Leon Creek WRC Electrical System Improvements Phase I
Solicitation Number: CO-00335
Job No.: 19-6505

ADDENDUM 1
June 1, 2020

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bid proposal, plans and specifications and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the Addendum number and issue date on the space provided in submitted copies of the bid proposal.

RESPONSES TO QUESTIONS

1. **Do you anticipate extending the bid due date?**
   Response:
   Not at this time

2. **What additional details are you willing to provide, if any, beyond what is stated in bid documents concerning how you will identify the winning bid?**
   Response
   SAWS will award the contract to the lowest responsible bidder. The Bidder's Experience will be used to review responsiveness.

3. **Was this bid posted to the nationwide free bid notification website at www.mygovwatch.com?**
   Response
   No it was not.

4. **Other than your own website, where was this bid posted?**
   Response
   The bid was advertised in a local newspaper, the Hart Beat.

5. **Looking at the documents, is it correct that the pre bid meeting is scheduled to be via WEBEX?**
   Response:
   That is correct. The pre-bid will be via WebEx meeting only.

6. **We always like to get our "feet on the ground" on a project like this so we can get a good feel of what the project will entail. Will it be possible for a bidding Contractor to visit the site to look at the installation conditions for this job?**
   Response:
   SAWS understands the value of being able to personally view the jobsite, but due to the Covid-19 situation, site visits are not allowed at this time. Photos will be provided in the pre-bid meeting presentation. SAWS will provide an update on this at the pre-bid meeting and, if allowable at a later date, will address via an addendum.

CHANGES TO THE SPECIFICATIONS

1. Table of Contents, page iv:
   a. Remove the following entries:
      i. 15810 – HVAC Ducts

ii. 15820 – Air Duct Accessories
iii. 15900 FRP Duct and Accessories

2. Special Conditions
   a. Delete SC2
   b. Replace with:
   "SC2. Pre-bid Meeting and Site Visit: The pre-bid meeting is non-mandatory to attend and will be done via WebEx. No interaction with SAWS employees at the site shall be permitted.
   No Site Visit will be conducted, please refer to the Invitation to Bidders for further instructions related to the Pre-Bid meeting."

3. Section 15051, pages 15-16:
   a. Replace text in footer, "DOS RIOS AND LEON CREEK WRCs ELECTRICAL SYSTEM IMPROVEMENTS – PHASE II" with, "LEON CREEK WRC ELECTRICAL SYSTEM IMPROVEMENTS – PHASE I"

4. Section 15052, pages 13-14:
   a. Replace text in footer, "DOS RIOS AND LEON CREEK WRCs ELECTRICAL SYSTEM IMPROVEMENTS – PHASE II" with, "LEON CREEK WRC ELECTRICAL SYSTEM IMPROVEMENTS – PHASE I"

5. Section 15736, page 4:
   a. Add 1.11.C: "Coil Protection: Provide evaporator cooling coils and condenser coils with factory applied baked phenolic coating for corrosion protection and as indicated on the WALL HUNG A.C. UNIT SCHEDULE as shown on sheet 50H03"

6. Section 16060, page 2:
   a. Add 3.01.E.1.c: "Contractor shall be responsible for all refueling activities." and renumber subsequent sections.

7. Section 16105:
   a. Page 1, Section 1.01.D: Remove the first sentence and replace with "The Study shall model all electrical equipment down to and including 480-Volt utilization equipment and 208-Volt panelboards."
   b. Page 3, Section 1.05.A: Remove the last sentence and replace with "The Study Engineer shall be licensed to practice engineering in the state of Texas, whose primary branch is electrical engineering."
   c. Page 7, Section 2.03.G.4.a: Remove this section and replace with "One label for each panelboard operated at 208 Volts or above."

8. Section 16487: Change title to "ELECTRICAL CONTRACTOR PROVIDED CONTROL PANELS (ECPs)"

9. Section 16670: Change footer to: "LEON CREEK WRC ELECTRICAL SYSTEM IMPROVEMENTS – PHASE I"

10. Remove and replace the following sections in their entirety:
   a. Bid Proposal
      i. Includes Bid Proposal line items and Bid Proposal signature page
      ii. Remove the bid proposal in its entirety and replace with the attached revised version. This version shall be used by bidders when submitting a bid packet for this project.
   b. 01015 – Sequence of Construction
   c. 16311 – Overhead Line Materials

11. Remove the following sections in their entirety:
   a. 15810 – HVAC Ducts
   b. 15820 – Air Duct Accessories
   c. 15900 FRP Duct and Accessories

CHANGES TO THE PLANS

1. Remove the following sheets and replace with the attached sheets:
   a. 50C03
   b. 50E02
   c. 60DC01
   d. 60C01
   e. 60C02
   f. 60DE06
   g. 60E02
   h. 60E03
   i. 60E04
   j. 60E05

k. 60E06
l. 60E07
m. 60E13
n. 60E18
o. 60E20
p. 60E21
q. 60E22

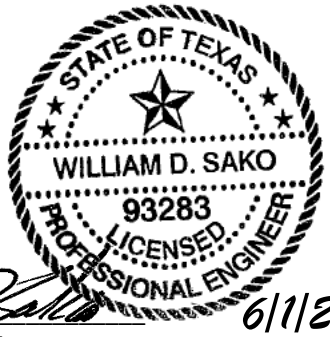
CLARIFICATIONS

1. N/A

END OF ADDENDUM

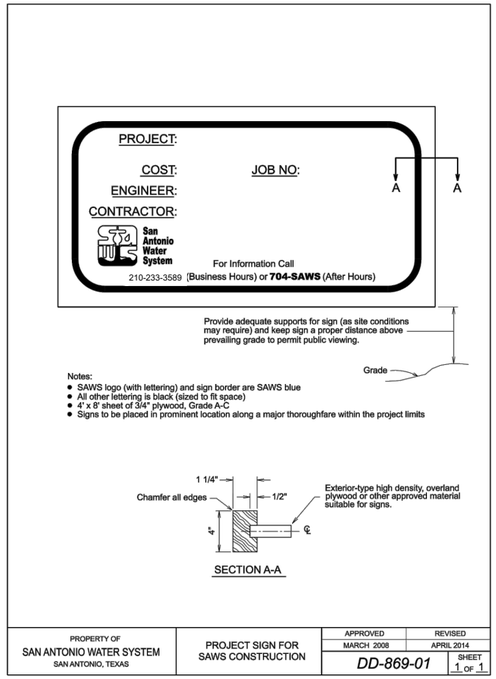
This Addendum, including these three (3) pages, is forty-one (41) pages with attachments in its entirety.
Attachments:

Drawings: 17 pages, 11x17 (HALF SIZE)
Specifications: 3 sections, total 21 pages



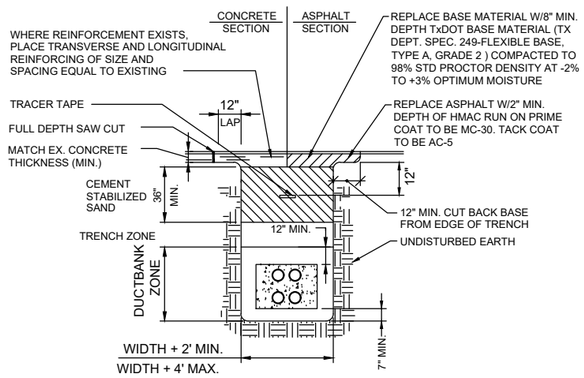
6/1/2020

William D. Sako, P.E.
Gupta & Associates, Inc.
TBPE # F-2593



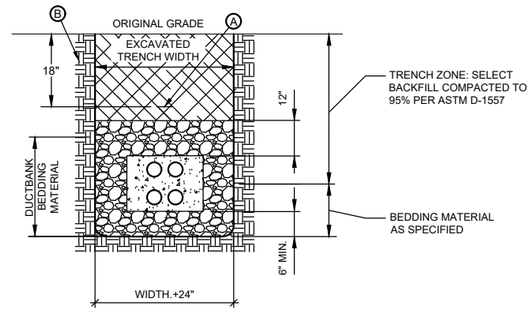
PROJECT SIGN
FOR SAWS CONSTRUCTION

DETAIL A 50C03



TYPICAL BACKFILL FOR PAVED
AREAS AND ASPHALT PAVING

DETAIL B 50C03

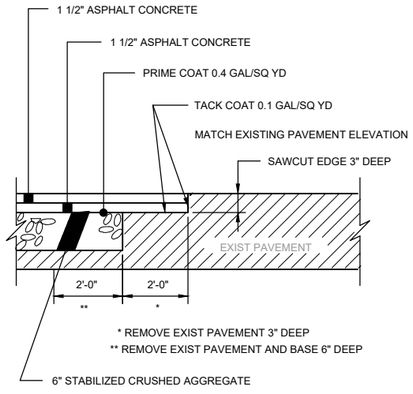


NOTES:
1. BEDDING FOR GRAVITY PIPE.
2. PROVIDE TRENCH SAFETY SYSTEM FOR TRENCH DEPTHS GREATER THAN 5 FEET.
3. ALL ONSITE DISTURBED AREAS WILL BE RE-VEGETATED BY MEANS OF 4" TOPSOIL & APPLICATION OF GRASS SEED BY HYDROMULCH.

CONSTRUCTION KEY NOTES:
A. APPROVED MARKING TAPE.
B. UNDISTURBED STABLE MATERIAL.

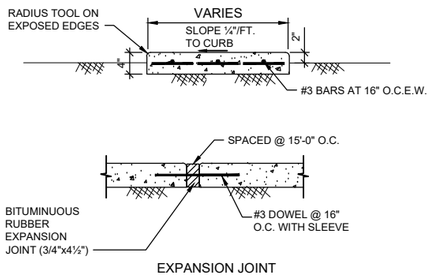
TYPICAL BACKFILL AND BEDDING
FOR NON-PAVED AREAS

DETAIL C 50C03



SAWCUT & ASPHALT
PAVEMENT TRANSITION

DETAIL D 50C03



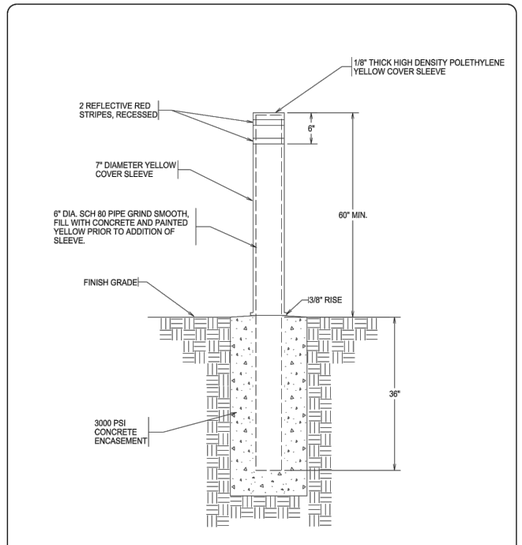
EXPANSION JOINT

NOTES:

1. CONCRETE SHALL BE CLASS "B" CONCRETE PER SECTION 03300.
2. TIE TO STEEL IN CONNECTION TO WALK.
3. FINISH CONCRETE IN ACCORDANCE WITH CITY SPECIFICATIONS.
4. SCORED CONTRACTION JOINTS AT 4'-0" O.C.
5. MAXIMUM SLOPE ALONG LENGTH OF SIDEWALK AT ANY LOCATION IS 5%. MAXIMUM SLOPE ACROSS SIDEWALK AT ANY LOCATION IS 2%.
6. SIDEWALK THICKNESS AND REINFORCEMENT SHALL MATCH DRIVEWAY REQUIREMENTS WITHIN THE LIMITS OF A DRIVEWAY.

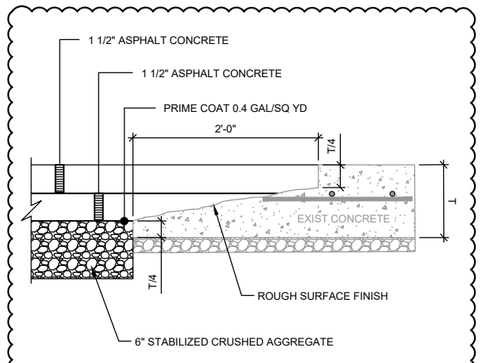
CONCRETE SIDEWALK

DETAIL E 50C03



PIPE BOLLARD

DETAIL F 50C03



NOTES:

1. CONTRACTOR SHALL CUT THE REBAR FLUSH WITH THE CONCRETE AS NECESSARY.
2. APPLY COAT OF PAINT TO THE EXPOSED REBAR.

SAWCUT CONCRETE TO ASPHALT
PAVEMENT TRANSITION

DETAIL G 50C03

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STATE OF TEXAS
PAUL K. BEDNARZ
102176
LICENSED
PROFESSIONAL ENGINEER
04/13/20

SAN ANTONIO WATER SYSTEM

REV/ NO.	DATE	DRWN	REMARKS
1	5/18/20	PBK	ADDENDUM NO. 1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY
1"

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
CIVIL

STANDARD CIVIL DETAILS

DESIGNED BY:	C. SMITH
DRAWN BY:	N. CANDELAS
SHEET CHK'D BY:	P. KRISHNA
APPROVED BY:	P. KRISHNA
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	50C03

SHEET NO.
50C03
4 OF 77

4/29/2020 11:56 AM I:\ACAD\PROJ\J0219\6057-SAWS\2-SHEETS\04-C-Civil\50C03.dwg Candelas, Nick

100% SUBMITTAL - ISSUED FOR BID

SYMBOLS	DESCRIPTION
A LA-3 b	INCANDESCENT, COMPACT FLUORESCENT OR H.I.D. TYPE LIGHTING FIXTURE: "A"- FIXTURE TYPE "b"- CONTROLLED BY SWITCH "b" "LA-3"- CIRCUIT 3 FROM PANEL LA
b A LA-3	FLUORESCENT TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
A LA-3 OR LA-3 A	INDICATES LIGHT FIXTURES WHICH ARE UNSWITCHED, NOTATIONS SAME AS ABOVE
LA-3 A b	WALL MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
LA-3 A b	POLE MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
A LA-3	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS, NOTATIONS SAME AS ABOVE
A	REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS, NOTATIONS SAME AS ABOVE
A LA-3	CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE
A LA-3	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
2(3#3/0+1#2G, 3"C)	DENOTES A QUANTITY OF 2 SETS OF THREE (3) NO.3/0 AWG CONDUCTORS AND 1 NO.AWG GROUND CONDUCTOR EACH INSTALLED IN 3" CONDUIT.
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
LP1–1,3	HOMERUN, CIRCUITS 1 AND 3 RUN TO PANEL LP-1
$b	SINGLE POLE SWITCH "b"- INDICATES SWITCH LEG SHALL CONTROL LIGHT FIXTURES WITH "b" DESIGNATION
$b^x	MULTI POLE SWITCH "x"- INDICATES NUMBER OF POLE "b"- NOTATIONS SAME AS ABOVE
$b^P	SINGLE POLE SWITCH AND PILOT LIGHT, "b"- NOTATIONS SAME AS ABOVE
$b^D	DIMMER LIGHTING CONTROL SWITCH, "b"- NOTATIONS SAME AS ABOVE
$b^{TM}	TIME SWITCH, "b"-NOTATIONS SAME AS ABOVE
$^M	MANUAL MOTOR STARTER /DISCONNECT
$^{OS}	SINGLE POLE SWITCH WITH OCCUPANCY SENSOR
$^{DM}	SINGLE POLE DIMMER SWITCH
$^{xx}_{b}	SWITCH ENCLOSURE "x"- NOTATIONS SAME AS ABOVE "b"- NOTATIONS SAME AS ABOVE "xx"- INDICATES ENCLOSURE TYPE
LC-1	LIGHTING CONTACTOR WITH NUMBER OF POLES AS INDICATED

SYMBOLS	DESCRIPTION
L*–## OR L*-##	LIGHTING PANELBOARD (TYPICAL 120V/240V OR 120V/208V)
H*–## OR H*-##	DISTRIBUTION PANELBOARD (TYPICAL 277V/480V)
LA-3	DUPLEX 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
D ✳	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
	480V, 3P, 4W RECEPTACLE
	QUAD RECEPTACLE
OS	OCCUPANCY SENSOR CAPABLE OF VACANCY
PC	PHOTOCELL

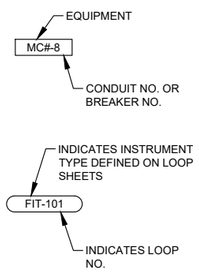
SYMBOLS	DESCRIPTION
COMMUNICATIONS SYSTEMS	
	TELEPHONE OUTLET
	DATA OUTLET
P	DATA INPUT/OUTPUT CABLE OUTLET. "P" DENOTES PROCESS COMPUTER SYSTEM
	VOICE/DATA OUTLET
S	PAGING SPEAKER HORN
S	PAGING SPEAKER BI-DIRECTIONAL
S	PAGING SPEAKER, CEILING MOUNTED TYPE
S	PAGING SPEAKER, WALL MOUNTED TYPE
SECURITY SYSTEMS	
SAP	SECURITY ALARM PANEL
DS	SECURITY ALARM DOOR SWITCH
KP	SECURITY ALARM KEY PAD
CR	SECURITY SYSTEM CARD ACCESS READER
WS	SECURITY ALARM WINDOW SWITCH
MD	SECURITY ALARM MOTION DETECTOR
✳	SECURITY CAMERA ✳ CCTV- CLOSED CIRCUIT TV CAMERA PTZ- PAN, TILT, ZOOM CAMERA LENS CONTROLS
GB	GLASS BREAK DETECTOR
ACP	ACCESS CONTROL PANEL
FIRE ALARM SYSTEMS	
FACP	FIRE ALARM CONTROL PANEL
SD ✳	SMOKE DETECTOR ✳: D- DENOTES DUCT SMOKE DETECTOR R- DENOTES FIXED TEMPERATURE RATE-OF-RISE TYPE.
F	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	
AC	ALTERNATING CURRENT
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AG	ABOVE GRADE
ALUM	ALUMINUM
AMP/A	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CS	CONTROL SWITCH
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DI	DOOR INTERLOCK
DN	DOWN
DWG	DRAWING
EHH	ELECTRICAL HANDHOLE
EC	EMPTY CONDUIT
ELEC	ELECTRICAL
ELEV	ELEVATION
EM	EMERGENCY
EMH	ELECTRICAL MANHOLE
EO	ELECTRICALLY OPERATED
ERMS	ENERGY-REDUCING MAINTENANCE SWITCH
FBO	FURNISHED BY OTHERS
FO	FIBER OPTIC
FRP	FIBERGLASS REINFORCED POLYESTER
FU	FUSE
GCP	GENERATOR CONTROL PANEL
GEN	GENERATOR
G, GRD	GROUND
GFI	GROUND FAULT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GO	GATE OPERATOR
GRS	GALVANIZED RIGID STEEL
GSCT	GROUND-SENSING CURRENT TRANSFORMER 1
HH	HANDHOLE
HT	HEIGHT
HTP	HEAT TRACE PANEL
HZ	HERTZ
IMH	INSTRUMENT MAN HOLE
INST	INSTRUMENT
LA	LIGHTNING ARRESTER
LC	LIGHTNING CONTACTOR
LCP	LOCAL CONTROL PANEL
LGTS	LIGHTS
LP	LIGHTING PANEL
	CONTINUED ABOVE RIGHT

	CONTINUED BELOW LEFT
LSIG	LONG TIME/SHORT TIME/ INSTANTANEOUS/GROUND FAULT FEATURE INCLUDED
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFR	MANUFACTURER
MH	MANHOLE
MLO	MAIN LUGS ONLY
MTG	MOUNTING
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
NC	NORMALLY CLOSED
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
OL	OVERLOAD
OLX	OVERLOAD CONTROL RELAY
PB	PUSH BUTTON OR PULL BOX
PCC	PUMP CONTROL CONSOLE
PPR	PHASE PROTECTIVE RELAY
PFR	PHASE FAILURE RELAY
PH	PHASE
PNLBD	PANELBOARD
PR	PAIR
PT	POTENTIAL TRANSFORMER
PTT	PUSH TO TEST TYPE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RCP	RELAY CONTROL PANEL
RECP	RECEPTACLES
RVSS	REDUCED VOLTAGE SOFT STARTER
SC	SURGE CAPACITOR
SCH	SCHEMATIC
SCCR	SHORT CIRCUIT CURRENT RATING
SCTB	SHORT-CIRCUITING TERMINAL BLOCK 1
SEC	SECONDS OR SECONDARY
SH	SHIELDED OR SHEET
SHT	SHEET
SN	SOLID NEUTRAL
SS	STAINLESS STEEL
ST	STARTER
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TERMINATION CABINET
TEL	TELEPHONE
TO	TIME DELAY ON OPENING
TS	TEMPERATURE SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TSW	TWISTED SHIELDED WIRE
TYP	TYPICAL
UG	UNDERGROUND
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
VFI	VACUUM FAULT INTERRUPTER
VO	VALVE OPERATOR
W	WIRE
WP	WEATHERPROOF
XP	EXPLOSION PROOF
XFMR	TRANSFORMER

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.		

EXAMPLE LEGEND:



GENERAL NOTE

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

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WILLIAM D. SAKO 93283 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS 04/13/20

SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

1"

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

LEGEND & SYMBOLS - II

DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E.RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W.SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_50E02

SHEET NO.
50E02
19 OF 77

100% SUBMITTAL - ISSUED FOR BID

5/1/2020 2:18 PM Z:\1951_SAWS Dos Rios WRC Electrical System Improvements – Phase II\5 Drawings\!!Leon Creek\Electrical\!!Working\1951_50E02.dwg Emmanuel Rangel

SECONDARY CLARIFIER NO. 2

SECONDARY CLARIFIER NO. 1

AERATION TANKS

REMOVE EXISTING CONCRETE PIPE SUPPORTS IN THIS AREA. REFER TO PHOTOGRAPH B ON 60DC04

SEE 60DC02 AND 60DC03 FOR DEMOLITION PLAN AND DETAILS

EXISTING SIDEWALK TO BE SAWCUT AND REMOVED. REFER TO 60C01 FOR LIMITS

RAS PUMP STATION NO. 2

ABANDONED BLOWER FACILITY

CANOPY STRUCTURE

RAS PUMP STATION NO. 2 PLC BUILDING

STORMWATER CLARIFIER

EXISTING ASPHALT PAVING TO BE REMOVED AND REPLACED

REMOVE EXISTING PREFABRICATED METAL BUILDING, SEE DETAILS ON SHEET 60DC04

SAW CUT - DO NOT DISTURB EXISTING WALKWAY. SEE NOTES 1 & 2.

REMOVE EXISTING TRANSFORMER PAD

CHLORINATOR BUILDING

SECONDARY CLARIFIER NO. 5

SECONDARY CLARIFIER NO. 4

O&M BUILDING

0 10' 20' 40'

LEGEND:

TO BE DEMOLISHED OR REMOVED

NOTES:

1. CONTRACTOR SHALL CUT THE REBAR FLUSH WITH THE CONCRETE AS NECESSARY.
2. APPLY COAT OF PAINT TO THE EXPOSED REBAR. (1)

ARCADIS
FIRM REGISTRATION NUMBER: F-583

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PRAVEEN K. KRISHNA
102176
LICENSED
04/13/20

SAN ANTONIO WATER SYSTEM

REV NO.	DATE	DRWN	REMARKS
1	5/18/20	PBK	ADDENDUM NO. 1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

1"

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
CIVIL

DEMOLITION - OVERALL SITE PLAN

DESIGNED BY:	C. SMITH
DRAWN BY:	N. CANDELAS
SHEET CHK'D BY:	P. KRISHNA
APPROVED BY:	P. KRISHNA
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	60DC01

SHEET NO.

60DC01

28 OF 77

100% SUBMITTAL - ISSUED FOR BID

4/29/2020 11:43 AM I:\ACAD\PRO\J\02196057-SAWS\2-SHEETS\04-C-Civil\60DC01.dwg Candelas, Nick

SECONDARY CLARIFIER NO. 2

SECONDARY CLARIFIER NO. 1

AERATION TANKS

N=13650820.85
E=2122697.38

EXISTING SIDEWALK

SIDEWALK, MATCH EXISTING WIDTH. REFER TO DETAIL E/50C03

PROPOSED TRANSFORMER PAD EL. 534.50

EX. 48"-RCCP-ML

N=13650777.16
E=2122789.78

N=13650785.60
E=2122784.61

N=13650833.23
E=2122901.63

N=13650770.96
E=2122815.54

N=13650776.13
E=2122823.99

N=13650768.58
E=2122836.82

N=13650772.31
E=2122736.92
ELEV. 534.20

N=13650776.52
E=2122719.42

N=13650767.45
E=2122735.75
ELEV. 534.50

EX. 33"-RAS-CI

SAWCUT CONCRETE & TRANSITION TO ASPHALT PAVEMENT, SEE DETAIL G/50C03

RAS PUMP STATION NO. 2

N=13650771.41
E=2122902.84

N=13650765.67
E=2122848.46

18'-0"

PIPE BOLLARDS, SPACED 5'-0" O.C. (TYP. OF 10). SEE DETAIL F/50C03

CAUTION!! EXISTING 36" AIR HEADER

PROPOSED ELECTRICAL BUILDING F.F. EL. 534.50

N=13650740.22
E=2122729.20
ELEV. 534.50

N=13650727.10
E=2122692.10

N=13650735.36
E=2122728.03
ELEV. 534.20

N=13650750.55
E=2122827.34
ELEV. 534.20

N=13650746.86
E=2122821.31
ELEV. 534.50

N=13650725.02
E=2122838.68

N=13650717.62
E=2122672.49

15' R

N=13650717.71
E=2122739.21

RAS PUMP STATION NO. 2 PLC BUILDING

N=13650729.00
E=2122822.15

EX. 48"-RCCP-ML

N=13650712.38
E=2122689.21

N=13650713.61
E=2122818.45
ELEV. 534.20

5'-0" SIDEWALK EL. 534.50, REFER TO DETAIL E/50C03

CAUTION!! EXISTING 36" AIR HEADER PIPE BRIDGE

N=13650702.99
E=2122736.32

EX. 48"-RCCP-ML

ASPHALT PAVEMENT, SEE DETAIL D/50C03

N=13650719.64
E=2122814.76
ELEV. 534.50

DOWNSPOUT AND SIDEWALK DRAIN (TYP. OF 3), REFER TO DETAIL C/50C06

N=13650672.81
E=2122877.51

SECONDARY CLARIFIER NO. 5

SECONDARY CLARIFIER NO. 4

534 533 532 531 530 529 535

0 7.5 15' 30'

LEGEND:

- SF — SILT FENCE
- LOC — LIMITS OF CONSTRUCTION
- ASPHALT
- CONCRETE
- xxx — PROPOSED CONTOUR

GENERAL NOTES:

1. CONTRACTOR TO PROVIDE TEMPORARY SEDIMENT CONTROL FENCE AS INDICATED IN DRAWING AND SPECS TO MEET TCEQ REQUIREMENTS FOR SEDIMENTATION AND EROSION CONTROL. SEE SHEET 50C04 & 50C05 FOR DETAILS.
2. CONTRACTOR SHALL PROVIDE SAWS OPERATIONAL PERSONAL ACCESS TO ENTRANCE/ EXIT ACCESS ROADS THROUGH THE SITE AT ALL TIMES DURING CONSTRUCTION.
3. CONTRACTOR SHALL COORDINATE WITH SAWS PRIOR TO ACCESS ROAD SHUTDOWN, WITH A NOTIFICATION NOT LESS THAN 72 HOURS IN ADVANCE OF EACH ROAD SHUTDOWN.
4. ALL TEMPORARY CONTROLS DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO, SILT FENCE, AROUND ACCESS ROADS SHALL MAINTAIN THE REQUIRED ACCESSIBILITY FOR THE DAILY OPERATION OF THE FACILITY.

NOTES:

1. EXISTING PIPING BASED ON THE FOLLOWING RECORD DRAWINGS:

   LEON CREEK WWTP CATEGORY #2 IMPROVEMENTS AND EXPANSIONS

ARCADIS
FIRM REGISTRATION NUMBER: F-593

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email@gaiconsulting.com

STATE OF TEXAS — PROFESSIONAL ENGINEER — 102176 — PRAVEEN KRISHNA — 04/13/20

SAN ANTONIO WATER SYSTEM

REV/ NO.	DATE	DRWN	REMARKS
1	5/18/20	PBK	ADDENDUM NO. 1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

1"

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
CIVIL

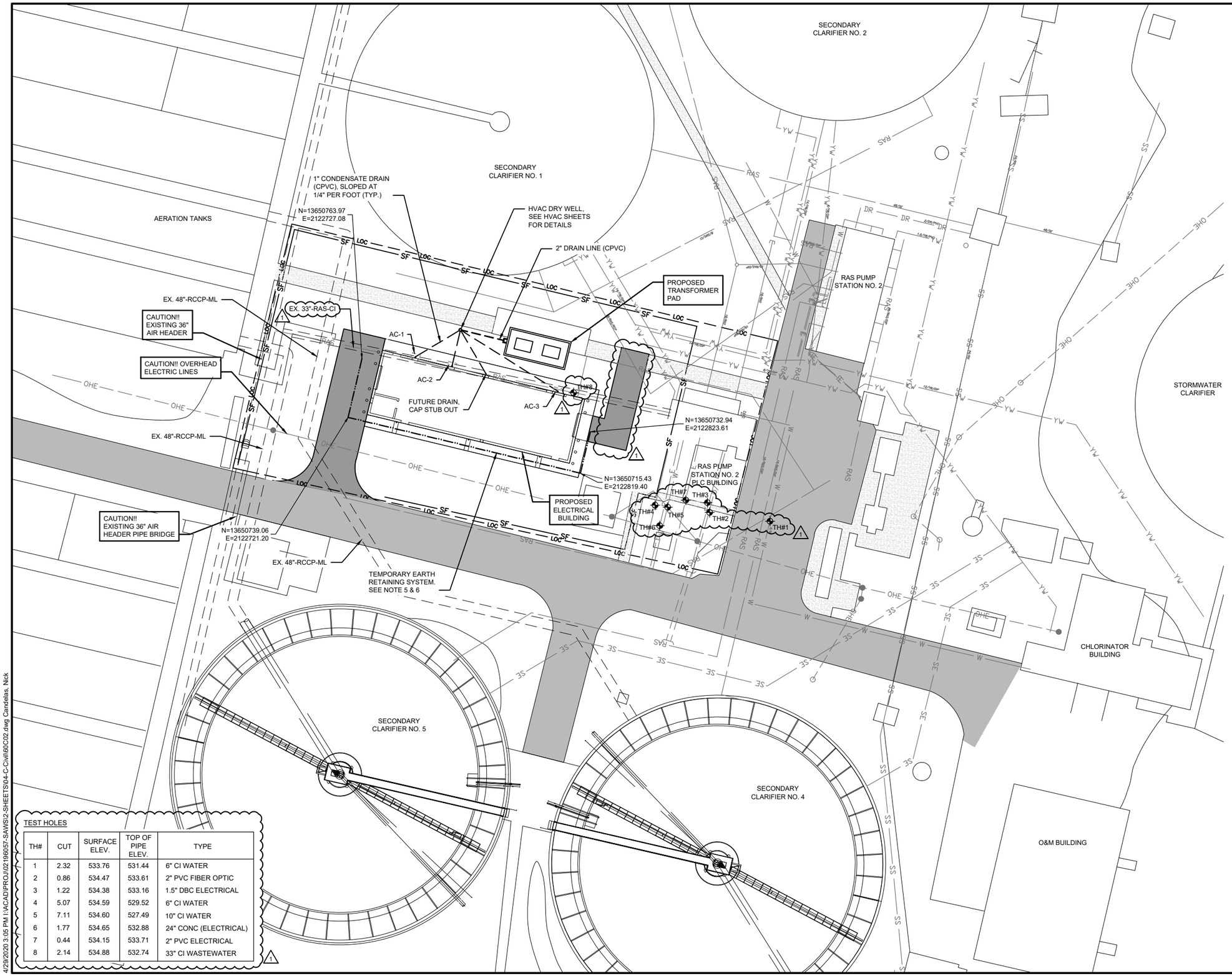
SITE GRADING PLAN

DESIGNED BY:	C. SMITH
DRAWN BY:	N. CANDELAS
SHEET CHK'D BY:	P. KRISHNA
APPROVED BY:	P. KRISHNA
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	60C01

SHEET NO.
60C01
32 OF 77

100% SUBMITTAL - ISSUED FOR BID

4/29/2020 3:05 PM I:\ACAD\PROJ\02196057-SAWS\2-SHEETS\04-C-Civil\60C01.dwg Candelas, Nick



LEGEND:

- TH# X — TEST HOLE
- SF — SILT FENCE
- LOC — LIMITS OF CONSTRUCTION
- ASPHALT
- CONCRETE

GENERAL NOTES:

1. CONTRACTOR TO PROVIDE TEMPORARY SEDIMENT CONTROL FENCE AS INDICATED IN DRAWING AND SPECS TO MEET TCEQ REQUIREMENTS FOR SEDIMENTATION AND EROSION CONTROL. SEE SHEET 50C04 & 50C05 FOR DETAILS.
2. CONTRACTOR SHALL PROVIDE SAWS OPERATIONAL PERSONAL ACCESS TO ENTRANCE/ EXIT ACCESS ROADS THROUGH THE SITE AT ALL TIMES DURING CONSTRUCTION.
3. CONTRACTOR SHALL COORDINATE WITH SAWS PRIOR TO ACCESS ROAD SHUTDOWN, WITH A NOTIFICATION NOT LESS THAN 72 HOURS IN ADVANCE OF EACH ROAD SHUTDOWN.
4. ALL TEMPORARY CONTROLS DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO, SILT FENCE, AROUND ACCESS ROADS SHALL MAINTAIN THE REQUIRED ACCESSIBILITY FOR THE DAILY OPERATION OF THE FACILITY.
5. CONTRACTOR SHALL PROVIDE LEFT IN PLACE TEMPORARY EARTH RETAINING SYSTEM AS REQUIRED DURING CONSTRUCTION TO PREVENT MOVEMENT OF SOIL UNDER EXISTING STRUCTURES. APPROXIMATE LIMITS ARE AS SHOWN AND SHALL BE VERIFIED BY CONTRACTOR. DESIGN REQUIREMENTS SHALL BE AS SPECIFIED IN SECTION 02260, EXCAVATION SUPPORT AND PROTECTION.
6. CONTRACTOR SHALL PROVIDE TEMPORARY EARTH RETENTION SYSTEM PER THE PERFORMANCE REQUIREMENTS OF SECTION 02260, IN ORDER TO PREVENT MOVEMENT OF SOIL UNDER EXISTING STRUCTURES AND EQUIPMENT TO REMAIN IN PLACE AND OPERATIONAL DURING BUILDING CONSTRUCTION OPERATIONS. APPROXIMATE LIMITS ARE SHOWN AND SHALL BE VERIFIED BY CONTRACTOR AND SHALL BE INCLUDED AS PART OF THE EXCAVATION PLAN SUBMITTAL. DEPTH OF TEMPORARY EARTH RETENTION SYSTEM SHALL BE DETERMINED BY CONTRACTOR AS PART OF THE DESIGN REQUIREMENTS OF SECTION 02260. FOR BIDDING PURPOSES, DEPTH OF TEMPORARY SHEETING SHALL EXTEND AT LEAST THREE FEET BELOW THE BOTTOM OF THE EXCAVATION AS SHOWN ON DRAWING 50S04.

NOTES:

(1) EXISTING PIPING BASED ON THE FOLLOWING RECORD DRAWINGS:

LEON CREEK WWTP CATEGORY #2 IMPROVEMENTS AND EXPANSIONS

CONTRACTOR TO VERIFY LOCATION AND DEPTH.

TEST HOLES

TH#	CUT	SURFACE ELEV.	TOP OF PIPE ELEV.	TYPE
1	2.32	533.76	531.44	6" CI WATER
2	0.86	534.47	533.61	2" PVC FIBER OPTIC
3	1.22	534.38	533.16	1.5" DBC ELECTRICAL
4	5.07	534.59	529.52	6" CI WATER
5	7.11	534.60	527.49	10" CI WATER
6	1.77	534.65	532.88	24" CONC (ELECTRICAL)
7	0.44	534.15	533.71	2" PVC ELECTRICAL
8	2.14	534.88	532.74	33" CI WASTEWATER

(1)

ARCADIS
FIRM REGISTRATION NUMBER: F-583

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STATE OF TEXAS — 102176 — LICENSED PROFESSIONAL ENGINEER — 04/13/20

SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	5/18/20	PBK	ADDENDUM NO. 1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

1"

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
CIVIL

PROPOSED SITE PIPING PLAN

DESIGNED BY:	C. SMITH
DRAWN BY:	N. CANDELAS
SHEET CHK'D BY:	P. KRISHNA
APPROVED BY:	P. KRISHNA
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	60C02

SHEET NO.
60C02
33 OF 77

100% SUBMITTAL - ISSUED FOR BID

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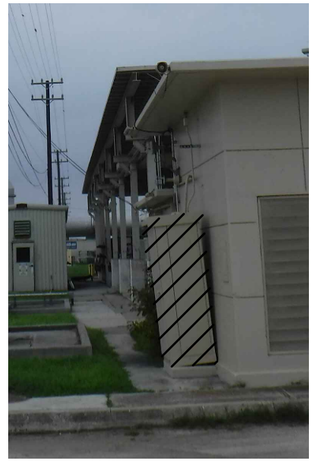
MAIN DISTRIBUTION SWITCHGEAR

PHOTOGRAPH A 60DE01

FUSE SWITCHES AND PULL BOX

PHOTOGRAPH B 60DE01



SWITCHBOARD SWB-6

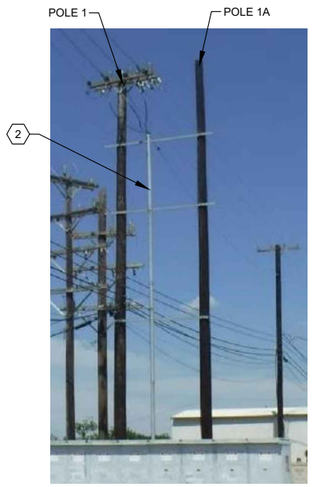
PHOTOGRAPH C 60DE01

TRANSFORMER T-10

PHOTOGRAPH D 60DE01

POLE-3/3A

PHOTOGRAPH E 60DE01



POLE-1/1A

PHOTOGRAPH F 60DE01

MCC-7

PHOTOGRAPH G 60DE05

NOTES:

1. ALL CONDUCTORS TO BE REMOVED. PULL BOX AND CONDUITS TO REMAIN. CAP CONDUITS WITH WEATHERPROOF CAPS FOR FUTURE USE.
2. ALL CONDUCTORS TO BE REMOVED. CONDUIT TO REMAIN FOR REUSE.

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WILLIAM D. SAKO 93283 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS 04/13/20

SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

1"

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

PHOTOGRAPHS - DEMOLITION

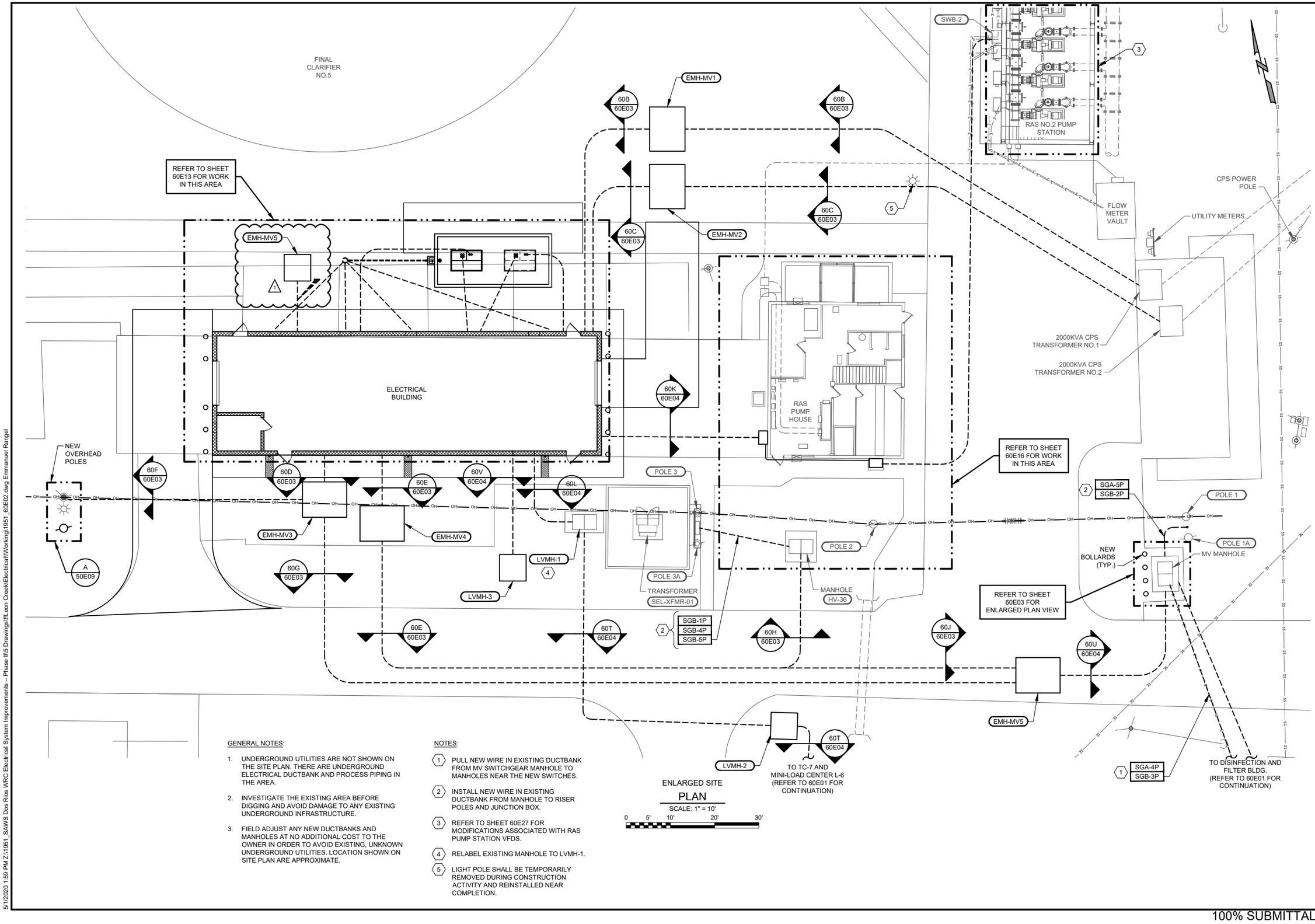
DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E. RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W. SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60DE06

SHEET NO.

60DE06

49 OF 77

100% SUBMITTAL - ISSUED FOR BID



GENERAL NOTES:

1. UNDERGROUND UTILITIES ARE NOT SHOWN ON THE SITE PLAN. THERE ARE UNDERGROUND ELECTRICAL DUCTBANK AND PROCESS PIPING IN THE AREA.
2. INVESTIGATE THE EXISTING AREA BEFORE DIGGING AND AVOID DAMAGE TO ANY EXISTING UNDERGROUND INFRASTRUCTURE.
3. FIELD ADJUST ANY NEW DUCTBANKS AND MANHOLES AT NO ADDITIONAL COST TO THE OWNER IN ORDER TO AVOID EXISTING, UNKNOWN UNDERGROUND UTILITIES. LOCATION SHOWN ON SITE PLAN ARE APPROXIMATE.

NOTES:

1. PULL NEW WIRE IN EXISTING DUCTBANK FROM MV SWITCHGEAR MANHOLE TO MANHOLES NEAR THE NEW SWITCHES.
2. INSTALL NEW WIRE IN EXISTING DUCTBANK FROM MANHOLE TO RISER POLES AND JUNCTION BOX.
3. REFER TO SHEET 60E27 FOR MODIFICATIONS ASSOCIATED WITH RAS PUMP STATION VFDS.
4. RELABEL EXISTING MANHOLE TO LVMH-1.
5. LIGHT POLE SHALL BE TEMPORARILY REMOVED DURING CONSTRUCTION ACTIVITY AND REINSTALLED NEAR COMPLETION.

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SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

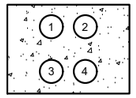
ENLARGED SITE PLAN

DESIGNED BY:	D.GHOBRIAL
DRAWN BY:	E.RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W.SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60E02

SHEET NO.
60E02
51 OF 77

100% SUBMITTAL - ISSUED FOR BID

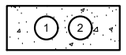
5/1/2020 1:59 PM Z:\1951_SAWS Dos Rios WRC Electrical System Improvements – Phase II\5 Drawings\II\Leon Creek\Electrical\Working\1951_60E02.dwg Emmanuel Rangel



DUCTBANK

SECTION 60A
NTS 60E01

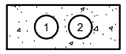
TABLE FOR SECTION 60A			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGA-4P	5"C	POWER TO PAD MOUNTED SWITCH-A
2	SGB-3P	5"C	POWER TO PAD MOUNTED SWITCH-B
3-4	SPARE	5"C	PULL STRING



DUCTBANK

SECTION 60B
NTS 60E02

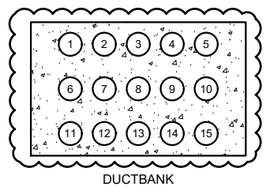
TABLE FOR SECTION 60B			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	CPS-1	5"C	POWER TO SWITCHGEAR-A MAIN FEEDER
2	SPARE	5"C	PULL STRING



DUCTBANK

SECTION 60C
NTS 60E02

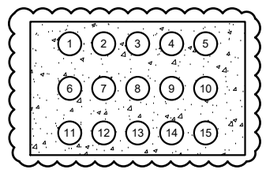
TABLE FOR SECTION 60C			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	CPS-2	5"C	POWER TO SWITCHGEAR-B MAIN FEEDER
2	SPARE	5"C	PULL STRING



DUCTBANK

SECTION 60D
NTS 60E02

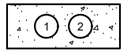
TABLE FOR SECTION 60D			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGA-3P	5"C	POWER TO OVERHEAD LINE "WL-1"
2	SGA-4P	5"C	POWER TO PAD MOUNTED SWITCH-A
3	SGA-2P	5"C	POWER TO OVERHEAD LINE "WH-1"
4	SGA-5P	5"C	PULL STRING (FUTURE POWER TO OVERHEAD LINE "EH-2"
5-15	SPARE	5"C	PULL STRING



DUCTBANK

SECTION 60E
NTS 60E02

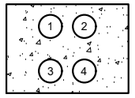
TABLE FOR SECTION 60E			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGB-4P	5"C	PULL STRING (FUTURE POWER TO OVERHEAD LINE "WH-2")
2	SGB-5P	5"C	PULL STRING (FUTURE POWER TO OVERHEAD LINE "WL-2")
3	SGB-1P	5"C	POWER TO TRANSFORMER SEL-XFMR-01
4	SPARE	5"C	PULL STRING
5	SGB-2P	5"C	POWER TO OVERHEAD LINE "EH-1"
6	SGB-3P	5"C	POWER TO MOUNTED SWITCH-B
7-15	SPARE	5"C	PULL STRING



DUCTBANK

SECTION 60F
NTS 60E02

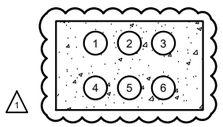
TABLE FOR SECTION 60F			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGA-2P	5"C	POWER TO OVERHEAD LINE "WH-1"
2	SGA-3P	5"C	POWER TO OVERHEAD LINE "WL-1"



DUCTBANK

SECTION 60G
NTS 60E02

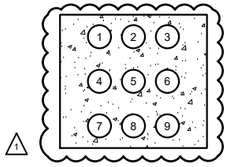
TABLE FOR SECTION 60G			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGA-4P	5"C	POWER TO PAD MOUNTED SWITCH-A
2	SGA-5P	5"C	PULL STRING (FUTURE POWER TO OVERHEAD LINE "EH-2")
3-4	SPARE	5"C	PULL STRING



DUCTBANK

SECTION 60H
NTS 60E02

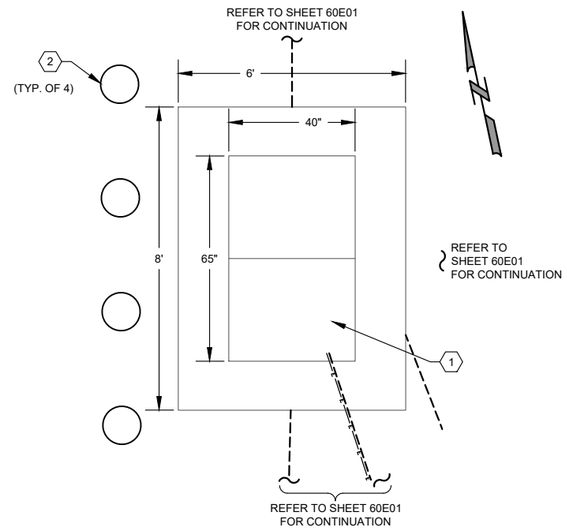
TABLE FOR SECTION 60H			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGB-4P	5"C	PULL STRING (FUTURE POWER TO OVERHEAD LINE "WH-2")
2	SGB-5P	5"C	PULL STRING (FUTURE POWER TO OVERHEAD LINE "WL-2")
3	SGB-1P	5"C	POWER TO TRANSFORMER SEL-XFMR-01
4-6	SPARE	5"C	PULLSTRING



DUCTBANK

SECTION 60J
NTS 60E02

TABLE FOR SECTION 60J			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGB-2P	5"C	POWER TO OVERHEAD LINE "EH-1"
2	SGB-3P	5"C	POWER TO PAD MOUNTED SWITCH-B
3-9	SPARE	5"C	PULL STRING



MV SWGR MANHOLE

PLAN

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

0 1' 2' 4' 6'

NOTES:

1. REPLACE MANHOLE LID WITH NEW ALUMINUM LID OF SAME SIZE AND TYPE AS EXISTING. FIELD CONFIRM DIMENSION.
2. AFTER SWITCHGEAR DEMOLITION, ADD 4 CONCRETE BOLLARDS PAINTED YELLOW NEXT TO THE MANHOLE.

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WILLIAM D. SAKO 93283 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS 04/13/20

SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

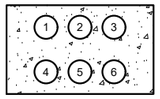
SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

DUCTBANK SECTIONS - I

DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E. RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W. SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60E03

SHEET NO.
60E03
52 OF 77

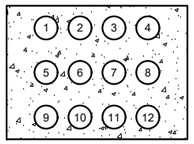
100% SUBMITTAL - ISSUED FOR BID



DUCTBANK

SECTION 60K
NTS 60E02

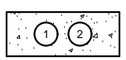
TABLE FOR SECTION 60K			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	MC6-3LP	3"C	POWER TO ADMIN BUILDING
2	MC6-4LP	3"C	POWER TO MCC-3 OPS BUILDING
3	MC6-5LP	2"C	POWER TO AREA LIGHTING
4	MC6-6LP	3"C	POWER TO SWB-2 RAS NO.2 PUMP STATION
5	MC6-6LP	3"C	POWER TO SWB-2 RAS NO.2 PUMP STATION
6	SPARE	2"C	PULL STRING



DUCTBANK

SECTION 60L
NTS 60E02

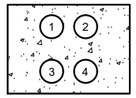
TABLE FOR SECTION 60L			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	MC6-13LP, MC6-14LP, MC6-15LP	2"C	SECONDARY INFLUENT GATE 480V POWER
2	MC6-16LP, MC6-17LP	2"C	SCUM PUMP STATION NO.2 480V POWER
3	MC6-18LP/C	2"C	SECONDARY CLARIFIER NO.3 480V POWER/CONTROL
4	MC6-19LP/C	2"C	SECONDARY CLARIFIER NO.4 480V POWER/CONTROL
5	MC6-20LP	2"C	MINILOAD CENTER L-6 480V POWER
6-12	SPARE	2"C	PULL STRING



DUCTBANK

SECTION 60M
NTS 60E13

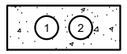
TABLE FOR SECTION 60M			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGA-1P	5"C	POWER TO TRANSFORMER T-10
2	SPARE	5"C	PULL STRING



DUCTBANK

SECTION 60N
NTS 60E13

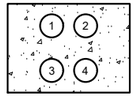
TABLE FOR SECTION 60N			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1-3	T10-P	4"C	POWER TO MCC-6 MAIN A
4	SPARE	4"C	PULL STRING



DUCTBANK

SECTION 60P
NTS 60E13

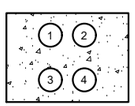
TABLE FOR SECTION 60P			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGB-6P	5"C	PULL STRING (1)
2	SPARE	5"C	PULL STRING



DUCTBANK

SECTION 60Q
NTS 60E13

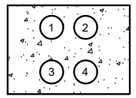
TABLE FOR SECTION 60Q			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1-4	SPARE	4"C	PULL STRING (2)



DUCTBANK

SECTION 60R
NTS 60E18

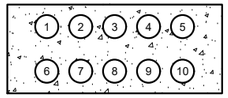
TABLE FOR SECTION 60R			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGA-4P	5"C	POWER TO PAD MOUNTED SWITCH-A
2	SWA-4P	4"C	POWER TO TRANSFORMER T-32
3	SWA-3P (SPARE)	4"C	PULL STRING
4	SPARE	4"C	PULL STRING



DUCTBANK

SECTION 60S
NTS 60E18

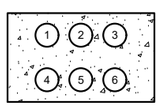
TABLE FOR SECTION 60S			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGB-3P	5"C	POWER TO PAD MOUNTED SWITCH-B
2	SWB-3P	4"C	POWER TO TRANSFORMER T-31
3	SWB-4P (SPARE)	4"C	PULL STRING
4	SPARE	4"C	PULL STRING



DUCTBANK

SECTION 60T
NTS 60E02

TABLE FOR SECTION 60T			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	MC6-13LP, MC6-14LP, MC6-15LP	2"C	SECONDARY INFLUENT GATE 480V POWER
2	MC6-16LP, MC6-17LP	2"C	SCUM PUMP STATION NO.2 480V POWER
3	MC6-18LP	2"C	SECONDARY CLARIFIER NO.3 480V POWER
4	MC6-19LP	2"C	SECONDARY CLARIFIER NO.4 480V POWER
5	MC6-20LP	2"C	MINILOAD CENTER L-6 480V POWER
6-10	SPARE	2"C	PULL STRING



DUCTBANK

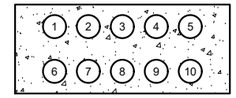
SECTION 60U
NTS 60E02

TABLE FOR SECTION 60U			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	SGA-4P	5"C	POWER TO PAD MOUNTED SWITCH-A
2	SGA-5P	5"C	PULL STRING (FUTURE POWER TO OVERHEAD LINE "EH-2")
3	SGB-2P	5"C	POWER TO OVERHEAD LINE "EH-1"
4	SGB-3P	5"C	POWER TO PAD MOUNTED SWITCH-B
5-6	SPARE	5"C	PULL STRING

NOTES:

(1) INSTALL 5"C SPARE FOR FUTURE TRANSFORMER CONNECTION.

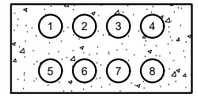
(2) INSTALL 4(4"C) SPARE FOR FUTURE MCC-6 MAIN B CONNECTION.



DUCTBANK

SECTION 60V
NTS 60E02

TABLE FOR SECTION 60V			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1-5	SPARE	2"C	PULL STRING
6-10	SPARE	3"C	PULL STRING



DUCTBANK

SECTION 60W
NTS 60E13

TABLE FOR SECTION 60W			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1-4	SPARE	2"C	PULL STRING (FUTURE GENERATOR) (1)
5-8	SPARE	5"C	PULL STRING (FUTURE GENERATOR) (1)

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WILLIAM D. SAKO 93283 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS 04/13/20

SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

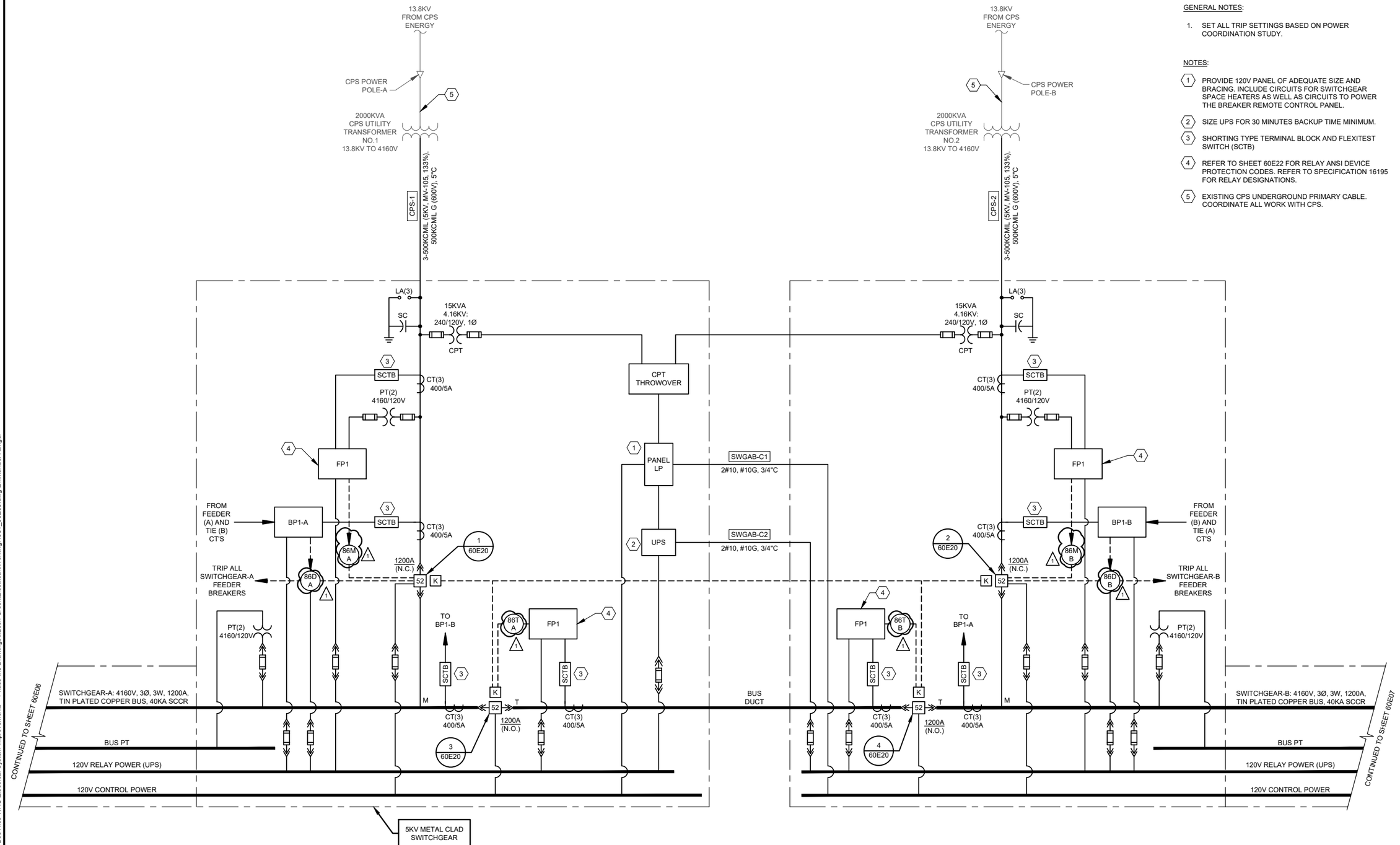
DUCTBANK SECTIONS - II

DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E. RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W. SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60E04

SHEET NO.
60E04
53 OF 77

100% SUBMITTAL - ISSUED FOR BID

5/1/2020 2:00 PM Z:\1951_SAWS Dos Rios WRC Electrical System Improvements – Phase II\5 Drawings\ILeon Creek\Electrical\Working\1951_60E04.dwg Emmanuel Rangel



MAIN ELECTRICAL SWITCHGEAR
ONE-LINE
DIAGRAM

GENERAL NOTES:

1. SET ALL TRIP SETTINGS BASED ON POWER COORDINATION STUDY.

NOTES:

1. PROVIDE 120V PANEL OF ADEQUATE SIZE AND BRACING. INCLUDE CIRCUITS FOR SWITCHGEAR SPACE HEATERS AS WELL AS CIRCUITS TO POWER THE BREAKER REMOTE CONTROL PANEL.
2. SIZE UPS FOR 30 MINUTES BACKUP TIME MINIMUM.
3. SHORTING TYPE TERMINAL BLOCK AND FLEXITEST SWITCH (SCTB)
4. REFER TO SHEET 60E22 FOR RELAY ANSI DEVICE PROTECTION CODES. REFER TO SPECIFICATION 16195 FOR RELAY DESIGNATIONS.
5. EXISTING CPS UNDERGROUND PRIMARY CABLE. COORDINATE ALL WORK WITH CPS.

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SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

1"

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

MAIN ELECTRICAL SWITCHGEAR ONE-LINE DIAGRAM

DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E. RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W. SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60E05

SHEET NO.
60E05
54 OF 77

100% SUBMITTAL - ISSUED FOR BID

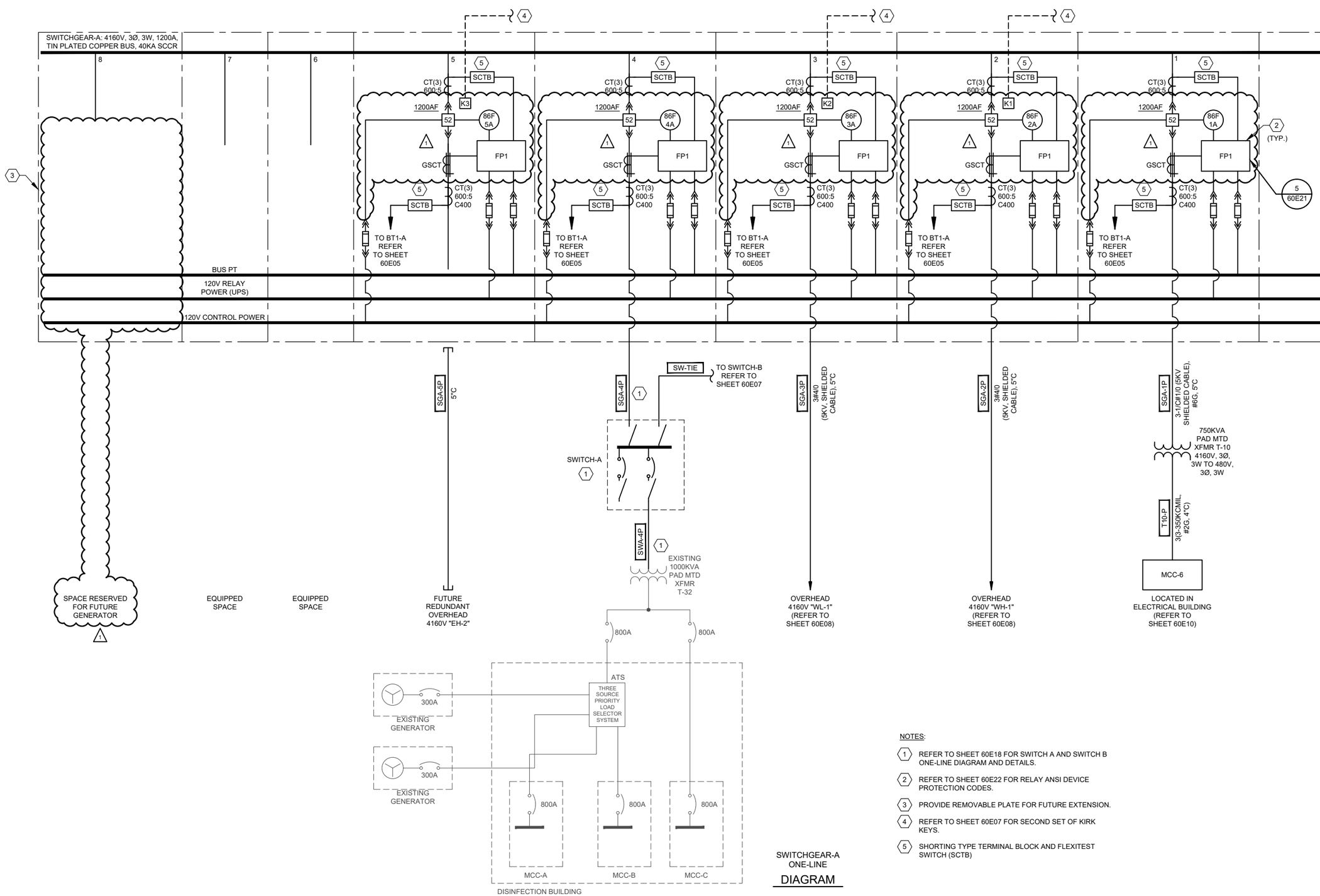
5/1/2020 2:00 PM Z:\1951_SAWS Dos Rios WRC Electrical System Improvements – Phase II\5 Drawings\ILeon Creek\Electrical\Working\1951_60E05.dwg Emmanuel Rangel

OVERHEAD POLE LINE LEGEND:

WH: WEST LINE, HIGH ON POLE.

WL: WEST LINE, LOW ON POLE.

EH: EAST LINE, HIGH ON POLE.



SWITCHGEAR-A ONE-LINE DIAGRAM

NOTES:

1. REFER TO SHEET 60E18 FOR SWITCH A AND SWITCH B ONE-LINE DIAGRAM AND DETAILS.
2. REFER TO SHEET 60E22 FOR RELAY ANSI DEVICE PROTECTION CODES.
3. PROVIDE REMOVABLE PLATE FOR FUTURE EXTENSION.
4. REFER TO SHEET 60E07 FOR SECOND SET OF KIRK KEYS.
5. SHORTING TYPE TERMINAL BLOCK AND FLEXITEST SWITCH (SCTB)

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SAN ANTONIO WATER SYSTEM

REV NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

SWITCHGEAR-A ONE-LINE DIAGRAM

DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E. RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W. SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60E06

SHEET NO.
60E06
55 OF 77

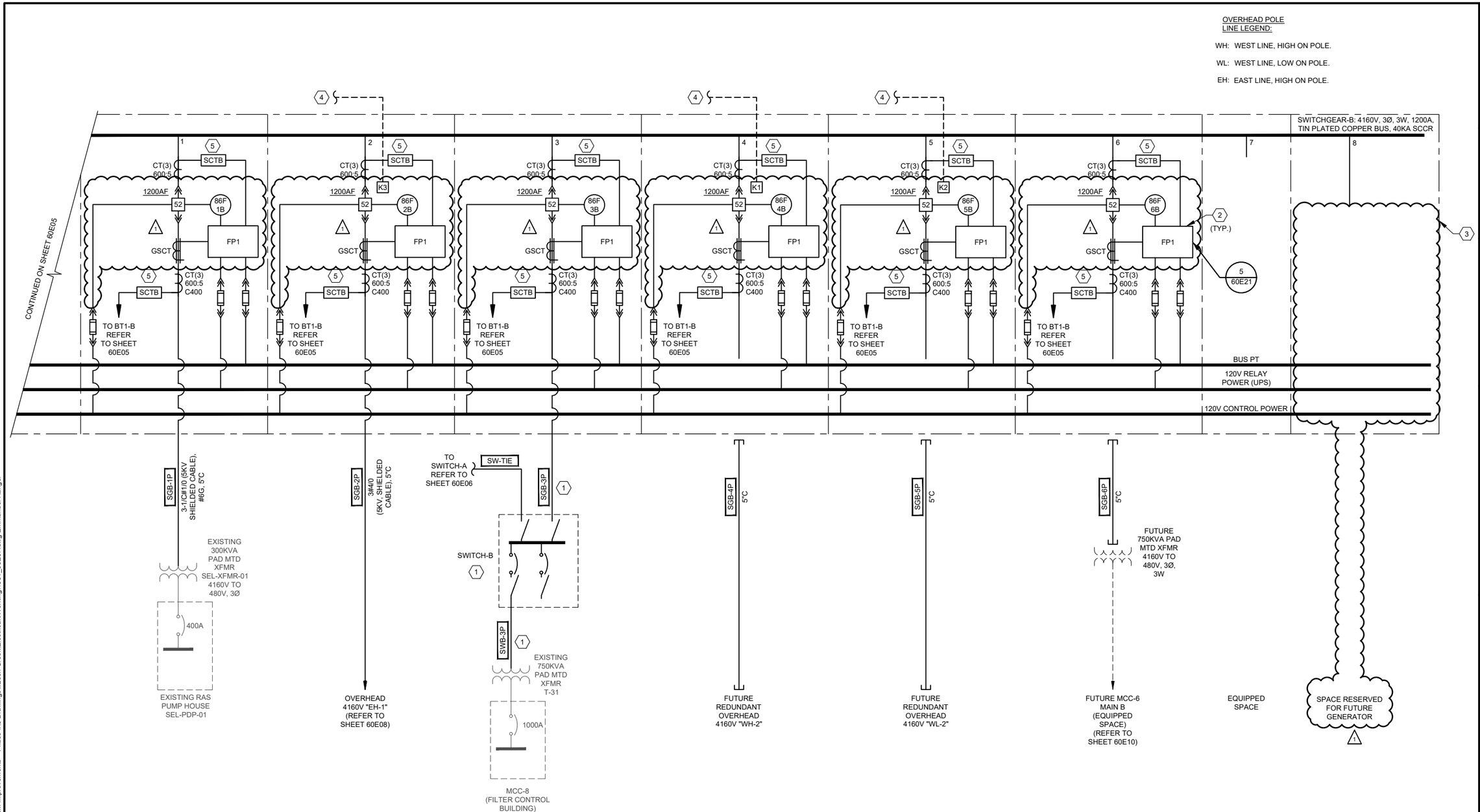
100% SUBMITTAL - ISSUED FOR BID

OVERHEAD POLE LINE LEGEND:

WH: WEST LINE, HIGH ON POLE.

WL: WEST LINE, LOW ON POLE.

EH: EAST LINE, HIGH ON POLE.



SWITCHGEAR-B ONE-LINE

DIAGRAM

NOTES:

1. REFER TO SHEET 60E18 FOR SWITCH A AND SWITCH B ONE-LINE DIAGRAM AND DETAILS.
2. REFER TO SHEET 60E22 FOR RELAY ANSI DEVICE PROTECTION CODES.
3. PROVIDE REMOVABLE PLATE FOR FUTURE EXTENSION.
4. REFER TO SHEET 60E07 FOR SECOND SET OF KIRK KEYS.
5. SHORTING TYPE TERMINAL BLOCK AND FLEXITEST SWITCH (SCTB)

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SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

SWITCHGEAR-B ONE-LINE DIAGRAM

DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E. RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W. SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60E07

SHEET NO.

60E07

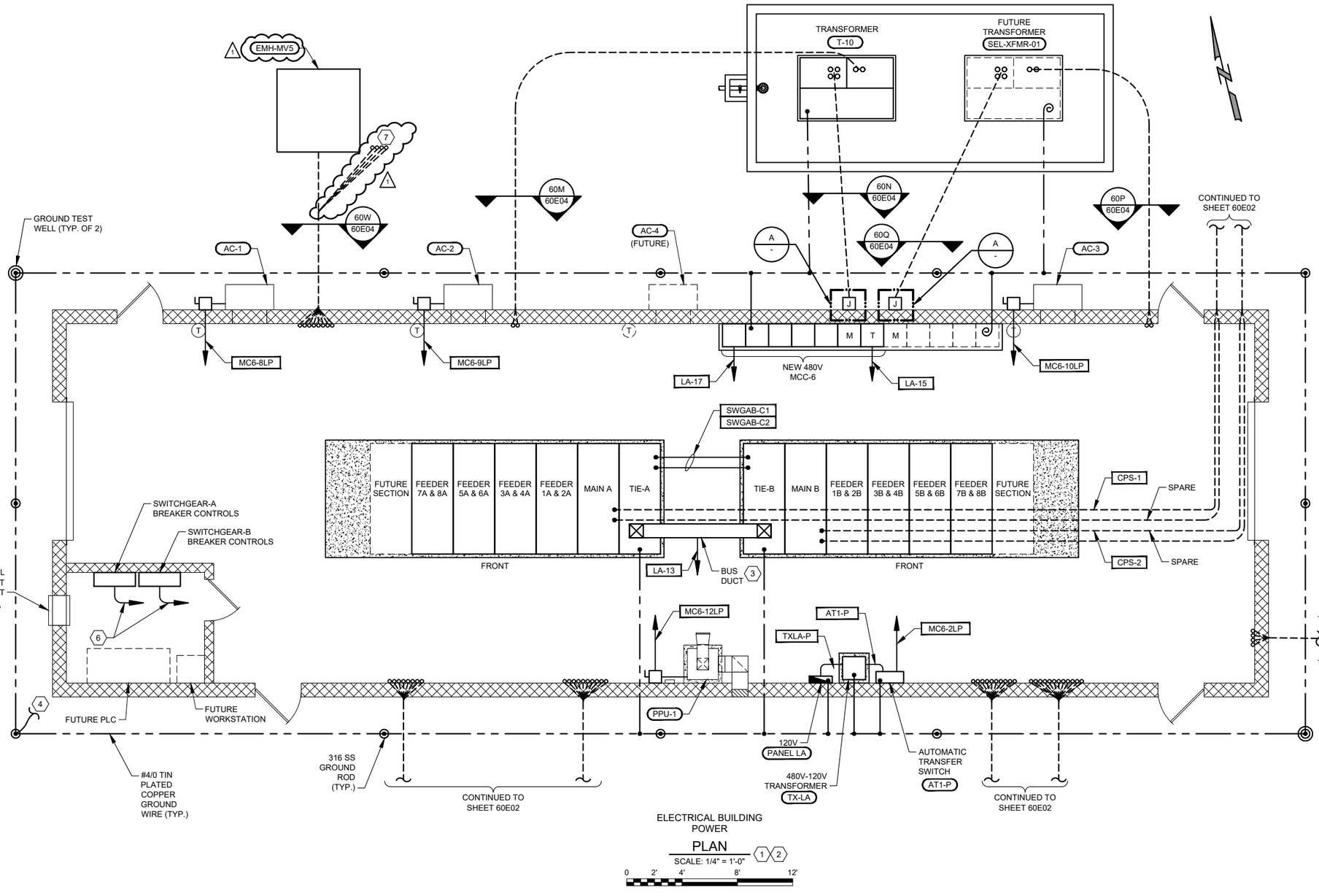
56 OF 77

100% SUBMITTAL - ISSUED FOR BID

5/1/2020 2:00 PM Z:\1951_SAWS Dos Rios WRC Electrical System Improvements – Phase II\5 Drawings\IlLeon Creek\Electrical\Working\1951_60E07.dwg Emmanuel Rangel

NOTES:

1. COORDINATE WITH STRUCTURAL MAT ON ALL CONDUIT PENETRATIONS. FIELD ADJUST AS REQUIRED.
2. TIE DUCTBANK REBAR INTO BUILDING REBAR.
3. INSTALL BUS DUCT BETWEEN THE 2 SWITCHGEAR LINEUPS AS REQUIRED PER THE SWITCHGEAR MANUFACTURER REQUIREMENTS. INSTALL AT A MINIMUM OF 10FT. AFF.
4. TO LIGHTNING PROTECTION SYSTEM.
5. PLUG A/C UNIT INTO RECEPTACLE.
6. REMOTE CONTROL PANELS SHALL BE POWERED FROM PANEL LP WITHIN THE SWITCHGEAR.
7. STUB THE 4(2"C) OUTSIDE OF THE MANHOLE FOR FUTURE USE.

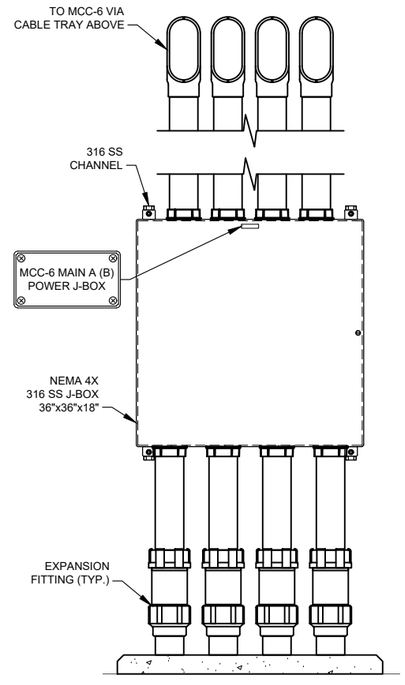


ELECTRICAL BUILDING POWER

PLAN (1) (2)

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

0 2' 4' 8' 12'



J-BOX

DETAIL A

NTS

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SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

ELECTRICAL BUILDING POWER AND GROUNDING PLAN

DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E. RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W. SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60E13

SHEET NO.

60E13

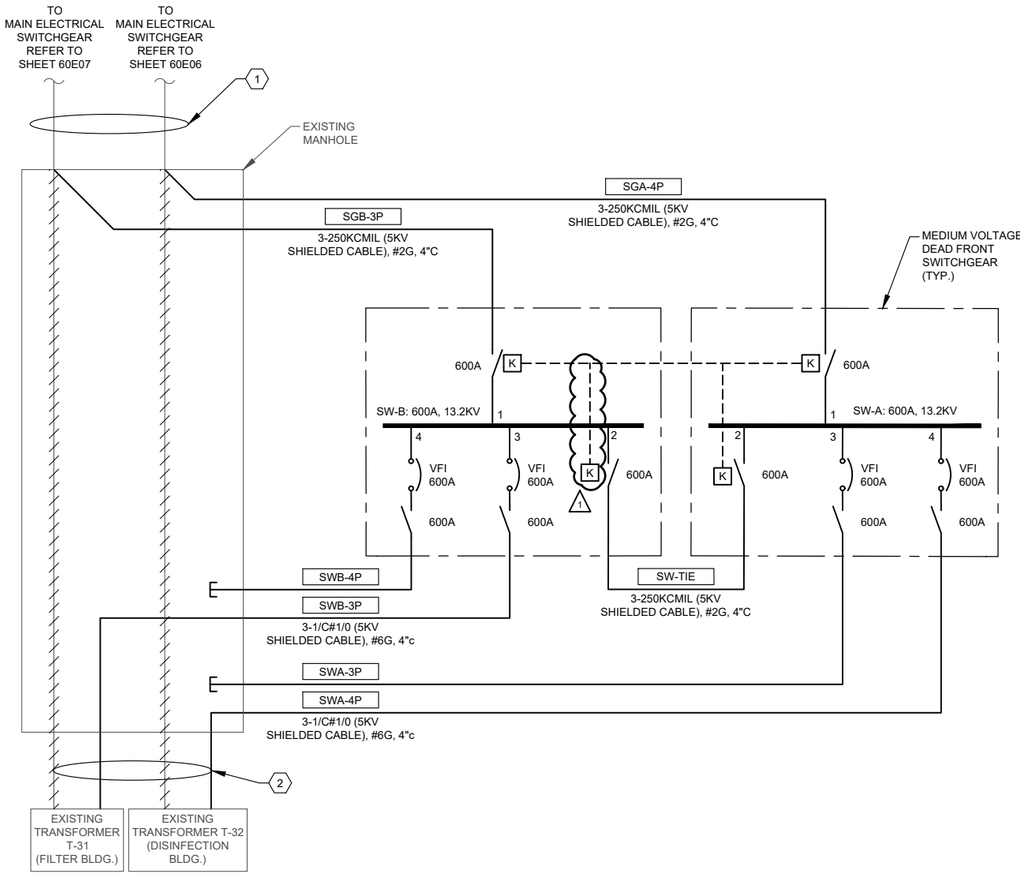
62 OF 77

100% SUBMITTAL - ISSUED FOR BID

5/1/2020 2:00 PM Z:\1951_SAWS Dos Rios WRC Electrical System Improvements – Phase II\5 Drawings\ILLeon Creek\Electrical\Working\1951_60E13.dwg Emmanuel Rangel

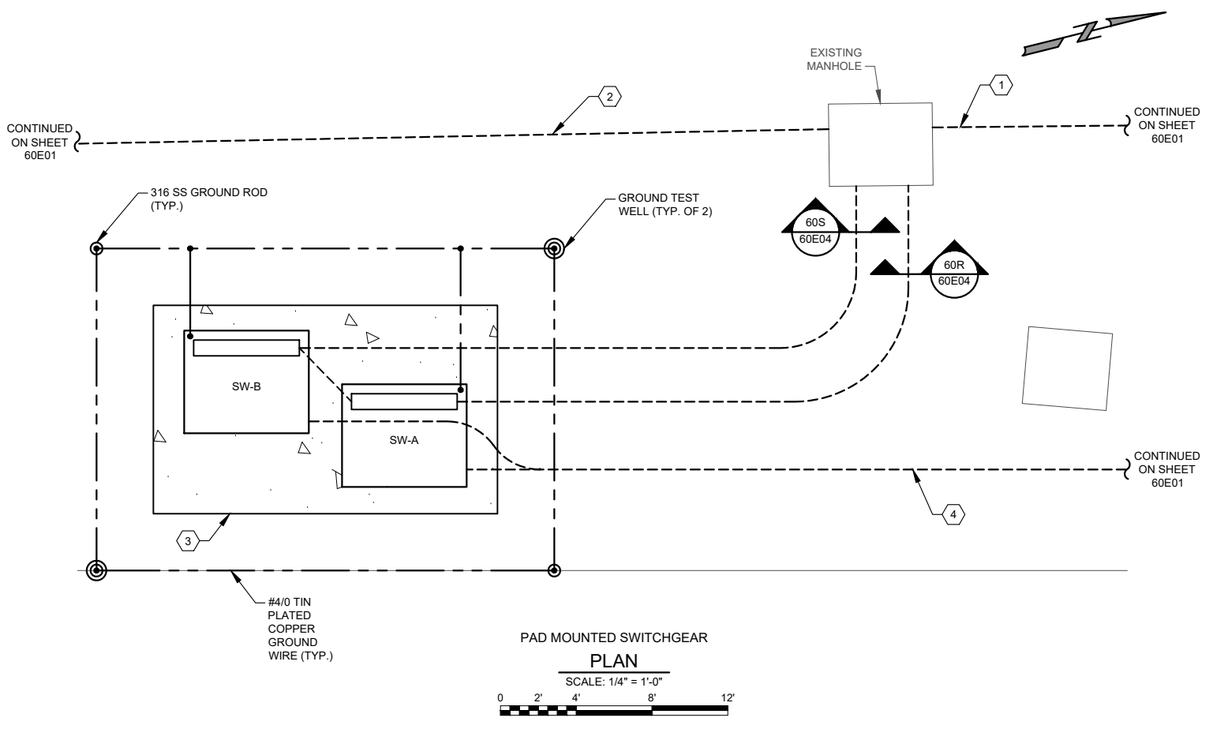
NOTES:

1. REUSE EXISTING CONDUITS FROM MANHOLE TO MANHOLE. PULL OUT EXISTING CONDUCTORS AND PULL IN NEW CONDUCTORS WHILE DISINFECTION BUILDING AND FILTER BUILDING ARE ON GENERATOR POWER.
2. PULL NEW CONDUCTOR IN EXISTING SPARE CONDUIT TO TRANSFORMERS T-31 AND T-32.
3. REFER TO CIVIL AND STRUCTURAL SHEETS FOR SWITCH PAD DETAILS.
4. AS AN ALLOWANCE IN THE BID FORM CHOOSEN ONLY AT THE OWNER AND ENGINEERS REQUEST IF THE EXISTING CONDUITS CANNOT BE REUSED, ROUTE NEW DUCTBANK AS SHOWN.



RISER

DIAGRAM



PAD MOUNTED SWITCHGEAR

PLAN

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

0 2' 4' 8' 12'

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WILLIAM D. SAKO 93283 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS — 04/13/20

SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

1"

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

SW-A AND SW-B
ONE-LINE DIAGRAM AND ENLARGED PLAN

DESIGNED BY:	D.GHOBRIAL
DRAWN BY:	E.RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W.SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60E18

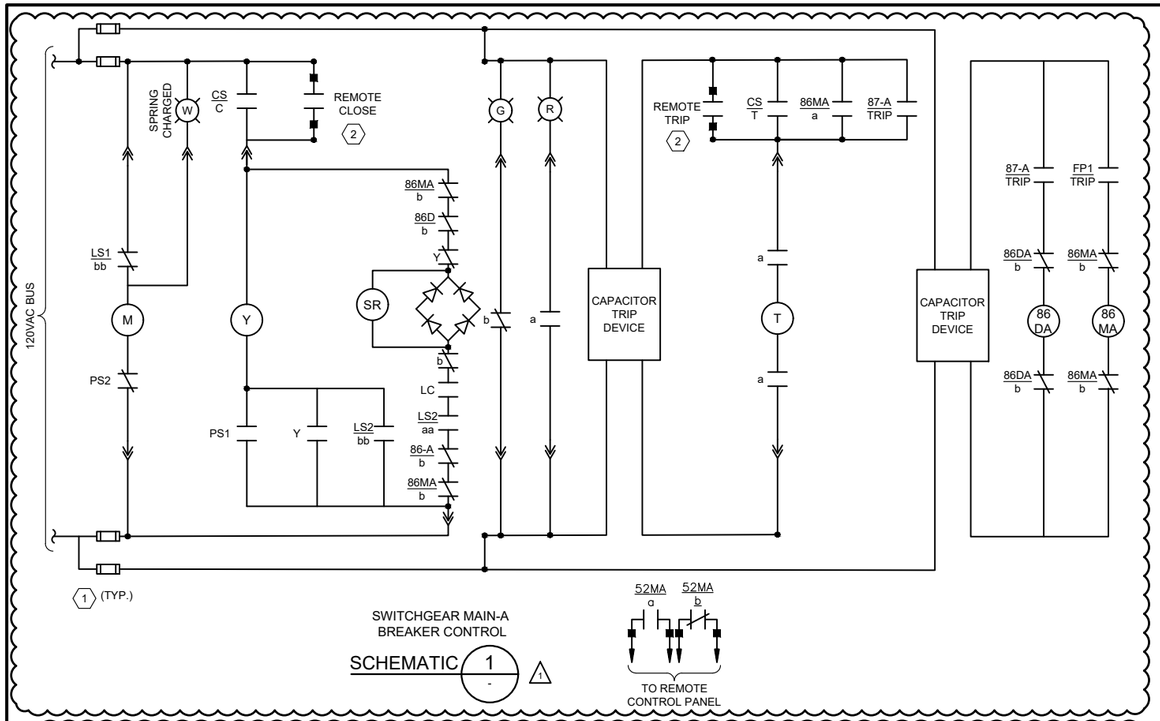
SHEET NO.

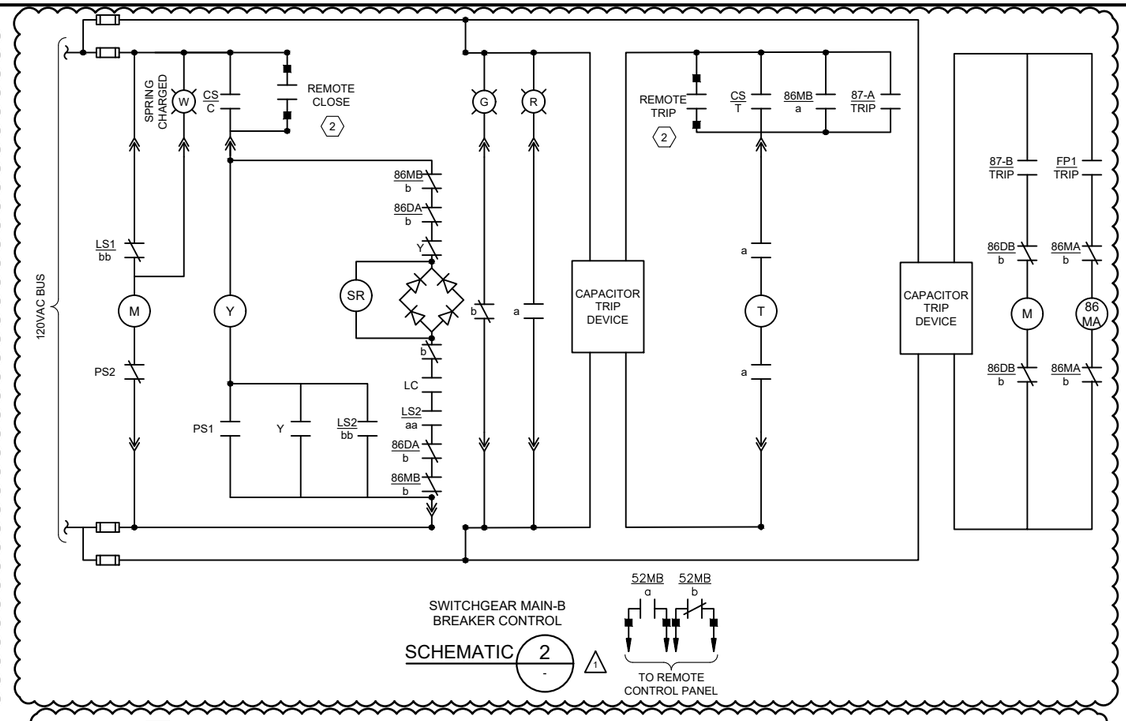
60E18

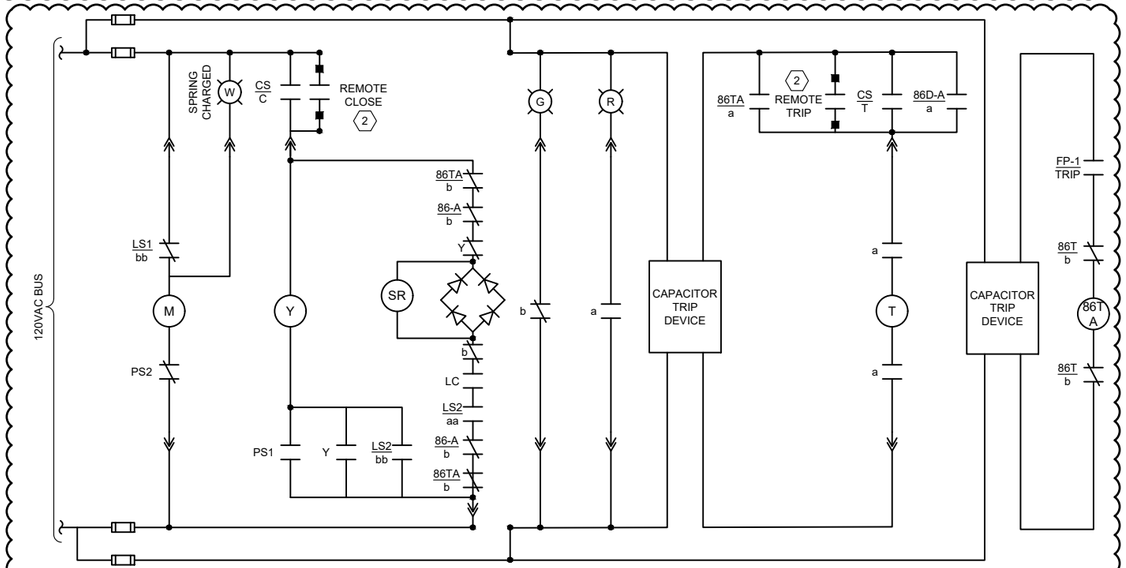
67 OF 77

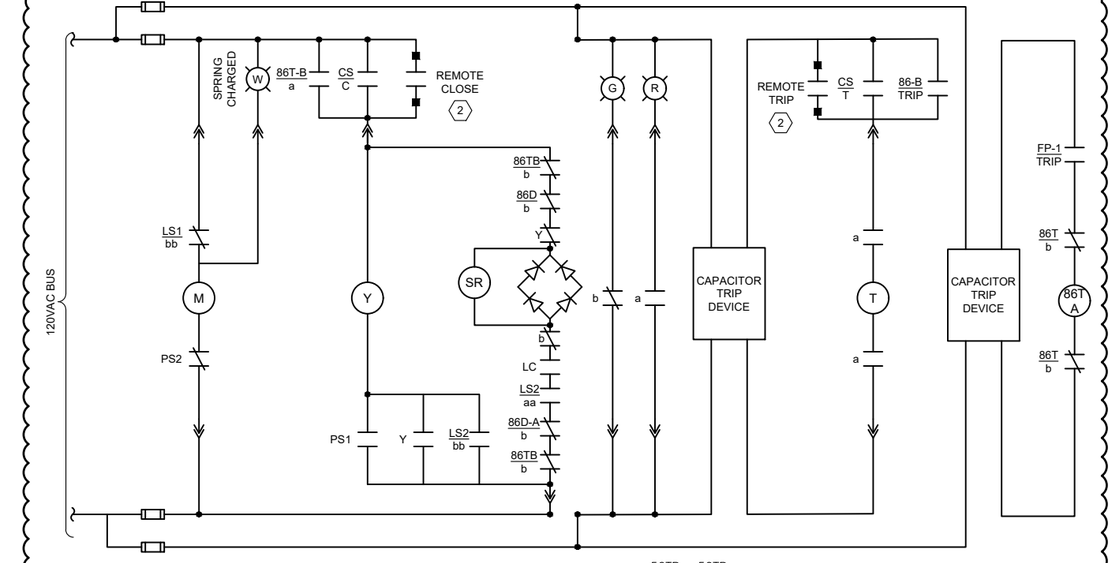
100% SUBMITTAL - ISSUED FOR BID

5/1/2020 2:01 PM Z:\1951_SAWS Dos Rios WRC Electrical System Improvements – Phase II\5 Drawings\IlLeon Creek\Electrical\Working\1951_60E18.dwg Emmanuel Rangel









LEGEND:

- DEVICE LOCATED IN THE FIELD.
- LOCATED AT PLC.
- DEVICE LOCATED AT THE LCP.
- TERMINAL IN MCC FOR FIELD WIRING.
- CONNECTION IN MCC.

LEGEND:

- CS C — BREAKER CONTROL SWITCH - CLOSE
- CS T — BREAKER CONTROL SWITCH - TRIP
- Y — ANTI PUMP RELAY
- C — CLOSE COIL
- M — SPRING CHARGING MOTOR
- T — TRIP COIL
- 86 — LOCKOUT RELAY-HAND RESET

LEGEND:

- LS1 bb — CLOSED UNTIL SPRINGS ARE FULLY CHARGED
- LS2 aa — OPEN UNTIL SPRINGS ARE FULLY CHARGED
- LS2 bb — CLOSED UNTIL SPRINGS ARE FULLY CHARGED
- LC — OPEN UNTIL MECHANISM IS RESET
- PS1 — OPEN IN ALL EXCEPT BETWEEN TEST AND CONNECTED POSITIONS
- PS2 — CLOSED IN ALL EXCEPT BETWEEN TEST AND CONNECTED POSITIONS

NOTES:

1. FUSES SIZED BY SWITCHGEAR MANUFACTURER.
2. REMOTE CLOSE AND TRIP CONTROL SWITCHES ARE LOCATED IN REMOTE CONTROL PANEL. REFER TO SHEET 60E23 AND 60E24.

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WILLIAM D. SAKO 93283 LICENSED PROFESSIONAL ENGINEER 04/13/20

SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

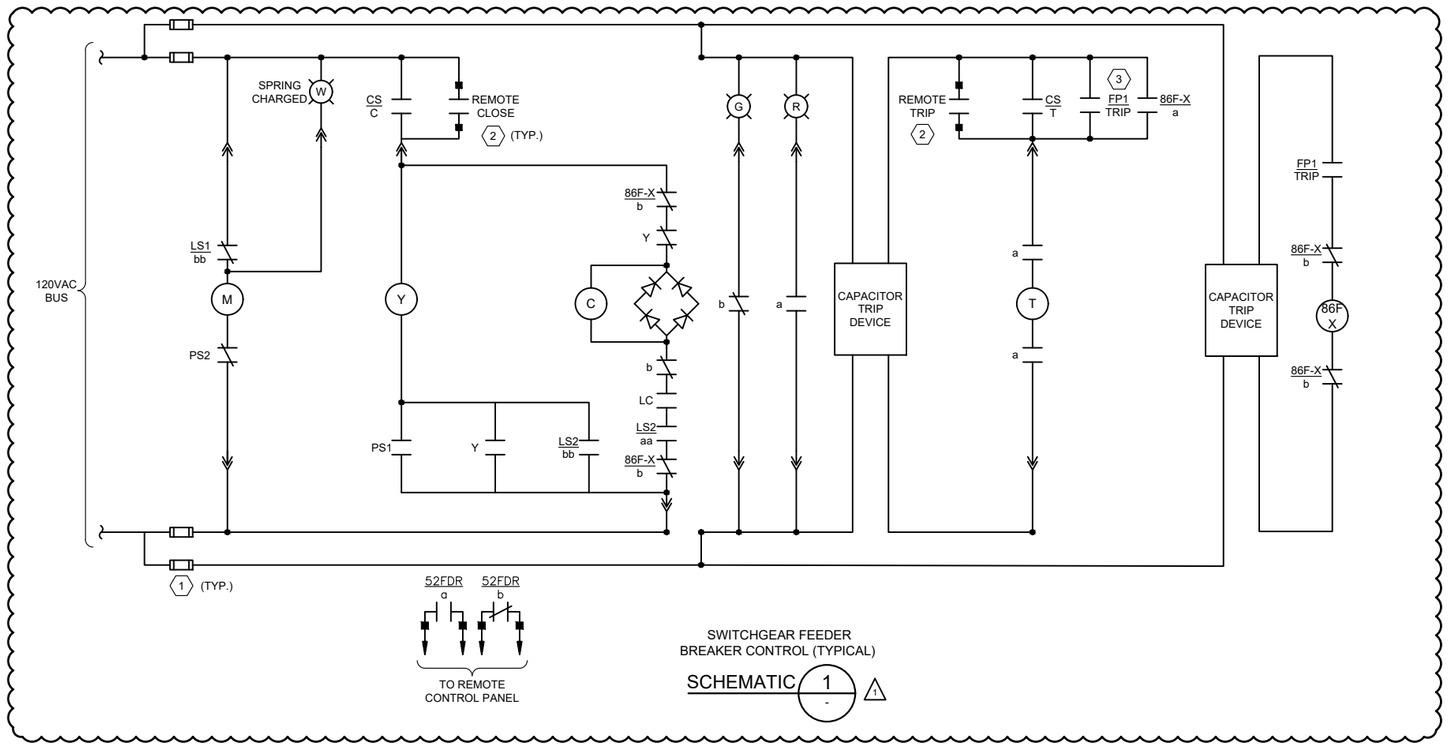
SCHEMATICS - I

DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E. RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W. SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60E20

SHEET NO.
60E20
69 OF 77

100% SUBMITTAL - ISSUED FOR BID

5/1/2020 2:01 PM Z:\1951_SAWS Dos Rios WRC Electrical System Improvements – Phase II\5 Drawings\IfLeon Creek\Electrical\Working\1951_60E20.dwg Emmanuel Rangel



SWITCHGEAR FEEDER BREAKER CONTROL (TYPICAL)

SCHEMATIC 1 -

LEGEND:

- DEVICE LOCATED IN THE FIELD.
- LOCATED AT PLC.
- DEVICE LOCATED AT THE LCP.
- TERMINAL IN MCC FOR FIELD WIRING.
- CONNECTION IN MCC.

LEGEND:

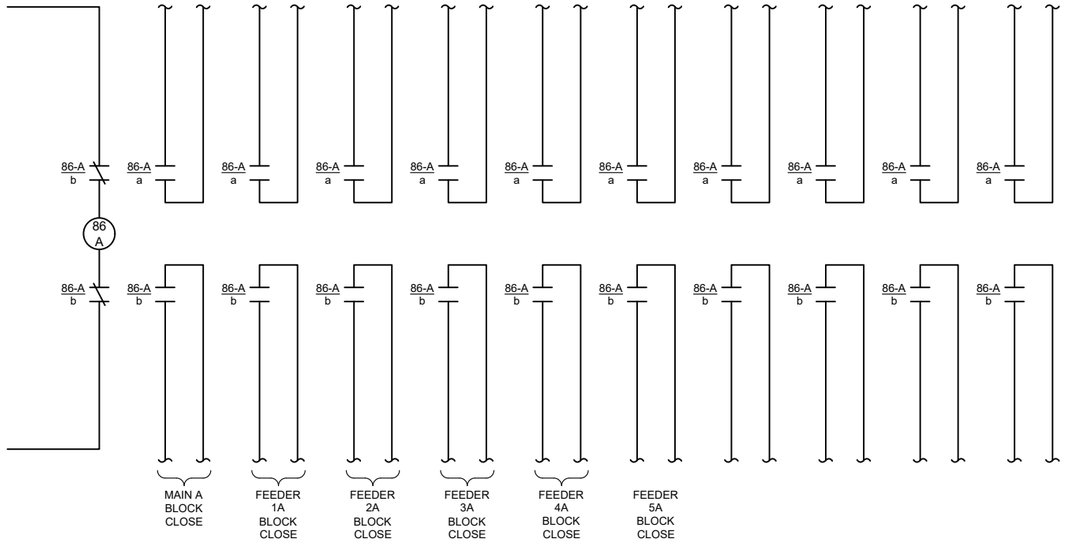
CS/C	BREAKER CONTROL SWITCH - CLOSE
CS/T	BREAKER CONTROL SWITCH - TRIP
Y	ANTI PUMP RELAY
C	CLOSE COIL
M	SPRING CHARGING MOTOR
T	TRIP COIL

LEGEND:

LS1/bb	CLOSED UNTIL SPRINGS ARE FULLY CHARGED
LS2/aa	OPEN UNTIL SPRINGS ARE FULLY CHARGED
LS2/bb	CLOSED UNTIL SPRINGS ARE FULLY CHARGED
LC	OPEN UNTIL MECHANISM IS RESET
PS1	OPEN IN ALL EXCEPT BETWEEN TEST AND CONNECTED POSITIONS
PS2	CLOSED IN ALL EXCEPT BETWEEN TEST AND CONNECTED POSITIONS

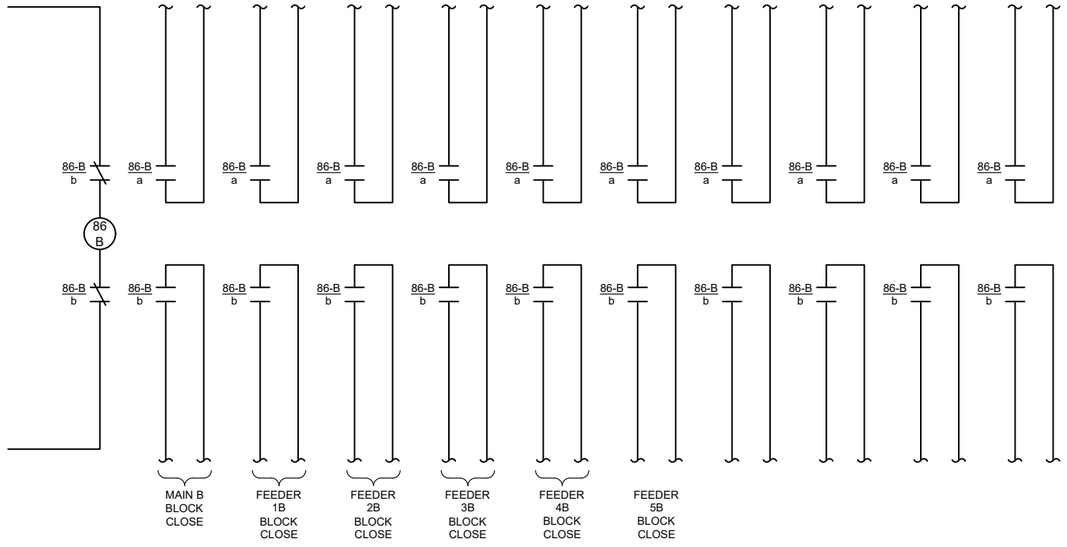
NOTES:

1. FUSES SIZED BY SWITCHGEAR MANUFACTURER.
2. REMOTE CLOSE & TRIP CONTROL SWITCHES ARE LOCATED IN REMOTE CONTROL PANEL.
3. REFER TO SHEET 60E25 FOR FEEDER PROTECTION RELAY WIRING.



LOCKOUT RELAY 86-A

SCHEMATIC 2 -



LOCKOUT RELAY 86-B

SCHEMATIC 3 -

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WILLIAM D. SAKO 93283 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS 04/13/20

SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	(05/18/20)	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

1"

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

SCHEMATICS - II

DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E. RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W. SAKO
DATE:	APRIL 2020
SAWS JOB NO,:	19-6505
FILE NAME:	1951_60E21

SHEET NO.

60E21

70 OF 77

100% SUBMITTAL - ISSUED FOR BID

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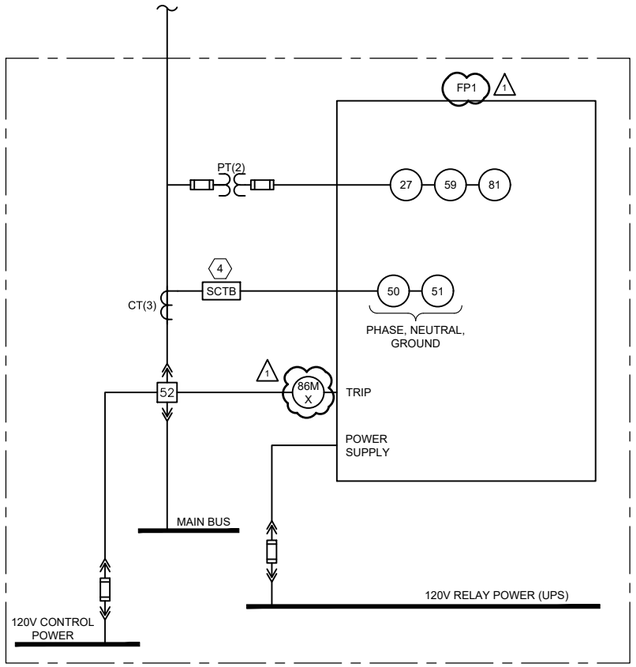
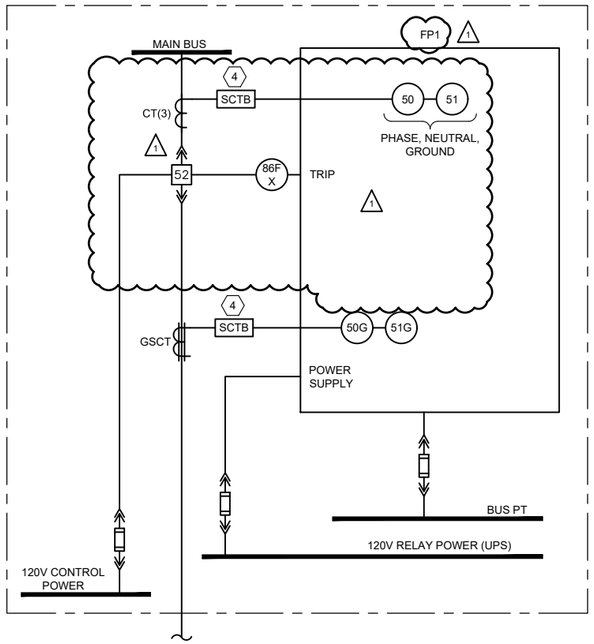
NOTES:

1. ALL CURRENT TRANSFORMERS CONNECTED WYE CONFIGURATION AND POLARITY AS SHOWN.
2. FEEDER CURRENT TRANSFORMERS FOR BUS DIFFERENTIAL PROTECTION INSTALLED WITH POLARITY DOWNSTREAM. OVERCURRENT RELAY CT'S NOT SHOWN.
3. FEEDER CT SHOULD BE INSTALLED ON LOAD SIDE OF FEEDER OVER CURRENT DEVICE FOR OPTIMUM ARC FLASH PROTECTION. ADDITIONAL FEEDERS NOT SHOWN.
4. SHORTING TYPE TERMINAL BLOCK AND FLEXITEST SWITCH (SCTB)



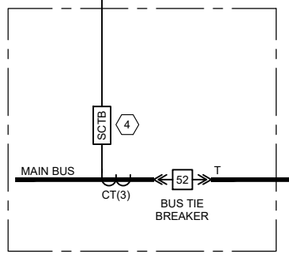
MAIN BREAKER
FEEDER PROTECTION RELAY

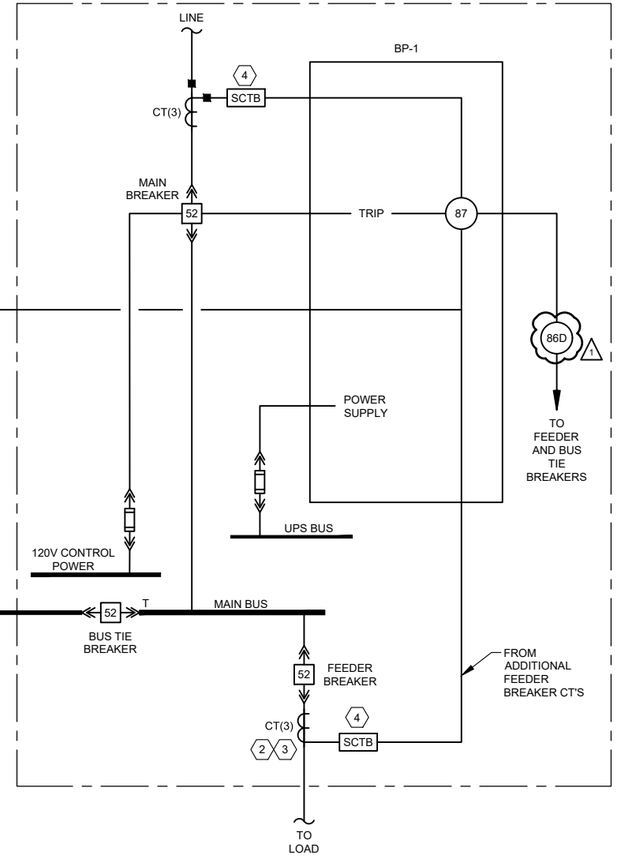
SCHEMATIC 1 - 3



FEEDER BREAKER
FEEDER PROTECTION RELAY

SCHEMATIC 2 - 3





BUS DIFFERENTIAL
PROTECTION RELAY

SCHEMATIC 3 - 3

ANSI DEVICE NO.	FUNCTION
27/59	UNDERVOLTAGE/OVERVOLTAGE
50	INSTANTANEOUS OVER CURRENT
50G/51G	GROUND OVERCURRENT
51	TIME OVER CURRENT
81	OVER/UNDER FREQUENCY
1 86M	MAIN BREAKER LOCKOUT RELAY HAND

ANSI DEVICE NO.	FUNCTION
50N	NEUTRAL INSTANTANEOUS OVERCURRENT
50P	PHASE INSTANTANEOUS OVERCURREN
50G	GROUND INSTANTANEOUS OVERCURRENT
51N	NEUTRAL TIME OVERCURRENT
51P	PHASE TIME OVERCURRENT
51G	GROUND TIME OVERCURRENT
1 86F	FEEDER LOCKOUT RELAY HAND RESET

ANSI DEVICE NO.	FUNCTION
87	BUS DIFFERENTIAL 1
86D	BUS DIFFERENTIAL LOCK OUT RELAY HAND RESET 1

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WILLIAM D. SAKO 93283 LICENSED PROFESSIONAL ENGINEER 04/13/20

SAN ANTONIO WATER SYSTEM

REV. NO.	DATE	DRWN	REMARKS
1	05/18/20	ER	ADDENDUM NO.1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC
ELECTRICAL SYSTEM IMPROVEMENTS PHASE I
ELECTRICAL

SCHEMATICS - III

DESIGNED BY:	D. GHOBRIAL
DRAWN BY:	E. RANGEL
SHEET CHK'D BY:	V.K. GUPTA
APPROVED BY:	W. SAKO
DATE:	APRIL 2020
SAWS JOB NO.:	19-6505
FILE NAME:	1951_60E22

SHEET NO.
60E22
71 OF 77

100% SUBMITTAL - ISSUED FOR BID

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Line No.	Item No.	Quote Category	SOV Item	Item Description	Unit	Quantity	Unit Bid Price	Total Price
1	1	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	Trench Excavation and Safety protection: Total amount to furnish all labor, materials, tools, equipment, and incidentals required for the development, design, and implementation of a trench safety system as required by the Occupational Safety and Health Administration (OSHA) and the assumption of responsibility for said system, in accordance with the Contract Documents, complete in place.	LS	1.00		$
2	2	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	New Utility Service: Total amount to furnish all labor, materials, tools, equipment and incidentals required for construction/installation of new feed from existing utility-owned padmount transformers, including, demolition, grading, sidewalks, equipment pads, utility relocations, CMU electrical building, foundations, transformers, low voltage MCCs, cables, conduit, ductbank, equipment, and demolition as required per the Contract Documents, complete in place.	LS	1.00		$
3	3	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	Overhead Distribution Feed: Total amount to furnish all labor, materials, tools, equipment and incidentals required for construction/installation of new feed from new switchgear to three (3) locations on the existing 4,160V overhead electrical distribution facilities, including, demolition, grading, sidewalks, equipment pads, utility relocations, and ductbank as required per the Contract Documents, complete in place.	LS	1.00		$
4	4	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	Disinfection Building, Filter Control Building Feed: Total amount to furnish all labor, materials, tools, equipment, and incidentals required for the construction and installation of two (2) new 4,160V feed lines, including ductbanks, foundations, manholes, 5kV cables and conduits, pad mounted switches, and demolition as required by the Contract Documents, complete in place.	LS	1.00		$
5	5	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction 1	Allowance Bid Item for ductbank, conduit, and one additional manhole as described on Contract Drawing 60E01. Item includes hand excavation of portion of the trench, trenching, excavation, backfill, conduit, labor, tools and all material necessary for a complete and operable system. Subsurface Utility Investigation (hydro vacuum extraction) as described below shall be completed for the entire route before digging. This item will only be used if the existing ductbank cannot be reused, at the Owners request, at the price given during the bid. A credit will be given to the Owner in the amount listed if the work is not required.	LS	1.00		$
6	6	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	Standby-power Generator: As required for the Disinfection Building and Filter Control Building for temporary base loading per the Contract Documents including Specification 01015.	LS	1.00		$
7	7	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	Subsurface Utility Investigation: Allowance for $150,000.00 for all labor, equipment, tools, materials and incidentals required to complete the task of utility location and depth verification to identify all underground tie-in locations/utility conflicts with proposed improvements. CONTRACTOR shall be required to hydro vacuum extract the excavation in a manner that does not harm the existing utilities.	1 ALW	1.00	$150,000.00	$ 150,000.00

Leon Creek WRC Electrical System Improvements - Phase I

Solicitation No. CO-00335

8	8	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	Subsurface Utility Relocation: Allowance for $25,000.00 to relocate unforeseen subsurface utilities (not included in the project scope). This shall include all labor, equipment, tools, materials and incidentals of task to relocate all underground utility tie-ins/conflicts with proposed improvements and are to be negotiated under contract terms and conditions, complete in place.	ALW	1.00	$25,000.00	$ 25,000.00
9	9	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	Permitting Fees: Allowance for $10,000.00 for permitting fees associated with the project. This shall include furnishing all labor, materials, tools, equipment and incidentals required to obtain all necessary permits. Contractor to pay and be reimbursed actual amount by SAWS.	ALW	1.00	$10,000.00	$ 10,000.00
10	10	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	Pre-startup/Construction Items: Allowance for $25,000.00 for unforeseen construction related items (not included in project scope) associated with pre-startup and startup services necessary to provide for an operational and functional system. It shall include furnishing all labor, materials, tools, equipment and incidentals required to construct these project related items at SAWS request, and to be negotiated under the contract terms and conditions, complete in place.	ALW	1.00	$25,000.00	$ 25,000.00
11	11	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	CPS Energy Allowance: Allowance for $50,000.00 for CPS Energy fees associated with this project. This shall include furnishing all labor, materials, tools, equipment and incidentals required to obtain all necessary permits. Contractor to pay and be reimbursed actual amount by SAWS.	ALW	1.00	$50,000.00	$ 50,000.00
12	12	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction 1	Intermediate Mobilization and Demobilization: This item includes all labor, materials, tool, equipment, and incidentals required to demobilize and remobilize due to Owner-directed intermediate project demobilization in accordance with the Special Provisions to the Standard Specification.	EA	1.00		$
SUBTOTAL (ITEMS 1 - 12)								**$**
13	13	General Sanitary Sewer Bid Items	01.4600.00.0002 - Construction	Mobilization and Demobilization: This item shall include project move-in and move-out of personnel and equipment, for all work including furnishing all labor, materials, tools, equipment and incidentals required to mobilize, demobilize, clean site upon project completion, and bond and insure the Work for the Project in accordance with the Contract Documents, complete in place. Maximum of 3% of the total of Line Items 1 through 11.	LS	1.00		$

Mobilization shall be limited to the maximum percentage shown. If the percentage exceeds the allowable maximum stated for mobilization, SAWS reserves the right to cap the amount at the percentages shown and adjust the extensions of the bid items accordingly.

TOTAL BID PRICE (TO INCLUDE ITEMS 1 - 12) AND 13	**$**

BID PROPOSAL

PROPOSAL OF _____, a corporation

a partnership consisting of _____

an individual doing business as _____

THE SAN ANTONIO WATER SYSTEM:
Pursuant to Instructions and Invitation to Bidders, the undersigned proposes to furnish all labor and materials as specified and perform the work required for the project as specified, in accordance with the Plans and Specifications for the following prices in the bid proposal to wit:

PLEASE SEE ATTACHED LIST OF BID ITEMS.

_____
BIDDER'S SIGNATURE & TITLE

_____
FIRM'S NAME (TYPE OR PRINT)

_____
FIRM'S ADDRESS

_____
FIRM'S PHONE NO. /FAX NO.

_____
FIRM'S EMAIL ADDRESS

The Contractor herein acknowledges receipt of the following:
Addendum Nos._____

OWNER RESERVES THE RIGHT TO ACCEPT THE OVERALL MOST RESPONSIBLE BID.

The bidder offers to construct the Project in accordance with the Contract Documents for the contract price, and to complete the Project within **487** calendar days after the start date, as set forth in the Authorization to Proceed. **The bidder understands and accepts the provisions of the contract Documents relating to liquidated damages of the project if not completed on time.**

Complete the additional requirements of the Bid Proposal which are included on the following pages.

Statement on President's Executive Orders

Has your firm previously performed work subject to the President's Executive Orders Numbers 11246 and 11375 or any preceding similar executive orders (Numbers 10925 and 11114)?

Yes ☐ No ☐

SECTION 01015

SEQUENCE OF CONSTRUCTION

PART 1 GENERAL

1.01 SCOPE OF WORK

A. **T**he Leon Creek Water Recycle Center (WRC) is operating to meet specific, critical wastewater treatment and requirements. The operations necessary to meet these requirements are of higher priority than construction activities. Schedules of connections, renovations and modifications shall be submitted to the Owner for approval prior to commencing work, and all such items shall be coordinated throughout the entire construction period. These schedules shall permit full and continuous operation of the facilities.

B. SAWS total collection and treatment system operations shall be considered when scheduling construction steps. Construction activities will affect the operations of other plants, and all will be taken into account when approving schedules.

C. Contractor shall prepare and submit final reviewed and accepted project schedule, as shown in Section 01321, ten days prior to the initial estimate for partial payment for all new work as well as outlining the schedule and time requirements for each item involving treatment system. The project schedule, schedule of values, schedule of estimated progress payments, and safety plan must be reviewed and accepted by the Owner before the initial estimate for partial payment is submitted.

D. Contractor shall notify the Owner in writing at least 21 days in advance and again three days prior to beginning work on a particular area, and coordinate with the Owner the specific items to be isolated and duration for each. Obtain written approval from the Owner prior to each shutdown. Wet weather conditions, unforeseen incidences requiring facility maintenance or repair effort, scheduling of improvements and shut-downs at other sites or equipment outages may require the re-scheduling of an approved shutdown. Any cost associated with rescheduling will be considered as incidental to the Contractor's cost of the project and will not qualify for any separate pay item.

E. Contractor shall not operate any valves, switches, or other equipment at the Leon Creek WRC site or off-site. No shutdowns or process connection work will be allowed to commence until the inspector has validated that this subsection has been complied with.

F. Prior to beginning work on shutdowns and process connections, Contractor shall have on-site all materials, equipment, and personnel necessary to complete the work in the time scheduled. Contractor shall also perform all preparatory tasks to the most complete state possible. For example, all exposed bolts and nuts on valves, flanges, or fittings which are to be disassembled shall be removed and replaced one at a time prior to shutdown and connections; thus allowing for as timely completion as possible.

G. Failure of the Contractor to properly plan and perform the work in the prescribed manner may result in discharge of inadequately treated water. In this case. Contractor may be liable for payment of fines, fees or other charges imposed upon the Owner by state or federal regulatory agencies, and all other costs associated with the inadequately treated discharge. The Owner may recover monetary sums by retention.

H. Unscheduled interruptions to Owner’s operations, damage, and spills shall be remedied immediately by the Contractor at no additional cost to the Owner.

I. Access to all existing plant facilities shall be maintained at all times, excluding facilities isolated to complete the Work.

J. Plugged pipelines, in which water has been standing, shall have to be cleaned of debris prior to conducting Work. All waterlines, storage, conveyance and treatment facilities shall be disinfected as required by regulatory requirements prior to returning to service.

K. Contractor shall be required to maintain the access roads utilized during construction in a clean passible condition. Weekly access road cleaning and scraping will be required as directed by the Owner.

L. Contractor shall be required to perform yard maintenance services throughout the duration of the construction project, per Section 01010 – Summary of Work and Section 01500 – Construction Facilities and Temporary Controls.

M. Access roads shall not be utilized for storage of materials.

1.02 RELATED WORK

A. Bid Proposal

B. Section 01150 – Measurement and Payment

C. Section 01300 – Submittals

D. Section 01640 – Manufacturer's Field Services

E. Section 01650 – Facility Startup/Commissioning Requirements

1.03 SUBMITTALS

A. Project submittal specifications are detailed in Section 01300 – Submittals.

B. The Drawings indicate the general location and arrangement of existing conditions. Existing underground utilities shown on these drawings may not be complete, and the locations are approximate. Prior to developing any construction drawings and/or Work Plans, it is mandatory that the Bidder visit the site to determine the complexity of the work and the existing conditions. Conditions which are obvious/visible, noted in the plans or which should be reasonably anticipated by the Bidder on inspection will not be considered as a "differing site conditions" clause of this Contract. Contractor shall at his own cost test dig or pothole to locate conflicting utilities to locate exact location of utilities prior to excavating.

C. The Contractor shall submit a plan to be approved by the Engineer and Owner for the sequence of construction. The plan shall include the specific items indicated in this specification and shown on the contract drawings. The Contractor may request a change in the sequencing of items in this specification which shall be subject to approval by the Engineer and Owner prior to commencing work.

D. The Contractor shall submit a plan to be approved by the Engineer and Owner for the operation of the temporary generator, including but not limited to:

1. Location of generators
2. Means of fuel / spill containment
3. Means of physical and electrical protection of the associated temporary conductors
4. Refueling plan
5. Method of detecting and mitigating fuel spills / leaks

E. The Contractor shall submit a schedule in accordance with the provisions of Section 01321 "Progress Schedule."

F. The Contractor shall submit a plan approved by the Owner for the placement of facilities into operation in accordance with the provisions of Section 01650 "Facility Start up and Commissioning Requirements." The plan shall be submitted to the Owner and approved by the Owner at least 30 days prior to initial start-up of facilities. The plan shall include the specific items indicated in this specification. The plan shall include the schedule for training of Owner's personnel as mentioned in Section 01650.

G. Shut downs of operations or equipment must be planned and scheduled 21 days in advance.

1. Submit a written plan of action for approval by Owner for shutting down essential services. These include but are not limited to:
    a. Electrical power.
    b. Control power.
    c. Process piping.
    d. Treatment equipment.
    e. Mixing chamber and influent channel coarse bubble diffusers
    f. Communications equipment.
    g. Temporary flow management.
    h. Other designated functions.
2. Describe the following in the plan of action:
    a. Construction necessary.
    b. Utilities, piping, or services affected.
    c. Time of day and length of time the service or utility will be disturbed.
    d. Procedures to be used to carry out the Work.
    e. Plan of Action to handle emergencies.
    f. Contingency plan that will be used if the original schedule cannot be met.
3. Submit plan three weeks prior to beginning the Work.

1.04 CONTRACTOR'S RESPONSIBILITIES DURING SHUTDOWNS AND DIVERSIONS

A. Contractor's responsibility during any and all shutdowns or diversions is outlined below. A diversion is defined as any operation which makes necessary diversion of flow around any structure or process which is normally in service. A shutdown is defined as taking any process or piece of equipment out of service whether or not flows are diverted around any process.

1. Supply of Equipment
    a. Contractor shall be responsible for providing all equipment, labor, and materials for accomplishing the diversion or shutdown on schedule and at no additional cost to the Owner.
2. Dewatering
3. Contractor shall be responsible for dewatering of pipelines and excavations necessary for completion of construction, including dewatering for all diversions and shutdowns. Dewatering shall be defined as removal of all liquid, sludge, grit, and any other solids or liquids as necessary to accomplish construction. Contractor is cautioned that the existing groundwater may contain significant quantities of sand and silt that he is required to remove and dispose of off-site. In some instances, Contractor will be limited to the rate that he may transfer to disposal location or other process facilities. Any cost associated with removal and disposal of dewatered material will be considered incidental to the contractor’s cost of the project. Contractor cannot rely on plant drain system for dewatering within the scheduled time for dewatering, so Contractor must plan to mechanically dewater as necessary to maintain the planned diversion or shutdown. Contractor will be responsible for protecting the dewatered structures, excavations or pipelines from buoyant forces due to high groundwater. Contractor shall be responsible for dewatering soils around structures being dewatered with point wells are similar methods where high groundwater exists at no additional Cost to the Owner.

B. Timely Completion

1. Contractor shall be responsible for the manning and scheduling of all shutdowns and diversions to accomplish them in the time set forth. The responsibility includes coordination with all applicable utility companies, facility staff, and other Contractors working onsite. If any overtime or shift work is required to accomplish the shutdown or diversion within the required time limits, the cost of such overtime of shift work shall be at the Contractor's sole expense.

C. Unscheduled Interruptions

1. If Contractor's operations cause an unscheduled interruption of Owner's operations, immediately re-establish satisfactory operation for Owner at no additional cost to the Owner.

2. Unscheduled shutdowns or interruptions of continued safe and satisfactory operation of Owner's facilities that result in fines or penalties by authorities having jurisdiction shall be paid solely be Contractor if, in Engineer's opinion, Contractor did not comply with requirements of the Contract Documents, or was negligent in the Work, or did not exercise proper precautions in performing the Work and complying with applicable permits, Laws, and Regulations.

3. Shutdowns of Electrical Systems

a. Comply with laws and Regulations, including the National Electrical Code.

b. Contractor shall lock out and tag circuit breakers and switches operated by Owner and shall verify that affected cables and wires are de-energized to ground potential before shutdown Work is started.

c. Upon completion of shutdown Work, remove the locks and tags and notify Engineer that facilities are available for use.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

A. Contractor shall coordinate and schedule each task necessary to complete all work within the time allowed for the Project. Coordination and time limitations for individual facilities are described in following paragraphs. These phases are general in nature and not intended to prescribe the Contractor's Work Plan. Work items from various phases may be done simultaneously or separately unless otherwise specified. Contractor can propose changes to the sequence of construction for approval by Engineer an Owner.

B. Each phase may require the Contractor to perform work such as installing temporary or permanent wiring, power service transformers, electrical service panels, generators, piping, plugs/valves and/or diversion facilities in structures that are in service. The specifics related to flow diversion and temporary plugging means and methods are the responsibility of the Contractor; however, the Contractor's plans and schedules shall be submitted to the Owner for review and approval.

C. Perform work to accommodate Owner's occupancy during the construction period and to ensure completion of the work in the Contract Time. Contractor shall review this sequence and develop a detailed sequence for discussion with Owner and Engineer prior to beginning construction. Contractor shall submit a construction sequence for Owner and Engineer's review and acceptance. Where applicable some construction activities may be conducted concurrently. Some construction activities require temporary power and control. Contractor shall provide temporary back-up power as specified herein. Temporary back-up power and controls shall be at no additional cost to the Owner. Some construction activities require temporary bulkheads and the use of existing valves. Contractor shall anticipate that not everything existing is in working order and leaks. Contractor is responsible for providing temporary bulkheads, plugs, pumps, valves and other equipment, as required, at no additional cost to the Owner. Contractor shall plan for the use of temporary plugs and pumping for installation of and leakage from the temporary

bulkheads. Completion dates of the various stages shall be in accordance with the accepted construction schedule submitted by the Contractor.

D. The Work specified herein and any other Contract Work required by the Owner which may interrupt the normal operations of the facility shall be accomplished at such times that will be convenient to the Owner. The Contractor shall plan to Work overtime if needed to complete construction of the various Project improvements and shall make no claims for extra compensation for overtime Work required to conform to these requirements. The Contractor shall coordinate with the Owner in accordance with Paragraph 1.01.C of this Section prior to performing Work associated with temporary equipment shut-downs.

3.02 PUMPING AND DEWATERING OPERATIONS

A. Work to be performed may require draining, pumping and dewatering, and certain cleaning operations necessary to complete the work as specified and as indicated on the Drawings. It is the intent of these specifications that such draining, pumping and dewatering, and cleaning operations shall be the obligation of the Contractor.

B. Contractor shall provide all necessary pumping as required to remove all surface water, groundwater, leakage, and water from other sources from excavations. Excess water from dewatering operations shall be disposed of in an area and a manner acceptable to the Owner.

C. Contractor shall provide all necessary pumping as required.

D. Contractor shall be responsible for protecting all pipelines, excavations, and structures from buoyancy at no additional cost to the Owner. Contractor shall provide a dewatering plan and schedule for dewatering soils prior to beginning diversions or shutdowns.

3.03 WATER FOR CONSTRUCTION AND TESTING

A. If potable water is required for the Contractor's operations, arrangements may be made with the Owner in accordance with SAWS Standard Specifications for Construction, Item No. 906, Water Use Accountability.

3.04 LEON CREEK WRC SEQUENCE OF CONSTRUCTION

A. Consider the sequences, duration limitations, and governing factors outlined in this Section to prepare the sequence and schedule for the Work.

B. Perform the Work as required to complete the entire Project within the contract time. The work shall proceed as indicated in the designated construction sequence unless the Contractor submits an alternate sequence and associated schedule for approval. Regardless, the work plan shall conform to the construction constraints specified herein:

SPECIAL CONSTRAINT NOTE #1: Dewatering - Dewatering of groundwater, and dewatering of piping connection points, shall be the full responsibility of the Contractor. The Contractor shall provide any dewatering equipment, or other protection as needed to allow installation of the improvements under proper conditions. Existing valves and gates may leak considerably or not hold at all. Pumping equipment, piping, valving, bulkheads, and associated costs shall be borne by the Contractor at no additional cost to the Owner. The Contractor shall coordinate with the Owner on alternate discharge locations, discharge quantity, discharge times, and discharge durations. At no time shall Contractor discharge water to the site nor any receiving streams. Wastewater residuals such as grit or, solids, or sludge shall not be stored or stack on the site. Any accidental spill shall be reported to the Owner immediately and enter into mitigation procedures as required by Owner.

SPECIAL CONSTRAINT NOTE #2: Vehicular Access - For all activities at the plant, vehicular access shall be maintained for Owner to perform all daily operation and maintenance activities.

SPECIAL CONSTRAINT NOTE #3: Blower Shutdowns - The existing blower system is not affected by this project, and no outage is allowed or required.

SPECIAL CONSTRAINT NOTE #4: Relocation of existing utilities – Prior to beginning construction of the Electrical Building, Contractor shall relocate all utilities, and provide appropriate bypass pumping if required.

SPECIAL CONSTRAINT NOTE #5: Demolition of main switchgear – Demolition of existing plant Main Switchgear and feeder switches shall not occur until the new installation and energization of new Electrical Building, MCCs, Switchboards, and panelboards, and until all equipment is energized and tested.

SPECIAL CONSTRAINT NOTE #6: Shutdown Coordination and Procedures – Process facilities, chemical systems, electrical and instrumentation systems and associated equipment shall remain operational during completion of all work except as coordinated and allowed by Owner as specified in paragraph 1.03.F of this Specification.

SPECIAL CONSTRAINT NOTE #7: SUE Investigations - Contractor shall field verify, investigate, and confirm all affected underground utilities prior to beginning construction. Hydro-excavation investigation shall be utilized for both sides of all ductbanks and the perimeters of all buildings and equipment pads.

SPECIAL CONSTRAINT NOTE #8: Plant Electrical Outages – No full plant outages are allowed for this contract. Partial outages for the connection of overhead feeders shall be coordinated with the Owner as specified. Each component must be operational under new system before the next component is taken out of service.

SPECIAL CONSTRAINT NOTE #9: Backup Power – All equipment with backup generator power will require emergency backup power at all times.

SPECIAL CONSTRAINT NOTE #10: Disinfection and Filter Control Buildings Electrical Outages – No extended outages for the disinfection building or the filter control building are allowed for this contract. During construction of the new underground feeder to the transformers serving these areas, Contractor shall provide temporary generators, including all fuel, for continuous operation until power is restored.

C. Suggested Construction Sequence:

1. Phase 1: Concurrent Construction: Within this Construction Sequence, there are Construction Phases that can occur concurrently, as long as operation of the plant is not adversely affected. The following phases can be installed concurrently but not necessarily energized with other phases pursuant to the constraints listed previously. Energization shall be as listed in this subsection.

    a. Abandoned equipment demolition

        1) Remove existing canopy, slab, and blower electrical building and equipment near digesters

    b. Electrical building

        1) Erect CMU building

        2) Install new transformer, complete with pads (including pad for future transformer)

        3) Install electrical equipment inside building

    c. Overhead electrical

        1) Install pole 4A adjacent to pole 4, including conduit supports

    d. 5 kV Electrical: Feed(s) and Distribution:

        1) Install new incoming electrical ductbank (to edge of existing pad for CPS Energy transformers)

        2) Install new ductbanks and manholes to location for new overhead connection (poles 4 and 4A), including exposed conduits for overhead connection

3) Install conductors from switchgear for connection to overhead system at poles 4 and 4A. Terminate at switchgear; prepare for termination at overhead conductors.

4) Install new switches SW-A & SW-B and ductbanks to existing manhole

2. Phase 2: Construction requiring coordination and momentary outages

a. Open Main #1 and close tie switch at existing main plant switchgear (by SAWS)

1) Contingency: If tie switch doesn't work, contractor shall install jumper at outdoor switches. Note time constraints under "Critical Operations" below.

b. Coordinate with CPS Energy to deenergize and temporarily move main transformer No. 1

c. Saw-cut slab and extend main feeder ductbank under CPS transformer No. 1

d. After CPS Energy re-sets transformer No. 1, install and terminate new feeder circuit from that transformer to new plant main switchgear.

e. Coordinate with CPS Energy to re-energize transformer No. 1

f. Close main breaker and tie breaker on main switchgear; test all functionality of switchgear.

3. Phase 3: Construction requiring coordination and outages

a. Deenergize overhead feeders WH and WL (SAWS to open feeder switches at existing main switchgear)

b. Reconfigure top of pole 4 for new connection point

c. Terminate feeders from new main switchgear to overhead distribution circuits

d. Energize overhead circuits WL and WH by closing feeder breakers at new main switchgear

4. Phase 4: Construction requiring coordination and equipment to prevent outages

a. Disinfection building (MCC-A and MCC-B only)

1) Coordinate with SAWS to start backup generator

2) Switch ATS; building is now served via SAWS backup generator

3) Deenergize feeder to transformer T-32 (switching at existing main switchgear by SAWS)

4) Disconnect ATS from secondary of transformer T-32 (Do not remove conductor)

5) Install temporary generator and connect to ATS in place of feeder

6) Energize building via temporary generator

7) Temporary generator to remain in continuous operation until new service is installed

8) Remove feeder from existing main switchgear to transformer T-32

9) Install feeder from new main switchgear, utilizing existing ductbanks, to switch SW-A and from SW-A to transformer T-32

10) Shut down temporary generator and disconnect from ATS

11) Reconnect the secondary of transformer T-32 to ATS

12) Energize ATS, T-32, and disinfection building by closing the feeder breaker at new main switchgear

b. Filter control building

1) Deenergize feeder to filter control building (switching at existing main switchgear by SAWS)

2) Disconnect transformer T-31 from MCC-8 (Do not remove conductors)

3) Install temporary generator and connect to MCC-8 in place of feeder

4) Energize building via temporary generator

5) Temporary generator to remain in continuous operation until new service is installed

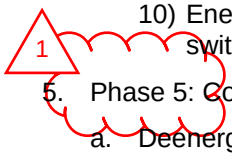
6) Remove feeder from existing main switchgear to transformer T-31

7) Install feeder from new main switchgear, utilizing existing ductbanks, to switch SW-B and from SW-B to transformer T-31

8) Shut down temporary generator and disconnect from MCC-8

9) Reconnect the secondary of transformer T-31 to MCC-8

10) Energize MCC-8 and filter control building by closing the feeder breaker at new main switchgear

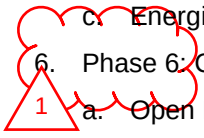


5. Phase 5: Construction requiring coordination and outages

a. Deenergize overhead feeder EH (SAWS to open feeder switch at existing main switchgear)

b. Install and terminate feeders from new main switchgear to overhead distribution circuit EH

c. Energize overhead feeder EH by closing breaker at new main switchgear



6. Phase 6: Construction requiring coordination and momentary outages

a. Open Main #2 at existing main plant switchgear (by SAWS)

b. Coordinate with CPS Energy to deenergize and temporarily move main transformer No. 2

c. Saw-cut slab and extend main feeder ductbank under CPS transformer No. 2

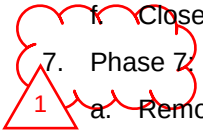
d. After CPS Energy re-sets transformer No. 2,

1) Open tie switch at new main plant switchgear, deenergizing portion of plant connected to that side.

2) Install and terminate new feeder circuit from that transformer to new plant main switchgear.

e. Coordinate with CPS Energy to re-energize transformer No. 2

f. Close main breaker main switchgear.



7. Phase 7: Demolition of plant electrical equipment

a. Remove existing main electrical switchgear, switches, MCCs,

D. CRITICAL OPERATIONS

1. The Owner has identified critical operations that must not be out of service longer than the designated maximum out of service time and/or must be performed only during the designated times. These have been identified in the table below:

Critical Operation	Maximum Time Out of Operation	Hours Operation Can be Shut Down
Total Shut Down of Plant areas served by existing main switchgear	None	Not allowed

If work at existing main switchgear is needed, total outage is allowed	4 hours	M-F 8 am – 12 pm
Overhead feeders WH and WL (Concurrent)	4 hours	M-F 8am – 4 pm
Overhead feeder EH	4 hours	M-F 8am – 4 pm
MCC-A and MCC-B at Disinfection building	None	Not allowed
Filter control building	2 hours	M-F:8 am – 12 pm

1

2. Submit a written plan of action for approval for critical operations as specified in Paragraph 1.03.F of this specification.
3. Work affecting critical operations is to be performed on a 24-hour a day basis until Owner's normal operations have been restored.
4. Provide additional manpower and equipment as required to complete the Work affecting critical operations within the allotted time.
5. Include the cost for Work affecting critical operations in the lump sum contract price.

E. Project Milestones

Task/Activity	Calendar Days from NTP
Substantial Completion (Leon Creek Only)	
Final Completion (Leon Creek Only)	

Liquidated damages for failure to complete work on time shall be as described in the Supplementary Conditions. All other Tasks shall be completed by the end of the allocated construction timeline.

END OF SECTION

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SECTION 16311

OVERHEAD LINE MATERIALS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Furnish labor, materials, equipment and incidentals necessary to provide aerial electrical service. Furnish materials including but not limited to poles, hardware and conduits. The Contractor shall be responsible for inspection, unloading, handling, hauling, and storing the materials until acceptance.

1.02 QUALITY ASSURANCE

A. Acceptable Manufacturers for each component shall be as listed for that component.

B. The manufacturer of all equipment shall have produced similar equipment for a minimum period of five years. When requested by the Engineer, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.

C. The overhead distribution system shall conform to the requirements and standards for overhead distribution systems of the ANSI, NEMA, REA, UL and NFPA standard requirements

D. All components and material shall be new and of the latest field proven design and in current production. Obsolete components or components scheduled for immediate discontinuation shall not be used.

1.03 SUBMITTALS

A. One single submittal shall be made for all overhead pole line equipment to be provided under this specification. Multiple submittals will not be accepted.

B. The following items shall be submitted.

1. Individual pole assembly drawings, for each new or modified pole, identified by pole number.

    a. All pole-mounted hardware shall be identified and dimensioned, including height above ground level.

    b. Pole embedment shall be indicated for each pole.

    c. Complete bill of material shown on the drawing for all pole mounted equipment.

2. Individual pole details

    a. Identify each detail by pole number

    b. Indicate drilling patterns for each pole, including dimensions

3. Catalog cut sheets for all pole mounted hardware, highlighted to indicate specific equipment to be installed.

1.04 STANDARDS

A. The applicable provisions of the following standards shall apply as if written herein in their entirety:

1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

   a. ANSI C2 (2008) – National Electrical Safety Code.

   b. ANSI 05.1 (1992) – Wood Poles, Specifications and Dimensions

   c. ANSI C29.1 (1988) – Electrical Power Insulators – Test Method.

   d. ANSI C29.2 (1992) – Insulators – Wet-Process Porcelain and Toughened Glass – Suspension Type.

   e. ANSI C29.3 (1986) – Wet-Process Porcelain Insulators (Spool Type).

2. NATIONAL ELECTRICAL MANUFACTURERS ASSN (NEMA)

   a. NEMA CC 3 (1973; R 1983) – Connectors for Use Between Aluminum or Aluminum-Copper Overhead Conductors.

   b. NEMA HV 2 (1991) – Application Guide for Ceramic Suspension Insulators.

   c. NEMA LA 1 (1992) – Surge Arresters.

   d. NEMA G 2 (1993) – High-Voltage Fuses.

3. NATIONAL FIRE PROTECTION ASSN (NFPA)

   a. NFPA 70 (2008) – National Electrical Code.

4. RURAL ELECTRIFICATION ADMINISTRATION (REA)

   a. REA DT-58 (Dec 1975) – Wood Crossarms (Solid and Laminated) Transmission Timbers and Pole Keys – Bulletin 50-17.

5. UNDERWRITERS LABORATORIES, INC. (UL)

   a. UL-03 (1989) – Electrical Construction Materials Directory.

   b. UL 467 (1993 Rev thru Aug. 1990) – Grounding and Bonding Equipment.

   c. UL 486A (1997 Rev thru Dec. 1998) – Wire Connectors and Soldering Lugs for Use with Copper Conductors.

   d. UL 486B (April 13, 1982, 2nd Ed; Rev thru Feb. 20, 1987) – Wire Connectors for Use with Aluminum Conductors

PART 2 - PRODUCTS/MATERIALS

2.01 POWER POLES

A. Poles shall be of wood construction, CCA pressure treated southern yellow pine. Pole heights shall be a minimum of 45 feet total, and a minimum of 35 feet above ground after installation. Contractor shall field verify height of poles required. Poles shall be designed to handle all loads – pulling tensions of overhead line system, wind loading, equipment loads, etc. Poles shall be designed and installed in accordance with the NESC and all applicable ANSI standards. Poles shall be ANSI Class 3.

B. Manufacturers

1. Cox Industries, Inc.
2. Carpenter Pole & Piling
3. Thomasson Company
4. T.R. Miller Mill Co., Inc.

2.02 CROSSARMS

A. Fiberglass or composite material

1

B. Eight feet long

C. Predrilled for mounting on wood poles.

D. Manufacturers

1. Cox Industries, Inc.
2. Carpenter Pole & Piling
3. Geotek, PUPI fiberglass crossarms.
4. Thomasson Company
5. T.R. Miller Mill Co., Inc.

2.03 OVERHEAD DISTRIBUTION SYSTEM SWITCHES

A. Crossarm mounted single pole hook-stick operated (HSO) switches

1

1. Single pole
2. Rated for 15 kV, 600 A
3. Hook stick operated (HSO)
4. Manufacturers
   a. Eaton
   b. Hubbell Power Systems
   c. Siemens

d. Southern States

2.04 LIGHTNING ARRESTERS

A. Pole mounted lightning arrester

1. Distribution class

2. System voltage: 4.16Y/2.4 kV solidly grounded

3. Manufacturers

a. Eaton

b. Hubbell

c. Siemens

2.05 GROUNDING

A. General

1. Temporary shorting and grounding connections shall be installed between all phase conductors and the structure grounding system. Not less than one set of shorting and grounding connections shall be installed on each dead-ended section of line.

a. In addition to the shorting and grounding safeguard specified, other safety grounding facilities shall also be provided and maintained as required for distribution line installation including equipment and reel grounding.

b. Grounding equipment used shall be designed and installed so that conductors, conductor accessories, and hardware will not be damaged. As the shorting and grounding connections are removed, conductors and conductor accessories shall be inspected for damage and any nicks, roughness, or abrasions shall be removed.

2. Grounding materials shall be furnished and installed as indicated on the drawings and as specified in this section of these specifications. Grounding materials shall be furnished in quantities sufficient for a complete installation as indicated on the drawings and in these specifications.

3. Grounding system materials shall be installed as indicated on the drawings and in accordance with the requirements which follow.

a. All buried ground rods shall be installed with not less than 18 inches of earth cover.

b. Where ground rods are connected to plant grounding system, underground conductors shall be installed with not less than 30 inches of earth cover.

c. All underground connections shall be exothermic weld type as specified in Section 16660.

B. Materials

1. Ground rods shall be as specified in Section 16660.

2. All ground conductors shall be #4/0 AWG uninsulated, tinned copper.

3. All connectors for aboveground shall be compression type.

4. All connectors for below ground shall be exothermic weld type.

C. Testing

1. After ground rods have been installed and interconnected as indicated on the drawings. Ground resistance shall be measured at each structure and the measured resistance shall be recorded on the Structure Grounding Report. In the event that the measured value of ground resistance exceeds 15 ohms, additional grounding shall be required.

2. All ground resistance measurements shall be made with a three terminal type ground tester which applies current to the electrodes and which gives a reading in ohms. Two reference ground probes shall be used and all tests shall be made in accordance with the instrument manufacturer's instructions for ground resistance testing. Some of the acceptable instruments are as follows:

   a. Insulation resistance ground testers, James G. Biddle and Co.

   b. Vibroground, Associated Research, Inc.

   c. Ground-Ohmer, Herman H. Stricht Co., Inc.

3. A record shall be maintained of the condition of the grounding facilities at each structure throughout the construction period. A standard form entitled Structure Grounding Report shall be used. The form shall provide space to report dimensions, depths, resistance measurements and the date each measurement was taken, revisions to the structure grounding arrangement indicated on the drawings, and other pertinent information. A copy of this form shall be completed for each structure and shall be an "as built" record.

2.06 POLE LINE HARDWARE

1

A. All nuts, bolts, screws, washers, brackets, etc. shall be galvanized steel, manufactured specifically for pole-line use.

B. Manufacturers

1. Hubbell

2. MacLean Power Systems

3. Approved equal

PART 3 - EXECUTION

3.01 STRUCTURE SPOTTING AND STRUCTURE TYPES

A. The Contractor shall be responsible for determining the location of all structures required based on the line route as indicated on site plan.

3.02 DISTRIBUTION LINE ERECTION

A. General

1. This section covers erection work for distribution line materials furnished and installed under these specifications. Erection procedures not specified herein shall be in accordance with the Engineer's drawings and the manufacturer's drawings and recommendations.

B. Existing Underground Utilities

1. Existing underground installations such as water lines, gas mains, electric lines, and sewers in the vicinity of pole foundation drilling locations shall be determined by the Contractor.

2. The Contractor shall be solely responsible for locating all existing underground installations, in advance of drilling pole holes, by contacting the owners thereof and prospecting.

C. Wood Pole Structures

1. All structure components shall be handled with care to prevent damage to the components.

D. Structure Framing and Assembly

1. All structures shall be framed and assembled as indicated on the drawings. Assembly procedures shall minimize the amount of pole top work that must be done after the structure is set. Structures shall be completely assembled prior to setting the pole.

2. All bolt holes which are not factory drilled but which are required for a complete installation, and all holes in modified existing poles, shall be field drilled. Field drilled bolt holes shall be drilled using a bit with a diameter 1/16 inch larger than the diameter of the bolt to be inserted.

3. Gaining of poles, where required, shall be perpendicular to bolt holes and shall not exceed ½ inch in depth.

4. All bolts shall extend not less than ½ inch or more than 2-1/2 inches past the locknut; all bolts shall be tightened so that the bearing surfaces of hardware, insulators, etc., are properly seated to the poles and arms.

5. Each completed structure shall have all washers, locknuts, and other hardware properly installed and tightened. Ground conductors shall be installed when framing the structure.

E. Pole Hole Excavation

1. All poles shall be backfilled with gravel and well-tamped soil placed as shown on the drawings. The minimum pole hole diameter shall be equal to the diameter of the pole measured at the butt end plus 12 inches minimum. .

2. Pole hole excavation shall include removal of stumps, roots, and other obstructions as necessary to provide a clean vertical hole to the required depth. Where necessary, split drums shall be used to prevent the earth from caving in or spilling into the pole holes.

3. Excavated pole holes shall be covered with plywood not less than 3/4 inch thick where the associated poles will not be set during the same working day.

4. Pole hole excavation in earth shall be performed with a power driven auger; pole hole excavation in rock shall be performed by hand excavation or power driven rock auger.

F. Grounding

1. All ground rods shall be located as indicated on the drawings and installed to a minimum depth of 11'-6".

2. Exposed conductors shall be installed inconspicuously on supporting structures. The conductors shall be run parallel to or normal to dominant structures. Damaged ground conductors shall be repaired or replaced.

3. All bolted and screwed connections shall be securely tightened.

END OF SECTION

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