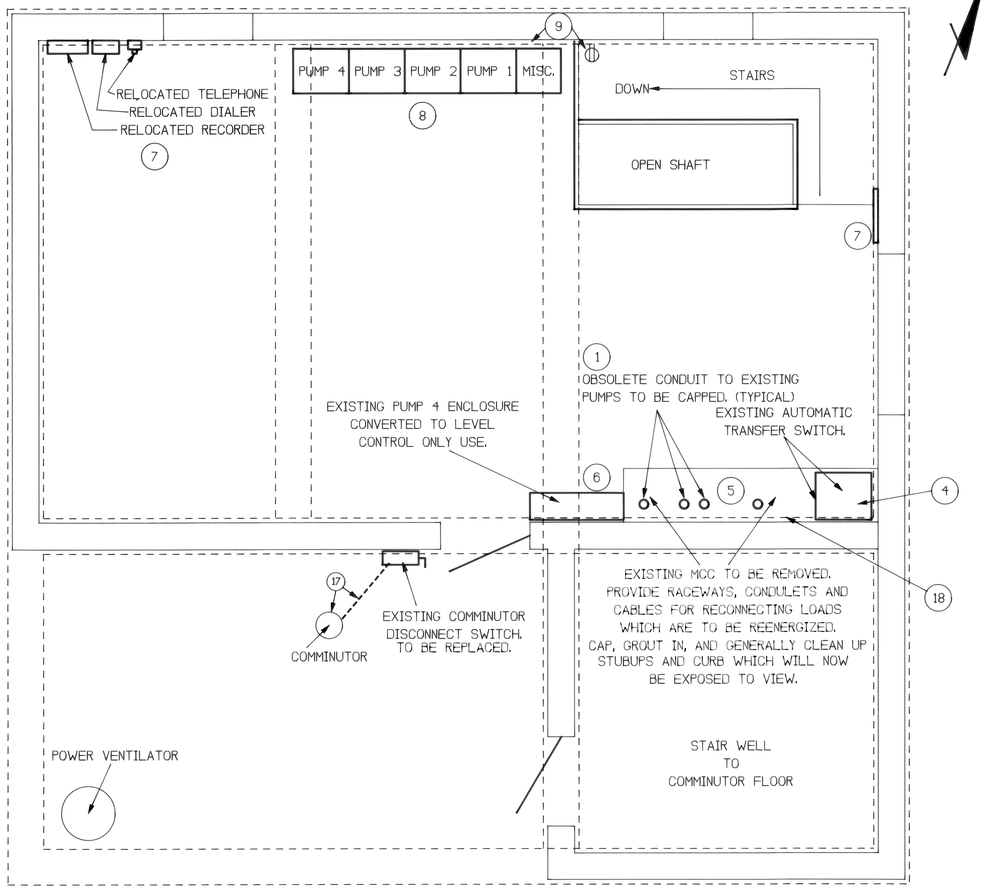
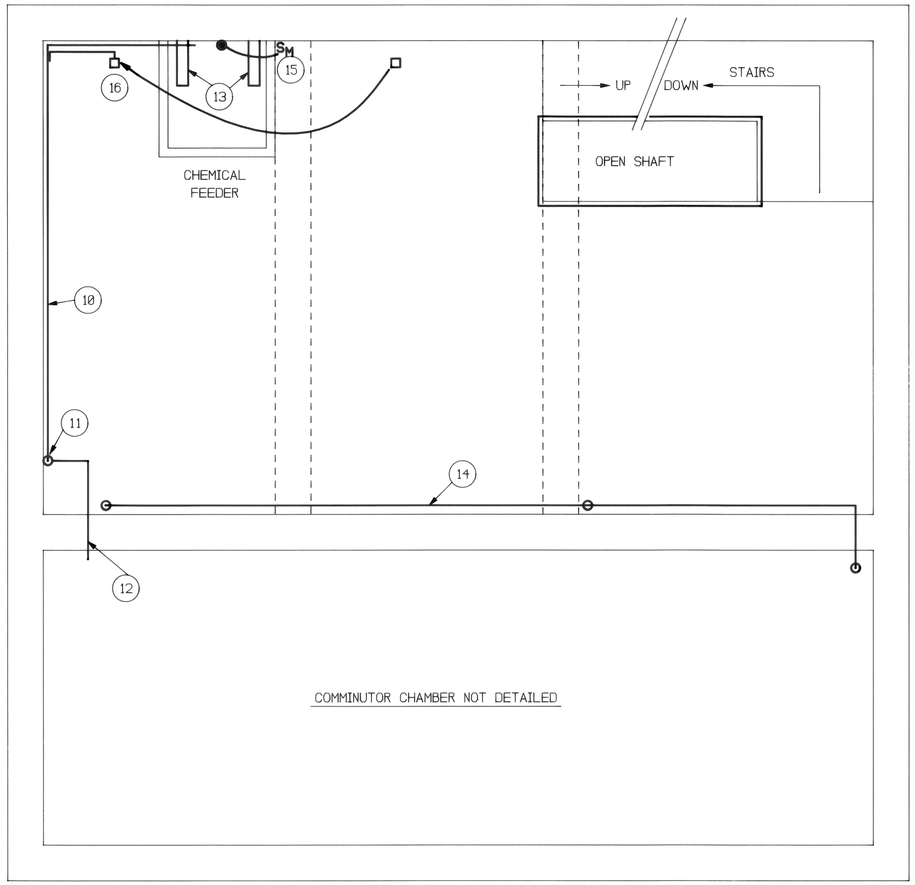


UPPER LEVEL ELECTRICAL DEMOLITION PLAN

SCALE: 3/8" = 1' - 0"



INTERMEDIATE LEVEL ELECTRICAL DEMOLITION PLAN

SCALE: 3/8" = 1' - 0"

GENERAL & DETAILED DEMOLITION NOTES

1. ALL OBSOLETED WIRE SHALL BE REMOVED BACK TO THE PANELBOARD OR MOTOR CONTROL CENTER FROM WHICH IT WAS POWERED. CONDUIT WHICH IS ATTACHED TO OR IMBEDDED IN CONCRETE SHALL BE CAPPED. FLEX AND CONDUIT FROM WALLS TO OBSOLETED EQUIPMENT SHALL BE REMOVED.
2. ALL ENCLOSURES SHALL BE CLOSED IN AN APPROVED MANNER. PROVIDE CLOSURE PLUGS, PIPE CAPS, PIPE PLUGS AS APPROPRIATE. PROVIDE BLANK COVER PLATES ON UNUSED OUTLET BOXES.
3. CLOSE ALL HOLES AND PENETRATIONS IN CONCRETE AND BLOCK WITH NON-SHRINK GROUT. RESTORE SURFACE TO THE CONDITION OF NEARBY SURFACE TREATMENT, INCLUDING PAINT RESTORATION.
4. EXISTING AUTOMATIC TRANSFER SWITCH PORTION OF SWITCHGEAR TO REMAIN IN USE. REMOVE HORIZONTAL BUS AT TOP OF SECTION TO PROVIDE SPACE FOR PROPOSED FEEDER CONDUCTORS TO PROPOSED MCC. CUSTOM FABRICATE PULL BOX FOR ATS. REROUTE CONTROL CABLES TO GENERATOR START CONTROLS AS REQUIRED.
5. EXISTING MOTOR CONTROL CENTER (EXCEPT AUTOMATIC TRANSFER SWITCH SECTION) TO BE REMOVED. OWNER WILL DESIGNATE THOSE PORTIONS OF THE OBSOLETE MCC TO BE RETAINED BY OWNER. REMAINDER OF MCC TO BE REMOVED BY CONTRACTOR AS CONTRACTOR DEBRIS.
6. EXISTING PUMP 4 CONTROLLER TO BE CONVERTED INTO LEVEL CONTROL PANEL ONLY. OWNER CLAIMS A-B SMC CONTROLLER LOCATED IN PANEL. OBSOLETED ALLEN BRADLEY SMC CONTROLLER IS OF VERY HIGH VALUE. IT SHALL BE PROTECTED FROM DAMAGE AND TURNED OVER TO OWNER IN OPERATING CONDITION.
7. THESE ITEMS OF EQUIPMENT, ALONG WITH SUPPORTING WIRE AND CONDUIT ARE TO BE RELOCATED FROM THE POSITION TO BE OCCUPIED BY PROPOSED MOTOR CONTROL CENTER.
8. POSITION OF PROPOSED MOTOR CONTROL CENTER.
9. REMOVE EXISTING T CONDULET AND OUTLET BOX WHICH WOULD OTHERWISE BE BEHIND MCC. EXTEND CONDUIT SO THAT REPOSITIONED OUTLET BOX IS TO THE RIGHT OF MCC BELOW HANDRAIL. PULL NEW CABLE SO THAT THERE IS NO SPLICE IN AN INACCESSIBLE OUTLET. NEW BOX TO BE APPLETON FDS.
10. REMOVE CHEMICAL FEED LINE (YELLOW PIPE), VALVES, FITTINGS, ANCHORS. GROUT ANCHOR HOLES AND ALL WALL AND FLOOR PENETRATIONS WITH NON SHRINK GROUT. GROUTINGS SHALL BE WATER AND AIR TIGHT.
11. LINE DOWN TO EFFLUENT LINE. REMOVE CHEMICAL LINE FROM EFFLUENT PIPE AND PLUG. EXERCISE CAUTION TO PREVENT DRAINING OF FORCE MAIN BACK INTO DRY WELL.
12. CHEMICAL FEED LINE INTO WET WELL. REMOVE AND GROUT HOLE CLOSED.
13. REMOVE WALL BRACKETS AND ANCHORS. GROUT OPENINGS.
14. REMOVE OLD BUBBLER LINE (GREEN) WITH ALL VALVES, FITTINGS, ANCHORS, DROP TUBES. GROUT ALL HOLES (ANCHOR, FLOOR, WALLS) WITH NON-SKRINK GROUT. PENETRATIONS TO BE WATER AND GAS TIGHT. REMOVE TWO DROP TUBES IN WET WELL.
15. REMOVE MANUAL MOTOR SWITCH AND FLEX. INSTALL FD BOX AND CAP WIRES.
16. RELOCATE EXISTING UNIT HEATER THERMOSTAT TO THIS POSITION SOUTH OF WATER DROP.
17. REMOVE EXISTING COMMINUTOR CONNECTION, CABLE AND EXPOSED CONDUIT TO DISCONNECT SWITCH. CUT UNUSED EXPOSED CONDUIT FLUSH WITH SLAB AND GROUT SHUT. PRESERVE HOME RUN CONDUIT TO EXISTING MCC FOR REUSE.
18. CLEAN AND PAINT WALL BEHIND REMOVED MCC TO MATCH EXISTING WALL TREATMENT. CLEAN CONCRETE CURB AND PAINT TO MATCH WALL TREAMENT.
19. ALL BOX, CONDULET, AND SIMILAR RACEWAY ACCESS COVERS SHALL BE ACCESSIBLE AND SHALL NOT REQUIRE THE MOVING OF EQUIPMENT, PIPING, CONDUIT OR OTHER BUILDING FEATURES TO GAIN ACCESS. ENTEND CONDUITS AND PULL NEW WIRE WHERE REQUIRED TO ACCOMPLISH THIS REQUIREMENT. REMOVE BOXES AND CONDULETS MADE INACCESSIBLE BY NEW CONSTRUCTION.

SPECIAL NOTICE

CONTRACTOR SHALL TAKE WHATEVER ACTION IS NECESSARY TO INSURE THAT AT LEAST TWO PUMPS ARE AVAILABLE FOR OPERATION AT ALL TIMES DURING THE CONSTRUCTION PROJECT. WITHOUT LIMIT THIS INCLUDES: PROVIDING TEMPORARY POWER, TEMPORARY PUMP CONTROL PANEL, TEMPORARY EMERGENCY POWER GENERATOR CONNECTIONS TO EXISTING OR PROPOSED MCC, NIGHT OPERATOR FOR MANUAL CONTROL OF PUMPS OR MANUAL TRANSFER OF LOADS TO ALTERNATE POWER SOURCES, AND ALL REQUIRED LABOR, MATERIAL AND EQUIPMENT. OWNER SHALL REVIEW ALL SEQUENCE OF CONSTRUCTION AND APPROVE OR DISAPPROVE OF ANY ACTIONS WHICH IN HIS SOLE OPINION JEOPARDIZES THE SOUND OPERATION OF THE PUMPING STATION. CONTRACTOR SHALL INCLUDE IN HIS BID PRICE THE COST OF ALL OF THESE REQUIREMENTS.

STATE OF OHIO
RALPH B. HOFFMAN
37934
REGISTERED PROFESSIONAL ENGINEER
Ralph B. Hoffman 9/27/94
VOID UNLESS SIGNED / DATE

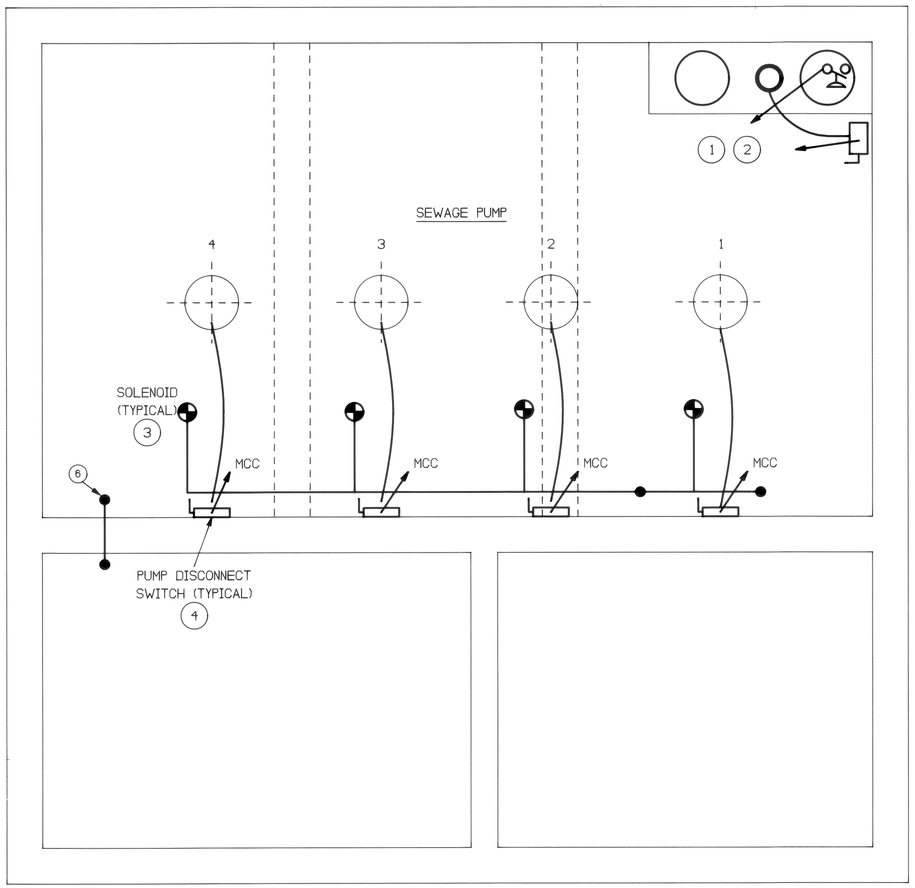
09/15/94
9409BE1
E1

DELAWARE COUNTY, OHIO

ALUM CREEK PUMPING STATION

ELECTRICAL REVISIONS - 1994

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 898-6272, FAX (614) 794-2038

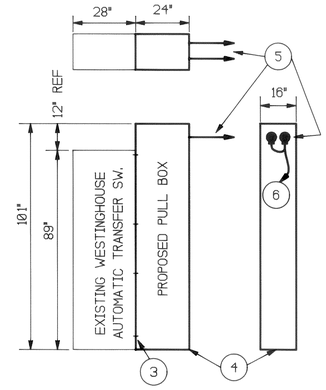


LOWER LEVEL ELECTRICAL DEMOLITION PLAN

SCALE: 3/8" = 1' - 0"

NOTES

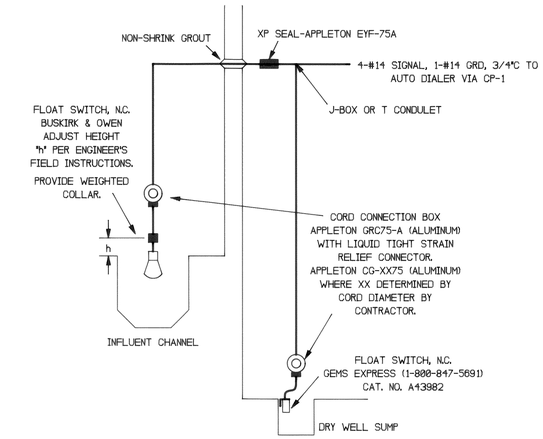
1. DEMOLITION. REMOVE WATER SEAL PUMP ELECTRIC FINAL CONNECTION BACK TO DISCONNECT SWITCH. REMOVE PRESSURE SW. FINAL CONNECTIONS. REMOVE WIRE FOR SEAL PUMP MOTOR AND P.S. BACK TO MCC. CAP CONDUIT ENDS AND CLOSE UNUSED OPENINGS IN ENCLOSURES.
2. DEMOLITION: REMOVE WATER SEAL PRESSURE TANK, ISOLATION TANK, PUMP, SUPPLY AND PUMP PIPING, PUMP SOLENOIDS, FITTINGS, ANCHORS.
3. DEMOLITION: REMOVE PUMP SOLENOID FINAL CONNECTIONS. REMOVE SOLENOID WIRES BACK TO MCC. CAP CONDUITS AT T'S ON WALL. REMOVE CONDUIT TO PUMP STANDS. CLOSE OPENINGS IN ENCLOSURES AND BOXES.
4. DEMOLITION: REMOVE PUMP MOTOR DISCONNECT SWITCHES (QTY. 4). REMOVE CONDUITS & CABLES BACK TO MCC.
5. CLOSE ALL HOLES AND PENETRATIONS WITH NON-SHRINK GROUT. RESTORE SURFACE TO THE CONDITION OF LIKE NEARBY SURFACE TREATMENT, INCLUDING PAINT RESTORATION.
6. SEE SHEET E1 FOR WORK REMOVING BUBBLER TUBE INTO WET WELL.
7. PROVIDE WEATHERPROOF SIGNS ON GRIDER DISCONNECTS READING: (1) GRINDER #1 DISCONNECT AND (2) GRINDER #2 DISCONNECT.
8. FUSED DISCONNECT SWITCH, 480 VAC, 30 AMP, 3P, NEMA HD. FUSE WITH BUS FRS-R-7. 3-#12 PWR, 1-#12 GRD, 2-#14 OT SW IN 3/4" C TO GRINDERS.
9. 4" SQ. X APPROX. 48" LONG NEMA 1 WIREWAY WITHOUT CONCENTRIC KNOCKOUTS.
10. ALTERNATE ROUTE IF EXISTING STUB UPS ARE WITHIN PULL BOX.



1. PULL BOX SHALL BE GALVANIZED STEEL, NOMINALLY 101" HIGH, 24" WIDE, 16" DEEP.
2. PULL BOX SHALL CONFORM TO NEC ARTICLE 370. FRONT COVER SHALL BE REMOVABLE.
3. ATTACH TO EXISTING WESTINGHOUSE AUTOMATIC TRASFER SWITCH. ATTACHMENT SHALL HAVE THE SAME EQUIVALENT CONDUCTANCE OF A #1/0 CU CABLE.
4. PULL BOX SHALL BE FREE STANDING.
5. 2, 3-1/2" C EACH WITH 3-500 MCM CU THW & 1-#1/0 CU THW THEREIN TO PROPOSED MCC.
6. MYERS SCREW TITE GROUNDING BUSHINGS. BOND WITH #1/0 CU CABLE TO ATS GROUND BUS IN ATS.
7. SUBMIT SHOP DRAWING OF PULL BOX AND MATERIAL FOR ENGINEER'S REVIEW.

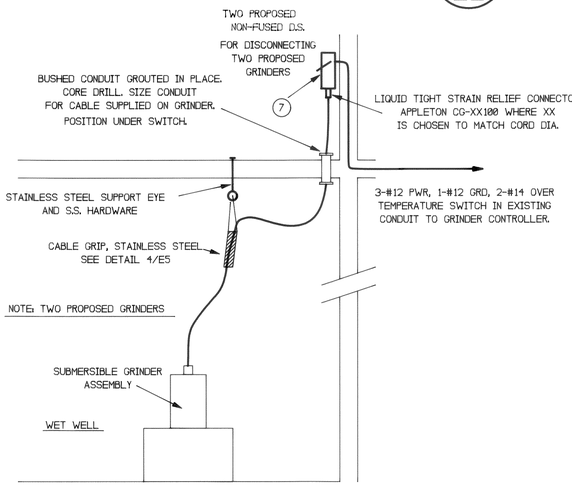
PROPOSED ATS PULL BOX DETAIL — 1/E2

NOT TO SCALE



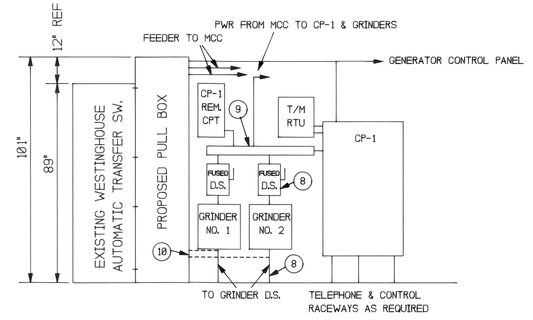
ALARM FLOAT SWITCH DETAIL — 2/E2

NOT TO SCALE



GRINDER CABLE SUPPORT DETAIL — 3/E2

NOT TO SCALE



ELEVATION DETAIL - CP1, ATS, — 4/E2

SCALE: 3/8" = 1'-0"
SOME EQUIPMENT NOT TO SCALE

STATE OF OHIO
RALPH B. HOFFMAN
37934
REGISTERED PROFESSIONAL ENGINEER
Ralph B. Hoffman 9/27/94
VOID UNLESS SIGNED / DATE

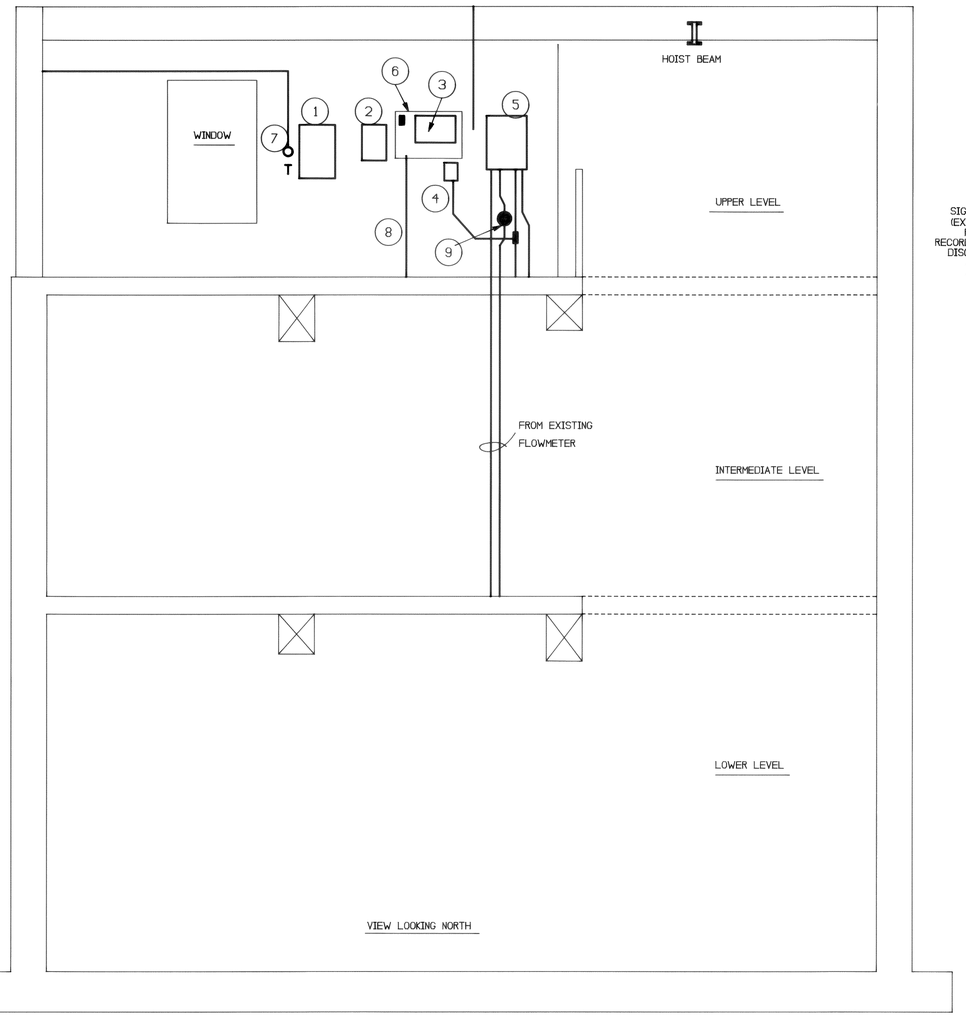
09/15/94
9409BE2
E2

DELAWARE COUNTY, OHIO

ALUM CREEK PUMPING STATION

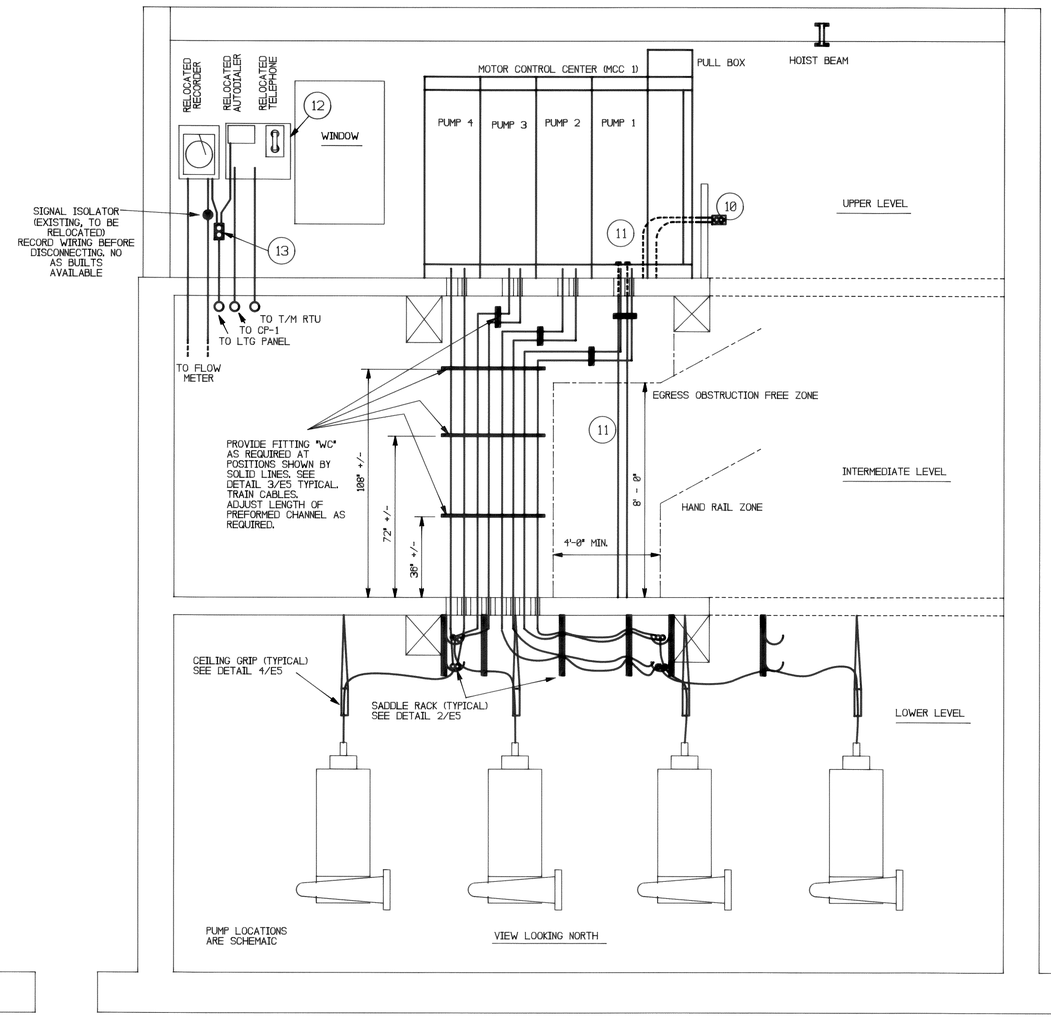
ELECTRICAL REVISIONS - 1994

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2030



DEMOLITION AND RELOCATION (EXISTING LOCATIONS) DETAIL 1/E3

SCALE: 3/8" = 1' - 0"
EQUIPMENT AND CONDUIT LOCATIONS AND SIZE NOT TO SCALE



PROPOSED CONSTRUCTION & RELOCATIONS DETAIL 2/E3

SCALE: 3/8" = 1' - 0"
EQUIPMENT AND CONDUIT LOCATIONS AND SIZE NOT TO SCALE

NOTES

1. DEDICATION PLAQUE TO BE RELOCATED TO DOOR AREA, SEE UPPER LEVEL ELECTRICAL PLAN.
2. TELEPHONE. RELOCATE WHERE SHOWN ON UPPER LEVEL ELECTRICAL PLAN.
3. AUTOMATIC TELEPHONE DIALER. RELOCATE TO WHERE SHOWN ON UPPER LEVEL ELECTRICAL PLAN.
4. CONVENIENCE OUTLET. RELOCATE AS SHOWN IN DETAIL 2/E3.
5. RECORDER. RELOCATE TO WHERE WHERE SHOWN ON UPPER LEVEL ELECTRICAL PLAN.
6. TELEPHONE TERMINAL BOARD. RELOCATE TO WHERE SHOWN ON UPPER LEVEL ELECTRICAL PLAN.
7. THERMOSTAT. RELOCATE TO WHERE SHOWN ON UPPER LEVEL ELECTRICAL PLAN.
8. TELEPHONE CONDUIT. REMOVE CABLE BACK TO INTERMEDIATE LEVEL TELEPHONE BOARD. CAP EMPTY CONDUIT.
9. RELOCATE FLOW METER/RECORDER SIGNAL ISOLATOR TO WHERE SHOWN ON UPPER LEVEL ELECTRICAL PLAN AND DETAIL 2/E3.
10. RELOCATED CONVENIENCE OUTLET. REMOVE OLD WIRES TO NEXT CONDUIT ACCESS POINTS AND INSTALL NEW CABLES. REMOVE OLD C-CONDULET. INSTALL ERICKSON COUPLINGS AS REQUIRED. PROVIDE APPLETON FDS TYPE BOX.
11. REMOVE CABLES AND CAP EMPTY OBSOLETED FLOWMETER CONDUITS.
12. PROVIDE NEW TELEPHONE BACK BOARD, 3/4" PLYWOOD. PAINTED WHITE ALL SIDES. MAKE AS LARGE AS SPACE PERMITS BETWEEN RECORDER AND WINDOW.
13. APPLETON FDCC BOX.

SPECIAL PERMISSION REQUESTED

1. IT IS THE INTENTION OF THE PROJECT, IN PART, TO MAKE THE STATION RESISTANT TO ACCIDENTAL FLOODING. THE PROPOSED PUMPS ARE SUBMERSIBLE. SUBMERSIBLE PUMP CABLES ARE ROUTED WITHOUT SPLICE TO THE GRADE LEVEL MCC. SPECIAL PERMISSION IS REQUESTED WITH REGARD TO CODE SECTION 400-7 SO THAT THERE IS NO QUESTION OF PROPRIETY OF INSTALLATION DURING CONSTRUCTION.
2. MAKING THE STATION FLOOD RESISTANT IS DESIRED TO MINIMIZE THE RISK OF ENVIRONMENTAL DAMAGE CAUSED BY UNTREATED SEWAGE FLOWING INTO ALUM CREEK OR BACKING UP IN BUILDINGS.

STATE OF OHIO
RALPH B. HOFFMAN
37934
REGISTERED
PROFESSIONAL ENGINEER
9/27/94
VOID UNLESS SIGNED / DATE

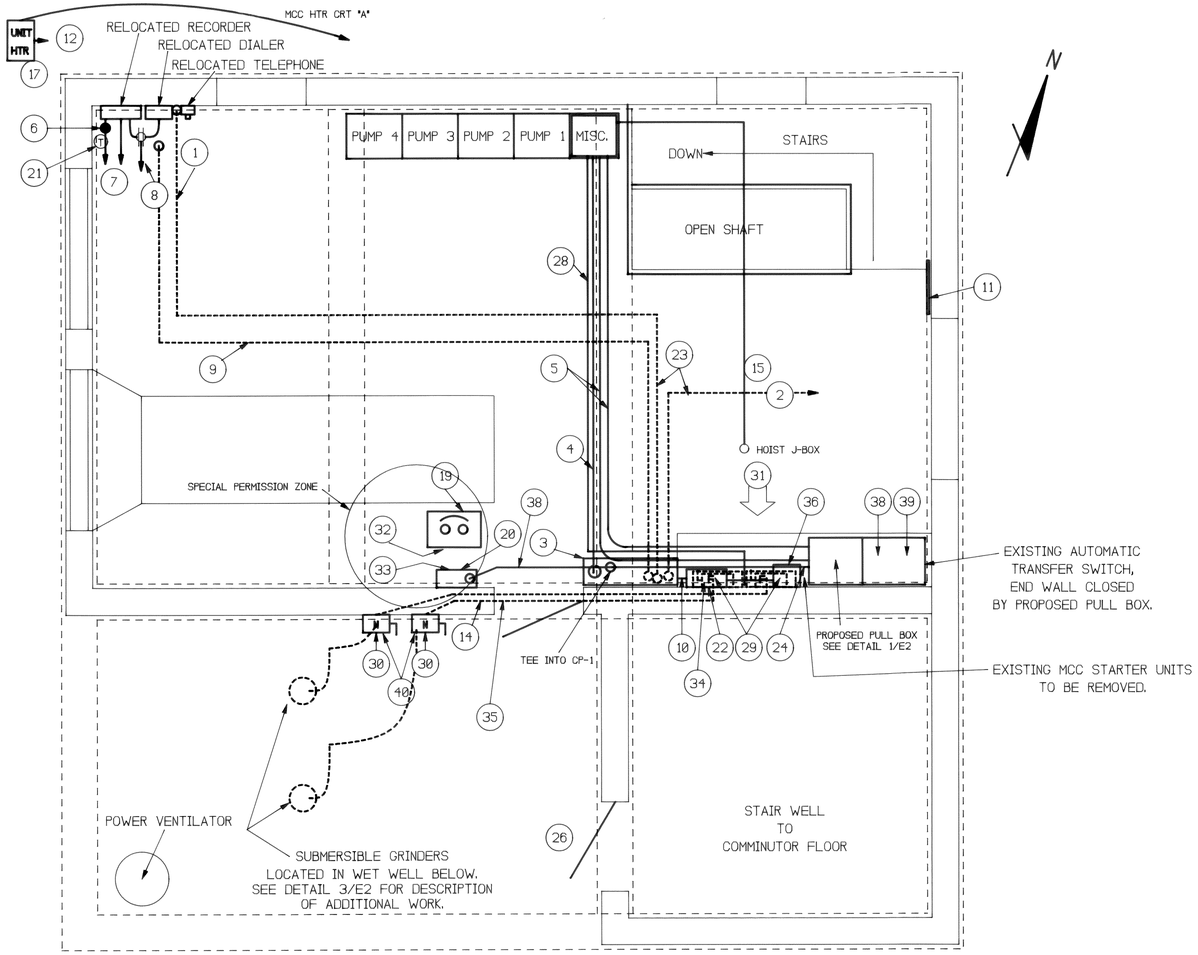
09/15/94
9409BE3
E3

DELAWARE COUNTY, OHIO

ALUM CREEK PUMPING STATION

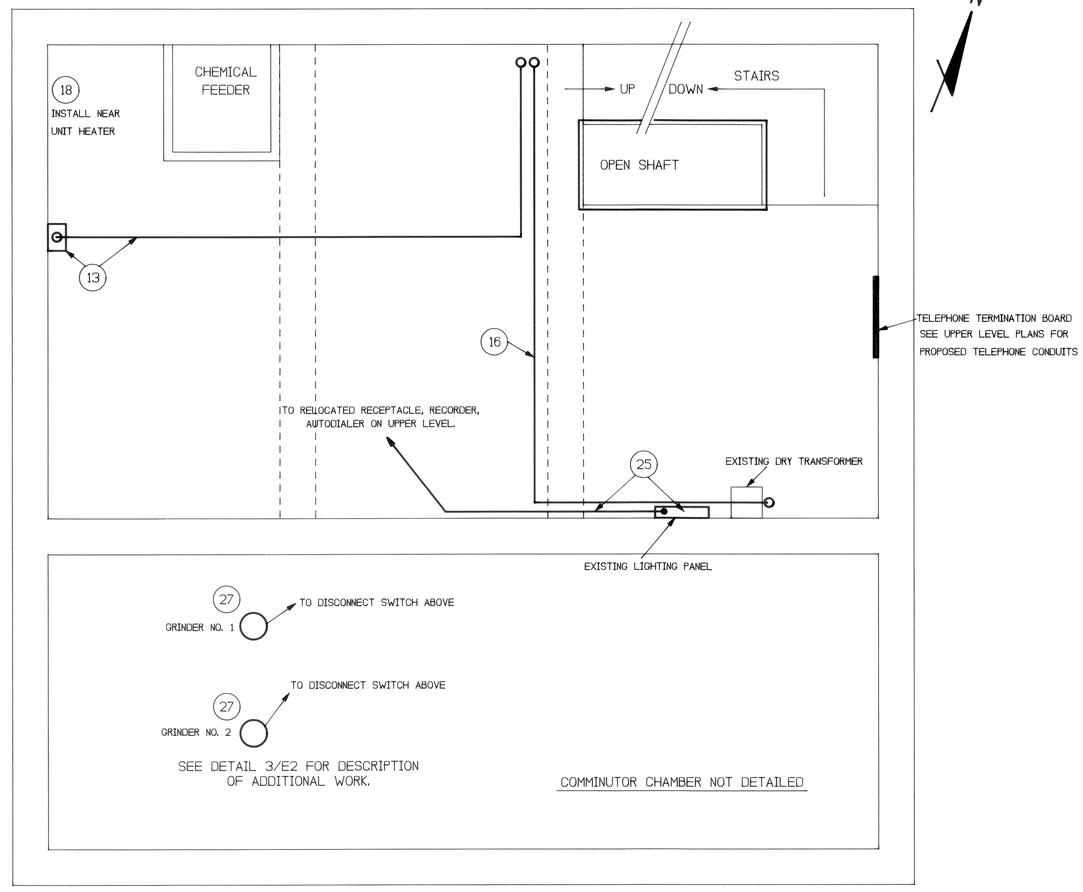
ELECTRICAL REVISIONS - 1994

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2830



UPPER LEVEL ELECTRICAL PLAN

SCALE: 3/8" = 1' - 0"



INTERMEDIATE LEVEL ELECTRICAL PLAN

SCALE: 3/8" = 1' - 0"

NOTES

1. 1" TELEPHONE C TO T/M RTU EQUIPMENT VIA CP-1.
2. 1" TELEPHONE C FROM T/M RTU VIA CP-1 TO TELEPHONE TERMINAL BOARD
3. EXISTING PUMP #4 CONTROLLER AND LEVEL CONTROLLER. CONVERT TO LEVEL CONTROL ONLY. CONTROLLER TO BE CALLED CONTROL PANEL CP-1.
4. POWER AND CONTROL CONDUIT. 2" C WITH WIRES PER CONTROL DRAWINGS. SEE CP-1 IN PARTICULAR. RUN MCC TO T/M RTU WIRES BY WAY OF CP-1 USED AS PULL BOX.
5. 2, 3-1/2"C EACH WITH 3-500 MCM CU THW THEREIN. BOND CONDUITS TO ENCLOSURES FOR ENHANCED EQUIPMENT GROUNDING WITH MYERS SCRU TITE HUBS WITH BONDING JUMPERS AND LUGS.
6. RELOCATE ISOLATOR FROM PRESENT POSITION. CAREFULLY NOTE WIRING CONNECTIONS TO RECORDER AND MAGNETIC FLOW METER BEFORE DISCONNECTING. PULL NEW WIRES TO MAG METER AND RECORDER.
7. 2, 1" C FROM RECORDER TO MAGNETIC FLOW METER IN PUMP ROOM. DUPLICATE PRESENT NUMBER OF WIRES. WIRE SIZE MAY BE CHANGED TO #12 THWN. APPLY E-Z CODE WIRE LABELS TO BOTH ENDS. SUBMIT WIRE LIST AND INTERCONNECTION DIAGRAM TO ENGINEER AS "AS BUILT" DATA.
8. 2-#12 PWR AND 1-#12 GRD IN 3/4" C TO LTG PANEL ON INTERMEDIATE FLOOR. PROVIDE 1P-20A BREAKER. TYPE "RECORDER, DIALER, RECEPTACLE" ON DIRECTORY CARD.
9. 1" C FROM DIALER BACKBOARD TO CP-1 FOR INSTRUMENTATION CABLES PER INSTRUMENTATION DRAWINGS. INCLUDE ONE BELDEN 8719 FOR FLOW METER RECORDER TO T/M RTU ANALOG INPUT VIA CP-1.
10. 2, 1"C FROM CP-1 TO TELEMETRY PANEL. WIRES PER INSTRUMENTATION DRAWINGS.
11. RELOCATED DEDICATION PLAQUE. PROVIDE ANCHORS. PATCH ANCHOR HOLES AT OLD LOCATION.
12. 3-#10 PWR, #10 GRD IN 3/4" GRD. TO MCC HTR CRT "A". REMOVE WIRE FROM OBSOLETED CONDUIT. CAP.
13. 3-#12 PWR, #12 GRD IN 3/4" C TO MCC HTR CRT "B". CONNECT TO EXISTING HTR. FEEDERS AT EXISTING PULL BOX. REMOVE OBSOLETE WIRE BACK TO OLD MCC. CAP.
14. 3-#12 PWR, 1-#12 GRD & 2-#14 OT WIRES IN EXISTING C TO EXISTING MCC STUB UP. CONNECT STUB UP TO PROPOSED GRINDER REVERSING CONTROLLER WALL MOUNTED WITH MATCHING SIZE CONDUIT.
15. 3-#12 PWR, 1 #12 GRD IN 3/4" C TO MCC "HOIST".
16. 2-#8 PWR, 1-#8 GROUNDING ELECTRODE CONDUCTOR IN 1" C TO MCC "LIGHTING TRANSFORMER". CARRY #8 GROUND TO SECONDARY MID POINT AND ALSO GROUND TO LTG PANEL.
17. LABEL: "ELECTRIC HEATER CRT "A".
18. LABEL: "ELECTRIC HEATER CRT. "B"
19. GENERATOR MAIN LINE CIRCUIT BREAKER. REMOVE EXISTING GE TJK636F000 BREAKER FROM GENERATOR CONTROL PANEL (NOT PRESENTLY CONNECTED). TEST AND CONFIRM THAT BREAKER IS IN GOOD OPERATING CONDITION. FURNISH GE ENCLOUSRE, BELIEVED TO BE MODEL TJ600S W/GRD KIT TGL6. INSTALL CB IN ENCLOSURE AND THEN INSTALL BESIDE GENERATOR CONNECTION COMPARTMENT. PROVIDE LTFMC FROM CB ENCLOSURE TO FLOOR STUB UP. SEEK TO OBTAIN SPECIAL PERMISSION FOR NON-CONFORMANCE RE ARTICLE 110-16 WITH BUILDING OFFICIAL. ADJUST INSTALLATION IN ACCORDANCE WITH INSTRUCTION FROM BUILDING INSPECTOR. PROVIDE LTFMC VIBRATION ISOLATION CONNECTION BETWEEN GENERATOR AND CB ENCLOSURE IF CB IS NOT RIGIDLY ATTACHED TO GENERATOR CONNECTION BOX. CB TEST TO INCLUDE TRIPPING TIMES AT 2X RATED AND 1900 V 1 MIN. DIELECTRIC WITHSTAND.
20. EXISTING GENERATOR CONTROL PANEL.
21. RELOCATED THERMOSTAT
22. MOUNT EXISTING (BUT LOOSE) TELEMETRY (T/M) REMOTE TELEMETRY UNIT (RTU) 6" TO LEFT OF CP-1. CONNECT ALARM INPUTS TO CP-1 TERMINALS AND OTHER ALARM SENSORS. SEE CP-1 DRAWINGS.
23. PROVIDE BELDEN 9566, 6 PAIR, #24 GAGE TELEPHONE CABLE IN CONDUITS DESCRIBED IN NOTES 1 & 2. RECONNECT TELEPHONE, AUTODIALER AND T/M-RTU EQUIPMENT.
24. 2-#12 FROM ATS TO GENERATOR CONTROL PANEL. 6-#14 FROM ATS TO CP-1. 3/4" C, TEE-ED OVER CP-1. 2 #14 ARE SPARE.
25. 2-#12 PWR, 1-#12 GRD IN 3/4" C TO NEW RECEPTACLE, AND EXISTING RELOCATED RECORDER AND AUTODIALER ON UPPER LEVEL. PROVIDE PROPOSED 1P-20 A CB IN PANEL.
26. PROVIDE "CONFINED" SPACE SIGNS REQUIRED BY SPEC 16000 LOOSE TO OWNER.
27. PROVIDE SIGN READING "GRINDER NO. X".
28. 5-#12 PWR, 1-#12 GRD IN 1" C FOR 480 VAC TO CP-1 & GRINDER D.S. DO NOT RUN W/ SIG. WIRES IN 2" C.
29. 30 A FUSED, 480 VAC, 3P DISCONNECT SWITCH, NEMA 1 ENCLOSURE, NEMA HD, FUSE BUS FRS-R-7. PROVIDE LABEL READING: "GRINDER CONTROLLER NO. X DISCONNECT SWITCH".
30. PROVIDE LABEL READING: "GRINDER #X DISCONNECT SWITCH. LOCK OUT BEFORE WORKING ON GRINDER."
31. SEE ELEVATION DIAGRAM FOR EQUIPMENT THIS AREA. DETAIL 4/E2.
32. INSTALL SIGN ON CIRCUIT BREAKER ENCLOSURE READING WARNING "REDUCED WORKING SPACE ABOUT THIS EQUIPMENT. DO NOT WORK ON WHILE ENERGIZED."
33. INSTALL SIGN ON GENERATOR CONTROL PANEL READING "REDUCED WORKING SPACE ABOUT THIS EQUIPMENT. DO NOT WORK ON WHILE ENERGIZED."
34. REMOTELY MOUNTED CONTROL POWER TRANSFORMER ASSOCIATED WITH CONTROL PANEL CP-1. 4-#12 PWR, 1-#12 GRD, IN 3/4 LTFMC. MOUNT BELOW T/M RTU.
35. HISTORICAL DRAWINGS ASSERT THAT AN EMPTY HOME RUN CONDUIT EXISTS FOR FUTURE. USE IF FEASIBLE. OTHERWISE, PROVIDE NEW 3/4" CONDUIT.
36. REMOTELY MOUNTED CPT FOR CP-1.
37. GRINDER NO. 1 AND NO. 2 CONTROLLERS.
38. TAG EXISTING WIRES AND THEIR SOURCE AND LOAD. NUMBER UNKNOWN. RECONNECT.
39. PREPARE CONNECTION DIAGRAM FOR ATS CONTROL WIRES BEFORE DISTURBING EXISTING WIRING. RECONNECT ATS CONTROL WIRES BASED UPON EXISTING CONNECTIONS AND MODIFICATIONS SHOWN IN CONTROL DRAWINGS.
40. 30 A NON-FUSED, 480 VAC, 3P DISCONNECT SWITCH, NEMA 4X-SS ENCLOSURE, NEMA HD.

SPECIAL PERMISSION REQUESTED

1. PRESENT INSTALLATION IS IN VIOLATION OF NEC 445-4(A) (LACK OF OVERCURRENT PROTECTION), AND NEC 110-16 (LACK OF WORK SPACE IN FRONT OF GENERATOR CONTROL PANEL CAUSED BY RACEWAYS RISING FROM FLOOR TO GENERATOR CONNECTION BOX.)
2. PART OF PROJECT IS TO INSTALL CIRCUIT BREAKER AT GENERATOR TO REMOVE ARTICLE 445-4(A) VIOLATION. WITH INSTALLATION OF NEW CB, WORKING SPACE WILL REMAIN AS LARGE AS AT PRESENT, BUT STILL SUB-STANDARD. WARNING SIGNS WILL BE INSTALLED (NOTES 32 AND 33) PROHIBITING WORKING ON EQUIPMENT WHILE ENERGIZED.
3. SPECIAL PERMISSION IS REQUESTED TO DETERMINE ACCEPTABILITY BEFORE CONSTRUCTION COMMENCES.

STATE OF OHIO
RALPH B. HOFFMAN 37934
REGISTERED PROFESSIONAL ENGINEER
VOID UNLESS SIGNED / DATE
09/15/94

94089E1

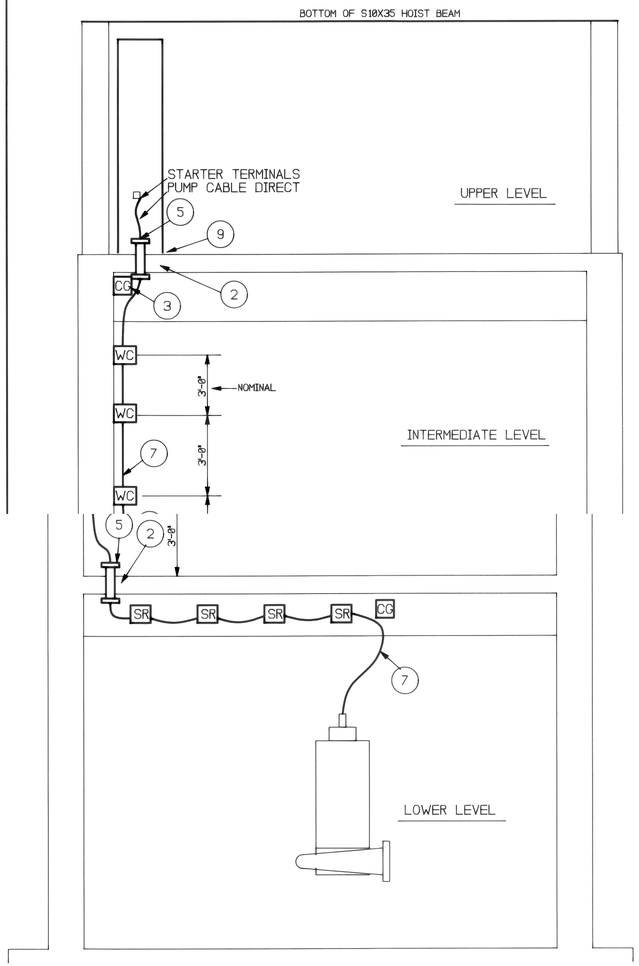
E4

DELAWARE COUNTY, OHIO

ALUM CREEK PUMPING STATION

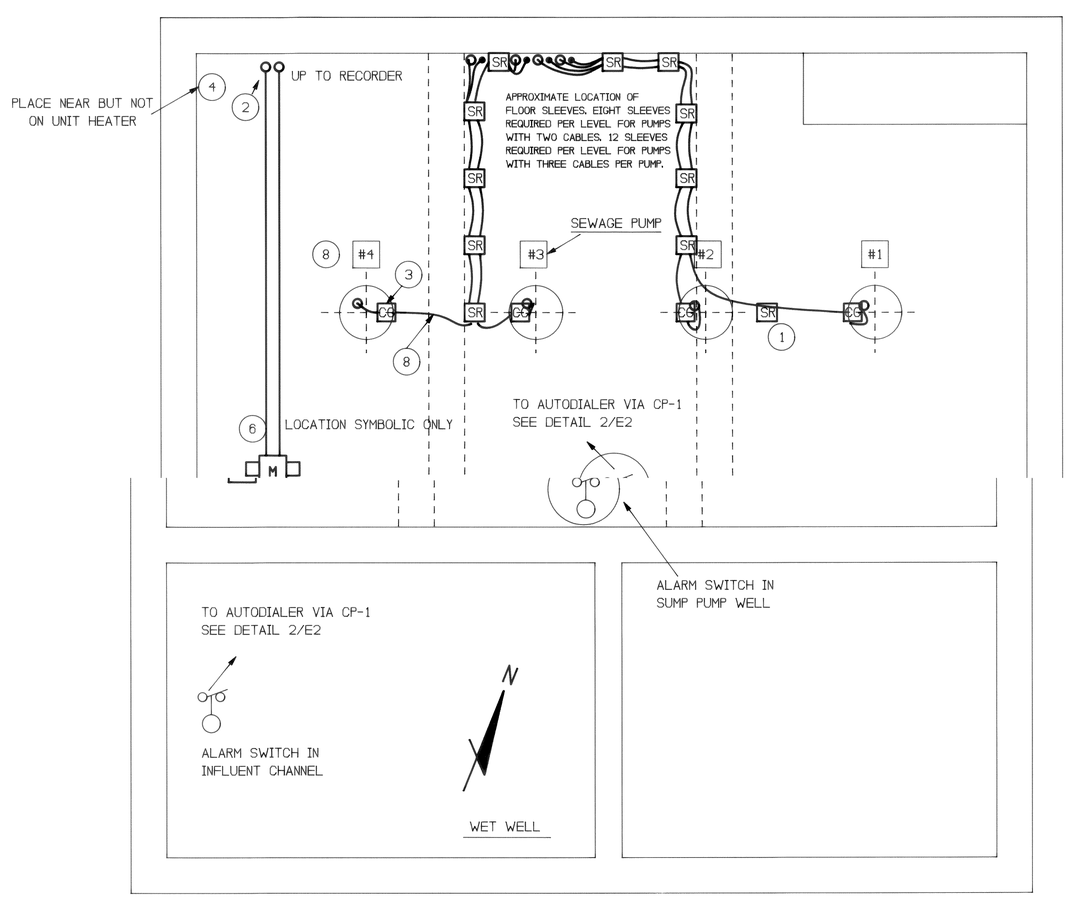
ELECTRICAL REVISIONS - 1994

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2030



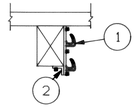
PUMP CABLE SUPPORT DETAIL 1/E5

NOT TO SCALE



LOWER LEVEL ELECTRICAL PLAN

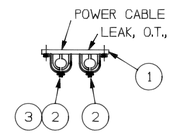
SCALE: 3/8" = 1' - 0"



1. UNDERGROUND DEVICES INC. PART NUMBER 3SR2. INSTALL INACCORDANCE WITH MANUFACTUERS DETAIL DWG. PROVIDE SS MOUNTING ANCHORS, WASHERS, NUTS, CAP HEAD SCREW. (HARDWARE NOT PART OF 3SR2) TEL: (708) 205-9000, FAX (708) 205-9004
2. 1/8"X3"X6" AND 6" L-BRACKET WITH SS ANCHORS, BOLTS, WASHERS, SCREW. LOCATE HOLES TO MATCH ITEM 1. ITEM 2 NOT REQ'D ON WALL MOUNTS.
3. LOCATE SADDLES MINIMUM OF EVERY 30" ON BEAMS OR WALLS.
4. TY-WRAP CABLE TO SADDLE PER ENGINEER'S FIELD INSTRUCTIONS.
5. DO NOT DAMAGE BEAM REINFORCEMENTS.

SYMBOL SR SADDLE RACK DETAIL 2/E5

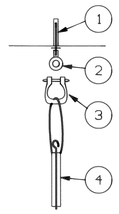
NOT TO SCALE



1. UNITSTRUT P1000T GREEN ANCHORED TO WALL WITH SS ANCHORS, BOLTS, NUTS. APPROX LENGTH 18".
2. PORCELAIN CABLE CLAMP. SIZE AS REQ'D BY PUMP CABLE. EXAMPLE: 3" CABLE REQUIRES P/N P1792B WITH P/N U467B STEEL BAND. DO NOT ORDER UNTIL CABLE SIZE IS CONFIRMED.
3. PROVIDE ADDITIONAL FITTINGS IF MORE THAN ONE POWER CABLE IS REQUIRED PER PUMP.

SYMBOL WC PORCELAIN WALL CLAMP 3/E5

NOT TO SCALE



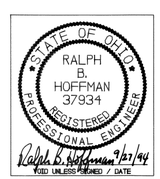
1. CONCRETE ANCHOR, RATED MIN. 200# WORKING, 500# PULL OUT STRENGTH
2. OVAL OR ROUND EYENUT MATCHING ITEM 1.
3. CLEVISE FITTING MATCHING ITEM 2.
4. KELLUM CABLE GRIP, SINGLE EYE, SPLIT MESH, ROD CLOSING. KELLEMS P/N SERIES 822-03-9XX WHERE XX IS SELECTED BASED UPON CABLE DIAMETER. DO NOT ORDER UNTIL CABLE SIZE IS CONFIRMED. PROVIDE GRIP FOR EACH PUMP CABLE, CONFIRM NUMBER OF AND SIZE OF PUMP CABLES WITH PUMP SUPPLIER.
5. PROVIDE LINK EXTENSION AND SECOND CLEVIS IF REQUIRED TO TRAIN CABLE SMARTLY.

SYMBOL CG CEILING GRIP DETAIL 4/E5

NOT TO SCALE

NOTES

1. MODIFY SADDLE RACK DETAIL WITH A L-BRACKET, CEILING MOUTED. LONG LEG OF BRACKET DOWN. MOUNT SADDLE RACK IN VERTICAL POSITION. TWO CEILING ANCHORS.
2. CONDUCT RADIOGRAPHIC EXPLORATION FOR REINFORCING ROD. DO NOT CORE DRILL FLOOR UNTIL REPORT IS APPROVED BY ENGINEER. SEE SPECIFICATION 16015.
3. PROVIDE INDIVIDUAL KELLUM GRIPS FOR EACH POWER CABLE AND EACH SIGNAL CABLE. DO NOT PUT TWO CABLES IN ONE GRIP IF NEEDED TO TRAIN OR SUPPORT CABLES BELOW MCC.
4. LABEL: "ELECTRIC HEATER CIRCUIT 'B'"
5. SCHEDULE 40 PVC CONDUIT SLEEVE THROUGH FLOORS WITH BELL END FITTINGS. SIZE SLEEVE 1 TRADE SIZE LARGER THAN CODE REQUIREMENT FOR CABLE SUPPLIED AS PART OF PUMPS. GROUT IN SLEEVES. CEMENT BELL ENDS TO SLEEVES.
6. EXISTING FLOW METER. REFEED POWER AND SIGNAL CONNECTIONS FROM RELOCATED RECORDER.
7. SUPPLY PUMP CABLES OF SUCH LENGTH TO REACH MCC WITHOUT SPLICE AND WITH ADEQUATE SLACK FOR TRAINING THE CABLES WITHOUT STRAIN. CONTRACTOR TO SPECIFY CABLE LENGTH REQUIRED TO PUMP SUPPLIER. SUPPLY ALL PUMP CABLES THE SAME LENGTH. LOOP SPARE CABLE ON SADDLES ON LOWER LEVEL CEILING.
8. PUMP 4 IS EXISTING, HOWEVER PROVIDE REPLACEMENT CABLES OF CORRECT LENGTH AND INSTALL. PUMPS 1, 2 AND 3 ARE PROPOSED. ORDER CABLES OF CORRECT LENGTH TO REACH MCC WITHOUT SPLICE.
9. DO NOT PROVIDE CONCRETE CURB UNDER MCC BECAUSE OF RESTRICTED HEAD ROOM.



09/15/94
9409BE5
E5

DELAWARE COUNTY, OHIO

ALUM CREEK PUMPING STATION

ELECTRICAL REVISIONS - 1994

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2030

IDENTIFICATION					UNIT OPERATOR & O.C. PROTECTION								STARTER						CONTROL DEVICES								RELATED WORK BY CONTRACTOR				NOTES
MCC UNIT LOCATION	PROJECT MOTOR NUMBER	UNIT NAMEPLATE ENGRAVING	MOTOR HORSE POWER	MOTOR VOLTAGE / PHASE	FUSED SWITCH SIZE W/ REJECTION CLIPS	UL-RK TIME DELAY FUSE RATING AMPS	CB FRAME SIZE	CB TRIP RATING	MCP NEMA SIZE	CB OR MCP N.O. BELL ALARM (CLOSE ONLY ON FAULT)	UNIT OPERATOR N.O. AUX. CONTACTS	STARTER TYPE	NEMA SIZE	AUXILIARY CONTACTS N.O.	AUXILIARY CONTACTS N.C.	OVERLOAD RELAY N.O. ALARM AUX. CONTACT	2 HV PRI FUSES, CPT, 120 SEC., 1 LV SEC. FUSE	OFF-ON SELECTOR SWITCH	HAND-OFF-REMOTE SEL. SW.	AMBER P.T.T. PILOT LT. (RUN)	RUNNING TIME METER (RTM)	STARTS COUNTER (CTS)	START-STOP PUSH BUTTONS	ADDITIONAL DEVICES	CONDUCTORS	CONDUIT SIZE (INCHES)	MOTOR RATED SAFETY DISCONNECT SWITCH AT LOAD	REMOTE EQUIPMENT AND CONTROL DEVICES	PROVIDE EQ. & DEVICES NOTED OR BY CODED NOTE. X MEANS TO PROVIDE FEATURE NUMBERS IN COLUMNS MEAN QUANTITY OR CHARACTERISTIC / CAPACITY
1A	M4	SEWAGE PUMP 4	120	460/3			400	INTCT 300	5	X	2	SMC+W/ PUMP CONTROL	5	1	1	X	X		X	X	X	X		2 RELAY (TYPE P) PL-G (OFF)	PUMP CABLES TO STARTER	SLEEVES	NO		SEE ADDITIONAL REQUIREMENTS IN SPECIFICATIONS AND DRAWINGS (NEXT SHEET)
2A	M3	SEWAGE PUMP 3	175	460/3			400	INTCT 400	5	X	2	SMC+W/ PUMP CONTROL	5	1	1	X	X		X	X	X	X		2 RELAY (TYPE P) PL-G (OFF)	PUMP CABLES TO STARTER	SLEEVES	NO		SEE ADDITIONAL REQUIREMENTS IN SPECIFICATIONS AND DRAWINGS (NEXT SHEET)
3A	M2	SEWAGE PUMP 2	175	460/3			400	INTCT 400	5	X	2	SMC+W/ PUMP CONTROL	5	1	1	X	X		X	X	X	X		2 RELAY (TYPE P) PL-G (OFF)	PUMP CABLES TO STARTER	SLEEVES	NO		SEE ADDITIONAL REQUIREMENTS IN SPECIFICATIONS AND DRAWINGS (NEXT SHEET)
4A	M1	SEWAGE PUMP 1	175	460/3			400	INTCT 400	5	X	2	SMC+W/ PUMP CONTROL	5	1	1	X	X		X	X	X	X		2 RELAY (TYPE P) PL-G (OFF)	PUMP CABLES TO STARTER	SLEEVES	NO		SEE ADDITIONAL REQUIREMENTS IN SPECIFICATIONS AND DRAWINGS (NEXT SHEET)
5A		INCOMING LUG COMPARTMENT																								6-500MCM 2- #1/0 GRD	2- 3 1/2"			PROVIDE PULL BOX ON TOP OF SECTION. COORDINATE HEIGHT WITH CONTRACTOR. CEILING HEIGHT IS LIMITED.
5C		INCOMING LUG COMPARTMENT																												
5EL		SPARE CB					150	20																						
5ER		SPARE CB					150	20																						
5GL		GRINDER FEEDER	2-3 HP	460/3			150	30																		3-#10 PWR 1-#10 GRD	1" SHARED	YES (2)		FD CB
5GR		CONTROL PANEL FEEDER		460/3			150	15																		2-#12 PWR 1-#12 GRD				FD CB CABLE MAY BE CONSOLIDATED INTO CONTROL WIRE CONDUIT
5JL	M6	HOIST DISCONNECTING SWITCH	3/4	460/3			150	15																		3-#12 PWR 1-#12 GRD	3/4"			FD CB
5JR		LIGHTING TRANSFORMER PRIMARY DISCONNECT		460/2			150	40																		2-#8 PWR 1-#8 GRD	3/4"			FD CB NOTE 5
5LL		ELECTRIC HEATER CIRCUIT 'A'	15KW	460/3			150	30																		3-#10 PWR 1-#10 GRD	3/4"			FD CB INSTALL CRT. LABEL ON WALL NEAR HEATER
5LR		ELECTRIC HEATER CIRCUIT 'B'	10KW	460/3			150	20																		3-#12 PWR 1-#12 GRD	3/4"			FD CB INSTALL CRT. LABELS ON WALL NEAR HEATERS

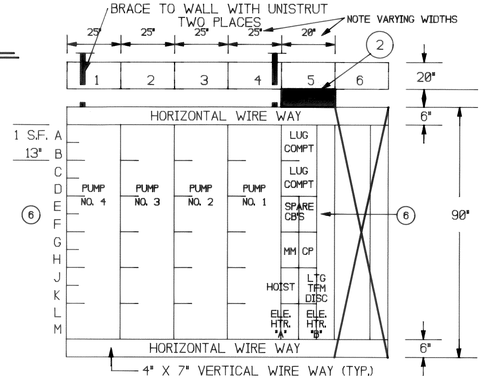
NOTES:

1. BID CENTER AND DEVICES BASED UPON THIS AVAILABLE FAULT CURRENT. FINAL VALUE TO BE CONFIRMED WITH POWER COMPANY. PROVIDE CIRCUIT BREAKERS OF APPROPRIATE INTERRUPTING RATING.
2. PULL BOX, 12" H X 20" W X 20" D, OR LARGER IF REQUIRED BY CODE FOR ENTERING CABLE & CONDUIT. ADVISE ENGINEER PROMPTLY IF SIZE IS LARGER.
3. 800 AMP SUPPLY PROPOSED (2-500 MCM/PHASE), FUTURE 3-500 MCM/PHASE.
4. UTILITY SUPPLY 3 WIRE CORNER GROUNDED DELTA, LOCAL GENERATOR, 4 WIRE WYE.
5. PLACE AN ADDITIONAL SPECIAL WARNING SIGN, AS LARGE AS FEASIBLE, ON UNIT DOOR READING:

   HOIST DISCONNECTING SWITCH

6. PROVIDE BUS EXTENSION LINKS BOTH ENDS OF CENTER.

MCC NO. 1



WIRE	NEMA TYPE	CLASS 1 WITHOUT INTERWIRING 1A ☐ 1B ■ 1C ☐		CLASS 2 WITH INTERWIRING 2B ☐ 2C ☐
ENCLOSURE	DEPTH	FRONT MOUNTING (INCHES) 15 ☐ 20 ■	BACK TO BACK (INCHES) 25 ☐ 30 ☐ 40 ☐	3R FRT. MTG (INCHES) 30 ☐
	NEMA TYPE	GENERAL PURPOSE 1 ■	W-BOTTOM PLATES 1 ☐	W-GASKET 1G ☐
		W-GASKET & PLATES (BOT.) 1G ☐	W-BOTTOM PLATES 12 ☐	OUTDOOR NON WALK-IN 3R ☐
	MISC.	PAINT STD ■ CUST ☐	CORNER SECT. NO.	PULL BOX SECTION NO. 5
		MOUNTING CHANNELS ☐	9" WIREWAY SECTIONS ☐	
INCOMING SUPPLY	LINE VOLTAGE	3 PHASE, 60 HERTZ 480 ■ 240 ☐ 600 ☐ 208 ☐	OTHER	AVAILABLE SHORT CIRCUIT AMPS. (RMS SYMMETRICAL) TBD APPROX 25 KA SYM (1)
(3)	CONNECT-ION	LUGS ONLY ■	MAIN CB ☐ FUSIBLE SWITCH ☐	RATING (AMPS) 1200
		4W WYE ■ 3W DELTA ☐	CORNER GROUNDED DELTA ☐ 4 W DELTA ☐	
	CABLE	CABLE SIZE 500 MCM CU ■ AL ☐	TOTAL PER PHASE 2	NO. OF INCOM. LINE SECTION 1
		INC. LINE SECT. NO. 5	ENTRY TOP ■ BOTTOM ☐	
BUS WORK	MAIN BUS	RATING AMPS. 600 ☐ 800 ☐ 1000 ☐ 1200 ■ 1600 ☐ 25 INCH B-T-B ONLY 2000 ☐ 2500 ☐	ALUMINIUM (PLATING) TIN ■	COPPER (PLATING) TIN ☐ SILVER ☐
	BRAC-ING	AMPS. (RMS SYMMETRICAL) 42000 ■ 65000 ☐ 100,000 ☐	INSULATED HORIZONTAL BUS ■ INSULATED VERTICAL BUS ■	SEE NOTE (6)
	GROUND BUS	NONE ☐	PLATING NONE ☐ TIN ■	HORIZONTAL (INCHES) 1/4X1 ■ 1/4X2 ☐
		LOCATION TOP ☐ BOTTOM ■	CABLE SIZE #1/0 TO 4/0	NO. OF CABLES 8
		VERTICAL GRD. BUS IN ☐ PLUG LOAD ☐		
	NEUTRAL BUS	NONE ■	NEUTRAL SYS. AND LOADS:	
MISCELLANEOUS	U.L. SERVICE ENTRANCE ☐ U.L. LISTED SECTIONS & UNITS ■	AUTOMATIC SHUTTERS ☐ MANUAL SHUTTERS ☐		
	PROTECTIVE CAPS PLUG IN STAB OPENINGS ■	UNIT ISOLATION BARRIER BETWEEN UNIT & VERTICAL WIRE WAY ☐	MASTER (MCC) NAME PLATE ■	
	MASTER NAME PLATE INSCRIPTION: ALUM CREEK PUMPING STATION 1200 AMP (BUS), 480 VOLTS			

■ MEANS TO PROVIDE FEATURE

STATE OF OHIO
RALPH B. HOFFMAN 37934
REGISTERED PROFESSIONAL ENGINEER
Ralph B. Hoffman 9/27/94
VOID UNLESS SIGNED / DATE

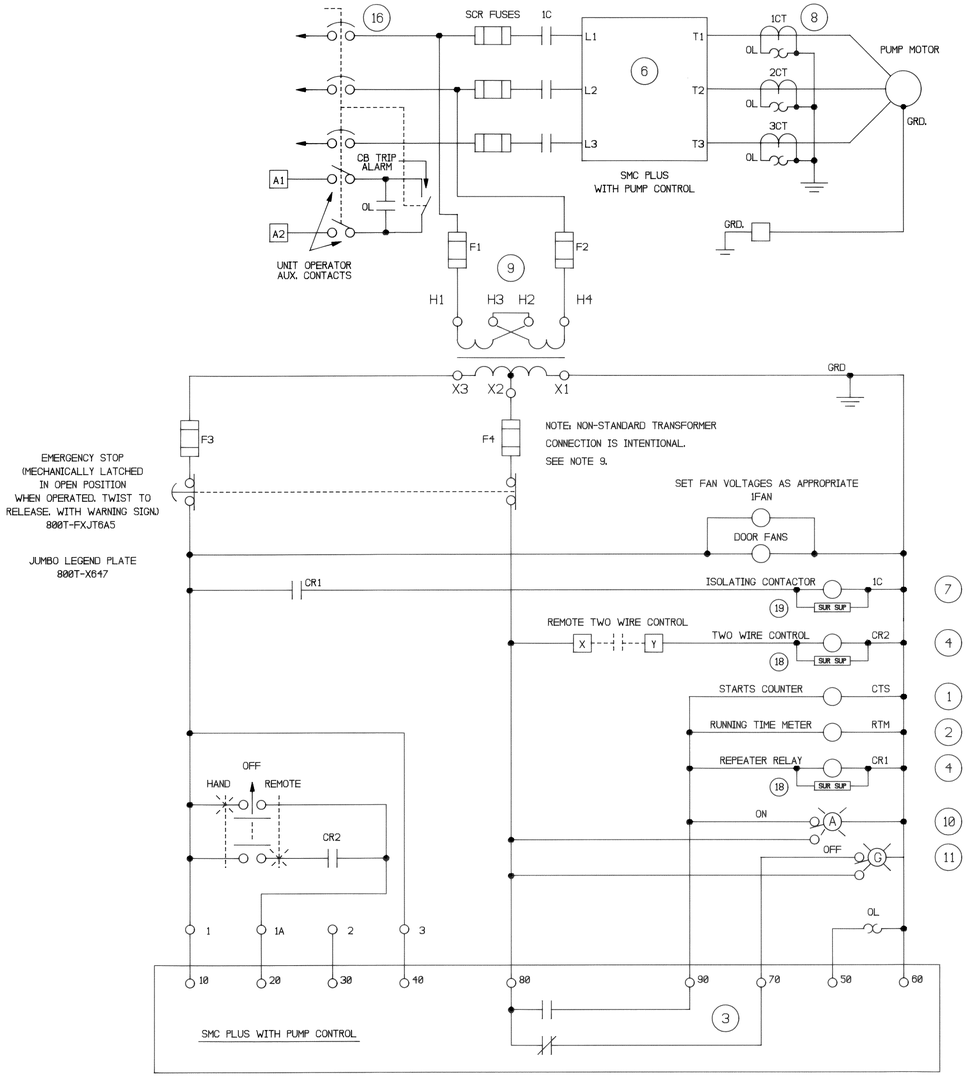
09/15/94
9409BE6
E6

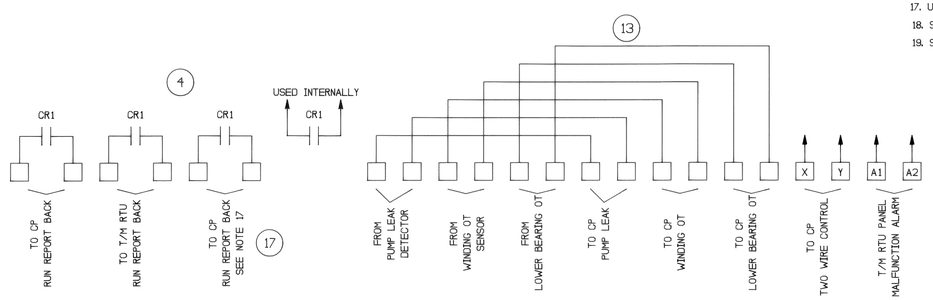
DELAWARE COUNTY, OHIO

ALUM CREEK PUMPING STATION

ELECTRICAL REVISIONS - 1994

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2030





PUMPS 1, 2, 3 & 4 SMC+ PUMP CONTROL UNITS 1 / E7

MCC SMC UNIT NOTES

1. STARTS COUNTER, 120 VAC, 5 DIGIT MINIMUM, RATED FOR CONTINUOUS ENERGIZING. PROVIDE LABEL. NON-RESET.
2. RUNNING TIME METER, 120 VAC, 6 DIGIT, TIME UNITS IN MINUTES, NON-RESET.
3. PROVIDE INTERPOSING RELAY IF SMC CONTACTS 70-80-90 DO NOT HAVE SUFFICIENT CAPACITY FOR INDICATED LOADS.
4. RELAYS CR1 AND CR2, A-B, TYPE P, 4 NO CONTACTS.
5. EMERGENCY STOP PUSH BUTTON WARNING PLATE:

> EMERGENCY STOP
> WARNING - EMERGENCY STOP SHUTS OFF MOTOR IMMEDIATELY.
> PUMP CONTROL STOP IS DEFEATED BY EMERGENCY STOP.
> DANGER - MOTOR MAY RESTART IMMEDIATELY WHEN
> EMERGENCY STOP PUSH BUTTON IS RELEASED.
> DO NOT RELEASE EMERGENCY STOP BUTTON UNTIL PROBLEM
> IS COMPLETELY RESOLVED.

6. STANDARD DUTY (SMC PLUS) SOLID STATE MOTOR CONTROLLER, BULLETIN 2155F
   LINE VOLTAGE: 480 VAC L-L, 3 PHASE, DELTA SOURCE.
   CONTROL TRANSFORMER: 120/240 V, SPECIAL, SEE NOTE 9.
   STANDARD DUTY AMPS: 240 AMPERES
   NOMINAL MAX HORSEPOWER: 200
   PUMP CONTROL OPTION 13XB
   LINE SIDE PROTECTION MODULE OPTION 13D
   LOAD SIDE PROTECTION MODULE OPTION 13E
   SCR FUSES
7. ISOLATION CONTACTOR, SIZE 5, NOTE 240 VAC COIL.
8. OVERLOAD RELAY WITH 3 NEMA CLASS 20 HEATERS SIZED TO SPECIFIC MOTOR NPC
9. CONTROL POWER TRANSFORMER WITH 2 PRIMARY AND 2 SECONDARY FUSES.
   VA AND INRUSH VA PER LOADS SHOWN, 480 VAC PRI, 120/240 VAC SEC,
   NOTE NON-STANDARD CONNECTIONS. PLEASE CONSULT WITH MR. DAVID FORD,
   AT ALLEN-BRADLEY, (414) 382-2514 WITH QUESTIONS.
10. PUSH TO TEST, TRANSFORMER PILOT LIGHT, AMBER, "ON" OR "RUN".
11. PUSH TO TEST, TRANSFORMER PILOT LIGHT, GREEN, "OFF".
12. IT IS THE INTENT THAT PUMP SECTIONS 1, 2, 3 AND 4 BE IDENTICAL AND INTERCHANGEABLE IN FUNCTION. IT SHALL ONLY BE NECESSARY TO CHANGE OL HEATERS AND MCP TRIP ADJUSTMENTS TO OPERATE 120 TO 175 HP MOTORS FROM ANY OF THE FOUR SECTIONS.

SECTION	HP	THERMAL MAGNETIC CB TRIP
1	PROPOSED 175 HP	400
2	PROPOSED 175 HP	400
3	PROPOSED 175 HP	400
4	EXISTING (AND TO CONTINUE) 120 HP	300

IF MCP'S CAN NOT ACCOMPLISH THE REQUIREMENT, PROVIDE INTERCHANGEABLE TRIP 400 A FRAME THERMAL-MAGNETIC TRIP CIRCUIT BREAKERS WITH THE TRIP UNITS LISTED ABOVE.

13. PROVIDE TERMINAL BLOCKS AS SHOWN FOR FEED THRU WIRING AND REMOTE DEVICES.
14. PROVIDE WARNING SIGN NEAR H-O-R SWITCH READING:

> WARNING
> H-O-R SWITCH OPERATES IN "PUMP CONTROL" MODE. MOTOR DOES NOT SHUT
> OFF IMMEDIATELY WHEN SWITCH IS TURNED TO OFF. USE EMERGENCY
> STOP BUTTON WHEN EMERGENCY STOP IS REQUIRED.

15. PROVIDE WARNING SIGN ON PUMP CONTROLLERS 1 AND 2 READING:

> DANGER
> DO NOT CHANGE H-O-R SWITCH FROM REMOTE POSITION WHEN PUMPS 1 & 2
> MODE SWITCH ON LEVEL CONTROL PANEL CP1 IS IN THE SERIES MODE,
> AND OR THE PUMP 1 & 2 VALVES ARE IN THE SERIES POSITIONS.
> BODILY INJURY AND EQUIPMENT DAMAGE MAY RESULT FROM THE FAILURE
> TO FOLLOW THESE INSTRUCTIONS.

16. HMCP OR INTERCHANGEABLE TRIP THERMAL-MAGNETIC CIRCUIT BREAKER.
17. USED ON PUMPS 1 AND 2 FOR SERIES SEQUENCE MODE LOGIC.
18. SURGE SUPPRESSOR, 700-N24
19. SURGE SUPRESSOR, NOTE 240 VAC, 599-KA04

STATE OF OHIO
RALPH B. HOFFMAN
37934
REGISTERED PROFESSIONAL ENGINEER
VOID UNLESS SIGNED / DATE
9/27/94

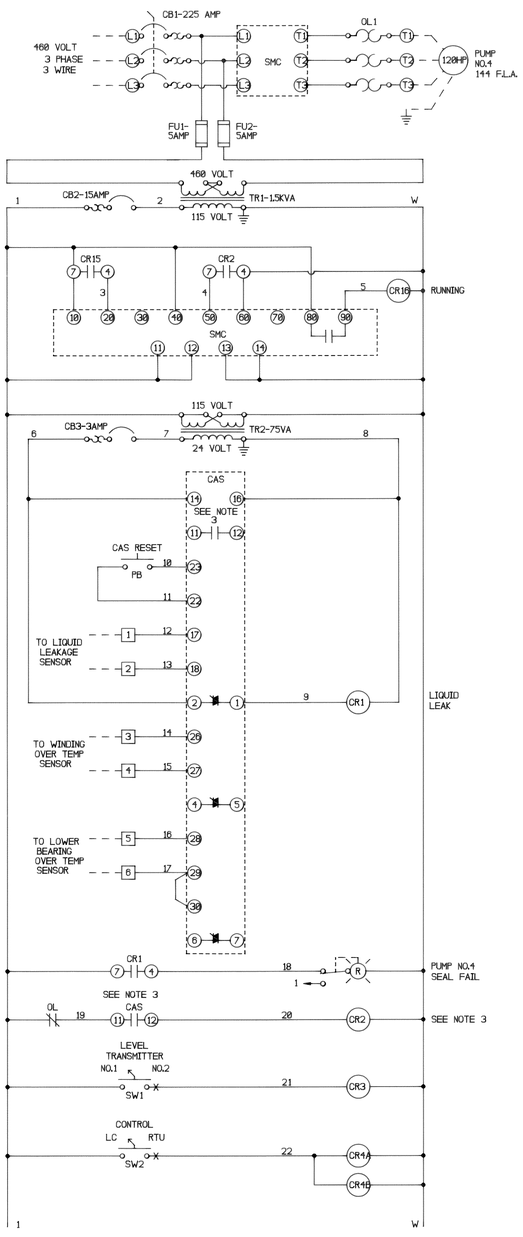
09/15/94
9409BE7
E7

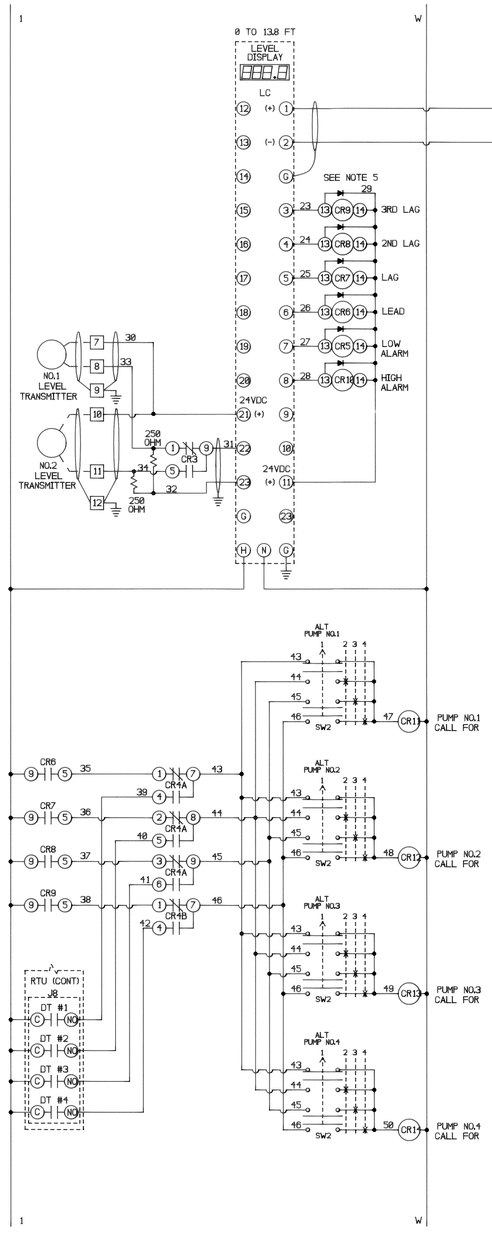
DELAWARE COUNTY, OHIO

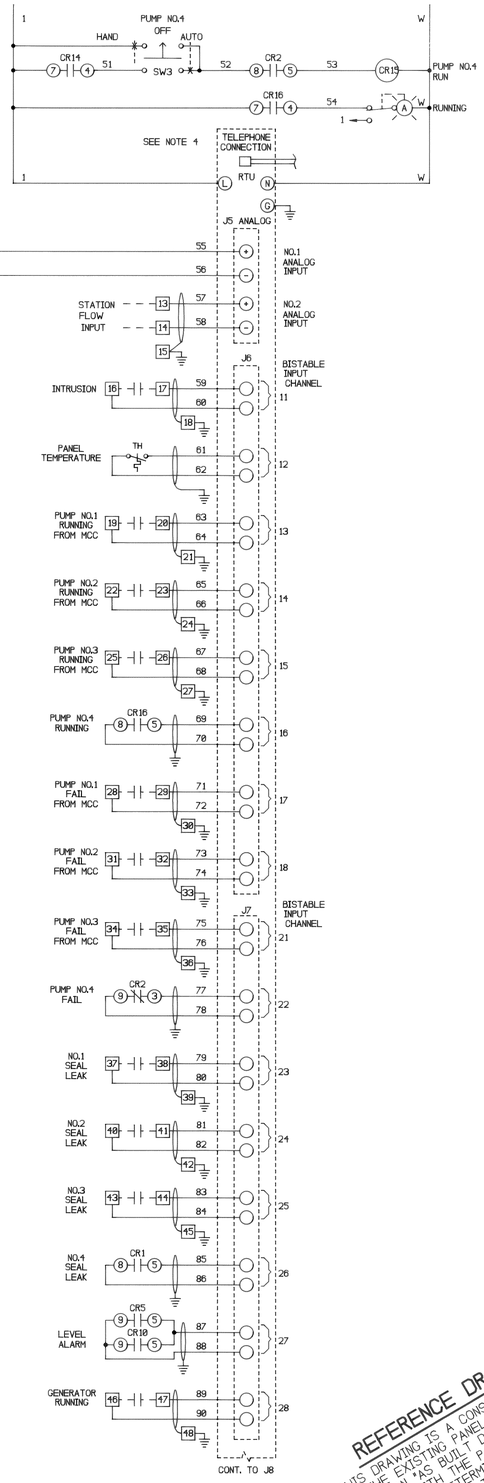
ALUM CREEK PUMPING STATION

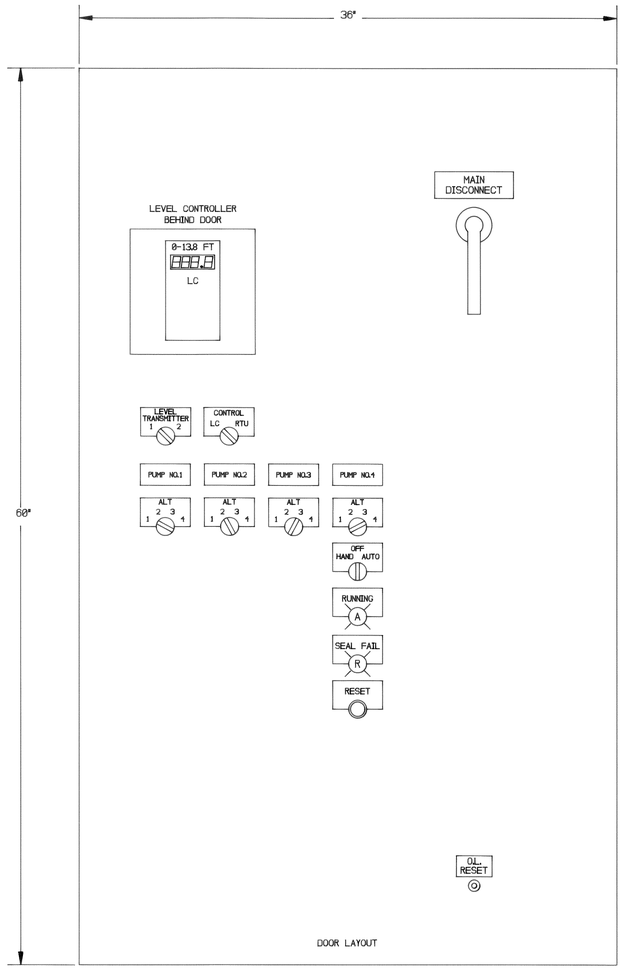
ELECTRICAL REVISIONS - 1994

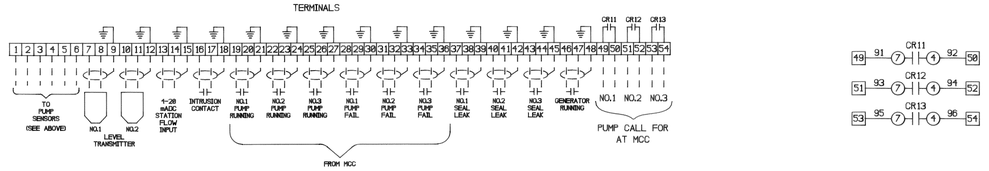
HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2030











NOTES:
1) PANEL GROUND TERMINAL MUST BE CONNECTED TO EARTH GROUND.
2) FACTORY WIRING IS SHOWN ———— FIELD WIRING IS SHOWN - - - - - - - - - - - - -
3) PUMP MONITORING UNIT (CAS) ALARM INTERLOCK CONTACT (TERMINAL 11 & 12) IS ENERGIZED CLOSED. IT OPENS UPON ALARM. RELAY CR2 IS ALSO ENERGIZED.
4) SURGE SUPPRESSOR TO BE CONNECTED TO RTU.
5) SILVER BAND ON DIODE TO BE CONNECTED TO TERMINAL 14 ON RELAY.

WIRE TYPE	SIZE	COLOR
POWER	0 AWG	BLACK
120V CONTROL	14 AWG	RED
120V NEUTRAL	14 AWG	WHITE
GROUND	14 AWG	GREEN
24 VAC	14 AWG	BLUE
12 VDC	14 AWG	BLUE

CAD

1 OF 1

CONTROL WORKS INC.
1179 U.S. Highway 50 * Milford, Ohio 45150 * (513) 831-9959

ALUM CREEK PUMP STATION
SIMPLEX/PILOT/RTU PANEL

Power Requirements: 120 HP 144 F.L.A. 460 Voltage 3 Phase 60 Hz

Drawn By	Designed By	Checked By	As Built By	Date
YATES/JANSSENS	R.E.V.			9-17-92

Customer/Project Name & Number: THE RIGHTER COMPANY
Drawing Number: **CW 2239**

Revision Dates:	
1.	10-5-92
2.	A.B.11-11-92
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

2-3-2390

REFERENCE DRAWING
THIS DRAWING IS A CONSTRUCTION DRAWING OF THE EXISTING PANEL. IT IS NOT WARRANTED TO BE AN "AS BUILT" DRAWING. WORK THIS DRAWING WITH THE PANEL. FINAL CONFIGURATION PARTS AND LABOR TO DETERMINE REQUIRED ADDITIONAL PANEL. TO MODIFY THE EXISTING

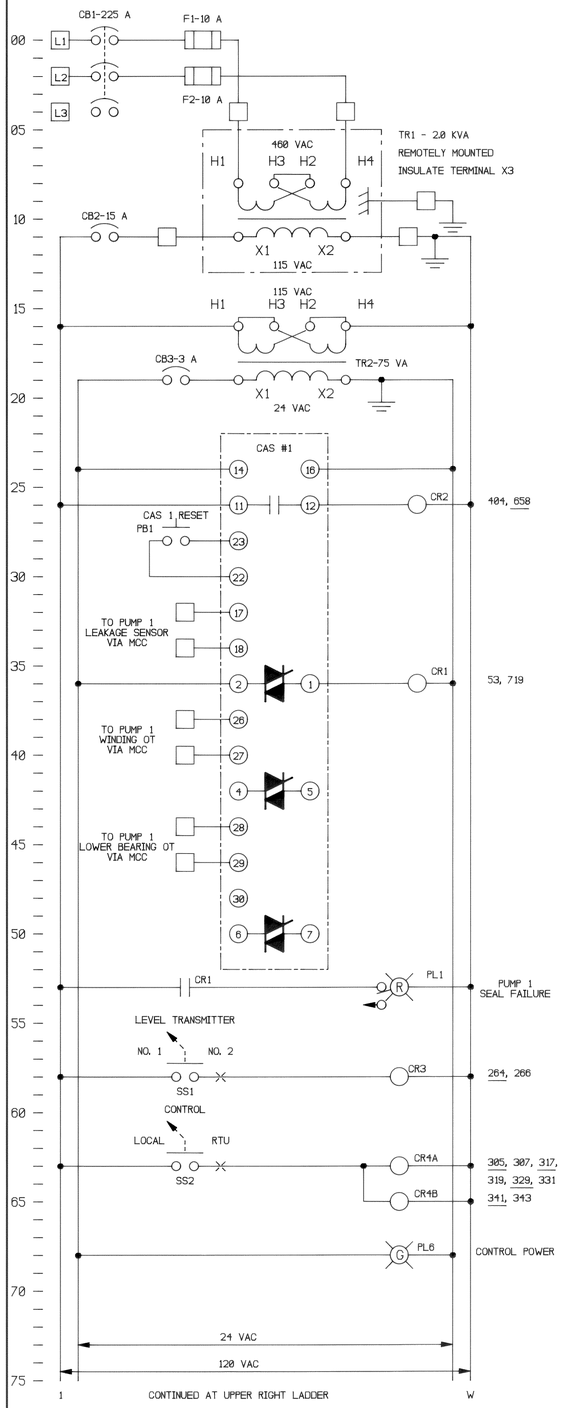
09/15/94
9409BE8
E8

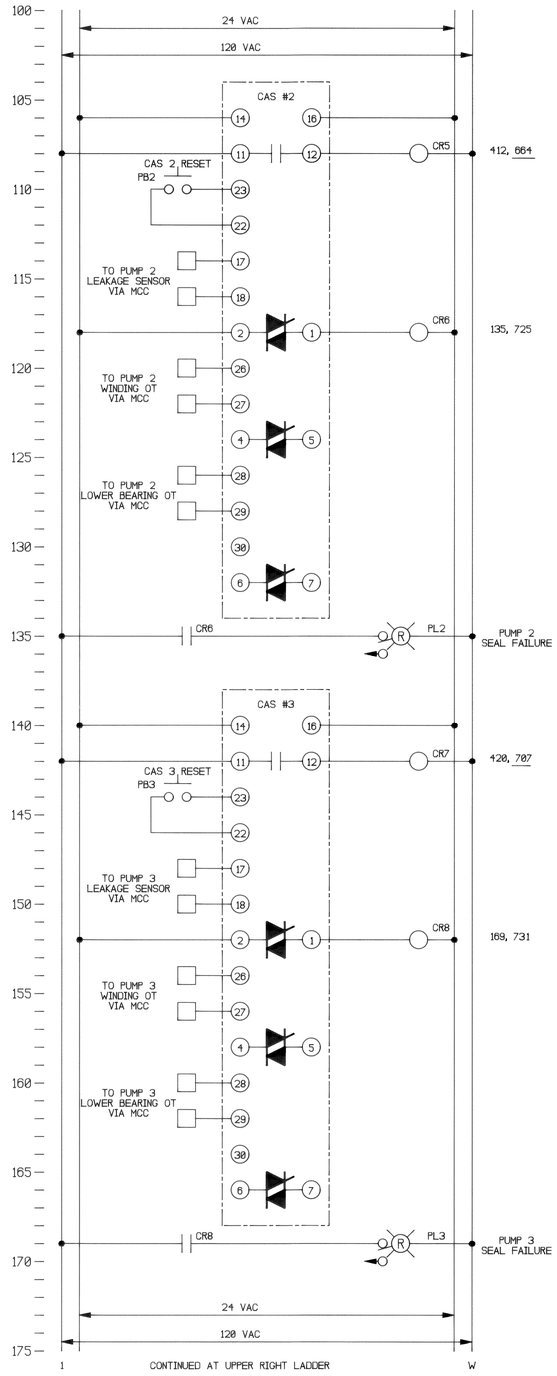
DELAWARE COUNTY, OHIO

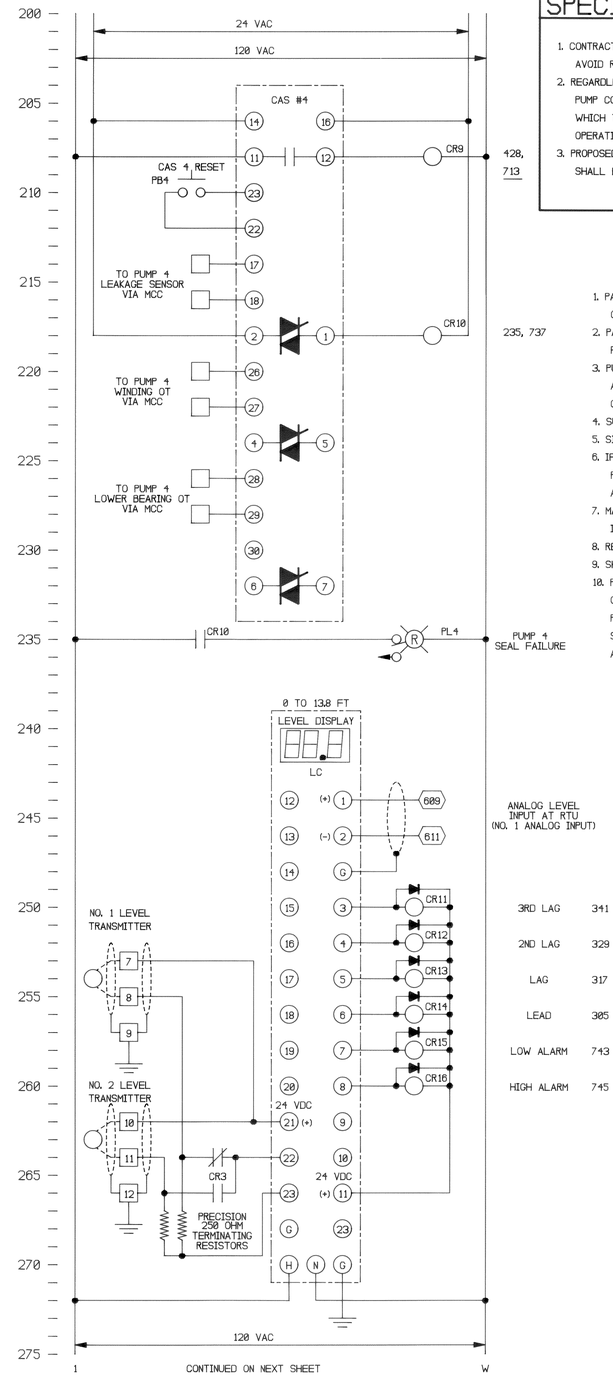
ALUM CREEK PUMPING STATION

ELECTRICAL REVISIONS - 1994

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2030







SPECIAL NOTICE CONCERNING CONTROL PANEL

1. CONTRACTOR AT HIS OPTION MAY SUPPLY AN ENTIRELY NEW PANEL, OR AN ENTIRELY NEW BACK PANEL TO AVOID REBUILDING THE EXISTING PANEL IN THE FIELD. PROPOSED OR MODIFIED PANEL IS CALLED CP-1.
2. REGARDLESS OF HOW CONTRACTOR CHOOSES TO PROVIDE PANEL, STATION MUST BE PROVIDED WITH A TEMPORARY PUMP CONTROL PANEL WHICH WILL CONTROL AT LEAST TWO PUMPS DURING A SHORT PERIOD OF TIME DURING WHICH THE STATION IS NOT FULLY OPERATIONAL. THE NATURE AND DURATION OF THE LESS THAN FULLY OPERATIONAL CONDITION SHALL BE APPROVED BY THE DELAWARE COUNTY SANITARY ENGINEER IN WRITING.
3. PROPOSED TEMPORARY PUMP CONTROL PANEL WIRING DIAGRAM, COMPONENT DESCRIPTION, AND OTHER PARTICULARS SHALL BE SUBMITTED TO OWNER FOR REVIEW AND PERMISSION TO INSTALL.

NOTES

1. PANEL GROUND TERMINAL MUST BE CONNECTED TO MCC EQUIPMENT GROUNDING BUS WITH NEC SIZED CONDUCTOR.
2. PANEL WIRING SHOWN SOLID
   FIELD WIRING SHOWN DOTTED.
3. PUMP MONITORING UNIT (CAS) ALARM INTERLOCK CONTACT (TERMINALS 11 & 12) IS CLOSED WHEN ALL ALARMS ARE IN A SAFE CONDITION. CONTACTS 11 & 12 'OPEN' UPON MALFUNCTION OR ALARM CONDITION.
4. SURGE SUPPRESSOR TO BE CONNECTED TO RTU.
5. SILVER BAND ON DAMPER DIODE SHALL BE CONNECTED TO (+) SUPPLY.
6. IF A FLYGT CAS COMPATIBLE SET OF PUMP SENSORS ARE NOT PROVIDED WITH THE PROPOSED PUMPS, PROVIDE ALTERNATIVE MONITOR SYSTEM PROVIDING THE SAME FUNCTIONS ACCEPTABLE TO OWNER AND ENGINEER.
7. MATERIALS IN EXISTING PUMP 4 CONTROL PANEL MAY BE REUSED IN CONSTRUCTING CONTROL PANEL CP-1 IF IN GOOD CONDITION.
8. RELABEL WIRES, RELAYS, AND OTHER DEVICES TO CONFORM TO CP-1 DRAWINGS OR APPROVED SHOP DRAWINGS.
9. SHOP DRAWINGS SHALL SHOW CONTACT RUNG NUMBER LOCATIONS AND WIRE NUMBERS.
10. PUMP SUPPLIER SHALL FURNISH PUMP MONITOR FOR LEAK, WINDING OVER TEMPERATURE LOWER BEARING OVER TEMPERATURE, AND OTHER CONDITIONS WHICH PUMP MANUFACTURER RECOMMENDS TO BE MONITORED. PUMP SUPPLIER SHALL CONVEY SUCH MONITORS AND APPLICATION DATA TO PANEL BUILDER. PANEL BUILDER SHALL INSTALL THE MONITORS IN THE CONTROL PANEL. PANEL BUILDER SHALL INCLUDE MONITOR APPLICATION DATA IN PANEL O&M MANUALS.

SCHEMATIC WIRING DIAGRAM, CONTROL PANEL CP-1

NOT TO SCALE

STATE OF OHIO
RALPH B. HOFFMAN 37934
REGISTERED PROFESSIONAL ENGINEER
VOID UNLESS SIGNED / DATE

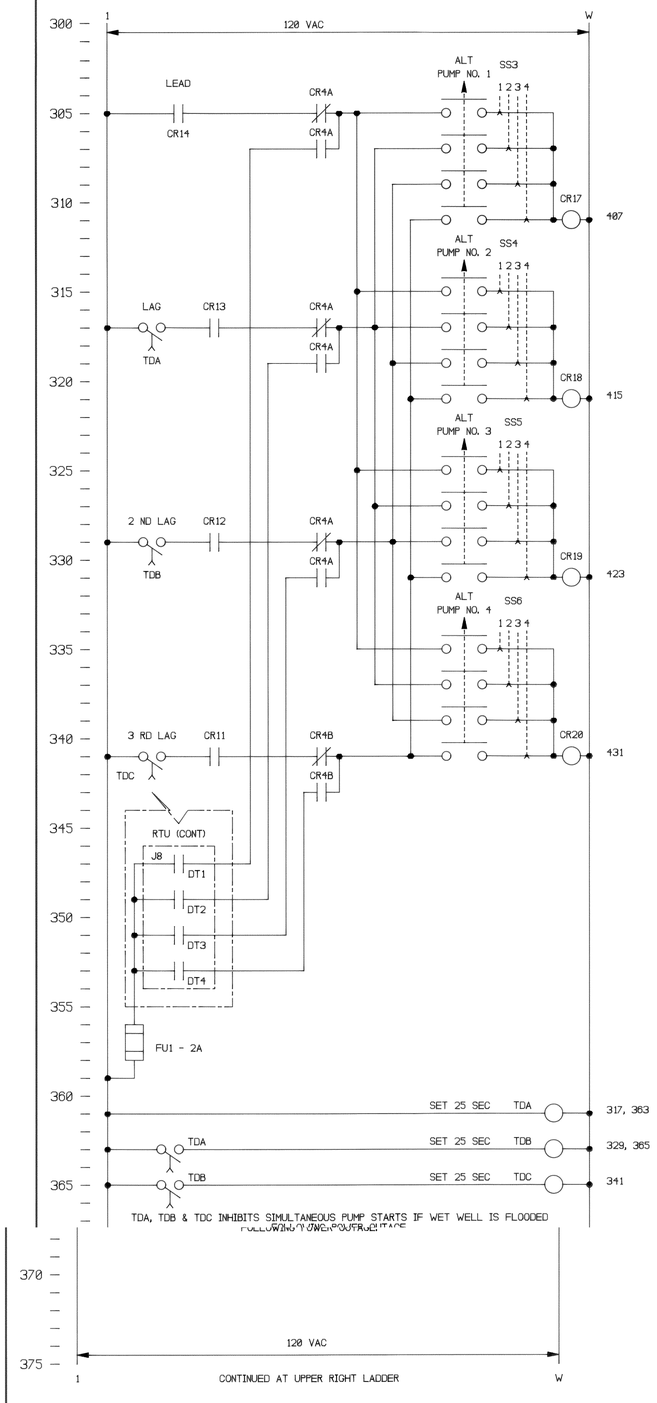
09/15/94
9409DE9
E9

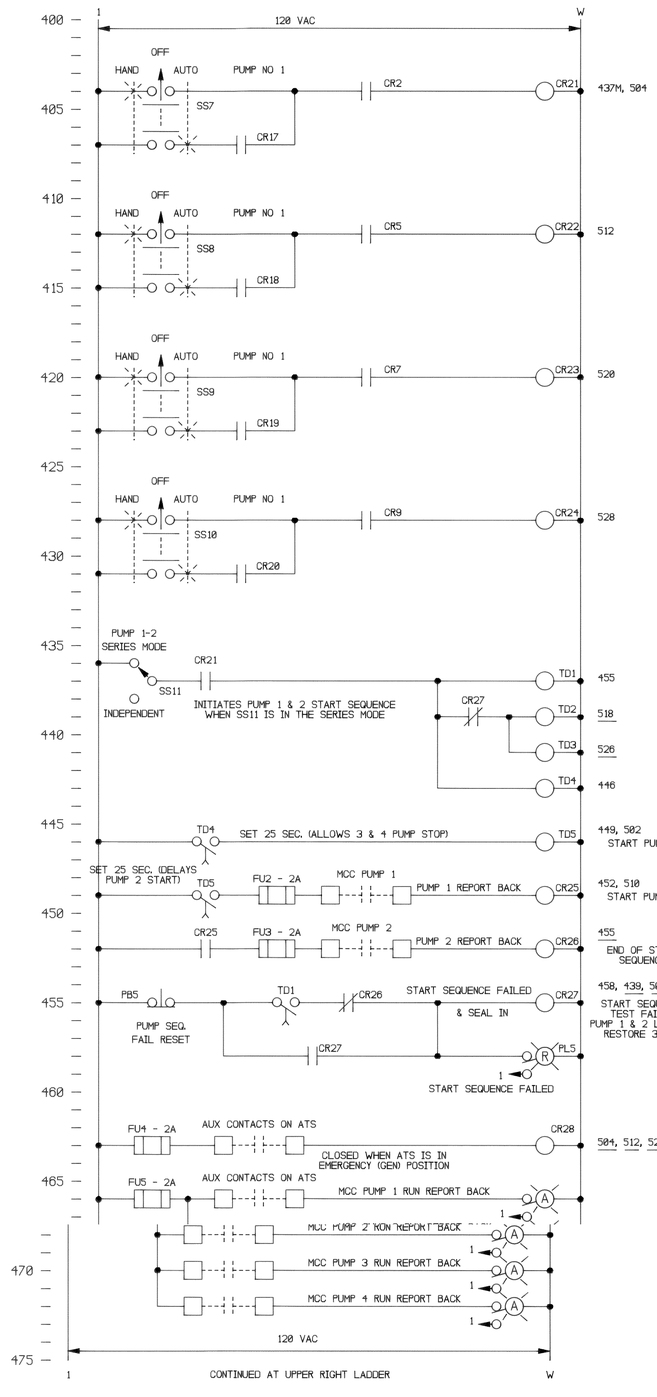
DELAWARE COUNTY, OHIO

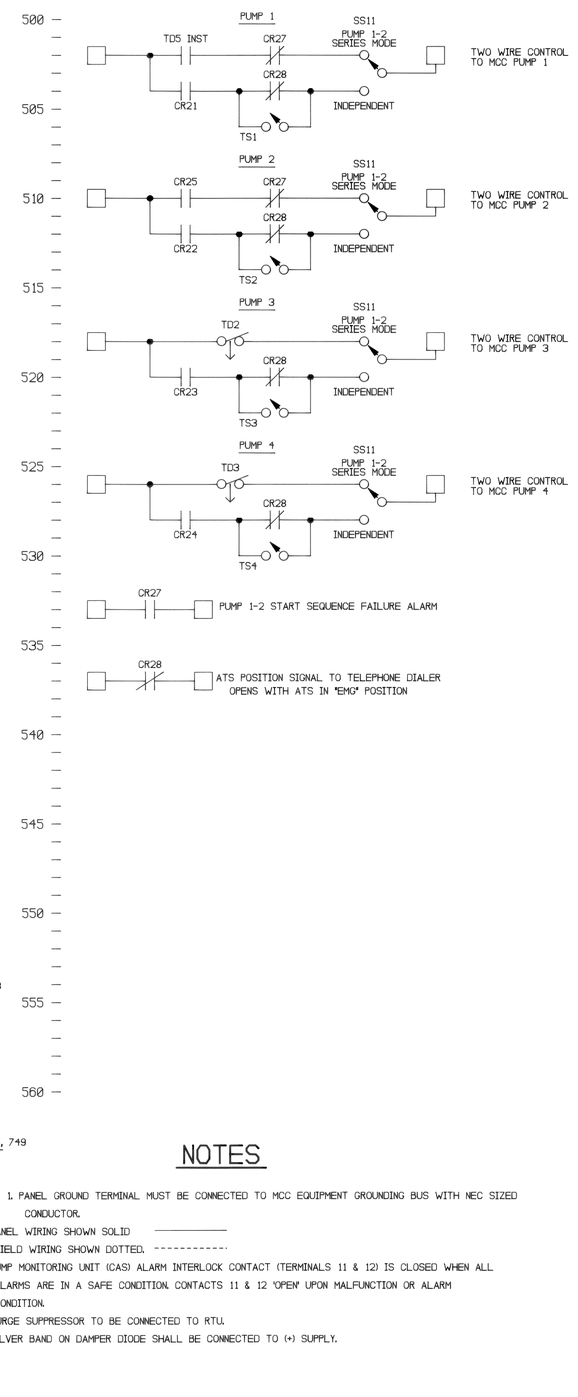
ALUM CREEK PUMPING STATION

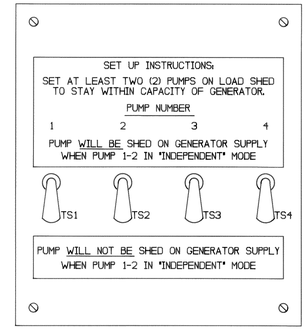
ELECTRICAL REVISIONS - 1994

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2830









1. STAND OFF PANEL MOUNTED ON BACK PANEL.
2. STEEL PANEL, PAINTED WHITE. MOUNT ON STANDOFF STUDS.
3. PROVIDE BLACK LETTER ON WHITE BACKGROUND GRAVOPLY PLATES.

GEN. LOAD SHED SWITCH ELEVATION

NOTES

1. PANEL GROUND TERMINAL MUST BE CONNECTED TO MCC EQUIPMENT GROUNDING BUS WITH NEC SIZED CONDUCTOR.
2. PANEL WIRING SHOWN SOLID ———— FIELD WIRING SHOWN DOTTED. - - - - - - - - - - -
3. PUMP MONITORING UNIT (CAS) ALARM INTERLOCK CONTACT (TERMINALS 11 & 12) IS CLOSED WHEN ALL ALARMS ARE IN A SAFE CONDITION. CONTACTS 11 & 12 'OPEN' UPON MALFUNCTION OR ALARM CONDITION.
4. SURGE SUPPRESSOR TO BE CONNECTED TO RTU.
5. SILVER BAND ON DAMPER DIODE SHALL BE CONNECTED TO (+) SUPPLY.

SCHEMATIC WIRING DIAGRAM, CONTROL PANEL CP-1

NOT TO SCALE

STATE OF OHIO
RALPH B. HOFFMAN
37934
REGISTERED PROFESSIONAL ENGINEER
Ralph B. Hoffman 9/27/94
VOID UNLESS SIGNED / DATE

09/15/94
94098E10

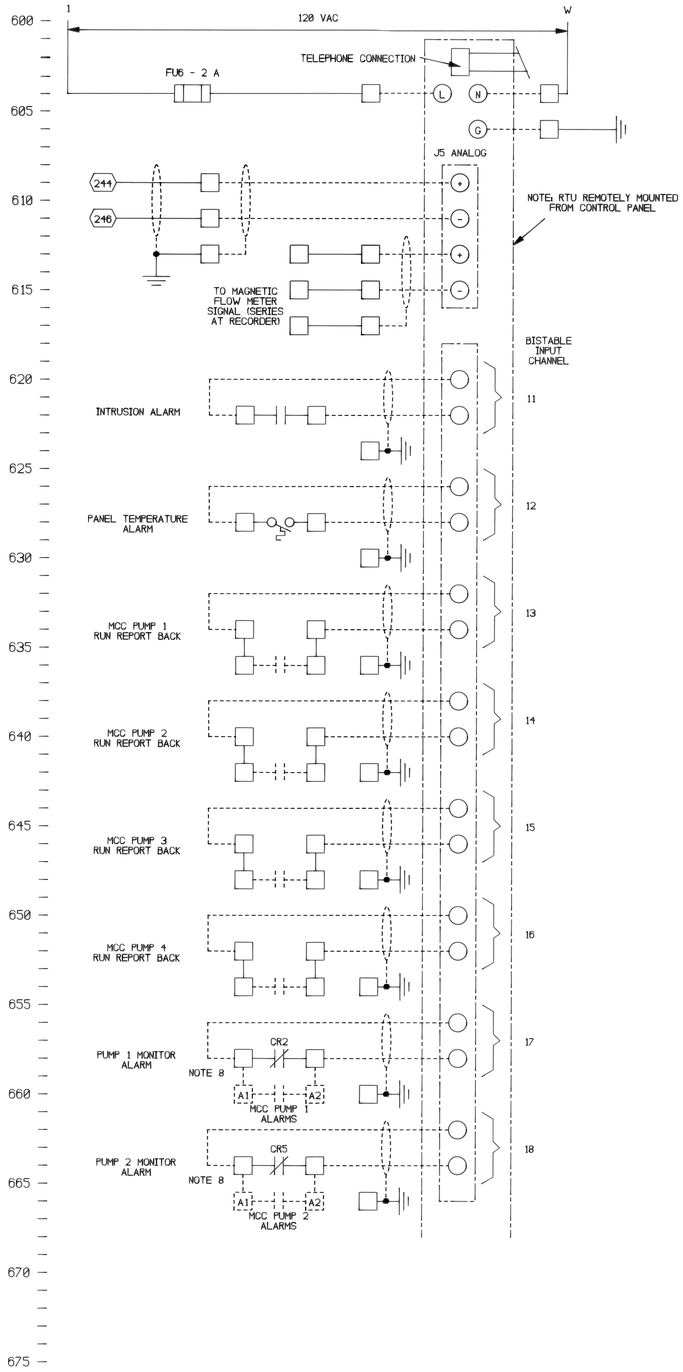
E10

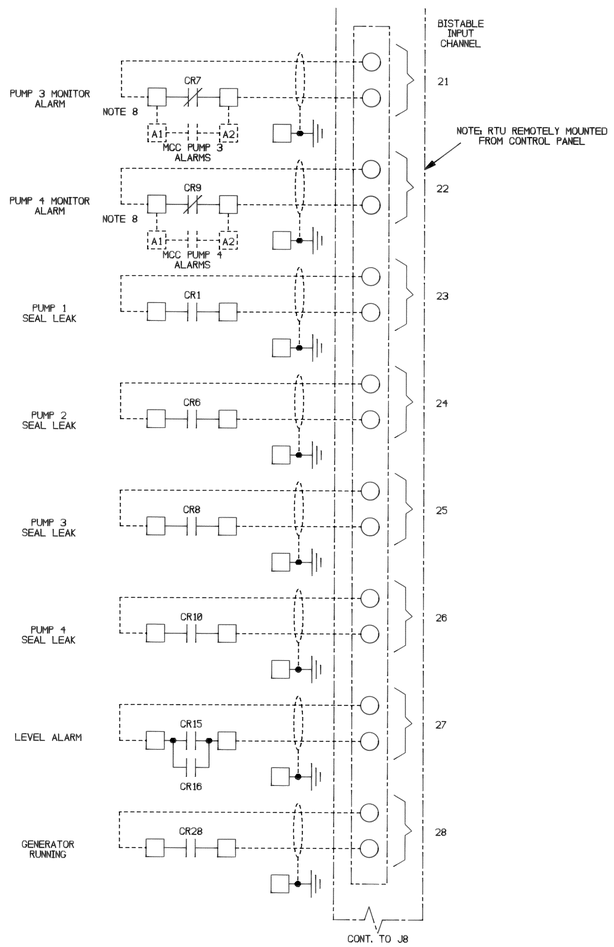
DELAWARE COUNTY, OHIO

ALUM CREEK PUMPING STATION

ELECTRICAL REVISIONS - 1994

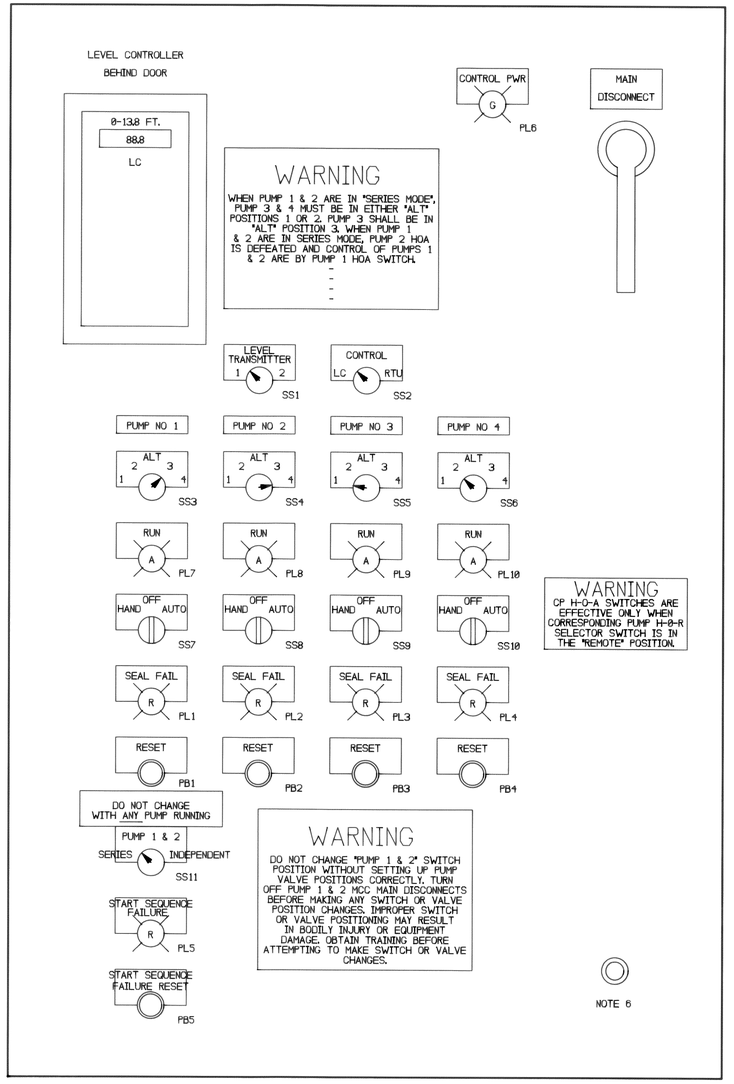
HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2030





NOTES

1. PANEL GROUND TERMINAL MUST BE CONNECTED TO MCC EQUIPMENT GROUNDING BUS WITH NEC SIZED CONDUCTOR.
2. PANEL WIRING SHOWN SOLID ————— FIELD WIRING SHOWN DOTTED. - - - - - - - - - - -
3. PUMP MONITORING UNIT (CAS) ALARM INTERLOCK CONTACT (TERMINALS 11 & 12) IS CLOSED WHEN ALL ALARMS ARE IN A SAFE CONDITION. CONTACTS 11 & 12 'OPEN' UPON MALFUNCTION OR ALARM CONDITION.
4. SURGE SUPPRESSOR TO BE CONNECTED TO RTU.
5. SILVER BAND ON DAMPER DIODE SHALL BE CONNECTED TO (+) SUPPLY.
6. BLANK OL RESET HOLE AND RUNNING PL HOLES WITH A-B 800T-N1
7. REMOVE RUNNING TIME METER. COVER HOLE WITH INSTRUCTION LEGEN.
8. PARALLEL ALARM WIRES FROM MCC WITH WIRES FROM RTU IN CP-1 TERMINAL BLOCK.



CP-1 DOOR ELEVATION

NOT TO SCALE

SCHEMATIC WIRING DIAGRAM, CONTROL PANEL CP-1

NOT TO SCALE

STATE OF OHIO
RALPH B. HOFFMAN
37934
REGISTERED
PROFESSIONAL ENGINEER
Ralph B. Hoffman 9/27/94
VOID UNLESS SIGNED / DATE

09/15/94
9409BE11
E11

DELAWARE COUNTY, OHIO

ALUM CREEK PUMPING STATION

ELECTRICAL REVISIONS - 1994

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2830

ELECTRICAL LEGEND

NOTE: ANY SYMBOL MAY BE MODIFIED BY WP=WEATHER PROOF. ANY SYMBOL USED IN A CLASSIFIED LOCATION SHALL BE MADE NEMA 7 CLASS 1 DIV. 1. GRP. D AND LISTED FOR W.P. USE IF LOCATED OUTDOORS. (ALL SYMBOLS DO NOT NECESSARILY APPLY)

SYMBOL	DESCRIPTION
(A) 1 a	CEILING OUTLET, INCANDESCENT LIGHTING FIXTURE
(A) 1 a	WALL OUTLET, INCANDESCENT LIGHTING FIXTURE NOTE: INSCRIBED LETTER DENOTES FIXTURE TYPE. (SEE FIXTURE SCHEDULE) NUMBER DENOTES CRT. BKR. NO., LOWER CASE LETTER DENOTES CONTROLLING SWITCH.
1 a	CONVENIENCE OUTLET, SINGLE (GFI=GROUND FAULT INTERRUPTER)
1 a	CONVENIENCE OUTLET, DUPLEX (GFI=GROUND FAULT INTERRUPTER) NUMBER DENOTES CB, LOWER CASE LTR. DENOTES CONTROLLING SW. 'T' MEANS MOUNT ABOVE TABLE OR LAB BENCH HEIGHT. COORDINATE HEIGHT WITH OTHER TRADES.
(J)	WIRED JUNCTION BOX
(B)	BLANK OUTLET BOX (MAY HAVE PULLED WIRE FOR FUTURE LOAD)
(C)	CLOCK OUTLET
	SPECIAL OUTLET, AS REQUIRED
	CEILING MOUNTED EXIT LIGHT (WITH ARROWS AS INDICATED) WIRE AHEAD OF AREA LTG. SW.
	WALL MOUNTED EXIT LIGHT (WITH ARROWS AS INDICATED) WIRE AHEAD OF AREA LTG. SW.
(T)	THERMOSTAT
	TELEPHONE OUTLET (T=TABLE HEIGHT, SEE NOTE 1 a)
$ 3,4 a,b,c	SW. LOCATION 3=THREE WAY, 4=FOUR WAY, ETC. a,b,c, ETC. CORRESPONDS TO CONTROLLED OUTLETS
$ M	MANUAL MOTOR STARTER (MP=WITH PILOT LIGHT)
$ K,P	SWITCH LOCATION K=KEY OPERATED, P=PILOT LIGHT 3,4 & a,b,c ETC. AS ABOVE
	ELECTRIC PANEL SURFACE MOUNTED / FLUSH MOUNTED
N	NON-FUSED SAFETY DISCONNECT SW. INDOOR=NEMA 1, OUTDOOR=NEMA 4X, HORSEPOWER, VOLTAGE & NO. POLES RATED FOR LOAD CONCERNED, HEAVY DUTY (SEE BELOW FOR RATING CONVENTION)
F	FUSED SAFETY SWITCH. INDOOR=NEMA 1. OUTDOOR=NEMA 4X. NEMA HEAVY DUTY. NO. OF FUSES — 3 — 20/30 — FUSE RATING (XX=NON FUSED) FUSE CLIPS — S/N — SOLID NEUTRAL
1	SINGLE PHASE MOTOR OUTLET. INCLUDES LIQUID TIGHT FLEXIBLE METAL CONDUIT AND WIRED GROUND. NO. INDICATES MOTOR HORSE-POWER.
5	POLYPHASE MOTOR OUTLET. INCLUDES LIQUUID TIGHT FLEXIBLE METAL CONDUIT AND WIRED GROUND. NO. INDICATES MOTOR HORSE-POWER.
A 1 a	CEILING OUTLET. FLEX. FLUORESCENT LIGHTING FIXTURE. INSCRIBED LETTER DENOTES FIXTURE TYPE. NUMBER DENOTES CRT. BKR. LOWER CASE LETTER DENOTES CONTROLLING SWITCH.
	CONTROL STATION. NEMA HEAVY DUTY. NEMA 4/13 ENCLOSURE.
	DUAL HEAD BATTERY POWERED EMERGENCY EGRESS LTG. WITH INTEGRAL CHARGER,. WIRE AHEAD OF AREA LTG. SW.
	COMBINATION MOTOR STR. NEMA 1 INDOOR NEMA 4X OUTDOORS 2/HV FUSES, CPT, ILV FUSE, 120 CONTROL, PUSH TO TEST TRANSFORMER, AMBER P.L., OTHER CONTROL DEVICES BY NOTE.

SYMBOL	DESCRIPTION
———	CONDUIT, EXPOSED
- - - - -	CONDUIT IN SLAB, WALLS, OR UNDERGROUND (MAY ALSO INDICATE HIDDEN IN VIEW SHOWN - SUCH AS IN ROOM BELOW)
——o	CONDUIT TURNED DOWN
o——	CONDUIT TURNED UP

ELECTRICAL ABBREVIATIONS

TBD	TO BE DETERMINED AT A LATER DATE WHEN MISSING INFORMATION BECOMES AVAILABLE.
PROVIDE	FURNISH AND INSTALL ALL MATERIAL AND LABOR.
FURNISH	SUPPLY EQUIPMENT, INSTALLATION BY OTHERS
INSTALL	INSTALL AND/OR CONNECT EQUIPMENT FURNISHED BY OTHERS.
WP	WEATHER PROOF
EXP	EXPLOSION PROOF (CLASS, DIV, GRP. CORROSION RESISTANCE, WEATHER RESISTANCE PER LOCATION INVOLVED.)
F	FUSED (APPLIED TO SWITCHES, COMBINATION STARTERS, ETC.)
NF	NON-FUSED (AS APPLIED TO SWITCHES, COMBO. STARTERS, ETC.)
C	CONDUIT, THREADED, GALVANIZED RIGID METAL UNLESS FURTHER MODIFIED. SEE SPECIFICATIONS FOR OTHER PERMITTED ALTERNATIVES UNDER SPECIFIED CONDITIONS.
J OR JB	JUNCTION BOX
LP	LIGHTING PANEL OR PANEL BOARD
PP	POWER PANEL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINAL GRADE
BFG	BELOW FINAL GRADE
GRD OR GND	GROUND (ELECTRICAL SENSE - AS IN ROD, EQUIP. GRD., NEC 250)
REQ'D	REQUIRED BY APPLICATION, CODE, GOOD ENGINEERING PRACTICE
HP	HORSE POWER
DS OR DCS	DISCONNECT SWITCH
PB	PULL BOX
CB	THERMAL-MAGNETIC TRIP CIRCUIT BREAKER (IT = WITH INTERCHANGABLE TRIP UNIT)
W/	WITH THE FOLLOWING FEATURE/…
FLEX	FLEXIBLE METAL CONDUIT
LTFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
LTG	LIGHT OR LIGHTING
MCC	MOTOR CONTROL CENTER
CP	CONTROL PANEL (MAY BE FURTHER IDENTIFIED W/NUMBER)
PS	PRESSURE SWITCH
FS	FLOAT SWITCH
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VM	VOLT METER
AM	AMMETER
VS	VOLTMETER SELECTOR SWITCH
AS	AMMETER SELECTOR SWITCH
GFI	PERSONNEL PROTECTIVE GROUND FAULT CIRCUIT-INTERRUPTER
GFE	GROUND FAULT PROTECTION OF EQUIPMENT
CT	CURRENT TRANSFORMER
PT	POTENTIAL TRANSFORMER
CU	COPPER
USE	UNDERGROUND SERVICE ENTRANCE CABLE
UF	UNDERGROUND FEEDER CABLE
AIC	AMPERE INTERRUPTING CAPACITY (SYMMETRICAL)
KAIC	THOUSAND AMPERE INTERRUPTING CAPACITY (SYMMETRICAL)
KW	KILOWATTS
VA	VOLT AMPERES
KVA	KILOVOLT AMPERES
THW, THHN, (ETC.)	WIRE INSULATIONS WITH NEC CHAPTER 3 MEANING
NPC	NAME PLATE CURRENT
FLC	FULL LOAD CURRENT
FLA	FULL LOAD AMPERES
LRC	LOCKED ROTOR CURRENT
LRA	LOCKED ROTOR AMPERES

CONTROL PANEL CP-1

PARTIAL BILL OF MATERIAL, SEE DWGS. AND SPECS. FOR ADDITIONAL REQUIREMENTS

SYMBOL	QTY.	DESCRIPTION OF MATERIAL
□	AS REQ'D	TERMINAL BLOCKS + ACCESSORIES, AB 1492-CA1 + ACCESSORIES
FLYGT	3	FLYGT PROPRIETARY COMBINATION LEAK AND OVERTEMPERATURE
CAS PUMP		PUMP PROTECTIVE MODULE. WIRE FROM DIAGRAM PROVIDED WITH UNIT.
MONITOR		
PB1,2,3,4,5	5	PUSH BUTTON, BLACK, FLUSH HEAD, AB 800T-A2A
SS7,8,9,10	4	SELECTOR SWITCH, H-O-A, 1 NO, 1 NC, AB 800T-J2A
SS11	1	SELECTOR SWITCH, 8 POLE, DOUBLE THROW, POWER RATED, KEY
		OPERATED, ELECTROSWITCH, SERIES 31, ASSEMBLAGE 2, CAT. NO.
		31204B, SET FOR 2 STOPS OR POSITIONS, WITH KEY OPERATED HANDLE
		CAT. NO. 65204B. SWITCH SHALL BE NON-SHORTING, PROVIDE STRAPPING
		LINKS OR STRAPPING JUMPERS AS REQUIRED.
PL1,2,3,4,5	5	PILOT LIGHT, PUSH TO TEST, TRANSFORMER, RED, AB 800T-PT16R
PL6	1	PILOT LIGHT, 24 VAC, GREEN, AB 800T-Q24G
TDA,B,C	3	RELAY, TIME DELAY, DELAY ON ENERGIZING, AB 700-PT200-A1
CR1,6,8,10	4	RELAY, 24 VAC COIL, AB 700-HB33A24, 3PDT
CR3,4A,4B,5,7,9	6	RELAY, 115 VAC COIL, 3PDT, AB 700-HB33A1
FU1,2,3,4,5,6	6	FUSE & FUSE BLOCK. FUSE BUS FNM-2A, MARATHON 6M30A1SPQ
TD1,2,3,4,5	5	RELAY, TIME DELAY, DELAY ON ENERGIZING, AB 700-PT200-A1
TS1,2,3,4	4	SWITCH, TOGGLE, 15 A, 125 VAC, 1/2 HP, HONEYWELL 11TS15-2.
		APPLY RING TERMINALS TO SWITCH SCREWS.
CR25,26,27,28	4	RELAY, INDUSTRIAL, 120 VAC COIL, AB-700-PXXX-A1. SELECT CONTACTS
		REQUIRED BY APPLICATION. ADHERE TO BALANCE OR DUMMY CARTRIDGE
		REQUIREMENTS OF MANUFACTURER.
PL7,8,9,10	4	PILOT LIGHT, PUSH TO TEST, TRANSFORMER, AMBER, AB 800T-PT16A
B1	1	CLOSING BUTTON, A-B 800T-N1
TR1	1	TRANSFORMER, STABILIER, 2000 VA, 480 VAC INPUT, 120 VAC OUTPUT,
		60 HERTZ, FILTERED, GE 9T91B4184. REMOTELY MOUNTED.
F1,2	2	FUSE & FUSE BLOCK. FUSE BUS FRS-R-10, MARATHON 6F30A3B

THIS MATERIAL LIST BASED UPON REUSE OF EXISTING PANEL COMPONENTS. ADDITIONAL MATERIALS ARE REQUIRED IF CONTRACTOR CHOOSES TO PROVIDE ENTIRELY NEW PANEL.

SEE SECTION 16910 FOR OTHER STANDARD SPECIFICATIONS
FOR PILOT LIGHTS, SELECTOR SWITCHES, AND SIMILAR MATERIALS.

NOTES

1. PANEL BUILDER MAY REUSE EXISTING PANEL COMPONENTS WHERE THEY ARE IN GOOD CONDITION AND APPROPRIATELY RATED FOR CURRENT APPLICATION. EXISTING COMPONENTS ARE NOT ENTERED IN ABOVE PARTIAL MATERIAL LIST. SEE SHEET E8 FOR EXISTING PANEL MATERIALS.
2. PUMP MOTOR PROTECTIVE MONITOR FURNISHED BY PUMP SUPPLIER, INSTALLED IN CP-1 BY PANEL BUILDER. ALERT PUMP SUPPLIER TO THIS REQUIREMENT.

STATE OF OHIO
RALPH B. HOFFMAN
37934
REGISTERED
PROFESSIONAL ENGINEER
Ralph B. Hoffman 9/27/94
VOID UNLESS SIGNED / DATE

09/15/94
9409BE12
E12

DELAWARE COUNTY, OHIO

ALUM CREEK PUMPING STATION

ELECTRICAL REVISIONS - 1994

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2030

WIRE REF. NUMBER	FUNCTION / DESCRIPTION	FROM: TERMINAL EQUIP. NAME OR DESIGNATION	FROM: TERMINAL BOARD NUMBER	FROM: TERMINAL NUMBER	WIRE NUMBER OR DESIGNATION	TO: TERMINAL EQUIP. NAME OR DESIGNATION	TO: TERMINAL BOARD NUMBER	TO: TERMINAL NUMBER	WIRE GAUGE, CABLE TYPE, OR SIMILIAR INFORMATION	CONDUIT REFERENCE	REMARKS OR CLARIFICATION	CHECK 1	CHECK 2
001	LEAKAGE SENSOR	MCC	PUMP 1			CP-1							
002	LEAKAGE SENSOR												
003	WINDING OT SENSOR												
004	WINDING OT SENSOR												
005	LOWER BEARING OT SENSOR												
006	LOWER BEARING OT SENSOR												
007	RUN REPORT BACK CP1 PL												
008	RUN REPORT BACK CP1 PL												
009	2 WIRE CONTROL												
010	2 WIRE CONTROL												
011	CB & OL TRIP ALARM												
012	CB & OL TRIP ALARM												
013	RUN REPORT/SEQUENCE												
014	RUN REPORT/SEQUENCE												
015	RUN REPORT BACK T/M					T/M UNIT					ROUTE VIA CP-1		
016	RUN REPORT BACK T/M												
017													
018													
019													
020	LEAKAGE SENSOR	MCC	PUMP 2			CP-1							
021	LEAKAGE SENSOR												
022	WINDING OT SENSOR												
023	WINDING OT SENSOR												
024	LOWER BEARING OT SENSOR												
025	LOWER BEARING OT SENSOR												
026	RUN REPORT BACK CP1 PL												
027	RUN REPORT BACK CP1 PL												
028	2 WIRE CONTROL												
029	2 WIRE CONTROL												
030	CB & OL TRIP ALARM												
031	CB & OL TRIP ALARM												
032	RUN REPORT/SEQUENCE												
033	RUN REPORT/SEQUENCE												
034	RUN REPORT BACK T/M					T/M UNIT					ROUTE VIA CP-1		
035	RUN REPORT BACK T/M												
036													
037													
038													
039													
040	LEAKAGE SENSOR	MCC	PUMP 3			CP-1							
041	LEAKAGE SENSOR												
042	WINDING OT SENSOR												
043	WINDING OT SENSOR												
044	LOWER BEARING OT SENSOR												
045	LOWER BEARING OT SENSOR												
046	RUN REPORT BACK CP1 PL												
047	RUN REPORT BACK CP1 PL												
048	2 WIRE CONTROL												
049	2 WIRE CONTROL												
050	CB & OL TRIP ALARM												
051	CB & OL TRIP ALARM												
052	RUN REPORT BACK T/M					T/M UNIT					ROUTE VIA CP-1		
053	RUN REPORT BACK T/M												
054													
055													
056													
057													
058													
059													
060	LEAKAGE SENSOR	MCC	PUMP 4			CP-1							
061	LEAKAGE SENSOR												
062	WINDING OT SENSOR												
063	WINDING OT SENSOR												
064	LOWER BEARING OT SENSOR												
065	LOWER BEARING OT SENSOR												
066	RUN REPORT BACK CP1 PL												
067	RUN REPORT BACK CP1 PL												
068	2 WIRE CONTROL												
069	2 WIRE CONTROL												
070	CB & OL TRIP ALARM												
071	CB & OL TRIP ALARM												
072	RUN REPORT BACK T/M					T/M UNIT					ROUTE VIA CP-1		
073	RUN REPORT BACK T/M												
074													
075													
076	WET WELL LEVEL SENSOR 1	NOTE 4	PT1			CP-1			NOTE 2		NOTE 3		
077	WET WELL LEVEL SENSOR 2	NOTE 4	PT2			CP-1			NOTE 2		NOTE 3		
078	LEVEL CONTROLLER		CP-1			RTU			BELDEN 8719		LEVEL SG. REPEATER		
079	FLOW SIGNAL		RECORDER			RTU			BELDEN 8719		ROUTE VIA CP-1		
080													
081													
082													

WIRE REF. NUMBER	FUNCTION / DESCRIPTION	FROM: TERMINAL EQUIP. NAME OR DESIGNATION	FROM: TERMINAL BOARD NUMBER	FROM: TERMINAL NUMBER	WIRE NUMBER OR DESIGNATION	TO: TERMINAL EQUIP. NAME OR DESIGNATION	TO: TERMINAL BOARD NUMBER	TO: TERMINAL NUMBER	WIRE GAUGE, CABLE TYPE, OR SIMILIAR INFORMATION	CONDUIT REFERENCE	REMARKS OR CLARIFICATION	CHECK 1	CHECK 2
083	PANEL TEMP ALARM	CP1				RTU							
084	PANEL TEMP ALARM												
085	PUMP 1 FAIL												
086	PUMP 1 FAIL												
087	PUMP 2 FAIL												
088	PUMP 2 FAIL												
089	PUMP 3 FAIL												
090	PUMP 3 FAIL												
091	PUMP 4 FAIL												
092	PUMP 4 FAIL												
093	PUMP 1 SEAL LEAK												
094	PUMP 1 SEAL LEAK												
095	PUMP 2 SEAL LEAK												
096	PUMP 2 SEAL LEAK												
097	PUMP 3 SEAL LEAK												
098	PUMP 3 SEAL LEAK												
099	PUMP 4 SEAL LEAK												
100	PUMP 4 SEAL LEAK												
101	LEVEL ALARM												
102	LEVEL ALARM												
103	ATS GEN POSITION					ATS					CLOSED IN "EMG" POSITION		
104	ATS GEN POSITION					ATS					CLOSED IN "EMG" POSITION		
105	PUMP SEQUENCE FAIL					AUTODIALER							
106	PUMP SEQUENCE FAIL					AUTODIALER							
107	T/M POWER					T/M							
108	T/M POWER					T/M							
109													
110													
111													
112	RECORDER-FLOWMETER	RECORDER				FLOWMETER					NOTE 5		
113	RECORDER-FLOWMETER	RECORDER				FLOWMETER					NOTE 5		
114	RECORDER-FLOWMETER	RECORDER				FLOWMETER					NOTE 5		
115	RECORDER-FLOWMETER	RECORDER				FLOWMETER					NOTE 5		
116	RECORDER-FLOWMETER	RECORDER				FLOWMETER					NOTE 5		
117	RECORDER-FLOWMETER	RECORDER				FLOWMETER					NOTE 5		
118	RECORDER-FLOWMETER	RECORDER				FLOWMETER					NOTE 5		
119	RECORDER-FLOWMETER	RECORDER				FLOWMETER					NOTE 5		
120													
121													
122													
123													
124													
125	TELEPHONE PROVISION	TELE. BOARD				T/M UNIT			BELDEN 9566				
126	TELEPHONE PROVISION	T/M UNIT				AUTODIALER			BELDEN 9566				
127													
128													
129													
130													
131													
132													
133													
134													
135													
136													
137													
138													
139													
140													
141													
142													
143													
144													
145													
146													
147													
148													
149													
150													

NOTES

1. THIS IS A PARTIAL LISTING OF WIRES AND CABLES FOR THE ENGINEERS CONVENIENCE. IT DOES NOT INCLUDE POWER CABLES IN GENERAL. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING ALL CABLES REQUIRED BY THE DRAWINGS AND SPECIFICATIONS AND SUPPLYING SAME WITHOUT EXCEPTION OF THE OMISSIONS LISTED.
2. MULTI-CONDUCTOR CABLE
3. EXISTING CABLE OR WIRE, RECONNECT.
4. LEVEL TRANSMITTER/SENSOR EXISTING, AND LOCATED IN WET WELL. RECONNECT.
5. CONTRACTOR SHALL FILL IN WIRE NUMBER OR IDENTIFICATION, TERMINAL BOARD DESIGNATION, TERMINAL NUMBERS, ALL IN ACCORDANCE WITH SPECIFICATION 16013. PROVIDE TO ENGINEER BEFORE APPLICATION FOR FINAL PAYMENT.

ESTIMATED

DELAWARE COUNTY, OHIO

ALUM CREEK PUMPING STATION

ELECTRICAL REVISIONS - 1994

09/15/94
9409DE13

E13

HOFFMAN ENGINEERING CO.
CONSULTING ELECTRICAL & INSTRUMENTATION ENGINEERS
WESTERVILLE, OHIO
TEL: (614) 890-6272, FAX (614) 794-2030