CITY OF BENTONVILLE, ARKANSAS

BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

MARCH 2025 PROJECT NO. 2021037

Black Hills Energy:
Josh Knight
1301 Federal Way
PO Box 2129
Lowell, AR 72745
(479) 333-7005
Joshua.knight@blackhillscorp.com

AT&T:
Brent Baldwin
1133 E. Harold St.
Fayetteville, AR 72701
(479) 200-9022 or (479) 571-6609
bb585@att.com or
Layne Rhodes,
(479) 442-1977
lr159@att.com

Cox Communications:
Chad Hodge
4901 S. 48th/ Street
Springdale, AR 72762 C
(479) 263-7057
chad.hodge@cox.com and
Timothy Goss
(479) 651-5583
timothy.goss@cox.com

Fire Department:
City of Bentonville
Justin Scantlin, Fire Chief
800 SW A Street
Bentonville, AR 72712
(479) 271-5927 or (479) 685-1096

Street Department:
City of Bentonville
Tony Davis
3200 SW Municipal Drive
Bentonville, AR 72712
(479) 271-3130

Water Department:
City of Bentonville
Beau Thompson
3200 SW Municipal Drive
Bentonville, AR 72712
(479) 271-3140

Electric Department:
City of Bentonville
Charlie Barnes
3200 SW Municipal Drive
Bentonville, AR 72712
(479) 271-3159

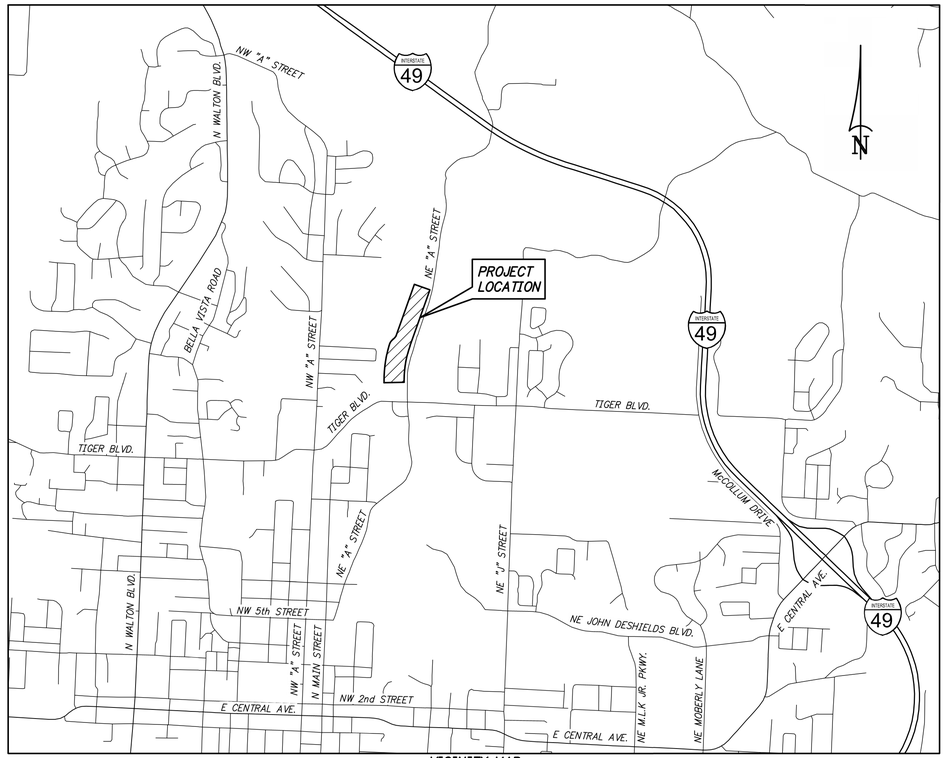
Wastewater Department:
City of Bentonville
Chris Earl
1901 NE A Street
Bentonville, AR 72712
(479) 271-3161

Planning Department:
City of Bentonville
Tyler Overstreet
305 SW A Street
Bentonville, AR 72712
(479) 271-3122

Building and Fire Safety:
City of Bentonville
Brad Arnold
305 SW A Street
Bentonville, AR 72712
(479) 271-3108

City Engineer:
City of Bentonville
Ellen Norvell
3200 SW Municipal Drive
Bentonville, AR 72712
(479) 271-5993

Stormwater:
City of Bentonville
Alison West
3200 SW Municipal Drive
Bentonville, AR 72712
(479) 271-6719
jwest@bentonvillear.com



VICINITY MAP
SCALE: 1"=1500'

VOLUME 4 OF 4

Prepared By:

HAWKINS WEIR ENGINEERS, INC.

Van Buren (479) 474-1227 | Fort Smith (479) 242-4685 | Fayetteville (479) 455-2206 | Little Rock (501) 374-4846

www.hawkins-weir.com

BLACK & VEATCH

CERTIFICATE OF AUTHORIZATION — HAWKINS-WEIR ENGINEERS, INC. No. 101 — ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION — BLACK & VEATCH CORP. No. 381 — ARKANSAS

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 15397 — JOSHUA S. DURHAM — 3/21/25

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 22360 — AMANDA K. JOHNSON — 3/21/2025

BID DRAWINGS
MARCH 21, 2025

811 Know what's below. Call before you dig.

2021037

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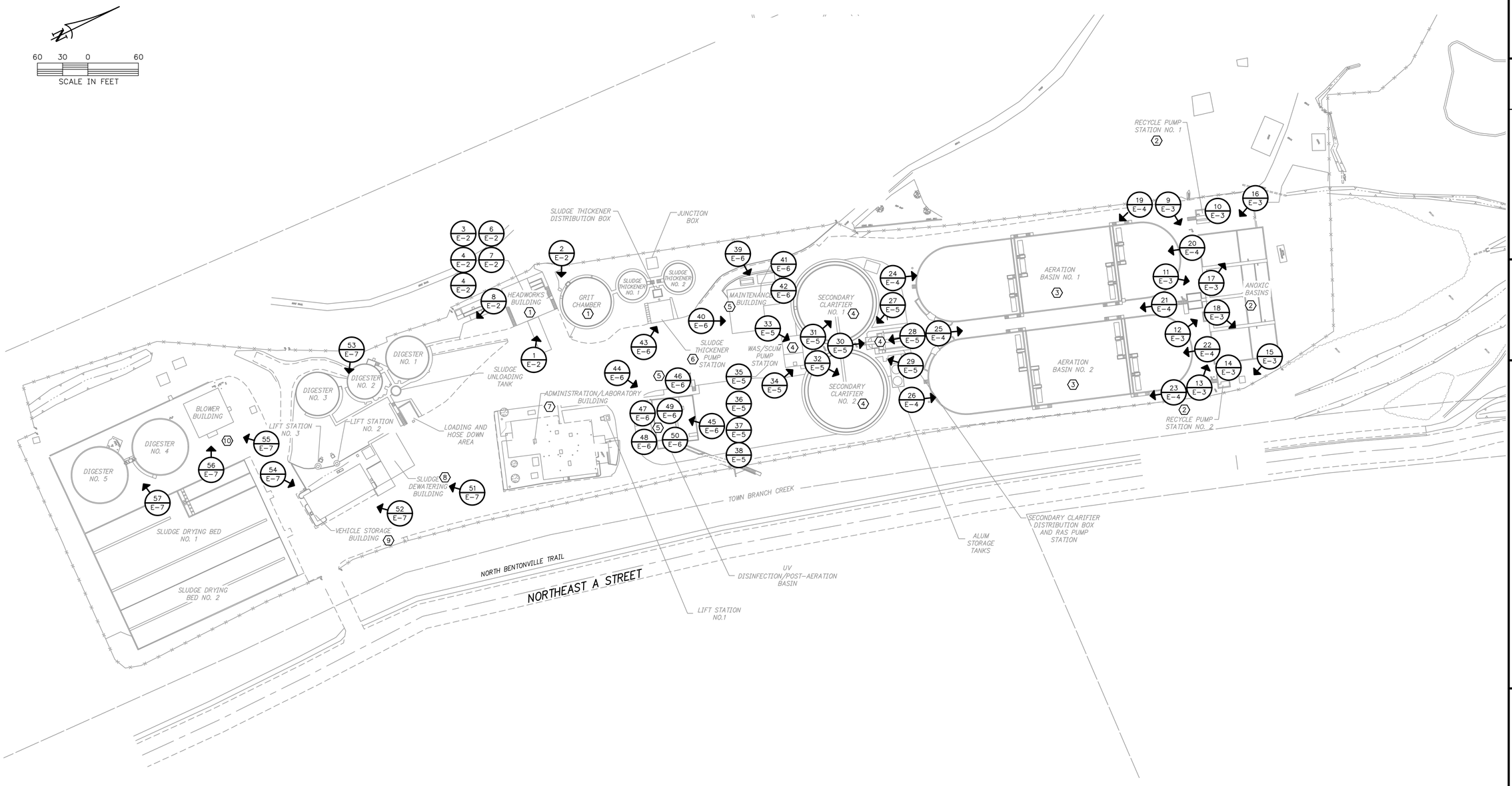
Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\G-01 COVER VOLUME 4.DWG, 3/14/2025 8:36 AM, MATT WEIR, LAYOUT1



KEYED NOTES:

1. *EXISTING HEADWORKS OVERVIEW: THE EXISTING HEADWORKS BUILDING WILL REPURPOSE AFTER COMPLETION OF THE PROPOSED INFLUENT BUILDING. THE CONTRACTOR SHALL RE-FEED THE MOTOR CONTROL CENTER (MCC) ON THE LOWER LEVEL FROM THE EXISTING OPERATIONS BUILDING SWITCHBOARD TO THE PROPOSED EFFLUENT ELECTRICAL BUILDING MCC. THE CONTRACTOR SHALL DEMO ALL BAR SCREEN AND GRIT REMOVAL EQUIPMENT ON THE UPPER LEVEL OF THE HEADWORKS BUILDING, AND DEMO ALL POWER AND CONTROL CIRCUITS BACK TO THE MCC. THE CONTRACTOR SHALL DEMO ALL EQUIPMENT AND CIRCUITS TO THE GRIT CHAMBER. ALL OTHER SUBFEEDS FROM THE MCC TO OTHER STRUCTURES SHALL BE MAINTAINED. ALL INTERIOR LIGHTING AND RECEPTACLES SHALL BE MAINTAINED. EXTERIOR LIGHTING ON THE HEADWORKS BUILDING SHALL BE REPLACED PER PLANS DETAILED ON OTHER SHEETS. SEE SHEET E-2 FOR PHOTOS AND NOTES DETAILING DEMO SCOPE OF WORK.*
2. *EXISTING ANOXIC BASIN OVERVIEW: THE EXISTING ANOXIC BASIN ELECTRICAL SYSTEM OF FLOATING MIXERS, RECYCLE PUMPS, AND ASSOCIATED CONTROL SYSTEM WILL BE REMOVED COMPLETELY. THE WORK WILL BE PHASED IN HALVES, REMOVING THE WEST AND EAST SIDES IN SERIES. THE CONTRACTOR SHALL COORDINATE AND DEMO EQUIPMENT ACCORDING TO THE CONSTRUCTION SCHEDULE. THE ELECTRICAL AND CONTROL EQUIPMENT TO BE REMOVED INCLUDE AN OUTDOOR MOTOR CONTROL CENTER, PLC CONTROL PANEL, SAFETY SWITCHES, CONTROL STATIONS, AND RECYCLE PUMP STATION VFDS. ALL RACEWAY AND WIRING SHALL BE REMOVED TO THE LOADS. UPON COMPLETION OF THE MCC REMOVAL, COORDINATE WITH BENTONVILLE ELECTRIC TO REMOVE THE EXISTING 300KVA PAD MOUNT TRANSFORMER. SEE SHEET E-3 FOR PHOTOS AND NOTES DETAILING DEMO SCOPE OF WORK.*
3. *EXISTING AERATION BASINS OVERVIEW: EIGHT (8) AERATION BASIN ROTORS WILL BE UPGRADED FROM 60HP ELECTRIC MOTORS TO 75HP ELECTRIC MOTORS. THE UPGRADED ROTORS WILL BE POWERED FROM MCC VFDS IN THE PROPOSED INFLUENT ELECTRICAL BUILDING. THE CONTRACTOR SHALL UPGRADE THE ROTORS ONE AT A TIME, REMOVING THE EXISTING JUNCTION BOX, RACEWAY, AND CONDUCTOR SYSTEM BACK TO VFDS LOCATED IN THE EXISTING WAS/SCUM PUMP STATION. EXISTING PROCESS INSTRUMENTATION SHALL ALSO BE REMOVED FROM THE NORTH AND SOUTH AREAS OF EACH AERATION BASIN FOR UPGRADE REPLACEMENTS. SEE SHEET E-4 FOR PHOTOS AND NOTES DETAILING THE DEMO SCOPE OF WORK.*
4. *EXISTING RAS/WAS/SCUM/CLARIFIER OVERVIEW: FOUR (4) EXISTING RAS PUMPS, TWO (2) EXISTING CLARIFIERS, FIVE (5) EXISTING WAS/SCUM PUMPS, AND OTHER MISCELLANEOUS EQUIPMENT WILL BE TRANSITIONED FROM AN EXISTING MCC TO A PROPOSED MCC IN THE WAS/SCUM PUMP BUILDING. THE PROPOSED MCC WILL BE LOCATED IN A ROOM IN THE BUILDING THAT IS BEING VACATED BY AERATION ROTOR VFDS. THE CONTRACTOR SHALL UPGRADE EACH LOAD ONE AT A TIME, REMOVING THE EXISTING JUNCTION BOX, RACEWAY, AND CONDUCTOR SYSTEM BACK TO THE MCC BUCKETS AND VFDS LOCATED IN THE EXISTING WAS/SCUM PUMP STATION. THE WORK WILL INCLUDE CORE DRILLING THROUGH THE PUMP STATION TOP SLAB BENEATH THE PROPOSED MCC, AND CORE DRILLING THROUGH THE PUMP STATION BASEMENT WALLS TO ROUTE RACEWAYS TO THE EXTERIOR LOADS. EXISTING INCOMING FEEDER RACEWAYS AND LOAD RACEWAYS IN THE BASEMENT WALLS SHALL BE REMOVED AND WATERPROOFED. SEE SHEET E-5 FOR PHOTOS AND NOTES DETAILING THE DEMO SCOPE OF WORK.*
5. *EXISTING MAINTENANCE BUILDING AND EFFLUENT AREA OVERVIEW: THE EXISTING MAINTENANCE BUILDING WILL BE DEMOLISHED COMPLETELY, INCLUDING THE FEEDER FROM THE EXISTING OPERATIONS BUILDING SWITCHBOARD. THE EXISTING 150KW STANDBY GENERATOR WILL BE RELOCATED TEMPORARILY TO THE EFFLUENT UV AREA UNTIL THE PROPOSED UV SYSTEM IS OPERATIONAL. THE 150KW STANDBY GENERATOR WILL THEN BE RELOCATED PERMANENTLY TO THE PROPOSED MAINTENANCE BUILDING OFFSITE. THE EXISTING EFFLUENT AREA, INCLUDING A STORAGE BUILDING, UV SYSTEM, POST AERATION BUILDING, AND PROCESS WATER PUMP STATION, WILL BE KEPT ONLINE UNTIL REPLACEMENT PROCESSES ARE BROUGHT ONLINE. ALL EXISTING BUILDINGS SHALL BE COMPLETELY REMOVED AFTER THE WORK IS COMPLETE. SEE SHEET E-6 FOR PHOTOS AND NOTES DETAILING DEMO SCOPE OF WORK.*
6. *EXISTING SLUDGE THICKENER PUMP STATION OVERVIEW: THE EXISTING SLUDGE THICKENER PUMP STATION WILL NOT CHANGE IN FUNCTION, AND WILL CONTINUE TO BE FED FROM AN EXISTING POWER CIRCUIT IN THE EXISTING HEADWORKS MCC. EXISTING EXTERIOR LIGHTS SHALL BE UPGRADED AS SHOWN ON PROJECT PLANS. SEE SHEET E-6 FOR PHOTOS DETAILING THE SCOPE OF WORK.*
7. *EXISTING ADMINISTRATION/LABORATORY BUILDING (OPERATIONS BUILDING) OVERVIEW: THE BUILDING, WHICH PRESENTLY SERVES AS THE LARGEST POWER DISTRIBUTION POINT FOR PLANT PROCESS, WILL SEE THE EXISTING UTILITY TRANSFORMER, SWITCHBOARDS, AND FEEDERS TO OUTLYING BUILDINGS REMOVED. THE BUILDING WILL BE RE-FED FROM THE PROPOSED EFFLUENT ELECTRICAL BUILDING MCC. SEE THE EL SECTION OF PROJECT DRAWINGS FOR PHOTOS AND DETAILS ON THE SCOPE OF WORK.*
8. *THE EXISTING SLUDGE DEWATERING BUILDING WILL BE RE-FED FROM THE EXISTING OPERATIONS BUILDING SWITCHBOARD TO THE PROPOSED EFFLUENT ELECTRICAL BUILDING MCC. EXTERIOR LIGHTING WILL BE UPGRADED ON THE BUILDING. THE BUILDING WILL BE ADDED INTO THE FIBER OPTIC NETWORK WITH THE INSTALLATION OF REMOTE I/O CONTROL PANEL RIO-DWTR AND RACEWAYS/FIBER AS SHOWN ON SHEET I-1. SEE SHEETS E-7 AND E-12 FOR PHOTOS AND NOTES FOR SCOPE OF WORK.*
9. *THE EXISTING VEHICLE STORAGE BUILDING WILL BE RE-FED FROM THE EXISTING OPERATIONS BUILDING SWITCHBOARD TO THE PROPOSED EFFLUENT ELECTRICAL BUILDING MCC. EXTERIOR LIGHTING WILL BE UPGRADED ON THE BUILDING. THE BUILDING WILL BE USED TEMPORARILY FOR LAB FACILITIES WHILE THE ADMIN/LAB BUILDING IS BEING EXPANDED AND RENOVATED. SEE SHEET E-7 FOR PHOTOS AND NOTES FOR SCOPE OF WORK.*
10. *THE EXISTING BLOWER BUILDING EXTERIOR LIGHTING WILL BE UPGRADED. NO OTHER POWER CIRCUIT CHANGES ARE ENVISIONED. THE BUILDING WILL BE ADDED INTO THE FIBER OPTIC NETWORK WITH THE INSTALLATION OF NEW PLC EQUIPMENT PLC-BLR INTO THE EXISTING BLOWER CONTROL PANEL ENCLOSURE, AS SHOWN ON SHEET I-1. SEE SHEET E-7 FOR PHOTOS AND NOTES FOR SCOPE OF WORK.*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
Matthew S. Weir
No. 9586
PROFESSIONAL ENGINEER
L. Scott Hawkins
No. 8511

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EXISTING SITE PLAN AND DEMOLITION NOTES

FOR: BENTONVILLE WASTEWATER UTILITIES

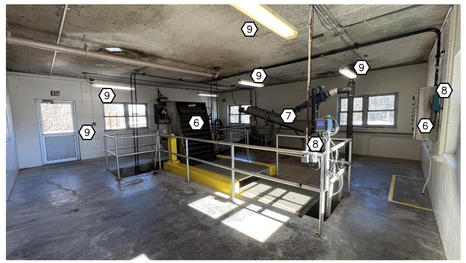
DATE: MARCH 2025
SCALE: 1"=60'
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-01

SHEET NO.
E-1

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-01.DWG, 3/21/2025 8:36 AM, MATT WEIR, LAYOUT1

HEADWORKS EXTERIOR FRONT

PHOTO 1 / E-1



HEADWORKS UPPER LEVEL EQUIPMENT

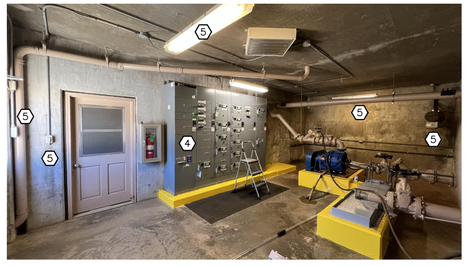
PHOTO 5 / E-1

HEADWORKS GRIT CHAMBER

PHOTO 2 / E-1

HEADWORKS UPPER LEVEL EQUIPMENT

PHOTO 6 / E-1



HEADWORKS LOWER LEVEL INTERIOR

PHOTO 3 / E-1

HEADWORKS UPPER LEVEL EQUIPMENT

PHOTO 7 / E-1

HEADWORKS MCC

PHOTO 4 / E-1

HEADWORKS UPPER LEVEL CHANNEL

PHOTO 8 / E-1

KEYED NOTES:

1. *DEMO EXISTING AREA LIGHTING POLE AND FIXTURE.*
2. *DEMO AND REPLACE FOUR (4) EXISTING EXTERIOR WALL MOUNTED LIGHT FIXTURES PER SCHEDULE THIS SHEET.*
3. *DEMO EXISTING CONTROL PANEL, RACEWAY, CONDUCTORS, SAFETY SWITCHES, AND CONTROL STATIONS MOUNTED ON THE GRIT CHAMBER. REMOVE CIRCUITS BACK TO THE HEADWORKS BUILDING MCC.*
4. *MAINTAIN THE EXISTING MCC LOCATED IN THE LOWER LEVEL OF THE EXISTING HEADWORKS BUILDING. THE MCC SHALL BE RE-FED FROM AN EXTERIOR BUILDING MOUNTED SAFETY SWITCH, OVERHEAD, FROM THE PROPOSED EFFLUENT ELECTRICAL BUILDING MCC.*
5. *MAINTAIN ALL EXISTING MOTOR CIRCUITS, LIGHTING, RECEPTACLES, AND HVAC EQUIPMENT AS-IS FROM THE MCC AND ITS INTEGRATED STEP DOWN TRANSFORMER AND PANELBOARD.*
6. *DEMO THE BAR SCREEN CONTROL PANEL, BAR SCREEN EQUIPMENT, RACEWAYS, CONDUCTORS, AND FEEDER TO THE MCC.*
7. *DEMO THE GRIT CONTROL PANEL, GRIT EQUIPMENT, RACEWAYS, CONDUCTORS, AND FEEDER TO THE MCC.*
8. *DEMO EXISTING INSTRUMENTATION CONTROL AND POWER CONDUCTORS AND RACEWAYS TO THE MCC SOURCE.*
9. *MAINTAIN ALL EXISTING UPPER LEVEL INTERIOR LIGHTING, RECEPTACLES, AND HVAC EQUIPMENT AS-IS FROM THE MCC AND ITS INTEGRATED STEP DOWN TRANSFORMER AND PANELBOARD*
10. *DEMO THE INFLUENT CHANNEL AUTO-SAMPLER AND INFLUENT FLOW METERING EQUIPMENT, RACEWAYS, AND CONDUCTORS.*

EXISTING HEADWORKS BUILDING LIGHTING FIXTURE SCHEDULE

FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL#	QTY	TYPE	NOTES
B	120-277	47	LITHONIA WDGE2 LED P4 30K 80CRI TFTM MVOLT SRM DNAXD	4	LED	REPLACE EXISTING WALL-PACKS USING EXISTING BOXES AND WIRING, 8-10' AFF. -

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS MATTHEW WEIR PROFESSIONAL ENGINEER No. 9588 3/21/25 Scott Veatch

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BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EXISTING HEADWORKS AND GRIT REMOVAL PHOTOS AND DEMOLITION NOTES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-02

SHEET NO.
E-2

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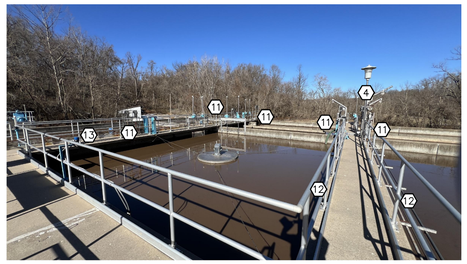
WEST ANOXIC AND RECYCLE PUMP STATION

PHOTO 9 E-1

EAST ANOXIC AND RECYCLE PUMP STATION

PHOTO 13 E-1



WEST ANOXIC BASIN

PHOTO 17 E-1

WEST RECYCLE PUMP STATION

PHOTO 10 E-1

EAST RECYCLE PUMP STATION

PHOTO 14 E-1

EAST ANOXIC BASIN

PHOTO 18 E-1

WEST ANOXIC BASIN

PHOTO 11 E-1

EAST RECYCLE PUMP STATION AND UTILITY TRANSFORMER

PHOTO 15 E-1

EAST ANOXIC BASIN AND MCC

PHOTO 12 E-1

WEST RECYCLE PUMP STATION

PHOTO 16 E-1

KEYED NOTES:

1. *MAINTAIN THE EXISTING NEMA 4XSS JUNCTION BOX IN ITS PRESENT LOCATION FOR RE-USE, DEMO ALL RACEWAYS AND CONDUCTORS ENTERING AND EXITING THE JUNCTION BOX.*
2. *DEMO EXISTING RECYCLE PUMP VFD AND SALVAGE TO THE OWNER.*
3. *DEMO ALL WALL-MOUNTED RACEWAYS AND CONDUITS UP TO THE SAFETY SWITCHES AND CONTROL STATIONS ON THE PUMP STATION DECK.*
4. *DEMO THE EXISTING EXTERIOR LIGHT AND SALVAGE TO THE OWNER.*
5. *DEMO RACEWAYS AND CONDUCTORS, RELOCATE THE NEMA 4XSS JUNCTION BOX FOR RE-USE AS SHOWN IN THE EB SHEETS.*
6. *REMOVE THE NEMA 4XSS 30A SAFETY SWITCHES FOR RE-USE WITH THE NEW RECYCLE PUMP EQUIPMENT. DEMO THE NEMA 4XSS CONTROL STATIONS AND START/STOP PUSHBUTTON STATIONS. DEMO THE GLAVANIZED STEEL UNISTRUT RACK.*
7. *AFTER ALL LOADS HAVE BEEN DISCONNECTED AND REMOVED, DEMO THE OUTDOOR MCC, PLC CONTROL PANEL, AND ETHERNET RADIO.*
8. *DEMO ALL WALL MOUNTED RACEWAYS AND CONDUCTORS FROM THE MCC AND PLC TO THE ELECTRICAL LOADS.*
9. *EXISTING BENTONVILLE ELECTRIC JUNCTION BOX TO MAINTAIN AND REWORK FOR PROPOSED PRIMARY ELECTRIC WORK.*
10. *EXISTING 300KVA PAD MOUNT TRANSFORMER TO BE REMOVED BY BENTONVILLE ELECTRIC UPON COMPLETION OF THE EXISTING ANOXIC BASIN ELECTRICAL DEMO.*
11. *REMOVE TEN (10) NEMA 4XSS 30A SAFETY SWITCHES FOR RE-USE IN OTHER PROJECT AREAS AS DIRECTED IN THE PLANS. REMOVE FOUR (4) NEMA 4XSS JUNCTION BOXES FOR SALVAGE TO THE OWNER. DEMO ALL START/STOP CONTROL STATIONS.*
12. *DEMO ALL RACEWAYS AND CONDUCTORS FROM THE MCC TO EACH OF THE TEN (10) ANOXIC MIXER AND PUMP LOADS. DEMO ALL GALVANIZED STEEL UNISTRUT. THE CONTRACTOR MAY RE-USE ALL NEMA 4XSS UNISTRUT REMOVED FROM THE ANOXIC BASIN.*
13. *DEMO ALL INSTRUMENTATION, RACEWAYS, AND CONDUCTORS TO THE PLC CONTROL PANEL.*

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS — PROFESSIONAL ENGINEER — No. 9598 — 3-21-25

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BENTONVILLE, ARKANSAS

BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EXISTING ANOXIC BASIN PHOTOS AND DEMOLITION NOTES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-03

BID DRAWINGS
MARCH 21, 2025

SHEET NO. E-3

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WEST DRIVE AERATION BASIN NO. 1

PHOTO 19 E-1

EAST DRIVE AERATION BASIN NO. 2

PHOTO 23 E-1

NORTH DRIVE AERATION BASIN NO. 1

PHOTO 20 E-1

SOUTH DRIVE AERATION BASIN NO. 1

PHOTO 24 E-1

MIDDLE DRIVE AERATION BASINS

PHOTO 21 E-1

MIDDLE DRIVE AERATION BASINS

PHOTO 25 E-1

NORTH DRIVE AERATION BASIN NO. 2

PHOTO 22 E-1

SOUTH DRIVE AERATION BASIN NO. 2

PHOTO 26 E-1

KEYED NOTES:

1. *DEMO EXISTING AERATION ELECTRICAL PER DETAILS AND NOTES AS SHOWN ON SHEET EC-2. DEMO RACEWAY AND CABLES FROM THE EXISTING SAFETY SWITCH, THROUGH JUNCTION BOXES, BACK TO THE WAS/SCUM PUMP STATION VFDS.*
2. *DEMO EXISTING AERATION BASIN INSTRUMENTATION, JUNCTION BOX, RACEWAYS, AND CABLES. THE EQUIPMENT WILL BE REPLACED WITH PROPOSED INSTRUMENTATION CONTROL PANELS INST-ABR1 AND INST-ABR2,*
3. *DEMO AREA LIGHTING POLE, FIXTURES, AND FOUNDATION.*
4. *DEMO JUNCTION BOX, RACEWAYS AND CABLES BETWEEN AERATION BASIN ELECTRICAL LOADS AND THE WAS/SCUM PUMP STATION.*
5. *MAINTAIN THE EXISTING INSTRUMENT SENSOR MOUNTING STRUCTURE FOR REUSE.*
6. *MAINTAIN THE EXISTING PO4P INSTRUMENTATION BUILDINGS AND SENSORS IN PLACE. RECONNECT 120VAC POWER AND INSTRUMENTATION WIRING AS SHOWN ON THE DRAWINGS.*

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS MATTHEW S. WEIR PROFESSIONAL ENGINEER No. 9588 3/21/25 K. Scott Veatch 8511

HAWKINS WEIR ENGINEERS, INC.

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BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EXISTING AERATION BASINS PHOTOS AND DEMOLITION NOTES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-04

SHEET NO. E-4

BID DRAWINGS
MARCH 21, 2025

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WEST SIDE RAS PUMPING

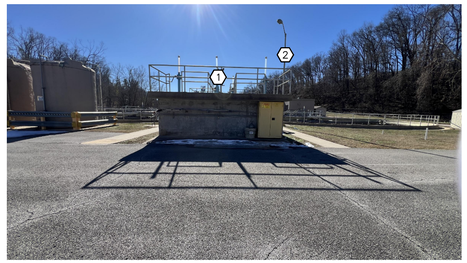
PHOTO 27 E-1

SECONDARY CLARIFIER NO. 1

PHOTO 31 E-1

EXISTING AERATION ROTOR VFD ROOM

PHOTO 35 E-1

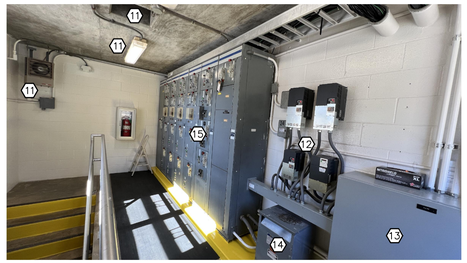


NORTH SIDE RAS PUMPING

PHOTO 28 E-1

SECONDARY CLARIFIER NO. 2

PHOTO 32 E-1



EXISTING WAS/SCUM/AERATOR MCC

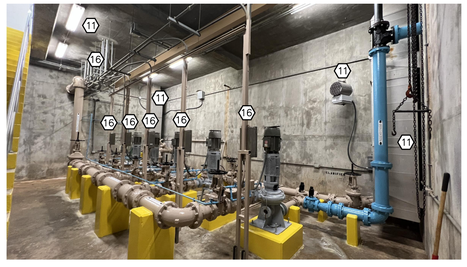
PHOTO 36 E-1

WEST SIDE RAS PUMPING AND CHEMICAL TANKS

PHOTO 29 E-1

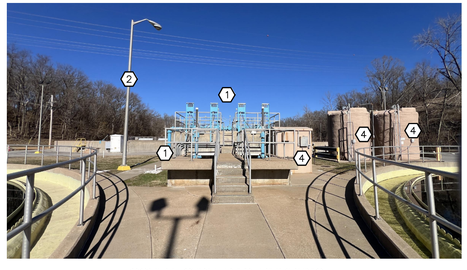
WAS/SCUM PUMP STATION

PHOTO 33 E-1



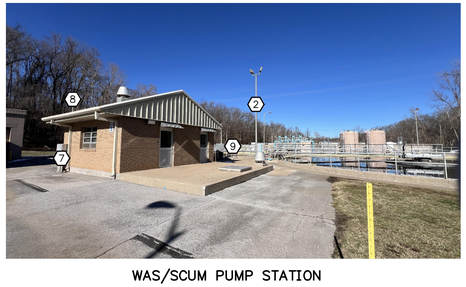
WAS/SCUM PUMP STATION LOWER LEVEL

PHOTO 37 E-1



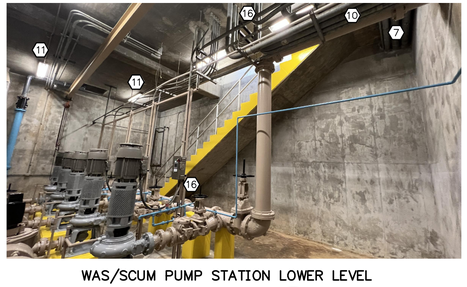
SOUTH SIDE RAS PUMPING

PHOTO 30 E-1



WAS/SCUM PUMP STATION

PHOTO 34 E-1



WAS/SCUM PUMP STATION LOWER LEVEL

PHOTO 38 E-1

KEYED NOTES:

1. MAINTAIN FOUR (4) EXISTING NEMA 4XSS SAFETY SWITCHES AND EQUIPMENT RACKS FOR THE EXISTING RAS PUMPS. REMOVE EXISTING RACEWAY AND CONDUCTORS IN A PHASED SEQUENCE WHILE TRANSITIONING THE PUMPS FROM THE EXISTING TO PROPOSED MCC INSIDE THE WAS/SCUM PUMP STATION.
2. DEMO EXISTING AREA LIGHTING POLE, FIXTURES, AND FOUNDATION.
3. MAINTAIN THE EXISTING RAS PUMP ELECTROMAGNETIC FLOWMETER, DEMO THE EXISTING RACEWAY AND CONDUCTORS IN A PHASED SEQUENCE TO TRANSITION FROM EXISTING PLC-3 TO PROPOSED PLC-WAS.
4. MAINTAIN THE EXISTING CHEMICAL PUMP ENCLOSURE. REMOVE EXISTING RACEWAY AND CONDUCTORS AT THE LOCAL PANELBOARD TO TRANSITION ENCLOSURE POWER FROM THE EXISTING MCC TO PROPOSED MCC-WAS. MAINTAIN RACEWAY AND CONDUCTORS BETWEEN THE CHEMICAL PUMP ENCLOSURE AND THE CHEMICAL TANKS.
5. DEMO THE SECONDARY CLARIFIER NO. 1 CONTROL STATION, RACEWAYS, AND CABLES ACCORDING TO THE PROJECT SCHEDULE. SALVAGE THE NEMA 4XSS 30A SAFETY SWITCH TO RE-INSTALL ON THE NEW CLARIFIER EQUIPMENT. TRANSITION THE CLARIFIER FROM THE EXISTING MCC TO PROPOSED MCC-WAS.
6. DEMO THE SECONDARY CLARIFIER NO. 2 RACEWAYS, AND CABLES AFTER SECONDARY CLARIFIER NO. 1 HAS BEEN COMPLETELY REPLACED. MAINTAIN THE NEMA 4XSS 30A SAFETY SWITCH AND CONTROL STATION IN PLACE. TRANSITION THE CLARIFIER FROM THE EXISTING MCC TO PROPOSED MCC-WAS.
7. DEMO THE WAS/SCUM PUMP STATION POWER FEED JUNCTION BOX, INCOMING RACEWAY AND CONDUCTORS FROM THE OPERATIONS BUILDING, AND OUTGOING RACEWAYS AND CONDUCTORS ENTERING THE PUMP STATION THROUGH THE BASEMENT WALL TO THE EXISTING MCC. CONFER WITH THE ENGINEER DURING DEMOLITION TO DETERMINE THE BEST METHOD FOR SEALING OFF GROUNDWATER ENTRY THROUGH THE WALL PENETRATIONS BEING REMOVED.
8. DEMO THE EXISTING SCADA RADIO AND MAST AFTER PLC-3 IS REMOVED INSIDE THE PUMP STATION.
9. DEMO THE LARGE JUNCTION BOX NEAR SECONDARY CLARIFIER NO. 1 AND ALL RACEWAYS AND CONDUCTORS FROM THE EXISTING MCC ACCORDING TO THE PROJECT SCHEDULE AND PHASING.
10. DEMO EIGHT (8) EXISTING VFD ASSEMBLIES FOR THE AERATION BASIN ROTORS ACCORDING TO THE PROJECT SCHEDULE AND PHASING. SALVAGE THE VFD ASSEMBLIES TO THE OWNER. DEMO ALL RACEWAYS AND CONDUCTORS BETWEEN THE EXISTING MCC AND VFDS. DEMO ALL RACEWAYS AND CONDUCTORS EXITING THE EXISTING MCC OUT THE BASEMENT WALL TO THE SITE RACEWAY SYSTEM. CONFER WITH THE ENGINEER DURING DEMOLITION TO DETERMINE THE BEST METHOD FOR SEALING OFF GROUNDWATER ENTRY THROUGH THE WALL PENETRATIONS BEING REMOVED. AFTER ALL VFDS HAVE BEEN REMOVED, THE ROOM CAN BE PREPARED FOR INSTALLATION OF THE PROPOSED MCC-WAS AND TRANSFER OF ALL OTHER ELECTRICAL LOADS FROM THE EXISTING MCC.
11. EXISTING LIGHTING, RECEPTACLES, HVAC, AND MISCELLANEOUS 120/240 VOLT SINGLE PHASE LOADS WILL BE MAINTAINED AS IS. THE CIRCUITS WILL BE RE-FED FROM PROPOSED MCC-WAS.
12. DEMO FOUR (4) EXISTING WALL-MOUNT VFDS FOR THE EXISTING RAS PUMPS IN SEQUENCE WITH THE PROJECT SCHEDULE. TRANSFER POWER FOR THE RAS PUMPS TO THE PROPOSED MCC-WAS VFDS.
13. DEMO EXISTING PLC-3 ACCORDING TO THE PROJECT PHASING SCHEDULE.
14. DEMO THE EXISTING STEP DOWN TRANSFORMER AND PANELBOARD INSIDE THE EXISTING MCC. TRANSFER ALL 120/240V SINGLE PHASE LOADS TO THE PROPOSED MCC-WAS.
15. DEMO THE EXISTING MCC AFTER ALL LOADS HAVE BEEN TRANSFERRED TO PROPOSED MCC-WAS.
16. MAINTAIN THE EXISTING RACK STRUCTURE FOR THE FIVE (5) BASEMENT WAS PUMPS. MAINTAIN THE EXISTING NEMA 4XSS 30A SAFETY SWITCHES AND WIRING BETWEEN THE SAFETY SWITCHES AND PUMP MOTORS/SOLENOID VALVES. COORDINATE TRANSFERRING THE PUMPS WITH THE ENGINEER FROM THE EXISTING MCC TO PROPOSED MCC-WAS AND THE PROPOSED SCADA SYSTEM. DEMO RACEWAY AND CONDUCTORS FROM THE SAFETY SWITCHES TO THE EXISTING MCC. CORE DRILL RACEWAYS THROUGH THE SLAB, AND ROUTE TO THE SAFETY SWITCHES VIA THE EXISTING RACK STRUCTURE. DEMO ALL START/STOP PUSHBUTTON STATIONS AT EACH PUMP AND PLUG RACEWAY HOLES INTO THE SAFETY SWITCH.

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS MATTHEW S. WEIR PROFESSIONAL ENGINEER No. 9888 3/21/25 REGISTERED

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EXISTING SLUDGE PUMPING AND CLARIFIERS PHOTOS AND DEMOLITION NOTES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-05

SHEET NO. E-5

BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-05.DWG, 3/21/2025 8:38 AM, MATT WEIR, LAYOUT1

EXISTING MAINTENANCE BUILDING AND GENERATOR

PHOTO 39 E-1

EXISTING SLUDGE THICKENER PUMP STATION

PHOTO 43 E-1

EXISTING UV AREA

PHOTO 47 E-1

EXISTING MAINTENANCE BUILDING

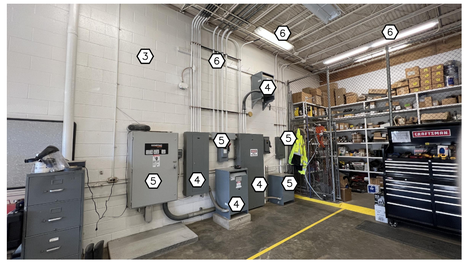
PHOTO 40 E-1

EXISTING STORAGE BUILDING (OLD CHLORINE BLDG)

PHOTO 44 E-1

EXISTING EFFLUENT AREA

PHOTO 48 E-1



EXISTING MAINTENANCE BUILDING INTEIOR

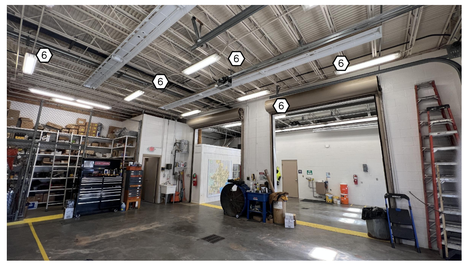
PHOTO 41 E-1

EXISTING STORAGE BUILDING, UV, AND EFFLUENT

PHOTO 45 E-1

EXISTING PROCESS WATER PUMP STATION INTERIOR

PHOTO 49 E-1



EXISTING MAINTENANCE BUILDING INTERIOR

PHOTO 42 E-1

EXISTING STORAGE BUILDING (OLD CHLORINE BLDG)

PHOTO 46 E-1

EXISTING POST AERATION BLOWER INTERIOR

PHOTO 50 E-1

KEYED NOTES:

1. *DEMO AREA LIGHTING POLE, FIXTURES, AND FOUNDATION.*
2. *DISCONNECT AND RELOCATE EXISTING 150KW STANDBY GENERATOR FROM THE EXISTING MAINTENANCE BUILDING LOCATION, TO A TEMPORARY LOCATION AT THE EXISTING UV DURING PROJECT CONSTRUCTION. THE STANDBY GENERATOR WILL EVENTUALLY BE RELOCATED TO ITS PERMANENT LOCATION AT THE PROPOSED MAINTENANCE BUILDING NEAR THE COMPOST FACILITY WEST OF THE WRRF.*
3. *THE EXISTING MAINTENANCE BUILDING WILL BE REMOVED COMPLETELY DURING THE EARLY PHASES OF THE CONSTRUCTION. DISCONNECT AND REMOVE THE FEEDER FROM THE OPERATIONS BUILDING TO THE BUILDING PANELBOARD.*
4. *REMOVE AND SALVAGE TO THE OWNER, THE MAIN I-LINE PANELBOARD, 50KVA STEP-DOWN TRANSFORMER, AND NQ PANELBOARD.*
5. *DEMO ALL OTHER MAINTENANCE BUILDING EQUIPMENT.*
6. *DEMO ALL RACEWAY, CONDUCTORS, LIGHTING, RECEPTACLES, AND HVAC AS NECESSARY TO FACILITATE BUILDING TEAR DOWN.*
7. *REPLACE EXISTING WALLPACK FIXTURES ON THE SLUDGE THICKENER PUMP STATION ACCORDING TO THE FIXTURE SCHEDULE ON THIS SHEET.*
8. *MAINTAIN ALL EXISTING POWER AND LIGHTING CIRCUITS FOR THE SLUDGE PUMPS AND SLUDGE THICKENERS.*
9. *THE EXISTING STORAGE BUILDING (OLD CHLORINE BUILDING) WILL BE REMOVED COMPLETELY DURING THE EARLY PHASES OF CONSTRUCTION. DISCONNECT AND REMOVE THE FEEDER FROM THE OPERATIONS BUILDING.*
10. *THE EXISTING POST AERATION BLOWER BUILDING AND POST AERATION BASIN WILL REMAIN IN OPERATION UNTIL THE PROPOSED TERTIARY TREATMENT AND EFFLUENT PUMPING IMPROVEMENTS ARE COMPLETED. ON COMPLETION, THE BUILDING AND STRUCTURE WILL BE DEMOLISHED, INCLUDING THE ELECTRICAL FEED FROM THE OPERATIONS BUILDING.*
11. *THE EXISTING PROCESS WATER PUMP STATION BUILDING AND MCC WILL REMAIN IN OPERATION UNTIL THE PROPOSED TERTIARY TREATMENT AND EFFLUENT PUMPING IMPROVEMENTS ARE COMPLETED. ON COMPLETION, THE BUILDING AND STRUCTURE WILL BE DEMOLISHED, INCLUDING THE ELECTRICAL FEED FROM THE OPERATIONS BUILDING TO THE SINGLE SECTION MCC. THE PUMP STATION MCC WILL BE MODIFIED DURING CONSTRUCTION TO INSTALL A 100A FEEDER CIRCUIT BREAKER IN PLACE OF AN EXISTING FEEDER BREAKER BUCKET. THE PROPOSED BREAKER WILL BE USED TEMPORARILY TO POWER THE UV SYSTEM, WITH RELOCATED 150KW STANDBY GENERATOR AS BACKUP, SO THAT THE EXISTING MAINTENANCE BUILDING CAN BE DEMOLISHED. SEE THE RISER DIAGRAM ON SHEET E-7 FOR TEMPORARY UV POWER INSTALLATION REQUIREMENTS.*
12. *THE EXISTING UV EQUIPMENT, INCLUDING THE POWER DISTRIBUTION MODULE AND HYDRAULIC POWER UNIT, WILL REMAIN IN OPERATION UNTIL THE PROPOSED TERTIARY TREATMENT AND EFFLUENT PUMPING IMPROVEMENTS ARE COMPLETED. ON COMPLETION, THE UV EQUIPMENT SHALL BE DISCONNECTED AND REMOVED TO MAKE ROOM FOR THE PROPOSED EFFLUENT STANDBY GENERATOR. DURING CONSTRUCTION OF THE TERTIARY TREATMENT IMPROVEMENTS, THE 150KW STANDBY GENERATOR WILL BE RELOCATED TEMPORARILY TO PROVIDE BACKUP POWER FOR THE UV SYSTEM. THE RACEWAYS FOR THE UV SYSTEM STUB-UP JUST OUTSIDE THE STRUCTURE AND ROUTE ON TOP OF THE CONCRETE DECK TO THE UV SYSTEM CONTROL PANELS. THE CONTRACTOR SHALL INTERCEPT THESE RACEWAYS/CONDUCTORS AS CLOSE TO THE EQUIPMENT CANOPY AS POSSIBLE. THE CIRCUITS SHALL BE ROUTED INTO A PROPOSED FUSIBLE MANUAL TRANSFER SWITCH, WITH THE SWITCH FED BY THE 100A CIRCUIT BREAKER FROM THE PROCESS WATER PUMP STATION MCC AND THE 150KW STANDBY GENERATOR. SEE THE RISER DIAGRAM ON SHEET E-7 FOR TEMPORARY UV POWER INSTALLATION REQUIREMENTS.*
13. *THE EXISTING EFFLUENT INSTRUMENTATION ENCLOSURE AND INSTRUMENTS WILL REMAIN IN OPERATION UNTIL THE PROPOSED TERTIARY TREATMENT AND EFFLUENT PUMPING IMPROVEMENTS ARE COMPLETED. ON COMPLETION, THE ENCLOSURE SHALL BE DISCONNECTED FROM POWER, AND SALVAGED TO THE OWNER, ALONG WITH ALL EXISTING INSTRUMENTS.*
14. *PROPOSED LOCATION OF THE TEMPORARY UV 150KW STANDBY GENERATOR AND CONCRETE FOUNDATION. SEE THE RISER DIAGRAM ON SHEET E-7 FOR TEMPORARY UV POWER INSTALLATION REQUIREMENTS. DUPLICATE THE CONCRETE FOUNDATION FOR THE STANDBY GENERATOR IN THIS LOCATION AS SHOWN ON SHEET SM-5.*

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS MATTHEW S. WEIR PROFESSIONAL ENGINEER No. 9598 3/21/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS

BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EXISTING MAINTENANCE BUILDING AND UV/EFFLUENT PHOTOS AND DEMOLITION NOTES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-06

BID DRAWINGS
MARCH 21, 2025

SHEET NO.
E-6

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-06.DWG, 3/21/2025 8:38 AM, MATT WEIR, LAYOUT1

EXISTING SLUDGE DEWATERING BUILDING

PHOTO 51 E-1

EXISTING BLOWER BUILDING

PHOTO 55 E-1

EXISTING VEHICLE STORAGE BUILDING

PHOTO 52 E-1

EXISTING BLOWER BUILDING

PHOTO 56 E-1

EXISTING DIGESTERS NO. 2 AND NO. 3

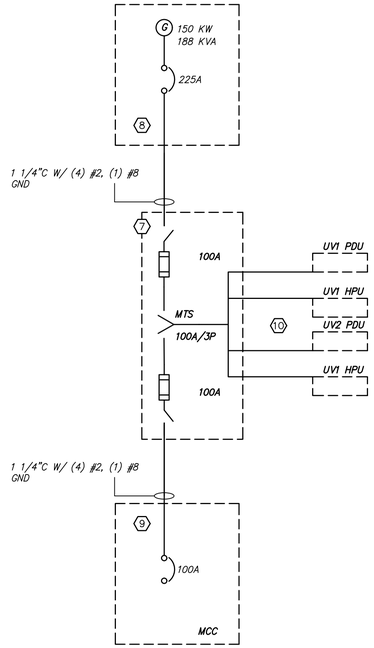
PHOTO 53 E-1

EXISTING DIGESTERS NO. 4 AND NO. 5

PHOTO 57 E-1

EXISTING SLUDGE DEWATERING AND VEHICLE STORAGE

PHOTO 54 E-1



UV TEMPORARY POWER RISER DIAGRAM

DETAIL A

NTS

KEYED NOTES:

1. REPLACE EXISTING WALL-MOUNT BUILDING FIXTURES PER THE SCHEDULE THIS SHEET. THREE (3) FIXTURES SHALL BE REPLACED ON THE SLUDGE DEWATERING BUILDING, FIVE (5) FIXTURES SHALL BE REPLACED ON THE VEHICLE STORAGE BUILDING, AND THREE (3) FIXTURES SHALL BE REPLACED ON THE BLOWER BUILDING.
2. DEMO AREA LIGHTING POLE, FIXTURES, AND FOUNDATION.
3. MAINTAIN LOCAL SHORT POLE FIXTURES AT THE DIGESTERS.
4. THE SLUDGE DEWATERING BUILDING WILL BE RE-FED WITH POWER DURING CONSTRUCTION. EXISTING POWER IS FED FROM THE OPERATIONS BUILDING DISTRIBUTION PANEL DP1. PROPOSED POWER WILL BE FROM THE EFFLUENT ELECTRICAL BUILDING PER DETAILS SHOWN ON E-12.
5. THE VEHICLE STORAGE BUILDING WILL BE RE-FED WITH POWER DURING CONSTRUCTION. EXISTING POWER IS FED FROM THE OPERATIONS BUILDING DISTRIBUTION PANEL DP1. PROPOSED POWER WILL BE FROM THE EFFLUENT ELECTRICAL BUILDING PER DETAILS SHOWN ON E-12.
6. NO CHANGES ARE REQUIRED FOR THE POWER DISTRIBUTION AT THE BLOWER BUILDING.
7. FUSIBLE DOUBLE THROW NEMA 3R MANUAL TRANSFER SWITCH, 100 AMP, 600 VOLT, 3 POLE WITH CLASS R FUSE KIT, NEUTRAL KIT, AND GROUND KIT. SWITCH SHALL BE SIMILAR OR EQUAL TO SQUARE D DT363RB WITH SN0310 NEUTRAL KIT, AND RFK10 CLASS R FUSE KIT. THE SWITCH SHALL BE PROVIDED WITH SIX (6) 100 AMP 600 VOLT CLASS R FUSES. CONTRACTOR SHALL CONSTRUCT RACK MOUNTING JUST OUTSIDE THE EXISTING EQUIPMENT RACK AND CANOPY FOR MTS MOUNTING.
8. RELOCATE THE 150KW STANDBY GENERATOR FOR TEMPORARY UV POWER; PROVIDE AND INSTALL RACEWAY AND CONDUCTORS PER RISER DIAGRAM. PROVIDE STANDBY GENERATOR FOUNDATION PER DETAIL SHOWN ON SHEET SM-5, WHICH IS THE PERMANENT LOCATION FOR THIS GENERATOR AFTER THE EXISTING UV SYSTEM IS REMOVED FROM OPERATION.
9. PROVIDE AND INSTALL A 100A 480V THREE POLE CIRCUIT BREAKER INTO THE EXISTING PROCESS WATER PUMP STATION MCC, REPLACING AN EXISTING FEEDER BREAKER IN AN UNUSED MCC BUCKET. PROVIDE AND INSTALL RACEWAY AND CABLE FOR TEMPORARY UV POWER. CONTRACTOR SHALL COORDINATE FINAL ROUTING RECOMMENDATION WITH THE ENGINEER.
10. INTERCEPT EXISTING RACEWAYS AND CONDUCTORS, ROUTING TO THE PROPOSED MTS AS REQUIRED.
11. ALLOW UP TO 120' OF 1" EMT WITH THREE (3) #6 AND ONE (1) #8 GND FROM EXISTING SQUARE D NQ PANELBOARD LD TO PROPOSED LPL. PROVIDE AND INSTALL ONE (1) SQUARE D QO260 CIRCUIT BREAKER, 60A TWO POLE INTO EXISTING PANEL LD SPACE.
12. ALLOW UP TO 80' OF RACEWAY AND CABLE FOR HVAC CIRCUIT IN EMT CONDUIT. PROVIDE AND INSTALL 240V BOX AND RECEPTACLE WITH NEUTRAL.
13. ALLOW UP TO 30' AVERAGE LENGTH FOR EACH CIRCUIT IN EMT CONDUIT. EACH CIRCUIT SHALL INCLUDE FOUR (4) DUPLEX RECEPTACLES/BOXES..
14. ALLOW UP TO 80' LENGTH IN EMT CONDUIT FOR EACH TEMPORARY LIGHTING CIRCUIT. EACH CIRCUIT SHALL INCLUDE A SWITCH/BOX AND FOUR (4) FIXTURES. ALL SHALL BE WALL MOUNTED AT 10' AFF WITH ANGLE DOWN BRACKET. THE CONTRACTOR SHALL TEMPORARILY UTILIZE EIGHT (8) TYPE B FIXTURE SCHEDULED FOR THE EFFLUENT PUMP STATION FOR THE LIGHTING.

TEMPORARY LAB PANEL LPL (11)

	CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #	
	1	WALL MOUNT HVAC	#12 (#12)	20	3/4"	10	10			3/4"	20	#12 (#12)	LAB EQPT CKT#5	2	13
12	3	"	"	"	"			10	10	3/4"	20	#12 (#12)	LAB EQPT CKT#6	4	13
13	5	LAB EQPT CKT#1	#12 (#12)	20	3/4"	6	6			3/4"	20	#12 (#12)	LAB EQPT CKT#7	6	13
13	7	LAB EQPT CKT#2	#12 (#12)	20	3/4"			6	6	3/4"	20	#12 (#12)	LAB EQPT CKT#8	8	13
13	9	LAB EQPT CKT#3	#12 (#12)	20	3/4"	6	6			3/4"	20	#12 (#12)	TEMPORARY LIGHTING	10	14
13	11	LAB EQPT CKT#4	#12 (#12)	20	3/4"			6	6	3/4"	20	#12 (#12)	TEMPORARY LIGHTING	12	14
					TOTAL CONNECTED	39		39							
					TOTAL DEMAND		39		39						

TYPE: SQUARE D NQOD LIGHTING AND APPLIANCE
VOLTS: 120/240, SINGLE PHASE, THREE WIRE
MAIN: MLO
BUS: 100 AMP
RATING: 10 KAIC
MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1
BRANCH BREAKERS: PLUG-ON

CONNECTED KVA: 10
DEMAND KVA: 10
DESIGN KVA: 50

TRUCK STORAGE BUILDING TEMPORARY LAB PANEL

DETAIL B

NTS

EXISTING BLOWER AREA BUILDING LIGHTING FIXTURE SCHEDULE

FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL#	QTY	TYPE	NOTES
B3	120-277	88	LITHONIA WDGE3 LED P4 30K 80CRI TFTM MVOLT SRM DNAXD	11	LED	REPLACE EXISTING WALL-PACKS USING EXISTING BOXES AND WIRING, 10-15' AFF. -

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS MATTHEW S. WEIR PROFESSIONAL ENGINEER No. 9586 3/21/2025

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BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

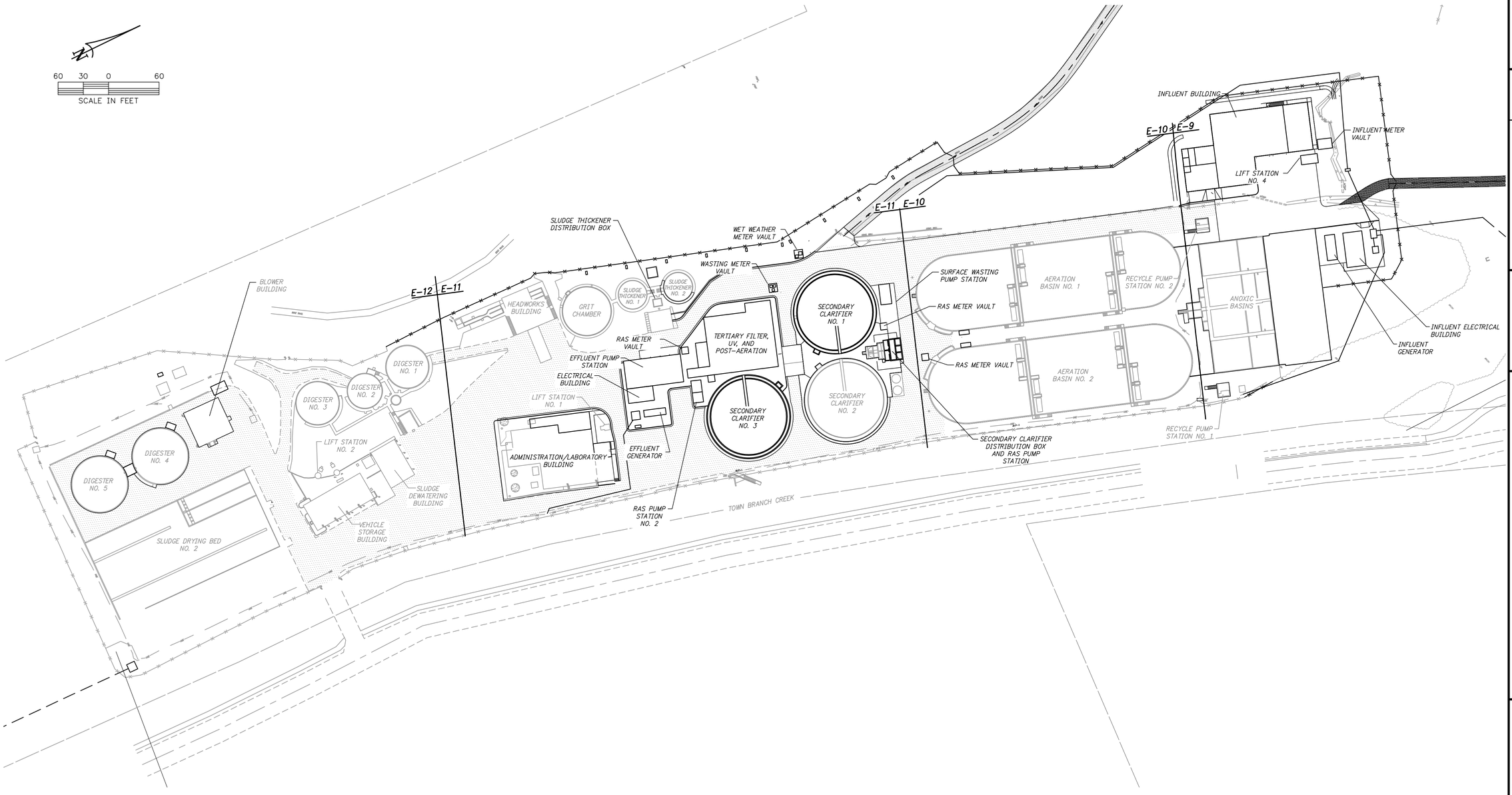
EXISTING MAINTENANCE BUILDING AND UV/EFFLUENT PHOTOS AND DEMOLITION NOTES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-07

SHEET NO. E-7

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-07.DWG, 3/21/2025 8:38 AM, MATT WEIR, LAYOUT1



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1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

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STATE OF ARKANSAS MATTHEW L. WEIR PROFESSIONAL ENGINEER No. 9598 3/21/2025 Scott Wilson

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BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

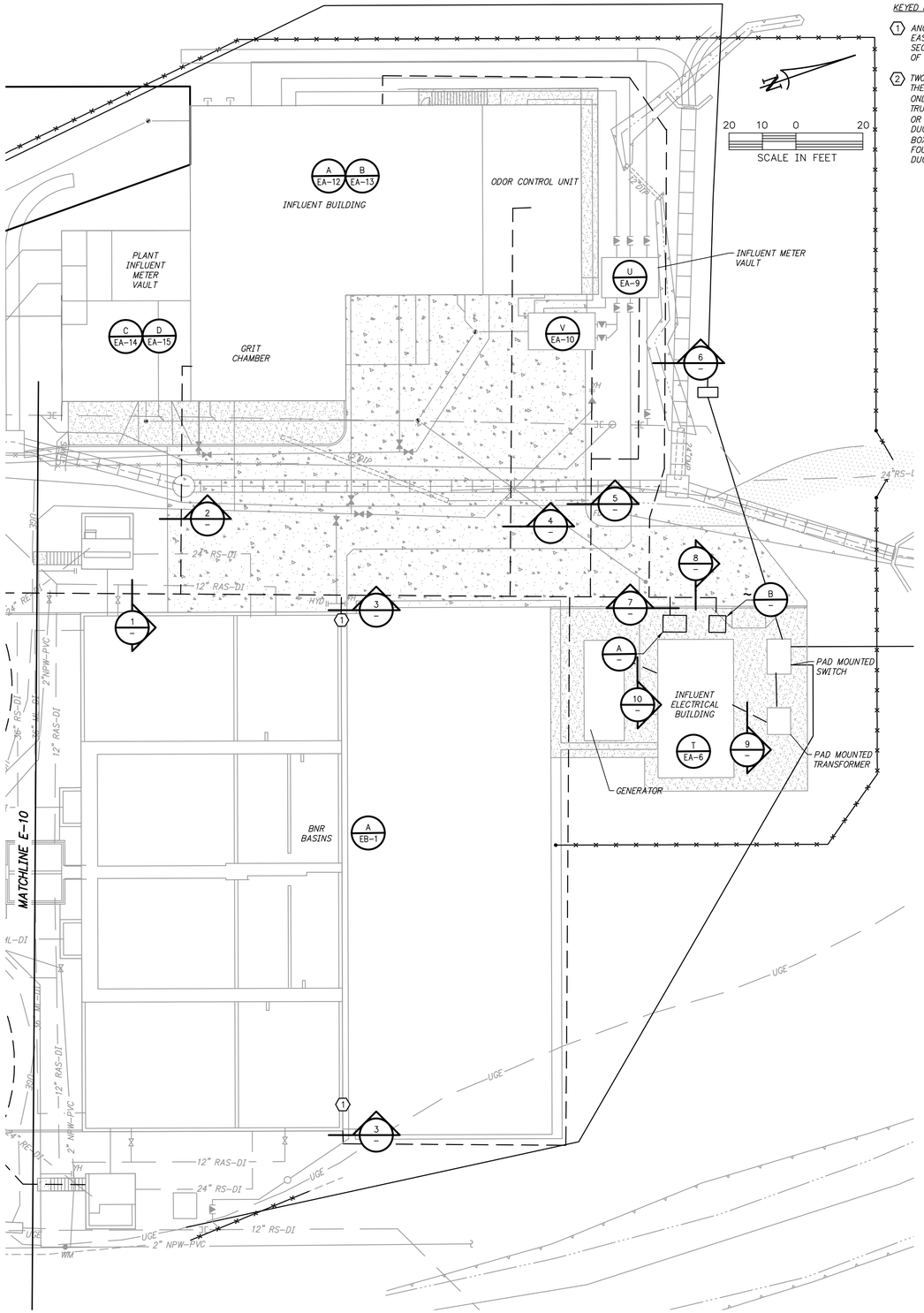
ELECTRICAL SITE KEY PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1"=60'
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-08

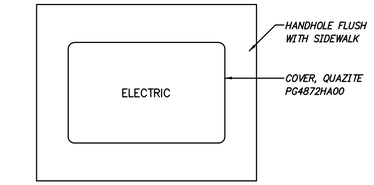
SHEET NO.
E-8

BID DRAWINGS
MARCH 21, 2025



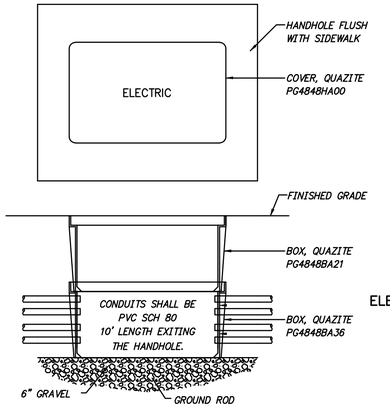
KEYED NOTES:

1. ANOXIC/BNR 24"X24"X8" N4XSS JUNCTION BOX FOR EAST AND WEST SECTIONS, TRANSITION FROM CONDUIT SECTION TO RISER DIAGRAM CONDUITS DOWNSTREAM OF THE JUNCTION BOX.
2. TWO (2) 1" LIGHTING CONDUITS ARE SOURCED FROM THE INFLUENT ELECTRICAL BUILDING. TYPICALLY, ONLY ONE (1) 1" LIGHTING CONDUIT IS PLACED IN A TRUNK CONDUIT DUCTBANK. AT EACH LIGHTING POLE OR JUNCTION BOX, THE 1" CONDUIT WILL EXIT THE DUCTBANK TO THE POLE FOUNDATION OR JUNCTION BOX, AND A SECOND 1" CONDUIT WILL EXIT THE POLE FOUNDATION OR JUNCTION BOX BACK INTO THE TRUNK DUCTBANK TO CONTINUE THE LIGHTING CIRCUIT



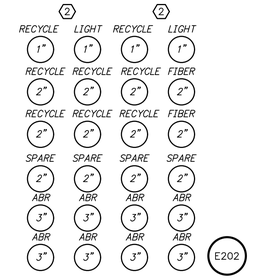
ELECTRICAL HANDHOLE 72"X48"

DETAIL A – NTS



ELECTRICAL HANDHOLE 48"X48"

DETAIL B – NTS

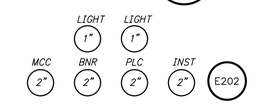


AERATION/RECYCLE TRUNK UNDERGROUND CONDUIT

SECTION 1 – NTS

ELECTRICAL BUILDING TO GRIT CHAMBER UNDERGROUND CONDUITS

SECTION 2 – NTS



ELECTRICAL BUILDING TO BNR UNDERGROUND CONDUITS

SECTION 3 – NTS

ELECTRICAL BUILDING TO ODOR CONTROL UNDERGROUND CONDUITS

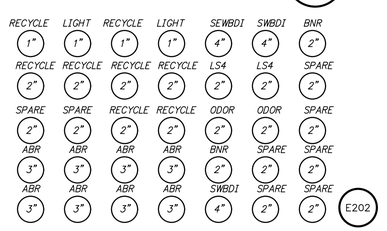
SECTION 4 – NTS

ELECTRICAL BUILDING TO LS4/FLOWMETER UNDERGROUND CONDUITS

SECTION 5 – NTS

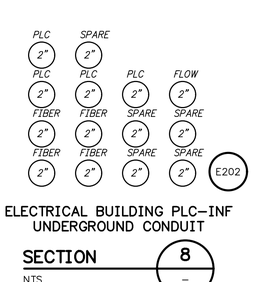
ELECTRICAL BUILDING TO INFLUENT UPPER LEVEL UNDERGROUND CONDUITS

SECTION 6 – NTS



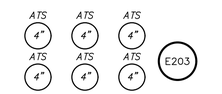
ELECTRICAL BUILDING MCC AND SWITCHBOARD UNDERGROUND CONDUIT

SECTION 7 – NTS



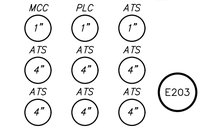
ELECTRICAL BUILDING PLC–INF UNDERGROUND CONDUIT

SECTION 8 – NTS



UTILITY TRANSFORMER TO ATS–INF UNDERGROUND CONDUITS

SECTION 9 – NTS



GENERATOR TO ATS–INF UNDERGROUND CONDUITS

SECTION 10 – NTS

1" ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE

REVISION

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STATE OF ARKANSAS MATTHEW WEIR PROFESSIONAL ENGINEER No. 9586 L. Scott Wood, PLLC

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PROPOSED ELECTRICAL SITE PLAN INFLUENT AND ANOXIC AREA

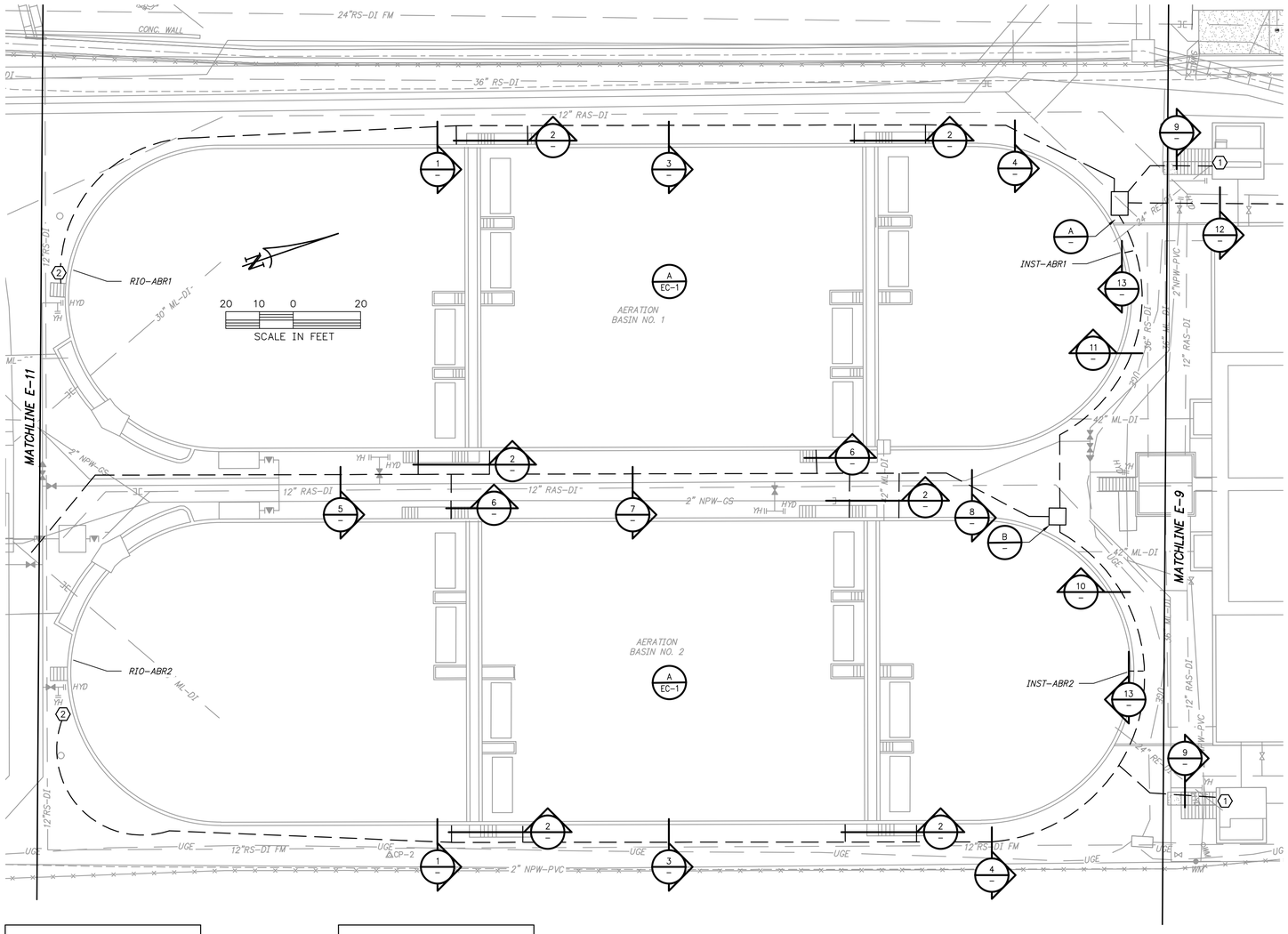
FOR: BENTONVILLE WASTEWATER UTILITIES

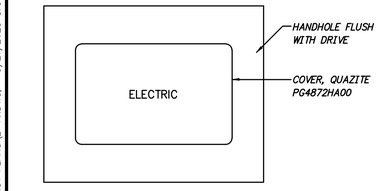
DATE: MARCH 2025
SCALE: 1"=20'
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-09

SHEET NO. E-9

BID DRAWINGS
MARCH 21, 2025

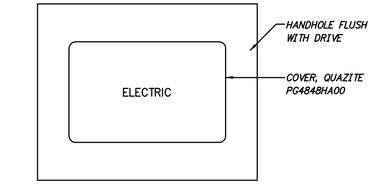
Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-09.DWG, 3/21/2025 8:39 AM, MATT WEIR, LAYOUT1





ELECTRICAL HANDHOLE 72"X48"

DETAIL A / NTS

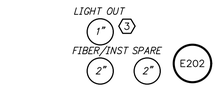


ELECTRICAL HANDHOLE 48"X48"

DETAIL B / NTS

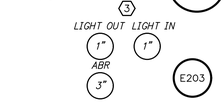
KEYED NOTES:

1. MAINTAIN AND RE-USE EXISTING N4XSS JUNCTION BOXES AT THE RECYCLE PUMP STATIONS. ROUTE SECTION 9 CONDUITS INTO THE JUNCTION BOXES AND REFER TO SHEET EB-4 RISER DIAGRAMS FOR CONTINUATION.
2. ROUTE SECTION 1 CONDUITS TO THE REMOTE I/O CONTROL PANELS RIO-ABR1 AND RIO-ABR2 LOCATED ON THE SOUTH END OF EACH AERATION BASIN. FIBER CONDUITS CONTINUE FROM THESE REMOTE I/O CONTROL PANELS TO PLC-WAS IN THE WAS/SCUM PUMP STATION.
3. TWO (2) 1" LIGHTING CONDUITS ARE SOURCED FROM THE INFLUENT ELECTRICAL BUILDING. TYPICALLY, ONLY ONE (1) 1" LIGHTING CONDUIT IS PLACED IN A TRUNK CONDUIT DUCTBANK. AT EACH LIGHTING POLE OR JUNCTION BOX, THE 1" CONDUIT WILL EXIT THE DUCTBANK TO THE POLE FOUNDATION OR JUNCTION BOX, AND A SECOND 1" CONDUIT WILL EXIT THE POLE FOUNDATION OR JUNCTION BOX BACK INTO THE TRUNK DUCTBANK TO CONTINUE THE LIGHTING CIRCUIT.



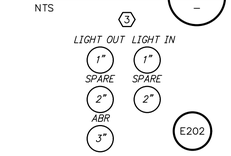
AERATION TO TERMINATION HANDHOLE UNDERGROUND CONDUITS

SECTION 1 / NTS



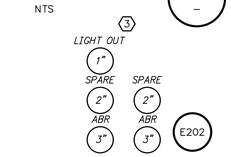
AERATOR ROTORS AND POLE LIGHTS UNDERGROUND CONDUIT

SECTION 2 / NTS



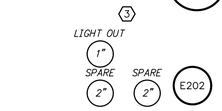
AERATION TRUNK UNDERGROUND CONDUIT

SECTION 3 / NTS



AERATION TRUNK UNDERGROUND CONDUIT

SECTION 4 / NTS

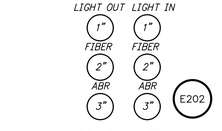


AERATION TO WAS/SCUM PUMP UNDERGROUND CONDUITS

SECTION 5 / NTS

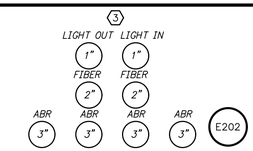
AERATOR ROTOR UNDERGROUND CONDUIT

SECTION 6 / NTS



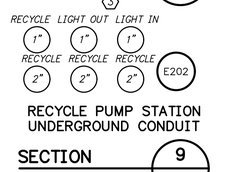
AERATION TRUNK UNDERGROUND CONDUIT

SECTION 7 / NTS



AERATION TRUNK UNDERGROUND CONDUIT

SECTION 8 / NTS

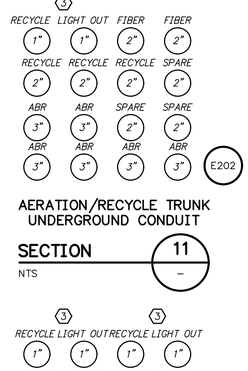


RECYCLE PUMP STATION UNDERGROUND CONDUIT

SECTION 9 / NTS

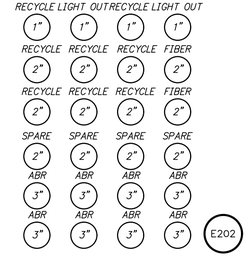
AERATION TRUNK UNDERGROUND CONDUIT

SECTION 10 / NTS



AERATION/RECYCLE TRUNK UNDERGROUND CONDUIT

SECTION 11 / NTS



AERATION/RECYCLE TRUNK UNDERGROUND CONDUIT

SECTION 12 / NTS

HANDHOLE TO INSTRUMENTATION UNDERGROUND CONDUITS

SECTION 13 / NTS

BID DRAWINGS
MARCH 21, 2025

1" ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE

REVISION

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STATE OF ARKANSAS L. Scott Veatch PROFESSIONAL ENGINEER No. 9598 3/21/25

HAWKINS WEIR ENGINEERS, INC.

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BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PROPOSED ELECTRICAL SITE PLAN AERATION AND RECYCLE PUMPS AREA

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1"=20'
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-10

SHEET NO.
E-10

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-10.DWG, 3/21/2025 8:39 AM, MATT WEIR, LAYOUT1

20 10 0 20
SCALE IN FEET

MATCHLINE E-12

MATCHLINE E-10

EXTEND FIBER CONDUITS TO FINAL ELECTRICAL POWER POLE

HEADWORKS BUILDING

GRIT CHAMBER

SLUDGE THICKENER NO. 1

SLUDGE THICKENER NO. 2

SLUDGE THICKENER PUMP STATION

WET WEATHER METER VAULT

WASTE METER VAULT

SECONDARY CLARIFIER NO. 1

SURFACE WASTING PUMP STATION

RAS1 WEST FLOW METER

RAS1 EAST FLOW METER

RAS PUMP STATION

RAS2 FLOW METER

TERTIARY FILTER, UV, AND POST-AERATION

POST AERATION BLOWERS

EFFLUENT PUMP STATION

EFFLUENT ELECTRICAL BUILDING

RAS PUMP STATION NO. 2

WAS/SCUM PUMP STATION

GENERATOR

PANEL DP1

SCADA SERVER

ADMINISTRATION/LABORATORY BUILDING

CANOPY

SECONDARY CLARIFIER NO. 3

SECONDARY CLARIFIER NO. 2

CONC. WALL

UGE

2" NPW-PVC

CP-1

ELECTRIC

HANDHOLE FLUSH WITH SIDEWALK

COVER, QUAZITE PG2436HA00

FINISHED GRADE

BOX, QUAZITE PG2436BA24

CONDUITS SHALL BE PVC SCH 80 10' LENGTH EXITING THE HANDHOLE.

BOX, QUAZITE PG2436BA24

6" GRAVEL

GROUND ROD

ELECTRICAL HANDHOLE 24"X36"

DETAIL A
NTS

UTILITY TRANSFORMER TO ATS-EFF UNDERGROUND CONDUITS

SECTION 1
NTS

4"	4"	4"	4"	E203

ELECTRICAL BUILDING TO SHEET E-12 UNDERGROUND CONDUITS

SECTION 3
NTS

SPARE 2"	SPARE 2"	SPARE 2"	SPARE 2"	
SLUDGE 3"	VEH 3"	FIBER 2"	FIBER 2"	E202

ELECTRICAL BUILDING TO HEADWORKS UNDERGROUND CONDUITS

SECTION 5
NTS

SPARE 2"	SPARE 2"		
HW 3"	HW SP 3"	FIBER 2"	FIBER 2"	E202

GENERATOR TO ATS-EFF UNDERGROUND CONDUITS

SECTION 2
NTS

SPARE 1"	1"	1"	
4"	4"	4"	4"	E203

ELECTRICAL BUILDING TO ADMIN/LAB UNDERGROUND CONDUITS

SECTION 4
NTS

ADMIN 3"	ADMIN 3"	FIBER 2"	FIBER 2"	E203

ELECTRICAL BUILDING TO LIFT STATION UNDERGROUND CONDUITS

SECTION 6
NTS

LS1 2"	LS1 2"	E203

ELECTRICAL BUILDING SOUTH TRUNK UNDERGROUND CONDUITS

SECTION 7
NTS

SPARE 2"	SPARE 2"	LS1 2"	LS1 2"	
ADMIN 3"	ADMIN 3"	FIBER 2"	FIBER 2"	
HW 3"	HW SP 3"	FIBER 2"	FIBER 2"	
SLUDGE 3"	VEH 3"	FIBER 2"	FIBER 2"	E202

ELECTRICAL BUILDING TO HANDHOLE UNDERGROUND CONDUITS

SECTION 8
NTS

PLC 2"	PLC 2"	PLC 2"	PLC 2"	
MCC 2"	MCC 2"	PLC 2"	PLC 2"	
MCC 2"	MCC 2"	MCC 2"	MCC 2"	
MCC 3"	MCC 3"	MCC 3"	MCC 3"	
SWBD 4"	SWBD 4"	SWBD 4"	SWBD 4"	E203

FLOWMETER TO PLC/MCC-WAS UNDERGROUND CONDUITS

SECTION 9
NTS

PLC 1"	PLC 1"	MCC 1"	E203

FIBER FROM MAINTENANCE/COMPOST UNDERGROUND CONDUITS

SECTION 10
NTS

FIBER 2"	FIBER 2"	E203

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

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STATE OF ARKANSAS MATTHEW S. WEIR PROFESSIONAL ENGINEER No. 9598 3/21/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PROPOSED ELECTRICAL SITE PLAN SLUDGE PUMPING, CLARIFICATION, TERTIARY, EFFLUENT, AND OPERATIONS BUILDING AREAS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1"=20'
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-11

SHEET NO.
E-11

BID DRAWINGS
MARCH 21, 2025

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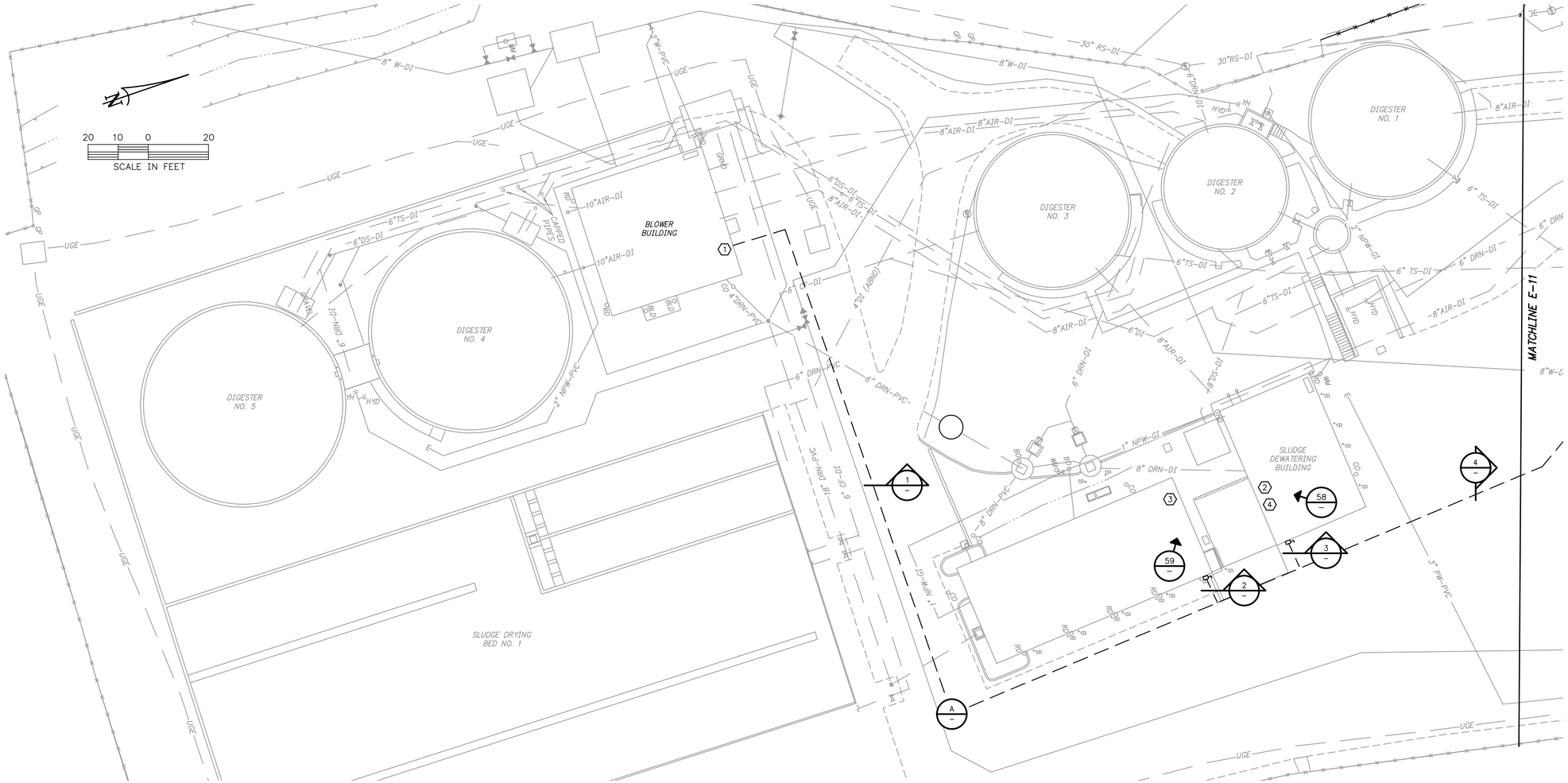
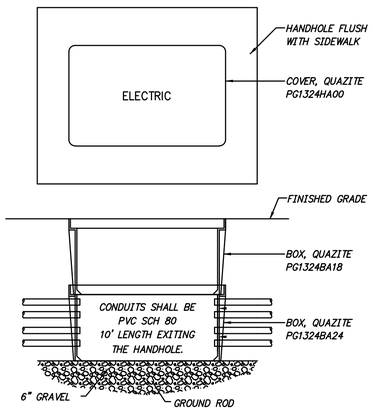
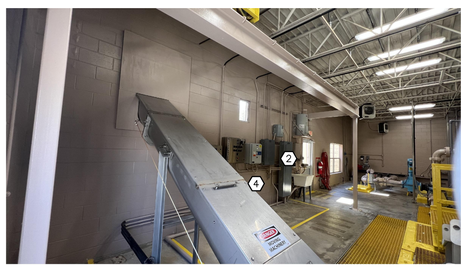




ELECTRICAL HANDHOLE 13"X24"

DETAIL A
NTS



SLUDGE DEWATERING BUILDING

PHOTO 58

VEHICLE STORAGE BUILDING

PHOTO 59

SPARE 2" SPARE 2" FIBER 2" — E202

BLOWER BLDG TO DEWATERING BLDG UNDERGROUND CONDUIT

SECTION 1 — NTS

VEH 3" SPARE 2" FIBER 2" FIBER 2" — E203

VEHICLE BLDG UNDERGROUND CONDUITS

SECTION 2 — NTS

SLUDGE 3" SPARE 2" FIBER 2" FIBER 2" — E203

SLUDGE DEWATERING BLDG UNDERGROUND CONDUITS

SECTION 3 — NTS

SPARE 2" SPARE 2" SPARE 2" SPARE 2"
SLUDGE 3" VEH 3" FIBER 2" FIBER 2" — E202

EFFLUENT ELECTRICAL BUILDING UNDERGROUND CONDUITS

SECTION 4 — NTS

KEYED NOTES:

1. REMOVE EXISTING TVSS UNIT WHICH IS NON-FUNCTIONAL AND UTILIZE THE CONDUIT ENTRANCE INTO THE BLOWER BUILDING FOR FIBER TO THE BLOWER PLC CONTROL PANEL.
2. PROVIDE AND INSTALL ONE (1) 200A 600V NEMA 4XSS SAFETY SWITCH MOUNTED ON THE BUILDING EXTERIOR FOR THE POWER FEED. CONTINUE THE CIRCUIT APPROXIMATELY 60' INSIDE THE BUILDING AND RE-CONNECT TO THE 480V POWER PANELBOARD.
3. PROVIDE AND INSTALL ONE (1) 200A 600V NEMA 4XSS SAFETY SWITCH MOUNTED ON THE BUILDING EXTERIOR FOR THE POWER FEED. CONTINUE THE CIRCUIT APPROXIMATELY 90' INSIDE THE BUILDING AND RE-CONNECT TO THE 480V POWER PANELBOARD.
4. INSTALL DIV 13 REMOTE I/O CONTROL PANEL IN THE DEWATERING BUILDING.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS — L. Scott Wilson — PROFESSIONAL ENGINEER — No. 9588 — 3/21/25

HAWKINS WEIR ENGINEERS, INC.
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BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

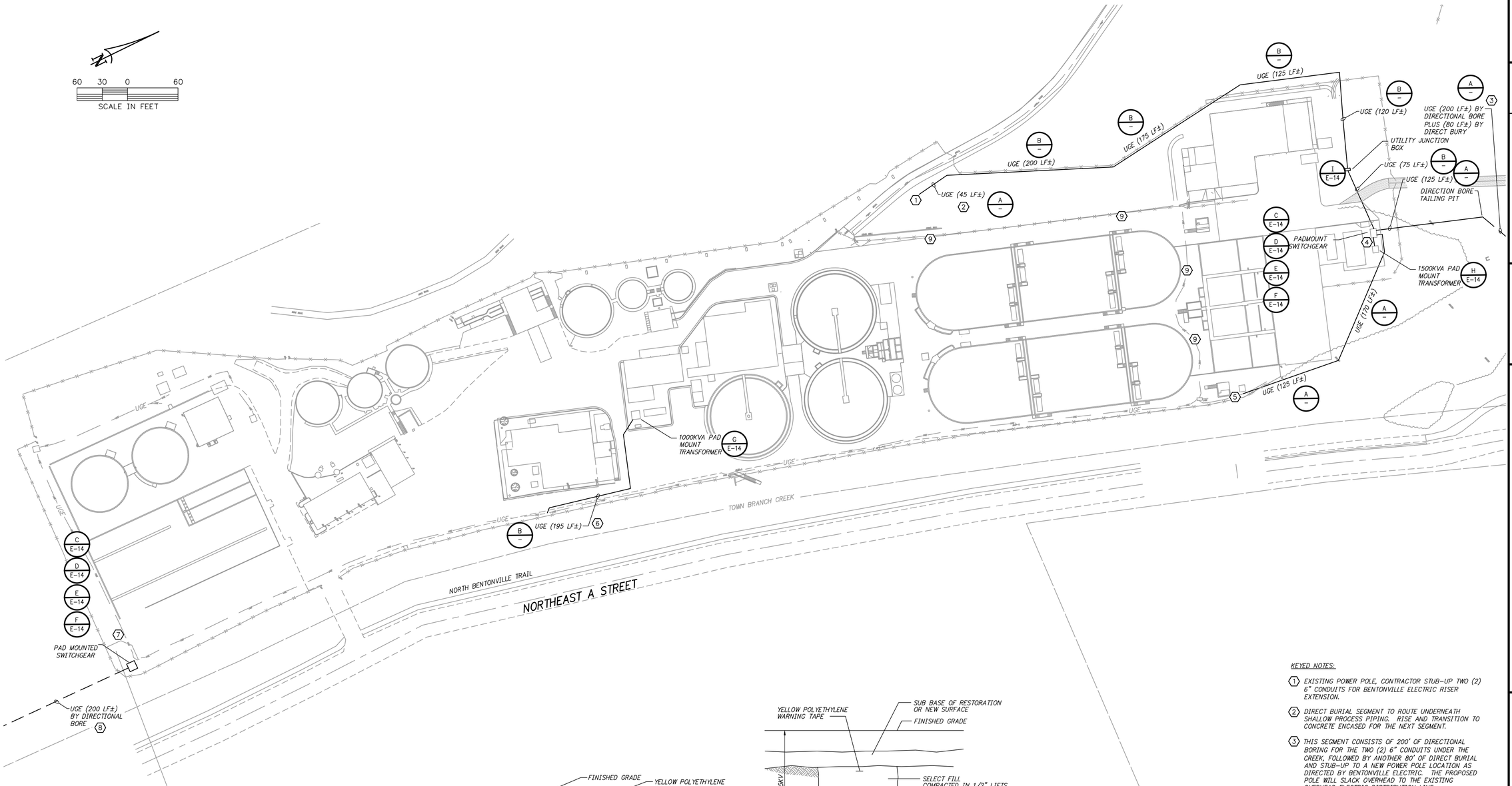
PROPOSED ELECTRICAL SITE PLAN
SLUDGE DEWATERING, VEHICLE STORAGE AND BLOWER BUILDING AREAS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1"=20'
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-12

SHEET NO.
E-12

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-12.DWG, 3/21/2025 8:40 AM, MATT WEIR, LAYOUT1



1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE

REVISION

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STATE OF ARKANSAS MATTHEW A. WEIR PROFESSIONAL ENGINEER No. 9598 3/21/25

HAWKINS WEIR ENGINEERS, INC.

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BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

BENTONVILLE ELECTRIC UTILITY PRIMARY ELECTRIC ROUTING AND COORDINATION ELECTRICAL PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1"=60'
DESIGNED BY: LSM
DRAWN BY: MAW
HWEI NO.: 2021037
FILENAME: E-13

SHEET NO.
E-13

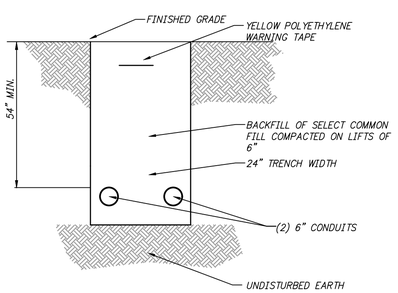
BID DRAWINGS
MARCH 21, 2025

CONTRACTOR RESPONSIBILITIES:

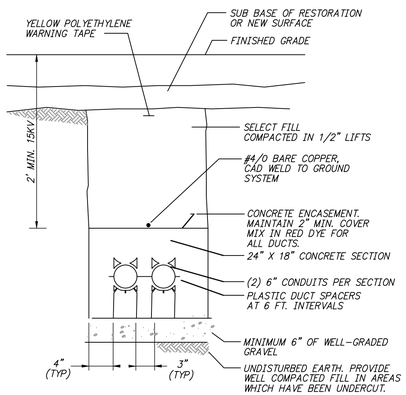
1. PROVIDE AND INSTALL RACEWAYS AND TRENCHING/BACKFILL FOR DIRECT BURIAL DUCTBANKS.
2. PROVIDE AND INSTALL RACEWAYS AND TRENCHING/BACKFILL/CONCRETE FOR CONCRETE ENCASED DUCTBANKS.
3. PROVIDE AND INSTALL RACEWAYS BY DIRECTIONAL BORING FOR TWO (2) LOCATIONS UNDER THE CREEK BEDS.
4. PROVIDE AND INSTALL TWO (2) PADMOUNT SWITCHGEAR VAULT ASSEMBLIES PER BENTONVILLE ELECTRIC STANDARD DETAILS, AVAILABLE FROM SPURLOCK INDUSTRIES.
5. PROVIDE MATERIAL AND LABOR TO INSTALL PADMOUNT TRANSFORMER CONCRETE FOUNDATIONS PER BENTONVILLE ELECTRIC STANDARD DETAILS.
6. UNCOVER AND MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED RACEWAYS WHERE SHOWN.
7. COORDINATE ALL ACTIVITIES WITH BENTONVILLE ELECTRIC DEPARTMENT ACCORDING TO THE PROJECT PHASING SCHEDULE.

BENTONVILLE ELECTRIC DEPARTMENT RESPONSIBILITIES:

1. PROVIDE AND INSTALL 15KV CABLE, BUSHINGS, AND FINAL TERMINATIONS AT JUNCTION BOXES, PADMOUNT SWITCHGEAR, AND PADMOUNT TRANSFORMERS.
2. PROVIDE AND INSTALL RISER CONDUITS AND CABLE/TERMINATIONS ON POWER POLES.
3. PROVIDE AND INSTALL POWER POLES AND OVERHEAD CABLE/TERMINATIONS.
4. PROVIDE AND INSTALL TWO (2) PADMOUNT SWITCHGEAR ASSEMBLIES.
5. PROVIDE AND INSTALL 1000KVA AND 1500KVA PAD MOUNT TRANSFORMERS.
6. PROVIDE AND INSTALL JUNCTION BOX ASSEMBLIES ONTO THE CONTRACTOR INSTALLED RACEWAY STUB-UPS.



PRIMARY DIRECT BURIAL DUCTBANK
DETAIL A – NTS



PRIMARY CONCRETE ENCASED DUCTBANK
DETAIL B – NTS

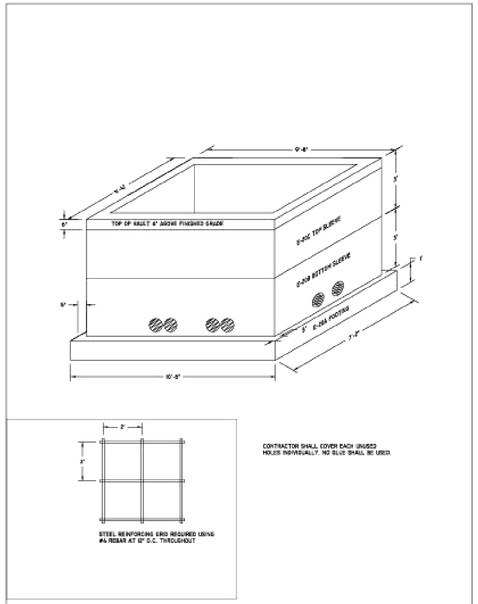
COORDINATION RESPONSIBILITIES:

1. CONTACT BENTONVILLE ELECTRIC UTILITY DEPARTMENT (BEUD) AT 479.271.3135 BEFORE PERFORMING ANY GRADING WITHIN 5' OF EXISTING OR PROPOSED POWER POLE LOCATIONS.
2. BEUD DESIGN LAYOUT DRAWING TAKES PRECEDENCE OVER ANY ELECTRIC INFORMATION SHOWN ON THE SITE UTILITY PLAN.
3. ELECTRIC FACILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF THE ELECTRIC SPECIFICATIONS FOUND ON THE WEBSITE. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THIS DOCUMENT.

KEYED NOTES:

1. EXISTING POWER POLE, CONTRACTOR STUB-UP TWO (2) 6" CONDUITS FOR BENTONVILLE ELECTRIC RISER EXTENSION.
2. DIRECT BURIAL SEGMENT TO ROUTE UNDERNEATH SHALLOW PROCESS PIPING. RISE AND TRANSITION TO CONCRETE ENCASED FOR THE NEXT SEGMENT.
3. THIS SEGMENT CONSISTS OF 200' OF DIRECTIONAL BORING FOR THE TWO (2) 6" CONDUITS UNDER THE CREEK, FOLLOWED BY ANOTHER 80' OF DIRECT BURIAL AND STUB-UP TO A NEW POWER POLE LOCATION AS DIRECTED BY BENTONVILLE ELECTRIC. THE PROPOSED POLE WILL SLACK OVERHEAD TO THE EXISTING OVERHEAD ELECTRIC DISTRIBUTION LINE.
4. SHORT SEGMENT BETWEEN THE PAD MOUNTED SWITCHGEAR AND PROPOSED 1500KVA PAD MOUNT TRANSFORMER.
5. INTERCEPT AND CONNECT PROPOSED RACEWAYS TO EXISTING AT THE LOCATION SHOWN FOR THE SEGMENT BETWEEN THE SWITCHGEAR VAULT AND EXISTING JUNCTION BOX.
6. SEGMENT FROM THE EXISTING JUNCTION BOX TO THE PROPOSED 1000KVA PAD MOUNT TRANSFORMER.
7. REWORK RISER SEGMENT AND CONDUCTORS INTO THE PROPOSED PAD MOUNTED SWITCHGEAR.
8. THIS SEGMENT CONSISTS OF 200' OF DIRECTIONAL BORING TO A LOCATION AS DIRECTED BY BENTONVILLE ELECTRIC TO ELIMINATE THE SHORT OVERHEAD CREEK CROSSING.
9. MAINTAIN THE EXISTING OVERHEAD ELECTRIC ALONG WITH WEST SIDE OF THE WRRF, AND THE UNDERGROUND FEED FROM WEST TO EAST WHILE THE PROPOSED PRIMARY IS BEING INSTALLED. COORDINATE WITH BENTONVILLE ELECTRIC TO REMOVE THESE PRIMARY FEEDS ONCE DE-ENERGIZED.

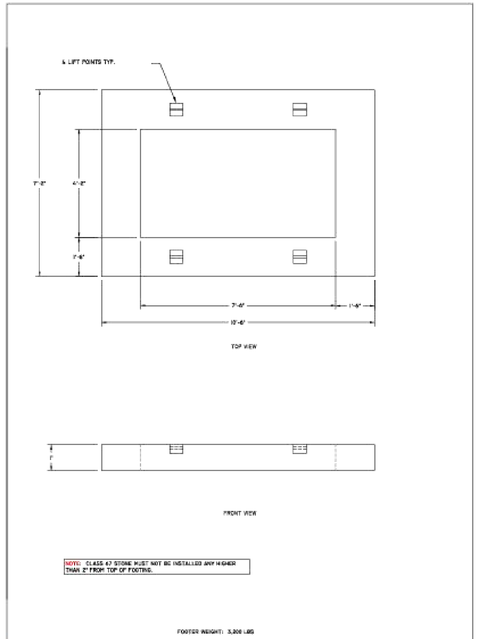
Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-13.DWG, 3/21/2025 8:40 AM, MATT WEIR, LAYOUT1



PADMOUNT SWITCHGEAR VAULT ASSEMBLY | DS-1420

PADMOUNT SWITCHGEAR VAULT ASSEMBLY

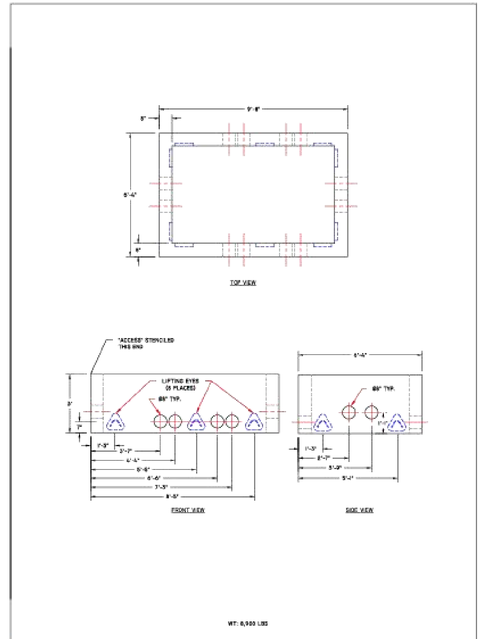
DETAIL C NTS E-13



PADMOUNT SWITCHGEAR VAULT FOOTER | DS-1420A

PADMOUNT SWITCHGEAR VAULT FOOTER

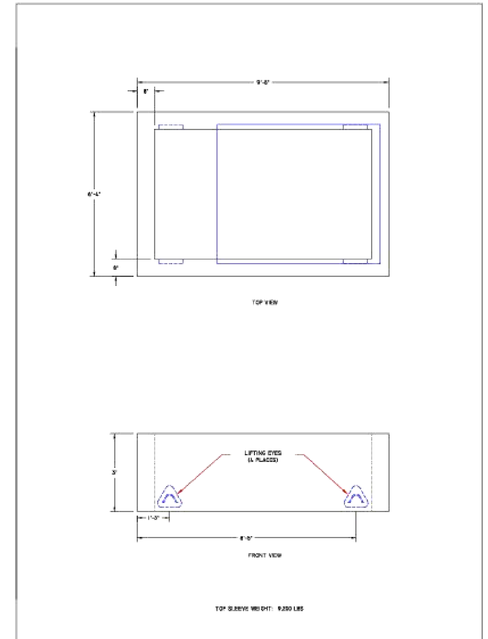
DETAIL D NTS E-13



PADMOUNT SWITCHGEAR BOTTOM SLEEVE | DS-1420B

PADMOUNT SWITCHGEAR BOTTOM SLEEVE

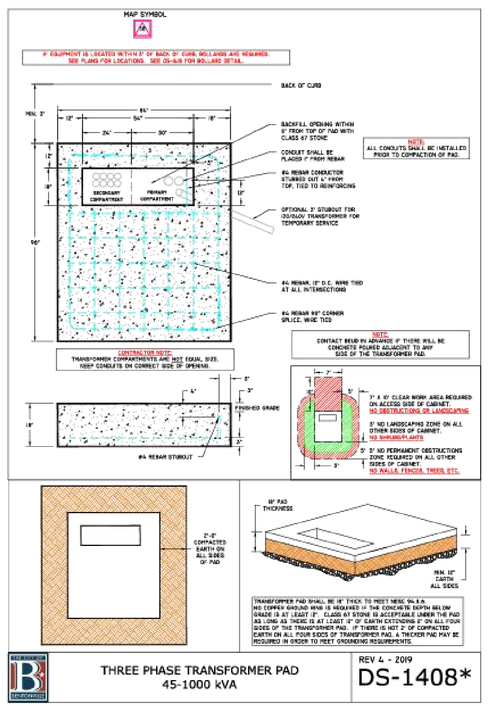
DETAIL E NTS E-13



PADMOUNT SWITCHGEAR TOP SLEEVE | DS-1420C

PADMOUNT SWITCHGEAR TOP SLEEVE

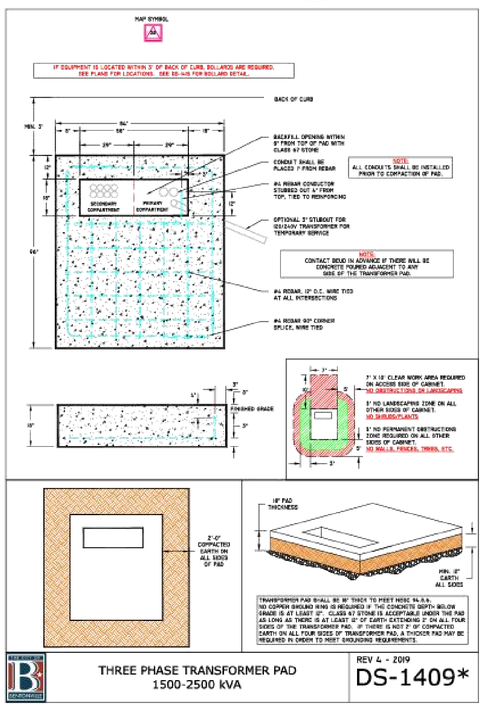
DETAIL F NTS E-13



THREE PHASE TRANSFORMER PAD 45-1000 kVA | REV 4 - 2019 | DS-1408*

1000KVA PAD DETAIL

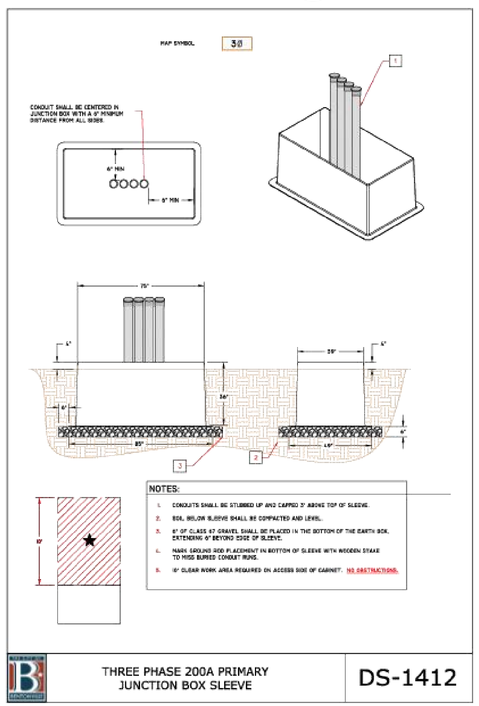
DETAIL G NTS E-13



THREE PHASE TRANSFORMER PAD 1500-2500 kVA | REV 4 - 2019 | DS-1409*

1500KVA PAD DETAIL

DETAIL H NTS E-13



THREE PHASE 200A PRIMARY JUNCTION BOX SLEEVE | DS-1412

200A PRIMARY JUNCTION BOX SLEEVE

DETAIL I NTS E-13

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION | DATE

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STATE OF ARKANSAS — J. SCOTT WILSON — No. 9586 — 3/21/25 — REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

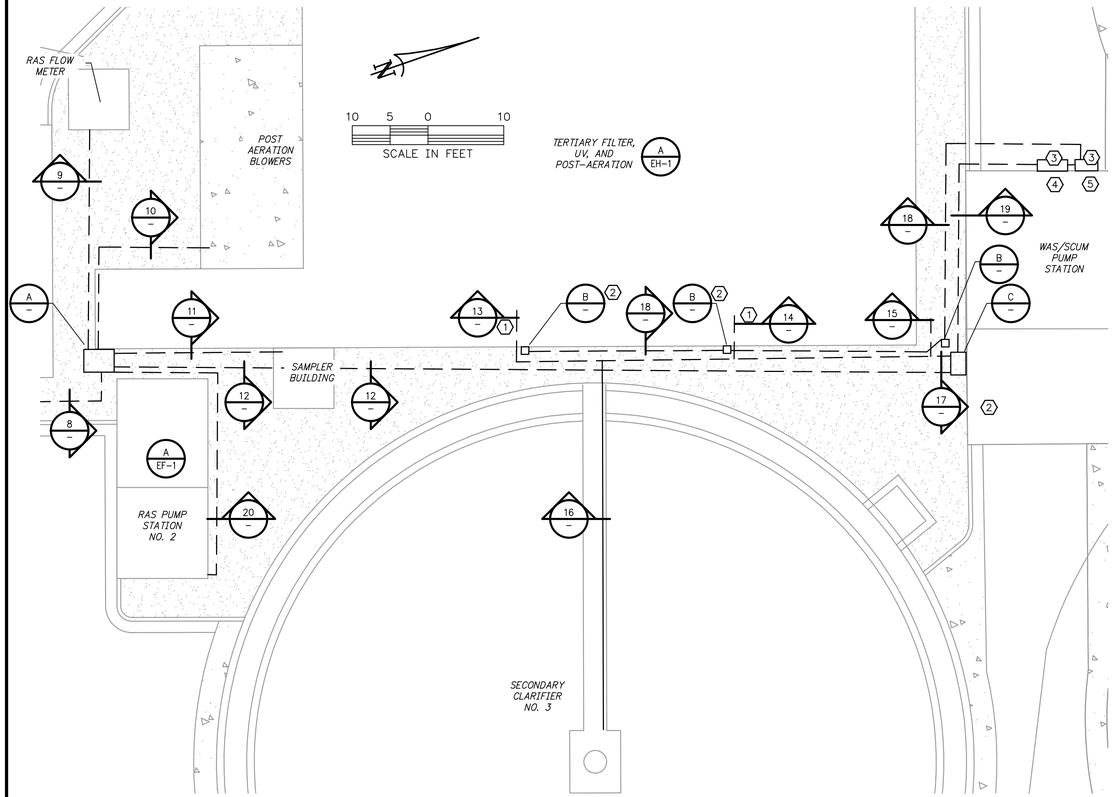
CITY OF BENTONVILLE
PRIMARY ELECTRIC DISTRIBUTION
STANDARD ELECTRICAL DETAILS
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-14

SHEET NO. E-14

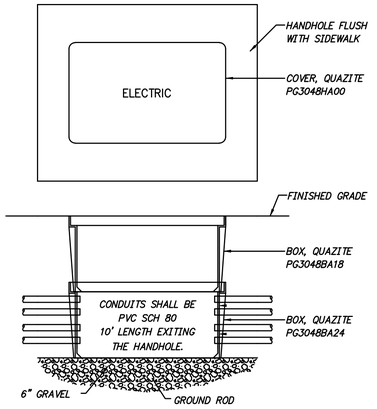
BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-14.DWG, 3/21/2025 8:40 AM, MATT WEIR, LAYOUT1



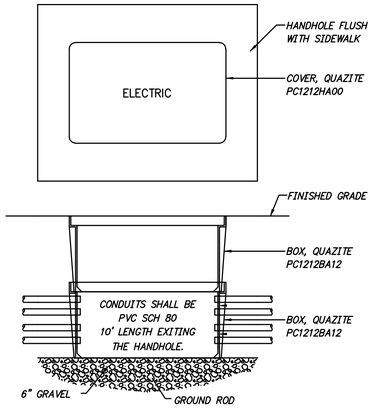
ENLARGED ELECTRICAL SITE PLAN

DETAIL B — 1" = 10' — E-11



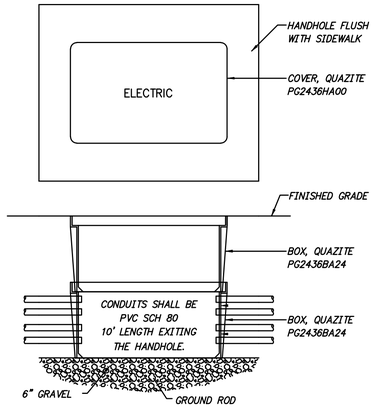
ELECTRICAL HANDHOLE 30"X48"

DETAIL A — NTS



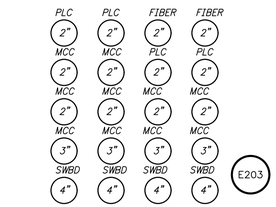
DATA HANDHOLE 12"X12" (2)

DETAIL B — NTS



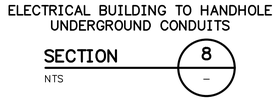
ELECTRICAL HANDHOLE 24"X36"

DETAIL C — NTS



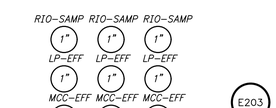
ELECTRICAL BUILDING TO HANDHOLE UNDERGROUND CONDUITS

SECTION 8 — NTS



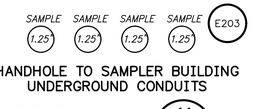
RAS2 FLOWMETER TO HANDHOLE UNDERGROUND CONDUITS

SECTION 9 — NTS



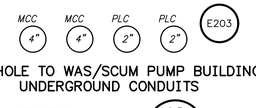
POST AERATION BLOWERS TO HANDHOLE UNDERGROUND CONDUITS

SECTION 10 — NTS



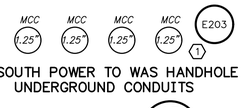
HANDHOLE TO SAMPLER BUILDING UNDERGROUND CONDUITS

SECTION 11 — NTS



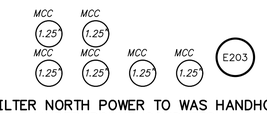
HANDHOLE TO WAS/SCUM PUMP BUILDING UNDERGROUND CONDUITS

SECTION 12 — NTS



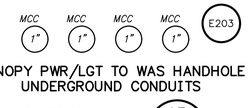
UV SOUTH POWER TO WAS HANDHOLE UNDERGROUND CONDUITS

SECTION 13 — NTS



UV/FILTER NORTH POWER TO WAS HANDHOLE UNDERGROUND CONDUITS

SECTION 14 — NTS



CANOPY PWR/LGT TO WAS HANDHOLE UNDERGROUND CONDUITS

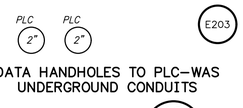
SECTION 15 — NTS

CLARIFIER TO WAS HANDHOLE UNDERGROUND/HANDRAIL CONDUITS

SECTION 16 — NTS

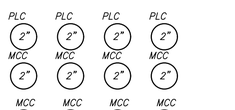
COMBINED TO WAS HANDHOLE/PUMP STATION UNDERGROUND CONDUITS

SECTION 17 — NTS



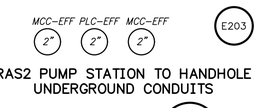
DATA HANDHOLES TO PLC-WAS UNDERGROUND CONDUITS

SECTION 18 — NTS



COMBINED TO WAS PUMP STATION JUNCTION BOX UNDERGROUND CONDUITS

SECTION 19 — NTS



RAS2 PUMP STATION TO HANDHOLE UNDERGROUND CONDUITS

SECTION 20 — NTS

KEYED NOTES:

1. POWER CONDUITS SHALL BE EMBEDDED INTO THE TREATMENT WALLS PRIOR TO CONCRETE POUR AT 36" BELOW FINISHED FLOOR. COORDINATE STUB-UP LOCATIONS WITH THE ENGINEER DURING SUBMITTALS. SEE SHEET EH-1
2. DATA CONDUITS SHALL BE EMBEDDED INTO THE TREATMENT WALLS PRIOR TO CONCRETE POUR AT 24" BELOW FINISHED FLOOR. COORDINATE STUB-UP LOCATIONS WITH THE ENGINEER DURING SUBMITTALS. DATA CONDUITS FROM THE WALLS SHOULD STUB-UP THROUGH THE BOTTOM OF THE HANDHOLES. SEE SHEET EH-1.
3. PROVIDE AND INSTALL TWO (2) NEMA 4X STAINLESS STEEL JUNCTION BOXES, BOTH ALIGNED LONG SIZE HORIZONTALLY, WITH THE HINGE ON TOP AND ALIGNED WITH THE TOP OF JUNCTION BOX AT THE INTERIOR CEILING ELEVATION. THE POWER/MCC JUNCTION BOX SHALL BE 48"X36"X16". THE PLC/FIBER JUNCTION BOX SHALL BE 36"X36"X16".
4. ROUTE THE TWO (2) 4" CONDUITS ABOVE THE MCC, SUPPORTED TO THE CEILING TO MCC-WAS SECTION 1 FOR INCOMING POWER FEED. COMBINE ALL OTHER CONDUCTORS INTO FOUR (4) 3" CONDUITS PENETRATING THE WALL AND DIRECTLY INTO THE UPPER MCC WIREWAY FROM THE EXTERIOR JUNCTION BOX.
5. ROUTE SIX (6) CONDUITS FROM THE PLC/FIBER EXTERIOR JUNCTION BOX TO PLC-WAS.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE | REVISION

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STATE OF ARKANSAS — L. Scott Mason — No. 9588 — PROFESSIONAL ENGINEER — 3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

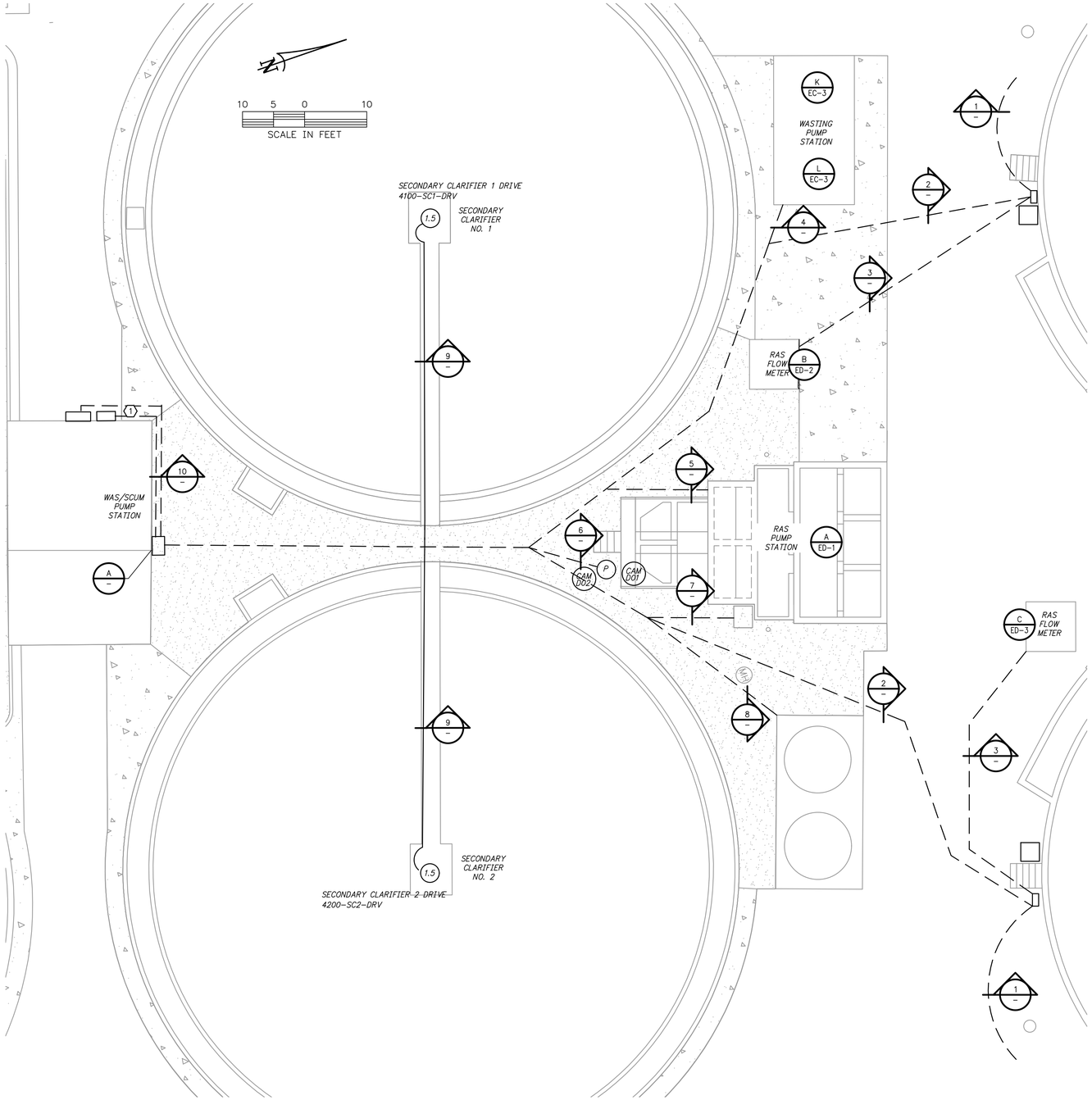
ENLARGED ELECTRICAL SITE PLAN
SLUDGE PUMPING, CLARIFICATION, TERTIARY, AND POST AERATION AREA

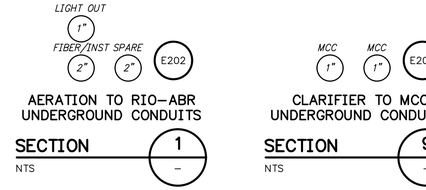
FOR: BENTONVILLE WASTEWATER UTILITIES

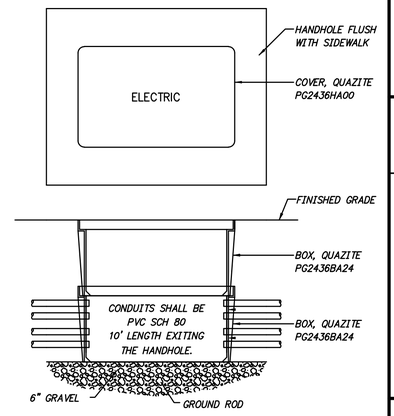
DATE: MARCH 2025
SCALE: 1"=10'
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-15

SHEET NO. E-15

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-15.DWG, 3/21/2025 8:41 AM, MATT WEIR, LAYOUT1







KEYED NOTES:

1. ROUTE CONDUITS TO THE JUNCTION BOXES DETAILED ON SHEET E-15.

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
MATTHEW S. WEIR
REGISTERED PROFESSIONAL ENGINEER
No. 9598
Scott Weir

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

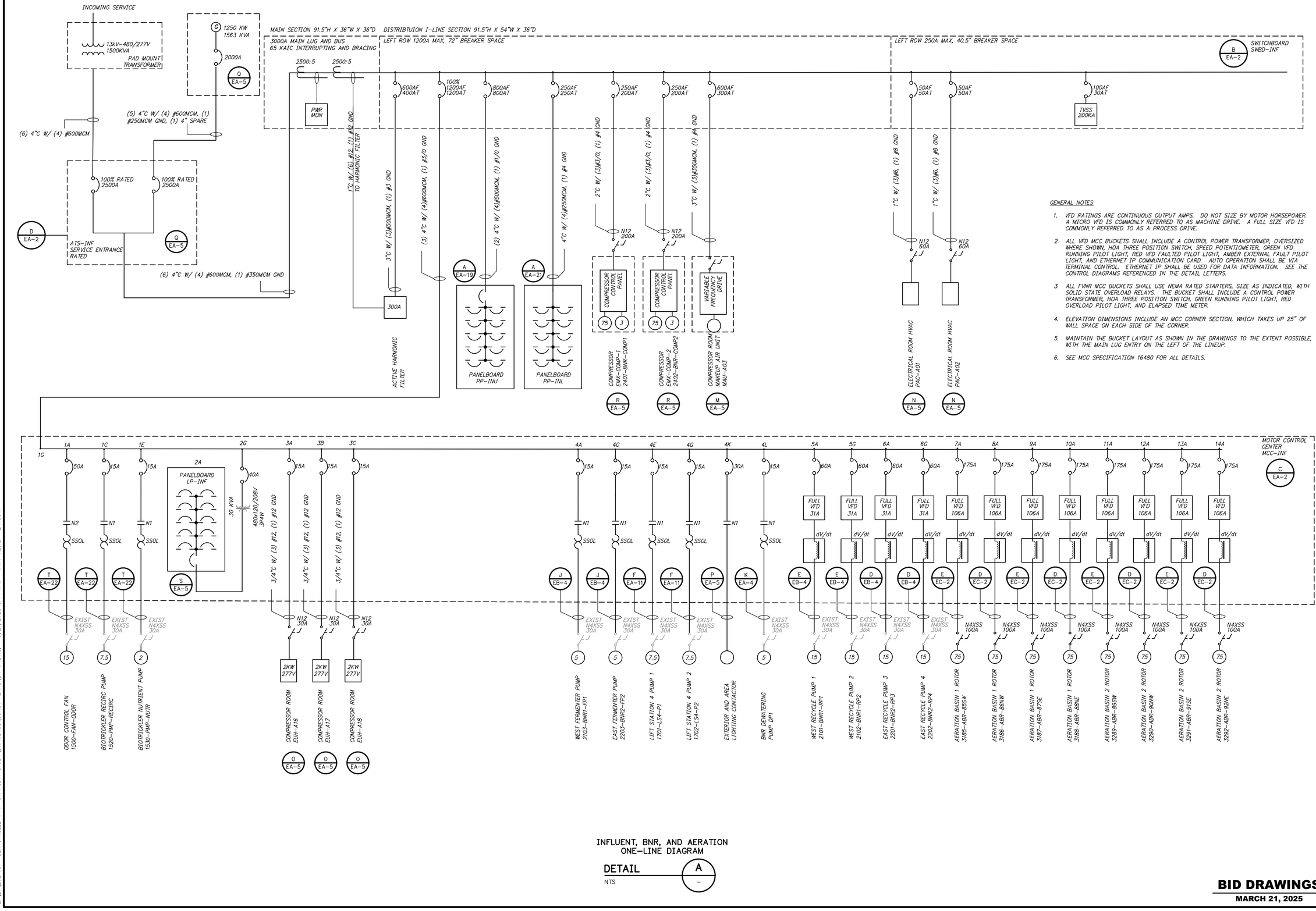
ENLARGED ELECTRICAL SITE PLAN
CLARIFICATION, RAS PUMPING, RAS FLOWMETERS, AND WASTING PUMP STATION
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1"=10'
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: E-16

SHEET NO.
E-16

BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\E-16.DWG, 3/21/2025 8:41 AM, MATT WEIR, LAYOUT1



GENERAL NOTES

1. VFD RATINGS ARE CONTINUOUS OUTPUT AMPS. DO NOT SIZE BY MOTOR HORSEPOWER. A MICRO VFD IS COMMONLY REFERRED TO AS MACHINE DRIVE. A FULL SIZE VFD IS COMMONLY REFERRED TO AS A PROCESS DRIVE.
2. ALL VFD MCC BUCKETS SHALL INCLUDE A CONTROL POWER TRANSFORMER, OVERSIZED WHERE SHOWN, HOA THREE POSITION SWITCH, SPEED POTENTIOMETER, GREEN VFD RUNNING PILOT LIGHT, RED VFD FAULTED PILOT LIGHT, AMBER EXTERNAL FAULT PILOT LIGHT, AND ETHERNET IP COMMUNICATION CARD. AUTO OPERATION SHALL BE VIA TERMINAL CONTROL. ETHERNET IP SHALL BE USED FOR DATA INFORMATION. SEE THE CONTROL DIAGRAMS REFERENCED IN THE DETAIL LETTERS.
3. ALL FVNR MCC BUCKETS SHALL USE NEMA RATED STARTERS, SIZE AS INDICATED, WITH SOLID STATE OVERLOAD RELAYS. THE BUCKET SHALL INCLUDE A CONTROL POWER TRANSFORMER, HOA THREE POSITION SWITCH, GREEN RUNNING PILOT LIGHT, RED OVERLOAD PILOT LIGHT, AND ELAPSED TIME METER.
4. ELEVATION DIMENSIONS INCLUDE AN MCC CORNER SECTION, WHICH TAKES UP 25" OF WALL SPACE ON EACH SIDE OF THE CORNER.
5. MAINTAIN THE BUCKET LAYOUT AS SHOWN IN THE DRAWINGS TO THE EXTENT POSSIBLE, WITH THE MAIN LUG ENTRY ON THE LEFT OF THE LINEUP.
6. SEE MCC SPECIFICATION 16480 FOR ALL DETAILS.

INFLUENT, BNR, AND AERATION ONE-LINE DIAGRAM

DETAIL A
NTS –

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS L. SCOTT MCCOY No. 9598 REGISTERED PROFESSIONAL ENGINEER 3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT ELECTRICAL BUILDING SWBD-INF AND MCC-INF ONE-LINE DIAGRAM

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EA-01

SHEET NO.
EA-1

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EA-01.DWG, 3/21/2025 8:41 AM, MATT WEIR, LAYOUT1

SWITCHBOARD SWBD-INF

CKT #	DESCRIPTION	WIRE (GND)	CB (PANEL SPACE)	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND
1	ELECTRICAL BLDG MCC-INF	(4)#600 (#3/0)	1200A (9")	(3) 4"	962	785				
	"	"	"	"	–	–	962	785		
	"	"	"	"			–	–	962	785
2	INFLUENT BLDG PANEL PP-INFU	(4)#600 (#3/0)	800 (9")	(2) 4"	548	507			–	–
	"	"	"	"	–	–	548	507		
	"	"	"	"			–	–	548	507
3	INFLUENT BLDG PANEL PP-INFL	(4)#250 (#4)	200 (4.5")	4"	132	132			–	–
	"	"	"	"	–	–	132	132		
	"	"	"	"			–	–	132	132
4	ACTIVE HARMONIC FILTER FLT-INF	(3)#350 (#3)	400 (7.5")	3"	300	0			–	–
	"	"	"	"	–	–	300	0		
	"	"	"	"			–	–	300	0
5	AIR COMPRESSOR EMX-COMP-1	(3)#3/0 (#4)	200 (4.5")	2"	96	96			–	–
	"	"	"	"	–	–	96	96		
	"	"	"	"			–	–	96	96
6	AIR COMPRESSOR EMX-COMP-2	(3)#3/0 (#4)	200 (4.5")	2"	96	0			–	–
	"	"	"	"	–	–	96	0		
	"	"	"	"			–	–	96	0
7	MAKUP AIR MAU-A03	(3)#350 (#4)	300 (7.5")	3"	217	217			–	–
	"	"	"	"	–	–	217	217		
	"	"	"	"			–	–	217	217
8	HVAC PAC-A01	(3)#6 (#8)	50 (4.5")	1"	40	40			–	–
	"	"	"	"	–	–	40	40		
	"	"	"	"			–	–	40	40
9	HVAC PAC-A02	(3)#6 (#8)	50 (4.5")	1"	40	0			–	–
	"	"	"	"	–	–	40	0		
	"	"	"	"			–	–	40	0
10	HVAC UNIT HEATERS	(3)#12 (#12)	50 (4.5")	1"	7	7			–	–
	"	"	"	"	–	–	7	7		
	"	"	"	"			–	–	7	7
					–	–			–	–
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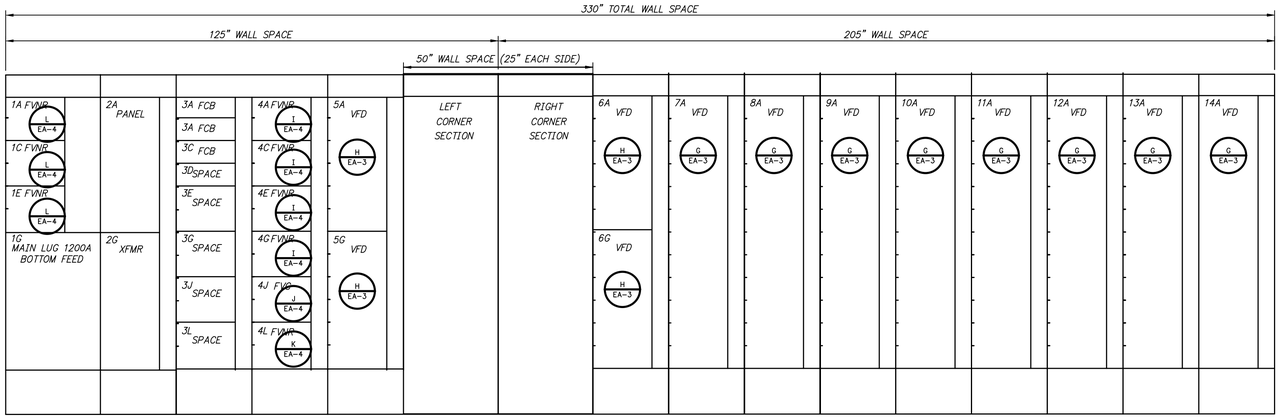
									–	–
					–	–				
							–	–		
									–	–
				TOTAL CONNECTED	2148		2148		2148	
				TOTAL DEMAND		1789		1789		1789

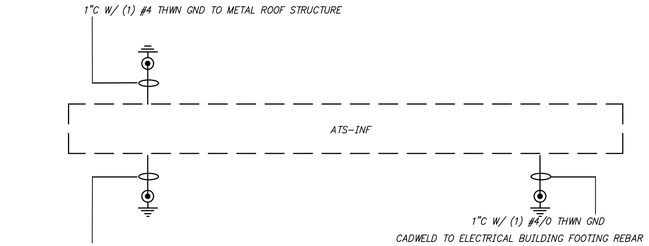
TYPE: SQUARE D QED-2 SWITCHBOARD MAIN LUG SECTION AND WITH I-LINE PANEL DOUBLE ROW INTERIOR
VOLTS: 277/480, THREE PHASE, FOUR WIRE
MAIN: 3000 AMP MAIN LUG BOTTOM FEED
BRANCH SECTION: 3000 AMP INTERIOR, DOUBLE ROW MAX CB FRAME 1200A LEFT SIDE, 250A RIGHT SIDE
BRANCH SECTION: 72" BREAKER SPACE LEFT SIDE, 40.5" RIGHT SIDE
BRANCH CB: ELECTRONIC TRIP UNITS FOR ALL LEFT SIDE BREAKERS
OPTIONAL ITEM: SPD/TVSS 240KA MOUNTED IN THE BRANCH BREAKER SECTION
OPTIONAL ITEM: POWERLOGIC PM5560 WITH 4DI/2DO AND ETHERNET IP PROTOCOL
MOUNTING: FREE STANDING
ENCLOSURE RATING: NEMA 1

CONNECTED KVA: 1785
DEMAND KVA: 1487
DESIGN KVA: 1500

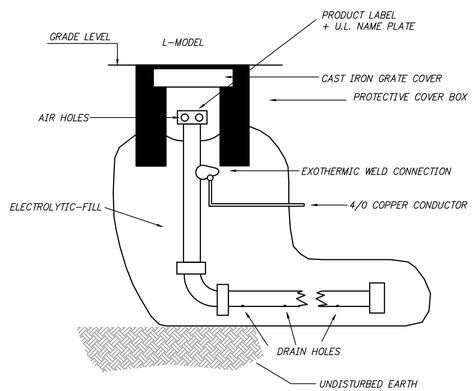
SWITCHBOARD SWBD-INF SCHEDULE
DETAIL B / NTS / EA-1



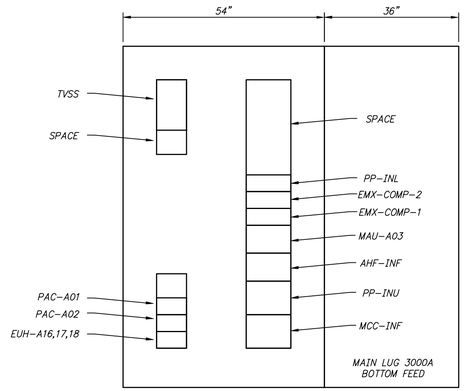
MOTOR CONTROL CENTER MCC-INF ELEVATION
DETAIL C / NTS / EA-1



GROUNDING ELECTRODE CONDUCTORS
DETAIL F / NTS / –



ELECTROLYTIC GROUNDING ELECTRODE
DETAIL F / NTS / –



SWITCHBOARD SWBD-INF ELEVATION
DETAIL E / NTS / EA-1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9598 L. Scott Hawkins

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT ELECTRICAL BUILDING SWBD-INF AND MCC-INF ELEVATION, SCHEDULE, AND DETAILS

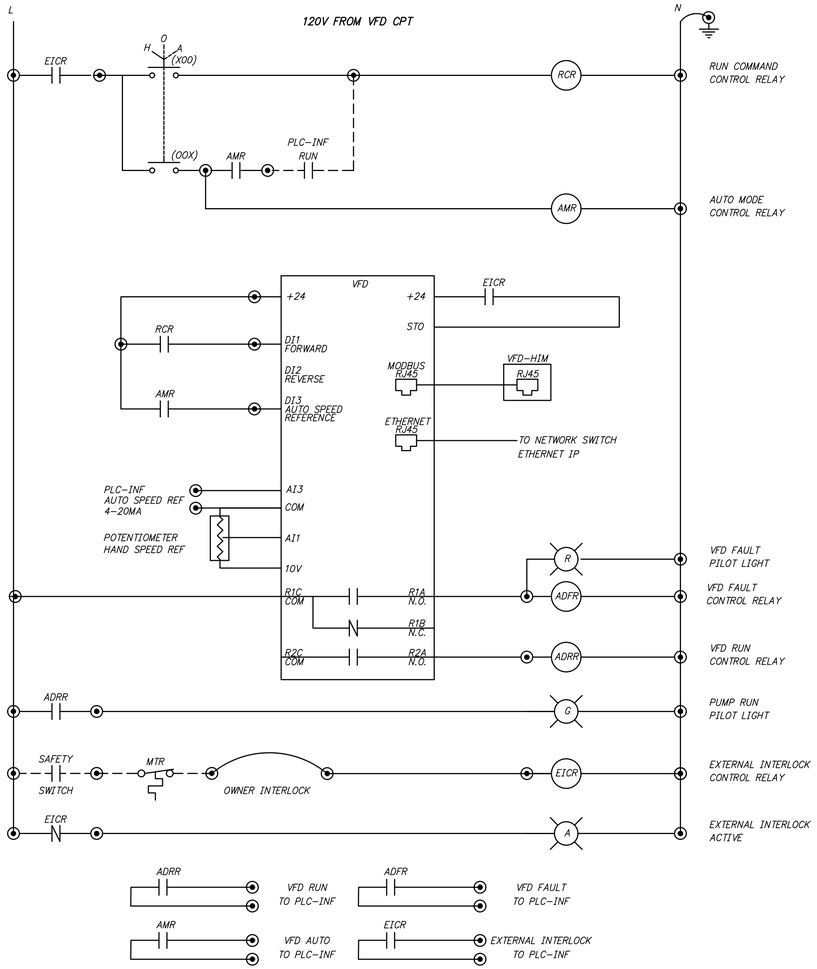
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EA-02

BID DRAWINGS
MARCH 21, 2025

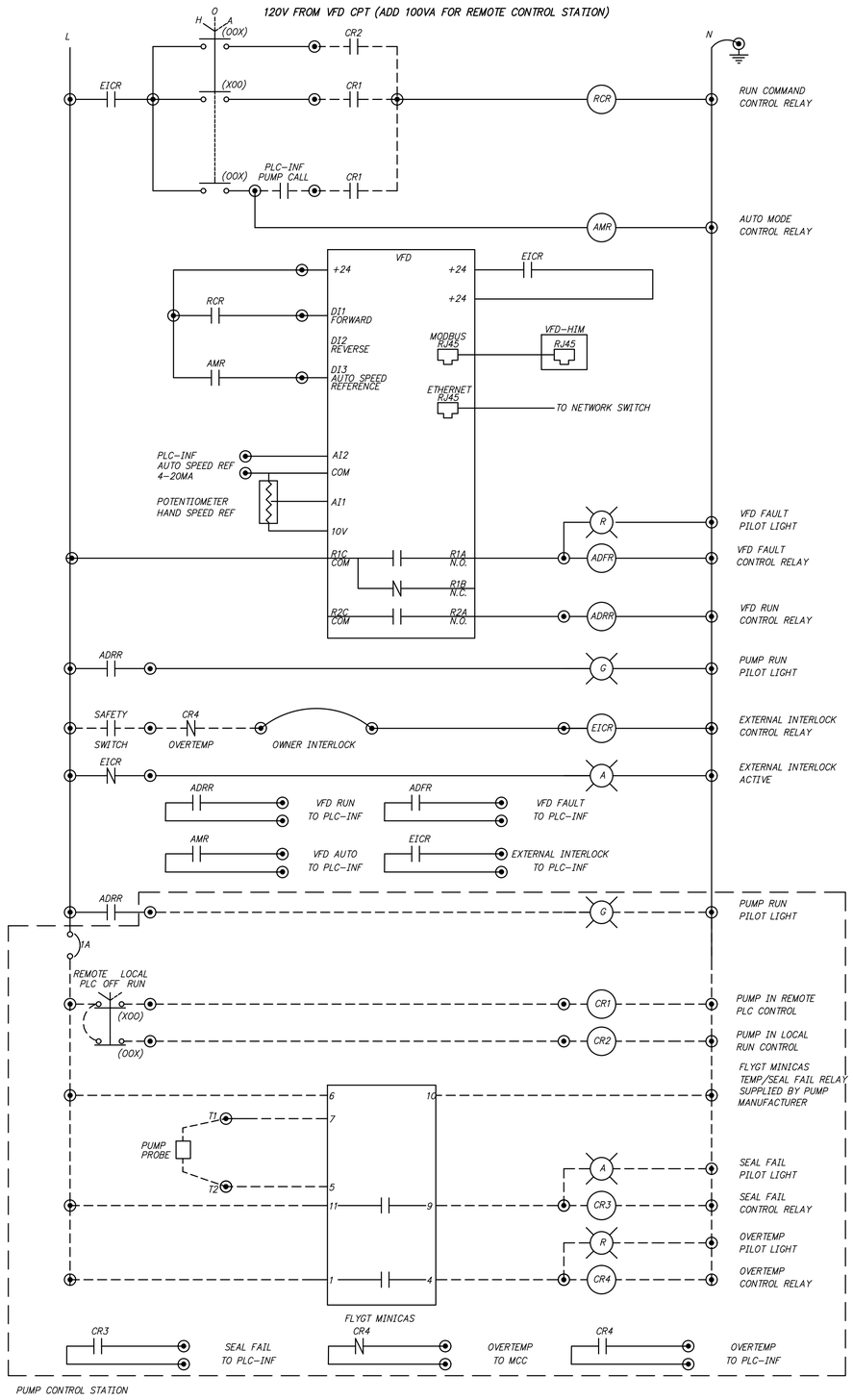
SHEET NO. EA-2

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EA-02.DWG, 3/21/2025 8:41 AM, MATT WEIR, LAYOUT1



AERATION BASIN ROTOR
CONTROL DIAGRAM

DETAIL G
NTS EA-2



RECYCLE PUMP
CONTROL DIAGRAM

DETAIL H
NTS EA-2

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
MATTHEW S. WEIR
No. 9586
REGISTERED PROFESSIONAL ENGINEER
3/21/2025

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BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY
FACILITY IMPROVEMENTS

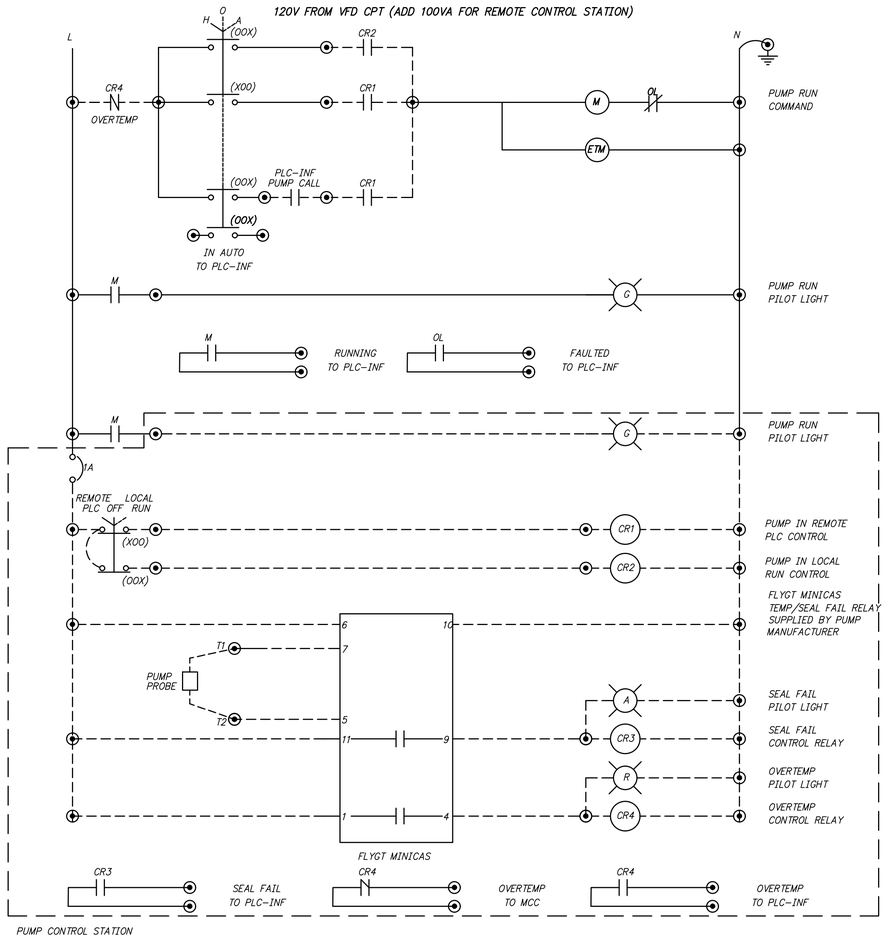
INFLUENT ELECTRICAL BUILDING
MCC-INF AERATION ROTOR AND RECYCLE PUMP
CONTROL DIAGRAMS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EA-03

SHEET NO.
EA-3

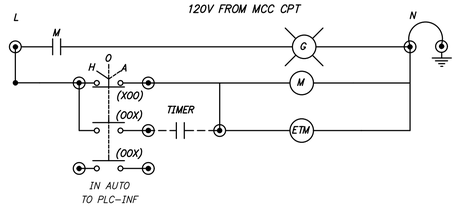
Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EA-03.DWG, 3/21/2025 8:41 AM, MATT WEIR, LAYOUT1



FERMENTER PUMP AND LIFT STATION 4 PUMP CONTROL DIAGRAM

DETAIL I / EA–2

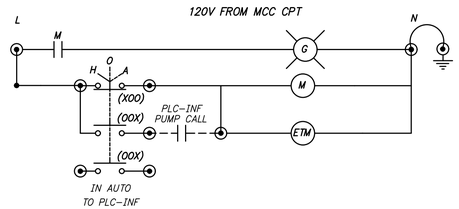
NTS



EXTERIOR AND SITE LIGHTING CONTROL DIAGRAM

DETAIL J / EA–2

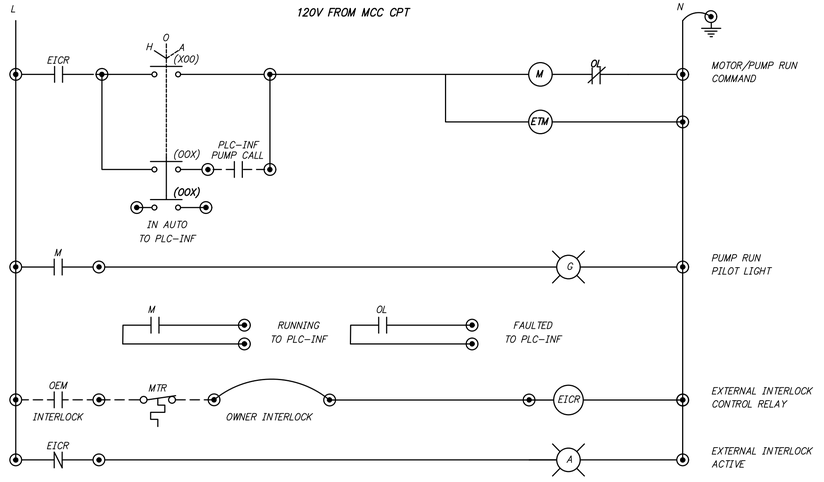
NTS



BNR DRAIN PUMP CONTROL DIAGRAM

DETAIL K / EA–2

NTS



ODOR CONTROL SYSTEM PACKAGE CONTROL DIAGRAM

DETAIL L / EA–2

NTS

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION | DATE

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STATE OF ARKANSAS — L. Scott Mason — REGISTERED PROFESSIONAL ENGINEER — No. 9586 — 3/21/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT SUBMERSIBLE PUMP CONTROLS
CONTROL DIAGRAM AND RISER DIAGRAMS

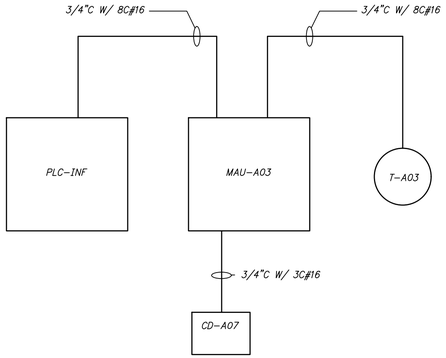
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EA–04

SHEET NO. EA–4

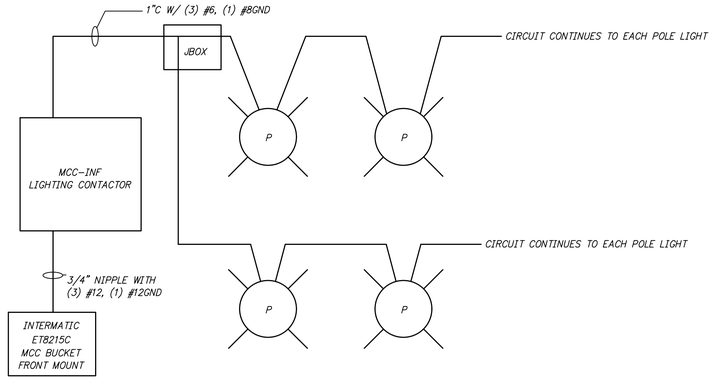
BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EA–04.DWG, 3/21/2025 8:41 AM, MATT WEIR, LAYOUT1



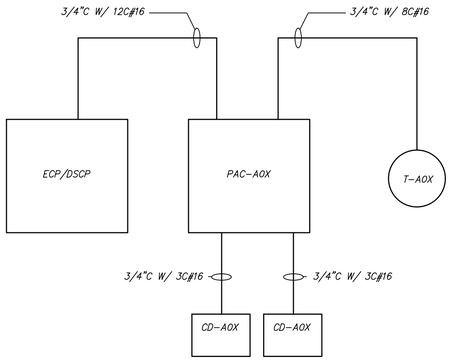
MAKEUP AIR UNIT MAU-A03
CONTROL RISER DIAGRAM

DETAIL M / EA-1
N.T.S.



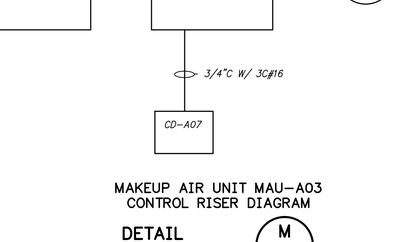
POLE LIGHTING
RISER DIAGRAM

DETAIL P / EA-1
N.T.S.



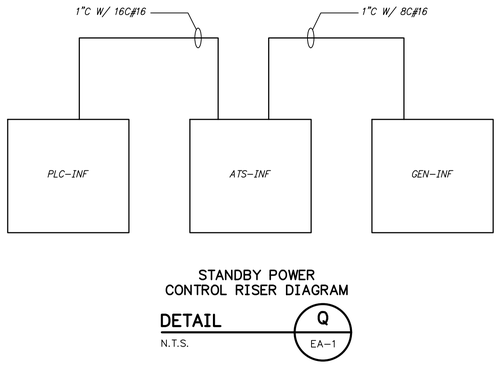
PACKAGED HVAC UNIT
CONTROL RISER DIAGRAM

DETAIL N / EA-1
N.T.S.



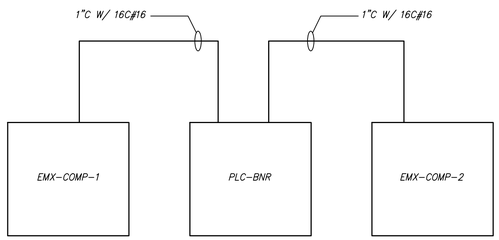
ELECTRIC UNIT HEATER
CONTROL RISER DIAGRAM

DETAIL O / EA-1
N.T.S.



STANDBY POWER
CONTROL RISER DIAGRAM

DETAIL Q / EA-1
N.T.S.



AIR COMPRESSORS
CONTROL RISER DIAGRAM

DETAIL R / EA-1
N.T.S.

PANEL LP-INF

CKT #	DESCRIPTION	WIRE	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND	CONDUIT	CB	WIRE	DESCRIPTION	CKT #
1	3185-ABR-85SW RECEPTACLE	#6 (#10)	20	3" SHARED	2	2					3" SHARED	20	#6 (#10)	3289-ABR-89SW RECEPTACLE	2
					2	2									
3	3186-ABR-86NW RECEPTACLE	#8 (#10)	20	3" SHARED			2	2			3" SHARED	20	#8 (#10)	3290-ABR-90NW RECEPTACLE	4
							2	2							
5	3187-ABR-87SE RECEPTACLE	#6 (#10)	20	3" SHARED					2	2	3" SHARED	20	#6 (#10)	3291-ABR-91SE RECEPTACLE	6
									2	2					
7	3188-ABR-88NE RECEPTACLE	#8 (#10)	20	3" SHARED	2	2					3" SHARED	20	#8 (#10)	3292-ABR-92NE RECEPTACLE	8
					2	2									
9	ELECTRICAL ROOM REC/LIGHTS	#12 (#12)	20	3/4"			7	7			3/4"	20	#12 (#12)	COMPRESSOR RM REC/LIGHTS	10
							10	10							
11	ECP-PAC-A01 POWER	#12 (#12)	20	3/4"					3	3	3/4"	20	#12 (#12)	DSCP-PAC-A03 POWER	12
									3	3					
13	PLC-INF POWER	#12 (#12)	20	3/4"	3	3					3/4"	20	#12 (#12)	PLC-BNR POWER	14
					3	3									
15	2100-BNR CS/VAL POWER AND HT	#10 (#12)	20	SITE			5	5			SITE	20	#10 (#12)	2200-BNR CS/VAL POWER AND HT	16
							5	5							
17	DAVIT CRANE POWER	#10 (#12)	20	SITE					5	5	SITE	20	#10 (#12)	DEWATERING PUMP CKT	18
									5	5					
19	PAC-A01 RECEPTACLE	#12 (#12)	20	3/4"	2	2					3/4"	20	#12 (#12)	PAC-A03 RECEPTACLE	20
					2	2									
21	GENERATOR AUX POWER	#10 (#12)	30	1"			15	15			SHARED	20	#12 (#12)	GENERATOR BATT CHARGE	22
							2	2							
23	"		"	"					15	15	SITE	20	#10 (#12)	INST-ABR1 POWER	24
	"								–	–					
25	WEST RECYCLE RECEPTACLE	#10 (#12)	20	SITE	3	3					SITE	20	#10 (#12)	EAST RECYCLE RECEPTACLE	26
					3	3									
27	PUMPED INFLUENT FLOW VAULT	#12 (#12)	20	SITE			–	–			SITE	20	#10 (#12)	INST-ABR2 POWER	28
							–	–							
29	SPARE –		20						–	–		20		SPARE –	30
									–	–					
				TOTAL CONNECTED	TBD		TBD		TBD						
				TOTAL DEMAND		TBD		TBD		TBD					

TYPE: LIGHTING AND APPLIANCE
VOLTS: 120/208, THREE PHASE, FOUR WIRE
MAIN: 80 AMP
BUS: 100 AMP
RATING: 10 KAIC
MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1

CONNECTED KVA: TBD
DEMAND KVA: TBD
DESIGN KVA: 30

INFLUENT ELECTRICAL BUILDING
PANEL LP-INF SCHEDULE

DETAIL S / EA-1
NTS

INFLUENT ELECTRICAL BUILDING LIGHTING FIXTURE SCHEDULE

FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL#	QTY	TYPE	NOTES
B	120-277	67	HOLOPHANE EVT4 8000LM FST MD MVOLT GZ10 40K 80CRI	15	LED	MOUNT TO BOTTOM OF ROOF JOISTS –
C	120-277	88	LITHONIA WDGE3 LED P4 30K 80CRI RFT MVOLT SRM DNAXD	7	LED	MOUNT AT 14' AFG –
X	120-277	3	LITHONIA LHQM R HO M6 –	3	LED	MOUNT ABOVE EXIT DOORS –

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
MATTHEW S. WEIR
PROFESSIONAL ENGINEER
No. 9586
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

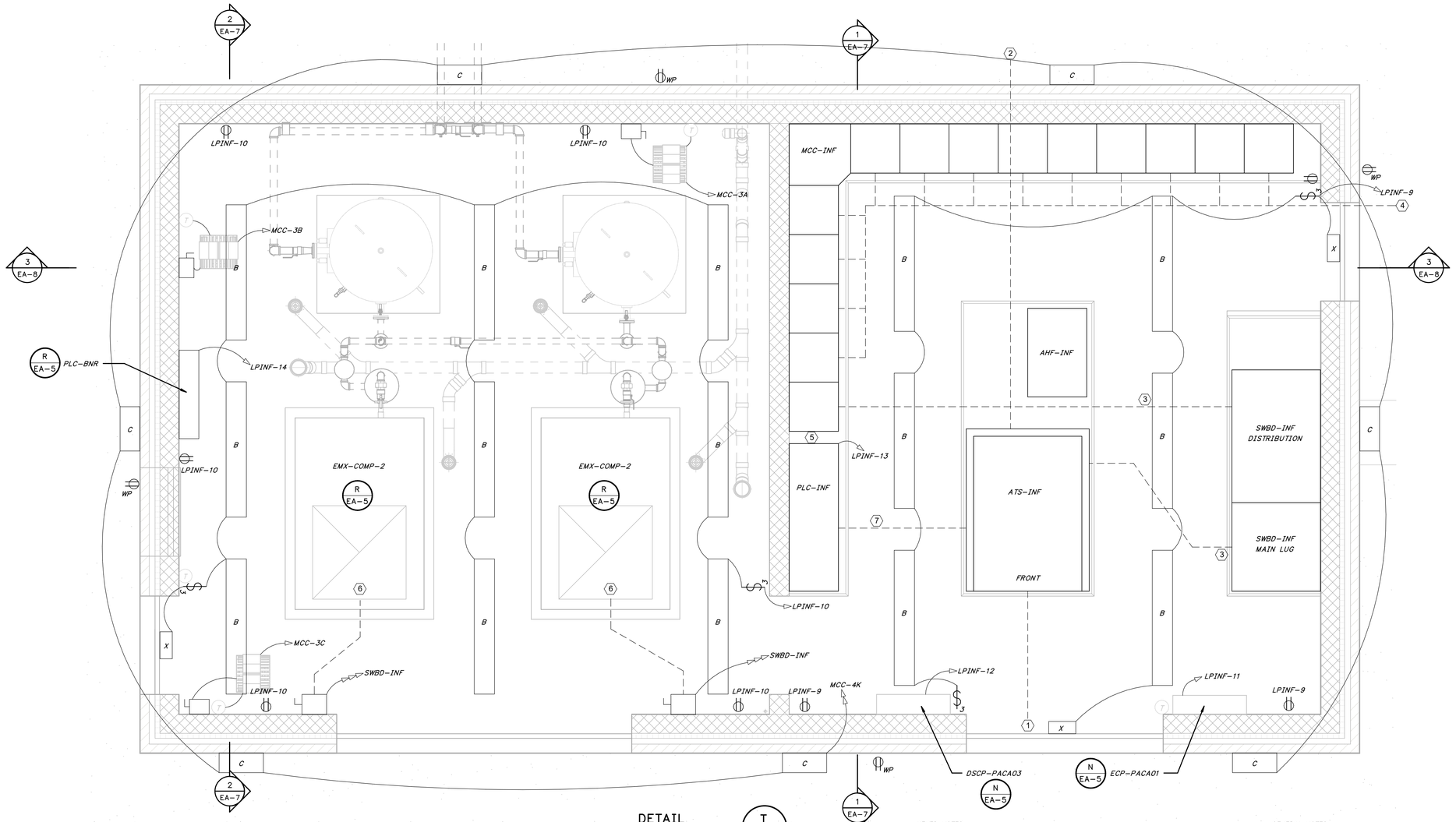
INFLUENT ELECTRICAL BUILDING CONTROL DIAGRAMS AND SCHEDULES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EA-05

SHEET NO.
EA-5

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EA-05.DWG, 3/21/2025 8:42 AM, MATT WEIR, LAYOUT1



DETAIL T
1/2" = 1'-0" E-9

KEYED NOTES

1. UNDERGROUND CONDUITS BETWEEN THE ATS AND THE UTILITY TRANSFORMER, SHOWN IN SECTION 9 SHEET E-9, SHALL BE AT SUFFICIENT DEPTH TO ROUTE UNDER THE BUILDING FOUNDATION FOOTING.
2. UNDERGROUND CONDUITS BETWEEN THE ATS AND THE STANDBY GENERATOR, SHOWN IN SECTION 10 SHEET E-9, SHALL BE AT SUFFICIENT DEPTH TO ROUTE UNDER THE BUILDING FOUNDATION FOOTING AND COORDINATE WITH CROSSING THE UNDERGROUND CONDUITS BETWEEN MCC-INF/PLC-INF AND ELECTRICAL HANDHOLES.
3. UNDERGROUND CONDUITS BETWEEN THE SWITCHBOARD SWBD-INF AND MCC-INF SHALL COORDINATE DEPTH WITH CROSSING CONDUITS TO ATS-INF.
4. IN GENERAL, CONDUITS FROM MCC-INF AND PLC-INF SHALL ROUTE IN THIS AREA SHOWN TO THE ELECTRICAL HANDHOLES, AND SHALL BE SUFFICIENT DEPTH TO ROUTE UNDER THE BUILDING FOUNDATION FOOTING. THE CONDUITS ARE SHOWN IN SECTIONS 7 AND 8 ON SHEET E-9. THESE CONDUITS WILL STUB UP THROUGH THE BOTTOM OF THE HANDHOLES.
5. PLC-INF AND MCC-INF SHALL BE INSTALLED AGAINST EACH OTHER, WITH THREE (3) 3" CONDUIT NIPPLES BETWEEN THE PLC ENCLOSURE AND THE UPPER MCC WIREWAY. ALL MCC/PLC CONTROL WIRING SHALL ROUTE IN THIS AREA.
6. CONDUIT STUB-UP LOCATIONS FOR THE AIR COMPRESSORS SHALL BE COORDINATED DURING SUBMITTAL REVIEW.
7. SEE STANDBY POWER RISER DIAGRAM SHEET EA-5.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.
8. ALL CONDUIT AND BOXES INSIDE THE BUILDING SHALL BE SURFACE MOUNTED. NO CONDUITS SHALL BE INSTALLED IN THE BLOCK WALLS. USE CAST ALUMINUM BOXES, EXCEPT FOR LIGHTING CONDUITS IN THE CEILING SPACE, WHICH MAY BE SHEET METAL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
L. SCOTT McBRIDE
No. 9588
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

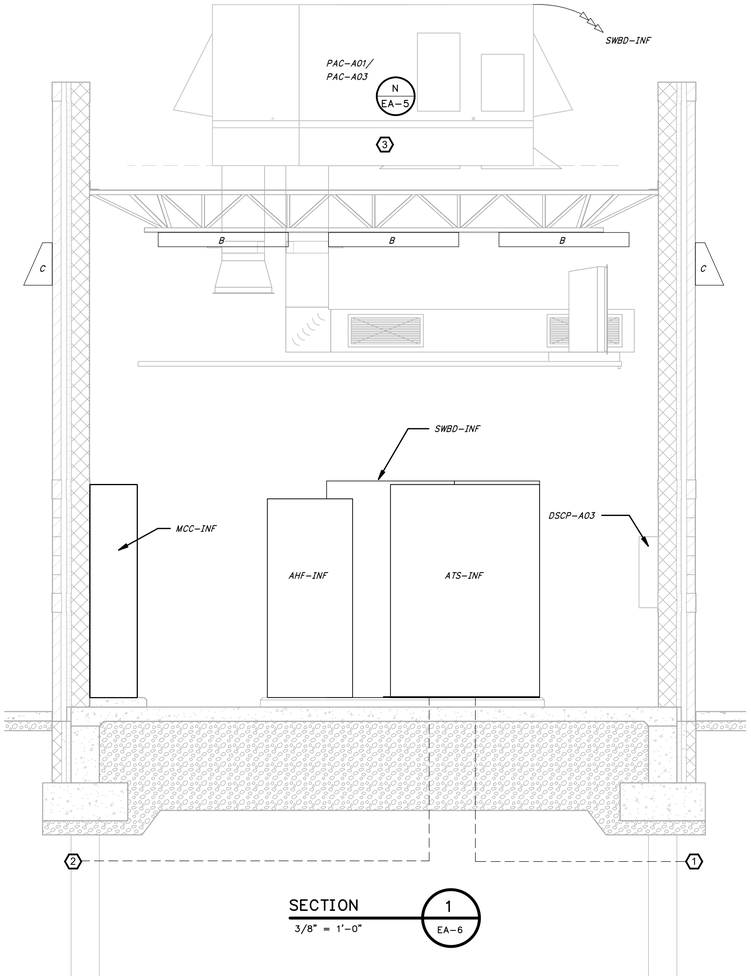
INFLUENT ELECTRICAL BUILDING
DETAIL AND SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

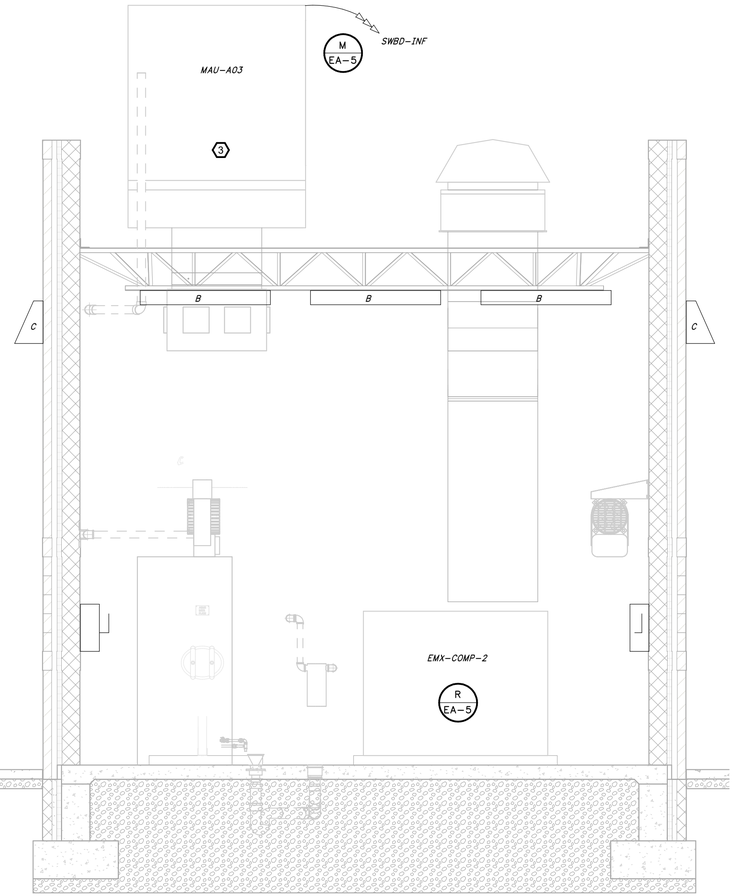
DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: LSM
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME:

SHEET NO.
EA-6

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRC21037-EL.rvt 3/21/2025 10:20:27 AM / DKS / INFLUENT ELECTRICAL BUILDING



SECTION 1
3/8" = 1'-0"
EA-6



SECTION 2
3/8" = 1'-0"
EA-6

KEYED NOTES

1. UNDERGROUND CONDUITS BETWEEN THE ATS AND THE UTILITY TRANSFORMER, SHOWN IN SECTION 9 SHEET E-9, SHALL BE AT SUFFICIENT DEPTH TO ROUTE UNDER THE BUILDING FOUNDATION FOOTING.
2. UNDERGROUND CONDUITS BETWEEN THE ATS AND THE STANDBY GENERATOR, SHOWN IN SECTION 10 SHEET E-9, SHALL BE AT SUFFICIENT DEPTH TO ROUTE UNDER THE BUILDING FOUNDATION FOOTING AND COORDINATE WITH CROSSING THE UNDERGROUND CONDUITS BETWEEN MCC-INF/PLC-INF AND ELECTRICAL HANDHOLES.
3. ROUTE CONDUITS THROUGH THE ROOF CURB. COORDINATE SAFETY SWITCH LOCATION WITH EQUIPMENT.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.
8. ALL CONDUIT AND BOXES INSIDE THE BUILDING SHALL BE SURFACE MOUNTED. NO CONDUITS SHALL BE INSTALLED IN THE BLOCK WALLS. USE CAST ALUMINUM BOXES, EXCEPT FOR LIGHTING CONDUITS IN THE CEILING SPACE, WHICH MAY BE SHEET METAL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT McBRIDE
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3-21-25

HAWKINS-WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

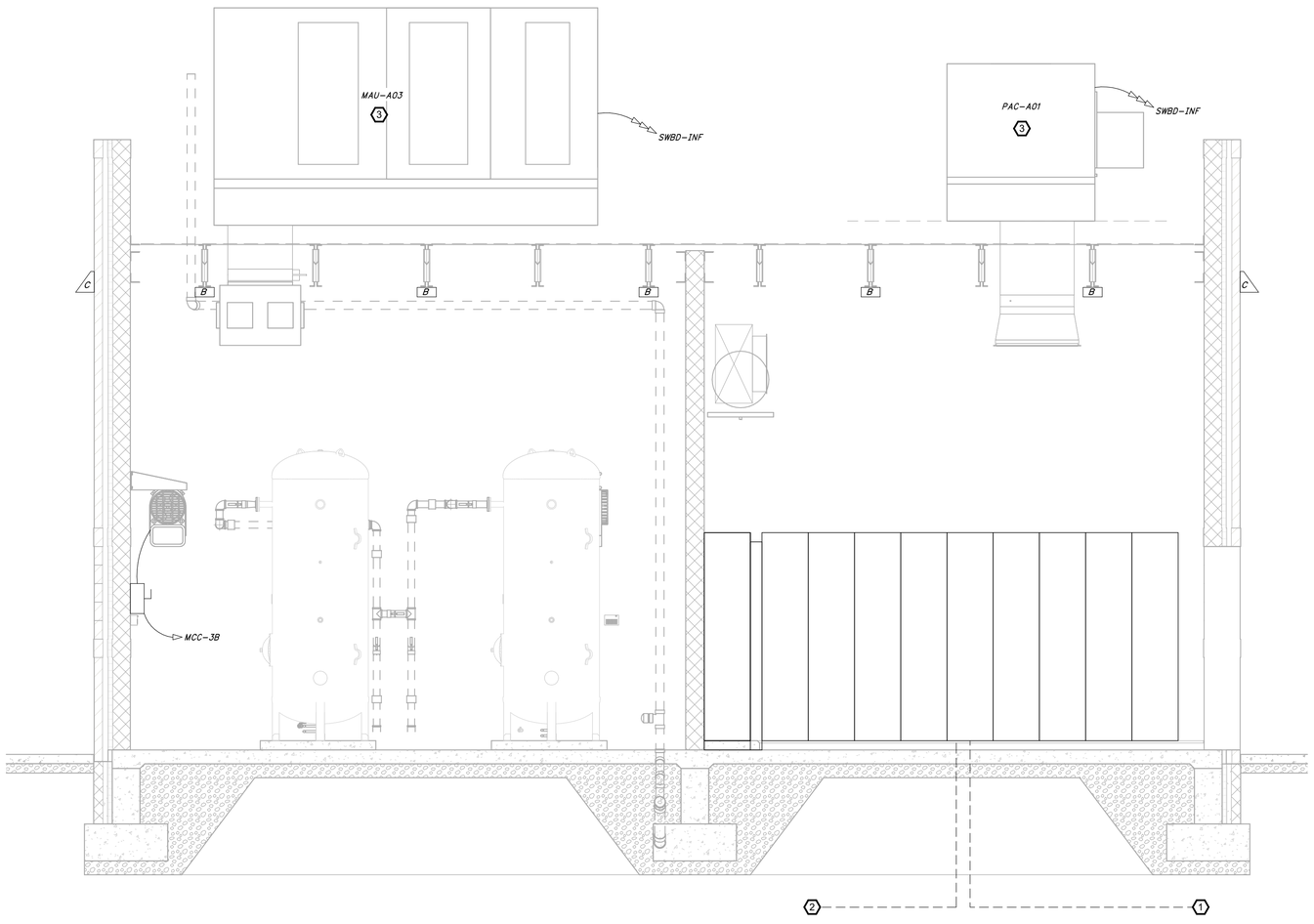
INFLUENT ELECTRICAL BUILDING
DETAIL AND SECTIONS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: LSM
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EA-7

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:02:43 AM / DKS / INFLUENT ELECTRICAL BUILDING



SECTION 3/8" = 1'-0" — 3 / EA-6

KEYED NOTES

1. UNDERGROUND CONDUITS BETWEEN THE ATS AND THE UTILITY TRANSFORMER, SHOWN IN SECTION 9 SHEET E-9, SHALL BE AT SUFFICIENT DEPTH TO ROUTE UNDER THE BUILDING FOUNDATION FOOTING.
2. UNDERGROUND CONDUITS BETWEEN THE ATS AND THE STANDBY GENERATOR, SHOWN IN SECTION 10 SHEET E-9, SHALL BE AT SUFFICIENT DEPTH TO ROUTE UNDER THE BUILDING FOUNDATION FOOTING AND COORDINATE WITH CROSSING THE UNDERGROUND CONDUITS BETWEEN MCC-INF/PLC-INF AND ELECTRICAL HANDHOLES.
3. ROUTE CONDUITS THROUGH THE ROOF CURB. COORDINATE SAFETY SWITCH LOCATION WITH EQUIPMENT.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.
8. ALL CONDUIT AND BOXES INSIDE THE BUILDING SHALL BE SURFACE MOUNTED. NO CONDUITS SHALL BE INSTALLED IN THE BLOCK WALLS. USE CAST ALUMINUM BOXES, EXCEPT FOR LIGHTING CONDUITS IN THE CEILING SPACE, WHICH MAY BE SHEET METAL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS — L. SCOTT MEHAFFY — No. 9888 — REGISTERED PROFESSIONAL ENGINEER — 3/21/25

HAWKINS-WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT ELECTRICAL BUILDING
DETAIL AND SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
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HWEI NO.: 2021037
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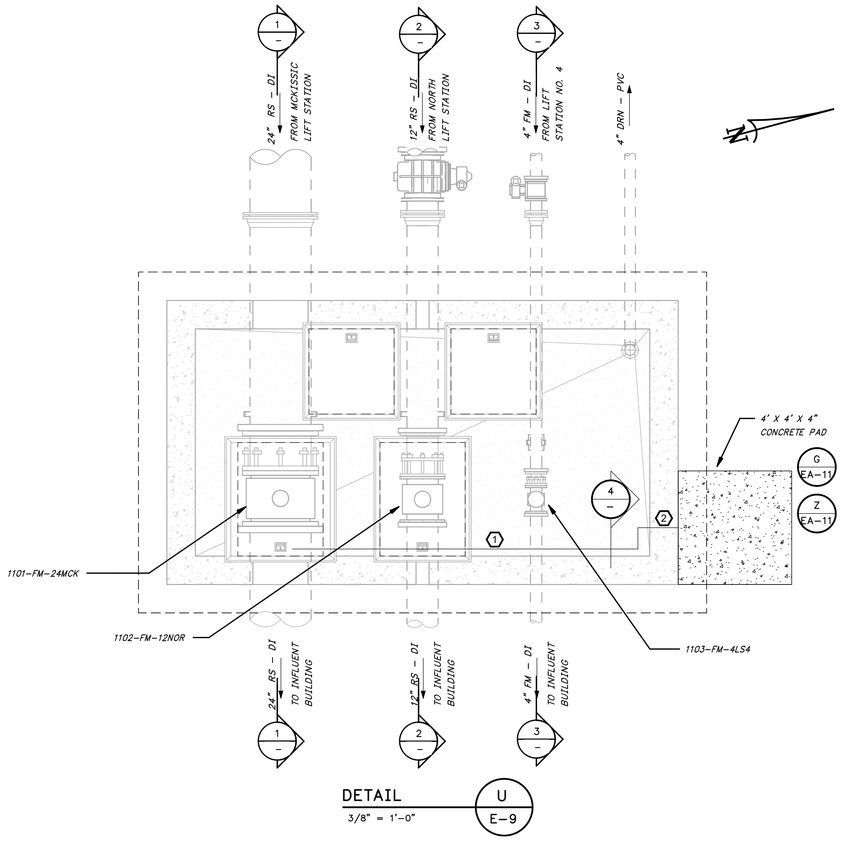
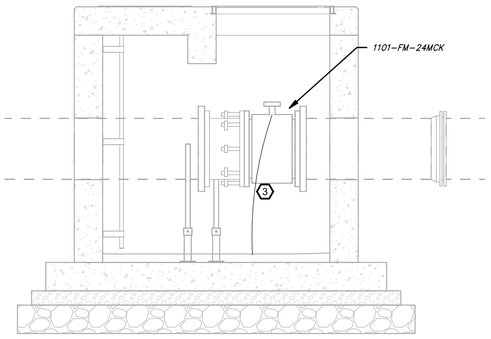
SHEET NO.
EA-8

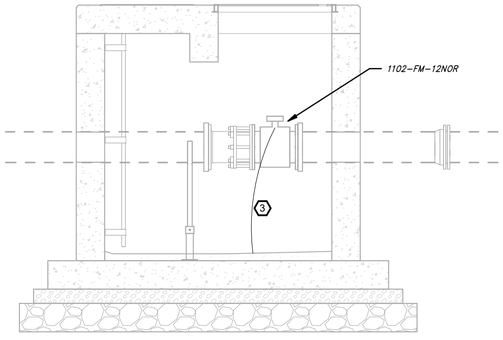
Autodesk Docs://210144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:02:45 AM / DKS / INFLUENT ELECTRICAL BUILDING



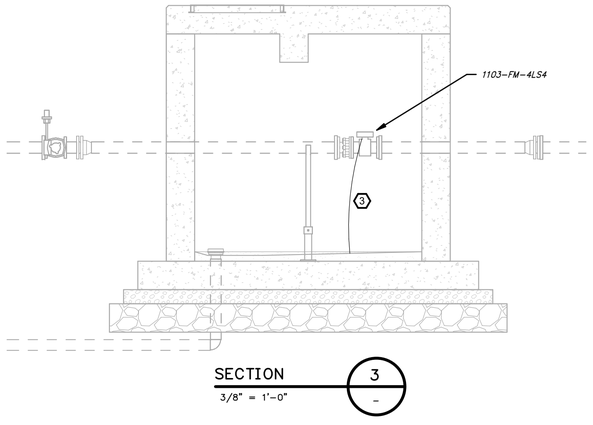
DETAIL U
3/8" = 1'-0"
E-9



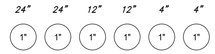
SECTION 1
3/8" = 1'-0"



SECTION 2
3/8" = 1'-0"



SECTION 3
3/8" = 1'-0"



METER VAULT CONDUITS

SECTION 4

KEYED NOTES

1. SURFACE MOUNT PVC SCHEDULE 40 CONDUIT TO THE WALL WITH UNISTRUT. PROVIDE CABLE GRIP ENTRY FOR EACH FLOW METER CABLE INTO THE CONDUIT.
2. INSTALL ALL CONDUIT ENTRIES THROUGH THE WALL PRIOR TO CONCRETE POUR.
3. CADWELD #6 BARE COPPER GROUND TO THE REBAR IN THE FLOOR OF THE VAULT, CONNECT TO THE FLOWMETER GROUNDING TERMINAL.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
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7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.
8. ALL CONDUIT AND BOXES INSIDE THE BUILDING SHALL BE SURFACE MOUNTED. NO CONDUITS SHALL BE INSTALLED IN THE BLOCK WALLS. USE CAST ALUMINUM BOXES, EXCEPT FOR LIGHTING CONDUITS IN THE CEILING SPACE, WHICH MAY BE SHEET METAL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT McBRIDE
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

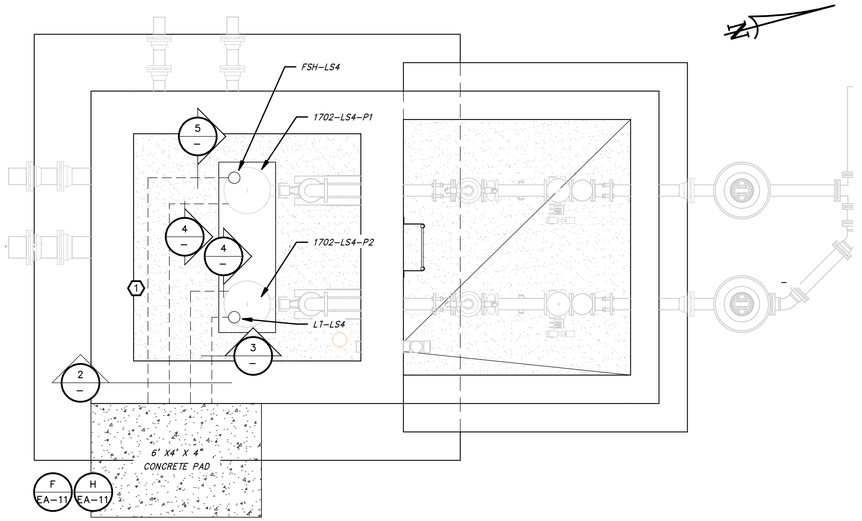
PUMPED INFLUENT METER VAULT DETAIL AND SECTIONS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: Designer
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EA-9

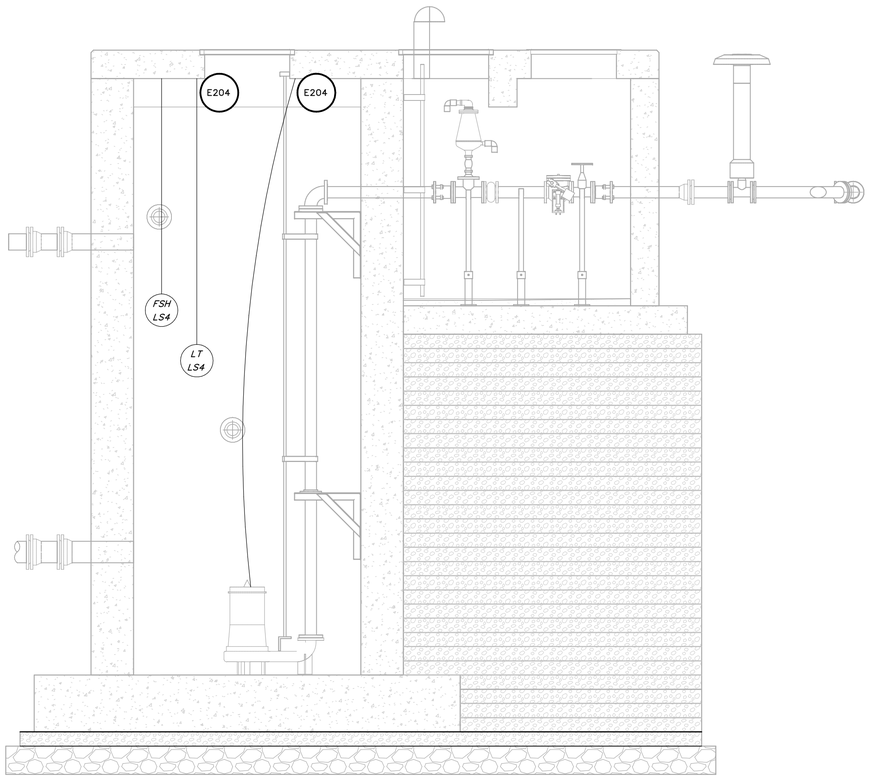
Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:02:55 AM / DKS / PUMPED INFLUENT METER VAULT



LIFT STATION NO. 4

DETAIL V / E-9

3/8" = 1'-0"



SECTION 1 / 3/8" = 1'-0"

1" 2" 1" 2" 1" 1"

LIFT STATION NO. 4
CONDUITS IN VAULT

SECTION 2 / –

1"

LIFT STATION NO. 4
CONDUITS IN VAULT

SECTION 3 / –

1" 2"

LIFT STATION NO. 4
CONDUITS IN VAULT

SECTION 4 / –

1"

LIFT STATION NO. 4
CONDUITS IN VAULT

SECTION 5 / –

KEYED NOTES

(1) *CONDUITS ARE EMBEDDED IN THE TOP SLAB FROM THE EQUIPMENT RACK TO THE HATCH VERTICAL CONCRETE FACE.*

GENERAL NOTES

1. *ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).*
2. *ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.*
3. *ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).*
4. *UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.*
5. *ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.*
6. *ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.*
7. *ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.*
8. *ALL CONDUIT AND BOXES INSIDE THE BUILDING SHALL BE SURFACE MOUNTED. NO CONDUITS SHALL BE INSTALLED IN THE BLOCK WALLS. USE CAST ALUMINUM BOXES, EXCEPT FOR LIGHTING CONDUITS IN THE CEILING SPACE, WHICH MAY BE SHEET METAL.*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT McBRIDE
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

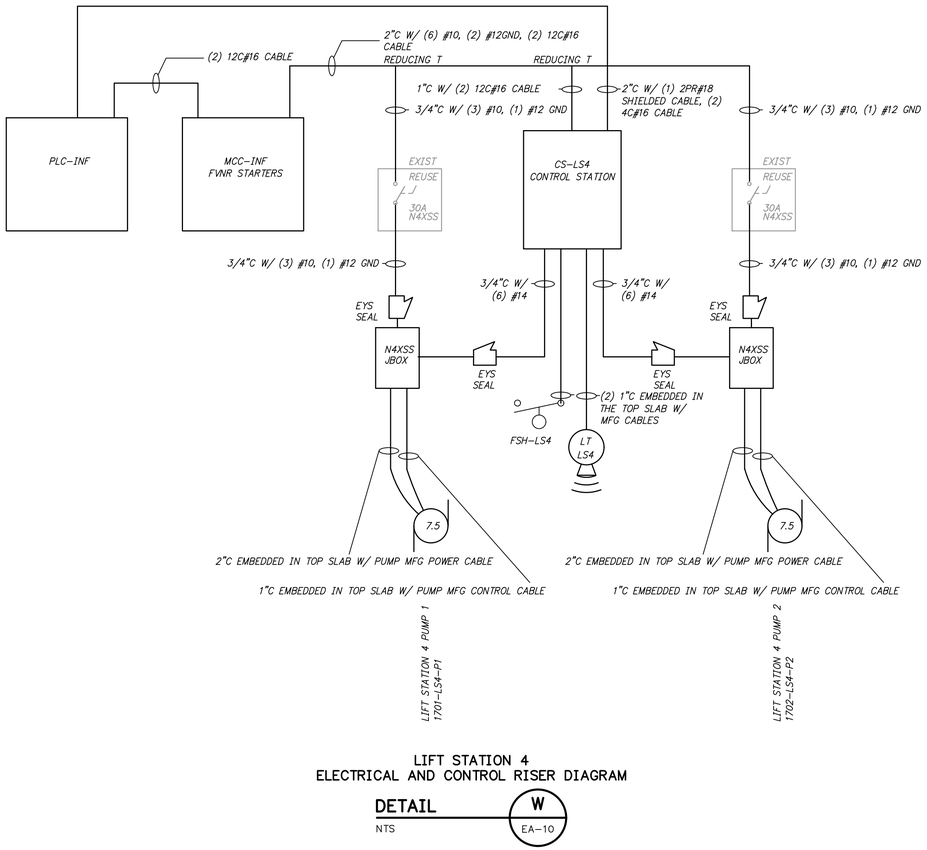
LIFT STATION NO. 4
DETAIL AND SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: Designer
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

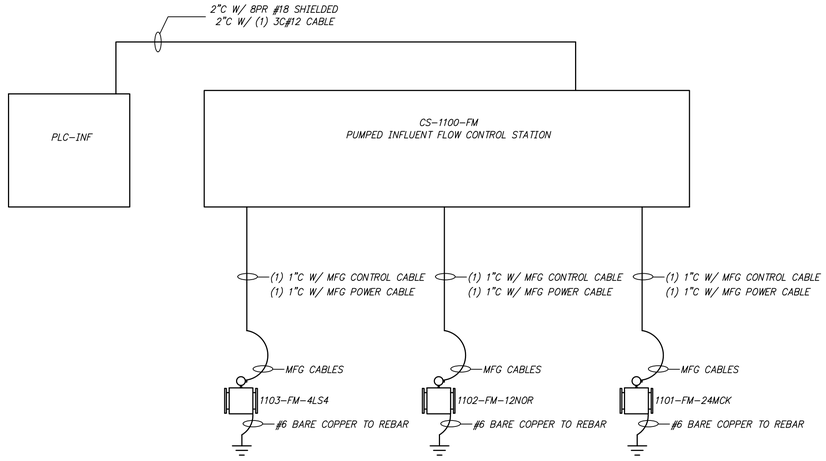
SHEET NO.
EA-10

Autodesk Docs://4101144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:03:01 AM / DKS / LIFT STATION NO. 4



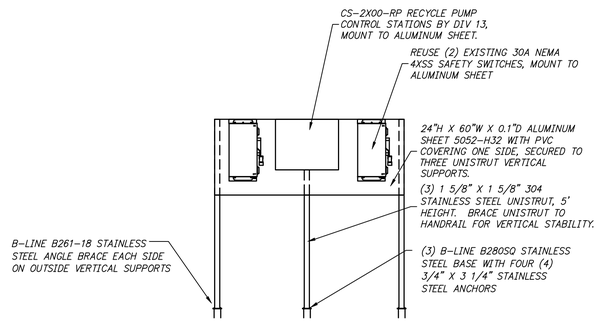
LIFT STATION 4
ELECTRICAL AND CONTROL RISER DIAGRAM

DETAIL W
NTS EA-10



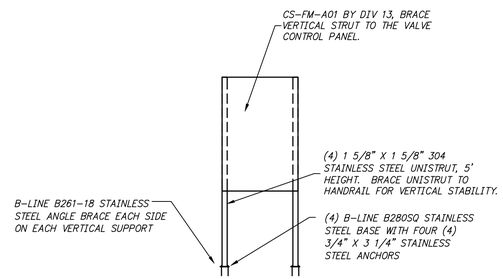
PUMPED INFLUENT FLOWMETERS
CONTROL AND ELECTRICAL RISER DIAGRAM

DETAIL X
NTS EA-9



LIFT STATION NO. 4
ELECTRICAL RACK LAYOUT

DETAIL Y
1/2" = 1'-0" EA-10



BNR AND INSTRUMENTATION
ELECTRICAL RACK LAYOUT

DETAIL Z
1/2" = 1'-0" EA-9

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
Matthew S. Weir
REGISTERED PROFESSIONAL ENGINEER
No. 9585
3-21-25
Scott Weir

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

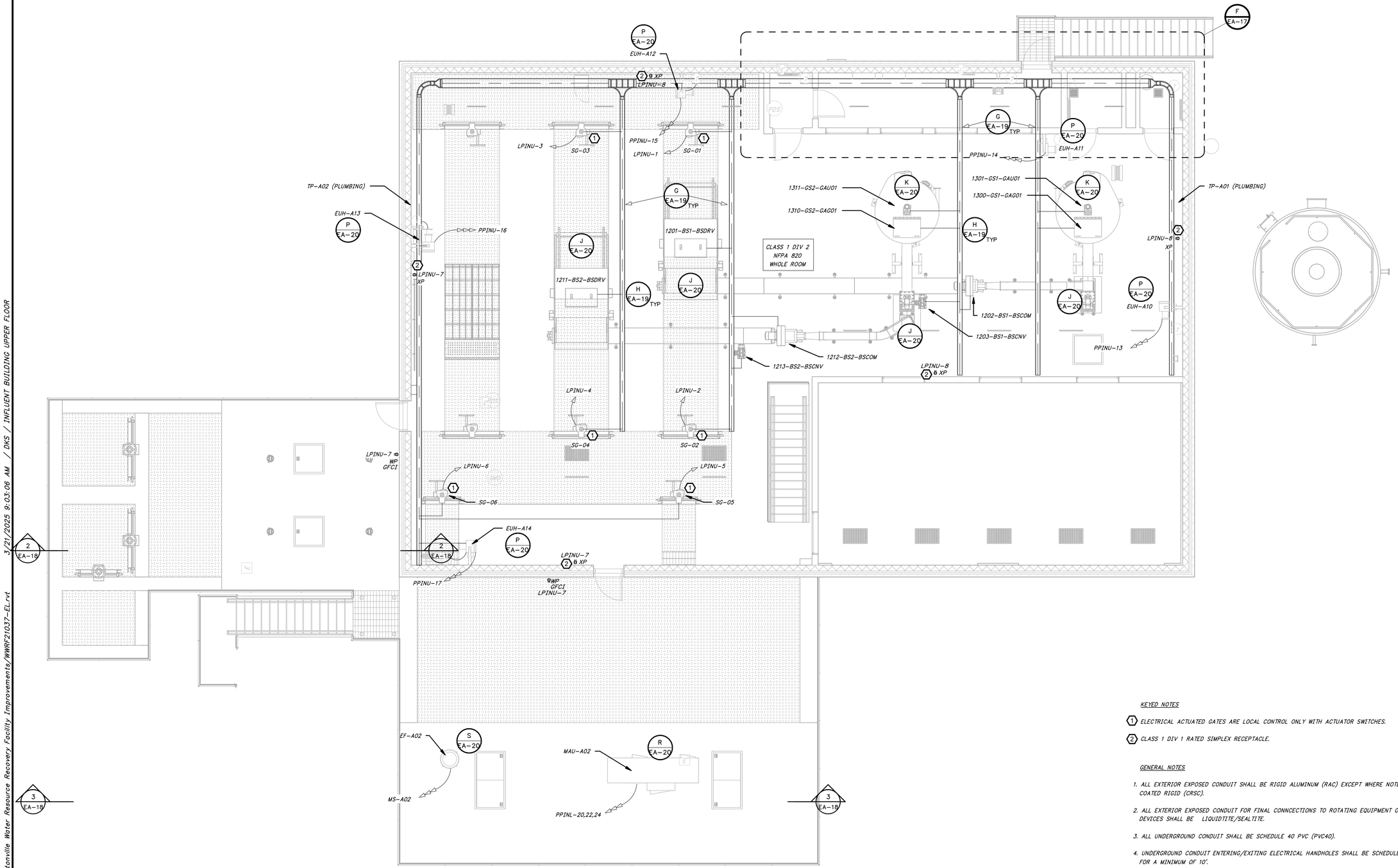
LIFT STATION NO. 4 AND PUMPED INFLUENT FLOWMETERS CONTROL AND RISER DIAGRAMS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EA-11

SHEET NO.
EA-11

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EA-11.DWG, 3/21/2025 8:42 AM, MATT WEIR, LAYOUT1



DETAIL A / E-9
3/16" = 1'-0"

KEYED NOTES

1. ELECTRICAL ACTUATED GATES ARE LOCAL CONTROL ONLY WITH ACTUATOR SWITCHES.
2. CLASS 1 DIV 1 RATED SIMPLEX RECEPTACLE.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
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6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

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MARCH 21, 2025

1"
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AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

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STATE OF ARKANSAS
L. SCOTT WEIR
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3-21-25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

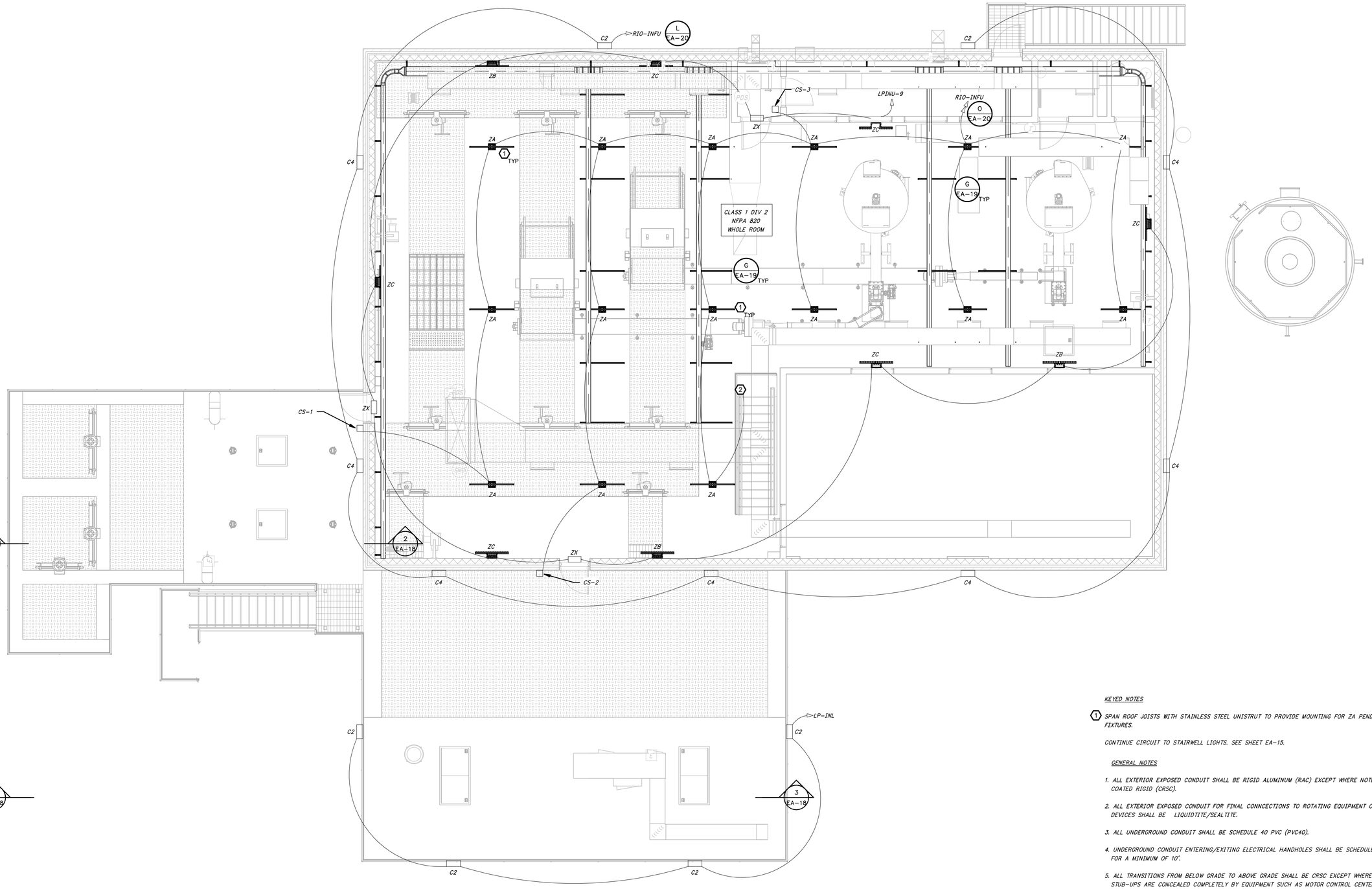
INFLUENT BUILDING UPPER FLOOR DETAIL POWER AND PROCESS PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EA-12

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt
3/21/2025 9:03:06 AM / DKS / INFLUENT BUILDING UPPER FLOOR



DETAIL B
3/16" = 1'-0"
E-9

KEYED NOTES

(1) SPAN ROOF JOISTS WITH STAINLESS STEEL UNISTRUT TO PROVIDE MOUNTING FOR ZA PENDANT LIGHTING FIXTURES.

CONTINUE CIRCUIT TO STAIRWELL LIGHTS. SEE SHEET EA-15.

GENERAL NOTES

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MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
L. SCOTT WEIR
No. 9888
3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING UPPER FLOOR
DETAIL LIGHTING AND HVAC PLAN
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
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SHEET NO.
EA-13

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:03:10 AM / DKS / INFLUENT BUILDING UPPER FLOOR

WG-01 480V | WG-01 120V | WG-01 4-20mA | WG-02 480V | WG-02 120V | WG-02 4-20mA

1" | 1" | 1" | 1" | 1" | 1"

WEIR GATES WG-01 AND WG-02
UNDERGROUND CONDUITS

SECTION 4 / –

INF1 | INF2

1" | 1" | 1" | 1"

FLOW METERS
UNDERGROUND CONDUITS

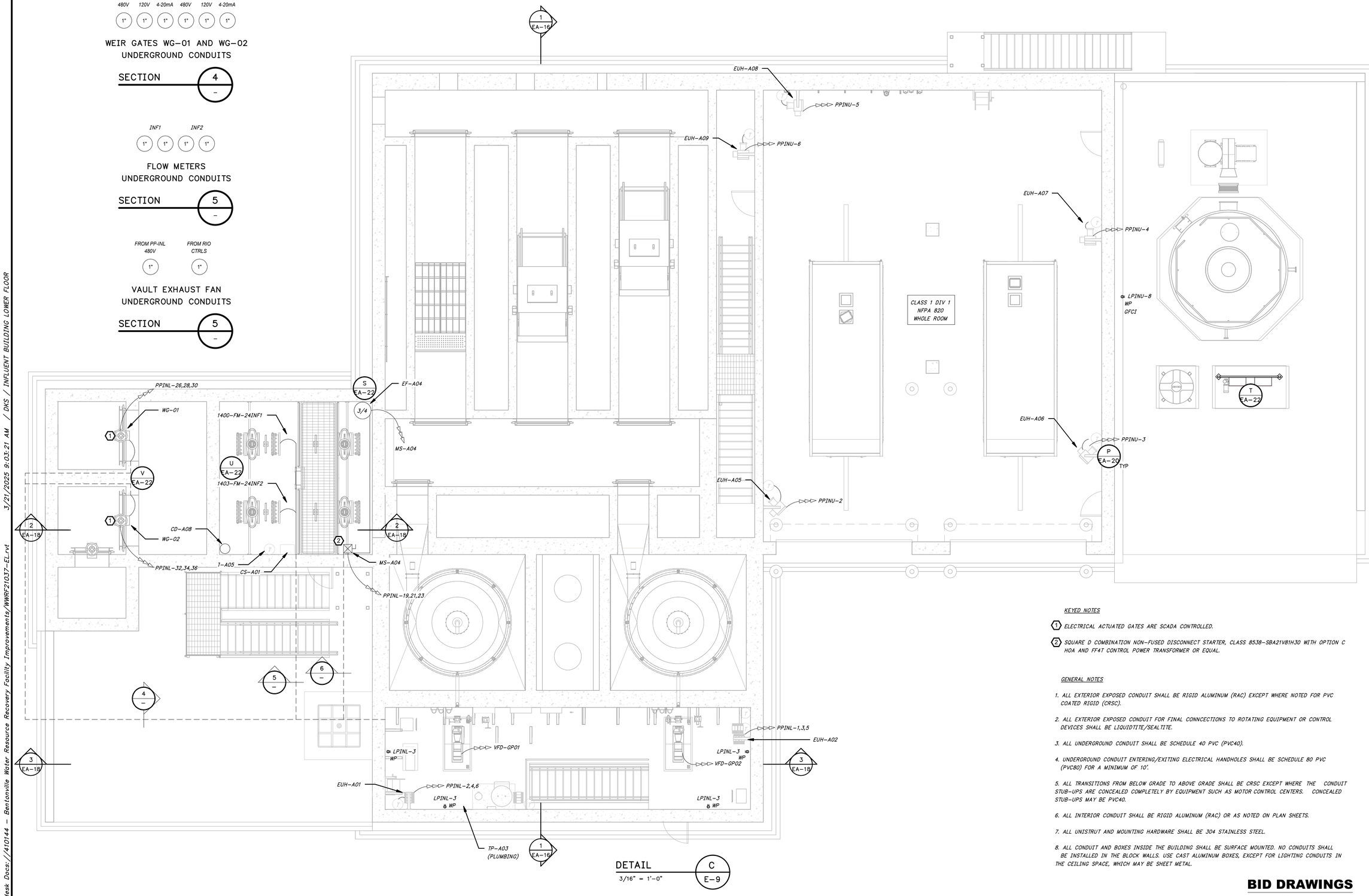
SECTION 5 / –

FROM PP-INL 480V | FROM RIO CTRLS

1" | 1"

VAULT EXHAUST FAN
UNDERGROUND CONDUITS

SECTION 5 / –



DETAIL C / E-9
3/16" = 1'-0"

KEYED NOTES

1. ELECTRICAL ACTUATED GATES ARE SCADA CONTROLLED.
2. SQUARE D COMBINATION NON-FUSED DISCONNECT STARTER, CLASS 8538-SBA21V81H30 WITH OPTION C HOA AND FF4T CONTROL POWER TRANSFORMER OR EQUAL.

GENERAL NOTES

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BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE | REVISION

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STATE OF ARKANSAS
L. SCOTT McBRIDE
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING LOWER FLOOR
DETAIL AND PROCESS PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EA-14

Autodesk Docs://4101144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:03:21 AM / DKS / INFLUENT BUILDING LOWER FLOOR

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:03:28 AM / DKS / INFLUENT BUILDING LOWER FLOOR

FROM LP-INL
120V
1"

VAULT LIGHTS
UNDERGROUND CONDUITS

SECTION 7 / –

1 EA-16

Q EA-20 RIO-INFU

ZC
CS-7
ZX
ZB
CS-4
ZC
ZB
TO UPPER LEVEL LIGHTS

ZA
ZX
CS-5
CS-6

B
2 EA-18
3 EA-18
7 –
E EA-17
1

DETAIL D / E-9
3/16" = 1'-0"

KEYED NOTES

1. LOWER LEVEL LIGHTING CONTINUES UP AND SWITCHES WITH THE UPPER LEVEL LIGHTS.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.
8. ALL CONDUIT AND BOXES INSIDE THE BUILDING SHALL BE SURFACE MOUNTED. NO CONDUITS SHALL BE INSTALLED IN THE BLOCK WALLS. USE CAST ALUMINUM BOXES, EXCEPT FOR LIGHTING CONDUITS IN THE CEILING SPACE, WHICH MAY BE SHEET METAL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	REVISION

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STATE OF ARKANSAS
L. SCOTT WEIR
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3-21-25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

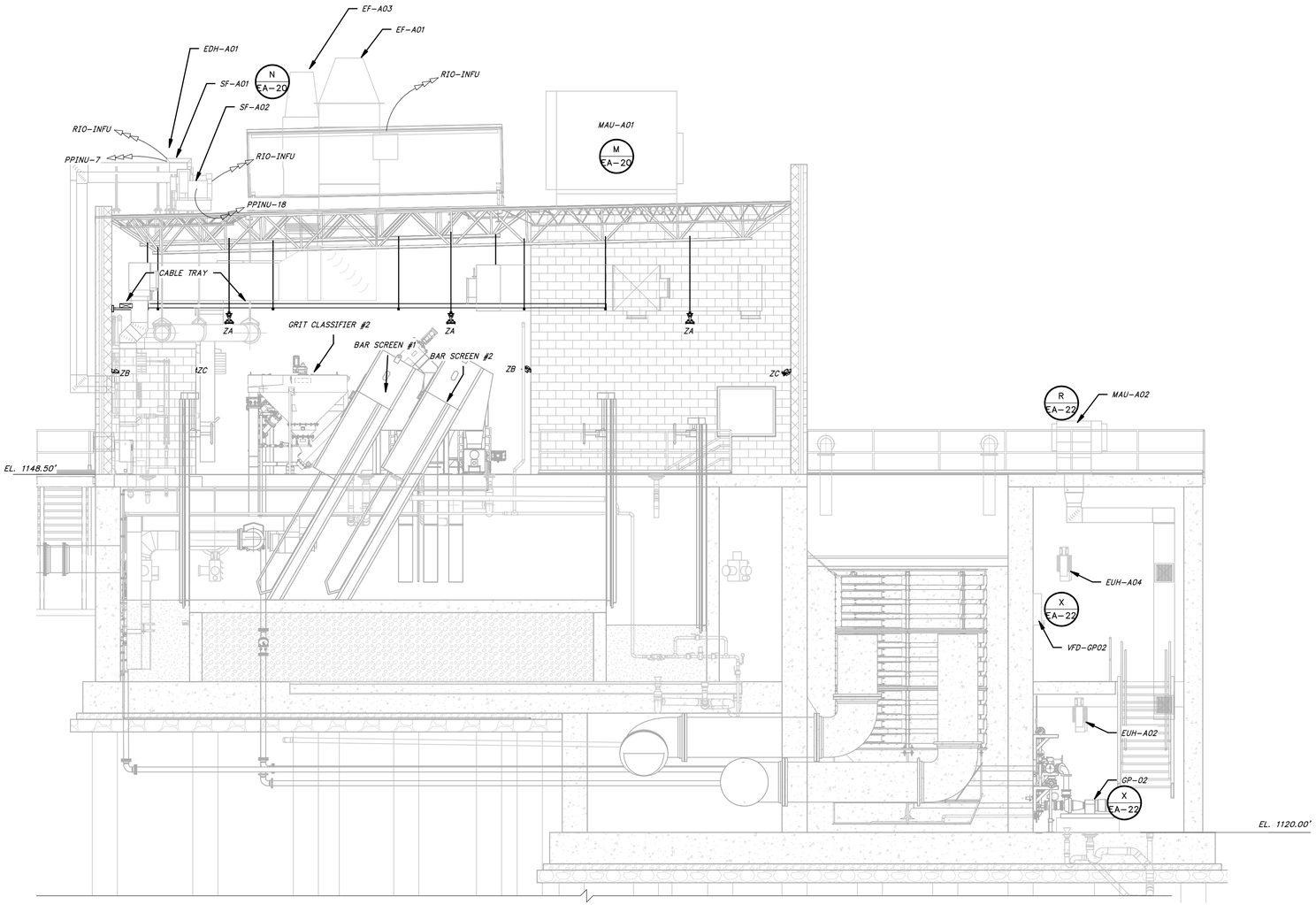
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING LOWER FLOOR DETAIL LIGHTING AND HVAC PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EA-15



SECTION 1
3/16" = 1'-0" EA-14

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.
8. ALL CONDUIT AND BOXES INSIDE THE BUILDING SHALL BE SURFACE MOUNTED. NO CONDUITS SHALL BE INSTALLED IN THE BLOCK WALLS. USE CAST ALUMINUM BOXES, EXCEPT FOR LIGHTING CONDUITS IN THE CEILING SPACE, WHICH MAY BE SHEET METAL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WILSON
No. 9888
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3/21/25

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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING
SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EA-16

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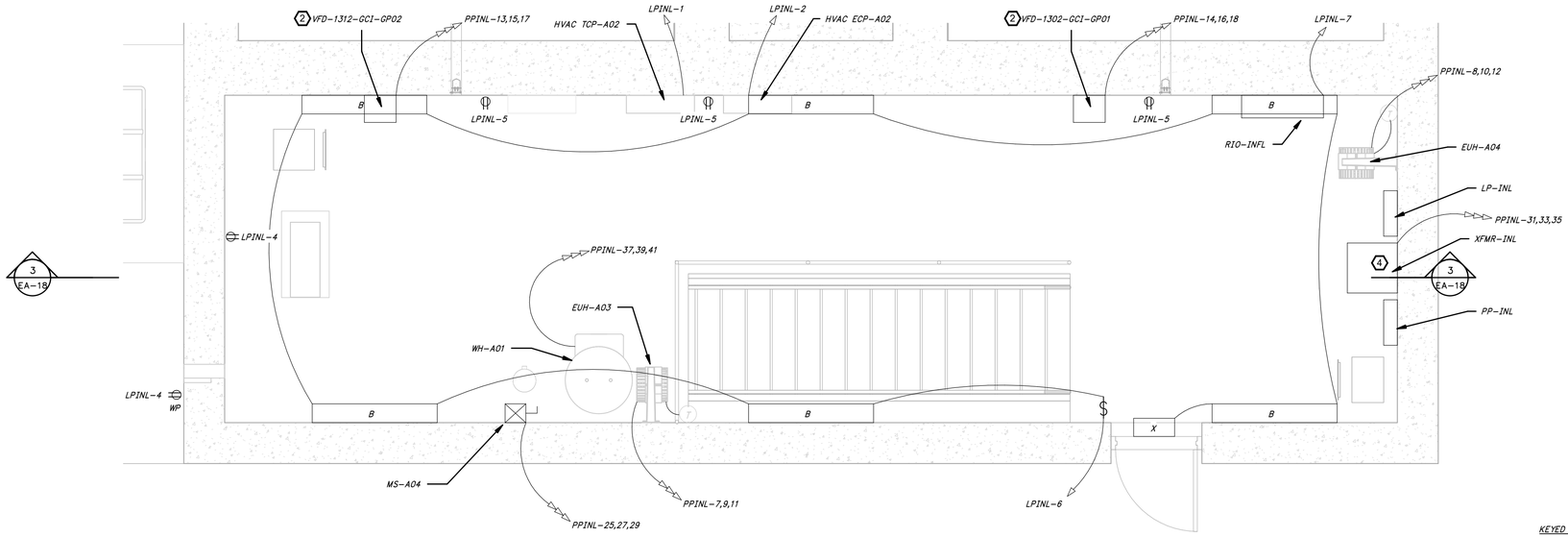
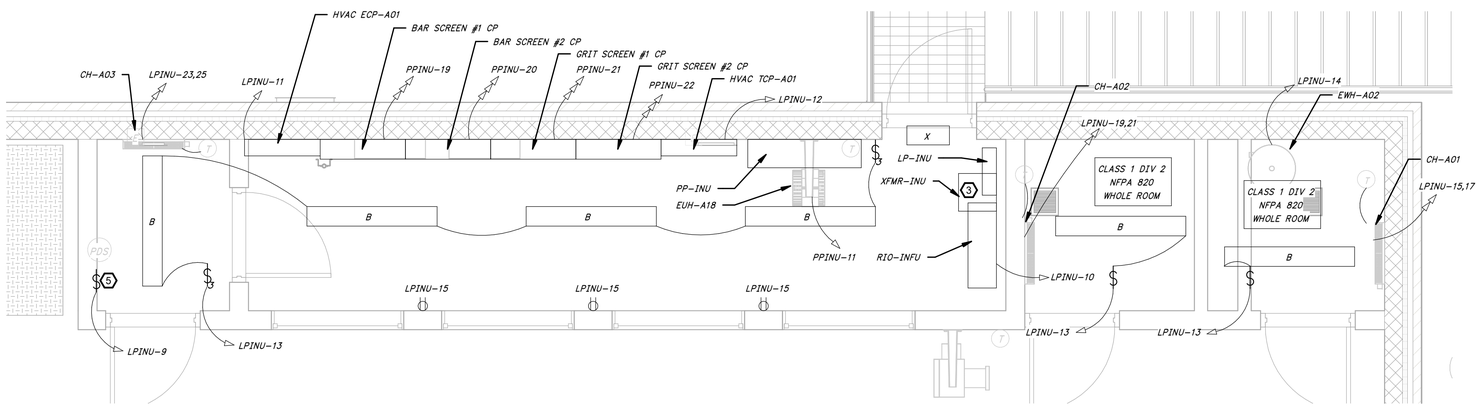


DETAIL E
3/8" = 1'-0"
E-15



DETAIL F
3/8" = 1'-0"
E-12

KEYED NOTES

1. SQUARE D COMBINATION NON-FUSED DISCONNECT STARTER, CLASS 8538-SBA21V81H30 WITH OPTION C HOA AND FF4T CONTROL POWER TRANSFORMER OR EQUAL.
2. SQUARE D PROCESS VFD, CATALOG NUMBER ATV660 U75T4N2GAWABG WITH OPTIONS F (1 NO AUTO MODE), G (SPD40K) OR EQUAL.
3. SQUARE D DRY TYPE TRANSFORMER CLASS 7400 EXN15T3H 480X120/208V THREE PHASE WITH WALL MOUNT BRACKET 7400WMB17M.
4. SQUARE D DRY TYPE TRANSFORMER CLASS 7400 EXN30T3H, FLOOR MOUNT, OR EQUAL.
5. LIGHT SWITCH SHOWN IS FOR WALL MOUNTED LIGHTS TYPE ZB AND ZC.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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L. SCOTT WEIR
No. 9888
3-21-25

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BLACK & VEATCH

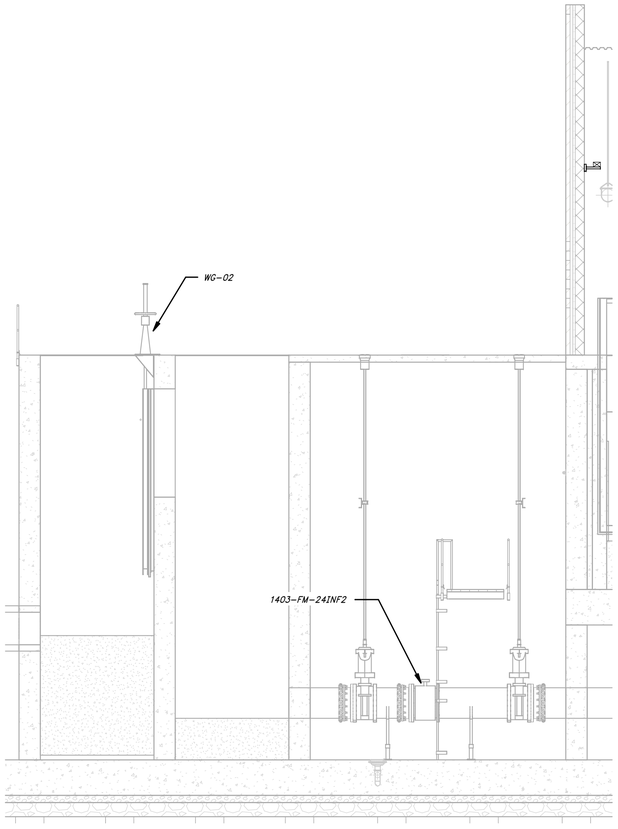
CITY OF BENTONVILLE ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING
ELECTRICAL ROOM AND MEZZANINE
ENLARGED VIEW
FOR: BENTONVILLE WASTEWATER UTILITIES

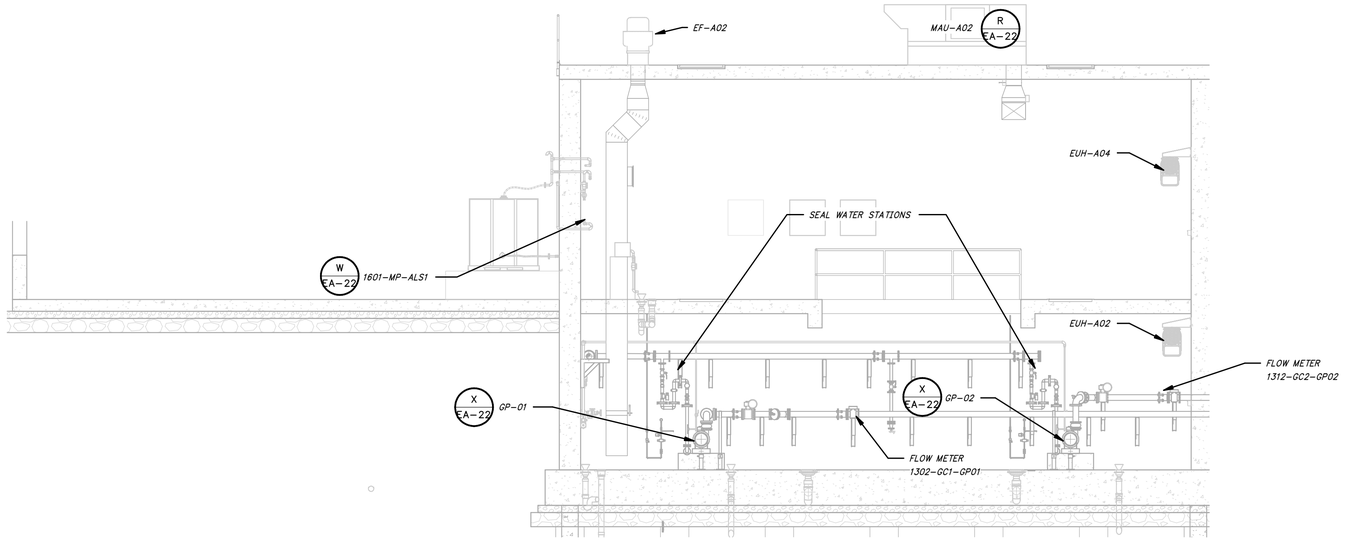
DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: Designer
DRAWN BY: Author
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EA-17

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:03:46 AM / Author / INFLUENT BUILDING



SECTION 2
3/16" = 1'-0"
EA-12



SECTION 3
3/16" = 1'-0"
EA-12

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WEIR
No. 9888
REGISTERED PROFESSIONAL ENGINEER

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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING
SECTIONS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: Designer
DRAWN BY: Author
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EA-18

Autodesk Docs://4101144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:03:54 AM / Author / INFLUENT BUILDING

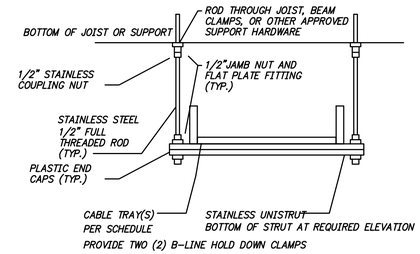
PANEL PP–INU

CKT #	DESCRIPTION	WIRE (GND)	CB (PANEL SPACE)	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND	CONDUIT	CB (PANEL SPACE)	WIRE (GND)	DESCRIPTION	CKT #
1	MAKEUP AIR MAU–A01	(3)#250 (#1)	500 (6")	(2) 3"	406 6	406 6					3/4",CT	15A (4.5")	4C#12 TC	EQUIPMENT AREA EUH–A10	13
	"	"	"	"			406 6	406 6			"	"	"	"	
	"	"	"	"					406 6	406 6	"	"	"	"	
2	DUMPSTER AREA EUH–A05	4C#12 TC	15A (4.5")	3/4",CT	6 6	6 6					3/4",CT	15A (4.5")	4C#12 TC	EQUIPMENT AREA EUH–A11	14
	"	"	"	"			6 6	6 6			"	"	"	"	
	"	"	"	"					6 6	6 6	"	"	"	"	
3	DUMPSTER AREA EUH–A06	4C#12 TC	15A (4.5")	3/4",CT	6 6	6 6					3/4",CT	15A (4.5")	4C#12 TC	EQUIPMENT AREA EUH–A12	15
	"	"	"	"			6 6	6 6			"	"	"	"	
	"	"	"	"					6 6	6 6	"	"	"	"	
4	DUMPSTER AREA EUH–A07	4C#12 TC	15A (4.5")	3/4",CT	9 6	9 6					3/4",CT	15A (4.5")	4C#12 TC	EQUIPMENT AREA EUH–A13	16
	"	"	"	"			9 6	9 6			"	"	"	"	
	"	"	"	"					9 6	9 6	"	"	"	"	
5	DUMPSTER AREA EUH–A08	4C#12 TC	15A (4.5")	3/4",CT	9 6	9 6					3/4",CT	15A (4.5")	4C#12 TC	EQUIPMENT AREA EUH–A14	17
	"	"	"	"			9 6	9 6			"	"	"	"	
	"	"	"	"					9 6	9 6	"	"	"	"	
6	STAIR EUH–A09	4C#12 TC	15A (4.5")	3/4",CT	4 7	4 7					3/4",CT	15A (4.5")	4C#12 TC	VESTIBULE EDH–A02	18
	"	"	"	"			4 7	4 7			"	"	"	"	
	"	"	"	"					4 7	4 7	"	"	"	"	
7	ELECTRIC ROOM EDH–A01	(3)#10 (#12)	30A (4.5")	3/4"	23 15	23 15					3/4",CT	40A (4.5")	(3)#8 (#10)	BAR SCREEN #1 CP	19
	"	"	"	"			23 15	23 15			"	"	"	"	
	"	"	"	"					23 15	23 15	"	"	"	"	
8	TRANSFORMER XFMR–A01	(3)#8 (#10)	40A (4.5")	3/4"	30 15	20 15					3/4",CT	40A (4.5")	(3)#8 (#10)	BAR SCREEN #2 CP	20
	"	"	"	"			30 15	20 15			"	"	"	"	
	"	"	"	"					30 15	20 15	"	"	"	"	
9	SPACE –	– –	– (4.5")	–	– 15	– 15					1"	40 (4.5")	(3)#8 (#10)	GRIT CLASSIFIER #1 CP	21
	"	"	"	"			– 15	– 15			"	"	"	"	
	"	"	"	"					– 15	– 15	"	"	"	"	
10	SPACE –	– –	– (4.5")	–	– –	– –					1"	40A (4.5")	(3)#8 (#10)	GRIT CLASSIFIER #2 CP	22
	"	"	"	"			– –	– –			"	"	"	"	
	"	"	"	"					– –	– –	"	"	"	"	
11	ELECTRIC ROOM EUH–A18	(2)#12 (#12)	15 (1.5")	3/4"	7 20	7 20					1"	60 (4.5")	(3)#6 (#8)	MOTOR PANEL MSP–INU	23
12	SPACE –	– –	– (1.5")	–			– 20	– 20			"	"	"	"	
									– 20	– 20	"	"	"	"	
					– –	– –									
							– –	– –							
									– –	– –					
				TOTAL CONNECTED	598		598		598						
				TOTAL DEMAND		588		588		588					

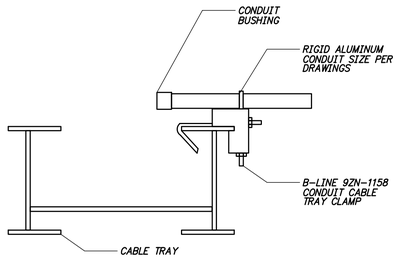
TYPE: SQUARE D I–LINE PANEL DOUBLE ROW INTERIOR
VOLTS: 277/480, THREE PHASE, FOUR WIRE
MAIN: 800 AMP MAIN LUG BOTTOM FEED
BRANCH SECTION: 800 AMP INTERIOR, DOUBLE ROW MAX CB FRAME 800 LEFT SIDE, 250A RIGHT SIDE
BRANCH SECTION: 49.5" BREAKER SPACE LEFT SIDE, 49.5" RIGHT SIDE
BRANCH CB: ELECTRONIC TRIP UNITS FOR ALL BREAKERS GREATER THAN 250A

MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1 86"H X 42"W X 9"D

CONNECTED KVA: 497
DEMAND KVA: 488
DESIGN KVA: 665



CABLE TRAY TRAPEZE SUPPORT
DETAIL G
N.T.S. EA–12



CABLE TRAY CONDUIT SUPPORT
DETAIL H
N.T.S. EA–12

PANEL LP–INU

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	SLIDE GATE SG–01 POWER	3C#12 (TC)	20	CT, 3/4"	6 6	6 6					CT, 3/4"	20	3C#12 (TC)	SLIDE GATE SG–02 POWER	2
3	SLIDE GATE SG–03 POWER	3C#12 (TC)	20	CT, 3/4"			6 6	0 0			CT, 3/4"	20	3C#12 (TC)	SLIDE GATE SG–04 POWER	4
5	SLIDE GATE SG–05 POWER	3C#12 (TC)	20	CT, 3/4"					6 6	6 0	CT, 3/4"	20	3C#12 (TC)	SLIDE GATE SG–06 POWER	6
7	EQUIP AREA XP RECEPTACLES	3C#12 (TC)	20	CT, 3/4"	2 2	2 2					CT, 3/4"	20	3C#12 (TC)	EQUIP AREA XP RECEPTACLES	8
9	EQUIP AREA XP WALL LIGHTS	3C#12 (TC)	20	CT, 3/4"			6 3	6 3			3/4"	20	#12 (12)	CONTROL PANEL RIO–INU POWER	10
11	HVAC TCP–A01 POWER	(#12) (#12)	20	3/4"					2 2	2 2	3/4"	20	#12 (12)	HVAC ECP–A01 POWER	12
13	ELECTRIC ROOM LIGHTING	(#12) (#12)	20	3/4"	3 17	3 17					3/4"	20	#12 (12)	WATER HEATER EWH–A02	14
15	ELECTRIC ROOM RECEPTACLES	(#12) (#12)	20	3/4"			4.5	0				20		SPARE –	16
17	SPARE –		20						–	–		20		SPARE –	18
19	SPARE –		20		–	–						20		SPARE –	20
21	SPARE –		20				–	–				20		SPARE –	22
23	SPARE –		20						–	–		20		SPARE –	24
25	SPARE –		20		–	–						20		SPARE –	26
27	SPARE –		20				–	–				20		SPARE –	28
29	SPARE –		20						–	–		20		SPARE –	30
				TOTAL CONNECTED	36		TBD		TBD						
				TOTAL DEMAND		36		TBD		TBD					

TYPE: LIGHTING AND APPLIANCE
VOLTS: 120/208, THREE PHASE, FOUR WIRE
MAIN: 80 AMP
BUS: 100 AMP
RATING: 10 KAIC
MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1

CONNECTED KVA: TBD
DEMAND KVA: TBD
DESIGN KVA: 24

INFLUENT BUILDING UPPER LEVEL
PANEL LP–INU SCHEDULE
DETAIL I
NTS –

INFLUENT BUILDING CABLE TRAY SCHEDULE – UPPER LEVEL

	QTY	DESCRIPTION	MATERIAL, WIDTH	SPACING	RAIL
	–	CABLE TRAY AT 13'–3" AFF			
	80'	B–LINE 24 A09–12	ALUM. 12"	9" LAD	4" RAIL
	2	B–LINE 4A–12–90HR12 HORIZONTAL 90	ALUM. 12"	9" LAD	4" RAIL
	4	B–LINE 4A–12–06–HT12 HORIZONTAL REDUCING T	ALUM. 12"	9" LAD	4" RAIL
	1	B–LINE 4A–12–RR06 RIGHT HAND REDUCER	ALUM. 12"	9" LAD	4" RAIL
	1	B–LINE 4A–12–LR06 LEFT HAND REDUCER	ALUM. 12"	9" LAD	4" RAIL
	240'	B–LINE 24 A09–06	ALUM. 6"	9" LAD	4" RAIL
	15	B–LINE B409–18 SS4 CANTILEVER BRACKET	304 SS	–	–
	15	B–LINE B409–12 SS4 CANTILEVER BRACKET	304 SS		
	15	B–LINE 9SS4–5506–22SH TRAPEZE SUPPORT	304 SS		

INFLUENT BUILDING LIGHTING SCHEDULE – UPPER LEVEL

FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL#	QTY	TYPE	NOTES
ZA	277	150	HOLOPHANE HEXF P3 MV 4K T6M CL –	15	LED	PENDANT MOUNT, 3/4" CONDUIT STEM, 12' AFF CLASS 1 DIVISION 1 AND 2 RATED
ZB	120	80	HOLOPHANE HEXSEM L4 MV 4K V110 FG –	5	LED	WALL–MOUNT, 8' AFF, SET AT 30 DEGREES DOWN CLASS 1 DIVISION 1 AND 2 RATED
ZC	120	80	HOLOPHANE HEXS L4 MV 4K T6M FG –	8	LED	PROVIDE SPACER BETWEEN THE METAL BUILDING PANEL RIBS FOR FIXTURE MOUNTING –
ZX	120	3	HOLOPHANE HDXE 1 R 12/27 EL –	3	LED	WALL–MOUNT ABOVE EXIT DOORS –
C4	277–480	140	LITHONIA WDGE4 LED P4 30K 80CRI RFT 480 SRM DNAXD	7	LED	MOUNT AT 32' AFG –
C2	277–480	47	LITHONIA WDGE2 LED P4 30K 80CRI RFT 480 SRM DNAXD	2	LED	MOUNT AT 12' AFG –

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS L. SCOTT MCMAHAN PROFESSIONAL ENGINEER No. 9598 3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

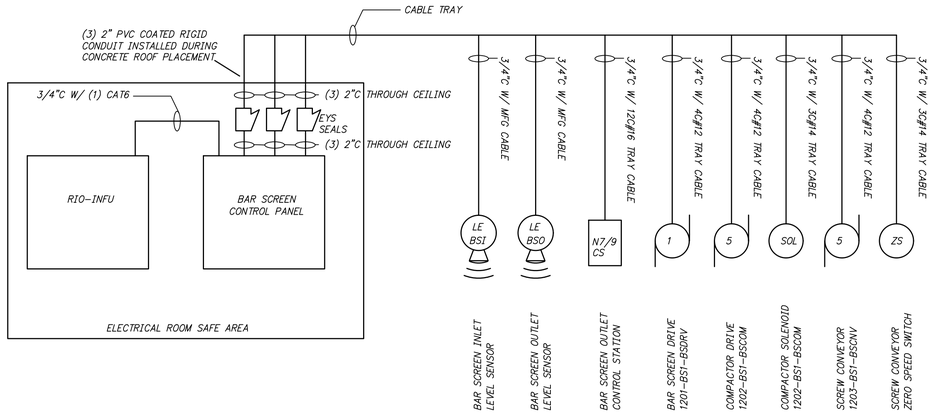
INFLUENT BUILDING UPPER LEVEL
PANEL, CABLE TRAY, AND LIGHTING SCHEDULES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EA–19

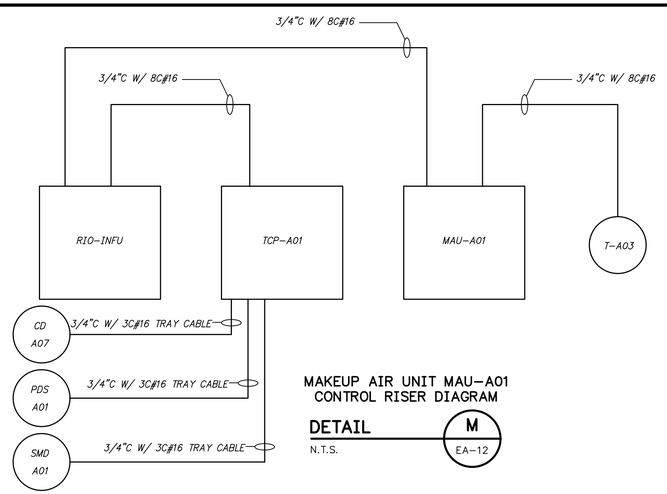
SHEET NO.
EA–19

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EA–19.DWG, 3/21/2025 8:42 AM, MATT WEIR, LAYOUT1



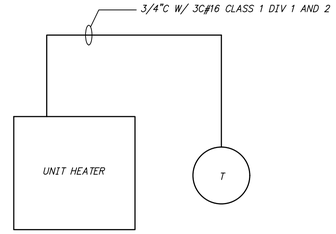
BAR SCREEN BS-01 (BS-02 SIMILAR)
ELECTRICAL AND CONTROL RISER DIAGRAM

DETAIL J
NTS EA-12



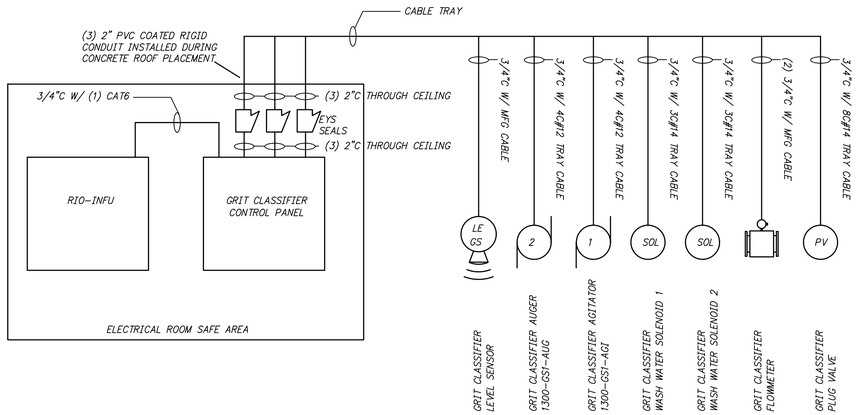
MAKEUP AIR UNIT MAU-A01
CONTROL RISER DIAGRAM

DETAIL M
N.T.S. EA-12



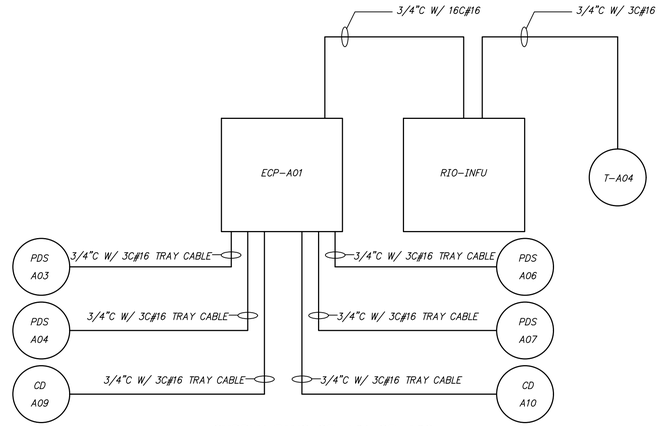
ELECTRIC UNIT HEATER
CONTROL RISER DIAGRAM

DETAIL P
N.T.S. EA-12



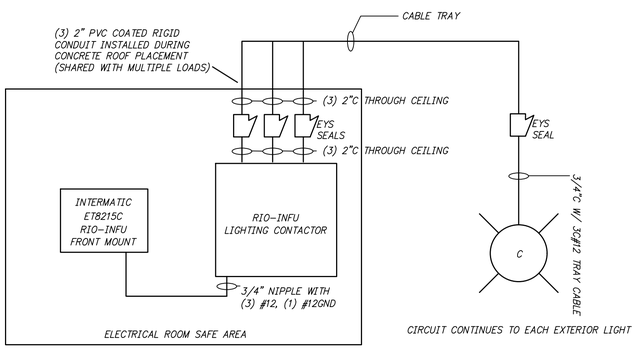
GRIT SCREEN GS-01 (GS-02 SIMILAR)
ELECTRICAL AND CONTROL RISER DIAGRAM

DETAIL K
NTS EA-12



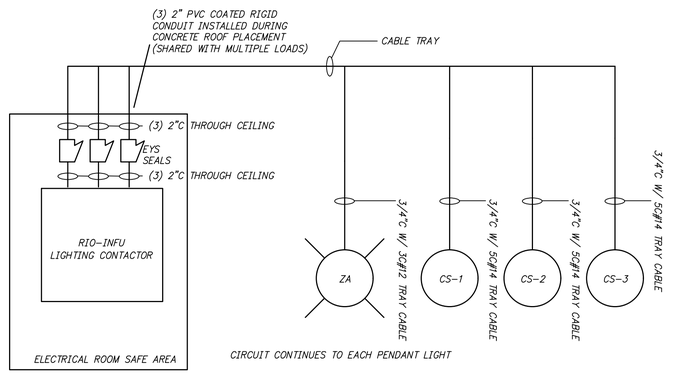
SUPPLY FANS SF-A01 SF-A02
CONTROL RISER DIAGRAM

DETAIL N
N.T.S. EA-12



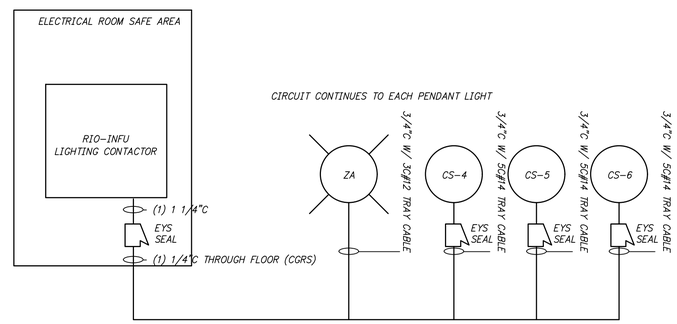
EXTERIOR LIGHTING
RISER DIAGRAM

DETAIL L
N.T.S. EA-13



EQUIPMENT AREA LIGHTING
RISER DIAGRAM

DETAIL O
N.T.S. EA-13



DUMPSTER AREA LIGHTING
RISER DIAGRAM

DETAIL Q
N.T.S. EA-13

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
LANCE S. MOORE
PROFESSIONAL ENGINEER
No. 9588
Scott Wood, PE-Intern

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING UPPER LEVEL EQUIPMENT AREA RISER DIAGRAMS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EA-20

SHEET NO.
EA-20

BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EA-20.DWG, 3/21/2025 8:42 AM, MATT WEIR, LAYOUT1

PANEL PP–INL

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	EQUIPMENT ROOM EUH–A02	#12 (#12)	15	3/4"	6	6					3/4"	15	#12 (#12)	EQUIPMENT ROOM EUH–A01	2
					6	6									
3	"	"	"	"			6	6			"	"	"	"	4
							6	6							
5	"	"	"	"					6	6	"	"	"	"	6
									6	6					
7	EQUIPMENT ROOM EUH–A03	#12 (#12)	15	3/4"	6	6					3/4"	15	#12 (#12)	EQUIPMENT ROOM EUH–A04	8
					6	6									
9	"	"	"	"			6	6			"	"	"	"	10
							6	6							
11	"	"	"	"					6	6	"	"	"	"	12
									6	20					
13	VFD GP–02 1312–GC1–GP02	#10 (#10)	20	3/4"	8	8					3/4"	20	#12 (#12)	VFD GP–01 1302–GC1–GP01	14
					8	0									
15	"	"	"	"			18	36			"	"	"	"	16
							8	0							
17	"	"	"	"					36	36	"	"	"	"	18
									8	0					
19	METER VAULT MS–A04 EF–A04	#12 (#12)	15	1"	2	2					1"	40	#8 (#10)	EQUIPMENT ROOM MAU–A02	20
					32	32									
21	"	"	"	"			2	2			"	"	"	"	22
							32	32							
23	"	"	"	"					2	2	"	"	"	"	24
									32	32					
25	EQUIPMENT ROOM MS–A02 EF–A02	#12 (#12)	15	3/4"	2	2					1"	15	#12 (#12)	WEIR GATE WG–01	26
					4	4									
27	"		"				2	2			"	"	"	"	28
							4	4							
29	"		"						2	2	"	"	"	"	30
									4	4					
31	TRANSFORMER XFMR–INU FEEDER	#10 (#10)	30	3/4"	–	–					1"	15	#12 (#12)	WEIR GATE WG–02	32
					4	4									
33	"		"				–	–			"	"	"	"	34
							4	4							
35	"		"						–	–	"	"	"	"	36
									4	4					
37	WATER HEATER EWH–A01	#8 (#10)	40	–	29	29						40		SPARE –	38
					–	–									
39	"		"				29	29				"		"	40
							–	–							
41	"		"						29	29		"		"	42
									–	–					
				TOTAL CONNECTED	93		98		88						
				TOTAL DEMAND		93		98		88					

TYPE: SQUARE D TYPE NF PANELBOARD
VOLTS: 480/277, THREE PHASE, FOUR WIRE
MAIN: 200 AMP
BUS: 250 AMP
RATING: 65 KAIC
MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1

CONNECTED KVA: 82
DEMAND KVA: 82
DESIGN KVA: 133

PANEL LP–INL

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	HVAC TCP–A01 POWER	(#12) (#12)	20	3/4"	2	2					3/4"	20	#12 (12)	HVAC ECP–A01 POWER	2
					2	2									
3	EQPT ROOM LOWER RECEPTACLES	(#12) (#12)	20	3/4"			3	3			3/4"	20	#12 (12)	EQPT ROOM UPPER RECEPTACLES	4
							3	3							
5	EQPT ROOM UPPER RECEPTACLES	(#12) (#12)	20	3/4"					3	3	3/4"	20	#12 (12)	EQPT ROOM LIGHTING	6
									6	6					
7	RIO–INFL POWER	(#12) (#12)	20	3/4"	3	3						20		SPARE –	8
					2	2									
9	SPARE –		20				6	6				20		SPARE –	10
							3	3							
11	SPARE –		20						–	–		20		SPARE –	12
									–	–					
13	SPARE –		20		–	–						20		SPARE –	14
15	SPARE –		20				–	–				20		SPARE –	16
17	SPARE –		20						–	–		20		SPARE –	18
19	SPARE –		20		–	–						20		SPARE –	20
21	SPARE –		20				–	–				20		SPARE –	22
23	SPARE –		20						–	–		20		SPARE –	24
25	SPARE –		20		–	–						20		SPARE –	26
27	SPARE –		20				–	–				20		SPARE –	28
29	SPARE –		20						–	–		20		SPARE –	30
									–	–					
				TOTAL CONNECTED	TBD		TBD		TBD						
				TOTAL DEMAND		TBD		TBD		TBD					

TYPE: LIGHTING AND APPLIANCE
VOLTS: 120/208, THREE PHASE, FOUR WIRE
MAIN: 50 AMP
BUS: 100 AMP
RATING: 10 KAIC
MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1

CONNECTED KVA: TBD
DEMAND KVA: TBD
DESIGN KVA: 15

INFLUENT BUILDING LIGHTING SCHEDULE – LOWER LEVEL

FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL#	QTY	TYPE	NOTES
B	120–277	67	HOLOPHANE EVT4 8000LM FST MD MVOLT GZ10 40K 80CRI	13	LED	WALL–MOUNT AT 8' AFF, USE 15 DEGREE BRACKET FOR ANGLE DOWN –
ZX	120	3	HOLOPHANE HDXE 1 R 12/27 EL –	3	LED	WALL–MOUNT ABOVE EXIT DOORS –
ZA	277	150	HOLOPHANE HEXF P3 MV 4K T6M CL –	9	LED	PENDANT MOUNT, 3/4" CONDUIT STEM, 12' AFF CLASS 1 DIVISION 1 AND 2 RATED

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS MATTHEW S. WEIR PROFESSIONAL ENGINEER No. 9598 L. Scott Wilson

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

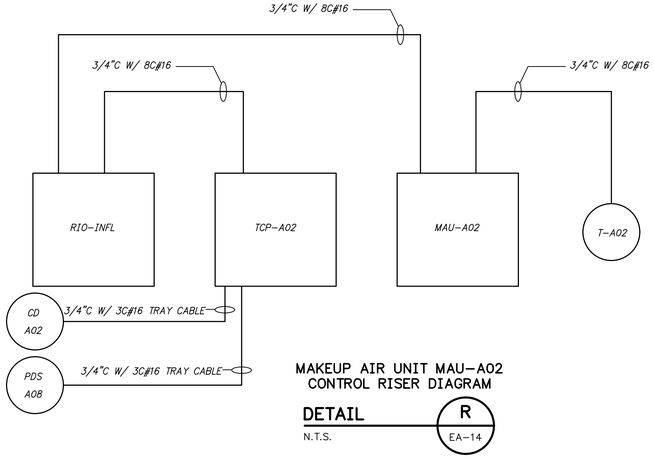
INFLUENT BUILDING UPPER LEVEL
PANEL, CABLE TRAY, AND LIGHTING SCHEDULES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EA–21

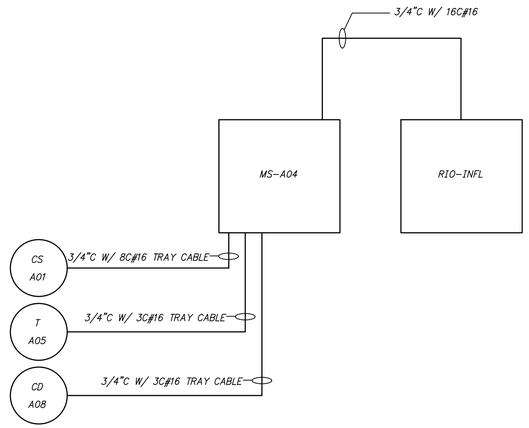
SHEET NO.
EA–21

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EA–21.DWG, 3/21/2025 8:42 AM, MATT WEIR, LAYOUT1



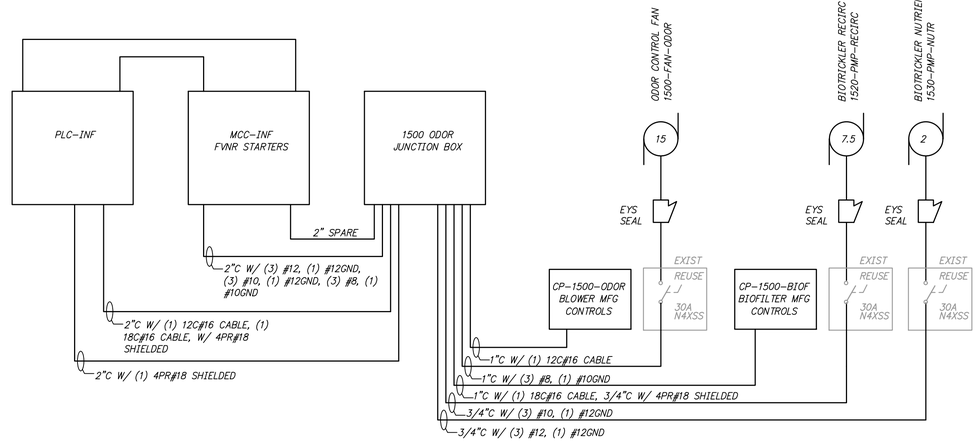
MAKEUP AIR UNIT MAU-A02
CONTROL RISER DIAGRAM

DETAIL R
N.T.S. EA-14



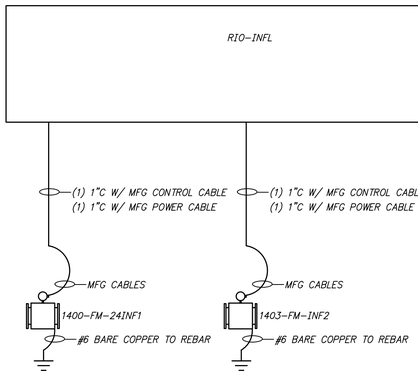
EXHAUST FANS EF-A04
CONTROL RISER DIAGRAM

DETAIL S
N.T.S. EA-14



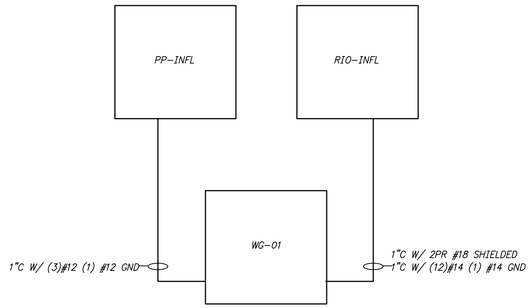
ODOR CONTROL SYSTEM PACKAGE
RISER DIAGRAM

DETAIL T
NTS EA-14



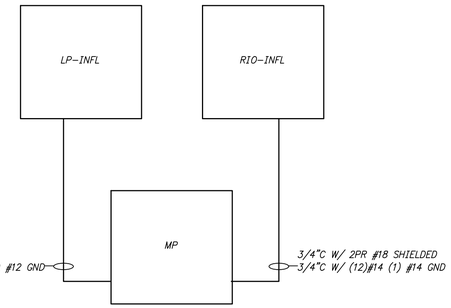
INFLUENT FLOWMETERS
CONTROL AND ELECTRICAL RISER DIAGRAM

DETAIL U
NTS EA-14



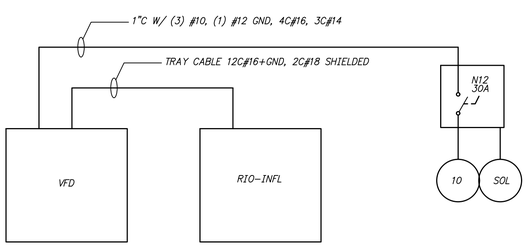
WG-01 MODULATING WEIR GATE (WG-02 SIMILAR)
CONTROL AND ELECTRICAL RISER DIAGRAM

DETAIL V
NTS EA-14



ALUMINUM SULFATE METERING PUMP
CONTROL AND ELECTRICAL RISER DIAGRAM

DETAIL W
NTS EA-14



GRIT PUMP GP-01 (GP-02 SIMILAR)
CONTROL AND ELECTRICAL RISER DIAGRAM

DETAIL X
NTS EA-14

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
MATTHEW S. WEIR
REGISTERED PROFESSIONAL ENGINEER
No. 9586
3/21/2025

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING LOWER LEVEL EQUIPMENT ROOM RISER DIAGRAMS

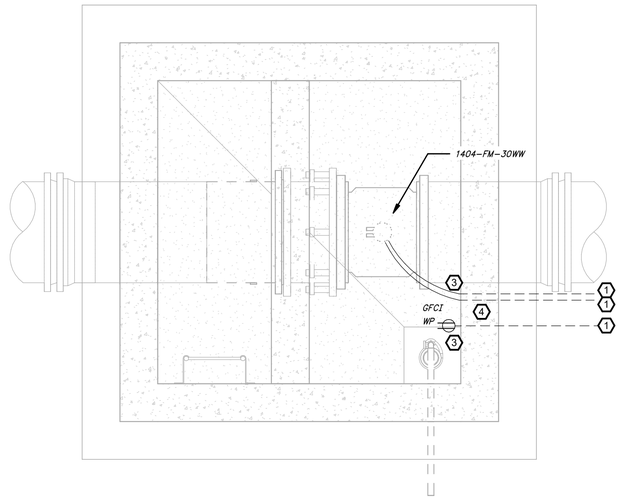
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EA-22

SHEET NO.
EA-22

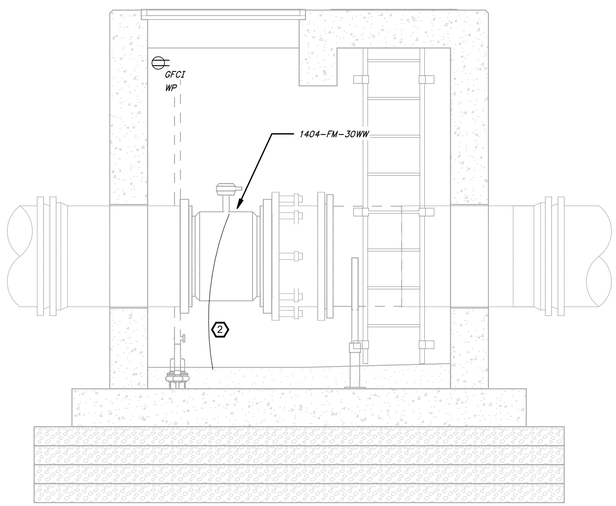
BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EA-22.DWG, 3/21/2025 8:42 AM, MATT WEIR, LAYOUT1



WET WEATHER FLOW METER VAULT

DETAIL A
1/2" = 1'-0"



SECTION 1
1/2" = 1'-0"

KEYED NOTES

1. 1" CONDUIT TO RIO-ABR1.
2. CADWELD #6 BARE COPPER GROUND TO THE REBAR IN THE FLOOR OF THE VAULT, CONNECT TO THE FLOWMETER GROUNDING TERMINAL.
3. SURFACE MOUNT PVC SCHEDULE 40 CONDUIT TO THE WALL WITH UNISTRUT. PROVIDE CABLE GRIP ENTRY FOR EACH FLOW METER CABLE INTO THE CONDUIT.
4. INSTALL ALL CONDUIT ENTRIES THROUGH THE WALL PRIOR TO CONCRETE POUR.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
L. SCOTT WEIR
No. 9888
3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

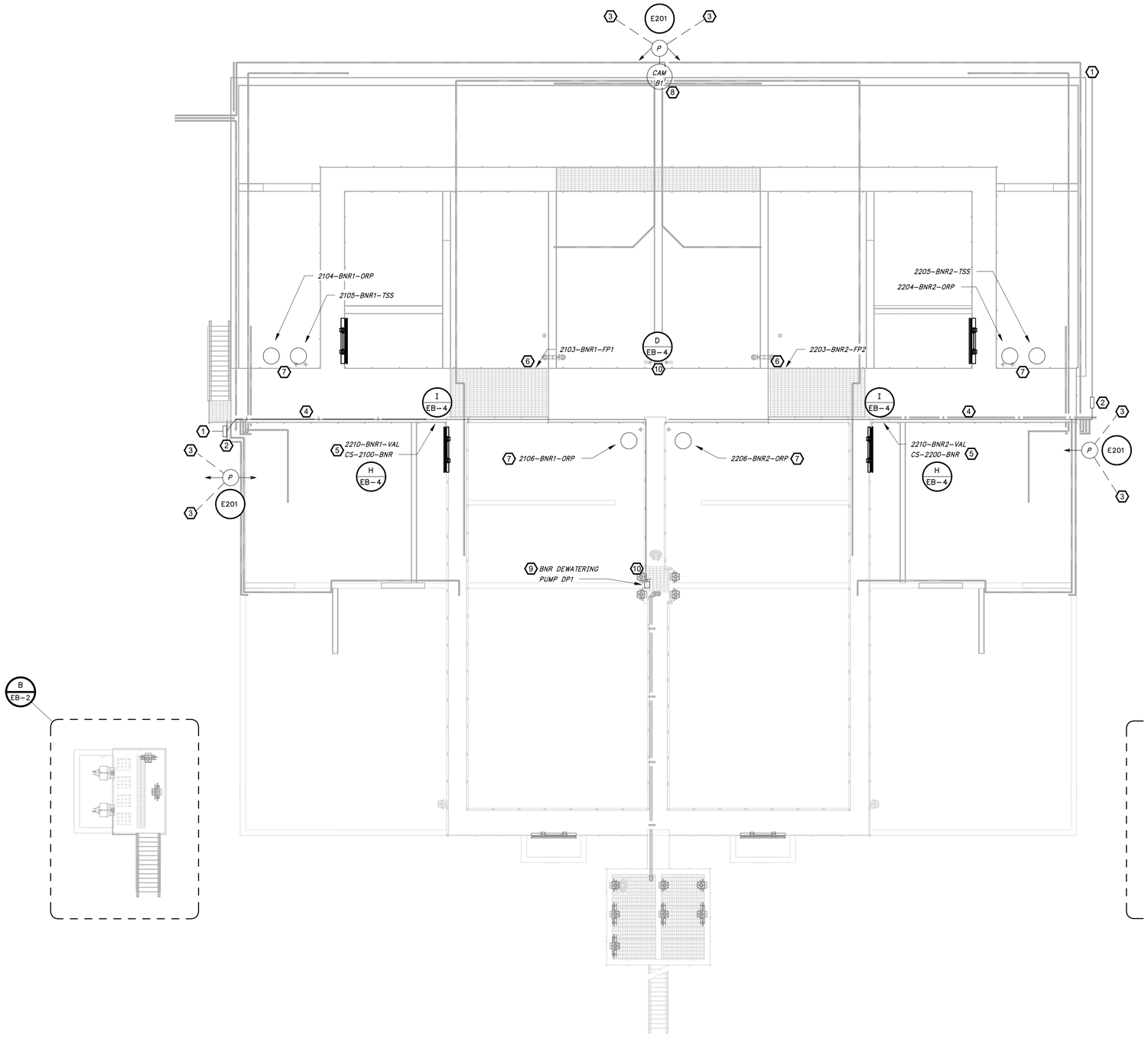
WET WEATHER METER VAULT
DETAIL AND SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: Designer
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EA-23

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:03:58 AM / DKS / WET WEATHER METER VAULT



DETAIL A
3/32" = 1'-0"
E-9

KEYED NOTES

1. CONDUITS TO MAIN DUCTBANK SECTION 3, SEE SHEET E-9.
2. PROVIDE AND INSTALL TWO (2) 24" X 24" X 8" NEMA 4XSS JUNCTION BOXES FOR THE TRANSITION FROM THE MAIN DUCTBANK TO INDIVIDUAL CONDUITS AS SHOWN ON THE RISER DIAGRAMS.
3. TWO (2) 1" CONDUITS ENTERING/EXITING THE LIGHT POLE BASE FOR CONTINUATION OF THE AREA LIGHTING CIRCUIT.
4. ATTACH CONDUITS TO OUTSIDE OF THE HANDRAIL FOR ROUTING TO EQUIPMENT.
5. CONSTRUCT EQUIPMENT RACKS AS SHOWN ON THE DETAILS FOR THE BNR MIXING VALVE CONTROL PANELS AND THE INSTRUMENTATION CONTROL STATIONS.

   CONSTRUCT EQUIPMENT RACK AS SHOWN ON THE DETAIL FOR THE FERMENTER PUMPS.
6. ROUTE INSTRUMENTATION SENSOR CABLES TO THE INSTRUMENTATION CONTROL STATIONS.
7. INSTALL ETHERNET CAMERA ON THE LIGHT POLE AT 15' AFG, ROUTE CAT 6 CABLE AND 1" CONDUIT TO PLC-INF.
8. RELOCATE N4X SS 30A SAFETY SWITCH FOR MANUAL OPERATION OF THE DEWATERING PUMP. SEE ONE-LINE DIAGRAM.
9. LOCATION INCLUDES WEATHER PROOF WHILE-IN-USE GFCI RECEPTACLE FOR DAVIT CRANE.
10.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT McBRIDE
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3-21-25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WWTP CAPACITY STUDY
ANOXIC BASIN STRUCTURAL PLAN

BNR BASIN ELECTRICAL PLAN

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/32" = 1'-0"
DESIGNED BY: LSM
DRAWN BY: WRH
HWEI NO.: 2021037
FILENAME: S-ANOXIC

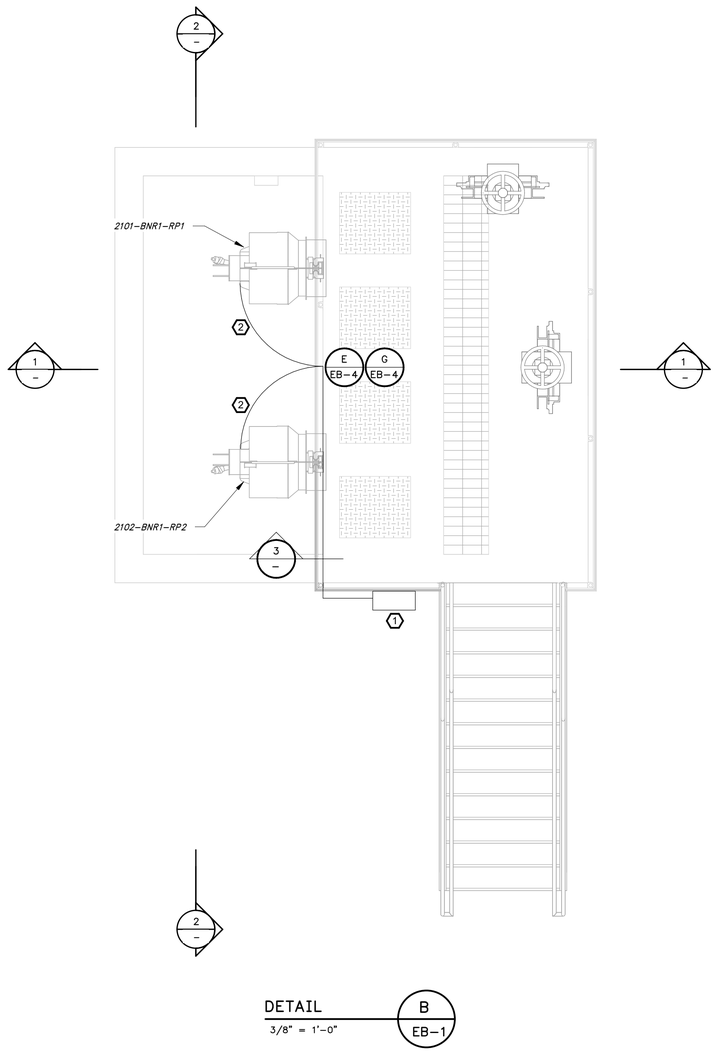
SHEET NO.
EB-1

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/S-ANOXIC.rvt 3/21/2025 10:26:28 AM / WRH / BNR BASIN ELECTRICAL PLAN

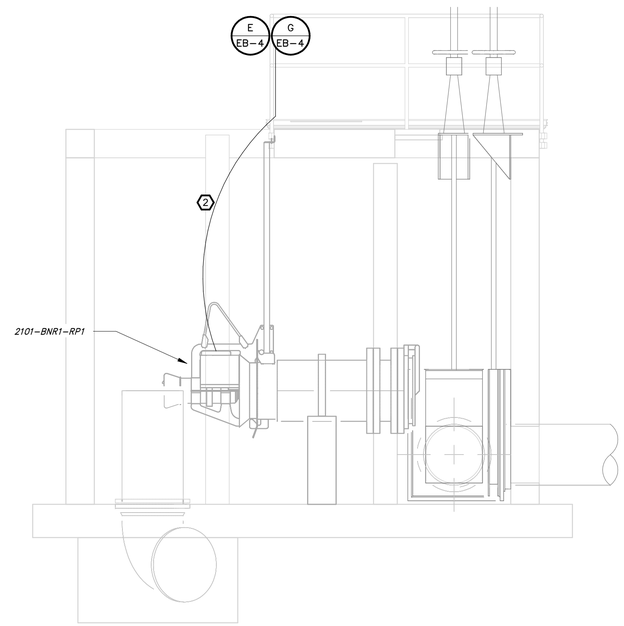
RP1	SPARE	RP2	SPARE
1 1/4"	1"	1 1/4"	1"

PUMP STATION CONDUITS

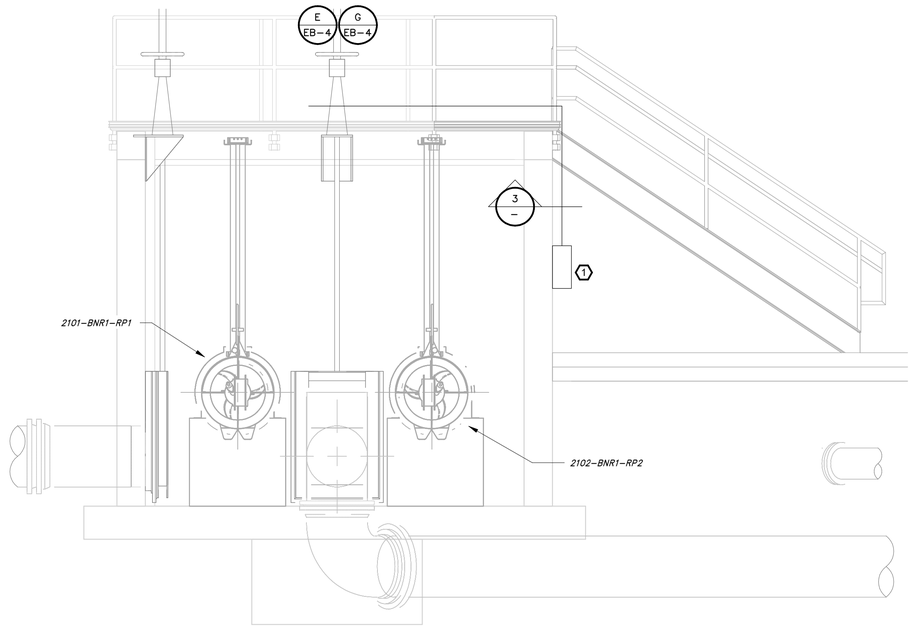
SECTION 3 / –



DETAIL B / EB–1
3/8" = 1'–0"



SECTION 1 / –
3/8" = 1'–0"



SECTION 2 / –
3/8" = 1'–0"

KEYED NOTES

1. EXISTING NEMA 4XSS JUNCTION BOX MAINTAINED IN PLACE, ACCEPTING UNDERGROUND CONDUITS FROM SHEET E–10, EB–1, AND EC–1.
2. PROVIDE AND INSTALL STAINLESS STEEL CABLE STRAIN RELIEF ENTRIES FOR THE HORIZONTAL PROPELLER PUMP CABLES INTO THE SAFETY SWITCHES AND PUMP CONTROL STATION.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB–UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB–UPS MAY BE PVC40.
5. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
6. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS · REGISTERED PROFESSIONAL ENGINEER · L. SCOTT MEEKS · No. 9888 · 3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WWTP CAPACITY STUDY
ANOXIC BASIN STRUCTURAL PLAN

WEST INTERNAL RECYCLE PUMP STATION
ELECTRICAL DETAILS AND SECTIONS

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'–0"
DESIGNED BY: LSM
DRAWN BY: WRH
HWEI NO.: 2021037
FILENAME: S–ANOXIC

SHEET NO.
EB–2

BID DRAWINGS
MARCH 21, 2025

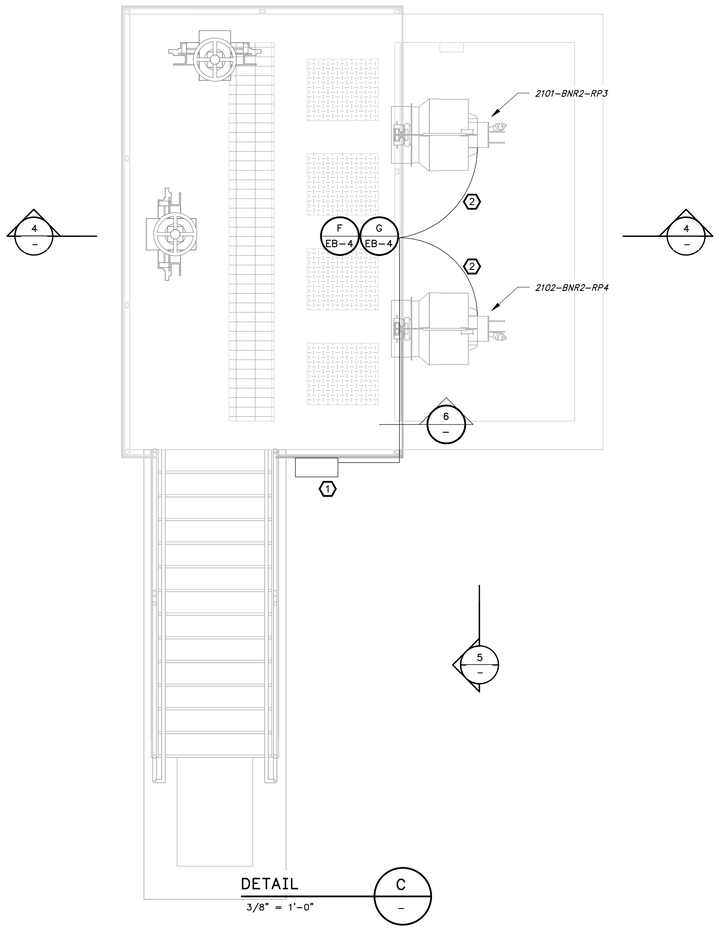
Autodesk Docs://410144 – Bentonville Water Resource Recovery Facility Improvements/S–ANOXIC.rvt 3/21/2025 10:26:30 AM / WRH / WEST INTERNAL RECYCLE PUMP STATION

RP3	SPARE	RP4	SPARE
1 1/4"	1"	1 1/4"	1"

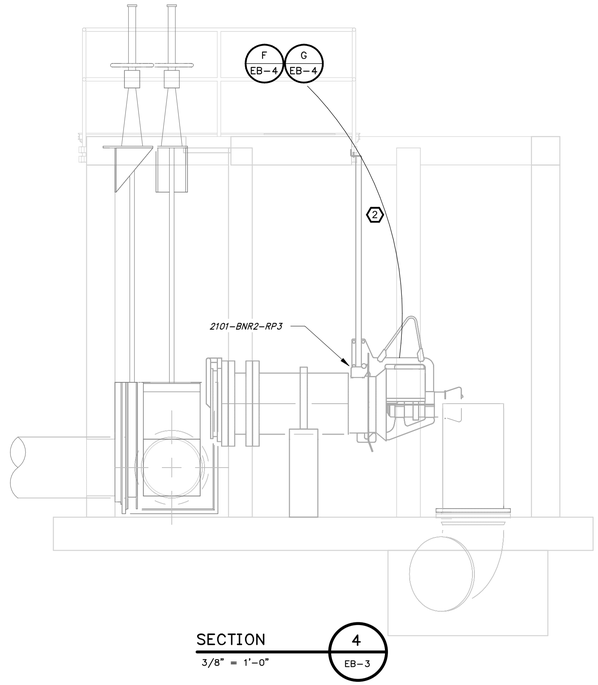
PUMP STATION CONDUITS

SECTION 6 –

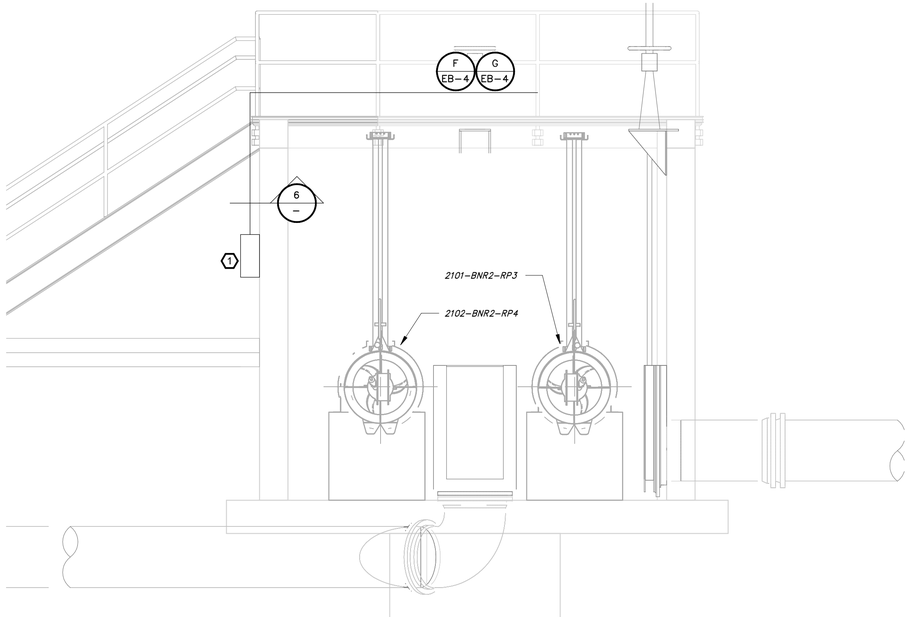
5 –



DETAIL C – 3/8" = 1'–0"



SECTION 4 EB–3 – 3/8" = 1'–0"



SECTION 5 EB–3 – 3/8" = 1'–0"

KEYED NOTES

1. EXISTING NEMA 4XSS JUNCTION BOX MAINTAINED IN PLACE, ACCEPTING UNDERGROUND CONDUITS FROM SHEET E–10, EB–1, AND EC–1.
2. PROVIDE AND INSTALL STAINLESS STEEL CABLE STRAIN RELIEF ENTRIES FOR THE HORIZONTAL PROPELLER PUMP CABLES INTO THE SAFETY SWITCHES AND PUMP CONTROL STATION.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB–UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB–UPS MAY BE PVC40.
5. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
6. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS · REGISTERED PROFESSIONAL ENGINEER · L. SCOTT WEIR No. 9888 · 3-21-25

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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WWTP CAPACITY STUDY
ANOXIC BASIN STRUCTURAL PLAN

EAST INTERNAL RECYCLE PUMP STATION ELECTRICAL DETAILS AND SECTIONS

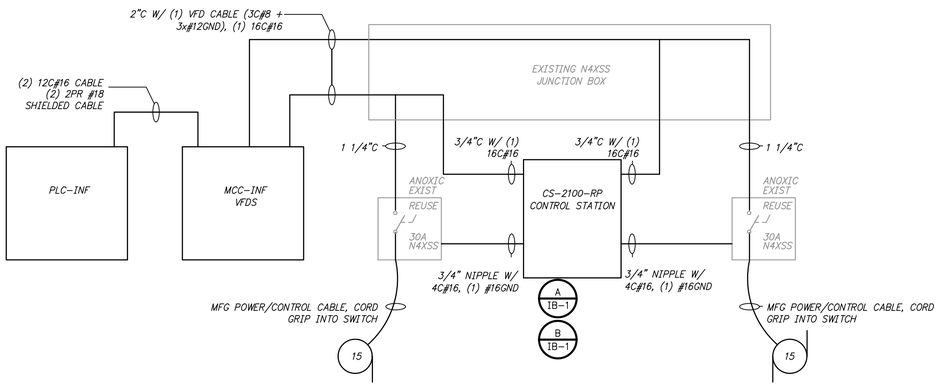
FOR: BENTONVILLE WATER UTILITIES

DATE:	MARCH 2025
SCALE:	3/8" = 1'–0"
DESIGNED BY:	LSM
DRAWN BY:	WRH
HWEI NO.:	2021037
FILENAME:	S–ANOXIC

SHEET NO. EB–3

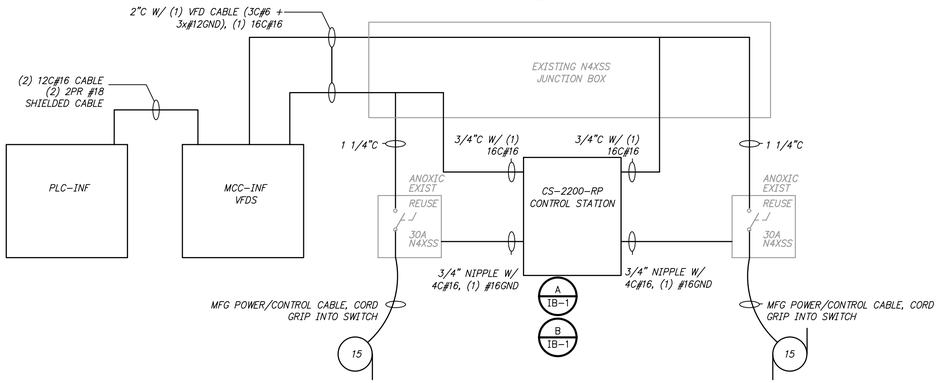
BID DRAWINGS
MARCH 21, 2025

Autodesk Docs://410144 – Bentonville Water Resource Recovery Facility Improvements/S–ANOXIC.rvt 3/21/2025 10:26:32 AM / WRH / EAST INTERNAL RECYCLE PUMP STATION



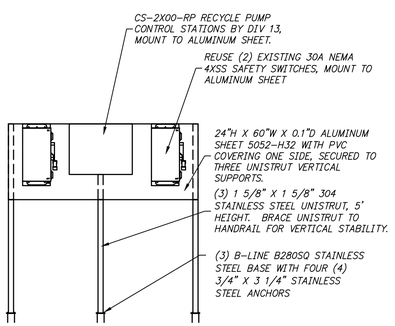
WEST RECYCLE PUMP STATION
ELECTRICAL AND CONTROL RISER DIAGRAM

DETAIL E
NTS
EA-1



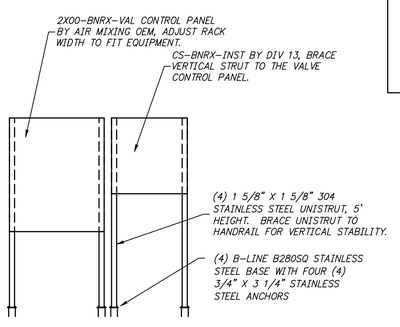
EAST RECYCLE PUMP STATION
ELECTRICAL AND CONTROL RISER DIAGRAM

DETAIL F
NTS
EA-1



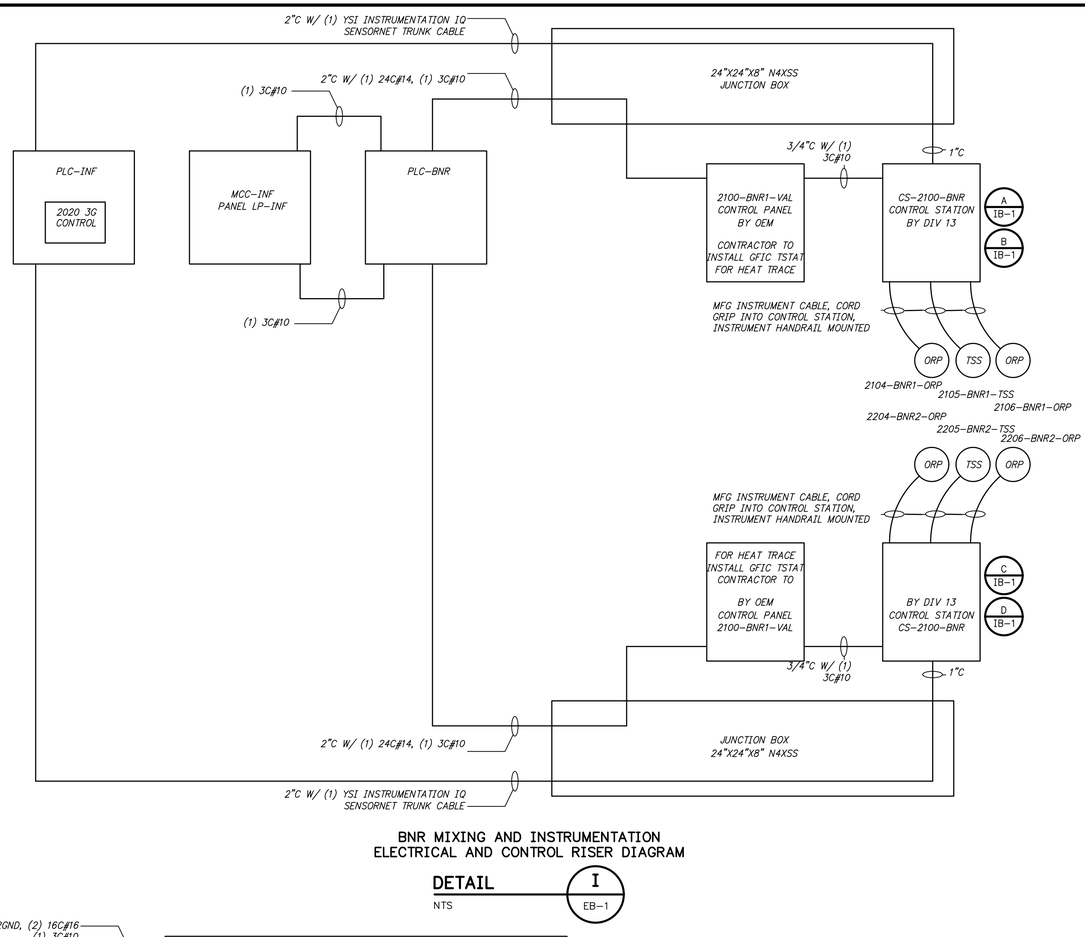
RECYCLE PUMP STATIONS
ELECTRICAL RACK LAYOUT

DETAIL G
1/2" = 1'-0"
EB-2,3



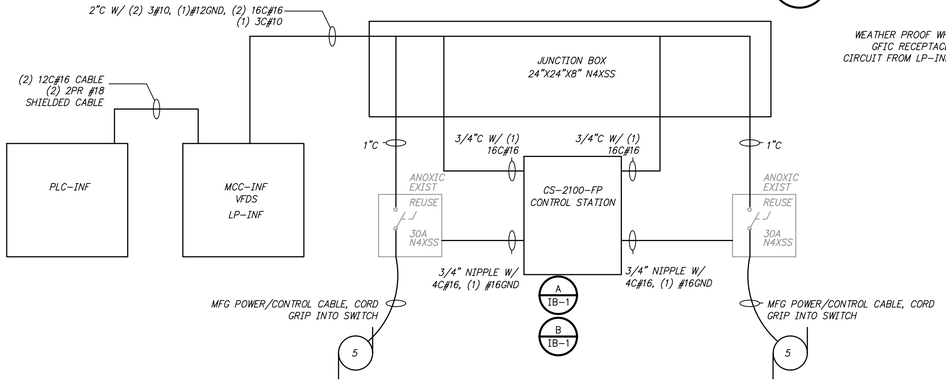
BNR AND INSTRUMENTATION
ELECTRICAL RACK LAYOUT

DETAIL H
1/2" = 1'-0"
EB-1



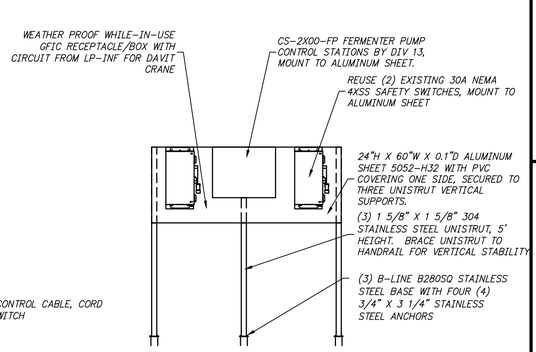
BNR MIXING AND INSTRUMENTATION
ELECTRICAL AND CONTROL RISER DIAGRAM

DETAIL I
NTS
EB-1



FERMENTER PUMP STATION
ELECTRICAL AND CONTROL RISER DIAGRAM

DETAIL J
NTS
EA-1



FERMENTER PUMP STATION
ELECTRICAL RACK LAYOUT

DETAIL D
1/2" = 1'-0"
EB-1

ANOXIC BASIN LIGHTING FIXTURE SCHEDULE

FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL#	QTY	TYPE	NOTES
P	277-480	187	LITHONIA RSX2 LED P4 30K R3 XVOLT SPA DNAXD	5	LED	ARROWS ON THE PLAN SHEET DENOTE FIXTURE DIRECTION. SOME POLES HAVE MORE THAN ONE FIXTURE.
P	–	–	LITHONIA SSS 20 4G DNAXD –	3	POLE	FIXTURES USE SPA SQUARE POLE ADAPTER. ONE (1) IS SINGLE FIXTURE DM19AS. ONE (1) IS 20@80 DM28AS, ONE (1) IS 20@90

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
L. SCOTT WILSON
PROFESSIONAL ENGINEER
No. 9585
3-21-25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

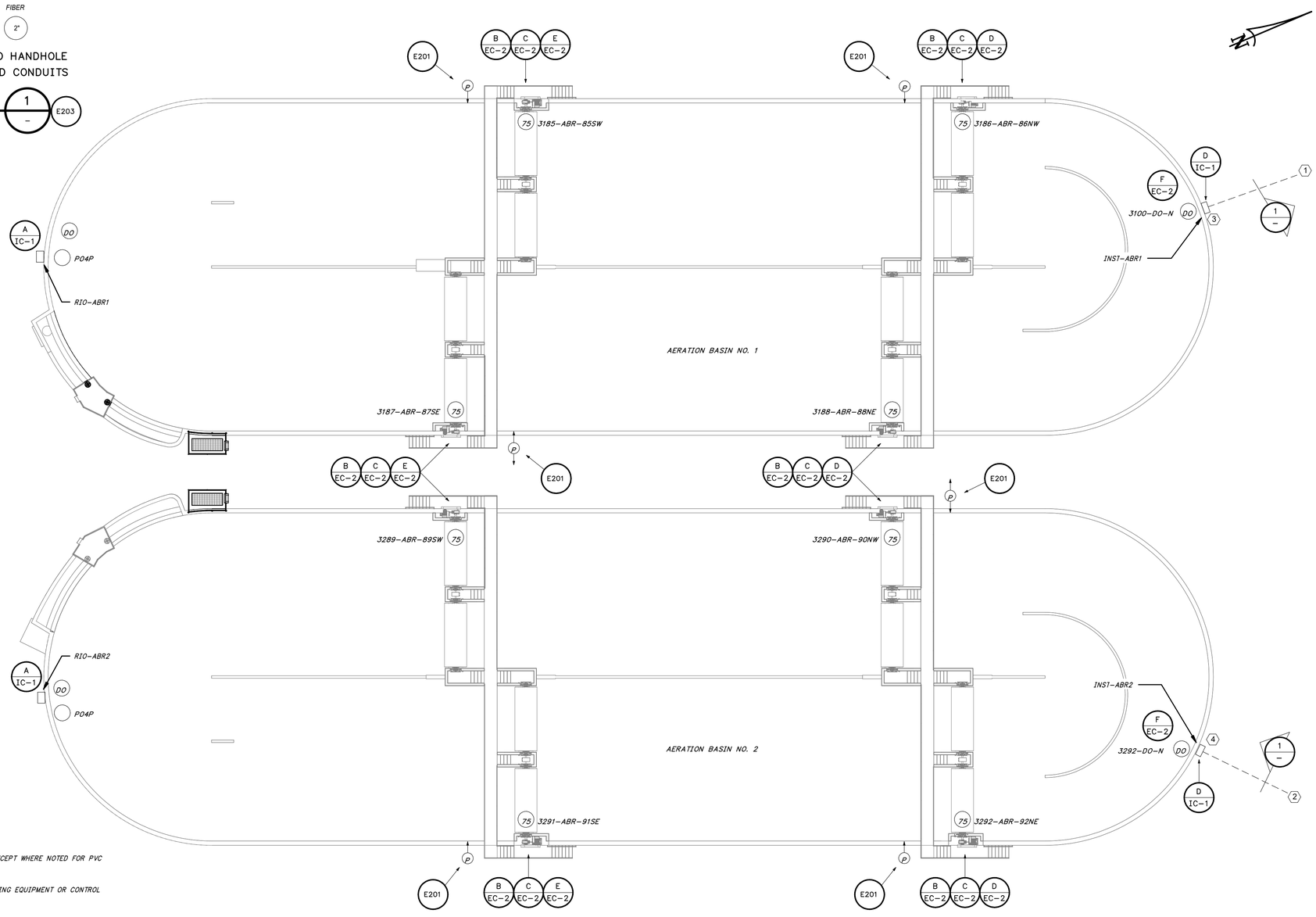
BNR AND RECYCLE PUMP STATIONS RISER DIAGRAMS, EQUIPMENT RACKS, AND LIGHTING SCHEDULE

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EB-04

SHEET NO.
EB-4

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EB-04.DWG, 3/21/2025 8:42 AM, MATT WEIR, LAYOUT1



KEYED NOTES

1. ROUTE THE SECTION 1 UNDERGROUND CONDUITS OUTSIDE OF THE CONCRETE ENCASED DUCTBANK, BETWEEN THE INSTRUMENTATION CONTROL PANEL AND THE ELECTRICAL HANDHOLE.
2. ROUTE THE SECTION 1 UNDERGROUND CONDUITS OUTSIDE OF THE CONCRETE ENCASED DUCTBANK, BETWEEN THE INSTRUMENTATION CONTROL PANEL AND THE ELECTRICAL HANDHOLE.
3. INSTALL THE INSTRUMENTATION CONTROL PANEL WITH STAINLESS STEEL UNISTRUT AT THE LOCATION INDICATED ON AERATION BASIN NO. 1.
4. INSTALL THE INSTRUMENTATION CONTROL PANEL WITH STAINLESS STEEL UNISTRUT AT THE LOCATION INDICATED ON AERATION BASIN NO. 2.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.
8. ALL CONDUIT AND BOXES INSIDE THE BUILDING SHALL BE SURFACE MOUNTED. NO CONDUITS SHALL BE INSTALLED IN THE BLOCK WALLS. USE CAST ALUMINUM BOXES, EXCEPT FOR LIGHTING CONDUITS IN THE CEILING SPACE, WHICH MAY BE SHEET METAL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
L. SCOTT WILSON
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3-21-25

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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

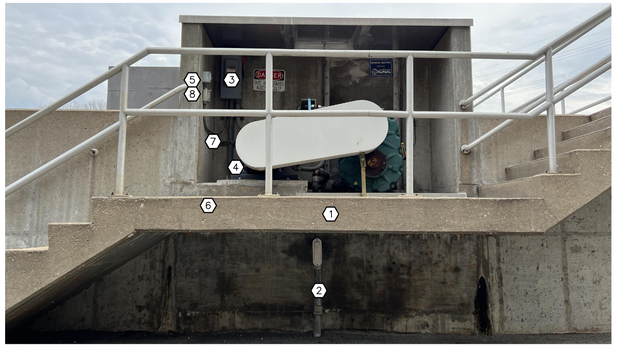
AERATION BASIN ELECTRICAL PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

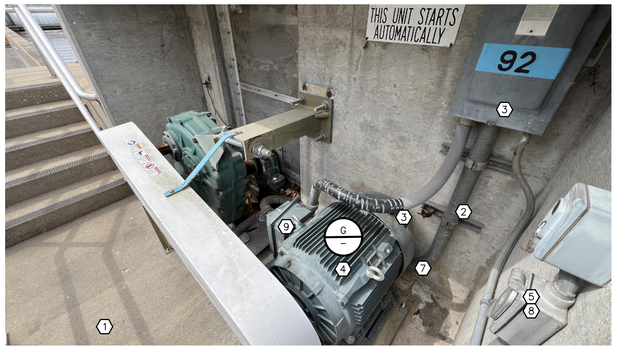
SHEET NO.
EC-1

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:04:11 AM / DKS / AERATION BASIN ELECTRICAL PLAN



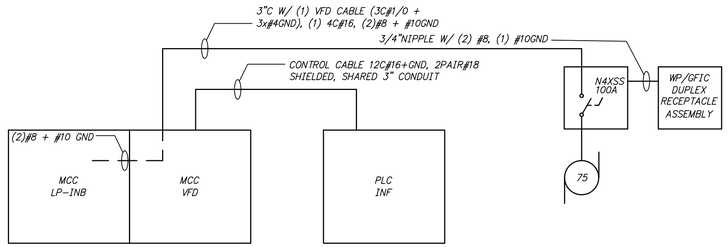
AERATION BASIN ROTOR

PHOTO B EC–1



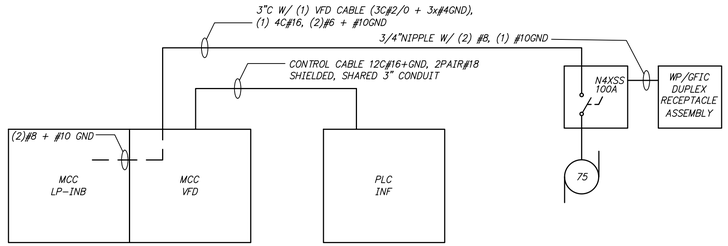
AERATION BASIN ROTOR

PHOTO C EC–1



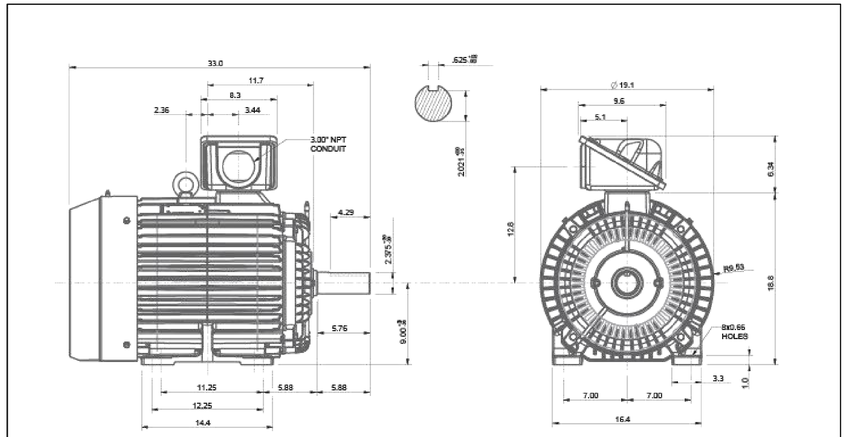
AERATION BASIN ROTOR – NORTH RISER DIAGRAM

DETAIL D NTS EC–1



AERATION BASIN ROTOR – SOUTH RISER DIAGRAM

DETAIL E NTS EC–1

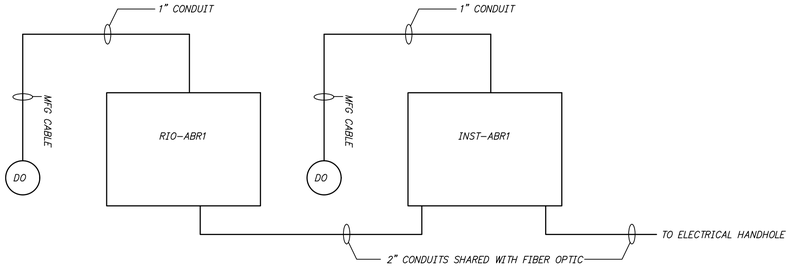


PROPOSED 75HP AERATION ROTOR MOTOR UPGRADE DIMENSIONAL MOTOR SPEC

DETAIL G NTS –

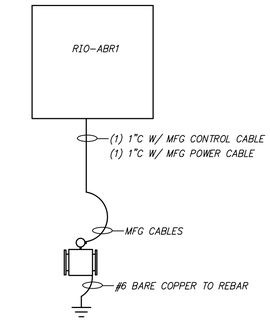
KEYED NOTES

1. EIGHT (8) TOTAL AERATION BASIN ROTOR INSTALLATIONS MUST BE UPGRADED AND MOVED FROM VFDS IN THE SLUDGE PUMP STATION TO THE PROPOSED INFLUENT ELECTRICAL BUILDING. HALF OF THE INSTALLATIONS UTILIZE THE ELECTRIC MOTOR MOUNTING TO THE LEFT OF THE GEAR REDUCER, THE OTHER HALF UTILIZE MOTOR MOUNTING TO THE RIGHT. ONE AERATION ROTOR SHALL BE UPGRADED AT A TIME, WHILE THE OTHER SEVEN CONTINUE TO OPERATE.
2. LOCKOUT THE EXISTING VFD IN THE SLUDGE BUILDING, AND DEMO CONDUIT AND CABLE BETWEEN THE SAFETY SWITCH AND AERATION JUNCTION BOXES BACK TO THE VFD. REMOVE UNDERGROUND CONDUIT TO THE EXTENT POSSIBLE.
3. DEMO THE EXISTING MOTOR SAFETY SWITCH AND CONDUIT/CABLE TO THE EXISTING 60HP MOTOR. PROVIDE AND INSTALL A 600V 100A NEMA4XSS SAFETY SWITCH WITH 1–NO AUXILIARY CONTACT IN THE SPACE VACATED BY THE EXISTING SWITCH.
4. DEMO THE EXISTING 60HP MOTOR. MAINTAIN THE EXISTING ADJUSTABLE 364B2 MOTOR BASE FOR THE PROPOSED 75HP MOTOR. TWO ADJUSTABLE BOLTS CONTROL BELT TENSION FOR THE MOTOR AND GEAR REDUCER. THE PROPOSED 75HP MOTOR IS SPECIFIED IN 01171 ELECTRIC MOTORS AND IS SHOWN IN DETAIL F THIS SHEET. THE MOTOR MUST BE SUPPLIED WITH THE CONDUIT BOX ON TOP IN THE NEMA F3 POSITION, SHALL HAVE DUAL NEMA 364T AND 365T BASE MOUNTING HOLES, AND SHALL BE A MAXIMUM OF 33.5" OVERALL LENGTH FROM THE SHAFT END TO THE FAN COVER.
5. DEMO THE EXISTING START/STOP PUSHBUTTON STATION AND RECEPTACLE. DEMO CONDUIT AND CIRCUITS TO THE SOURCE.
6. CORE DRILL TWO HOLES IN THE STAIR LANDING DECK FOR THE 3" MOTOR CONDUIT AND 1" RECEPTACLE CONDUIT. THE CORES SHALL BE LOCATED WITHIN THE 7" SHEAVE AND BELT GUARD AREA JUST OUTSIDE THE 30" DEPTH ROTOR ALCOVE, AND BETWEEN THE FINAL STAIR AND THE GUARD. THE FINAL INSTALLATION SHOULD NOT ROUTE SEALTITE THROUGH THE AREA BETWEEN THE MOTOR AND GEAR REDUCER AS THE EXISTING INSTALLATION DOES.
7. THE PROPOSED CONDUIT WILL TRANSITION FROM PVC SCH 40 UNDERGROUND TO RIGID ALUMINUM CONDUIT ABOVE GROUND, UTILIZING A PVC COATED RIGID LONG SWEEP 90 FOR THE TRANSITION. ONCE ABOVE THE CONCRETE DECK, TRANSITION TO SEALTITE TO THE SAFETY SWITCH AND TO THE MOTOR.
8. PROVIDE AND INSTALL A DOUBLE GANG DEEP CAST ALUMINUM FS–FD BOX WITH 1" CONDUIT ENTRY, TWO (2) GFIC DUPLEX 20A RECEPTACLES, AND A WEATHERPROOF WHILE–IN–USE COVER IN THE AREA OF THE PREVIOUS OUTLET.
9. THE CONDUCTORS FOR THE AERATION ROTORS SHALL BE VFD CABLE, 1KV RATING, SIZE AS INDICATED ON THE RISER DIAGRAMS WITH THREE CONDUCTORS AND THREE CONCENTRIC GROUNDS TERMINATED ON EACH END. CONTINUE THE VFD CABLE ALL THE WAY INTO THE MOTOR JUNCTION BOX, UTILIZING POLARIS GREY FLEX RATED CONNECTORS. POLARIS BLACK OR CLEAR ARE NOT ALLOWED. PROVIDE TERMINATIONS FOR INTERNAL MOTOR THERMOSTAT IF INSTALLED, AND PROVIDE TERMINATIONS FOR THE SAFETY SWITCH AUXILIARY CONTACT AS SHOWN IN THE CONTROL DIAGRAM.



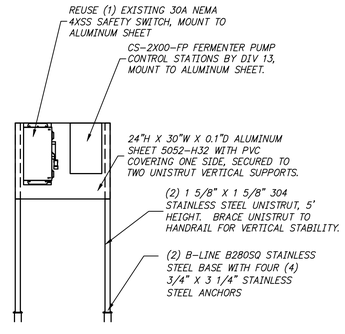
AERATION BASIN #1 INSTRUMENTATION (BASIN #2 SIMILAR) RISER DIAGRAM

DETAIL F NTS EC–1



SURFACE WASTING FLOWMETER CONTROL RISER DIAGRAM

DETAIL H NTS EC–4



FERMENTER PUMP STATION ELECTRICAL RACK LAYOUT

DETAIL I 1/2" = 1'–0" EC–4

AERATION BASINS LIGHTING FIXTURE SCHEDULE

FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL#	QTY	TYPE	NOTES
P	277–480	187	LITHONIA RSX2 LED P4 30K R3 XVOLT SPA DNAXD	8	LED	ARROWS ON THE PLAN SHEET DENOTE FIXTURE DIRECTION. SOME POLES HAVE MORE THAN ONE FIXTURE.
P	–	–	LITHONIA SSS 20 4G DNAXD –	6	POLE	FIXTURES USE SPA SQUARE POLE ADAPTER. SIX (6) ARE SINGLE FIXTURE DM19AS. TWO (2) ARE 20180 DM28AS.

1" ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE

REVISION

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STATE OF ARKANSAS MATTHEW S. WEIR 13511 REGISTERED PROFESSIONAL ENGINEER No. 9508 3/21/2025

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

AERATION BASIN ELECTRICAL UPGRADE DETAILS, NOTES, RISER DIAGRAMS, AND LIGHTING SCHEDULE

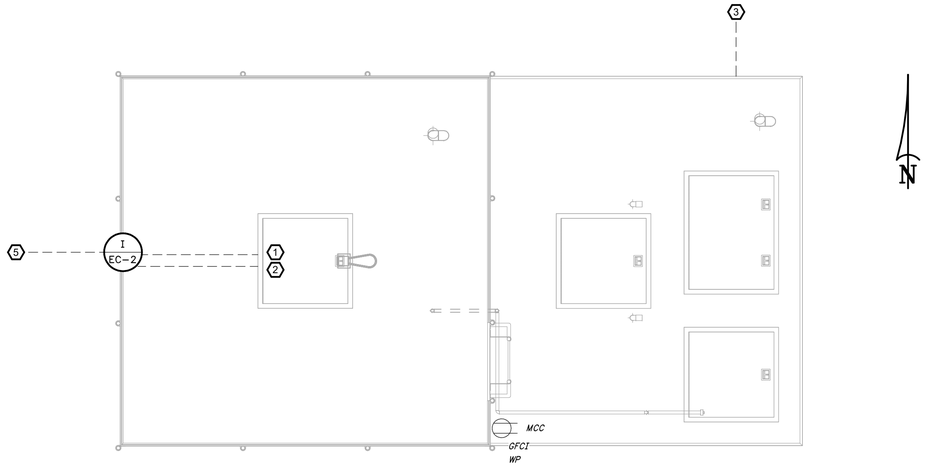
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EC–02

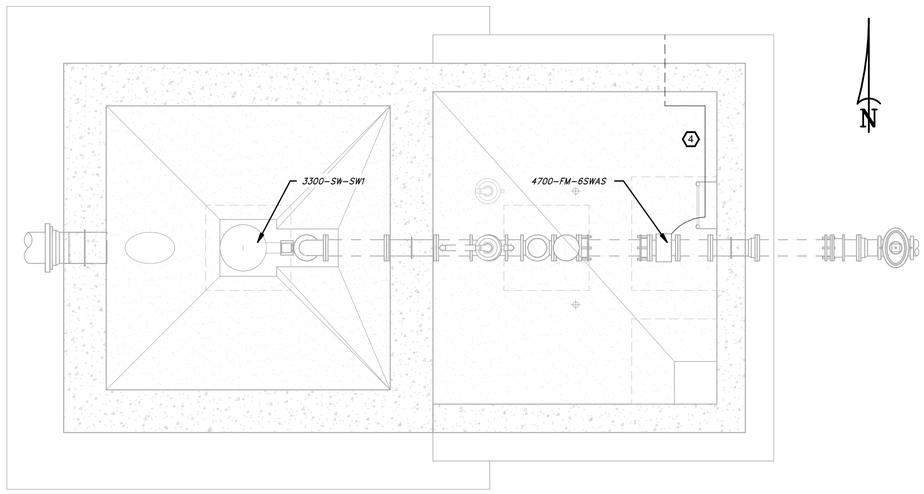
BID DRAWINGS
MARCH 21, 2025

SHEET NO. EC–2

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EC–02.DWG, 3/21/2025 8:43 AM, MATT WEIR, LAYOUT1



DETAIL K / E-11
3/8" = 1'-0"



SURFACE WASTING PUMP STATION

DETAIL L / E-11
3/8" = 1'-0"

KEYED NOTES

1. *EMBED ONE (1) 1" AND ONE (1) 2" CONDUIT IN THE SLAB BETWEEN THE EQUIPMENT RACK AND THE PUMP HATCH, EXPOSED THROUGH THE VERTICAL FACE OF THE SLAB. THESE CONDUITS ARE PUMP CONTROL AND PUMP POWER CONDUITS.*
2. *EMBED ONE (1) 1" CONDUIT IN THE SLAB BETWEEN THE EQUIPMENT RACK AND THE PUMP HATCH, EXPOSED THROUGH THE VERTICAL FACE OF THE SLAB. THIS CONDUIT CONTAINS THE LEVEL TRANSMITTER CABLE.*
3. *(2) 1" CONDUITS TO RIO-ABR1, SEE SHEET E-16 FOR CONTINUATION.*
4. *SURFACE MOUNT PVC SCHEDULE 40 CONDUIT TO THE WALL WITH UNISTRUT. PROVIDE CABLE GRIP ENTRY FOR EACH FLOW METER CABLE INTO THE CONDUIT.*
5. *SEE SECTION 4 SHEET E-16 FOR CONTINUATION.*

GENERAL NOTES

1. *ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).*
2. *ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.*
3. *ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).*
4. *UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.*
5. *ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.*
6. *ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.*
7. *ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WEIR
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

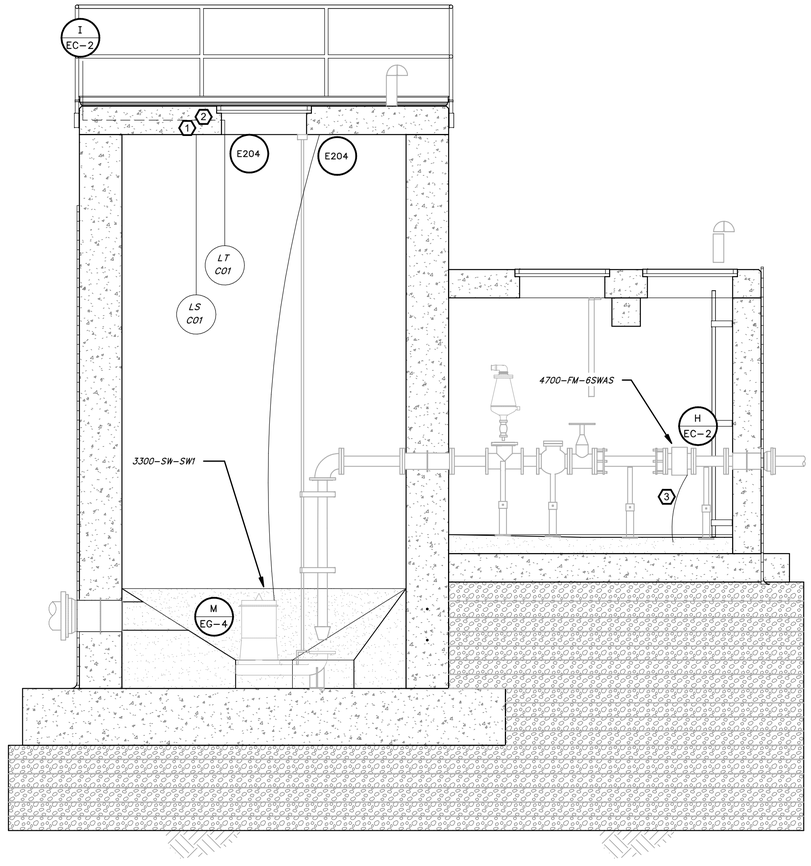
SURFACE WASTING PUMP STATION DETAILS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: Designer
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EC-3

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:04:14 AM / DKS / SURFACE WASTING PUMP STATION



SECTION 1
3/8" = 1'-0"

KEYED NOTES

1. EMBED ONE (1) 1" AND ONE (1) 2" CONDUIT IN THE SLAB BETWEEN THE EQUIPMENT RACK AND THE PUMP HATCH, EXPOSED THROUGH THE VERTICAL FACE OF THE SLAB. THESE CONDUITS ARE PUMP CONTROL AND PUMP POWER CONDUITS.
2. EMBED ONE (1) 1" CONDUIT IN THE SLAB BETWEEN THE EQUIPMENT RACK AND THE PUMP HATCH, EXPOSED THROUGH THE VERTICAL FACE OF THE SLAB. THIS CONDUIT CONTAINS THE LEVEL TRANSMITTER CABLE.
3. CADWELD #6 BARE COPPER GROUND TO THE REBAR IN THE FLOOR OF THE VAULT, CONNECT TO THE FLOWMETER GROUNDING TERMINAL.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT McBRIDE
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

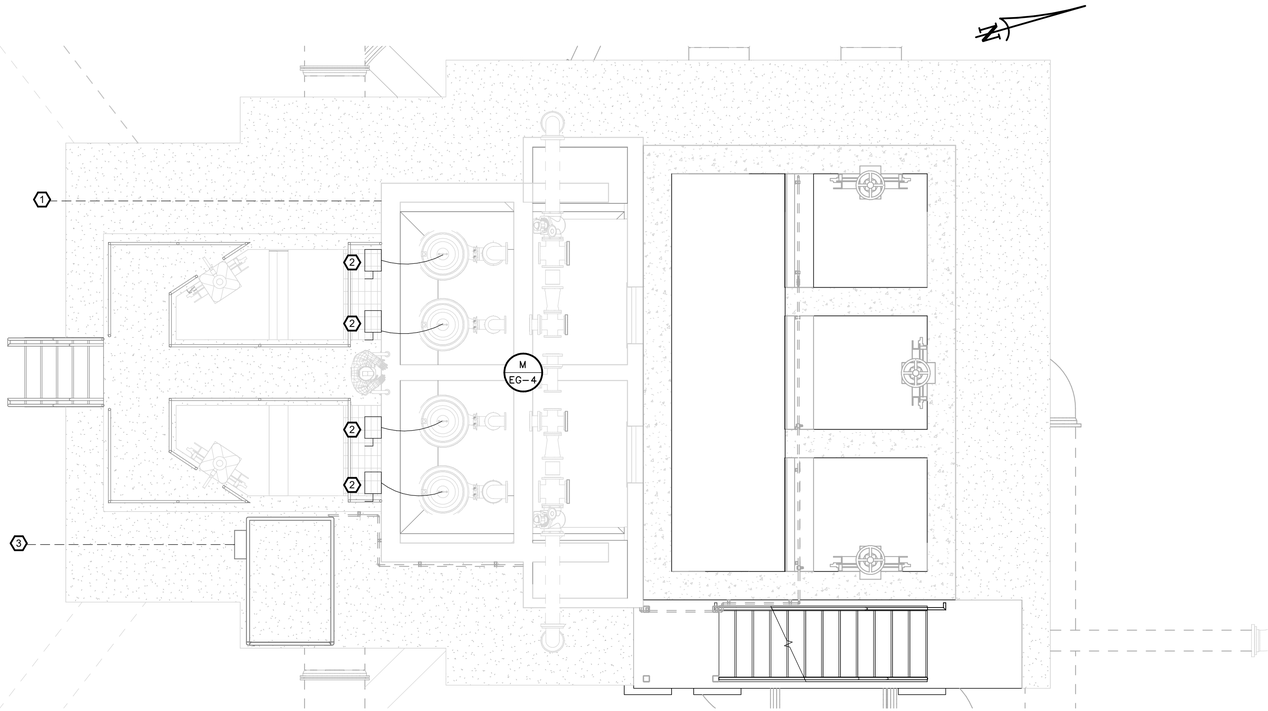
SURFACE WASTING PUMP STATION
SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

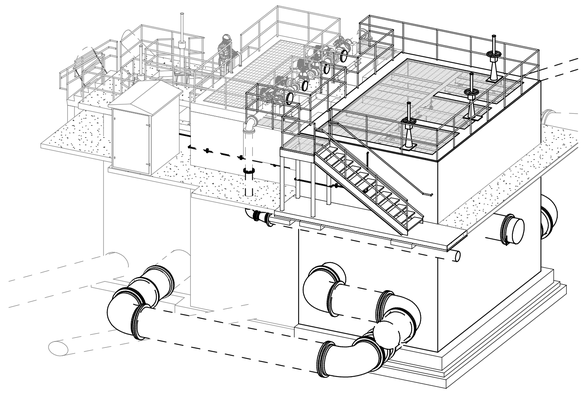
DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: Designer
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EC-4

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:04:17 AM / DKS / SURFACE WASTING PUMP STATION



DETAIL A
1/4" = 1'-0"
E-11



ISOMETRIC/3D
N.T.S.

KEYED NOTES

1. *SEE SECTION 5 SHEET E-16 FOR CONTINUATION.*
2. *MAINTAIN AND REUSE FOUR (4) 60A N4XSS SAFETY SWITCHES, CONNECTING TO MCC-WAS VFDS.*
3. *SEE SECTION 7 SHEET E-16 FOR CHEMICAL PUMPS POWER AND CONTROL.*

GENERAL NOTES

1. *ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).*
2. *ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.*
3. *ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).*
4. *UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.*
5. *ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.*
6. *ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.*
7. *ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
W. JOSHUA LAWRENCE
REGISTERED PROFESSIONAL ENGINEER
No. 9888
3/21/25
E. SCOTT McBRIDE

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

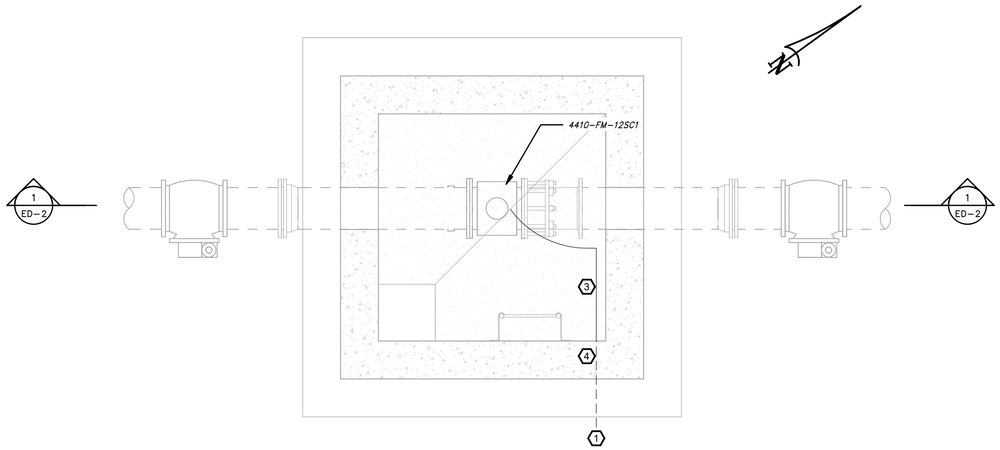
SECONDARDY CLARIFIER DISTRIBUTION BOX AND RAS PUMP STATION DETAIL

FOR: BENTONVILLE WASTEWATER UTILITIES

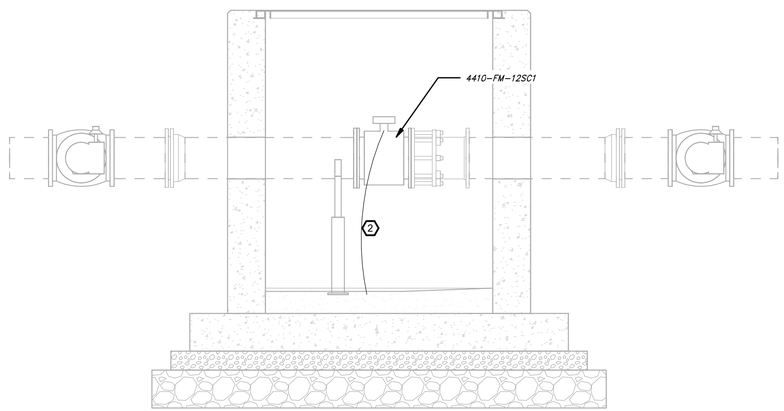
DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
ED-1

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:04:23 AM / DKS / SECONDARDY CLARIFIER DISTRIBUTION BOX AND RAS PUMP STATION DETAIL



DETAIL B
1/2" = 1'-0" E-16



SECTION 1
1/2" = 1'-0" -

KEYED NOTES

1. (2) 1" CONDUITS TO RIO-ABR1.
2. CADWELD #6 BARE COPPER GROUND TO THE REBAR IN THE FLOOR OF THE VAULT, CONNECT TO THE FLOWMETER GROUNDING TERMINAL.
3. SURFACE MOUNT PVC SCHEDULE 40 CONDUIT TO THE WALL WITH UNISTRUT. PROVIDE CABLE GRIP ENTRY FOR EACH FLOW METER CABLE INTO THE CONDUIT.
4. INSTALL ALL CONDUIT ENTRIES THROUGH THE WALL PRIOR TO CONCRETE POUR.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WEIR
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

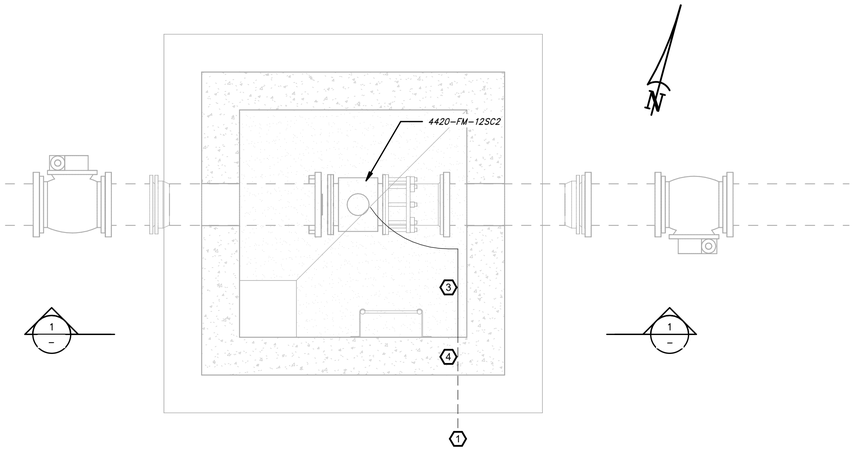
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

RAS PUMP STATION NO. 1
FLOW METER VAULT NO. 1
DETAIL AND SECTION
FOR: BENTONVILLE WASTEWATER UTILITIES

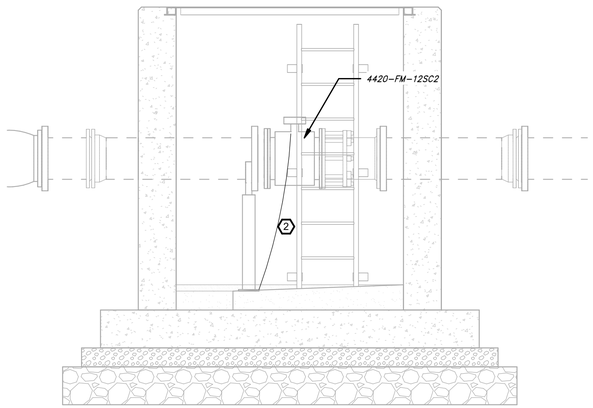
DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
ED-2

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:04:27 AM / DKS / RAS PUMP STATION NO. 1



DETAIL C
1/2" = 1'-0" E-16



SECTION 1
1/2" = 1'-0" –

KEYED NOTES

1. (2) 1" CONDUITS TO RIO-ABR2.
2. CADWELD #6 BARE COPPER GROUND TO THE REBAR IN THE FLOOR OF THE VAULT, CONNECT TO THE FLOWMETER GROUNDING TERMINAL.
3. SURFACE MOUNT PVC SCHEDULE 40 CONDUIT TO THE WALL WITH UNISTRUT. PROVIDE CABLE GRIP ENTRY FOR EACH FLOW METER CABLE INTO THE CONDUIT.
4. INSTALL ALL CONDUIT ENTRIES THROUGH THE WALL PRIOR TO CONCRETE POUR.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
L. SCOTT WILSON
No. 9888
3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

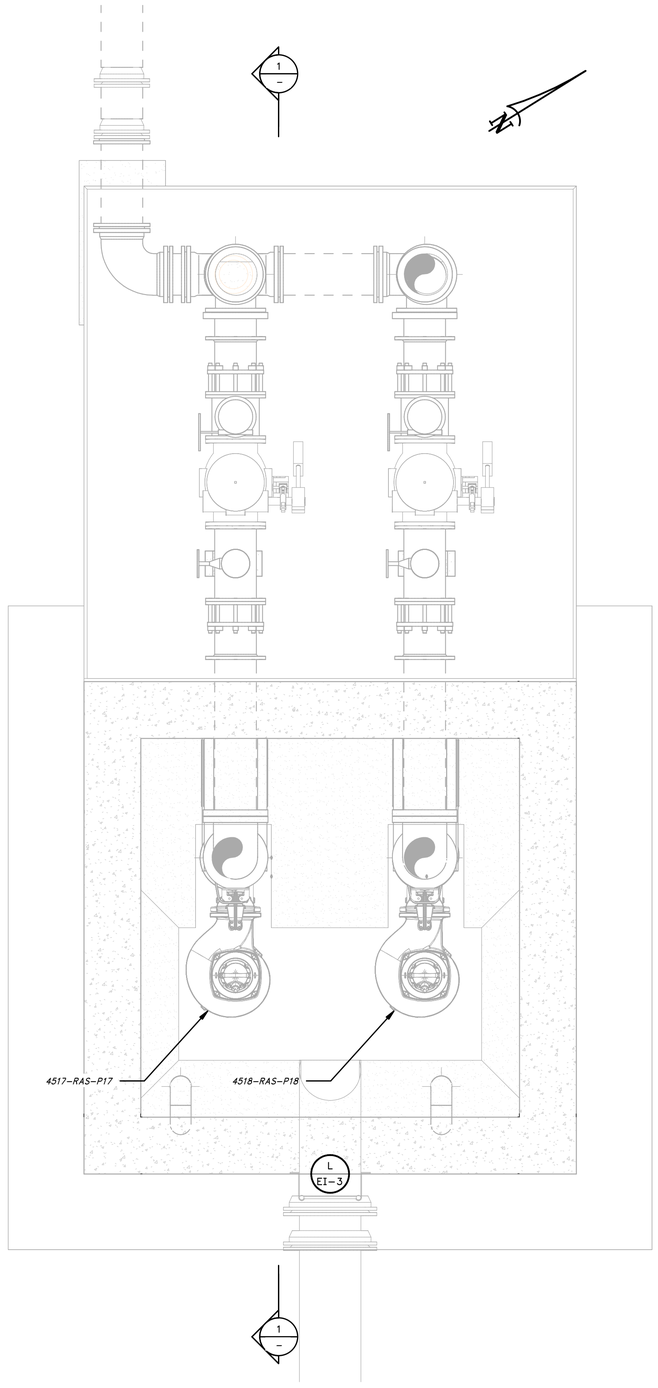
RAS PUMP STATION NO. 1
FLOW METER VAULT NO. 2
DETAILS AND SECTIONS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
ED-3

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:04:30 AM / DKS / RAS PUMP STATION NO. 1

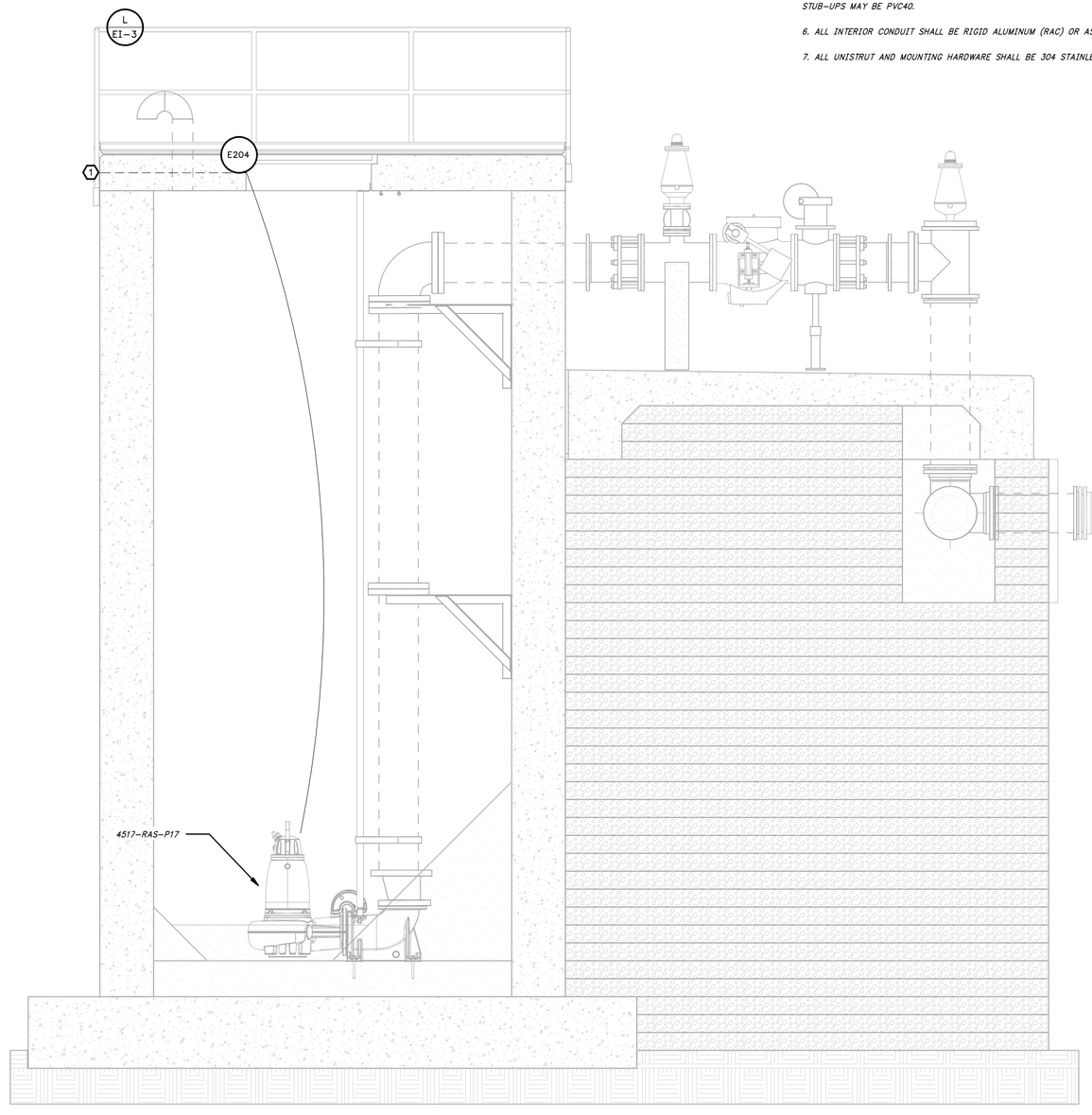


RAS PUMP STATION NO. 2 DECK LEVEL

DETAIL A/E-15 — 1/2" = 1'-0"

KEYED NOTES

1. *EMBED TWO (2) 1" AND TWO (2) 2" CONDUITS IN THE SLAB BETWEEN THE EQUIPMENT RACK AND THE PUMP HATCH, EXPOSED THROUGH THE VERTICAL FACE OF THE SLAB. THESE CONDUITS ARE PUMP CONTROL AND PUMP POWER CONDUITS.*



SECTION 1/1 — 1/2" = 1'-0"

GENERAL NOTES

1. *ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).*
2. *ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.*
3. *ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).*
4. *UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.*
5. *ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.*
6. *ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.*
7. *ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS · REGISTERED PROFESSIONAL ENGINEER · L. SCOTT WEIR · No. 9888 · 3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

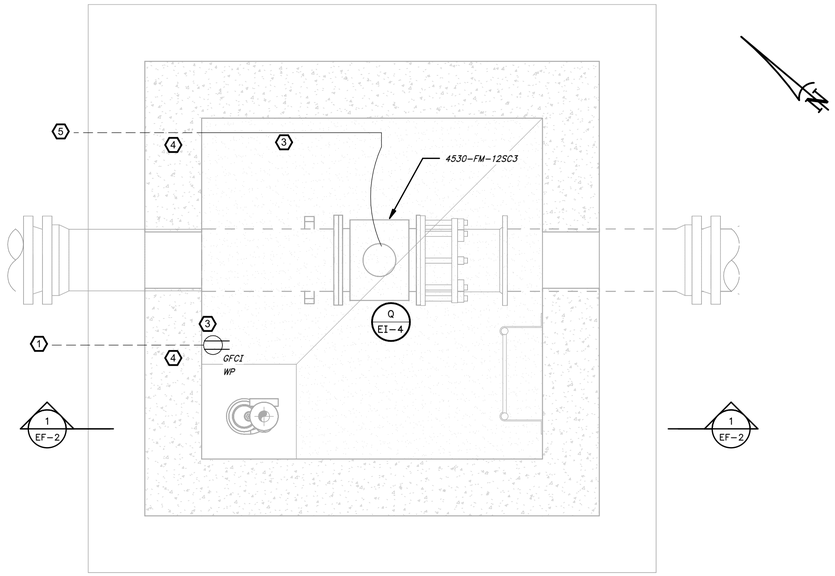
RAS PUMP STATION NO. 2 DETAILS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

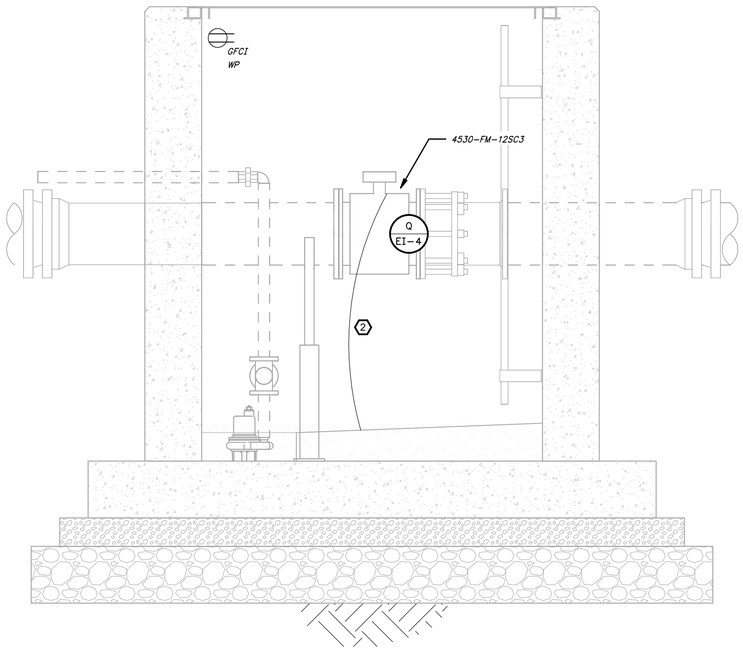
SHEET NO.
EF-1

Autodesk Docs://4101144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:04:35 AM / DKS / RAS PUMP STATION NO. 2



RAS PUMP STATION NO. 2
FLOW METER VAULT

DETAIL B
3/4" = 1'-0" E-11



SECTION 1
3/4" = 1'-0"

KEYED NOTES

1. *1" CONDUIT TO RIO-SAMP.*
2. *CADWELD #6 BARE COPPER GROUND TO THE REBAR IN THE FLOOR OF THE VAULT, CONNECT TO THE FLOWMETER GROUNDING TERMINAL.*
3. *SURFACE MOUNT PVC SCHEDULE 40 CONDUIT TO THE WALL WITH UNISTRUT. PROVIDE CABLE GRIP ENTRY FOR EACH FLOW METER CABLE INTO THE CONDUIT.*
4. *INSTALL ALL CONDUIT ENTRIES THROUGH THE WALL PRIOR TO CONCRETE POUR.*
5. *(3) 1" CONDUITS TO RIO-SAMP. SEE SECTION 9 SHEET E-15 FOR CONTINUATION.*

GENERAL NOTES

1. *ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).*
2. *ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.*
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BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
L. SCOTT WEIR
No. 9888
3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

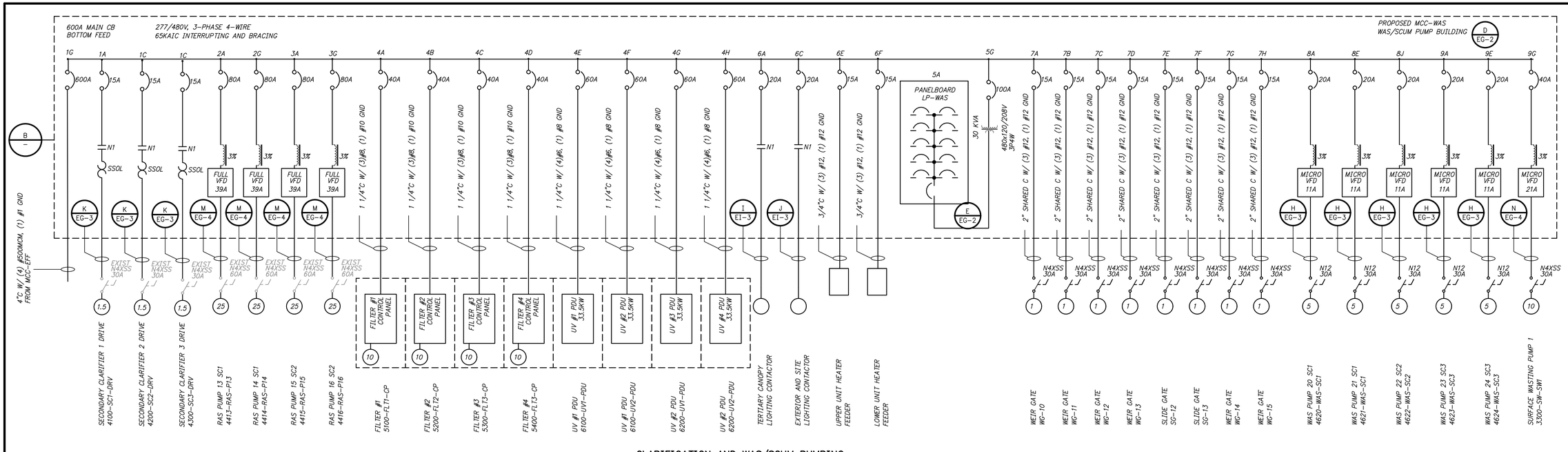
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

RAS PUMP STATION NO. 2
FLOW METER VAULT
DETAIL
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/4" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

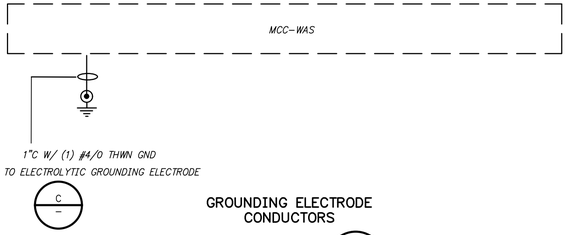
SHEET NO.
EF-2

Autodesk Docs://4101144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:04:39 AM / DKS / RAS PUMP STATION NO. 2



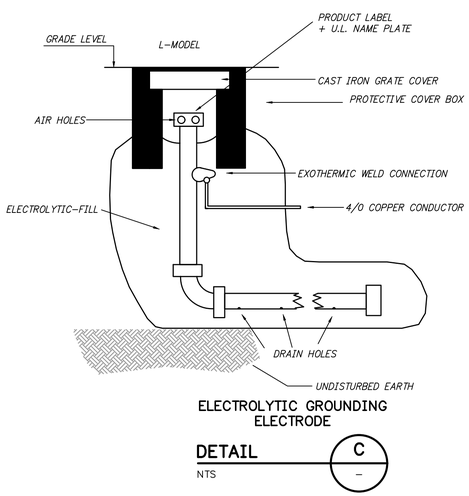
CLARIFICATION AND WAS/SCUM PUMPING
ONE-LINE DIAGRAM

DETAIL A
NTS



GROUNDING ELECTRODE
CONDUCTORS

DETAIL B
NTS



ELECTROLYTIC GROUNDING
ELECTRODE

DETAIL C
NTS

GENERAL NOTES

1. *VFD RATINGS ARE CONTINUOUS OUTPUT AMPS. DO NOT SIZE BY MOTOR HORSEPOWER. A MICRO VFD IS COMMONLY REFERRED TO AS MACHINE DRIVE. A FULL SIZE VFD IS COMMONLY REFERRED TO AS A PROCESS DRIVE.*
2. *ALL VFD MCC BUCKETS SHALL INCLUDE A CONTROL POWER TRANSFORMER, OVERSIZED WHERE SHOWN, HOA THREE POSITION SWITCH, SPEED POTENTIOMETER, GREEN VFD RUNNING PILOT LIGHT, RED VFD FAULTED PILOT LIGHT, AMBER EXTERNAL FAULT PILOT LIGHT, AND ETHERNET IP COMMUNICATION CARD. AUTO OPERATION SHALL BE VIA TERMINAL CONTROL. ETHERNET IP SHALL BE USED FOR DATA INFORMATION. SEE THE CONTROL DIAGRAMS REFERENCED IN THE DETAIL LETTERS.*
3. *ALL FVNR MCC BUCKETS SHALL USE NEMA RATED STARTERS, SIZE AS INDICATED, WITH SOLID STATE OVERLOAD RELAYS. THE BUCKET SHALL INCLUDE A CONTROL POWER TRANSFORMER, HOA THREE POSITION SWITCH, GREEN RUNNING PILOT LIGHT, RED OVERLOAD PILOT LIGHT, AND ELAPSED TIME METER.*
4. *THE MCC SHALL INCLUDE REDUNDANT 24VDC 10A POWER SUPPLIES, WITH INPUT POWER OF 480VAC THREE PHASE OR 120VAC SINGLE PHASE. THE MCC SHALL INCLUDE TWO (2) 16 PORT ETHERNET SWITCHES WITH DUAL 24VDC POWER INPUT AND AUTOMATIC SWITCHING. PROVIDE ALL ETHERNET CABLING IN THE MCC TO EACH BUCKET.*
5. *MAINTAIN THE BUCKET LAYOUT AS SHOWN IN THE DRAWINGS TO THE EXTENT POSSIBLE, WITH THE MAIN LUG ENTRY ON THE LEFT OF THE LINEUP.*
6. *SEE MCC SPECIFICATION 16480 FOR ALL DETAILS.*
7. *MOST SAFETY SWITCHES SHOWN AS EXISTING ARE RELOCATED FROM THE ANOXIC BASIN FROM THE DEMO SHEETS. THE RAS PUMP SAFETY SWITCHES ARE EXISTING IN PLACE.*

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
MATTHEW S. WEIR
PROFESSIONAL ENGINEER
No. 9585
3/21/2025

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

WAS/SCUM PUMP BUILDING
CLARIFICATION AND WAS/SCUM PUMPING ONE-LINE DIAGRAM AND DETAILS

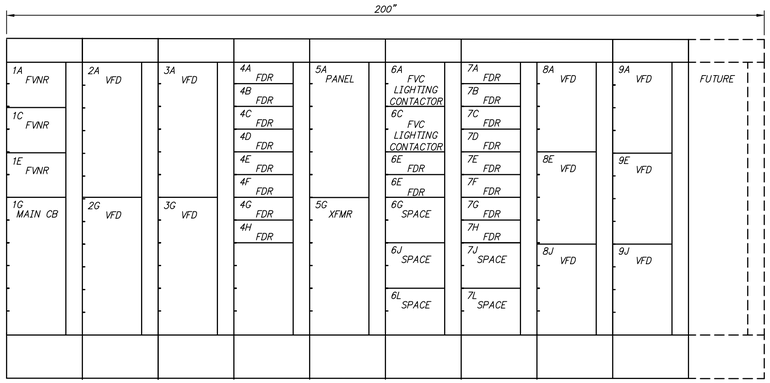
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EG-01

SHEET NO.
EG-1

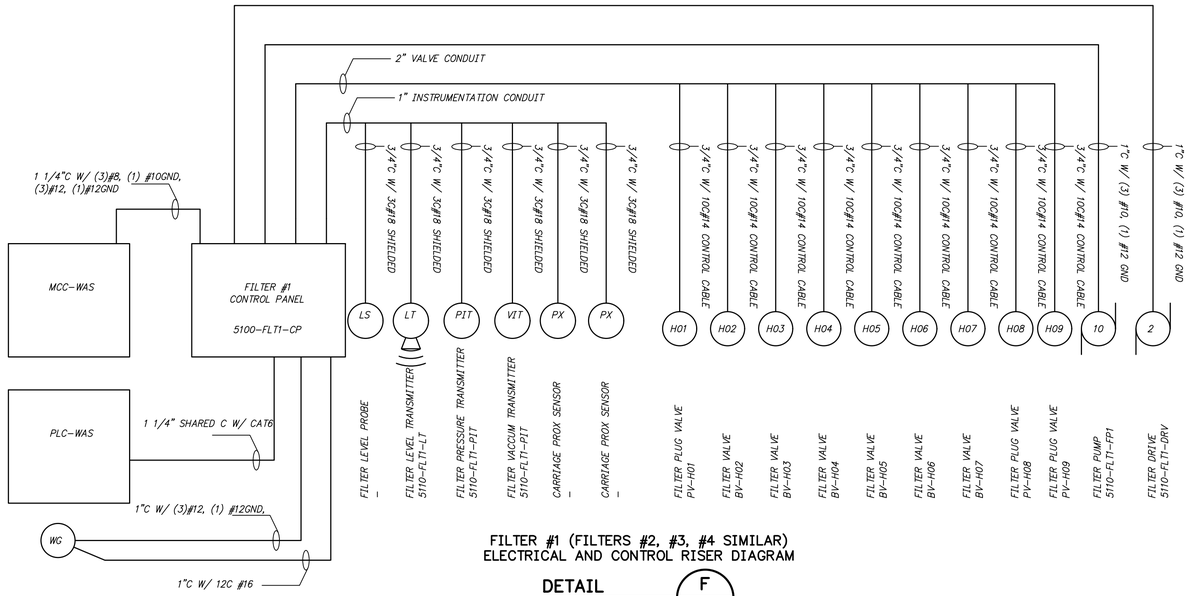
BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EG-01.DWG, 3/21/2025 8:43 AM, MATT WEIR, LAYOUT1



WAS/SCUM PUMP BUILDING
MCC–WAS ELEVATION AND LAYOUT

DETAIL D — NTS — EG–1



FILTER #1 (FILTERS #2, #3, #4 SIMILAR)
ELECTRICAL AND CONTROL RISER DIAGRAM

DETAIL F — NTS — EH–1

PANEL LP–WAS

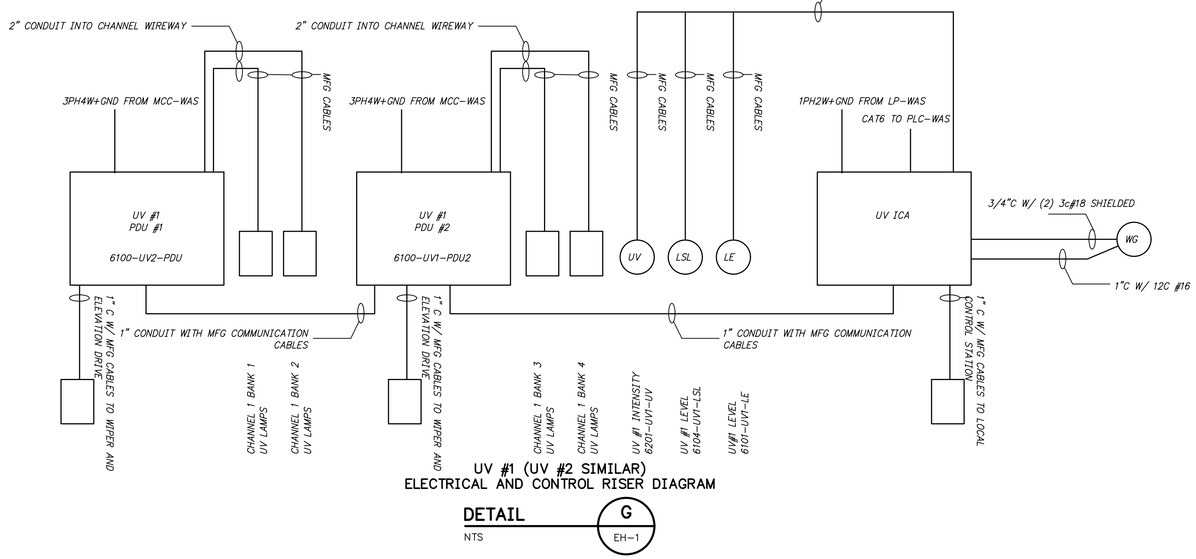
CKT #	DESCRIPTION	WIRE	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND	CONDUIT	CB	WIRE	DESCRIPTION	CKT #
1	RIO–ABR1 CKT 1	#10 (12)	20	2" SHARED	5	5					3/4"	20	#10 (12)	RIO–ABR2 CKT1	2
3	RIO–ABR1 CKT 2	#10 (12)	20	2" SHARED			5	5			3/4"	20	#10 (12)	RIO–ABR2 CKT 2	4
5	RIO–ABR1 CKT 3	#10 (12)	20	2" SHARED					5	5	3/4"	20	#10 (12)	RIO–ABR2 CKT 3	6
7	PUMP STATION LIGHTS	#12 (12)	20	3/4"	6	6					3/4"	20	#12 (12)	ELEC BLDG RECEPTACLES	8
9	PUMP STATION LIGHTS	#12 (12)	20	3/4"			8	8			3/4"	20	#12 (12)	PUMP STATION RECEPTACLES	10
11	PUMP STATION RECEPTACLES	#12 (12)	20	3/4"					5	5	3/4"	20	#12 (12)	PUMP STATION EXHAUST FAN	12
13	PUMP STATION SUPPLY FAN	#12 (12)	20	3/4"	6	6					3/4"	20	#12 (12)	PUMP STATION EXHAUST FAN	14
15	UV–ICA POWER	#10 (10)	20	1"			8	8			1"	20	#10 (12)	FILTER HOIST	16
17	TERTIARY RECEPTACLES	#10 (12)	20	1.25" SHARED					5	5	1"	20	#10 (12)	POST AIR HOIST	18
19	TERTIARY RECEPTACLES	#10 (12)	20	1.25" SHARED	3	3					3/4"	20	#12 (12)	PLC–WAS POWER	20
21	TERTIARY RECEPTACLES	#10 (12)	20	1.25" SHARED			3	3			–	20	– (–)	SPARE –	22
23	SPARE –	– (–)	20	–					–	–	–	20	– (–)	SPARE –	24
25	SPARE –	– (–)	20	–	–	–					–	20	– (–)	SPARE –	26
27	SPARE –	– (–)	20	–			–	–			–	20	– (–)	SPARE –	28
29	SPARE –	–	20	–							–	20	– (–)	SPARE –	30
				TOTAL CONNECTED	43		48		39						
				TOTAL DEMAND		43		48		39					

TYPE: LIGHTING AND APPLIANCE
VOLTS: 120/208, THREE PHASE, FOUR WIRE
MAIN: 80 AMP
BUS: 100 AMP
RATING: 10 KAIC
MOUNTING: MCC INTERIOR
ENCLOSURE RATING: NEMA 1

CONNECTED KVA: 17.3
DEMAND KVA: 17.3
DESIGN KVA: 30

EFFLUENT ELECTRICAL BUILDING
PANEL LP–EFF SCHEDULE

DETAIL E — NTS — EA–1



UV #1 (UV #2 SIMILAR)
ELECTRICAL AND CONTROL RISER DIAGRAM

DETAIL G — NTS — EH–1

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS — L. Scott Mason — No. 9586 — PROFESSIONAL ENGINEER — 3-21-25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

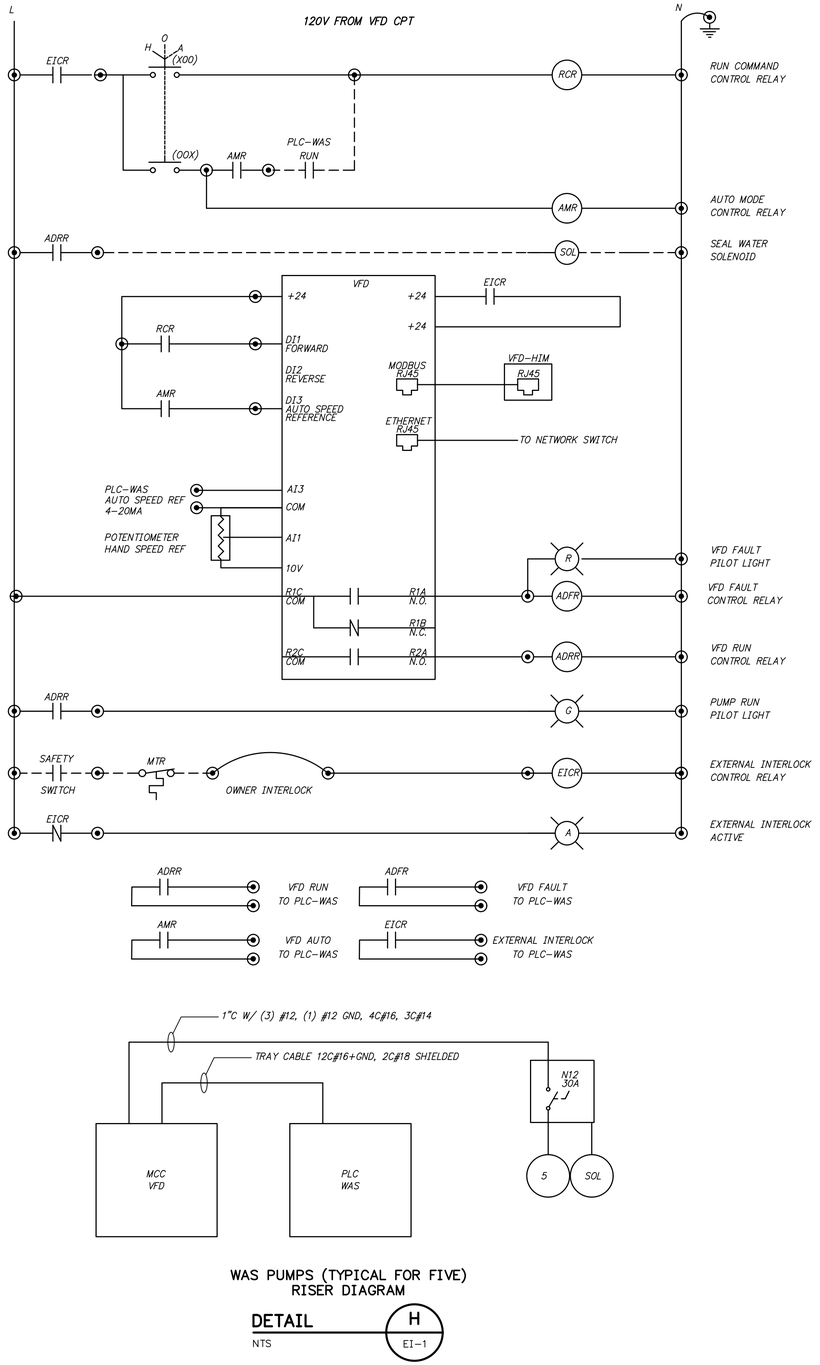
WAS/SCUM PUMP BUILDING
CLARIFICATION AND WAS/SCUM PUMPING
MCC–WAS ELEVATION AND SCHEDULES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EG–02

SHEET NO.
EG–2

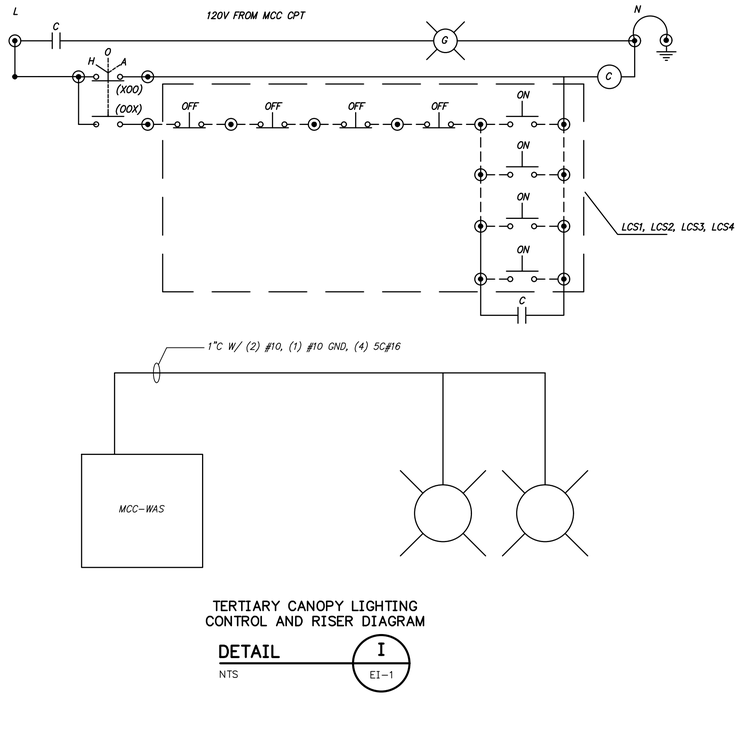
Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EG–02.DWG, 3/21/2025 8:43 AM, MATT WEIR, LAYOUT1



WAS PUMPS (TYPICAL FOR FIVE)
RISER DIAGRAM

DETAIL H — EI-1

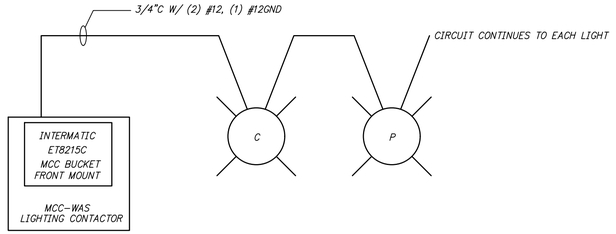
NTS

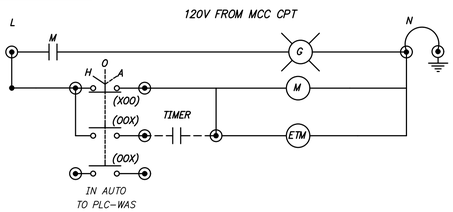


TERTIARY CANOPY LIGHTING
CONTROL AND RISER DIAGRAM

DETAIL I — EI-1

NTS

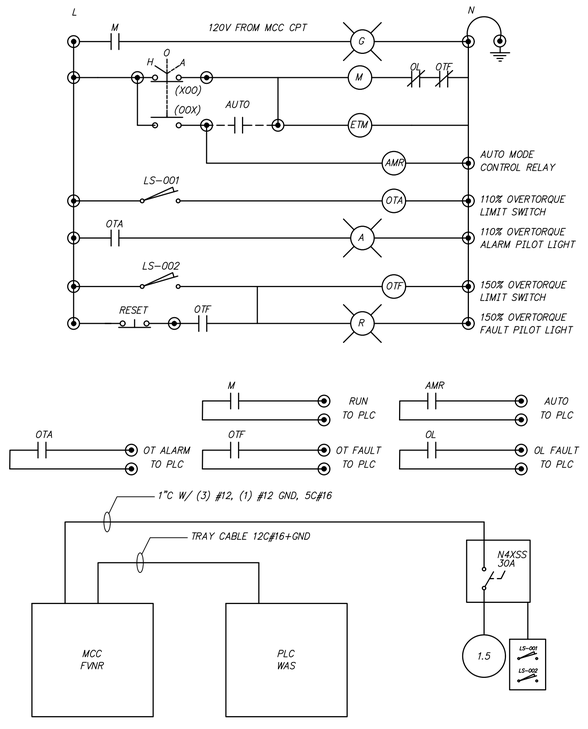




EXTERIOR LIGHTING
CONTROL AND RISER DIAGRAM

DETAIL J — EI-1

N.T.S.



SECONDARY CLARIFIER #1 (#2 AND #3 SIMILAR)
CONTROL AND RISER DIAGRAM

DETAIL K — EI-1

NTS

WAS/SCUM LIGHTING FIXTURE SCHEDULE

FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL#	QTY	TYPE	NOTES
P	277-480	187	LITHONIA RSX2 LED P4 30K R3 XVOLT SPA DNAXD	3	LED	ARROWS ON THE PLAN SHEET DENOTE FIXTURE DIRECTION. SOME POLES HAVE MORE THAN ONE FIXTURE.
P	–	–	LITHONIA SSS 20 4G DNAXD –	1	POLE	FIXTURES USE SPA SQUARE POLE ADAPTER. ONE (1) IS SINGLE FIXTURE DM19AS. ONE (1) IS 2@180 DM28AS, ONE (1) IS 2@90

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS — KYLE M. SCOTT — No. 9586 — REGISTERED PROFESSIONAL ENGINEER — 6-30-2026

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

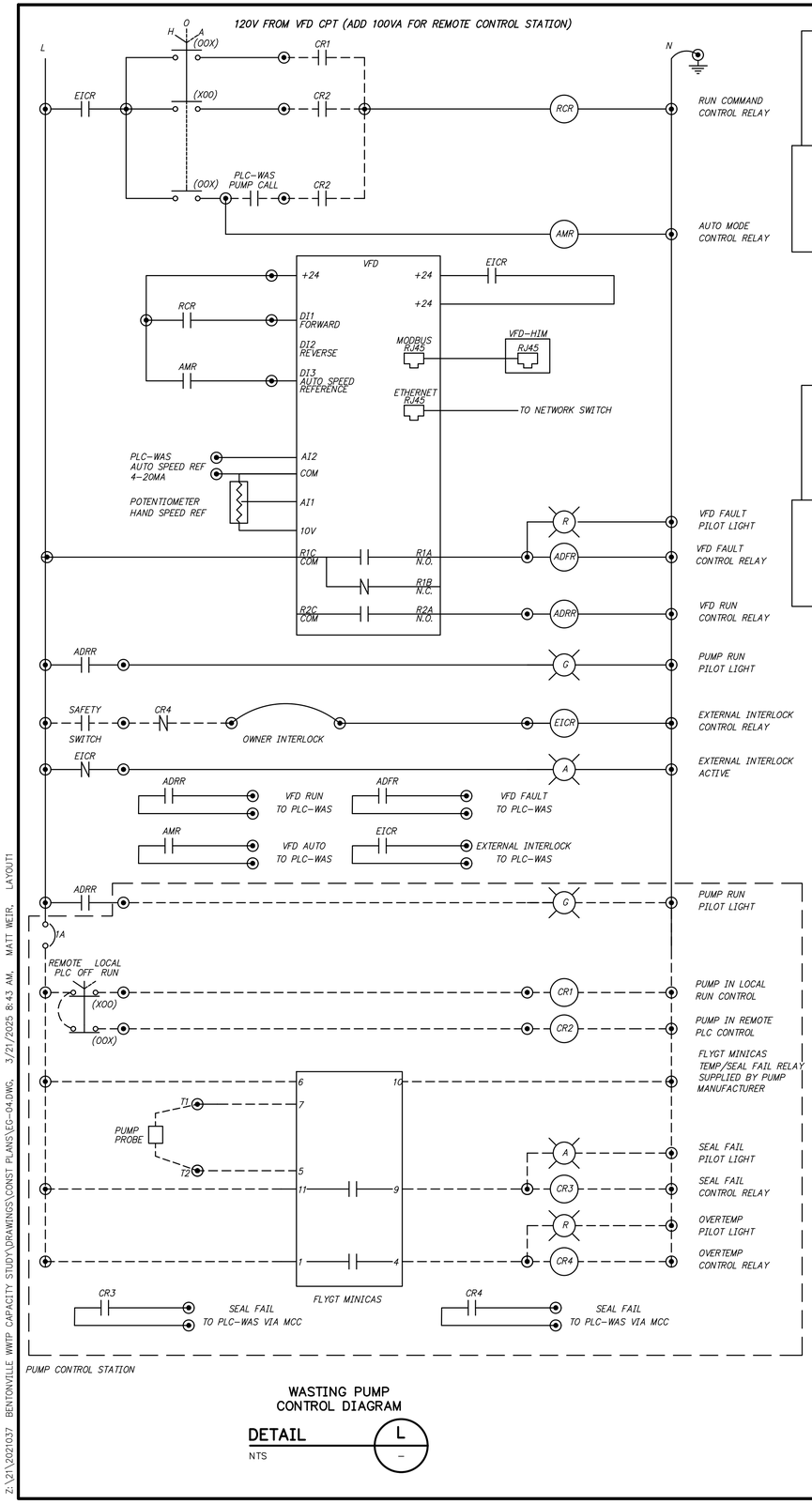
BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

WAS/SCUM BUILDING
WAS PUMPING AND SECONDARY CLARIFIER CONTROL AND RISER DIAGRAMS
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EG-03

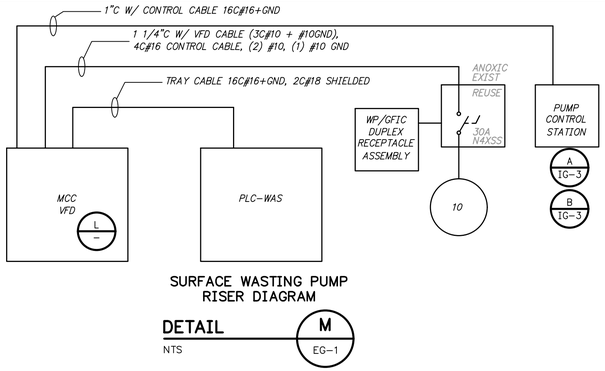
SHEET NO.
EG-3

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EG-03.DWG, 3/21/2025 8:43 AM, MATT WEIR, LAYOUT1



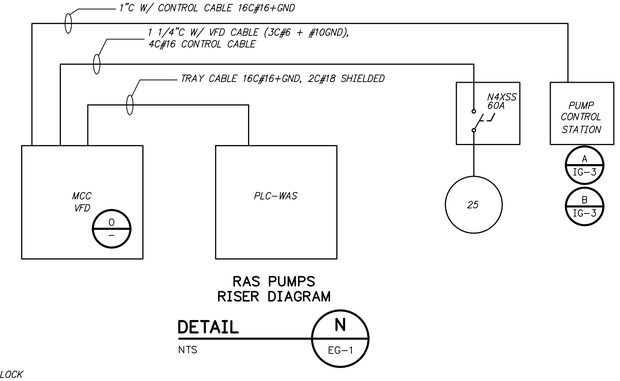
WASTING PUMP
CONTROL DIAGRAM

DETAIL L
NTS –



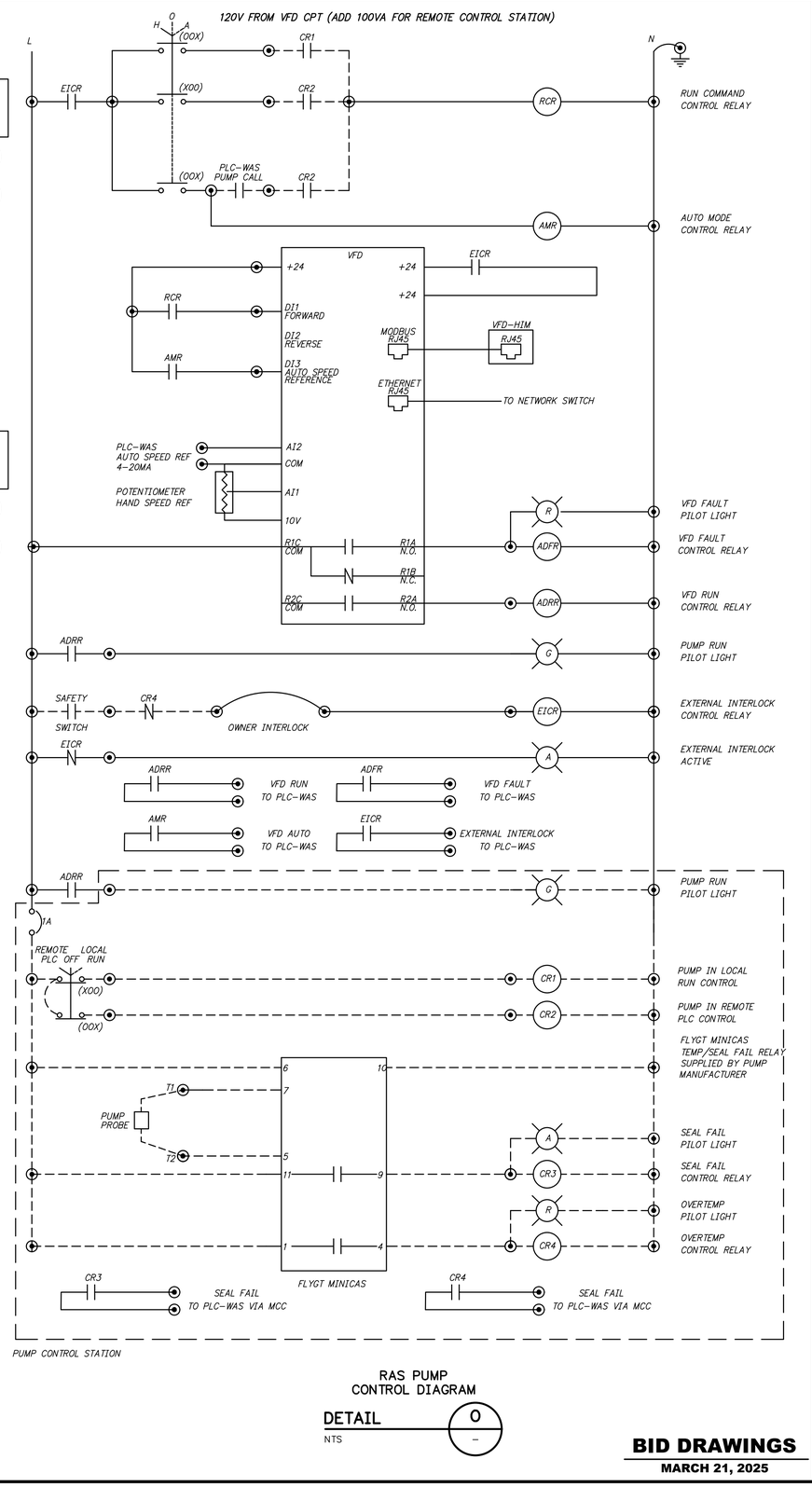
SURFACE WASTING PUMP
RISER DIAGRAM

DETAIL M
NTS EG-1



RAS PUMPS
RISER DIAGRAM

DETAIL N
NTS EG-1



RAS PUMP
CONTROL DIAGRAM

DETAIL O
NTS –

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
MATTHEW L. WEIR
REGISTERED PROFESSIONAL ENGINEER
No. 9586
3/21/2025

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BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

RAS AND SURFACE WASTING CONTROL DIAGRAM AND RISER DIAGRAMS

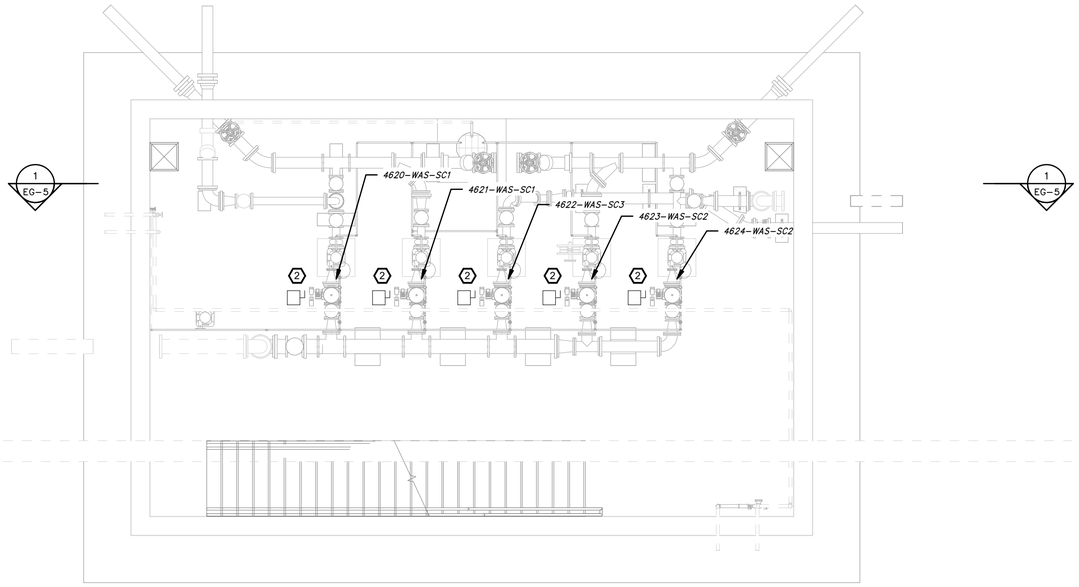
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EG-04

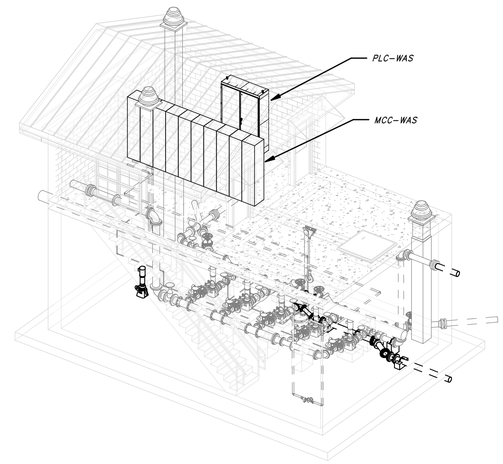
SHEET NO.
EG-4

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EG-04.DWG, 3/21/2025 8:43 AM, MATT WEIR, LAYOUT1

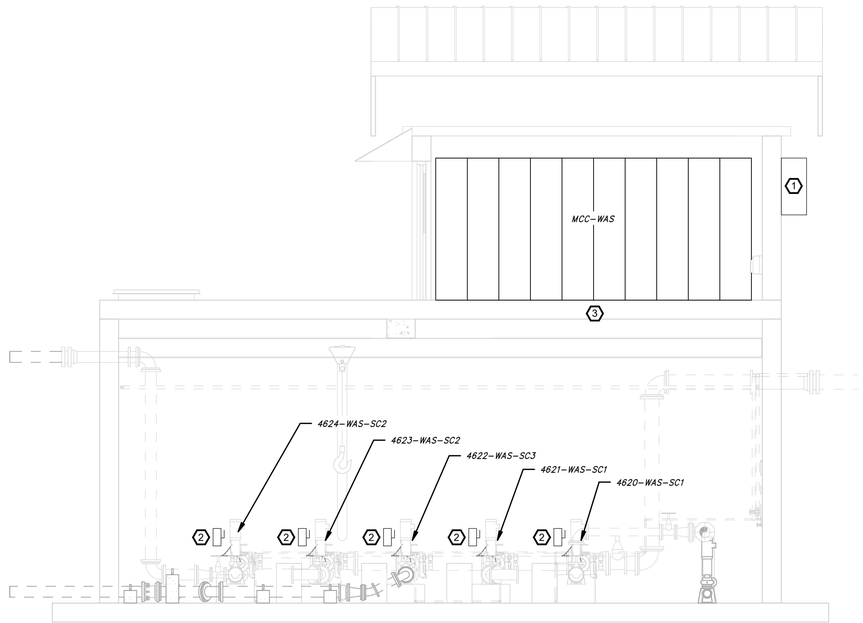
Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:04:49 AM / DKS / WAS PUMP STATION



DETAIL A
1/4" = 1'-0"



ISOMETRIC/3D
N.T.S.



WAS PUMP STATION
SECTION 1
1/4" = 1'-0" EG-5

KEYED NOTES

1. SEE ELECTRICAL SITE SHEETS E-15 AND E-16 FOR PROPOSED EXTERIOR JUNCTION BOXES TO TRANSITION INTO MCC-WAS.
2. MAINTAIN EXISTING SAFETY SWITCH, SOLENOID, AND RACK. RE-FEED THE SAFETY SWITCH AS SHOWN ON THE ONE-LINE OR RISER DIAGRAM.
3. CONTRACTOR SHALL CORE DRILL THROUGH THE SLAB FOR BASEMENT CIRCUITS.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WILSON
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3-21-25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

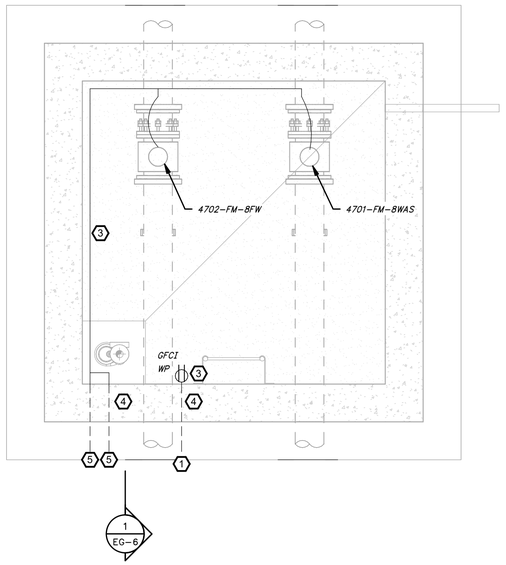
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

WAS PUMP STATION
DETAIL AND SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

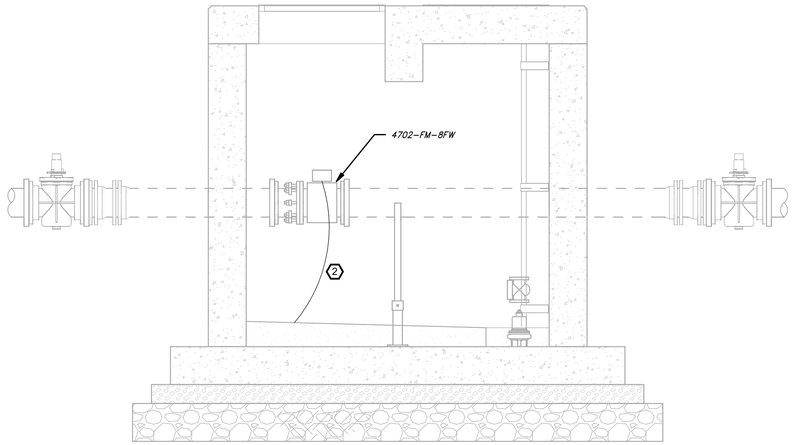
DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: Designer
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EG-5



WASTING METER VAULT
SLAB LEVEL

DETAIL B
1/2" = 1'-0" –



SECTION 1
1/2" = 1'-0" EG-6

KEYED NOTES

1. *1" CONDUIT TO RIO-ABR1.*
2. *CADWELD #6 BARE COPPER GROUND TO THE REBAR IN THE FLOOR OF THE VAULT, CONNECT TO THE FLOWMETER GROUNDING TERMINAL.*
3. *SURFACE MOUNT PVC SCHEDULE 40 CONDUIT TO THE WALL WITH UNISTRUT. PROVIDE CABLE GRIP ENTRY FOR EACH FLOW METER CABLE INTO THE CONDUIT.*
4. *INSTALL ALL CONDUIT ENTRIES THROUGH THE WALL PRIOR TO CONCRETE POUR.*
5. *(2) 1" CONDUITS TO RIO-ABR1.*

GENERAL NOTES

1. *ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).*
2. *ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.*
3. *ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).*
4. *UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.*
5. *ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.*
6. *ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.*
7. *ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WILSON
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

WASTE METER VAULT
DETAIL AND SECTIONS

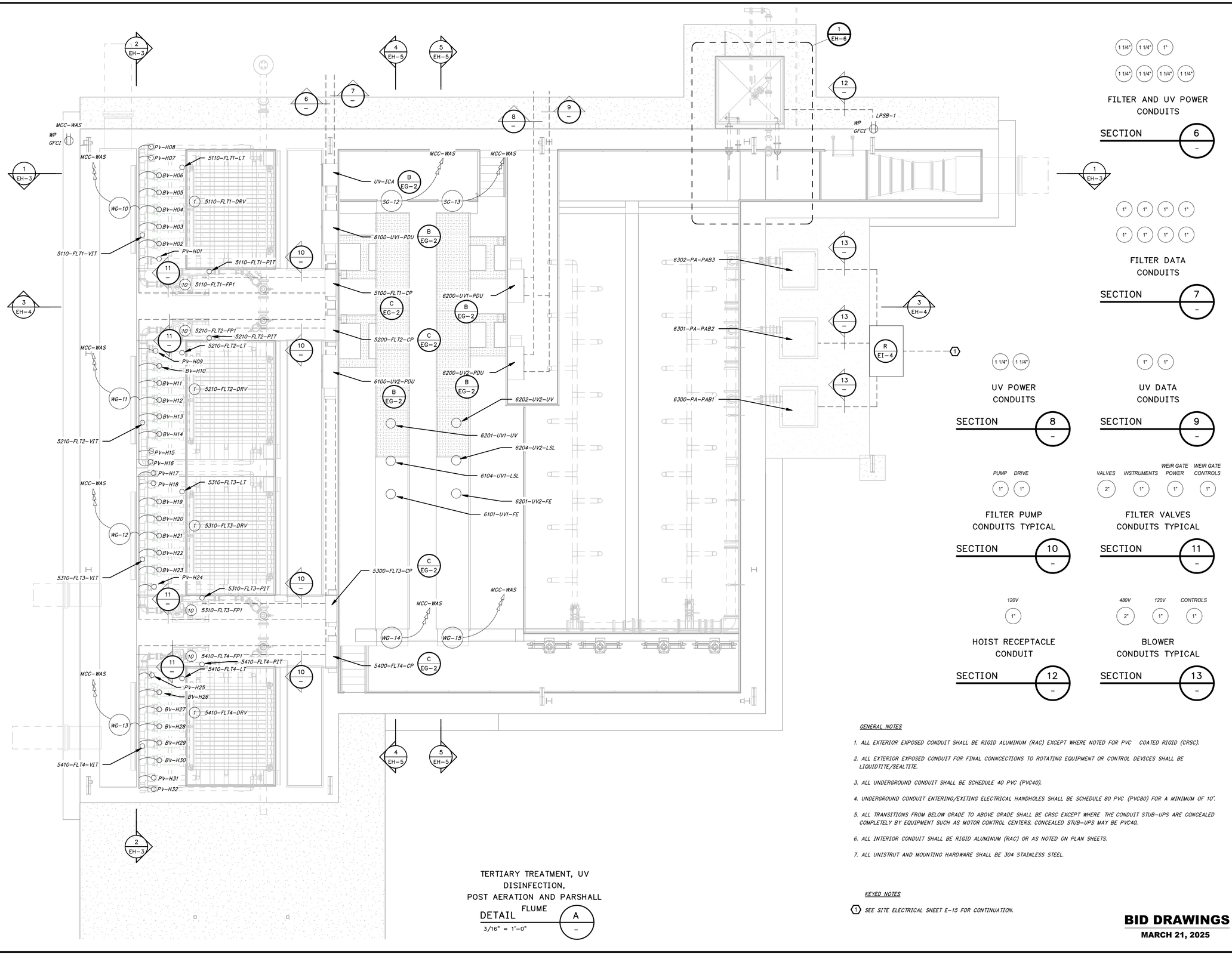
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EG-6

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:04:53 AM / DKS / WASTE METER VAULT

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:00 AM / DKS / TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME DETAIL



TERTIARY TREATMENT, UV DISINFECTION, POST AERATION AND PARSHALL FLUME

DETAIL A – 3/16" = 1'-0"

FILTER AND UV POWER CONDUITS

SECTION 6 –

FILTER DATA CONDUITS

SECTION 7 –

UV POWER CONDUITS

SECTION 8 –

UV DATA CONDUITS

SECTION 9 –

FILTER PUMP CONDUITS TYPICAL

SECTION 10 –

FILTER VALVES CONDUITS TYPICAL

SECTION 11 –

HOIST RECEPTACLE CONDUIT

SECTION 12 –

BLOWER CONDUITS TYPICAL

SECTION 13 –

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

KEYED NOTES

(1) SEE SITE ELECTRICAL SHEET E-15 FOR CONTINUATION.

BID DRAWINGS
MARCH 21, 2025

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS · REGISTERED PROFESSIONAL ENGINEER · L. SCOTT McBRIDE · No. 9888 · 3/21/25

HAWKINS-WEIR ENGINEERS, INC.
BLACK & VEATCH

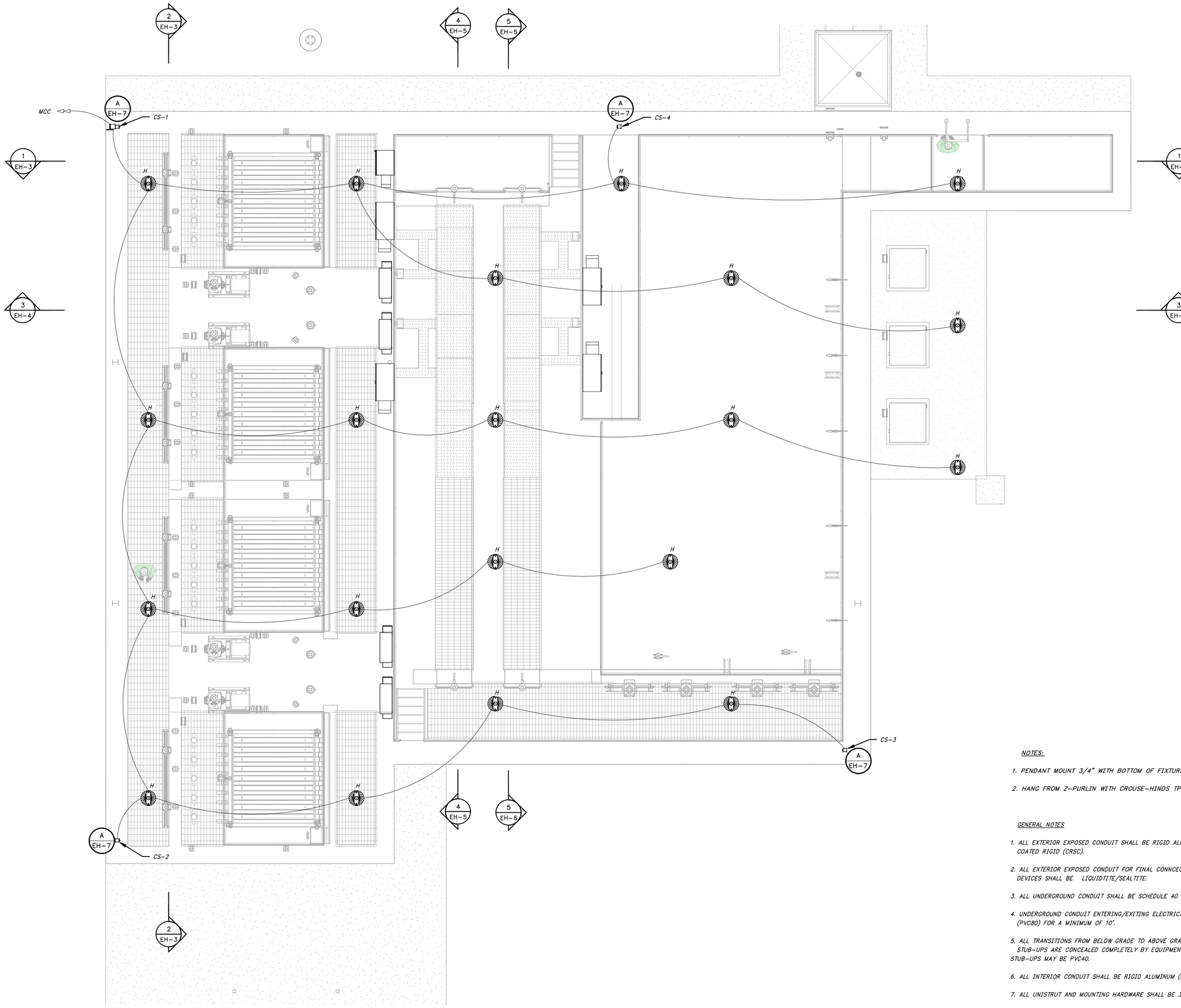
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME DETAIL

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EH-1



DETAIL 1 / 3/16" = 1'-0" / –

NOTES:

1. *PENDANT MOUNT 3/4" WITH BOTTOM OF FIXTURE AT EL. 1153 (20' AFF).*
2. *HANG FROM Z-PURLIN WITH CROUSE-HINDS TP7150 BOX AND TPRFH12 SWIVEL HANGER.*

GENERAL NOTES

1. *ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).*
2. *ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.*
3. *ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).*
4. *UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.*
5. *ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.*
6. *ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.*
7. *ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WILKINS
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3-21-25

HAWKINS-WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

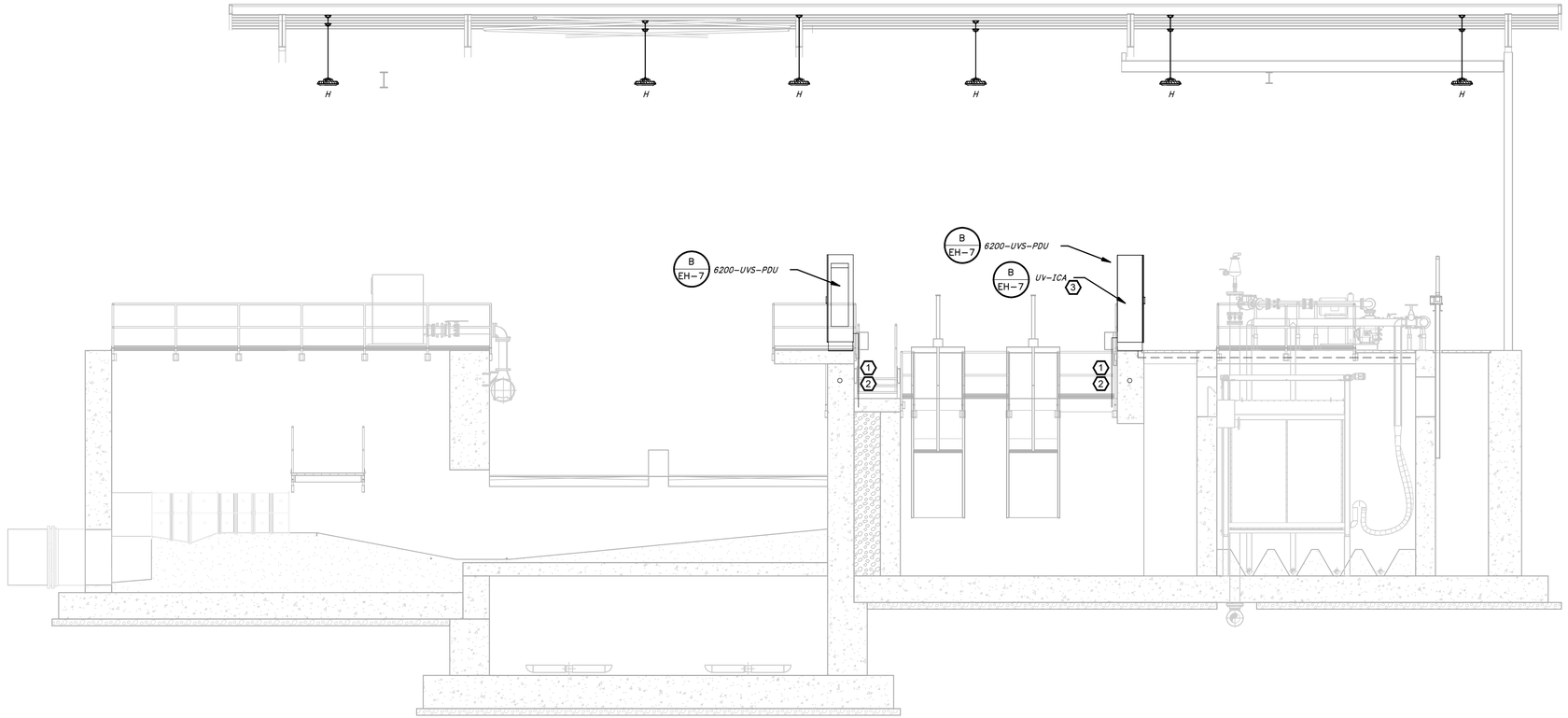
TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME LIGHTING DETAIL

FOR: BENTONVILLE WASTEWATER UTILITIES

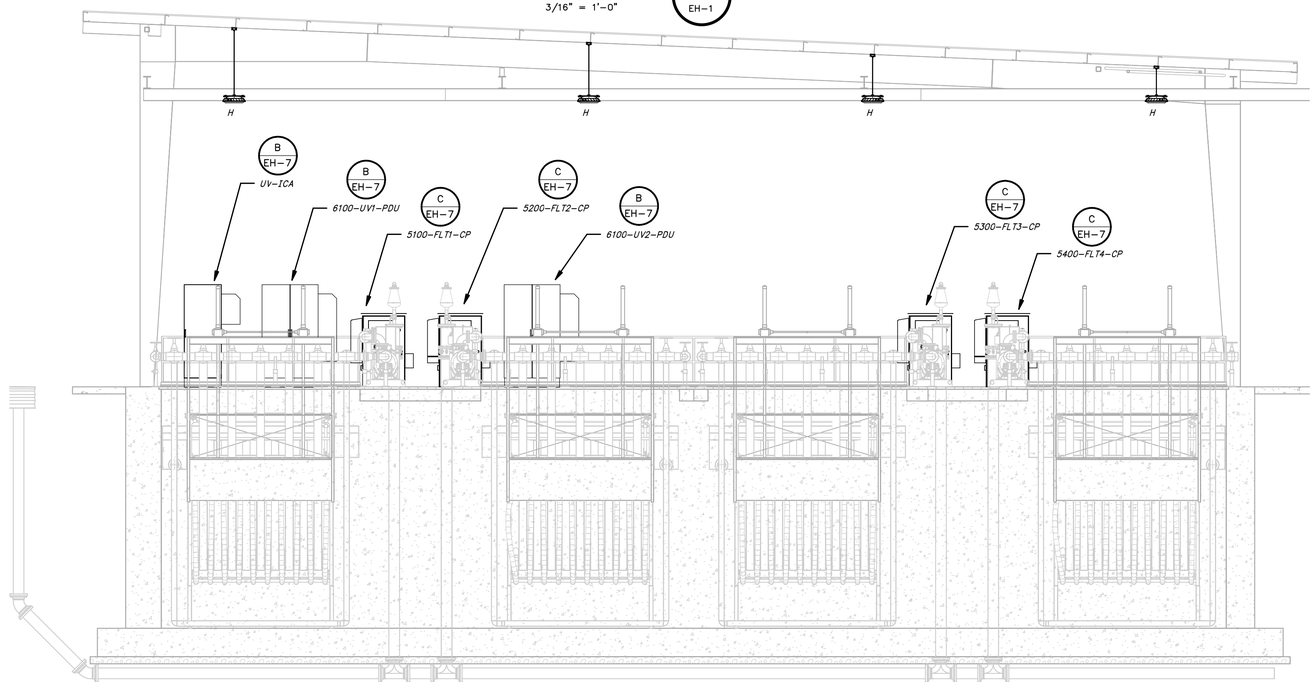
DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EH-2

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:05 AM / DKS



SECTION 1
3/16" = 1'-0"
EH-1



SECTION 2
3/16" = 1'-0"
EH-1

KEYED NOTES

1. SURFACE MOUNT 2" CONDUITS FROM THE UV PDU PANELS DOWN THE WALL INTO THE POWER CABLE CHANNEL. CABLES SUPPLIED BY UV EQUIPMENT OEM.
2. SURFACE MOUNT 2" CONDUITS FROM THE UV PDU PANELS DOWN THE WALL INTO THE CONTROLS CABLE CHANNEL. CABLES SUPPLIED BY UV EQUIPMENT OEM.
3. SURFACE MOUNT 1" CONDUITS FROM UV-ICA CONTROLLER PANEL TO EACH UV PDU PANEL. CABLES SUPPLIED BY UV EQUIPMENT OEM.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT McKAY
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS-WEIR ENGINEERS, INC.
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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

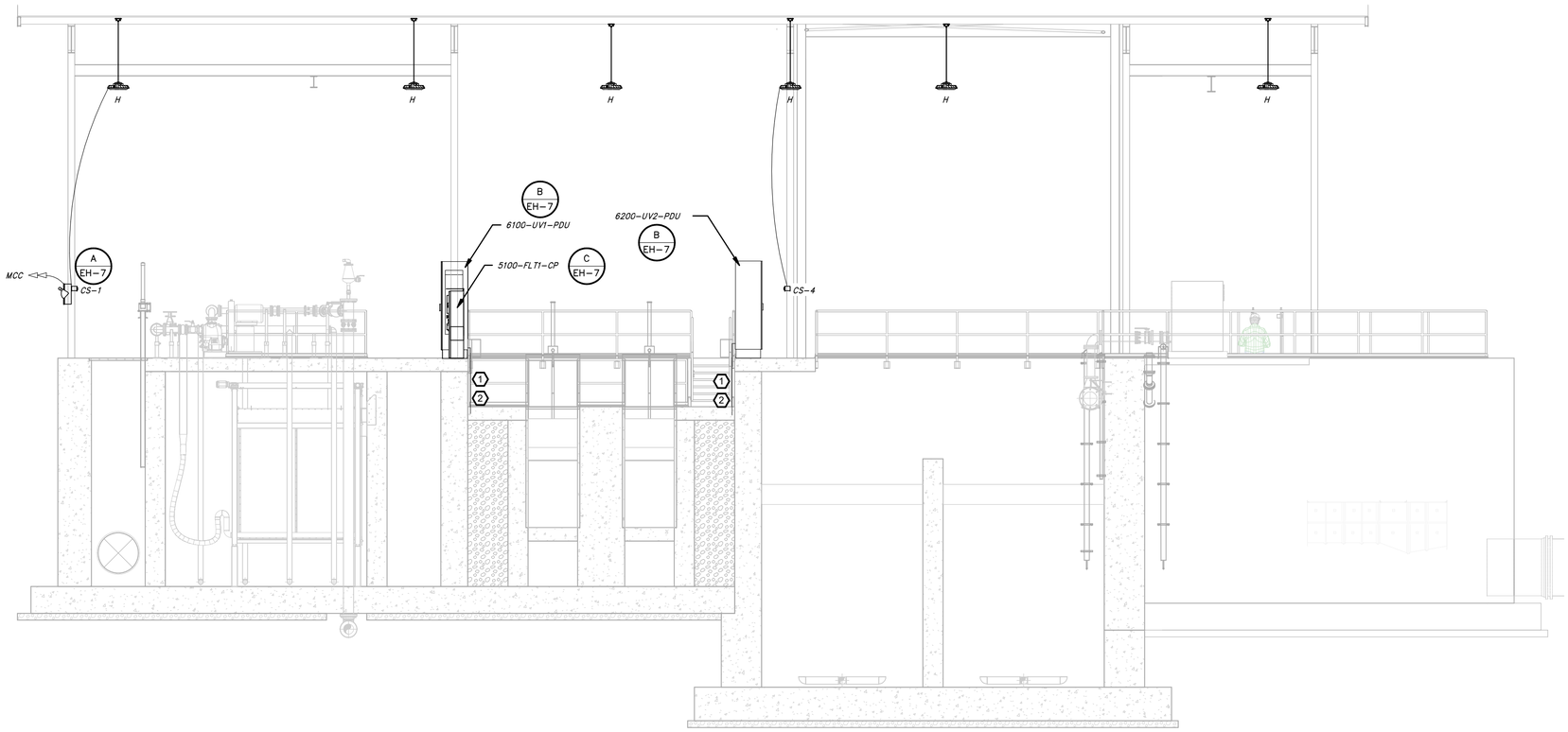
TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EH-3

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:23 AM / DKS / TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME SECTION



SECTION 3
3/16" = 1'-0" EH-1

KEYED NOTES

1. *SURFACE MOUNT 2" CONDUITS FROM THE UV PDU PANELS DOWN THE WALL INTO THE POWER CABLE CHANNEL. CABLES SUPPLIED BY UV EQUIPMENT OEM.*
2. *SURFACE MOUNT 2" CONDUITS FROM THE UV PDU PANELS DOWN THE WALL INTO THE CONTROLS CABLE CHANNEL. CABLES SUPPLIED BY UV EQUIPMENT OEM.*

GENERAL NOTES

1. *ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).*
2. *ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.*
3. *ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).*
4. *UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.*
5. *ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.*
6. *ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.*
7. *ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT BEST
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

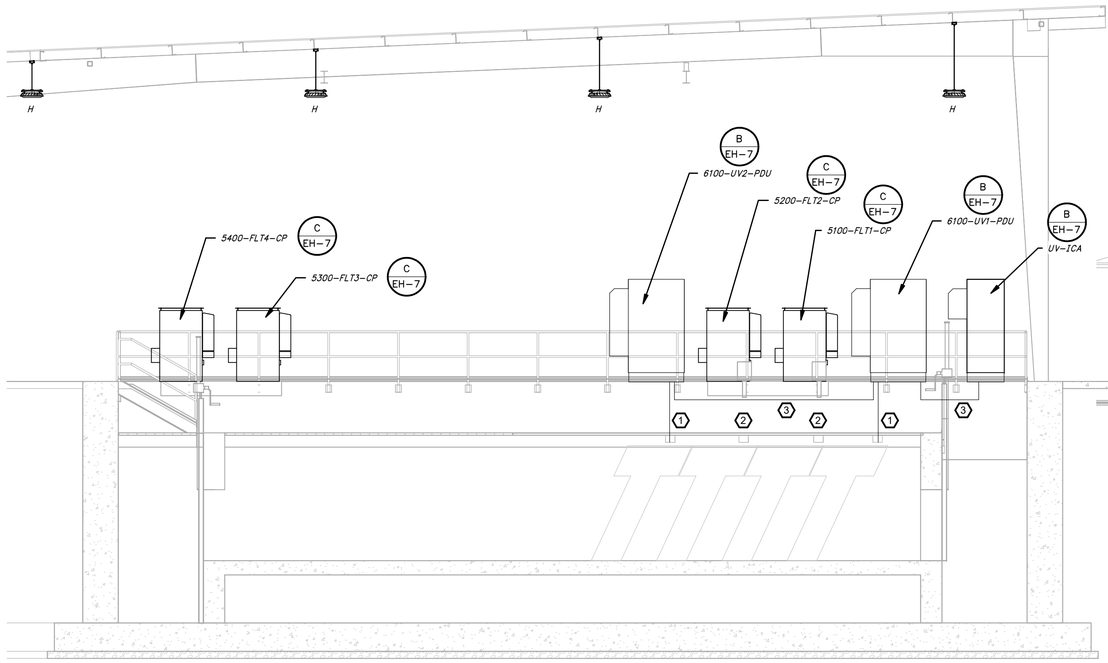
TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

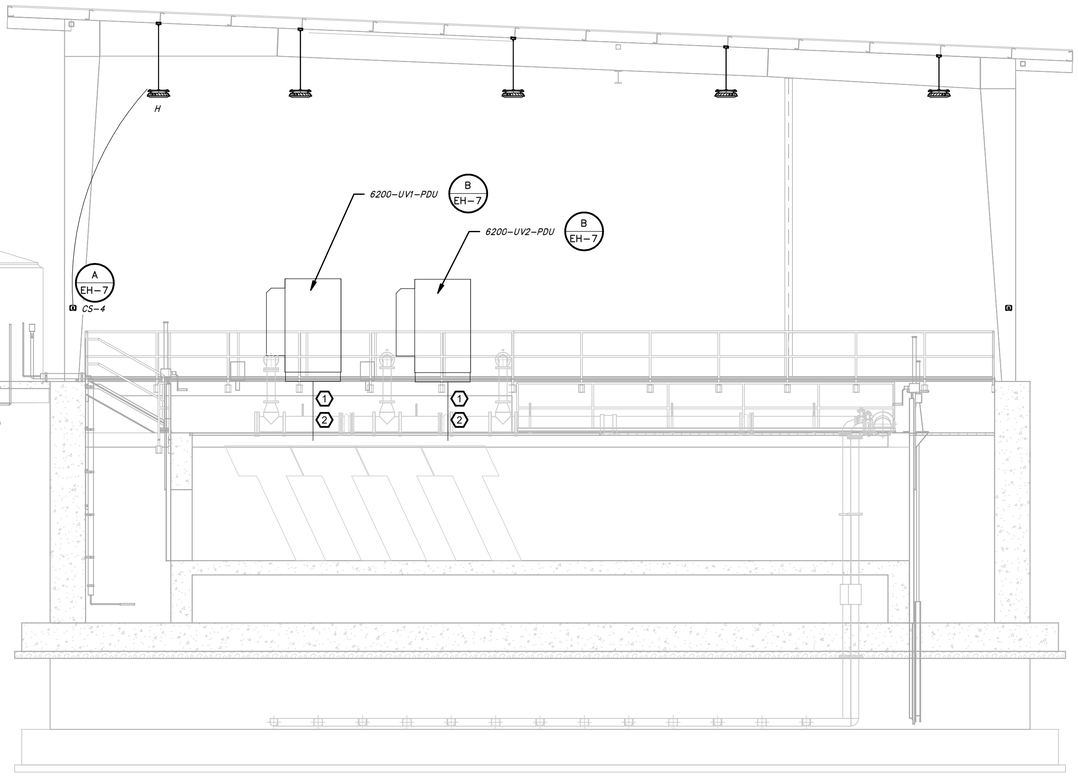
DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EH-4

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:27 AM / DKS / TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME SECTION



SECTION 4 — 3/16" = 1'-0" — EH-1



SECTION 5 — 3/16" = 1'-0" — EH-1

KEYED NOTES

1. SURFACE MOUNT 2" CONDUITS FROM THE UV PDU PANELS DOWN THE WALL INTO THE POWER CABLE CHANNEL. CABLES SUPPLIED BY UV EQUIPMENT OEM.
2. SURFACE MOUNT 2" CONDUITS FROM THE UV PDU PANELS DOWN THE WALL INTO THE CONTROLS CABLE CHANNEL. CABLES SUPPLIED BY UV EQUIPMENT OEM.
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BID DRAWINGS
MARCH 21, 2025

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
J. SCOTT McBRIDE
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

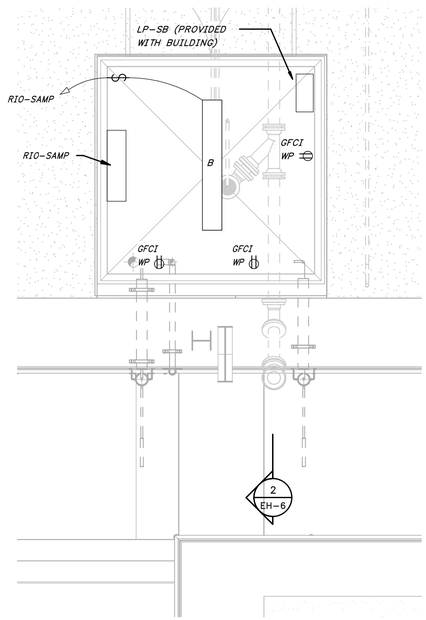
TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EH-5

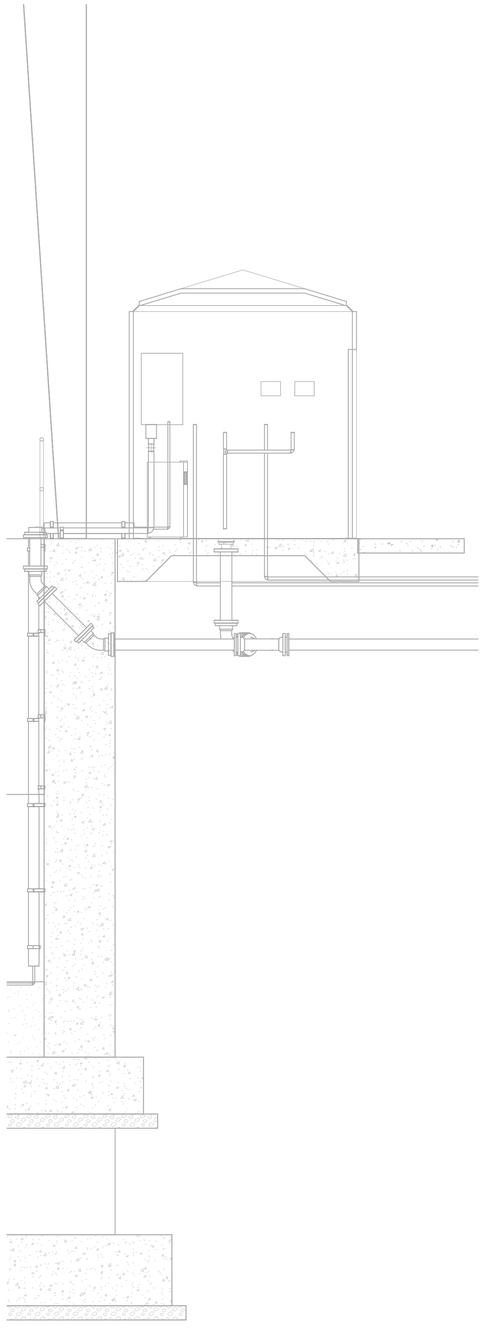
Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:33 AM / DKS



SAMPLER BUILDING

DETAIL 1 / –

3/8" = 1'-0"



SECTION 2 / EH-6

3/8" = 1'-0"

GENERAL NOTES

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6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.
8. ALL CONDUIT AND BOXES INSIDE THE BUILDING SHALL BE SURFACE MOUNTED. NO CONDUITS SHALL BE INSTALLED IN THE BLOCK WALLS. USE CAST ALUMINUM BOXES, EXCEPT FOR LIGHTING CONDUITS IN THE CEILING SPACE, WHICH MAY BE SHEET METAL.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WILSON
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3/21/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

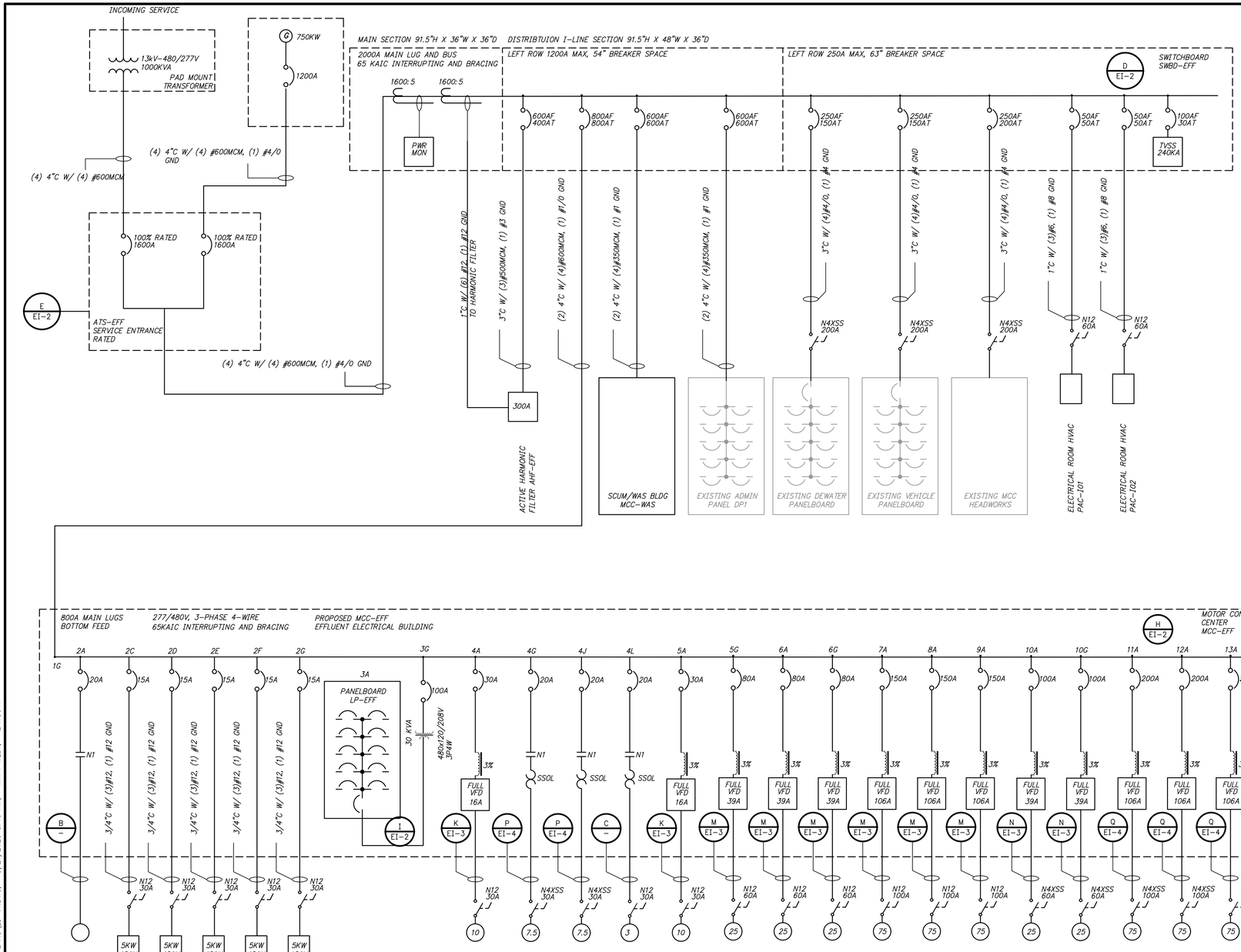
TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME SAMPLER BUILDING

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE:	MARCH 2025
SCALE:	3/8" = 1'-0"
DESIGNED BY:	WJL
DRAWN BY:	DKS
HWEI NO.:	2021037
FILENAME:	WWRF21037-EL

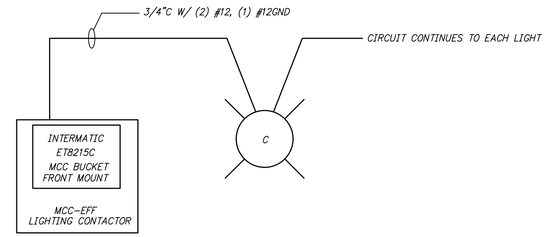
SHEET NO.
EH-6

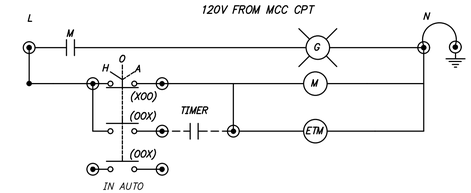
Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:37 AM / DKS / TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME SAMPLER BUILDING



EFFLUENT, POST AERATION, AND RAS2 ONE-LINE DIAGRAM

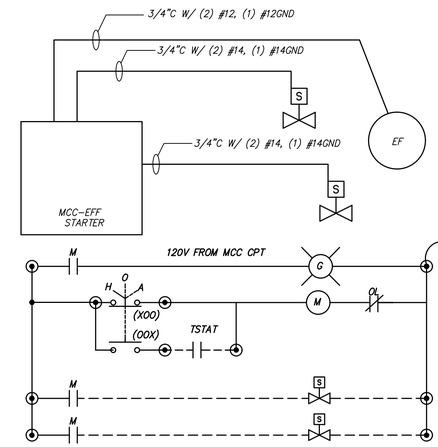
DETAIL A — N.T.S.





EXTERIOR LIGHTING CONTROL AND RISER DIAGRAM

DETAIL B — N.T.S.



EXHAUST FAN AND INLET LOUVERS CONTROL DIAGRAM

DETAIL C — N.T.S.

GENERAL NOTES

1. *VFD RATINGS ARE CONTINUOUS OUTPUT AMPS. DO NOT SIZE BY MOTOR HORSEPOWER. A MICRO VFD IS COMMONLY REFERRED TO AS MACHINE DRIVE. A FULL SIZE VFD IS COMMONLY REFERRED TO AS A PROCESS DRIVE.*
2. *ALL VFD MCC BUCKETS SHALL INCLUDE A CONTROL POWER TRANSFORMER, OVERSIZED WHERE SHOWN, HOA THREE POSITION SWITCH, SPEED POTENTIOMETER, GREEN VFD RUNNING PILOT LIGHT, RED VFD FAULTED PILOT LIGHT, AMBER EXTERNAL FAULT PILOT LIGHT, AND ETHERNET IP COMMUNICATION CARD. AUTO OPERATION SHALL BE VIA TERMINAL CONTROL. ETHERNET IP SHALL BE USED FOR DATA INFORMATION. SEE THE CONTROL DIAGRAMS REFERENCED IN THE DETAIL LETTERS.*
3. *ALL FVNR MCC BUCKETS SHALL USE NEMA RATED STARTERS, SIZE AS INDICATED, WITH SOLID STATE OVERLOAD RELAYS. THE BUCKET SHALL INCLUDE A CONTROL POWER TRANSFORMER, HOA THREE POSITION SWITCH, GREEN RUNNING PILOT LIGHT, RED OVERLOAD PILOT LIGHT, AND ELAPSED TIME METER.*
4. *ELEVATION DIMENSIONS INCLUDE AN MCC CORNER SECTION, WHICH TAKES UP 25" OF WALL SPACE ON EACH SIDE OF THE CORNER.*
5. *MAINTAIN THE BUCKET LAYOUT AS SHOWN IN THE DRAWINGS TO THE EXTENT POSSIBLE, WITH THE MAIN LUG ENTRY ON THE LEFT OF THE LINEUP.*
6. *SEE MCC SPECIFICATION 16480 FOR ALL DETAILS.*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS — KYLE M. SCOTT — No. 9586 — PROFESSIONAL ENGINEER — 3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EFFLUENT ELECTRICAL BUILDING
SWITCHBOARD-EFF AND MCC-EFF
ONE-LINE DIAGRAM

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EI-01

SHEET NO. EI-1

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EI-01.DWG, 3/21/2025 8:43 AM, MATT WEIR, LAYOUT1

SWITCHBOARD SWBD–EFF

CKT #	DESCRIPTION	WIRE (GND)	CB (PANEL SPACE)	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND
1	ELECTRICAL BLDG MCC–EFF	(4)#600 (#1/0)	800A (9")	(2) 4"	753	438				
	"	"	"	"	–	–	753	438		
	"	"	"	"			–	–	753	438
2	WAS/SCUM PS MCC–WAS	(4)#350 (#1)	600 (7.5")	(2) 4"	413	321			–	–
	"	"	"	"	–	–	413	321		
	"	"	"	"			–	–	413	321
3	ADMIN BLDG PANEL DP1	(4)#250 (#4)	600 (7.5")	(2) 4"	400	300			–	–
	"	"	"	"	–	–	400	300		
	"	"	"	"			–	–	400	300
4	ACTIVE HARMONIC FILTER FLT–INF	(3)#350 (#3)	400 (7.5")	3"	300	0			–	–
	"	"	"	"	–	–	300	0		
	"	"	"	"			–	–	300	0
5	DEWATER BLDG PANEL	(4)#4/0 (#4)	150 (4.5")	3"	150	96			–	–
	"	"	"	"	–	–	150	100		
	"	"	"	"			–	–	150	100
6	VEHICLE BLDG PANEL	(4)#4/0 (#4)	150 (4.5")	3"	150	50			–	–
	"	"	"	"	–	–	150	50		
	"	"	"	"			–	–	150	50
7	HEADWORKS MCC	(4)#4/0 (#4)	200 (7.5")	3"	100	50			–	–
	"	"	"	"	–	–	100	50		
	"	"	"	"			–	–	100	50
8	HVAC PAC–I01	(3)#6 (#8)	50 (4.5")	1"	40	40			–	–
	"	"	"	"	–	–	40	40		
	"	"	"	"			–	–	40	40
9	HVAC PAC–I02	(3)#6 (#8)	50 (4.5")	1"	40	0			–	–
	"	"	"	"	–	–	40	0		
	"	"	"	"			–	–	40	0
					–	–			–	–
					–	–	–	–		
							–	–	–	–
				TOTAL CONNECTED	2096		2096		2096	
				TOTAL DEMAND		1299		1299		1299

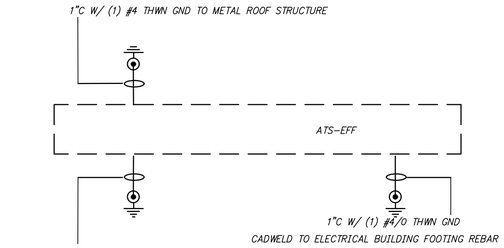
TYPE: SQUARE D QED–2 SWITCHBOARD MAIN LUG SECTION AND WITH I–LINE PANEL DOUBLE ROW INTERIOR
VOLTS: 277/480, THREE PHASE, FOUR WIRE
MAIN: 3000 AMP MAIN LUG BOTTOM FEED
BRANCH SECTION: 3000 AMP INTERIOR, DOUBLE ROW MAX CB FRAME 1200A LEFT SIDE, 250A RIGHT SIDE
BRANCH SECTION: 72" BREAKER SPACE LEFT SIDE, 40.5" RIGHT SIDE
BRANCH CB: ELECTRONIC TRIP UNITS FOR ALL LEFT SIDE BREAKERS
OPTIONAL ITEM: SPD/TVSS 240KA MOUNTED IN THE BRANCH BREAKER SECTION
OPTIONAL ITEM: POWERLOGIC PM5560 WITH 4DI/2DO AND ETHERNET IP PROTOCOL
MOUNTING: FREE STANDING
ENCLOSURE RATING: NEMA 1

CONNECTED KVA: 1742
DEMAND KVA: 1079
DESIGN KVA: 1000

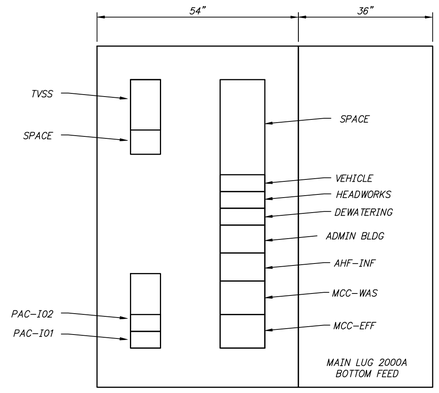
F – SWITCHBOARD SWBD–EFF SCHEDULE
DETAIL D, NTS, EI–1

EFFLUENT PUMP STATION CABLE TRAY SCHEDULE

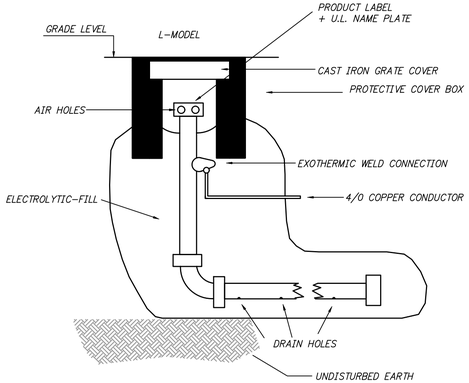
QTY	DESCRIPTION	MATERIAL, WIDTH	SPACING	RAIL
–	CABLE TRAY AT 13'–3" AFF			
80'	B–LINE 24 A09–12	ALUM. 12"	9" LAD	4" RAIL
10	B–LINE B409–12 SS4 CANTILEVER BRACKET	304 SS	9" LAD	4" RAIL



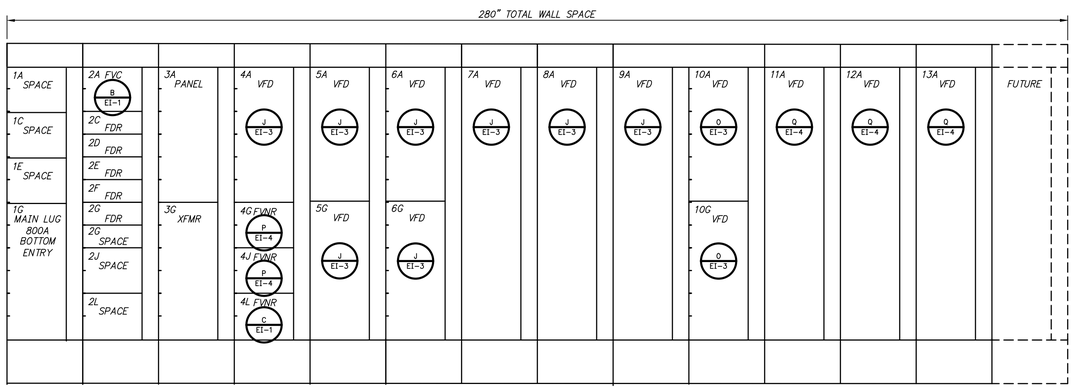
GROUNDING ELECTRODE CONDUCTORS
DETAIL E, NTS, EI–1



SWITCHBOARD SWBD–EFF ELEVATION
DETAIL F, NTS, EI–1



ELECTROLYTIC GROUNDING ELECTRODE
DETAIL G, NTS, –



EFFLUENT ELECTRICAL BUILDING MCC–EFF ELEVATION AND LAYOUT
DETAIL H, NTS, EI–1

PANEL LP–EFF

CKT #	DESCRIPTION	WIRE	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND	CONDUIT	CB	WIRE	DESCRIPTION	CKT #
1	ELEC BLDG RECEP/LIGHTS	#12 (12)	20	3/4"	9	9					3/4"	20	#12 (12)	ELEC BLDG RECEPTACLES	2
3	PUMP STATION RECEPTACLES	#12 (12)	20	3/4"			6	6			3/4"	20	#12 (12)	PUMP STATION RECEPTACLES	4
5	PUMP STATION RECEPTACLES	#12 (12)	20	3/4"					6	6	3/4"	20	#12 (12)	PUMP STATION RECEPTACLES	6
7	PUMP STATION LIGHTS	#12 (12)	20	3/4"	9	9					3/4"	20	#12 (12)	ELEC BLDG RECEPTACLES	8
9	RPZ HOT BOX HEATER	#12 (12)	20	1"			8	8			SITE	20	#10 (#10)	6300–PA–PAB1 BLOWER #1	10
11	6301–PA–PAB2 BLOWER #2	#10 (10)	20	SITE					3	3	SITE	20	#10 (#10)	6302–PA–PAB3 BLOWER #3	12
13	SAMPLER BLDG LPSB FEEDER	#6 (10)	60	SITE	15	15					SITE	20	#10 (#10)	RAS2 PUMP STATION RECEP	14
15	"	"	"	"			15	15			–	–	– (–)	SPARE –	16
17	SPARE –	– (–)	20	–							–	–	– (–)	SPARE –	18
19	SPARE –	– (–)	20	–							–	–	– (–)	SPARE –	20
21	SPARE –	– (–)	20	–							–	–	– (–)	SPARE –	22
23	SPARE –	– (–)	20	–							–	–	– (–)	SPARE –	24
25	SPARE –	– (–)	20	–							–	–	– (–)	SPARE –	26
27	SPARE –	– (–)	20	–							–	–	– (–)	SPARE –	28
29	SPARE –	–	20	–							–	–	– (–)	SPARE –	30
				TOTAL CONNECTED	30		20		12						
				TOTAL DEMAND		30		20		12					

TYPE: LIGHTING AND APPLIANCE
VOLTS: 120/208, THREE PHASE, FOUR WIRE
MAIN: 80 AMP
BUS: 100 AMP
RATING: 10 KAIC
MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1

CONNECTED KVA: 7.2
DEMAND KVA: 7.2
DESIGN KVA: 30

EFFLUENT ELECTRICAL BUILDING PANEL LP–EFF SCHEDULE
DETAIL I, NTS, EI–1

EFFLUENT ELECTRICAL AND PUMP STATION LIGHTING FIXTURE SCHEDULE

FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL#	QTY	TYPE	NOTES
B	120–277	67	HOLOPHANE EVT4 8000LM FST MD MVOLT GZ10 40K 80CRI	21	LED	MOUNT TO BOTTOM OF ROOF JOISTS –
C3	120–277	88	LITHONIA WDGE3 LED P4 30K 80CRI RFT MVOLT SRM DNAXD	12	LED	MOUNT AT 14' AFG –
X	120–277	3	LITHONIA LHQM R HO M6 –	4	LED	MOUNT ABOVE EXIT DOORS –

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS – MATTHEW L. SCOTT – PROFESSIONAL ENGINEER – No. 9586 – 3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

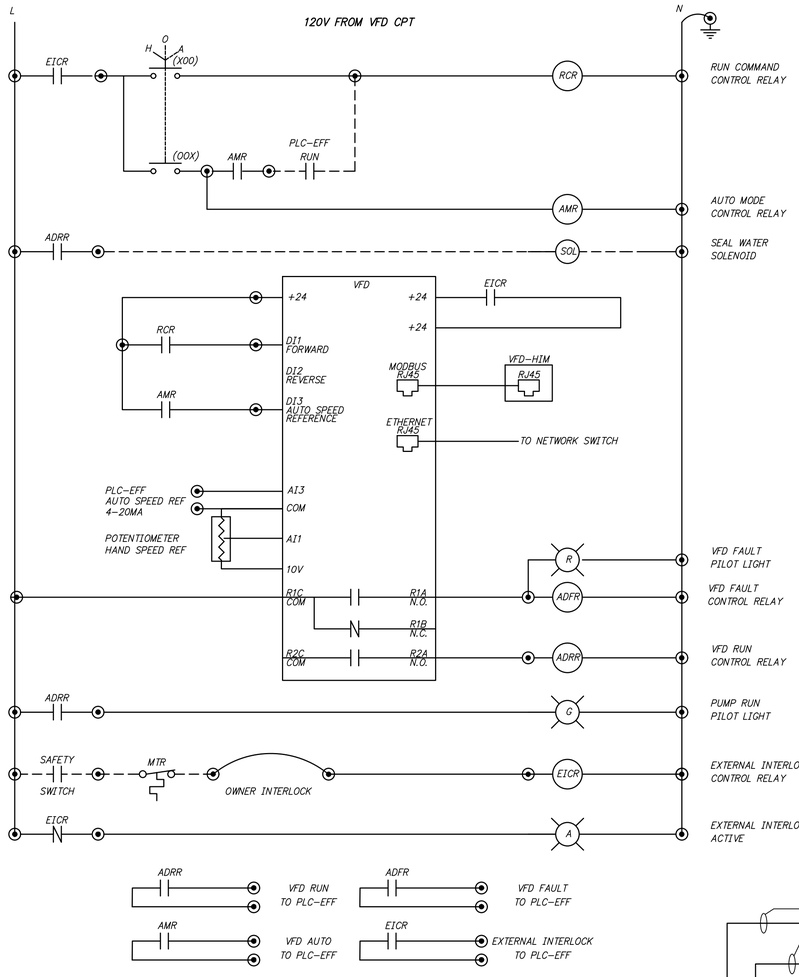
EFFLUENT ELECTRICAL BUILDING FILTRATION, UV, POST AERATION, AND EFFLUENT MCC–EFF ELEVATION AND SCHEDULES

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EI–02

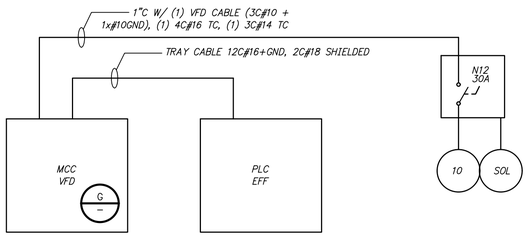
SHEET NO.
EI–2

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EI–02.DWG, 3/21/2025 8:44 AM, MATT WEIR, LAYOUT1



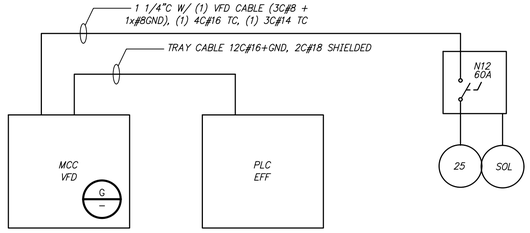
EFFLUENT PUMPS AND POST AERATION BLOWERS CONTROL DIAGRAM

DETAIL J — NTS — EI–2



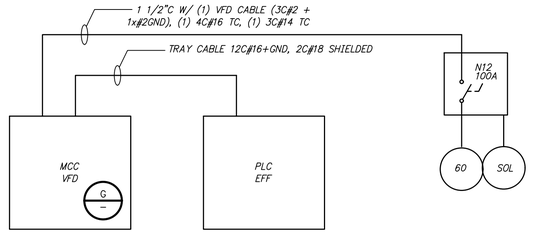
PLANT WATER PUMP RISER DIAGRAM

DETAIL K — NTS — EI–1



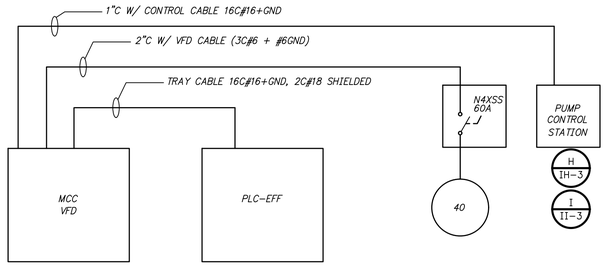
DRY WEATHER EFFLUENT PUMP RISER DIAGRAM

DETAIL L — NTS — EI–1



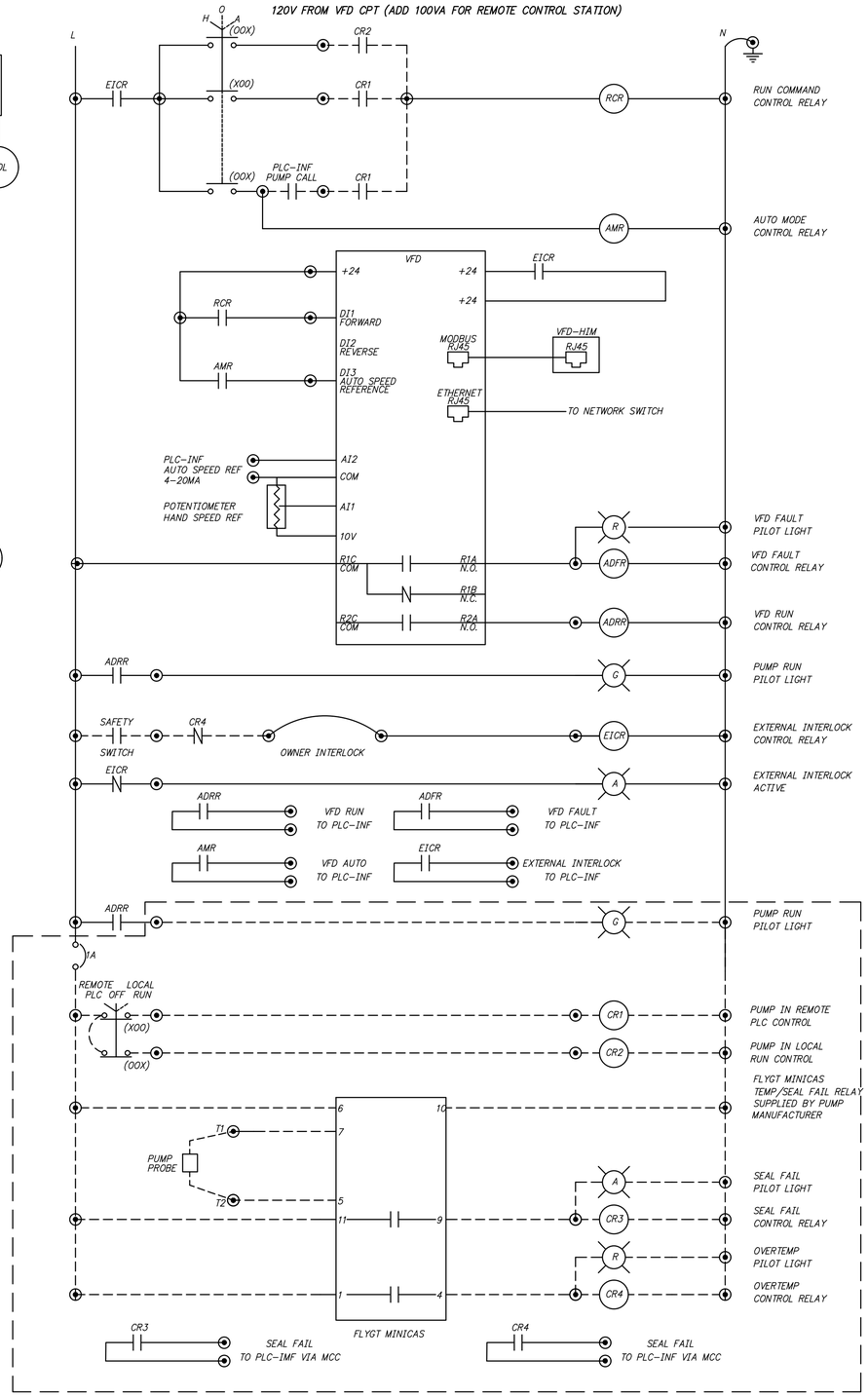
WET WEATHER EFFLUENT PUMP RISER DIAGRAM

DETAIL M — NTS — EI–1



RAS PUMPS RISER DIAGRAM

DETAIL N — NTS — EI–1



RAS PUMP CONTROL DIAGRAM

DETAIL O — NTS — EI–2

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS — LANCE S. MOORE — REGISTERED PROFESSIONAL ENGINEER — No. 9585 — 3/21/2025

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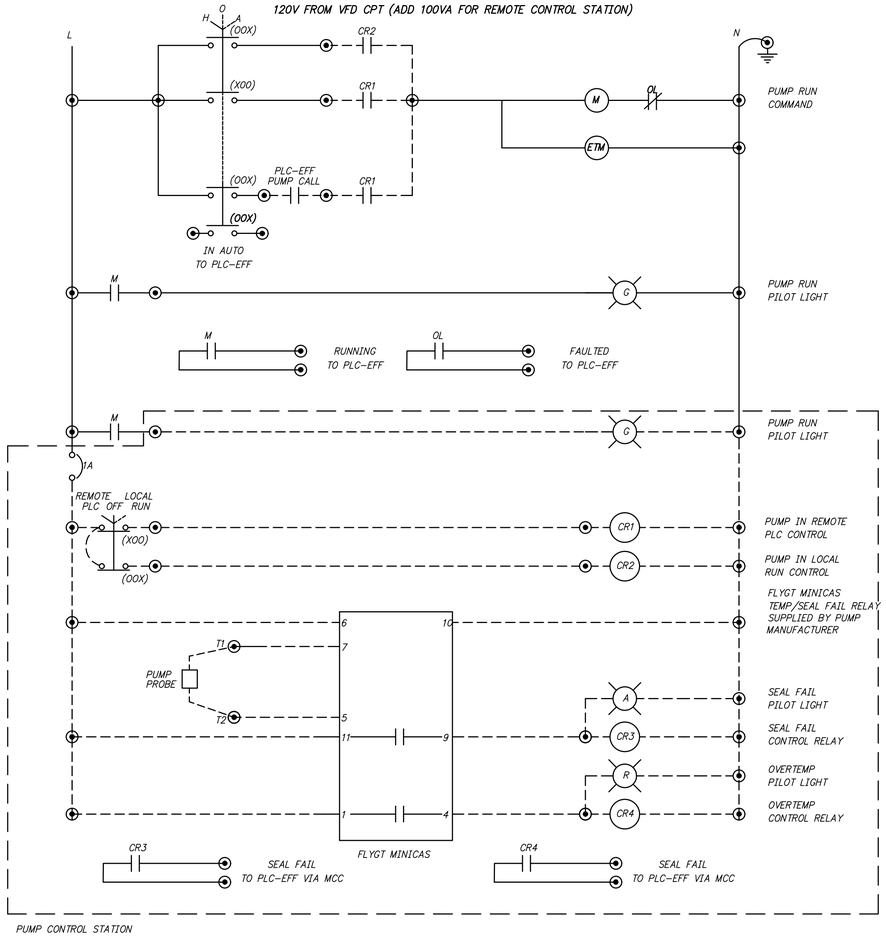
BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

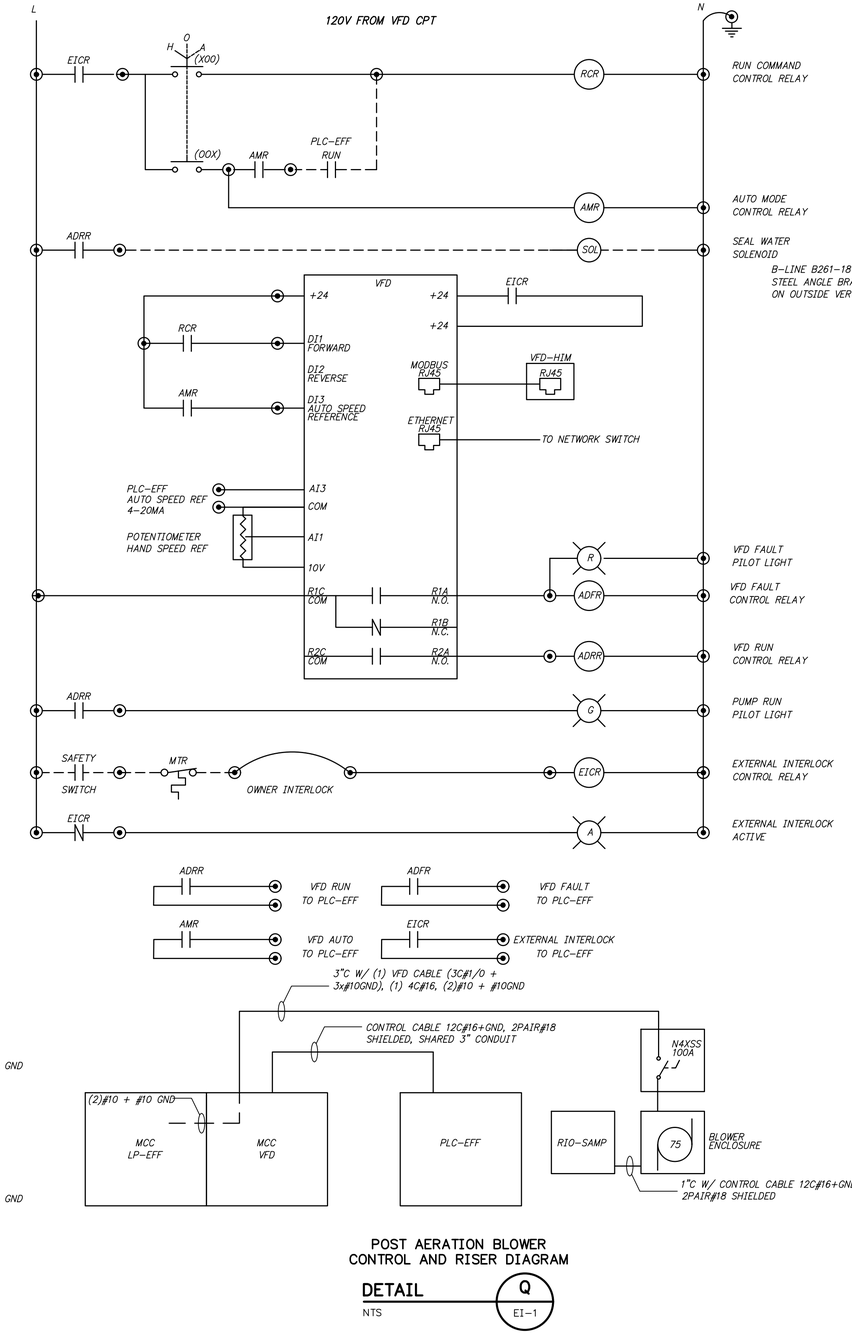
EFFLUENT ELECTRICAL BUILDING VERTICAL TURBINE PUMPS CONTROL AND RISER DIAGRAMS
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EI–03

SHEET NO.
EI–3

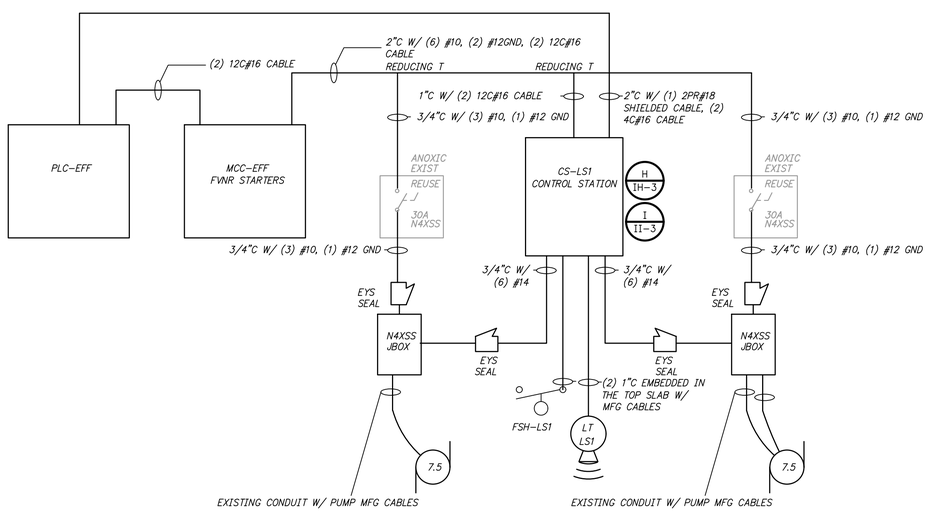
Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EI–03.DWG, 3/21/2025 8:44 AM, MATT WEIR, LAYOUT1





POST AERATION BLOWERS
ELECTRICAL RACK LAYOUT

DETAIL R
1/2" = 1'-0" EH-1



LIFT STATION 1
ELECTRICAL AND CONTROL RISER DIAGRAM

DETAIL P
NTS EI-1

POST AERATION BLOWER
CONTROL AND RISER DIAGRAM

DETAIL Q
NTS EI-1

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
MATTHEW S. WEIR
PROFESSIONAL ENGINEER
No. 9588
3/21/2025

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BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EFFLUENT ELECTRICAL BUILDING
LIFT STATION, LIGHTING, AND EXHAUST FAN CONTROL DIAGRAMS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EI-04

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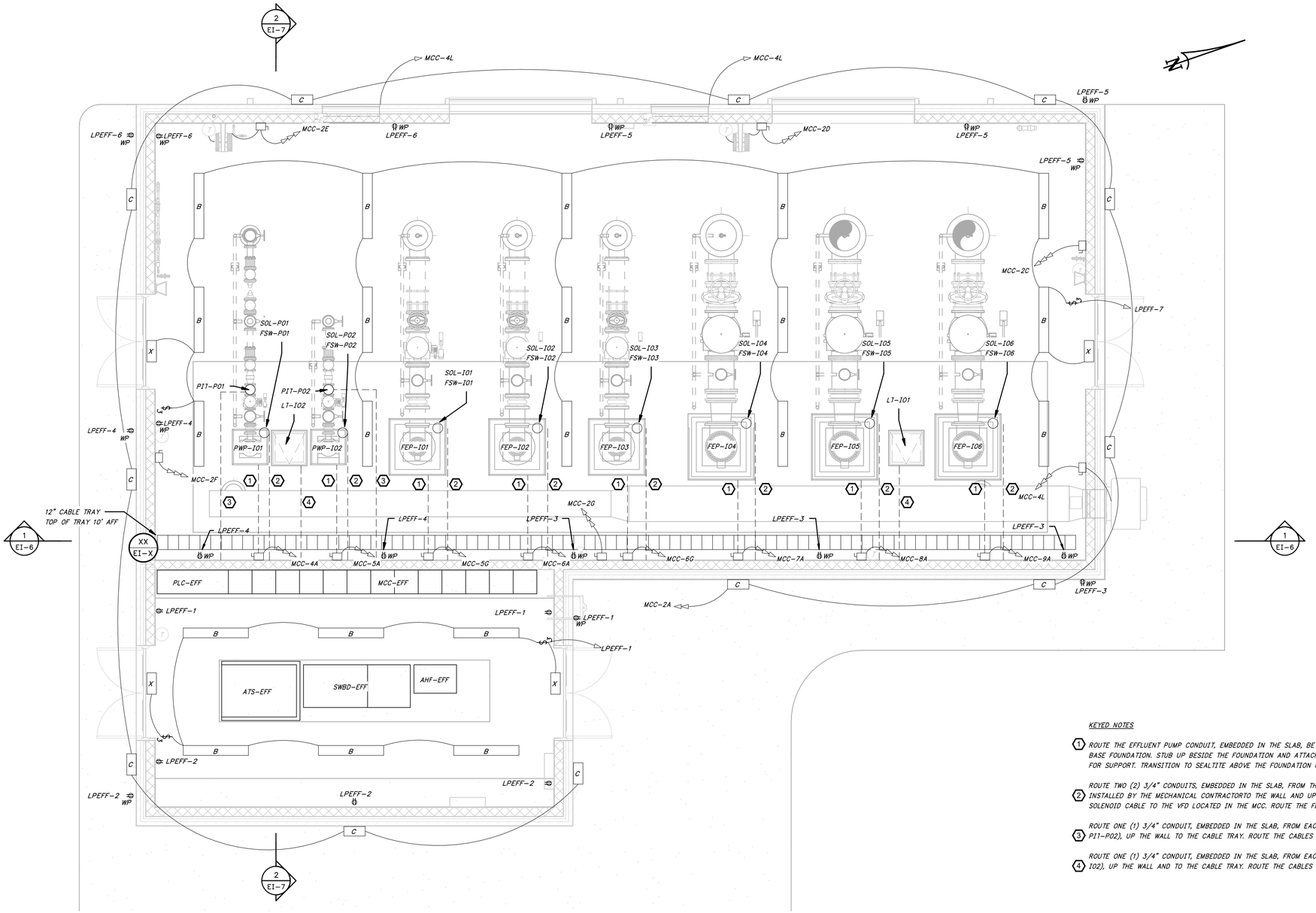
MARCH 21, 2025

SHEET NO.
EI-4

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EI-04.DWG, 3/21/2025 8:44 AM, MATT WEIR, LAYOUT1



EFFLUENT PUMP STATION

DETAIL A

1/4" = 1'-0"

KEYED NOTES

1. ROUTE THE EFFLUENT PUMP CONDUIT, EMBEDDED IN THE SLAB, BETWEEN THE SAFETY SWITCH AND PUMP BASE FOUNDATION. STUB UP BESIDE THE FOUNDATION AND ATTACH THE RIGID CONDUIT TO THE FOUNDATION FOR SUPPORT. TRANSITION TO SEALTITE ABOVE THE FOUNDATION UP TO THE MOTOR JUNCTION BOX.

2. ROUTE TWO (2) 3/4" CONDUITS, EMBEDDED IN THE SLAB, FROM THE SEAL WATER STATION PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTORTO THE WALL AND UP TO THE CABLE TRAY. ROUTE THE SOLENOID CABLE TO THE VFD LOCATED IN THE MCC. ROUTE THE FLOW SWITCH CABLE TO THE PLC-EFF.

3. ROUTE ONE (1) 3/4" CONDUIT, EMBEDDED IN THE SLAB, FROM EACH PRESSURE TRANSMITTER (PIT-P01 AND PIT-P02), UP THE WALL TO THE CABLE TRAY. ROUTE THE CABLES TO THE PLC-EFF.

4. ROUTE ONE (1) 3/4" CONDUIT, EMBEDDED IN THE SLAB, FROM EACH LEVEL TRANSMITTER (LT-I01 AND LT-I02), UP THE WALL AND TO THE CABLE TRAY. ROUTE THE CABLES TO THE PLC-EFF.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT McBRIDE
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.

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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

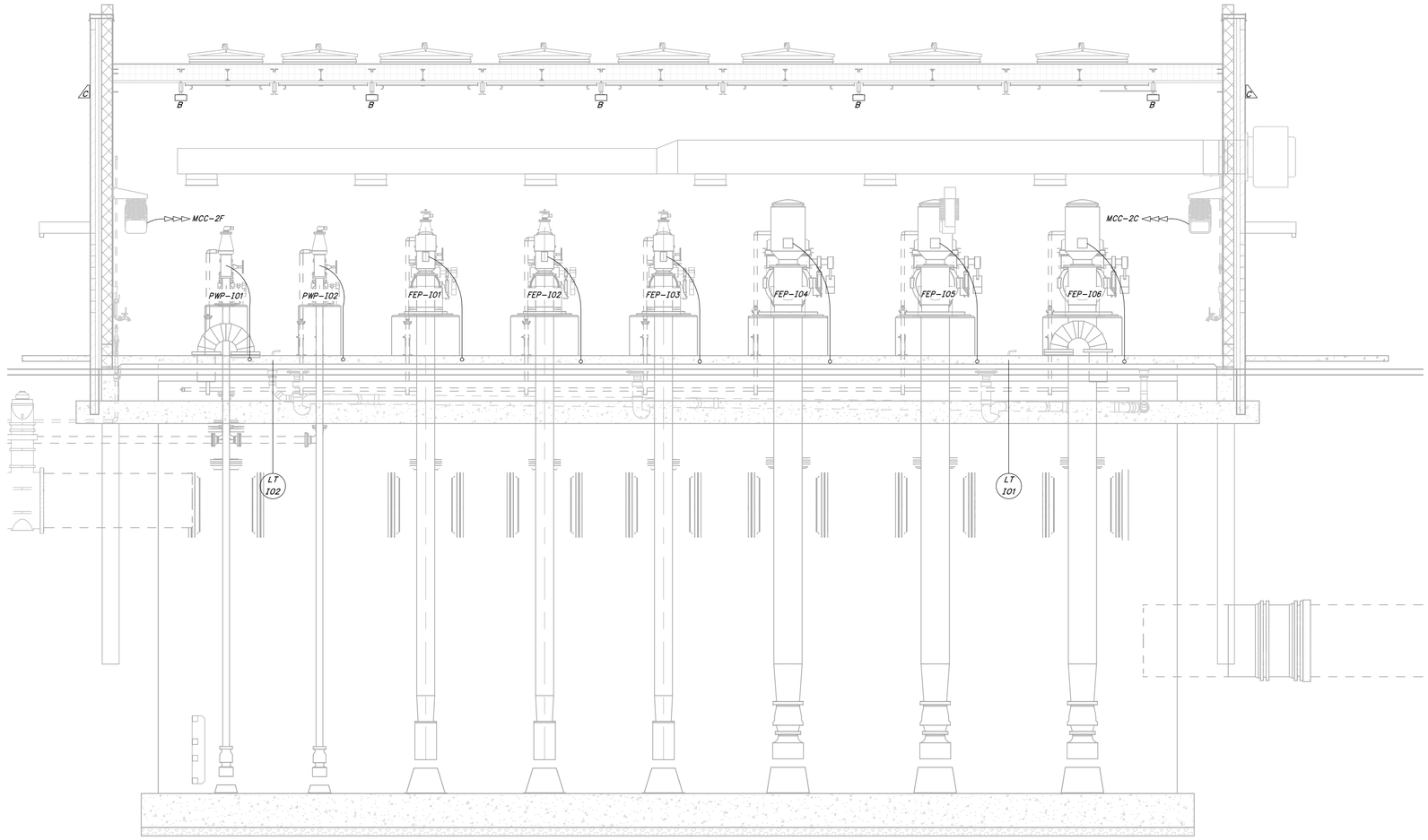
ELECTRICAL BUILDING AND EFFLUENT PUMP STATION DETAIL

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: LSM
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EI-5

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:40 AM / DKS / ELECTRICAL BUILDING AND



SECTION 1
1/4" = 1'-0" EI-5

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT McKAY
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3/21/25

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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

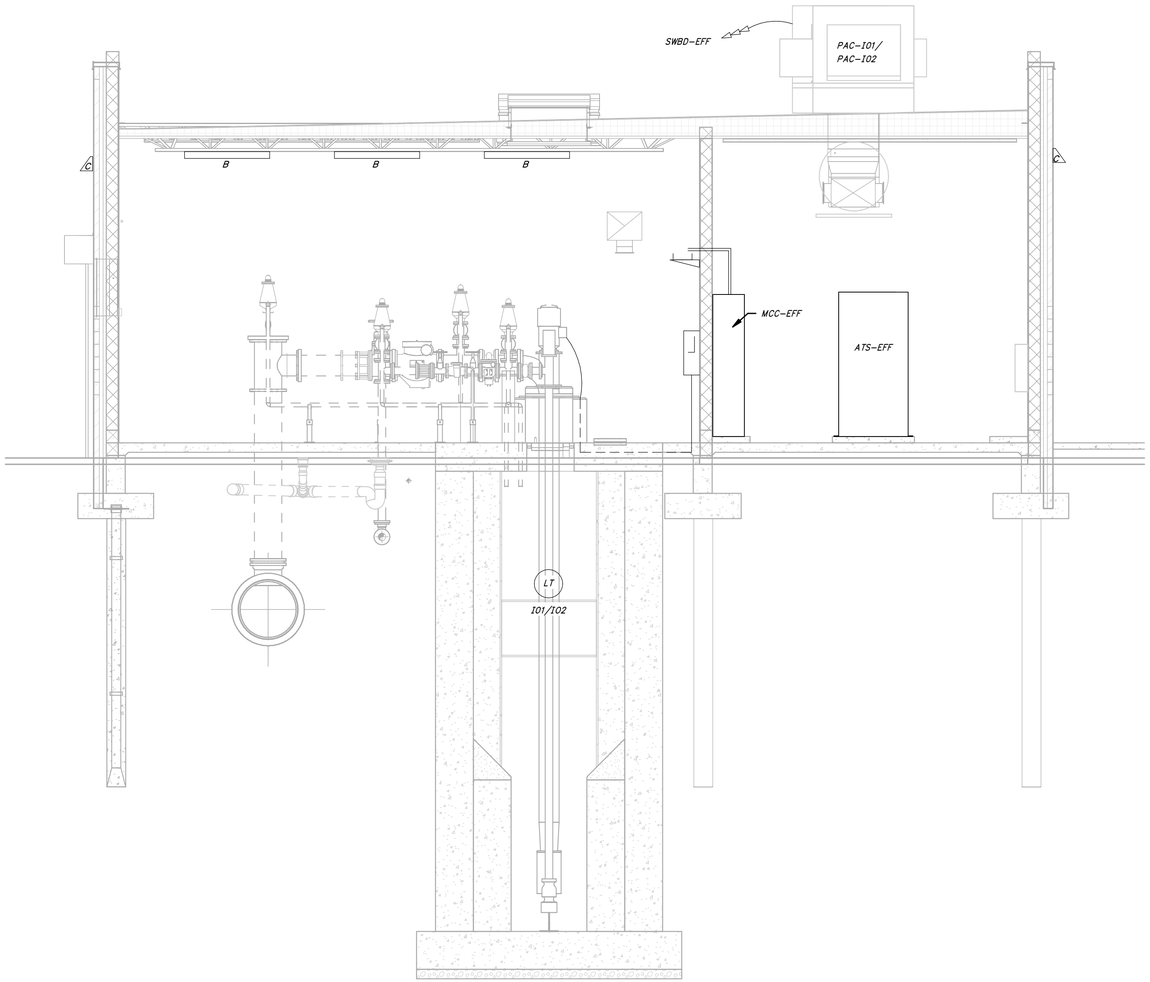
ELECTRICAL BUILDING AND EFFLUENT PUMP STATION SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: Designer
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EI-6

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:45 AM / DKS / ELECTRICAL BUILDING AND



SECTION 2
1/4" = 1'-0" EI-5

GENERAL NOTES

1. *ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).*
2. *ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.*
3. *ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).*
4. *UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.*
5. *ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.*
6. *ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.*
7. *ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT McKAY
No. 9888
PROFESSIONAL ENGINEER
3-21-25

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BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

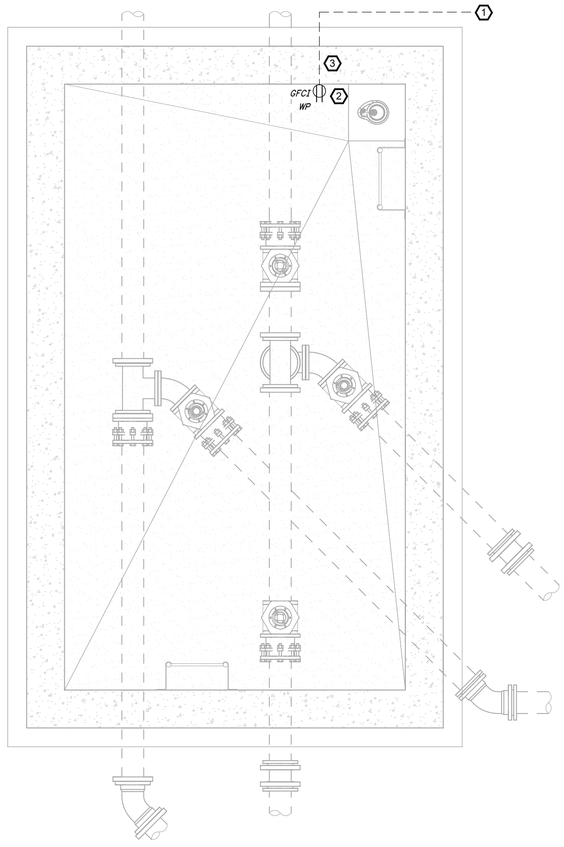
ELECTRICAL BUILDING AND EFFLUENT PUMP STATION SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: Designer
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EI-7

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:48 AM / DKS / ELECTRICAL BUILDING AND



BLOWER BUILDING VALVE VAULT

DETAIL A
1/2" = 1'-0"

KEYED NOTES

1. 1" CONDUIT TO BLOWER BUILDING.
2. SURFACE MOUNT PVC SCHEDULE 40 CONDUIT TO THE WALL WITH UNISTRUT.
3. INSTALL ALL CONDUIT ENTRIES THROUGH THE WALL PRIOR TO CONCRETE POUR.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WILKINS
No. 9888
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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

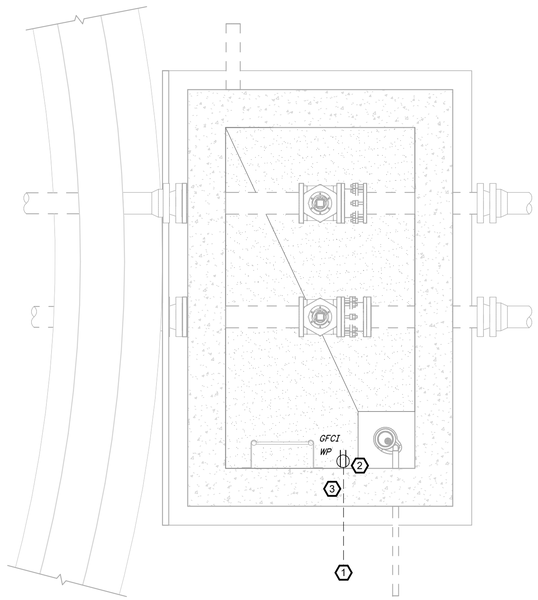
BLOWER BUILDING VALVE VAULT DETAILS AND SECTION

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EK-1

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:50 AM / DKS / BLOWER BUILDING VALVE VAULT



DETAIL B
1/2" = 1'-0"

KEYED NOTES

1. 1" CONDUIT TO BLOWER BUILDING.
2. SURFACE MOUNT PVC SCHEDULE 40 CONDUIT TO THE WALL WITH UNISTRUT.
3. INSTALL ALL CONDUIT ENTRIES THROUGH THE WALL PRIOR TO CONCRETE POUR.

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

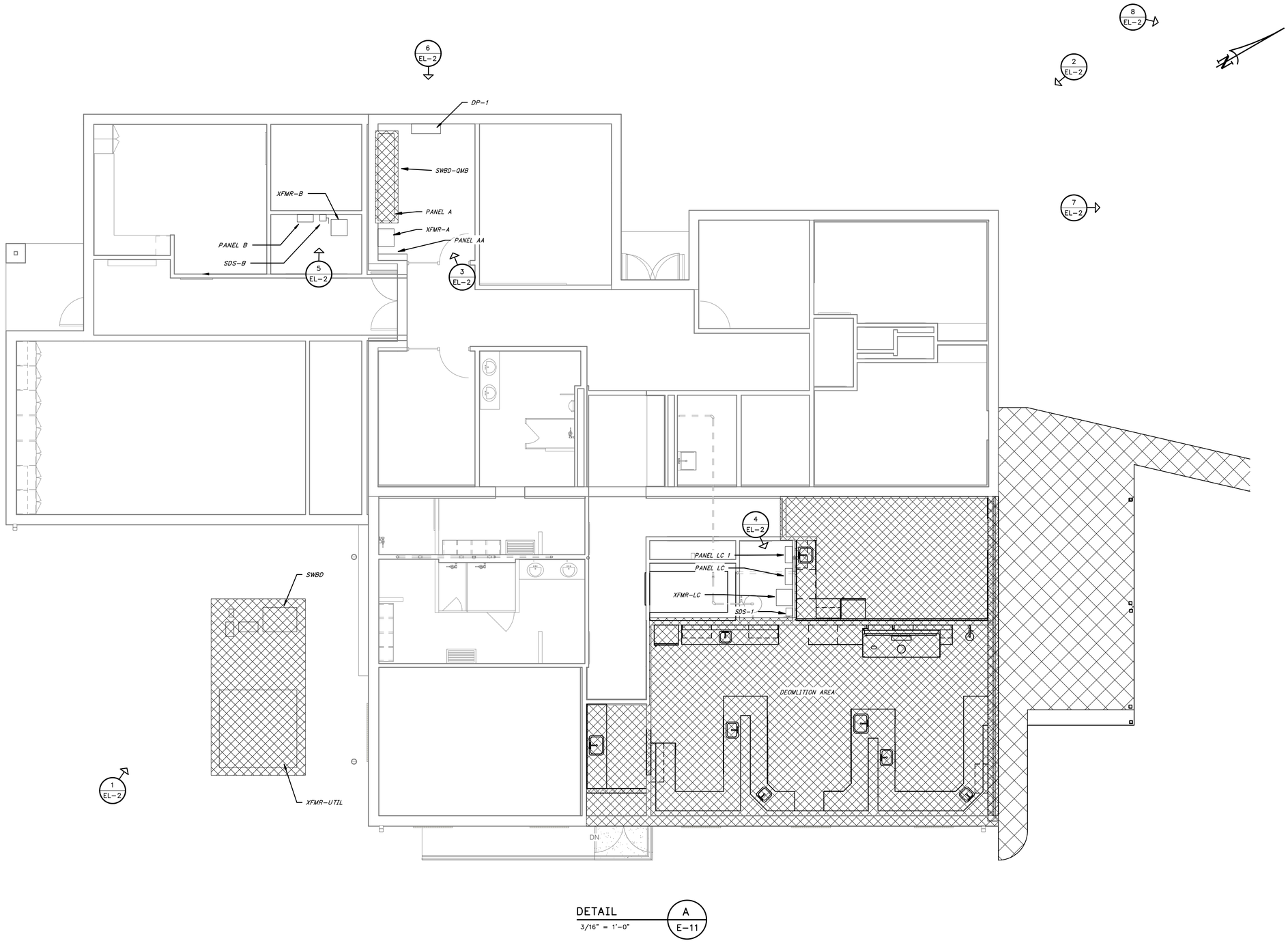
DIGESTER NO. 4 VALVE VAULT DETAILS AND SECTIONS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EK-2

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:51 AM / DKS / DIGESTER NO. 4 VALVE VAULT DETAILS AND SECTIONS



DETAIL A/E-11
3/16" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WILKINS
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

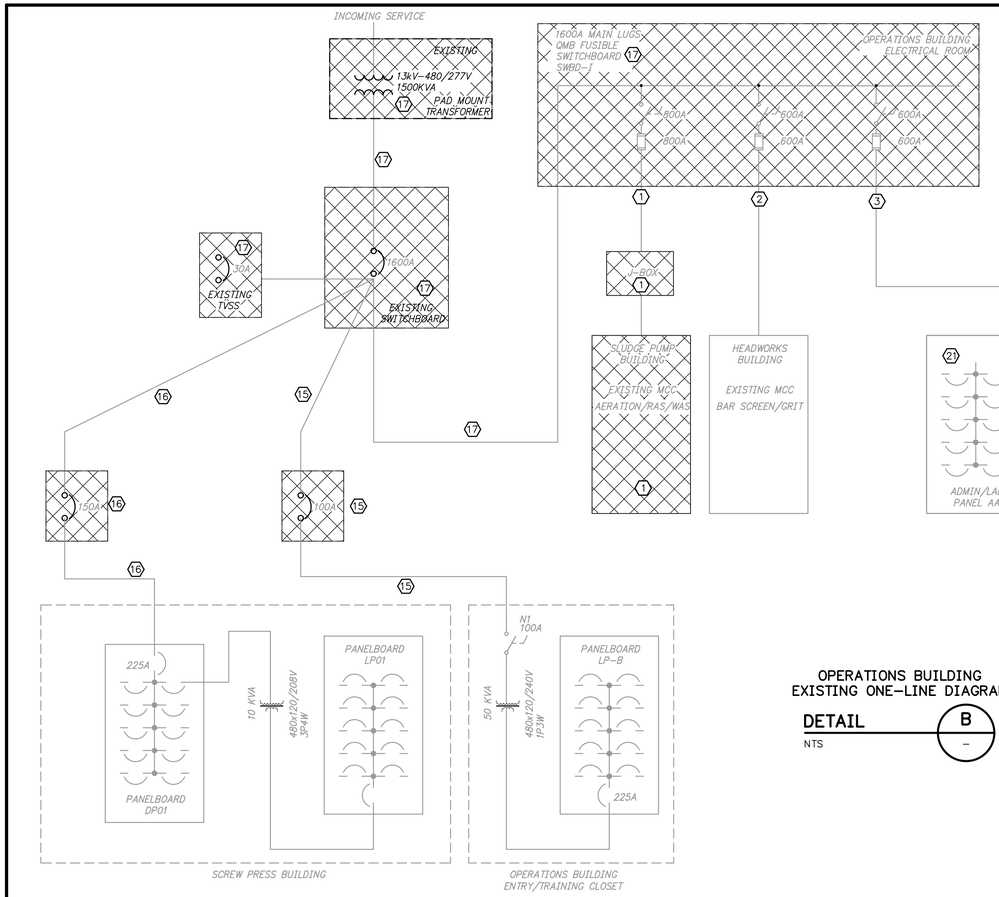
ADMINISTRATION BUILDING
ELECTRICAL DEMOLITION PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EL-1

Autodesk Docs://4101144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:05:57 AM / DKS / ADMINISTRATION BUILDING



OPERATIONS BUILDING EXISTING ONE-LINE DIAGRAM

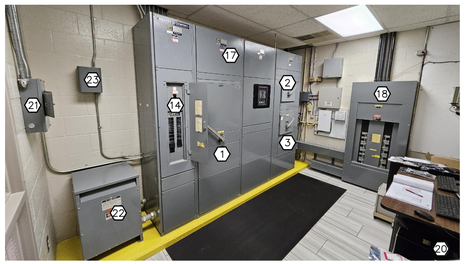
DETAIL B — NTS

OPERATIONS BUILDING SE VIEW

PHOTO 1 — EL-1

OPERATIONS BUILDING NW VIEW

PHOTO 2 — EL-1



OPERATIONS BUILDING ELECTRICAL ROOM

PHOTO 3 — EL-1

OPERATIONS BUILDING UTILITY ROOM

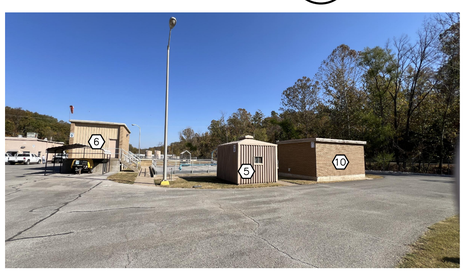
PHOTO 4 — EL-1

OPERATIONS BUILDING OFFICE CLOSET

PHOTO 5 — EL-1

OPERATIONS BUILDING ELECTRICAL ROOM EXIT

PHOTO 6 — EL-1



CHLORINE, POST AERATION, AND PUMP BUILDING

PHOTO 7 — EL-1

CHLORINE BUILDING

PHOTO 8 — EL-1

KEYED NOTES:

1. DEMO THE 800A FEEDER FROM THE OPERATIONS BUILDING QMB SWITCHBOARD TO THE SLUDGE PUMP BUILDING 8, INCLUDING THE JUNCTION BOX ON THE BUILDING EXTERIOR AND THE CONDUITS ENTERING THE BASEMENT TO THE EXISTING SQUARE D MODEL 5 MCC. THE FEEDER MAY BE REMOVED AFTER THE AERATION ROTORS ARE MOVED TO THE PROPOSED INFLUENT ELECTRICAL BUILDING AND THE RAS/WAS PUMPS AND CLARIFIERS ARE MOVED TO THE EFFLUENT ELECTRICAL BUILDING.
2. DEMO THE 600A FEEDER FROM THE OPERATIONS BUILDING QMB SWITCHBOARD TO THE EXISTING HEADWORKS BUILDING MCC. THE FEEDER MAY BE REMOVED AFTER THE BUILDING LOADS ARE MOVED TO THE PROPOSED EFFLUENT ELECTRICAL BUILDING.
3. DEMO THE 600A FEEDER FROM THE OPERATIONS BUILDING QMB SWITCHBOARD TO I-LINE PANEL DP-1. THE FEEDER MAY BE REMOVED AFTER DP-1 IS MOVED TO A FEEDER FROM THE PROPOSED EFFLUENT ELECTRICAL BUILDING.
4. DEMO THE 20A CIRCUIT BREAKER AND FEEDER FROM DP-1 TO THE OPERATIONS BUILDING LIFT STATION #1. THE FEEDER MAY BE REMOVED AFTER THE LIFT STATION IS MOVED TO THE PROPOSED EFFLUENT ELECTRICAL BUILDING.
5. DEMO THE 30A CIRCUIT BREAKER AND FEEDER TO THE POST AERATION BUILDING 10 IN SEQUENCE WITH THE BUILDING REMOVAL.
6. DEMO THE 30A CIRCUIT BREAKER AND FEEDER TO THE CHLORINE BUILDING 9 IN SEQUENCE WITH THE BUILDING REMOVAL.
7. DEMO THE 50A AND 40A CIRCUIT BREAKERS AND FEEDERS FOR THE HVAC ROOF TOP UNITS IN SEQUENCE WITH THE OPERATIONS BUILDING RENOVATION.
8. DEMOLISH AND REMOVE THE FEEDER AND SAFETY SWITCH TO THE ELECTRIC WATER HEATER EWH-1 AND REPLACE THE EXISTING 20A FAL CIRCUIT BREAKER WITH SQUARE D BJ 90A WITH I-LINE CONNECTION LINE SIDE AND LUG CONNECTION LOAD SIDE.
9. DEMO THE 225A CIRCUIT BREAKER AND FEEDER FROM DP-1 TO THE VEHICLE STORAGE BUILDING PANEL PC. THE FEEDER MAY BE REMOVED AFTER THE LOAD IS MOVED TO THE PROPOSED EFFLUENT ELECTRICAL BUILDING.
10. DEMO THE 100A CIRCUIT BREAKER AND FEEDER TO THE PUMP BUILDING 11 IN SEQUENCE WITH THE BUILDING REMOVAL.
11. DEMO THE 225A CIRCUIT BREAKER AND FEEDER TO THE MAINTENANCE BUILDING IN SEQUENCE WITH THE BUILDING REMOVAL.
12. MAINTAIN THE FEEDER TO THE SAFETY SWITCH SDS-1 AND REPLACE THE EXISTING 125A CIRCUIT BREAKER WITH SQUARE D HJ 125A WITH I-LINE CONNECTION LINE SIDE AND LUG CONNECTION LOAD SIDE.
13. RE-ROUTE THE 100A FEEDER FROM PANEL DP-1 TO THE TRANSFORMER LOCATED IN THE OPERATIONS BUILDING ELECTRICAL ROOM AND REPLACE THE EXISTING 100A CIRCUIT BREAKER WITH SQUARE D HJ 100A WITH I-LINE CONNECTION LINE SIDE AND LUG CONNECTION LOAD SIDE.
14. REPLACE EXISTING PANEL A MOUNTED IN THE QMB SWITCHBOARD WITH A WALL MOUNTED UNIT PER SCHEDULE. MOUNT TO REUSE EXISTING CIRCUIT WIRES. INSTALL A WIRE TROUGH NEAR THE CEILING CONDUIT PENETRATIONS AND INSTALL NEW RACEWAY BETWEEN THE TROUGH AND PANELBOARD TO ROUTE THE EXISTING CIRCUITS.
15. DEMO THE EXTERIOR ENCLOSURE, 100A CIRCUIT BREAKER, AND FEEDER TO THE OPERATIONS BUILDING ENTRY/TRAINING CLOSET. THE FEEDER MAY BE REMOVED AFTER THE LOAD IS TRANSFERRED TO A FEEDER FROM EXISTING PANEL DP-1.
16. DEMO THE EXTERIOR ENCLOSURE, 150A CIRCUIT BREAKER, AND FEEDER TO THE SCREW PRESS BUILDING. THE FEEDER MAY BE REMOVED AFTER THE LOAD IS TRANSFERRED TO A FEEDER FROM THE EFFLUENT ELECTRICAL BUILDING.
17. WHEN ALL LOADS HAVE BEEN REMOVED FROM THE ELECTRICAL ROOM QMB SWITCHBOARD AMD THE EXTERIOR 1600A SWITCHBOARD, COORDINATE WITH THE BENTONVILLE ELECTRIC DEPARTMENT TO SHUT DOWN THE 1000KVA TRANSFORMER. DEMO THE SWITCHBOARDS, TVSS, AND ALL FEEDERS. COORDINATE FOR REMOVAL OF THE TRANSFORMER AND DEMO THE EXTERIOR CONCRETE FOUNDATIONS.
18. MAINTAIN EXISTING PANELBOARD DP-1, REPLACE AND INSTALL NEW CIRCUIT BREAKERS PER NOTES AND SCHEDULES.
19. MAINTAIN TWO (2) CONDUIT PENETRATIONS FOR 2" FIBER ENTRANCE AND TWO (2) CONDUIT PENETRATIONS FOR 3" POWER ENTRANCE INTO THE ELECTRICAL ROOM. REMOVE ALL OTHER EXTERIOR CONDUIT PENETRATIONS OUTSIDE THE ELECTRICAL ROOM. REPAIR AND PATCH HOLES FOR ARCHITECTURAL RENOVATION.
20. DEMO PLC-1 ACCORDING TO THE PROJECT SCHEDULE AND ALL CONTROL CONDUCTORS BETWEEN THE OPERATIONS BUILDING AND OUTLYING BUILDINGS.
21. MAINTAIN EXISTING SUBFEED PANEL AA. THE PANEL WILL BE RECONNECTED FROM PROPOSED PANEL A IN THE SAME LOCATION.
22. MAINTAIN THE EXISTING 50KVA TRANSFORMER. THE TRANSFORMER WILL BE RECONNECTED TO PANEL DP1 AFTER THE SWITCHBOARD SWDB-QMB IS REMOVED.
23. REPLACE THE EXISTING EXTERIOR LIGHTING TIMER AS NOTED ON SHEET EL-3. RECONNECT ALL EXISTING AND PROPOSED EXTERIOR LIGHTING AT THE ADMIN/LAB BUILDING TO THE TIMER.
24. MAINTAIN AND RECONNECT TWO (2) SHORT POLE LIGHTS TO THE EXTERIOR LIGHTING CIRCUIT.
25. REPLACE TWO (2) EXISTING WALLPACK FIXTURES WITH PROPOSED AS SHOWN ON SHEET EL-3. REMOVE ALL OTHER EXISTING WALLPACK FIXTURES TO ALLOW THE BUILDING EXPANSION AND RENOVATION. SPLICE THE EXTERIOR LIGHTING CIRCUIT AT EACH REMOVED FIXTURE, AND EXTEND AS NECESSARY TO PROPOSED FIXTURES.

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS — MATTHEW S. WEIR — REGISTERED PROFESSIONAL ENGINEER — No. 9598 — 3/21/2025

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

OPERATIONS BUILDING ONE-LINE DIAGRAM AND DEMOLITION DETAILS

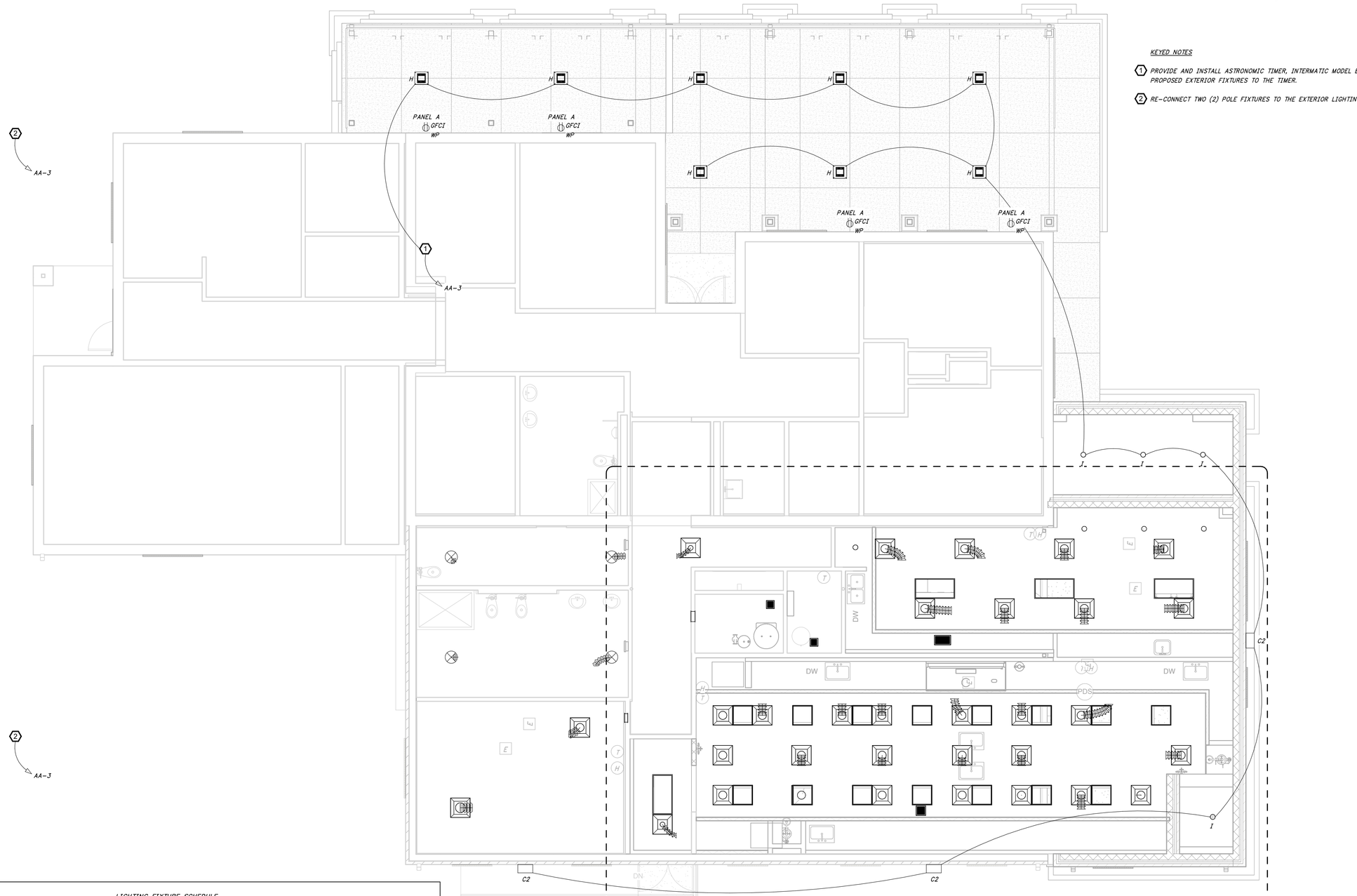
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EL-02

BID DRAWINGS
MARCH 21, 2025

SHEET NO. EL-2

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EL-02.DWG, 3/21/2025 8:44 AM, MATT WEIR, LAYOUT1



KEYED NOTES

1. *PROVIDE AND INSTALL ASTRONOMIC TIMER, INTERMATIC MODEL ET8215C. CONNECT ALL PROPOSED EXTERIOR FIXTURES TO THE TIMER.*
2. *RE-CONNECT TWO (2) POLE FIXTURES TO THE EXTERIOR LIGHTING CIRCUIT.*

LIGHTING FIXTURE SCHEDULE

FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL	QTY	TYPE	REMARKS
C2	120	47	LITHONIA WDGE2 LED P4 30K 80CRI RFT 480 SRM DNAXD	3	LED	WALL MOUNT 12' AFG
H	120	51	HIGH5 LED CANOPY LIGHT MODEL HCP-10L-LKFS-WHT	8	LED	MOUNT ON CANOPY
I	120	21	ALPHABET MODEL NU4-RD-25LM-40K-80-50D-DL-WH-WH-NC-UNV	4	LED	RECESSED MOUNT DOWNLIGHT

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WILKES
No. 9888
REGISTERED PROFESSIONAL ENGINEER
3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

ADMINISTRATION BUILDING PROPOSED ELECTRICAL PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

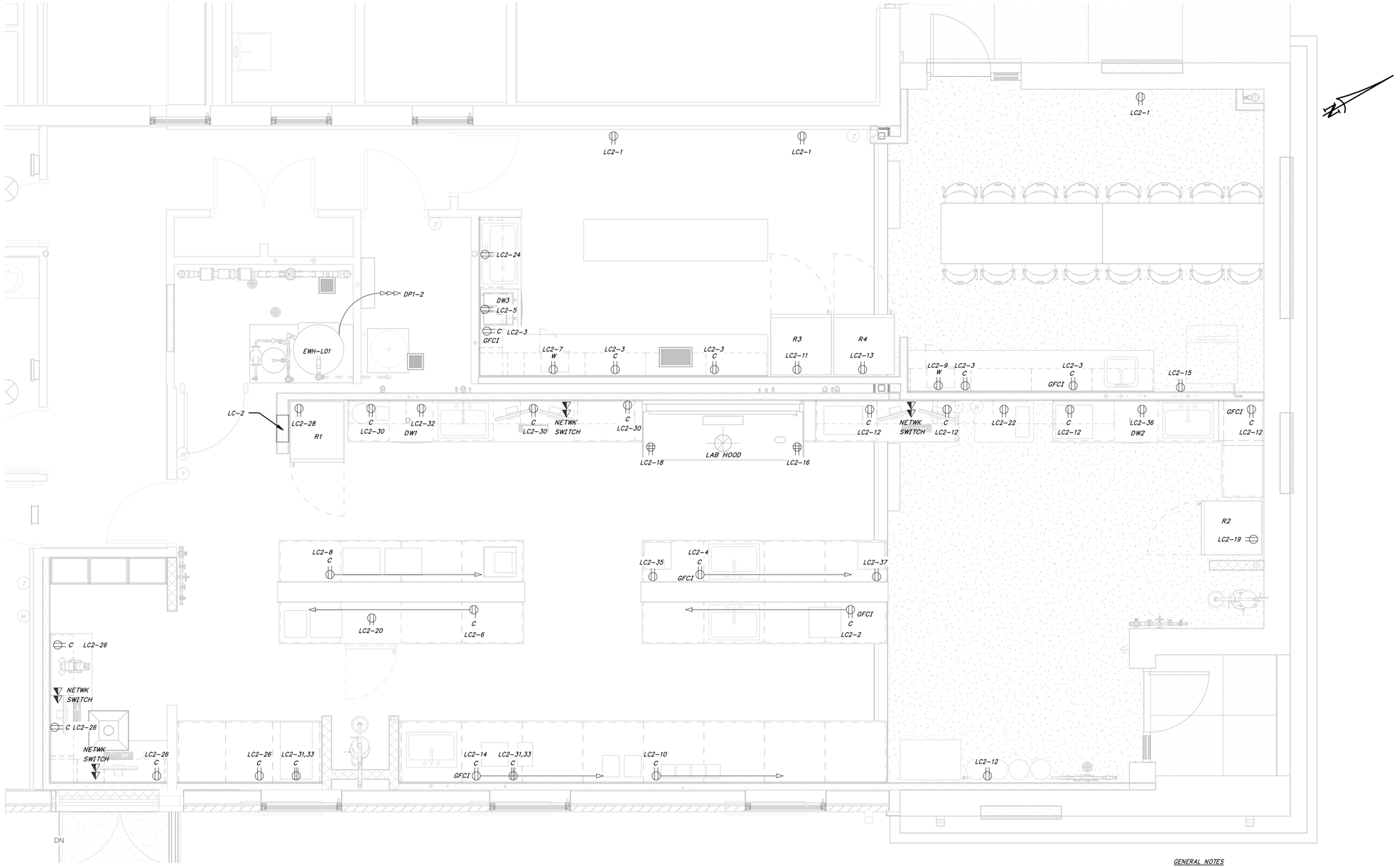
DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EL-3

Autodesk Docs://4101144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:06:01 AM / DKS / ADMINISTRATION BUILDING

EXISTING PANEL DP1 – ELECTRICAL ROOM

CKT #	DESCRIPTION	WIRE (GND)	CB (PANEL SPACE)	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND	CONDUIT	CB (PANEL SPACE)	WIRE (GND)	DESCRIPTION	CKT #
1	50KVA XFMR PANEL A	#1 (#6)	125A (4.5")	1 1/4"	80 65	52 65					1 1/4"	80A (4.5")	#4 #8	WATER HEATER EWH–L01	2
	"	"	"	"			80 65	52 65			"	"	"	"	
									– 65	– 65	"	"	"	"	
3	OUTDOOR UNIT DOAU–L01	#4 (#8)	80A (4.5")	1 1/4"	61 52	61 52					1 1/4"	80A (4.5")	#4 #8	PACKAGED UNIT PHP–L02	4
	"	"	"	"			61 52	61 52			"	"	"	"	
	"	"	"	"					61 52	61 52	"	"	"	"	
5	PACKAGED UNIT PHP–L01	#4 (#8)	80A (4.5")	1 1/4"	51 76	51 76					1 1/4"	100A (4.5")	#3 #6	PACKAGED UNIT PHP–L03	6
	"	"	"	"			51 76	51 76			"	"	"	"	
	"	"	"	"					51 76	51 76	"	"	"	"	
7	EXHAUST FAN EF–L01	#12 (#12)	15A (4.5")	3/4"	5 –	5 –									
	"	"	"	"			5 80	5 52			1 1/4"	125A (4.5")	#1 #6	50KVA XFMR PANEL B	8
	"	"	"	"					5 80	5 52	"	"	"	"	
9	50KVA XFMR PANEL LC,LC1.LC2	#1 (#6)	125A (4.5")	1 1/4"					80	52					
	"	"	"	"	80	52									



DETAIL H
3/8" = 1'-0" EL-3

GENERAL NOTES

1. CABLE INSIDE THE WALLS AND CEILING MAY BE METAL-CLAD (MC) CABLE AND IS NOT REQUIRED TO BE INSIDE OF CONDUIT.
2. EXPOSED CONDUITS SHALL BE RIGID ALUMINUM (RAC).
3. CONDUITS EMBEDDED IN THE SLAB SHALL BE SCHEDULE 40 PVC (PVC40).
4. RECEPTACLES SHOWN WITH "C" DESIGNATION SHALL BE INSTALLED COUNTER HEIGHT.
5. RECEPTACLES SHOWN WITH "W" DESIGNATION SHALL BE INSTALLED IN THE WALL AT CABINET HEIGHT FOR USE WITH MICROWAVES AND OTHER DEVICED MOUNTED AT CABINET LEVEL.
6. RECEPTACLES SHOWN WITH NO LETTER DESIGNATION SHALL BE INSTALLED AT STANDARD HEIGHT ABOVE FINISHED FLOOR.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WEIR
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

ADMINISTRATION BUILDING
PROPOSED POWER PLAN

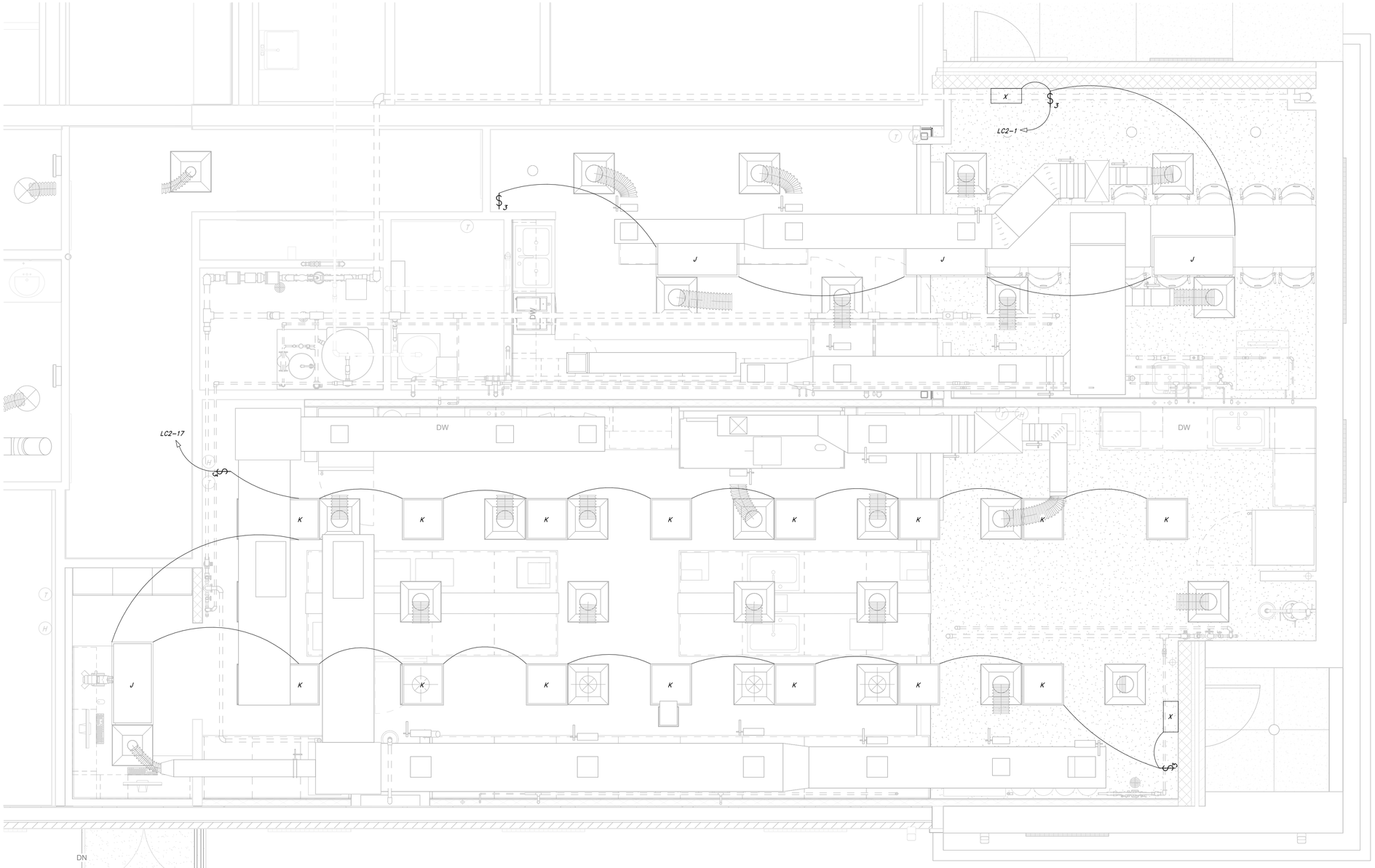
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EL-5

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:06:04 AM / DKS / ADMINISTRATION BUILDING

LIGHTING FIXTURE SCHEDULE						
FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL	QTY	TYPE	REMARKS
J	120	45	NORA LIGHTING 2' X 4' RECESSED MOUNT MODEL NPDBLSW-E24/334-W	4	LED	RECESSED MOUNT ON CEILING.
K	120	30	NORA LIGHTING 2' X 2' RECESSED MOUNT MODEL NPDBLSW-E22/334-W	15	LED	RECESSED MOUNT ON CEILING.
X	120	3	LITHONIA LHQM R HO M6	2	LED	MOUNT ABOVE EXIT DOORS



DETAIL I
3/8" = 1'-0" EL-3

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WEIR
REGISTERED PROFESSIONAL ENGINEER
No. 9888
3/21/25

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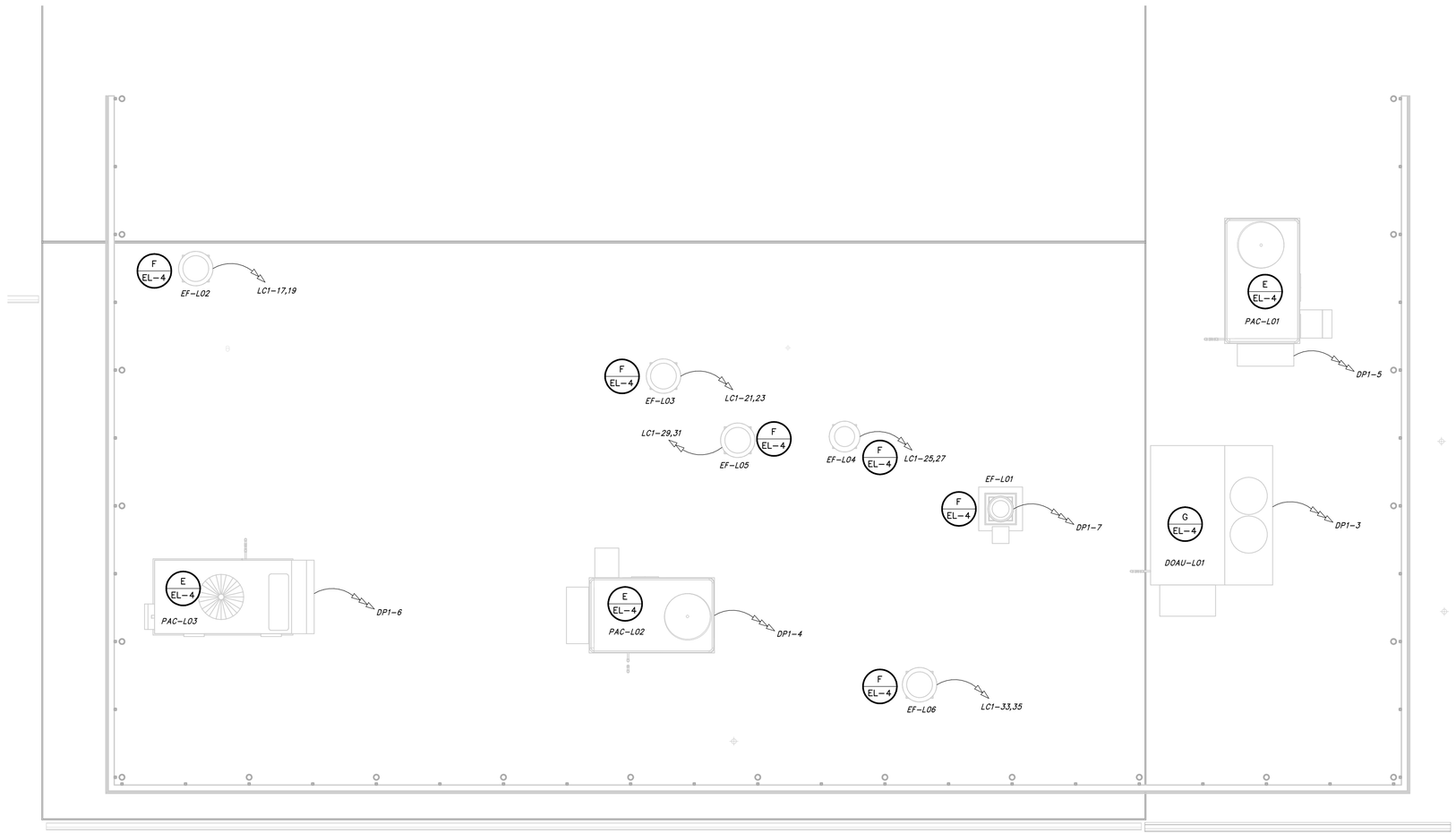
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

ADMINISTRATION BUILDING
PROPOSED HVAC AND LIGHTING
ELECTRICAL PLAN
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EL-6

Autodesk Docs://4101144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:06:08 AM / DKS / ADMINISTRATION BUILDING



DETAIL J
1/4" = 1'-0" –

GENERAL NOTES

1. ALL EXTERIOR EXPOSED CONDUIT SHALL BE RIGID ALUMINUM (RAC) EXCEPT WHERE NOTED FOR PVC COATED RIGID (CRSC).
2. ALL EXTERIOR EXPOSED CONDUIT FOR FINAL CONNCECTIONS TO ROTATING EQUIPMENT OR CONTROL DEVICES SHALL BE LIQUIDTITE/SEALTITE.
3. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (PVC40).
4. UNDERGROUND CONDUIT ENTERING/EXITING ELECTRICAL HANDHOLES SHALL BE SCHEDULE 80 PVC (PVC80) FOR A MINIMUM OF 10'.
5. ALL TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE CRSC EXCEPT WHERE THE CONDUIT STUB-UPS ARE CONCEALED COMPLETELY BY EQUIPMENT SUCH AS MOTOR CONTROL CENTERS. CONCEALED STUB-UPS MAY BE PVC40.
6. ALL INTERIOR CONDUIT SHALL BE RIGID ALUMINUM (RAC) OR AS NOTED ON PLAN SHEETS.
7. ALL UNISTRUT AND MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT WILSON
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

ADMINISTRATION BUILDING
ROOF PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EL-7

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:06:10 AM / DKS / ADMINISTRATION BUILDING

PROPOSED PANEL A (1)

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	HALL/LAB TECH LIGHTS	– (–)	20	–	–	–			–	20	– (–)	EAST HALF OF BUILDING LIGHTS	2
3	BREAK/ELEC RM LIGHTS	– (–)	20	–			–	–	–	20	– (–)	LAB LIGHTS –	4
5	JANITOR AND STORAGE RECEPTS	– (–)	20	–	–	–			–	30	– (–)	LAB TECH OFFICE RECEPTACLES	6
7	OFFICE RECEPTS & ROAD LIGHTS	– (–)	20	–			–	–	–	30	– (–)	MEN'S RESTROOM RECEPTACLES	8
9	WOMEN'S RESTRM & WATER FTN	– (–)	20	–	–	–			–	20	– (–)	BREAK ROOM RECEPTACLES	10
11	LAB ISLAND RECEPTACLES	– (–)	20	–			–	–	–	25	– (–)	LAB ISLAND RECEPTACLES	12
13	LAB ISLAND RECEPTACLES	– (–)	20	–	–	–			–	20	– (–)	LAB NORTH AND WEST RECEPTS	14
15	LAB ISLAND RECEPTACLES	– (–)	20	–			–	–	–	20	– (–)	LAB NORTH AND WEST RECEPTS	16
17	WATER HEATER –	– (–)	40	–	–	–			–	20	– (–)	BREAK ROOM EAST	18
19	"	"	"	"			–	–	–	20	– (–)	BREAK ROOM EAST	20
21	DISTILLER –	– (–)	20	–	–	–			–	20	– (–)	EXHAUST FANS –	22
23	"	"	"	"			–	–	–	20	– (–)	FUME HOOD –	24
25	SUB FEED –	– (–)	70	–	–	–			–	20	– (–)	EXHAUST FANS –	26
27	"	"	"	"			–	–	–	80	– (–)	HEAT PUMP SOUTH	28
29	ROAD LIGHTS –	– (–)	20	–	–	–			"	"	"	"	30
31	SPACE –	– (–)	–	–			–	–	–	–	– (–)	SPACE –	32
33	SPACE –	– (–)	–	–	–	–			–	–	– (–)	SPACE –	34
35	SPACE –	– (–)	–	–			–	–	–	–	– (–)	SPACE –	36
37	HEAT PUMP NORTH	– (–)	100	–	–	–			–	–	– (–)	SPACE –	38
39	"	"	"	"			–	–	–	–	– (–)	SPACE –	40
41	"	"	"	"	–	–			–	–	– (–)	SPACE –	42
				TOTAL CONNECTED	TBD			TBD					
				TOTAL DEMAND		TBD	TBD						

TYPE: SQUARE D NQOD LIGHTING AND APPLIANCE
VOLTS: 120/240, SINGLE PHASE, THREE WIRE
MAIN: 225 AMP MAIN BREAKER
BUS: 225 AMP
RATING: 10 KAIC
MOUNTING: SWITCHGEAR INTERIOR
ENCLOSURE RATING: NEMA 1
BRANCH BREAKERS: BOLT-ON

CONNECTED KVA: TBD
DEMAND KVA: TBD
DESIGN KVA: 50

ADMINISTRATION BUILDING
EXISTING PANEL A SCHEDULE

DETAIL K / – NTS

EXISTING PANEL A SUBFEED (2)

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	OPERATIONS RM COMPUTERS	#10 (#10)	30	3/4"	–	–			3/4"	20	#12 (#12)	TOP WEST WALL ELECTRICAL ROOM	2
3	OUTSIDE POLE LIGHTS	#12 (#12)	20	3/4"			–	–	3/4"	20	#12 (#12)	BOTTOM WEST WALL ELEC RM	4
5	FEEDER –	– (–)	40	3/4"	–	–			3/4"	20	#12 (#12)	THERMOLYNE FURNACE	6
7	"	"	"				–	–	"	"	"	"	8
9	BLACK –	#12 (#12)	20	3/4"	–	–			3/4"	20	#12 (#12)	PLC-1 AND FLOW METERS	10
11	RED –	#12 (#12)	20	3/4"			–	–	3/4"	20	#12 (#12)	BLUE –	12
				TOTAL CONNECTED	TBD			TBD					
				TOTAL DEMAND		TBD	TBD						

TYPE: SQUARE D NQOD LIGHTING AND APPLIANCE
VOLTS: 120/240, SINGLE PHASE, THREE WIRE
MAIN: MLO
BUS: 100 AMP
RATING: 10 KAIC
MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1
BRANCH BREAKERS: BOLT-ON

CONNECTED KVA: TBD
DEMAND KVA: TBD
DESIGN KVA: 13.4

ADMIN/LAB BUILDING ELECTRICAL ROOM
EXISTING PANEL AA SCHEDULE

DETAIL L / – NTS

EXISTING PANEL B (3)

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	? –	#12 (#12)	20	3/4"	–	–			3/4"	20	#12 (#12)	CONFERENCE ROOM GFCI	2
3	HALL LIGHTS –	#12 (#12)	20	3/4"			–	–	3/4"	20	#12 (#12)	CONFERENCE ROOM GFCI	4
5	OFFICE/ELECTRIC ROOM LIGHTS	#12 (#12)	20	3/4"	–	–			3/4"	20	#12 (#12)	CONFERENCE ROOM RECEPTS	6
7	CONFERENCE ROOM LIGHTS	#12 (#12)	20	3/4"			–	–	3/4"	20	#12 (#12)	HALL AND OFFICE RECEPTACLES	8
9	PROJECTOR SCREEN	#12 (#12)	20	3/4"	–	–			3/4"	20	#12 (#12)	OFFICE GFCI –	10
11	POLE LIGHTS –	#12 (#12)	20	3/4"			–	–		20		SPARE –	12
13	PROJECTOR SCREEN	#12 (#12)	20	3/4"	–	–				20		SPARE –	14
15	SPARE –		20				–	–		20		SPARE –	16
17	SPARE –		20		–	–				20		SPARE –	18
19	"		"				–	–		"		"	20
21	ROOF TOP UNIT	#12 (#12)	20	3/4"	–	–			3/4"	20	#12 (#12)	ROOF TOP UNIT	22
23	"	"	"	"			–	–	"	"	"	"	24
25	SPACE –				–	–						SPACE –	26
27	SPACE –						–	–				SPACE –	28
29	SPACE –				–	–						SPACE –	30
31	SPACE –						–	–				SPACE –	32
33	SPACE –				–	–						SPACE –	34
35	SPACE –						–	–				SPACE –	36
37	SPACE –				–	–						SPACE –	38
39	SPACE –						–	–				SPACE –	40
41	SPACE –				–	–						SPACE –	42
				TOTAL CONNECTED	TBD			TBD					
				TOTAL DEMAND		TBD	TBD						

TYPE: SQUARE D NQOD LIGHTING AND APPLIANCE
VOLTS: 120/240, SINGLE PHASE, THREE WIRE
MAIN: 225 AMP MAIN BREAKER
BUS: 225 AMP
RATING: 10 KAIC
MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1
BRANCH BREAKERS: BOLT-ON

CONNECTED KVA: TBD
DEMAND KVA: TBD
DESIGN KVA: 50

ADMINISTRATION BUILDING
EXISTING PANEL B SCHEDULE

DETAIL M / – NTS

KEYED NOTES:

1. PANEL A WILL BE INSTALLED IN PHYSICAL SPACE VACATED BY THE REMOVAL OF SWITCHBOARD SWBD-QMB AND ITS SECTION WHICH CONTAINED THE EXISTING PANELBOARD A. IT IS THE INTENT TO USE ALL EXISTING CIRCUIT WIRING AND RECONNECT TO THE NEW PANELBOARD. THE CONTRACTOR SHALL INSTALL 24" X 4" X 4" WIREWAY JUST BELOW THE CEILING AND ROUTE EXISTING OVERHEAD CONDUITS INTO THE WIREWAY. THE CONTRACTOR SHALL INSTALL CONDUITS AS NECESSARY BETWEEN THE WIREWAY AND PANELBOARD TO RECONNECT CIRCUITS. THE LABELS SHOWN ON THE PANEL SCHEDULE ARE INCORRECT, AND WERE NEVER MODIFIED AFTER THE LAB WAS RELOCATED TO ANOTHER SECTION OF THE BUILDING. THE CONTRACTOR SHALL DETERMINE THE PURPOSE AND LOCATION OF EACH CIRCUIT AND PROVIDE A CORRECT SCHEDULE.
2. MAINTAIN EXISTING PANELBOARD AA, AND RE-FEED FROM PANELBOARD A. THE LABELS SHOWN ON THE PANEL SCHEDULE ARE NOT VERIFIED. THE CONTRACTOR SHALL DETERMINE THE PURPOSE AND LOCATION OF EACH CIRCUIT AND PROVIDE A CORRECT SCHEDULE.
3. NO CHANGES ARE REQUIRED FOR EXISTING PANELBOARD B. THE CONTRACTOR SHALL VERIFY THE PURPOSE AND LOCATION OF EACH CIRCUIT AND PROVIDE CHANGES TO THE PANEL SCHEDULE.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 9586 L. Scott Hudson

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BLACK&VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

ADMINISTRATION BUILDING BREAKER PANEL SCHEDULES I

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EL-08

SHEET NO. EL-8

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EL-08.DWG, 3/21/2025 8:45 AM, MATT WEIR, LAYOUT1

EXISTING PANEL LC

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	RECEPTACLES –	#12 (#12)	20	3/4"	7.5	6						SPACE	2
3	RECEPTACLES –	#12 (#12)	20	3/4"	–	–	7.5	6	3/4"	20	#12 (#12)	RECEPTACLES –	4
5	RECEPTACLES –	#12 (#12)	20	3/4"	7.5	6	7.5	6	3/4"	20	#12 (#12)	? –	6
7	RECEPTACLES –	#12 (#12)	20	3/4"	–	–	7.5	6	3/4"	20	#12 (#12)	? –	8
9	RECEPTACLES –	#12 (#12)	20	3/4"	7.5	6	–	–				SPACE –	10
11	RECEPTACLES –	#12 (#12)	20	3/4"	–	–	7.5	6	3/4"	20	#12 (#12)	RECEPTACLES –	12
13	RECEPTACLES –	#12 (#12)	20	3/4"	7.5	6	–	–	3/4"	20	#12 (#12)	RECEPTACLES –	14
1 15	CONTROL PANEL TCP–L01	#12 (#12)	20	3/4"	–	–	6	6	3/4"	20	#12 (#12)	WALL HEATER WH–A01	16
1 17	CONTROL PANEL ECP–L01	#12 (#12)	20	3/4"	–	–			"	"	"	"	18
1 19	SPARE –		20		6	6			3/4"	20	#12 (#12)	WALL HEATER WH–A02	20
1 21	SPARE –		20		–	–	6	6					22
23	RECEPTACLES –	#12 (#12)	20	3/4"	6	6			"	"	"	"	24
1 25	SPARE –		20		–	–	7.5	6				SPACE –	26
27	RECEPTACLES –	#12 (#12)	20	3/4"	7.5	6			3/4"	20	#12 (#12)	RECEPTACLES –	28
29	RECEPTACLES –	#12 (#12)	20	3/4"	–	–	7.5	6	3/4"	20	#12 (#12)	RECEPTACLES –	30
1 31	SPARE –		20		7.5	6			3/4"	20	#12 (#12)	RECEPTACLES –	32
1 33	SPARE –		20		–	–	5	5	3/4"	20	#12 (#12)	EF FOR AA UNIT –	32
1 35	SPARE –		20		–	–			3/4"	20	#12 (#12)	RECEPTACLES –	34
1 37	SPARE –		20		7.5	6							36
39	? –		20		–	–	102	78	1 1/2"	150	#1/0 (#6)	PANEL LC2 FEEDER	38
41	"	"	"	"	–	–	–	–	"	"	"	"	40
					129	107			"	"	"	"	42
				TOTAL CONNECTED	197		167						
				TOTAL DEMAND		161		133					

TYPE: SQUARE D NQOD LIGHTING AND APPLIANCE
VOLTS: 120/240, SINGLE PHASE, THREE WIRE
MAIN: 225 AMP MAIN BREAKER
BUS: 225 AMP
RATING: 10 KAIC
MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1
BRANCH BREAKERS: BOLT–ON

CONNECTED KVA: 43
DEMAND KVA: 35
DESIGN KVA: 50

ADMIN/LAB BUILDING
EXISTING PANEL LC SCHEDULE

DETAIL N
NTS –

EXISTING PANEL LC 1

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	LIGHTS –	– (–)	20	–	5	5			3/4"	20	#12 (#12)	LIGHTS –	2
3	LIGHTS –	– (–)	20	–	5	5	5	5	3/4"	20	#12 (#12)	LIGHTS –	4
5	LIGHTS –	– (–)	20	–	5	5	5	5	3/4"	20	#12 (#12)	LIGHTS –	6
7	LIGHTS –	– (–)	20	–	5	5	5	5	3/4"	20	#12 (#12)	LIGHTS –	8
9	SPACE –				–	–			3/4"	20	#12 (#12)	LIGHTS –	10
11	? –				–	–	–	–	3/4"	20	#12 (#12)	? –	12
13	? –				–	–	–	–	3/4"	20	#12 (#12)	? –	14
1 15	? –	(–)			–	–	–	–	3/4"	20	#12 (#12)	? –	16
2 17	EXHAUST FAN EF–L02	#12 (#12)	20	3/4"	4	4							18
1 19	"	"	"	"	5	5	4	4	3/4"	20	#12 (#12)	LIGHTS –	20
2 21	EXHAUST FAN EF–L03	#12 (#12)	20	3/4"	4	4	5	5					22
23	"	"	"	"	5	5	4	4	3/4"	20	#12 (#12)	LIGHTS –	24
2 25	EXHAUST FAN EF–L04	#12 (#12)	20	3/4"	3	3	5	5					26
27	"	"	"	"	5	5	3	3				SPACE –	28
2 29	EXHAUST FAN EF–L05	#12 (#12)	20	3/4"	4	4	–	–				SPACE –	30
31	"	"	"	"	–	–	4	4				SPACE –	32
2 33	EXHAUST FAN EF–L06	#12 (#12)	20	3/4"	4	4	–	–				SPACE –	34
1 35	"	"	"	"	–	–	4	4				SPACE –	36
37	SPACE –				–	–	–	–				SPACE –	38
39	SPACE –				–	–	–	–				SPACE –	40
41	SPACE –				–	–	–	–				SPACE –	42
				TOTAL CONNECTED	59		49						
				TOTAL DEMAND		59		49					

TYPE: SQUARE D NQOD LIGHTING AND APPLIANCE
VOLTS: 120/240, SINGLE PHASE, THREE WIRE
MAIN: MLO
BUS: 225 AMP
RATING: 10 KAIC
MOUNTING: SURFACE
ENCLOSURE RATING: NEMA 1
BRANCH BREAKERS: BOLT–ON

CONNECTED KVA: 13
DEMAND KVA: 13
DESIGN KVA: 50

ADMIN/LAB BUILDING
EXISTING PANEL LC 1 SCHEDULE

DETAIL O
NTS –

PROPOSED PANEL LC 2 (3)

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	BREAK ROOM LGTS & RECEPTS	#12 (#12)	20	3/4"	6	6							
3	BREAK ROOM COUNTER RECEPS	#12 (#12)	20	3/4"	9	3	7.5	0	3/4"	20	#12 (#12)	N ISLAND E SIDE PLUGSTRIP	2
5	BREAK ROOM DISH WASH DW3	#12 (#12)	20	3/4"	10	10	9	3	3/4"	20	#12 (#12)	N ISLAND W SIDE PLUGSTRIP	4
7	BREAK ROOM MICROWAVE 1	#12 (#12)	20	3/4"	9	3	10	10	3/4"	20	#12 (#12)	S ISLAND E SIDE PLUGSTRIP	6
9	BREAK ROOM MICROWAVE 2	#12 (#12)	20	3/4"	10	10	9	3	3/4"	20	#12 (#12)	S ISLAND W SIDE PLUGSTRIP	8
11	BREAK ROOM FRIDGE R3	#12 (#12)	20	3/4"	9	3	5	5	3/4"	20	#12 (#12)	NE WALL PLUGSTRIP	10
13	BREAK ROOM FRIDGE R4	#12 (#12)	20	3/4"	5	5	7.5	7.5	3/4"	20	#12 (#12)	LAB NORTH AREA RECEPTACLES	12
15	BREAK ROOM ICE MACHINE	#12 (#12)	20	3/4"	9	3	5	5	3/4"	20	#12 (#12)	SE WALL PLUGSTRIP	14
17	LAB ROOM LIGHTS	#12 (#12)	20	3/4"	6	6	6	6	3/4"	20	#12 (#12)	FUME HOOD QUAD N RECEPTACLES	16
19	LAB ROOM FRIDGE R2	#12 (#12)	20	3/4"	6	6	5	5	3/4"	20	#12 (#12)	FUME HOOD QUAD S RECEPTACLES	18
21	HOT WATER CIRC CP–L01	#12 (#12)	20	3/4"	–	–	5	5	3/4"	20	#12 (#12)	INCUBATOR –	20
23	MUFFLE FURNACE –	#12 (#12)	20	3/4"	1	1	5	5	3/4"	20	#12 (#12)	SCALE & SPECT RECEPTACLE	22
25	"	"	"	"	–	–	10	10	3/4"	20	#12 (#12)	DISPOSAL –	24
27	DISTILLER –	#12 (#12)	20	3/4"	–	–	10	0	3/4"	20	#12 (#12)	LAB SOUTH AREA RECEPTACLES	26
29	"	"	"	"	5	5	5	5	3/4"	20	#12 (#12)	LAB ROOM REFRIGERATOR R1	28
31	AUTOCLAVE –	#12 (#12)	20	3/4"	4.5	4.5	5	5	3/4"	20	#12 (#12)	LAB ROOM SW RECEPTACLES	30
33	"	"	"	"	–	–	10	10	3/4"	20	#12 (#12)	LAB ROOM DISHWASHER DW1	32
35	VACUUM PUMP 1 –	#12 (#12)	20	3/4"	5	5	2	2	3/4"	20	#12 (#12)	WATER FOUNT EAST HEWC–1	34
37	VACUUM PUMP 2 –	#12 (#12)	20	3/4"	–	–	5	5	3/4"	20	#12 (#12)	LAB ROOM DISHWASHER DW2	36
39	AMMONIA UNIT	#12 (#12)	20	3/4"	–	–	10	10	3/4"	20	#12 (#12)	SPARE –	38
41	"	"	"	"	–	–	–	–	3/4"	20	#12 (#12)	SPARE –	40
					–	–	–	–				SPARE –	42
				TOTAL CONNECTED	101.5		129						
				TOTAL DEMAND		77.5		107					

TYPE: SQUARE D NQOD LIGHTING AND APPLIANCE
VOLTS: 120/240, SINGLE PHASE, THREE WIRE
MAIN: 225 AMP MAIN BREAKER
BUS: 225 AMP
RATING: 10 KAIC
MOUNTING: FLUSH MOUNT
ENCLOSURE RATING: NEMA 1
BRANCH BREAKERS: BOLT–ON

CONNECTED KVA: 28
DEMAND KVA: 22
DESIGN KVA: 28

ADMIN/LAB BUILDING
PROPOSED PANEL LC 2 SCHEDULE

DETAIL P
NTS –

KEYED NOTES:

1. PROVIDE NINE (9) SQUARE D QO1020 SPARE 20 AMP BREAKERS IN EXISTING PANEL LC FOR HVAC CONTROL AND FUTURE USE. THE LABELS SHOWN ON THE PANEL SCHEDULE ARE NOT VERIFIED. THE CONTRACTOR SHALL DETERMINE THE PURPOSE AND LOCATION OF EACH CIRCUIT AND PROVIDE A CORRECT SCHEDULE. PROVIDE AND INSTALL ONE (1) SQUARE D QO2150 CIRCUIT BREAKER TO SUBFEED PANEL LC2 (FOUR SPACES REQUIRED). PROVIDE AND INSTALL TWO (2) SQUARE D QO2020 CIRCUIT BREAKERS FOR THE PROPOSED WALL HEATER CIRCUITS.
2. PROVIDE AND INSTALL FIVE (5) SQUARE D QO2020 2 POLE 20 AMP BREAKERS FOR EXHAUST FANS IN EXISTING PANEL LC 1. THE LABELS SHOWN ON THE PANEL SCHEDULE ARE NOT VERIFIED. THE CONTRACTOR SHALL DETERMINE THE PURPOSE AND LOCATION OF EACH CIRCUIT AND PROVIDE A CORRECT SCHEDULE.
3. PROPOSED PANEL LC2 WILL POWER MOST CIRCUITS INSTALLED DURING THE ADMIN/LAB EXPANSION AND RENOVATION. SOME CIRCUITS IN PANELS LC AND LC1 WILL BE DISCONNECTED.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS – MATTHEW S. WEIR – PROFESSIONAL ENGINEER – No. 9586 – 3/21/2025 – Scott Weir

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

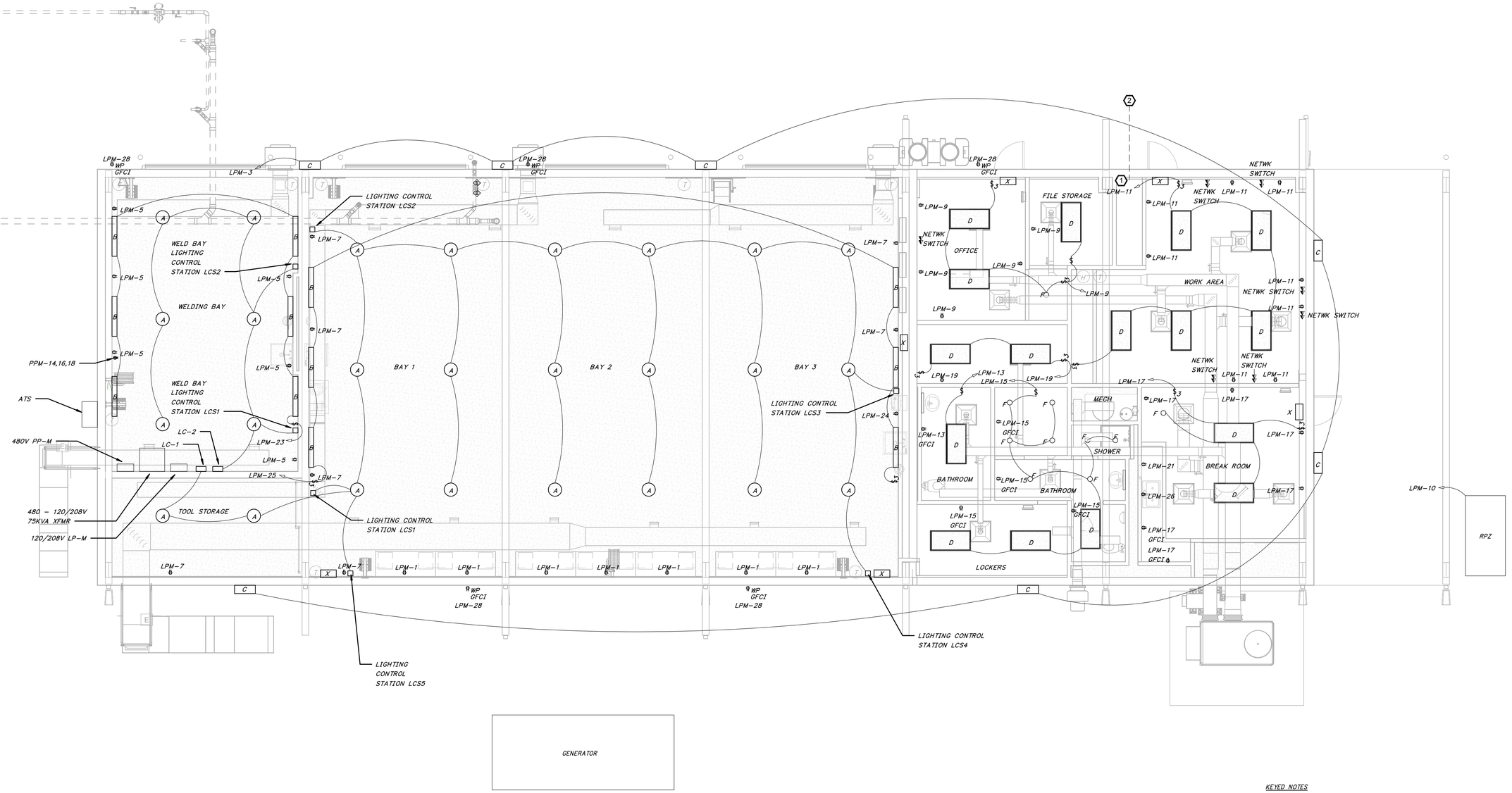
ADMINISTRATION BUILDING
BREAKER PANEL SCHEDULES II

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EL–09

SHEET NO.
EL–9

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EL–09.DWG, 3/21/2025 8:45 AM, MATT WEIR, LAYOUT1



LIGHTING FIXTURE SCHEDULE						
FIXTURE DESIGNATION	VOLTS	WATTS	MANUFACTURER AND MODEL	QTY	TYPE	REMARKS
A	480	95	LITHONIA JEBL 12000LM FRGL HVOLT 40K 80CRI	26	LED	STEM MOUNT 18' AFF SUSPENDED BY CONDUIT
B	120	67	HOLOPHANE EVT4 8000LM FST MD MVOLT GZ10 40K 80CRI	12	LED	WALL MOUNT BELOW CEILING, POINTING DOWNWARD FOR HORIZONTAL THROW
C	120	123	LITHONIA WDGE4 LED P3 40K 80CRI R4 MVOLT SRM PE DBLXD	5	LED	WIRE SUCH THAT FIXTURE ALWAYS POWERED, WITH PHOTOCELL CONTROL. MOUNT 13' AFF.
D	120	45	NORA LIGHTING 2' X 4' RECESSED MOUNT MODEL NPDBLSW-E24/334-W	15	LED	RECESSED MOUNT ON CEILING.
F	120	16	FLUXWERX RECESSED DOWNLIGHT MODEL TC1-R-05-X-K1-X-X-W1-8-35-B-F2-M	15	LED	RECESSED DOWLIGHT. PROVIDE SHOWER RATED LIGHT IN BATHROOM
X	120	4.3	LITHONIA EMERGENCY/EXIT LIGHT LHQM LED R HO	1	LED	CONNECT POWER TO NEAREST RECEPTACLE CIRCUIT

DETAIL A
3/16" = 1'-0"

KEYED NOTES

1. CLOSET SPACE RESERVED FOR NETWORK SWITCH.
2. STUB OUT AND CAP TWO (2) 2" CONDUITS FROM NETWORK CLOSET TO 10' AWAY FROM BUILDING FOOTING.

BID DRAWINGS
MARCH 21, 2025

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	REVISION

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STATE OF ARKANSAS · REGISTERED PROFESSIONAL ENGINEER · No. 9888 · L. SCOTT McBRIDE

HAWKINS WEIR ENGINEERS, INC.
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CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

NEW MAINTENANCE BUILDING LIGHTING PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

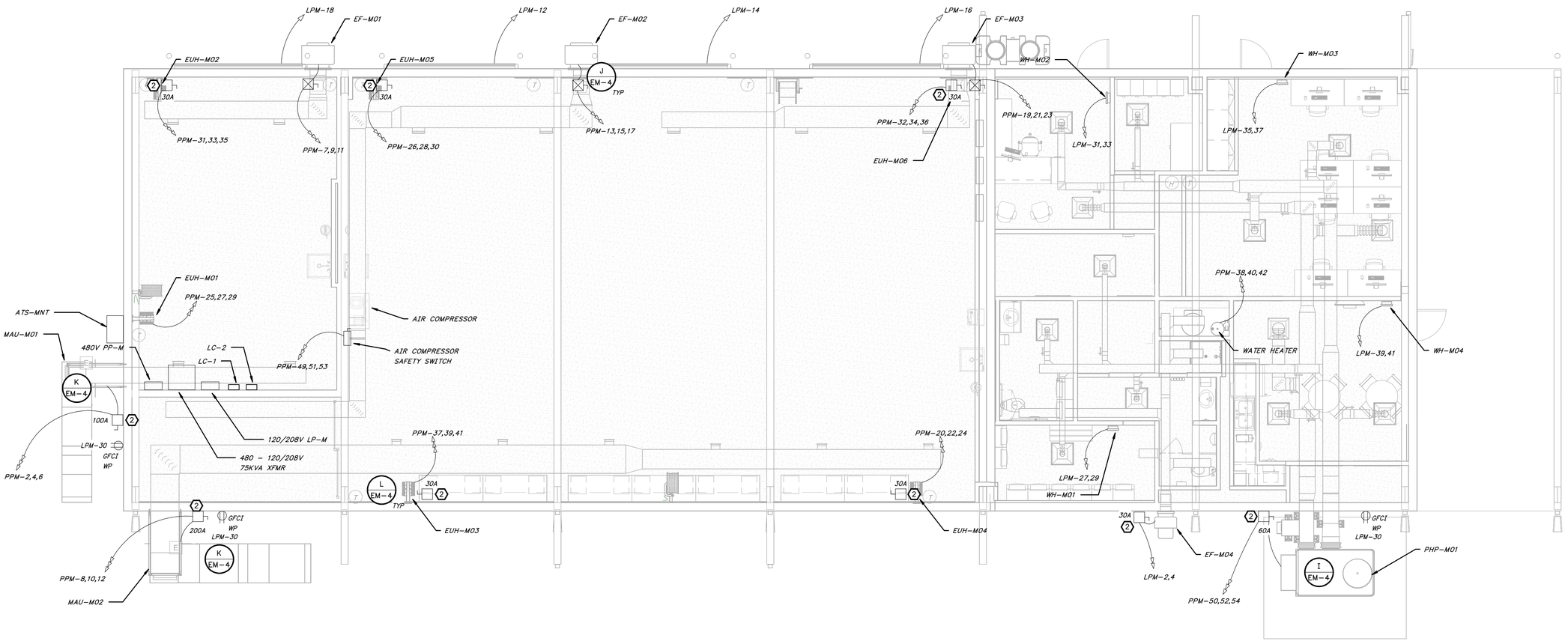
SHEET NO.
EM-1

Autodesk Docs://A10144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:06:14 AM / DKS / NEW MAINTENANCE BUILDING LIGHTING PLAN

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/WWRF21037-EL.rvt 3/21/2025 9:06:18 AM / DKS / NEW MAINTENANCE BUILDING

KEYED NOTES

1. PROVIDE AND INSTALL A SQUARE D COMBINATION NON-FUSED DISCONNECT STARTER CLASS 8538-SBA21V81H30 WITH OPTION C HOA AND FF4T CONTROL POWER TRANSFORMER, OR EQUAL.
2. PROVIDE A NEMA 3R, SAFETY SWITCH AT EACH MAKE UP AIR UNIT, PACKAGED HEAT PUMP, AND ELECTRIC UNIT HEATER, SIZED AS SHOWN.



GENERATOR

DETAIL B
3/16" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. SCOTT McBRIDE
No. 9888
REGISTERED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

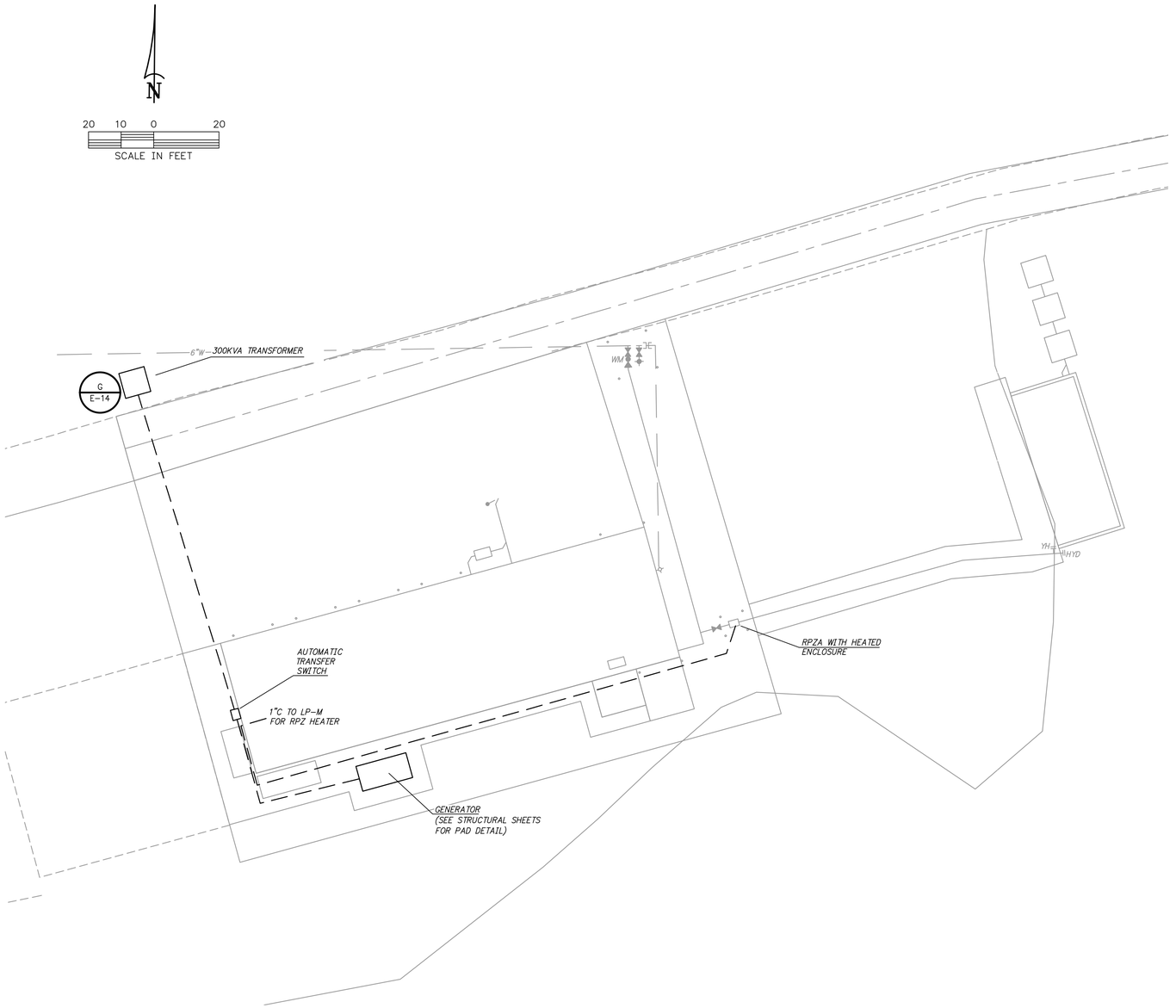
CITY OF BENTONVILLE ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

NEW MAINTENANCE BUILDING
HVAC AND POWER PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

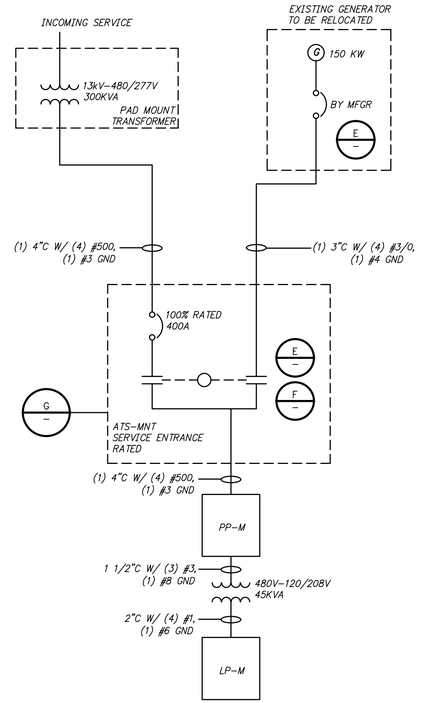
DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-EL

SHEET NO.
EM-2



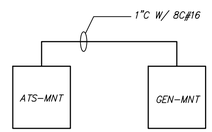
MAINTENANCE BUILDING

DETAIL C
1"=20'



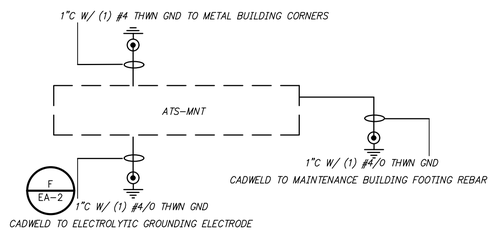
MAINTENANCE BUILDING
ONE LINE DIAGRAM

DETAIL D
NTS



STANDBY POWER
CONTROL RISER DIAGRAM

DETAIL E
N.T.S.



GROUNDING ELECTRODE
CONDUCTORS

DETAIL F
NTS

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	REVISION

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STATE OF ARKANSAS
MATTHEW A. WEIR
PROFESSIONAL ENGINEER
No. 9585
Scott, AR 501

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

NEW MAINTENANCE BUILDING
ELECTRICAL SITE PLAN

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: 1"=20'
DESIGNED BY: LSM
DRAWN BY: MAW
HWEI NO.: 2021037
FILENAME: EM-3

SHEET NO.
EM-3

BID DRAWINGS
MARCH 21, 2025

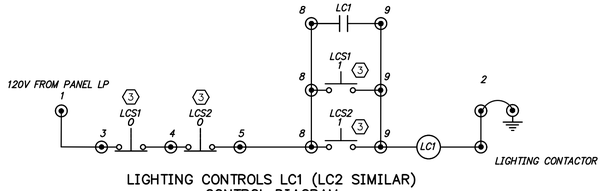
Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EM-3.DWG, 3/21/2025 8:45 AM, MATT WEIR, LAYOUT1

PANEL PP–M

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	TRANSFORMER 45KVA	#3 (#8)	100	1 1/2"	54 60	18 60					1 1/2"	80	#4 (#8)	MAU–M01 MAKE UP AIR UNIT	2
3	"	"	"	"			54 60	21 60			"	"	"	"	4
5	"	"	"	"					54 60	13 60	"	"	"	"	6
7	EF–M01 WELDING BAY FAN	#12 (#12)	15	3/4"	2 120	2 120					2"	150	#1/0 (#6)	MAU–M02 MAKE UP AIR UNIT	8
9	"	"	"	"			2 120	2 120			"	"	"	"	10
11	"	"	"	"					2 120	2 120	"	"	"	"	12
13	EF–M02 MAINT BAY 104 FAN	#12 (#12)	15	3/4"	3 50	3 0					1"	60	#6 (#8)	WELDING BAY RECEPTACLE	14
15	"	"	"	"			3 50	3 0			"	"	"	"	16
17	"	"	"	"					3 50	3 0	"	"	"	"	18
19	EF–M03 MAINT BAY 105 FAN	#12 (#12)	15	3/4"	3 9	3 9					3/4"	15	#12 (#12)	EUH–M04 MAINT BAY HEATER	20
21	"	"	"	"			3 9	3 9			"	"	"	"	22
23	"	"	"	"					3 9	3 9	"	"	"	"	24
25	EUH–M01 WELD BAY HEATER	#12 (#12)	15	3/4"	6 9	6 9					3/4"	15	#12 (#12)	EUH–M05 MAINT BAY HEATER	26
27	"	"	"	"			6 9	6 9			"	"	"	"	28
29	"	"	"	"					6 9	6 9	"	"	"	"	30
31	EUH–M02 WELD BAY HEATER	#12 (#12)	15	3/4"	6 9	6 9					3/4"	15	#12 (#12)	EUH–M06 MAINT BAY HEATER	32
33	"	"	"	"			6 9	6 9			"	"	"	"	34
35	"	"	"	"					6 9	6 9	"	"	"	"	36
37	EUH–M03 MAINT BAY HEATER	#12 (#12)	15	3/4"	9 30	9 30					1"	50	#8 (#10)	WATER HEATER –	38
39	"	"	"	"			9 30	9 30			"	"	"	"	40
41	"	"	"	"					9 30	9 30	"	"	"	"	42
43	WELDING BAY UFO LIGHTS	– (–)	20	–	1.2 4	1.2 4					–	20	– (–)	MAINT BAY UFO LIGHTS	44
45	"	"	"	"			1.2 4	1.2 4			"	"	"	"	46
47	–	–	–	–					– –	– –	–	–	–	–	48
49	AIR COMPRESSOR –	#10 (#10)	30	3/4"	14 40	14 40					1"	60	#6 (#8)	HEAT PUMP PHP–M01	50
51	"	"	"	"			14 40	14 40			"	"	"	"	52
53	"	"	"	"					14 40	14 40	"	"	"	"	54
55	SPARE –	– (–)	20	–	– –	– –					–	20	– (–)	SPARE –	56
57	"	"	"	"			– –	– –			"	"	"	"	58
59	"	"	"	"					– –	– –	"	"	"	"	60
61	SPARE –	– (–)	20	–	– –	– –					–	20	– (–)	SPARE –	62
63	"	"	"	"			– –	– –			"	"	"	"	64
65	"	"	"	"					– –	– –	"	"	"	"	66
	TOTAL CONNECTED				319		319		313						
	TOTAL DEMAND					233		233		227					

TYPE: SQUARE D NF PANELBOARD
VOLTS: 277/480, THREE PHASE, FOUR WIRE
MAIN: 400 AMP
BUS: 400 AMP
RATING: 65 KAIC
MOUNTING: SURFACE MOUNT TO WALL
ENCLOSURE RATING: NEMA 1
BRANCH BREAKERS: EDB, EDG, EDJ

CONNECTED KVA: 265
DEMAND KVA: 193
DESIGN KVA: 300



LIGHTING CONTROLS LC1 (LC2 SIMILAR)
CONTROL DIAGRAM

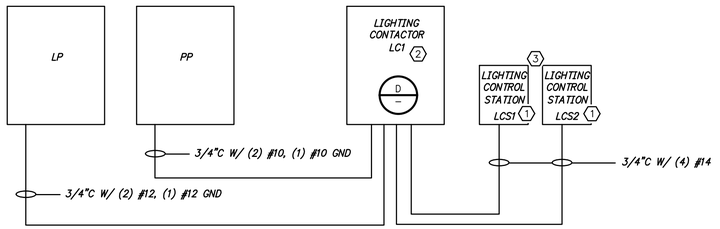
DETAIL G
NTS

PANEL LP–M

CKT #	DESCRIPTION	WIRE (GND)	CB	CONDUIT	LOAD AMPS PHASE A CONNECTED	LOAD AMPS PHASE A DEMAND	LOAD AMPS PHASE B CONNECTED	LOAD AMPS PHASE B DEMAND	LOAD AMPS PHASE C CONNECTED	LOAD AMPS PHASE C DEMAND	CONDUIT	CB	WIRE (GND)	DESCRIPTION	CKT #
1	M101 MAINT BAY WKBNCH RECEPTS	#12 (#12)	20	3/4"	10.5 6	5 6					3/4"	15	#12 (#12)	BATHROOM FAN EF–M04	2
3	EXTERIOR LIGHTS	#12 (#12)	20	3/4"			10 6	10 6			"	"	"	"	4
5	WELD BAY RECEPTACLES	#10 (#10)	30	3/4"					9 2	0 2	3/4"	20	#12 (#12)	LIGHTING CONTACTOR 1	6
7	MAINT BAY RECEPTACLES	#12 (#12)	20	3/4"	12 2	12 2					3/4"	20	#12 (#12)	LIGHTING CONTACTOR 2	8
9	OFFICE LIGHTS/RECEPTS	#12 (#12)	20	3/4"			9 –	5 –			1"	20	#12 (#12)	RPZ HOT BOX –	10
11	WORK AREA LGTS/RECEPTS A	#12 (#12)	20	3/4"					14 –	7 –	3/4"	20	#12 (#12)	OVERHEAD DOOR BAY 1	12
13	BATHROOM LGTS/RECEPTS B	#12 (#12)	20	3/4"	2 –	0.5 –					3/4"	20	#12 (#12)	OVERHEAD DOOR BAY 2	14
15	BATHRM/SHOWR LIGHTS/RECEPTS	#12 (#12)	20	3/4"			11 –	5 –			3/4"	20	#12 (#12)	OVERHEAD DOOR BAY 3	16
17	BREAK ROOM LIGHTS/RECEPTS	#12 (#12)	20	3/4"					7.5 –	1.5 –	3/4"	20	#12 (#12)	OVERHEAD DOOR WELDING BAY	18
19	ENTRY HALL LIGHTS/RECEPTS	#12 (#12)	20	3/4"	2.5 2	1 2					3/4"	20	#12 (#12)	HOT WATER CIRC CP–M01	20
21	REFRIGERATOR RECEPTACLE	#12 (#12)	20	3/4"			6 1	6 1			3/4"	20	#12 (#12)	TRAP PRIMER TP–M01	22
23	WELDING BAY WALL LIGHTS	#12 (#12)	20	3/4"					3.5 –	3.5 –	3/4"	20	#12 (#12)	WATER FOUNTAIN –	24
25	MAINT. BAY WALL LIGHTS	#12 (#12)	20	3/4"	3.5 –	3.5 –					3/4"	20	#12 (#12)	GARBAGE DISPOSAL	26
27	WALL HEATER WH–M01	#12 (#12)	20	3/4"			5 –	5 –			3/4"	20	#12 (#12)	EXTERIOR RECEPTACLES	28
29	"	"	"	"					5 –	5 –	3/4"	20	#12 (#12)	HVAC RECEPTACLES	30
31	WALL HEATER WH–M02	#12 (#12)	20	3/4"	5 –	5 –					–	20	– (–)	SPARE –	32
33	"	"	"	"			5 –	5 –			–	–	– (–)	SPACE –	34
35	WALL HEATER WH–M03	#12 (#12)	20	3/4"					5 –	5 –	–	–	– (–)	SPACE –	36
37	"	"	"	"	5 –	5 –					–	–	– (–)	SPACE –	38
39	WALL HEATER WH–M04	#12 (#12)	20	3/4"			5 –	5 –			–	–	– (–)	SPACE –	40
41	"	"	"	"					5 –	5 –	–	–	– (–)	SPACE –	42
	TOTAL CONNECTED				48.5		57		51						
	TOTAL DEMAND					40		47		29					

TYPE: SQUARE D NQ PANELBOARD
VOLTS: 120/208, THREE PHASE, FOUR WIRE
MAIN: 125 AMP
BUS: 225 AMP
RATING: 22 KAIC
MOUNTING: SURFACE MOUNT TO WALL
ENCLOSURE RATING: NEMA 1
BRANCH BREAKERS: QOB, QHB

CONNECTED KVA: 19
DEMAND KVA: 14
DESIGN KVA: 45

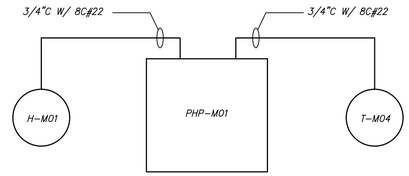


LIGHTING CONTACTOR LC1 (LC2 SIMILAR)
AND CONTROL STATIONS RISER DIAGRAM

DETAIL H
NTS

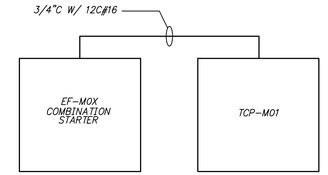
KEYED NOTES

1. THE LIGHTING CONTROL STATIONS SHALL BE SINGLE HOLE PUSHBUTTON NEMA 4X ENCLOSURES, WEIGMANN HW–N4X1PB–22, WITH SQUARE D XB4BW73731G5 GREEN FLUSH/RED PROJECTING ILLUMINATED DOUBLEHEADED PUSHBUTTON 22MM 1NO+1NC 120V. CONDUCTORS FOR MULTIPLE LCS CAN BE COMBINED IN A HOMERUN CONDUIT AT THE CONTRACTOR'S DISCRETION.
2. THE LIGHTING CONTACTOR SHALL BE HOUSED IN A NEMA 3R/12 ENCLOSURE SIMILAR TO AUTOMATION DIRECT MODEL SCE–14128ELJ. LIGHTING CONTACTOR SHALL BE RATED AT A MINIMUM OF 30 AMPS AT 277 VOLTS, WITH A COIL VOLTAGE OF 120 VOLTS.
3. NUMBER OF LIGHTING CONTROL STATIONS PER LIGHTING CONTACTOR SHALL BE AS SHOWN ON THE DRAWINGS. SEE SHEET EM–1 FOR LIGHTING CONTROL STATION LOCATIONS AND QUANTITIES.



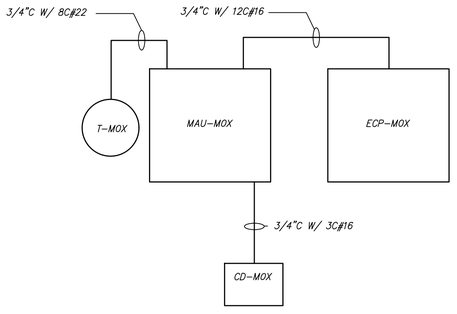
PACKAGED HVAC UNIT
CONTROL RISER DIAGRAM

DETAIL I
N.T.S. EM–2



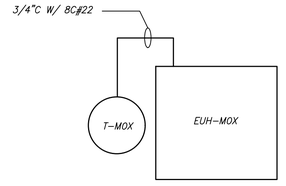
EXHAUST FAN (TYPICAL OF 4)
CONTROL RISER DIAGRAM

DETAIL J
N.T.S. EM–2



MAKE–UP AIR UNIT
CONTROL RISER DIAGRAM

DETAIL K
N.T.S. EM–2



ELECTRIC UNIT HEATERS (TYPICAL OF 6)
CONTROL RISER DIAGRAM

DETAIL L
N.T.S. EM–2

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
MATTHEW R. WEIR
REGISTERED PROFESSIONAL ENGINEER
No. 9598
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

NEW MAINTENANCE BUILDING
ELECTRICAL SCHEDULES AND DETAILS

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: –
DESIGNED BY: WRH
DRAWN BY: WRH
HWEI NO.: 2021037
FILENAME: EM–4

SHEET NO.
EM–4

BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EM–4.DWG, 3/21/2025 8:45 AM, MATT WEIR, LAYOUT1

POWER LEGEND

SYMBOL	TYPE
	STEP-DOWN TRANSFORMER KVA, PHASE, AND VOLTAGE RATINGS AS SHOWN
	ISOLATION TRANSFORMER KVA, PHASE, AND VOLTAGE RATINGS AS SHOWN
	LINE REACTOR AMPACITY RATINGS AS SHOWN
	CURRENT TRANSFORMER RATIO AS SHOWN
	NON-FUSIBLE DISCONNECT RATINGS AND POLES AS SHOWN
	FUSE RATINGS AS SHOWN
	FUSIBLE DISCONNECT RATINGS AND POLES AS SHOWN
	CIRCUIT BREAKER RATINGS AND POLES AS SHOWN
	MAGNETIC TRIP CIRCUIT BREAKER RATINGS AND POLES AS SHOWN
	THERMAL TRIP CIRCUIT BREAKER RATINGS AND POLES AS SHOWN
	THERMAL MAGNETIC TRIP CIRCUIT BREAKER RATINGS AND POLES AS SHOWN
	SWITCH FUSE HIGH VOLTAGE
	DRAW-OUT CONSTRUCTION WHEN COMBINED WITH OTHER SYMBOLS
	THREE PHASE CONNECTION DELTA WINDING
	THREE PHASE CONNECTION WYE WINDING
	THREE PHASE CONNECTION GROUNDED WYE WINDING
	NON FUSIBLE COMBINATION STARTER NEMA SIZE AND RATINGS AS SHOWN
	FUSIBLE COMBINATION STARTER NEMA SIZE AND RATINGS AS SHOWN
	THERMAL CIRCUIT BREAKER COMBINATION STARTER NEMA SIZE AND RATINGS AS SHOWN
	MAGNETIC CIRCUIT BREAKER COMBINATION STARTER NEMA SIZE AND RATINGS AS SHOWN
	GROUND CONNECTION OR TERMINAL
	TERMINAL BLOCK RATINGS AS SHOWN
VFD(20A)	VARIABLE FREQUENCY DRIVE CONTINUOUS OUTPUT AMPS RATINGS AS SHOWN
SSS(20A)	SOLID STATE STARTER OUTPUT AMPS RATINGS AS SHOWN
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
3	ELECTRIC MOTOR HORSEPOWER AS SHOWN
	SITE LIGHTING
GFI LPBC-1	DUPLEX RECEPTACLE, CIRCUIT NUMBER AS SHOWN GROUND FAULT CIRCUIT INTERRUPTING
C LPBC-1	DUPLEX RECEPTACLE, CIRCUIT NUMBER AS SHOWN COUNTERTOP HEIGHT
WP LPBC-1	DUPLEX RECEPTACLE, CIRCUIT NUMBER AS SHOWN WP=GFIC W/ WEATHERPROOF WHILE-IN-USE COVER
T RTU-1	HVAC THERMOSTAT CONNECT TO RTU NUMBER AS SHOWN
H RTU-1	HVAC HUMIDISTAT CONNECT TO RTU NUMBER AS SHOWN
$3	THREE-WAY SWITCH
$	SINGLE POLE SWITCH

SYMBOL	TYPE
	UNDERGROUND CONDUIT
	EXPOSED CONDUIT
PPBC-2,4,6	HOMERUN CONDUIT - DASHED = UNDERGROUND NUMBER OF CIRCUITS AS SHOWN
	ELECTROLYTIC GROUNDING ROD SYSTEM
	SUPPLEMENTAL GROUNDING ELECTRODE
	SAFETY SWITCH
	COMBINATION MOTOR STARTER
UH	UNIT HEATER
EF	EXHAUST FAN
WH	WATER HEATER

ABBREVIATIONS

ABB	DESCRIPTION
A	AMP
A/C	AIR CONDITIONER
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CAPACITY
AM	AMP-METER
ANN	ANNUNCIATOR
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BFI	BLOWN FUSE INDICATOR
BKR	BREAKER
C	CONDUIT
CB	CIRCUIT BREAKER
CRSC	PVC COATED GALVANIZED RIGID STEEL CONDUIT
CKT	CIRCUIT
COM	COMMON
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CS	CONTROL STATION
CT	CABLE TRAY OR CURRENT TRANSFORMER
DC	DIRECT CURRENT
DS	DOOR SWITCH
EC	EMPTY OR EMBEDDED CONDUIT
EF	EXHAUST FAN
EFF	EFFICIENCY
EFM	ELECTROMAGNETIC FLOWMETER
EG	EQUIPMENT GROUND
EL	ELEVATION
EMT	ELECTRICAL METALLIC TUBING
ET	ELECTRIC TRANSFORMER (UTILITY)
ETM	ELAPSED TIME METER
FA	FIRE ALARM
FAP	FIRE ALARM PANEL
FCB	FEEDER CIRCUIT BREAKER
FDS	FUSIBLE DISCONNECT SWITCH
FLA	FULL LOAD AMPS
FOC	FIBER OPTIC CABLE
FS	FLOAT SWITCH
FT	FEET
FVNR	FULL VOLTAGE NON-REVERSING STARTER
FVC	FULL VOLTAGE CONTACTOR
FVR	FULL VOLTAGE REVERSING STARTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
G, GND	GROUND
GEN	GENERATOR
GRS	GALVANIZED RIGID STEEL
HOA	HAND OFF AUTO
HP	HORSEPOWER
HR	HOUR
IL	INTAKE LOUVER
JB	JUNCTION BOX
KEY	SECURITY KEYPAD
kVA	KILO VOLT-AMPERE
kVAR	KILO VOLT-AMPERE, REACTIVE
kW	KILOWATT
L	CONTROL VOLTAGE "HOT" LINE
LA	LIGHTNING ARRESTOR
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LOC	LOCAL
LP	LIGHTING PANELBOARD
LR	LINE REACTOR
LS	LIMIT SWITCH
LTS	LIGHTS
LV	LOW VOLTAGE
M	UTILITY METER AND BASE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFG	MANUFACTURER
MIN	MINIMUM
MLUG	MAIN LUG
MS	MOTOR STARTER
MTD	MOUNTED

ABB	DESCRIPTION
N	NEUTRAL
NFDS	NON-FUSIBLE DISCONNECT SWITCH
NTS	NOT TO SCALE
N1	ENCLOSURE TYPE, GENERAL PURPOSE INDOOR
N12	ENCLOSURE TYPE, DUSTTIGHT INDOOR
N3R	ENCLOSURE TYPE, RAINTIGHT OUTDOOR
N4	ENCLOSURE TYPE, WATERTIGHT OUTDOOR
N4X	ENCLOSURE TYPE, CORROSION RESISTANT
N6	ENCLOSURE TYPE, TEMPORARY SUBMERSION
N7	ENCLOSURE TYPE, CLASS 1 GROUP ABCD
N9	ENCLOSURE TYPE, CLASS 2 GROUP EFG
OC	ON CENTER
OH	OVERHEAD
OHEP	OVERHEAD ELECTRIC > 600 VOLTS
OHES	OVERHEAD ELECTRIC <= 600 VOLTS
OL	OVERLOAD
PB	PUSH BUTTON
PEC	PHOTO ELECTRIC CELL
PF	POWER FACTOR
PLC	PROGRAMMABLE LOGIC CONTROLLER
PL	PILOT LIGHT
PS	PRESSURE SWITCH
PT	PRESSURE TRANSMITTER
PP	POWER POLE OR POWER DISTRIBUTION PANELBOARD
PR	PHASE MONITOR RELAY
PNL	PANEL
PTT	PUSH-TO-TEST
PVC XX	POLYVINYL CONDUIT, SCHEDULE AS SHOWN
REC	RECEPTACLE
RAC	RIGID ALUMINUM CONDUIT
REM	REMOTE
RSP	RAW SEWAGE PUMP
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	REMOTE TELEMETRY UNIT
RVAT	REDUCED VOLTAGE AUTO STARTER
S	SECOND
SA	SURGE ARRESTOR
SE	SERVICE ENTRANCE
SF	SUPPLY FAN
SHT	SHEET
SOL	SOLENOID
SN	SOLID NEUTRAL
SS	STAINLESS STEEL
SSS	SOLID STATE STARTER
STA	STATION
SW	SWITCH
TEL	TELEPHONE
TD	TIME DELAY
TDD	ITEM DELAY ON DE-ENERGIZATION
TDE	TIME DELAY ON ENERGIZATION
TYP	TYPICAL
TC	TIME CLOCK
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UG	UNDER GROUND
UGEP	UNDERGROUND ELECTRIC > 600 VOLTS
UGES	UNDERGROUND ELECTRIC <= 600 VOLTS
UGT	UNDERGROUND TELEPHONE
US	ULTRASONIC
UH	UNIT HEATER
VA	VOLT-AMP
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLT METER
W	WATT OR WIRE
WH	WEATHER HEAD
WM	WATT METER
WP	WEATHER PROOF
W/	WITH
XMFR	TRANSFORMER

CONTROL LEGEND

SYMBOL	TYPE
	DIFFERENTIAL PRESSURE SWITCH NORMALLY CLOSED
	PRESSURE SWITCH NORMALLY CLOSED, OPENS ON RISE IN PRESSURE
	PRESSURE SWITCH NORMALLY OPEN, CLOSES ON RISE IN PRESSURE
	FLOAT SWITCH NORMALLY CLOSED, OPENS ON RISE IN LEVEL
	FLOAT SWITCH NORMALLY OPEN, CLOSES ON RISE IN LEVEL
	TEMPERATURE SWITCH NORMALLY CLOSED, OPENS ON RISE IN TEMPERATURE
	TEMPERATURE SWITCH NORMALLY OPEN, CLOSES ON RISE IN TEMPERATURE
	FOOT SWITCH NORMALLY CLOSED
	FOOT SWITCH NORMALLY OPEN
	LIMIT SWITCH NORMALLY OPEN
	LIMIT SWITCH NORMALLY OPEN HELD CLOSED
	LIMIT SWITCH NORMALLY CLOSED
	LIMIT SWITCH NORMALLY CLOSED HELD OPEN
	TIME DELAY CONTACT CLOSED WITH TIME DELAY OPENING
	TIME DELAY CONTACT OPEN WITH TIME DELAY CLOSING
	TIME DELAY CONTACT CLOSED WITH TIME DELAY CLOSING
	TIME DELAY CONTACT OPEN WITH TIME DELAY OPENING
	FLOW SWITCH CLOSED, OPENS ON INCREASING FLOW
	FLOW SWITCH OPEN, CLOSES ON INCREASING FLOW
	CENTRIFUGAL SWITCH NORMALLY OPEN
	CENTRIFUGAL SWITCH NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	PUSHBUTTON NORMALLY CLOSED
	CONTROL PANEL WIRING WIRES SERVING EQUIPMENT EXTERNAL TO PANEL
	CONTROL PANEL WIRING WIRES INTERNAL TO PANEL
	CONTROL PANEL WIRING NUMBERED WIRING TERMINAL
	CONTROL PANEL WIRING NUMBERED INTERNAL CONNECTION
C	LIGHTING CONTACTOR COIL
MS1	MOTOR STARTER COIL
OL	MOTOR STARTER OVERLOAD RELAY
CR	CONTROL RELAY
S	SOLENOID
I	VARIABLE FREQUENCY DRIVE INPUT CONTACTOR
M	VARIABLE FREQUENCY DRIVE OUTPUT CONTACTOR
L	VARIABLE FREQUENCY DRIVE BYPASS CONTACTOR
G	PILOT LIGHT COLOR AS SHOWN

SYMBOL	TYPE
	CIRCUIT BREAKER
	SWITCH
	VACUUM SWITCH NORMALLY CLOSED
	VACUUM SWITCH NORMALLY CLOSED
	INERTIA SWITCH NORMALLY CLOSED
	INERTIA SWITCH NORMALLY OPENED
	BELT SIDE TRAVEL SWITCH NORMALLY CLOSED
	BELT SIDE TRAVEL SWITCH NORMALLY OPEN
	PULL CORD NORMALLY CLOSED
	PULL CORD NORMALLY OPENED
	VIBRATION SWITCH NORMALLY CLOSED
	VIBRATION SWITCH NORMALLY OPENED
	SPEED SWITCH --
	PLUGGING SWITCH --
	ANTI PLUGGING SWITCH --
	CENTRIFUGAL SWITCH --
	EMERGENCY STOP PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON MULTIPLE CONTACTS AS SHOWN
	TWO POSITION MAINTAINED SELECTOR SWITCH CONTACTS AS SHOWN, X=CLOSED, O=OPEN
	FOUR POSITION MAINTAINED SELECTOR SWITCH CONTACTS AS SHOWN, X=CLOSED, O=OPEN
	THREE POSITION MAINTAINED SELECTOR SWITCH CONTACTS AS SHOWN, X=CLOSED, O=OPEN
	RELAY CONTACT NORMALLY OPEN
	RELAY CONTACT NORMALLY CLOSED

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
LANDON S. MOSES
REGISTERED PROFESSIONAL ENGINEER
No. 9585
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

ELECTRICAL LEGENDS AND ABBREVIATIONS

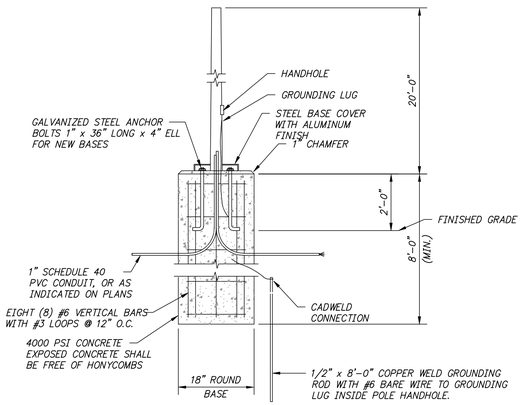
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EZ-01

SHEET NO.
EZ-1

BID DRAWINGS
MARCH 21, 2025

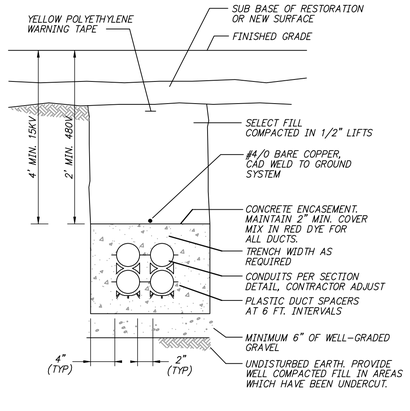
Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EZ-01.DWG, 3/21/2025 8:46 AM, MATT WEIR, LAYOUT1



LIGHT POLE FOUNDATION

DETAIL E201

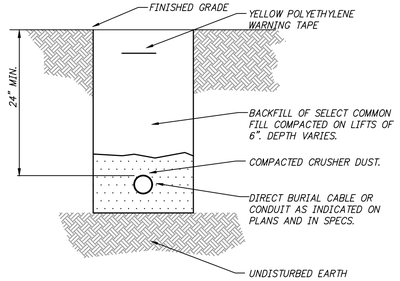
N.T.S.



CONCRETE ENCASED DUCTBANK

DETAIL E202

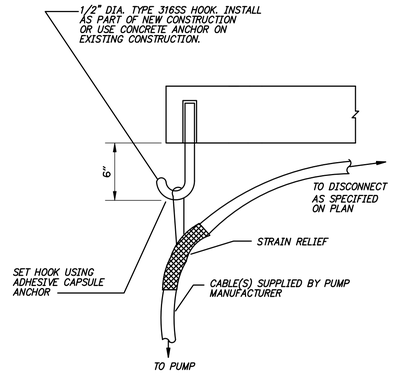
N.T.S.



DIRECT BURIED CONDUIT

DETAIL E203

N.T.S.



SUBMERSIBLE PUMP CABLE SUPPORT

DETAIL E204

N.T.S.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS — J. SCOTT MCCONNELL — PROFESSIONAL ENGINEER — No. 9588 — 3/21/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS

BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

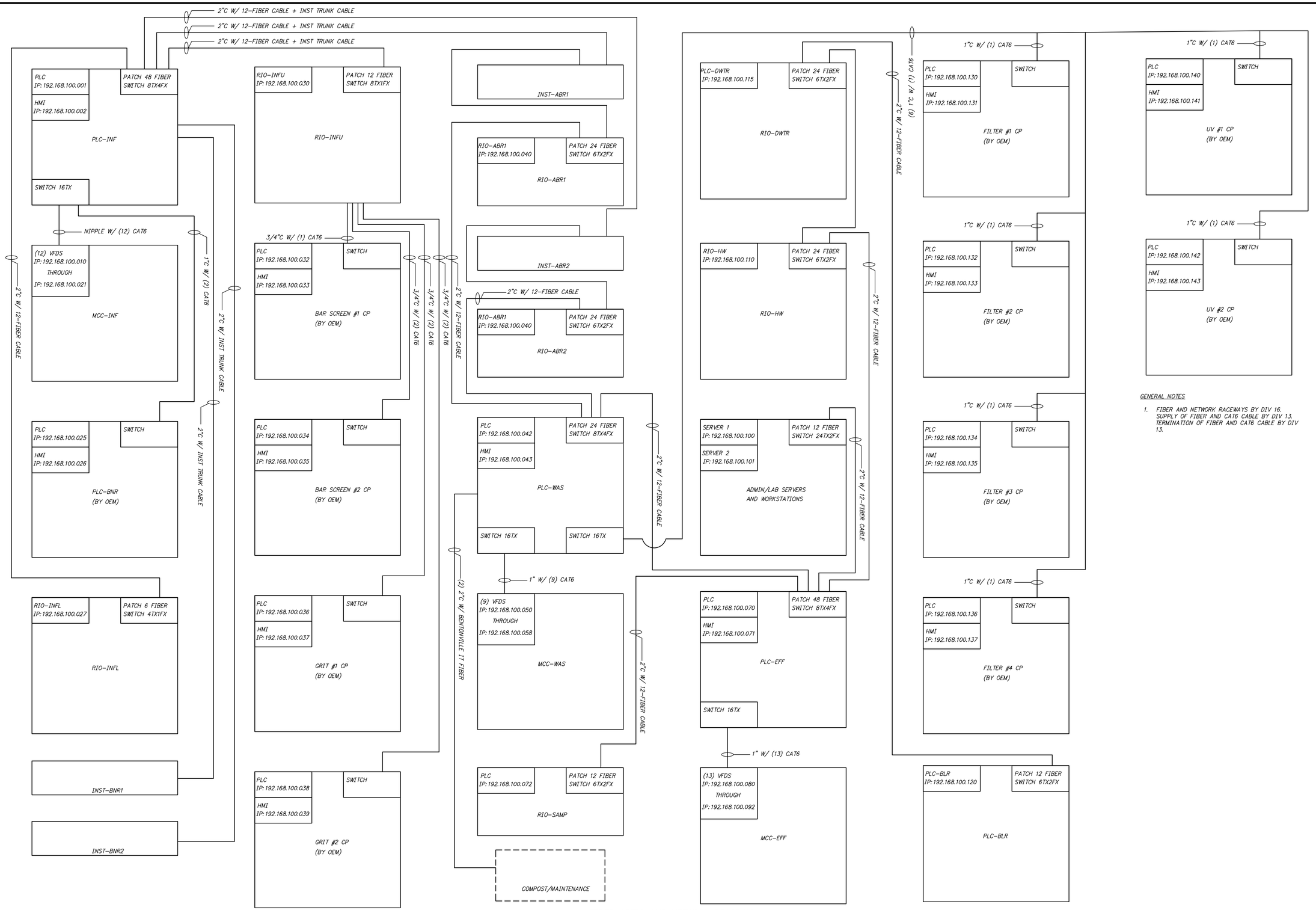
ELECTRICAL STANDARD DETAILS II

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: EZ-02

SHEET NO.
EZ-2

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\EZ-02.DWG, 3/21/2025 8:46 AM, MATT WEIR, LAYOUT1



FIBER OPTIC AND NETWORK DIAGRAM

DETAIL A
NTS –

GENERAL NOTES

1. FIBER AND NETWORK RACEWAYS BY DIV 16. SUPPLY OF FIBER AND CAT6 CABLE BY DIV 13. TERMINATION OF FIBER AND CAT6 CABLE BY DIV 13.

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS Matthew S. Weir 15511 REGISTERED PROFESSIONAL ENGINEER No. 9588 3/21/25 Scott Mahan

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

FIBER OPTIC AND INSTRUMENT NETWORK DIAGRAM
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: I-01

SHEET NO. I-1

BID DRAWINGS
MARCH 21, 2025

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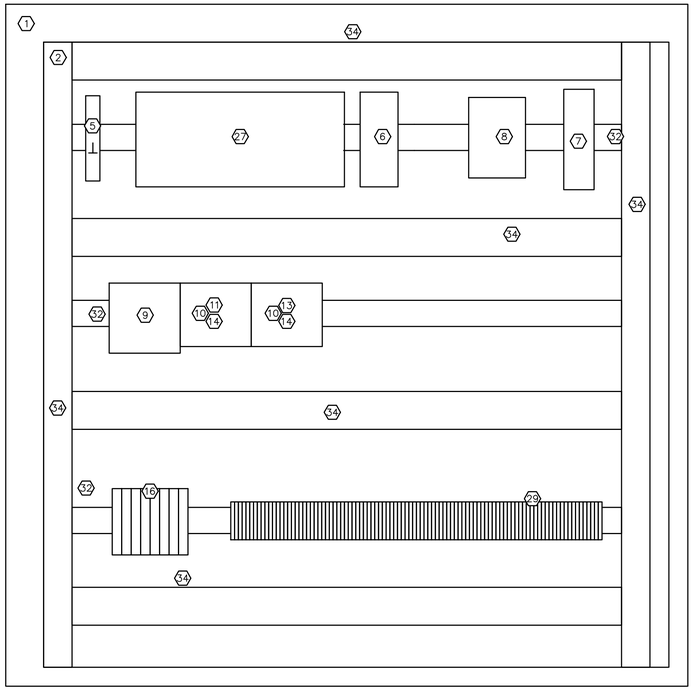

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	2	ENCLOSURE, NEMA12 36X36X8	SCE-36EL3608LP	SAGINAW	YES
2	2	ENCLOSURE SUBPANEL	SCE-36P36	SAGINAW	YES
3					YES
4					–
5	2	CB 10A 1P D CURVE	FAZ-D10-1-SP	AUTOMATION DIRECT	YES
6	2	DC POWER SUPPLY 24V 10A	SDN10-24-100C	SOLA HEVI-DUTY	NO
7	2	FIBER PATCH PANEL, 12ST DIN RAIL	PWS2-A-06-0600001D	RLH INDUSTRIES	YES
8	2	ETHERNET SWITCH 6TX2FX	308FX2-ST	RED LION/NTRON	YES
9	2	FLEX 5000 ETHERNET MODULE	5094-AENTR	ALLEN-BRADLEY	NO
10	4	FLEX 5000 MODULE MOUNTING BASE	5094-MB	ALLEN-BRADLEY	NO
11	2	FLEX 5000 DI MODULE	5094-IB32	ALLEN-BRADLEY	NO
12	2	FLEX 5000 DO RELAY MODULE	5094-OW8I	ALLEN-BRADLEY	NO
13	0	FLEX 5000 AI MODULE	5094-IF8	ALLEN-BRADLEY	NO
14	4	FLEX 5000 REMOVABLE TERMINAL BLOCK	5094-RTB3	ALLEN-BRADLEY	NO
15	0	FLEX 5000 AO MODULE	5094-OF8	ALLEN-BRADLEY	NO
16					YES
17					NO
18					NO
19					NO
20					
21					
22					
23					
24					
25					
26					
27	2	UPS 850VA 120V	SDU850B	SOLA	YES
28					NO
29	60	TERMINAL BLOCK	DN-T12A	AUTOMATION DIRECT	YES
30	4	TERMINAL BLOCK END COVER	DN-EB35	AUTOMATION DIRECT	YES
31	4	GROUND TERMINAL BLOCK	KN-G12SP-10	AUTOMATION DIRECT	YES
32	8'	35MM DIN RAIL SLOTTED STEEL	DN-R35S1	AUTOMATION DIRECT	YES
33	6	ANGLED DIN RAIL SUPPORT BRACKET	DN-ASB1	AUTOMATION DIRECT	YES
34	18'	1.5"X4" WHITE DUCT AND COVER	T1-1540W-1	AUTOMATION DIRECT	YES
35					

THE CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED MISCELLANEOUS PARTS, INCLUDING MTW AND SHIELDED CABLE, WIRE LABELS, TERMINAL LABELS, TERMINAL JUMPERS, PATCH CABLES

RIO-HW AND RIO-DWTR REMOTE I/O AND NETWORK CONTROL STATION
CONTROL STATION LAYOUT (2 RIO CONTROL PANELS)

DETAIL B
N.T.S. –

REMOTE I/O PANEL RIO-HW AND RIO-DWTR (TOTAL OF 2 PANELS)
BILL OF MATERIAL

DETAIL C
N.T.S. –

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
MATTHEW S. WEIR
PROFESSIONAL ENGINEER
No. 9588
3/21/25
Scott, AR 72142

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HEADWORKS AND DEWATERING BUILDING
REMOTE I/O AND NETWORKING STATION
BOM AND LAYOUT

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: I-02

SHEET NO.
I-2

BID DRAWINGS
MARCH 21, 2025

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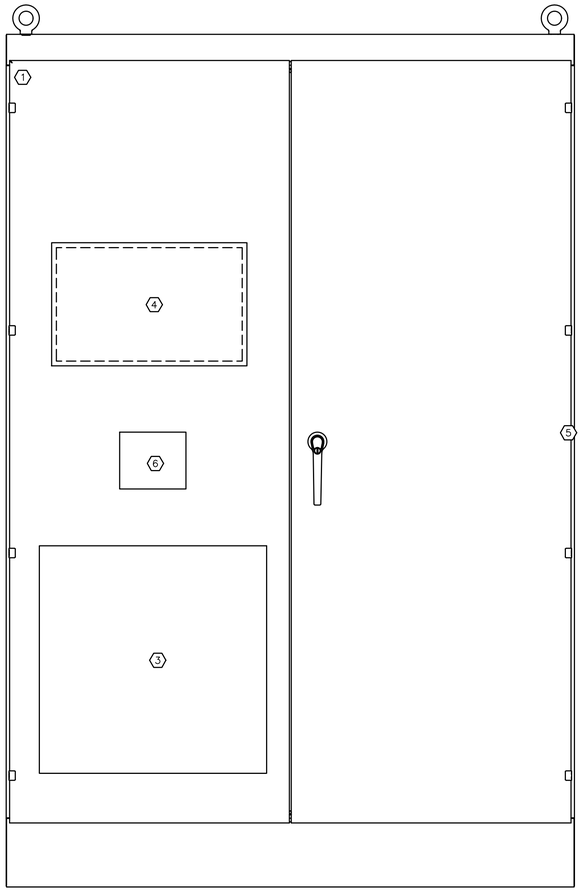
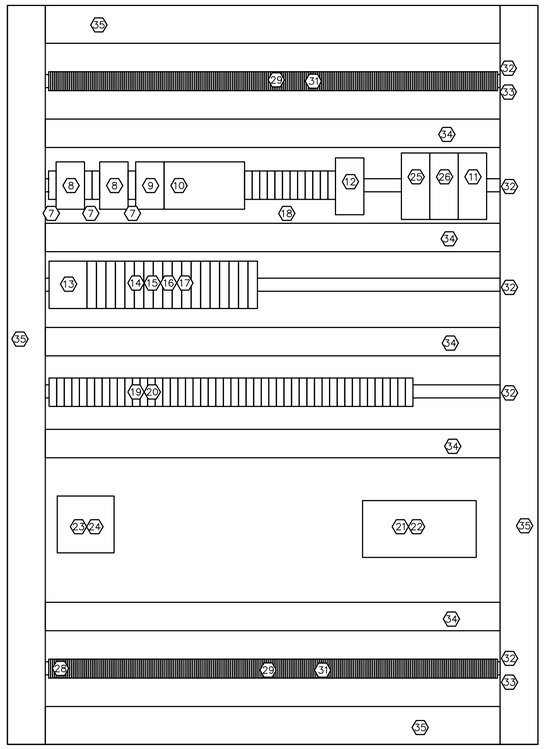


CONTROL PANEL PLC-INF
ENCLOSURE FRONT VIEW

DETAIL A
1 1/2" = 1'-0"



CONTROL PANEL PLC-INF
SUBPANEL FRONT VIEW

DETAIL B
1 1/2" = 1'-0"

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	1	ENCLOSURE 90"x60"x20" FREE STANDING	SCE906020FSD	SAGINAW	YES
2	1	SUBPANEL 78"X56"	SCE-90P60F1	SAGINAW	YES
3	1	ENCLOSURE FOLDING SHELF	SCE-FS2424-09	SAGINAW	YES
4	1	INDUSTRIAL PANEL PC 21.5" TOUCHSCREEN	PC1321BPH	MAPLE SYSTEMS	YES
5	1	RIGHT SIDE MOUNT PANEL 78"X14"	SCE-90SMP14	SAGINAW	YES
6	1	INTERFACE PORT/POWER	P-R2-M9-RAC	GRACEPORT	NO
7	4	CB 10A 1P D CURVE	FAZ-D10-1-SP	AUTOMATION DIRECT	YES
8	2	DC POWER SUPPLY 24V 10A	SDN10-24-100C	SOLA HEVI-DUTY	YES
9	1	DC UPS POWER MODULE	SDU 10-24	SOLA HEVI-DUTY	YES
10	1	DC UPS BATTERY MODULE	SDU 24-BAT	SOLA HEVI-DUTY	YES
11	1	ETHERNET SWITCH 16TX	116TX	RED LION N-TRON	YES
12	1	ETHERNET SWITCH 8TX 4FX-ST	112FX4-ST	RED LION N-TRON	YES
13	1	COMPACTLOGIX 5380 31 I/O 60 EIP	5069-L330ER	ALLEN-BRADLEY	NO
14	3	8 CHANNEL ANALOG INPUT MODULE	5069-IF8	ALLEN-BRADLEY	NO
15	3	8 CHANNEL ANALOG OUTPUT MODULE	5069-OF8	ALLEN-BRADLEY	NO
16	9	16 POINT DISCRETE INPUT MODULE	5069-IB16	ALLEN-BRADLEY	NO
17	3	16 POINT RELAY OUTPUT MODULE	5069-OW16	ALLEN-BRADLEY	NO
18	12	CB 2A 1P B CURVE	FAZ-B2-1-SP	AUTOMATION DIRECT	YES
19	48	CONTROL RELAY 1PDT 24VDC	781-1C-24D	AUTOMATION DIRECT	YES
20	48	RELAY BASE	781-1C-SKT-1	AUTOMATION DIRECT	YES
21	2	FIBER PATCH PANEL 24ST MM DIN RAIL	WMP2-08-08-00-00-1	RLH INDUSTRIES	YES
22	4	FIBER PATCH PLATE 12ST	MULTIMODE OM1-OM4	RLH INDUSTRIES	YES
23	1	INSTRUMENT MODULAR POWER SUPPLY	MIQ/PS	YSI	
24	1	INSTRUMENT CONTROLLER	2020 3G 8 OUTPUTS	YSI	
25	1	ETHERNET SWITCH POE	1000-POE4+	RED LION N-TRON	
26	1	DC POWER SUPPLY 48V 2.5A	PSB48-120S	AUTOMATION DIRECT	
27					
28	24	4-20 mA SURGE SUPPRESSOR	DLA-24D3	CITEL	NO
29	300	TERMINAL BLOCK	DN-T12A	AUTOMATION DIRECT	YES
30	12	TERMINAL BLOCK END COVER	DN-EB35	AUTOMATION DIRECT	YES
31	10	GROUND TERMINAL BLOCK	KN-G12SP-10	AUTOMATION DIRECT	NO
32	40'	35MM DIN RAIL SLOTTED STEEL	DN-R35S1	AUTOMATION DIRECT	YES
33	10	ANGLED DIN RAIL SUPPORT BRACKET	DN-ASB1	AUTOMATION DIRECT	YES
34	32'	3"X4" WHITE DUCT AND COVER	T1-3040W-1	AUTOMATION DIRECT	YES
35	24'	4"X4" WHITE DUCT AND COVER	T1-4040W-1	AUTOMATION DIRECT	YES

THE CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED MISCELLANEOUS PARTS, INCLUDING MTW AND SHIELDED CABLE, WIRE LABELS, TERMINAL LABELS, TERMINAL JUMPERS, PATCH CABLES

CONTROL PANEL PLC-INF
BILL OF MATERIAL

DETAIL C
N.T.S.

F IA-2
G IA-2
D IA-2
E IA-2

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION | DATE

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9586
3-21-25
L. Scott Weir

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT ELECTRICAL BUILDING
CONTROL PANEL PLC-INF
ELEVATION, LAYOUT, AND BOM

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IA-01

SHEET NO.
IA-1

BID DRAWINGS
MARCH 21, 2025

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I/O CARD 1	DESCRIPTION
0	3185-ABR-85SW IN AUTO
1	3185-ABR-85SW RUNNING
2	3185-ABR-85SW VFD FAULT
3	3185-ABR-85SW EXTERNAL FAULT
4	3186-ABR-86NW IN AUTO
5	3186-ABR-86NW RUNNING
6	3186-ABR-86NW VFD FAULT
7	3186-ABR-86NW EXTERNAL FAULT
8	3187-ABR-87SE IN AUTO
9	3187-ABR-87SE RUNNING
10	3187-ABR-87SE VFD FAULT
11	3187-ABR-87SE EXTERNAL FAULT
12	3188-ABR-88NE IN AUTO
13	3188-ABR-88NE RUNNING
14	3188-ABR-88NE VFD FAULT
15	3188-ABR-88NE EXTERNAL FAULT

I/O CARD 2	DESCRIPTION
0	3289-ABR-89SW IN AUTO
1	3289-ABR-89SW RUNNING
2	3289-ABR-89SW VFD FAULT
3	3289-ABR-89SW EXTERNAL FAULT
4	3290-ABR-90NW IN AUTO
5	3290-ABR-90NW RUNNING
6	3290-ABR-90NW VFD FAULT
7	3290-ABR-90NW EXTERNAL FAULT
8	3291-ABR-91SE IN AUTO
9	3291-ABR-91SE RUNNING
10	3291-ABR-91SE VFD FAULT
11	3291-ABR-91SE EXTERNAL FAULT
12	3292-ABR-92NE IN AUTO
13	3292-ABR-92NE RUNNING
14	3292-ABR-92NE VFD FAULT
15	3292-ABR-92NE EXTERNAL FAULT

I/O CARD 3	DESCRIPTION
0	2101-BNR1-RP1 IN AUTO
1	2101-BNR1-RP1 RUNNING
2	2101-BNR1-RP1 VFD FAULT
3	2101-BNR1-RP1 EXTERNAL FAULT
4	2101-BNR1-RP1 SEAL ALARM
5	2101-BNR1-RP1 OVERTEMP ALARM
6	2102-BNR1-RP2 IN AUTO
7	2102-BNR1-RP2 RUNNING
8	2102-BNR1-RP2 VFD FAULT
9	2102-BNR1-RP2 EXTERNAL FAULT
10	2102-BNR1-RP2 SEAL ALARM
11	2102-BNR1-RP2 OVERTEMP ALARM
12	1901-ATS-UTIL ATS-INF ON UTILITY
13	1902-ATS-GEN ATS-INF ON GENERATOR
14	1911-GEN-RUN GEN-INF RUNNING
15	1912-GEN-ALARM GEN-INF IN ALARM

I/O CARD 4	DESCRIPTION
0	2201-BNR2-RP3 IN AUTO
1	2201-BNR2-RP3 RUNNING
2	2201-BNR2-RP3 VFD FAULT
3	2201-BNR2-RP3 EXTERNAL FAULT
4	2201-BNR2-RP3 SEAL ALARM
5	2201-BNR2-RP3 OVERTEMP ALARM
6	2202-BNR2-RP4 IN AUTO
7	2202-BNR2-RP4 RUNNING
8	2202-BNR2-RP4 VFD FAULT
9	2202-BNR2-RP4 EXTERNAL FAULT
10	2202-BNR2-RP4 SEAL ALARM
11	2202-BNR2-RP4 OVERTEMP ALARM
12	1500-FAN-ODOR IN AUTO
13	1500-FAN-ODOR RUNNING
14	1500-FAN-ODOR FAULT
15	SPARE

I/O CARD 5	DESCRIPTION
0	2103-BNR1-FP1 IN AUTO
1	2103-BNR1-FP1 RUNNING
2	2103-BNR1-FP1 VFD FAULT
3	2103-BNR1-FP1 EXTERNAL FAULT
4	2103-BNR1-FP1 SEAL ALARM
5	2103-BNR1-FP1 OVERTEMP ALARM
6	2203-BNR2-FP2 IN AUTO
7	2203-BNR2-FP2 RUNNING
8	2203-BNR2-FP2 VFD FAULT
9	2203-BNR2-FP2 EXTERNAL FAULT
10	2203-BNR2-FP2 SEAL ALARM
11	2203-BNR2-FP2 OVERTEMP ALARM
12	1520-PMP-RECIRC IN AUTO
13	1520-PMP-RECIRC RUNNING
14	1520-PMP-RECIRC FAULT
15	–

I/O CARD 6	DESCRIPTION
0	1701-LS4-P1 IN AUTO
1	1701-LS4-P1 RUNNING
2	1701-LS4-P1 FAULT
3	1701-LS4-P1 EXTERNAL FAULT
4	1701-LS4-P1 SEAL ALARM
5	1701-LS4-P1 OVERTEMP ALARM
6	1702-LS4-P2 IN AUTO
7	1702-LS4-P2 RUNNING
8	1702-LS4-P2 FAULT
9	1702-LS4-P2 EXTERNAL FAULT
10	1702-LS4-P2 SEAL ALARM
11	1702-LS4-P2 OVERTEMP ALARM
12	1703-FSH-LS4 HIGH WETWELL LEVEL
13	1530-PMP-NUTR IN AUTO
14	1530-PMP-NUTR RUNNING
15	1530-PMP-NUTR FAULT

I/O CARD 7	DESCRIPTION
0	2401-BNR-COMP1 RUNNING
1	2401-BNR-COMP1 ALARM
2	2401-BNR-COMP1 DRYER ALARM
3	2402-BNR-COMP2 RUNNING
4	2402-BNR-COMP2 ALARM
5	2401-BNR-COMP2 DRYER ALARM
6	2400-BNR-MAU3 IN AUTO
7	2400-BNR-MAU3 RUNNING
8	2400-BNR-MAU3 ALARM
9	1101-FM-24MCK PULSE TOTAL
10	1102-FM-12NOR PULSE TOTAL
11	1103-FM-4LS4 PULSE TOTAL
12	–
13	–
14	–
15	–

I/O CARD 8	DESCRIPTION
0	–
1	–
2	–
3	–
4	–
5	–
6	–
7	–
8	–
9	–
10	–
11	–
12	–
13	–
14	–
15	–

I/O CARD 9	DESCRIPTION
0	–
1	–
2	–
3	–
4	–
5	–
6	–
7	–
8	–
9	–
10	–
11	–
12	–
13	–
14	–
15	–

I/O CARD 10	DESCRIPTION
0	3185-ABR-85SW CALL
1	3186-ABR-86NW CALL
2	3187-ABR-87SE CALL
3	3188-ABR-88NE CALL
4	3289-ABR-89SW CALL
5	3290-ABR-90NW CALL
6	3291-ABR-91SE CALL
7	3292-ABR-92NE CALL
8	2101-BNR1-RP1 CALL
9	2102-BNR1-RP2 CALL
10	2201-BNR2-RP3 CALL
11	2202-BNR2-RP4 CALL
12	2103-BNR1-FP1 CALL
13	2203-BNR2-FP2 CALL
14	1701-LS4-P1 CALL
15	1702-LS4-P2 CALL

I/O CARD 11	DESCRIPTION
0	1500-FAN-ODOR CALL
1	1520-PMP-RECIRC CALL
2	1530-PMP-NUTR CALL
3	–
4	–
5	–
6	–
7	–
8	–
9	–
10	–
11	–
12	–
13	–
15	–
15	–

I/O CARD 12	DESCRIPTION
0	–
1	–
2	–
3	–
4	–
5	–
6	–
7	–
8	–
9	–
10	–
11	–
12	–
13	–
15	–
15	–

I/O CARD 13	DESCRIPTION
0	1101-FM-24MCK FLOW
1	1102-FM-12NOR FLOW
2	1103-FM-4LS4 FLOW
3	1800-PH-INF INFLUENT PH
4	1800-TEMP-INF INFLUENT TEMP
5	2104-BNR1-ORP
6	2105-BNR1-TSS
7	2204-BNR2-ORP

I/O CARD 14	DESCRIPTION
0	2205-BNR2-TSS
1	2106-BNR1-ORP
2	2206-BNR1-TSS
3	–
4	–
5	–
6	–
7	–

I/O CARD 15	DESCRIPTION
0	–
1	–
2	–
3	–
4	–
5	–
6	–
7	–

I/O CARD 16	DESCRIPTION
0	3185-ABR-85SW SPEED REF
1	3186-ABR-86NW SPEED REF
2	3187-ABR-87SE SPEED REF
3	3188-ABR-88NE SPEED REF
4	3289-ABR-89SW SPEED REF
5	3290-ABR-90NW SPEED REF
6	3291-ABR-91SE SPEED REF
7	3292-ABR-92NE SPEED REF

I/O CARD 17	DESCRIPTION
0	2101-BNR1-RP1 SPEED REF
1	2102-BNR1-RP2 SPEED REF
2	2201-BNR2-RP3 SPEED REF
3	2202-BNR2-RP4 SPEED REF
4	2103-BNR1-FP1 SPEED REF
5	2203-BNR2-FP2 SPEED REF
6	–
7	–

I/O CARD 18	DESCRIPTION
0	–
1	–
2	–
3	–
4	–
5	–
6	–
7	–

ANALOG INPUTS

DETAIL F / IA-1
N.T.S.

ANALOG OUTPUTS

DETAIL G / IA-1
N.T.S.

DISCRETE INPUTS

DETAIL D / IA-1
N.T.S.

DISCRETE OUTPUTS

DETAIL E / IA-1
N.T.S.

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IA-02.DWG, 3/21/2025 10:20 AM, MATT WEIR, LAYOUT1

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

© HAWKINS-WEIR ENGINEERS, INC. 2025

STATE OF ARKANSAS MATTHEW S. WEIR PROFESSIONAL ENGINEER No. 9588 3/21/25 Scott Matthew Weir

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT ELECTRICAL BUILDING CONTROL PANEL PLC-INF I/O LAYOUT

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IA-02

SHEET NO.
IA-2

BID DRAWINGS
MARCH 21, 2025

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	1	ENCLOSURE, NEMA4X SS WALL-MOUNT	CSD16208SS	HOFFMAN	YES
2	1	ENCLOSURE SUBPANEL	CP1620	HOFFMAN	YES
3	1	SWING-OUT SUBPANEL	CSPB1620	HOFFMAN	YES
4	4	ENCLOSURE MOUNTING BRACKETS SS	CMFKSS	HOFFMAN	YES
5	2	3 POS SSW 2NO	XB4BD33	SQUARE D	YES
6	2	PILOT LIGHT, GREEN, LED	XB4BVG3	SQUARE D	YES
7	2	PILOT LIGHT, AMBER, LED	XB4BVG5	SQUARE D	YES
8	2	PILOT LIGHT, RED, LED	XB4BV34	SQUARE D	YES
9	2	CB 1P 1A	–	–	YES
10	8	OPERATOR LEGEND WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
11	4	EQUIPMENT ID, WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
12	8	RELAY 4PDT 120V LED W BASE	784-4C-120A/SKT-1	AUTOMATIONDIRECT	YES
13	2	TEMP/SEAL FAIL SENSOR RELAY BY OEM	MINICAS	FLYGT	YES
14	25	WIRING TERMINAL	DN-T12A	AUTOMATIONDIRECT	YES
15	2'	RAISED DIN RAIL, 35MM X 10MM, AL	DN-R35SAL1	AUTOMATIONDIRECT	YES
16	4	END BRACKETS	DN-EB35	AUTOMATIONDIRECT	YES

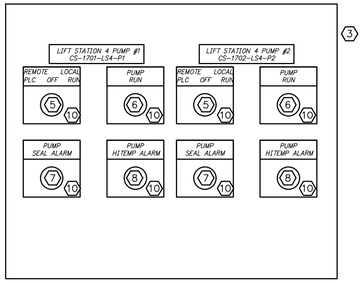
LIFT STATION NO. 4
TOTAL BILL OF MATERIAL (1 CONTROL STATION)

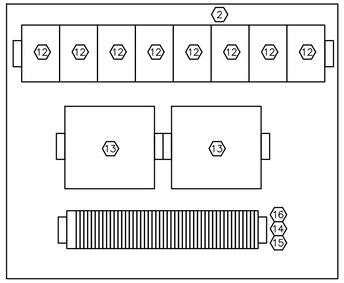
DETAIL A
N.T.S. EA-10

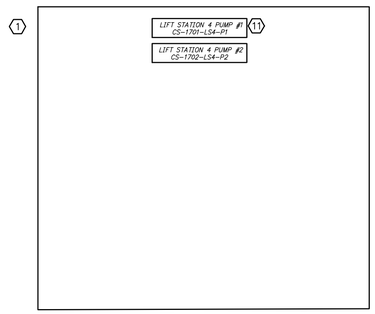
KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	1	ENCLOSURE, NEMA4X ALUM 40X24X12	ECL1006030	HOFFMAN	YES
2	2	ENCLOSURE SUBPANEL	EP10060AL	HOFFMAN	YES
3	0	SWING-OUT SUBPANEL	–	–	YES
4	1	SOLAR SHIELD TOP	ESSH6030	HOFFMAN	YES
5	3	FLOW CONVERTER	SEE 13421	KROHNE	NO
6	–	–	–	–	
7	–	–	–	–	
8	–	–	–	–	
9	1	CB 1P 5A	–	–	YES
10	–	–	–	–	
11	2	EQUIPMENT ID, WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
12	–	–	–	–	
13	–	–	–	–	
14	–	–	–	–	
15	–	–	–	–	
16	–	–	–	–	

PUMPED INFLUENT METER CONTROL STATION
TOTAL BILL OF MATERIAL (1 CONTROL STATION)

DETAIL C
N.T.S. EA-9

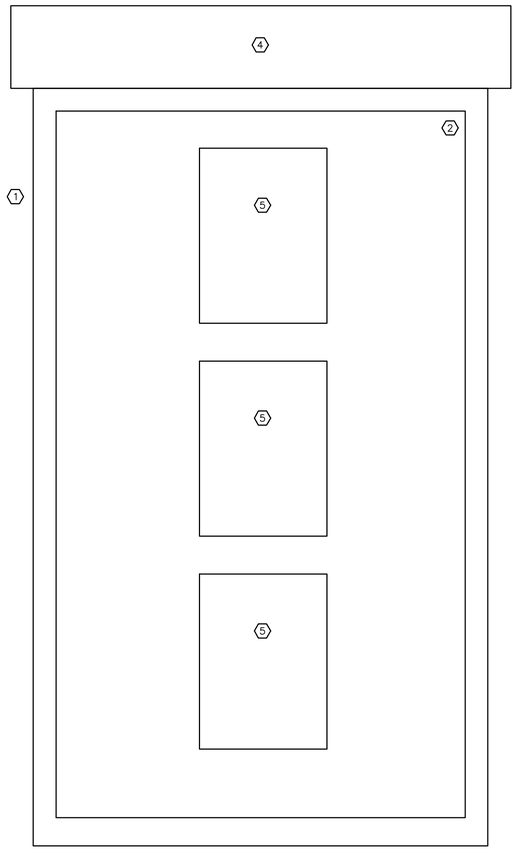






LIFT STATION NO. 4
CONTROL STATION LAYOUT (TYPICAL OF 1)

DETAIL B
1" = 4" EA-10



EA-9
CONTROL STATION LAYOUT (TYPICAL OF 1)

DETAIL D
N.T.S. EB-4

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
MATTHEW L. WEIR
PROFESSIONAL ENGINEER
No. 9588
3/21/25
Scott Nelson 9511

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

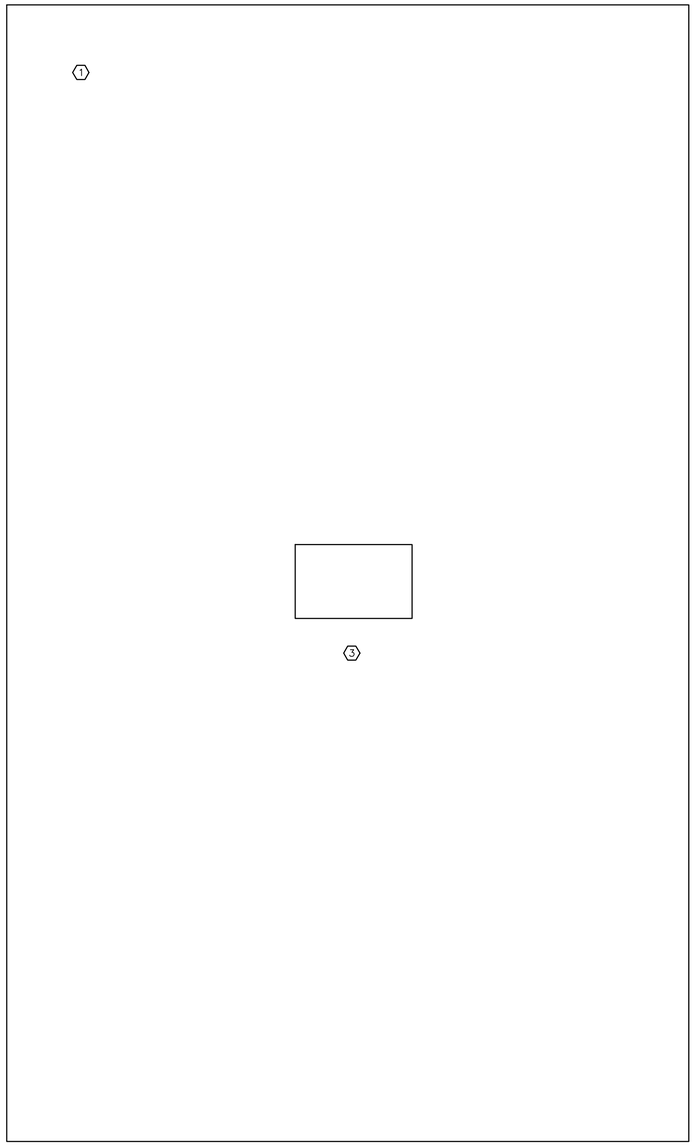
PUMPED INFLUENT METER AND LIFT STATION NO. 4 CONTROL STATIONS BOM AND LAYOUT

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IA-03

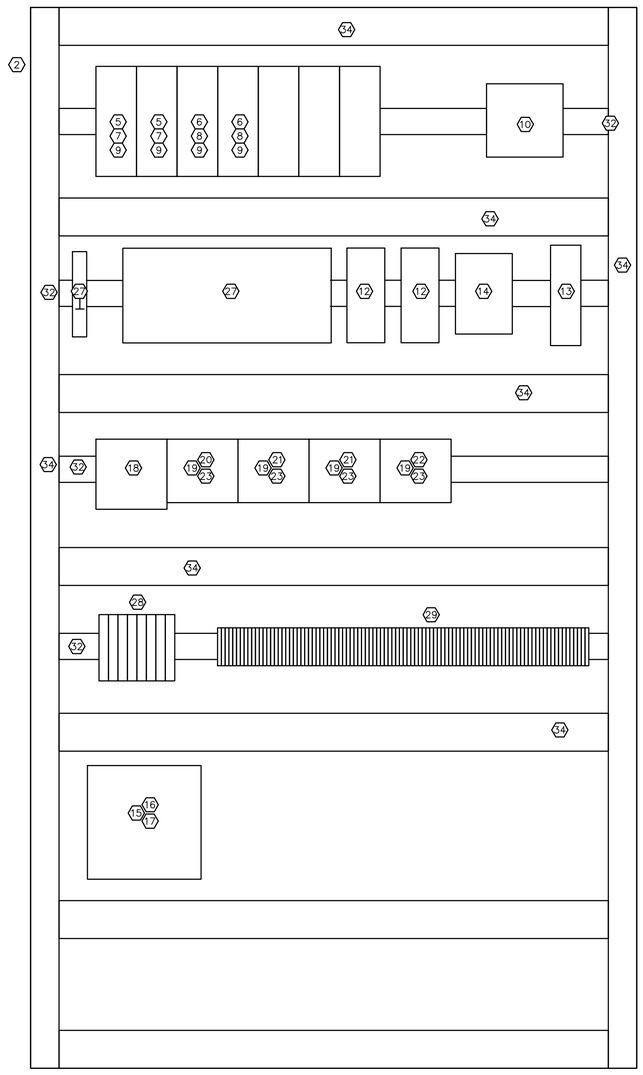
SHEET NO.
IA-3

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IA-03.DWG, 3/21/2025 10:20 AM, MATT WEIR, LAYOUT1



REMOTE I/O PANEL RIO-INFU
ENCLOSURE FRONT VIEW

DETAIL E
3" = 1'-0" –



REMOTE I/O PANEL RIO-INFU
SUBPANEL FRONT VIEW

DETAIL F
3" = 1'-0" –

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	1	N12 ENCLOSURE 60"x36"x8"	SCE-60EL3608LP	SAGINAW	YES
2	1	SUBPANEL	SCE-60P36	SAGINAW	YES
3	1	INTERFACE PORT/POWER	P-R2-M9-RAC	GRACEPORT	YES
4					
5	2	IEC STARTER POWER BASE 32A	LUB32	SQUARE D	YES
6	2	IEC STARTER POWER BASE 12A	LUB12	SQUARE D	YES
7	2	OVERLOAD RELAY/CONTROL UNIT	LUCA32FU	SQUARE D	YES
8	2	OVERLOAD RELAY/CONTROL UNIT	LUCA1XFU	SQUARE D	YES
9	4	AUX CONTACTS 2NO READY/FAULT	LUCA1C20	SQUARE D	YES
10	1	PDB AND COVER 175A 1 IN/6 OUT	MPDB67563	MERSEN	YES
11					
12	2	DC POWER SUPPLY 24V 10A	SDN10-24-100C	SOLA HEVI-DUTY	YES
13	1	FIBER PATCH PANEL, 12ST DIN RAIL	PWS2-A-06-0600001D	RLH INDUSTRIES	YES
14	1	ETHERNET SWITCH 6TX2FX	308FX2-ST	RED LION/NTRON	YES
15	1	INSTRUMENT MODULAR POWER SUPPLY	MIQ/PS	YSI	NO
16	1	INSTRUMENT MODULAR CONNECTION	MIQ/MC3/MOD	YSI	NO
17	1	PH/TEMP SENSOR	SEE 13330	YSI	NO
18	1	FLEX 5000 ETHERNET MODULE	5094-AENTR	ALLEN-BRADLEY	NO
19	6	FLEX 5000 MODULE MOUNTING BASE	5094-MB	ALLEN-BRADLEY	NO
20	2	FLEX 5000 DI MODULE	5094-IB32	ALLEN-BRADLEY	NO
21	2	FLEX 5000 DO RELAY MODULE	5094-OW8I	ALLEN-BRADLEY	NO
22	1	FLEX 5000 AI MODULE	5094-IF8	ALLEN-BRADLEY	NO
23	6	FLEX 5000 REMOVABLE TERMINAL BLOCK	5094-RTB3	ALLEN-BRADLEY	NO
24	1	CB 10A 1P B CURVE	FAZ-B2-1-SP	AUTOMATION DIRECT	YES
25					NO
26					NO
27	1	UPS 850VA 120V	SDU850B	SOLA	YES
28	8	4-20 mA SURGE SUPPRESSOR	DLA-24D3	CITEL	NO
29	60	TERMINAL BLOCK	DN-T12A	AUTOMATION DIRECT	YES
30	6	TERMINAL BLOCK END COVER	DN-EB35	AUTOMATION DIRECT	YES
31	5	GROUND TERMINAL BLOCK	KN-G12SP-10	AUTOMATION DIRECT	YES
32	12'	35MM DIN RAIL SLOTTED STEEL	DN-R35S1	AUTOMATION DIRECT	YES
33	6	ANGLED DIN RAIL SUPPORT BRACKET	DN-ASB1	AUTOMATION DIRECT	YES
34	18'	2"X4" WHITE DUCT AND COVER	T1-2040W-1	AUTOMATION DIRECT	YES
35	1	H2S COMBUSTIBLE GAS DETECTOR	SEE 13330	–	YES

THE CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED MISCELLANEOUS PARTS, INCLUDING MTW AND SHIELDED CABLE, WIRE LABELS, TERMINAL LABELS, TERMINAL JUMPERS, PATCH CABLES

REMOTE I/O PANEL RIO-INFU
BILL OF MATERIAL

DETAIL G
N.T.S. –

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
MATTHEW S. WEIR
REGISTERED PROFESSIONAL ENGINEER
No. 9598
3-21-25
I Scott Weir

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING
UPPER REMOTE I/O PANEL RIO-INFU ELEVATION, LAYOUT, AND BOM

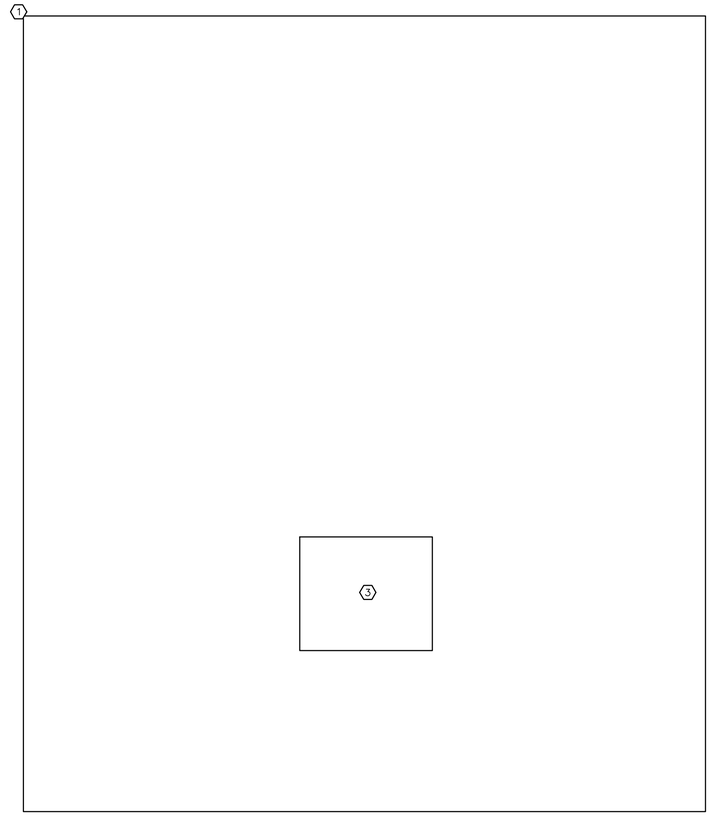
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IA-04

SHEET NO.
IA-4

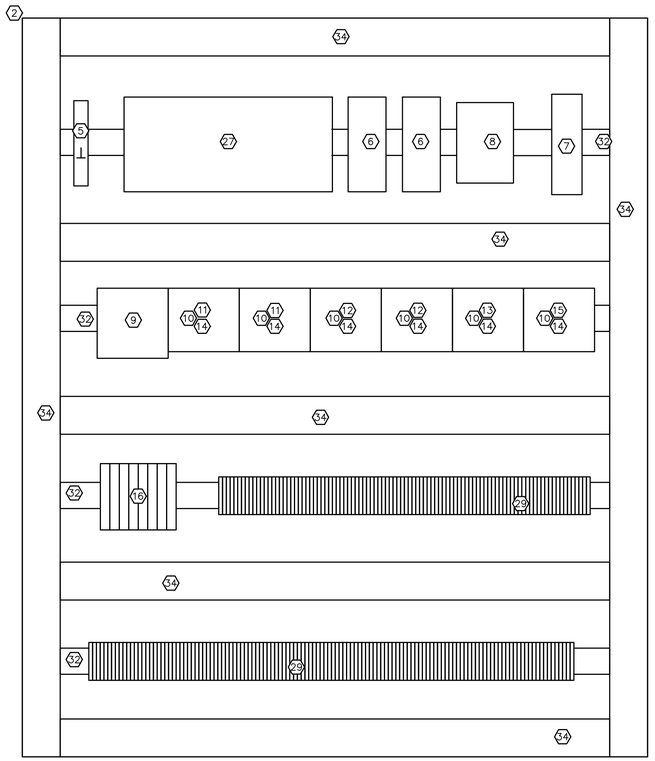
BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IA-04.DWG, 3/21/2025 10:20 AM, MATT WEIR, LAYOUT1



REMOTE I/O PANEL RIO-INFL
ENCLOSURE FRONT VIEW

DETAIL H
3" = 1'-0" –



REMOTE I/O PANEL RIO-INFL
SUBPANEL FRONT VIEW

DETAIL I
3" = 1'-0" –

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	1	N12 ENCLOSURE 42" x 36" x 12"	N412423612C	WIEGMANN	YES
2	1	SUBPANEL FOR 42" x 36" PANEL	NP4236C	WIEGMANN	YES
3	1	INTERFACE PORT/POWER	P-R2-M9-RAC	GRACEPORT	YES
4	–	–	–	–	–
5	2	CB 10A 1P D CURVE	FAZ-D10-1-SP	AUTOMATION DIRECT	YES
6	2	DC POWER SUPPLY 24V 10A	SDN10-24-100C	SOLA HEVI-DUTY	NO
7	1	FIBER PATCH PANEL, 6ST DIN RAIL	PWS1A1D/APST6LSMMG	RLH INDUSTRIES	YES
8	1	ETHERNET SWITCH 4TX1FX	105FX-ST	RED LION/NTRON	YES
9	1	FLEX 5000 ETHERNET MODULE	5094-AENTR	ALLEN-BRADLEY	NO
10	6	FLEX 5000 MODULE MOUNTING BASE	5094-MB	ALLEN-BRADLEY	NO
11	1	FLEX 5000 DI MODULE	5094-IB32	ALLEN-BRADLEY	NO
12	2	FLEX 5000 DO RELAY MODULE	5094-OWBI	ALLEN-BRADLEY	NO
13	1	FLEX 5000 AI MODULE	5094-IF8	ALLEN-BRADLEY	NO
14	6	FLEX 5000 REMOVABLE TERMINAL BLOCK	5094-RTB3	ALLEN-BRADLEY	NO
15	1	FLEX 5000 AO MODULE	5094-OF8	ALLEN-BRADLEY	NO
16	8	CB 2A 1P B CURVE	FAZ-B2-1-SP	AUTOMATION DIRECT	YES
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27	1	UPS 850VA 120V	SDU850B	SOLA	YES
28	8	4-20 mA SURGE SUPPRESSOR	DLA-24D3	CITEL	NO
29	150	TERMINAL BLOCK	DN-T12A	AUTOMATION DIRECT	YES
30	6	TERMINAL BLOCK END COVER	DN-EB35	AUTOMATION DIRECT	YES
31	5	GROUND TERMINAL BLOCK	KN-G12SP-10	AUTOMATION DIRECT	YES
32	12'	35MM DIN RAIL SLOTTED STEEL	DN-R35S1	AUTOMATION DIRECT	YES
33	6	ANGLED DIN RAIL SUPPORT BRACKET	DN-ASB1	AUTOMATION DIRECT	YES
34	18'	2"X4" WHITE DUCT AND COVER	T1-2040W-1	AUTOMATION DIRECT	YES
35					

THE CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED MISCELLANEOUS PARTS, INCLUDING MTW AND SHIELDED CABLE, WIRE LABELS, TERMINAL LABELS, TERMINAL JUMPERS, PATCH CABLES

REMOTE I/O PANEL RIO-INFL
BILL OF MATERIAL

DETAIL J
N.T.S. –

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION | DATE

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STATE OF ARKANSAS
MATTHEW WEIR
REGISTERED PROFESSIONAL ENGINEER
No. 9588
3/21/25
K. Scott Hutchinson 5511

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING LOWER LEVEL
REMOTE I/O PANEL RIO-INFL
ELEVATION, LAYOUT, AND BOM

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IA-05

SHEET NO.
IA-5

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IA-05.DWG, 3/21/2025 10:21 AM, MATT WEIR, LAYOUT1

I/O CARD 2	DESCRIPTION
0	EF-A01 IN AUTO
1	EF-A01 RUNNING
2	EF-A01 FAULTED
3	EF-A03 IN AUTO
4	EF-A03 RUNNING
5	EF-A03 FAULTED
6	SF-A01 IN AUTO
7	SF-A01 RUNNING
8	SF-A01 FAULTED
9	SF-A02 IN AUTO
10	SF-A02 RUNNING
11	SF-A02 FAULTED
12	DS-A01 MONITOR
13	DS-A02 MONITOR
14	–
15	–
16	–
17	–
18	–
19	–
20	–
21	–
22	–
23	–
24	–
25	–
26	–
27	–
28	–
29	–
30	–
31	–

RIO-INFU DISCRETE INPUTS

DETAIL K
N.T.S. –

I/O CARD 4	DESCRIPTION
0	EF-A01 CALL
1	EF-A03 CALL
2	SF-A01 CALL
3	SF-A02 CALL
4	MAU-A01 INTERLOCK
5	–
6	–
7	–

I/O CARD 6	DESCRIPTION
0	–
1	–
2	–
3	–
4	–
5	–
6	–
7	–

RIO-INFU DISCRETE OUTPUTS

DETAIL L
N.T.S. –

I/O CARD 1	DESCRIPTION
0	H2S LEVEL
1	PH
2	TEMP
3	SPARE
4	SPARE
5	SPARE
6	SPARE
7	SPARE

RIO-INFU ANALOG INPUTS

DETAIL M
N.T.S. –

I/O CARD 2	DESCRIPTION
0	1302-GC1-GP01 IN AUTO
1	1302-GC1-GP01 RUNNING
2	1302-GC1-GP01 FAULTED
3	1312-GC2-GP02 IN AUTO
4	1312-GC2-GP02 RUNNING
5	1312-GC2-GP02 FAULTED
6	1400-FM-241NF1 TOTAL PULSE
7	1403-FM-241NF2 TOTAL PULSE
8	WG-01 IN AUTO/READY
9	WG-01 OPENED
10	WG-01 CLOSED
11	WG-02 IN AUTO/READY
12	WG-02 OPENED
13	WG-02 CLOSED
14	1303-FM-4GP01 TOTAL PULSE
15	1313-FM-4GP02 TOTAL PULSE
16	1601-MP-ALS1 IN AUTO/READY
17	1601-MP-ALS1 RUNNING
18	1601-MP-ALS1 FAULTED
19	1601-MP-ALS1 LEAK DETECT
20	1302-GC1-GP01 SEAL WATER FLOW
21	1312-GC2-GP02 SEAL WATER FLOW
22	SPARE
23	SPARE
24	SPARE
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	SPARE
31	SPARE

RIO-INFL DISCRETE INPUTS

DETAIL N
N.T.S. –

I/O CARD 4	DESCRIPTION
0	1302-GC1-GP01 CALL
1	1312-GC2-GP02 CALL
2	WG-01 OPEN CMD
3	WG-01 CLOSE CMD
4	WG-02 OPEN CMD
5	WG-02 CLOSE CMD
6	1601-MP-ALS1 CALL
7	MAU-A02 INTERLOCK

I/O CARD 6	DESCRIPTION
0	EF-A02 CALL
1	EF-A04 CALL
2	SPARE
3	SPARE
4	SPARE
5	SPARE
6	SPARE
7	SPARE

RIO-INFL DISCRETE OUTPUTS

DETAIL O
N.T.S. –

I/O CARD 1	DESCRIPTION
0	1400-FM-241NF1 FLOW
1	1403-FM-241NF2 FLOW
2	WG-01 POSITION
3	WG-02 POSITION
4	1601-MP-ALS1 SPEED
5	1303-FM-4GP01 FLOW
6	1313-FM-4GP02 FLOW
7	SPARE

P
RIO-INFL ANALOG INPUTS

DETAIL E
N.T.S. –

I/O CARD 1	DESCRIPTION
0	1302-GC1-GP01 SPEED REF
1	1312-GC2-GP02 SPEED REF
2	WG-01 POSITION CMD
3	WG-02 POSITION CMD
4	1601-MP-ALS1 SPEED REF
5	SPARE
6	SPARE
7	SPARE

RIO-INFL ANALOG OUTPUTS

DETAIL Q
N.T.S. –

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION | DATE

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STATE OF ARKANSAS
MATTHEW S. WEIR
PROFESSIONAL ENGINEER
No. 9586
3/21/25
Scott Veatch

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING
REMOTE I/O PANELS RIO-INFU/INFL
I/O MODULE LAYOUT

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IA-06

SHEET NO.
IA-6

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IA-06.DWG, 3/21/2025 10:21 AM, MATT WEIR, LAYOUT1

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	3	ENCLOSURE, NEMA4X SS WALL-MOUNT	CSD16208SS	HOFFMAN	YES
2	3	ENCLOSURE SUBPANEL	CP1620	HOFFMAN	YES
3	3	SWING-OUT SUBPANEL	CSPB1620	HOFFMAN	YES
4	12	ENCLOSURE MOUNTING BRACKETS SS	CMFKSS	HOFFMAN	YES
5	6	3 POS SSW 2NO	XB4BD33	SQUARE D	YES
6	6	PILOT LIGHT, GREEN, LED	XB4BVG3	SQUARE D	YES
7	6	PILOT LIGHT, AMBER, LED	XB4BVG5	SQUARE D	YES
8	6	PILOT LIGHT, RED, LED	XB4BV34	SQUARE D	YES
9	6	CB 1P 1A	–	–	YES
10	24	OPERATOR LEGEND WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
11	12	EQUIPMENT ID, WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
12	24	RELAY 4PDT 120V LED W BASE	784-4C-120A/SKT-1	AUTOMATIONDIRECT	YES
13	6	TEMP/SEAL FAIL SENSOR RELAY BY OEM	MINICAS	FLYGT	YES
14	75	WIRING TERMINAL	DN-T12A	AUTOMATIONDIRECT	YES
15	6'	RAISED DIN RAIL, 35MM X 10MM, AL	DN-R35SAL1	AUTOMATIONDIRECT	YES
16	12	END BRACKETS	DN-EB35	AUTOMATIONDIRECT	YES

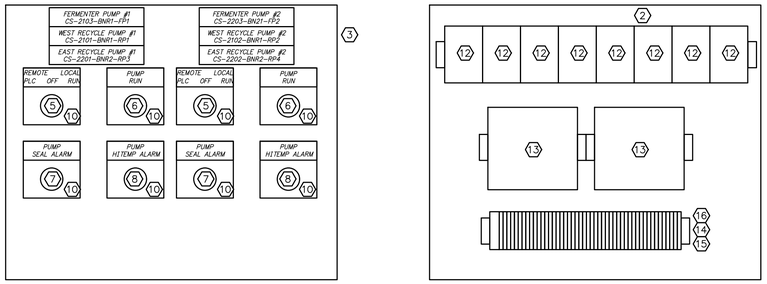
RECYCLE AND FERMENTER PUMPS
TOTAL BILL OF MATERIAL (3 CONTROL STATIONS)

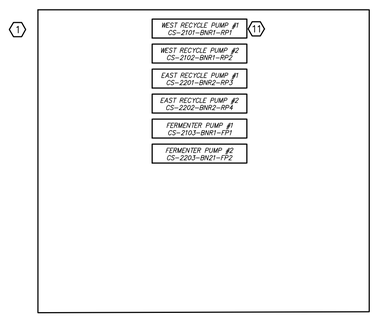
DETAIL A
N.T.S. EB-4

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	2	ENCLOSURE, NEMA4X ALUM 24X24X8	ECL606020	HOFFMAN	YES
2	2	ENCLOSURE SUBPANEL	EP6060AL	HOFFMAN	YES
3	0	SWING-OUT SUBPANEL	–	–	YES
4	2	SOLAR SHIELD TOP	ESSH6020	HOFFMAN	YES
5	2	INSTRUMENT MODULAR POWER SUPPLY	MIQ/PS	YSI	NO
6	4	INSTRUMENT MODULAR CONNECTION	MIQ/MC3/MOD	YSI	NO
7	4	ORP SENSOR	SEE 13330	YSI-FIELD MOUNT	NO
8	2	TSS SENSOR OPTICAL	SEE 13330	YSI-FIELD MOUNT	NO
9	2	CB 1P 5A	–	–	YES
10	400'	IQ SENSORNET TRUNK CABLE		YSI	NO
11	2	EQUIPMENT ID, WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
12	–	–	–	–	YES
13	–	–	–	–	YES
14	–	–	–	–	YES
15	–	–	–	–	YES
16	–	–	–	–	YES

INST-BNR INSTRUMENTATION CONTROL STATION
TOTAL BILL OF MATERIAL (2 CONTROL STATIONS)

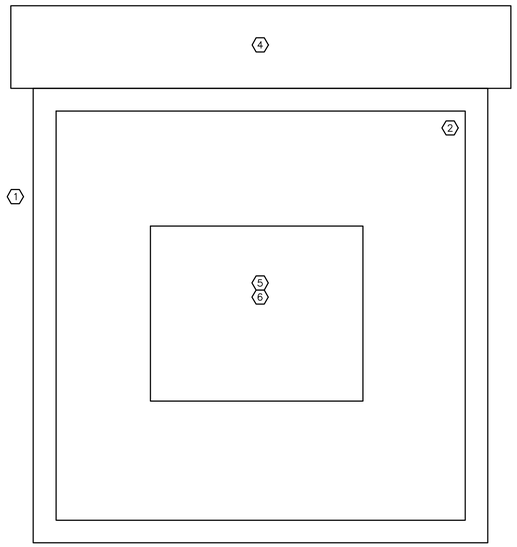
DETAIL C
N.T.S. EB-4





RECYCLE AND FERMENTER PUMPS
CONTROL STATION LAYOUT (TYPICAL OF 3)

DETAIL B
1" = 4" EB-4



INST-BNR INSTRUMENTATION CONTROL STATION
CONTROL STATION LAYOUT (TYPICAL OF 2)

DETAIL D
N.T.S. EB-4

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
LANCE S. MARTIN
PROFESSIONAL ENGINEER
No. 9586
3-21-25
Scott Martin

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

BNR AND RECYCLE PUMP STATIONS CONTROL STATIONS BOM AND LAYOUT

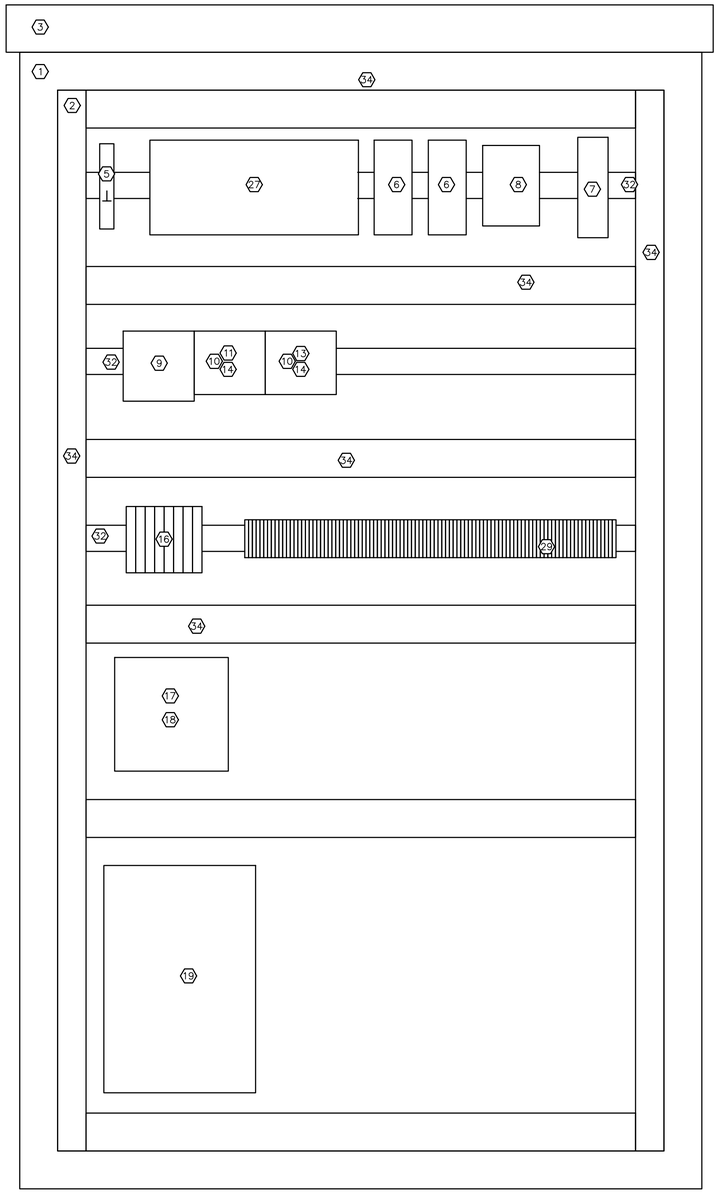
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IB-01

SHEET NO.
IB-1

BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IB-01.DWG, 3/21/2025 10:21 AM, MATT WEIR, LAYOUT1



RIO–ABR REMOTE I/O AND INSTRUMENTATION CONTROL STATION
CONTROL STATION LAYOUT (TYPICAL OF 2)

DETAIL A / EC–1
N.T.S.

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	2	ENCLOSURE, NEMA4X ALUM 60X36X12	ECL1509030	HOFFMAN	YES
2	2	ENCLOSURE SUBPANEL	EP15090AL	HOFFMAN	YES
3	0	SWING–OUT SUBPANEL	–	–	YES
4	2	SOLAR SHIELD TOP	ESSH9030	HOFFMAN	–
5	2	CB 10A 1P D CURVE	FAZ–D10–1–SP	AUTOMATION DIRECT	YES
6	2	DC POWER SUPPLY 24V 10A	SDN10–24–100C	SOLA HEVI–DUTY	NO
7	2	FIBER PATCH PANEL, 12ST DIN RAIL	PWS2–A–06–0600001D	RLH INDUSTRIES	YES
8	2	ETHERNET SWITCH 6TX2FX	308FX2–ST	RED LION/NTRON	YES
9	2	FLEX 5000 ETHERNET MODULE	5094–AENTR	ALLEN–BRADLEY	NO
10	4	FLEX 5000 MODULE MOUNTING BASE	5094–MB	ALLEN–BRADLEY	NO
11	2	FLEX 5000 DI MODULE	5094–IB32	ALLEN–BRADLEY	NO
12	0	FLEX 5000 DO RELAY MODULE	5094–OW8I	ALLEN–BRADLEY	NO
13	2	FLEX 5000 AI MODULE	5094–IF8	ALLEN–BRADLEY	NO
14	4	FLEX 5000 REMOVABLE TERMINAL BLOCK	5094–RTB3	ALLEN–BRADLEY	NO
15	0	FLEX 5000 AO MODULE	5094–OF8	ALLEN–BRADLEY	NO
16	0	CB 2A 1P B CURVE	FAZ–B2–1–SP	AUTOMATION DIRECT	YES
17	2	INSTRUMENT MODULAR POWER SUPPLY	MIQ/PS	YSI	NO
18	2	INSTRUMENT CONTROLLER	2020 3G 8 OUTPUTS	YSI	NO
19	2	FLOW CONVERTER	SEE 13421	KROHNE	NO
20	2	DO SENSOR	SEE 13330	YSI–FIELD MOUNT	
21	2	INSTRUMENT MODULAR CONNECTION	MIQ/MC3/MOD	YSI	
22					
23					
24					
25					
26					
27	1	UPS 850VA 120V	SDU850B	SOLA	YES
28	8	4–20 mA SURGE SUPPRESSOR	DLA–24D3	CITEL	NO
29	60	TERMINAL BLOCK	DN–T12A	AUTOMATION DIRECT	YES
30	4	TERMINAL BLOCK END COVER	DN–EB35	AUTOMATION DIRECT	YES
31	4	GROUND TERMINAL BLOCK	KN–G12SP–10	AUTOMATION DIRECT	YES
32	8'	35MM DIN RAIL SLOTTED STEEL	DN–R35S1	AUTOMATION DIRECT	YES
33	6	ANGLED DIN RAIL SUPPORT BRACKET	DN–ASB1	AUTOMATION DIRECT	YES
34	18'	1.5"X4" WHITE DUCT AND COVER	T1–1540W–1	AUTOMATION DIRECT	YES
35					

THE CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED MISCELLANEOUS PARTS, INCLUDING
MTW AND SHIELDED CABLE, WIRE LABELS, TERMINAL LABELS, TERMINAL JUMPERS, PATCH CABLES

REMOTE I/O PANEL RIO–ABR (TOTAL OF 2 PANELS)
BILL OF MATERIAL

DETAIL B / –
N.T.S.

I/O CARD 1	DESCRIPTION
0	ABR DO
1	ABR PO4P
2	RAS FLOW
3	–
4	–
5	–
6	–
7	–

RIO–ABR1 ANALOG INPUTS

DETAIL E / –
N.T.S.

I/O CARD 1	DESCRIPTION
0	ABR DO
1	ABR PO4P
2	RAS FLOW
3	–
4	–
5	–
6	–
7	–

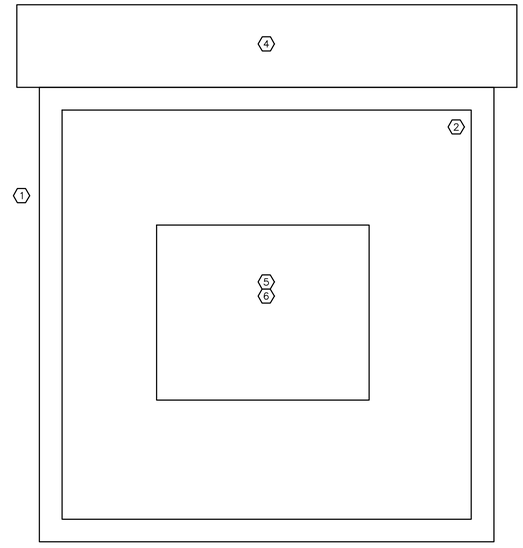
RIO–ABR2 ANALOG INPUTS

DETAIL F / –
N.T.S.

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	2	ENCLOSURE, NEMA4X ALUM 24X24X8	ECL606020	HOFFMAN	YES
2	2	ENCLOSURE SUBPANEL	EP6060AL	HOFFMAN	YES
3	0	SWING–OUT SUBPANEL	–	–	YES
4	2	SOLAR SHIELD TOP	ESSH6020	HOFFMAN	YES
5	2	INSTRUMENT MODULAR POWER SUPPLY	MIQ/PS	YSI	NO
6	2	INSTRUMENT MODULAR CONNECTION	MIQ/MC3/MOD	YSI	NO
7	2	DISSOLVED OXYGEN SENSOR OPTICAL	SEE 13330	YSI–FIELD MOUNT	NO
8	–	–	–	–	NO
9	2	CB 1P 5A	–	–	YES
10	500'	IQ SENSORNET TRUNK CABLE		YSI	NO
11	2	EQUIPMENT ID, WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
12	–	–	–	–	YES
13	–	–	–	–	YES
14	–	–	–	–	YES
15	–	–	–	–	YES
16	–	–	–	–	YES

INST–ABR INSTRUMENTATION CONTROL STATION
TOTAL BILL OF MATERIAL (2 CONTROL STATIONS)

DETAIL C / EC–1
N.T.S.



INST–ABR INSTRUMENTATION CONTROL STATION
CONTROL STATION LAYOUT (TYPICAL OF 2)

DETAIL D / EC–1
N.T.S.

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
MATTHEW S. WEIR
PROFESSIONAL ENGINEER
No. 9888
3-21-25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

AERATION BASIN
REMOTE I/O AND CONTROL STATIONS
BOM AND LAYOUT

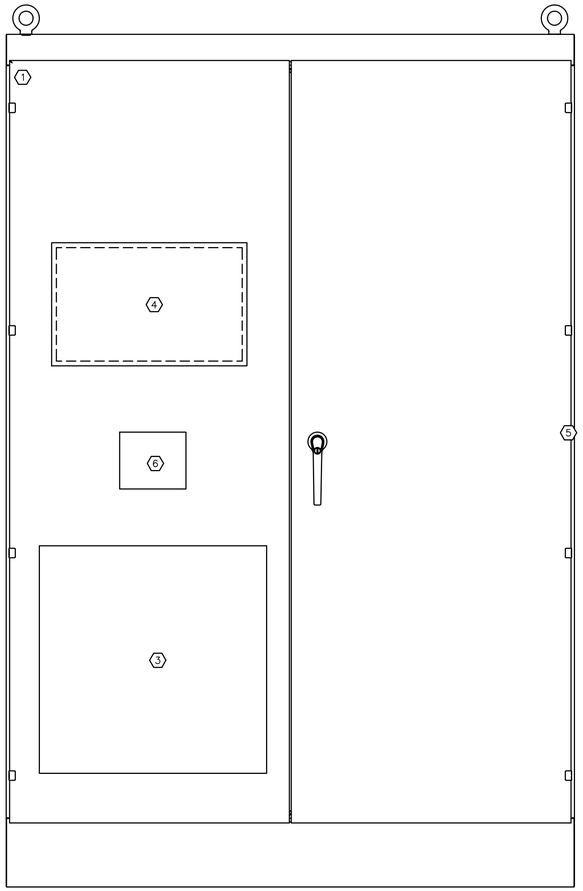
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IC–01

SHEET NO.
IC–1

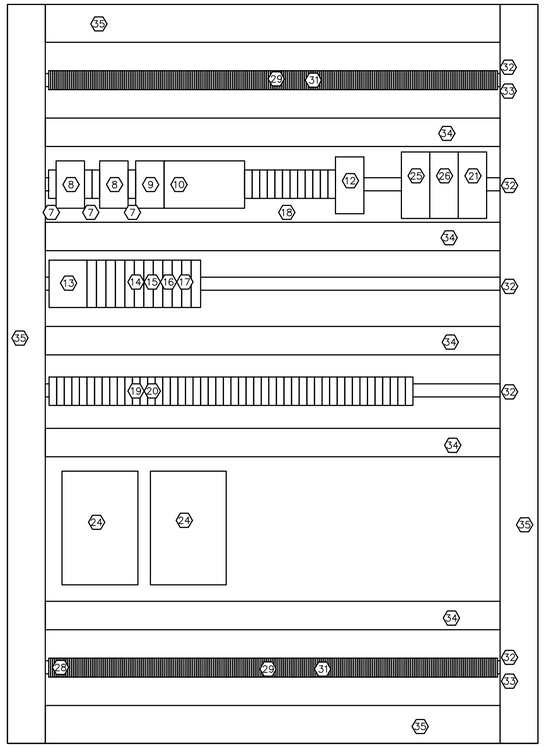
BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IC–01.DWG, 3/21/2025 10:22 AM, MATT WEIR, LAYOUT1



CONTROL PANEL PLC–WAS
ENCLOSURE FRONT VIEW

DETAIL A
1 1/2" = 1'–0"



CONTROL PANEL PLC–WAS
SUBPANEL FRONT VIEW

DETAIL B
1 1/2" = 1'–0"

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	1	ENCLOSURE 90"x60"x20" FREE STANDING	SCE906020FSD	SAGINAW	YES
2	1	SUBPANEL 78"X56"	SCE–90P60F1	SAGINAW	YES
3	1	ENCLOSURE FOLDING SHELF	SCE–FS2424–09	SAGINAW	YES
4	1	INDUSTRIAL PANEL PC 21.5" TOUCHSCREEN	PC1321BPH	MAPLE SYSTEMS	NO
5	1	RIGHT SIDE MOUNT PANEL 78"X14"	SCE–90SMP14	SAGINAW	YES
6	1	INTERFACE PORT/POWER	P–R2–M9–RAC	GRACEPORT	NO
7	4	CB 10A 1P D CURVE	FAZ–D10–1–SP	AUTOMATION DIRECT	YES
8	2	DC POWER SUPPLY 24V 10A	SDN10–24–100C	SOLA HEVI–DUTY	YES
9	1	DC UPS POWER MODULE	SDU 10–24	SOLA HEVI–DUTY	YES
10	1	DC UPS BATTERY MODULE	SDU 24–BAT	SOLA HEVI–DUTY	YES
11					
12	1	MANAGED ETHERNET 8RJ45 2FX–SC	NT24K–10GX2–SC	RED LION	NO
13	1	COMPACTLOGIX 5380 31 I/O 60 EIP	5069–L330ER	ALLEN–BRADLEY	NO
14	1	8 CHANNEL ANALOG INPUT MODULE	5069–IF8	ALLEN–BRADLEY	NO
15	2	8 CHANNEL ANALOG OUTPUT MODULE	5069–OF8	ALLEN–BRADLEY	NO
16	7	16 POINT DISCRETE INPUT MODULE	5069–IB16	ALLEN–BRADLEY	NO
17	3	16 POINT RELAY OUTPUT MODULE	5069–OW16	ALLEN–BRADLEY	NO
18	12	CB 2A 1P B CURVE	FAZ–B2–1–SP	AUTOMATION DIRECT	YES
19	48	CONTROL RELAY 1PDT 24VDC	781–1C–24D	AUTOMATION DIRECT	YES
20	48	RELAY BASE	781–1C–SKT–1	AUTOMATION DIRECT	YES
21	2	FIBER PATCH PANEL, 12 SC MM DIN RAIL	PWS2A3333000010	RLH INDUSTRIES	YES
22					
23					
24	2	FLOW CONVERTER	SEE 13421	KROHNE	
25	1	ETHERNET SWITCH POE	1000–POE4+	RED LION N–TRON	
26	1	DC POWER SUPPLY 48V 2.5A	PSB48–120S	AUTOMATION DIRECT	
27					
28	16	4–20 mA SURGE SUPPRESSOR	DLA–24D3	CITEL	NO
29	300	TERMINAL BLOCK	DN–T12A	AUTOMATION DIRECT	YES
30	12	TERMINAL BLOCK END COVER	DN–EB35	AUTOMATION DIRECT	YES
31	10	GROUND TERMINAL BLOCK	KN–G12SP–10	AUTOMATION DIRECT	NO
32	40'	35MM DIN RAIL SLOTTED STEEL	DN–R35S1	AUTOMATION DIRECT	YES
33	10	ANGLED DIN RAIL SUPPORT BRACKET	DN–ASB1	AUTOMATION DIRECT	YES
34	32'	3"X4" WHITE DUCT AND COVER	T1–3040W–1	AUTOMATION DIRECT	YES
35	24'	4"X4" WHITE DUCT AND COVER	T1–4040W–1	AUTOMATION DIRECT	YES

F II–2
G II–2
D II–2
E II–2

THE CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED MISCELLANEOUS PARTS, INCLUDING MTW AND SHIELDED CABLE, WIRE LABELS, TERMINAL LABELS, TERMINAL JUMPERS, PATCH CABLES

CONTROL PANEL PLC–WAS
BILL OF MATERIAL

DETAIL C
N.T.S.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. Scott Mason
No. 9588
PROFESSIONAL ENGINEER
3-21-25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

WAS/SCUM PUMP BUILDING
CONTROL PANEL PLC–WAS
ELEVATION, LAYOUT, AND BOM

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IG–01

SHEET NO.
IG–1

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IG–01.DWG, 3/21/2025 10:22 AM, MATT WEIR, LAYOUT1

I/O CARD 1	DESCRIPTION
0	4100-SC1-DRV IN AUTO
1	4100-SC1-DRV RUNNING
2	4100-SC1-DRV FAULT
3	4100-SC1-DRV OVERTORQUE
4	4200-SC2-DRV IN AUTO
5	4200-SC2-DRV RUNNING
6	4200-SC2-DRV FAULT
7	4200-SC2-DRV OVERTORQUE
8	4300-SC3-DRV IN AUTO
9	4300-SC3-DRV RUNNING
10	4300-SC3-DRV FAULT
11	4300-SC3-DRV OVERTORQUE
12	4620-WAS-SC1 IN AUTO
13	4620-WAS-SC1 RUNNING
14	4620-WAS-SC1 VFD FAULT
15	4620-WAS-SC1 EXTERNAL FAULT

I/O CARD 2	DESCRIPTION
0	4621-WAS-SC1 IN AUTO
1	4621-WAS-SC1 RUNNING
2	4621-WAS-SC1 VFD FAULT
3	4621-WAS-SC1 EXTERNAL FAULT
4	4622-WAS-SC3 IN AUTO
5	4622-WAS-SC3 RUNNING
6	4622-WAS-SC3 VFD FAULT
7	4622-WAS-SC3 EXTERNAL FAULT
8	4623-WAS-SC2 IN AUTO
9	4623-WAS-SC2 RUNNING
10	4623-WAS-SC2 VFD FAULT
11	4623-WAS-SC2 EXTERNAL FAULT
12	4624-WAS-SC2 IN AUTO
13	4624-WAS-SC2 RUNNING
14	4624-WAS-SC2 VFD FAULT
15	4624-WAS-SC2 EXTERNAL FAULT

I/O CARD 3	DESCRIPTION
0	4413-RAS-P13 IN AUTO
1	4413-RAS-P13 RUNNING
2	4413-RAS-P13 VFD FAULT
3	4413-RAS-P13 EXTERNAL FAULT
4	4413-RAS-P13 SEAL ALARM
5	4413-RAS-P13 OVERTEMP ALARM
6	4414-RAS-P14 IN AUTO
7	4414-RAS-P14 RUNNING
8	4414-RAS-P14 VFD FAULT
9	4414-RAS-P14 EXTERNAL FAULT
10	4414-RAS-P14 SEAL ALARM
11	4414-RAS-P14 OVERTEMP ALARM
12	SPARE
13	SPARE
14	SPARE
15	SPARE

I/O CARD 4	DESCRIPTION
0	4415-RAS-P15 IN AUTO
1	4415-RAS-P15 RUNNING
2	4415-RAS-P15 VFD FAULT
3	4415-RAS-P15 EXTERNAL FAULT
4	4415-RAS-P15 SEAL ALARM
5	4415-RAS-P15 OVERTEMP ALARM
6	4416-RAS-P16 IN AUTO
7	4416-RAS-P16 RUNNING
8	4416-RAS-P16 VFD FAULT
9	4416-RAS-P16 EXTERNAL FAULT
10	4416-RAS-P16 SEAL ALARM
11	4416-RAS-P16 OVERTEMP ALARM
12	SPARE
13	SPARE
14	SPARE
15	SPARE

I/O CARD 5	DESCRIPTION
0	WG-10 IN AUTO/READY
1	WG-10 OPENED
2	WG-10 CLOSED
3	WG-10 FAULT
4	WG-11 IN AUTO/READY
5	WG-11 OPENED
6	WG-11 CLOSED
7	WG-11 FAULT
8	WG-12 IN AUTO/READY
9	WG-12 OPENED
10	WG-12 CLOSED
11	WG-12 FAULT
12	WG-13 IN AUTO/READY
13	WG-13 OPENED
14	WG-13 CLOSED
15	WG-13 FAULT

I/O CARD 6	DESCRIPTION
0	SG-12 IN AUTO/READY
1	SG-12 OPENED
2	SG-12 CLOSED
3	SG-12 FAULT
4	SG-13 IN AUTO/READY
5	SG-13 OPENED
6	SG-13 CLOSED
7	SG-13 FAULT
8	3300-SW-SW1 IN AUTO
9	3300-SW-SW1 RUNNING
10	3300-SW-SW1 SEAL ALARM
11	3300-SW-SW1 OVERTEMP ALARM
12	3300-SW-SW1 VFD FAULT
13	3300-SW-SW1 HIGH WET WELL LEVEL
14	SPARE
15	SPARE

DISCRETE INPUTS

DETAIL D / IC-1

N.T.S.

I/O CARD 7	DESCRIPTION
0	SPARE
1	SPARE
2	SPARE
3	SPARE
4	SPARE
5	SPARE
6	SPARE
7	SPARE
8	SPARE
9	SPARE
10	SPARE
11	SPARE
12	SPARE
13	SPARE
14	SPARE
15	SPARE

I/O CARD 8	DESCRIPTION
0	4100-SC1-DRV CALL
1	4200-SC2-DRV CALL
2	4300-SC3-DRV CALL
3	4620-WAS-SC1 CALL
4	4621-WAS-SC1 CALL
5	4622-WAS-SC3 CALL
6	4623-WAS-SC2 CALL
7	4624-WAS-SC2 CALL
8	4413-RAS-P13 CALL
9	4414-RAS-P14 CALL
10	4415-RAS-P15 CALL
11	4416-RAS-P16 CALL
12	3300-SW-SW1 CALL
13	WG-10 OPEN CMD
14	WG-10 CLOSE CMD
15	SPARE

I/O CARD 9	DESCRIPTION
0	WG-11 OPEN CMD
1	WG-11 CLOSE CMD
2	WG-12 OPEN CMD
3	WG-12 CLOSE CMD
4	WG-13 OPEN CMD
5	WG-13 CLOSE CMD
6	SG-12 OPEN CMD
7	SG-12 CLOSE CMD
8	SG-13 OPEN CMD
9	SG-13 CLOSE CMD
10	–
11	–
12	–
13	–
15	–
15	–

I/O CARD 10	DESCRIPTION
0	–
1	–
2	–
3	–
4	–
5	–
6	–
7	–
8	–
9	–
10	–
11	–
12	–
13	–
15	–
15	–

DISCRETE OUTPUTS

DETAIL E / IA-1

N.T.S.

I/O CARD 11	DESCRIPTION
0	WET WEATHER FLOW
1	SURFACE WASTING FLOW
2	SURFACE WASTING WET WELL LEVEL
3	SPARE
4	SPARE
5	SPARE
6	SPARE
7	SPARE

ANALOG INPUTS

DETAIL F / IG-1

N.T.S.

I/O CARD 12	DESCRIPTION
0	4413-RAS-P13 SPEED REF
1	4414-RAS-P14 SPEED REF
2	4415-RAS-P15 SPEED REF
3	4416-RAS-P16 SPEED REF
4	4620-WAS-SC1 SPEED REF
5	4621-WAS-SC1 SPEED REF
6	4622-WAS-SC3 SPEED REF
7	4623-WAS-SC2 SPEED REF

I/O CARD 13	DESCRIPTION
0	4624-WAS-SC2 SPEED REF
1	SPARE
2	SPARE
3	SPARE
4	SPARE
5	SPARE
6	–
7	–

ANALOG OUTPUTS

DETAIL G / IG-1

N.T.S.

1"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
LANCE S. MOORE
PROFESSIONAL ENGINEER
No. 9588
3-21-25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

WAS/SCUM PUMP STATION CONTROL PANEL PLC-WAS I/O LAYOUT

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IG-02

SHEET NO.
IG-2

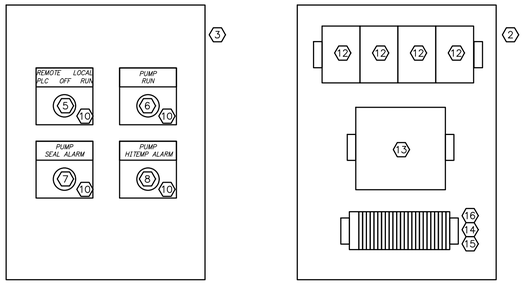
BID DRAWINGS
MARCH 21, 2025

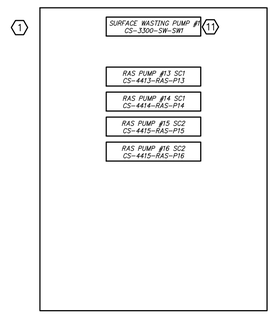
Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IG-02.DWG, 3/21/2025 10:23 AM, MATT WEIR, LAYOUT1

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	5	ENCLOSURE, NEMA4X SS WALL-MOUNT	CSD16128SS	HOFFMAN	YES
2	5	ENCLOSURE SUBPANEL	CP1612	HOFFMAN	YES
3	5	SWING-OUT SUBPANEL	CSPB1612	HOFFMAN	YES
4	5	ENCLOSURE MOUNTING BRACKETS SS	CMFKSS	HOFFMAN	YES
5	5	3 POS SSW 1NO 1NC, NEMA4X	9001SKS43BH13	SQUARE D	YES
6	5	PILOT LIGHT, GREEN, LED, NEMA4X	9001SKP1LGG31	SQUARE D	YES
7	5	PILOT LIGHT, AMBER, LED, NEMA4X	9001SKP1LYA31	SQUARE D	YES
8	5	PILOT LIGHT, RED, LED, NEMA4X	9001SKP1LRR31	SQUARE D	YES
9	5	CB 1P 1A	–	–	YES
10	20	OPERATOR LEGEND WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
11	5	EQUIPMENT ID, WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
12	20	RELAY 4PDT 120V LED W BASE	784-4C-120A/SKT-1	AUTOMATIONDIRECT	YES
13	5	SEAL FAIL SENSOR RELAY BY PUMP OEM	MINICAS	FLYGT	YES
14	150	WIRING TERMINAL	DN-T12A	AUTOMATIONDIRECT	YES
15	10'	RAISED DIN RAIL, 35MM X 10MM, AL	DN-R35SAL1	AUTOMATIONDIRECT	YES
16	20	END BRACKETS	DN-EB35	AUTOMATIONDIRECT	YES

SUBMERSIBLE PUMP CONTROL STATIONS
TOTAL BILL OF MATERIAL (5 CONTROL STATIONS)

DETAIL A
N.T.S.
EG-4





SUBMERSIBLE PUMP CONTROL STATIONS
CONTROL STATION LAYOUT (TYPICAL OF 5)

DETAIL B
1" = 4"
EG-4

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
MATTHEW S. WEIR
PROFESSIONAL ENGINEER
No. 9588
3/21/25
Scott Matthew Weir

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

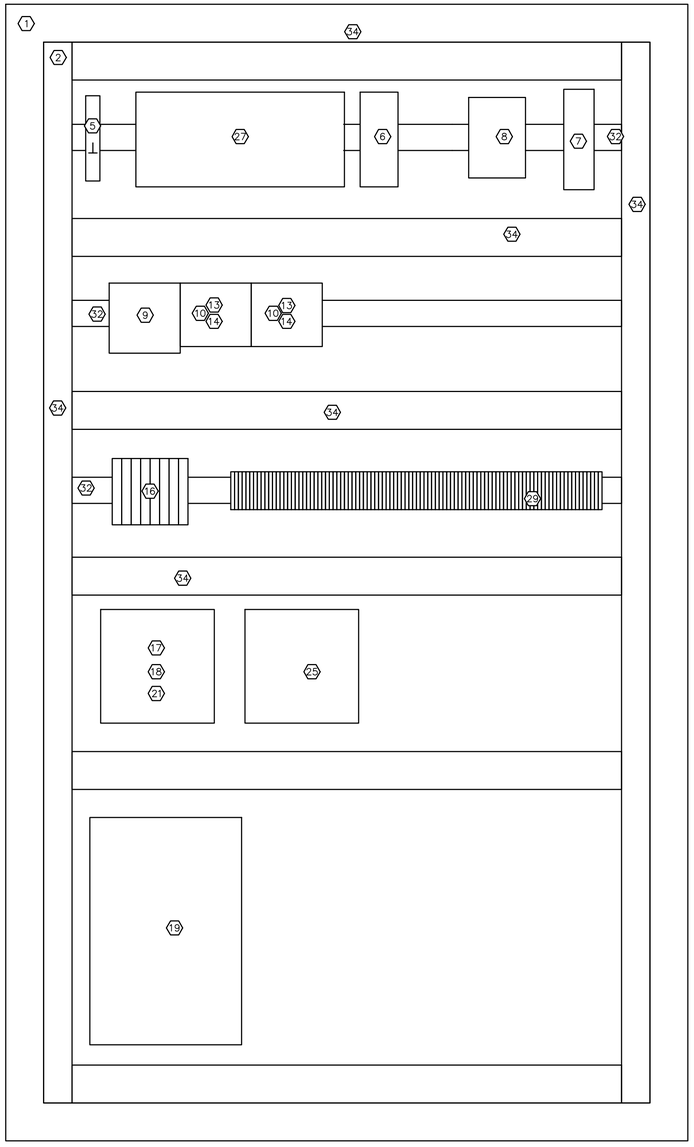
AERATION, CLARIFICATION, AND RAS PUMPING
SUBMERSIBLE PUMP CONTROL STATIONS
BOM AND LAYOUT

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IG-03

SHEET NO.
IG-3

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IG-03.DWG, 3/21/2025 10:23 AM, MATT WEIR, LAYOUT1



RIO-SAMP REMOTE I/O AND INSTRUMENTATION CONTROL STATION
CONTROL STATION LAYOUT

DETAIL A
N.T.S. EH-6

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	1	ENCLOSURE, NEMA4X ALUM 60X36X12	ECL15090 30	HOFFMAN	YES
2	1	ENCLOSURE SUBPANEL	EP15090AL	HOFFMAN	YES
3	0	SWING-OUT SUBPANEL	–	–	YES
4	0	SOLAR SHIELD TOP	ESSH9030	HOFFMAN	–
5	4	CB 10A 1P D CURVE	FAZ-D10-1-SP	AUTOMATION DIRECT	YES
6	1	DC POWER SUPPLY 24V 10A	SDN10-24-100C	SOLA HEVI-DUTY	NO
7	1	FIBER PATCH PANEL, 12ST DIN RAIL	PWS2-A-06-06000010	RLH INDUSTRIES	YES
8	1	ETHERNET SWITCH 6TX2FX	308FX2-ST	RED LION/NTRON	YES
9	1	FLEX 5000 ETHERNET MODULE	5094-AENTR	ALLEN-BRADLEY	NO
10	2	FLEX 5000 MODULE MOUNTING BASE	5094-MB	ALLEN-BRADLEY	NO
11	0	FLEX 5000 DI MODULE	5094-IB32	ALLEN-BRADLEY	NO
12	0	FLEX 5000 DO RELAY MODULE	5094-OW8I	ALLEN-BRADLEY	NO
13	2	FLEX 5000 AI MODULE	5094-IF8	ALLEN-BRADLEY	NO
14	2	FLEX 5000 REMOVABLE TERMINAL BLOCK	5094-RTB3	ALLEN-BRADLEY	NO
15	0	FLEX 5000 AO MODULE	5094-OF8	ALLEN-BRADLEY	NO
16	0	CB 2A 1P B CURVE	FAZ-B2-1-SP	AUTOMATION DIRECT	YES
17	1	INSTRUMENT MODULAR POWER SUPPLY	MIQ/PS	YSI	NO
18	1	INSTRUMENT CONTROLLER	2020 3G 8 OUTPUTS	YSI	NO
19	1	FLOW CONVERTER	SEE 13421	KROHNE	NO
20	1	PH/TEMP SENSOR PROBE	SEE 13330	YSI-FIELD MOUNT	NO
21	4	INSTRUMENT MODULAR CONNECTION	MIQ/MC3/MOD	YSI	NO
22	1	AMMONIA/NITRATE PROBE	SEE 13330	YSI-FIELD MOUNT	NO
23	2	DO PROBE	SEE 13330	YSI-FIELD MOUNT	NO
24	1	TSS PROBE	SEE 13330	YSI-FIELD MOUNT	NO
25	1	FINAL EFFLUENT FLOW SENSOR/CONTROLLER	SEE 13330	PULSAR	YES
26	1	ONLINE PO4P ANALYZER	SEE 13330	YSI	NO
27	1	UPS 850VA 120V	SDU850B	SOLA	YES
28	8	4-20 mA SURGE SUPPRESSOR	DLA-24D3	CITEL	NO
29	60	TERMINAL BLOCK	DN-T12A	AUTOMATION DIRECT	YES
30	4	TERMINAL BLOCK END COVER	DN-EB35	AUTOMATION DIRECT	YES
31	4	GROUND TERMINAL BLOCK	KN-G12SP-10	AUTOMATION DIRECT	YES
32	8'	35MM DIN RAIL SLOTTED STEEL	DN-R35S1	AUTOMATION DIRECT	YES
33	6	ANGLED DIN RAIL SUPPORT BRACKET	DN-ASB1	AUTOMATION DIRECT	YES
34	18'	1.5"X4" WHITE DUCT AND COVER	T1-1540W-1	AUTOMATION DIRECT	YES
35					

THE CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED MISCELLANEOUS PARTS, INCLUDING
MTW AND SHIELDED CABLE, WIRE LABELS, TERMINAL LABELS, TERMINAL JUMPERS, PATCH CABLES

REMOTE I/O PANEL RIO-ABR (TOTAL OF 2 PANELS)
BILL OF MATERIAL

DETAIL B
N.T.S. –

I/O CARD 1	DESCRIPTION
0	EFFLUENT PH
1	EFFLUENT TEMP
2	EFFLUENT AMMONIA/NITRATE
3	EFFLUENT DO1
4	EFFLUENT DO2
5	EFFLUENT TSS
6	EFFLUENT FLOW
7	EFFLUENT PO4P

I/O CARD 1	DESCRIPTION
0	RAS2 FLOW
1	–
2	–
3	–
4	–
5	–
6	–
7	–

RIO-SAMP ANALOG INPUTS

DETAIL C
N.T.S. –

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
LANCE S. MOSLEY
PROFESSIONAL ENGINEER
No. 9588
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SAMPLER BUILDING
REMOTE I/O AND INSTRUMENTATION
BOM AND LAYOUT

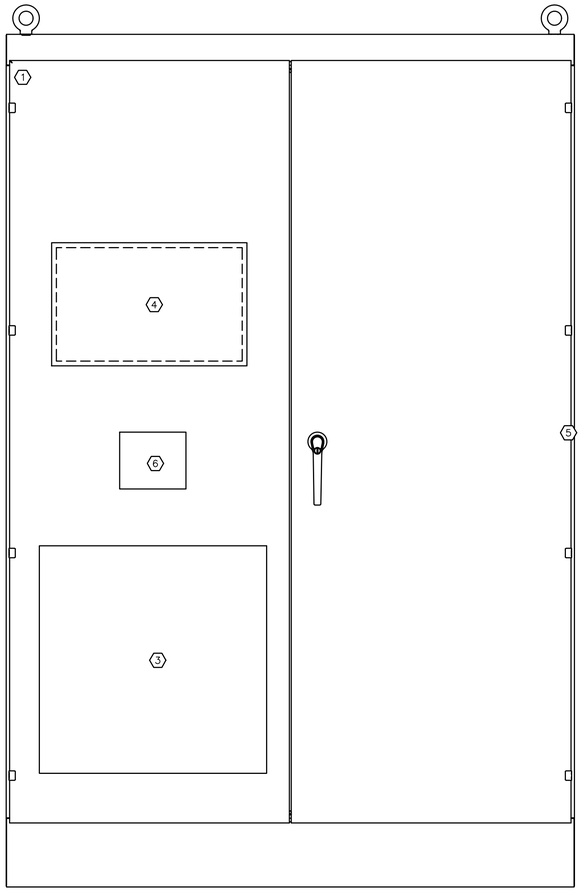
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IH-01

SHEET NO.
IH-1

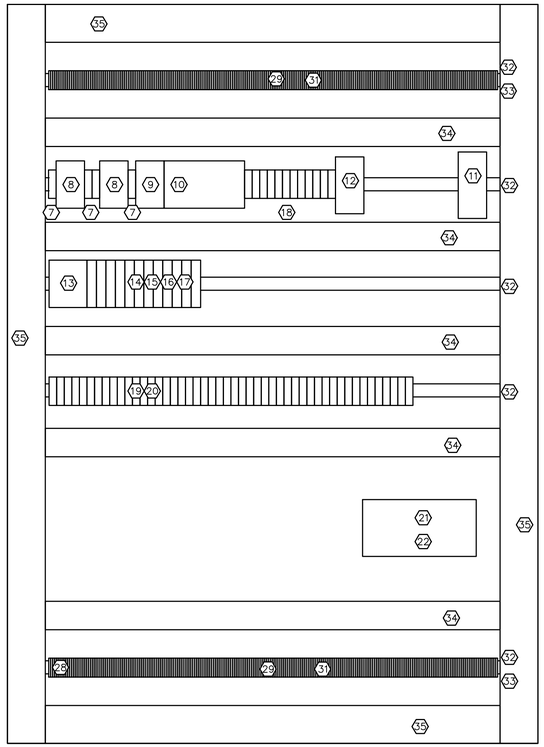
BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\IH-01.DWG, 3/21/2025 10:23 AM, MATT WEIR, LAYOUT1



CONTROL PANEL PLC-EFF
ENCLOSURE FRONT VIEW

DETAIL A
1 1/2" = 1'-0"



CONTROL PANEL PLC-EFF
SUBPANEL FRONT VIEW

DETAIL B
1 1/2" = 1'-0"

F II-2
G II-2
D II-2
E II-2

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1	1	ENCLOSURE 90"x60"x20" FREE STANDING	SCE906020FSD	SAGINAW	YES
2	1	SUBPANEL 78"X56"	SCE-90P60F1	SAGINAW	YES
3	1	ENCLOSURE FOLDING SHELF	SCE-FS2424-09	SAGINAW	YES
4	1	INDUSTRIAL PANEL PC 21.5" TOUCHSCREEN	PC1321BPH	MAPLE SYSTEMS	NO
5	1	RIGHT SIDE MOUNT PANEL 78"X14"	SCE-90SMP14	SAGINAW	YES
6	1	INTERFACE PORT/POWER	P-R2-M9-RAC	GRACEPORT	NO
7	4	CB 10A 1P D CURVE	FAZ-D10-1-SP	AUTOMATION DIRECT	YES
8	2	DC POWER SUPPLY 24V 10A	SDN10-24-100C	SOLA HEVI-DUTY	YES
9	1	DC UPS POWER MODULE	SDU 10-24	SOLA HEVI-DUTY	YES
10	1	DC UPS BATTERY MODULE	SDU 24-BAT	SOLA HEVI-DUTY	YES
11	1	ETHERNET SWITCH 16TX	116TX	RED LION N-TRON	
12	1	ETHERNET SWITCH 8TX 4FX-ST	112FX4-ST	RED LION N-TRON	NO
13	1	COMPACTLOGIX 5380 31 I/O 60 EIP	5069-L330ER	ALLEN-BRADLEY	NO
14	2	8 CHANNEL ANALOG INPUT MODULE	5069-IF8	ALLEN-BRADLEY	NO
15	2	8 CHANNEL ANALOG OUTPUT MODULE	5069-OF8	ALLEN-BRADLEY	NO
16	6	16 POINT DISCRETE INPUT MODULE	5069-IB16	ALLEN-BRADLEY	NO
17	2	16 POINT RELAY OUTPUT MODULE	5069-OW16	ALLEN-BRADLEY	NO
18	12	CB 2A 1P B CURVE	FAZ-B2-1-SP	AUTOMATION DIRECT	YES
19	32	CONTROL RELAY 1PDT 24VDC	781-1C-24D	AUTOMATION DIRECT	YES
20	32	RELAY BASE	781-1C-SKT-1	AUTOMATION DIRECT	YES
21	1	FIBER PATCH PANEL 24ST MM DIN RAIL	WMP2-08-08-00-00-1	RLH INDUSTRIES	YES
22	2	FIBER PATCH PLATE 12ST	MULTIMODE OM1-OM4	RLH INDUSTRIES	YES
23					
24					
25					
26					
27					
28	16	4-20 mA SURGE SUPPRESSOR	DLA-24D3	CITEL	NO
29	300	TERMINAL BLOCK	DN-T12A	AUTOMATION DIRECT	YES
30	12	TERMINAL BLOCK END COVER	DN-EB35	AUTOMATION DIRECT	YES
31	10	GROUND TERMINAL BLOCK	KN-G12SP-10	AUTOMATION DIRECT	NO
32	40'	35MM DIN RAIL SLOTTED STEEL	DN-R35S1	AUTOMATION DIRECT	YES
33	10	ANGLED DIN RAIL SUPPORT BRACKET	DN-ASB1	AUTOMATION DIRECT	YES
34	32'	3"X4" WHITE DUCT AND COVER	T1-3040W-1	AUTOMATION DIRECT	YES
35	24'	4"X4" WHITE DUCT AND COVER	T1-4040W-1	AUTOMATION DIRECT	YES

THE CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED MISCELLANEOUS PARTS, INCLUDING MTW AND SHIELDED CABLE, WIRE LABELS, TERMINAL LABELS, TERMINAL JUMPERS, PATCH CABLES

CONTROL PANEL PLC-EFF
BILL OF MATERIAL

DETAIL C
N.T.S.

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION | DATE

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STATE OF ARKANSAS
MATTHEW S. WEIR
No. 9588
PROFESSIONAL ENGINEER
3-21-25
K. Scott Wilson

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EFFLUENT ELECTRICAL BUILDING
CONTROL PANEL PLC-EFF
ELEVATION, LAYOUT, AND BOM

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: II-01

SHEET NO.
II-1

BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\II-01.DWG, 3/21/2025 10:24 AM, MATT WEIR, LAYOUT1

I/O CARD 1	DESCRIPTION
0	7201-PWP-PW1 IN AUTO
1	7201-PWP-PW1 RUNNING
2	7201-PWP-PW1 VFD FAULT
3	7201-PWP-PW1 EXTERNAL FAULT
4	7202-PWP-PW2 IN AUTO
5	7202-PWP-PW2 RUNNING
6	7202-PWP-PW2 VFD FAULT
7	7202-PWP-PW2 EXTERNAL FAULT
8	7101-FEP-WW1 IN AUTO
9	7101-FEP-WW1 RUNNING
10	7101-FEP-WW1 VFD FAULT
11	7101-FEP-WW1 EXTERNAL FAULT
12	7102-FEP-WW2 IN AUTO
13	7102-FEP-WW2 RUNNING
14	7102-FEP-WW2 VFD FAULT
15	7102-EFP-WW2 EXTERNAL FAULT

I/O CARD 2	DESCRIPTION
0	7103-FEP-WW3 IN AUTO
1	7103-FEP-WW3 RUNNING
2	7103-FEP-WW3 VFD FAULT
3	7103-FEP-WW3 EXTERNAL FAULT
4	7104-FEP-DW1 IN AUTO
5	7104-FEP-DW1 RUNNING
6	7104-FEP-DW1 VFD FAULT
7	7104-FEP-DW1 EXTERNAL FAULT
8	7105-FEP-DW2 IN AUTO
9	7105-FEP-DW2 RUNNING
10	7105-FEP-DW2 VFD FAULT
11	7105-FEP-DW2 EXTERNAL FAULT
12	7106-FEP-DW3 IN AUTO
13	7106-FEP-DW3 RUNNING
14	7106-FEP-DW3 VFD FAULT
15	7106-FEP-DW3 EXTERNAL FAULT

I/O CARD 3	DESCRIPTION
0	6300-PA-PAB1 IN AUTO
1	6300-PA-PAB1 RUNNING
2	6300-PA-PAB1 VFD FAULT
3	6300-PA-PAB1 EXTERNAL FAULT
4	6301-PA-PAB2 IN AUTO
5	6301-PA-PAB2 RUNNING
6	6301-PA-PAB2 VFD FAULT
7	6301-PA-PAB2 EXTERNAL FAULT
8	6302-PA-PAB3 IN AUTO
9	6302-PA-PAB3 RUNNING
10	6302-PA-PAB3 VFD FAULT
11	6302-PA-PAB3 EXTERNAL FAULT
12	7901-ATS-UTIL ATS-EFF ON UTILITY
13	7902-ATS-GEN ATS-EFF ON GENERATOR
14	7911-GEN-RUN GEN-EFF RUNNING
15	7912-GEN-ALARM GEN-EFF IN ALARM

DISCRETE INPUTS

DETAIL D / –

N.T.S.

I/O CARD 4	DESCRIPTION
0	4517-RAS-P17 RAS P17 IN AUTO
1	4517-RAS-P17 RAS P17 RUNNING
2	4517-RAS-P17 RAS P17 VFD FAULT
3	4517-RAS-P17 RAS P17 EXTERNAL FAULT
4	4517-RAS-P17 RAS P17 SEAL ALARM
5	4517-RAS-P17 RAS P17 OVERTEMP
6	4518-RAS-P18 RAS P18 IN AUTO
7	4518-RAS-P18 RAS P18 RUNNING
8	4518-RAS-P18 RAS P18 VFD FAULT
9	4518-RAS-P18 RAS P18 EXTERNAL FAULT
10	4518-RAS-P18 RAS P18 SEAL ALARM
11	4518-RAS-P18 RAS P18 OVERTEMP
12	7201-PWP-PW1 FSW-P01 FLOW SWITCH
13	7202-PWP-PW2 FSW-P02 FLOW SWITCH
14	7101-FEP-WW1 FS-104 FLOW SWITCH
15	7102-FEP-WW2 FS-105 FLOW SWITCH

I/O CARD 5	DESCRIPTION
0	7103-FEP-WW3 FS-106 FLOW SWITCH
1	7104-FEP-DW1 FS-101 FLOW SWITCH
2	7105-FEP-DW2 FS-102 FLOW SWITCH
3	7106-FEP-DW3 FS-103 FLOW SWITCH
4	–
5	–
6	–
7	–
8	–
9	–
10	–
11	–
12	–
13	–
14	–
15	–

I/O CARD 6	DESCRIPTION
0	–
1	–
2	–
3	–
4	–
5	–
6	–
7	–
8	–
9	–
10	–
11	–
12	–
13	–
14	–
15	–

I/O CARD 10	DESCRIPTION
0	7201-PWP-PW1 CALL
1	7202-PWP-PW2 CALL
2	7101-FEP-WW1 CALL
3	7102-FEP-WW2 CALL
4	7103-FEP-WW3 CALL
5	7104-FEP-DW1 CALL
6	7105-FEP-DW2 CALL
7	7106-FEP-DW3 CALL
8	6300-PA-PAB1 CALL
9	6301-PA-PAB2 CALL
10	6302-PA-PAB3 CALL
11	4517-RAS-P17 RAS P17 CALL
12	4518-RAS-P18 RAS P18 CALL
13	–
14	–
15	–

I/O CARD 11	DESCRIPTION
0	–
1	–
2	–
3	–
4	–
5	–
6	–
7	–
8	–
9	–
10	–
11	–
12	–
13	–
15	–
15	–

DISCRETE OUTPUTS

DETAIL E / –

N.T.S.

I/O CARD 13	DESCRIPTION
0	7100-LT-EFF1 LT-101 WET WELL LEVEL
1	7102-LT-EFF2 LT-102 WET WELL LEVEL
2	7200-PIT-PWD DISCHARGE PRESSURE
3	7202-PIT-PWD DISCHARE PRESSURE
4	–
5	–
6	–
7	–

I/O CARD 14	DESCRIPTION
0	–
1	–
2	–
3	–
4	–
5	–
6	–
7	–

ANALOG INPUTS

DETAIL F / –

N.T.S.

I/O CARD 16	DESCRIPTION
0	7201-PWP-PW1 SPEED REF
1	7202-PWP-PW2 SPEED REF
2	7101-FEP-WW1 SPEED REF
3	7102-FEP-WW2 SPEED REF
4	7103-FEP-WW3 SPEED REF
5	7104-FEP-DW1 SPEED REF
6	7105-FEP-DW2 SPEED REF
7	7106-FEP-DW3 SPEED REF

I/O CARD 17	DESCRIPTION
0	6300-PA-PAB1 SPEED REF
1	6301-PA-PAB2 SPEED REF
2	6302-PA-PAB3 SPEED REF
3	4517-RAS-P17 RAS P17 SPEED REF
4	4518-RAS-P18 RAS P18 SPEED REF
5	–
6	–
7	–

ANALOG OUTPUTS

DETAIL G / –

N.T.S.

1"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
LANCE S. MARTIN
PROFESSIONAL ENGINEER
No. 9586
3/21/25
Scott Wilson

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EFFLUENT ELECTRICAL BUILDING CONTROL PANEL PLC-EFF I/O LAYOUT

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: II-02

SHEET NO.
II-2

BID DRAWINGS
MARCH 21, 2025

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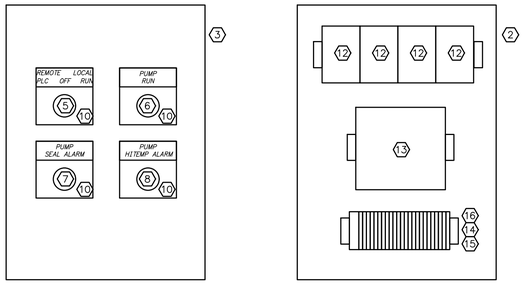
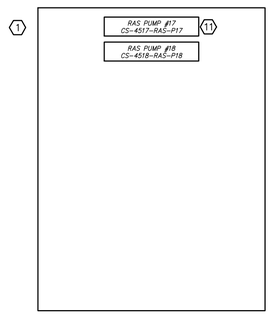
KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
⟨1⟩	2	ENCLOSURE, NEMA4X SS WALL-MOUNT	CSD16128SS	HOFFMAN	YES
⟨2⟩	2	ENCLOSURE SUBPANEL	CP1612	HOFFMAN	YES
⟨3⟩	2	SWING-OUT SUBPANEL	CSPB1612	HOFFMAN	YES
⟨4⟩	2	ENCLOSURE MOUNTING BRACKETS SS	CMFKSS	HOFFMAN	YES
⟨5⟩	2	3 POS SSW 1NO 1NC, NEMA4X	9001SKS43BH13	SQUARE D	YES
⟨6⟩	2	PILOT LIGHT, GREEN, LED, NEMA4X	9001SKP1LGG31	SQUARE D	YES
⟨7⟩	2	PILOT LIGHT, AMBER, LED, NEMA4X	9001SKP1LYA31	SQUARE D	YES
⟨8⟩	2	PILOT LIGHT, RED, LED, NEMA4X	9001SKP1LRR31	SQUARE D	YES
⟨9⟩	2	CB 1P 1A	–	–	YES
⟨10⟩	8	OPERATOR LEGEND WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
⟨11⟩	8	EQUIPMENT ID, WHITE WITH BLACK LETTERS AS SHOWN		CUSTOM	YES
⟨12⟩	8	RELAY 4PDT 120V LED W BASE	784-4C-120A/SKT-1	AUTOMATIONDIRECT	YES
⟨13⟩	2	SEAL FAIL SENSOR RELAY BY PUMP OEM	MINICAS	FLYGT	YES
⟨14⟩	50	WIRING TERMINAL	DN-T12A	AUTOMATIONDIRECT	YES
⟨15⟩	2'	RAISED DIN RAIL, 35MM X 10MM, AL	DN-R35SAL1	AUTOMATIONDIRECT	YES
⟨16⟩	4	END BRACKETS	DN-EB35	AUTOMATIONDIRECT	YES

SUBMERSIBLE PUMP CONTROL STATIONS
TOTAL BILL OF MATERIAL (2 CONTROL STATIONS)

DETAIL A
N.T.S. EI-4





SUBMERSIBLE PUMP CONTROL STATIONS
CONTROL STATION LAYOUT (TYPICAL OF 8)

DETAIL B
1" = 4" EI-4

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

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STATE OF ARKANSAS
L. Scott Mason
PROFESSIONAL ENGINEER
No. 9588
3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

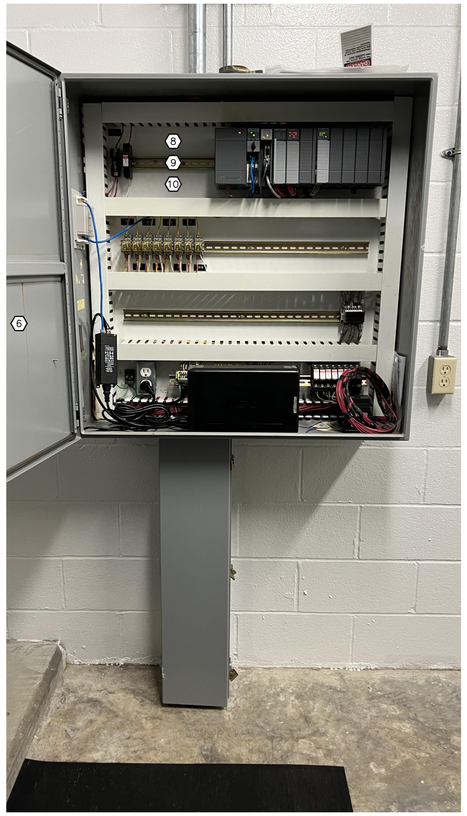
FILTRATION, POST AERATION, AND EFFLUENT SUBMERSIBLE PUMP CONTROL STATIONS BOM AND LAYOUT

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: II-03

SHEET NO.
II-3

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\II-03.DWG, 3/21/2025 10:25 AM, MATT WEIR, LAYOUT1



EXISTING PLC–BLR CONTROL PANEL

PHOTO 1 / –

EXISTING PLC RACK

PHOTO 2 / –

KEY	QTY	ITEM	CAT. #	MANUFACTURER	EQUAL
1					
2					
3					
4					
5					
6	1	INTERFACE PORT/POWER	P-R2-M9-RAC	GRACEPORT	NO
7					
8	1	DC POWER SUPPLY 24V 10A	SDN10-24-100C	SOLA HEVI-DUTY	YES
9	1	FIBER PATCH PANEL, 6ST DIN RAIL	PWS1A1D/APST6LSMMG	RLH INDUSTRIES	YES
10	1	ETHERNET SWITCH 4TX1FX	105FX-ST	RED LION/NTRON	YES
11					
12					
13	1	COMPACTLOGIX 5380 31 I/O 60 EIP	5069-L330ER	ALLEN-BRADLEY	NO
14	1	8 CHANNEL ANALOG INPUT MODULE	5069-IF8	ALLEN-BRADLEY	NO
15	0	8 CHANNEL ANALOG OUTPUT MODULE	5069-OF8	ALLEN-BRADLEY	NO
16	2	16 POINT DISCRETE INPUT MODULE	5069-IB16	ALLEN-BRADLEY	NO
17	1	16 POINT RELAY OUTPUT MODULE	5069-OW16	ALLEN-BRADLEY	NO
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					

THE CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED MISCELLANEOUS PARTS, INCLUDING MTW AND SHIELDED CABLE, WIRE LABELS, TERMINAL LABELS, TERMINAL JUMPERS, PATCH CABLES

CONTROL PANEL PLC–INF
BILL OF MATERIAL

DETAIL C / N.T.S. –

GENERAL NOTES:

1. CONTRACTOR SHALL REPLACE THE EXISTING SLC-5/05 RACK AND MODULE SYSTEM WITH COMPACTLOGIX COMPONENTS. THE CONTRACTOR SHALL USE EXISTING WIRING FOR THE PLC I/O. THE CONTRACTOR SHALL ADD 24VDC POWER SUPPLY, FIBER OPTIC, AND NETWORK SWITCH COMPONENTS. COORDINATE ALL WORK WITH THE ENGINEER.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9588
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

BLOWER BUILDING
CONTROL PANEL PLC-BLR
PLC RETROFIT IN EXISTING ENCLOSURE
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: LSM
DRAWN BY: LSM
HWEI NO.: 2021037
FILENAME: IK-01

SHEET NO.
IK-1

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