



THE TOWN OF ADDISON, TEXAS
PUBLIC WORKS AND ENGINEERING SERVICES

SURVEYOR PUMP STATION
ELECTRICAL IMPROVEMENTS

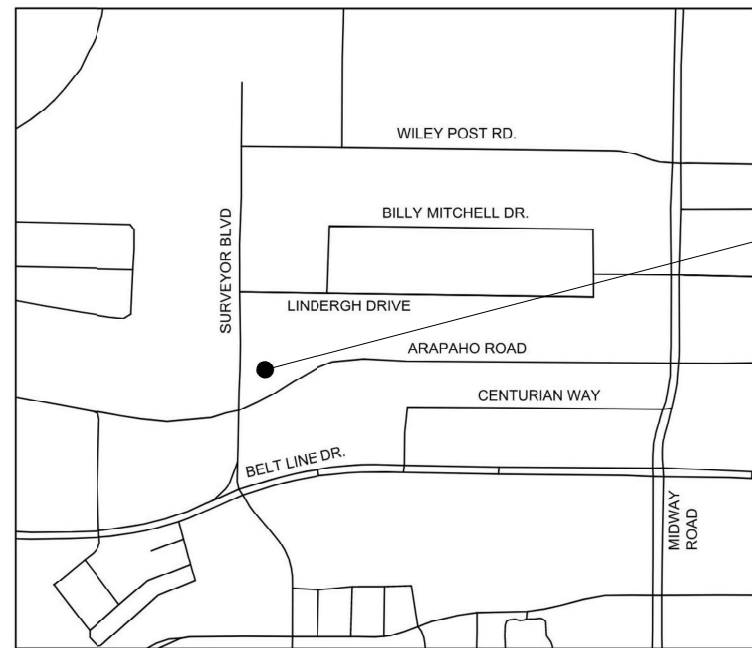
PROJECT NO. 2022-2C
BID NO. 23-01



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SHEET INDEX

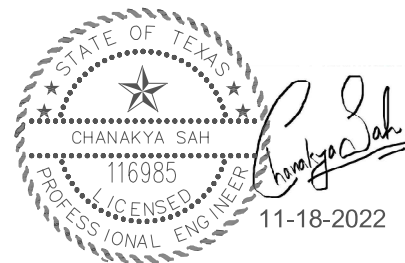
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17	I3	ADDISON SURVEYOR ROAD PUMP MCC-REPLACEMENT P&ID



SITE LOCATION
15150 SURVEYOR BLVD

VICINITY MAP

NTS



TOWN OF ADDISON

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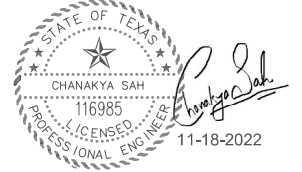
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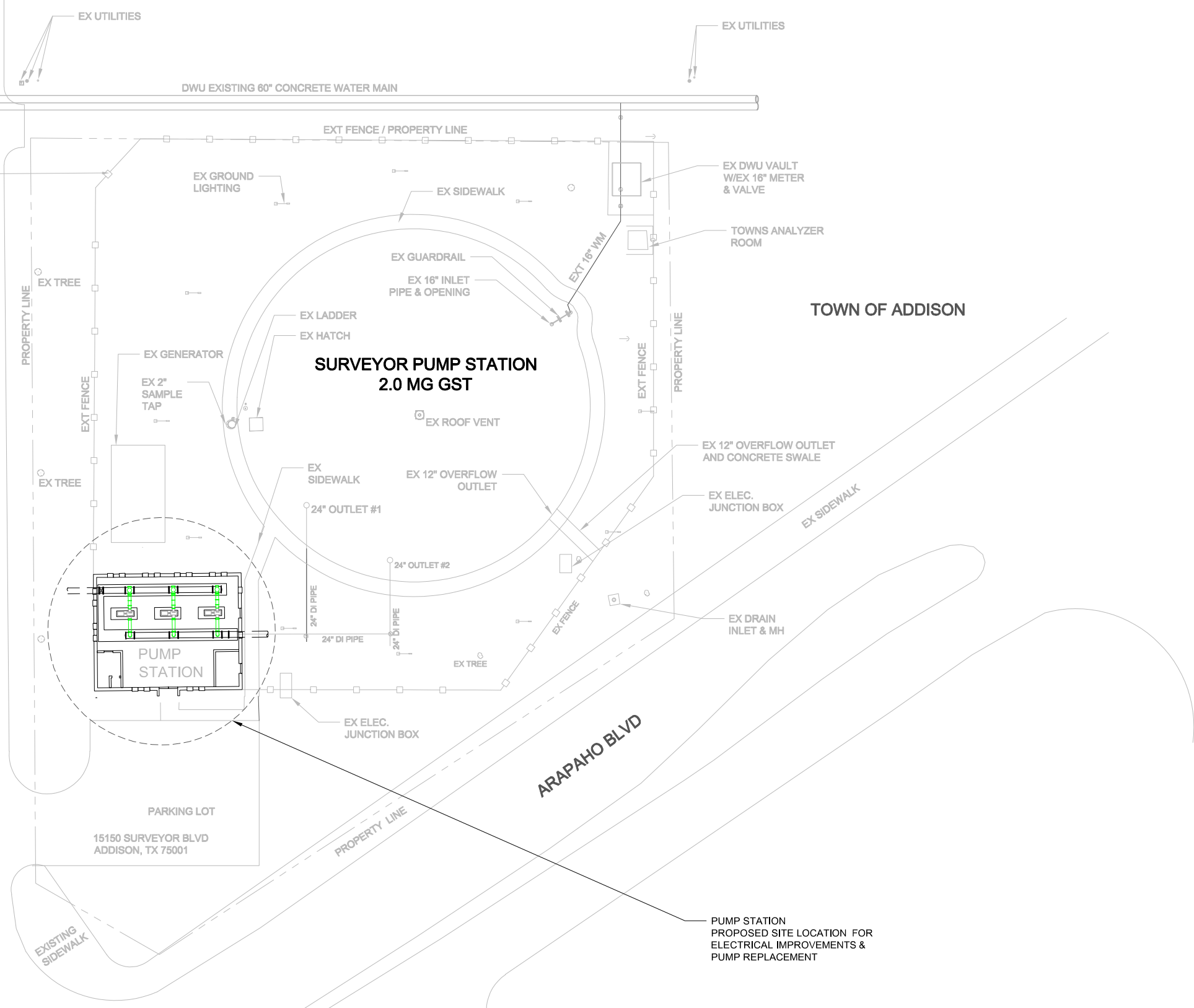
SHANNON HICKS, P.E.
DIRECTOR OF PUBLIC WORKS AND
ENGINEERING SERVICES

WILSON KAKEMBO, P.E.
CAPITAL/DEVELOPMENT
PROJECT MANAGER



REVISIONS

REV	DESCRIPTION	DSN DWN	CHK APP	DATE



CAD FILE: C:\Users\CSm\OneDrive - Kleinfelder\Desktop\2021\Projects\01B3 - Town of Addison - Surveyor Blvd\CAD\0909\Summittal\REF\Title Block_TDA_Surveyor_Bldg_LAYOUT.dwg LAYOUT1: Model PLOTTED: 2/15/2022 1:29 PM BY: HCF

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

SCALE: 1" = 5'

SCALE IN FEET

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

OVERALL SITE PLAN

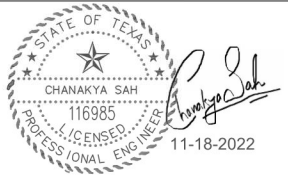
SURVEYOR PUMP STATION
ELECTRICAL IMPROVEMENTS
TOWN OF ADDISON, TX

ADDISON, TEXAS
PUBLIC WORKS AND ENGINEERING SERVICES
16801 WESTGROVE ROAD
ADDISON, TEXAS 75001

FINAL REVIEW SUBMITTAL

PROJECT NO.	20224986.001A	C1.0
ISSUE DATE	NOV 2022	
CURRENT REVISION	N/A	
DESIGNED BY	CS	
DRAWN BY	KV	
CHECKED BY	AG / CW	SHEET 2 of 17
APPROVED BY	CS	

1 OVERALL SITE PLAN
C2.0 SCALE: 1"-20'

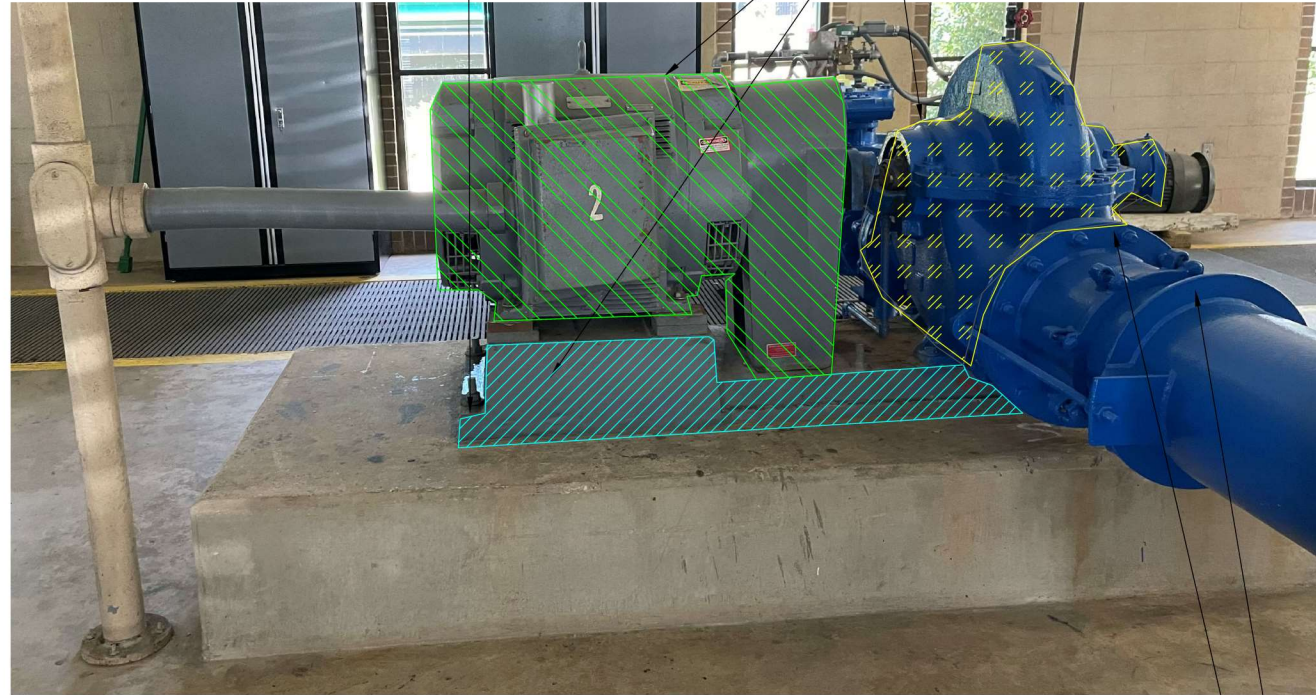


REVISIONS

REV	DESCRIPTION	DSN DWN	CHK APP	DATE

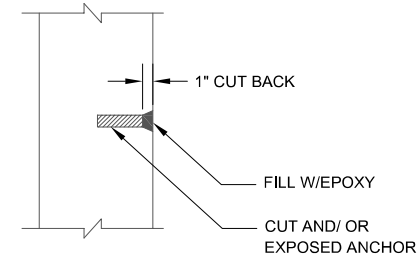
CUT EXIST ANCHOR BOLTS.
SEE NOTE 5 & DETAIL 2/C2.0

REMOVE AND DISPOSE OF EXISTING
PUMP #2 AND ASSOCIATED MOTOR,
AND BASEPLATE AND REPLACE WITH
NEW PUMP AND MOTOR PER SPEC
SECTION 15900



NOTES:

1. THERE ARE THREE PUMPS IN THE SITE. THIS PROJECT IS REMOVAL AND REPLACEMENT OF PUMP #2.
2. EXISTING PUMP#2 OF 3,875 GPM / 197"TDH IS REPLACED WITH 3,000 GPM / 175 TDH.
3. EXISTING MOTOR #2 OF 250 HP IS REPLACED WITH 200 HP.
4. SEE APPENDIX A IN THE TECHNICAL SPECIFICATIONS FOR VENDOR (JERSEY EQUIPMENT COMPANY) INFORMATION FOR NEW PUMP, MOTOR AND BASEPLATE.
5. CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO ORDERING EQUIPMENT, AND THEY NEED TO MAKE SURE THAT THE ANCHOR LOCATIONS FOR THE NEW BASE PLATE DO NOT CONFLICT WITH THE LOCATION OF THE EXISTING ANCHOR BOLTS THAT WERE ABANDONED.



NOTES:

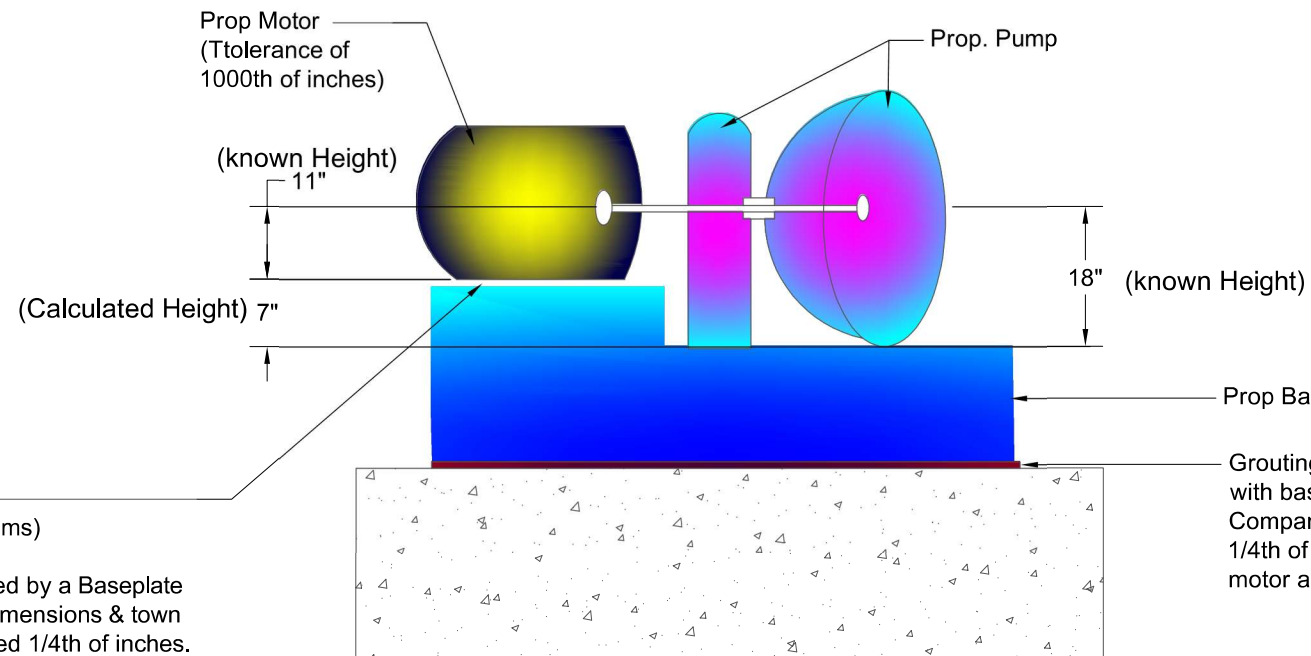
- CUTBACK TOP 1" OF EXPOSED ANCHOR.
- REMOVE ANY UNSOUND MATERIAL PRIOR TO APPLICATION OF EPOXY.
- EPOXY SHALL BE PRESSURE INJECTION EPOXY SUCH AS SIKADUR 35 HI-MOD LV OR APPROVED EQUAL AND COVER REPAIR EPOXY WITH SIKADUR 31 HI-MOD GEL OR APPROVED EQUAL.

1 PUMP #2
SCALE: NTS

REMOVE THE EXISTING DISMANTLING
JOINT ON BOTH SIDES OF THE PUMP
AND SET ASIDE FOR RE-INSTALLATION.

THE CONTRACTOR SHALL CONFIRM THAT THE PUMP
DISCHARGE SIZE AND FLANGE BOLT PATTERN
WILL MATE WITH THE EXISTING COUPLING

2 CONCRETE REPAIR AT CUT ANCHOR
SCALE: NTS



Spacing for Shims
(Min. 2 and limit max to 4 Shims)

SPACING - A Variable defined by a Baseplate
manufacturer per provided dimensions & town
recommendation not to exceed 1/4th of inches.
Baseplate manufacturer should design
baseplate per Town requirements not to
exceed 1/4th of inches

Prop Baseplate

Grouting for leveling may varies, Contractor to coordinate
with baseplate manufacturer vendor Jersey Equipment
Company (JEC) to define the tolerance to come up with
1/4th of inches tolerance spacing between baseplate and
motor as defined for spacing.

3 BASEPLATE FOR SPACING
SCALE: NTS

GENERAL NOTES:

- TOWN SCADA INTEGRATION WILL BE PERFORMED BY PRIME CONTROL PER CONTRACT DOCUMENT.

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH
ON ORIGINAL DRAWING
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SCALES ACCORDINGLY



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PUMP #2 REPLACEMENT

SURVEYOR PUMP STATION
ELECTRICAL IMPROVEMENTS
TOWN OF ADDISON, TX



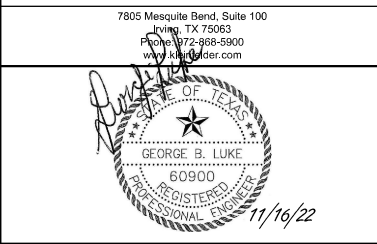
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PUBLIC WORKS AND ENGINEERING SERVICES
16801 WESTGROVE ROAD
ADDISON, TEXAS 75001

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DRAWN BY	KV
CHECKED BY	AG / CW
APPROVED BY	CS

C2.0

CAD FILE: W:\Miscellaneous\169_Addison Surveyor Road Pump Station MCC Change-Out\Drawings\Electrical\Working\E-01.dwg LAYOUT - Layout1 PLOTTED: 11/16/2022 10:01 AM BY: jenny reaman



REVISIONS				
REV	DESCRIPTION	DSN DWN	CHK APP	DATE

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

LEGEND & SYMBOLS - I

SURVEYOR PUMP STATION ELECTRICAL IMPROVEMENTS TOWN OF ADDISON, TX

ADDISON TEXAS

ADDISON, TEXAS
PUBLIC WORKS AND ENGINEERING SERVICES
16801 WESTGROVE ROAD
ADDISON, TEXAS 75001

100% REVIEW SUBMITTAL

PROJECT NO.	20224986.001A
ISSUE DATE	11-16-2022
CURRENT REVISION	N/A
DESIGNED BY	J.JOHNSON
DRAWN BY	J.MEAM
CHECKED BY	M.HAJIZADEH
APPROVED BY	G.LUKE

SHEET 4 of 17

GENERAL NOTE

THIS IS A STANDARD LEGEND. SOME SYMBOLS MAY NOT APPEAR ON THE DRAWINGS.

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION	
	MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER CS-CONTROL SWITCH		RELAY, NO. AS INDICATED 25- SYNCHRONISM CHECK RELAY 27- UNDER VOLTAGE RELAY 38- BEARING PROTECTIVE DEVICE 40- LOSS OF EXCITATION RELAY 42- RUNNING CONTACTOR/PILOT RELAY 48- REVERSE PHASE/PHASE BALANCE/CURRENT RELAY 47- PHASE SEQUENCE VOLTAGE RELAY 49- MACHINE OR TRANSFORMER THERMAL RELAY 50- INSTANTANEOUS OVERCURRENT RELAY 50G- INSTANTANEOUS GROUND 51- TIME OVER CURRENT RELAY 51G- TIME OVERCURRENT RELAY, GROUNDING RESISTOR TYPE 51N- TIME OVERCURRENT RELAY, RESIDUAL TYPE 51V- TIME OVERCURRENT RELAY WITH VOLTAGE RESTRAINT 60- NEGATIVE SEQUENCE VOLTAGE RELAY 62- TIME DELAY RELAY 63- OVER PRESSURE RELAY 67- AC DIRECTIONAL OVERCURRENT RELAY 83- AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY 86- LOCKING-OUT RELAY 87- DIFFERENTIAL PROTECTIVE RELAY B- SUFFIX INDICATES "BUS" G- SUFFIX INDICATES "GENERATOR" GF- GROUND FAULT ST- SHUNT TRIP T- SUFFIX INDICATES "TRANSFORMER" X- SUFFIX INDICATES "AUXILIARY"		FIELD INSTRUMENT, TAG NO. OR LOOP # AS INDICATED *INDICATES INSTRUMENT TYPE DEFINED ON LOOP SHEETS ## - INDICATES LOOP NO.			HEATER
	LOW VOLTAGE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED. LSIG IF NOTED MCP IF NOTED ERMS IF NOTED		SPECIAL CAPACITOR * SC- SURGE CAPACITOR PF- POWER FACTOR CORRECTION CAPACITOR INCLUDING INDUCTIVE LINK AS NEEDED		LIQUID LEVEL (FLOAT) SWITCH		TACHOMETER GENERATOR	
	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		PUSH BUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED		NORMALLY OPEN, CLOSES ON RISING LEVEL		CONTACT, NORMALLY OPEN (NO)	
	NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A		PUSH BUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY OPEN		NORMALLY CLOSED, OPENS ON RISING LEVEL		CONTACT, NORMALLY CLOSED (NC)	
	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE, AMPERE RATING AND FUSE SIZE AS NOTED: * AMPERE RATING NOTED IF OTHER THAN 30A * FUSE RATING		EMERGENCY STOP PUSH BUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)		PRESSURE OR VACUUM SWITCH		KEY INTERLOCK	
	MOTOR ISOLATION SWITCH, HORSEPOWER RATED		STOP PUSH BUTTON WITH RED HEAD OPERATOR (MAINTAINED CONTACT) WITH LOCKABLE OPTION *: E-STOP *: STOP		NORMALLY OPEN, CLOSES ON RISING PRESSURE		TERMINAL OR TEST BLOCK	
	DRAWOUT TYPE EQUIPMENT OR DEVICE		START-STOP PUSH BUTTON CONTROL STATION (MOMENTARY CONTACT) "L" DENOTES LOCKOUT TYPE		NORMALLY CLOSED, OPENS ON RISING PRESSURE		RESISTANCE TEMPERATURE DETECTOR	
	MEDIUM VOLTAGE CABLE TERMINATION		START-STOP PUSH BUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP		NORMALLY OPEN, CLOSES ON DROPPING PRESSURE		VIBRATION DETECTOR	
	MEDIUM VOLTAGE AIR INTERRUPTER SWITCH		OFF/ON SELECTOR SWITCH		TEMPERATURE SWITCH OR THERMOSTAT		DAMPER MOTOR	
	MEDIUM VOLTAGE FUSED AIR INTERRUPTER SWITCH		3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O-OPEN X-CLOSED POSITION TOP CONTACT MIDDLE CONTACT BOTTOM CONTACT A X O O B O O O C O O X * NAMEPLATE (A/B/C) HOA- HAND/OFF/AUTO HOR- HAND/OFF/REMOTE LOR- LOCAL/OFF/REMOTE RSL- RAISE/STOP/LOWER TOA- TEST/OFF/AUTO NOTE: 2 POSITION MULTI-CONTACT SWITCH FOLLOWS SAME CONVENTION		NORMALLY OPEN, CLOSES ON RISING TEMPERATURE		ELAPSED TIME METER	
	MEDIUM VOLTAGE FUSED MOTOR CONTROLLER		TORQUE SWITCH		NORMALLY CLOSED, OPENS ON DROPPING PRESSURE		MOTOR OPERATED VALVE	
	TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED, UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS ALL DRY TYPE TRANSFORMERS SERVING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 13. ALL OTHER DRY TYPE TRANSFORMERS SHALL HAVE A K-4 RATING. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING		CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED		POSITION (LIMIT) SWITCH		PUSHBUTTON STATION, REFER TO ELECTRICAL SCHEMATIC FOR NUMBER OF DEVICES.	
	CURRENT TRANSFORMER: * QUANTITY A= PRIMARY AMPERES		CONDUCTORS ELECTRICALLY CONNECTED		NORMALLY OPEN - HELD CLOSED		JUNCTION BOX	
	POTENTIAL TRANSFORMER: * QUANTITY PV= PRIMARY VOLTAGE SV= SECONDARY VOLTAGE		INDICATES LIMITS OF EQUIPMENT OR WIRING ENCLOSURE		NORMALLY CLOSED		POWER JUNCTION BOX	
	GENERATOR, RATINGS AND CONNECTIONS AS NOTED		LIGHTNING ARRESTER/SURGE CAPACITOR		NORMALLY CLOSED - HELD OPEN		4-20mA SIGNAL JUNCTION BOX	
	TRANSFER SWITCH AUTOMATIC TRANSFER SWITCH (EG ATS-1) MANUAL TRANSFER SWITCH (EG MTS-1) "N" INDICATES NORMAL SOURCE "S" INDICATES STANDBY SOURCE 100A INDICATES CONTINUOUS CURRENT RATING		REMOTE DEVICES		NORMALLY CLOSED - HELD OPEN		CONTROL JUNCTION BOX	
	VARIABLE SPEED DRIVE CONTROLLER * D.C.= D.C. DRIVE CONTROLLER SCR= SILICON CONTROLLED RECTIFIER VFD= VARIABLE FREQUENCY DRIVE AFD= ADJUSTABLE FREQUENCY DRIVE		MOV WITHOUT INTEGRATED DISCONNECT		TORQUE SWITCH		PULL BOX	
	VACUUM CONTACTOR		MOV WITH INTEGRATED DISCONNECT		CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED		TERMINATION CABINET	
	UNIT HEATER - ELECTRIC HEATING COIL AND FAN		MOTOR STARTER COIL, NUMBER AS INDICATED		CONDUCTORS ELECTRICALLY CONNECTED		REMOTE DEVICES	
	UNIT HEATER - STEAM OR WATER HEATING COIL AND FAN		CONTROL RELAY COIL, NUMBER AS INDICATED		INDICATES LIMITS OF EQUIPMENT OR WIRING ENCLOSURE		MOV WITHOUT INTEGRATED DISCONNECT	
	MOTOR, NUMERAL INDICATES HORSEPOWER		PILOT LIGHT, COLOR AS NOTED * R- RED G- GREEN B- BLUE W- WHITE A- AMBER		LIGHTNING ARRESTER/SURGE CAPACITOR		MOV WITH INTEGRATED DISCONNECT	
	SURGE PROTECTION DEVICE		PILOT LIGHT, PUSH-TO-TEST TYPE, COLOR AS NOTED ABOVE.		GROUND ROD		MOV WITH INTEGRATED DISCONNECT	
	VOLTMETER (WITH SWITCH IF 3-PHASE)		TIME DELAY RELAY RANGE AS NOTED SET POINT AS NOTED		GROUND ROD WELL		MOV WITH INTEGRATED DISCONNECT	
	AMMETER (WITH SWITCH IF 3-PHASE)		TDD-TIME DELAY AFTER DE-ENERGIZATION-OFF DELAY TDE-TIME DELAY AFTER ENERGIZATION-ON DELAY		FUSE, AMPERE RATING AS NOTED		MOV WITH INTEGRATED DISCONNECT	
	METER * WM- WATTMETER WHM- WATT/ HOUR METER WHDM- WATT/ HOUR DEMAND METER WHDR- WATT/ HOUR DEMAND RECORDER PF- POWER FACTOR METER RT- RUNNING TIME METER TRANSDUCER AX- CURRENT TRANSDUCER WX- WATT TRANSDUCER		NOTC-NORMALLY OPEN, TIMED CLOSING WHEN ENERGIZED		NOTO-NORMALLY OPEN, TIMED OPENING WHEN DE-ENERGIZED		NOTC-NORMALLY CLOSED, TIMED CLOSING WHEN DE-ENERGIZED	

SYMBOLS	DESCRIPTION
	REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE FIXTURE: "A"- FIXTURE TYPE "b"- CONTROLLED BY SWITCH "b" "LA-3"- CIRCUIT 3 FROM PANEL LA
	REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE FIXTURE, NOTATIONS SAME AS ABOVE
	INDICATES LIGHT FIXTURES WHICH ARE NONSWITCHED, NOTATIONS SAME AS ABOVE "NS" - NONSWITCHED
	WALL MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	POLE MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS, NOTATIONS SAME AS ABOVE
	REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS, NOTATIONS SAME AS ABOVE
	CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE
	WALL OUTLET EXIT SIGN, ARROW INDICATES DIRECTION OF EGRESS, NOTATIONS SAME AS ABOVE
	CONDUIT, EXPOSED/SURFACE MOUNTED
	CONDUIT OR DUCTBANK, CONCEALED
	CONDUIT, EXPOSED/SURFACE MOUNTED, TURNING UP
	CONDUIT, EXPOSED/SURFACE MOUNTED, TURNING DOWN
	CONDUIT STUBBED OUT AND CAPPED
	DENOTES A QUANTITY OF 2 SETS OF THREE (3) NO.3/0 AWG CONDUCTORS AND 1 NO.4WG GROUND CONDUCTOR EACH INSTALLED IN 3" CONDUIT.
2(3#3/0+1#2G, 3"C)	DENOTES A QUANTITY OF TWO INSTRUMENT CABLES, EACH CONSISTS OF TWO NO.16 AWG CONDUCTORS TWISTED TOGETHER AND COVERED WITH A METALLIC SHIELD AND AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
2(2/C#16TS)	DENOTES A QUANTITY OF TWO INSTRUMENT CABLES, EACH CONSISTS OF TWO NO.16 AWG CONDUCTORS TWISTED TOGETHER AND COVERED WITH A METALLIC SHIELD AND AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
3(4"C)	DENOTES A QUANTITY OF THREE 4-INCH CONDUITS.
	FLEXIBLE METAL CONDUIT "WHIP" (2#12, #12G, 3/4"C UNLESS OTHERWISE NOTED) FOR RECESSED LIGHTING FIXTURES AND LIQUID TIGHT MOTOR CONNECTIONS
	HOMERUN, CIRCUITS 1 AND 3 RUN TO PANEL LP-1
	SINGLE POLE SWITCH "b"- INDICATES SWITCH LEG SHALL CONTROL LIGHT FIXTURES WITH "b" DESIGNATION
	MULTI POLE SWITCH "x"- INDICATES NUMBER OF POLE "b"- NOTATIONS SAME AS ABOVE
	SINGLE POLE SWITCH AND PILOT LIGHT, "b"- NOTATIONS SAME AS ABOVE
	DIMMER LIGHTING CONTROL SWITCH, "b"- NOTATIONS SAME AS ABOVE
	TIME SWITCH, "b"-NOTATIONS SAME AS ABOVE
	MANUAL MOTOR STARTER /DISCONNECT
	SINGLE POLE SWITCH WITH OCCUPANCY SENSOR
	SINGLE POLE DIMMER SWITCH
	SWITCH ENCLOSURE "x"- NOTATIONS SAME AS ABOVE "b"- NOTATIONS SAME AS ABOVE "xx"- INDICATES ENCLOSURE TYPE
	LIGHTING CONTACTOR WITH NUMBER OF POLES AS INDICATED

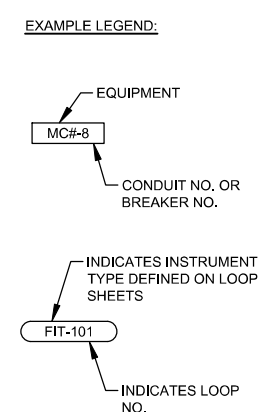
SYMBOLS	DESCRIPTION
	LIGHTING PANELBOARD (TYPICAL 120V/240V OR 120V/208V)
	DISTRIBUTION PANELBOARD (TYPICAL 277V/480V)
	DUPEX RECEPTACLE, 20A, 120V, 2P, 3W * GFI- GROUND FAULT INTERRUPTER TYPE WP- WEATHERPROOF "LA-3"- CIRCUIT 3 FROM PANEL LA
	RED FACE ISOLATED GROUND DUPLEX, 15A
	20A, 240V, 2P, 3W, RECEPTACLE
	CLASS 1, DIVISION 1, RATED TWIST LOCK RECEPTACLE, VOLTAGE AND AMPERAGE RATING AS NOTED
	SINGLE FACE, SINGLE GANG PEDESTAL WITH 20A, 120V, 2P, 3W DUPLEX RECEPTACLE, FURNISHED AND INSTALLED UNDER DIVISION 16 UNLESS OTHERWISE NOTED. * DENOTES FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS BUT INSTALLED UNDER DIVISION 16
	DOUBLE FACE, SINGLE GANG PEDESTAL WITH 20A, 120V, 2P, 3W DUPLEX RECEPTACLE AND 20A, 240V, 2P, 3W SINGLE RECEPTACLE, FURNISHED AND INSTALLED UNDER DIVISION 16 UNLESS OTHERWISE NOTED. * DENOTES FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS BUT INSTALLED UNDER DIVISION 16
	DOUBLE RECEPTACLE, 20A, 120V, 2P, 3W MOUNTED IN BOX CURB FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS BUT INSTALLED UNDER DIVISION 16
	SINGLE GANG 20A, 120V, 2P, 3W RECEPTACLE
	QUAD RECEPTACLE
	OCCUPANCY SENSOR CAPABLE OF VACANCY
	PHOTOCELL

TAGGING		
EQUIPMENT	EQUIPMENT TAG	CONDUIT TAG
MOTOR CONTROL CENTER	MCC-1	MC1-XX
SWITCHBOARD	SWBD-1	SB1-XX
SWITCHGEAR	SWGR-1	SG1-XX
PROGRAMMABLE LOGIC CABINET	PLC-1	PL1-XX
VARIABLE FREQUENCY DRIVE	VFD-1	VF1-P
LOW VOLTAGE TRANSFORMER	TX-LX OR TX-HX	TXLX-P OR TXHX-P
SERVICE TRANSFORMER	TX-1	TX1-P
GENERATOR	GEN-1	GN1-X
LIGHTING/POWER PANELBOARD	LP/PP-XX	XX-XX
AUTOMATIC TRANSFER SWITCH	ATS-1	AT1-XX

TYPICAL TAG FOR CONDUIT FROM THIS EQUIPMENT TO DOWN STREAM LOAD FOR EXAMPLE.

SYMBOLS	DESCRIPTION
COMMUNICATIONS SYSTEMS	
	TELEPHONE OUTLET
	DATA OUTLET
	DATA INPUT/OUTPUT CABLE OUTLET. "P" DENOTES PROCESS COMPUTER SYSTEM
	VOICE/DATA OUTLET
	PAGING SPEAKER HORN
	PAGING SPEAKER BI-DIRECTIONAL
	PAGING SPEAKER, CEILING MOUNTED TYPE
	PAGING SPEAKER, WALL MOUNTED TYPE
SECURITY SYSTEMS	
	SECURITY ALARM PANEL
	SECURITY ALARM DOOR SWITCH
	SECURITY ALARM KEY PAD
	SECURITY SYSTEM CARD ACCESS READER
	SECURITY ALARM WINDOW SWITCH
	SECURITY ALARM MOTION DETECTOR
	SECURITY CAMERA * CCTV- CLOSED CIRCUIT TV CAMERA PTZ- PAN, TILT, ZOOM CAMERA LENS CONTROLS
	GLASS BREAK DETECTOR
	ACCESS CONTROL PANEL
FIRE ALARM SYSTEMS	
	FIRE ALARM CONTROL PANEL
	SMOKE DETECTOR * D- DENOTES DUCT SMOKE DETECTOR * R- DENOTES FIXED TEMPERATURE RATE-OF-RISE TYPE.
	FIRE ALARM MANUAL PULL STATION, MOUNT AT 4'-0"
	ALARM HORN, MOUNT AT 7'-6" * F- DENOTES FIRE ALARM
	ALARM STROBE, MOUNT AT 6'-8" * F- DENOTES FIRE ALARM
	ALARM HORN AND STROBE LIGHT COMBINATION, MOUNT AT 6'-8" * F- DENOTES FIRE ALARM

ABBREVIATIONS		LSIG	CONTINUED BELOW LEFT
AC	ALTERNATING CURRENT	LSIG	LONG TIME/SHORT TIME/ INSTANTANEOUS/GROUND
AFD	ADJUSTABLE FREQUENCY DRIVE	MCC	FAULT FEATURE INCLUDED
AFF	ABOVE FINISHED FLOOR	MCF	MOTOR CONTROL CENTER
AG	ABOVE GRADE	MCP	MOTOR CIRCUIT PROTECTOR
ALUM	ALUMINUM	MFR	MANUFACTURER
AMPI/A	AMPERE	MH	MANHOLE
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUGS ONLY
AUTO	AUTOMATIC	MTG	MOUNTING
AUX	AUXILIARY	MTD	MOUNTED
AWG	AMERICAN WIRE GAUGE	MTS	MANUAL TRANSFER SWITCH
C	CONDUIT	NC	NORMALLY CLOSED
CB	CIRCUIT BREAKER	NO	NORMALLY OPEN OR NUMBER
CKT	CIRCUIT	NTS	NOT TO SCALE
CLF	CURRENT LIMITING FUSE	OL	OVERLOAD
CP	CONTROL PANEL	OLX	OVERLOAD CONTROL RELAY
CPT	CONTROL POWER TRANSFORMER	PB	PUSH BUTTON OR PULL BOX
CR	CONTROL RELAY	PCC	PUMP CONTROL CONSOLE
CS	CONTROL SWITCH	PPR	PHASE PROTECTIVE RELAY
CT	CURRENT TRANSFORMER	PFR	PHASE FAILURE RELAY
CU	COPPER	PH	PHASE
DC	DIRECT CURRENT	PNLBD	PANELBOARD
DI	DOOR INTERLOCK	PR	PAIR
DN	DOWN	PT	POTENTIAL TRANSFORMER
DWG	DRAWING	PTT	PUSH TO TEST TYPE
EHH	ELECTRICAL HANDHOLE	PVC	POLYVINYL CHLORIDE
EC	EMPTY CONDUIT	QTY	QUANTITY
ELEC	ELECTRICAL	RCP	RELAY CONTROL PANEL
ELEV	ELEVATION	RECP	RECEPTACLES
EM	EMERGENCY	RVSS	REDUCED VOLTAGE SOFT STARTER
EMH	ELECTRICAL MANHOLE	SC	SURGE CAPACITOR
EO	ELECTRICALLY OPERATED	SCH	SCHEMATIC
ERMS	ENERGY-REDUCING	SCCR	SHORT CIRCUIT CURRENT RATING
FBO	FURNISHED BY OTHERS	SEC	SECONDS OR SECONDARY
FO	FIBER OPTIC	SH	SHIELDED OR SHEET
FRP	FIBERGLASS REINFORCED POLYESTER	SHT	SHEET
FU	FUSE	SN	SOLID NEUTRAL
GCP	GENERATOR CONTROL PANEL	SS	STAINLESS STEEL
GEN	GENERATOR	ST	STARTER
G, GRD	GROUND	SV	SOLENOID VALVE
GFI	GROUND FAULT INTERRUPTER	SW	SWITCH
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SWBD	SWITCHBOARD
GO	GATE OPERATOR	SWGR	SWITCHGEAR
GRS	GALVANIZED RIGID STEEL	TC	TERMINATION CABINET
HH	HANDHOLE	TEL	TELEPHONE
HT	HEIGHT	TO	TIME DELAY ON OPENING
HTP	HEAT TRACE PANEL	TS	TEMPERATURE SWITCH
HZ	HERTZ	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
IMH	INSTRUMENT MAN HOLE	TSW	TWISTED SHIELDED WIRE
INST	INSTRUMENT	Typ	TYPICAL
LA	LIGHTNING ARRESTER	UG	UNDERGROUND
LC	LIGHTNING CONTACTOR	V	VOLTS
LCP	LOCAL CONTROL PANEL	VFD	VARIABLE FREQUENCY DRIVE
LGTS	LIGHTS	VO	VALVE OPERATOR
LP	LIGHTING PANEL	W	WIRE
		WP	WEATHERPROOF
		XP	EXPLOSION PROOF
		XFMR	TRANSFORMER
			CONTINUED ABOVE RIGHT



GENERAL NOTE

THIS IS A STANDARD LEGEND. SOME SYMBOLS MAY NOT APPEAR ON THE DRAWINGS.



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GEORGE B. LUKE
11/16/22

REVISIONS				
REV	DESCRIPTION	DSN	CHK	DATE

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

LEGEND & SYMBOLS - II

SURVEYOR PUMP STATION
ELECTRICAL IMPROVEMENTS
TOWN OF ADDISON, TX

ADDISON

ADDISON, TEXAS
PUBLIC WORKS AND ENGINEERING SERVICES
16801 WESTGROVE ROAD
ADDISON, TEXAS 75001

100% REVIEW SUBMITTAL

PROJECT NO.	20224986.001A	E2
ISSUE DATE	11-16-2022	
CURRENT REVISION	N/A	
DESIGNED BY	J. JOHNSON	
DRAWN BY	J. MEAM	
CHECKED BY	M. HAJIZADEH	
APPROVED BY	G.LUKE	

CAD FILE: \\m\addison\1681_Addison_Surveyor_Road_Pump_Station_MCC_Change-Order_Electrical\Working\02.dwg LAYOUT: Layout1

PLOTTED: 11/16/2022 10:01 AM BY: jenny meam

5 of 17

ELECTRICAL GENERAL NOTES

- 1 THE NOTES CONTAINED ON THIS SHEET ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR WHEN WORKING IN THE FIELD, AND CONTAIN EXCERPTS FROM THE SPECIFICATION SECTIONS. HOWEVER THE CONTRACTOR IS HEREBY ADVISED THAT THE CONTRACT DOCUMENTS CONSIST OF BOTH THE DRAWINGS AND THE SPECIFICATIONS, AND THAT THE CONTRACTOR MUST COMPLY FULLY WITH BOTH THE BOUND DRAWINGS AND THE BOUND SPECIFICATIONS.
2 ALL EQUIPMENT WIRING, RACEWAYS, ETC. SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL CODES, AND INDUSTRY STANDARDS (IE, UL, NEMA, IEEE, ANSI, ETC.) THE DRAWING NOTES AND DETAILS SHALL BE COMPLIED WITH IN ADDITION TO THE REQUIREMENTS IN THE SPECIFICATIONS. REFER TO EACH SPECIFICATION SECTION FOR SPECIFIC REQUIREMENTS.
3 ALL RACEWAY INSTALLATIONS SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. ALL EXPOSED RACEWAY SHALL BE INSTALLED PARALLEL TO BEAMS, CEILINGS, FLOORS AND WALLS. SEE SPECIFICATION ON RACEWAYS FOR ADDITIONAL REQUIREMENTS.
4 CONDUITS SHALL BE TERMINATED IN A NEAT MANNER AND STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWING DETAILS.
5 CONDUITS TERMINATED INTO ENCLOSURES SHALL BE PERPENDICULAR TO THE WALLS OF THE ENCLOSURE. THE USE OF SHORT SEALTIGHT ELBOW FITTINGS FOR SUCH TERMINATIONS WILL NOT BE PERMITTED.
6 ALL RACEWAY INSTALLATIONS, CROSSING EXPANSION JOINTS OR TRANSITIONS FROM BELOW GRADE TO EXPOSED ABOVE GRADE, SHALL HAVE EXPANSION OR EXPANSION/DEFLECTION TYPE FITTINGS AS SPECIFIED FOR THE APPLICATION. SEE THE DRAWINGS AND THE SPECIFICATION ON RACEWAYS FOR THE EXACT TYPE OF FITTING TO BE USED.
7 NO CONDUIT SMALLER THAN 3/4", NOR WIRE SMALLER THAN NO. 12 AWG, SHALL BE USED UNLESS SPECIFICALLY NOTED.
8 ALL UNDERGROUND SINGLE CONDUITS, AND DUCTBANKS OF MULTIPLE CONDUITS, SHALL BE RIGID PVC CONDUIT, AS SPECIFIED. MINIMUM SIZE SHALL BE 1-1/2 INCH. THE CONTRACTOR SHALL FIELD VERIFY THE ROUTING OF ALL UNDERGROUND CONDUIT AND DUCTBANKS AND SHALL COORDINATE THE ROUTING OF NEW CONDUIT AND DUCTBANKS TO AVOID INTERFERENCE WITH OTHER UNDERGROUND UTILITIES UNLESS OTHERWISE SHOWN.
9 ALL CHANGES OF DIRECTION GREATER THAN 20 DEGREES IN UNDERGROUND SINGLE, OR DUCTBANKS OF MULTIPLE CONDUITS, SHALL BE ACCOMPLISHED USING PVC COATED RIGID ALUMINUM LONG RADIUS BENDS. BENDS OF PVC CONDUIT GREATER THAN 20 DEGREES, OR THE USE OF FLEXIBLE CONDUIT OF ANY TYPE, WILL NOT BE PERMITTED. SEE THE SPECIFICATIONS FOR MORE REQUIREMENTS.
10 LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT SHALL BE USED FOR THE PRIMARY AND SECONDARY OF TRANSFORMERS, GENERATOR TERMINATIONS AND OTHER EQUIPMENT WHERE VIBRATION IS PRESENT. USE IN OTHER LOCATIONS IS NOT PERMITTED, EXCEPT FOR CONNECTIONS TO INSTRUMENTATION TRANSMITTERS, WHERE MULTIPLE PENETRATIONS ARE REQUIRED. LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT SHALL HAVE A MAXIMUM LENGTH NOT GREATER THAN THAT OF A FACTORY MANUFACTURED LONG RADIUS ELBOW OF THE CONDUIT SIZE BEING USED. THE MAXIMUM BENDING RADIUS SHALL NOT BE LESS THAN THAT SHOWN IN THE NEC CHAPTER 9, TABLE 2, "OTHER BENDS". BX OR AC TYPE PREFABRICATED CABLES WILL NOT BE PERMITTED.
11 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 APPROVED. 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.
12 FOR ALL JUNCTION BOXES, PULL BOXES AND TERMINATION BOXES IN THE RACEWAY SYSTEM IN NEMA 12 AREAS, BOXES SHALL BE OF ALUMINUM. FOR NEMA 4X AREAS SEE SECTION 16110 FOR BOX DETAILS AND SPECIFICATIONS.
13 WHERE RACEWAYS ENTER JUNCTION BOXES OR CONTROL PANELS CONTAINING ELECTRICAL OR INSTRUMENTATION EQUIPMENT, ALL ENTRANCES SHALL BE SEALED WITH WATERTIGHT SEALANT. REFER TO THE SPECIFICATIONS FOR DETAILS.
14 ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURE LOCATIONS, OR TERMINAL BOX LOCATIONS, ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER, DURING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
15 ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURES DIMENSIONS ARE APPROXIMATE. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURES OR TERMINAL BOX DIMENSIONS 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/ENGINEER DURING CONSTRUCTION.
16 CORING OF AN EXISTING STRUCTURE SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER. CORING THROUGH STRUCTURAL BEAMS IS STRICTLY PROHIBITED, WITHOUT PRIOR WRITTEN APPROVAL FROM THE OWNER/ENGINEER.
17 THE LOCATION OF ALL ELECTRICAL EQUIPMENT AND ROUTING OF CABLES AND CONDUITS SHALL BE COORDINATED AND APPROVED BY THE OWNER.
18 THE DUCTBANK ROUTING AS SHOWN ON THE DRAWING IS APPROXIMATE. THE EXACT DUCTBANK ROUTING, CABLE LENGTH AND CONDUIT LENGTH SHALL BE VERIFIED IN THE FIELD.

- 19 PROVIDE CONDUIT SEALS FOR CONDUIT PENETRATIONS. SEE SECTION 16110 FOR DETAILS.
20 THIS IS AN OPERATING FACILITY. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER.
21 THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE ALL UNDERGROUND UTILITIES BEFORE DIGGING. CONTRACTOR SHALL COORDINATE THE EFFORT WITH THE OWNER. CONTRACTOR SHALL SUBMIT PROPOSED CONSTRUCTION SEQUENCE FOR COMPLETING WORK IN COORDINATION WITH THE OWNER'S NORMAL OPERATIONS AND OTHER ON-SITE CONSTRUCTION ACTIVITIES.
22 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.
23 LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS. THE MOUNTING HEIGHT SHALL BE MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.
24 CONDUIT AND WIRE (NOT SHOWN) FOR THE HVAC CONTROL EQUIPMENT AND MISCELLANEOUS DEVICES SHALL BE FURNISHED AND INSTALLED UNDER THE HVAC SPECIFICATIONS AND SHALL BE:
A. 3/4" (MIN) RIGID ALUMINUM.
B. NO.14 XHHW CU. WIRE XHHW (MIN.) NUMBER OF WIRES AS REQUIRED.
C. IN ACCORDANCE WITH ALL DIVISION 16 REQUIREMENTS.
25 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.
26 ALL CONDULETS SHALL BE FORM 7 AND SHALL HAVE 316 SS CLAMP COVERS WITH 316 SS CLAMPS AND SCREWS. SCREW DOWN COVERS ARE UNACCEPTABLE. REFER TO THE SPECIFICATIONS FOR MORE INFORMATION.
27 ALL BARE COPPER GROUNDING CONDUCTORS SHALL BE TINNED, ALL GROUND RODS SHALL BE COPPER PLATED STEEL, 3/4" BY 10' LONG. ALL EXPOSED COPPER GROUND CABLES SHALL BE GREEN INSULATED CONDUCTORS. PROVIDE XHHW INSULATION.
28 WHERE NOTES ON THE DRAWING INDICATE THAT THE CONTRACTOR SHALL FIELD-VERIFY, THE INTENT IS FOR THE CONTRACTOR TO INVESTIGATE TO THE EXTENT NECESSARY TO PROVIDE THE WORK AND MATERIALS PRIOR TO BIDDING AND INCLUDE ALL COSTS IN THE BID PRICE. THE CONTRACT PRICE SHALL NOT BE INCREASED WHEN THE CONTRACTOR HAS NOT INVESTIGATED PER THE NOTES DIRECTING THAT BE DONE.

Table with 2 columns: CONDUIT TYPE and LOCATION. Rows include PVC COATED ALUMINUM CONDUIT, LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT, RIGID NON-METALLIC, SCHEDULE 40 PVC CONDUIT, and ALUMINUM RIGID METAL CONDUIT.

CONTROL PANELS, PANELBOARDS

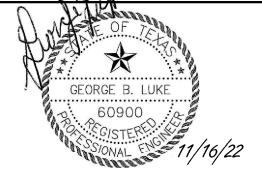
THESE NOTES APPLY TO CONTROL PANELS, MCC ETC WHICH HAS TO BE REFURBISHED, MODIFIED, DISCONNECTED & RECONNECTED OR REWORKED, SEE SECTION 16060:
THE CONTRACTOR SHALL NOT MAKE ANY MODIFICATION UNTIL THE FOLLOWING HAS BEEN DONE:
A. THE OWNER/CONTRACTOR SHALL WITNESS THE CONDITION OF THE EXISTING EQUIPMENT, 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 SHALL SIGN ON THE FORM.
E. THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH AND INSTALL MATERIAL IF DAMAGED BY HIM DURING HIS WORK.
F. AFTER THE CHANGES ARE MADE, THE EQUIPMENT SHALL BE INSPECTED AND RE-TESTED TO DEMONSTRATE THAT IT FUNCTIONS CORRECTLY.

DEMOLITION NOTES

- 1 THE CONTRACTOR SHALL COORDINATE THE DEMOLITION OF THE ELECTRICAL CONDUIT, WIRE, EQUIPMENT AND 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 TO REMAIN IN SERVICE.
3 RELOCATE AND RECONNECT POWER AND CONTROL RACEWAYS AND CONDUCTORS TO EQUIPMENT AFFECTED BY DEMOLITION WORK.
4 ALL CONDUCTORS BEING DEMOLISHED SHALL BE DISCONNECTED AND REMOVED FROM THE LOAD TO THE SOURCE. SURFACE MOUNTED CONDUITS AND MOUNTING HARDWARE SHALL BE REMOVED. UNDERGROUND CONDUITS WHICH ARE NOT BEING REMOVED OR OTHERWISE NOT BEING MADE UNUSABLE SHALL BE CAPPED AND TAGGED AS SPARE, WITH INFORMATION CLEARLY INDICATING THE LOCATION OF THE OTHER END.
5 ALL SURFACES WHERE DEMOLISHED EQUIPMENT OR CONDUIT IS REMOVED SHALL BE CLEANED, PATCHED AND PAINTED TO MATCH THE SURROUNDING SURFACE.
6 THE CONTRACTOR SHALL BE RESPONSIBLE TO CHECK THE FUNCTION OF EACH CONDUCTOR BEFORE REMOVING OR DISCONNECTING.
7 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 REPLACEMENTS FOR THE CONDUCTORS THAT ARE TO REMAIN IN SERVICE AND RE-INSTALL THE NEW CONDUCTORS. AFTER THE CONDUCTORS ARE PULLED, MEGGER OR HIPOT TEST EACH CONDUCTOR, CONNECT BOTH ENDS OF THE NEW CONDUCTORS AND TEST THE SYSTEM FOR PROPER FUNCTION. DO NOT RE-PULL USED CONDUCTORS.
8 THE CONTRACTOR SHALL COORDINATE WITH THE OWNER/ENGINEER TO FLAG EXISTING UNDERGROUND CONDUITS BEFORE DIGGING.
9 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. SEE SPECIFICATIONS.
10 THE CONTRACTOR SHALL NOT MAKE ANY MODIFICATIONS TO THE EXISTING ELECTRICAL EQUIPMENT UNTIL THE FOLLOWING HAS BEEN DONE:
A. THE OWNER/CONTRACTOR SHALL WITNESS AND RECORD THE CONDITION OF THE EXISTING EQUIPMENT, THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCIES.
B. THE OWNER SHALL OPERATE THE EQUIPMENT TO DEMONSTRATE THE CURRENT CONDITIONS. THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCIES.
C. A WRITTEN AND PHOTOGRAPHIC 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 SHALL SIGN ON THE FORM.
E. THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH AND INSTALL MATERIAL OR EQUIPMENT DAMAGED DURING THE COURSE OF HIS WORK.
F. AFTER THE CHANGES ARE MADE, THE EQUIPMENT SHALL BE INSPECTED AND RE-TESTED TO DEMONSTRATE THAT IT FUNCTIONS CORRECTLY.
G. NO PORTION OF EXISTING CONDUCTORS SHALL BE SPLICED TO NEW CONDUCTORS FOR RE-USE WITHOUT SPECIFIC APPROVAL FROM THE OWNER/ENGINEER ON A CASE-BY-CASE BASIS.
11 ALL ELECTRICAL AND CONTROL EQUIPMENT TO BE DEMOLISHED SHALL BE COORDINATED WITH THE OWNER BEFORE WORK IS TO BEGIN. THE OWNER RETAINS FIRST RIGHT OF REFUSAL OF SALVAGEABLE ITEMS.



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REVISIONS

Table with 5 columns: REV, DESCRIPTION, DSN/DWN, CHK/APP, DATE. The table is currently empty.

GAI Gupta & Associates, Inc. CONSULTING ENGINEERING Texas Registration No. F-2593. Address: 13717 Neutron Road, Dallas, Texas 75244. Tel: 972-490-7661. email: rkgspt@gai.com

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING



IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

GENERAL NOTES

SURVEYOR PUMP STATION ELECTRICAL IMPROVEMENTS TOWN OF ADDISON, TX



ADDISON, TEXAS PUBLIC WORKS AND ENGINEERING SERVICES 16801 WESTGROVE ROAD ADDISON, TEXAS 75001

100% REVIEW SUBMITTAL

Table with 2 columns: FIELD, VALUE. Rows include PROJECT NO. (20224986.001A), ISSUE DATE (11-16-2022), CURRENT REVISION (N/A), DESIGNED BY (J.JOHNSON), DRAWN BY (J.MEAM), CHECKED BY (M.HAJIZADEH), APPROVED BY (G.LUKE).

E3

CAD FILE: \\W:\Miscellaneous\168_Addison Surveyor Road Pump Station MCC Change-Out\6 Electrical\Working\E-03.dwg LAYOUT: Layout1 PLOTTED: 11/16/2022 10:01 AM BY: jenny meam

GENERAL NOTES:

1. ALL ELECTRICAL EQUIPMENT IS SHOWN FOR REFERENCE PURPOSES ONLY. FIELD VERIFY ALL EQUIPMENT LOCATIONS.
2. OWNER HAS THE FIRST RIGHT TO REFUSE ALL DEMOLISHED EQUIPMENT BEING REMOVED.

NOTES BY SYMBOL (#):

1. DEMOLISH EXISTING MOTOR CONTROL CENTER. PROTECT ALL ASSOCIATED WIRE AND CONDUIT FOR POSSIBLE REUSE.
2. REMOVE CIRCUIT BREAKER AND WIRING/CONDUIT FROM MCC TO EXTERNAL CIRCUIT BREAKER. DISCONNECT WIRING/CONDUIT FROM CIRCUIT BREAKER TO CHEMICAL FEED BUILDING. PROTECT WIRING TO BE RECONNECTED TO NEW MCC.
3. COORDINATE DEMOLITION OF PUMP AND MOTOR WITH MECHANICAL WORK.

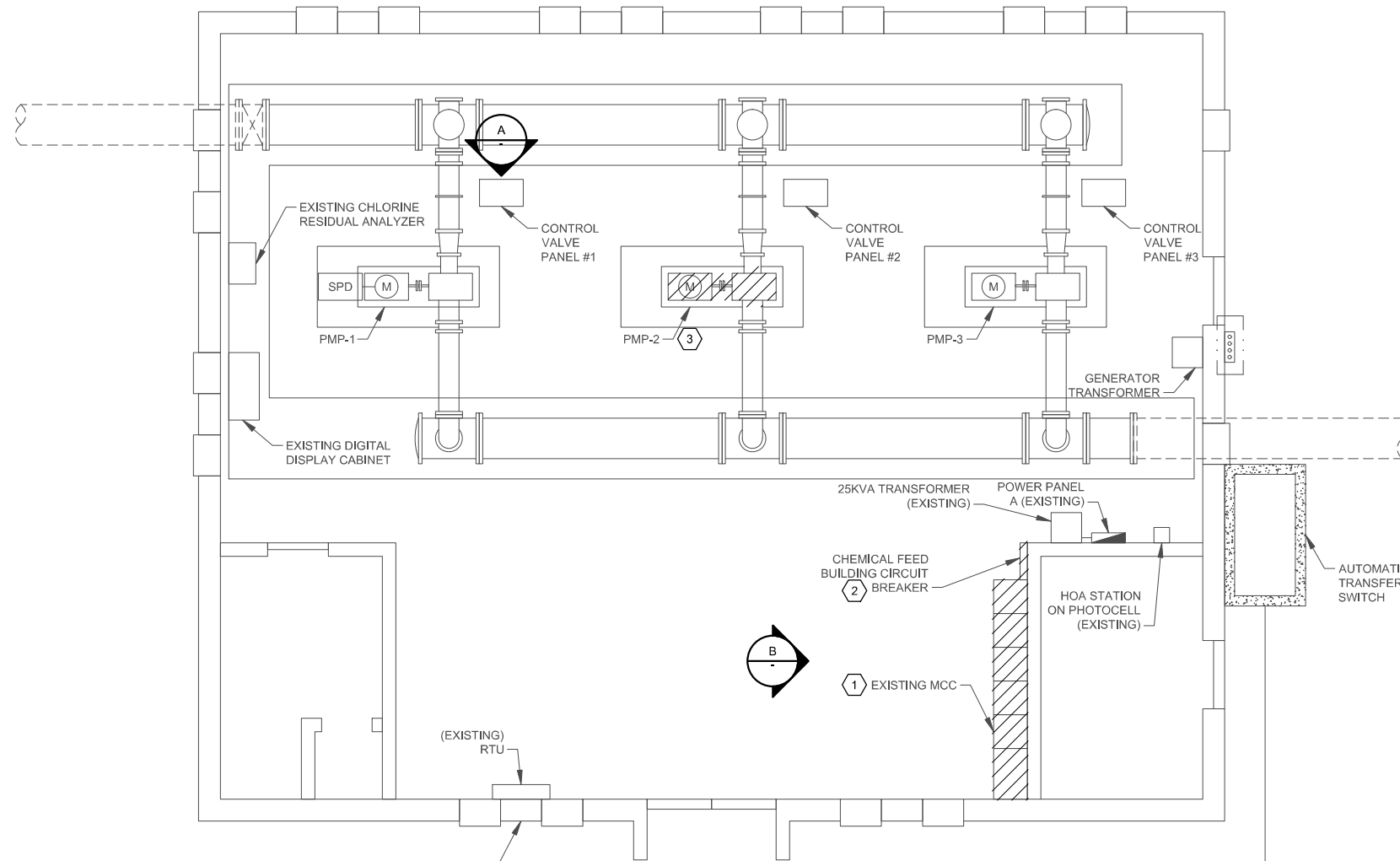


CONTROL VALVE PANEL
 PHOTOGRAPH A (TYP.)

CHEMICAL FEED BUILDING CIRCUIT BREAKER



EXISTING PUMP STATION MCC
 PHOTOGRAPH B



EXISTING PUMP STATION BUILDING - DEMOLITION PLAN

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REVISIONS

REV	DESCRIPTION	DSN	CHK	DATE

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 Texas Registration No. F-2593

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

2 0 6
 SCALE: 1/4" = 1'-0"

ORIGINAL DRAWING SIZE IS 22 x 34

EXISTING OVERALL SITE PLAN

SURVEYOR PUMP STATION ELECTRICAL IMPROVEMENTS TOWN OF ADDISON, TX

ADDISON

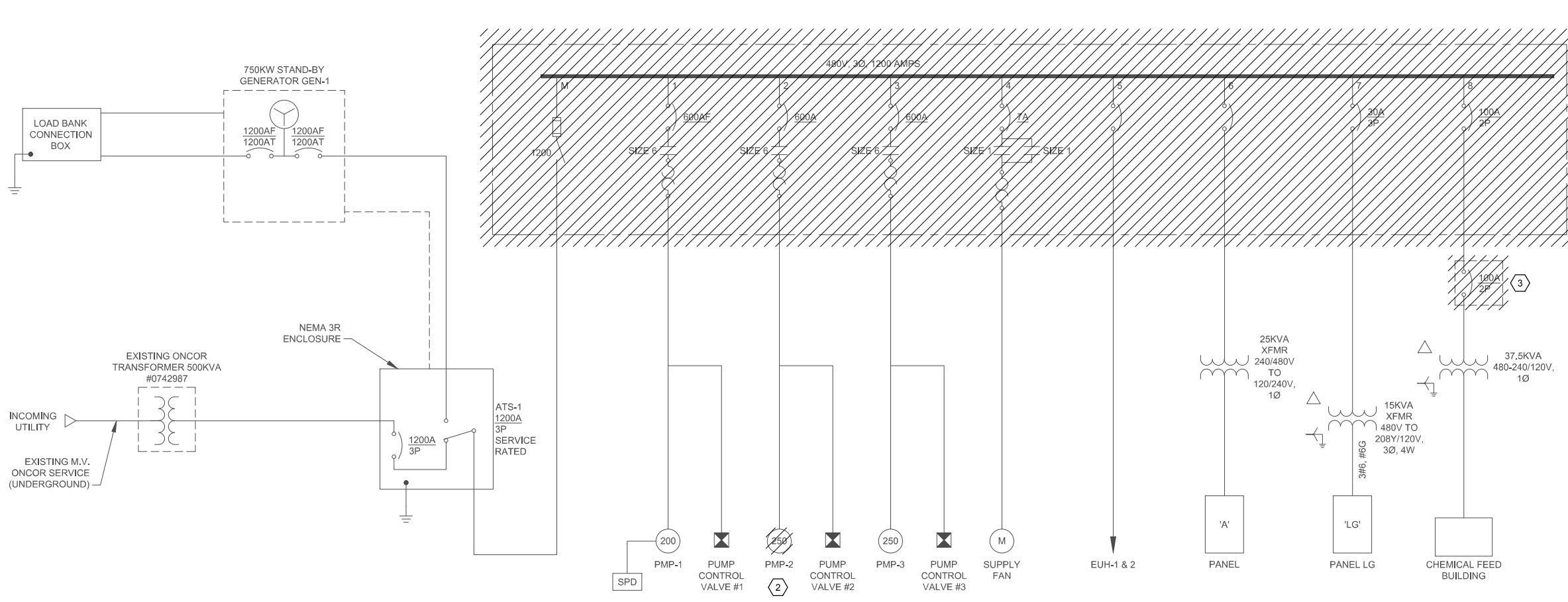
ADDISON, TEXAS
 PUBLIC WORKS AND ENGINEERING SERVICES
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 ADDISON, TEXAS 75001

100% REVIEW SUBMITTAL

PROJECT NO.	20224986.001A	E4
ISSUE DATE	11-16-2022	
CURRENT REVISION	N/A	
DESIGNED BY	J. JOHNSON	
DRAWN BY	J. MEAM	
CHECKED BY	M. HAJIZADEH	
APPROVED BY	G. LUKE	

7 of 17

CAD FILE: \\M:\misc\Inhouse\189_Addison Surveyor Road Pump Station MCC Change-Over\Drawings\Electrical\Working\06.dwg LAYOUT: Layout1 PLOTTED: 11/16/2022 10:02 AM BY: jenny meam



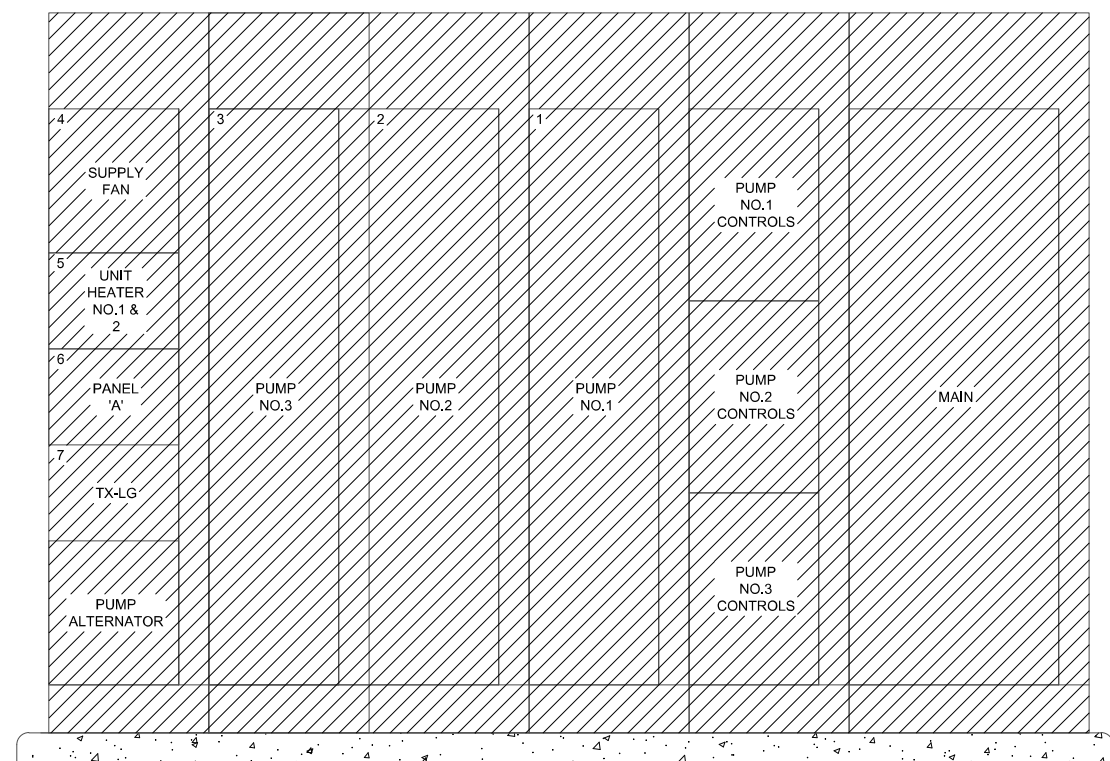
EXISTING MCC DEMOLITION ONE-LINE DIAGRAM

GENERAL NOTES:
1. OWNER HAS THE FIRST RIGHT TO REFUSE ALL DEMOLISHED EQUIPMENT BEING REMOVED.
NOTES BY SYMBOL #1:
1. TEMPORARY DISCONNECT WIRE AND CONDUIT FOR MCC DEMOLITION. PROTECT WIRE AND CONDUIT DURING CONSTRUCTION FOR LATER USE.
2. FIELD COORDINATE DEMOLITION OF MOTOR WITH MECHANICAL WORK.
3. REMOVE CIRCUIT BREAKER AND WIRING/CONDUIT FROM MCC TO EXTERNAL CIRCUIT BREAKER. DISCONNECT WIRING/CONDUIT BREAKER TO CHEMICAL FEED BUILDING. PROTECT WIRING TO BE RECONNECTED TO NEW MCC.

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Professional Engineer
60900
11/16/22

REVISIONS

REV	DESCRIPTION	DSN DWN	CHK APP	DATE



EXISTING MCC ELEVATION

PANELBOARD: A (EXISTING)				BUS TYPE: COPPER		MAINS: 150A/2P		SPD: NONE	
SERVICE: 120/240V, 1Ø, 3W				BUS RATING:		LOCATION: ELECTRICAL ROOM			
MOUNTING: SURFACE - NEMA 1				FEED: TOP					
CKT NO.	BRKR SIZE	WIRE SIZE	COND. SIZE	LOAD	LOAD	COND. SIZE	WIRE SIZE	BRKR SIZE	CKT NO.
1	20/1	10	3/4"	TANK LIGHTING	SIGN LIGHTING	3/4"	12	20/1	2
3	20/1	10	3/4"	TANK LIGHTING	INSIDE LIGHTING	3/4"	12	20/1	4
5	20/1	12	3/4"	OUTSIDE BUILDING LIGHTS	POLE LIGHTING & FRONT LIGHTING	3/4"	12	20/1	6
7	20/1	12	3/4"	SPARE	SPARE	3/4"	12	20/1	8
9	20/1	12	3/4"	SPARE	SPARE	3/4"	12	20/1	10
11	20/1	12	3/4"	LIGHT - CEILING ENTRANCE LIGHTING	LIGHTING	-	-	20/1	12
13	20/1	12	3/4"	LIGHT - BATHROOM CEILING LIGHT	RECEPTACLE - OUTSIDE WEST	3/4"	12	20/1	14
15	20/1	12	3/4"	RECEPTACLE - OUTSIDE EAST	WATER HEATER - METER VAULT	3/4"	12	40A/2P	16
17	20/1	12	3/4"	RECEPTACLE - FLOW METER BOX					18
19	20/1	12	3/4"	LEVEL TRANSMITTER GROUND STORAGE	BATH HEATER	3/4"	12	50A/2P	20
21	20/1	12	3/4"	PHOTOCELL/HOA CONTROLLER					22
23	20/1	12	3/4"	SPRINKLER CONTROL	BATH HEATER	3/4"	12	20A/2P	24
25	20/1	12	3/4"	T' STAT					26
27	20/1	10	3/4"	RECORDER	CHLORINE ROOM HEATER	3/4"	12	20A/2P	28
29	20/1	10	3/4"	TELEMETRY CABINET					30
31	20/1	10	3/4"	RECEPTACLE - OUTSIDE BY ATS	CONTACTOR FEED	3/4"	12	60A/2P	32
33	20/1	8	3/4"	IRRIGATION CABINET					34

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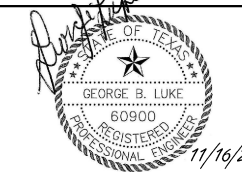
SCALE VERIFICATION
THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING
0 1"
IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34
EXISTING MCC ONE-LINE DIAGRAM DEMOLITION
SURVEYOR PUMP STATION ELECTRICAL IMPROVEMENTS TOWN OF ADDISON, TX

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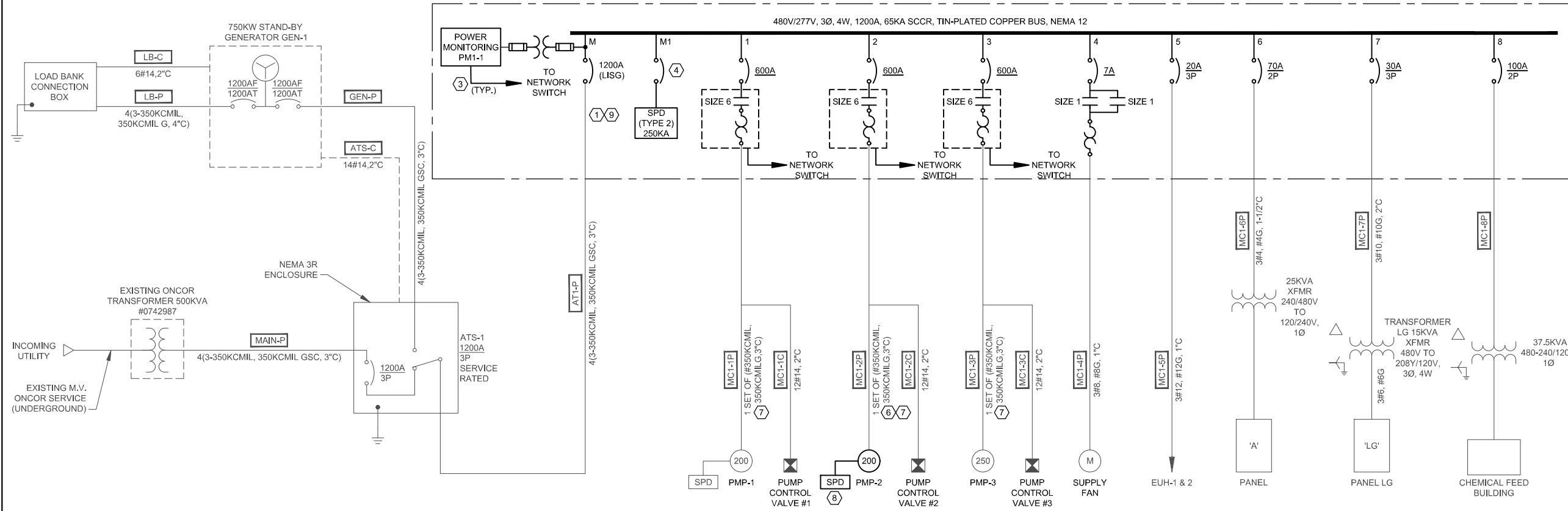
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PROJECT NO. 20224986.001A
ISSUE DATE 11-16-2022
CURRENT REVISION N/A
DESIGNED BY J. JOHNSON
DRAWN BY J. MEAM
CHECKED BY M. HAJIZADEH
APPROVED BY G.LUKE SHEET
E5
8 of 17

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MODIFIED MCC ONE-LINE ^② DIAGRAM

- NOTES BY SYMBOL ^①:
- WIRE AND CONDUIT FROM ATS TO MCC IS BOTTOM FED INTO MCC.
 - RECONNECT ALL EXISTING WIRE TO NEW MCC. MODIFY CONDUIT AS NECESSARY TO RECONNECT.
 - ALL RELAYS SHALL HAVE MODBUS TCP COMMUNICATIONS CAPABILITY AND SHALL BE FACTORY WIRED TO AN INTERNAL SWITCH. REFER TO COMMUNICATION ARCHITECTURE DIAGRAM ON SHEET E8. REFER TO PUMP SCHEMATIC ON SHEET E9.
 - SPD BREAKER SIZED BY MCC MANUFACTURER.
 - MCC MUST HAVE 6 VERTICAL SECTIONS WITH MOTOR STARTERS IN THE RELATIVE POSITIONS SHOWN.
 - MOTOR AND PUMP #2 TO BE REPLACED. MODIFY CONDUIT AS NECESSARY TO RECONNECT TO NEW MOTOR.
 - ADDITIVE ALTERNATE #1. REPLACE WRING TO MOTOR ON PER FOOT BASIS. REUSE CONDUIT.
 - ADDITIVE ALTERNATE #2 - INSTALL A RAYVOSS - MODEL# 480-3D-M3-00-D-H, TYPE 2 - SURGE PROTECTIVE DEVICE. MOUNT SPD NEXT TO PUMP #2 (PMP-2) SIMILARLY TO WHAT IS CURRENTLY INSTALLED FOR PUMP #1 (PMP-1).
 - RECONNECT INCOMING CABLES TO NEW MCC.

LOAD CALCULATION

DESCRIPTION	LOAD	FLA
PUMP #1	200 HP	224
PUMP #2	200 HP	224
PUMP #3	250 HP	281
FAN	1 HP	2
EUH #1	5 kVA	6
EUH #2	5 kVA	6
37.5 kVA XFMR	30 kVA	36
25 kVA XFMR	20 kVA	24
15 kVA XFMR	12 kVA	14
25% of PUMP #3		70
TOTAL		887

FAULT CURRENT CALCULATION

TRANSFORMER FULL LOAD CURRENT	TRANSFORMER FAULT CURRENT
$I_{FLA} = \frac{kVA \times 1000}{\sqrt{3} \times V_{L-L}}$	$I_{SC} = \frac{I_{FLA} \times 100}{Z\%}$
$I_{FLA} = \frac{500 kVA \times 1000}{\sqrt{3} \times 480 V}$	$I_{SC} = \frac{601 A \times 100}{2.17}$
$I_{FLA} = 601 A$	$I_{SC} = 27,695 A$

4	3	2	1		
SUPPLY FAN				PM1 & SPD	
UNIT HEATER NO.132					
PANEL 'A'	PUMP NO.3	PUMP NO.2	PUMP NO.1	SPACE	(1) MAIN
TX-LG					
CHEMICAL FEED BUILDING				SPACE	

MODIFIED MCC ^{②⑤} ELEVATION

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MCC ONE-LINE DIAGRAM MODIFICATION

SURVEYOR PUMP STATION ELECTRICAL IMPROVEMENTS TOWN OF ADDISON, TX

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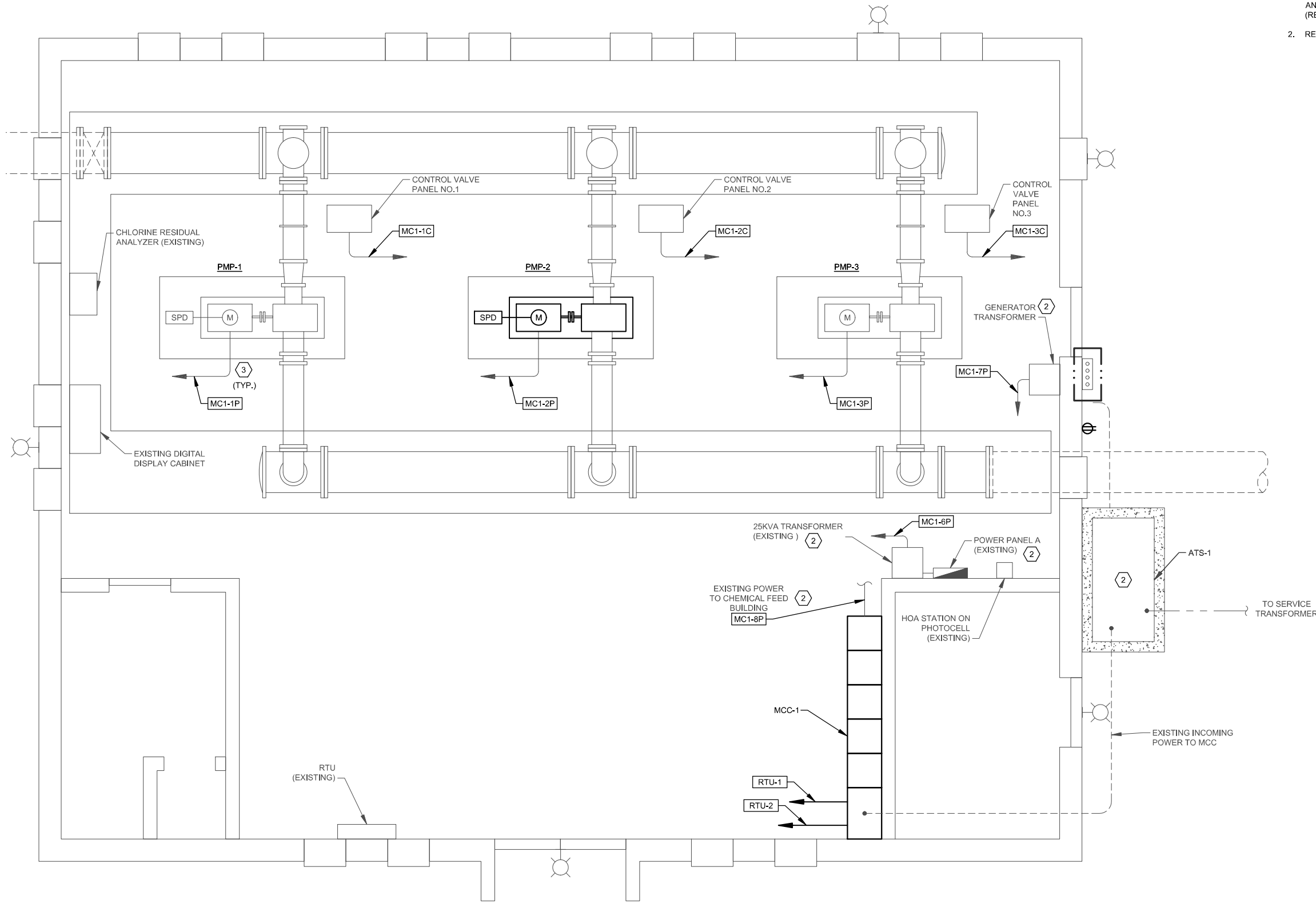
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CHECKED BY	M. HAJIZADEH
APPROVED BY	G.LUKE

E6

NOTES BY SYMBOL (#):

1. FIELD VERIFY LOCATIONS FOR FAN, LOUVERS, AND HEATERS. REPLACE LOUVER SOLENOIDS (REFER TO SHEET E10 FOR DETAILS).
2. RECONNECT ALL EXISTING LOADS TO MCC.



PUMP STATION BUILDING - MODIFICATION
PLAN 1

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

ORIGINAL DRAWING SIZE IS 22 x 34

EXISTING PUMP STATION - MODIFICATION

SURVEYOR PUMP STATION
ELECTRICAL IMPROVEMENTS
TOWN OF ADDISON, TX

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APPROVED BY G. LUKE	

10 of 17

CAD FILE: W:\Miscellaneous\168_Addison_Surveyor_Road_Pump_Station\MCC_Change-Order\Drawings\Electrical\Working\E-07.dwg LAYOUT: Layout1
 PLOTTED: 11/16/2022 10:02 AM BY: jenny meam

INTERFACE DIAGRAM			
EQUIPMENT NO.	DESCRIPTION	FIELD WIRING 3	PS-RTU
MCC	<u>ELECTRICAL ROOM/ PUMP STATION</u>		
MCC	NETWORK COMMUNICATIONS	M1	RTU-1
PMP-1	PUMP NO.1	C6	
PMP-2	PUMP NO.2	C6	
PMP-3	PUMP NO.3	C6	RTU-2
		3X-C6	
ATS-1	ATS NORMAL / STAND-BY STATUS	ATS C3	RTU-6
GEN-1	GENERATOR STATUS	GEN M1	RTU-7
GSLT-1	GROUND STORAGE TANK LEVEL TRANSMITTER	LT A2	RTU-8
PT-1	PRESSURE TRANSMITTER	PT A2	RTU-9
TT-1	TEMPERATURE TRANSMITTER	TT A2	RTU-10
AI-1	CHLORINE RESIDUAL	CL2 - ANAL - YZER A2	RTU-11
AI-2	AMMONIA	NH3 A2	RTU-12

REMOTE TERMINAL UNIT - PS-RTU

2

- NOTES BY SYMBOL #:
- CONDUIT SIZES SHOWN ARE MINIMUM. COMBINATION OF SIMILAR CIRCUIT TYPES PERMISSIBLE. ADJUST CONDUIT SIZING ACCORDINGLY AND REFLECT FINAL CONFIGURATION ON AS-BUILT DOCUMENTATION.
 - TERMINATE ALL WIRING ON TERMINAL BLOCKS INSIDE PANEL. NO NON-TERMINATED WIRES ALLOWED.
 - WIRING TO UNAFFECTED EQUIPMENT SHOWN FOR REFERENCE PURPOSE ONLY.
 - SUBSTITUTE CAT-6 CABLE FOR CAT-5E WHERE REQUIRED BY CONTRACT DOCUMENTS.
 - ADDITIVE ALTERNATE #1. REPLACE WIRING TO MOTOR ON PER FOOT BASIS. REUSE CONDUIT.
 - MOTOR AND PUMP #2 TO BE REPLACED. MODIFY CONDUIT AS NECESSARY TO RECONNECT TO NEW MOTOR.

CONTROL & INSTRUMENTATION WIRE/CONDUIT SCHEDULE 1 4			
C1	2#14, #14G, 3/4"C	A1	1-1Pr#16 TSP, #14G, 3/4"C
C2	4#14, #14G, 3/4"C	A2	2-1Pr#16 TSP, #14G, 3/4"C
C3	6#14, #14G, 1"C	A3	3-1Pr#16 TSP, #14G, 3/4"C
C4	8#14, #14G, 1"C	A4	4-1Pr#16 TSP, #14G, 1"C
C5	10#14, #14G, 1"C	A5	5-1Pr#16 TSP, #14G, 1"C
C6	12#14, #14G, 1-1/4"C	A6	6-1Pr#16 TSP, #14G, 1-1/2"C
C7	14#14, #14G, 1-1/4"C	A7	7-1Pr#16 TSP, #14G, 2"C
C8	16#14, #14G, 1-1/4"C	A8	8-1Pr#16 TSP, #14G, 2"C
C9	18#14, #14G, 1-1/4"C	A9	9-1Pr#16 TSP, #14G, 2"C
C10	20#14, #14G, 1-1/4"C	A10	10-1Pr#16 TSP, #14G, 2"C
C11	22#14, #14G, 1-1/4"C	A11	11-1Pr#16 TSP, #14G, 2"C
C12	24#14, #14G, 1-1/4"C	M1	1-CAT-5e, #14G, 1"C
C14	28#14, #14G, 1-1/4"C	M2	2-CAT-5e, #14G, 1-1/2"C
C30	60#14, #14G, 3-1/2"C	M3	3-CAT-5e, #14G, 2"C
C37	74#14, #14G, 4"C	M4	4-CAT-5e, #14G, 2"C

- CONTROL & INSTRUMENTATION WIRE/CONDUIT TABLE NOTES:
- NOT ALL POSSIBLE COMBINATIONS ARE LISTED. INCLUDE A SEPARATE GROUND WIRE IN EACH CONDUIT RUN.
 - # REPRESENTS PAIR OF WIRE
EXAMPLE C10 = 20#14 WIRES
 - C# = CONTROL
 - ANALOG CABLES ARE INTENDED TO BE INDIVIDUALLY INSULATED TWISTED SHIELDED PAIRS UNLESS OTHERWISE NOTED ON THE DRAWING.

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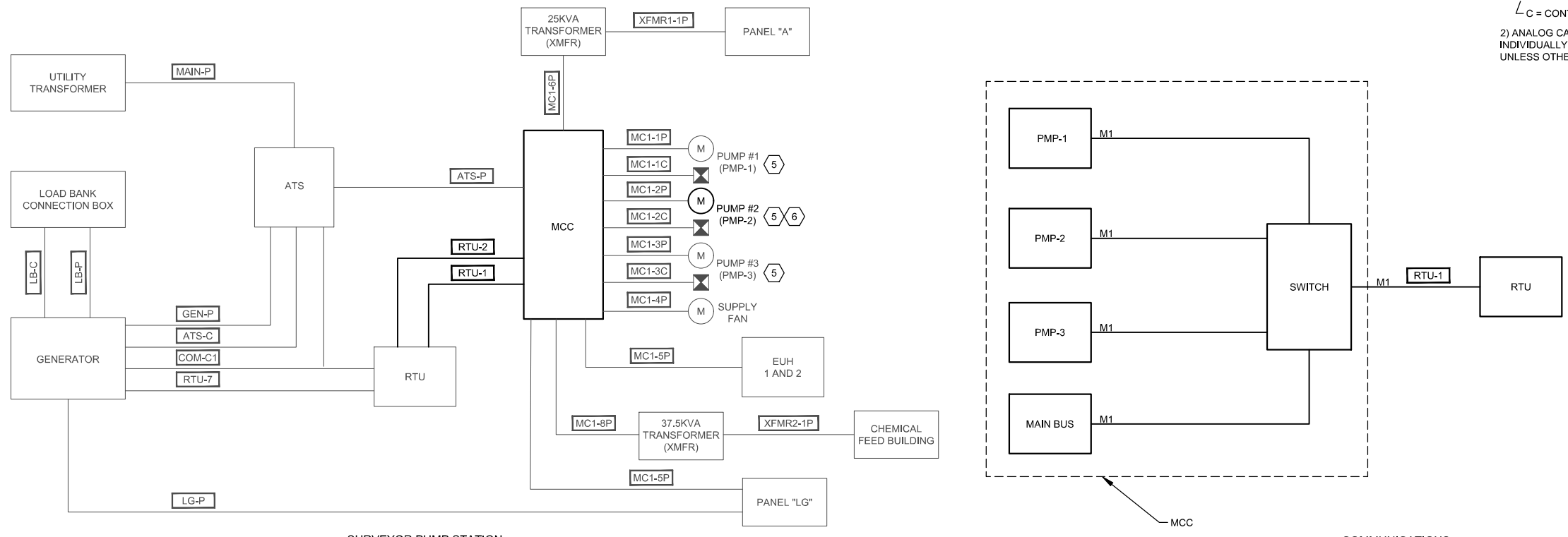
INTERFACE / RISER DIAGRAM

SURVEYOR PUMP STATION ELECTRICAL IMPROVEMENTS TOWN OF ADDISON, TX

ADDISON, TEXAS
PUBLIC WORKS AND ENGINEERING SERVICES
16801 WESTGROVE ROAD
ADDISON, TEXAS 75001

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CHECKED BY M.HAJIZADEH	
APPROVED BY G.LUKE	
PROJECT NO. 20224986.001A	11 of 17

PUMP STATION MCC REPLACEMENT INTERFACE DIAGRAM NOT TO SCALE

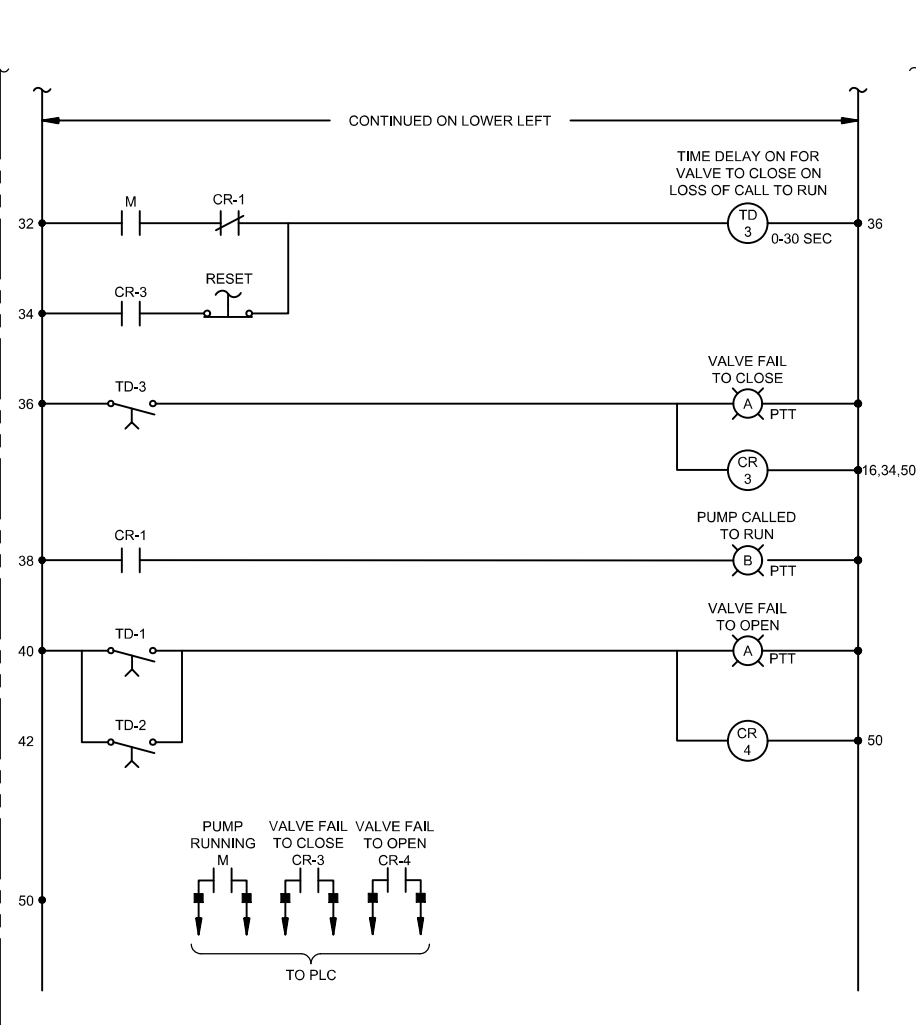
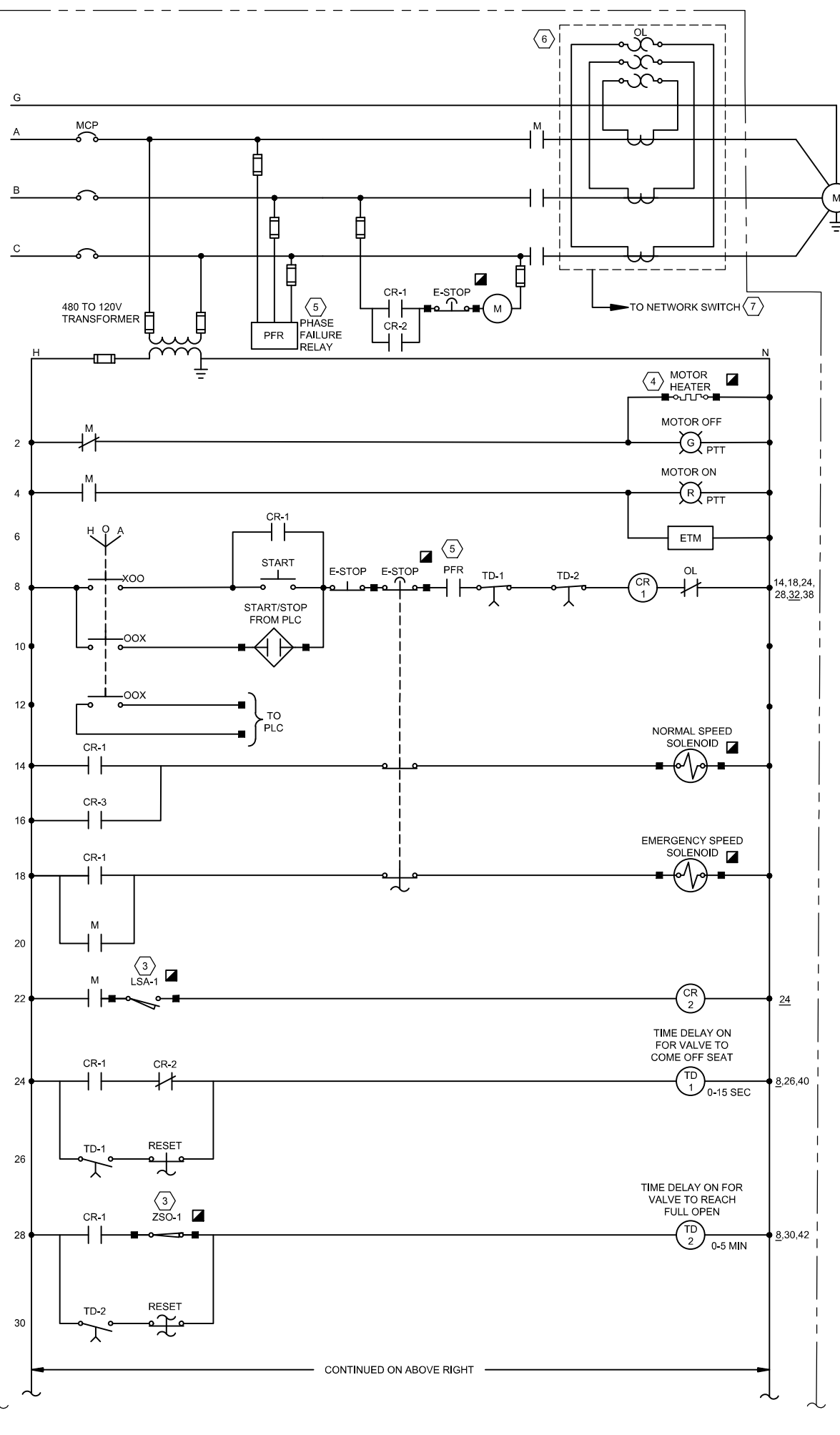


SURVEYOR PUMP STATION RISER DIAGRAM NOT TO SCALE

COMMUNICATIONS ARCHITECTURE DIAGRAM NOT TO SCALE

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CAD FILE: W:\Miscellaneous\168_Addison_Surveyor_Road_Pump_Station_MCC_Change-Order\Drawings\Electrical\Working\E-08.dwg LAYOUT: Layout1

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SEQUENCE OF OPERATIONS:

- ON NORMAL START BOTH SOLENOIDS ARE ENERGIZED.
- ON NORMAL STOP THE EMERGENCY SPEED SOLENOID REMAINS ENERGIZED UNTIL THE MOTOR STOPS.
- ON E-STOP BOTH SOLENOIDS OPEN.

- LEGEND:**
- ▣ DEVICE LOCATED IN THE FIELD.
 - LOCATED AT PLC.
 - ▲ DEVICE LOCATED AT THE LCP.
 - TERMINAL IN MCC FOR FIELD WIRING.
 - CONNECTION IN MCC.

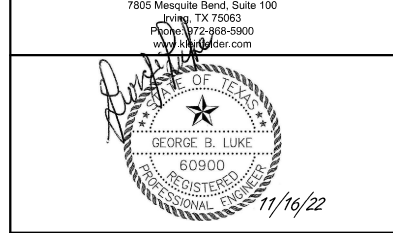
- NOTES BY SYMBOL (#):**
- INTERMEDIATE POSITION SWITCHES (LSA AND LSB) SHALL BE ADJUSTABLE OVER ENTIRE RANGE OF VALVE TRAVEL.
 - ADJUST "A" AT 5% OPEN, ADJUST "B" AT 90% OPEN, MAKE FINAL ADJUSTMENTS AT START UP.
 - CONTACTS SHOWN WITH VALVE FULLY CLOSED.
 - RECONNECT MOTOR HEATER IF PRESENT.
 - PHASE FAILURE RELAY ALARM CONTACT OPENS ON LOSS OF GOOD POWER. OMIT PHASE FAILURE RELAY IF FUNCTIONALITY INCORPORATED INTO SOLID STATE ELECTRONIC PROTECTIVE RELAY.
 - SOLID STATE ELECTRONIC RELAY TO PROVIDE THE FUNCTIONS SHOWN IN THE ANSI FUNCTION CODE TABLE BELOW.
 - COMMUNICATIONS TO BE MODBUS TCP.

ANSI FUNCTION CODE	DESCRIPTION
27	UNDER VOLTAGE
46	CURRENT UNBALANCE
47	VOLTAGE UNBALANCE
51	OVERCURRENT
59	OVERVOLTAGE

POSITION SWITCH	VALVE POSITION			
	FULLY CLOSED	INTERMEDIATE (1)		FULLY OPENED
		A (2)	B	
ZSC-1	1	---	---	---
ZSC-2	2	---	---	---
ZSC-3	3	---	---	---
ZSC-4	4	---	---	---
ZSO-1	1	---	---	---
ZSO-2	2	---	---	---
ZSO-3	3	---	---	---
ZSO-4	4	---	---	---
LSA-1	A1	---	---	---
LSA-2	A2	---	---	---
LSB-1	B1	---	---	---
LSB-2	B2	---	---	---

- LEGEND:**
- /— INDICATES CLOSED CONTACT WHEN VALVE FULL CLOSED
 - /— INDICATES OPEN CONTACT WHEN VALVE FULL CLOSED

PUMP
SCHEMATIC 1
 NOT TO SCALE



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ELECTRICAL SCHEMATICS-I
 (PUMP SCHEMATIC)

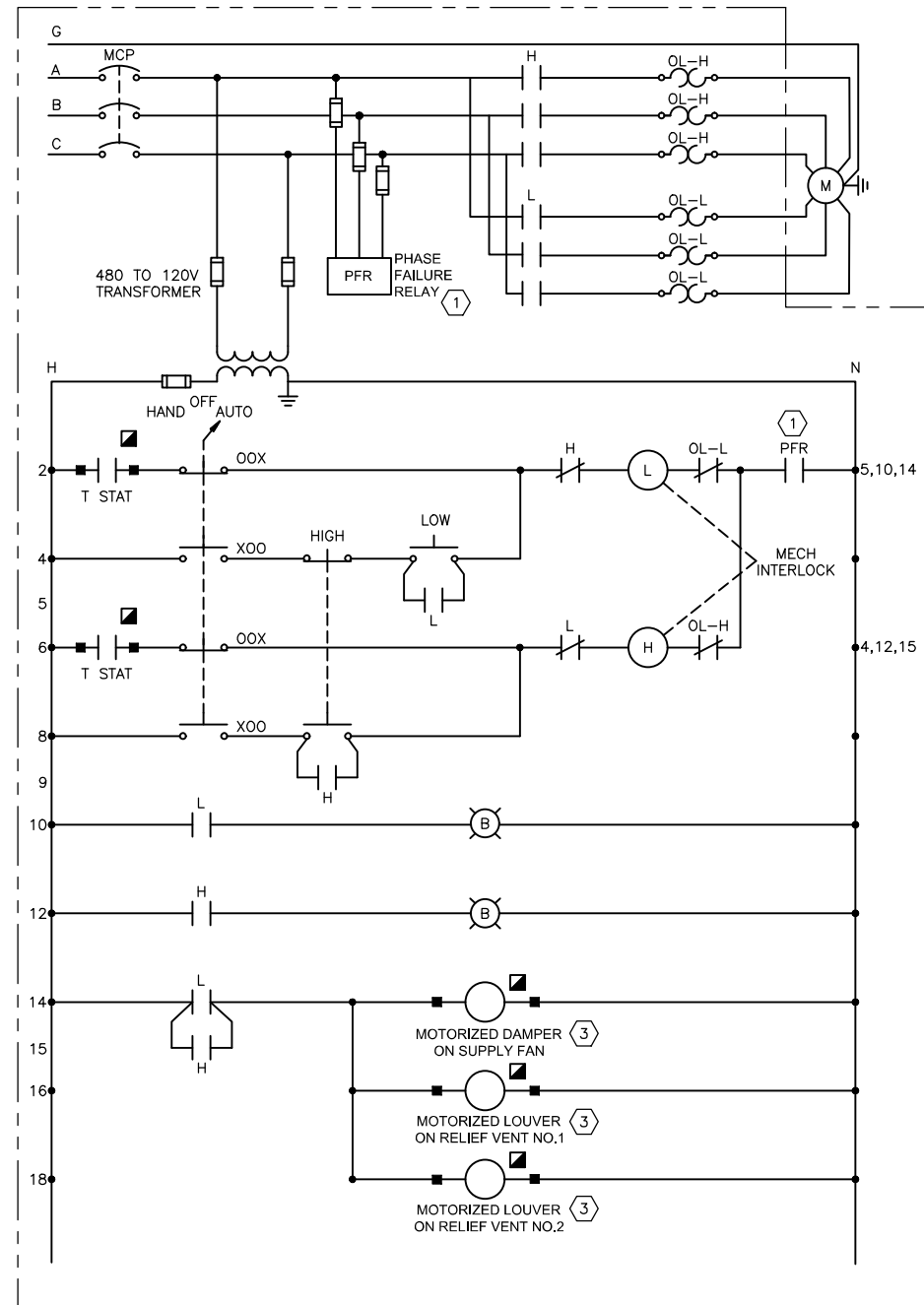
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 TOWN OF ADDISON, TX



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DRAWN BY	J.MEAM	
CHECKED BY	M.HAJIZADEH	SHEET 12 of 17
APPROVED BY	G.LUKE	

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EXHAUST FAN (2 SPEED)
 SCHEMATIC 2
 NOT TO SCALE

- LEGEND:**
- INDICATES CLOSED CONTACT
 - - - INDICATES OPEN CONTACT
 - ▣ DEVICE LOCATED IN THE FIELD
 - LOCATED AT PLC
 - ▲ DEVICE LOCATED AT THE LCP
 - TERMINAL IN MCC FOR FIELD WIRING
 - CONNECTION IN MCC

- NOTES BY SYMBOL (#):**
1. PFR CONTACT OPENS ON LOSS OF GOOD POWER.
 2. SCHEMATIC PROVIDED FROM RECORD DRAWINGS OF EXISTING MCC. FIELD MODIFICATIONS MAY BE NEEDED TO ACCOMMODATE ACTUAL INSTALLATION.
 3. REPLACE LOUVER SOLENOIDS. PRICE TO BE INCIDENTAL TO MCC INSTALLATION.

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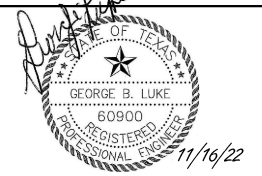
ORIGINAL DRAWING SIZE IS 22 x 34
 ELECTRICAL SCHEMATICS-II
 (SUPPLY FAN SCHEMATIC)

SURVEYOR PUMP STATION
 ELECTRICAL IMPROVEMENTS
 TOWN OF ADDISON, TX

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CHECKED BY	M. HAJIZADEH	
APPROVED BY	G. LUKE	SHEET 13 of 17



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LEGEND:

- MBJ: MAIN BONDING JUMPER.
- SBJ: SYSTEM BONDING JUMPER.
- SSBJ: SUPPLY SIDE BONDING JUMPER.

NOTES BY SYMBOL (#):

1. DO NOT CONNECT DUCTBANK GROUND TO TRANSFORMER ENCLOSURE, TRANSFORMER GROUNDING ELECTRODE OR TRANSFORMER NEUTRAL.
2. NEC ART. 250.24(A)(2)
3. NEC ART. 250.66
4. NEC TABLE 250.102(C)(1)
5. NEC ART. 250.30(A)(2)
6. DETAIL SHOWN FOR REFERENCE ONLY. WIRING FROM UTILITY TRANSFORMER TO ATS NOT BEING CHANGED. WIRING FROM ATS TO MCC TO BE RECONNECTED AT MCC.

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STANDARD DETAILS - I

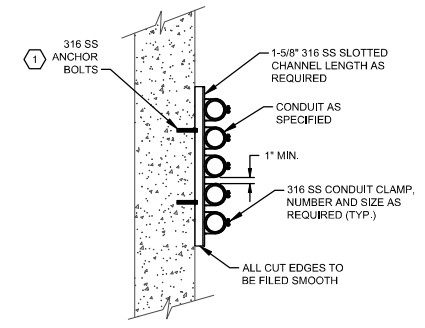
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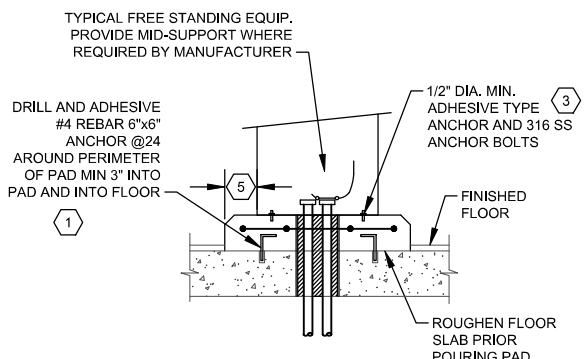
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DRAWN BY	J. MEAM	
CHECKED BY	M. HAJIZADEH	
APPROVED BY	G. LUKE	SHEET
		14 of 17



WALL - EXPOSED
 CONDUIT INSTALLATION
DETAIL 1
 NOT TO SCALE

NOTES BY SYMBOL (#):

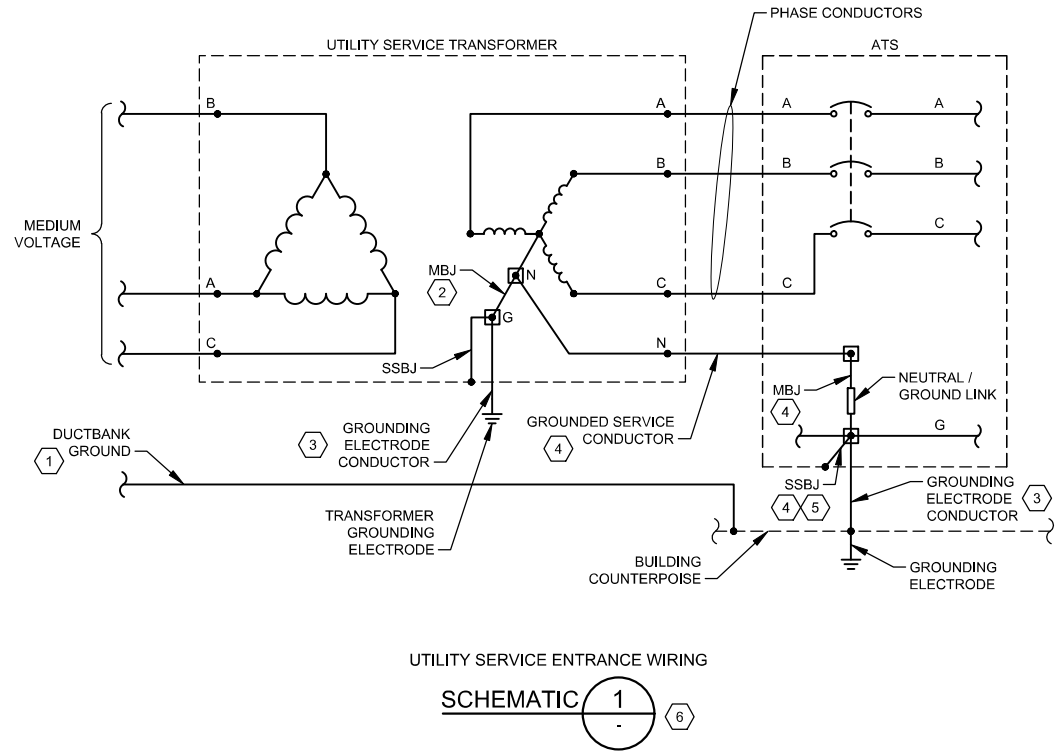
1. PROVIDE THE CORRECT SIZE ANCHOR BOLTS BASED ON LOAD.



TYPICAL FREE STANDING EQUIP.
 PROVIDE MID-SUPPORT WHERE
 REQUIRED BY MANUFACTURER
DETAIL 2
 NOT TO SCALE

NOTES BY SYMBOL (#):

1. ALSO SEE STRUCTURAL DETAILS FOR FURTHER INFORMATION.
2. PROVIDE FINAL INSTALLATION LEVEL.
3. PROVIDE THE CORRECT SIZE ANCHOR BASED ON LOAD.
4. COORDINATE CONDUIT PENETRATION THROUGH FLOOR AND EQUIPMENT PAD WITH STRUCTURAL DESIGN.
5. EQUIPMENT PAD SHALL BE 3" MORE IN LENGTH AND WIDTH THAN THE EQUIPMENT TO BE PLACED. IF EQUIPMENT IS PLACED UP AGAINST THE WALL, THERE SHALL NOT BE A 3" GAP BETWEEN THE EQUIPMENT AND WALL. REFER TO PLAN VIEWS FOR ADDITIONAL INFORMATION.




UTILITY SERVICE ENTRANCE WIRING
SCHEMATIC 1
 NOT TO SCALE

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LINE SYMBOLS		EQUIPMENT/LOOP TAGGING		GENERAL ABBREVIATIONS		MEANINGS OF IDENTIFICATION LETTERS		
		STANDARD VALVE AND PIPING USAGE				THIS TABLE APPLIES ONLY TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS.		
FIRST LETTER		SUCCEEDING LETTERS						
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER				
MAJOR PROCESS LINE	EQUIPMENT TAG USED TO IDENTIFY NON-INSTRUMENT EQUIPMENT	AI ANALOG INPUT	A ANALYSIS/ANALYTICAL	ALARM				
MINOR PROCESS LINE	LOOP TAG USED TO TIE THE PROCESS FLOW DIAGRAM TO A LOOP DIAGRAM	AL ALARM PILOT LIGHT	B BURNER, COMBUSTION					
FUTURE PROCESS LINE		AO ANALOG OUTPUT	C CONDUCTIVITY					
EXISTING PROCESS LINE	BLOCK/BLEED VALVE ARRANGEMENT	AS AIR SUPPLY	D DENSITY (MASS) OR SPECIFIC GRAVITY					
HARDWIRED SIGNAL		ASP APPLICATION SERVICE PROVIDER	E VOLTAGE (EMF)					
SOFT LINK	INSTRUMENTS WITH VALVE ONLY	BFV BUTTERFLY VALVE	F FLOW RATE					
HYDRAULIC LINK		CCTV CLOSED CIRCUIT TELEVISION	G GAUGING (DIMENSIONAL)					
PNEUMATIC LINK	INSTRUMENTS WITH DIAPHRAGM SEAL	CH4 METHANE	H HAND					
CAPILLARY TUBE OR FILLED SYSTEM SIGNAL		CL2 CHLORINE	I CURRENT (ELECTRICAL)					
ELECTROMAGNET OR SONIC SIGNAL (GUIDED)	INSTRUMENTS WITH ANNULAR SEAL	COND CONDUCTIVITY	J POWER					
(USED WHEN REFERRING TO A SHEET IN THE DESIGN SET) DESCRIPTION - WHERE FLOW IS GOING SHEET# - WHAT SHEET PROCESS CONTINUES ON X - USED WHEN TWO OR MORE ARROWS ARE REFERRING TO THE SAME SHEET. Y - USED WHEN TWO OR MORE ARROWS ARE REFERRING TO THE SAME SHEET.	PANEL DETAIL SYMBOLS	ES EMERGENCY STOP	K TIME OR TIME SCHEDULE					
		ETM ELAPSED TIME METER	L LEVEL					
		FC FAIL CLOSED	M MOISTURE OR HUMIDITY					
(USED WHEN REFERRING TO A SHEET NOT IN THE DESIGN SET) DESCRIPTION - WHERE FLOW IS GOING	IR INFARED	FCV FLOW CONTROL VALVE	N USERS CHOICE					
	LAS LIQUID AMMONIA SULFATE	FLP FAIL LAST POSITION	O USER'S CHOICE					
	LCP LOCAL CONTROL PANEL	FO FAIL OPEN	P PRESSURE OR VACUUM					
CAT-5e ETHERNET CABLE	R RUN INDICATING LIGHT	FOP FIBER OPTIC PATCH PANEL	Q QUANTITY					
CAT-6 ETHERNET CABLE	-R RED (ACTIVE EQUIPMENT)	FPR FEEDER PROTECTION RELAY	R RADIATION					
MODBUS PLUS CABLE	-G GREEN (EQUIPMENT OFF)	H2S HYDROGEN SULFIDE	S SPEED OR FREQUENCY					
RS-485 CABLE	-W WHITE (POWER)	HMI HUMAN MACHINE INTERFACE	T TEMPERATURE					
RS-232 CABLE	-B BLUE (CONDITION IE BACKWASH IN PROGRESS)	JB JUNCTION BOX	U MULTIVARIABLE					
POWER OVER ETHERNET CABLE	-A AMBER (ALARM CONDITION)	IO INPUT/OUTPUT	V VIBRATION					
T1 FIBER CONNECTION	H/O/A SWITCH	IR INFARED	W WEIGHT OR FORCE					
NON-SPECIFIC FIBER OPTIC CABLE	-L/R (LOCAL - REMOTE)	LCS LOCAL CONTROL STATION	X UNCLASSIFIED					
FIBER 100BASE-FX	-L/O/A (LOCAL - OFF - AUTO)	LPU LOCAL PROCESSING UNIT	Y EVENT, STATE					
FIBER 1000BASE-FX	-H/O/A (HAND - OFF - AUTO)	LTS LOCAL TERMINAL SYSTEM	Z POSITION, DIMENSION					
	-H/O/A (HAND - OFF - REMOTE)	MC MOTOR CONTROLLER						
	START PUSHBUTTON	NAOCL SODIUM HYPOCHLORIDE						
	START PUSHBUTTON	NC NORMALLY CLOSED						
	ORN HORN	NH3 AMMONIA						
	BEACON	NIM NETWORK INTERFACE MODULE						
	OPERATOR INTERFACE TERMINAL	NO NORMALLY OPEN						
		MCC MOTOR CONTROL CENTER						
		MM MULTI MODE FIBER OPTIC CABLE						
		MPR MOTOR PROTECTION RELAY						
		OIT OPERATIONS INTERFACE TERMINAL						
		OL OVERLOAD						
		OVS OPERATOR WORKSTATION						
		PB PUSH BUTTON						
		PCSI PROCESS CONTROL SYSTEM INTEGRATOR						
		pH HYDROGEN ION						
		PLC PROGRAMMABLE LOGIC CONTROLLER						
		PMCS PROCESS MONITORING CONTROL SYSTEM						
		POLY POLYMER						
		PQM POWER QUALITY METER						
		PS POWER SUPPLY						
		PSU POWER SUPPLY UNIT						
		PV PINCH VALVE						
		RBC REMOTE BASE CONTROLLER						
		RIO REMOTE INPUT OUTPUT						
		RTU REMOTE TERMINAL UNIT						
		SCADA SUPERVISORY CONTROL AND DATA ACQUISITION						
		SM SINGLE MODE FIBER OPTIC CABLE						
		SO2 SULFUR DIOXIDE						
		SOL SOLENOID						
		SPD SURGE PROTECTION DEVICE						
		UPS UNINTERRUPTIBLE POWER SUPPLY						
		TC TERMINATION CABINET						
		TURB TURBIDITY						
		VIB VIBRATION						
		VFD VARIABLE FREQUENCY DRIVE						
		VLV VALVE						

KLEINFELDER
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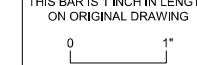
REVISIONS				
REV	DESCRIPTION	DSN DWN	CHK APP	DATE

GAI
Gupta & Associates, Inc.
CONSULTING ENGINEERING
Texas Registration No. F-2593

13717 Neutron Road
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Tel: 972-490-7661
email: rkgupta@gai-consulting.com

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING




IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

LEGEND & SYMBOLS - II

SURVEYOR PUMP STATION
ELECTRICAL IMPROVEMENTS
TOWN OF ADDISON, TX

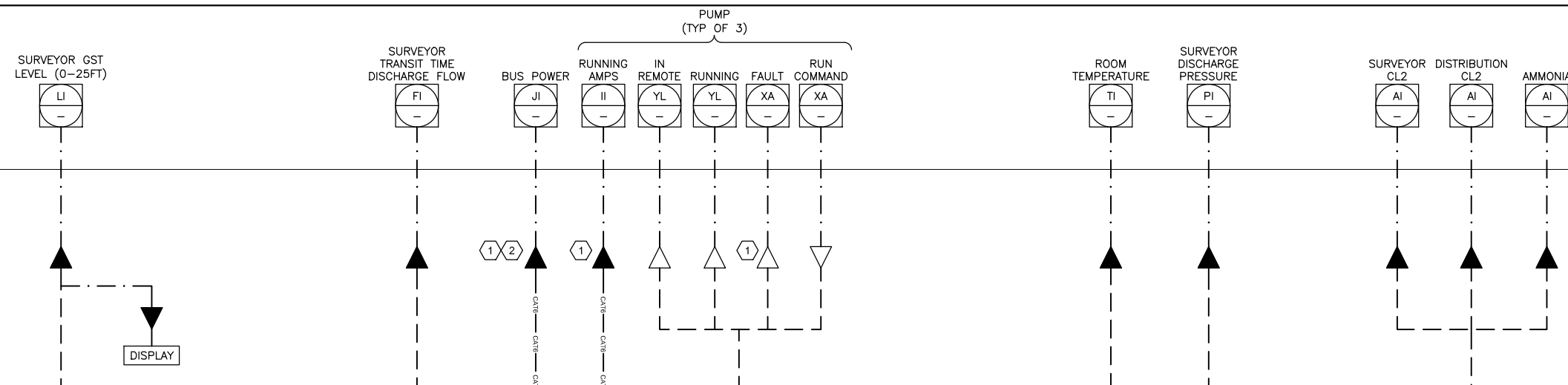


ADDISON, TEXAS
PUBLIC WORKS AND ENGINEERING SERVICES
16801 WESTGROVE ROAD
ADDISON, TEXAS 75001

100% REVIEW SUBMITTAL	
PROJECT NO. 20224986.001A	12
ISSUE DATE 11-16-2022	
CURRENT REVISION N/A	
DESIGNED BY J. JOHNSON	
DRAWN BY J.MEAM	
CHECKED BY M.HAJIZADEH	
APPROVED BY G.LUKE	

CAD FILE: \\W:\misc\lincoln\160_Arizona_Surveyor_Road_Pump_Station_MCC_Change-Out\Addison\Drawings\Instrumentation And Control\Working\12.dwg LAYOUT: Layout1
 PLOTTED: 11/16/2022 10:35 AM BY: jenny.meam

CAD FILE: W:\Miscellaneous\169_Addison Surveyor Road Pump Station MCC Change-Order\Drawings\Instrumentation And Control\Working\B.dwg LAYOUT: Layout1
 PLOTTED: 11/16/2022 10:35 AM BY: jerry.meam



- GENERAL NOTES:**
- SOFTWARE PROGRAMMING AND I&C WIRING TERMINATIONS TO BE DONE BY CITY'S PROCESS CONTROL SYSTEM INTEGRATOR (PCSI), CONTRACTOR TO COORDINATE INSTALLATION, TERMINATIONS, AND STARTUP WITH CITY'S PCSI. PCSI CONTACT: PRIME CONTROLS, LAIN CLOY: 972-221-4849
- NOTES BY SYMBOL (#):**
- NEW I/O POINT.
 - REFER TO SPECIFICATION FOR THE LIST OF PARAMETERS TO BE RECORDED.
 - PUMP NO.2 TO BE REPLACED.

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 Irving, TX 75063
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REVISIONS				
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ORIGINAL DRAWING SIZE IS 22 x 34
ADDISON SURVEYOR ROAD PUMP MCC - REPLACEMENT P&ID

SURVEYOR PUMP STATION
 ELECTRICAL IMPROVEMENTS
 TOWN OF ADDISON, TX

ADDISON, TEXAS
 PUBLIC WORKS AND ENGINEERING SERVICES
 16801 WESTGROVE ROAD
 ADDISON, TEXAS 75001

100% REVIEW SUBMITTAL

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13

PROJECT NO. 20224986.001A SHEET 14 of 17