WATER TOWER UPGRADE
1201 TYER ROAD

FINAL CONSTRUCTION PLANS
MARCH 2025

GRAIN VALLEY
MISSOURI

LIFE OUTSIDE THE LINES

UTILITY CONTACTS

GRAIN VALLEY
PATRICK MARTIN
816-215-9659

AT&T DISTRIBUTION
816-944-9428

COMCAST/XFINITY
816-795-2255

EVERGY
888-544-4852

MISSOURI ONE-CALL
800-344-7483

SPIRE WEST
816-634-4584

TRI-COUNTY WATER AUTHORITY
JOHN OVERSTREET
816-796-4100 X204

LOCATION MAP

DRAWING INDEX

SHEET NUMBER	SHEET DESCRIPTION	SHEET TITLE
1	G-001	COVER SHEET
2	G-002	GENERAL NOTES & LEGEND
3	C-101	SITE PLAN
4	C-102	SITE PLAN AIRPORT MAP
5	C-103	PROCESS FLOW DIAGRAM
6	C-201	LINE 1 - PROPOSED INFLUENT 16" DIP
7	C-202	LINE 2 - PROPOSED EFFLUENT 16" DIP
8	C-301	ELEVATION DETAIL
9	C-302	BASE PLAN
10	C-303	PIPE SECTION VIEW
11	D-501	DETAILS
12	E-101	ELECTRICAL SITE PLAN
13	E-102	ELECTRICAL PLAN - ELEVATED TANK
14	E-103	ELECTRICAL PLAN - ELEVATED TANK
15	E-501	ELECTRICAL DETAILS

MISSOURI ONE CALL SYSTEM

1 - 800 - 344 - 7483
1 - 800 - (DIG-RITE)
(811)

STATE OF MISSOURI
CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
PROFESSIONAL ENGINEER

CMT

CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
1100 MAIN STREET SUITE 12110
KANSAS CITY, MO 64105
CELIA LAMPRECHT
(816)272-8318
CLAMPRECHT@CMTENGR.COM

Path: J:\GrainValley\23005898.00_WaterTowerUpgrade\Draw\Models\AEC ARH D BORDER.dwg
Date: ----

GENERAL NOTES

1. THE LOCATION, SIZE AND TYPE OF MATERIALS OF EXISTING UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER OR THE ENGINEER ASSUME ANY RESPONSIBILITY IN RESPECT TO THE ACCURACY OR SUFFICIENCY OF THE INFORMATION, AND THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE CONDITIONS INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANY OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANY'S DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE UTILITY COMPANY FOR REMOVAL OR ADJUSTMENT WHERE REMOVAL OR ADJUSTMENT IS REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY SUCH MAINS AND SERVICES DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO SERVICE AT ONCE. WHENEVER POSSIBLE, RESIDENTS SHALL BE NOTIFIED IN ADVANCE IF THEIR HOUSE SERVICE IS TO BE DISCONNECTED AND NO HOUSE SHALL BE LEFT WITHOUT SERVICE OVERNIGHT.
2. WATER MAIN SHALL BE CLASS 54 DIP COMPLETE WITH ALL ACCESSORIES CONFORMING TO ASA SPECIFICATIONS A21.8. THE JOINTS SHALL BE THE BOLTED, GASKETED JOINT TYPE, "U.S. PIPE & FOUNDRY TYTON" OR "AMERICAN CAST IRON PIPE COMPANY FASTITE" OR APPROVED EQUAL.
3. WATER MAIN SHALL HAVE A MINIMUM DEPTH OF COVER OF 60" UNLESS OTHERWISE NOTED ON THE DRAWINGS.
4. LAND SURVEY MONUMENTS (PROPERTY CORNERS, RIGHT-OF-WAY MARKERS, ETC.) WHICH ARE DISTURBED BY EXCAVATION SHALL BE RESET BY A LICENSED PROFESSIONAL LAND SURVEYOR. COST SHALL BE INCIDENTAL TO CONSTRUCTION CONTRACT.
5. THE CONTRACTOR SHALL CONTACT APPLICABLE UTILITY COMPANY PRIOR TO WORKING AROUND ANY EXISTING UTILITY LINE. THE CONTRACTOR SHALL PROTECT ANY EXISTING UTILITY ENCOUNTERED DURING CONSTRUCTION. ALL UTILITIES SHALL REMAIN IN SERVICE THROUGHOUT CONSTRUCTION UNLESS OTHERWISE APPROVED BY OWNER AND UTILITY COMPANY.
6. THE CONTRACTOR SHALL REVIEW EXISTING SITE CONDITIONS AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED IN CONNECTION WITH THE LOCATION OF EXISTING OVERHEAD FACILITIES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ANY EXISTING FACILITIES/INFRASTRUCTURE (PAVEMENT, SIDEWALK, CURB, INLET, MANHOLE, ETC) REMOVED TO FACILITATE THE INSTALLATION OF THE PROPOSED WATER MAIN AND SERVICES INDICATED ON THE CONSTRUCTION PLANS.
8. THE CONTRACTOR SHALL ENSURE THAT THE FINAL GRADING PROVIDES ADEQUATE DRAINAGE AWAY FROM ANY BUILDINGS AND STRUCTURES. EXISTING DRAINAGE PATTERNS WITHIN THE PROJECT SITE SHALL BE MAINTAINED AND RESTORED AT THE COMPLETION OF THE PROJECT.
9. DETAILED DRAWINGS TAKE PRECEDENCE OVER ALL GENERAL DRAWINGS AND SCHEDULES. ANY CONFLICT SHALL BE RESOLVED IN FAVOR OF THE DETAILED DRAWINGS.
10. ANY COSTS ASSOCIATED WITH PROVISIONS OF ANY PERMIT BY ANY AGENCY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND INCIDENTAL TO THE CONTRACT.
11. ANY BONDING REQUIREMENTS AND COSTS ASSOCIATED WITH THE PROJECT ARE CONSIDERED INCIDENTAL TO THE CONTRACT.
12. EXISTING SANITARY, GAS, WATER AND TELEPHONE SERVICE CONNECTIONS ARE NOT SHOWN.
13. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY THROUGHOUT THE CONSTRUCTION PROJECT. THIS RESPONSIBILITY SHALL NOT BE LIMITED TO WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ALL LIABILITY, REAL, OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OR WORK ON THE PROJECT.
14. THE CONTRACTOR SHALL INSTALL ANY AND ALL APPLICABLE EROSION CONTROL MEASURES NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE PRIOR TO ANY SITE DISTURBANCE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE EROSION CONTROL FOR THE PROJECT SITE. ANY EROSION CONTROL METHODS, INSTALLATION, REPAIR, REPLACEMENT, ADJUSTMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. REFER TO NPDES PERMIT AND SWPPP FOR RECOMMENDATIONS.
15. DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
16. ALL MATERIALS SPILLED, DROPPED OR WASHED INTO THE STORM DRAINS MUST BE REMOVED IMMEDIATELY
17. IF SOIL STOCKPILING IS UTILIZED, SILT FENCES SHALL BE USED TO HELP CONTAIN THE SEDIMENT AND AVOID EROSION DISCHARGE.
18. ANY CONSTRUCTION EXIT SHALL BE MAINTAINED TO A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO THE PUBLIC RIGHT-OF-WAY.
19. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A RAINFALL EVENT. THE MEASURES SHALL BE REPAIRED, REPLACED, OR SUPPLEMENTED AS NEEDED.
20. THE CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS TO PROTECT PUBLIC AND PRIVATE PROPERTY. IF, AT ANY TIME, CONTRACTOR DAMAGES OR DESTROYS PUBLIC OR PRIVATE PROPERTY, THE CONTRACTOR SHALL RESTORE SUCH PROPERTY TO A CONDITION EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE AT THEIR OWN EXPENSE.
21. TOP LAYER FOR ALL EARTH SHALL BE 8 IN OF TOPSOIL.
22. ALL SECTIONS, DETAILS AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS OTHERWISE SHOWN.
23. SHOP DRAWINGS PREPARED BY SUPPLIERS AND SUBCONTRACTORS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO ENGINEER. ENGINEERS REVIEW SHALL BE FOR SIZES AND GENERAL ARRANGEMENT ONLY. NO WORK SHALL BE STARTED WITHOUT SUCH REVIEW.
24. A LEAN CONCRETE MUD SLAB 3 TO 4 INCHES THICK SHALL BE USED IN THE FOOTING EXCAVATION IF THE BOTTOM OF THE EXCAVATION TENDS TO BECOME MUDDY AND SOFT. LEAN CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,000 P.S.I..
25. UNLESS NOTED OTHERWISE, ALL POST INSTALLED ANCHOR BOLTS SHALL BE HILTI, OR ENGINEER APPROVED EQUAL CHEMICAL ANCHORS. EPOXY SHALL BE HILTI HIT-HY 200 OR ENGINEER APPROVED EQUAL.
26. ALL FOOTING EXCAVATIONS SHALL BE CLEAN AND FREE OF DEBRIS, STANDING WATER AND LOOSE SOIL AND BE INSPECTED AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE.
27. IN STRUCTURAL AREAS (WHERE STRUCTURES DERIVE SOME OR ALL SUPPORT FROM FILL-SUPPORTED FOUNDATIONS) AND SLABS-ON-GRADE, FILL SHALL BE COMPACTED TO 98 PERCENT OF STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698).
28. ALL FOOTINGS SHALL BEAR ON UNDISTURBED SUBGRADE OR COMPACTED STRUCTURAL FILL IN ACCORDANCE WITH SPECIFICATION SECTION 02221.
29. BACKFILL AGAINST GRADE WALLS SHALL BE PLACED EVENLY ON ALL SIDES. DO NOT BACKFILL AROUND BASEMENT WALLS UNTIL FIRST FLOOR AND BASEMENT FLOOR SLABS ARE IN PLACE.
30. AGGREGATE FILL BELOW STRUCTURES SHALL BE MoDOT TYPE 5 AGGREGATE COMPACTED IN 8" MAX. LIFTS TO 98% STANDARD PROCTOR.
31. FOR SLABS ON GRADE, PROVIDE 1/2" THICK PREMOLDED JOINT FILLER AND SEALANT TO ISOLATE THE SLAB FROM CONTACT WITH THE STRUCTURES ALONG ITS PERIMETER. AT DEEP FOUNDATIONS CAST SLABS TIGHT TO WALLS AND PROVIDE 1/2" x 1/2" FORMED NOTCH FILLED WITH SEALANT.
32. ACCESS GATE TO THE PROPERTY SHALL REMAIN CLOSED AT ALL TIMES. CONTACT PATRICK MARTIN (GRAIN VALLEY REPRESENTATIVE) OR JOHN OVERSTREET (GENERAL MANAGER TRI-COUNTY WATER AUTHORITY) FOR ACCESS. ACCESS ROAD SHALL NOT BE BLOCKED AT ANYTIME. CONTRACTOR SHALL BUILD TEMPORARY ACCESS ROAD TO PUMP STATION IF NEEDED.
33. WATER MAIN TO BE TESTED AND DISINFECTED PER THE CITY OF GRAIN VALLEY STANDARDS, SPECIFICATIONS, AND THE LATEST AWWA STANDARDS, WHICHEVER IS MORE STRINGENT. CONTRACTOR TO SUBMIT TESTING AND DISINFECTION PLAN TO THE CITY PRIOR TO TESTING AND DISINFECTION OF WATER MAIN.
34. THE PREMISES MUST REMAIN SECURED AT TIMES DURING AND AFTER FENCE REMOVAL. CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING FENCE FOR WATER MAIN INSTALLATION. IF ANY PART OF FENCE NEEDS TO BE REPLACED, CONTRACTOR SHALL CONSTRUCT FENCE IN ACCORDANCE WITH SECTION 32 21 00 - FENCES AND GATES.

LEGEND

- W — EXISTING WATER MAIN
- W — PROPOSED WATER MAIN
- WS — WATER SERVICE
- EXISTING VALVE AND VALVE BOX
- PROPOSED VALVE AND VALVE BOX
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- TEE W/ THRUST BLOCK
- REDUCER
- SOLID SLEEVE
- CP — CULVERT
- EXISTING FENCE
- PROPOSED FENCE
- G — EXISTING GAS MAIN
- OHE — EXISTING OVERHEAD ELECTRIC
- UGE — EXISTING UNDERGROUND ELECTRIC
- UGE — PROPOSED UNDERGROUND ELECTRIC
- T — EXISTING TELEPHONE
- SIGN
- WATER METER
- ELECTRICITY METER
- GAS METER
- MISC. METER
- ROW MARKER
- GUARD POINT
- GP — EXISTING GATE POST
- GP — PROPOSED GATE POST
- FP — EXISTING FENCE POST
- UTILITY POLE
- MAILBOX
- SB T / SB TV — SPLICE BOX
- GUY WIRE
- JUNCTION BOX
- CB — DRAINAGE INLET
- LIGHT POLE
- EDGE OF CULTIVATED FIELD
- EXISTING PROPERTY LINE
- FLOW LINE
- TREE
- TREE STUMP
- R.J. — RESTRAINED JOINT
- REFLECTOR
- IRON PIN
- SURVEY POINT
- SURVEY BENCHMARK
- TEST BORING LOCATION
- SELECT GRANULAR BACKFILL
- CONCRETE PAVEMENT
- GRAVEL

SURVEY CONTROL POINTS

CP # 373		CP # 199	
5/8" IRON BAR & CONTROL POINT CAP		N:	1041771.83
N:	1042077.08	E:	2868107.52
E:	2867888.46	ELEV.	934.98
ELEV.	918.79		
CP # 442		CP # 200	
1/2" IRON BAR & CONTROL POINT CAP		N:	1041767.53
N:	1041541.18	E:	2867850.37
E:	2868411.38	ELEV.	934.58
ELEV.	934.43		
CP # 443		CP # 207	
1/2" IRON BAR & CONTROL POINT CAP		5/8" IRON BAR & CONTROL POINT CAP	
N:	1041658.61	N:	1041627.51
E:	2868415.98	E:	2867861.95
ELEV.	936.71	ELEV.	930.21
CP # 444		BM # 455	
5/8" IRON BAR & CONTROL POINT CAP		N:	1041696.72
N:	1042056.92	E:	2868250.68
E:	2868371.99	ELEV.	937.23
ELEV.	926.83		

GEOTECHNICAL BORING LOG

BORING NUMBER	LATITUDE	LONGITUDE	AUGER REFUSAL
B-1 (CENTER OF TOWER)	39.0273	-94.2208	11 FT
B-2	39.0273	-94.2207	12.5 FT
B-3	39.0272	-94.2207	12 FT
B-4	39.0273	-94.2209	12 FT

FULL GEOTECHNICAL REPORT PREPARED BY TERRACON IS INCLUDED IN APPENDIX A OF THE SPECIFICATIONS.

CMT

STATE OF MISSOURI
CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
PROFESSIONAL ENGINEER

FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

PROJECT NO:	23005898.00
CAD DWG FILE:	G001 - COVER SHEET.DWG
DESIGNED BY:	CLL
DRAWN BY:	CLL
CHECKED BY:	JJ
APPROVED BY:	JJ
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SHEET TITLE

GENERAL NOTES & LEGEND

G-002

SHEET 2 OF 15

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Date: Wednesday, March 5, 2025 11:31:17 AM

TYER ROAD

PROPERTY LINE

CP # 373

CP # 444

EX. 24" DIP TO TRI-COUNTY WATER AUTHORITY/GRAIN VALLEY

EX. 24" DIP WATER MAIN TO BLUE SPRINGS

EX. 24" DIP WATER MAIN TO BLUE SPRINGS

EX. 24" DIP TO TRI-COUNTY WATER AUTHORITY/GRAIN VALLEY PUMP DISCHARGE

EX. TRI-COUNTY WATER AUTHORITY PUMP STATION

TRI-COUNTY WATER AUTHORITY NO ADDRESS

TRI-COUNTY WATER AUTHORITY NO ADDRESS

EX. TRI-COUNTY WATER AUTHORITY GROUND STORAGE TANK

EX. 12" TRI-COUNTY WATER AUTHORITY WATER MAIN

EX. 3/4" TRI-COUNTY WATER AUTHORITY COPPER WATER SERVICE LINE

EX. WATER METER

EX. 16" TRI-COUNTY WATER AUTHORITY WATER MAIN

EX. 48" TRI-COUNTY WATER AUTHORITY WATER MAIN

GP

GP # 199

CP # 200

179'

30'

R6.5'

R6.5'

29'

15'

EX. 12" GRAIN VALLEY WATER MAIN

EX. 8" GRAIN VALLEY WATER MAIN

EX. 8" GATE VALVE TYPICALLY CLOSED

EX. 8" GATE VALVE TYPICALLY OPEN

EX. 12" GRAIN VALLEY WATER MAIN

PROPOSED GRAVEL DRIVE
FINAL DRIVEWAY LOCATION
TO BE DETERMINED BY CITY
SEE D-501 DETAIL 7

EX. PUMP STATION

EX. GENERATOR

EX. 8" GRAIN VALLEY WATER MAIN

EX. WATER VAULTS

PROPOSED TANK PEDESTAL
SEE SHEET C-301

PROPOSED 1.00 MGD CET TOWER

B-1

B-2

B-3

B-4

EX. ANTENNA

CITY OF GRAIN VALLEY
1301 NW TYER RD

PROPOSED TANK
SEE SHEET C-301

LINE 1
INFLUENT
PROPOSED 16" CLASS 50
ZINC COATED DIP
PROFILE SHEET 6

EX. 12" GRAIN VALLEY WATER MAIN

EX. 12" GRAIN VALLEY WATER MAIN

EX. GRAIN VALLEY WATER TOWER

BM # 455

LINE 2A
EFFLUENT
PROPOSED 16" CLASS 50
ZINC COATED DIP
PROFILE SHEET 7

LINE 2B
EFFLUENT
PROPOSED 16" CLASS 50
ZINC COATED DIP
PROFILE SHEET 7

50.0'

CONNECT TO EX. 8" DIP WATER MAIN SEE SHEET 7

21'

CITY OF GRAIN VALLEY NO ADDRESS

NEXT VALVE 400 FT SOUTH

PROPERTY LINE FROM GIS

CP # 207

CP # 443

EX. 8" DIP

EX. 8" DIP

EX. 8" DIP

EX. 8" DIP

NW EAGLE RIDGE DR

NW EAGLE RIDGE BLVD

NW E KANSAS CITY INDUSTRIAL BLVD

N

HOR. 10 0 10 20
SCALE IN FEET

STATE OF MISSOURI
CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
PROFESSIONAL ENGINEER

WATER TOWER UPGRADE
FINAL CONSTRUCTION PLANS

FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

PROJECT NO:	23005898.00
CAD DWG FILE:	C-101.DWG
DESIGNED BY:	CLL
DRAWN BY:	CLL
CHECKED BY:	JJ
APPROVED BY:	JJ
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SHEET TITLE

SITE PLAN

C-101
SHEET 3 OF 15

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Date: Wednesday, March 5, 2025 11:31:27 AM

CMT

STATE OF MISSOURI
CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
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FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY
MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

PROJECT NO:	23005898.00
CAD DWG FILE:	EXHIBITS.DWG
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SHEET TITLE

SITE PLAN
AIRPORT MAP

C-102
SHEET 4 OF 15

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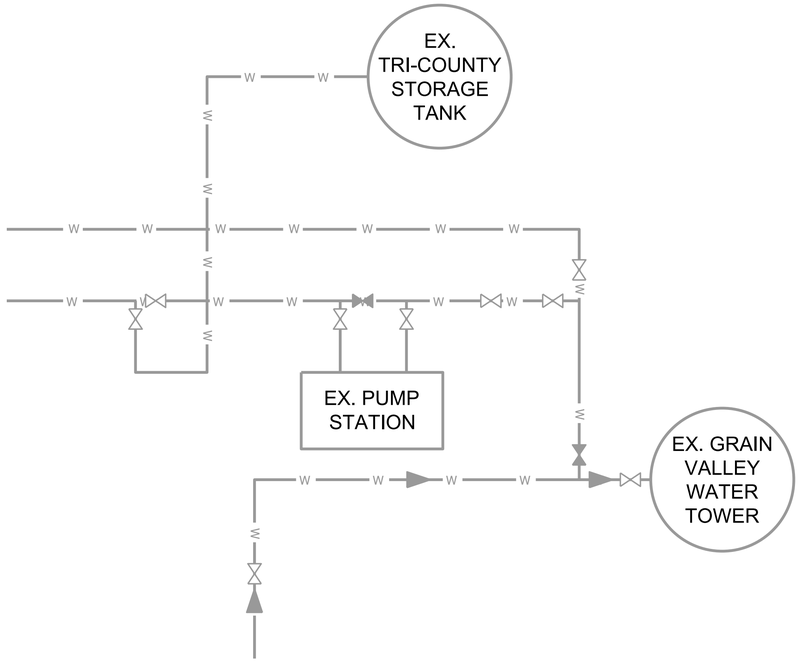
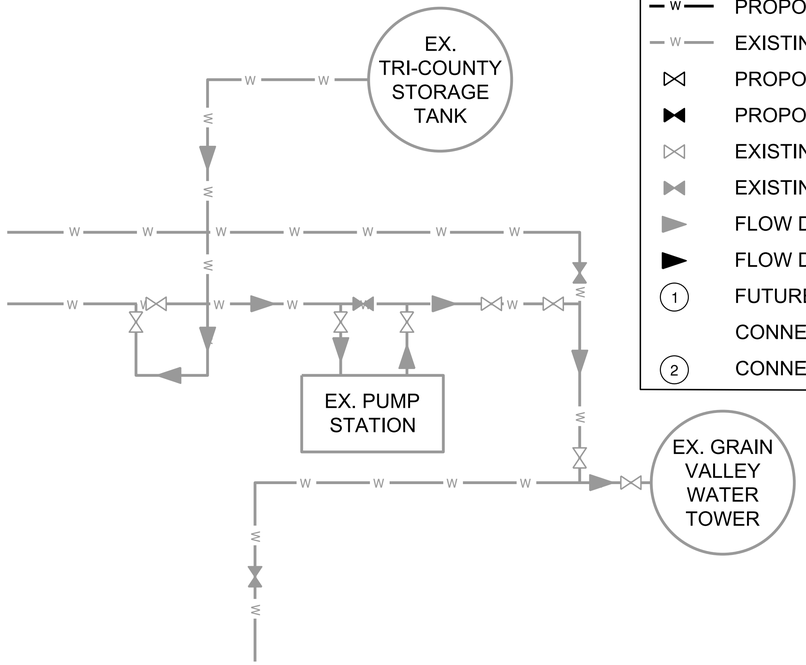


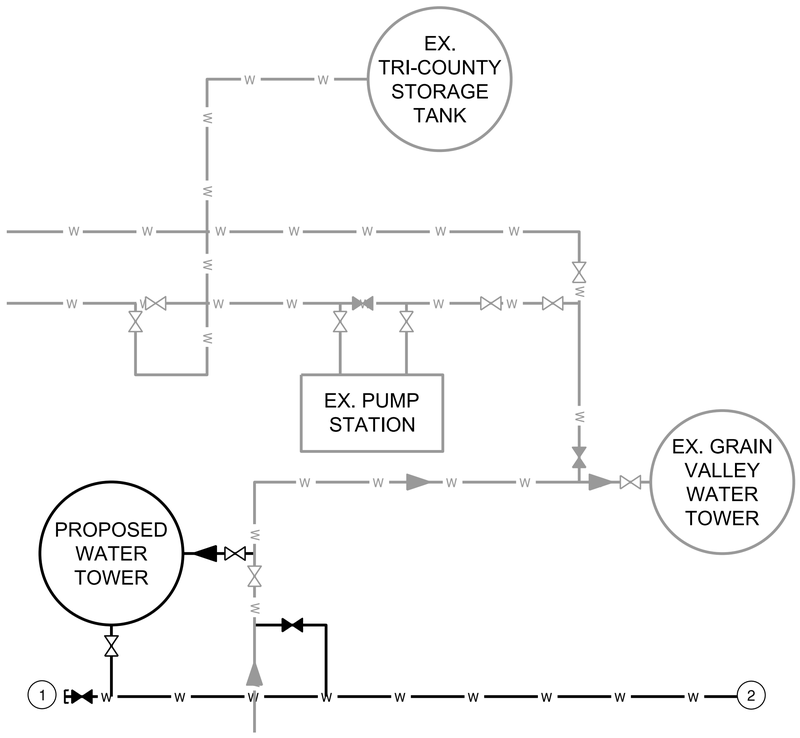
C1 FILLING EXISTING 0.5 MG TOWER FROM SOUTH 12" WATER MAIN
WATER FROM INDEPENDENCE (N.T.S.)



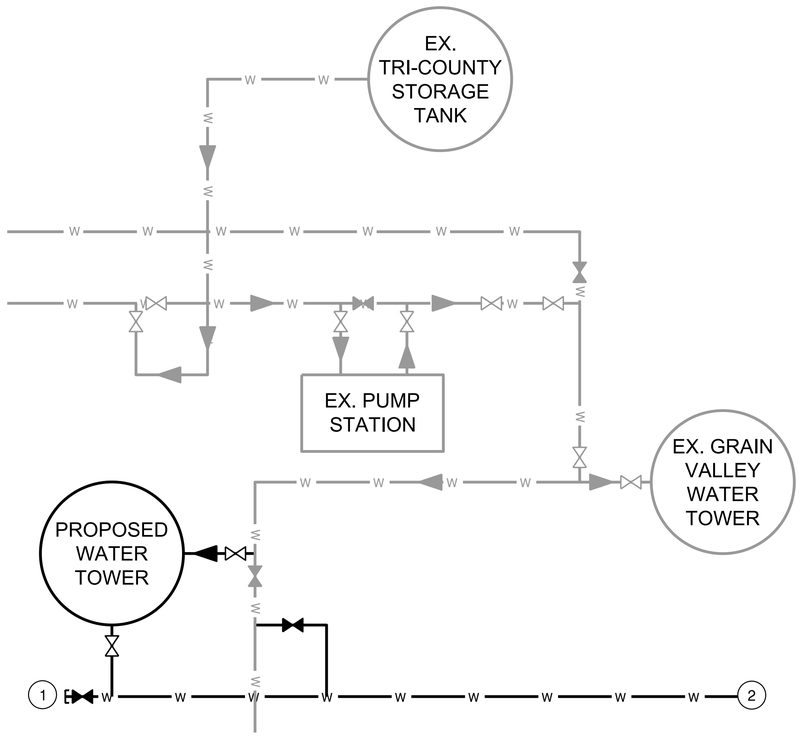
C2 FILLING EXISTING 0.5 MG TOWER FROM NORTH 12" WATER MAIN
WATER FROM TRI-COUNTY (N.T.S.)

LEGEND

- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- PROPOSED WATER VALVE - MANUALLY OPEN
- PROPOSED WATER VALVE - MANUALLY CLOSED
- EXISTING WATER VALVE - MANUALLY OPEN
- EXISTING WATER VALVE - MANUALLY CLOSED
- FLOW DIRECTION
- FLOW DIRECTION
- (1) FUTURE TRI COUNTY EMERGENCY CONNECTION POINT
- (2) CONNECTION TO EX. 8" WATER MAIN



C3 FILLING BOTH TOWERS FROM SOUTH 12" WATER MAIN
WATER FROM INDEPENDENCE (N.T.S.)



C4 FILLING BOTH TOWERS FROM NORTH 12" WATER MAIN
WATER FROM TRI-COUNTY (N.T.S.)

CMT

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CELIA LAMPRECHT
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MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

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SHEET TITLE

PROCESS FLOW DIAGRAM

C-103
SHEET 5 OF 15

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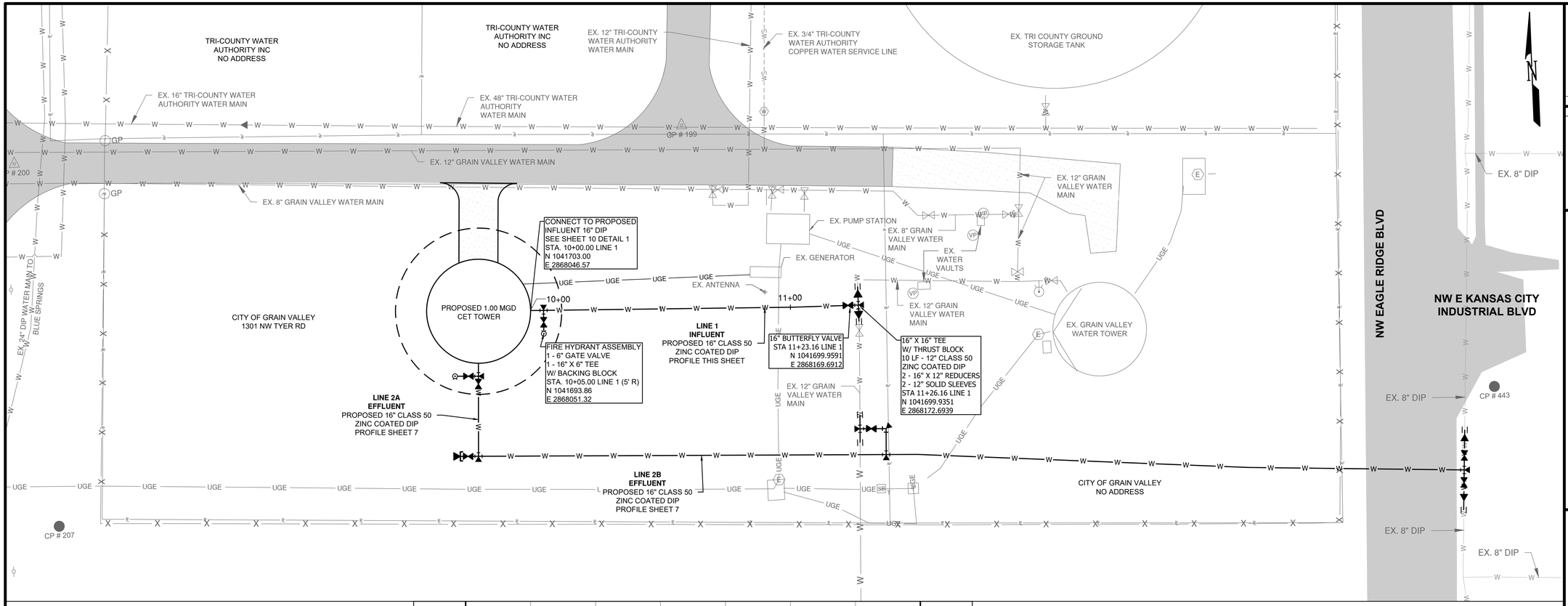
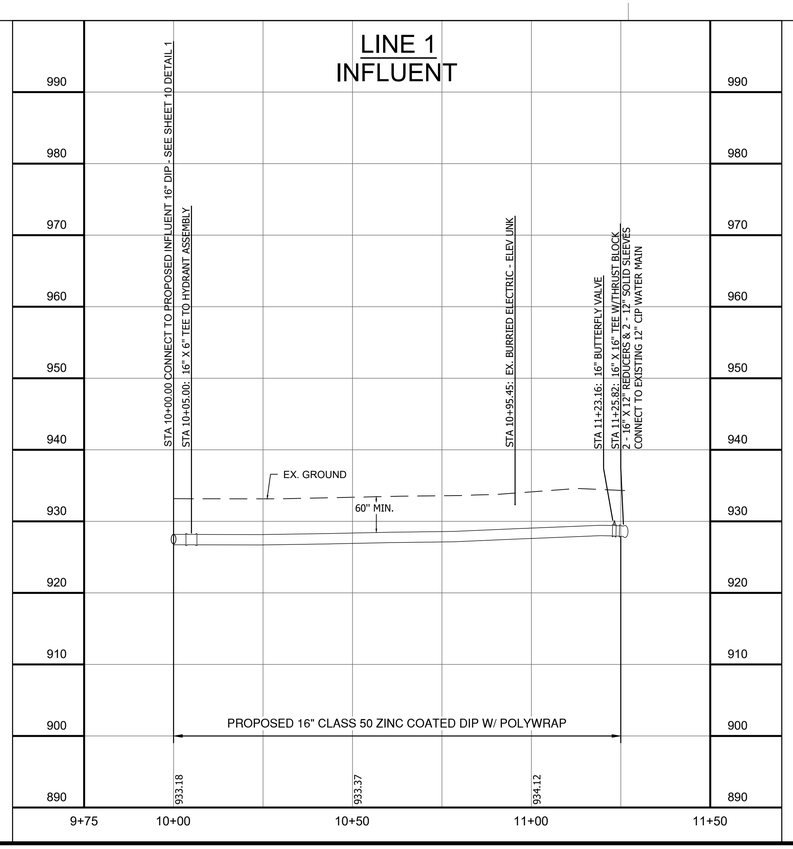
Date: Wednesday, March 5, 2025 11:31:41 AM





CMT

HOR. 10 0 10 20 SCALE IN FEET

VERT. 5 0 5 10 SCALE IN FEET

STATE OF MISSOURI
CELIA LAMPRECHT
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3/5/2025
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MARCH 2025

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GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

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SHEET TITLE

LINE 1 - PROPOSED INFLUENT 16" DIP

C-201

SHEET 6 OF 15

Path: J:\grainvalley\23005898-00_watertowerupgrade\Draw\Sheets\C-101.dwg
Date: Wednesday, March 5, 2025 11:31:43 AM

TRI-COUNTY WATER AUTHORITY INC NO ADDRESS

TRI-COUNTY WATER AUTHORITY INC NO ADDRESS

EX. 12" TRI-COUNTY WATER AUTHORITY WATER MAIN

EX. 3/4" TRI-COUNTY WATER AUTHORITY COPPER WATER SERVICE LINE

EX. TRI COUNTY GROUND STORAGE TANK

EX. 16" TRI-COUNTY WATER AUTHORITY WATER MAIN

EX. 48" TRI-COUNTY WATER AUTHORITY WATER MAIN

EX. 12" GRAIN VALLEY WATER MAIN

EX. 8" GRAIN VALLEY WATER MAIN

EX. 12" GRAIN VALLEY WATER MAIN

EX. PUMP STATION

EX. 8" GRAIN VALLEY WATER MAIN

EX. WATER VAULTS

EX. GENERATOR

EX. ANTENNA

EX. 12" GRAIN VALLEY WATER MAIN

EX. GRAIN VALLEY WATER TOWER

NW EAGLE RIDGE BLVD

NW E KANSAS CITY INDUSTRIAL BLVD

EX. 8" DIP

EX. 8" DIP

EX. 8" DIP

EX. 8" DIP

EX. 24" DIP WATER MAIN TO BLUE SPRINGS

CITY OF GRAIN VALLEY
1301 NW TYER RD

PROPOSED 1.00 MGD CET TOWER

CONNECT TO PROPOSED EFFLUENT 16" DIP
SEE SHEET 10 DETAIL 2
STA 10+00.00 LINE 2A
N 1041683.5813
E 2868025.6854

FIRE HYDRANT ASSEMBLY
1 - 6" GATE VALVE
1 - 16" X 6" TEE
W/ BACKING BLOCK
STA. 10+05.00 LINE 2A (5' R)
N 1041678.94
E 2868016.49

16" BUTTERFLY VALVE
STA 10+08.00 LINE 2A
N 1041675.5872
E 2868025.3676

16" X 16" TEE
W/ THRUST BLOCK
1 - 16" BUTTERFLY VALVE
1 - MJ PLUG
W/ THRUST BLOCK
LINE 2A STA 10+35.81
LINE 2B STA 10+00.00
N 1041647.7946
E 2868024.2629

LINE 1 INFLUENT
PROPOSED 16" CLASS 50 ZINC COATED DIP
PROFILE SHEET 6

LINE 2A EFFLUENT
PROPOSED 16" CLASS 50 ZINC COATED DIP
PROFILE SHEET 7

LINE 2B EFFLUENT
PROPOSED 16" CLASS 50 ZINC COATED DIP
PROFILE SHEET 7

12" X 12" TEE
W/ THRUST BLOCK
10 LF - 12" CLASS 50 ZINC COATED DIP
2 - 12" SOLID SLEEVES
1 - 12" GATE VALVE
20 LF - 12" CLASS 50 ZINC COATED DIP
RESTRAIN THROUGHOUT
1 - 12" 90° BEND
W/ THRUST BLOCK
N 1041652.36
E 2868171.40

16" X 12" TEE
W/ THRUST BLOCK
STA 11+57.11 LINE 2B
N 1041642.0204
E 2868181.2656

16" X 16" TEE W/ THRUST BLOCK
2 - 16" BUTTERFLY VALVES
2 - 16" X 8" REDUCERS
2 - 8" SOLID SLEEVES
STA 13+79.46 LINE 2B
N 1041626.9915
E 2868403.0845

CITY OF GRAIN VALLEY
NO ADDRESS

PROPOSED WATER MAIN TO REMAIN 10 FT FROM EXISTING TREE.

10+00 11+00 12+00 13+00

UGE W WS SS SB E VP GP

LINE 2A EFFLUENT

STA 10+00.00: CONNECT TO PROPOSED EFFLUENT 16" DIP - SEE SHEET 10 DETAIL 2
STA 10+05.00: 16" X 6" TEE TO HYDRANT ASSEMBLY
STA 10+08.00: 16" BUTTERFLY VALVE
LINE 2A 10+35.81: 16" X 16" TEE W/ THRUST BLOCK - ELEV 927.36
LINE 2B STA 10+00.00

60" MIN.

PROPOSED 16" CLASS 50 ZINC COATED DIP RESTRAIN THROUGHOUT W/ POLYWRAP

927.89

LINE 2B EFFLUENT

STA 9+86.00: MJ PLUG W/ THRUST BLOCK
STA 9+97.00: 16" BUTTERFLY VALVE
LINE 2B 10+00.00: 16" X 16" TEE W/ THRUST BLOCK - ELEV 927.36
LINE 2A STA 10+35.81
STA 11+15.51: EX. BURRIED ELECTRIC - ELEV UNK.
LINE 2B 11+57.11: 16" X 12" TEE W/ THRUST BLOCK - ELEV 927.81
LOOP CONNECTION TO EX. GRAIN VALLEY 12" DIP
STA 11+80.96: EX. BURRIED ELECTRIC - ELEV UNK.
LINE 2B 13+79.12: 16" X 16" TEE W/ THRUST BLOCK
2 - 16" BUTTERFLY VALVES, 2 - 16" X 8" REDUCERS, & 2 - 8" SOLID SLEEVES
CONNECT TO EXISTING 8" DIP WATER MAIN

60" MIN.

18" MIN.

PROPOSED 16" CLASS 50 ZINC COATED DIP W/ POLYWRAP

927.36 927.28 927.51 927.64 929.08 930.71 930.97 932.29

990 980 970 960 950 940 930 920 910 900 890

9+75 10+00 10+50 11+00 11+50 12+00 12+50 13+00 13+50 14+00

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Date: Wednesday, March 5, 2025 11:31:45 AM

CMT

HOR. 10 0 10 20 SCALE IN FEET

VERT. 5 0 5 10 SCALE IN FEET

STATE OF MISSOURI
CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
PROFESSIONAL ENGINEER

FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

PROJECT NO:	23005898.00
CAD DWG FILE:	C-101.DWG
DESIGNED BY:	CLL
DRAWN BY:	CLL
CHECKED BY:	JJ
APPROVED BY:	JJ
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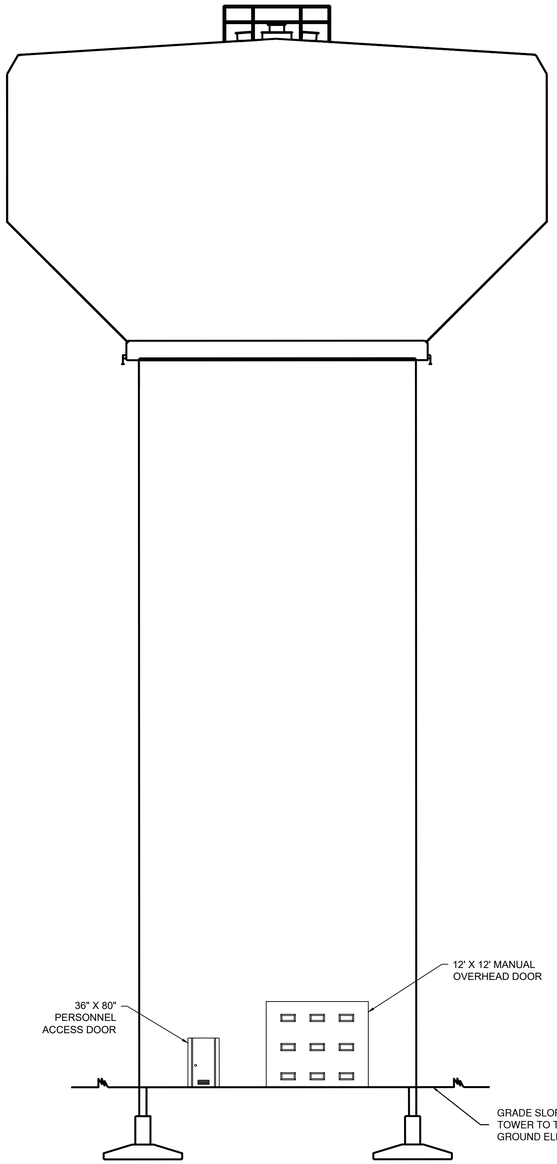
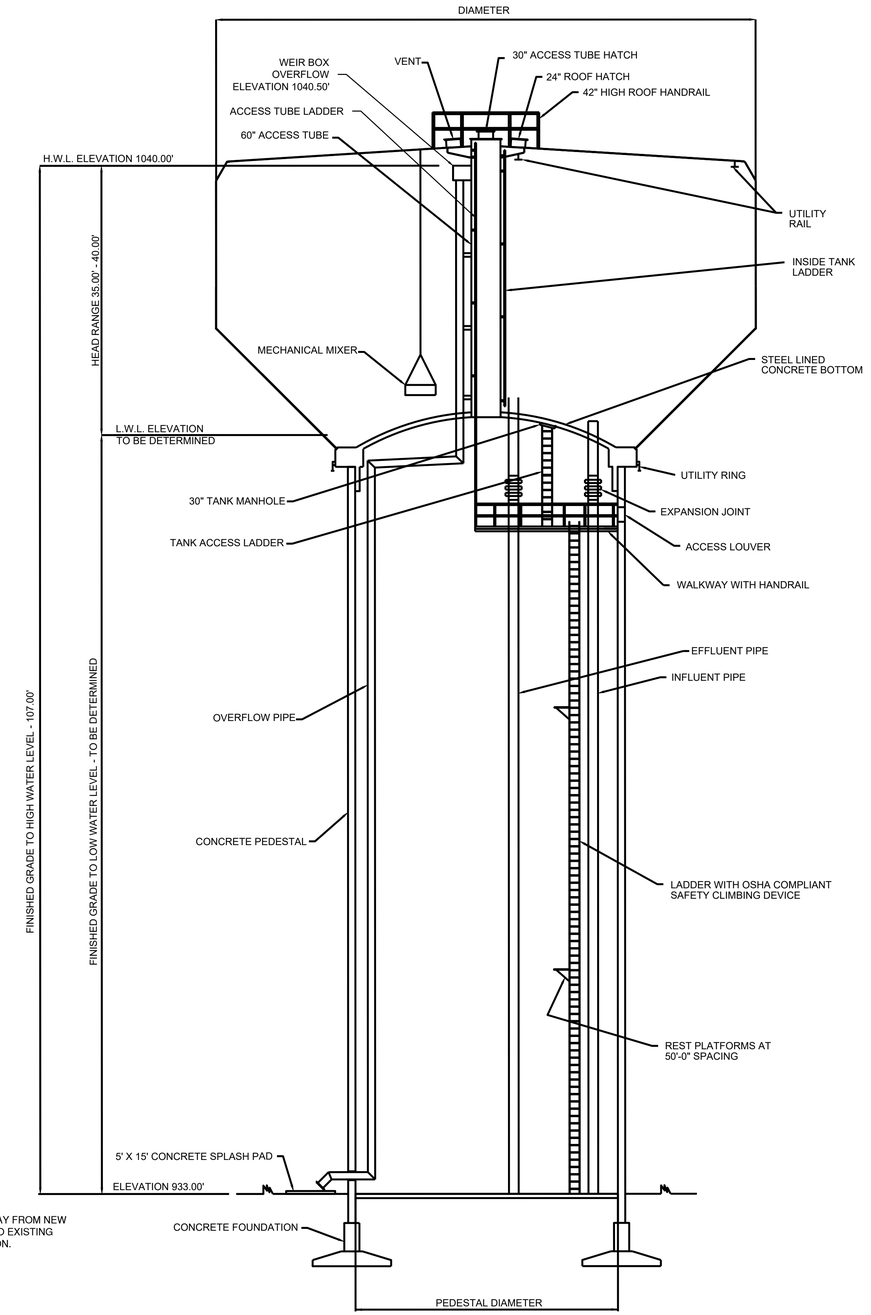
SHEET TITLE

LINE 2 - PROPOSED EFFLUENT 16" DIP

C-202
SHEET 7 OF 15





ELEVATION DETAIL

COMPOSITE ELEVATED TANK
STANDARD CAPACITIES

CAPACITY (U.S. GAL.)	HEAD RANGE (FEET)	TANK DIA. (FEET)	PEDESTAL DIA. (FEET)
1,000,000	35.0-40.0	68-74	38

NOTES:

DESIGN:

THE TANK AND CONCRETE SUPPORT PEDESTAL SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LATEST REVISIONS TO AWWA D100, AWWA D107, A.C.I. 318, A.C.I. 301 AND PROJECT SPECIFICATIONS.

WIND LOAD:_____
SNOW LOAD: _____

WIND AND SNOW LOAD TO BE DETERMINED BY STRUCTURAL ENGINEER FROM TANK MANUFACTURER.

THE EXTERIOR OF THE CONCRETE PEDESTAL SHALL INCORPORATE VERTICAL AND HORIZONTAL RUSTICATIONS TO CREATE AN ARCHITECTURAL PATTERN.

THE INTERIOR SURFACES SHALL HAVE A SMOOTH AS-CAST FINISH.

MATERIAL:

STEEL PLATE: ASTM A283 GR.C/A36 STRUCTURAL
STEEL SHAPES: ASTM A36
LADDER RUNGS: ASTM A706
PIPING: TYPE 10S STAINLESS STEEL

GENERAL:

1. HIGH WATER ELEVATION SHALL BE HELD AT 1040.00'.
2. ACCESSORIES SHOWN ON ELEVATION DRAWINGS ARE ROTATED FOR CLARITY.
3. ALL HANDRAILS, PLATFORM LANDINGS, WALKWAYS, LADDERS AND SAFETY CLIMB DEVICES SHALL CONFORM WITH CURRENT OSHA STANDARDS.
4. ALL LADDERS, LANDINGS AND ASSOCIATED COMPONENTS INSTALLED INSIDE THE CONCRETE PEDESTAL SHALL BE HOT-DIP GALVANIZED.
5. SEE PROJECT SPECIFICATIONS FOR SHOP AND FIELD PAINT REQUIREMENTS FOR THE STEEL TANK.
6. PROTECT WORK OF OTHER TRADES, WEATHER TO BE PAINTED ON OR NOT, AGAINST DAMAGE BY PAINTING AND FINISHING WORK. CORRECT DAMAGES BY CLEANING, REPAIRING OR REPLACING AND REPAINTING AS DIRECTED BY THE CITY.
7. DISINFECT TANK IN ACCORDANCE WITH AWWA C652-92 AND PROJECT SPECIFICATIONS.
8. LADDERS SHALL HAVE REST PLATFORMS AT 50'-0" MAXIMUM SPACING.
9. FOR TANKS LOCATED IN REGIONS WHERE FREEZING CONDITIONS MAY OCCUR, CONSIDERATION SHALL BE MADE TO ROUTE OVERFLOW PIPE INSIDE ACCESS TUBE AND OMIT INSIDE TANK LADDER.
10. CONCRETE SUPPORT PEDESTAL DIAMETER AND DIMENSIONS OF FOUNDATION SHALL BE DETERMINED BY THE TANK CONTRACTOR BASED UPON THE SOIL BEARING SPECIFIED AND THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT.

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STATE OF MISSOURI
CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
PROFESSIONAL ENGINEER

FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

PROJECT NO:	23005898.00
CAD DWG FILE:	D-101.DWG
DESIGNED BY:	CLL
DRAWN BY:	CLL
CHECKED BY:	JJ
APPROVED BY:	JJ
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SHEET TITLE

ELEVATION DETAIL

C-301
SHEET 8 OF 15

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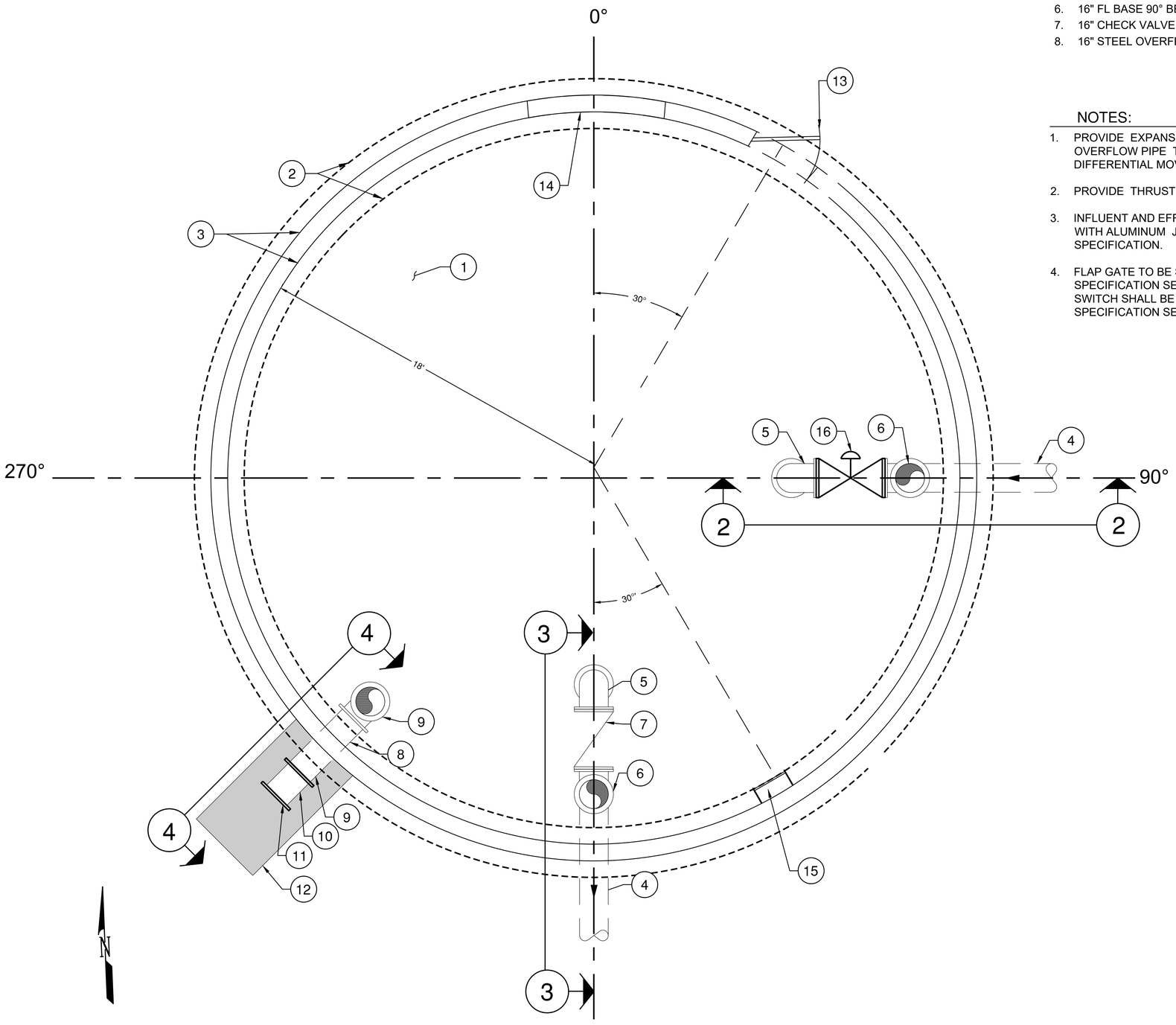
Date: Wednesday, March 5, 2025 11:31:54 AM

1 DETAIL NOMENCLATURE

1. TANK PEDESTAL BASE SLAB
2. TANK PEDESTAL FOUNDATION
3. TANK PEDESTAL WALL
4. 16" DIP
5. 16" FL 90° BEND
6. 16" FL BASE 90° BEND
7. 16" CHECK VALVE
8. 16" STEEL OVERFLOW PIPE
9. 16" STEEL BASE 90° BEND
10. 16" STEEL 45° BEND
11. 16" FLAP VALVE
12. 5' X 15' CONCRETE SPLASH PAD
13. 36" X 84" PERSONAL ACCESS DOOR
14. 12' X 12' MANUAL OVERHEAD DOOR
15. LADDER (BY TANK MANUFACTURER)
16. 16" CONTROL VALVE

NOTES:

1. PROVIDE EXPANSION JOINT ON INFLUENT, EFFLUENT, AND OVERFLOW PIPE TO ACCOMMODATE MAXIMUM POTENTIAL DIFFERENTIAL MOVEMENT.
2. PROVIDE THRUST RESTRAINT AND SUPPORT AS REQUIRED.
3. INFLUENT AND EFFLUENT PIPE TO BE INSULATED AND CLAD WITH ALUMINUM JACKET FOR FREEZE PROTECTION. SEE SPECIFICATION.
4. FLAP GATE TO BE SERIES A-611 BY RODNEY HUNT OR EQUAL. SEE SPECIFICATION SECTION 40 05 53 FOR ADDITIONAL DETAILS. A LIMIT SWITCH SHALL BE PROVIDED. INSTALL LIMIT SWITCH PER SPECIFICATION SECTION 40 05 53.



1 180° PLAN VIEW

3/8" = 1' - 0"

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CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
PROFESSIONAL ENGINEER

FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

PROJECT NO:	23005898.00
CAD DWG FILE:	C-302.DWG
DESIGNED BY:	CLL
DRAWN BY:	CLL
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SHEET TITLE

BASE PLAN

C-303

SHEET 9 OF 15

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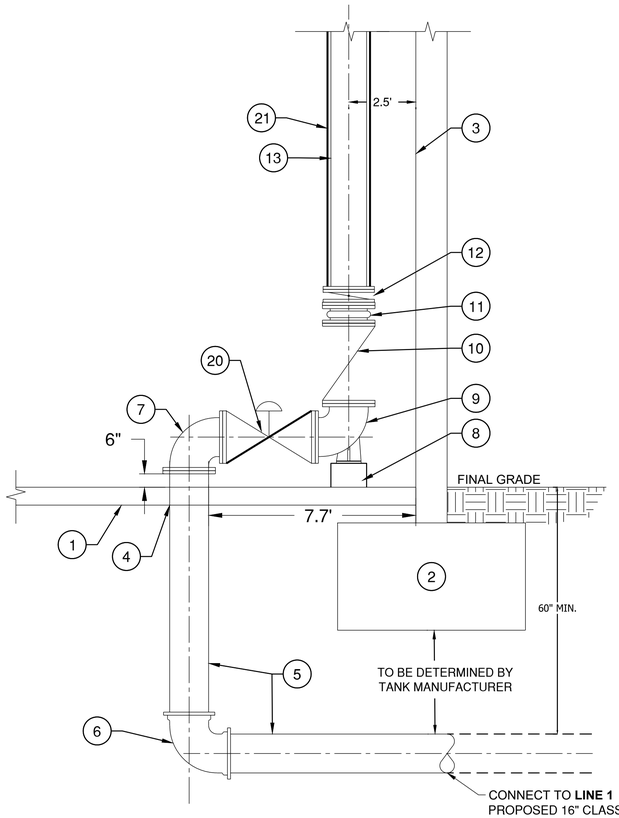
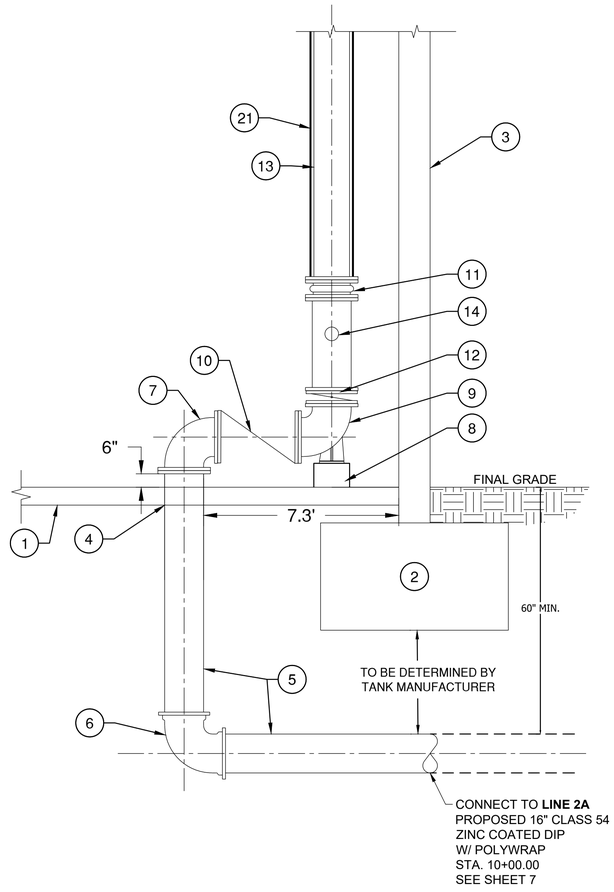


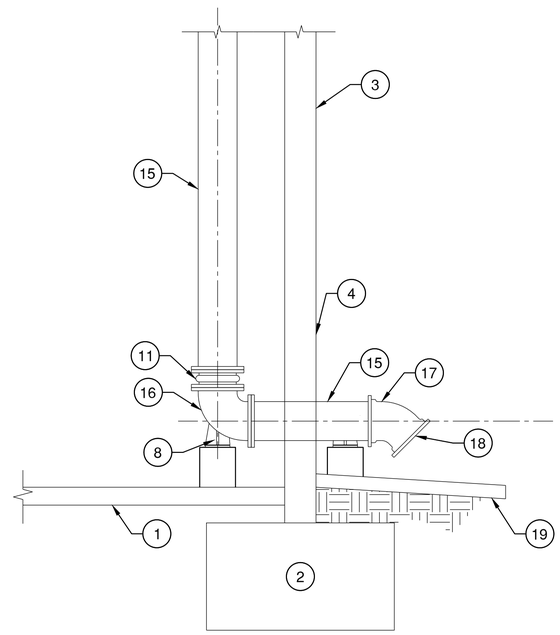
1 PROPOSED INFLUENT 16" DIP SECTION

3/8" = 1' - 0" RESTRAIN THROUGHOUT



2 PROPOSED EFFLUENT 16" DIP SECTION

3/8" = 1' - 0" RESTRAIN THROUGHOUT



3 OVERFLOW SECTION

3/8" = 1' - 0"

DETAIL NOMENCLATURE

1. TANK PEDESTAL BASE SLAB
2. TANK PEDESTAL FOUNDATION
3. TANK PEDESTAL WALL
4. WALL AND FLOOR PENETRATION (SEE DETAILS 1 & 5 SHEET 11)
5. 16" DIP W/ POLYWRAP
6. 16" MJ 90° BEND
7. 16" FL 90° BEND
8. CONCRETE SUPPORT BASE (SEE DETAIL 4 SHEET 11)
9. 16" FL BASE 90° BEND
10. 16" CHECK VALVE
11. 16" EXPANSION JOINT
12. 16" BUTTERFLY VALVE
13. 16" STEEL PIPE (SEE NOTE 3)
14. PRESSURE GAUGE AND TRANSDUCER
15. 16" STEEL OVERFLOW PIPE (SEE NOTE 4)
16. 16" STEEL BASE 90° BEND
17. 16" STEEL 45° BEND
18. 16" FLAP VALVE (SEE NOTE 5)
19. 5' X 15' CONCRETE SPLASH PAD
20. 16" CONTROL VALVE
21. 1" INSULATION W/ ALUMINUM JACKET

NOTES:

1. PROVIDE EXPANSION JOINT ON INFLUENT, EFFLUENT, AND OVERFLOW PIPE TO ACCOMMODATE MAXIMUM POTENTIAL DIFFERENTIAL MOVEMENT.
2. PROVIDE THRUST RESTRAINT AND SUPPORT AS REQUIRED.
3. INFLUENT AND EFFLUENT PIPE TO BE INSULATED AND CLAD WITH ALUMINUM JACKET WHERE REQUIRED FOR FREEZE PROTECTION IN THE PORTION FROM THE GROUND LEVEL TO THE BOTTOM OF THE BOWL. SEE SPECIFICATION 40 05 24 - FABRICATED WELDED STEEL PIPE AND FITTINGS.
4. THE OVERFLOW PIPE SHALL PENETRATE THE SUPPORT WALL APPROXIMATELY 1FT ABOVE GRADE PER SPECIFICATION SECTION 13 21 10.
5. FLAP VALVE TO BE SERIES A-611 BY RODNEY HUNT OR EQUAL. SEE SPECIFICATION SECTION 40 05 53 FOR ADDITIONAL DETAILS. A LIMIT SWITCH SHALL BE PROVIDED. INSTALL LIMIT SWITCH PER SPECIFICATION SECTION 40 05 53.

CMT

STATE OF MISSOURI
CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
PROFESSIONAL ENGINEER

FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

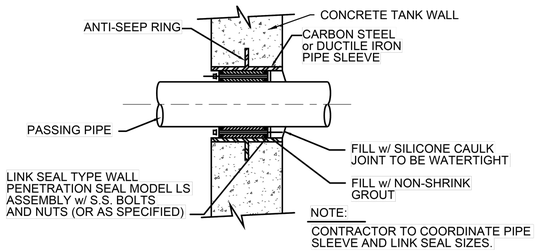
PROJECT NO:	23005898.00
CAD DWG FILE:	C-302.DWG
DESIGNED BY:	CLL
DRAWN BY:	CLL
CHECKED BY:	JJ
APPROVED BY:	JJ

SHEET TITLE

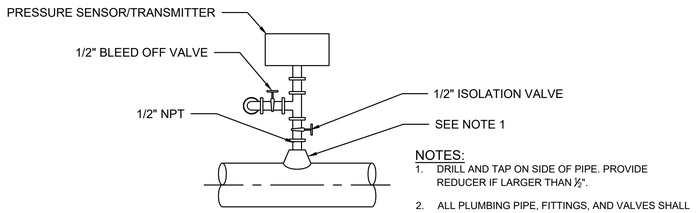
PIPE SECTION VIEW

C-302

SHEET 10 OF 15

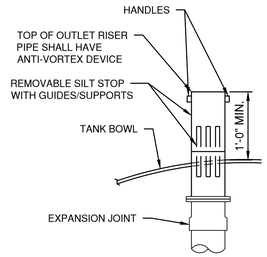


1 WALL PENETRATION DETAIL
NTS

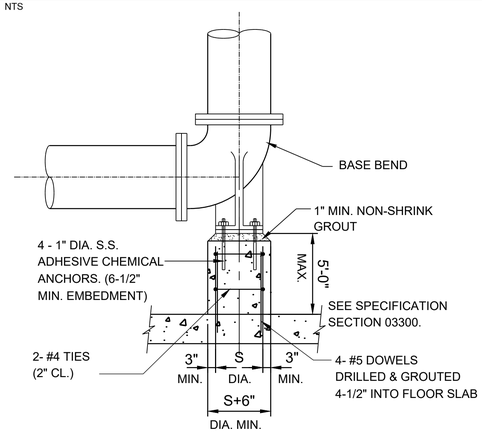


NOTES:
1. DRILL AND TAP ON SIDE OF PIPE. PROVIDE REDUCER IF LARGER THAN ½".
2. ALL PLUMBING PIPE, FITTINGS, AND VALVES SHALL BE STAINLESS STEEL.

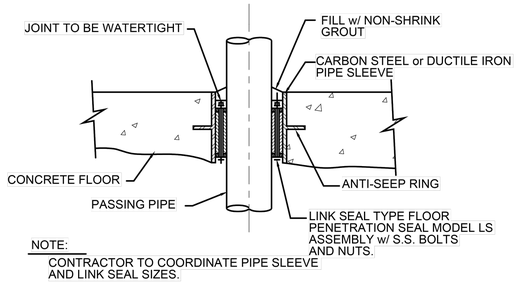
2 PRESSURE MEASURING TAP SCHEMATIC
NTS



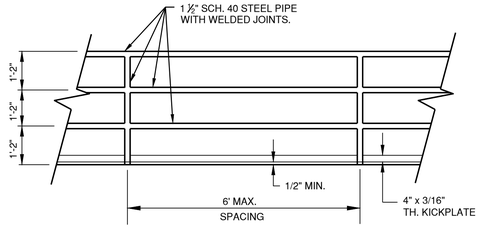
3 EFFLUENT RISER PIPE DETAIL
NTS



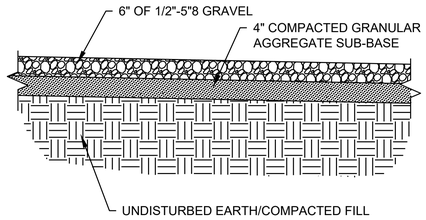
4 CONCRETE BASE DETAIL
N.T.S.



5 FLOOR PENETRATION DETAIL
NTS



6 HANDRAIL DETAIL
N.T.S.



AGGREGATE SUBBASE NOTES

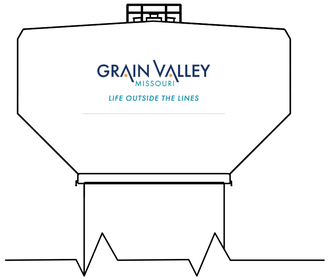
AGGREGATE FOR SUB-BASE SHALL BE ESSENTIALLY LIMESTONE OR DOLOMITE. THE AGGREGATE SHALL NOT CONTAIN MORE THAN 15 PERCENT DELETERIOUS ROCK AND SHALE. SAND MAY BE ADDED ONLY FOR THE PURPOSE OF REDUCING THE PLASTICITY INDEX OF THE FRACTION PASSING THE NO. 40 SIEVE IN THE FINISHED PRODUCT. ANY SAND, SILT AND CLAY AND ANY DELETERIOUS ROCK AND SHALE SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT THE MATERIAL. THE FRACTION PASSING THE NO. 40 SIEVE SHALL HAVE A MAXIMUM PLASTICITY INDEX OF SIX (6).

THE AGGREGATE SHALL BE IN ACCORDANCE WITH THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE	PERCENT BY WEIGHT
PASSING 1-INCH	100
PASSING 1/2-INCH	60-90
PASSING NO. 4	35-60
PASSING NO. 30	10-35

NOTES:
1. FINAL DRIVEWAY LOCATION TO BE DETERMINED BY CITY.
2. GRADE TO SLOPE AWAY FROM NEW TOWER AND TIE INTO EXISTING GROUND ELEVATION.

7 GRAVEL PARKING PAVEMENT SECTION DETAIL
N.T.S.



NOTES:
1. LOGO SHALL BE PAINTED IN ONE LOCATION ON THE SOUTH SIDE OF THE TANK. THE DESIGN AND LETTERING IS ATTACHED IN THE TECHNICAL SPECIFICATIONS IN APPENDIX E - CITY OF GRAIN VALLEY LOGO AND COLOR PALLET. THE MINIMUM HEIGHT OF THE LOGO SHOULD BE 20 FEET AND SHOULD BE CENTERED ON THE TANK. TANK MANUFACTURER TO RECOMMEND APPROPRIATE SIZE OF LOGO WHICH WILL BE APPROVED BY OWNER/ENGINEER DURING CONSTRUCTION AND PRIOR TO PAINTING.

8 TANK LOGO DETAIL
NTS

CMT

FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY
MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

PROJECT NO:	23005898.00
CAD DWG FILE:	D-103.DWG
DESIGNED BY:	CLL
DRAWN BY:	CLL
CHECKED BY:	JJ
APPROVED BY:	JJ

SHEET TITLE

DETAILS

D-501
SHEET 11 OF 15

Path: J:\grainvalley\23005898-00_watertowerupgrade\Draw\Sheets\D-103.dwg
Date: Wednesday, March 5, 2025 12:30:34 PM

GENERAL NOTES

1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 (CURRENT LOCAL VERSION IN FORCE), THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATION WHICH VOID THE U.L. LISTINGS (OR THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE SHALL NOT BE PERMITTED.

2. THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT, OR COMPLETE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THE FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.

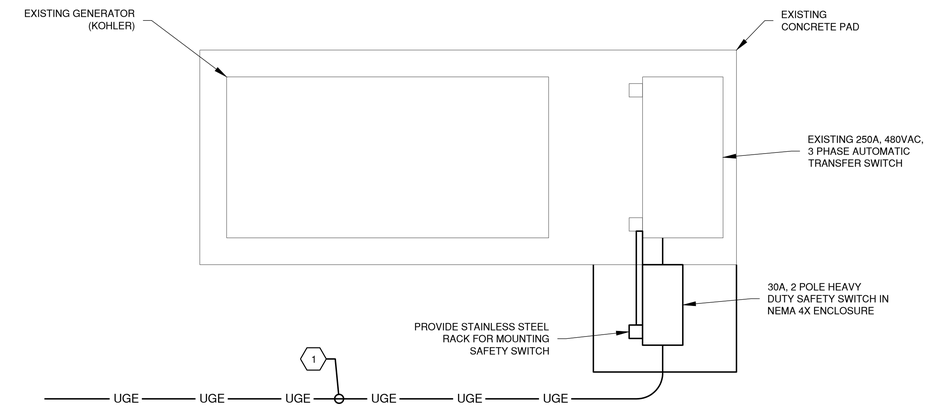
3. CONTRACTOR SHALL REPLACE ANY DISTURBED EARTH, SIDEWALKS, OR PAVEMENT STRUCTURES IN KIND TO THE SATISFACTION OF THE OWNER.

4. THE CONTRACTOR SHALL USE MICROCOM CONTACT: TRACY EWBANK ((913) 669-3400) FOR TERMINATION OF CONTROL SIGNALS IN EXISTING MICROCOM ENCLOSURE AND INTEGRATION OF THOSE SIGNALS.

KEYED NOTES

1. 3 - #8 AWG, 1 - #8 GND IN 1" CONDUIT FROM SAFETY SWITCH TO MINI POWER CENTER.

2. 1 - 3/C TWISTED SHIELDED PAIR (PRESSURE SENSOR), 2 - #12 AWG (DOOR LIMIT SWITCH), 2 - #12 AWG (OVERFLOW SWITCH), 2 - #12 AWG (MIXER ON/OFF CONTROL), 1 - 3/C TWISTED SHIELDED PAIR (MIXER CURRENT) IN 2" CONDUIT AND 2 - #12 AWG (SOLENOID VALVE), 2 - #12 AWG (SOLENOID VALVE), 1 - 2/C TSP (POSITION), 4 - #12 AWG (SPARE) IN 2" CONDUIT TO MICROCOM ENCLOSURE IN EXISTING PUMP STATION. INCLUDE ONE 2" CONDUIT SPARE WITH PULL STRING.



1 ENLARGED VIEW
N.T.S.

LEGEND

- UGE — PROP. UNDERGROUND ELECTRIC
- UGE — EXIST. UNDERGROUND ELECTRIC
- X — FENCE
- PROPERTY LINE

N

0 20 40

CMT

STATE OF MISSOURI
CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
PROFESSIONAL ENGINEER

FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

PROJECT NO:	23005898.00
CAD DWG FILE:	13 ELECTRICAL SITE PLAN.DWG
DESIGNED BY:	JRV
DRAWN BY:	JRV
CHECKED BY:	LDW
APPROVED BY:	JJ
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SHEET TITLE

ELECTRICAL SITE PLAN

E-101
SHEET 12 OF 15

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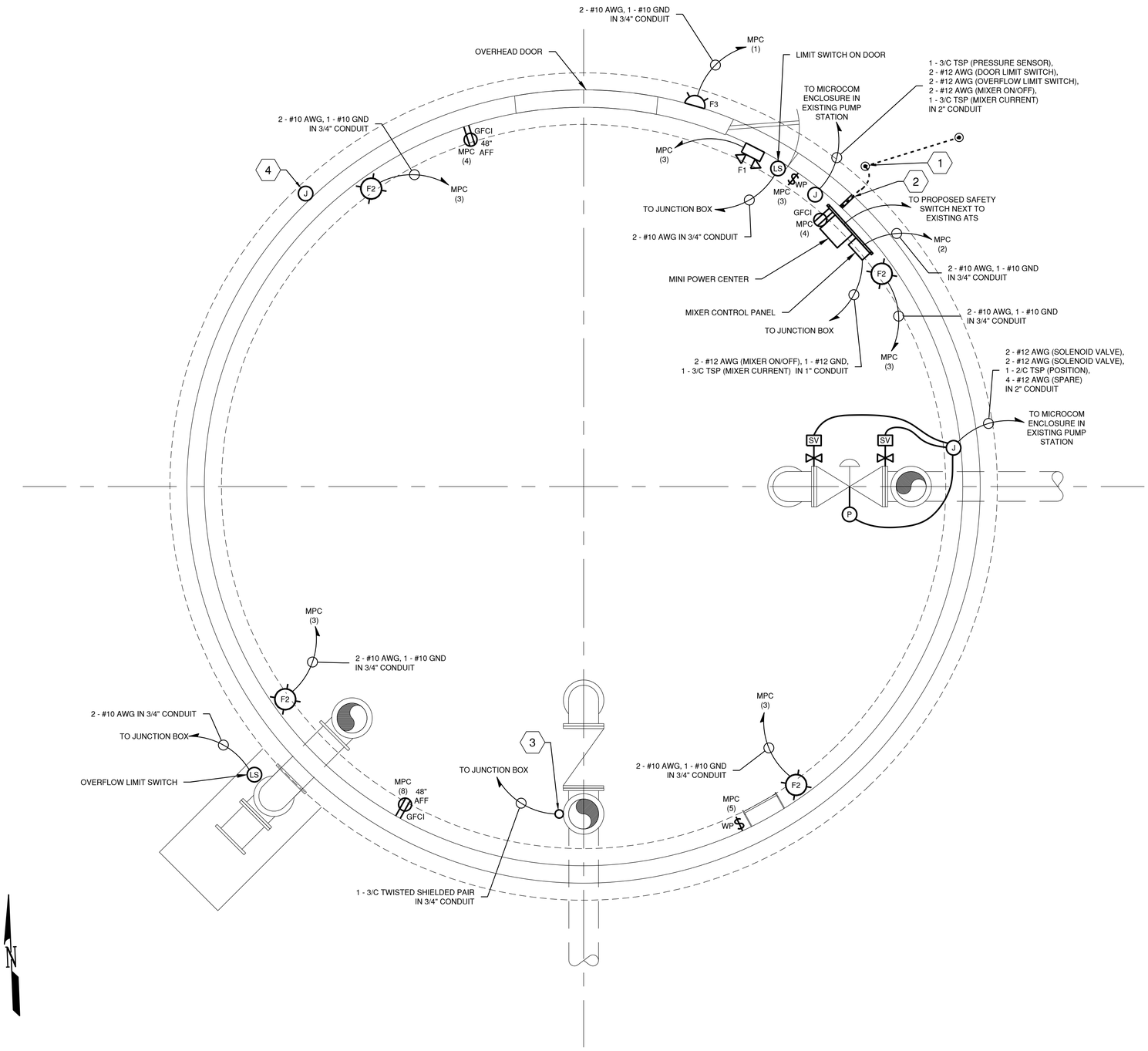
Date: Wednesday, March 5, 2025, 11:32:22 AM



1 ELECTRICAL PLAN - ELEVATED TANK

3/8" = 1' - 0"

GENERAL NOTES

1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 (CURRENT LOCAL VERSION IN FORCE), THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES AND REQUIREMENTS IN FORCE. ANY INSTALLATION WHICH VOID THE U.L. LISTINGS (OR THIRD-PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE SHALL NOT BE PERMITTED.
2. THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THE FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.
3. ALL CONDUIT INTERIOR AND EXTERIOR ABOVE GRADE SHALL BE RIGID ALUMINUM. ALL CONDUIT BELOW GRADE AND/OR IN CONTACT WITH CONCRETE SHALL BE SCHEDULE 40 PVC TYPE.

KEYED NOTES

1. 3/4" BY 10' COPPER CLAD GROUND ROD, BURIED MIN 12" BELOW GRADE IN UNDISTURBED EARTH WITH EXOTHERMIC WELD AND CONNECTION OF #8 AWG BARE SOLID COPPER WIRE AND TANK GROUND CONDUCTOR.
2. SLEEVE FOR GROUND CONDUCTOR TO WELD TO GROUND ROD.
3. PRESSURE TRANSDUCER MICROCOM L5A TAP PIPE WITH CORP STOP TO 1/4" WITH "T" AND GAUGE THEN PROVIDE VALVE FOR TRANSDUCER.
4. EXTERIOR JUNCTION BOX MOUNTED 12FT ABOVE FINISHED GRADE FOR FUTURE CCTV ON OUTSIDE OF TANK. PROVIDE CONDUIT FROM JUNCTION BOX TO INSIDE TOWER TO 4FT ABOVE FINISHED FLOOR.

CMT

STATE OF MISSOURI
CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
PROFESSIONAL ENGINEER

FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

PROJECT NO:	23005898.00
CAD DWG FILE:	14 ELECTRICAL PLAN - ELEVATED TANK.DWG
DESIGNED BY:	JRV
DRAWN BY:	JRV
CHECKED BY:	LDW
APPROVED BY:	JJ
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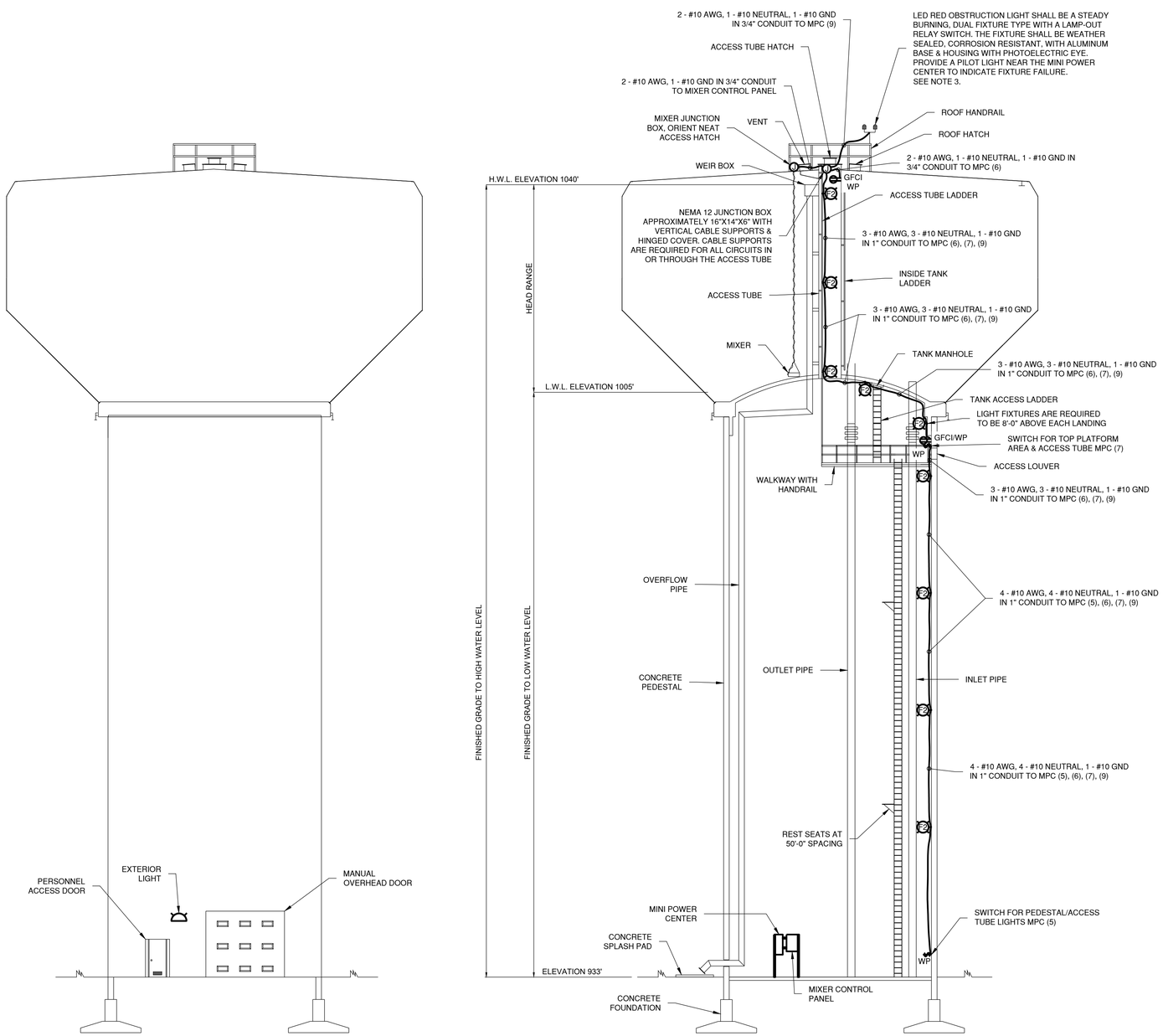
SHEET TITLE

ELECTRICAL PLAN - ELEVATED TANK

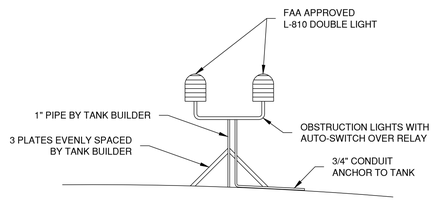
E-102

SHEET 13 OF 15

Path: J:\grainvalley\23005898.00_watertowerupgrade\Draw\Sheets\14 ELECTRICAL PLAN - ELEVATED TANK.dwg
Date: Wednesday, March 5, 2025 11:32:25 AM



1 ELECTRICAL PLAN - ELEVATED TANK
N.T.S.



2 OBSTRUCTION LIGHT DETAIL
N.T.S.

GENERAL NOTES

1. LIGHTS IN ACCESS TUBE AND PEDESTAL SHAFT TO BE EQUALLY SPACED AS DETAILED.
2. TANK BASE DIAMETER WILL VARY BASED DEPENDING ON TANK CAPACITY AND MANUFACTURER. ADJUST CONDUIT, WIRE, ETC. AS REQUIRED.
3. OBSTRUCTION LIGHT PER FAA ADVISORY CIRCULAR 70/7460-1M SECTION 3.7, AND 4.3.4, AND DETERMINATION LETTER ISSUED 1/15/2025.

CMT

SEAL OF MISSOURI
CELIA LAMPRECHT
NUMBER PE-2024003378
3/5/2025
PROFESSIONAL ENGINEER

FINAL CONSTRUCTION PLANS
MARCH 2025

WATER TOWER UPGRADE

GRAIN VALLEY MISSOURI
LIFE OUTSIDE THE LINES

MARK	DATE	DESCRIPTION

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SHEET TITLE

ELECTRICAL PLAN - ELEVATED TANK

E-103
SHEET 14 OF 15

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Date: Wednesday, March 5, 2025 11:52:29 AM

PANELBOARD SCHEDULE

PANEL DESIGNATION: **MPC**
LOCATION: **ELEVATED TANK**
MFR & TYPE: **EATON, SQ D, GE**

BOND NEUTRAL AND GROUND BAR: **NO**
NEUTRAL BUS RATING: **100%**
SERVICE ENTRANCE RATED: **NO**

POLE: **24**
SHORT CIRCUIT RATING: **18KA**
SERIES OR FULLY RATED: **FULLY**
SPD & DISCONNECT REQUIRED: **NO**

VOLTS: **208Y/120V**
PHASE: **3**
WIRE: **4**

MOUNTING: **SURFACE**
ENCL RATING: **NEMA 1**

BUS: **COPPER; SILVER OR TIN PLATED**
PRI. CIRCUIT BREAKER: **30/3**
SEC. CIRCUIT BREAKER: **60/3**

CKT NO.	LOAD	BREAKER SIZE	LOAD AMPS	USAGE FACTOR	PHASE AMPS (USAGE) A	B	C	POLE NO.		PHASE AMPS (USAGE) A	B	C	USAGE FACTOR	LOAD AMPS	BREAKER SIZE	LOAD	CKT NO.
1	EXTERIOR LIGHT	20/1	1	0.5	0.5			1	2	1.5			1	1.5	20/1	MIXER CONTROL PANEL	2
3	BASE LIGHTS	20/1	1	1		1		3	4		1.5		0.5	3	20/1	BASE RECEPTACLE	4
5	PEDESTAL/ACCESS TUBE LIGHTS	20/1	1	1			1	5	6			1.5	0.5	3	20/1	PEDESTAL/ACCESS TUBE RECEPTACLES	6
7	ACCESS TUBE LIGHTS	20/1	1	1	1			7	8	0.75			0.5	1.5	20/1	BASE RECEPTACLE	8
9	OBSTRUCTION LIGHTS	20/1	0.25	1		0.25		9	10		0				20/1	SPARE	10
11	SPARE	20/1					0	11	12			0			20/1	SPARE	12
13	SPARE	20/1			0			13	14	0					20/1	SPARE	14
15	SPARE	20/1				0		15	16		0				20/1	SPARE	16
17	SPARE	20/1					0	17	18			0			20/1	SPARE	18
19	SPARE	20/1			0			19	20	0							20
21	SPARE	20/1				0		21	22		0				30/3	SPD	22
23	SPARE	20/1					0	23	24			0					24
	SECTION TOTAL:				1.5	1.25	1			2.25	1.5	1.5					

	A	B	C
PHASE TOTAL AMPS:	3.75	2.75	2.5
PHASE TOTAL VA:	450	330	300

MINIMUM MAIN CIRCUIT BREAKER AMPS: 5

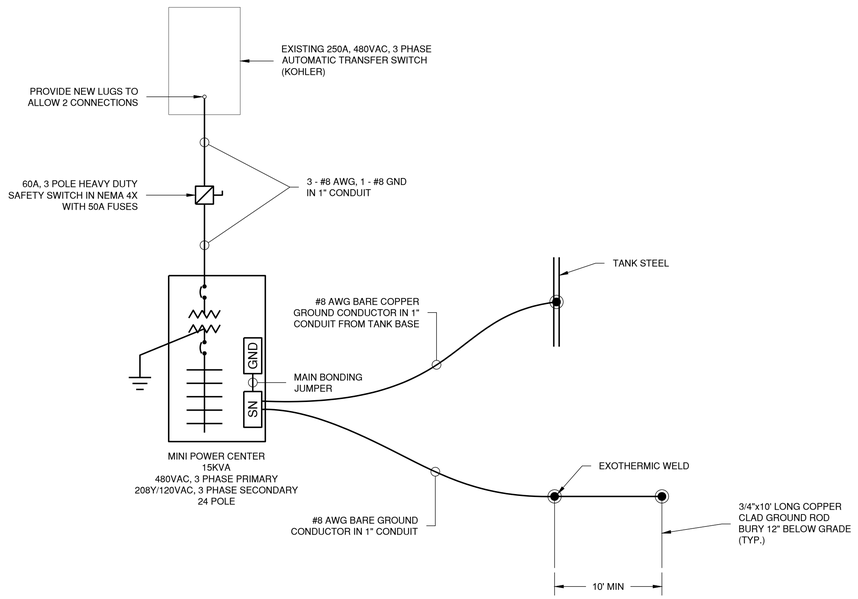
TOTAL USAGE LOAD: 1080 VA

MIN. XFMR VA: 1350 VA

NOTES:

LIGHT FIXTURE SCHEDULE

FIXTURE NO.	DESCRIPTION	MANUFACTURER	CATALOG MODEL NO.	LAMP	LOCATION & MOUNTING
F1	EGRESS LIGHT, 2-HEAD LED FIXTURES WITH EMERGNECY BATTERY SYSTEM, 120-277V	LITHONIA	ELM4L	LED	WALL MOUNT NEAR EXIT APPROX. 8FT TO 9FT ABOVE FLOOR
		MULE LIGHTING	R-16-HO-LED		
		LIGHT ALARMS	LCA-2RHL-ID		
F2	LED VAPORTIGHT FIXTURE, 4000K COLOR TEMPERATURE, 120-277V	LITHONIA	OLVTWM	LED	RIGHT SIDE OF LADDER IN PEDESTAL SHAFT & RISER TUBE, PLATFORM AREAS & TANK BASE: WALL MOUNT HORIZONTALLY. BASE FIXTURES TO BE MOUNTED 8FT ABOVE FLOOR
		MAX LITE	JJ-W-14-U-50		
		STONCO	VWXL-14-NW-G1-8		
F3	WALL PACK, 3200 LUMENS, 4000K COLOR TEMPERATURE, TYPE III DISTRIBUTION, 120-277V, PHOTOCELL, DARK BRONZE IN COLOR	LITHONIA	TWH LED-P1-40K-T3M-MVOLT-PER-DDBXD	LED	10FT ABOVE GRADE ON OUTSIDE TANK WALL FOR SECURITY LIGHTING
		LEDALUX	MWP08-30-27V-40K-D-P0		
		STONCO	WP-30-NW-G1-PCB-8-BZ		



1 ELECTRICAL ONE-LINE
N.T.S.

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WATER TOWER UPGRADE

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SHEET TITLE

ELECTRICAL DETAILS

E-501
SHEET 15 OF 15

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