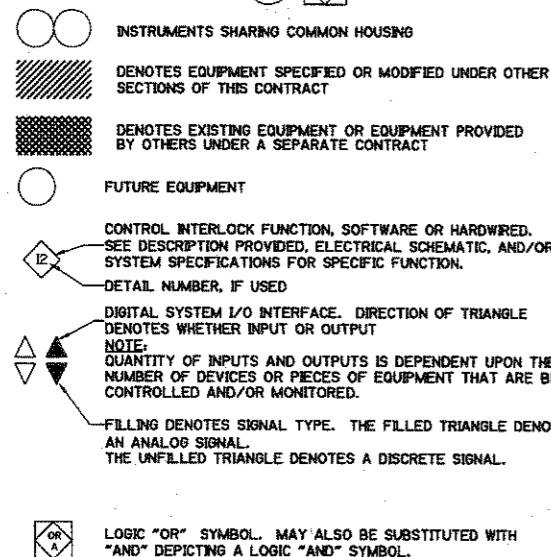
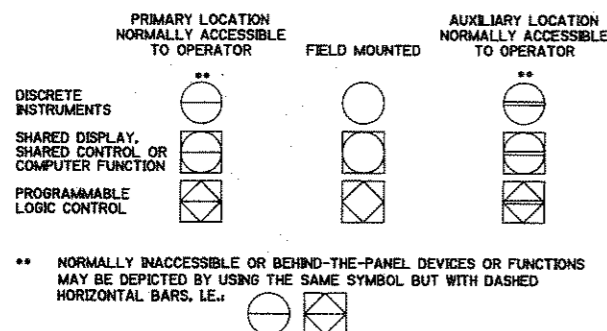
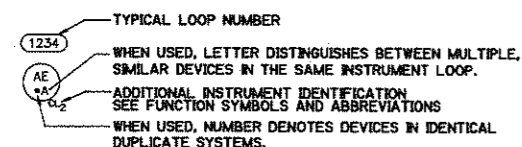


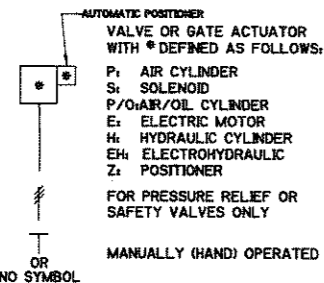
**GENERAL INSTRUMENT OR FUNCTION SYMBOLS**



**TYPICAL TAG NUMBERS AND DESIGNATION**

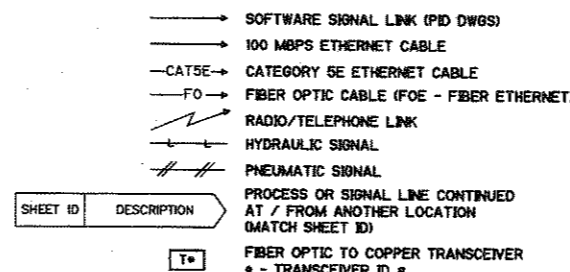
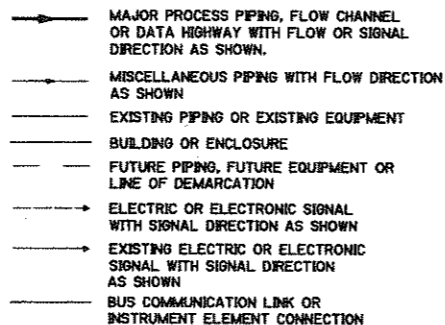


**VALVE ACTUATOR SYMBOLS**

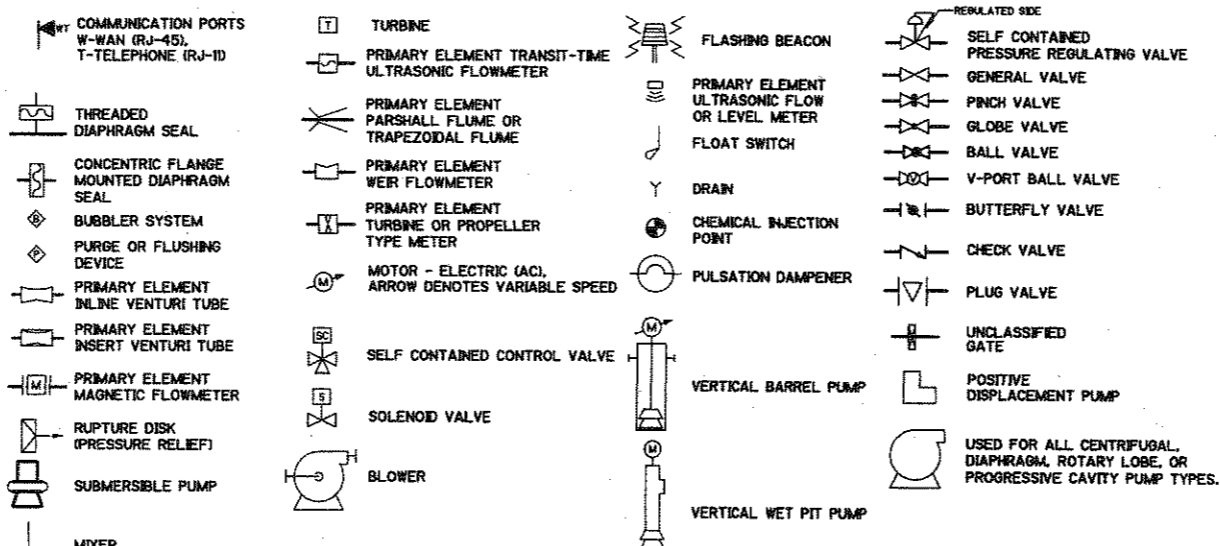


- GENERAL NOTES**
- THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT APPLY TO THIS SPECIFIC PROJECT.
  - THIS LEGEND APPLIES TO INSTRUMENTATION DIAGRAMS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
  - IN GENERAL THIS LEGEND SHEET AND THE INSTRUMENTATION DIAGRAMS ARE BASED ON INSTRUMENT SOCIETY OF AMERICA, STANDARDS FOR PRACTICES FOR INSTRUMENTATION. SOME MODIFICATIONS, ADDITIONS AND ALTERATIONS HAVE BEEN MADE AS REQUIRED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
  - SOME PROCESS ITEMS, SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, ETC., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION FUNCTIONS ARE NOT SHOWN ON THE INSTRUMENTATION SHEETS.
  - SEE ELECTRICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS FOR EQUIPMENT NOT SHOWN OR NOT PROVIDED BY THE INSTRUMENTATION SUPPLIER.
  - IN THE EVENT OF DISCREPANCIES BETWEEN THE PROCESS AND INSTRUMENTATION DIAGRAMS AND THE SPECS, THE MORE EXPENSIVE SOLUTION OR ALTERNATIVE SHALL BE USED FOR PRICING PURPOSES. THE ENGINEER SHALL MAKE FINAL DETERMINATION OF WHICH SOLUTION SHALL BE USED TO IMPLEMENT THE PROJECT.
  - SEE MECHANICAL ABBREVIATIONS FOR PIPE MATERIAL DESIGNATIONS.

**LINE SYMBOLS**



**PROCESS DEVICE SYMBOLS**

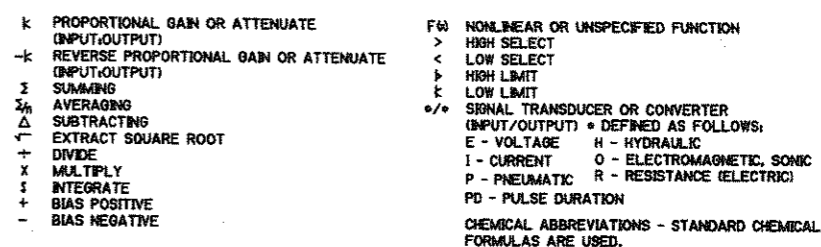


**MEANINGS OF IDENTIFICATION LETTERS**

THIS TABLE APPLIES ONLY TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS.

MEASURED OR INITIATING VARIABLE	MODIFIER	SUCCEEDING LETTERS		
		READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A ANALYSIS		ALARM	USER'S CHOICE	USER'S CHOICE
B BURNER COMBUSTION		EMERGENCY	CONTROL	
C USER'S CHOICE				
D DENSITY GRAVITY OR SPECIFIC GRAVITY	DIFFERENTIAL			
E VOLTAGE (EMF)		PRIMARY ELEMENT		
F FLOW RATE	RATIO/FRACTION			
G USER'S CHOICE		BLASS		
H HAND MANUALLY INITIATED				NRN OR OPEN
I CURRENT (ELECTRICAL)		INDICATE		
J POWER	SCAN			
K TIME OR TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L LEVEL				LOW OR CLOSED
M MOTOR	MOMENTARY			MODULE OR INTERMEDIATE
N USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O USER'S CHOICE		ORPHE DISTRICTION		
P PRESSURE OR VACUUM		POW TEST CONNECTION		
Q QUANTITY	INTEGRATE OR TOTALIZE			
R RUN / RADIATION		RECORD		
S SPEED OR FREQUENCY	SAFETY		SWITCH	
T TEMPERATURE			TRANSMIT	
U UNCLASSIFIED		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V VISCOSITY, VIBRATION		VALVE, DAMPER OR LOUVER		
W WEIGHT OR FORCE		BELL	UNCLASSIFIED	UNCLASSIFIED
X (UNCLASSIFIED)	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y (UNCLASSIFIED)	Y AXIS	RELAY, COMPUTE, CONVERT		
Z POSITION, DIMENSION	Z AXIS	DRIVE, ACTUATOR OR UNCLASSIFIED CONTROL ELEMENT		

**FUNCTION SYMBOLS AND ABBREVIATIONS**



**GENERAL ABBREVIATIONS**

A/M	AUTO/MANUAL	NC	NORMALLY CLOSED
CAT5	CATEGORY 5 CABLE	NIC	NETWORK INTERFACE CARD OR NOT IN CONTRACT
CPU	CENTRAL PROCESSOR UNIT	NO	NORMALLY OPEN
CW	COOLING WATER	OFO	OVERHEAD FIBER OPTIC
CWR	COOLING WATER RETURN	OL	OVERLOAD
CWS	COOLING WATER SUPPLY	OWS	OPERATOR WORKSTATION
DCU	DISTRIBUTED CONTROL UNIT	PC	PERSONAL COMPUTER
DUR	DURATION	pH	HYDROGEN ION CONCENTRATION
EFF	EFFLUENT	PLC	PROGRAMMABLE LOGIC CONTROLLER
ES	ELECTRIC SUPPLY, 120 VAC	POS	POSITION
FC	FAIL CLOSED	PRESS	PRESSURE
FCC	FILTER CONTROL CONSOLE	PS	POWER SUPPLY
FLP	FAIL LAST POSITION	RCP	RELAY CONTROL PANEL
FNIC	FIBER NETWORK INTERFACE CARD	RIO	REMOTE INPUT/OUTPUT
FO	FIBER OPTIC ETHERNET	RIOD	REMOTE I/O DROP MODULE
FOE	FIBER OPTIC CABLE	RIOH	REMOTE I/O HEAD MODULE
FOM	FIBER OPTIC MODEM	RTU	REMOTE TERMINAL UNIT
FOPP	FIBER OPTIC PATCH PANEL	SCFM	STANDARD CUBIC FEET PER MINUTE
FOR	FREQUENCY	SP	SETPOINT
FREQ	HUMAN MACHINE INTERFACE	SWGR	SWITCHGEAR
HMI	HOT STANDBY	TEMP	TEMPERATURE
HSTDBY	I/O	TURB	TURBIDITY
I/O	KEYBOARD/VIDEO/MOUSE SWITCH	UP	MICROPROCESSOR
KVM	LOCAL/COMPUTER	UPS	UNINTERRUPTIBLE POWER SUPPLY
L/C	LOCAL INPUT/OUTPUT	VFD	VARIABLE FREQUENCY DRIVE
LIO	LOCK-OUT-STOP	VIBR	VIBRATION
LOS	MOTOR CONTROLLER	WAN	WIDE AREA NETWORK
MC	MOTOR CONTROL CENTER		
MCC			

**HAND SWITCH ABBREVIATIONS**

H/O/A	HAND/OFF/AUTO	O/O	ON/OFF (MAINTAINED)
L/O/C	LOCAL/OFF/COMPUTER	O/H/C	OPEN/HOLD/CLOSE
L/O/R	LOCAL/OFF/REMOTE	A/H	AUTO/HAND
O/C/S	OPEN/CLOSE/STOP	L/A	LOCAL/AUTO
R/S/L	RAISE/STOP/LOWER	O/C/S/C	OPEN/CLOSE/STOP/COMPUTER
L/C	LOCAL/COMPUTER	O/D/A	ON/OFF/AUTO
L/R	LOCAL/REMOTE	O/D/C	ON/OFF/COMPUTER
O/C	OPEN/CLOSE	O/C/LOS	OPEN/CLOSE/LOCK-OUT-STOP
S/S	START/STOP (MOMENTARY)	N/B	NORMAL/BYPASS

NO. DATE

REVISION

EAST SIDE WTP 540 MGD EXPANSION - PART B  
BASE - BE & SE CLEARWELLS & FLUMES  
ALTERNATE - NW & SW CLEARWELLS  
ABBREVIATIONS AND  
GENERAL NOTES

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

TCB | AECOM

DESIGN: AYS  
DRAWN: JMV  
CHECKED: GEM  
APPROVED: MDR  
DATE: APR 2008

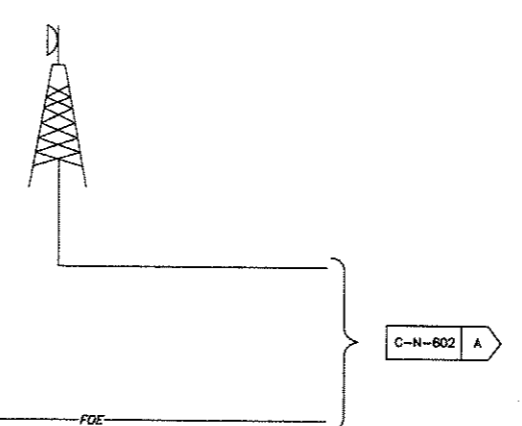
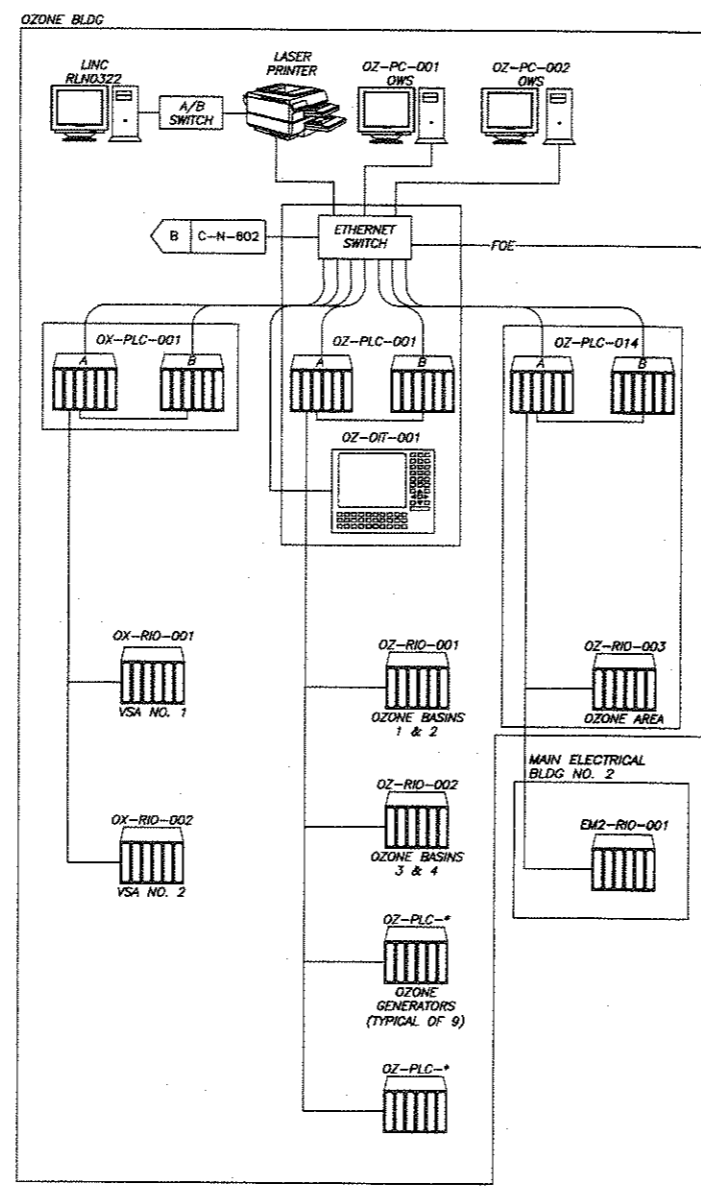
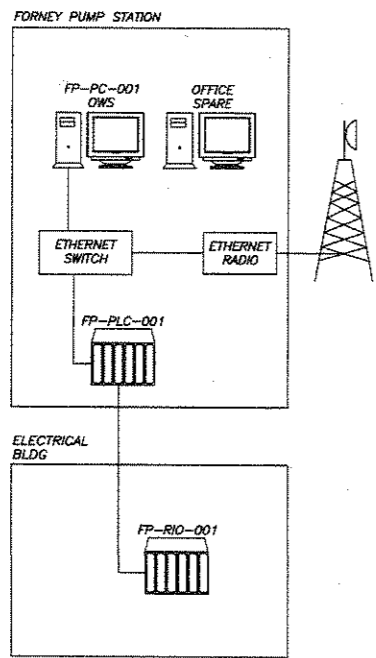
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FILE NO. 620Q-400R.3

DRG. NO. C-N-001  
172 of 210

**CDM** Camp Dresser & McKee Inc.

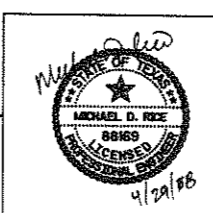
BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK LENGTH AND ADJUST SCALES ACCORDINGLY.





**CDM** Camp Dresser & McKee Inc.

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



NO.	DATE	REVISION	APPROV.
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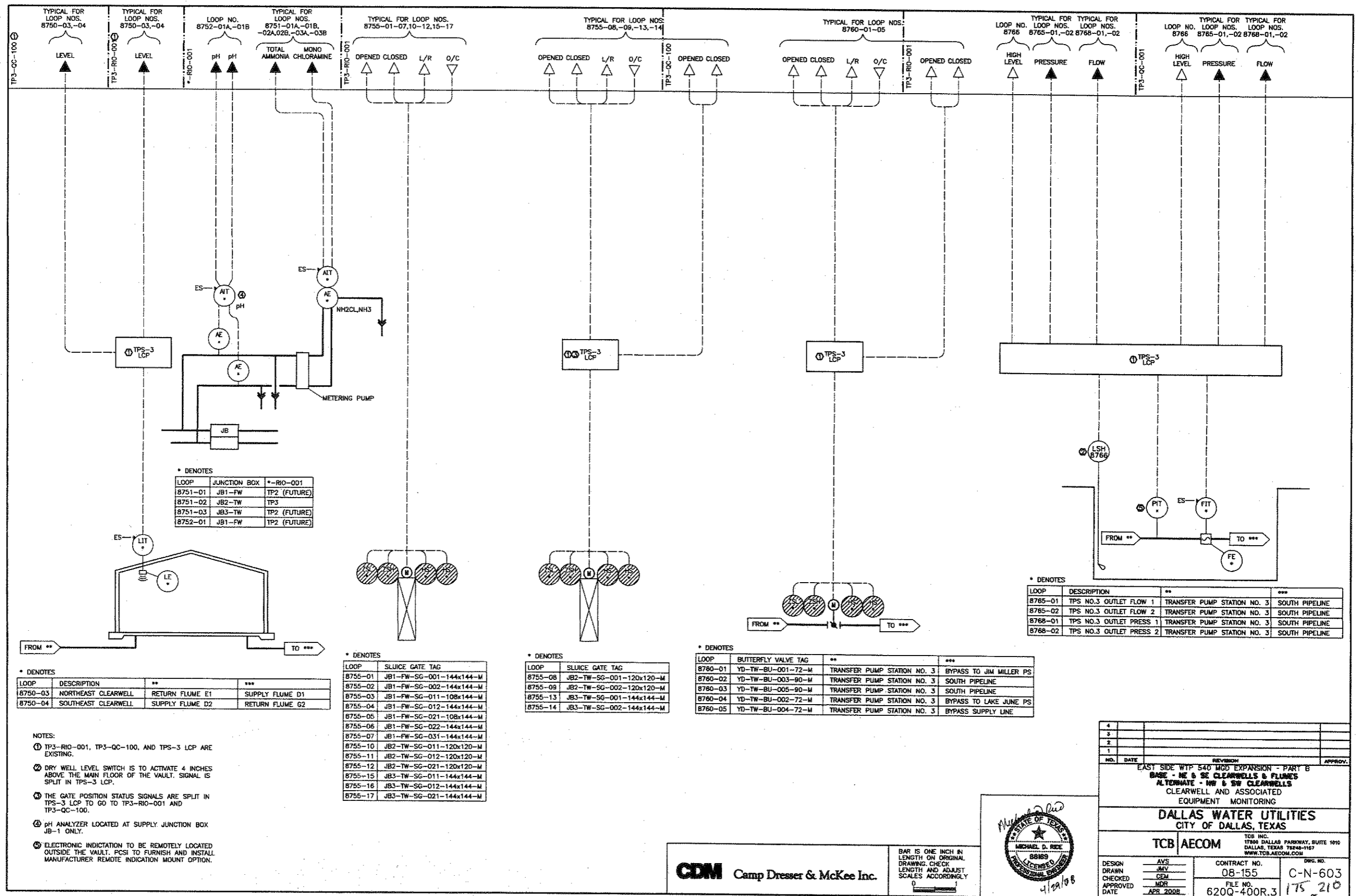
EAST SIDE WTP 540 MGD EXPANSION - PART B  
 BASE - NE & SE CLEARWELLS & FLUMES  
 ALTERNATE - NW & SW CLEARWELLS  
 EXISTING SYSTEM  
 ARCHITECTURE (1 OF 2)

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

**TCB AECOM**  
 TCB INC.  
 17500 DALLAS PARKWAY, SUITE 1010  
 DALLAS, TEXAS 75248-1157  
 WWW.TCB.AECOM.COM

DESIGN	AVS	CONTRACT NO.	08-155	DRG. NO.	C-N-601
DRAWN	JMY	FILE NO.	620Q-400R.3		
CHECKED	CEM				
APPROVED	MDR				
DATE	APR 2008				173 of 210





\* DENOTES

LOOP	JUNCTION BOX	*-RIO-001
8751-01	JB1-FW	TP2 (FUTURE)
8751-02	JB2-TW	TP3
8751-03	JB3-TW	TP2 (FUTURE)
8752-01	JB1-FW	TP2 (FUTURE)

\* DENOTES

LOOP	DESCRIPTION	**	***
8750-03	NORTHEAST CLEARWELL	RETURN FLUME E1	SUPPLY FLUME D1
8750-04	SOUTHEAST CLEARWELL	SUPPLY FLUME D2	RETURN FLUME G2

- NOTES:
- TP3-RIO-001, TP3-QC-100, AND TPS-3 LCP ARE EXISTING.
  - DRY WELL LEVEL SWITCH IS TO ACTIVATE 4 INCHES ABOVE THE MAIN FLOOR OF THE VAULT. SIGNAL IS SPLIT IN TP3-3 LCP.
  - THE GATE POSITION STATUS SIGNALS ARE SPLIT IN TP3-3 LCP TO GO TO TP3-RIO-001 AND TP3-QC-100.
  - pH ANALYZER LOCATED AT SUPPLY JUNCTION BOX JB-1 ONLY.
  - ELECTRONIC INDICATION TO BE REMOTELY LOCATED OUTSIDE THE VAULT. PCSI TO FURNISH AND INSTALL MANUFACTURER REMOTE INDICATION MOUNT OPTION.

\* DENOTES

LOOP	SLUICE GATE TAG
8755-01	JB1-FW-SG-001-144x144-M
8755-02	JB1-FW-SG-002-144x144-M
8755-03	JB1-FW-SG-011-108x144-M
8755-04	JB1-FW-SG-012-144x144-M
8755-05	JB1-FW-SG-021-108x144-M
8755-06	JB1-FW-SG-022-144x144-M
8755-07	JB1-FW-SG-031-144x144-M
8755-10	JB2-TW-SG-011-120x120-M
8755-11	JB2-TW-SG-012-120x120-M
8755-12	JB2-TW-SG-021-120x120-M
8755-15	JB3-TW-SG-011-144x144-M
8755-16	JB3-TW-SG-012-144x144-M
8755-17	JB3-TW-SG-021-144x144-M

\* DENOTES

LOOP	SLUICE GATE TAG
8755-08	JB2-TW-SG-001-120x120-M
8755-09	JB2-TW-SG-002-120x120-M
8755-13	JB3-TW-SG-001-144x144-M
8755-14	JB3-TW-SG-002-144x144-M

\* DENOTES

LOOP	BUTTERFLY VALVE TAG	**	***
8780-01	YD-TW-BU-001-72-M	TRANSFER PUMP STATION NO. 3	BYPASS TO JIM MILLER PS
8780-02	YD-TW-BU-003-90-M	TRANSFER PUMP STATION NO. 3	SOUTH PIPELINE
8780-03	YD-TW-BU-005-90-M	TRANSFER PUMP STATION NO. 3	SOUTH PIPELINE
8780-04	YD-TW-BU-002-72-M	TRANSFER PUMP STATION NO. 3	BYPASS TO LAKE JUNE PS
8780-05	YD-TW-BU-004-72-M	TRANSFER PUMP STATION NO. 3	BYPASS SUPPLY LINE

\* DENOTES

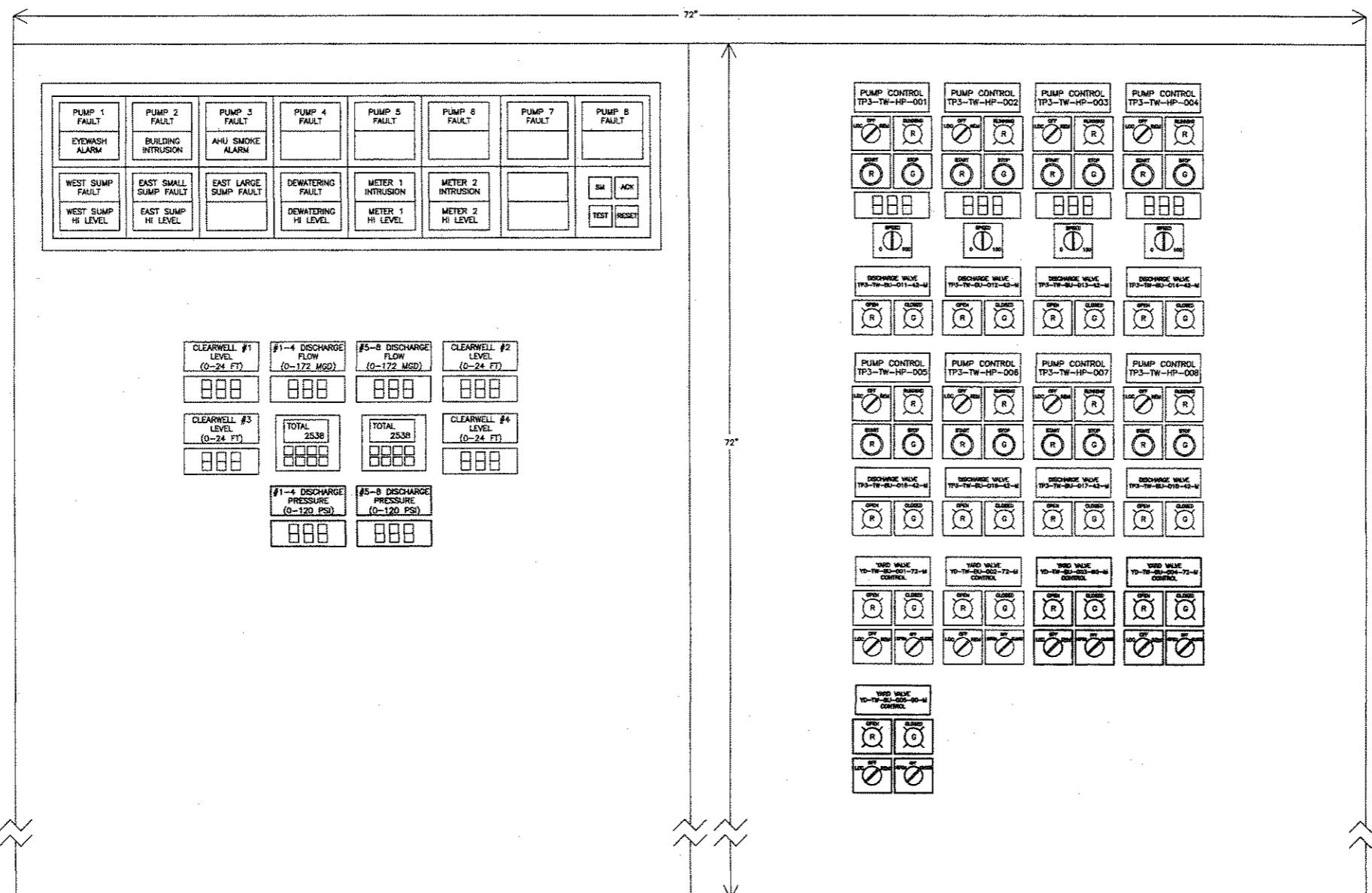
LOOP	DESCRIPTION	**	***
8765-01	TPS NO.3 OUTLET FLOW 1	TRANSFER PUMP STATION NO. 3	SOUTH PIPELINE
8765-02	TPS NO.3 OUTLET FLOW 2	TRANSFER PUMP STATION NO. 3	SOUTH PIPELINE
8768-01	TPS NO.3 OUTLET PRESS 1	TRANSFER PUMP STATION NO. 3	SOUTH PIPELINE
8768-02	TPS NO.3 OUTLET PRESS 2	TRANSFER PUMP STATION NO. 3	SOUTH PIPELINE

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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 CLEARWELL AND ASSOCIATED EQUIPMENT MONITORING			
<b>DALLAS WATER UTILITIES</b> CITY OF DALLAS, TEXAS			
<b>TCB AECOM</b>		TCB INC. 1786 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1167 WWW.TCB.AECOM.COM	
DESIGN	AVS	CONTRACT NO.	DWG. NO.
DRAWN	JMV	08-155	C-N-603
CHECKED	CEM	FILE NO.	175 210
APPROVED	MPJ	620Q-400R.3	
DATE	APR 2008		

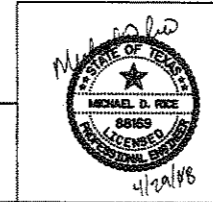


GENERAL NOTES:  
 1. REFER TO ELECTRICAL DRAWING FOR SCHEMATIC OF THIS PANEL. REFER TO C-N INSTRUMENTATION DRAWINGS FOR INFORMATION REGARDING I/O SIGNALS TO/FROM THIS PANEL.

TRANSFER PUMP STATION NO.3  
 LOCAL CONTROL PANEL LAYOUT MODIFICATIONS

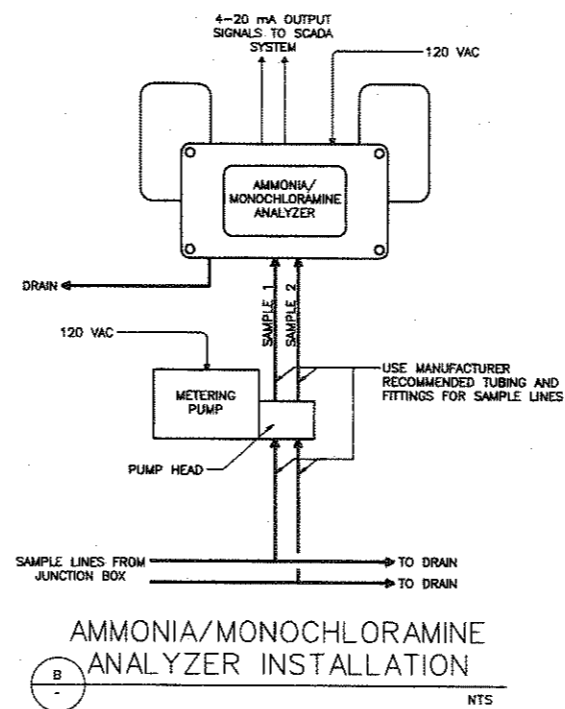
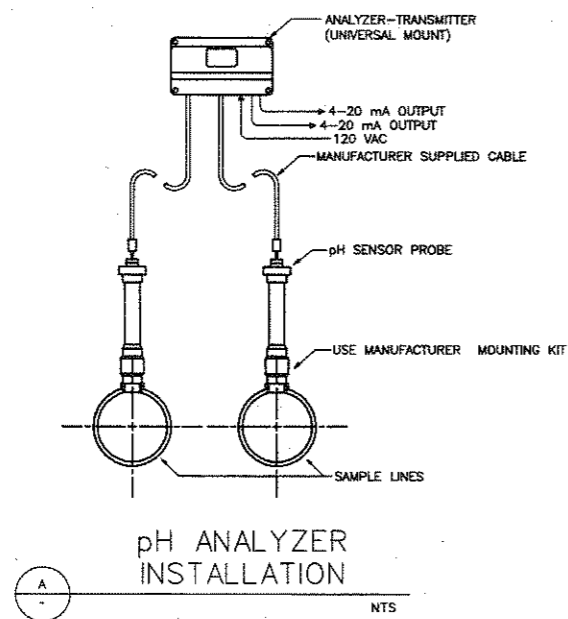
NTS

NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B BASE - NE & SE CLEARWELLS & FLUMES ALTERNATE - NW & SW CLEARWELLS TRANSFER PUMP STATION NO.3 CONTROL PANEL LAYOUT			
<b>DALLAS WATER UTILITIES</b> CITY OF DALLAS, TEXAS			
<b>TCB   AECOM</b>		TCB INC. 17800 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1157 WWW.TCB.AECOM.COM	
DESIGN	AVS	CONTRACT NO.	08-155
DRAWN	JMV	FILE NO.	C-N-604
CHECKED	CEM	APPROVED DATE	APR 2008
DATE			

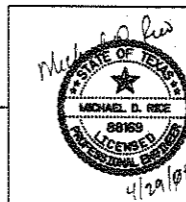


**CDM** Camp Dresser & McKee Inc.

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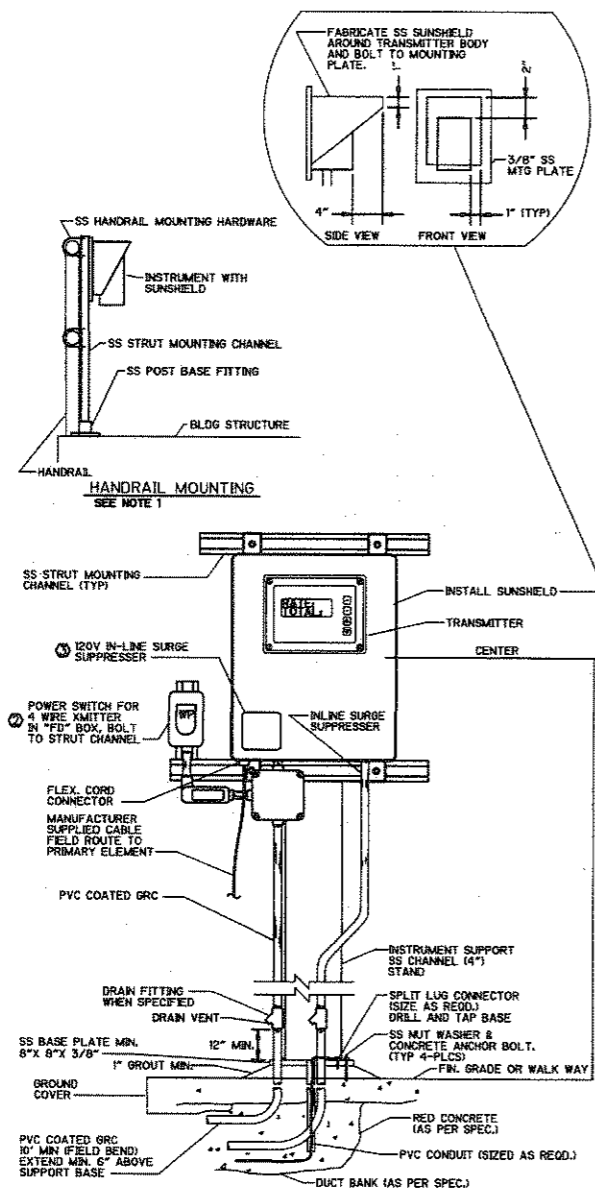


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NO.	DATE	REVISION	APPROV.
EAST SIDE WTP 540 MGD EXPANSION - PART B			
BASE - NE & SE CLEARWELLS & FLUMES			
ALTERNATE - NW & SW CLEARWELLS			
INSTRUMENTATION DETAILS 1			
<b>DALLAS WATER UTILITIES</b> CITY OF DALLAS, TEXAS			
<b>TCB   AECOM</b>		TCB INC. 17800 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1187 WWW.TCB.AECOM.COM	
DESIGN	AVS	CONTRACT NO.	DWG. NO.
DRAWN	JMV	08-155	C-N-605
CHECKED	CEM	FILE NO.	177 of 210
APPROVED	MDR	620Q-400R.3	
DATE	APR 2008		



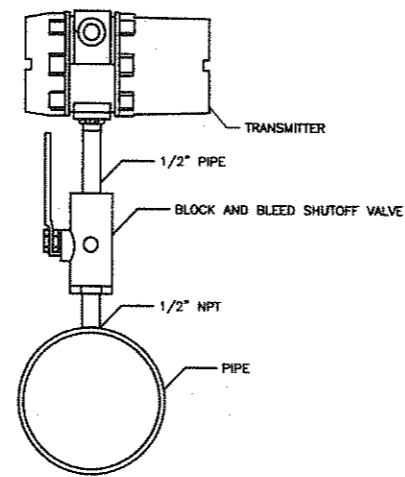
**CDM** Camp Dresser & McKee Inc.

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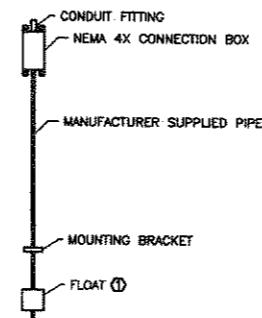


- NOTES:
- THIS DETAIL IS APPLICABLE FOR HANDRAIL MOUNTING. CONTRACTOR TO MODIFY INSTALLATION AS REQUIRED BY SITE CONDITIONS.
  - SWITCH REQUIRED WHEN UNIT IS REMOTE MOUNTED, OUT OF SIGHT OF CONTROLLING CIRCUIT BREAKER.
  - ON RAIL MOUNTED SILICON DIODE TYPE SUPPRESSOR FOR REMOTE UNITS MOUNTED OUTSIDE ONLY.

TYPICAL INSTRUMENT INSTALLATION  
A - NTS



PRESSURE TRANSMITTER INSTALLATION  
B - NTS



- REFER TO INSTRUMENTATION SHEETS FOR HEIGHT ADJUSTMENT.

DRY WELL LEVEL FLOAT SWITCH INSTALLATION  
C - NTS

CDM Camp Dresser & McKee Inc.

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



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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 INSTRUMENTATION DETAILS II			
<b>DALLAS WATER UTILITIES</b> CITY OF DALLAS, TEXAS			
<b>TCB   AECOM</b>		TCB INC. 17800 DALLAS PARKWAY, SUITE 1010 DALLAS, TEXAS 75248-1157 WWW.TCB.AECOM.COM	
DESIGN	AVS	CONTRACT NO.	C-N-606
DRAWN	JMV	08-155	
CHECKED	CEM	FILE NO.	178 210
APPROVED	MR	620Q-400R.3	
DATE	APR 2008		