



WEST LUCAS ROAD 0.75 MG ELEVATED STORAGE TANK HWL = 723.0 FT

CITY COUNCIL

JIM OLK
KATHLEEN PEELE
TIM JOHNSON
DUSTY KUYKENDALL
DAVID KEER
PHILLIP LAWRENCE
DEBBIE FISHER

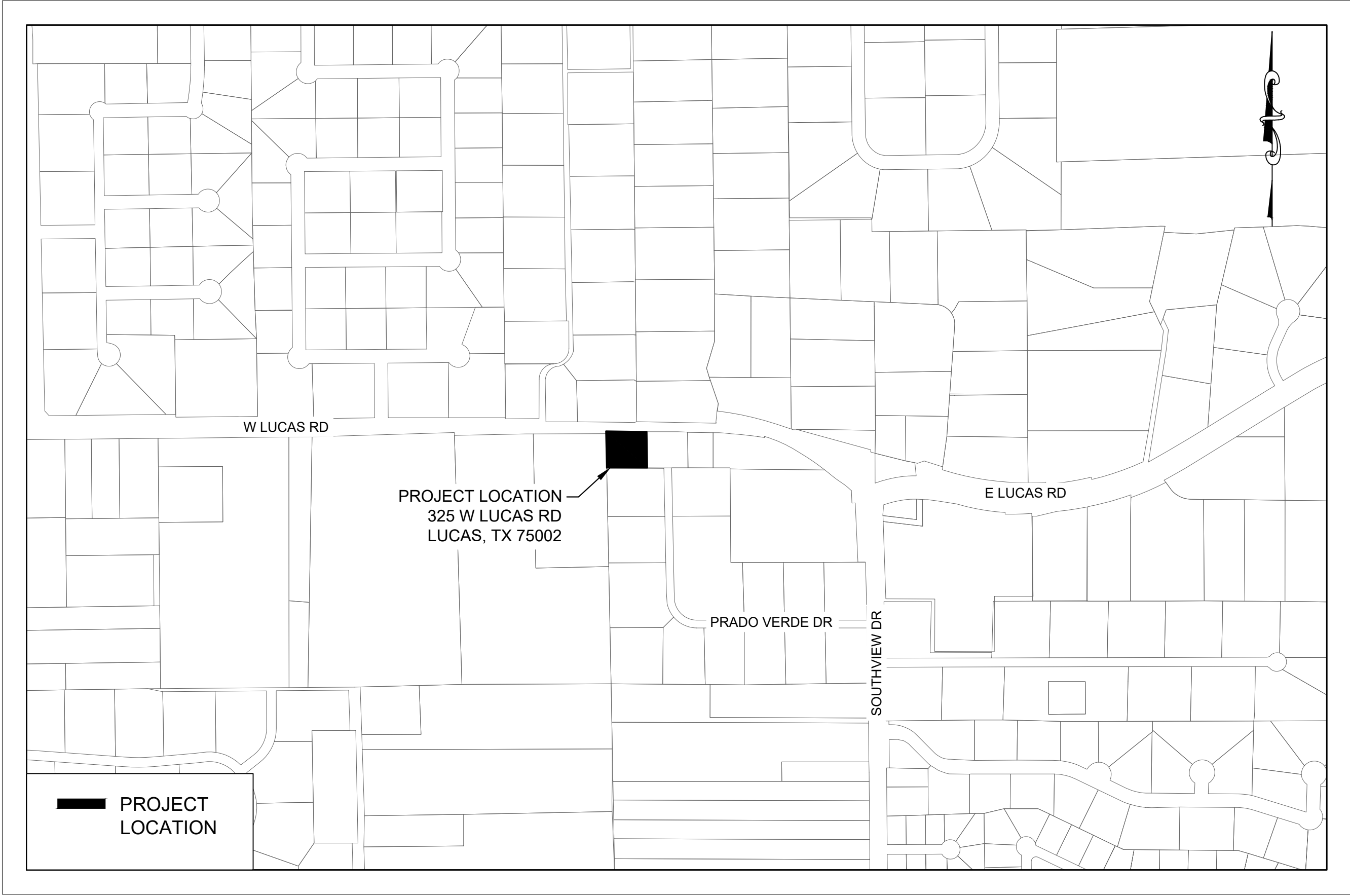
MAYOR
MAYOR PRO TEM
COUNCILMEMBER
COUNCILMEMBER
COUNCILMEMBER
COUNCILMEMBER
COUNCILMEMBER

STAFF

JONI CLARKE
KENT SOURİYASAK

SCOTT HOLDEN, P.E.
PATRICK HUBBARD

CITY MANAGER
ASSISTANT
CITY MANAGER
PUBLIC WORKS DIRECTOR
CAPITAL IMPROVEMENT
PROJECTS MANAGER

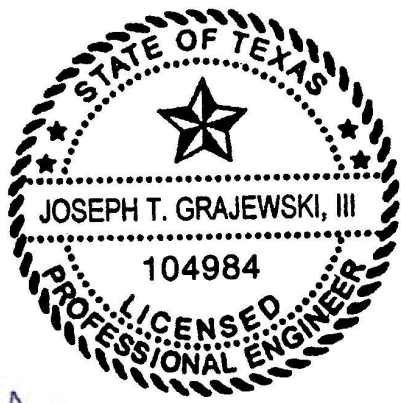


VICINITY MAP
1" = 500'

SEPTEMBER 7, 2023

JTG ENGINEERING, PLLC

TBPE FIRM REGISTRATION NO. 22389
PHONE NUMBER: 214-991-6923



9/07/2023

SUBMITTAL LOG

NO.	DATE	DESCRIPTION
1.	05/26/2023	30% SUBMITTAL (FOR PRELIMINARY REVIEW ONLY)
2.	06/23/2023	60% SUBMITTAL (FOR PRELIMINARY REVIEW ONLY)
3.	07/14/2023	90% SUBMITTAL (FOR PRELIMINARY REVIEW ONLY)
4.	08/04/2023	100% SUBMITTAL (FOR PRELIMINARY REVIEW ONLY)
5.	09/01/2023	FINAL SUBMITTAL (FOR FINAL REVIEW ONLY)
6.	09/07/2023	FINAL SUBMITTAL (FOR BIDDING, CONSTRUCTION & PERMIT PURPOSES)

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CITY PROJECT NO. 029-23

Dwg Info: F:\Projects\2023\12035_City_of_Lucas\01_075MG_EST\400_CADD\12_Muni\02_PLAN_SHEET\2310501_GENL_PLYT.dwg - Plotted: 9/7/2023



B
B-B
BLDG
BOC
BOTOC

C
CAB
CB
CF
C
C.I.C.
C.I.C.F.
CL
CO
CONC
CONN.
CPB
CP

E
E
ECAB
EG
ELEC
ELEV
EM
EMH
EOP
EP
EPB
ESMT
EX.
EXIST.

F
FH
F-F
FL
FT

G
GTL
GW

BACK TO BACK
BUILDING
BACK OF CURB
BY OTHER THAN OPEN CUT

CABINET
CHORD BEARING
COBB, FENDLEY & ASSOCIATES
CENTERLINE
CAPPED IRON ROD
CAPPED IRON ROD FOUND
CHORD LENGTH
CLEAN OUT
CONCRETE
CONNECT
COMMUNICATION PULL BOX
CONTROL POINT

E
E
ECAB
EG
ELEC
ELEV
EM
EMH
EOP
EP
EPB
ESMT
EX.
EXIST.

EAST
ELECTRIC CABINET
EXISTING GRADE
ELECTRIC
ELEVATION
ELECTRIC METER
ELECTRIC MANHOLE
EDGE OF PAVEMENT
END POINT
ELECTRIC PULL BOX
EASEMENT
EXISTING
EXISTING

F
FH
F-F
FL
FT

FIRE HYDRANT
FACE TO FACE
FLOW LINE
FOOT OR FEET

G
GTL
GW

GAS TEST LINE
GUY WIRE

BUSH

TREE

SPRINKLER HEAD

SIGN

POWER POLE

MONITORING WELL

MAILBOX

LIGHT POLE

FLAG POLE

ELECTRIC TRANSFORMER

ELECTRIC MANHOLE

ELECTRIC VAULT

GAS TEST STATION

GAS LINE MARKER

GAS VALVE

SANITARY SEWER MANHOLE- EXIST.

SANITARY SEWER MANHOLE- PROP.

SANITARY SEWER CLEANOUT- EXIST.

SANITARY SEWER CLEANOUT- PROP.

STORM MANHOLE

TELECOM MANHOLE

TELECOM PEDESTAL

TELECOM VAULT

TELECOM MARKER

CATV PEDESTAL

WATER VALVE - EXIST.

WATER VALVE - PROP.

FIRE HYDRANT

WATER METER

IRRIGATION VALVE

ABBREVIATIONS

I
IC

L
L
LF
LP
LT

M
MH

N
N
NEPI
NW

O
OH

P
PC
PCC

PI
PG
PP
PPR
PROP.
PRC
PT
PVC
PVI
PVMT

R
R
RCB
R.C.P.

RCP
RFD
R.O.W.
RT

IRRIGATION VALVE

LENGTH
LINEAR FEET
LIGHT POLE
LEFT

MANHOLE

NORTH
NO EXTRA PAY ITEM
NORTHWEST

OVERHEAD WIRE

POINT OF CURVE
POINT OF COMPOUND
CURVATURE
POINT OF INTERSECTION
PROPOSED GRADE
POWER POLE
POWER POLE RISER
PROPOSED
POINT OF REVERSE CURVATURE
POINT OF TANGENCY
POLYVINYL CHLORIDE
POINT OF VERTICAL
PAVEMENT

RADIUS
REINFORCED CONCRETE BOX
REINFORCED CONCRETE
CYLINDER PIPE
REINFORCED CONCRETE PIPE
ROCK FILER DAM
RIGHT OF WAY
RIGHT

S
S
SAN
SCF
SH
SS
SSMH
STA
STM
STMH
SWR

I
T
TCP
TELE
TH
THT
T.O.P.
TPED
TYP

U
UE

V
VLV

W
W
W/
WL
WM
WV

SOUTH
SANITARY
SEDIMENT CONTROL FENCE
SPRINKLER HEAD
SANITARY SEWER
SANITARY SEWER MANHOLE
STATION
STORM
STORM MANHOLE
SEWER

TANGENT
TRAFFIC CONTROL PLAN
TELEPHONE
TEST HOLE
THROAT
TOP OF PIPE
TELEPHONE PEDESTAL
TYPICAL

UNDERGROUND ELECTRIC

VALVE

WEST
WITH
WATER LINE
WATER METER
WATER VALVE

LEGEND

----- R.O.W. LINE

----- PROPERTY LINE

6" W 6" W 6" W EXIST. WATER LINE

W W W W PROP. WATER LINE

SERV. SERV. SERV. SERV. SERV. PROP. WATER SERVICE

6" W 6" W 6" W EXIST. SANITARY SEWER LINE

SS SS SS SS PROP. SANITARY SEWER LINE

SERV. SERV. SERV. SERV. SERV. PROP. SANITARY SEWER SERVICE LINE

G G G G GAS

OH OH OH ELECTRIC - OVERHEAD

E E E E ELECTRIC - UNDERGROUND

x x x x x x x FENCE - BARBED WIRE

o o o o o o o FENCE - CHAIN LINK

||||| FENCE - WOOD

CATV CATV CATV CABLE TV - UNDERGROUND

STORM SEWER

T T T T TELEPHONE - UNDERGROUND

ALL COORDINATES ARE BASED ON THE TEXAS STATE PLANE
COORDINATE SYSTEM, NORTH CENTRAL ZONE 4202, NAD 83
(2011), EPOCH 2010.00 (NAVD 88 - GEOID 12B)

ALL DISTANCES AND COORDINATES SHOWN ARE SURFACE AND
MAY BE CONVERTED TO GRID BY MULTIPLYING BY A COMBINED
SCALE FACTOR OF 0.999847313.

NO

DATE

COMMENT

REVISIONS

WEST LUCAS ROAD

0.75 MG ELEVATED STORAGE TANK

PROJECT CONTROL & LEGEND

JTG ENGINEERING, PLLC

TBPE FIRM REGISTRATION NO. 22389

COBB, FENDLEY, & ASSOCIATES

LAND SURVEY FIRM REGISTRATION NO. 10046700

DESIGN BY: JTG

DRAWN BY: NLS

DATE: September 2023

JOB NUMBER: SHEET

03

!!! WARNING !!!

EXISTING UTILITIES IN THE AREA. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES WITH THE PROVIDER PRIOR TO START OF CONSTRUCTION AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED. CONTRACTOR IS RESPONSIBLE FOR COORDINATING UTILITY RELOCATION WHERE NECESSARY AND PROTECTING EXISTING UTILITIES (SHOWN OR NOT SHOWN). IF ANY EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM AT THEIR OWN EXPENSE.



EXHIBIT A



EXHIBIT B



EXHIBIT C

WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
EXISTING SITE PLAN



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04



0 10' 20' 40'

SCALE: H 1" = 20'
V 1" = 5'

LEGEND

EX. GRADE


GEOTECH BORE

NOTES:

1. NTWMD VAULT HAS BEEN METERED OFF OF THE 20" NTWMD WATER LINE.

NO.	DATE	COMMENT

REVISIONS



WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
EXISTING SITE PLAN



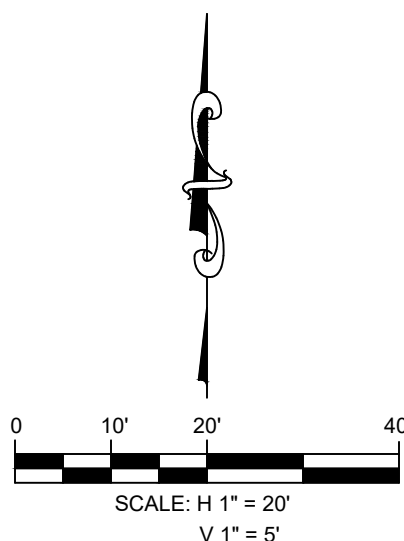
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04

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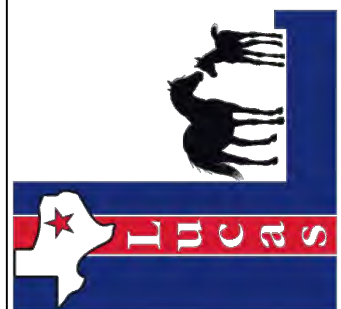
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LEGEND

 REMOVE EX. APPURTENANCES

NOTES:
1. REMOVAL OF EXISTING
VAULTS SHALL INCLUDE
CUTTING & PLUGGING THE PIPE
1' OUTSIDE OF VAULT WALL.

WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
REMOVAL PLAN

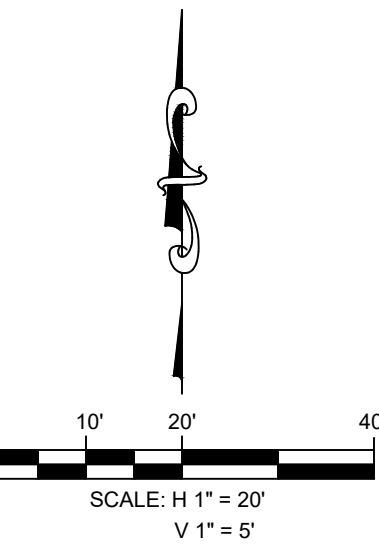
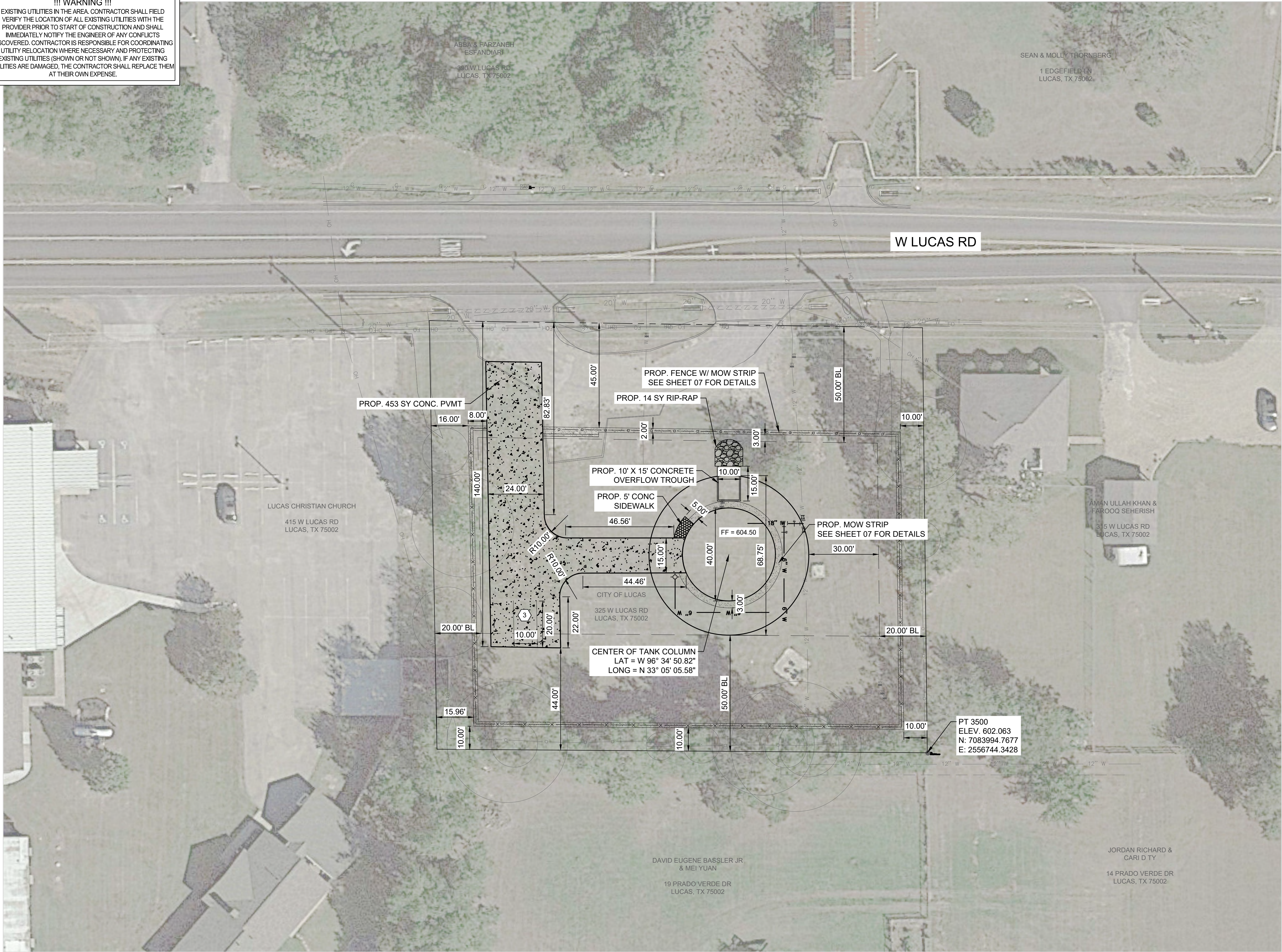


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- LEGEND**
- PROP. CONC PAVEMENT
 - PROP. RIP-RAP
 - PROP. MOW STRIP
- NOTES:**
- CONTRACTOR SHALL ENSURE THAT PROPOSED FENCE LINE IS CLEANED OF ALL SHURBBERY, TRASH, AND LIMBS THAT COULD PREVENT CLEAR VISION OF THE SITE.
 - CONTRACTOR SHALL NOT REMOVE ANY TREES OR SHRUBS THAT ARE NOT CALLED OUT ON THE PLANS FOR REMOVAL WITHOUT PRIOR CONFIRMATION FROM THE CITY OF LUCAS.

NO.	DATE	COMMENT

REVISIONS

**WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
PROPOSED SITE PLAN**



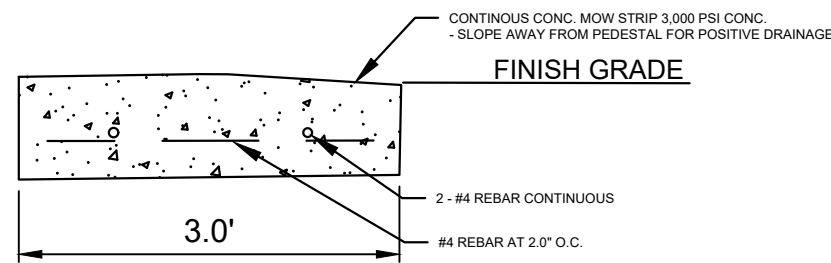
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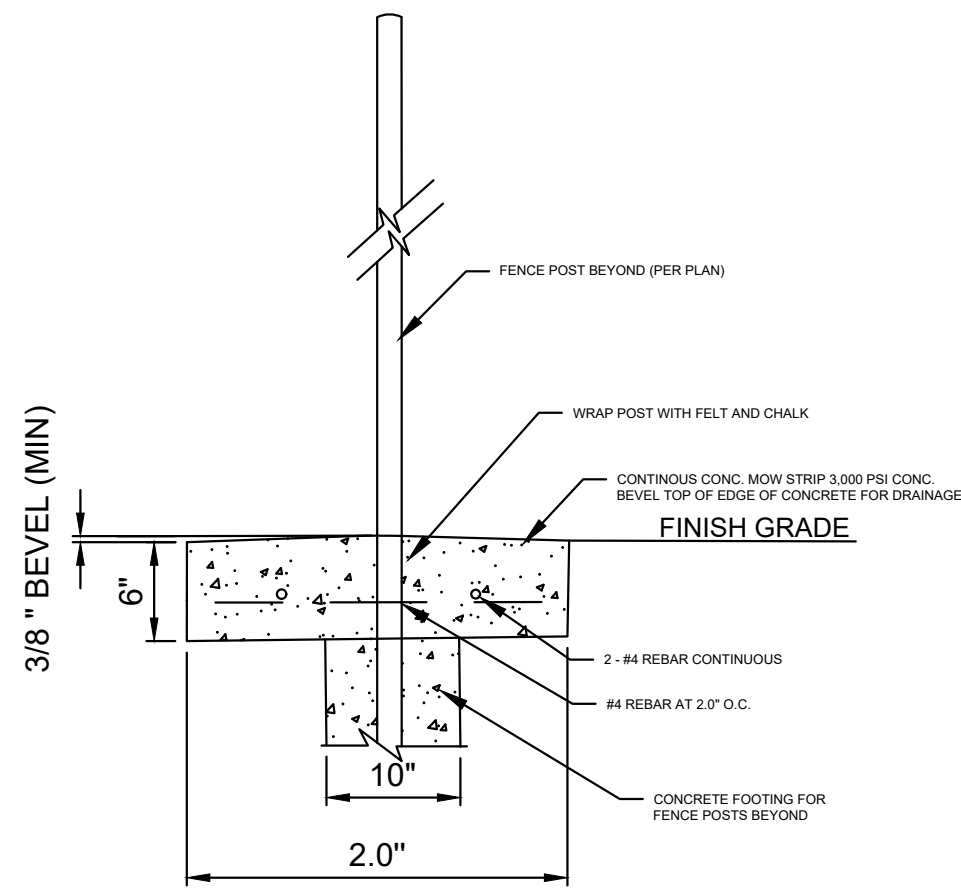
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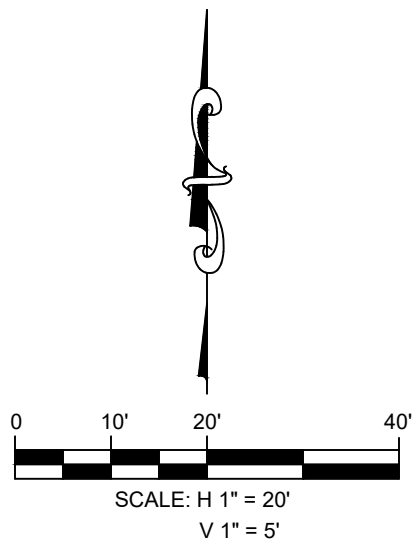
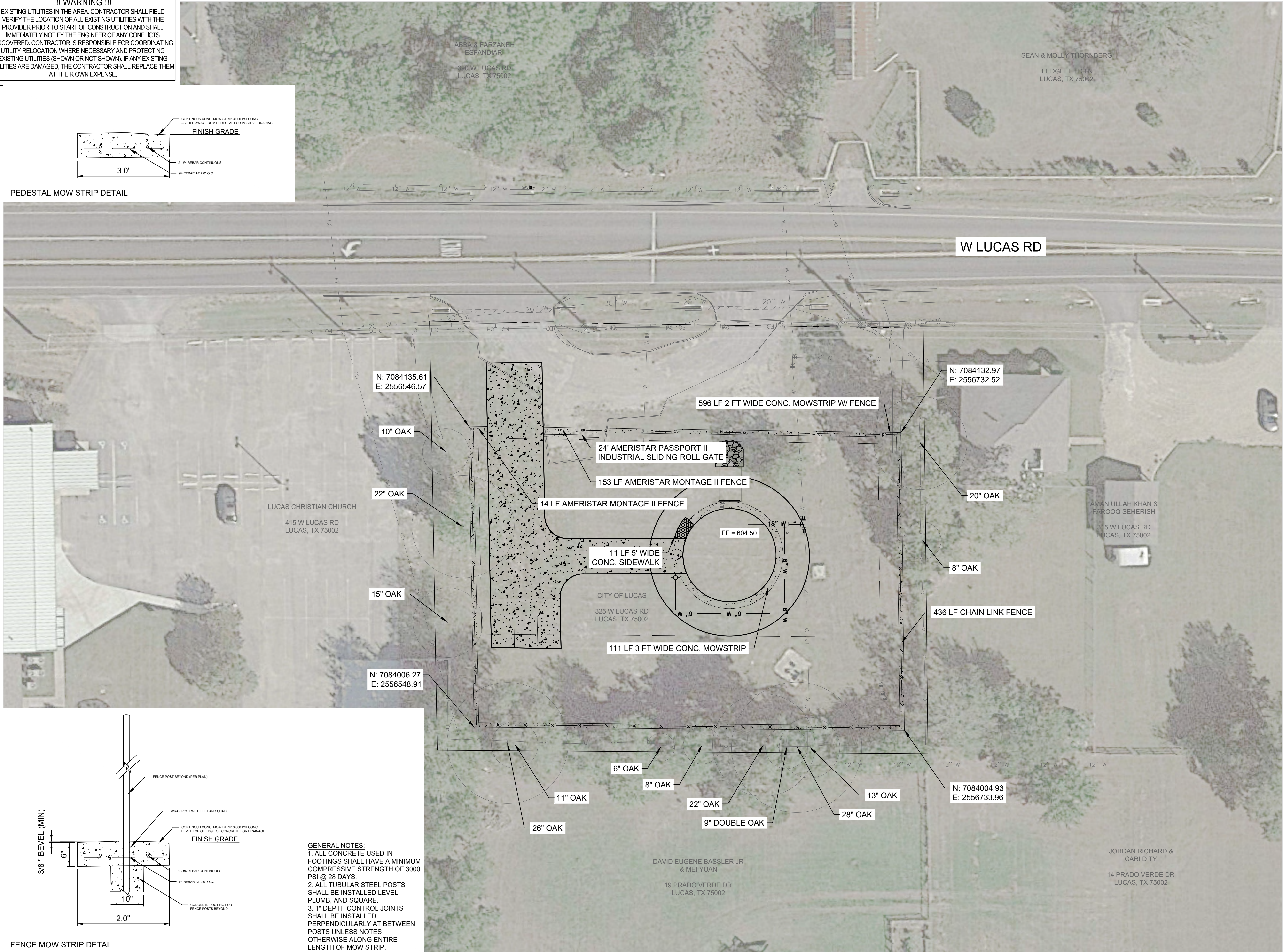


PEDESTAL MOW STRIP DETAIL



FENCE MOW STRIP DETAIL

GENERAL NOTES:
1. ALL CONCRETE USED IN FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI @ 28 DAYS.
2. ALL TUBULAR STEEL POSTS SHALL BE INSTALLED LEVEL, PLUMB, AND SQUARE.
3. 1" DEPTH CONTROL JOINTS SHALL BE INSTALLED PERPENDICULARLY AT BETWEEN POSTS UNLESS NOTES OTHERWISE ALONG ENTIRE LENGTH OF MOW STRIP.



LEGEND

- PROP. MOWSTRIP
- PROP. CHAIN LINK FENCE
- PROP. AMERISTAR MONTAGE II FENCE
- PROP. AMERISTAR PASSPORT II INDUSTRIAL SLIDING ROLL GATE

NOTES:
1. AMERISTAR MONTAGE II FENCE TO BE INSTALLED ALONG THE NORTH SIDE.
2. CHAIN LINK FENCE TO BE INSTALLED ON THE WEST, SOUTH, AND EAST SIDE.
3. REFER TO ADDITIVE ALTERNATIVE NO. 1 FOR INSTALLATION OF AMERISTAR FENCE ON ALL SIDES.
4. CONTRACTOR SHALL TRIM OR REMOVE TREES AS NECESSARY FOR INSTALLATION OF FENCE (NO PAY ITEM). CONTRACTOR SHALL COORDINATE TREE TRIMMING AND TREE REMOVAL WITH THE CITY OF LUCAS PRIOR TO PROCEEDING WITH FENCE WORK.
5. CONTRACTOR SHALL COORDINATE THE SLAB DESIGN FOR THE GATE OPERATOR AND ROLLING GATE TRACK WITH THE GATE MANUFACTURER. SLAB DESIGN SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEERING IN THE STATE OF TEXAS AND SUBMITTED TO ENGINEER FOR REVIEW AS PART OF THE SHOP DRAWING PROCESS.

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NO.	DATE

WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
FENCING PLAN

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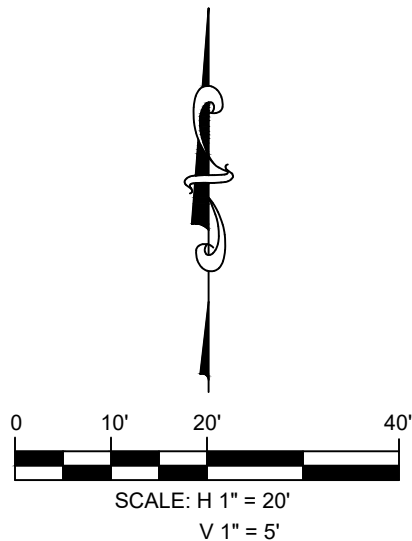
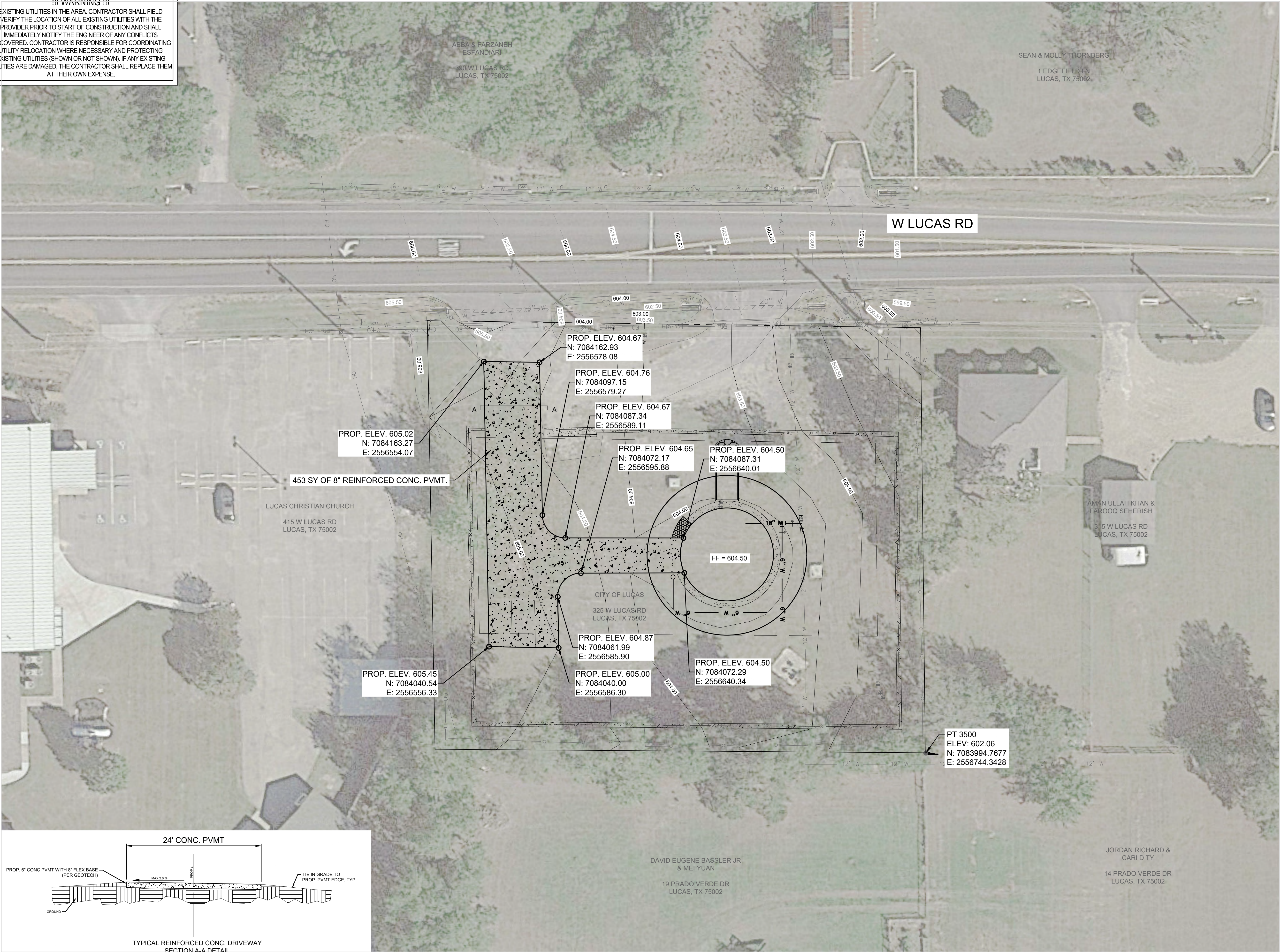
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07

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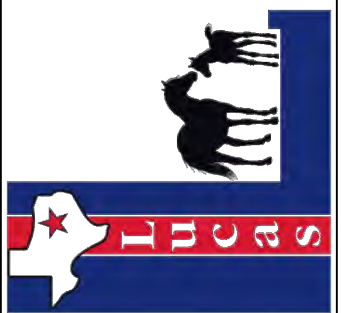
LEGEND	
	PROP. CONC. PAVEMENT
	PROP. RIP-RAP
	EX. GRADE
	PROP. GRADE

NOTES:
1. FINE GRADE TO ORIGINAL CONDITIONS PROVIDING FOR POSITIVE DRAINAGE
2. REINFORCED CONCRETE PAVEMENT TO BE 8" NCTOG CLASS C - 3600 PSI @ 28 DAYS WITH NO. 3 REINFORCING BARS @ 18" OCEW ON A 8" COMPACTED FLEX BASE SUBGRADE (95% STD. PROCTOR).

NO.	DATE	COMMENT



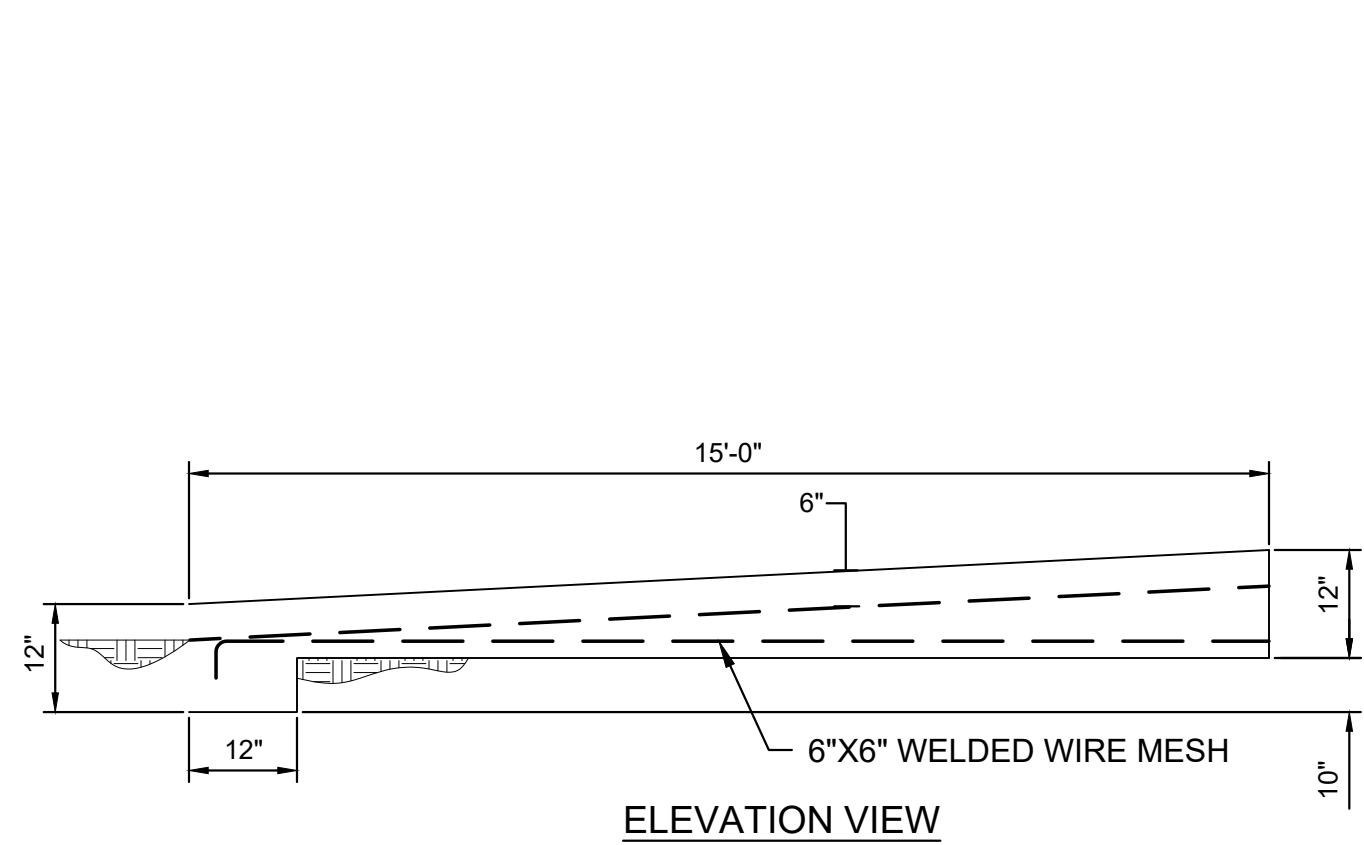
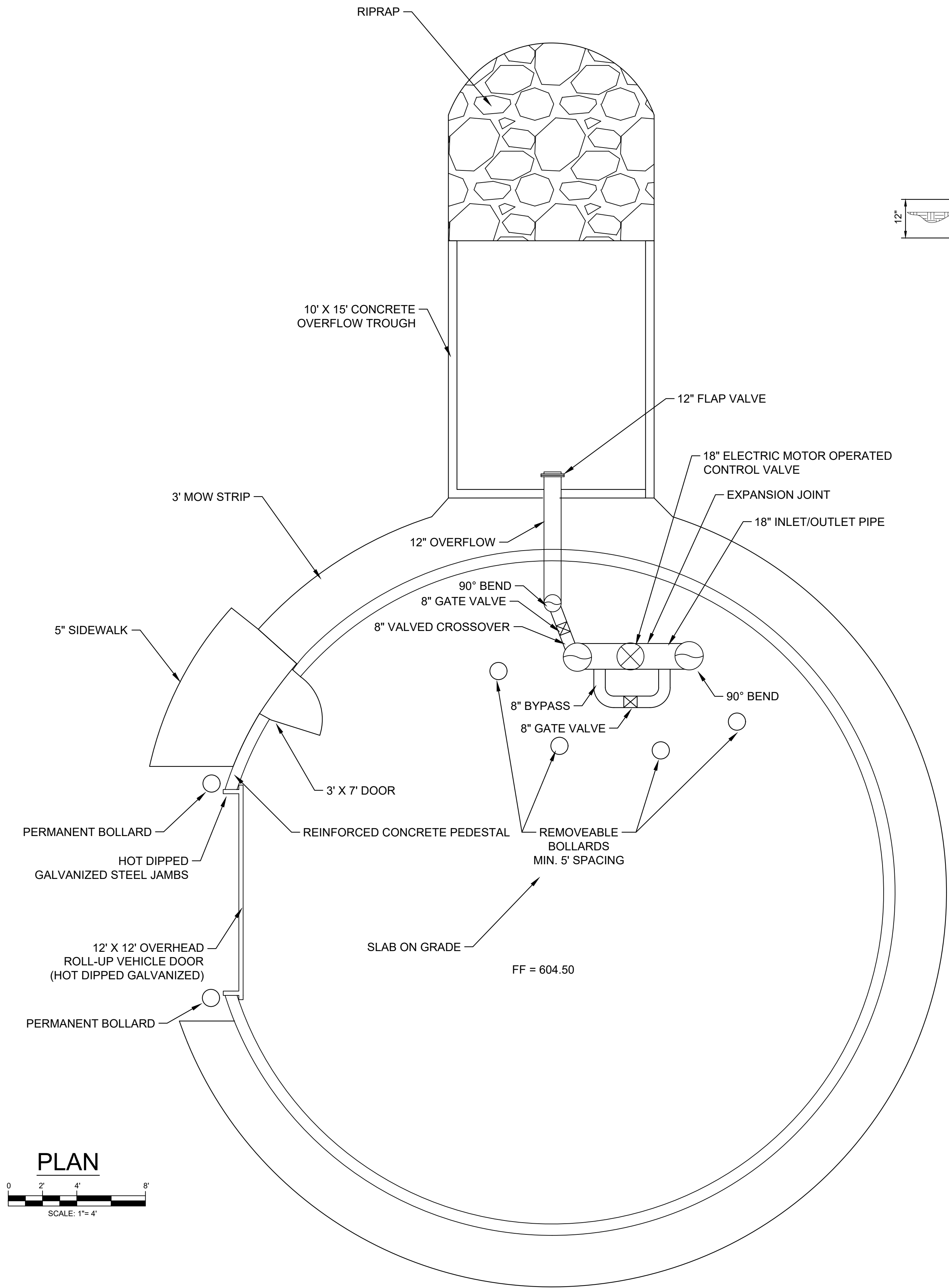
WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
PROPOSED DRIVEWAY & GRADING PLAN



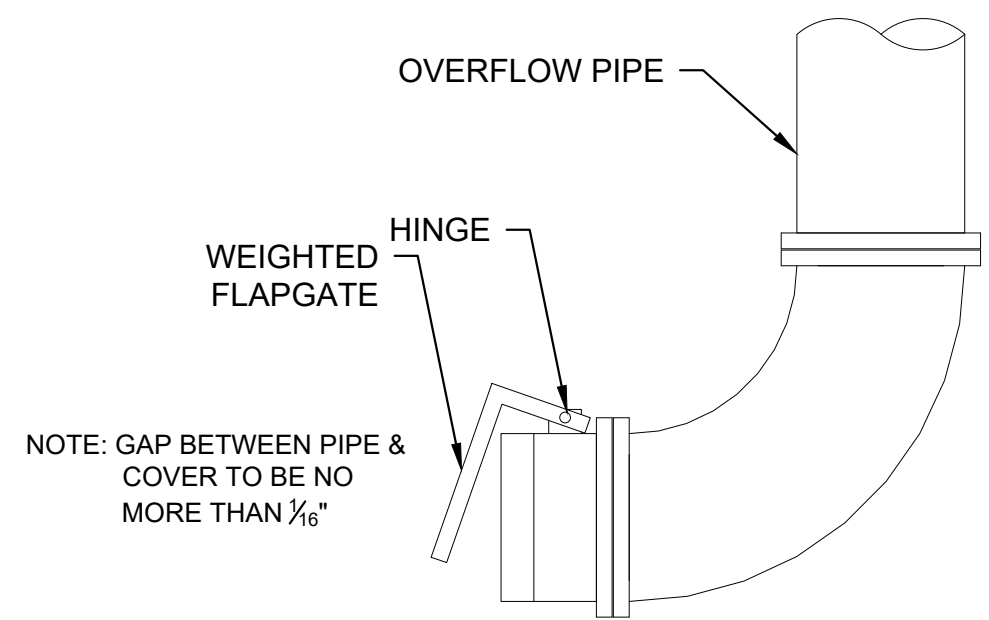
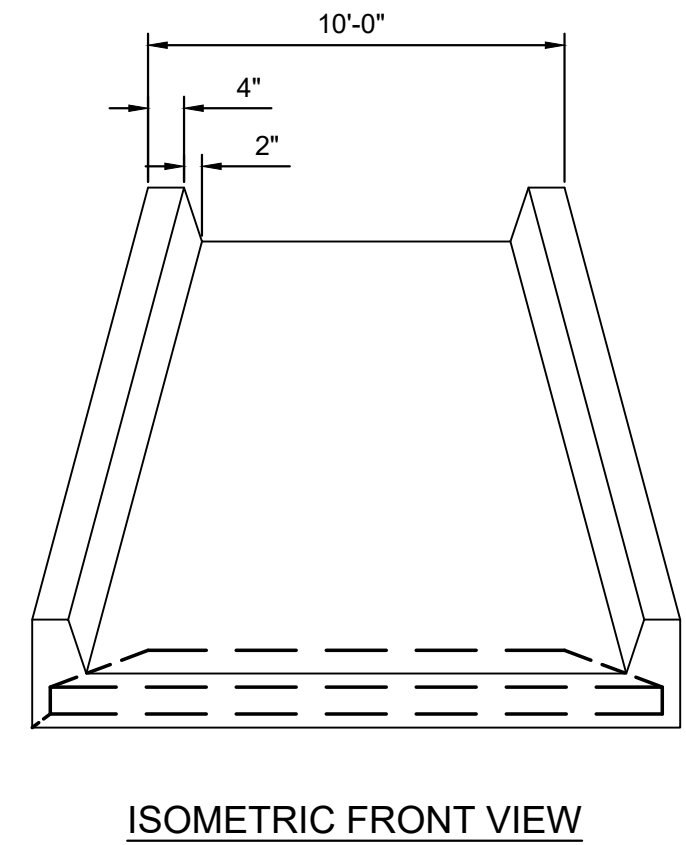
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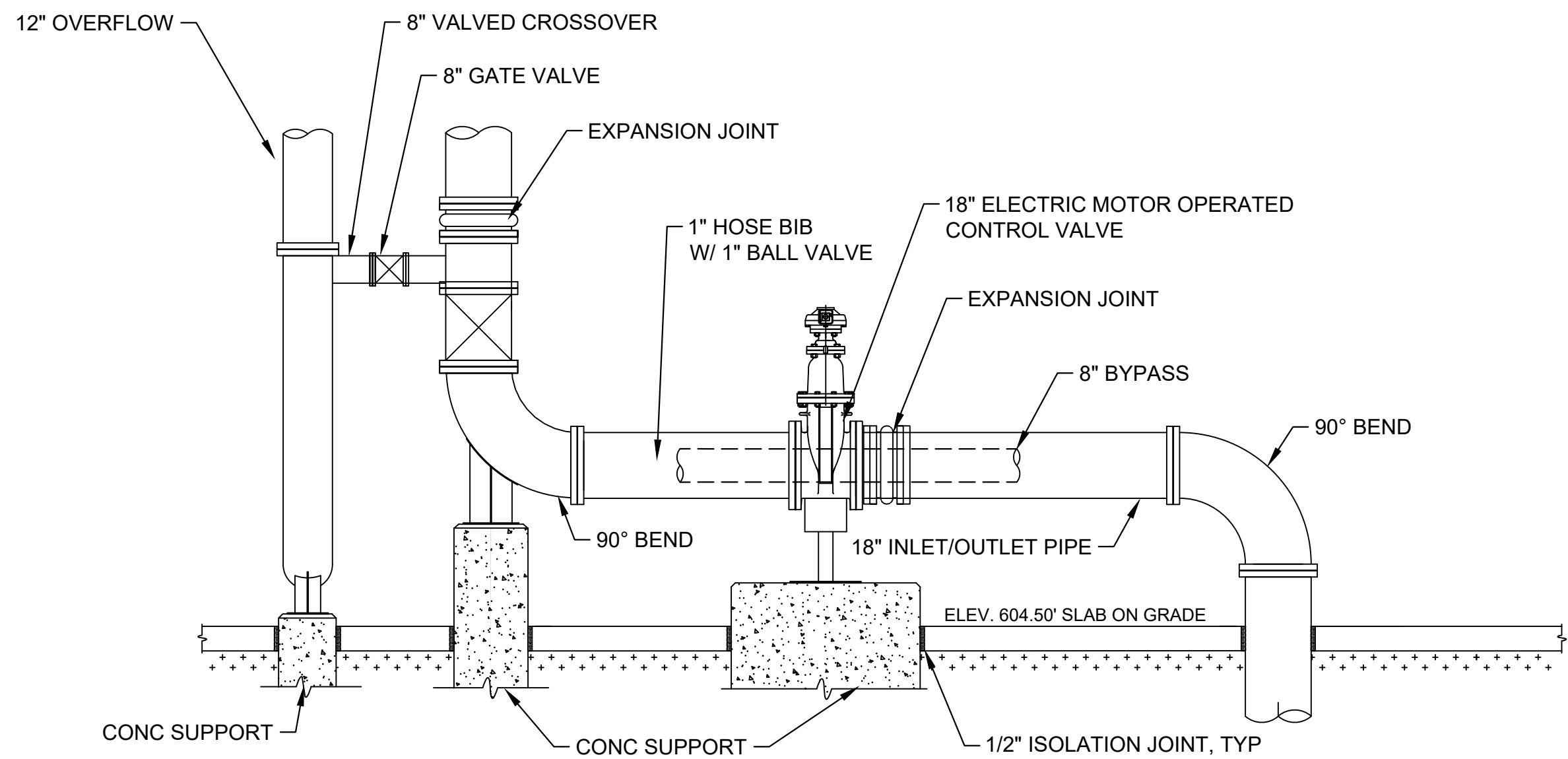
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CONCRETE SPLASH BLOCK DETAIL
N.T.S.



OVERFLOW PIPE W/FLAP VALVE
N.T.S.



MECHANICAL PIPING - SECTION VIEW
N.T.S.

NO.	DATE	COMMENT



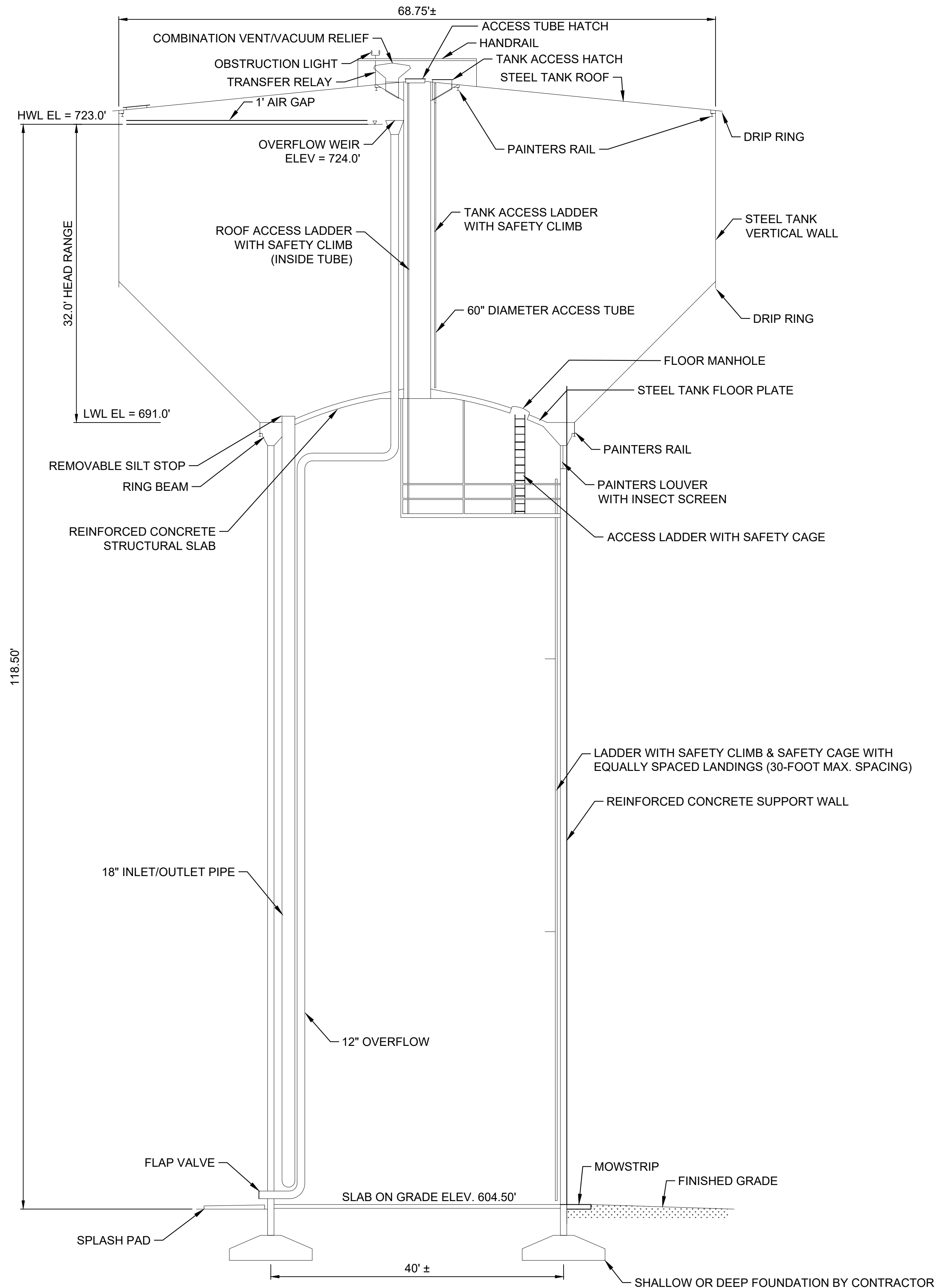
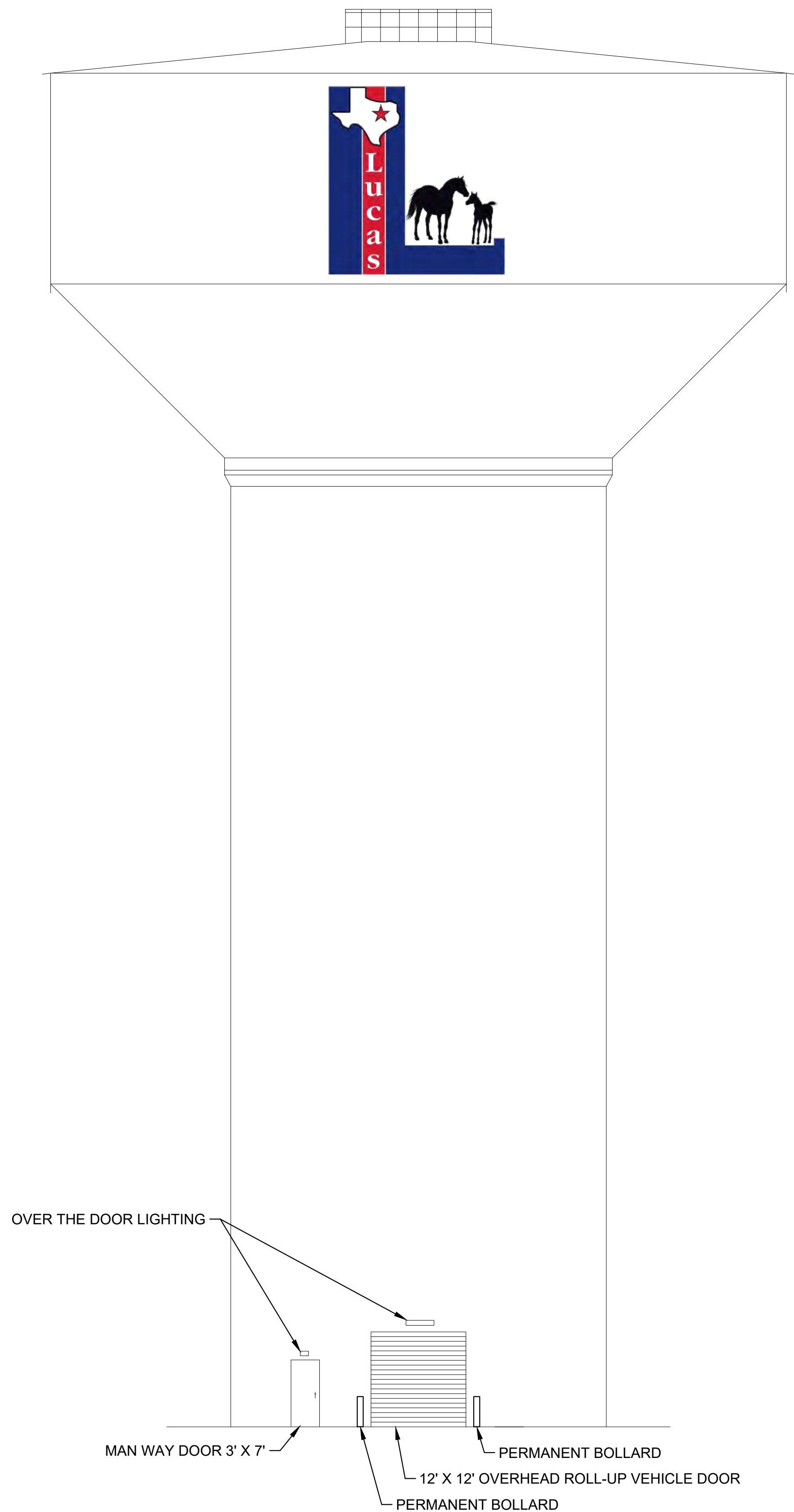
WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
TANK FLOOR PIPING PLAN



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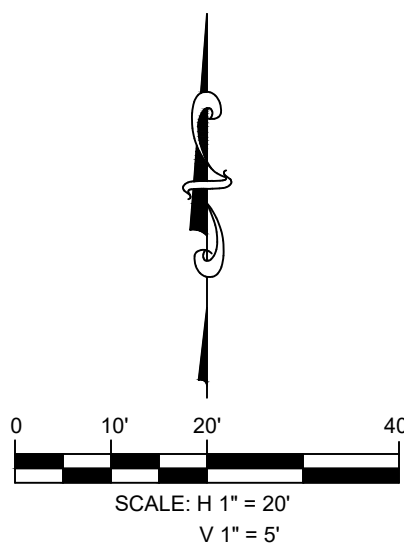
REVISIONS

WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
TANK ELEVATION VIEW

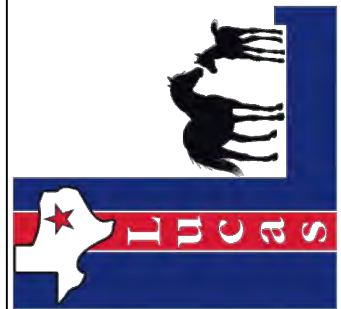
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SHEET	

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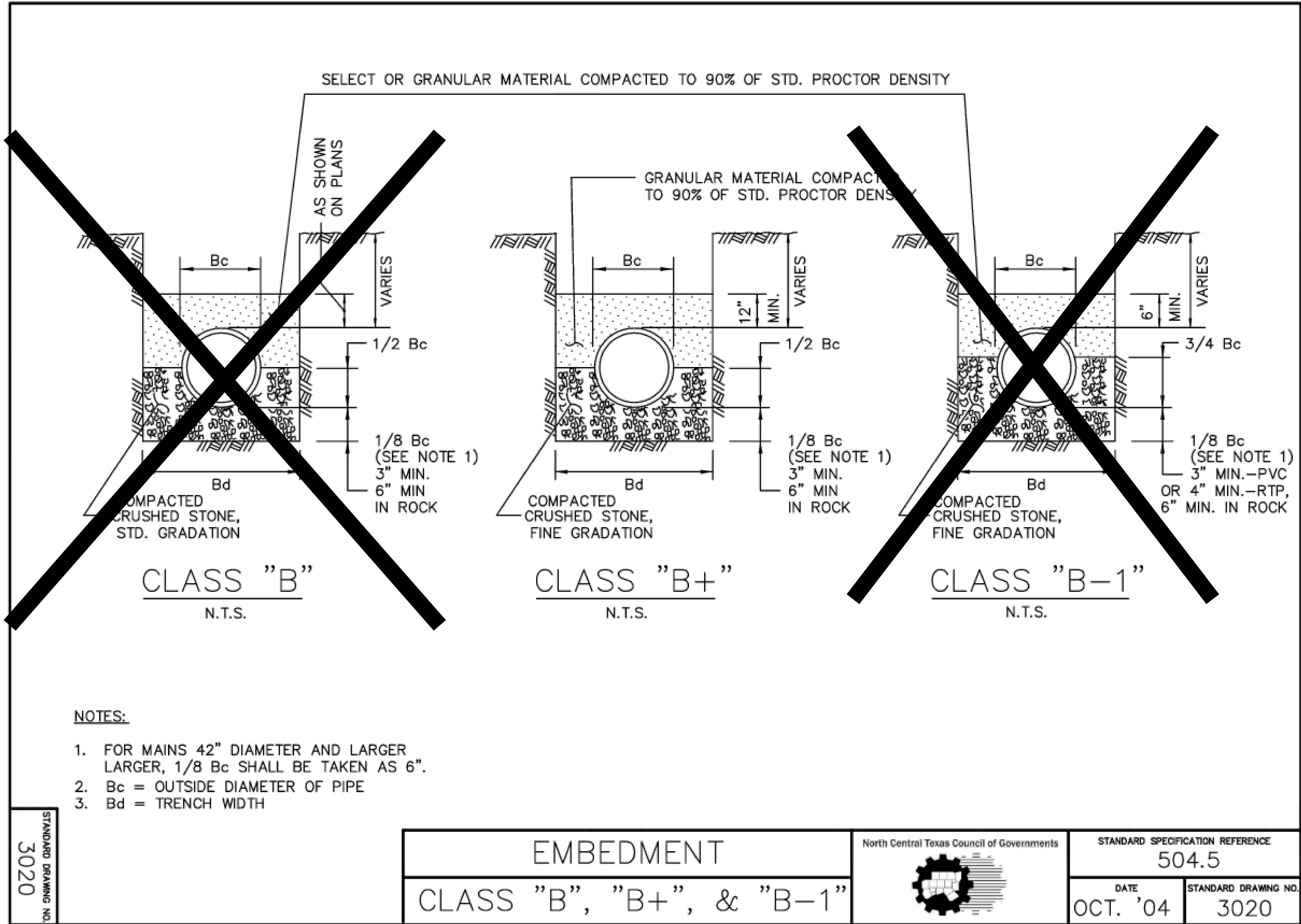
WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
EROSION CONTROL PLAN



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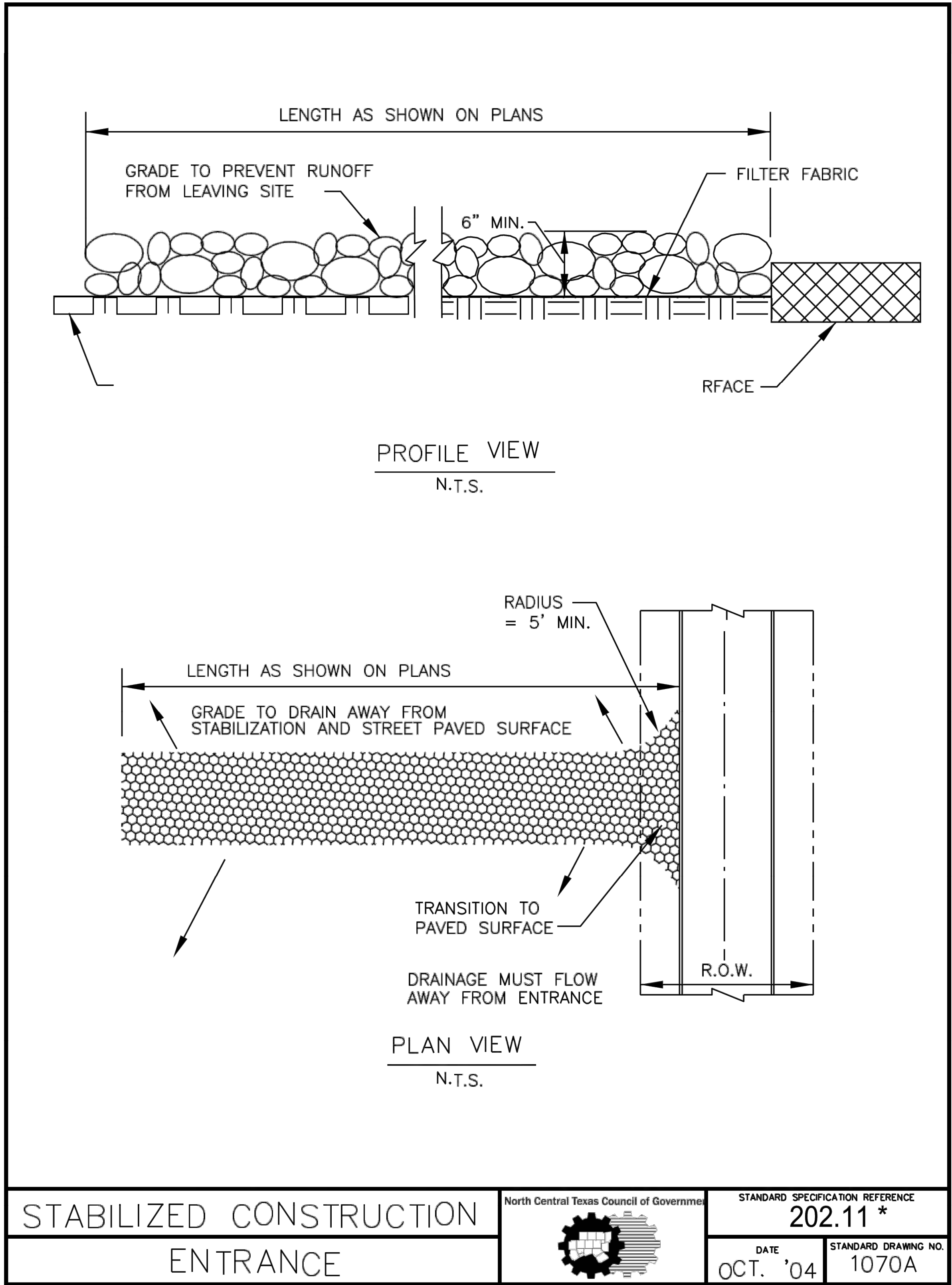
WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
PIPE EMBEDMENT



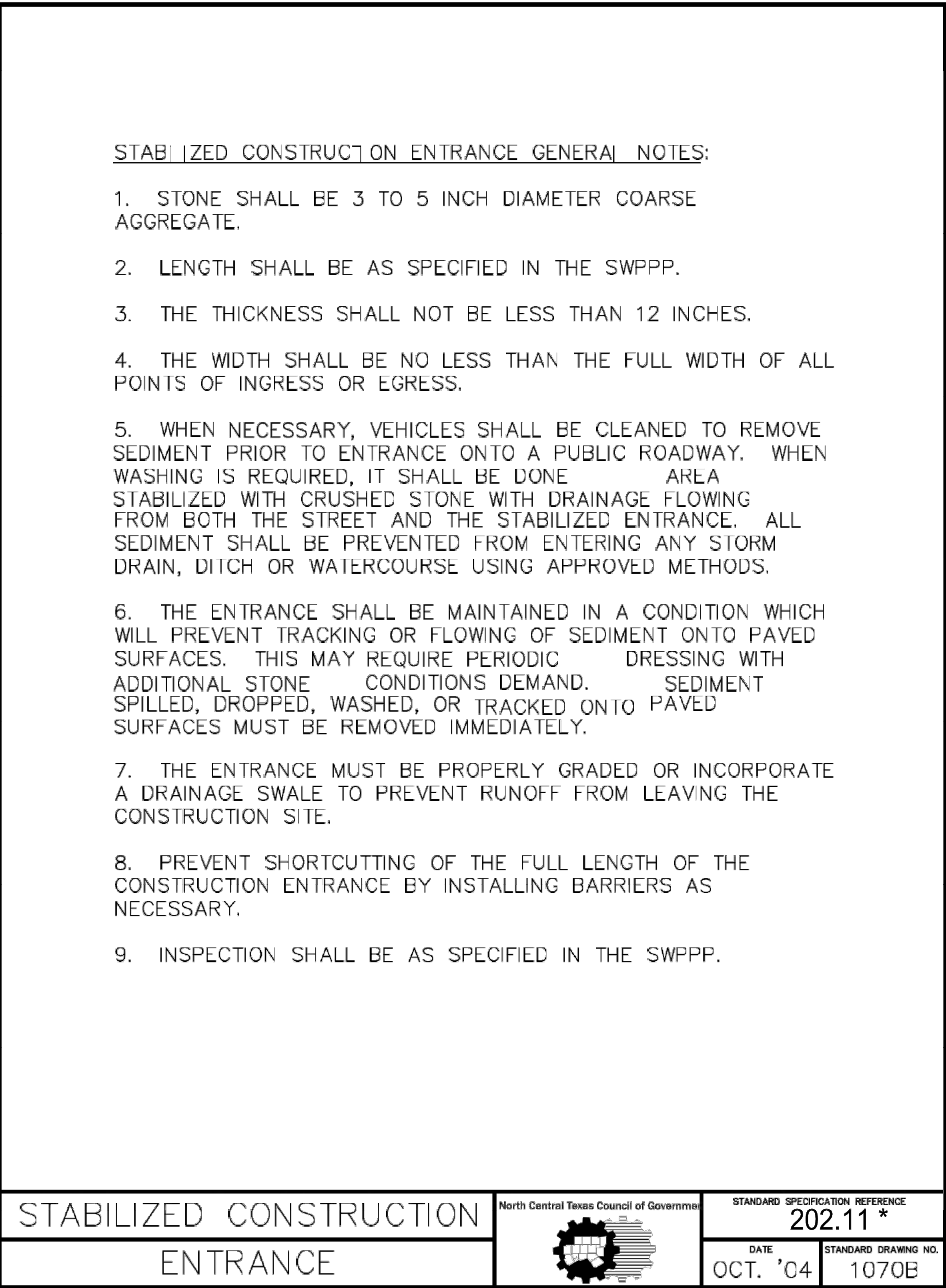
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DATE: September 2023	JOB NUMBER:
SHEET	

Dwg Info: F:\Projects\2023\12055_City_of_Lucas\01_07\DWG_EST1400_CAD\12_Muni\02_PLAN_SHEET\231205501_DET1.dwg - Plotted: 9/7/2023

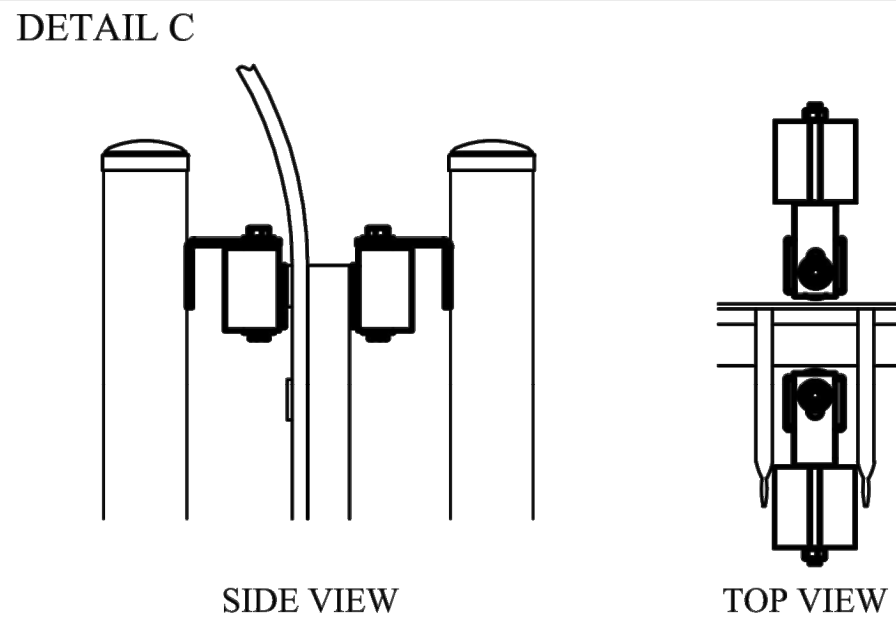
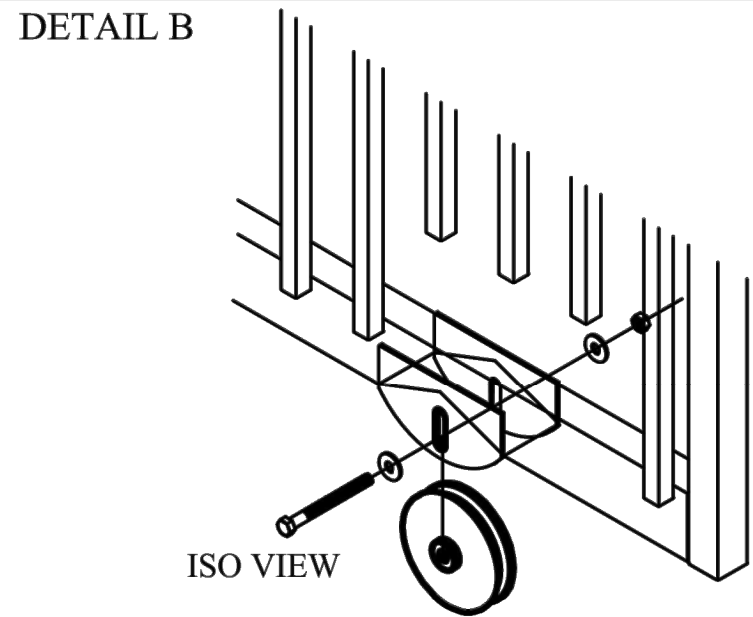
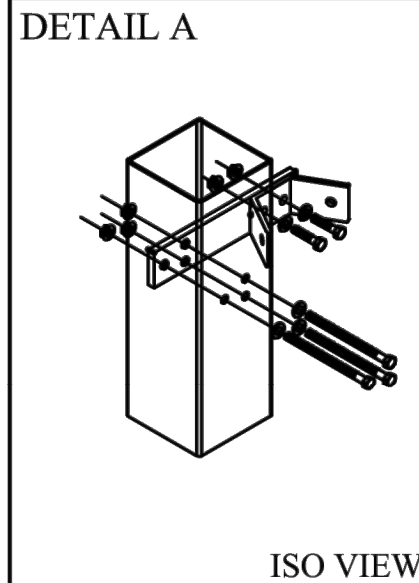
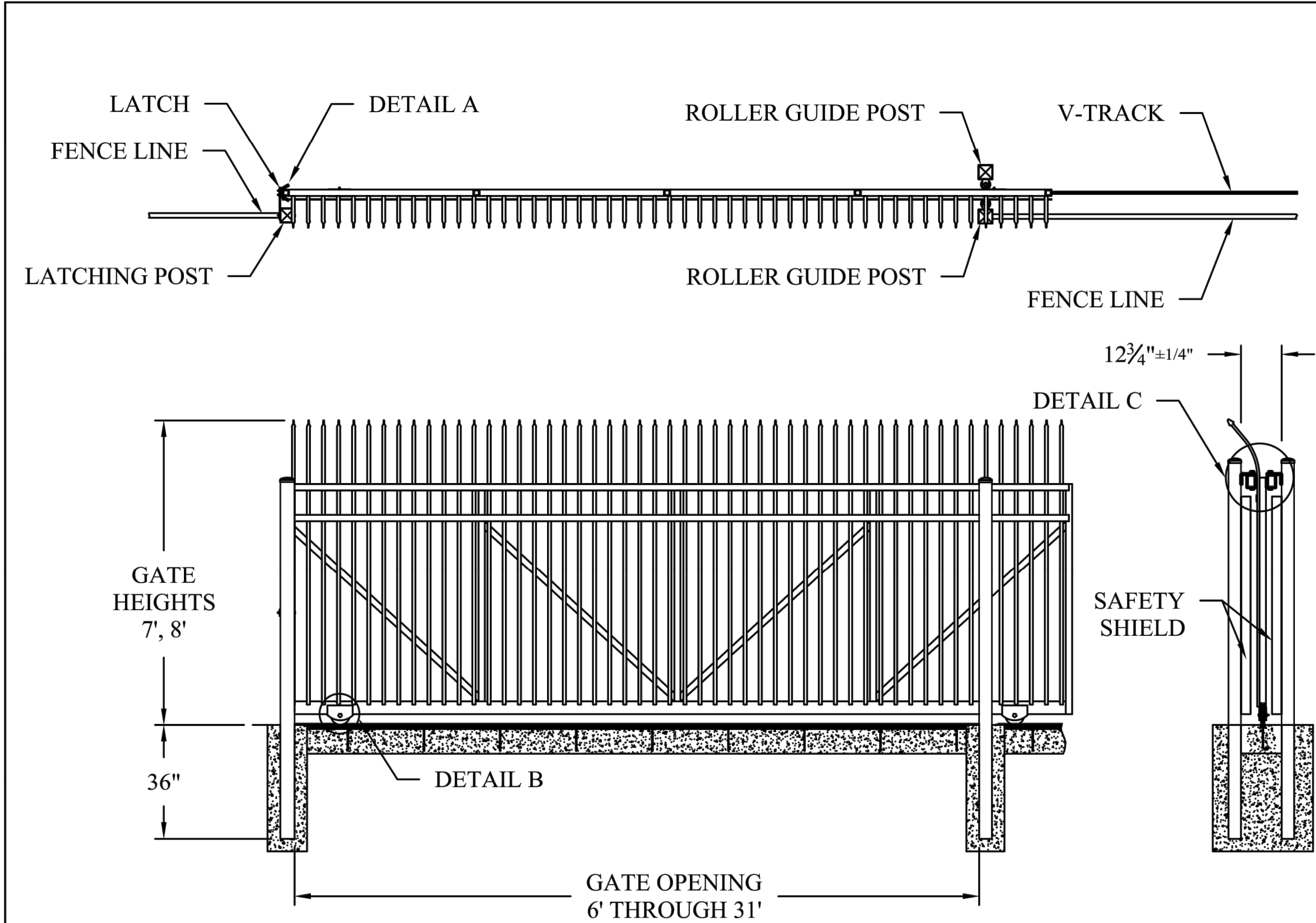


*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*



*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*

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PassPort II® Industrial Ornamental Roll Gate

Ornamental Pickets: 1" Square
Top Rail(s), Uprights and Diagonals Braces: 2" Square
Bottom Rail: 2" x 4" (Notched & Plated for V-track Wheels)
Roll Gate Hardware : Kit #PGKOD
Available in Profiles of 2-Rail, 3-Rail & 3-Rail w/Rings

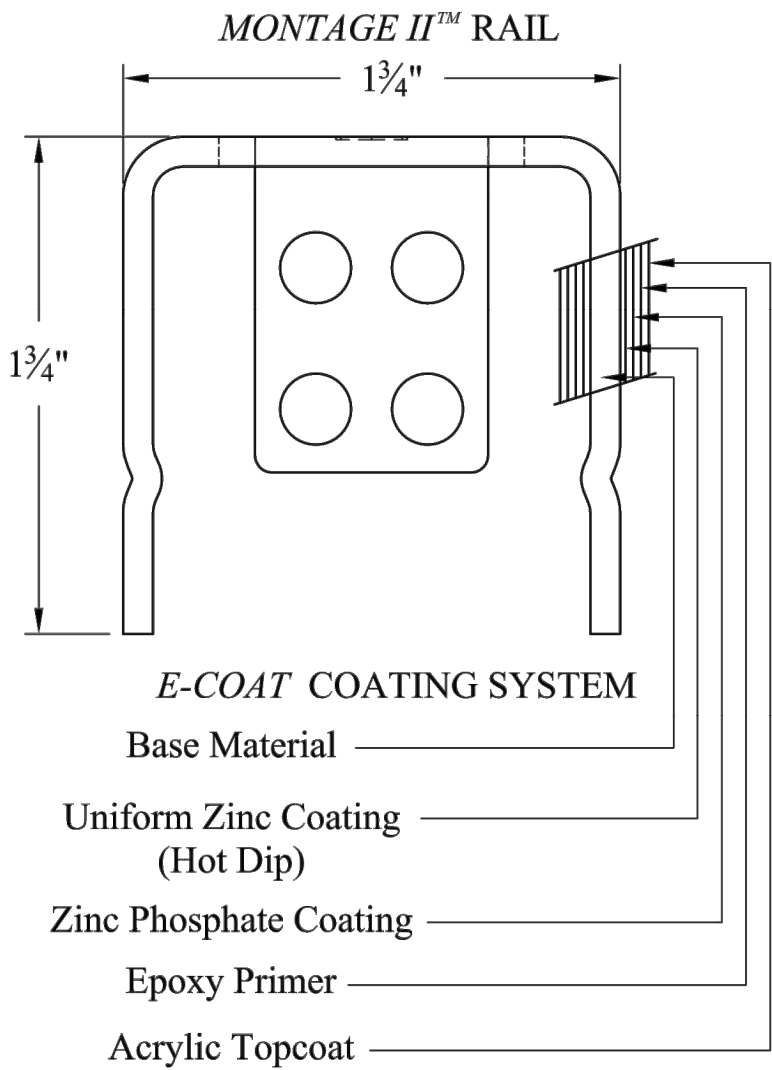
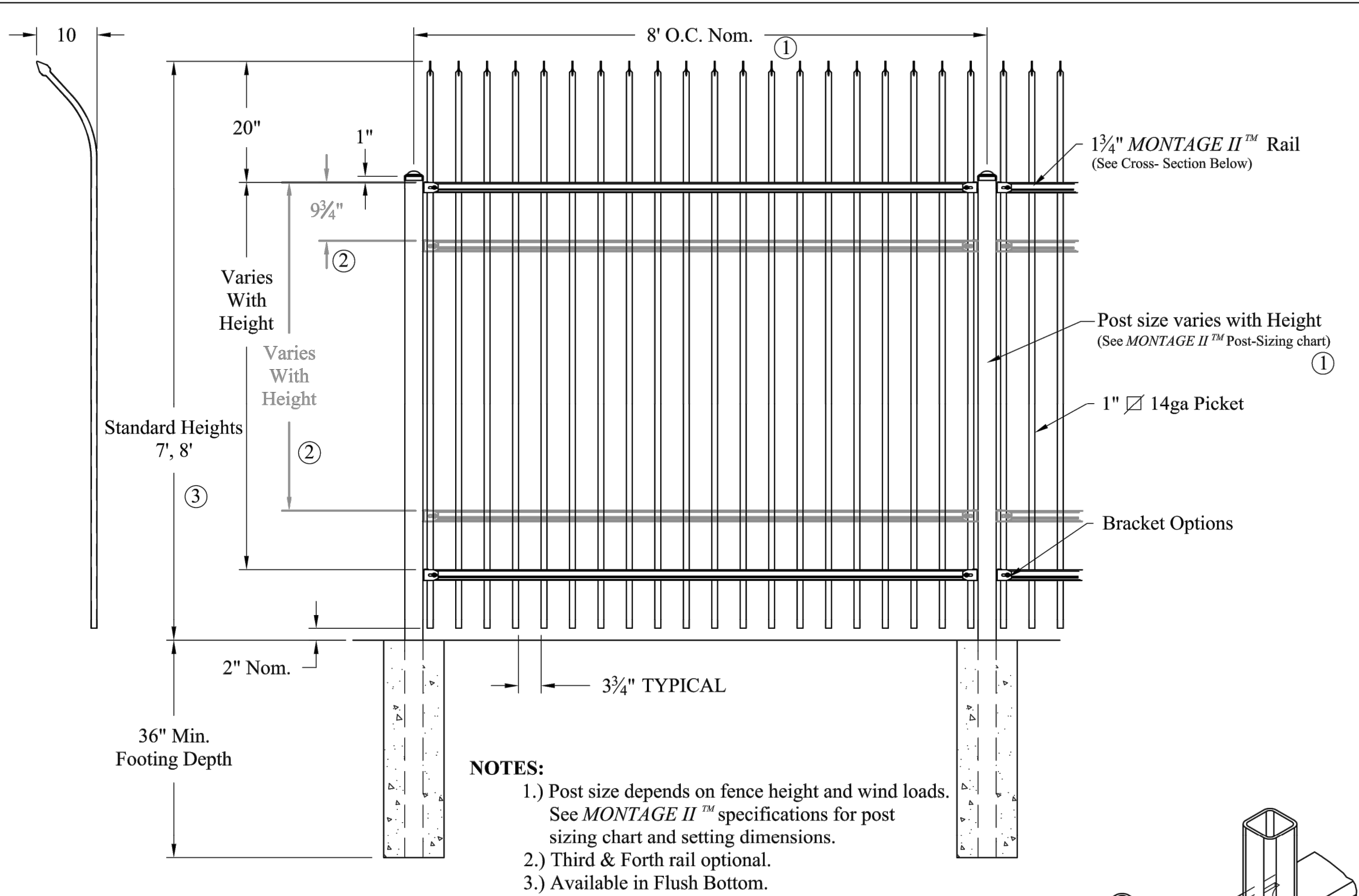
Values shown are nominal and not to be used for installation purposes. See product specification for installation requirements. 2HISORG

Title: PASSPORT II INVINCIBLE INDUSTRIAL ROLL GATE			
DWN: LJM	SH. 1 of 1	SCALE: DO NOT SCALE	
ECR: PA180108	Date: 10/12/18	REV: E	

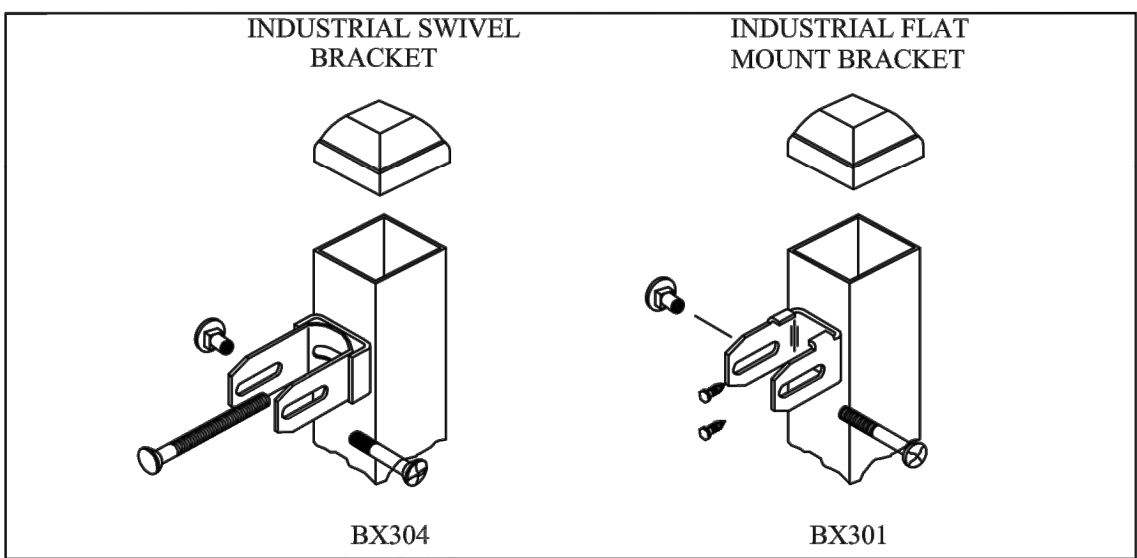


AMERISTAR®

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Tulsa, OK 74116
1-888-333-3422
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PROFUSION™ WELDING PROCESS
No exposed welds,
Good Neighbor profile - Same
appearance on both sides



Values shown are nominal and not to be used for installation purposes. See product specification for installation requirements. 2HISO

HEAVY INDUSTRIAL STRENGTH WELDED STEEL PANEL
PRE-ASSEMBLED

Title: MONTAGE II INVINCIBLE 2/3-4-RAIL		
DR: CI	SH. 1 of 1	SCALE: DO NOT SCALE
CK: PB	Date 6/28/10	REV: c



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NO.	DATE	COMMENT



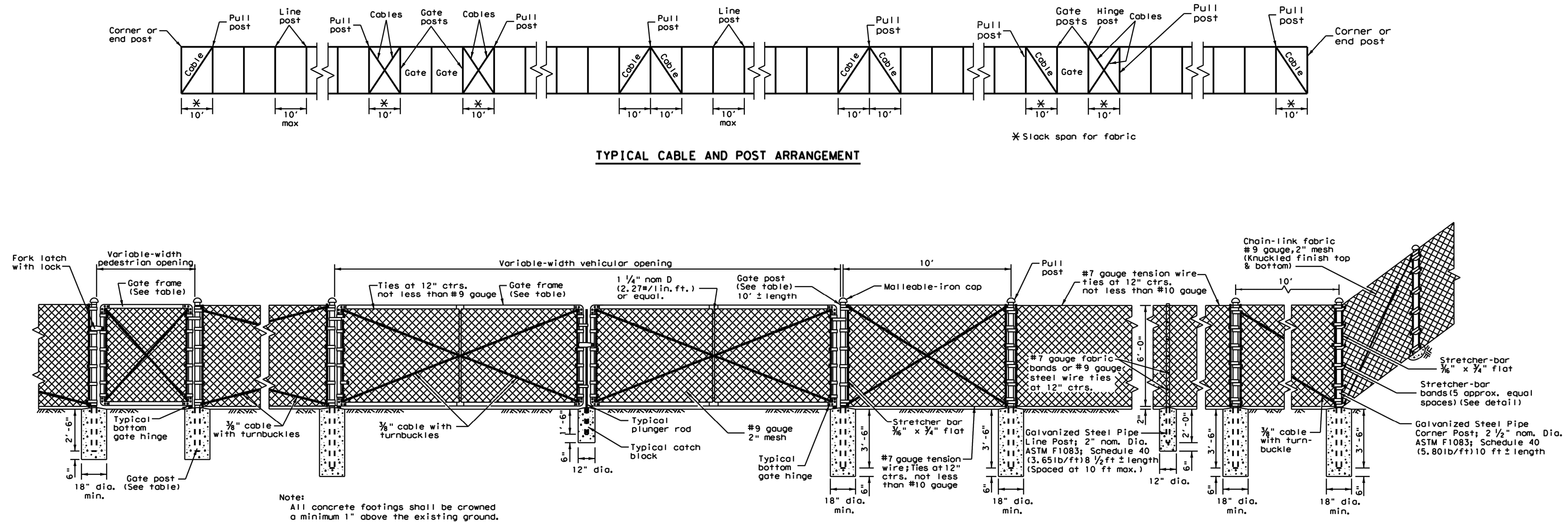
WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
AMERISTAR FENCE DETAILS



JTG ENGINEERING, PLLC
TBPE FIRM REGISTRATION NO. 22389

DESIGN BY: JTG	DRAWN BY: NLS
DATE: September 2023	JOB NUMBER:
SHEET	

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. The use of this standard assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



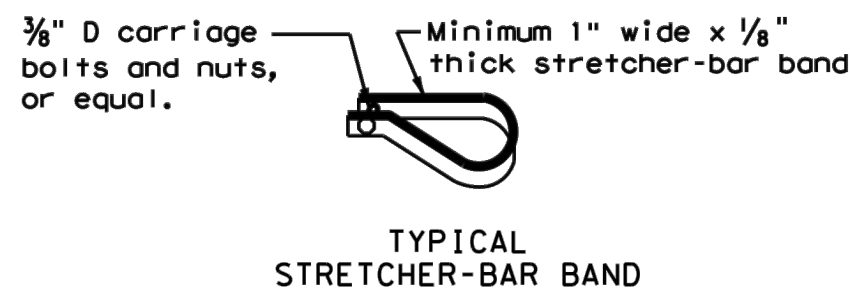
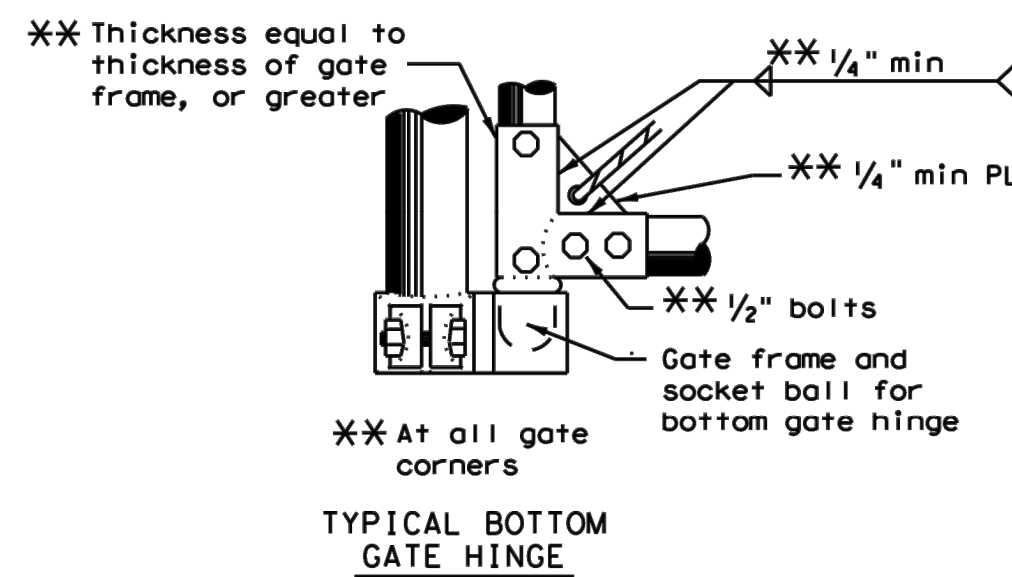
CHAIN-LINK BARRIER FENCE (6 FT.)

Foundation designs shown are "minimums" for a 6 ft. fence. Taller fences may require larger foundation designs.

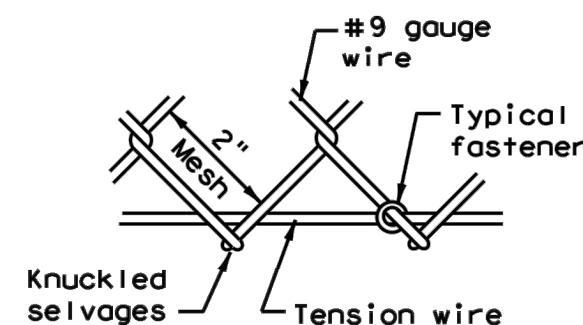
GENERAL NOTES

1. Items hereon shall conform to Item 550, "Chain Link Fence."
2. Typical installation plan may vary as shown elsewhere on the plans or as directed by the Engineer. Location of gates shown elsewhere on plans.
3. Gate-frame members shall be bolted, at frame corners, to joint fittings with four 1/2" bolts per joint.
4. All cable connections are to be made with two 3/8" cable clamps.
5. All pull posts and end posts and their foundations shall have the same respective dimensions as those shown for corner post.
6. All pull post shall be furnished with two stretcher bars.
7. One end of each turnbuckle may be attached directly to fittings with a clevis.
8. Concrete footings are to be crowned at the top to shed water.

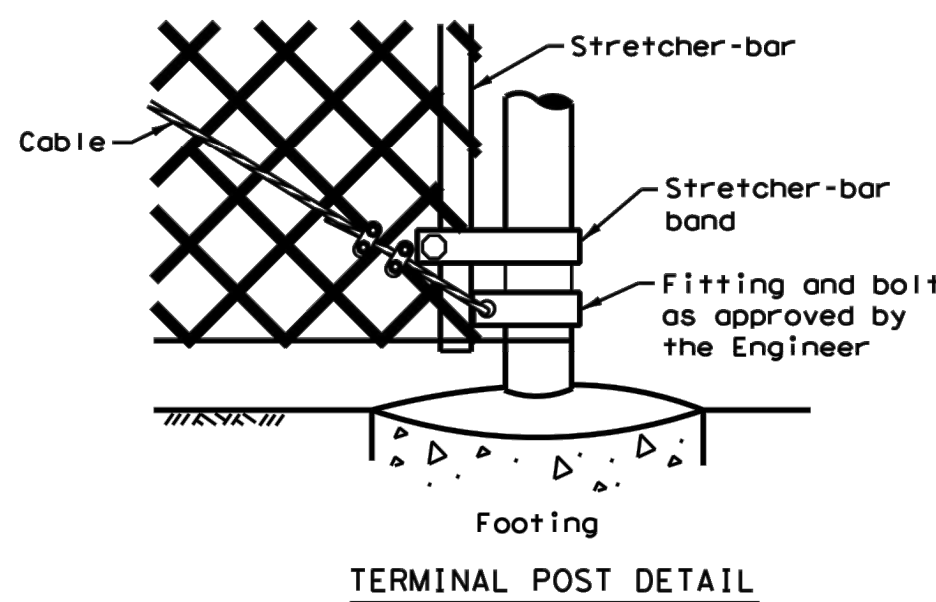
GATE (TYPES AND SIZES)	
<p><u>Single Inclusive</u></p> <p>Up to 6'</p> <p>Over 6' to 12'</p> <p>Over 12' to 18'</p> <p>Over 18'</p>	<p><u>Double Inclusive</u></p> <p>Up to 12'</p> <p>Over 12' to 26'</p> <p>Over 26' to 36'</p> <p>Over 36'</p>



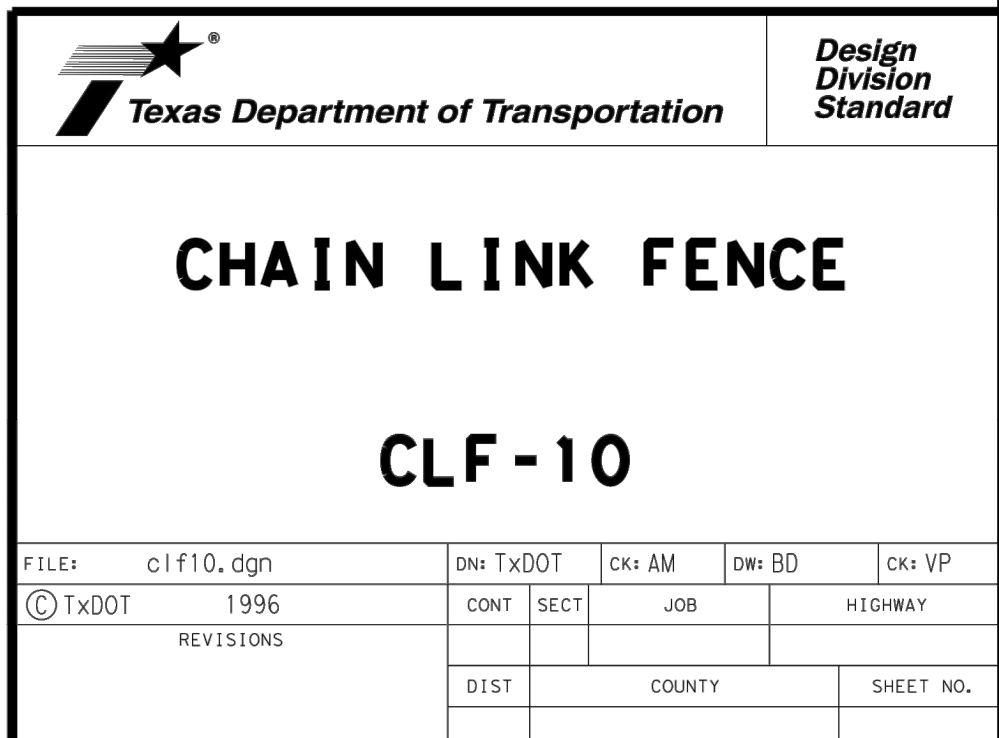
TYPICAL
STRETCHER-BAR BAND



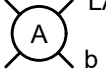
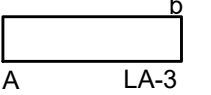

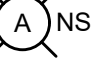
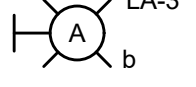
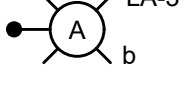



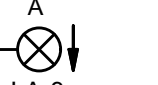

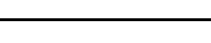

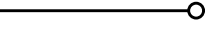
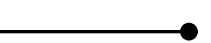
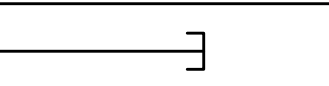










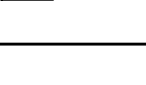
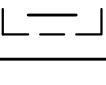
FABRIC & TENSION WIRE
DETAIL, TOP & BOTTOM



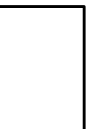




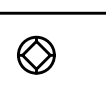
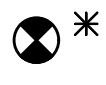
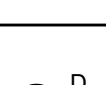







TERMINAL POST DETAIL


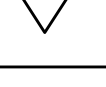
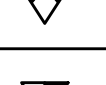
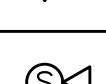
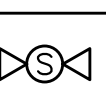

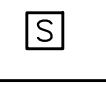
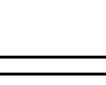

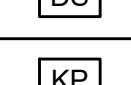

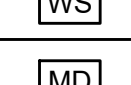
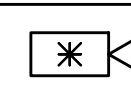

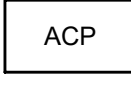
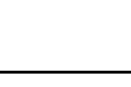
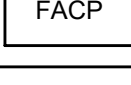
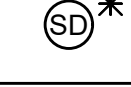


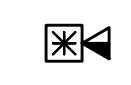




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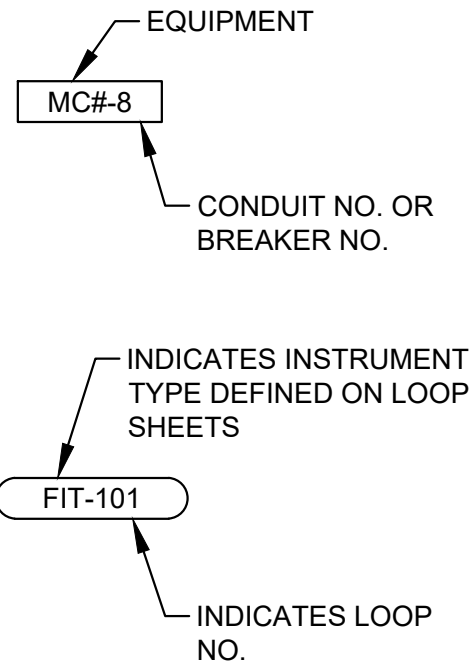
SYMBOLS	DESCRIPTION
 LA-3	REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE FIXTURE: "A"- FIXTURE TYPE "b"- CONTROLLED BY SWITCH "b" "LA-3"- CIRCUIT 3 FROM PANEL LA
 LA-3	REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE FIXTURE, NOTATIONS SAME AS ABOVE
 OR  NS	INDICATES LIGHT FIXTURES WHICH ARE NONSWITCHED, NOTATIONS SAME AS ABOVE "NS" - NONSWITCHED
 LA-3	WALL MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
 LA-3	POLE MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
 LA-3	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS, NOTATIONS SAME AS ABOVE
	REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS, NOTATIONS SAME AS ABOVE
 LA-3	CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE
 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
	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
	HOMERUN, CIRCUITS 1 AND 3 RUN TO PANEL LP-1
	SINGLE POLE SWITCH "b"- INDICATES SWITCH LEG SHALL CONTROL LIGHT FIXTURES WITH "b" DESIGNATION
	MULTI POLE SWITCH "x"- INDICATES NUMBER OF POLE "b"- NOTATIONS SAME AS ABOVE
	SINGLE POLE SWITCH AND PILOT LIGHT, "b"- NOTATIONS SAME AS ABOVE
	DIMMER LIGHTING CONTROL SWITCH, "b"- NOTATIONS SAME AS ABOVE
	TIME SWITCH, "b"-NOTATIONS SAME AS ABOVE
	MANUAL MOTOR STARTER /DISCONNECT
	SINGLE POLE SWITCH WITH OCCUPANCY SENSOR
	SINGLE POLE DIMMER SWITCH
	SWITCH ENCLOSURE "x"- NOTATIONS SAME AS ABOVE "b"- NOTATIONS SAME AS ABOVE "xx"- INDICATES ENCLOSURE TYPE
 LC-1	LIGHTING CONTACTOR WITH NUMBER OF POLES AS INDICATED

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

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

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

EXAMPLE LEGEND:



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
FBO	FURNISHED BY OTHERS
FO	FIBER OPTIC
FRP	FIBERGLASS REINFORCED
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
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

LSIG	CONTINUED BELOW LEFT 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	PUSHBUTTON 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
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
VO	VALVE OPERATOR
W	WIRE
WP	WEATHERPROOF
XP	EXPLOSION PROOF
XFMR	TRANSFORMER

GENERAL NOTE

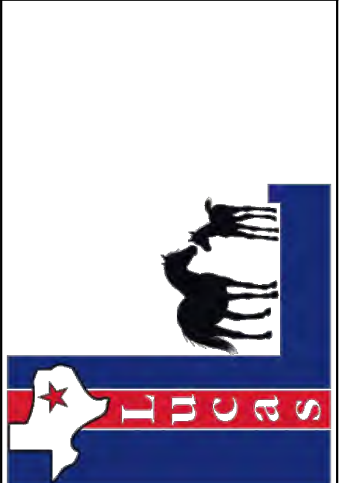
THIS IS A STANDARD LEGEND.
SOME SYMBOLS MAY NOT
APPEAR ON THE DRAWINGS.

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Texas Registration No F-2593

NO.	DATE	COMMENT



WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
ELECTRICAL
LEGEND & SYMBOLS - II



JTG ENGINEERING TBPE FIRM REGISTRATION NO. 22389	DESIGN BY: S. AKTER DATE: 09-07-2023 SHEET	DRAWN BY: J. MEAM JOB NUMBER: E-02
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ELECTRICAL GENERAL NOTES

1. THE NOTES CONTAINED ON THIS SHEET ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR WHEN WORKING IN THE FIELD, AND CONTAIN EXCERPTS FROM THE SPECIFICATION SECTIONS. HOWEVER THE CONTRACTOR IS HEREBY ADVISED THAT THE CONTRACT DOCUMENTS CONSIST OF BOTH THE DRAWINGS AND THE SPECIFICATIONS. AND THAT THE CONTRACTOR MUST COMPLY FULLY WITH BOTH THE BOUND DRAWINGS AND THE BOUND SPECIFICATIONS.
2. ALL EQUIPMENT WIRING, RACEWAYS, ETC. SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL CODES, AND INDUSTRY STANDARDS (IE. UL, NEMA, IEEE, ANSI, ETC.) THE DRAWING NOTES AND DETAILS SHALL BE COMPLIED WITH IN ADDITION TO THE REQUIREMENTS IN THE SPECIFICATIONS. REFER TO EACH SPECIFICATION SECTION FOR SPECIFIC REQUIREMENTS.
3. ALL RACEWAY INSTALLATIONS SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. ALL EXPOSED RACEWAY SHALL BE INSTALLED AS PER ANSI/ NECA 1 PARALLEL TO BEAMS, CEILINGS, FLOORS AND WALLS. SEE SPECIFICATION ON RACEWAYS FOR ADDITIONAL REQUIREMENTS.
4. CONDUITS SHALL BE TERMINATED IN A NEAT MANNER AND STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWING DETAILS.
5. CONDUITS TERMINATED INTO ENCLOSURES SHALL BE PERPENDICULAR TO THE WALLS OF THE ENCLOSURE. THE USE OF SHORT SEALTIGHT ELBOW FITTINGS FOR SUCH TERMINATIONS IS NOT PERMITTED.
6. ALL RACEWAY INSTALLATIONS, CROSSING EXPANSION JOINTS OR TRANSITIONS FROM BELOW GRADE TO EXPOSED ABOVE GRADE, SHALL HAVE EXPANSION OR EXPANSION/DEFLECTION TYPE FITTINGS AS SPECIFIED FOR THE APPLICATION. SEE THE DRAWINGS AND THE SPECIFICATION ON RACEWAYS FOR THE EXACT TYPE OF FITTING TO BE USED.
7. NO CONDUIT SMALLER THAN 3/4", NOR WIRE SMALLER THAN NO. 12 AWG, SHALL BE USED UNLESS SPECIFICALLY NOTED.
8. ALL UNDERGROUND SINGLE CONDUITS AND DUCTBANKS OF MULTIPLE CONDUITS SHALL BE RIGID PVC CONDUIT ENCASED IN REINFORCED RED CONCRETE. CONCRETE DYED RED BEFORE PLACEMENT. MINIMUM SIZE IS 2 INCH. FIELD VERIFY THE ROUTING OF ALL EXISTING UNDERGROUND CONDUIT AND DUCTBANKS. COORDINATE ROUTING OF NEW CONDUIT AND DUCTBANKS TO AVOID INTERFERENCE WITH EXISTING CONDUIT, DUCTBANKS, AND OTHER UNDERGROUND UTILITIES.
9. ALL CHANGES OF DIRECTION GREATER THAN 20 DEGREES IN UNDERGROUND SINGLE, OR DUCTBANKS OF MULTIPLE CONDUITS, SHALL BE ACCOMPLISHED USING PVC COATED RIGID ALUMINUM LONG RADIUS BENDS. BENDS OF PVC CONDUIT GREATER THAN 20 DEGREES, OR THE USE OF FLEXIBLE CONDUIT OF ANY TYPE, WILL NOT BE PERMITTED. SEE THE SPECIFICATIONS FOR MORE REQUIREMENTS.
10. LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT SHALL BE USED FOR THE PRIMARY AND SECONDARY OF TRANSFORMERS, GENERATOR TERMINATIONS AND OTHER EQUIPMENT WHERE VIBRATION IS PRESENT. USE IN OTHER LOCATIONS IS NOT PERMITTED, EXCEPT FOR CONNECTIONS TO INSTRUMENTATION TRANSMITTERS, WHERE MULTIPLE PENETRATIONS ARE REQUIRED. LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT SHALL HAVE A MAXIMUM LENGTH NOT GREATER THAN THAT OF A FACTORY MANUFACTURED LONG RADIUS ELBOW OF THE CONDUIT SIZE BEING USED. THE MAXIMUM BENDING RADIUS SHALL NOT BE LESS THAN THAT SHOWN IN THE NEC CHAPTER 9, TABLE 2, "OTHER BENDS". BX OR AC TYPE PREFABRICATED CABLES WILL NOT BE PERMITTED.
11. THE WIRING DIAGRAMS, BLOCK DIAGRAMS, QUANTITY/SIZES OF WIRES/CONDUITS REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY APPROVED. ALL MODIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFIED.
12. ALL JUNCTION BOXES, PULL BOXES AND TERMINATION BOXES IN NEMA 12 AREAS SHALL BE ALUMINUM. FOR NEMA 4X AREAS SEE SPECIFICATIONS FOR BOX DETAILS AND SPECIFICATIONS.
13. SEAL ALL RACEWAYS ENTERING JUNCTION BOXES OR CONTROL PANELS CONTAINING ELECTRICAL OR INSTRUMENTATION EQUIPMENT WITH WATERTIGHT SEALANT. REFER TO THE SPECIFICATIONS FOR DETAILS.
14. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURE LOCATIONS, OR TERMINAL BOX LOCATIONS, ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER, DURING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
15. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURES DIMENSIONS ARE APPROXIMATE. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURES OR TERMINAL BOX DIMENSIONS SHALL BE VERIFIED WITH THE EQUIPMENT SUPPLIER. ALLOW FOR LOCATION CHANGES AND INCLUDE IN THE CONTRACT PRICE. THE EXACT LOCATIONS OF ALL ELECTRICAL EQUIPMENT AND ROUTING OF ALL CABLES AND CONDUITS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER DURING CONSTRUCTION.
16. CORING OF AN EXISTING STRUCTURE SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER. CORING THROUGH STRUCTURAL BEAMS IS STRICTLY PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE OWNER/ENGINEER.
17. THE LOCATION OF ALL ELECTRICAL EQUIPMENT AND ROUTING OF CABLES AND CONDUITS SHALL BE COORDINATED AND APPROVED BY THE OWNER.
18. THE DUCTBANK ROUTING AS SHOWN ON THE DRAWING IS APPROXIMATE. FIELD VERIFY THE EXACT DUCTBANK ROUTING, CABLE LENGTH AND CONDUIT LENGTH.
19. PROVIDE CONDUIT SEALS FOR CONDUIT PENETRATIONS AS PER NEC AND NFPA820.
20. COORDINATE ALL WORK WITH THE OWNER.

21. LOCATE ALL UNDERGROUND UTILITIES BEFORE DIGGING. COORDINATE THE EFFORT WITH THE OWNER.
22. ALL SLOTTED CHANNEL, SLOTTED CHANNEL SUPPORT MATERIAL, WASHERS, SCREWS, NUTS, CONDUIT CLAMPS, ALL THREAD SPRING NUTS AND MISC. MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL.
23. LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS. THE MOUNTING HEIGHT SHALL BE MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.
24. CONDUIT AND WIRE FOR THE HVAC EQUIPMENT AND MISCELLANEOUS DEVICES SHALL BE:
 - A. 3/4" (MIN) RIGID ALUMINUM.
 - B. NO.14 XHHW CU. WIRE XHHW (MIN.).
 - C. IN ACCORDANCE WITH ALL ELECTRICAL AND HVAC SPECIFICATIONS REQUIREMENTS.
25. INSTALL ALL CONDUITS AND WIRES SHOWN ON THE INTERFACE DIAGRAM SHALL BE INSTALLED BY THE CONTRACTOR. GROUPING OF CONDUIT AND WIRE MAY BE CHANGED, IF APPROVED BY THE ENGINEER AND OWNER.
26. ALL CONDULETS SHALL BE FORM 7 AND SHALL HAVE 316 SS CLAMP COVERS WITH 316 SS CLAMPS AND SCREWS. SCREW DOWN COVERS ARE UNACCEPTABLE. REFER TO THE SPECIFICATIONS FOR MORE INFORMATION.
27. ALL BARE COPPER GROUNDING CONDUCTORS SHALL BE TINNED, ALL GROUND RODS SHALL BE 3/4" BY 10' LONG. ALL EXPOSED COPPER GROUND CABLES SHALL BE GREEN INSULATED CONDUCTORS. PROVIDE XHHW INSULATION.
28. WHERE NOTES ON THE DRAWING INDICATE THAT THE CONTRACTOR SHALL FIELD-VERIFY, THE INTENT IS FOR THE CONTRACTOR TO INVESTIGATE TO THE EXTENT NECESSARY TO PROVIDE THE WORK AND MATERIALS PRIOR TO BIDDING AND INCLUDE ALL COSTS IN THE BID PRICE. THE CONTRACT PRICE SHALL NOT BE INCREASED WHEN THE CONTRACTOR HAS NOT INVESTIGATED PER THE NOTES DIRECTING THAT BE DONE.

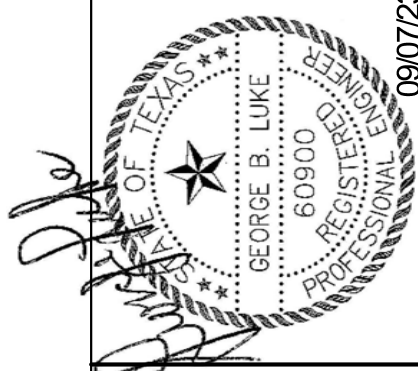
TYPICAL ENCLOSURE TYPES BY AREA TYPE						
NON-HAZARDOUS AREAS	BOXES & ENCLOSURES					CONDUIT
	1	3R	4X	4X*	12	
OUTDOOR; GENERAL AREAS		X	X			RIGID ALUMINUM
OUTDOOR; CHEMICAL AREAS				X		SCHEDULE 80 PVC
INDOOR; CHEMICAL ROOM				X		SCHEDULE 80 PVC
INDOOR; CONDITIONED SPACE					X	RIGID ALUMINUM
INDOOR; NON-CONDITIONED SHOP SPACE					X	RIGID ALUMINUM
INDOOR; NON-CONDITIONED PROCESS AREA			X			RIGID ALUMINUM
INDOOR, ADMIN BUILDING	X					EMT/RIGID ALUMINUM
CLASS I, DIVISION 1	REFER TO NEC, NFPA-820, AND CONTRACT CONSTRUCTION SPECIFICATIONS					
CLASS I, DIVISION 2	REFER TO NEC, NFPA-820, AND CONTRACT CONSTRUCTION SPECIFICATIONS					
GENERAL NOTES: <ul style="list-style-type: none"> EQUIPMENT SUCH AS MOTOR CONTROL CENTER, SWITCHGEAR, VFDS, AND OTHER STAND-ALONE MOTOR STARTERS ARE AS SHOWN ON DRAWINGS. NEMA 1 ENCLOSURES ARE TO BE NEMA 1 GASKETED. NEMA 4X* ENCLOSURES ARE TO BE NON-METALLIC (ie PVC) NEMA 4X CONDUIT INSIDE ADMIN BUILDING LOCATION IS TO BE EMT IF CONCEALED IN DRY WALL (AKA SHEET ROCK WALL); OTHERWISE RIGID ALUMINUM. USE OF NEMA 3R OR 4X IN OUTDOOR GENERAL AREAS IS AS SHOWN ON DRAWINGS. 						

CONDUIT TYPE	LOCATION
RIGID GALVANIZED CONDUIT	NOT ACCEPTABLE FOR USE ON THIS PROJECT EXCEPT FOR THE UTILITY COMPANY'S CONDUCTORS. ALL UTILITY COMPANY'S DUCTS SHALL BE AS SPECIFIED BY UTILITY COMPANY.
PVC COATED ALUMINUM CONDUIT	ALL EMBEDDED CONDUIT BENDS, UNDERGROUND DUCTBANK OF MORE THAN 20 DEGREES, AND ALL CONDUIT STUB-UPS TO A MINIMUM OF 6" ABOVE FINISHED FLOOR OR GRADE AND IN CHLORINE AND CAUSTIC ROOMS.
LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT	RACEWAY CONNECTION TO VIBRATING EQUIPMENT ONLY, IN ALL AREAS LIMITED TO 36" UNLESS APPROVED BY OWNER AND ENGINEER.
RIGID NON-METALLIC, SCHEDULE 40 PVC CONDUIT	UNDERGROUND ENCASED IN RED DYE REINFORCED CONCRETE. (AS WHERE SPECIFIED)
RIGID NON-METALLIC, SCHEDULE 80 PVC CONDUIT	FOR USE IN CHLORINE AND CAUSTIC ROOMS, AND UNDERGROUND. ENCASED IN RED DYED REINFORCED CONCRETE. (AS WHERE SPECIFIED)
FLEXIBLE ALUMINUM CONDUIT	FIXTURE WHIP CONNECTION TO LIGHTING FIXTURES IN NEMA 12 AREAS (MAXIMUM 3-FT). BX OR AC TYPE PREFABRICATED CABLES ARE NOT PERMITTED.
ALUMINUM RIGID METAL CONDUIT	ALL ABOVE GRADE AREAS, EXCEPT FOR CONCRETE EMBEDDED AND THOSE AREAS ALREADY DESCRIBED IN THIS TABLE
ELECTRIC METALLIC TUBING (EMT) CONDUIT	FOR USE ONLY ON CONCEALED, ABOVE GROUND, INTERIOR ELECTRICAL WIRING IN AIR-CONDITIONED ADMINISTRATIVE BUILDINGS REMOTE TO THE PROCESS AREA, AND CLEARLY DEFINED AS SUCH ON THE DRAWINGS OR IN THE SPECIFICATIONS.

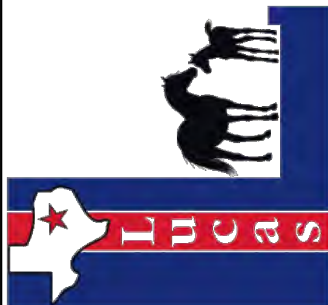
DEMOLITION NOTES

1. COORDINATE THE DEMOLITION OF ELECTRICAL EQUIPMENT, WIRE, EQUIPMENT AND DEVICES WITH THE GENERAL DEMOLITION AND SCHEDULE. THE DRAWINGS ARE INTENDED TO CONVEY THE GENERAL NATURE AND SCOPE OF THE DEMOLITION WORK. EVERY ITEM TO BE DEMOLISHED MAY NOT BE SHOWN. FIELD VERIFY, AND INCLUDE ALL DEMOLITION WORK IN THE CONTRACT PRICE.
2. PROVIDE TEMPORARY WIRE AND CONDUIT FOR THE EQUIPMENT WHICH MAY BE AFFECTED BY THE DEMOLITION BUT TO REMAIN IN SERVICE.
3. RELOCATE AND RECONNECT POWER AND CONTROL RACEWAYS AND CONDUCTORS TO EQUIPMENT AFFECTED BY DEMOLITION WORK.
4. ALL CONDUCTORS BEING DEMOLISHED SHALL BE DISCONNECTED AND REMOVED FROM THE LOAD TO THE SOURCE. SURFACE MOUNTED CONDUITS AND MOUNTING HARDWARE SHALL BE REMOVED. UNDERGROUND CONDUITS WHICH ARE NOT BEING REMOVED OR OTHERWISE NOT BEING MADE UNUSABLE SHALL BE CAPPED AND TAGGED AS SPARE, WITH INFORMATION CLEARLY INDICATING THE LOCATION OF THE OTHER END.
5. ALL SURFACES WHERE DEMOLISHED EQUIPMENT OR CONDUIT IS REMOVED SHALL BE CLEANED, PATCHED AND PAINTED TO MATCH THE SURROUNDING SURFACE.
6. CHECK THE FUNCTION OF EACH CONDUCTOR BEFORE REMOVING OR DISCONNECTING.
7. IF A CONDUCTOR WHICH HAS TO STAY IN SERVICE (NOT BEING DEMOLISHED) IS INSTALLED IN A COMMON CONDUIT WITH CONDUCTORS WHICH ARE BEING DEMOLISHED, THE CONTRACTOR SHALL REMOVE ALL CONDUCTORS FROM THE CONDUIT, PROVIDE NEW CONDUCTORS WHICH ARE REPLACEMENTS FOR THE CONDUCTORS THAT ARE TO REMAIN IN SERVICE AND RE-INSTALL THE NEW CONDUCTORS. AFTER THE CONDUCTORS ARE PULLED, MEGGER OR VFL TEST EACH CONDUCTOR. CONNECT BOTH ENDS OF THE NEW CONDUCTORS AND TEST THE SYSTEM FOR PROPER FUNCTION. DO NOT RE-PULL USED CONDUCTORS UNLESS SPECIFIED.
8. WHERE EQUIPMENT IS BEING RE-FED FROM A NEW SOURCE, EXISTING CONDUIT MAY BE REUSED ONLY IF THE CONDUIT AND FITTINGS ARE OF THE TYPE SPECIFIED FOR NEW WORK ON THIS CONTRACT. IF NOT, THE CONDUIT AND CONDUCTORS SHALL BE REPLACED WITH NEW MATERIAL MEETING THE SPECIFICATIONS, AT NO ADDITIONAL COST TO THE OWNER.
9. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER/ENGINEER TO FLAG EXISTING UNDERGROUND CONDUITS BEFORE DIGGING.
10. THE OWNER HAS THE RIGHT OF FIRST REFUSAL TO THE EQUIPMENT BEING REMOVED. THE CONTRACTOR SHALL DELIVER THE EQUIPMENT WHICH THE OWNER WISHES TO KEEP AT A LOCATION DESIGNATED BY THE OWNER. SEE SPECIFICATIONS.
11. DO NOT MAKE ANY MODIFICATIONS TO THE EXISTING ELECTRICAL EQUIPMENT UNTIL THE FOLLOWING HAS BEEN DONE:
- A. THE OWNER/CONTRACTOR SHALL WITNESS AND RECORD THE CONDITION OF THE EXISTING EQUIPMENT, THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCIES.
 - B. THE OWNER SHALL OPERATE THE EQUIPMENT TO DEMONSTRATE THE CURRENT CONDITIONS. THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCIES.
 - C. A WRITTEN AND PHOTOGRAPHIC RECORD OF THE OPERATION AND EXISTING CONDITION SHALL BE KEPT IN A THREE RING BINDER AT THE OWNER/CONTRACTOR TRAILER, IN FORM OF PICTURES AND INFORMATION.
 - D. A FORM SHALL BE GENERATED BY THE CONTRACTOR TO RECORD THE OBSERVATIONS. BOTH PARTIES SHALL SIGN ON THE FORM.
 - E. REPLACE ALL MATERIAL OR EQUIPMENT DAMAGED DURING THE COURSE OF WORK.
 - F. AFTER THE CHANGES ARE MADE, THE EQUIPMENT SHALL BE INSPECTED AND RE-TESTED TO DEMONSTRATE THAT IT FUNCTIONS CORRECTLY.
 - G. NO PORTION OF EXISTING CONDUCTORS SHALL BE SPLICED TO NEW CONDUCTORS FOR RE-USE WITHOUT SPECIFIC APPROVAL FROM THE OWNER/ENGINEER ON A CASE-BY-CASE BASIS.
- ## MCC, CONTROL PANELS, PANELBOARDS
- THESE NOTES APPLY TO CONTROL PANELS, MCC ETC WHICH HAS TO BE REFURBISHED, MODIFIED, DISCONNECTED & RECONNECTED OR REWORKED.
- THE CONTRACTOR SHALL NOT MAKE ANY MODIFICATION UNTIL THE FOLLOWING HAS BEEN DONE:
- A. THE OWNER/CONTRACTOR SHALL WITNESS THE CONDITION OF THE EXISTING EQUIPMENT, THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCY.
 - B. THE OWNER SHALL OPERATE THE EQUIPMENT TO DEMONSTRATE THE CURRENT CONDITIONS. THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCIES.
 - C. A RECORD OF THE OPERATION AND EXISTING CONDITION SHALL BE KEPT IN A THREE RING BINDER AT THE OWNER/CONTRACTOR TRAILER, IN FORM OF PICTURES AND INFORMATION.
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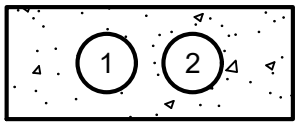
WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
ELECTRICAL
GENERAL NOTES



JTG ENGINEERING
TBPE FIRM REGISTRATION NO. 22389

DESIGN BY: S.AKTER	DRAWN BY: J.MEAM
DATE: 09-07-2023	JOB NUMBER:
SHEET	

ONE-LINE DIAGRAM

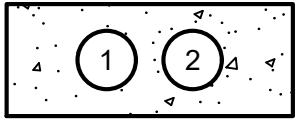


DUCTBANK

SECTION A

NTS

TABLE FOR SECTION A				
CONDUIT NO.	CONDUIT TAG		CONDUIT SIZE	DESCRIPTION
1	SE-1		TBD	SERVICE ENTRANCE
2	SPARE		2"Ø	-

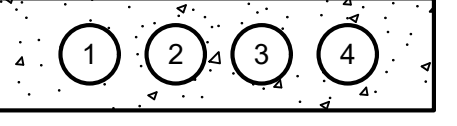


DUCTBANK

SECTION B

NTS

TABLE FOR SECTION B			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	LP-18	2"¢	MOTORIZED GATE POWER
2	RTU-5	2"¢	ENTRY GATE INTRUSION SWITCH





DUCTBANK

SECTION C

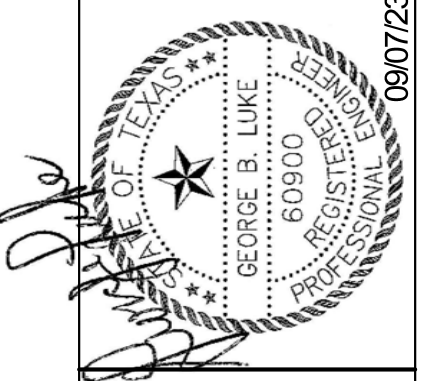
NTS -

TABLE FOR SECTION B				
2	CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
	1	SE-1	2" C	SERVICE ENTRANCE
	2	RTU-5	2" C	ENTRY GATE INTRUSION SWITCH
	3	LP-18	2" C	MOTORIZED GATE POWER
	4	SPARE	2" C	-

NOTES BY SYMBOL  :

1. 480Y/277 3Ø, 4W PIN AND SLEAVE RECEPTACLE WITH SPRING HINGE COVER WIRED TO ALTERNATE SOURCE INPUT ON MANUAL TRANSFER SWITCH. USE CITY STANDARD TO MATCH CITY'S GENERATOR PLUG.
2. COORDINATE WITH GRAYSON COUNTY ELECTRIC COOP FOR UNDERGROUND SERVICE FROM TRANSFORMER POLE TO METER TO BE INSTALLED BY GVEC. GVEC CONTACT: WILL MCGINNIS (903-821-5623).
3. COORDINATE ALL EST WALL PENETRATIONS WITH TANK MANUFACTURER.

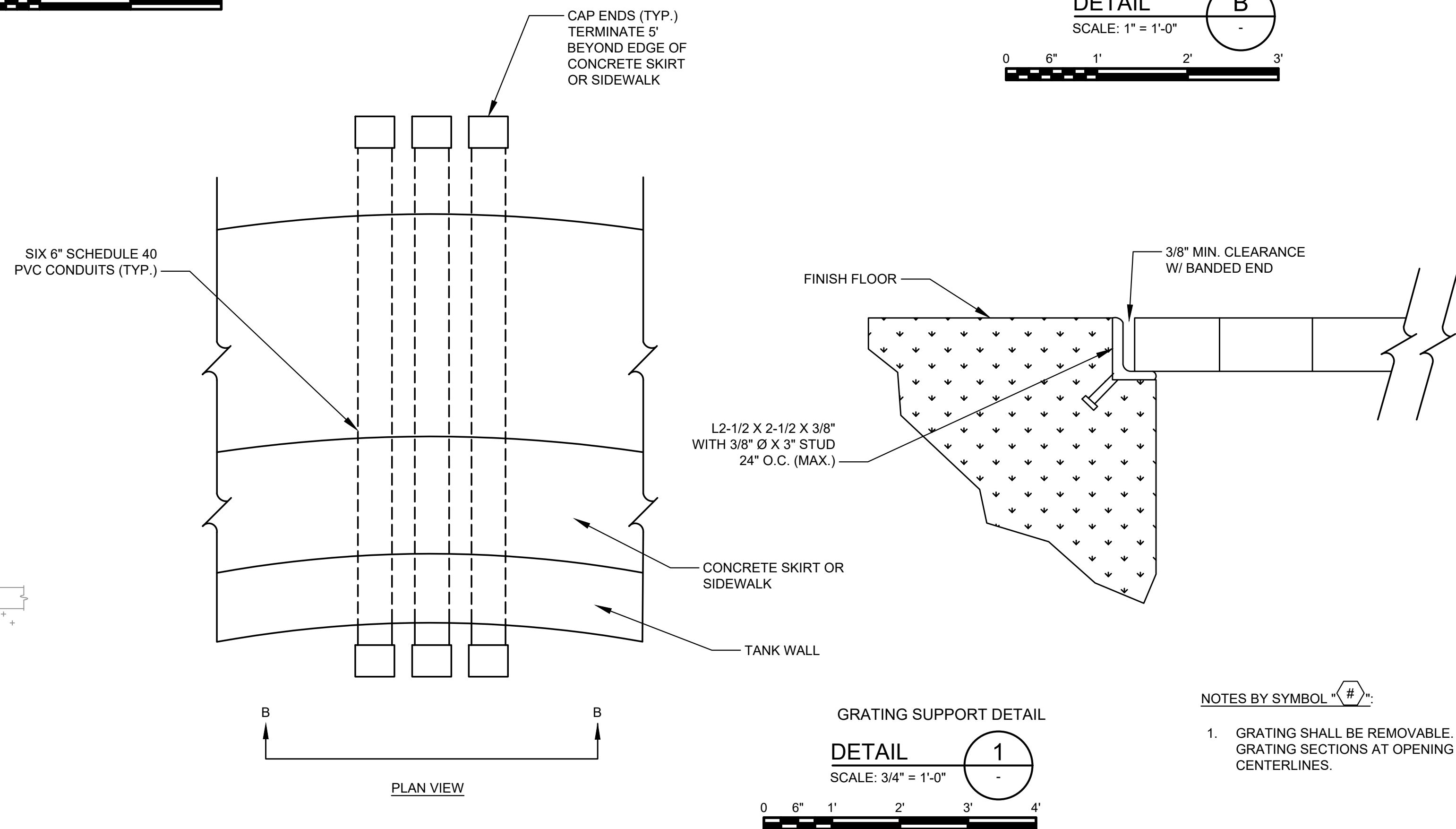
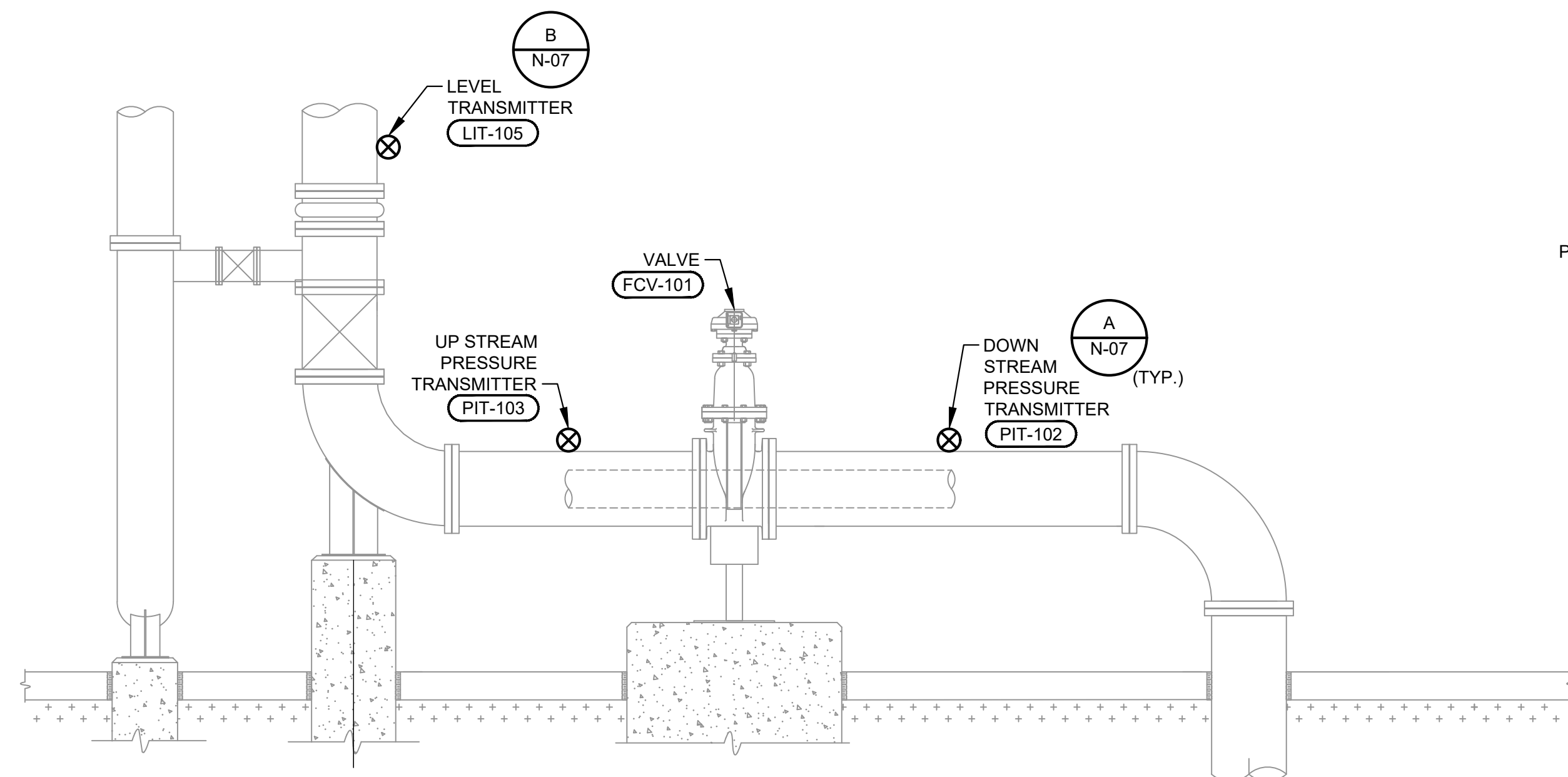
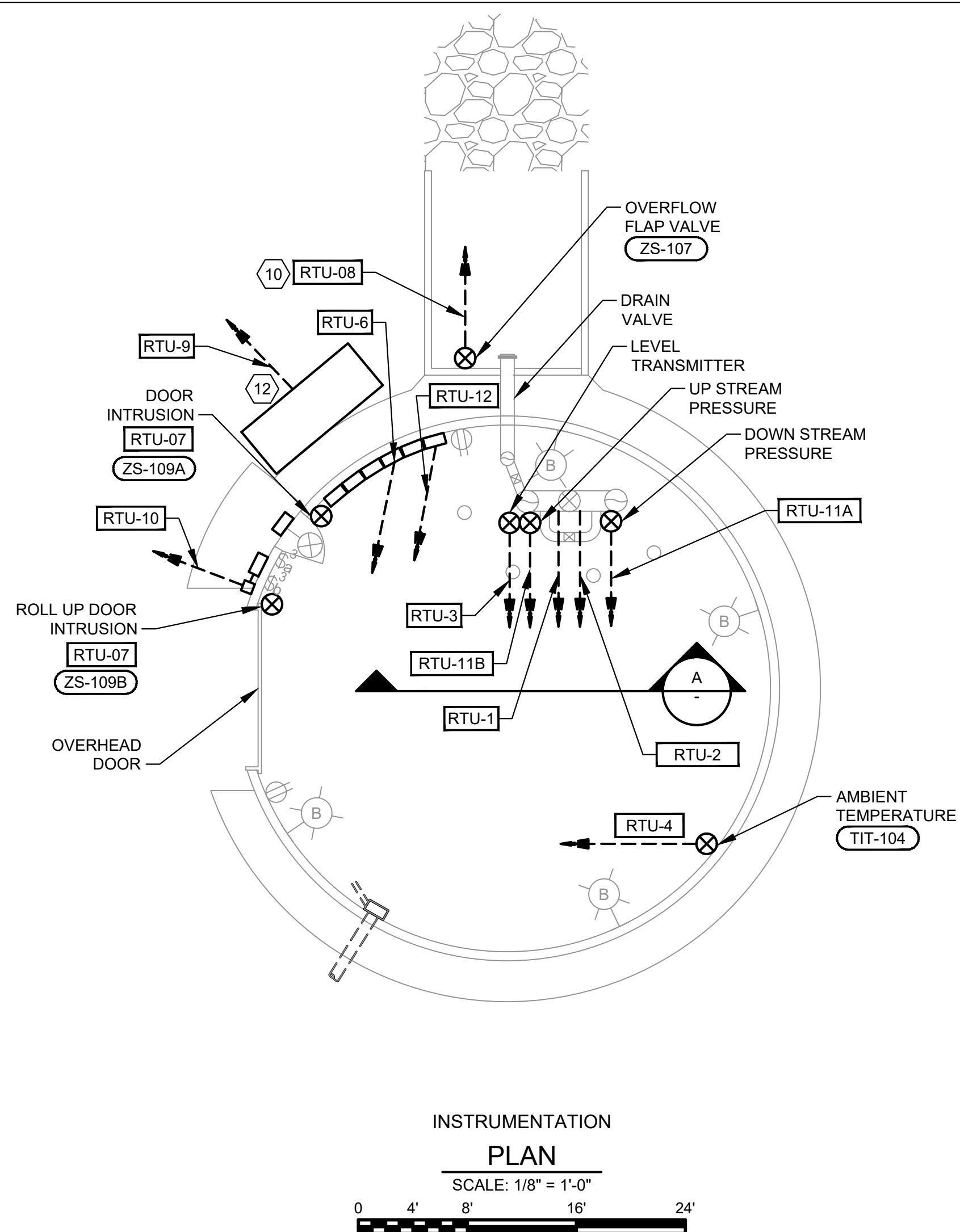
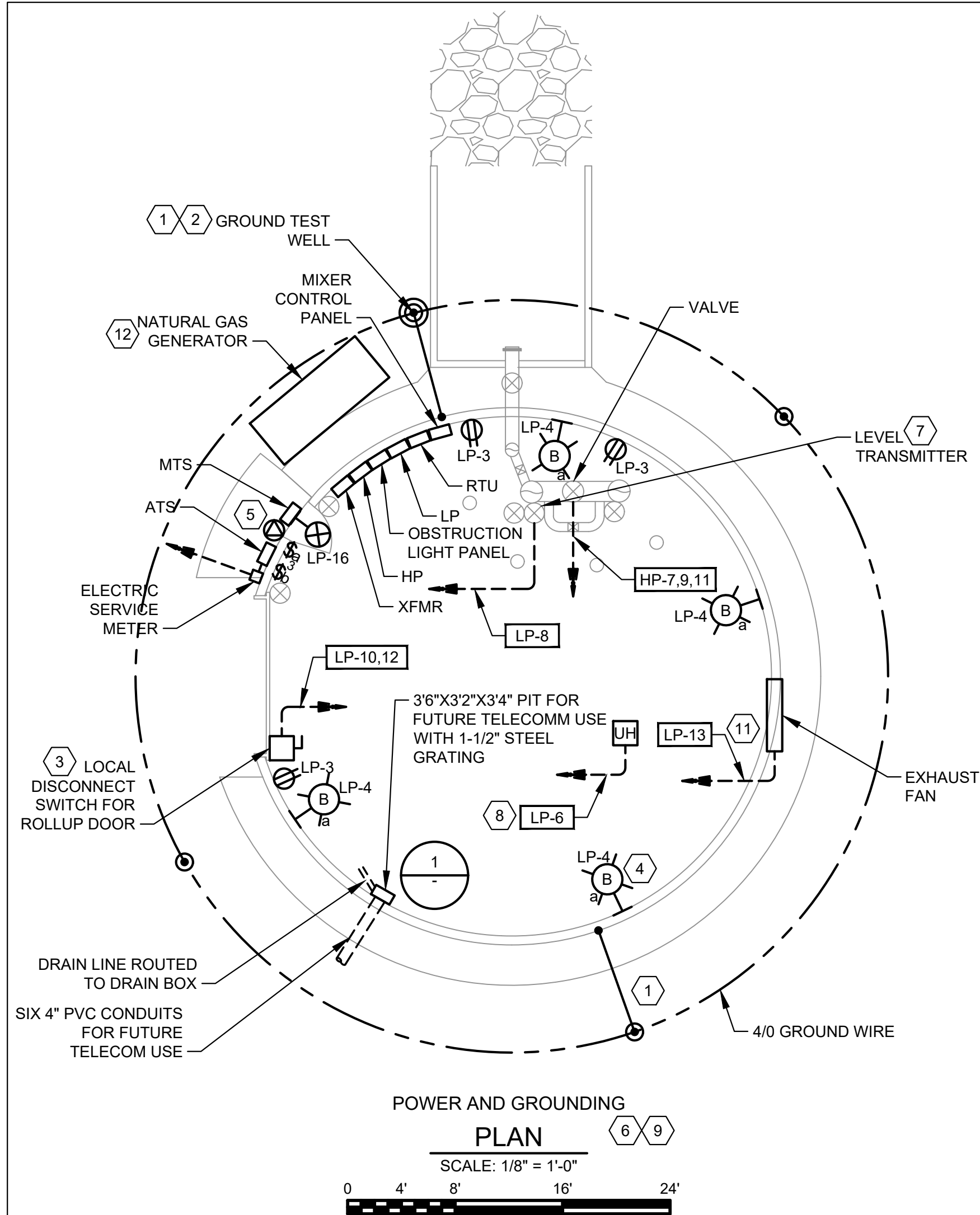
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[illegible]

WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
ELECTRICAL
PROPOSED SITE PLAN



<p style="text-align: center;">JTG ENGINEERING</p> <p style="text-align: center;">TBPE FIRM REGISTRATION NO. 22389</p>	
DESIGN BY: S AKTER	DRAWN BY: J MEAM
DATE: 09-07-2023	JOB NUMBER:
SHEET	
<p style="text-align: center;">E-04</p>	

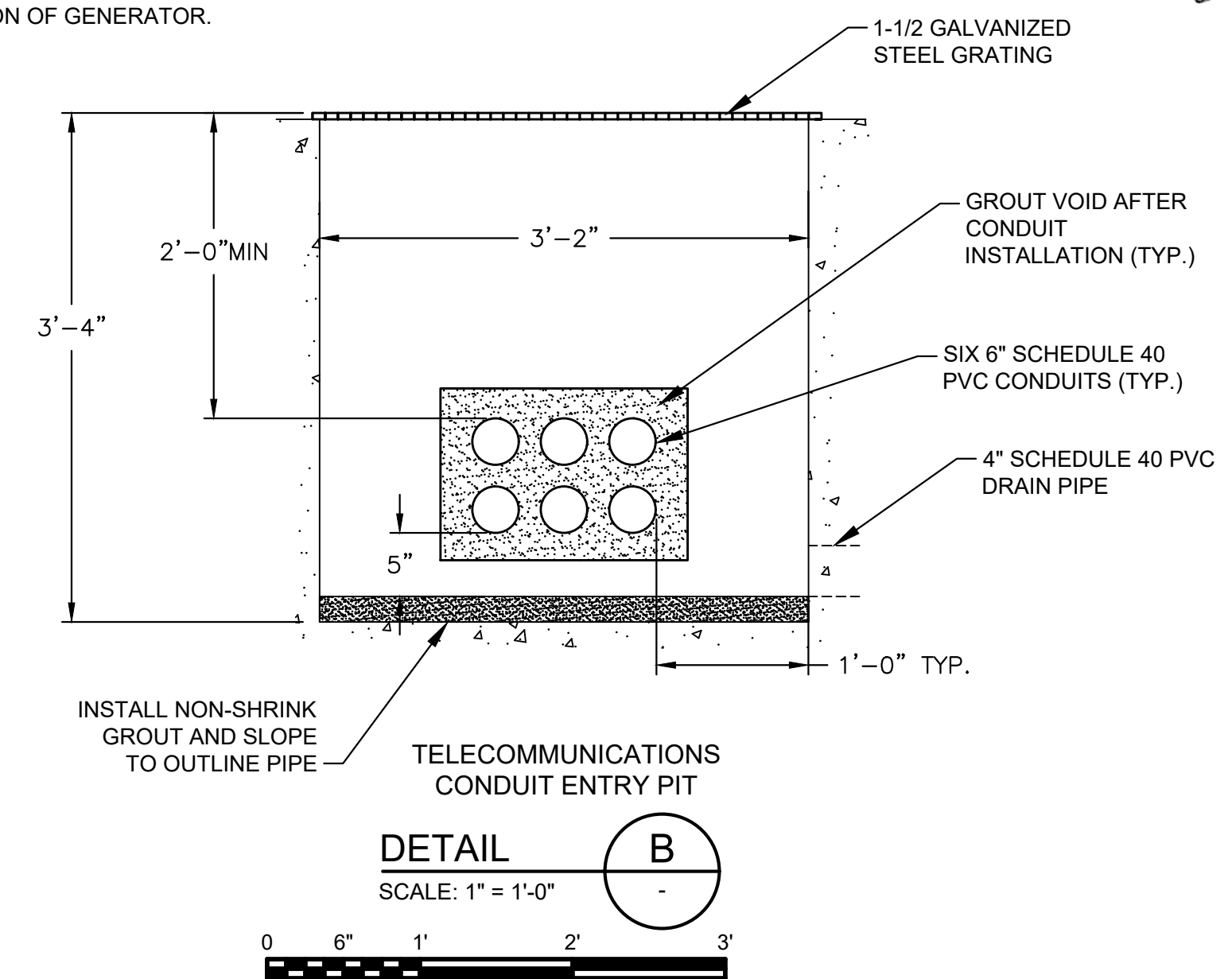


- NOTES BY SYMBOL "":

1. BOND GROUND RING TO EST STRUCTURAL REBAR IN TWO DIAMETRICALLY OPPOSITE PLACES.
2. BOND GROUND RING TO GROUND BUS BAR INSIDE EST MOUNTED 2' AFF.
3. FIELD COORDINATE LOCATION OF LOCAL DISCONNECT SWITCH WITH ROLLUP DOOR INSTALLATION.
4. MOUNT INTERIOR BASE LIGHTS 10' ABOVE SLAB ON GRADE.
5. 480Y/277V 3Ø, 4W PIN AND SLEEVE RECEPTACLE WITH SPRING HINGE COVER WIRED TO ALTERNATE SOURCE INPUT ON MANUAL TRANSFER SWITCH. USE CITY STANDARD TO MATCH CITY'S GENERATOR PLUG.
6. EXTERIOR LIGHTS AND RECEPTACLE NOT SHOWN FOR CLARITY.
7. LEVEL INSTRUMENT ENCLOSURE HEATER.
8. GAS HEATER CONTROLS CIRCUIT. FIELD COORDINATE LOCATION. ROUTE CONDUIT OVERHEAD.
9. INSTALL LIGHTNING PROTECTION ON TANK AS PER SPECIFICATIONS. NOT ALL LIGHTNING PROTECTION COMPONENTS SHOWN FOR CLARITY.
10. ROUTE OVERFLOW FLAP VALVE INTRUSION SWITCH WITH GENERATOR STATUS SIGNALS FOR COMMON WALL PENETRATION. COORDINATE ALL EST WALL PENETRATIONS WITH TANK MANUFACTURER. REFER TO DETAIL E04 ON SHEET E-11.
11. FIELD COORDINATE EXHAUST FAN, THERMOSTAT, AND INLET DAMPER LOCATIONS. REFER TO SCHEMATIC ON SHEET E-08.
12. FIELD COORDINATE LOCATION OF GENERATOR.

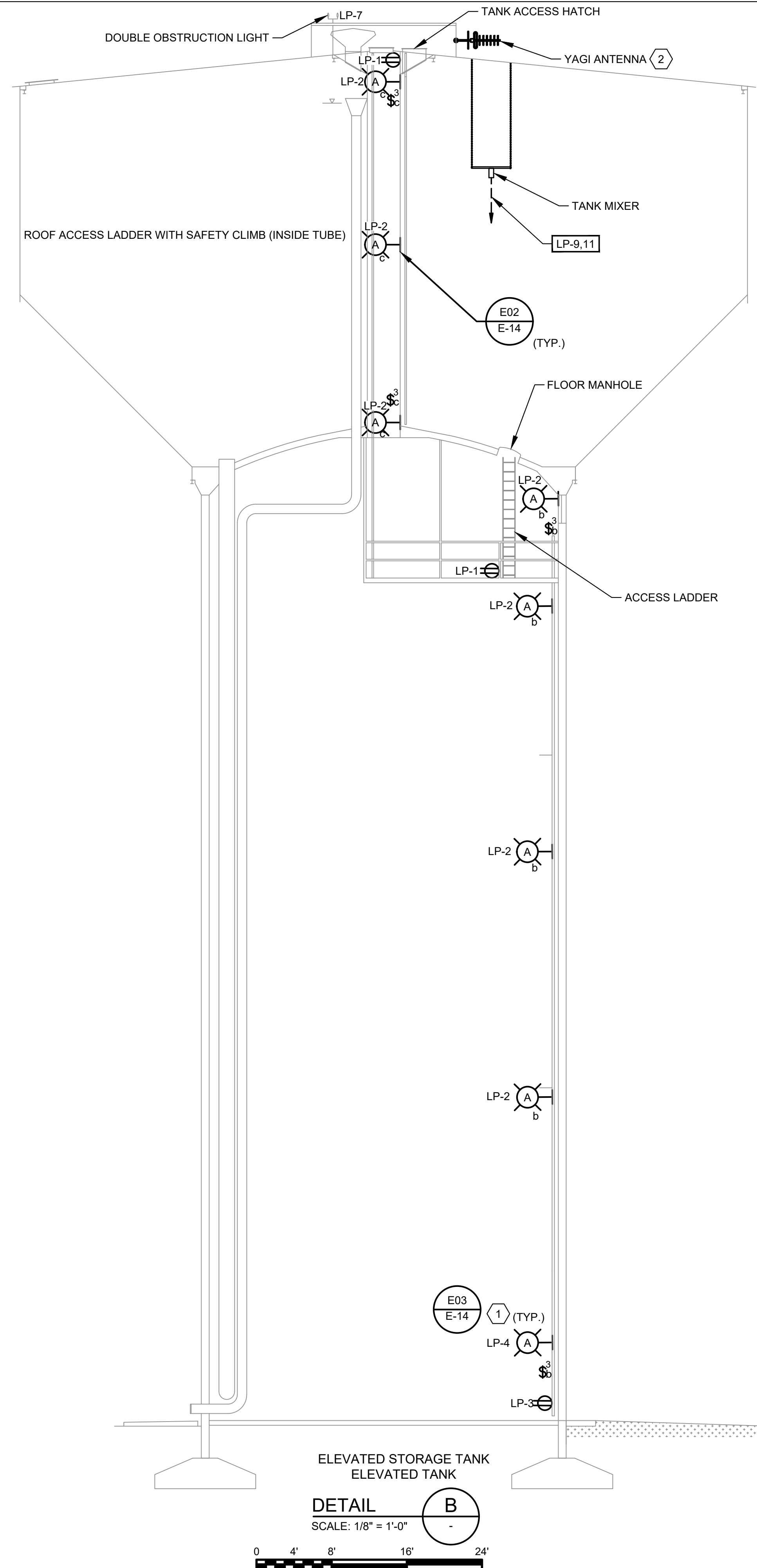
- GENERAL NOTES:

1. TANK MANUFACTURER TO DETERMINE CONCRETE SLAB THICKNESS AND MINIMUM REBAR SIZE AND SPACING.
2. CONTRACTOR SHALL EXTEND 6" CONDUITS AS MINIMUM OF 1 FOOT BEYOND LIMITS OF PROPOSED DRIVEWAY.





- NOTES BY SYMBOL "#":


1. GRATING SHALL BE REMOVABLE. SPLIT GRATING SECTIONS AT OPENING CENTERLINES.



- ### NOTES BY SYMBOL
1. USE 12" LONG PIECE OF C-CHANNEL STRUT FOR CONDUIT SUPPORT. MOUNT CONDUIT ON ONE END OF STRUT TO MAXIMIZE SPARE SPACE FOR FUTURE USE.
 2. FIELD COORDINATE THE LOCATION AND ORIENTATION FOR SPECIFIC RADIO PATH.
 3. INSTALL LIGHTING PROTECTION ON TANK AS PER SPECIFICATIONS. NOT ALL LIGHTING PROTECTION COMPONENTS SHOWN FOR CLARITY.
 4. MOUNT EXTERIOR DOOR LIGHT 1' DIRECTLY ABOVE CENTER OF DOOR.

INTERFACE DIAGRAM			
LOOP NO.	DESCRIPTION	FIELD WIRING 	EST-RTU
FCV-101	VALVE ACTUATOR	<div>VO</div> <div>A1</div> <div>RTU-1</div>	<div>REMOTE TERMINAL UNIT EST-RTU</div> <div></div>
		<div>C6</div> <div>RTU-2</div>	
LIT-105	LEVEL TRANSMITTER	<div>LIT</div> <div>A1</div> <div>RTU-3</div>	
TIT-104	AMBIENT TEMPERATURE	<div>TI</div> <div>A1</div> <div>RTU-4</div>	
ZS-108	ENTRY GATE INTRUSION SWITCH	<div>ZS</div> <div>C1</div> <div>RTU-5</div>	
OLP-XXX	OBSTRUCTION LIGHT CONTROL PANEL	<div>CP</div> <div>C3</div> <div>RTU-6</div>	
ZS-109A	DOOR INTRUSION SWITCH	<div>ZS</div> <div>C1</div> <div>C2</div> <div>RTU-7</div>	
ZS-109B	ROLLUP DOOR INTRUSION SWITCH	<div>ZS</div> <div>C1</div>	
ZS-107	OVERFLOW/DRAIN LINE FLAP VALVE	<div>ZS</div> <div>C1</div> <div>RTU-8</div>	
GEN-XXX	GENERATOR STATUS	<div>CP</div> <div>C7</div> <div>RTU-9</div>	
ATS-XXX	ATS NORMAL/STAND BY STATUS	<div>ATS</div> <div>C3</div> <div>RTU-10</div>	
PIT-102	DOWN STREAM PRESSURE	<div>PT</div> <div>A1</div> <div>RTU-11A</div> <div>A2</div> <div>RTU-11</div>	
PIT-103	UPSTREAM PRESSURE	<div>PT</div> <div>A1</div> <div>RTU-11B</div>	
-	MIXER	<div>CP</div> <div>C5</div> <div>RTU-12</div>	

PANELBOARD: HP					MAIN BREAKER					LOCATION: INDOOR										
VOLTAGE: 480Y/277 V, 3PH, 4W					TYPE: CB					ENCLOSURE: NEMA 3RX / 316SS										
WITHSTAND RATING: 42 KA					RATING: 125 A					BUS SIZE: 225 A					SPD: TYPE 1, EXTERNAL					
MOUNTING: SURFACE										BUS TYPE: TIN-PLATED COPPER										
NOTES	CKT NO.	BRKR AMPS / POLES	WIRE SIZE	COND SIZE	DESCRIPTION	PHASE A (VA)	PHASE B (VA)	PHASE C (VA)	PHASE A (VA)	PHASE B (VA)	PHASE C (VA)	DESCRIPTION	COND SIZE	WIRE SIZE	BRKR AMPS / POLES	CKT NO.	NOTES			
	1	20/3	12	3/4"	SPD												2			
	3																			4
	5																			6
	7																			8
	9	20/3	10	3/4"	ACTUATOR												10			
	11																		12	
	13																		14	
	15																		16	
	17																18			
					SUBTOTAL VA BY PHASE	0	0	0	0	0	0									
					TOTAL VA BY PHASE	0	0	0												
					TOTAL VA	0														
					L-L VOLTAGE															
					TOTAL AMPS (AVERAGE PER PHASE)	0.0														
GENERAL NOTES:									KEYED NOTES											
* CONDUIT SIZE SHOWN IS THE MINIMUM SIZE REQUIRED FOR INDIVIDUAL CIRCUITS. MULTIPLE CIRCUITS MAY BE COMBINED IN A SINGLE CONDUIT FOR FIELD ROUTING PROVIDED NEC MAXIMUM CONDUIT FILL IS NOT EXCEEDED.									1. 30 mA GFCI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)											
* EACH SINGLE PHASE 120V CIRCUIT SHALL HAVE A SEPARATE NEUTRAL WIRE.									2. 5 mA GFCI CIRCUIT BREAKER											
									3.											
									4.											
									5.											
									6.											

INTERFACE DIAGRAM			
LOOP NO.	DESCRIPTION	FIELD WIRING 	EST-RTU
FCV-201	WINNINGKOFF EST VALVE ACTUATOR	<div>VO</div> <div>A1</div> <div>RTU-21</div> <div>C6</div> <div>RTU-22</div>	
LSHH-203	WINNINGKOFF EST VAULT FLOOD ALARM	<div>LSHH</div> <div>C1</div> <div>RTU-23</div>	

- NOTES BY SYMBOL ∇ (#) :**
1. CONDUIT SIZES SHOWN ARE MINIMUM. COMBINATION OF SIMILAR CIRCUIT TYPES PERMISSIBLE. ADJUST CONDUIT SIZING ACCORDINGLY AND REFLECT FINAL CONFIGURATION ON AS-BUILT DOCUMENTATION.
 2. TERMINATE ALL WIRING ON TERMINAL BLOCKS INSIDE PANEL. NO NON-TERMINATED WIRES ALLOWED.
 3. INSTALL ALL WIRING WHETHER SHOWN ON FLOOR PLANS OR NOT.
 4. SUBSTITUTE CAT-6 CABLE FOR CAT-5E WHERE REQUIRED BY CONTRACT DOCUMENTS.

LIGHT FIXTURE SCHEDULE						
TYPE	DESCRIPTION	MANUFACTURER / CATALOG #	INPUT (WATTS)	VOLTAGE	LAMP TYPE	MOUNTING HEIGHT
A	VAPORTITE LED LIGHT FIXTURE (1985 LMS/4000K), WITH CORROSION FREE IMPACT RESISTANT THERMOSET POLYESTER, STAINLESS STEEL FASTENERS, SILICONE GASKETS AND 0-10V DIMMABLE ELECTRONIC DRIVER. WALL MOUNT INCLUDES JBOX WITH FOUR 3/4" THREADED HUBS AND LIQUID TIGHT KNOCKOUTS.	<u>FIXTURE:</u> CANLET 02 12W PC WF BE 18 OR EQUAL	12 W	120V or 277V	LED LAMPS INCLUDED	WALL MOUNT AS INDICATED ON THE FLOOR PLANS.
B	SHALLOW IP65 LISTED WALL MOUNTED LED LUMINAIRE, WITH ELECTRONIC DRIVER, WIDE DISTRIBUTION. SHALL DELIVER 6,850 LUMENS MAX WITH ADJUSTABLE LUMEN OUTPUT.	<u>FIXTURE:</u> LITHONIA TWX2 LED ALO 40K MVOLT FINISH OR EQUAL	54 W	MVOLT	LED LAMPS INCLUDED	WALL MOUNT AS INDICATED ON THE FLOOR PLANS (15 FOOT AFF)
C	WALL MOUNTED DARK SKY IP66 RATED LED LUMINAIRE WITH ELECTRONIC DRIVER, FORWARD AND WIDE TYPE 3 DISTRIBUTION, TM-21-11 LM92@100,000HRS.	<u>FIXTURE:</u> LITHONIA WDGE3 LED P3 40K 70CRI R3 MOUNT DNATXD OR EQUAL	71 W	MVOLT	LED LAMPS INCLUDED	WALL MOUNT INSIDE 1FT ABOVE ENTRANCE DOOR
F	DOUBLE HEAD LED WARNING LIGHT FIXTURE. L-810 WARNING LIGHT FIXTURE.	<u>FIXTURE:</u> CROUSE HINDS 860-1R01-002 OR EQUAL BY POINT LIGHTING	18 W	MVOLT	LED LAMPS INCLUDED	ON POLE TOP OF TANK
X	LED EXIT LIGHT WITH RED LETTERS RATED FOR WET LOCATION AND CORROSIVE AREA	<u>FIXTURE:</u> LITHONIA LVS (1) R 120/277 ELN 4X SD OR EQUAL	3.3 W	MVOLT	LED LAMPS INCLUDED	WALL MOUNT INSIDE 1FT ABOVE ENTRANCE DOOR

PANEL BOARD: LP					MAIN BREAKER		LOCATION: TANK PEDESTAL									
VOLTAGE: 120/240 V, 1PH, 3W					TYPE: <NONE>		ENCLOSURE: NEMA 3RX / 316SS									
WITHSTAND RATING: 22 kA					RATING: 100 A		BUS SIZE: 100 A					SPD: TYPE 1, EXTERNAL				
MOUNTING: SURFACE							BUS TYPE: TIN-PLATED COPPER									
NOTES	CKT NO.	BRKR AMPS / POLES	WIRE SIZE	COND SIZE	DESCRIPTION	L1 (VA)	L2 (VA)		L1 (VA)	L2 (VA)	DESCRIPTION	COND SIZE	WIRE SIZE	BRKR AMPS / POLES	CKT NO.	NOTES
	1	20/1	12	3/4"	RECEPTACLES NEAR LADDER						INTERIOR LIGHTS NEAR LADDER	3/4"	10	20/1	2	
	3	20/1	12	3/4"	RECEPTACLES GROUND LEVEL						INTERIOR LIGHTS AT GROUND LEVEL	3/4"	10	20/1	4	
	5	20/1	12	3/4"	EXTERIOR LIGHTS						SPACE HEATER CONTROLS	3/4"	14	15/1	6	
	7	20/1	12	3/4"	OBSTRUCTION LIGHT PANEL						LEVEL INSTRUMENT ENCLOSURE HEATER	3/4"	12"	20/1	8	
	9	20/2	8	3/4"	MIXER											10
	11										ROLLUP DOOR	3/4"	10	20/2	12	
	13	20/1	12	3/4"	EXHAUST FAN						PLC ENCLOSURE	3/4"	12	20/1	14	
	15	20/1	12	3/4"	GENERATOR SHORE POWER						EXIT LIGHT	3/4"	12	20/1	16	
	17	15/1			SPARE						MOTORIZED GATE	3/4"	10	20/1	18	

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

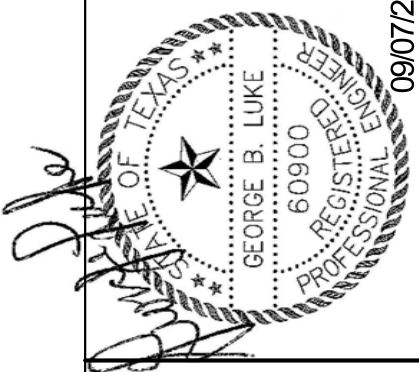
CONTROL & INSTRUMENTATION WIRE/CONDUIT TABLE NOTES:

- 1) NOT ALL POSSIBLE COMBINATIONS ARE LISTED. INCLUDE A SEPARATE GROUND WIRE IN EACH CONDUIT RUN.

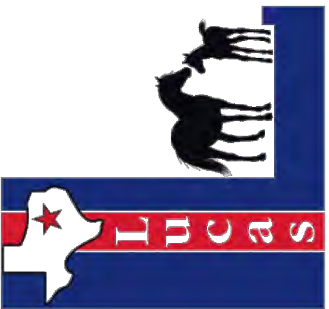
REPRESENTS PAIR OF WIRE
EXAMPLE C10 = 20#14 WIRES
EXAMPLE C20 = 40#14 WIRES

$\mathcal{L}_C = \text{CONTROL}$

- 2) ANALOG CABLES ARE INTENDED TO BE INDIVIDUALLY INSULATED TWISTED SHIELDED PAIRS UNLESS OTHERWISE NOTED ON THE DRAWING.

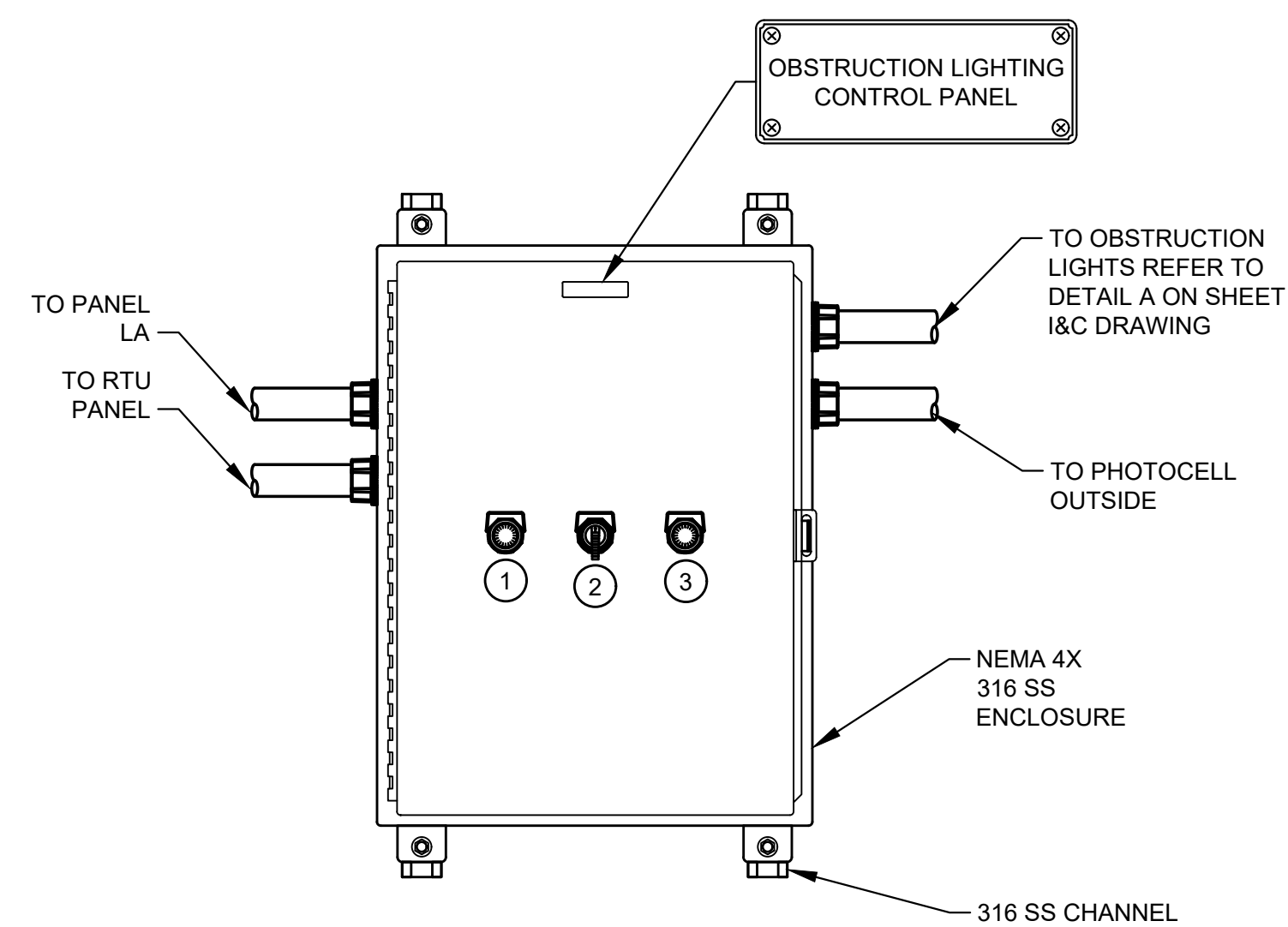
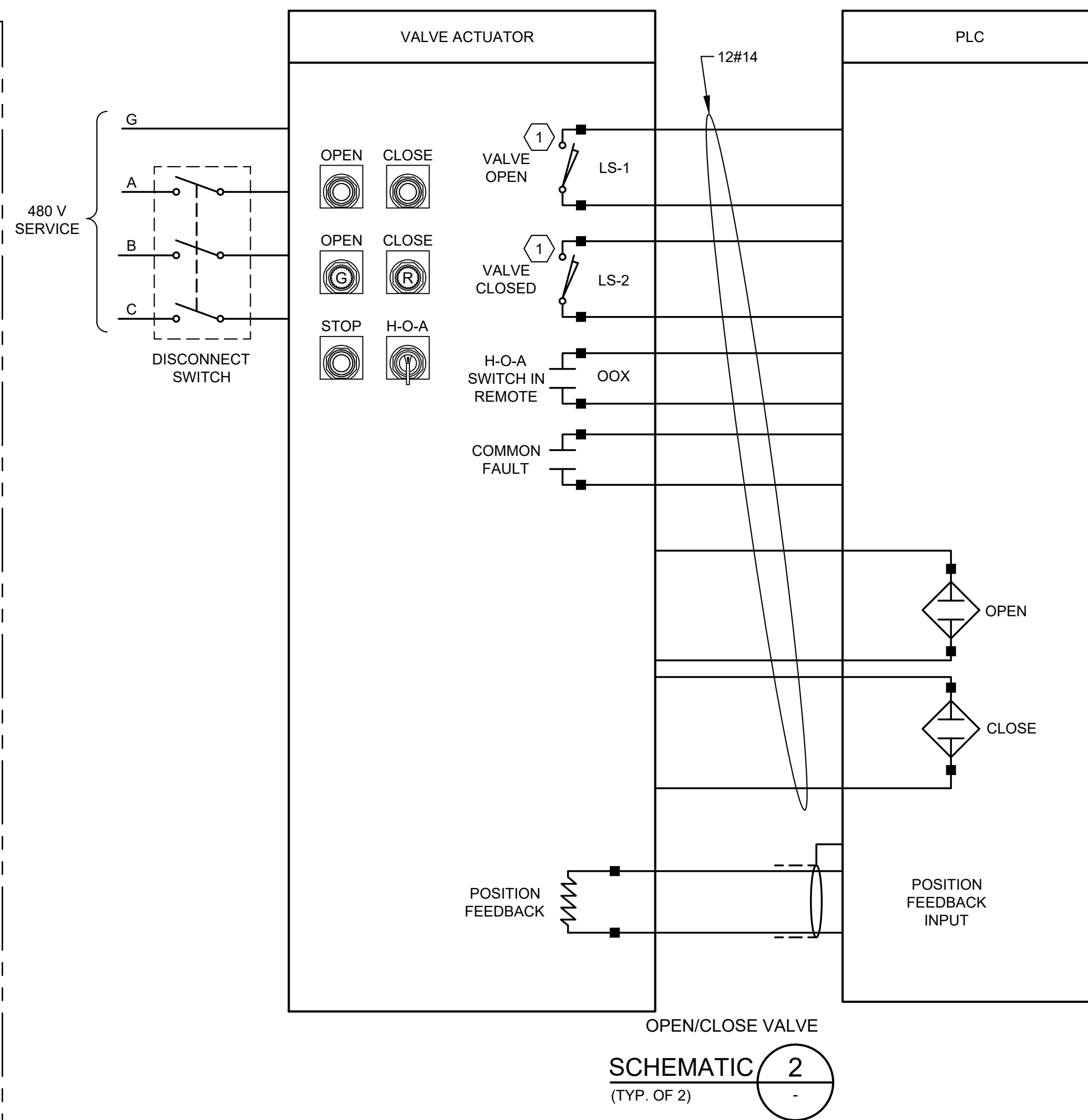
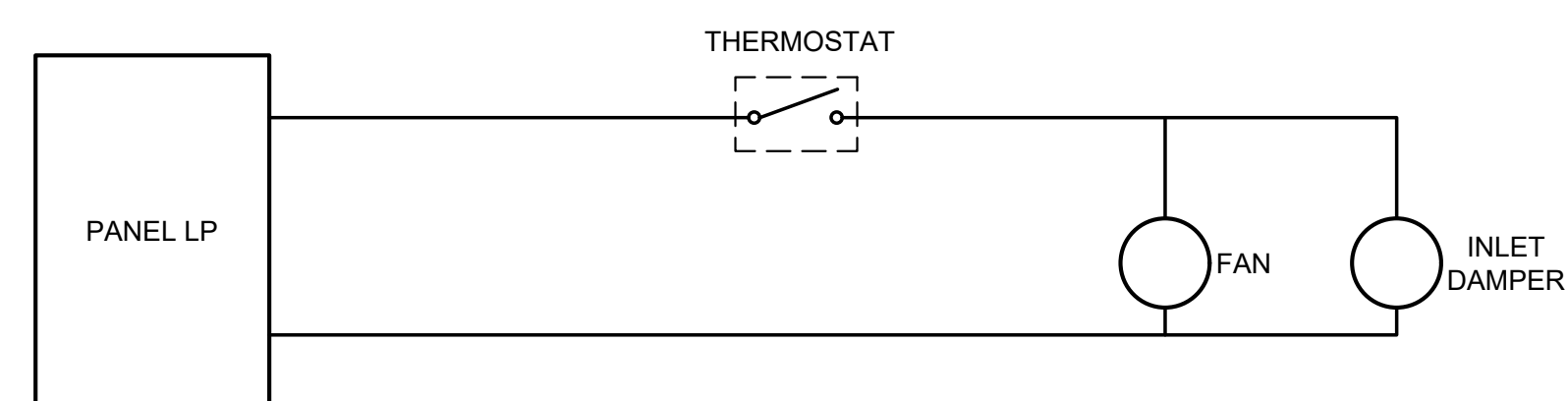
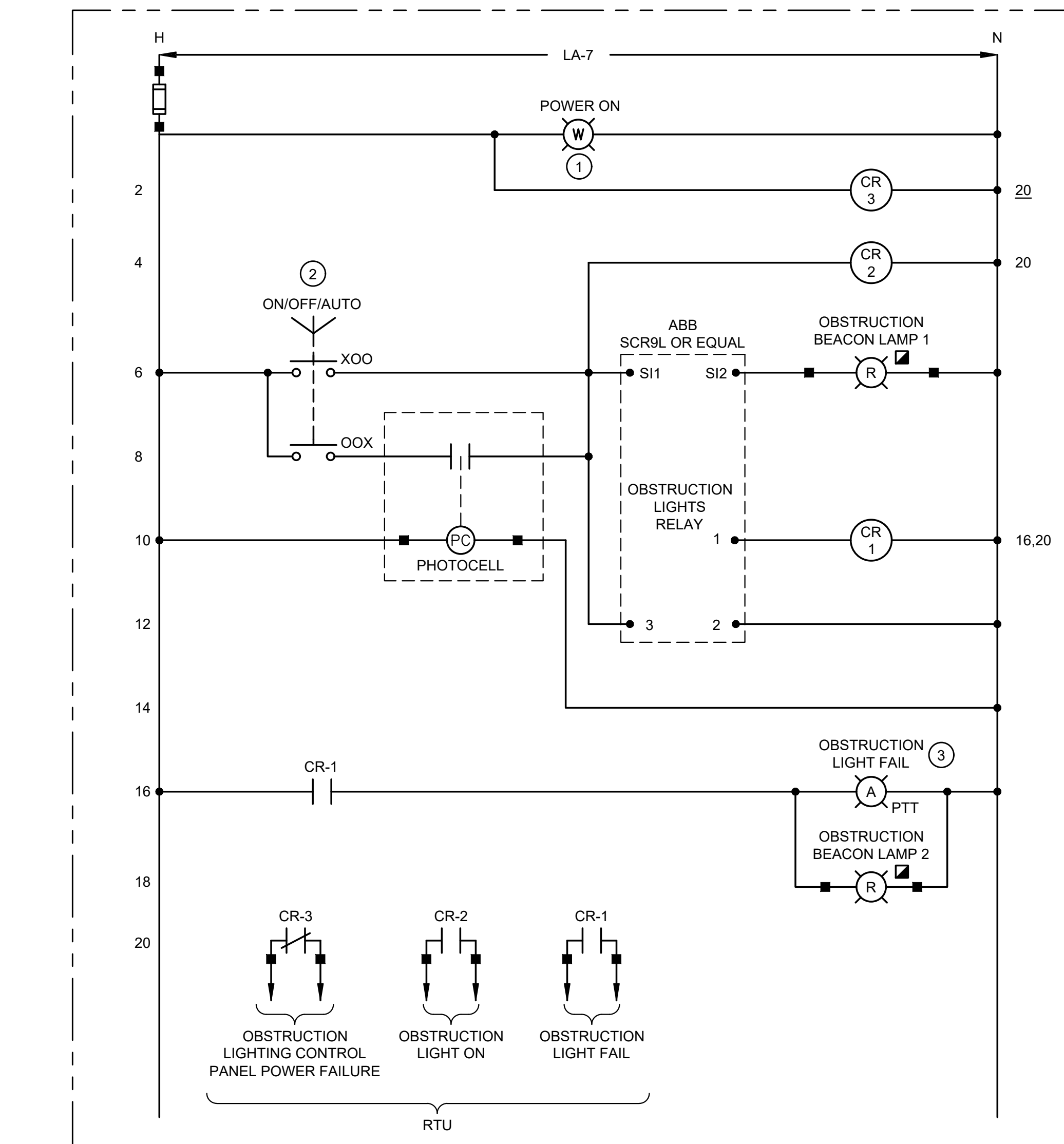
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WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
ELECTRICAL
INTERFACE DIAGRAMS AND SCHEDULES



JTG ENGINEERING

DESIGN BY: S.AKTER	DRAWN BY: J.MEAM
DATE: 09-07-2023	JOB NUMBER:
SHEET	

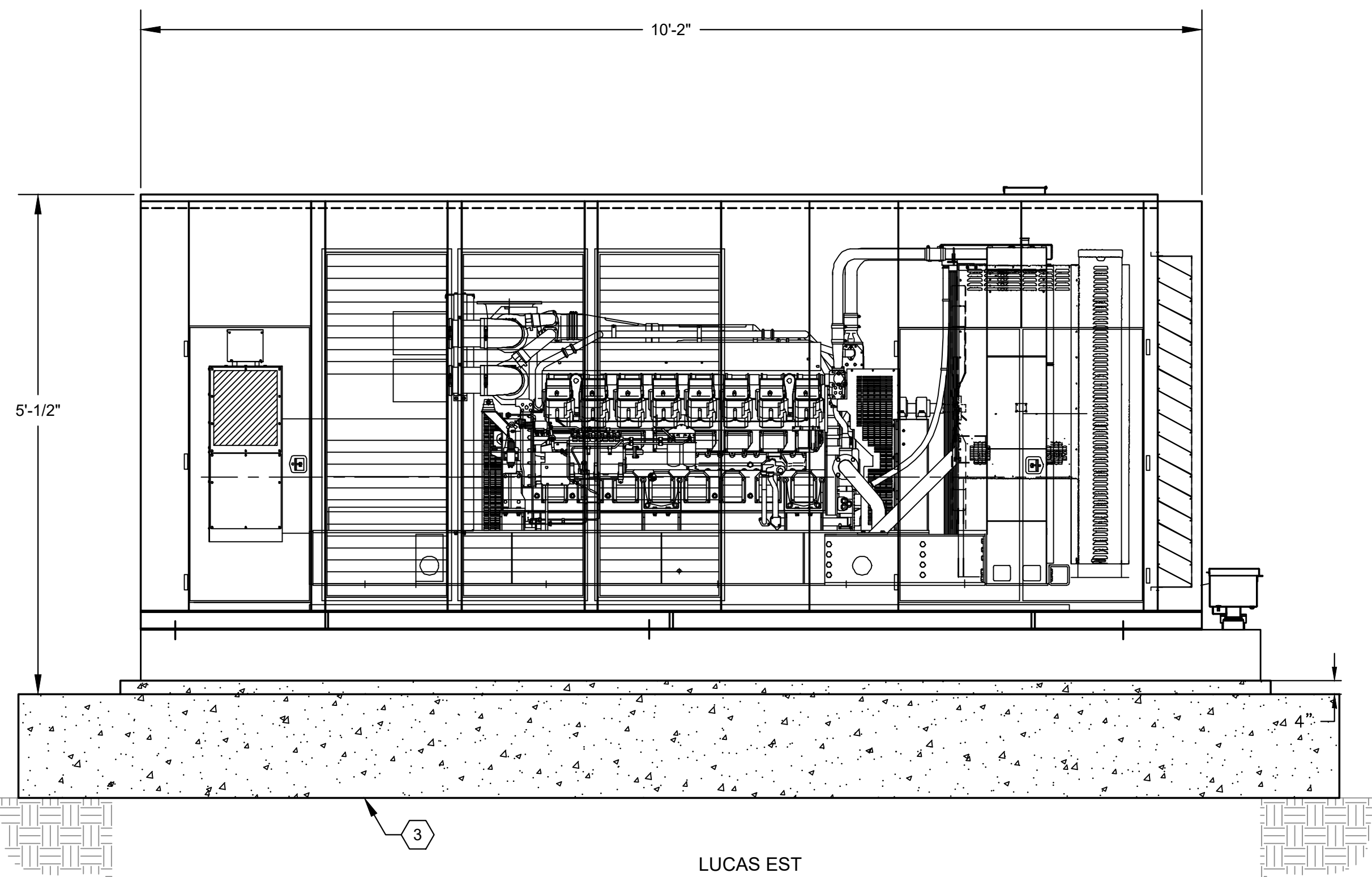


NOTES BY SYMBOL "#":

1. SWITCH CLOSING WHEN VALVE IN POSITION INDICATED.

LEGEND:

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

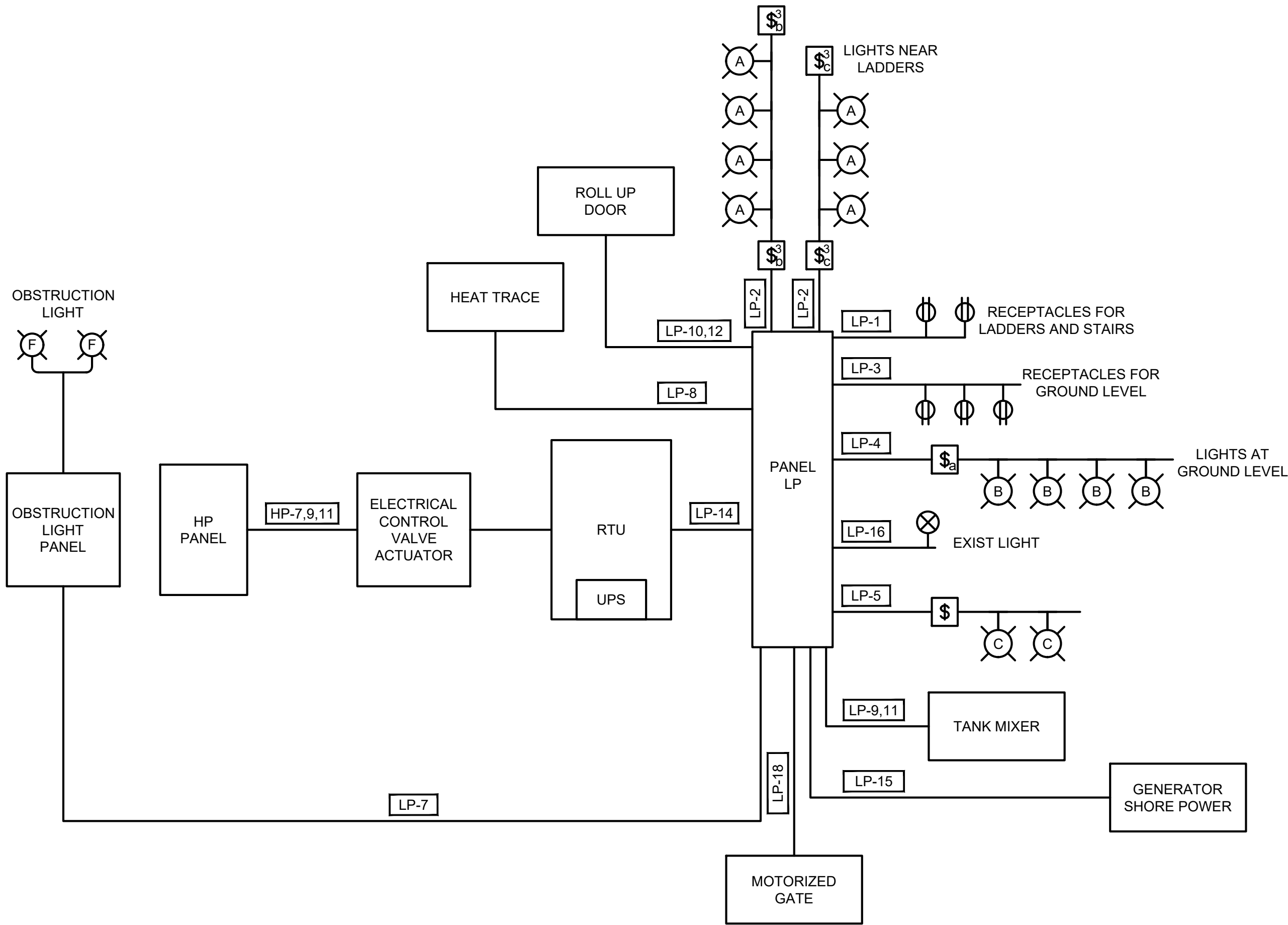


- HARDWIRED I/O POINTS:**
1. START/STOP FROM ATO.
 2. GENERATOR READY.
- ALARM TO RTU I/O POINTS:**
1. E-G OVERCURRENT.
 2. E-G EMERGENCY STOP.
 3. E-G OVERCRANK.
 4. LOW FUEL.
 5. DC POWER FAILURE BATTERY/ BATTERY CHARGER.

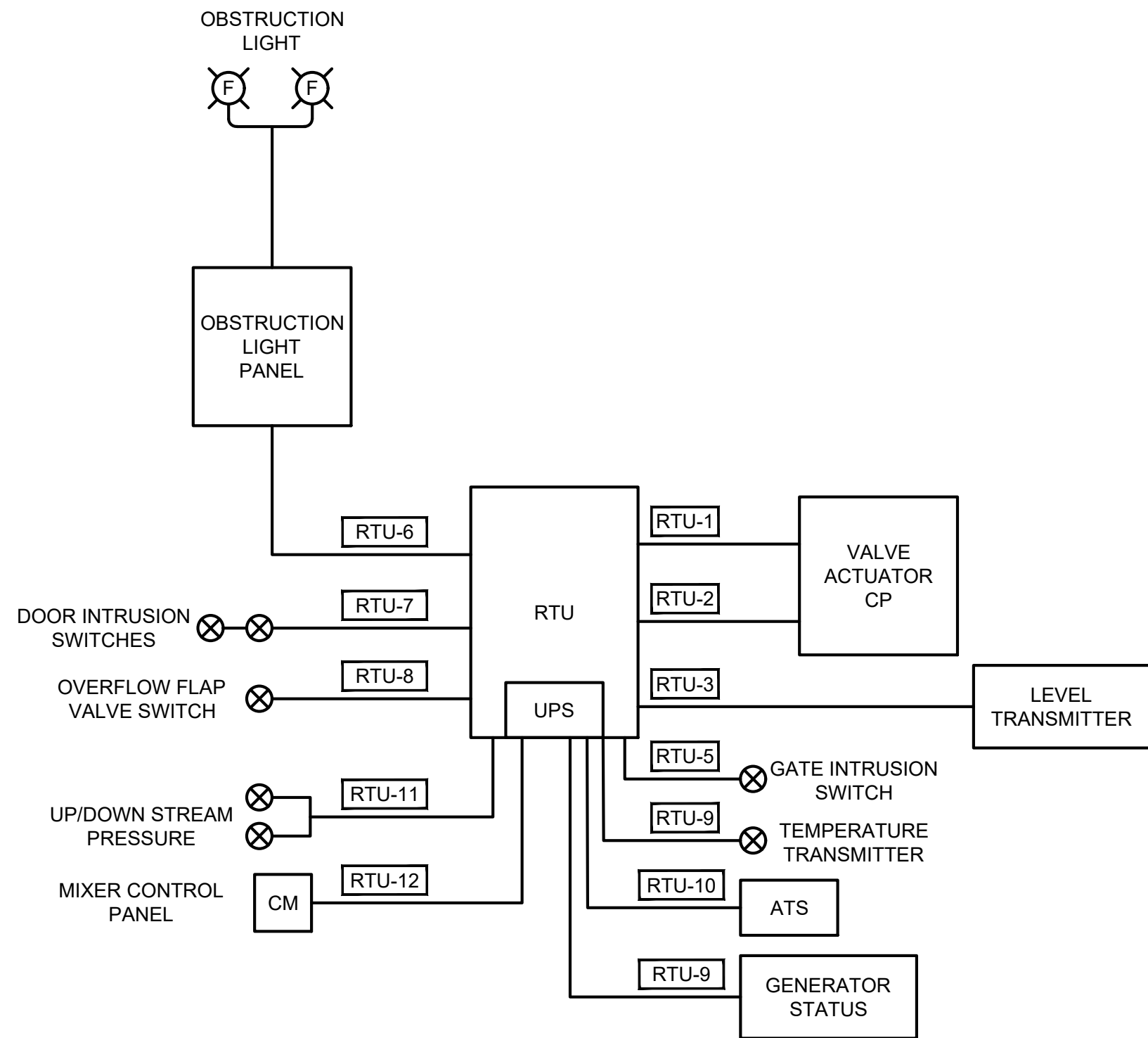


GENERATOR INFORMATION	
SIZE	50KW, 62.5KVA, 480Y, 277V, 3Ø, 4W
ENCLOSURE	WEATHERPROOF, 122"LX48"WX63"H
SOUND	SOUND ATTENUATED, TO MEET SOUND LEVELS AT 75dB AT 23'
FUEL	NATURAL GAS
WEIGHT	2850 LBS
<u>GENERATOR NOTES:</u> <ul style="list-style-type: none"> THE GENERATOR CANNOT BE LARGER THAN THE PHYSICAL DIMENSIONS NOTED ABOVE. THE NEAREST PROPERTY LINE FROM GENERATOR ENCLOSURE IS 10FT. 	

Dwg Info: W:\Miscellaneous\1214_Lucas - West Lucas Road EST16 Drawings\Electrical\Working\E-10.dwg - Plotted: 9/7/2023



LUCAS EST
POWER RISER
DIAGRAM



LUCAS EST
CONTROL RISER
DIAGRAM

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CONSULTING ENGINEERING
Texas Registration No. F-2593
3117 Neutron Road
Dallas, Texas 75244
Tel: 972-498-7661
www.gaiconsulting.com

NO.	DATE	COMMENT



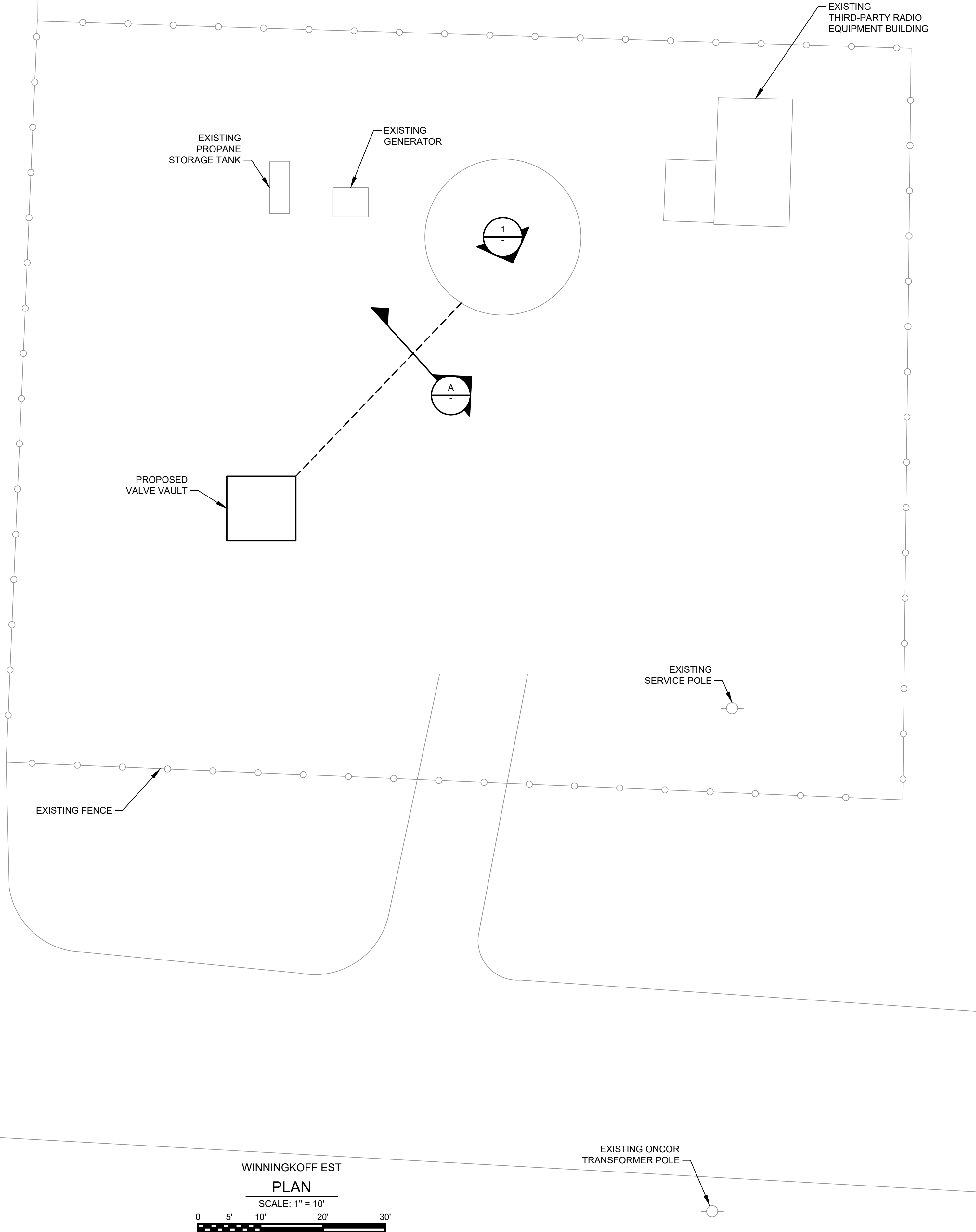
WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
ELECTRICAL
SCHEMATICS



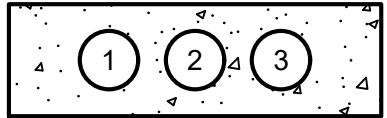
JTG ENGINEERING
TBPE FIRM REGISTRATION NO. 22389

DESIGN BY: S. AKTER	DRAWN BY: J. MEAM
DATE: 09-07-2023	JOB NUMBER:
SHEET	

Dwg Info: W:\Miscellaneous\1214_Lucas - West Lucas Road EST16 Drawings\Electrical\Working\E-11.dwg - Plotted: 9/7/2023



VALVE VAULT
PHOTOGRAPH 1
SCALE/TYP.



DUCTBANK
SECTION A
SCALE/TYP.

TABLE FOR SECTION E			
CONDUIT NO.	CONDUIT TAG	CONDUIT SIZE	DESCRIPTION
1	LB-2,4,5	2" C	VAULT POWER
2	RTU-22	2" C	VALVE DISCRETE SIGNALS
3	RTU-21	2" C	VALVE ANALOG SIGNALS

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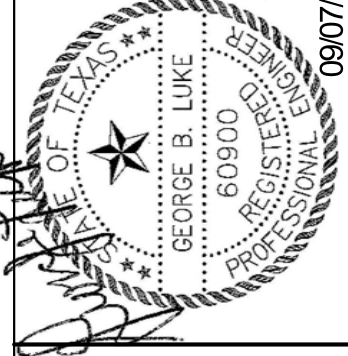
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Dallas, Texas 75244
Tel: 972-498-7961
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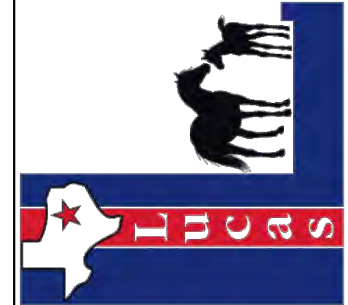
CONSULTING ENGINEERING

Texas Registration No. F-2593

NO.	DATE	COMMENT



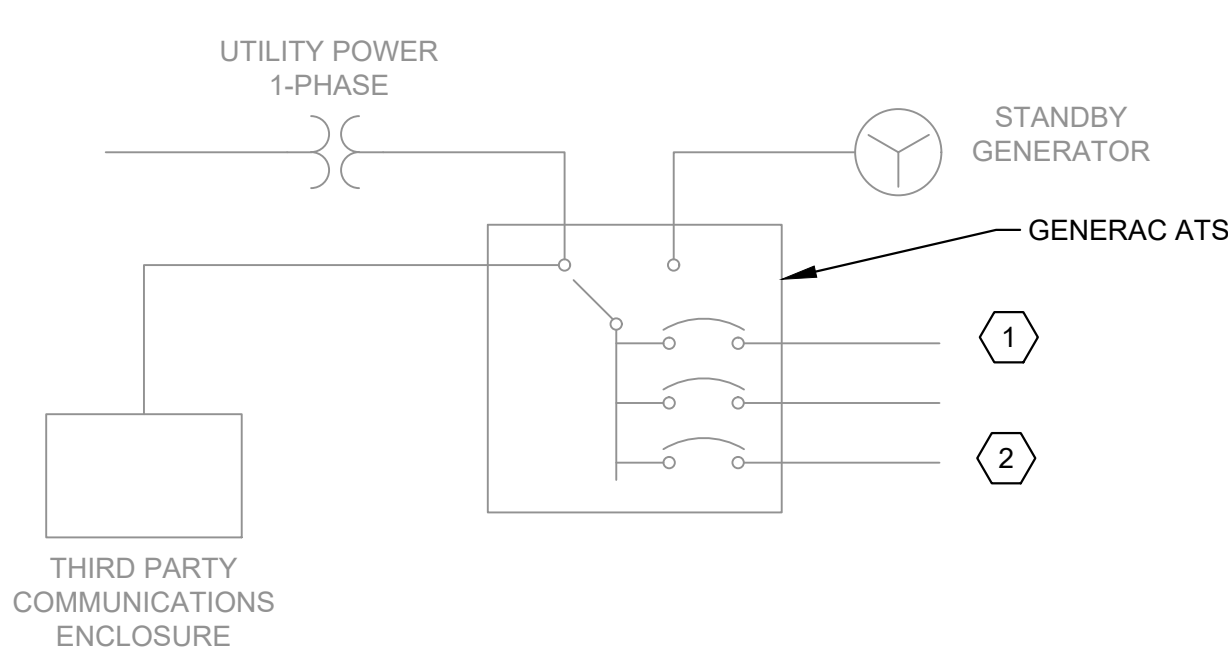
WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
ELECTRICAL
WINNINGKOFF EST SITE PLAN



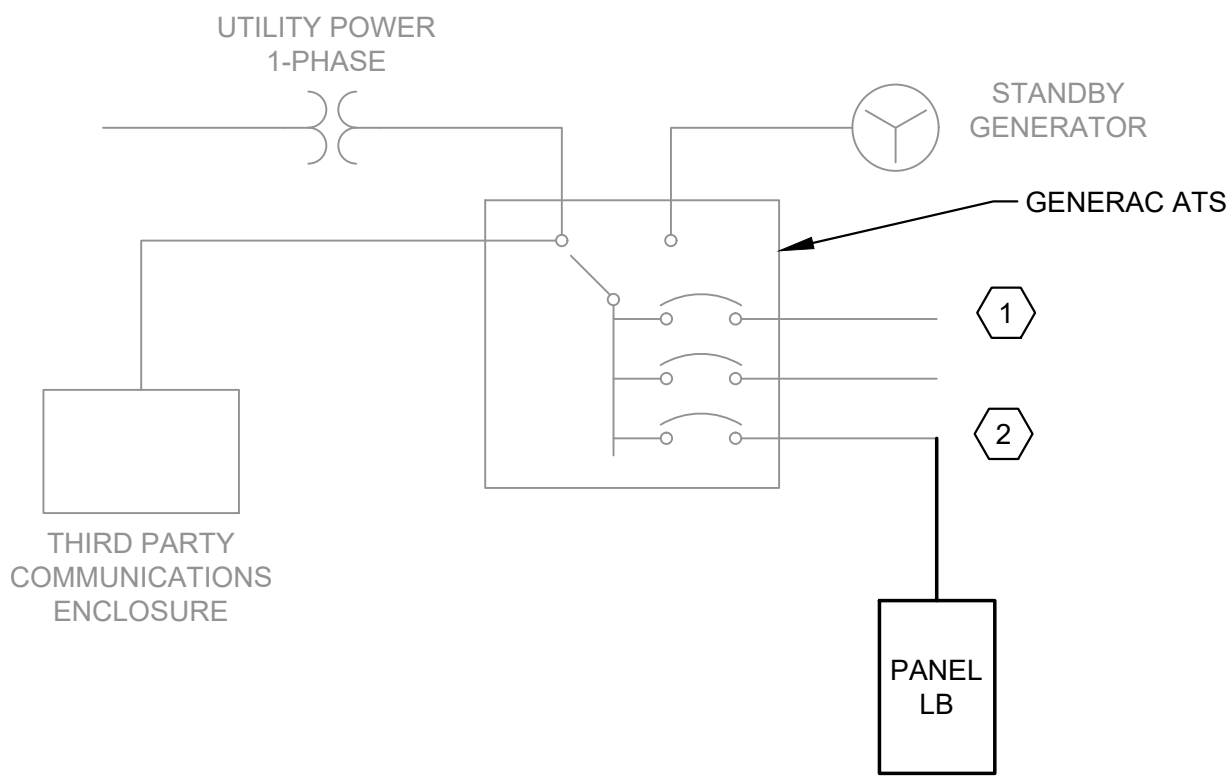
JTG ENGINEERING
TBPE FIRM REGISTRATION NO. 22389

DESIGN BY: S AKTER
DATE: 09-07-2023
SHEET

DRAWN BY: J MEAM
JOB NUMBER:



WINNINGKOFF EST
EXISTING ONE-LINE
DIAGRAM



WINNINGKOFF EST
PROPOSED ONE LINE
DIAGRAM

NOTES BY SYMBOL "#":

- EXISTING CIRCUITS NOT ALL CIRCUITS SHOWN FOR CLARITY.
- DISCONNECT CIRCUIT FOR SKYBEAM RHIND AND REPURPOSE CIRCUIT BREAKER TO SERVE NEW PANEL BOARD LB.

PANELBOARD: LB					MAIN BREAKER		LOCATION: INDOOR WALL MOUNTED									
VOLTAGE: 120/240 V, 1PH, 3W					TYPE: CB		ENCLOSURE: NEMA 4X 316SS									
WITHSTAND RATING: 22 kA					RATING: 100 A		BUS SIZE: 100 A				SPD: TYPE 1, INTEGRATED					
MOUNTING: SURFACE							BUS TYPE: TIN-PLATED COPPER									
NOTES	CKT NO.	BRKR AMPS / POLES	WIRE SIZE	COND SIZE	DESCRIPTION	L1 (VA)	L2 (VA)		L1 (VA)	L2 (VA)	DESCRIPTION	COND SIZE	WIRE SIZE	BRKR AMPS / POLES	CKT NO.	NOTES
	1	30/2	10	1/2"	SKY BEAM RHIND EXISTING						VALVE POWER	1/2"	10	30/2	2	
	3														4	
	5	20/1	12	3/4"	VAULT RECEPTACLES						SPARE	3/4"	12	20'1	6	
	7	20/1	12	3/4"	SPARE						SPACE				8	
	9				SPACE						SPACE				10	
	11				SPACE						SPACE				12	
	13				SPACE						SPACE				14	
	15				SPACE						SPACE				16	
	17				SPACE						SPACE				18	
SUBTOTAL VA BY PHASE						0	0		0	0						
TOTAL VA BY PHASE						0	0									
TOTAL VA						0										
L-L VOLTAGE						240										
TOTAL AMPS (AVERAGE PER LEG)						0.0										
GENERAL NOTES:								KEYED NOTES								
* CONDUIT SIZE SHOWN IS THE MINIMUM SIZE REQUIRED FOR INDIVIDUAL CIRCUITS. MULTIPLE CIRCUIT								1. 30 mA GFCI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)								
MAY BE COMBINED IN A SINGLE CONDUIT FOR FIELD ROUTING PROVIDED NEC MAXIMUM CONDUIT FIL								2. 5 mA GFCI CIRCUIT BREAKER								
NOT EXCEEDED.								3.								
* EACH SINGLE PHASE 120V CIRCUIT SHALL HAVE A SEPARATE NEUTRAL WIRE.								4.								
								5.								
								6.								

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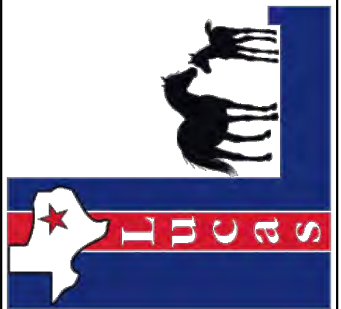
CONSULTING ENGINEERING

Texas Registration No F-2593

NO.	DATE	COMMENT



WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
ELECTRICAL
WINNINGOFF EST MODIFICATION ONE-LINE
DIAGRAM AND PANEL SCHEDULES



JTG ENGINEERING

TBPE FIRM REGISTRATION NO. 22389

DESIGN BY:
S AKTER

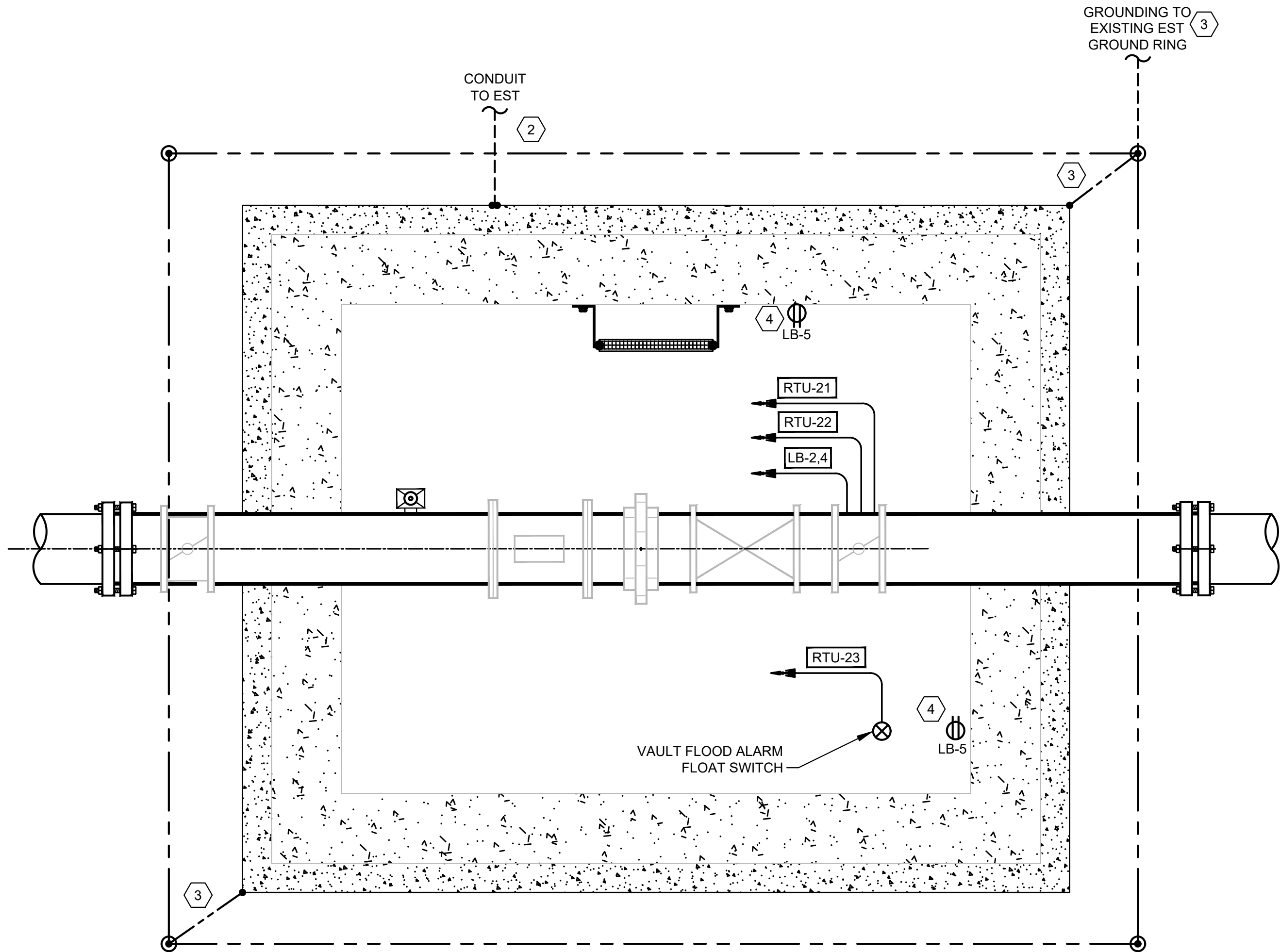
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J MEAM

DATE:
09-07-2023

JOB NUMBER:

E-12

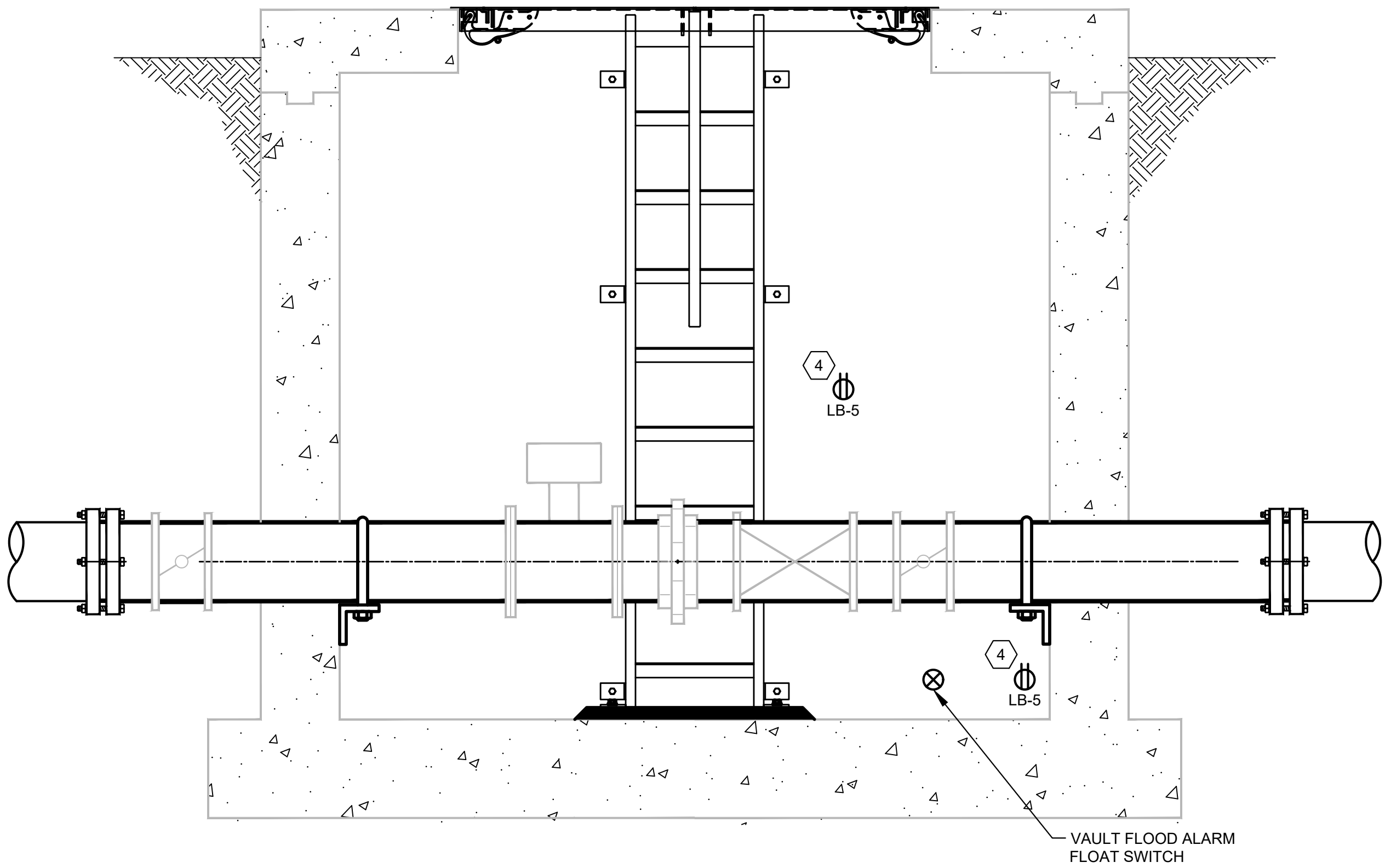
Dwg Info: W:\Miscellaneous\1214_Lucas - West Lucas Road EST16 Drawings\Electrical\Working\E-13.dwg - Plotted: 9/7/2023



VALVE VAULT
DETAIL 1
NOT TO SCALE

NOTES BY SYMBOL "#":

1. VAULT DETAILS PROVIDED FOR EXAMPLE REFERENCE ONLY. FIELD COORDINATE DETAILS WITH ACTUAL VAULT CONSTRUCTION.
2. ROUTE CONDUITS INTO VAULT THROUGH SIDE WALL. NO TOP PENETRATIONS.
3. BOND GROUND RING TO VAULT STRUCTURAL REBAR IN TWO DIAMETRICALLY OPPOSITE CORNERS AND TO EXISTING GROUND RING AT EST.
4. INSTALL DUPLEX RECEPTACLE IN VICINITY OF VAULT SUMP FOR CORD/PLUG CONNECTED SUMP PUMP. INSTALL ONE ADDITIONAL DUPLEX RECEPTACLE 36" AFF NEAR VAULT ACCESS.



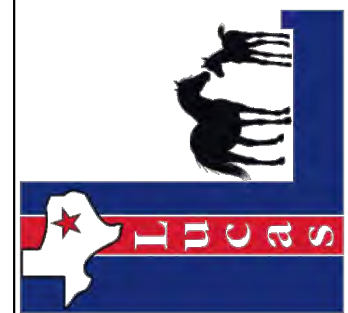
VALVE VAULT
DETAIL 1
NOT TO SCALE

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NO.	DATE	COMMENT





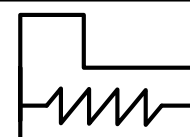

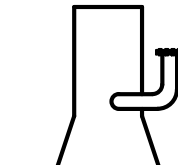



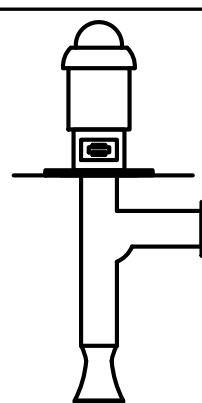



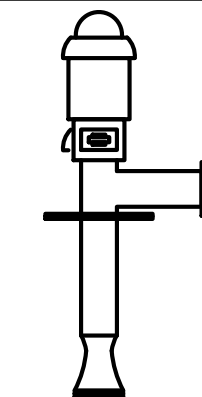




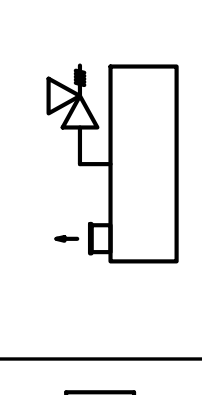




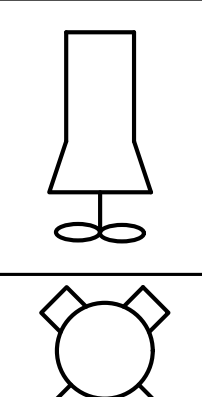




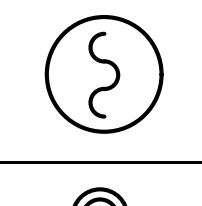



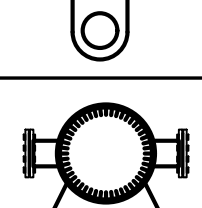




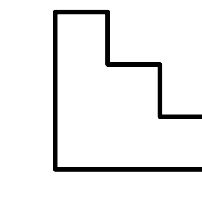




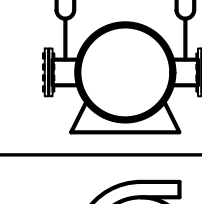


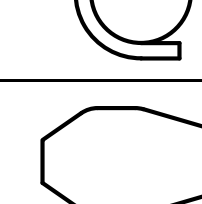




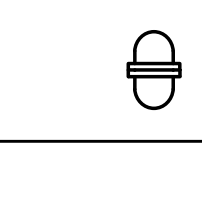























WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
ELECTRICAL
VALVE VAULT GENERAL DETAILS


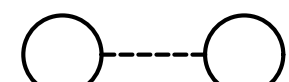


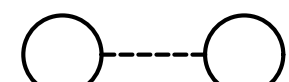

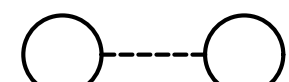



JTG ENGINEERING
TBPE FIRM REGISTRATION NO. 22389

DESIGN BY: S. AKTER	DRAWN BY: J. MEAM
DATE: 09-07-2023	JOB NUMBER:
SHEET	

Dwg Info: W:\Miscellaneous\214_Lucas - West Lucas Road EST16 Drawings\Instrumentation and Control\Working\A01.dwg - Plotted: 9/7/2023

PRIMARY FLOW ELEMENTS		VALVES		PUMPS, BLOWERS AND MISC EQUIPMENT		CONTROL ENCLOSURE, INSTRUMENTS AND SCADA																			
	MAGNETIC FLOW METER		SOLENOID ACTUATED VALVE		PROGRESSIVE CAVITY PUMP	<div><div>XXX YY P AAA BBB CCC D ZZZ</div><div>DIGITAL/ANALOG INSTRUMENT -LOCATED IN THE FIELD -NOT INSIDE OF PANEL -VISIBLE AT FIELD LOCATION -NORMALLY OPERATOR ACCESSIBLE</div></div>	<table><tr><th colspan="2">DIGITAL/ANALOG INSTRUMENT</th></tr><tr><td>AAA</td><td>ISA TAG (REFER TO TABLE)</td></tr><tr><td>BBB</td><td>LOOP NUMBER</td></tr><tr><td>CCC</td><td>LOOP NUMBER SUB</td></tr><tr><td>D</td><td>DIVISION NUMBER</td></tr><tr><td>P</td><td>POWER REQUIREMENT</td></tr><tr><td>XXX</td><td>DESCRIPTION (USED ON PANEL INSTRUMENTS)</td></tr><tr><td>YY</td><td>CHEMICAL</td></tr><tr><td>ZZZ</td><td>LOCATION</td></tr></table>	DIGITAL/ANALOG INSTRUMENT		AAA	ISA TAG (REFER TO TABLE)	BBB	LOOP NUMBER	CCC	LOOP NUMBER SUB	D	DIVISION NUMBER	P	POWER REQUIREMENT	XXX	DESCRIPTION (USED ON PANEL INSTRUMENTS)	YY	CHEMICAL	ZZZ	LOCATION
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	ULTRASONIC DOPPLER FLOW METER	<div><div><div>"X"</div><div>P</div><div>O</div><div>H</div><div>E</div><div>S</div></div><div>AIR CYLINDER</div><div>OIL CYLINDER</div><div>HYDRAULIC CYLINDER</div><div>ELECTRIC MOTOR</div><div>SOLENOID VALVE</div></div>			SUBMERSIBLE PUMP																				
	ULTRASONIC TIME TRANSIT FLOW METER				MIXER/FLOCCULATOR/AERATOR																				
	VORTEX FLOW METER	<div><div><div>T</div><div>OR</div><div>NO SYMBOL</div></div><div>MANUAL VALVE</div></div>			VERTICAL PUMP-1 USED WHEN DISCHARGE LINE IS IN WETWELL																				
	VENTURI TUBE	<u>MISC PROCESS SYMBOLS</u>																							
	TURBINE OR PROPELLER TYPE METER		ANNULAR TYPE SEAL		VERTICAL PUMP-2 USED WHEN DISCHARGE LINE IS EXPOSED.																				
	ROTAMETER		CHEMICAL INJECTION POINT																						
	PITOT TUBE		STRAINER		VERTICAL PUMP SHAFT USED WHEN INTAKE OF PUMP IS ENCASED.																				
	WEIR FLOW METER		DRAIN																						
	PARSHALL FLUME OR TRAPEZOIDAL FLUME		NORMAL OPERATING LEVEL		SUBMERSIBLE MIXER																				
	ORIFICE PLATE		UV CHAMBER																						
	THERMAL MASS FLOWMETER		FLOW STRAIGHTENER		HEAT EXCHANGER																				
<u>PRIMARY LEVEL ELEMENTS</u>			LOAD CELL																						
	ULTRASONIC LEVEL TRANSDUCER		SPRAY NOZZLE		FEED PUMP																				
	RADAR LEVEL TRANSDUCER		BLIND FLANGE																						
	PRIMARY ELEMENT PRESSURE PROBE LEVEL TRANSMITTER		FLANGE		GRINDER/MACERATOR																				
	BUBBLER LEVEL TUBE ELEMENT		DIAPHRAGM SEAL																						
	CONDUCTIVE LEVEL PROBE		PRESSURE RELIEF (OUT)		METERING PUMP																				
	FLOAT SWITCH		VACUUM RELIEF (IN)																						
<u>VALVES</u>		<u>GATES</u>			PLUNGER PUMP																				
	VALVE - OTHER IN-LINE TYPE NOT OTHERWISE IDENTIFIED		SLUICE/SLIDE GATE																						
	THREE-WAY VALVE		FLOW CONTROL GATE		PERISTALTIC METERING PUMP																				
	BALL VALVE	<u>MOTORS</u>																							
	GLOBE VALVE		VARIABLE SPEED MOTOR		CENTRIFUGAL PUMP																				
	PINCH VALVE		CONSTANT SPEED MOTOR																						
	GATE VALVE	<u>PUMPS, BLOWERS AND MISC EQUIPMENT</u>			CENTRIFUGE																				
	NEEDLE VALVE		POSITIVE DISPLACEMENT BLOWER																						
	DIAPHRAGM VALVE		CENTRIFUGAL BLOWER		PULSATION DAMPENER																				
	BUTTERFLY VALVE		FAN																						
	CHECK VALVE WITH FLOW DIRECTION		CENTRIFUGAL PUMP																						
	PLUG VALVE		DIAPHRAGM PUMP AND MOTOR																						
	PRESSURE-REDUCING REGULATOR INTERNAL PRESSURE TAP																								
	BACK PRESSURE REGULATOR INTERNAL PRESSURE TAP																								
	PRESSURE-REDUCING REGULATOR EXTERNAL PRESSURE TAP																								
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CONTROL ENCLOSURE, INSTRUMENTS AND SCADA						
<div><div>F(X)</div><div>DIGITAL/ANALOG INSTRUMENT -LOCATED ON PANEL -VISIBLE TO OPERATOR -NORMALLY OPERATOR ACCESSIBLE</div></div>	<u>PLC/RTU LOGIC</u> <u>FUNCTION SYMBOLS AND ABBREVIATIONS</u> K PROPORTIONAL GAIN OR ATTENUATE (INPUT:OUTPUT) - K REVERSE PROPORTIONAL GAIN OR ATTENUATE (INPUT:OUTPUT) Σ SUMMING Σ/n AVERAGING Δ SUBTRACTING √ EXTRACT SQUARE ROOT ÷ DIVIDE X MULTIPLY S INTEGRATE + BIAS POSITIVE - BIAS NEGATIVE F(X) NONLINEAR OR UNSPECIFIED FUNCTION > HIGH SELECT < LOW SELECT ▷ HIGH LIMIT ◁ LOW LIMIT					
	<table><tr><th>INSTRUMENT (COMMON HOUSING)</th><th>INSTRUMENT (SEPERATOR HOUSING)</th><th>INSTRUMENT (PART OF MAJOR EQUIPMENT)</th></tr><tr><td></td><td></td><td></td></tr></table>	INSTRUMENT (COMMON HOUSING)	INSTRUMENT (SEPERATOR HOUSING)	INSTRUMENT (PART OF MAJOR EQUIPMENT)		
INSTRUMENT (COMMON HOUSING)	INSTRUMENT (SEPERATOR HOUSING)	INSTRUMENT (PART OF MAJOR EQUIPMENT)				
						
<u>GENERAL NOTES:</u> 1. THIS IS A GENERAL LEGEND SHEET, SOME SYMBOLS AND ABBREVIATIONS MAY NOT APPLY TO THIS SPECIFIC PROJECT. 2. THIS LEGEND APPLIES TO INSTRUMENTATION DIAGRAMS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS. 3. IN GENERAL THIS LEGEND SHEET AND THE INSTRUMENTATION DIAGRAMS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARDS FOR PRACTICES FOR INSTRUMENTATION, STANDARD SS.1 SOME MODIFICATIONS, ADDITIONS AND ALTERATIONS HAVE BEEN MADE AS REQUIRED TO ACCOMMODATE THE PROJECT REQUIREMENTS. 4. SOME PROCESS ITEMS, SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, ETC., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION AND CONTROL FUNCTIONS ARE NOT SHOWN ON THE INSTRUMENTATION SHEETS. 5. SEE ELECTRICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS FOR EQUIPMENT NOT SHOWN OR NOT PROVIDED BY THE INSTRUMENTATION SUPPLIER. 6. IN THE EVENT OF DISCREPANCY BETWEEN THE PROCESS & INSTRUMENTATION DIAGRAMS AND THE LOOP DIAGRAMS, THE INFORMATION FROM THE LOOP DIAGRAMS SHALL BE USED.						
<u>HAND SWITCH ABBREVIATIONS:</u> HOA HAND/OFF/AUTO HOR HAND/OFF/REMOTE LOC LOCAL/OFF/COMPUTER LOR LOCAL/OFF/REMOTE LOS LOCKOUT STOP OSC OPEN/STOP/CLOSE RSL RAISE/STOP/LOWER L/C LOCAL/COMPUTER L/R LOCAL/REMOTE O/C OPEN/CLOSE S/S START/STOP A/M AUTO/MANUAL H/C HAND/COMPUTER PB PUSHBUTTON						

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NO.

DATE

COMMENT

REVISIONS

WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
INSTRUMENTATION
LEGEND & SYMBOLS - I

JTG ENGINEERING
TBPE FIRM REGISTRATION NO. 22389

DESIGN BY:
JC

DRAWN BY:
JC

DATE:
09-07-2023

JOB NUMBER:
SHEET

N-01

Dwg Info: W:\Miscellaneous\1214_Lucas - West Lucas Road EST16 Drawings\Instrumentation and Control\Working\A-02.dwg - Plotted: 9/7/2023

LINE SYMBOLS	
	MAJOR PROCESS LINE
	MINOR PROCESS LINE
	FUTURE PROCESS LINE
	EXISTING PROCESS LINE
	HARDWIRED SIGNAL
	SOFT LINK
	HYDRAULIC LINK
	PNEUMATIC LINK
	CAPILLARY TUBE OR FILLED SYSTEM SIGNAL
	ELECTROMAGNET OR SONIC SIGNAL (GUIDED)
	(USED WHEN REFERRING TO A SHEET IN THE DESIGN SET) DESCRIPTION - WHERE FLOW IS GOING SHEET# - WHAT SHEET PROCESS CONTINUES ON X - USED WHEN TWO OR MORE ARROWS ARE REFERRING TO THE SAME SHEET. Y - USED WHEN TWO OR MORE ARROWS ARE REFERRING TO THE SAME SHEET.
	(USED WHEN REFERRING TO A SHEET NOT IN THE DESIGN SET) DESCRIPTION - WHERE FLOW IS GOING
	CAT-5e ETHERNET CABLE
	CAT-6 ETHERNET CABLE
	MODBUS PLUS CABLE
	RS-485 CABLE
	RS-232 CABLE
	POWER OVER ETHERNET CABLE
	T1 FIBER CONNECTION
	NON-SPECIFIC FIBER OPTIC CABLE
	FIBER 100BASE-FX
	FIBER 1000BASE-FX
	SIGNAL CROSSING
	PROCESS LINE CROSSING
	PROCESS LINE/ HARDWIRE SIGNAL CROSSING

EQUIPMENT/LOOP TAGGING	
	EQUIPMENT TAG USED TO IDENTIFY NON-INSTRUMENT EQUIPMENT
	LOOP TAG USED TO TIE THE PROCESS FLOW DIAGRAM TO A LOOP DIAGRAM
STANDARD VALVE AND PIPING USAGE	
	BLOCK/BLEED VALVE ARRANGEMENT
	INSTRUMENTS WITH VALVE ONLY
	INSTRUMENTS WITH DIAPHRAGM SEAL
	INSTRUMENTS WITH ANNULAR SEAL
PANEL DETAIL SYMBOLS	
	INDICATING LIGHT -R RED (ACTIVE EQUIPMENT) -G GREEN (EQUIPMENT OFF) -W WHITE (POWER) -B BLUE (CONDITION IE BACKWASH IN PROGRESS) -A AMBER (ALARM CONDITION)
	SWITCH -L/R (LOCAL - REMOTE) -L/O/A (LOCAL - OFF - AUTO) -L/O/R (LOCAL - OFF - REMOTE) -H/O/A (HAND - OFF - AUTO) -H/O/R (HAND - OFF - REMOTE)
	PUSHBUTTON
	EMERGENCY MUSHROOM PUSHBUTTON
	HORN
	BEACON
	OPERATOR INTERFACE TERMINAL
SECURITY SYSTEM SYMBOLS	
	CLOSED CIRCUIT TELEVISION CAMERA
	PAN, TILT, ZOOM CAMERA

GENERAL ABBREVIATIONS	
AI	ANALOG INPUT
AL	ALARM PILOT LIGHT
AO	ANALOG OUTPUT
AS	AIR SUPPLY
ASP	APPLICATION SERVICE PROVIDER
BFV	BUTTERFLY VALVE
CCTV	CLOSED CIRCUIT TELEVISION
CH4	METHANE
CL2	CHLORINE
COND	CONDUCTIVITY
COMP	COMPUTER
CP	CONTROL PANEL
CPU	CENTRAL PROCESSING UNIT
CRC	CONTROL ROOM CONSOLE
CTU	CENTRAL TELEMETRY UNIT
DCU	DISTRIBUTED CONTROL UNIT
DI	DIGITAL OR DISCRETE INPUT
DO	DISSOLVED OXYGEN OR DIGITAL OUTPUT
DPU	DISTRIBUTED PROCESSING UNIT
EPP	ETHERNET PATCH PANEL
ES	EMERGENCY STOP
ESW	ETHERNET SWITCH
ETM	ELAPSED TIME METER
FC	FAIL CLOSED
FCP	FIELD CONTROL PANEL
FCS	FILTER CONTROL STATION
FCV	FLOW CONTROL VALVE
FLP	FAIL LAST POSITION
FO	FAIL OPEN
FOPP	FIBER OPTIC PATCH PANEL
FPR	FEEDER PROTECTION RELAY
H2S	HYDROGEN SULFIDE
HMI	HUMAN MACHINE INTERFACE
JB	JUNCTION BOX
IO	INPUT/OUTPUT
IR	INFRARED
LAS	LIQUID AMMONIA SULFATE
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
LPU	LOCAL PROCESSING UNIT
LTS	LOCAL TERMINAL SYSTEM
MC	MOTOR CONTROLLER
NAOCL	SODIUM HYPOCHLORIDE
NC	NORMALLY CLOSED
NH3	AMMONIA
NIM	NETWORK INTERFACE MODULE
NO	NORMALLY OPEN
MCC	MOTOR CONTROL CENTER
MM	MULTI MODE FIBER OPTIC CABLE
MPR	MOTOR PROTECTION RELAY
OIT	OPERATIONS INTERFACE TERMINAL
OL	OVERLOAD
OVS	OPERATOR WORKSTATION
PB	PUSH BUTTON
PCSI	PROCESS CONTROL SYSTEM INTEGRATOR
pH	HYDROGEN ION
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMCS	PROCESS MONITORING CONTROL SYSTEM
POLY	POLYMER
PQM	POWER QUALITY METER
PS	POWER SUPPLY
PSU	POWER SUPPLY UNIT
PV	PINCH VALVE
RBC	REMOTE BASE CONTROLLER
RIO	REMOTE INPUT OUTPUT
RTU	REMOTE TERMINAL UNIT
SCADA	SUPERVISORY CONTROL AND DATA AQUISITION
SM	SINGLE MODE FIBER OPTIC CABLE
SO2	SULFUR DIOXIDE
SOL	SOLENOID
SPD	SURGE PROTECTION DEVICE
UPS	UNINTERRUPTIBLE POWER SUPPLY
TC	TERMINATION CABINET
TURB	TURBIDITY
VIB	VIBRATION
VFD	VARIABLE FREQUENCY DRIVE
VLV	VALVE

MEANINGS OF IDENTIFICATION LETTERS					
THIS TABLE APPLIES ONLY TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS.					
FIRST LETTER			SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS/ANALYTICAL		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGING (DIMENSIONAL)		GLASS VIEWING DEVICE		
H	HAND				HIGH OR OPEN
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW OR CLOSED
M	MOISTURE OR HUMIDITY				MIDDLE OR INTERMEDIATE
N	USERS CHOICE		USER'S CHOICE		USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE OR TOTALIZE			
R	RADIATION		RECORD		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		UNCLASSIFIED
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATE OR UNCLASSIFIED CONTROL ELEMENT	

COMMON HMI/INSTRUMENT ISA TAGGING	
ABBREVIATION	MEANING
AIT	ANALYTICAL INDICATING TRANSMITTER
AE	ANALYTICAL ELEMENT
AI	CHEMICAL RESIDUAL/INDICATION
FIT	FLOW INDICATING TRANSMITTER
FE	FLOW ELEMENT
FI	FLOW INDICATION
HS	HAND SWITCH
JAL	POWER ALARM LOW
II	CURRENT INDICATION
LIT	LEVEL INDICATING TRANSMITTER
LE	LEVEL ELEMENT
LI	LEVEL INDICATION
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
LAL	LEVEL ALARM LOW
LAH	LEVEL ALARM HIGH
PIT	PRESSURE INDICATING TRANSMITTER
PE	PRESSURE ELEMENT
PI	PRESSURE INDICATION
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH HIGH

COMMON HMI/INSTRUMENT ISA TAGGING	
ABBREVIATION	MEANING
SI	SPEED INDICATION
SIC	SPEED INDICATING CONTROLLER
TIT	TEMPERATURE INDICATING TRANSMITTER
TE	TEMPERATURE ELEMENT
TI	TEMPERATURE INDICATION
TSH	TEMPERATURE SWITCH HIGH
WIT	WEIGHT INDICATING TRANSMITTER
WE	WEIGHT ELEMENT
WI	WEIGHT INDICATION
YL	MISC. EVENT LIGHT (IN REMOTE)
ZCH	OPEN GATE/VALVE
ZCL	CLOSE GATE/VALVE
ZSH	POSITION SWITCH HIGH
ZSL	POSITION SWITCH LOW
ZLH	VALVE/GATE OPEN
ZLL	VALVE/GATE CLOSED
ZIT	POSITION INDICATING TRANSMITTER

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WEST LUCAS ROAD

0.75 MG ELEVATED STORAGE TANK

INSTRUMENTATION

LEGEND & SYMBOLS - II

DESIGN BY: J.C.

DRAWN BY: J.C.

DATE: 09-07-2023

JOB NUMBER:

SHEET

N-02

WEST LUCAS ROAD

0.75 MG ELEVATED STORAGE TANK

INSTRUMENTATION

LEGEND & SYMBOLS - II

DESIGN BY: J.C.

DRAWN BY: J.C.

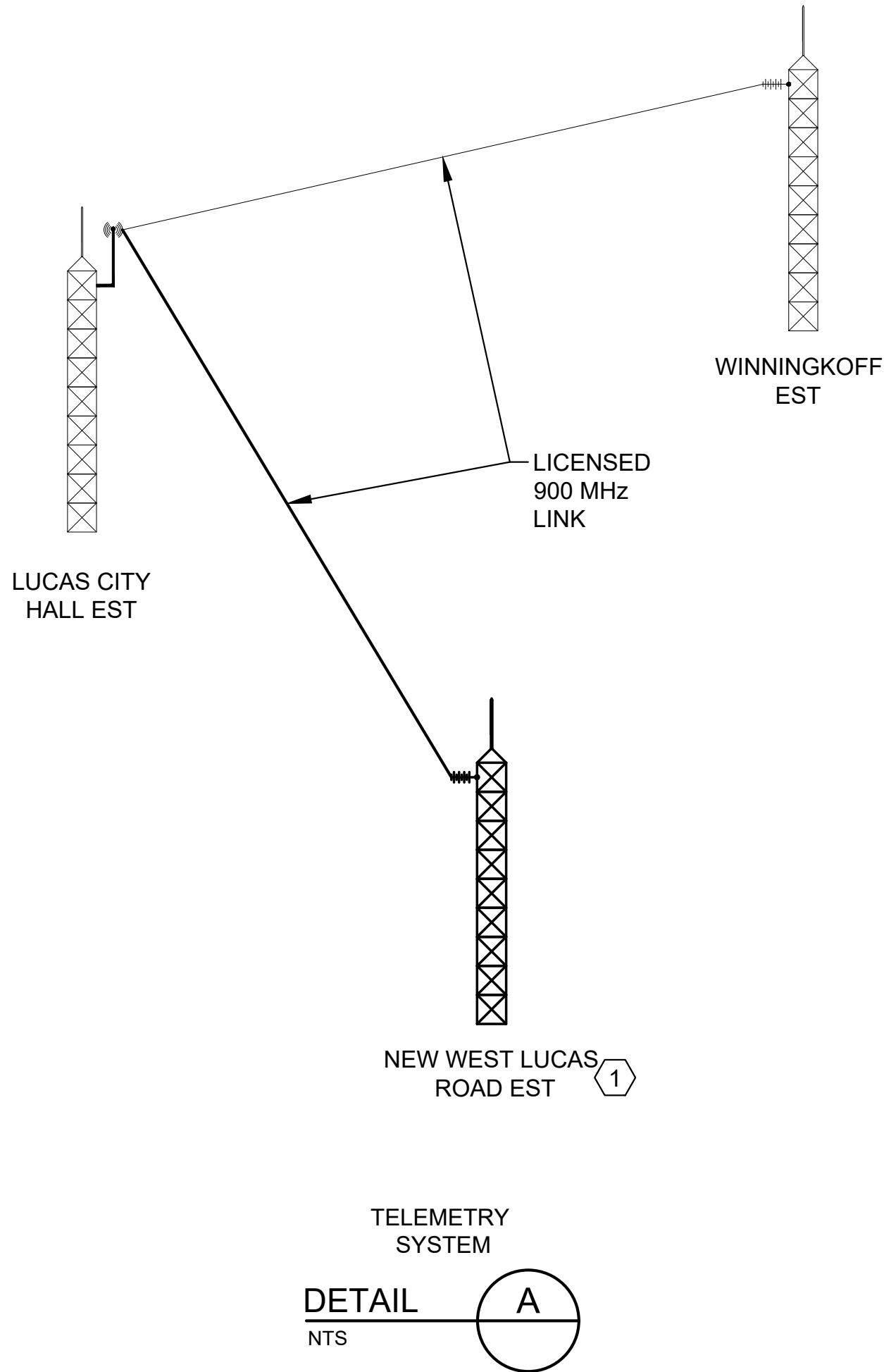
DATE: 09-07-2023

JOB NUMBER:

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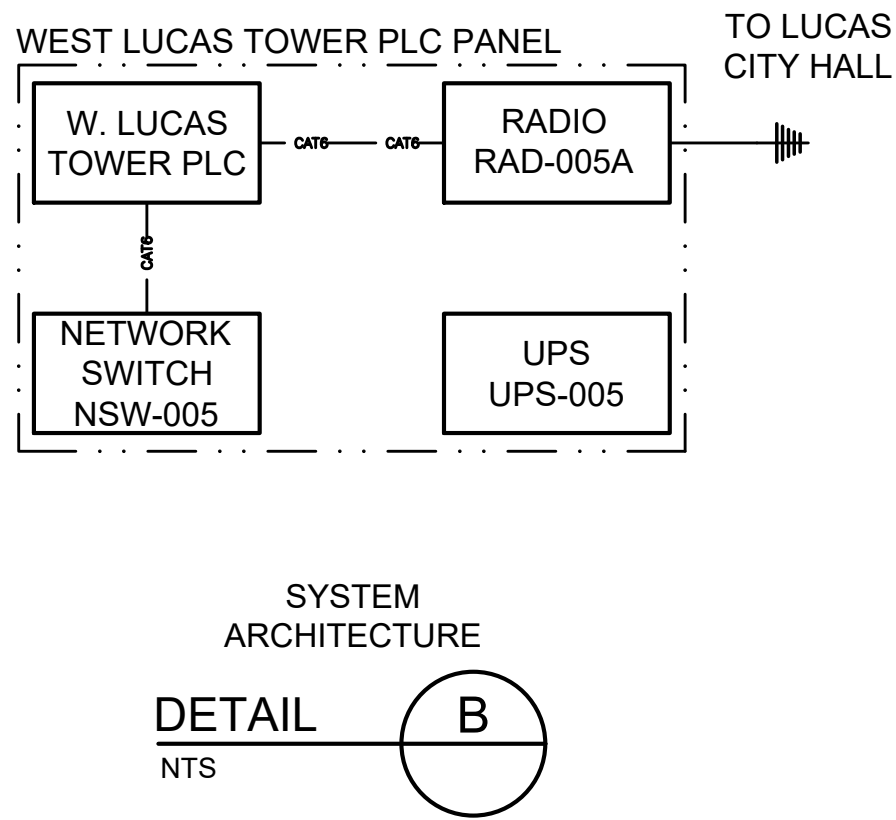
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Dwg Info: W:\Miscellaneous\1214_Lucas - West Lucas Road EST\16 Drawings\Instrumentation and Control\Working\N-03.dwg - Plotted: 9/7/2023



KEYNOTES: DENOTED BY SYMBOL ①

1. CONTRACTOR WILL CONDUCT A PATH STUDY AND A PHYSICAL RADIO LINK TEST TO FIND OPTIMAL HEIGHT FOR ANTENNA



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Tel: 972-498-7961
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NO.	DATE	COMMENT



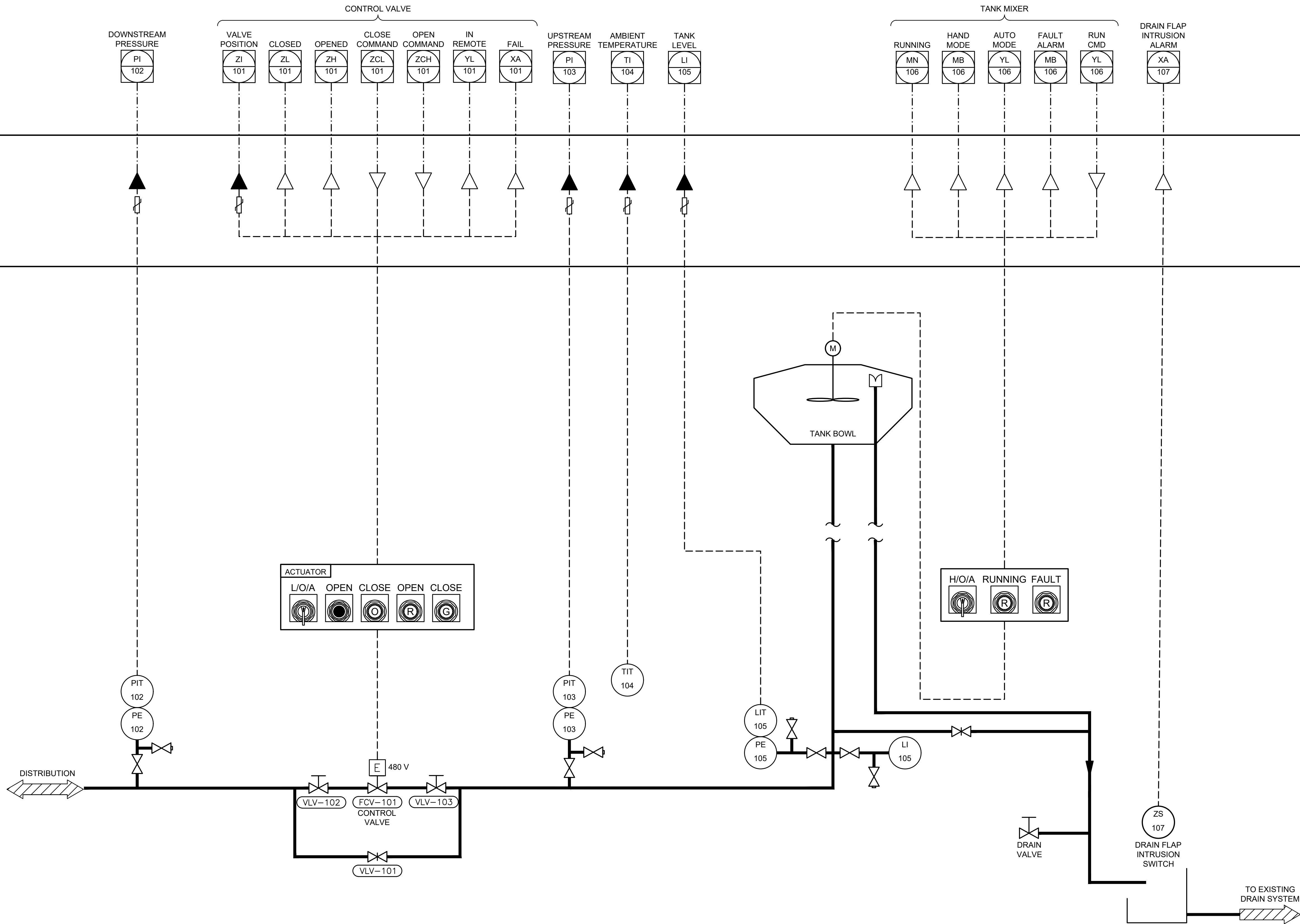
WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
INSTRUMENTATION
TELEMETRY & SYSTEM ARCHITECTURE



JTG ENGINEERING
TBPE FIRM REGISTRATION NO. 22389

DESIGN BY: J.C.	DRAWN BY: J.C.
DATE: 09-07-2023	JOB NUMBER:
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Dwg Info: W:\Miscellaneous\1214_Lucas - West Lucas Road EST16 Drawings\Instrumentation and Control\Working\N-04.dwg - Plotted: 9/7/2023



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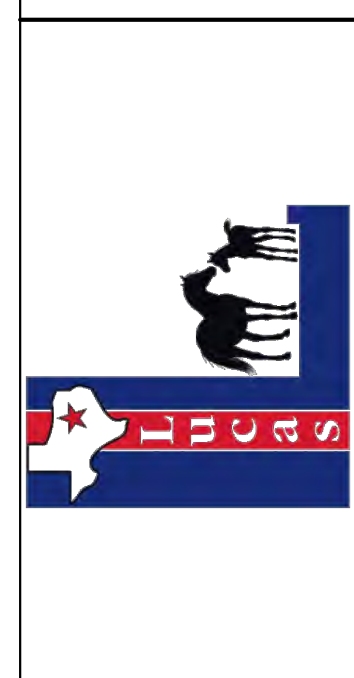
WEST LUCAS
TOWER PLC

NO.	DATE	COMMENT

REVISIONS



WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
INSTRUMENTATION
PROCESS & INSTRUMENTATION DETAILS I

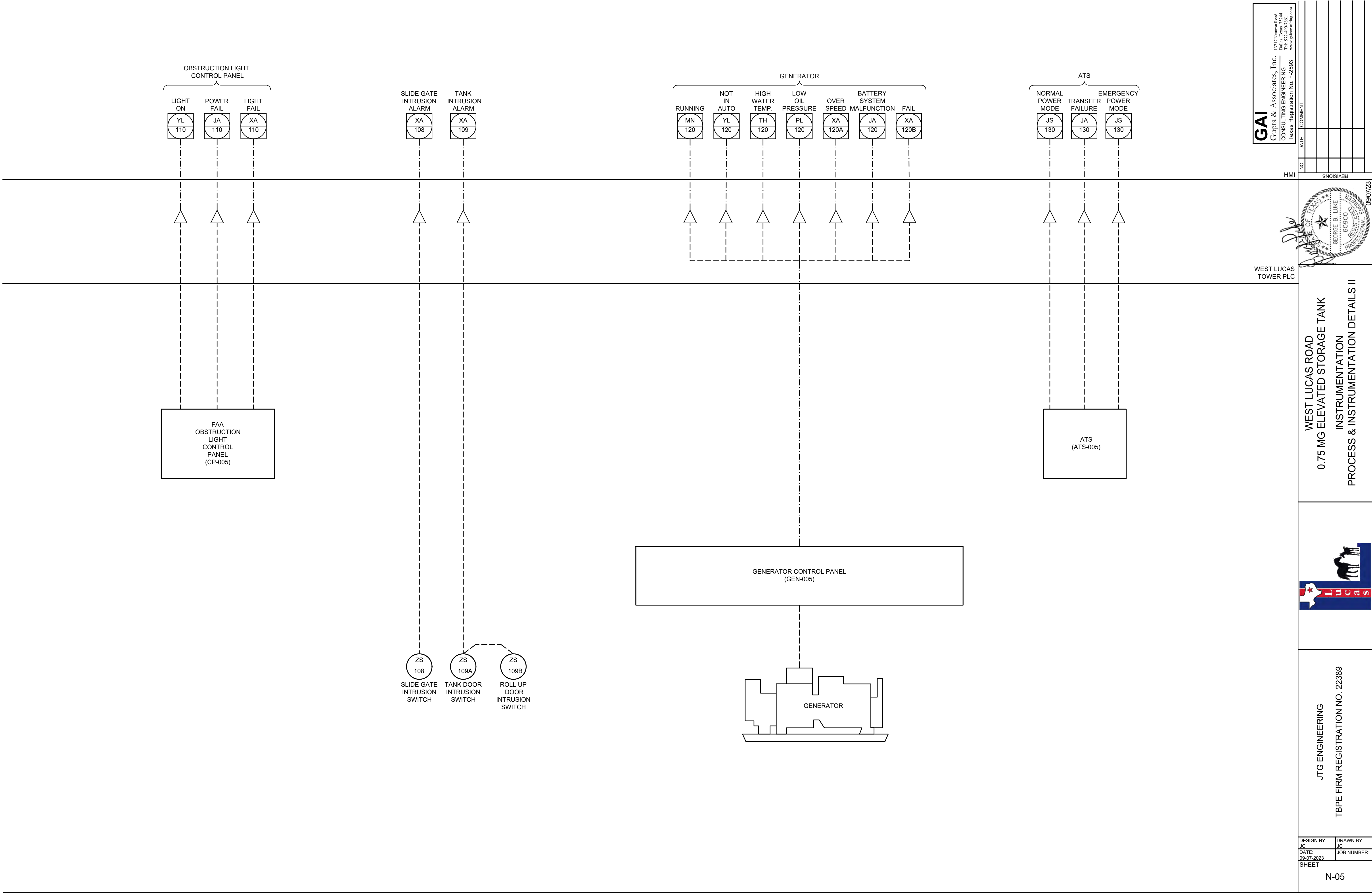


JTG ENGINEERING
TBPE FIRM REGISTRATION NO. 22389

DESIGN BY: JG	DRAWN BY: JG
DATE: 09-07-2023	JOB NUMBER:
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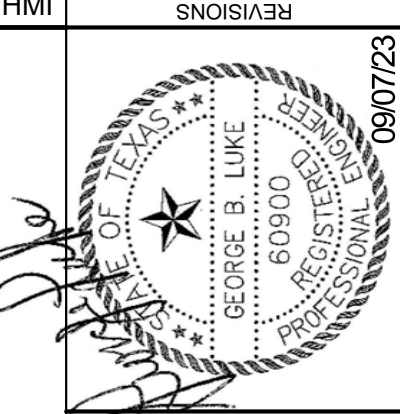
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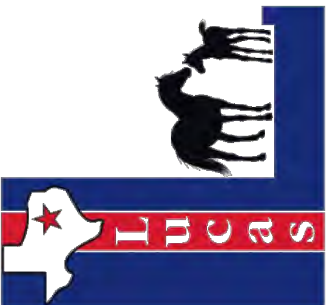


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NO.	DATE	COMMENT



WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
INSTRUMENTATION
PROCESS & INSTRUMENTATION DETAILS II

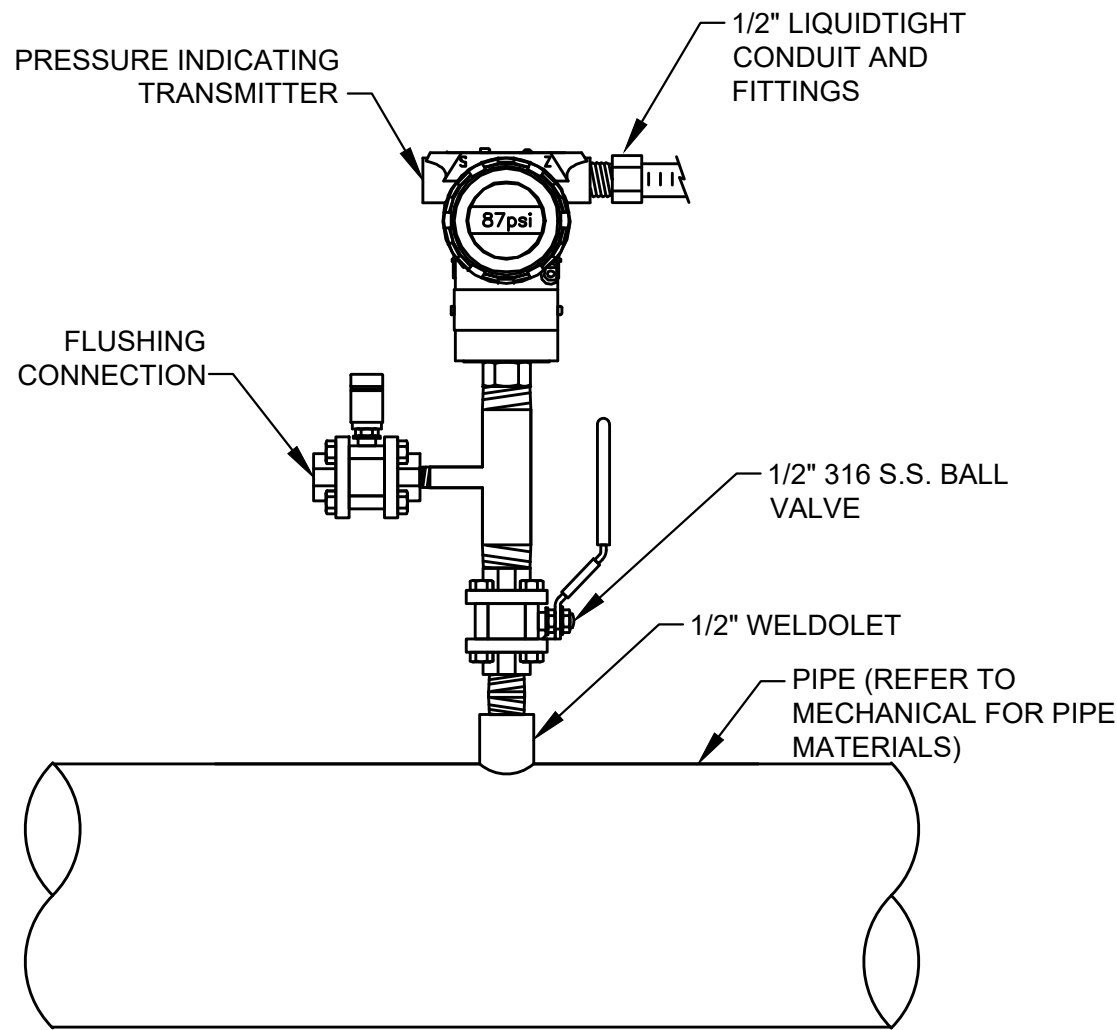


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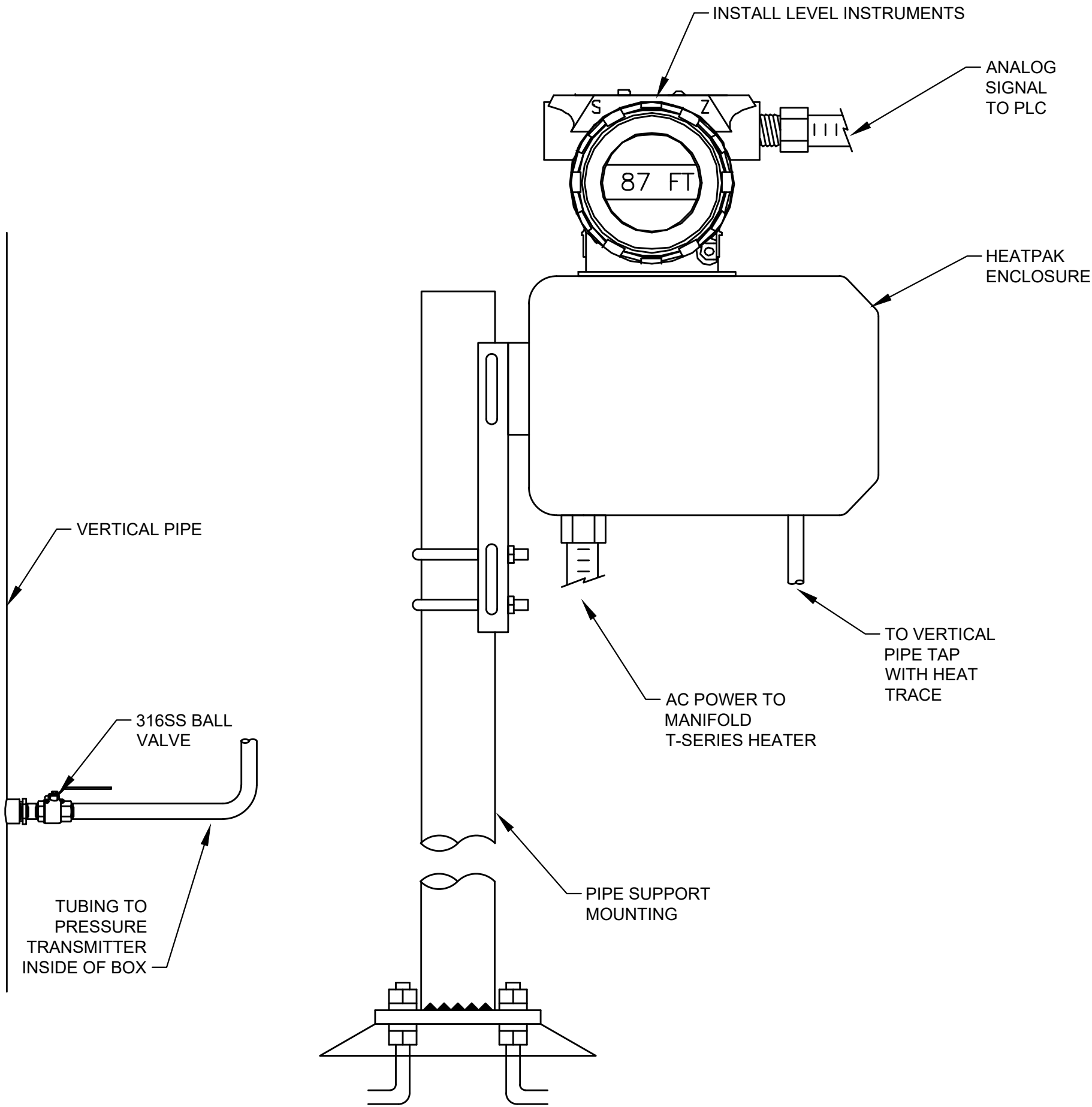
DESIGN BY: JG	DRAWN BY: JG
DATE: 09-07-2023	JOB NUMBER:

SHEET
N-05

Dwg Info: W:\Miscellaneous\1214_Lucas - West Lucas Road EST16 Drawings\Instrumentation and Control\Working\N-06.dwg - Plotted: 9/7/2023



PRESSURE INDICATION TRANSMITTER
DETAIL A
NTS



PRESSURE TRANSMITTER
ON STANCHION MOUNTING
DETAIL B
NTS

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NO.	DATE	COMMENT

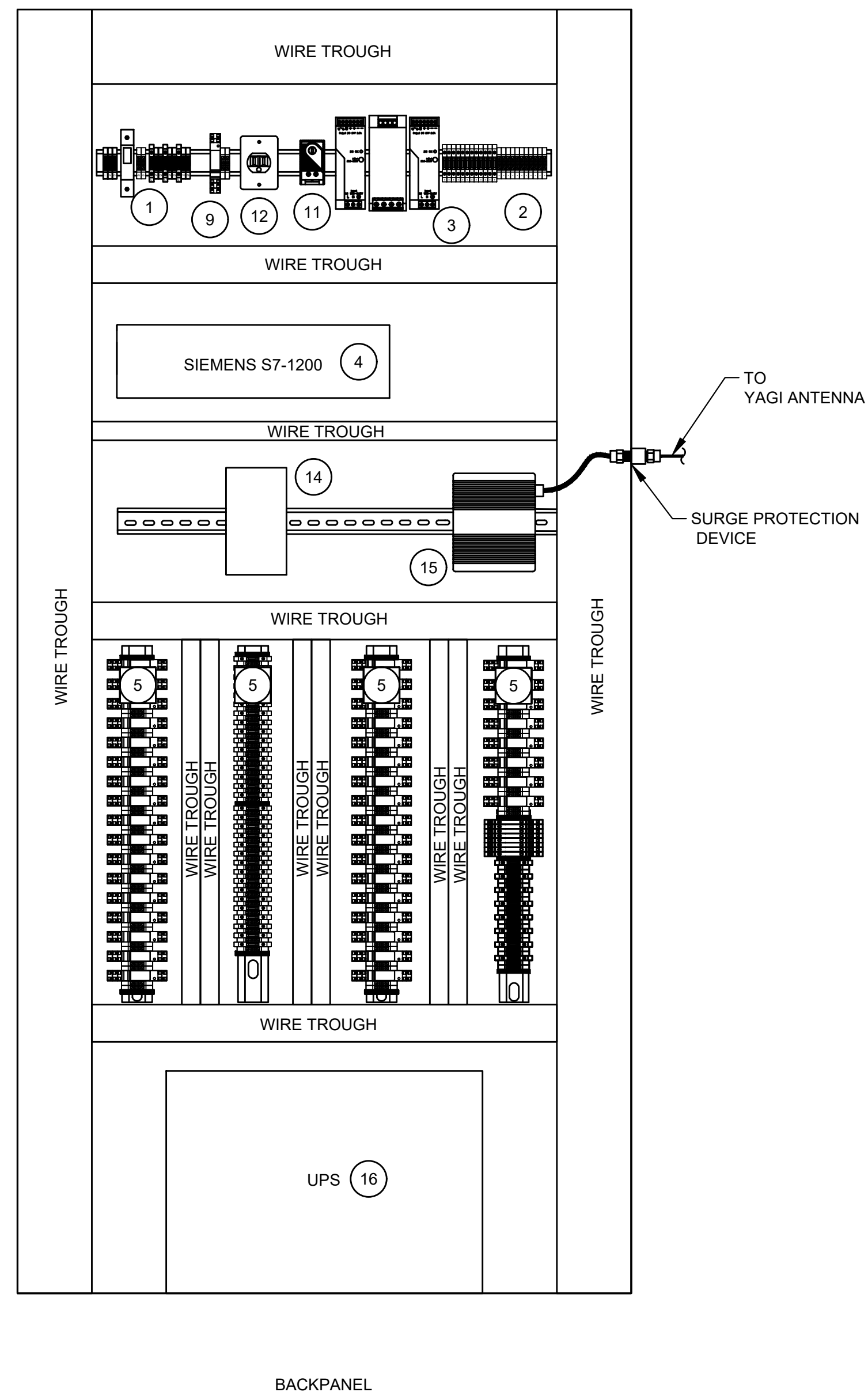
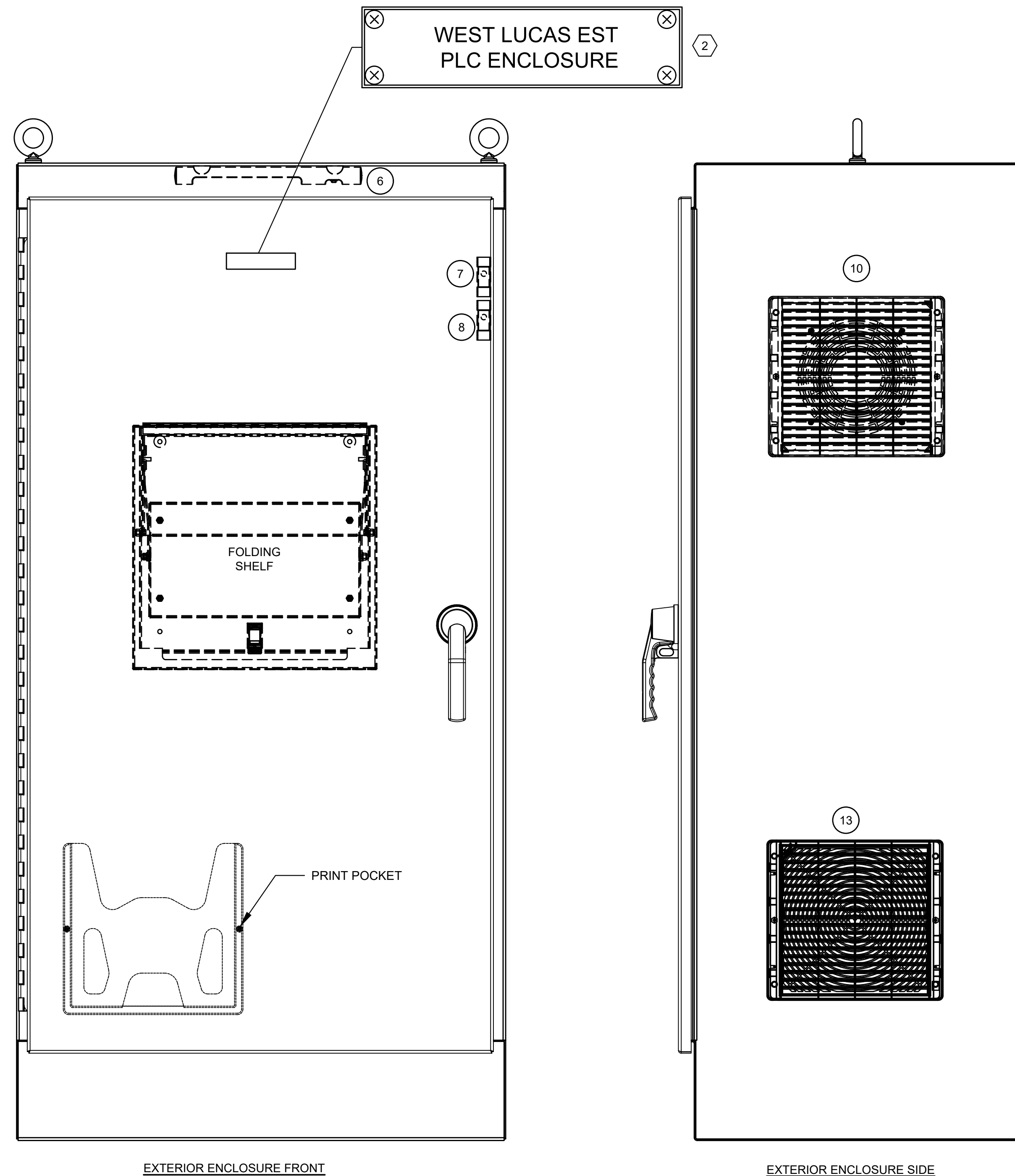



WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
INSTRUMENTATION
INSTRUMENT INSTALLATION DETAIL



JTG ENGINEERING
TBPE FIRM REGISTRATION NO. 22389

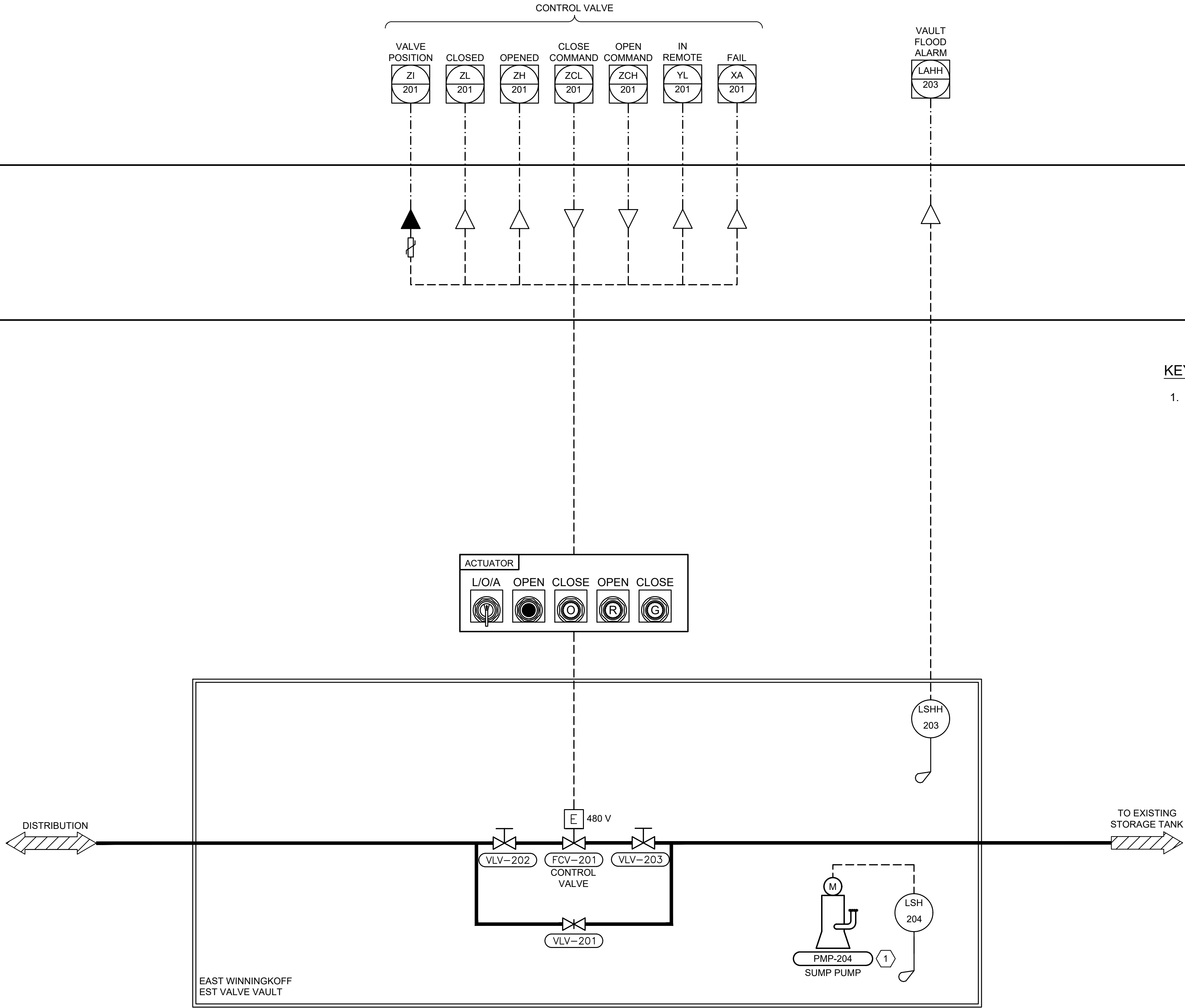
DESIGN BY: J.C.	DRAWN BY: J.C.
DATE: 09-07-2023	JOB NUMBER:
SHEET	



- KEYNOTES:** DENOTED BY SYMBOL 
1. ENCLOSURE SHALL BE NEMA 4X, 316S.S., 72"H MIN. X 36"W MIN. X 24"D MIN.
 2. LABEL SHALL BE AFFIXED TO FRONT OF PANEL.
 3. PANEL INTERNAL LAYOUTS ARE PROVIDED FOR INITIAL DESIGN PURPOSES ONLY. CONTRACTOR SHALL DETERMINE THE FINAL PANEL DESIGN WHICH SHALL COMPLY WITH ALL COMPONENT MANUFACTURER INSTALLATION RECOMMENDATIONS AND ALL APPLICABLE CODES, REGULATIONS, AND STANDARDS.
 4. ENCLOSURE MOUNTING DETAILS ARE PROVIDED FOR INITIAL DESIGN PURPOSES ONLY. CONTRACTOR SHALL FIELD VERIFY THERE IS SUFFICIENT ROOM AT THE MOUNTING LOCATION PRIOR TO FABRICATING ENCLOSURES.

NO.	EQUIPMENT
1	AC DISTRIBUTION
2	DC DISTRIBUTION
3	REDUNDANT DC POWER SUPPLY
4	PLC
5	I/O TERMINATION/RELAYS
6	LIGHT
7	INTRUSION SWITCH
8	LIGHT SWITCH
9	AC LOSS RELAY
10	FAN
11	FAN THERMOSTAT
12	120VAC OUTLET
13	EXHAUST
14	ETHERNET SWITCH
15	SCHNEIDER TRIO 900 MHZ RADIO
16	UPS

Dwg Info: W:\Miscellaneous\1214_Lucas - West Lucas Road EST16 Drawings\Instrumentation and Control\Working\N-08.dwg - Plotted: 9/7/2023



KEYNOTES: DENOTED BY SYMBOL (X)

1. SUMP PUMP PACKAGE TO BE A CORD & PLUG CONNECTED PACKAGE WITH INTEGRAL FLOAT LEVEL CONTROL.

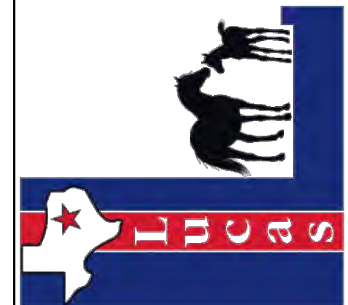
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WINNINGKOFF
TOWER PLC

NO.	DATE	COMMENT



WEST LUCAS ROAD
0.75 MG ELEVATED STORAGE TANK
INSTRUMENTATION
WINNINGKOFF VALVE VAULT



JTG ENGINEERING
TBPE FIRM REGISTRATION NO. 22389

DESIGN BY: J.C.	DRAWN BY: J.C.
DATE: 09-07-2023	JOB NUMBER:
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