

Ⓚ REMOVE EXISTING SECURITY ALARM PANEL AND ASSOCIATED BATTERY PANEL

FIRE ALARM CONTROL PANEL, SEE SHEET E4 FOR MORE INFORMATION AND CONDUIT AND WIRING REQUIREMENTS

REPLACE EXISTING SCADA PANEL WITH NEW SCADA PANEL, SEE DRAWINGS E30 THROUGH E34. INSTALL AS FAR NORTH AS EXISTING CONDUIT FLOOR PENETRATIONS WILL ALLOW TO MAXIMIZE OFFICE SPACE.

SECURITY PANEL, SEE SECURITY DRAWINGS

NETWORK COMM. ENCLOSURE, SEE SECURITY DRAWINGS

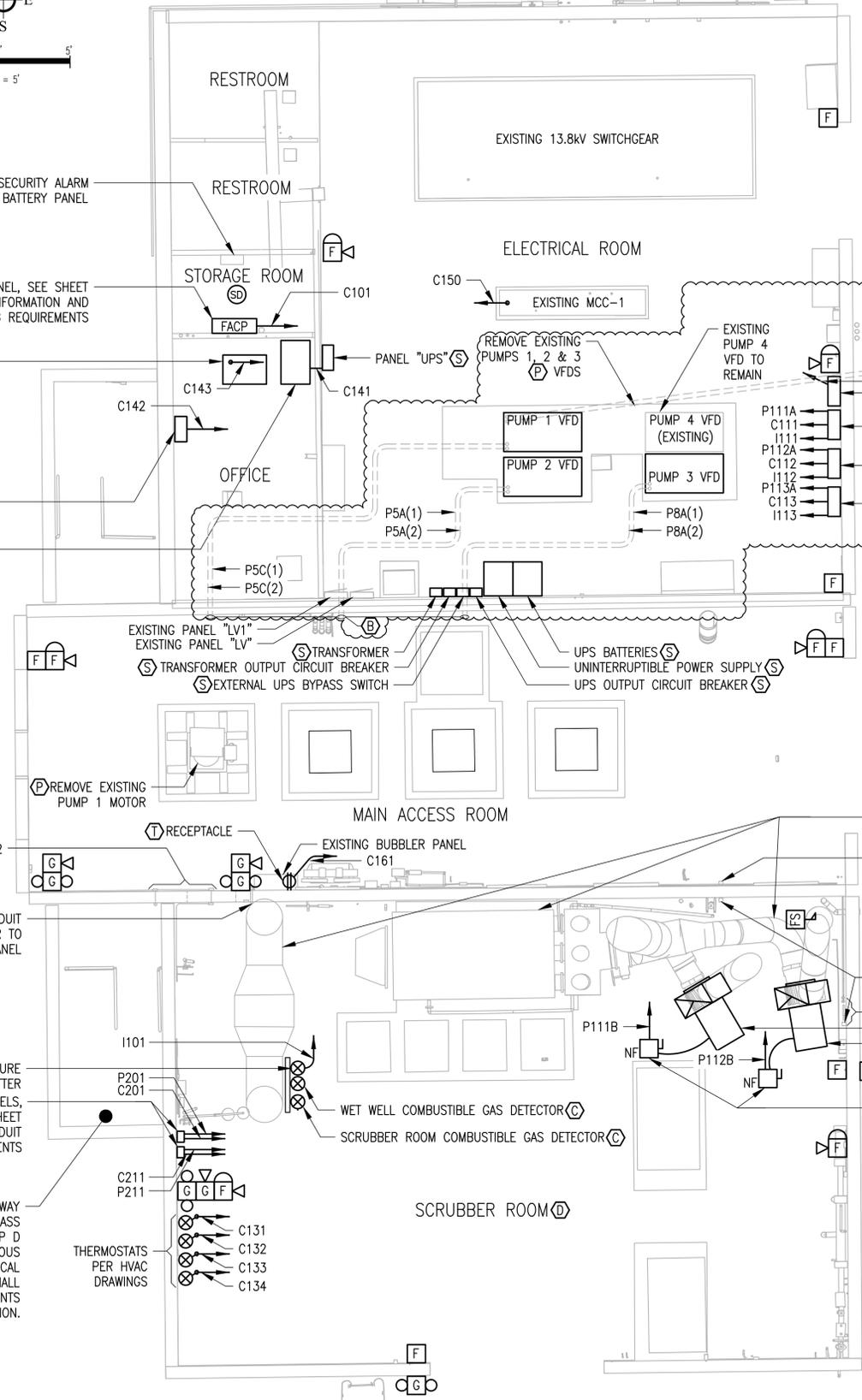
Ⓚ REMOVE EXISTING CONDUIT THROUGH FLOOR TO EXISTING BUBBLER PANEL

Ⓚ REMOVE EXISTING PUMP 1 MOTOR

Ⓚ DIFFERENTIAL PRESSURE TRANSMITTER

Ⓚ MIXER CONTROL PANELS, SEE SHEET E20, SEE SHEET E103 FOR CONDUIT REQUIREMENTS

THE WET WELL AND STAIRWAY TO THE WET WELL ARE CLASS 1, DIVISION 2, GROUP D CLASSIFIED HAZARDOUS AREAS. ALL ELECTRICAL WORK IN THESE AREAS SHALL CONFORM TO REQUIREMENTS FOR THIS CLASSIFICATION.



CONDUIT SCHEDULE - 100 SERIES

NO.	FROM	TO	CONDUIT	WIRE	COMMENT	NO.	FROM	TO	CONDUIT	WIRE	COMMENT
C14A	SCADA PANEL	PUMP 2 VFD	EXISTING	18#14, #14G	DISCRETE PLC INPUTS AND OUTPUTS, #14 ARE SPARE (H)	P5C	PUMP 1 VFD	PUMP 1 MOTOR (B)	EXISTING	3-500MCM, #1G (A)	480 VOLT, 3Ø FEEDER PARALLEL WITH P8C(2)
I1	SCADA PANEL	PUMP 2 VFD	EXISTING	3/4	1 ETHERNET, 2TSP*, #14G SPEED REF. & FEEDBACK	P5C	PUMP 1 VFD	PUMP 1 MOTOR (B)	EXISTING	3-500MCM, #1G (A)	480 VOLT, 3Ø FEEDER PARALLEL WITH P8C(1)
P5A (1)	PUMP 2 VFD	PUMP 2 MOTOR (B)	EXISTING	3	3-500MCM, #1G (A)	C101	EXISTING PANEL "LV-1"	FIRE ALARM CONTROL PANEL	3/4	2#12, #12G	120VAC POWER (E)
P5A (2)	PUMP 2 VFD	PUMP 2 MOTOR (B)	EXISTING	3	3-500MCM, #1G (A)	I101	SCADA PANEL	SCRUBBER DIFFERENTIAL PRESSURE TRANSMITTER	1	1 TSP*, #14G	4-20mA DIFFERENTIAL PRESSURE
C14	SCADA PANEL	PUMP 3 VFD	EXISTING	18#14, #14G	DISCRETE PLC INPUTS AND OUTPUTS, #14 ARE SPARE (H)	P101	EXISTING MCC-1	PANEL "HV"	2-1/2	3#300MCM, #4G	480VAC POWER
I1A	SCADA PANEL	PUMP 3 VFD	EXISTING	3/4	1 ETHERNET, 2TSP*, #14G SPEED REF. & FEEDBACK	C111	SCADA PANEL	EXHAUST FAN 1 CONTROL PANEL	1	14#14, #14G	DISCRETE PLC INPUTS AND OUTPUTS, #14 ARE SPARE (H)
P8A (1)	PUMP 3 VFD	PUMP 3 MOTOR (B)	EXISTING	3	3-500MCM, #1G (A)	I111	SCADA PANEL	EXHAUST FAN 1 CONTROL PANEL	1	1 ETHERNET, 2TSP*, #14G	ETHERNET COMM. & 4-20mA SPEED REF. & FEEDBACK
P8A (2)	PUMP 3 VFD	PUMP 3 MOTOR (B)	EXISTING	3	3-500MCM, #1G (A)	P111A	PANEL "HV"-1,3,5	EXHAUST FAN 1 CONTROL PANEL	1	3#8, #10G	480 VOLT POWER
C14B	SCADA PANEL	PUMP 4 VFD	EXISTING	18#14, #14G	DISCRETE PLC INPUTS AND OUTPUTS, #14 ARE SPARE (H)	P111B	EXHAUST FAN 1 CONTROL PANEL	EXHAUST FAN 1 MOTOR	1	3#8, #10G	480 VOLT POWER
I1B	SCADA PANEL	PUMP 4 VFD	EXISTING	3/4	1 ETHERNET, 2TSP*, #14G SPEED REF. & FEEDBACK	C112	SCADA PANEL	EXHAUST FAN 2 CONTROL PANEL	1	14#14, #14G	DISCRETE PLC INPUTS AND OUTPUTS, #14 ARE SPARE (H)
P5B (1)	PUMP 1 VFD (THIS CONDUIT IS UNDERGROUND AT VFD)	PUMP 1 MOTOR (B)	EXISTING	3	3-500MCM, #2/0G	I112	SCADA PANEL	EXHAUST FAN 2 CONTROL PANEL	1	1 ETHERNET, 2TSP*, #14G	ETHERNET COMM. & 4-20mA SPEED REF. & FEEDBACK
P5B (2)	PUMP 1 VFD (THIS CONDUIT IS UNDERGROUND AT VFD)	PUMP 1 MOTOR (B)	EXISTING	3	3-500MCM, #2/0G	P112A	PANEL "HV"-7,9,11	EXHAUST FAN 2 CONTROL PANEL	1	3#8, #10G	480 VOLT POWER
P111A	EXHAUST FAN 1 CONTROL PANEL	EXHAUST FAN 1 MOTOR	1	3#8, #10G	P112B	EXHAUST FAN 2 CONTROL PANEL	EXHAUST FAN 2 MOTOR	1	3#8, #10G	480 VOLT POWER	
I111	EXHAUST FAN 1 CONTROL PANEL	EXHAUST FAN 1 MOTOR	1	14#14, #14G	C113	SCADA PANEL	EXHAUST FAN 2 CONTROL PANEL	1	14#14, #14G	DISCRETE PLC INPUTS AND OUTPUTS, #14 ARE SPARE (H)	
I112	EXHAUST FAN 2 CONTROL PANEL	EXHAUST FAN 2 MOTOR	1	1 ETHERNET, 2TSP*, #14G	I113	SCADA PANEL	EXHAUST FAN 4 CONTROL PANEL	1	1 ETHERNET, 2TSP*, #14G	ETHERNET COMM. & 4-20mA SPEED REF. & FEEDBACK	
I113	EXHAUST FAN 2 CONTROL PANEL	EXHAUST FAN 2 MOTOR	1	3#8, #10G	P113A	PANEL "HV"-13,15,17	EXHAUST FAN 4 CONTROL PANEL	1	3#12, #12G	480 VOLT POWER	
P101	PANEL "HV"	EXHAUST FAN 4 CONTROL PANEL	1	3#12, #12G	P412	EXHAUST FAN 4 CONTROL PANEL	EXHAUST FAN 4 MOTOR	1	3#12, #12G	480 VOLT POWER	
P111A	EXHAUST FAN 1 CONTROL PANEL	EXHAUST FAN 1 MOTOR	1	3#12, #12G	PC121	MCC-1	EVAPORATIVE COOLER EC-5	1	3#12, #12G	480 VOLT FAN POWER, 120 VOLT PUMP POWER	
I111	EXHAUST FAN 1 CONTROL PANEL	EXHAUST FAN 1 MOTOR	1	3#12, #12G	C131	THERMOSTAT	EVAPORATIVE COOLER EC-5	3/4	2#14, #14G	120 VOLT COOLER PUMP CONTROL	
I112	EXHAUST FAN 2 CONTROL PANEL	EXHAUST FAN 2 MOTOR	1	2#14, #14G	C132	THERMOSTAT	EVAPORATIVE COOLER EC-3E (SHEET E105)	3/4	2#14, #14G	120 VOLT COOLER PUMP CONTROL	
I113	EXHAUST FAN 4 CONTROL PANEL	EXHAUST FAN 4 MOTOR	1	2#14, #14G	C133	THERMOSTAT	EVAPORATIVE COOLER EC-4E (SHEET E105)	3/4	2#14, #14G	120 VOLT COOLER PUMP CONTROL	
P111A	EXHAUST FAN 1 CONTROL PANEL	EXHAUST FAN 1 MOTOR	1	2#14, #14G	C134	THERMOSTAT	EVAPORATIVE COOLER EC-7 (SHEET E105)	3/4	2#14, #14G	120 VOLT COOLER PUMP CONTROL	
I111	EXHAUST FAN 1 CONTROL PANEL	EXHAUST FAN 1 MOTOR	1	2#14, #14G	C141	PANEL "UPS"-1,3	SECURITY NETWORK ENCLOSURE	3/4	3#12, #12G	120 VOLT POWER	
I112	EXHAUST FAN 2 CONTROL PANEL	EXHAUST FAN 2 MOTOR	1	2#12, #12G	C142	PANEL "UPS"-2	SECURITY PANEL	3/4	2#12, #12G	120 VOLT POWER	
I113	EXHAUST FAN 4 CONTROL PANEL	EXHAUST FAN 4 MOTOR	1	2#12, #12G	C143	PANEL "UPS"-8	SECURITY PANEL	3/4	2#12, #12G	120 VOLT POWER	
P111A	EXHAUST FAN 1 CONTROL PANEL	EXHAUST FAN 1 MOTOR	1	10#14, #14G	C144	SCADA PANEL	UNINTERRUPTIBLE POWER SUPPLY	1	10#14, #14G	DISCRETE PLC ALARM INPUTS, #14 ARE SPARE	
I111	EXHAUST FAN 1 CONTROL PANEL	EXHAUST FAN 1 MOTOR	1	1 ETHERNET, #14G	I144	SCADA PANEL	UNINTERRUPTIBLE POWER SUPPLY	1	1 ETHERNET, #14G	COIL 10' CABLE IN SCADA PANEL FOR FUTURE CONNECTION	
I112	EXHAUST FAN 2 CONTROL PANEL	EXHAUST FAN 2 MOTOR	1	72#14, #14G	C150	EXISTING MCC-1	SCADA PANEL	2	72#14, #14G	PLC I/O POINTS (M) 20#14 ARE SPARE	
I113	EXHAUST FAN 4 CONTROL PANEL	EXHAUST FAN 4 MOTOR	1	2#12, #12G	C161	PANEL "UPS"-7	WET WELL ULTRASONIC LEVEL SENSOR	3/4	2#12, #12G	120 VOLT POWER	

C14C	SCADA PANEL	PUMP 1 VFD	EXISTING	18#14, #14G	DISCRETE PLC INPUTS AND OUTPUTS, #14 ARE SPARE (H)
I1C	SCADA PANEL	PUMP 1 VFD	EXISTING	3/4	1 ETHERNET, 2TSP*, #14G SPEED REF. & FEEDBACK

KEYNOTES

- PUMP MOTOR SUPPLY CONDUCTORS SHALL BE A THREE 500MCM COPPER CONDUCTOR VFD CABLE WITH XLPE INSULATION, THREE SYMMETRICAL COPPER GROUND CONDUCTORS AND DUAL COPPER TAPE SHIELD, BELDEN 29535, OR EQUAL. GROUND BOTH ENDS OF TAPE SHIELD. EXTEND EXISTING CONDUITS TO JUNCTION BOX (SEE KEYNOTE B) AS REQUIRED.
- SEE KEYNOTE J ON SHEET E103 FOR SEWAGE PUMP CABLE TERMINATION JUNCTION BOX REQUIREMENTS.
- COMBUSTIBLE GAS DETECTION EQUIPMENT SHALL BE AS SHOWN ON SHEET E4. PROVIDE SUPPORT STAND PER DETAIL 2/E2.
- ALL AREAS WITHIN 3 FEET OF ODOR CONTROL SCRUBBER AND ASSOCIATED DUCTWORK ARE CLASS 1, DIVISION 2, GROUP D CLASSIFIED HAZARDOUS AREAS. ALL ELECTRICAL WORK IN THESE AREAS SHALL CONFORM TO REQUIREMENTS FOR THIS CLASSIFICATION.
- PROVIDE A 20A/1P CIRCUIT BREAKER IN EXISTING PANEL "LV-1" IN SPACE 21 FOR 120VAC POWER TO THE FIRE ALARM CONTROL PANEL.
- REMOVE FOUR EXISTING COMBINATION STARTERS AND ASSOCIATED CONDUIT AND WIRING ON THIS WALL. DELIVER COMBINATION STARTERS TO OWNER.
- MOUNT DISCONNECT SWITCH ON STAND PER DETAIL 2/E2 OUTSIDE OF HAZARDOUS AREA, SEE KEYNOTE D. REMOVE ALL EXISTING WIRING SUPPLYING THE EXHAUST FANS AND THE CONDUIT TO THE CONDUIT STUB-UPS THROUGH FLOOR. PROVIDE HAZARDOUS AREA SEAL WITH PLUG ON THE EMPTY STUB-UPS.
- SEE SCADA PANEL CONFIGURATION DRAWINGS E33 AND E34 FOR PUMP DISCRETE POINTS CONNECTED TO THE PLC. THESE POINTS FOR EACH OF THE THREE SEWAGE PUMPS AND TWO EXHAUST FANS ARE: RUN COMMAND, PUMP IN-REMOTE, PUMP READY, PUMP RUNNING, AND DRIVE FAULT (TWO WIRES FOR EACH POINT).
- DIFFERENTIAL PRESSURE TRANSMITTER, TWO WIRE 4-20mA HART OUTPUT, 0-0.45 PSI RANGE CALIBRATED IN INCHES OF WATER COLUMN, 1/4"NPT PROCESS CONNECTION, LCD DISPLAY, CLASS 1 DIVISION 2 RATED, WITH 316 STAINLESS STEEL FIVE VALVE MANIFOLD, ENDRESS & HAUSER PMD75-RAC7C41BAAA. CONNECT TRANSMITTER TO UPSTREAM AND DOWNSTREAM SIDES OF SCRUBBER FILTER WITH 1/4" 316 STAINLESS STEEL TUBING WITH 0.035 INCH WALL THICKNESS. MOUNT ON RACK WITH GAS DETECTORS, SEE KEYNOTE C.
- PROVIDE AUXILIARY CONTACT IN DISCONNECT SWITCH FOR DISCONNECTION OF 120 VOLT PUMP POWER. SEE SHEET E103 FOR THERMOSTAT.
- FAN MOTOR SUPPLY CONDUCTORS SHALL BE A THREE COPPER CONDUCTOR VFD CABLE WITH XLPE INSULATION, THREE SYMMETRICAL COPPER GROUND CONDUCTORS AND DUAL COPPER TAPE SHIELD, BELDEN 29524C, OR EQUAL. GROUND BOTH ENDS OF TAPE SHIELD.
- THE TWO RECEPTACLES IN THE SCRUBBER ROOM TO BE REMOVED ARE FED FROM THE EXISTING RECEPTACLE IN THE MAIN ACCESS ROOM. REMOVE WIRING FROM THE MAIN ACCESS ROOM RECEPTACLE TO THE TWO SCRUBBER ROOM RECEPTACLES. REMOVE THE TWO SCRUBBER ROOM RECEPTACLES, CHIP OUT THE EXISTING RECESSED BOXES AND FILL VOID SOLID WITH GROUT FLUSH WITH EXISTING WALL. PAINT TO MATCH. SEE DETAIL 5/E2.
- CONDUIT C150 IS FOR PLC DISCRETE I/O POINTS FOR EVAPORATIVE COOLERS 3E, 4E, 5, 6, 7, AND 8, AND EXHAUST FANS 3 AND 4. SEE DISCRETE INPUT AND OUTPUT WIRING DIAGRAMS ON SHEETS E33 AND E34.
- FEED POWER TO NEW EXHAUST FANS 1 AND 2 AS SHOWN. REMOVE EXISTING SUPPLY WIRING AND CONDUIT TO STUB-UPS IN FLOOR, INSTALL HAZARDOUS AREA SEAL ON STUB-UPS AND FILL WITH SEALING COMPOUND.
- INSTALL NEW CABLE AND CONDUIT TO ULTRASONIC LEVEL SENSORS IN WET WELL, SEE KEYNOTE I ON SHEET E103.
- REMOVE EXISTING PUMPS 1,2,3 VFDs, MOTORS AND ALL ASSOCIATED POWER AND CONTROL WIRING TO AND FROM UNITS (EXCEPT REUSE EXISTING LINE SIDE POWER TO VFDs 1 AND 3). DISPOSE OF ITEMS PER PCWRD DIRECTION.
- REMOVE EXISTING SECURITY ALARM PANEL AND ASSOCIATED BATTERY PANEL AND ALL ASSOCIATED POWER AND CONTROL WIRING TO AND FROM UNIT. DISPOSE OF ITEMS PER PCWRD DIRECTION.
- FAN MOTOR SUPPLY CONDUCTORS SHALL BE A THREE COPPER CONDUCTOR VFD CABLE WITH XLPE INSULATION, THREE SYMMETRICAL COPPER GROUND CONDUCTORS AND DUAL COPPER TAPE SHIELD, BELDEN 29522C, OR EQUAL. GROUND BOTH ENDS OF TAPE SHIELD.
- SEE "UNINTERRUPTIBLE POWER SUPPLY SCHEMATIC" ON SHEET E12 FOR EQUIPMENT AND WIRING REQUIREMENTS OF THE UPS SYSTEM.
- PROVIDE A 20A RECEPTACLE IN BUBBLER PANEL FOR REDUNDANT UNINTERRUPTIBLE POWER TO ONE OF THE EXISTING ULTRASONIC LEVEL SENSOR UNITS.
- CONNECT EXISTING VFD 4 TO SCADA PANEL VIA EXISTING CONDUITS C14B AND I1B.

UPPER LEVEL ELECTRICAL POWER PLAN
 SCALE: 1"=5'-0"

7/18/16
 RCE
 APPL'D.

REVISIONS DURING BIDDING
 NO.

DESIGNED BY: R.P.C.
 DRAWN BY: R.P.C.
 CHECKED BY (DESIGN): M.P.L.
 CHECKED BY (FIELD ENG):
 FIELD BOOK NO.:

PIMA COUNTY
 REGIONAL WASTEWATER
 RECLAMATION DEPARTMENT

PIMA COUNTY
 WASTEWATER RECLAMATION

201 North Stone Avenue • Tucson, Arizona 85701-1207 • Phone: (520) 740-6500

CONTINENTAL RANCH
 REGIONAL PUMP STATION
 UPGRADE DESIGN
 UPPER LEVEL ELECTRICAL
 POWER PLAN

R-2014-079
 G-2014-078

Date: SEPT. 8, 2015

HORIZ. : 1" = 5'
 VERT. : N/A

SHEET NO. : E101
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