

CITY OF ANN ARBOR, MICHIGAN PLANT #1 FLOCCULATION DRIVE ROOM FLOOR DRAIN REPLACEMENT

710 AVIS DRIVE, SUITE #100
ANN ARBOR, MI 48108
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PROJECT LOCATION:

919 SUNSET ROAD
ANN ARBOR, MI 48103

CLIENT INFORMATION:

CITY OF ANN ARBOR, MICHIGAN
ANN ARBOR, MI 48103

Tt PROJECT No.:

200-31537-22006

CLIENT PROJECT No.:

23001

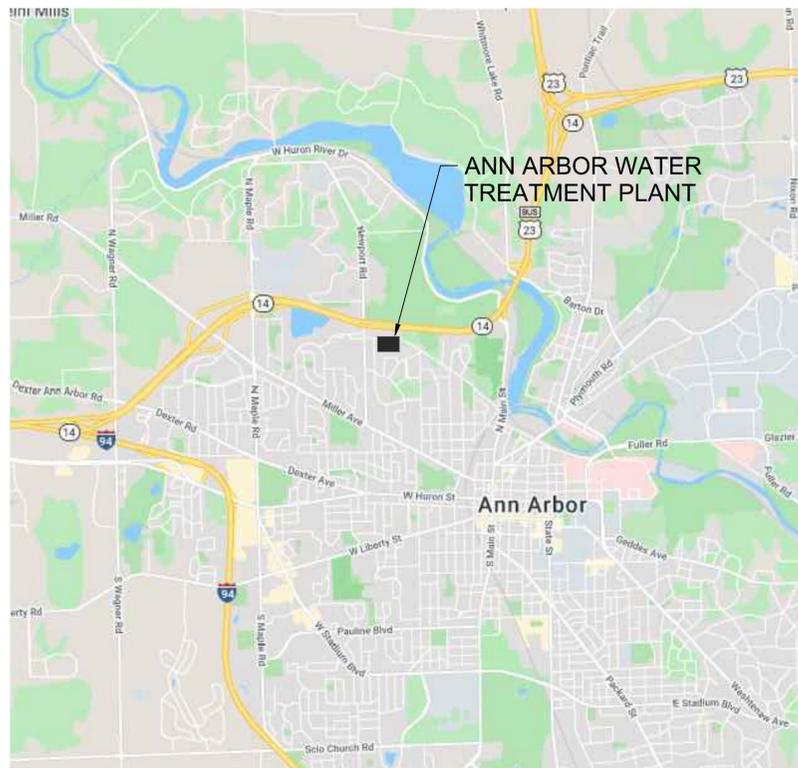
PROJECT DESCRIPTION / NOTES:

REPLACEMENT OF FLOOR DRAINS, DRAIN PIPING SERVING THE PLANT #1 FLOCCULATION DRIVE ROOM, AND DUPLEX SUMPS SERVING THE WEST FILTER GALLERY.

ISSUED:

ISSUED FOR BID - 10/07/22

VICINITY MAP:



ANN ARBOR WATER TREATMENT PLANT

AREA OF WORK



PLUMBING LEGEND

	SANITARY SEWER PIPING
	COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RECIRCULATION PIPING
	VENT PIPING
	STORM PIPING
	HIDDEN / UNDERGROUND PIPING
	VENT THROUGH ROOF
	CLEAN OUT, EXPOSED
	CLEAN OUT
	DOUBLE YARD CLEANOUT
	FLOOR DRAIN
	TRAP PRIMER LINE
	HOSE BIBB W/INTEGRAL VACUUM BREAKER (INTERIOR SURFACE)
	WALL HYDRANT W/INTEGRAL VACUUM BREAKER (EXTERIOR SURFACE)
	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
	STRAINER (BLOW-OFF)
	GAS COCK/GAS STOP
	THERMOMETER
	BALANCING VALVE
	THERMOSTATIC MIXING VALVE
	SOLENOID VALVE
	RELIEF VALVE
	WATER HAMMER ARRESTER/SHOCK ABSORBER
	UNION
	PUMP (SCHEMATIC)
	WATER METER
	BACK FLOW PREVENTER
	GAS METER

NOTES:

1. THIS LEGEND IS FOR REFERENCE ONLY
2. ALL SYMBOLS WHICH APPEAR WITHIN THE LEGEND MAY NOT APPLY TO THIS PROJECT.

PLUMBING ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	PW	POTABLE WATER
AFG	ABOVE FINISHED GRADE	R	RADIUS
APPROX	APPROXIMATE	RD	ROOF DRAIN
BFF	BELOW FINISHED FLOOR	RP	RECIRCULATION PUMP
BFP	BACKFLOW PREVENTER	RBPB	REDUCED PRESSURE BACKFLOW PREVENTER
CA	COMPRESSED AIR	RPM	REVOLUTIONS PER MINUTE
CAP	CAPACITY	SAN	SANITARY SEWER PIPING
CO	CLEAN OUT	SK	SINK
COND	CONDENSATE	SP	SUMP PUMP
CONN	CONNECTION	SPEC	SPECIFICATION
CONT	CONTINUATION	STD	STANDARD
D	DRAIN	STO	STORM
DCW	DOMESTIC COLD WATER	SW	SERVICE WATER
DEG	DEGREES	TBD	TO BE DETERMINED
DEMO	DEMOLITION	TCV	TEMPERING VALVE
DIA	DIAMETER	TD	TRENCH DRAIN
DN	DOWN	TEMP	TEMPERATURE
DS	DOWNSPOUT	TMV	THERMOSTATIC MIXING VALVE
DWG	DRAWING	TP	TRAP PRIMER
EA	EACH	TW	TEPID WATER
EEW	EMERGENCY EYE/FACE WASH	TYP	TYPICAL
ENT	ENTERING	UR	URINAL
ESS	EMERGENCY SAFETY SHOWER	V	VENT
ET	EXPANSION TANK	VIF	VERIFY IN FIELD
F	FAHRENHEIT	VS	VENT STACK
FCO	FLOOR CLEAN OUT	VTR	VENT THRU ROOF
FD	FLOOR DRAIN	WB	WASHER BOX
FH	FIRE HYDRANT	WC	WATER CLOSET
FM	FLOW METER	WCO	WALL CLEAN OUT
FPH	FREEZE PROOF HYDRANT	WG	WATER GAUGE
FPM	FEET PER MINUTE	WPD	WATER PRESSURE DROP
GAL	GALLONS	Ø	DIAMETER
GD	GARBAGE DISPOSAL		
GM	GAS METER		
GPM	GALLONS PER MINUTE		
GWH	GAS WATER HEATER		
HB	HOSE BIBB		
HD	HEAD		
HO	HUB OUTLET		
HP	HORSEPOWER		
HW	HOT WATER		
HWR	HOT WATER RETURN		
ID	INSIDE DIAMETER/DIMENSION		
IE	INVERT ELEVATION		
IMVB	ICE MAKER VALVE BOX		
IN	INCH		
IW	INDUSTRIAL WASTE		
IWH	INSTANTANEOUS WATER HEATER		
LAV	LAVATORY		
M	METER		
MAX	MAXIMUM		
MEZZ	MEZZANINE		
MFR	MANUFACTURER		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
N/A	NOT APPLICABLE		
NG	NATURAL GAS		
NPW	NON-POTABLE WATER		
NTS	NOT TO SCALE		
OD	OUTSIDE DIAMETER		
PCV	PRESSURE CONTROL VALVE		
PD	PRESSURE DROP		
PG	PRESSURE GAUGE		
PRV	PRESSURE REDUCING VALVE		
PSI	POUNDS PER SQUARE INCH		
PVC	POLYVINYL CHLORIDE		

SYMBOLS AND TAGS

	FIXTURE TAG	
	LIMIT OF DEMOLITION	AREA OUT OF SCOPE
	CONNECT TO EXISTING	
	KEYNOTE	AREA OF DEMOLITION
	PIPE SIZE AND SYSTEM TAG	

GENERAL PLUMBING NOTES

1. ALL EQUIPMENT AND PIPING SHALL BE INSTALLED IN COMPLIANCE WITH THE LATEST APPLICABLE EDITION OF THE MICHIGAN PLUMBING CODE, LOCAL UTILITIES, AND APPLICABLE PROVISIONS OF THE INTERNATIONAL FUEL GAS CODE (IFGC).
2. WATER LINES SHALL NOT BE ROUTED ABOVE ANY ELECTRICAL ROOM OR ELECTRICAL PANELS OR TELEPHONE ROOMS.
3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH OTHER TRADES TO MINIMIZE SPATIAL CONFLICTS.
4. INSTALL BOTTOM OF ALL EXTERIOR WALL HYDRANTS AT 24" ABOVE FINISH GRADE ELEVATION.
5. PROVIDE ACCESS PANELS WITH SQUARE HINGED, LOCKING DOORS FOR ALL VALVES, SHOCK ABSORBERS AND TRAP PRIMERS CONCEALED. TILED WALLS SHALL BE 1/8" STAINLESS STEEL WITH NO. 4 SATIN FINISH SMITH #4762/4767 OR APPROVED EQUAL. GYPSUM BOARD OR BLOCK WALLS SHALL BE PRIMED AND PAINTED TO MATCH SMITH # 4760/4765 OR APPROVED EQUAL.
6. CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSIONS BEFORE CONSTRUCTION BEGINS, INCLUDING SEWER, DRAIN, AND CONDUIT INV. ELEV. CONTACT CONTRACTING OFFICER SHOULD DISCREPANCIES OCCUR.

GENERAL STRUCTURAL NOTES

1. COORDINATE DEMOLITION TO MAINTAIN PROTECTION OF THE EXISTING FACILITIES.
2. COORDINATE DEMOLITION WORK WITH ALL DISCIPLINES.
3. ITEMS SHOWN OR NOTED TO BE DEMOLISHED ON THE DRAWINGS ARE EXISTING ITEMS TO BE REMOVED FROM SITE BY CONTRACTOR.
4. 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.
5. 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).
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO EXISTING CONDITION BEFORE DEMOLITION OPERATIONS BEGAN.
12. CONTRACTOR SHALL FOLLOW THE OWNER'S REQUIREMENTS AS WELL AS LOCAL AND STATE REGULATIONS FOR EROSION PROTECTION CONTROL.

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NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY
1	10/07/22	ISSUED FOR BIDS	JRJ

CITY OF ANN ARBOR, MICHIGAN
WATER TREATMENT PLANT FILTER FLOOR DRAINS
PLUMBING ABBREVIATIONS, LEGENDS, AND NOTES

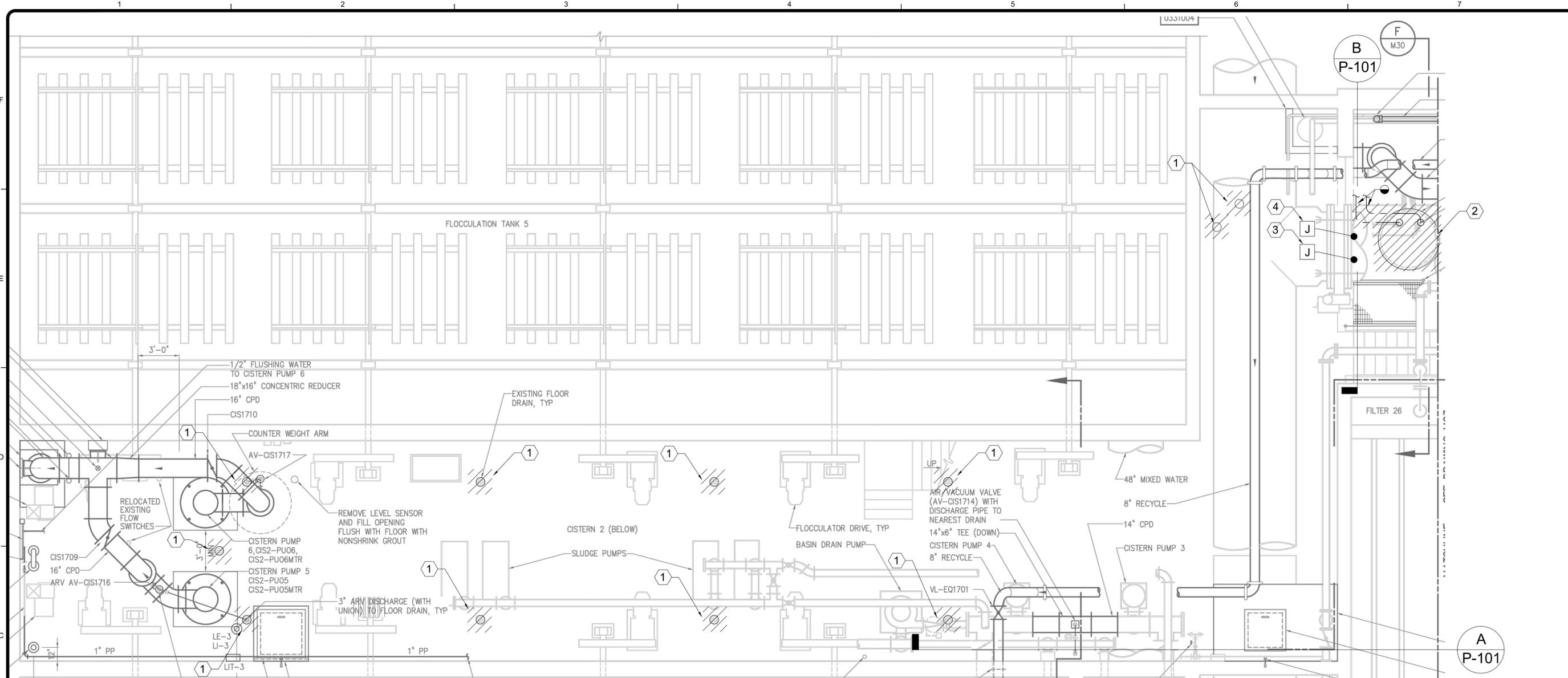
Project No.:	200-31537-22006
Designed By:	JRJ
Drawn By:	JRJ
Checked By:	LER

P-001

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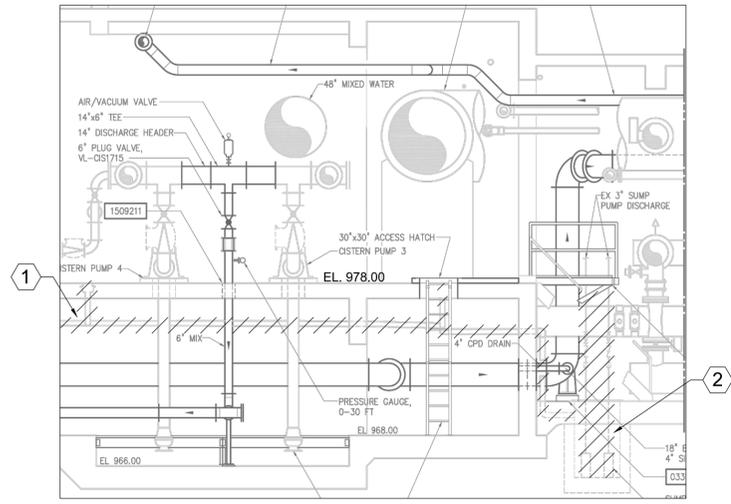
PLUMBING DEMOLITION PLAN
SCALE: NTS

GENERAL NOTES:

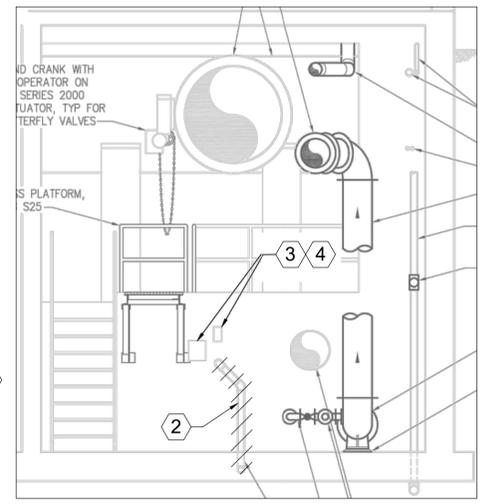
1. ALL SAW-CUTTING IS TO BE DONE WITH A WET SAW.
2. TAKE MEASURES TO PROTECT EXISTING PUMPS FROM DUST AND DEBRIS DURING CONSTRUCTION. PUMP MOTORS ARE TO BE COVERED WITH PLASTIC SHEETING WHILE SAW-CUTTING OR OTHER CONSTRUCTION ACTIVITIES ARE TAKING PLACE.

KEYNOTES:

1. DEMOLISH AND REMOVE FLOOR DRAIN AND ALL ASSOCIATED SANITARY PIPING.
2. DEMOLISH DUPLEX SUMP PUMPS, SUMP BASIN LID, STRAINERS, AND GATE VALVES. DEMOLISH 4" DISCHARGE PIPING UP TO ELBOWS TOWARDS EAST WALL. SUMP BASIN AND CONTROLS TO REMAIN. SUMP PUMP SYSTEM IS FED FROM RED LP-H, CIRCUIT 39 AND 41 (240 VAC). PERFORM LOCKOUT/TAGOUT PRIOR TO DEMOLITION ACTIVITIES.
3. EXISTING JUNCTION BOX WITH FOUR (4) FLOAT CABLES SHALL REMAIN AS INSTALLED. TAKE CARE TO PROTECT WHILE DEMOLISHING PUMPS, VALVES, AND PIPING. TAKE NOTE OF FLOAT ELEVATIONS, THEN TEMPORARILY PULL OUT OF WAY.
4. EXISTING JUNCTION BOX WITH TWO (2) CABLES FROM THE PUMPS AND ONE (1) CABLE FROM THE FLOAT JUNCTION BOX SHALL REMAIN AS INSTALLED. DISCONNECT PUMP CABLES TO ALLOW FOR DEMOLITION OF PUMPS. TAKE CARE TO PROTECT THE JUNCTION BOX DURING DEMOLITION.



PLUMBING DEMOLITION SECTION A
SCALE: NTS



PLUMBING DEMOLITION SECTION B
SCALE: NTS



DRAIN PIPE REF. PHOTO

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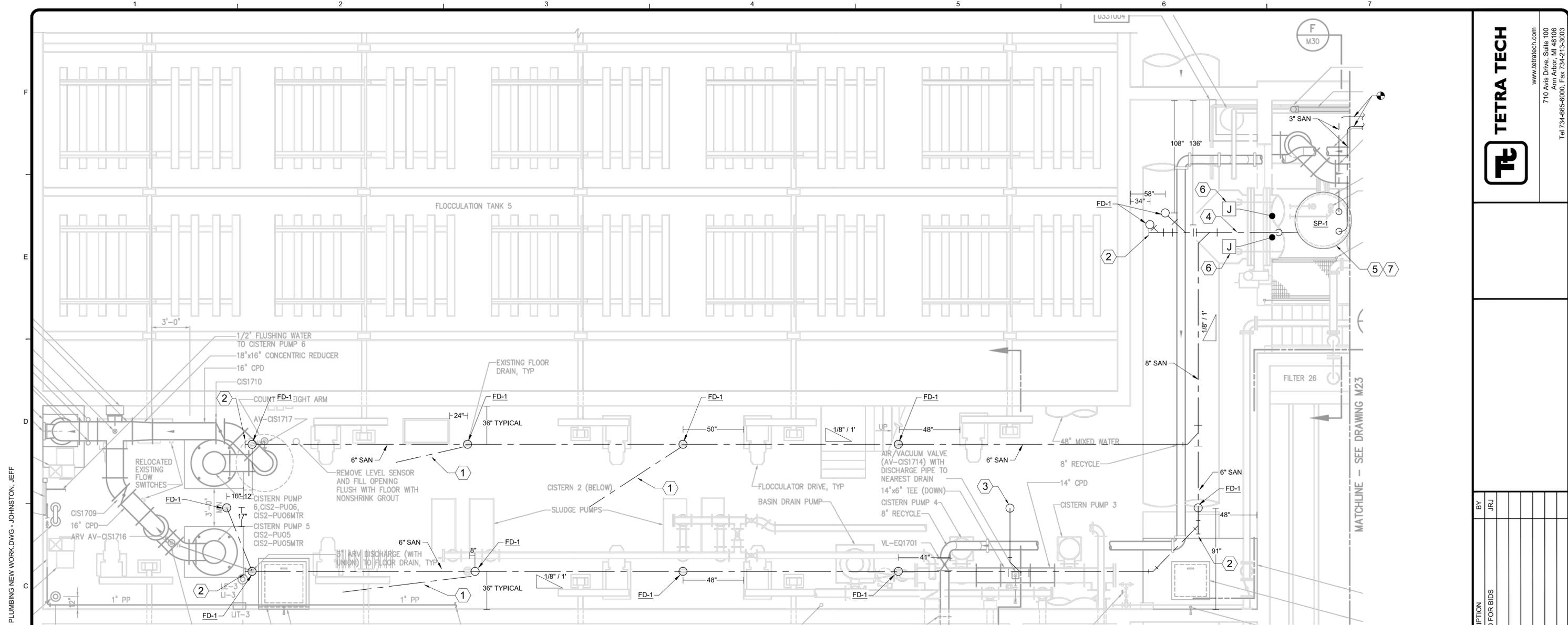
MARK	DATE	DESCRIPTION	BY
1	10/07/22	ISSUED FOR BIDS	JRJ

CITY OF ANN ARBOR, MICHIGAN
WATER TREATMENT PLANT FILTER
FLOOR DRAINS
**PIPE GALLERY BASEMENT
PLUMBING DEMOLITION**

Project No.: 200-31537-22006
Designed By: JRJ
Drawn By: JRJ
Checked By: LER

P-101





PLUMBING NEW WORK
SCALE: NTS

GENERAL NOTES:

1. ALL SAW-CUTTING IS TO BE DONE WITH A WET SAW.
2. TAKE MEASURES TO PROTECT EXISTING PUMPS FROM DUST AND DEBRIS DURING CONSTRUCTION. PUMP MOTORS ARE TO BE COVERED WITH PLASTIC SHEETING WHILE SAW-CUTTING OR OTHER CONSTRUCTION ACTIVITIES ARE TAKING PLACE.

KEYNOTES:

1. SAWCUT 1/2" WIDE CHANNEL IN FLOOR FOR DRAINAGE. SLOPE CHANNEL DOWN TOWARD FLOOR DRAIN. VERIFY IN FIELD.
2. PROVIDE CLEANOUT BELOW SLAB.
3. SAWCUT FLOOR AND INSTALL NEW FLOOR DRAIN AT LOW POINT.
4. ROUTE 2" SANITARY PIPING TO EXISTING SUMP BASIN USING EXISTING WALL, FLOOR, AND BASIN PENETRATIONS. ENLARGE EXISTING PENETRATIONS TO ACCOMMODATE NEW DRAIN PIPING. PROVIDE MECHANICAL SLEEVE SEAL AT CISTERN WALL PENETRATION.
5. PROVIDE NEW DUPLEX SUMP PUMP AND BASIN LID FOR EXISTING BASIN. ROUTE 3" SCH. 80 PVC DISCHARGE PIPING AND CONNECT TO EXISTING PIPING. REINSTALL FLOATS TO NOTED HEIGHTS, PRIOR TO DEMOLITION, IN SUMP.
6. CONNECT SUMP PUMP POWER CABLES TO THE EXISTING JUNCTION BOX. TERMINATE WIRING TO MATCH DEMOLISHED UNITS. REPLACE CORD GRIPS ON JUNCTION BOX TO FIT PROVIDED MANUFACTURER CABLE ON SUMP PUMPS.
7. TURN POWER BACK ON TO SUMP PUMP SYSTEM. ADJUST PUMP PROTECTION SETTINGS ON EXISTING SYSTEM CONTROL PANEL TO MATCH NEW PUMPS. CONTROL PANEL IS A SJE ROHMBUS PUMP CONTROLLER. PERFORM OPERATIONAL TEST OF SYSTEM. VERIFY OPERATION OF SCADA ALARM FOR HIGH LEVEL IN SUMP.

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MARK	DATE	DESCRIPTION
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CITY OF ANN ARBOR, MICHIGAN
WATER TREATMENT PLANT FILTER
FLOOR DRAINS
**PIPE GALLERY BASEMENT
PLUMBING NEW WORK**

Project No.: 200-31537-22006

Designed By:	JRJ
Drawn By:	JRJ
Checked By:	LER

P-201



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SUMP PUMP SCHEDULE

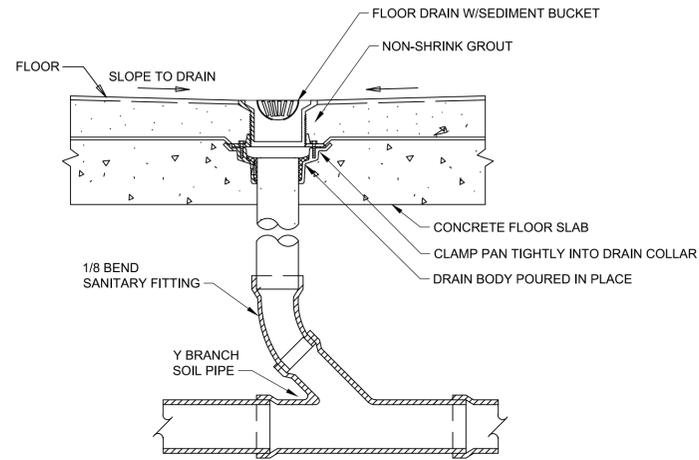
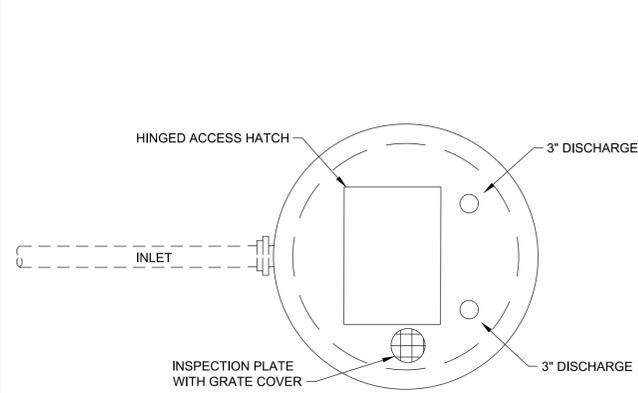
MARK	MANUFACTURER	MODEL	SYSTEM SERVED	PUMP				ELECTRICAL				EMERG POC (Y/N)	EMERG POWER (Y/N)	BASIN CAPACITY		OPER. WT. (LBS)	NOTES	
				TYPE	FLOW (GPM)	HEAD (FT WG)	RPM	QUAN.	HP	VOLTS	PH			FLA	SINGLE			VOL
SP-1	ZOELLER	294	DRAIN WATER	SUBMERSIBLE	60	50	3450	2	1.5	240	1	13.7	Y	N	-	X" x 48"	86	1, 2, 3, 4

- NOTES
- COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
 - PROVIDE NON-OVERLOADING AIR FILLED, HERMETICALLY SEALED MOTOR.
 - PROVIDE PUMP REMOVAL SYSTEM WITH FLOOR DISCHARGE ELBOWS AND UL EXPLOSION PROOF BRACKETS, UPPER GUIDE RAIL BRACKETS, STAINLESS STEEL LIFTING CABLES, AND SS GUIDE RAILS.

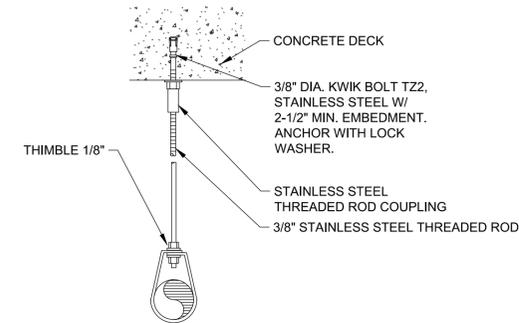
PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL	CONNECTION SIZE (IN)				NOTES
				CW	HW	WASTE	VENT	
FD-1	ROUND FLOOR DRAIN	JAY R. SMITH	2210	-	-	4	-	1

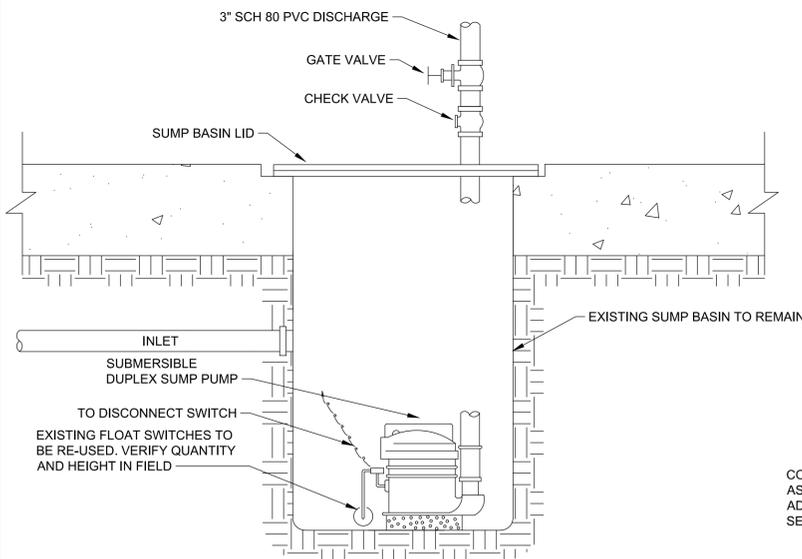
- NOTES
- PROVIDE SEDIMENT BUCKET, NICKEL BRONZE TOP, AND NO HUB OUTLET. EXCLUDE P-TRAP ON OUTLET.



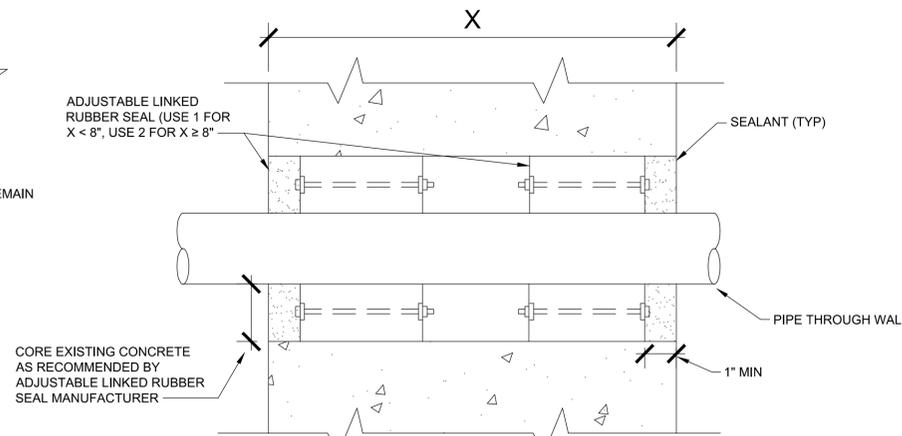
TYPICAL FLOOR DRAIN DETAIL
SCALE: NTS



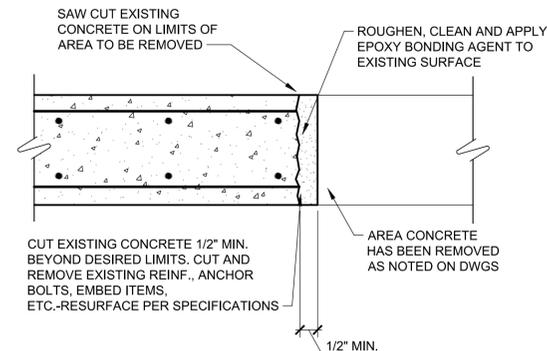
TYPICAL PIPE SUPPORT DETAIL
SCALE: NTS



DUPLEX SUMP PUMP DETAIL
SCALE: NTS



TYPICAL PIPE PENETRATION LINK SEAL DETAIL
SCALE: NTS



RESURFACING DEMOLITION CONCRETE DETAIL

STRUCTURAL CONCRETE MIX DESIGN

- MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS (f_c): 4000 PSI
- ALL CONCRETE EXPOSED TO THE ELEMENTS SHALL BE AIR-ENTRAINED IN ACCORDANCE WITH ASTM C260.
- ALL CONCRETE AGGREGATE SHALL COMPLY WITH ASTM C33 (NORMAL WEIGHT).
- WATER TO CEMENT RATIO (MAX) = 0.44
- AIR CONTENT PERCENT BY VOLUME = 3 +/- 1%
- SLUMP AT POINT OF PLACEMENT WITH WATER REDUCING ADMIXTURE: 2" - 4" WITH HIGH RANGE WATER REDUCING ADMIXTURE: 6" - 8"
- FLY ASH: ASTM C 618, TYPE C OR TYPE F (CORROSIVE ENVIRONMENTS) WITH LOSS ON IGNITION NOT MORE THAN 6 PERCENT. REPLACEMENT QUANTITY OF CEMENT CONTENT BY WEIGHT SHALL BE NOT LESS THAN 15 PERCENT OR MORE THAN 25 PERCENT IN CONCRETE.
- WATER-REDUCING ADMIXTURE: ASTM C 494, TYPE A.
- PROHIBITED ADMIXTURES: CALCIUM CHLORIDE THYOCYANATES OR ADMIXTURES CONTAINING MORE THAN 0.1 PERCENT CHLORIDE IONS.
- CEMENT CONTENT PER CUBIC YARD OF CONCRETE: 564 LBS.



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WATER TREATMENT PLANT FILTER
FLOOR DRAINS
PLUMBING DETAILS AND
SCHEDULES

Project No.:	200-31537-22006
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P-501

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