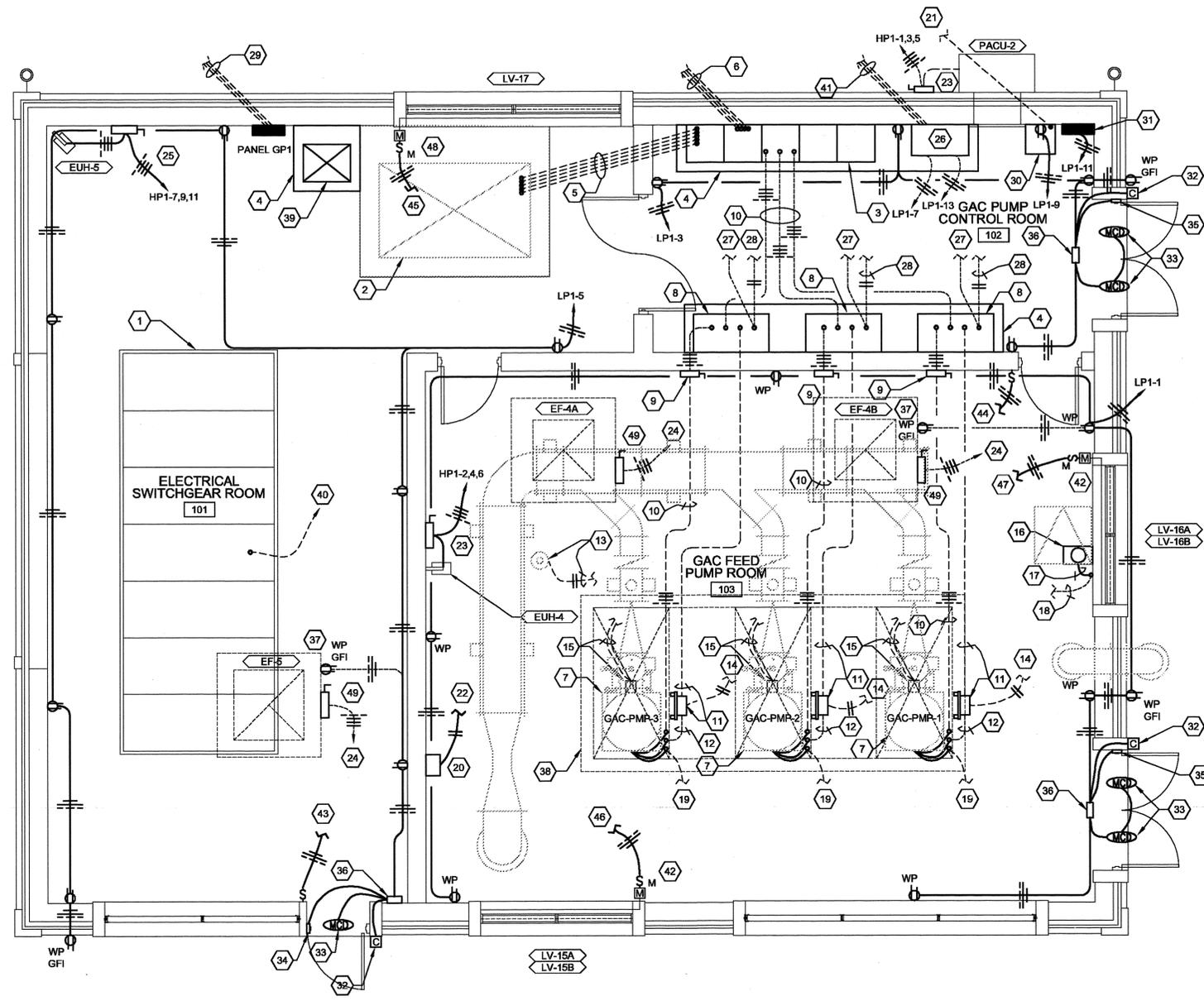
DES PJB
DWN DLM
CKD PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

ELECTRICAL
GAC FEED PUMP STATION
ALT. BID No. 1 - LIGHTING PLAN
SCALE: 1/4" = 1'-0"

ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	E-05-101A
CAD REF. NO.:	3789-E-05-101A

User: I:\BOND Spec-PIRNE STANDARD File: J:\3786-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3786-E-05-102A.DWG Scale: 1:18 Saved Date: 2/28/2011 Time: 10:41 Pld Date: Bond_Jeff_3/10/2011 06:28 Layout: E-05-102A



GAC FEED PUMP STATION POWER PLAN

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



GENERAL NOTES:

- CONDUIT SHALL ENTER EITHER THE BOTTOM OR SIDE OF ALL CONTROL PANELS/DISCONNECTS/ETC. WITHIN PROCESS AREAS.
- ITT PROCOM COMMUNICATION MODULE (IS NOT SHOWN, HOWEVER IS TO BE LOCATED ABOVE THE 19" EQUIPMENT RACK (REFERENCED BY KEYNOTE #30). PROVIDE A #24 AWG 4 PR CAT 6 CABLE IN 3/4" CONDUIT TO EQUIPMENT RACK. REFER TO SPECIFICATION SECTION 11110 FOR ADDITIONAL INFORMATION.
- PROVIDE SWITCHBOARD MATTING AS DEFINED IN SPECIFICATION SECTION 16495.
- REFER TO ONE-LINE DIAGRAMS ON SHEETS E-00-602 AND E-00-603 FOR FEEDER REQUIREMENTS.
- IN GAC FEED PUMP ROOM 103, ALL CONDUIT SHALL BE ROUTED TO ALLOW REMOVAL OF GAC FEED PUMPS THROUGH SKYLIGHTS. CONDUIT TO GAC FEED PUMPS, LOCAL CONTROL STATIONS, LEVEL TRANSMITTER, ETC. SHALL BE CONCEALED IN SLAB.

SHEET KEYNOTES:

- 2400V PARALLELING SWITCHGEAR. REFER TO SHEET E-00-601 AND E-05-104 FOR ADDITIONAL INFORMATION.
- 1500KVA TRANSFORMER, 2400V PRIMARY, 480/277V SECONDARY. REFER TO SHEET E-00-601 AND E-05-104 FOR ADDITIONAL INFORMATION.
- MOTOR CONTROL CENTER "MCC-GFP". REFER TO ONE-LINE DIAGRAM ON SHEET E-00-602.
- HOUSEKEEPING EQUIPMENT PAD.
- ELECTRICAL FEEDER FOR MOTOR CONTROL CENTER, "MCC-GFP", FROM THE 1500KVA TRANSFORMER. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-602 FOR FEEDER REQUIREMENTS.
- ELECTRICAL FEEDER FOR MOTOR CONTROL CENTER, "MCC-GAC", (LOCATED IN THE PT/GAC BUILDING) FROM "MCC-GFP". REFER TO ONE-LINE DIAGRAM ON SHEET E-00-602 FOR FEEDER REQUIREMENTS.
- GAC FEED PUMP (100HP, 480V, 3-PHASE).
- 100HP VARIABLE FREQUENCY DRIVE FOR GAC FEED PUMP (NEMA 12 ENCLOSURE). REFER TO CONTROL CIRCUIT ON SHEET E-00-606.
- 200A / 600V / 3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE). DISCONNECT TO BE FURNISHED WITH A N.O. AUXILIARY CONTACT FOR CONNECTION TO ASSOCIATED VFD.
- GAC FEED PUMP ELECTRICAL FEEDER. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-602 FOR ADDITIONAL INFORMATION. PROVIDE AN ADDITIONAL 2#12 (AUXILIARY CONTACT ON DISCONNECT) FROM DISCONNECT TO ASSOCIATED GAC FEED PUMP VFD.
- LOCAL CONTROL STATION FOR GAC FEED PUMP (NEMA 4X ENCLOSURE). 2#12, 1#12 GND. (LOR, START/STOP, E-STOP, INDICATING LIGHTS, AND DATA MONITOR CONDUCTORS) IN 1" CONDUIT TO ASSOCIATED GAC FEED PUMP VFD. ALSO, PROVIDE 1#16 STP (SPEED INDICATION) TO ASSOCIATED GAC FEED PUMP VFD.
- ROUTE FROM THE MONITORING DEVICE (WITHIN THE LOCAL CONTROL STATION) A THREE (3) CABLES (VENDOR SUPPLIED) IN CONDUIT TO BEARING TEMPERATURE/VIBRATION SENSORS INTEGRALLY MOUNTED TO PUMP MOTOR. SIZE CONDUIT ACCORDINGLY. REFER TO SPECIFICATION SECTION 11113.
- APPROXIMATE LOCATION OF LEVEL TRANSMITTER - RADAR (LITLE-0100). SEE DETAIL ON SHEET I-10-502. PROVIDE 2 #16 STP IN 3/4" CONDUIT FROM LEVEL TRANSMITTER TO GPS-PLC CABINET.
- 2#12, 1#12 GND. (E-STOP CONDUCTORS) IN 3/4" CONDUIT FROM LOCAL CONTROL STATION TO THE GPS-PLC CABINET.
- APPROXIMATE LOCATION OF PRESSURE SWITCH - HIGH (PSH-11X). PROVIDE 2#12, 1#12 GND. IN 3/4" CONDUIT TO ASSOCIATED GAC FEED PUMP VFD.
- HIGH LEVEL (LSH-0100) AND LOW LEVEL (LSL-0100) FLOAT SWITCHES. REFER TO SHEET I-10-502 FOR MOUNTING DETAILS.
- FINAL SECTION OF CONDUIT SHALL BE LIQUIDTIGHT FLEXIBLE TYPE.
- 4#12, 1#12 GND. IN 3/4" CONDUIT FROM FLOAT SWITCHES TO GPS-PLC CABINET.
- 2#12, 1#12 GND. (WINDING THERMOSTAT CONDUCTORS) IN 3/4" CONDUIT TO THE ASSOCIATED GAC FEED PUMP VFD.
- VENTURI FLOWMETER TRANSMITTER (FIT/FE-0100). MOUNT AT 36" AFF, REFER TO MOUNTING DETAIL ON SHEET I-10-502.
- 24-STRAND 83.5/125 MICRON MM FIBER IN 3" CONDUIT FROM FIBER OPTIC PATCH PANEL (KEYNOTE #30) TO THE FIBER OPTIC PATCH PANEL LOCATED WITHIN THE PT/GAC BUILDING (SHOWN ON SHEET E-06-401). PROVIDE AN ADDITIONAL EMPTY SPARE 3" CONDUIT WITH PULL STRING. REFER SHEET E-02-102 FOR CONTINUATION.
- 2#16 STP IN 3/4" CONDUIT FROM FLOW TRANSMITTER TO GPS-PLC.
- 30A / 600V / 3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
- ELECTRICAL FEEDER FOR INDICATED EXHAUST FAN. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-602 FOR ADDITIONAL INFORMATION.
- 30A / 600V / 3-PHASE NON-FUSED DISCONNECT (NEMA 1 ENCLOSURE).
- GPS-PLC CABINET. PROVIDE TWO (2) #24 AWG 4 PR CAT 6 CABLE IN 3/4" CONDUIT TO THE 19" EQUIPMENT RACK (KEYNOTE #30).
- 14 #12, 1#12 GND IN 1" CONDUIT (CONTROL CONDUCTORS) FROM GAC FEED PUMP VFD TO GPS - PLC.
- 2 #16 STP IN 3/4" CONDUIT FROM GAC FEED PUMP VFD TO GPS - PLC CABINET. ALSO, PROVIDE A #24 AWG 4 PR CAT 6 CABLE IN 3/4" CONDUIT FROM GAC FEED PUMP VFD TO THE 19" EQUIPMENT RACK (KEYNOTE #30).
- FEEDER FOR GENERATOR'S BATTERY CHARGER, HEATERS, ETC. EXTEND TO PANELBOARD INSTALLED WITHIN GENERATOR ENCLOSURE. REFER TO SHEET E-02-102 FOR APPROXIMATE LOCATION. TYPICAL FOR TWO (2) GENERATORS. UTILIZE CIRCUITS GP1-1,3,5 AND GP1-2,4,6. STUB AN EMPTY 1-1/2" CONDUIT 15' BEYOND BUILDING FOOTPRINT FOR A FUTURE THIRD GENERATOR.
- 9" EQUIPMENT RACK. REFER TO SHEET I-00-002 FOR EQUIPMENT AND REQUIRED CONNECTIONS BETWEEN SWITCHES AND FIBER OPTIC PATCH PANEL. CONTRACTOR SHALL PROVIDE A 1/4" X 4" X 1/2" INSULATED COPPER GROUND BAR, WHICH IS TO BE BONDED TO BUILDING WITH #6 AWG COPPER WIRE IN 3/4" PVC CONDUIT. THE EQUIPMENT RACK AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE GROUND BAR.
- SECURITY SYSTEM PANEL. PROVIDE A #24 AWG 4 PR CAT 6 CABLE IN 3/4" CONDUIT TO THE 19" EQUIPMENT RACK (KEYNOTE #30). REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SECURITY SYSTEM CARD READER (MOUNT AT 42" AFF). PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SECURITY SYSTEM DOOR CONTACTS. COORDINATE MOUNTING WITH GENERAL CONTRACTOR. PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- ELECTRONIC DOOR STRIKE (COORDINATE INSTALLATION WITH DOOR HARDWARE PROVIDER/INSTALLER). PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SECURITY SYSTEM HINGE TRANSFER DEVICE. PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR. PROVIDE WIRING THROUGH DOOR TO THE DOOR STRIKE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- POWER SUPPLY/DOOR CONTROLLER MOUNTED ABOVE DOOR. PROVIDE CONDUIT/WIRING BACK TO SECURITY SYSTEM PANEL (KEYNOTE#31).
- MOUNT RECEPTACLE ADJACENT TO ROOF MOUNTED EXHAUST FAN.
- SKYLIGHT ACCESS. CONDUIT ROUTING SHALL BE OUTSIDE FOOTPRINT (FROM ROOF TO FINISHED FLOOR) OF SKYLIGHT TO ALLOW FEED PUMP REMOVAL.
- PANELBOARD GP1 TRANSFORMER. REFER TO SHEET E-00-602 FOR ADDITIONAL INFORMATION.
- 12#12, 1#12 GND. IN 1" CONDUIT FROM GENERATOR MASTER CONTROL PANEL TO GPS-PLC CABINET.
- 10#12, 1#12 GND. IN 1" CONDUIT FROM GPS-PLC CABINET TO EACH OF TWO (2) STANDBY GENERATORS (SEE E-02-102 FOR LOCATION). PROVIDE AN ADDITIONAL 1" EMPTY CONDUIT STUBBED 15' OUTSIDE BUILDING FOOTPRINT FOR A FUTURE THIRD GENERATOR.
- NEMA 4X MANUAL MOTOR STARTER FOR EACH LOUVER ACTUATOR. TYPICAL FOR 2 ACTUATORS AT THIS LOCATION, SEE SHEET M-05-101A.
- TOGGLE SWITCH FOR CONTROL OF EXHAUST FAN, EF-5. PROVIDE CONDUIT/WIRING TO STARTER IN MCC-GFP.
- NEMA 4X TOGGLE DPST SWITCH FOR CONTROL OF EXHAUST FANS, EF-4A AND EF-4B. PROVIDE CONDUIT/WIRING TO STARTERS IN MCC-GFP.
- PROVIDE CONDUIT/WIRING TO EXHAUST FAN, EF-5, STARTER IN MCC-GFP FOR CONTROL OF ACTUATORS ASSOCIATED WITH INDICATED MOTORIZED LOUVER.
- PROVIDE CONDUIT/WIRING TO EXHAUST FAN, EF-4A, STARTER IN MCC-GFP FOR CONTROL OF ACTUATORS ASSOCIATED WITH INDICATED MOTORIZED LOUVERS.
- PROVIDE CONDUIT/WIRING TO EXHAUST FAN, EF-4B, STARTER IN MCC-GFP FOR CONTROL OF ACTUATORS ASSOCIATED WITH INDICATED MOTORIZED LOUVERS.
- NEMA 4X MANUAL MOTOR STARTER FOR LOUVER, LV-17. SEE SHEET M-05-101A.



NO.		BY	DATE	REVISIONS	REMARKS

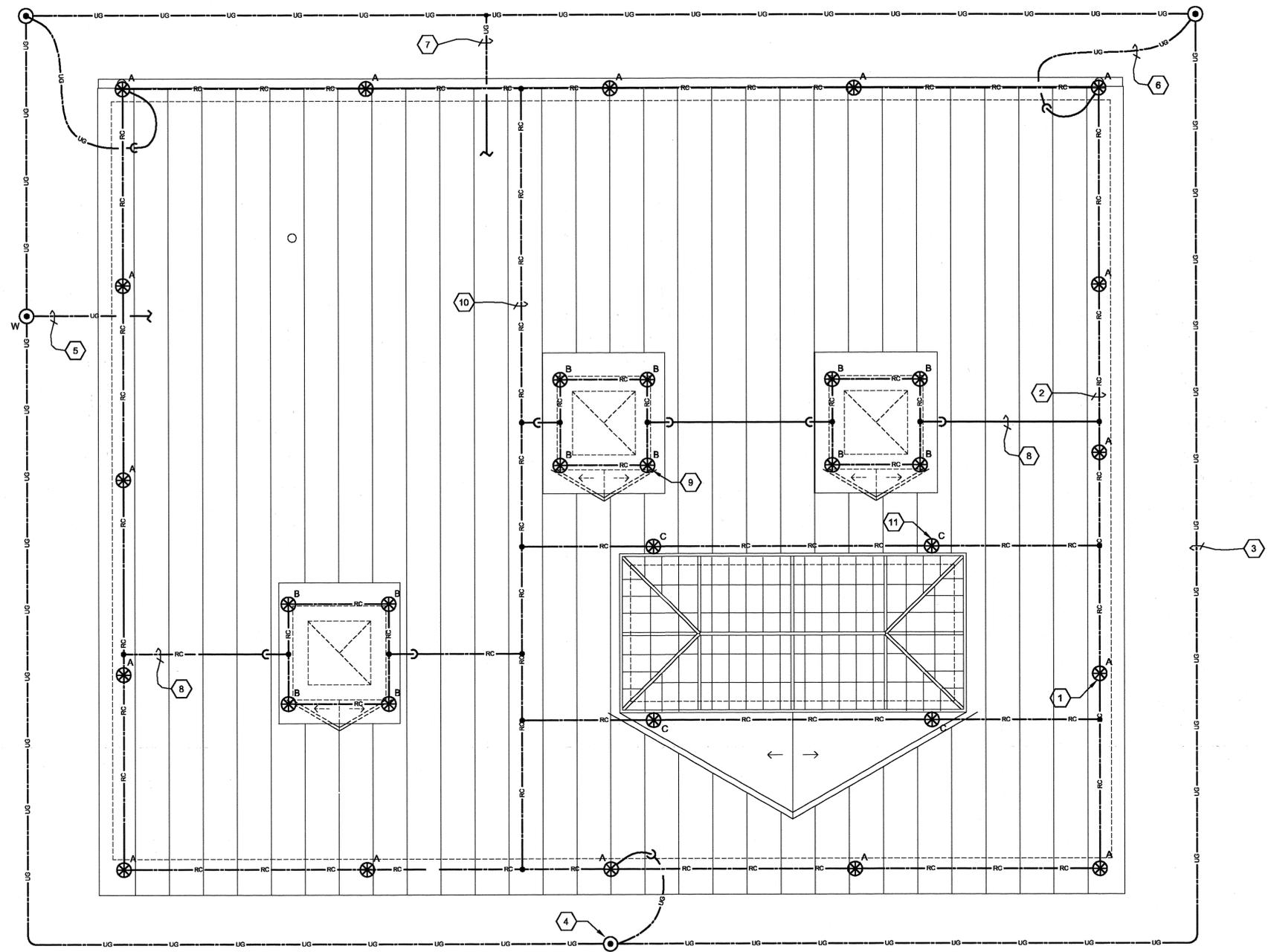
DES: PJB
DWN: DLM
CKD: PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
GAC FEED PUMP STATION
ALT. BID No. 1 - LV POWER PLAN
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-05-102A
CAD REF. NO.: 3786-E-05-102A

User: BOND Spec: PIRNIE STANDARD File: U:\3789-NKWD-Taylor Mill Working Drawings\DESIGN DRAWINGS\ELEC\3789-E-05-103A.DWG Scale: 1/4"=1'-0" Date: 3/10/2011 10:28:11 Layer: E-05-103A



GENERAL NOTES:

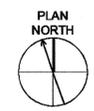
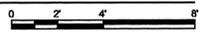
1. THIS INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF UL MASTER LABEL.
2. REFER TO ARCHITECTURAL PLANS AND SECTIONS FOR ACTUAL BUILDING CONSTRUCTION METHODS.
3. THE LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED TO COMPLY WITH THE REQUIREMENTS OF UL#96A "MASTER LABEL" AND PROVIDE OWNER WITH A PLAQUE STATING THE SAME. AFFIX PLAQUE TO BUILDING NEAR MAIN ENTRY POINT.
4. ALL METAL PROTRUSIONS THRU ROOF AND ON ROOF THAT ARE REQUIRED TO BE BONDED PER NFPA 780 SHALL BE GROUNDED WITH #4 MINIMUM SIZE CONDUCTOR.
5. ALL GROUND CONNECTIONS SHALL BE EXOTHERMICALLY WELDED.
6. MECHANICAL EQUIPMENT, STACKS, ANTENNAS, RAILINGS, LIGHT FIXTURES, ETC. ON ROOF THAT ARE METAL SHALL BE FURNISHED WITH AIR TERMINALS (MIN. 10") ABOVE THE ITEM AND BONDED TO THE LIGHTNING PROTECTION SYSTEM.
7. THIS SYSTEM IS DESIGNED AROUND COPPER GROUND COMPONENTS AND ALUMINUM LIGHTNING PROTECTION COMPONENTS.
8. INCOMING METAL UTILITY LINES (WATER, ELECTRICAL CONDUITS, ETC.) SHALL BE CONNECTED TO GROUND SYSTEM.
9. ELECTRICAL CONTRACTOR TO COORDINATE WITH STRUCTURAL FABRICATOR AND GENERAL CONTRACTOR TO PROVIDE CONCEALED CONDUITS IN STRUCTURAL CONCRETE COLUMNS FOR LIGHTNING PROTECTION DOWN CONDUCTOR ROUTING.
10. COORDINATE WITH ROOFING CONTRACTOR FOR PITCH POCKETS AND LOCATIONS OF ANY ROOF PENETRATIONS REQUIRED BY THE LIGHTNING PROTECTION SYSTEM.
11. SEE SHEET E-10-504 FOR LIGHTNING PROTECTION DETAIL DRAWINGS.

SHEET KEYNOTES:

1. 1/2" x 12" TYPE 'A' ALUMINUM AIR TERMINAL ON FLAT ROOF. NOMINALLY SPACED AT 20' (TYPICAL). SEE DETAIL SHEET E-10-504.
2. #1/0 ALUMINUM MAIN CONDUCTOR (TYPICAL).
3. #2 COPPER GROUND COUNTERPOISE LOCATED 5 FEET FROM BUILDING FOUNDATION AND 30 INCHES BELOW GRADE.
4. 3/4"x10' COPPER CLAD GROUND ROD (TYPICAL). SEE DETAIL ON SHEET E-10-504.
5. #3/0 MINIMUM BARE COPPER SERVICE GROUNDING CONDUCTOR TO PARALLELING SWITCHGEAR (REFER TO SHEET E-05-104 FOR LOCATION).
6. PROVIDE DOWN CONDUCTOR TO GROUND ROD/COUNTERPOISE. TRANSITION FROM ALUMINUM MAIN ROOF CONDUCTOR TO COPPER DOWN CONDUCTOR, UNDER ROOF AT TOP OF WALL. ROUTE DOWN THROUGH STRUCTURE TO UNDERGROUND (MINIMUM 30" COVER).
7. #3/0 MINIMUM BARE COPPER GROUNDING CONDUCTOR TO THE 1500KVA TRANSFORMER (REFER TO SHEET E-05-104 FOR LOCATION).
8. #1/0 ALUMINUM CONNECTION FROM MAIN CONDUCTOR TO ROOF MOUNTED EXHAUST FAN AIR TERMINALS.
9. 1/2" x 12" TYPE 'B' ALUMINUM AIR TERMINAL ON ROOF MOUNTED EXHAUST FAN. SEE DETAIL SHEET E-10-504.
10. #1/0 ALUMINUM CROSS RUN CONDUCTOR (MAIN CONDUCTOR), SPACED AT 50' MAX. (TYPICAL).
11. 1/2" x 60" TYPE 'C' ALUMINUM AIR TERMINAL ON FLAT ROOF (LENGTH AS REQUIRED TO EXTEND A MINIMUM OF 10" ABOVE TOP OF ROOF HATCH). PROVIDE ADDITIONAL SUPPORTS FOR AIR TERMINALS AS REQUIRED. SEE DETAIL SHEET E-10-504.

GAC FEED PUMP STATION - LIGHTNING PROTECTION PLAN

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



NO.		BY	DATE	REVISIONS	REMARKS

DES PJB
DWN DLM
CKD PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
GAC FEED PUMP STATION - ALT. BID No.1 - LIGHTNING PROTECTION
SCALE: 1/4" = 1'-0"

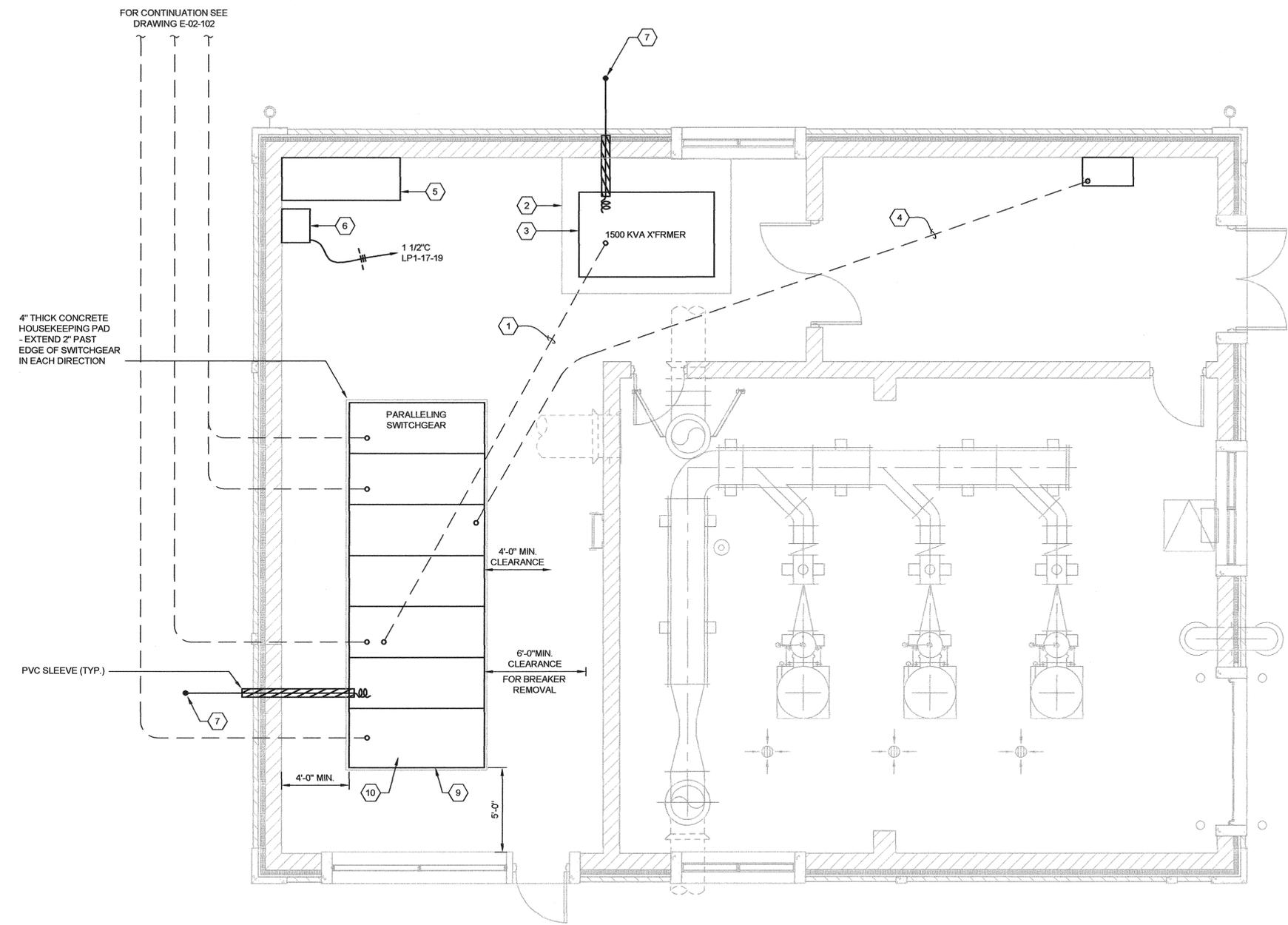
ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	E-05-103A
CAD REF. NO.:	3789-E-05-103A

SHEET KEYNOTES:

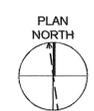
1. 2-3"Ø, 3-350 KCMIL 5KV SHIELDED, 1#2/0 KCMIL GROUND IN EACH CONDUIT, 1-2"Ø SPARE WITH PULLWIRE FROM PARALLELING SWITCHGEAR TO 1500 KVA TRANSFORMER.
2. 1500 KVA TRANSFORMER PAD
3. 1500 KVA TRANSFORMER. REFER TO SHEET E-05-102 FOR ADDITIONAL INFORMATION.
4. 1-1"Ø, 12#14 FROM GENERATOR MASTER CONTROL TO REMOTE I/O CABINET. REFER TO DRAWING E-05-102 FOR ADDITIONAL INFORMATION.
5. PARALLELING SWITCHGEAR BATTERY RACK.
6. AUTOMATIC BATTERY CHARGER.
7. GROUND CONNECTION TO GROUND GRID. REFER TO DRAWING E-05-103 FOR MORE INFORMATION.
8. REFER TO DRAWING E-05-102 FOR ADDITIONAL CONDUITS TO GENERATORS.
9. 2400V PARALLELING SWITCHGEAR.
10. UTILITY METERING CABINET. FOR MORE DETAILS SEE DRAWING E-10-506.

GENERAL NOTES:

1. COORDINATE TRANSFORMER PAD/HOUSEKEEPING PAD WITH THE MANUFACTURER AND MAKE NECESSARY CHANGES.
2. CONDUIT STUB-UPS SHALL BE COORDINATED WITH EQUIPMENT SHOP DRAWINGS.



**GAC FEED PUMP STATION
MEDIUM VOLTAGE POWER PLAN**
SCALE: 1/4" = 1'-0"



0 1/2 1

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

User: TOM.SPIC.PIRNIE STANDARD File: I:\PROJECTS\1010 - NWWD TAYLOR MILL WTP\ACAD\INFO_EXCHANGE_PUBLIC\FOLDER\ELEC_CDP-E-05-104.DWG Scale: 1:1 Saved Date: 3/15/2011 Time: 17:32 Plot Date: Tom Weber: 3/16/2011 12:55 Layout: E-05-104

MALCOLM PIRNIE
cdpengineers

Michelle Howlett
T. MICHELLE HOWLETT
19856
LICENSED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS

DES	SKD
DWN	TEW
CKD	TMH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
**GAC FEED PUMP STATION
MEDIUM VOLTAGE POWER PLAN**
SCALE: 1/4" = 1'-0"

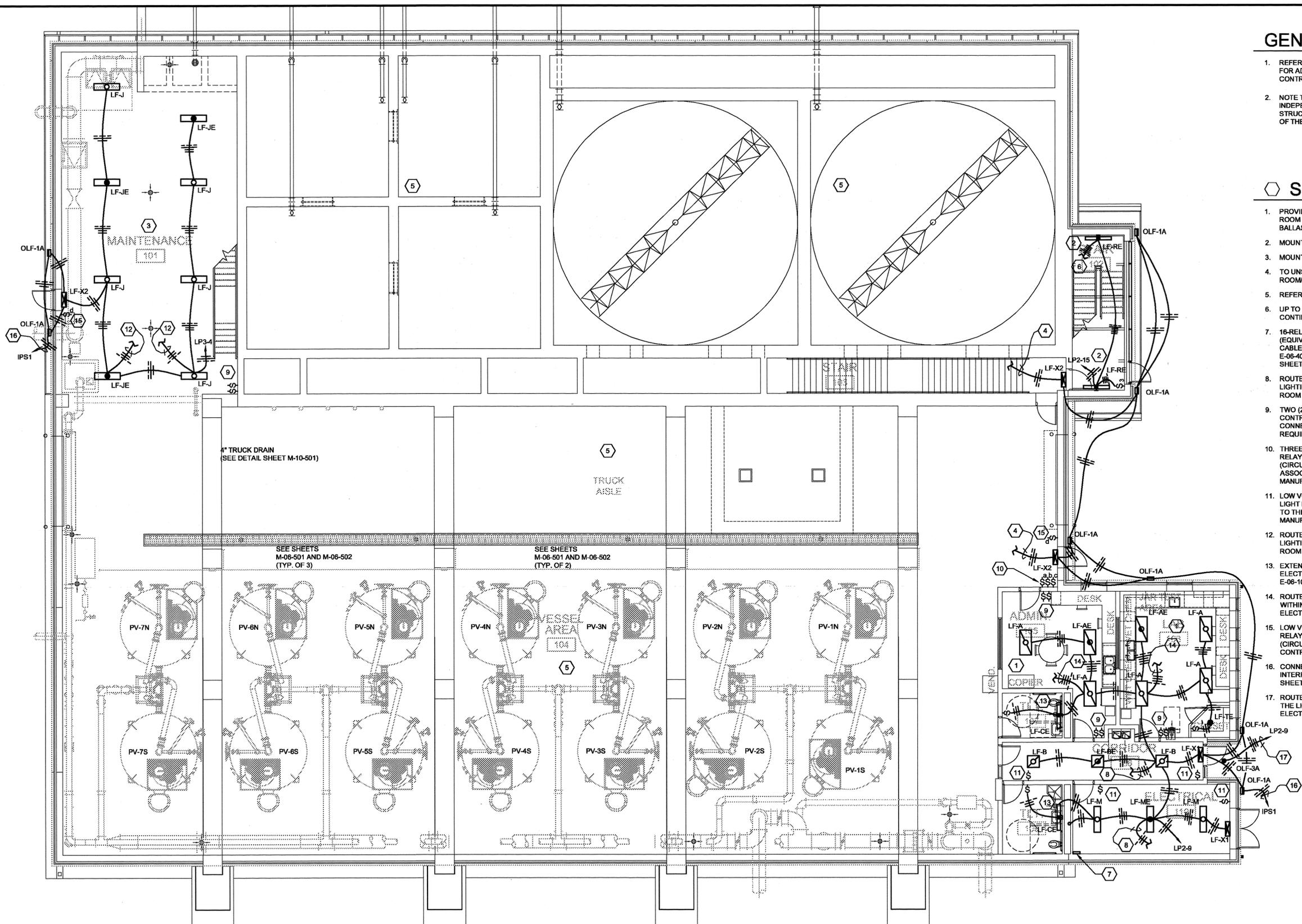
ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	E-05-104
CAD REF. NO.:	CDP-E-05-104

GENERAL NOTES:

- REFER TO LIGHTING CONTROL DETAIL ON SHEET E-10-502 FOR ADDITIONAL REQUIREMENTS INVOLVING THE LIGHTING CONTROL RELAY SYSTEM.
- NOTE THAT ALL GRID LIGHT FIXTURES ARE TO BE INDEPENDENTLY SUPPORTED WITH GRID WIRE FROM THE STRUCTURE, FROM A MINIMUM OF TWO OPPOSING CORNERS OF THE FIXTURE.

SHEET KEYNOTES:

- PROVIDE TWO LEVEL LIGHTING FOR FIXTURES WITHIN THIS ROOM BY USING HIGH/LOW SWITCHING INTEGRAL TO FIXTURE BALLAST.
- MOUNT FIXTURE AT 9'-6" AFF TO BOTTOM.
- MOUNT FIXTURE IN THIS ROOM AT 10'-0" AFF.
- TO UNSWITCHED LIGHTING CONDUCTOR WITHIN THIS ROOM/AREA, REFER TO SHEET E-06-102 FOR CONTINUATION.
- REFER TO SHEET E-06-102 FOR FIXTURES ABOVE THIS AREA.
- UP TO FLOOR ABOVE, REFER TO SHEET E-06-102 FOR CONTINUATION.
- 16-RELAY NETWORKABLE LIGHTING CONTROL PANEL, LCP-1 (EQUIVALENT TO GREENGATE CK16). PROVIDE CAT6E UTP CABLE IN 3/4" C. TO NETWORK SWITCH IN LAB 106 (SEE SHEET E-06-401). REFER TO LIGHTING CONTROL PANEL DIAGRAM ON SHEET E-10-502 FOR ADDITIONAL INFORMATION.
- ROUTE CIRCUIT THROUGH A DEDICATED 20A/1P RELAY WITHIN LIGHTING CONTROL PANEL (LCP-1) LOCATED IN ELECTRICAL ROOM 110. REFER TO KEYNOTE #7, THIS SHEET.
- TWO (2) LOW VOLTAGE 3-POSITION MOMENTARY SWITCHES TO CONTROL LIGHT FIXTURES WITHIN THIS ROOM/AREA. PROVIDE CONNECTION TO THE ASSOCIATED CONTROL RELAY PANEL, AS REQUIRED BY MANUFACTURER.
- THREE (3) LOW VOLTAGE 3-POSITION SWITCHES TO CONTROL RELAYS SERVING LIGHT FIXTURES WITHIN THE VESSEL AREA (CIRCUITS LP2-1/3, 2/4 AND 5/7). PROVIDE CONNECTION TO THE ASSOCIATED CONTROL RELAY PANEL, AS REQUIRED BY MANUFACTURER.
- LOW VOLTAGE 3-POSITION MOMENTARY SWITCH TO CONTROL LIGHT FIXTURES WITHIN ROOM/AREA. PROVIDE CONNECTION TO THE ASSOCIATED CONTROL RELAY PANEL, AS REQUIRED BY MANUFACTURER.
- ROUTE CIRCUIT THROUGH A DEDICATED 20A/1P RELAY WITHIN LIGHTING CONTROL PANEL (LCP-2) LOCATED IN ELECTRICAL ROOM 201. REFER TO SHEET E-06-102 FOR LOCATION.
- EXTEND UNSWITCHED LIGHTING CONDUCTOR UP TO ELECTRICAL ROOM ON FLOOR ABOVE, REFER TO SHEET E-06-102 FOR CONTINUATION.
- ROUTE CIRCUIT THROUGH TWO (2) DEDICATED 20A/1P RELAYS WITHIN THE LIGHTING CONTROL PANEL (LCP-1) LOCATED IN ELECTRICAL ROOM 110. REFER TO KEYNOTE #7, THIS SHEET.
- LOW VOLTAGE 3-POSITION MOMENTARY SWITCH TO CONTROL RELAY SERVING LIGHT FIXTURES WITHIN THE TRUCK AISLE (CIRCUITS LP2-6/8). PROVIDE CONNECTION TO THE ASSOCIATED CONTROL RELAY PANEL, AS REQUIRED BY MANUFACTURER.
- CONNECT TO A DEDICATED 20A/1P OUTPUT BREAKER WITHIN INTERRUPTIBLE POWER SUPPLY INVERTER, SEE LOCATION ON SHEET E-06-102.
- ROUTE CIRCUIT THROUGH A DEDICATED 20A/1P RELAY WITHIN THE LIGHTING CONTROL PANEL (LCP-1) LOCATED IN ELECTRICAL ROOM 110. REFER TO KEYNOTE #7, THIS SHEET.



**PT/GAC BUILDING
LIGHTING PLAN AT EL. 524.00**

SCALE: 1/8"=1'-0"



REVISIONS			
NO.	BY	DATE	REMARKS

DES: PJB
DWN: DLM
CKD: PJB

**NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS**

**ELECTRICAL
PT/GAC BUILDING
LIGHTING PLAN AT EL. 524.00**
SCALE: 1/8" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-06-101
CAD REF. NO.: 3789-E-06-101

User: JBOND Spine:PIRNIE STANDARD File: J:\3789-NKWD TAYLOR MILL\WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3789-E-06-01.DWG Scale: 1/8"=1'-0" Date: 2/21/2011 Time: 16:23 Plot Date: 3/1/2011 09:28 Layout: E-06-101

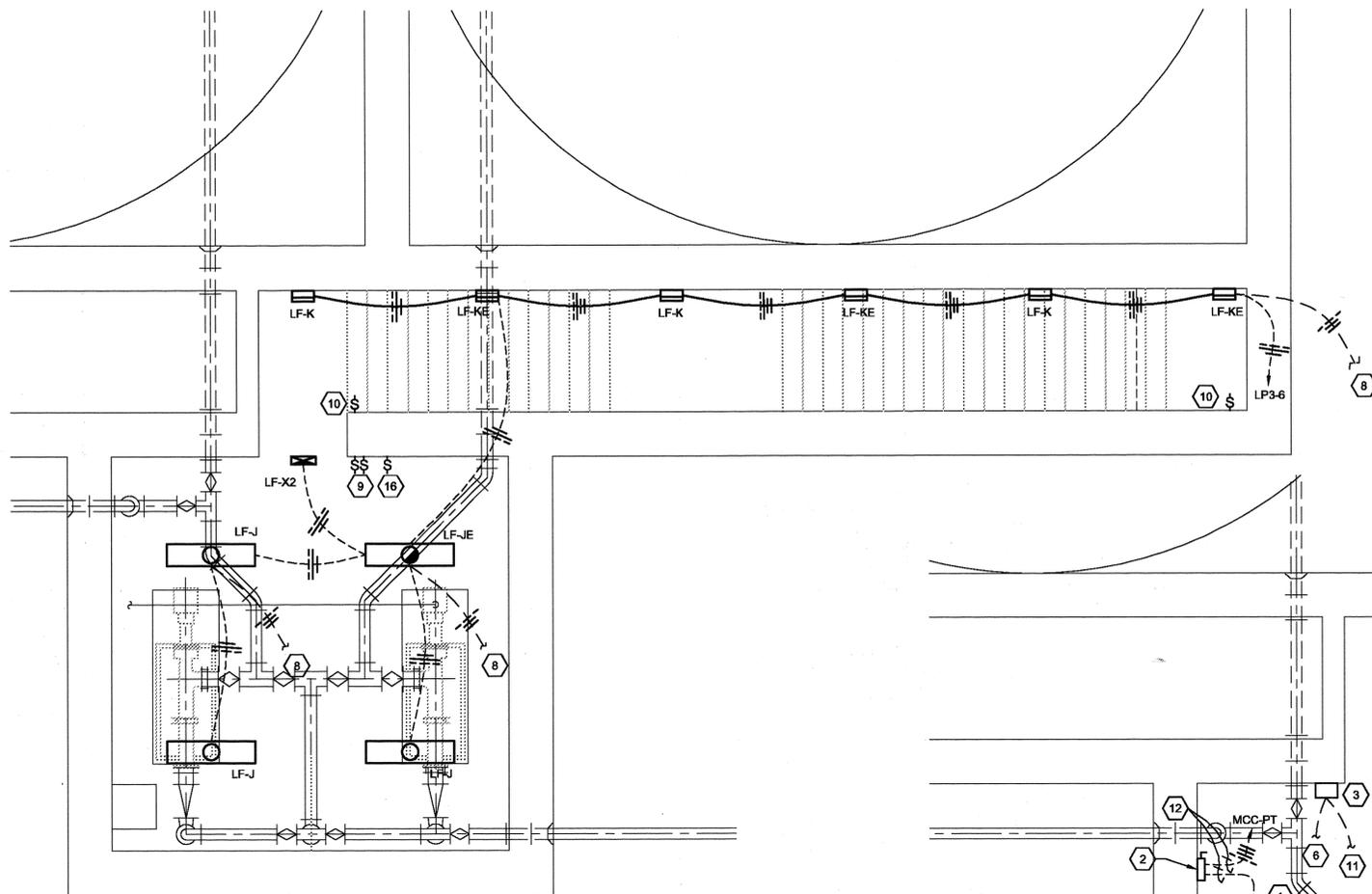


GENERAL NOTES:

1. CONDUIT SHALL ENTER EITHER THE BOTTOM OR SIDE OF ALL CONTROL PANELS, DISCONNECTS, ETC. WITHIN PROCESS AREAS.
2. REFER TO ONE-LINE DIAGRAMS ON SHEETS E-00-602 AND E-00-603 FOR FEEDER REQUIREMENTS.
3. PT-PLC CABINET IS SHOWN ON SHEET E-06-103.

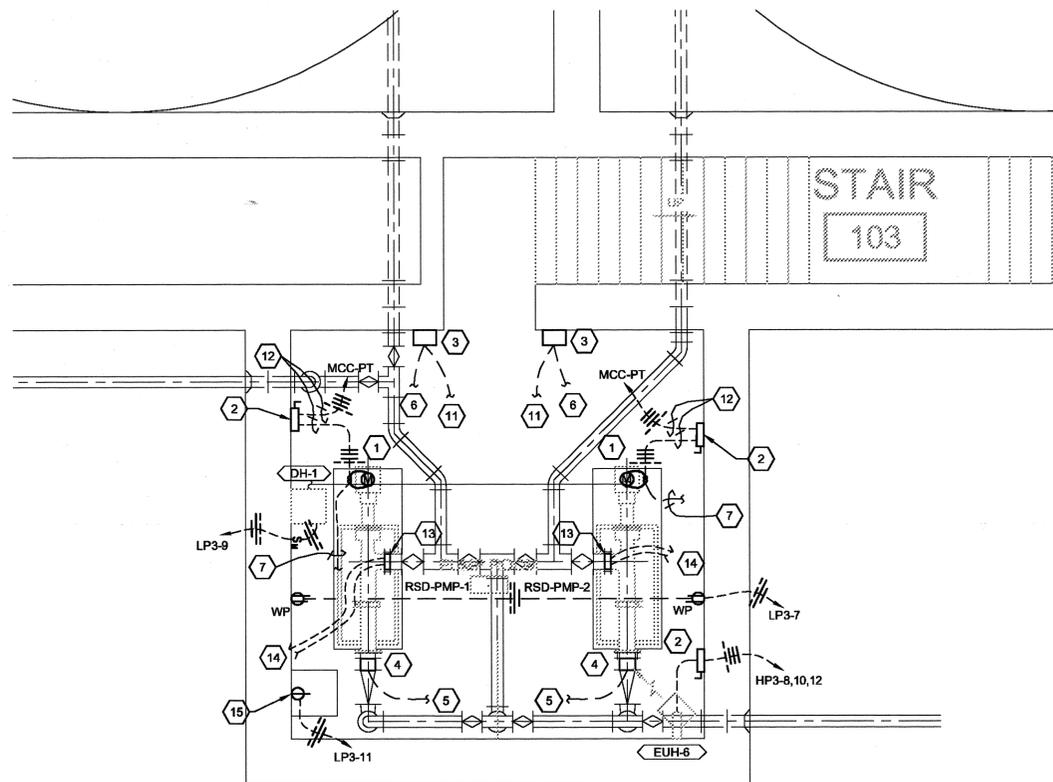
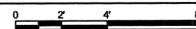
SHEET KEYNOTES:

1. RESIDUALS PUMP NO. 1 AND NO. 2 (7.5HP, 480V/3-PHASE EACH).
- 30A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
3. LOCAL CONTROL STATION FOR RESIDUALS PUMP (NEMA 4X ENCLOSURE) REFER TO SHEET E-00-605 FOR REQUIREMENTS.
4. PRESSURE SWITCH (TYPICAL OF 2 - PSH 0311 AND PSH 0312). REFER TO SHEET I-10-501 FOR MOUNTING DETAILS.
5. 2#12, 1#12 GND. IN 3/4" CONDUIT FROM PRESSURE SWITCH TO ASSOCIATED STARTER WITHIN MCC-PT.
6. 15#12, 1#12 GND. IN 1" CONDUIT (LOR, START / STOP CONTROL, E-STOP, AND INDICATION LIGHTS) TO ASSOCIATED STARTER WITHIN MCC-PT FOR THE RESIDUALS PUMP.
7. 2#12, 1#12 GND. IN 3/4" CONDUIT (WINDINGS OVER TEMPERATURE) TO ASSOCIATED STARTER WITHIN MCC-PT FOR THE RESIDUALS PUMP.
8. ROUTE CIRCUIT THROUGH A DEDICATED 20A/1P RELAY WITHIN LIGHTING CONTROL PANEL (LCP-2) LOCATED IN ELECTRICAL ROOM 201. REFER TO SHEET E-06-102 FOR LOCATION.
9. TWO (2) LOW VOLTAGE 3-POSITION MOMENTARY SWITCHES TO CONTROL LIGHT FIXTURES WITHIN THIS ROOM/AREA. PROVIDE CONNECTION TO THE ASSOCIATED CONTROL RELAY PANEL, AS REQUIRED.
10. LOW VOLTAGE 3-POSITION MOMENTARY SWITCH TO CONTROL STAIRWELL LIGHT FIXTURES (LF-K/KE). PROVIDE CONNECTION TO THE ASSOCIATED CONTROL RELAY PANEL, AS REQUIRED.
11. 2#12, 1#12 GND. IN 3/4" CONDUIT (E-STOP) TO PT-PLC CABINET.
12. RESIDUALS PUMP ELECTRICAL FEEDER. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-603 FOR ADDITIONAL INFORMATION. TYPICAL OF TWO PUMPS.
13. APPROXIMATE LOCATION OF THE PRESENCE/ABSENCE DETECTOR (TYPICAL OF TWO - XIT0311 AND XIT0312).
14. PROVIDE #12, 1#12 GND. IN 3/4" CONDUIT (POWER AND CONTROL CONDUCTORS) FROM THE PRESENCE/ABSENCE DETECTOR TO THE ASSOCIATED STARTER WITHIN MCC-PT FOR RESIDUALS PUMP.
15. SINGLE RECEPTACLE FOR SUMP PUMP. COORDINATE LOCATION WITH PLUMBING CONTRACTOR.
16. SWITCH TO CONTROL EXHAUST FAN, EF-3. REFER TO SHEET E-06-105 FOR LOCATION. PROVIDE CONDUIT/WIRING, AS REQUIRED. PROVIDE LABEL "EF-3 CONTROL".



**PT/GAC BUILDING
LIGHTING PLAN AT EL. 504.00**

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



**PT/GAC BUILDING
POWER PLAN AT EL 504.00**

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



User: BOND Spec: PIRNIE STANDARD File: L:\3789-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3789-E-06-103.DWG Scale: 1/8"=1'-0" Date: 3/10/2011 09:28:11 Layout: E-06-103



REVISIONS			
NO.	BY	DATE	REMARKS

DES: PJB
DWN: DLM
CHK: PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

ELECTRICAL
**PT/GAC BUILDING
ELECTRICAL PLANS AT EL. 504.00**

SCALE: 1/8" = 1'-0"

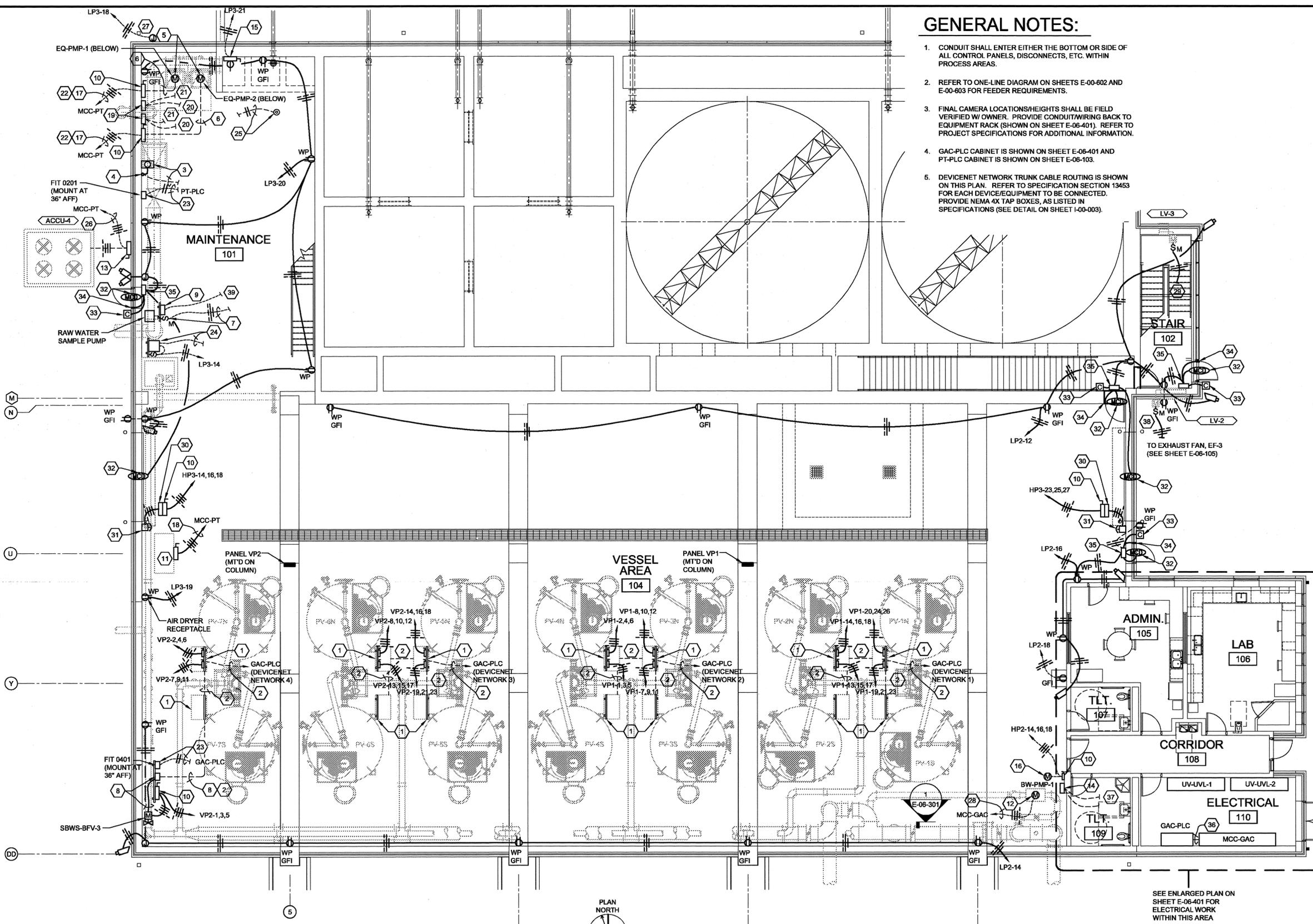
ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	E-06-103
CAD REF. NO.:	3789-E-06-103

SHEET KEYNOTES:

- AREA RESERVED FOR ELECTRICAL EQUIPMENT ASSOCIATED WITH THE GAC VESSELS. SEE DETAIL ON SHEET E-06-302.
- DEVICENET NETWORK TRUNK CABLE IN 1-1/4" CONDUIT. PROVIDE DROPS TO EACH VESSEL AND SBWS-BFV-3. CONNECT TO EACH MULTIVARIABLE TRANSMITTER.
- HIGH LEVEL (LSH-0800) AND LOW LEVEL (LSL-0800) FLOAT SWITCHES. #12, 1#12 GND. IN 3/4" CONDUIT TO PT-PLC.
- FINAL SECTION OF CONDUIT SHALL BE LIQUIDTIGHT FLEXIBLE TYPE.
- EQUALIZATION RECYCLE SUBMERSIBLE PUMP (5HP, 480V/3-PHASE). PUMP POWER/CONTROL CABLE. FURNISH AND INSTALL STAINLESS STEEL STRAIN RELIEF CABLE GRIPS AT EACH END OF PUMP CABLE.
- MOTOR RATED SWITCH (NEMA 4X) FOR RAW WATER SAMPLE PUMP. PROVIDE 2#10, 1#10 GND. IN 3/4" CONDUIT TO RAW WATER SAMPLE PUMP CONTROL PANEL LOCATED IN ELECTRICAL ROOM 202 (REFER TO SHEET E-06-105). PROVIDE ELECTRICAL CONNECTION TO SAMPLE PUMP FROM SWITCH.
- REMOTE MTD MULTIVARIABLE TRANSMITTER W/ CONTROL CABLE TO MOTORIZED VALVE. INSTALL CABLE IN 1" CONDUIT.
- LOCAL CONTROL STATION FOR RAW WATER SAMPLE PUMP. MOUNT ON FLOOR MOUNTED INSTRUMENT RACK, SIZED ACCORDINGLY.
- 30A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
- 30HP AIR COMPRESSOR. PROVIDE 100A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
- GAC BACKWASH SUPPLY PUMP (25HP, 480V/3-PHASE).
- 200A/600V/3-PHASE FUSED DISCONNECT (NEMA 4X ENCLOSURE). FUSE AT 150 AMPS.
- LOCAL CONTROL STATION FOR BACKWASH PUMPS (NEMA 4X ENCLOSURE). REFER TO SHEET E-00-606 FOR REQUIREMENTS.
- 60A/240V/1-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE) AND A NEMA 5-SOR SINGLE RECEPTACLE (WP/WHILE IN USE CVR*) FOR EQ. HOIST WINCH. COORDINATE LOCATION W/ FINAL HOIST LOCATION.
- 1/2 TON JIB CRANE. SEE SHEET M-06-102.
- EQUALIZATION RECYCLE SUBMERSIBLE PUMP ELECTRICAL FEEDER.
- AIR COMPRESSOR ELECTRICAL FEEDER.
- LOCAL CONTROL STATION FOR GAC EQUALIZATION RECYCLE PUMP (NEMA 4X ENCLOSURE). REFER TO SHEET E-00-606 FOR REQUIREMENTS.
- 14#12, 1#12 GND. IN 1" CONDUIT (LOR, START/STOP, E-STOP, AND INDICATING LIGHTS) TO ASSOCIATED STARTER WITHIN MCC-PT FOR THE GAC EQUALIZATION RECYCLE PUMP.
- 2#12, 1#12 GND. IN 3/4" CONDUIT (E-STOP) TO PT-PLC.
- ROUTE 2#12 (SEAL LEAK/MOTOR WINDINGS CONTROL CONDUCTORS) IN SAME CONDUIT AS FEEDER CONDUCTORS TO THE ASSOC. STARTER WITHIN MCC-PT FOR THE GAC EQUALIZATION RECYCLE PUMP.
- VENTURI FLOW METER TRANSMITTER. 2#16 STP IN 3/4" CONDUIT TO INDICATED PLC CABINET.
- TURBIDIMETER SENSOR (AE-0200) AND CONTROLLER (AIT-0200). PROVIDE 1#16 STP IN 3/4" CONDUIT TO PT-PLC. ALSO, INSTALL PRIMARY CABLE (FURNISHED BY MANUFACTURER) FROM TURBIDIMETER SENSOR TO CONTROLLER. PROVIDE FLOOR MOUNTED INSTRUMENT RACK. PROVIDE 120V TOGGLE DISCONNECT SWITCH (NEMA 4X).
- LEVEL TRANSMITTER - RADAR (LE/LIT-0800). PROVIDE 2#16 STP IN 3/4" CONDUIT FROM LEVEL TRANSMITTER TO PT-PLC.
- ELECTRICAL FEEDER FOR AIR COOLED CONDENSING UNIT (ACCU-4).
- PROVIDE 120V CONNECTION TO HEAT TRACE ON CHEMICAL FEED LINE. COORDINATE WITH DIVISION 15. REFER TO DETAIL ON SHEET E-10-501.
- GAC BACKWASH SUPPLY PUMP ELECTRICAL FEEDER. PROVIDE AN ADDITIONAL 2#12 (WINDING TEMP. CONDUCTORS) IN SAME CONDUIT AS FEEDER CONDUCTORS TO ASSOCIATED STARTER.
- UP TO EXHAUST FAN, EF-8 (SHOWN ON SHEET E-06-402).
- PROVIDE CONNECTION TO OVERHEAD DOOR CONTROLLER, AS REQUIRED. COORDINATE WITH OVERHEAD DOOR INSTALLER.
- UP/DOWN/STOP PUSHBUTTON FOR OVERHEAD DOOR. PROVIDE WIRING TO OVERHEAD DOOR CONTROLLER.
- SECURITY SYSTEM DOOR CONTACT. COORDINATE MOUNTING W/ GENERAL CONTRACTOR. PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR.
- SECURITY SYSTEM CARD READER (MOUNT AT 42" AFF). PROVIDE CONDUIT/WIRING BACK TO POWER SUPPLY MOUNTED ABOVE DOOR.
- ELECTRONIC DOOR STRIKE (COORDINATE INSTALLATION WITH DOOR HARDWARE PROVIDER/INSTALLER). PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR.
- POWER SUPPLY/DOOR CONTROLLER MOUNTED ABOVE DOOR. MOUNT ABOVE LAY-IN CEILING, WHERE PRESENT. PROVIDE CONDUIT/WIRING BACK TO SECURITY SYSTEM PANEL (SEE E-06-401).
- 10#12, 1#12 GND. IN 3/4" CONDUIT (CONTROL CONDUCTORS) FROM GAC BWS PUMP STARTER TO GAC-PLC.
- 14#12, 1#12 GND. IN 3/4" CONDUIT (LOR, START/STOP, E-STOP, AND INDICATING LIGHTS) TO ASSOCIATED STARTER FOR BWS PUMP. ALSO, 2#12, 1#12 GND. (E-STOP) IN 3/4" CONDUIT TO GAC-PLC.
- NEMA 4X MANUAL MOTOR STARTER.
- 10#12, 1#12 GND. IN 3/4" CONDUIT (LOR, START/STOP, AND INDICATING LIGHTS) TO RAW WATER SAMPLE PUMP CONTROL PANEL (ELECTRICAL ROOM 202 - SHOWN ON SHEET E-06-105).

GENERAL NOTES:

- CONDUIT SHALL ENTER EITHER THE BOTTOM OR SIDE OF ALL CONTROL PANELS, DISCONNECTS, ETC. WITHIN PROCESS AREAS.
- REFER TO ONE-LINE DIAGRAM ON SHEETS E-00-602 AND E-00-603 FOR FEEDER REQUIREMENTS.
- FINAL CAMERA LOCATIONS/HEIGHTS SHALL BE FIELD VERIFIED W/ OWNER. PROVIDE CONDUIT/WIRING BACK TO EQUIPMENT RACK (SHOWN ON SHEET E-06-401). REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- GAC-PLC CABINET IS SHOWN ON SHEET E-06-401 AND PT-PLC CABINET IS SHOWN ON SHEET E-06-103.
- DEVICENET NETWORK TRUNK CABLE ROUTING IS SHOWN ON THIS PLAN. REFER TO SPECIFICATION SECTION 13453 FOR EACH DEVICE/EQUIPMENT TO BE CONNECTED. PROVIDE NEMA 4X TAP BOXES, AS LISTED IN SPECIFICATIONS (SEE DETAIL ON SHEET I-00-003).



PT/GAC BUILDING POWER PLAN AT EL. 524.00

SCALE: 1/8" = 1'-0"

REVISIONS		REMARKS
NO.	BY	DATE

DES: PJB
DWN: DLM
CKD: PJB

**NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS**

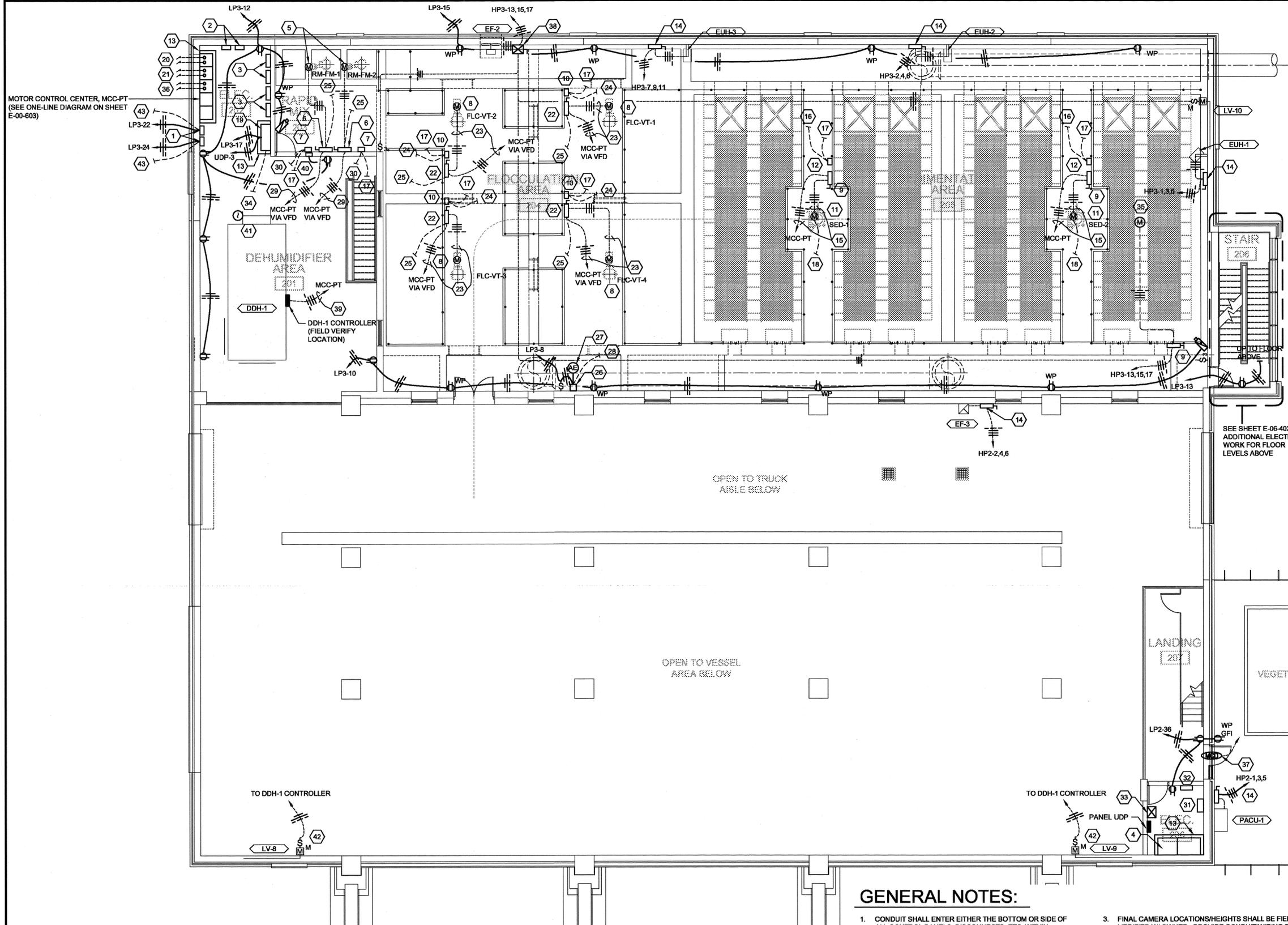
**ELECTRICAL
PT/GAC BUILDING
POWER PLAN AT EL. 524.00**
SCALE: 1/8" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-06-104
CAD REF. NO.: 3789-E-06-104

User: JBOOND Spec: PIRNIE STANDARD File: U:\3789\AKWTD\TAYLOR MILL\WORKING DRAWINGS\ELEC\3789-E-06-104.DWG Scale: 1/8" = 1'-0" Plot Date: 2/22/2011 Time: 14:42 Plot Date: 2/22/2011 Time: 14:42 Plot Date: 2/22/2011 Time: 14:42



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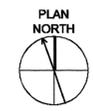
- ### SHEET KEYNOTES:
1. RAW WATER AND SETTLED WATER SAMPLE PUMP CONTROL PANELS. REFER TO SHEET E-00-607.
 2. 10HP VARIABLE FREQUENCY DRIVE FOR RAPID MIXER (NEMA 12 ENCLOSURE). PROVIDE #12, 1#12 GND (CONTROL CONDUCTORS) IN 1" CONDUIT AND 2#16 STP (SPEED CONTROL/INDICATION) IN 3/4" CONDUIT TO PT-PLC. REFER TO CONTROL CIRCUIT ON SHEET E-00-604. TYPICAL OF TWO.
 3. 5 HP VARIABLE FREQUENCY DRIVE FOR FLOCCULATOR MIXER (NEMA 12 ENCLOSURE). PROVIDE #12, 1#12 GND (CONTROL CONDUCTORS) IN 1" CONDUIT AND 2#16 STP (SPEED CONTROL/INDICATION) IN 3/4" CONDUIT TO PT-PLC. REFER TO CONTROL CIRCUIT ON SHEET E-00-604. TYPICAL OF FOUR.
 4. EXISTING 160KVA UPS-1 (RELOCATED FROM BASEMENT OF FILTER BUILDING). SEE ONE-LINE DIAGRAM ON SHEET E-00-602. PROVIDE #12, 1#12 GND. IN 3/4" CONDUIT TO GAC-PLC.
 5. RAPID MIXER (10HP, 480V/3-PHASE).
 6. 30A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE). DISCONNECT TO BE FURNISHED WITH A N.O. AUXILIARY CONTACT FOR CONNECTION TO ASSOCIATED VFD.
 7. LOCAL CONTROL STATION FOR RAPID MIXER (NEMA 4X ENCLOSURE). REFER TO SHEET E-00-604 FOR REQUIREMENTS.
 8. FLOCCULATOR MIXER (5HP, 480V/3-PHASE).
 9. 30A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE). MOUNT ON HANDRAIL, REFER TO DETAIL ON SHEET E-10-501.
 10. LOCAL CONTROL STATION FOR FLOCCULATOR MIXER (NEMA 4X ENCLOSURE). REFER TO SHEET E-00-604 FOR REQUIREMENTS. MOUNT TO HANDRAIL, REFER TO DETAIL ON SHEET E-10-501.
 11. SEDIMENTATION SCRAPER MOTOR (2HP, 480V/3-PHASE).
 12. LOCAL CONTROL STATION FOR SEDIMENTATION SCRAPER MOTOR (NEMA 4X ENCLOSURE). REFER TO SHEET E-00-605 FOR REQUIREMENTS. MOUNT TO HANDRAIL, REFER TO DETAIL ON SHEET E-10-501.
 13. EQUIPMENT HOUSEKEEPING PAD.
 14. 30A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
 15. ELECTRICAL FEEDER FOR SEDIMENTATION SCRAPER MOTOR. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-603 FOR ADDITIONAL INFORMATION.
 16. 14#12, 1#12 GND. IN 1" CONDUIT (LOR, START/STOP CONTROL, E-STOP, AND INDICATING LIGHTS) TO ASSOCIATED STARTER WITHIN MCC-PT FOR THE SEDIMENTATION SCRAPER.
 17. 2#12, 1#12 GND. IN 3/4" CONDUIT (E-STOP) TO PT-PLC CABINET.
 18. ONE SET OF TORQUE LIMIT SWITCHES (HIGH AND OVERLOAD) FOR EACH SEDIMENTATION SCRAPER DRIVE. (TYPICAL FOR TWO MOTORS). PROVIDE #12, 1#12 GND. IN 3/4" CONDUIT (TORQUE OVERLOAD SWITCHES - HI/OVERLOAD) TO ASSOCIATED STARTER WITHIN MCC-PT FOR THE SEDIMENTATION SCRAPER.
 19. PT-PLC CABINET.
 20. 10#12, 1#12 GND. IN 1" CONDUIT (CONTROL CONDUCTORS) FROM SEDIMENTATION SCRAPER STARTER TO PT-PLC CABINET. TYPICAL FOR TWO SEDIMENTATION SCRAPER STARTERS.
 21. 14#12, 1#12 GND. IN 1" CONDUIT (CONTROL CONDUCTORS) FROM RESIDUALS PUMP STARTER TO PT-PLC CABINET. TYPICAL FOR TWO RESIDUALS PUMP STARTERS.
 22. 30A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE). DISCONNECT TO BE FURNISHED WITH A N.O. AUXILIARY CONTACT FOR CONNECTION TO ASSOCIATED VFD. MOUNT DISCONNECT ON HANDRAIL, REFER TO DETAIL ON SHEET E-10-501.
 23. ELECTRICAL FEEDER FOR FLOCCULATOR MIXER. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-603 FOR ADDITIONAL INFORMATION.
 24. 16#12, 1#12 GND. IN 3/4" CONDUIT (LOR, START/STOP CONTROL, E-STOP, AND INDICATING LIGHTS) TO ASSOCIATED VFD FOR THE FLOCCULATOR MIXER.
 25. 2#12, 1#12 GND. IN 3/4" CONDUIT (DISCONNECT AUXILIARY CONTACT) TO ASSOCIATED VFD.
 26. PH ANALYZER TRANSMITTER (AIT-0201). REFER TO DETAIL ON SHEET I-10-501 FOR SIMILAR INSTALLATION. PROVIDE 120V TOGGLE DISCONNECT SWITCH.
 27. PH PROBE (AE-0201). REFER TO DETAIL ON SHEET I-10-501 FOR PROBE DEPTH.
 28. #16 STP IN 3/4" CONDUIT TO PT-PLC.
 29. ELECTRICAL FEEDER FOR RAPID MIXER. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-603 FOR ADDITIONAL INFORMATION.
 30. 14#12, 1#12 GND. IN 1" CONDUIT (LOR, START/STOP CONTROL, E-STOP, AND INDICATING LIGHTS) TO ASSOCIATED VFD FOR THE RAPID MIXER.
 31. EXISTING UPS MAINTENANCE/BYPASS SWITCH (RELOCATED FROM FILTER BUILDING). SEE ONE-LINE DIAGRAM ON SHEET E-00-602.
 32. EXISTING DISTRIBUTION PANELBOARD PPU-1 (RELOCATED FROM FILTER BUILDING). SEE ONE-LINE DIAGRAM ON SHEET E-00-602.
 33. 30KVA PANELBOARD UDP TRANSFORMER. MOUNT ON WALL AT 8'-0" AFF (TO BOTTOM).
 34. 1" CONDUIT WITH TWO (2) 4PR CAT 6E 24AWG CABLES TO GAC-PLC (SEE SHEET E-06-104).
 35. 2-TON ELECTRIC HOIST. PROVIDE ELECTRICAL CONNECTION AS REQUIRED, COORDINATE WITH HOIST MANUFACTURER/MONORAIL INSTALLER AND PROVIDE COMPLETE.
 36. 16#12, 1#12 GND. IN 1" CONDUIT (CONTROL CONDUCTORS) FROM EQ. RECYCLE PUMPS STARTER TO PT-PLC CABINET. TYPICAL FOR TWO EQ. RECYCLE PUMPS STARTERS.
 37. SECURITY SYSTEM DOOR CONTACT. COORDINATE MOUNTING WITH GENERAL CONTRACTOR. PROVIDE CONDUIT/WIRING BACK TO SECURITY SYSTEM PANEL. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 38. COMBINATION STARTER/DISCONNECT BY DIVISION 15.
 39. ELECTRICAL FEEDER FOR DDH-1. REFER TO ONE-LINE DIAGRAM ON SHEET E-00-603 FOR ADDITIONAL INFORMATION. COORDINATE TERMINATION POINT W/ DIVISION 15.
 40. PROVIDE 120V CONNECTION TO TRAP PRIMER. COORDINATE WITH DIVISION 15.
 41. PROVIDE DUCT DETECTOR INSTALL IN RETURN AIR DUCTWORK OF INDICATED HVAC UNIT IN ACCORDANCE WITH SECTION 606.2.1 OF THE 2006 INTERNATIONAL MECHANICAL CODE. PROVIDE CONNECTION TO UNIT TO PROVIDE SHUTDOWN UPON ACTIVATION OF DUCT DETECTOR. COORDINATE WITH MECHANICAL CONTRACTOR.
 42. NEMA 4X MANUAL MOTOR STARTER.
 43. #8#12, 1#12 GND. IN 1" CONDUIT (CONTROL CONDUCTORS) FROM SAMPLE PUMP CONTROL PANEL TO PT-PLC CABINET. TYPICAL FOR TWO SAMPLE PUMP CONTROL PANELS.

GENERAL NOTES:

1. CONDUIT SHALL ENTER EITHER THE BOTTOM OR SIDE OF ALL CONTROL PANELS, DISCONNECTS, ETC. WITHIN PROCESS AREAS.
2. REFER TO ONE-LINE DIAGRAM ON SHEETS E-00-602 AND E-00-603 FOR FEEDER REQUIREMENTS FOR MCC-PT, UPS-1, PANEL UDP, ETC.
3. FINAL CAMERA LOCATIONS/HEIGHTS SHALL BE FIELD VERIFIED W/ OWNER. PROVIDE CONDUIT/WIRING BACK TO EQUIPMENT RACK (SHOWN ON SHEET E-06-401).
4. PROVIDE SWITCHBOARD MATING AS DEFINED IN SPECIFICATION SECTION 16495.

PT/GAC BUILDING POWER PLAN AT EL. 537.00

SCALE: 1/8"=1'-0"



REVISIONS			
NO.	BY	DATE	REMARKS

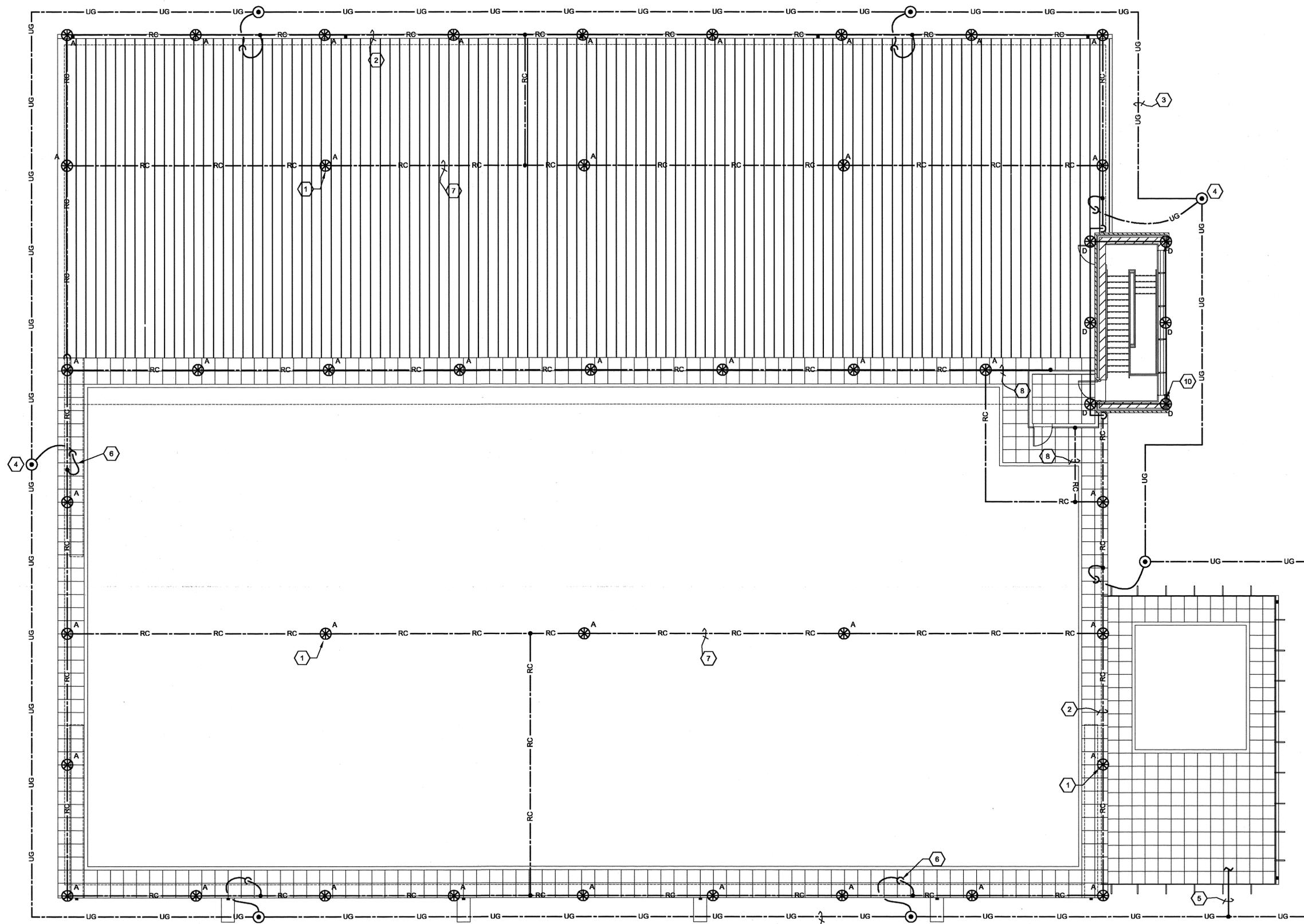
DES PJB
OWN DLM
CKD PJB

NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL PT/GAC BUILDING POWER PLAN AT EL. 537.00 SCALE: 1/8" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-06-105
CAD REF. NO.: 3789-E-06-105

User: BOND Spec: PIRNIE STANDARD File: L:\3789-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3789-E-06-106.DWG Scale: 1:38 Saved Date: 11/24/2010 Time: 08:50 Scale: 1:38 Saved Date: 11/24/2010 Time: 08:50 ; Layout: E-06-106



**PT/GAC BUILDING
LIGHTNING PROTECTION PLAN**
SCALE: 1/8"=1'-0"



GENERAL NOTES:

1. THIS INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF UL MASTER LABEL.
2. REFER TO ARCHITECTURAL PLANS AND SECTIONS FOR ACTUAL BUILDING CONSTRUCTION METHODS.
3. THE LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED TO COMPLY WITH THE REQUIREMENTS OF UL969A "MASTER LABEL" AND PROVIDE OWNER WITH A PLAQUE STATING THE SAME.
4. ALL METAL PROTRUSIONS THRU ROOF AND ON ROOF THAT ARE REQUIRED TO BE BONDED PER NFPA 780 SHALL BE GROUNDED WITH #4 MINIMUM SIZE CONDUCTOR.
5. ALL GROUND CONNECTIONS SHALL BE EXOTHERMICALLY WELDED.
6. MECHANICAL EQUIPMENT, STACKS, ANTENNAS, RAILINGS, LIGHT FIXTURES, ETC. ON ROOF THAT ARE METAL SHALL BE FURNISHED WITH AIR TERMINALS (MIN. 10") ABOVE THE ITEM AND BONDED TO THE LIGHTNING PROTECTION SYSTEM.
7. THIS SYSTEM IS DESIGNED AROUND COPPER GROUND COMPONENTS AND ALUMINUM LIGHTNING PROTECTION COMPONENTS.
8. INCOMING METAL UTILITY LINES (WATER, ELECTRICAL CONDUITS, ETC.) SHALL BE CONNECTED TO GROUND SYSTEM.
9. ELECTRICAL CONTRACTOR TO COORDINATE WITH STRUCTURAL FABRICATOR AND GENERAL CONTRACTOR TO PROVIDE CONCEALED CONDUITS IN STRUCTURAL CONCRETE COLUMNS FOR LIGHTNING PROTECTION DOWN CONDUCTOR ROUTING.
10. COORDINATE WITH ROOFING CONTRACTOR FOR PITCH POCKETS AND LOCATIONS OF ANY ROOF PENETRATIONS REQUIRED BY THE LIGHTNING PROTECTION SYSTEM.
11. SEE SHEET E-10-504 FOR LIGHTNING PROTECTION DETAIL DRAWINGS.

SHEET KEYNOTES:

1. 1/2" x 12" TYPE 'A' ALUMINUM AIR TERMINAL ON FLAT ROOF. NOMINALLY SPACED AT 20' (TYPICAL). SEE DETAIL SHEET E-10-504.
2. #1/0 ALUMINUM MAIN CONDUCTOR (TYPICAL).
3. #2 COPPER GROUND COUNTERPOISE LOCATED 5 FEET FROM BUILDING FOUNDATION AND 30 INCHES BELOW GRADE.
4. 3/4"x10" COPPER CLAD GROUND ROD (TYPICAL). SEE DETAIL ON SHEET E-10-504.
5. #3/0 MINIMUM BARE COPPER SERVICE GROUNDING CONDUCTOR TO MCC-GAC (REFER TO SHEET E-06-102 FOR LOCATION).
6. #1/0 COPPER DOWN CONDUCTOR RUN INSIDE EXTERIOR WALL. PROVIDE A BIMETAL TRANSITION FITTING BEFORE TRANSITIONING TO DOWN CONDUCTOR (TYPICAL).
7. #1/0 ALUMINUM CROSS RUN CONDUCTOR (MAIN CONDUCTOR), SPACED AT 50' MAX. (TYPICAL).
8. #1/0 ALUMINUM BONDING CONNECTION FROM MAIN CONDUCTOR TO METAL HANDRAIL. UTILIZE BONDING DEVICE WITH MINIMUM 3 SQUARE INCHES OF CONTACT AREA.
9. #1/0 ALUMINUM CONDUCTOR CONNECTING CROSS RUN AND MAIN CONDUCTORS, 150' MAXIMUM SPACING.
10. 1/2" X 24" TYPE 'D' ALUMINUM AIR TERMINAL ON SLOPED ROOF. PROVIDE WITH SWIVEL BASE. SEE DETAIL SHEET E-10-504.



REVISIONS			
NO.	BY	DATE	REMARKS

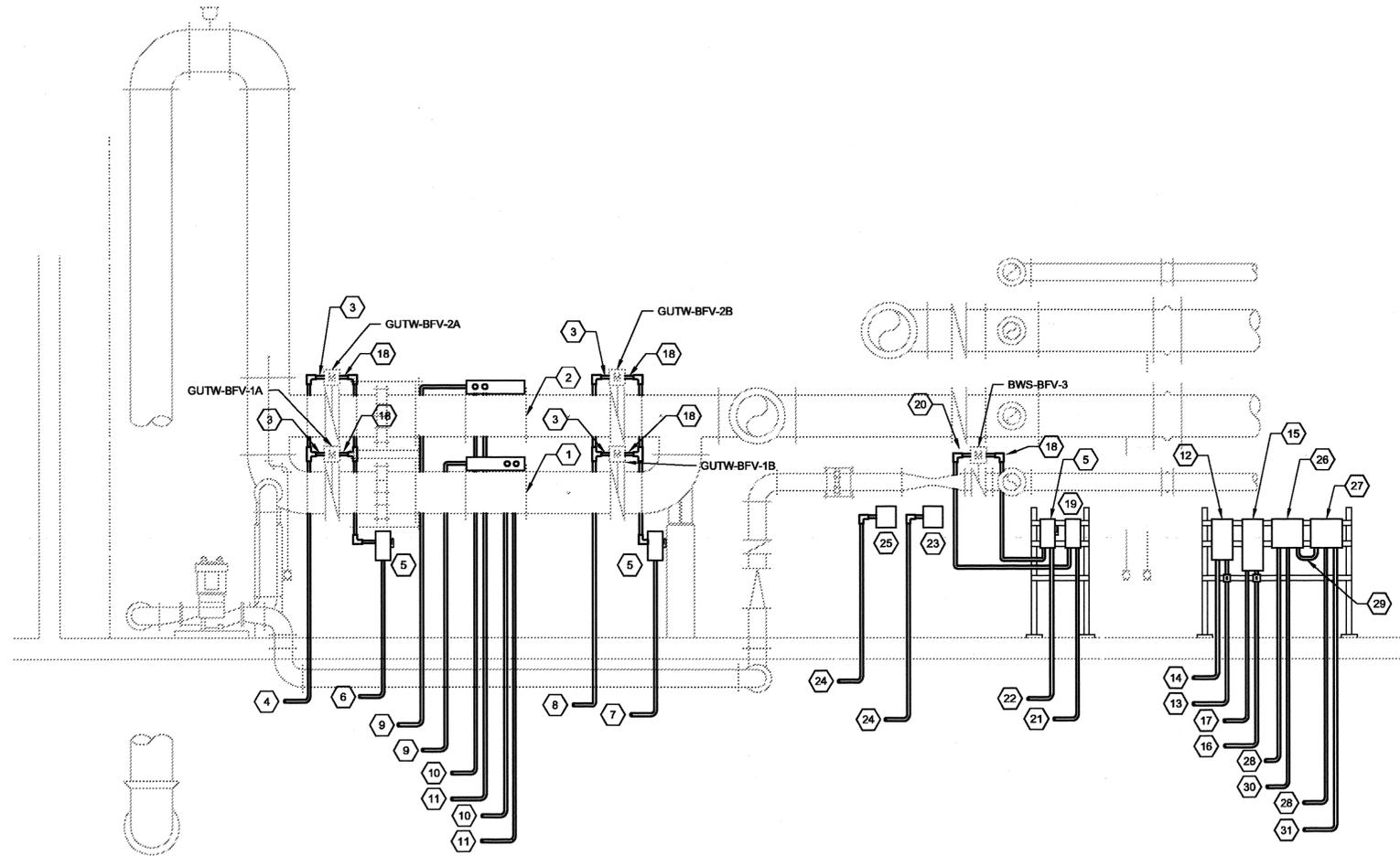
DES: PJB
DWN: DLM
CKD: PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

ELECTRICAL
**PT/GAC BUILDING
LIGHTNING PROTECTION PLAN**
SCALE: 1/8" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-06-106
CAD REF. NO.: 3789-E-06-106

User: BOND Spec: PIRNIE STANDARD File: U:\3786-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3786-E-06-301.DWG Scale: 1/4"=1'-0" Time: 11:34 Plot Date: 3/10/2011 06:29 Layout: E-06-301



**PT/GAC BUILDING
UV ELECTRICAL - SECTION**

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

GENERAL NOTES:

1. CONDUIT SHALL ENTER EITHER THE BOTTOM OR SIDE OF ALL CONTROL PANELS, DISCONNECTS, ETC. WITHIN PROCESS AREAS.
2. CONTRACTOR SHALL NOTE THAT EQUIPMENT ASSOCIATED WITH UV 1 (UV-UVL CONTROL PANEL, UV REACTOR, AND UV TRANSMITTANCE PANEL) WILL BE RELOCATED TO THE NEW GAC/PT BUILDING PRIOR TO THE RELOCATION OF EQUIPMENT ASSOCIATED WITH UV 2.
3. ALL CABLING REQUIRED BETWEEN UV CONTROL PANELS (UV-UVL-1/UV-UVL-2) AND ASSOCIATED UV REACTORS/UV TRANSMITTANCE PANELS SHALL BE NEW AND SIZED BASED ON RECOMMENDATIONS BY TROJAN UV. CABLES SHALL BE PURCHASED BY THE CONTRACTOR FROM TROJAN UV. INCLUDE ALL COSTS IN BID.
4. LOCATION OF EQUIPMENT RACKS ARE SHOWN FOR CLARITY. RACKS SHALL BE LOCATED AS DIRECTED IN FIELD BY OWNER AND ENGINEER. SIZE RACKS, ACCORDINGLY.

SHEET KEYNOTES:

1. UV REACTOR 1 (UV-UVL-1) WITH INTEGRAL JUNCTION BOX.
2. UV REACTOR 2 (UV-UVL-2) WITH INTEGRAL JUNCTION BOX.
3. 12#12, 1#12 GND IN 1" CONDUIT FROM INTEGRAL OPEN/CLOSE TYPE ACTUATOR FOR INDICATED VALVE.
4. 24#12, 1#12 GND (CONTROL CONDUCTORS) IN 1" CONDUIT FROM INTEGRAL OPEN/CLOSE TYPE ACTUATORS FOR MOTORIZED VALVES (GUTW-BFV-1A AND GUTW-BFV-2A). ROUTE TO GAC-PLC CABINET.
5. 30A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
6. UTILIZE CIRCUIT HP2-14,16,18.
7. UTILIZE CIRCUIT HP2-17,19,21.
8. 24#12, 1#12 GND (CONTROL CONDUCTORS) IN 1" CONDUIT FROM INTEGRAL OPEN/CLOSE TYPE ACTUATORS FOR MOTORIZED VALVES (GUTW-BFV-1B AND GUTW-BFV-2B). ROUTE TO GAC-PLC.
9. 8#12 AWG/2 CONDUCTOR SHIELDED CABLE W/#8 GROUND FROM UV CONTROL PANEL (BALLAST PANEL PORTION) TO UV REACTOR JUNCTION BOX. INSTALL IN RIGID METAL CONDUIT. CONDUIT TO BE SIZED ACCORDINGLY. #12 AWG/2 CONDUCTOR SHIELDED CABLE AND #8 GROUND SHALL BE PURCHASED FROM TROJAN UV AND SHALL BE SIZED PER TROJAN'S RECOMMENDATIONS.
10. 10#22 AWG + GRN. SHIELDED CABLE WITH DRAIN FROM UV CONTROL PANEL TO UV REACTOR JUNCTION BOX. INSTALL IN RIGID METAL CONDUIT. CONDUIT TO BE SIZED ACCORDINGLY. 10#22 AWG + GRN. SHIELDED CABLE SHALL BE PURCHASED FROM TROJAN UV AND SHALL BE SIZED PER TROJAN'S RECOMMENDATIONS.
11. 10#16 AWG + GRN. CONDUCTORS (CONTROL) AND 3#16 AWG/2 CONDUCTOR + GRN. CONDUCTORS (WIPER MOTOR FEED) FROM UV CONTROL PANEL TO UV REACTOR JUNCTION BOX. INSTALL IN RIGID METAL CONDUIT. CONDUIT TO BE SIZED ACCORDINGLY. CABLES TO BE PURCHASED FROM TROJAN UV. CABLE SIZE TO BE VERIFIED BY TROJAN UV AND SHALL BE SIZED PER TROJAN'S RECOMMENDATIONS.
12. TURBIDIMETER AND CONTROLLER (AIT/AE-0700). PROVIDE 120V TOGGLE DISCONNECT SWITCH MOUNTED BELOW.
13. UTILIZE CIRCUIT LP4-1.
14. 2#14, 1#14 GND (CONTROL CONDUCTORS) IN 3/4" CONDUIT TO GAC-PLC.
15. TOC ANALYZER (AIT/AE-0500). PROVIDE 120V TOGGLE DISCONNECT SWITCH MOUNTED BELOW.
16. UTILIZE CIRCUIT LP4-3.
17. #16 STP IN 3/4" CONDUIT TO GAC/PLC.
18. POWER CONNECTION TO INDICATED MOTORIZED VALVE.
19. REMOTE MOUNTED MULTIVARIABLE TRANSMITTER FOR BWS-BFV-3.
20. CONTROL CABLE IN 1" CONDUIT BETWEEN MOTORIZED VALVES AND MULTIVARIABLE TRANSMITTER.
21. DEVICENET NETWORK CABLE IN 1" CONDUIT TO GAC-PLC.
22. UTILIZE CIRCUIT HP2-20,22,24.
23. VENTURI FLOW METER TRANSMITTER (FIT/FE-0400). MOUNT 5'-6" AFF.
24. 2#16 STP IN 3/4" CONDUIT TO GAC/PLC.
25. PRESSURE TRANSMITTER (PIT-0400). SEE MOUNTING DETAIL ON SHEET I-10-501.
26. UV TRANSMITTANCE MONITOR (UV 1). PROVIDE CABLE TO ASSOCIATED PROBE. CABLE SHALL BE NEW AND PROVIDED BY TROJAN UV.
27. UV TRANSMITTANCE MONITOR (UV 2). PROVIDE CABLE TO ASSOCIATED PROBE. CABLE SHALL BE NEW AND PROVIDED BY TROJAN UV.
28. 3#16 STP IN 3/4" CONDUIT FROM UV TRANSMITTER MONITOR TO ASSOCIATED UV CONTROL PANEL.
29. 1#16 STP IN 3/4" CONDUIT BETWEEN THE TWO (2) UV TRANSMITTER MONITORS.
30. UTILIZE CIRCUIT LP4-5.
31. UTILIZE CIRCUIT LP4-7.



REVISIONS			
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NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

**ELECTRICAL
PT/GAC BUILDING
UV ELECTRICAL SECTION**
SCALE: 1/4" = 1'-0"

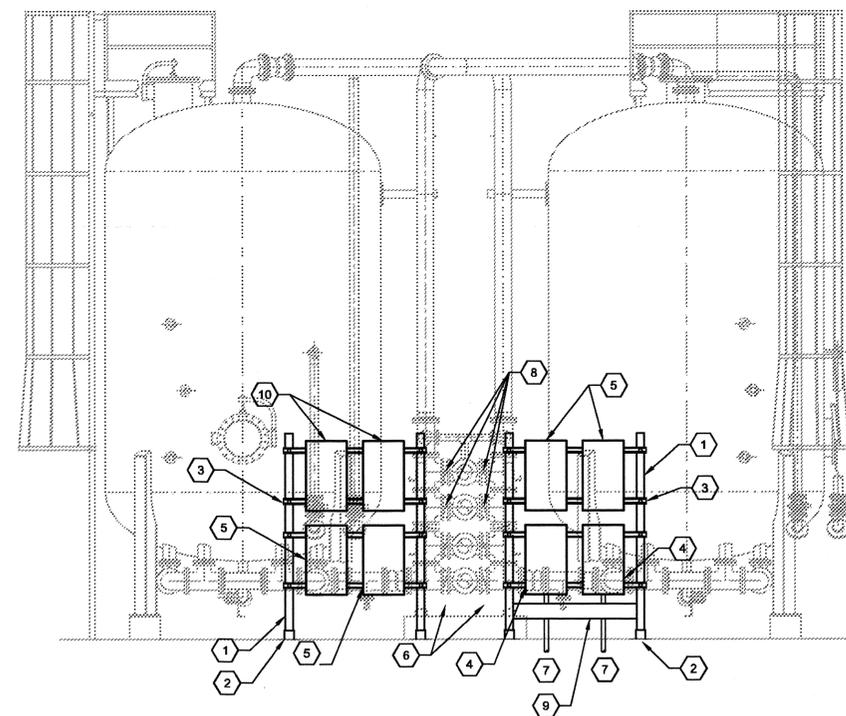
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-06-301
CAD REF. NO.: 3789-E-06-301

GENERAL NOTES:

1. CONDUIT SHALL ENTER EITHER THE BOTTOM OR SIDE OF ALL CONTROL PANELS, DISCONNECT, ETC. WITHIN PROCESS AREAS.
2. NOT SHOWN IS DEVICENET CABLING REQUIRED TO EACH ACTUATOR (REMOTE OR INTEGRAL). PROVIDE NEMA 4X TOP BOXES, AS LISTED IN SPECIFICATIONS (SEE DETAIL ON SHEET I-00-003).
3. DETAIL IS TYPICAL FOR 7 PAIRS OF VESSELS. MIRROR EQUIPMENT RACKS AS REQUIRED TO ALLOW 3'-6" CLEARANCE IN FRONT OF DISCONNECTS. REFER TO SHEET E-06-104 FOR DISCONNECT LOCATION.
4. THERE ARE TWO (2) GAC SYSTEM DIFFERENTIAL PRESSURE INDICATING TRANSMITTER FOR EACH PAIR OF VESSELS, NOT SHOWN. REFER TO SHEET I-06-604. PROVIDE 2#16 STP IN 3/4" CONDUIT TO GAC-PLC FROM EACH (PDI1-05X1 AND PDI1-06X1).

SHEET KEYNOTES:

1. 3" STAINLESS STEEL CHANNEL (TYPICAL). REFER TO SHEET M-06-501 FOR AREA RESERVED/ALLOWED FOR ELECTRICAL/INSTRUMENTATION EQUIPMENT.
2. BASE PLATE WITH STAINLESS STEEL CONCRETE EXPANSION ANCHORS (TYPICAL). COAT WITH BITUMASTIC WHERE IN CONTACT WITH CONCRETE.
3. 5/8" STAINLESS STEEL CHANNEL (TYPICAL). PROVIDE AS REQUIRED.
4. DISCONNECT, AS SHOWN ON SHEET E-06-104.
5. TWO (2) REMOTE MOUNTED OPEN/CLOSE TYPE ACTUATORS FOR BWW/VTW-BFV, & GS-BFV.
6. TEN (10) MOTORIZED VALVES. REFER TO SHEET I-06-604. VALVES TO BE SERVED FROM DISCONNECT (KEYNOTE #4). EVENLY DISTRIBUTE LOAD ON TWO (2) 460V/3-PHASE CIRCUITS. POWER AND CONTROL ROUTING IS NOT SHOWN, HOWEVER IS REQUIRED.
7. 460V/3-PHASE CIRCUITS. REFER TO SHEET E-06-104.
8. TOP FOUR (4) MOTORIZED VALVES TO BE CONTROLLED BY REMOTE MOUNTED ACTUATORS. INSTALL CONTROL CABLE IN 1" CONDUIT BETWEEN VALVES AND REMOTE MOUNTED ACTUATORS.
9. WIREWAY FOR DISTRIBUTING CIRCUITS TO EACH MOTORIZED VALVE. SIZE WIREWAY, ACCORDINGLY.
10. VENTURI FLOW TRANSMITTER. 2#16 STP IN 3/4" CONDUIT TO GAC-PLC.



GAC VESSEL ELECTRICAL SECTION
NOT TO SCALE

User: BOND Spec: PIRNIE STANDARD File: J:\3789-NKWD TAYLOR MILLWORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3789-E-06-302.DWG Scale: 1:18 Saved Date: 11/19/2010 Time: 15:45 Plot Date: Bond, JMF, 3/10/2011, 09:29 ; Layout: E-06-302



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NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

ELECTRICAL
PT/GAC BUILDING
VESSEL ELECTRICAL SECTION
SCALE: NOT TO SCALE

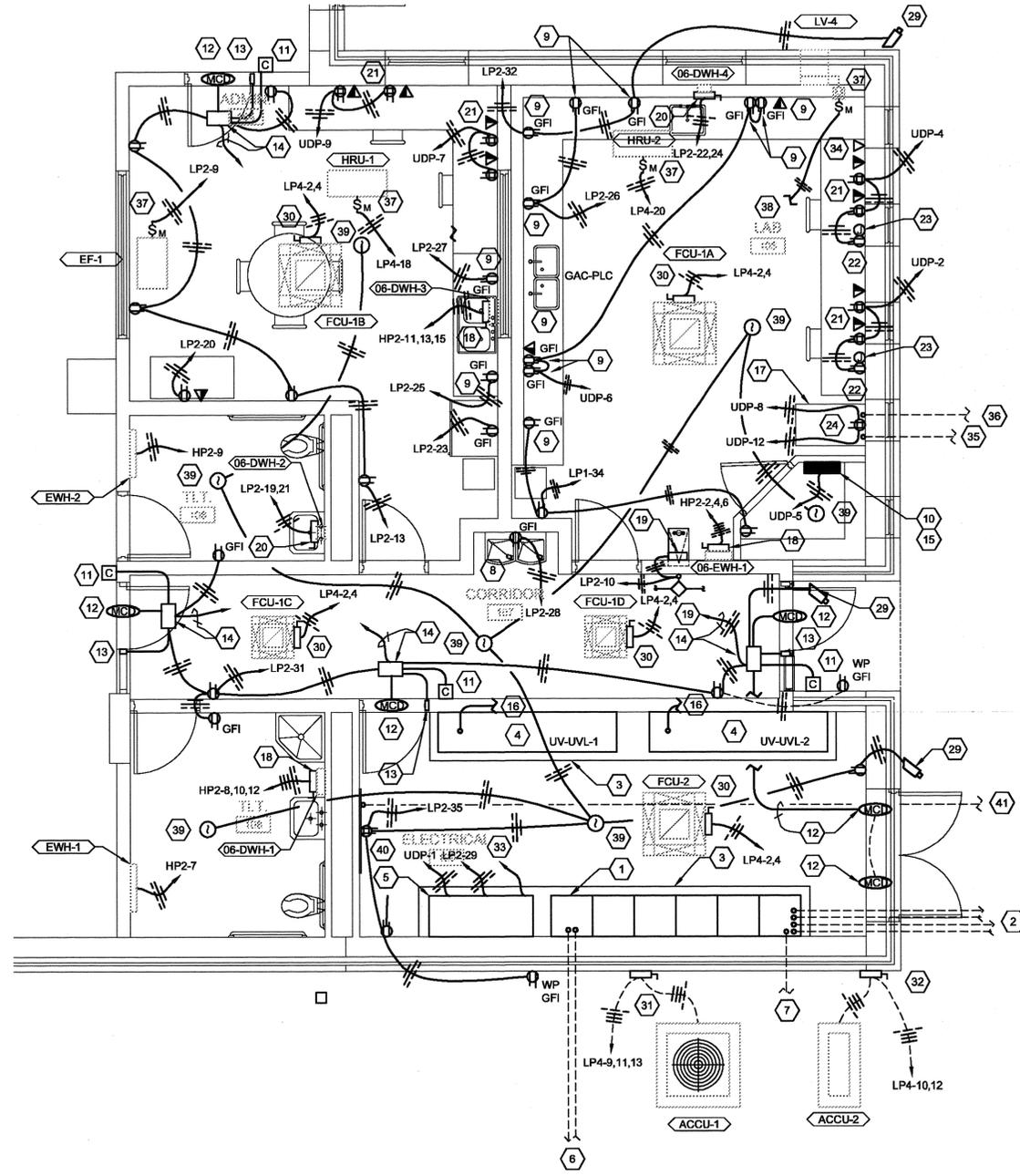
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-06-302
CAD REF. NO. 3789-E-06-302

GENERAL NOTES:

- REFER TO ONE-LINE DIAGRAMS ON SHEETS E-00-602 AND E-00-603 FOR FEEDER REQUIREMENTS.
- PROVIDE SWITCHBOARD MATING AS DEFINED IN SPECIFICATION SECTION 16495.
- FROM EACH COMMUNICATIONS OUTLET (DATA/VOICE), CONTRACTOR SHALL INSTALL TWO (4) 4PR CAT 6E 24AWG CABLES IN 1" CONDUIT. DATA CABLING SHALL BE TERMINATED AT THE SECURITY NETWORK SWITCH IN THE EQUIPMENT RACK (KEYNOTE #17) AND VOICE CABLING SHALL BE TERMINATED ON 110 PUNCH DOWN BLOCKS AT THE TELEPHONE BACKBOARD (KEYNOTE #39).

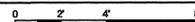
SHEET KEYNOTES:

- MOTOR CONTROL CENTER, MCC-GAC. SEE ONE-LINE DIAGRAM ON SHEET E-00-602.
- PERMANENT ELECTRICAL FEEDER FOR MOTOR CONTROL CENTER, MCC-GAC FROM MOTOR CONTROL CENTER, MCC-GFP (LOCATED IN THE GAC FEED PUMP STATION). REFER TO CONTINUATION ON SHEET E-02-102. REFER TO SHEET E-00-602 FOR CONDUIT/CONDUCTOR REQUIREMENTS.
- EQUIPMENT HOUSEKEEPING PAD.
- EXISTING UV DISINFECTION CONTROL PANEL (RELOCATED FROM BASEMENT OF FILTER BUILDING). REFER TO SHEET E-00-602 FOR FEEDER CONDUIT/CONDUCTOR REQUIREMENTS. REFER TO SHEET E-08-101 FOR ADDITIONAL INFORMATION WITH REGARD TO RELOCATION PHASING (UV-UVL-1 CONTROL PANEL SHALL BE RELOCATED PRIOR TO UV-UVL-2).
- GAC PLC CABINET.
- TEMPORARY ELECTRICAL FEEDER FOR MOTOR CONTROL CENTER, MCC-GAC FROM PAD-MOUNTED TRANSFORMER (PROVIDED BY DUKE ENERGY). REFER TO CONTINUATION ON SHEET E-06-102. REFER TO SHEET E-00-602 FOR CONDUIT/CONDUCTOR REQUIREMENTS.
- BARE #3/0 COPPER GROUNDING ELECTRODE CONDUCTOR TO COUNTERPOISE (ROUTE IN PVC FROM CC-GAC TO UNDERGROUND). REFER TO SHEET E-06-106 FOR CONTINUATION.
- CONCEAL RECEPTACLE BEHIND ELECTRIC WATER COOLERS. COORDINATE LOCATION WITH PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
- FLUSH MOUNT INDICATED RECEPTACLE (OR COMMUNICATIONS OUTLET) HORIZONTALLY IN BACKSPLASH ABOVE COUNTERTOP. COORDINATE WITH ARCHITECT APPROVED SHOP DRAWINGS PRIOR TO ROUGH-IN.
- SECURITY SYSTEM PANEL. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SECURITY SYSTEM CARD READER (MOUNT AT 42" AFF). PROVIDE CONDUIT/WIRING BACK TO POWER SUPPLY MOUNTED ABOVE DOOR. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SECURITY SYSTEM DOOR CONTACTS. COORDINATE MOUNTING WITH GENERAL CONTRACTOR. PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- ELECTRICAL DOOR STRIKE (COORDINATE INSTALLATION WITH DOOR HARDWARE PROVIDER/INSTALLER). PROVIDE CONDUIT/WIRING TO POWER SUPPLY MOUNTED ABOVE DOOR. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- POWER SUPPLY/DOOR CONTROLLER MOUNTED ABOVE DOOR (MOUNT ABOVE ACCESSIBLE CEILING, WHERE PRESENT). PROVIDE CONDUIT/WIRING BACK TO SECURITY SYSTEM PANEL. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. PROVIDE 120V CONNECTION.
- PROVIDE 1" CONDUIT W/ 4-PAIR OF CAT6, 24AWG UTP CABLE TO SECURITY NETWORK SWITCH.
- PROVIDE 1" CONDUIT W/ 4-PAIR CAT6, 24AWG UTP CABLE TO CONTROL NETWORK SWITCH.
- EQUIPMENT RACK PROVIDED BY OWNER, INSTALLED BY CONTRACTOR. CONTRACTOR SHALL PROVIDE A 1/4" X 4" X 12" INSULATED COPPER GROUND BAR, WHICH IS TO BE BONDED TO BUILDING WITH #6 AWG COPPER WIRE IN 3/4" PVC CONDUIT. THE EQUIPMENT RACK AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE GROUND BAR.
- 60A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 1 ENCLOSURE).
- PROVIDE 120V CONNECTION TO HORN/LIGHT ASSOCIATED WITH EMERGENCY EYEWASH STATION. ROUTE CIRCUIT THROUGH FLOW SWITCH, COORDINATE WITH PLUMBING CONTRACTOR AND PROVIDE COMPLETE.
- 60A/240V/1-PHASE NON-FUSED DISCONNECT (NEMA 1 ENCLOSURE).
- MOUNT ONE (1) QUADRAPLEX AND ONE (1) COMMUNICATIONS OUTLET BELOW COUNTERTOP (AT STANDARD MOUNTING HEIGHT) AND ONE (1) QUADRAPLEX AND ONE (1) COMMUNICATIONS OUTLET 2" ABOVE COUNTERTOP/BACKSPLASH. COORDINATE COUNTERTOP HEIGHT WITH ARCHITECT APPROVED SHOP DRAWINGS.
- PROVIDE DUPLEX RECEPTACLE LOCATED BEHIND WALL MOUNTED COMPUTER MONITOR. COORDINATE MOUNTING HEIGHT WITH OWNER.
- PROVIDE RECESSED JUNCTION BOX ADJACENT TO DUPLEX RECEPTACLE (REFERENCED BY KEYNOTE #22) AND A RECESSED JUNCTION BOX AT STANDARD MOUNTING HEIGHT. PROVIDE 1" CONDUIT WITH PULL STRING BETWEEN JUNCTION BOXES FOR FUTURE MONITOR CABLE.
- QUADRAPLEX RECEPTACLE FOR NETWORK EQUIPMENT. TWO CIRCUIT REQUIRED.
- DOOR TO FLOOR BELOW.
- UP TO FLOOR ABOVE.
- SECURITY SYSTEM DOOR CONTACT. COORDINATE MOUNTING WITH GENERAL CONTRACTOR. PROVIDE CONDUIT/WIRING BACK TO SECURITY SYSTEM PANEL. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- ROUTE CIRCUIT DOWN TO MOTORIZED LOUVER, LV-2. REFER TO SHEET E-06-104.
- FINAL CAMERA LOCATION/HEIGHT SHALL BE FIELD VERIFIED W/OWNER. PROVIDE CONDUIT/WIRING BACK TO DIGITAL RECORDER/SERVER LOCATED IN EQUIPMENT RACK, KEYNOTE #17).
- 30A / 240V / 1-PHASE FUSED DISCONNECT (NEMA 1 ENCLOSURE). FUSE AT 15 AMPS.
- 30A / 240V / 3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
- 30A / 240V / 1-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
- 1" CONDUIT WITH TWO (2) 4PR CAT 6E 24AWG CABLES TO CONTROL NETWORK SWITCH LOCATED IN EQUIPMENT RACK (KEYNOTE #17).
- COMMUNICATIONS OUTLET CONTAINING ONE (1) DATA PORT FOR HMI COMPUTER, ROUTE 1" CONDUIT WITH ONE (1) 4PR CAT 6E 24AWG CABLE TO THE CONTROL NETWORK SWITCH LOCATED IN EQUIPMENT RACK (KEYNOTE #17).
- 24-STRAND 63.5/125 MICRON MM FIBER IN 3" CONDUIT FROM FIBER OPTIC PATCH PANEL IN EQUIPMENT RACK (KEYNOTE #17) TO THE FIBER OPTIC PATCH PANEL LOCATED WITHIN THE EXISTING CHEMICAL BUILDING (SHOWN ON SHEET E-09-001). PROVIDE AN ADDITIONAL SPARE 3" CONDUIT WITH PULL STRING. REFER TO SHEET E-02-102 FOR ADDITIONAL INFORMATION AND CONTINUATION.
- 24-STRAND 63.5/125 MICRON MM FIBER IN 3" CONDUIT FROM FIBER OPTIC PATCH PANEL IN EQUIPMENT RACK (KEYNOTE #17) TO THE FIBER OPTIC PATCH PANEL LOCATED WITHIN THE GAC FEED PUMP STATION (SHOWN ON SHEET E-05-102/E-05-102A). PROVIDE AN ADDITIONAL SPARE 3" CONDUIT WITH PULL STRING. REFER TO SHEET E-02-102 FOR ADDITIONAL INFORMATION AND CONTINUATION.
- NEMA 1 MANUAL MOTOR STARTER.
- CONNECT TO EXHAUST FAN, EF-1 (SHOWN THIS SHEET).
- CEILING MOUNTED SMOKE DETECTOR. PROVIDE 2#14, #14 GND (SIGNAL CONDUCTORS) IN 3/4" CONDUIT FROM SMOKE DETECTOR'S N.C. CONTACT TO INPUT AT PLC-GAC. ALL SMOKE DETECTORS SHALL BE WIRED IN SERIES. SMOKE DETECTOR SHALL BE EQUIVALENT TO GENTEX MODEL #7103TF - 90dBA PIEZO ALARM, VISUAL LED MONITOR, AND FORM A / FORM C RELAY CONTACTS.
- TELEPHONE BACKBOARD FOR TERMINATION OF VOICE CABLES. CONTRACTOR SHALL PROVIDE A 3/4" X 4" X 8' PLYWOOD. TREAT ALL PLYWOOD WITH WHITE, FLAME RETARDANT PAINT. INSTALL A 1/4" X 4" X 20" INSULATED COPPER GROUND BAR, AND PROVIDE A #6 AWG COPPER WIRE IN 3/4" CONDUIT TO BUILDING STEEL. CONTRACTOR SHALL PROVIDE 110 PUNCHDOWN BLOCKS WITH SURGE PROTECTION FOR THE INCOMING BUILDING CABLES (KEYNOTE #40) AND 110 PUNCHDOWN BLOCKS FOR CABLES TO VOICE OUTLETS. PROVIDE CROSS CONNECT JUMPERS AS REQUIRED.
- PROVIDE 3" CONDUIT WITH SIX (6) 4PR CAT 6E 24 AWG VOICE CABLES FROM TELEPHONE BACKBOARD TO THE TELEPHONE BACKBOARD/DEMARC LOCATION WITHIN THE FILTER BUILDING (REFER TO SHEET E-06-106 FOR LOCATION). PROVIDE AN ADDITIONAL 3" SPARE CONDUIT WITH PULL STRING. REFER TO CONTINUATION ON SHEET E-02-102.



**PT/GAC BUILDING - ENLARGED
POWER PLAN AT EL. 524.00**

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



User: BOND Spec: PIRNIE STANDARD File: U:\3786-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3786-E-06-401.DWG Scale: 1/4" = 1'-0" Plot Date: 3/10/2011 10:30:30 AM Layout: E-06-401



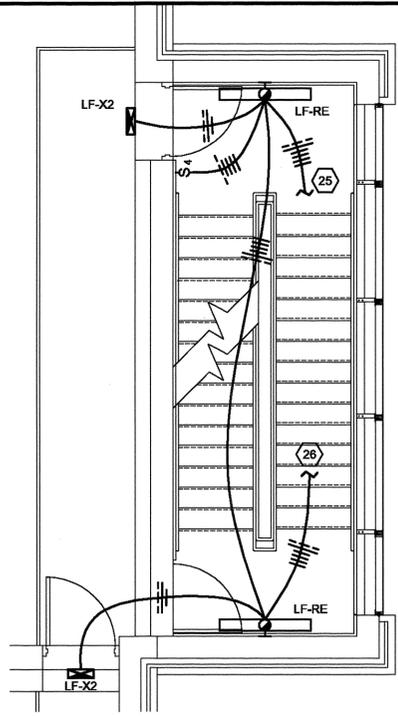
NO.		BY	DATE	REVISIONS	REMARKS

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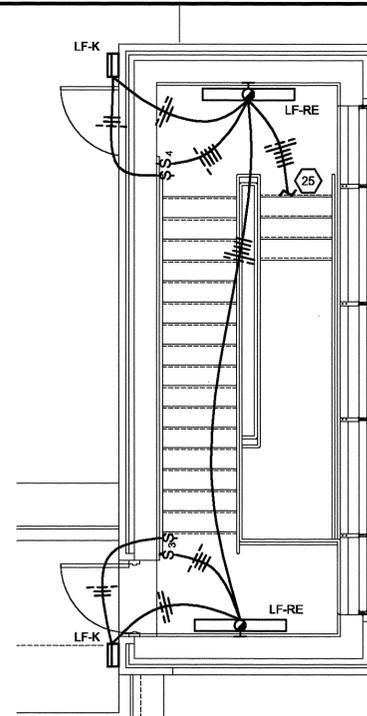
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

ELECTRICAL
**PT/GAC BUILDING
ENLARGED ELECTRICAL PLANS I**
SCALE: 1/4" = 1'-0"

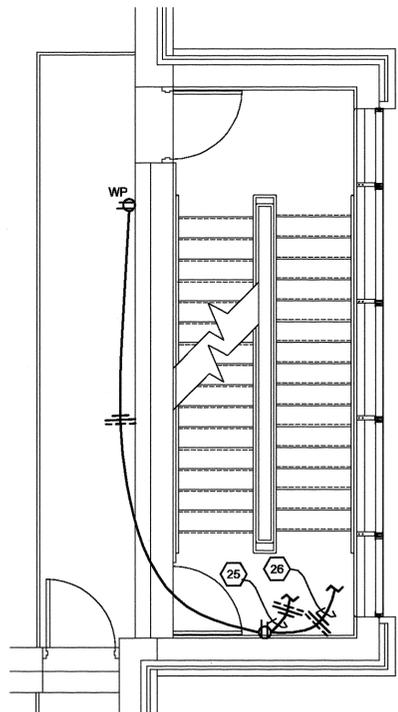
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET E-06-401
CAD REF. NO. 3789-E-06-401



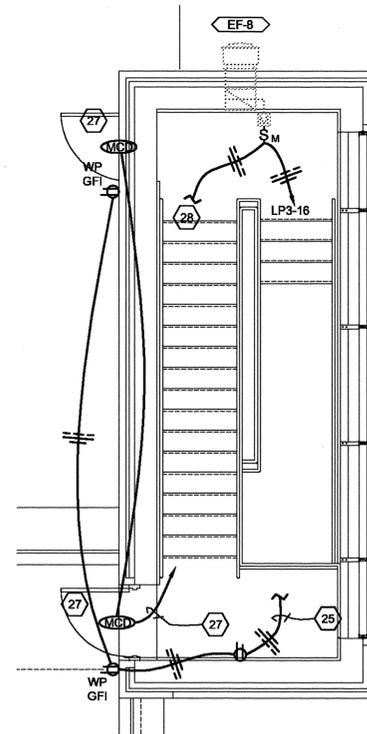
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SCALE: 1/4"=1'-0"



2 PT/GAC BUILDING - ENLARGED LIGHTING PLAN AT EL. 565.71
SCALE: 1/4"=1'-0"



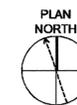
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SCALE: 1/4"=1'-0"



4 PT/GAC BUILDING - ENLARGED POWER PLAN AT EL. 565.71
SCALE: 1/4"=1'-0"

GENERAL NOTES:

- REFER TO SHEET KEYNOTES ON DRAWING E-06-401.



User: JBOUD Spac: PIRNIE STANDARD File: U:\3789-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELECTRICAL\E-06-402.DWG Scale: 1/8"=1'-0" Date: 3/18/2011 Time: 09:44 Plot Date: Band: JLF, 3/18/2011, 09:48 Layout: E-06-402



NO.		BY	DATE	REVISIONS	REMARKS

DES PJB
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NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
PT/GAC BUILDING
ENLARGED ELECTRICAL PLANS II
SCALE: 1/4" = 1'-0"

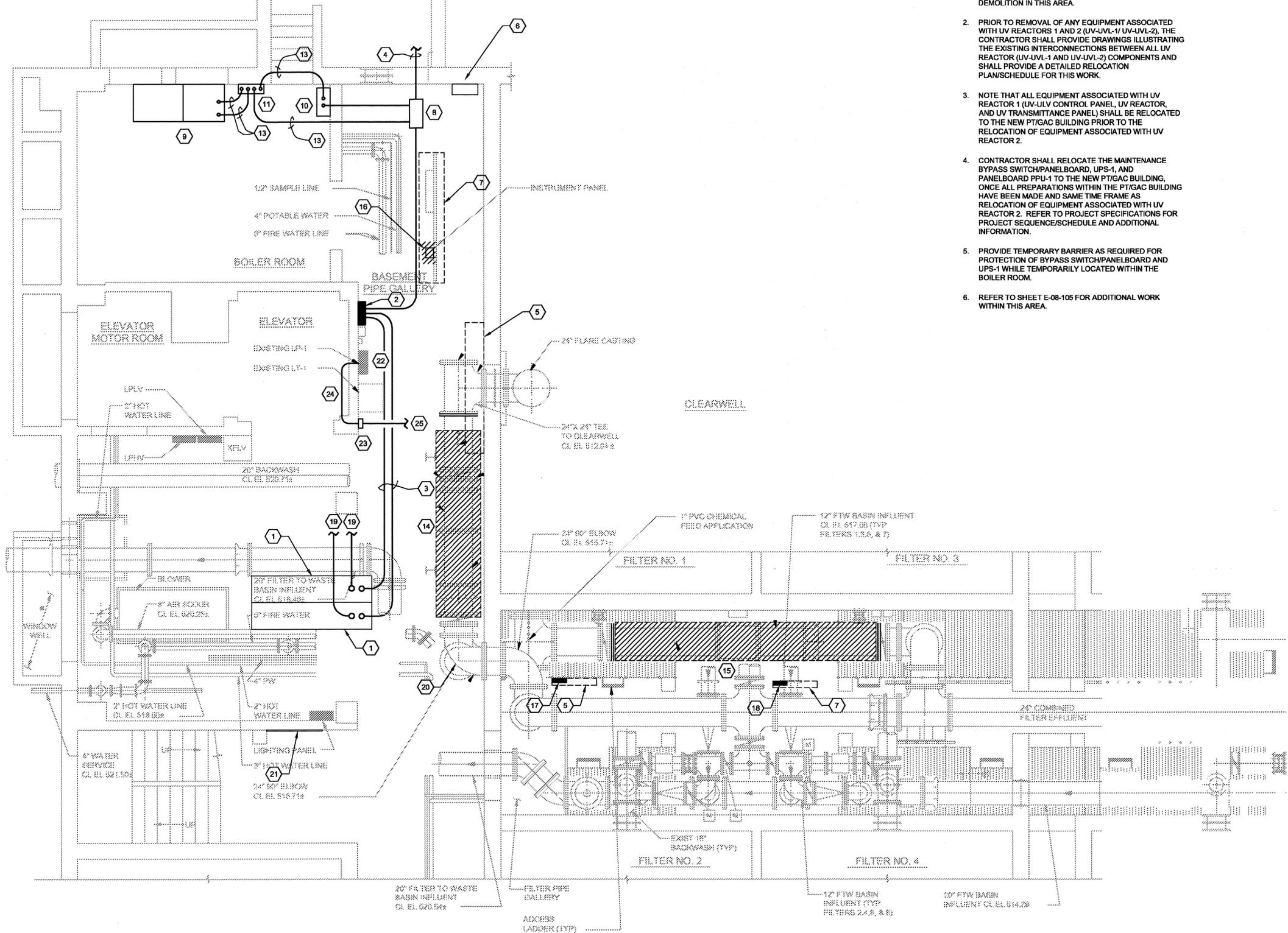
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-06-402
CAD REF. NO.: 3789-E-06-402

GENERAL NOTES:

- REFER TO DRAWING D-08-101 FOR ADDITIONAL DEMOLITION IN THIS AREA.
- PRIOR TO REMOVAL OF ANY EQUIPMENT ASSOCIATED WITH UV REACTORS 1 AND 2 (UV-UV-1/UV-UV-2), THE CONTRACTOR SHALL PROVIDE DRAWINGS ILLUSTRATING THE EXISTING INTERCONNECTIONS BETWEEN ALL UV REACTOR (UV-UV-1 AND UV-UV-2) COMPONENTS AND SHALL PROVIDE A DETAILED RELOCATION PLAN/SCHEDULE FOR THIS WORK.
- NOTE THAT ALL EQUIPMENT ASSOCIATED WITH UV REACTOR 1 (UV-UV CONTROL PANEL, UV REACTOR, AND UV TRANSMITTANCE PANEL) SHALL BE RELOCATED TO THE NEW PT/GAC BUILDING PRIOR TO THE RELOCATION OF EQUIPMENT ASSOCIATED WITH UV REACTOR 2.
- CONTRACTOR SHALL RELOCATE THE MAINTENANCE BYPASS SWITCH/PANELBOARD, UPS-1, AND PANELBOARD PPU-1 TO THE NEW PT/GAC BUILDING, ONCE ALL PREPARATIONS WITHIN THE PT/GAC BUILDING HAVE BEEN MADE AND SAME TIME FRAME AS RELOCATION OF EQUIPMENT ASSOCIATED WITH UV REACTOR 2. REFER TO PROJECT SPECIFICATIONS FOR PROJECT SEQUENCE/SCHEDULE AND ADDITIONAL INFORMATION.
- PROVIDE TEMPORARY BARRIER AS REQUIRED FOR PROTECTION OF BYPASS SWITCH/PANELBOARD AND UPS-1 WHILE TEMPORARILY LOCATED WITHIN THE BOILER ROOM.
- REFER TO SHEET E-08-105 FOR ADDITIONAL WORK WITHIN THIS AREA.

SHEET KEYNOTES:

- EXISTING UV-UV-1 AND UV-UV-2 CONTROL PANELS AND ALL ASSOCIATED EQUIPMENT TO BE REMOVED AND RELOCATED TO THE PT-GAC BUILDING. REFER TO SHEET E-06-401 FOR NEW LOCATION.
- EXISTING DISTRIBUTION BOARD, PPU-1 TO BE RELOCATED TO THE PT-GAC BUILDING. REFER TO SHEET E-06-104 FOR NEW LOCATION.
- EXISTING 125A, 480V, 3-PHASE, 3-WIRE FEEDER BETWEEN PPU-1 AND EACH UV CONTROL CABINET TO BE REMOVED AND PROPERLY DISPOSED OF ONCE ASSOCIATED CONTROL PANEL HAS BEEN REMOVED.
- EXISTING 300A, 480V, 3-PHASE, 3-WIRE FEEDER BETWEEN PPU-1 AND THE UPS-1 (LOCATED IN THE ADJACENT TUNNEL) TO BE REMOVED AND PROPERLY DISPOSED OF FROM THIS POINT.
- EXISTING HOA SWITCHES AND START/STOP CONTROL STATIONS ASSOCIATED WITH HAOC, NAOH, CI, AND HFS CONTROL VALVES AND ALL ASSOCIATED POWER/CONTROL WIRING SHALL REMAIN IN PLACE AND OPERATIONAL.
- RELOCATED EXISTING CONTROL STATION AS REQUIRED TO ALLOW INSTALLATION OF NEW PIPING. PROVIDE NEW MOUNTING STAND, AS REQUIRED. CONTROL STATION SHALL REMAIN IN SERVICE WHILE BEING RELOCATED.
- EXISTING INSTRUMENT PANEL TO BE REMOVED AND REPLACED AS REQUIRED TO ALLOW INSTALLATION OF NEW PIPING.
- NEW PULL BOX TO INTERCEPT EXISTING 400AMP PPL-1 FEEDER AND EXISTING 300AMP FEEDER BETWEEN UPS-1 AND PPU-1. PULL BOX TO BE FIELD LOCATED, COORDINATE LOCATION WITH EXISTING OVERHEAD INSTALLATIONS.
- TEMPORARY LOCATION OF 160KVA UPS-1. UPS-1 WILL BE RELOCATED A SECOND TIME TO THE PT/GAC BUILDING (SEE SHEET E-06-105 FOR PERMANENT LOCATION).
- NEW LOCATION FOR DISTRIBUTION PANELBOARD, PPL-1.
- TEMPORARY LOCATION OF THE MAINTENANCE BYPASS SWITCH/PANELBOARD. BYPASS SWITCH/PANELBOARD WILL BE RELOCATED A SECOND TIME TO THE PT/GAC BUILDING (SEE SHEET E-06-105 FOR PERMANENT LOCATION).
- PROVIDE A NEW 400AMP FEEDER FROM PULL BOX TO PPL-1. UTILIZE 3#750 KCMIL, 1#2 GRD. IN 4" CONDUIT (SPLICE WITHIN EXISTING IN PULL BOX, IF REQUIRED).
- PROVIDE A NEW 300AMP FEEDER BETWEEN PPL-1 AND MAINTENANCE BYPASS SWITCH (TYPICAL FOR 2), AND MAINTENANCE BYPASS SWITCH AND PPU-1. UTILIZE 3#350 KCMIL, 1#4 GND. IN 3" CONDUIT.
- EXISTING UV REACTOR #1 TO BE RELOCATED TO THE NEW PT/GAC BUILDING. REFER TO SHEET M-06-102/M-06-305 FOR NEW LOCATION AND SHEET E-06-301 FOR ASSOCIATED ELECTRICAL WORK. PROVIDE AS REQUIRED FOR A COMPLETE AND OPERATIONAL UV SYSTEM.
- EXISTING UV REACTOR #2 TO BE RELOCATED TO THE NEW PT/GAC BUILDING. REFER TO SHEET M-06-102/M-06-305 FOR NEW LOCATION AND SHEET E-06-301 FOR ASSOCIATED ELECTRICAL WORK. PROVIDE AS REQUIRED FOR A COMPLETE AND OPERATIONAL UV SYSTEM.
- REMOVE AND PROPERLY DISPOSE OF THE EXISTING RAW WATER TURBIDITY ANALYZER. REMOVE AND PROPERLY DISPOSE OF THE EXISTING POWER AND SIGNAL CONDUIT/CONDUCTORS BACK TO SOURCE.
- UV TRANSMITTANCE MONITOR (UV#1) TO BE RELOCATED. REMOVE AND PROPERLY DISPOSE OF ALL EXISTING POWER AND SIGNAL CONDUIT/CONDUCTORS BACK TO THE ASSOCIATED UV-UV #1 CONTROL PANEL. REFER TO SHEET E-06-301 FOR NEW LOCATION WITHIN THE NEW PT/GAC BUILDING.
- UV TRANSMITTANCE MONITOR (UV#2) TO BE RELOCATED. REMOVE AND PROPERLY DISPOSE OF ALL EXISTING POWER AND SIGNAL CONDUIT/CONDUCTORS BACK TO THE ASSOCIATED UV-UV #2 CONTROL PANEL. REFER TO SHEET E-06-301 FOR NEW LOCATION WITHIN THE NEW PT/GAC BUILDING.
- REMOVE CONDUIT AND ETHERNET CABLE FROM THE EXISTING UV-UV CONTROL PANEL TO THE EXISTING DISTRIBUTION PLC CABINET LOCATED WITHIN SCADA ROOM 202 (REFER TO SHEET E-08-108 FOR CABINET LOCATION).
- CONTRACTOR SHALL RELOCATE CONDUIT/WIRING IN THIS AREA AS REQUIRED TO ALLOW ROTATION OF EXISTING 24" 90 DEGREE ELBOW. COORDINATE WITH MECHANICAL CONTRACTOR.
- EXISTING TELEPHONE SYSTEM DEMARC LOCATION.
- EXISTING PANELBOARD LP1 (120/208V, 3-PHASE, 4-WIRE, 200AMP MCB) - SQUARE D NQOD TYPE.
- NEW FINISHED WATER SAMPLE PUMP CONTROL PANEL. REFER TO SHEET E-00-607.
- PROVIDE A NEW 30A/1P BREAKER INSTALLED WITHIN SPACE OF EXISTING PANELBOARD LP1 AND ROUTE 2#10, 1#10 GND. IN 3/4" CONDUIT TO FINISHED WATER SAMPLE PUMP CONTROL PANEL.
- 8#12, 1#12 GND. IN 1" CONDUIT (CONTROL CONDUCTORS) FROM SAMPLE PUMP CONTROL PANEL TO THE EXISTING FILTER BUILDING PLC CABINET (REFER TO SHEET E-08-114 FOR PLC CABINET LOCATION).



**FILTER BUILDING PIPE GALLERY
ELECTRICAL DEMOLITION PLAN AT EL. 509.67**

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



User: BOND Spec: PIRNIE STANDARD File: U:\3788-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELE\3788-E-08-101.DWG Scale: 1/8" = 1'-0" Date: 2/24/2011 11:09:30 Layout: E-08-101



REVISIONS			
NO.	BY	DATE	REMARKS

DES: PJB
OWN: DLM
CKD: PJB

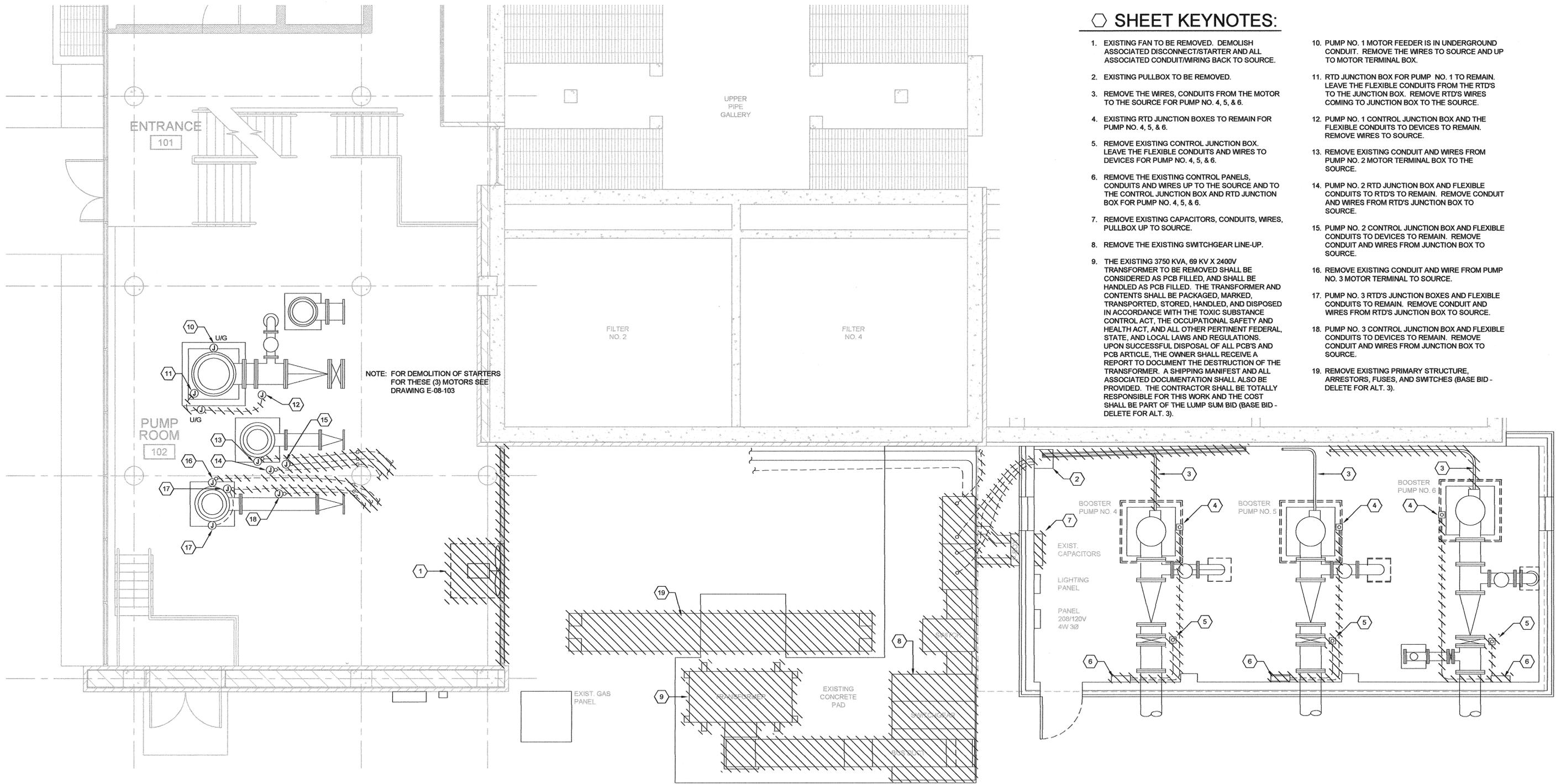
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
**FILTER BUILDING PIPE GALLERY
DEMOLITION PLAN AT EL. 509.67**
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-08-101
CAD REF. NO.: 3789-E-08-101

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. THE EXISTING 3750 KVA, 89 KV X 2400V TRANSFORMER TO BE REMOVED SHALL BE CONSIDERED AS PCB FILLED, AND SHALL BE HANDLED AS PCB FILLED. THE TRANSFORMER AND CONTENTS SHALL BE PACKAGED, MARKED, TRANSPORTED, STORED, HANDLED, AND DISPOSED IN ACCORDANCE WITH THE TOXIC SUBSTANCE CONTROL ACT, THE OCCUPATIONAL SAFETY AND HEALTH ACT, AND ALL OTHER PERTINENT FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS. UPON SUCCESSFUL DISPOSAL OF ALL PCB'S AND PCB ARTICLE, THE OWNER SHALL RECEIVE A REPORT TO DOCUMENT THE DESTRUCTION OF THE TRANSFORMER. A SHIPPING MANIFEST AND ALL ASSOCIATED DOCUMENTATION SHALL ALSO BE PROVIDED. THE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR THIS WORK AND THE COST SHALL BE PART OF THE LUMP SUM BID (BASE BID - DELETE FOR ALT. 3).
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. LEAVE 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 REMAIN. 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 AND FLEXIBLE CONDUITS TO RTD'S 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 REMAIN. REMOVE CONDUIT AND WIRES FROM JUNCTION BOX TO SOURCE.
16. REMOVE EXISTING CONDUIT AND WIRE FROM PUMP NO. 3 MOTOR TERMINAL TO SOURCE.
17. PUMP NO. 3 RTD'S JUNCTION BOXES AND FLEXIBLE CONDUITS TO REMAIN. REMOVE CONDUIT AND WIRES FROM RTD'S JUNCTION BOX TO SOURCE.
18. PUMP NO. 3 CONTROL JUNCTION BOX AND FLEXIBLE CONDUITS TO DEVICES TO REMAIN. REMOVE CONDUIT AND WIRES FROM JUNCTION BOX TO SOURCE.
19. REMOVE EXISTING PRIMARY STRUCTURE, ARRESTORS, FUSES, AND SWITCHES (BASE BID - DELETE FOR ALT. 3).



**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**

cdpengineers

Michelle Howlett
T. MICHELLE
HOWLETT
19856
LICENSED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS

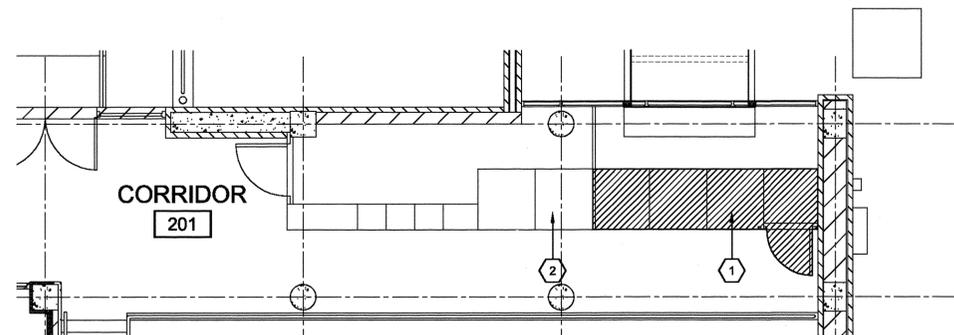
DES SKD
DWN TEW
CKD TMH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

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

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

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-08-102
CAD REF. NO.: CDP-E-08-102



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

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



KEYNOTE 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 WHEN 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.

User: BOND Spec: PIRNIE STANDARD File: J:\3786-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELECTRICAL\3786-E-08-103.DWG Scale: 1/24 Saved Date: 9/26/2010 Time: 17:17 Plot Date: Bond, Jeff: 3/10/2011: 09:30 Layout: E-08-103



REVISIONS			
NO.	BY	DATE	REMARKS

DES	PJB
DWN	DLM
CKD	PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

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

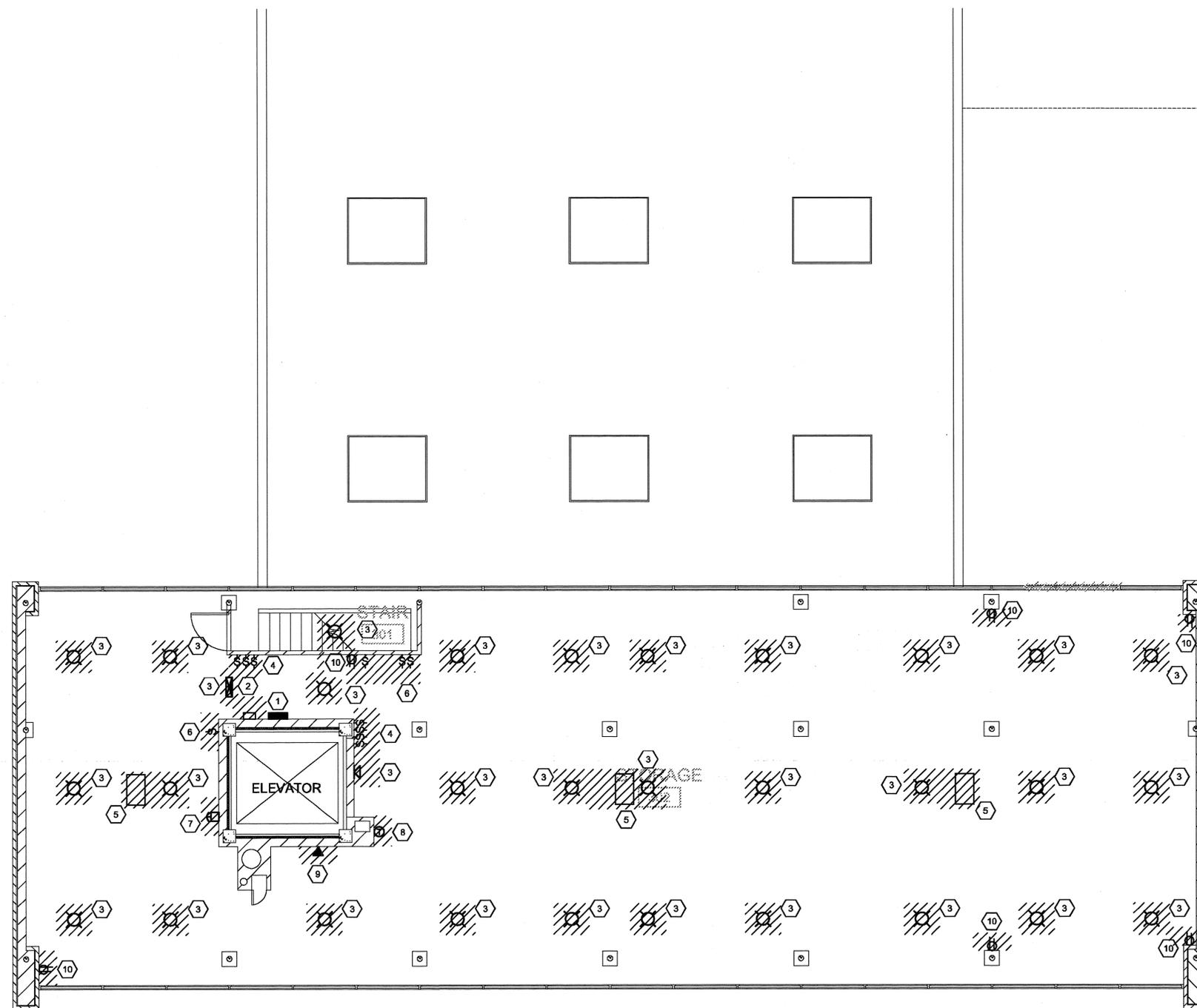
ISSUED STATUS:	BID SET
DATE	MARCH, 2011
SHEET	E-08-103
CAD REF. NO.	3789-E-08-103

GENERAL NOTES:

1. PROPERLY DISPOSE OF ALL ELECTRICAL EQUIPMENT, LIGHT FIXTURES, LAMPS, AND CONDUIT/WIRING.

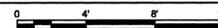
SHEET KEYNOTES:

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.
4. EXISTING LIGHT SWITCHES TO BE REMOVED. REMOVE ASSOCIATED CONDUIT/WIRING.
5. EXISTING UNIT HEATER TO BE REMOVE. REMOVE ASSOCIATED CONDUIT/WIRING BACK TO SOURCE.
6. EXISTING UNIT HEATER CONTROL SWITCH TO BE REMOVED. REMOVE ASSOCIATED CONDUIT/WIRING.
7. PANIC ALARM PULL STATION TO REMAIN.
8. THERMOSTAT TO BE REMOVED. REMOVE ASSOCIATED CONDUIT/WIRING.
9. TELEPHONE OUTLET TO REMAIN.
10. EXISTING DUPLEX RECEPTACLE TO BE REMOVED. REMOVE CONDUIT/WIRING BACK TO SOURCE.



FILTER BUILDING ELECTRICAL THIRD FLOOR DEMOLITION PLAN AT EL. 545.00

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



User: JBOND Spec: PIRNIE STANDARD File: J:\3768-NKWD TAYLOR MILLWORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3768-E-08-104.DWG Scale: 1:24 Saved Date: 1/22/2011 Time: 1:16:39 Plot Date: Bond, Jeff: 3/10/2011: 09:30 Layout: E-08-104



REVISIONS			
NO.	BY	DATE	REMARKS

DES PJB
DWN DLM
CKD PJB

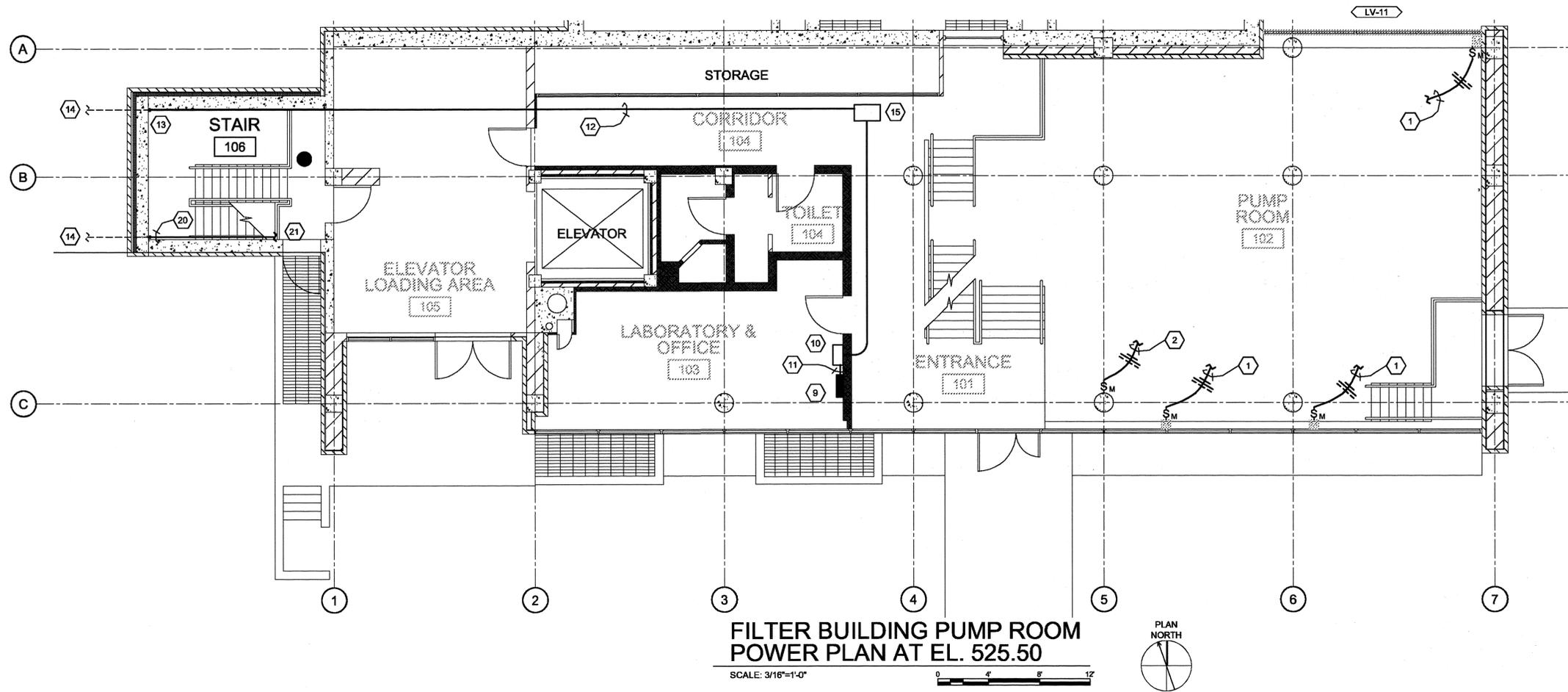
**NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS**

**ELECTRICAL
FILTER BUILDING ELECTRICAL THIRD
FLR. DEMOLITION PLAN AT EL. 545.00**

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

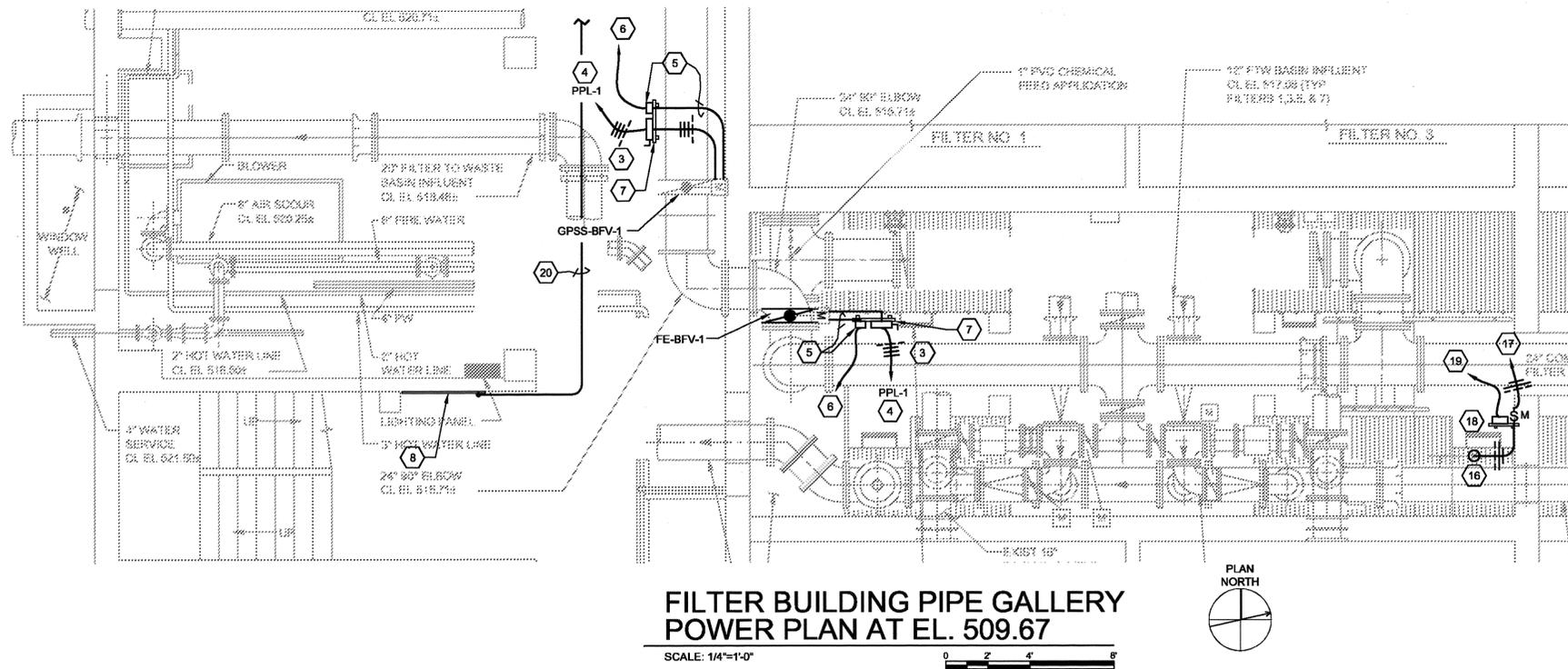
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-08-104
CAD REF. NO.: 3789-E-08-104

User: BOND Spec: PIRNIE STANDARD File: L:\3789-NKWD\TAYLOR MILL WORKING DRAWINGS\DESIGN\3789-E-08-105.DWG Scale: 1:24 Saved: 2/21/2011 Time: 15:47 Plot Date: Band: Jeff: 3/10/2011: 09:30 Layout: E-08-105



SHEET KEYNOTES:

1. NEMA 4 MANUAL MOTOR STARTER FOR DAMPER ACTUATOR. PROVIDE CONDUIT/WIRING BACK TO STARTER ASSOCIATED WITH EXHAUST FAN (EF-6). SEE SHEET E-08-107 FOR LOCATION OF FAN.
2. NEMA 4 MANUAL MOTOR STARTER TO CONTROL EXHAUST FAN (EF-6) AND ASSOCIATED DAMPERS. PROVIDE CONDUIT/WIRING BACK TO STARTER ASSOCIATED WITH EXHAUST FAN (EF-6). SEE SHEET E-08-107 FOR LOCATION OF FAN.
3. 30A/600V/3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
4. CONNECT TO A NEW 30A/3P BREAKER INSTALLED IN SPACE OF EXISTING DISTRIBUTION BOARD, PPL-1 (REFER TO SHEET E-08-101 FOR LOCATION). UTILIZE 3#8, 1#10 GND IN 3/4\" CONDUIT.
5. REMOTE MOUNTED MULTI-VARIABLE TRANSMITTER WITH CONTROL CABLE TO MOTORIZED VALVE. INSTALL IN 1\" CONDUIT.
6. PROVIDE 2#12, 1#12 GND IN 1\" CONDUIT FROM MOTORIZED VALVE TO THE EXISTING PLC CABINET LOCATED WITHIN SCADA ROOM 202 (REFER TO SHEET E-08-108 FOR CABINET LOCATION).
7. LOCATE EQUIPMENT RACK FOR DISCONNECT AND TRANSMITTER AS REQUIRED TO MAINTAIN PROPER CLEARANCE FOR EXISTING AND NEW INSTALLATIONS.
8. EXISTING TELEPHONE DEMARC. CONTRACTOR SHALL PROVIDE NEW 110 PUNCH-DOWN BLOCKS WITH SURGE PROTECTION FOR THE INCOMING VOICE CABLES FROM THE NEW PT/GAC BUILDING (REFER TO SHEET E-08-401). PROVIDE CROSS CONNECT JUMPERS TO PATCH PHONE LINES.
9. APPROXIMATE LOCATION OF EXISTING DSX SECURITY/ACCESS CONTROL SYSTEM. PROVIDE A NEW ETHERNET SWITCH MOUNTED WITHIN EXISTING CONTROL PANEL. PROVIDE A #24 AWG 4PR CAT 6 CABLE FROM ETHERNET SWITCH TO COMMUNICATIONS PORT OF SECURITY PANEL.
10. NEW WALL MOUNTED EQUIPMENT RACK (REFER TO PROJECT SPECIFICATIONS). RACK TO HOUSE A NEW FIBER OPTIC PATCH PANEL. REFER TO SHEET I-00-002 FOR ADDITIONAL INFORMATION.
11. PROVIDE A 2\" CONDUIT WITH 24-STRAND 63.5/125 MICRON MM FIBER IN 3\" CONDUIT FROM THE FIBER OPTIC PATCH PANEL TO THE NEW ETHERNET SWITCH WITHIN THE SECURITY CONTROL PANEL.
12. 24-STRAND 63.5/125 MICRON MM FIBER IN 3\" CONDUIT FROM THE FIBER OPTIC PATCH PANEL (KEYNOTE #10) TO THE FIBER OPTIC PATCH PANEL LOCATED WITHIN EXISTING CHEMICAL BUILDING (SEE SHEET E-09-101). PROVIDE AN ADDITIONAL SPARE 3\" CONDUIT WITH PULL STRING.
13. TRANSITION CONDUIT FROM OVERHEAD TO UNDERGROUND.
14. REFER TO SHEET E-02-102 FOR CONTINUATION.
15. PROVIDE PULL BOX, SIZE PER NEC.
16. NEW FINISHED WATER SAMPLE PUMP (1HP, 120V, 1-PHASE).
17. MOTOR RATED SWITCH (NEMA 4X) FOR FINISHED WATER SAMPLE PUMP. PROVIDE 2#10, 1#10 GND, IN 3/4\" CONDUIT TO FINISHED WATER SAMPLE PUMP CONTROL PANEL (SEE SHEET E-08-101 FOR LOCATION). PROVIDE ELECTRICAL CONNECTION TO SAMPLE PUMP FROM SWITCH.
18. LOCAL CONTROL STATION FOR FINISHED WATER SAMPLE PUMP. MOUNT ON A NEW EQUIPMENT RACK, SIZED AS REQUIRED. LOCATE AS REQUIRED TO MAINTAIN PROPER CLEARANCES FOR EXISTING AND NEW INSTALLATIONS.
19. 10#12, 1#12 GND, IN 3/4\" CONDUIT (LOR, S/S, AND INDICATING LIGHTS) TO FINISHED WATER SAMPLE PUMP CONTROL PANEL (SEE SHEET E-08-101 FOR LOCATION).
20. SIX (6) 4PR CAT 6E #24 AWG VOICE CABLES IN 3\" CONDUIT FROM TELEPHONE BACKBOARD/DMARC LOCATION (KEYNOTE #8) TO THE TELEPHONE BACKBOARD IN PT/GAC BUILDING (SHOWN SHEET E-08-401). PROVIDE AN ADDITIONAL SPARE 3\" CONDUIT WITH PULL STRING.
21. ROUTE DOWN TO FILTER BUILDING PIPE GALLERY (SEE FILTER BUILDING PIPE GALLERY POWER PLAN AT EL. 509.67, THIS SHEET).



REVISIONS			
NO.	BY	DATE	REMARKS

DES: PJB
 DWN: DLM
 CKD: PJB

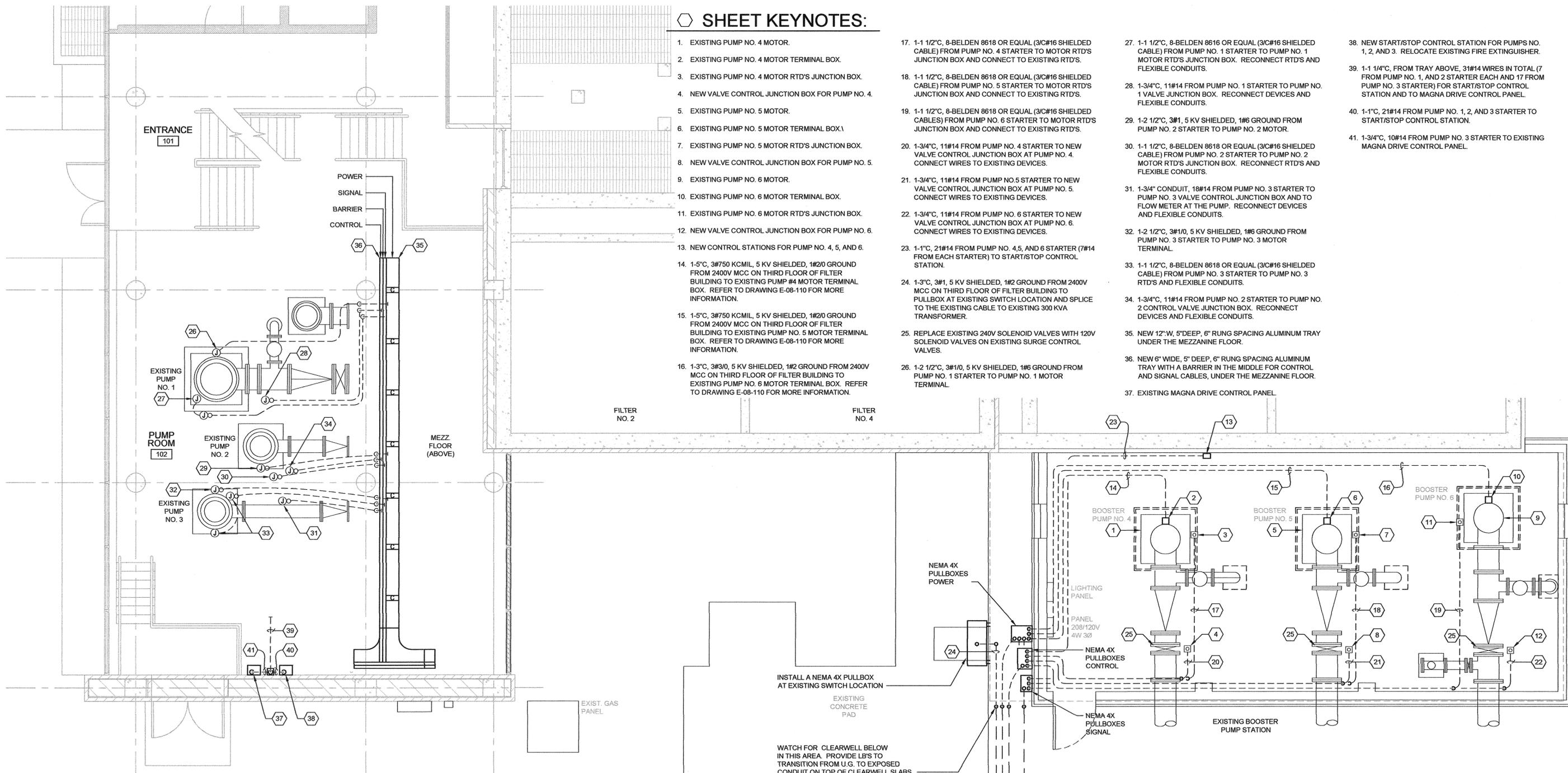
NORTHERN KENTUCKY WATER DISTRICT
 TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
FILTER BUILDING POWER
 PLANS AT EL. 509.67 AND EL. 525.50 I
 SCALE: 3/16" = 1'-0"

ISSUED STATUS: BID SET
 DATE: MARCH, 2011
 SHEET: E-08-105
 CAD REF. NO.: 3789-E-08-105

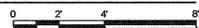
SHEET KEYNOTES:

1. EXISTING PUMP NO. 4 MOTOR.
2. EXISTING PUMP NO. 4 MOTOR TERMINAL BOX.
3. EXISTING PUMP NO. 4 MOTOR RTD'S JUNCTION BOX.
4. NEW VALVE CONTROL JUNCTION BOX FOR PUMP NO. 4.
5. EXISTING PUMP NO. 5 MOTOR.
6. EXISTING PUMP NO. 5 MOTOR TERMINAL BOX.
7. EXISTING PUMP NO. 5 MOTOR RTD'S JUNCTION BOX.
8. NEW VALVE CONTROL JUNCTION BOX FOR PUMP NO. 5.
9. EXISTING PUMP NO. 6 MOTOR.
10. EXISTING PUMP NO. 6 MOTOR TERMINAL BOX.
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 PUMP NO. 4, 5, AND 6.
14. 1-5" C, 3#750 KCMIL, 5 KV SHIELDED, 1#20 GROUND FROM 2400V MCC ON THIRD FLOOR OF FILTER BUILDING TO EXISTING PUMP #4 MOTOR TERMINAL BOX. REFER TO DRAWING E-08-110 FOR MORE INFORMATION.
15. 1-5" C, 3#750 KCMIL, 5 KV SHIELDED, 1#20 GROUND FROM 2400V MCC ON THIRD FLOOR OF FILTER BUILDING TO EXISTING PUMP NO. 5 MOTOR TERMINAL BOX. REFER TO DRAWING E-08-110 FOR MORE INFORMATION.
16. 1-3" C, 3#30, 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-08-110 FOR MORE INFORMATION.
17. 1-1 1/2" 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. 1-1 1/2" 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 EXISTING RTD'S.
19. 1-1 1/2" 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 EXISTING RTD'S.
20. 1-3/4" C, 11#14 FROM PUMP NO. 4 STARTER TO NEW VALVE CONTROL JUNCTION BOX AT PUMP NO. 4. CONNECT WIRES TO EXISTING DEVICES.
21. 1-3/4" C, 11#14 FROM PUMP NO. 5 STARTER TO NEW VALVE CONTROL JUNCTION BOX AT PUMP NO. 5. CONNECT WIRES TO EXISTING DEVICES.
22. 1-3/4" C, 11#14 FROM PUMP NO. 6 STARTER TO NEW VALVE CONTROL JUNCTION BOX AT PUMP NO. 6. CONNECT WIRES TO EXISTING DEVICES.
23. 1-1" C, 21#14 FROM PUMP NO. 4, 5, AND 6 STARTER (7#14 FROM EACH STARTER) TO START/STOP CONTROL STATION.
24. 1-3" 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. 1-2 1/2" C, 3#1/0, 5 KV SHIELDED, 1#6 GROUND FROM PUMP NO. 1 STARTER TO PUMP NO. 1 MOTOR TERMINAL.
27. 1-1 1/2" C, 8-BELDEN 8618 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. 1-3/4" C, 11#14 FROM PUMP NO. 1 STARTER TO PUMP NO. 1 VALVE JUNCTION BOX. RECONNECT DEVICES AND FLEXIBLE CONDUITS.
29. 1-2 1/2" C, 3#1, 5 KV SHIELDED, 1#6 GROUND FROM PUMP NO. 2 STARTER TO PUMP NO. 2 MOTOR.
30. 1-1 1/2" 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. RECONNECT RTD'S AND FLEXIBLE CONDUITS.
31. 1-3/4" CONDUIT, 18#14 FROM PUMP NO. 3 STARTER TO PUMP NO. 3 VALVE CONTROL JUNCTION BOX AND TO FLOW METER AT THE PUMP. RECONNECT DEVICES AND FLEXIBLE CONDUITS.
32. 1-2 1/2" C, 3#1/0, 5 KV SHIELDED, 1#6 GROUND FROM PUMP NO. 3 STARTER TO PUMP NO. 3 MOTOR TERMINAL.
33. 1-1 1/2" C, 8-BELDEN 8618 OR EQUAL (3/C#16 SHIELDED CABLE) FROM PUMP NO. 3 STARTER TO PUMP NO. 3 RTD'S AND FLEXIBLE CONDUITS.
34. 1-3/4" C, 11#14 FROM PUMP NO. 2 STARTER TO PUMP NO. 2 CONTROL VALVE 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. EXISTING MAGNA DRIVE CONTROL PANEL.
38. NEW START/STOP CONTROL STATION FOR PUMPS NO. 1, 2, AND 3. RELOCATE EXISTING FIRE EXTINGUISHER.
39. 1-1 1/4" 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 START/STOP CONTROL STATION AND TO MAGNA DRIVE CONTROL PANEL.
40. 1-1" C, 21#14 FROM PUMP NO. 1, 2, AND 3 STARTER TO START/STOP CONTROL STATION.
41. 1-3/4" C, 10#14 FROM PUMP NO. 3 STARTER TO EXISTING MAGNA DRIVE CONTROL PANEL.



**FILTER BUILDING PUMP ROOM
POWER PLAN AT EL. 525.50**

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



FOR CONTINUATION SEE
DRAWING E-08-110

EXISTING FENCE

EXISTING FENCE

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.

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

MALCOLM PIRNIE
cdpengineers

Michelle Howlett
T. MICHELLE HOWLETT
19856
LICENSED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS

DES	SKD
DWN	TEW
CKD	TMH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

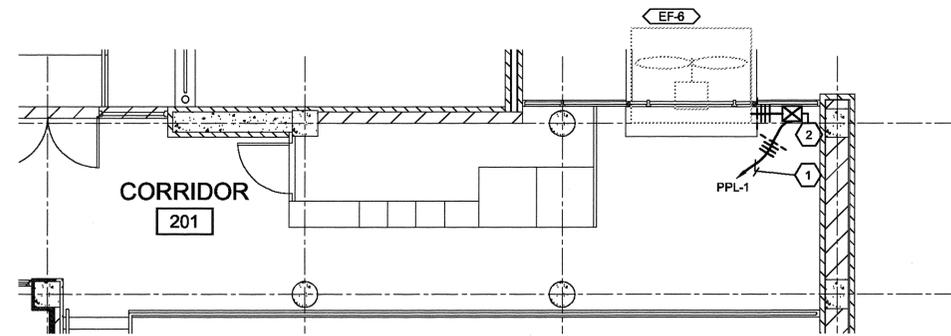
**ELECTRICAL
FILTER BUILDING PUMP ROOM
POWER PLAN AT EL. 525.50 II**
SCALE: 1/4" = 1'-0"

ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	E-08-106
CAD REF. NO.:	CDP-E-08-106

User: TOM, Spec: PIRNIE STANDARD, File: F:\PROJECTS\10010 - NKWD TAYLOR MILL WTP\ACAD\INFO_EXCHANGE_PUBLIC\FOLDER\ELEC_CDP-E-08-106.DWG, Scale: 1/4"=1'-0", Date: 3/16/2011 12:55:12, Layout: E-08-106

GENERAL NOTES:

1. REFER TO SHEET E-08-101 FOR NEW LOCATION OF EXISTING DISTRIBUTION BOARD PPL-1.



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

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



SHEET KEYNOTES:

1. 3#6,1#10 GND IN 1" CONDUIT. CONNECT TO A NEW 60 AMP/3POLE BREAKER INSTALLED IN PANELBOARD PPL-1.
2. COMBINATION STARTER/DISCONNECT SWITCH PROVIDED BY DIVISION 15.

User: I:\BOND Spec\PIRNE STANDARD File\113786-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3786-E-08-107.DWG Scale: 1/24 Saved Date: 3/17/2011 Time: 09:51 Plot Date: Bond, Jeff, 3/17/2011 10:55 Layout: E-08-107



REVISIONS			
NO.	BY	DATE	REMARKS

DES PJB
DWN DLM
CKD PJB

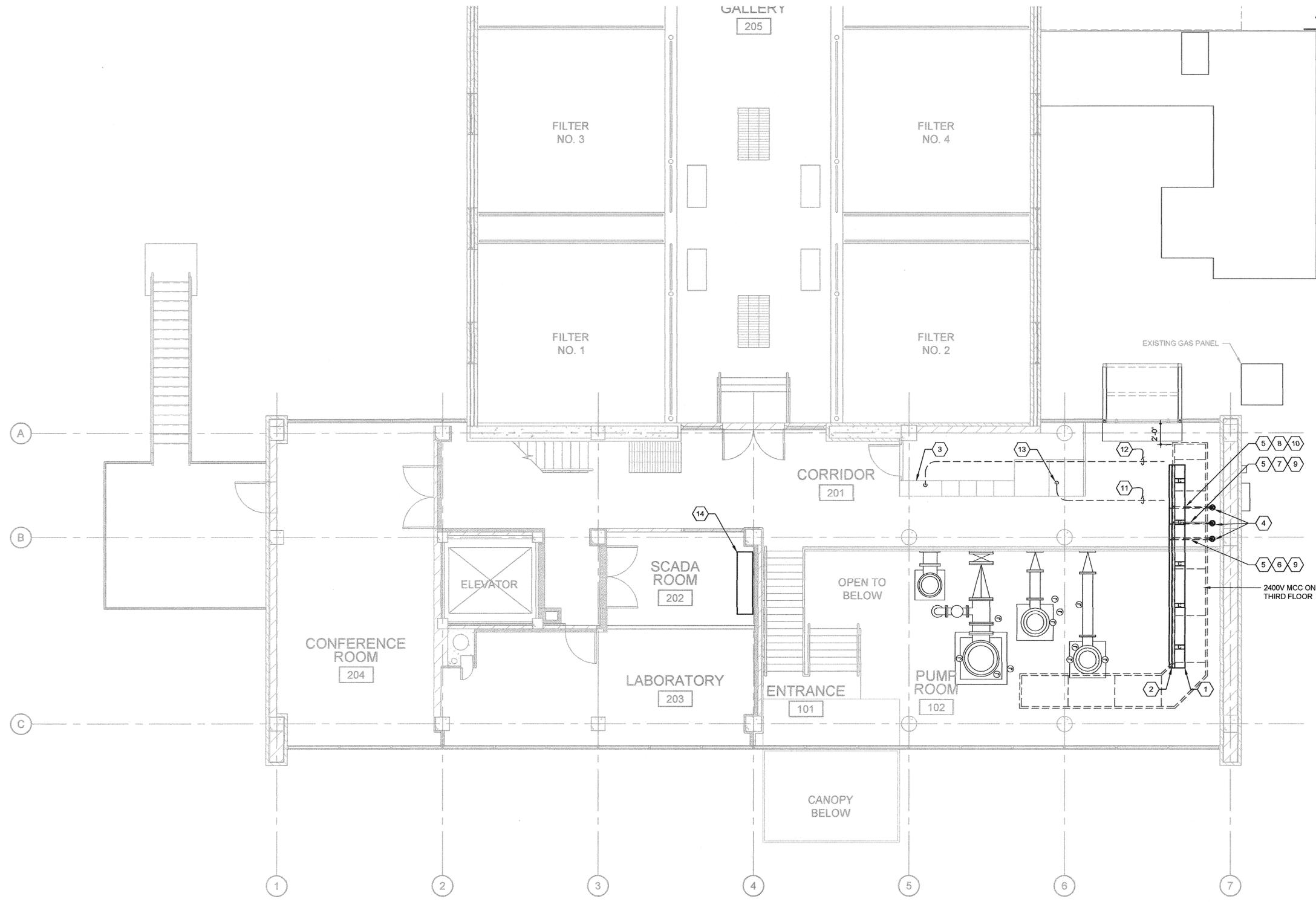
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

ELECTRICAL
**FILTER BUILDING MEZZANINE
POWER PLAN AT EL. 535.00 I**

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

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET E-08-107
CAD REF. NO. 3789-E-08-107

User: TOM SPEC/PINIE STANDARD File: F:\PROJECTS\10010 - NKWD TAYLOR MILL WTP\ACAD\INFO_EXCHANGE_PUBLIC\WTP\ACAD\INFO_FOLDER\ELEC\CDP\CDP-E-08-108.DWG Scale: 1:1 Saved Date: 3/16/2011 Time: 17:39 Pld Date: Tom Weber: 3/16/2011 12:55 Layout: E-08-108

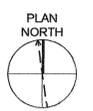


SHEET KEYNOTES:

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 11#14 FROM PUMP NO. 1 AND 2 STARTER EACH TO VALVE CONTROL JUNCTION BOX.
10. 1-3/4"C, CONTAINS 18#14 FROM PUMP NO. 3 STARTER TO PUMP NO. 2 VALVE CONTROL BOX AND THE FLOW METER AT THE MOTOR.
11. 1-2 1/2"C, 3#6 AWG, 5KV SHIELDED, 1#6 GROUND FROM 2400V MCC TO 150KVA EXISTING TRANSFORMER ON MEZZ. FLOOR. REFER TO DRAWING E-08-110.
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-08-110.
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 FROM THIRD FLOOR INTO EXISTING ENCLOSURE. TERMINATE CONTROL WIRING AT EXISTING I/O CARDS. REFER SHEET NOTES 9 AND 10 DRAWING E-08-110.

**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
cdpengineers

Michelle Howlett
T. MICHELLE HOWLETT
19856
LICENSED PROFESSIONAL ENGINEER
3/16/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES SKD
DWN TEW
CRD TMH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

ELECTRICAL
**FILTER BUILDING MEZZANINE
POWER PLAN AT 535.00 II**

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

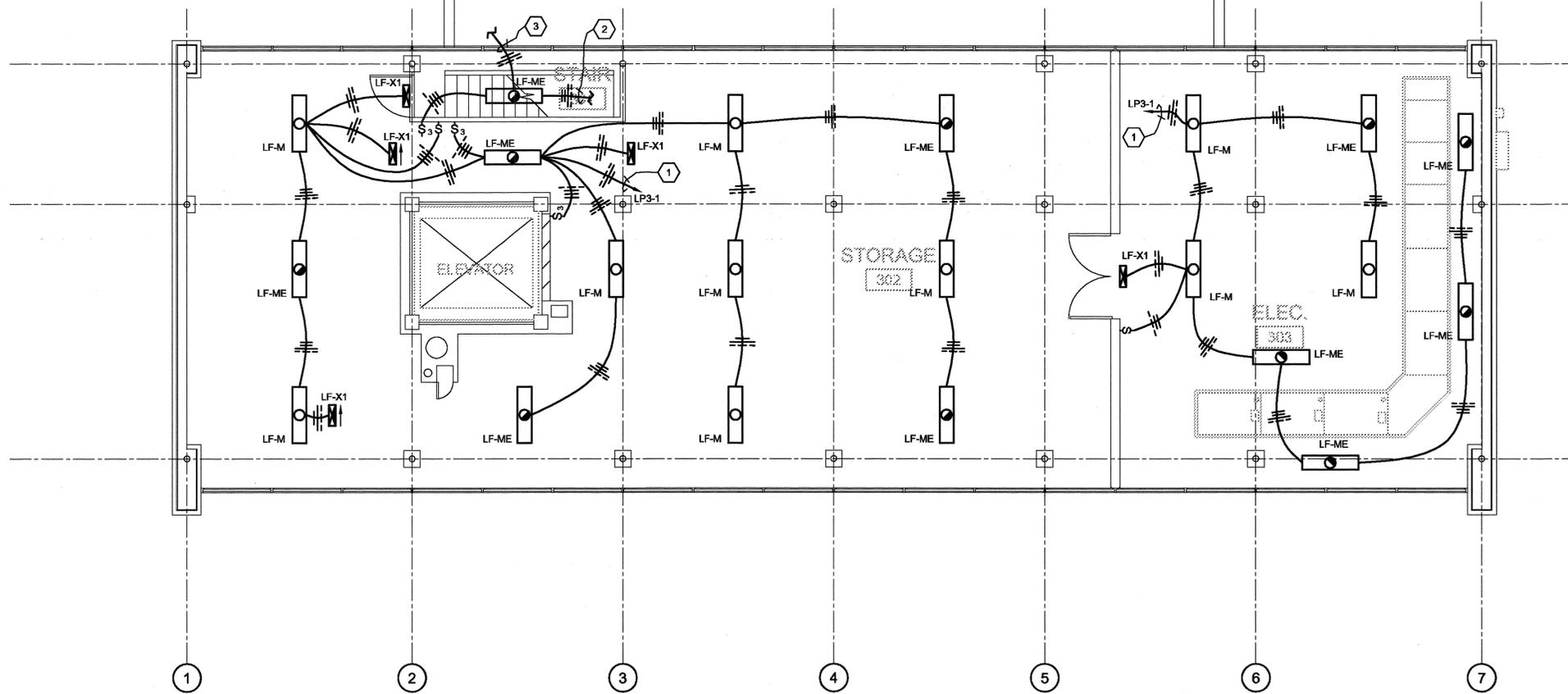
ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-08-108
CAD REF. NO. CDP-E-08-108

GENERAL NOTES:

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

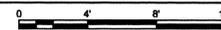
SHEET KEYNOTES:

- 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.



FILTER BUILDING THIRD FLOOR LIGHTING PLAN AT EL. 545.00

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



User: BOND Spec: PIRNIE STANDARD File: U:\3786-NKWD TAYLOR MILL WORKING DRAWINGS\DESIGN DRAWINGS\ELEC\3786-E-08-109.DWG Scale: 1:24 Saved Date: 2/28/2011 Time: 1:17 Plot Date: Bond, Jeff: 3/10/2011: 09:31 Layout: E-08-109



REVISIONS			
NO.	BY	DATE	REMARKS

DES PJB
DWN DLM
CKD PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

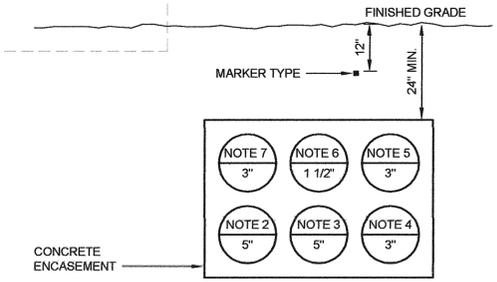
ELECTRICAL
FILTER BUILDING THIRD FLOOR LIGHTING PLAN AT EL. 545.00
SCALE: 3/16" = 1'-0"

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-08-109
CAD REF. NO. 3789-E-08-109

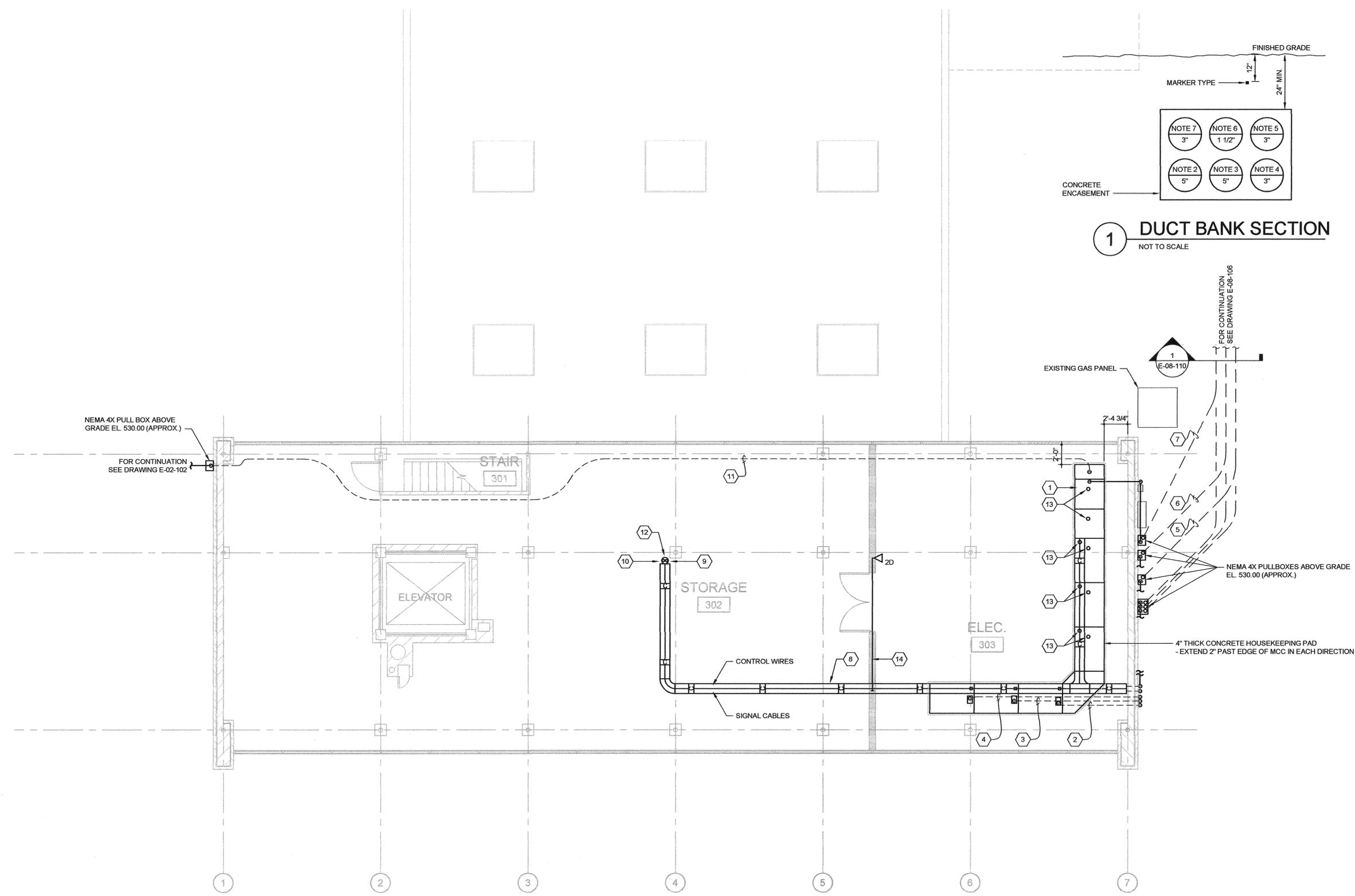
User: T:\MSP\SPRINIE\STANDARD\FILE\PROJECTS\10010 - NKWD TAYLOR MILL WTP\ACAD\INFO_EXCHANGE_PUBLIC\FOLDER\ELEC_CDP-E-08-110.DWG Scale: 1:1 Saved Date: 3/15/2011 11:17:39 Pk Date: Tom Weber: 3/15/2011 12:35 Layout: E-08-110

SHEET KEYNOTES:

- 2400V MCC. REFER TO DRAWING E-00-601 FOR MORE INFORMATION.
- 1-5°C, 3#750 KCMIL, 5KV SHIELDED, 1#2/0 GROUND FROM 2400V MCC TO PUMP NO. 4 MOTOR TERMINAL BOX IN BOOSTER PUMP STATION. REFER TO SHEET NOTE #14 ON DRAWING E-08-106 AND DRAWING E-00-601 (ONE LINE).
- 1-5°C, 3#750 KCMIL, 5KV SHIELDED, 1#2/0 GROUND FROM 2400V MCC TO PUMP NO. 5 MOTOR TERMINAL BOX IN BOOSTER PUMP STATION. REFER TO SHEET NOTE #15 ON DRAWING E-08-106 AND E-00-601 (ONE LINE).
- 1-3°C, 3#3/0, 5KV SHIELDED, 1#2 GROUND FROM 2400V MCC TO PUMP NO. 6 MOTOR TERMINAL BOX IN BOOSTER PUMP STATION. REFER TO SHEET NOTE #16 ON DRAWING E-08-106 AND E-00-601 (ONE LINE).
- 3" CONDUIT FROM TRAY AND BETWEEN THE PULLBOXES ON THIS DRAWING AND DRAWING E-08-106 AND CONTAINS 24 BELDEN 8618 OR EQUAL CABLES FOR PUMP NO. 4, 5, AND 6 RTD'S FROM STARTERS. REFER TO SHEET NOTE #17, 18, AND 19 ON DRAWING E-08-106.
- 1 1/2" C FROM TRAY AND BETWEEN PULLBOXES ON THIS DRAWING AND DRAWING E-08-106 AND CONTAINS 54 #14 WIRES FOR PUMP #4, 5, AND 6 VALVE CONTROL AND START/STOP PUSH CONTROL FROM STARTERS. REFER TO SHEET NOTE #20, 21, 22, AND 23 ON DRAWING E-08-106.
- 1-3°C, 3#1, 5KV SHIELDED, 1#2 GROUND FROM 2400V MCC TO EXISTING SWITCH FEEDING THE EXISTING 300KVA TRANSFORMER. REFER TO SHEET NOTE #24 ON DRAWING E-08-106.
- 6" W, 5" DEEP, 6" RUNG SPACING LADDER TYPE WITH BARRIER IN THE MIDDLE. ALUMINUM CABLE TRAY FOR SIGNAL AND CONTROL.
- 1-1 1/2" C, 72#14 TOTAL (12 FROM EACH STARTER) FROM STARTERS TO SCADA ROOM THROUGH SLAB FOR SCADA. REFER TO SHEET NOTE NO. 14 ON DRAWING E-08-108.
- 1-1 1/2" C, 4#18 SHIELDED TWISTED PAIR FROM PUMP NO. 2 STARTER TO PLC ROOM THROUGH SLAB FOR SCADA. REFER TO SHEET NOTE NO. 14 ON DRAWING E-08-108.
- 5-5°C, 3#500 KCMIL, 1#500 KCMIL GROUND IN EACH CONDUIT FROM PARALLELING SWITCHGEAR IN GAC PUMP STATION TO 2400V MCC. REFER TO SHEET NOTE #2 ON DRAWING E-02-102 FOR MORE INFORMATION.
- NEW 4" SLEEVE IN THE THIRD FLOOR FOR CONTROL AND SIGNAL WIRES FROM STARTERS TO SCADA ROOM BELOW.
- NEW 4" SLEEVE IN THIRD FLOOR UNDER THE MCC FOR POWER AND CONTROL CABLES.
- 1" C CONTAINS 2-CAT 6 CABLES FROM PLC PANEL IN SCADA ROOM TO DATA OUTLET.



1 DUCT BANK SECTION NOT TO SCALE



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



DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1"=1"

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.

MALCOLM PIRNIE
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T. MICHELLE HOWLETT
19856
LICENSED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS

DES	SKD
DWN	TEW
CKD	TMH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

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

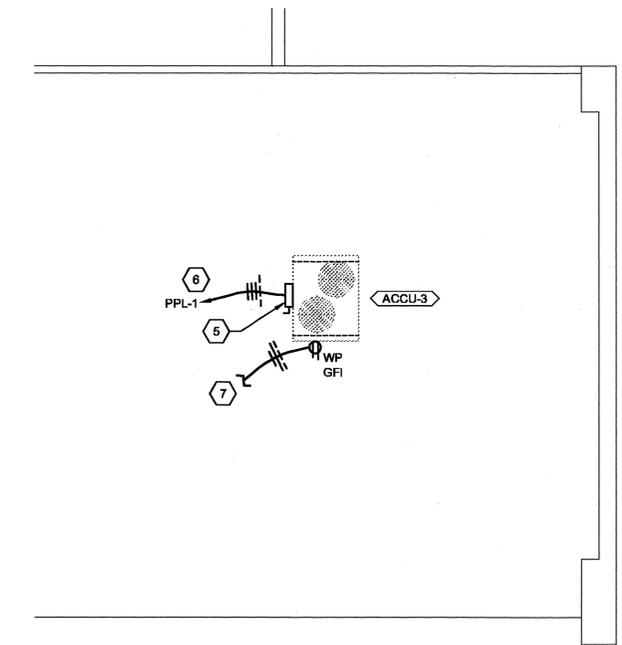
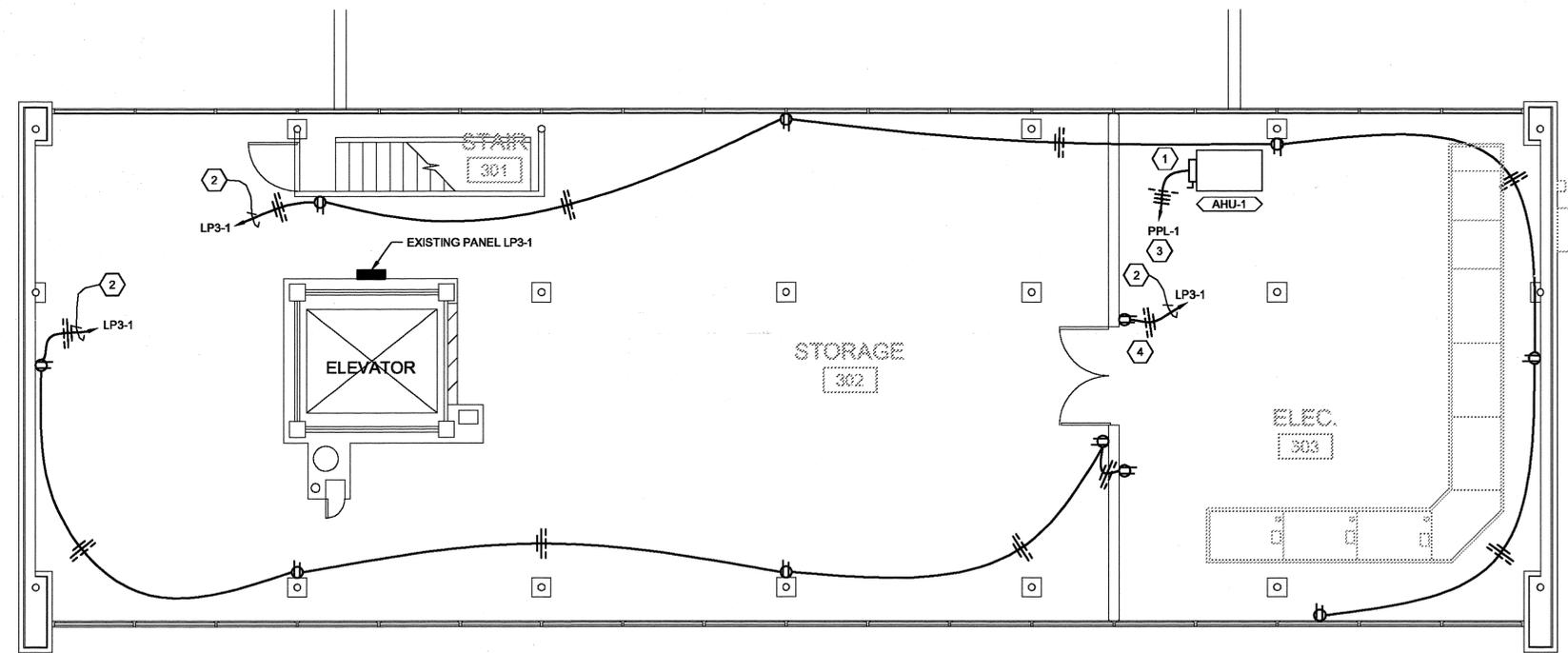
ISSUED STATUS:	BID SET
DATE:	MARCH, 2011
SHEET:	E-08-110
CAD REF. NO.:	CDP-E-08-110

GENERAL NOTES:

1. REFER TO SHEET E-08-101 FOR NEW LOCATION OF EXISTING DISTRIBUTION BOARD, PPL-1.

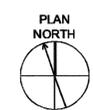
SHEET KEYNOTES:

1. 30A / 600V / 3-PHASE NON-FUSED DISCONNECT (NEMA 1 ENCLOSURE).
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. 30A / 600V / 3-PHASE NON-FUSED DISCONNECT (NEMA 4X ENCLOSURE).
6. CONNECT TO A NEW 25A/3P BREAKER INSTALLED IN SPACE OF EXISTING PANELBOARD PPL-1. UTILIZE 3#10, 1#10 GND IN 3/4" CONDUIT.
7. DOWN TO FLOOR BELOW, CONNECT TO GENERAL DUTY RECEPTACLE CIRCUIT LOCATED WITHIN ELECTRICAL ROOM 303.



**FILTER BUILDING THIRD FLOOR
POWER PLAN AT EL. 545.00**

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



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

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

User: BOND Spine: FIRNIE STANDARD File: J:\3789-NKWD TAYLOR MILLWORKING DRAWINGS\DESIGN DRAWINGS\ELEC\C3789E-08-111.DWG Scale: 1/24 Saved Date: 2/24/2011 Time: 11:08 AM Plot Date: Bond_Jeff: 3/10/2011: 09:31 Layout: E-08-111



REVISIONS			
NO.	BY	DATE	REMARKS

DES: PJB
DWN: DLM
CKD: PJB

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
**ADVANCED TREATMENT
IMPROVEMENTS**

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

ISSUED STATUS: BID SET
DATE: MARCH, 2011
SHEET: E-08-111
CAD REF. NO.: 3789-E-08-111