

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION	ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION	ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION	ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION			
		MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED.		M	MOTOR, NUMERAL INDICATES HORSEPOWER			CONTROL RELAY COIL, NUMBER AS INDICATED			CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED			
	OB	LOW VOLTAGE AIR OR MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED.			VOLTMETER WITH SWITCH, 3 PHASE			PILOT LIGHT, COLOR AS NOTED * R - RED G - GREEN B - BLUE W - WHITE A - AMBER			CONDUCTORS ELECTRICALLY CONNECTED			
	X	COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE NON-REVERSING UNLESS OTHERWISE NOTED: * FVR - FULL VOLTAGE REVERSING RVNR - REDUCED VOLTAGE NON-REVERSING 2S1W - TWO SPEED, ONE WINDING 2S2W - TWO SPEED, TWO WINDING			AMMETER WITH SWITCH, 3 PHASE			PILOT LIGHT, PUSH-TO-TEST TYPE, COLOR AS NOTED ABOVE. (PUSH-TO-TEST SHALL BE REQUIRED AT ALL PILOT LIGHT LOCATIONS, INCLUDING MER SUPPLIED PANELS)			LIGHTNING ARRESTER			
		NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A			METER * WM - WATT METER * WWM - WATT-HOUR METER * WDM - WATT-HOUR DEMAND METER * WDR - WATT-HOUR DEMAND RECORDER * PF - POWER FACTOR METER * RT - RUNNING TIME METER * TR - TRANSUCER * AX - CURRENT TRANSUCER * WX - WATT TRANSUCER			TIME DELAY RELAY RANGE AS NOTED * TSD - TIME DELAY AFTER DE-ENERGIZATION-OFF DELAY * TSE - TIME DELAY AFTER ENERGIZATION-ON DELAY			GROUND OR GROUND ROD			
	F	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE, AMPERE RATING AND FUSE SIZE AS NOTED * AMPERE RATING NOTED IF OTHER THAN 30A * FUSE RATING EXAMPLE 15		R	RELAY, NO. AS INDICATED 25 - SYNCHRONISM CHECK RELAY 27 - UNDERVOLTAGE RELAY 38 - BEARING PROTECTIVE DEVICE 40 - LOSS OF EXCITATION RELAY 42 - RUNNING CONTACTOR/PILOT RELAY 45 - REVERSE PHASE/PHASE BALANCE/CURRENT RELAY 47 - PHASE SEQUENCE VOLTAGE RELAY 49 - MACHINE OR TRANSFORMER THERMAL RELAY 50 - INSTANTANEOUS OVER CURRENT RELAY 50G - INSTANTANEOUS GROUND 51 - TIME OVER CURRENT RELAY 51G - TIME OVER CURRENT RELAY, GROUNDING RESTRAINT 51N - TIME OVER CURRENT RELAY, RESIDUAL TYPE 51V - TIME OVER CURRENT RELAY WITH VOLTAGE RESTRAINT 60 - NEGATIVE SEQUENCE VOLTAGE RELAY 62 - TIME DELAY RELAY 63 - OVER PRESSURE RELAY 67 - AC DIRECTIONAL OVER CURRENT RELAY 83 - AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY 86 - LOCKING-OUT RELAY 87 - DIFFERENTIAL PROTECTIVE RELAY B - SUFFIX INDICATES "BUS" G - SUFFIX INDICATES "GENERATOR" CF - GROUND FAULT ST - SHUNT TRIP T - SUFFIX INDICATES "TRANSFORMER" X - SUFFIX INDICATES "AUXILIARY"			FIELD INSTRUMENT, TAG NO. AS INDICATED * - INDICATES INSTRUMENT TYPE DEFINED ON LOOP SHEETS ## - INDICATES LOOP NO.			CONTACT, NORMALLY OPEN (NO)			CONTACT, NORMALLY CLOSED (NC)
	P	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD HEATER * "P" INDICATES WITH PILOT LIGHT * "2" INDICATES TWO POLE		LS	LIQUID LEVEL (FLOAT) SWITCH OR NORMALLY OPEN, CLOSSES ON RISING LEVEL			PRESSURE OR VACUUM SWITCH NORMALLY OPEN, CLOSSES ON RISING PRESSURE OR NORMALLY OPEN, CLOSSES ON DROPPING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE OR NORMALLY CLOSED, OPENS ON DROPPING PRESSURE			KEY INTERLOCK			TERMINAL OR TEST BLOCK
		DRAWOUT TYPE EQUIPMENT OR DEVICE		ES	EMERGENCY STOP PUSH BUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)			TEMPERATURE SWITCH OR THERMOSTAT NORMALLY OPEN, CLOSSES ON RISING TEMPERATURE OR NORMALLY OPEN, CLOSSES ON DROPPING TEMP. NORMALLY CLOSED, OPENS ON RISING TEMPERATURE OR NORMALLY CLOSED, OPENS ON DROPPING TEMP.			RESISTANCE TEMPERATURE DETECTOR			VIBRATION DETECTOR
		MEDIUM VOLTAGE CABLE TERMINATION		PBL	START-STOP PUSH BUTTON CONTROL STATION (MOMENTARY CONTACT) "L" DENOTES LOCKOUT TYPE			FLOW SWITCH (AIR, WATER, ETC.) NORMALLY OPEN, CLOSSES ON INCREASED FLOW OR NORMALLY CLOSED, OPENS ON INCREASED FLOW			POSITION (LIMIT) SWITCH NORMALLY OPEN OR NORMALLY OPEN - HELD CLOSED NORMALLY CLOSED OR NORMALLY CLOSED - HELD OPEN			TORQUE SWITCH OR NORMALLY CLOSED, OPENS ON HIGH TORQUE
		MEDIUM VOLTAGE AIR INTERRUPTER SWITCH			3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT C-OPEN O-CLOSED POSITION TOP CONTACT MIDDLE CONTACT BOTTOM CONTACT A X O O B O O O C O O O X * NAMEPLATE (A/B/C) HOA - HAND/OFF/AUTO HOR - HAND/OFF/REMOTE LOR - LOCAL/OFF/REMOTE ROR - RISE/OFF/LOWER TOR - TEST/OFF/AUTO			TEMPERATURE SWITCH OR THERMOSTAT NORMALLY OPEN, CLOSSES ON RISING TEMPERATURE OR NORMALLY OPEN, CLOSSES ON DROPPING TEMP. NORMALLY CLOSED, OPENS ON RISING TEMPERATURE OR NORMALLY CLOSED, OPENS ON DROPPING TEMP.			MOTOR OPERATED VALVE			UTILIZED IN CONJUNCTION WITH OTHER CONTROL. SYMBOLIC SYMBOLS TO DENOTE THE PHYSICAL LOCATION OF THE DEVICE # REPRESENTS 1 - DEVICE IN FIELD 2 - DEVICE AT MCC
		MEDIUM VOLTAGE FUSED AIR INTERRUPTER SWITCH		PBM	START-STOP PUSH BUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			UNIT HEATER - ELECTRIC HEATING COIL AND FAN
		MEDIUM VOLTAGE FUSED MOTOR CONTROLLER			START-STOP PUSH BUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			UNIT HEATER - STEAM OR WATER HEATING COIL AND FAN
	T	TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED, UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS. ALL DRY TYPE TRANSFORMERS SERVICING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 1.3. ALL OTHER DRY TYPE TRANSFORMERS SHALL HAVE A K-4 RATING. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING.		ES	EMERGENCY STOP PUSH BUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			EXPOSED CONDUIT
		CURRENT TRANSFORMER * QUANTITY A = PRIMARY AMPERES			START-STOP PUSH BUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			HIDDEN/BURIED CONDUIT
		POTENTIAL TRANSFORMER * QUANTITY V = PRIMARY VOLTAGE			START-STOP PUSH BUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			CONDUIT TURNED UP
	G	GENERATOR, RATINGS AND CONNECTIONS AS NOTED			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			CONDUIT TURNED UP			CONDUIT TURNED UP
		AUTOMATIC TRANSFER SWITCH NO.1 (ATS-1) "N" INDICATES NORMAL SOURCE "S" INDICATES STANDBY SOURCE 100A INDICATES CONTINUOUS CURRENT RATING			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			CONDUIT TURNED UP			CONDUIT TURNED UP
		VARIABLE SPEED DRIVE CONTROLLER * D.C. = D.C. DRIVE CONTROLLER * SDR = SILICON CONTROLLED RECTIFIER * VFD = VARIABLE FREQUENCY DRIVE			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			CONDUIT TURNED UP			CONDUIT TURNED UP
		UNIT HEATER - ELECTRIC HEATING COIL AND FAN			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			CONDUIT TURNED UP			CONDUIT TURNED UP
		UNIT HEATER - STEAM OR WATER HEATING COIL AND FAN			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			CONDUIT TURNED UP			CONDUIT TURNED UP
		EXPOSED CONDUIT			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			CONDUIT TURNED UP			CONDUIT TURNED UP
		HIDDEN/BURIED CONDUIT			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			CONDUIT TURNED UP			CONDUIT TURNED UP
		CONDUIT TURNED UP			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			CONDUIT TURNED UP			CONDUIT TURNED UP
		CONDUIT TURNED UP			OFF/ON SELECTOR SWITCH			LOCAL/REMOTE SELECTOR SWITCH			CONDUIT TURNED UP			CONDUIT TURNED UP

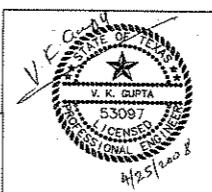
ABBREVIATIONS		CONTINUED BELOW LEFT	
AC	ALTERNATING CURRENT	NC	NORMALLY CLOSED
AF	ABOVE FINISHED FLOOR	NO	NORMALLY OPEN OR NUMBER
AG	ABOVE GRADE	NTS	NOT TO SCALE
ALUM	ALUMINUM	OL	OVERLOAD
AMP/A	AMPERE	OLX	OVERLOAD CONTROL RELAY
ATS	AUTOMATIC TRANSFER SWITCH	PB	PUSH BUTTON
AUTO	AUTOMATIC	PCC	PUMP CONTROL CONSOLE
AUX	AUXILIARY	PFR	PHASE FAILURE RELAY
AWG	AMERICAN WIRE GAUGE	PH	PHASE
C	CONDUIT	PR	PAIR
CB	CIRCUIT BREAKER	PT	POTENTIAL TRANSFORMER
CKT	CIRCUIT	PTT	PUSH TO TEST TYPE
CLF	CURRENT LIMITING FUSE	PVC	POLYVINYL CHLORIDE
CPT	CONTROL POWER TRANSFORMER	QTY	QUANTITY
CR	CONTROL RELAY	RCP	RELAY CONTROL PANEL
CS	CONTROL SWITCH	SC	SURGE CAPACITOR
CT	CURRENT TRANSFORMER	SCH	SCHEMATIC
CU	COPPER	SEC	SECONDS OR SECONDARY
DC	DIRECT CURRENT	SH	SHIELDED OR SHEET
DI	DOOR INTERLOCK	SHT	SHEET
DN	DOWN	SN	SOLID NEUTRAL
DWG	DRAWING	SS	STAINLESS STEEL
DWH	ELECTRICAL HAND HOLE	SW	SWITCH
EC	EMPTY CONDUIT	SWGR	SWITCHGEAR
ELEC	ELECTRICAL	TC	TERMINATION CABINET
ELEV	ELEVATION	TEL	TELEPHONE
EM	EMERGENCY	TO	TIME DELAY ON OPENING
EMH	ELECTRICAL MAN HOLE	TS	TEMPERATURE SWITCH
FBO	FURNISHED BY OTHERS	TVSS	TRANSIENT VOLT. SURGE SUPP.
FO	FIBER OPTIC	TW	TWISTED
FRP	FIBERGLASS REINFORCED	TYP	TYPICAL
FU	FUSE	UG	UNDERGROUND
GCP	GENERATOR CONTROL PANEL	V	VOLTS
GEN	GENERATOR	VFD	VARIABLE FREQUENCY DRIVE
G.GRD	GROUND	VO	VALVE OPERATOR
GF	GROUND FAULT INTERRUPTER	W	WIRE
GRS	GALVANIZED RIGID STEEL	WP	WEATHERPROOF
HH	HANDHOLE	XP	EXPLOSION PROOF
HT	HEIGHT	XPMR	EXPLOSION PROOF TRANSFORMER
HZ	HERTZ		
IMH	INSTRUMENT MAN HOLE		
INST	INSTRUMENT		
LA	LIGHTNING ARRESTER		
LC	LIGHTNING CONTACTOR		
LGTS	LIGHTS		
LP	LIGHTING PANEL		
MCC	MOTOR CONTROL CENTER		
MCP	MOTOR CIRCUIT PROTECTOR		
MFR	MANUFACTURER		
MH	MANHOLE		
MTG	MOUNTING		
MTD	MOUNTED		
MTS	MANUAL TRANSFER SWITCH		
	CONTINUED ABOVE RIGHT		

4			
3			
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NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS			
ELECTRICAL LEGEND AND SYMBOLS			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS			
TCB AECOM		TCB INC. 17806 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1157 WWW.TCB.AECOM.COM	
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-001
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	14.8 of 210
DATE	APRIL 2008		

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BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK LENGTH AND ADJUST SCALES ACCORDINGLY.



**ELECTRICAL GENERAL NOTES**

- ① ALL CONDUIT AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE CODES. THE DRAWING NOTES AND DETAILS SHALL BE OBSERVED IN ADDITION TO THE REQUIREMENTS IN THE SPECIFICATIONS.
- ② CONDUIT INSTALLATIONS SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
- ③ CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
- ④ ALL CONDUIT INSTALLATIONS CROSSING EXPANSION JOINTS OR RISERS FROM THE GROUND SHALL HAVE EXPANSION OR EXPANSION/DEFLECTION TYPE FITTINGS AS REQUIRED. FOR EXACT LOCATIONS OF EXPANSION JOINTS REFER TO THE STRUCTURAL DRAWINGS, AND OR EXISTING STRUCTURES IN FIELD.
- ⑤ NO CONDUIT SMALLER THAN 3/4" NOR WIRE SMALLER THAN NO.12 A.W.G. SHALL BE USED UNLESS OTHERWISE NOTED.
- ⑥ ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC, ENCASED IN REINFORCED RED CONCRETE, DYED RED BEFORE PLACEMENT AS SPECIFIED. THE CONTRACTOR SHALL FIELD VERIFY THE ROUTING OF ALL UNDERGROUND DUCTBANKS.
- ⑦ ALL BENDS GREATER THEN 20 DEGREES IN THE UNDERGROUND CONDUIT DUCT BANK SYSTEM SHALL BE PVC COATED ALUMINUM.
- ⑧ ALL CONDUITS ENTERING BOXES, CONTROL STATIONS, OR OTHER EQUIPMENT RATED NEMA 4X SHALL BE TERMINATED AT THE BOX WITH HTGZ HUBS AS MANUFACTURED BY T & B OR EQUAL.
- ⑨ ALL EXPOSED CONDUITS SHALL BE RIGID ALUMINUM. MINIMUM SIZE CONDUIT SHALL BE 3/4".
- ⑩ ALL FLEXIBLE CONDUIT SHALL BE ALUMINUM CORE SEALTIGHT. THE USE OF FLEXIBLE CONDUIT SHALL BE LIMITED TO CONNECT TO ITEMS WHICH VIBRATE SUCH AS MOTORS, TRANSFORMERS, PIPE OR PUMP MOUNTED DEVICES ONLY. FLEXIBLE CONDUIT SHALL BE BENT AS PERMITTED BY NEC ARTICLE 348.24 & 348.26, FLEXIBLE CONDUIT LENGTH SHALL BE LIMITED TO A MAXIMUM OF 30' OR THE LENGTH OF A LONG SWEEP ELBOW, WHICH EVER IS GREATER. ALL FLEXIBLE CONDUIT SHALL BE ALUMINUM CORE SEALTIGHT. MINIMUM SIZE FLEXIBLE CONDUIT SHALL BE 3/4". WHERE OPENINGS IN OEM-SUPPLIED ENCLOSURES ARE LESS THAN 3/4", A REDUCER SHALL BE PROVIDED AT THE ENCLOSURE TO ACCOMMODATE THE 3/4" SEALTIGHT FLEX. LONGER FLEXIBLE CONDUIT SHALL BE PERMITTED FOR VERTICAL MOTOR OR AS SHOWN ON THE DRAWINGS.
- ⑪ ALL SLOTTED CHANNEL, SLOTTED CHANNEL SUPPORT MATERIAL, WASHERS, SCREWS, NUTS, CONDUIT CLAMPS, ALL THREAD SPRING NUTS AND MISC. MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL.
- ⑫ ALL JUNCTION BOXES, PULL BOXES, TERMINATION BOXES IN THE RACEWAY SYSTEM SHALL BE 316 STAINLESS STEEL AS MANUFACTURED BY HOFFMAN (CONCEPT SERIES) OR EQUAL. SCREW-CLAMP LATCHES ARE UNACCEPTABLE. PROVIDE MOUNTING LUGS ON ALL BOXES AND ENCLOSURES THAT ARE NOT FREE STANDING.
- ⑬ THE WIRING DIAGRAMS, BLOCK DIAGRAMS, QUANTITY, SIZE OF WIRES, AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. ALL MODIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFIED.
- ⑭ ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURES LOCATIONS ARE APPROXIMATE. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURES OR TERMINAL BOX LOCATIONS SHALL BE VERIFIED WITH THE EQUIPMENT SUPPLIER. ALLOW FOR LOCATION CHANGES AND INCLUDE IN THE CONTRACT PRICE. THE EXACT LOCATIONS OF ALL ELECTRICAL EQUIPMENT AND ROUTING OF ALL CABLES AND CONDUITS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER DURING CONSTRUCTION.
- ⑮ ALL ELECTRICAL EQUIPMENT, INCLUDING CONDUIT AND FITTINGS IN HAZARDOUS AREAS INDICATED ON THE DRAWINGS, SHALL COMPLY WITH THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE FOR HAZARDOUS LOCATIONS. CLASS, DIVISION, AND GROUP AS INDICATED.
- ⑯ ALL CONDUITS AND WIRES SHOWN ON THE INTERFACE DIAGRAM SHALL BE INSTALLED BY THE CONTRACTOR. GROUPING OF CONDUIT AND WIRE MAY BE CHANGED, IF APPROVED BY THE ENGINEER AND OWNER.
- ⑰ CORING OF THE EXISTING STRUCTURE SHALL BE COORDINATED WITH THE OWNER/CONTRACTOR. CORING THROUGH STRUCTURAL BEAMS IS STRICTLY PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE OWNER/ENGINEER.

LIGHTING FIXTURE SCHEDULE		
TYPE	DESCRIPTION	
A	150W, VAPORTITE ENCLOSED AND GASKETED INCANDESCENT FIXTURE WITH GLASS GLOBE, WALL ARM MOUNT AND GUARD.	HUBBELL VW-151-VG-15-VCG-15
B	175W, METAL HALIDE ARCHITYPE LIGHT MOUNTED ON A 12FT, ROUND NON TAPERED ALUMINUM POLE. (120V)	KIMLIGHTING 1A/AR2/175MH120/DB-P/A-25/ PRA12-4125B/DB-P

**DEMOLITION NOTES**

- ① THE CONTRACTOR SHALL COORDINATE THE DEMOLITION OF THE ELECTRICAL CONDUIT, WIRE, DEVICES WITH THE GENERAL DEMOLITION AND SCHEDULE. THE DRAWINGS ARE INTENDED TO CONVEY THE GENERAL NATURE AND SCOPE OF THE DEMOLITION WORK. EVERY ITEM TO BE DEMOLISHED MAY NOT BE SHOWN. FIELD VERIFY WITH OWNER PRIOR TO BID, AND INCLUDE ALL DEMOLITION WORK IN THE CONTRACT PRICE.
- ② PROVIDE TEMPORARY WIRE AND CONDUIT FOR THE EQUIPMENT WHICH MAY BE AFFECTED BY THE DEMOLITION BUT STILL IN SERVICE.
- ③ RELOCATE AND RECONNECT POWER TO EQUIPMENT AFFECTED BECAUSE OF DEMOLITION WORK.
- ④ THE OWNER HAS THE RIGHT OF FIRST REFUSAL TO THE EQUIPMENT BEING REMOVED. THE CONTRACTOR SHALL DELIVER THE EQUIPMENT WHICH THE OWNER WISHES TO KEEP AT LOCATION DESIGNATED BY THE OWNER.
- ⑤ THE WIRE SHALL BE DISCONNECTED AND REMOVED ALL THE WAY TO THE SOURCE. THE SURFACE MOUNTED CONDUITS AND MOUNTING HARDWARE SHALL BE REMOVED AND UNDERGROUND CONDUITS SHALL BE CAPPED AND TAGGED AS SPARE.
- ⑥ ALL SURFACES WHERE EQUIPMENT OR CONDUIT IS REMOVED SHALL BE CLEANED, PATCHED AND PAINTED TO MATCH THE SURROUNDING SURFACE.
- ⑦ THE CONTRACTOR SHALL BE RESPONSIBLE TO CHECK THE FUNCTION OF EACH CONDUCTOR BEFORE REMOVING OR DISCONNECTING.
- ⑧ IF A CONDUCTOR WHICH HAS TO STAY IN SERVICE (NOT BEING DEMOLISHED) IS INSTALLED IN A COMMON CONDUIT WITH CONDUCTORS WHICH ARE BEING DEMOLISHED, THE CONTRACTOR SHALL REMOVE ALL CONDUCTORS FROM THE CONDUIT, PROVIDE NEW CONDUCTORS WHICH ARE TO REMAIN IN SERVICE, AND RE-PULL THE NEW CONDUCTORS, MEGGER OR HIPOT, AND CONNECT BOTH ENDS, AND TEST THE SYSTEM FOR PROPER FUNCTION. DO NOT RE-PULL USED CONDUCTORS.
- ⑨ FOR THE EQUIPMENT WHICH IS BEING RE-FED FROM A NEW MCC, PART OF THE EXISTING CONDUIT MAY BE REUSED. IF THERE IS NO CORROSION DAMAGE, (AS DETERMINED BY THE OWNER) EXTEND/REROUTE CONDUIT TO THE NEW MCC LOCATION AS SHOWN.

**CONTROL PANELS, PANELBOARDS**

THESE NOTES APPLY TO CONTROL PANELS, ETC WHICH HAS TO BE REFURBISHED, MODIFIED, DISCONNECTED & RECONNECTED OR REWORKED:

THE CONTRACTOR SHALL NOT MAKE ANY MODIFICATION UNTIL THE FOLLOWING HAS BEEN DONE:

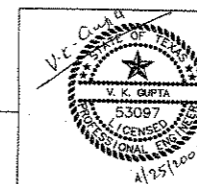
- A. THE OWNER/CONTRACTOR SHALL WITNESS THE CONDITION OF THE EXISTING EQUIPMENT, THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCY.
- B. THE OWNER SHALL OPERATE THE EQUIPMENT TO DEMONSTRATE THE CURRENT CONDITIONS. THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCIES.
- C. A RECORD OF THE OPERATION AND EXISTING CONDITION SHALL BE KEPT IN A THREE RING BINDER AT THE OWNER/CONTRACTOR TRAILER, IN FORM OF PICTURES AND INFORMATION ON A FORM.
- D. A FORM SHALL BE GENERATED BY THE CONTRACTOR TO RECORD THE OBSERVATIONS. BOTH PARTIES WILL SIGN ON THE FORM.
- E. THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH AND INSTALL MATERIAL IF DAMAGED DURING HIS WORK.
- F. AFTER THE CHANGES ARE MADE, THE EQUIPMENT SHALL BE INSPECTED AND RE-TESTED TO DEMONSTRATE THAT IT FUNCTIONS CORRECTLY.

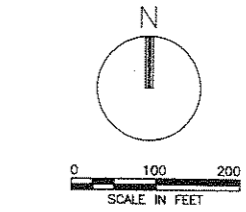
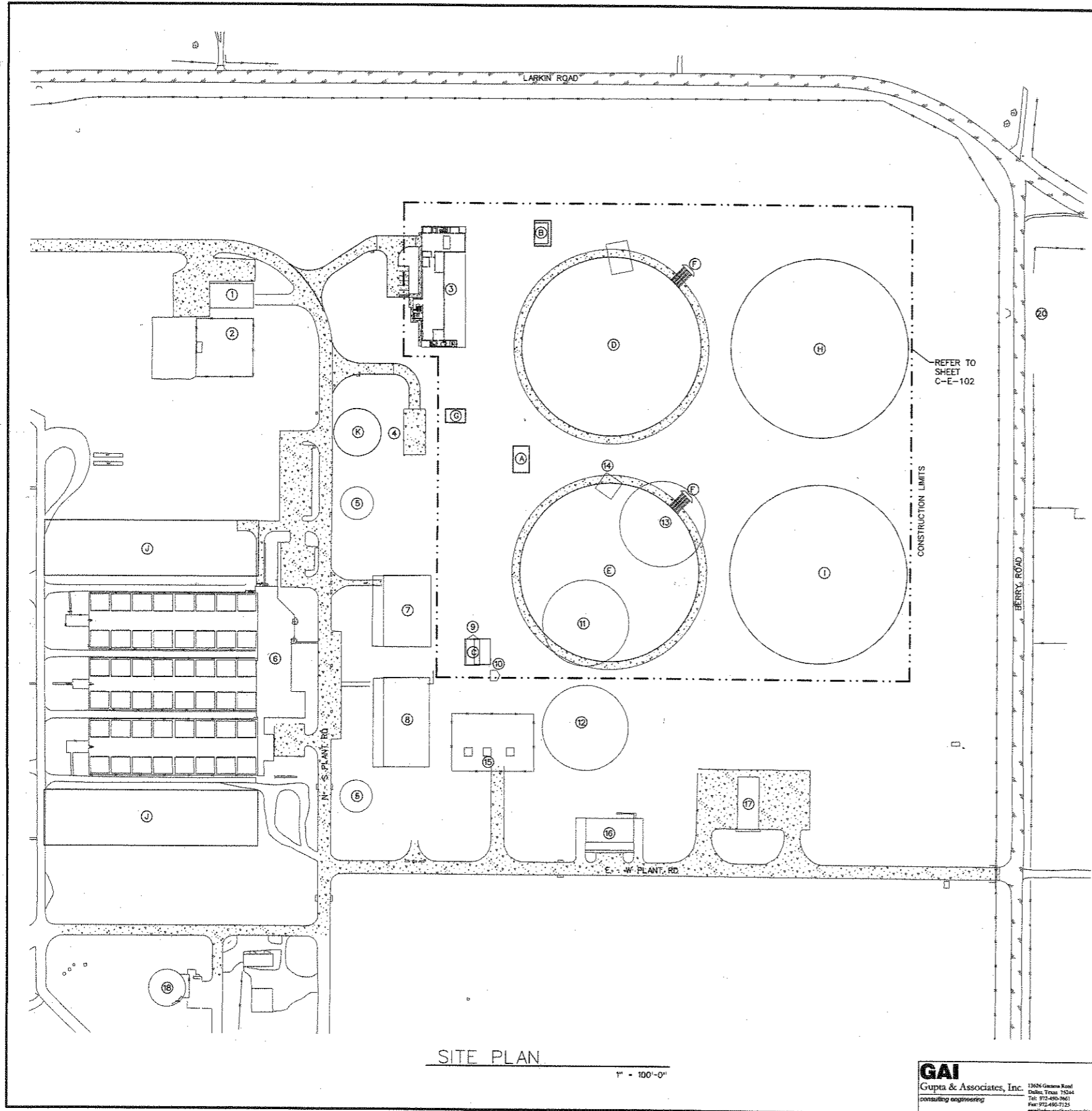
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EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS			
ELECTRICAL NOTES			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS			
TCB   AECOM		TCB INC. 17200 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1157 WWW.TCB.AECOM.COM	
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-002
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BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK LENGTH AND ADJUST SCALES ACCORDINGLY.





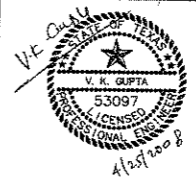
- EXISTING STRUCTURES**
- ① MAIN ELECTRICAL BUILDING NO 2
  - ② ELECTRICAL SUBSTATION (DWU OWNED)
  - ③ TRANSFER PUMP STATION NO 3
  - ④ ELECTRICAL TRANSFORMER YARD
  - ⑤ WASHWATER TANK (ELEVATED)
  - ⑥ ADMINISTRATION/CONTROL BUILDING
  - ⑦ TRANSFER PUMP STATION NO 2
  - ⑧ TRANSFER PUMP STATION NO 1
  - ⑨ JUNCTION BOX 1
  - ⑩ GATE CONTROL STRUCTURE
  - ⑪ STAGE I CLEARWELL
  - ⑫ STAGE II CLEARWELL
  - ⑬ STAGE III CLEARWELL
  - ⑭ JUNCTION BOX 2
  - ⑮ ELECTRICAL SUBSTATION
  - ⑯ MAIN ELECTRICAL BUILDING NO 1
  - ⑰ FACILITIES MAINTENANCE BUILDING
  - ⑱ WASHWATER RECIRCULATION PUMP STATION
  - ⑲ SLUDGE PUMP STATION
  - ⑳ CULVERT STRUCTURE

- | NEW STRUCTURES                     | SHEET REFERENCE |
|------------------------------------|-----------------|
| Ⓐ SUPPLY JUNCTION BOX              | XX              |
| Ⓑ NORTH RETURN JUNCTION BOX        |                 |
| Ⓒ SOUTH RETURN JUNCTION BOX        |                 |
| Ⓓ NW CLEARWELL                     |                 |
| Ⓔ SW CLEARWELL                     |                 |
| Ⓕ OVERFLOW STRUCTURE               |                 |
| Ⓖ METER VAULT                      |                 |
| Ⓗ FUTURE NE CLEARWELL              |                 |
| Ⓘ FUTURE SE CLEARWELL              |                 |
| Ⓙ STAGE IV FILTERS CONSTRUCTION    |                 |
| Ⓚ FUTURE WASHWATER TANK (ELEVATED) |                 |

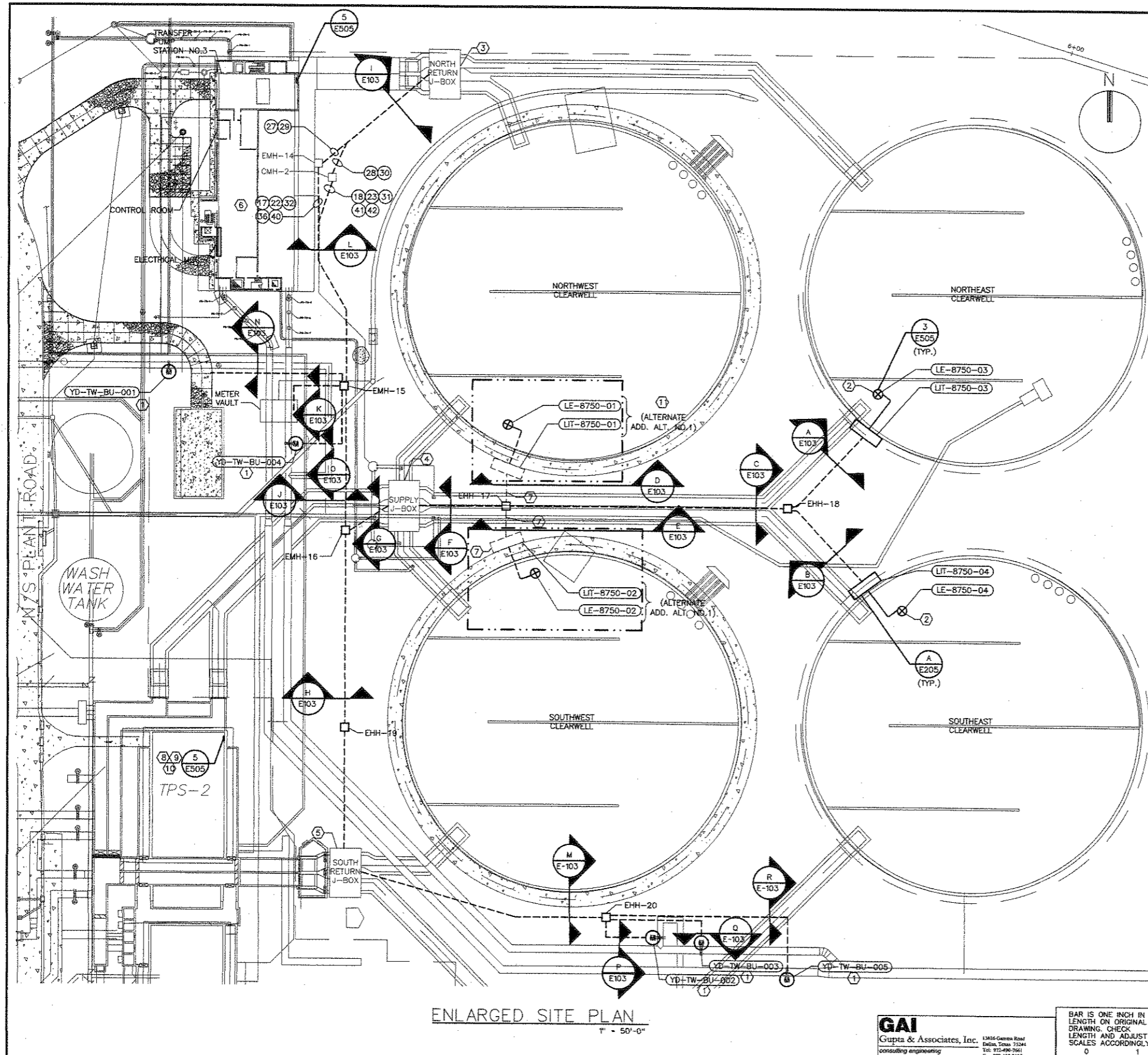
**SITE PLAN**  
1" = 100'-0"

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BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK LENGTH AND ADJUST SCALES ACCORDINGLY.



NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS			
OVERALL ELECTRICAL PLAN			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS			
TCB AECOM		TCB INC. 17200 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1017 WWW.TCB.AECOM.COM	
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-101
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	150 of 210
DATE	APRIL 2008		



- NOTES:**
- ① VERIFY THE LOCATION OF THE VALVES IN THE FIELD. REFER TO CIVIL DRAWINGS FOR EXACT LOCATIONS.
  - ② THE LEVEL SENSOR LOCATION SHOWN IS APPROXIMATE AND SHALL BE COORDINATED IN THE FIELD.
  - ③ REFER TO SHEET C-E-402 FOR PLAN AND DETAILS.
  - ④ REFER TO SHEET C-E-401 FOR PLAN & DETAILS.
  - ⑤ REFER TO SHEET C-E-403 FOR PLAN & DETAILS.
  - ⑥ REFER TO SHEET C-E-104 FOR PUMP STATION LAYOUT.
  - ⑦ THESE CONDUITS SHALL BE PART OF THE ADDITIONAL ALTERNATE NO. 1.
  - ⑧ PROVIDE POWER TO THE ANALYZER AND METERING PUMP FROM 120V IN THE PUMP STATION NO. 2.
  - ⑨ LOCATION OF 120V SOURCE SHALL BE VERIFIED IN THE FIELD.
  - ⑩ THE SIGNAL FROM THE ANALYZER SHALL BE CONNECTED TO A FUTURE PLC.
  - ⑪ THE LEVEL TRANSMITTER AND ASSOCIATED WIRES SHALL BE PART OF THE ADDITIONAL ALTERNATE NO. 1.

ENLARGED SITE PLAN  
1" = 50'-0"

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NO.	DATE	REVISION	APPROV.
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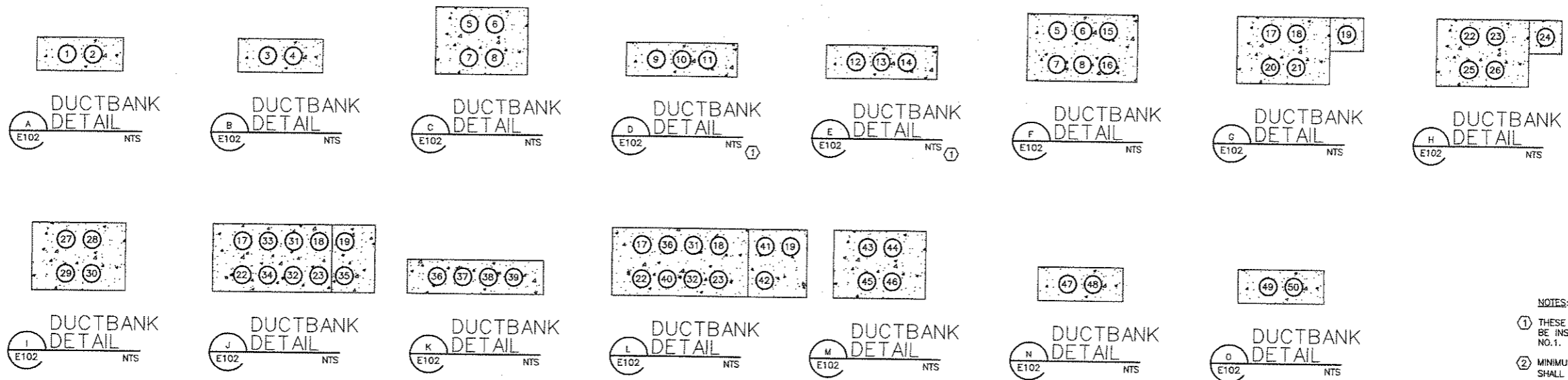
EAST SIDE WTP 540 MGD EXPANSION - PART B  
BASE - NE & SE CLEARWELLS & FLUMES  
ALTERNATE - NW & SW CLEARWELLS  
ENLARGED ELECTRICAL PLAN

**DALLAS WATER UTILITIES**  
CITY OF DALLAS, TEXAS

**TCB AECOM**

CONTRACT NO. 08-155  
FILE NO. 620Q-400R.3  
DATE APRIL 2008

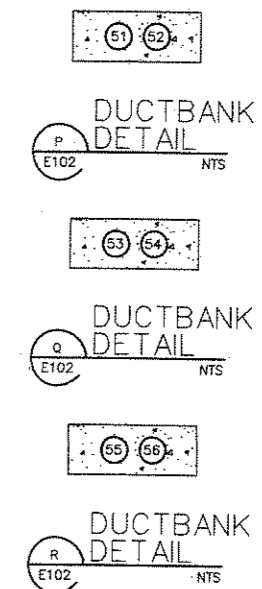
DWG. NO. C-E-102  
151 of 210



- NOTES:
- ① THESE CONDUITS AND WIRES SHALL BE INSTALLED IN FUTURE ADD. ALT. NO.1.
  - ② MINIMUM UNDERGROUND CONDUIT SHALL BE 2" UNLESS OTHERWISE NOTED ON OTHER DRAWINGS.
  - ③ THIS TABLE SHALL BE USED FOR ADD. ALT. NO.1.

#	FUNCTION	#	FUNCTION	#	FUNCTION
1	LI-8	21	SPARE	41	I-100, I-101
2	I-100G	22	MC1-14BP	42	SPARE
3	LI-10	23	C-102	43	HG-6, HG-7, HG-8
4	I-100E	24	SPARE	44	C-102F, C-102G & C-102H
5	LI-8, LI-10	25	SPARE	45	SPARE
6	I-100G, I-100E	26	SPARE	46	SPARE
7	SPARE	27	MC1-17AP	47	HK-1
8	SPARE	28	C-101	48	C-102
9	SPARE	29	SPARE	49	HK-2
10	SPARE	30	SPARE	50	C-103D
11	SPARE	31	C-103	51	HG-6
12	SPARE	32	MC1-22AP	52	C-102F
13	SPARE	33	SPARE	53	HG-7
14	SPARE	34	SPARE	54	C-102G
15	LI-1, LI-3	35	SPARE	55	HG-8
16	I-100A, I-100C	36	SPARE	56	C-102H
17	MC1-15BP	37	I-101	57	
18	C-100	38	MC1-22AP	58	
19	I-100	39	SPARE	59	
20	SPARE	40	SPARE	60	

#	FUNCTION	#	FUNCTION	#	FUNCTION
1	LI-8	21	SPARE	41	I-100, I-101
2	I-100C	22	MC1-14BP	42	SPARE
3	LI-10	23	C-102	43	HG-6, HG-7, HG-8
4	I-100E	24	SPARE	44	C-102F, C-102G & C-102H
5	LI-8	25	SPARE	45	SPARE
6	I-100G	26	SPARE	46	SPARE
7	LI-10	27	MC1-17AP	47	HK-1
8	I-100E	28	C-101	48	C-102
9	LI-1	29	SPARE	49	HK-2
10	I-100C	30	SPARE	50	C-103D
11	SPARE	31	C-103	51	HG-6
12	LI-3	32	MC1-22AP	52	C-102F
13	I-100A	33	SPARE	53	HG-7
14	SPARE	34	SPARE	54	C-102G
15	LI-1, LI-3	35	SPARE	55	HG-8
16	I-100A, I-100C	36	SPARE	56	C-102H
17	MC1-15BP, LK-1, LK-3, LK-5, LI-11, LI-12	37	I-101	57	
18	C-100	38	MC1-22AP	58	
19	I-100	39	SPARE	59	
20	SPARE	40	SPARE	60	



NO.	DATE	REVISION	APPROV.
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EAST SIDE WTP 540 MGD EXPANSION - PART B  
 BASE - NE & SE CLEARWELLS & FLUMES  
 ALTERNATE - NW & SW CLEARWELLS  
 ELECTRICAL DUCTBANK  
 SECTIONS & DETAILS  
**DALLAS WATER UTILITIES**  
 CITY OF DALLAS, TEXAS

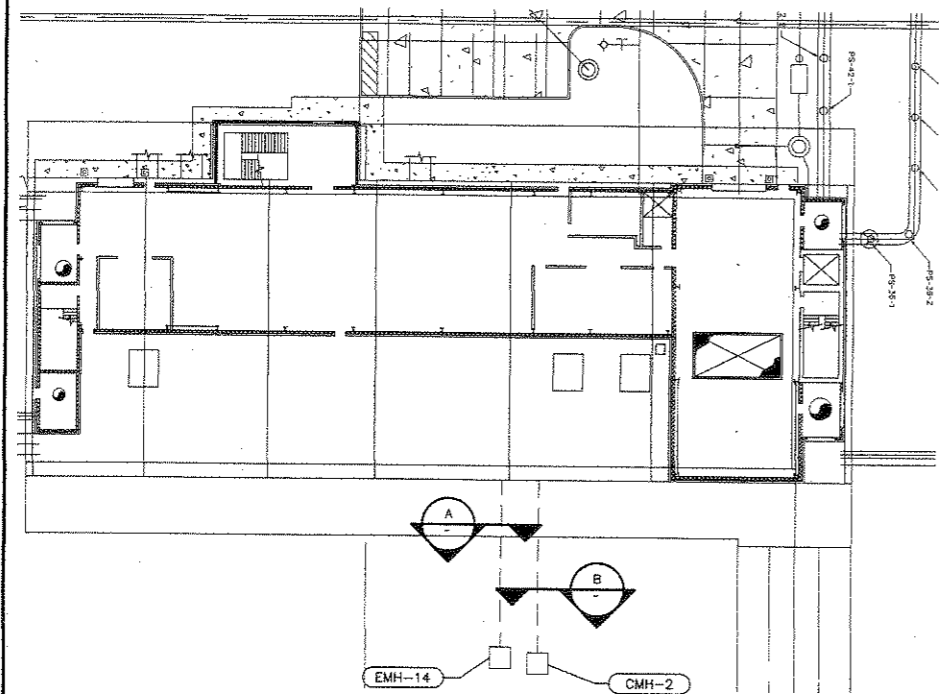
**TCB AECOM**  
 TCB INC.  
 17800 DALLAS PARKWAY, SUITE 1010  
 DALLAS, TEXAS 75248-1167  
 WWW.TCB.AECOM.COM

DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-103
CHECKED	VKG	FILE NO.	152 of 210
APPROVED	VKG	6200-400R.3	
DATE	APRIL 2008		

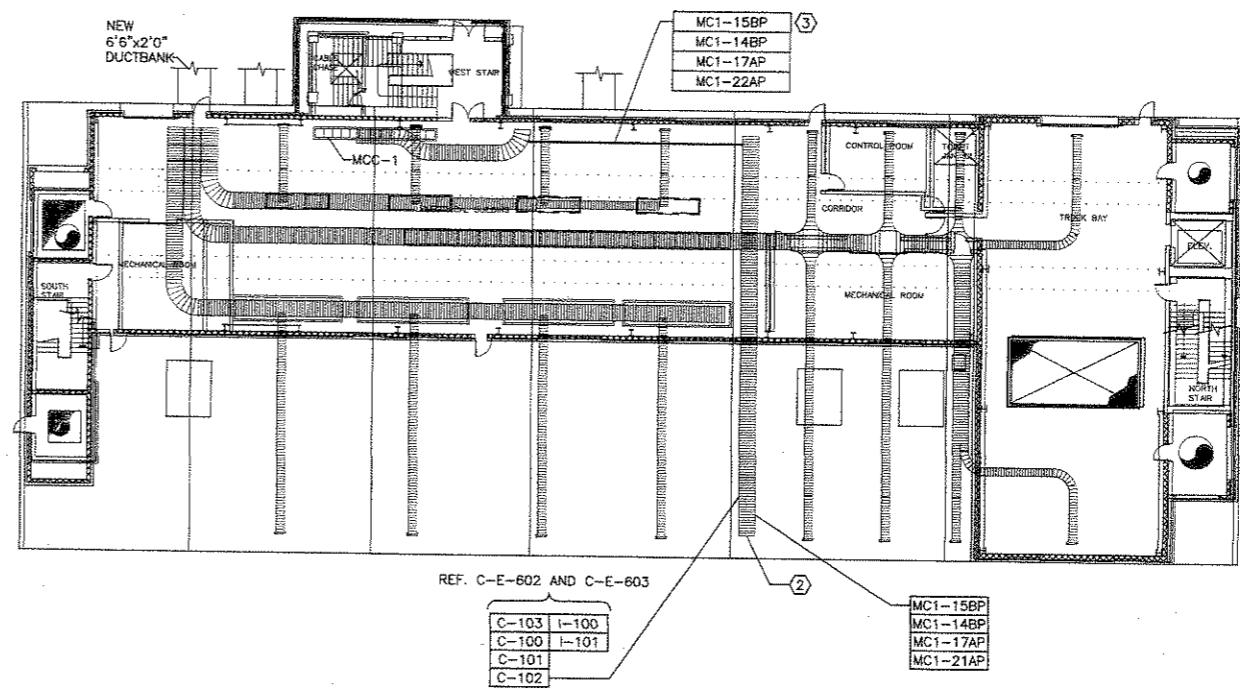
**GAI**  
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 Dallas, Texas 75244  
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 Fax: 972-990-7125  
 email: gai@gaiconsulting.com

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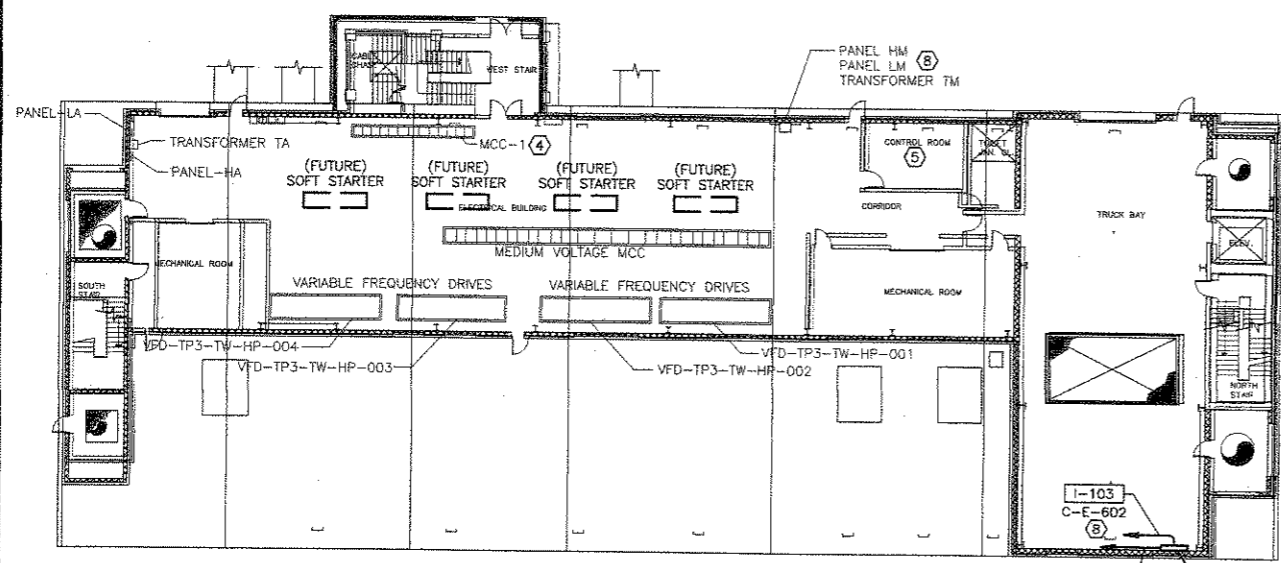




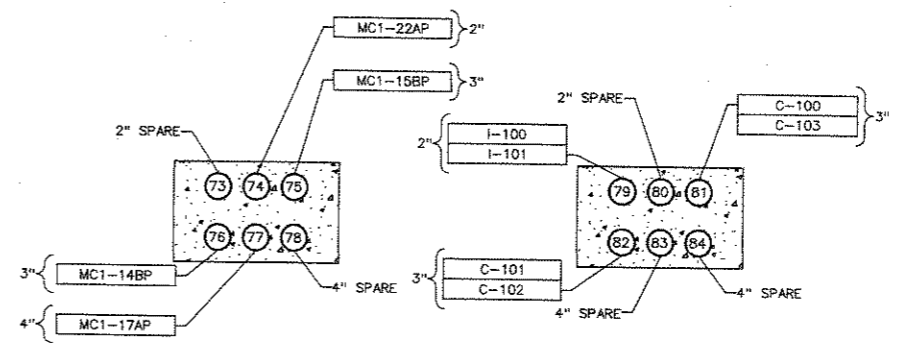
1 ELECTRICAL BUILDING SITE PLAN  
1/2" = 1'-0"



2 PUMP ROOM CABLE TRAY PLAN  
1/16" = 1'-0"



3 ELECTRICAL BUILDING PLAN  
1/16" = 1'-0"



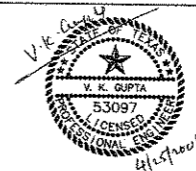
A EMH-14 DUCTBANK DETAIL  
NTS

B CMH-2 DUCTBANK DETAIL  
NTS

- NOTES:
- 1 THESE ARE EXISTING DUCTBANKS WHICH SHALL BE USED FOR PANEL WIRES FOR THE CLEARWELLS.
  - 2 THE CONTRACTORS SHALL USE THE EXISTING CABLE TRAY TO ROUTE THE WIRES TO THE MCC, LCP, RTU AND RIO.
  - 3 INSTALL NEW WIRE & CONDUITS TO THE EXISTING MCC.
  - 4 REFER TO PARTIAL ONE-LINE DIAGRAM ON SHEET C-E-201.
  - 5 REFER TO SHEET C-E-602 FOR CONTROL ROOM LAYOUT.
  - 6 PROVIDE BARRIER IN CABLE TRAYS FOR SIGNAL WIRES.
  - 7 INSTALL CONDUITS FROM CABLE TRAY AND ROUTES WIRES TO RESPECTIVE ELECTRICAL ENCLOSURE OR CONTROL.
  - 8 PROVIDE TO THE ANALYZER FROM THE 120V PANEL LM. USE 3/12, 3/4" UPDATE DIRECTORY.

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NO.	DATE	REVISION	APPROV.
4			
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EAST SIDE WTP 540 MGD EXPANSION - PART B  
BASE - NE & SE CLEARWELLS & FLUMES  
ALTERNATE - NW & SW CLEARWELLS

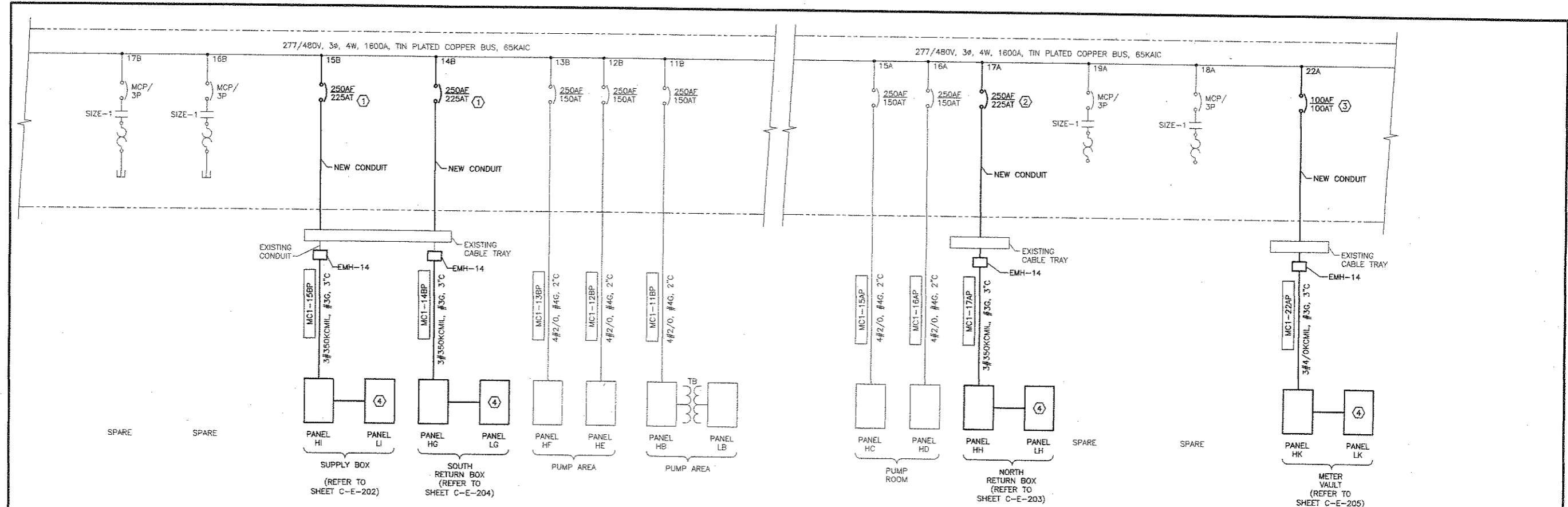
ELECTRICAL BUILDING PLANS & DETAILS

DALLAS WATER UTILITIES  
CITY OF DALLAS, TEXAS

TCB | AECOM

TCB INC.  
17800 DALLAS PARKWAY, SUITE 1010  
DALLAS, TEXAS 75248-1187  
WWW.TCB.AECOM.COM

DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-104
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	153 of 210
DATE	APRIL 2008		



1 PARTIAL 480V MCC-1 ONE-LINE DIAGRAM NTS

SPACE	17B	11B	5B	1B	TVSS	TVSS	1A	5A	11A	12A	18A	SPACE
SPACE	18B	19B	12B					6A	7A	13A	19A	SPACE
SPACE	20B	SPACE	13B	6B	2B		2A	8A	14A	22A		SPACE
SPACE	SPACE	14B	7B	SPACE	MAIN	TIE BREAKER	3A	9A	15A	20A	21A	SPACE
SPACE	SPACE	15B	9B	10B	3B		4A		16A			SPACE
SPACE	SPACE	16B	8B	4B				10A	17A			SPACE

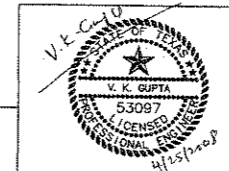
1 EXISTING MCC-1 ADDITION ELEVATION NTS

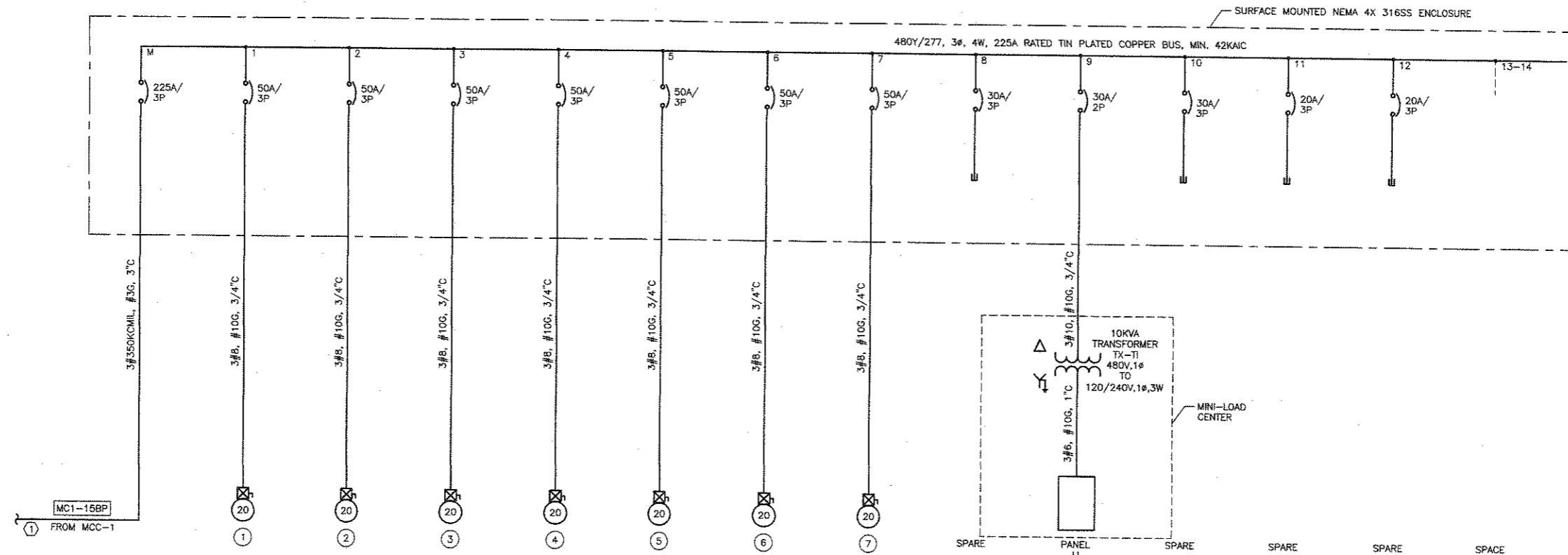
- NOTES:
- REMOVE EXISTING 100A BREAKERS AND INSTALL NEW 250A BREAKERS IN THE MOTOR CONTROL CENTER FOR POWER TO THE PANEL BOARDS LOCATED AT THE CLEARWELLS.
  - INSTALL 250A BREAKER.
  - INSTALL 100A BREAKER.
  - MINI-LOAD CENTER.
  - ALL WIRES SHALL BE CABLE TRAY RATED.

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NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS EXISTING MCC-1 PARTIAL ONE-LINE DIAGRAM & DETAIL			
<b>DALLAS WATER UTILITIES</b> CITY OF DALLAS, TEXAS			
<b>TCB   AECOM</b>		TCB INC. 17888 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1167 WWW.TCB.AECOM.COM	
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-201
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	154 of 210
DATE	APRIL 2008		

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SUPPLY BOX  
POWER PANEL-HI  
ONE-LINE DIAGRAM  
NTS

PANEL BOARD: LI		BUS: COPPER		MAINS: 50A				
SERVICE: 120/240V, 1Ø, 3W		RATING: 100A		LOCATION: SUPPLY BOX - OUTDOOR				
MOUNTING: SURFACE - NEMA 4X 316SS		FEED: TOP						
CKT #	BRKR SIZE	COND SIZE	WIRES	LOAD	WIRES	COND SIZE	BRKR SIZE	CKT #
1	20/1	1"	#10	LEVEL TRANSMITTER LIT-8750-01	#12	3/4"	20/1	2
3	20/1	1"	#10	LEVEL TRANSMITTER LIT-8750-02	-	-	20/1	4
5	20/1	-	-	SPARE	-	-	20/1	6
7	20/1	-	-	SPARE	-	-	20/1	8
9	20/1	-	-	SPARE	-	-	20/1	10
11	20/1	-	-	SPARE	-	-	20/1	12

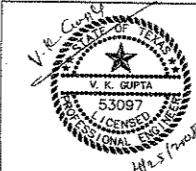
#	EQUIPMENT	EQUIP. #
1	SLUICE GATE	JB1-FW-SG-001
2	SLUICE GATE	JB1-FW-SG-002
3	SLUICE GATE	JB1-FW-SG-021
4	SLUICE GATE	JB1-FW-SG-022
5	SLUICE GATE	JB1-FW-SG-011
6	SLUICE GATE	JB1-FW-SG-012
7	SLUICE GATE	JB1-FW-SG-031

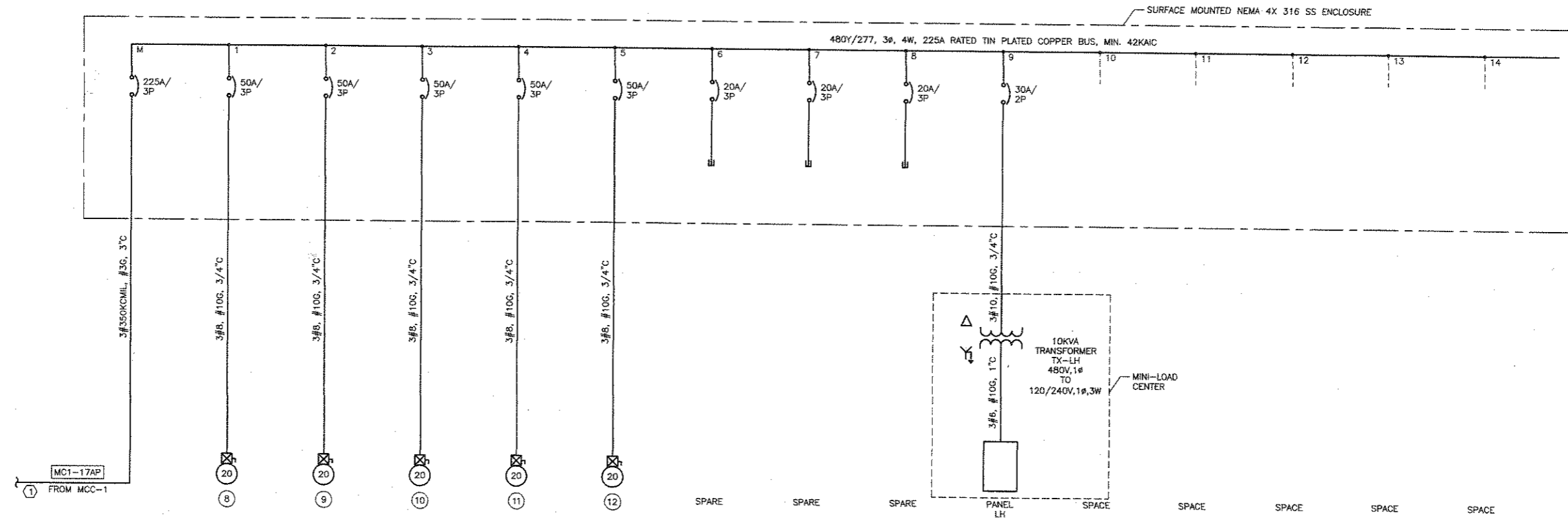
NOTES:  
 ① REFER TO SHEET C-E-201.  
 ② INSTALL THE WIRES AND CONDUITS FOR THESE LIT'S UNDER ADD.ALT.NO.1.

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NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS SUPPLY BOX, POWER PANEL HI ONE-LINE DIAGRAM			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS			
TCB AECOM		TCB INC. 17800 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1157 WWW.TCB.AECOM.COM	
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-202
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	155 of 210
DATE	APRIL 2008		

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1 NORTH RETURN BOX POWER PANEL-HH ONE-LINE DIAGRAM NTS

PANEL BOARD: LH		BUS: COPPER		MAINS: 50A					
SERVICE: 120/240V, 1Ø, 3W		RATING: 100A		LOCATION: NORTH RETURN BOX-OUTDOOR					
MOUNTING: SURFACE - NEMA 4X 316SS		FEED: BOTTOM							
CKT #	BRKR SIZE	COND SIZE	WIRES	LOAD	LOAD	WIRES	COND SIZE	BRKR SIZE	CKT #
1	20/1	3/4"	#12	LIGHTS	RECEPTACLE	#12	3/4"	20/1	2
3	20/1	3/4"	#12	LIGHTS	SPARE	-	-	20/1	4
5	20/1	-	-	SPARE	SPARE	-	-	20/1	6
7	20/1	-	-	SPARE	SPARE	-	-	20/1	8
9	20/1	-	-	SPARE	SPARE	-	-	20/1	10
11	20/1	-	-	SPARE	SPARE	-	-	20/1	12

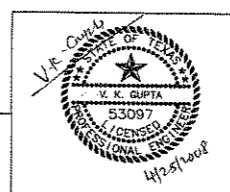
#	EQUIPMENT	EQUIP. #
8	SLUICE GATE	JB2-TW-SG-001
9	SLUICE GATE	JB2-TW-SG-002
10	SLUICE GATE	JB2-TW-SG-011
11	SLUICE GATE	JB2-TW-SG-012
12	SLUICE GATE	JB2-TW-SG-021

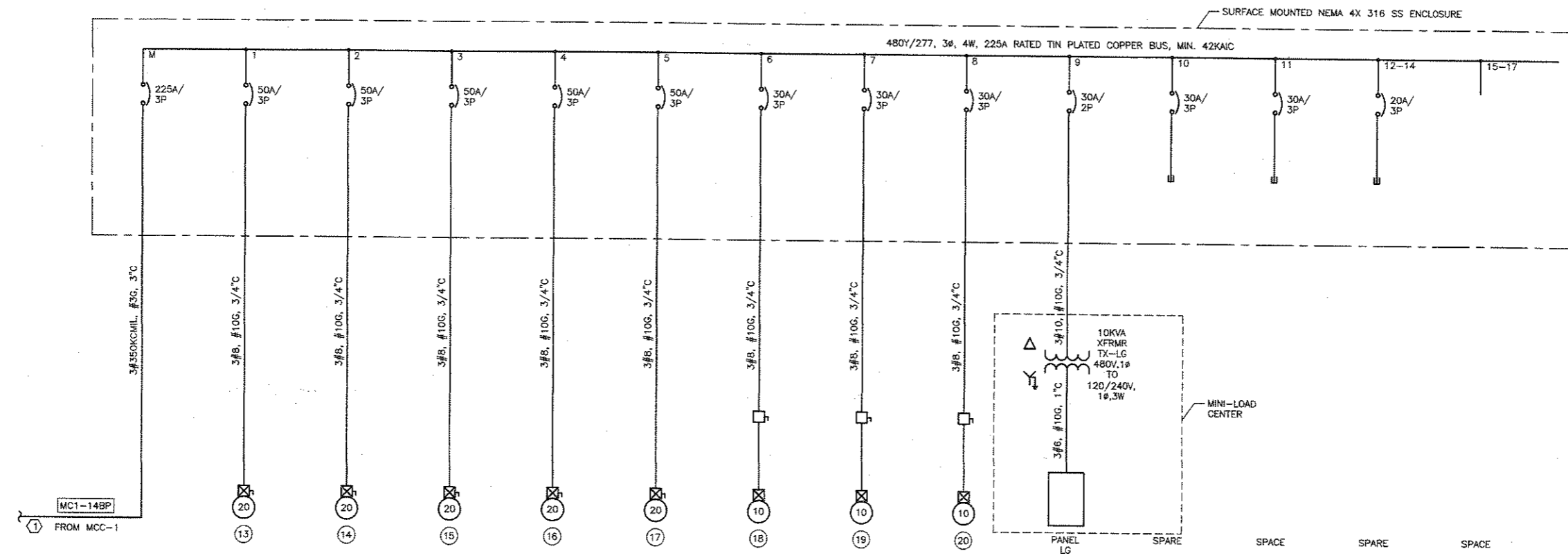
NOTES:  
1 REFER TO SHEET C-E-201.

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NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS NORTH RETURN BOX, POWER PANEL HH ONE-LINE DIAGRAM			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS			
TCB AECOM		TCB INC. 17800 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1057 WWW.TCB.AECOM.COM	
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-203
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	156 of 210
DATE	APRIL 2008		

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SOUTH RETURN BOX  
POWER PANEL-HG  
ONE-LINE DIAGRAM

NTS

PANEL BOARD: LG		BUS: COPPER		MAINS: 50A				
SERVICE: 120/240V, 1φ, 3W		RATING: 100A		LOCATION: SOUTH RETURN BOX - OUTDOOR				
MOUNTING: SURFACE - NEMA 4X 316SS		FEED: BOTTOM						
CKT #	BRKR SIZE	COND SIZE	WIRES	LOAD	WIRES	COND SIZE	BRKR SIZE	CKT #
1	20/1	3/4"	#12	LIGHTS	RECEPTACLE	#12	3/4"	2
3	20/1	3/4"	#12	LIGHTS	SPARE	-	20/1	4
5	20/1	-	-	SPARE	SPARE	-	20/1	6
7	20/1	-	-	SPARE	SPARE	-	20/1	8
9	20/1	-	-	SPARE	SPARE	-	20/1	10
11	20/1	-	-	SPARE	SPARE	-	20/1	12

#	EQUIPMENT	EQUIP. #
13	SLUICE GATE	JB3-TW-SG-001
14	SLUICE GATE	JB3-TW-SG-002
15	SLUICE GATE	JB3-TW-SG-011
16	SLUICE GATE	JB3-TW-SG-012
17	SLUICE GATE	JB3-TW-SG-021
18	YARD VALVE	YD-TW-BU-002
19	YARD VALVE	YD-TW-BU-003
20	YARD VALVE	YD-TW-BU-005

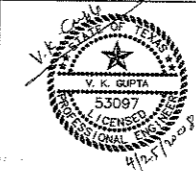
NOTES:  
 ① REFER TO SHEET C-E-201.  
 ② THE LOCAL DISCONNECT SWITCHES ARE NOT SHOWN ON THE PLAN DRAWINGS.

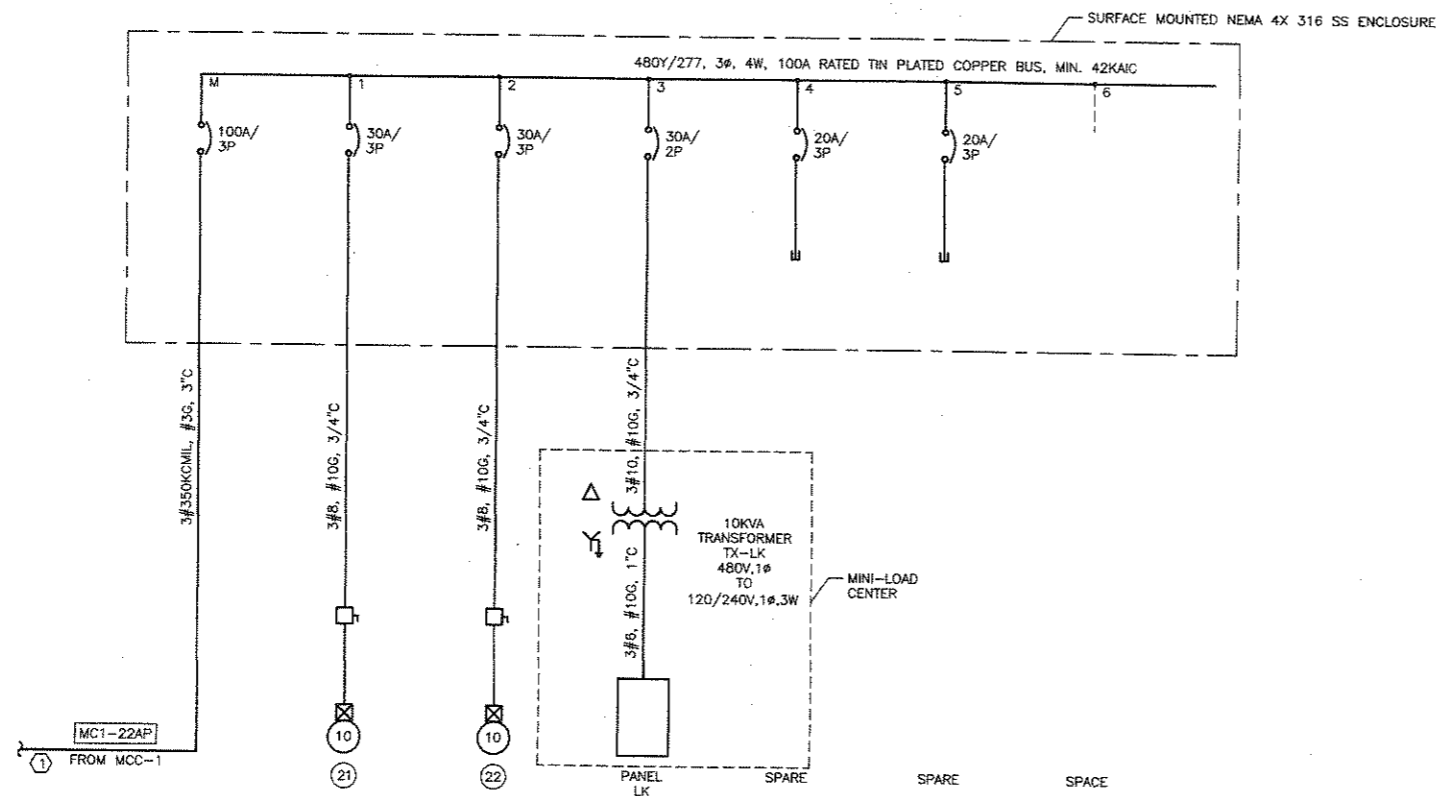
NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS SOUTH RETURN BOX, POWER PANEL HG ONE-LINE DIAGRAM			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS			
TCB AECOM		TCB INC. 17800 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1167 WWW.TCB.AECOM.COM	
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-204
CHECKED	VKG	FILE NO.	157 of 210
APPROVED	VKG	620Q-400R.3	
DATE	APRIL 2008		

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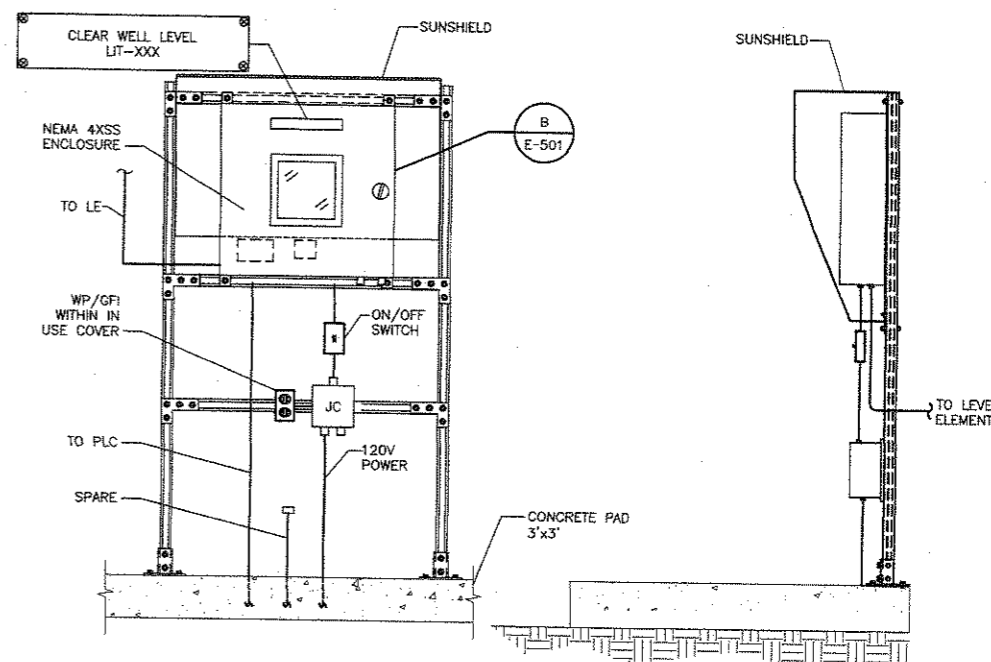


METER VAULT  
POWER PANEL-HK  
ONE-LINE DIAGRAM

#	EQUIPMENT	EQUIP. #
21	YARD VALVE	YD-TW-BU-001
22	YARD VALVE	YD-TW-BU-004

- NOTES:
- REFER TO SHEET C-E-201.
  - THE LOCAL DISCONNECT SWITCHES ARE NOT SHOWN ON THE PLAN DRAWING.

PANEL BOARD: LK		BUS: COPPER	MAINS: 50A						
SERVICE: 120/240V, 1φ, 3W		RATING: 100A	LOCATION: METER VAULT						
MOUNTING: SURFACE - NEMA 4X 316SS		FEED: BOTTOM							
CKT #	BRKR SIZE	COND SIZE	WIRES	LOAD	LOAD	WIRES	COND SIZE	BRKR SIZE	CKT #
1	20/1	1"	#10	FLOW TRANSMITTER	HEAT TRACE	-	-	20/1	2
3	20/1	1"	#10	LIGHTS	HEAT TRACE	-	-	20/1	4
5	20/1	1"	#10	LIGHTS	SUMP PUMP	-	-	20/1	6
7	20/1	-	-	SPARE	SPARE	-	-	20/1	8
9	20/1	-	-	SPARE	SPARE	-	-	20/1	10
11	20/1	-	-	SPARE	SPARE	-	-	20/1	12

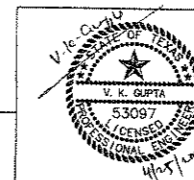


LEVEL TRANSMITTER  
DETAIL

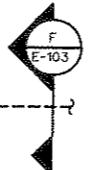
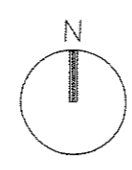
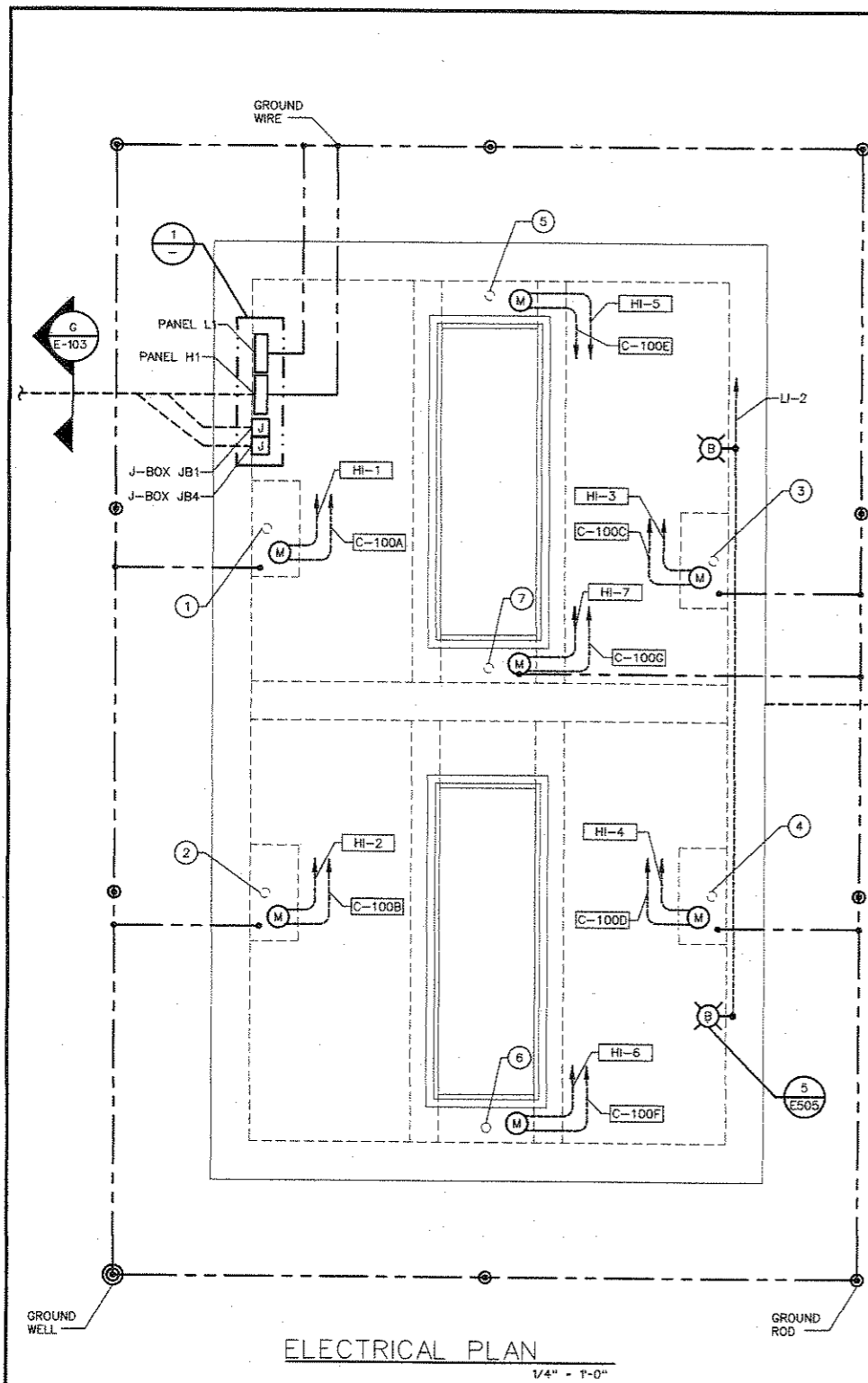
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TYP. OF 2

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consulting engineering

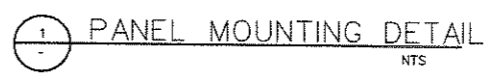
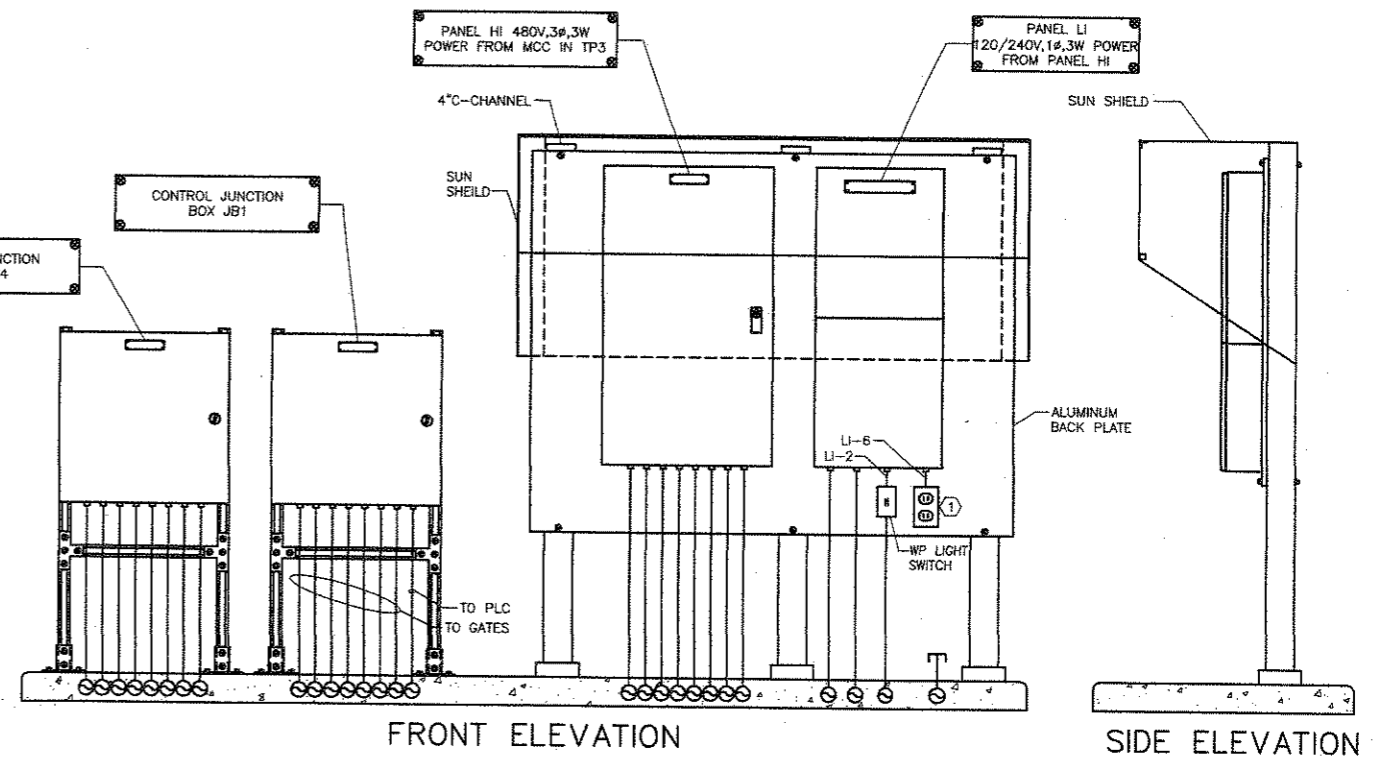
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NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS METER VAULT, POWER PANEL HK ONE-LINE DIAGRAM			
<b>DALLAS WATER UTILITIES</b> CITY OF DALLAS, TEXAS			
<b>TCB   AECOM</b>		TCB INC. 12800 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75245-1167 WWW.TCB.AECOM.COM	
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-205
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	158 of 210
DATE	APRIL 2008		



#	EQUIPMENT	EQUIP. #
①	SLUICE GATE	JB1-FW-SG-001
②	SLUICE GATE	JB1-FW-SG-002
③	SLUICE GATE	JB1-FW-SG-021
④	SLUICE GATE	JB1-FW-SG-022
⑤	SLUICE GATE	JB1-FW-SG-011
⑥	SLUICE GATE	JB1-FW-SG-012
⑦	SLUICE GATE	JB1-FW-SG-031



NOTES:  
 ① INSTALL WP/GFI WITH IN-USE COVER.

NO.	DATE	REVISION	APPROV.

EAST SIDE WTP 540 MGD EXPANSION - PART B  
 BASE - NE & SE CLEARWELLS & FLUMES  
 ALTERNATE - NW & SW CLEARWELLS

**SUPPLY BOX - ELECTRICAL PLAN & DETAILS**

**DALLAS WATER UTILITIES**  
 CITY OF DALLAS, TEXAS

**TCB AECOM**

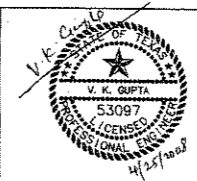
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 APPROVED: VKG  
 DATE: APRIL 2008

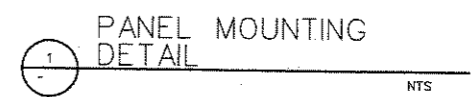
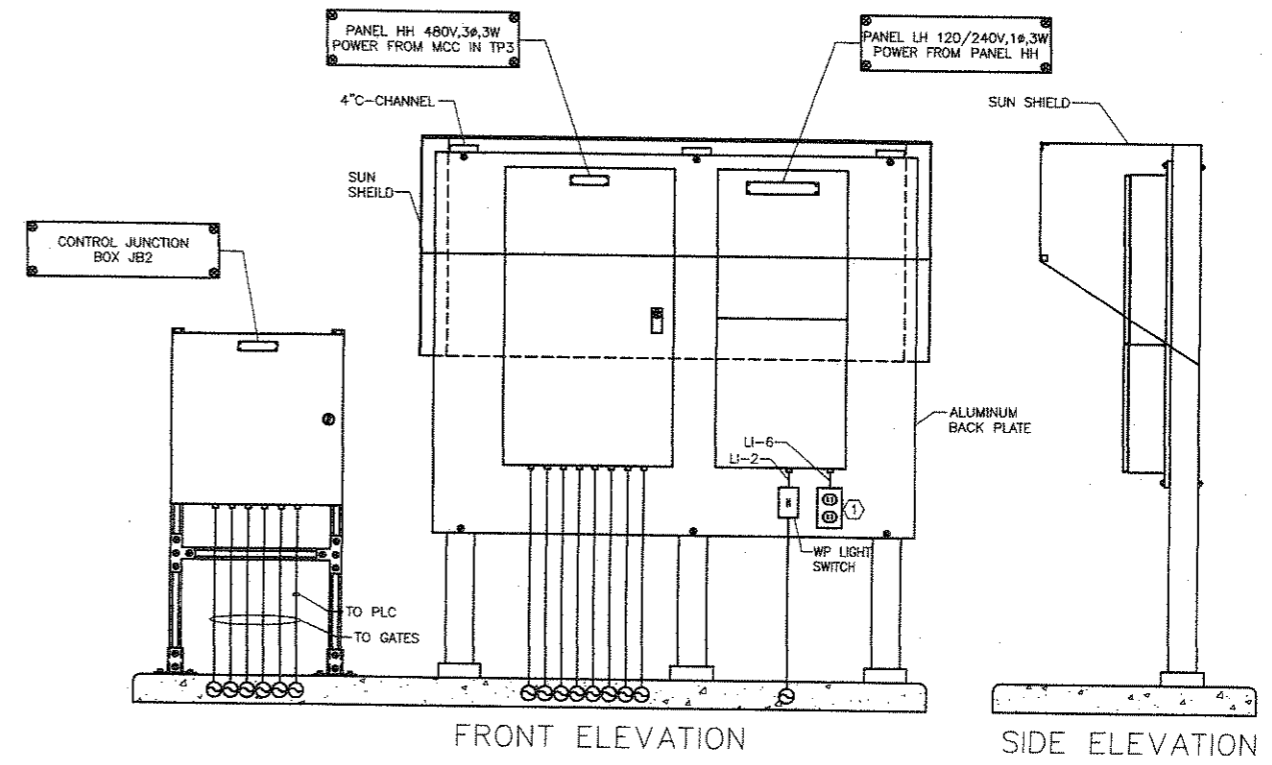
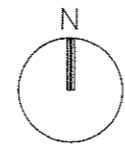
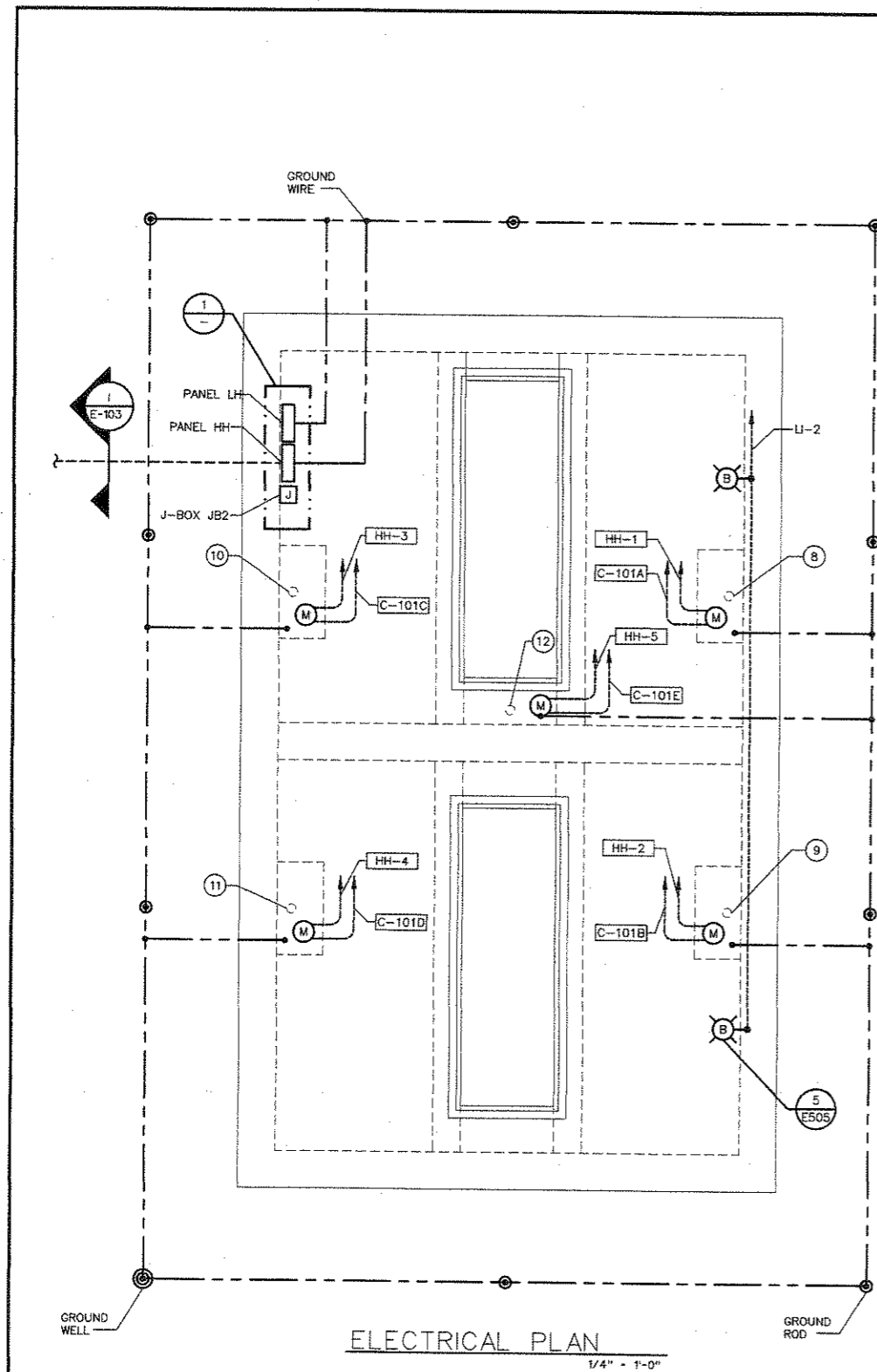
CONTRACT NO. 08-155  
 FILE NO. 620Q-400R.3

DWG. NO. C-E-401  
 159 OF 210

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NOTES:  
① INSTALL WP/GFI WITH IN-USE COVER.

#	EQUIPMENT	EQUIP. #
⑧	SLUICE GATE	JB2-TW-SG-001
⑨	SLUICE GATE	JB2-TW-SG-002
⑩	SLUICE GATE	JB2-TW-SG-011
⑪	SLUICE GATE	JB2-TW-SG-012
⑫	SLUICE GATE	JB2-TW-SG-021

NO.	DATE	REVISION	APPROV.
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EAST SIDE WTP 540 MGD EXPANSION - PART B  
BASE - NE & SE CLEARWELLS & FLUMES  
ALTERNATE - NW & SW CLEARWELLS  
NORTH RETURN JUNCTION BOX-  
ELECTRICAL PLAN & DETAILS  
**DALLAS WATER UTILITIES**  
CITY OF DALLAS, TEXAS

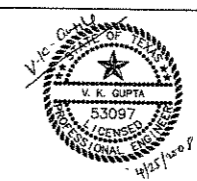
**TCB AECOM**  
TCB INC.  
17800 DALLAS PARKWAY, SUITE 1010  
DALLAS, TEXAS 75248-1857  
WWW.TCB.AECOM.COM

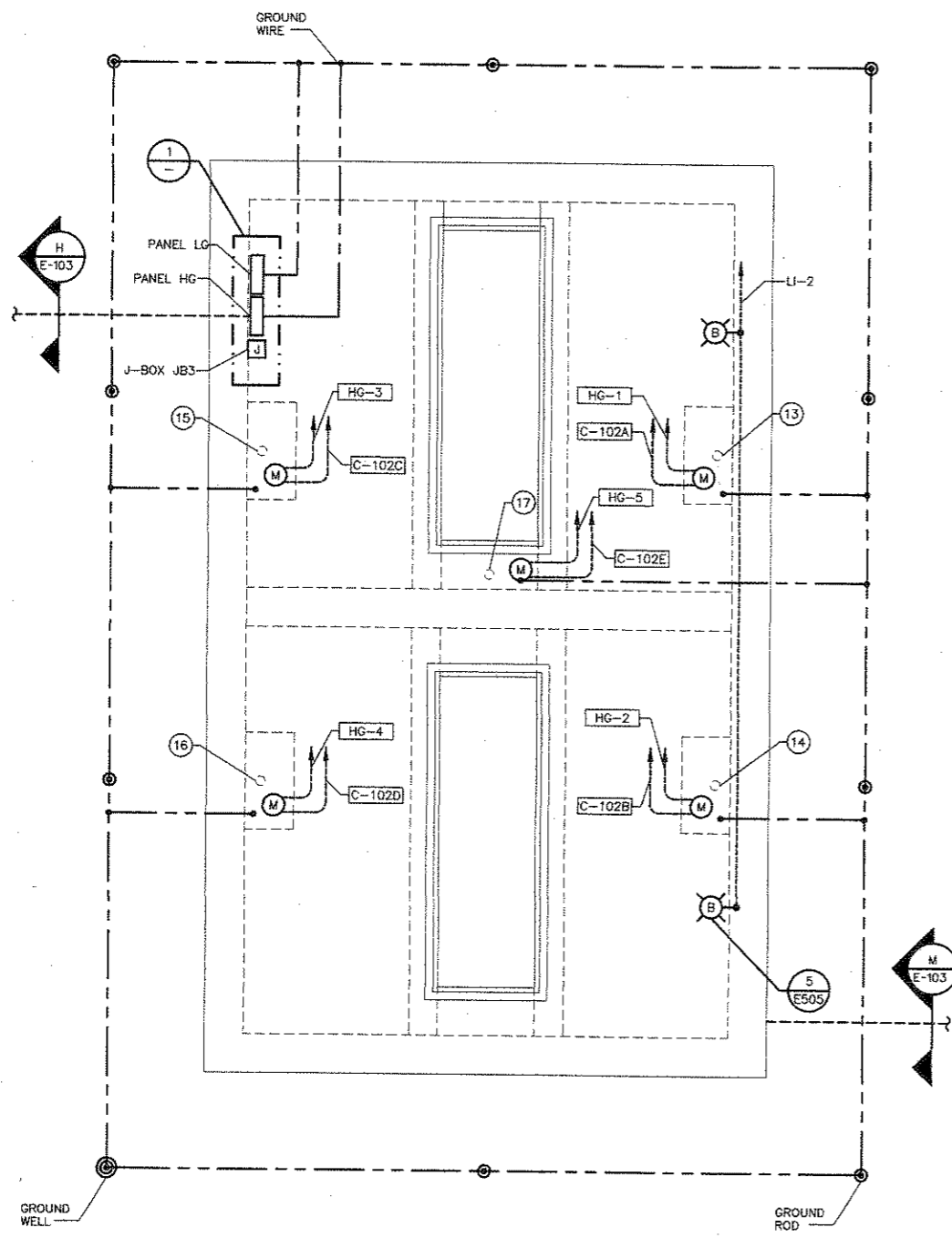
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DRAWN	ER	08-155	C-E-402
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	160 of 210
DATE	APRIL 2008		

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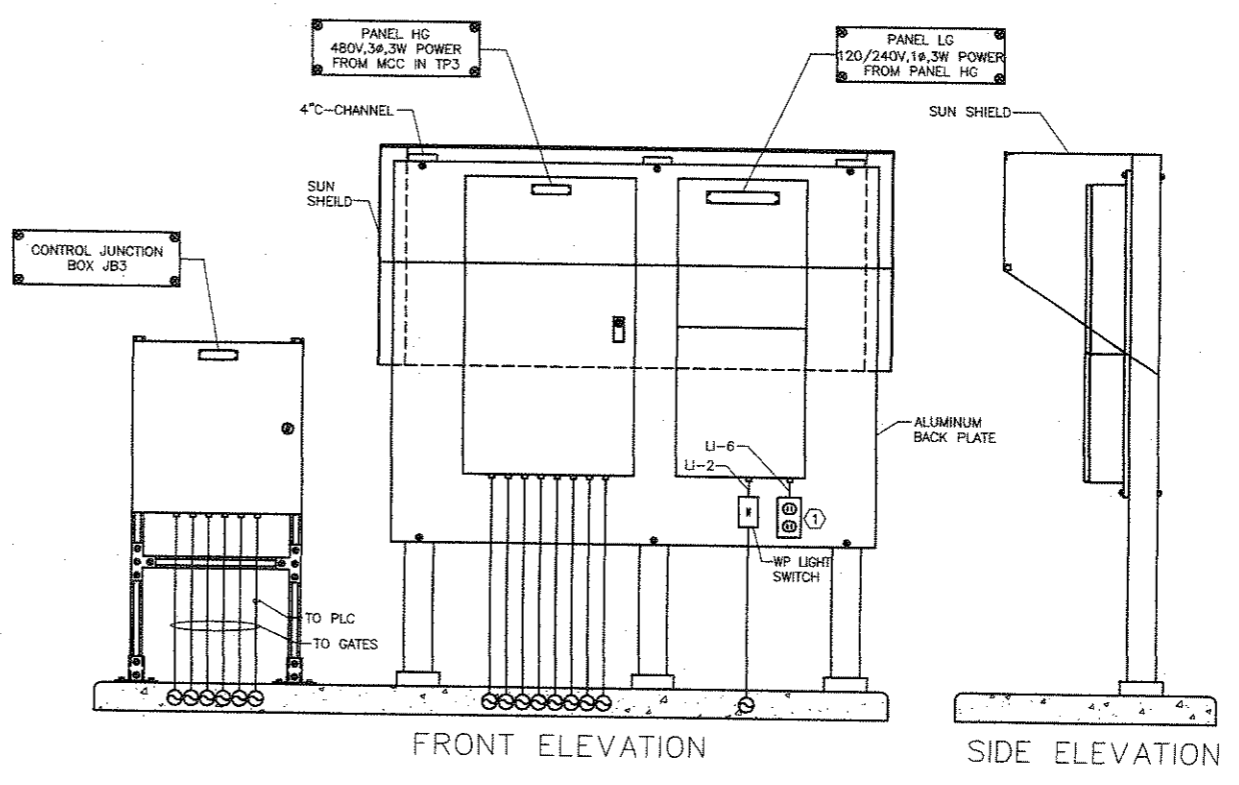
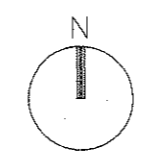
13626 Green Road  
Dallas, Texas 75244  
Tel: 972-490-7661  
Fax: 972-490-7125  
email: gai@gaiconsulting.com

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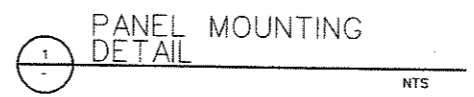


ELECTRICAL PLAN  
1/4" = 1'-0"



FRONT ELEVATION

SIDE ELEVATION



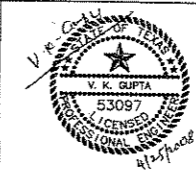
PANEL MOUNTING  
DETAIL

NOTES:  
① INSTALL WP/GFI WITH IN-USE COVER.

#	EQUIPMENT	EQUIP. #
13	SLUICE GATE	JB3-TW-SG-001
14	SLUICE GATE	JB3-TW-SG-002
15	SLUICE GATE	JB3-TW-SG-011
16	SLUICE GATE	JB3-TW-SG-012
17	SLUICE GATE	JB3-TW-SG-021

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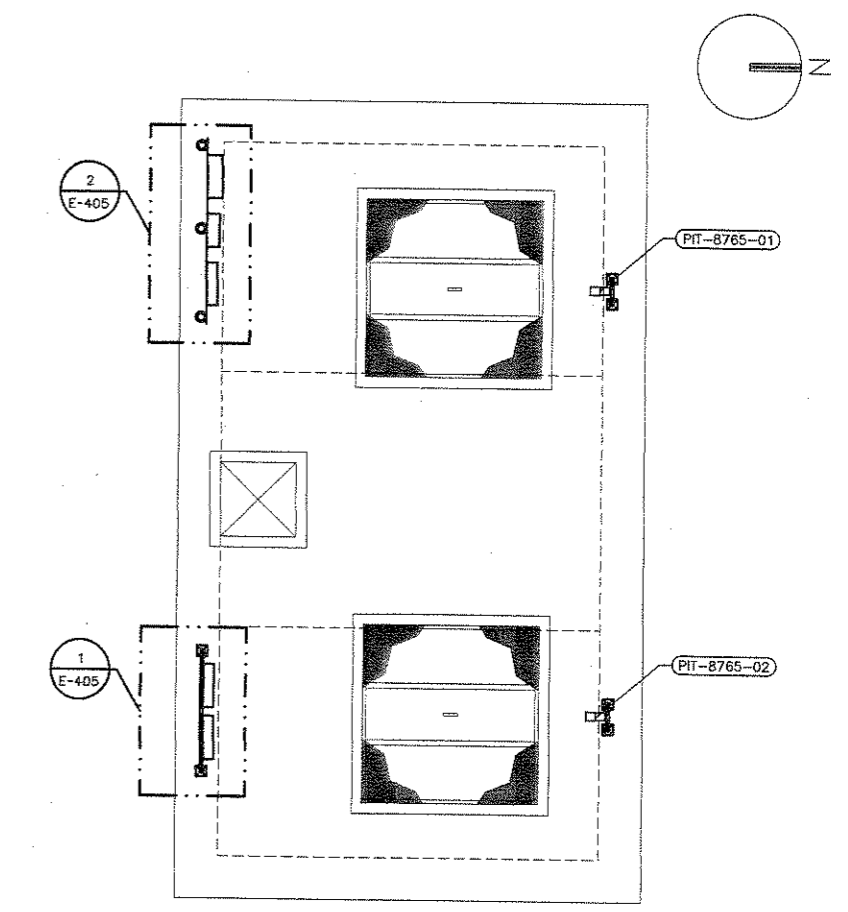
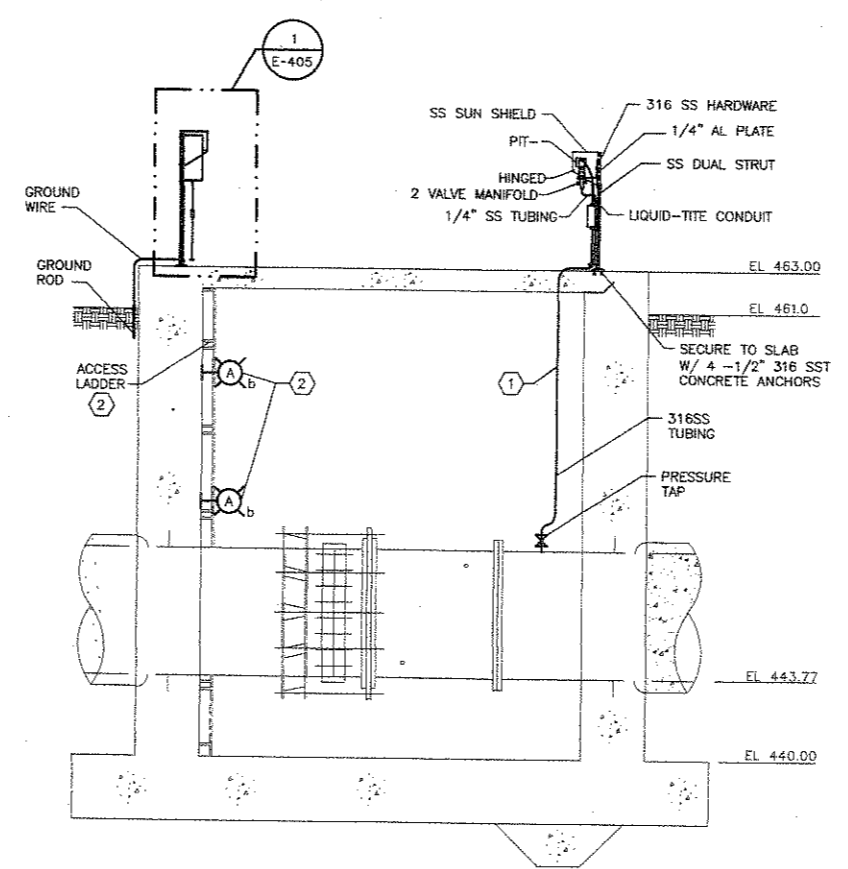
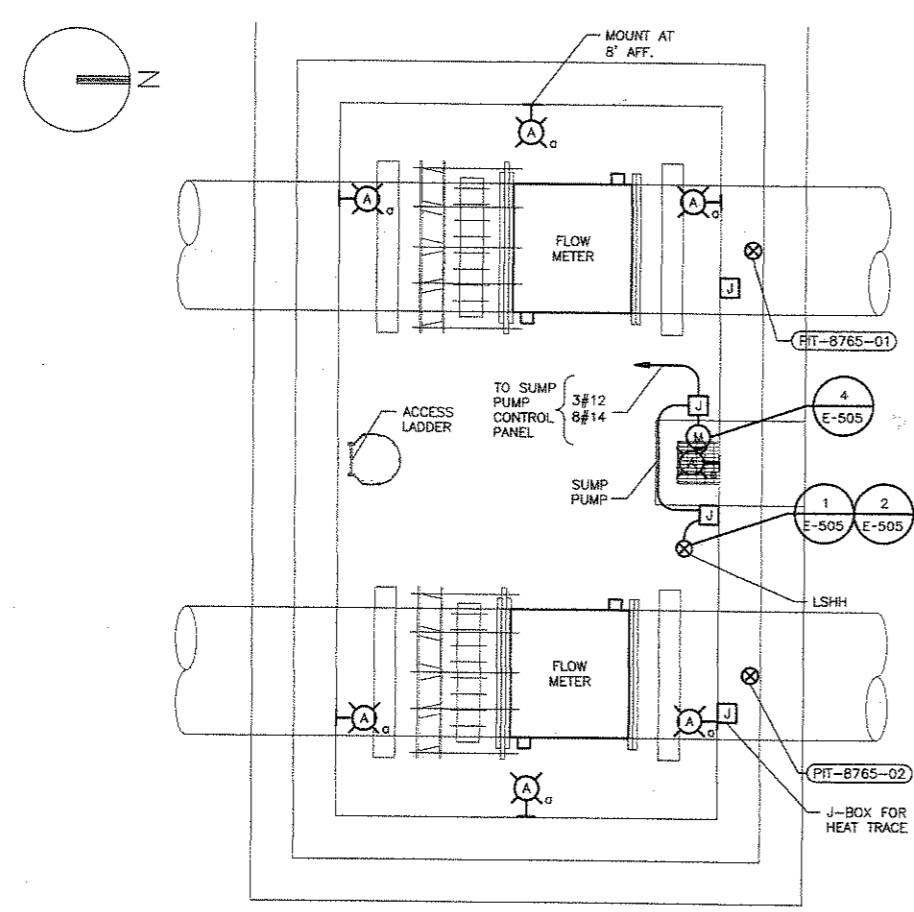
NO.	DATE	REVISION	APPROV.
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EAST SIDE WTP 540 MGD EXPANSION - PART B  
BASE - NE & SE CLEARWELLS & FLUMES  
ALTERNATE - NW & SW CLEARWELLS  
SOUTH RETURN JUNCTION BOX -  
ELECTRICAL PLAN & DETAILS  
DALLAS WATER UTILITIES  
CITY OF DALLAS, TEXAS

TCB AECOM  
TCB INC.  
17900 DALLAS PARKWAY, SUITE 1010  
DALLAS, TEXAS 75248-1157  
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DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-403
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	161 of 210
DATE	APRIL 2008		

- NOTES:
- ① INSULATE AND HEAT TRACE THE TUBING.
  - ② INSTALL FIXTURES NEXT TO THE ACCESS LADDER.
  - ③ REFER TO RISER DIAGRAM ON SHEET C-E-405.

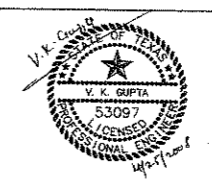


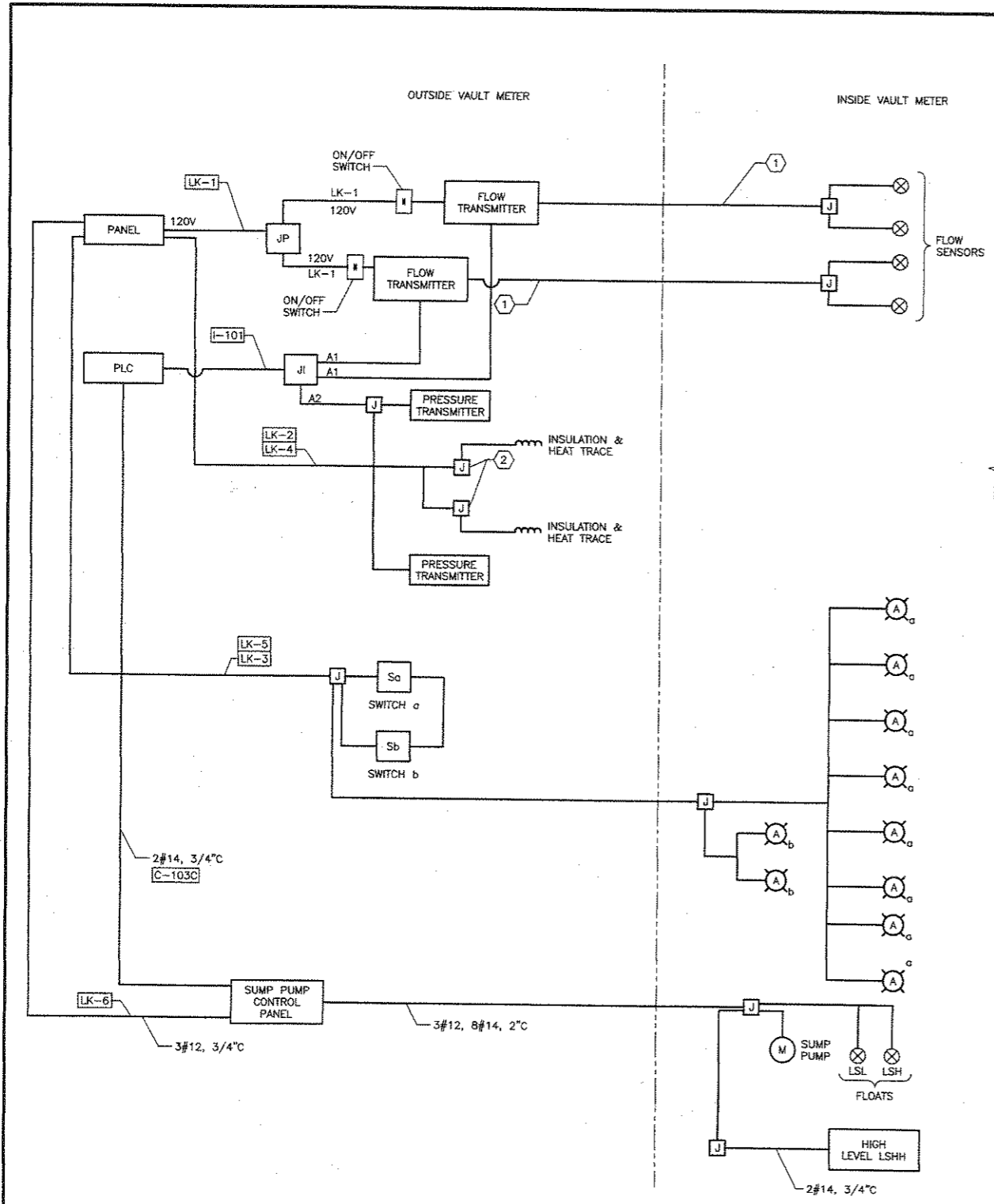
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NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS			
METER VAULT - ELECTRICAL DETAILS & PLAN			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS			
TCB   AECOM		TCB INC. 17800 DALLAS PARKWAY, SUITE 1000 DALLAS, TEXAS 75248-1157 WWW.TCB.AECOM.COM	
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-404
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	162 of 210
DATE	APRIL 2008		

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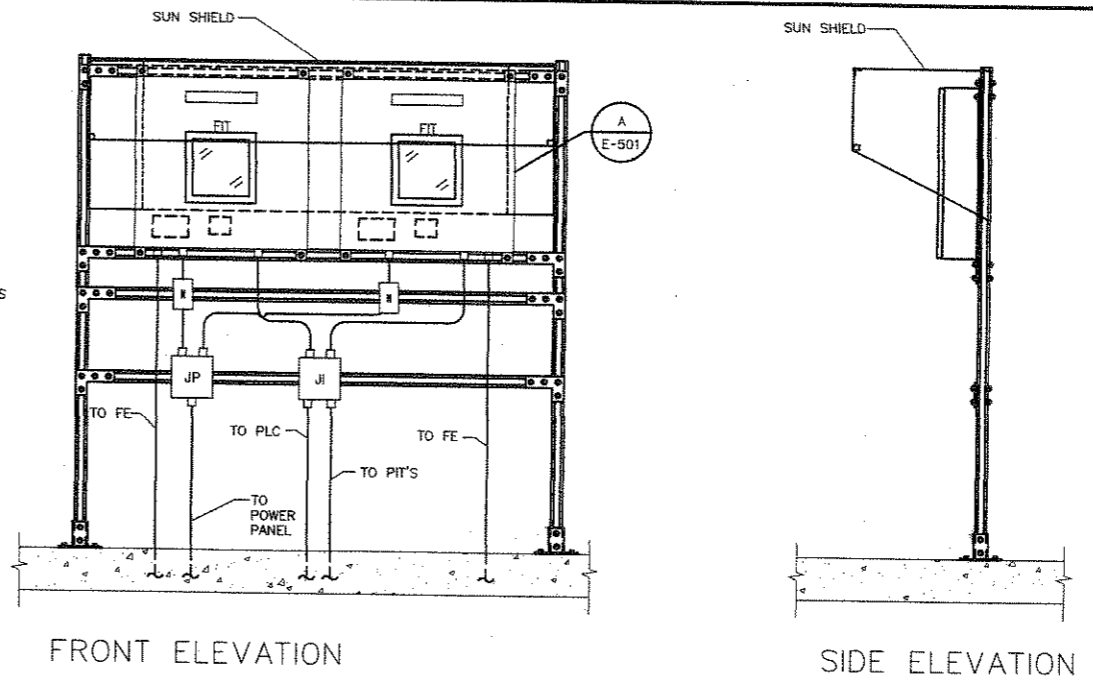
13624 Geneva Road  
Dallas, Texas 75244  
Tel: 972-498-7501  
Fax: 972-498-7125  
www.gai.com

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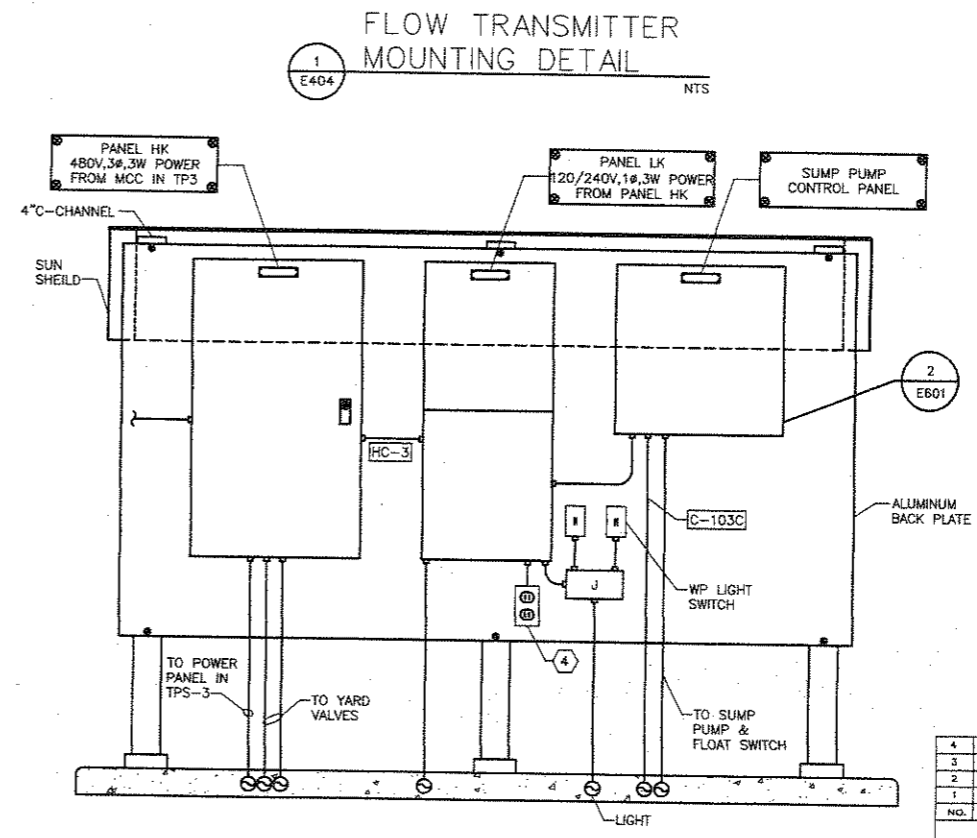




METER VAULT POWER RISER DIAGRAM  
 1 E404 NTS



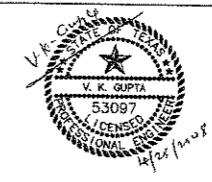
- NOTES:
- 1 INSTALL MANUFACTURER FURNISHED WIRE IN 2" CONDUIT.
  - 2 FOR HEAT TRACING.
  - 3 THE CONTRACTOR SHALL FIELD ROUTE CONDUITS AS SHOWN ON THE RISER DIAGRAM.
  - 4 WP/GFI RECEPTACLE WITH IN-USE COVER.



PANEL MOUNTING DETAIL  
 2 E404

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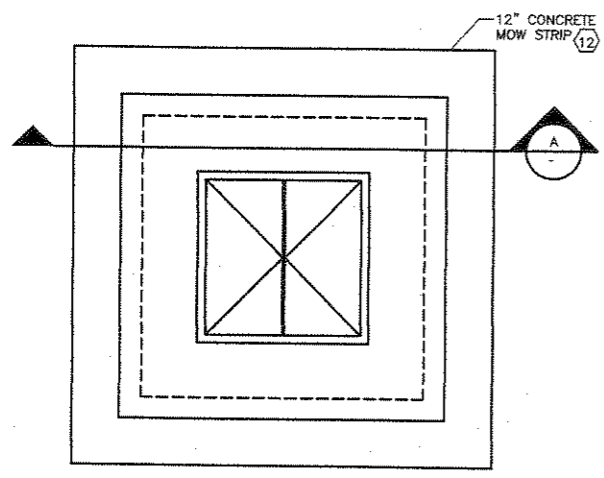
EAST SIDE WTP 540 MGD EXPANSION - PART B  
 BASE - NE & SE CLEARWELLS & FLUMES  
 ALTERNATE - NW & SW CLEARWELLS  
 METER VAULT - DETAILS  
 AND RISER DIAGRAM

**DALLAS WATER UTILITIES**  
 CITY OF DALLAS, TEXAS

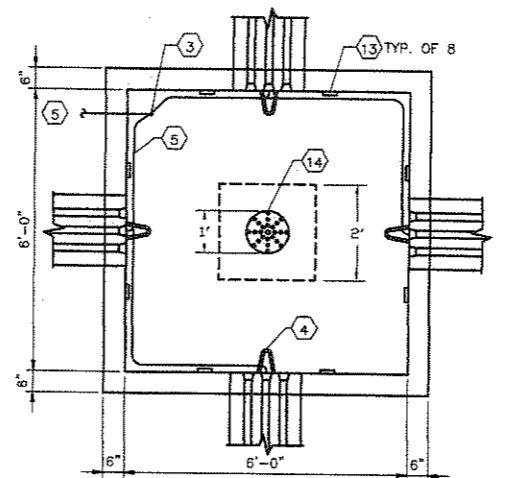
**TCB AECOM**

TCB INC.  
 17300 DALLAS PARKWAY, SUITE 1010  
 DALLAS, TEXAS 75248-1157  
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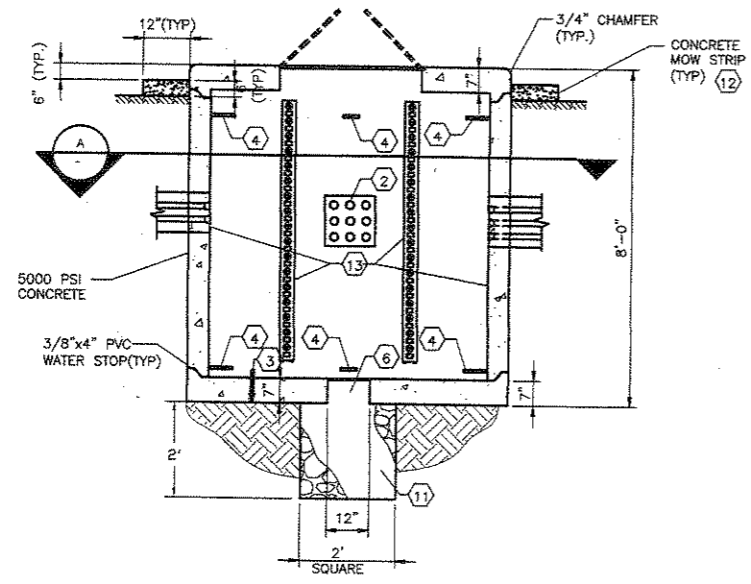
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-405
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	163 of 210
DATE	APRIL 2008		



1 MANHOLE SECTION  
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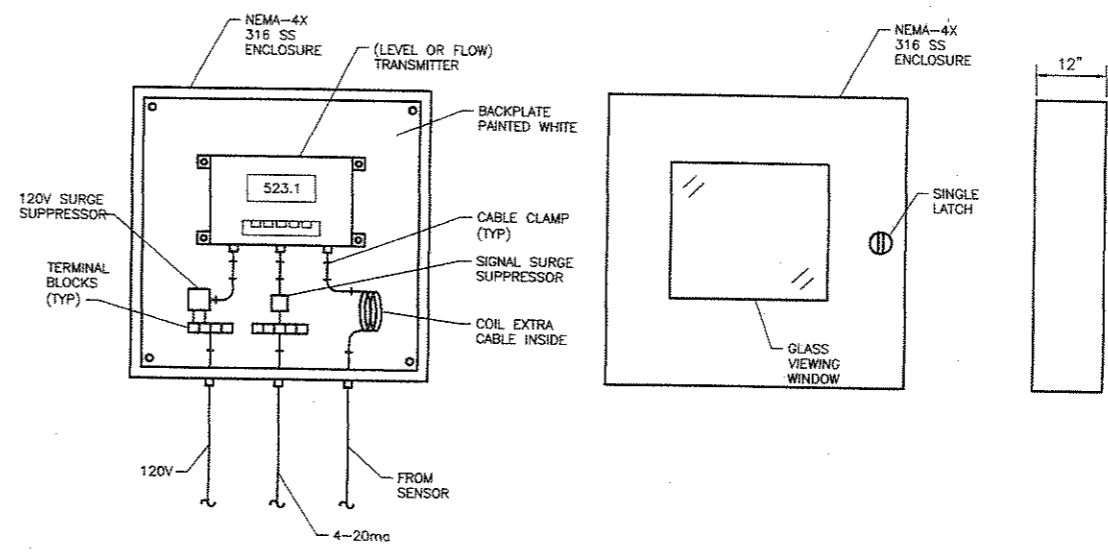


2 MANHOLE SECTION  
NTS



3 MANHOLE SECTION  
NTS

(GRASS AREAS) ELECTRICAL MANHOLE (EMH) DETAIL  
NTS



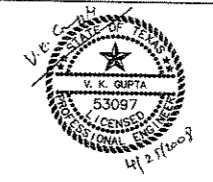
INSTRUMENT MOUNTING DETAIL  
NTS  
TYP. OF 4

- NOTES:
- 1 MANHOLE COVER SHALL BE AS SPECIFIED.
  - 2 ALL CONDUITS SHALL BE TERMINATED IN MANHOLE WITH BELL ENDS AND CENTER ON THE ENTERING WALL.
  - 3 3/4" X 10'-0" STAINLESS STEEL GROUND ROD.
  - 4 PROVIDE PULLING IRONS AS SPECIFIED.
  - 5 #4/0 BARE STRANDED TINNED COPPER CONDUCTOR TO MAIN GROUND GRID.
  - 6 MANHOLES SHALL BE EQUIPPED WITH 12" SUMP OPENING.
  - 7 MANHOLES SHALL BE CONSTRUCTED FOR HS-20 HIGHWAY LOADING, AS REQUIRED BY LOCATION.
  - 8 MANHOLE EXTENSIONS SHALL BE USED WHENEVER BOX IS BELOW EXISTING GRADE. THE EXTENSION SHALL BE CONSTRUCTED FOR HS-20 HIGHWAY LOADING, AS REQUIRED BY LOCATION.
  - 9 ANCHORS SHALL BE 316SS AS SPECIFIED.
  - 10 MANHOLES SHALL BE FLUSH WITH THE PAVEMENT WHEN INSTALLED IN ROADWAYS.
  - 11 TO BE FILLED WITH PEA GRAVEL.
  - 12 MANHOLE SHALL BE 12" ABOVE GRADE WHEN LOCATED IN GRASSY AREAS. CONTRACTOR SHALL PROVIDE A 12" MOW STRIP 6" ABOVE GROUND ALL AROUND MANHOLE.
  - 13 MOUNTING RACKS SHALL BE AS SPECIFIED.
  - 14 SHALL BE PLASTIC GRATE.

THESE MANHOLE DETAILS SHALL ONLY BE USED FOR 600V SYSTEMS

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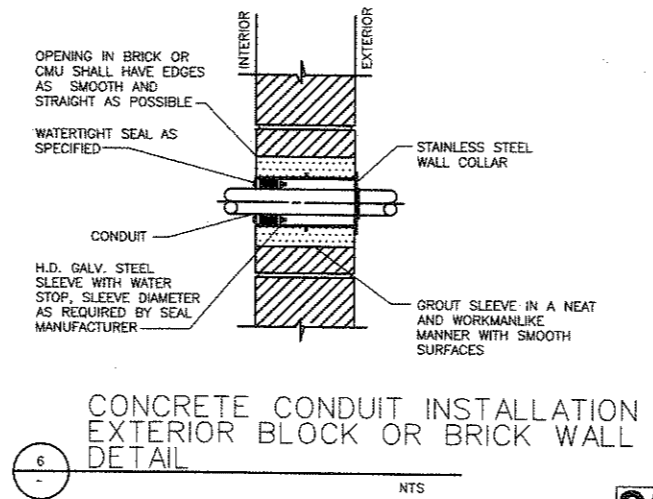
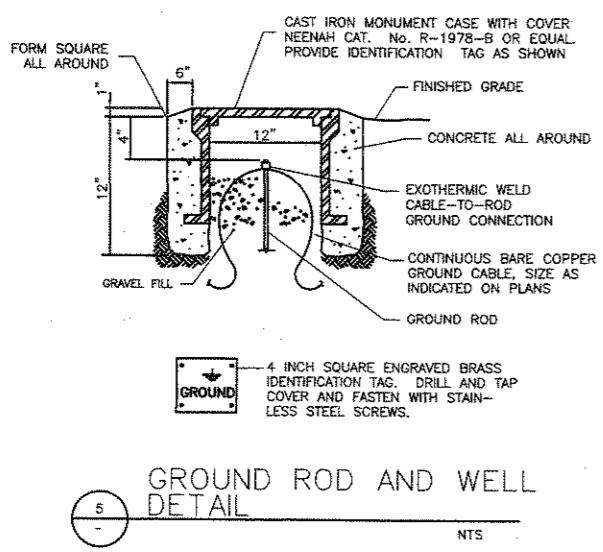
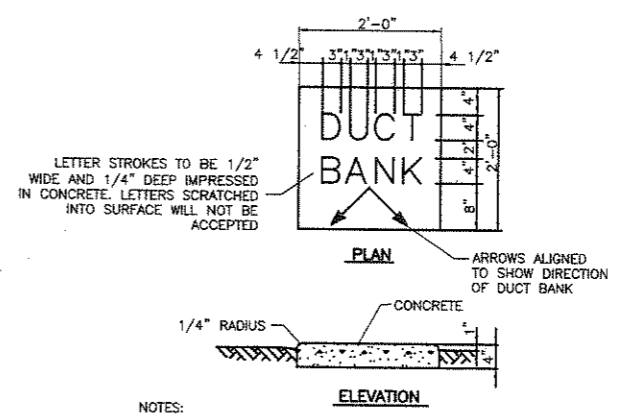
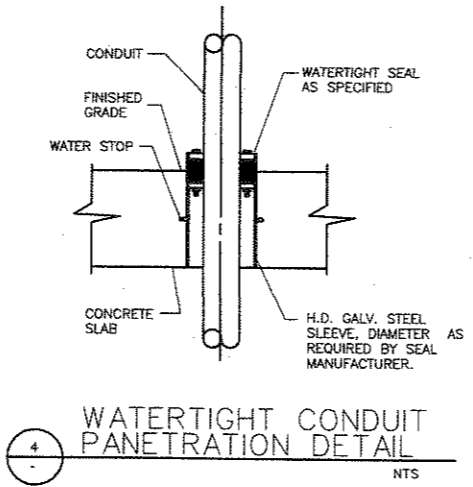
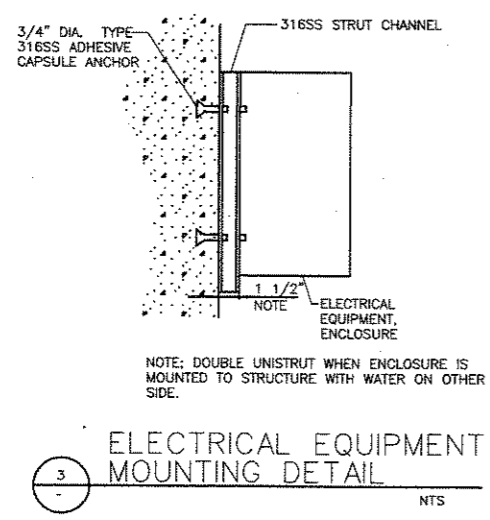
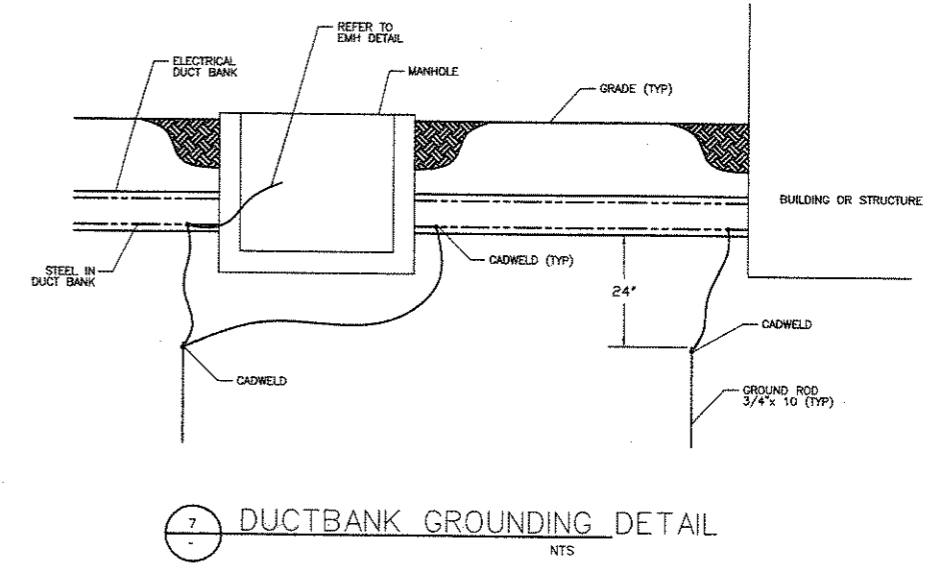
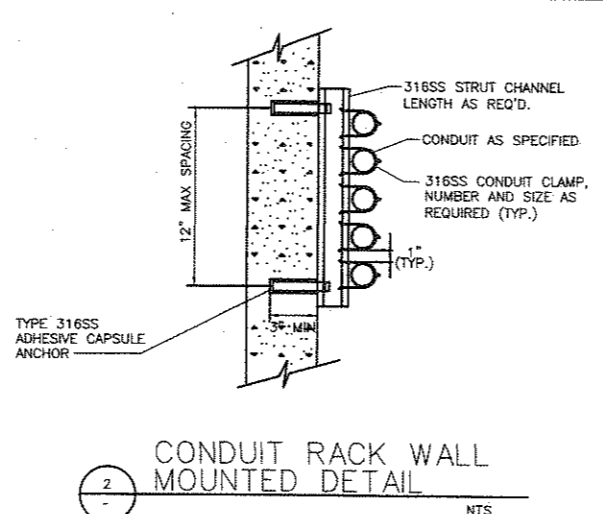
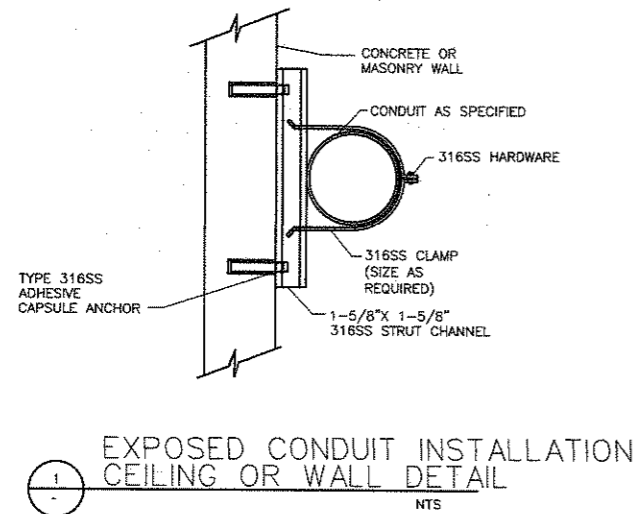
EAST SIDE WTP 540 MGD EXPANSION - PART B  
BASE - NE & SE CLEARWELLS & FLUMES  
ALTERNATE - NW & SW CLEARWELLS

ELECTRICAL DETAILS

DALLAS WATER UTILITIES  
CITY OF DALLAS, TEXAS

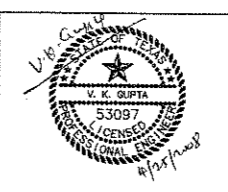
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17500 DALLAS PARKWAY, SUITE 1010  
DALLAS, TEXAS 75248-1157  
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DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-501
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	164 OF 210
DATE	APRIL 2008		

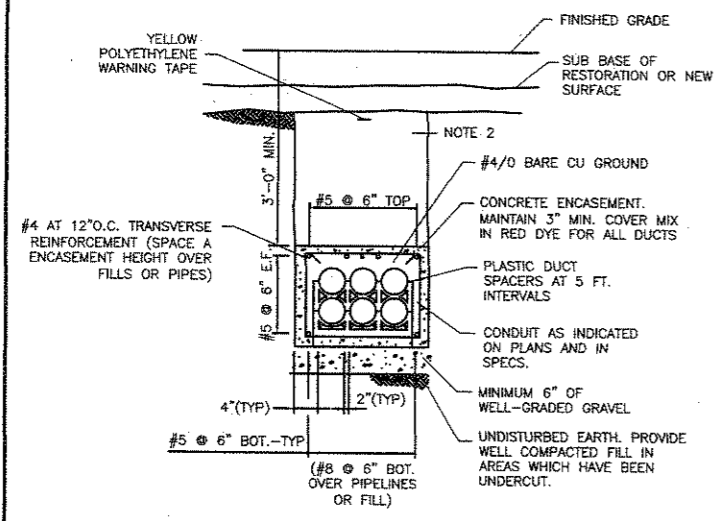


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13026 Gessner Road  
Dallas, Texas 75244  
Tel: 972-490-7661  
Fax: 972-490-7125  
www.gai-engineers.com

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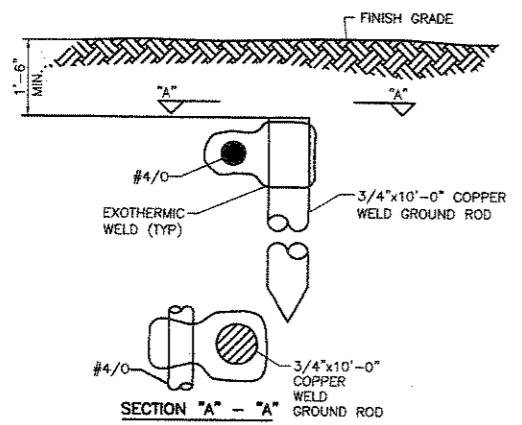


NO.	DATE	REVISION	APPROV.
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EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS ELECTRICAL DETAILS			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS			
TCB   AECOM			
TDB INC. 17500 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1157 WWW.TCB.AECOM.COM			
DESIGN	LN	CONTRACT NO.	DWG. NO.
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CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	165 of 210
DATE	APRIL 2008		

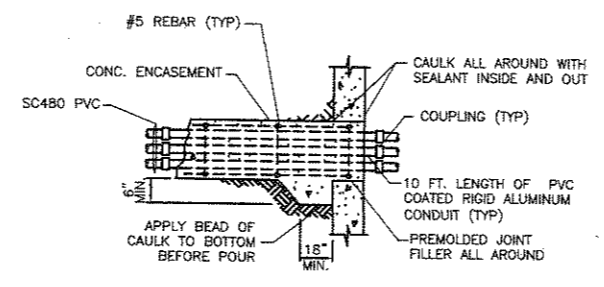


**NOTES:**  
 1. PROVIDE MIN. 3 INCHES CONCRETE COVER OVER REINFORCEMENT.  
 2. SELECT FILL TO A MINIMUM OF 2 FT. ABOVE DUCT BANK. COMPACT ALL BACKFILL IN 8 IN. LIFTS TO 90 PERCENT OF STANDARD PROCTOR (ASTM D 698) DENSITY, UNLESS UNDER EXISTING OR PROPOSED PAVEMENT, OTHER UNDERGROUND UTILITIES, OR STRUCTURES. IF DUCT BANK IS UNDER EXISTING OR PROPOSED PAVEMENT, OTHER UNDERGROUND UTILITIES, OR STRUCTURES, COMPACT ALL BACKFILL IN 8 IN. LIFTS TO 95 PERCENT OF STANDARD PROCTOR DENSITY.

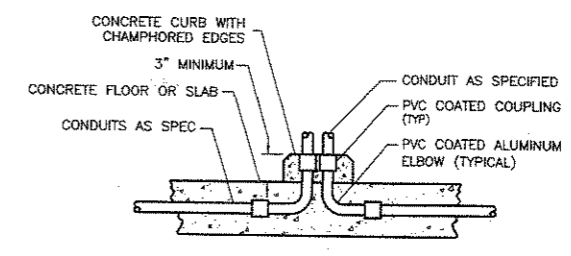
1 REINFORCED CONCRETE ENCASED CONDUIT DUCTBANK DETAIL NTS



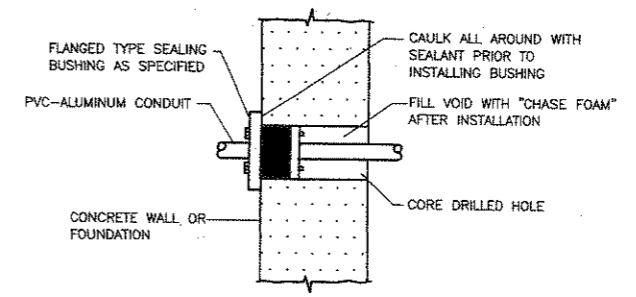
2 GROUND BUS CONNECTION TO GROUND ROD DETAIL NTS



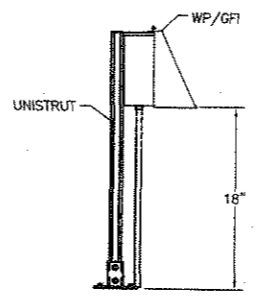
3 WATERTIGHT CONDUIT PENETRATION BELOW GRADE-EXISTING OR NEW STRUCTURE, MANHOLE OR HANDHOLE DETAIL NTS



5 CONCEALED CONDUIT INSTALLATION CONCRETE SLAB-INTERIOR OR EXTERIOR NTS



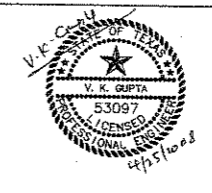
6 WATERTIGHT CONDUIT PENETRATION EXISTING STRUCTURES ABOVE GRADE DETAIL NTS



4 120V RECEPTACLE DETAIL NTS

**GAI**  
 Gupta & Associates, Inc.  
 consulting engineering  
 13426 General Road  
 Dallas, Texas 75244  
 Tel: 972-496-7861  
 Fax: 972-496-7122  
 email: gga@gaiconsulting.com

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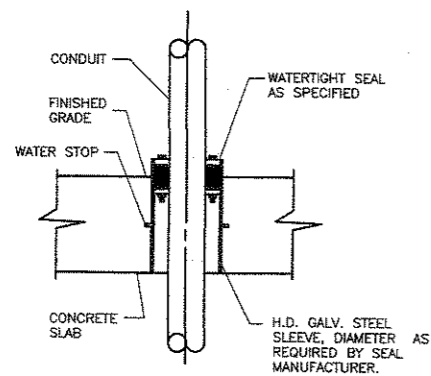
EAST SIDE WTP 540 MGD EXPANSION - PART B  
 BASE - NE & SE CLEARWELLS & FLUMES  
 ALTERNATE - NW & SW CLEARWELLS  
 ELECTRICAL DETAILS

**DALLAS WATER UTILITIES**  
 CITY OF DALLAS, TEXAS

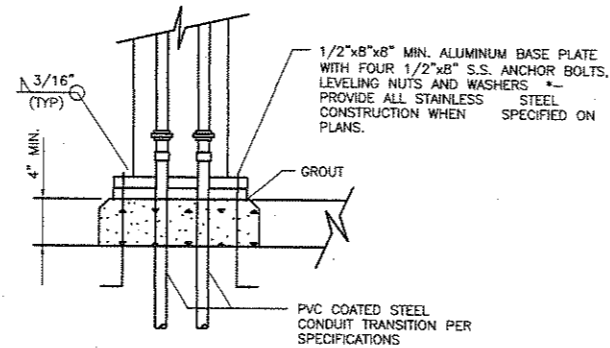
**TCB | AECOM**

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 17500 DALLAS PARKWAY, SUITE 1010  
 DALLAS, TEXAS 75248-1157  
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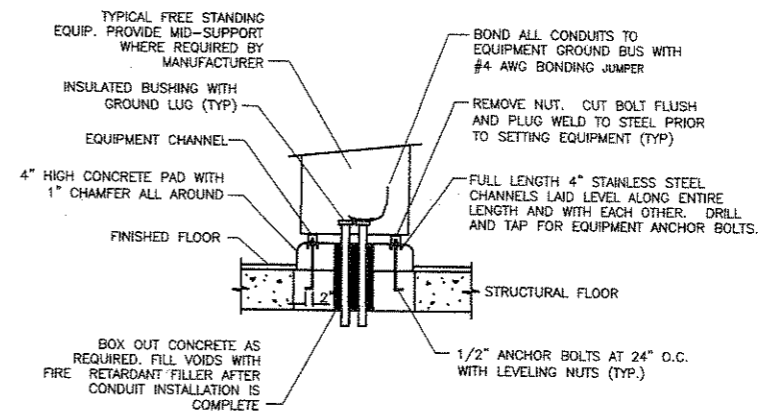
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DRAWN	ER	08-155	C-E-503
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	166 of 210
DATE	APRIL 2008		



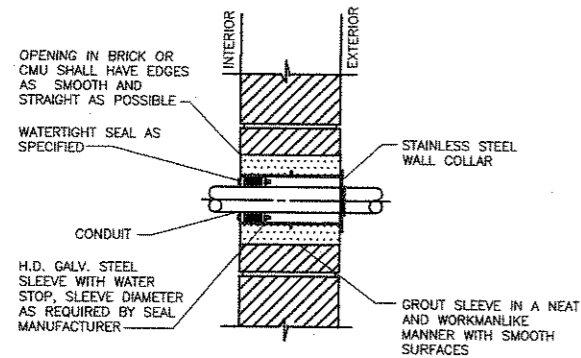
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WATERTIGHT CONDUIT PENETRATION CONCRETE SLAB DETAIL  
NTS



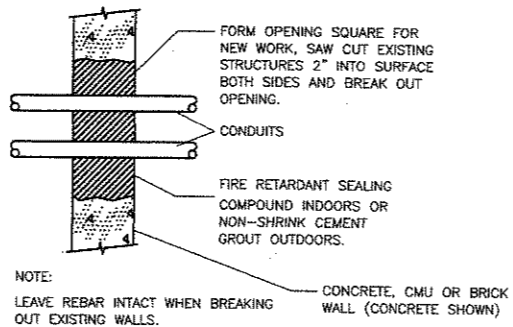
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TYPICAL BASE DETAIL FOR FIELD MOUNTED PANELS DETAIL  
NTS



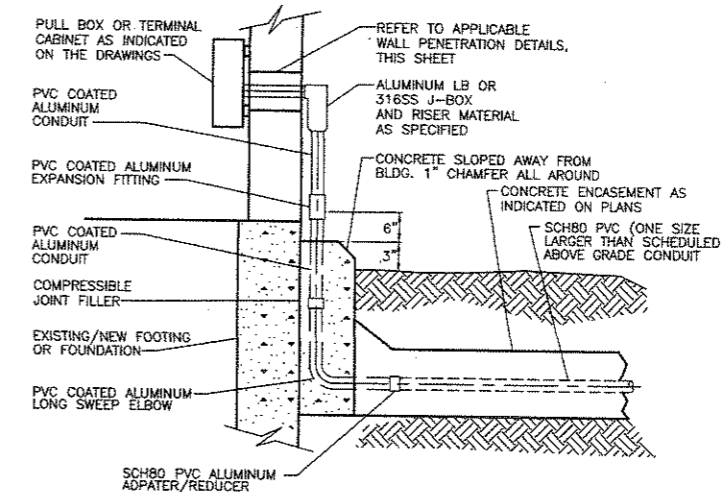
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EQUIPMENT PAD DETAIL  
NTS



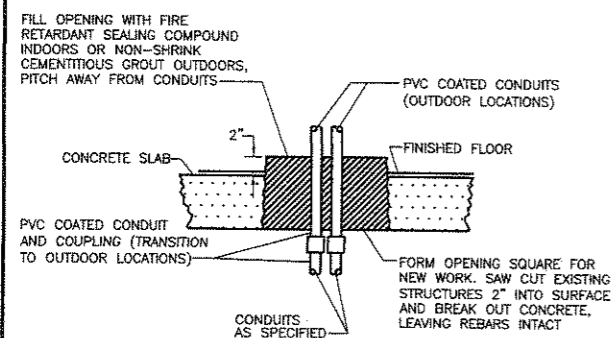
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CONCRETE CONDUIT INSTALLATION EXTERIOR BLOCK OR BRICK WALL DETAIL  
NTS



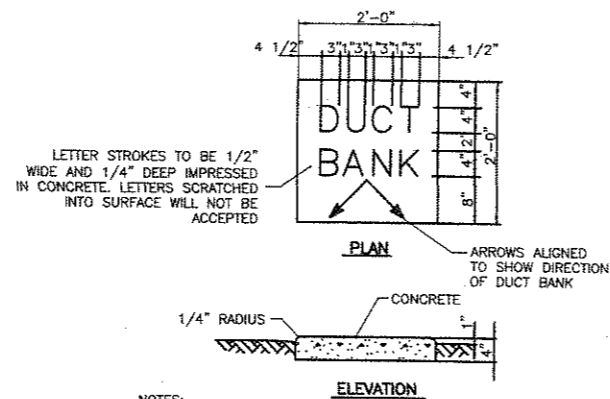
5  
CONCRETE PENETRATION BLOCK OR CONCRETE WALL DETAIL  
NTS



6  
ABOVE GRADE CONDUIT TERMINATION DETAIL  
NTS



7  
WATERTIGHT CONDUIT PENETRATION CONCRETE SLAB - WET LOCATION DETAIL  
NTS

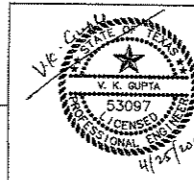


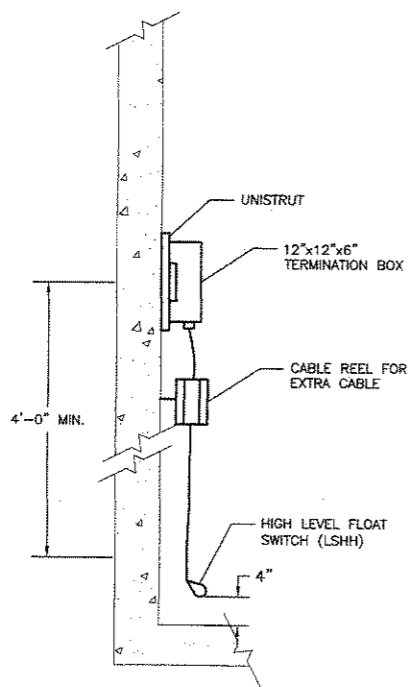
8  
DUCTBANK MARKER DETAIL LOW VOLTAGE CONDUCTORS DETAIL  
NTS

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NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS			
ELECTRICAL DETAILS			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS			
TCB AECOM		TCB INC. 17000 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75240-1107 WWW.TCB.AECOM.COM	
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-504
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	167 of 210
DATE	APRIL 2008		

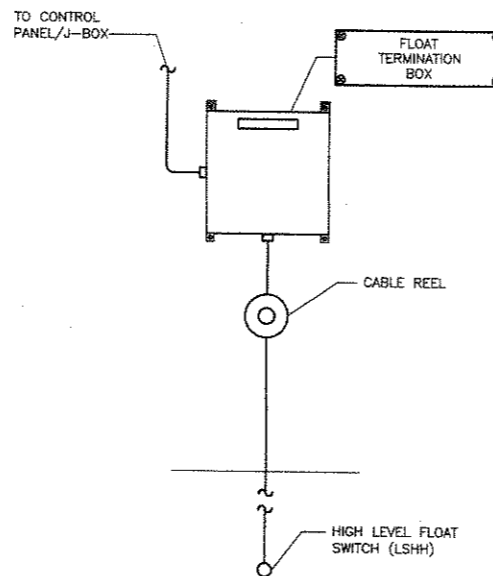
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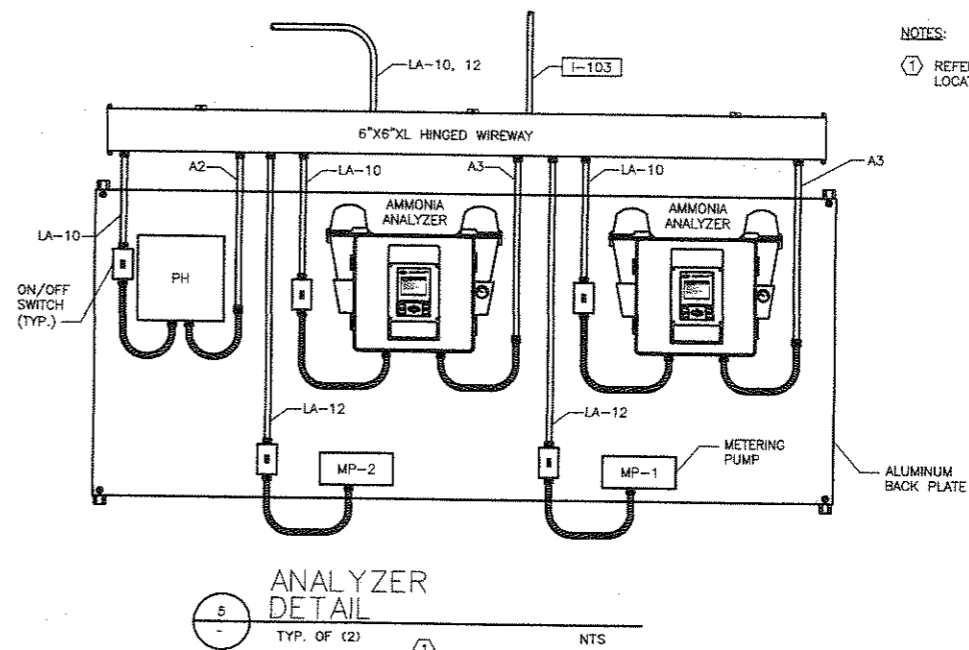




1 FLOAT MOUNTING DETAIL  
NTS

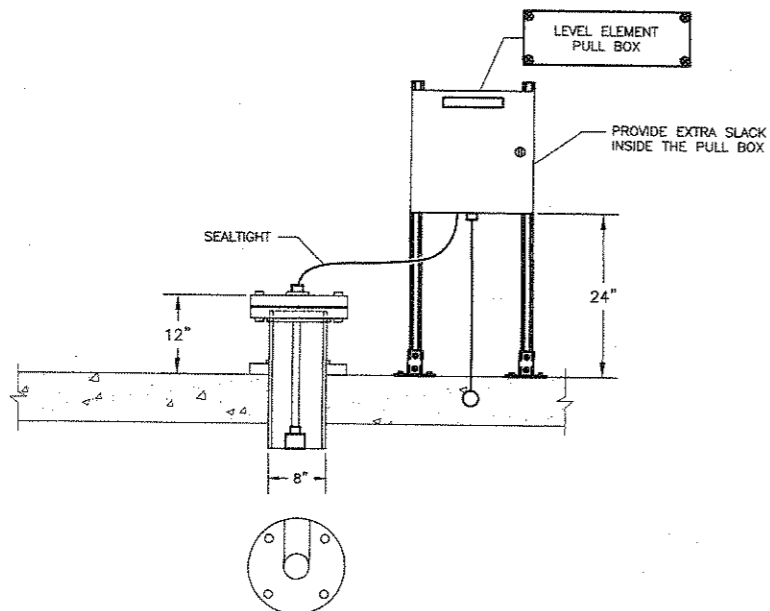


2 DETAIL  
NTS

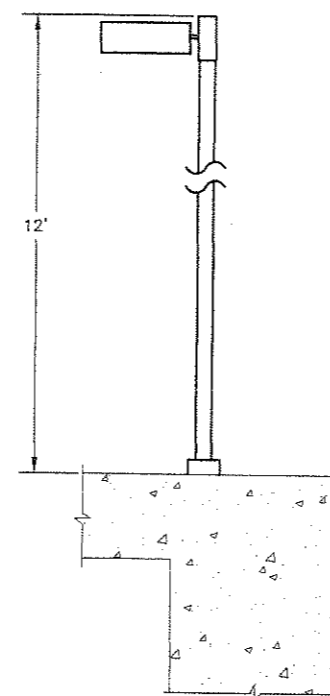


5 ANALYZER DETAIL  
TYP. OF (2) NTS

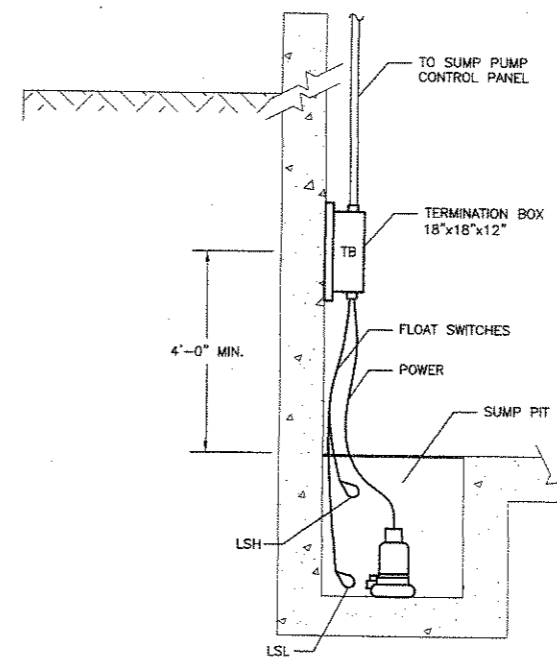
NOTES:  
1 REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION AND PIPING.



3 DETAIL  
NTS



4 LIGHT POLE DETAIL  
E401, E402, E403 NTS



4 SUMP PUMP DETAIL  
E404 NTS

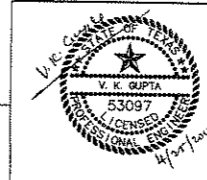
NO.	DATE	REVISION	APPROV.
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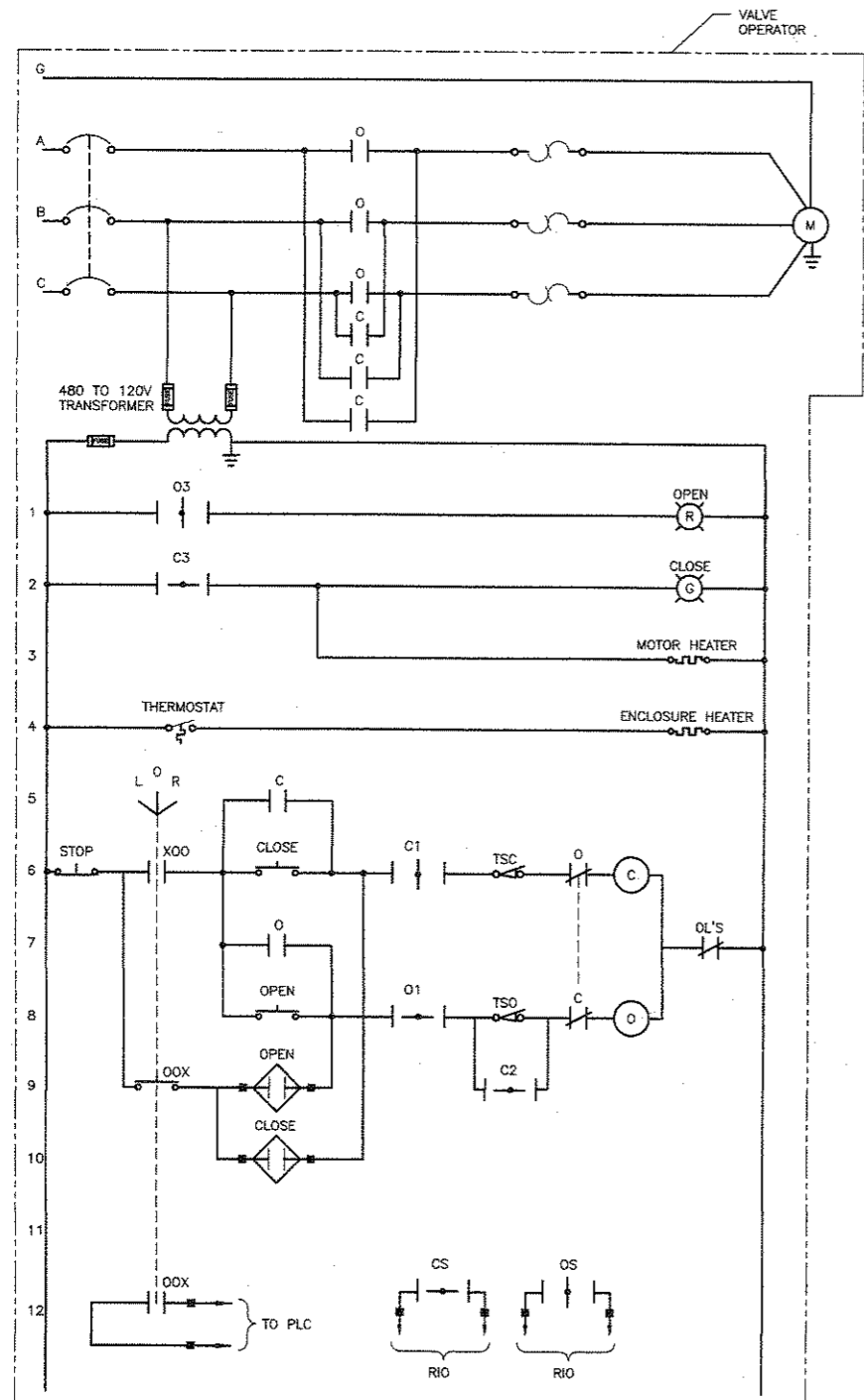
EAST SIDE WTP 540 MGD EXPANSION - PART B  
BASE - NE & SE CLEARWELLS & FLUMES  
ALTERNATE - NW & SW CLEARWELLS  
ELECTRICAL DETAILS  
DALLAS WATER UTILITIES  
CITY OF DALLAS, TEXAS  
TCB AECOM  
TCB INC.  
17800 DALLAS PARKWAY, SUITE 1010  
DALLAS, TEXAS 75248-1157  
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DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-505
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	168 of 210
DATE	APRIL 2008		

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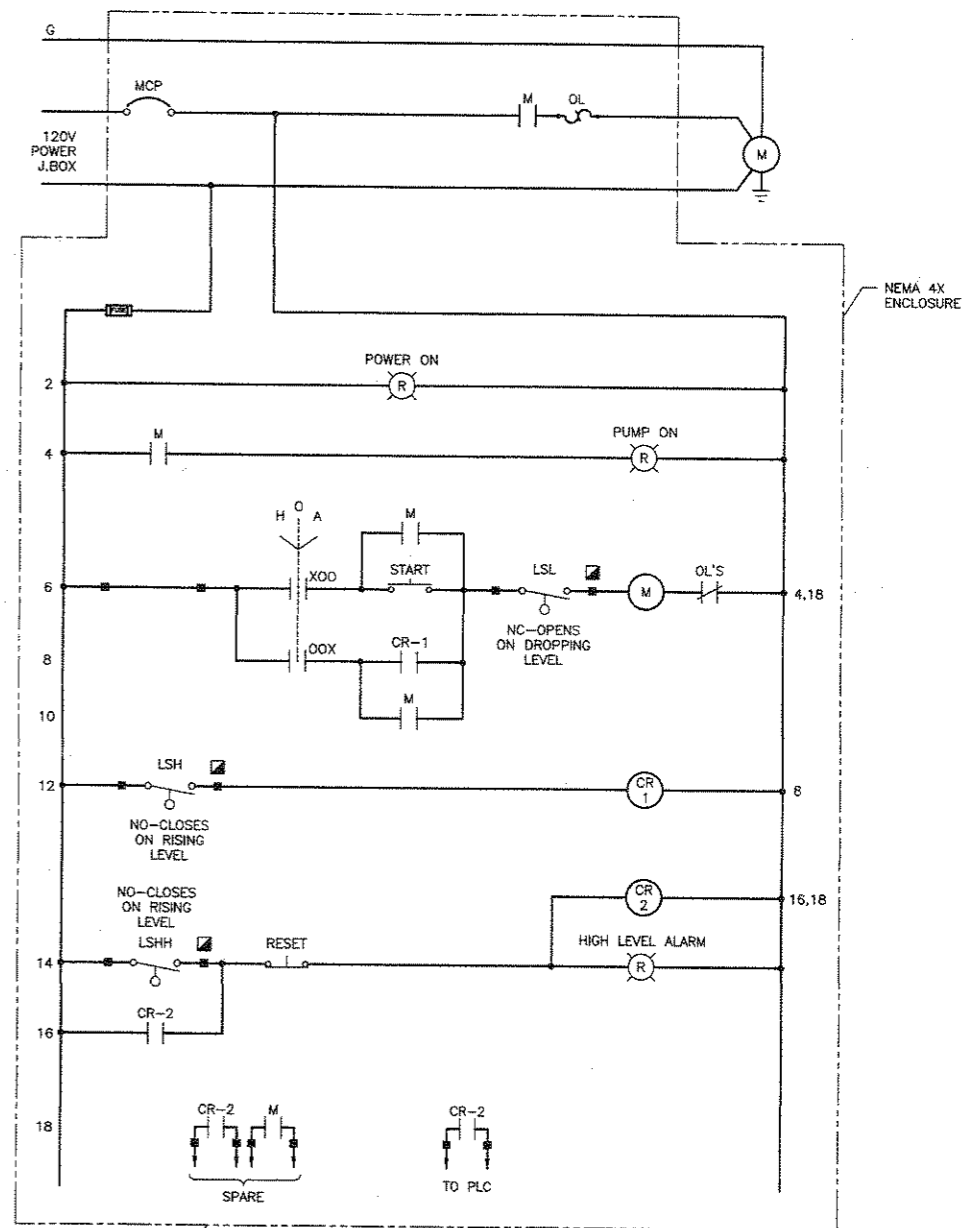




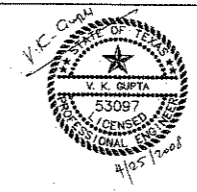
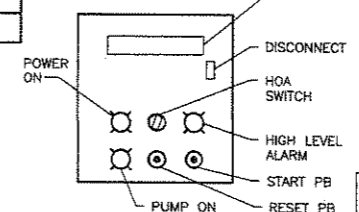
1 OPEN/CLOSE GATE SCHEMATIC  
NTS

	VALVE POSITION			CONTACT FUNCTION
	CLOSE	MID	OPEN	
C1	0	X	X	CLOSE COIL
C2	X	0	0	BYPASS TO1
C3	0	X	X	OPEN LAMP
C4	X	0	0	
C5	0	0	X	
C5	X	0	0	
O1	X	X	0	OPEN COIL
O2	0	0	X	BYPASS TC1
O3	X	X	0	CLOSE LAMP
O4	0	0	X	
O5	X	0	0	
O5	0	0	X	
A		0	X	SPARE
B		X	0	SPARE
		0	X	SPARE
		X	0	SPARE

ITEM #	DESCRIPTION	EQUIPMENT #	LOOP #
1	SUPPLY BOX - FROM FILTERS	JB1-FW-SG-001	8755-01
2	SUPPLY BOX - FROM FILTERS	JB1-FW-SG-002	8755-02
3	SUPPLY BOX - TO NE. CLEARWELL	JB1-FW-SG-021	8755-03
4	SUPPLY BOX - TO SE. CLEARWELL	JB1-FW-SG-022	8755-04
5	SUPPLY BOX - TO NW. CLEARWELL	JB1-FW-SG-011	8755-05
6	SUPPLY BOX - TO SW. CLEARWELL	JB1-FW-SG-012	8755-06
7	SUPPLY BOX - CROSS OVER VALVE	JB1-FW-SG-031	8755-07
8	NORTH RETURN BOX - FROM NE. CLEARWELL	JB2-TW-SG-001	8755-08
9	NORTH RETURN BOX - FROM NW. CLEARWELL	JB2-TW-SG-002	8755-09
10	NORTH RETURN BOX - TO TRANSFER P.S. NO.3	JB2-TW-SG-011	8755-10
11	NORTH RETURN BOX - TO TRANSFER P.S. NO.3	JB2-TW-SG-012	8755-11
12	NORTH RETURN BOX - CROSS OVER VALVE	JB2-TW-SG-021	8755-12
13	SOUTH RETURN BOX - FROM SW. CLEARWELL	JB3-TW-SG-001	8755-13
14	SOUTH RETURN BOX - FROM SE. CLEARWELL	JB3-TW-SG-002	8755-14
15	SOUTH RETURN BOX - TO TRANSFER P.S. NO.2	JB3-TW-SG-011	8755-15
16	SOUTH RETURN BOX - TO TRANSFER P.S. NO.1	JB3-TW-SG-012	8755-16
17	SOUTH RETURN BOX - CROSS OVER VALVE	JB3-TW-SG-021	8755-17
18	METER VAULT - YARD VALVE	YD-TW-BU-001	8760-01
19	SOUTH RETURN BOX - YARD VALVE	YD-TW-BU-002	8760-02
20	SOUTH RETURN BOX - YARD VALVE	YD-TW-BU-003	8760-03
21	METER VAULT - YARD VALVE	YD-TW-BU-004	8760-04
22	SOUTH RETURN BOX - YARD VALVE	YD-TW-BU-005	8760-05



2 SUMP PUMP SCHEMATIC  
LEGEND:  
 [Symbol] LOCATED IN FIELD  
 [Symbol] LOCATED IN PLC  
 [Symbol] TERMINAL



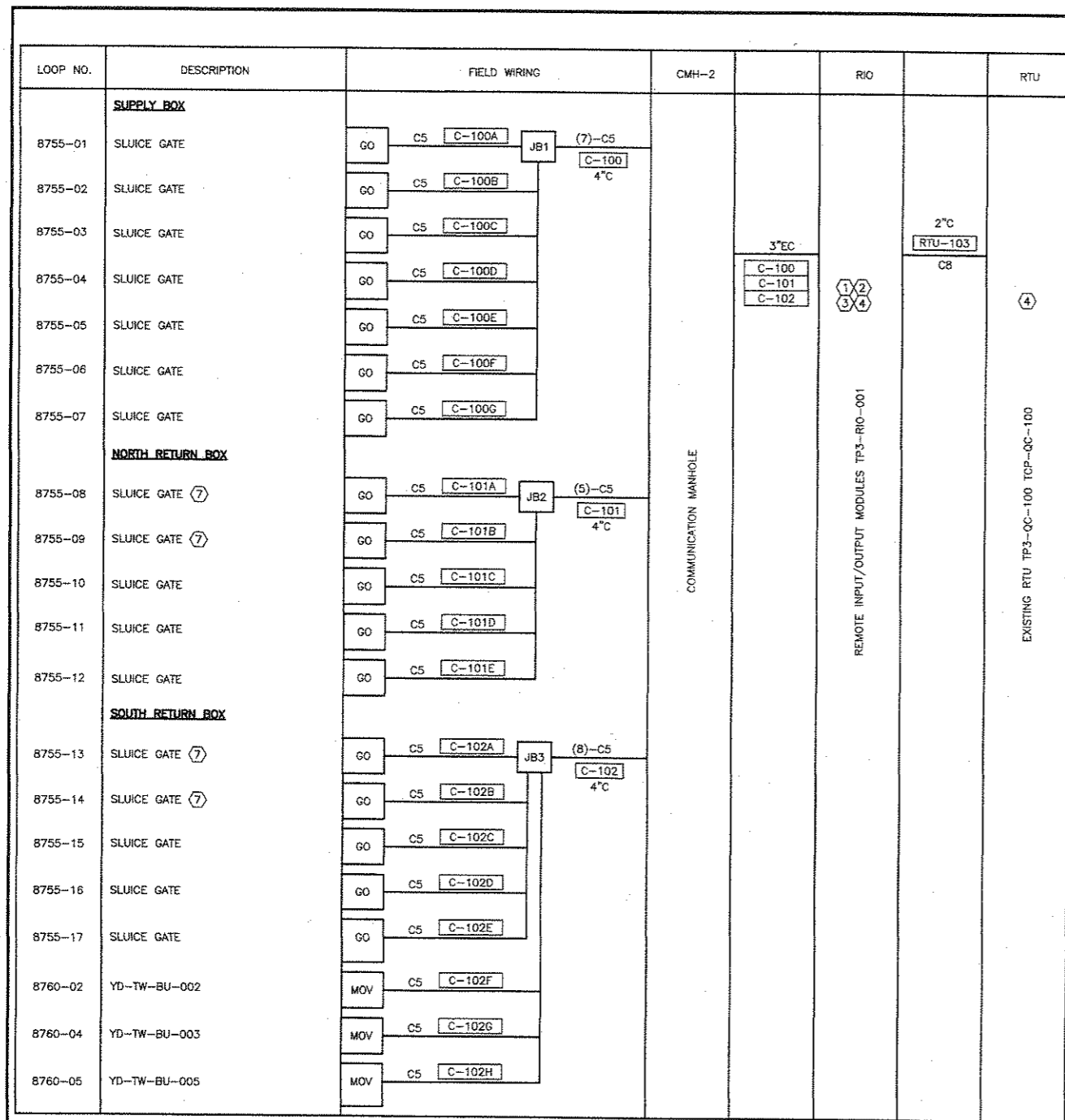
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NO.	DATE	REVISION	APPROV.
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EAST SIDE WTP 540 MGD EXPANSION - PART B  
 BASE - NE & SE CLEARWELLS & FLUMES  
 ALTERNATE - NW & SW CLEARWELLS  
**METER VAULT - ELECTRICAL DETAILS & PLAN**  
 ELECTRICAL SCHEMATIC  
**DALLAS WATER UTILITIES**  
 CITY OF DALLAS, TEXAS  
**TCB | AECOM**  
 TCB INC.  
 17900 DALLAS PARKWAY, SUITE 1000  
 DALLAS, TEXAS 75248-1187  
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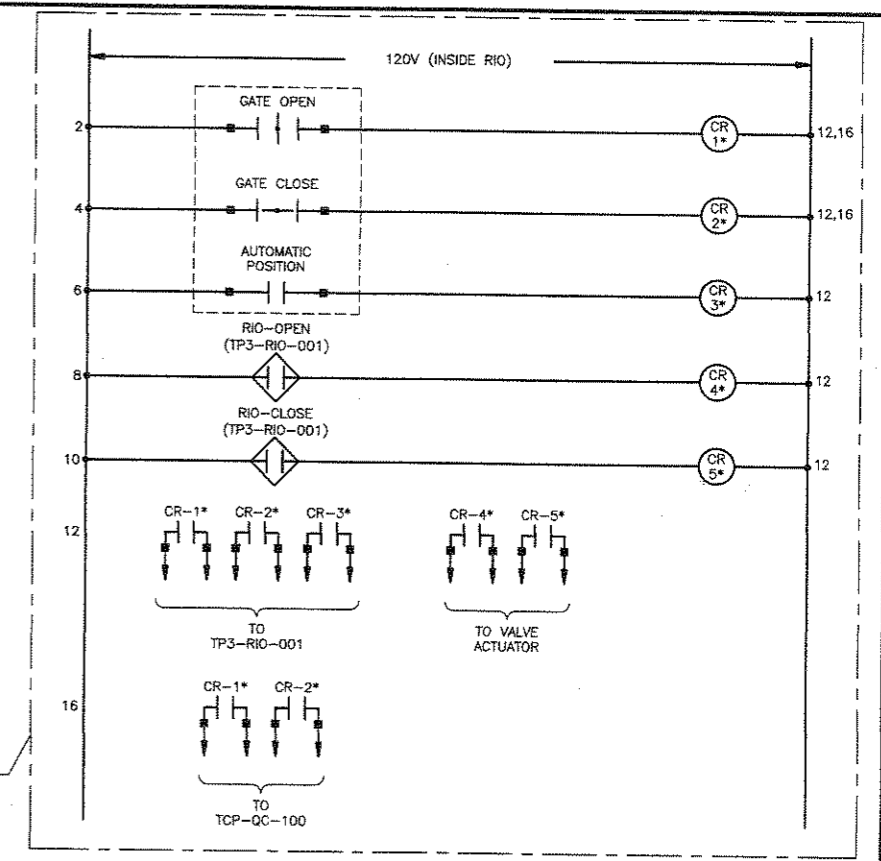
DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-601
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	169 of 210
DATE	APRIL 2008		



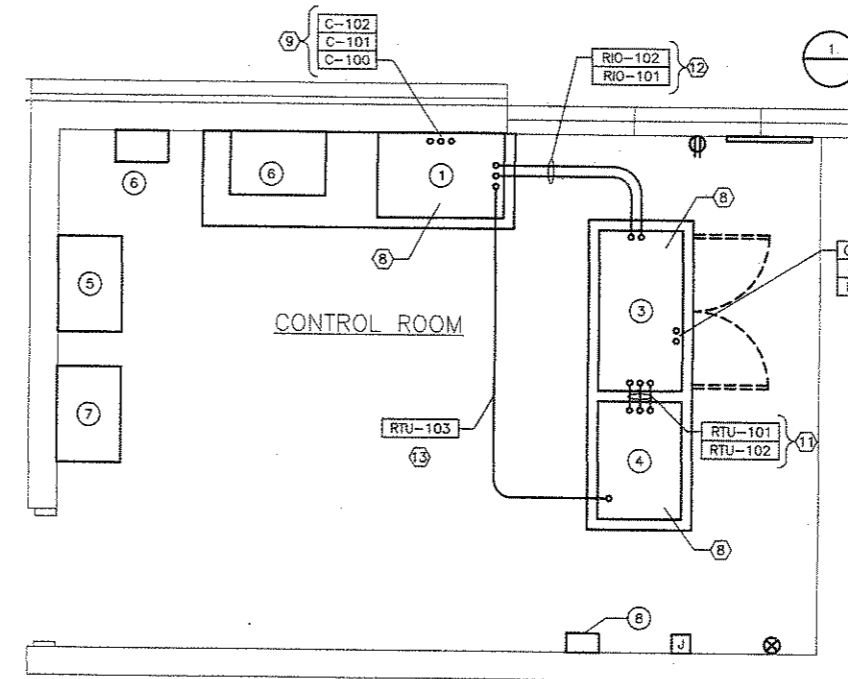
1 RIO/RTU INTER FACE DIAGRAM  
 (14) NTS

EQUIP #	DESCRIPTION
1	REMOTE I/O CABINET TP3-RIO-101
2	NOT USED
3	LOCAL CONTROL PANEL - LCP
4	RTU
5	SECURITY CAMERA SYSTEM
6	VIBRATION MONITORING SYSTEM
7	ACCESS CONTROL SYSTEM
8	FIT

- NOTES:
- ALL WIRES SHALL BE TERMINATED INSIDE THE RIO ENCLOSURE. THERE SHALL BE NO LOOSE WIRE.
  - THE CONTRACTOR SHALL OBTAIN SHOP DRAWINGS OF EXISTING RTU PANEL FROM THE OWNER.
  - REUSE THE RIO DRAWINGS FOR ADDITION OF THE RELAYS.
  - ALL WIRES SHALL BE MARKED AS PER EXISTING WIRE NUMBERING SCHEME.
  - PROVIDE ADDITIONAL TERMINAL STRIPS BACK PANELS AS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM.
  - THE SCHEMATIC IS TYPICAL FOR EACH OF THE SLUICE GATES SHOWN ON THIS INTERFACE DIAGRAM.
  - THESE CONTACTS ARE ONLY REQUIRED FOR THESE 4-SLUICE GATES.
  - REFER TO INSTRUMENTATION FOR MODIFICATIONS REQUIRED FOR THE PANELS.
  - ROUTE WIRE AND CONDUIT AS SHOWN ON SHEET TO THE EXISTING TP3-RIO-101.
  - ROUTE THE WIRE AND CONDUIT AS SHOWN ON SHEET TO THE EXISTING LCP.
  - ROUTE WIRE AND CONDUIT BETWEEN LCP AND RTU AS SHOWN.
  - ROUTE WIRE AND CONDUIT BETWEEN LCP AND RIO AS SHOWN.
  - ROUTE WIRE AND CONDUIT BETWEEN RIO AND RTU AS SHOWN.
  - ALL WIRES SHALL BE TRAY RATED MULTI CONDUCTOR CABLE.
  - EQUIPMENT SHOWN IN THE CONTROL ROOM IS EXISTING.



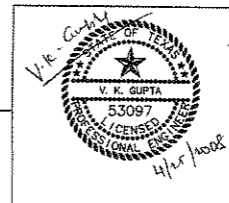
RIO RELAY ADDITION SCHEMATIC  
 TYP OF 17



CONTROL ROOM PLAN  
 1/2" = 1'-0"

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 consulting engineering

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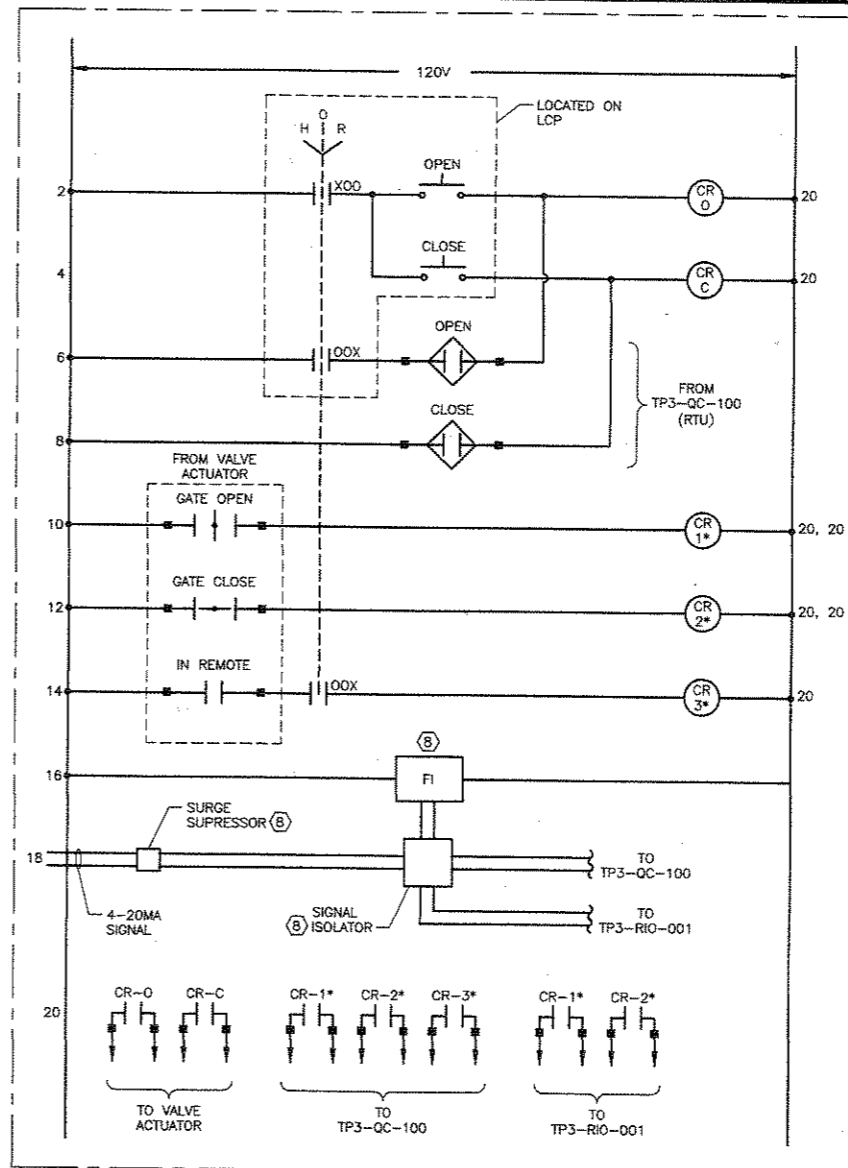
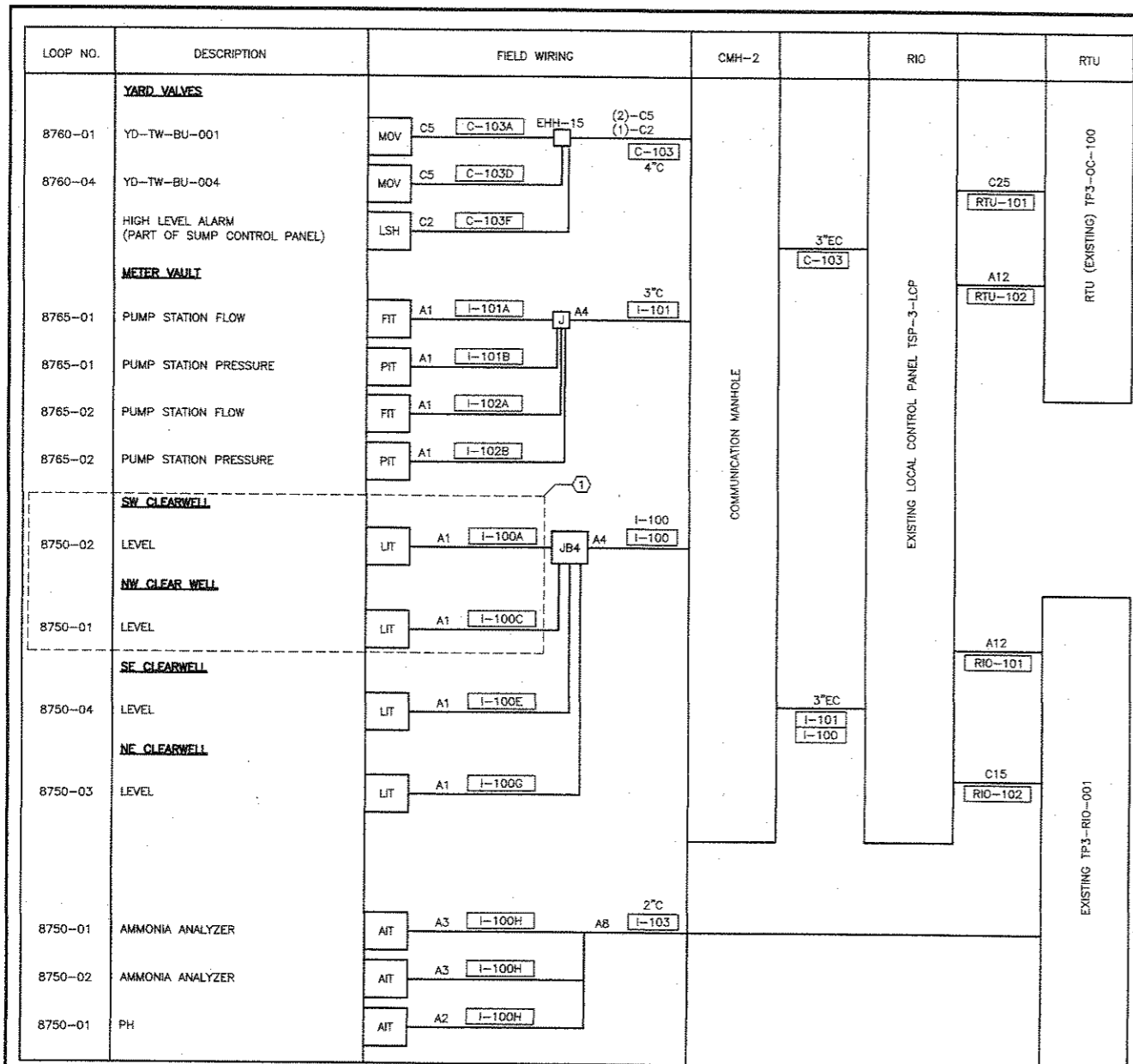
EAST SIDE WTP 540 MGD EXPANSION - PART B  
 BASE - NE & SE CLEARWELLS & FLUMES  
 ALTERNATE - NW & SW CLEARWELLS  
 ELECTRICAL INTERFACE DIAGRAM

**DALLAS WATER UTILITIES**  
 CITY OF DALLAS, TEXAS

**TCB AECOM**

CONTRACT NO. 08-155  
 FILE NO. 620Q-400R.3  
 DATE APRIL 2008

DWG. NO. C-E-602  
 170 of 2-10



- NOTES:**
- THESE WIRES AND CONDUITS SHALL BE INSTALLED AS PART OF ADD. ALT. NO. 1.
  - ALL WIRES SHALL BE TERMINATED INSIDE THE TSP-3-LCP. THERE SHALL BE NO LOOSE WIRE.
  - THE CONTRACTOR SHALL OBTAIN SHOP DRAWINGS OF EXISTING CONTROL PANELS FROM THE OWNER.
  - REUSE THE LCP, RTU AND RIO DRAWINGS TO VERIFY THE ADDITIONS.
  - ALL WIRES SHALL BE MARKED AS PER EXISTING WIRE NUMBERING SCHEME.
  - PROVIDE ADDITIONAL TERMINATED STRIPS AND BACK PANELS AS REQUIRED FOR COMPLETE OPERATIONAL SYSTEM.
  - THE SCHEMATIC IS TYPICAL FOR A VALVE AND ONE ANALOG SIGNAL. REFER TO INSTRUMENTATION DRAWINGS FOR THE DEVICES.
  - REFER TO INSTRUMENTATION DRAWINGS AND SPECIFICATION FOR DETAILS.
  - ALL WIRE SHALL BE MULTI CONDUCTORS TRAY RATED.

1 LCP/RIO/RTU INTER FACE DIAGRAM NTS

1 LOCAL CONTROL PANEL (LCP) SCHEMATIC ADDITIONS

CONTROL & INSTRUMENTATION WIRE/CONDUIT SCHEDULE			
C1	2#14, 3/4°C	A1	1 Pr#16 TSW, -C
C2	4#14, 3/4°C	A2	2 Pr#16 TSW, 3/4°C
C3	6#14, 3/4°C	A3	3 Pr#16 TSW, 3/4°C
C4	8#14, 3/4°C	A4	4 Pr#16 TSW, 1°C
C5	10#14, 3/4°C	A5	5 Pr#16 TSW, 1°C
C6	12#14, 3/4°C	A6	6 Pr#16 TSW, 1-1/4°C
C7	14#14, 3/4°C	A7	7 Pr#16 TSW, 2°C
C8	16#14, 1°C	A8	8 Pr#16 TSW, 2°C
C9	18#14, 1°C	A9	9 Pr#16 TSW, 2°C
C10	20#14, 1°C	A10	10 Pr#16 TSW, 2°C
C11	22#14, 1-1/4°C		
C23	46#14, 2°C		
C29	58#14, 2-1/2°C		

# REPRESENTS PAIR OF WIRE  
EXAMPLE C10 = 20#14 WIRES  
EXAMPLE C20 = 40#14 WIRES  
C = CONTROL

4			
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1			
NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS			
ELECTRICAL INTERFACE DIAGRAM			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS			
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DESIGN	LN	CONTRACT NO.	DWG. NO.
DRAWN	ER	08-155	C-E-603
CHECKED	VKG	FILE NO.	
APPROVED	VKG	620Q-400R.3	171 of 210
DATE	APRIL 2008		

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