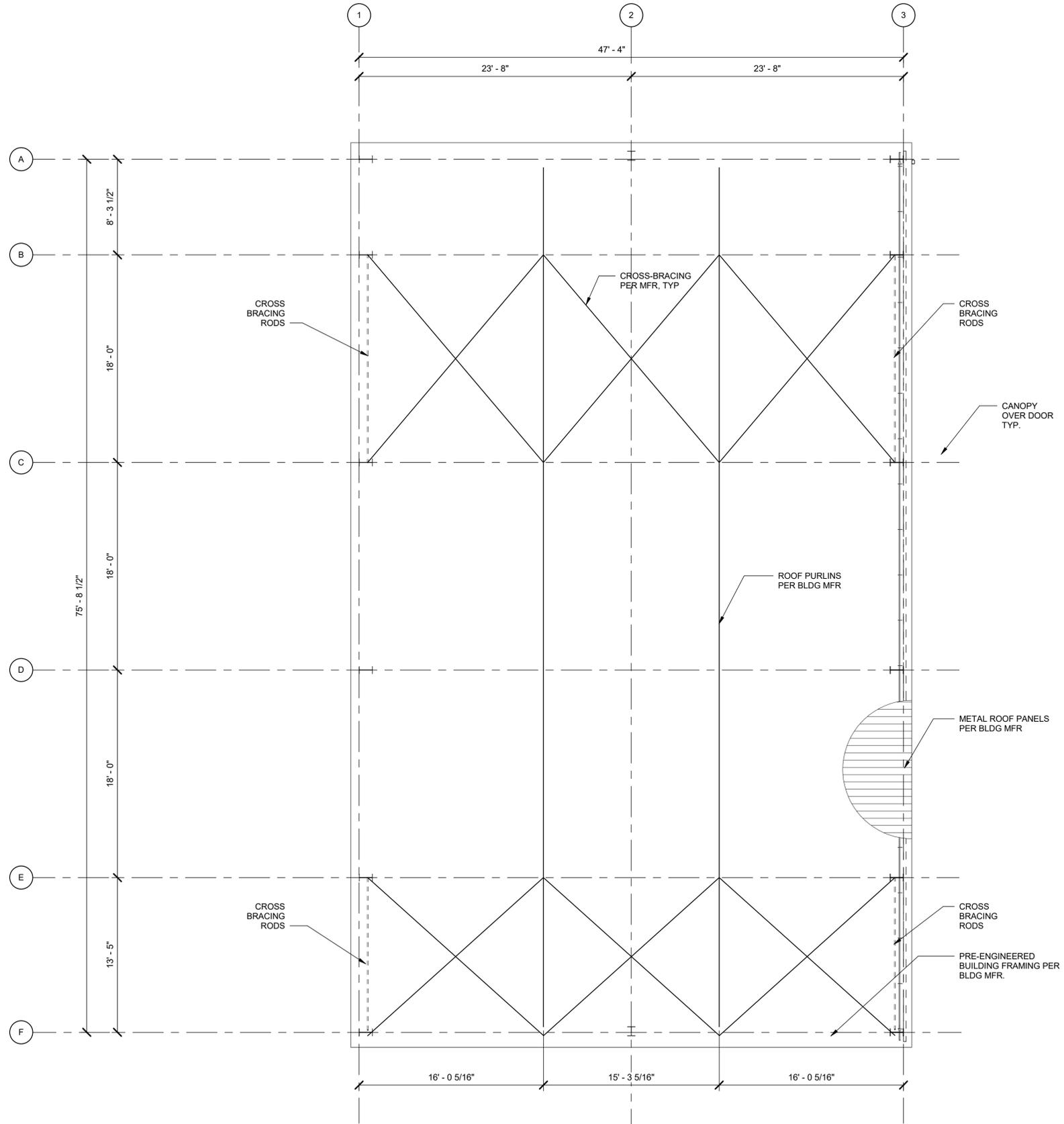


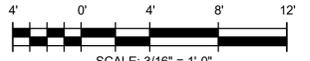
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PLAN NOTES:

- FRAMING SHOWN IN THE PLAN IS SCHEMATIC ONLY. ACTUAL FRAMING LAYOUT, MEMBER SIZES, AND CONNECTIONS ARE TO BE DESIGNED AND PROVIDED BY THE PRE-ENGINEERED METAL BUILDING MANUFACTURER

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



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1	9/15/23	ISSUED FOR BIDS

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
UV BUILDING ROOF PLAN

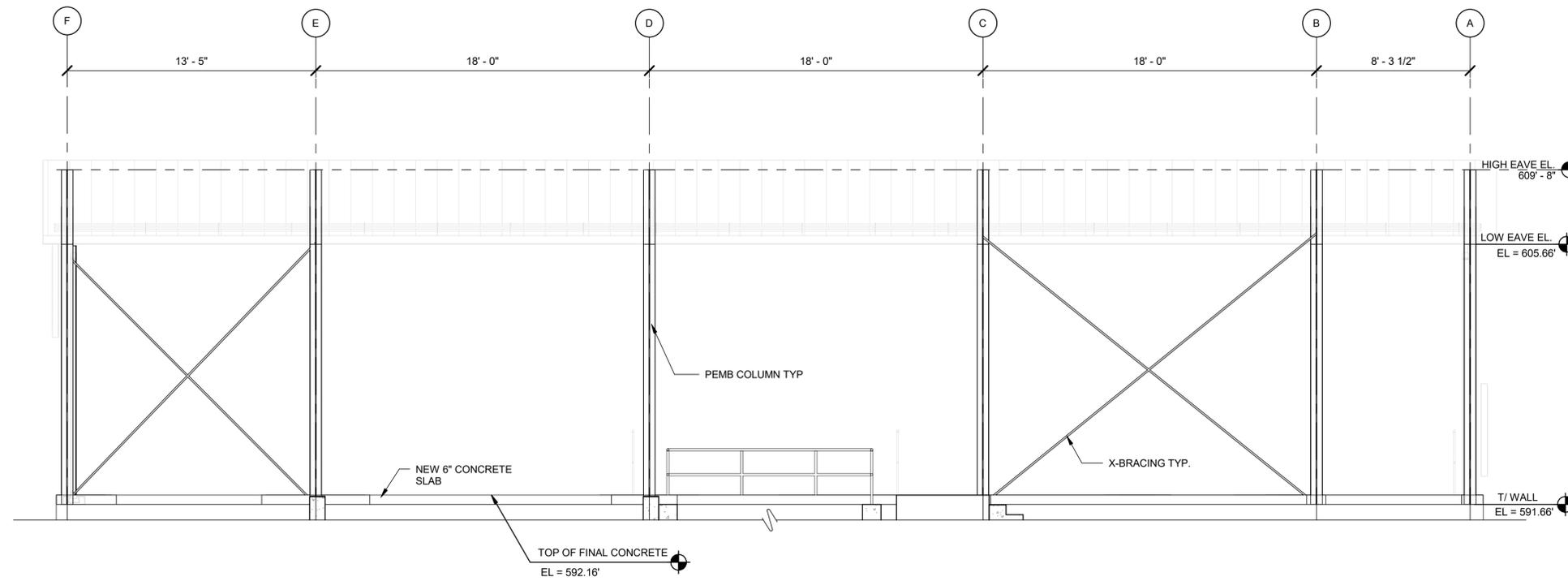
PROJ: 200-325577-22001
DESN: J. THOMAS
DRWN: J. THOMAS
CHKD: T. MADDELA

S-104

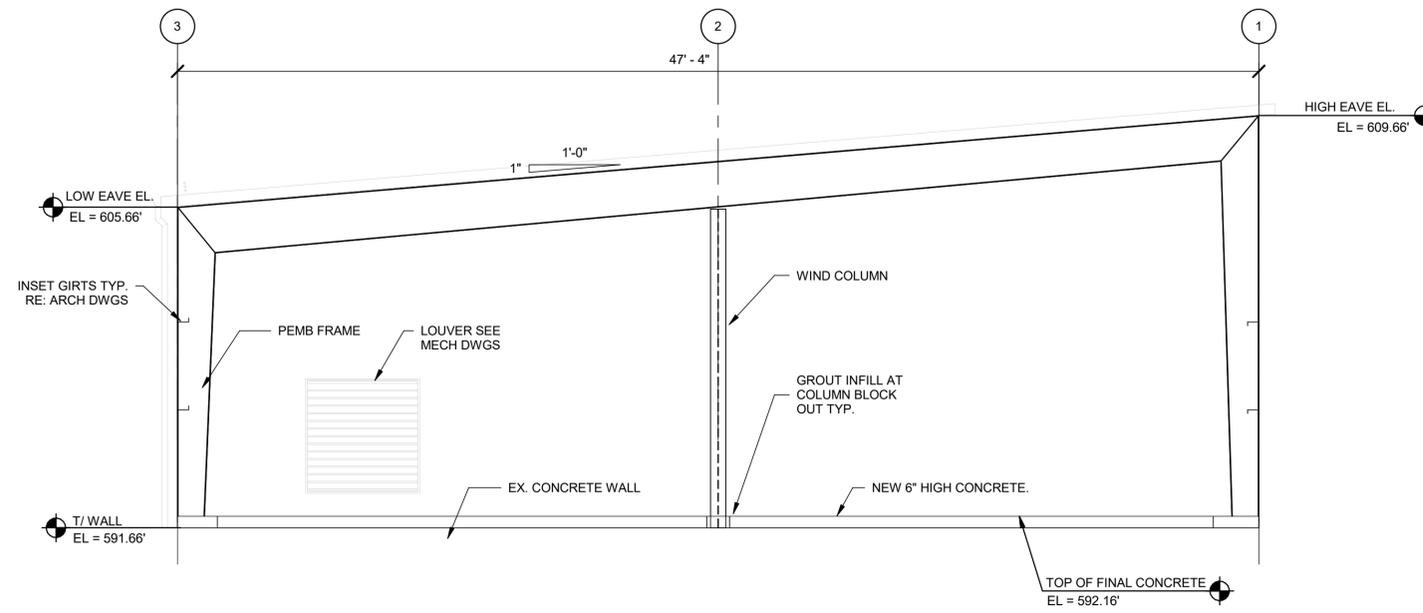
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Bar measures 1 inch, otherwise drawing is not to scale

1 2 3 4 5 6 7



A ELEVATION
S-201 SCALE: 1/4" = 1'-0"



B ELEVATION
S-201 SCALE: 1/4" = 1'-0"



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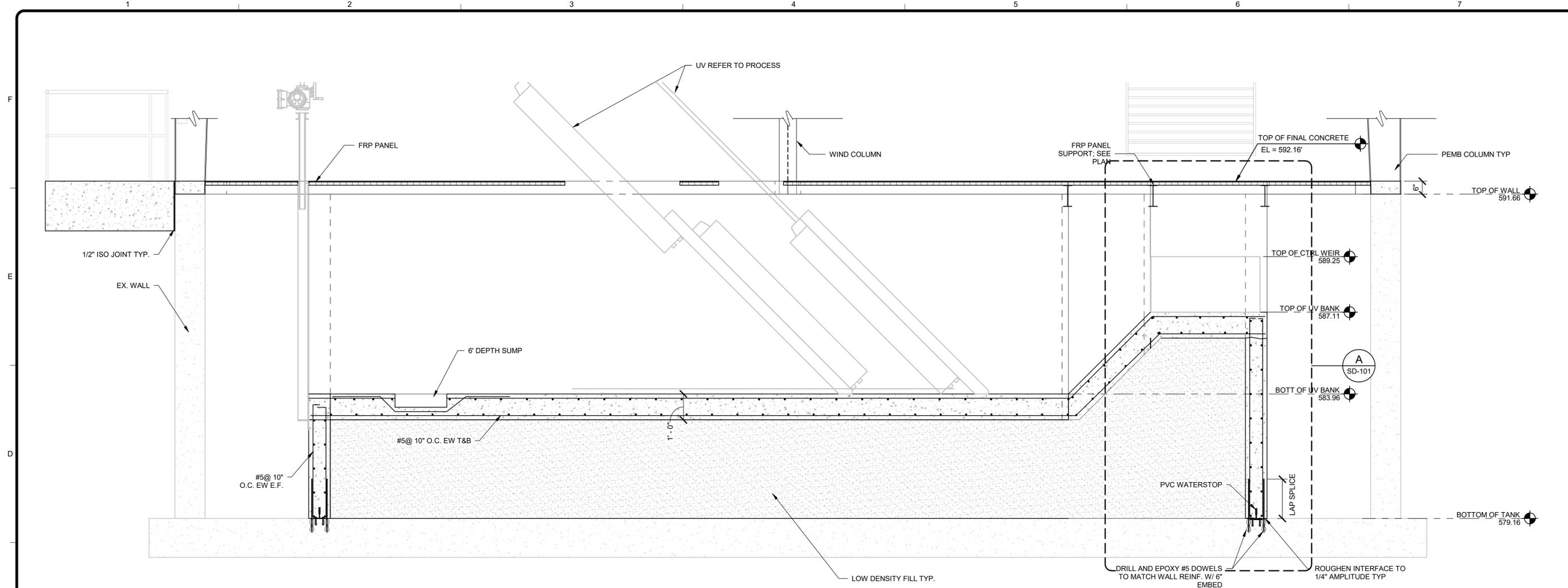
BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
UV BUILDING ELEVATIONS

PROJ: 200-325577-22001
DESN: J. THOMAS
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CHKD: T. MADDELA

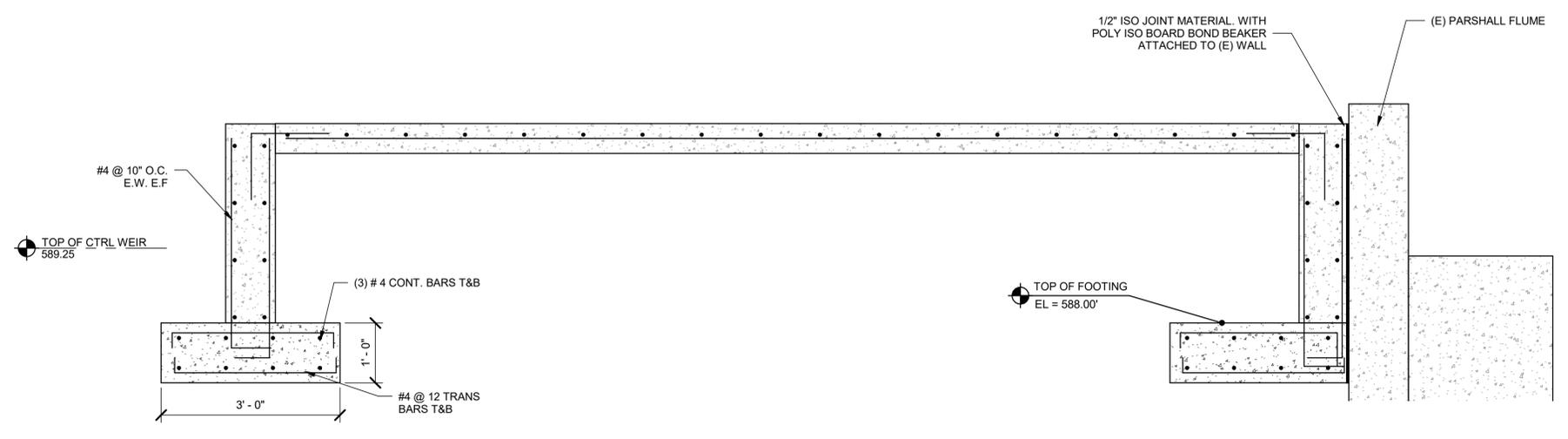
S-201

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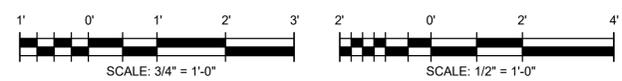
Bar measures 1 inch, otherwise drawing is not to scale



A UV SECTION
S-301 SCALE: 1/2" = 1'-0"



B RAMP SECTION
S-301 SCALE: 3/4" = 1'-0"



9/7/2023 3:56:02 PM BIM: 360:/200-325577-22001 BCDWS UV DESIGNS-325577-22001-21.rvt

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BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
UV BUILDING SECTIONS

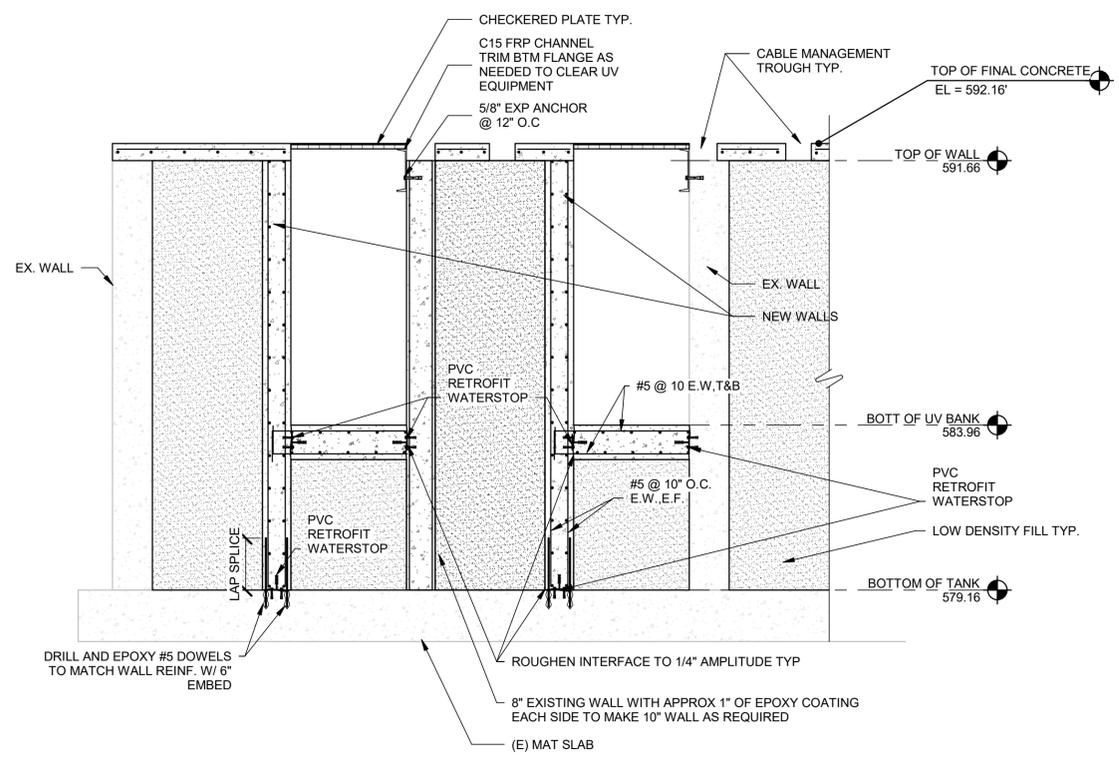
PROJ:	200-325577-22001
DESN:	J. THOMAS
DRWN:	J. THOMAS
CHKD:	T. MADDELA

S-301

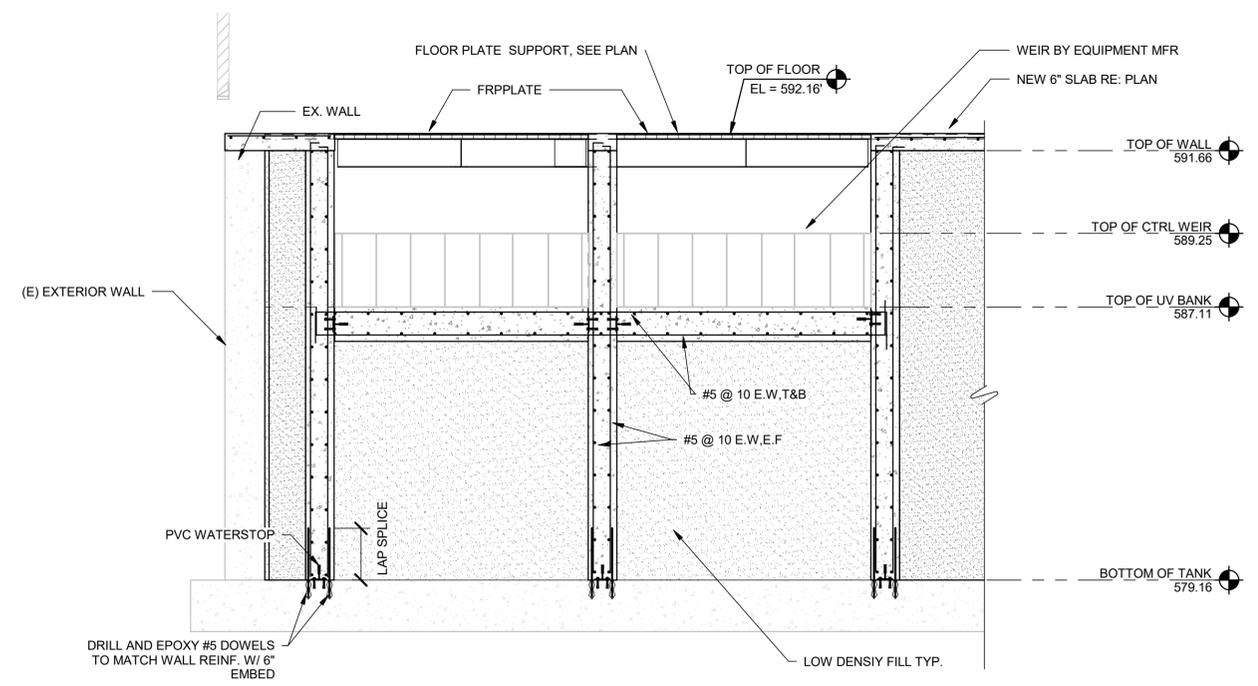
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Bar measures 1 inch, otherwise drawing is not to scale

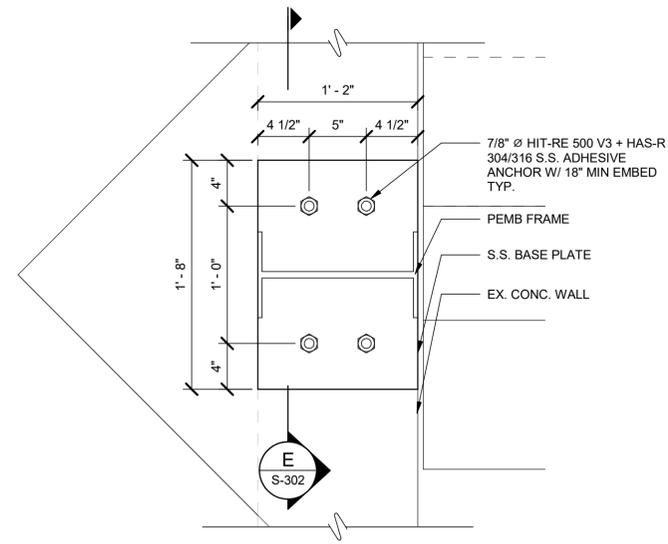
1 2 3 4 5 6 7



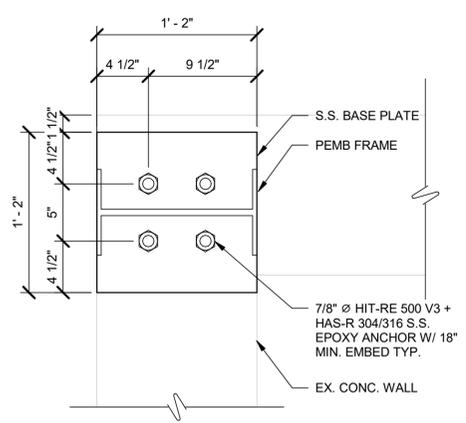
C SECTION
S-302 SCALE: 3/8" = 1'-0"



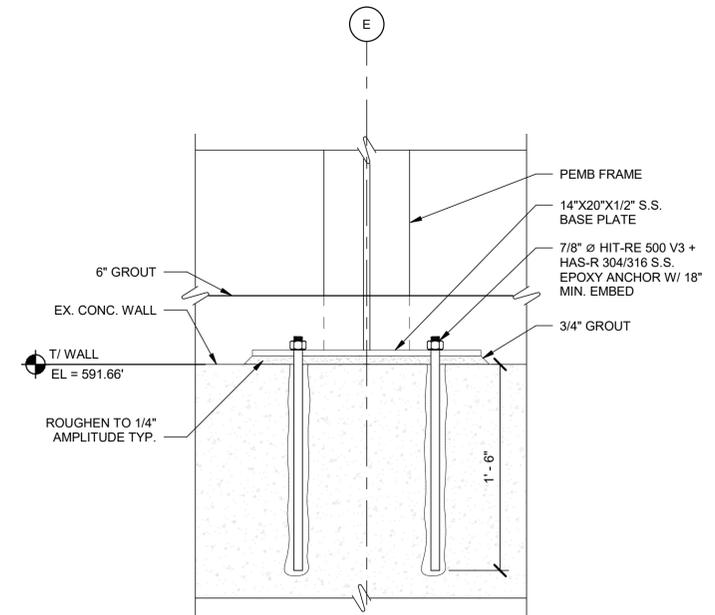
D SECTION
S-302 SCALE: 3/8" = 1'-0"



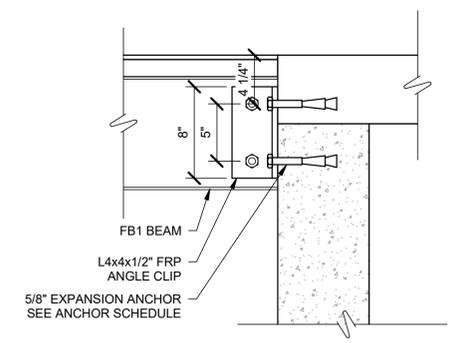
1 BASE PL DETAIL
S-302 SCALE: 1 1/2" = 1'-0"



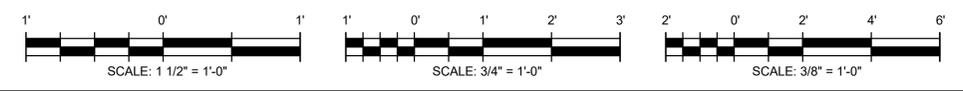
2 CORNER BASEPLATE DETAIL
S-302 SCALE: 1 1/2" = 1'-0"



E TYP. BASE PLATE SECTION
S-302 SCALE: 1 1/2" = 1'-0"



F FRP BEAM TO WALL CONN
S-302 SCALE: 1 1/2" = 1'-0"



Bar measures 1 inch, otherwise drawing is not to scale

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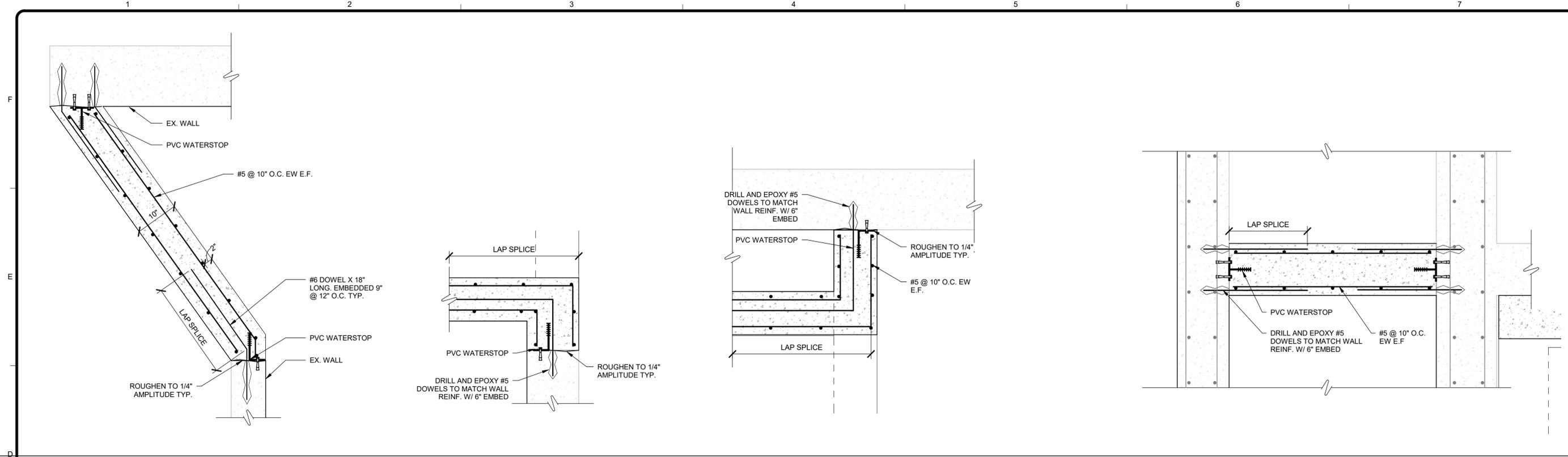
MARK	DATE	DESCRIPTION	BY
1	9/15/23	ISSUED FOR BIDS	

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
UV BUILDING SECTIONS

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DESN:	J. THOMAS
DRWN:	J. THOMAS
CHKD:	T. MADDELA

S-302

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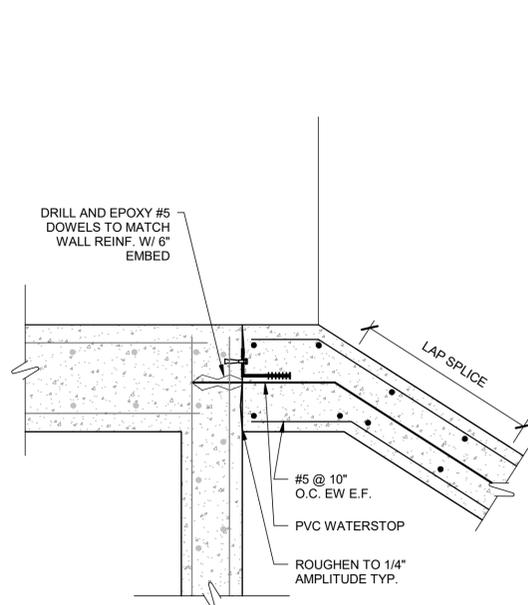


3 NEW WALL
S-303 SCALE: 1" = 1'-0"

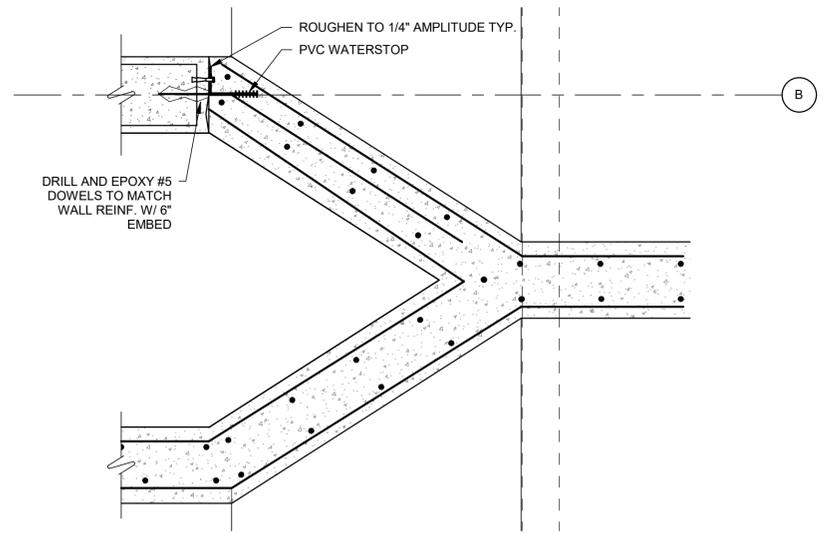
4 NEW WALL
S-303 SCALE: 1" = 1'-0"

5 NEW WALL
S-303 SCALE: 1" = 1'-0"

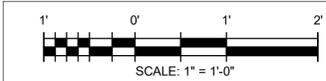
6 NEW WALL
S-303 SCALE: 1" = 1'-0"



7 NEW WALL
S-303 SCALE: 1" = 1'-0"



8 NEW WALL
S-303 SCALE: 1" = 1'-0"



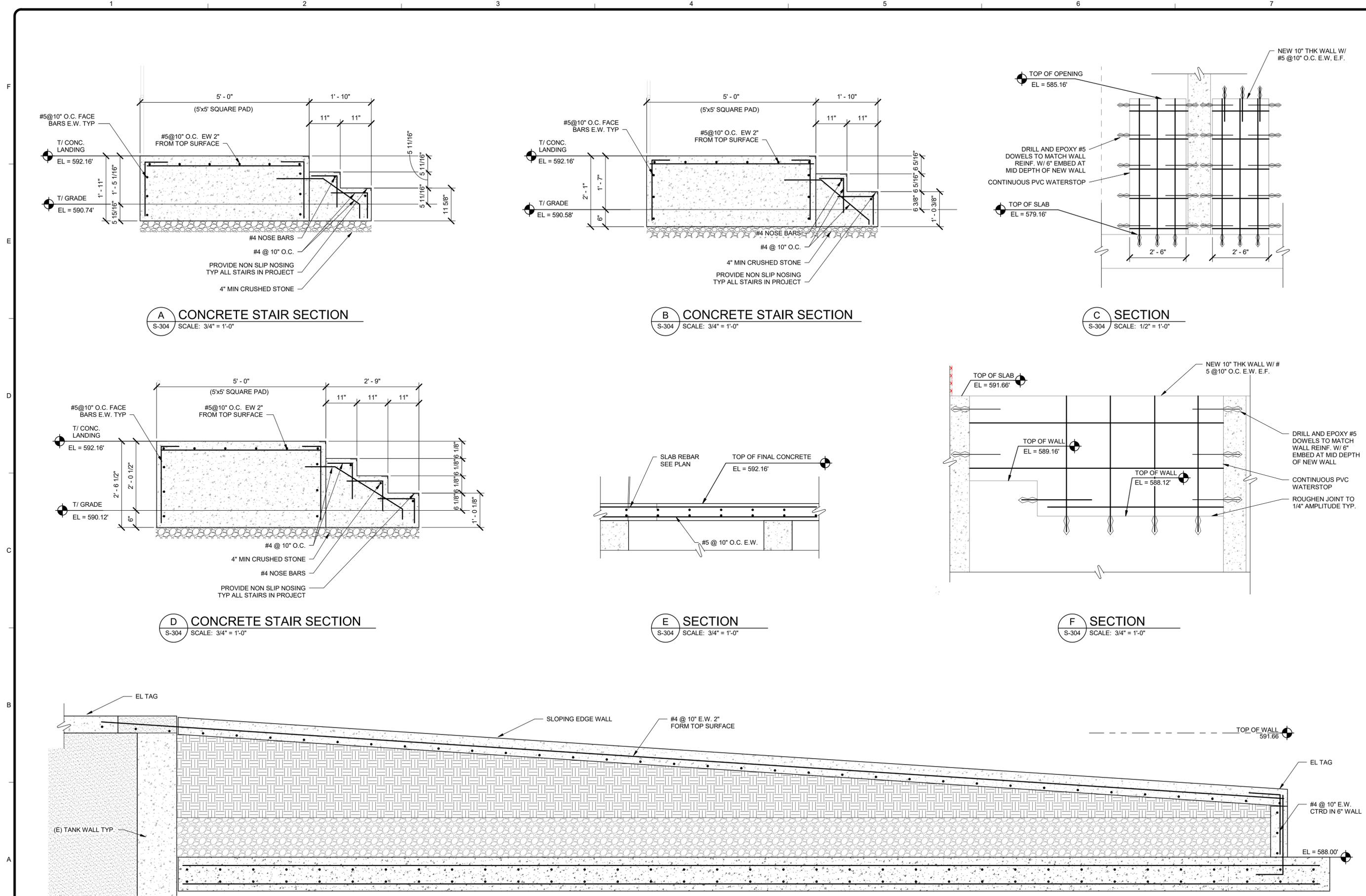
Bar measures 1 inch, otherwise drawing is not to scale

MARK	DATE	DESCRIPTION
1	9/15/23	ISSUED FOR BIDS

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
UV BUILDING ENLARGED
SECTIONS

PROJ: 200-325577-22001
DESN: J. THOMAS
DRWN: J. THOMAS
CHKD: T. MADDELA

S-303



MARK	DATE	DESCRIPTION
1	9/15/23	ISSUED FOR BIDS

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
UV BUILDIGN SECTIONS

PROJ: 200-325577-22001
DES: T.MADDELA
DRWN: B FOX
CHKD: T.MADDELA

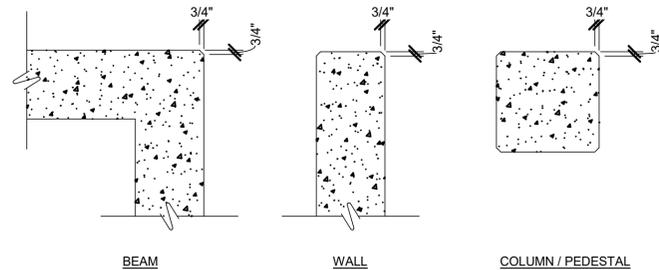
S-304



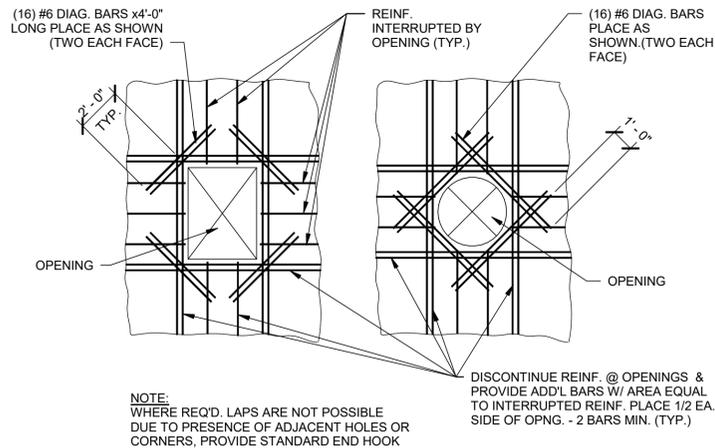
Bar measures 1 inch, otherwise drawing is not to scale

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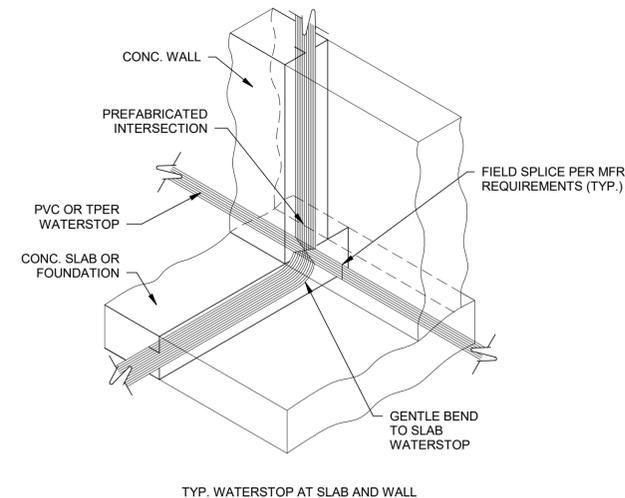
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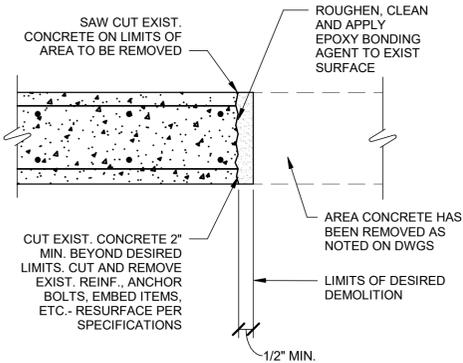
1 CHAMFER DETAILS
S-501 NTS



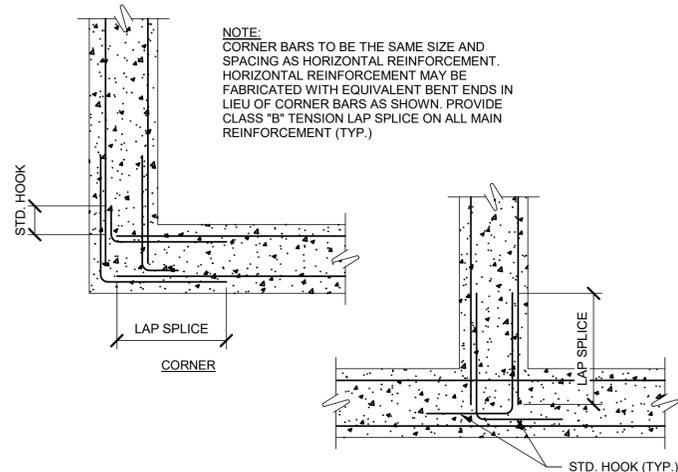
2 REINF. STEEL @ OPENING
S-501 SCALE: NTS



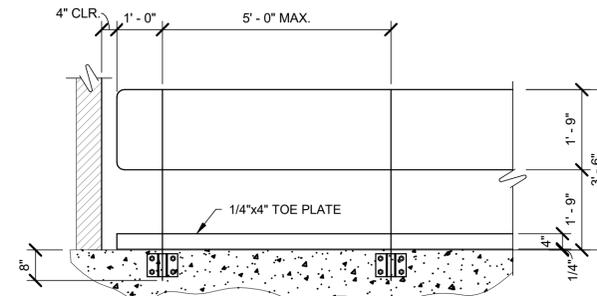
3 WATERSTOP AT SLAB & WALL
S-501 SCALE: NTS



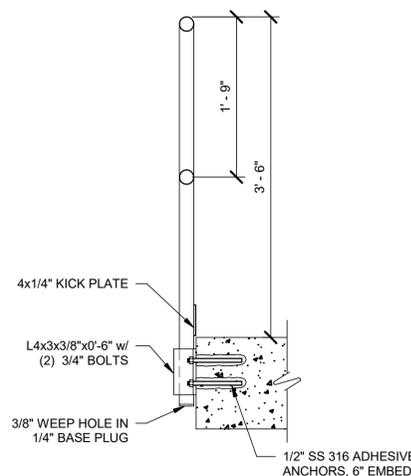
4 RESURFACING DEMO CONCRETE
S-501 SCALE: NTS



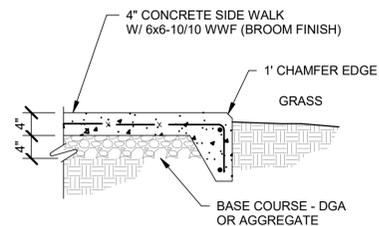
5 WALL CORNERS @ TANKS
S-501 SCALE: NTS



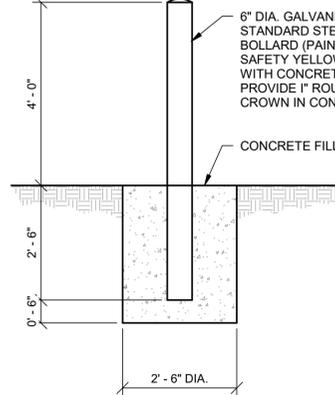
6 TYP. SIDEMOUNTED TO CONG. GUARDRAIL DETAIL
S-501 SCALE: NTS



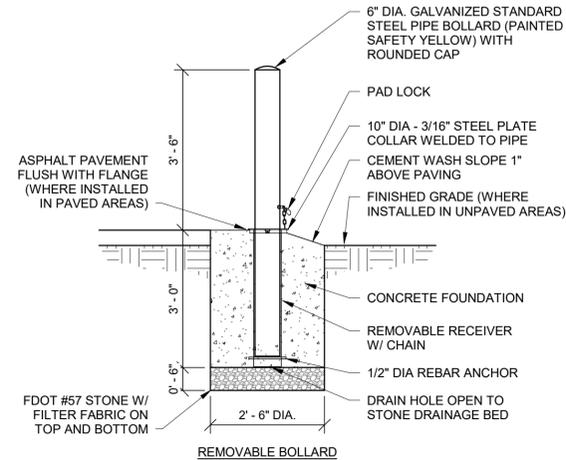
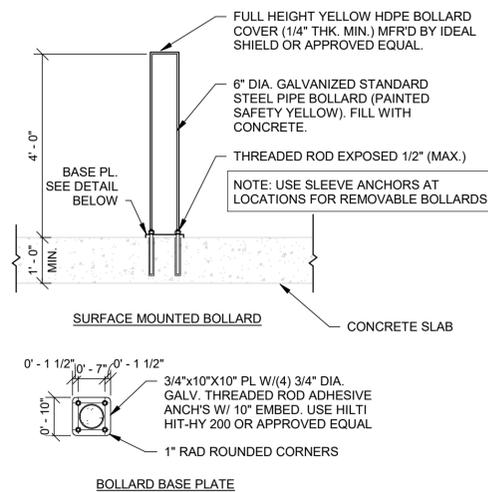
7 GUARDRAIL TYP. DETAIL
S-501 SCALE: NTS



8 SIDEWALK
S-501 SCALE: NTS



9 TYP. BOLLARD DETAILS
S-501 SCALE: 1/2" = 1'-0"



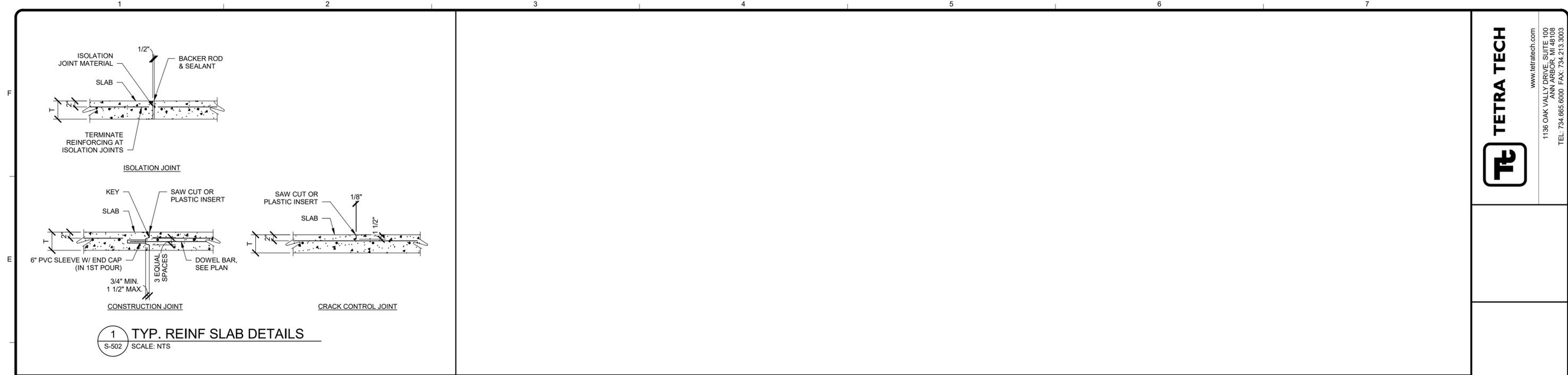
MARK	DATE	DESCRIPTION	BY
1	9/15/23	ISSUED FOR BIDS	

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
TYPICAL DETAILS

PROJ: 200-325577-22001
DESN: J. THOMAS
DRWN: J. THOMAS
CHKD: T. MADDELA

S-501

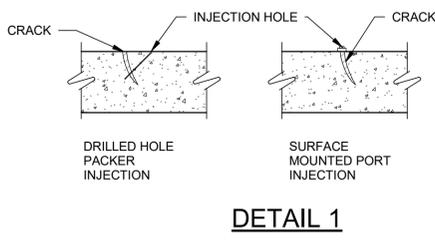
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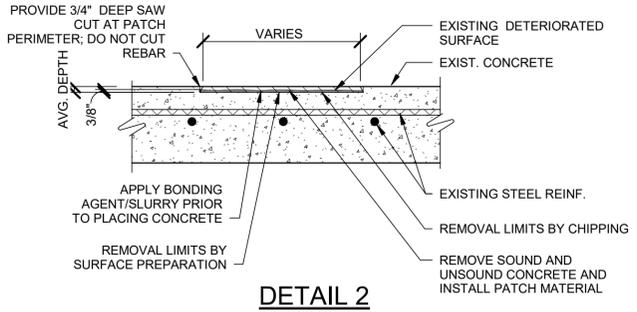
REPAIR SCHEDULE NOTES:

1. INSTALLATION OF ALL REPAIRS SHALL BE IN ACCORDANCE WITH ALL MANUFACTURERS RECOMMENDATIONS AND WITH SPECIFICATIONS SECTION 03 01 30.00.
2. CRACKS IN WALLS, SLABS AND FLOORS SHALL BE ASSUMED TO PENETRATE THE FULL COMPONENT THICKNESS AND MAY BE REPAIRED FROM EITHER SIDE.
3. CLEAN ALL EXISTING CONCRETE SURFACES. REMOVE ALL DIRT, EFFLORESCENCE, MILDEW, AND STAINS USING A LOW-PRESSURE CLEANING METHOD AS IF PREPARING FOR SEALER.
4. THE TYPES AND QUANTITIES OF REPAIRS LISTED IN THE REPAIR SCHEDULE ARE ESTIMATED. TYPES AND QUANTITIES ARE TO BE CONFIRMED DURING INSPECTION BY THE CONTRACTOR.
5. ESTIMATED QUANTITIES ARE ONLY GIVEN AS MINIMUM VALUES EXPECTED AND NOT INTENDED FOR FINAL BID PRICING. CONTRACTOR SHALL SUBMIT UNIT PRICING FOR REPAIRS AS PART OF THE BASE BID.
6. UNITS OF MEASURE ARE INDICATED BY THE FOLLOWING ABBREVIATIONS:
LF - LINEAL FEET
CF - CUBIC FEET
EA - EACH

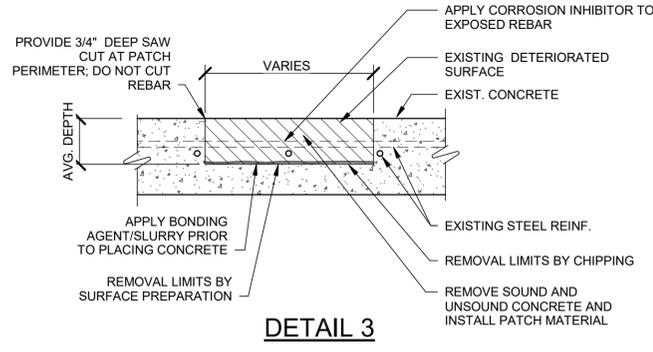
CONCRETE REPAIR & RESTORATION SCHEDULE			
No	TYPE OF DETERIORATION	REPAIR METHODS	ESTIMATED QUANTITY
1	CRACKED CONCRETE	DETAIL 1	25 LF
2	SURFACE REPAIR	DETAIL 2	1 CF
3	PARTIAL DEPTH REPAIR	DETAIL 3	2 CF



- DETAIL 1 NOTES:**
1. IDENTIFY CRACKS TO BE INJECTED. LOCATION OF CRACKS TO INJECTED ARE TO BE CONFIRMED AND APPROVED BY THE ENGINEER.
 2. LOCATE REINFORCING STEEL IN CONCRETE STRUCTURE. LOCATE INJECTION HOLE POSITION AND WORK WITH CARE TO AVOID DAMAGE TO EXISTING REINFORCING STEEL. DRILL HOLE SIZED AS RECOMMENDED BY THE INJECTION MATERIAL MANUFACTURER, AT A 45 DEGREE ANGLE TO THE SURFACE, AND BEGINNING AT A DISTANCE AWAY FROM THE CRACK SO THAT THE DRILLED HOLE INTERCEPTS THE CRACK AT APPROXIMATELY ONE-HALF THE CONCRETE DEPTH.
 3. INSERT INJECTION PACKERS AS RECOMMENDED BY THE INJECTION MATERIAL MANUFACTURER INTO THE DRILLED HOLES AND TIGHTEN.
 4. CLEAN CONCRETE SURFACE IN ACCORDANCE WITH SECTIONS 03 01 30.00
 5. PUMP INJECTOR MATERIAL THROUGH THE INJECTION PACKER UNTIL THE HOLE WILL NOT TAKE MORE MATERIAL, OR THE MATERIAL IS NO LONGER VISIBLE SEEPING OUT OF THE CRACKS.
 6. INJECTION MAY BE HORIZONTAL, VERTICAL OR OVERHEAD.
 7. AFTER EPOXY ADHESIVE HAS SET, REMOVE INJECTION PORTS AND GRIND SURFACES SMOOTH.



- DETAIL 2 NOTES:**
1. THIS DETAIL APPLIES TO DETERIORATED AREAS THAT ARE NOT DEEP ENOUGH TO IMPACT STEEL REINFORCEMENT AND ARE LOCATED AT THE TOP SIDE HORIZONTAL SURFACE WHERE A TRAFFIC MEMBRANE WILL BE APPLIED, OVERHEAD OR VERTICAL SURFACES.
 2. REMOVE ALL DETERIORATED SOUND AND UNSOUND CONCRETE IN HATCHED AREA PER SECTION 03 01 30.00 TO FORM RECTANGULAR AREA.
 3. PREPARE PATCH AREA PER SECTION 03 01 30.00.
 4. PATCH MATERIAL SHALL BE AS SPECIFIED IN SECTION 03 01 30.00 AS APPROVED BY ENGINEER.



- DETAIL 3 NOTES:**
1. THIS DETAIL APPLIES TO DETERIORATED AREAS THAT ARE DEEP ENOUGH TO IMPACT STEEL REINFORCEMENT AND ARE LOCATED AT THE TOP SIDE HORIZONTAL SURFACE WHERE A TRAFFIC MEMBRANE WILL BE APPLIED, OVERHEAD OR VERTICAL SURFACES.
 2. REMOVE ALL DETERIORATED SOUND AND UNSOUND CONCRETE IN HATCHED AREA PER SECTION 03 01 30.00 TO FORM RECTANGULAR AREA.
 3. PREPARE PATCH AREA PER SECTION 03 01 30.00, INCLUDING CLEANING AND COATING OF REINFORCEMENT.
 4. MINIMUM CLEAR DISTANCE BETWEEN REBAR AND CONCRETE DEMOS SHALL BE 3/4".
 5. PATCH MATERIAL SHALL BE AS SPECIFIED IN SECTION 03 01 30.00 AS APPROVED BY ENGINEER.

2 CONCRETE REPAIR DETAIL
S-502 SCALE: NTS

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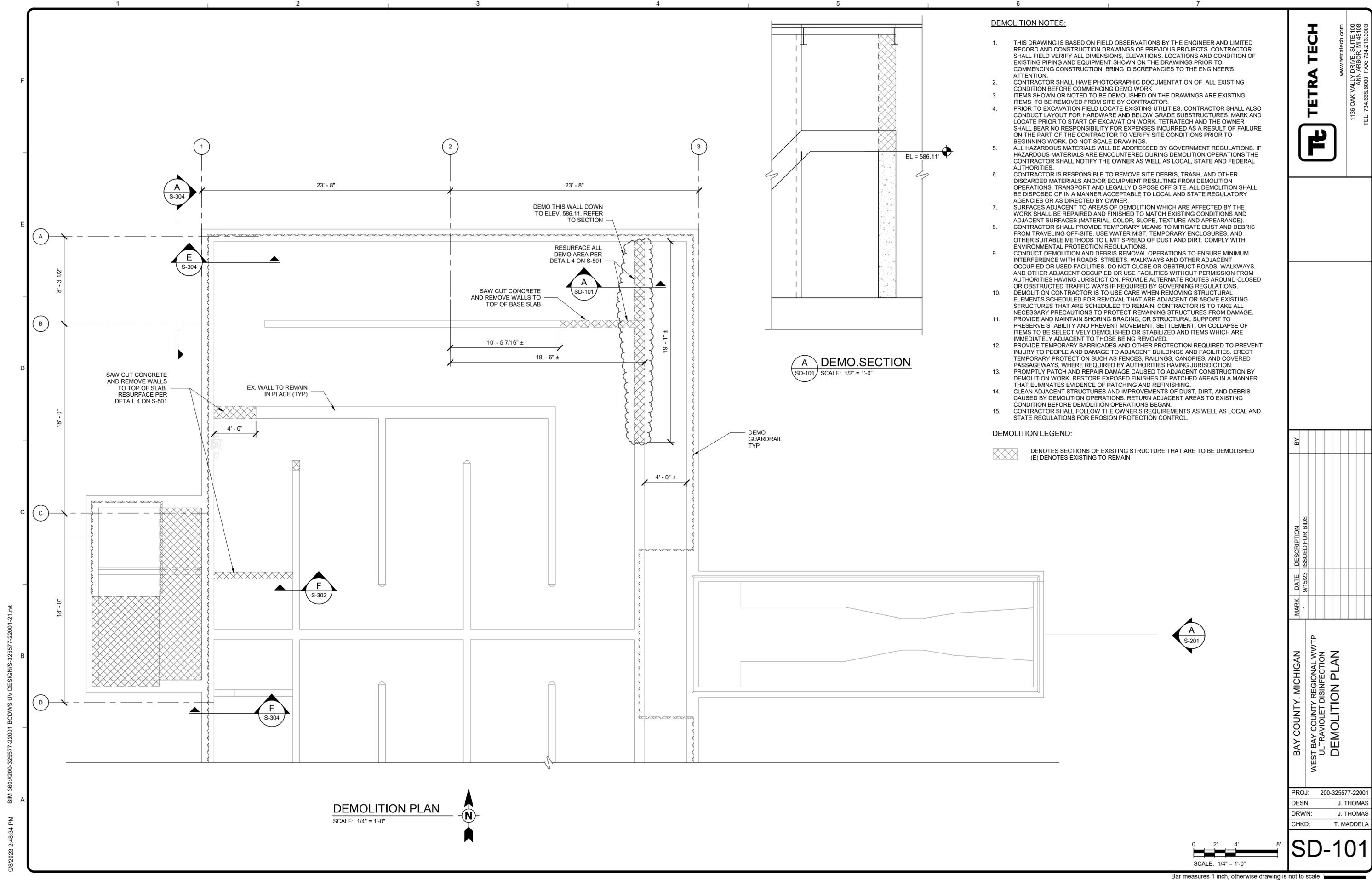
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1	9/15/23		FOR BIDS	

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
TYPICAL DETAILS

PROJ: 200-325577-22001
DESN: T.MADDELA
DRWN: T.BAUER
CHKD: T.MADDELA

S-502

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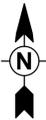
- DEMOLITION NOTES:**
1. THIS DRAWING IS BASED ON FIELD OBSERVATIONS BY THE ENGINEER AND LIMITED RECORD AND CONSTRUCTION DRAWINGS OF PREVIOUS PROJECTS. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, LOCATIONS AND CONDITION OF EXISTING PIPING AND EQUIPMENT SHOWN ON THE DRAWINGS PRIOR TO COMMENCING CONSTRUCTION. BRING DISCREPANCIES TO THE ENGINEER'S ATTENTION.
 2. CONTRACTOR SHALL HAVE PHOTOGRAPHIC DOCUMENTATION OF ALL EXISTING CONDITION BEFORE COMMENCING DEMO WORK.
 3. ITEMS SHOWN OR NOTED TO BE DEMOLISHED ON THE DRAWINGS ARE EXISTING ITEMS TO BE REMOVED FROM SITE BY CONTRACTOR.
 4. PRIOR TO EXCAVATION FIELD LOCATE EXISTING UTILITIES. CONTRACTOR SHALL ALSO CONDUCT LAYOUT FOR HARDWARE AND BELOW GRADE SUBSTRUCTURES. MARK AND LOCATE PRIOR TO START OF EXCAVATION WORK. TETRATECH AND THE OWNER SHALL BEAR NO RESPONSIBILITY FOR EXPENSES INCURRED AS A RESULT OF FAILURE ON THE PART OF THE CONTRACTOR TO VERIFY SITE CONDITIONS PRIOR TO BEGINNING WORK. DO NOT SCALE DRAWINGS.
 5. ALL HAZARDOUS MATERIALS WILL BE ADDRESSED BY GOVERNMENT REGULATIONS. IF HAZARDOUS MATERIALS ARE ENCOUNTERED DURING DEMOLITION OPERATIONS THE CONTRACTOR SHALL NOTIFY THE OWNER AS WELL AS LOCAL, STATE AND FEDERAL AUTHORITIES.
 6. CONTRACTOR IS RESPONSIBLE TO REMOVE SITE DEBRIS, TRASH, AND OTHER DISCARDED MATERIALS AND/OR EQUIPMENT RESULTING FROM DEMOLITION OPERATIONS. TRANSPORT AND LEGALLY DISPOSE OFF SITE. ALL DEMOLITION SHALL BE DISPOSED OF IN A MANNER ACCEPTABLE TO LOCAL AND STATE REGULATORY AGENCIES OR AS DIRECTED BY OWNER.
 7. SURFACES ADJACENT TO AREAS OF DEMOLITION WHICH ARE AFFECTED BY THE WORK SHALL BE REPAIRED AND FINISHED TO MATCH EXISTING CONDITIONS AND ADJACENT SURFACES (MATERIAL, COLOR, SLOPE, TEXTURE AND APPEARANCE). CONTRACTOR SHALL PROVIDE TEMPORARY MEANS TO MITIGATE DUST AND DEBRIS FROM TRAVELING OFF-SITE. USE WATER MIST, TEMPORARY ENCLOSURES, AND OTHER SUITABLE METHODS TO LIMIT SPREAD OF DUST AND DIRT. COMPLY WITH ENVIRONMENTAL PROTECTION REGULATIONS.
 9. CONDUCT DEMOLITION AND DEBRIS REMOVAL OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKWAYS AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT ROADS, WALKWAYS, AND OTHER ADJACENT OCCUPIED OR USE FACILITIES WITHOUT PERMISSION FROM AUTHORITIES HAVING JURISDICTION. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY GOVERNING REGULATIONS.
 10. DEMOLITION CONTRACTOR IS TO USE CARE WHEN REMOVING STRUCTURAL ELEMENTS SCHEDULED FOR REMOVAL THAT ARE ADJACENT OR ABOVE EXISTING STRUCTURES THAT ARE SCHEDULED TO REMAIN. CONTRACTOR IS TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT REMAINING STRUCTURES FROM DAMAGE. PROVIDE AND MAINTAIN SHORING BRACING, OR STRUCTURAL SUPPORT TO PRESERVE STABILITY AND PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF ITEMS TO BE SELECTIVELY DEMOLISHED OR STABILIZED AND ITEMS WHICH ARE IMMEDIATELY ADJACENT TO THOSE BEING REMOVED.
 12. PROVIDE TEMPORARY BARRICADES AND OTHER PROTECTION REQUIRED TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDINGS AND FACILITIES. ERECT TEMPORARY PROTECTION SUCH AS FENCES, RAILINGS, CANOPIES, AND COVERED PASSAGEWAYS, WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION. PROMPTLY PATCH AND REPAIR DAMAGE CAUSED TO ADJACENT CONSTRUCTION BY DEMOLITION WORK. RESTORE EXPOSED FINISHES OF PATCHED AREAS IN A MANNER THAT ELIMINATES EVIDENCE OF PATCHING AND REFINISHING.
 14. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO EXISTING CONDITION BEFORE DEMOLITION OPERATIONS BEGAN.
 15. CONTRACTOR SHALL FOLLOW THE OWNER'S REQUIREMENTS AS WELL AS LOCAL AND STATE REGULATIONS FOR EROSION PROTECTION CONTROL.

DEMOLITION LEGEND:

DENOTES SECTIONS OF EXISTING STRUCTURE THAT ARE TO BE DEMOLISHED
 (E) DENOTES EXISTING TO REMAIN

9/8/2023 2:48:34 PM BIM 360://200-325577-22001 BCDWS UV DESIGN/325577-22001-21.rvt

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



A DEMO SECTION
 SCALE: 1/2" = 1'-0"

SCALE: 1/4" = 1'-0"
 Bar measures 1 inch, otherwise drawing is not to scale

TETRA TECH
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MARK	DATE	DESCRIPTION	ISSUED FOR
1	9/15/23		BIDS

BAY COUNTY, MICHIGAN
 WEST BAY COUNTY REGIONAL WWTP
 ULTRAVIOLET DISINFECTION
DEMOLITION PLAN

PROJ: 200-325577-22001
 DESN: J. THOMAS
 DRWN: J. THOMAS
 CHKD: T. MADDELA

SD-101

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VALVE DESIGNATIONS

SYMBOL		MARK	TYPE
PIPEWORK DRAWINGS	FLOW DIAGRAMS		
		A	GATE VALVE
		B	BUTTERFLY VALVE
		BV	BALL VALVE
		C	STANDARD CHECK VALVE
		P	PLUG VALVE

JOINT DESIGNATIONS

SYMBOLS	MARK	TYPE
	FJ	FLANGED JOINT
	MJ	MECHANICAL JOINT
	SJ	SCREWED JOINT
	POJ	PUSH ON JOINT
	BFC	BOLTED FLEXIBLE COUPLING
	GC	GROOVED COUPLING
	WJ	SHOP WELDED JOINT (STEEL PIPE)
	FWJ	FIELD WELDED JOINT (STEEL PIPE)
	STJ	SOCKET TYPE JOINT (FRP OR PVC PIPE)
	EJ	EXPANSION JOINT
	BF	BLIND FLANGE
	AFC	ADAPTER FLANGE COUPLING

PROCESS ABBREVIATIONS

AFC	ADAPTER FLANGE COUPLING	PEW	PLANT EFFLUENT WATER
ARL	AIR RELIEF LINE	PI	PRIMARY INFLUENT
ARV	AIR RELIEF VALVE	PS	PRIMARY SLUDGE
B	BOTTOM	PW	POTABLE WATER
BF	BLIND FLANGE	RAS	RETURN ACTIVATED SLUDGE
BFC	BOLTED FLEXIBLE COUPLING	RAW	RAW WASTEWATER
BP	BYPASS	RC	RECYCLED
BS	BLENDED SLUDGE	RET	RAW SEWAGE RETURN
CA	COMPRESSED AIR	RS	RAW SEWAGE
C	CENTRATE	RW	RETURN WATER
CI	CAST IRON	S	SANITARY SEWAGE
CIP	CLEAN IN PLACE	SAM	SAMPLE
CL	CENTERLINE (LOCATION)	SAN	SANITARY SEWER
CO	CLEANOUT	SC	SCUM
D	DRAIN	SE	SECONDARY EFFLUENT
D/F	DRAIN/FILTRATE	SL	SLUDGE
DIP	DUCTILE IRON PIPE	SPD	SUMP PUMP DISCHARGE
DN	DOWN	STO	STORAGE
DNS	DOWNSPOUT	STW	STORM WATER
DWT	DEWATERING	SW	SERVICE WATER
ED	EQUIPMENT DRAIN	SWD	SIDE WALL DEPTH
EFF	EFFLUENT	SWH	SIDE OR STRAIGHT WALL HEIGHT
EFS	EFFLUENT SAMPLE	T	TOP
FHB	FLUSHING HOSE BIBB	THS	THICKENED SLUDGE
EL	ELEVATION	TYP	TYPICAL
EQ	EQUALIZATION (PROCESS)	V	VENT
EX	EXISTING	VTR	VENT TO ROOF
FC	FLUSHING CONNECTION	WAS	WASTE ACTIVATED SLUDGE
FD	FLOOR DRAIN	W	WATER MAIN
FEW	FINAL EFFLUENT WATER		
FF	FINISHED FLOOR		
FL	FLOOR		
FLG	FLANGE		
GC	GROOVED COUPLING		
GPM	GALLONS PER MINUTE		
HB	HOSE BIBB		
HWL	HIGH WATER LEVEL		
HW	HOT WATER		
IE	INVERT ELEVATION		
ID	INSIDE DIAMETER		
INF	INFLUENT		
MFR	MANUFACTURER		
MGD	MILLION GALLONS PER DAY		
ML	MIXED LIQUOR		
NC	NORMALLY CLOSED		
NO	NORMALLY OPEN		
NPW	NON POTABLE WATER		
OA	OUTSIDE AIR		
OD	OUTSIDE DIAMETER		
OF	OVERFLOW		
PE	PRIMARY EFFLUENT		

GATE DESIGNATIONS

SYMBOLS	MARK	TYPE
	F	FABRICATED SLIDE GATE

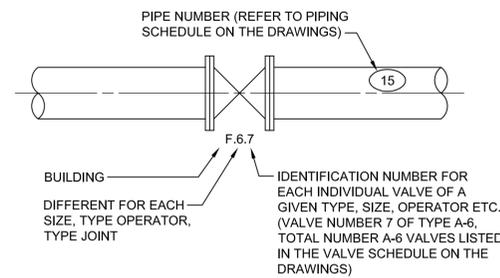
OPERATOR SYMBOLS (SCHEMATICS ONLY)

SYMBOL	TYPE
	ELECTRIC THROTTLING
	ELECTRIC OPEN-CLOSE

SLEEVE AND WALL PIPE DESIGNATIONS

SYMBOL	DESCRIPTION
	CORED HOLE IN EXISTING WALL
	WALL SLEEVE W/WATER COLLAR (STANDARD)
	FLANGE X PLAIN END WALL PIPE
	FLANGE X PLAIN END WALL PIPE
	FLANGE X FLANGE WALL PIPE
	MECHANICAL JOINT X MECHANICAL JOINT WALL PIPE
	MECHANICAL JOINT X PLAIN END WALL PIPE
	PUSH ON BELL JOINT X PLAIN END WALL PIPE

VALVE & PIPE IDENTIFICATION



SYSTEM MONITORING SYMBOLS

	FLOAT SWITCH
	FLOW TRANSMITTER
	LEVEL ELEMENT / TRANSMITTER
	SAMPLE (TAP)
	TRANSMITTANCE MONITOR

GENERAL NOTES

- INSTALL ALL PIPING SUPPORTS AND PIPING IN ACCORDANCE WITH THE LATEST EDITION OF THE ASME ANSI POWER PIPING CODE B 31.1.
- LOCATE PRESSURE TAPS ON THE TOP OF PROCESS PIPES OR AS APPROVED IN ACCESSIBLE LOCATION.
- LOCATE SAMPLE TAPS ON THE SIDE OF PROCESS PIPES.
- LOCATE DRAIN TAPS ON THE BOTTOM OF PROCESS PIPES.
- UNLESS OTHERWISE NOTED PIPE ELEVATIONS SHOWN ON PIPING DRAWINGS REFER TO CENTERLINE OF THE PIPE.
- ALL GROUND BURIED PIPING TO HAVE A MINIMUM OF 5'-6" OF EARTH COVER OR AS DETAILED ON THE DRAWINGS. MAINTAIN MINIMUM CLEARANCE BETWEEN PIPES OF 6".
- INSTALL ALL PLUG, BUTTERFLY AND BALL VALVES WITH THE SHAFT IN THE HORIZONTAL POSITION, UNLESS OTHERWISE DIRECTED.
- ALL HARDWARE SHALL BE 304 STAINLESS STEEL, THIS INCLUDES ANCHOR BOLTS, NUTS, BOLTS, WASHERS, STRUT, HANGERS, ETC.
- ALL EQUIPMENT LOCATED ON GRADE OR FLOOR CONCRETE SLAB PROVIDE HOUSEKEEPING/EQUIPMENT PAD. SEE STRUCTURAL FOR DETAILS.
- EQUIPMENT OR PANELS MOUNTED TO WALLS OR FREE STANDING MOUNT WITH 304 STAINLESS STEEL UNISTRUT.



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BY

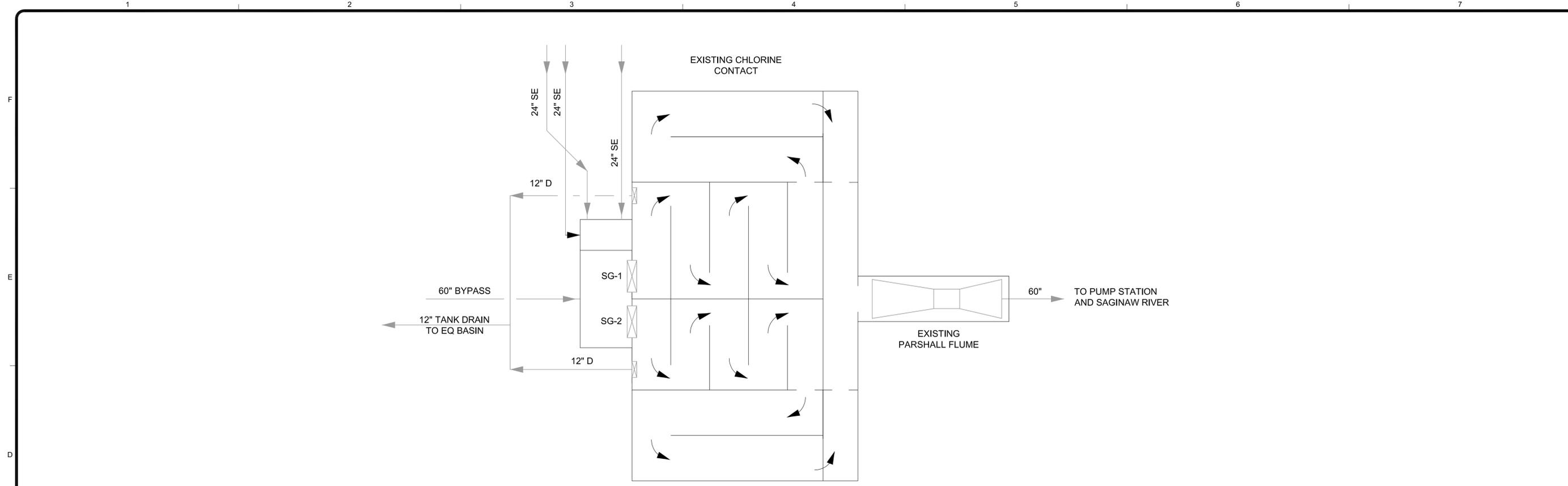
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1 9/15/23 ISSUED FOR BIDS

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
PROCESS LEGEND

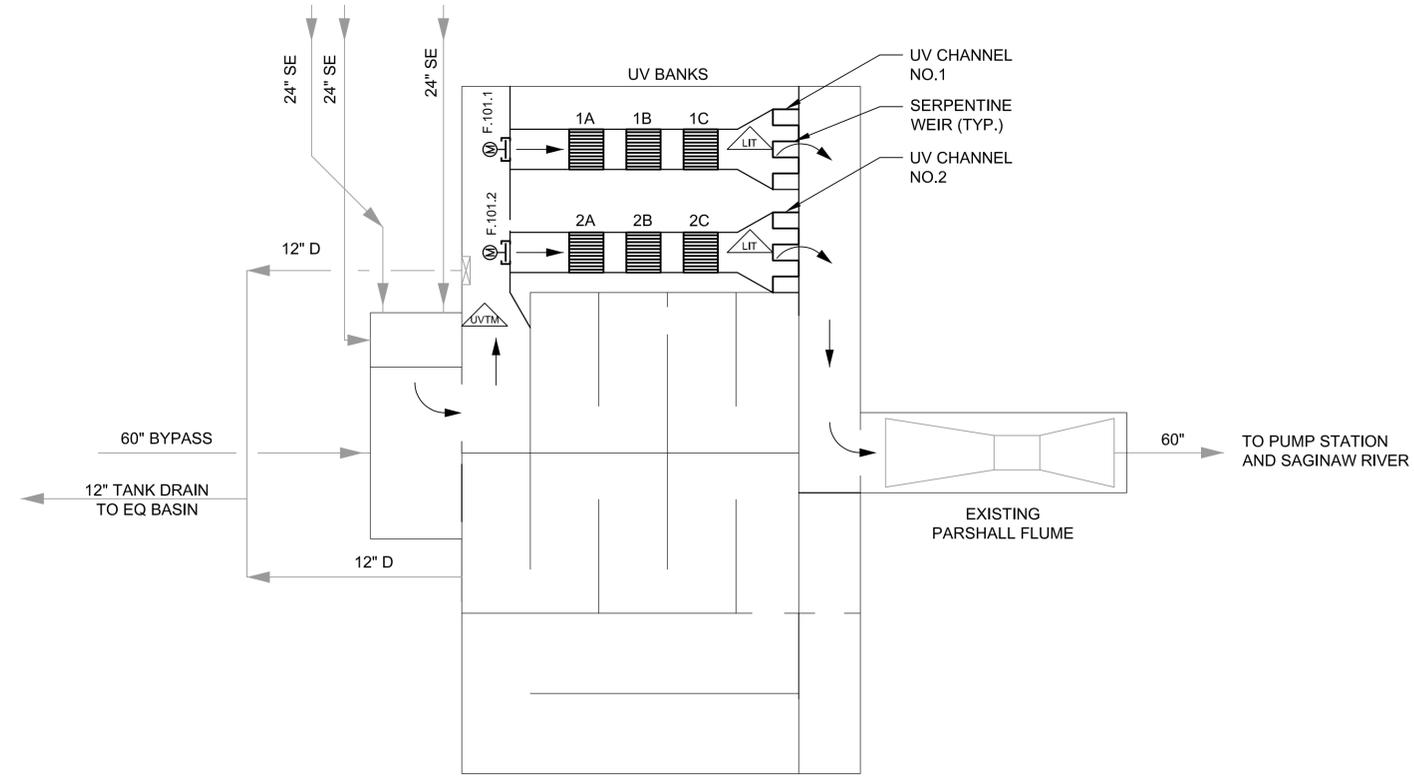
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DESN: MAT
DRWN:
CHKD:

D-001

9/8/2023 4:05:39 PM - C:\P\200-325577-22001\CAD\SHSHEETFILES\02 FLOW SCHEMATIC.DWG - TEITSMA, MARC



EX. FLOW SCHEMATIC



UV FLOW SCHEMATIC

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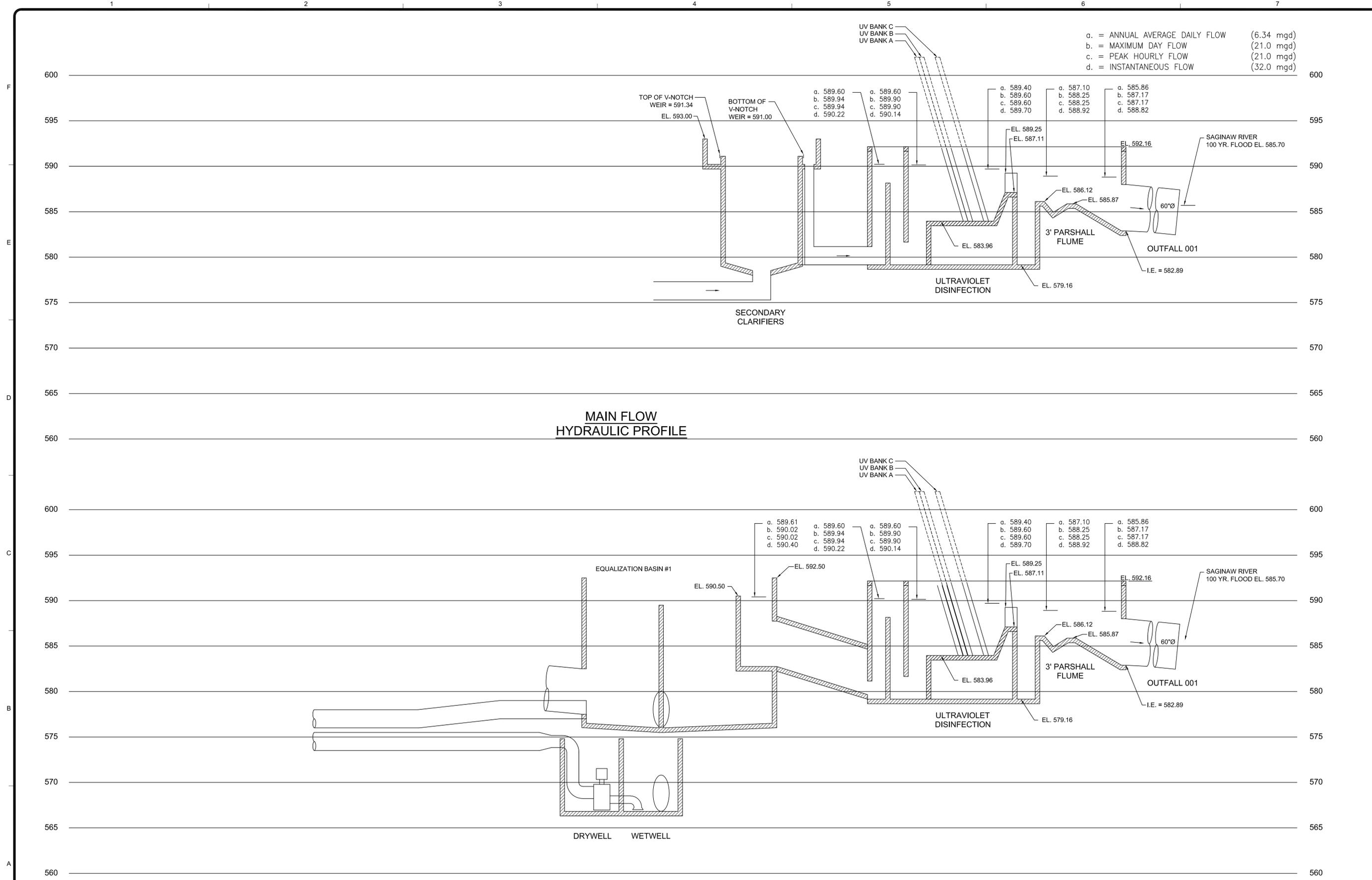
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ULTRAVIOLET DISINFECTION
UV FLOW SCHEMATIC

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DESN: MAT
DRWN:
CHKD:

D-002
Sheet #####

9/8/2023 4:06:07 PM - C:\P\200-325577-22001\CAD\ASHEETS\03 HYD PROFILE.DWG - TEITSMA, MARC



**MAIN FLOW
HYDRAULIC PROFILE**

**EQUALIZATION FLOW
HYDRAULIC PROFILE**

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 ULTRAVIOLET DISINFECTION
HYDRAULIC PROFILE

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 DESN: MAT
 DRWN:
 CHKD:

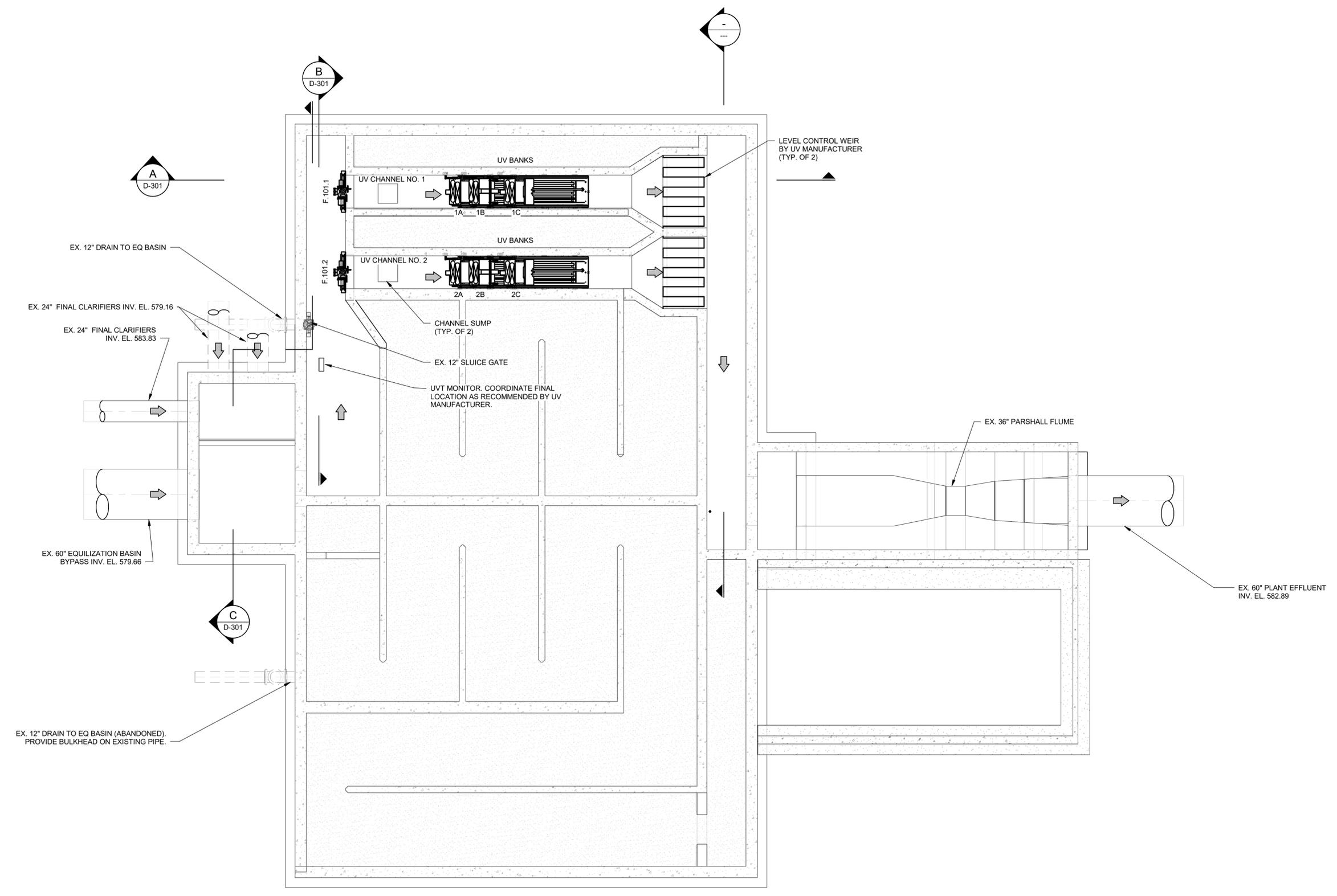
D-003

Bar Measures 1 inch, otherwise drawing not to scale

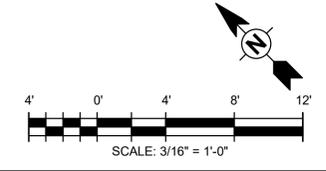
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1 2 3 4 5 6 7

F
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D
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B
A



MID LEVEL PLAN
SCALE: 3/16" = 1'-0"



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BAY COUNTY, MICHIGAN
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ULTRAVIOLET DISINFECTION
UV BUILDING MID LEVEL
PLAN

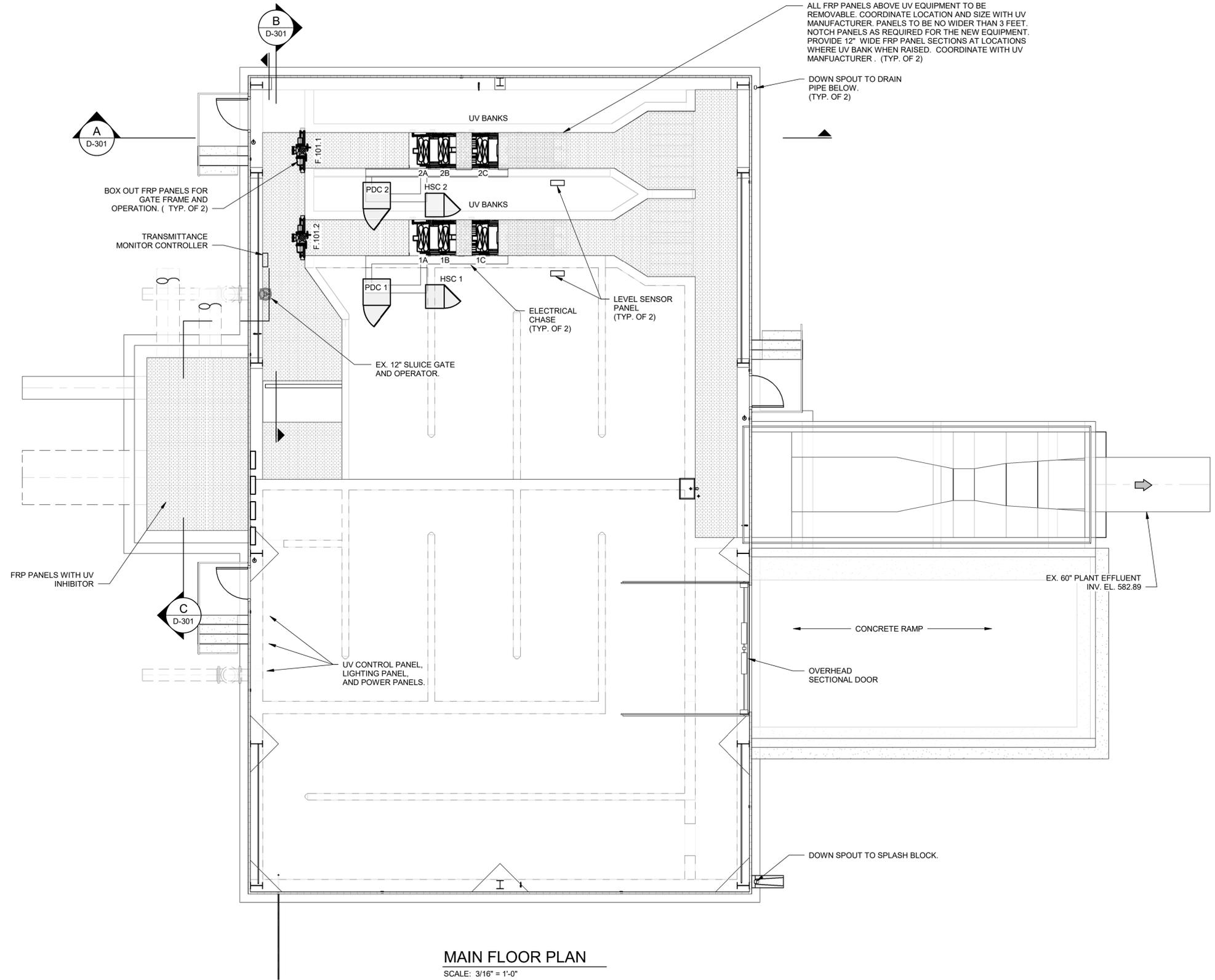
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CHKD:

D-101

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1 2 3 4 5 6 7

F
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ALL FRP PANELS ABOVE UV EQUIPMENT TO BE REMOVABLE. COORDINATE LOCATION AND SIZE WITH UV MANUFACTURER. PANELS TO BE NO WIDER THAN 3 FEET. NOTCH PANELS AS REQUIRED FOR THE NEW EQUIPMENT. PROVIDE 12" WIDE FRP PANEL SECTIONS AT LOCATIONS WHERE UV BANK WHEN RAISED. COORDINATE WITH UV MANUFACTURER. (TYP. OF 2)

DOWN SPOUT TO DRAIN PIPE BELOW. (TYP. OF 2)

ELECTRICAL CHASE (TYP. OF 2)

LEVEL SENSOR PANEL (TYP. OF 2)

EX. 12" SLUICE GATE AND OPERATOR.

EX. 60" PLANT EFFLUENT INV. EL. 582.89

CONCRETE RAMP

OVERHEAD SECTIONAL DOOR

DOWN SPOUT TO SPLASH BLOCK.

BOX OUT FRP PANELS FOR GATE FRAME AND OPERATION. (TYP. OF 2)

TRANSMITTANCE MONITOR CONTROLLER

FRP PANELS WITH UV INHIBITOR

UV CONTROL PANEL, LIGHTING PANEL AND POWER PANELS.

MAIN FLOOR PLAN

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

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ULTRAVIOLET DISINFECTION
UV BUILDING MAIN FLOOR PLAN

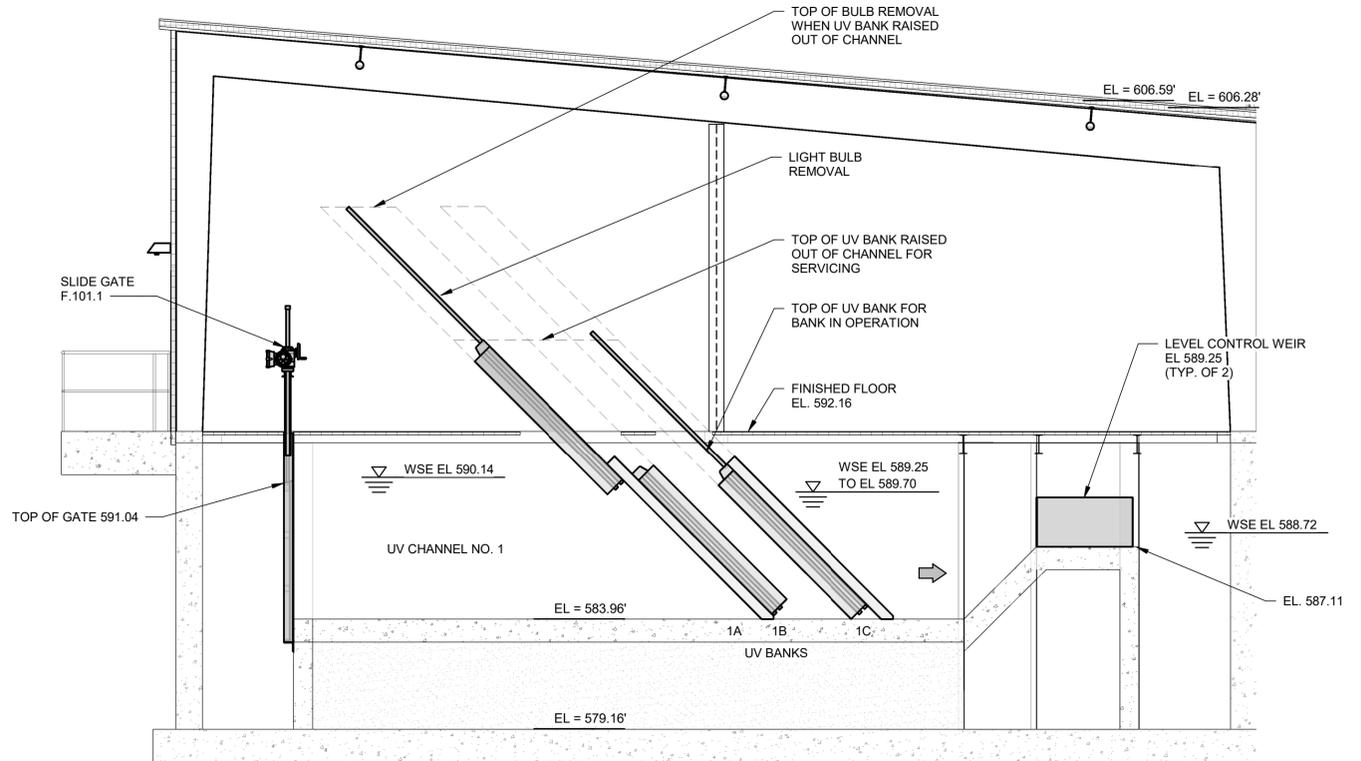
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DRWN: T.J.L.
CHKD:

D-102

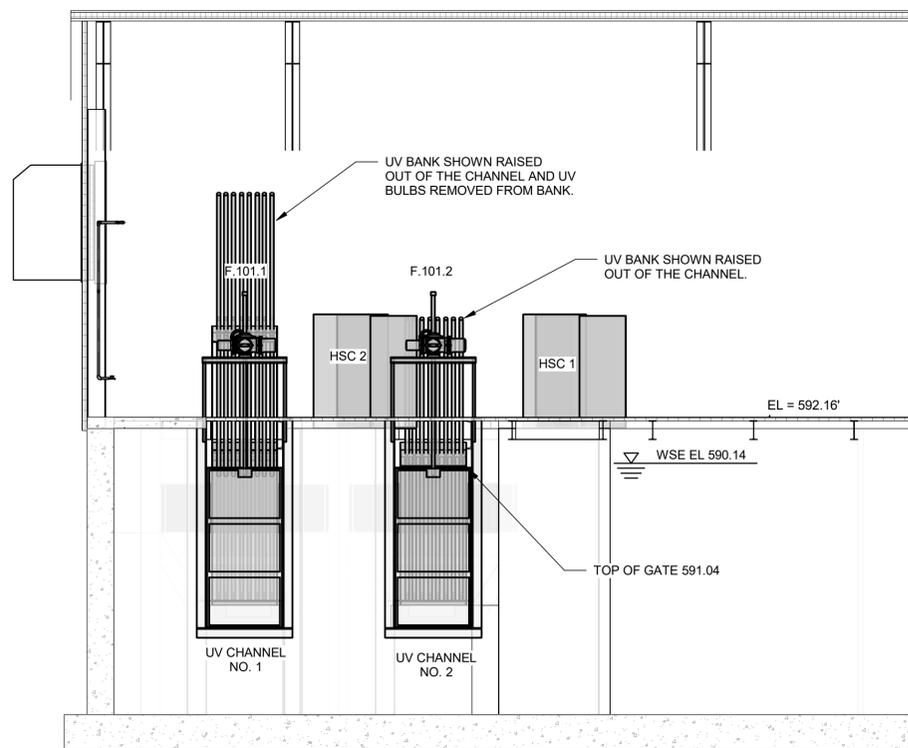
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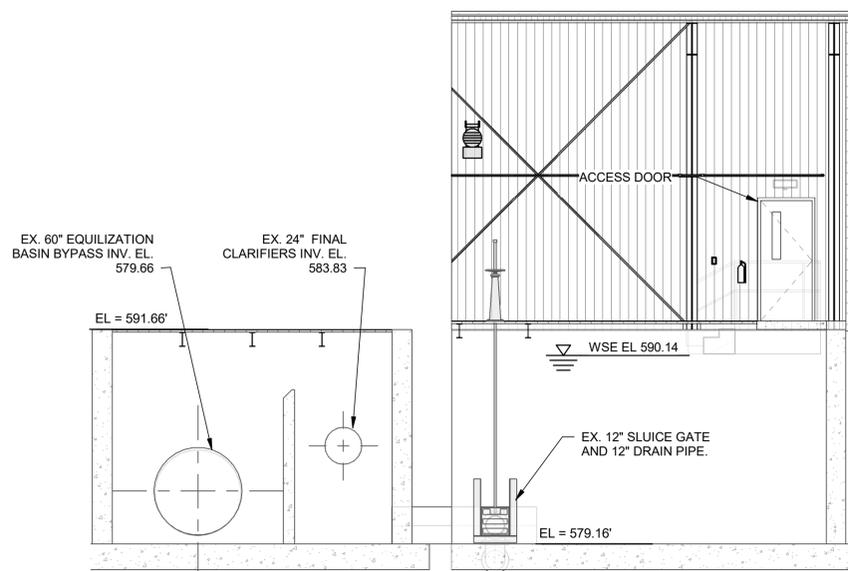
F
E
D
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A SECTION
D-101 SCALE: 1/4" = 1'-0"



B SECTION
D-101 SCALE: 1/4" = 1'-0"



C SECTION
D-101 SCALE: 3/16" = 1'-0"



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MARK 1
DATE 9/15/23
DESCRIPTION ISSUED FOR BIDS

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
UV BUILDING SECTIONS

PROJ: 200-325577-22001
DESN: MAT
DRWN: T.J.L.
CHKD:

D-301

GATE SCHEDULE

GENERAL GATE SCHEDULE KEY

THE FOLLOWING GATE SCHEDULE GIVES THE DESIGNATION FOR EACH GATE: LOCATION, SERVICE, SIZE, QUANTITY, TYPE, BOTTOM, MATERIAL, OPERATOR, AND ACCESSORIES.

THE DISTANCE GIVEN WITH EXTENSIONS STEMS IS THAT FROM CENTERLINE OF PORT TO TOP OF SELF CONTAINED GATE FRAME.

FABRICATED SLIDE GATE

TYPE
SC SELF CONTAINED

BOTTOM
SB STANDARD BOTTOM

FABRICATED SLIDE GATE MATERIAL

SS STAINLESS STEEL FRAME

OPERATOR

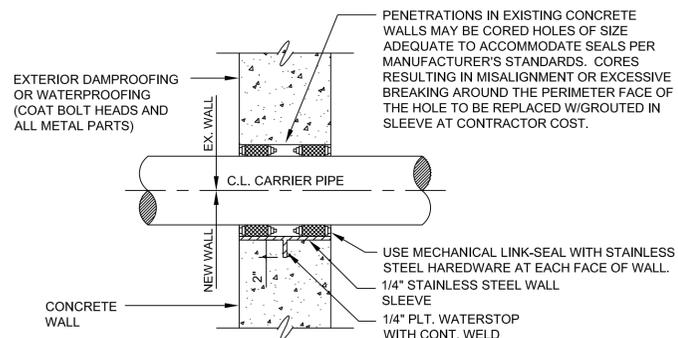
M MOTOR

ACCESSORIES

ES EXTENSION STEM SHAFT (LENGTH)
SC STEM COVER
SG STEM GUIDE

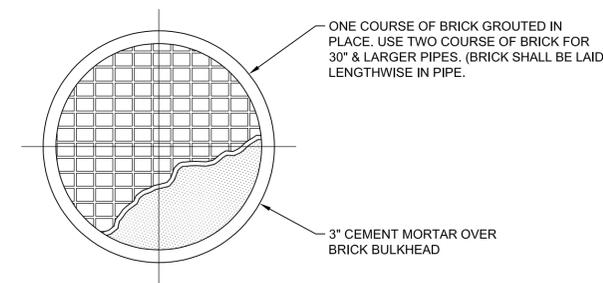
MARK	LOCATION	SERVICE	SIZE INCHES	QUANTITY	TYPE	BOTTOM	MATERIAL	HEAD (FEET)		OPER.	ACCESSORIES	REMARKS
FABRICATED SLIDE GATES (F)												
F.101.1 & 2	ULTRAVIOLET DISINFECTION BUILDING	SE	42"Wx82"H	2	SC	SB	SS	82"	82"	M*	SC, SG, ES(96")	

* REUSE EXISTING OWNER MOTOR OPERATORS. PROVIDE ADAPTERS, ACCESSORIES AS REQUIRED FOR CONNECTING TO NEW GATE. VERIFY EXISTING MOTOR OPERATOR USE WITH FINAL SELECTED SLIDE GATE. COORDINATE WITH SLIDE GATE MANUFACTURER.
MANUFACTURER: ROTORK
MODEL: IQFM
TYPE: IQ 20/FA14/A
SPEED: 29 RPM
TORQUE MAXIMUM: 203.00 NM
NEMA/ENCLOSURE: 6/WT
MOTOR: 480V-3 PH-60 HZ
ACTUATOR WEIGHT: 52 KG



TYPICAL PIPE SLEEVE IN EARTH, LIQUID, WET WELL WALL

SCALE: NTS (UNLESS NOTED OTHERWISE)



BULKHEAD DETAIL

SCALE: NONE

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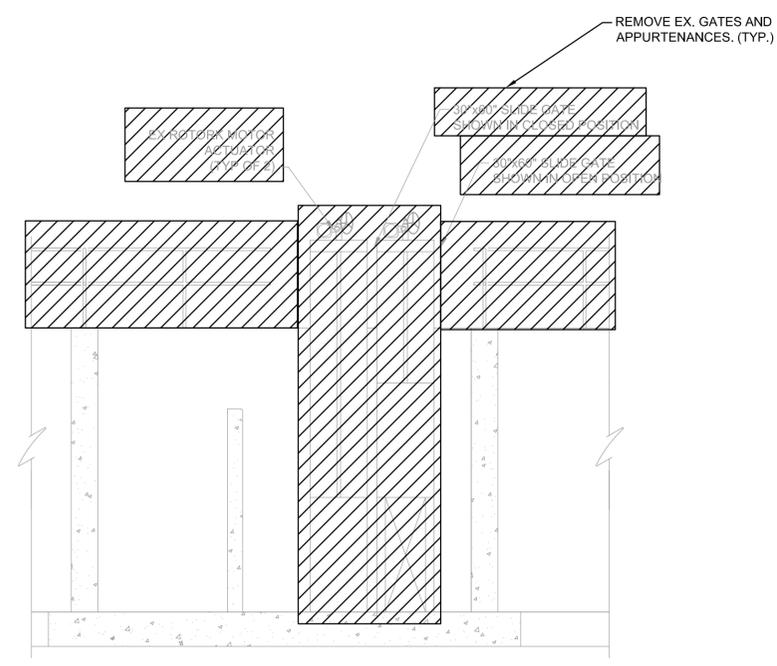
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BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
SCHEDULE AND DETAILS

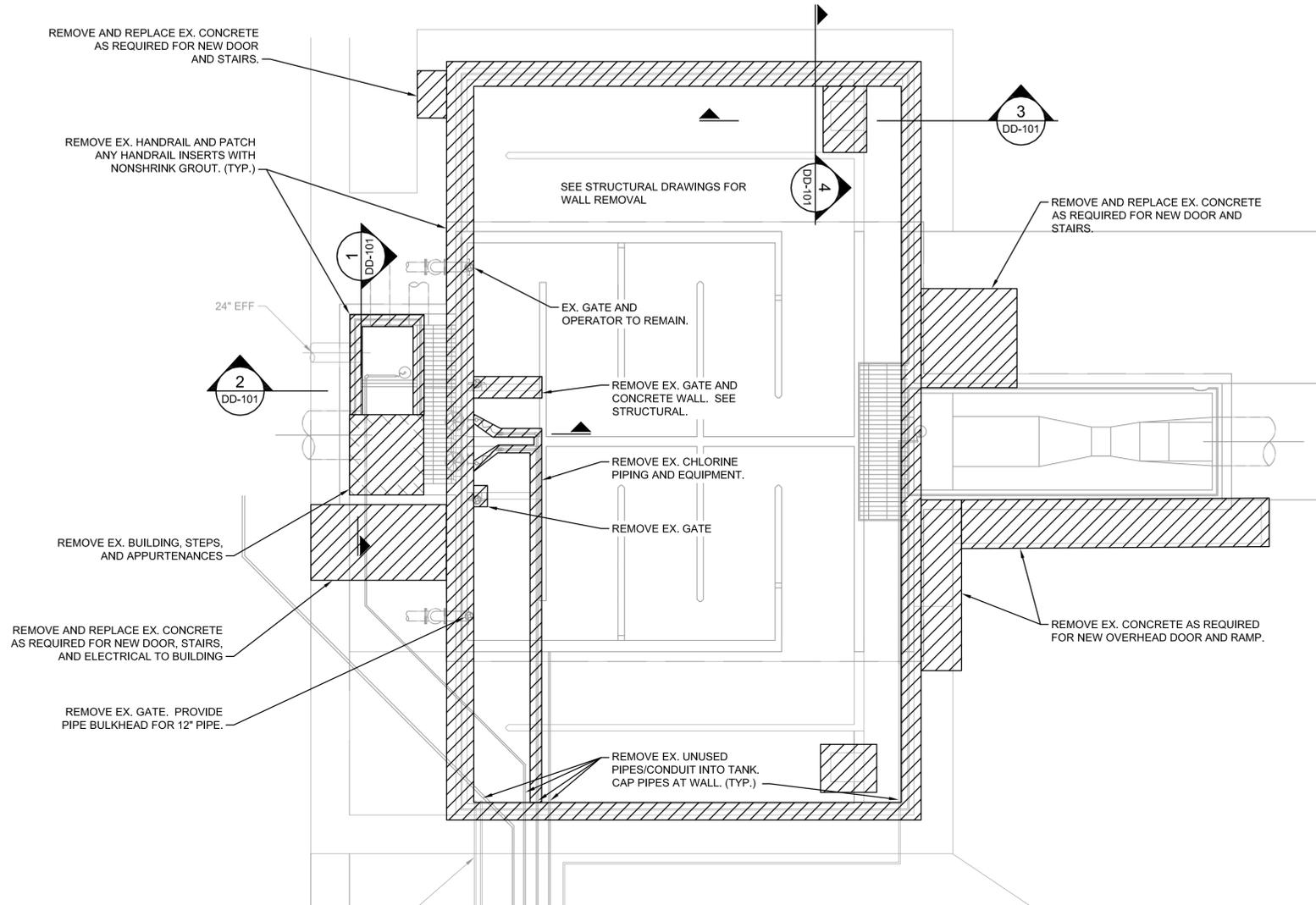
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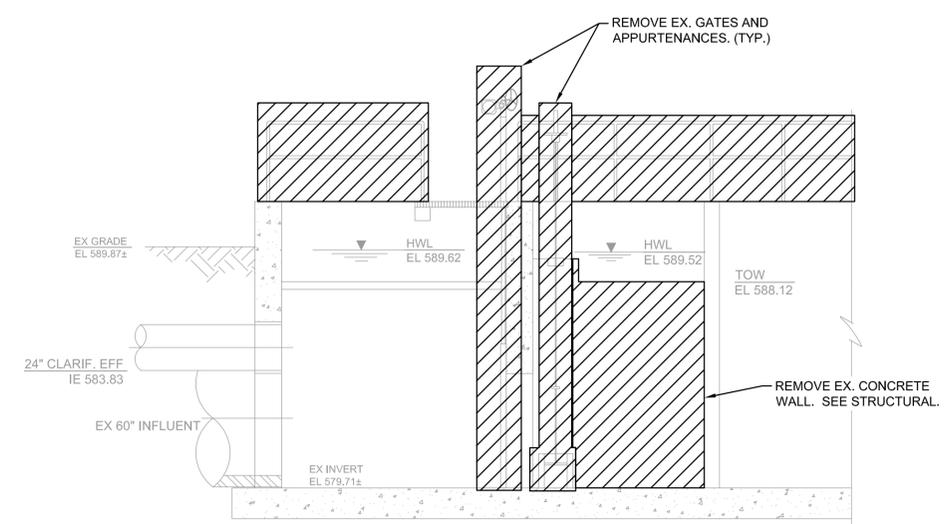
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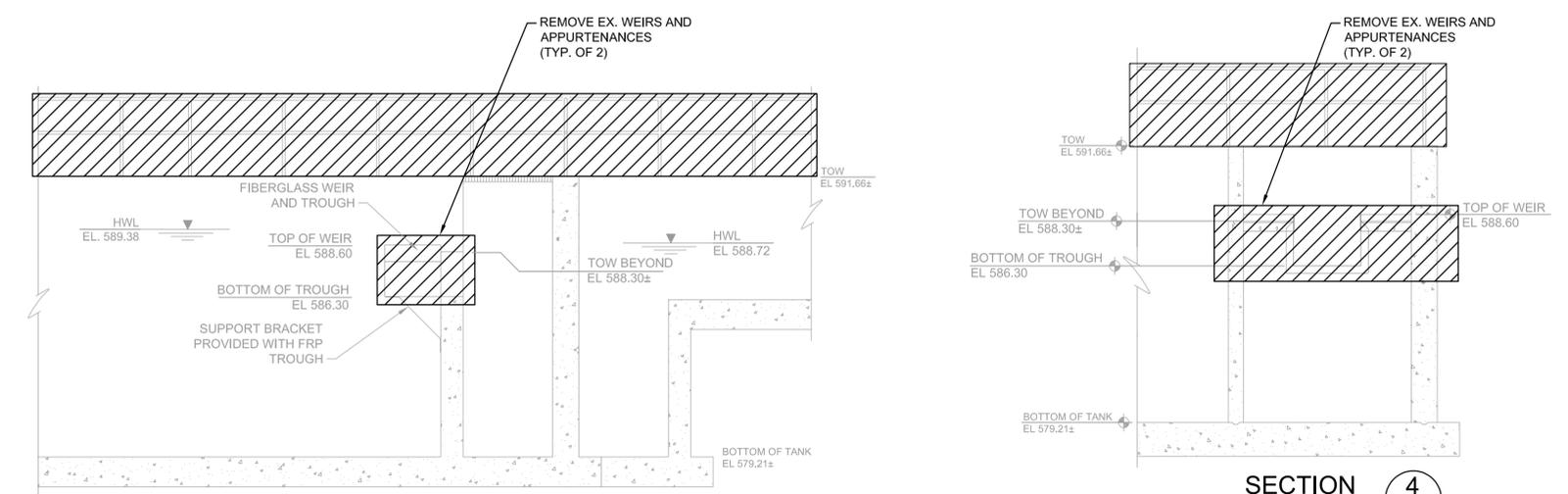
SECTION 1
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DD-101



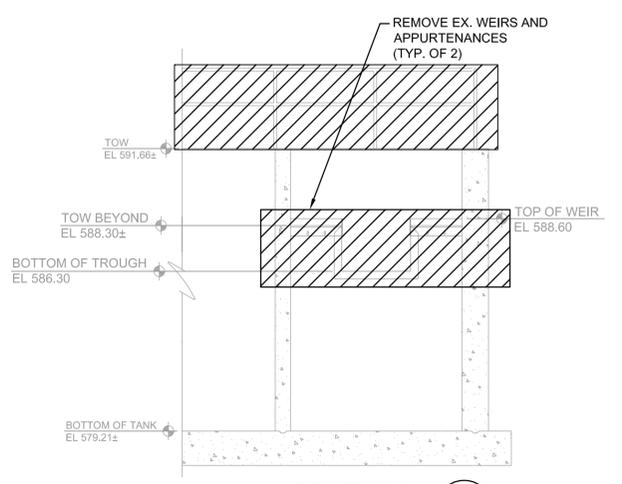
PLAN
SCALE: 1/8" = 1'-0"



SECTION 2
SCALE: 1/4"=1'-0"
DD-101



SECTION 3
SCALE: 1/4"=1'-0"
DD-101



SECTION 4
SCALE: 1/4"=1'-0"
DD-101

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BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
**CHLORINE CONTACT TANK
DEMOLITION PLAN AND
SECTIONS**

PROJ:	200-325577-22001
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DRWN:	
CHKD:	

Bar Measures 1 inch, otherwise drawing not to scale

MECHANICAL LEGEND

- DUCT SIZE & SYSTEM ABBREVIATION
FIRST FIGURE IS DIMENSION SHOWN ON PLAN
- DUCT SECTION, POSITIVE PRESSURE
- DUCT SECTION, NEGATIVE PRESSURE
- NEW DUCTWORK
- FLEXIBLE DUCTWORK
- DUCT TRANSITION
- RECT. TO ROUND TRANSITION
- BRANCH DUCTWORK
- TURNING VANES
- CEILING DIFFUSER - SUPPLY
- CEILING DIFFUSER - RETURN
- CEILING DIFFUSER - EXHAUST
- CEILING DIFFUSER - ROUND
- LINEAR SLOT DIFFUSER (DOUBLE SLOT)
- LOUVER AND SCREEN
- FIRE DAMPER, PROVIDE ACCESS DOOR
- VOLUME DAMPER
- BACKDRAFT DAMPER
- SUPPLY/INTAKE AIRFLOW DIRECTION
- EXHAUST AIRFLOW DIRECTION
- GRILLE OR REGISTER, SIDEWALL
- PIPE CAP
- PIPE CONNECTION, BOTTOM
- PIPE CONNECTION, TOP
- PIPE ELBOW, TURNED UP
- PIPE ELBOW, TURNED DOWN
- PIPE TEE
- ANCHOR, INTERMEDIATE
- BUTTERFLY VALVE
- GATE VALVE
- BALL VALVE
- CHECK VALVE
- STRAINER VALVE
- THREE-WAY CONTROL VALVE
- TWO-WAY CONTROL VALVE
- PRESSURE GAUGE
- DOOR UNDERCUT
- DIAMETER

- MANUAL AIR VENT
- AUTOMATIC AIR VENT
- PUMP (SCHEMATIC)
- THERMOSTAT
- CARBON DIOXIDE SENSOR
- CARBON MONOXIDE SENSOR
- MOTORIZED DAMPER
- PNEUMATIC DAMPER
- EMERGENCY SHUTDOWN SWITCH
- DIFFERENTIAL PRESSURE SENSOR
- DUCT SMOKE DETECTOR
- MASTER EMERGENCY SHUTDOWN SWITCH
- HUMIDISTAT
- HVAC - #** EQUIPMENT TAG
- BOD: 4' - 7"** BOTTOM OF DUCT ELEVATION TAG
- POINT OF DISCONNECTION
- POINT OF CONNECTION
- KEYED NOTE
- AIR TERMINAL AND AIRFLOW TAG
- OR**
- AIR QUANTITY DELIVERED BY DEVICE IN CFM
- AIR TERMINAL MARK AS INDICATED IN SCHEDULE

- AREA OUT OF SCOPE
- AREA OF DEMOLITION

MECHANICAL ABBREVIATIONS

- (D) DEMOLITION
- (E) EXISTING
- (R) RELOCATED
- AAV AUTOMATIC AIR VENT
- ABS ABSOLUTE
- AD ACCESS DOOR
- ADJ ADJUSTABLE
- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- AHU AIR HANDLING UNIT
- AP ACCESS PANEL
- APD AIR PRESSURE DROP
- APPROX APPROXIMATE
- BFF BELOW FINISHED FLOOR
- BHP BREAK HORSEPOWER
- CAP CAPACITY
- CHWR CHILLED WATER RETURN
- CHWS CHILLED WATER SUPPLY
- CONC CONCRETE
- COND CONDENSATE
- CONN CONNECTION
- CONT CONTINUATION
- CP-1 CONTROL PANEL WITH DESIGNATION
- CU CONDENSING UNIT
- CW CHILLED WATER
- DB DRY BULB
- DEG DEGREES
- DEMO DEMOLITION
- DIA DIAMETER
- DN DOWN
- DWG DRAWING
- EA EXHAUST AIR
- EAG EXHAUST AIR GRILLE
- EAT ENTERING AIR TEMPERATURE
- EF EXHAUST FAN
- EMCS ENERGY MANAGEMENT AND CONTROL SYSTEM
- ENT ENTERING
- ERV ENERGY RECOVERY VENTILATOR
- ESP EXTERNAL STATIC PRESSURE
- ET EXPANSION TANK
- EUH ELECTRIC UNIT HEATER
- EWT ENTERING WATER TEMPERATURE
- EXH EXHAUST
- F FAHRENHEIT
- FCU FAN COIL UNIT
- FD FIRE DAMPER
- FH FIRE HYDRANT
- FLEX FLEXIBLE
- FM FLOW METER
- FPM FEET PER MINUTE
- GAL GALLONS
- GH GRAVITY HOOD
- GM GAS METER
- GPM GALLONS PER MINUTE
- GUH GAS UNIT HEATER
- HP HORSEPOWER
- HWR HOT WATER RETURN
- HWS HOT WATER SUPPLY
- ID INSIDE DIAMETER/DIMENSION
- IE INVERT ELEVATION
- IN INCH
- L LOUVER
- LAT LEAVING AIR TEMPERATURE
- LP LOUVERED PENTHOUSE
- LVL LEVEL
- LWT LEAVING WATER TEMPERATURE
- M METER
- MAX MAXIMUM
- MEZZ MEZZANINE
- MFR MANUFACTURER
- MIN MINIMUM
- MISC MISCELLANEOUS
- N/A NOT APPLICABLE
- NG NATURAL GAS
- NTS NOT TO SCALE
- OA OUTDOOR AIR
- OD OUTSIDE DIAMETER
- OED OPEN ENDED DUCT
- PD PRESSURE DROP
- PSI POUNDS PER SQUARE INCH
- R RADIUS
- RA RETURN AIR
- RAG RETURN AIR GRILLE
- REFRIG REFRIGERANT
- RH RADIANT HEATER
- RL REFRIGERANT LIQUID LINE
- RPM REVOLUTIONS PER MINUTE
- RS REFRIGERANT SUCTION LINE
- SA SUPPLY AIR
- SAG SUPPLY AIR GRILLE
- SB SECURITY BARS
- SF SUPPLY FAN
- SPEC SPECIFICATION
- STD STANDARD
- T THERMOMETER
- TA TRANSFER AIR
- TBD TO BE DETERMINED
- TEMP TEMPERATURE
- TSP TOTAL STATIC PRESSURE
- TSTAT THERMOSTAT
- TYP TYPICAL
- UH UNIT HEATER
- VAV VARIABLE AIR VOLUME
- VFD VARIABLE FREQUENCY DRIVE
- VIF VERIFY IN FIELD
- VRF VARIABLE REFRIGERANT FLOW
- W WATT
- WB WET BULB
- WMS WIRE MESH SCREEN
- WS WASTE STACK

DESIGN CONDITIONS FOR LOAD CALCULATIONS

SEASON	OUTDOOR DESIGN CONDITIONS	ELEV. (FT)	INDOOR CONDITIONS / ROOM TYPE
SUMMER (1.)	89 °F	660	10 °F ABOVE AMBIENT
SUMMER (2.)	72 °F		
WINTER (99.6% DB)	0.6		50 °F DB

- BASED ON 0.4% DB TEMPERATURES.
- BASED ON 0.4% MCWB.

APPLICABLE CODES FOR MECHANICAL WORK

CODE	
MICHIGAN MECHANICAL CODE	(MMC 2015)
MICHIGAN ENERGY CODE	(MECC 2018)

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MARK	DATE	DESCRIPTION	BY
1	9/15/23	ISSUED FOR BIDS	

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
**ABBREVIATIONS, LEGEND,
& DESIGN CONDITIONS**

PROJ:	200-325577-22001
DESN:	MJB
DRWN:	MJB
CHKD:	LER

M-001

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MECHANICAL GENERAL NOTES

GENERAL NOTES

- THESE GENERAL NOTES APPLY TO ALL SHEETS. REFER TO INDIVIDUAL SHEETS FOR SHEET NOTES.
- CONTRACT DOCUMENT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. DO NOT SCALE FOR MATERIAL QUANTITIES. ALL SCALING SHOULD BE REFERENCED TO ARCHITECTURAL PLANS ONLY.
- ALL MECHANICAL WORK SHALL BE IN STRICT COMPLIANCE WITH THE LATEST APPLICABLE EDITION OF THE MICHIGAN MECHANICAL AND PLUMBING CODES.
- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ALL OTHER DISCIPLINES AND AS SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
- CONTRACTOR SHALL VISIT SITE AND VERIFY ALL EXISTING CONDITIONS AND CONNECTIONS TO EXISTING WORK PRIOR TO BIDDING AND CONSTRUCTION.
- COORDINATE ALL CUTTING AND PATCHING WITH GENERAL CONTRACTOR AND OTHER DISCIPLINES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING RELATED TO THEIR WORK.
- ALL ATTACHMENTS TO THE BUILDING STRUCTURE SHALL BE COORDINATED WITH THE STRUCTURAL DESIGN. ALL BRACING AND MOUNTING OF PIPES AND DUCTS SHALL MEET THE MINIMUM REQUIREMENTS OF THE MOST RECENT SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE. CONTRACTOR SHALL MAINTAIN ONE COPY OF THIS MANUAL ON SITE AT ALL TIMES.
- FOR SEISMIC ZONES REFER TO STRUCTURAL DESIGN FOR SEISMIC ATTACHMENT REQUIREMENTS PER THE BUILDING CODE. ALL SEISMIC RESTRAINTS OF PIPES AND DUCTS SHALL MEET THE MINIMUM REQUIREMENTS OF THE MOST RECENT SMACNA SEISMIC RESTRAINT MANUAL. CONTRACTOR SHALL MAINTAIN ONE COPY ON SITE AT ALL TIMES.
- PROVIDE FLASHING AND COUNTERFLASHING FOR ALL PENETRATIONS THROUGH WALLS OR ROOF TO MAKE WATERPROOF INSTALLATION.
- MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
- ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
- ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
- BALANCE AIR FLOW AT ALL AIR INLETS AND OUTLETS TO AIR QUANTITIES SHOWN. BALANCE ALL WATER FLOWS TO COILS AND MECHANICAL EQUIPMENT TO VALUES SHOWN. INSTALL TEST PLUGS WHERE NECESSARY. BALANCING CONTRACTOR SHALL BE INDEPENDENT OF THE INSTALLING CONTRACTORS AND CERTIFIED BY THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR ASSOCIATED AIR BALANCE COUNCIL (AABC).
- ALL EXPOSED PIPE, PIPE SUPPORTS, DUCTWORK, UNFINISHED EQUIPMENT AND DUCT SUPPORTS SHALL MATCH ADJACENT FINISHES AS REQUIRED BY PAINTING SPECIFICATION AND ARCHITECTURAL DRAWINGS.
- AT COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL PROVIDE COPIES OF BOUND OPERATIONS AND MAINTENANCE MANUALS.
- REFER TO ARCHITECTURAL PLANS FOR DOOR SCHEDULE WITH DOOR GRILLES AND/OR UNDERCUT DOORS THAT ARE USED FOR TRANSFER AIR.
- AT THE TIME OF ROUGH INSTALLATION AND DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING, COOLING AND VENTILATING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEETMETAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST, WATER AND DEBRIS WHICH MAY ENTER THE SYSTEM.

EQUIPMENT NOTES

- INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
- WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
- IDENTIFY ALL NEW MECHANICAL EQUIPMENT WITH NAMEPLATES PERMANENTLY ENGRAVED PER SPECIFICATIONS.
- MOTOR STARTERS AND VARIABLE FREQUENCY DRIVES, WHERE REQUIRED, SHALL BE PROVIDED AND MOUNTED BY THE MECHANICAL INSTALLER. CONDUIT AND WIRING SHALL BE PROVIDED BY ELECTRICAL INSTALLER.
- PROVIDE VIBRATION ISOLATION DEVICES FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
- EQUIPMENT AND APPLIANCES SHALL BE ACCESSIBLE FOR SERVICE, INSPECTION, REPAIR AND REPLACEMENT WITHOUT REMOVING PERMANENT CONSTRUCTION. SUFFICIENT CLEARANCE SHALL BE MAINTAINED TO PERMIT CLEANING, REPLACEMENT OF FILTERS, BLOWERS, MOTORS, CONTROLS AND LUBRICATION OF MOVING PARTS.

DUCTWORK NOTES

- ALL DUCT HANGERS AND SUPPORTS SHALL COMPLY WITH THE MECHANICAL CODE AND THE "SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE".
- SEAL ALL DUCT JOINTS, INCLUDING LONGITUDINAL JOINTS, WITH WATER BASED SEALANT. MAXIMUM ALLOWABLE DUCTWORK LEAKAGE SHALL NOT EXCEED 5% AND AS DEFINED ELSEWHERE IN DOCUMENTS.
- INSTALL VOLUME DAMPERS WHERE SHOWN AND AS REQUIRED FOR PROPER BALANCING OF EACH DIFFUSER/GRILLE/REGISTER, INCLUDING DEVICES WITH OPPOSED BLADE DAMPERS. VOLUME DAMPERS SHALL BE MOUNTED IMMEDIATELY DOWNSTREAM OF BRANCH CONNECTIONS. PROVIDE EXTENDED REGULATORS, WITH CONCEALED COVER PLATES, TO OPERATE DAMPERS LOCATED ABOVE INACCESSIBLE CEILINGS.
- OUTSIDE AIR FOR A HEATING OR COOLING SYSTEM SHALL NOT BE TAKEN FROM CLOSER THAN TEN (10) FEET FROM AN APPLIANCE VENT OUTLET, VENT OPENING OF A PLUMBING SYSTEM, OR THE DISCHARGE OUTLET OF EXHAUST FAN, UNLESS THE OUTLET IS THREE (3) FEET ABOVE THE OUTSIDE AIR INLET.
- ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST.
- EXTERIOR LOUVERS ARE INDICATED FOR INFORMATION ONLY. DETAILED DESCRIPTIONS ARE PROVIDED IN THE ARCHITECTURAL DOCUMENTS AND SHALL BE COORDINATED WITH GENERAL CONTRACTOR.
- ALL PENETRATIONS THROUGH FIRE AND SMOKE RATED WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE AND SMOKE STOPPED WITH A UL APPROVED SEALANT SYSTEM.
- MECHANICAL DUCT PENETRATIONS OF A NON-FIRE RESISTANCE RATED FLOOR ASSEMBLY SHALL BE PROTECTED WITH A SHAFT ASSEMBLY IN ACCORDANCE WITH THE BUILDING CODE. OR, WHEN THE DUCT CONNECTS NOT MORE THAN TWO STORIES, THE ANNULAR SPACE AROUND THE PENETRATING DUCT MUST BE MATERIAL THAT RESISTS THE FREE PASSAGE OF FLAME AND PRODUCTS OF CONSTRUCTION.

CONTROL NOTES

- LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UPSTREAM AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR RATED ACCURACY.
- UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM SENSORS AND THERMOSTATS SUCH THAT OPERABLE PARTS ARE NO HIGHER THAN 48" ABOVE FINISHED FLOOR.
- COORDINATE ALL CONTROLS AND SEQUENCES OF OPERATION WITH THE BUILDING AUTOMATION SYSTEM (BAS). PROVIDE ALL DEVICES, CONTROLLERS, SENSORS, CONDUIT, WIRING AND LABOR TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM TO MEET THE OWNER'S PROJECT REQUIREMENTS AND THE DESIGN INDICATED ON THESE DRAWINGS AND SPECIFICATIONS.
- ALL CONTROL CONDUIT AND WIRING SHALL COMPLY WITH THE ELECTRICAL CODE AND THE SPECIFICATIONS.
- THE CONTROLS CONTRACTOR IS RESPONSIBLE FOR POWER CIRCUITS AND WIRING TO ALL CONTROL PANELS.



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BY

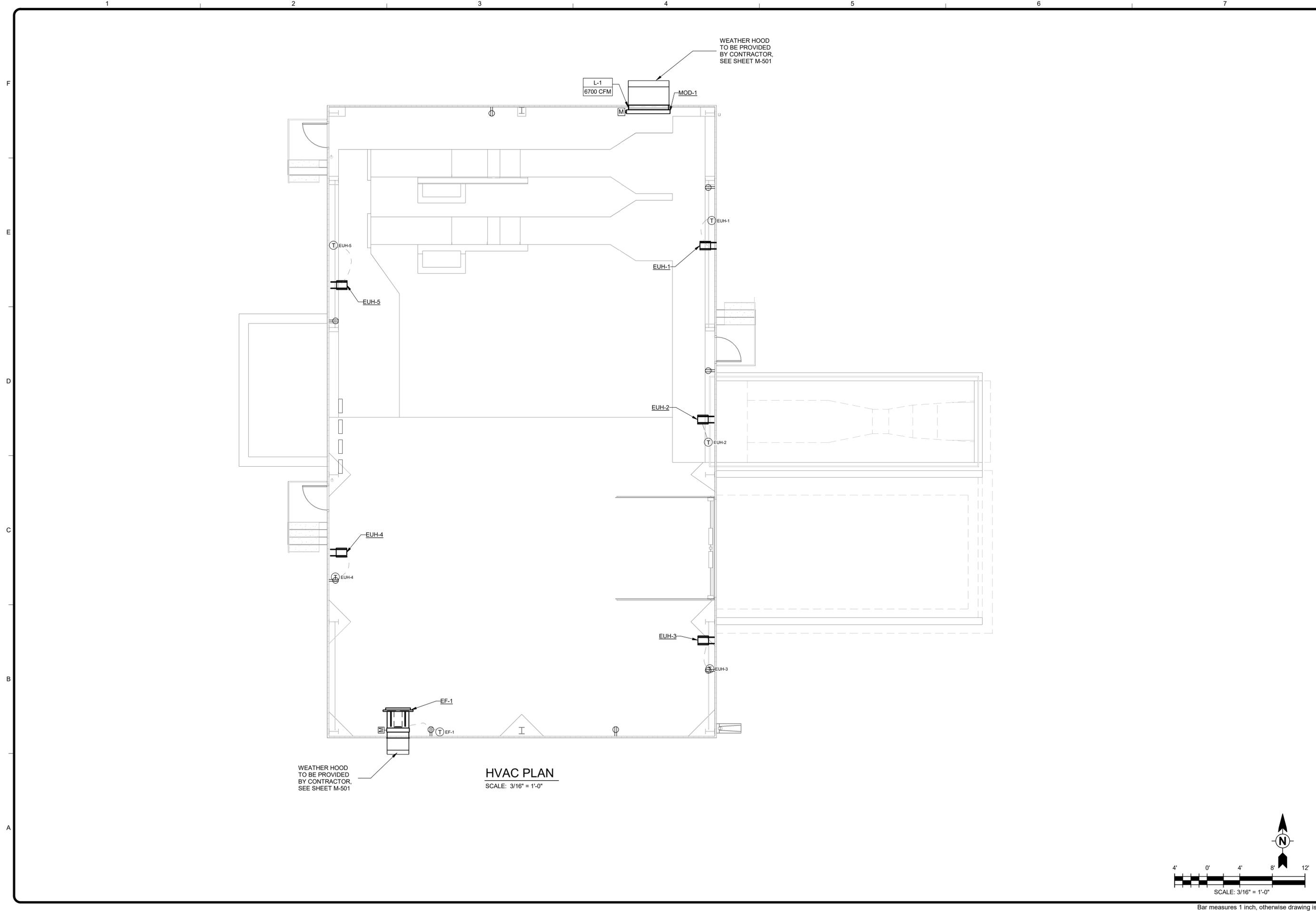
MARK DATE DESCRIPTION
1 9/15/23 ISSUED FOR BIDS

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
GENERAL NOTES

PROJ: 200-325577-22001
DESN: MJB
DRWN: MJB
CHKD: LER

M-002

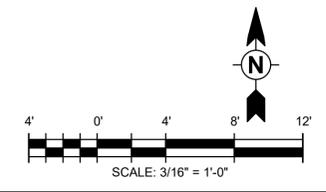
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WEATHER HOOD TO BE PROVIDED BY CONTRACTOR, SEE SHEET M-501

WEATHER HOOD TO BE PROVIDED BY CONTRACTOR, SEE SHEET M-501

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



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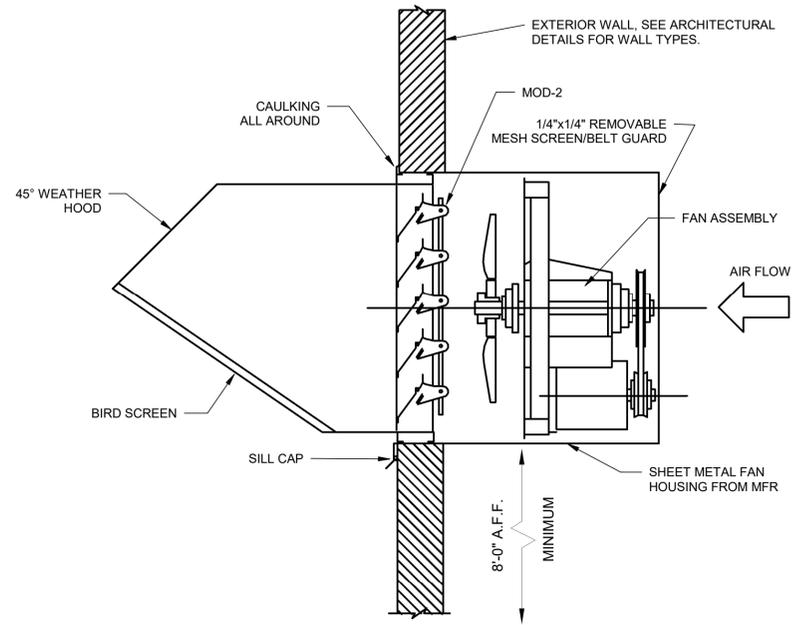
BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
UV BUILDING HVAC PLAN

PROJ:	200-325577-22001
DESN:	MJB
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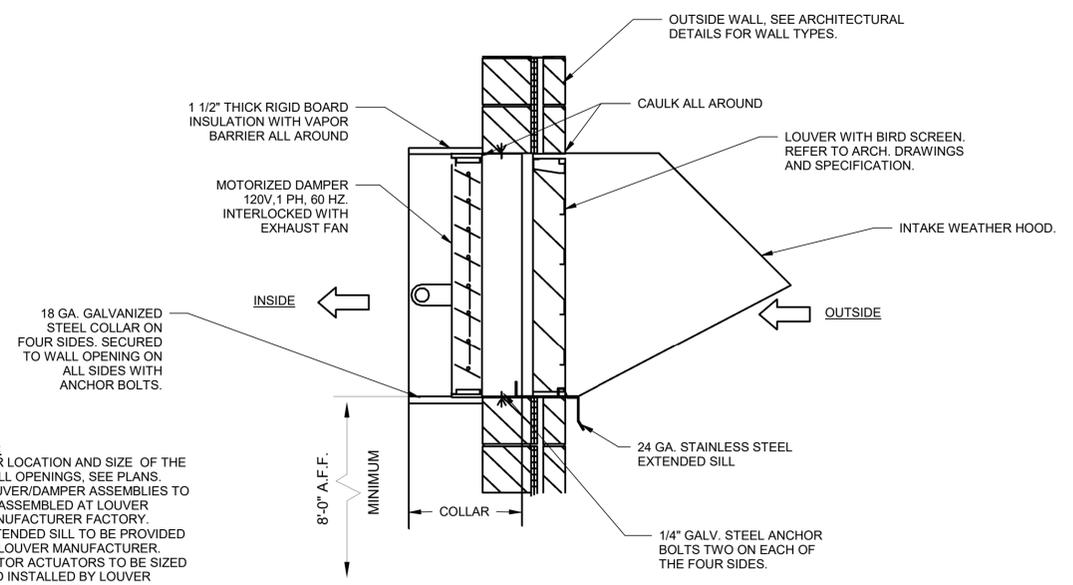
M-101

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Bar measures 1 inch, otherwise drawing is not to scale

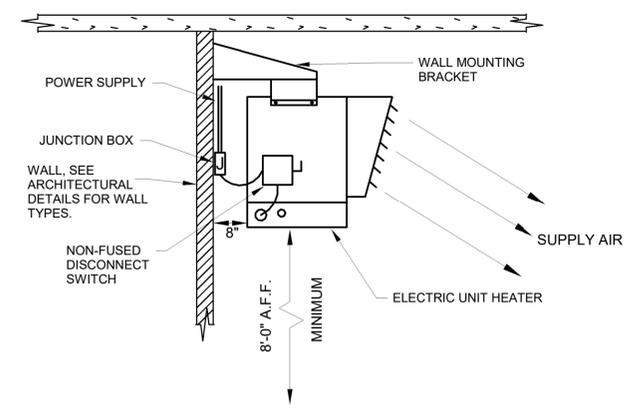


1 WALL EXHAUST FAN WITH DAMPER DETAIL
M-501 SCALE: N.T.S.



- NOTES:**
1. FOR LOCATION AND SIZE OF THE WALL OPENINGS, SEE PLANS.
 2. LOUVER/DAMPER ASSEMBLIES TO BE ASSEMBLED AT LOUVER MANUFACTURER FACTORY.
 3. EXTENDED SILL TO BE PROVIDED BY LOUVER MANUFACTURER.
 4. MOTOR ACTUATORS TO BE SIZED AND INSTALLED BY LOUVER MANUFACTURER.
 5. INSTALLATION OF LOUVER TO BE IN ACCORDANCE WITH LOUVER MANUFACTURER'S RECOMMENDATIONS.

2 LOUVER/DAMPER
M-501 SCALE: N.T.S.



3 ELECTRIC UNIT HEATER MOUNTING
M-501 SCALE: N.T.S.

MARK	DATE	DESCRIPTION	BY
1	9/15/23	ISSUED FOR BIDS	

BAY COUNTY, MICHIGAN
WEST BAY COUNTY REGIONAL WWTP
ULTRAVIOLET DISINFECTION
DIAGRAMS

PROJ:	200-325577-22001
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M-501

F

E

D

C

B

A



FAN SCHEDULE																		
MARK	AREA SERVED	FAN					ELECTRICAL							MOUNTING TYPE	WEIGHT (LBS)	MANUFACTURER	MODEL	NOTES
		AIRFLOW (CFM)	ESP (IN-WC)	FAN RPM	TYPE	DRIVE TYPE	MOTOR ENCLOSURE	HP	VOLTS	PHASE	HZ	FLA	CONTROL					
EF-1	DISINFECTION ROOM	6700	0.3	827	PROPELLER	BELT	TEFC	3/4	460	3	60	1.6	THERMOSTAT	SIDEWALL	99	GREENHECK	SBE-3H30	1,2

- NOTES:
 1. PROVIDE FACTORY MOTOR GAURD, BELT GUARD, EQUIPMENT DISCONNECT, AND CEILING SUPPORTS WITH HANGING VIBRATION ISOLATORS.
 2. PROVIDE FACTORY SIDEWALL MOUNTING KIT, WEATHER HOOD, ALUMINUM BIRDSCREEN, BACKDRAFT DAMPER, CORROSION RESISTANT COATING, EQUIPMENT DISCONNECT, AND MOTOR STARTER.

LOUVER SCHEDULE															
MARK	AREA SERVED	ASSOCIATED EQUIPMENT	TYPE	SERVICE	SIZE (IN)			PERFORMANCE CRITERIA				MATERIAL	MANUFACTURER	MODEL	NOTES
					HEIGHT	WIDTH	DEPTH	AIRFLOW (CFM)	VELOCITY (FPM)	FREE AREA (FT ²)	PRESSURE DROP (IN WG)				
L-1	DISINFECTION ROOM	MOD-1	DRAINABLE	INTAKE	60"	60"	6"	6700	446	15	0.1	ALUMINUM	GREENHECK	ESD-635	1,2
L-3															

- NOTES:
 1. PROVIDE FACTORY ALUMINUM INSECT SCREEN.
 2. PROVIDE FACTORY ALUMINUM BIRD SCREEN.

MOTORIZED DAMPER SCHEDULE											
MARK	DESCRIPTION	ASSOCIATED EQUIPMENT	AIR FLOW (CFM)	VELOCITY (FPM)	SIZE (W X H)	MAXIMUM PRESSURE DROP (IN WG)	OPERATOR (VOLTS)	FAIL POSITION	MANUFACTURER	MODEL	NOTES
MOD-1	HEAVY DUTY CONTROL DAMPER	L-1	6700	475	60" X 60"	0.1	120	CLOSED	GREENHECK	HCD-240	1,2
MOD-2	HEAVY DUTY CONTROL DAMPER	EF-1	6700	1365	32" X 32"	0.1	120	CLOSED	GREENHECK	HCD-240	1,2

- NOTES:
 1. SIZING TO CORRESPOND WITH SELECTION OF ASSOCIATED EQUIPMENT.
 2. PROVIDE FACTORY ELECTRIC DAMPER ACTUATOR (NORMALLY CLOSED, SPRING RETURN, 2 POSITION), NEMA 4 ENCLOSURE.

ELECTRIC UNIT HEATER SCHEDULE														
MARK	AREA SERVED	FAN		MOTOR		TOTAL AMPS	HEATING COIL			WEIGHT (LBS)	MANUFACTURER	MODEL	NOTES	
		AIRFLOW (CFM)	AIR THROW (FT)	HP	VOLTS / PH / HZ		TYPE	CAPACITY (KW)	EAT DB (°F)					AIR TEMPERATURE RISE (°F)
EUH-1	DISINFECTION ROOM	618	26	1/4	480 / 1 / 60	8	ELECTRIC	5	50	24	56	INDEECO	234-U11N-0050U	1
EUH-2	DISINFECTION ROOM	618	26	1/4	480 / 1 / 60	8	ELECTRIC	5	50	24	56	INDEECO	234-U11N-0050U	1
EUH-3	DISINFECTION ROOM	618	26	1/4	480 / 1 / 60	8	ELECTRIC	5	50	24	56	INDEECO	234-U11N-0050U	1
EUH-4	DISINFECTION ROOM	618	26	1/4	480 / 1 / 60	8	ELECTRIC	5	50	24	56	INDEECO	234-U11N-0050U	1
EUH-5	DISINFECTION ROOM	618	26	1/4	480 / 1 / 60	8	ELECTRIC	5	50	24	56	INDEECO	234-U11N-0050U	1

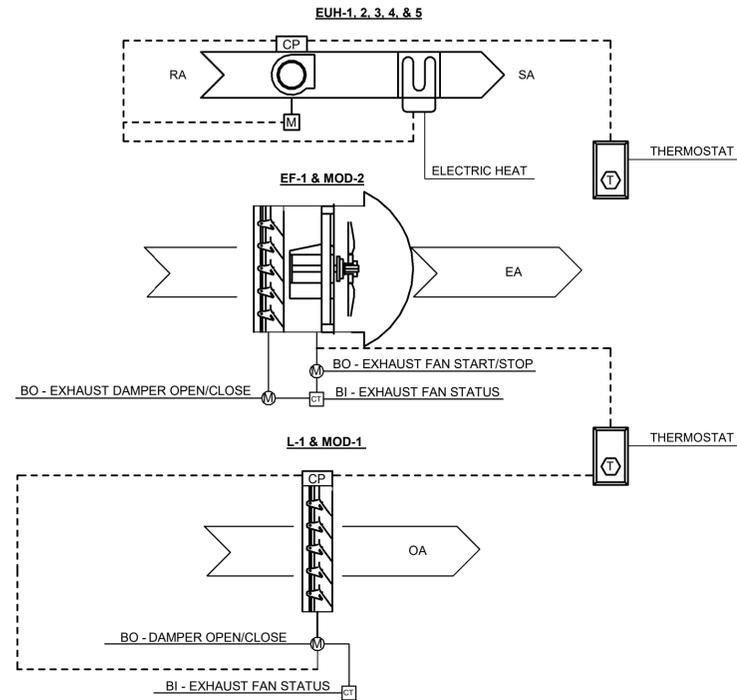
- NOTES:
 1. PROVIDE FACTORY DISCONNECT SWITCH, PILOT LIGHT, ADJUSTABLE THERMOSTAT, BUILT IN CONTROLS FOR REMOTE AUTO/FAN SELECTOR SWITCH, REMOTE THERMOSTAT, AND WALL MOUNTING KIT.

MARK	DATE	DESCRIPTION	ISSUED FOR	BY
1	9/15/23	ISSUED FOR BIDS		

BAY COUNTY, MICHIGAN
 WEST BAY COUNTY REGIONAL WWTP
 ULTRAVIOLET DISINFECTION
 SCHEDULES

PROJ: 200-325577-22001
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M-601



DISINFECTIION ROOM HEATING AND VENTILATION (L-1, EF-1, EUH-1, 2, 3, 4, 5, & 6)

SEQUENCE SUMMARY:
 L-1 IN CONJUNCTION WITH EF-1, AND EUH-1, 2, 3, 4, & 5 SHALL PROVIDE HEATING AND VENTILATION TO THE DISINFECTIION ROOM. EUH-1, 2, 3, 4, & 5 UNIT HEATERS SHALL BE ACTIVATED WHEN THE TEMPERATURE IN THE SPACE FALLS BELOW 50°F. WHEN THE TEMPERATURE IN THE SPACE REACHES 85°F (ADJ.) EF-1 SHALL TURN ON AND MOD-1 & 2 SHALL OPEN IN CONJUNCTION TO PROVIDE MECHANICAL VENTILATION TO THE ROOM. ALL BINARY INPUTS AND OUTPUTS TO BE WIRED BACK TO MAIN HV CONTROL PANEL.

THE CONTROL OF MOD-1 & 2, EF-1, AND EUH-1, 2, 3, 4, & 5. INSTRUMENTS, GAGES, CONTROL VALVES, AND ACCESSORIES SHALL UTILIZE THE CONTROL SYSTEM PROVIDED BY THE CONTRACTOR. CONTRACTOR SHALL PROVIDE ALL NECESSARY WIRING AND CONDUIT, DEVICES, CONTROLLERS, INTERLOCKS, AND SWITCHES AS NECESSARY TO MEET THE INTENT OF THESE SEQUENCES AND THE CONTROL DIAGRAMS SHOWN. CONTRACTOR SHALL COORDINATE FOR A FULLY FUNCTIONAL SYSTEM.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
 • SUPPLY FAN FAILURE: COMMANDED ON BUT THE STATUS IS OFF.
 • SUPPLY FAN IN HAND: COMMANDED OFF BUT THE STATUS IS ON.

THE CONTROLLER SHALL MONITOR THE ZONE TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
 • HIGH ZONE AIR TEMP: IF THE ZONE AIR TEMPERATURE IS GREATER THAN 110 °F (ADJ.)
 • LOW ZONE AIR TEMP: IF THE ZONE AIR TEMPERATURE IS LESS THAT 45 °F (ADJ.)

ALARMS SHALL BE PROVIDED AS FOLLOWS:
 • EXHAUST FAN FAILURE: COMMANDED ON BUT THE STATUS IS OFF.
 • EXHAUST FAN IN HAND: COMMANDED OFF BUT THE STATUS IS ON.

VENTILATION HEATING AND COOLING

SCALE: 12" = 1'-0"



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BAY COUNTY, MICHIGAN
 WEST BAY COUNTY REGIONAL WWTP
 ULTRAVIOLET DISINFECTIION
MECHANICAL CONTROLS

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