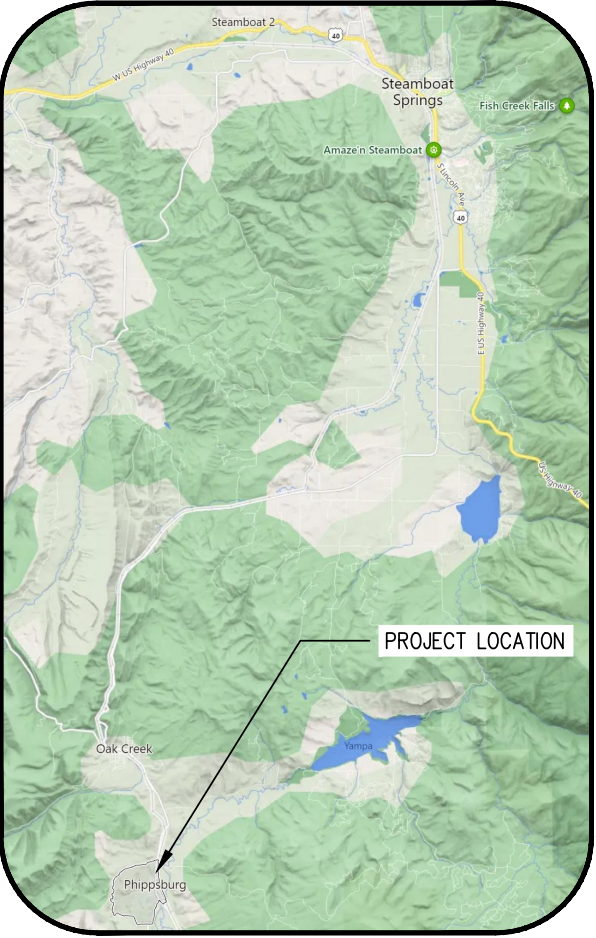


COMMUNITY OF PHIPPSBURG
WASTEWATER TREATMENT IMPROVEMENT PROJECT
FINAL DESIGN
OCTOBER 2023



LOCATION MAP
NOT TO SCALE

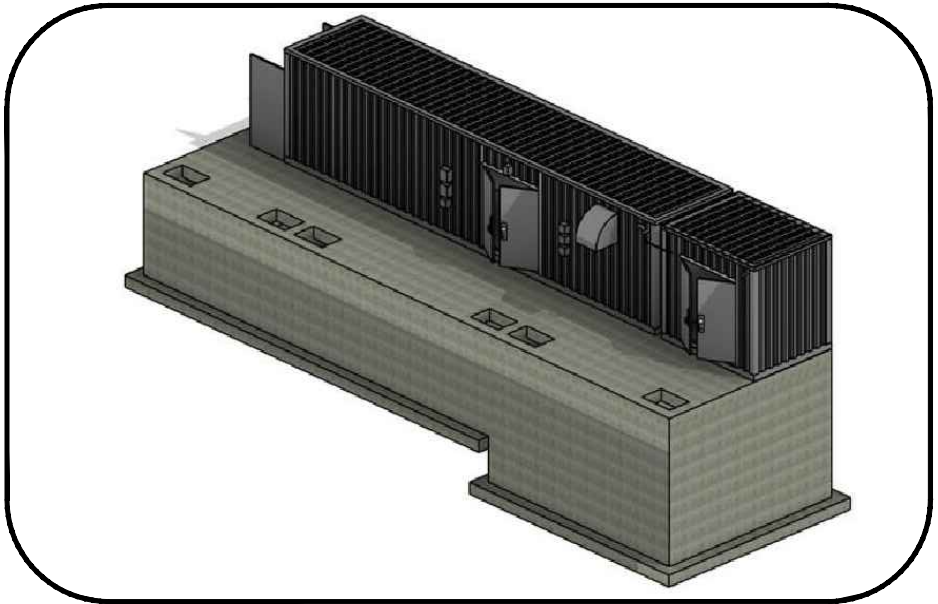


VICINITY MAP
NOT TO SCALE



SHEET INDEX	
SHEET NUMBER	SHEET TITLE
GENERAL	
G1	COVER & SHEET LIST
G2	ABBREVIATIONS & SYMBOLS
G3	GENERAL NOTES & REQUIREMENTS
G4	DESIGN CRITERIA & MAJOR EQUIPMENT SUMMARY
G5	HYDRAULIC PROFILE
G6	PROCESS FLOW DIAGRAM
G7	PROCESS DETAILS
G8	METALS DETAILS
CIVIL	
C1	OVERALL SITE PLAN
C2	WWTP SITE PLAN
C3	SITE DEMOLITION & SEQUENCING PLAN
C4	WWTP GRADING PLAN
C5	LAGOON GRADING PLAN
C6	LAGOON RESTORATION PLAN
C7	EROSION CONTROL PLAN
C8	PRE-DEVELOPMENT DRAINAGE MAP
C9	POST DEVELOPMENT DRAINAGE MAP
C10	PROPOSED SEWER LINE PLAN & PROFILE
C11	PROPOSED SEWER LINE PLAN & PROFILE
C12	EFFLUENT DISCHARGE LINE CONNECTION DETAIL
C13	LAGOON CLOSURE PLAN
C14	EROSION CONTROL DETAILS
C15	CIVIL DETAILS
C16	CIVIL DETAILS II
C17	CIVIL DETAILS III

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
PROCESS	
P1	BUILDING ISOMETRICS & INSTALLATION NOTES
P2	CONCRETE TANK LID PLAN
P3	CONCRETE TANK EQUIPMENT
P4	PROCESS PLAN
P5	PROCESS SECTION A
P6	PROCESS SECTION B
P7	PROCESS SECTION C
P8	PROCESS SECTIONS D
P9	PROCESS SECTION E & F
P10	P&ID LEGEND
P11	P&ID 1
P12	P&ID 2
P13	P&ID 3
P14	P&ID 4
STRUCTURAL	
S1	GENERAL STRUCTURAL NOTES
S2	STRUCTURAL OBSERVATION REQUIREMENT & ABBREVIATIONS
S3	CONCRETE TANK FOUNDATION PLAN
S4	CONCRETE TANK LID PLAN
S5	CONCRETE TANK ELEVATION PLAN
S6	CONCRETE TANK ELEVATION PLAN
S7	STRUCTURAL DETAILS
ELECTRICAL	
E1	ELECTRICAL NOTES & DETAILS
E2	ELECTRICAL LAYOUT
E3	ELECTRICAL ONE LINE & DETAILS



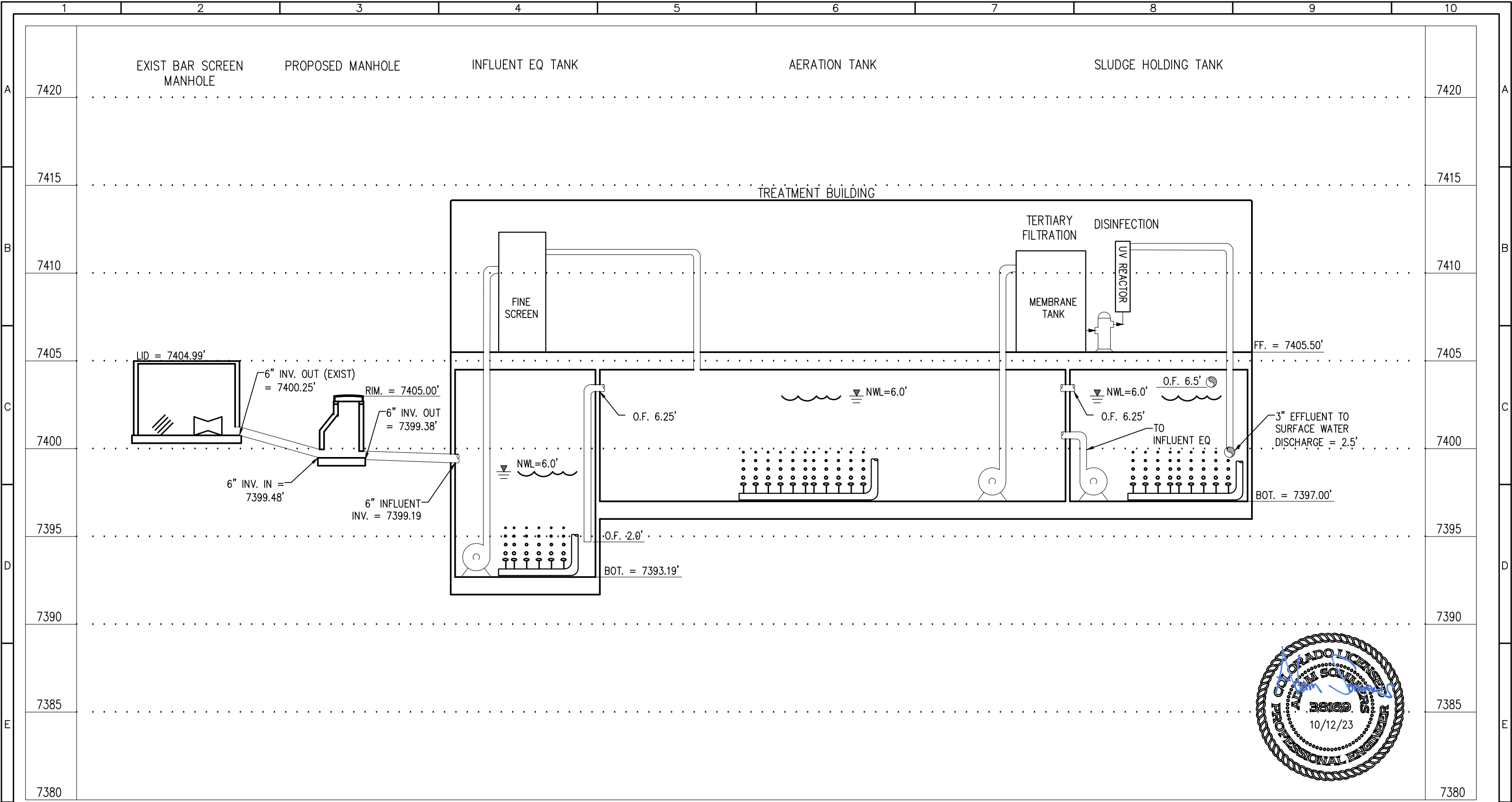
PROJECT ISOMETRIC
NTS



SITE PLAN
NTS

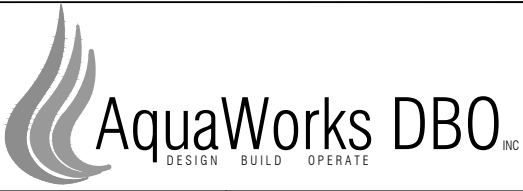


	1	2	3	4	5	6	7	8	9	10	
A	DESIGN CRITERIA SUMMARY:			MAJOR EQUIPMENT SUMMARY:		MAJOR EQUIPMENT SUMMARY:		MAJOR EQUIPMENT SUMMARY:		MAJOR EQUIPMENT SUMMARY:	
	DESIGN FLOWS: MAX MONTH (DESIGN) FLOW: 30,000 GPD PEAK DAILY FLOW: 45,000 GPD PEAK INSTANTANEOUS FLOW: 51.7 GPM			SLUDGE BLOWER: QUANTITY: 1 DUTY, 1 SHARED STANDBY TAG NO.: B-0901 & B-3901 TYPE: REGENERATIVE MRF/MODEL: FPZ, SCL R30-MD-3-3 MOTOR: 3 HP POWER: 208-230/460V/3P/60HZ SPEED CONTROL: CONSTANT SPEED DESIGN FLOW: 36.2 SCFM DESIGN PRESSURE: 4.8 PSIG		AUTOMATIC FINE SCREEN: QUANTITY: 1 DUTY TAG NO.: SCR-0201 MFR/MODEL: MARATHON, NEWTERRA SCR-100 SCREEN/PERFORATION SIZE: 2 MM CAPACITY: 100 GPM MOTOR SIZE: 0.5 HP POWER: 208-230/460V/3P,50/60HZ		SLUDGE DECANT PUMP: QUANTITY: 2 DUTY TAG NO.: P-0901 & P-0902 TYPE: SUBMERSIBLE MFR/MODEL: BARNES 2SE544L CAPACITY: 50 GPM @ 20 FT MOTOR SIZE: 0.5 HP SPEED CONTROL: CONSTANT SPEED VOLTAGE/PHASE: 460V/3PH/60HZ		CIP SODIUM HYPOCHLORITE FEED SYSTEM: QUANTITY: 1 TAG NO.: P-6104 MFR/MODEL: XYLEM 04300545A CAPACITY: 4.5 GPH UP TO 45 PSI VOLTAGE & PHASE: 115V/1P/50-60HZ TANK CAPACITY: 55 GALLONS	
	DESIGN INFLUENT CONCENTRATIONS AND LOADING: AVERAGE BOD: 400 MG/L AVERAGE TSS: 400 MG/L AVERAGE TKN: 50 MG/L AVERAGE TP: 10 MG/L										
B	DESIGN EFFLUENT LIMITS: BOD: < 5 MG/L TSS: < 1 MG/L NH3-N: < 1 MG/L PH: 7-9			MEMBRANE BASIN BLOWERS: QUANTITY: 2 DUTY, 1 SHELF SPARE TAG NO.: B-0601 & B-0602 TYPE: REGENERATIVE MRF/MODEL: FPZ SCL R30-MD-3-3 MOTOR: 3.0 HP POWER: 208-230/460V/3P/60HZ SPEED CONTROL: CONSTANT SPEED DESIGN FLOW: 24.9 SCFM DESIGN PRESSURE: 6.7 PSIG		AEROBIC BASIN: QUANTITY: 1 ZONE TAG NO.: TNK-501 BASIN SIZE: 22.00 FT L X 14.75 FT W SIDE WATER DEPTH: 6.0 FT WORKING VOLUME: 14,569 GALLONS		ALUMINUM SULFATE CHEMICAL FEED SYSTEM: QUANTITY: 1 TAG NO.: P-6101 MFR/MODEL: PROMINENT BT4B1602PVT2000UD010A01 CAPACITY: 0.58 GPH @ 232 PSI MAX POWER: 17 W VOLTAGE/PHASE: 100-240V/50/60HZ FEED TANK CAPACITY: 55 GALLONS		CIP CITRIC ACID FEED SYSTEM: QUANTITY: 1 TAG NO.: P-6105 MFR/MODEL: XYLEM 04300545A CAPACITY: 4.5 GPH UP TO 45 PSI VOLTAGE & PHASE: 115V/1P/50-60HZ TANK CAPACITY: 55 GALLONS	
	ACTIVATED SLUDGE DESIGN CRITERIA: SITE ELEVATION: 7,436 FEET MLSS TEMPERATURE: 10 CELSIUS HYDRAULIC RETENTION TIME: 7.75 HOURS @ MMF AEROBIC SRT: 15.1 DAYS F:M RATIO: 0.037 (OR 0.055 FOR F:MLVSS)					MBR MEMBRANE FEED PUMPS: QUANTITY: 2 DUTY, 1 SHARED SHELF SPARE TAG NO.: P-0501, P-0502 MFR/MODEL: BARNES 2SEV744L CAPACITY: 52.1 GPM @ 25.5FT MOTOR SIZE: 0.75 HP SPEED CONTROL: CONSTANT SPEED POWER: 460V/3PH/60HZ		CAUSTIC SODA FEED SYSTEM: QUANTITY: 1 TAG NO.: P-6102 MFR/MODEL: PROMINENT BT4B1602PVT2000UD010A01 CAPACITY: 0.58 GPH @ 232 PSI MAX POWER: 17 W VOLTAGE/PHASE: 100-240V/50/60HZ FEED TANK CAPACITY: 55 GALLONS		UV DISINFECTION SYSTEM: QUANTITY: 1 DUTY, 1 STANDBY TAG NO.: UV-0701 & UV-0702 MFR/MODEL: UVPURE HALLETT 1000W CAPACITY: 34.8 GPM POWER: 120V/1P/50-60HZ	
	MAJOR EQUIPMENT SUMMARY:										
C	AEROBIC PROCESS BLOWERS: QUANTITY: 1 DUTY, 1 STANDBY TAG NO.: B-0501 & B-0502 TYPE: POSITIVE DISPLACEMENT MRF/MODEL: SUTORBILT 5L-RHC MOTOR: 20 HP POWER: 460V/3PH/60 HZ SPEED CONTROL: VFD DESIGN FLOW: 407.7 SCFM DESIGN PRESSURE: 4.2 PSI			INFLUENT EQUALIZATION BASIN: QUANTITY: 1 TAG NO.: TNK-301 BASIN SIZE: 17.5 FT L X 14.75 FT W SIDE WATER DEPTH: 6.0 FT WORKING VOLUME: 11,588 GALLONS		MBR REACTOR BASIN: QUANTITY: 2 TAG NO.: TNK-601 & TNK-602 BASIN SIZE: 3.35 FT L X 5.39 FT SIDE WATER DEPTH: 6.89 FT WORKING VOLUME: 862 GALLONS		MICRO-C CHEMICAL FEED SYSTEM: QUANTITY: 1 TAG NO.: P-6103 MFR/MODEL: PROMINENT BT4B1602PVT2000UD010A01 CAPACITY: 0.58 GPH @ 232 PSI MAX POWER: 17 W VOLTAGE/PHASE: 100-240V/50/60HZ TANK CAPACITY: 55 GALLONS		EFFLUENT FLOW MEASUREMENT: QUANTITY: 1 TAG NO.: FIT-0702 MFR/MODEL: IFM EFECTOR SM9601 SIZE: 1.5 INCH	
				INFLUENT EQUALIZATION TRANSFER PUMPS: QUANTITY: 1 DUTY, 1 STANDBY TAG NO.: P-0301 & P-0302 TYPE: SUBMERSIBLE MFR/MODEL: MYERS SX50-43 CAPACITY: 31.2 GPM @ 21.8 FT MOTOR: 0.5 HP SPEED CONTROL: CONSTANT SPEED POWER: 460V/3PH/60HZ		MEMBRANES: MEMBRANE TYPE: ZEEWEED 500S MEMBRANE SURFACE AREA: 300 FT2 (PER MODULE) MODULES/MEMBRANE TANK: 5 FLUX: 15.0 GFD					
						MBR PERMEATE PUMPS: QUANTITY: 2 DUTY, 2 STANDBY TAG NO.: P-0701 & P-0702; P-0704 & P-0705 MFR/MODEL: GOULDS 1ST1D9F4 CAPACITY: 17.4 GPM @ 52FT MOTOR SIZE: 0.75 HP SPEED CONTROL: VFD POWER: 230/460V/3PH/60HZ		MEMBRANE BACKWASH TANK: QUANTITY: 1 TAG NO.: TNK-801 TANK SIZE: 43 INCH DIA X 50 INCH TALL VOLUME: 240 GALLONS			
D	INFLUENT EQ BLOWER: QUANTITY: 1 DUTY, 1 SHARED STANDBY TAG NO.: B-0301 & B-3901 TYPE: REGENERATIVE MRF/MODEL: FPZ, SCL R30-MD-3-3 MOTOR: 3 HP POWER: 208-230/460V/3P/60HZ SPEED CONTROL: CONSTANT SPEED DESIGN FLOW: 24.1 SCFM DESIGN PRESSURE: 6.5 PSIG					SLUDGE HOLDING BASIN: QUANTITY: 1 TAG NO.: TNK-901 BASIN SIZE: 13.17 FT L X 14.75 FT W SIDE WATER DEPTH: 6.0 FT WORKING VOLUME: 8,719 GALLONS		MEMBRANE BACKPULSE PUMP: QUANTITY: 1 DUTY, 1 STANDBY TAG NO.: P-0801 & P-0802 MFR/MODEL: GOULDS 1ST2C9D4 CAPACITY: 11.6 GPM @18 FT MOTOR SIZE: 0.5 HP SPEED CONTROL: VFD POWER: 208-230/460V/3P/60HZ		PORTABLE HOIST: MFR/MODEL: HALLIDAY PRODUCTS D1A24C W/36" REACH QUANTITY: 1 HOIST SOCKET: HALLIDAY PRODUCTS EMBED STYLE SOCKET QUANTITY: 3	
										AUTODIALER/ALARMS: ETHERNET CONNECTION TO CELLULAR HOTSPOT	
										PRIMARY POWER: PRIMARY POWER PROVIDER: XCEL SERVICE: 480 VOLT/3PH/60HZ/200 AMP PRIMARY SOURCE: EXISTING BURIED POWER LINES	
E											
F											
REV. No: DATE: BY: REVISION DESCRIPTION: DRAWN BY: NM DESIGNED BY: AS FILE PRINTED ON: 10/12/2023 5:37:21 PM COPYRIGHT: AQUAWORKS DBO, INC. 0 1 IF THIS BAR DOES NOT READ 1" DRAWING IS NOT LABELED TO SCALE AquaWorks DBO DESIGN BUILD OPERATE PROJECT: WWTP IMPROVEMENT PROJECT COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915 SHEET TITLE: DESIGN CRITERIA & MAJOR EQUIPMENT SUMMARY PROJECT NUMBER: #2479 SCALE: NOT TO SCALE SHEET: G4											
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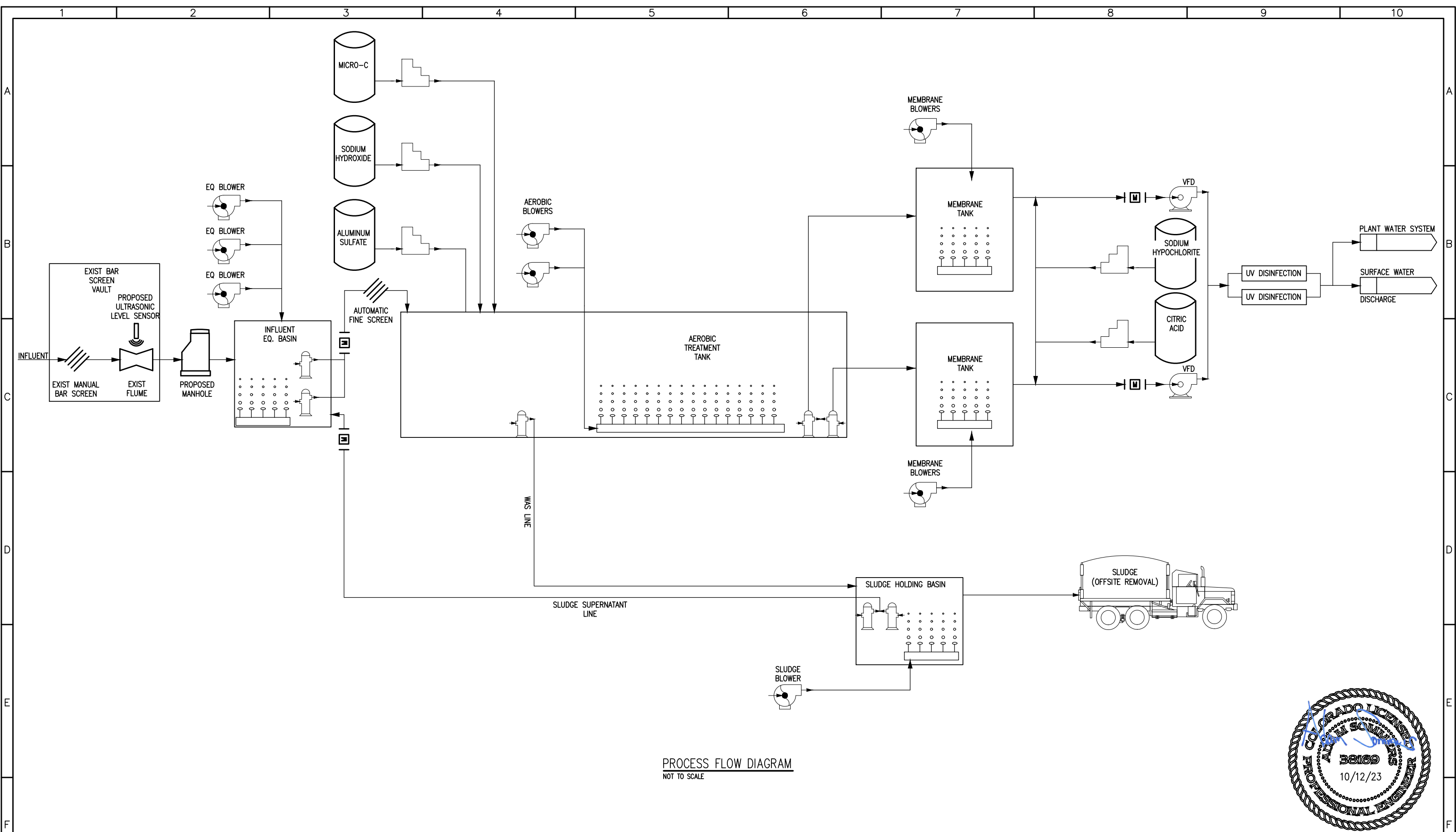


HYDRAULIC PROFILE
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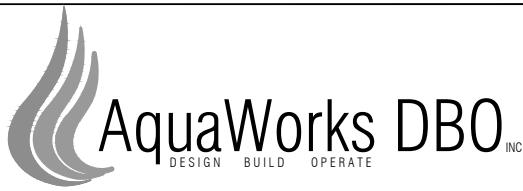


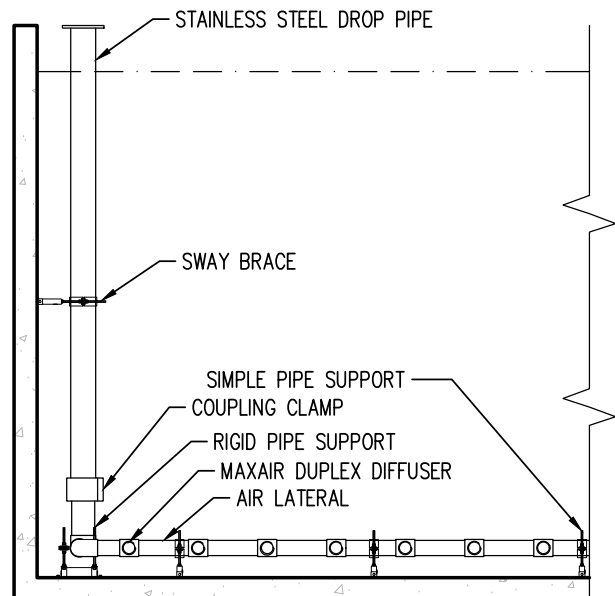
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ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER: #2479	SCALE: NOT TO SCALE	SHEET: G5



PROCESS FLOW DIAGRAM
NOT TO SCALE



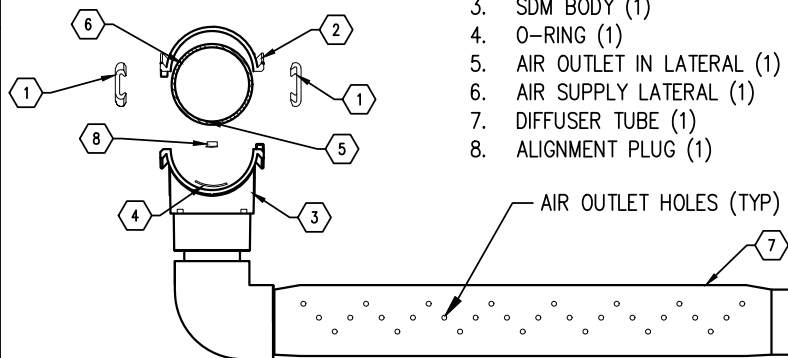
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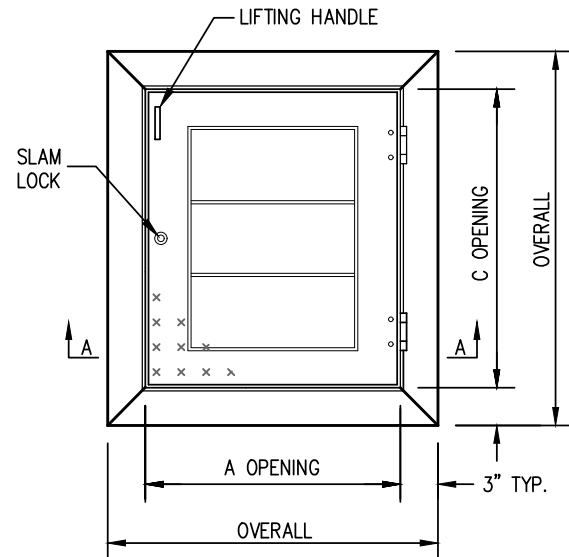
DIFFUSER ASSEMBLY DETAIL
NTS

DIFFUSER INSTALLATION LEGEND:

1. LOCKING WEDGE (2)
2. LOCKING LUG
3. SDM BODY (1)
4. O-RING (1)
5. AIR OUTLET IN LATERAL (1)
6. AIR SUPPLY LATERAL (1)
7. DIFFUSER TUBE (1)
8. ALIGNMENT PLUG (1)



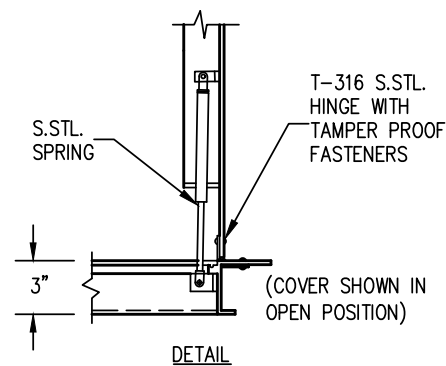
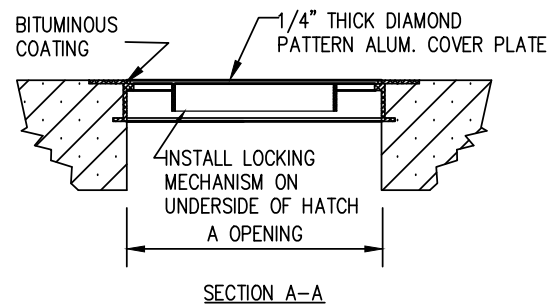
DIFFUSER INSTALLATION DETAIL
NTS



SERIES S1S ACCESS DOOR

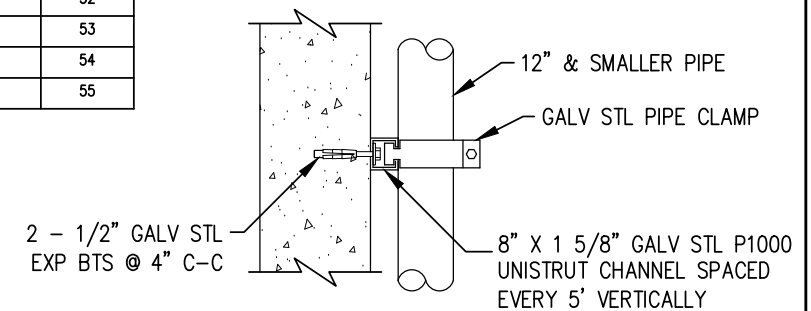
STANDARD FEATURES:

- 300 LBS. PER SQ. FT. LOAD RATING
- EXTRUDED ALUMINUM ANGLE FRAME
- SINGLE LEAF CONSTRUCTION
- AUTO-LOCK T-316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE
- T-316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE
- T-316 STAINLESS STEEL SLAM LOCK WITH REMOVABLE KEY
- STAINLESS STEEL COMPRESSION SPRING ASSIST
- BUILT-IN EPDM CUSHION/GASKET
- NON-OZONE DEPLETING BITUMINOUS COATING
- RECESSED LIFTING HANDLE
- LIFETIME GUARANTEE

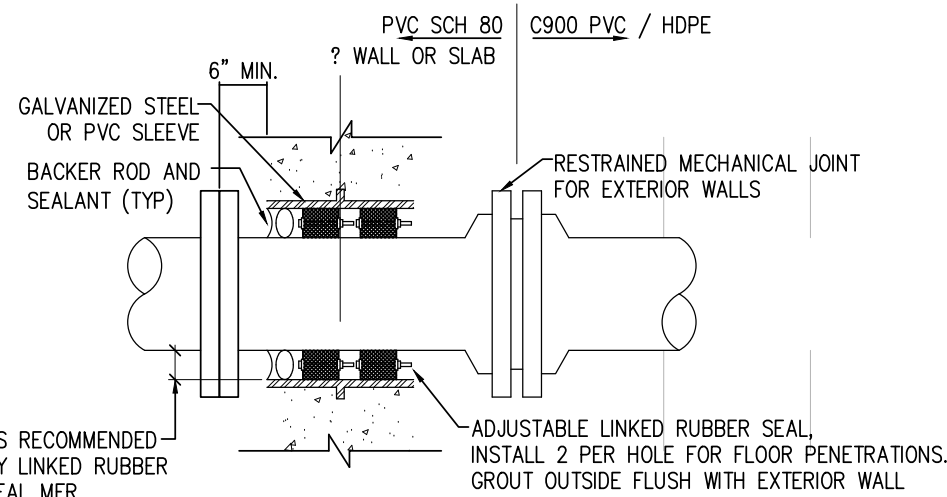


HATCH DETAIL
NTS

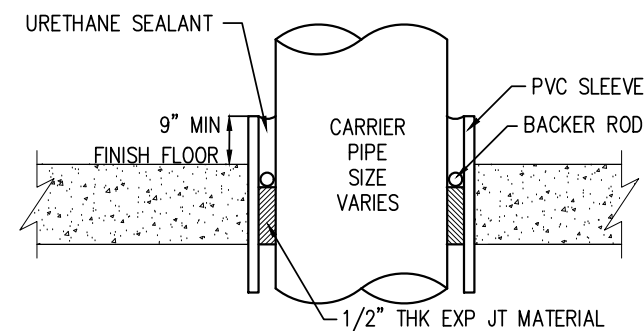
STANDARD SIZES				
QTY.	MODEL NO.	A DIM. INCHES	C DIM. INCHES	UNIT WT. LBS.
	SIS2424	24	24	37
	SIS2430	24	30	38
6	SIS2436	24	36	39
	SIS2442	24	42	40
	SIS2448	24	48	41
	SIS3030	30	30	42
	SIS3036	30	36	43
	SIS3042	30	42	44
	SIS3048	30	48	45
	SIS3054	30	54	46
	SIS3060	30	60	47
	SIS3636	36	36	48
	SIS3642	36	42	49
	SIS3648	36	48	50
	SIS3654	36	54	51
	SIS3660	36	60	52
	SIS3666	36	66	53
	SIS3672	36	72	54
	SIS4242	42	42	55



TYPICAL PIPE SUPPORT DETAIL
NTS



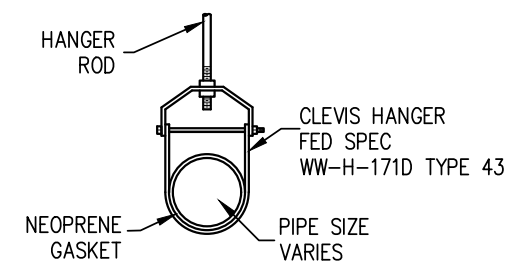
WALL PENETRATION DETAIL
NTS



NOTE:

1. FOR FOUNDATION WALL PENETRATION PROVIDE 1" ANNULAR SPACE AROUND CARRIER PIPE AND SEAL WITH URETHANE SEALANT ONLY TO PERMIT MOVEMENT

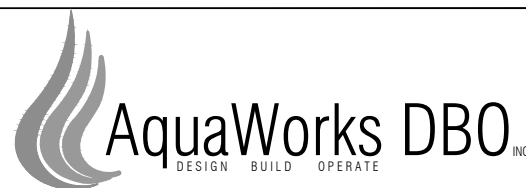
FLOOR PENETRATION DETAIL
NTS



PIPE SIZE	HANGER ROD DIA
2" & SMALLER	3/8"
2 1/2"	1/2"
3" & 4"	5/8"
6" THRU 12"	3/4"

PIPE HANGER SUPPORT DETAIL
NTS

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COMMUNITY OF PHIPPSBURG
ROUTT COUNTY, COLORADO
ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE:
PROCESS DETAILS

PROJECT NUMBER:
#2479

SCALE:
NTS

SHEET:
G7

SERIES DB PORTABLE HOIST

- STANDARD FEATURES:
- TYPE-304 STAINLESS STEEL CONSTRUCTION
 - 30 FEET (9 METERS) OF 1/4" (7 MM) STAINLESS STEEL CABLE
 - GALVANIZED 1 TON HOOK
 - DUTTON-LAINSON MARINE GRADE BRAKE WINCH
 - ADJUSTABLE REACH IN 1" (25 MM) INCREMENTS
 - 3 YEAR GUARANTEE

- OPTIONS:
- TYPE-316 CONSTRUCTION
 - ADDITIONAL CABLE AVAILABLE (SPECIFY LENGTH)
 - STAINLESS STEEL WINCH
 - STAINLESS STEEL HOOK
 - OTHER REACHES AVAILABLE UPON REQUEST (CONSULT FACTORY)



www.HallidayProducts.com
Phone 800-298-1027
Fax 407-298-4534
Sales@HallidayProducts.com

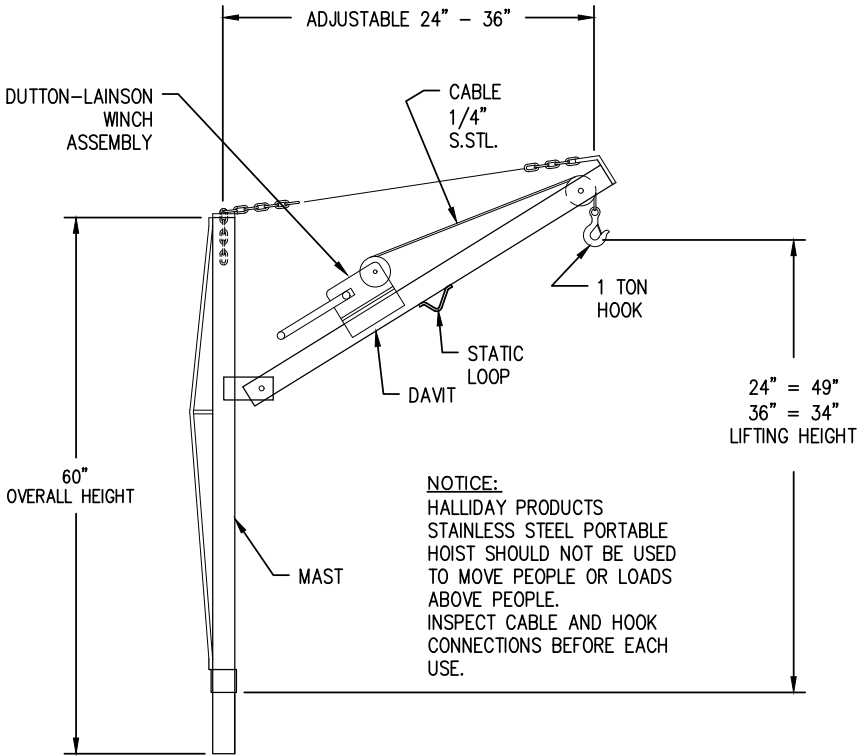
STANDARD SIZES:			
QTY.	MODEL NO.	MAX .LOAD LBS. (KG.)	UNIT WT. LBS. (KG.)
	D1B36C	300 (136)	73 (33)



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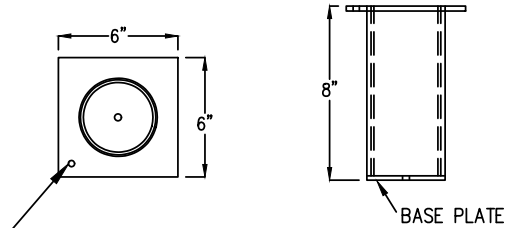
HOIST BASE LOCATIONS:

- 1) INFLUENT EQ PUMPS
- 2) SLUDGE TANK PUMPS
- 3) MBR FEED FORWARD PUMPS



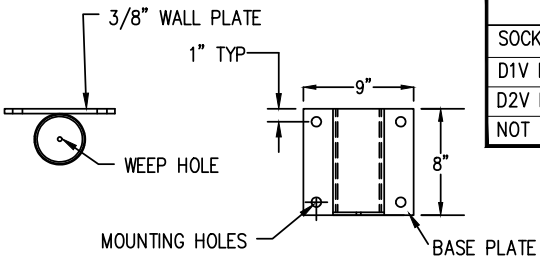
NOTICE:
HALLIDAY PRODUCTS
STAINLESS STEEL PORTABLE
HOIST SHOULD NOT BE USED
TO MOVE PEOPLE OR LOADS
ABOVE PEOPLE.
INSPECT CABLE AND HOOK
CONNECTIONS BEFORE EACH
USE.

PORTABLE HOIST 1
NTS G8



EMBED STYLE HOIST SOCKETS	
SOCKET MODEL #	FOR HOIST MODELS
D1S LINED	D1A AND D1B
D2S LINED	D2A AND D2B
D3S LINED	D3A AND D3B

EMBED STYLE HOIST SOCKETS



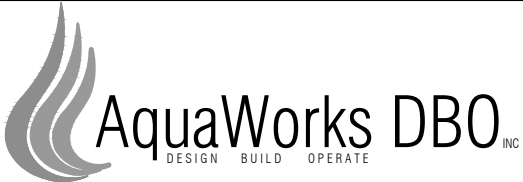
WALL STYLE HOIST SOCKETS	
SOCKET MODEL #	FOR HOIST MODELS
D1V LINED	D1A AND D1B
D2V LINED	D2A AND D2B
NOT AVAILABLE	D3A AND D3B

LIFT STATION HOIST SOCKET

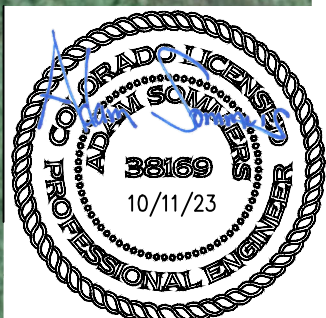
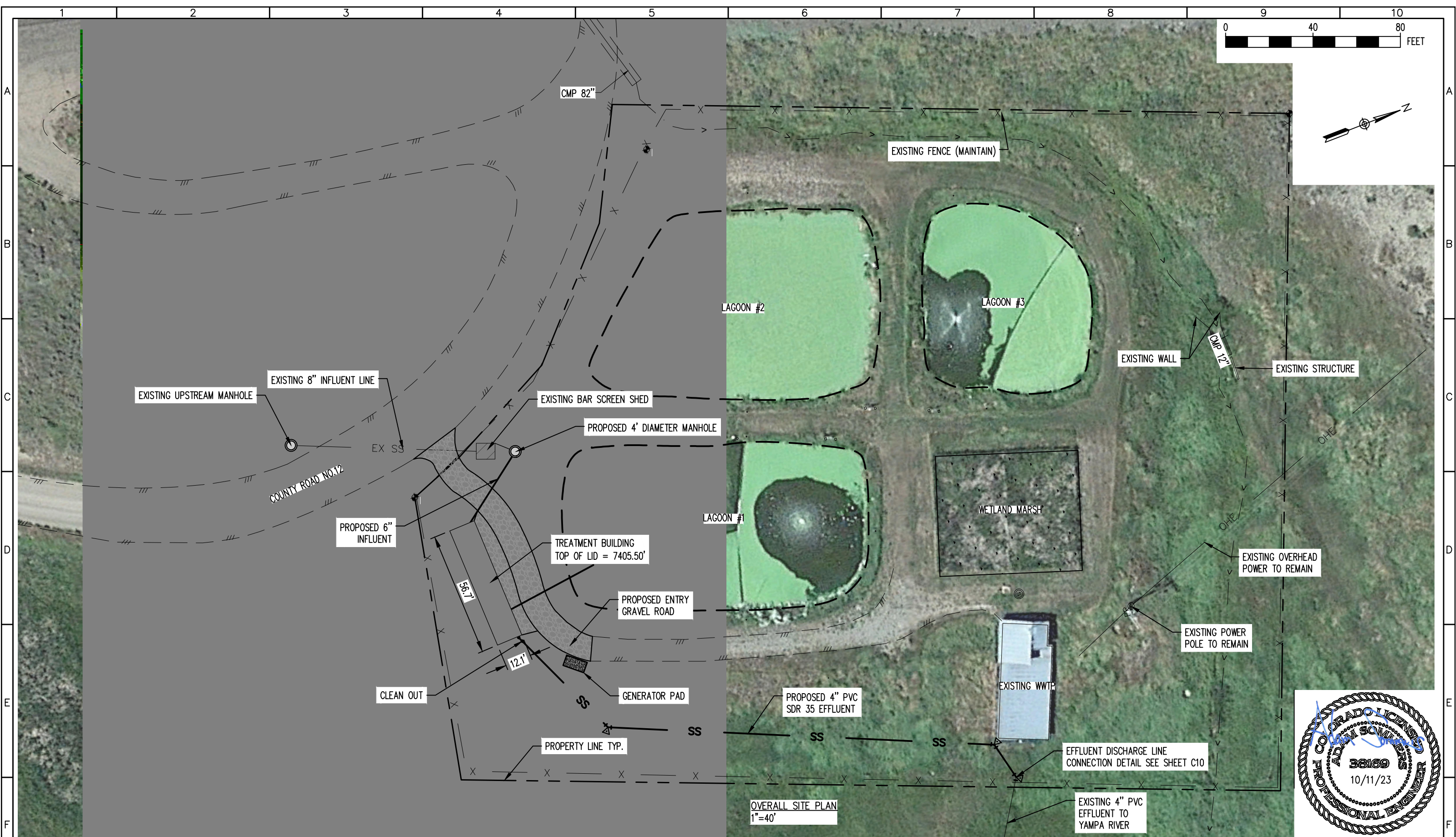
HOIST BASE 2
NTS G8



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PROJECT: WWTP IMPROVEMENT PROJECT COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO		SHEET TITLE: METALS DETAILS		
ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER: #2479	SCALE: NTS	SHEET: G8



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AquaWorks DBO^{INC}
DESIGN BUILD OPERATE

PROJECT: PHIPPSBURG COLORADO WWTP COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO				SHEET TITLE: OVERALL SITE PLAN			
ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915				PROJECT NUMBER: 7830	SCALE: 1"=40'	SHEET: C1	

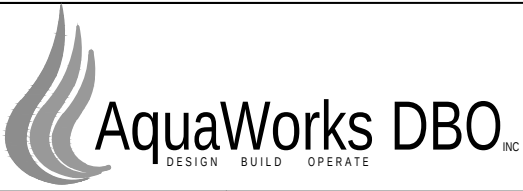
DEMOLITION NOTES:

1. SITE DEMOLITION TO BE COORDINATED WITH ENGINEER AND OWNER WITH RESPECT TO EQUIPMENT OR FACILITIES TO REMAIN IN SERVICE, TO BE REMOVED, OR TO BE ABANDONED IN PLACE.
2. THE CONTRACTOR IS NOT TO DAMAGE CURBS, WALKS OR PAVING WHICH IS NOT INCLUDED IN THE SITE PREPARATION OR DEMOLITION SHOWN ON THE PLANS. THE COST TO REPAIR ANY SUCH DAMAGE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. REMOVE AND DISPOSE OF ALL PAVING MATERIALS PROPERLY, INCLUDING BASE COURSE AND ANY OTHER DEBRIS ENCOUNTERED.
4. CONCRETE OR ASPHALT SAWCUTS SHALL BE CRISP CLEAN CUTS THAT ARE NEAT IN APPEARANCE. LOCATE ALL SAWCUTS AS REQUIRED PER DIRECTION OF THE ENGINEER.
5. ALL EXISTING SITE TREES AND VEGETATION ARE TO BE PROTECTED IN PLACE, UNLESS SPECIFICALLY NOTED FOR REMOVAL ON THE PLANS.
6. SITE REVEGETATION SHALL COMPLY WITH THE MUNICIPAL/COUNTY STANDARDS AND THE PROJECT REVEGETATION SPECIFICATION, AND LANDSCAPE PLAN, AS APPLICABLE.
7. THE CONTRACTOR SHALL REPLACE TO ORIGINAL CONDITION OR BETTER AT HIS EXPENSE ALL VEGETATION THAT IS DAMAGED BY CONSTRUCTION OPERATIONS.
8. THE CONTRACTOR IS TO ADHERE TO SPOT ELEVATIONS AND CONTOURS AS INDICATED ON THE GRADING PLAN. SPOT ELEVATIONS TAKE PRECEDENCE OVER CONTOURS WHERE CONFLICTING INFORMATION IS SHOWN.
9. ALL GRADES ARE TO BE APPROVED BY THE ENGINEER PRIOR TO PERMANENT PLANTING, SEEDING, AND FLAT WORK.
10. ALL AREAS SHALL BE GRADED TO ACHIEVE POSITIVE DRAINAGE, AS DEFINED IN THE SPECIFICATIONS.
11. EXCAVATIONS INCLUDES ALL MATERIAL ENCOUNTERED TO THE DEPTH INDICATED ON THE PLANS. EXCAVATE TO ALLOW FOR PROPER FILL MATERIAL, SLABS, VOIDS, FORMS, AND FOUNDATIONS, AND FOR THE REMOVAL OF UNSUITABLE MATERIALS. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION REGARDING GRADING AND EXCAVATION.
12. ALL BEDDING, BACKFILL SUBGRADE CONSTRUCTION, AND EMBANKMENT SHALL BE CONSTRUCTED ACCORDING TO THE SPECIFICATIONS AND GEOTECHNICAL REPORT.
13. REFER TO GRADING PLAN FOR ALL SITE ELEVATIONS AND GRADING REQUIREMENTS.
14. REFER TO CIVIL DETAIL SHEETS FOR SITE DETAILS.
15. CONTRACTOR AND OWNER TO COORDINATE WITH UTILITY PROVIDERS FOR RELOCATION OF EXISTING INFRASTRUCTURE.
16. CONTRACTOR TO REMOVE EXISTING TANK FOUNDATION. APPROXIMATE AREA 300 SF.

SEQUENCING NOTES (NOT INCLUSIVE OF ALL ACTIVITIES):

- A. EXISTING WWTP TO REMAIN IN OPERATION UNTIL NEW WWTP HAS COMPLETED CLEAN WATER TESTING AND IS READY TO RECIVE INFLUENT WASTEWATER. MAINTAIN EXISTING 8" AND 6" INFLUENT LINE AND 4" DISCHARGE LINE DURING CONSTRUCTION.
- B. CONSTRUCT NEW WWTP. INSTALL SITE PIPING.
- C. CLEAN WATER TEST NEW WWTP IN ACCORDANCE WITH CONTRACT DOCUMENTS.
- D. COMMENCE WASTEWATER TREATMENT AT NEW FACILITY.
- E. ABANDON IN PLACE EXISTING WASTEWATER LINES PLUG AND CAP.
- F. REMOVE EXISTING INFLUENT LINE AND BYPASS LINE, EXISTING STEEL POST, EXISTING SWITCH, EXISTING SEWER MANHOLE, EXISTING FLOATING BAFFLE AND 3HP AERATOR.
- G. REMOVE AND REPLACE EXISTING FENCING AS SHOWN.
- H. REMOVE EXISTING GRAVEL ACCESS.

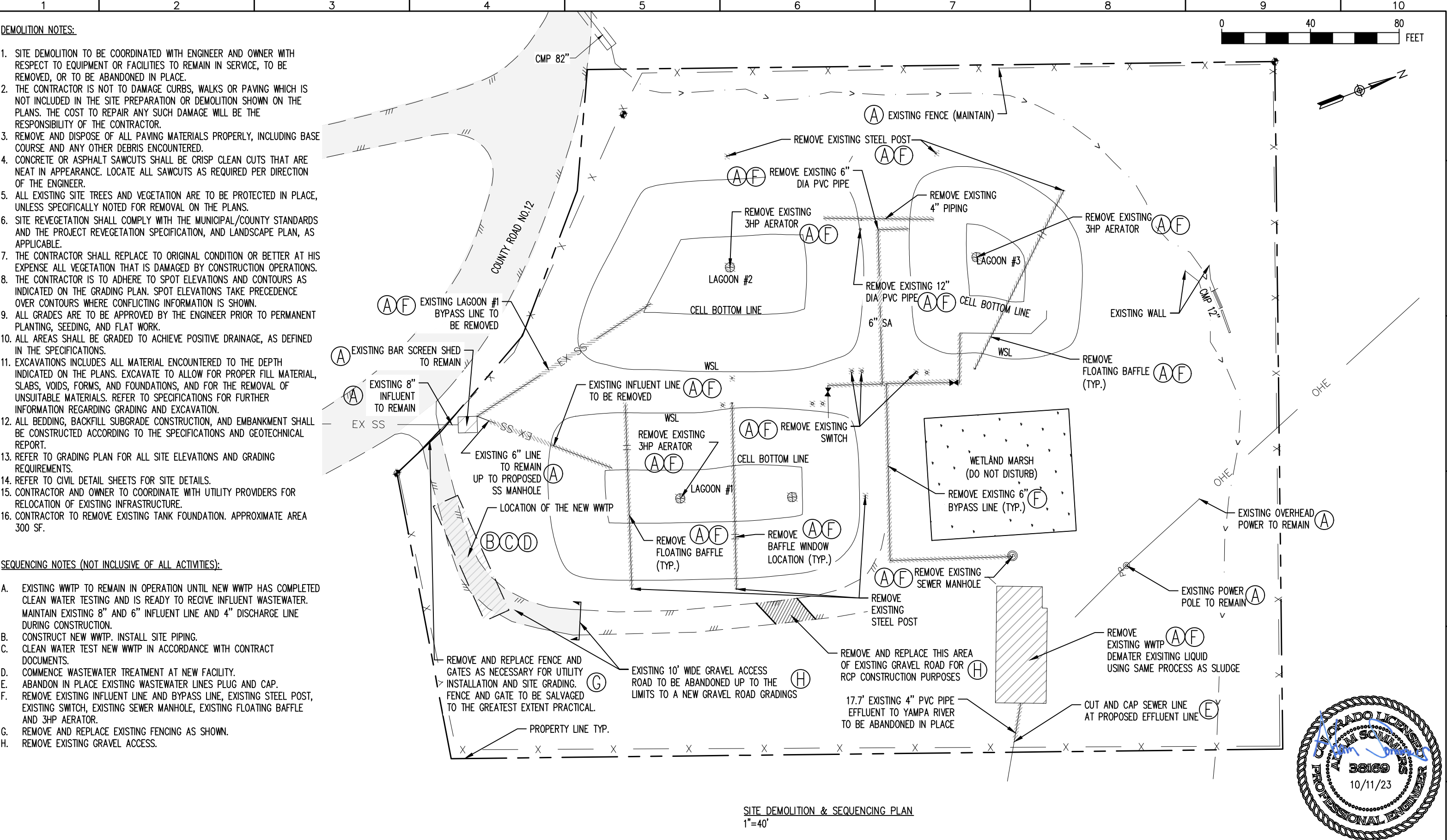
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PROJECT: PHIPPSBURG COLORADO WWTP
COMMUNITY OF PHIPPSBURG
ROUTT COUNTY, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE:		
SITE DEMOLITION & SEQUENCING PLAN		
PROJECT NUMBER:	SCALE:	SHEET:
7830	1"=40'	C3

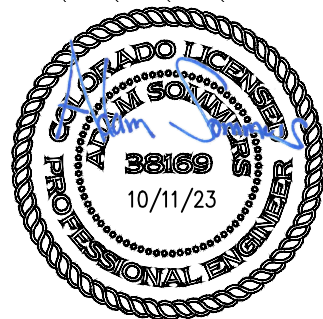
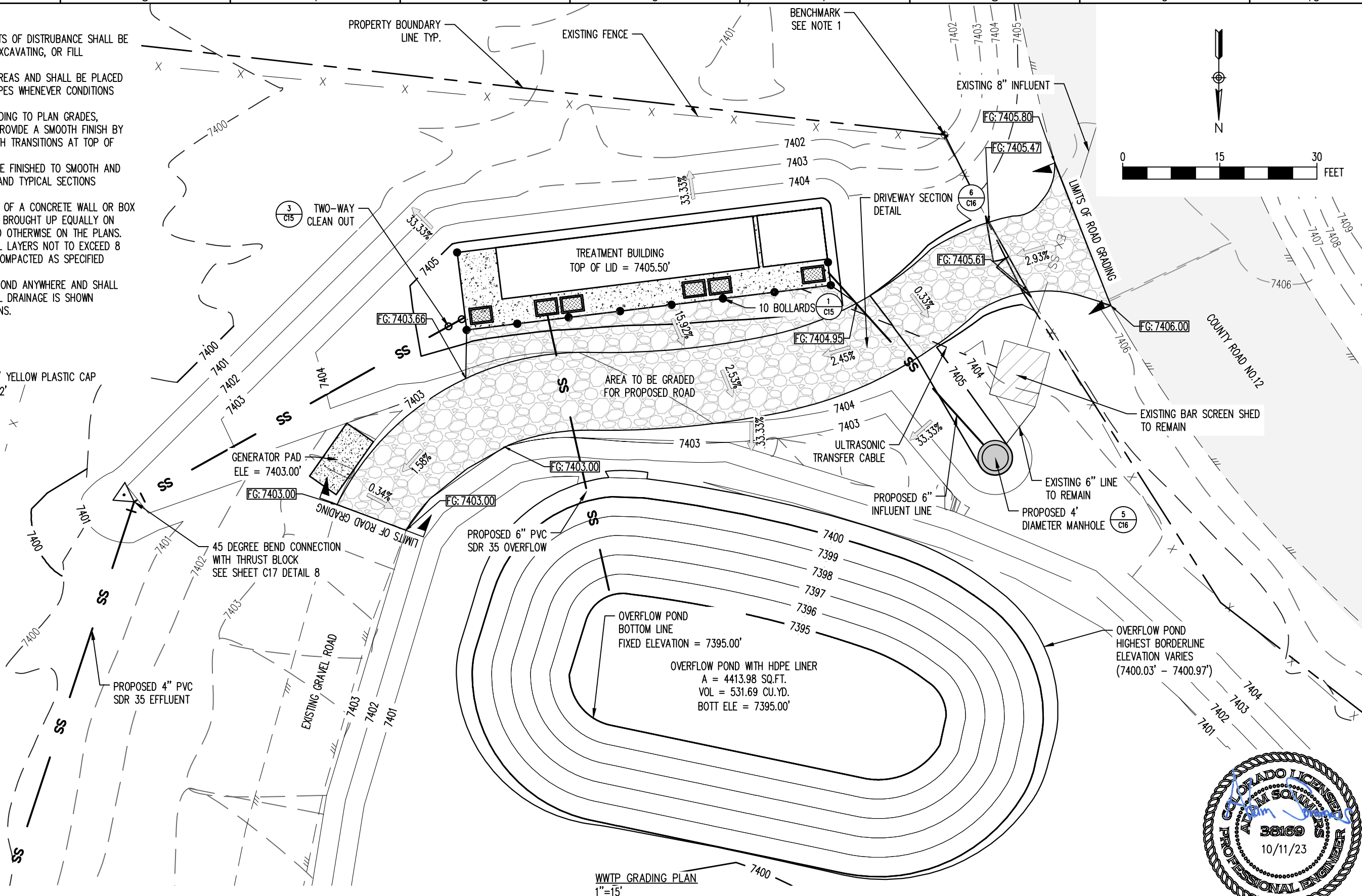


GRADING NOTES:

1. TOPSOIL WITHIN THE DESIGNATED PROJECT LIMITS OF DISTURBANCE SHALL BE SALVAGED PRIOR TO BEGINNING OF HAULING, EXCAVATING, OR FILL OPERATIONS.
2. TOPSOIL SHALL BE REPLACED TO DISTURBED AREAS AND SHALL BE PLACED DIRECTLY UPON COMPLETED CUT AND FILL SLOPES WHENEVER CONDITIONS AND THE PROGRESS OF CONSTRUCTION PERMIT.
3. CONTRACTOR TO INSTALL FINISH GRADE ACCORDING TO PLAN GRADES, SLOPES, SPOTS, NOTES AND SPECIFICATIONS. PROVIDE A SMOOTH FINISH BY RANKING IN TOPSOILED AREAS. PROVIDE SMOOTH TRANSITIONS AT TOP OF BANKS AND TOE OF SLOPES.
4. ALL EXCAVATIONS AND EMBANKMENTS SHALL BE FINISHED TO SMOOTH AND UNIFORM SURFACES CONFORMING WITH PLANS AND TYPICAL SECTIONS DETAILED AND SPECIFIED HERE.
5. WHEN EMBANKMENT IS PLACED ON BOTH SIDES OF A CONCRETE WALL OR BOX TYPE STRUCTURE, THE EMBANKMENT SHALL BE BROUGHT UP EQUALLY ON BOTH SIDES OF THE STRUCTURE UNLESS NOTED OTHERWISE ON THE PLANS.
6. EMBANKMENT SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 8 INCHES LOOSE MEASUREMENT AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED.
7. SURFACE WATER SHALL NOT BE ALLOWED TO POND ANYWHERE AND SHALL DRAIN AWAY FROM BUILDING AT ALL TIMES. ALL DRAINAGE IS SHOWN DRAINING AWAY FROM BUILDING ON THESE PLANS.

NOTES:

1. ONSITE BENCHMARK FOUND :#5 REBAR WITH 1" YELLOW PLASTIC CAP "DISMUKE AND DISMUKE LS 7736" ELEV:7401.02'



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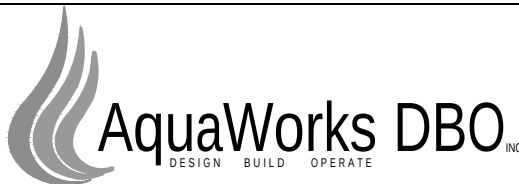
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COMMUNITY OF PHIPPSBURG
ROUTT COUNTY, COLORADO
ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE:
WWTP GRADING PLAN

PROJECT NUMBER:
7830

SCALE:
1"=15'

SHEET:
C4

GRADING NOTES:

1. TOPSOIL WITHIN THE DESIGNATED PROJECT LIMITS OF DISTURBANCE SHALL BE SALVAGED PRIOR TO BEGINNING OF HAULING, EXCAVATING, OR FILL OPERATIONS.
2. TOPSOIL SHALL BE REPLACED TO DISTURBED AREAS AND SHALL BE PLACED DIRECTLY UPON COMPLETED CUT AND FILL SLOPES WHENEVER CONDITIONS AND THE PROGRESS OF CONSTRUCTION PERMIT.
3. CONTRACTOR TO INSTALL FINISH GRADE ACCORDING TO PLAN GRADES, SLOPES, SPOTS, NOTES AND SPECIFICATIONS. PROVIDE A SMOOTH FINISH BY RANKING IN TOPSOILED AREAS. PROVIDE SMOOTH TRANSITIONS AT TOP OF BANKS AND TOE OF SLOPES.
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5. WHEN EMBANKMENT IS PLACED ON BOTH SIDES OF A CONCRETE WALL OR BOX TYPE STRUCTURE, THE EMBANKMENT SHALL BE BROUGHT UP EQUALLY ON BOTH SIDES OF THE STRUCTURE UNLESS NOTED OTHERWISE ON THE PLANS.
6. EMBANKMENT SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 8 INCHES LOOSE MEASUREMENT AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED.
7. SURFACE WATER SHALL NOT BE ALLOWED TO POND ANYWHERE AND SHALL DRAIN AWAY FROM BUILDING AT ALL TIMES. ALL DRAINAGE IS SHOWN DRAINING AWAY FROM BUILDING ON THESE PLANS.

NOTES:

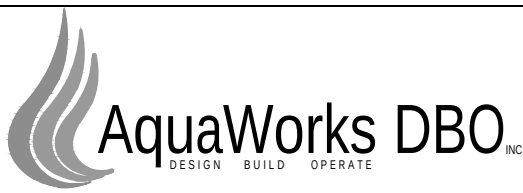
1. ONSITE BENCHMARK FOUND :#5 REBAR WITH 1" YELLOW PLASTIC CAP "DISMUKE AND DISMUKE LS 7736" ELEV:7401.02'

RESTORATION SEEDING SPECIFICATIONS:

REFER TO PROJECT SPECIFICATION MANUAL SECTION 32 92 00 FOR THE FOLLOWING ITEMS:

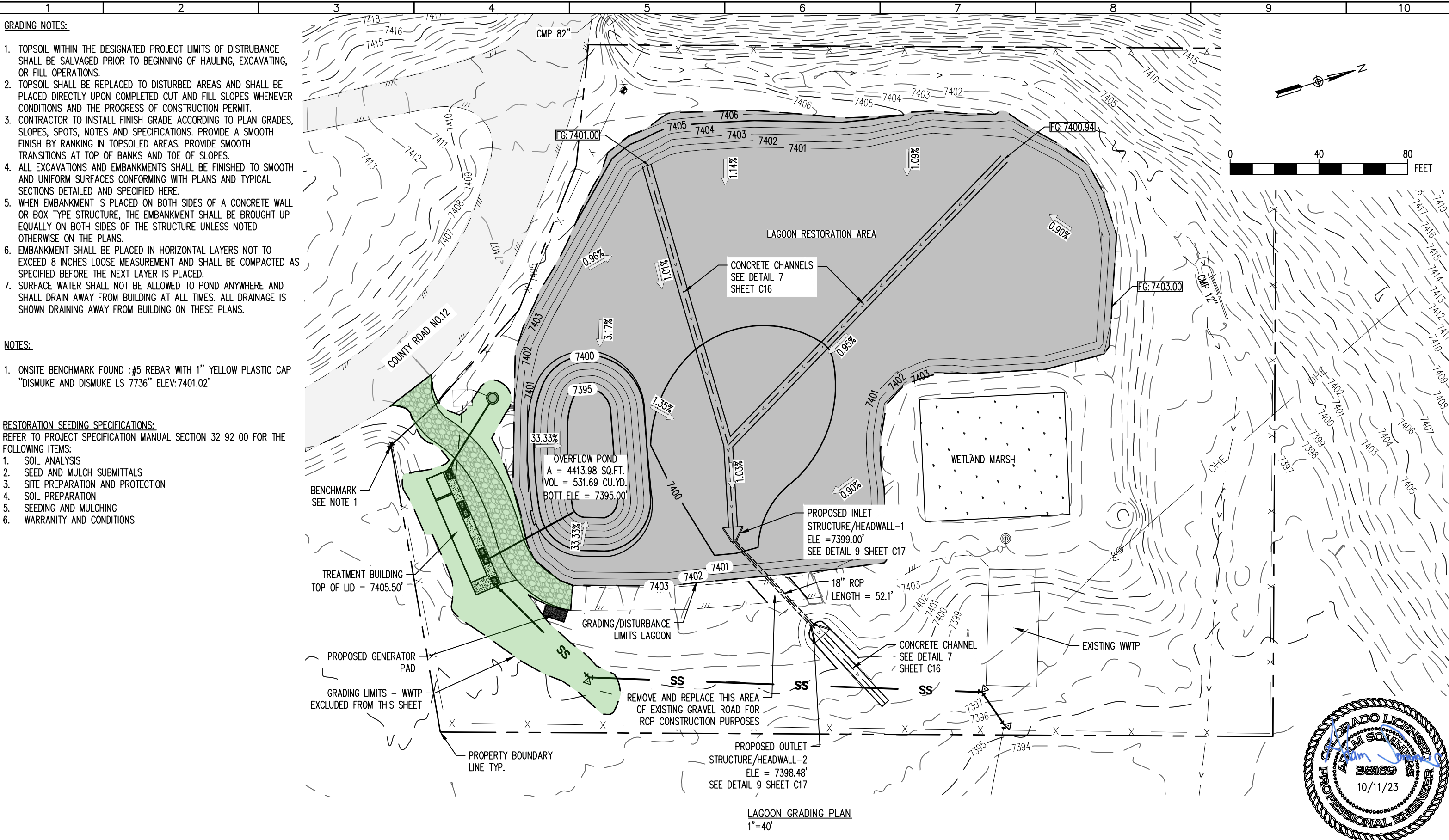
1. SOIL ANALYSIS
2. SEED AND MULCH SUBMITTALS
3. SITE PREPARATION AND PROTECTION
4. SOIL PREPARATION
5. SEEDING AND MULCHING
6. WARRANTY AND CONDITIONS

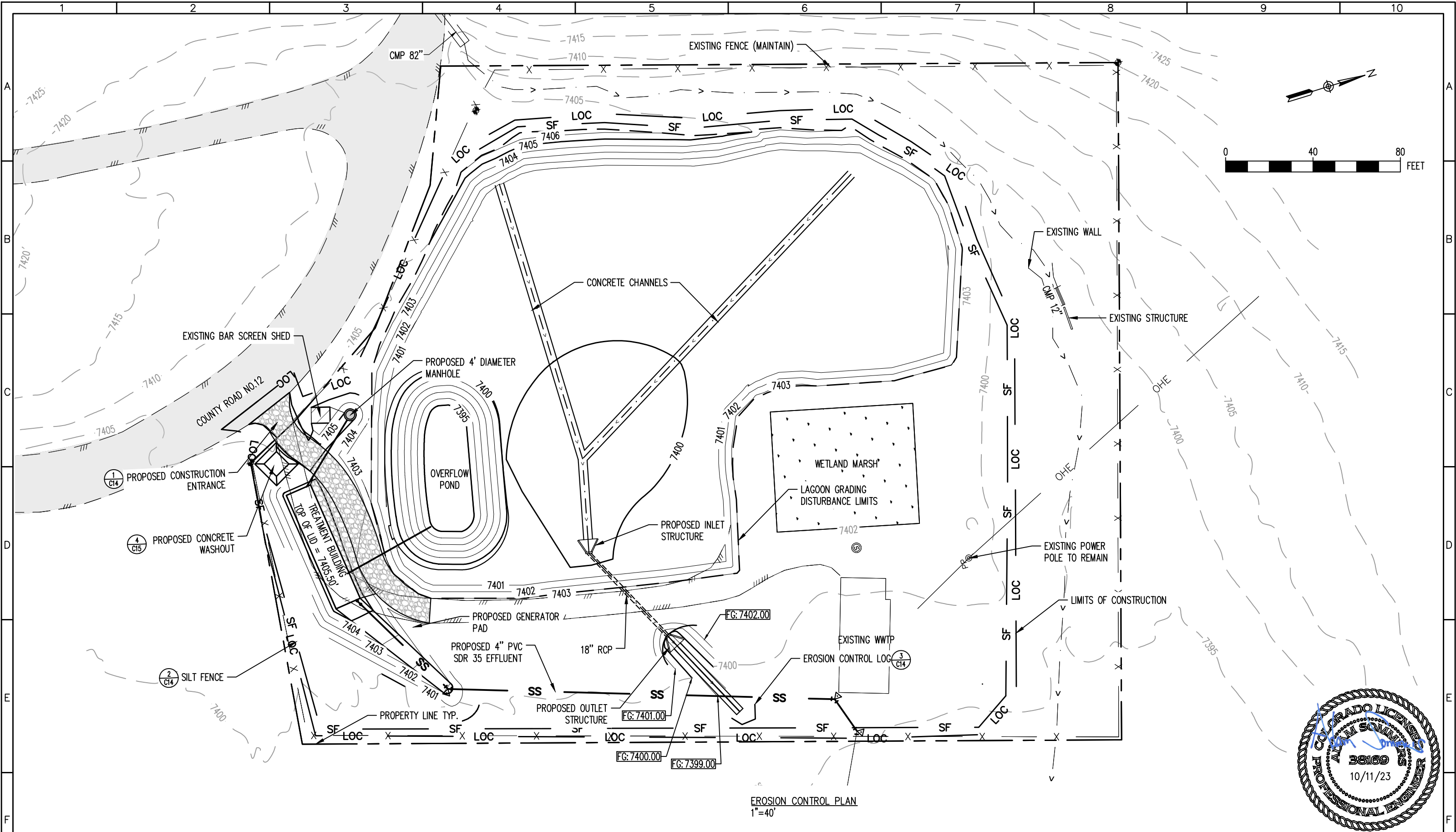
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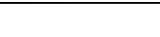


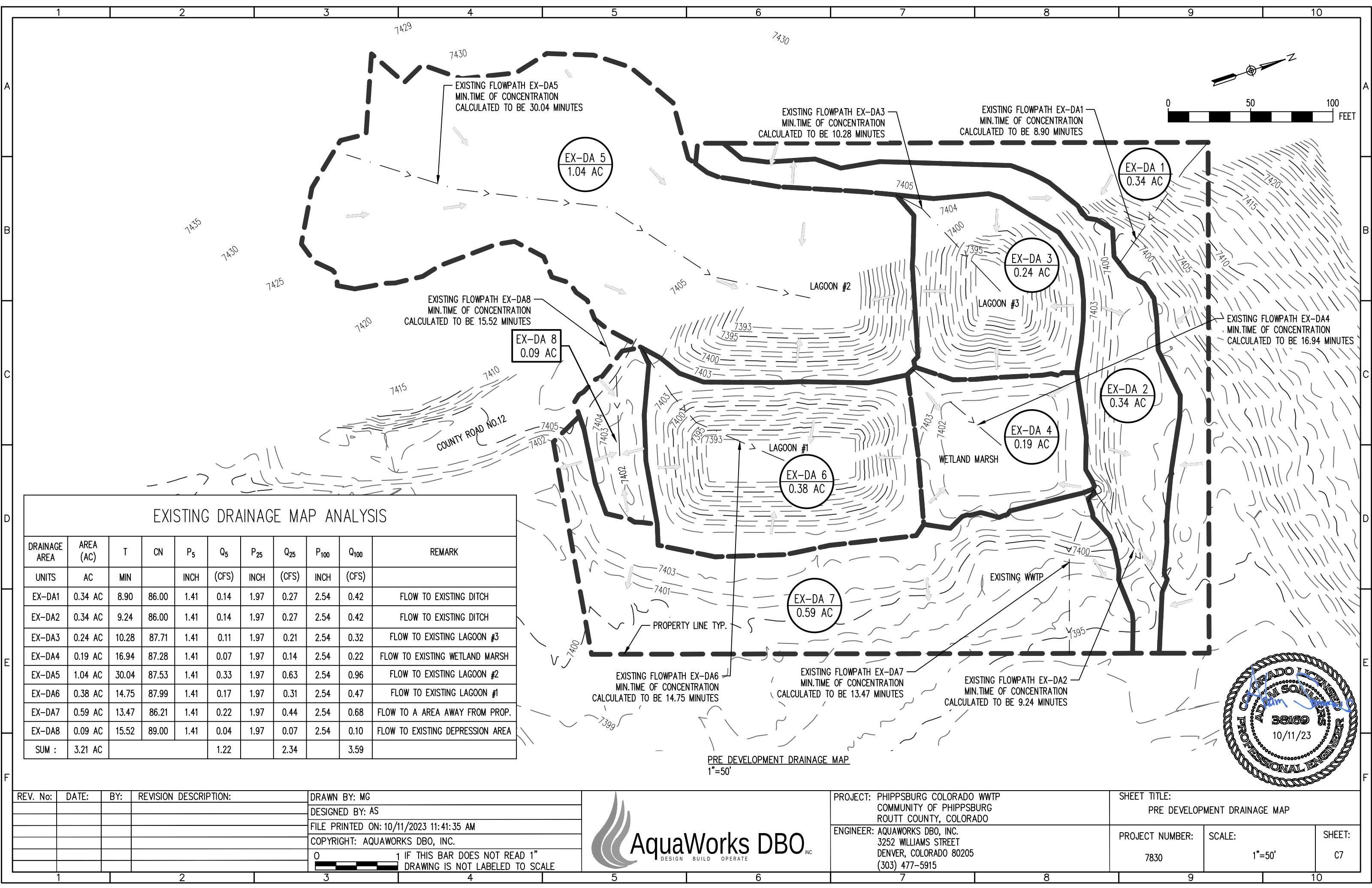
PROJECT: PHIPPSBURG COLORADO WWTP
COMMUNITY OF PHIPPSBURG
ROUTT COUNTY, COLORADO
ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE:		
LAGOON GRADING PLAN		
PROJECT NUMBER:	SCALE:	SHEET:
7830	1"=40'	C5





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				DESIGNED BY: AS		ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915	PROJECT NUMBER: 7830	SCALE: 1"=40'	SHEET: C6
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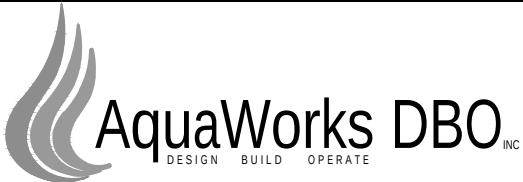
EXISTING DRAINAGE MAP ANALYSIS

DRAINAGE AREA	AREA (AC)	T	CN	P ₅	Q ₅	P ₂₅	Q ₂₅	P ₁₀₀	Q ₁₀₀	REMARK
UNITS	AC	MIN		INCH	(CFS)	INCH	(CFS)	INCH	(CFS)	
EX-DA1	0.34 AC	8.90	86.00	1.41	0.14	1.97	0.27	2.54	0.42	FLOW TO EXISTING DITCH
EX-DA2	0.34 AC	9.24	86.00	1.41	0.14	1.97	0.27	2.54	0.42	FLOW TO EXISTING DITCH
EX-DA3	0.24 AC	10.28	87.71	1.41	0.11	1.97	0.21	2.54	0.32	FLOW TO EXISTING LAGOON #3
EX-DA4	0.19 AC	16.94	87.28	1.41	0.07	1.97	0.14	2.54	0.22	FLOW TO EXISTING WETLAND MARSH
EX-DA5	1.04 AC	30.04	87.53	1.41	0.33	1.97	0.63	2.54	0.96	FLOW TO EXISTING LAGOON #2
EX-DA6	0.38 AC	14.75	87.99	1.41	0.17	1.97	0.31	2.54	0.47	FLOW TO EXISTING LAGOON #1
EX-DA7	0.59 AC	13.47	86.21	1.41	0.22	1.97	0.44	2.54	0.68	FLOW TO A AREA AWAY FROM PROP.
EX-DA8	0.09 AC	15.52	89.00	1.41	0.04	1.97	0.07	2.54	0.10	FLOW TO EXISTING DEPRESSION AREA
SUM :	3.21 AC				1.22		2.34		3.59	

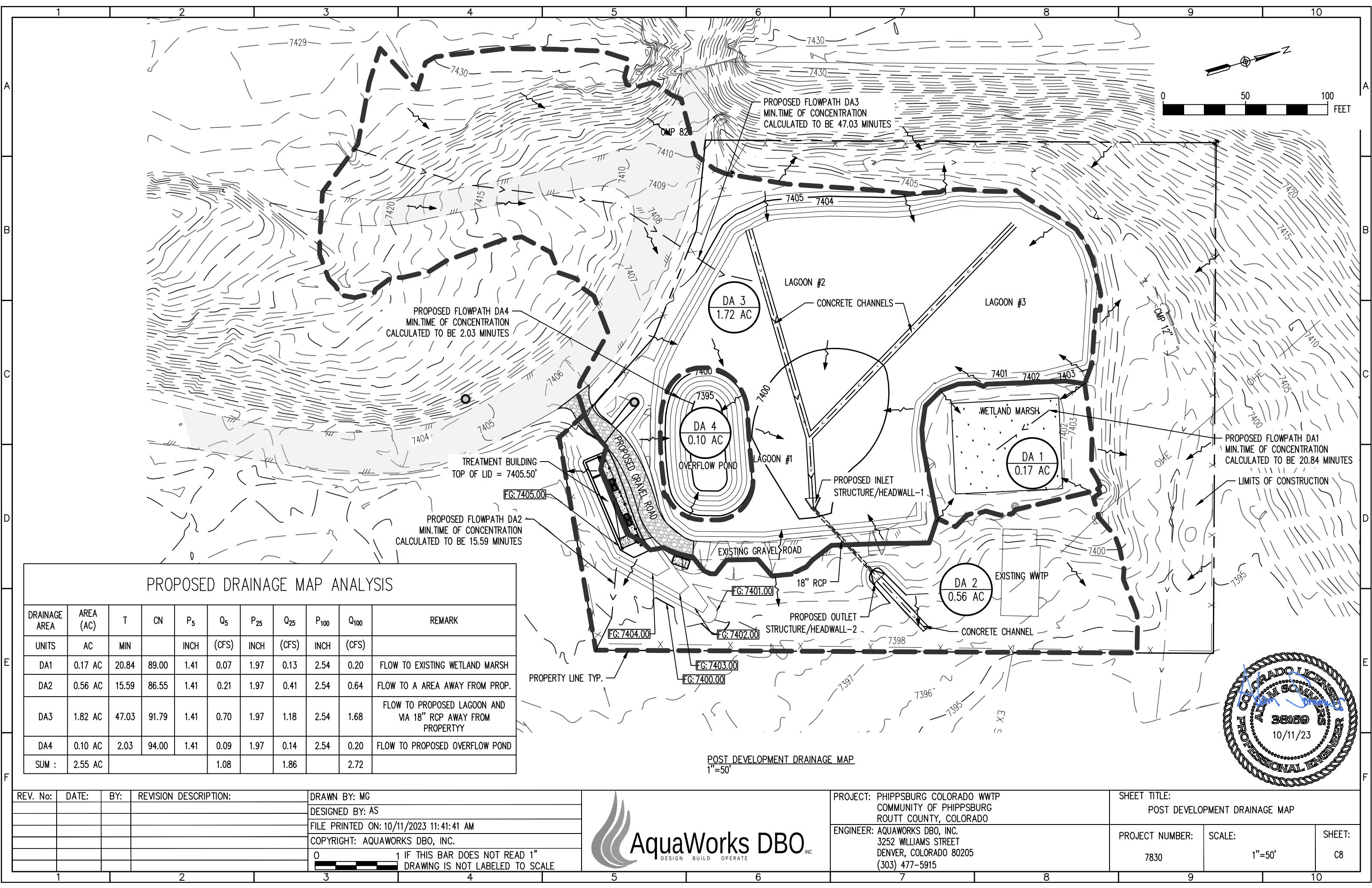


PRE DEVELOPMENT DRAINAGE MAP
1"=50'

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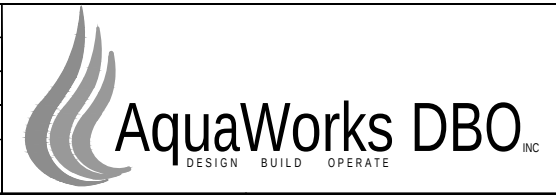
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ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915			PROJECT NUMBER: 7830	SCALE: 1"=50'	SHEET: C7



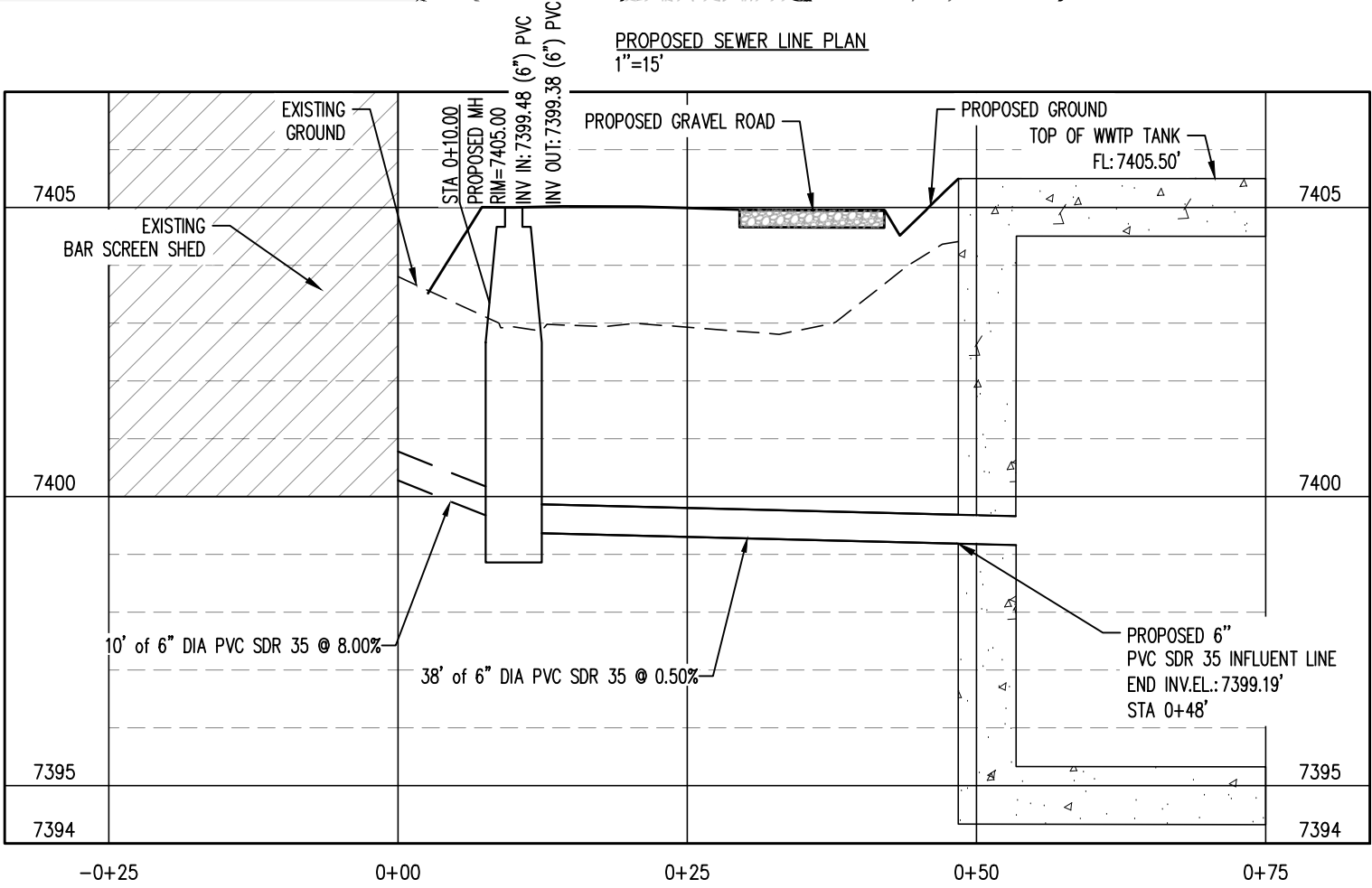
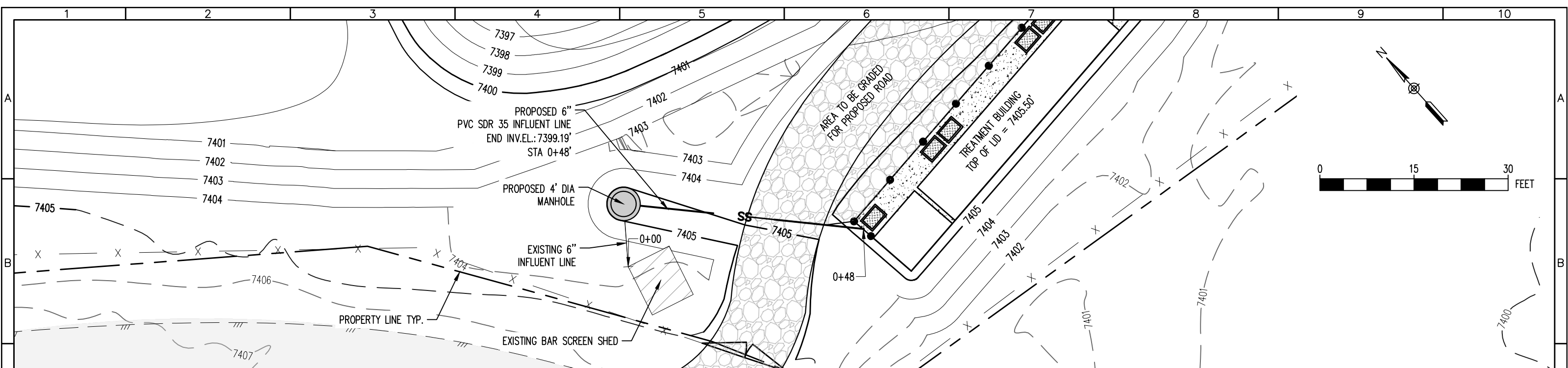
PROPOSED DRAINAGE MAP ANALYSIS

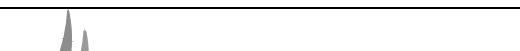
DRAINAGE AREA	AREA (AC)	T	CN	P ₅	Q ₅	P ₂₅	Q ₂₅	P ₁₀₀	Q ₁₀₀	REMARK
UNITS	AC	MIN		INCH	(CFS)	INCH	(CFS)	INCH	(CFS)	
DA1	0.17 AC	20.84	89.00	1.41	0.07	1.97	0.13	2.54	0.20	FLOW TO EXISTING WETLAND MARSH
DA2	0.56 AC	15.59	86.55	1.41	0.21	1.97	0.41	2.54	0.64	FLOW TO A AREA AWAY FROM PROP.
DA3	1.82 AC	47.03	91.79	1.41	0.70	1.97	1.18	2.54	1.68	FLOW TO PROPOSED LAGOON AND VIA 18" RCP AWAY FROM PROPERTY
DA4	0.10 AC	2.03	94.00	1.41	0.09	1.97	0.14	2.54	0.20	FLOW TO PROPOSED OVERFLOW POND
SUM :	2.55 AC				1.08		1.86		2.72	

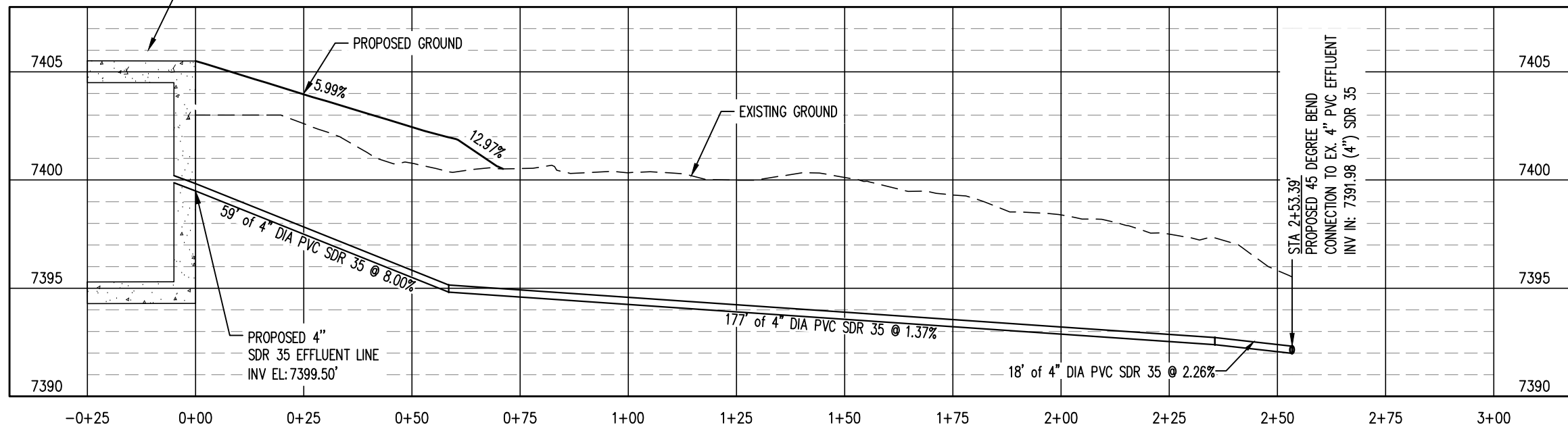
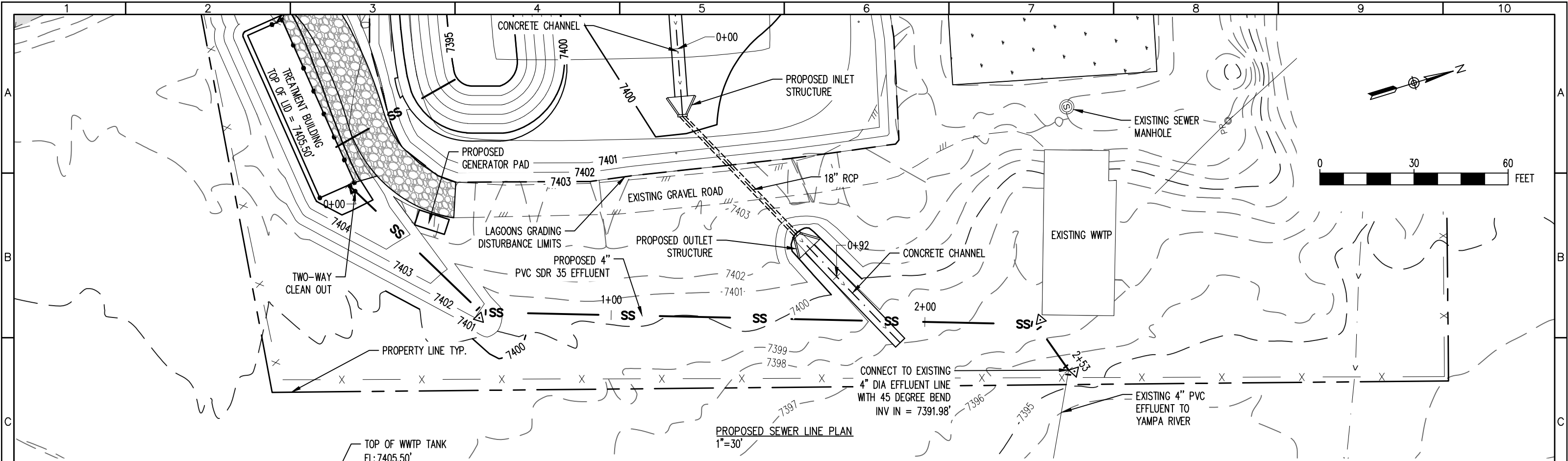
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PROJECT: PHIPPSBURG COLORADO WWTP COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO		SHEET TITLE: POST DEVELOPMENT DRAINAGE MAP	
ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915	PROJECT NUMBER: 7830	SCALE: 1"=50'	SHEET: C8

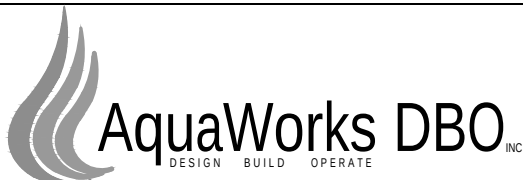


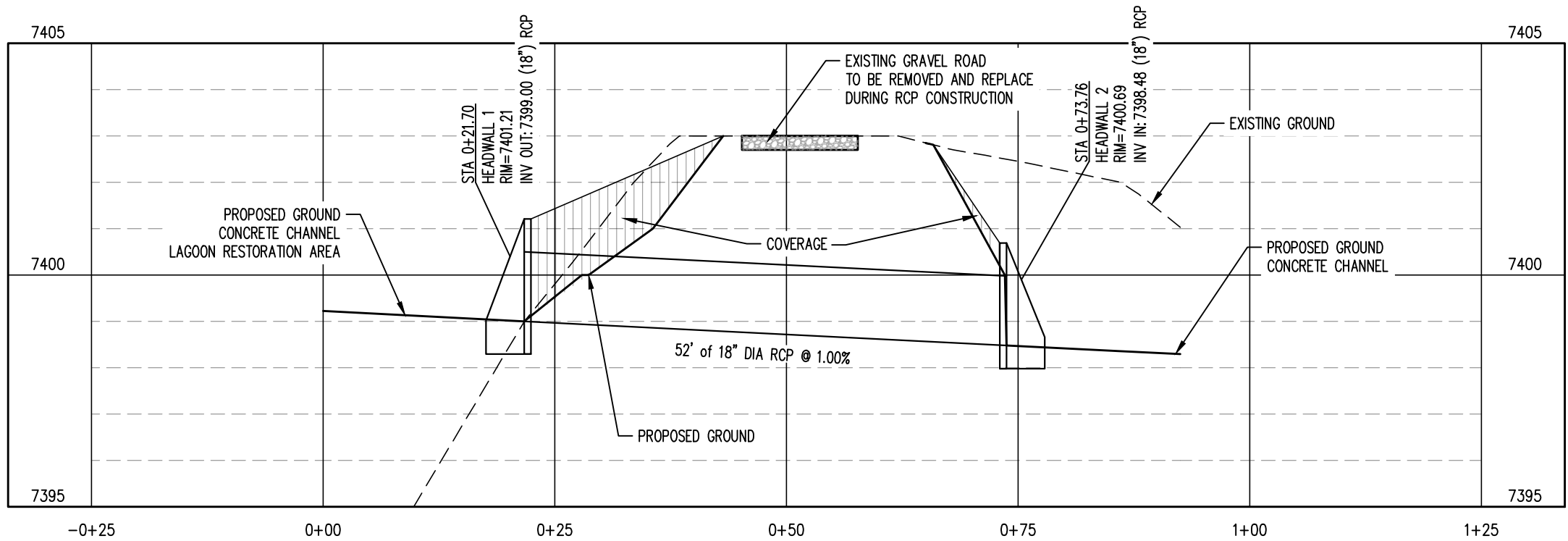
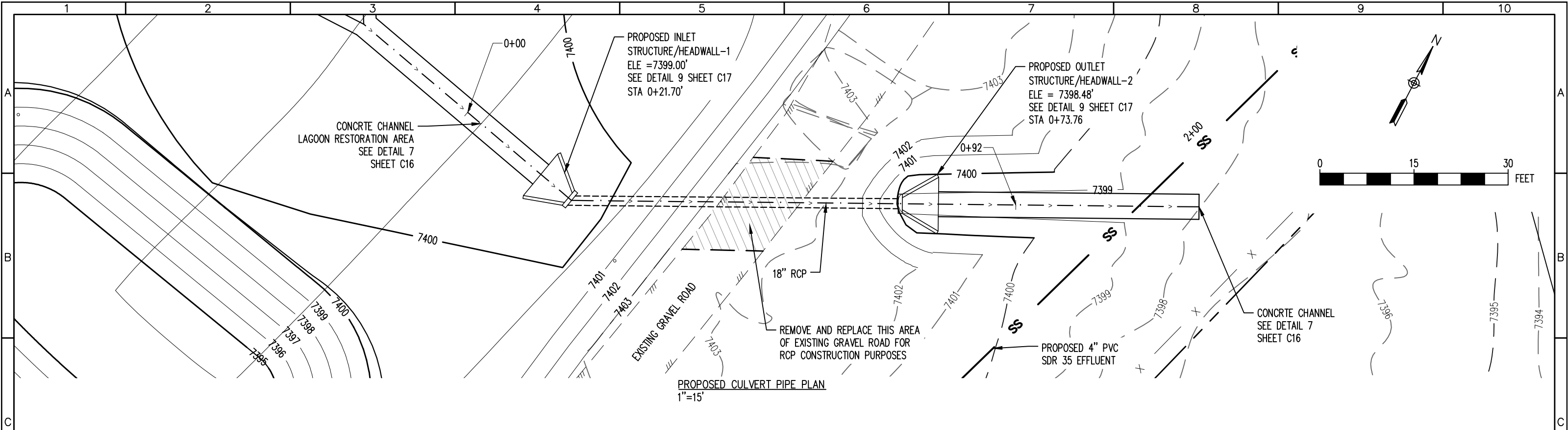
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				DESIGNED BY: AS		ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915	PROJECT NUMBER: 7830	SCALE: H: 1" = 15' V: 1" = 3'	SHEET: C9
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PROPOSED SEWER LINE PROFILE
HORZ. SCALE: 1" = 30'
VERT. SCALE: 1" = 6'



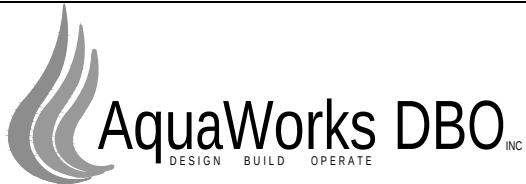
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				DESIGNED BY: AS			PROJECT NUMBER: 7830	SCALE: H: 1" = 30' V: 1" = 6'	SHEET: C10
				FILE PRINTED ON: 10/11/2023 11:42:00 AM					
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PROPOSED 18" RCP PROFILE
HORZ. SCALE: 1" = 15'
VERT. SCALE: 1" = 3'

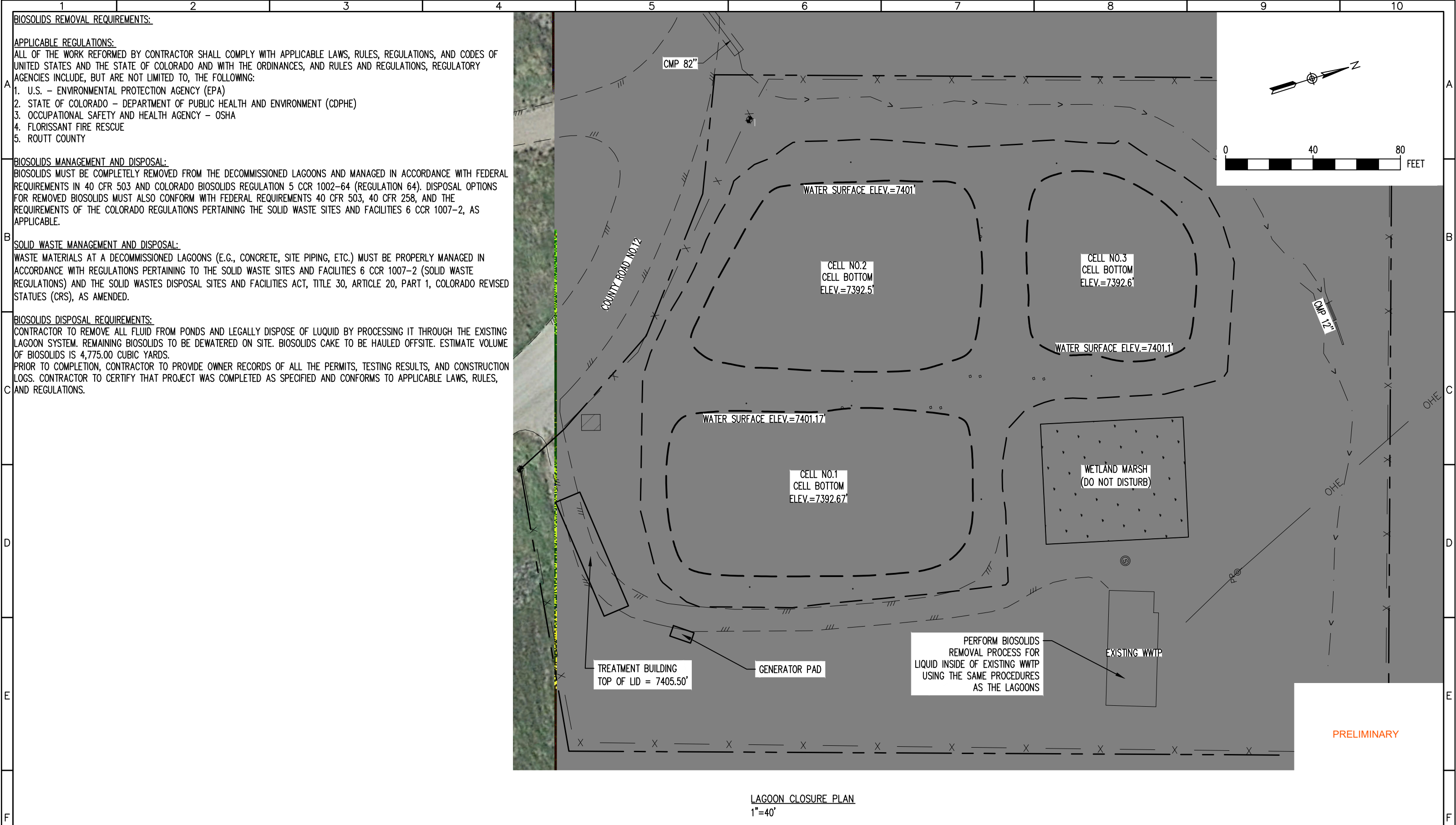


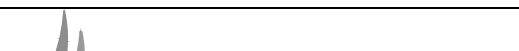
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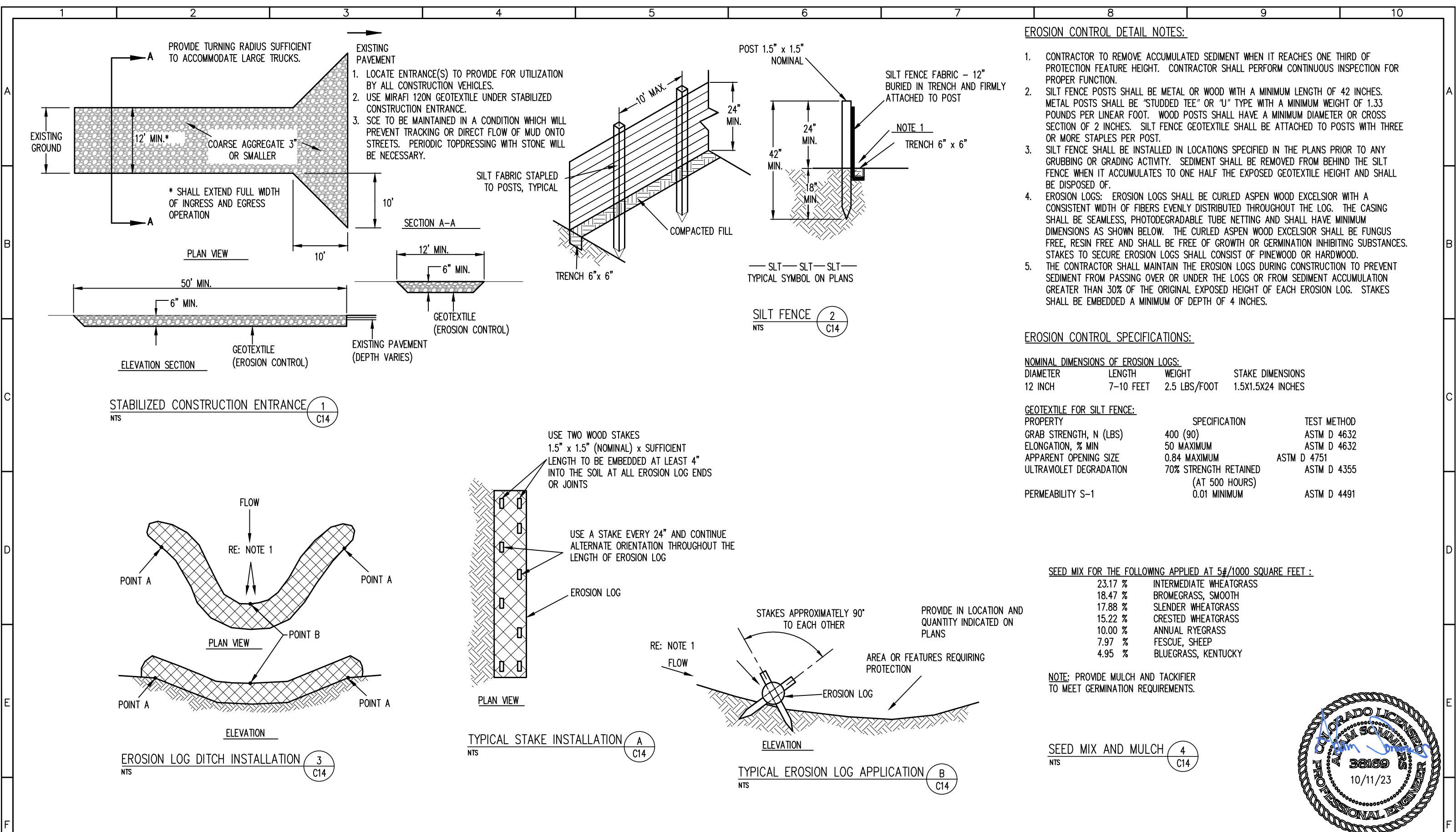


PROJECT: PHIPPSBURG COLORADO WWTP
COMMUNITY OF PHIPPSBURG
ROUTT COUNTY, COLORADO
ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE:		
PROPOSED CULVERT PIPE PLAN AND PROFILE		
PROJECT NUMBER:	SCALE:	SHEET:
7830	H:1" = 15' V:1" = 3'	C11



REV. No:	DATE:	BY:	REVISION DESCRIPTION:	DRAWN BY: MG		PROJECT: PHIPPSBURG COLORADO WWTP COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO		SHEET TITLE: LAGOON CLOSURE PLAN	
				DESIGNED BY: AS		ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915	PROJECT NUMBER: 7830	SCALE: 1"=40'	SHEET: C13
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- EROSION CONTROL DETAIL NOTES:**
1. CONTRACTOR TO REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE THIRD OF PROTECTION FEATURE HEIGHT. CONTRACTOR SHALL PERFORM CONTINUOUS INSPECTION FOR PROPER FUNCTION.
 2. SILT FENCE POSTS SHALL BE METAL OR WOOD WITH A MINIMUM LENGTH OF 42 INCHES. METAL POSTS SHALL BE "STUDDED TEE" OR "U" TYPE WITH A MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT. WOOD POSTS SHALL HAVE A MINIMUM DIAMETER OR CROSS SECTION OF 2 INCHES. SILT FENCE GEOTEXTILE SHALL BE ATTACHED TO POSTS WITH THREE OR MORE STAPLES PER POST.
 3. SILT FENCE SHALL BE INSTALLED IN LOCATIONS SPECIFIED IN THE PLANS PRIOR TO ANY GRUBBING OR GRADING ACTIVITY. SEDIMENT SHALL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT ACCUMULATES TO ONE HALF THE EXPOSED GEOTEXTILE HEIGHT AND SHALL BE DISPOSED OF.
 4. EROSION LOGS: EROSION LOGS SHALL BE CURLED ASPEN WOOD EXCELSIOR WITH A CONSISTENT WIDTH OF FIBERS EVENLY DISTRIBUTED THROUGHOUT THE LOG. THE CASING SHALL BE SEAMLESS, PHOTODEGRADABLE TUBE NETTING AND SHALL HAVE MINIMUM DIMENSIONS AS SHOWN BELOW. THE CURLED ASPEN WOOD EXCELSIOR SHALL BE FUNGUS FREE, RESIN FREE AND SHALL BE FREE OF GROWTH OR GERMINATION INHIBITING SUBSTANCES. STAKES TO SECURE EROSION LOGS SHALL CONSIST OF PINWOOD OR HARDWOOD.
 5. THE CONTRACTOR SHALL MAINTAIN THE EROSION LOGS DURING CONSTRUCTION TO PREVENT SEDIMENT FROM PASSING OVER OR UNDER THE LOGS OR FROM SEDIMENT ACCUMULATION GREATER THAN 30% OF THE ORIGINAL EXPOSED HEIGHT OF EACH EROSION LOG. STAKES SHALL BE EMBEDDED A MINIMUM OF DEPTH OF 4 INCHES.

EROSION CONTROL SPECIFICATIONS:

NOMINAL DIMENSIONS OF EROSION LOGS:

DIAMETER	LENGTH	WEIGHT	STAKE DIMENSIONS
12 INCH	7-10 FEET	2.5 LBS/FOOT	1.5X1.5X24 INCHES

GEOTEXTILE FOR SILT FENCE:

PROPERTY	SPECIFICATION	TEST METHOD
GRAB STRENGTH, N (LBS)	400 (90)	ASTM D 4632
ELONGATION, % MIN	50 MAXIMUM	ASTM D 4632
APPARENT OPENING SIZE	0.84 MAXIMUM	ASTM D 4751
ULTRAVIOLET DEGRADATION	70% STRENGTH RETAINED (AT 500 HOURS)	ASTM D 4355
PERMEABILITY S-1	0.01 MINIMUM	ASTM D 4491

SEED MIX FOR THE FOLLOWING APPLIED AT 5#/1000 SQUARE FEET :

23.17 %	INTERMEDIATE WHEATGRASS
18.47 %	BROMEGRASS, SMOOTH
17.88 %	SLENDER WHEATGRASS
15.22 %	CRESTED WHEATGRASS
10.00 %	ANNUAL RYEGRASS
7.97 %	FESCUE, SHEEP
4.95 %	BLUEGRASS, KENTUCKY

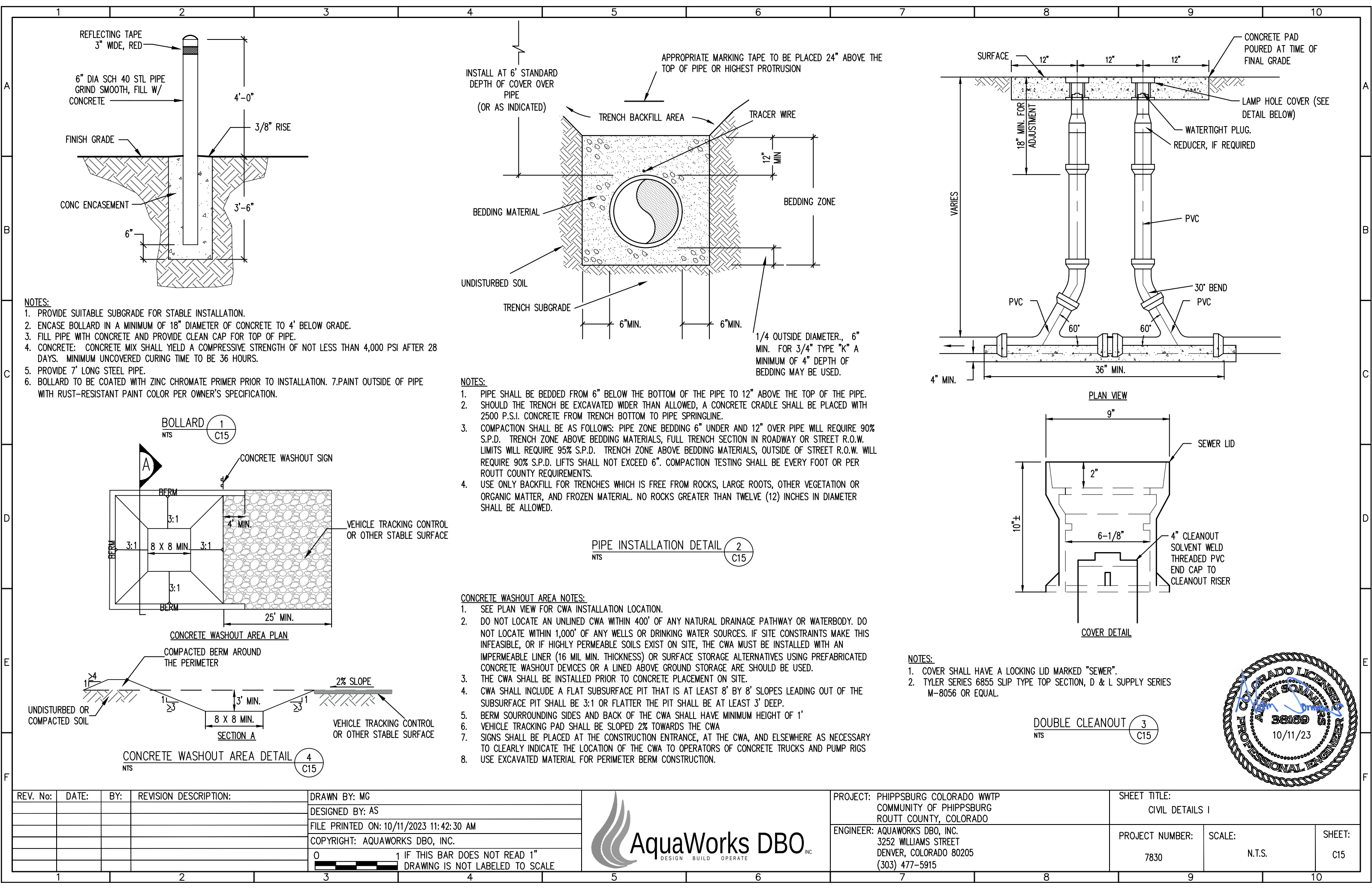
NOTE: PROVIDE MULCH AND TACKIFIER TO MEET GERMINATION REQUIREMENTS.

SEED MIX AND MULCH (4) C14

NTS



REV. No:	DATE:	BY:	REVISION DESCRIPTION:	DRAWN BY: MG		PROJECT: PHIPPSBURG COLORADO WWTP COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO	SHEET TITLE: EROSION CONTROL DETAILS		
				DESIGNED BY: AS		ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915	PROJECT NUMBER: 7830	SCALE: N.T.S.	SHEET: C14
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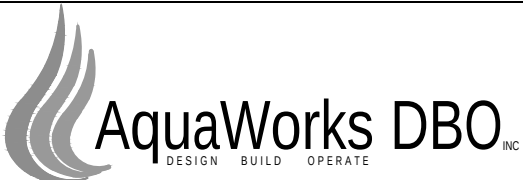
- NOTES:
1. PROVIDE SUITABLE SUBGRADE FOR STABLE INSTALLATION.
 2. ENCASE BOLLARD IN A MINIMUM OF 18" DIAMETER OF CONCRETE TO 4' BELOW GRADE.
 3. FILL PIPE WITH CONCRETE AND PROVIDE CLEAN CAP FOR TOP OF PIPE.
 4. CONCRETE: CONCRETE MIX SHALL YIELD A COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI AFTER 28 DAYS. MINIMUM UNCOVERED CURING TIME TO BE 36 HOURS.
 5. PROVIDE 7' LONG STEEL PIPE.
 6. BOLLARD TO BE COATED WITH ZINC CHROMATE PRIMER PRIOR TO INSTALLATION. 7. PAINT OUTSIDE OF PIPE WITH RUST-RESISTANT PAINT COLOR PER OWNER'S SPECIFICATION.

- NOTES:
1. PIPE SHALL BE BEDDED FROM 6" BELOW THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF THE PIPE.
 2. SHOULD THE TRENCH BE EXCAVATED WIDER THAN ALLOWED, A CONCRETE CRADLE SHALL BE PLACED WITH 2500 P.S.I. CONCRETE FROM TRENCH BOTTOM TO PIPE SPRINGLINE.
 3. COMPACTION SHALL BE AS FOLLOWS: PIPE ZONE BEDDING 6" UNDER AND 12" OVER PIPE WILL REQUIRE 90% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, FULL TRENCH SECTION IN ROADWAY OR STREET R.O.W. LIMITS WILL REQUIRE 95% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, OUTSIDE OF STREET R.O.W. WILL REQUIRE 90% S.P.D. LIFTS SHALL NOT EXCEED 6". COMPACTION TESTING SHALL BE EVERY FOOT OR PER ROUTT COUNTY REQUIREMENTS.
 4. USE ONLY BACKFILL FOR TRENCHES WHICH IS FREE FROM ROCKS, LARGE ROOTS, OTHER VEGETATION OR ORGANIC MATTER, AND FROZEN MATERIAL. NO ROCKS GREATER THAN TWELVE (12) INCHES IN DIAMETER SHALL BE ALLOWED.

- CONCRETE WASHOUT AREA NOTES:
1. SEE PLAN VIEW FOR CWA INSTALLATION LOCATION.
 2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
 3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
 4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER THE PIT SHALL BE AT LEAST 3' DEEP.
 5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'
 6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA
 7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS
 8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

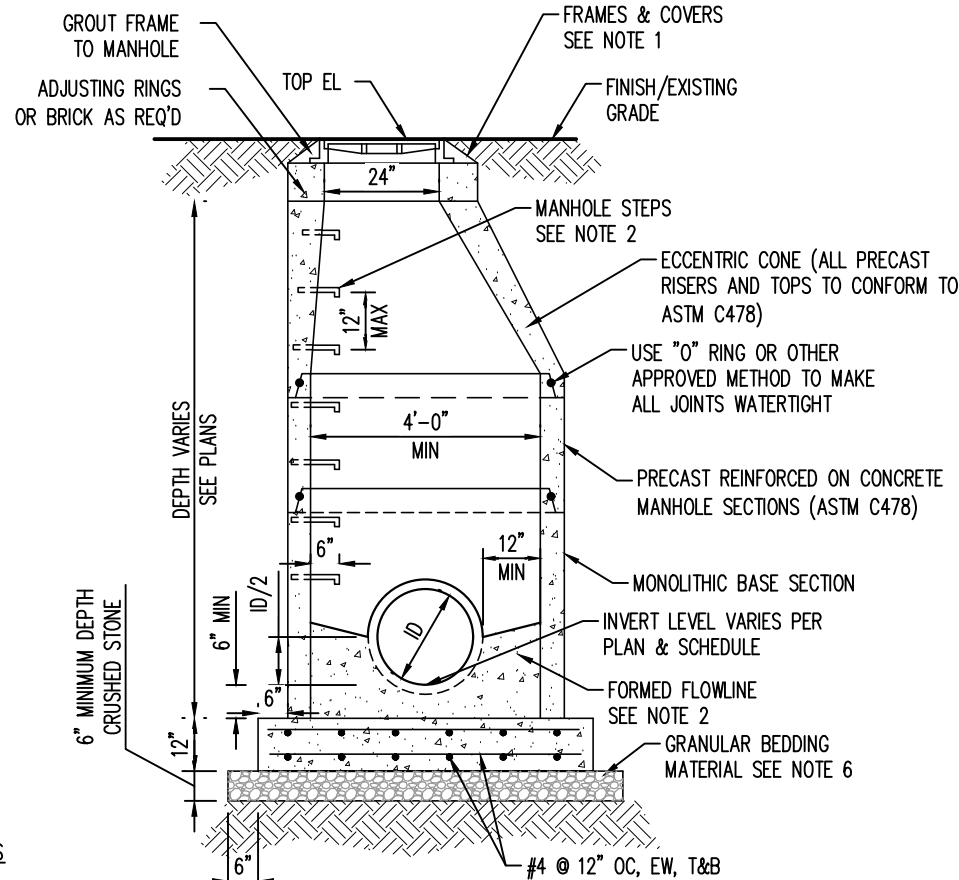
- NOTES:
1. COVER SHALL HAVE A LOCKING LID MARKED "SEWER".
 2. TYLER SERIES 6855 SLIP TYPE TOP SECTION, D & L SUPPLY SERIES M-8056 OR EQUAL.

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ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915			PROJECT NUMBER: 7830	SCALE: N.T.S.	SHEET: C15



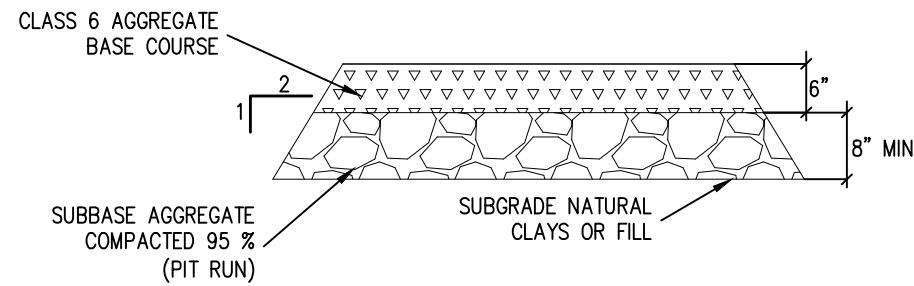


NOTES

1. SANITARY MANHOLE COVERS SHALL HAVE "SANITARY SEWER" CAST ON THE COVER AND SHALL BE NEENAH R-1688 OR ENGINEER APPROVED EQUIVALENT. STORM MANHOLE COVERS SHALL HAVE "STORM SEWER" CAST ON THE COVER AND SHALL BE NEENAH R-1678 OR ENGINEER APPROVED EQUIVALENT.
2. MANHOLE STEPS TO BE M.A. INDUSTRIES 004-501-DF OR ENGINEER APPROVED EQUIVALENT. PROVIDED TO WITHIN 12" OF TOP OF CONE.
3. FLOWLINE OF MANHOLE MAY BE FORMED IN CONCRETE; BUILT UP WITH MORTAR; OR BY LAYING A PIPE THROUGH MANHOLE, THE TOP BEING BROKEN OUT LATER.
4. GROUT ANNULAR SPACE BETWEEN WALL AND PIPE WITH NON-SHRINK MORTAR TO INSURE WATERTIGHT SEAL.
5. ALL CONCRETE TO COMPLY WITH ACI 318 AND SHALL BE A MINIMUM STRENGTH OF 3000 PSI AT 28 DAY TEST.
6. ALL MANHOLES AND SPECIAL STRUCTURES TO BE PLACED ON SUITABLE SUBGRADE MATERIAL. IF SUBGRADE CONDITIONS WARRANT, UNSUITABLE FOUNDATION MATERIAL WILL BE OVEREXCAVATED, AND SELECT SUBGRADE MATERIAL WILL BE PLACED AS PER SECTION 5.00 OF THE WCPM STANDARD CONSTRUCTION SPECIFICATIONS.
7. GRANULAR BEDDING MATERIAL SHALL BE COMPACTED TO 90% MAXIMUM DRY DENSITY IN ACCORDANCE WITH AASHTO T-180.

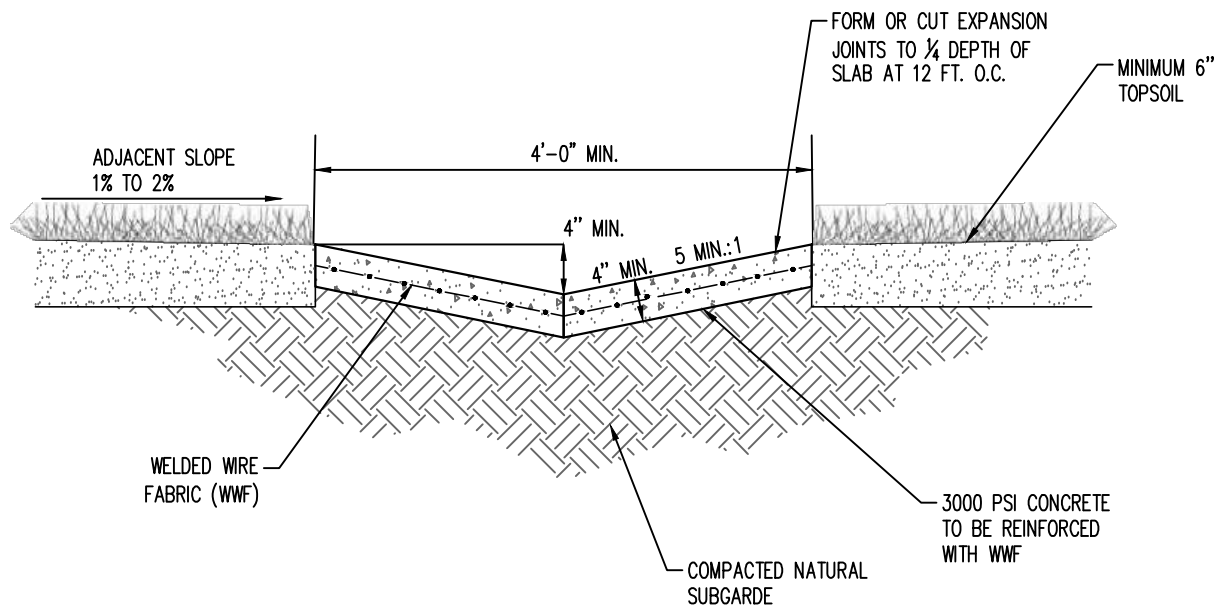
CONCRETE MANHOLE DETAIL
N.T.S.

5
C16



DRIVEWAY SECTION DETAIL
N.T.S.

6
C16

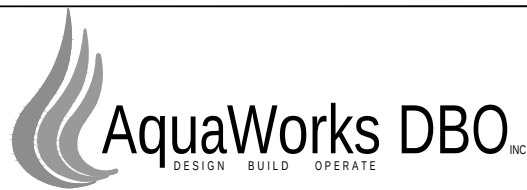


DETENTION BASIN TRICKLE CHANNEL FOR DRAINAGE CATCHMENTS <5 ACRES
N.T.S.

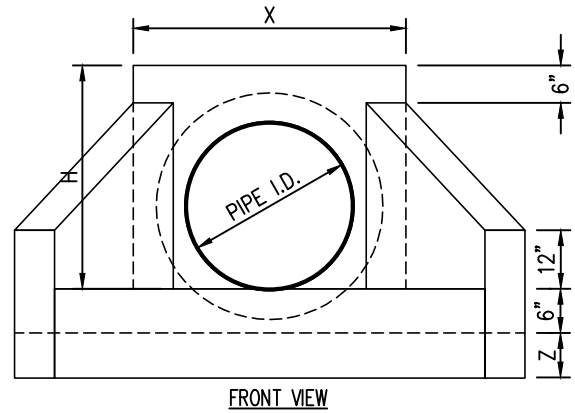
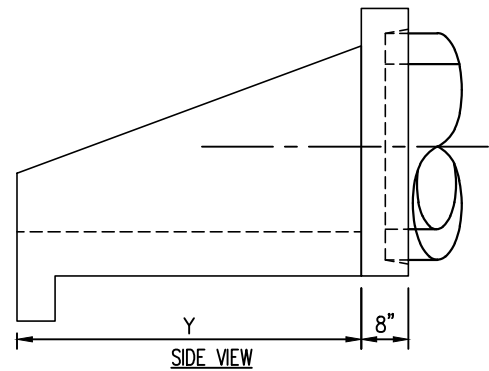
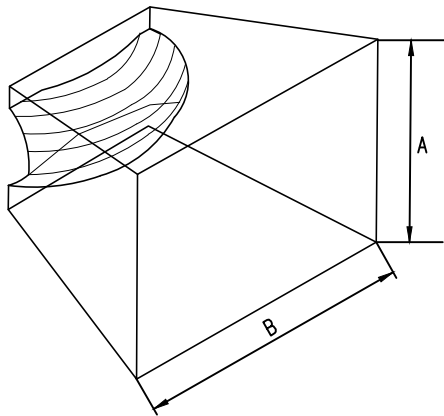
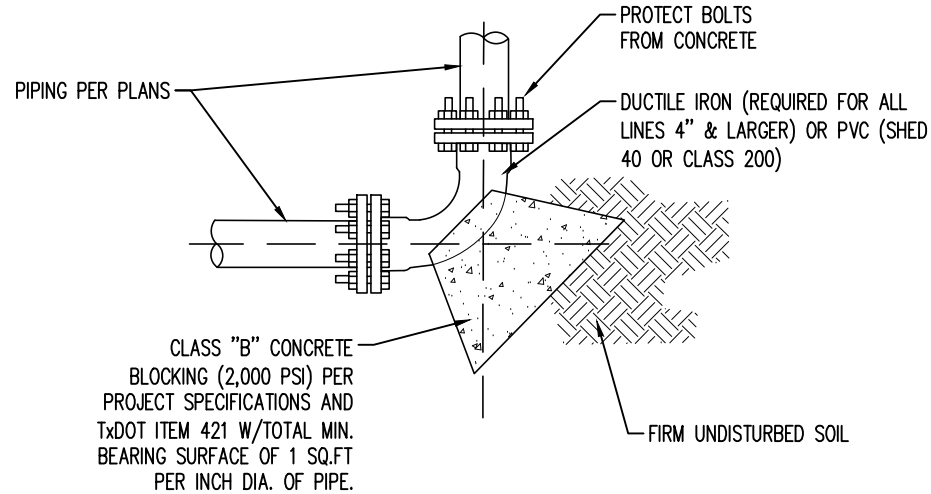
7
C16



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ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915			PROJECT NUMBER: 7830	SCALE: N.T.S.	SHEET: C16

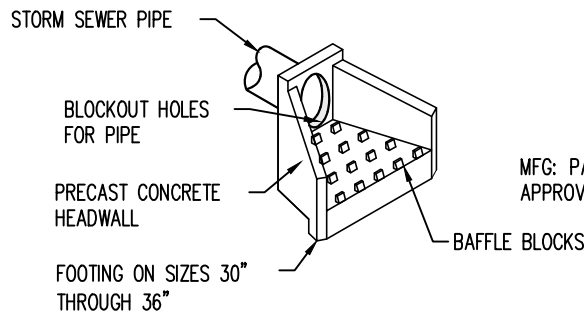


DIMENSIONS FOR CONCRETE THRUST BLOCKS

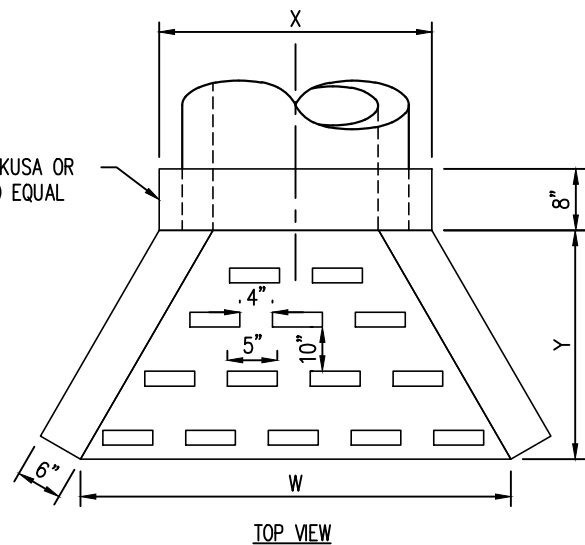
PIPE DIA. SIZE (INCHES)	MINIMUM SOIL BEARING AREA REQUIRED (SQUARE FEET)	TYPICAL DIMENSIONS OF BEARING AREA IN INCHES (A X B)	TYPICAL VOLUME OF CONC. REQUIRED (CUBIC FEET)*
2	2.0	12" X 24"	3.0
2 1/2	2.5	15" X 24"	4.0
3	3.0	16" X 27"	4.5
4	4.0	18" X 32"	6.0
6	6.0	24" X 36"	9.0
8	8.0	29" X 40"	12.0
10	10.0	30" X 48"	15.0
12	12.0	36" X 48"	18.0
14	14.0	36" X 56"	21.0
16	16.0	39" X 59"	24.0
18	18.0	42" X 62"	27.0

NOTES

BLOCKING REQUIRED ON ALL FITTINGS 2" & LARGER. ALL REQUIRED BENDS & FITTINGS MAY NOT BE LABELLED ON THE PLANS. PIPE MAY BE CURVED UP TO 75% OF MANUFACTURERS RECOMENED MAXIMUM CURVATURE WITHOUT A BEND AS APPROVED BY OWNER & ENGINEER. PVC FITTINGS TO BE PROTECTED FROM CONCRETE WITH A WRAPPING OF 30" ROOFING FELT.



MODEL	PIPE DIA	DIMENSIONS					
		H	W	X	Y	Z	WEIGHT (LBS)
HW-12	12"	2'-6"	4'-3"	3'-0"	2'-0"	N/A	2,700
HW-15	15"	2'-6"	4'-3"	3'-0"	2'-0"	N/A	2,700
HW-18	18"	2'-6"	4'-3"	3'-0"	2'-0"	N/A	2,600
HW-21	21"	3'-0"	5'-10"	3'-2"	3'-0"	N/A	4,300
HW-24	24"	3'-0"	5'-10"	3'-2"	3'-0"	N/A	4,200
HW-30	30"	3'-6"	7'-6"	4'-1"	4'-0"	9"	6,200
HW-36	36"	4'-1"	9'-3"	4'-8"	5'-0"	9"	8,100
HW-42	42"	4'-11"	12'-6"	5'-10"	6'-0"	12"	11,000
HW-48	48"	4'-11"	12'-6"	5'-10"	6'-0"	12"	11,000



SPECIFICATIONS

CONCRETE:
CLASS II CONCRETE WITH OF DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION INCLUDING WALLS AND FLOOR.

REINFORCEMENT:
GRADE 60 REINFORCED. NO. 4 STEEL REBAR TO CONFORM TO ASTM A615 ON REQUIRED CENTERS OR EQUAL. BAR BENDING AND PLACEMENT SHALL WITH THE LATEST ACI STANDARDS.

* VARIES CONSIDERABLY W/DISTANCE BETWEEN PIPE AND BEARING POINT

TYPICAL BLOCKING DETAILS
N.T.S.

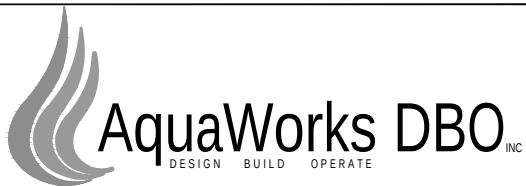
8
C17

CONCRETE HEADWALL
NTS

9
C17

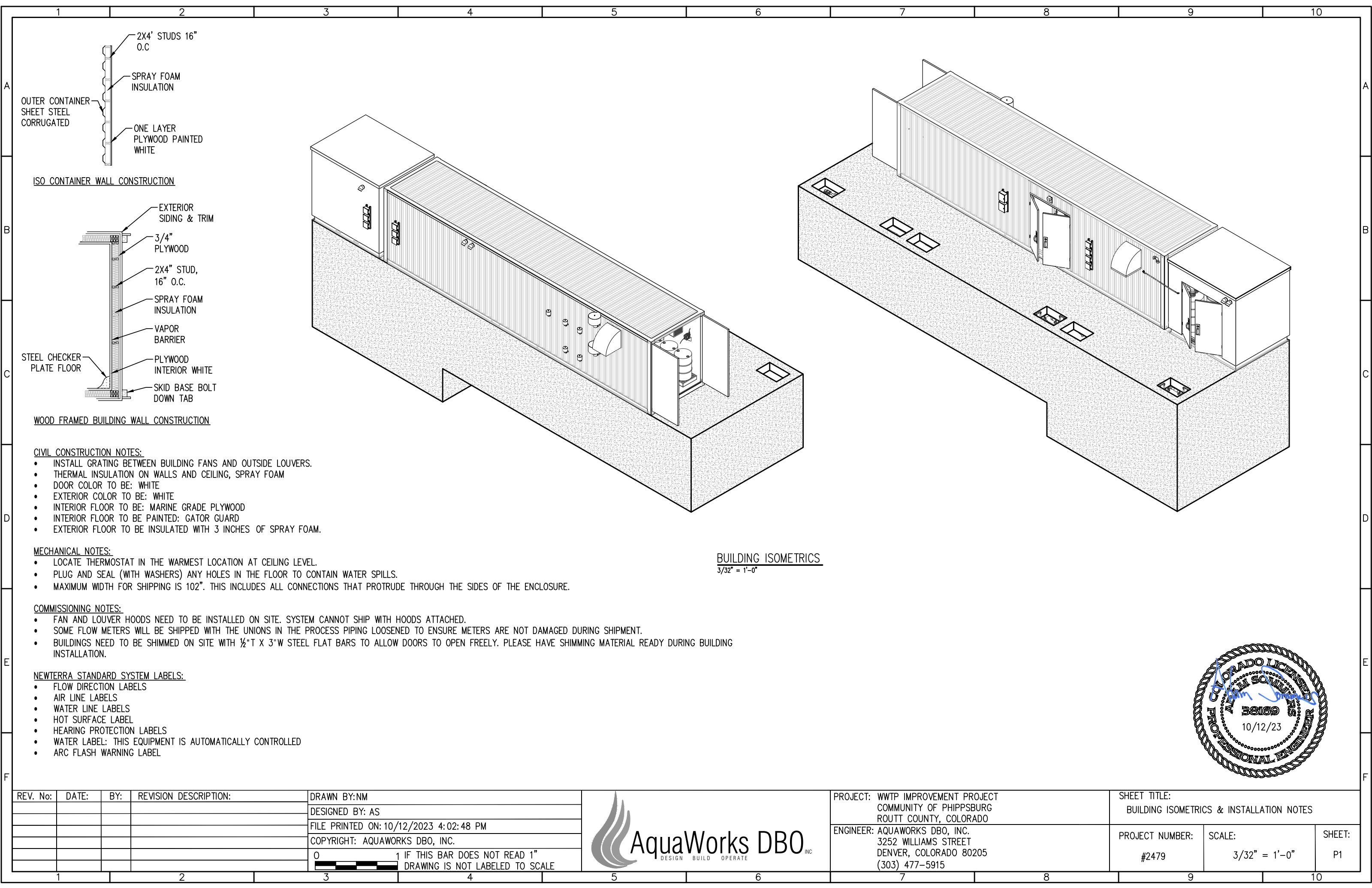


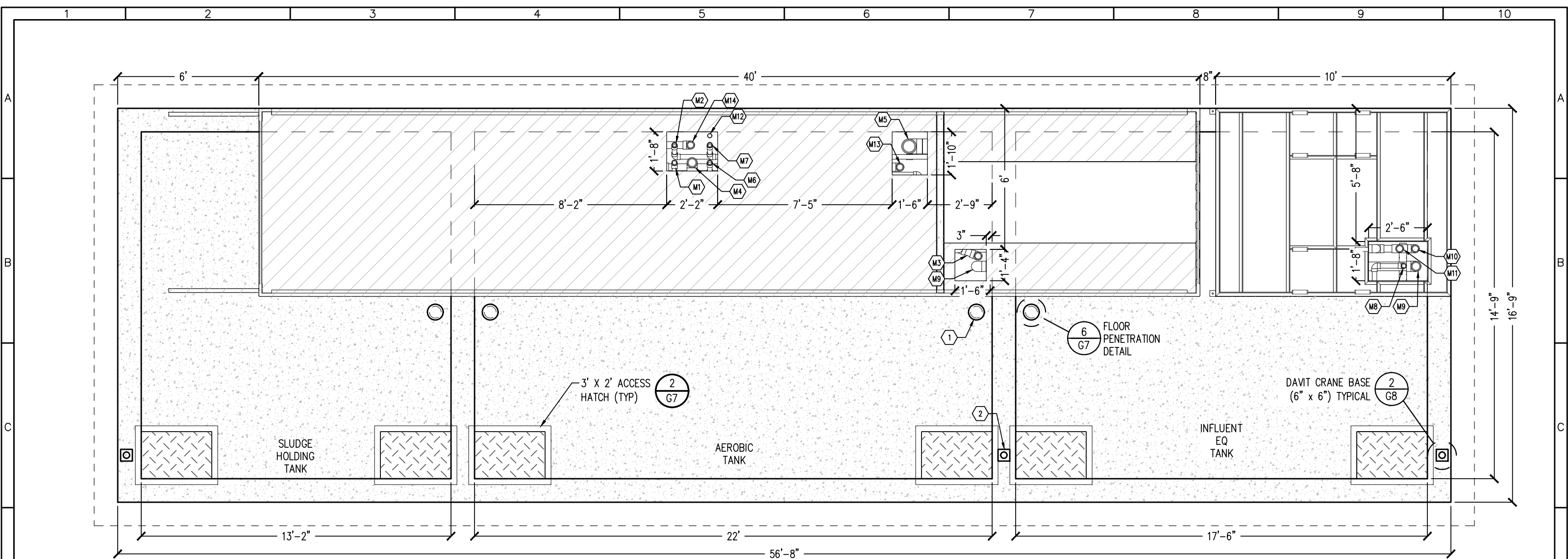
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COMMUNITY OF PHIPPSBURG
ROUTT COUNTY, COLORADO
ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE:		
CIVIL DETAILS III		
PROJECT NUMBER:	SCALE:	SHEET:
7830	N.T.S.	C17





CONCRETE TANK LID PLAN
1/4" = 1'-0"

PROCESS NOTES:

- 1 4" VENT
- 2 DAVIT CRANE BASE

PIPING CONNECTION NOTES:

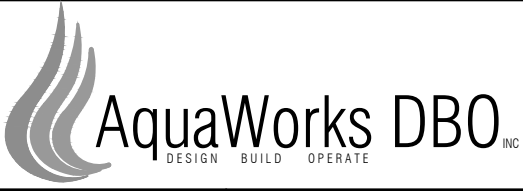
- M1 2" AIR TO SLUDGE DIGESTION
- M2 2" AIR TO INF EQ TANK
- M3 3" OVERFLOW TO INF EQ TANK (FLOOR DRAIN)
- M4 4" AIR TO AEROBIC TANK
- M5 6" MBR TANK OVERFLOW TO AEROBIC TANK
- M6 2" AERATION TANK PUMP 1 TO MBR TANK 1
- M7 2" AERATION TANK PUMP 2 TO MBR TANK 2
- M8 2" INFLUENT EQ PUMP TO BARSCREEN
- M9 4" FINE SCREEN TO AEROBIC TANK
- M10 3" OVERFLOW TO INF EQ TANK (FLOOR DRAIN)
- M11 3" OVERFLOW TO INF EQ TANK (SCREEN OVERFLOW)
- M12 2" CHEMICAL SLEEVE PIPE TO AEROBIC TANK
- M13 3" SYSTEM EFFLUENT
- M14 3" OVERFLOW TO SLUDGE TANK

GENERAL NOTES:

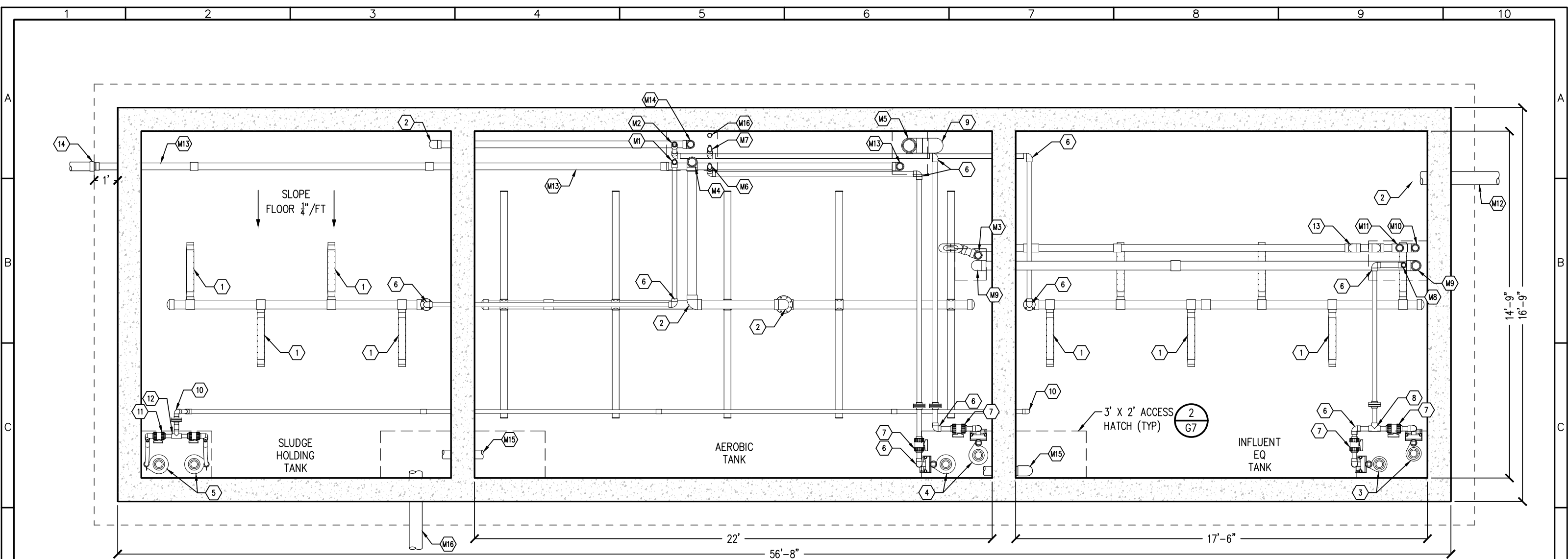
- 1) ALL PIPING SCH 80 PVC UNLESS NOTED OTHERWISE
- 2) INSTALL GREEN DRAIN ONE WAY VALVE OR EQUAL OVER ALL FLOOR DRAINS
- 3) CONTRACTOR TO FILL ALL FOUR VOIDS IN THE NEWTERRA FLOOR WITH GROUT. GROUT AROUND FLOOR DRAINS M3 & M10.



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PROJECT: WWTP IMPROVEMENT PROJECT COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO			SHEET TITLE: CONCRETE TANK LID PLAN		
ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915			PROJECT NUMBER: #2479	SCALE: 1/4" = 1'-0"	SHEET: P2



CONCRETE TANK EQUIPMENT PLAN
1/4" = 1'-0"

PROCESS NOTES:

- 1 DIFFUSER (DETAIL 4/G7)
- 2 4" 90 ELBOW
- 3 INFLUENT EQ PUMPS
- 4 MBR FEED FORWARD PUMPS
- 5 SLUDGE SUPERNATANT PUMPS
- 6 2" 90 ELBOW
- 7 2" BALL VALVE
- 8 2" TEE
- 9 6" 90 ELBOW
- 10 1.5" 90 ELBOW
- 11 1.5" BALL VALVE
- 12 1.5" TEE
- 13 3" 90 ELBOW
- 14 4"X3" GASKETED REDUCER

PIPING CONNECTION NOTES:

- M1 2" AIR TO SLUDGE DIGESTION
- M2 2" AIR TO INF EQ TANK
- M3 3" OVERFLOW TO INF EQ TANK (FLOOR DRAIN)
- M4 4" AIR TO AEROBIC TANK
- M5 6" MBR TANK OVERFLOW TO AEROBIC TANK
- M6 2" AERATION TANK PUMP 1 TO MBR TANK 1
- M7 2" AERATION TANK PUMP 2 TO MBR TANK 2
- M8 2" INFLUENT EQ PUMP TO BARSCREEN
- M9 4" FINE SCREEN TO AEROBIC TANK
- M10 3" OVERFLOW TO INF EQ TANK (FLOOR DRAIN)
- M11 3" OVERFLOW TO INF EQ TANK (SCREEN OVERFLOW)
- M12 6" INFLUENT FROM COLLECTION SYSTEM
- M13 3" SYSTEM EFFLUENT
- M14 3" OVERFLOW TO SLUDGE TANK
- M15 4" BASIN OVERFLOW
- M16 6" OVERFLOW TO OVERFLOW POND

GENERAL NOTES:

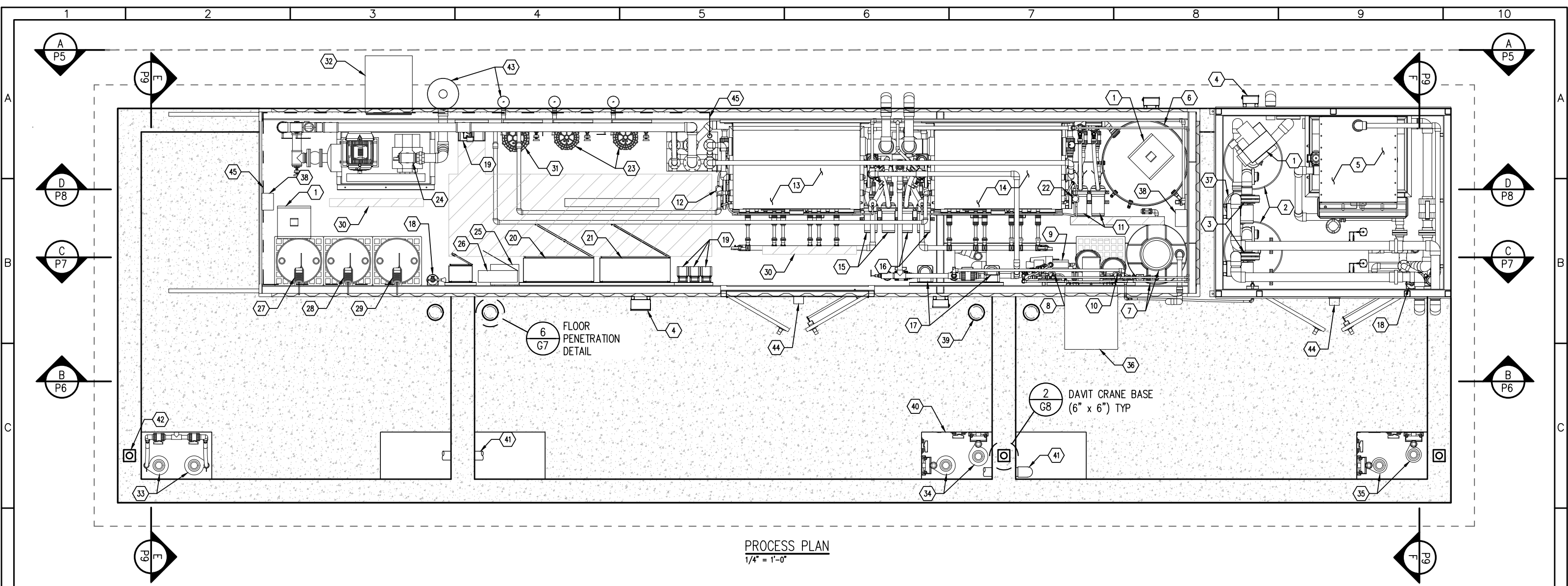
- 1) ALL PIPING SCH 80 PVC UNLESS NOTED OTHERWISE
- 2) INSTALL GREEN DRAIN ONE WAY VALVE OR EQUAL OVER ALL FLOOR DRAINS
- 3) CONTRACTOR TO FILL ALL FOUR VOIDS IN THE NEWTERRA FLOOR WITH GROUT. GROUT AROUND FLOOR DRAINS M3 & M10.

TANK COATINGS

- COAT INFLUENT EQUALIZATION TANK INTERIOR WALLS AND UNDERSIDE OF LID. SYSTEM TYPE: EPOXY, SHERWIN WILLIAMS OR EQUAL.
- 1. SURFACE PREPARATION: SSPC-SP 13/NACE 6 WITH A SURFACE PROFILE OF ICRI CSP 2 OR 3.
 - 2. FILLER: FILL BUG HOLES, AIR POCKETS AND OTHER VOIDS WITH STEEL-SEAM FT910.
 - 3. FINISH: DURA-PLATE 6000 REINFORCED EPOXY. DFT 60.0 TO 80.0 MILS.



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					ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915	PROJECT NUMBER: #2479	SCALE: 1/4" = 1'-0"	SHEET: P3	



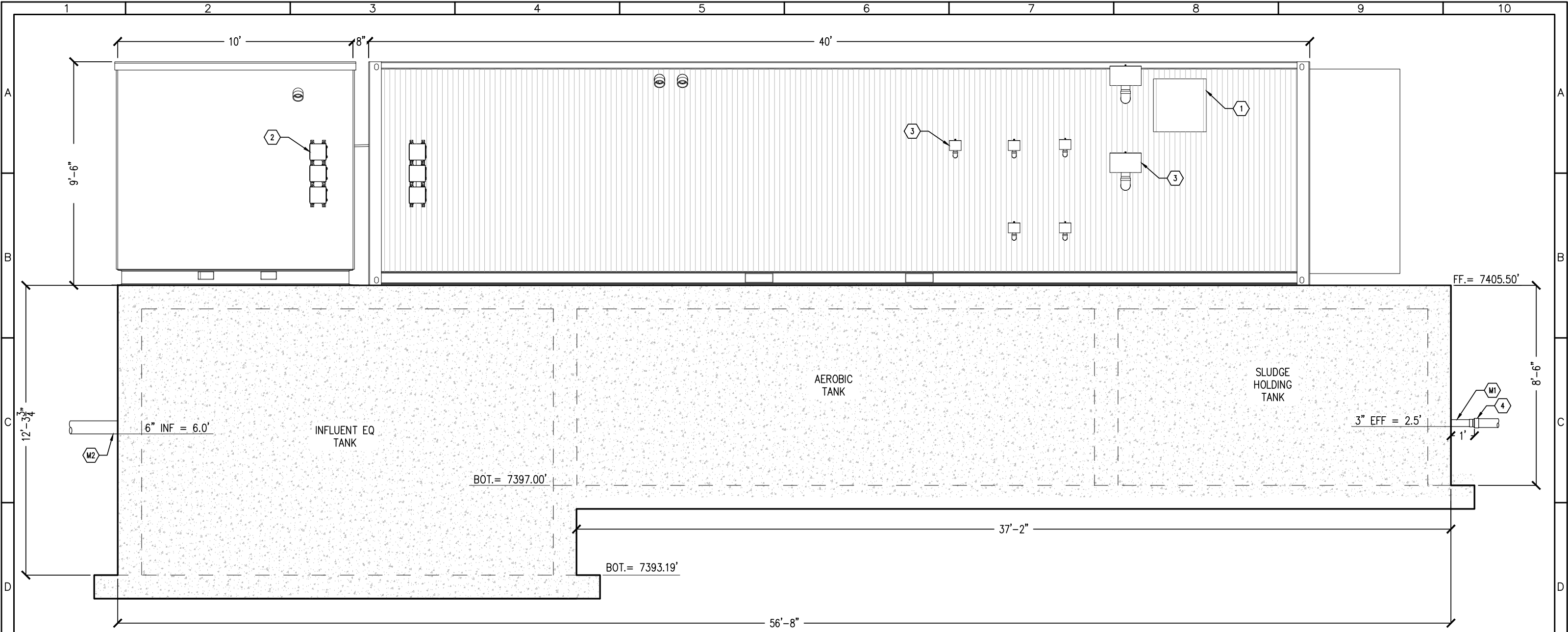
PROCESS PLAN
1/4" = 1'-0"

PROCESS NOTES:

- | | | | |
|--|-------------------------------------|--|---------------------------------|
| 1 HEATER | 15 PERMEATE PUMPS FOR MBR 1 | 29 ALUM CHEM FEED SYSTEM | 43 BLOWER MUFFLER |
| 2 ODOR CONTROL VESSEL | 16 PERMEATE PUMPS FOR MBR 2 | 30 BUILDING LIGHTS (TYP 4) | 44 OVERHEAD LIGHT |
| 3 VENTILATION BLOWER | 17 UV REACTORS | 31 MBR BLOWERS | 45 CHEMICAL FEED CARRIER TUBING |
| 4 ELECTRICAL JUNCTION BOX (TYP) | 18 FIRE EXTINGUISHER | 32 24" LOUVER & HOOD | |
| 5 INLET FINE SCREEN (2MM) | 19 VARIABLE FREQUENCY DRIVES | 33 SUPERNATANT TRANSFER PUMPS | |
| 6 BACKWASH TANK | 20 MASTER POWER PANEL | 34 MEMBRANE FEED PUMPS | |
| 7 HOUSE WATER STORAGE TANK | 21 MASTER CONTROL PANEL | 35 EQ TRANSFER PUMPS | |
| 8 SODIUM HYPOCHLORITE CHEM FEED SYSTEM | 22 PRIME/AIR BLEED PUMP FOR MBR 2 | 36 24" FAN & HOOD | |
| 9 HOUSE WATER SUPPLY PUMP | 23 EQ & SLUDGE HOLDING TANK BLOWERS | 37 LIQUID SEPARATOR | |
| 10 CITRIC ACID CHEM FEED SYSTEM | 24 AEROBIC TANK BLOWERS | 38 EYEWASH STATION WALL MOUNT MAASTERS 8 GAL | |
| 11 BACKWASH PUMPS | 25 TRANSFORMER | 39 4" VENT SCH 80 PVC (TYP) | |
| 12 PRIME AIR/BLEED PUMP FOR MBR 1 | 26 PANELBOARD | 40 3' X 2' ACCESS HATCH (TYP) | |
| 13 MEMBRANE (MBR) TANK 1 | 27 MICRO-C CHEM FEED SYSTEM | 41 4" OVERFLOW PVC SCH 80 | |
| 14 MEMBRANE (MBR) TANK 2 | 28 CAUSTIC CHEM FEED SYSTEM | 42 DAVIT CRANE BASE (TYP) | |



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PROCESS SECTION A
1/4"=1'-0"

PROCESS NOTES:

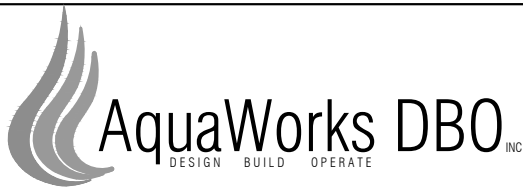
- 1 24" LOUVER & HOOD
- 2 ELECTRICAL JUNCTION BOX (TYP)
- 3 BLOWER MUFFLER (TYP)
- 4 4"x3" GASKETED REDUCER

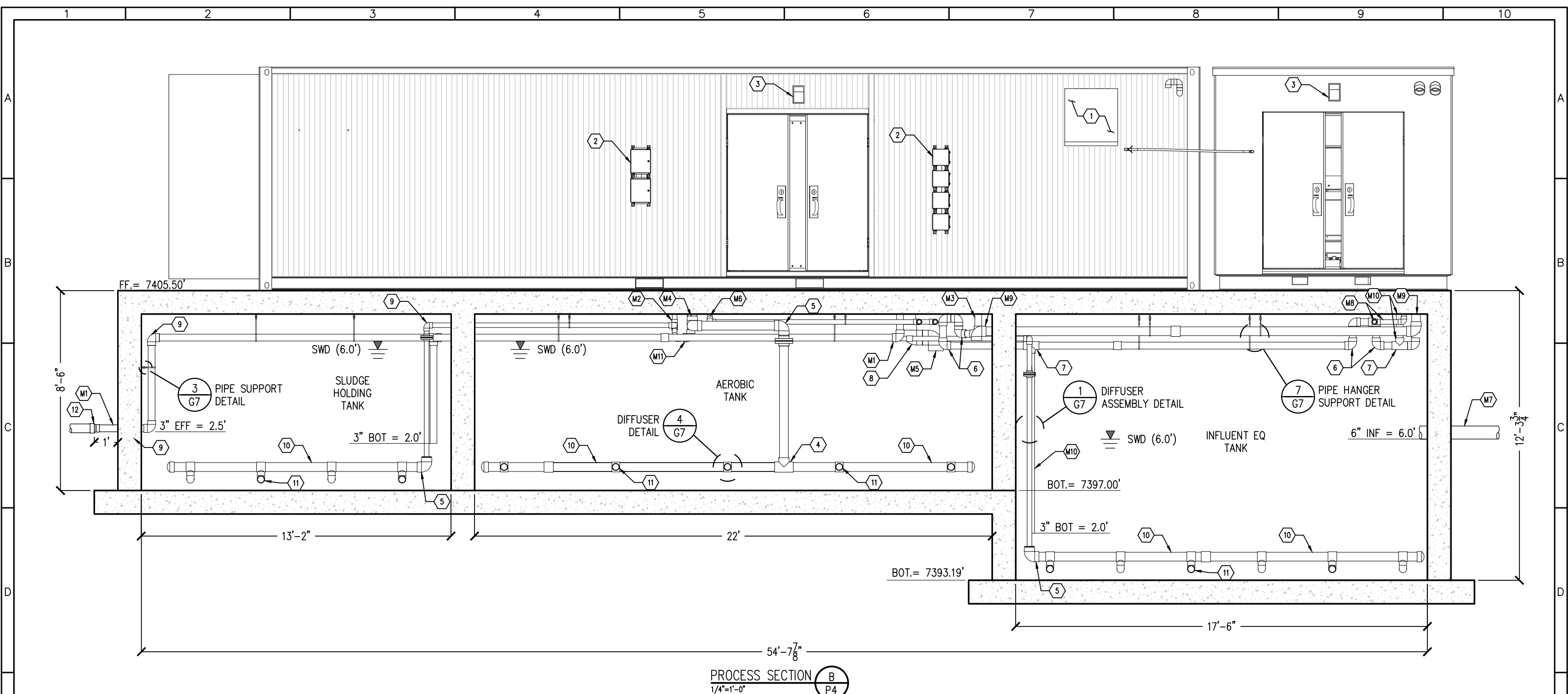
EQUIPMENT CONNECTION NOTES:

- M1 3" SYSTEM EFFLUENT
- M2 6" INFLUENT FROM COLLECTION SYSTEM



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				DESIGNED BY: AS	ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915	PROJECT NUMBER: #2479
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PROCESS SECTION B
1/4"=1'-0" P4

PROCESS NOTES:

- 1

24" FAN & HOOD
- 2

ELECTRICAL JUNCTION BOX (TYP)
- 3

EXTERIOR LIGHT
- 4

4" TEE
- 5

4" 90 ELBOW
- 6

3" 90 ELBOW
- 7

3" TEE
- 8

6" 90 ELBOW

9

2" 90 ELBOW

10

4" DIFFUSER HEADER

11

DIFFUSER

12

4"X3" GASKETED REDUCER

PIPING CONNECTION NOTES:

- M1

3" SYSTEM EFFLUENT
- M2

2" AIR TO SLUDGE HOLDING TANK
- M3

3" OVERFLOW TO SLUDGE TANK (FLOOR DRAIN)
- M4

4" AIR TO AEROBIC TANK
- M5

6" MBR TANK OVERFLOW TO AEROBIC TANK
- M6

2" AEROBIC TANK PUMP 1 TO MBR TANK 1
- M7

6" INFLUENT FROM COLLECTION SYSTEM
- M8

2" INFLUENT EQ PUMP TO BARSCREEN

M9

4" FINE SCREEN TO AERATION TANK

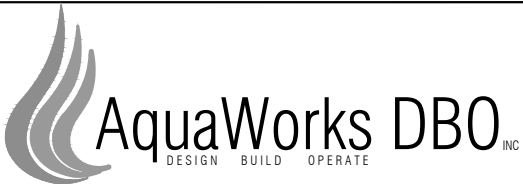
M10

3" OVERFLOW TO EQ TANK (SCREEN OVERFLOW)

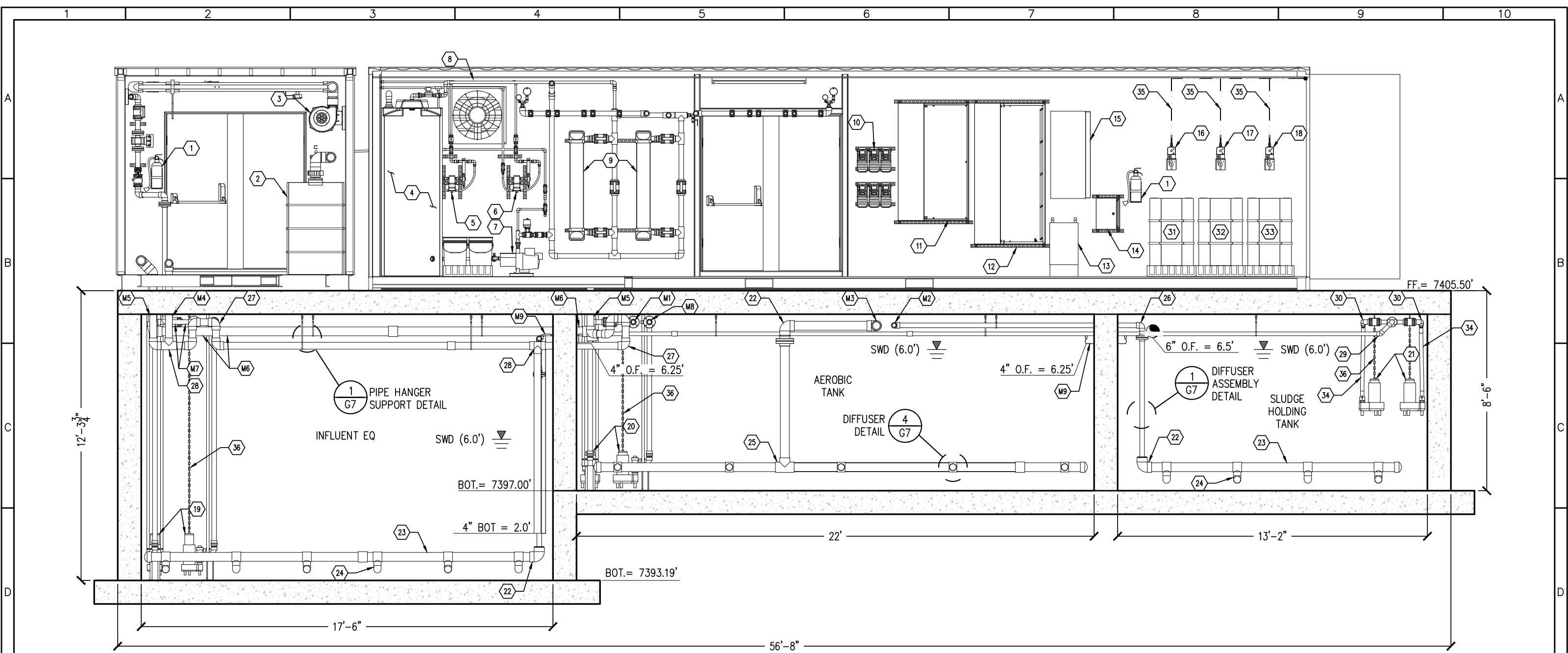
M11

3" OVERFLOW TO SLUDGE TANK

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PROJECT: WWTP IMPROVEMENT PROJECT COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO			SHEET TITLE: PROCESS SECTION B		
ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915			PROJECT NUMBER: #2479	SCALE: 1/4" = 1'-0"	SHEET: P6



PROCESS SECTION C
1/4"=1'-0" P4

PROCESS NOTES:

- 1 FIRE EXTINGUISHER

2 ODOR CONTROL VESSEL

3 VENTILATION BLOWER

4 HOUSE WATER STORAGE TANK, 225 GAL

5 CITRIC ACID CHEMICAL FEED SYSTEM

6 SODIUM HYPOCHLORITE CHEMICAL FEED SYSTEM

7 PRESSURIZED WATER SUPPLY PUMP

8 BUILDING FAN

9 UV REACTORS (TYP 2)
- 10 VARIABLE FREQUENCY DRIVES (TYP 6)

11 MASTER CONTROL PANEL

12 MASTER POWER PANEL

13 TRANSFORMER

14 TRANSFORMER DISCONNECT PANEL

15 PANELBOARD

16 ALUM CHEMICAL FEED SYSTEM

17 CAUSTIC CHEMICAL FEED SYSTEM

18 MICRO-C CHEMICAL FEED SYSTEM
- 19 INFLUENT EQ PUMPS

20 MBR FEED FORWARD PUMPS

21 SLUDGE SUPERNATANT PUMPS

22 4" 90 ELBOW

23 4" DIFFUSER HEADER

24 DIFFUSER

25 4" TEE

26 2" 90 ELBOW

27 3" 90 ELBOW

PIPING CONNECTION NOTES:

- M1 2" AEROBIC TANK PUMP 2 TO MBR TANK 2

M2 2" AIR TO SLUDGE HOLDING TANK

M3 4" AIR TO AEROBIC TANK

M4 3" OVERFLOW TO EQ TANK (SCREEN OVERFLOW)

M5 3" OVERFLOW TO EQ TANK (FLOOR DRAIN)

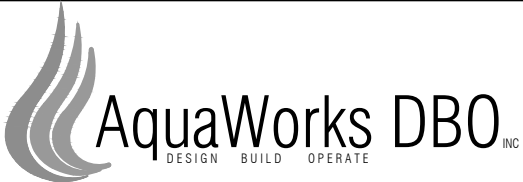
M6 4" FINE SCREEN TO AEROBIC TANK

M7 2" INF EQ TANK TO FINE SCREEN
- M8 2" AEROBIC TANK PUMP 1 TO MBR TANK 1

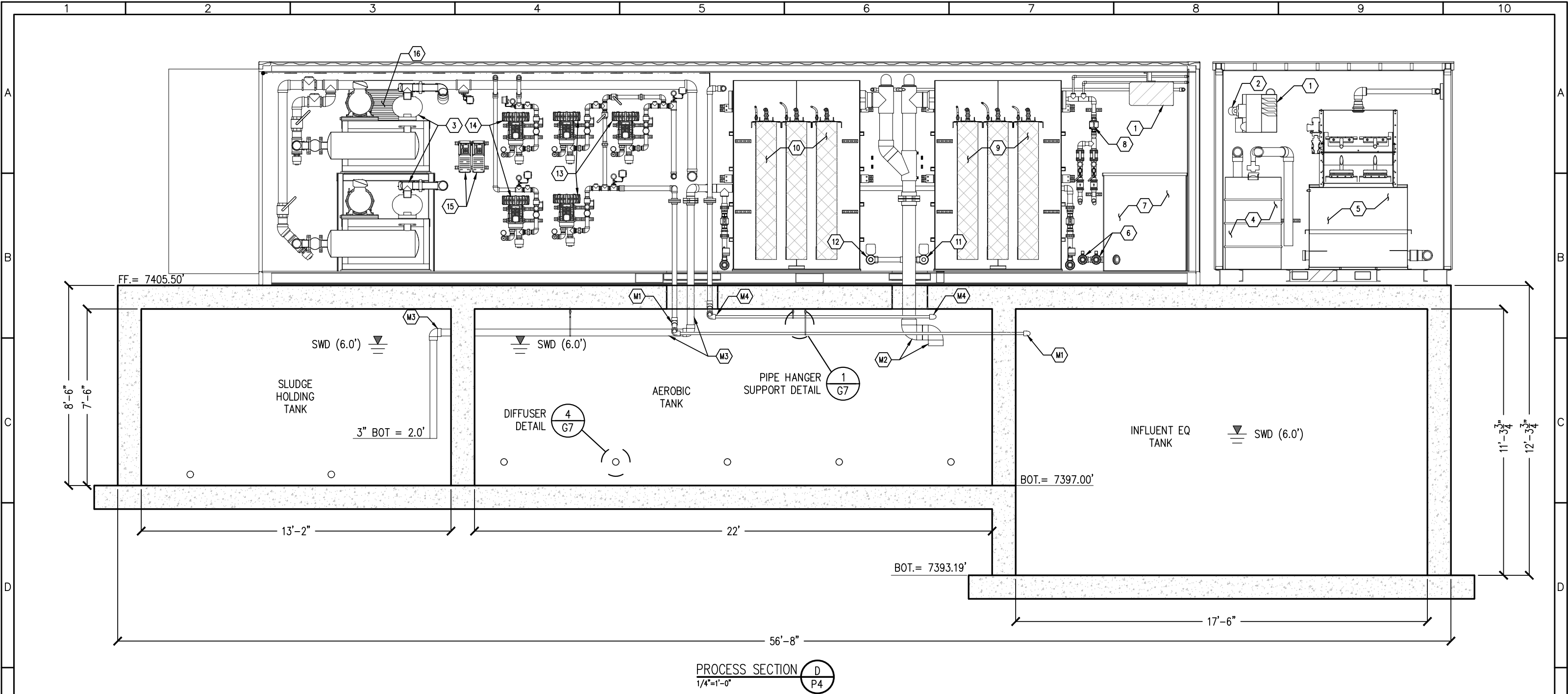
M9 4" BASIN OVERFLOW



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ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER: #2479	SCALE: 1/4" = 1'-0"	SHEET: P7



PROCESS SECTION D
1/4"=1'-0" P4

PROCESS NOTES:

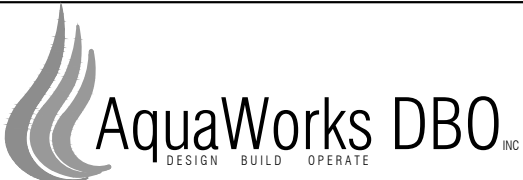
- | | |
|-------------------------------|------------------------------------|
| ① HEATER | ⑨ MEMBRANE BIOREACTOR (MBR) TANK 1 |
| ② VENTILATION BLOWER | ⑩ MEMBRANE BIOREACTOR (MBR) TANK 2 |
| ③ AEROBIC TANK BLOWERS | ⑪ PERMEATE PUMPS FOR MBR 1 |
| ④ ODOR CONTROL VESSEL | ⑫ PERMEATE PUMPS FOR MBR 2 |
| ⑤ AUTOMATIC FINE SCREEN (2MM) | ⑬ EQ/SLUDGE HOLDING TANK BLOWERS |
| ⑥ BACKWASH PUMPS | ⑭ MBR BLOWERS |
| ⑦ BACKWASH TANK | ⑮ VARIABLE FREQUENCY DRIVES |
| ⑧ PRIME AIR/BLEED SYSTEM | ⑯ 24" LOUVER & HOOD |

PIPING CONNECTION NOTES:

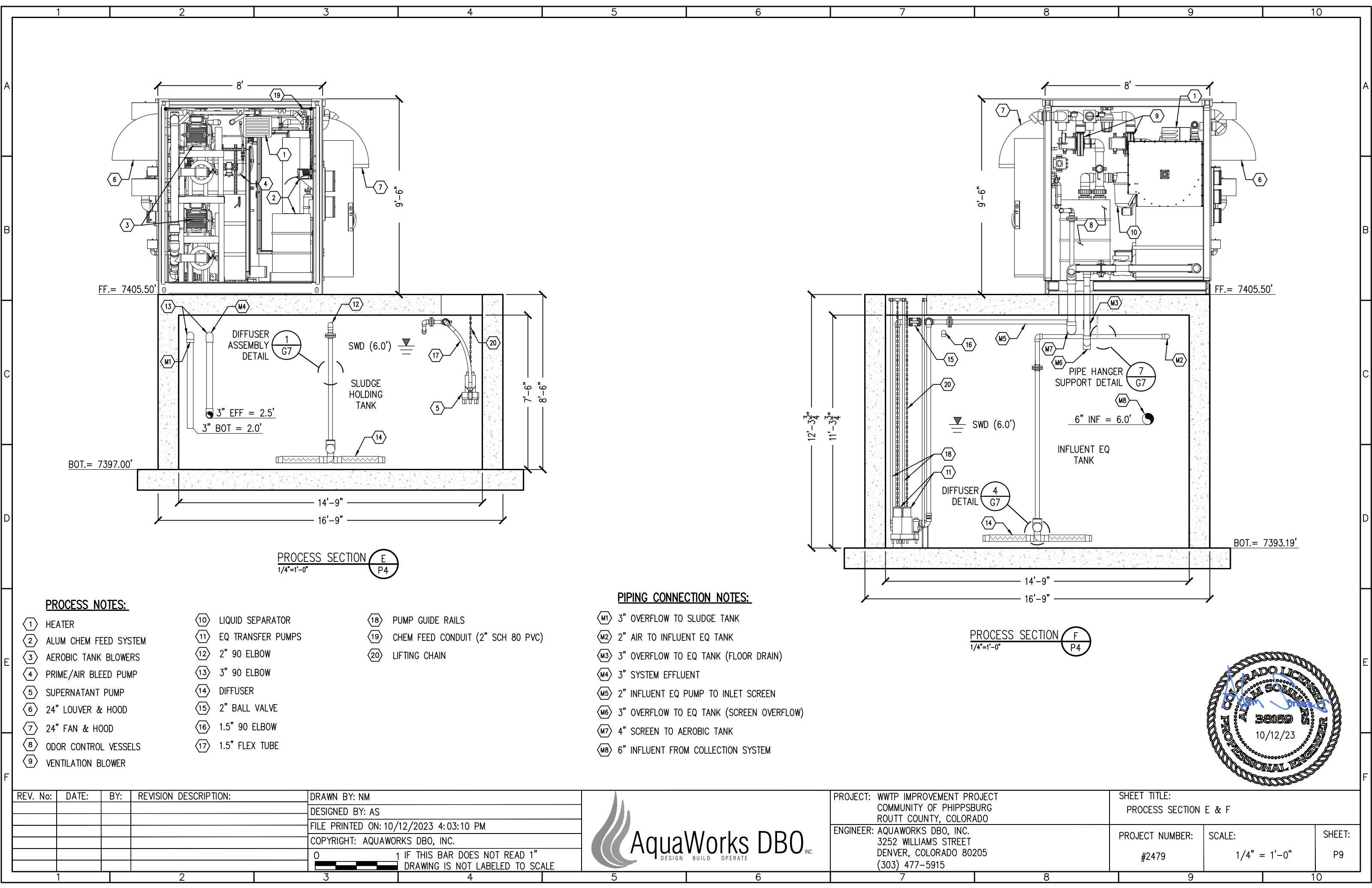
- | |
|--|
| ① 2" AIR TO INFLUENT EQ TANK |
| ② 6" MBR TANK OVERFLOW TO AEROBIC TANK |
| ③ 3" OVERFLOW TO SLUDGE TANK |
| ④ 2" AEROBIC TANK PUMP 1 TO MBR TANK 1 |



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ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915			PROJECT NUMBER: #2479	SCALE: 1/4" = 1'-0"	SHEET: P8



PROCESS NOTES:

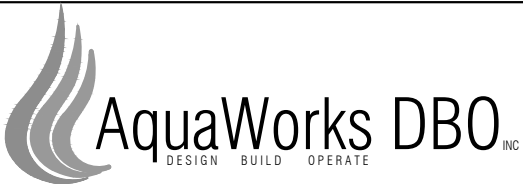
- | | | | | | |
|---|-----------------------|----|-------------------|----|-----------------------------------|
| 1 | HEATER | 10 | LIQUID SEPARATOR | 18 | PUMP GUIDE RAILS |
| 2 | ALUM CHEM FEED SYSTEM | 11 | EQ TRANSFER PUMPS | 19 | CHEM FEED CONDUIT (2" SCH 80 PVC) |
| 3 | AEROBIC TANK BLOWERS | 12 | 2" 90 ELBOW | 20 | LIFTING CHAIN |
| 4 | PRIME/AIR BLEED PUMP | 13 | 3" 90 ELBOW | | |
| 5 | SUPERNATANT PUMP | 14 | DIFFUSER | | |
| 6 | 24" LOUVER & HOOD | 15 | 2" BALL VALVE | | |
| 7 | 24" FAN & HOOD | 16 | 1.5" 90 ELBOW | | |
| 8 | ODOR CONTROL VESSELS | 17 | 1.5" FLEX TUBE | | |
| 9 | VENTILATION BLOWER | | | | |

PIPING CONNECTION NOTES:

- | | |
|----|--|
| M1 | 3" OVERFLOW TO SLUDGE TANK |
| M2 | 2" AIR TO INFLUENT EQ TANK |
| M3 | 3" OVERFLOW TO EQ TANK (FLOOR DRAIN) |
| M4 | 3" SYSTEM EFFLUENT |
| M5 | 2" INFLUENT EQ PUMP TO INLET SCREEN |
| M6 | 3" OVERFLOW TO EQ TANK (SCREEN OVERFLOW) |
| M7 | 4" SCREEN TO AEROBIC TANK |
| M8 | 6" INFLUENT FROM COLLECTION SYSTEM |



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ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER: #2479	SCALE: 1/4" = 1'-0"	SHEET: P9

VALVES AND PIPING

BALL VALVE - NO NC

GATE VALVE -

GLOBE VALVE -

NEEDLE VALVE -

SLIDE VALVE -

SOLENOID VALVE -

BUTTERFLY VALVE -

SWING CHECK VALVE -

WAFER CHECK VALVE -

SPRING CHECK VALVE -

WYE STRAINER -

SAMPLE PORT -

PRESSURE RELIEF VALVE -

VACUUM RELIEF VALVE -

CAMLOCK CONNECTION -

FLEXIBLE CONNECTION -

FLANGED CONNECTION -

REDUCER -

UNION -

ADSORBENT FILTER -

COALESCING FILTER -

PARTICULATE FILTER -

FILTER, SILENCER -

PRESSURE REGULATOR -

REGULATOR W/ FILTER -

EQUIPMENT

AIR STRIPPER

OIL WATER SEPARATOR

SEAL FLUID SEPARATOR

BAG FILTER

CARBON VESSEL

OXIDIZER

PRODUCT STORAGE DRUM, TANK

STANDARD, CONICAL BOTTOM TANK

EQUIPMENT

CLOSED TOP TANK

OPEN TOP TANK

OPEN TOP TANK WITH LID

AIR DIFFUSER ASSEMBLY

STRAINER/FILTER

MEMBRANE CASSETTE

NO CLOG SPRAYER ASSEMBLY

ULTRA VIOLET LIGHT

ROTARY SCREEN

FILTER PRESS

EQUIPMENT

CENTRIFUGAL PUMP -

PROGRESSIVE-CAVITY PUMP -

CHEMICAL-INJECTION PUMP -

CENTRIFUGAL, REGENERATIVE BLOWER -

POSITIVE DISPLACEMENT BLOWER -

ROTARY-CLAW BLOWER -

LINEAR BLOWER -

LIQUID-RING PUMP -

ROTARY-VANE COMPRESSOR -

RECIPROCATING COMPRESSOR -

PASSIVE COOLING FINS -

EDUCTOR -

MAGNETIC FLOW METER -

VENTURI -

ROTOMETER -

AS - AIR STRIPPER

BLD - BUILDING, TRAILER, OR SKID

FLT - FILTER VELLEL

LPC - LIQUID-PHASE CARBON VESSEL

MFD - MANIFOLD

OWS - OIL/WATER SEPARATOR

OX - OXIDIZER

PST - PRODUCT STORAGE TANK

SOS - SEAL OIL SEPARATOR

SWS - SEAL WATER SEPARATOR

TNK - TANK

VLS - VAPOR/LIQUID SEPARATOR

VPC - VAPOR-PHASE CARBON VESSEL

INSTRUMENTATION IDENTIFIERS

FIRST LETTERS		SUCCEEDING LETTERS			
	MEASURED/INITIATING VARIABLE	VARIABLE MODIFIER	READOUT/PASSIVE FUNCTION	OUTPUT/ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CYCLE	CONTROL		CONTROL	CLOSE
D		DIFFERENCE, DIFFERENTIAL			DEVIATION
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO			
G	GAS (LEL)		GLASS, GAUGE, VIEWING DEVICE		
H	HAND			HAND	HIGH
I	CURRENT		INDICATE		
J	POWER		SCAN		
K	TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MONITOR			MOTORIZED	MIDDLE, INTERMED
N					
O			ORIFICE, RESTRICTION		OPEN
P	PRESSURE		TEST CONNECTION	PNEUMATIC	
Q	QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE TOTALIZE		
R	RADIATION		RECORD		RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH, SOLENOID	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION, MECHANICAL ANALYSIS, VACUUM			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL, PROBE		
X	UNCLASSIFIED	X-AXIS	ACCESSORY DEVICES, UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y-AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z-AXIS, SAFETY INSTRUMENTED SYSTEM		DRIVER, ACTUATOR, UNCLASSIFIED CONTROL ELEMENT	

GENERAL NOTES:

1. WATER FLOW METERS: INSTALL AS PER MANUFACTURES' RECOMMENDATIONS. ENSURE THAT THROTTLING VALVES ARE NOT IN DIRECT LINE OF THE METER.

2. PITOT AIR FLOW METERS: PROVIDE 8 DIA. OF STRAIGHT PIPE BEFORE AND 3 DIA. OF STRAIGHT PIPE AFTER METERS. AVOID TEES AND ELBOWS BEFORE AND AFTER METERS.

3. MATERIALS OF VALVES AND PIPING IS TO BE AS SPECIFIED ON THE DIAGRAM.

4. THERE ARE NO SPECIAL PIPING REQUIREMENTS OUTSIDE OF NEWTERRA'S STANDARDS UNLESS SPECIFIED ON THE DIAGRAM.

5. FLEXIBLE HOSE IS TO BE AS SPECIFIED ON THE DIAGRAM. IF A FLEXIBLE CONNECTION IS PREFERRED PLEASE CONSULT ENGINEERING TO ENSURE SELECTED HOSE IS RATED FOR THE OPERATING CONDITIONS.

6. DO NOT USE PVC PIPE ON AIR LINES OVER 5 PSIG.

7. ALL FEMALE PVC THREADED ADAPTORS MUST BE RE-ENFORCED FEMALE ADAPTORS.

8. NO DISSIMILAR METALS ARE TO BE IN DIRECT CONTACT ON WATER LINES. FOLLOW ENG.SOP.010

9. ALL PVC MUST BE SCHEDULE 80

10. ALL STAINLESS STEEL THREADED CONNECTIONS ARE TO UTILIZE GRAY TEFLON TAPE DESIGNED FOR SS FITTINGS.

11. ALL MECHANICAL BALL FLOAT LEVEL SWITCHES ARE TO BE INSTALLED WITH THEIR CABLES TIE WRAPPED, CABLES ARE NOT TO BE SHORTENED.

INDICATING INSTRUMENT

DIGITAL INPUT TO CONTROL PANEL

DIGITAL INPUT CAUSING ALARM

DIGITAL INPUT CAUSING SYSTEM SHUTDOWN ALARM

ANALOG INPUT TO CONTROL PANEL

ANALOG OUTPUT FROM CONTROL PANEL

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DESIGN BUILD OPERATE

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COMMUNITY OF PHIPPSBURG

ROUTT COUNTY, COLORADO

ENGINEER: AQUAWORKS DBO, INC.

3252 WILLIAMS STREET

DENVER, COLORADO 80205

(303) 477-5915

SHEET TITLE:

P&ID LEGEND

PROJECT NUMBER: #2479

SCALE: NTS

SHEET: P10

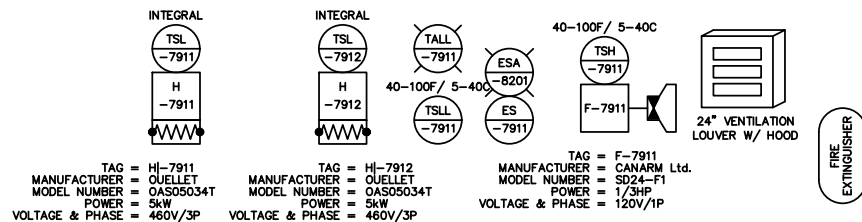
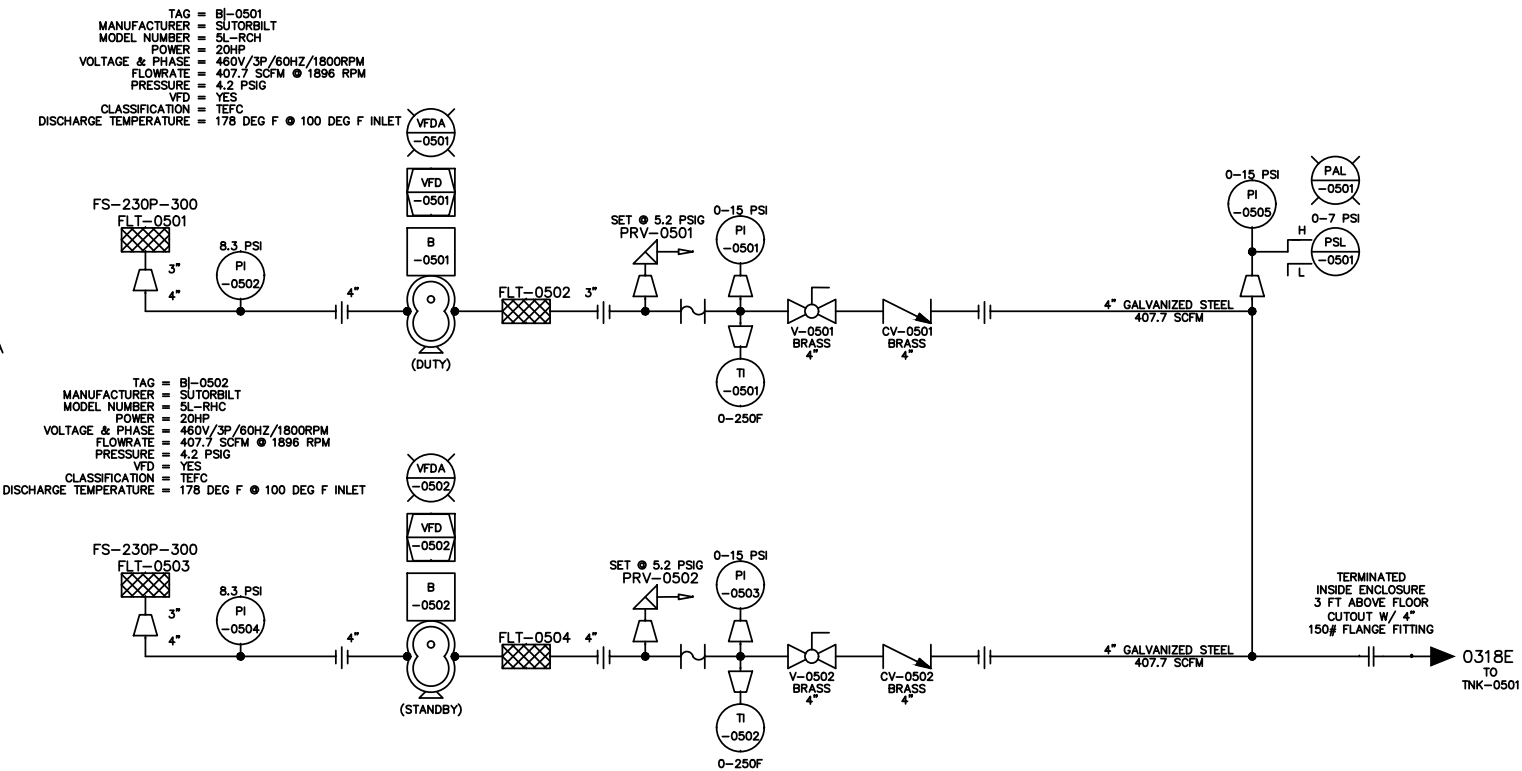
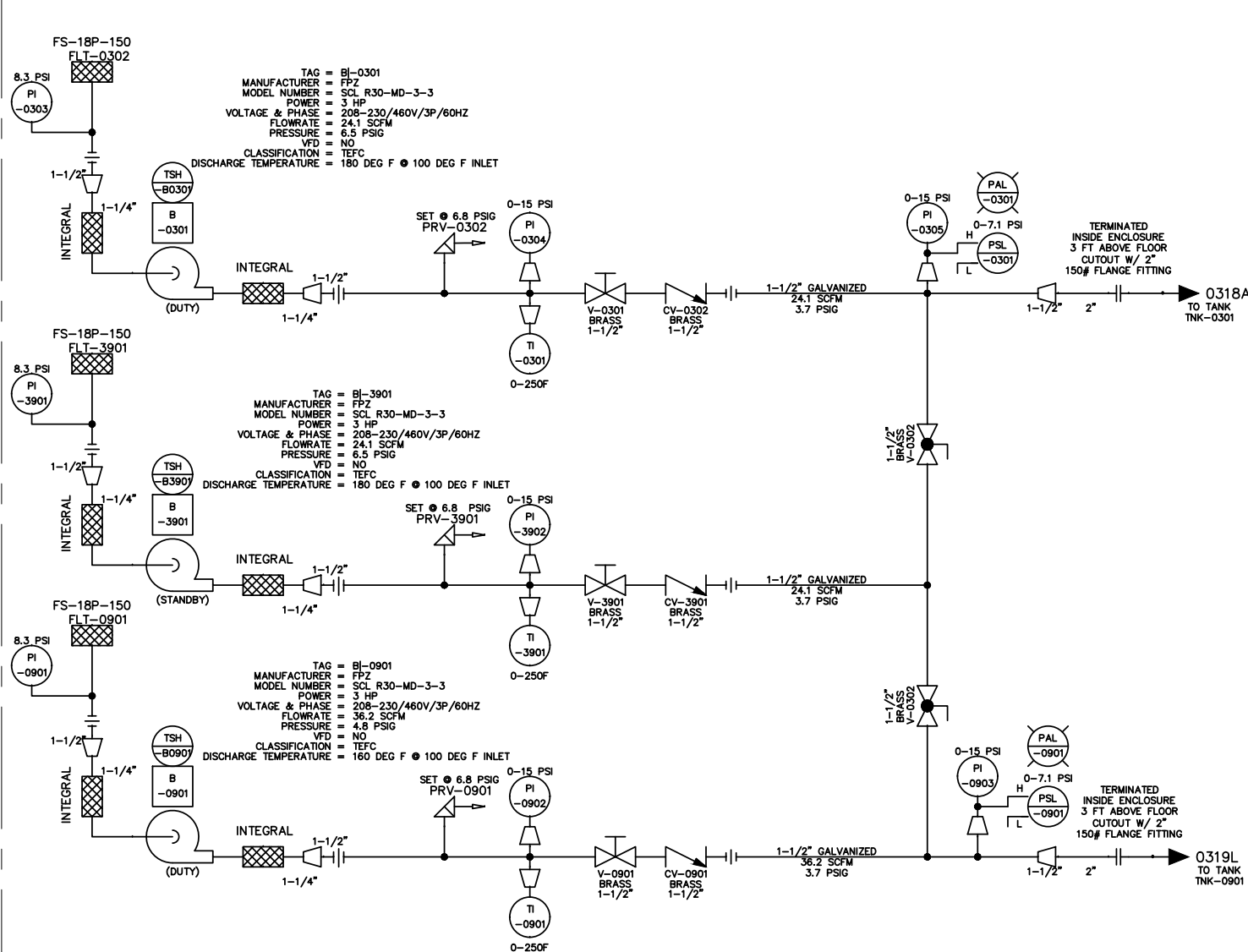
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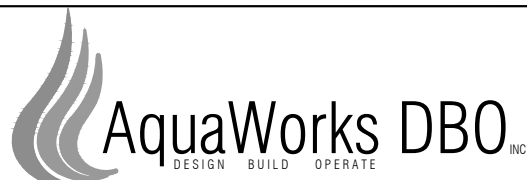
PROFESSIONAL ENGINEER

BLD-7910: GENERAL PURPOSE AREA

WWTP DESIGN PARAMETERS
AVERAGE DAILY FLOW (ADF) = 8.6 GPM
MAXIMUM DAILY FLOW (MDF) = 31.25 GPM
MAXIMUM MONTHLY FLOW (MMF) = 20.83 GPM
PEAK INSTANTANEOUS FLOW (PIF) = 52 GPM
SYSTEM AREA CLASSIFICATION = NFPA 820, 2016 EDITION, AS INTERPRETED



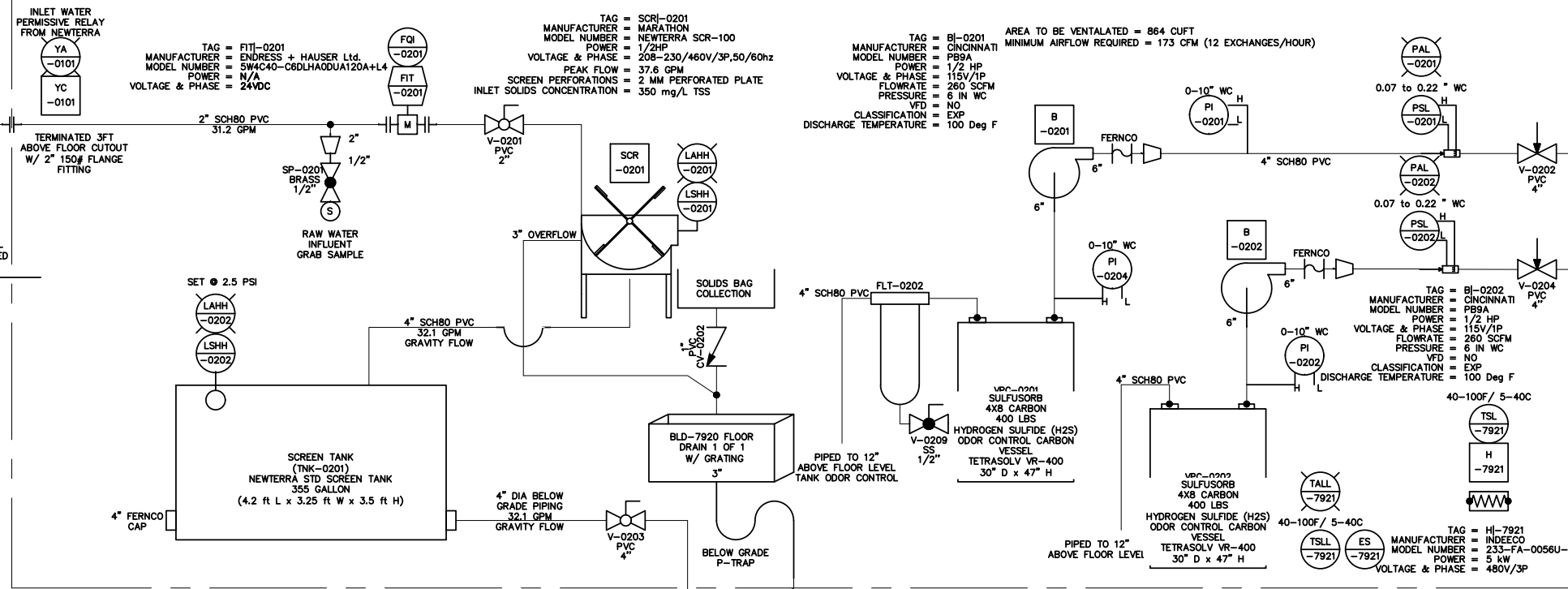
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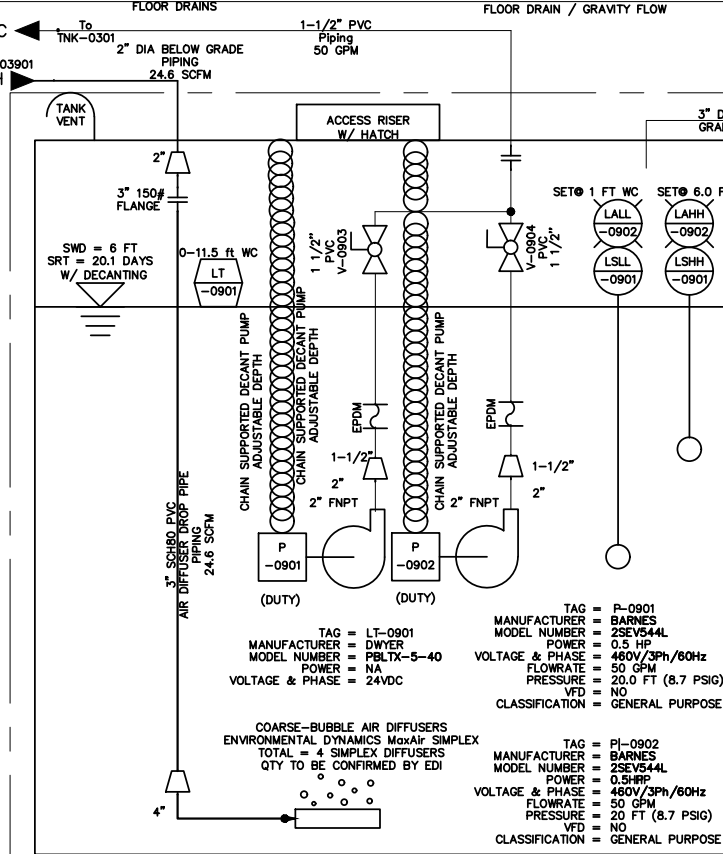
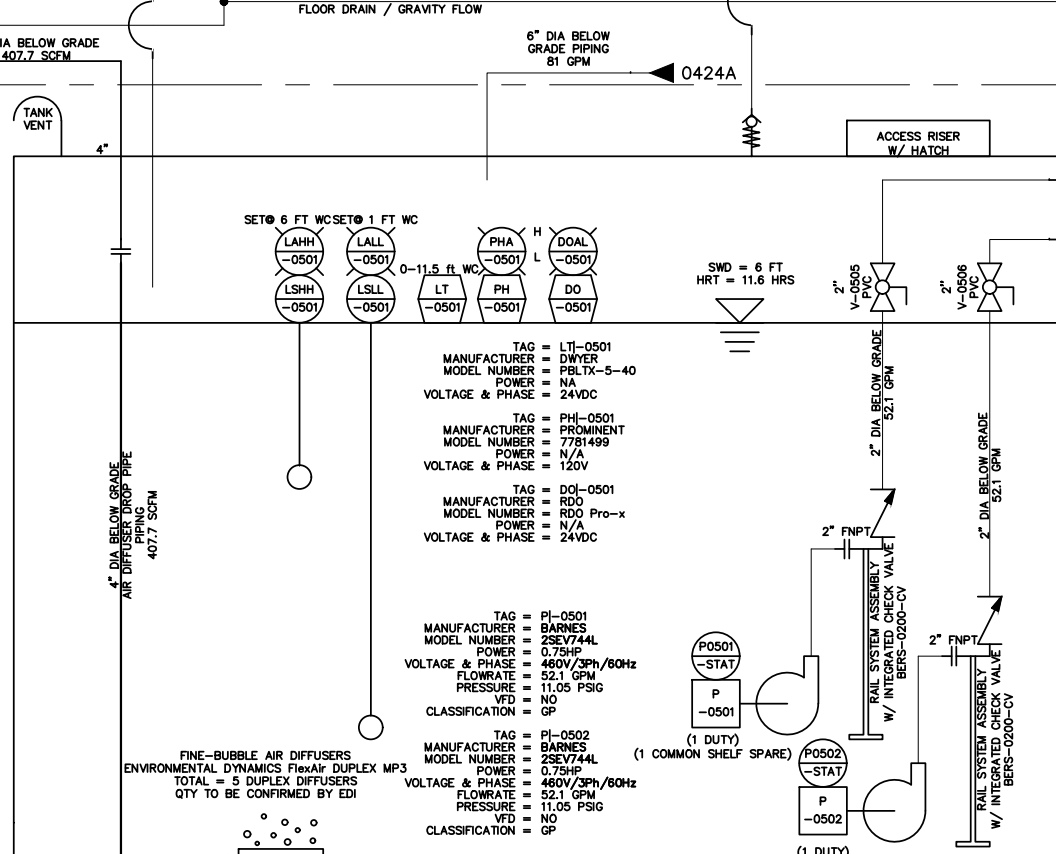
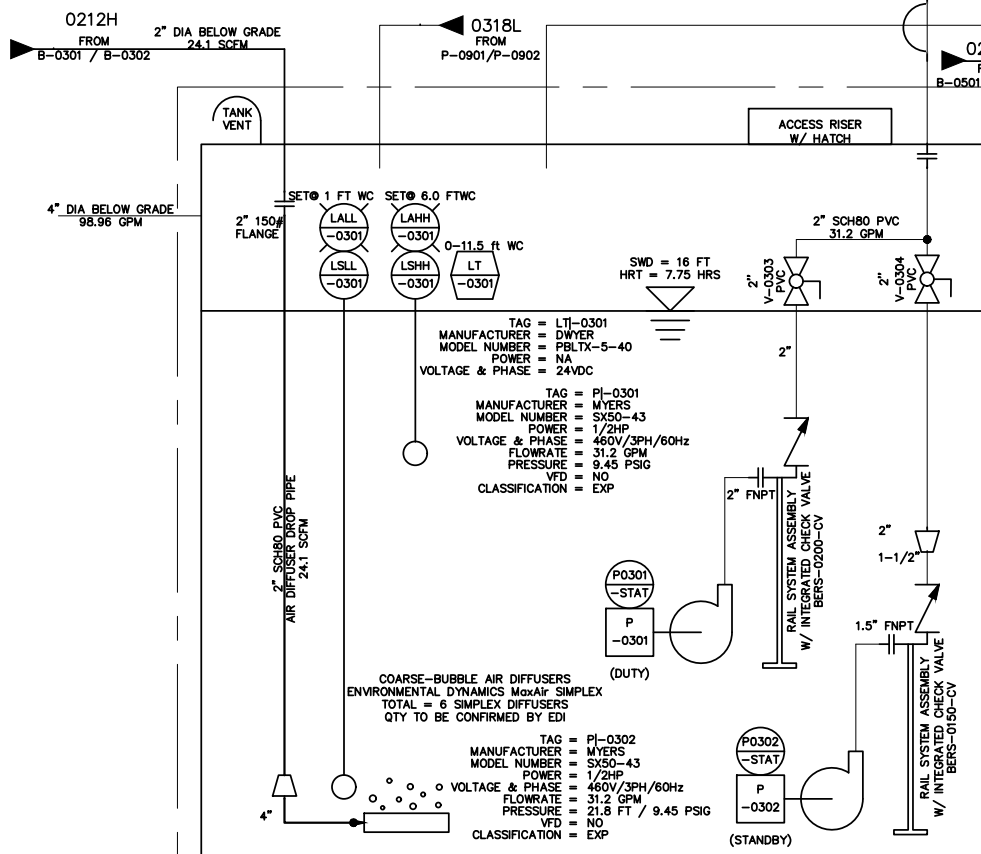
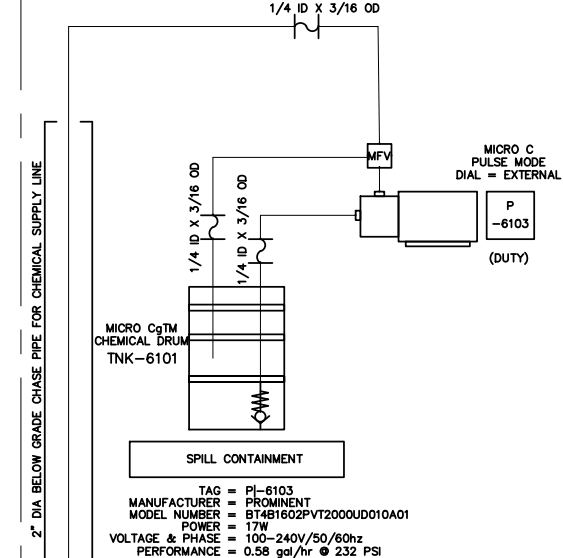
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ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915				



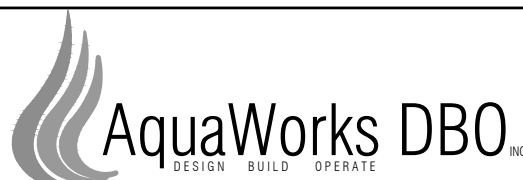
BLD-7920: HAZARDOUS CL1 DIV2 AREA



BLD-7910: GENERAL PURPOSE AREA

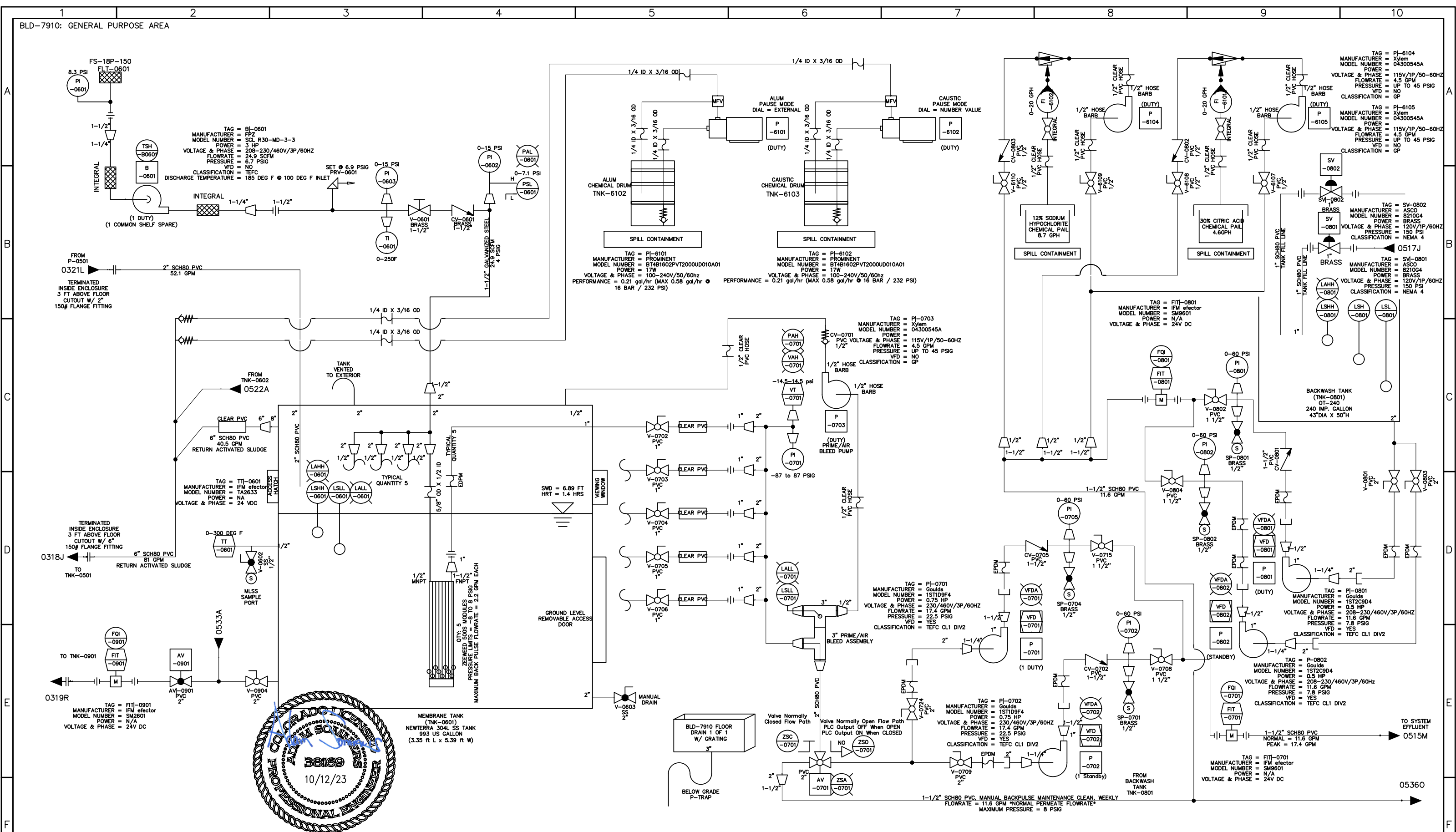


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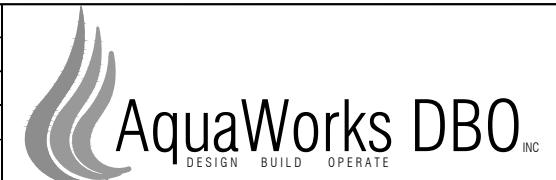


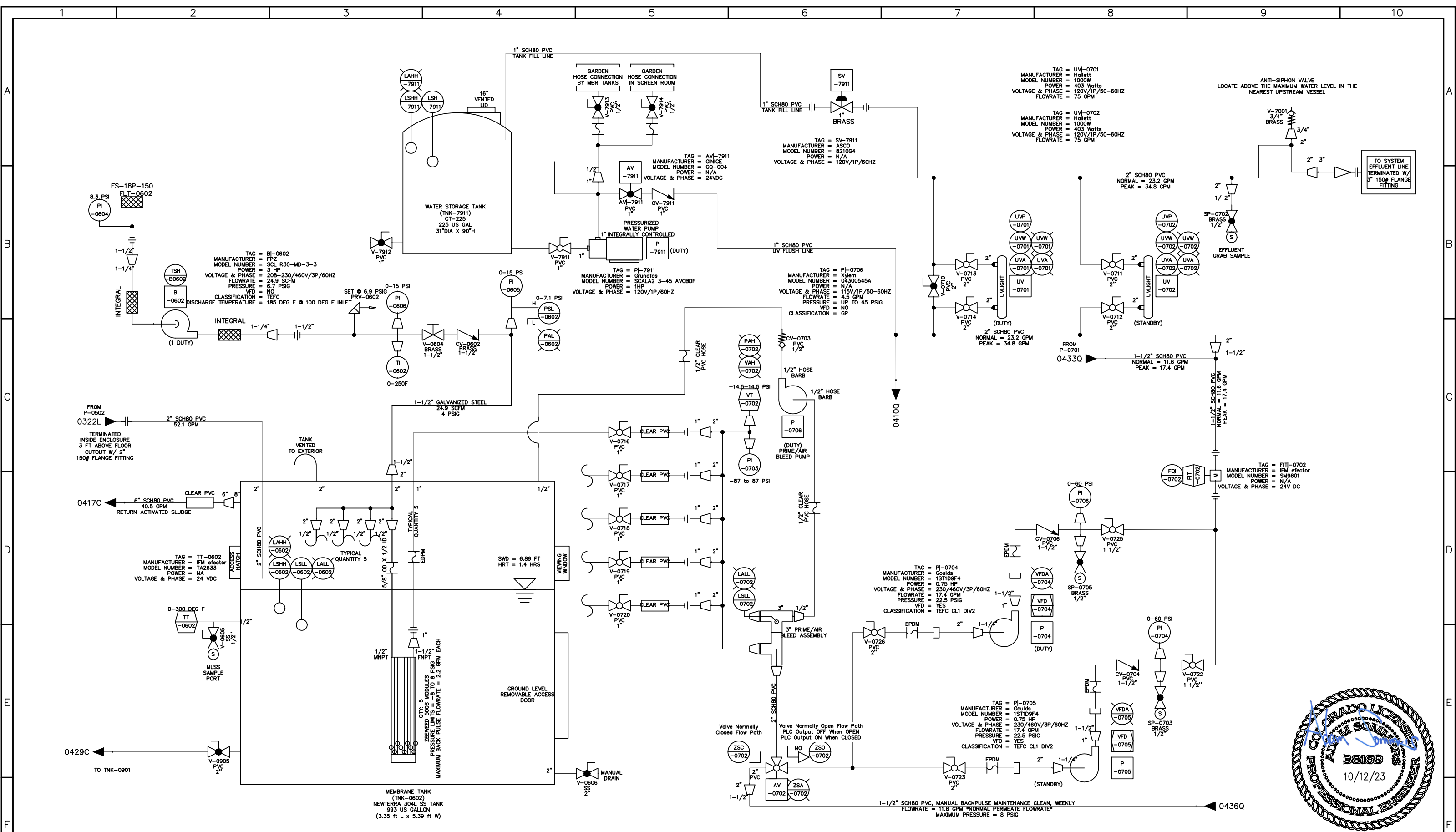
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COMMUNITY OF PHIPPSBURG
ROUTT COUNTY, COLORADO
ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

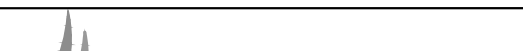
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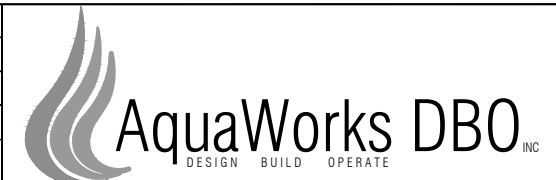


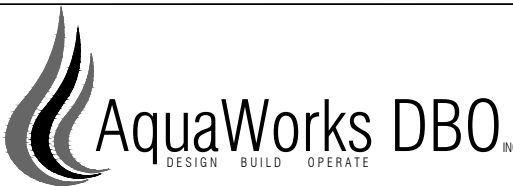
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				DESIGNED BY: AS	ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915	PROJECT NUMBER: #2479
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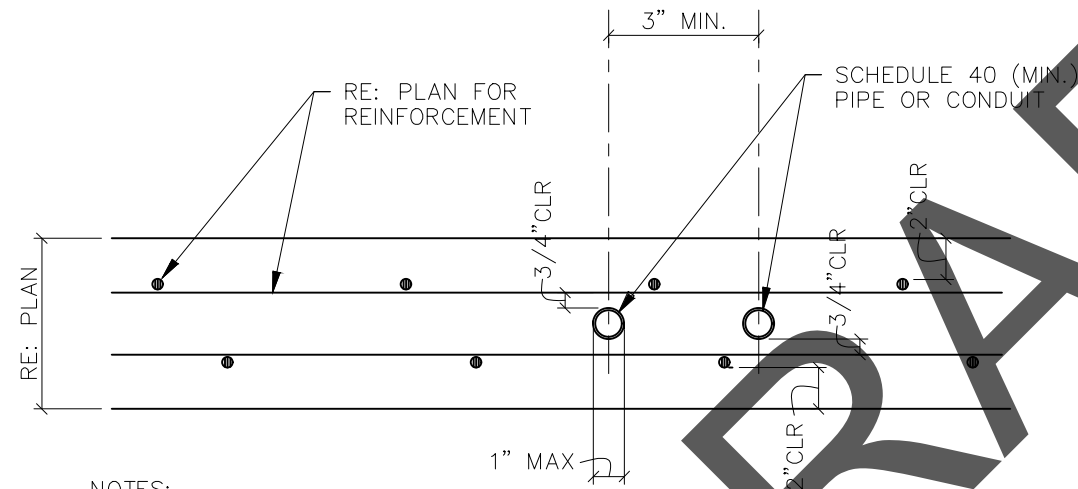
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				DESIGNED BY: AS		ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER: #2479	SCALE: 1" = 20'	SHEET: P14
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1	2	3	4	5	6	7	8	9	10	



	1	2	3	4	5	6	7	8	9	10
	DESIGN PARAMETERS				GENERAL NOTES					
A	1. DESIGN CODES AND STANDARDS				GENERAL				CONCRETE	
	A. BUILDING CODE: IBC 2015 RISK CATEGORY III				1. STRUCTURAL ELEMENTS ARE NON-Self SUPPORTING AND REQUIRE INTERACTION WITH OTHER ELEMENTS FOR STABILITY AND RESISTANCE TO LATERAL FORCES. WALLS SHALL BE TEMPORARILY BRACED BY THE CONTRACTOR UNTIL PERMANENT BRACING, FLOOR AND ROOF SLABS, AND/OR WALLS HAVE BEEN INSTALLED AND CONNECTIONS BETWEEN THESE ELEMENTS HAVE BEEN MADE.				1. EXTERIOR CONCRETE AND INTERIOR CONCRETE EXPOSED TO FREEZE-THAW, AND CONCRETE SLABS AND WALLS PERMANENTLY EXPOSED TO THE EXTERIOR MINIMUM 28-DAY COMPRESSIVE STRENGTH = 4500 PSI. PROPORTIONED TO HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.42. SLUMP = 3" - 5". ALL CONCRETE EXPOSED TO THE EXTERIOR SHALL BE AIR ENTRAINED WITH MINIMUM TOTAL AIR CONTENT OF 6% (+/- 1%) BY VOLUME PER ASTM C231 FOR ¾" AGGREGATE AND LARGER. REFERENCE ACI 350-06 TABLE 4.2.1, TOTAL AIR CONTENT FOR CONCRETE EXPOSED TO CYCLES OF FREEZING AND THAWING, SEVERE EXPOSURE, FOR SMALLER AGGREGATE SIZES.	
B	B. MATERIAL CODES AND STANDARDS DESIGN LOADS: ASCE/SEI 7-10 - MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES				2. THE CONTRACT DOCUMENTS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION, UNLESS NOTED OTHERWISE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATION OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO.				2. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE II	
	CONCRETE: ACI 318-14 - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE ACI 350-06 - CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES ACI 350.1-10 - SPECIFICATION FOR TIGHTNESS TESTING OF ENVIRONMENTAL ENGINEERING CONCRETE CONTAINMENT STRUCTURES				3. THE STRUCTURE HAS BEEN DESIGNED FOR THE INDICATED LOADS ONLY. USE OF HEAVY EQUIPMENT AND SCAFFOLDING, OR STORAGE OF MATERIALS THAT TRANSFER EXCESSIVE LOADS TO THE STRUCTURE SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED TO VERIFY THE ADEQUACY OF THE STRUCTURE FOR ALL APPLIED CONSTRUCTION LOADS THAT EXCEED THE LOADS INDICATED IN THE CONSTRUCTION DOCUMENTS AND SHALL BE APPROVED BY THE ARCHITECT AND ENGINEER-OF-RECORD PRIOR TO ANY CONSTRUCTION ACTIVITY.				3. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C-33. MAXIMUM COARSE AGGREGATE SIZE SHALL BE ¾".	
	2. GRAVITY LOADS				4. STRUCTURAL DRAWINGS ARE NOT STAND-ALONE DOCUMENTS AND ARE INTENDED TO BE USED IN CONJUNCTION WITH CIVIL, PROCESS, MECHANICAL, ELECTRICAL, PLUMBING AND DRAWINGS FROM OTHER DISCIPLINES. THE CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS INTO SHOP DRAWINGS AND WORK.				4. MATERIALS OR ADMIXTURES SHALL NOT CONTAIN ANY CALCIUM CHLORIDE	
	A. LIVE LOADS (UNIFORM/CONCENTRATED) CONTAINER ROOF 30 PSF / 300 LB CONCRETE LID (NOT AT CONTAINERS) 60 PSF				5. ALL WELDS SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (A.W.S) SPECIFICATIONS.				5. REINFORCING STEEL SHALL MEET THE FOLLOWING A. DEFORMED BARS ASTM SPECIFICATION A615, GRADE 60	
	B. SHIPPING CONTAINER TOTAL WEIGHT (PROVIDED BY MANUFACTURER) 1.) CONTAINER 1: "DRY" 24,537 LBS, "WET" 47,069 LBS 2.) CONTAINER 2: "DRY" 23,495 LBS, "WET" 36,847 LBS				6. THE SIZE AND LOCATION OF EQUIPMENT PADS AND PENETRATIONS THROUGH THE STRUCTURE FOR MECHANICAL, ELECTRICAL, AND PLUMBING WORK SHALL BE VERIFIED BY THE CONTRACTOR. PENETRATIONS SHALL BE SUBJECT TO APPROVAL BY THE ARCHITECT AND THE ENGINEER-OF-RECORD. REFERENCE PROCESS DRAWINGS FOR OPENING LOCATIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS.				6. WHERE DOWELS ARE INDICATED BUT NOT SIZED, PROVIDE DOWELS THAT MATCH THE SIZE AND LOCATION OF MAIN REINFORCEMENT STEEL. REINFORCING BARS SHALL BE SPLICED AS NOTED IN THE REINFORCING LAP SPLICE SCHEDULE (6/S7)	
C	3. ROOF SNOW LOAD				7. USE ONLY DIMENSIONS INDICATED IN THE CONTRACT DOCUMENTS. DO NOT SCALE CONTRACT DOCUMENTS OR USE ANY DIMENSIONS TAKEN FROM ELECTRONIC DRAWING FILES. CONTRACTOR SHALL COORDINATE IN-PLACE DIMENSIONS BASED ON TOLERANCES OF THE RESPECTIVE TRADES.				7. REFER TO ACI 350-06 FOR CONCRETE COVER REQUIREMENTS, ACI 315 LATEST EDITION FOR DETAILING PRACTICES AND FABRICATION, AND ACI 301 LATEST EDITION FOR STANDARD PRACTICES FOR MIXING AND PLACING CONCRETE. REFER TO ACI 306R-10 FOR REQUIRED COLD WEATHER CONCRETING PROCEDURES. MINIMUM PROTECTION PERIOD FOR CONCRETE PLACED DURING FREEZING TEMPERATURES IS 7 DAYS	
	A. GROUND SNOW LOAD, Pg 78 PSF B. FLAT ROOF SNOW LOAD, Pf 84 PSF C. SNOW EXPOSURE FACTOR, Ce 1.0 D. SNOW LOAD IMPORTANCE FACTOR, I 1.1 E. THERMAL FACTOR, Ct 1.0				8. ASSUME EQUAL SPACING IF NOT INDICATED IN CONTRACT DOCUMENTS.				8. ANCHORS INSTALLED IN HARDENED CONCRETE SHALL BE USED WHERE SPECIFIED ON THE CONTRACT DRAWINGS. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REINFORCING. HOLES SHALL BE DRILLED, DRY AND CLEANED AND ANCHORS INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED WRITTEN INSTRUCTIONS AND APPLICABLE ESR REPORT. REFERENCE DETAILS FOR ANCHOR SIZE AND EMBEDMENT. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE SPECIFIED ON THE CONTRACT DRAWINGS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD ALONG WITH CALCULATIONS THAT ARE SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION AND LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE. ALLOWABLE SUBSTITUTIONS FOR POST-INSTALLED ANCHORS IN CONCRETE ARE:	
	4. WIND DESIGN DATA (CONTAINER DESIGN BY MANUFACTURER)				9. CONTRACTOR SHALL COORDINATE ALL DIMENSIONS, OPENING, BLOCKOUTS, RECESSES, ELEVATIONS, ANCHOR RODS AND EMBED LOCATIONS PRIOR TO CONSTRUCTION.				A. HILTI HIT-RE 500-SD EPOXY ADHESIVE (ICC-ES ESR-2322) B. HILTI HIT-HY 200 ADHESIVE (ICC-ES ESR-3187) C. HILTI KWIK BOLT TZ EXPANSION ANCHOR (ICC-ES ESR-1917) D. SIMPSON STRONG-TIE SET-XP EPOXY ADHESIVE (ICC-ES ESR-2508) E. SIMPSON STRONG-TIE AT-XP ADHESIVE (ICC-ES ESR-263) F. SIMPSON STRONG-TIE BOLT 2 WEDGE ANCHOR (ICC-ES ESR-3037)	
	A. ULTIMATE DESIGN WIND SPEED (3 SECOND GUST), VuIt 120 MPH NOMINAL DESIGN WIND SPEED (3 SECOND GUST), Vasd 93 MPH B. WIND EXPOSURE CATEGORY C C. INTERNAL PRESSURE COEFFICIENT, GCpi +/- 0.18 D. WIDTH OF END ZONE 3 FT				FOUNDATIONS				9. FOUNDATION SLAB SHALL BE PLACED IN A SINGLE POUR WITHOUT CONSTRUCTION JOINTS. IF CONTRACTOR PLANS MULTIPLE POURS, CONTACT WALLACE DESIGN COLLECTIVE FOR REQUIRED COLD JOINT DETAILS	
D	5. EARTHQUAKE DESIGN DATA (TANK WALLS)				1. FOUNDATION DESIGNS AND SUBGRADE PREPARATION NOTES ARE BASED ON THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT NUMBER 22-12813 BY: NORTHWEST COLORADO CONSULTANTS, INC., DATED: JANUARY 17, 2023					
	A. SEISMIC IMPORTANCE FACTOR, Ie 1.25 B. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, Ss 30.8% C. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, S1 8.0% D. SITE CLASS D E. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER, Sds 0.319 F. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER, Sd1 0.128 G. SEISMIC DESIGN CATEGORY B				2. FOOTING DESIGNS ARE BASED ON A ALLOWABLE SOIL BEARING CAPACITY OF 3000 PSF.					
	H. STRUCTURAL SYSTEM				3. CONTRACTOR AND TESTING LABORATORY REPRESENTATIVE SHALL READ THE GEOTECHNICAL REPORT AND BECOME THOROUGHLY FAMILIAR WITH SITE AND SUBGRADE INFORMATION GIVEN THEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT QUANTITIES OF CUT AND FILL FOR ESTIMATING AND CONSTRUCTION.					
	1.) VERTICAL ELEMENT TYPE BEARING WALL SYSTEM				4. A QUALIFIED AND REGISTERED GEOTECHNICAL ENGINEER, LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED AND WORKING FOR THE TESTING LABORATORY, SHALL DETERMINE CONFORMANCE OF THE FOUNDATION BEARING STRATA WITH THE FOUNDATION DESIGN CRITERIA ABOVE, AND ALL OTHER CONTRACT DOCUMENTS. TESTING LABORATORY SHALL NOTIFY CONTRACTOR, ARCHITECT AND ENGINEER-OF-RECORD OF ANY CONDITIONS NOT IN ACCORDANCE WITH FOUNDATION DESIGN CRITERIA OR CONTRACT DOCUMENTS.					
	2.) BASIC SEISMIC FORCE-RESISTING SYSTEM TYPE ORDINARY REINFORCED CONCRETE SHEAR WALLS				5 THE SUBGRADE SHALL BE PREPARED AS INDICATED IN THE GEOTECHNICAL REPORT					
	3.) RESPONSE MODIFICATION FACTOR, R 4.0 4.) SEISMIC RESPONSE COEFFICIENT (ASD), Cs 0.070 5.) DESIGN BASE SHEAR (ASD), 1.0E 0.070W				6 USE ONLY STRUCTURAL FILL MATERIAL IDENTIFIED IN THE GEOTECHNICAL REPORT FOR FILL BELOW BUILDING AND FIVE FEET BEYOND THE EDGES OF THE BUILDING AND 1 FOOT BEYOND THE EDGES OF PAVING.					
E	J. ANALYSIS PROCEDURE EQUIVALENT LATERAL FORCE				7 PER GEOTECHNICAL REPORT, REMOVE A MINIMUM OF 3 FT OF THE NATURAL SOIL BELOW THE MAT SLAB AND REPLACE WITH COMPACTED STRUCTURAL FILL					
					8 FOUNDATION WALLS SHALL HAVE ADEQUATE TEMPORARY BRACING INSTALLED BY THE CONTRACTOR BEFORE BACKFILL IS PLACED AGAINST THEM. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL WALL IS PERMANENTLY BRACED.					
					9. AVOID DAMAGE TO UNDERGROUND UTILITIES INCLUDING, BUT NOT LIMITED TO, WATER MAINS, SANITARY SEWERS AND BURIED CABLES WHICH MIGHT EXTEND ACROSS OR ADJOIN SITE.					
F	 wallace design collective wallace design collective, pc structural · civil · landscape · survey 9800 pyramid court, suite 350 englewood, colorado 80112 303.350.1690 · 800.364.5868									
	REV. No:	DATE:	BY:	REVISION DESCRIPTION:	DRAWN BY: RM		PROJECT: WWTP IMPROVEMENT PROJECT COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO		SHEET TITLE: GENERAL STRUCTURAL NOTES	
					DESIGNED BY: SCJ		ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER:	SCALE:
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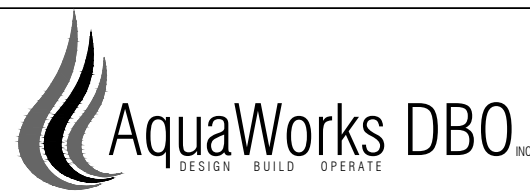
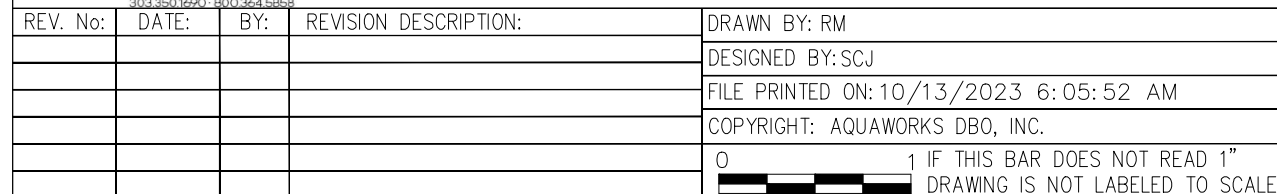
A.F.F.	ABOVE FINISHED FLOOR	LLV	LONG LEG VERTICAL
A.O.R.	ARCHITECT OF RECORD	LONG.	LONGITUDINAL
A.R.	ANCHOR RODS	LSH	LONG SIDE HORIZONTAL
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL	LSL	LONG SLOT
ARCH.	ARCHITECTURAL	LSV	LONG SIDE VERTICAL
B.L.	BLOCK LINTEL	MAX.	MAXIMUM
B.O.D.	BOTTOM OF DECK	MECH.	MECHANICAL
B.O.S.	BOTTOM OF STEEL	MEP	MECHANICAL/ELECTRICAL/PLUMBING
B.P.	BASE PLATE	MFR.	MANUFACTURER
BAL.	BALANCE	MIN.	MINIMUM
BLDG.	BUILDING	MISC.	MISCELLANEOUS
BRG.	BEARING	MTL.	METAL
C.J.	CONTRACTION JOINT	N.I.C.	NOT IN CONTRACT
C.L.	CENTER LINE	N.S.	NEAR SIDE
CFMF	COLD FORMED METAL FRAMING	N.T.S.	NOT TO SCALE
CLR.	CLEAR	O.C.	ON CENTER
CMU	CONCRETE MASONRY UNIT	O.D.	OUTSIDE DIAMETER
COL.	COLUMN	O.F.	OPPOSITE FACE
CONC.	CONCRETE	O.H.	OPPOSITE HAND
CONST.	CONSTRUCTION	OPP.	OPPOSITE
CONT.	CONTINUOUS	P.A.F.	POWER/POWDER ACTUATED FASTENER
D.B.A.	DEFORMED BAR ANCHOR	PCF	POUNDS PER CUBIC FOOT
D.B.E.	DECK BEARING ELEVATION	PEMB	PRE-ENGINEERED METAL BUILDING
DIA.	DIAMETER	PL	PLATE
DTL.	DETAIL	PLF	POUNDS PER LINEAR FOOT
DWG.	DRAWING	PLUMB.	PLUMBING
E.F.	EACH FACE	PSF	POUNDS PER SQUARE FOOT
E.J.	EXPANSION JOINT	PSI	POUNDS PER SQUARE INCH
E.O.D.	EDGE OF DECK	R	RADIUS
E.O.R.	ENGINEER OF RECORD	R.O.	ROUGH OPENING
E.O.S.	EDGE OF SLAB	RE:	REFER
E.W.	EACH WAY	REINF.	REINFORCING
EA.	EACH	REQD.	REQUIRED
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM	RTU	ROOF TOP UNIT
ELEC.	ELECTRICAL	S.D.S.	SELF-DRILLING SCREWS
ELEV.	ELEVATION	S.S.	STAINLESS STEEL
EQ.	EQUAL	SCHED.	SCHEDULE
EXIST.	EXISTING	SIM.	SIMILAR
F.F.E.	FINISHED FLOOR ELEVATION	SP.	SPACE/SPACING
F.S.	FAR SIDE	SPECS.	SPECIFICATIONS
F.V.	FIELD VERIFY	SSL	SHORT SLOT
FDN.	FOUNDATION	STD.	STANDARD
FT.	FOOT/FEET	STL.	STEEL
FTG.	FOOTING	T&B	TOP AND BOTTOM
G.B.	GRADE BEAM	T.O.	TOP OF
G.C.	GENERAL CONTRACTOR	T.O.C.	TOP OF CONCRETE
GA.	GAGE	T.O.M.	TOP OF MASONRY
GALV.	GALVANIZED	T.O.P.	TOP OF PIER
H.S.A.	HEADED STUD ANCHOR	T.O.S.	TOP OF STEEL
HORIZ.	HORIZONTAL	T.O.W.	TOP OF WALL
I.F.	INSIDE FACE	TRANS.	TRANSVERSE
IN.	INCH/INCHES	TYP.	TYPICAL
INFO.	INFORMATION	U.N.O.	UNLESS NOTED OTHERWISE
J.B.E.	JOIST BEARING ELEVATION	VERT.	VERTICAL
JT.	JOINT	W.P.	WORK POINT
K	UNIT OF 1,000 POUNDS (KIP)	W.S.	WATERSTOP
KSI	KIPS PER SQUARE INCH	W.W.R.	WELDED WIRE REINFORCEMENT
LBS.	POUNDS	WT.	WEIGHT
LLH	LONG LEG HORIZONTAL		

1. A REPRESENTATIVE OF THE ENGINEER OF RECORD WILL PERFORM THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE INSPECTION REQUIRED OF THE BUILDING OFFICIAL OR THE SPECIAL INSPECTOR.
2. A PRE-CONSTRUCTION MEETING SHALL BE HELD AND ATTENDED BY AQUAWORKS DBO, STRUCTURAL ENGINEER OF RECORD, GENERAL CONTRACTOR, SUBCONTRACTORS, AND SPECIAL INSPECTORS.
3. THE GENERAL CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AT LEAST 48 HOURS PRIOR TO COMPLETING CONSTRUCTION OPERATIONS THAT REQUIRE STRUCTURAL OBSERVATION (BY CALLING (303) 350-1690 TO SCHEDULE A SITE VISIT.)
4. AT A MINIMUM, THE FOLLOWING SIGNIFICANT CONSTRUCTION STAGES REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER:
 - A. AFTER INSTALLATION OF CONCRETE WALL DOWELS AND BEFORE FOUNDATION CONCRETE PLACEMENT.
5. AT THE CONCLUSION OF THE WORK INCLUDED IN THE PERMIT, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFY ANY REPORTED DEFICIENCIES THAT, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.



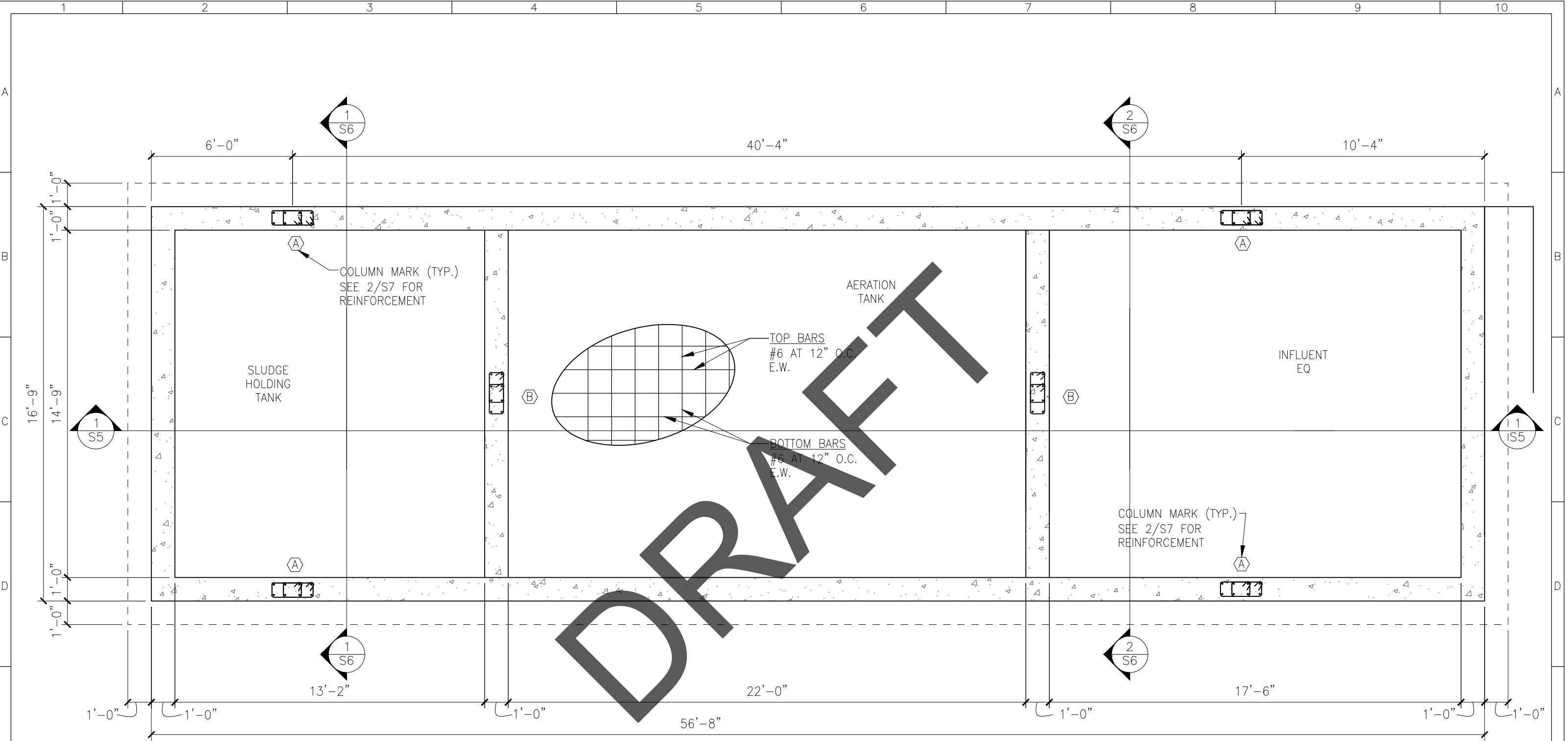
1. CONDUIT/PIPE SHALL BE FABRICATED AND INSTALLED SUCH THAT CUTTING, BENDING, OR DISPLACEMENT OF REINF. WILL NOT BE REQUIRED.
2. CONDUIT/PIPE SHALL NOT BE PLACED WITHIN 9" OF CONTAINER SUPPORT
3. DO NOT STACK CONDUIT VERTICALLY IN SLAB.
4. CONDUIT/PIPE SHALL BE SUPPORTED AND SECURED TO PREVENT DISPLACEMENT DURING PLACEMENT OF CONCRETE.
5. ALUMINUM CONDUIT/PIPE NOT PERMITTED.
6. CONDUIT/PIPE SHALL BE MIN. 3/4" CLR. TO REINF.

SCALE: NTS



ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

PROJECT NUMBER:	SCALE:	SHEET:
#2479	N.T.S.	S2



1
S3

CONCRETE TANK FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

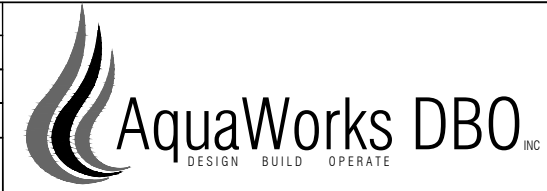
	FOUNDATION PLAN NOTES:
1.	18" CONCRETE SLAB REINFORCED AS SHOWN ON PLAN. PLACE SLAB OVER 6" BASE OF WELL GRADED GRANULAR FILL, OVER NEWLY PLACED, COMPACTED FILL (REMOVE ALL CLAYS PRIOR TO FILL PLACEMENT). PREPARE SUBGRADE PER GEOTECHNICAL RECOMMENDATIONS FROM REPORT REFERENCED ON SHEET S1.
2.	EXTERIOR GRADE ELEVATION VARIES, REF CIVIL. SLOPE BOTTOM OF FOOTING TO MAINTAIN MINIMUM BEARING DEPTH.
3.	REFERENCE PROCESS PLANS AND SECTIONS FOR SIZE AND LOCATIONS OF PENETRATIONS, TYP.



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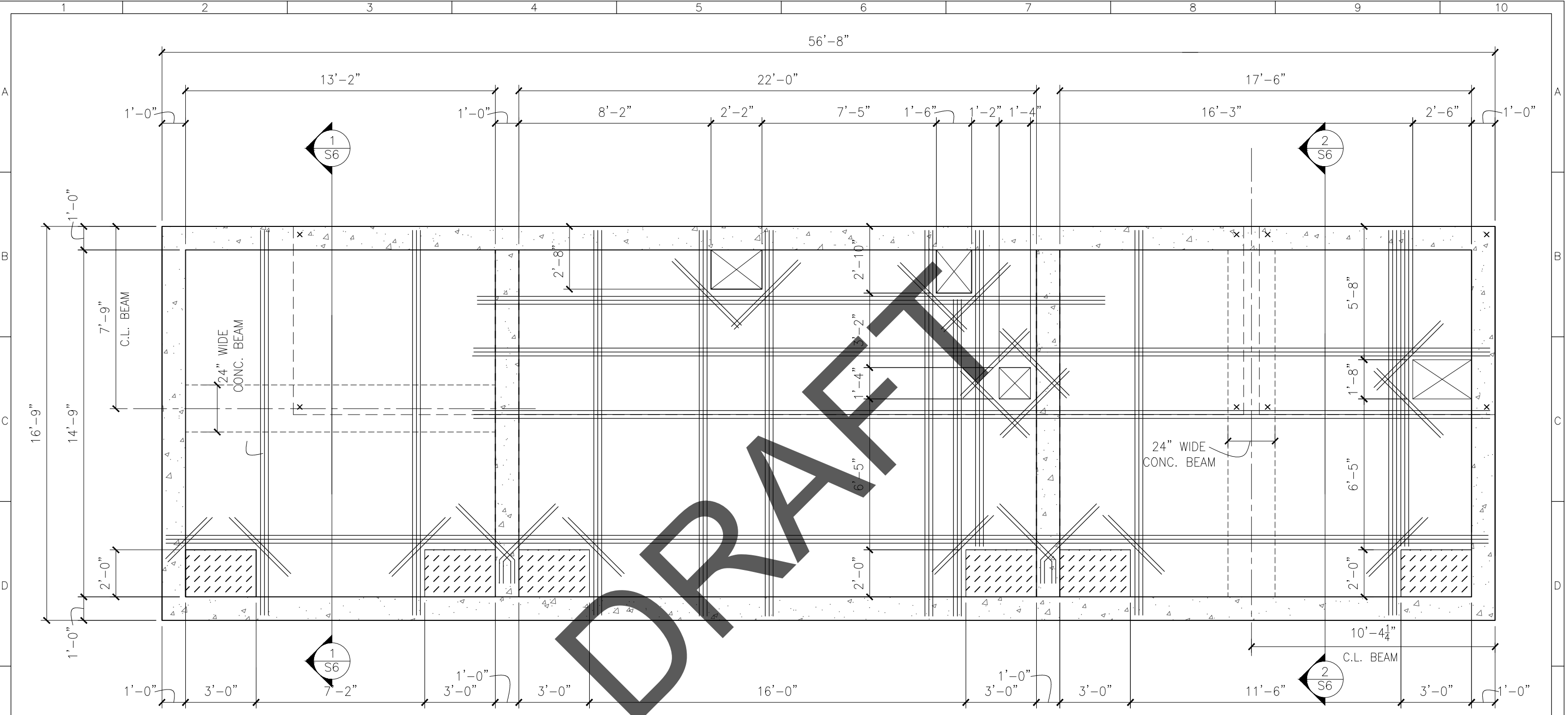
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(303) 477-5915

SHEET TITLE:
CONCRETE TANK FOUNDATION PLAN

PROJECT NUMBER:
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SCALE:
1/4" = 1'

SHEET:
S3



1

S4

CONCRETE TANK LID PLAN

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

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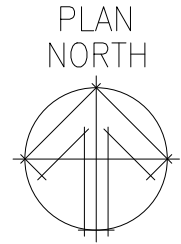
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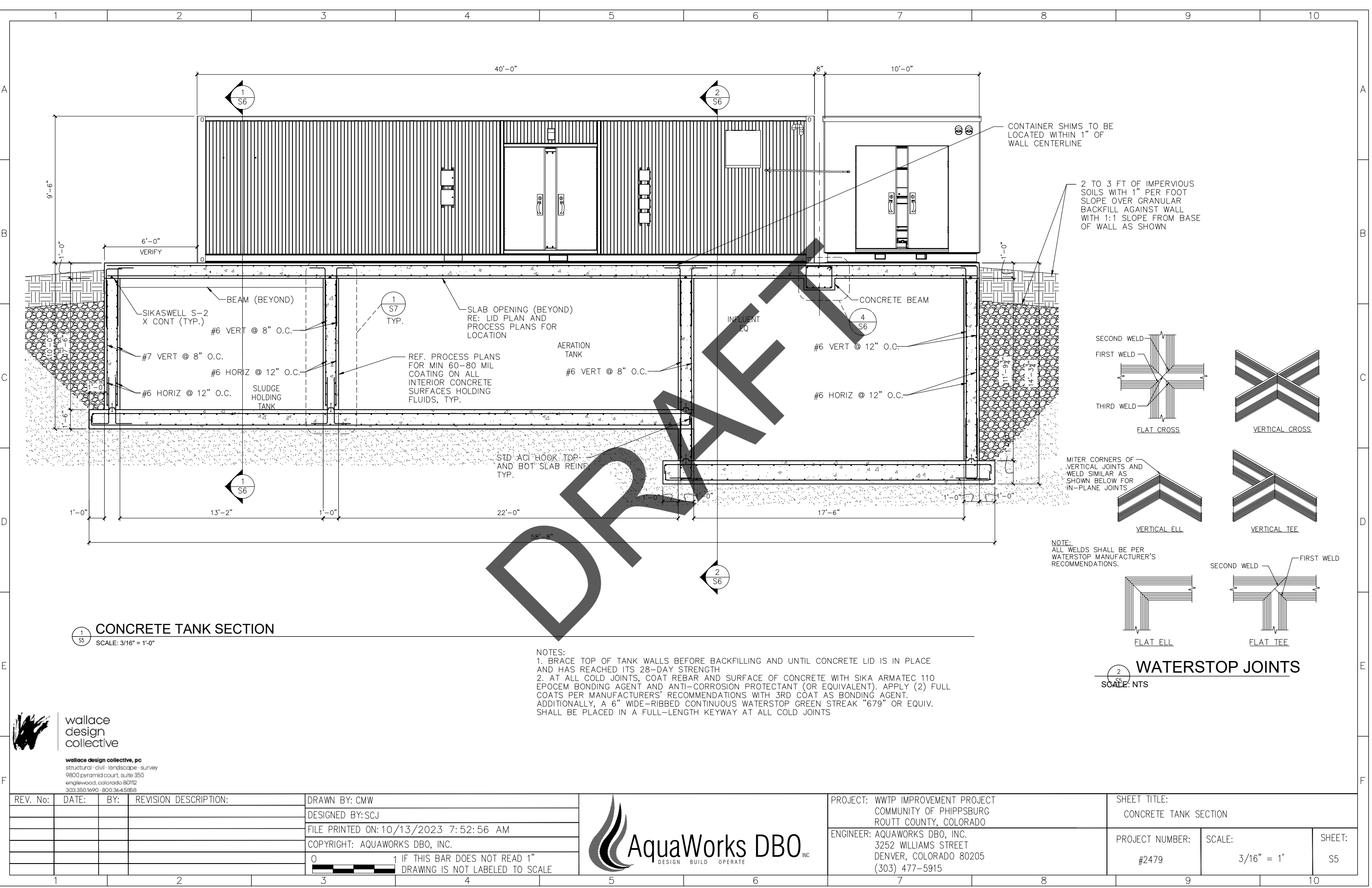
DESIGN BUILD OPERATE

INC

CONCRETE TANK LID PLAN NOTES:	
1.	12" CONCRETE SLAB REINFORCED AS SHOWN ON PLAN.
2.	EXTERIOR GRADE ELEVATION VARIES, REF CIVIL.
3.	REFERENCE PROCESS PLANS AND SECTIONS FOR SIZE AND LOCATIONS OF PENETRATIONS, TYP.
4.	REF. 7-S7 AND 8-S7 FOR TYPICAL WALL PIPE SLEEVE OR OTHER WALL OPENING DETAILS. RE: PROCESS PLANS FOR LOCATIONS
5.	SPACING OF ADDITIONAL BARS AROUND OPENINGS SHALL BE MINIMUM OF 2".
6.	EXTEND ALL ADDITIONAL BARS TO NEXT INTERIOR WALL CL OR DEVELOPMENT LENGTH PER 6/S7 (WHICHEVER IS LONGER)
7.	PROVIDE 2" CLR FROM REINF. EA SIDE OF OPNG. PER 3/S7
8.	REF DETAIL 9/S7 FOR EMBEDS CAST INTO CONCRETE LID UNDER CONTAINER LEG LOCATIONS



PROJECT: WWTP IMPROVEMENT PROJECT COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO		SHEET TITLE: CONCRETE TANK LID PLAN		
ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER: #2479	SCALE: 1/4" = 1'	SHEET: S4



1
S5

CONCRETE TANK SECTION

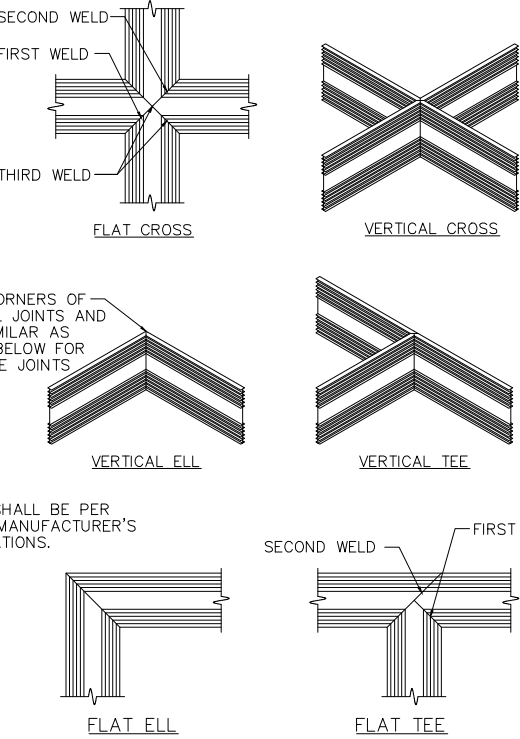
SCALE: 3/16" = 1'-0"

- NOTES:
- 1. BRACE TOP OF TANK WALLS BEFORE BACKFILLING AND UNTIL CONCRETE LID IS IN PLACE AND HAS REACHED ITS 28-DAY STRENGTH
 - 2. AT ALL COLD JOINTS, COAT REBAR AND SURFACE OF CONCRETE WITH SIKASIKAMATEC 110 EPOCEM BONDING AGENT AND ANTI-CORROSION PROTECTANT (OR EQUIVALENT). APPLY (2) FULL COATS PER MANUFACTURERS' RECOMMENDATIONS WITH 3RD COAT AS BONDING AGENT. ADDITIONALLY, A 6" WIDE-RIBBED CONTINUOUS WATERSTOP GREEN STREAK "679" OR EQUIV. SHALL BE PLACED IN A FULL-LENGTH KEYWAY AT ALL COLD JOINTS

2
S5

WATERSTOP JOINTS

SCALE: NTS





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				DESIGNED BY: SCJ			ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER: #2479	SCALE: 3/16" = 1'	SHEET: S5
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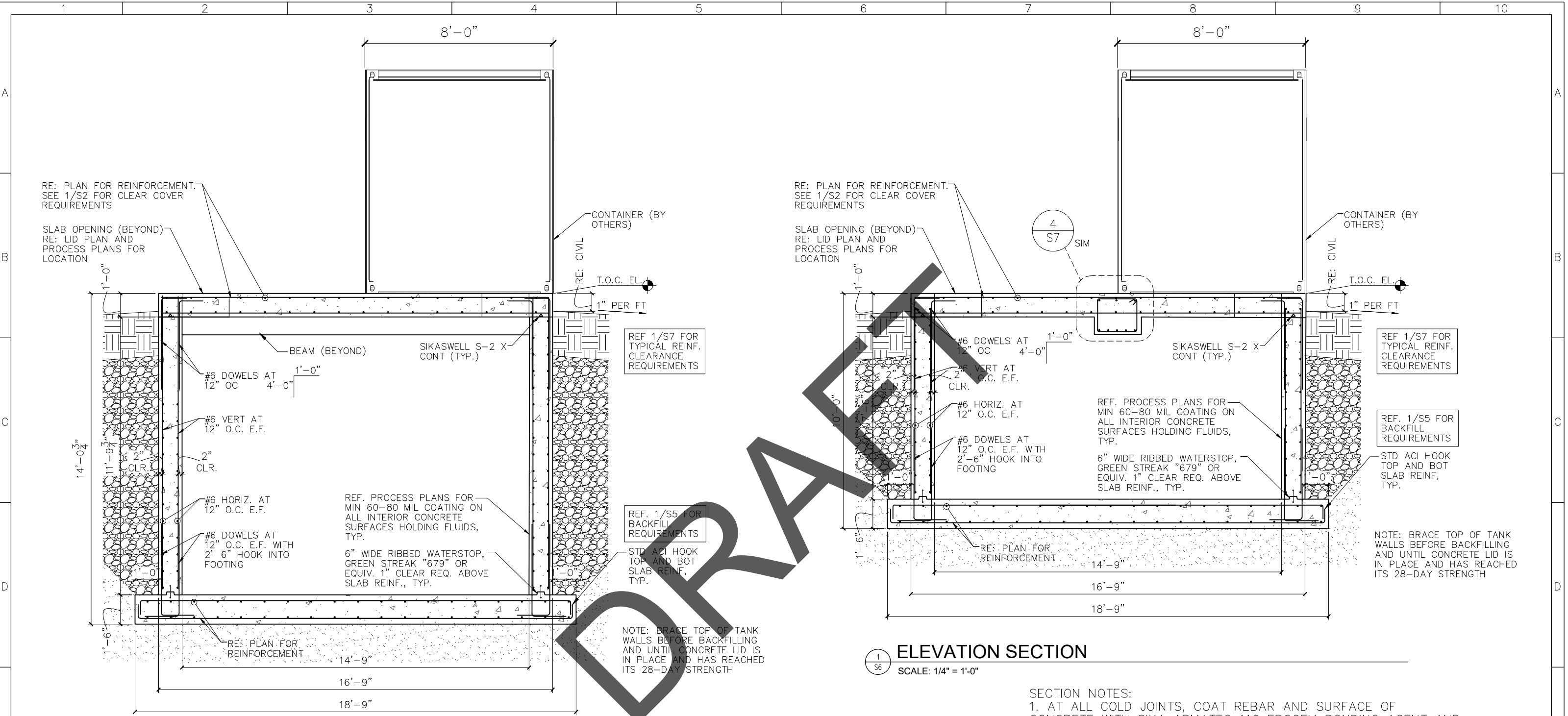


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PROJECT: WWTP IMPROVEMENT PROJECT
COMMUNITY OF PHIPPSBURG
ROUTT COUNTY, COLORADO



2
S6
ELEVATION SECTION
SCALE: 1/4" = 1'-0"

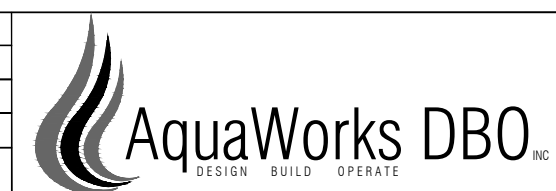
1
S6
ELEVATION SECTION
SCALE: 1/4" = 1'-0"

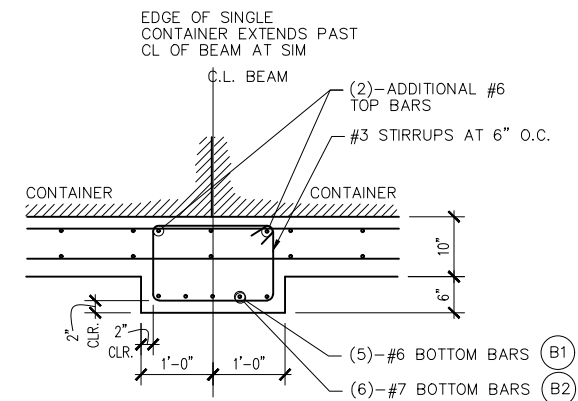
SECTION NOTES:
1. AT ALL COLD JOINTS, COAT REBAR AND SURFACE OF CONCRETE WITH SIKA ARMATEC 110 EPOCEM BONDING AGENT AND ANTI-CORROSION PROTECTANT (OR EQUIVALENT). APPLY (2) FULL COATS PER MANUFACTURERS' RECOMMENDATIONS WITH 3RD COAT AS BONDING AGENT. ADDITIONALLY, A 6" WIDE-RIBBED CONTINUOUS WATERSTOP GREEN STREAK "679" OR EQUIV. SHALL BE PLACED IN A FULL-LENGTH KEYWAY AT ALL COLD JOINTS



wallace
design
collective

wallace design collective, pc
structural · civil · landscape · survey
9800 pyramid court, suite 350
englewood, colorado 80112
303.350.1690 · 800.364.5558

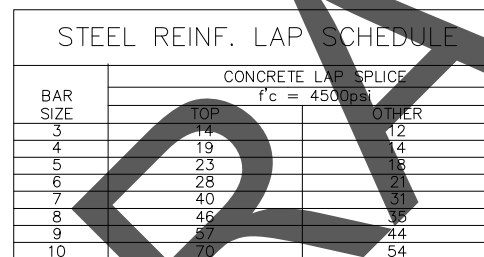
REV. No:	DATE:	BY:	REVISION DESCRIPTION:	DRAWN BY: CMW		PROJECT: WWTP IMPROVEMENT PROJECT	SHEET TITLE: CONCRETE TANK SECTION		
				DESIGNED BY: SCJ		ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915	PROJECT NUMBER: #2479	SCALE: 1/4" = 1'	SHEET: S6
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4
S7

DETAIL (LID BEAM)

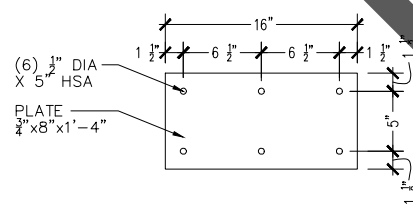
SCALE: 3/8" = 1'-0"



6
S7

LAP

NO SCALE



EMBED TYPE 2
(AT INSIDE CORNER LEGS)

9
S7

LID E

NO SCALE



SHEET:
S7

ONE-LINE

PANELBOARD

WEATHERHEAD

KVA

DRY-TYPE TRANSFORMER

PADMOUNT UTILITY TRANSFORMER

SHORT CIRCUIT VALUE

WIRE SIZE

METER AND CTs

FUSED DISCONNECT

NON-FUSED DISCONNECT

M

MOTOR

CIRCUIT BREAKER

FUSED SWITCH

MAGNETIC STARTER/CONTACTOR

GENERATOR

GROUND

POWER LEGEND

⊙

CEILING MOUNTED JUNCTION BOX

⊙

WALL MOUNTED JUNCTION BOX

□

FLOOR MOUNTED JUNCTION BOX

WM-|

WIREMOLD SURFACE RACEWAY

⊙

NEMA-4X GROUND FAULT RECEPTACLE

⊕

DUPLEX RECEPTACLE

⊕

FOURPLEX RECEPTACLE

⊕

ABOVE COUNTER MOUNTED RECEPTACLE

⊙

GROUND FAULT RECEPTACLE

⊕

CEILING MOUNTED RECEPTACLE

⊕

FLOOR MOUNTED DUPLEX RECEPTACLE

⊕

FLOOR MOUNTED FOURPLEX RECEPTACLE

⊕

SPECIAL RECEPTACLE

⊕

FLOOR MOUNTED SPECIAL RECEPTACLE

▼

TELEPHONE OUTLET

▼_W

WALL MOUNTED TELEPHONE OUTLET

▼

FLOOR MOUNTED TELEPHONE OUTLET

▼

COMBINATION VOICE/DATA

⏏

TELEVISION OUTLET

CONTROLS LEGEND

SV

SOLENOID VALVE

FM

METER OR FLOW METER

FT

TRANSMITTER

LM

LEVEL METER

GV

GLOBE VALVE



PROJECT GENERAL NOTES:

1. THE PROCESS BUILDING IS FACTORY DESIGNED, BUILT, TESTED AND DELIVERED TO THE SITE FULLY ASSEMBLED BY NEWTERRA. ALL WORK INSTALLED BY NEWTERRA SHALL MEET 2020 NEC INSPECTION CODES.
2. THE CONTRACTOR SHALL WORK WITH NEWTERRA MANUFACTURING TO PROVIDE AND INSTALL ALL ELECTRICAL AND CONTROLS COMPLETE WITH ASSOCIATED CIRCUITRY NECESSARY TO PERFORM THE INTENDED FUNCTIONS OF THE CONTRACT DOCUMENTS. ANY MATERIALS, DEVICES AND CIRCUITRY NOT SPECIFICALLY INDICATED BUT NECESSARY TO PERFORM INTENDED FUNCTIONS AND CORRECT OPERATION SHALL BE PROVIDED AND INSTALLED.
3. ELECTRICAL INSTALLATION OF POWER AND CONTROLS ON EQUIPMENT SKIDS SHALL BE BY THE MANUFACTURER.
4. ALL EQUIPMENT, DEVICE AND RACEWAY DIMENSIONS, PLANS AND ELEVATIONS INDICATED ON THE DRAWINGS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL USE SHOP DRAWINGS FOR PROPER LAYOUT, FOUNDATION AND PAD FOR FINAL INSTALLATION.
5. ALL OVERCURRENT DEVICES (CIRCUIT BREAKERS, FUSES, OVERLOADS, ETC.) SIZES INDICATED ARE ESTIMATED. THE CONTRACTOR SHALL PROVIDE AND INSTALL OVERCURRENT DEVICES SIZED AS REQUIRED BY THE NEC FOR THE CONNECTED LOAD AND ACTUAL EQUIPMENT RATING. ALL OVERCURRENT DEVICES SIZES SHALL BE APPROVED BY THE ENGINEER.

SITE WORK:

1. ALL WORK SHALL BE COORDINATED WITH OTHER UNDER GROUND UTILITIES.
2. THE CONTRACTOR SHALL FOLLOW TRENCH DETAILS FOR CONDUIT AND WIRE.

GENERATOR PAD:

1. SIZE PAD TO EXTEND A MINIMUM OF 18" PAST THE EDGE OF GENERATOR ENCLOSURE PROVIDED. COMPACT SOIL UNDER GENERATOR PADS TO 95% STANDARD PROCTOR. THE FINAL PAD THICKNESS IS A MINIMUM OF 6".
2. STEEL REINFORCING BARS: ASTM A 615/A 615M, GRADE 60 (GRADE 420), DEFORMED. ALL REINFORCING STEEL SHALL BE UNIFORMLY TIED TO REINFORCING STEEL TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT WITH BOLSTERS, CHAIRS, OR SPACERS.
3. ALL CONCRETE SHALL BE AIR PROPORTION NORMAL-WEIGHT CONCRETE MIXTURE AS FOLLOWS:

a. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS.

b. MAXIMUM WATER-CEMENTITIOUS MATERIALS RATIO: 0.45.

c. SLUMP LIMIT: 5 INCHES, PLUS OR MINUS 1 INCH.

d. AIR CONTENT: 6 PERCENT, PLUS OR MINUS 1.5 PERCENT AT POINT OF DELIVERY FOR 3/4-INCH NOMINAL MAXIMUM AGGREGATE SIZE.
4. PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. COMPLY WITH ACI 306.1 FOR COLD-WEATHER PROTECTION AND ACI 301 FOR HOT-WEATHER PROTECTION DURING CURING.

SITE (POWER) TRENCH DETAIL:

1. FOR THE CONDUIT TRENCHES TO THE INSTALL SCHEDULE 40 PVC CONDUIT WITH RIGID ELBOWS. REBAR STAKE AND TIE THE CONDUIT AT 5' INTERVALS ABOVE THE BOTTOM OF THE TRENCH AND FLOW FILL 8" WITH CONCRETE SLURRY.

2. COORDINATE TRENCH WIDTH WITH OWNER AND WHERE NEEDED CONDUITS CAN BE STACKED TO MINIMIZE TRENCH WIDTH

SERVICE:

1. ALL WORK SHALL CONFORM TO 2020 NATIONAL ELECTRIC CODE ALONG WITH ANY LOCAL BUILDING CODES.
2. ALL WORK INVOLVING THE UTILITY SHALL BE REVIEWED AND CONFIRMED, PRIOR TO ANY INSTALLATION. ALL WORK TO CONFORM TO YAMPA VALLEY ELECTRIC ASSOCIATION REQUIREMENTS.
3. ALL FEEDERS ARE TO BE COPPER.
4. PANEL SCHEDULES SHALL BE UPDATED AND TYPED PRIOR TO COMPLETION OF THE PROJECT.
5. THE E.C. SHALL SUBMIT ELECTRICAL DISTRIBUTION GEAR, AND GENERATOR SHOP DRAWINGS TO THE OWNER AND ENGINEER FOR APPROVAL PRIOR TO FINAL PURCHASE.
6. THE SERVICE EQUIPMENT SHALL BE BUILT AT THE EDGE OF THE TANK PAD WITH A RACK AS SHOWN OR MOUNTED ON THE CONTAINER EXTERIOR PER OWNER PREFERENCE.

STAND-BY GENERATOR AND ATS:

1. THE GENERATOR SHALL BE INSTALLED WITH ALL CONNECTIONS, CONDUCTORS AND CONDUITS PER THE CODE.
2. REFER TO GENERATOR SPECIFICATION TABLE FOR DETAILS ON THE PROJECT SPECIFIC GENERATOR.
3. THE CONTRACTOR SHALL PROVIDE A CONCRETE HOUSEKEEPING PAD PER DETAIL.
4. SUPPLY AUTOMATIC TRANSFER SWITCH IN THE AMPERAGE AND VOLTAGE SPECIFIED. SWITCH SHALL BE (3) POLE WITH A SOLID NEUTRAL CONNECTION.
5. GROUND GENERATOR PER NEC 250-35(B) FOR A NON-SEPARATELY DERIVED SYSTEM.
6. CONTROL CONDUCTORS FROM THE GENERATOR TO THE REMOTE CONTROL PANEL AND ATS SWITCH SHALL BE VERIFIED FROM THE MANUFACTURER AND INSTALLED PER CODE.
7. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR THE GENERATOR AND TRANSFER SWITCHES TO THE ENGINEER PRIOR TO PURCHASE.
8. THE CONTRACTOR IS RESPONSIBLE TO TEST AND SHOW PROPER OPERATION OF THE STANDBY SYSTEM TO THE OWNER.

GROUNDING:

1. PROVIDE NEW MAIN SERVICE GROUNDING WITH THE FOLLOWING:

•A WALL MOUNTED 2" X 8" X ¼" GROUND BAR MOUNTED ON WALL BY MAIN SERVICE BOND ALL CONDUCTORS HERE.

•2- ⅝" GROUND RODS AT ENTRANCE PER NEC.

•INSTALL 20' OF BARE GROUND WIRE IN THE TRENCH TO THE GENERATOR AND COVER WITH CONCRETE.

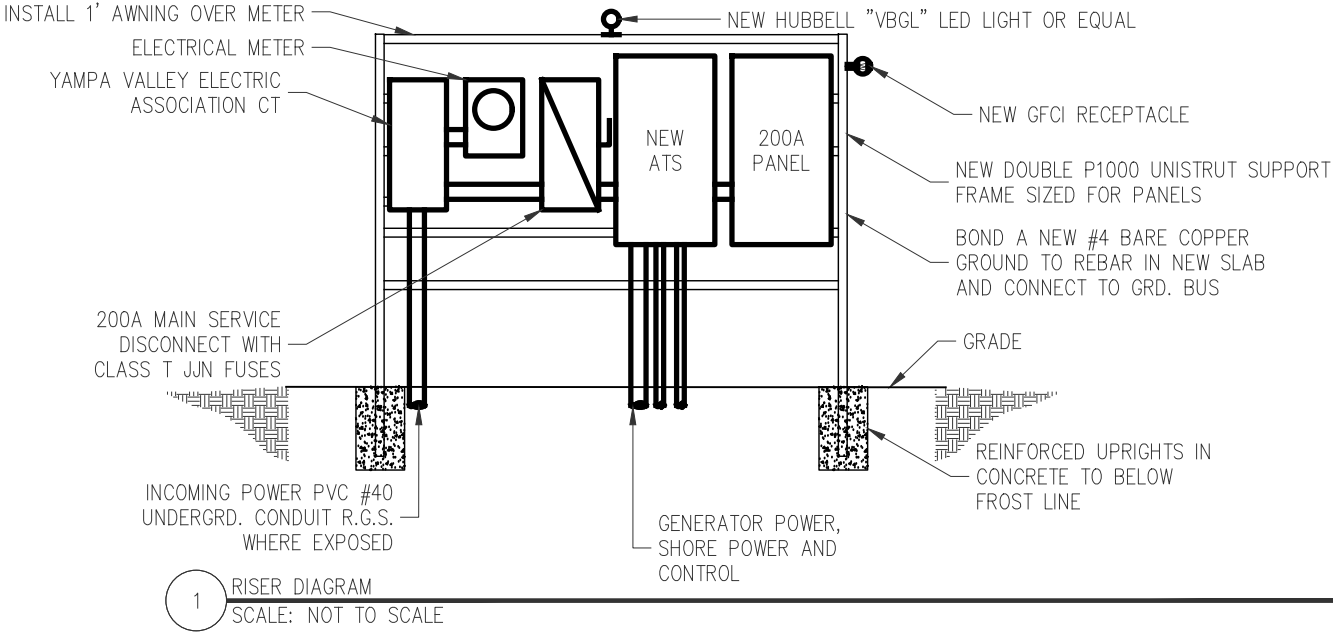
•BOND BUILDING STEEL OF NEW CONTAINERIZED PLANT.

DETAIL NOTES ALL SHEETS:

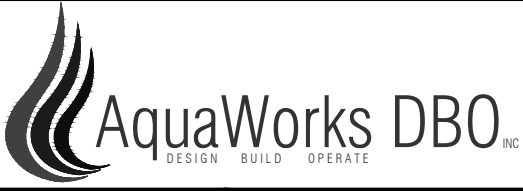
1. THE CONTRACTOR SHALL VERIFY THE NUMBER OF CONTROL CABLES BETWEEN THE GENERATOR AND ATS SWITCH. THERE WILL BE A SET OF GENERATOR START CONTACTS ALONG WITH A COMMUNICATIONS CONNECTION FOR GENERATOR ALARM SIGNALS TO THE SCADA SYSTEM. COORDINATE WITH NEWTERRA ON CONNECTION TO SCADA.

CONTROL SYSTEM WORK BY ELECTRICAL:

1. ALL CONTROL DEVICES, CABLING AND CONNECTIONS INSIDE THE BUILDING WILL BE INSTALLED BY THE MANUFACTURER.
2. ALL CONTROL DEVICES AND FACTORY SUPPLIED CABLING FOR THE TANKS SHALL BE SUPPLIED BY NEWTERRA.
3. THE ELECTRICAL CONTRACTOR SHALL INSTALL CONTROL CONDUITS BETWEEN THE INTERIOR PANELS AND THE TANKS.
4. THE E.C. SHALL SUPPLY THE CONTROL CABLING FROM THE BUILDING TO THE TANKS AS LISTED IN THE NEWTERRA SUBMITTAL AND THE SCHEDULE. EC TO PROVIDE CABLING BETWEEN CONTAINERS PER THE NEWTERRA ONE-LINE.



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PROJECT: WWTP IMPROVEMENT PROJECT COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO		SHEET TITLE: ELECTRICAL NOTES & DETAILS		
ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER: #2479	SCALE: NOT TO SCALE	SHEET: E1

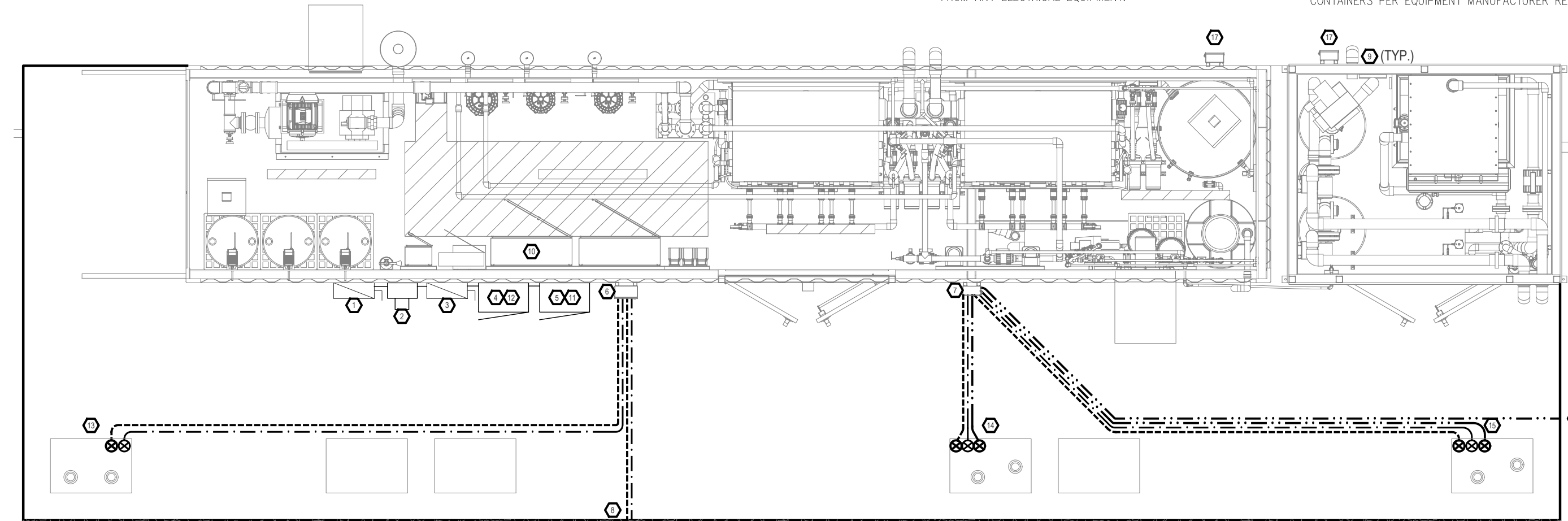


GENERAL NOTES:

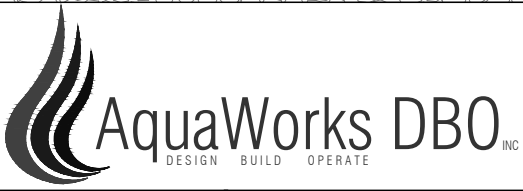
- A. ALL CONDUCTORS SIZING IS BASED ON COPPER ONLY.
- B. EC TO COORDINATE WITH YAMPA VALLEY ELECTRIC ASSOCIATION TO VERIFY SIZE AND AVAILABLE FAULT CURRENT FOR THE UTILITY TRANSFORMER. IF ANY VALUES EXCEED THE ONES LISTED ON THE SHORT CIRCUIT TABLE, CONTACT ENGINEER IMMEDIATELY TO REVISE DESIGN AND CALCULATIONS.
- C. VOLTAGE DROP IS TO BE TESTED AND IF NEEDED, UPSIZED BY THE EC.
- D. SEE INSTRUMENTATION TABLE ON E3 FOR POWER CONNECTION REQUIREMENTS, COMMUNICATION CABLE TYPES, CONDUIT SIZES, JUNCTION BOX ROUTING, HAZARDOUS AREA CLASSIFICATIONS AND TERMINATION INFORMATION
- E. ALL CONDUIT PATHWAYS SHOWN IN THIS DRAWING ARE DIAGRAMMATIC ONLY. EC TO DETERMINE THE BEST ROUTING FOLLOWING THE INSTRUMENTATION SCHEDULE ON PAGE E3
- F. TRANSFORMER ASSUMED TO BE NO FURTHER THEN 50' AWAY. IF THERE IS A DISCREPANCY, CONTACT ENGINEER FOR RECALCULATIONS

KEYED NOTES:

1. 200A YAMPA VALLEY ELECTRIC ASSOCIATION ASSOCIATION 600V NEMA 3R CT.
2. 200A YAMPA VALLEY ELECTRIC ASSOCIATION ASSOCIATION METER.
3. 200A YAMPA VALLEY ELECTRIC ASSOCIATION ASSOCIATION 600V NEMA 3R SERVICE DISCONNECT.
4. 200A, 480/277V, 3PHASE, 4 WIRE, NEMA 3R, AUTOMATIC TRANSFER SWITCH.
5. 200A, 480/277V, 3PHASE, 4 WIRE, NEMA 3R PANEL.
6. JUNCTION BOXES JB-TNK1, JB-TNK1-DC.
7. JUNCTION BOXES JB-TNK2-CL2, JB-TNK2-IS, JB-TNK2, & JB-TNK2-DC.
8. U.G. POWER AND CONTROL CONDUITS FOR GENERATOR. SEE CIVIL PLANS FOR EXACT LOCATIONS. GENERATOR IS ABOUT 60' NORTH OF THE PLANT. ATS TO RECEIVE 120V AND 24VDC CONNECTIONS.
9. EXTEND VENTILATION WHEN NEEDED TO ENSURE IT IS 3' AWAY FROM ANY ELECTRICAL EQUIPMENT.
10. PROPOSED LOCATION OF 120/208V 3PHASE PANEL. PANEL TO SUPPLY GENERATOR AND RACK'S SMALL LOADS.
11. MAINTENANCE LED LIGHT & GFI ON RACK 120V FROM NEW 120/208V PANEL.
12. COORDINATE OVERHEAD ROUTE FOR INCOMING 200A FEED FROM TRANSFER SWITCH.
13. SLUDGE HOLDING TANK TNK-0901. TANK TO RECEIVE 480V CONNECTIONS AND 24VDC CONNECTIONS. SEE E3 FOR EQUIPMENT CONNECTION SCHEDULE.
14. AERATION TANK TNK-0501. TANK TO RECEIVE 480V CONNECTIONS, CLASS 2 CONNECTIONS AND 24VDC. SEE E3 FOR EQUIPMENT CONNECTION SCHEDULE.
15. EQUALIZATION TANK TNK-0301. TANK TO RECEIVE 480V CONNECTIONS, 24VDC, AND INTRINSICALLY SAFE/CLASS 2 CONNECTIONS. SEE E3 FOR EQUIPMENT CONNECTION SCHEDULE.
16. INSTALL ULTRASONIC TRANSDUCER AT EXISTING FLUME (INTRINSICALLY SAFE.)
17. PROVIDE ELECTRICAL CONNECTIONS BETWEEN THE TWO CONTAINERS PER EQUIPMENT MANUFACTURER REQUIREMENTS.



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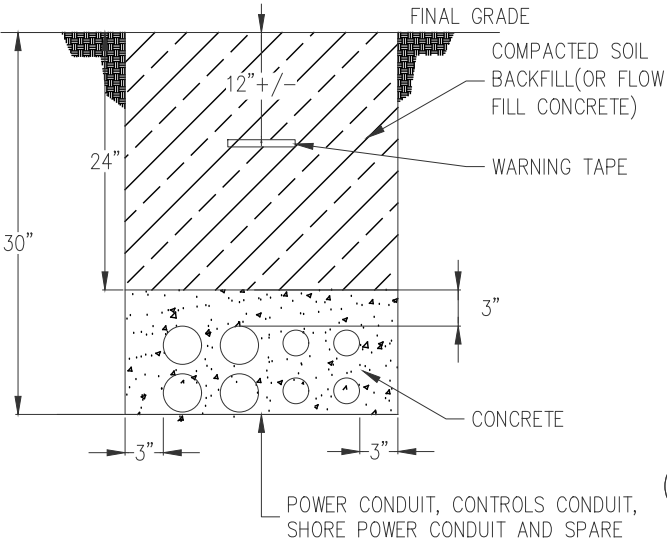


PROJECT: WWTP IMPROVEMENT PROJECT COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO		SHEET TITLE: ELECTRICAL LAYOUT		
ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER: #2479	SCALE: NOT TO SCALE	SHEET: E2

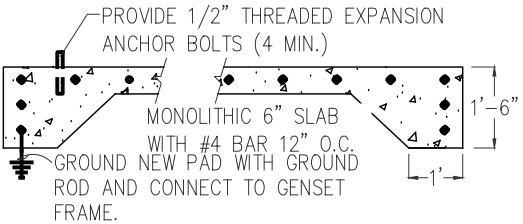
TANK POWER & INSTRUMENT CONNECTION										
TANK #	TAG	480V	120V	24VDC	IS/CL2	ITEM	CABLE IN CONDUIT	AREA CLASSIFICATION	CONNECTION	TERMINATION
301	P-0301	YES	-	-	-	Equalization Tank Pump #1 (Duty)	3-#12, 1-#12, -3/4" Rigid	C1, Div1 Seal-Off	JB-TNK2	Plant MPP
	P-0302	YES	-	-	-	Equalization Tank Pump #2 (Standby)	3-#12, 1-#12, -3/4" Rigid			
	P-0301-STAT	-	-	YES	-	Equalization Tank Pump #1 Status	Separate 1" Conduits for all connections. Verify the Qty of #16, pairs of #16 STP, & 24Vdc, and other pump control cables		JB-TNK2-DC	Plant MCP
	P-0302-STAT	-	-	YES	-	Equalization Tank Pump #2 Status				
	LT-301	-	-	-	YES	Level Transmitter				
	LALL-301	-	-	-	YES	Level Alarm Low Low				
	LSLL-301	-	-	-	YES	Level Switch High High				
LAHH-301	-	-	-	YES	Level Alarm High High	JB-TNK2-IS				
LSHH-301	-	-	-	YES	Level Switch High High					
501	P-0501	YES	-	-	-	Aeration Tank Pump #1 (Duty)	3-#12, 1-#12, -3/4" Rigid	General Purpose	JB-TNK2	Plant MPP
	P-0502	YES	-	-	-	Aeration Tank Pump #2 (Standby)	3-#12, 1-#12, -3/4" Rigid			
	P-0501-STAT	-	-	YES	-	Aeration Tank Pump #1 Status	Separate 1" Conduits for all connections. Verify the Qty of #16, and other pump sensor cables		TB-TNK2-DC	Plant MCP
	P-0502-STAT	-	-	YES	-	Aeration Tank Pump #2 Status				
	PHA-0501	-	-	YES	-	pH Transmitter				
	PH-0501	-	-	YES	-	pH Transmitter Alarm				
	DOAL-0501	-	-	YES	-	Dissolved Oxygen Transmitter Alarm				
	DO-0501	-	-	YES	-	Dissolved Oxygen Transmitter				
	LAHH-0501	-	-	-	YES	Level Alarm High High				
	LSHH-0501	-	-	-	YES	Level Switch High High				
	LALL-0501	-	-	-	YES	Level Alarm Low Low			JB-TNK2-CL2	
LSLL-0501	-	-	-	YES	Level Switch Low Low					
LT-0501	-	-	-	YES	Level Transmitter					
901	P-0901	YES	-	-	-	Activated Sludge Decant Pump #1 (Duty)	3-#12, 1-#12, -3/4" Rigid	General Purpose	JB-TNK1	Plant MPP
	P-0902	YES	-	-	-	Activated Sludge Decant Pump #2 (Standby)	3-#12, 1-#12, -3/4" Rigid			
	LT-0901	-	-	YES	-	Level Transmitter	Separate 1" Conduits for all connections. Verify the Qty of #16, pairs of #16 STP, & other sensor cables		JB-TNK1-DC	Plant MCP
	LALL-0902	-	-	YES	-	Level Alarm Low Low				
	LSLL-0901	-	-	YES	-	Level Switch Low Low				
	LAHH-0902	-	-	YES	-	Level Alarm High High				
	LSHH-0901	-	-	YES	-	Level Switch High High				

WWTP Generator Specifications		
Manufacturer	MTU Rolls-Royce	
Model	4R0120 DS100	
Voltage	480	V
Duty	Standby	
Size (Rated for Site)	100kW/120kVA	kW/kVA
Phase/Wire	3ph/4w	
Engine	OM924LA	
Fuel	diesel	
Site Elevation	6500'	FT
Ambient Temp	95F	Deg
Low Temp Design	-20F	Deg
Max Starting kVA	344skV at 30%	kVA
Maximum Voltage Dip	30%	%
Sound	Steel Weather	
Exhaust	Internal Muffler w/ Top Exhaust	
Emergency Power Off Switch	QTY (2)	
Housing	Level 3	
Width	48	Inches
Length	144.08	Inches
Height	110.78	Inches
UL Base Tank	24 hour	
Approximate Weight	5730	Lbs
Accessories:		
Extreme Cold Weather Kit with Snow		
Block Heater	1500W 120V for (-20F)	
Battery Charger/Heat	10A	
Remote Annunciator	Yes	
Automatic Transfer Switch	Yes	
ATS Cable/Annunciator	TBD	

MAIN SERVICE CALCULATION 480 Volts			
Computed Loads		Demand Factor	
Lighting	0.3 kVA	125% =	0.3 kVA
Receptacle (1st 10 kW)	1.4 kVA	100% =	1.4 kVA
Receptacle (Over 10 kW)	0.0 kVA	50% =	0.0 kVA
Motor Loads	34.5 kVA	100% =	34.5 kVA
Largest Motor	22.5 kVA	125% =	28.1 kVA
Fixed Electric Heat	15.8 kVA	100% =	15.8 kVA
Other Load	5.8 kVA	100% =	5.8 kVA
	TOTAL DEMAND		85.9 kVA
On 200A Service	3Φ Load		103.3 Amps

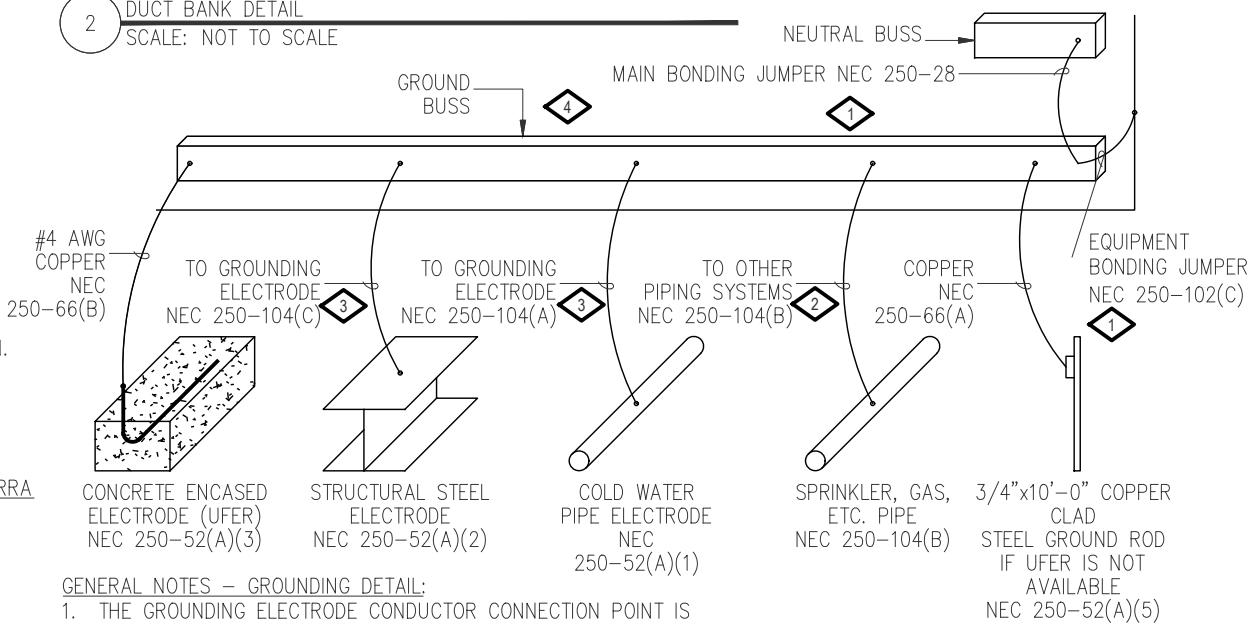


UNDERGROUND CONDUIT SCHEDULE					
Location	Power Size	Power Qty	Control/Data Size	Control/Data Qty	Spare Size Qty
Service Entrance	2"	1			NA NA
Generator	2"	1	1"	2	1-1"



1 GENERATOR PAD DETAIL
SCALE: NOT TO SCALE

2 DUCT BANK DETAIL
SCALE: NOT TO SCALE



- GENERAL NOTES – GROUNDING DETAIL:
1. THE GROUNDING ELECTRODE CONDUCTOR CONNECTION POINT IS NOT NECESSARILY A PHYSICAL CONNECTION. IT IS PROVIDED TO ILLUSTRATE THE INTERCONNECTION OF THE GROUNDING ELECTRODE SYSTEM. IT COULD, FOR EXAMPLE, BE THE WATER PIPE.
 2. NEC REFERENCES ARE FROM 2017 NATIONAL ELECTRIC CODE.
 3. BONDS SHALL BE MECHANICAL TYPE. INTERIOR BONDS MAY BE EXOTHERMIC.
 4. BOND SIZE SHALL MATCH CONDUCTORS SHOWN ON FEEDER SCHEDULE.
 5. GROUND CONDUCTORS SHALL BE STRANDED COPPER INSULATED CABLE, U.N.O.

- DETAIL NOTES – GROUNDING DETAIL:
- 1 SIZE PER TABLE 250-66 UP TO 1100 KCMIL. SIZE TO 12.5% OF FEEDERS WHEN OVER 1100 KCMIL. MAIN BONDING JUMPER FOR SERVICES GREATER THAN 1000A, PROVIDED WITH SERVICE ENTRANCE SWITCHGEAR ARE ACCEPTABLE.
 - 2 SIZE PER TABLE 250-122. ASSUMES MAIN DEVICE RATING IS EQUAL TO FEEDER SIZE.
 - 3 SIZE PER TABLE 250-66.

BONDING CONDUCTOR SIZE				
SES SIZE	MBJ/EBJ	PIPING	GF	ISB
	1	2	3	4
100A	6	8	6	4
200A	4	6	4	4
400A	1/0	3	1/0	6
600A	2/0	1	2/0	6
800A	2/0	1/0	2/0	6
1000A	3/0	2/0	3/0	6
1200A	4/0	3/0	3/0	6
1600A	250 KCMIL	4/0	3/0	6
2000A	300 KCMIL	250 KCMIL	3/0	6

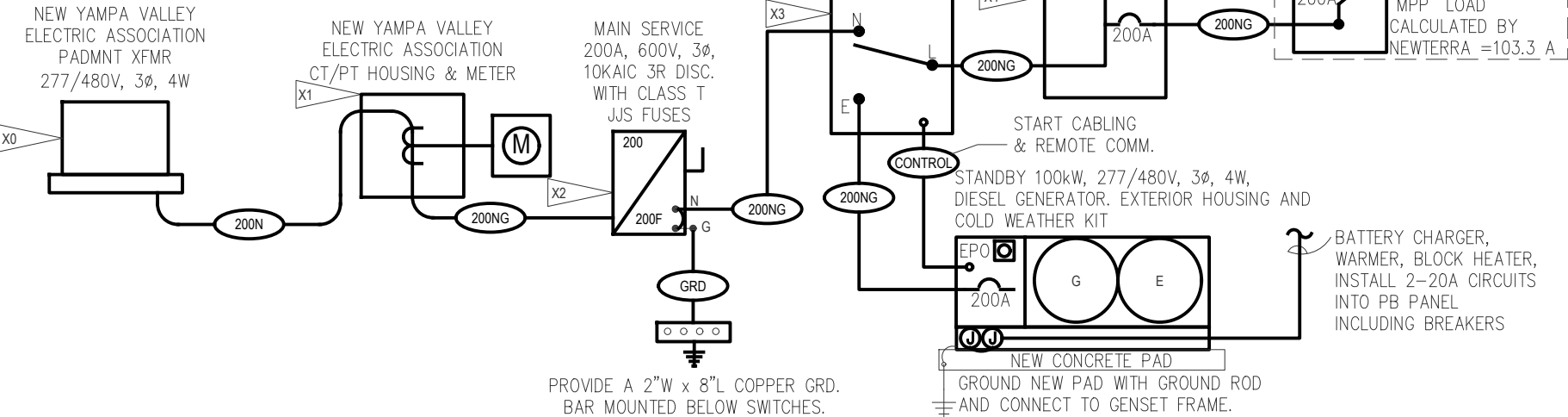
FAULT CURRENT AND VOLTAGE DROP CALCULATION TABLE																					
POINT	LOCATION DESCRIPTION	LENGTH (L) (ft)	LOAD ON FEEDER (Amps)	POWER FACTOR (%)	VOLTAGE (E _L)	PHASE	WIRE SIZE	CONDUCTOR MATERIAL	CONDUCTOR TYPE	CONDUIT MATERIAL	VOLTAGE CLASS	INDUCTIVE VOLT LOSS	C VALUE	# OF PARALLEL RUNS	ISC AVAILABLE UPSTREAM (SEE NOTE 5)	ISC AT EQUIP (I _{sc}) OR (I _{sc})	% OF VOLTAGE AT START DROP	VOLTAGE AT START (V _L)	VOLTAGE AT END (V _E)	TOTAL % VD	POINT
F0	XFMR	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20,500	--	480	--	--	F0
F1	CTMETER	60	200	90%	480	3	3X	COPPER	THREE SINGLE CONDUCTORS	NONMAGNETIC	600V	151	13923	1	20,500	15,545	0.4%	480	478	0.4%	F1
F2	DISCONNECT	5	200	90%	480	3	3X	COPPER	THREE SINGLE CONDUCTORS	NONMAGNETIC	600V	151	13923	1	15,545	5,000	0.0%	478	478	0.4%	F2
F3	ATS	5	200	90%	480	3	3X	COPPER	THREE SINGLE CONDUCTORS	NONMAGNETIC	600V	151	13923	1	5,000	4,968	0.0%	478	478	0.4%	F3
F4	MDP	5	200	90%	480	3	3X	COPPER	THREE SINGLE CONDUCTORS	NONMAGNETIC	600V	151	13923	1	4,968	4,936	0.0%	478	478	0.5%	F4
F5	MPP	15	200	90%	480	3	3X	COPPER	THREE SINGLE CONDUCTORS	NONMAGNETIC	600V	151	13923	1	4,936	4,843	0.1%	478	477	0.6%	F5

NOTES:

- ALL CALCULATIONS WERE DONE USING BUSSMAN "POINT-TO-POINT" METHOD.
- REFER TO PLANS FOR ASSUMED UTILITY TRANSFORMER SIZE UTILIZED FOR CALCULATIONS.
- TRANSFORMER IMPEDANCES USED IN THE CALCULATIONS WERE TAKEN FROM EATON'S PUBLISHED IMPEDANCES FOR DOE 2016 DRY-TYPE TRANSFORMERS.
- CONDUCTOR LENGTHS INDICATED IN THIS SCHEDULE ARE FOR THE PURPOSES OF FAULT CURRENT CALCULATIONS ONLY. THESE LENGTHS ASSUME WORST CASE SHORTEST DISTANCE CONDITIONS AND SHOULD NOT BE UTILIZED BY THE ELECTRICAL CONTRACTOR FOR BIDDING PURPOSES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ESTIMATING AND MEASURING ACTUAL FIELD CONDITION LENGTHS AS PART OF THE BID PROCESS.

- NOTES:
1. ALL CALCULATIONS WERE DONE USING BUSSMAN "POINT-TO-POINT" METHOD.
 2. REFER TO PLANS FOR ASSUMED UTILITY TRANSFORMER SIZE UTILIZED FOR CALCULATIONS.
 3. TRANSFORMER IMPEDANCES USED IN THE CALCULATIONS WERE TAKEN FROM EATON'S PUBLISHED IMPEDANCES FOR DOE 2016 DRY-TYPE TRANSFORMERS.
 4. CONDUCTOR LENGTHS INDICATED IN THIS SCHEDULE ARE FOR THE PURPOSES OF FAULT CURRENT CALCULATIONS ONLY. THESE LENGTHS ASSUME WORST CASE SHORTEST DISTANCE CONDITIONS AND SHOULD NOT BE UTILIZED BY THE ELECTRICAL CONTRACTOR FOR BIDDING PURPOSES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ESTIMATING AND MEASURING ACTUAL FIELD CONDITION LENGTHS AS PART OF THE BID PROCESS.

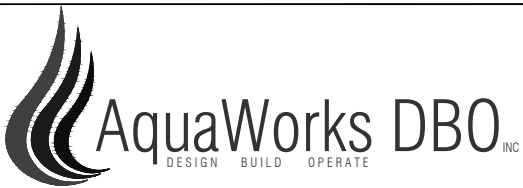
FEEDER SCHEDULE - COPPER			
KEY/AMPS	FEEDER CONDUIT AND CONDUCTORS		
SERVICE ENTRANCE FEEDERS			
200N	1[4#3/0, 2"]		
EQUIPMENT FEEDERS			
200NGX	4#3/0, 1#6G, 2-1/2" C	200NG	3#3/0, 1#6G, 2-1/2" C
GROUNDING CONDUCTORS			
NOTES:		ABBREVIATIONS	
1. FEEDER FOR SECONDARY OF SEPARATELY DERIVED SYSTEM (SDS). GROUND SIZE PER NEC TABLE INCLUDED IN ARTICLE 250.66.		MECH	SEE MECH SCHEDULE
2. ALL CONDUCTORS ARE SINGLE CONDUCTOR COPPER THWN UNLESS NOTED OTHERWISE. AMPACITY BASED ON THE NEC TABLE INCLUDED IN ARTICLE 310.		XFMR	SEE XFMR SCHEDULE
3. ALL CONDUITS ARE EMT UNLESS NOTED OTHERWISE, FILL RATIOS BASED ON NEC ANNEX C TABLE C.1.			



PROVIDE A 2"W x 8"L COPPER GRD. BAR MOUNTED BELOW SWITCHES.

GROUND NEW PAD WITH GROUND ROD AND CONNECT TO GENSET FRAME.

REV. No:	DATE:	BY:	REVISION DESCRIPTION:	DRAWN BY: MAB
				DESIGNED BY: MAB
				FILE PRINTED ON: 10/12/2023 12:22:22 PM
				COPYRIGHT: AQUAWORKS DBO, INC.
				0 1 IF THIS BAR DOES NOT READ 1" DRAWING IS NOT LABELED TO SCALE



PROJECT: WWTP IMPROVEMENT PROJECT COMMUNITY OF PHIPPSBURG ROUTT COUNTY, COLORADO		SHEET TITLE: ELECTRICAL ONE LINE & DETAILS		
ENGINEER: AQUAWORKS DBO, INC. 3252 WILLIAMS STREET DENVER, COLORADO 80205 (303) 477-5915		PROJECT NUMBER: #2479	SCALE: NOT TO SCALE	SHEET: E3