CITY OF ANN ARBOR
WWTP CLEAR WELL IMPROVEMENTS
WASHTENAW COUNTY, MI
ITB #4680

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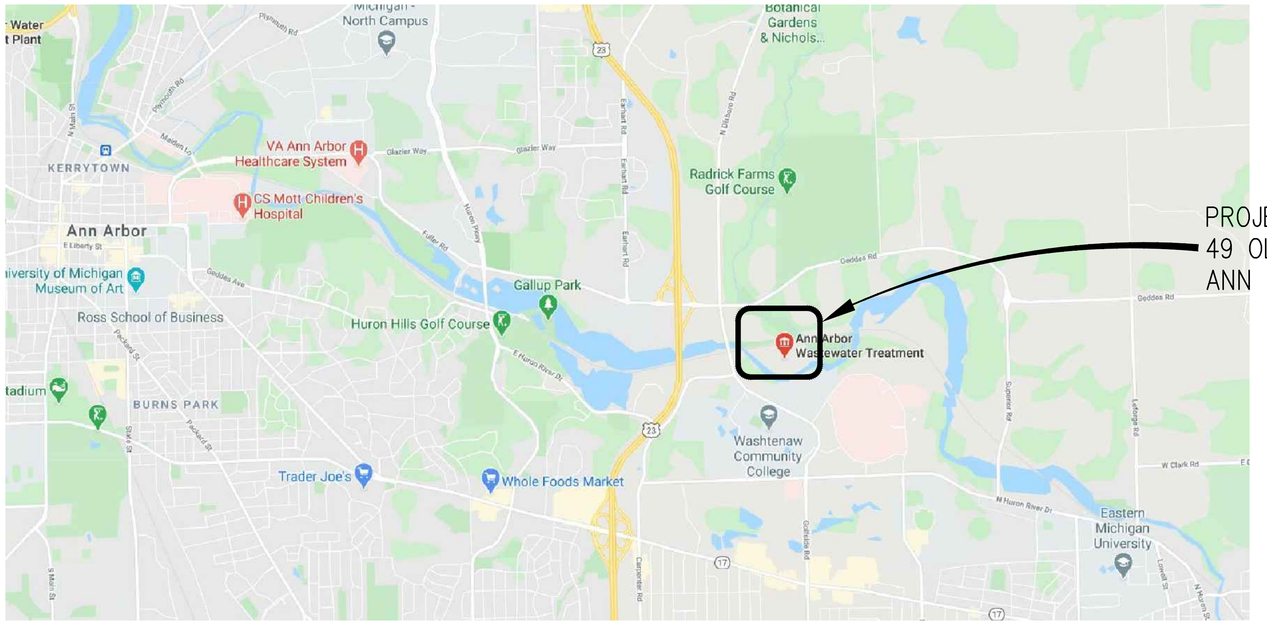


LOCATION MAP
N.T.S.

OHM
Advancing Communities

34000 Plymouth Road | Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427

PREPARED UNDER THE SUPERVISION OF:

JENNIFER DRINAN

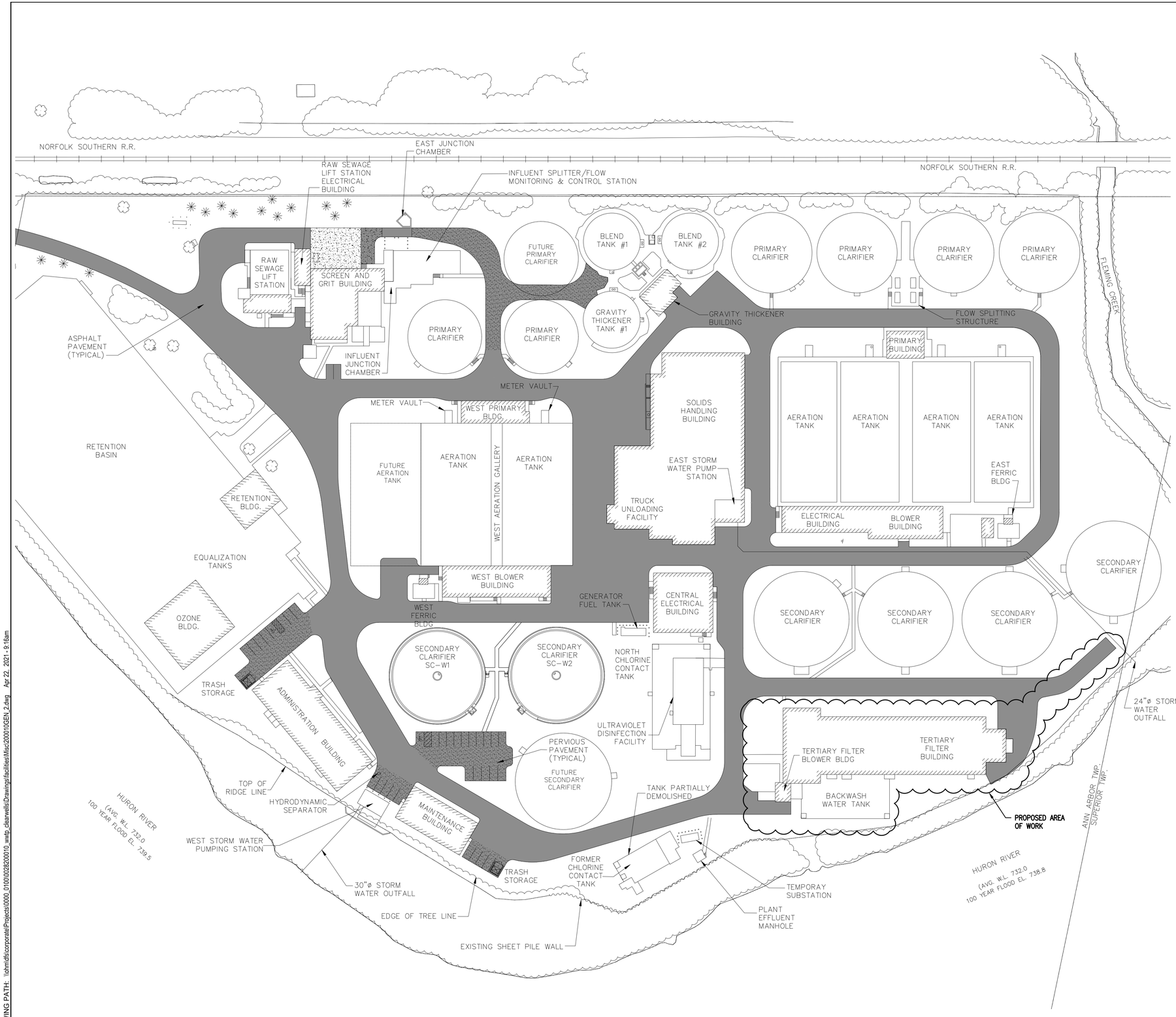
–
Registration No.

Date

REVISIONS

BID DRAWINGS	04/27/2021

PROJECT NO.	SHEET NO.
0028-20-0010	G-1



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GENERAL NOTES:

1. ALL NEW WORK IS SHOWN WITH HEAVY LINES AND IS INDICATED NEW UNLESS NOTED OTHERWISE.

2. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT ADDITIONAL CONTRACTS MAY BE LET ADJACENT TO THIS WORK AND THAT CONTRACTOR SHALL COORDINATE THOSE PORTIONS OF THIS WORK AFFECTED BY OTHERS. CONTRACTOR SHALL COOPERATE WITH OTHER CONTRACTORS IN EVERY REASONABLE WAY SO THAT THERE SHALL BE A MINIMUM PRACTICABLE INTERFERENCE WITH THEIR OPERATIONS.

3. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING STRUCTURES, UTILITIES AND EQUIPMENT, AND TO MAINTAIN UNINTERRUPTED FACILITY OPERATION. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SUPPORTS, BRACES AND SHORING AS NECESSARY TO PROTECT AND MAINTAIN ALL STRUCTURES, PIPING, EQUIPMENT AND APPURTENANCES. ANY DAMAGE RESULTING FROM THE ACTIONS, OR LACK OF ACTIONS BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT HIS EXPENSE.

4. AN ASTERISK (*) AT NEW CONSTRUCTION DENOTES LOCATIONS, ELEVATIONS, DIMENSIONS AND OTHER INFORMATION DEPENDENT ON THE CONTRACTOR'S SUBMITTALS. THE CONTRACTOR SHALL DEVELOP AND SHOW THE INFORMATION MARKED WITH AN ASTERISK (*) ON HIS SUBMITTALS AND SHALL DEVELOP AND PROVIDE SUCH INFORMATION FOR ALL ASTERISKS (*) WITHIN OR INTERFACING WITH ANY SUBMITTALS AND BETWEEN SUBMITTALS. THIS REQUIREMENT ALSO EXTENDS TO CONDITIONS OR SITUATIONS WHERE A LOCATION, DIMENSION, ELEVATION OR OTHER ITEM IS INDICATED TO BE DETERMINED AFTER FINAL SELECTION OF EQUIPMENT AND/OR APPURTENANCES. ALL INFORMATION FOR ASTERISK (*) AND EQUIPMENT/–APPURTENANCES SITUATIONS DESCRIBED HEREIN ARE THE RESPONSIBILITY OF THE CONTRACTOR TO DEVELOP AND ASSURE COMPATIBLE INTERFACING FOR A COMPLETE, COORDINATED AND TROUBLE–FREE OPERATING INSTALLATION. ALL REQUIREMENTS HEREIN SHALL BE BASED ON FINAL PROCESSING AND/OR REVIEW OF THE CONTRACTOR'S SUBMITTALS OR SELECTIONS.

5. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING PIPING, EQUIPMENT, STRUCTURES AND OTHER EXISTING WORK ARE BASED ON INFORMATION FURNISHED BY ANN ARBOR WWTP EXISTING RECORD DRAWINGS AND CONTRACT DOCUMENTS AND IN SOME INSTANCES FIELD MEASUREMENTS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. LOCATIONS, ELEVATIONS AND DIMENSIONS OF NEW WORK CONNECTING OR ADJACENT TO OR INTERFACING WITH EXISTING WORK HAVE BEEN DEVELOPED AND ARRANGED BASED ON THE FOREGOING INFORMATION AND FIELD MEASUREMENTS. THE CONTRACTOR IS RESPONSIBLE TO FIELD CHECK AND MEASURE LOCATIONS, ELEVATIONS AND DIMENSIONS AND TO FIT AND OTHERWISE INSTALL THE NEW WORK TO ACTUAL EXISTING LOCATIONS, ELEVATIONS AND DIMENSIONS FOR A COMPLETE AND TROUBLE–FREE OPERATING FACILITY.

6. THE CONTRACTOR IS RESPONSIBLE TO MAKE ALL MEASUREMENTS NECESSARY TO LOCATE, FABRICATE, ERECT, CONSTRUCT AND OTHERWISE INSTALL ALL NEW WORK IN EXISTING AND NEW LOCATIONS AND RELOCATE AND REWORK EXISTING WORK ALL TO THE ARRANGEMENTS, GUIDANCE AND INSTRUCTIONS SHOWN AND REQUIRED FOR A COMPLETE TROUBLE–FREE OPERATING INSTALLATION.

7. THE CONTRACTOR SHALL LIMIT HIS OPERATIONS GENERALLY TO THE AREA AROUND THE TERTIARY FILTER FACILITIES IN THIS CONTRACT. ACCESS OF WORK REQUIRED IN OTHER AREAS OF THE SITE SHALL BE ARRANGED AND COORDINATED WITH THE OWNER AND ENGINEER.

8. THE CONTRACTOR SHALL PAINT EXISTING FACILITIES AND ITEMS IN THE FILTER GALLERY IF EXISTING PAINT OR COATINGS ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS. ALL EXISTING WORK INCORPORATED WITHIN OR AS PART OF NEW WORK SHALL BE PAINTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. ALL EXPOSED PIPING & METAL IN THE CLEAR WELLS WILL BE COATED AS PART OF THIS PROJECT.

9. THE CONTRACTOR IS CAUTIONED THAT ACCESS TO SOME AREAS OF WORK MAY BE LIMITED AND MAY NOT BE EASILY ACCESSIBLE BY SOME TYPES OF CONSTRUCTION EQUIPMENT FROM EXISTING ROADS. THE CONTRACTOR SHALL INSPECT THE SITE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SHALL PROVIDE ANY AND ALL EQUIPMENT REQUIRED TO PERFORM THE WORK. THE CONTRACTOR SHALL SUBMIT STRUCTURAL LOAD CALCULATIONS AND WORKING DRAWINGS PREPARED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF MICHIGAN FOR PRIOR APPROVAL SHOWING ALL CONSTRUCTION LOADS ON EXISTING STRUCTURES AND FACILITIES AND SHALL DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER THAT THE CAPACITY OF EXISTING STRUCTURES AND FACILITIES WILL NOT BE EXCEEDED BY ANY LOAD DEVELOPED DURING CONSTRUCTION.

10. ALL SHOP AND WORKING DRAWING SUBMITTALS SHALL BE PREPARED BY THE CONTRACTOR TO INCORPORATE ALL REQUIREMENTS AND RESPONSIBILITIES OF THESE GENERAL NOTES.

11. EXISTING FACILITIES OR WORK TO BE USED, IMPACTED OR OTHERWISE AFFECTED BY THE CONTRACTOR SHALL BE INSPECTED PRIOR TO STARTING WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR, MODIFY, UPGRADE, PROTECT, SUPPLEMENT OR SUPPORT EXISTING FACILITIES OR WORK TO OBTAIN THE DEGREE OF SERVICE REQUIRED BY THE CONTRACTOR TO PERFORM NEW WORK. THE CONTRACTOR SHALL RETURN EXISTING FACILITIES OR WORK TO ITS FUNCTIONAL EQUIVALENCY FOUND PRIOR TO THE START OF THE CONTRACTOR'S WORK TO THE SATISFACTION OF THE OWNER AND ENGINEER.

12. NEW PIPING TO BE SUPPORTED IN ACCORDANCE WITH SPECIFICATION SECTIONS 40 05 24 AND 40 05 17. AS THIS IS AN EXISTING FACILITY ALL NEW PIPING AND ASSOCIATED SUPPORTS WILL BE NEED TO BE ADJUSTED TO AVOID CONFLICTS WITH EXISTING EQUIPMENT AND APPURTENANCES INCLUDING BUT NOT LIMITED TO PIPING, PIPING SUPPORTS, CONDUITS, LIGHTING. CONTRACTOR SHALL PROVIDE ADDITIONAL SUPPORTS AS NEEDED TO ADEQUATELY SUPPORT PIPING WHILE AVOIDING EXISTING CONFLICTS. EXISTING ITEMS MAY BE RELOCATED BY THE CONTRACTOR IF REQUIRED AND APPROVED BY ENGINEER AND COORDINATED WITH THE OWNER. COSTS FOR ALL SUPPORTS AND RELOCATIONS SHALL BE INCLUDED IN THE CONTRACTORS BASE BID.

13. DRIVING OR STAGING OF EQUIPMENT OR MATERIALS ON TOP OF THE UNDERGROUND BACKWASH WATER TANK IS NOT PERMITTED.

14. ALL COSTS ASSOCIATED WITH COMPLIANCE WITH THESE GENERAL NOTES SHALL BE INCLUDED IN THE VARIOUS CONTRACT ITEMS AND NO SEPARATE PAYMENT WILL BE MADE THEREFORE.

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
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ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
OVERALL SITE PLAN
ITB #4680

SHEET G-2

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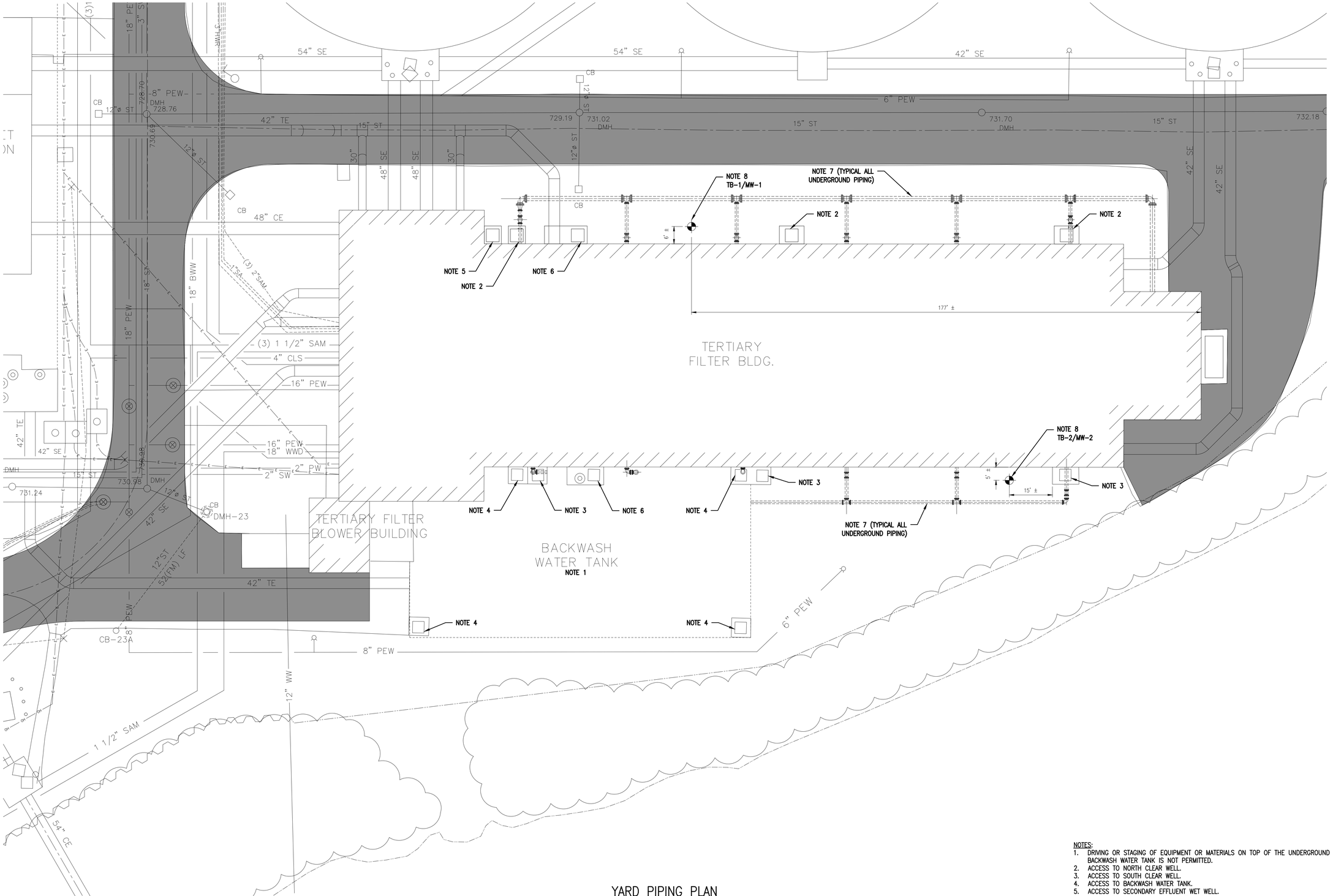

YARD PIPING PLAN

NOT TO SCALE

NOTES:

1. DRIVING OR STAGING OF EQUIPMENT OR MATERIALS ON TOP OF THE UNDERGROUND BACKWASH WATER TANK IS NOT PERMITTED.
2. ACCESS TO NORTH CLEAR WELL.
3. ACCESS TO SOUTH CLEAR WELL.
4. ACCESS TO BACKWASH WATER TANK.
5. ACCESS TO SECONDARY EFFLUENT WET WELL.
6. ACCESS TO CLEAR WELL EFFLUENT WEIR.
7. CONTRACTOR TO AVOID AND/OR PROTECT UNDERGROUND PIPING FROM DAMAGE THROUGH USE OF EQUIPMENT OR STAGING MATERIALS ON TOP OF IT.
8. APPROXIMATE LOCATIONS OF SOIL BORINGS AND MONITORING WELLS. MONITORING WELLS ARE AVAILABLE FOR CONTRACTOR TO MONITOR GROUND WATER ELEVATION DURING CONSTRUCTION. ALL MONITORING WELLS TO BE REMOVED AND BORINGS RESTORED IN ACCORDANCE WITH LOCAL REQUIREMENTS PRIOR TO FINAL COMPLETION.

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ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
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ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
YARD PIPING - PLAN
ITB #4680

SHEET G-3

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VALVE DESIGNATIONS

SYMBOLS: PIPEWORK DRAWINGS	SYMBOLS: FLOW DIAGRAMS	MARK	TYPE
		A	GATE VALVE
		K	KNIFE GATE VALVE
		B	BUTTERFLY VALVE
		IB	INDUSTRIAL BUTTERFLY VALVE
		P	PLUG VALVE
		G	GLOBE VALVE
		BV	BALL VALVE
		C	STANDARD CHECK VALVE
		CC	CUSHION CHECK VALVE
		SC	SILENT CHECK VALVE
		RC	RADIAL CHECK VALVE
		AC	AIR (DOUBLE VANE) CHECK VALVE
		SEC WEC	ELECTRIC CHECK VALVE (SEWAGE) (ANGLE OR GLOBE VALVE) (WATER)
		PV	PRESSURE CONTROL & REGULATING VALVE
		SV	SURGE OR PRESSURE RELIEF VALVE
		AV	ALTITUDE VALVE
		CV	CONE VALVE
		BCV	BALL CONTROL VALVE
		RP	RUBBER PINCH VALVE
SECTION PLAN		PD	PLUG DRAIN VALVE
		BW	BACKWATER (FLAP) VALVE
		TPSV	TAPPING SLEEVE AND VALVE
VERTICAL AXIS		FV	FOOT VALVE
VERTICAL AXIS		TSV	TELESCOPIC VALVE

GATE DESIGNATIONS

SYMBOLS: PIPEWORK DRAWINGS	SYMBOLS: FLOW DIAGRAMS	MARK	TYPE
		S	SLUICE GATE (WITH STANDARD WALL THIMBLE)
		S	SLUICE GATE (WITH FLANGE & MECHANICAL JOINT WALL THIMBLE)
		F	FABRICATED SLIDE GATE
		SP	STOP PLATE (SPECIFIED UNDER SLIDE GATES)
		SH	SHEAR GATE
		SL	STOP LOG

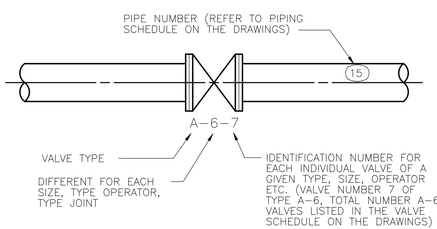
JOINT DESIGNATIONS

SYMBOL	MARK	TYPE
	FJ	FLANGED JOINT
	MJ	MECHANICAL JOINT
	SJ	SCREWED JOINT
	BSL POJ	BELL AND SPIGOT LEAD JOINT 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

SLEEVE DESIGNATIONS

SYMBOL	TYPE
	STEEL WALL SLEEVE
	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

VALVE & PIPE IDENTIFICATION



PIPING ABBREVIATION – LEGEND

AIR	LOW PRESSURE AIR
ASH	ASH
BS	BLENDED SLUDGE
BWW	BACKWASH WATER
C	CENTRATE
CB	CATCH BASIN
D	DRAIN
DMH	MANHOLE
DS	DIGESTED SLUDGE
DWS	DEWATERED BIOSOLIDS
F	FILTRATE
FA	FLUIDIZING AIR
FE	FINAL EFFLUENT
FM	PUMP STATION FORCE MAIN
FS	FINAL TANK SLUDGE
HA	HOT AIR
HG	HOT GAS
ML	MIXED LIQUOR
ODD	ODOR CONTROL DUCT
NC	NORMALLY CLOSED
NS	NITRIFIED SLUDGE
OA	OUTSIDE AIR
OF	OVERFLOW
PE	PRIMARY EFFLUENT
PEW	PLANT EFFLUENT WATER
PI	PRIMARY INFLUENT
PS	PRIMARY TANK SLUDGE
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RC	RECYCLED SEWAGE
RCS	RECIRCULATED SLUDGE
RF	RECIRCULATED FLOW
RS	RAW SEWAGE
S	SCUM
SAM	SAMPLE LINE
SE	SECONDARY EFFLUENT
SN	SUPERNATANT
SPD	SUMP PUMP DISCHARGE
ST	STORM WATER
SWW	SURFACE WASHWATER
TE	TERTIARY EFFLUENT
THS	THICKENED SLUDGE
TO	THICKENER OVERFLOW
TS	TRANSFER SLUDGE
TWAS	THICKENED WASTE ACTIVATED SLUDGE
UD	UNDERDRAIN FLOW
WAS	WASTE ACTIVATED SLUDGE
WM	WATER MAIN
WWD	WASHWATER DRAIN
WWS	WASHWATER SUPPLY

OPERATORS
(SCHEMATICS ONLY)

THROTTLING SERVICE: SYMBOL	THROTTLING SERVICE: TYPE	OPEN – SHUT SERVICE: SYMBOL	OPEN – SHUT SERVICE: TYPE
	PNEUMATIC		PNEUMATIC
M	ELECTRIC	M	ELECTRIC
	HYDRAULIC		HYDRAULIC

LEGEND
YARD PIPING SITE PLAN

	PROPOSED SUPERSTRUCTURE
	PROPOSED STRUCTURE (TANKS, ETC.)
	EXISTING SUPERSTRUCTURE
	EXISTING STRUCTURE (TANKS, ETC.)
	FUTURE STRUCTURE
SIZE,SERVICE,PIPE NO.	PROPOSED PIPING 30" AND SMALLER
SIZE,SERVICE,PIPE NO.	PROPOSED PIPING 36" ANG LARGER
SIZE,SERVICE,PIPE NO.	EXISTING PIPING 30" AND SMALLER
SIZE,SERVICE,PIPE NO.	EXISTING PIPING 36" AND LARGER
	PROPOSED MANHOLE
	EXISTING MANHOLE
A-1-1	PROPOSED VALVE BOX AND NUMBER
	EXISTING VALVE BOX
A-1-2 MH	PROPOSED VALVE MANHOLE AND NUMBER
MH	EXISTING VALVE MANHOLE
	PROPOSED FIRE HYDRANT ASSEMBLY
	EXISTING FIRE HYDRANT ASSEMBLY
E	PROPOSED UNDERGROUND ELECTRICAL CONDUIT
E	EXISTING UNDERGROUND ELECTRICAL CONDUIT

MISCELLANEOUS SYMBOLS
(SCHEMATICS ONLY)

M	FLOW METER
	PUMP
	BLOWER
	INCREASER/REDUCER

PIPING AND VALVES GENERAL NOTES

1. INSTALL ALL PIPING SUPPORTS AND PIPING IN ACCORDANCE WITH THE LATEST EDITION OF THE ASME ANSI POWER PIPING CODE B 31.1.
2. LOCATE PRESSURE TAPS ON THE TOP OF PROCESS PIPES.
3. LOCATE SAMPLE TAPS ON THE SIDE OF PROCESS PIPES.
4. LOCATE DRAIN TAPS ON THE BOTTOM OF PROCESS PIPES.
5. UNLESS OTHERWISE NOTED PIPE ELEVATIONS SHOWN ON PIPING DRAWINGS REFER TO CENTERLINE OF THE PIPE.
6. 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".
7. INSTALL ALL PLUG, BUTTERFLY AND BALL VALVES WITH THE SHAFT IN THE HORIZONTAL POSITION, UNLESS OTHERWISE DIRECTED.
8. CONNECTIONS TO EXISTING PIPING TO UTILIZE ADF UNLESS OTHERWISE NOTED.

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
OHM-ADVISORS.COM

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ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
LEGEND
ITB #4680

SHEET P-1

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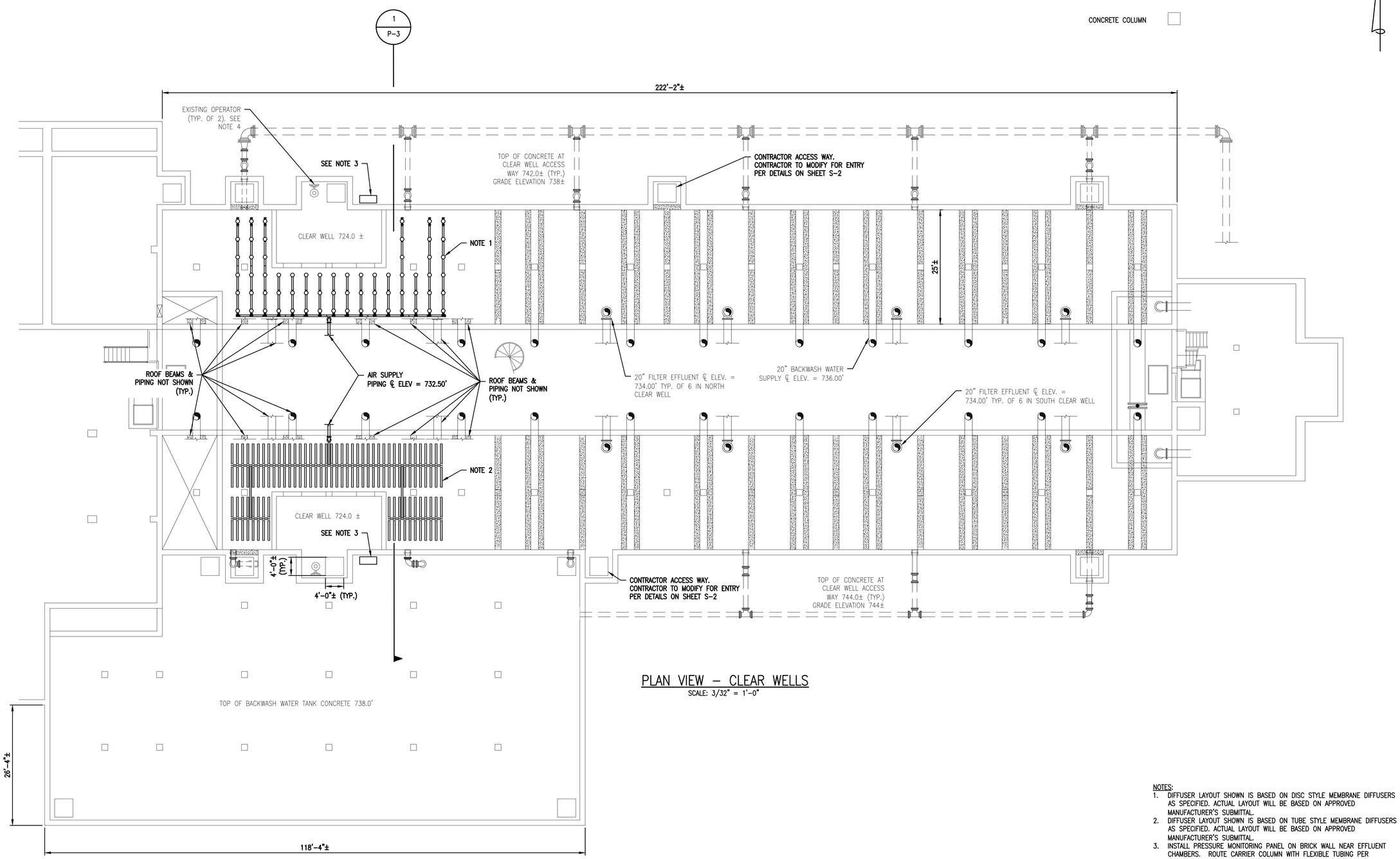

PLAN VIEW – CLEAR WELLS

SCALE: 3/32" = 1'-0"

NOTES:

1. DIFFUSER LAYOUT SHOWN IS BASED ON DISC STYLE MEMBRANE DIFFUSERS AS SPECIFIED. ACTUAL LAYOUT WILL BE BASED ON APPROVED MANUFACTURER'S SUBMITTAL.
2. DIFFUSER LAYOUT SHOWN IS BASED ON TUBE STYLE MEMBRANE DIFFUSERS AS SPECIFIED. ACTUAL LAYOUT WILL BE BASED ON APPROVED MANUFACTURER'S SUBMITTAL.
3. INSTALL PRESSURE MONITORING PANEL ON BRICK WALL NEAR EFFLUENT CHAMBERS. ROUTE CARRIER COLUMN WITH FLEXIBLE TUBING PER MANUFACTURER'S RECOMMENDATIONS THROUGH GRATING AND CONNECT TO DIFFUSER SYSTEM.
4. PROTECT EXISTING GATE OPERATOR FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE TO OPERATOR(S) SHALL BE CORRECTED BY REPLACEMENT OR REPAIR AT OWNER'S OPTION.

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ANN ARBOR WWTP
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CLEAR WELL PIPING & DIFFUSER LAYOUT
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SHEET P-2

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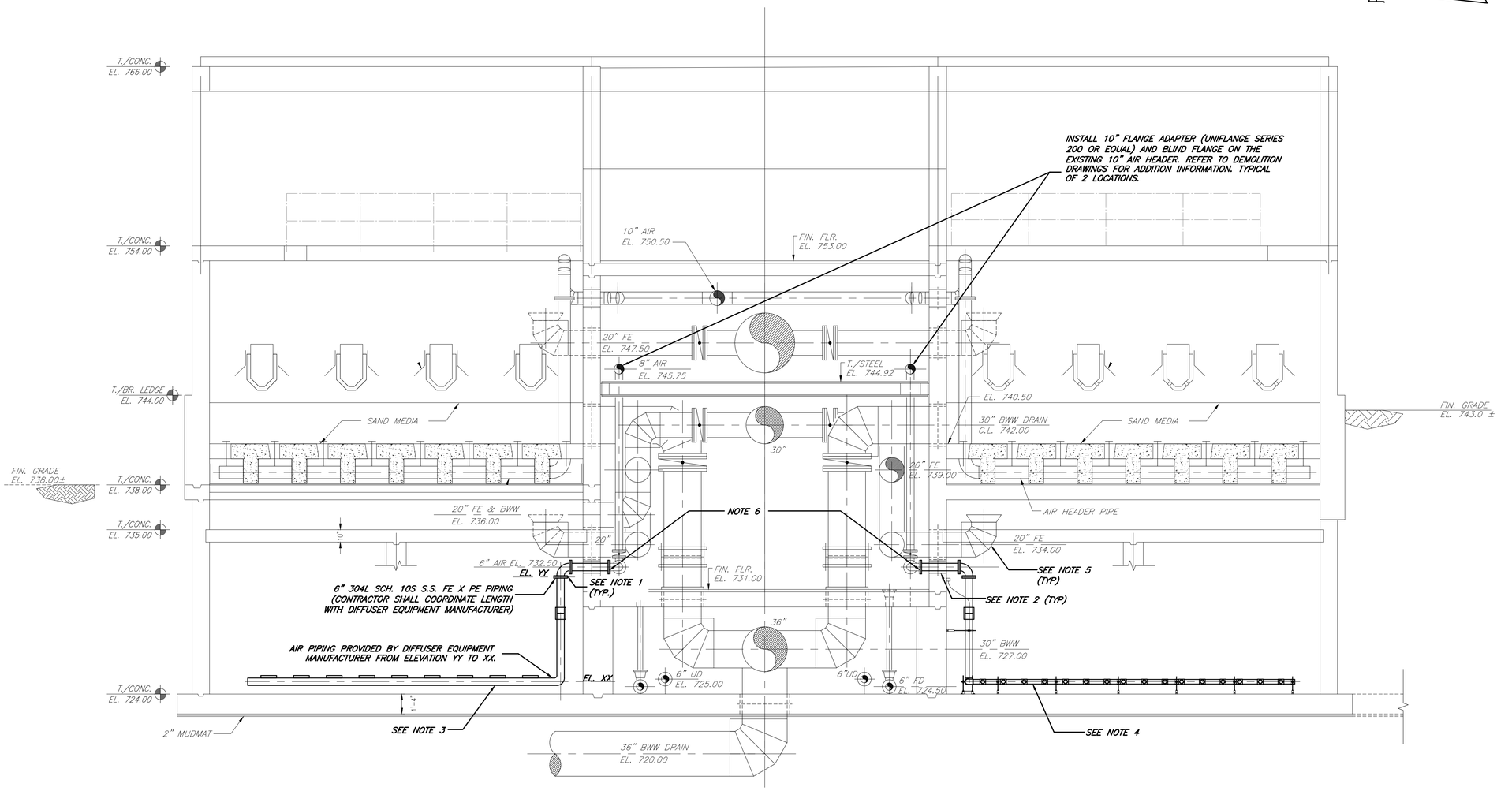

1 SECTION VIEW – AIR PIPING DETAILS
1/4" = 1'-0"

NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING PIPING TO THIS POINT OF DEMARCATION.
2. REPLACE DOUBLE LINK SEALS AT PIPE PENETRATIONS.
3. DIFFUSER LAYOUT SHOWN IS BASED ON DISC STYLE MEMBRANE DIFFUSERS AS SPECIFIED. ACTUAL LAYOUT WILL BE BASED ON APPROVED MANUFACTURER'S SUBMITTAL.
4. DIFFUSER LAYOUT SHOWN IS BASED ON TUBE STYLE MEMBRANE DIFFUSERS AS SPECIFIED. ACTUAL LAYOUT WILL BE BASED ON APPROVED MANUFACTURER'S SUBMITTAL.
5. CLEAN & RE-COAT ELBOWS & PIPES THAT ARE TO REMAIN IN PLACE.
6. CONTRACTOR TO FIELD VERIFY CONNECTIONS TO AIR HEADER PRIOR TO PREPARING DIFFUSER SUBMITTAL. PROPOSED 6" LPA AIR PIPING SHALL BE TYPE 304L 10S STAINLESS STEEL.

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ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
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ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
CLEAR WELL SECTION
ITB #4680

SHEET P-3

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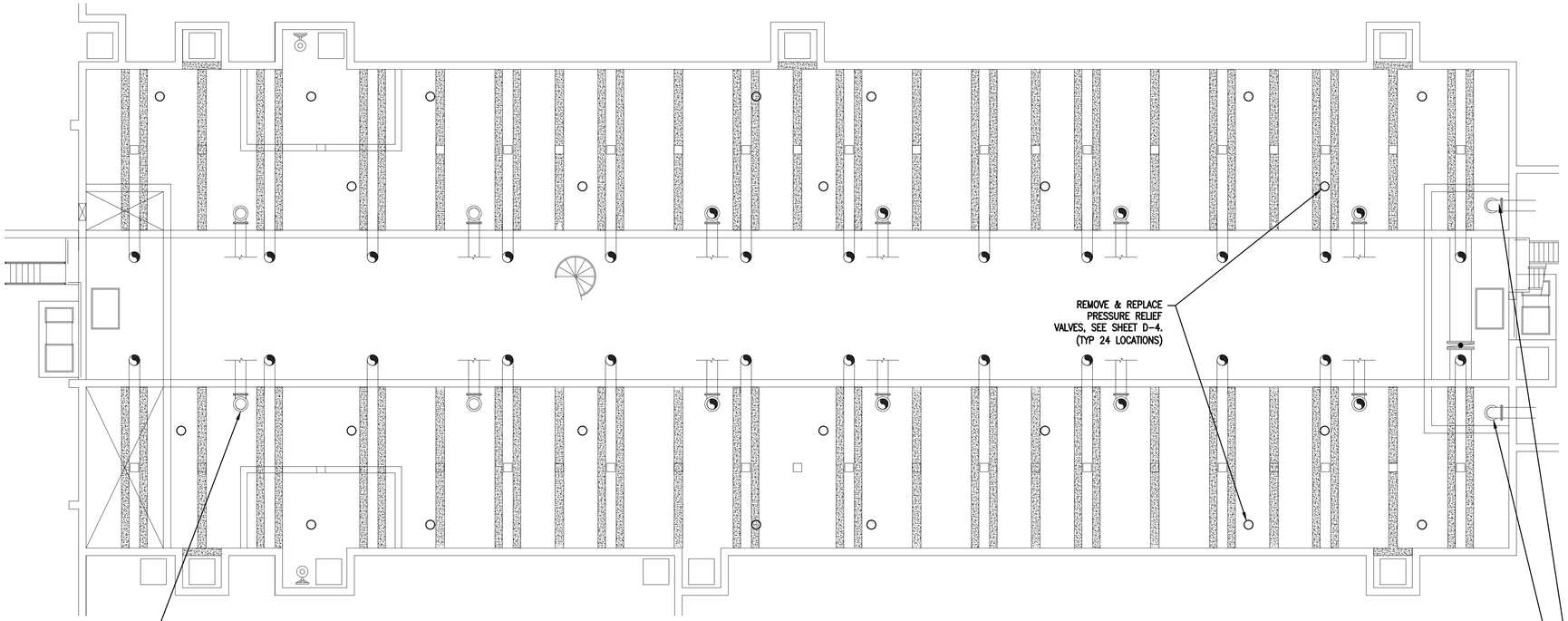

PLAN VIEW – CLEAR WELL PAINTING, SAMPLE PIPING & PRV REPLACEMENT

SCALE: 3/32" = 1'-0"

DEMOLITION/REHABILITATION NOTES:
1. SAND BLAST AND RE-COAT CLEAR WELL INFLUENT PIPES (TYP. 12 LOCATIONS).
2. REPLACE PIPE SUPPORT CLAMPS & BOLTS.

DEMOLITION/REHABILITATION NOTES:
1. SAND BLAST & RE-COAT CLEAR WELL SUCTION PIPING (TYP. 2 LOCATIONS)

OHM
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CLEAR WELL REHABILITATION
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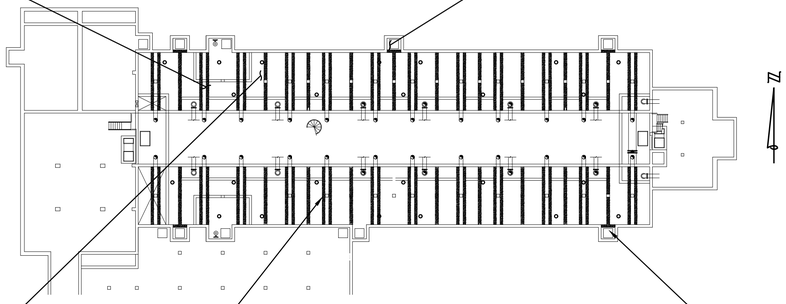
DEMOLITION/REHABILITATION NOTES:

1. PATCH HOLES UNDER BEAMS. (TYP. 12-24 LOCATIONS)

DEMOLITION/REHABILITATION NOTES:

1. SAND BLAST AND RE-COAT GALVANIZED PLATES. (TYP. 16 LOCATIONS)



PLAN VIEW – CLEAR WELL REHABILITATION
NOT TO SCALE

LEGEND:

CONCRETE ROOF BEAM

CONCRETE COLUMN

PRESSURE RELIEF VALVES

DEMOLITION/REHABILITATION NOTES:

1. REPAIR CRACKS ON CLEAR WELL CEILING AND WALLS (TYP. 12-24 LOCATIONS)

DEMOLITION/REHABILITATION NOTES:

1. REPAIR SPALLING CONCRETE AT BOTH SIDES OF TOP OF COLUMN.

EXISTING OVERFLOW PIPING

DEMOLITION/REHABILITATION NOTES:

1. REPAIR HONEYCOMBING AT BOTTOM OF WALL.
2. REMOVE ALL LADDER RUNGS FLUSH TO WALL FACE. TYPICAL FOR EACH CLEAR WELL ACCESS WAY (6 LOCATIONS).

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BID DRAWINGS 04/27/2021

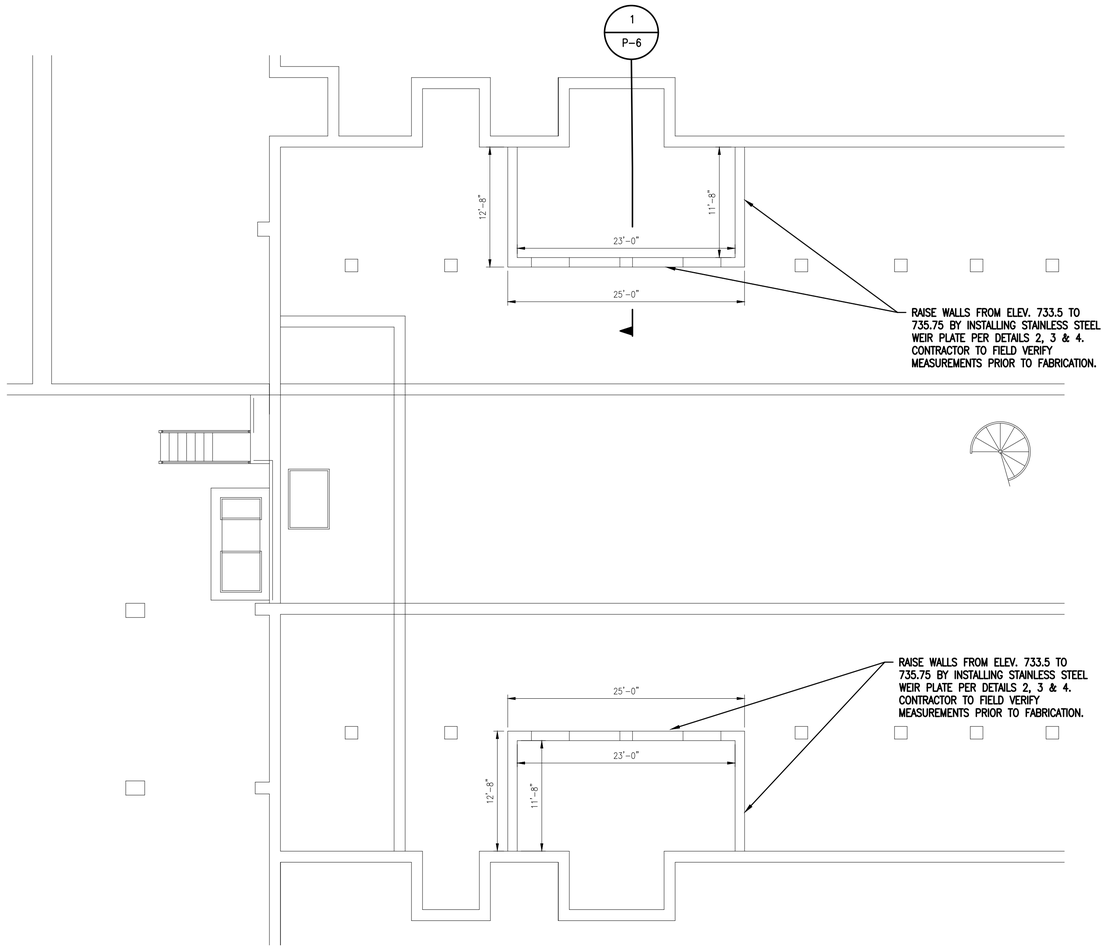
DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE		HORIZ DATUM	VERT DATUM
	0008-25-0010	TA/SW/MS	JD	LM/EH/MS	WASHTENAW	ANN ARBOR	H:	NTS	Value	Value
							V:	NTS		

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS

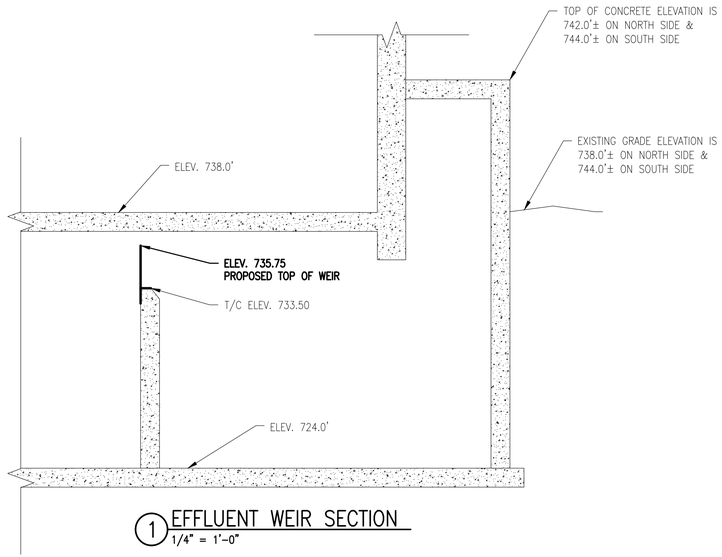
CLEAR WELL REHABILITATION
ITB #4680

SHEET P-5

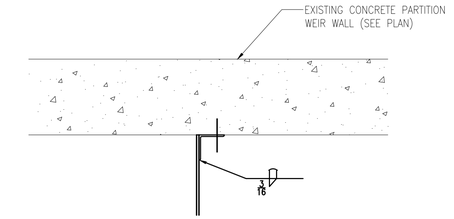
DRAWING PATH: \\ohmdfs\corporate\Projects\0000_0100\0028200010_wwtp_clearwells\Drawings\facilities\Demolition\200010DEM_2.dwg Apr 22, 2021 - 9:20am

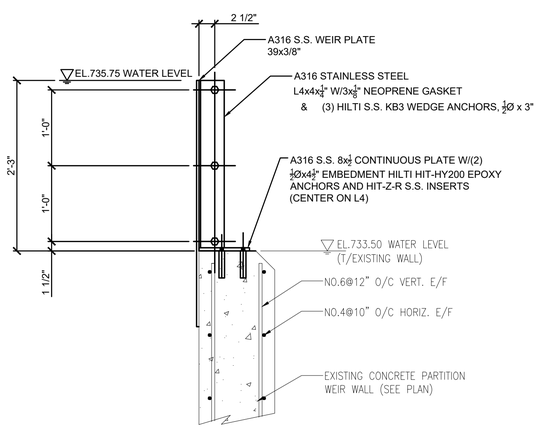


CLEAR WELL EFFLUENT WEIR STRUCTURES
SCALE: 1/8" = 1'-0"

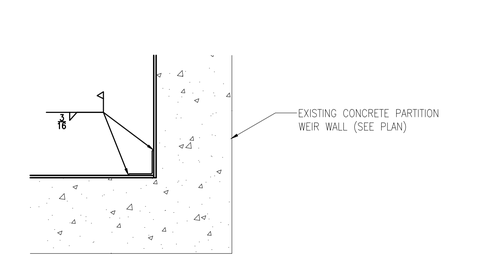


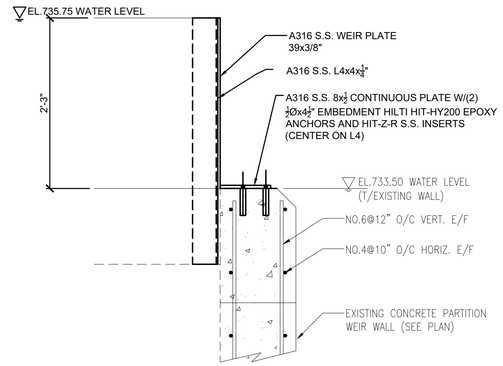
1 EFFLUENT WEIR SECTION
1/4" = 1'-0"



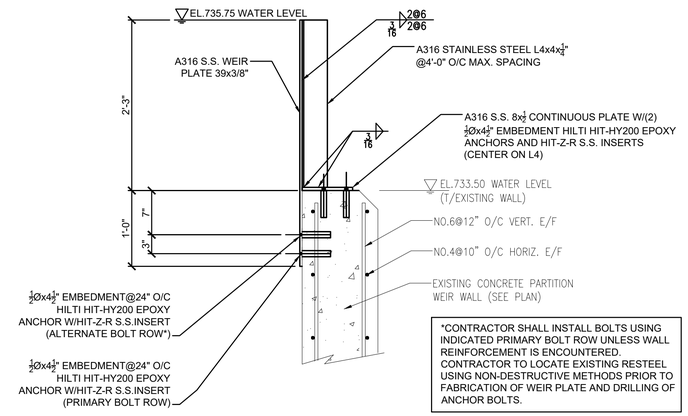


2 WEIR EXTENSION PLATE END SEAL DETAIL
1" = 1'-0"





3 WEIR EXTENSION PLATE CORNER DETAIL
1" = 1'-0"



4 WEIR EXTENSION PLATE DETAIL
1" = 1'-0"

N

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HORIZ DATUM Value
VERT DATUM Value

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
EFFLUENT WEIR DETAILS
ITB #4680

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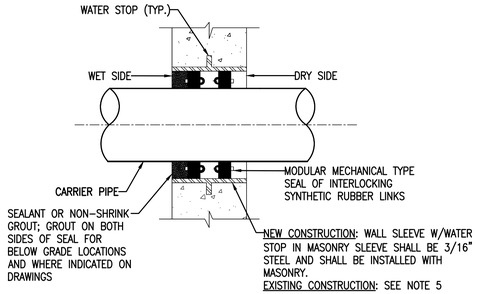
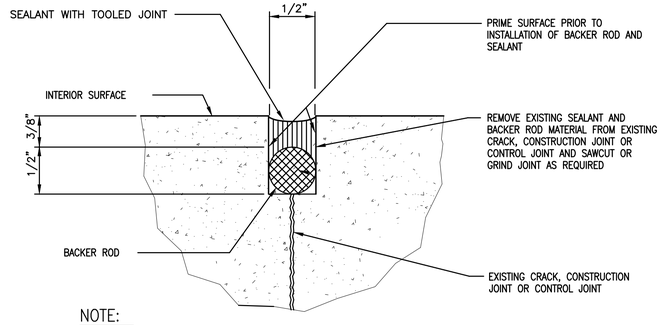
DRAWING PATH: \\ohmdfs\corporate\Projects\0000_0100\0028200010_ww\tp_clearwells\Drawings\facilities\Process Design\200010PIP_4.dwg Apr 22, 2021 - 9:20am



NOTES:
1. CONCRETE SHALL BE WORKED IN AND VIBRATED TO ELIMINATE ALL VOIDS IN CONCRETE. IF VOIDS DO REMAIN, FILL WITH GROUT BEFORE INSTALLING PIPE AND SEALS.
2. NUTS TO FACE DRY SIDE (INTERIOR) TO ALLOW FUTURE ADJUSTMENTS.
3. PROVIDE ONE SEAL FOR WALLS LESS THAN 12" THICK AND TWO SEALS FOR WALLS 12" THICK AND GREATER
4. IF BOTH SIDES ARE WET, GROUT OR SEALANT IS NOT REQUIRED, UNLESS OTHERWISE NOTED.
5. IF CONCRETE WALL IS EXISTING, THEN CORE DRILL WALL SMOOTH AND PROVIDE EPOXY BONDING AGENT AT CORE PERIMETER. CORE DRILL A 2" MIN. (TYP.) OFFSET FROM PIPE OD. WALL SLEEVE NOT REQUIRED UNLESS OTHERWISE NOTED.

WALL PENETRATION – MECHANICAL SEAL

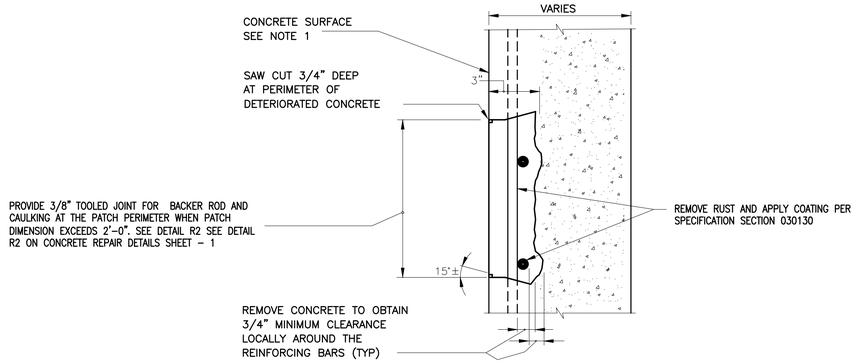


NOTE:
1. THIS DETAIL APPLIES TO INTERIOR CRACKS, CONSTRUCTION AND CONTROL JOINTS IDENTIFIED TO BE REPAIRED.
2. REMOVE EXISTING SEALANT AND BACKER ROD IN CRACKS AND JOINTS.
3. CLEAN AND PRIME JOINT PRIOR TO REPLACEMENT IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS.
4. PROVIDE SEALANT PER SPECIFICATION SECTION 030130.

REPAIR DETAIL R2

NO SCALE

(DETAIL FOR SEALING OF CRACKS, CONSTRUCTION AND CONTROL JOINTS IN INTERIOR SURFACES)

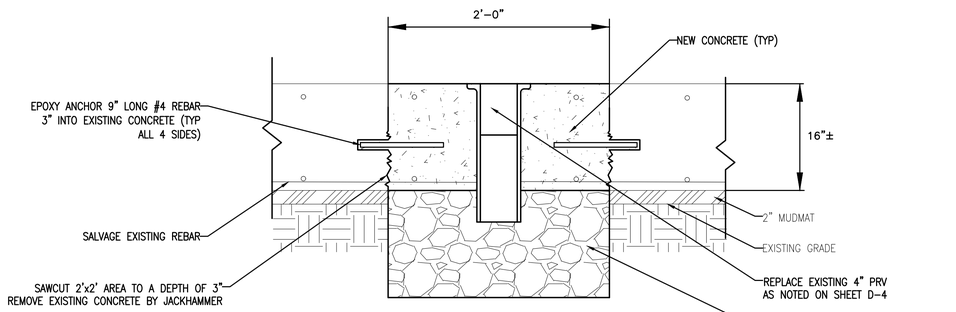


NOTES:
1. THIS DETAIL APPLIES TO INTERIOR AND EXTERIOR SURFACES OF WALLS, FLOORS, BEAMS, CEILINGS & COLUMNS
2. SEE SECTION 030130 OF THE SPECIFICATIONS FOR PROPER PATCHING MATERIAL TO BE USED FOR DIFFERENT PATCH SIZES.
3. SEE SECTION 030130 OF SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR PREPARATION OF CONCRETE AND EXISTING REINFORCING.

REPAIR DETAIL R10

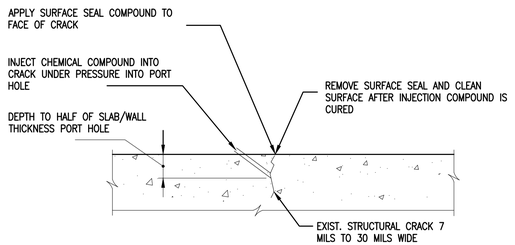
NO SCALE

(DETAIL FOR REPAIR OF DELAMINATED CONCRETE ON INTERIOR AND EXTERIOR SURFACES)



PRESSURE RELIEF VALVE (PRV) DETAIL

NOTES:
1. PRVS TO BE REPLACED UNDER UNIT PRICE AS AUTHORIZED BY OWNER.
2. NO MORE THAN 6 PRVS TO BE REPLACED AT A TIME.
3. PROVIDE 1 TO 4 WELL POINTS FOR GROUND WATER CONTROL AT EACH PRV AS RECOMMENDED IN THE GEOTECHNICAL REPORT.

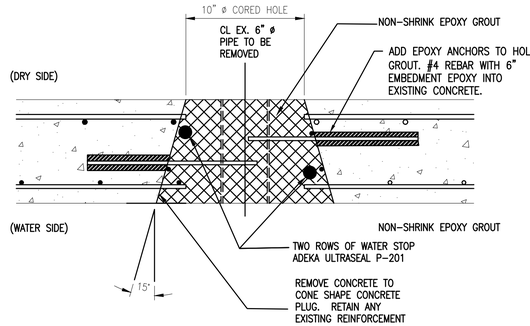


NOTES:
1. THIS DETAIL APPLIES TO CRACKS IN EXISTING CONCRETE SURFACES 7 MILS TO 30 MILS WIDE.
2. CLEAN SURFACES OF CRACKS AND REMOVE ALL MINERAL DEPOSITS AND FOREIGN MATTER.
3. INSTALL ENTRY PORT HOLES ALONG CRACK LENGTH.
4. APPLY SURFACE SEAL COMPOUND TO FACE OF CRACK ALONG ENTIRE LENGTH.
5. INJECT CHEMICAL COMPOUND AS REQUIRED INTO CRACK UNDER PRESSURE THROUGH ENTRY PORT HOLES.
6. REMOVE SURFACE SEAL AND CLEAN SURFACE AFTER INJECTION COMPOUND IS CURED.
7. INSTALL CHEMICAL GROUT PER SPECIFICATION SECTION 030130

REPAIR DETAIL R16

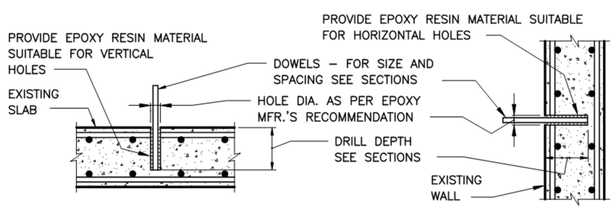
NO SCALE

(DETAIL FOR CRACK REPAIR IN THE INTERIOR SURFACES OF WALLS AND BASE SLAB BY CHEMICAL GROUT INJECTION)



WALL PENETRATION PLUG DETAIL

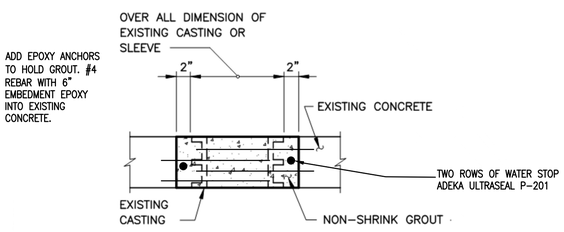
NOTES:
1. OVERCUT EXISTING CONCRETE AS SHOWN.
2. SAVE EXISTING REINFORCEMENT – CUT ONLY AS REQUIRED.
3. ROUGHEN AND CLEAN SURFACES AND COAT WITH CEMENT – SAND (1:1) GROUT PRIOR TO PLACING NON–SHRINK GROUT.



VERTICAL DOWEL HORIZONTAL DOWEL

NOTE:
LOCATE EXISTING REINFORCING & DRILL INTO EXISTING CONCRETE USING DRILLING EQUIPMENT TO PRODUCE CLEAN, DRY, ROUGHENED HOLES. CLEAN HOLE USING BRUSH AND COMPRESSED AIR. DO NOT DRILL THRU EXISTING REINFORCING. PLACE EPOXY RESIN MATERIAL AND DOWELS IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

DOWEL GROUTING DETAIL



SOLID

NOTES:
1. OVERCUT EXISTING CONCRETE AS SHOWN.
2. SAVE EXISTING REINFORCEMENT – CUT ONLY AS REQUIRED.
3. ROUGHEN AND CLEAN SURFACES AND COAT WITH CEMENT – SAND (1:1) GROUT PRIOR TO PLACING NON–SHRINK GROUT.

GROUT PLUG DETAIL

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34000 Plymouth Road
Livonia, MI 48150
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MISCELLANEOUS DETAILS
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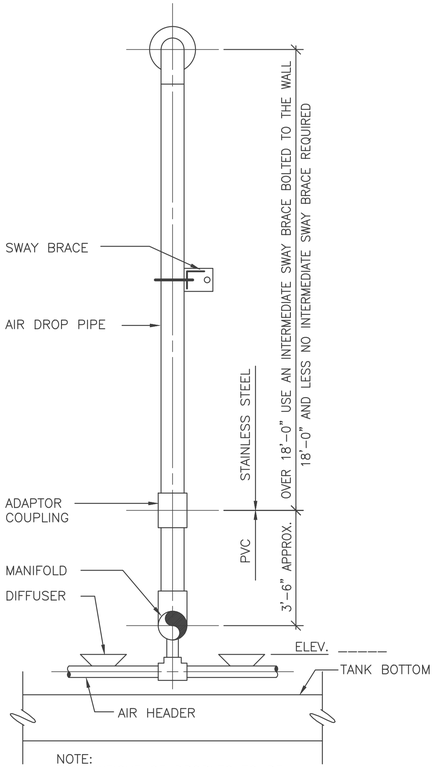
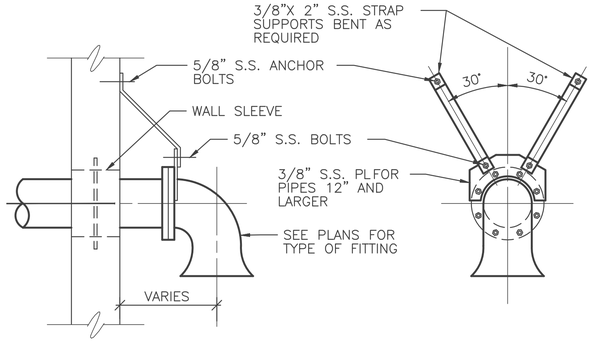


NOTE:
FULL WEIGHT OF DROPLEG TO BE SUPPORTED BY FLANGE CONNECTION TO AIRMAIN.

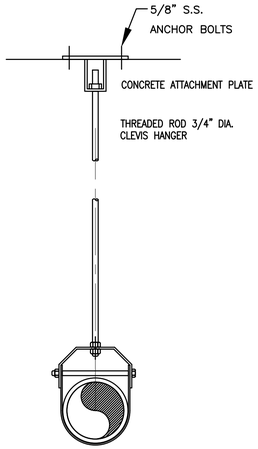
TYPICAL AIR DROP PIPING DETAIL

NO SCALE



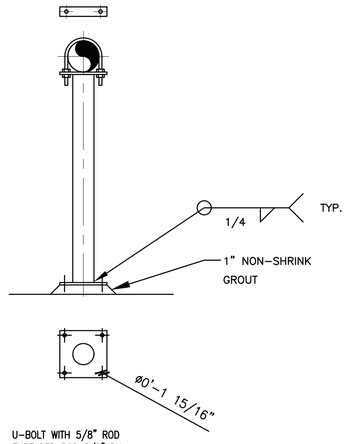
PIPE SUPPORT STRAP DETAIL

NO SCALE



PIPE HANGER

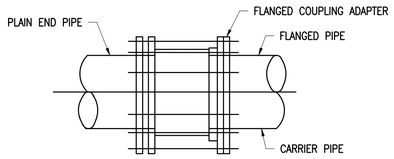
NOT TO SCALE



U-BOLT WITH 5/8" ROD
THREADED ROD 5/8" DIA.
4" PIPE SCH 40 STEEL
MOUNTING PLATES 10"x10"x1/2"
MOUNTING PLATE 10"x2"x1/2"

PIPE SUPPORT

NOT TO SCALE



FLANGED COUPLING ADAPTER

NOT TO SCALE

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CLEAR WELL IMPROVEMENTS
MISCELLANEOUS DETAILS
ITB #4680

SHEET P-8
OF Value

LEGEND

PT LOAD ABOVE — DENOTES COLUMN ABOVE

DENOTES BEAM POCKET IN CONC WALL (SIZED FOR BEAM, BEARING PLATE AND GROUT)

DENOTES COL. FROM ABOVE, CONT. THROUGH FLOOR FRAMING, SUPPORTED BY FTG. FOUNDATIONS OR PLANK

DENOTES COL. SUPPORTING FLOOR FRAMING

DENOTES CONCRETE MASONRY UNIT (CMU)

DENOTES BEARING WALL

CJ — DENOTES CONTROL JOINT

EJ — DENOTES EXPANSION JOINT PER ARCHITECTURAL DETAILS

C# — DENOTES COLUMN MARK

B# — DENOTES BEAM MARK

F# — DENOTES FOOTING MARK

P# — DENOTES PIER MARK

L# — DENOTES LINTEL MARK

TRUSSES = PRE-ENGINEERED METAL-PLATE-CONNECTED WOOD TRUSSES

MRC = MICHIGAN RESIDENTIAL CODE

GT — GT = GIRDER TRUSS

B2 — BEAM

RAFTER OR JOIST

OVERBUILD FRAMING

FOUNDATION WALL

FOOTING

MOMENT CONNECTION

GENERAL STRUCTURAL NOTES

GENERAL STRUCTURAL NOTES

1. THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL LIMIT THE AMOUNT OF LOAD IMPOSED UPON THE STRUCTURAL FRAMING SYSTEM DURING CONSTRUCTION. LOADS, INCLUDING CONSTRUCTION LOADS, MUST NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED. THE CONTRACTOR SHALL INFORM THE ENGINEER OF POTENTIAL CONSTRUCTION LOADS DEEMED EXCESSIVE BY THE CONTRACTOR.
3. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED SELF SUPPORTING, STABLE STRUCTURE UNLESS OTHERWISE INDICATED. THEY DO NOT INDICATE THE MEANS OR METHOD OF CONSTRUCTION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE, CONSTRUCTION SEQUENCE AND PROVIDE ALL MEASURES OR TEMPORARY BRACING NECESSARY TO ENSURE THE STABILITY AND SAFETY OF THE STRUCTURE AND ITS COMPONENTS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR THE BUILDING, SHORING FOR EARTH BANKS, FORMS, SCAFFOLDING, PLANKING, SAFETY NETS, SUPPORT AND BRACING FOR CRANES AND GIN POLES, ETC.
4. ALL MATERIALS AND WORKMANSHIP SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE GOVERNING BUILDING CODE: MICHIGAN BUILDING CODE, CURRENT EDITION.
5. ALL SHOP DRAWINGS PREPARED BY SUPPLIERS, SUBCONTRACTORS, ETC. SHALL BE REVIEWED BY THE ARCHITECT/ENGINEER FOR CONFORMANCE WITH DESIGN INTENT ONLY. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION. ENGINEERS APPROVAL OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR FIT, QUANTITY AND CONSTRUCTION QUALITY CONTROL.
6. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL RELEVANT DIMENSIONS AND ELEVATIONS FOR EQUIPMENT INSTALLATIONS AGAINST APPROVED MANUFACTURERS CERTIFIED EQUIPMENT DRAWINGS AND COORDINATING ANY REQUIREMENTS WITH SHOP DRAWINGS AND WORK.
7. MECHANICAL FRAMING LOADS, OPENINGS AND SUPPORT STRUCTURE ARE SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL COORDINATE WITH MECHANICAL AND OTHER TRADES TO VERIFY EQUIPMENT SIZE AND LOCATIONS. ANY CHANGES IN EQUIPMENT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD.
8. THE CONTRACTOR SHALL INFORM THE ENGINEER/ARCHITECT OF ANY DEVIATIONS FROM THE DRAWINGS. DO NOT CUT OR MODIFY STRUCTURAL MEMBERS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER.
9. DRAWINGS ARE INTENDED TO BE PRINTED PER THE SCALE PROVIDED. THE CONTRACTOR SHALL CONTACT THE ENGINEER IF ADDITIONAL DIMENSIONS ARE REQUIRED.
10. CONTRACTOR SHALL NOT MIX GALVANIZED AND STAINLESS STEEL AT ANY TIME. ANY METAL PARTS IN CONTACT WITH OTHER METAL PARTS SHALL BE OF A SIMILAR METAL.
11. CONTRACTOR SHALL RECOGNIZE EFFECTS OF THERMAL MOVEMENTS AND MOISTURE CONTENT CHANGES OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD AND CONSIDER THESE EFFECTS DURING CONSTRUCTION AND/OR ERECTION SEQUENCES.
12. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING COMPLETE AND FUNCTIONING SYSTEMS, INCLUDING BUT NOT LIMITED TO, PROVIDING (AT NO ADDITIONAL COST) ITEMS NOT SPECIFICALLY SHOWN IN THESE DRAWINGS WHICH ARE NORMALLY CONSIDERED NECESSARY.

GENERAL STRUCTURAL NOTES (cont)

BUILDING LOADS	
LIVE LOADS	
1. UNIFORM MAINTENANCE ACCESS LIVE LOAD	40 PSF
2. ROOF LIVE LOAD	N/A
3. INTERIOR WALL LATERAL LIVE LOAD	N/A
DEAD LOADS	
1. MATERIAL DEAD LOAD	ACTUAL
2. MECHANICAL DEAD LOAD	N/A
SNOW LOADS	
BALANCED SNOW	20 PSF
1. GROUND SNOW LOAD, Pg	20 PSF
2. FLAT-ROOF SNOW LOAD, Pf	20 PSF
3. SNOW EXPOSURE FACTOR, Ce	1.0
4. RISK CATEGORY	1.0
5. SNOW LOAD IMPORTANCE FACTOR, Is	1.0
6. ROOF THERMAL FACTOR, Ct	1.0
7 SLOPED ROOF FACTOR, Csu	N/A
8. SLOPED ROOF SNOW LOAD, Ps	N/A

NOTES:
1. APPLICABLE CODE IS 2015 MICHIGAN BUILDING CODE
2. APPLICABLE TECHNICAL CODE IS ASCE/ SEI 7-10

CONCRETE

1. PROVIDE MINIMUM 28-DAY CONCRETE COMPRESSIVE STRENGTH OF 4,000 PSI (f'c = 4,000 PSI). PROVIDE NORMAL WEIGHT CONCRETE, WITH 6% ± 1.5% ENTRAINED AIR FOR EXTERIOR APPLICATIONS , MAXIMUM W/C RATIO < 0.45, AND MAXIMUM 4" SLUMP, UNLESS SUPER-PLASTICIZERS ARE USED. USE OF SUPER-PLASTICIZERS IS SUBJECT TO PRIOR APPROVAL BY THE ENGINEER. DO NOT PROVIDE AIR CONTENT > 3% FOR TROWEL FINISHED SLABS.
2. PROVIDE READY-MIX CONCRETE CONFORMING TO ASTM C-94.
3. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ACI 117 301, 305R, 306.1, AND 308.1, LATEST APPLICABLE EDITION.
4. PLACE ANCHOR RODS SET IN CONCRETE TO RECEIVE STRUCTURAL STEEL WITHIN TOLERANCES SPECIFIED IN THE LATEST APPLICABLE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" IN LIEU OF TOLERANCES SPECIFIED IN ACI "STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS".
5. REINFORCING STEEL CONFORMING TO ASTM A-615, GRADE 60 IS REQUIRED. PLACE REINFORCING STEEL IN CONFORMANCE WITH CRSI MANUAL OF STANDARD PRACTICE.
6. CONFORM TO ASTM A706/A706M, GRADE 60 FOR REINFORCING STEEL TO BE WELDED. PLACE REINFORCING STEEL IN CONFORMANCE WITH CRSI MANUAL OF STANDARD PRACTICE. WELD REINFORCED STEEL IN ACCORDANCE WITH AWS D1.4 PERFORM WELDING BY CERTIFIED WELDERS. USE E70XX ELECTRODES. DO NOT WELD REINFORCEMENT UNLESS DETAILED AS SUCH.
7. REINFORCING STEEL SHALL HAVE A MINIMUM CONCRETE COVER AS LISTED BELOW UNLESS OTHERWISE NOTED.
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED EARTH: 3"
   B. CONCRETE CAST AGAINST FORMS BUT EXPOSED TO EARTH OR WEATHER
      1. NO. 5 OR SMALLER 1 1/2"
      2. GREATER THAN NO. 5 2"
   C. SLAB ON GRADE: 2" FROM T/SLAB
8. POST INSTALLED ANCHORS OR REBAR SHALL BE ANCHORED INTO CONCRETE WITH POWERS PE1000+ EPOXY INJECTION ADHESIVE, OR AN APPROVED EQUAL. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION INSTRUCTIONS. SEE DETAILS FOR MINIMUM EMBEDMENT.

REINFORCEMENT LAP SPLICE LENGTH+

BAR SIZE	f'c= 3,000 psi		f'c= 4,000 psi		f'c= 5,000 psi	
	TOP BARS*	ALL OTHER BARS	TOP BARS*	ALL OTHER BARS	TOP BARS*	ALL OTHER BARS
#3	28"	22"	24"	19"	22"	17"
#4	37"	29"	33"	25"	29"	23"
#5	47"	36"	40"	31"	36"	28"
#6	56"	43"	49"	38"	44"	34"
#7	81"	63"	70"	54"	63"	49"
#8	93"	72"	81"	62"	72"	56"

* TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE BELOW BAR.
\+ LAP SPLICE LENGTHS SHOWN ARE CLASS B SPLICE LENGTHS FOR UNCOATED OR GALVANIZED BARS WITH CLEAR COVER OF db OR MORE AND WITH CLEAR SPACING OF 2db OR MORE. INCREASE LAP LENGTHS BY 50% FOR EPOXY COATED OR DUAL ZINC-EPOXY COATED BARS WITH CLEAR COVER LESS THAN 3db OR WITH CLEAR SPACING LESS THAN 6db. INCREASE LAP LENGTHS BY 20% FOR EPOXY COATED OR DUAL ZINC-EPOXY COATED BARS WITH CLEAR COVER OF 3db OR MORE AND WITH CLEAR SPACING OF 6db OR MORE. SPLICE LENGTHS SHOWN ARE FOR NORMAL WEIGHT CONCRETE AND REINFORCEMENT WITH A YIELD STRENGTH OF 60,000 PSI (60 KSI).

GENERAL STRUCTURAL NOTES (cont)

STRUCTURAL STEEL

1. COMPLY WITH CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES – THE LATEST APPLICABLE EDITION
2. STRUCTURAL STEEL PLATES, ANGLES, CHANNELS AND S-SHAPE MEMBERS: ASTM A36, Fy=36KSI.
3. ANCHOR RODS: ASTM F1554, GRADE 36.
4. STRUCTURAL STEEL WIDE FLANGE SECTIONS: ASTM A992, GRADE 50, Fy=50KSI.
5. HOLLOW STRUCTURAL SECTIONS: ASTM A500, GRADE B, Fy=46KSI.
6. STEEL PIPE: ASTM A53, GRADE B, Fy=35KSI.
7. USE ASTM A325N, 3/4" DIA FOR ALL BOLTS IN STANDARD ROUND HOLES UNLESS NOTED OTHERWISE ON THE PLANS.
8. SUBMIT SHOP DRAWINGS FROM STRUCTURAL STEEL FABRICATOR FOR APPROVAL OF THE ENGINEER, PRIOR TO FABRICATION. FOLLOW STANDARD PRACTICES SET FORTH IN THE AISC MANUAL "DETAILING FOR STEEL CONSTRUCTION" FOR DETAIL DRAWINGS OF THE MEMBERS AND THEIR CONNECTIONS. INDICATE WELDS, USING STANDARD AWS WELDING SYMBOLS. SHOW SIZE LENGTH AND TYPE OF EACH WELD.
9. BEAM AND LINTEL BEARINGS ON MASONRY WALLS SHALL BE 6 INCHES MINIMUM, UNLESS OTHERWISE NOTED. CENTER BEARING ON WALLS, UNLESS OTHERWISE NOTED.
10. STEEL FABRICATOR SHALL DESIGN AND FABRICATE STEEL AND STEEL CONNECTIONS IN ACCORDANCE WITH AISC UNLESS CONNECTIONS ARE INDICATED ON THE DRAWINGS.
11. ALL BOLTED CONNECTIONS SHALL BE BEARING TYPE N UNLESS OTHERWISE NOTED.
12. ALL STRUCTURAL STEEL MEMBERS AND ACCESSORIES UNLESS NOTED OTHERWISE, SHALL RECEIVE ONE SHOP PRIME COAT OF PROTECTIVE PAINT PRIOR TO DELIVERY TO JOBSITE. FINISH PAINT ALL STRUCTURAL STEEL AND CONNECTIONS, AFTER ERECTION AS SPECIFIED BY ARCHITECT.
13. WHERE MEMBERS ARE NOTED TO BE GALVANIZED, PROVIDE HOT DIPPED GALVANIZING IN ACCORDANCE WITH ASTM A123. PROVIDE FIELD TOUCH-UP OF ABRADED OR DAMAGED GALVANIZED COATINGS WITH HIGH-ZINC-DUST-CONTENT PAINT WITH DRY FILM CONTAINING NOT LESS THAN 94% ZINC DUST BY WEIGHT COMPLYING WITH SSPC-PAINT 20. ALL EXTERIOR STAIRS AND STAIR FRAMING SHALL BE GALVANIZED.
14. DESIGN, CONSTRUCTION AND REMOVAL OF ALL TEMPORARY SUPPORTS AND BRACING (SEE AISC CODE OF STANDARD PRACTICE) IS THE RESPONSIBILITY OF THE STEEL ERECTORS.
15. WELDING SHALL BE IN ACCORDANCE WITH THE STRUCTURAL WELDING CODE – STEEL (AWS D1.1-CURRENT) PUBLISHED BY THE AMERICAN WELDING SOCIETY. PERFORM WELDING BY CERTIFIED WELDERS. USE E70XX ELECTRODE.
16. DO NOT USE STEEL FRAMING CONNECTIONS WHICH REQUIRE EITHER MEMBER TO BE COMPLETELY DISCONNECTED (NUTS REMOVED FROM BOLTS) FOR INSTALLATION OF THE SUCCEEDING MEMBER.

GENERAL STRUCTURAL NOTES (cont)

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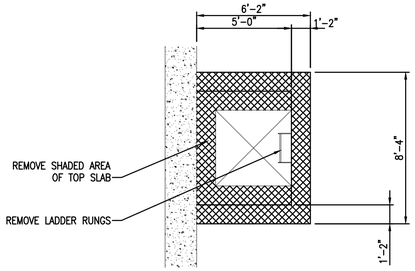
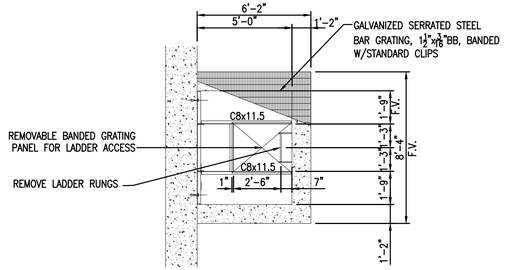
DATE 0028-20-0010 | PROJ NUMBER 0028-20-0010 | ENG TA/SW/MS | PROJ MGR JD | CADD LM/EM/MS | COUNTY WASHTENAW | CITY/VILLAGE/TOWNSHIP ANN ARBOR | SCALE H: NTS V: NTS | HORIZ DATUM Value | VERT DATUM Value

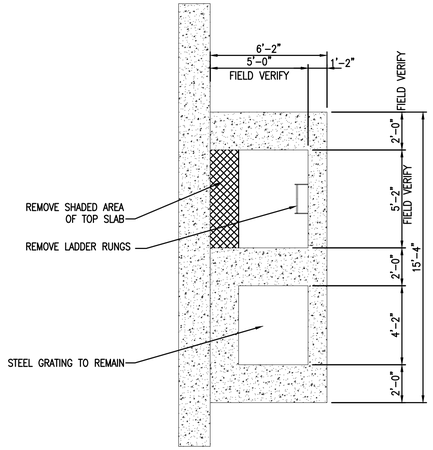
ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
GENERAL STRUCTURAL NOTES
ITB #4680

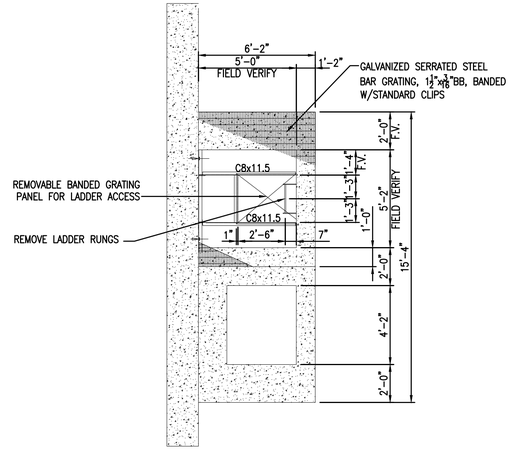
SHEET S-1

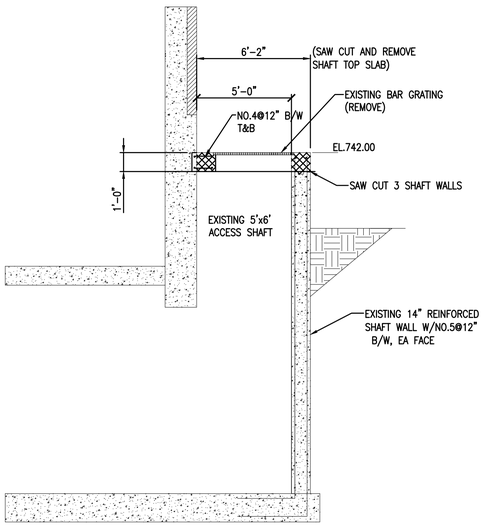
DRAWING PATH: \\ohmdfs\corporate\Projects\0000_0100\0028200010_wwtp_clearwells\Drawings\StructS-1 GENERAL STRUCTURAL NOTES.dwg Apr 22, 2021 - 9:21am









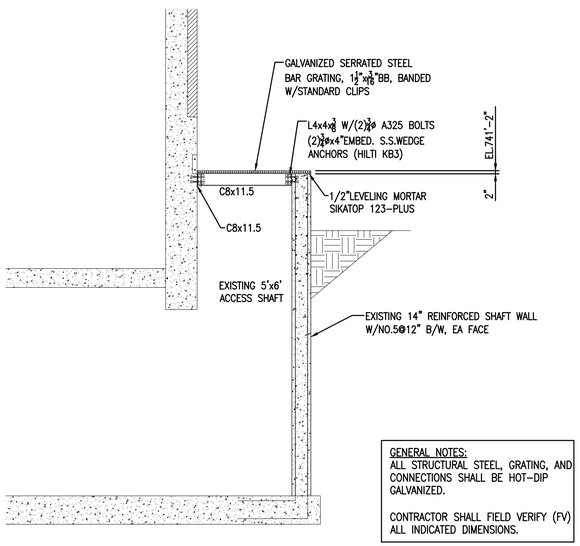


NORTH EQUIPMENT ACCESS DEMOLITION DETAIL

SCALE: $\frac{1}{4}$"=1'-0"

NOTES:

1. REMOVE ALL LADDER RUNGS FLUSH TO WALL FACE



GENERAL NOTES:
ALL STRUCTURAL STEEL, GRATING, AND CONNECTIONS SHALL BE HOT-DIP GALVANIZED.

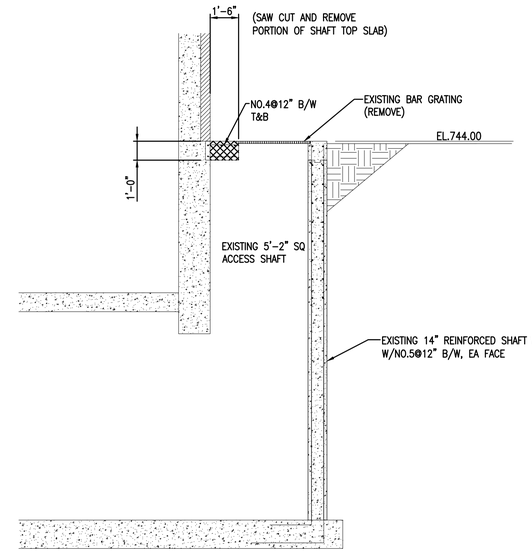
CONTRACTOR SHALL FIELD VERIFY (FV) ALL INDICATED DIMENSIONS.

NORTH EQUIPMENT ACCESS FRAME DETAIL

SCALE: $\frac{1}{4}$"=1'-0"

NOTES:

1. REMOVE ALL LADDER RUNGS FLUSH TO WALL FACE

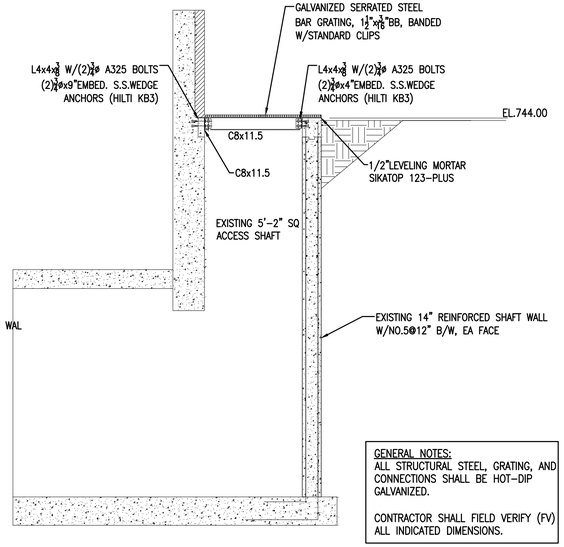


SOUTH EQUIPMENT ACCESS DEMOLITION DETAIL

SCALE: $\frac{1}{4}$"=1'-0"

NOTES:

1. REMOVE ALL LADDER RUNGS FLUSH TO WALL FACE



GENERAL NOTES:
ALL STRUCTURAL STEEL, GRATING, AND CONNECTIONS SHALL BE HOT-DIP GALVANIZED.

CONTRACTOR SHALL FIELD VERIFY (FV) ALL INDICATED DIMENSIONS.

SOUTH EQUIPMENT ACCESS FRAME DETAIL

SCALE: $\frac{1}{4}$"=1'-0"

NOTES:

1. REMOVE ALL LADDER RUNGS FLUSH TO WALL FACE

NOTES:

1. THE MODIFICATIONS TO THE ACCESS WAYS SHOWN ARE OPTIONAL AND ARE TO BE CONSIDERED IN THE CONTRACTOR'S MEANS AND METHODS. IF THE CONTRACTOR ELECTS TO ENLARGE ACCESS WAY OPENINGS, REPAIRS TO THE OPENINGS SHALL BE IN ACCORDANCE WITH THESE STANDARDS. ALL COSTS FOR ACCESS INTO THE CLEAR WELLS SHALL BE INCLUDED IN THE THE CONTRACT AMOUNT.

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
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DATE
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ENG TAS/WMS
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CADD LMB/HMS
COUNTY WASHTENAW
CITY/VILLAGE/TOWNSHIP ANN ARBOR
SCALE H: 1"=40' V: 1"=4'
HORIZ DATUM Value
VERT DATUM Value

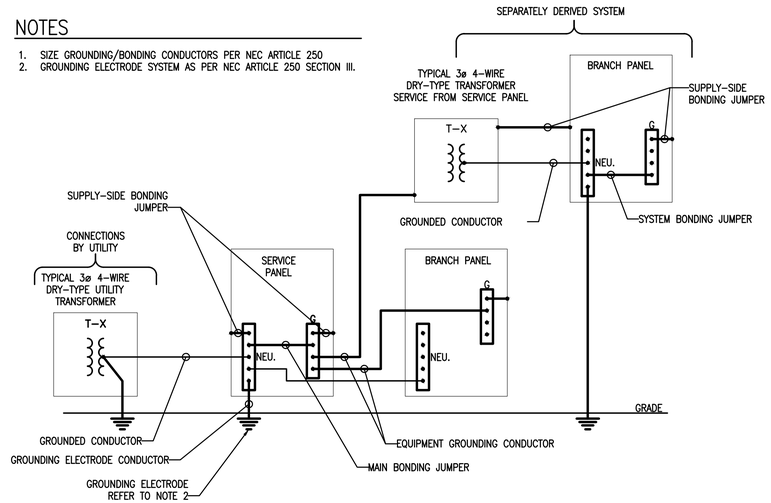
ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
CLEAR WELL ACCESS DETAILS
ITB #4680

SHEET S-2

DRAWING PATH: \\ohm\dfs\corporate\Projects\0000_0100\0028200010_wwtp_clearwells\Drawings\Struct\CLEAR WELL ACCESS DETAILS.dwg Apr 22, 2021 - 9:21am

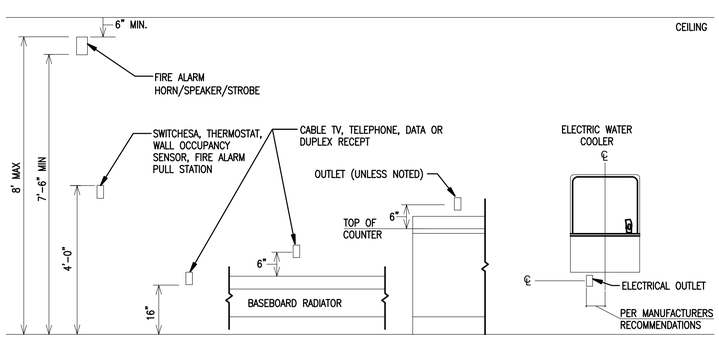
NOTES

1. SIZE GROUNDING/BONDING CONDUCTORS PER NEC ARTICLE 250
2. GROUNDING ELECTRODE SYSTEM AS PER NEC ARTICLE 250 SECTION III.



GROUNDING BONDING DIAGRAM

NO SCALE



TYPICAL MOUNTING HEIGHTS

NO SCALE

ELEC. ABBREVIATIONS

_SPECIAL	
ø	PHASE
A	
A	AMPERE
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
C	
C	CONDUIT
CAT	CATALOGUE
CB	CIRCUIT BREAKER
CMU	CONCRETE MASONRY UNIT
CO.	COMPANY
CUH	CABIN UNIT HEATER
D	
DO	DISSOLVED OXYGEN
E	
EC	ELECTRICAL CONTRACTOR
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EWC	ELECTRIC WATER COOLER
F	
FA	FIRE ALARM
G	
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	EQUIPMENT GROUND
H	
HOA	HAND OFF AUTO
HID	HIGH INTENSITY DISCHARGE
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING VENTILATION & AIR CONDITIONING
K	
K	KEY OPERATED DEVICE
KVA	KILOVOLT-AMPERES
KW	KILO-WATTS
L	
LED	LIGHT EMITTING DIODE
M	
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MH	METAL HALIDE
MISC	MISCELLANEOUS
MLO	MAIN LUG ONLY
MTD	MOUNTED
N	
NEU	NEUTRAL
NO	NUMBER
P	
PL	PILOT
R	
RECP	RECEPTACLE
RTU	ROOF TOP UNIT
T	
TEL	TELEPHONE
TRANS	TRANSFORMER
TV	TELEVISION
TYP	TYPICAL
U	
UGE	UNDERGROUND ELECTRIC
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
V	
V	VOLT
VA	VOLT-AMPERES
W	
W	WIRE
WNC	WIRELESS NETWORK CONTROLLER
WP	WEATHERPROOF

GENERAL NOTES – ELECTRICAL

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE CURRENT NATIONAL ELECTRICAL CODE AND ANY STATE/LOCAL AMENDMENTS.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUISITION OF AN ELECTRICAL PERMIT AND SCHEDULING OF THE NECESSARY INSPECTIONS. UPON COMPLETION OF THE WORK THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER EVIDENCE OF INSPECTION APPROVAL.
3. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION REQUIRED WITH THE ELECTRIC UTILITY SERVING THE FACILITY. UTILITY COSTS SHALL BE PAID SEPARATELY BY THE OWNER.
4. IDENTIFY EACH RECEPTACLE WITH THE APPROPRIATE PANEL AND CIRCUIT NUMBER.
5. IDENTIFY JUNCTION BOXES SERVING EQUIPMENT WITH THE APPROPRIATE PANEL AND CIRCUIT NUMBER FOR THE EQUIPMENT SERVED.
6. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
7. WIRING DEVICES SHALL BE COMMERCIAL SPECIFICATION GRADE.
8. PROVIDE THE OWNER WITH A BOUND MANUAL INCLUDING MAINTENANCE INSTRUCTIONS, EQUIPMENT MODEL NUMBERS WITH PARTS LISTS, AND MANUFACTURERS WARRANTIES.

ELECTRICAL LEGEND

LIGHT FIXTURES

- SURFACE / CEILING MOUNT
- EMERGENCY SURFACE / CEILING MOUNT
- PENDANT / CHAIN MOUNT
- EMERGENCY PENDANT / CHAIN MOUNT
- RECESSED MOUNT
- EMERGENCY RECESSED MOUNT
- TRACK STRIP
- WALL MOUNT (INT.) (EXT.)
- EMERGENCY WALL MOUNT (INT.) (EXT.)
- EXTERIOR POLE MOUNT
- EXTERIOR POST MOUNT
- INTERIOR EMERGENCY WALL PACK
- EXIT SIGN (WALL) (CEILING)
- CEILING FAN (LIGHT) (NO LIGHT)

POWER DISTRIBUTION

- DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- COMBINATION MOTOR STARTER W/ DISCONNECT SWITCH
- MOTOR STARTER
- M ELECTRICAL METER
- DP ## DISTRIBUTION PANEL
- P ## ELECTRICAL POWER PANEL SURFACE MOUNT
- P ## ELECTRICAL POWER PANEL FLUSH MOUNT
- R **RELAY**
- T ELECTRICAL TRANSFORMER
- PB ELECTRICAL PULL BOX
- VARIABLE FREQUENCY DRIVE
- SINGLE PHASE MOTOR
- THREE PHASE MOTOR
- J CEILING, J WALL, J SURFACE JUNCTION BOX

RACEWAY NOTES

1. MINIMUM SIZE OF RIGID CONDUIT SHALL BE 3/4".
2. MINIMUM SIZE OF FLEX CONDUIT SHALL BE 1/2".
3. MINIMUM SIZE WALL BOX IN CMU SHALL BE 4"X4".
4. MINIMUM SIZE OF UNDERGROUND CONDUIT SHALL BE 1 1/4".

RECEPTACLE OUTLETS

- SIMPLEX RECEPTACLE
- DUPLEX GROUNDED RECEPTACLE
  - CTR MOUNTED ABOVE COUNTER
  - G GFCI
  - GC GFCI-MOUNTED ABOVE COUNTER
  - U DUAL USB PORTS
  - UC DUAL USB PORTS ABOVE COUNTER
  - WP WEATHERPROOF COVER W/ GFCI
  - T TAMPERPROOF
  - TC TAMPERPROOF ABOVE COUNTER
  - TGC TAMPERPROOF GFCI ABOVE COUNTER
- 208V, ⅁ STRAIGHT BLADE RECEPTACLE
  - D DRYER RECEPTACLE
  - R RANGE RECEPTACLE
- QUADRUPLEX RECEPTACLE
- DUPLEX RECEPT ON EMERGENCY POWER
- FLOOR BOX
- 3ø RECEPTACLE

SWITCH OUTLETS

SWITCHES: X = DESIGNATION BELOW, Z = ZONE DESIGNATION

- 2 SINGLE POLE
- 3 TWO POLE
- 4 THREE WAY
- DM FOUR WAY
- F DIMMER
- K FAN
- LV KEY OPERATED
- M LOW VOLTAGE
- P MOTION DETECTION
- T PILOT LIGHT
- TIMER

SENSORS: X = DESIGNATION BELOW

- D DAYLIGHT
- O OCCUPANCY
- V VACANCY

- EMERGENCY STOP SWITCH
- PUSH BUTTON SWITCH
- PC PHOTOCELL
- CEILING MOUNTED PULL SWITCH
- XX WIRELESS NETWORK LIGHTING CONTROLLER XX = CONTROLLER INDICATOR

SECURITY

- CR CARD READER
- DC MAGNETIC SWITCH (DOOR CONTACT)
- DL ELECTRONIC DOOR LOCK
- DO MOTORIZED DOOR OPERATOR
- ES ELECTRIC STRIKE
- K KEYPAD ENTRY DEVICE
- CEILING, WALL SECURITY CAMERA

FIRE ALARM SYSTEM

- OUTDOOR BELL / CHIME
- S SMOKE DETECTOR
- S SMOKE DETECTOR WITH AUDIBLE BASE
- S CO SMOKE/CARBON MONOXIDE DETECTOR
- DUCT SMOKE DETECTOR
- HD HEAT DETECTOR
- CEILING, WALL FIRE ALARM HORN/STROBE
- FIRE ALARM STROBE
- FIRE ALARM HORN
- FIRE ALARM SPEAKER/STROBE
- FIRE ALARM SPEAKER
- F FIRE ALARM PULL STATION
- DH ELECTRO./MAG DOOR HOLD OPEN
- EOLR END OF LINE RESISTOR
- FS FIRE ALARM FLOW SWITCH
- PS FIRE ALARM PRESSURE SWITCH
- TS FIRE ALARM TAMPER SWITCH
- FAA FIRE ALARM ANNUNCIATOR PANEL
- FACP FIRE ALARM CONTROL PANEL
- HSS HOOD SUPPRESSION SYSTEM FIRE ALARM CONTACT

TELEPHONE/COMMUNICATIONS

CEILING WALL, FLOOR FURNITURE

X=NUMBER AND TYPE OF PORTS

- C COAXIAL PORT
- D DATA PORT
- P PHONE PORT
- W WIRELESS ACCESS POINT

CEILING, WALL SPEAKER

- IC INTERCOM CALL BOX
- IC ENTRANCE CALL SYSTEM
- B BELL
- M MICROPHONE JACK
- PS POWER SUPPLY
- WG REQUIRES WIRE GUARD
- NURSE NURSE CALL MAIN PANEL
- N NURSE CALL PULL STATION
- N NURSE CALL LIGHT
- C CLOCK

WIRES

	PROPOSED	EXISTING	DEMOLISH
POWER CIRCUIT WIRING			
UNDERGROUND WIRING			
SWITCH LOOP WIRING			
UN-SWITCHED HOT WIRING			
LOW VOLTAGE WIRING			
DATA WIRING			

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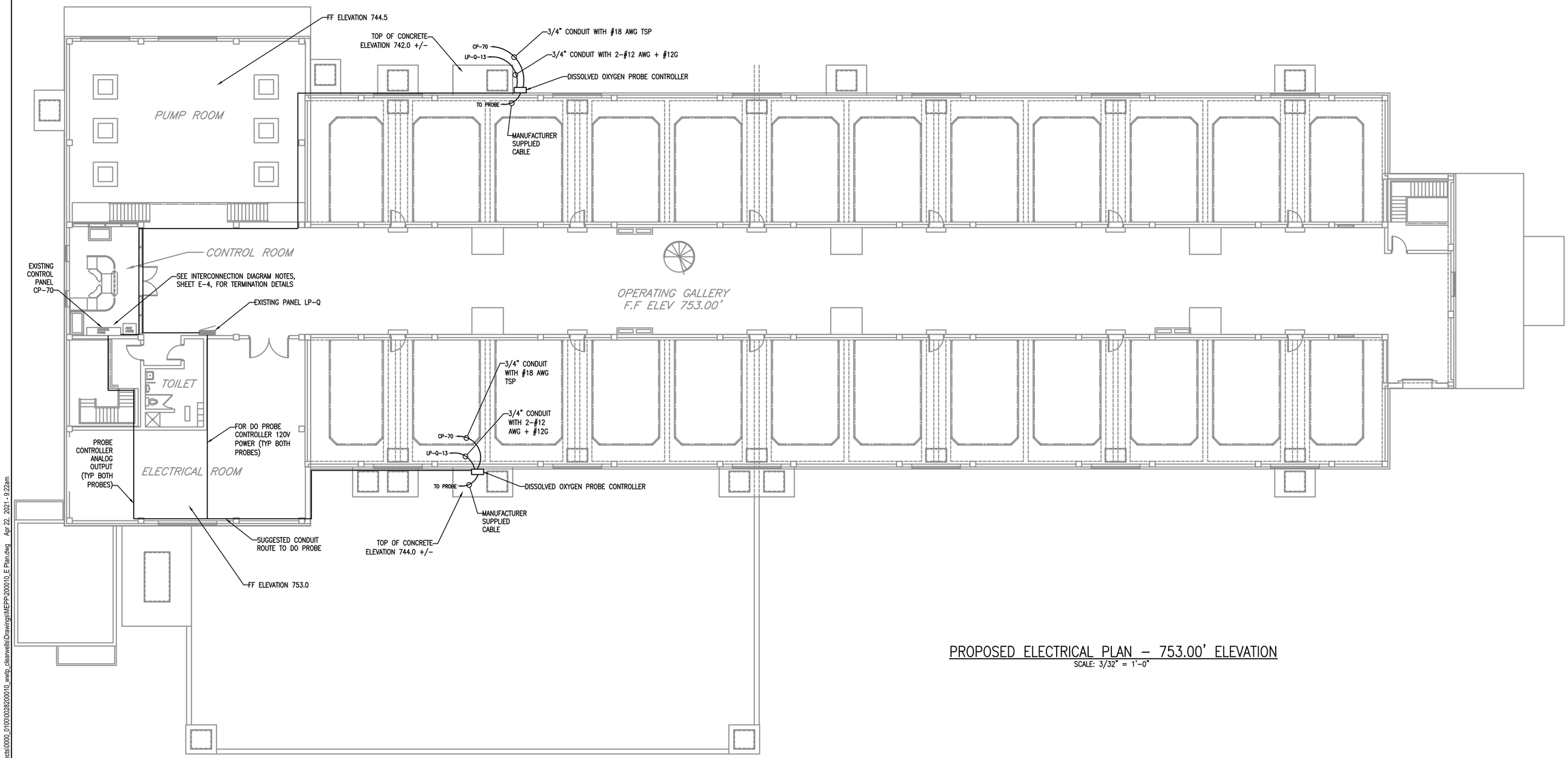
DATE 02-03-2010 | PROJ NUMBER 0000_0100 | ENG TA/SWMS | PROJ MGR JD | CADD LM/EH/MS | COUNTY WASHTENAW | CITY/VILLAGE/TOWNSHIP ANN ARBOR | SCALE H: NTS V: NTS | HORIZ DATUM Value | VERT DATUM Value

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
GENERAL ELECTRICAL INFORMATION
ITB #4680

SHEET E-1

DRAWING PATH: \\ohmdfs\Corporate\Projects\0000_0100\0028200010_wwtp_clearwells\Drawings\MEPP\200010_Elec Details.dwg Apr 22, 2021 - 9:22am



PROPOSED ELECTRICAL PLAN – 753.00' ELEVATION

SCALE: 3/32" = 1'-0"

N

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

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	0028-20-0010	TAS/WMS	JD	LMEHLMS	WASHTENAW	ANN ARBOR	H:	NTS	Value	Value
							V:	NTS		

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
PROPOSED ELECTRICAL PLAN - 753.00' ELEVATION
ITB #4680

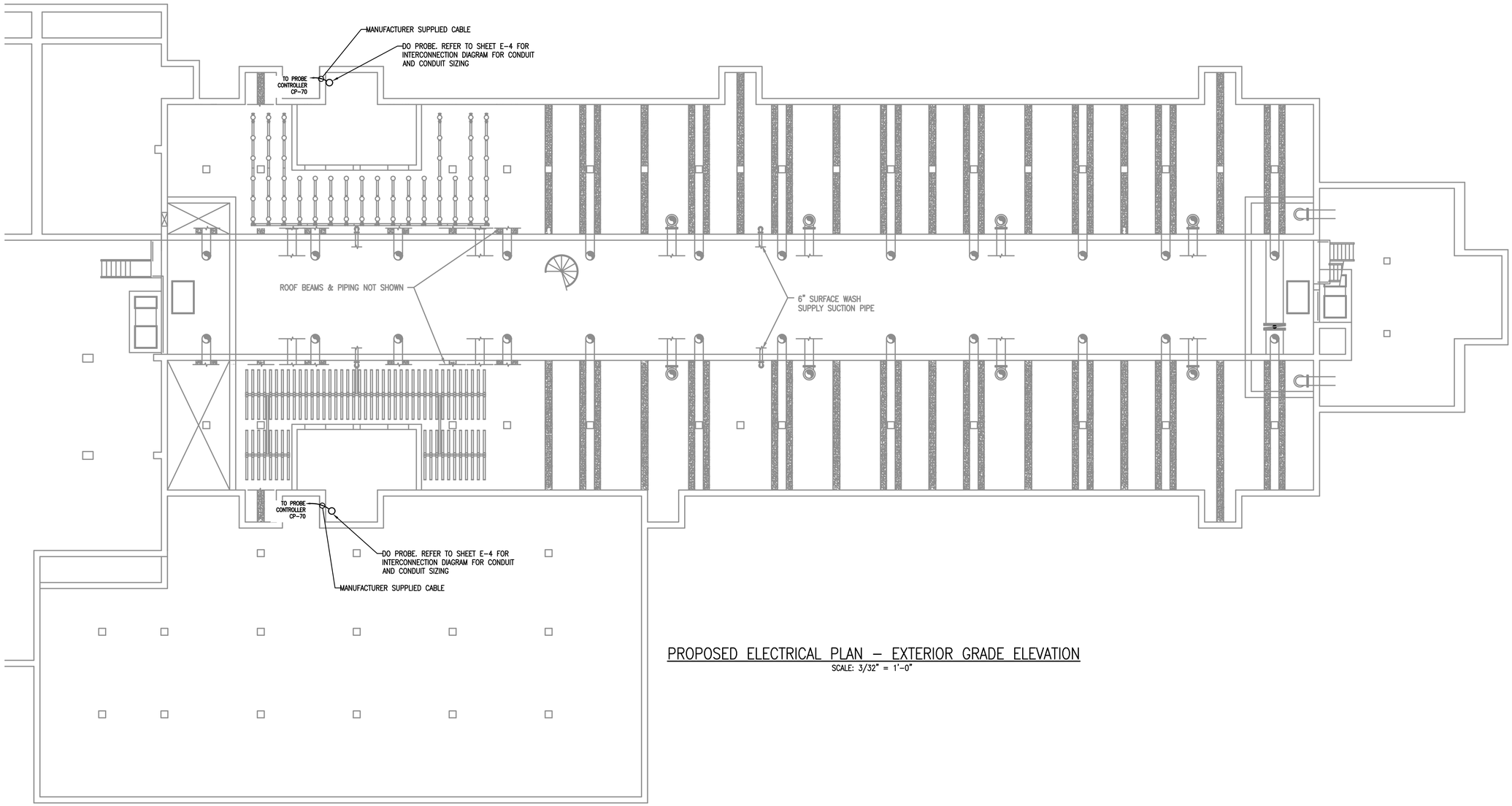
SHEET E-2

LEGEND:

CONCRETE ROOF BEAM

CONCRETE COLUMN

N



PROPOSED ELECTRICAL PLAN – EXTERIOR GRADE ELEVATION

SCALE: 3/32" = 1'-0"

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BID DRAWINGS 04/27/2021

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE		HORIZ DATUM	VERT DATUM
	0029-20-0010	TA/SWMS	JD	LMB/HMS	WASHTENAW	ANN ARBOR	H:	NTS	Value	Value
							V:	NTS		

ANN ARBOR WWTP

CLEAR WELL IMPROVEMENTS

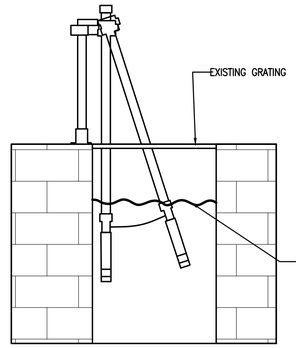
PROPOSED ELECTRICAL PLAN - EXTERIOR GRADE ELEVATION

ITB #4680

SHEET E-3

DRAWING PATH: \\ohmdfs\Corporate\Projects\0000_0100\0029200010_wwtp_clearwells\Drawings\MEPP\200010PIP_E Plan.dwg Apr 22, 2021 - 9:23am

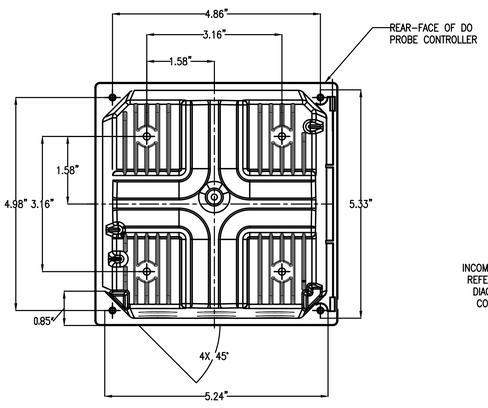
LP-Q			DESCRIPTION: EXISTING PANEL SURFACE MOUNT, 240/120V, 1ϕ, 3W, 100A, MCB, 42 CIRCUIT, 22k SSCR, LOCATED IN OPERATING GALLERY										
	KVA LOAD							KVA LOAD					
IDENTIFICATION	A	B	WIRE	POLE	AMP	CIRCUIT	CIRCUIT	AMP	POLE	WIRE	B	A	IDENTIFICATION
UNIT HEATERS N. GALLERY	0.00		EX.	1	20	1	2	20	1	EX.		0.00	SPARE
DAMPER N. GALLERY		0.00	EX.	1	20	3	4	20	1	EX.	0.00		LIGHTS SOUTH GALLERY
UNIT HEATERS S. GALLERY	–		EX.	1	20	5	6	20	1	EX.		–	LIGHTS NORTH GALLERY
DAMPER S. GALLERY		–	EX.	1	20	7	8	20	1	EX.	–		SPARE
SPARE	–		EX.	1	20	9	10	20	2	EX.		–	HP–1
FIT–892, 883, 884		–	EX.	1	20	11	12				–		
DO PROBE CONTROLLERS	0.07		#12	1	20	13	14	20	1	EX.		–	CONTROL RM DESK RECEPT
SPARE		–	EX.	2	20	15	16	20	1	EX.	–		CONTROL RM DESK RECEPT
	–					17	18	20	1	EX.		–	RECEPT SOUTH GALLERY
SPARE		–	EX.	1	20	19	20	20	1	EX.	–		SPARE
SPARE	–		EX.	1	20	21	22	20	1	EX.		–	BACKWASH SAMPLE PUMP
SPARE		–	EX.	1	20	23	24	20	1	EX.	–		BACKWASH CHEM. FEED PUMP
RECEPTS SOUTH WALL OFFICE	–		EX.	1	20	25	26	20	1	EX.		–	EF–5
RECEPTS SOUTH WALL OFFICE		–	EX.	1	20	27	28	20	1	EX.	–		RECEPTS NORTH GALLERY
SPARE	–		EX.	1	20	29	30	20	1	EX.		–	BACKWASH TURBIDITY METER
RECEPTS IN PLC PANEL		–	EX.	1	20	31	32	20	1	EX.	–		FLOW TO RIVER METER
RECEPTS IN PLC PANEL	–		EX.	1	20	33	34	20	1	EX.		–	SECURITY CAMERAS
SPARE		–	EX.	1	20	35	36	20	1	EX.	–		SPARE
SPARE	–		EX.	1	20	37	38	20	1	EX.		–	D.O. SENSOR AT OUTFALL
SPARE		–	EX.	1	20	39	40	20	1	EX.	–		SPARE
SPARE	–		EX.	1	20	41	42	20	1	EX.		–	LIGHT AT OUTFALL CHAMBER
CONNECTED LOAD	0.07	0.00									0.00	0.00	CONNECTED LOAD



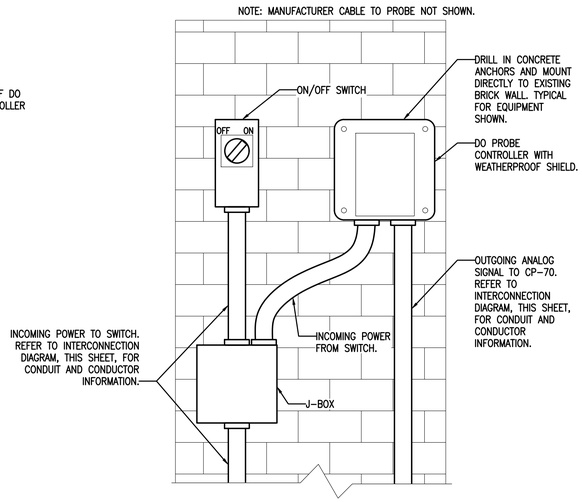
NOTES:
1. CONTRACTOR TO CUT ACCESS HOLE IN EXISTING HOT DIPPED GALVANIZED GRATING FOR INSTALLATION OF POLE MOUNTED DO SENSOR. CUT END TO BE TREATED WITH COLD GALVANIZED COATING.
2. MOUNT STAINLESS STEEL SUPPORT PIPE/UNISTRUT TO CONCRETE WITH SS ANCHORS. TOP OF CONCRETE ELEVATION is 742.0 ON NORTH SIDE AND 744.0 ON SOUTH SIDE OF BUILDING.
3. EXTEND DO PROBE ON SS PIPE SO THAT THE BOTTOM OF THE DO PROBE IS AT ELEVATION 729.0.
4. CONTRACTOR TO INSTALL DO PROBE WITH EXTRA MANUFACTURER CABLE AND IN A MANNER SO THAT THE PROBE CAN BE EASILY REMOVED FOR MAINTENANCE.

PROBE MOUNTING KIT DETAIL
NO SCALE

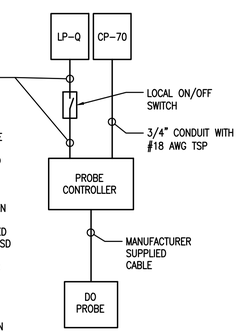
CONDUIT PENETRATION THRU EXISTING FLOOR
NO SCALE



DO CONTROLLER MOUNTING DIMENSIONS
NO SCALE



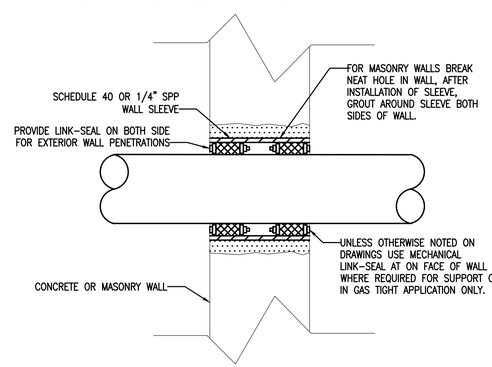
PROBE CONTROLLER MOUNTING DETAIL
NO SCALE



NOTES:
1. DIAGRAM SHOWN IS TYPICAL FOR (2) LOCATIONS.
2. CONDUIT SUPPLIED SHALL COMPLY WITH THE FOLLOWING APPLICATIONS:
   - INDOOR: HOT–DIPPED GALVANIZED RIGID METAL CONDUIT.
   - OUTDOOR: PVC–COATED RIGID STEEL CONDUIT.
3. POWER CONDUCTORS SHALL HAVE INSULATION TYPE XHHW.
4. CONTROLLER AND PROBE SHALL BE ORDERED TOGETHER. SUPPLY HACH LDO PROBE AND SD CONTROLLER 902000–SC200 OR APPROVED EQUIVALENT. MOUNTING KIT TO BE ORDERED WITH PROBE, KIT 9253000 PVC POLE MOUNTING KIT, SEE DETAIL THIS SHEET. INCLUDE WEATHER AND SUN SHIELD CONTROLLER ACCESSORY 9220600.
5. TERMINATE CONTROLLER ANALOG OUTPUTS IN CP–70, UTILIZE EXISTING ROCKWELL 1771–IFE RACK–2, SLOT–4, CH–5 AND CH–8.
6. VERIFY FINAL TERMINATIONS WITH ENGINEER.

INTERCONNECTION DIAGRAM
NO SCALE

NOTES:
1. FOR PENETRATIONS IN FIRE–RESISTANCE–RATED WALLS: PROVIDE PENETRATION FIRESTOPPING WITH RATINGS DETERMINED PER ASTM E 814 OR UL 1479, BASED ON TESTING AT A POSITIVE PRESSURE DIFFERENTIAL OF 0.01–INCH WG



WALL PENETRATION DETAIL
NO SCALE

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

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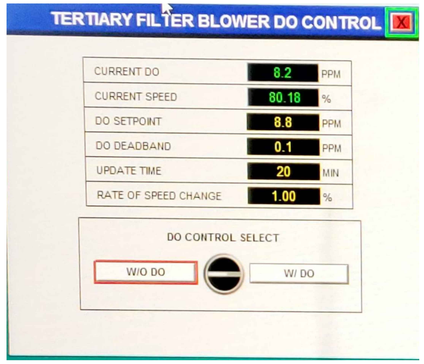
DATE
PROJ NUMBER 0028-20-010
ENG TA/SW/AS
PROJ MGR JD
CADD LME/HMS
COUNTY WASHTENAW
CITY/VILLAGE/TOWNSHIP ANN ARBOR
SCALE H: NTS V: NTS
HORIZ DATUM
VERT DATUM
Value
Value

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
ELECTRICAL DETAILS
ITB #4680

SHEET E-4



PROCESS CONTROL STRATEGY FOR AIR SUPPLY TO CLEAR WELLS

AIR IS SUPPLIED TO EACH CLEAR WELL TO ENSURE THAT THE WWTP'S FINAL EFFLUENT CONSISTENTLY AND RELIABLY EXCEEDS THE NPDES PERMIT DISSOLVED OXYGEN (DO) LIMIT OF 5.0 MG/L AS IT IS DISCHARGED INTO THE RIVER. A GRID OF FINE PORE AIR DIFFUSERS WILL BE LOCATED ADJACENT TO THE OUTLET OVERFLOW WEIR IN EACH CLEAR WELL TO PROVIDE OXYGEN TO INCREASE THE DO CONCENTRATION TO A LEVEL SET BY OPERATORS.

AIR SUPPLY IS PROVIDED BY THE TERTIARY FILTER CLEAR WELL BLOWER (FCB-1), A POSITIVE DISPLACEMENT TYPE UNIT EQUIPPED WITH A VFD. AS PART OF THIS PROJECT, TWO DISSOLVED OXYGEN MEASURING DEVICES ARE BEING INSTALLED DOWNSTREAM OF THE OVERFLOW WEIR FROM EACH CLEAR WELL (AE-TG401 IN THE NORTH CLEAR WELL AND AE-TG402 IN THE SOUTH CLEAR WELL). THE OUTPUT OF THESE DEVICES WILL BE TRENDED, AND DATA SAVED IN HISTORIAN FOR TROUBLESHOOTING.

THE EXISTING PLC PROGRAMS ADJUSTS THE BLOWER SPEED USING THE DO SIGNAL FROM THE EXISTING DO PROBE AE-TG400 LOCATED AT THE OUTFALL MANHOLE. UNDER THIS IMPROVEMENT PROJECT THE CONTRACTOR SHALL UPDATE THE PLC PROGRAM TO ADJUST THE SPEED OF FCB-1 BASED ON THE LOWEST DO VALUE OF THE IN SERVICE CLEAR WELL DO PROBES (EITHER AE-TG401 OR AE-TG402) TO MAINTAIN THE CONCENTRATION ABOVE THE EXISTING OPERATOR ADJUSTABLE DO SET-POINT. THE SIGNAL FROM A SINGLE PROBE IS USED IF EITHER OF THE TWO IS OUT OF SERVICE. LOCAL BLOWER CONTROLS ARE SET TO MAINTAIN A MINIMUM BLOWER SPEED TO AVOID INADVERTENTLY OVERHEATING THE UNIT. NEW HIGH LEVEL AND LOW LEVEL DO ALARM SET POINTS TO BE ESTABLISHED FOR EACH OF THE CLEAR WELL DO PROBES. THE ALARM SET POINTS SHALL BE OPERATOR ADJUSTABLE. INITIAL SETPOINT POINTS: CLEAR WELL HIGH DO 9.0 MG/L AND CLEAR WELL LOW DO 5.5 MG/L.

IF FCB-1 IS UNAVAILABLE, AIR CAN BE SUPPLIED FROM THE MAIN AERATION BLOWERS THROUGH THE EAST PLANT BLOWER BUILDING VALVE (TG106). THIS FLOW PATH IS NOT METERED, SO AUTOMATIC CONTROL IS NOT AVAILABLE UNDER THIS OPERATING MODE.

DO IS ALSO CONTINUOUSLY MEASURED AT THE OUTFALL TO THE RIVER (AE-TG400). A SEPARATE OPERATOR ADJUSTABLE SET-POINT FOR THIS SIGNAL IS USED TO GENERATE AN ALARM IF DO FALLS BELOW IT.

CURRENT SOFTWARE VERSIONS IN USE: FACTORYTALK SE V 7.0 AND PLC CONTROLLER REVISION 20.12

NOTES:
1. PICS SCREEN TO BE UPDATED FOR THE CLEAR WELL DO PROBES.
2. ADD TRENDS OF THE DO PROBES FOR THE TRENDING SYSTEM.
3. ESTABLISH HIGH AND LOW DO ALARMS. HIGH DO 9 PPM AND LOW DO 5.5 PPM IN CLEAR WELLS.
4. REVISE PLC PROGRAMMING FOR DO MEASUREMENTS IN THE CLEAR WELLS BASED ON THE PROCESS CONTROL NARRATIVE.

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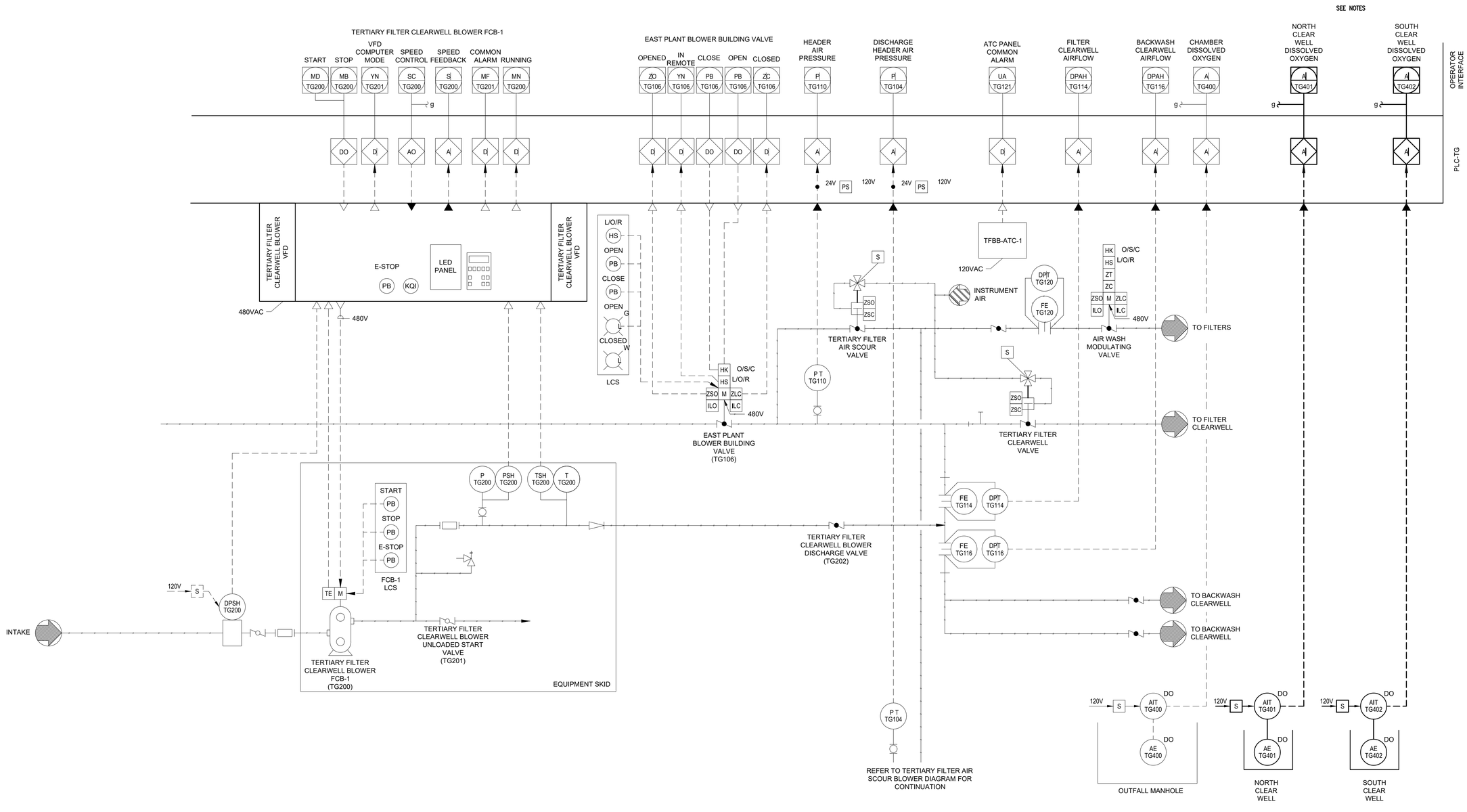
0028-20-0010 | TA/SW/MS | JD | LM/EH/MS | WASHTENAW | ANN ARBOR | H: NTS V: NTS | Value | Value

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
CLEAR WELL BLOWER PID UPDATES
ITB #4680

SHEET I-1



NOTES:
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2. ADD TRENDS OF THE DO PROBES FOR THE TRENDING SYSTEM.
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4. REVISE PLC PROGRAMMING FOR DO MEASUREMENTS IN THE CLEAR WELLS BASED ON THE PROCESS CONTROL NARRATIVE ON SHEET I-1.

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ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
CLEAR WELL BLOWER PICS
ITB #4080

SHEET I-2

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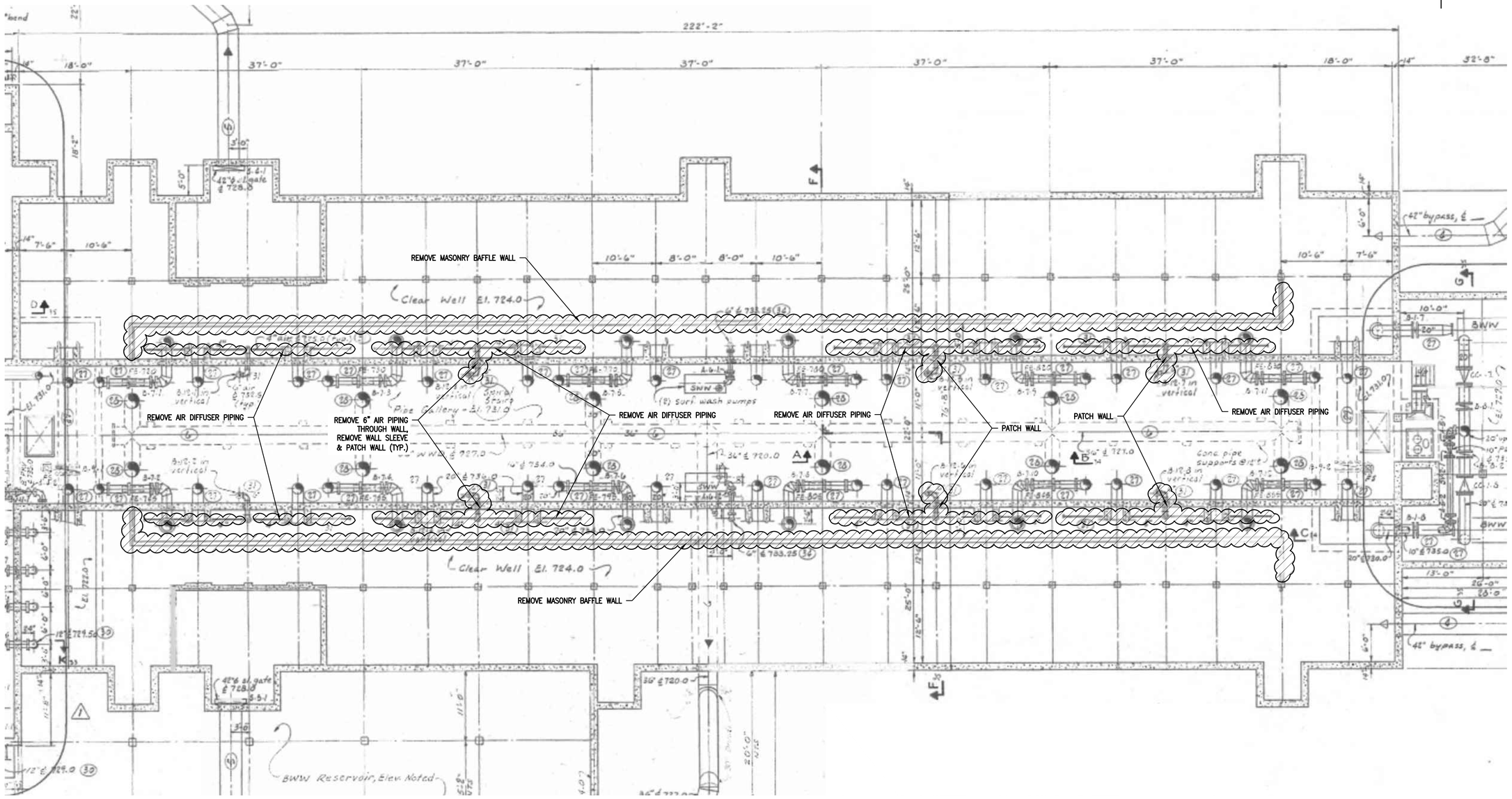

PLAN VIEW – CLEAR WELL DEMOLITION
1" = 100'-0"

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CADD LM/EN/MS
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CITY/VILLAGE/TOWNSHIP ANN ARBOR
SCALE H: NTS V: NTS
HORIZ DATUM
VERT DATUM
Value
Value
Value

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
CLEAR WELL DEMOLITON - PLAN
ITB #4680

SHEET D-1

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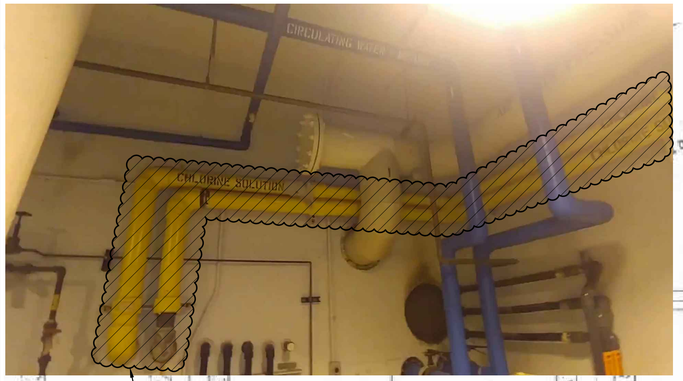

REMOVE CHLORINE SUPPLY PIPING ACROSS GALLERY. CAP PIPE PIPE AT WALL.

REMOVE MASONRY BAFFLE WALL

REMOVE CHLORINE SOLUTION SUPPLY PIPING & SUPPORTS

REMOVE AIR DIFFUSER PIPING & DIFFUSERS

REMOVE 2" PVC CHLORINE SOLUTION SUPPLY PIPING & SUPPORTS

PATCH WALL

REMOVE AIR DIFFUSER PIPING & DIFEUSERS

REMOVE 2" PVC CHLORINE SOLUTION PIPING THROUGH WALL & PATCH WALL

REMOVE AIR DIFFUSER PIPING & DIFFUSERS

REMOVE AIR DIFFUSER PIPING & DIFFUSERS

PATCH WALL

REMOVE MASONRY BAFFLE WALL

REMOVE CHLORINE SOLUTION SUPPLY PIPING

PLAN VIEW – CLEAR WELL DEMOLITION

1/4" = 1'-0"

THIS DRAWING WAS PREPARED USING THE CONFORMING TO CONSTRUCTION RECORDS FROM ANN ARBOR WASTEWATER TREATMENT PLANT, CONTRACT 77-S-7, PREPARED BY MCNAMEE, PORTER AND SEELY, DATED JULY 1984. THEY ARE MADE AVAILABLE FOR BIDDERS' CONVENIENCE AND INFORMATION, BUT ARE NOT A WARRANTY OF EXISTING CONDITIONS. TECHNICAL INFORMATION THAT THE CONTRACTOR MAY RELAY UPON IS LIMITED TO THE NOTATIONS ADDED TO THE DRAWING. QUANTITIES AND DIMENSIONS ARE NOT GUARANTEED AND THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY THE PROPOSED WORK FOR ALL DEMOLITION ACTIVITIES.

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02/2-20-0010	TA/SWMS	JD	LM/EMS	WASHTENAW	ANN ARBOR	H:	NTS	V: NTS	Value	Value

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
CLEAR WELL DEMOLITION - PLAN
ITB #4680

SHEET D-2

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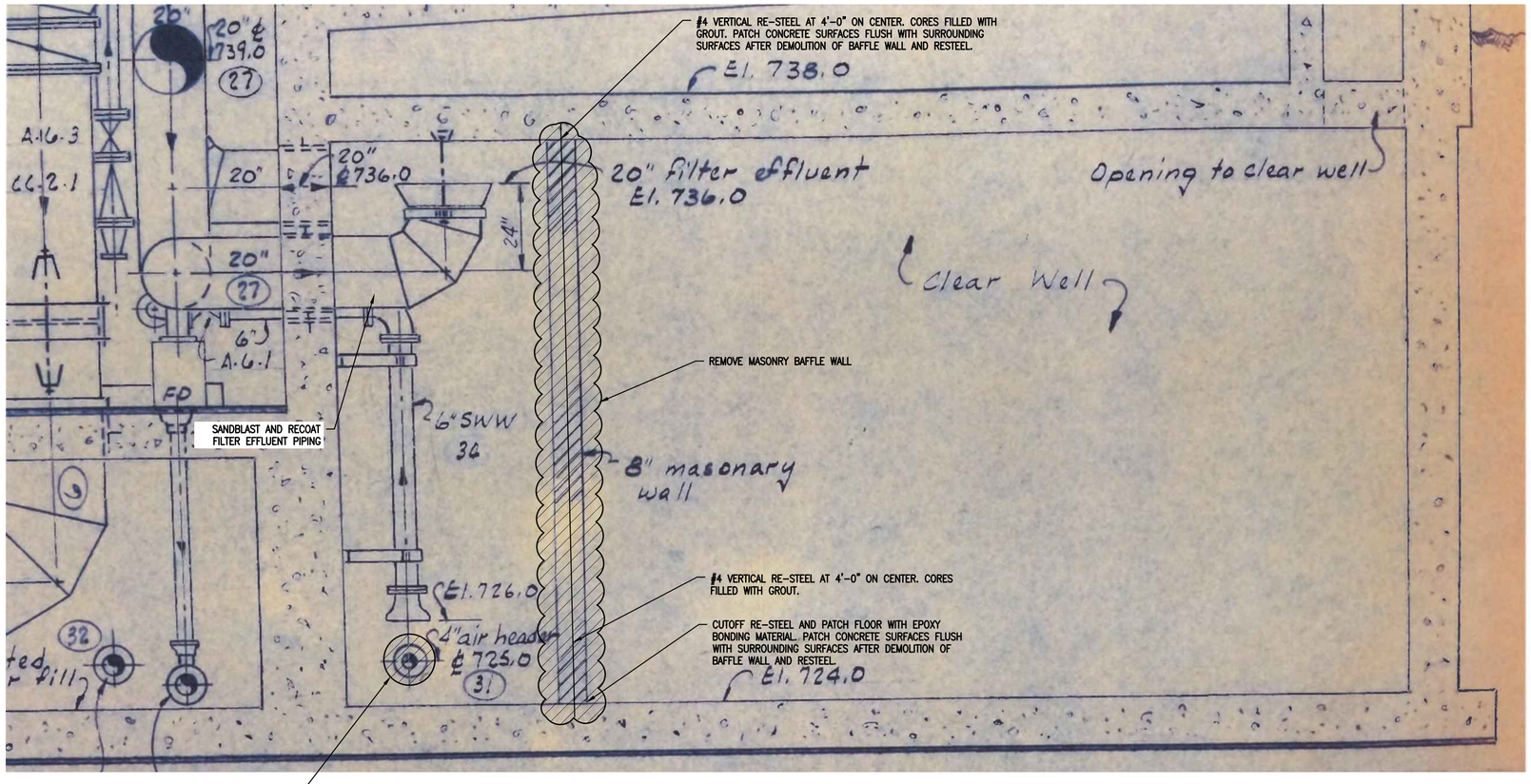

TYPICAL DEMOLITION SECTION VIEW

NOT TO SCALE

THIS DRAWING WAS PREPARED USING THE CONFORMING TO CONSTRUCTION RECORDS FROM ANN ARBOR WASTEWATER TREATMENT PLANT, CONTRACT 77-S-7, PREPARED BY MCNAMEE, PORTER AND SEELY, DATED JULY 1977. THEY ARE MADE AVAILABLE FOR BIDDERS' CONVENIENCE AND INFORMATION, BUT ARE NOT A WARRANTY OF EXISTING CONDITIONS. TECHNICAL INFORMATION THAT THE CONTRACTOR MAY RELAY UPON IS LIMITED TO THE NOTATIONS ADDED TO THE DRAWING. QUANTITIES AND DIMENSIONS ARE NOT GUARANTEED AND THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY THE PROPOSED WORK FOR ALL DEMOLITION ACTIVITIES.

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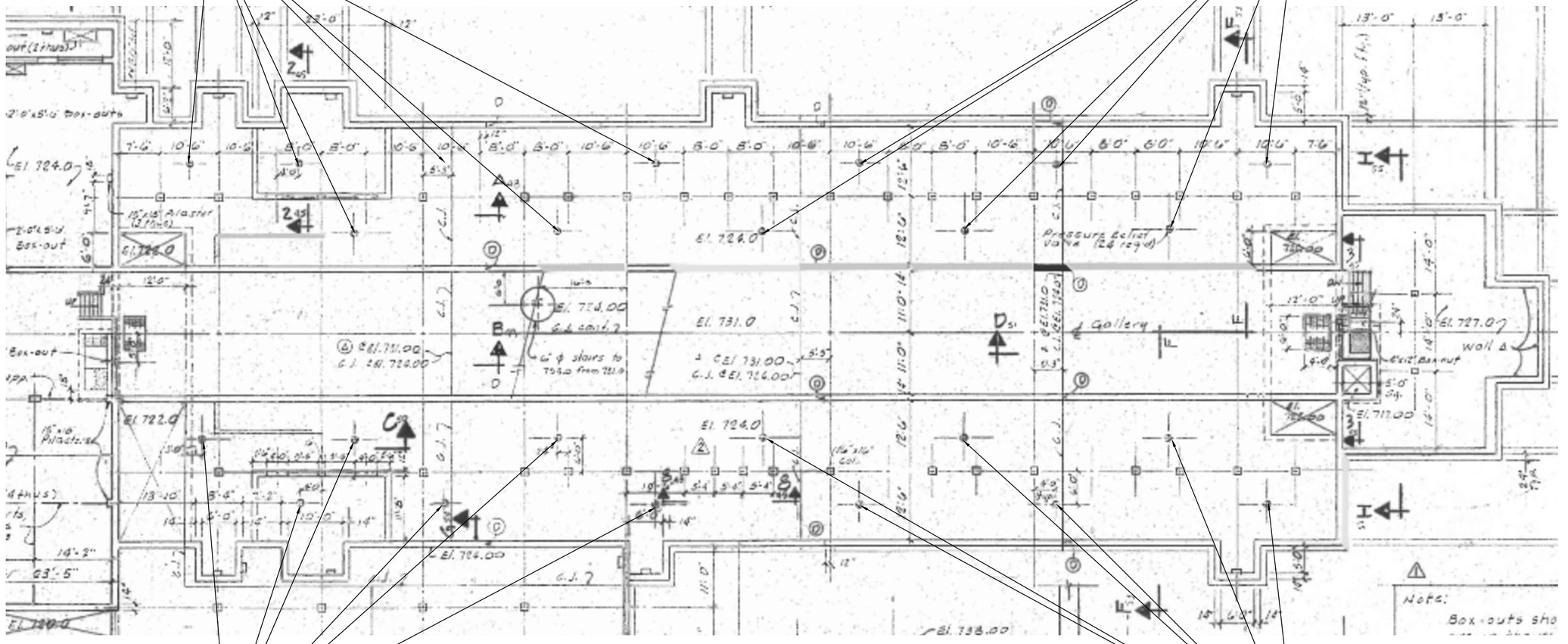
ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
BAFFLE WALL DEMOLITION - SECTION
ITB #4680

SHEET D-3

REMOVE & REPLACE PRESSURE RELIEF VALVES (TYP. 24 LOCATIONS)

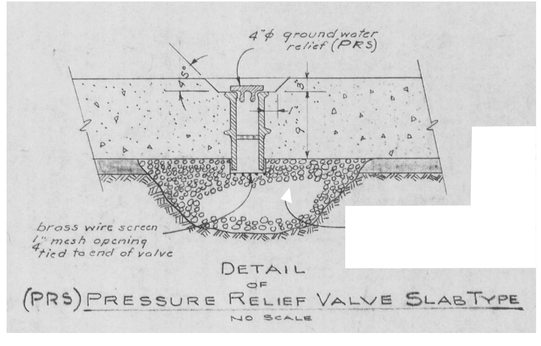
REMOVE & REPLACE PRESSURE RELIEF VALVES (TYP. 24 LOCATIONS)



PLAN VIEW – PRV DEMOLITION/REHABILITION
NOT TO SCALE

REMOVE & REPLACE PRESSURE RELIEF VALVES (TYP. 24 LOCATIONS)

REMOVE & REPLACE PRESSURE RELIEF VALVES (TYP. 24 LOCATIONS)



DETAIL OF (PRS) PRESSURE RELIEF VALVE SLAB TYPE
NO SCALE

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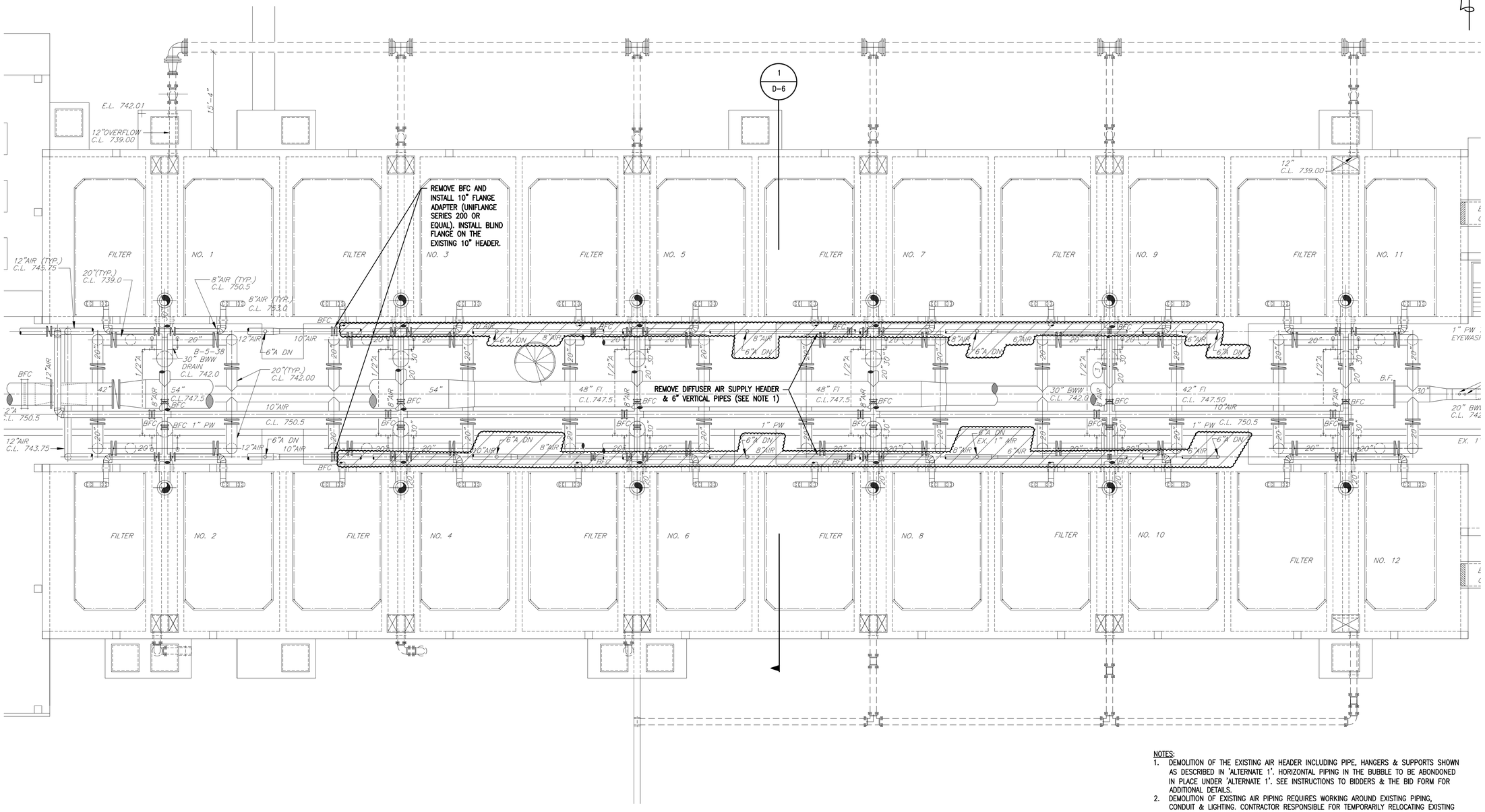
03/28-29-2019	TA/SWMS	JD	LM/EMS	WASHTENAW	ANN ARBOR	H: NTS	V: NTS	Value	Value

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
PRESSURE REDUCING VALVE DEMOLITION
ITB #4680

SHEET D-4



PLAN VIEW – FILTER GALLERY DEMOLITION

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

NOTES:
1. DEMOLITION OF THE EXISTING AIR HEADER INCLUDING PIPE, HANGERS & SUPPORTS SHOWN AS DESCRIBED IN 'ALTERNATE 1'. HORIZONTAL PIPING IN THE BUBBLE TO BE ABONDONED IN PLACE UNDER 'ALTERNATE 1'. SEE INSTRUCTIONS TO BIDDERS & THE BID FORM FOR ADDITIONAL DETAILS.
2. DEMOLITION OF EXISTING AIR PIPING REQUIRES WORKING AROUND EXISTING PIPING, CONDUIT & LIGHTING. CONTRACTOR RESPONSIBLE FOR TEMPORARILY RELOCATING EXISTING ITEMS IF NECESSARY FOR PIPE DEMOLITION.

THIS DRAWING WAS PREPARED USING THE CONFORMING TO CONSTRUCTION RECORDS FROM ANN ARBOR WASTEWATER TREATMENT PLANT, CONTRACT 0106.056-S-1, PREPARED BY MCNAMEE, PORTER AND SEELY, DATED JULY 1997. THEY ARE MADE AVAILABLE FOR BIDDERS' CONVENIENCE AND INFORMATION, BUT ARE NOT A WARRANTY OF EXISTING CONDITIONS. TECHNICAL INFORMATION THAT THE CONTRACTOR MAY RELAY UPON IS LIMITED TO THE NOTATIONS ADDED TO THE DRAWING. QUANTITIES AND DIMENSIONS ARE NOT GUARANTEED AND THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY THE PROPOSED WORK FOR ALL DEMOLITION ACTIVITIES.

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	0026-20-0010	TAS/WMS	JD	LMB/HAS	WASHTENAW	ANN ARBOR	Value	Value

SCALE	V: NTS	H: NTS

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
FILTER GALLERY PIPING DEMOLITION - PLAN
ITB #4560

SHEET D-5

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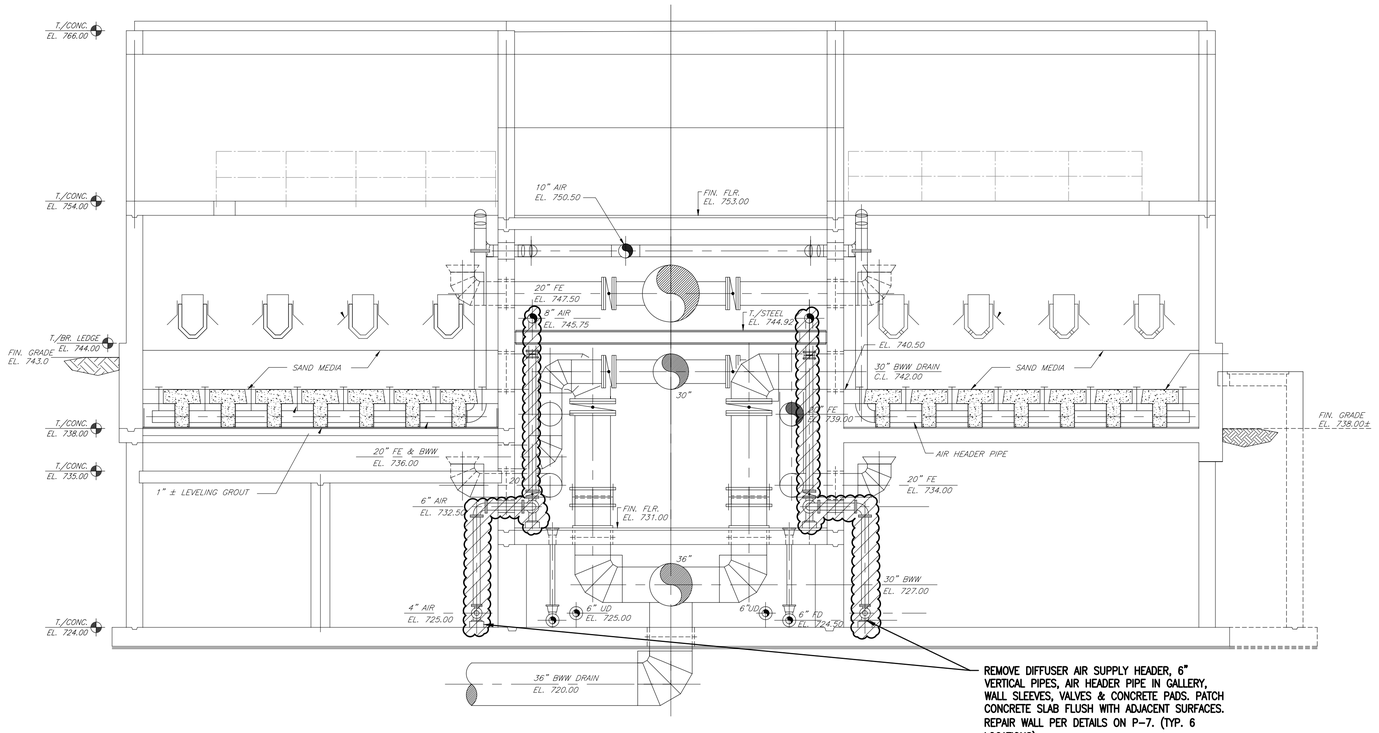
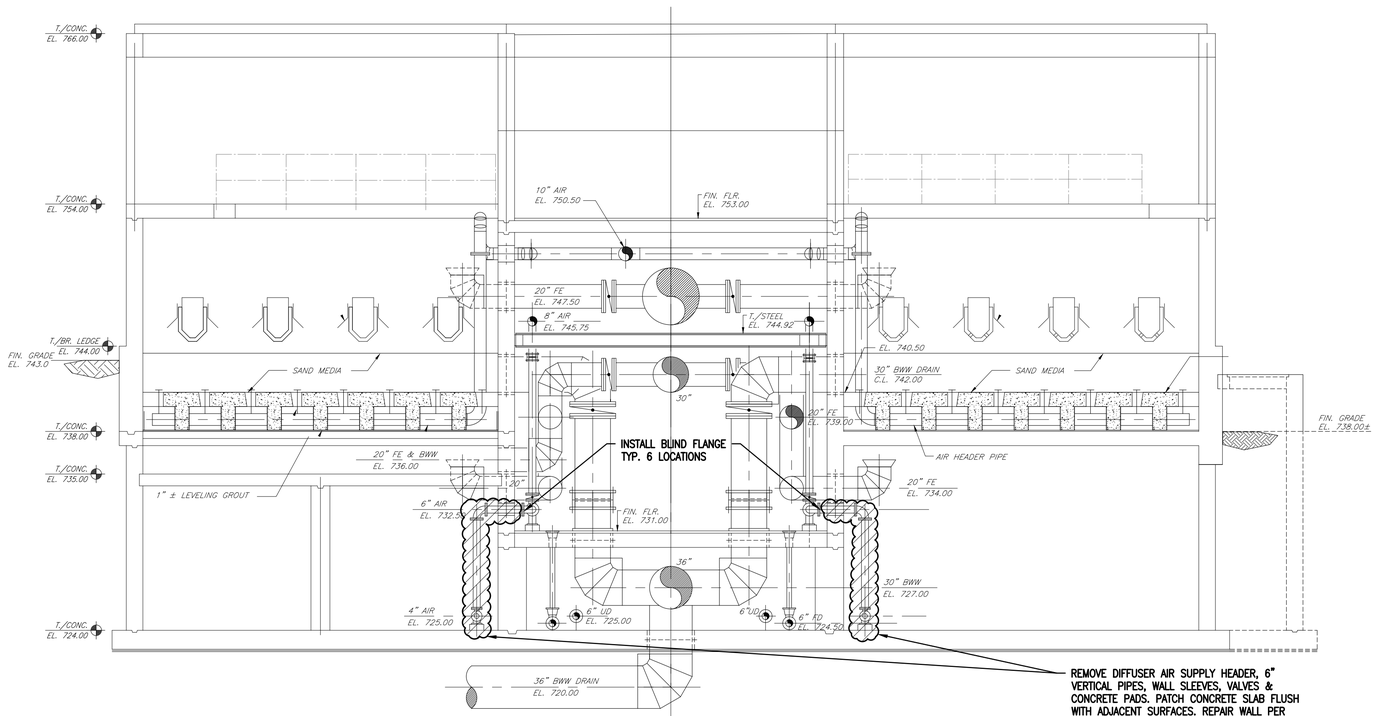


1 SECTION VIEW – AIR PIPING DEMOLITION (BASE BID)
3/16" = 1'-0"



1 SECTION VIEW – AIR PIPING DEMOLITION (ALTERNATE 1)
3/16" = 1'-0"

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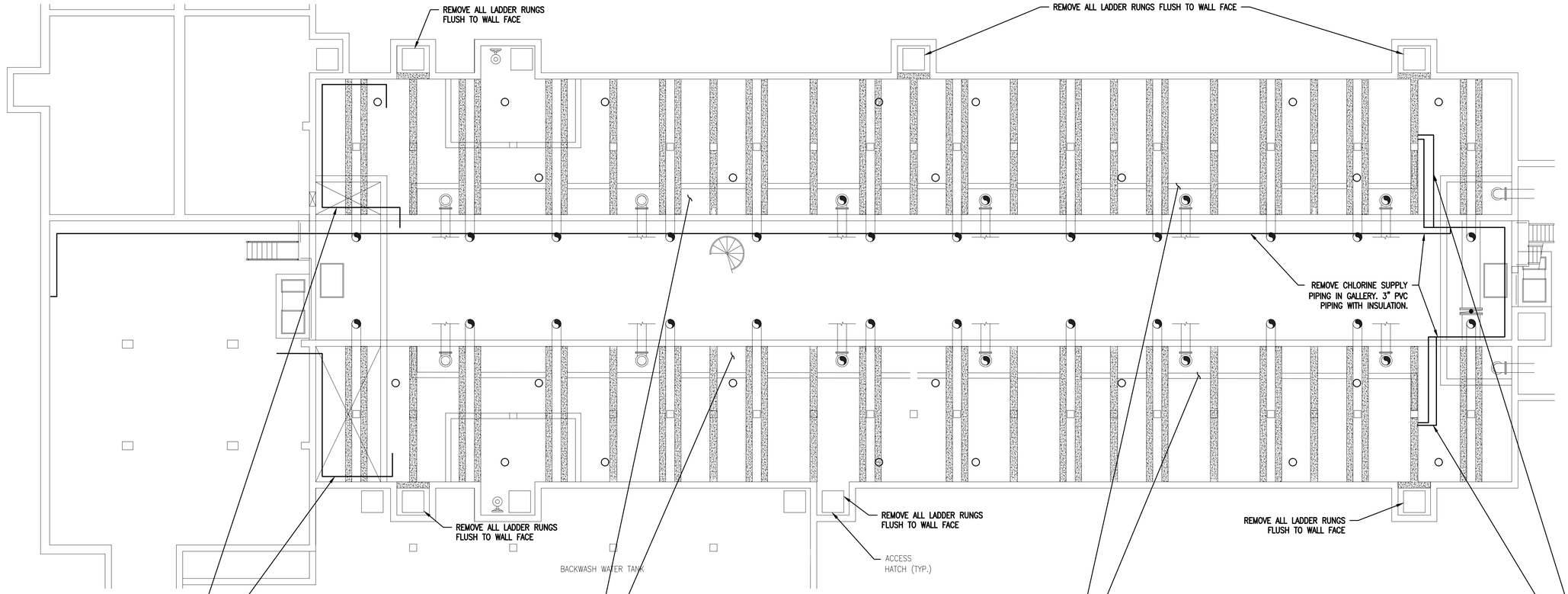
0028-20-0010 | TASWMS | JD | LMEHMS | WASHTENAW | ANN ARBOR | Value | Value

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
FILTER GALLERY PIPING DEMOLITION - SECTION
ITB #4680

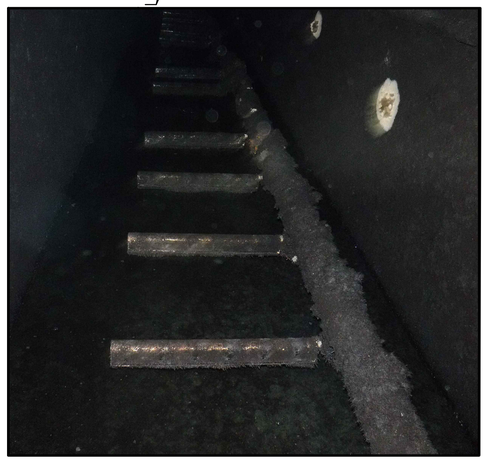
SHEET D-6



PLAN VIEW – CLEAR WELL DEMOLITION

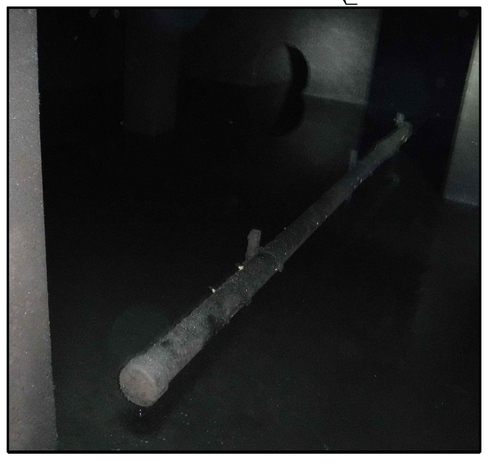
SCALE: 3/32" = 1'-0"

DEMOLITION/REHABILITATION NOTES:
1. REMOVE 3" PVC SAMPLE LINE & PIPE SUPPORTS. CUT OFF ANCHORS FLUSH WITH FLOOR. PATCH FLOOR AS NECESSARY.
2. REMOVE PIPE THROUGH WALL. PATCH WALL PER DETAIL.
3. APPROXIMATE LOCATIONS SHOWN.



DEMOLITION/REHABILITATION NOTES:
1. REMOVE COARSE AIR STAINLESS STEEL DIFFUSERS & PIPING. (TYP. OF 8 LOCATIONS).
2. APPROXIMATE LOCATIONS SHOWN. REFER TO SHEET D-1 FOR DEMOLITION EXTENTS.

DEMOLITION/REHABILITATION NOTES:
1. REMOVE CMU BAFFLE WALL (SEE SHEETS D-1 & D-3 FOR DEMOLITION EXTENTS).



DEMOLITION/REHABILITATION NOTES:
1. REMOVE 2" PVC CHLORINE INJECTION PIPE & PIPE SUPPORTS. CUT OFF ANCHORS FLUSH WITH FLOOR. PATCH FLOOR AS NECESSARY.
2. REMOVE PIPE THROUGH WALL. PATCH WALL PER DETAIL.
3. APPROXIMATE LOCATIONS SHOWN.

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
OHM-ADVISORS.COM

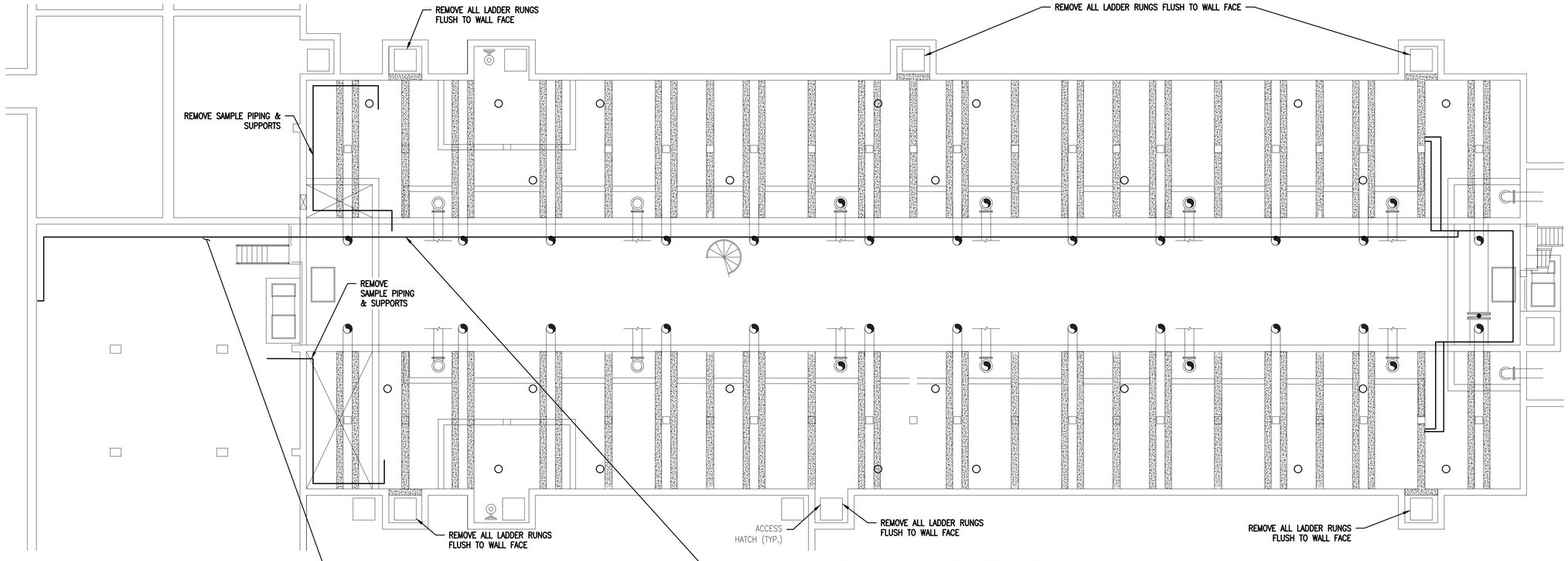
REVISIONS:
BID DRAWINGS 04/27/2021

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORZ DATUM	VERT DATUM
	0082-20-0010	TA/SW/MS	JD	LM/EH/MS	WASHTENAW	ANN ARBOR	H: NTS V: NTS	Value	Value

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS
CLEAR WELL DEMOLITION
ITB #4680

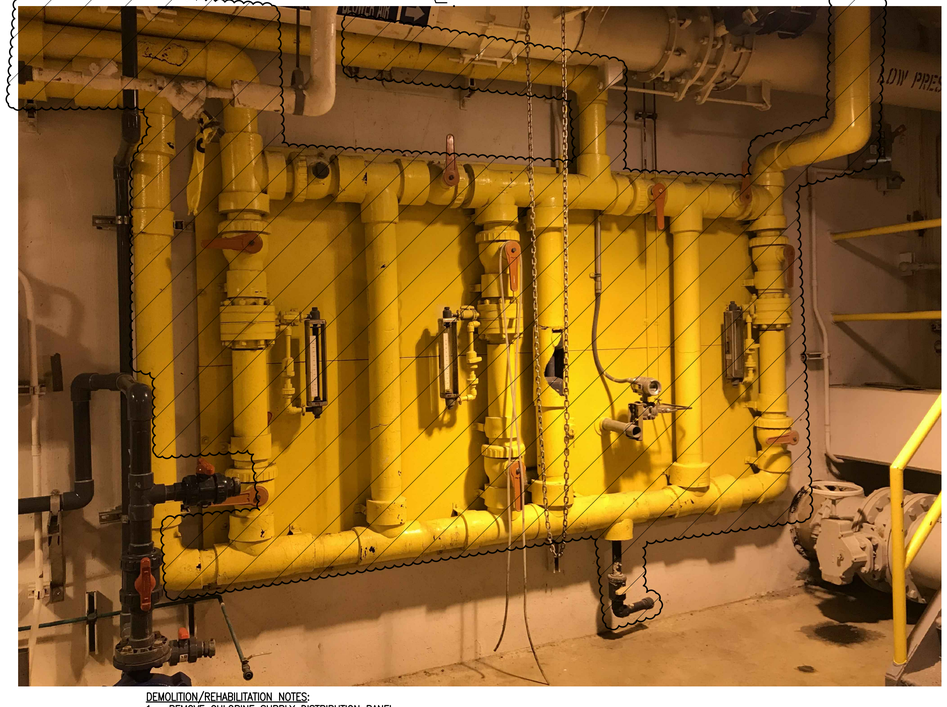
SHEET D-7

DRAWING PATH: \\ohmdfs\corporate\Projects\0000_0100\0028200010_wwtp_clearwells\Drawings\facilities\Demolition\200010DEM_2.dwg Apr 22, 2021 - 9:27am



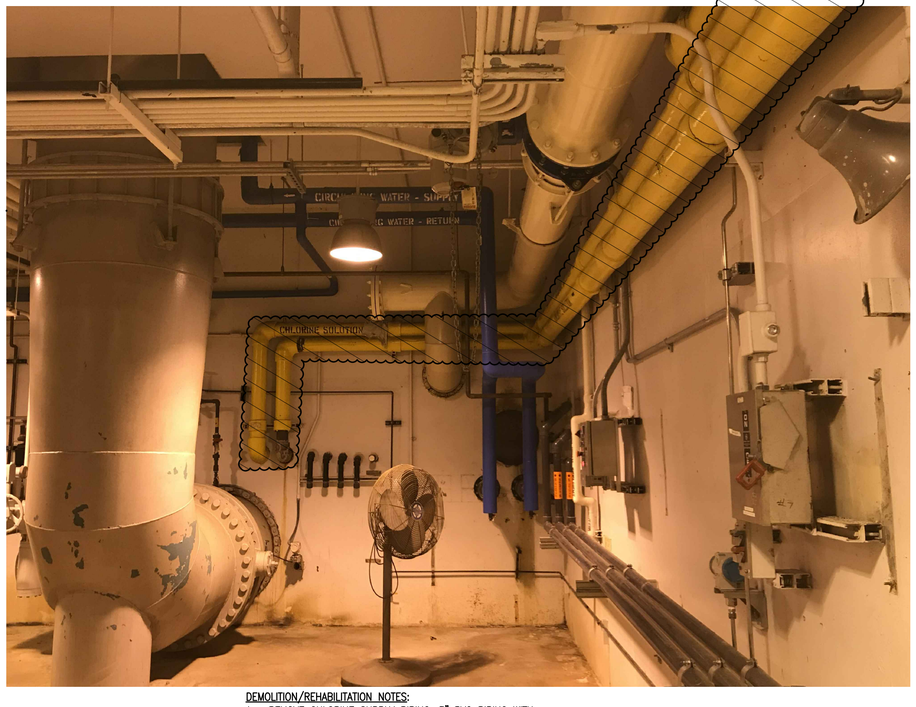
PLAN VIEW – CLEAR WELL DEMOLITION

SCALE: 3/32" = 1'-0"



DEMOLITION/REHABILITATION NOTES:

1. REMOVE CHLORINE SUPPLY DISTRIBUTION PANEL.



DEMOLITION/REHABILITATION NOTES:

1. REMOVE CHLORINE SUPPLY PIPING. 3" PVC PIPING WITH INSULATION.

OHM
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Livonia, MI 48150
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DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE		HORIZ DATUM	VERT DATUM
	0028-20-0019	TAS/WMS	JD	LME/HMS	WASHTENAW	ANN ARBOR	H:	NTS	Value	Value
							V:	NTS		

ANN ARBOR WWTP
CLEAR WELL IMPROVEMENTS

CLEAR WELL DEMOLITION
ITB #4680

SHEET D-8

DRAWING PATH: \\ohm\fs\corporate\Projects\0000_0100\0028200010_wwtp_clearwells\Drawings\facilities\Demolition\2000100EM_2.dwg Apr 22, 2021 - 9:27am