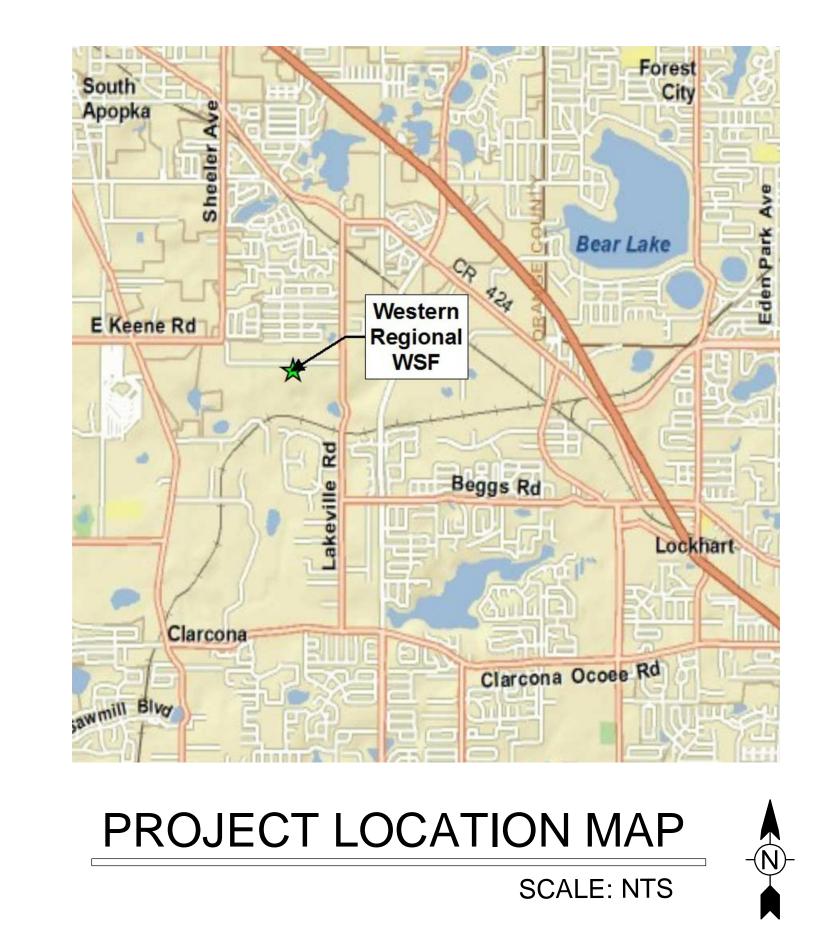
CONSTRUCTION DRAWINGS FOR THE WESTERN REGIONAL WATER SUPPLY FACILITY IMPROVEMENTS PHASE 3A - PART 2



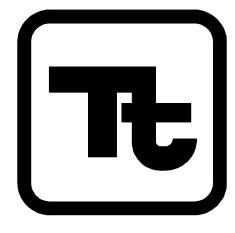
JULY 2019

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PREPARED FOR UTILITIES ENGINEERING ORANGE COUNTY, FLORIDA

PREPARED BY



TETRA TECH

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ORANGE COUNTY, FLORIDA BOARD OF COUNTY COMMISSIONERS

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COUNTY ADMINISTRATOR DIRECTOR OF UTILITIES

ORANGE COUNTY FILE No. 42525

ORANGE COUNTY PROJECT #1532-02

BID SET TT NO. 200-10034-18002

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G003 G004	EXISTING PROCESS FLOW DIAGRAM PROPOSED PROCESS FLOW DIAGRAM
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1001	INSTRUMENTATION LEGEND AND ABBREVIATIONS
1002	EXISTING CHEMICAL PLC PANEL MODIFICATION
1003	NETWORK COMMUNICATION DIAGRAM
-	

CONDITIONS STATED.

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- 2. ALL LABOR, MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE MINIMUM ENGINEERING AND CONSTRUCTION BEEN ISSUED BY THE ENGINEER.
- 3. TOPOGRAPHIC INFORMATION SHOWN ON THESE PLANS WERE TAKEN FROM SURVEY PROVIDED BY APEX ENGINEERING, INC. (P.O. BOX 568891, ORLANDO, FL 32801.)
- 4. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING IN PROXIMITY OF WATER MAINS, WASTEWATER FORCE MAINS, GRAVITY FIELD VERIFYING EXISTING UTILITY LOCATIONS.
- 5. COORDINATION AND COMMUNICATION WITH ORANGE COUNTY STAFF SHALL BE MADE THROUGH THE ORANGE COUNTY UTILITY INSPECTOR. THE COUNTY UTILITIES ENGINEERING AND CONSTRUCTION DIVISION: 407-254-9900.
- SUPPORTED AND PROTECTED AGAINST DAMAGE DURING CONSTRUCTION. 8. CONTRACTOR SHALL ADJUST VALVE BOXES, AIR RELEASE VALVES, FIRE HYDRANTS, MANHOLE COVERS, ETC IN CONFLICT WITH ROADWAY.
- BE CHARGED FOR ALL EXPENSES ASSOCIATED WITH THE REPAIR.
- PROXIMITY OF ANY UTILITIES.
- COUNTY INSPECTOR
- SYSTEMS OWNED BY OTHERS, UNLESS STATED OTHERWISE ON THE PLANS.
- WATER MAIN.
- ELEVATIONS AND ALIGNMENTS. OF PIPE
- EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN.
- 19. ALL PAVING, STABILIZED EARTH, DRIVEWAYS, CURBS, SIDEWALKS, FENCES, SOD, LANDSCAPING, IRRIGATION SYSTEMS, CULVERTS, ETC. DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO EQUAL OR BETTER CONDITION.
- COMPENSATION.
- DURING ACTUAL CONSTRUCTION HOURS.
- ENGINEER
- DURING THE TAKING OF ALL WATER SAMPLES.
- THE CONNECTION. PROTECTION ANODE BED AS OUTLINED IN AWWA C105/ANSI A21.5
- 27. ALL EXISTING POTABLE WATER AND RAW WATER MAINS SHALL REMAIN OPERATIONAL AND SHALL NOT BE TAKEN OUT OF SERVICE DURING
- STANDARD 61.
- EXCAVATING. CALL SUNSHINE STATE ONE CALL CENTER 1-800-432-4770.
- 31. THE CONTRACTOR SHALL PRESERVE AND MAINTAIN ALL EXISTING UTILITIES WITHIN THE CONSTRUCTION AREA.
- 33. THE CONTRACTOR SHALL PROVIDE SUPPORT FOR EXISTING POWER POLES, TELEPHONE POLES AND STRUCTURES DURING CONSTRUCTION.
- SHALL BE COORDINATED WITH THE OWNER OF THE UTILITY.
- THE INSTALLATION WHEN TEST PRESSURE IS APPLIED.
- 37. THE CONTRACTOR SHALL MAINTAIN NORMAL TRANSPORT VEHICLE ACCESS TO WSF FACILITIES AT ALL TIMES.
- 39. COORDINATE WITH OTHER TRADES THE LOCATION OF SLEEVES AND WALL PIPES THROUGH WALLS, SLABS AND CEILINGS. REFER TO MECHANICAL, ELECTRICAL, STRUCTURAL, AND PROCESS DRAWINGS FOR SPECIFIC REQUIREMENTS.
- OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED. 41. ALL PIPING TO BE RESTRAINED.
- STRUCTURE OR HANDRAIL WITH STAINLESS STEEL HARDWARE. 44. ALL PIPING UNDER STRUCTURES SHALL BE CONCRETE ENCASED.
- ACTION.
- 46. ALL PIPE TO BE COLOR-CODED AS SPECIFIED IN SECTION 09905. 47. CALL SCADA AT (407)-254-9509 FOR SHUT-DOWNS AND ACCESS TO THE FACILITY.

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1. THE CONTRACTOR SHALL ENSURE ALL NECESSARY PERMITS ARE IN HAND BEFORE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SATISFYING ALL REQUIREMENTS OF REGULATORY AGENCY PERMITS IN REGARD TO CONSTRUCTION ACTIVITIES AND

STANDARDS ADOPTED BY THE ORANGE COUNTY UTILITIES. WHERE CONFLICTS OR OMISSIONS EXIST, THE ORANGE COUNTY UTILITIES STANDARDS SHALL DICTATE. SUBSTITUTIONS AND DEVIATION FROM PLANS AND SPECIFICATIONS SHALL BE PERMITTED ONLY WHEN WRITTEN APPROVAL HAS

ORLANDO, FL 32856-8891, PHONE 407-306-0904) AND SUPPLEMENTAL INFORMATION IS PROVIDED BY TETRA TECH (201 E. PINE ST., SUITE 1000

MAINS AND RECLAIMED WATER MAINS. MAIN LOCATIONS SHOWN ON PLANS ARE NOT EXACT OR GUARANTEED. CONTRACTOR IS RESPONSIBLE FOR

COUNTY UTILITIES DISPATCH OPERATOR (407-836-2777) SHALL BE NOTIFIED BY THE CONTRACTOR FOR PIPE EMERGENCIES.

7. ALL EXISTING WATER, FORCE, GRAVITY AND RECLAIMED WATER MAINS AND OTHER FACILITIES WITHIN THE LIMITS OF THE PROJECT SHALL BE

9. THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, SHALL IMMEDIATELY REPAIR ALL DAMAGES TO COUNTY'S MAINS AND FACILITIES. IF THE REPAIR IS NOT MADE IN A TIMELY MANNER, AS DETERMINED BY COUNTY, COUNTY MAY PERFORM REQUIRED REPAIRS AND CLEANUP. THE CONTRACTOR WILL

10. COUNTY UTILITIES CONSTRUCTION DIVISION SHALL BE NOTIFIED AT LEAST SEVEN (7) DAYS PRIOR TO ANY CONSTRUCTION ACTIVITY WITHIN

11. ONLY COUNTY SHALL OPERATE WATER, WASTEWATER, AND RECLAIMED WATER VALVES. COORDINATE VALVE OPERATION WITH APPROPRIATE

12. ALL NEW VALVES BEING INSTALLED SHALL REMAIN CLOSED DURING CONSTRUCTION. KEEP VALVES ON ALL WET TAPS CLOSED UNTIL CLEARED BY FDEP. DO NOT CONNECT ANY PROPOSED WATER MAIN TO ANY EXISTING WATER MAIN UNLESS CLEARED BY FDEP AND THE COUNTY. 13. THE UTILITY IMPROVEMENTS AND ADJUSTMENTS SHOWN ON THESE PLANS ARE INTENDED TO MAINTAIN THE INTEGRITY OF THE ORANGE COUNTY WATER, WASTEWATER AND RECLAIMED WATER SYSTEMS. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE ORANGE COUNTY UTILITIES STANDARD AND CONSTRUCTION SPECIFICATION MANUAL. THE PLANS DO NOT INCLUDE WORK PERFORMED ON OR FOR UTILITY

14. ALL EXISTING AND NEW ORANGE COUNTY UTILITIES VALVES, VALVE BOXES, AND MANHOLES SHALL BE PROTECTED AND ADJUSTED TO FINISHED GRADE AS SHOWN ON THE DRAWINGS. ALL EXISTING ABOVE GROUND VALVES TO BE RELOCATED, AS REQUIRED. 15. FLUSH OUT NEW WATER MAIN WITH POTABLE WATER (USE "JUMPER" ASSEMBLY WITH BACKFLOW PREVENTER TO MAKE TEMPORARY CONNECTIONS TO AN EXISTING WATER SOURCE.) CONTRACTOR SHALL COORDINATE WITH COUNTY TO DETERMINE THE LOCATION OF CONNECTION TO EXISTING

16. ALL PIPING SHALL HAVE 3 FEET MINIMUM COVER UNLESS SHOWN OTHERWISE. CONTRACTOR SHALL TAKE CARE TO PROVIDE PROPER GRADE

17. WATER MAINS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM PIPES CARRYING RAW WASTEWATER AND LOCATED AT LEAST 3 FT HORIZONTALLY FROM PIPES CARRYING RECLAIMED WATER AND STORM WATER. THE DISTANCE SHALL BE MEASURED FROM EDGE OF PIPE TO EDGE

18. WATER MAINS SHALL BE ABOVE THE SEWERS WHENEVER THEY CROSS ANY SANITARY SEWER, STORM SEWER, SEWAGE FORCE MAIN OR REUSE FORCE MAIN. A VERTICAL SEPARATION OF AT LEAST 18 INCHES SHALL BE MAINTAINED BETWEEN THE TOP OF THE SEWER AND THE BOTTOM OF THE WATER MAIN. SEWERS SHALL HAVE ONE FULL LENGTH OF DUCTILE IRON PIPE CENTERED AT THE POINT OF CROSSING SO THAT THE JOINTS WILL BE

20. FITTINGS MAY BE USED FOR PIPE ALIGNMENT CHANGES RATHER THAN DEFLECTING AT THE CONTRACTOR'S OPTION AND WITH NO ADDITIONAL

21. PRIOR TO BID PREPARATION, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE OVERALL SITE CONDITIONS AND PERFORM ADDITIONAL INVESTIGATIONS AS DETERMINED NECESSARY TO UNDERSTAND THE LIMIT AND DEPTH OF UNSUITABLE MATERIALS, IF ANY, ADEQUACY OF EXISTING MATERIALS AS FILL, DEWATERING REQUIREMENTS, CLEAN FILL REQUIRED FROM OFF SITE, AND MATERIALS TO BE DISPOSED OF OFF SITE, ALL OF WHICH WILL AFFECT HIS PRICING, ANY DELAY, INCONVENIENCE, OR EXPENSE CAUSED TO THE CONTRACTOR DUE TO INADEQUATE INVESTIGATION OF EXISTING CONDITIONS SHALL BE INCIDENTAL TO THE CONTRACT, AND NO EXTRA COMPENSATION WILL BE ALLOWED. THE MATERIALS ANTICIPATED TO BE ENCOUNTERED DURING CONSTRUCTION MAY REQUIRE DRYING PRIOR TO USE AS BACKFILL, AND THE CONTRACTOR MAY HAVE TO BRING IN MATERIALS AT NO ADDITIONAL COST TO THE OWNER, FROM OFF SITE TO MEET THE REQUIREMENTS FOR COMPACTION AND PROPER FILL 22. ALL DRAINAGE AREAS THAT ARE CROSSED BY PIPELINES SHALL BE LEFT OPEN AT ALL TIMES EXCEPT FOR SHORT PERIODS AS MAY BE NECESSARY

23. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A REGISTERED PROFESSIONAL LAND SURVEYOR FOR LAYOUT OF ALL WORK AND FOR RESTORING ALL MONUMENTS AND PROPERTY CORNERS DISTURBED DURING CONSTRUCTION. PROOF OF REGISTRATION SHALL BE SUBMITTED TO

24. ALL WATER DISTRIBUTION SYSTEMS SHALL BE FLUSHED CLEAN OF ALL DELETERIOUSMATERIAL PRIOR TO ANY TESTING. FULL DIAMETER FLUSHING IS REQUIRED. ALL POTABLE WATER AND RAW WATER MAINS EITHER INSTALLED OR DISTURBED DURING CONSTRUCTION SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C-651 (SUBSECTION 4.8 AND SECTION 9) AND RULE 62-555.345, F.A.C. SUCH WATER MAINS SHALL THEN BE BACTERIOLOGICALLY TESTED IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS. A REPRESENTATIVE FROM THE COUNTY MUST BE PRESENT

25. EACH BACTERIOLOGICAL SAMPLE POINT SHALL BE INSTALLED PER THE PERMIT AND EQUIPPED WITH A CORPORATION STOP, DISCHARGE PIPE, AND ABOVE-GRADE VALVE. FOLLOWING PASSAGE OF BACTERIOLOGICAL TESTING, THE CONTRACTOR SHALL REMOVE THE CORPORATION STOP AND PLUG

26. DUCTILE IRON PIPE AND FITTINGS SHALL BE ENCASED IN POLYETHYLENE TWENTY (20) FEET ON EACH SIDE OF ANY PERPENDICULAR CROSSING OF METALLIC GAS MAINS OR ANY OTHER CATHODICALLY PROTECTED PIPELINE AND FOR ALL LOCATIONS PARALLEL TO AND WITHIN TEN FEET OF ANY METALLIC GAS MAINS OR ANY OTHER CATHODICALLY PROTECTED PIPELINE AND THROUGH THE AREA OF INFLUENCE OF ANY CATHODICALLY

CONSTRUCTION WITHOUT APPROVAL FROM COUNTY, ANY APPROVED REMOVAL FROM SERVICES SHALL NOT EXCEED 3 HOURS. 28. ALL MATERIALS, COATINGS AND CHEMICALS THAT CONTACT RAW WATER AND/OR DRINKING WATER SHALL BE IN CONFORMANCE WITH ANSI/NSF

29. FLORIDA LAW (F.S. 553.851) REQUIRES THAT PERSONS MAKING EXCAVATIONS IN PUBLIC AND PRIVATE STREETS, ALLEYS, RIGHT-OF-WAYS OR UTILITY EASEMENTS MUST FIRST OBTAIN INFORMATION ON LOCATION OF UNDERGROUND GAS PIPELINES A MINIMUM OF TWO (2) WORKING DAYS PRIOR TO

30. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION, DEPTH, AND CHARACTER OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY RESPECTIVE UTILITY OWNERS AND FIELD VERIFY LOCATIONS AND ELEVATIONS OF UTILITIES AT LEAST 48 HOURS IN ADVANCE OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE CAUSED BY HIS/HER OPERATIONS.

32. LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES EXPOSED DURING CONSTRUCTION SHALL BE ACCURATELY RECORDED ON THE CONSTRUCTION DRAWINGS. THE OWNER SHALL BE IMMEDIATELY NOTIFIED OF ANY CONFLICTS WITH PROPOSED CONSTRUCTION.

34. EXISTING UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS. SANITARY SEWER MAINS STORM DRAINS, WATER VALVES, CABLES, MANHOLES, WATER AND SEWER SERVICE LATERALS AND LIFT STATION LOCATIONS WERE OBTAINED FROM SURVEY INFORMATION AND RECORD DRAWINGS. ACTUAL LOCATIONS OF EXISTING WATER MAINS, FORCE MAINS, CABLES, WATER AND SEWER SERVICE LATERALS HAVE NOT BEEN FIELD VERIFIED. THE EXISTING UTILITIES SHOWN SHALL NOT BE CONSTRUED AS BEING ALL INCLUSIVE OF UTILITIES IN THE AREA. ANY INTERRUPTION OF SERVICE

35. THE CONTRACTOR SHALL LOCATE PROPOSED TIE IN LOCATIONS TO VERIFY ACTUAL LOCATION, SIZE, ELEVATION AND MATERIAL PRIOR TO ORDERING NEW MATERIAL. WHERE A CONNECTION IS MADE IN THE FIELD TO AN EXISTING PIPE, THE CONTRACTOR WILL EXCAVATE THE AREA TO VERIFY THE TYPE OF PIPE AND PIPE SIZE, AND OBTAIN THE OWNER'S APPROVAL OF THE PROPOSED METHOD OF CONNECTION; PRIOR TO ORDERING AND INSTALLING MATERIALS. WHERE CONNECTING TO EXISTING UTILITIES CONTRACTOR SHALL RESTRAIN EXISTING PIPELINE TO PREVENT MOVEMENT OF

36. THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO CONTROL TURBIDITY INCLUDING, BUT NOT LIMITED TO, THE INSTALLATION OF TURBIDITY BARRIERS AT ALL LOCATIONS WHERE THE POSSIBILITY OF INFERRING SUSPENDED SOLIDS INTO THE RECEIVING WATER BODY, EXISTS DUE TO THE PROPOSED WORK. TURBIDITY BARRIERS MUST BE MAINTAINED AT ALL LOCATIONS UNTIL CONSTRUCTION IS COMPLETED AND DISTURBED SOIL AREAS ARE STABILIZED. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REMOVING THE BARRIERS. AT NO TIME SHALL THERE BE ANY OFF-SITE DISCHARGE WHICH VIOLATES THE WATER QUALITY STANDARDS IN CHAPTERS 62-302 AND 62-4, FLORIDA ADMINISTRATIVE CODE.

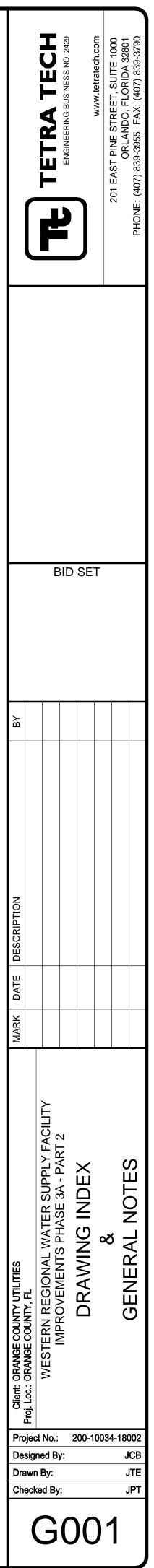
38. EQUIPMENT PAD DIMENSIONS AND EQUIPMENT ANCHOR BOLT REQUIREMENTS ARE DEPENDENT UPON EQUIPMENT SELECTED. DIMENSIONS INDICATED ON THE DRAWINGS SHALL BE VERIFIED WITH MANUFACTURER FOR ACTUAL SIZE OF EQUIPMENT SELECTED.

40. ALL EXPANSION JOINTS, COUPLINGS AND FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, BLOCKS, OR ANCHORS, UNLESS

42. THE CONTRACTOR SHALL PROVIDE A SIGN ABOVE ALL HOSE BIBBS WHICH SHALL STATE EITHER "POTABLE" OR "NON-POTABLE, DO NOT DRINK". THE SIGN SHALL BE MADE OF LAMINATED PLASTIC WITH A BLACK FACE AND WHITE LETTERS APPROXIMATELY 3/4-INCH HIGH. ATTACH A SIGN TO

43. WHERE BURIED PIPE 4 INCHES AND LARGER CROSS, A MINIMUM VERTICAL CLEARANCE BETWEEN PIPES OF 12 INCHES SHALL BE MAINTAINED WHERE POSSIBLE. IF A CLEARANCE BETWEEN PIPES OF 12 INCHES CANNOT BE MAINTAINED, A CONCRETE SADDLE WILL BE INSTALLED BETWEEN THE PIPES.

45. IN THE EVENT THAT THE POTABLE WATER SYSTEM IS CONTAMINATED (I.E. WATER DOES NOT MEET FEDERAL AND STATE REQUIREMENTS) DUE TO THE CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE, UNDER THE DIRECTION OF THE OWNER, OR THE STATE AND LOCAL REGULATORY AGENCY FOR CORRECTING ANY SUCH CONTAMINATION PROBLEM INCLUDING DISINFECTION, TESTING AND OTHER CORRECTIVE

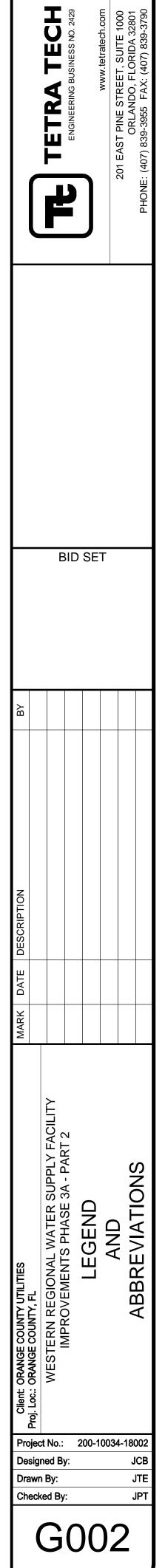


LIST OF STANDARD ABBREVIA	TIONS

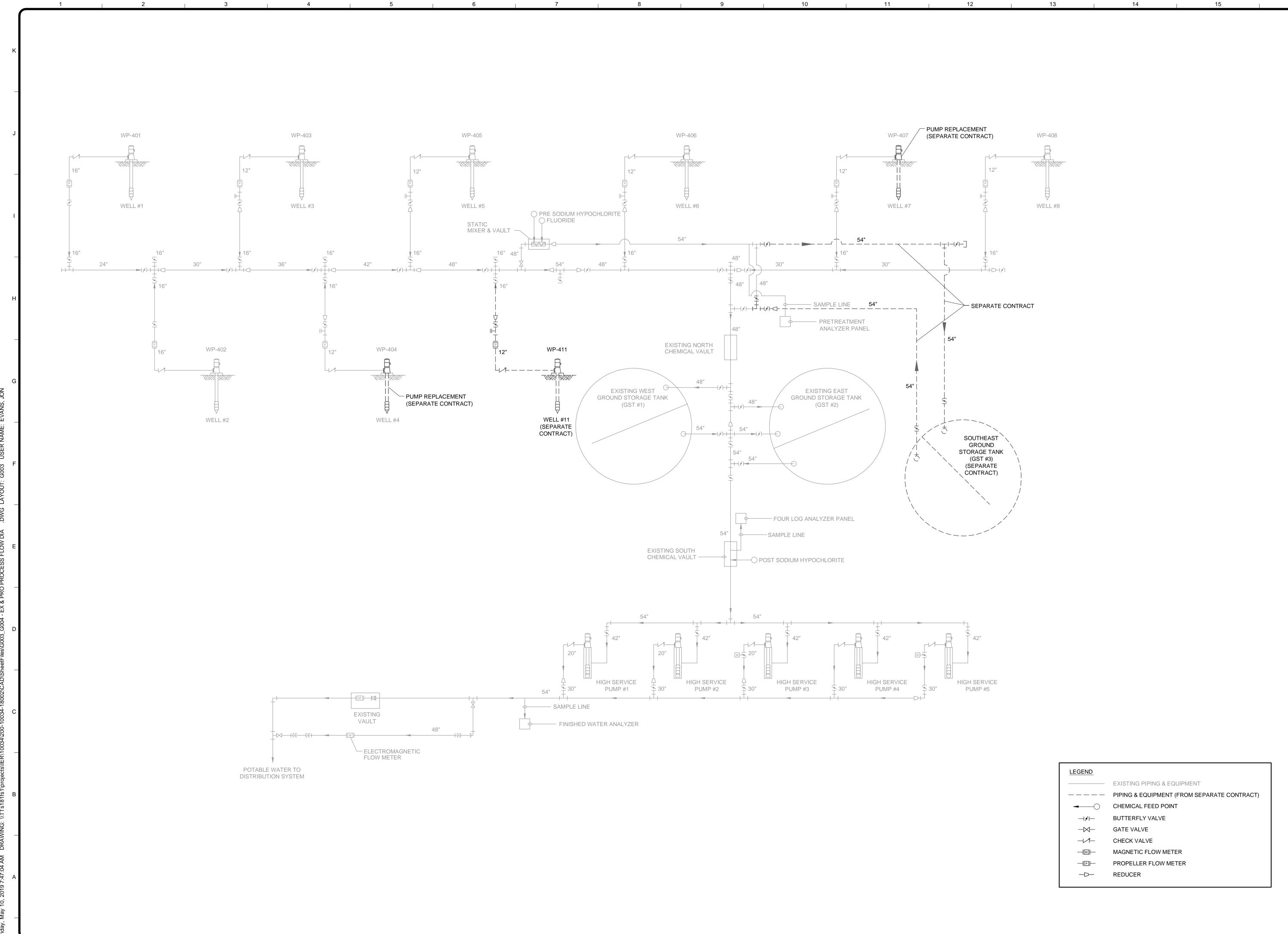
I.

LIST OF STANDARD ABBRE	VIATIONS			PIPING LEGE	:ND		NOED							0000						
AAP ALARM ANNUNCIATOR PANEL AARV AUTOMATIC AIR RELEASE	E FACT	LEN LENGTH LB POUND(S) LF LINEAR FEET	RR RAILROAD RT RIGHT	FITTING/	SINGL		NGED DOUBI	E-LINE	SINGLE	MECHANIC E-LINE	DOUBLE	E-LINE	SINGL	GROOVE E-LINE		E-LINE	SINGL	SOLVEN E-LINE		LE-LINE
VALVE AAV AUTOMATIC AIR VENT	E EAST EA EACH ECC ECCENTRIC	LP LIGHT POLE LS LIME SLURRY	RVT RIVETED RW RAW WATER RWW RAW WASTEWATER	APPURTENANCE	EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED
AB ANCHOR BOLT ABAN ABANDON(ED) ABRSV ABRASIVE	EF EACH FACE EFF EFFLUENT E/L EASEMENT LINE	LSS LIME STABILIZED SLUDGE LVR LOUVER LWL LOW WATER LEVEL	R/W RIGHT-OF-WAY	BEND		t⊪_				f(+				⊥⊢			_	 +		
ABS ACRYLONITRILE BUTADIENE STYRENE ABV ABOVE	EL ELEVATION ELAST ELASTOMERIC ELEC ELECTRICAL	M M METER	S SOUTH SA SAMPLE LINE SAN SANITARY			T				- -				T						
AC ALTERNATING CURRENT ACCMP ASPHALT-COATED CORRUGATED METAL PIPE	EMER EMERGENCY EMC ENCASE(MENT) ENGR ENGINEER	MAINT MAINTAIN OR MAINTENANCE MAN MANUAL(LY) MAS MASONRY	SCHED SCHEDULE SD STORM DRAIN SE SOUTHEAST	TEE		│ ॑ │ ॑ ┃ │		₽₽ <mark>₽₩</mark> ₽₽		╷┷┽│		₽₽₽₽		│ _{─╋} ┿ _╋ ╴│		e r				
ACP ASBESTOS CEMENT PIPE ADDM ADDENDUM	EP EDGE OF PAVEMENT EPDM ETHYLENE PROPYLENE DIENE MONOMER	MATL MATERIAL MAX MAXIMUM	SECT SECTION SEFF SECONDARY EFFLUENT SF SQUARE FOOT OR FEET	WYE	*					X				X			×.	×.		
AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE	EPRF EXPLOSION PROOF EQUIP EQUIPMENT	ME MITERED END MECH MECHANICAL	SHT SHEET(ED)(ING) SIG SIGNAL					Ҽ╉╱╧╊┛	- <i>)</i> (-	-) /(-	۵	₽,,₽				₽₽		- K-		
AFS ABOVE FINISHED SLAB AHD AHEAD AL ALUMINUM	ER ECCENTRIC REDUCER ESTM EASEMENT EST ESTIMATE(D)	MEG MATCH EXISTING GRADE MFR MANUFACTURE(R) MG MILLION GALLONS	SIM SIMILAR SL SLUDGE SLV SLEEVE	REDUCER				₽				₽₽≈₽				₽				
ALT ALTERNATE AMP AMPERE AMT AMOUNT	EW EACH WAY EXC EXCAVATE EXP EXPANSION	MGD MILLION GALLONS PER DAY MH MANHOLE MI MILE(S)	SM SHEET METAL SOLN SOLUTION SP SOIL PIPE, SPACE(ING)	CAP/			e	₽ <u></u>	N/A	N/A	N/A	N/A		b	2	_ 				- <u>E-</u> -
APRX APPROXIMATE(LY) ARCH ARCHITECT(URAL) AS ALUM SOLUTION	EXST EXISTING EXST GR EXISTING GRADE EXT EXTERIOR	MIN MINIMUM, MINUTE(S) MISC MISCELLANEOUS MJ MECHANICAL JOINT	SPEC SPECIFICATION SPRT SUPPORT SQ SQUARE	BLIND FLANGE	11					10/7			U		Letter (fr		11	"		
ASPH ASPHALT ASSY ASSEMBLY AVE AVENUE	EXTN EXTENSION	ML MIXED LIQUOR MO MASONRY OPENING MON MONUMENT	SS SANITARY SEWER SSE SUBSTANDARD EFFLUENT SST STAINLESS STEEL	PLUG	N/A	N/A	N/A	N/A	——((2	- <u>E-</u>]-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VC AIR CONDITIONING VVV AIR/VACUUM AIR VALVE	FAB FABRICATE(D) FCA FLANGED COUPLING ADAPTER FB FLAT BAR	MPH MILES PER HOUR MPT MALE PIPE THREAD MS MOTOR STARTER	ST STREET STA STATION STD STANDARD	BUTTERFLY]			┎╼╢╢╋═╕	לזיק	_ <u>_</u>]\ırL_										
AF BAFFLE CV BALL CHECK VALVE	FCV FLOW-CONTROL VALVE FD FLOOR DRAIN	MSP MOTOR STARTER PANEL MTD MOUNTED MV MOTORIZED VALVE	STK STAKE STL STEEL STR STRAIGHT	VALVE				╘┨╢═╛	,) † Ç [<u></u> –јж–		€-₽₩₽-₽	UTU			ҼЩ╫ <u></u> ┻	III			
3F BLIND FLANGE 3FV BUTTERFLY VALVE	FE FILTER(ED) EFFLUENT FHY FIRE HYDRANT	MW MANWAY MWL MEAN WATER LEVEL	STRUCT STRUCTURAL SURF SURFACE	BALL VALVE		-10801-		€₩₽	N/A	N/A	N/A	N/A		- t ×t-		€₽₩₽₽		1891		
BRAKE HORSEPOWER BI BLACK IRON BITUM BITUMINOUS OR BITUMASTIC	FIG FIGURE FIN FINISH(ED) FIN FLR FINISH FLOOR	MWP MAXIMUM WORKING PRESSURE	SVSOLENOID VALVESVCESERVICESVWSERVICE WATER		19 11	15 11							<u> </u>	.			• I			
B/L BASELINE BLDG BUILDING BLK BLOCK	FIN GR FINISH GRADE FL FLUORIDE FLG FLANGE(D)	N NORTH NaOCI SODIUM HYPOCHLORITE NE NORTHEAST	SW SOUTHWEST SWD SIDEWATER DEPTH SWSH SURFACE WASH	CHECK VALVE					N/A	N/A	N/A	N/A								
M BENCH MARK BOC BACK OF CURB BOT BOTTOM	FLL FLOW LINE FLTR FILTER FM FORCE MAIN	NIC NOT IN CONTRACT NO NUMBER NOM NOMINAL	SYM SYMBOL SYMM SYMMETRICAL S/W SIDEWALK	GATE VALVE				╼┲								€₽				
BP BASE PLATE BRG BEARING BSP BLACK STEEL PIPE	FPMFEET PER MINUTEFPSFEET PER SECONDFRPFIBERGLASS REINFORCED	NPF NATIONAL PIPE THREAD NPT NATIONAL PIPE TAPER (THREAD)	<u>T</u> TAN TANGENT						5.00	المرا				1 /1						
V BALL VALVE N BOTH WAYS WW BACKWASH WATER	PLASTIC FT FOOT OR FEET FUT FUTURE	NPW NON-POTABLE WATER NRS NON-RISING SYSTEM NTS NOT TO SCALE	TBTOP OF BEAMTBMTEMPORARY BENCH MARKTB-xxTEST BORING-xx (e.g. TB-1)	PLUG VALVE				€				₽₩₽		-K) -						
	FV FOOT VALVE FW FINISHED WATER FWP FACTORY WIRED PANEL	NW NORTHWEST N/A NOT APPLICABLE	TD TRENCH DRAIN TDH TOTAL DYNAMIC HEAD	AUTOMATIC CONTROL VALVE			- Â	₽ ₽ ₽	N/A	N/A	N/A	N/A		- F		₽₽₽₽				
CA COMPRESSED AIR CAV COMBINATION AIR VALVE	F/F FACE TO FACE	O2 OXYGEN	TE TOTALLY ENCLOSED TEFC TOTALLY ENCLOSED FAN COOLED			10 9 71											N 0 1	N ⁰ 1		
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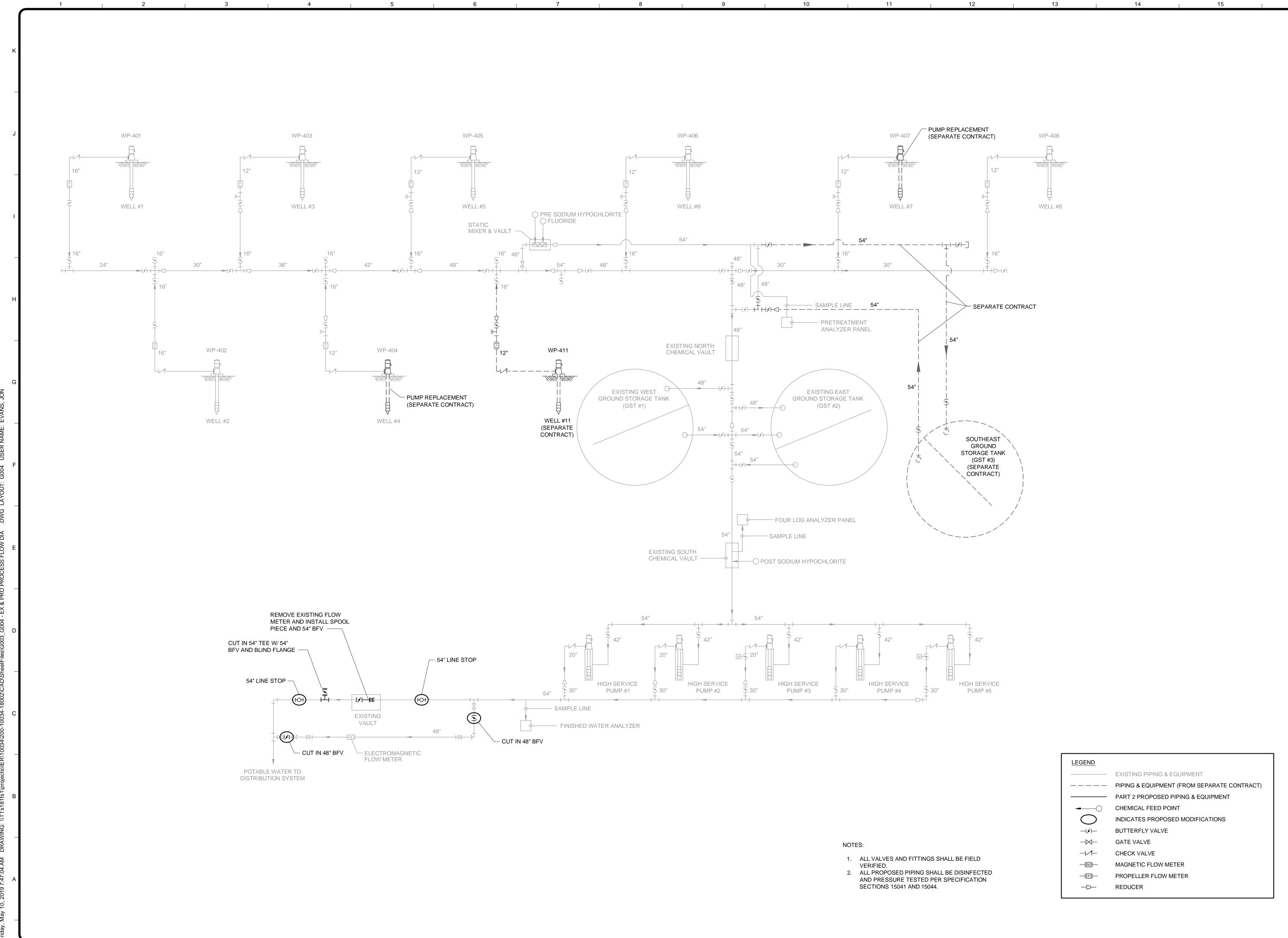
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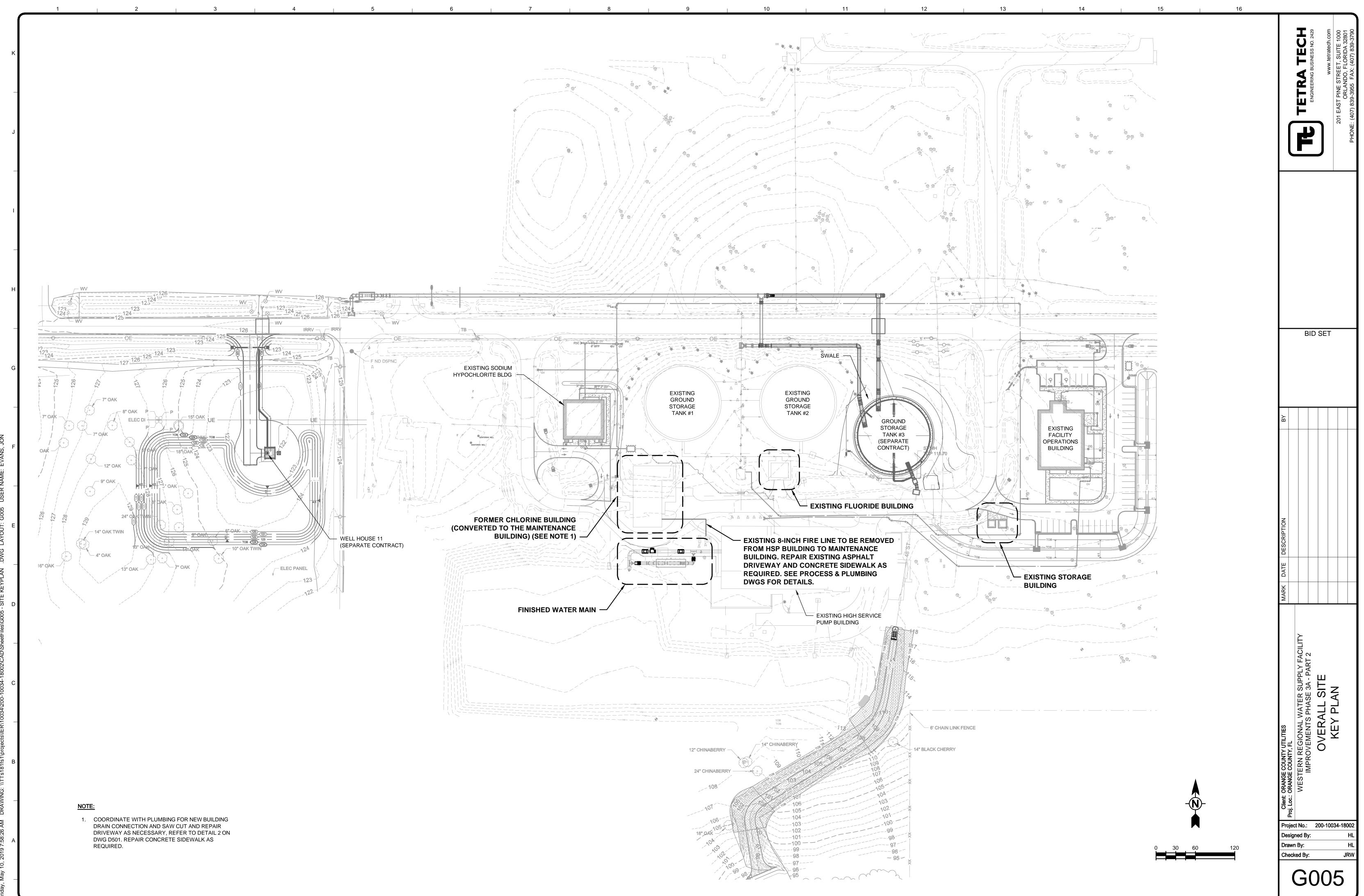
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27) WP-408		TETRA TECH ENGINEERING BUSINESS NO. 2429	www.tetratech.com	201 EAST PINE STREET, SUITE 1000 ORLANDO, FLORIDA 32801 PHONE: (407) 839-3955 FAX: (407) 839-3790	
I 16" F⊢⊢⊣≠I RATE CONTRACT		BIC) SET		
EAST IND	BY				
E TANK (#3) (AATE) ACT) (NOILe				
	MARK DATE DESCRIPTION				
VICE #5		WESTERN REGIONAL WATER SUPPLY FACILITY IMPROVEMENTS PHASE 3A - PART 2	EXISTING	DIAGRAM	
LEGEND EXISTING PIPING & EQUIPMENT PIPING & EQUIPMENT (FROM SEPARATE CONTRACT) CHEMICAL FEED POINT HFH BUTTERFLY VALVE GATE VALVE CHECK VALVE MAGNETIC FLOW METER	Client: ORANGE COUNTY UTILITIES Proj. Loc.: ORANGE COUNTY, FL	WESTERN REGIONAL		DIAC	
→ PROPELLER FLOW METER → D→ REDUCER	Drawn Check	ned By: n By: ked By:	200-1003	34-18002 JCB JTE JPT	



RATE CONTRACT	BID SET
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DATE DESCRIPTION	
→ BUTTERFLY VALVE → GATE VALVE	WESTERN REGIONAL WATER SUPPLY FACILITY IMPROVEMENTS PHASE 3A - PART 2 PROPOSED PROCESS FLOW DIAGRAM
→Imile MAGNETIC FLOW METER Project M →Imile PROPELLER FLOW METER Designer →Imile Properties Desig	ed By: JCB By: JTE



A.	C							DRAWING READER'S URTHER DETAILS AND	
В.	AL							CT AS OF THE DATE OF THESE	
C.	AL	L EXISTING DIMEN	SIONS SHOWN W	ITH THE ± SYM	IBOL ARE APP			LD VERIFIED BY THE	
D.	DI					PMENT MANU	FACTURER AND	D COORDINATE BY	
Е	_	ONTRACTOR JBMIT SHOP DRAW	INGS, PROJECT [DATA AND SAM	PLES AS SPEC	CIFIED IN PRO	JECT SPECIFIC	ATIONS.	
Α.	RFI	ERENCES:		DESIGN	CRITERIA				
Α.		1. ICC INTERN RISK CATEO	ATIONAL BUILDIN GORY III IN ACCO	RDANCE WITH	TABLE 1604.5				
			DING CODE: 2017 10 - MINIMUM DE				STRUCTURES		
В.	DE	AD LOADS: DEAD LOAD			- (SE	LF WEIGHT)			
			RESIST UPLIFT _OAD		= SEL		STRUCTURAL	FRAMING ONLY	
C.	LIV	E LOADS (U.N.O.): TYPICAL GROU			= 200				
		STAIRS, WALK	WAYS, OR PLATF	FORMS	= 100	PSF			
				CONCRET	E MASONF	RY			
A.	1.	REFERENCES TMS 402/ACI 530- STRUCTURES.	13/ASCE 5-13 BUI	LDING CODE R	EQUIREMENT	S AND SPECIF	ICATIONS FOR	MASONRY	
	1.	MATERIALS: MASONRY WALL	S SHALL CONSIST	F OF ASTM C-90). GRADE N-1.	HOLLOW CON	CRETE MASON	RY UNIT	
	2. 3. 4.	MASONRY SHALL	. HAVE A MINIMUI COMPLY WITH AS	M COMPRESSIN STM C-270, AND	VE STRENGTH	f'm = 1500 PSI PE S (1800 PSI)	ENGTH OF 2000 PSI.	
В.	4.	MASONRY SHALL	. BE LAID IN A RU	NNING BOND P	ATTERN UNLE	SS OTHERWI	SE NOTED. NO (
C.		VERTICAL REINF	ERNATE COURS	E AT THESE LC	OCATIONS TO A	ACHIEVE MON	OLITHIC CONST	TRUCTION.	
0.		DRAWINGS. WAL	LS SHALL BE REI	NFORĆED FULI	L HEIGHT IN G				
D.		PROVIDE REINFO MATCH VERTICA					OW WITH SIZE A	AND SPACING TO	
E.		DOWELS TO THE SHALL BE MEASU		-	SPACING TO I	MATCH VERTIC	CAL REINFORCI	NG. LAP SPLICES	
F.		VERTICAL REINF							
G.		HORIZONTAL JOI APPROVED SUBS					O-WAL LADDER	TYPE OR ENGINEER	
Н.		PROVIDE HORIZO	ONTAL JOINT REI	NFORCING FRE	E STANDING	WALLS AT EIG	HT (8) INCHES \	/ERTICALLY.	
J.		CONTROL JOINTS REINFORCEMEN REQUIREMENTS	FEACH SIDE OF (CONTROL JOIN					
K.		GROUTING: CON APPROVAL PRIO	R TO CONSTRUC	TION. GROUT S	SLUMP SHALL	BE BETWEEN	8 AND 11 INCHE	ES. USE OF	
			NOBSTRUCTED / CONSOLIDATED.	AND CONTINUC GROUTING OPI	OUS VERTICAL ERATIONS SH	SPACE. CELL	S SHALL BE FIL NUOUS AND SH		
L.		BETWEEN GROU	T POURS.					HALL BE PERFORMED	
L.		BY MASONRY CR	AFTWORKERS W	HO HAVE SUC	CESSFULLY C	OMPLETED TH	IE INTERNATION		
			TENSION DEV	/ELOPMENT / L	AP SPLICE LE	NGTH IN MAS	ONRY (INCHES)		
					CLEAR COVE			-	
			BAR #	1 1/2" 19	2" 18	> 3 1/4"	> 5 1/4"		
			4 5	34 45	26 40	24 30	24 30	-	
			6	54 63	54 63	46 62	36 42	-	
			8	72	72	72	58		

Α.

Β.

STRUCTURAL CONCRETE

REFERENCES:

ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE ACI SP-66 ACI DETAILING MANUAL CRSI MSP-2-01 MANUAL OF STANDARD PRACTICE CRSI REINFORCING BAR DETAILING CRSI PLACING REINFORCING BARS

MATERIALS

STRUCTURAL CONCRETE

a) MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS (f'c)......4000 PSI d) ALL CONCRETE AGGREGATE SHALL COMPLY WITH ASTM C33 (NORMAL WEIGHT).

REINFORCEMENT

a) REINFORCING BARS: ASTM A615, GRADE 60

REINFORCEMENT DETAILING

ALL REINFORCING STEEL DETAILS SHALL BE IN ACCORDANCE WITH THE ACI CODE REQUIREMENTS (ACI 318). REINFORCING STEEL PLACING DRAWINGS AND BAR LISTS SHALL CONFORM TO THE ACI OR CRSI DETAILING MANUALS. ALL BAR AND MESH SUPPORTS MUST BE CLEARLY DETAILED

CONCRETE COVER FOR REINFORCING SHALL BE INDICATED ON THE APPLICABLE REINFORCING STEEL SHOP DRAWINGS. HOWEVER, NO REINFORCING IN AREAS EXPOSED TO EARTH, WEATHER ,SEWAGE OR WATER SHALL HAVE COVER LESS THAN TWO INCHES.

SPECIFIED COVER FOR REINFORCING PER ACI 318 (BUILDING STRUCTURES): FOOTINGS (BOTTOM)... ...3.0" (CAST AGAINST EARTH) FOOTINGS2.0" (FORMED)

REINFORCEMENT IN STRIP FOOTINGS SHALL BE CONTINUOUS. HORIZONTAL BAR LAP SPLICES SHALL BE STAGGERED PROVIDE CORNER BARS AT ALL WALL AND FOUNDATION CORNERS TO BE LAPPED WITH THE HORIZONTAL BARS. CORNER BARS ARE TO MATCH THE HORIZONTAL BARS IN SIZE, GRADE AND SPACING UNLESS OTHERWISE SHOWN. HOOKS AND BENDS SHALL MEET ACI STANDARD UNLESS OTHERWISE INDICATED.

SPLICES: CONTINUOUS REINFORCING BARS SHALL BE FURNISHED WITH CLASS 'B' TENSION LAPS SPLICES INCLUDING CORNER BARS, UNLESS NOTED OTHERWISE.

MECHANICAL SPLICES SHALL NOT BE PERMITTED UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER REINFORCING STEEL FABRICATION AND PLACEMENT SHALL BE IN ACCORDANCE WITH CRSI MANUAL OF STANDARD

PRACTICE AND CRSI PLACING REINFORCING BARS (LATEST EDITIONS). REINFORCING STEEL IN FOOTINGS SHALL BE ASSEMBLED IN MAT GRILLES EQUALLY SPACED AND SECURELY WIRED TOGETHER BEFORE THE CONCRETE IS POURED.

WALL FOOTING DOWELS ARE TO HAVE A FULL TENSION LAP SPLICE WITH THE WALL STEEL UNLESS NOTED OTHERWISE.

ALL REINFORCING SHALL BE HELD SECURELY IN POSITION WITH STANDARD ACCESSORIES IN CONCRETE NO REINFORCING STEEL SHALL BE FIELD BENT WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER. FIELD BENDING OF PLAIN REINFORCEMENT, IF PERMITTED, SHALL BE PERFORMED USING AN APPROVED AND APPROPRIATE SIZED PORTABLE HYDRAULIC DEVICE THAT MAKES ACI STANDARD RADIUS BENDS. NO OTHER FIELD BENDING METHOD SHALL BE PERMITTED.

WELDING, INCLUDING TACK WELDING, FOR REINFORCING STEEL IS PROHIBITED. WELDING OF REINFORCING STEEL AND HIGH STRENGTH BOLTS, IE. A36, F1554, WILL BE PERMITTED ONLY BY WRITTEN APPROVAL OF THE ENGINEER. ALL OPENINGS THROUGH WALLS, SLABS OR OTHER STRUCTURAL ELEMENTS NOT DETAILED ON THE STRUCTURAL DRAWINGS MUST BE LOCATED BY THE CONTRACTOR AND SHOWN ON THE APPLICABLE REINFORCING STEEL SHOP DRAWINGS. THE FINAL LOCATION OF ALL OPENINGS MUST BE REVIEWED BY THE ENGINEER BEFORE THE CONCRETE IS POURED.

FORMWORK

SEE SPECIFICATIONS

CONCRETE FINISHES: SEE SPECIFICATIONS

CURING AND PROTECTION: SEE SPECIFICATIONS.

SUBMITTALS

RECORD:

CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING THE FOLLOWING DOCUMENTS TO THE ENGINEER OF

a) CONCRETE MIX DESIGN b) CONCRETE REINFORCING DRAWINGS

		TENSION I	DEVELOPMENT / L	AP SPLICE SCHED	ULE (UNCOATED) BARS)	
		DEVELO	PMENT / LAP SPL	ICE LENGTH IN COI	NCRETE (f'c = 40	00 PSI)	
BAR SIZE	DEVELOPMEN	IT LENGTH (IN)	CLASS 'B' LAP SF	PLICE LENGTH (IN)	ST	D 90 DEG. HOOK	(IN)
SIZE	BAR TYPE 1	BAR TYPE 2	BAR TYPE 1	BAR TYPE 2	EMBED	LEG LENGTH	BEND DIA.
3	15	22	19	28	6	6	3
4	19	29	25	37	7	8	3
5	24	36	31	47	9	10	3 3/4
6	29	43	37	56	10	12	4 1/2
7	42	63	54	81	12	14	5 1/4
8	48	72	62	93	14	16	6
9	54	81	70	105	15	19	9 1/2
10	61	91	79	118	17	22	10 3/4
11	74	111	97	145	19	24	11 1/2

BAR TYPE 1 - CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN Db, CLEAR COVER NOT LESS THAN Db, AND STIRRUPS OR TIES THROUGHOUT Ld NOT LESS THAN CODE MINIMUM OR CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN 2*Db AND CLEAR COVER NOT LESS THAN Db.

BAR TYPE 2 - TOP BARS WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW AND OTHER CASES

DESIGN, FABRICATION, AND ERECTION: AMERICAN IRON AND STEEL INSTITUTE (AISI), SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, LATEST EDITION. MATERIAL: ASTM A 500, STANDARD SPECIFICATION FOR COLD FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES. ASTM A 653/A 653M, STANDARD SPECIFICATION FOR STEEL SHEETS, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY COATED BY THE HOT DIP PROCESS.

- C.
- D.

SSMA DESIGNATION:

STIFF
FLA WID
1 ¹ ⁄4
1 3/8
1 5/8
2"
2 ¹ ⁄2

MEMBER DEPTH: (EXAMPLE: 6" = 600 X $\frac{100}{100}$ INCHES) ALL MEMBER DEPTHS ARE TAKEN IN 100 INCHES. FOR ALL "T" SECTIONS MEMBER-

DEPTH IS THE INSIDE TO INSIDE DIMENSION.

STYLE: THE FOUR ALPHA CHARÁCTERS UTILIZED BY THE DESIGNATOR SYSTEM ARE:

S = STUD OR JOIST SECTIONS F = TRACK SECTIONS

U = CHANNEL SECTIONS

F = FURRING CHANNEL SECTIONS

NOTE: FOR THOSE SECTIONS WHERE TWO DIFFERENT YIELD STRENGTHS (33 KSI AND 50 KSI) ARE SHOWN, THE YIELD STRENGTH USED IN THE DESIGN, IF GREATER THAN 33 KSI, NEEDS TO BE IDENTIFIED ON THE DESIGN AND ORDERING OF STEEL. (I.E. 600S162-54 (50 KSI))

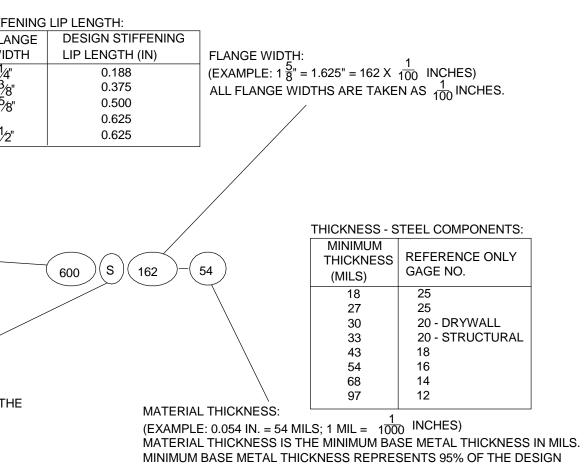
COLD-FORMED STEEL FRAMING

SHOP DRAWINGS: SUBMIT SHOP DRAWINGS BEARING THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE COLD-FORMED METAL FRAMING WILL BE INSTALLED

BRIDGING: IN ACCORDANCE WITH AISI "DESIGN GUIDE FOR COLD-FORMED STEEL STRUCTURAL MEMBERS"

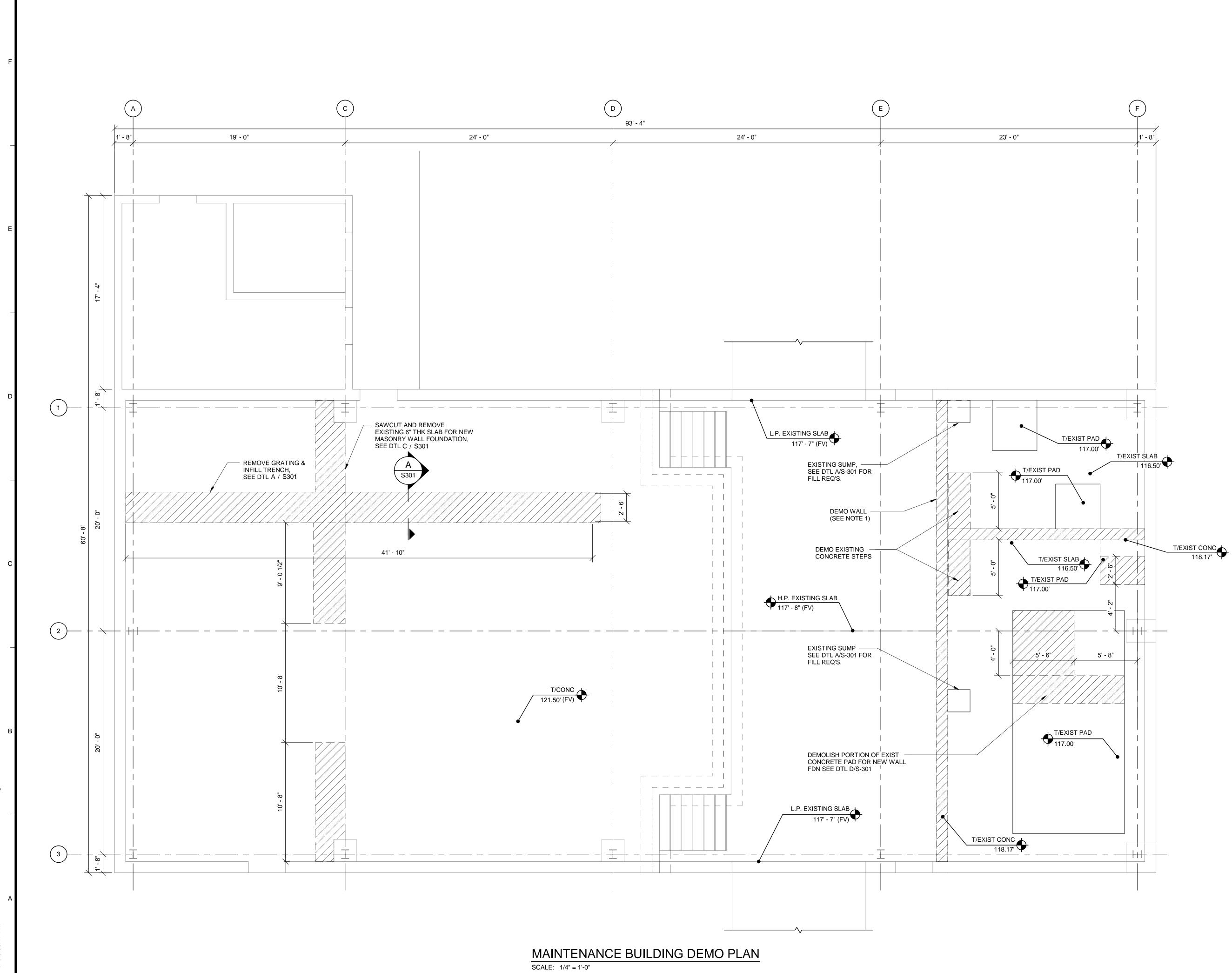
MEMBER DESIGNATION INDICATED ON THE DRAWINGS IS IN ACCORDANCE WITH THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) AS DESCRIBED BELOW. SIZES INDICATED ARE MINIMUM SIZES AND SHALL BE VERIFIED, AND REVISED IF REQUIRED BY CONTRACTOR'S DELAWARE REGISTERED SPECIALTY ENGINEER.

ALL COLD-FORMED STEEL MEMBER DESIGN, INCLUDING CONNECTIONS, SHALL BE BY A FLORIDA REGISTERED SPECIALTY ENGINEER. COLD-FORMED STEEL DESIGN SHALL BE IN CONFORMANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE (AISI) "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".



MINIMUM BASE METAL THICKNESS REPRESENTS 95% OF THE DESIGN THICKNESS.

		THE TETRA TECH	ENGINEERING BUSINESS NO. 2429 www.tetratech.com	201 E PINE STREET, SUITE 1000 ORLANDO, FL 32801 TEL: 407.839.3955 FAX: 407.839.3790
11LS. N		В	ID SET	
N	ΒΥ			
	MARK DATE DESCRIPTION			
	ORANGE COUNTY, FLORIDA	WESTERN REGIONAL WATER PLANT	STRUCTURAL GENERAL NOTES	
	PRO DESI DRW CHKI	N: /N: D:	200-1003	AJG AAF JLB



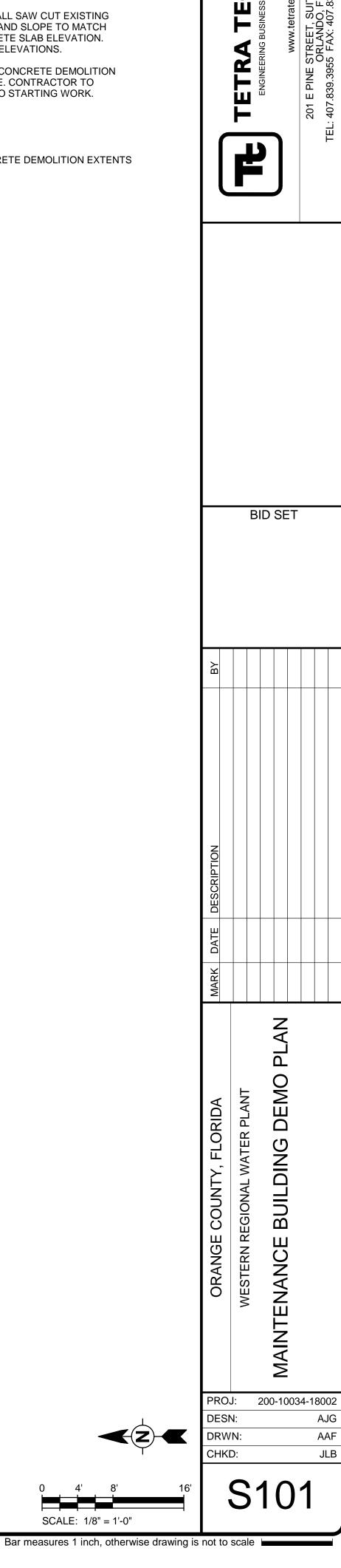


DEMO NOTES:

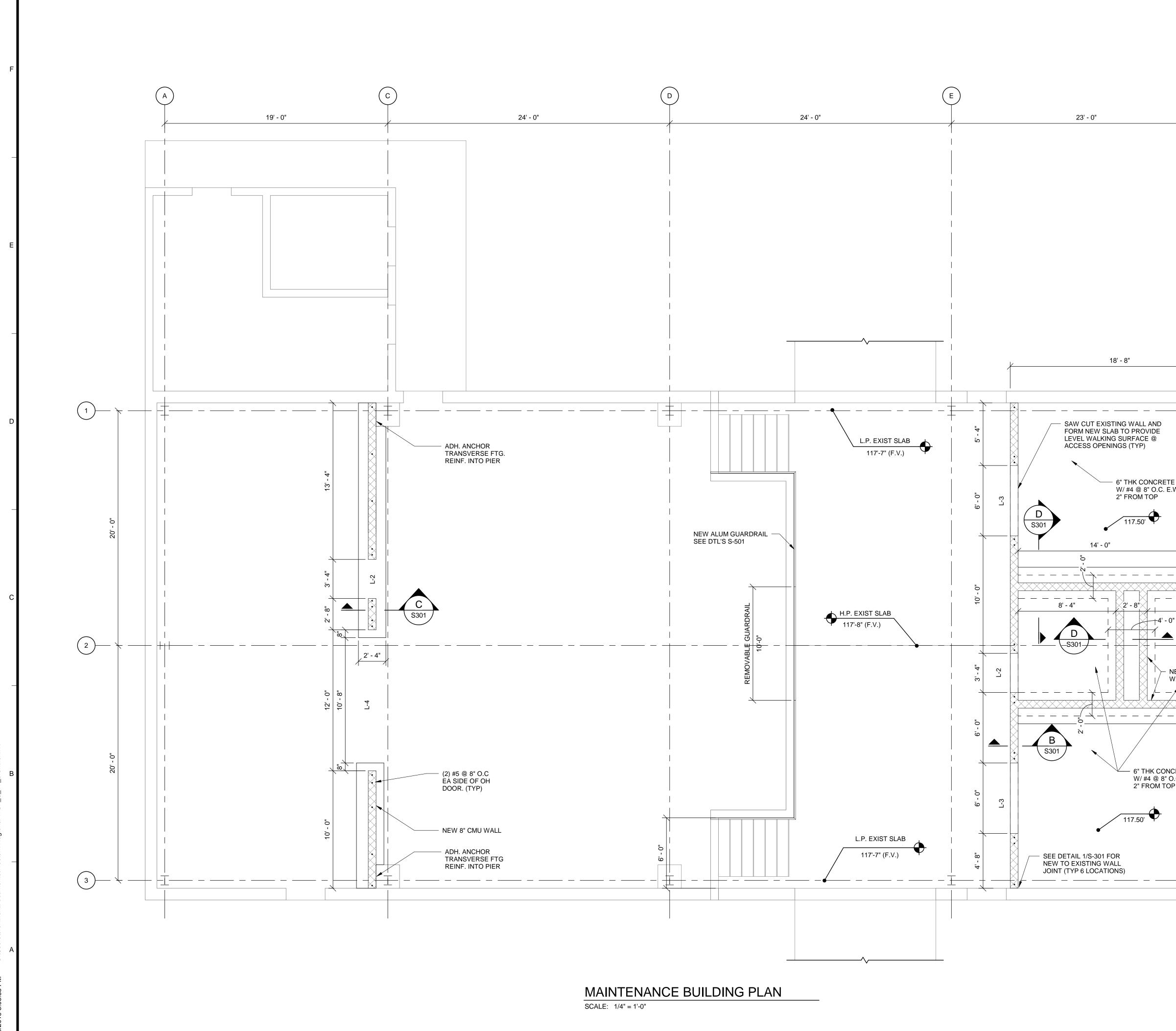
- 1. CONTRACTOR SHALL SAW CUT EXISTING CONCRETE WALL AND SLOPE TO MATCH EXISTING CONCRETE SLAB ELEVATION. FIELD VERIFY ALL ELEVATIONS.
- 2. DIMENSIONS FOR CONCRETE DEMOLITION ARE APPROXIMATE. CONTRACTOR TO CONFIRM PRIOR TO STARTING WORK.

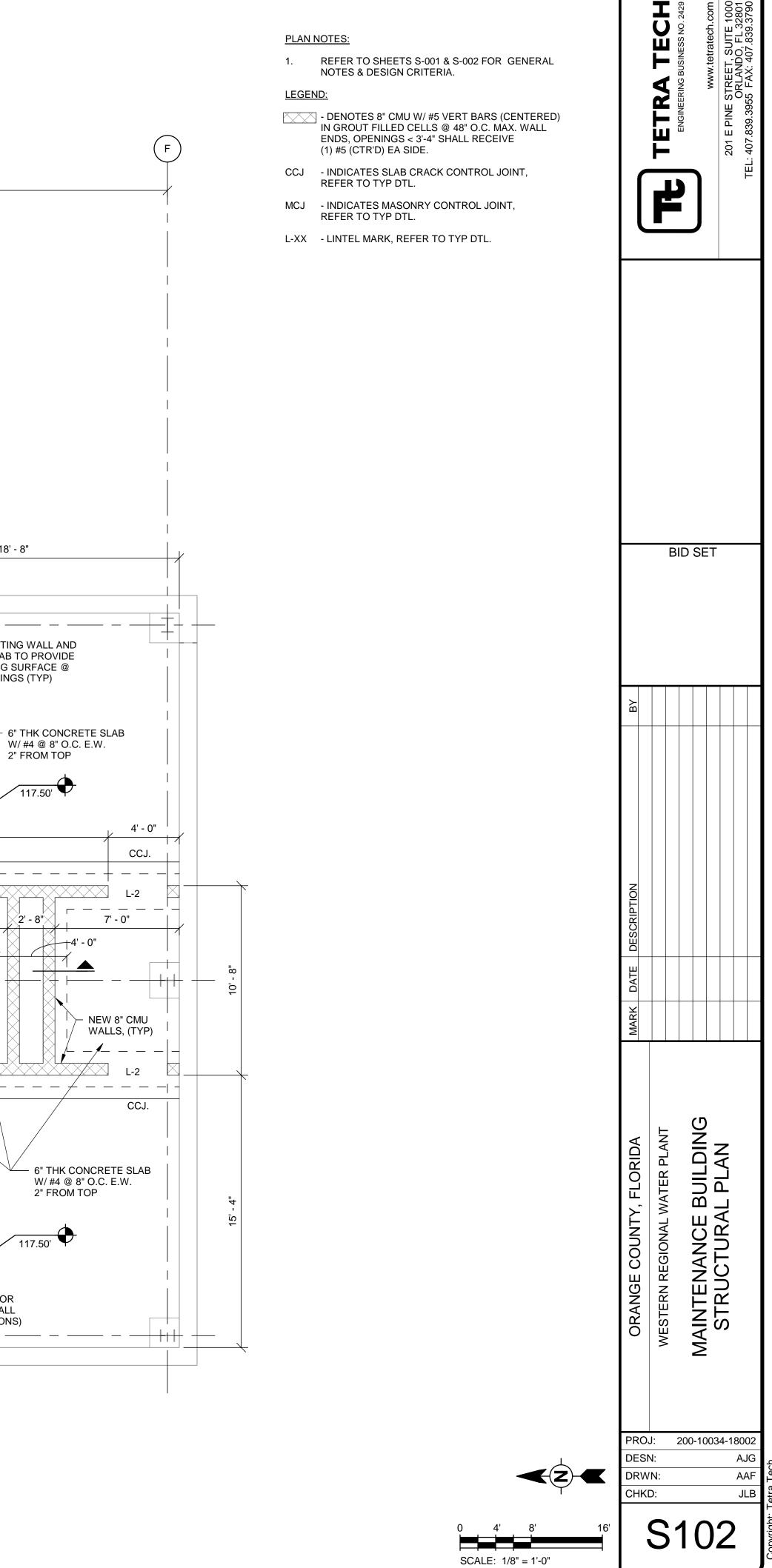
LEGEND:

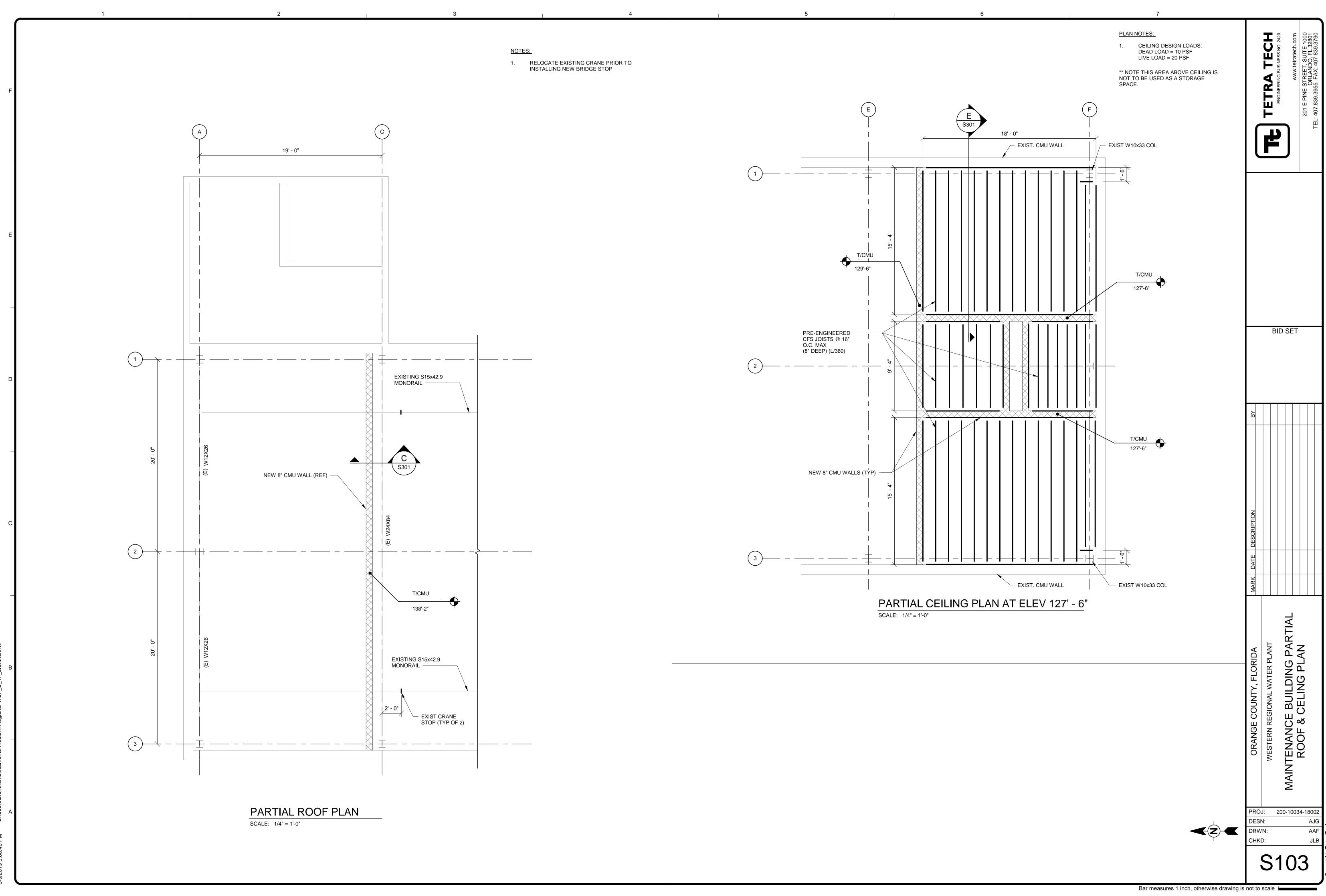
- DENOTES CONCRETE DEMOLITION EXTENTS

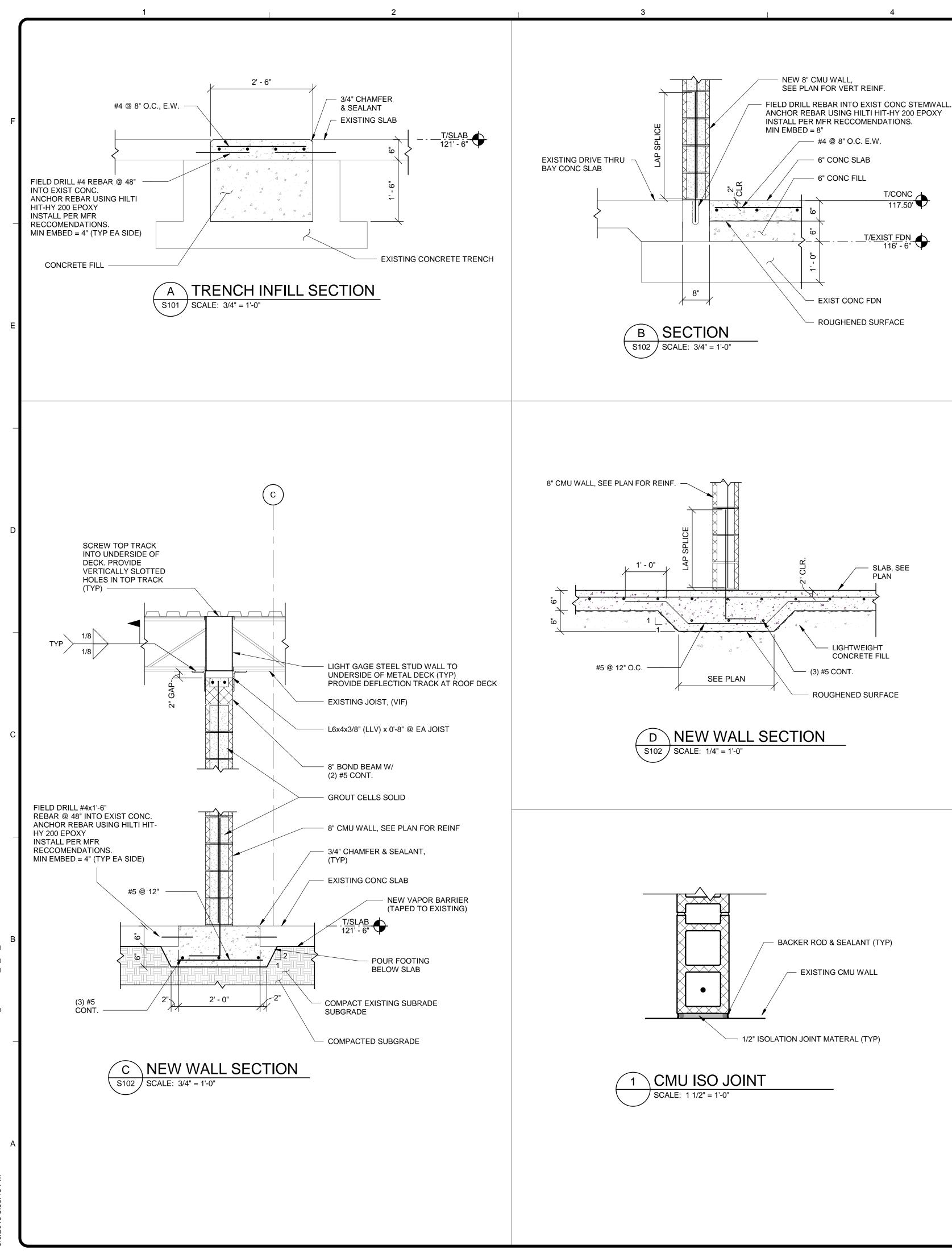


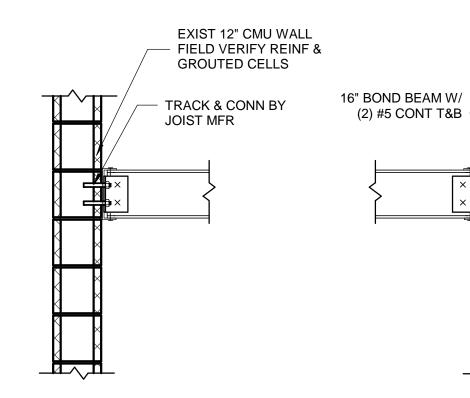
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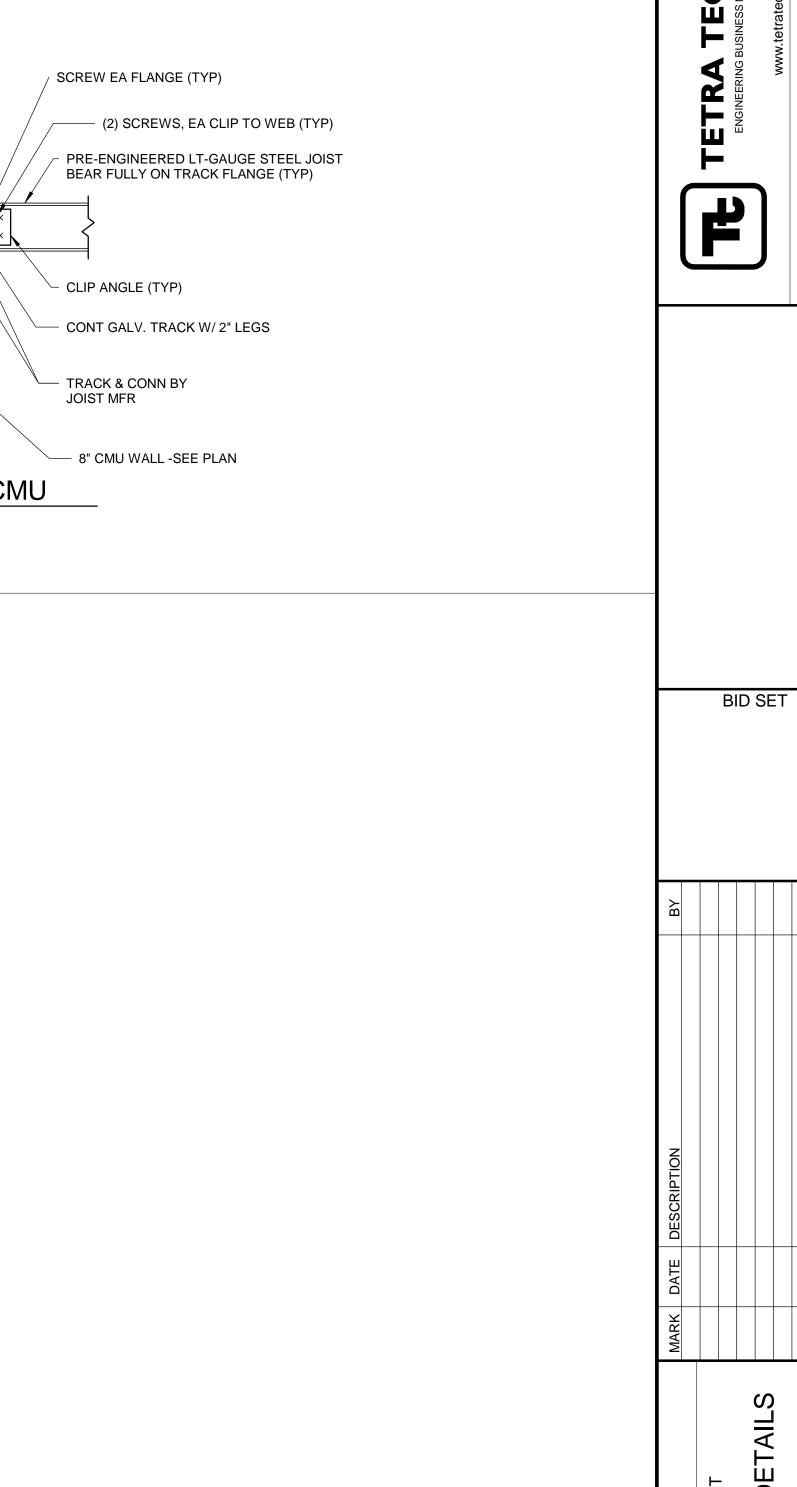








E CFS JOIST TO CMU S103 / SCALE: 3/4" = 1'-0"



WESTERN REGIONAL WATER PLANT	STRUCTURAL SECTIONS & DETAIL				
J: 2 N: 'N: D:	200-10	03	4-1	AJ	IG \F
	J: 2 N: N:	J: 200-10 N: N:	Control of the set of	MESTERN REGIONAL WATER PLANT WESTERN REGIONAL WATER PLANT STRUCTURAL SECTIONS & DETAIL	MESTERN REGIONAL WATER PLANT WESTERN REGIONAL WATER PLANT STRUCTURAL SECTIONS & DETAIL

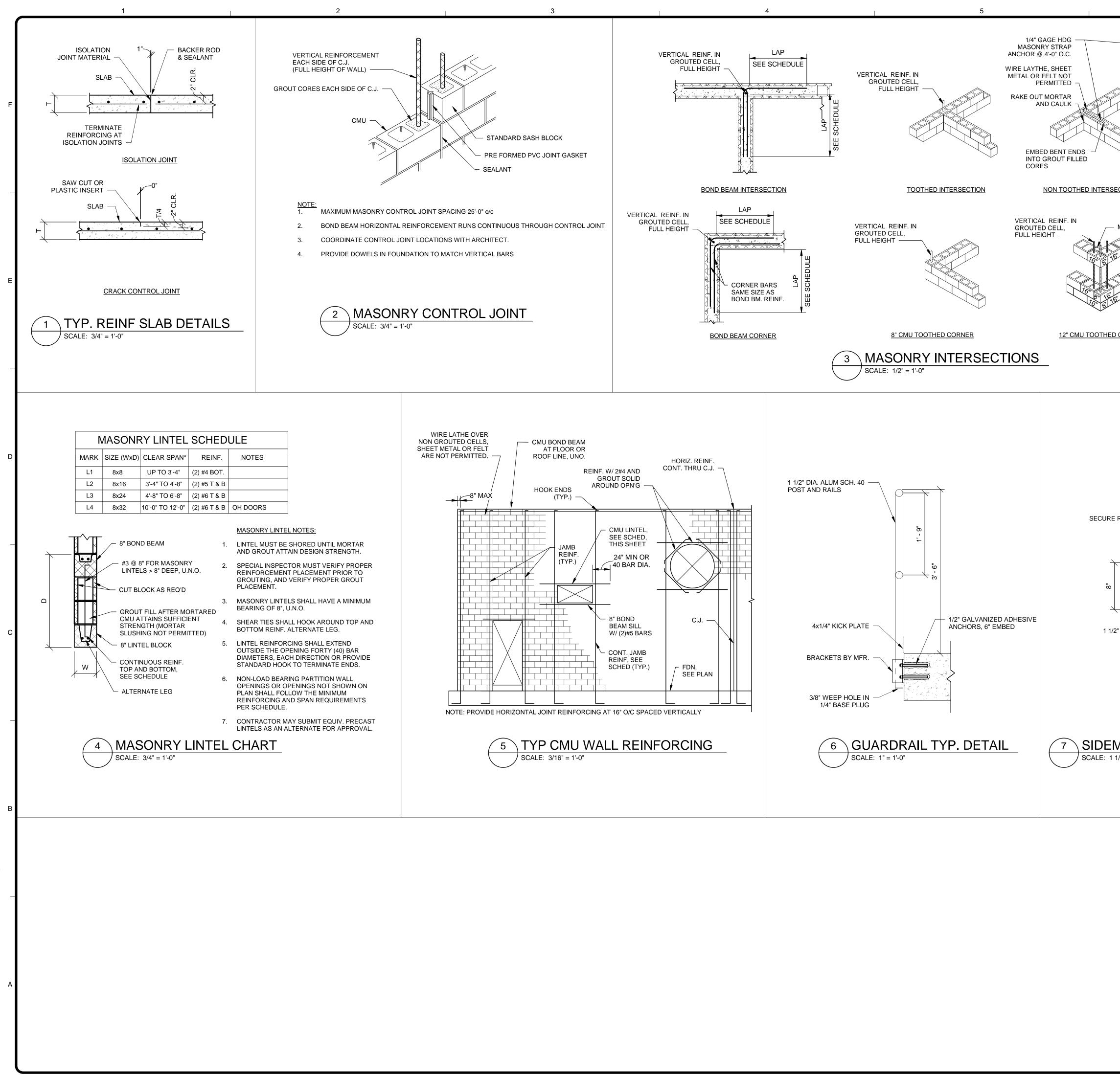
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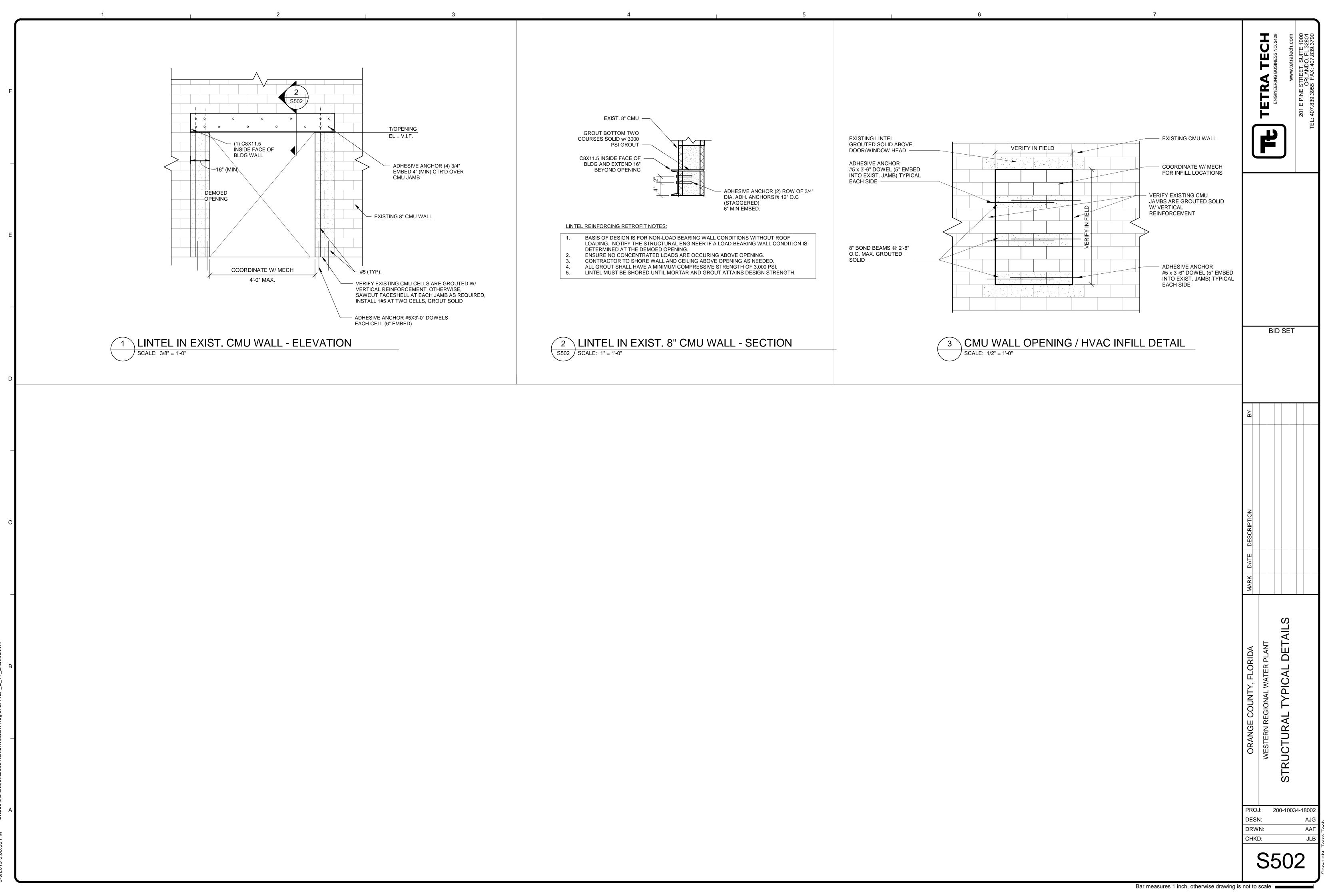
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	TETRA TECH ENGINEERING BUSINESS NO. 2429 ENGINEERING BUSINESS NO. 2429 ENGINEERING BUSINESS NO. 2429 TEL: 407.839.3955 FAX: 407.839.3790
CTION MORTR IN FACE SHELL	
RAIL W/ 1/2" DIA. PIN GUARDRAIL POST 1/4"x4" TOE PLATE 1/4"x4" TOE PLATE * * * * * * * * * * * * *	BID SET
/2" = 1'-0"	ORANGE COUNTY, FLORIDA WESTERN REGIONAL WATER PLANT STRUCTURAL TYPICAL DETAILS
Bar measures 1 inch, otherwise draw	PROJ: 200-10034-18002 DESN: AJG DRWN: AAF CHKD: JLB S501



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						CENEDAL NOTES		
ABBREVIATIONS					SYMBOLS	GENERAL NOTES 1. THE DRAWINGS INDICATE THE GENERAL EXTENT OF WORK.		. 2429
LABEL A LABEL CLASS DOOR	CORR CORRIDOR CP CONCRETE PIPE	GS GRATING SUPPORT GV GRAVEL	NW NORTHWEST	SCW SOLID CORE WOOD SCWD SOLID CORE WOOD DOOR	L ANGLE	1. THE DRAWINGS INDICATE THE GENERAL EXTENT OF WORK. ANY WORK REQUIRED TO PROVIDE THE SCOPE OF WORK GRAPHICALLY INDICATED BY THESE DRAWINGS IS PART OF	25. PROVIDE FINISHED END PANELS, FILLERS, SUPPORTS, ETC. REQUIRED FOR A COMPLETE CABINETRY INSTALLATION. PROVIDE CUTOUTS, ACCESS PANELS AND REMOVABLE	
ABEL A LABEL CLASS DOOR AIR CONDITIONING UNIT	CP CONCRETE PIPE CP CENTER POINT	GV GRAVEL GWB GYPSUM WALL BOARD		SCWD SOLID CORE WOOD DOOR SD SMOKE DETECTOR	& AND	GRAPHICALLY INDICATED BY THESE DRAWINGS IS PART OF THE SCOPE OF THE CONSTRUCTION CONTRACT. IN THE	PROVIDE CUTOUTS, ACCESS PANELS AND REMOVABLE COMPONENTS AS REQUIRED BY NEW OR EXISTING	
ANCHOR BOLT	CPT CARPET	GYBD GYPSUM WALL BOARD	OA OVERALL	SE SOUTH EAST	© AT ° DEGREE	EVENT ANY WORK IS INDICATED GRAPHICALLY AND NOT	CONDITIONS SUCH AS ELECTRICAL OUTLETS, JUNCTION	
N ABANDON	CR CONTROL ROOM	GYP GYPSUM	OC ON CENTER	SF SQUARE FOOT	Ø DIAMETER	NOTED, THE CONSTRUCTION CONTRACTOR SHALL BE EXPECTED TO CONSTRUCT THE DESIGN USING	BOXES, CLEANOUTS, ETC.	
ACCESSIBLE AMERICAN CONCRETE	CS CAST STONE CSWK CASEWORK	H H HORN	OD OUTSIDE DIAMETER OFCI OWNER FURNISHED	SF SQUARE FEET SFTWD SOFT WOOD	= EQUALS - MINUS	INFORMATION AND TYPICAL OR SIMILAR DETAILS PROVIDED	26. VERIFY MOUNTING HEIGHTS OF ACCESSORIES, EQUIPMENT,	
AMERICAN CONCRETE INSTITUTE	CT CERAMIC TILE	HB HOSE BIBB	CONTRACTOR INSTALLED	SGL SINGLE	% PERCENT	IN THE CONSTRUCTION DOCUMENTS.	DOOR HARDWARE, CASEWORK, ETC., AND PROVIDE SOLID	
OUST ACOUSTIC(AL)	CTB CERAMIC TILE - BASE	HC HOLLOW CORE	OFD OVERFLOW DRAIN	SH SOAP HOLDER	+ PLUS ±,+/- PLUS OR MINUS	2. THE CONTRACTOR SHALL PROMPTLY REPORT TO THE	BLOCKING BEHIND ITEMS REQUIRING ANCHORAGE. WHERE MOUNTING HEIGHTS ARE NOT INDICATED, MOUNT ITEMS IN	
ACOUSTICAL CEILING PANEL AUTOMATIC CONTROL SYSTEM	CTF CERAMIC TILE - FLOOR	HC HANDICAP	OFF OFFICE	SHR SHOWER		ARCHITECT ANY ERRORS, INCONSISTENCIES OR OMISSIONS	ACCORDANCE WITH RECOGNIZED INDUSTRY STANDARDS, COORDINATE LOCATIONS WITH MANUFACTURER OR	
ACOUSTICAL CEILING TILE	CTR CENTER CTW CERAMIC TILE - WALL	HDPE HIGH DENSITY POLYETHYLE HDW HARDWARE	NE OFOI OWNER FURNISHED OWNER INSTALLED	SHT MTL SHEET METAL FLASHING SHTHG SHEATHING		IN THE CONTRACT DOCUMENTS DISCOVERED BY OR MADE KNOWN TO THE CONTRACTOR PRIOR TO ORDERING OF ANY	SUPPLIER AND REFER MOUNTING HEIGHT QUESTIONS TO	
AIR CONDITIONING UNIT	CU FT CUBIC FEET	HDWD HARDWOOD	OGL OBSCURE GLASS	SHV SHELVING	DRAFTING MATERIALS	MATERIALS OR PROCEEDING WITH THE WORK AS A REQUEST FOR INFORMATION IN SUCH FORM AS THE ARCHITECT MAY	ARCHITECT FOR INTERPRETATION.	
A AMERICANS WITH DISABILITIES ACT	CWT CERAMIC WALL TILE	HEPA HIGH EFFICIENCY	OPH OPPOSITE HAND	SIM SIMILAR		REQUIRE	27. PROVIDE SEALANT BETWEEN DOOR FRAME PERIMETERS	
ACT ADDITIONAL	D	PARTICULATE AIR FILTER HGT HEIGHT	OPNG OPENING OPP OPPOSITE	SJ SCORED JOINT			AND SURROUNDING WALL CONSTRUCTION UNLESS	
	D DEPTH D LABEL D LABEL CLASS DOOR	HK HOOK	OPQ OPAQUE	SKLT SKYLIGHT SLNT SEALANT	CONCRETE	3. CHAMFER EXTERNAL CORNERS OF EXPOSED CONCRETE	OTHERWISE INDICATED.	
ABOVE FINISH FLOOR	DBL DOUBLE	HM HOLLOW METAL	OPR OPERABLE	SLR SEALER		WALLS 3/4" (20mm) TYPICAL. UNLESS OTHERWISE NOTED.	28. PROVIDE SEALANT BETWEEN INTERIOR AND EXTERIOR	
ABOVE FINISH GRADE	DEMO DEMOLISH	HMD HOLLOW METAL DOOR	ORIG ORIGINAL	SM SQUARE METER	MASONRY	4. MECHANICAL, ELECTRICAL, STRUCTURAL AND PLUMBING	WINDOW AND STOREFRONT FRAME PERIMETERS AND	
J AIR HANDLING UNIT AIR INFILTRATION BARRIER	DEPT DEPARTMENT	HORIZ HORIZONTAL HT HEIGHT	OSB ORIENTED STRAND BOARD OTS OPEN TO STRUCTURE	SMHD SHELF METAL HEAVY DUTY		INFORMATION ON THE ARCHITECTURAL DRAWINGS IS PROVIDED FOR CLARITY AND / OR LOCATION PURPOSES	SURROUNDING CONSTRUCTION UNLESS OTHERWISE INDICATED.	
C AMERICAN INSTITUTE OF	DET DETAIL DF DRINKING FOUNTAIN	HVAC HEATING VENTILATION AND		SMK SMOKE SMLS SEAMLESS	CONCRETE MASONRY	ONLY, SEE RELEVANT DISCIPLINE DRAWINGS FOR SPECIFIC	INDIGATED.	
STEEL CONSTRUCTION	DIA DIAMETER	CONDITIONING	OZ OUNCE	SND SANITARY NAPKIN AND	▶	INFORMATION.	29. PROVIDE SEALANT BETWEEN DISSIMILAR MATERIALS SUCH	
ALTERNATE	DIAG DIAGONAL	HW, HARDWARE HDWR		TAMPON DISPENSER	GROUT	5. FLASHING COLOR TO MATCH ADJACENT WALL COLOR	AS GYPSUM BOARD AND MASONRY, MASONRY AND CONCRETE, COUNTERTOPS AND WALLS, ETC.	
JM ALUMINUM DD ANODIZE	DIM DIMENSION	HDWR HYD HYDRAULIC	PA PUBLIC ADDRESS PAR PARAPET	SP EL SPOT ELEVATION		5. FLASHING COLOR TO MATCH ADJACENT WALL COLOR UNLESS NOTED OTHERWISE.	CONSILIE, COUNTERTORS AND WALLS, ETC.	
PROX APPROXIMATE(LY)	DIST DISTANCE DK DECK		PAR PARAPET PAT PATTERN	SPEC SPECIFICATIONS SQ SQUARE	WOOD STUDS, BLOCKING		30. DO NOT BEGIN WORK THAT MAY REQUIRE COORDINATION,	
D APPROVED	DK DECK DN DOWN	IBC INTERNATIONAL BUILDING	PB PULL BOX	SQ IN SQUARE INCH		6. BUILDING HEIGHTS AND ELEVATIONS ARE BASED UPON PROJECT FINISH ELEVATION OF 0'-0" AT THE FIRST FLOOR.	SUCH AS CEILING INSTALLATION, PRIOR TO FINAL SUBMITTAL OF MECHANICAL AND ELECTRICAL COORDINATION	
	DOC DOCUMENT	CODE ICF INSULATED CONCRETE FOR	PBD PARTICLE BOARD	SQ YD SQUARE YARD	EARTHWORK	TROUCT TIMOT LEVATION OF 0-0 AT THE FIRST FLOOR.	DRAWINGS TO ARCHITECT NOR PRIOR TO RESOLUTION AND	
CH ARCHITECT(URAL) C ABOVE SUSPENDED CEILING	DR DOOR	IF INSIDE FACE	FUC FRECASI CONCRETE	SQFT SQUARE FOOT (FEET)		7. ALL WORK SHALL COMPLY WITH APPLICABLE BUILDING	APPROVAL OF COORDINATION ISSUES.	
SY ASSEMBLY	DS DOWNSPOUT	IG INSULATING GLASS	PCF POUND PER CUBIC FOOT PCT PERCENT	SQM SQUARE METER SS STAINLESS STEEL	GRAVEL	CODES, ORDINANCES AND REGULATORY AGENCIES. DISCREPANCIES SHALL BE BROUGHT TO THE ARCHITECT'S	31. REFER TO LIFE SAFETY DRAWINGS FOR FIRE-RATED FLOOR,	
G AVERAGE	DWG(S) DRAWING(S) E	IJ ISOLATION JOINT	PEMB PRE-ENGINEERED METAL	SS STAINLESS STEEL SSMR STANDING SEAM METAL ROOF	GRAVEL	ATTENTION PRIOR TO PROCEEDING WITH THE WORK.	WALL, CEILING AND ROOF LOCATIONS. INSTALL	
ARCHITECTURAL WOODWORK	E EAST	ILO IN LIEU OF	BUILDING	SST STAINLESS STEEL			FIRESTOPPING AT PENETRATIONS IN RATED CONSTRUCTION AND AT TOPS OF RATED WALLS.	
ABEL B LABEL CLASS DOOR	E LABEL E LABEL CLASS DOOR	IN INCH INCAND INCANDESCENT	PERF PERFORATED PERM PERIMETER	ST STAIRS	STEEL	8. ALL DOORS IN STUD WALLS NOT LOCATED BY DIMENSION ON PLANS OR DETAILS SHALL BE 4" (100mm) FROM FRAMING TO	AND AT TUPS UP RATED WALLS.	
LC BALCONY	EA EACH	INSUL INSULATION	PERM PERIMETER PERP PERPENDICULAR	STC SOUND TRANSMISSION CLASS		ADJACENT PERPENDICULAR WALL TO EDGE OF DOOR	32. CONFIRM QUANTITY, TYPE AND PLACEMENT OF ALL FIRE	
BASEBOARD	EF EACH FACE EJ EXPANSION JOINT	IRP INSULATED ROOF PANEL	PH PHASE	STD STANDARD STL STEEL	SAND	OPENING.	EXTINGUISHERS WITH THE FIRE MARSHAL. COORDINATE FINAL LOCATIONS WITH THE ARCHITECT PRIOR TO	
BOARD	EL ELEVATOR	ITG INSULATED TEMPERED GLA		STL JST STEEL JOIST	RIGID	9. ROOM AND DOOR NUMBERS SHOWN ON DRAWINGS ARE FOR	PLACEMENT. FIRE EXTINGUISHER BASIS OF DESIGN: LARSEN	BID
F BETWEEN BELOW FINISH FLOOR	ELEC ELECTRIC(AL)	IWP INSULATED WALL PANEL J	PL PROPERTY LINE PL GL PLATE GLASS	STL RF STEEL ROOF DECK	INSULATION	9. ROOM AND DOOR NUMBERS SHOWN ON DRAWINGS ARE FOR CONSTRUCTION PURPOSES ONLY.	SURFACE MOUNTED OR APPROVED EQUAL.	
MA BUILDER'S HARDWARE	ELEV ELEVATION	J JUNCTION BOX	PL GL PLATE GLASS PLAM PLASTIC LAMINATE	DK STOR STORAGE			33. MANUFACTURERS ARE REFERENCED TO ESTABLISH STYLE,	
MANUFACTURER'S	ENGR ENGINEER ENTR ENTRY	JAN JANITOR	PLAS PLASTIC	STR STRINGER		10. ALL WOOD IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESERVATIVE TREATED WOOD.	SIZE, COLOR AND MATERIAL CHARACTERISTICS.	
ASSOCIATION BASELINE	ENTR ENTRY EOG EDGE OF GUTTER	JST JOIST	PLBG PLUMBING	STRB/HR STROBE / HORN				
DG BUILDING	EP EXPLOSTION PROOF	JT JOINT K	PLG PILING PLYWD PLYWOOD	N STRUCT STRUCTURE(AL)		11. WORK SHALL CONFORM TO APPLICABLE INDUSTRY AND	34. "ALIGN" AS USED IN THESE DOCUMENTS SHALL MEAN TO ACCURATELY LOCATE FINISHED FACES IN THE SAME PLANE	
(G BLOCKING	EPS EXPANDED POLYSTYR		PLYWD PLYWOOD PNL PANEL	STRUCT STRUCTURE(AL) SUB FL SUB FLOOR		MANUFACTURERS' PUBLISHED STANDARDS FOR QUALITY OF MATERIALS AND WORKMANSHIP, AS WELL AS	AND/OR TO INSTALL NEW CONSTRUCTION ADJACENT TO	
LIN BUILT-IN	BOARD EQ EQUAL	KPD KEYPAD	POC POINT OF CONTACT	SUSP SUSPENDED	PLYWOOD	REQUIREMENTS IN THESE DRAWINGS AND SPECIFICATIONS.	EXISTING CONSTRUCTION WITHOUT ANY VISIBLE JOINTS OR SURFACE IRREGULARITIES.	
BEAM BULLNOSE	EQUIP EQUIPMENT	KPL KICKPLATE	POLY POLYSTYRENE	SV SHEET VINYL		ANY CONFLICTING REQUIREMENTS OF THE SOURCES LISTED ABOVE SHALL BE BROUGHT TO THE ARCHITECTS ATTENTION		
D BASIS OF DESIGN	EW EACH WAY	L LAM LAMINATE	PP PL PUSH/PULL PLATE	SW SOUTHWEST	ΧΧΧΧΧΧΧΧ ΒΑΤΤ	PRIOR TO PROCEEDING WITH THE WORK.	35. "CLEAR" AS USED IN THESE DOCUMENTS SHALL MEAN THAT	B
F BOTTOM OF FOOTING	EWC ELECTRIC WATER COC	R LAWI LAWINATE LAV LAVATORY	PR PAIR PRCST PRECAST	SYM SYMMETRICAL T	BATT INSULATION		THE CONDITION IS NOT ADJUSTABLE WITHOUT APPROVAL OF THE ARCHITECT. CLEAR DIMENSIONS ARE TYPICAL	
S BOTTOM OF STEEL	EXIST EXISTING EXP EXPOSED	LBR LUMBER	PREFAB PREFABRICATED	T TREAD		12. THE CONTRACTOR SHALL PROTECT EXISTING, IN-PLACE AND NEW WORK.	THE ACCOULTEGT. GLEAN DIVIENSIONS ARE ITPICAL	
DT BOTTOM P BUILDING PAPER	EXP AB EXANSION ANCHOR BO	LBS POUNDS	PRKG PARKING	T&G TONGUE AND GROOVE			36. "MAXIMUM" OR "MAX" AS USED IN THESE DOCUMENTS SHALL	
BUILDING PAPER	EXT EXTERIOR	LDG LANDING	PS PRESTRESSED CONCRETE CONC	T/S TUB / SHOWER		13. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND SHALL	MEAN THAT THE CONDITION IS SLIGHTLY ADJUSTABLE BUT MAY NOT VARY TO A DIMENSION OR QUANTITY GREATER	
RKT BRACKET	EXT GR EXTERIOR GRADE	LF LINEAR FOOT (FEET) LG LONG	PSF POUNDS PER SQUARE FOOT	TB TOWEL BAR TC TERRA COTTA		VERIFY EXISTING CONDITIONS, SHOWN ON THESE DRAWINGS, AT THE SITE, THE CONTRACTOR SHALL NOTIFY	THAN THAT SHOWN WITHOUT APPROVAL OF THE ARCHITECT.	
SMT BASEMENT		LIB LIBRARY	PSI POUNDS PER SQUARE I OUT			THE ARCHITECT IN WRITING OF ANY DISCREPANCIES,		
	FA FIRE ALARM FAAP FIRE ALARM ANNUNCIA	DR LIN LINEAR	PT PRESSURE TREATED	TEL TELEPHONE		OMISSIONS AND OR CONFLICTS BEFORE COMMENCEMENT OF WORK. COMMENCEMENT OF WORK SHALL CONSTITUTE	37. "MINIMUM" OR "MIN" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS SLIGHTLY ADJUSTABLE BUT	
R BUILT UP ROOF	PANEL	LKR LOCKER	PTD PAPER TOWEL DISPENSER			ACCEPTANCE OF ALL NEW OR EXISTING CONDITIONS.	MAY NOT VARY TO A DIMENSION OR QUANTITY LESS THAN	
CONC CAST CONCRETE	FAS BD FASCIA BOARD	LLH LONG LEG HORIZONTAL LLV LONG LEG VERTICAL	PTDR PAPER TOWEL DISPENSER A RECEPTACLE				THAT SHOWN WITHOUT APPROVAL OF THE ARCHITECT.	
ABLE CLABEL CLASS DOOR	FC BRK FACE BRICK FD FLOOR DRAIN	LNT LINTEL	PTN PARTITION	TFF TOP OF FINISH FLOOR THK THICKNESS		14. UNLESS NOTED OTHERWISE ALL GYPSUM WALLBOARD IS TO RECEIVE ONE PRIMER COAT AND TWO COATS OF PAINT.	38. "TYPICAL" AS USED IN THESE DOCUMENTS SHALL MEAN THAT	
C CENTER TO CENTER	FD FLOOR DRAIN FDTN FOUNDATION	LOC LOCATION	PWR POWER	TK BD TACK BOARD		RECEIVE ONE FRIVIER COAT AND TWO COATS OF PAINT.	THE CONDITION OR DIMENSION IS THE SAME OR	
B CABINET	FEC FIRE EXTINGUISHER C	NET LP LIGHT POLE		TLT TOILET		15. NFPA 241, STANDARD FOR SAFEGUARDING CONSTRUCTION,	REPRESENTATIVE FOR SIMILAR CONDITIONS THROUGHOUT.	
B CABLE V CAVITY	FED FEDERAL	LS LABORATORY SINK	QT QUARRY TILE QTY QUANTITY	TMPD GL TEMPERED GLASS		AND ALTERATION OPERATIONS SHALL BE APPLIED TO THIS		SCR
CEMENTITIOUS (BACKER)	FF FINISH FLOOR	LT LIGHT LVDR LOUVER DOOR	R	TN TRUE NORTH TOF TOP OF FOOTING		PROJECT.	39. "+/-" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE DIMENSION OR QUALITY IS SLIGHTLY ADJUSTABLE TO	
BOARD	FF INSUL FOIL FACED INSULATION FFE FINISH FLOOR ELEVAT		R RISER	TOM TOP OF MASONRY		16. PROVIDE EXPANSION AND CONTROL JOINTS IN ALL WORK AS	ACCOMMODATE ACTUAL CONDITIONS, FIELD VERIFICATION	ш
CONSTRUCTION DOCUMENT(S) W CHILLED DRINKING WATER	FG FINISH GRADE	Μ	RB RUBBER BASE	TOP TOP OF PARAPET		PER PRODUCT MANUFACTURER'S STANDARDS.	AND COORDINATION WITH OTHER ELEMENTS AS MIGHT BE NECESSARY.	ATI
M CEMENT PLASTER	FH FIRE HOSE	M METERS	RCP REFLECTED CEILING PLAN RD ROOF DRAIN	TOPO TOPOGRAPHY		17. ALL DISSIMILAR MATERIALS SHALL BE ISOLATED FROM EACH		
AS	FIG FIGURE	MAT MATERIAL MATL MATERIAL	REC RECESSED	TOS TOP OF SLAB TRANS TRANSOM		17. ALL DISSIMILAR MATERIALS SHALL BE ISOLATED FROM EACH OTHER TO AVOID GALVANIC CORROSION.		꽃
	FIN FINISH (ED) FIXT FIXTURE	MAX MAXIMUM	REF REFERENCE	TRANS TRANSOM TRT TREATED				
CONTRACTOR FURNISHED /CI CONTRACTOR FURNISHED/	FL FLOOR	MB MOISTURE BARRIER	REFR REFRIGERATOR	TRTD TREATED		18. PROVIDE ACCESS PANELS AS REQUIRED BY APPLICABLE CODES AND AS REQUIRED FOR MECHANICAL EQUIPMENT		
CONTRACTOR INSTALLED	FLDG FOLDING	MC MOISTURE CONTENT	REM REMOVABLE REP REPAIR	TS TUBE STEEL		AND PLUMBING WORK. ALL ACCESS PANEL LOCATIONS		
E CONTRACTOR FURNISHED EQUIPMENT	FLEX FLEXIBLE	MD METAL DECK MECH MECHANICAL (ROOM)	REQ REQUIRE	TV TELEVISION TYP TYPICAL		SHALL BE REVIEWED WITH THE ARCHITECT OR ARCHITECTS REPRESENTATIVE PRIOR TO PROCEEDING.		
LG COUNTER FLASHING	FLMT FLUSH MOUNTED FLR FLOOR	MEMB MEMBRANE	REQ'D REQUIRED	U				
M CUBIC FEET PER MINUTE	FLUOR FLUORESCENT	MF MILL FINISH	RES RESILIENT	UNF UNFINISHED		19. PIPE DUCTS AND BUSS DUCTS THAT PENETRATE FLOOR		
MF COLD FORM METAL FRAMING	FM FACTORY MUTUAL		RESIL RESILIENT REV REVISION	UNO UNLESS NOTED OTHERWISE		SLABS OR WALL PARTITIONS SHALL BE INSTALLED IN A MANNER THAT WILL PRESERVE THE MOISTURE RESISTANCE,		AC
S CUBIC FEET PER SECOND	FOC FACE OF CONCRETE	MID MIDDLE MIN MINIMUM, MINUTE	REV REVISION RF RESILIENT FLOORING			FIRE RATING, AIR AND/OR VAPOR BARRIER, AND		
T CERAMIC FLOOR TILE CORNER GUARD	FOM FACE OF MASONRY FOS FACE OF STEEL	MIR MIRROR	RH ROOF HATCH	V VB VAPOR BARRIER		STRUCTURAL INTEGRITY OF THE BUILDING.		
CONTROL JOINT	FOS FACE OF STEEL FR FIRE RESISTANT	MO MASONRY OPENING	RH RIGHT HAND	VCT VINYL COMPOSITION TILE		20. INTERIOR PARTITION MOVEMENT CONTROL: (A). VERTICAL		UP UP
CENTER LINE	FRG FIBER REINFORCED G	SUM MOD MODIFY	RHR RIGHT HAND REVERSE	VERT VERTICAL		CONTROL JOINTS FOR ANY WALL ARE TO OCCUR AT NOT		Y UTII ER SUF ENTS
	FRMG FRAMING	MRGWB MOISTURE RESISTANT GYPSUM WALLBOARD	RL ROOF LEADER RLG RAILING	VR VAPOR RETARDER		MORE THAN 30'-0" O.C. IN THE HORIZONTAL DIRECTION, UNO. (B). THE TYPICAL MOVEMENT OF THE STRUCTURE DUE TO		
G CEILING DIFFUSER	FRP FIBERGLASS REINFOR	MTD MOUNTED	RM ROOM	VTC VIDEO TELECONFERENCE VTR VENT THROUGH ROOF		DÉFLECTION AT THE HEAD OF THE WALL CONSTRUCTION		
G HT CEILING HEIGHT	FRT FIRE RETARDANT TREA	D MTG MOUNTING	RO ROUGH OPENING	W		RUNNING TO THE UNDERSIDE OF THE STRUCTURE SHALL BE +/- 1/2".		GE COL SIONAL V IMPROV
	FT FOOT	MTL METAL MWP MEMBRANE WATERPROOFIN	RR RESTROOM NG RSD ROLLING STEEL DOOR	W WEST				NNA I C
D CLOSET R CLEAR	FTG FOOTING		RV ROOF VENT	W/ WITH		21. PROVIDE FIRE RATING INFORMATION PAINTED ON RATED		
R COLOR	FUR FURRING FWC FABRIC WALLCOVERIN	N NORTH	RVL REVEAL	W/O WITHOUT WC WATER CLOSET		WALLS ABOVE CEILINGS.		AN REC
RM CLASSROOM	G	NA NOT APPLICABLE	S	WD WOOD		22. VERIFY ALL ROUGH OPENING REQUIREMENTS FOR		OR/ RN F
U CONCRETE MASONRY UNIT	GA GAGE, GAUGE	ND NAPKIN DISPOSAL	S SOUTH	WG WIRE GLASS		PLUMBING FIXTURES PRIOR TO FRAMING WALLS.		
	GAL GAL	NDS NAPKIN DISPENSER NE NORTH EAST	S2S SURFACE TWO SIDES S4S SURFACE FOUR SIDES					IS:
) COLUMN)L COLUMN	GALV GALVANIZED GB GRAB BAR	NFPA NATIONAL FIRE PROTECTIO	N SAPC SUSPENDED ACOUSTICAL	WR WASTE RECEPTACLE WRB WEATHER RESISTANT BARRIER		23. UNLESS NOTED OTHERWISE EXTEND ALL METAL STUD FRAMING TO BOTTOM CORD OF STEEL JOISTS ABOVE.		ME
MM COMMUNICATIONS	GB GRAB BAR GFCI GOVERMENT FURNISH	ASSOCIATION	PANEL CEILING	WRGWB WATER RESISTANT GYPSI IM		CONTINUE SOUND ATTENUATING INSULATION AND GWB EA		
NC CONCRETE	CONTRACTOR INSTALL		SATC SUSPENDED ACOUSTICAL TI	LE WALLBOARD		SIDE FOR SOUND CONTROL BETWEEN ADJACENT SPACES.		
ONC CONCRETE FLOOR	GFCMU GROUND FACE CONCR		CEILING SB SPLASH BLOCK	WS WATER STOP				
ĸ	MASONRY UNIT GL GRID LINE	NOM NOMINAL NP NO PAINT	SC SHOWER CURTAIN	WTP WATER TREATMENT PLANT WWTP WASTE WATER TREATMENT		24. PROVIDE FLASHING AND ENCLOSURES AS REQUIRED AT NEW MECHANICAL AND ELECTRICAL EXTERIOR WALL		PROJ: 20
	GL GLASS	NRC NOISE REDUCTION	SCH SCHEDULE	WWTP WASTE WATER TREATMENT PLANT		PENETRATIONS TO MAINTAIN WATER/WEATHER TIGHT SEAL AT WALL NEW PENETRATIONS. MATCH ADJACENT WALL	I	DESN:
NF CONFERENCE NST CONSTRUCTION	GLZ GLAZING	COEFFICIENT NTS NOT TO SCALE	SCHED SCHEDULE SCR SHOWER CURTAIN ROD			AT WALL NEW PENETRATIONS. MATCH ADJACENT WALL MATERIAL FINISH AND COLOR.		
NST CONSTRUCTION NT CONTINUOUS								
NST CONSTRUCTION NT CONTINUOUS	GR FL GROUND FLOOR	NTS NOT TO SCALE						CHKD:
NST CONSTRUCTION NT CONTINUOUS		NTS NOT TO SCALE					I	
NST CONSTRUCTION NT CONTINUOUS	GR FL GROUND FLOOR	NTS NOT TO SCALE	COR CHOWER CORTAINTROD				0 <u>4'</u> 16	
NST CONSTRUCTION NT CONTINUOUS	GR FL GROUND FLOOR	NTS NOTTO SCALE					0 4' 8' 16 SCALE: 1/8" = 1'-0"	^{6'} A0

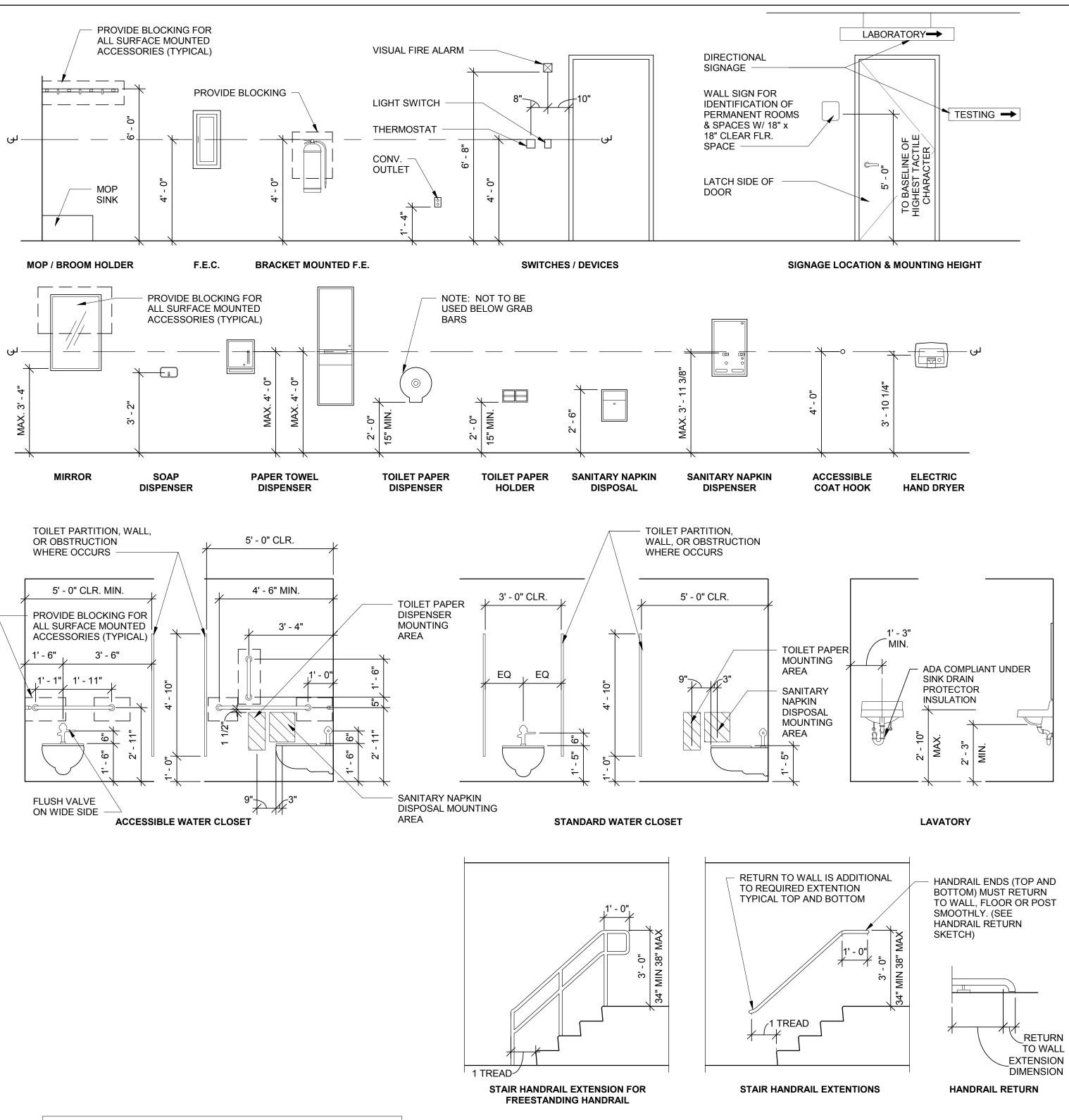
MANUVERING CLEARANCE

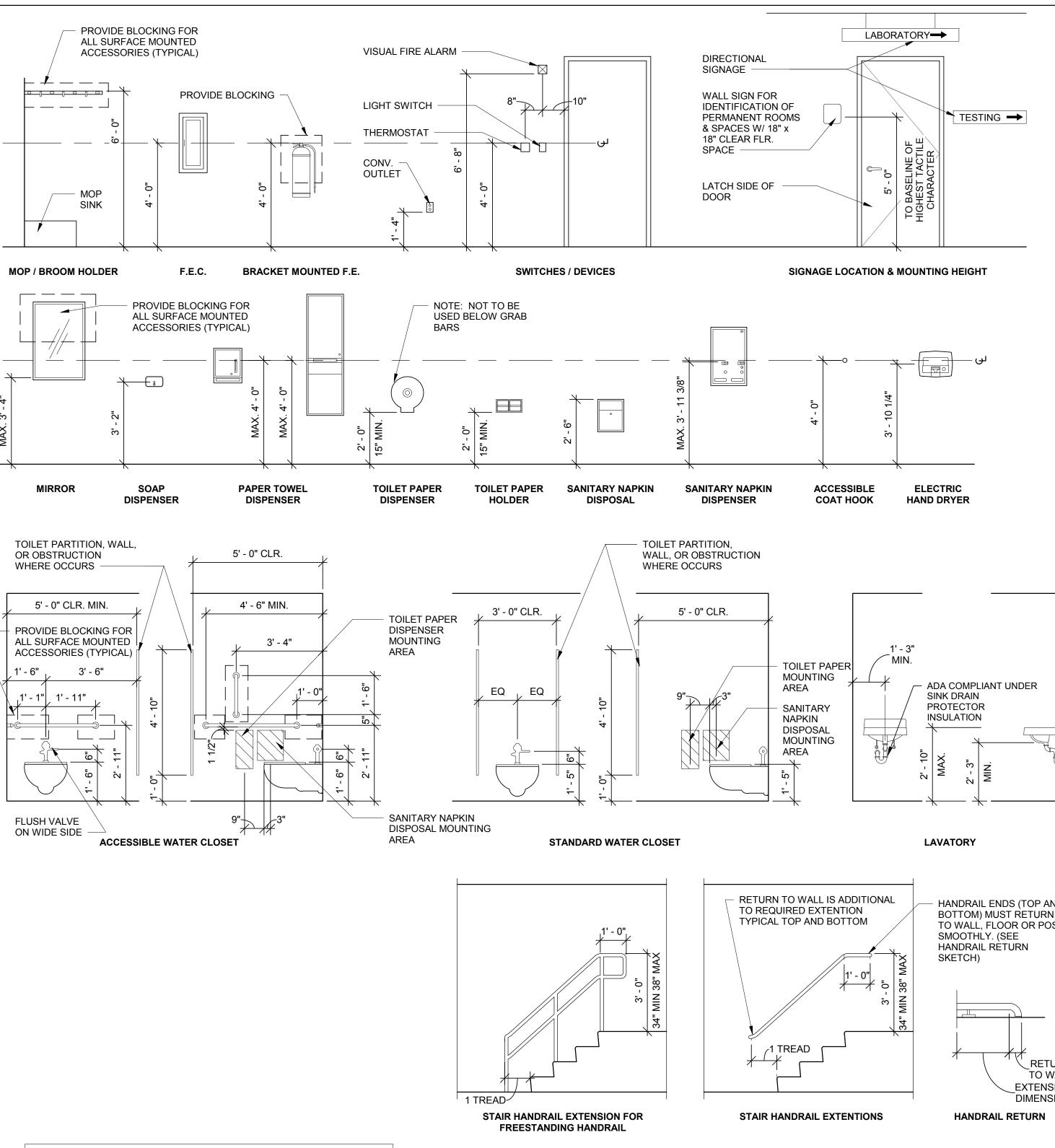
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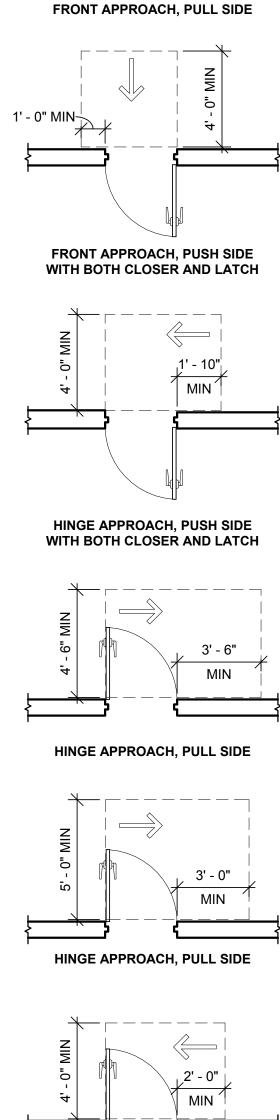
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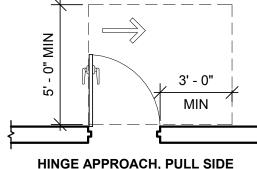
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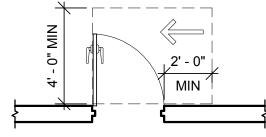
MOUNTING HEIGHTS



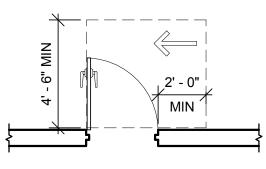




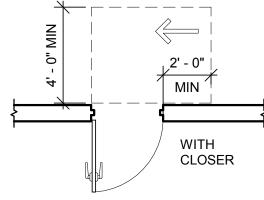




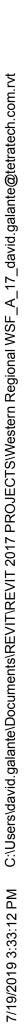
LATCH APPROACH, PULL SIDE



LATCH APPROACH, PULL SIDE WITH CLOSER



LATCH APPROACH, PUSH SIDE





NOTE: SOME ITEMS SHOWN MAY NOT BE APPLICABLE TO THE PROJECT.

STANDARD HEIGHT ELECTRIC WATER COOLER ACCESSIBLE HEIGHT ELECTRIC WATER COOLER

GENERAL NOTES

6

IT IS THE INTENT OF THE DESIGN THAT ALL ITEMS SHOWN MOUNTED AT TYPICAL HEIGHTS 1 FOR COMPLIANCE WITH GOVERNING AUTHORITY OF ADAAG, ABA, AND/OR ANSI 117.1 CURRENT EDITIONS

1000 280

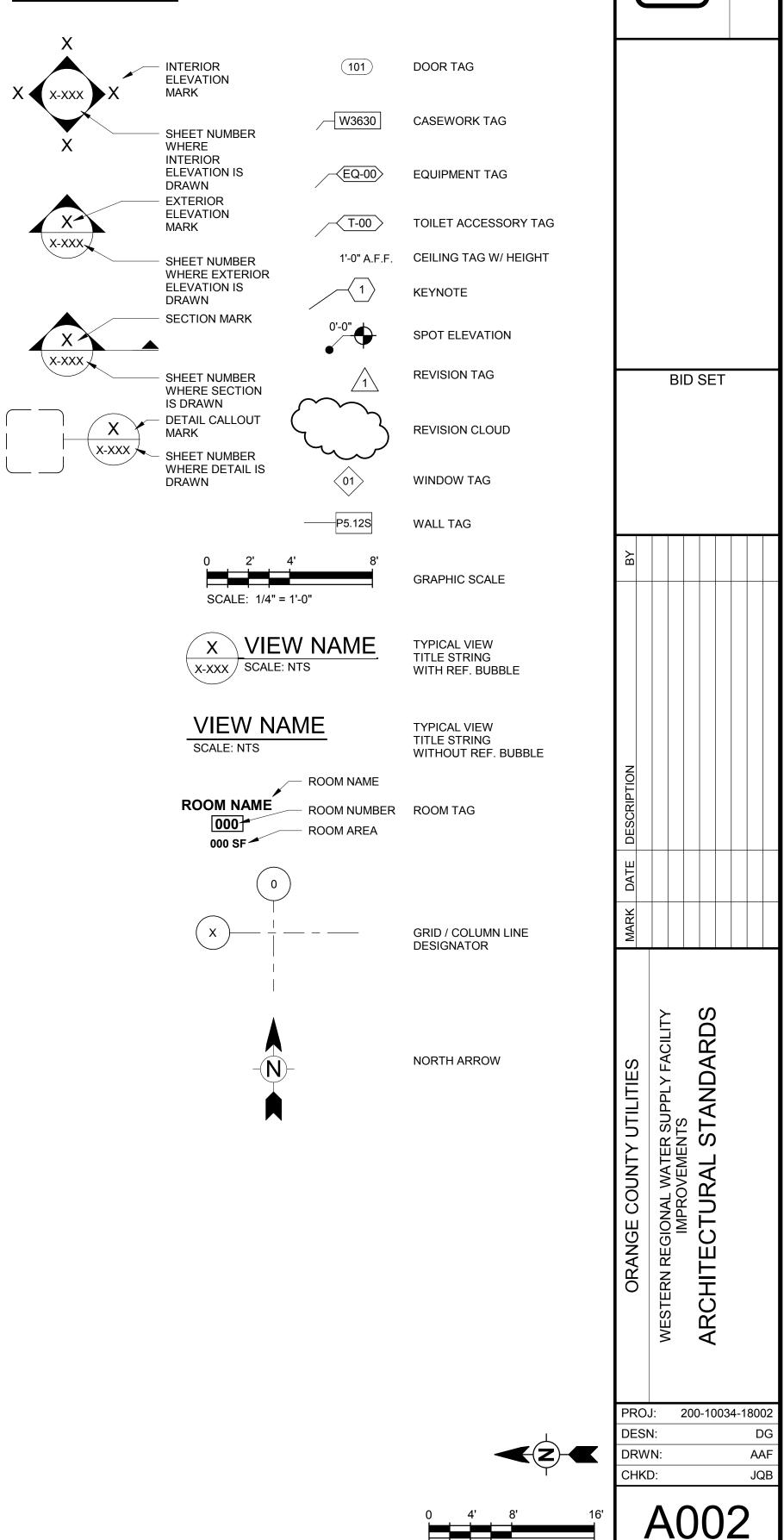
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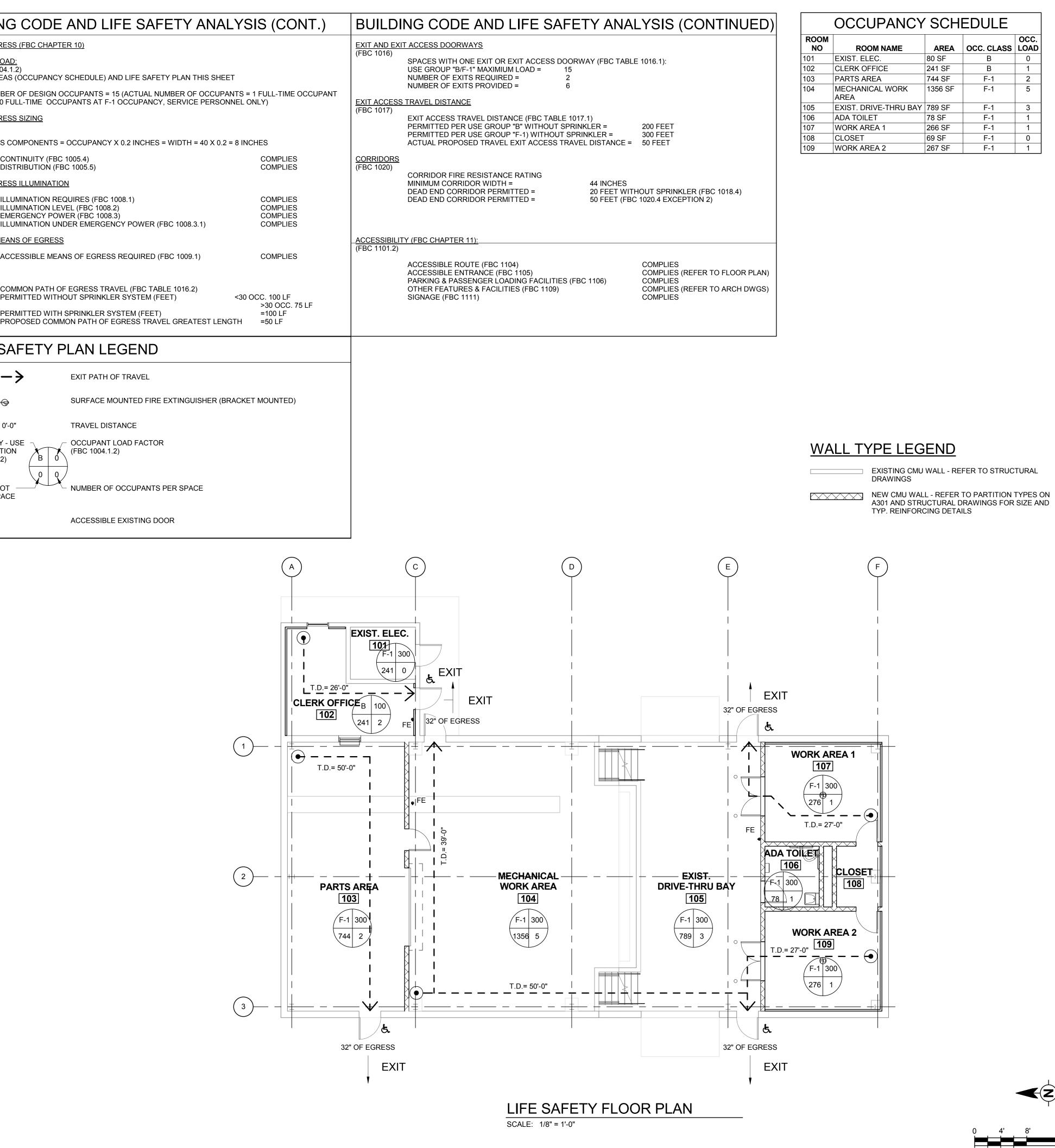
- THE PURPOSE OF THIS SHEET IS TO ILLUSTRATE TYPICAL MOUNTING HEIGHTS AND 2. CLEARANCES - WHERE APPLICABLE - CAUTION: THIS SHEET MAY ILLLUSTRATE ITEMS OR CONFIGURATIONS WHICH DO NOT OCCUR AS PART OF THE WORK. REFER TO PLANS, ELEVATIONS, SECTIONS AND SCHEDULES TO DETERMINE WHICH ITEMS AND CONFIGURATIONS APPLY TO THE WORK OF THIS PROJECT.
- PROVIDE IN-WALL BLOCKING AS REQUIRED FOR ALL SURFACE MOUNTED ACCESSORIES. 3.

ANNOTATIONS

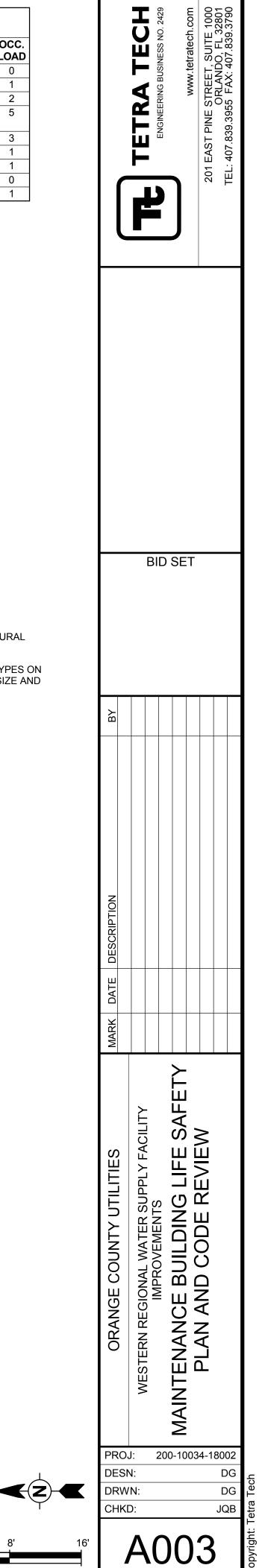


SCALE: 1/8" = 1'-0"

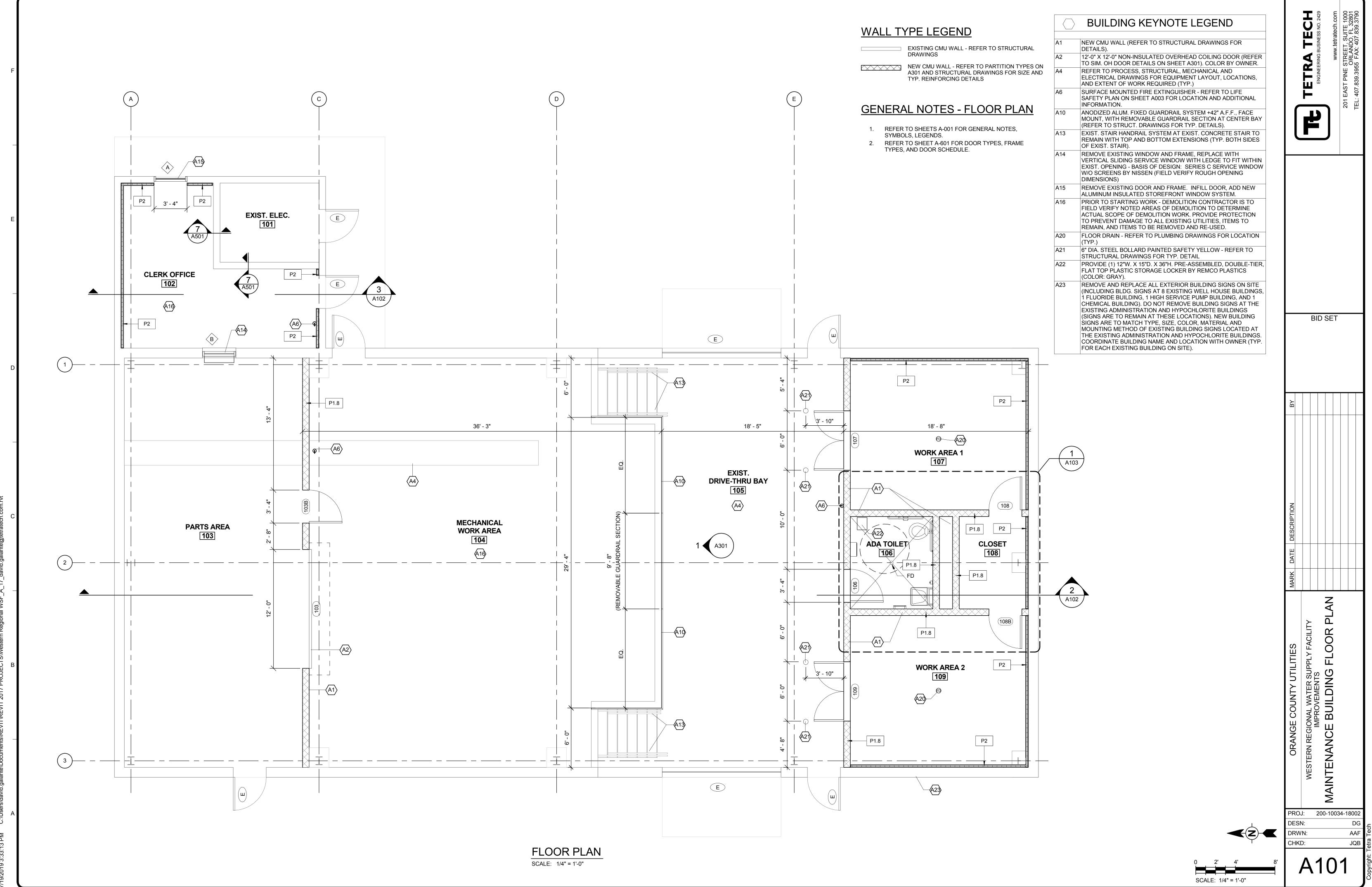
BUILDING CODE AND LIFE SAFETY ANALYSIS	BUILDING
BUILDING DESCRIPTION: RENOVATION OF AN EXISTING ONE STORY, 4,002 GSF MAINTENANCE BUILDING WHICH WILL HOUSE	MEANS OF EGRES
ASSOCIATED SPACES REQUIRED FOR THE MAINTENANCE AND OPERATION OF THE WATER SUPPLY PUMPS. THE ASSOCIATED SPACES WITHIN THE FACILITY INCLUDE: EXISTING ELECTRICAL/MECHANICAL ROOMS,	OCCUPANCY LOAI
PARTS AREA, STORAGE AREAS, DRIVE-THRU BAY, NEW BUSINESS CLERK'S OFFICE AREA AND NEW ACCESSIBLE RESTROOM. THE EXISTING BUILDING IS SLAB ON GRADE WITH LOAD BEARING MASONRY	SEE ROOM AREAS
WALLS WITH CFM TRUSSES AND A METAL ROOF DECK WITH A INSULATED MEMBRANE ROOF SYSTEM.	MAXIMUM NUMBER AT BUSINESS, 0 FU
BUILDING LOCATION: OWNER: ORANGE COUNTY UTILITIES, WESTERN REGIONAL WATER SUPPLY	MEANS OF EGRES (FBC 1005.1)
	OTHER EGRESS C
ASSUMPTIONS: THE BUILDING WILL BE SEPARATED FROM OTHER BUILDINGS TO PREVENT ANY EXPOSURE ISSUES. THE	со
AMOUNT OF HAZARDOUS MATERIALS IN THE BUILDING WILL BE KEPT LESS THAN THE AMOUNTS LISTED IN THE FBC TABLE 307.1(1) AND 307.1(2).	
SUMMARY: MIXED USE OCCUPANCY (GROUP F-1 MODERATE HAZARD OCCUPANCY AND GROUP B BUISNESS)	MEANS OF EGRES (FBC 1008)
(FBC 506.5) NON-SEPARATED GROUP B/F-1 NO SEPARATION REQUIRED (FBC TABLE 508.4)	ILLU EM
TYPE "V-B" UNPROTECTED, NONSPRINKLED, NONCOMBUSTIBLE(FBC TABLE 601)1 STORY, PERMITTED(FBC TABLE 503)8,500 SF TOTAL AREA, PERMITTED(FBC TABLE 503)	ACCESSIBLE MEAI (FBC 1009)
15 OCCUPANT LOAD, CALCULATED (FBC TABLE 1004.1.1)	EXIT ACCESS
APPLICABLE BUILDING CODES	(FBC 1016)
2017 FLORIDA BUILDING CODE: BUILDING	PEF
2017 FLORIDA BUILDING CODE: MECHANICAL	PEF
2017 FLORIDA BUILDING CODE: PLUMBING	
2017 FLORIDA FIRE PREVENTION CODE 2017 NFPA 101 LIFE SAFETY CODE	LIFE SA
2017 NEPA 101 LIFE SAFETY CODE 2017 FLORIDA BUILDING CODE: ACCESSIBILITY	
2017 FLORIDA BUILDING CODE: ACCESSIBILITY 2017 FLORIDA BUILDING CODE: ENERGY CONSERVATION	
NFPA 70 (2014) NATIONAL ELECTRICAL CODE	FE 🔶
NFPA 10 (2017) STANDARD FOR PORTABLE FIRE EXTINGUISHERS	T.D.= 0'-0
BUILDING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 2017 FLORIDA BUILDING CODE (FBC) AND LOCAL CODE ORDINANCES.	OCCUPANCY - U CLASSIFICATIO
AGENCIES HAVING JURISDICTION:	(FBC 1004.1.2)
AGENCY ORANGE COUNTY DIVISION OF BUILDING AND SAFETY ORANGE COUNTY ADMINISTRATION CENTER	SQUARE FOOT
201 S. ROSALIND AVENUE, 1ST FLOOR ORLANDO, FLORIDA 32802-2687 CONTACT: (407) 836-5550, ROBERT C. OLIN, MANAGER	AREA OF SPAC
GENERAL INFORMATION	
USE AND OCCUPANCY CLASSIFICATION (FBC CHAPTER 3)	
USE GROUP: MIXED USE OCCUPANCY - NON-SEPARATED, NON-SPRINKLERED	
BUSINESS GROUP "B" (FBC 304.1) FACTORY INDUSTRIAL MODERATE-HAZARD GROUP "F-1" (FBC 306.3) NON-SPRINKLERED	
GENERAL BUILDING HEIGHTS AND AREAS (FBC CHAPTER 5)	
MAXIMUM HEIGHT PERMITTED (FBC TABLE 503):1 STORY, 40 FEETACTUAL HEIGHT PROPOSED:1 STORY, 20 FEET 0 INCHESMAXIMUM AREA PERMITTED:8,500 GSF	
ACTUAL AREA PROPOSED" 4,002 GSF ALLOWABLE HEIGHT AND STORY INCREASE DUE TO AUTOMATIC SPRINKLER SYSTEM (FBC 504.2) - NOT	
REQUIRED	
CONSTRUCTION TYPE (FBC CHAPTER 6) (FBC TABLE 601) TYPE V B NONCOMBLISTIBLE (NON PROTECTED / NON SEPARATED	
TYPE V-B - NONCOMBUSTIBLE /NON-PROTECTED / NON-SEPARATED	
BUILDING ELEMENTS FIRE RESISTANCE RATING FOR BUILDING ELEMENT (HOURS)	
FIRE RESISTANCE RATING FOR BUILDING ELEMENT (HOURS) PRIMARY STRUCTURAL FRAMES 0	
FIRE RESISTANCE RATING FOR BUILDING ELEMENT (HOURS) PRIMARY STRUCTURAL FRAMES 0 BEARING WALLS 0 EXTERIOR 0	
FIRE RESISTANCE RATING FOR BUILDING ELEMENT (HOURS) PRIMARY STRUCTURAL FRAMES 0 BEARING WALLS 0 EXTERIOR 0 INTERIOR 0 NONBEARING WALLS AND PARTITIONS 0	
FIRE RESISTANCE RATING FOR BUILDING ELEMENT (HOURS) PRIMARY STRUCTURAL FRAMES 0 BEARING WALLS 0 EXTERIOR 0 INTERIOR 0 NONBEARING WALLS AND PARTITIONS 0	

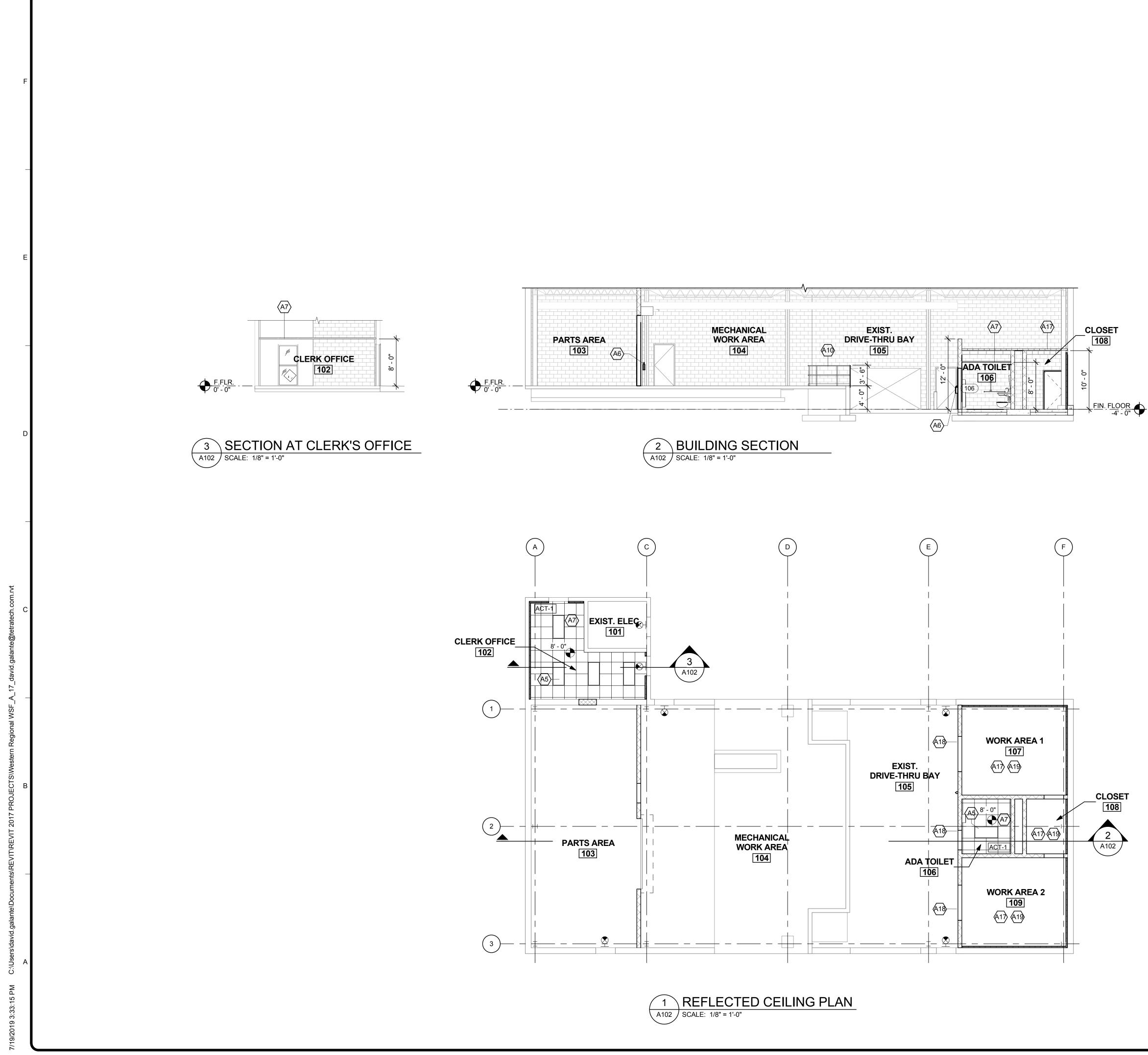






SCALE: 1/8" = 1'-0"



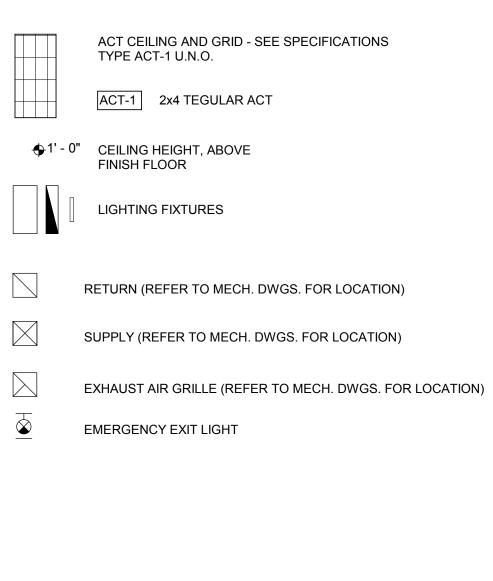


GENERAL NOTES - CEILING PLANS

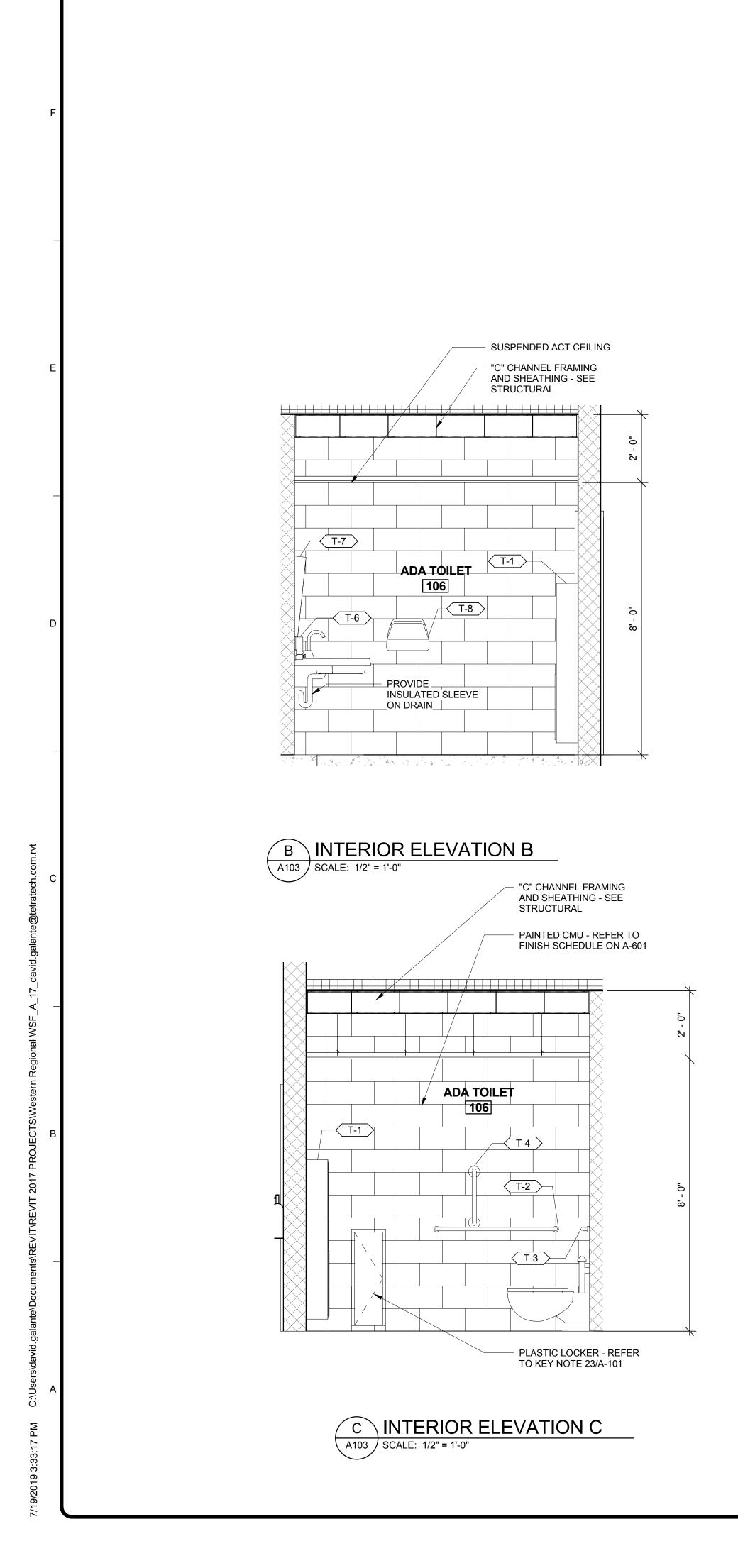
- ALL NEW PENETRATIONS IN CEILING TILE INCLUDING BUT NOT LIMITED TO LIGHT FIXTURES, DIFFUSERS, FIRE DETECTION, SPRINKLER HEAD AND SPEAKERS SHALL OCCUR IN CENTER OF TILE WHERE POSSIBLE.
 REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR CEILING DEVICE LOCATIONS.
- Ι 1000 U JITE FL 3 839 Щ NO N HAX A TRA 전적 S S ш EAS BID SET DESCRIPTION DATE MAR TED E BUILDING REFLECT LAN AND BUILDING SECTIONS **UTILITIES** ORANGE COUNTY MAINTENANCE B CEILING PLA SE က် PROJ: 200-10034-18002 DESN: DG CHKD: JQB A102

\bigcirc	BUILDING KEYNOTE LEGEND
A5	REFER TO ELECTRICAL DRAWINGS FOR FIXTURE TYPE AND LOCATION (TYP.).
A6	SURFACE MOUNTED FIRE EXTINGUISHER - REFER TO LIFE SAFETY PLAN ON SHEET A003 FOR LOCATION AND ADDITIONAL INFORMATION.
A7	SUSPENDED 24" X 24" ACOUSTICAL TILE SYSTEM - REFER TO ELECTRICAL AND MECHANICAL DRAWINGS FOR FIXTURE LOCATION (TYP.)
A10	ANODIZED ALUM. FIXED GUARDRAIL SYSTEM +42" A.F.F., FACE MOUNT, WITH REMOVABLE GUARDRAIL SECTION AT CENTER BAY (REFER TO STRUCT. DRAWINGS FOR TYP. DETAILS).
A17	1/2" COVER BOARD OVER 3 1/2" RIGID INSULATION BOARD, ON 3/4" PLYWOOD DECKING OVER LIGHT GAUGE METAL FRAMING (R-21) - REFER TO STRUCTURAL DRAWINGS FOR FRAMING DETAILS.
A18	PROVIDE (3) 12" X 12" WALL MOUNTED SIGNS AT TOP OF WALL ALONG DRIVE-THRU BAY STATING "CAUTION - NO STORAGE ABOVE."
A19	NEW STRUCTURAL LID AT +10'-0" A.F.F. AT THIS AREA. REFER TO STRUCTURAL DRAWINGS FOR FRAMING DETAILS.

REFLECTED CEILING PLAN SYMBOLS LEGEND



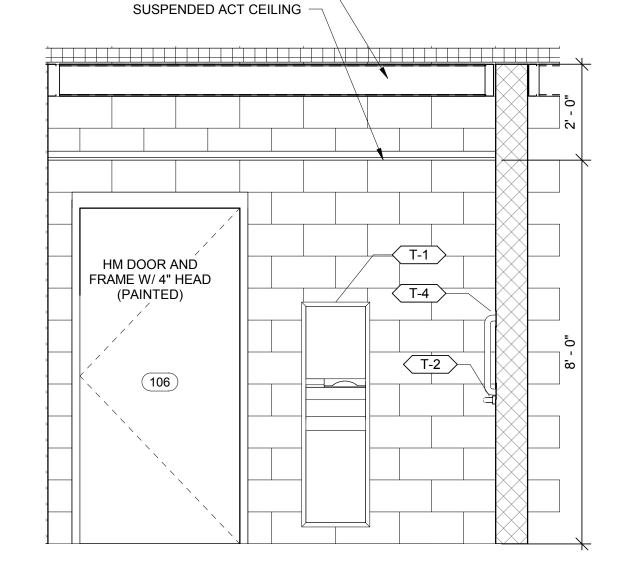
SCALE: 1/8" = 1'-0"





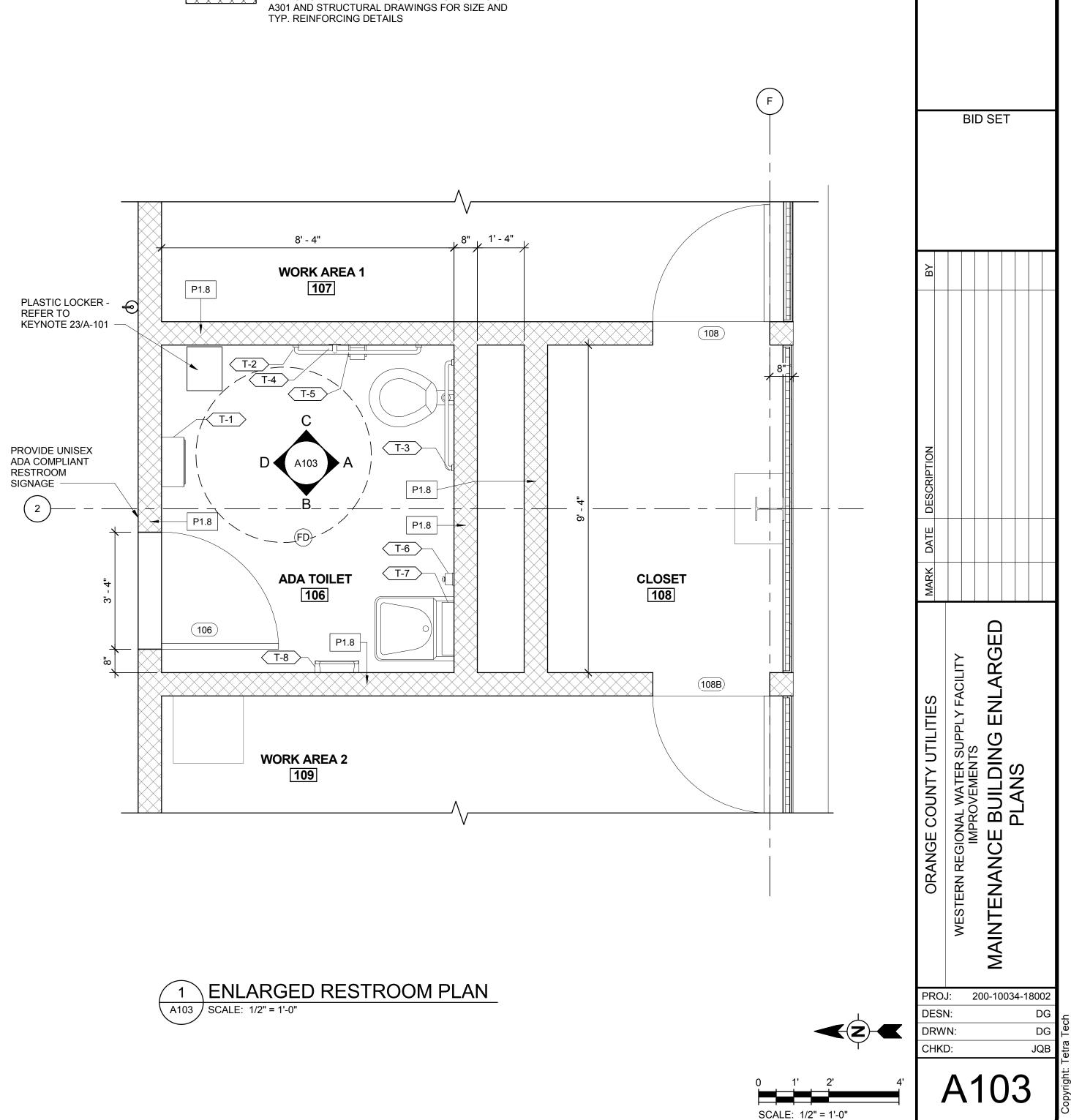
WALL TYPE LEGEND

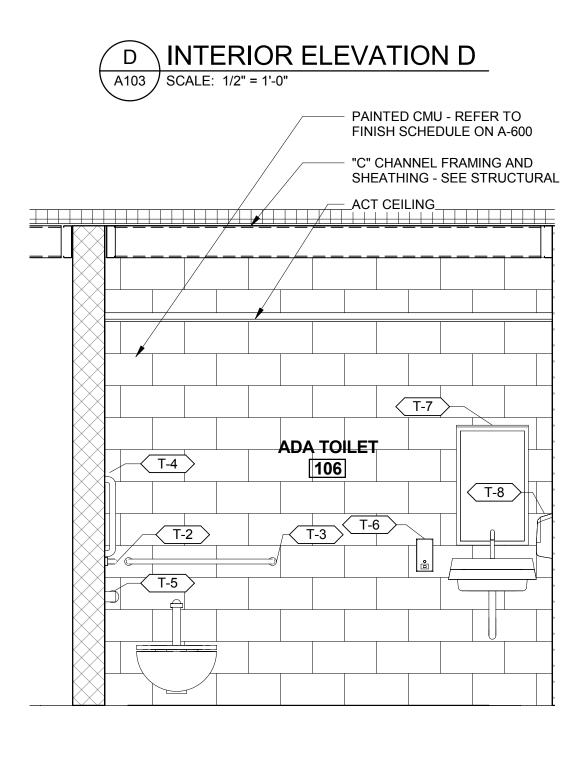
EXISTING C DRAWINGS
NEW CMU V A301 AND S TYP. REINF



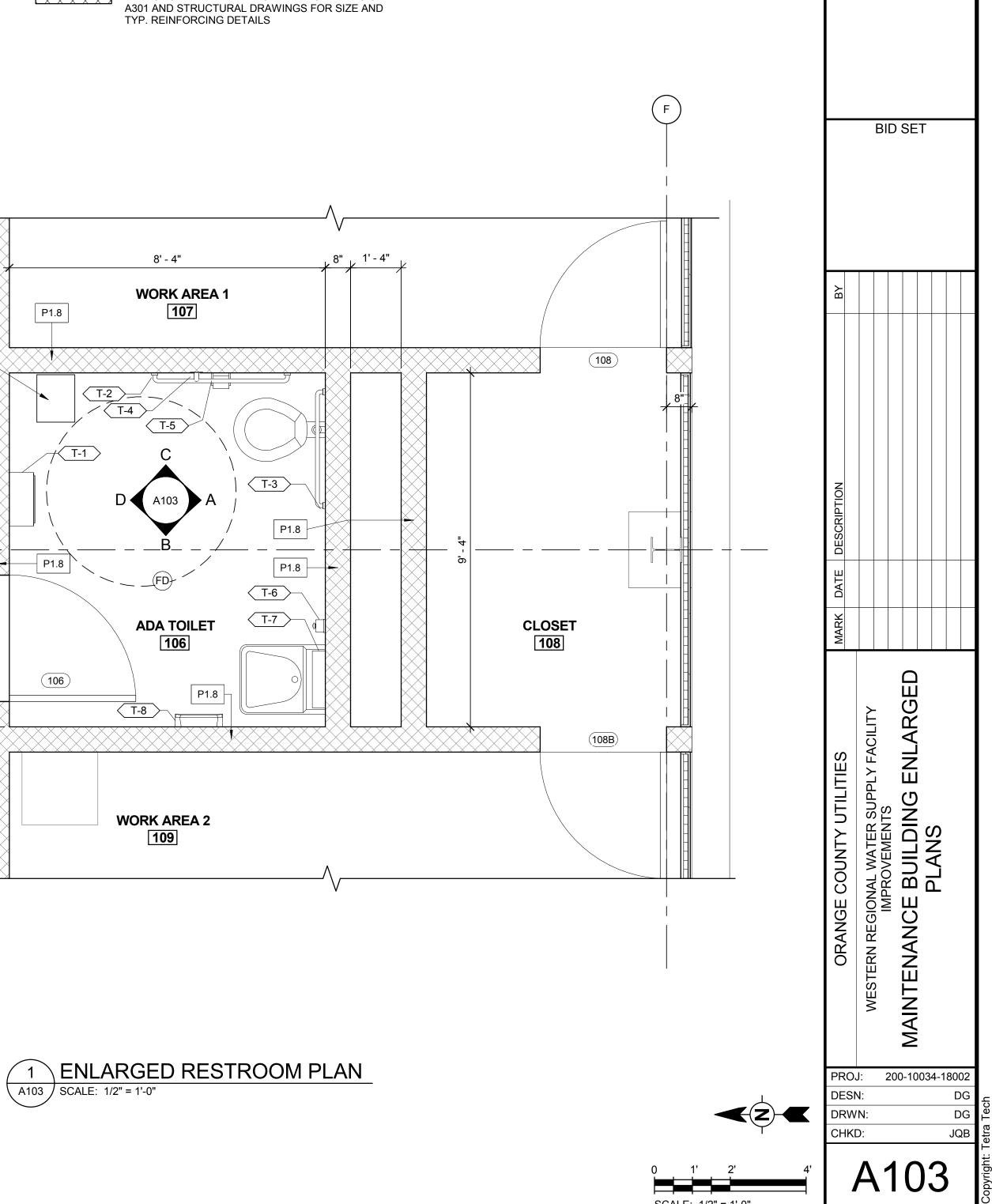
"C" CHANNEL FRAMING AND SHEATHING - SEE

STRUCTURAL —









ACCESSORIES SCHEDULE

RIPTION	MANUFACTURER
PER TOWEL/WASTE	BOBRICK B-380349
(GB)	BOBRICK B-5806.99X42
(GB)	BOBRICK B-5806.99X36
(GB)	BOBRICK B-5806.99X18
PENSER (TTD)	BRADLEY CORPORATION 5402
SOAP DISPENSER	BRADLEY CORPORATION 6A00-11
F 18" X 30"	BRADLEY CORPORATION 780-02436
RYER	AMERICAN SPECIALTIES

MANUFACTURES LISTED FOR MATERIAL, STYLE, SIZES, PROPERTIES AND FINISH REFERENCE ONLY, SEE SPECIFICATIONS FOR FULL LIST OF ACCEPTIBLE MANUFACTURERS.

B. ALL ACCESSORIES SHALL BE ADA COMPLIANT.

CMU WALL - REFER TO STRUCTURAL

WALL - REFER TO PARTITION TYPES ON

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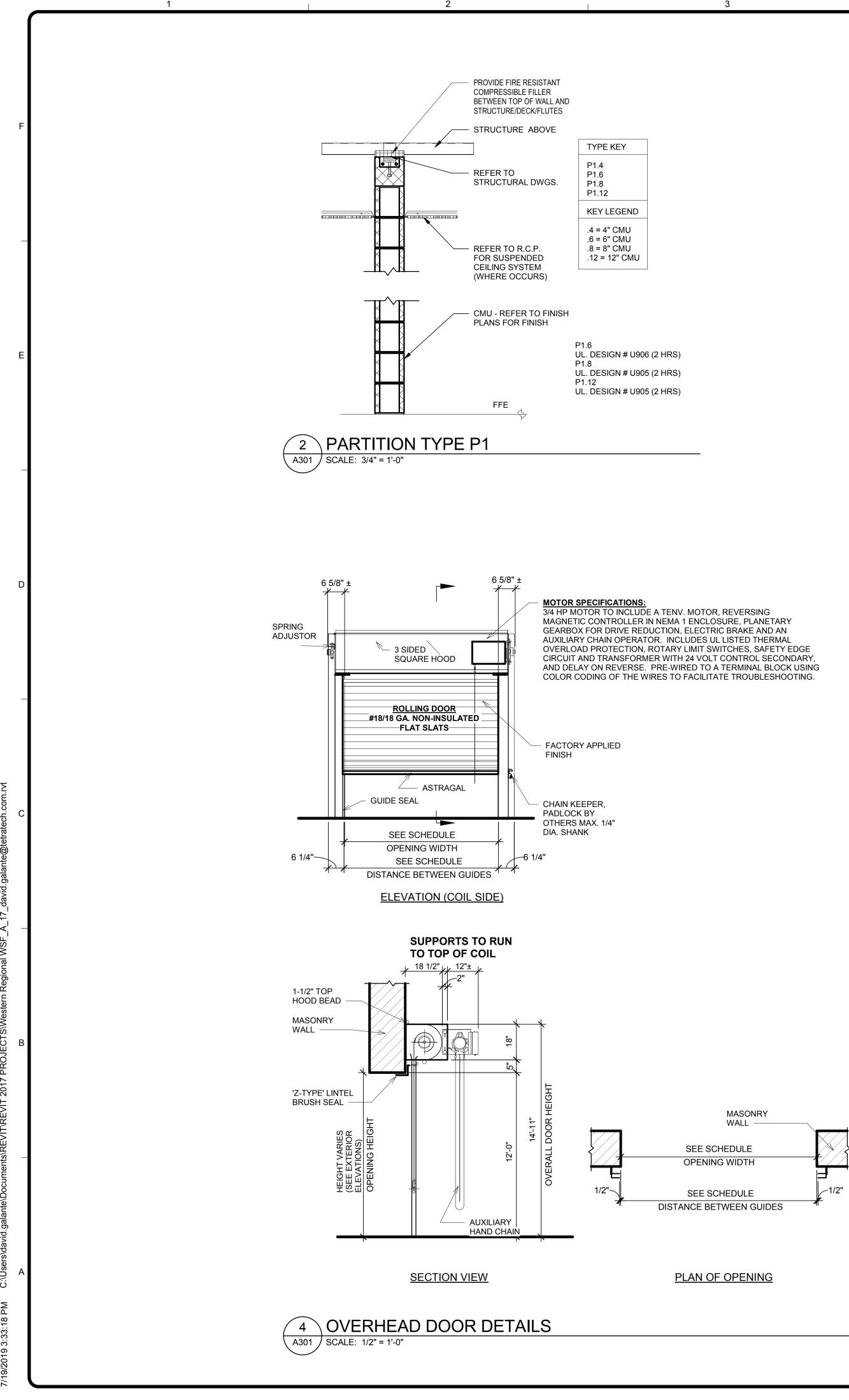
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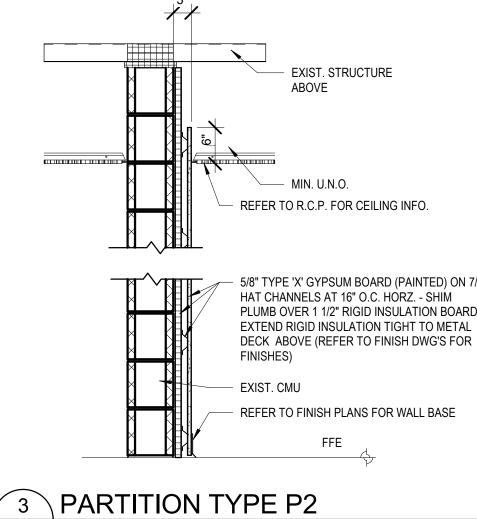
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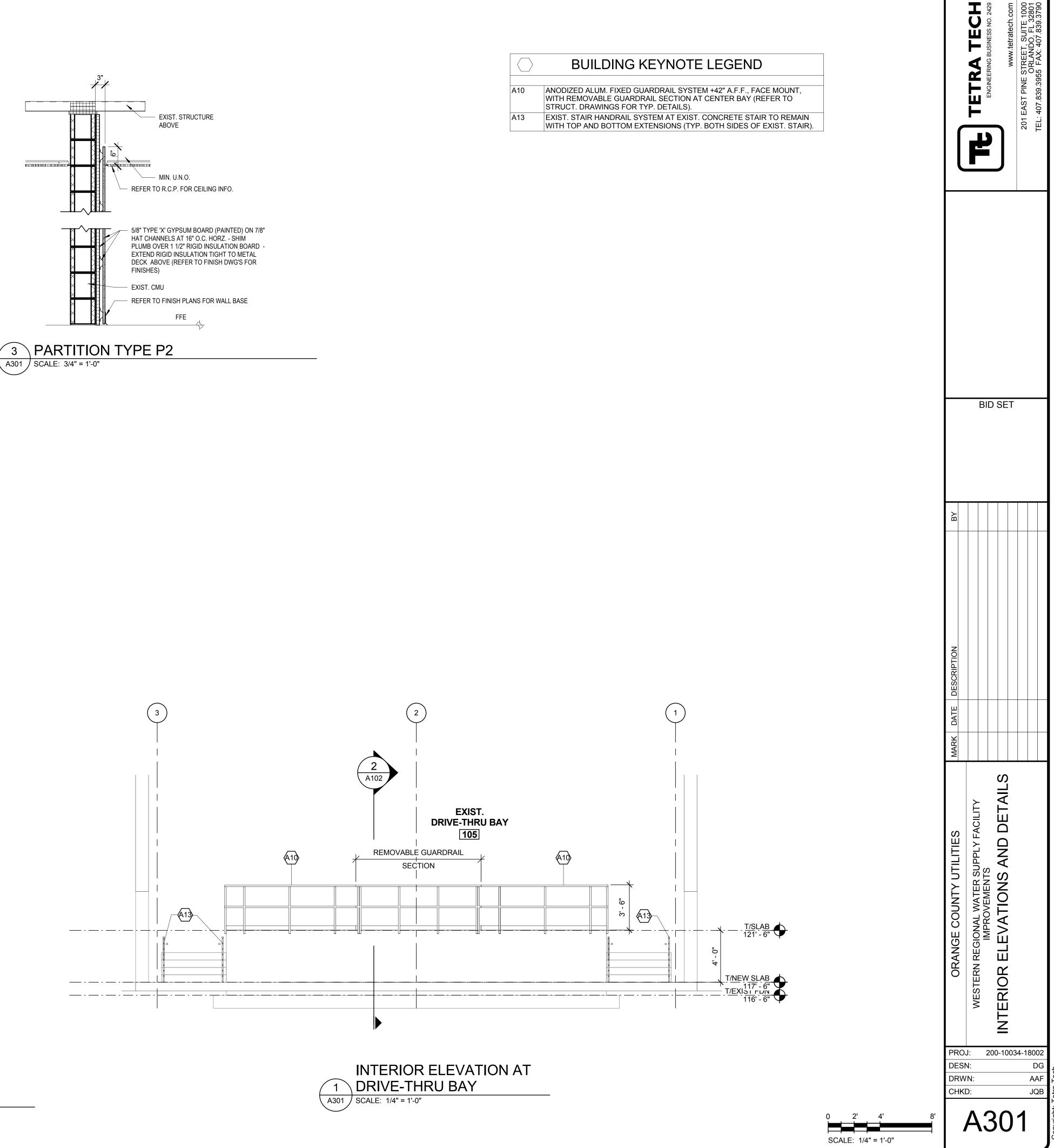
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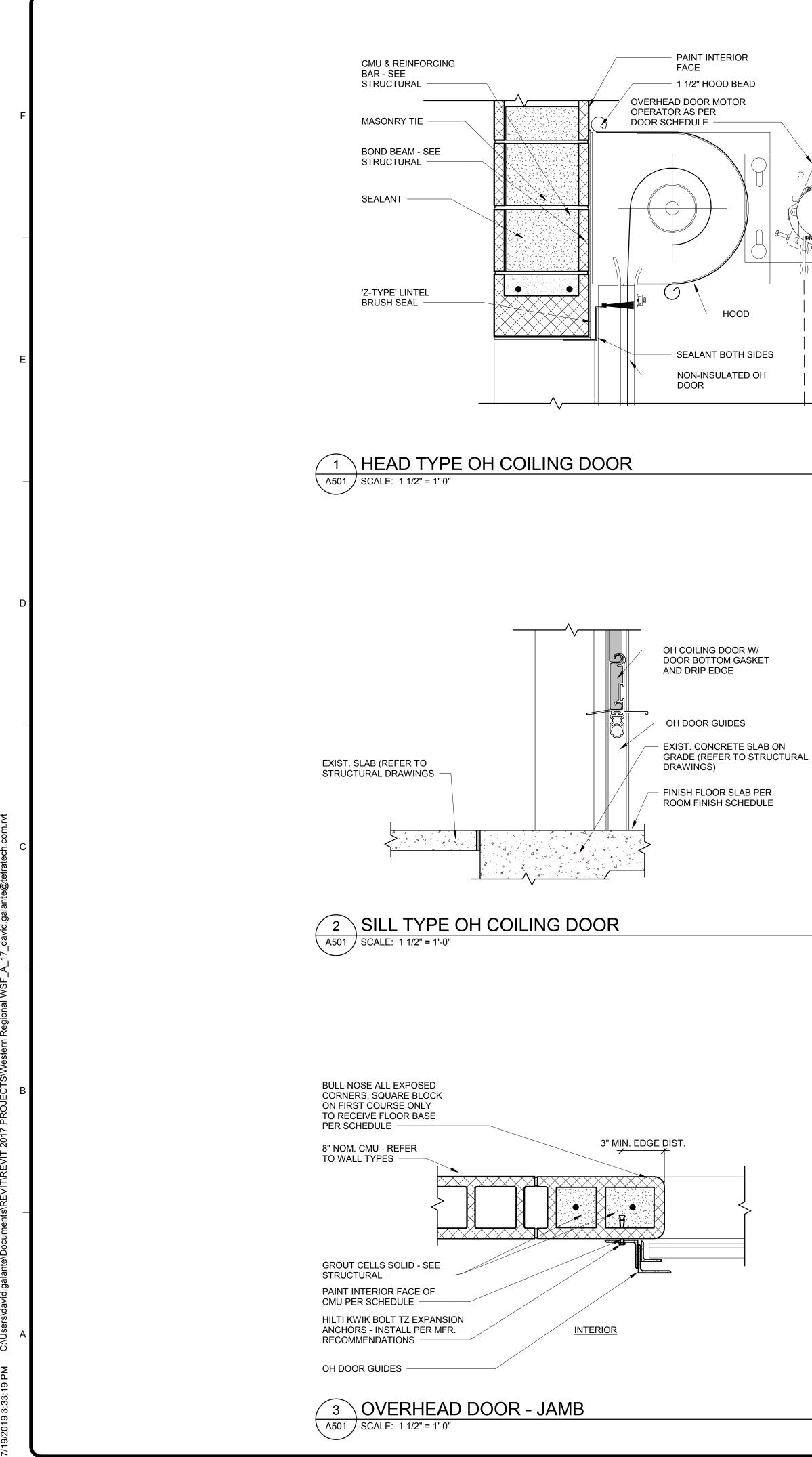
NO C



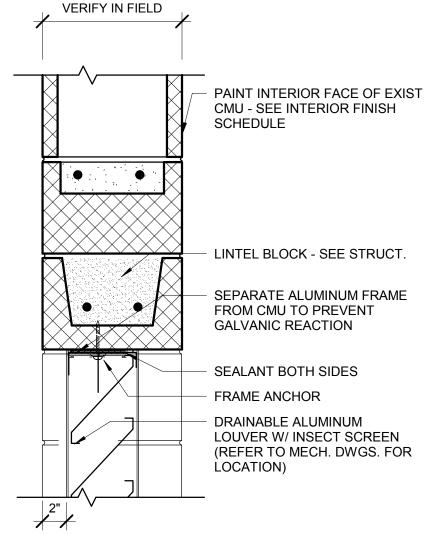


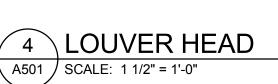


Bar measures 1 inch, otherwise drawing is not to scale





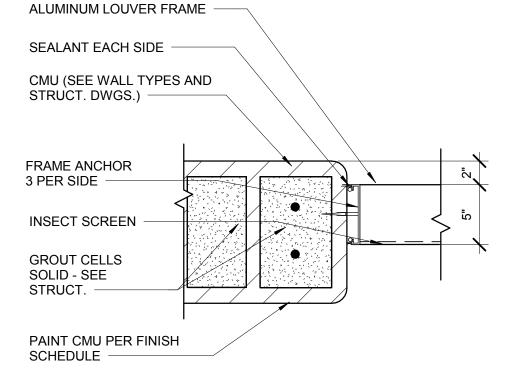




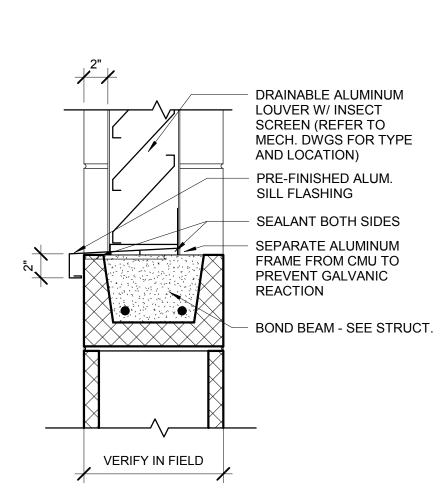
SEPARATE ALUMINUM FRAME FROM CMU TO PREVENT GALVANIC REACTION SEALANT BOTH SIDES

DRAINABLE ALUMINUM LOUVER W/ INSECT SCREEN (REFER TO MECH. DWGS. FOR

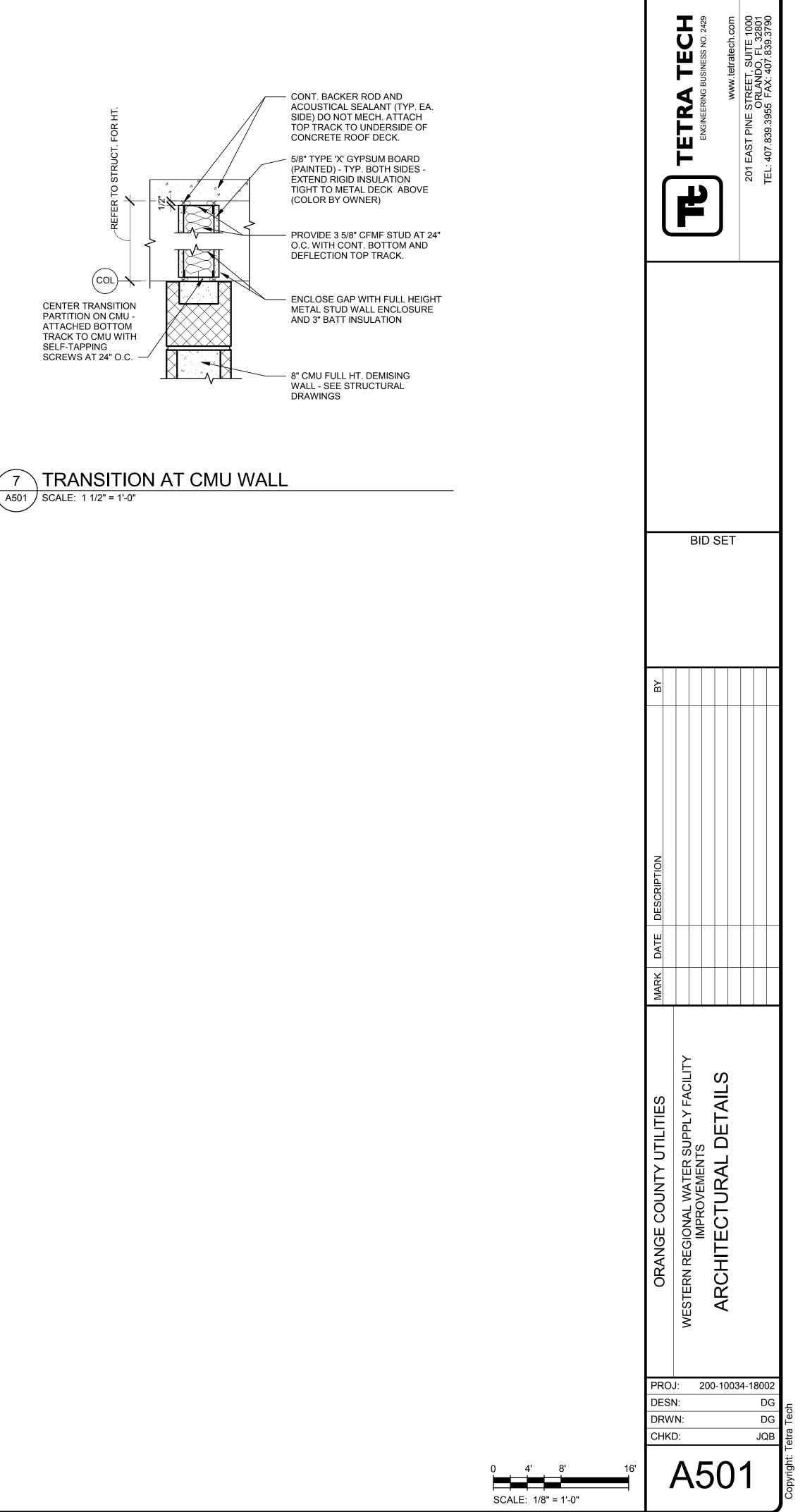
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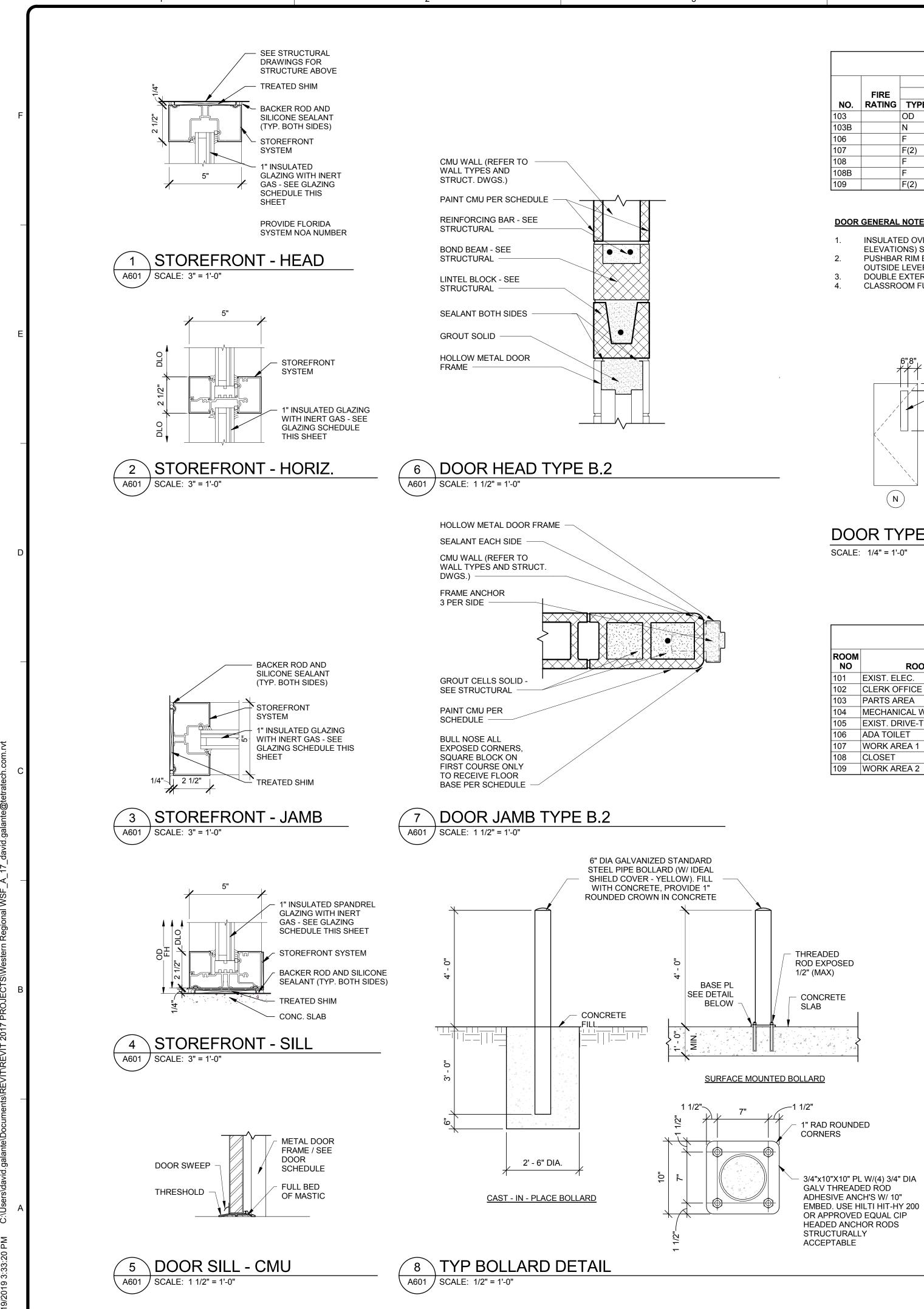




6 LOUVER SILL A501 / SCALE: 1 1/2" = 1'-0"



Bar measures 1 inch, otherwise drawing is not to scale



	DOOR SCHEDULE															
			DOOR						FRA	ME		DETAILS				
	FIRE			SIZE											PANIC	
NO.	RATING	TYPE	WIDTH	HEIGHT	THICKNESS	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	HEAD	JAMB	SILL	HARDWARE	DEVICE	COMMENTS
103		OD	12' - 0"	12' - 0"	0' - 3"	STL-GALV	STL-GALV	OD	STL-GALV	PRE-FINISHED	1/A501	3/A501	3/A501	-	-	REFER TO OH COILING DOOR DETAILS (3/A301)
103B		Ν	3' - 4"	7' - 0"	0' - 2"	HM	PAINT	F-1	HM	PAINT	6/A601	7/A601	5/A601	1.0	YES	
106		F	3' - 4"	7' - 0"	0' - 2"	HM	PAINT	F-1	HM	PAINT	6/A601	7/A601	5/A601	3.0	NO	
107		F(2)	6' - 0"	7' - 0"	0' - 2"	HM	PAINT	F-2	HM	PAINT	6/A601	7/A601	5/A601	2.0	NO	
108		F	3' - 4"	7' - 0"	0' - 2"	HM	PAINT	F-1	HM	PAINT	6/A601	7/A601	5/A601	1.0	NO	
108B		F	3' - 4"	7' - 0"	0' - 2"	HM	PAINT	F-1	HM	PAINT	6/A601	7/A601	5/A601	1.0	NO	
109		F(2)	6' - 0"	7' - 0"	0' - 2"	HM	PAINT	F-2	HM	PAINT	6/A601	7/A601	5/A601	2.0	NO	

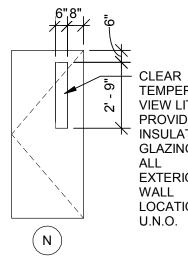
DOOR GENERAL NOTES:

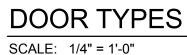
INSULATED OVERHEAD ROLLING DOOR (DOOR HEIGHT DIMENSION IS PER EXTERIOR

ELEVATIONS) SEE DETAIL 3/A501 FOR TYP. OH DOOR SILL PUSHBAR RIM EXIT DEVICE WITH EXTERIOR ANSI FUNCTION 08 EXIT DEVICE FRONT DOOR

OUTSIDE LEVER LOCK TRIM

DOUBLE EXTERIOR STEEL DOOR AND FRAME (PAINTED). CLASSROOM FUNCTION WITH LEVER TRIM

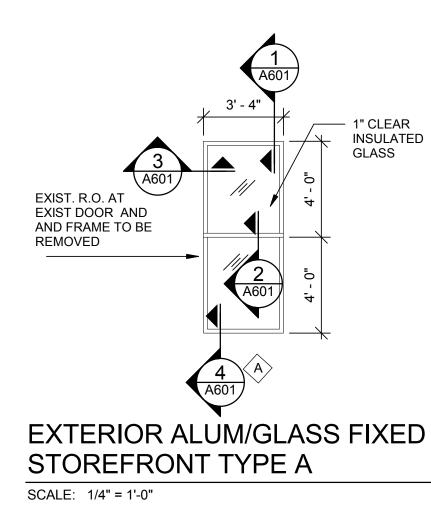


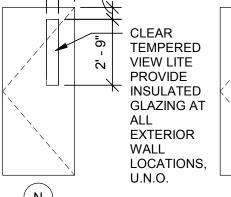


						VISH SCHE				
					1 11					
ROOM	1		WALL	FINISH			FLOOR	CEILING	CEILING	
NO	ROOM NAME	NORTH	EAST	SOUTH	WEST	BASE FINISH	MAT.	MAT.	HEIGHT	COMMENTS
101	EXIST. ELEC.	PAINT	PAINT	PAINT	PAINT	-	EPOXY PAINT	EXPOSED STRUCTURE		
102	CLERK OFFICE	PAINTED GWB	PAINTED GWB	PAINT	PAINTED GWB	4" EPOXY BASE	EPOXY PAINT	ACT-1	8' - 0"	
103	PARTS AREA	PAINT	PAINT	PAINT	PAINT	4" EPOXY BASE	EPOXY PAINT	EXPOSED STRUCTURE		
104	MECHANICAL WORK AREA	PAINT	PAINT	PAINT	PAINT	4" EPOXY BASE	EPOXY PAINT	EXPOSED STRUCTURE		
105	EXIST. DRIVE-THRU BAY	PAINT	PAINT	PAINT	PAINT	4" EPOXY BASE	EPOXY PAINT	EXPOSED STRUCTURE		
106	ADA TOILET	EPOXY PAINT	EPOXY PAINT	EPOXY PAINT	EPOXY PAINT	4" EPOXY BASE	EPOXY PAINT	ACT-1	8' - 0"	
107	WORK AREA 1	PAINTED GWB	PAINTED GWB	PAINT	PAINT	4" EPOXY BASE	EPOXY PAINT	EXPOSED STRUCTURE		
108	CLOSET	PAINT	PAINTED GWB	PAINT	PAINT	4" EPOXY BASE	EPOXY PAINT	EXPOSED STRUCTRUE		
109	WORK AREA 2	PAINT	PAINTED GWB	PAINTED GWB	PAINT	4" EPOXY BASE	EPOXY PAINT	EXPOSED STRUCTURE		

1" RAD ROUNDED

- 3/4"x10"X10" PL W/(4) 3/4" DIA GALV THREADED ROD ADHESIVE ANCH'S W/ 10" EMBED. USE HILTI HIT-HY 200 OR APPROVED EQUAL CIP HEADED ANCHOR RODS STRUCTURALLY

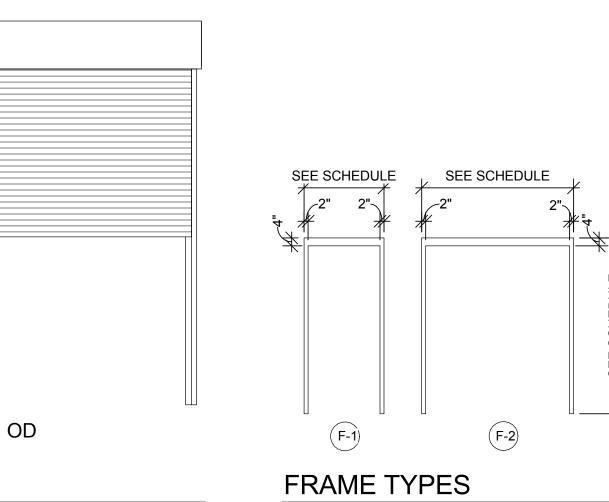




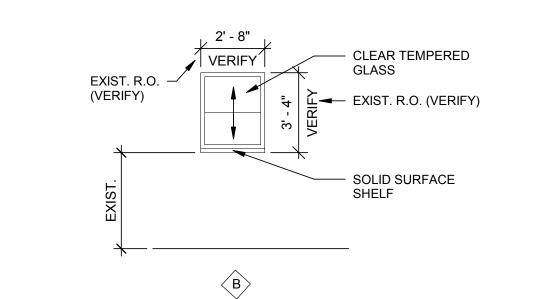
F (F[2])

NOTE: FOR DOOR WIDTH AND HEIGHT

SEE DOOR SCHEDULE



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



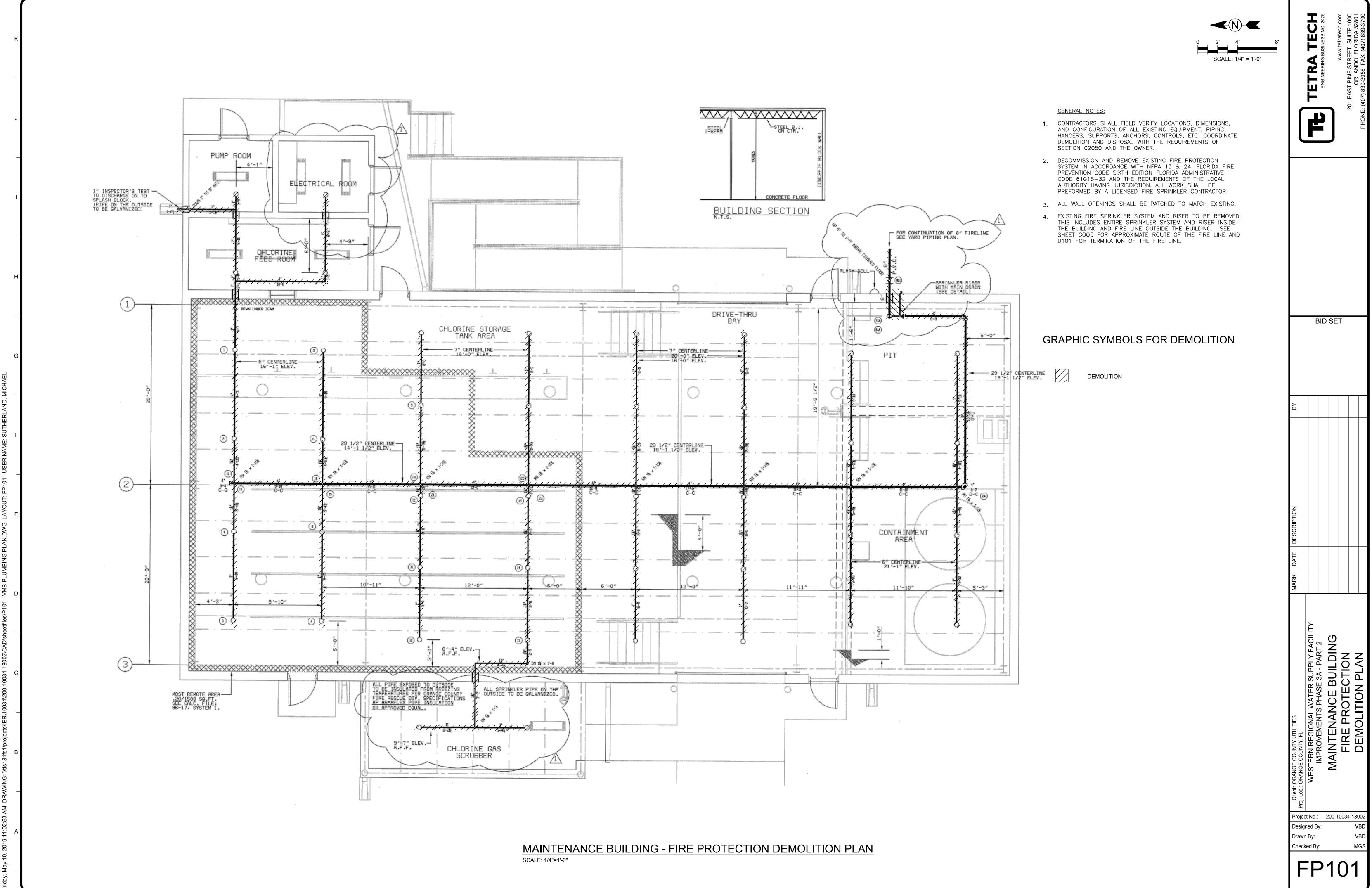


U g ш ш BID SET SCRIPTION DATE AL WATER SUPPLY FACILITY PROVEMENTS L DOOR AND WINDOW ES AND DETAILS ORANGE COUNTY UTILITIE ARCHITECTURAL DOOF SCHEDULES AND СZ 200-10034-18002 PROJ: DESN: D DRWN:

CHKD:

A601

JQB



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	PLUMBING FIXTURE SCHEDULE									
MARK	DESCRIPTION	MANUFACTURER	MODEL	CONNECTIONS				NOTES		
MARK	DESCRIPTION	MANUFACIURER	MODEL	CW	HW	WASTE	VENT	NOTES		
P1	WATER CLOSET, FLOOR MOUNTED, BACK OUTLET, FLUSH VALVE, 1.28 GPF, ADA	AMERICAN STANDARD	3695.001	1"	-	4"	2"	PROVIDE TOP SPUD 1.28 GPF FLUSH VALVE AMERICAN STANDARD 6047.161.002 OR EQUAL.		
P2	LAVATORY, WALL HUNG, 0.5 GPM, ADA	AMERICAN STANDARD	0356.915	1/2"	1/2"	1-1/2"	1-1/2"	PROVIDE WALL HANGER SUPPORT AMERICAN STANDARD 0355.912 AND ELKAY FAUCET #LK422L4		
FD1	3" FLOOR DRAIN	ZURN	ZB-415-3NL-5B	1/2"	-	3"	1-1/2"	PROVIDE 1/2" TRAP PRIMER CONNECTION.		
TP-3	TRAP PRIMER	PRECISION PLUMBING PRODUCTS	PR-500-DU3	1/2"	-	-	-	USE REQUIRED DISTRIBUTION UNIT FOR MULTIPLE FLOOR DRAINS.		

NOTES: ADA DENOTES AMERICAN WITH DISABILITIES ACT.

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WATER HEATER SCHEDULE ELECTRICAL MINIMUM MINIMUM TURN RECOVERY DISCHARGE TEMP. AREA SERVED AND STORAGE APPROXIMATE LOCATION CAPACITY STORAGE MARK ON TEMP. °F RISE °F NUMBER GPM OF (GPH) TOTAL (GAL.) VOLTS/ KW PHASE ELEMENTS MAINTENANCE BUILDING IWH-1 110° 55° 4.1 208/1 1 0.3 -RESTROOM

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MANUFACTURER / MODEL

EEMAX EX4208 SL

PLUMBING SYN

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SYMBOL
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—— AIR ——
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—I WCO
YCO
DYCO
IMVB
P1
HB
TP-1

/M	BOLS
	DESCRIPTION
	ABOVE FINISHED FLOOR
	TYPICAL
	VENT THROUGH ROOF
	WATER HAMMER ARRESTOR SANITARY VENT
	ELBOW UP, DOWN
	TEE UP, DOWN
	SHUT OFF VALVE
	COMPRESSED AIR LINE
	COLD WATER
	HOT WATER
	SANITARY WASTE
	CLEANOUT
	FLOOR CLEANOUT
	WALL CLEANOUT
	YARD CLEANOUT
	DOUBLEYARD CLEANOUT
	FLOOR DRAIN WITH DESIGNATION, P-TRAP &
	ICEMAKER VALVE BOX
	PLUMBING FIXTURE DESIGNATION
	HOSE BIBB
	TRAP PRIMER WITH DESIGNATION

GENERAL PLUMBING NOTES:

- ALL EQUIPMENT AND PIPING SHALL BE INSTALLED IN COMPLIANCE W OF THE FLORIDA BUILDING AND PLUMBING CODE. 1.
- ALL INTERIOR FLOOR DRAINS AND OPEN RECEPTACLES WITH TRAP 2. A TRAP PRIMER (SEE SPECIFICATIONS AND PLANS FOR LOCATION A SLOPED LINE TO FLOOR DRAIN. SEE DETAILS ON SHEET P301.
- 3. WATER LINES SHALL NOT BE ROUTED ABOVE ANY ELECTRICAL ROO OR TELEPHONE ROOMS. 4. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH OTH
- SPATIAL CONFLICTS. ALL PIPING ENTERING AND LEAVING STRUCTURES BELOW GRADE, T BELOW FOOTINGS OR FIRE WALLS SHALL BE SLEEVED AND PACKED 5. AUTHORITIES AND PER A UL RATED ASSEMBLY. ALL SLEEVES ARE I
- DRAWINGS. 6. PROVIDE ACCESS PANELS WITH SQUARE HINGED, LOCKING DOORS ABSORBERS AND TRAP PRIMERS CONCEALED. TILED WALLS SHALL I WITH NO. 4 SATIN FINISH SMITH #4762/4767 OR APPROVED EQUAL. G WALLS SHALL BE PRIMED AND PAINTED TO MATCH SMITH # 4760/476 7. CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSION CONSTRUCTION BEGINS, INCLUDING SEWER INV. ELEV. CONTACT R
- DISCREPANCIES OCCUR. 8. CONTRACTOR TO PROVIDE P-TRAPS AND DRAINS FOR ALL LAVATOR

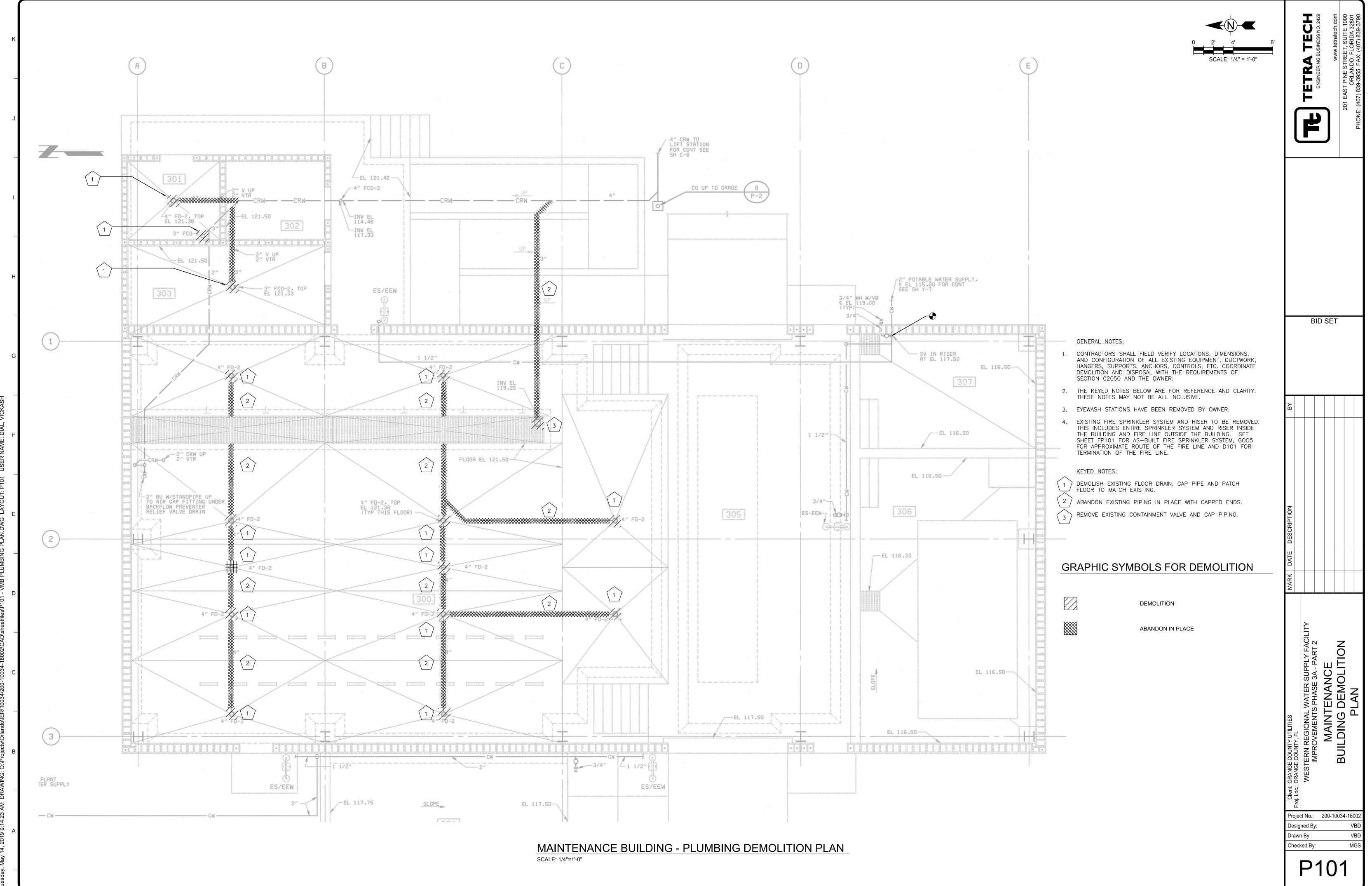
			01	MG
	Project	No.: 2 ad By:	PLUMBING LEGEND, NOTES AND SCHEDULE	1800 VB VB
WITH THE LATEST VERSION S SHALL BE PROTECTED BY ND TYPE.) PROVIDE 1/2" M OR ELECTRICAL PANELS ER CRAFTS TO MINIMIZE THROUGH FOUNDATION, AS REQUIRED BY LOCAL NOT INDICATED ON FOR ALL VALVES, SHOCK BE 18-8 STAINLESS STEEL BYPSUM BOARD OR BLOCK 55 OR APPROVED EQUAL. NS BEFORE PR SHOULD RIES AND SINKS.				
A TRAP PRIMER CONN.		BID	J	
		ETRATECH ENGINEERING BUSINESS NO. 2429	201 EAST PINE STREET, SUITE 1000	ORLANDO, FLORIDA 32801 DHONE: (107) 830 3055 EAV: (107) 830 3700

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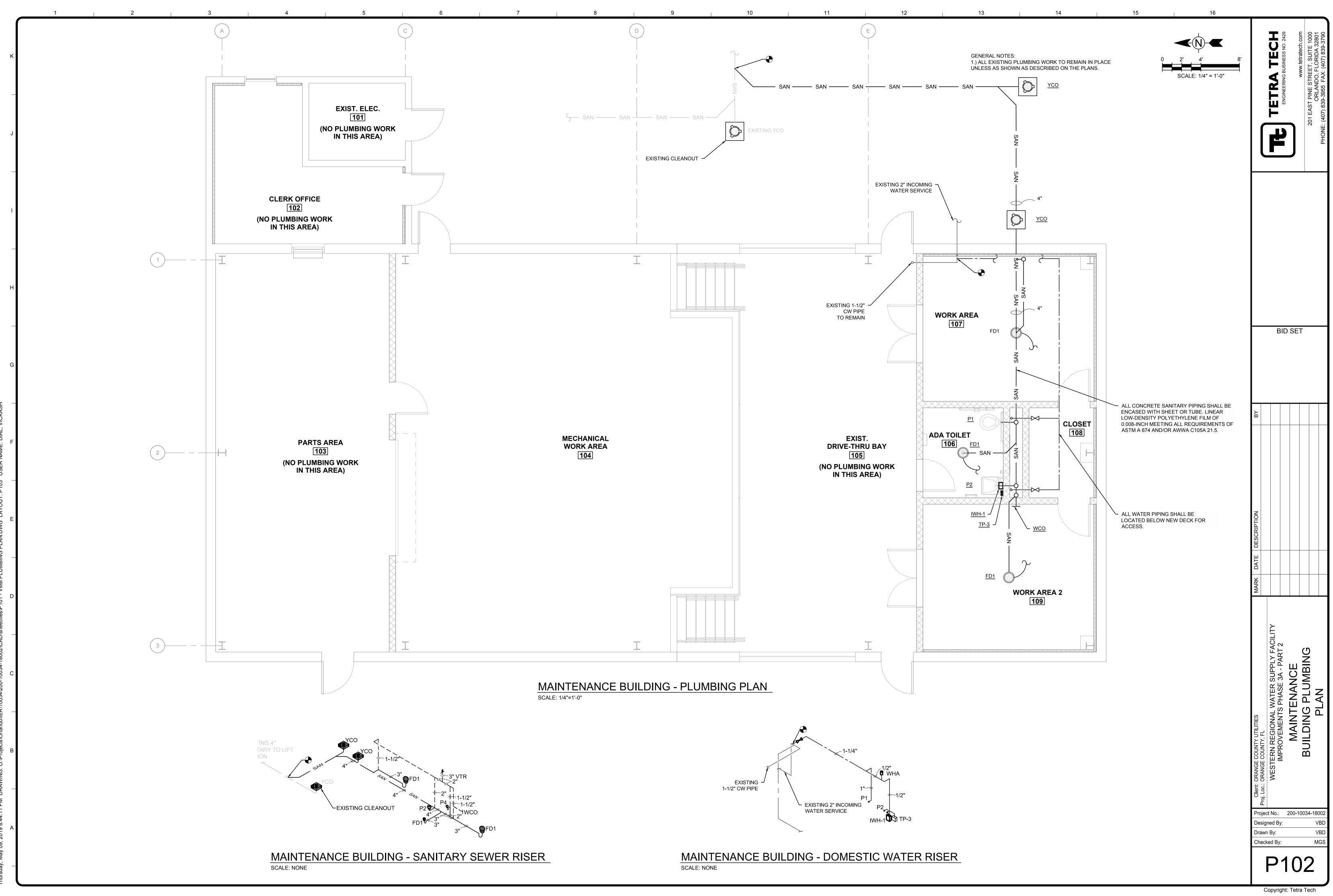
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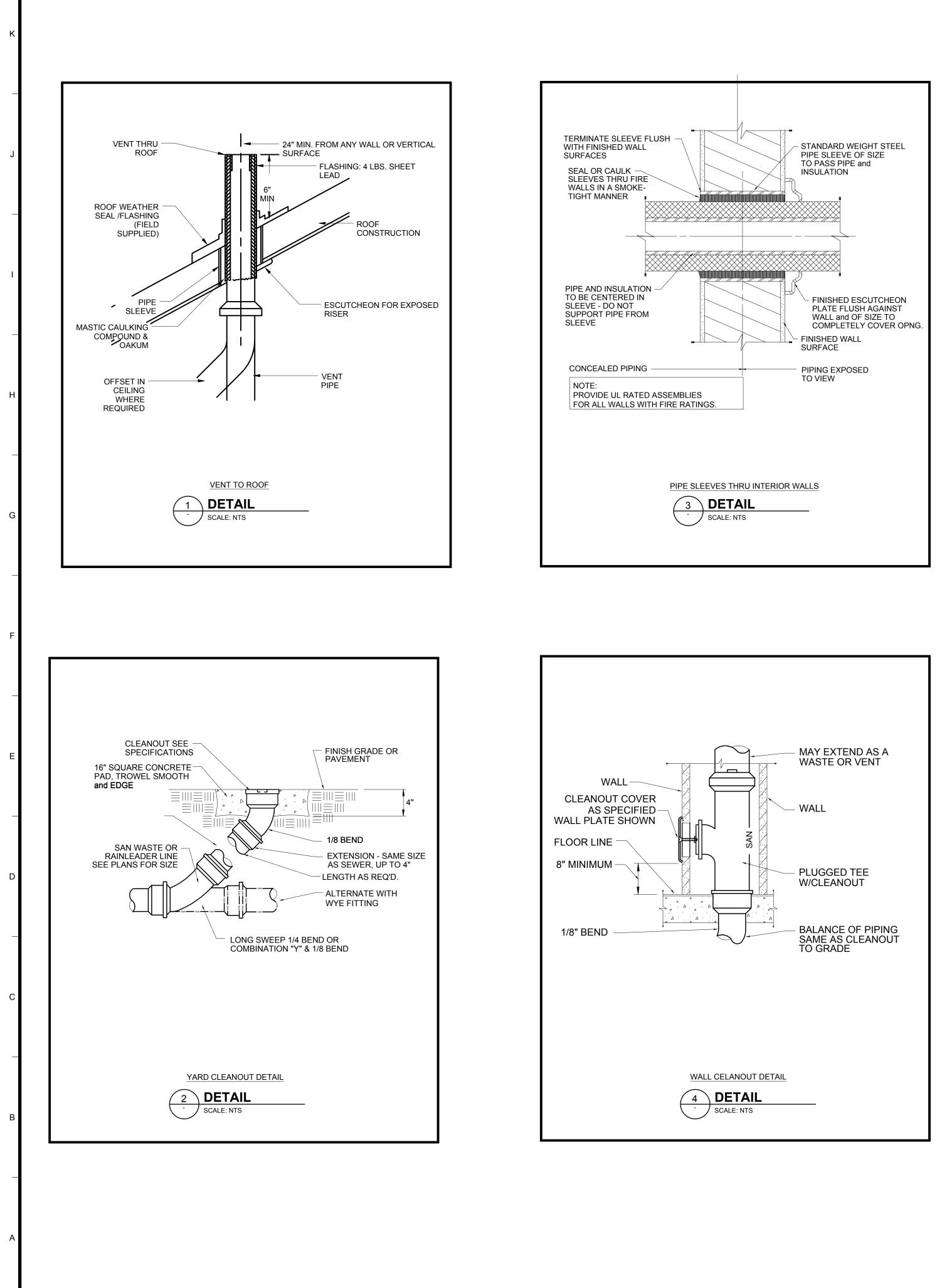
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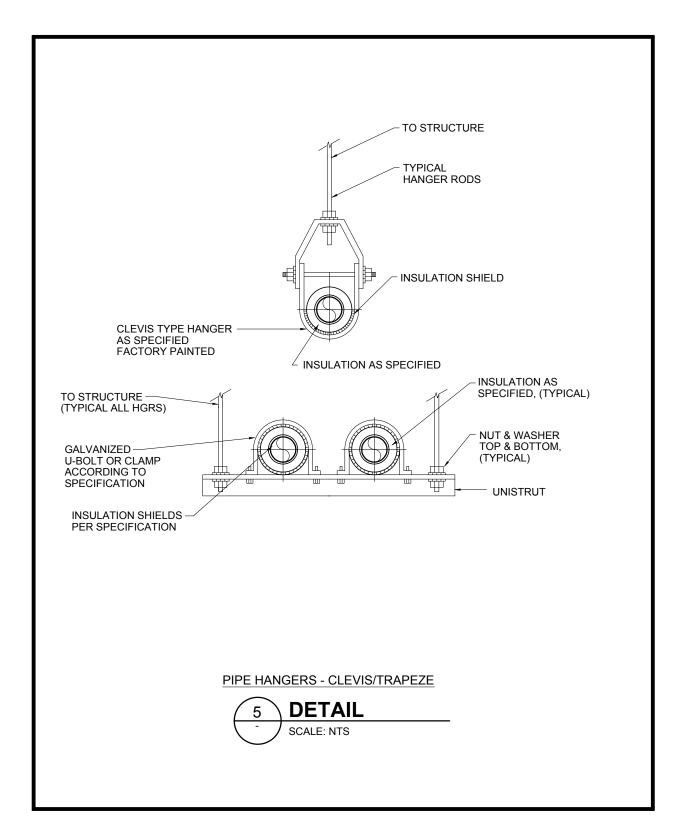
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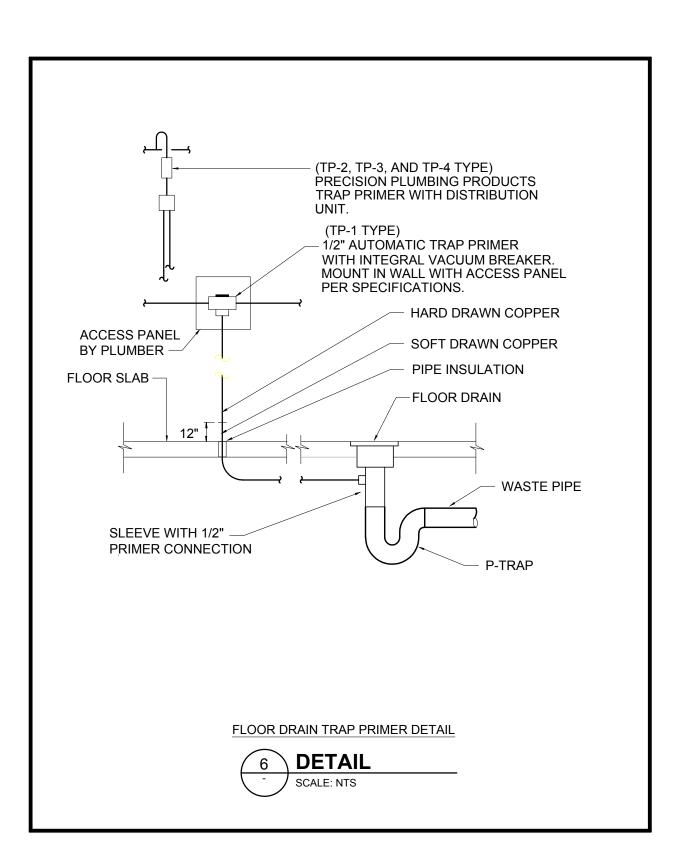
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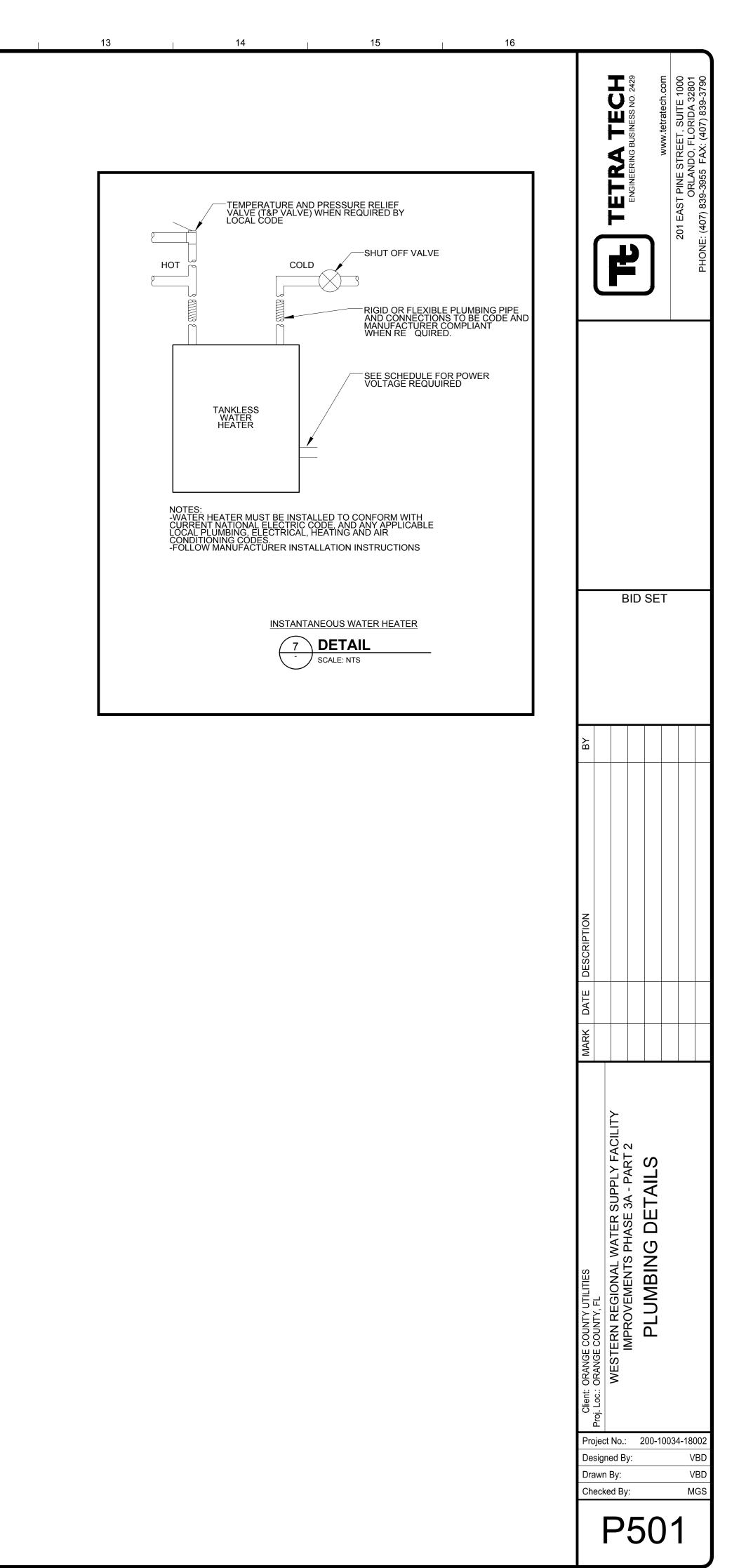


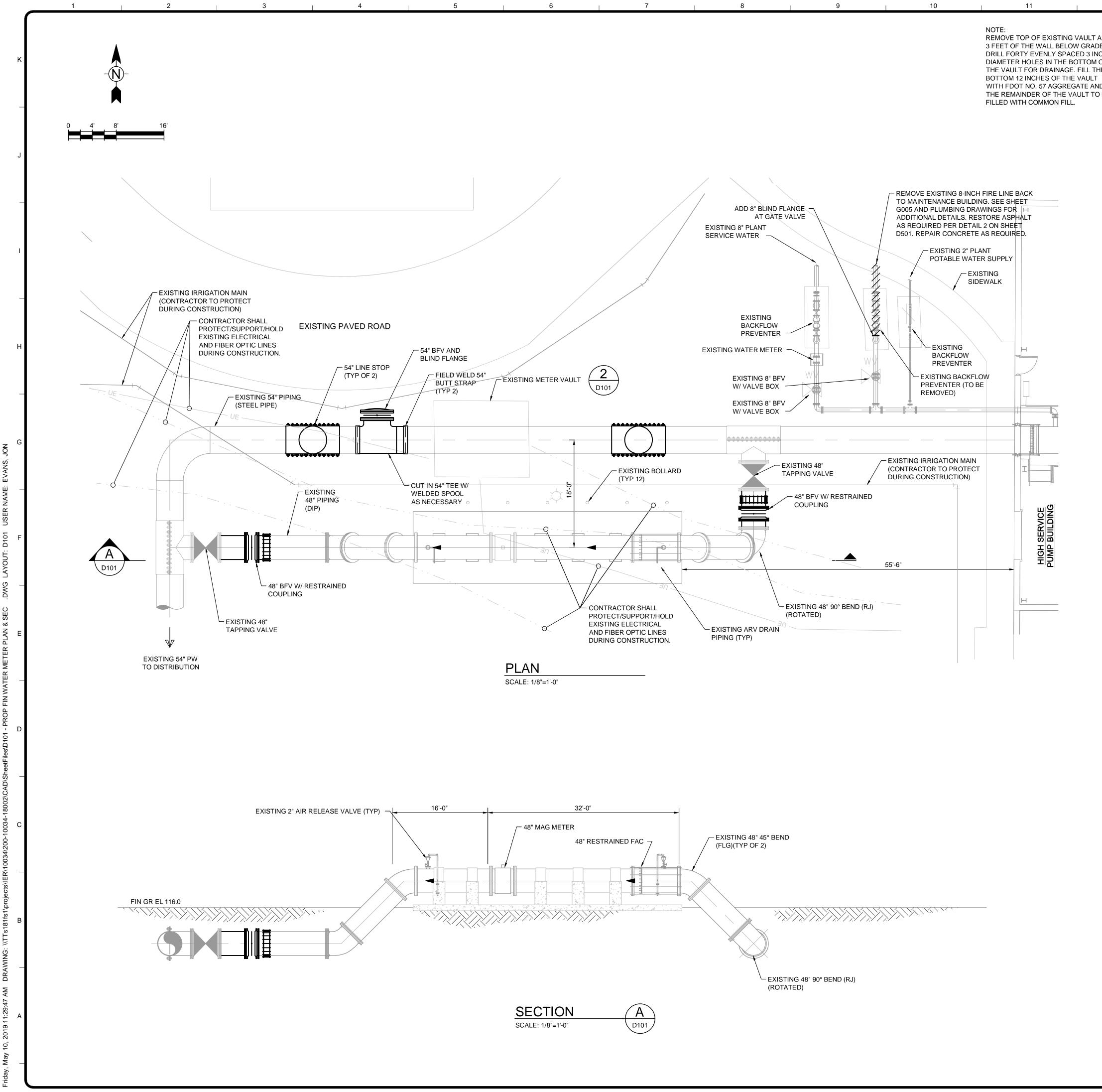


sday, May 09, 2019 2:16:26 PM DRAWING: O:\Projects\Orlando\IER\10034\200-10034-18002\CAD\sheetfiles\P501 - PLUMBING DETAILS.DWG LAYOUT: P501 USER NAME: DIAL, VICK

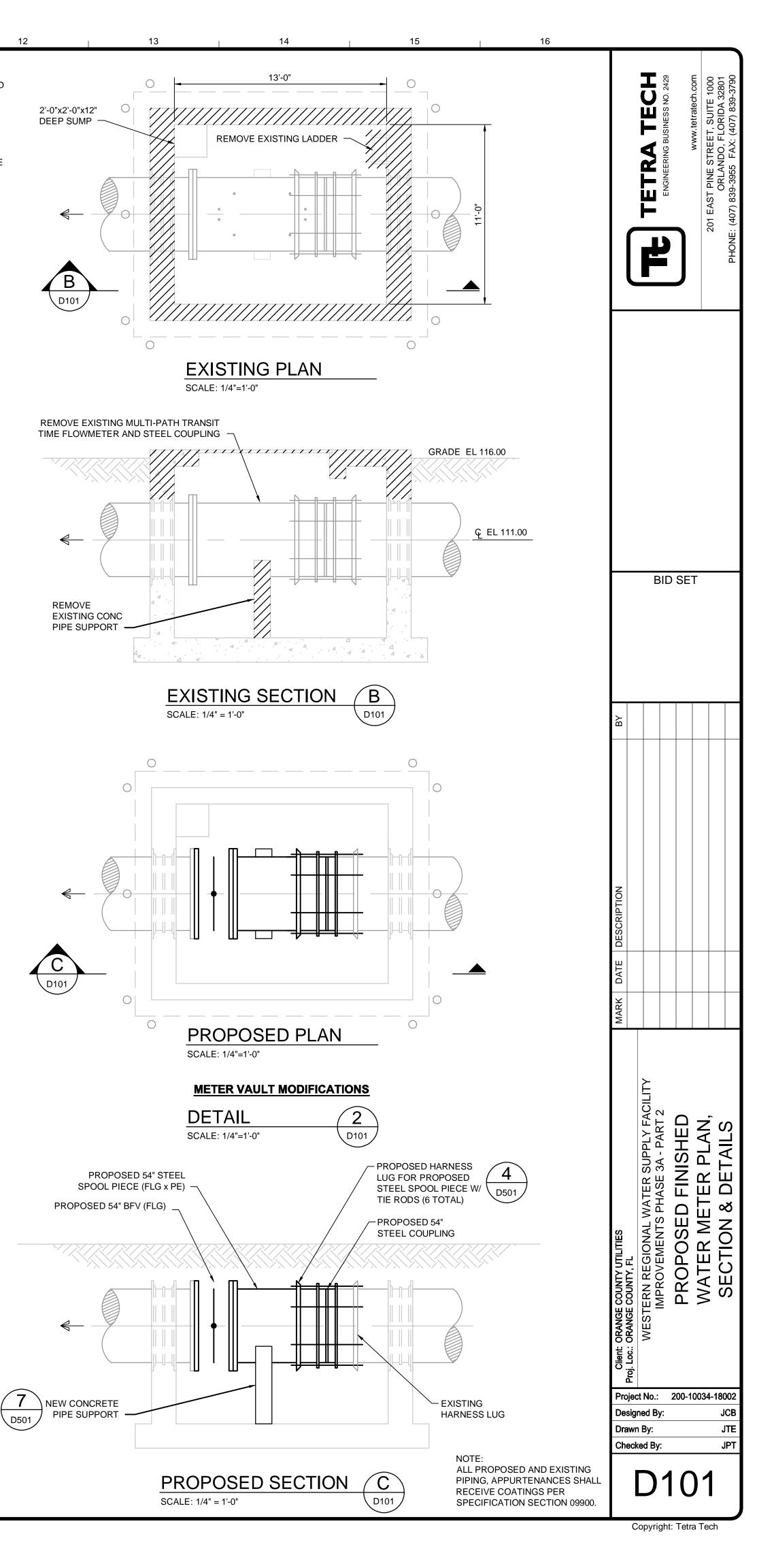


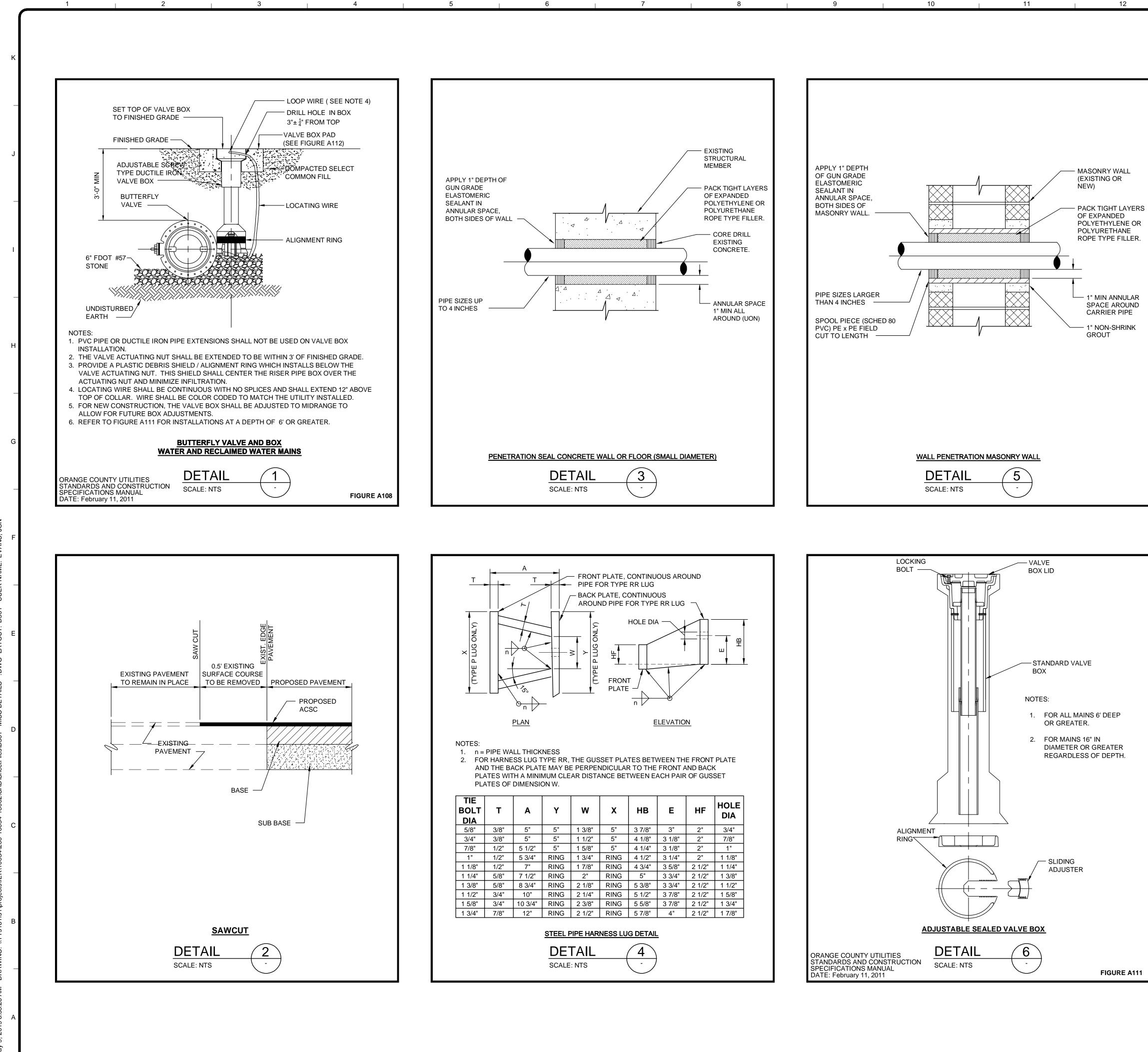






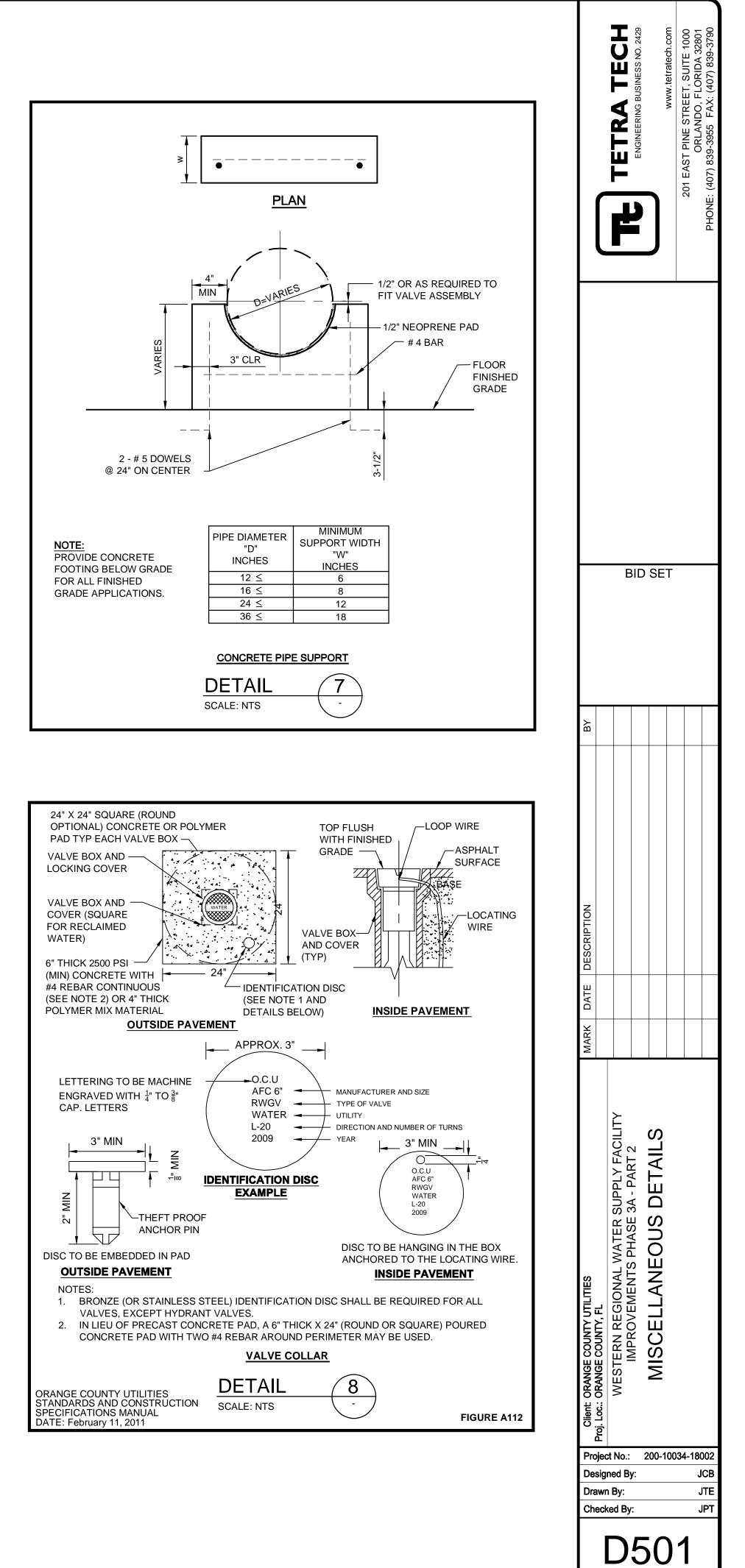
REMOVE TOP OF EXISTING VAULT AND 3 FEET OF THE WALL BELOW GRADE. DRILL FORTY EVENLY SPACED 3 INCH DIAMETER HOLES IN THE BOTTOM OF THE VAULT FOR DRAINAGE. FILL THE WITH FDOT NO. 57 AGGREGATE AND THE REMAINDER OF THE VAULT TO BE





Y	w	x	НВ	Е	HF	HOLE DIA
5"	1 3/8"	5"	3 7/8"	3"	2"	3/4"
5"	1 1/2"	5"	4 1/8"	3 1/8"	2"	7/8"
5"	1 5/8"	5"	4 1/4"	3 1/8"	2"	1"
RING	1 3/4"	RING	4 1/2"	3 1/4"	2"	1 1/8"
RING	1 7/8"	RING	4 3/4"	3 5/8"	2 1/2"	1 1/4"
RING	2"	RING	5"	3 3/4"	2 1/2"	1 3/8"
RING	2 1/8"	RING	5 3/8"	3 3/4"	2 1/2"	1 1/2"
RING	2 1/4"	RING	5 1/2"	3 7/8"	2 1/2"	1 5/8"
RING	2 3/8"	RING	5 5/8"	3 7/8"	2 1/2"	1 3/4"
RING	2 1/2"	RING	5 7/8"	4"	2 1/2"	1 7/8"

DETAIL	4
SCALE: NTS	<u> </u>



GRAPHIC SYMBOLS FOR PIPING AND EQUIPMENT ITEMS

O VTR	VENT TO ROOF
\rightarrow	PIPE ANCHOR
	EXPANSION JOINT
<u>_</u>	EXPANSION COMPENSATOR
	FLEXIBLE CONNECTOR
(FE)	
——————————————————————————————————————	YARD HYDRANT (SEE DETAIL)
	PRESSURE REDUCING STATION (SEE DETAIL)
	PUMP SEALING WATER CONNECTION (SEE DETAIL)
	SAMPLE FUNNEL (SEE DETAIL)
	AIR SET ASSEMBLY (SEE DETAIL) AIR TO VALVE OPERATOR (SEE DETAIL)
[A-TH]	(THROTTLING SERVICE) AIR TO VALVE OPERATOR (SEE DETAIL)
[A-OS]	(OPEN SHUT SERVICE)
	PULSATION DAMPENER W/PRESSURE GAUGE (SINGLE DIAPHRAGM) CHEMICAL SEAL W/PRESS GAUGE
<u>(E)</u>	EDUCTOR
	INJECTOR
	TRAP (STEAM OR AIR MOISTURE)
[Q.D.	QUICK DISCONNECT (AIR) (3/4")
+0	ELBOW UP
+Ð	ELBOW DOWN
	TEE UP
	TEE DOWN
	REDUCER-CONCENTRIC
— <u> </u> <u> </u>	REDUCER-ECCENTRIC
+ ```	WYE STRAINER
+[]+	BASKET STRAINER
	UNION
M	METER (TOTALIZING)
	ROTAMETER
	STEEL WALL SLEEVE
— 🕀 🕤 E.S.	EMERGENCY SHOWER AND EYEWASH
	PIPING (BELOW SLAB)
——————————————————————————————————————	FLOOR DRAIN
——————————————————————————————————————	FLOOR DRAIN W/SEDIMENT BUCKET
——— F.S.	FLOOR SINK
——————————————————————————————————————	PUMP BASE DRAIN
——————————————————————————————————————	EQUIPMENT DRAIN
C.O.	CLEANOUT-FLOOR
——————————————————————————————————————	CLEANOUT-HORIZONTAL
——————————————————————————————————————	ROOF DRAIN
— D	PIPE TO DRAIN
	CENTRIFUGAL PUMP
+(<i>p</i>)+	IN-LINE PUMP
	INSTRUMENT AIR PNEUMATIC SIGNAL
	ELECTRIC
— X —— X —	INSTRUMENT CAPILLARY TUBING

GRAPHIC SYMBOLS FOR INSTRUMENTATION

\rightarrow	PANEL MOUNTED INSTRUMENT (INSIDE)
\rightarrow	PANEL MOUNTED INSTRUMENT (FACE)
)	LOCALLY MOUNTED INSTRUMENT
E	FLOW ELEMENT
1	FLOW INDICATOR
E	LEVEL ELEMENT
WC	LOW WATER CUT-OFF
2	PRESSURE INDICATOR
PS	PRESSURE SWITCH
1	TEMPERATURE INDICATOR
ĨĊ	TEMPERATURE INDICATOR CONTROLLER
т	TEMPERATURE TRANSMITTER

GRAPHIC SYMBOLS FOR VALVES

	TRIPLE DUTY VALVE
	GATE VALVE
	GLOBE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	PLUG VALVE / CORPORATION COCK
-	BALANCING VALVE
	PET COCK
	CHECK VALVE
$ \longrightarrow \nabla $	PLUG VALVE - GAS
	STOP AND CHECK VALVE
	PINCH OR DIAPHRAGM VALVE
	AUTO-FLOW CONTROL VALVE
	ANGLE OR NEEDLE VALVE
	PRESSURE RELIEF VALVE
	THREE WAY VALVE
	TEMPERING VALVE
	SOLENOID OPERATED VALVE
	PRESSURE REGULATING VALVE (SELF CONTAINED)
	MOTORIZED CONTROL VALVE (OPEN-SHUT, THROTTLING)
	PNEUMATIC OPERATED CONTROL VALVE (OPEN-SHUT, THROTTLING)
BP	BACKPRESSURE VALVE
———⊳с,- н.в.	HOSE BIBB (3/4")
────► F.H.B.	FLUSHING HOSE BIBB (1-1/2")
	SILL COCK (3/4")
F.C .	FLUSHING CONNECTION (ON PIPE) 1-1/2"
ASV	ANTISIPHON VALVE

BFP

BACKFLOW PREVENTER

CONNECTION TO EXISTING

GRAPHIC SYMBOLS FOR HEATING, VENTILATION, & AIR CONDITIONING

\bigcirc	UNIT HEATER (DOWNBLAST)
€/►	UNIT HEATER (HORIZONTAL)
Т	THERMOSTAT
	POWER OR GRAVITY ROOF VENTILATOR EXHAUST (FLOOR PLAN BELOW ROOF)
\boxtimes	POWER OR GRAVITY ROOF VENTILATOR INTAKE (FLOOR PLAN BELOW ROOF)
	POWER OR GRAVITY ROOF VENTILATOR (ROOF PLAN)
12"x20"	DUCT, (FIRST FIGURE, SIDE SHOWN SECOND FIGURE, SIDE NOT SHOWN)
12" x 20"	DUCT SECTION (EXHAUST OR RETURN)
12" x 20"	DUCT SECTION (SUPPLY)
D C	INCLINED DROP IN RESPECT TO AIR FLOW, TOP FLAT
R P	INCLINED RISE IN RESPECT TO AIR FLOW, BOTTOM FLAT
	SPLITTER DAMPER
	TURNING VANES
	AIR EXTRACTOR
	ACOUSTICAL LINING
\sim	FLEXIBLE CONNECTION
	FLEXIBLE CONNECTION
	SUPPLY AIR DIFFUSER
	SUPPLY AIR REGISTER
	RETURN OR EXHAUST AIR REGISTER
	AUTOMATIC AIR DAMPER MOTOR OPERATED
	DAMPER AS SPECIFIED
	VOLUME DAMPER
· ·	FIRE STOP (DAMPER) VERTICAL INSTALLATION IN PLAN
	HEAT STOP HORIZONTAL INSTALLATION IN PLAN
	FIRE STOP (DAMPER) HORIZONTAL INSTALLATION IN SECTION
\bigcirc	CENTRIFUGAL FAN
	IN LINE FAN
	WALL EXHAUST FAN W/DAMPER
	LOUVERS AND SCREEN
	LOUVERS & SCREEN WITH DAMPER

GRAPHIC SYMBOLS FOR TEMPERATURE CONTROL TEMPERATURE INDICATOR

]	DAMPER OPERATOR		CC CU EA
1	TEMPERATURE TRANSMITTER		EF ER EUH
1	FIRESTAT		FF FT GUH
1	FREEZESTAT		HR HRC HV HVAC
] 1	E.P. RELAY		L OA RA
1	TEMPERATURE CONTROLLER		RR SA CD SF
R-1	RELAY		TCC TCP UH
C-1	CONTROLLER		VAV WCC
1	SMOKE DETECTOR		
	PANEL MOUNTED DEVICES		DUC
٦		1.	ALL DUO DIMENS
	NIGHT THERMOSTAT	2.	USE 45 OFF'S P OFF.
		3	

GRAPHIC SYMBOLS FOR GENERAL ITEMS

\square		
$\overline{}$		

| TT_'

IFS-

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 \boxtimes

DEMOLITION

ABANDON IN PLACE

- DO NOT CONSTRUCT OR INSTALL TAPS OUT OF 3. REDUCERS, TEES AND OR ELBOWS.
- 4. TRANSITIONS, ELBOWS ETC.
- 5. SUPPORT ALL FLEXIBLE DUCTWORK AS SHOWN IN SMACNA FIGURE 3-9, 1985, BUT NOT LESS THAN 6.0' CENTERS.
- 7. GRILLES, REGISTERS AND DIFFUSERS CONNECTED BY FLEXIBLE DUCT SHALL BE SUPPORTED INDEPENDENTLY OF THE FLEXIBLE DUCT.
- 8. ELBOWS SHALL BE 90 DEG. ELLS WITH DOUBLE THICKNESS TURNING VANES OR WHERE SPACE PERMITS RADIUS FITTING WITH CENTERLINE RADIUS EQUAL TO 1.5 TIMES THE DUCT WIDTH CENTERLINE. NO OTHERS WILL BE ALLOWED.
- PLANS.

12

ACC

AD

В

CA

AHU

HVAC ABBREVIATIONS

ADDIVEVIATIONS
IR COOLED CONDENSING UNIT UTOMATIC DAMPER IR HANDLING UNIT
OILER
XHAUST AIR REGISTER LECTRIC UNIT HEATER
ORCE FLOW CONVECTOR
IN TUBE
AS UNIT HEATER
EAT RECOVERY UNIT
EAT RECOVERY COIL
EATING AND VENTILATING UNIT
EATING VENTILATING AND AIR
CONDITIONING
OUVER
UTSIDE AIR
ETURN AIR
ETURN AIR REGISTER
UPPLY AIR
UPPLY AIR CEILING DIFFUSER
UPPLY FAN
EMPERATURE CONTROL CONTRACTOR
EMPERATURE CONTROL PANEL
NIT HEATER

WATER COOLED CONDENSING UNIT

CTWORK NOTES:

VARIABLE AIR VOLUME UNIT

- UCTWORK IS SHOWN AS FREE AREA INSIDE ISIONS.
- 5 DEG. TAPS FOR ROUND TO ROUND TAKE PROVIDE VOLUME DAMPER AT EACH TAKE
- ALLOW FOR FIELD MEASURED OFFSETS OR
- 6. DO NOT USE FLEX DUCT IN EXPOSED AREAS. MAXIMUM FLEX DUCT LENGTH TO DIFFUSERS SHALL NOT EXCEED FIVE FEET. MAXIMUM FLEX DUCT LENGTH AT ANY OTHER CONNECTION SHALL NOT EXCEED TWO FEET. FLEX DUCT SHALL NOT BE USED FOR ELBOWS.
- 9. COORDINATE FINAL LOCATION OF ALL REGISTERS, GRILLES, DIFFUSERS ETC. WITH
- ARCHITECTURAL DRAWINGS AND LIGHTING

GENERAL NOTES:

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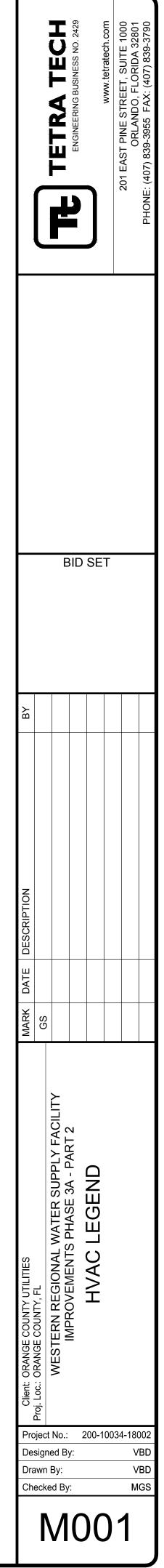
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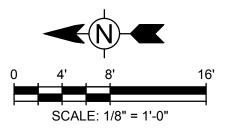
THESE DRAWINGS ARE SCHEMATIC IN NATURE AND ARE NOT INTENDED TO SHOW ALL POSSIBLE CONDITIONS. IT IS INTENDED THAT A COMPLETE SYSTEM BE PROVIDED WITH ALL NECESSARY EQUIPMENT, APPURTENANCES, AND CONTROLS, COMPLETELY COORDINATED WITH ALL DISCIPLINES. ALL PARAMETERS GIVEN IN THESE DOCUMENTS SHALL BE STRICTLY CONFORMED WITH. ANY ITEMS AND LABOR REQUIRED FOR A COMPLETE SYSTEM IN ACCORDANCE WITH ALL APPLICABLE CODES, STANDARDS, AND THESE CONTRACT DOCUMENTS SHALL BE FURNISHED WITHOUT OCCURING ANY ADDITIONAL COST TO THE OWNER. CAREFULLY REVIEW ALL CONTRACT DOCUMENTS AND THE DESIGN OF OTHER TRADES BEFORE PREPARING SHOP DRAWINGS.

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- 2. ALL DUCTWORK SHALL BE MOUNTED WITHIN 12-24 INCHES OF CEILINGS EXCEPT TO AVOID INTERFERENCES WITH OTHER CONSTRUCTION.
- COORDINATE EQUIPMENT AND PIPING WITH ALL OTHER DISCIPLINES AND TRADES. MAKE ALL OFFSETS AND TRANSITIONS TO COORDINATE WITH OTHER TRADES WITHOUT ANY ADDITIONAL EXPENSE TO THE OWNER.
- COORDINATE THE EXACT LOCATION AND SIZE OF ALL ROOF, WALL, AND SLAB PENETRATIONS WITH THE ARCHITECTURAL DRAWINGS.
- MAINTAIN PIPING A MINIMUM OF 7'-0" A.F.F IN ALL 5. MECHANICAL ROOMS. ALL PIPING SHALL BE LOCATED AS HIGH AS POSSIBLE.
- 6. ELECTRICAL CONTRACTOR TO VERIFY CONTROL VOLTAGES WITH EQUIPMENT AND PROVIDE ACCORDINGLY.
- MECHANICAL CONTRACTOR SHALL VERIFY NUMBER OF CIRCUITS REQUIRED WITH CONTROLS CONTRACTOR. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR COMMUNICATING THIS REQUIREMENT WITH THE ELECTRICAL CONTRACTOR. ALL CIRCUITS FOR CONTROLS SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.
- 8. A SUFFICIENT NUMBER OF UNIONS SHALL BE PROVIDED AND INSTALLED AT EACH PIECE OF EQUIPMENT TO FACILITATE REMOVAL OF EQUIPMENT WITHOUT HAVING TO CUT PIPE.
- PIPE SIZES SHOULD BE THE SAME SIZE OR LARGER THAN 9. THE OPENING ON THE EQUIPMENT THEY ARE CONNECTED TO.
- 10. PRESSURE TAPS SHALL BE LOCATED ON THE TOP OF PROCESS PIPE LINES.
- 11. SAMPLE AND CHEMICAL TAPS SHALL BE LOCATED ON THE SIDE OF PROCESS PIPE LINES.
- 12. DRAIN TAPS SHALL BE LOCATED ON THE BOTTOM OF PROCESS PIPE LINES.
- 13. MINIMUM CLEARANCE BETWEEN PIPES INCLUDING INSULATION SHALL BE 3".
- 14. SIGNAL AIR LINES SHALL BE ATTACHED TO AIR OPERATED
- DEVICES WITH FLEXIBLE PLASTIC TUBING.
- 15. ALL INSTRUMENTATION SYMBOLS ARE I.S.A. STANDARDS. 16. SHUT-OFF VALVES TO BE FURNISHED AT ALL EQUIPMENT LOCATIONS AND WHERE PIPING ENTERS OR LEAVES STRUCTURES.
- 17. ALL PLUMBING IN FINISHED AREAS SHALL RUN BEHIND CABINET WORK OR IN MASONRY WALLS.
- 18. ALL ROTAMETERS SHALL BE INSTALLED 5'-0" ABOVE FINISH FLOOR TO CENTER OF METER AND VALVES.
- 19. LIGHTER WEIGHT LINES SHOW EXISTING OR NON-MECHANICAL WORK, DARKER LINES SHOW NEW MECHANICAL WORK.
- 20. DENOTES EQUIPMENT, PIPE & DUCT AREAS OF DEMOLITION.
- 21. UNIT HEATERS TO BE INSTALLED 8'-0" A.F.F. UNLESS NOTED OTHERWISE.
- 22. ALL UNUSED PORTIONS OF LOUVERS FOR MECHANICAL EQUIPMENT OPENINGS SHALL BE BLOCKED-OFF USING INSULATED SHEET METAL PANELS UNLESS OTHERWISE INDICATED.
- 23. ALL MECHANICAL AND PLUMBING WORK SHALL BE IN STRICT COMPLIANCE WITH THE LATEST APPLICABLE EDITION OF THE FLORIDA MECHANICAL CODE AND FLORIDA PLUMBING CODE.

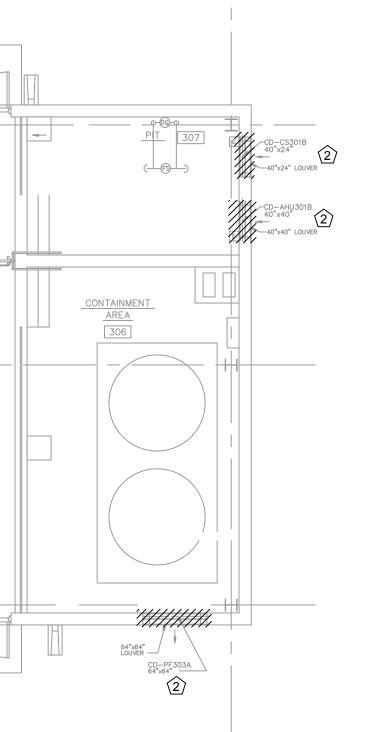


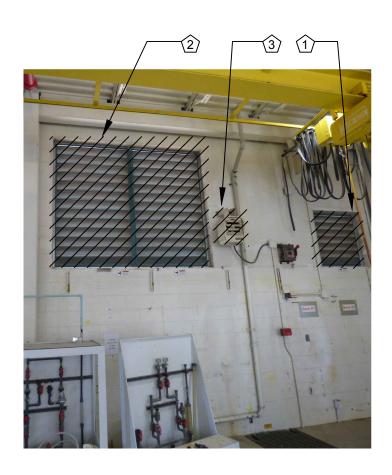
CHLORINE FEED ROOM 303 (1) -40"x24" LOU CD-PF30 96"x80" -(2)DRIVE-THRU BAY 305 (2)-CHLORINE STORAGE TANK AREA 300 3— EUH-304 CDDF301A 40"x40" 40"x40" CHLORINE GAS SCRUBBER 304 MAINTENANCE BUILDING - HVAC DEMOLITION PLAN SCALE: 1/8"=1'-0"





HVAC NORTH WALL EXISTING PUMP ROOM DEMO





HVAC NORTH WALL CHLORINE STORAGE AREA DEMO

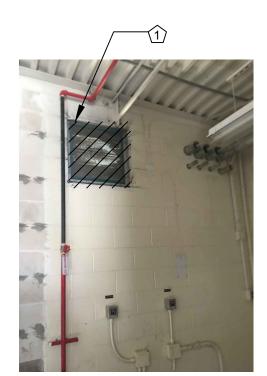
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GENERAL NOTES:

- 1. ALL EXISTING MECHANICAL EQUIPMENT, DUCTWORK, DIFFUSERS/GRILLES, ACCESSORIES, SUPPORTS, CONTROLS, AND OTHER COMPONENTS SHALL BE DEMOLISHED AND REMOVED FROM SITE. CONTRACTOR SHALL VERIFY WITH OWNER BEFORE DISPOSING OF ANY EQUIPMENT.
- 2. CONTRACTORS SHALL FIELD VERIFY LOCATIONS, DIMENSIONS, AND CONFIGURATION OF ALL EXISTING EQUIPMENT, DUCTWORK, HANGERS, SUPPORTS, ANCHORS, CONTROLS, ETC. COORDINATE DEMOLITION AND DISPOSAL WITH THE REQUIREMNTS OF SECTION 02050 AND THE OWNER.
- EXISTING WALL OPENINGS (I.E. LOUVER PENETRATIONS) SHALL BE FILLED, PATCHED AND SEALED PER ARCHITECTURAL AND STRUCTURLAL DIRECTION. SEE MECHANICAL NEW WORK PLANS FOR ANY REUSE OF EXISTING OPENINGS.
- 4. THE KEYED NOTES BELOW ARE FOR REFERENCE AND CLARITY. THESE NOTES MAY NOT BE ALL INCLUSIVE.
- 5. REMOVE ALL EXISTING SCRUBBER CONTROL COMPONENTS.

KEYED NOTES:

- DEMOLISH LOUVER. OPENING SHALL BE REUSED FOR NEW LOUVER. SEE MODIFICATION PLAN.
- DEMOLISH LOUVER. INFILL, PATCH, AND SEAL OPENINGS TO MATCH EXISTING. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DETAILS.
- (3) DEMOLISH UNIT HEATER, SUPPORTS, THERMOSTAT, AND ALL ASSOCIATED COMPONENTS AND CONTROLS.



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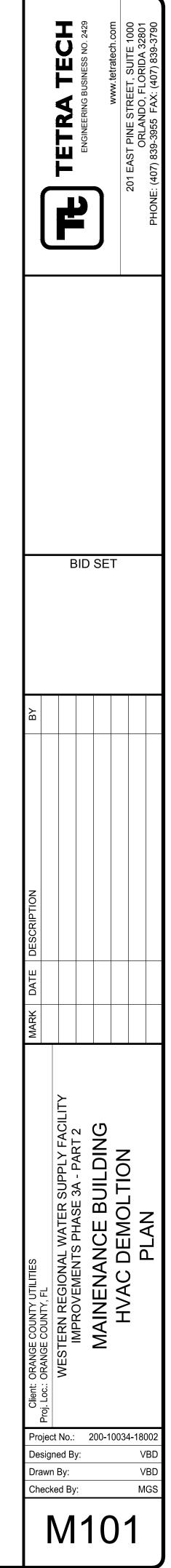
HVAC EAST WALL EXISTING PUMP ROOM DEMO

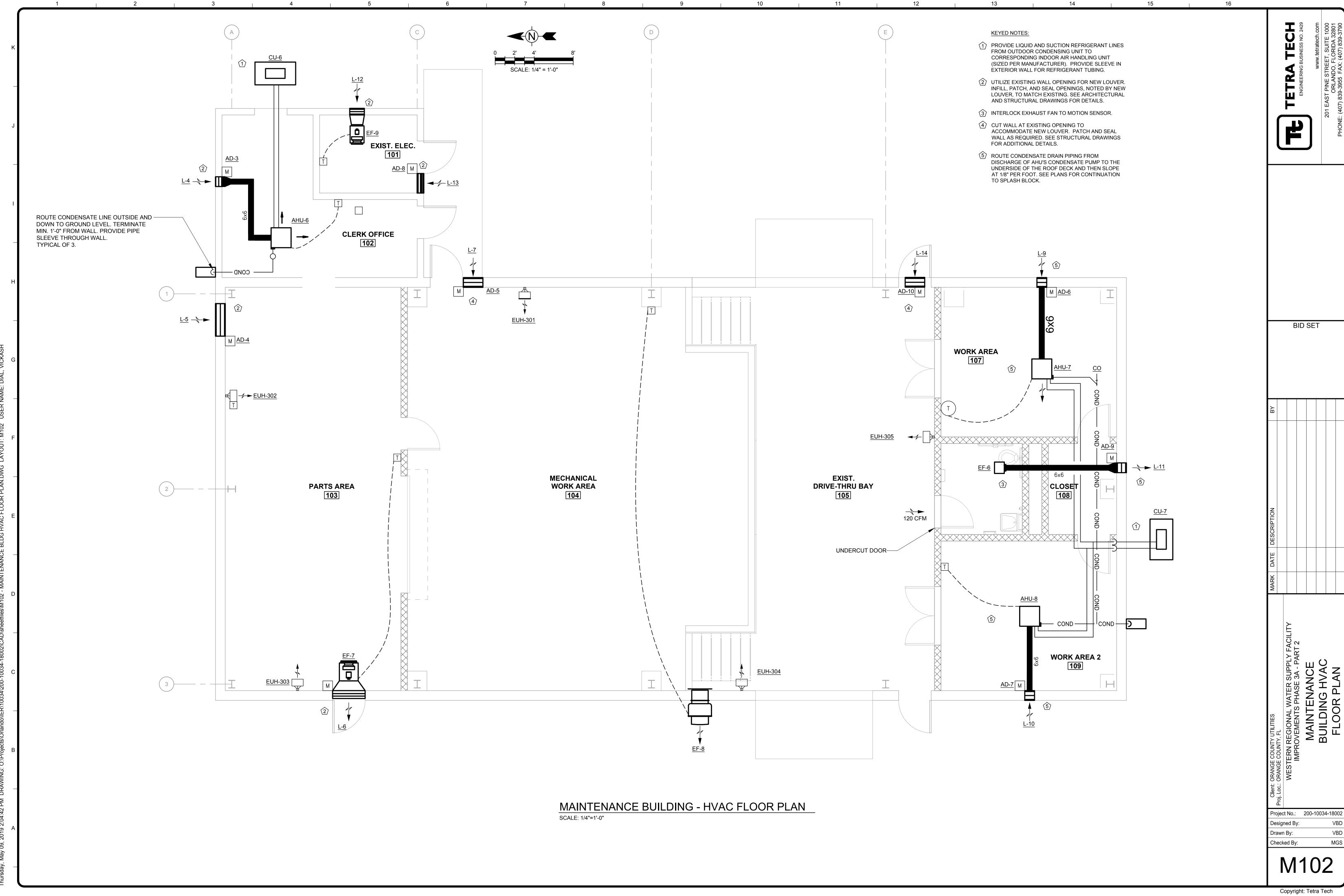


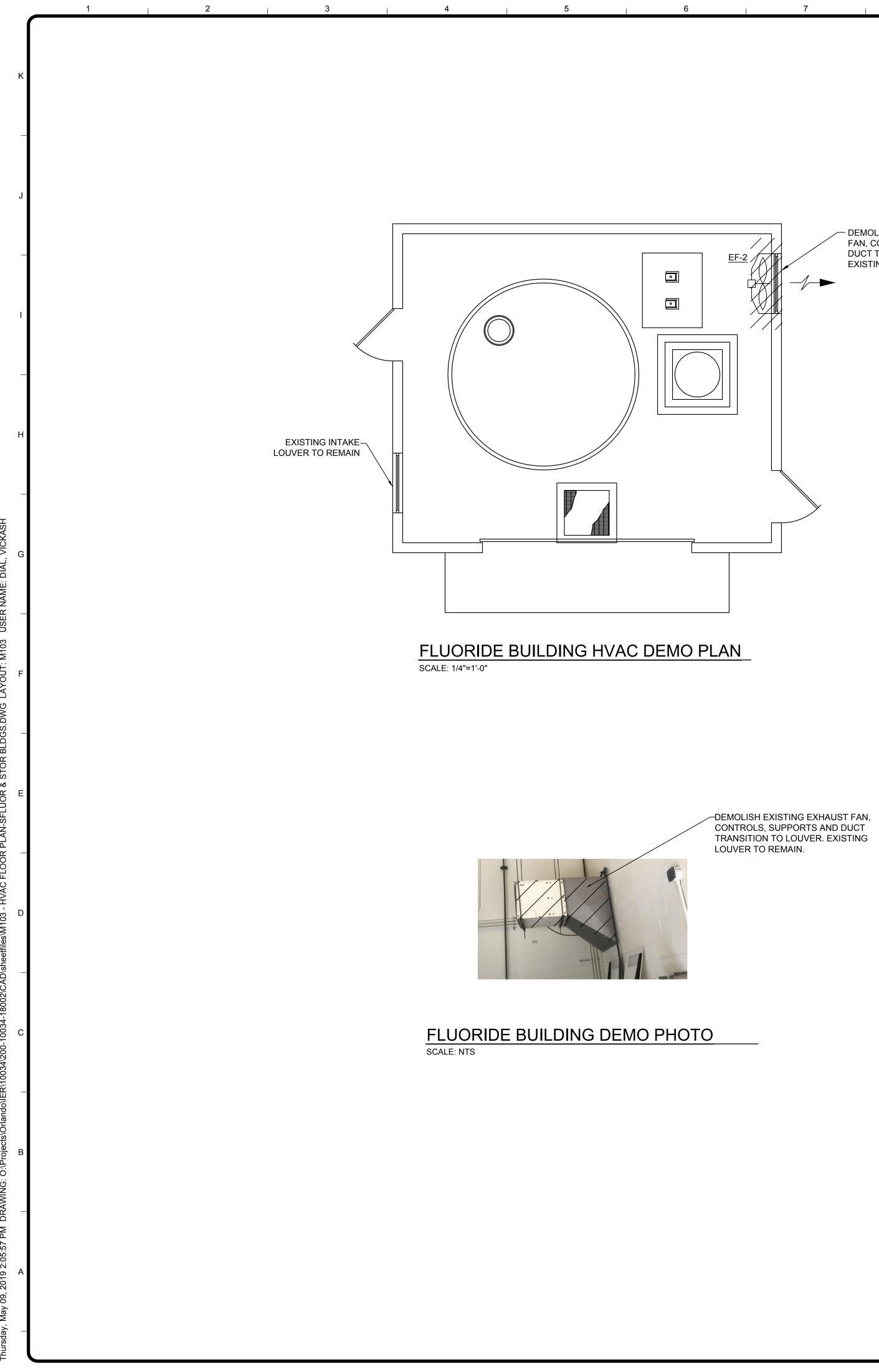
HVAC WEST WALL CHLORINE STORAGE AREA DEMO



HVAC SOUTH WALL CONTAINMENT AREA DEMO







DEMOLISH EXISTING EXHAUST FAN, CONTROLS, SUPPORTS AND DUCT TRANSITION TO LOUVER. EXISTING LOUVER TO REMAIN.

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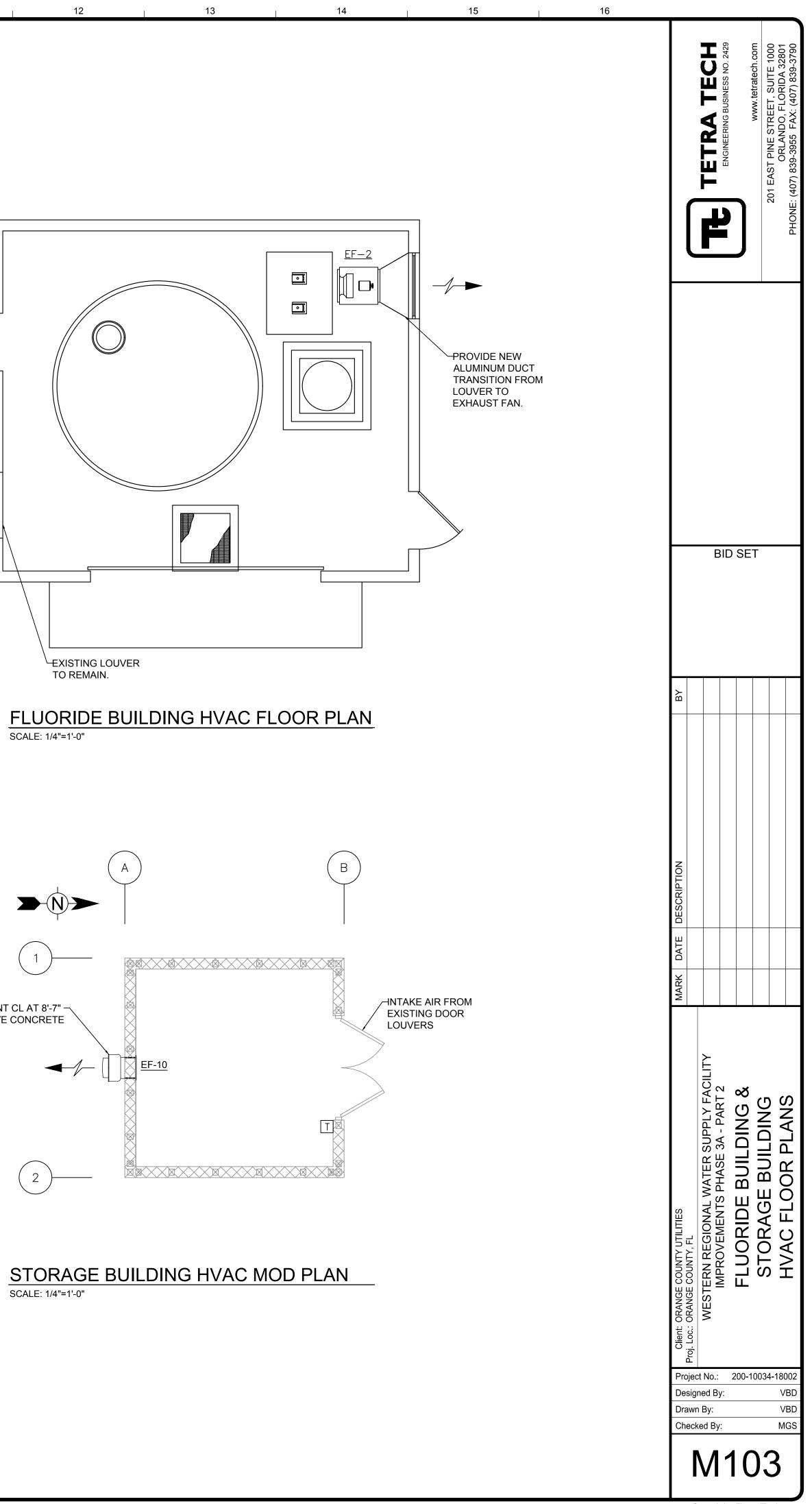
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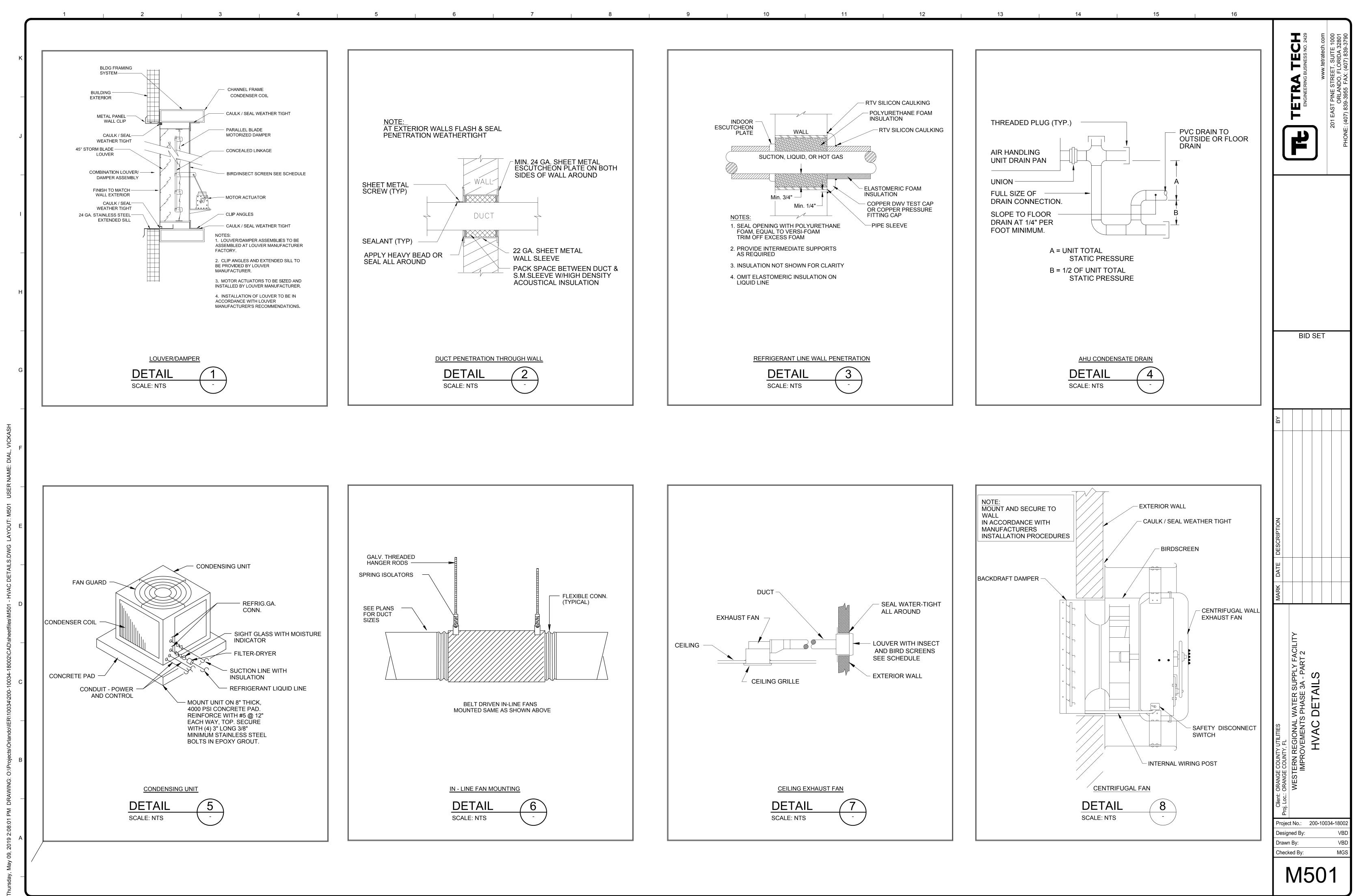
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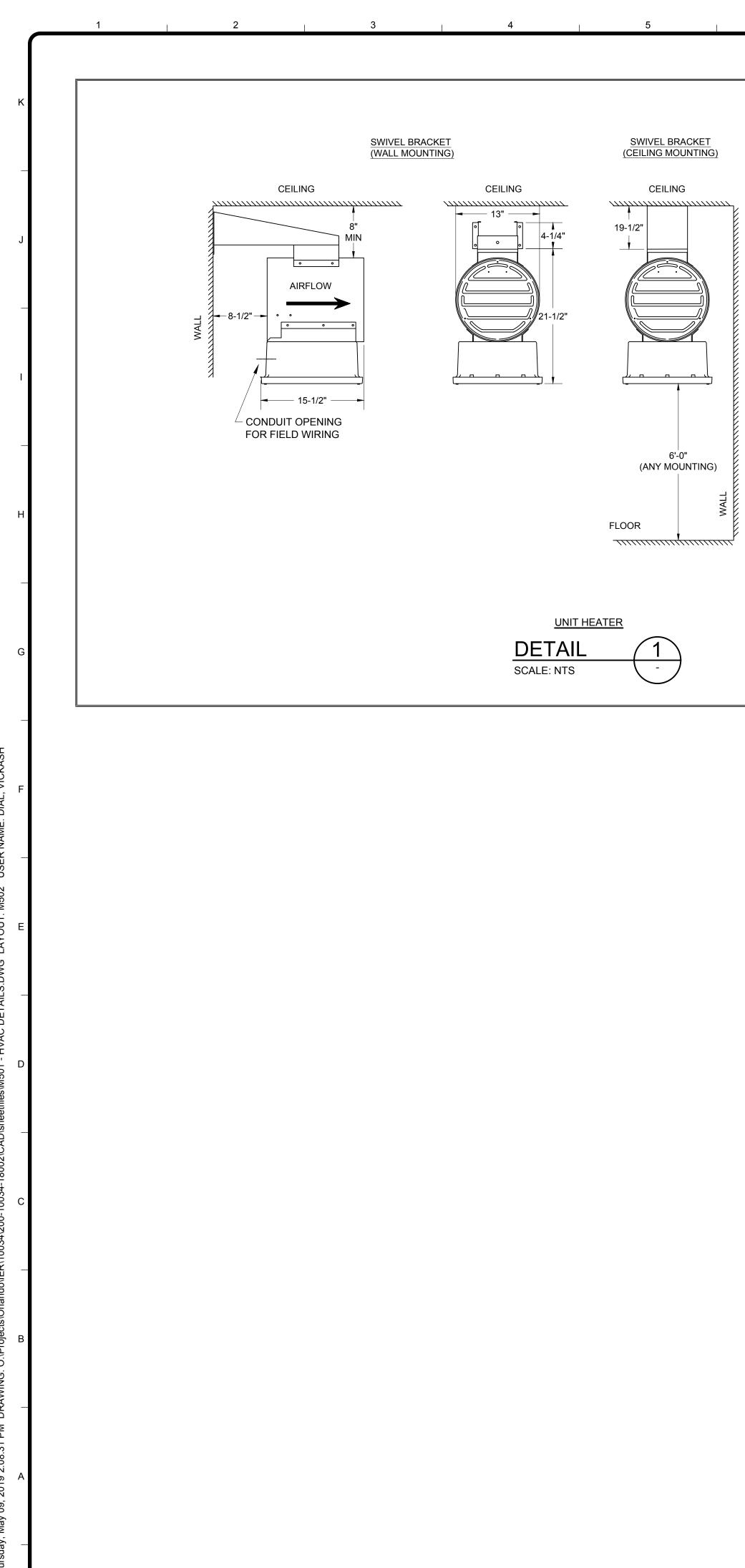
MOUNT CL AT 8'-7" ¬ ABOVE CONCRETE SLAB

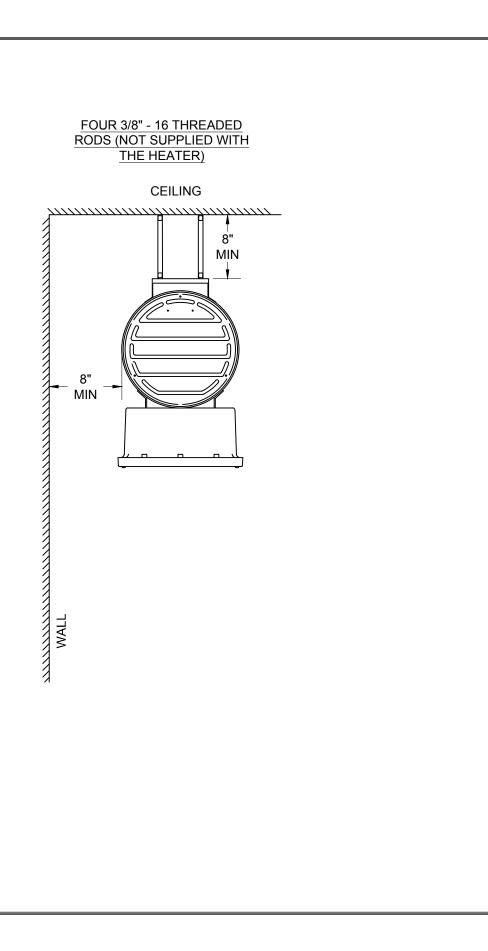
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SCALE: 1/4"=1'-0"





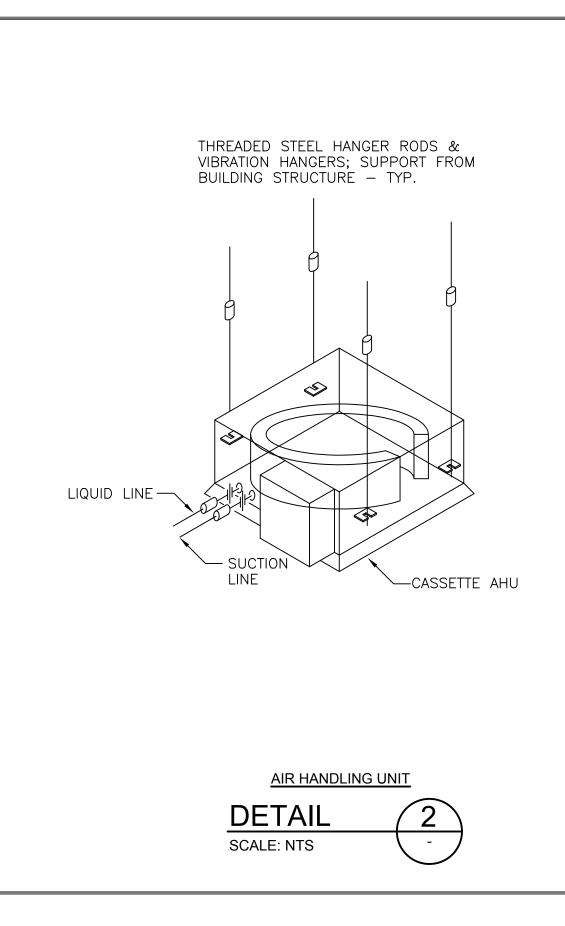




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	(TETRA TECH	ENGINEERING BUSINESS NO. 2429)	www.tetratecn.com	201 EAST PINE STREET, SUITE 1000 ORLANDO, FLORIDA 32801	PHONE: (407) 839-3955 FAX: (407) 839-3790
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	Proj. Loc.: ORANGE COUNTY, FL	WESTERN R		HVAC DETAILS	000	1.400	002
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	LOUVER SCHEDULE											
MARK	DESCRIPTION	CFM	MOUNTING	MANUFACTURER MODEL	MATERIAL	SIZE	QTY.	DESCRIPTION	ACCESSORIES/			
L-4	NORTH WALL MAINTENANCE BUILDING	50	WALL	GREENHECK ESD-635X	ALUM	12X12	1	INTAKE	SEE NOTES 1			
L-5	NORTH WALL MAINTENANCE BUILDING	1600	WALL	GREENHECK ESD-635X			1	INTAKE	SEE NOTES ?			
L-6	WEST WALL MAINTENANCE BUILDING	1600	WALL	GREENHECK ESD-635X	ALUM	ALUM 24X40		EXHAUST	SEE NOTES 1			
L-7	EAST WALL MAINTENANCE BUILDING	1500	WALL	GREENHECK ESD-635X	ALUM	ALUM 24X32		INTAKE	SEE NOTES 1			
L-9	EAST WALL MAINTENANCE BUILDING	50	WALL	GREENHECK ESD-635X	ALUM	12X12	1	INTAKE	SEE NOTES 1			
L-10	WEST WALL MAINTENANCE BUILDING	50	WALL	GREENHECK ESD-635X	ALUM	12X12	1	INTAKE	SEE NOTES 1			
L-11	SOUTH WALL MAINTENANCE BUILDING	50	WALL	GREENHECK ESD-635X	ALUM	12X12	1	INTAKE	SEE NOTES 1			
L-12	SOUTH WALL MAINTENANCE BUILDING	800	WALL	GREENHECK ESD-635X	ALUM	18X24	1	EXHAUST	SEE NOTES 1			
L-13	EAST WALL MAINTENANCE BUILDING	800	WALL	GREENHECK ESD-635X	ALUM	24X24	1	INTAKE	SEE NOTES 1			
L-14	EAST WALL MAINTENANCE BUILDING	1500	WALL	GREENHECK ESD-635X	ALUM	24X32	1	INTAKE	SEE NOTES 1			

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NOTES:

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1. PROVIDE LOUVER WITH 2 COATS OF KYNAR 70%

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2. PROVIDE INTAKE LOUVERS WITH INSECT SCREENS; EXHAUST LOUVERS WITH BIRDSCREENS

3. LOUVERS SHALL BE FLORIDA PRODUCT APPROVED.

EXHAUST FANS											
				MOTOR	VOLTS	ROUGH	MODEL	REMARKS			
MARK	LOCATION	CFM	SP	HP	PHASE	OPENING	MODEL NO.	FURNISH ALL FANS WITH DISCONNECT SWITCHES AND BIRD SCREENS.			
EF-2	FLUORIDE BUILDING	4,500	0.5	1 1/2	208 3	-	GREENHECK BSQ-180-15	SEE NOTE 1			
EF-6	MAINTENANCE BUILDING	120	0.35	24 W	115 1	-	GREENHECK CSP-A250	SEE NOTE 2			
EF-7	MAINTENANCE BUILDING	1,600	05	1/3	115 1	-	GREENHECK SQ-140-B	SEE NOTE 3			
EF-8	MAINTENANCE BUILDING	1,500/3,000	0.35	3/4	208 3	24" x 24"	GREENHECK CW-161-VG	SEE NOTE 4			
EF-9	MAINTENANCE BUILDING	800	0.5	1/4	115 1	-	GREENHECK SQ-100-A	SEE NOTE 3			
EF-10	STORAGE BUILDING	350	0.5	1/20	115 1	11" x 11"	GREENHECK CW-085-D	SEE NOTE 5			

NOTES:

1. PROVIDE FAN WITH SPARE BELTS, NEMA-4X DISCONNECT SWITCH, GRAVITY BACKDRAFT DAMPER, HI-PRO POLYESTER COATING ON FAN AND DAMPER, INLET GUARD AND ALUMINUM HOUSING 2. PROVIDE FAN WITH SOLID STATE SPEED CONTROL, WALL MOUNTED MOTION DETECTOR, ISOLATION KIT, ALUMINUM WHEEL, AND MOTOR WITH THERMAL OVERLOAD. 3. PROVIDE FAN WITH NEMA-1 DISCONNECT, 115 VAC ACTUATED DAMPER, SS FASTENERS, ALUMINUM HOUSING, NEOPRENE HANGING ISOLATORS, ALUM INLET GUARD, SOLID STATE SPEED CONTROL

AND HI-PRO POLYESTER COATING ON FAN AND ALL ACCESSORIES. 4. PROVIDE FAN WITH NEMA-1 DISCONNECT, HIGH WIND RATING, 115 VAC ACTUATED DAMPER, SS FASTENERS, FACTORY WALL GRILLE, VARI-GREEN 2-SPEED MOTOR WITH DIAL

ALUMINUM BIRDSCREEN AND HI-PRO POLYESTER COATING ON FAN AND ALL ACCESSORIES.			-										
5. PROVIDE FAN WITH NEMA-1 DISCONNECT, HIGH WIND RATING, GRAVITY BACKDRAFT DAMPER, SS FASTENERS, FACTORY WALL GRILLE, SOLID STATE SPEED CONTROL ALUMINUM BIRDSCREEN AND HI-PRO POLYESTER COATING ON FAN AND ALL ACCESSORIES.		K LOCATION	SUPPLY FAN			N	HEAT	ING SECTION	on c	DN COOLING COIL		MANUFACTURER	
			CFM	OA CFM	ESP	HP		LECT. EA W DB/V		MBH EAT L (SENS) DB/W		MODEL NO	REMAR
	AHU-6	MAINTENANCE BUILDING RM 102	400	50	-	-	21.6	0 70/60	0 17.4	12.8 80/67	208	DAIKIN FFQ18Q2VJU	ASSOCIATED SEE CU SC
	AHU-	MAINTENANCE BUILDING RM 107	400	50	-	-	21.6	0 70/60	0 17.4	12.8 80/67	208	DAIKIN FFQ18Q2VJU	ASSOCIATED SEE CU SC
	AHU-8	MAINTENANCE BUILDING RM 109	400	50	-	-	21.6	0 70/60	0 17.4	12.8 80/67	208	DAIKIN FFQ18Q2VJU	ASSOCIATED SEE CU SC
MARK TONS MCA TEMP. VOLTS MODEL MARK TONS MCA TEMP. VOLTS MODEL MODEL NO. PHASE MODEL NO. SEER REMARKS	NOTE	S: 1. PROVIDE OUT 2. PROVIDE MAX 3. PROVIDE FRE	i orangi Sh air in	E CON	DENSA ⁻ KIT, KDI	TE PUM DQ44XA	P, DACA-CP 60, FOR ALL	. THREE U	NITS.				
CU-6 1-1/2 12.8 95.0 208 DAIKIN RX18RMVJU 19.3 R-410A REFRIGERANT HEAT PUMP	4. PROVIDE WIRELESS REMOTE CONTROLLER, BRC082A42W, FOR ALL THREE UNITS. 5. PROVIDE LOW PROFILE DECORATION PANEL (WHITE), BYFQ60C2W1W, FOR ALL THREE UNITS. 6. PROVIDE (2) SEALING MEMBERS OF AIR DISCHARGE OUTLET, BDBHQ44C60, FOR AHU-6												
CU-7319.7595.0208DAIKIN 4MXS36NMVJU17.7R-410A REFRIGERANT HEAT PUMP, TWO-ZONES		0.1 KOVIDE (2) 0								, i or Ano-o			

NOTES:

1. PROVIDE HERESITE VR514 OR EQUAL CABINET COATING. PROVIDE A TOPCOAT OF HERESITE UC-5500 OR EQUAL. PROVIDE MICROGUARD AD35 COATING ON ALL INTERNAL COMPONENTS: INCLUDING COILS, FINS, EQUIPMENT, ETC.

			VENTILATION TABLE									
ROOM NUMBER	ROOM NAME	AREA (FT2)	OCCUPANCY CATEGORY	NUMBER OF OCCUPANTS	PEOPLE OA RATE REQURED (CFM/PERSON)	AREA OA RATE REQUIRED (CFM/FT2)	TOTAL OA REQUIRED (CFM)	TOTAL OA PROVIDED (CFM)	AHU SUPPLY AIR PROVIDED (CFM)	TOTAL EA REQUIRED (CFM)	TOTAL PROVIE (CFN	
102	CLERK OFFICE	241	OFFICE SPACE	1	5	0.06	19	50	400	0	0	
103	PARTS AREA	744	STORAGE	0	0	0	0	0	-	0	1600	
104 / 105	MAINTENANCE AREA	2175	MAINTENANCE AREA	0	0	0.06	131	1,500	-	1631	3000	
106	TOILET ROOM	78	TOILET - PUBLIC	0	0	0	0	0	-	70	120	
107	WORK AREA 1	276	OFFICE SPACE	1	5	0.06	22	50	400	0	0	
108	WORK AREA 2	276	OFFICE SPACE	1	5	0.06	22	50	400	0	0	
						TOTALS:	193	1650	1200	1701	4720	

NOTES:

1. VENTILATION REQUIREMENTS ARE BASED ON ASHRAE 62.1-2010 AND FLORIDA MECHANICAL CODE, SIXTH EDITION.

2. EXHAUST RATE FOR RESTROOM WHILE INTERMITTENTLY OPERATED WHILE OCCUPIED = 70 CFM / WC

3. AREA IS NORMALLY UNOCCUPIED AND DOES NOT REQUIRE CONTINUOUS VENTILATION PER ASHRAE 62.1 AND FMC 6TH EDITION.

4. OUTDOOR AIR CALCULATIONS PROVIDED PER FMC TABLE 403.3 ARE PROVIDED FOR INFORMATIONAL AND CODE PURPOSES ONLY. THE CALCULATIONS DO NOT CHANGE THE CONTRACT DOCUMENTS.

REMARKS	
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							ELECTRIC	CUNIT HEAT	ERS (EUH)	
MARK	LOCATION	CFM	FPM	HP	THROW (FT)	ĸw	VOLTS	PHASE	MANUFACTURER MODEL NO.	REMARKS
EUH-301	EXISTING MECHANICAL WORK AREA	700	760	1/4	26	5	480	3	INDEECO 234-U11N-0050U	1,2
EUH-302	PARTS AREA	700	760	1/4	26	5	480	3	INDEECO 234-U11N-0050U	1,2
EUH-303	PARTS AREA	700	760	1/4	26	5	480	3	INDEECO 234-U11N-0050U	1,2
EUH-304	EXISTING MECHANICAL WORK AREA	700	760	1/4	26	5	480	3	INDEECO 234-U11N-0050U	1,2
EUH-305	EXISTING DRIVE THRU BAY	700	760	1/4	26	5	480	3	INDEECO 234-U11N-0050U	1,2

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NOTES: 1. PROVIDE UNIT HEATER WITH 2 STAGE CONTROL/THERMOSTAT. 2. PROVIDE UNIT HEATER WITH WALL MOUNTING BRACKET.

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				AUTOMATIC D	AMPER SCHEDULE	Ē	
MARK	QUANTITY	LOCATION	DAMPER MODEL/MAKE	NOMINAL SIZE (W x H)	DESCRIPTION	OPERATOR P-E (VOLTS)	REMARKS
AD-3	1	MAINTENANCE BUILDING	GREENHECK VCD-40	12X12	INTAKE AIR	BELIMO TFB120-S	INTERLOCK WITH A
AD-4	1	MAINTENANCE BUILDING	GREENHECK VCD-40	40X24	INTAKE AIR	BELIMO FSLF120-S	INTERLOCK WITH E
AD-5	1	MAINTENANCE BUILDING	GREENHECK VCD-40	24X32	INTAKE AIR	BELIMO FSLF120-S	INTERLOCK WITH E
AD-6	1	MAINTENANCE BUILDING	GREENHECK VCD-40	12X12	INTAKE AIR	BELIMO TFB120-S	INTERLOCK WITH A
AD-7	1	MAINTENANCE BUILDING	GREENHECK VCD-40	12X12	INTAKE AIR	BELIMO TFB120-S	INTERLOCK WITH A
AD-8	1	MAINTENANCE BUILDING	GREENHECK VCD-40	24X24	INTAKE AIR	BELIMO TFB120-S	INTERLOCK WITH E
AD-9	1	MAINTENANCE BUILDING	GREENHECK VCD-40	12X12	INTAKE AIR	BELIMO TFB120-S	INTERLOCK WITH E
AD-10	1	MAINTENANCE BUILDING	GREENHECK VCD-40	24X32	INTAKE AIR	BELIMO FSLF120-S	INTERLOCK WITH E

HVAC UNIT (HEAT PUMP AIR HANDLER)

ARKS 2 2 2 2 2 2 2 2		TETRA TECH BUGINES NO. 2428 RUGINES NO. 2428 Num tetratech.com COLLANDO, FLORIDA 32801 PHONE: (407) 839-3955 FAX: (407) 839-3790
H AHU-6 TH EF-7 TH EF-8 H AHU-7 H AHU-8 TH EF-9		BID SET
TH EF-6 TH EF-8 EMARKS ATED WITH CU CU SCHEDULE ATED WITH CU CU SCHEDULE ATED WITH CU CU SCHEDULE	-7	TE DESCRIPTION BY
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000 20 0 0 720	1,3,4 1,2,4 1,4 1,4	Project No.: 200-10034-18002 Designed By: VBD Drawn By: VBD Checked By: MGS MGS

EQUIPMENT: E-7 & AD-4 E-7 & AD-7 E-7 &	EXHAUST FAN	- COOLING, THERMOSTAT
EF 9 A A D 4 RIN CONTINUES: CONTINUOUS: FINAL EXAMPLE TO MAINTAIN A ZONE TEMPERATURE COOLING SETPOINT, OF 85°F (ADJ), FIN THE FAN SHALL RUN ANTHME THE ZONE TEMPERATURE RISES ABOVE COOLING SETPOINT, UNLESS SHUTDOWN ON SAFENES. INTAKE/EXHAUST AN DAMPER SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE MAYTIME. THE UNIT STOPS. THE INTAKE AIR DAMPER SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE MAYTIME. THE UNIT STOPS. THE INTAKE AIR DAMPER SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE MAYTIME. THE UNIT STOPS. THE INTAKE AIR DAMPER SHALL CLOSE SO SEG (ADJ) AFTER THE THE FAN STOPS. ALARMS SHALL BE ERVOYDED AS FOLLOWS: INTAKE/EXHAUST DAMPER FAILURE: COMMANDED OPEN, BUT THE STATUS IS CLOSED. INTAKE/EXHAUST DAMPER FAILURE: COMMANDED OPEN, BUT THE STATUS IS CLOSED. INTAKE/EXHAUST DAMPER FAILURE: COMMANDED OPEN, BUT THE STATUS IS CLOSED. INTAKE/EXHAUST DAMPER FAILURE: COMMANDED OPEN, BUT THE STATUS IS CLOSED. INTAKE/EXHAUST DAMPER FAILURE: COMMANDED OPEN, BUT THE STATUS IS CLOSED. INTAKE/EXHAUST DAMPER DAMPER IN HAND: COMMANDED CLOSED, BUT THE STATUS IS OPEN. ENALTH STATUS THE CONTROLLER SHALL MONITOR THE FAN STATUS. ALARMS SHALL BE PROVIDED AS FOLLOWS: I FAN FAILURE: COMMANDED OPF, BUT THE STATUS IS OFF. I FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON. I FAN FAILURE: COMMANDED OFF, BUT THE STATUS IS ON. I FAN RUNTIME EXCEEDED. FAN STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ). EXHAUST FAN - ON/OFF, MOTION SENSOR END EXHAUST FAN - ON/OFF, MOTION SENSOR END END EXHAUST FAN SHALL RUN WHEREVER ENABLED BY THE MOTION SENSOR END END ENT STOPS. THE EXHAUST AR DAMPER SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME ENALST FAN SHALL HAVE A USER DEFINABLE (ADJ) MINIMUM RUNTIME. EXHAUST FAN SHALL HAVE A USER DEFINABLE (ADJ) MINIMUM RUNTIME. EXHAUST FAN SHALL HAVE A USER DEFINABLE (ADJ) MINIMUM RUNTIME. EXHAUST FAN SHALL HAVE A USER DEFINABLE (ADJ) MINIMUM RUNTIME. EXHAUST FAN SHALL HAVE A USER DEFINABLE (ADJ) MINIMUM RUNTIME. EXHAUST FAN SHALL HAVE A USER DEFINABLE ADJ OPEN ANTHME THE EXHAUST DAMPER STATUS HAS		
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EF-2 RUN CONDITIONS - CONTINUOUS:	EQUIPMENT: EF-6 & MANUFACTIONS THE EXHAUST FAN FAN: THE FAN SHALL HA EXHAUST AIR DAM THE EXHAUST AIR THE UNIT STOPS. DAMPER STATUS: THE EXHAUST FAN OPEN. ALARMS SHALL BE • EXHAUST D • EXHAUST D • EXHAUST D FAN STATUS: THE CONTROLLER ALARMS SHALL BE • FAN FAILUR • FAN FAILUR • FAN FAILUR • FAN RUNTIN (ADJ.).	URER SUPPLIED 115V DAMPER <u>CONTINUOUS</u> : I SHALL RUN WHENEVER ENABLED BY THE MOTION SENSOR AVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME. <u>PER</u> : DAMPER SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE EXHAUST AIR DAMPER SHALL CLOSE 10 SEC (ADJ.) AFTER THE FAN STOPS. I SHALL BE ENABLED AFTER THE EXHAUST DAMPER STATUS HAS PROVEN I SHALL BE ENABLED AFTER THE EXHAUST DAMPER STATUS HAS PROVEN I SHALL BE ENABLED AFTER THE EXHAUST DAMPER STATUS HAS PROVEN I SHALL BE ENABLED AFTER THE EXHAUST DAMPER STATUS IS CLOSED. AMPER FAILURE: COMMANDED OPEN, BUT THE STATUS IS CLOSED. AMPER DAMPER IN HAND: COMMANDED CLOSED, BUT THE STATUS IS OPEN. I SHALL MONITOR THE FAN STATUS. I SHALL MONITOR THE FAN STATUS. I RROVIDED AS FOLLOWS: I COMMANDED ON, BUT THE STATUS IS OFF. D: COMMANDED OFF, BUT THE STATUS IS ON. ME EXCEEDED: FAN STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT

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EXHAUST FAN - (2) SPEED COOLING, THERMOSTAT

6

EQUIPMENT:

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EF-8, AD-5 & AD-10

RUN CONDITIONS - CONTINUOUS: THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE SCHEDULE (ADJ.). INITIAL OCCUPIED SETTINGS SHALL BE 7AM - 4PM, M-F. FAN SHALL OPERATE IN THE FOLLOWING MODES:

- 85°F (ADJ.), UNLESS SHUTDOWN ON SAFETIES.
- SAFETIES.

INTAKE/EXHAUST AIR DAMPERS: THE FAN STOPS.

DAMPER STATUS: PROVEN OPEN SEQUENTIALLY.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

OPEN.

FAN STATUS:

THE CONTROLLER SHALL MONITOR THE FAN STATUS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- (ADJ.).

SPLIT SYSTEM HEATING & COOLING UNITS - THERMOSTAT

EQUIPMENT:

CU-6,7, & AHU-6,7,8

<u>RUN CONDITIONS - CONTINUOUS:</u> THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE SCHEDULE (ADJ.). INITIAL OCCUPIED SETTINGS SHALL BE 7AM - 4PM, M-F. FAN SHALL OPERATE IN THE FOLLOWING MODES:

OCCUPIED MODE:

UNOCCUPIED MODE:

•• THE UNIT SHALL MAINTAIN A 80°F COOLING SETPOINT •• THE UNIT SHALL MAINTAIN A 65°F HEATING SETPOINT.

ZONE SETPOINT ADJUST: THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINT AT THE ZONE SENSOR.

THE FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED MODE.

INTAKE AIR DAMPER: THE INTAKE AIR DAMPER ASSOCIATED WITH EACH AIR HANDLING UNIT SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE INTAKE AIR DAMPER SHALL CLOSE 10 SEC (ADJ.) AFTER THE FAN STOPS.

HEATING AND COOLING: MANUFACTURERS PROPRIETARY SEQUENCES.

 OCCUPIED MODE: FAN SHALL RUN CONTINUOUSLY AT LOW SPEED. THE FAN SHALL RUN AT HIGH SPEED SHOULD THE ZONE TEMPERATURE RISE ABOVE COOLING SETPOINT OF

7

8

 UNOCCUPIED MODE: THE FAN SHALL RUN AT HIGH SPEED SHOULD THE ZONE TEMPERATURE RISE ABOVE COOLING SETPOINT OF 85°F (ADJ.), UNLESS SHUTDOWN ON

THE INTAKE/EXHAUST AIR DAMPERS SHALL PROVE OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE INTAKE AIR DAMPER SHALL CLOSE 30 SEC (ADJ.) AFTER

THE EXHAUST FAN SHALL BE ENABLED AFTER THE INTAKE AND EXHAUST DAMPER STATUS HAS

• INTAKE/EXHAUST DAMPER FAILURE: COMMANDED OPEN, BUT THE STATUS IS CLOSED. INTAKE/EXHAUST DAMPER DAMPER IN HAND: COMMANDED CLOSED, BUT THE STATUS IS

• FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.

• FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.

• FAN RUNTIME EXCEEDED: FAN STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT

•• THE UNIT SHALL MAINTAIN A 75°F COOLING SETPOINT •• THE UNIT SHALL MAINTAIN A 70°F HEATING SETPOINT.

THE AHUS SHALL ADJUST LEAVING AIR TEMPERATURE BASED ON ROOM TEMPERATURE SENSORS BY MODULATING THE COOLING COIL VALVE AND THE ACCU'S COMPRESSORS BY THE

UNIT HEATER - THERMOSTAT

EQUIPMENT:

9

EUH-301,302,303,304,305

<u>RUN CONDITIONS - CONTINUOUS:</u> THE UNIT SHALL RUN WHEN INITIATED BY A THERMOSTAT AND SHALL MAINTAIN A HEATING SETPOINT OF 50°F (ADJ.).

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FAN: THE FAN SHALL RUN ANYTIME THE ZONE TEMPERATURE DROPS BELOW HEATING SETPOINT, UNLESS SHUTDOWN ON SAFETIES.

ELECTRIC HEATING STAGES: THE CONTROLLER SHALL MEASURE TEMPERATURE AND INITIATE HEATING STAGES AS REQUIRED TO MAINTAIN HEATING SETPOINT PER FACTORY CONTROL SEQUENCES.

	TETRA TECH		www.tetratech.com	201 EAST PINE STREET, SUITE 1000 ORLANDO, FLORIDA 32801	PHONE: (407) 839-3955 FAX: (407) 839-3790
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MARK DATE DESCRIPTION BY					
Client: ORANGE COUNTY UTILITIES Proj. Loc.: ORANGE COUNTY, FL		HVAC CONTROLS			
Desig Drawr Check	et No.: ned By: n By: ked By: VI (60)	v M 2	DO2 BD BD GS

EXHAUST FAN - ON/OFF, MOTION SENSOR

EQUIPMENT: EF-2

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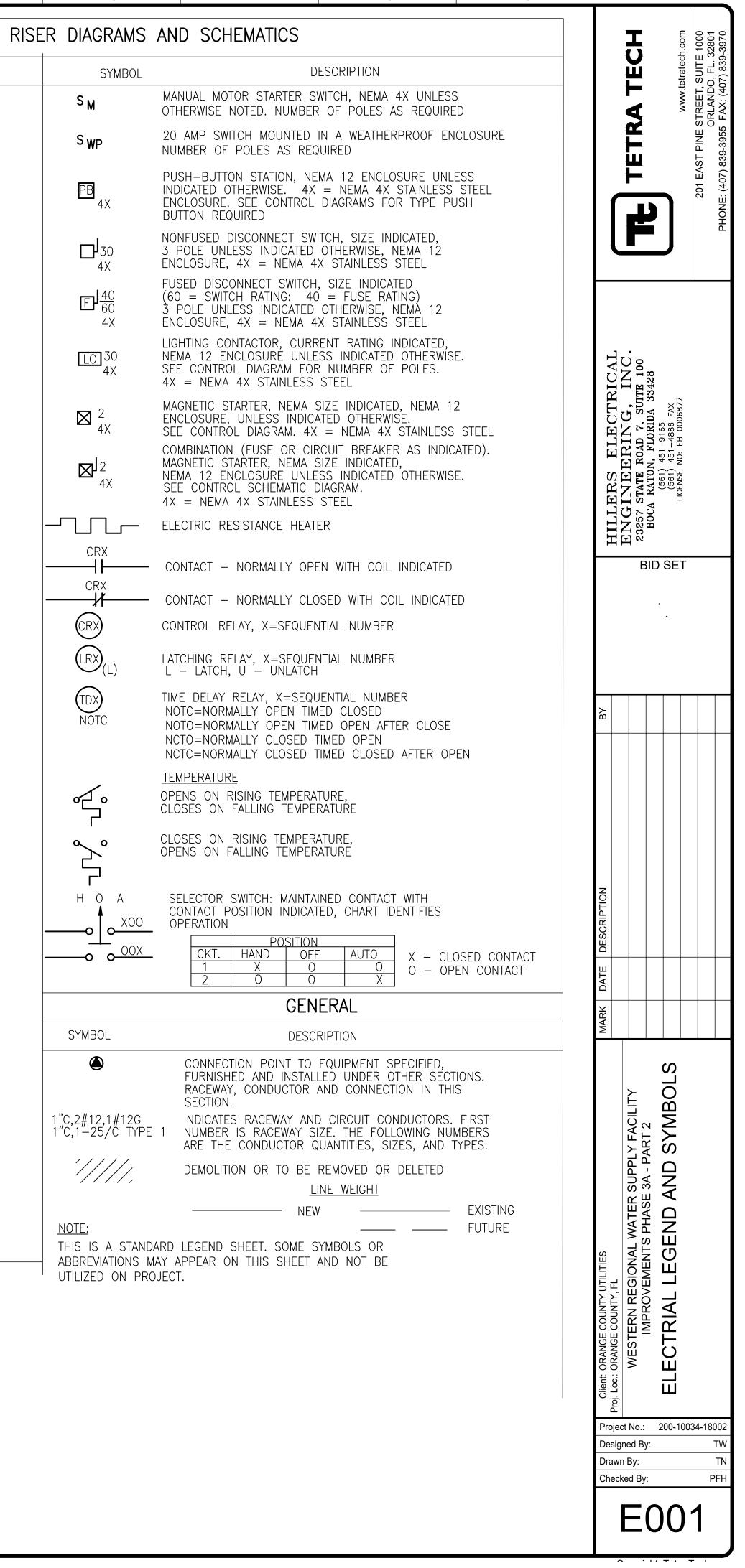
RUN CONDITIONS - CONTINUOUS:

THE EXHAUST FAN SHALL BE PROVIDED WITH HAND / OFF CONTROL. FAN SHALL RUN CONTINUOUSLY UNLESS SHUTDOWN BY SAFETIES.

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SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION			SYMBOL	DESCRIPTION
	TELEPHONE TERMINAL CABINET	e				(5)	MOTOR, SQUIRREL CAGE INDUCTION UNLE
	TERMINAL JUNCTION BOX		FIRE ALARM SMOKE DETECTOR				OTHERWISE NOTED - HORSEPOWER INDIC
	ELECTRICAL EQUIPMENT		FIRE ALARM HEAT DETECTOR				OVERLOAD RELAY HEATER
\boxtimes	CEILING MOUNTED DOWNLIGHT LUMINAIRE – SEE SCHEDULE FOR TYPE	FACP	FIRE ALARM CONTROL PANEL			-1	MAGNETIC STARTER WITH NEMA SIZE INDIC FVNR UNLESS INDICATED OTHERWISE.
	FLOURESCENT LUMINAIRE, SURFACE OR LAY IN TYPE	FCA	FIRE ALARM REMOTE ANNUNCIATOR	PANEL		M	MOTOR CIRCUIT PROTECTOR, MAGNETIC, 3 UNLESS INDICATED OTHERWISE.
	SEE SCHEDULE FOR TYPE	FASP	FIRE ALARM SUB CONTROL PANEL				CIRCUIT BREAKER, THERMAL MAGNETIC TR
	LUMINAIRE AND POLE – SEE SCHEDULE FOR TYPE	BD T/R	BEAM DETECTOR, T=TRANSMITTER,	R=RECEIVE	ER	400	3 POLE UNLESS INDICATED OTHERWISE.
X	WALL MOUNTED LUMINAIRE – SEE SCHEDULE FOR TYPE	(e) D	DUCT SMOKE DETECTOR			400 225	FUSED SWITCH, SWITCH AND FUSE CURRE INDICATED, 3 POLE UNLESS INDICATED OT
\times	FLOOD LIGHTS - AIM IN THE DIRECTION SHOWN	RTS	REMOTE TEST STATION				SWITCH - CURRENT RATING INDICATED, 3
	SEE SCHEDULE FOR TYPE	FD	FIRE/SMOKE DAMPER			100 <u>400</u> 600	UNLESS INDICATED OTHERWISE.
⊗ x	EXIT LIGHTS – SOLID SECTION IS DIRECTION OF FACE SEE SCHEDULE FOR TYPE		LINE ISOLATOR MODULE			600 	DRAWOUT CIRCUIT BREAKER, LOW VOLTAGE 600= FRAME RATING, 400=TRIP SETTING
$\mathcal{A}_{\mathbf{X}}$	EMERGENCY LIGHT WITH BATTERY PACK		LOCK BOX			600	
	SEE SCHEDULE FOR TYPE	RM	RELAY MODULE MONITOR MODULE				DRAWOUT FUSED SWITCH, LOW OR MEDIUM 600= FRAME RATING, 400=FUSE RATING
	<u>LIGHTING FIXTURE POWER AND SWITCHING LEGEND</u> X=FIXTURE TYPE		JUNCTION BOX NEMA 12 ENCLOSU	RE LINIES	5		600= FRAME RATING, 400=FUSE RATING
\mathbf{X}_{Z}^{Y} (TYP)	Y=PANEL-CIRCUIT BRKR Z=SWITCH		INDICATED OTHERWISE. $4X = NEM/$		5		CURRENT TRANSFORMER, NUMBER OF WINDINGS INDICATED
	IF NO Z INDICATED, CONNECT DIRECTLY TO CIRCUIT BREAKER.		ABBREVIA	TIONS		$- \mathbf{L} (3)$ $- \mathbf{L} 480-12$	
[B2]	CONDUIT/CONDUCTOR - REFER TO CIRCUIT SCHEDULE	ABBREVIATION		ABBREVIA		$\Delta u /208V$	TRANSFORMER, VOLTAGES, PHASE AND
LPA-2	HOME RUN – PANEL AND CIRCUIT NUMBER SHOWN	AC	AMMETER, AMPERE ALTERNATING CURRENT	MCB MCC	MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER		RATING INDICATED AS APPLICABLE
	EXPOSED CONDUIT AND CONDUCTORS*	AFD	AMPERE FRAME ADJUSTABLE FREQUENCY DRIVE	MDP MERC	MAIN DISTRIBUTION PANEL MERCURY VAPOR		LIGHTNING ARRESTER
— — —	UNDERGROUND CONDUIT AND CONDUCTORS*	AFF AFG AS	ABOVE FINISHED FLOOR ABOVE FINISHED GRADE AMMETER SWITCH,	MH MLO	MOTOR HEATER, MANHOLE MAIN LUGS ONLY	│───┤⋲──	CAPACITOR OR SURGE CAPACITOR
	NOTE: * ALL UNMARKED CONDUIT RUNS CONSIST OF		AMMETER SWITCH, AMPERE SENSOR AIR SUPPLY UNIT	MPZ MS	MINI POWER ZONE MOTOR STARTER		UTILITY METER
(YCX)	2#12, $1#12G$ IN $3/4$ °C.	ASU ATS	AUTOMATIC TRANSFER SWITCH	MSC	MANUFACTURER SUPPLIED CABLE		
	YARD CONDUIT. REFER TO YARD CONDUIT SCHEDULE DIRECT BURIED CONDUIT	BC BRKR	BYPASS CONTACTOR BREAKER	MT MTD	MOUNT MOTOR TEMPERATURE	G	GENERATOR
—— E ——	EXISTING ELECTRICAL UNDERGROUND DUCTBANK	BTC C	BARE TINNED COPPER CONDUIT, CONTACTOR	N	DETECTOR NEUTRAL		METER SCALE RANGE SHOWN IF REQUIRE
oo	FIBER OPTIC CONDUIT	CB CKT	CIRCUIT BREAKER CIRCUIT	NC NEMA	NORMALLY CLOSED NATIONAL ELECTRIC	0-600V	A – AMPS PM – PHASE MON V – VOLTS P – POWER METE
	CONDUIT, STUBBED AND CAPPED AS SHOWN	CMS CPT	COMBINATION MOTOR STARTER CONTROL POWER TRANSFORMER		MANUFACTURER'S ASSOCIATION		
	GROUND WIRE, 4/O BTC UNLESS OTHERWISE NOTED	CR CT	CONTROL RELAY CURRENT TRANSFORMER	NO NP	NORMALLY OPEN NAMEPLATE	SPD	SURGE PROTECTION DEVICE
	6 FOOT GROUND WIRE PIGTAIL, 4/O BTC UNLESS OTHERWISE NOTED	DC DPM	DIRECT CURRENT DIGITAL POWER METER	NTS OL	NOT TO SCALE OVERLOAD RELAY	• +	GROUND
\bullet	GROUND ROD – 5/8" x 30' COPPER CLAD UNLESS OTHERWISE NOTED	DIV	DIVISION	P PB	POLE PULL BOX		CONTROL TRANSFORMER
	GROUND TEST WELL, SEE DETAIL	EF	EXHAUST FAN ELECTRICAL GROUND	PC PH	PHOTOCELL PHASE	120V	
		ETM EXST,EXIST	ELAPSED TIME METER EXISTING	PM PMH	PHASE MONITOR,POWER METER POWER MANHOLE	GFR-	- GROUND FAULT RELAY WITH C.T.
S	WALL SWITCH: 2– DOUBLE POLE P– PILOT LIGHT 3– THREE WAY K– KEY OPERATED 4– FOUR WAY D– DIMMER	FDR F, FU	FEEDER FUSE	PNL PP	PANEL POWER PANEL (480VAC)		
	WP-WEATHERPROOF CRE-CORROSION EXP-EXPLOSION PROOF RESISTANT	FI FLR	FLOW INDICATOR FLOOR	PPU PR	PUMP PROTECTIÓN UNIT PAIR		
	CONVENIENCE RECEPTACLE – 20A DUPLEX UNLESS SPECIFIED	FLUOR FM	FLUORESCENT FLOW METER	PS PT	PRESSURE SWITCH POTENTIAL TRANSFORMER	o	 PUSH-BUTTON SWITCH, MOMENTARY CON NORMALLY OPEN
	OTHERWISE WP-WEATHERPROOF C- CLOCK HANGER TL- TWIST LOCK CRE- CORROSION RESISTANT	FS FT	FLOAT SWITCH, FLOW SWITCH FLOW TRANSMITTER	PVC RCPT	POLYVINYL CHLORIDE CONDUIT RECEPTACLE		 PUSH-BUTTON SWITCH, MOMENTARY CON NORMALLY CLOSED
-9	GFI-GROUND FAULT INTERRUPTER CONVENIENCE RECEPTACLE – 20A DUPLEX ON UPS POWER	FUT FVNR	FUTURE FULL VOLTAGE NON-REVERSING	RMS RS	ROOT MEAN SQUARE RIGID STEEL CONDUIT		
		C	STARTER GREEN, GROUND	RGS	RIGID GALVANIZED STEEL CONDUIT		 PUSH BUTTON SWITCH, MAINTAINED CONT MECHANICAL INTERLOCK
→	CONVENIENCE RECEPTACLE – 20A QUADRUPLEX CONVENIENCE RECEPTACLE – 20A QUADRUPLEX ON UPS POWER	GALV GEN	GALVANIZED GENERATOR	RTU	REMOTE TELEMETRY UNIT		
	CONVENIENCE RECEPTACLE – 20A DUPLEX UNLESS SPECIFIED	GFI	GROUND FAULT INTERRUPTER GROUND FAULT RELAY	SC SF	SURGE CAPACITOR SUPPLY FAN		- REMOTE DEVICE
1	OTHERWISE. LOCATED ABOVE COUNTER TOP GFI-GROUND FAULT INTERRUPTER	GND HH	GROUND HANDHOLE	SH S/N	SPACE HEATER SOLID NEUTRAL	\sim	INDICATING LIGHT - LETTER INDICATES C
Ð	CONVENIENCE RECEPTACLE – 20A DUPLEX UNLESS SPECIFIED	HID HOA	HIGH INTENSITY DISCHARGE HAND/OFF/AUTO	SPD SSRVS	SURGE PROTECTION DEVICE SOLID STATE REDUCED VOLTAGE STARTER		A – AMBER G – GREEN B – BLUE R – RED C – CLEAR W – WHITE
	OTHERWISE. MOUNTED FLUSH IN FLOOR. CONVENIENCE RECEPTACLE – 20A DUPLEX ON UPS POWER	HOR HPS	HAND/OFF/REMOTE HIGH PRESSURE SODIUM	SST SV	STAINLESS STEEL SOLENOID VALVE		PUSH TO TEST AND CONNECT INDICATING
-	MOUNTED FLUSH IN FLOOR.	HVAC	HEATING, VENTILATING & AIR CONDITIONING	SW SWBD	SWITCH SWITCHBOARD	(A)	SCHEMATIC DIAGRAMS ONLY
<u> </u>	MULTI OUTLET ASSEMBLY (MOUNT ABOVE COUNTER TOP)		INTERRUPTING CAPACITY INSTRUMENTATION AND	SWGR SYM	SWITCHGEAR SYMMETRICAL		A – AMBER G – GREEN B – BLUE R – RED C – CLEAR W – WHITE
• • •	MULTI OUTLET ASSEMBLY (UPS POWER, MOUNT ON CONSOLE)		CONTROL	T T TB	THERMOSTAT TERMINAL BOARD		C – CLEAR W – WHITE
30 🛆	RECEPTACLE, SPECIAL PURPOSE – AMPERAGE AS INDICATED.	IMH INST	INSTRUMENTATION MANHOLE INSTANTANEOUS	TDR	TIME DELAY RELAY	CR	CARD READER
R	FAX RECEPTACLE (OUTLET BOX, 18" AFF)	IP	INSTRUMENT PANEL (PANELBOARD)	TJB TS TSP	TERMINAL JUNCTION BOX THERMAL SWITCH TWISTED SHIELDED PAIR	DS	MAGNETIC DOOR SWITCH (PROVIDED WITH
	NETWORK/DATA RECEPTACLE (OUTLET BOX, 18" AFF)	J, J-BOX K	JUNCTION BOX KEY INTERLOCK	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION		· ·
	W – WALL MOUNTED, 54" AFF S – DEDICATED SCADA DROP (MOUNT 18" AFF)	KK LA	KIRK KEY INTERLOCK LIGHTNING ARRESTER	TYP	TYPICAL UNDER VOLTAGE RELAY		CABLE TV RECEPTACLE
	AC – MOUNT ABOVE COUNTERTOP (MOUNT AT THE MIDDLE OF AVAILABLE HEIGHT AND ROTATE TO HORIZONTAL POSITION)	LC LNCP	LIGHTING CONTACTOR LIGHTING NETWORKED CONTROL PANEL	UVR UPS	UNINTERRUPTIBLE POWER SUPPLY	(T)	THERMOSTAT
	NETWORK/DATA RECEPTACLE (MOUNTED FLUSH IN FLOOR)	LNCP LP LR	LIGHTING NETWORKED CONTROL PANEL LIGHTING PANEL (PANELBOARD) LOCAL/REMOTE, LATCHING RELAY	VFD	VOLTMETER, VOLT VARIABLE FREQUENCY DRIVE		
		LR LS LT FLEX	LIMIT SWITCH LIQUID TIGHT FLEX CONDUIT	VS W	VOLTMETER SWITCH WATT		
F F	FIRE ALARM PULL STATION	LTG	LIGHTING	WHD WP	WATTHOUR DEMAND METER WEATHERPROOF		
F <	FIRE ALARM HORN/STROBE LIGHT	M	MAGNETIC CONTACTOR COIL OR MOTOR	XFMR	TRANSFORMER		



ELECTRICAL GENERAL NOTES:

- 1. THE SCOPE OF WORK SHALL BE AS PER SPECIFICATION SECTION 16010.
- 2. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR TO INSTALL THE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS. ITEMS NOT SHOWN BUT OBVIOUSLY NECESSARY FOR COMPLETION OF THE WORK SHALL BE INCLUDED.
- 3. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE 2014 NATIONAL ELECTRICAL CODE (NFPA 70), ELECTRICAL SAFETY IN THE WORKPLACE, LOCAL CODES AND FLORIDA BUILDING CODE 6TH EDITION (2017) WITH AMENDMENTS.
- 4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS AND APPROVALS AND TO INCLUDE ALL FEES AS PART OF HIS BID IF NOT OTHERWISE NOTED. THE FOLLOWING PERMITS ARE REQUIRED BY THE COUNTY AS A MINIMUM: POWER, LIGHTING, INSTRUMENTATION, LIGHTNING PROTECTION, FIBER OPTIC, LOW VOLTAGE, HIGH VOLTAGE, AND ELECTRICAL DEMOLITION.
- 5. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE ENGINEER AND OWNER.
- 6. THE CONTRACTOR SHALL, BEFORE SUBMITTING HIS BID, VISIT THE SITE OF THE PROJECT AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS NO ALLOWANCE WILL BE MADE FOR EXISTING CONDITIONS OR FAILURE OF THE CONTRACTOR TO OBSERVE THEM.
- 7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH ALL LOCAL UTILITIES FOR ALL TEMPORARY UTILITIES FOR THE CONTRACTOR'S TRAILERS, INCLUDING THE POWER AND TELEPHONE UTILITIES TO MEET ALL OF THEIR INSTALLATION REQUIREMENTS. ALL FEES, LABOR, EQUIPMENT OR MATERIALS NECESSARY TO MEET THESE REQUIREMENTS IS TO BE INCLUDED IN THE BID. THE CONTRACTOR SHALL OBTAIN, DELIVER AND INSTALL ALL CONDUITS, PULL BOXES AND EQUIPMENT AS REQUIRED BY THE UTILITIES TO THEIR SPECIFICATIONS.
- 8. ALL EQUIPMENT AND MATERIAL SHALL BE UNUSED AND U.L. LISTED. ALL REFERENCES TO A PARTICULAR MANUFACTURER ARE GIVEN ON AN "APPROVED EQUAL" BASIS, UNLESS OTHERWISE NOTED.
- 9. THE CONTRACTOR IS RESPONSIBLE TO TEST ALL SYSTEMS INSTALLED OR MODIFIED UNDER THIS PROJECT AND REPAIR OR REPLACE ALL DEFECTIVE WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER.
- 10. ALL EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE.
- 11. ALL CONDUCTORS SHALL BE COPPER. NO ALUMINUM ALLOWED UNLESS OTHERWISE NOTED.
- 12. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL ELECTRICAL & CONTROL EQUIPMENT AND MATERIAL.
- 13. ALL CONTROL PANELS SHALL BE CONSTRUCTED BY A UL 508A APPROVED PANEL VENDOR AND SHALL BEAR A UL 508A LABEL ON THE PANEL
- 14. THE DRAWINGS ARE NOT INTENDED TO SHOW THE EXACT LOCATION OF CONDUIT RUNS. THESE ARE TO BE COORDINATED WITH THE OTHER TRADES SO THAT CONFLICTS ARE AVOIDED PRIOR TO INSTALLATIONS.
- 15. ALL LOCATIONS OF EQUIPMENT, PANELS ETC. ARE SHOWN FOR ILLUSTRATION PURPOSES. CONTRACTOR SHALL VERIFY AND COORDINATE EXACT LOCATION AND SIZE WITH ALL SUBCONTRACTORS AND EQUIPMENT SUPPLIERS PRIOR TO ANY INSTALLATION AND THEN INSTALL AS SUCH WITH CORRESPONDING CONDUIT STUB-UPS.
- 16. SEE OTHER DISCIPLINE DRAWINGS FOR COORDINATION OF ALL DRAWINGS. ANY CONFLICTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION AND MOVEMENT OF CONDUITS OR OTHER ELECTRICAL EQUIPMENT SHALL BE ACCOMPLISHED WITHOUT ANY ADDITIONAL COST FOR THE OWNER.
- 17. LOCATIONS OF MANHOLES, HANDHOLES AND PULL BOXES ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH EXISTING AND NEW PIPING OR CONDUIT AND ADJUST ACCORDINGLY.
- 18 NOT ALL CONDUITS SHOWN ON RISER AND ONE-LINE DIAGRAMS ARE SHOWN ON BUILDING LAYOUTS. CONTRACTOR SHALL SUPPLY ALL CONDUITS AND CABLES AS SHOWN ON RISER AND ONE-LINE DIAGRAMS.
- 19. ALL CIRCUITS SHALL BE IDENTIFIED IN JUNCTION BOXES, PULL BOXES, CONTROL PANELS, PANELBOARDS, LIGHTING POLES, CONTROLLERS AND SERVICE POINTS. IDENTIFICATION SHALL MATCH PANELBOARD SCHEDULES.
- 20. EXPOSED RUNS OF CONDUITS SHALL BE INSTALLED WITH RUNS PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS OR INTERSECTIONS OF VERTICAL PLANES AND CEILINGS, WITH RIGHT ANGLE TURNS CONSISTING OF SYMMETRICAL BENDS OR PULL BOXES AS INDICATED ON THE DRAWINGS. BENDS AND OFFSETS SHALL BE AVOIDED WHERE POSSIBLE.
- 21. INSTRUMENTATION IS LOW VOLTAGE SIGNALS SUCH AS 4-20MA, 24 VDC COMMUNICATION, LOCAL AREA NETWORK COMMUNICATIONS, TELEPHONE COMMUNICATION, FIRE ALARM COMMUNICATION. POWER CONDUITS SHALL ONLY CROSS INSTRUMENTATION CONDUITS PERPENDICULARLY AT RIGHT ANGLES WITH 6" SEPARATION.
- 22. CONDUCTOR PULLING TENSIONS SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL INSTALL PULL BOXES TO MEET MANUFACTURER'S REQUIREMENTS.
- 23. MINIMUM DISTANCE ALLOWED BETWEEN POWER CONDUITS AND INSTRUMENTATION CONDUITS SHALL BE: VOLTAGE DISTANCE

4160V	3 FT
480V	2 FT
120V	1 FT

24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDUIT AND WIRING INSTALLATION FOR ALL VENDOR PROVIDED EQUIPMENT (PACKAGE SYSTEMS). IF THE SHOP DRAWINGS DIFFER FROM THE DESIGNED FACILITIES, THE CONTRACTOR SHALL REDESIGN THE FACILITIES AND SUBMIT THE REVISED DESIGN FOR THE ENGINEER'S APPROVAL ALONG WITH THE SHOP DRAWINGS. THERE SHALL BE NO ADDITIONAL COST TO THE OWNER FOR THE REDESIGN NOR FOR ANY ADDITIONAL CONDUITS AND WIRING. DURING SUBMITTAL THE CONTRACTOR SHALL VERIFY ALL SUPPLIED BREAKER SIZES FOR ALL PACKAGED SYSTEMS SUCH AS HVAC, EXHAUST FANS, MIXERS, CHEMICAL PUMPS ETC. AND MODIFY ALL BREAKERS IN MCC'S AND PANELBOARDS ACCORDINGLY WITHOUT ANY ADDITIONAL COST TO THE OWNER.

- 25. ALL EXCAVATIONS FOR CONDUITS, HAND HOLES, MANHOLES AND PULL BOXES NEAR EXISTING PIPING, CONDUIT AND EQUIPMENT SHALL BE HAND EXCAVATED AND COORDINATED WITH PLANT ENGINEER.
- 26. MINIMUM DEPTH FROM TOP OF DUCT BANKS OR CONDUITS TO FINISHED GRADE SHALL BE 24" UNLESS OTHERWISE NOTED.
- THE FOLLOWING SCHEDULE: POWER: RED

ALL OTHER CONDUITS: GREEN

- 28. CONTRACTOR SHALL RESTORE SIDEWALKS, ROADWAYS, SOD AND SPRINKLER SYSTEM PIPING TO MATCH EXISTING, AFTER THE COMPLETION OF THE CONDUIT AND PULL BOX INSTALLATION AND OTHER ELECTRICAL INSTALLATION.
- GROUND SYSTEM SHALL BE TESTED AND WITNESSED BY THE COUNTY.
- THE PLANS.
- BUSHING AND EXTEND BONDING JUMPER FROM THIS BUS TO THE ENCLOSURE.
- OR FINISHED GRADE SHALL HAVE A 72" CONDUCTOR PIGTAIL AT EACH LOCATION FOR CONNECTION TO EQUIPMENT
- AS PER ELECTRICAL DETAILS.
- CONNECTED TO THE SITE GROUNDING GRID AND GROUND RODS LOCATED IN CONNECTING MANHOLES, HAND HOLES OR PULL BOXES.
- PENETRATIONS WITH NON-SHRINK GROUT OR APPROPRIATE FIRE RATED DEVICES WHERE APPLICABLE.
- RATING OF THE WALL OR FLOOR PENETRATED
- 37. PROVIDE CONDUIT DUCT SEAL AT ALL CONDUIT ENDS.
- 38. ALL SPARE CONDUITS SHALL BE SEALED WITH A CAP AT BOTH ENDS AND A PULL STRING INSTALLED WITH IDENTIFICATION ON BOTH ENDS.
- 40. ALL RECEPTACLES WITHIN 6' OF A SINK SHALL BE GFI.
- 42. ELECTRICAL PULL BOXES SHALL BE SUPPLIED WITH A STEEL TRAFFIC-RATED COVER MARKED "ELECTRICAL" OR "SIGNAL".
- 44. ALL MATERIAL IN DESIGNATED CORROSIVE AREAS SHALL BE NEMA 4X STAINLESS STEEL OR NON-METALLIC.
- 45. ALL OUTDOOR LIGHTING FIXTURES SHALL BE OF COPPER FREE CONSTRUCTION.
- 46. CONTRACTOR SHALL BALANCE PANELBOARD LOADS AT THE END OF THE PROJECT AND ADJUST PANELBOARD SCHEDULE ACCORDINGLY.
- 47. ALL REFERENCES TO 4X, NEMA 4X, OR NEMA 4X STAINLESS STEEL SHALL BE CONSTRUED AS MEANING NEMA 4X 316 STAINLESS STEEL.
- THE OWNER WITHIN 30 DAYS OF SYSTEM ACCEPTANCE AS REQUIRED BY FLORIDA BUILDING CODE.
- INCLUDE THE MINIMUM REQUIREMENTS AS STATED IN FLORIDA BUILDING CODE.
- 50. ALL VERTICAL CONDUIT PENETRATIONS FROM CONCRETE SLAB SHALL HAVE A MAINTENANCE PAD TO PREVENT CORROSION.
- NOTED.

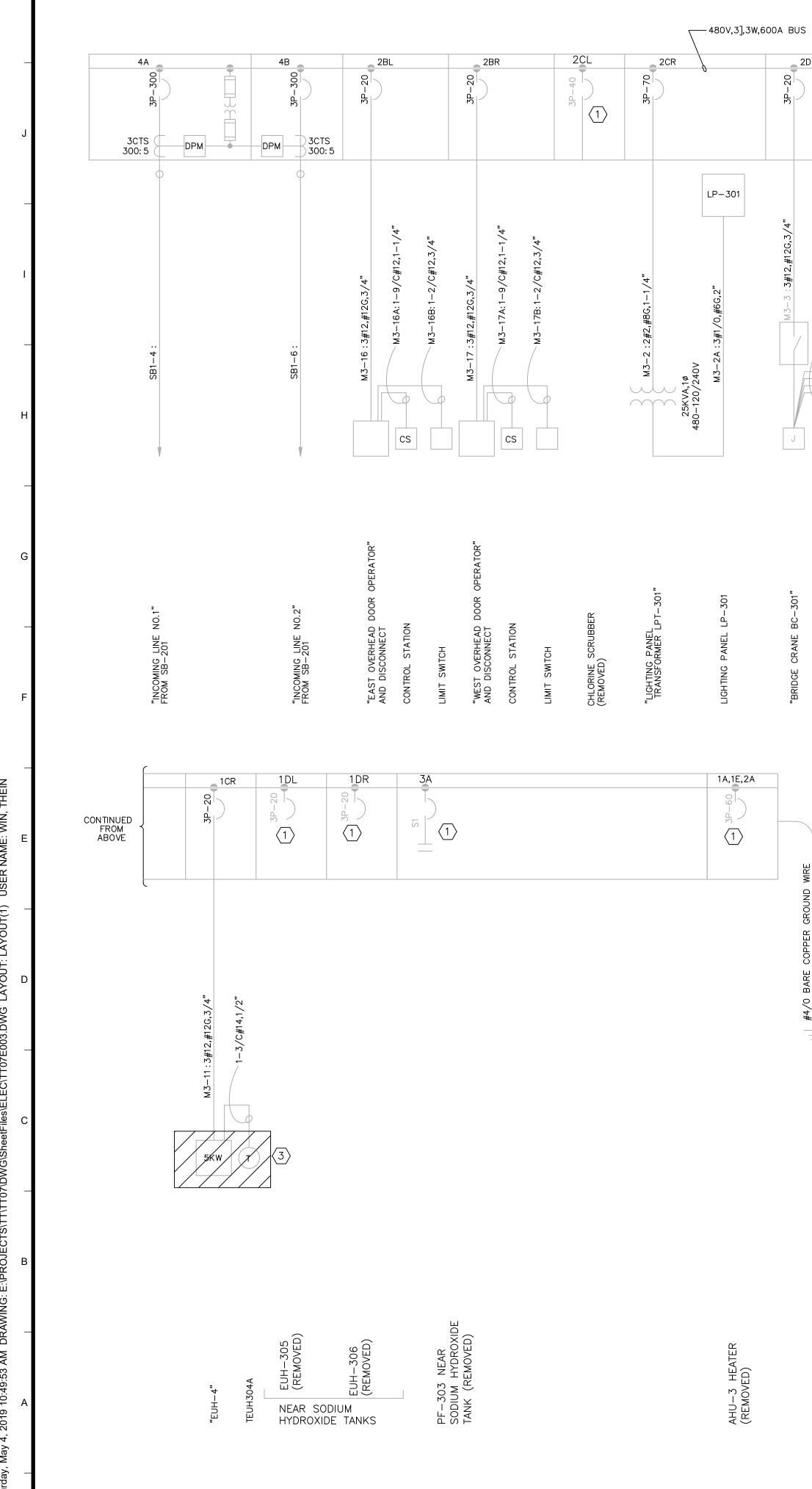
STREET, SUITE 1000 ORLANDO, FL. 3280 U Ŭ |-Ш 27. COLORED WARNING TAPE 6" WIDE SHALL BE INSTALLED 8" BELOW FINISHED GRADE DIRECTLY ABOVE ALL UNDERGROUND YARD CONDUITS ACCORDING TO F 29. GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH NEC, ARTICLE 250. THE GROUNDING SYSTEM TEST SHALL NOT EXCEED A 48 HOUR SPAN DRY RESISTANCE OF 5 OHMS. ADDITIONAL GROUNDING TO MEET THIS REQUIREMENT SHALL BE INSTALLED AT NO EXTRA COST. GROUNDING AND BONDING CONNECTIONS SHALL NOT BE PAINTED. ALL GROUNDING CONNECTIONS SHALL BE EXOTHERMIC WELDED UNLESS SPECIFICALLY INDICATED OTHERWISE. LERS ELECTRICAL GINEERING, INC. STATE ROAD 7, SUITE 100 CA RATON, FLORIDA 33428 (561) 451-9165 (561) 451-9165 (561) 451-9165 (561) 451-9165 (561) 451-9165 (561) 451-0165 (561) 451-0165 (561) 451-0165 (561) 451-0165 (561) 451-0165 30. AN EQUIPMENT GROUND WIRE SIZED PER NEC SHALL BE PULLED IN ALL ELECTRICAL CONDUITS, POWER AND CONTROL, WHETHER OR NOT INDICATED ON 31. ALL ENCLOSURES, TJB, WIREWAY, PULL BOXES ETC. SHALL CONTAIN A GROUNDING BUS. CONNECT ALL RACEWAY BONDS TO THIS BUS VIA GROUNDING 32. PRIMARY BUILDING GROUNDING SHALL BE AN EMBEDDED GRID OF MINIMUM #4/0 AWG BARE TINNED COPPER WIRE INSTALLED IN THE FOUNDATION AND AROUND THE BUILDING PERIMETER, MINIMUM 30" BELOW FINISHED GRADE TO FORM A COMPLETE LOOP. SECONDARY GROUND CONNECTIONS TO ALL METAL EQUIPMENT, HAND RAILS, STRUCTURAL STEEL, CONCRETE PADS, REBAR ETC. SHALL HAVE A MINIMUM #4 STRANDED BARE TINNED COPPER HILL] ENG: 23257 POCA CONDUCTOR BONDED USING APPROVED LUGS OR EXOTHERMIC CONNECTIONS. ALL EQUIPMENT GROUNDING CONDUCTORS PENETRATING CONCRETE SLABS BID SET 33. ALL YARD CONDUIT (YC) SHALL BE CONCRETE ENCASED WITH RED DYE ON TOP OF CONCRETE AND COLORED WARNING TAPE 12-INCH ABOVE DUCTBANK 34. ALL CONCRETE DUCT BANKS SHALL CARRY A MINIMUM #4/0 AWG BARE TINNED COPPER GROUND WIRE, OVER THE ENTIRE LENGTH, WHICH SHALL BE 35. CONTRACTOR SHALL CORE DRILL EXISTING CONCRETE WALLS, FLOORS, MANHOLES, HAND HOLES AND PULL BOXES FOR CONDUIT PENETRATIONS. SEAL 36. ALL CONDUITS PENETRATING RATED FIRE WALLS OR RATED FIRE FLOORS SHALL BE INSTALLED WITH U.L. APPROVED DEVICES TO MAINTAIN THE FIRE 39. ALL RECEPTACLES SHALL BE INSTALLED 18" AFF UNLESS OTHERWISE NOTED. LIGHT SWITCHES SHALL BE MOUNTED 48" AFF UNLESS OTHERWISE NOTED. 41. FLEXIBLE CONDUITS SHALL BE USED TO TERMINATE ALL MOTORS AND OTHER VIBRATING EQUIPMENT AND SHALL BE BETWEEN 18" AND 3' IN LENGTH. 43. TYPEWRITTEN PANEL SCHEDULES SHALL BE INSTALLED IN EACH PANELBOARD. AND TYPEWRITTEN TERMINAL BLOCK SCHEDULES IN EACH CONTROL CABINET. 48. PROVIDE RECORD DRAWINGS, INCLUDING SINGLE LINE DIAGRAM AND FLOOR PLANS INDICATING LOCATION AND AREA SERVED FOR ALL DISTRIBUTION, TO 49. PROVIDE OPERATING MANUALS TO THE OWNER AS REQUIRED BY FLORIDA BUILDING CODE. THE OPERATING MANUAL AND MAINTENANCE MANUAL SHALL Ō Ζ RAL 51. ALL OUTDOOR ELECTRICAL PANEL, BOXES, ENCLOSURES, ETC. SHALL BE 316 STAINLESS STEEL WITH POWERED COATED WHITE, UNLESS OTHERWISE ш Ζ Ш Û Ř Ù ш ₩ 8 111 Project No.: 200-10034-1800 Designed By:

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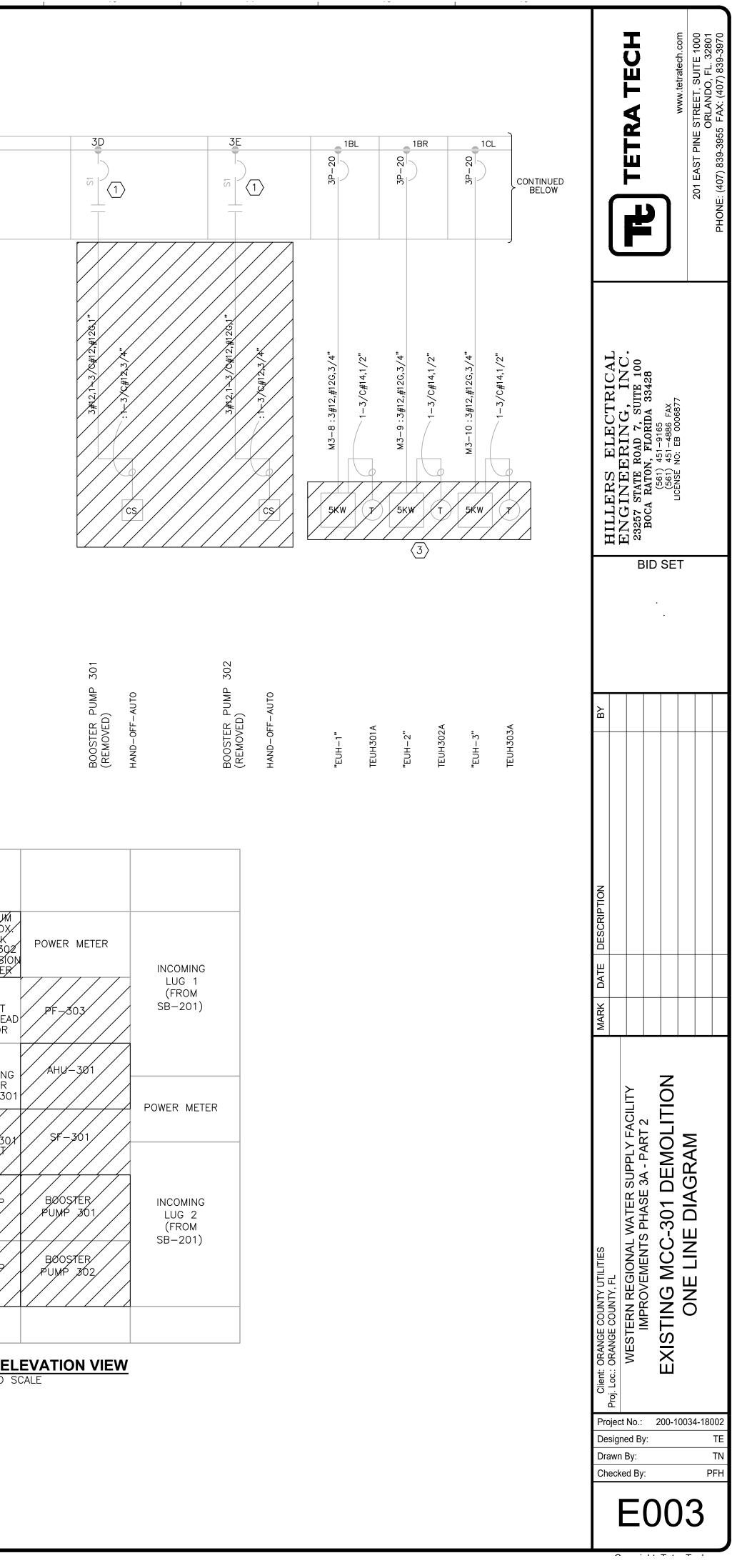
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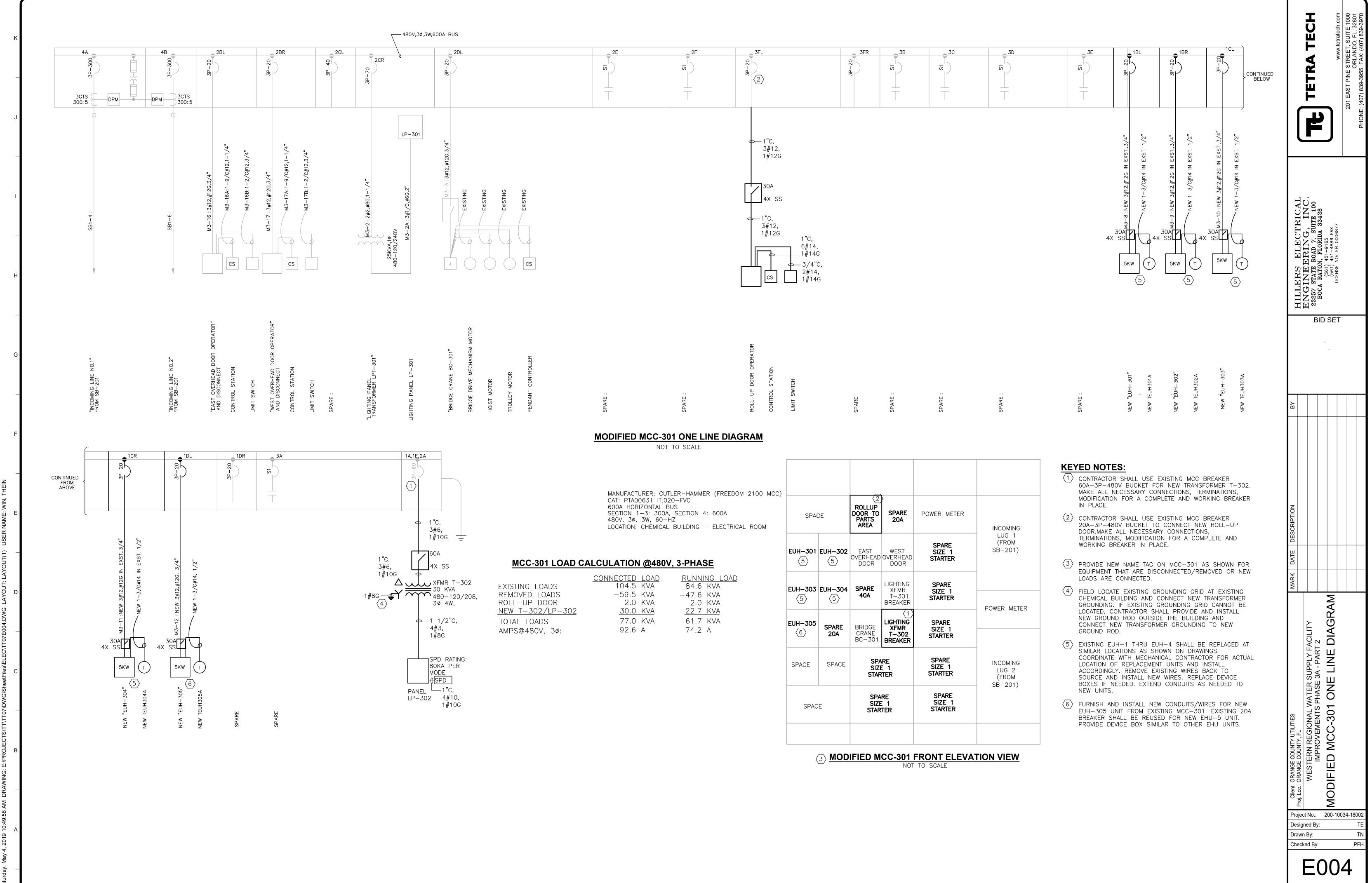
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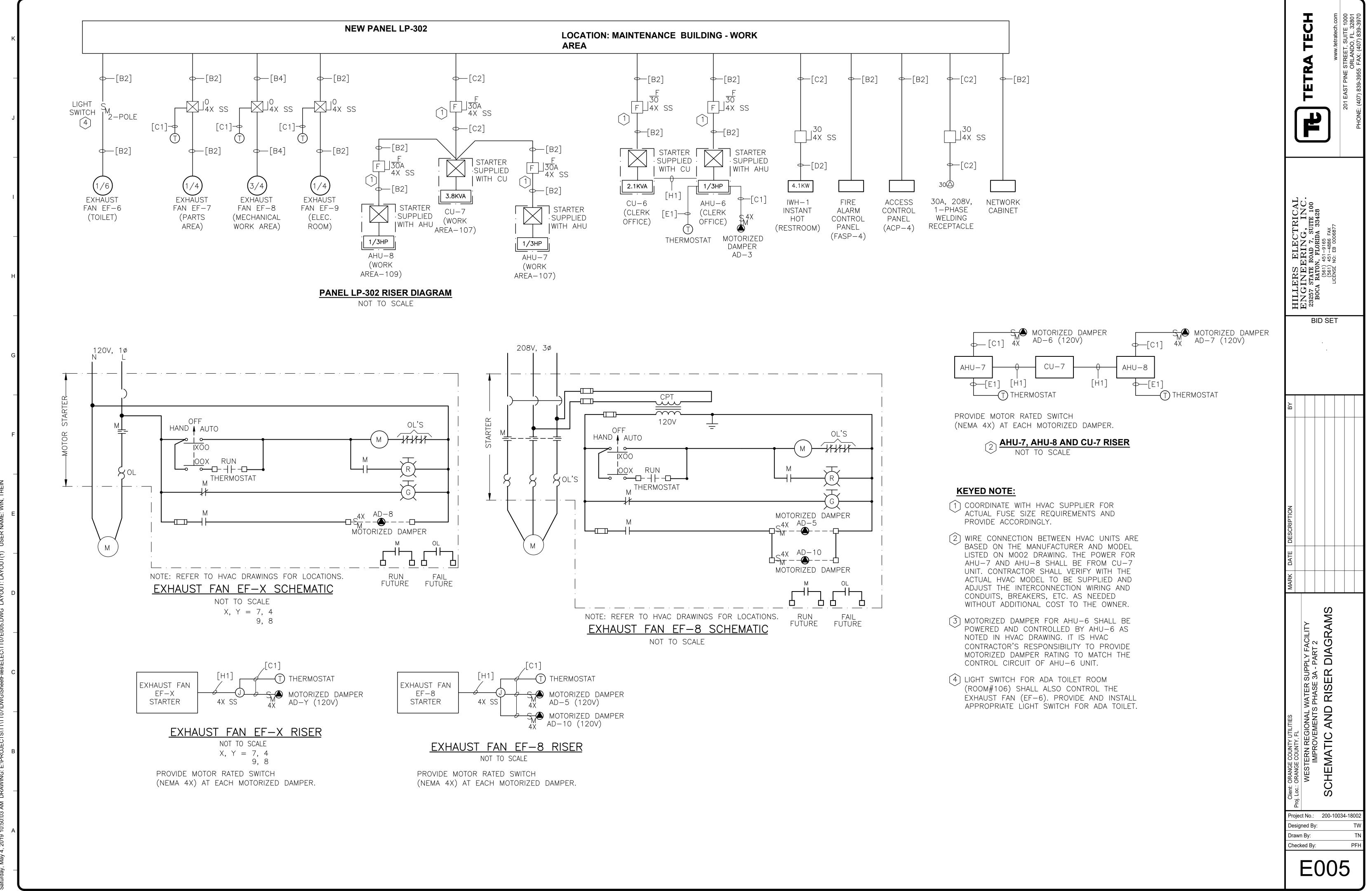
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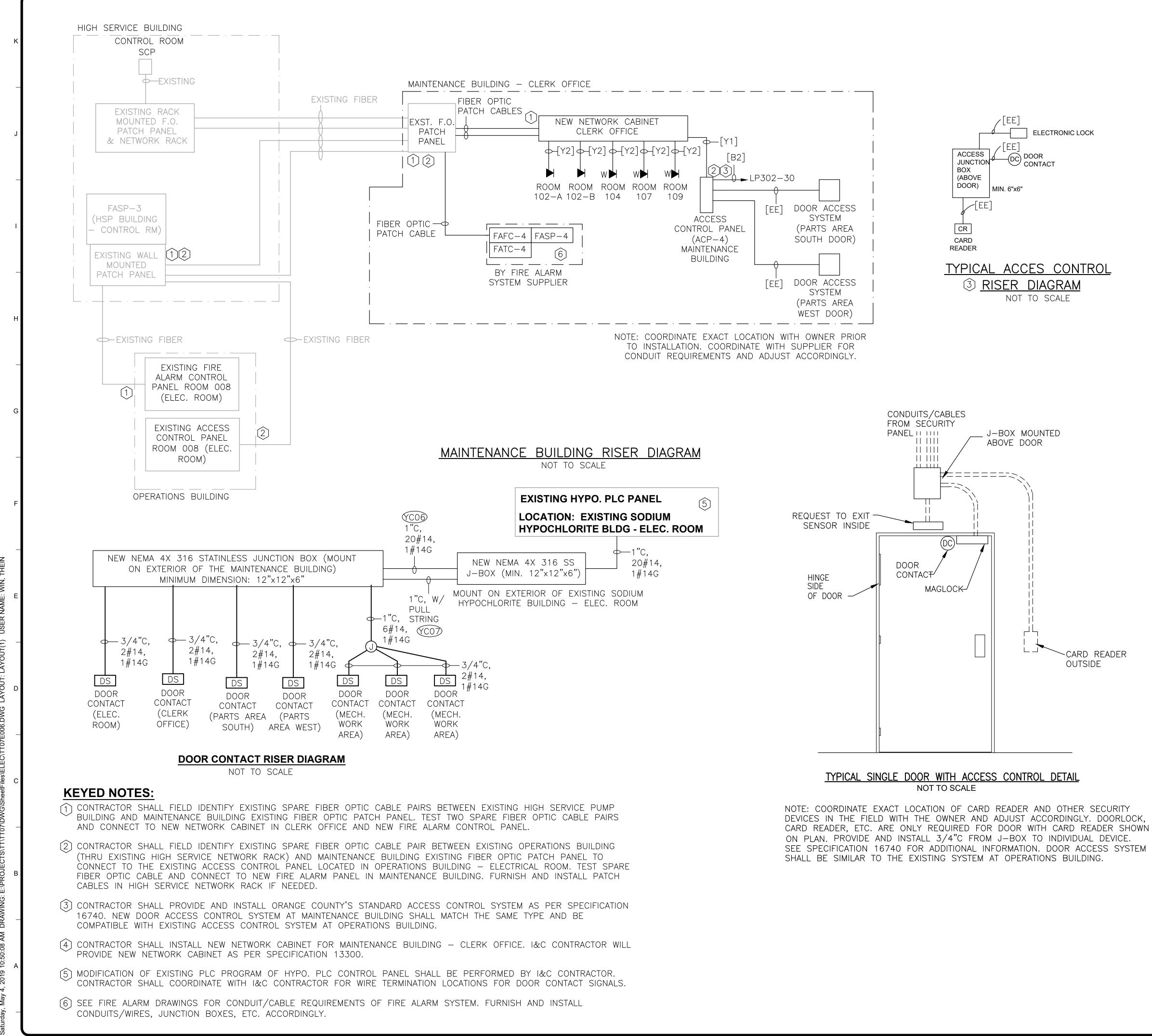


s 2DL)			3FL OZ - M M (1)	3FR 07-dg	3B		30 	
EXISTING EXISTING EXISTING EXISTING								
BRIDGE DRIVE MECHANISM MOTOR HOIST MOTOR TROLLEY MOTOR PENDANT CONTROLLER		REMOVED) (REMOVED)	TANK SHT-301 IMMERSION HEATER (REMOVED)	TANK SHT-302 IMMERSION HEATER (REMOVED)	AHU-301 NEAR DAY TANK (REMOVED)		DE-301 NEAR DAY	TANK (REMOVED)
#1/D BAFE COPFER GROUND MRE	 AB A	ANUFACTURER: CUTLER-I AT: PTA00631 IT.020-FV DOA HORIZONTAL BUS ECTION 1-3: 300A, SEC 30V, 3ø, 3W, 60-HZ DCATION: CHEMICAL BUILD DCATION: CHEMICAL BUILD DCATION: CHEMICAL BUILD STT-301 AND SHP-302" SHT-301 AND SHP-302" SHT-301 AND SHT-30 ENT NEAR SODIUM HYDR D1 AND 302", "HEATERS LORINATORS". CONTRACT DUITS, WIRES, DEVICE B SOVE REMOVED EQUIPMENT FLOOR OR WALL AND PROVIDE NEW NAME TAC PARE SIZE X STARTER" IE ABOVE REMOVED EQUIPMENT. SEE DRAW	TION 4: 600A DING – ELECTRICA CRUBBER CGS-30 , SODIUM HYDROX 2", "AHU-301 ANI OXIDE DAY TANK", EUH-305 AND OR SHALL REMOV OXES, PANELS, ET NT. CUT UNDERGR CAP. S ON MCC-301 A FOR MCC BUCKET IPMENT THAT WILL VING E004 FOR EPLACED AT SIMIL CONTRACTOR FOR ND INSTALL (TO SOURCE ANI	AL ROOM	SPACE SPACE SPACE SPACE	EHU-2 (3) EHU-4 (3) EHU-306 SPACE E	CRANE BC-301 TRANSFE SHP- TRANSFE SHP-	WEST OVERHEAD DOOR LIGHTING XFMR LPT-301 AHU-301 HEAT R PUMP -302









		TETRA TECH]	www.tetratech.com	201 EAST PINE STREET, SUITE 1000 ORLANDO. FL. 32801	PHONE: (407) 839-3955 FAX: (407) 839-3970			
HILLERS ELECTRICAL ENGINEERING, INC. 23257 STATE ROAD 7, SUITE 100 BOCA RATON, FLORIDA 33428 (561) 451-9165 (561) 451-9165 (561) 451-9165 (561) 451-4886 FAX LICENSE NO: EB 0006877										
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MARK DATE DESCRIPTION										
	· Proj. Loc.: URANGE COUNTY, FL									
De: Dra	sigi iwr	et No.: ned B n By: ced By	y:	200-1 C)(D02 TW TN PFH			

EXISTING LIGHTING PANELBOARD 'LP-301'

					•	/ // /						
BUS	AMPS	LOAD		AMPS		BUS			POLES	LOAD	BUS	AMPS
Α	В	EOAD	FULES	AIVIFS		A B		AIVIP 3	FULES	LUAD	А	В
			4			1			4			
2.1		LØHIS – ZLZC, PUMP, ZV STORAGD	1	20	1 -	•	- 2	20	1	RECP – ELEC, PUMP, CL FEED, STORAGE	6.0	
	8.0	LIGHTS / KHROME STORAGE ROOM	1	20	3 -		•- 4	20	1	RECP - ELEC, SCRUBBER, SODIUM HYDRO.		6.0
8.0		KATS / KHROME STØRAGE RØDM	1	20	5 –	•	- 6	20	1	LIT-05-1, LIT-05-2	1.0	
	5.0	KAKS/-/XISIDE	1	20	7 –		- 8	20	1			3.0
3.0		F@F_301	1	20	9 —	•	-10	20	1	F = 382	3.0	
	2.0	PF-75/7/	1	20	11 -		-12	20	1	SPARE		1.5
2.0		PF-F3Ø2/	1	20	13 —	•	-14	20	1	CHLORME SCALE X & /2)	1.0	
	3.0	BH-BOX	1	20	15 -		-16	20	1	SECURITY SYSTEM KEYPAD		1.5
1.0		UPS	1	20	17 –	•	- 18	20	1	(ALORINE GAS DETECTORS/(Z))	1.0	
	2.0	LIGHT – POST TOP (#5)	1	20	19 —		- 20	20	1	LT / 10 / 3 / DAY TANKY		1.0
0.5		SPRINKLER SYSTEM TAMPER & FLOW SW	1	20	21-	•	- 22	20	1	LIV-10-1, LIV-10-2 (MAOK)	1.0	
	2.0	FEATERS / NACIUM RECILATORS]	1	20	23 —		-24	20	1	SKP-307		4.5
1.5		RECP / CHLORINE DRIP LEG HEATERS	1	20	25 —	•	-26	20	1	SAP-ZOZ	4.5	
	1.5	KZCZ – /CALORINZ DRIP/LZG/HEATERS	1	20	27 –		- 28	20	1	SPARE		_
1.2		LIGHTS – POST TOP (#1 & #2)	1	20	29 —	•	- 30	20	1	SPARE	-	
	3.0	RECP - POST TOP (#1, #2, & #5)	1	20	31 -	+	- 32	20	1	SPARE		_
		SPARE	1	20	33 —	•	- 34	20	1	SØDVUM AVØROXIDE /DRY/TAVK AFATER	2.0	
1.0		KPS/RICIPTALI / L2/SCALE, BAS/LEAKS	1	20	35 -		- 36	20	1	SOMM/HXDROXIDE/DAY/TANK/HPATER		2.0
		SPARE	1	20	37 —	•	- 38	20	1	SPARE	_	
		SPARE	1	20	39 —		- 40	20	1	SPARE		_
		SPARE	1	20	41-	• <u> </u>	- 42	20	1	SPARE	_	

TOTAL EXISTING AMPS: BUS A<u>39.8</u> BUS B<u>46</u> CONNECTED Kva<u>16.6</u> TOTAL AMPS AFTER LOADS REMOVAL: BUS A 9.7 BUS B 11.0 CONNECTED Kvg 24.8 RATED VOLTAGE: 120/240 480/277 1 PHASE, 3 WIRE BRANCH POLES 12 20 30 42 RATED AMPS: 100 225 400 CABINET: SURFACE FLUSH NEUTRAL BUS 🔳 100% 🔲 150% 🔲 200% 📕 GROUND BUS 📕 HINGED DOOR 📕 KEYED DOOR LATCH 🛛 LOCATION MAINTENA ENCLOSURE TYPE 🔳 NEMA 1 🗌 NEMA 3R CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES □ MAIN LUGS ONLY MAIN 125_ AMPS ■ BREAKER □_____ TO BE GFI BREAKERS PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ____18,000 AMPS SYMMETRICAL. COPPER BUSSES | MAIN LUGS ___

MODIFIED LIGHTING PANELBOARD 'LP-301'

BUS	AMPS	1.045				BUS				
А	В	LOAD	POLES	AMPS		A B		AMPS	POLES	LOAD
3.0		LIGHTS – ELEC, CLERK OFFICE	1	20	1 -	•	- 2	20	1	RECP – ELEC, PUMP, CL
	4.5	RECP – ELEC, CLERK OFFICE	1	20	3 –		- 4	20	1	RECP – ELEC, SCRUBBER
1.9		LIGHTS – EXTERIOR WALL PACKS	1	20	5 –	•	- 6	20	1	LIT-05-1, LIT-05-2
	1.5	RECEPT – NEAR CU-6	1	20] 7 —		- 8	20	1	SPARE
—		SPARE	1	20	9 –	•	-10	20	1	SPARE
	_	SPARE	1	20	11 -		-12	20	1	NETWORK CABINET
_		SPARE	1	20	13 –	•	-14	20	1	SPARE
	-	SPARE	1	20	15 -		-16	20	1	ACCESS CONTROL PANEL
1.0		UPS	1	20	17 –	•	-18	20	1	SPARE
	2.0	LIGHT – POST TOP (#5)	1	20	19 —		- 20	20	1	SPARE
0.5		SPRINKLER SYSTEM TAMPER & FLOW SW	1	20	21 –	•	-22	20	1	SPARE
	-	SPARE	1	20	23 —		-24	20	1	SPARE
—		SPARE	1	20	25 —	•	-26	20	1	SPARE
	-	SPARE	1	20	27 –		- 28	20	1	SPARE
1.2		LIGHTS – POST TOP (#1 & #2)	1	20	29 —	•	- 30	20	1	SPARE
	3.0	RECP - POST TOP (#1, #2, & #5)	1	20	31 —		- 32	20	1	SPARE
		SPARE	1	20	33 —	•	- 34	20	1	SPARE
_		SPARE	1	20	35 —		- 36	20	1	SPARE
		SPARE	1	20	37 –		- 38	20	1	SPARE
	-	SPARE	1	20	39 —		- 40	20	1	SPARE
—		SPARE	1	20	41 -	•	- 42	20	1	SPARE

TOTAL AMPS: BUS A 14.6 BUS B 20.0 CONNECTED Kva 4.2

RATED VOLTAGE: 120/240 480/277 1 PHASE, 3 WIRE	BRANCH POLES 12 20 30 42									
RATED AMPS: 100 225 400 CABINET:	SURFACE SURFACE									
NEUTRAL BUS ■ 100% □ 150% □ 200% ■ GROUND BU	S HINGED DOOR KEYED DOOR LATCH	LOCATION: CHEMICAL								
CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES ENC										
□ MAIN LUGS ONLY MAIN <u>125</u> AMPS ■ BREAKER □	TO BE GFI BREAKERS									
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT IS	SC OF18,000 AMPS SYMMETRICAL.									
	COPPER BUSSES MAIN LUGS	SETS SIZE:								

PROVIDE TYPE WRITTEN NEW PANEL SCHEDULE AFTER PANEL MODIFICATION.

TION: CHEMICAL BUILDING - ELEC ROOM
FENANCE BUILDING - ELEC ROOM
_ SETS SIZE:

BUS AMPS A B L FEED, STORAGE 6.0 ER, SODIUM HYDRO. 6.0 1.0 1.5 1.5

ON: CHEMICAL BUILDING - ELEC ROOM NANCE BUILDING - ELEC ROOM

BUS AMPS BUS A B C POLES AMPS AMPS POLI LOAD A B C 1 20 1 🔶 2 20 LIGHTS – PARTS AREA 3.1 3.2 LIGHTS – MECHANICAL WORK AREA 1 20 3 + + 4 20 6.3 LIGHTS – MECHANICAL WORK AREA 1 20 5 6 20 LIGHTS - WORK AREA RM-107, TOILET 1 20 7 + 8 2.0 1.9 LIGHTS – WORK AREA RM–109, CLOSET 1 | 20 | 9 + + 10|10.0 |CU-6 2 | 20 | 11 + 12 | 20 | 10.0 5.8 EXHAUST FAN EF-9 (ELEC RM) 1 | 20 | 15 + + 16 | 20 – SPARE 1 <u>20</u>17 + + + 18 30A WELDING RECEPTACLE OUTLET 2 | 30 | 19 - 20 | 18 18 | ____ 5.8 EXHAUST FAN EF-7 (PARTS AREA) 1 20 23 24 EXHAUST FAN EF-6 (TOILET) 4.4 1 | 20 | 25 + 26 | 20 1.0 FIRE ALARM PANEL (FACP-4 & GONG) 1 1 20 27 + 28 20 – SPARE 1 20 29 4 30 SPARE 1 20 31 + 32 _ _ 1 20 33 + 34 30 SPARE _ – SPARE 1 20 35 + 36 _ SPARE 1 20 37 + 38 30 1 | 20 | 39 + + 40 | SPARE _ – SPARE 1 20 41 + 42 _ _ _

TOTAL CONNECTED AMPS: BUS A 74.3 BUS B 66.6 BUS C 77.4 CONNECTED Kva 27.8TOTAL RUNNING AMPS: BUS A 59.4 BUS B 53.3 BUS C 61.9 CONNECTED Kva 22.24

RATED VOLTAGE: ■ 120/208 □ 480/277 3 PHASE, 4 WIRE BRANCH POLES □ 12 □ 20 □ 30 ■ 42										
RATED AMPS: ■ 100 □ 225 □ 400 □ CABINET: ■ SURFACE □ FLUSH										
NEUTRAL BUS ■ 100% 🗌 150% 🗌 200% 📕	GROUND BUS	NGED DOOR 🛛 📕 KEY	ED DOOR LATCH	LOCATION: MAINTENANCE BLDG – MECH. WORK AREA						
CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES ■EXTERNAL SPD ENCLOSURE TYPE ■ NEMA 1 □ NEMA 3R □ NEMA 4X □									
□ MAIN LUGS ONLY MAIN <u>100</u> AMPS ■ BREAKER		TO BE GFI BREAKERS								
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF18,000 AMPS SYMMETRICAL.										
APPROVED MF'RS. SEE SPECIFICATION.		COPPER BUSSES	MAIN LUGS	SETS SIZE:						

EXISTING PANELBOARD "F" SCHEDULE

B	JS AM	PS	LOAD			BUS						BU	S AMF	S
Α	В	С	LUAD	PULES	POLES AMPS A B C			AMPS POLES		LOAD	A	В	С	
3.0			FLUORIDE CONTROL PANEL (FCP)	1	20	1 -		- 2	20	1	METERING PUMP SKID	8.0		
	2.9		FLUORIDE ANALYZER	1	20	3 —	— —	- 4	20	1	FULIORIDE SHED RECEPTACIES		6.0	
		3.3	FLUORIDE SHED LIGHTING	1	20	5 —		- 6	20	3	NEW EXHAUST FAN			3.7
3.3			FLUORIDE SHED LIGHTING	1	20]7 –		- 8				3.7		
				1	20	9 —		+10					3.7	
				1	20	11-		∳ -12	20	2	EXISTING SAMPLE PUMP			4.9
				1	20	13-		+14				4.9		
				1	20	15 —		+16	20	2	EXISTING SAMPLE PUMP		4.9	
				1	20	17 —		- 18						4.9
				1	20	19-		+20		1				
				1	20	21—		+22	20	1				
				1	20	23—		• -24	30	1				
				1	20	25-		-26	30	1				
				1	20	27 —		-28	30	1				
				1	20	29-		• -30	30	1				

TOTAL CONNECTED AMPS: BUS A 22.9 BUS B 17.5 BUS C 16.8 CONNECTED Kva 6.8

RATED VOLTAGE: 120/208 480/277 3 PHASE, 4 WIRE	BRANCH POLES 12 20 30 42							
RATED AMPS: 100 225 400 CABINET:	SURFACE FLUSH							
NEUTRAL BUS 📕 100% 🗌 150% 🗌 200% 📕 GROUND BUS	HINGED DOOR KEYED DOOR LATCH LOCATION: EXTERIOR WALL - FLUORIDE BUILDING							
CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	ENCLOSURE TYPE 🗌 NEMA 1 🔳 NEMA 3R 🗌 NEMA 4X 🗌							
□ MAIN LUGS ONLY MAIN <u>100</u> AMPS ■ BREAKER □	TO BE GFI BREAKERS							
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF	18,000 AMPS SYMMETRICAL.							
APPROVED MF'RS. SEE SPECIFICATION. COPPER BUSSES MAIN LUGS SETS SIZE:								
PROVIDE TYPE WRITTEN NEW PANEL SCHEDULE AFTER PANEL MODIFICATION.								

KEYED NOTES:

(1) BREAKER SHALL BE LOCKED CLOSED, RED IN COLOR AND LABELED PER CODE.

(2) CONTRACTOR SHALL REMOVE EXISTING 20A, 1P BREAKERS FOR EXISTING EXHAUST FAN AT FLUORIDE BUILDING AND PROVIDE AND INSTALL NEW 20A, 3P BREAKER AT THE AVAILABLE SPACE IN THE EXISTING PANEL. MATCH STYLE AND AIC RATING WITH EXISTING BREAKERS.

NEW PANELBOARD SCHEDULE 'LP-302'

		BUS AMPS				
LES	LOAD	А	В	С		
1	RECP – PARTS AREA	4.5				
1	RECEPT – MECHANICAL WORK AREA		6.0			
1	RECEPT – WORK AREA RM-109			4.5		
1	RECEPT – WORK AREA RM-107	4.5				
1	RECEPT – NEAR CU–7		3.0			
2 上 1	AHU-6			3.6		
	<u> </u>	3.6				
1	SECURITY SYSTEM PANEL		1.5			
2	CU-7 AND AHU-7, AHU-8			21.0		
⊥ 2	<u> </u>	21.0				
	SPARE		-			
⊥ 1	<u> </u>			_		
	SPARE	_				
3	EXHAUST FAN EF-8 (MECH. WORK AREA)		3.2			
				3.2		
		3.2				
2	INSTANT HOT WATER (IWH-1)		23			
				23		
3	SPD					

		TETRA TECH	5)	www.tetratech.com	201 EAST PINE STREET, SUITE 1000	UKLANDU, FL. 32801 PHONE: (407) 839-3955 FAX: (407) 839-3970	
HILLERS ELECTRICAL ENGINEERING, INC. 23257 STATE ROAD 7, SUITE 100 BOCA RATON, FLORIDA 33428 (561) 451-9165 (561) 451-4886 FAX LICENSE NO: EB 0006877								
		E	BID		T			
ВΥ								
MARK DATE DESCRIPTION								
Client: ORANGE COUNTY UTILITIES	Proj. Loc.: ORANGE COUNTY, FL	WESTERN REGIONAL WATER SUPPLY FACILITY	-	SCHEDULE - SHEET 1				
Pro De:	ojec sigi	et No.: ned By		200-1	100	34-18	3002 TW TN	
		ed By)'	7	PFH	
					ן 	/		

TYPE	VOLTS	DESCRIPTION	MANUFACTURER	CATALOG NO	LAMPS	MOUNTING	REMARKS
1	120	2'x4' EDGE-LIT FLAT PANEL, HIGH EFFICACY	COLUMBIA LIGHTING	CFP24-4135-HE	40W LED	RECESSED	
2	120	4X ENCLOSURE EXIT SIGN FOR WET, DAMP, CORROSIVE AREA NICAD BATTERY, TEST SWITCH	DUALLITE	LN4XRWE-I	1-3.81W LED	PENDANT/ SURFACE	8' MOUNTING HEIGHT, SINGLE OR DOUBLE SEE PLANS.
3	120	LED HIGH BAY(JHBL-35K NARROW DISTRIBUTION)	LITHONIA LIGHTING	JHBL 12000LM ACL ND 35K 70CRI	100W/35K LED	PENDANT	MOUNT 15' ABOVE FINISHED FLOOR
4	120	EMERGENCY LIGHT WITH NICAD BATTERY FOR HARSH ENVIRONMENTS, GREY THERMOPLASTIC POLYCARBONATE CASE	DUALLITE	N4X7-12V-50-I	2-9W LAMP	SURFACE	8' MOUNTING HEIGHT
5	120	EXTERIOR LIGHT WITH PHOTOCELL	HUBBELL OUTDOOR LIGHTING	LMC-18LU-5K-PC(120)	18LED, 44.5W	WALL	MOUNT 6" ABOVE DOOR. VERIFY COLOR WITH ARCHITECT
6	120	EMERGENCY LIGHT WITH NICAD BATTERY	DUALLITE	LZ20N-03L	2-3W LED	SURFACE	TYPICAL MOUNT 8'. MOUNT 7' IN OFFICES.
7	120	LXEN NARROW ENCLOSED AND GASKETED 7" X 51" LED	COLUMBIA LIGHTING	LXEN4-40LW-RFA-EU	4-37W LED	SUSPENDED/ WALL/CEILING	11' MOUNTING HEIGHT, USE UNISTRUT FOR MOUNTING.
8	120	LXEN NARROW ENCLOSED AND GASKETED 7" X 51" LED	COLUMBIIA LIGHTING	LXEN4-40LW-RFA-EU	4-37W LED	SUSPENDED	9' MOUNTING HEIGHT. USE UNISTRUT FOR MOUNTING.
9	120	EXIT LIGHT WITH NICAD BATTERY	DUALLITE	LXURWEI	LED LAMPS	SURFACE	8' MOUNTING HEIGHT, SINGLE & DOUBLE SEE PLANS. SIDE MOUNT KIT AS NEEDED.
10							

NOTES:

1. SEE FIXTURE MANUFACTURER'S RECOMMENDATION FOR MOUNTING

OF FIXTURES. PROVIDE ALL NECESSARY HARDWARE.

2. PROVIDE SPARE LIGHT FIXTURE (LUMINAIRE) AND LIGHTING SENSORS AS PER SPECIFICATION 16500 AND 16510.

	CIRCUIT SCHEDULE 1PH, 2W	
CKT I.D.	CONDUIT AND CONDUCTOR SIZE	CKT AMPS
[A2]	[3/4 "C, 2#14, 1#14G]	15
[B2]	3/4 "C, 2#12, 1#12G	20
[C2]	3/4 "C. 2#10. 1#10G	30
[D2]	3/4 °C, 2#8, 1#10G	40
[E2]	[3/4 "C, 2#6, 1#10G]	50
[F2]	[1"C, 2#4, 1#10G]	60
[G2]	$\begin{bmatrix} 1 \\ 2 \\ 1 \\ 2 \\ 1 \\ 4 \\ 8 \\ 1 \\ 4 \\ 8 \\ 1 \\ 4 \\ 8 \\ 1 \\ 1 \\ 4 \\ 8 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$	70
[H2]	[1 1/4 "C, 2#3, 1#8G]	80
[J2]	[1 1/4 "C, 2#2, 1#8G]	90
[K2]	[1 1/4 "C, 2#1, 1#8G]	100
[L2]	[1 0, 2#4, 1#00] [1 1/4 "C, 2#3, 1#8G] [1 1/4 "C, 2#2, 1#8G] [1 1/4 "C, 2#1, 1#8G] [1 1/2 "C, 2#1/0, 1#6G] [1 1/2 "C, 2#2/0, 1#6G]	150
[M2]	[1 1/2 "C, 2#2/0, 1#6G]	175
[N2]	[2"C, 2#3/0, 1#6G]	200
[P2]	[2"C. 2#4/0. 1#4G]	225
[Q2]	[2 1/2 "C, 2-250KCMIL, 1#4G]	250
[R2]	[2 1/2 "C, 2-250KCMIL, 1#4G] [2 1/2 "C, 2-350KCMIL, 1#4G]	300
[S2]		

	CIRCUIT SCHEDULE 3PH, 3W OR 1PH, 3W			CIRCUIT SCHEDULE 3PH, 4W		[AA] – [3"C, 1–FIBER OPTIC CABLE SUPPLIED BY I& [BB] – [4"C, 2–FIBER OPTIC CABLE SUPPLIED BY I&
CKT I.D.	CONDUIT AND CONDUCTOR SIZE	CKT AMPS	CKT I.D.	CONDUIT AND CONDUCTOR SIZE	CKT AMPS	[CC] – [2–1"C EMPTY W/ PULL STRING]
[A3]	[3/4 "C, 3#12, 1#12G]	20	[A4]	[3/4 "C, 4#12, 1#12G]	20	[TT] - [1"C, 2-WIRE BELDEN 8471 CABLE]
[B3]	[3/4 "C, 3#10, 1#10G]	30	[B4]	[3/4 "C, 4#10, 1#10G]	30	[Y1] - [3/4"C, 1-CAT 6 CABLE]
[C3]	[1"C, 3#8, 1#10G]	40	[C4]	[1"C, 4#8, 1#10G]	40	[Y2] — [1"C, 2—CAT 6 CABLE]
[D3]	[1"C, 3#6, 1#10G]	50	[D4]	[1"C, 4#6, 1#10G]	50	
[E3]	[1 1/4 "C, 3#4, 1#10G]	60	[E4]	[1 1/4 "C, 4#4, 1#10G]	60	1 FIBER OPTIC = 6 PAIRS F.O. CABLE (SEE SPECIFIC
[F3]	[1 1/4 "C, 3#4, 1#8G]	70	[F4]	[1 1/4 "C, 4#4, 1#8G]	70	[DD] – [2"C EMPTY W/ PULL STRING]
[G3]	[1 1/4 "C, 3#3, 1#8G]	80	[G4]	[1 1/2 "C, 4#3, 1#8G]	80	
[H3]	[1 1/2 "C, 3#2, 1#8G]	90	[H4]	[1 1/2"C, 4#2, 1#8G]	90	[EE] – [1"C EMPTY W/ PULL STRING]
[J3]	[1 1/2 "C, 3#2, 1#8G]	100	[J4]	[1 1/2"C, 4#2, 1#8G]	100	
[K3]	[1 1/2 "C, 3#1/0, 1#6G]	150	[K4]	[2"C, 4#1/O, 1#6G]	150	
[L3]	[2"C, 3#2/O, 1#6G]	175	[L4]	[2"C, 4#2/O, 1#6G]	175	
[M3]	[2"C, 3#3/O, 1#6G]	200	[M4]	[2 1/2 "C, 4#3/0, 1#6G]	200	
[N3]	[2 1/2 "C, 3#4/O, 1#4G]	225	[N4]	[2 1/2 "C, 4#4/0, 1#4G]	225	
[P3]	[2 1/2 "C, 3-250KCMIL, 1#4G]	250	[P4]	[3"C, 4-250KCMIL, 1#4G]	250	
[Q3]	[3"C, 3-500KCMIL, 1#3G]	300	[Q4]	[3 1/2"C, 4-350KCMIL, 1#3G]	300	
[R3]	2 EA.[2 "C, 3-3/0, 1#3G]	400	[R4]	2 EA.[2 1/2 "C, 4#3/0, 1#3G]	400	
[S3]	2 EA.[2 1/2 "C, 3-250KCMIL, 1#2G]	500	[S4]	2 EA.[3"C, 4-250KCMIL, 1#2G]	500	
[T3]	2 EA.[3"C, 3-350KCMIL, 1#1G]	600	[T4]	2 EA.[4"C, 4-350KCMIL, 1#1G]	600	
[U3]	2 EA.[4"C, 3-500KCMIL, 1#1/0G]	700	[U4]	2 EA.[4"C, 4-500KCMIL, 1#1/0 G]	700	
[V3]	3 EA.[3"C, 3-350KCMIL, 1#1/0G]	800	[V4]	<u>3 EA.[4"C, 4-350KCMIL, 1#1/0 G]</u>	800	
[W3]	3 EA.[3 1/2"C, 3-500KCMIL, 1#2/0G]	1000	[W4]	<u>3 EA.[4"C, 4—500KCMIL, 1#2/0 G]</u>	1000	
[X3]	4 EA.[3"C, 3-350KCMIL, 1#3/0G]	1200	[X4]	4 EA.[4"C, 4-350KCMIL, 1#3/0 G]	1200	
[Y3]	5 EA.[4"C, 3-500KCMIL, 1#4/0G]	1600	[Y4]	5 EA.[4"C, 4-500KCMIL, 1#4/0 G]	1600	
[Z3]	6 EA.[4"C,3-500KCMIL,1-250KCMILG]	2000	[Z4]	6 EA.[4"C, 4-500KCMIL, 1-250KCMIL G	2000	

YARD CONDUIT SCHEDULE

NO.	FROM	ТО	REMARKS
YC01	FACP-4 (MAINTENANCE – CLERK)	FLUORIDE BUILDING (SLC CIRCUIT – IN)	SEE DRAWING F002, E009
YCO2	FACP-4 (MAINTENANCE – CLERK)	FLUORIDE BUILDING (SLC CIRCUIT – OUT)	SEE DRAWING F002, E009
YCO3	FACP-4 (MAINTENANCE – CLERK)	FLUORIDE BUILDING (NAC CIRCUIT – IN)	SEE DRAWING F002, E009
YC04	FACP-4 (MAINTENANCE – CLERK)	FLUORIDE BUILDING (NAC CIRCUIT – OUT)	SEE DRAWING F002, E009
YC05	STUB-UP IN MAINTENANCE - CLERK OFFICE	OUTSIDE FLUORIDE BUILDING	2-1"C SPARE W/ PULL STRING.
YC06	EXTERIOR J-BOX (MAINTENANCE BLDG)	EXTERIOR J-BOX (SODIUM HYPO. BUILDING)	SEE DRAWING E006
YC07	EXTERIOR J-BOX (MAINTENANCE BLDG)	EXTERIOR J-BOX (SODIUM HYPO. BUILDING)	SEE DRAWING E006

NOTE:

1. SOME SPARE CONDUITS ARE NOT SHOWN ON RISER DIAGRAMS BUT PROVIDE AS PER REMARKS COLUMN.

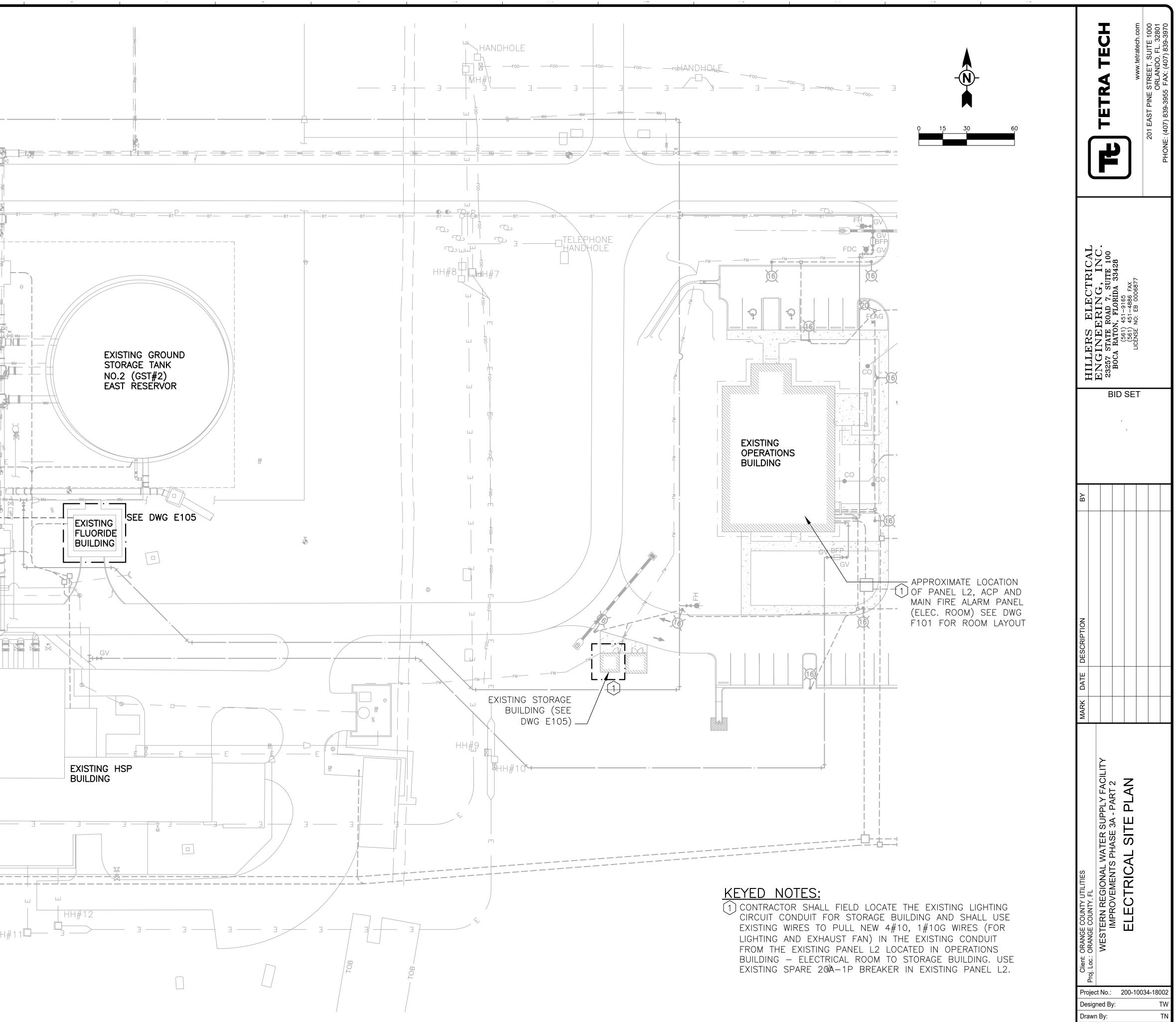
	
	CUIT SCHEDULE
COI	NTROL, INSTRUMENTATION
СКТ	CONDUIT AND CONDUCTOR SIZE
I.D.	
[A1]	[3/4 "C, 2#14, 1#14G]
[B1]	[3/4 "C, 3#14, 1#14G]
[C1]	[3/4 "C, 4#14, 1#14G]
[D1]	[3/4 "C, 5#14, 1#14G]
[E1]	[3/4 "C, 6#14, 1#14G]
[F1]	[3/4 "C, 7#14, 1#14G]
[G1]	[3/4 "C, 9#14, 1#14G]
[H1]	[1"C, 11#14, 1#14G]
[J1]	[1 1/4"C, 20#14, 1#14G]
[K1]	[1"C, 7/C TYPE A]
[L1]	[1 1/4"C, 12/C TYPE A]
[M1]	[1 1/2 "C, 19/C TYPE A]
[N1]	[1 1/2"C, 30#14, 1#14G]
[P1]	[2"C, 40#14, 1#14G]
[Q1]	[3/4 "C, 1-#16, TW PR]
[R1]	[3/4 "C, 1-TYPE B, TW SHLD PR]
[S1]	[3/4 "C, 2-TYPE B, TW SHLD PR]
[T1]	[1"C, 3-TYPE B, TW SHLD PR]
[U1]	[1 1/4 "C, 4-TYPE B, TW SHLD PR]
[V1]	[2 "C, 11-TYPE B, TW SHLD PR]
[W1]	[1"C, 1-BELDEN 3085A DEVICENET] [2 1/2 "C, 100#14, 1#12G]
[X1]	$\begin{bmatrix} 2 & 1/2 & C, & 100\#14, & 1\#12G \end{bmatrix}$
[Y1]	[3/4"C, 1-CAT 6e CABLE] [1"C, 1-RTD TYPE CABLE]
[Z1]	LIC, 1-RID IYPE CABLE

′ |&C] [3%]

CIFICATION 13300)

TECH E STREET, SUITE 1000 ORLANDO, FL. 32801 *TETRA* LERS ELECTRICAL GINEERING, INC. HILL] ENG: 23257 BID SET • • NAL WATER SUPPLY FACIL ENTS PHASE 3A - PART 2 OULE - SHEET 2 TERN REGIONAL WATIN THE IMPROVEMENTS PH Project No.: 200-10034-18002 Designed By: Drawn By: Checked By: PFH E008

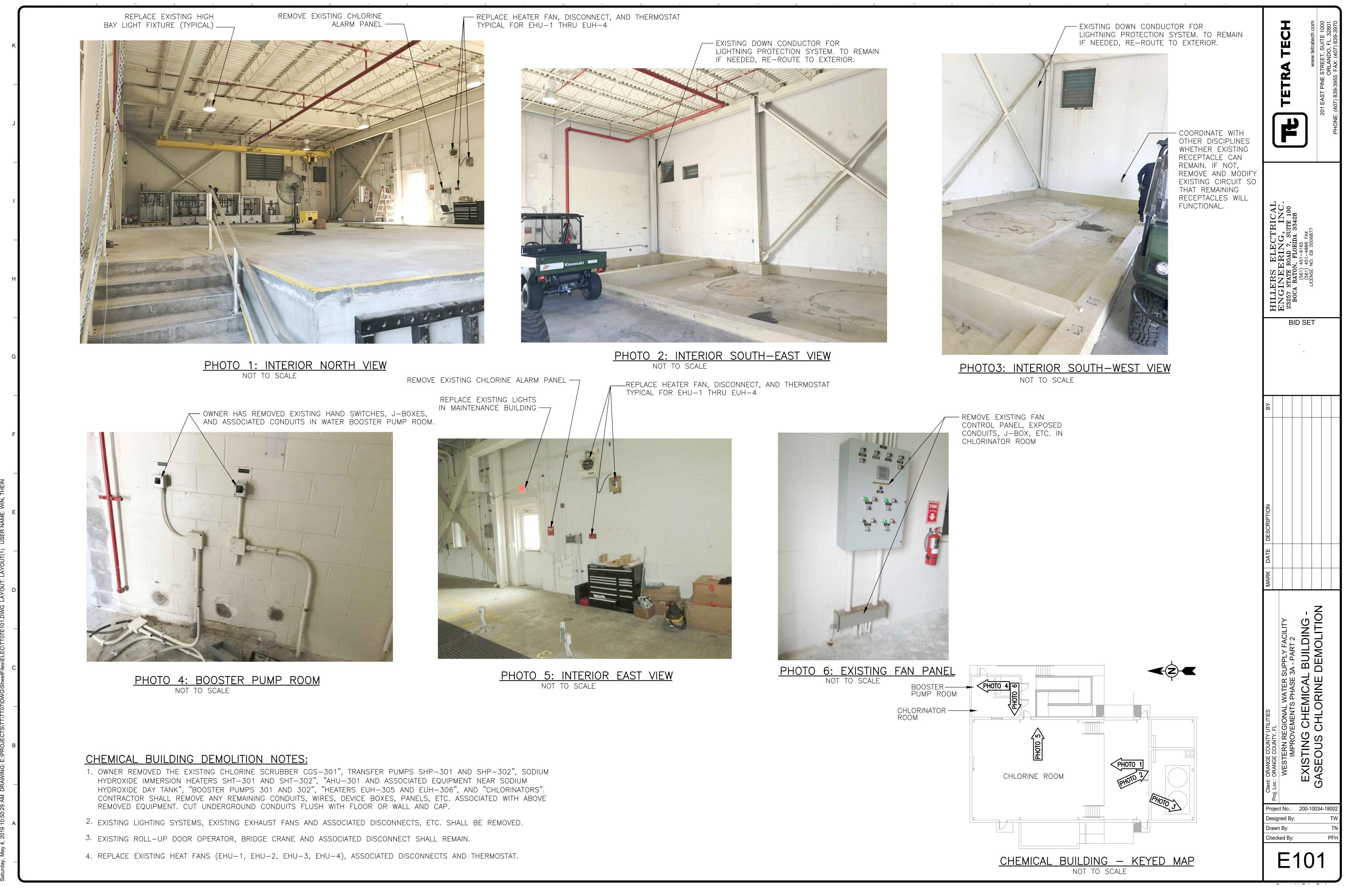
סע ער ______WM_______WM______WM______WM______WM_____ FDC **1** 6" BFP BFP 2" GV 2" GV EXISTING GROUND STORAGE TANK EXISTING HYPO PLC PANEL IN NO.1 (GST#1) WEST RESERVOR ELEC. ROOM HYPOCHLORITE - NEW J-BOX BUILDING ON EXTERIOR WALL - LIFT STATION NO.2 _____+| F _____ SEE DWG -E101 - E104 ____ YC06-07 NEW J-BOX-ON EXTERIOR WALL NEW MAINTENANCE NEW UNDERGROUND BUILDING (FORMER EXISTING YC01-05 CHEMICAL BUILDING ^{__}EMH→′18 [₹ IMH-19 _____ HH#11◘─

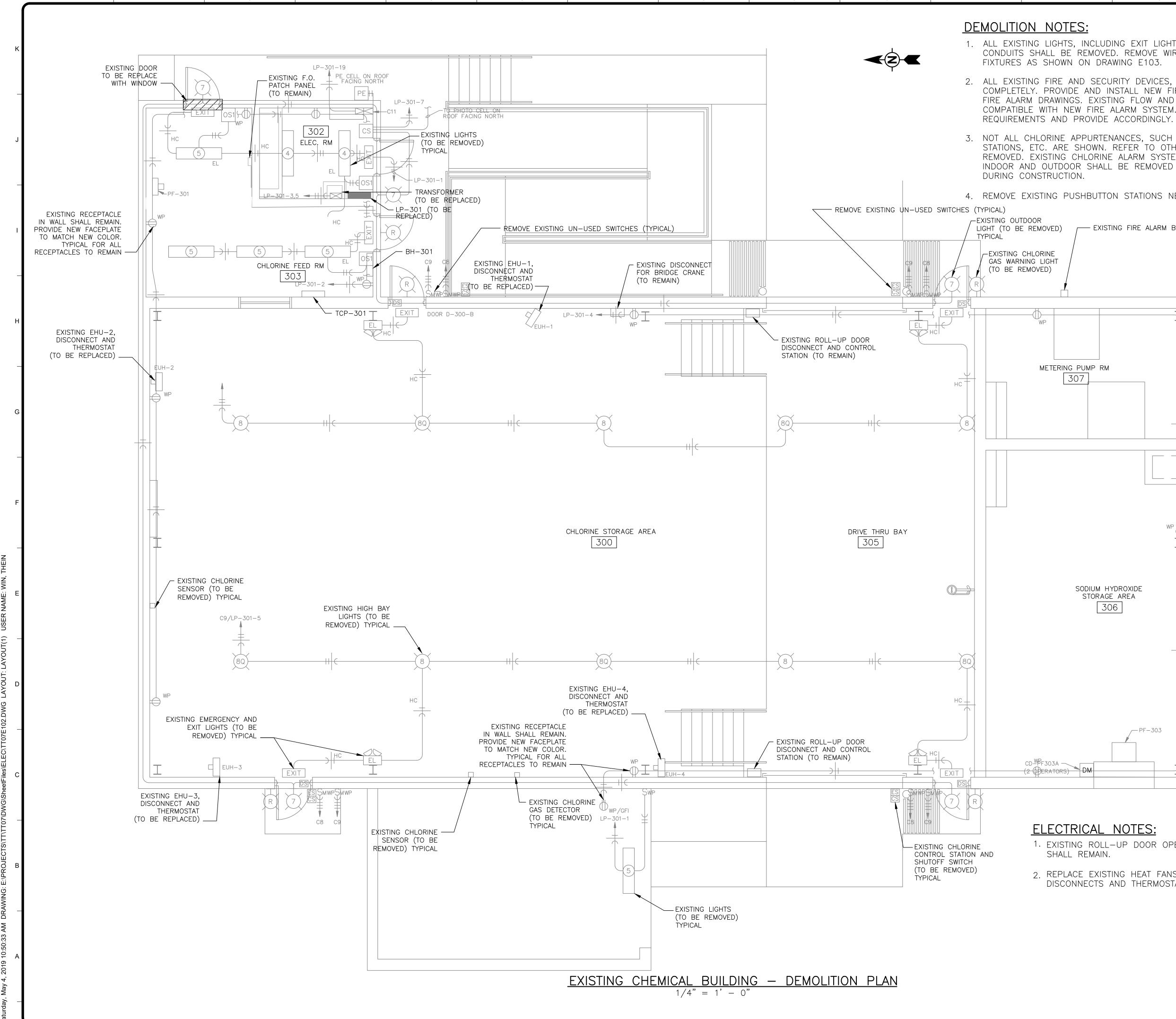


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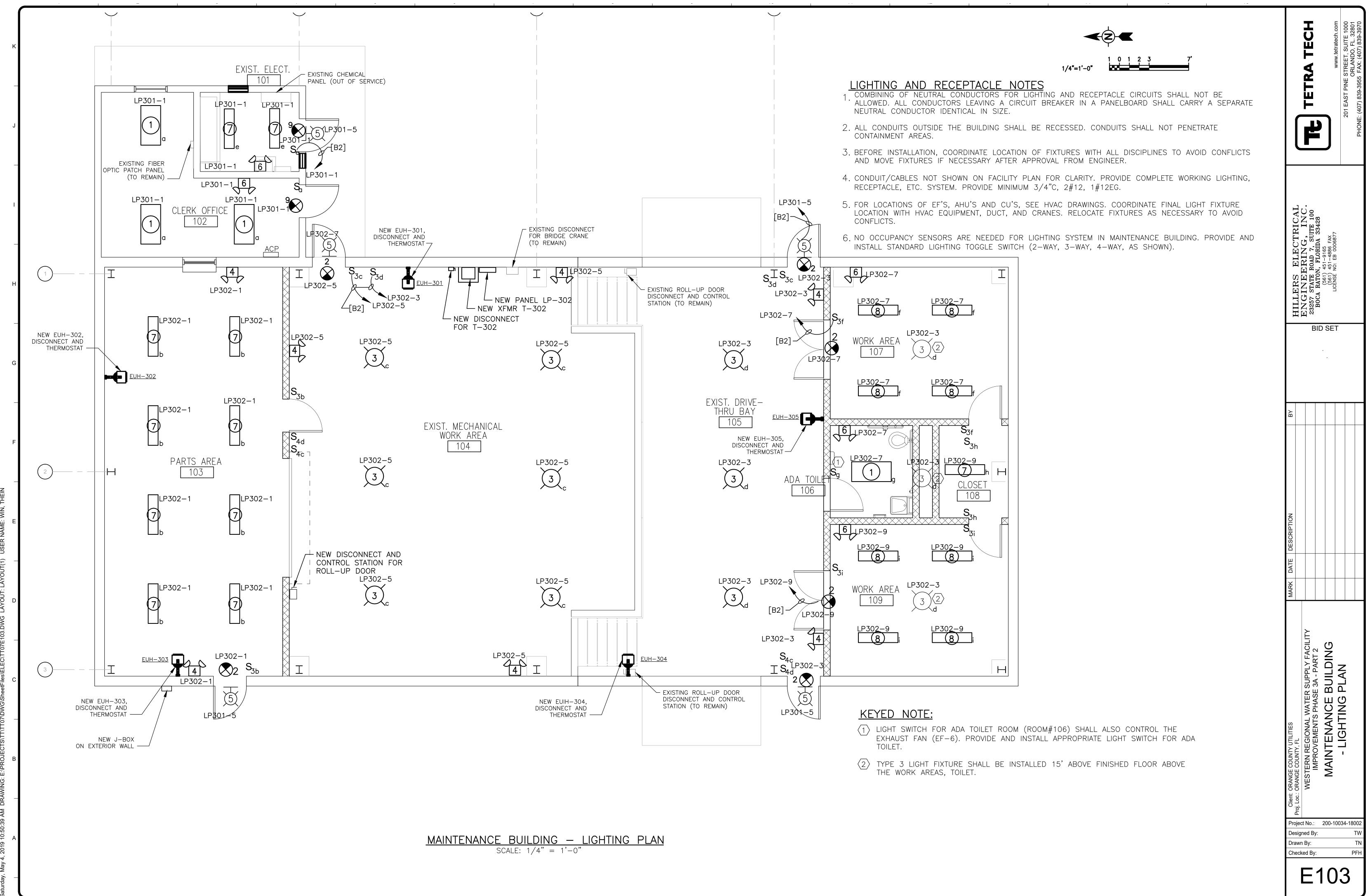


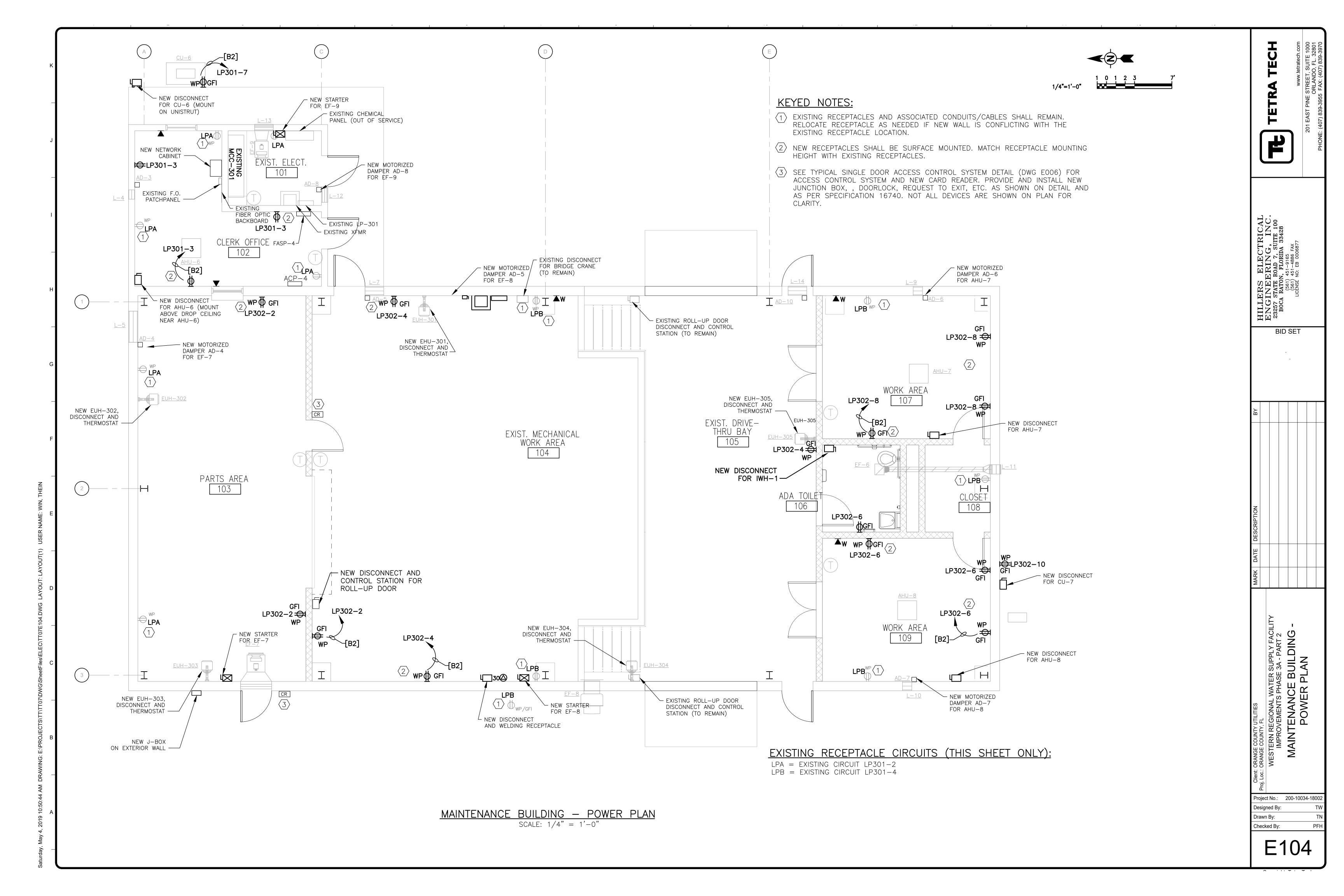


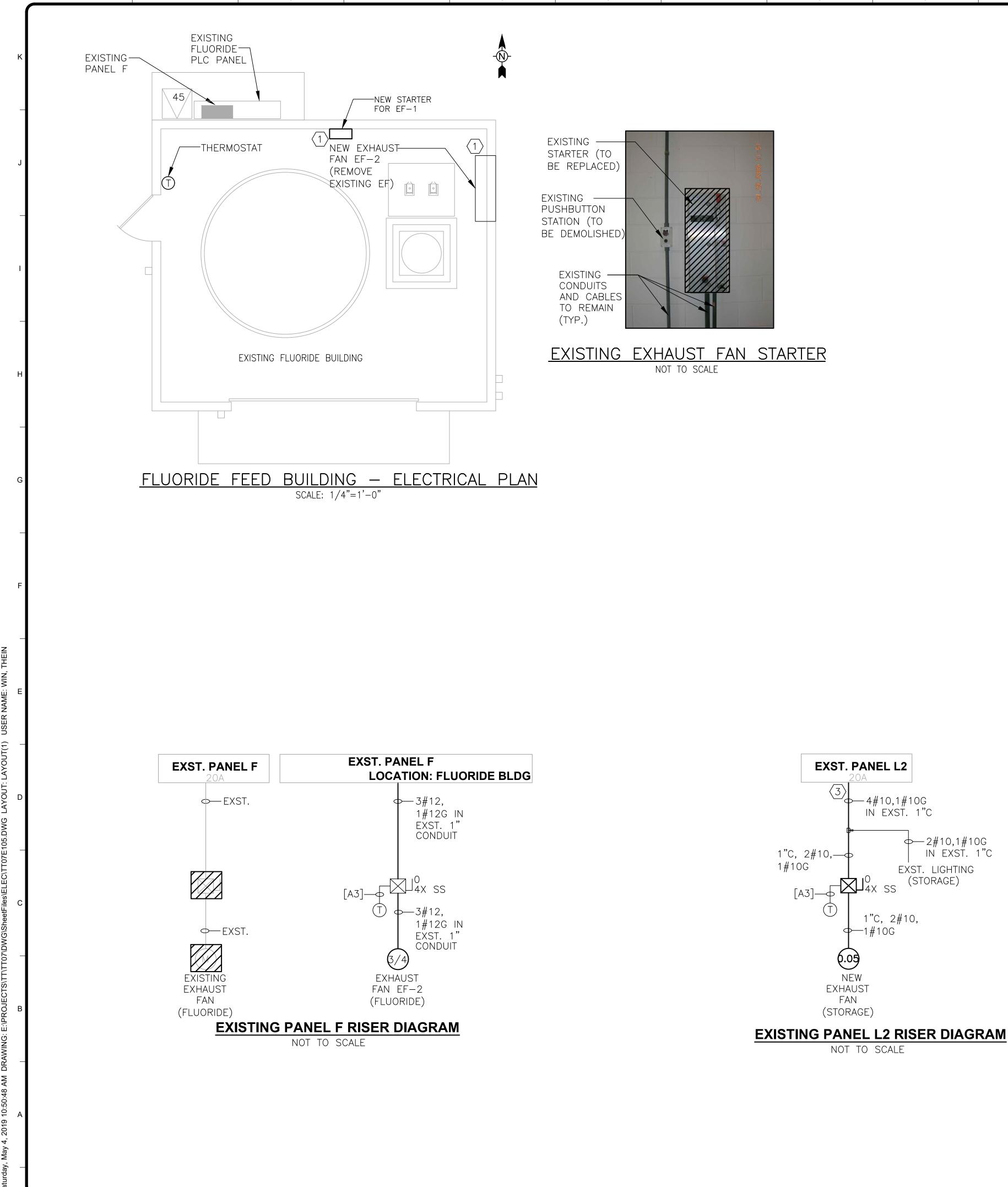
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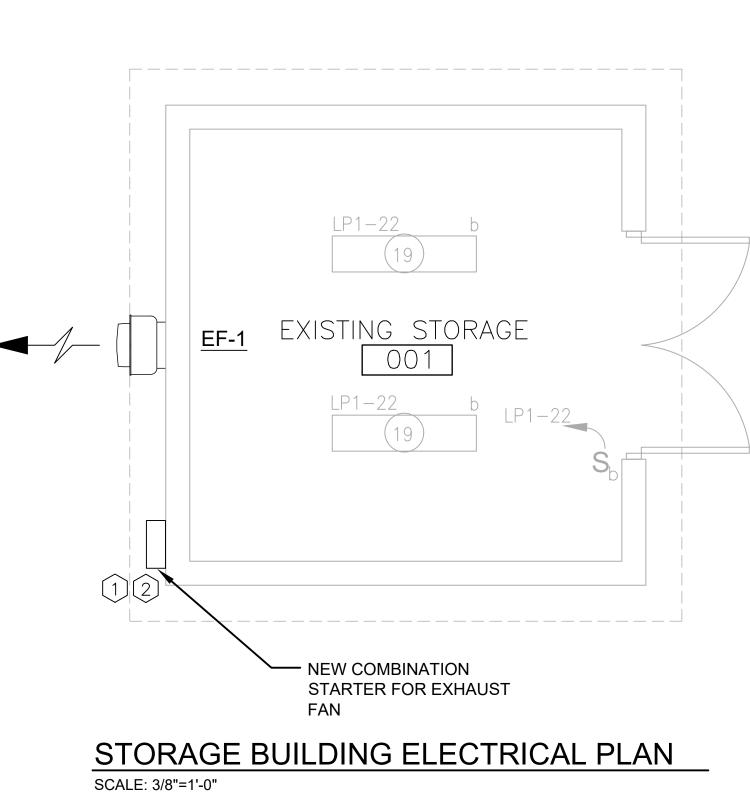
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KEYED NOTE:

- A COMPLETE WORKING SYSTEM IN PLACE.
- OF THE BUILDING.
- BREAKER IN EXISTING PANEL L2.

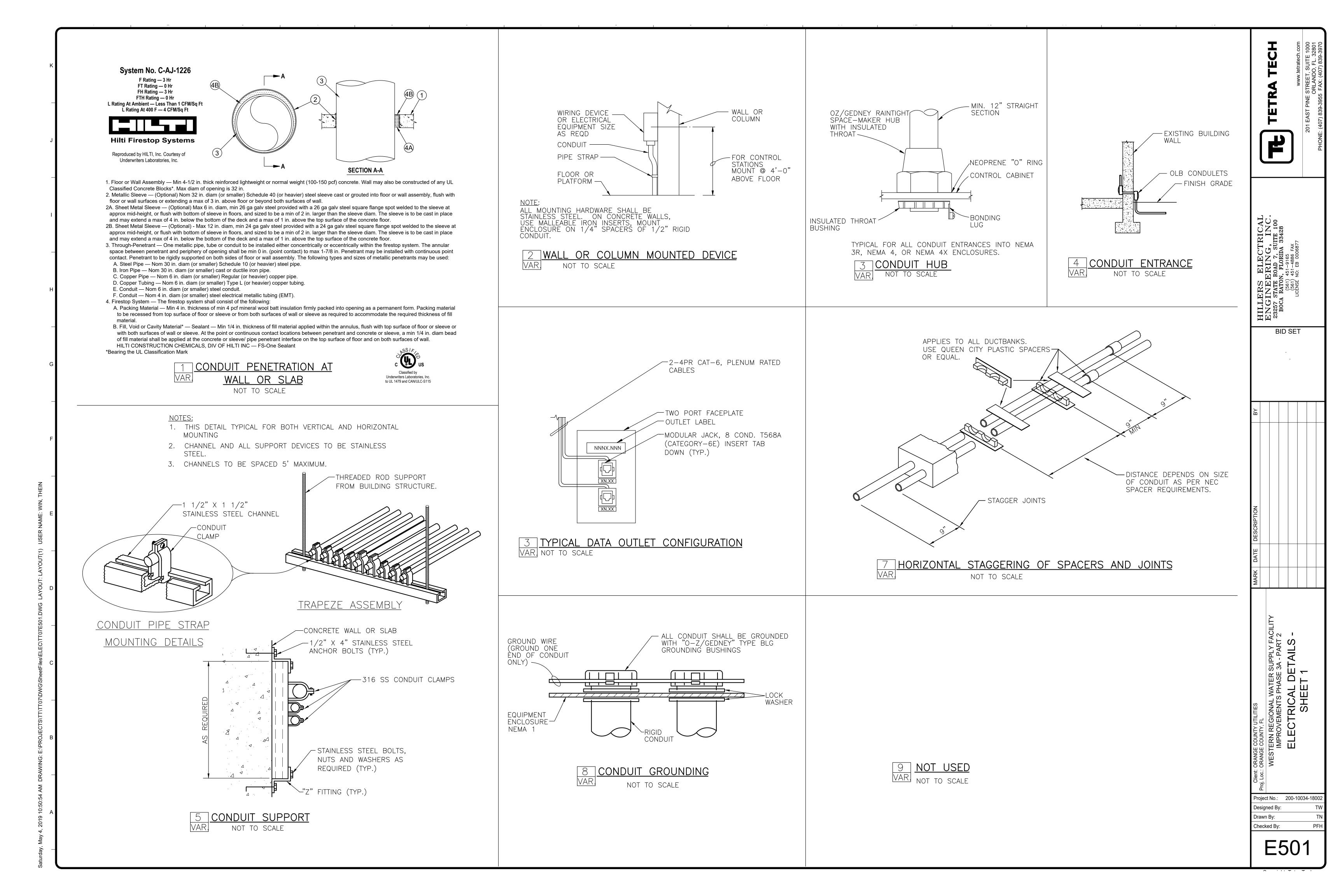
 $\langle 1 \rangle$ contractor shall remove the existing exhaust fan and associated STARTER, PUSHBUTTON, WIRING, ETC. IN THE FLUORIDE FEED BUILDING. EXISTING CONDUITS SHALL REMAIN. PROVIDE AND INSTALL NEW STARTER AT THE SAME LOCATION FOR NEW EXHAUST FAN. EXTEND CONDUITS AS NECESSARY. MAKE ALL NECESSARY CONNECTIONS, TERMINATIONS, ETC. FOR

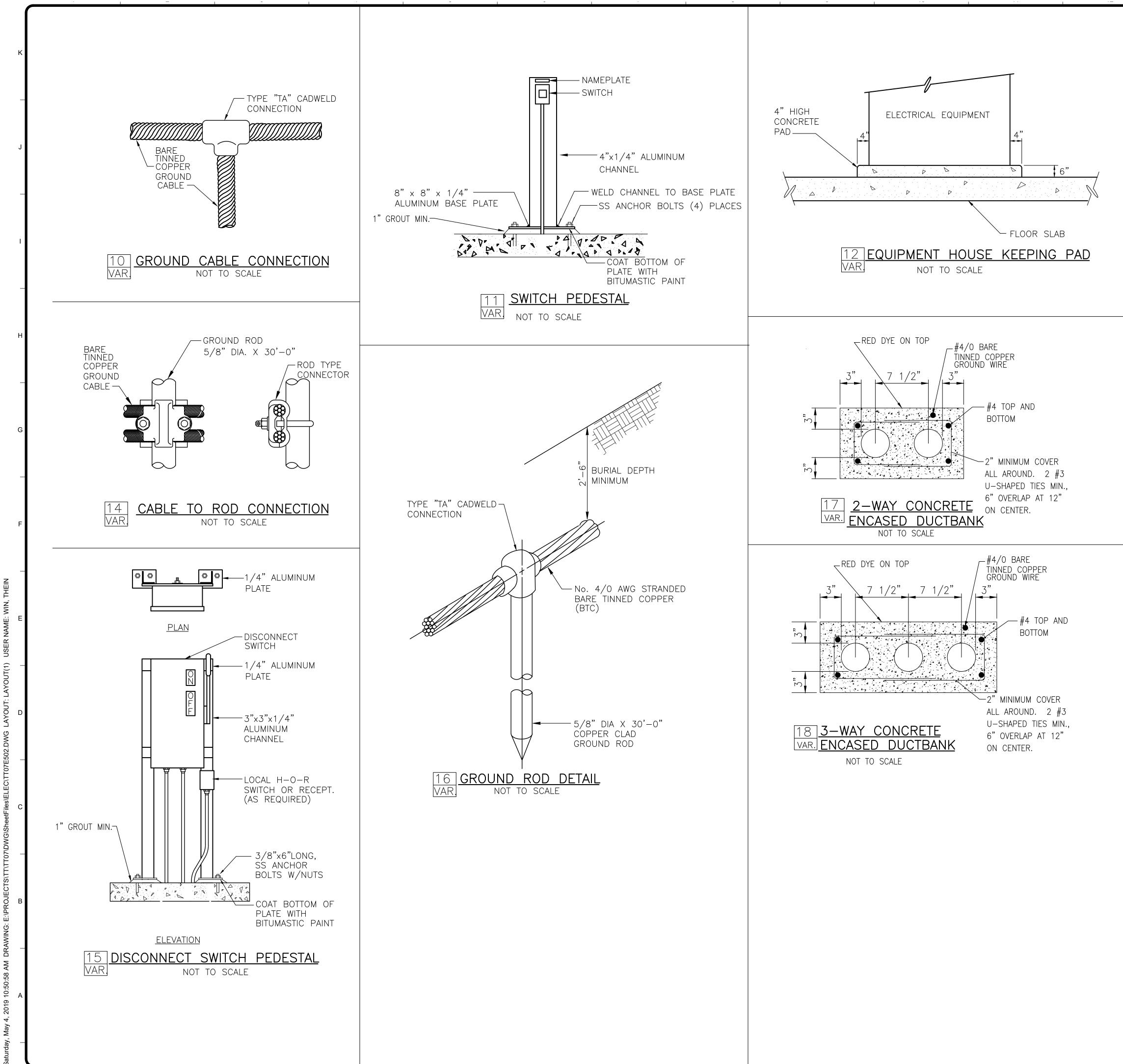
 $\langle 2 \rangle$ contractor shall provide and install New Nema 4x stainless steel STARTER FOR STORAGE BUILDING AND MOUNT THE STARTER EXTERIOR WALL

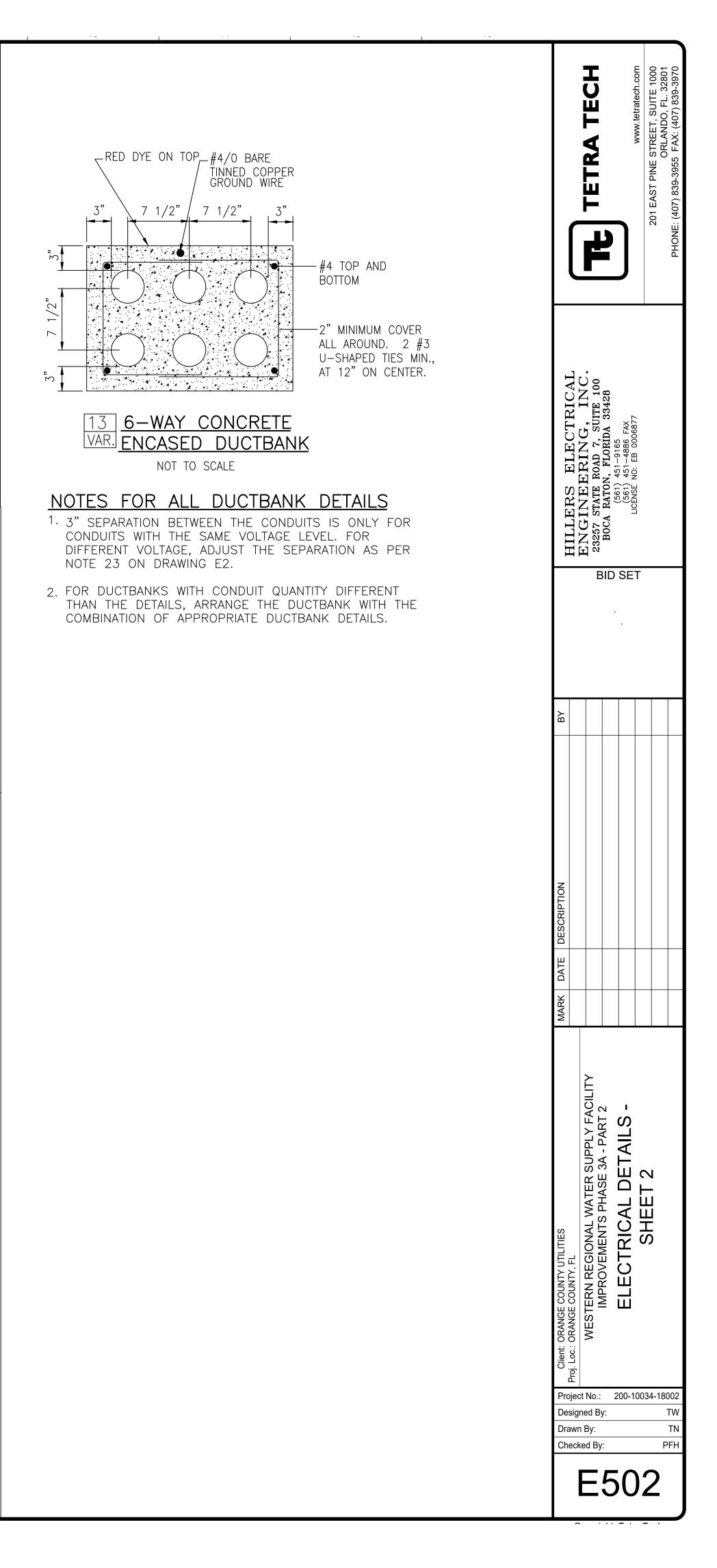
3 CONTRACTOR SHALL FIELD LOCATE THE EXISTING LIGHTING CIRCUIT CONDUIT FOR STORAGE BUILDING AND SHALL USE EXISTING WIRES TO PULL NEW 4#10, 1#10G WIRES (FOR LIGHTING AND EXHAUST FAN) IN THE EXISTING CONDUIT FROM THE EXISTING PANEL L2 LOCATED IN OPERATIONS BUILDING - ELECTRICAL ROOM TO STORAGE BUILDING. USE EXISTING SPARE 20A-1P

		TETRA TECH)	www.tetratech.com	201 EAST PINE STREET, SUITE 1000	ORLANDO, FL. 32801	PHONE: (407) 839-3955 FAX: (407) 839-3970
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MARK DATE DESCR								
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FIRE ALARM AND SECURITY LEGENDS

F	FIRE ALARM PULL STATION
F	FIRE ALARM HORN/STROBE LIGHT
Ð	FIRE ALARM STROBE LIGHT
e	FIRE ALARM SMOKE DETECTOR
	FIRE ALARM HEAT DETECTOR
MM	MONITOR MODULE
RM	RELAY MODULE
ACP	FIRE ALARM CONTROL PANEL
FCA	FIRE ALARM REMOTE ANNUNCIATOR PANEL
ASP	FIRE ALARM SUB CONTROL PANEL
BD T/R	BEAM DETECTOR, T=TRANSMITTER, R=RECEIVER REF=REFERENCE
e _D	DUCT SMOKE DETECTOR
RTS	REMOTE TEST STATION
FD	FIRE/SMOKE DAMPER
	LINE ISOLATOR MODULE
L	LOCK BOX
MD	MOTION DETECTOR
DS	DOOR SWITCH/CONTACT
DDS	OVERHEAD DOOR SWITCH/CONTACT
KP	KEY PAD
SCP	SECURITY CONTROL PANEL
MM	MONITOR MODULE

NOTES:

- 1. FIRE ALARM SHALL BE ADDRESSABLE.

- CABLE ASSEMBLY, ENCLOSURE, OR RACEWAY.

EXCEPTION: 1. FOR A DISTANCE NOT TO EXCEED 10 FT. WHERE THE OUTGOING AND RETURN CONDUCTORS ENTER OR EXIT THE INITIATING DEVICE, NOTIFICATION APPLIANCE, OR CONTROL UNIT ENCLOSURES. 2. SINGLE CONDUIT/ RACEWAY DROPS TO INDIVIDUAL DEVICES OR APPLIANCES.

- SECTIONS)
- ARTICLE 250.
- 48" A.F.F. PER ADA REQUIREMENTS.

- 17. THIS MAINTENANCE BUILDING IS NOT SPRINKLED.
- BEEN PROTECTED.
- THE HVAC/MECHANICAL CONTRACTOR.
- INSTALLED OUTSIDE OF BUILDINGS.
- PROFESSIONAL ENGINEER DURING SUBMITTAL.
- APPROVAL BEFORE BIDDING.

2. ALL N.A.C. DEVICES SHALL TEMPORAL PER NFPA 72 & NFPA 101 AND SHALL BE SYNCHRONIZED @1 HZ PER ADA AND NFPA 72. AUDIBLE SIGNAL SHALL BE A MINIMUM OF 15dB ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 dba above the maximum sound level having a duration of at least 60 seconds (whichever is greater) MEASURED AT 5 FEET ABOVE FINISHED FLOOR IN THE OCCUPIED AREA.

3. ALL SYSTEM DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH U.L., FLORIDA ADMINISTRATIVE CODE (FAC) 61G15-32.008, FLORIDA BUILDING CODE, NFPA CODES, NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE ORANGE COUNTY CODES WITH RESPECT TO FIRE ALARM SYSTEMS.

4. THE FIRE ALARM CONTRACTOR SHALL COMPLETELY INSTALL AND TEST THE COMPLETE FIRE ALARM SYSTEM PRIOR TO CONTACTING THE FIRE MARSHAL'S OFFICE FOR THE FINAL INSPECTION/CERTIFICATION PER NFPA 72, SECTION 1-6-1. BEFORE REQUESTING FINAL APPROVAL OF THE INSTALLATION, THE FIRE ALARM CONTRACTOR SHALL FURNISH A WRITTEN STATEMENT TO THE EFFECT THAT THE SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND TESTED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND REQUIREMENTS OF NFPA 72. THE FIRE ALARM CONTRACTOR MUST SUPPLY SUFFICIENT MANPOWER TO CONDUCT THE TEST.

5. ALL SIGNAL LINE CIRCUITS (SLC) SHALL BE CLASS A.

6. ALL NOTIFICATION APPLIANCE CIRCUITS (NAC) SHALL BE CLASS A.

7. PROVIDE CLASS A WIRING: ALL STYLES OF CLASS A CIRCUITS USING PHYSICAL CONDUCTORS SHALL BE INSTALLED SUCH THAT THE OUTGOING AND RETURN CONDUCTORS, EXITING AND RETURNING TO THE CONTROL UNIT, RESPECTIVELY, ARE ROUTED SEPARATELY. THE OUTGOING AND RETURN CIRCUIT CONDUCTORS SHALL NOT BE RUN IN THE SAME

8. ALL WIRING IS POWER LIMITED PER SPECIFICATION SECTION 16722.

9. INSTALLATION SHALL COMPLY WITH THE CURRENT FLORIDA BUILDING CODE WITH REVISIONS, LOCAL AHJ CODES, NFPA 72 (ALL APPLICABLE CHAPTERS), NFPA 101 (ALL APPLICABLE CHAPTERS) AND NFPA-70 (NEC), ALL APPLICABLE

10. CONDUIT SHALL BE 3/4" MINIMUM RACEWAY SIZED FOR MAXIMUM OF 40% WIRE FILL AS PER SPECIFICATION 16722. PROCESS AREA CONDUIT SHALL BE 1" MINIMUM RIGID RACEWAY SIZED FOR MAXIMUM OF 40% WIRE FILL

11. SYSTEM SHALL BE GROUNDED PER MANUFACTURERS SPECIFICATIONS, SPECIFICATION 16722 AND THE CURRENT NEC

12. ALL OFFICE & RESTROOM VISUAL DEVICES SHALL BE MOUNTED 80" A.F.F. TO BOTTOM OF VISUAL PER ADA. ALL PROCESS AND MECHANICAL AREA VISUAL DEVICES SHALL BE MINIMUM MOUNTED 80" AFF TO BOTTOM OF VISUAL TO A MAXIMUM OF 96" A.F.F. TO TOP OF VISUAL PER NFPA 72. MANUAL PULL STATIONS SHALL BE MOUNTED MINIMUM

13. SYSTEM COMPONENTS SHALL BE UL LISTED, COMPATIBLE AND SUITABLE FOR FIRE SERVICE USE.

14 FIRE ALARM SYSTEM CONTROL PANEL SHALL BE MOUNTED @ 60" A.F.F.

15. CONTRACTOR SHALL COORDINATE WITH OWNER TO INCLUDE MONITORING CONTRACT OF THIS SYSTEM INTO THE EXISTING FIRE ALARM SYSTEM. CONTRACTOR SHALL PAY THE ADDITIONAL FEE REQUIRED TO INCLUDE THIS SYSTEM INTO THE EXISTING MONITORING CONTRACT EXPIRATION DATE OR 1 YEAR, WHICHEVER COMES FIRST.

16. THE MAXIMUM NUMBER OF ADDRESSABLE DEVICES FOR EACH SLC CHANNEL IS 318.

18. ALL HVAC & FAN COIL UNITS GREATER THAN 2,000CFM AND SUPPLY & RETURN GREATER THAN 15,000CFM HAVE

19. ALL DUCT SMOKE DETECTOR SHALL BE COMPATIBLE WITH THE PROPOSED FIRE ALARM SYSTEM AND INSTALLED BY

20. ALL FIRE/SMOKE PARTITION PENETRATION(S) SHALL BE SEALED, WITH U.L. LISTED APPROVED FIRESTOP SYSTEMS TO MATCH FIRE RATING OF PENETRATED STRUCTURE(S).

21. TAMPER RESISTANT SCREWS SHALL BE USED TO PREVENT ACCESS TO JUNCTION BOXES AND DEVICE COVERS

22. IF THE SYSTEM IS IN EXCESS OF \$5,000, SHOP DRAWINGS MUST BE SIGNED AND SEALED BY A LICENSED FLORIDA

23. THIS FIRE ALARM SYSTEM WILL BE CONNECTED TO THE EXISTING FIRE ALARM SYSTEM AT OPERATIONS BUILDING AND NO ADDITIONAL PHONE LINE CONNECTION IS NEEDED.

24. EXISTING FIRE ALARM SYSTEM WAS INSTALLED BY "INTEGRATED SYSTEM OF FLORIDA: 4455 PARKBREEZE COURT ORLANDO, FL 32808, PHONE (407) 295-5393, FAX: (407) 296-7180". NEW FIRE ALARM SYSTEM FOR MAINTENANCE BUILDING SHALL BE THE SAME TYPE AND MODELS TO BE COMPATIBLE WITH THE EXISTING FIRE ALARM SYSTEM. IT IS RECOMMENDED THE NEW FIRE ALARM SYSTEM TO BE INSTALLED BY THE ABOVE FIRE ALARM INTEGRATOR SO THAT THE EXISTING FIRE ALARM COMMUNICATION CAN BE INTEGRATED WITH A MINIMAL DOWNTIME. ANY OTHER FIRE ALARM SYSTEM INTEGRATOR MUST SUBMIT THE QUALIFICATION AND UNDERSTANDING OF THE EXISTING SYSTEM AND GET

	SEQUENCE OF OPERATION						
	GENERAL ALARM	TROUBLE OPEN CIRCUIT		SUPERVISORY ALARM	AHU/FAN SHUTDOWN		
MANUAL PULL STATION	•	•	•				
SMOKE DETECTOR	•	•	•		•		
HEAT DETECTOR	•	•	•		•		
DUCT SMOKE DETECTOR	•	•	•		•		
FIRE SUPRESSION TROUBLE			•	•			
FIRE SUPRESSION ALARM		•	•	•	●		
FIRE SUPRESSION PRE-ALARM		•	•	•	•		
AC POWER LOSS		•	•				
LOW BATTERY		•	•				
CIRCUIT/CABLE GROUND		•	•				
MISSING DETECTOR		•	•				
AUDIBLE NOTIFICATION APPLIANCES	•	•	•				
VISUAL NOTIFICATION APPLIANCES	•	•	•				

<u>CIRCUIT SCHEDULE</u>

[B2] = [3/4"C, 2#12, 1#12G][U] = [3/4"C, CABLE SUPPLIED BY FIRE ALARM SYSTEM SUPPLIER]

- LOCATIONS]

NOTES FOR ALL FIRE ALARM DRAWINGS:

[V] = [3/4"C, CABLE SUPPLIED BY FIRE ALARM SYSTEM SUPPLIER]

|W| = 1"C, CABLE SUPPLIED BY FIRE ALARM SYSTEM SUPPLIER

[X] = [1#10 COPPER GROUND WIRE TO GROUND GRID]

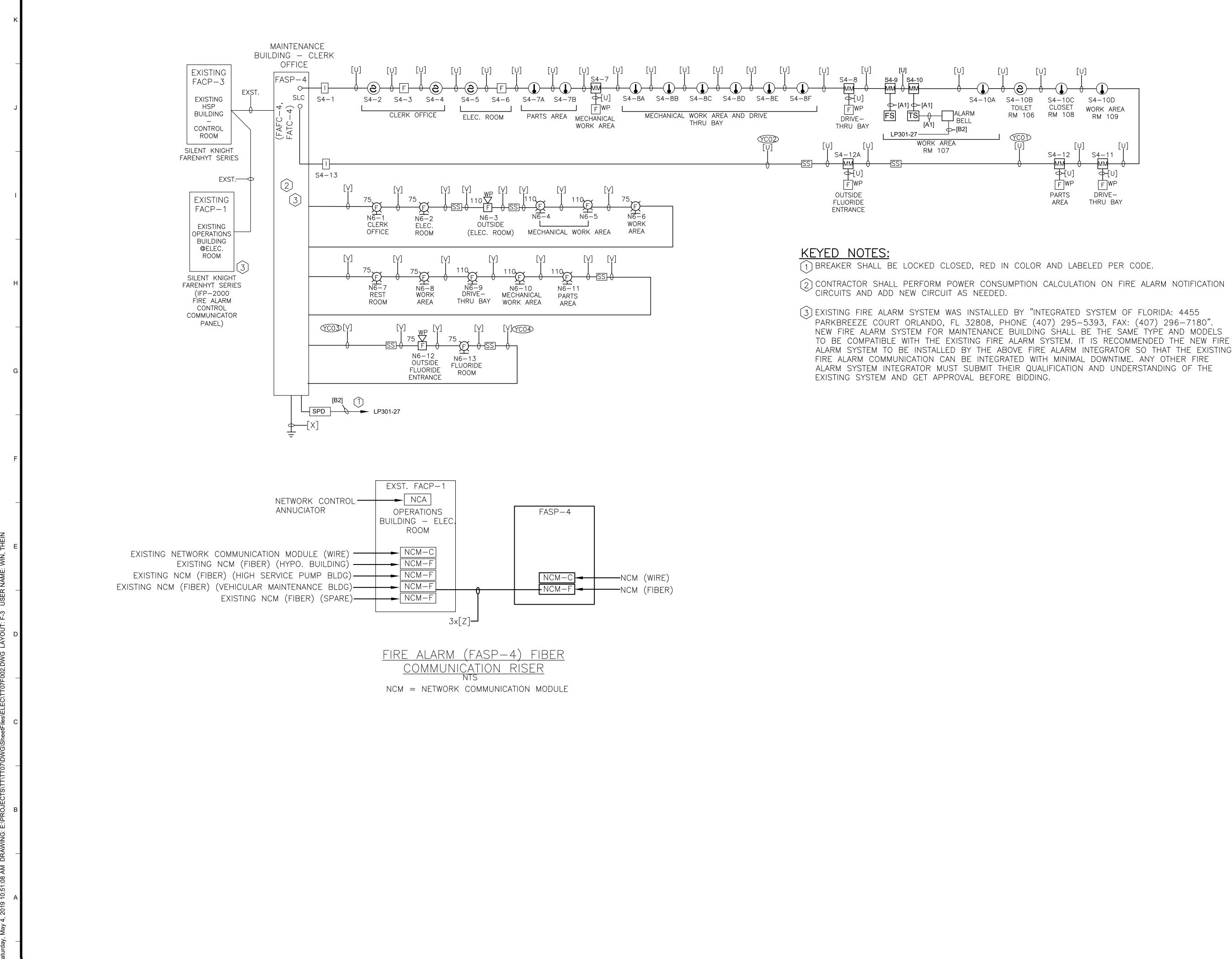
[Y] = [3/4"C, CABLE SUPPLIED BY FIRE ALARM SYSTEM SUPPLIER]

[Z] = [1-4"C, 12-STRAND MUILTMODE FIBER OPTIC CABLE RATED FOR WET

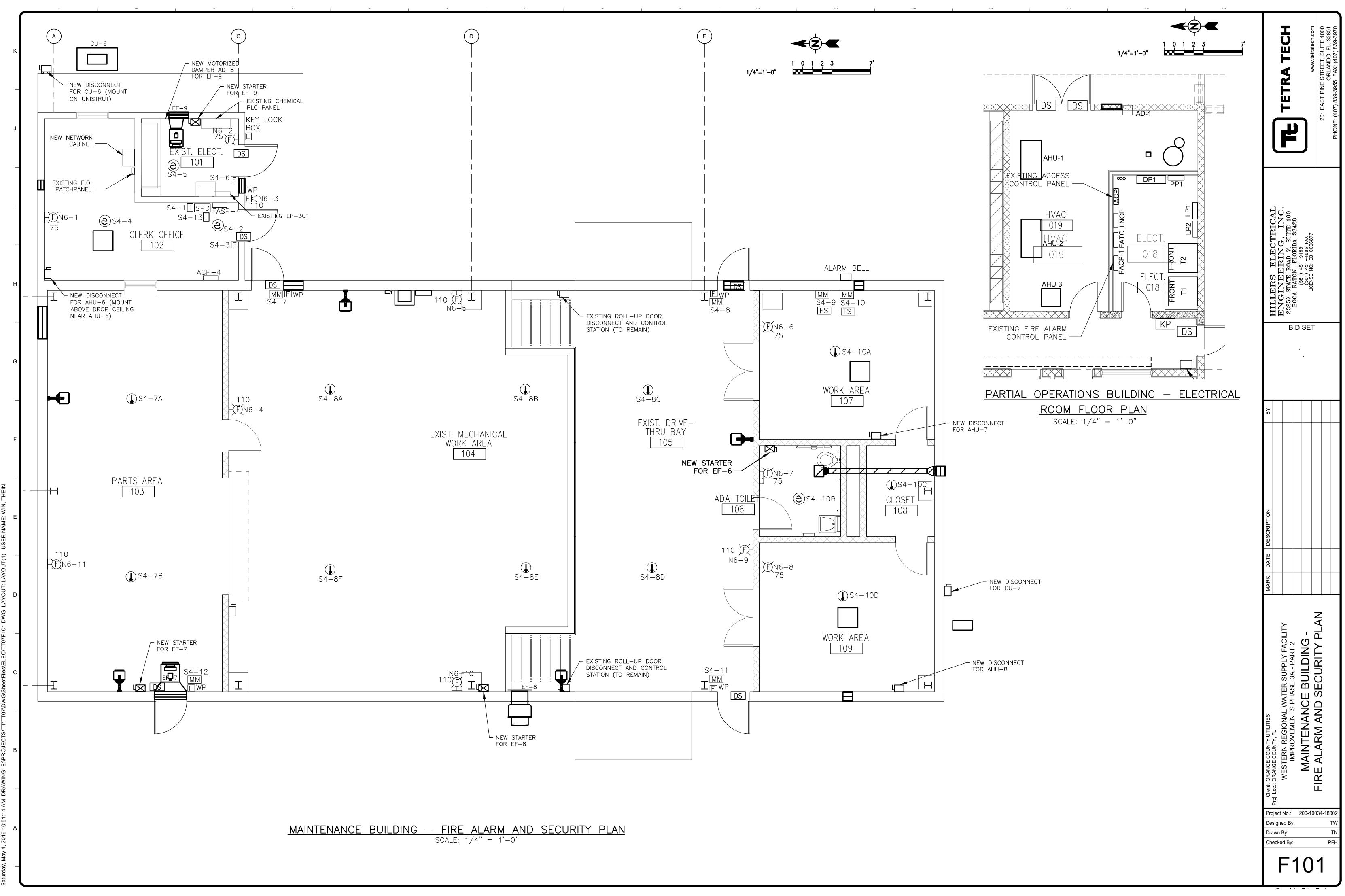
1. CONTRACTOR SHALL PROVIDE AND INSTALL EMPTY CONDUITS WITH PULL STRINGS AND NEMA 1 JUNCTION BOXES AT EACH FIRE ALARM AND CONTROL PANEL LOCATION. COORDINATE WITH OWNER AND FIRE ALARM SYSTEM SUPPLIER FOR EXACT LOCATION OF THE JUNCTION BOX PRIOR TO INSTALLATION, AND ADJUST ACCORDINGLY.

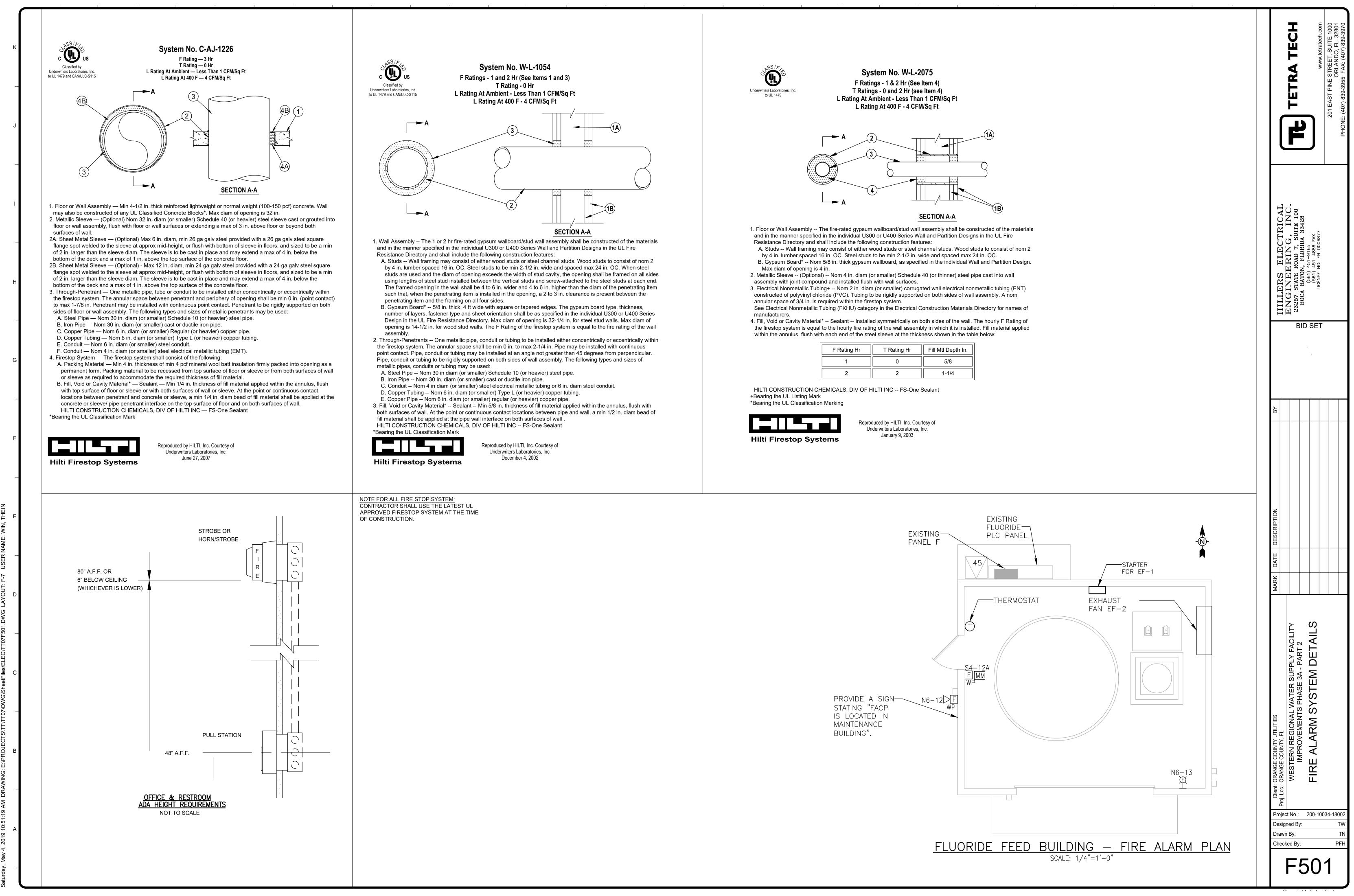
2. FIRE ALARM SYSTEM SYSTEM INCLUDING CONTROL PANELS, SENSORS, ASSOCIATED CABLES ETC. SHALL BE PROVIDED AND INSTALLED BY THE FIRE ALARM SYSTEM SUPPLIER FOR A COMPLETE AND WORKING SYSTEM IN PLACE.

		TETRA TECH	5]	www.tetratech.com	201 EAST PINE STREET, SUITE 1000	PHONE: (407) 839-3955 FAX: (407) 839-3970
HILLEDS ELECTRICAL	FNCINFFRINC INCAL	23257 STATE ROAD 7, SUITE 100	$= \boxed{\Box} \qquad BOCA RATON, FLORIDA 33428$				
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TITES				FIRE ALARM AND SECURITY SYMBOLS			
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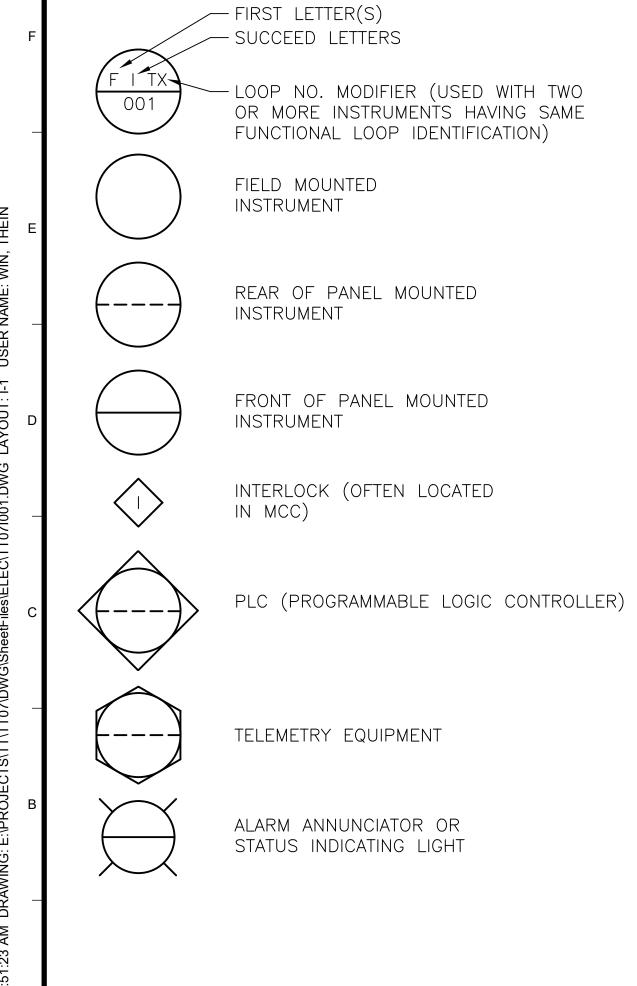


		TETRA TECH]	www.tetratech.com	201 EAST PINE STREET, SUITE 1000	ORLANDO, FL. 32801	PHONE: (407) 839-3955 FAX: (407) 839-3970
HILLERS ELECTRICAL ENGINEERING, INC. ENGINEERING, INC. 23257 STATE ROAD 7, SUITE 100 BOCA RATON, FLORIDA 33428 (561) 451-9165 (561) 451-9165								
BY								
MARK DATE DESCRIPTION								
Client: ORANGE COUNTY UTILITIES Proj. Loc.: ORANGE COUNTY, FL WESTERN REGIONAL WATER SUPPLY FACILITY IMPROVEMENTS PHASE 3A - PART 2 FIRE ALARM SYSTEM RISER								
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PROCESS OR INITIATING VARIABLE ANALYSIS (*) BURNER FLAME CONDUCTIVITY DENSITY (S.G.) VOLTAGE FLOW RATE GAUGE	MODIFIER	READOUT OR PASSIVE FUNCTION ALARM USERS CHOICE (*)	OUTPUT FUNCTION USERS CHOICE (*)	USE
BURNER FLAME CONDUCTIVITY DENSITY (S.G.) VOLTAGE FLOW RATE	DIFFERENTIAL			USE
CONDUCTIVITY DENSITY (S.G.) VOLTAGE FLOW RATE	DIFFERENTIAL	USERS CHOICE (*)		
DENSITY (S.G.) VOLTAGE FLOW RATE	DIFFERENTIAL			
VOLTAGE FLOW RATE	DIFFERENTIAL		CONTROL	CLO
FLOW RATE				
		PRIMARY ELEMENT		
GAUGE	RATIO			
		GLASS	GATE	
HAND (MANUAL)				HIGH
CURRENT		INDICATE		
POWER	SCAN			
TIME OR SCHEDULE			CONTROL STATION	
LEVEL		LIGHT (PILOT)		LOW
MOTION				MIDE
STROKE		USERS CHOICE (*)	USERS CHOICE (*)	NOR
LOOP VEH. DETECTOR		ORIFICE		OPE
PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
QUANTITY OR EVENT		INTEGRATE		
RATIO		RECORD OR PRINT		
SPEED OR FREQUENCY	SAFETY		SWITCH	
TEMPERATURE			TRANSMIT	
MULTIVARIABLE (*)		MULTIFUNCTION (*)		
VISCOSITY			VALVE	
WEIGHT OR FORCE		WELL		
UNCLASSIFIED (*)		UNCLASSIFIED (*)	UNCLASSIFIED (*)	UNC
PHOTO CELL		LIGHT SOURCE	RELAY OR COMPUTE (*)	
POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	
	IME OR SCHEDULE EVEL MOTION STROKE OOP VEH. DETECTOR PRESSURE OR VACUUM QUANTITY OR EVENT RATIO SPEED OR FREQUENCY EMPERATURE MULTIVARIABLE (*) VISCOSITY VEIGHT OR FORCE JNCLASSIFIED (*) PHOTO CELL POSITION SED, EXPLANATION IS SHO	TIME OR SCHEDULEEVELMOTIONSTROKEOOP VEH. DETECTORPRESSURE OR VACUUMQUANTITY OR EVENTRATIOSPEED OR FREQUENCYSAFETYEMPERATUREMULTIVARIABLE (*)VISCOSITYVEIGHT OR FORCEJNCLASSIFIED (*)PHOTO CELL	IME OR SCHEDULELIGHT (PILOT)AOTIONIIGHT (PILOT)MOTIONSTROKESTROKEUSERS CHOICE (*)OOP VEH. DETECTORORIFICEPRESSURE OR VACUUMPOINT (TEST CONNECTION)QUANTITY OR EVENTINTEGRATERATIORECORD OR PRINTSPEED OR FREQUENCYSAFETYEMPERATUREMULTIFUNCTION (*)VISCOSITYVEIGHT OR FORCEVEIGHT OR FORCEWELLJNCLASSIFIED (*)UNCLASSIFIED (*)PHOTO CELLLIGHT SOURCEPOSITIONSHOWN	IME OR SCHEDULECONTROL STATIONLEVELLIGHT (PILOT)AOTIONUSERS CHOICE (*)STROKEUSERS CHOICE (*).00P VEH. DETECTORORIFICEPRESSURE OR VACUUMPOINT (TEST CONNECTION)QUANTITY OR EVENTINTEGRATERATIORECORD OR PRINTSPEED OR FREQUENCYSAFETYSWITCHTRANSMITMULTIVARIABLE (*)MULTIFUNCTION (*)VISCOSITYVALVEVEIGHT OR FORCEWELLJNCLASSIFIED (*)UNCLASSIFIED (*)20SITIONLIGHT SOURCESED, EXPLANATION IS SHOWN

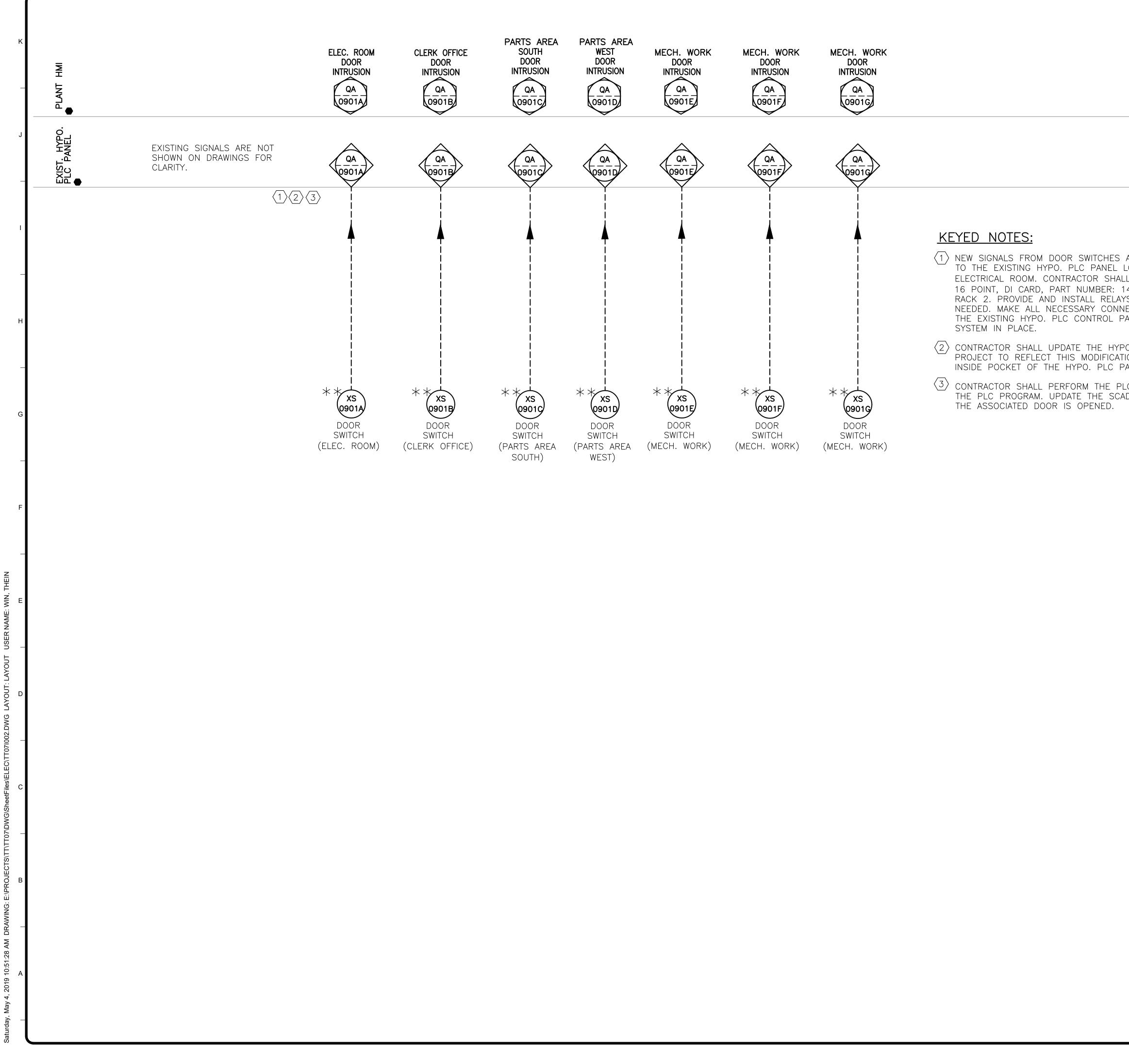


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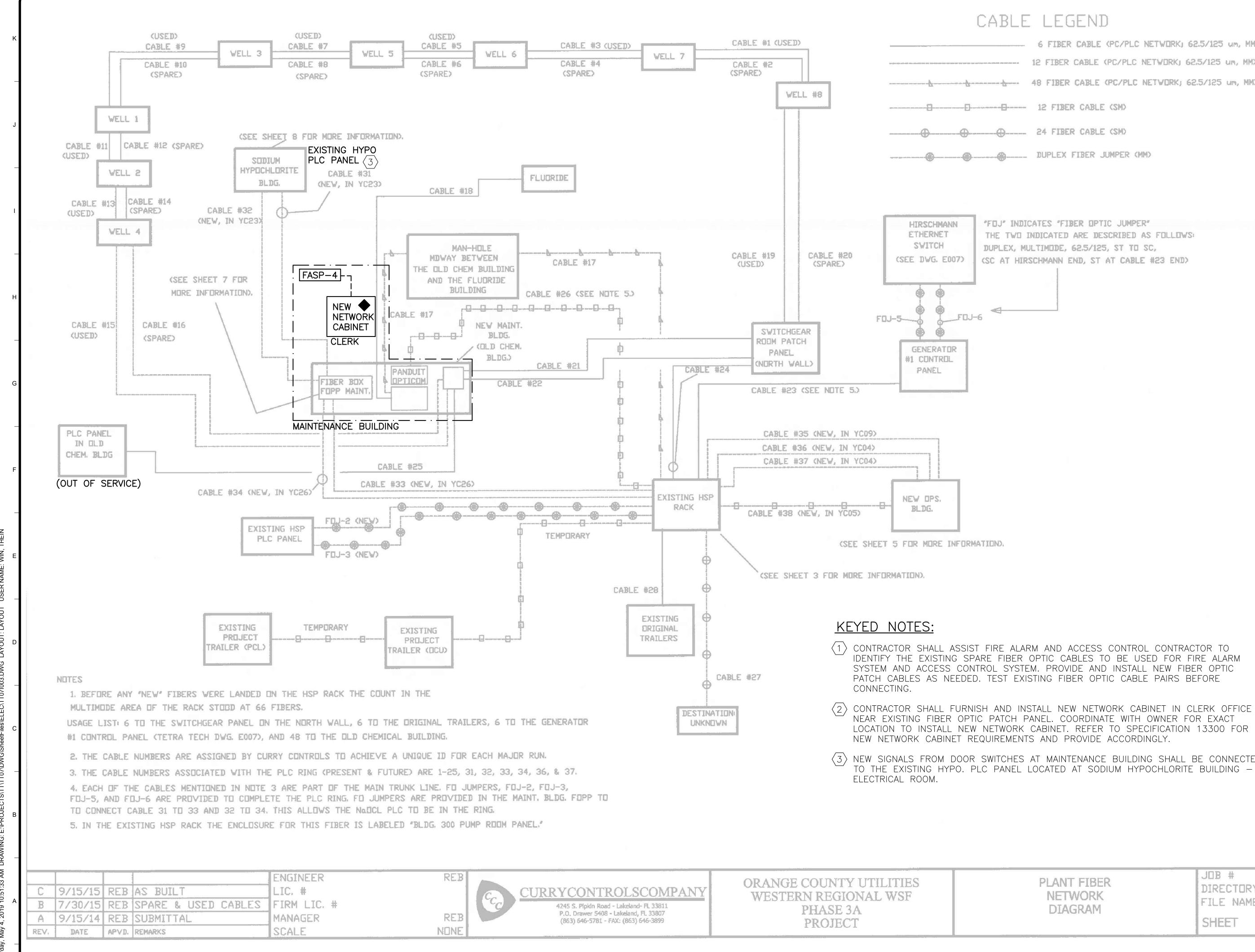
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- 2. COMPONENTS AND PANELS SHOWN WITH A D TO BE PROVIDED AS PART OF A PACKAGED 3. COMPONENTS AND PANELS SHOWN WITH A TR
- 4. COMPONENTS AND PANELS SHOWN WITH A HE TO BE MODIFIED AND/OR RELOCATED.
- 5. COMPONENTS AND PANELS SHOWN WITH A SC
- 6. DURING SHOP DRAWING PREPARATION, THE CO ALL THE EXISTING ANALOG AND DISCRETE POI AND INCLUDE IT AS PART OF SUBMITTAL.

RIC	<u>CA TABLE</u>		<u>INS</u>	STRUMENTATION LEGE	<u>ND</u>	
		INSTRUMENT ABBREVIATION (I&C ONLY)	PUMPS & COMPRESSORS	ACTUATOR OR OPERATORS	INSTRUMENT LINE SYMBOLS	TEC.
N	OUTPUT FUNCTIONMODIFIERUSERS CHOICE (*)USERS CHOICE (*)CONTROLCLOSE	ACCACCELATORBFPBELT FILTER PRESSCL2CHLORINECLWCLEARWELLCOMCOMMONCONDCONDUCTIVITYCPCONTROL PANELDI, AIDISCRETE INPUT, ANALOG INPUT	CENTRIFUGAL PUMP	S SOLENOID M MOTOR H HYDRAULIC	 PRIMARY PROCESS FLOW FUTURE PRIMARY PROCESS FLOW SECONDARY PROCESS FLOW, CONNECTION TO PROCESS FLOW, MECHANICAL LINK OR INSTRUMENT SUPPLY 	201 EAST PINE STREET
	GATE HIGH	DO, AO DISCRETE OUTPUT, ANALOG OUTPUT D.O. DISSOLVED OXYGEN DR DISTANCE RELAY EFFL EFFLUENT		PRIMARY ELEMENTS	ELECTRICAL SIGNAL (DISCRETE) 	
	CONTROL STATIONLOWMIDDLEUSERS CHOICE (*)OPEN	EPELECTRICAL PANELESEMERGENCY STOPETMELAPSED TIME METERFDCHEMICAL FEEDERFILFILTERGENGENERATOR	EDUCTOR			RICAL INC. UTTE 100 33428
	SWITCH TRANSMIT	HLO HIGH-LOW-OFF HLOR HIGH-LOW-OFF-REMOTE HOA HAND-OFF-AUTO HOTC HAND-OFF-TIMER-COMPUTER H/L HIGH/LOW	METERING PUMP	PROPELLER METER	VALVES & GATES	ERS ELECTRICAL INEERING, INC. STATE ROAD 7, SUITE 100 RATON, FLORIDA 33428 (561) 451-9165 (561) 451-4886 FAX (561) 451-4886 FAX LICENSE NO: EB 0006877
	VALVE UNCLASSIFIED (*) RELAY OR COMPUTE (*)	HSP HIGH SERVICE PUMP INFL INFLUENT JP JOCKEY PUMP LOS LOCK-OUT-STOP LPU LINE PROTECTION UNIT	PROGRESSING CAVITY PUMP	ELECTROMAGNETIC FLOWMETER LEVEL (BUBBLE TUBE)	VALVE SWING CHECK	HILLERS ENGINEF 23257 STATE] BOCA RATON (561) (561) (561) (561)
	DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	MCCMOTOR CONTROL CENTERMCPMAIN CONTROL PANELMEMISCELLANEOUS EQUIPMENTM.G.MILLION GALLONMOVMOTOR OPERATED VALVEOCAOPEN-CLOSE-AUTOOCOPEN-CLOSE	X	LEVEL (FLOAT) LEVEL (ULTRASONIC)	BALL GLOBE DIAPHRAGM	
	O FIBER OPTIC CABLE OLM OPTICAL LINK MODULE MSC MANUFACTURER SUPPLIED CABLE O ETHERNET CABLE (CAT 6e)	OOON-OFFORPOXIDATION REDUCTION POTENTIALOSCOPEN-STOP-CLOSEOSCROPEN-STOP-CLOSE-REMOTEPHHYDROGEN ION CONCENTRATIONPRESPRESSURE		BLANKET LEVEL DETECTOR ULTRASONIC TRANSIT-TIME	PLUG 3-WAY GLOBE	
		RESRESTORERFRF (ADMITTANCE) LEVEL MONITORRIPREMOTE I/O PANELR/LREMOTE/LOCALRSPREMOTE SETPOINTSASURGE ARRESTER		FLOWMETER/DOPPLE (CLAMP-ON) PARSHALL FLUME DENSITY METER	GATE	NOIT
		SECSECONDARYSLSLAKERSFSONIC FLOWMETERSPSETPOINT		(X: N = NUCLEAR O = OPTICAL U = ULTRASO PITOT-STATIC	NIC) D REDUCER DISC CHECK VALVE	K DATE DESCRI
		SS START/STOP ST STEP STOR STORAGE SUS SUSPENDED SOLIDS TD THERMAL DISPERSION		VORTEX METER	PRESSURE SUSTAINING VALVE (SOLENOID OPER/	
		TPTRANSFER PUMPTURBTURBIDITYVFDVARIABLE FREQUENCY DRIVE		SUSPENDED SOLIDS	DRAIN VENT	ATER SUPPLY FACILIT PHASE 3A - PART 2 ATION LEGEND MBOLS
/IDE S A /IDE S A	ND PANELS SHOWN WITH A DIAMOND (\spadesuit) ARE D UNDER SECTION "INSTRUMENTATION & CONTROL ND PANELS SHOWN WITH A DOUBLE ASTERISK ($*$ D AS PART OF A PACKAGED OR MECHANICAL SYST ND PANELS SHOWN WITH A TRIANGLE (\blacktriangle) ARE E ND PANELS SHOWN WITH A HEXAGON (\spadesuit) ARE E	本)ARE TEM. XISTING. 7. THE SINGLE INSTRUMENT & CONTROL S	SUPPLIER SHALL HAVE A U.L. 508A APPROVE			ORANGE COUNTY UTILITIES ORANGE COUNTY, FL WESTERN REGIONAL WATE IMPROVEMENTS PHA INSTRUMENTATI AND SYMI
FIE S A PP STI	D AND/OR RELOCATED. ND PANELS SHOWN WITH A SQUARE (■) ARE FU DRAWING PREPARATION, THE CONTRACTOR SHALL F NG ANALOG AND DISCRETE POINTS FOR DETAILED	TURE. SHOP. 8. ALL PROCESS TUBING AND ISOLATION V OTHERWISE NOTED. IELD VERIFY 9. ALL CONTROL PANELS SHALL BE FURNI				Client: ORANGE COU Proj. Loc.: ORANGE COU WESTERN IMPF
<u> </u>	F AS PART OF SUBMITTAL.					Project No.: 200-10034 Designed By: Drawn By: Checked By:
						1001



	TETRA TECH <i>www.tetratech.com</i> 201 EAST PINE STREET, SUITE 1000 ORLANDO, FL. 32801 PHONE: (407) 839-3955 FAX: (407) 839-3970
AT MAINTENANCE BUILDING SHALL BE CONNECTED LOCATED AT SODIUM HYPOCHLORITE BUILDING – L FURNISH A NEW DIGITAL INPUT CARD (MODICON 40DAI54000) IN THE SPARE SLOT LOCATION ON 'S IN THE EXISTING HYPO. PLC PANEL AS IECTIONS, TERMINATIONS, MODIFICATIONS, ETC. IN ANEL FOR A COMPLETE AND FUNCTIONAL PLC 'O. PLC LOOP DIAGRAMS AT THE END OF THE ION. PROVIDE A COPY OF UPDATED LOOP DIAGRAM 'ANEL. LC PROGRAMMING TO INCLUDE NEW SIGNALS INTO DA SCREENS TO INCLUDE ALARM NOTIFICATIONS IF	HILLERS ELECTRICAL ENGINEERING, INC. ENGINEERING, INC. 23257 STATE ROAD 7, SUITE 100 BOCA RATON, FLORIDA 33428 (561) 451-4866 FAX LICENSE NO: EB 0006877 LICENSE NO: EB 0006877
	MARK DATE DESCRIPTION BY
	Client: ORANGE COUNTY UTILITIES Proj. Loc.: ORANGE COUNTY, FL WESTERN REGIONAL WATER SUPPLY FACILITY IMPROVEMENTS PHASE 3A - PART 2 IMPROVEMENTS PHASE 3A - PART 2 CXISTING CHEMICAL PLC PANEL MODIFICATION
	Project No.: 200-10034-18002 Designed By: TW Drawn By: TN Checked By: PFH



CABLE LEGEND

6 FIBER CABLE (PC/PLC NETWORK) 62.5/125 um, MM) 12 FIBER CABLE (PC/PLC NETVORK) 62.5/125 um, MM) 48 FIBER CABLE (PC/PLC NETVORK) 62.5/125 um, MM)

- A 24 FIBER CABLE (SM)

'FOJ' INDICATES 'FIBER OPTIC JUMPER' THE TWO INDICATED ARE DESCRIBED AS FOLLOWS DUPLEX, MULTIMODE, 62.5/125, ST TO SC, (SC AT HIRSCHMANN END, ST AT CABLE #23 END)

AND ACCESS CONTROL CONTRA	ACTOR TO
PTIC CABLES TO BE USED FOR	FIRE ALARM
. PROVIDE AND INSTALL NEW FI	BER OPTIC
ING FIBER OPTIC CABLE PAIRS	BEFORE

NEAR EXISTING FIBER OPTIC PATCH PANEL. COORDINATE WITH OWNER FOR EXACT LOCATION TO INSTALL NEW NETWORK CABINET. REFER TO SPECIFICATION 13300 FOR

 $\langle 3 \rangle$ New Signals from door switches at maintenance building shall be connected. TO THE EXISTING HYPO. PLC PANEL LOCATED AT SODIUM HYPOCHLORITE BUILDING -

		TETRA TECH	www.tetratech.com	201 EAST PINE STREET, SUITE 1000 ORLANDO, FL. 32801 PHONE: (407) 839-3955 FAX: (407) 839-3970
	HILLERS ELECTRICAL	ENGINEERING, INC. 23257 STATE ROAD 7, SUITE 100 BOCA RATON, FLORIDA 33428	· · (561) 451–9165 (561) 451–4886 FAX LICENSE NO: EB 0006877	
	MARK DATE DESCRIPTION BY			
J1*	Client: ORANGE COUNTY UTILITIES Proj. Loc.: ORANGE COUNTY, FL	WESTERN REGIONAL WATER SUPPLY FACILITY IMPROVEMENTS PHASE 3A - PART 2	NETWORK COMMUNICATION DIAGRAM	034-18002

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	SHEET	2	OF	9	Checked By:	PFH
DIAGRAM	FILE NAME		8767-F	IBER-N	Drawn By:	TN
NETWORK	DIRECTORY	Dro	wings\As :	BUILT VIA	Project No.: Designed By:	200-10034-18002 TW
PI ANT FIBER	JDB #			J14	Proj	Z
					. L' III	Ш